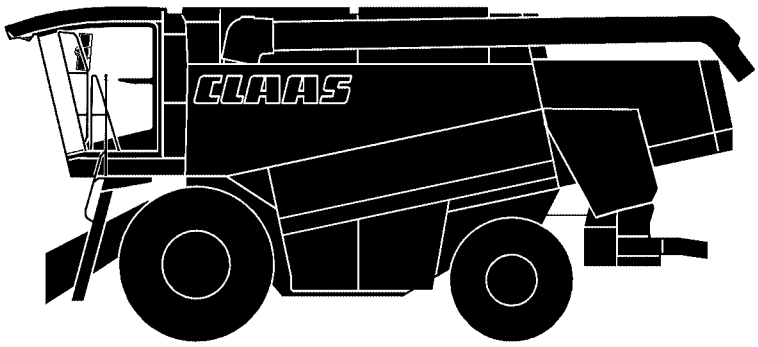
REPAIR MANUAL

CLAAS



LEXION 480

Read and follow safety instructions!

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1
General information

GENERAL

Introduction

This CLAAS REPAIR MANUAL is to assist in preserving the permanent working order and therefore the high value of your CLAAS combine-harvester by careful maintenance and service.

Experience gathered by both our service engineers and factory staff has been compiled in this REPAIR MANUAL.

The figures explain the procedure of repairs and the text describes the different adjustments to be made, the use of CLAAS special tools etc.

The illustrations included in support to the explanations show the sequence of major repairs so that minor repairs can easily be followed.

The CLAAS REPAIR MANUAL is filled in a folder which allows to insert supplementary pages as issued following technical developments and to always have an updated manual at hand for reference.

To be sure, always compare settings and filling capacities with specifications stated in the current Operator's Manual which applies to the combine-harvester.

CLAAS KGaA mbH
Service Department

Introduction to the CLAAS Repair Manual

The CLAAS REPAIR MANUAL is divided into main groups and subgroups.

The first figure at the bottom of each page refers to the main group whereas the second figure following the point indicates the subgroup; the figure behind the second point indicates the page number. In each subgroup, the figures and pages are numbered consecutively, starting at 1.

Where differences between the machine types must be observed, this is indicated in headings. Where a service procedure applies to all machines covered by this book, the machine names are not specifically given.

When supplements are to be added, the subgroups are supplemented or exchanged. Any possible supplements are filed in the respective main group / subgroup and the table of contents is updated and replaced.

The symbols communicate brief messages when recurring service procedures are described. Their meaning is explained at the beginning of this manual.

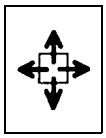
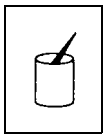
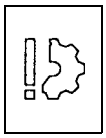
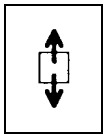
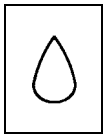
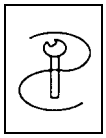
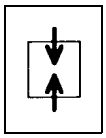
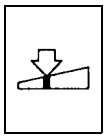
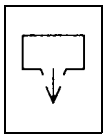
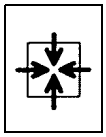
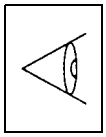
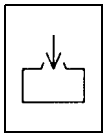
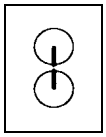
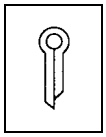
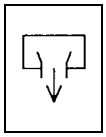
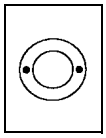
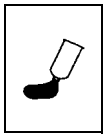
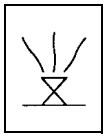
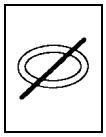
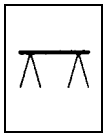
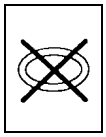
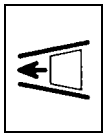
The section “GENERAL REPAIR INSTRUCTIONS” at the beginning of this manual contains useful practical hints. Read and follow these fundamental instructions. They are the basis for reliable service and durability of parts after repairs have been carried out.

The description of a particular service procedure can easily be found by checking the table of contents of the appropriate main group / subgroup.

Key to symbols

This CLAAS REPAIR MANUAL uses some symbols as defined in the “DIN 30600 Symbol summary” by the German Standardisation Institute.

The meaning of these symbols will be easily recognised and remembered by the user. These symbols are to help to quickly recognise recurring service procedures and they also help to communicate information shown on the illustrations.

 Dismantle, remove	 Grease	 Prevent damage to materials
 Disassemble	 Oil	 Use special tool
 Assemble	 Adjust / set	 Drain, outlet
 Install, mount on	 Check visually	 Fill, filler opening
 Mark	 Unlock, release, secure	 Overflow
 Balance	 Lock by means of liquids, glue, seal	 Bleed
 Possibly reusable	 Underprop, support	
 Renew on each assembly	 Observe direction of installation	

SAFETY RULES

Important notice

The instructions contained in this manual should be carefully read and observed by all persons involved with the operation, maintenance and inspection of this machine in order to prevent accidents. In particular, read the section “Safety rules”.

The use of spare parts, accessories and ancillary equipment other than genuine CLAAS products or those which have been tested and approved by CLAAS, may change the specified design characteristics of this CLAAS machine or detract from its functional performance, with a possible adverse effect on the active and/or passive operational safety of the machine and its occupational safety standards (accident prevention).

CLAAS is in no way liable for any damage or personal injury caused through the use of other than original or approved CLAAS parts, accessories and ancillary equipment.

Technical data, dimensions and weights are given as an indication only. CLAAS reserve the right to make changes subsequently as technical developments continue. Responsibility for errors or omissions not accepted.

Front, rear, right and left refer to the direction of forward travel.

Identification of warning and danger signs

All parts of this manual having to do with your safety or the safe operation of the machine are marked with the following signs. Please pass all safety instructions on to other users, too.



DANGER!

Sign to indicate instructions which must be observed. Failure to do so would cause danger to life and limb to the operator and the people around him.

☞ Preventive measures



ATTENTION!

Sign to indicate instructions which must be observed. Failure to do so could result in damage to the machine.

☞ Measures to prevent damage to the machine.



NOTE!

Sign to indicate instructions for a more efficient and economic use of the machine.



CAUTION!

Sign to indicate instructions to be followed during disassembly / assembly.



ENVIRONMENT!

Sign to indicate instructions which must be observed in order to avoid damage to the environment.

Danger to the environment is caused by irregular handling and incorrect disposal of toxic material (e.g. old oil).

The warning and instruction signs placed on the machine provide important recommendations for safe operating. These instructions involve your safety – observe them at all times!

Correct use of the machine

Fitting and retrofitting of ancillary equipment which is not originally manufactured by CLAAS, and, in addition, also modifications and changes may only be carried out with the consent of CLAAS, as any such actions may have considerable adverse effects on the safety and operational function of the machine.

Any arbitrary modifications carried out on the machine will relieve the manufacturer of all liability for any resulting damage or injury.

General safety and accident prevention regulations

1. In addition to the instructions contained in this manual, also observe the general safety and accident prevention regulations.
2. Always comply with local traffic regulations when driving on public roads.
3. Before starting the engine ensure that the transmission is in neutral and that all guards are installed and in their correct position.
4. Start the engine only from the operator's seat. Never attempt to start the engine by shortening across the starting motor terminals as the machine may immediately start to move.
5. Before moving away, always check the immediate vicinity of the machine. Ensure adequate visibility. For a warning, always blow the horn before starting up!
6. Never run the engine in a closed building!
7. Clothing worn by the fitter must be close-fitting. Avoid wearing loose jackets, shirts or ties.
8. Handle fuel with care. – It is highly flammable. Never refuel the machine in the vicinity of naked flames or sparks.
   Do not smoke during refuelling!
9. Always stop the engine and remove the ignition key before refuelling. Fill the fuel tank outdoors. Clean up any spilled fuel immediately!
10. Prevent fires by keeping the machine clean!
11. Take care when handling brake fluid and battery acid (toxic and corrosive)!
12. Always blow the horn before starting the engine and engaging the main drive.

Leaving the machine

1. When leaving the machine, ensure that it will not roll away (apply parking brake, chock blocks). Shut off the engine, remove the main switch key (ignition key) and lock the operator's cab (if installed)! – Turn off the battery isolating switch!
2. Never leave the machine unattended as long as the engine is still running!
3. Lower the front attachments to the ground before leaving the combine-harvester.

Compressor-type air conditioner

1. The air conditioning system is filled with HFC refrigerant R 134 A. HFC refrigerants must not be vented to the atmosphere! – Therefore, please take appropriate precautions when working on the compressor-type air conditioner.
2. Maintenance and repairs are only to be carried out by competent, professional service centres qualified to handle refrigerants. Refrigerants must always be discharged by use of the correct recovery equipment and disposed of for recycling.

Maintenance

1. Repair, service and cleaning work and the elimination of malfunctions should only be performed with the drive and the tractor engine switched off – remove the ignition key!
2. Escaping fluid (fuel or hydraulic oil) under high pressure can penetrate the skin and cause serious injury. In such a case, consult a doctor immediately as otherwise serious infections may result!
3. Always turn off the battery isolating switch before carrying out any electrical repairs on the machine.
4. Be careful when opening the radiator cap. The radiator is under pressure when the engine is hot!
5. Dispose of oil, fuel and filters in a way that is harmless to the environment and in accordance with existing anti-pollution regulations!
6. Do not attempt to mount a tyre unless you have the proper equipment and experience to perform the job safely.
7. Retighten the wheel nuts and wheel bolts regularly!
8. Only have qualified workshops carry out repair work on the hydraulic system!
9. Always turn off the battery isolating switch before carrying out any maintenance work on the machine and on the engine.

Basic rule

Always check the operating and road safety of the machine before using it.

Pressure accumulator

Be especially careful when working on the pressure accumulators! Pressure accumulators are under high pressure!

With valve-controlled pressure accumulators – as for example on the CLAAS Autopilot – first slacken the short-circuit bolt before carrying out any repair work at the pressure accumulator. This is necessary to dump the hydraulic pressure.

GENERAL REPAIR INFORMATION

Reason of damage

Identify reason of damage, limit the case of damage and safeguard the machine.

Spare parts

Use genuine CLAAS spare parts and corresponding CLAAS special tools.

Indicate the machine number of the CLAAS combine and when the engine, front attachments, maize header, cutterbar and maize picker are concerned, also the respective serial numbers when ordering spare parts and in case of technical questions. This is necessary as otherwise, incorrect spare part deliveries may result.

Engine

Always disconnect the battery cable (–) prior to starting work on the engine.

Gearboxes

When removing the gearboxes, first drain the oil and then remove the gearbox. Separate parts which are firmly connected with each other by means of a soft metal-tip or plastic-tip hammer.

Alternator

ATTENTION!

- Never disconnect the cables connecting the controller, alternator and battery whilst the alternator is running.
- Ensure correct polarity when connecting the cables to the battery as otherwise the diodes will be burnt out.
- Do not carry out any work on live parts unless the engine is stopped and the battery cables are disconnected.
- The normal practice of striking a cable against earth to check for current is not permitted with alternators. This will damage the semiconductors.
- Before doing any electric welding on the combine, be sure to disconnect the cables from the alternator terminals!
- The battery provides the current for the field excitation required to start the alternator via the battery charge indicator bulb. Blown bulbs must therefore be replaced to ensure reliable field excitation.

Tensioning the steel roller chains

Find the centre point in the slack span between sprockets. With the tight span slightly under load, push in the centre point of the slack span with the thumb. The chain tension is correct when its slack span deflects about 2 % of the centre distance between shafts. Check chain tension more frequently when using new chains.

Example: For a distance between centres of shafts of 500 mm, the slack span of the chain should deflect about 10 mm.

Taper ring fasteners

Taper ring fasteners provide a safe mechanical connection, even when transmitting high forces from the driving element on the shaft and vice versa, if they are properly prestressed.

Installation:

When installing taper ring fasteners, it is important that the shaft, hub, parallel key and the taper rings have been thoroughly cleaned, that semi-fluid lubricant of NLGI class 00 (e.g. CLAAS semi-fluid lubricant EP 00) is applied and that the components are tightened to the specified torque in the correct order of assembly.

ATTENTION!

No solid grease must be used when assembling the parts.

Removal:

After loosening the axial clamping, loosen the taper ring fasteners with a sharp blow, using a block-ended tube.

ATTENTION!

The inside diameter of the block-ended tube must be large enough to extend over the tapered ring.

Self-locking bolts

(with microencapsulated adhesive)

Replace self-locking bolts, e.g. Verbus-Plus / Imbus-Plus and similar types every time such bolts are removed. In exceptional cases, they may be reused up to three times. Always observe the specified tightening torque.

Always tighten self-locking bolts with microencapsulated adhesive rapidly to the specified tightening torque. When removing these bolts, quickly unscrew them completely. These self-locking bolts must **not** come into contact with sealing compound (e.g. “Epple 33” or similar products).

In individual cases, bolts with liquid locking compound can be used instead of self-locking bolts only where these bolts can be heated up to approx. 200 °C for removing them. Ensure that the specified quality grade of bolts (8.8/10.9 or similar grades) is observed here as well.

Self-locking bolts with microencapsulated adhesive may be used only where operating temperatures will not exceed +90 °C max.

These bolts can be subjected to full stress after 24 hours at +20 °C. To speed up the curing time, heating may be applied (e.g. to 15 minutes at +70 °C).

Liquid locking compound

(e.g. Delo-ML 187 / Loctite 242 or similar types)

Use liquid locking compound only where specified by the manufacturer.

Correct application:

Metal surfaces where liquid locking compound is to be applied must be absolutely free from grease. Use the “Activator” included in the workshop package for cleaning.

Before applying the liquid locking compound, the metal surfaces where Activator has been applied must have dried. Especially in blind holes, no Activator (cleaning agent) residues are allowed.

When installing bolts, apply the liquid locking compound only to the internal thread (nut) if possible in small quantities (drops). In blind holes only wet approx. 1d (d = nominal diameter of bolt) at the thread bottom. The same applies to any extra-long female threads. When applying the liquid locking compound to the bolt or at the top end of a female thread, the liquid locking compound will spread over the entire thread length when screwing the bolt in. As a result, too much break-away torque is required to remove the bolt – Danger of breaking!

Threaded assemblies secured with liquid locking compound can be easily unscrewed by heating them up to approx. 200 °C.

Correct installation of lock collar bearings

Lock collar bearings are tightened on the shaft by rotating the eccentric ring over the inside bearing ring.

Prior to installation, apply semi-fluid lubricant of NLGI class 00 (e.g. CLAAS semi-fluid lubricant EP 00) to the inside ring and the shaft to make bearing removal easier during future repairs.

Always fasten the eccentric ring moderately in the direction of rotation of the shaft and lock by means of a set screw. To remove the bearing, loosen the eccentric ring in opposite direction of rotation of the shaft.

Correct installation of adapter sleeve bearings

Adapter sleeve bearings do not require a specially machined bearing seat. They may be mounted on any drawn or scalped shaft. This is an advantage because it allows the shaft to be axially moved as required to obtain correct alignment.

Always install adapter sleeve bearings according to the conical inside ring. Clean the taper lock adapter sleeve and the shaft and check that the sleeve nut runs easily so the taper lock adapter sleeve will not turn on the shaft when tightening.

Tightening the bearing:

First tighten the sleeve nut to the point where the taper lock adapter sleeve has no more play and is under slight preload. Now tighten the nut by approx. 90° and continue turning until the next nearest slot fits the tab. Secure sleeve nut with the tab.

Loosening the bearing:

Bend up the tab which secures the sleeve nut and first back off the nut a few turns only (the thread must still fully grip). Loosen the taper lock adapter sleeve with a sharp blow, using a block-ended tube.

Ferrule fittings on hydraulic lines

When pre-assembling the unit and for pre-assembled factory-delivered ferrule fittings, the following applies: installation is in the associated, well-oiled threaded joint with half a turn of the union nut beyond the point where resistance is felt.

Pre-assembly:

1. Cut off the tube at right angles. Do not use a pipe cutter! This will slant the tube wall, causing heavy inside and outside burrs. Slightly deburr the tube end on the inside and outside (do not chamfer!) and clean it. In case of tube bends, the straight tube end up to where the bending radius starts must be at least twice the height of the union nut.
2. Push the union nut and the ferrule on the tube.
3. Push the tube against the stop in the union and tighten union nut until the ferrule grips the tube (the tube must not rotate with the nut). This point can be felt because increase power is needed from here.

4. Tighten the union nut half a turn beyond the point where resistance is felt.
5. Check the cut made by the ferrule edge: A visible shoulder must fill the space before the ferrule front end. The ferrule may rotate, but axial displacement must not be possible.

Installation:

Insert the pre-assembled tube into the well-oiled threaded joint, tighten the union nut up to the point where resistance is felt and then half a turn beyond this point.

Re-installation:

Every time the ferrule fitting has been loosened, retighten the union nut without using increased force.

Ferrule fitting leaks:

If a ferrule fitting leaks, first loosen the union nut until some oil escapes and then tighten it as specified.

Progressive ring fittings on hydraulic lines

When pre-assembling the unit and for pre-assembled factory-delivered progressive ring fittings, the following applies: installation is in the associated, well-oiled threaded joint with half a turn of the union nut beyond the point where resistance is clearly felt.

Pre-assembly:

1. Cut off the tube at right angles. Do not use a pipe cutter! This will slant the tube wall, causing heavy inside and outside burrs. Slightly deburr the tube end on the inside and outside (do not chamfer!) and clean it. In case of tube bends, the straight tube end up to where the bending radius starts must be at least twice the height of the union nut.
2. Push the union nut and the progressive ring on the tube.
3. Push the tube against the stop in the union and tighten union nut until the progressive ring grips the tube (the tube must not rotate with the nut). This point can be felt because increase power is needed from here.
4. Tighten the union nut half a turn beyond the point where resistance is felt.
5. Check the cut made by the progressive ring edge: A visible shoulder must fill the space before the progressive ring front end. The progressive ring may rotate, but axial displacement must not be possible.

Installation:

Insert the pre-assembled tube into the well-oiled threaded joint, tighten the union nut up to the point where resistance is felt and then half a turn beyond this point.

Important: Back up the threaded joint with a wrench!

Re-installation:

Every time the progressive ring fitting has been loosened, retighten the union nut until resistance is felt and then continue for half a turn beyond that point.

Important: Back up the threaded joint with a wrench!

Progressive ring fitting leaks:

If a progressive ring fitting leaks, first loosen the union nut until some oil escapes and then tighten it as specified.

ATTENTION!

Failure to observe the tightening torques reduces the nominal power and the service life of the fitting, resulting in leaks and in the tube slipping out.

Taper fittings on hydraulic lines

Installation:

Apply oil to the O-ring on the taper. Tighten the union nut a third of a turn beyond the point where resistance is felt.

Important: Back up the threaded joint with a wrench!

ATTENTION!

Failure to observe the tightening torques reduces the nominal power and the service life of the fitting, resulting in leaks and in the tube slipping out.

Welding

ATTENTION!

When carrying out electric welding work on the machine, observe the following points:

1. Turn off the battery isolating switch!
2. Disconnect the connector to the display monitor.
3. Pull out the electrical plug-in modules in the central terminal compartment.
4. Disconnect the electrical connectors between the engine and the main wiring loom.
5. Always connect the earth clamp of the welder in the near vicinity of the area where the welding is being carried out.

Some advice for speedy and correct repair work:

- Mark machine parts prior to disassembly to ensure their correct left-to-right positions and balance when reassembled.
- Fit expansion pins with the slot facing the side under load. When fitted with a quarter turn from this position, they will get loose, fall out or shear off.
- Replace split pins, locking wires, locking plates, tab washers and lock washers when carrying out repairs.
- Fit lubricated ball and slide bearings with high-quality grease.
- Align sprockets and V-belt pulleys toward each other.
- Care for strict cleanliness when working on hydraulic systems.
- Never mix different oil types.
- Run the machine or operate machine assemblies at low speed after any repair.

TIGHTENING TORQUES

Bolts

Tightening torques (in Nm) of hex. bolts, cheese-head screws and hex. nuts				
Bolts and nuts		anodized, plated or zinc plated		
Property class		8.8	10.9	12.9
Hex. bolts DIN 931 DIN 933 Cheese head screws DIN 912 Hex. nuts DIN 934	Dimensions	Metric standard thread		
	M 4	2.7	3.8	4.6
	M 5	5.5	8.0	9.5
	M 6	10.0	14.0	16.0
	M 8	23.0	33.0	40.0
	M 10	45.0	63.0	75.0
	M 12	78.0	110.0	130.0
	M 14	122.0	175.0	210.0
	M 16	195.0	270.0	325.0
	M 18	260.0	370.0	440.0
	M 20	370.0	525.0	630.0
	M 22	510.0	720.0	870.0
	M 24	640.0	900.0	1080.0
	M 27	980.0	1400.0	1650.0
	M 30	1260.0	1800.0	2160.0
	Dimensions	Metric fine-pitch thread		
Hex. bolts DIN 960 DIN 961 Hex. nuts DIN 934	M 8 x 1	25	35	42
	M 10 x 1.25	48	67	80
	M 12 x 1.25	88	125	150
	M 12 x 1.5	82	113	140
	M 14 x 1.5	135	190	225
	M 16 x 1.5	210	290	345
	M 18 x 1.5	300	415	505
	M 20 x 1.5	415	585	700
	M 22 x 1.5	560	785	945
	M 24 x 2	720	1000	1200
	M 27 x 2	1050	1500	1800
	M 30 x 2	1450	2050	2500

IMPORTANT! Cadmium or copper-plated screws and nuts must be fastened with a torque 25 % below the specified value.

Hydraulic fittings

Torque settings for hydraulic fittings with O-ring seals according to ISO 6149	
Dimensions	Torque setting according to ISO 6149
M 8 x 1	7^{+2} Nm
M 10 x 1	11^{+4} Nm
M 12 x 1.5	16^{+5} Nm
M 14 x 1.5	23^{+8} Nm
M 16 x 1.5	29^{+10} Nm
M 18 x 1.5	38^{+13} Nm
M 20 x 1.5	46^{+15} Nm
M 22 x 1.5	67^{+22} Nm
M 24 x 1.5	86^{+29} Nm
M 26 x 1.5	103^{+34} Nm
M 27 x 2	103^{+34} Nm
M 30 x 2	170^{+57} Nm
M 33 x 2	200^{+67} Nm
M 36 x 2	245^{+82} Nm
M 38 x 2	245^{+82} Nm
M 39 x 2	310^{+103} Nm
M 42 x 2	380^{+127} Nm
M 45 x 2	440^{+147} Nm

Brake line screw joints

Tightening torques for unions with and without copper sealing ring							
Thread designation				Tightening torques M_A in Nm for unions *			
Lead in mm				1. with copper sealing ring		2. without copper sealing ring	
1	1.25	1.5	2	Smallest dimension	Biggest dimension	Smallest dimension	Biggest dimension
M 6				10	12	2.5	4
M 7				12	14	3	5
	M 8			16	19	4	10
M 10 x 1				15	18	12	16
	M 10 x 1.25			19	23	12	16
M 12 x 1				19	22	15	19
		M 12 x 1.5		25	32	15	20
M 14 x 1				20	26	20	25
		M 14 x 1.5		30	36	17.5	23
		M 16 x 1.5		35	42	17.5	23
		M 18 x 1.5		43	50		
		M 20 x 1.5		53	60		
		M 22 x 1.5		60	77		
		M 24 x 1.5		80	95		
		M 26 x 1.5		82	100		
			M 27 x 2	95	110		
		M 28 x 1.5		88	106		
		M 30 x 1.5		95	115		
		M 32 x 1.5		100	120		
			M 33 x 2	170	200		
		M 35 x 1.5		110	140		
		M 38 x 1.5		118	142		
		M 40 x 1.5		145	175		
		M 42 x 1.5		160	195		
			M 42 x 2	205	250		
		M 45 x 1.5		160	195		
		M 48 x 1.5		170	210		
			M 48 x 2	230	280		
		M 52 x 1.5		210	260		
			M 54 x 2	300	360		
With cadmium-plated threads, 0.7 times the values given in the table shall be applied.							

Wheel bolts

Tightening torques for drive axle and steering axle / rear wheel drive axle wheel bolts.		
Drive axle	M 22 x 1.5 - 10.9 and wheel nuts with thrust piece H 22 DIN 74361-10	= 860 Nm
	ATTENTION! Flange nuts with “Dacromet coating” (silvery grey) must only be torqued to **700 Nm**.	
Steering axle	Wheel bolts M 22 x 1.5 x 45 - 8.8 with lock washers C 22.5 DIN 74361 (Limes ring)	= 520 Nm
	Wheel bolts M 18 x 1.5 with countersunk collar nuts or	= 325 Nm
	with flat collar nut with Limes ring	= 260 Nm
Rear wheel drive axle	Wheel bolts M 20 x 1.5 with lock nut and Limes ring or countersunk collar nut	= 500 Nm

Safety features

Slip clutch	**Slip clutch torque** (to be set in cold state)	**Spring length**
Reel	430 ± 30 Nm	26 mm
Intake auger	700 Nm ± 30 Nm	
Upper feed rake shaft	840 ± 40 Nm	
Shear bolts		
Grain tank unloading	Hex. bolt M 8 x 45 DIN 931-8.8 Self-locking nut VM 8 Torque setting 25 Nm	

SPECIFICATIONS

Lubricants chart

Component	Type of lubricant	Viscosity	Capacity
Hydraulic system	Multi-grade hydraulic oil ISO-VG 46 conforming to DIN 51 524 specifications, part 3**		approx. 20 litres (oil change) approx. 70 litres (new system filling)
Manual gearbox 20 t / 17 t	Multi-grade gearbox oil conforming to (MIL-L-2105 B) API-GL-5-90 specifications	90	7.0 litres
Manual gearbox 20 t HD			6.5 litres
Final drives 20 t / 17 t			8.0 litres each
Planetary gearbox 20 t			5.0 litres each
Uni-spreader fan gearbox (751 480.1)			0.48 litres
Uni-spreader fan gearbox (763 099.1)			0.6 litres
Threshing drum reduction gearbox	Multi-grade gearbox oil conforming to (MIL-L-2105) API-GL-4-90 specifications	90	1.8 litres
Transfer gearbox (engine output shaft)			3.0 litres
Rotor drives			1.75 litres each
Grain tank unloading tube Upper angle drive	Rolling bearing grease, e.g. Alvania R3		270 g
Grain tank unloading tube Lower angle drive (up to serial no. …)			530 g
Grain tank unloading tube Lower angle drive (from serial no. …)			900 g
Foot brake	ATE brake fluid	SAE-specifications DOT 4	Reservoir must always be full
SANDEN compressor SD 7 H 15	Sanden oil SP 20 PAG		as required (approx. 300 cm³ for initial filling)
	Refrigerant R 134a		1800 g

** When selecting the hydraulic oil, the following conditions need to be met:

Pour point	< -25 °C (DIN ISO 3016)
Viscosity 0 °C	< 600 cSt. (DIN 51 562)
Viscosity 40 °C	max. 50.6 cSt. (DIN 51 562)
Viscosity index	> 170 (DIN ISO 2909)

The oil must have detergent properties!

Hydraulic pressure values

Machine type	Working hydraulics			
	Quantity / Litres		Set pressure	bar
	Refill	Oil change	at corresponding pressure relief valve	
LEXION 480	approx. 70	approx. 20	Lifting hydraulics	175^{+15}
			Steering *	150^{+15}
			Low pressure	19^{+2}

Machine type	Hydrostatic ground drive				
	Quantity / Litres		Set pressure		bar
	Refill	Oil change	at corresponding pressure relief valve		
LEXION 480	approx. 70	approx. 20	Operating pressure ◆		420^{+30}
			Filling pressure	**S4**	**
			Purge pressure		23^{+2}_{-1}

* = When making new settings, note the circulation pressure and add the value to the one given.

** = Filling pressure 4 – 6 bar above purge pressure

◆ = Max. absolute pressure

Hydrostatic ground drives:

S4 = SAUER 90 R 130 / 90 M 100

When selecting the hydraulic oil, the following conditions need to be met:

Pour point	< -25 °C (DIN ISO 3016)
Viscosity 0 °C	< 600 cSt. (DIN 51 562)
Viscosity 40 °C	max. 50.6 cSt. (DIN 51 562)
Viscosity index	> 170 (DIN ISO 2909)

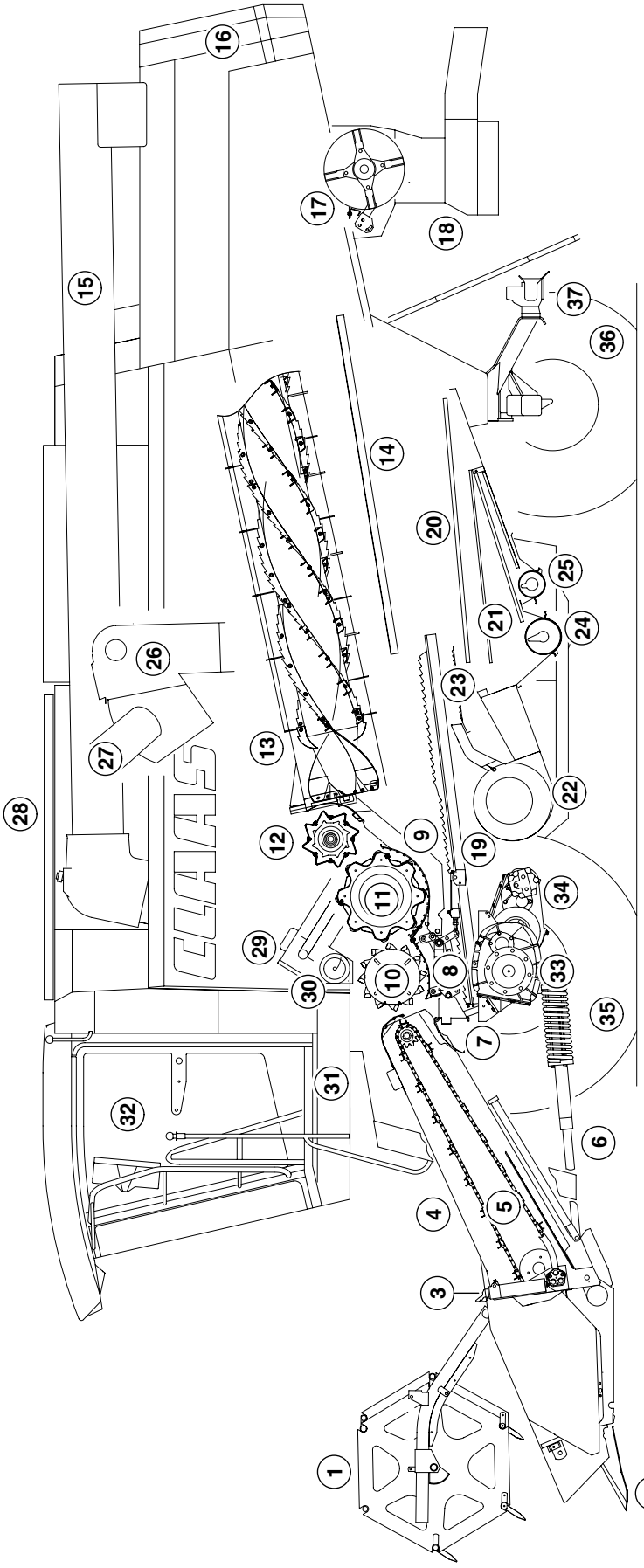
The oil must have detergent properties!

NOTE!

The working and the ground drive hydraulics have one common hydraulic oil tank.

SECTIONAL VIEW OF MACHINE

LEXION 480

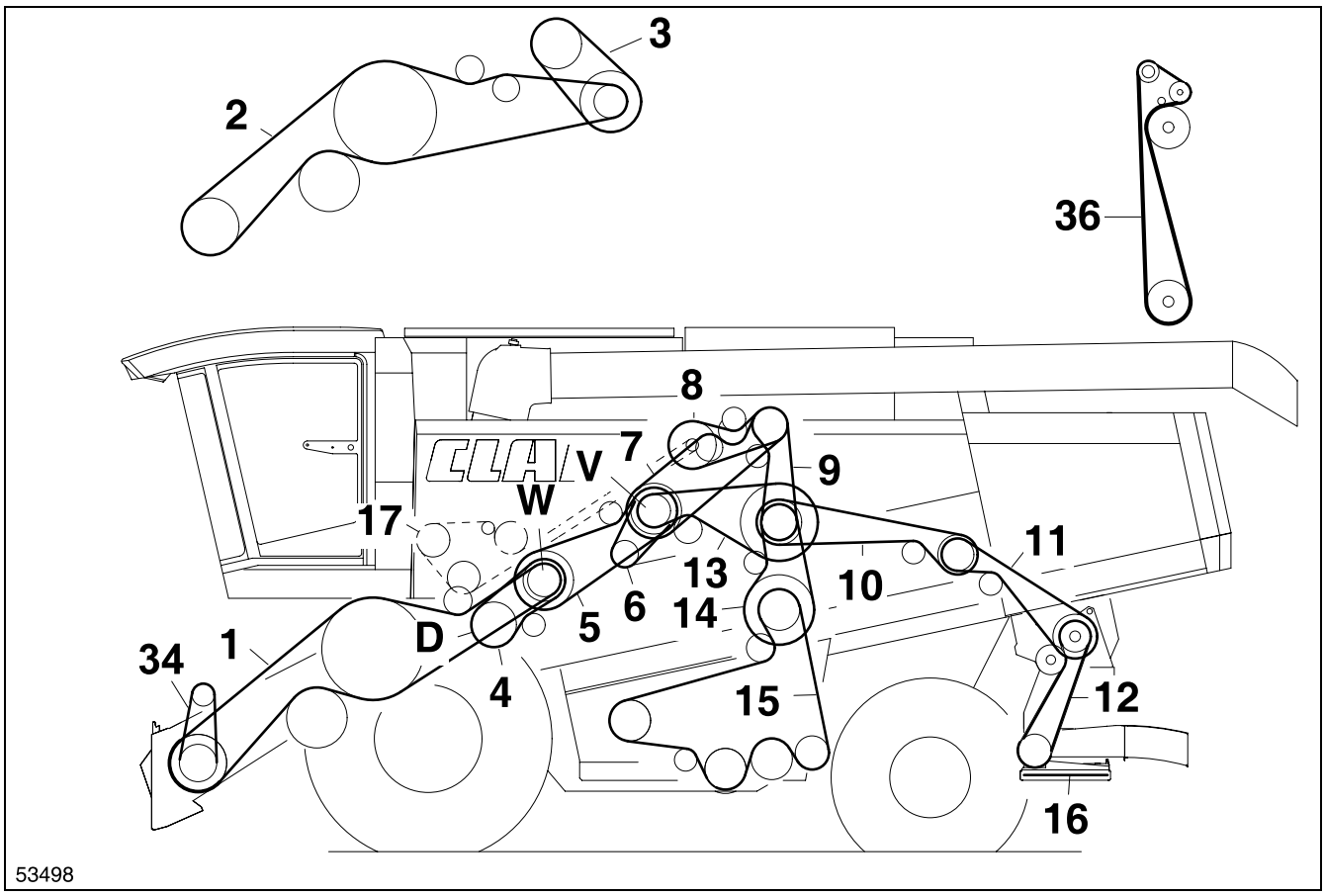

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1

LEXION 480

1 Reel
2 Crop lifters
3 Hydraulic cylinder
Cutterbar cross levelling
4 Feed rake conveyor
5 Feed rake
6 Cutterbar cylinder
7 Stone trap
8 Preconcave
9 Main concave
10 Accelerator
11 Threshing drum
12 Impeller
13 Axial rotors
14 Return pan
15 Grain tank unloading tube
16 Rear hood
17 Straw chopper
18 Uni-spreader fan
19 Preparation floor
20 Top sieves
21 Bottom sieves
22 Cleaning fan
23 Under-ventilated cleaning step
24 Grain auger
25 Returns auger
26 Grain elevator
27 Grain tank filler auger
28 Grain tank cover
29 Returns elevator
30 Returns distribution auger
31 Operator's platform
32 Cab
33 Final drives
34 Manual gearbox
35 Drive wheels
36 Steering wheels
37 Trailer hitch

(Fig. 1)



1

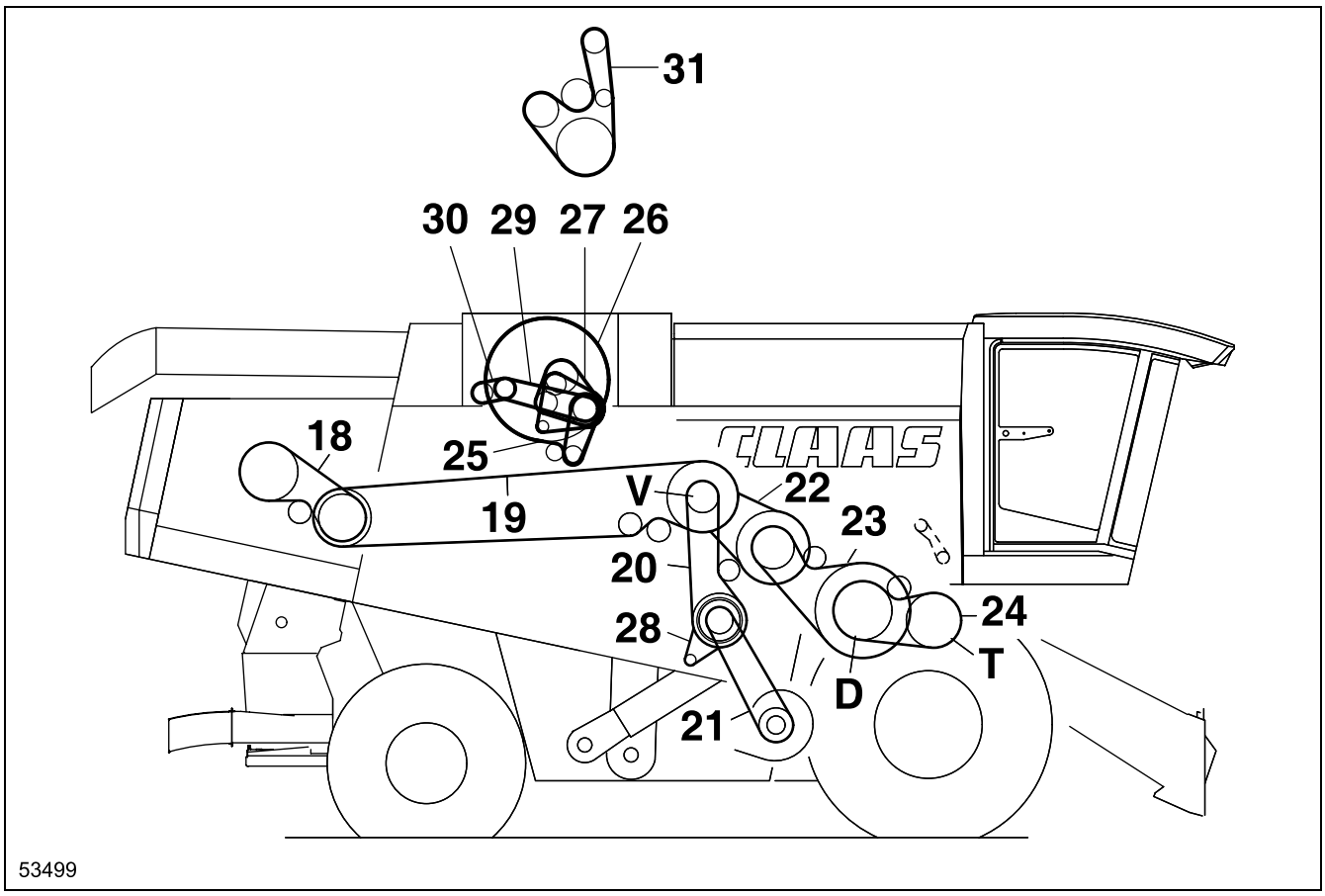
DRIVE DIAGRAM

Drive diagram, left-hand

1 Cutterbar drive
2 Cutterbar drive with variable-speed drive (optional equipment)
3 Cutterbar variable-speed drive (optional equipment)
4 Impeller drive
5 Intermediate drive for cutterbar
6 Uni-spreader hydraulic pump drive (swing)
7 Main intermediate drive
8 Intermediate drive to grain tank unloading system
9 Intermediate drive to straw chopper
10 Straw chopper and uni-spreader drive
11 Straw chopper and uni-spreader drive
12 Drive of uni-spreader intermediate drive
13 Drive of sieve pan intermediate drive
14 Drive of sieve pan intermediate drive
15 Sieve pan drive
16 Uni-spreader drive
17 Grain tank unloading auger drive
34 Suction blower drive (feed rake conveyor)
36 Straw spreader drive

W = Impeller
V = Main intermediate drive

(Fig. 1)



2

Drive system diagram, right-hand side

18 Axial rotors drive
19 Axial rotors intermediate drive
20 Intermediate drive to fan
21 Fan drive
22 Threshing mechanism variable-speed drive
23 Threshing drum drive
24 Accelerator drive
25 Rotary chaff screen intermediate drive
26 Rotary radiator screen drive
27 Fan drive
28 Rotary chaff screen suction drive
29 Air conditioning compressor drive
30 Compressed air compressor drive
31 Alternator drive

V = Main intermediate drive
D = Threshing drum
T = Accelerator

(Fig. 2)

2
Operator's platform

AIR CONDITIONER

Important instructions regarding the compressor-type air conditioning system

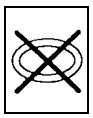


DANGER!

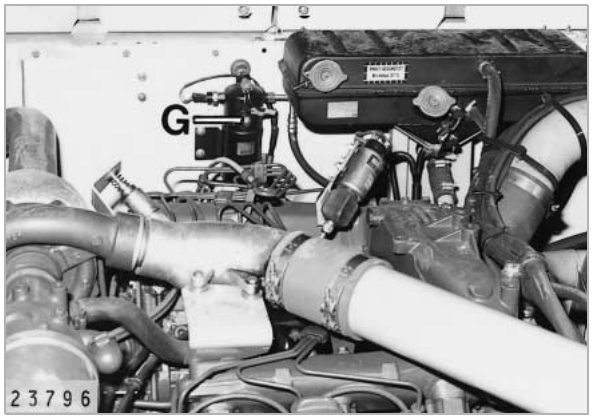
1. Never get in contact with refrigerants! Refrigerant may cause serious frostbites or injuries.
2. Always wear safety goggles when working on the air conditioning system.
3. When refrigerant splashes into the eyes or on the skin, flush with plenty of sterilized water or tap water immediately and consult a doctor.
4. Maintenance and repair should only be carried out by trained personnel with the correct equipment.
5. Prior to disassembling the refrigerant circuit for maintenance and repair purposes, the refrigerant must be extracted using an approved and suitable recovery system.
6. Never drain out refrigerant to the atmosphere.
7. When in direct contact with open flames or heated metal surfaces, refrigerant shows toxic or caustic reactions.
8. Never check tightness of air conditioning system using compressed air or oxygen – Danger of explosion!
9. Never clean filled air conditioning system with a hot water jet – Danger of explosion!

Important instructions regarding the installation of parts in the compressor-type air conditioner

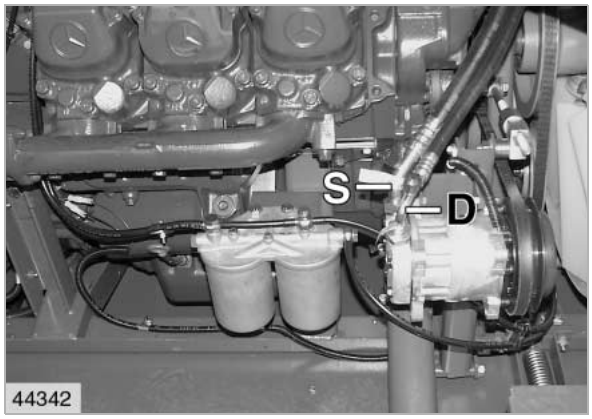
ATTENTION!



1. Keep refrigerant circuit absolutely free of dust and humidity. To achieve this, close all loosened connections with suitable caps.
2. Caps of new parts should be removed only directly before installing them.
3. O-rings must always be replaced.
4. Prior to connecting a refrigerant line, apply some drops of refrigerant oil on the thread and the O-ring seat.
5. When tightening or loosening the refrigerant lines, always use two spanners in order to keep the lines from twisting.



1



2

Air conditioning system – Topping up refrigerant

(Air conditioner compressor Sanden Sd 7h 15)

1. Prior to evacuating, check if the filter receiver drier has to be replaced.

   Checking the filter receiver drier:

   In the control window (G), the ball will indicate the condition of the filter receiver drier.

   Blue = OK
   Pink = Requires replacement

   The filter receiver drier must also re replaced following a major leak, e.g. a broken line, in the refrigerant circuit.

2. Prior to filling, the air conditioner system must be evacuated and the tightness must be checked.

3. Topping up refrigerant:

   Fill in refrigerant at connections (D, discharge side) and (S, suction side) of the air conditioning compressor.

ATTENTION!

Never fill in liquid at connection (S)!

Use refrigerant **R134a** exclusively. The required filling quantity is **1800 g** of refrigerant. (Observe the instructions given by the unit manufacturer.)

4. Checking the refrigerant level at the control window (G) of the filter receiver drier using the white float:

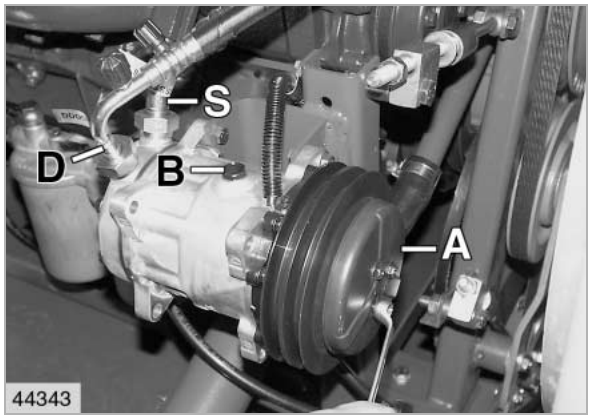
   If the float is at the bottom, the system requires refrigerant.

   The white float is at the top = refrigerant quantity OK.

CAUTION!

The correct refrigerant level should be checked directly after the system function has been tested. Should the system have been left for a long time, then it may appear as if it requires refrigerant, but actually the level is correct.

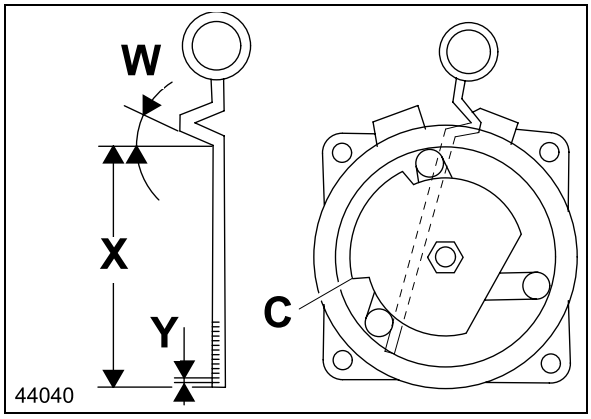
(Fig. 1, 2)



3



4



5

Checking / topping up the refrigerant oil level at the air conditioner compressor

(Air conditioner compressor Sanden Sd 7h 15)

NOTE: The oil level at the compressor must be checked when a new air conditioner compressor or a newly sealed air conditioner compressor has been built in.

1. Start the diesel engine and leave running in slow idle speed.
2. Switch on air conditioner compressor and let it run for 10 minutes. Stop the diesel engine.
3. Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)
4. Unscrew dust cap (A) and screw out oil filler plug (B).
5. Remove air conditioner compressor if required.
6. Turn air conditioner compressor to a horizontal position.
7. Rotate the counterweight (C) to the position shown and introduce the oil level dipstick, spare part no. 181 788.0 (or self-sourced). Here the **30**° inclination of the oil level dipstick must make contact with the compressor housing.

   X = **105 mm**
   W = **30**°
   Y = **3 mm** (clearance between notches)
8. The oil level must be shown up to notch 5 – 7 (from the bottom) on the oil level dipstick. Top up refrigerant oil **(SANDEN SP 20)** if necessary.
9. Screw in oil filler plug (B) with a new sealing ring and tighten with a tightening torque of **20 Nm**. Put dust cap (A) in place and screw in hex. bolts with liquid locking compound, e.g. DELO-ML 5349.
10. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 3, 4, 5)

Topping up refrigerant oil

(Air conditioner compressor Sanden Sd 7h 15)

NOTE: Refrigerant oil must be topped up when new parts are installed since a certain portion will always remain in the old parts. However, there is no need to consider the level in the air conditioner compressor.

Refrigerant oil filling quantities:

Condenser	20 cm^3
Per line	20 cm^3
Evaporator	40 cm^3
Filter receiver drier	10 cm^3
Refrigerant losses	20 cm^3
Refrigerant total	40 cm^3
Entire system	310 cm^3

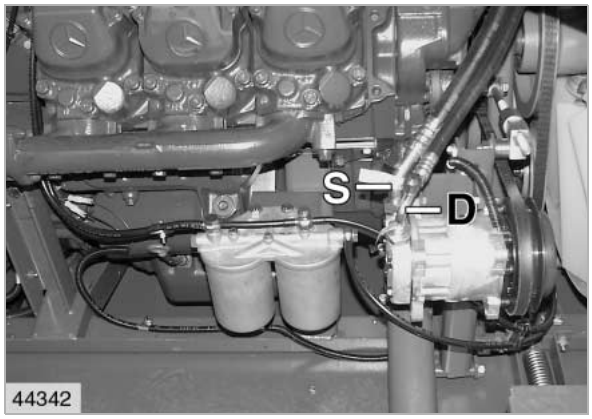
Fill refrigerant oil into the air conditioner compressor prior to evacuating / filling the air conditioning system. (Observe the instructions given by the unit manufacturer.)

Use only **(SANDEN SP 20)** refrigerant oil.

Removing the condenser

Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)

(Fig. 6)



6

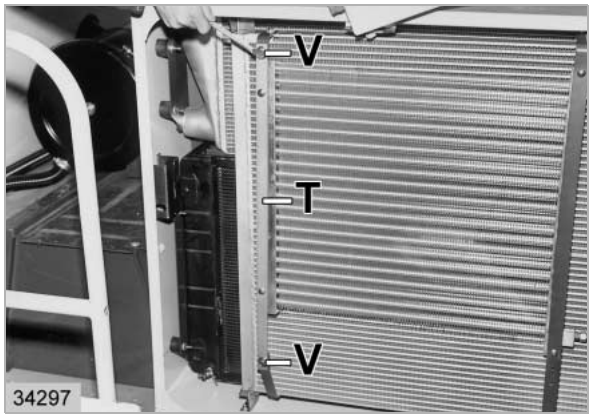
Unlock the back plate of the rotary chaff screen, then raise and secure.

Secure the back plate with suitable means, e.g. a rope to ensure it cannot drop.

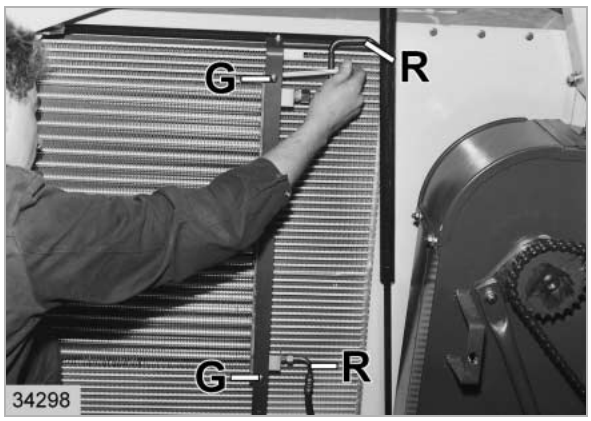
Open the pin (V).

Unscrew the support (T).

(Fig. 7)



7

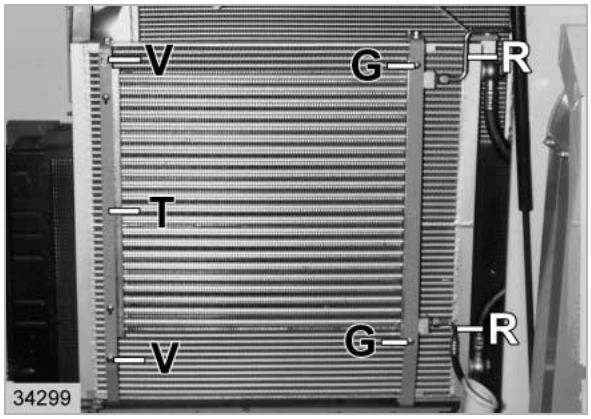


8

Unscrew the pipework (R) from the condenser and close with plugs at both ends.

Remove the two mushroom head bolts at (G), then slide the condenser out to the left-hand side.

(Fig. 8)



9

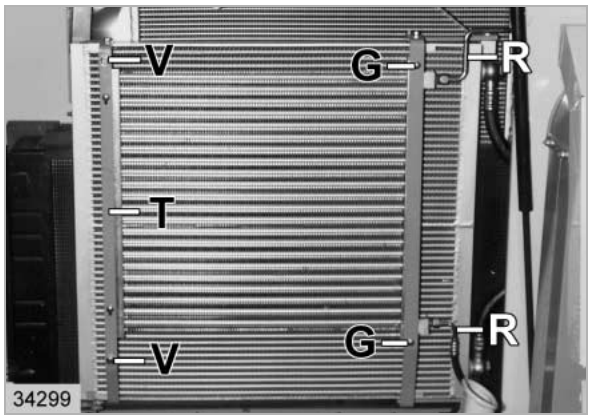
Check the condenser for dirt and contamination and, if necessary, clean it.

Blow out the condenser with compressed air (max. 5 bar).

ATTENTION!

When cleaning the condenser, take care not to damage the fins.

(Fig. 9)



10

Refitting the condenser

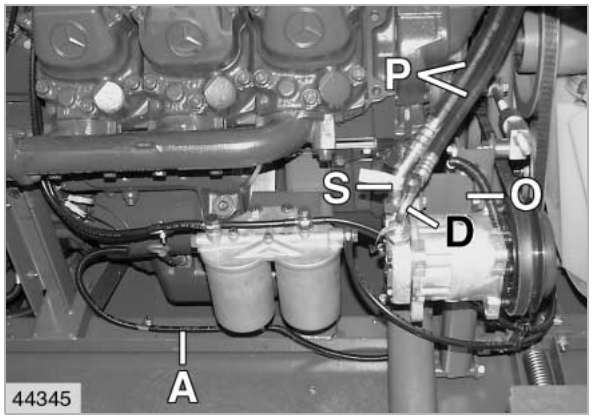
1. Place the condenser behind the bearing plate and secure with the mushroom head bolts (G).
2. Bolt back the support (T) with the mushroom head bolts and lock the pins (V).
3. Reconnect the pipework (R).

CAUTION!

Always fit new O-rings.

4. Swing down the back plate with the rotary chaff screen and lock it.
5. Top up refrigerant oil.
6. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 6, 7, 8, 9, 10)



11

Removing the air conditioner compressor

(Air conditioner compressor Sanden Sd 7h 15)

Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)

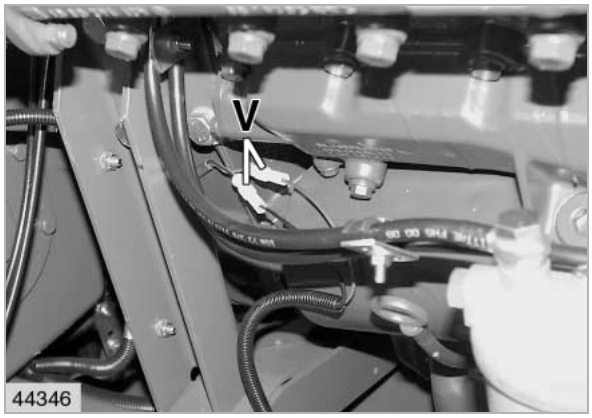
If compressed-air system is fitted:
Removing the compressed-air compressor drive belt (30), see page 7.3.21

Remove air conditioner compressor drive belt (29) at the rear – see page 7.3.19, *Removing the air conditioner compressor drive belt (29)*.

Unscrew the cable clamps from the air conditioner compressor wiring loom (A).

Unscrew air conditioner compressor from support (O).

(Fig. 11)

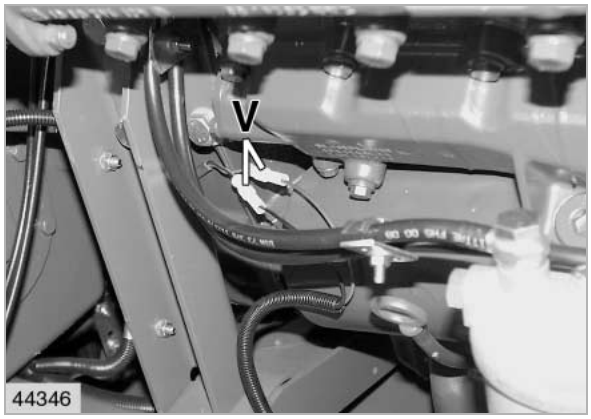


12

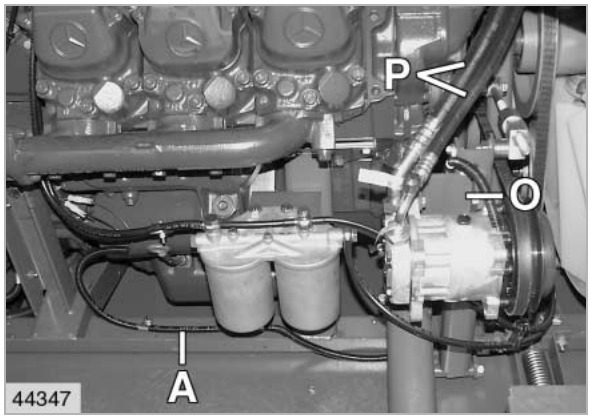
Disconnect plug-in connection (V) at the engine mounting frame.

Mark and unscrew air conditioner hoses (P).

(Fig. 11, 12)



13



14

Installing the air conditioner compressor

(Air conditioner compressor Sanden Sd 7h 15)

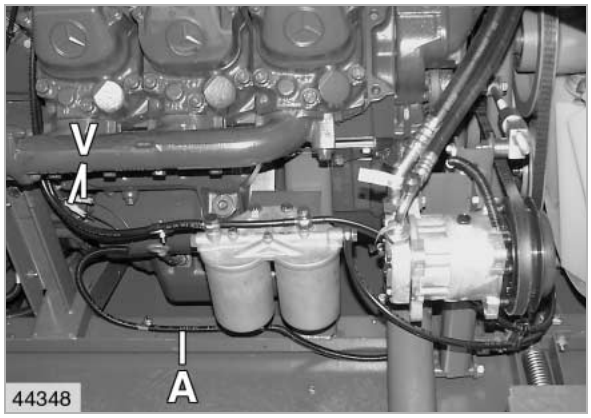
1. Screw air conditioner hoses (P) the air conditioner compressor according to the markings.

CAUTION!

Always fit new O-rings.

2. Connect plug-in connection (V) at the engine mounting frame.
3. Bolt down air conditioner compressor to support (O).
4. Screw down wiring loom (A) using cable clamps.
5. Install and adjust air conditioner compressor drive belt (29) at the rear – see page 7.3.20, *Installing and adjusting the air conditioner compressor drive belt (29)*.
6. If compressed-air system is fitted:
   Installing and adjusting the compressed-air compressor drive belt (30), see page 7.3.22
7. *Checking / topping up the refrigerant oil level at the air conditioner compressor*, see page 2.1.4
8. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 13, 14)



15

Removing the air conditioner compressor electro-magnetic clutch

(Air conditioner compressor Sanden Sd 7h 15)

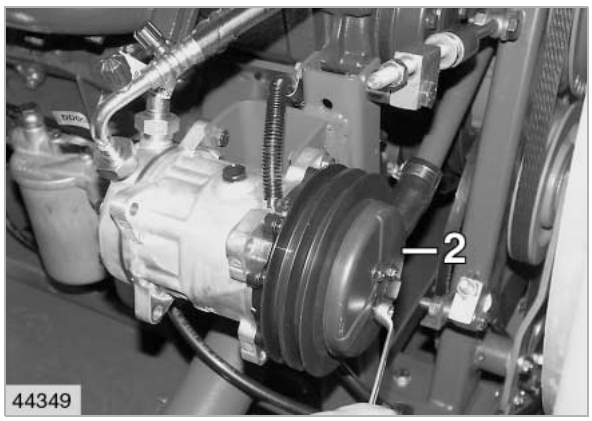
If compressed-air system is fitted:
Removing the compressed-air compressor drive belt (30), see page 7.3.21

Remove air conditioner compressor drive belt (29) at the rear – see page 7.3.19, *Removing the air conditioner compressor drive belt (29)*.

Unscrew the cable clamps from the air conditioner compressor wiring loom (A).

Disconnect plug-in connection (V) at the engine mounting frame.

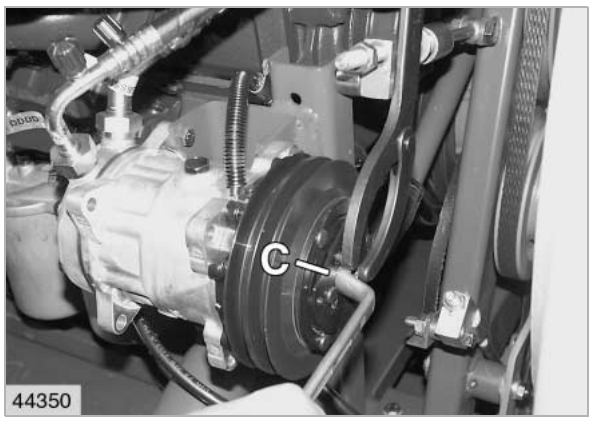
(Fig. 15)



16

Unscrew dust cap (2).

(Fig. 16, 25)



17

Unscrew the thrust plate (C). Use special tool for backing up.

Special tool:

Pin hole wrench, part no. 181 624.0

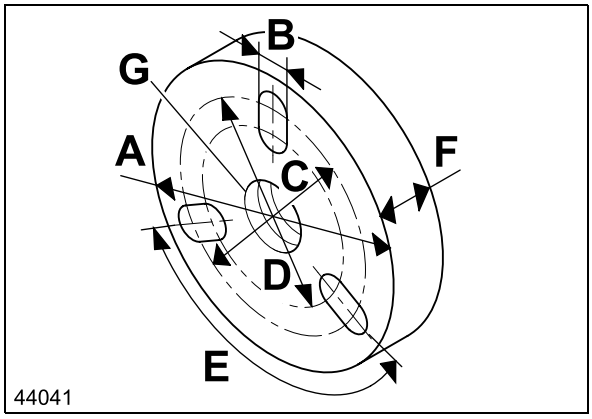
(Fig. 17)



18

Pull off thrust plate (C) using special tool.

(Fig. 18)



19

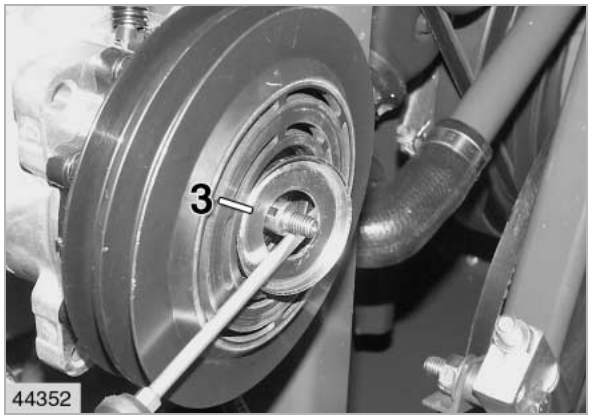
Special tool (self-sourced):

A = ∅ 60 mm
B = 7 mm
C = ∅ 35 mm
D = ∅ 46 mm
E = 3 x 120°
F = 10 mm
G = M 14 x 1.5

1 x hex. bolt M 14 x 1.5 x 50 DIN 961-8.8
part no. 233 634.0

3 x Hex. inch bolt ¼"- 20 x 1¼"

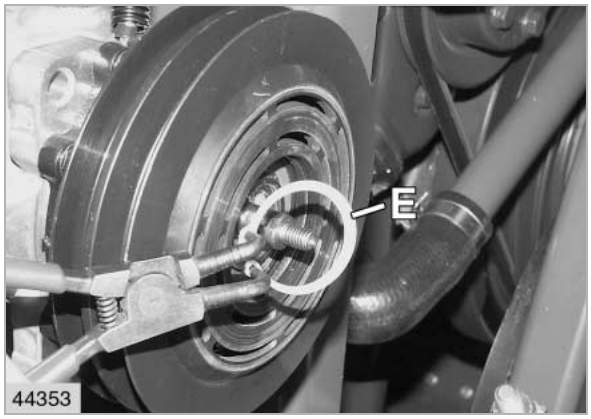
(Fig. 19)



20

Pinch out dust protection (3) using a screwdriver.

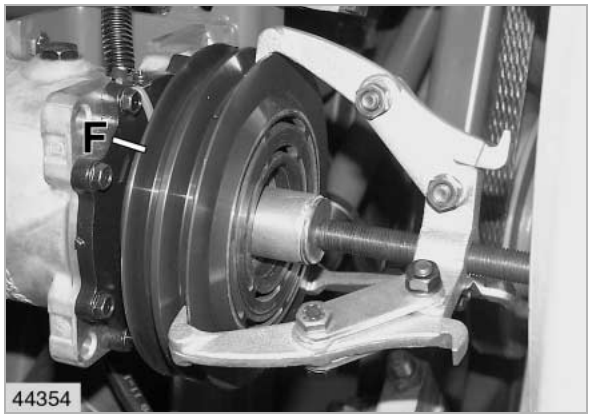
(Fig. 20, 25)



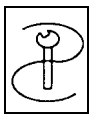
21

Remove the outside circlip (E).

(Fig. 21)



22

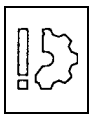


Pull off V-belt pulley (F) completely with bearing, using a special tool.

Special tool:

Tube, outside diameter 38 mm,
inside diameter 31 mm, 35 mm long (self-sourced)

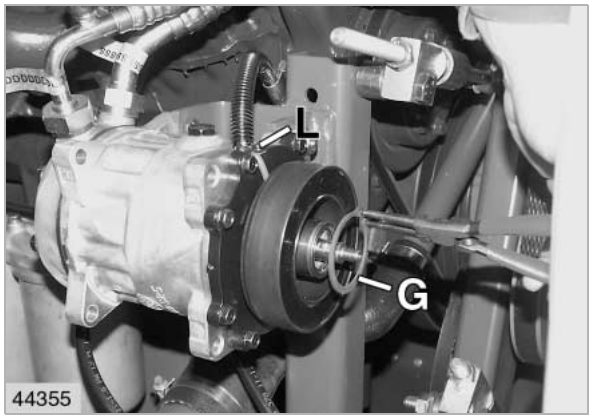
Disc, outside diameter 38 mm, inside diameter 6 mm,
2 mm thick
(self-sourced)



ATTENTION!

Never exert axial pressure on the air conditioner compressor shaft!

(Fig. 22)

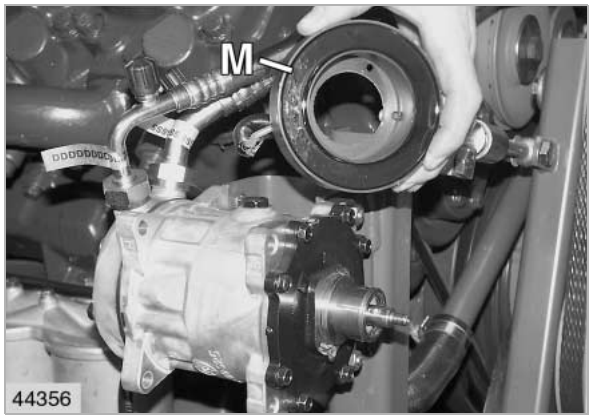


23

Remove the outside circlip (G).

Unscrew cable clamp (L).

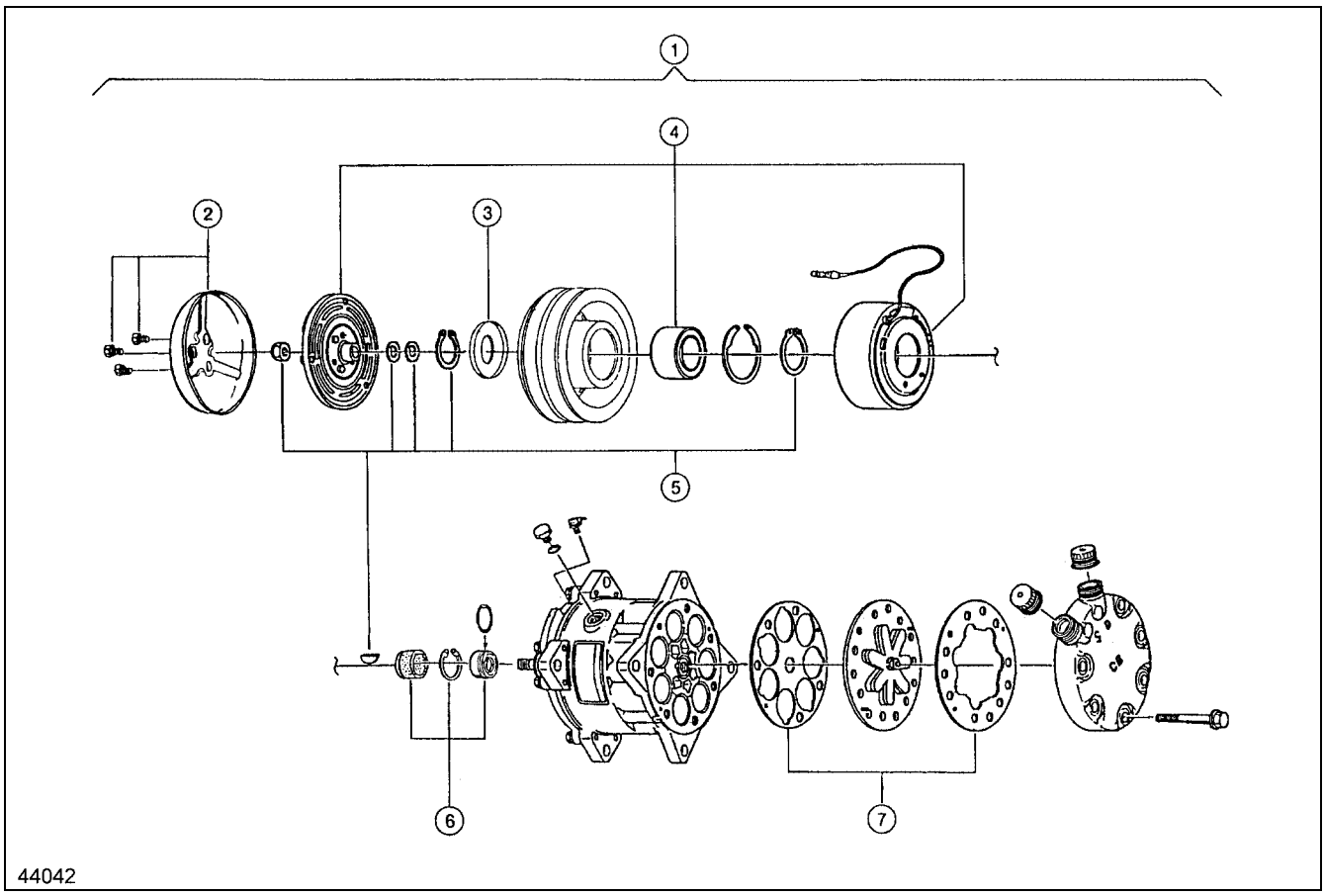
(Fig. 23)



24

Remove magnet (M).

(Fig. 24)

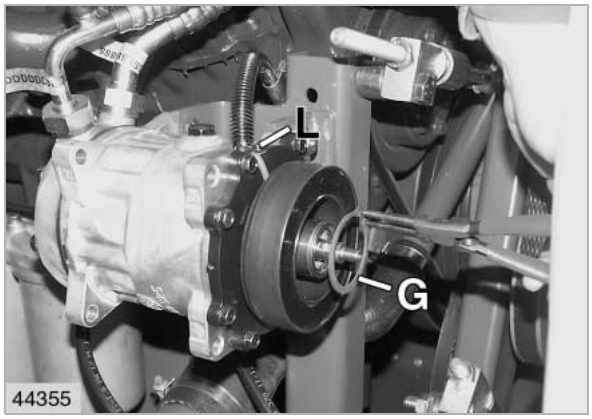


25

Air conditioner compressor Sanden Sd 7h 15, disassembled

1 Compressor
2 Dust cap
3 Dust protection
4 Electro-magnetic clutch
5 Repair set
6 Set of gaskets
7 Set of gaskets

(Fig. 25)



26

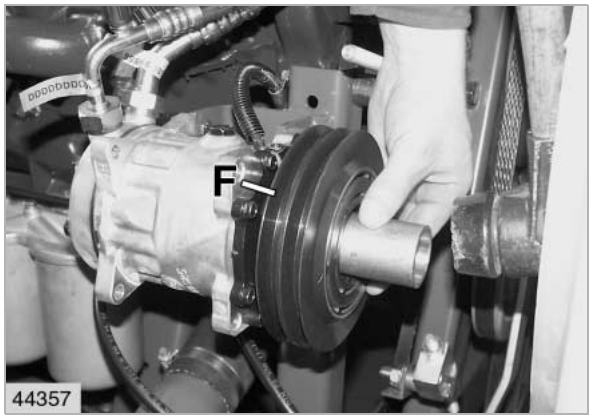
Installing the air conditioner compressor electro-magnetic clutch

(Air conditioner compressor Sanden Sd 7h 15)

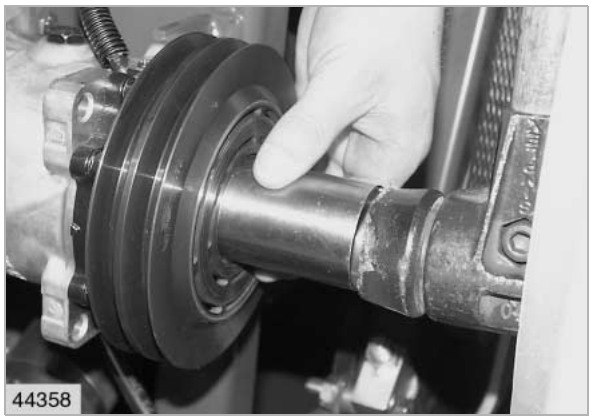
1. Put magnet (M) in place and fix cable using cable clamp (L).
2. Insert outside circlip (G).
3. Carefully drive on the V-belt pulley (F) completely with bearing, using a block-ended tube and secure with outside circlip (E).

   Tube, outside diameter 46 mm,
   inside diameter 41 mm, 100 mm long
   (self-sourced)

(Fig. 21, 24, 25, 26, 27)



27

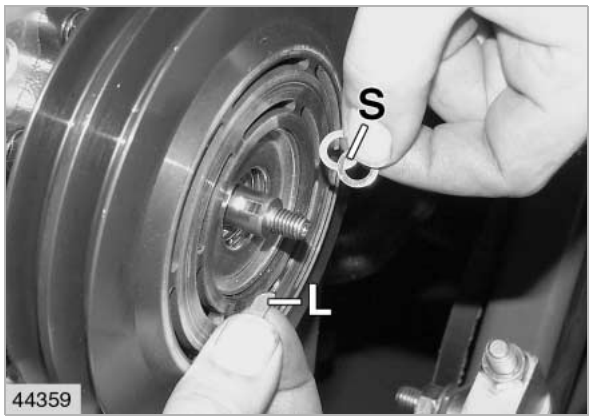


28

4. Insert dust protection (3) into the V-belt pulley (F) and drive in carefully using a block-ended tube if necessary.

   Tube, outside diameter 60 mm,
   inside diameter 52 mm, 50 mm long
   (self-sourced)

(Fig. 25, 28)

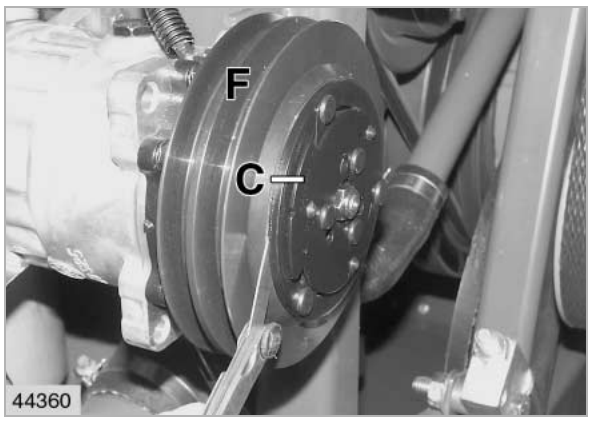


29

5. Push existing washers (S) on air conditioner compressor shaft.

   Insert curved washer (L).

(Fig. 29)



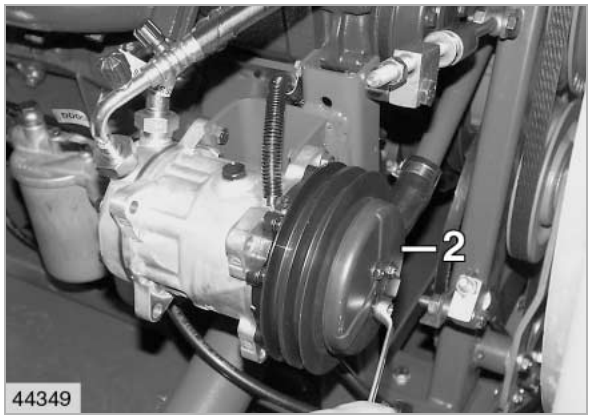
30

6. Push on thrust plate (C) and slightly pre-stress it with the hex. nut.
7. Determine clearance between thrust plate (C) and V-belt pulley (F) using a feeler gauge.

   Target = **0.4 – 0.8 mm**

   Loosen hex. nut if necessary and compensate with washers (S).
8. Tighten hex. nut.

(Fig. 29, 30)

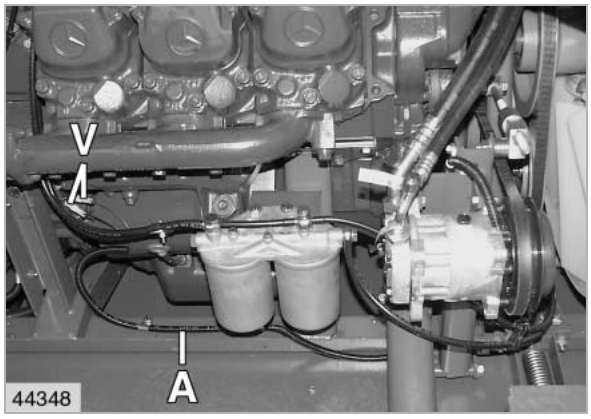


31

9. Fit dust cap (2).

   Screw in the hex. bolts with liquid locking compound, e.g. DELO-ML 5349.

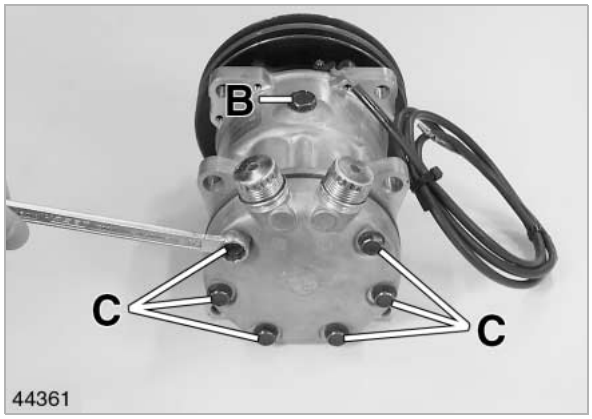
(Fig. 25, 31)



32

10. Connect plug-in connection (V) at the engine mounting frame.
11. Screw down wiring loom (A) using cable clamps.
12. Install and adjust air conditioner compressor drive belt (29) at the front – see page 7.3.20, *Installing and adjusting the air conditioner compressor drive belt (29)*.
13. If compressed-air system is fitted:
    Installing and adjusting the compressed-air compressor drive belt (30), see page 7.3.22

(Fig. 32)



33

Removing the air conditioner compressor cylinder head / cylinder head gasket

(Air conditioner compressor Sanden Sd 7h 15)

Remove the air conditioner compressor.

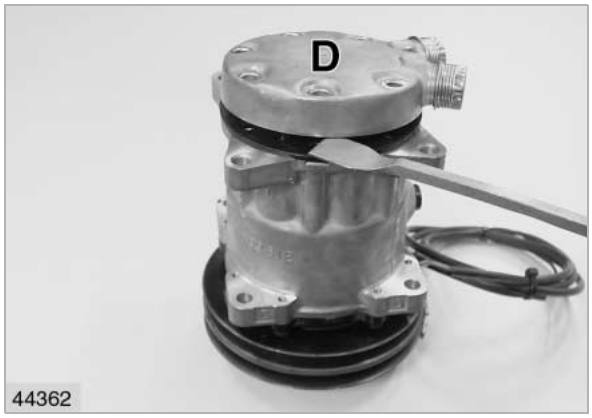
Unscrew oil filler plug (B) and drain refrigerant oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Unscrew cylinder head bolts (C).

(Fig. 33)



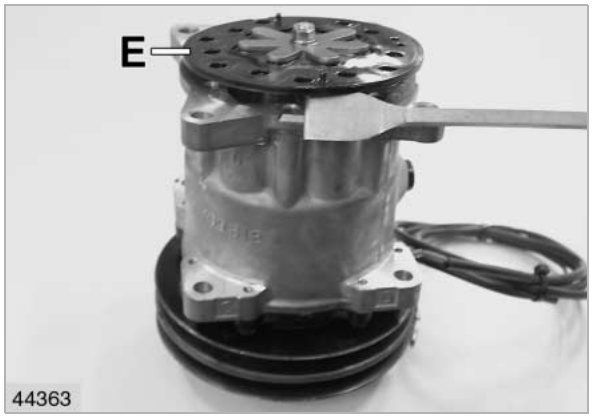
34

Remove cylinder head (D) and valve plate (E) from the compressor housing, using a flat scraping knife.

ATTENTION!

Ensure that the sealing faces will not be damaged.

(Fig. 34, 35)



35

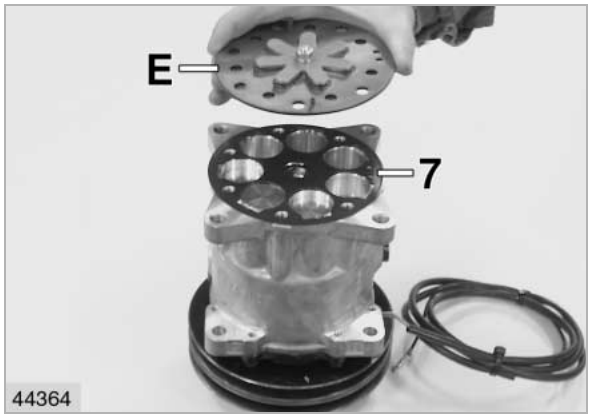
Installing the air conditioner compressor cylinder head / cylinder head gasket

(Air conditioner compressor Sanden Sd 7h 15)

NOTE: Prior to assembly, clean the compressor housing, the cylinder head (D) and the valve plate (E).

Check sealing faces for damage.

(Fig. 36, 37)



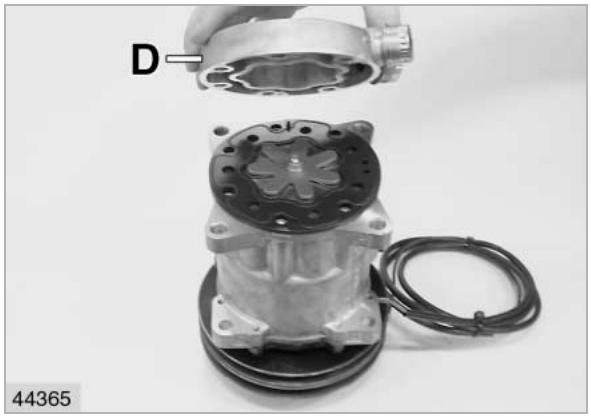
36

1. Apply refrigerant oil **SANDEN SP 20** to valve plate (E) and set of gaskets (7) and fit them.

CAUTION!

The stamped side of the valve plate (E) must face the cylinder head (D).

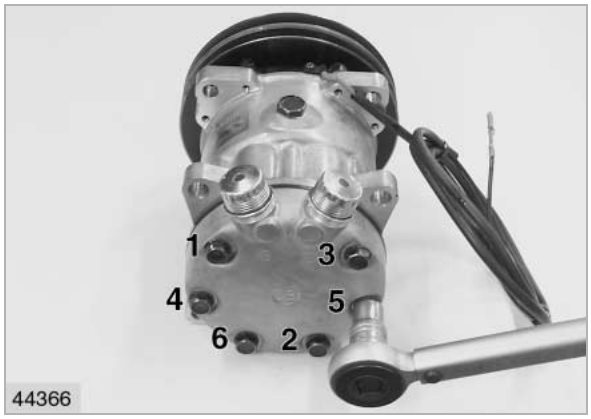
(Fig. 25, 36, 37)



37

2. Apply refrigerant oil **SANDEN SP 20** to sealing face of cylinder head (D) and insert it.

(Fig. 37)



38

3. Insert cheese-head screws (C) and tighten them in two steps and in the indicated order.

   1. step: Tightening torque = **20 Nm**
   2nd step: Tightening torque = **32 Nm**

4. *Checking / topping up the refrigerant oil level at the air conditioner compressor*, see page 2.1.4
5. Install the air conditioner compressor.

(Fig. 33, 38)



39

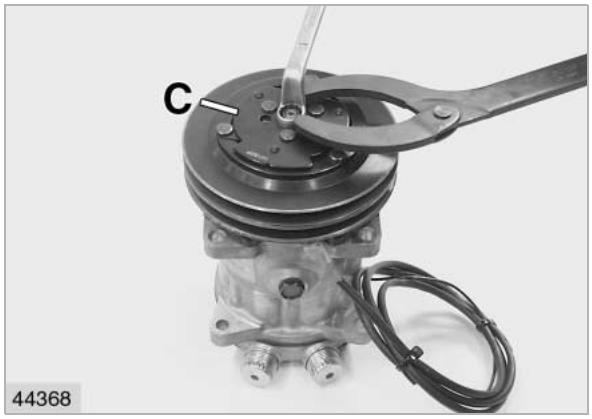
Removing the air conditioner compressor shaft seal

(Air conditioner compressor Sanden Sd 7h 15)

Remove the air conditioner compressor.

Unscrew dust cap (2).

(Fig. 25, 39)



40

Unscrew the thrust plate (C). Use special tool for backing up.

Special tool:

Pin hole wrench, part no. 181 624.0

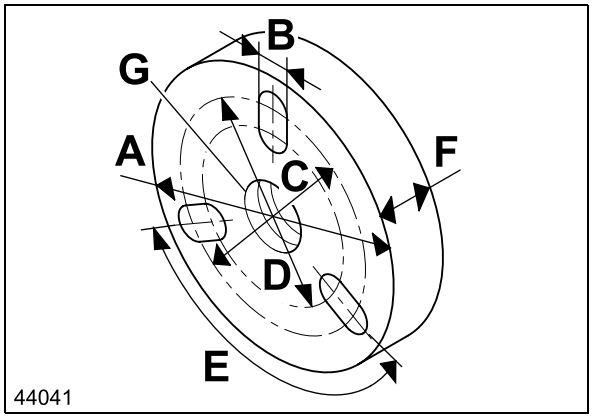
(Fig. 40)



41

Pull off thrust plate (C) using special tool.

(Fig. 41)



42

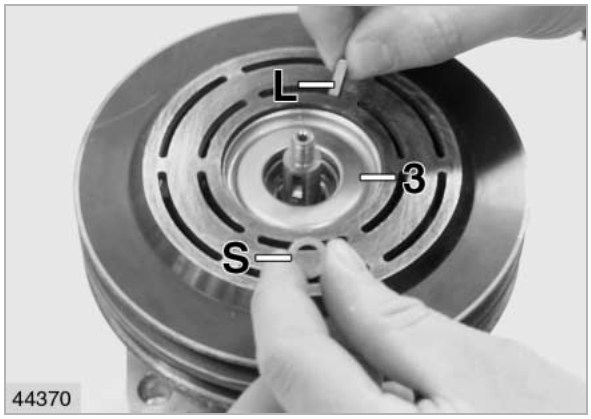
Special tool (self-sourced):

A = ∅ 60 mm
B = 7 mm
C = ∅ 35 mm
D = ∅ 46 mm
E = 3 x 120°
F = 10 mm
G = M 14 x 1.5

1 x hex. bolt M 14 x 1.5 x 50 DIN 961-8.8, part no. 233 634.0

3 x Hex. inch bolt ¼"- 20 x 1¼"

(Fig. 42)



43

Remove curved washer (L) and washers (S) from the air conditioner compressor shaft.

(Fig. 43)



44

Remove dust protection (3), dirt scraper (A) and circlip (R).

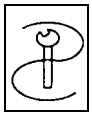
(Fig. 25, 43, 44, 45)



45



46



Pull out shaft seal (6) with special tool.

(Fig. 25, 46)

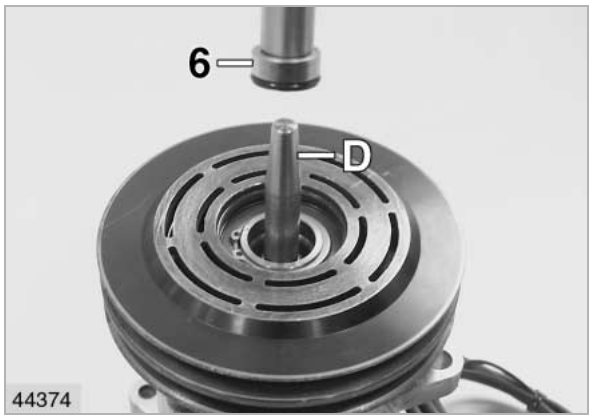
Installing the air conditioner compressor shaft seal

(Air conditioner compressor Sanden Sd 7h 15)

NOTE!

Deburr and clean air conditioner compressor shaft prior to assembly.

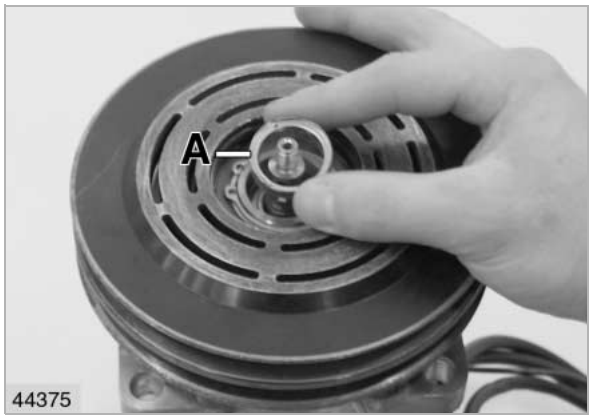
Clean housing shaft.



47

1. Apply refrigerant oil **SANDEN SP 20** to shaft seal (6) and insert it using a special tool. Use a guide bush (D) while doing so.

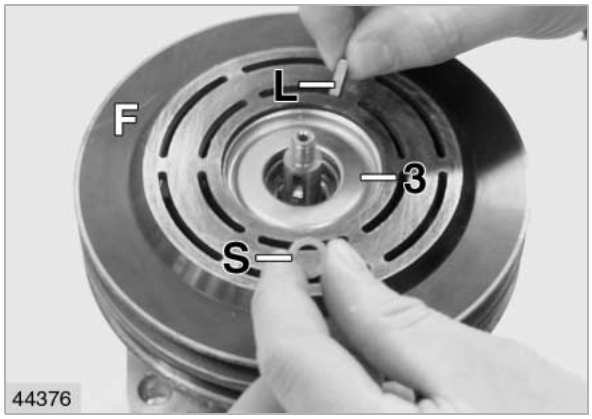
(Fig. 25, 47)



48

2. Insert circlip (R) and dirt scraper (A).

(Fig. 45, 48)



49

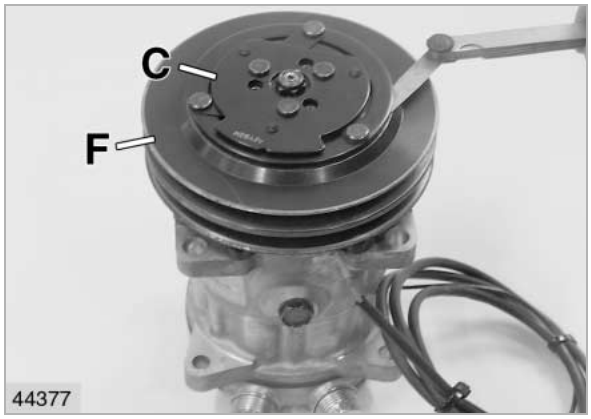
3. Insert dust protection (3) into the V-belt pulley (F) and drive in carefully using a block-ended tube if necessary.

   Tube, outside diameter 60 mm,
   inside diameter 52 mm, 50 mm long
   (self-sourced)

4. Push existing washers (S) on air conditioner compressor shaft.

   Insert curved washer (L).

(Fig. 25, 49)



50

5. Push on thrust plate (C) and slightly pre-stress it with the hex. nut.
6. Determine clearance between thrust plate (C) and V-belt pulley (F) using a feeler gauge.

   Target = **0.4 – 0.8 mm**

   Loosen hex. nut if necessary and compensate with washers (S).
7. Tighten hex. nut.

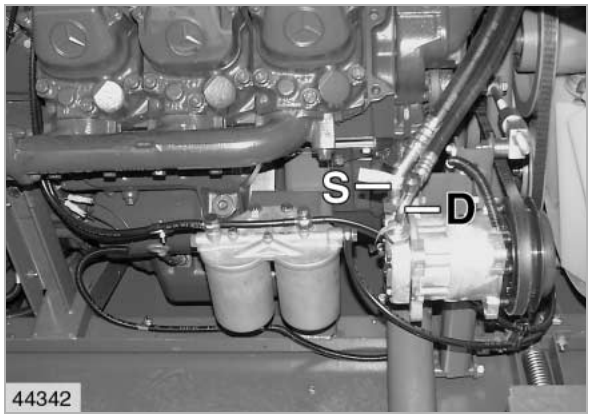
(Fig. 49, 50)



51

8. Fit dust cap (2). Screw in the hex. bolts with liquid locking compound, e.g. DELO-ML 5349.
9. *Checking / topping up the refrigerant oil level at the air conditioner compressor*, see page 2.1.4
10. Install the air conditioner compressor.

(Fig. 25, 51)

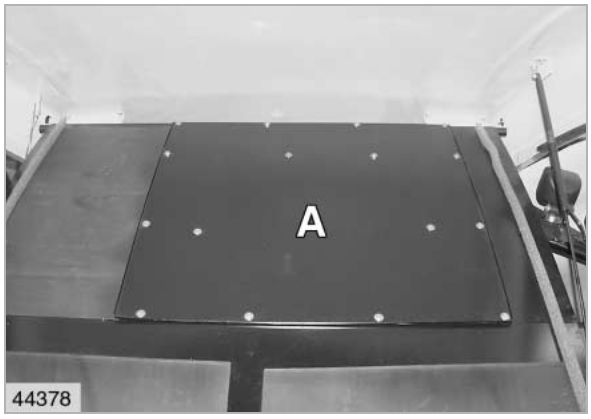


52

Removing the expansion valve

Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)

(Fig. 52)

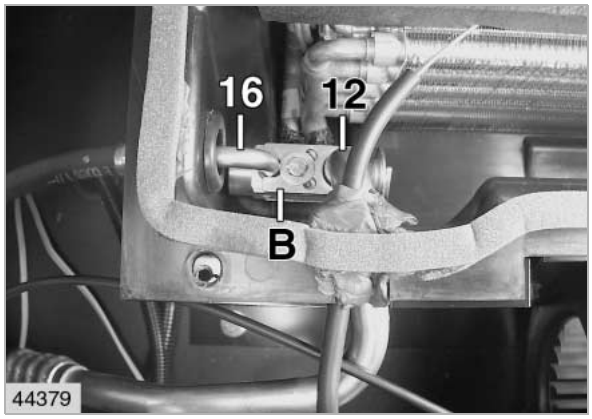


53

Fold up the cab roof.

Unscrew the cover (A) from the cab top.

(Fig. 53)

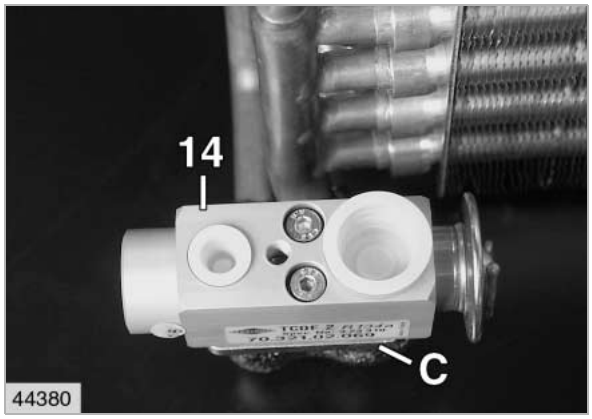


54

Unscrew the support plate (B).

Pull out the suction line (12) and the discharge line (16) and plug with plugs on both sides.

(Fig. 54, 56)

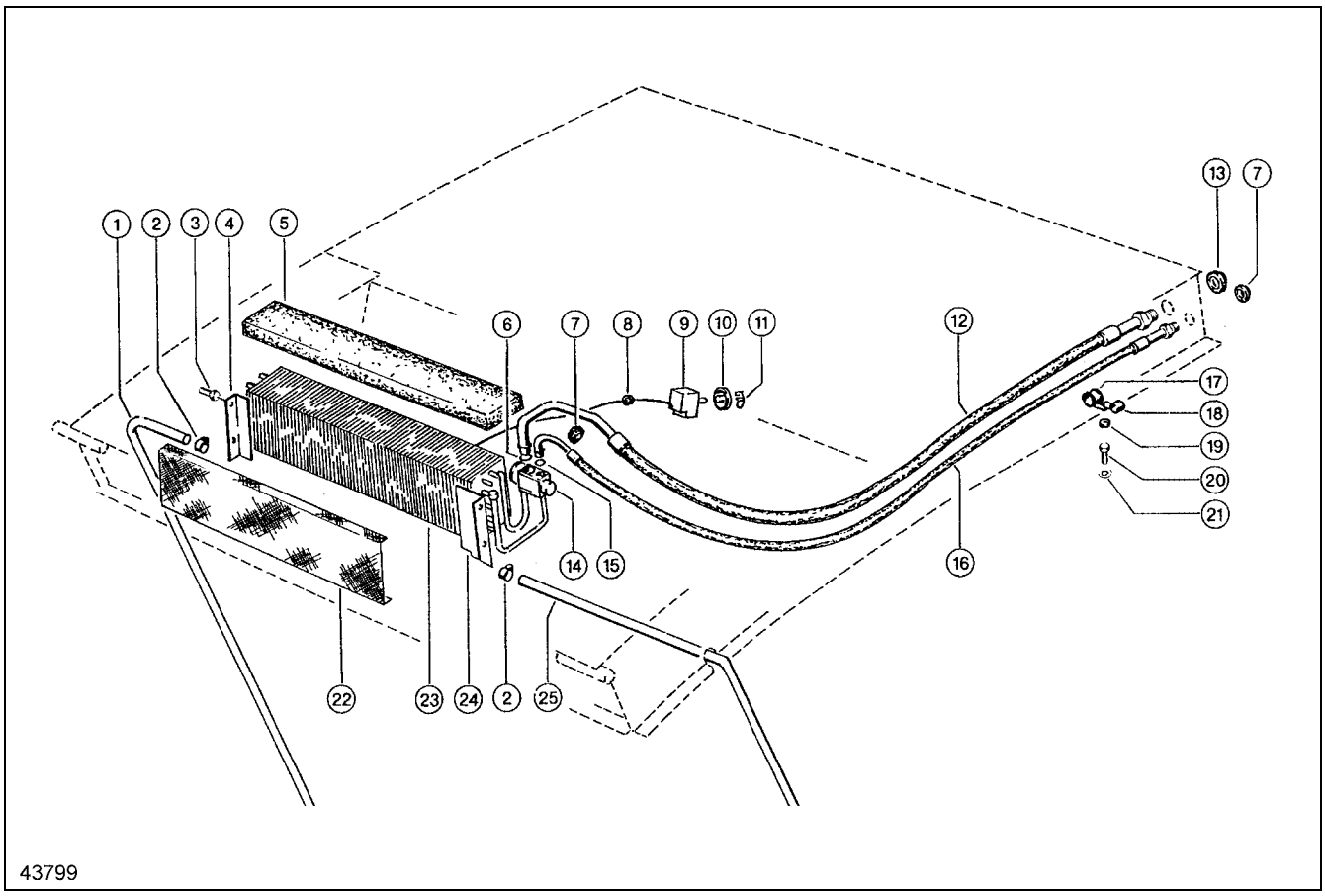


55

Unscrew the support plate (C).

Pull off expansion valve (14) and plug connections with plugs on both sides.

(Fig. 55, 56)

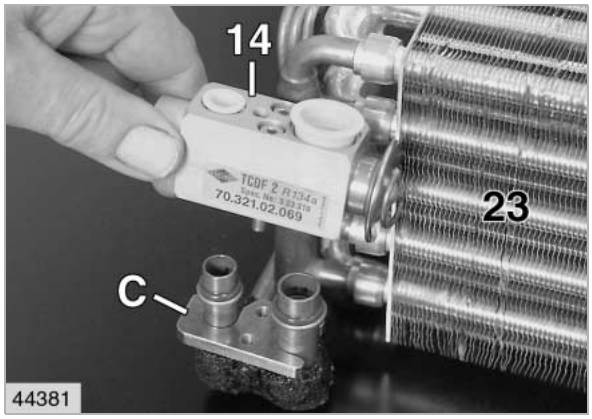


56

Air conditioning system (cab side), disassembled

1 Hose
2 Hose clamp
3 Sheet metal screw
4 Mounting bracket
5 Sealing plate
6 O-ring 17 x 1.8-n DIN 3771
7 Cable ring
8 Cable ring
9 Temperature switch
10 Rotary knob
11 Insert
12 Suction line
13 Cable ring
14 Expansion valve
15 O-ring 11.1 x 1.78-n DIN 3771
16 Discharge line
17 Pipe clamp
18 Pipe clamp
19 Spacer ring
20 Hex. bolt M 6 x 35 DIN 931-8.8
21 Contact washer A 6
22 Wire mesh
23 Evaporator
24 Mounting bracket
25 Hex. bolt M 8 x 40 DIN 933-8.8

(Fig. 56)

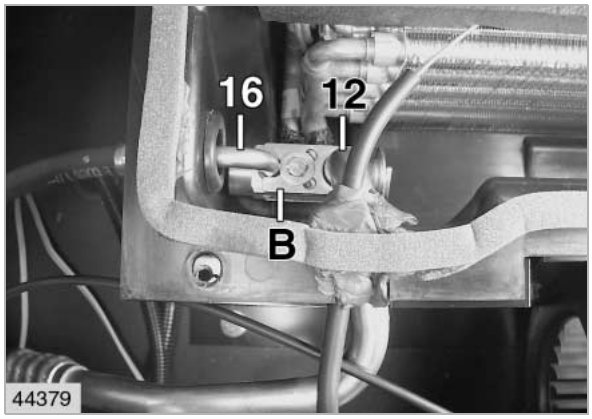


57

Installing the expansion valve

1. Push expansion valve (14) with new O-rings on the connections of evaporator (23) and bolt down support plate (C).

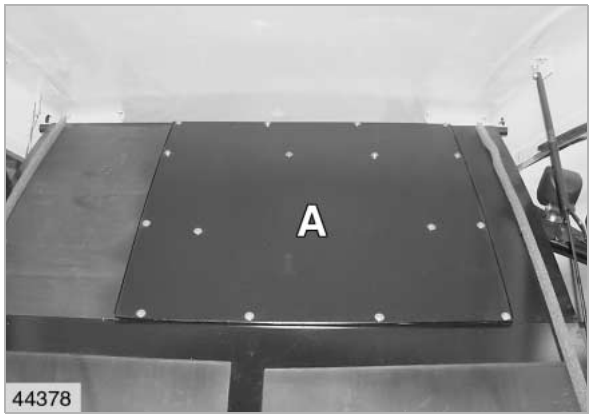
(Fig. 56, 57)



58

2. Push suction line (12) and discharge line (16) with new O-rings into the expansion valve (14) and bolt down support plate (B).
3. Seal pipe leadthrough with sealing compound.

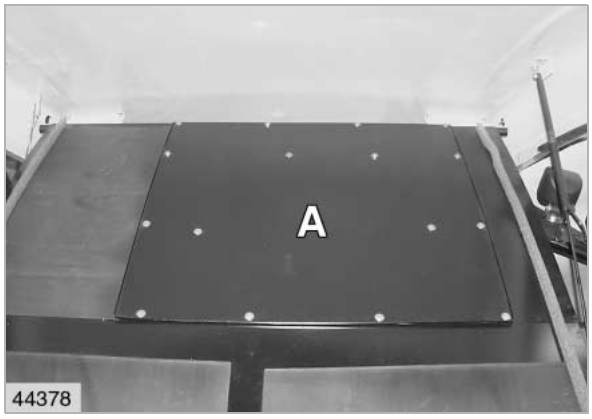
(Fig. 56, 58)



59

4. Screw down the cover (A) to the cab top.
5. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 59)



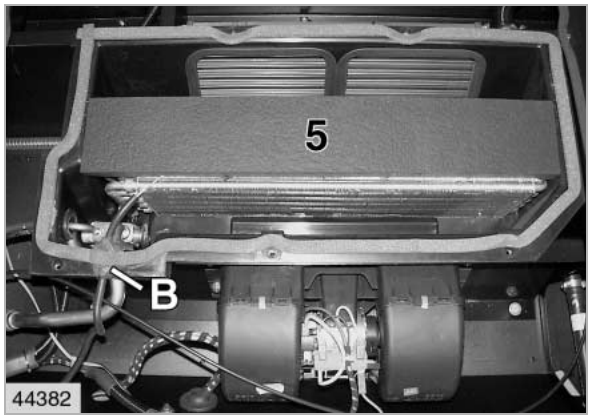
60

Removing the thermostat

Fold up the cab roof.

Unscrew the cover (A) from the cab top.

(Fig. 60)

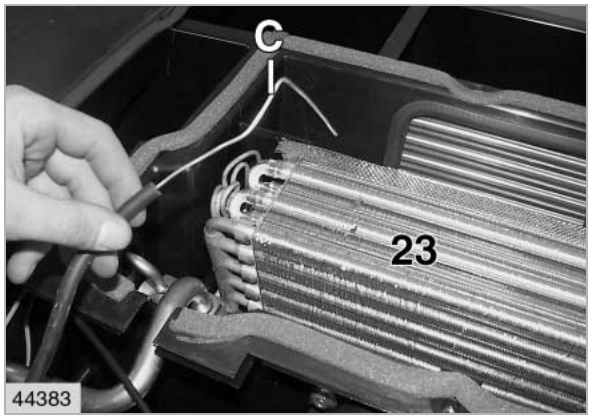


61

Carefully pull off the sealing plate (5).

Remove sealing compound (B).

(Fig. 56, 61)



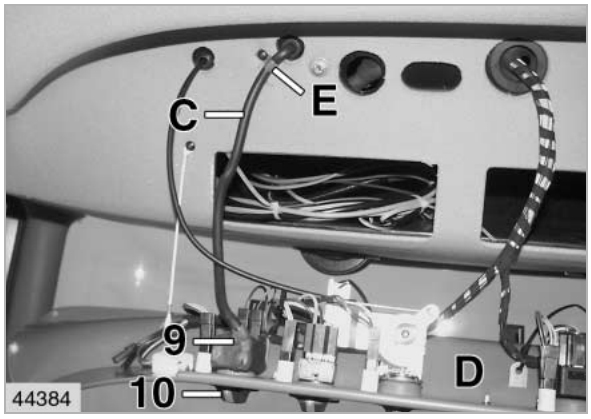
62

Carefully pull capillary tube (C) out of the evaporator (23).

ATTENTION!

Never pull out capillary tube (C) using force or kink it.

(Fig. 56, 62)



63

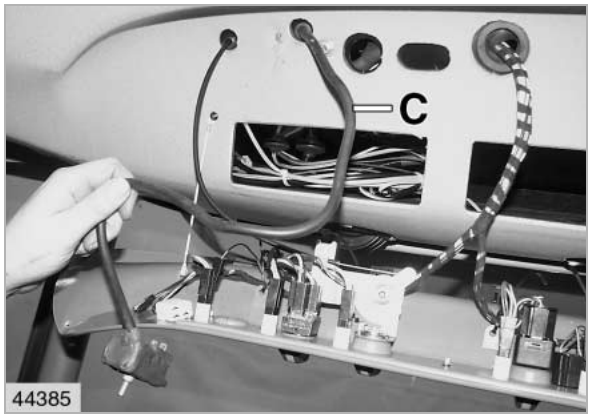
Remove the cover (D).

Disconnect cable plug from the temperature switch (9).

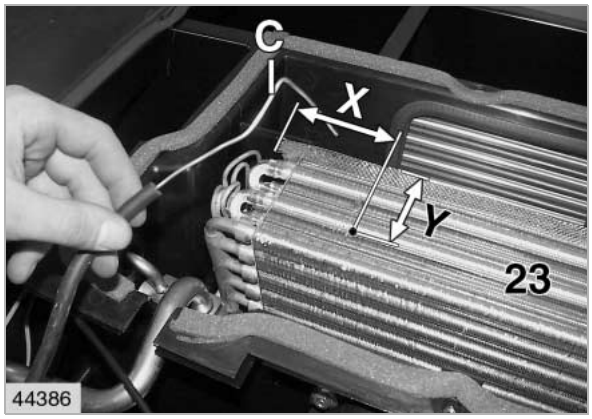
Loosen clamp (E).

Pull off rotary control (10), unscrew temperature switch (9) from cover (D) and carefully pull out capillary tube (C).

(Fig. 56, 63, 64)



64



65

Installing the thermostat

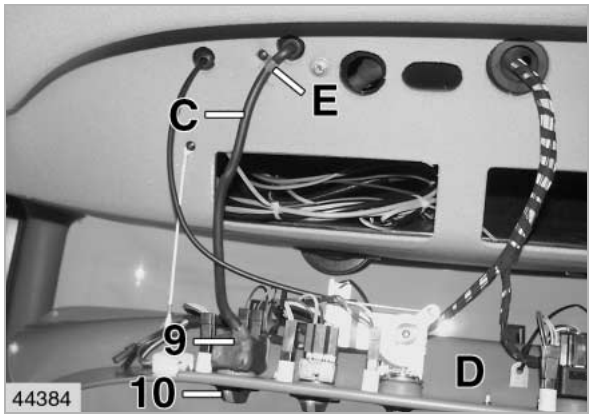
1. Guide capillary tube (C) of the temperature switch (9) through the cab covering, bend a **90**° angle approx. **80 mm** from the end and carefully push it into the evaporator (23) at (X and Y).

   (X) = **60 mm**
   (Y) = **30 mm**

ATTENTION!

Never push in capillary tube (C) using force or kink it.

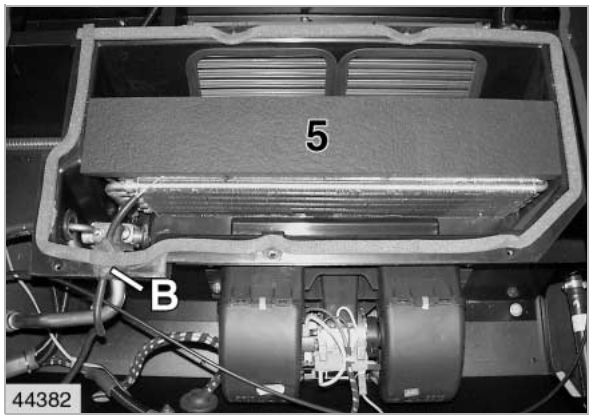
(Fig. 56, 64, 65)



66

2. Fasten capillary tube (C) using clamp (E).
3. Screw down temperature switch (9) to cover (D) and fit rotary control (10).
4. Connect cable plug to temperature switch (9).
5. Isolate temperature switch (9) using sealing compound.
6. Install cover (D).

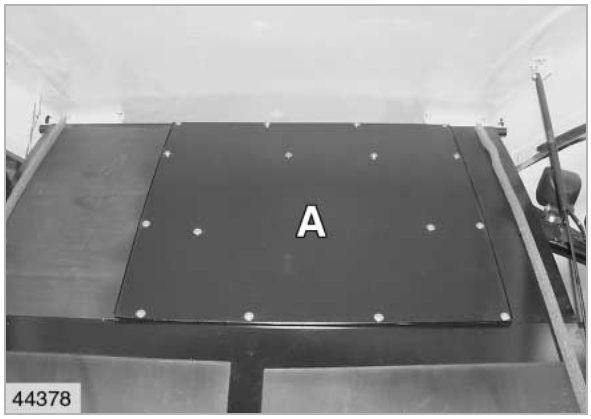
(Fig. 56, 66)



67

7. Seal pipe leadthrough with sealing compound (B).
8. Glue on sealing plate (5).

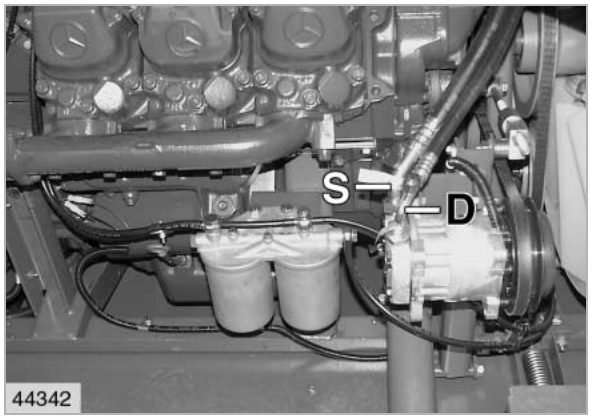
(Fig. 56, 67)



68

9. Screw down the cover (A) to the cab top.

(Fig. 68)

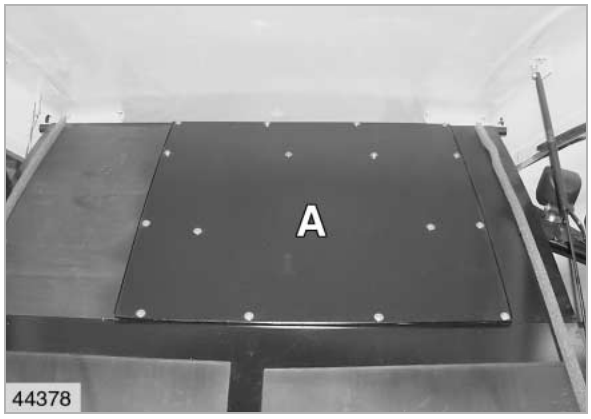


69

Removing the evaporator

Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)

(Fig. 69)

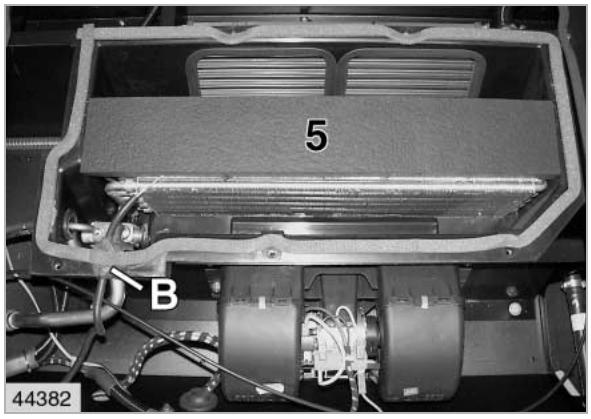


70

Fold up the cab roof.

Unscrew the cover (A) from the cab top.

(Fig. 70)

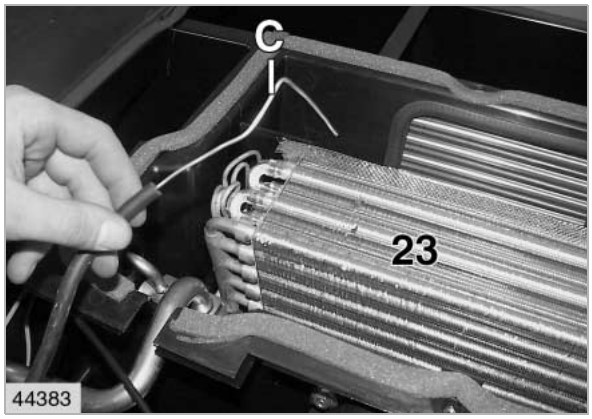


71

Carefully pull off the sealing plate (5).

Remove sealing compound (B).

(Fig. 56, 71)



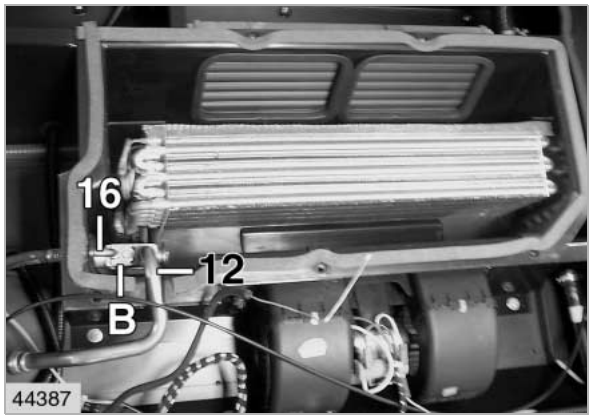
72

Carefully pull capillary tube (C) out of the evaporator (23).

ATTENTION!

Never pull out capillary tube (C) using force or kink it.

(Fig. 56, 72)

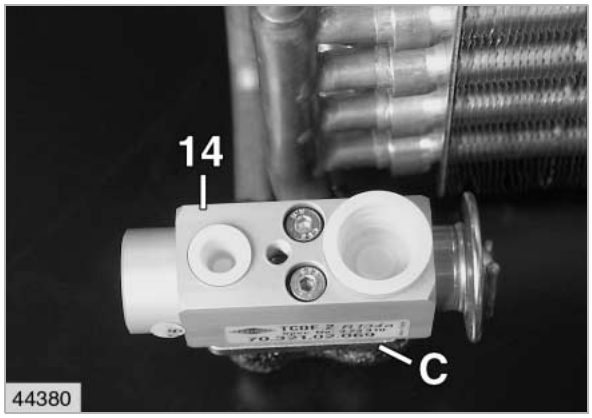


73

Unscrew the support plate (B).

Pull out the suction line (12) and the discharge line (16) and plug with plugs on both sides.

(Fig. 56, 73)



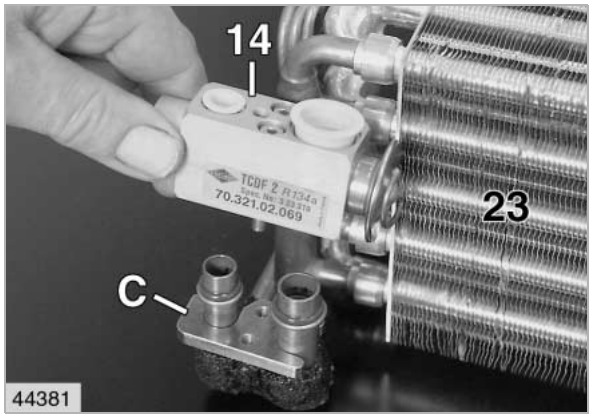
74

Unscrew the support plate (C).

Pull off expansion valve (14) and plug connections with plugs on both sides.

Pull evaporator (23) out of the cab roof.

(Fig. 56, 74)

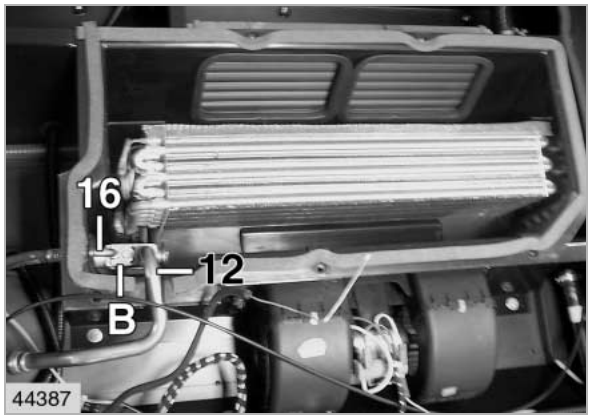


75

Installing the evaporator

1. Insert evaporator (23) into the cab roof.
2. Push expansion valve (14) with new O-rings on the connections of evaporator (23) and bolt down support plate (C).

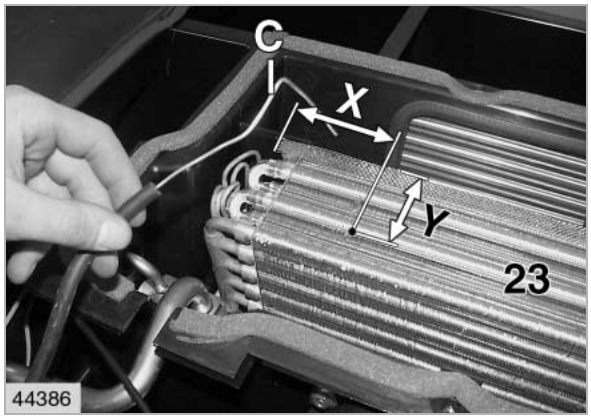
(Fig. 56, 75)



76

3. Push suction line (12) and discharge line (16) with new O-rings into the expansion valve (14) and bolt down support plate (B).

(Fig. 56, 76)



77

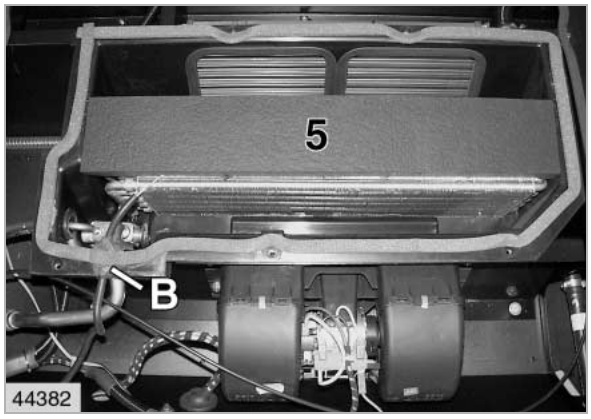
4. Guide capillary tube (C) of the temperature switch (9) through the cab covering, bend a **90**° angle approx. **80 mm** from the end and carefully push it into the evaporator (23) at (X and Y).

   (X) = **60 mm**
   (Y) = **30 mm**

ATTENTION!

Never push in capillary tube (C) using force or kink it.

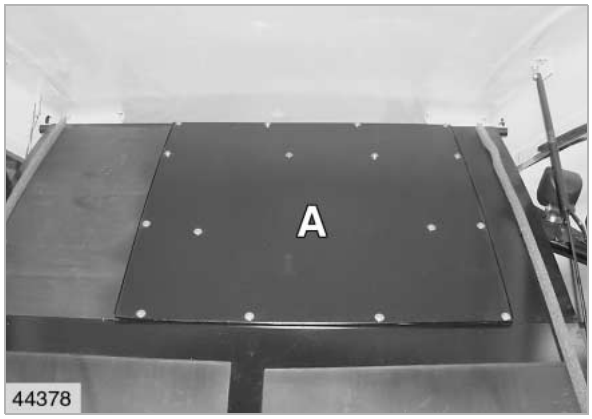
(Fig. 56, 77)



78

5. Glue on sealing plate (5).
6. Seal pipe leadthrough with sealing compound (B).

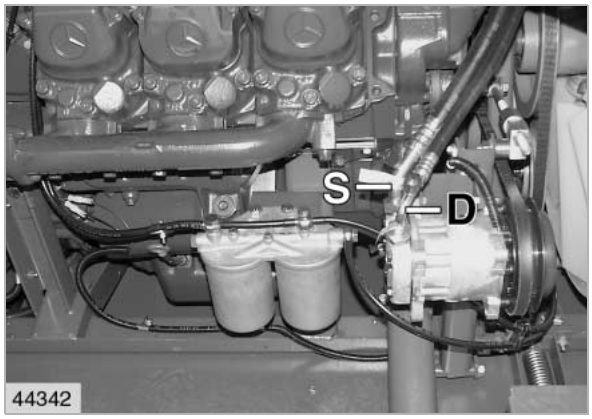
(Fig. 56, 78)



79

7. Screw down the cover (A) to the cab top.
8. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 56, 79)

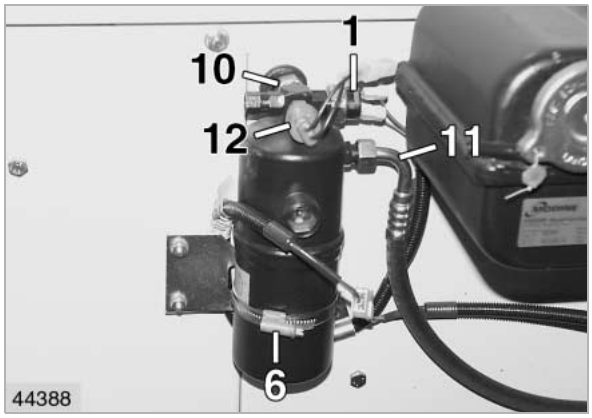


80

Removing the filter receiver drier

Extract refrigerant from connections (D, discharge side) and (S, suction side) of the air conditioning compressor. Proceed very slowly in order to prevent refrigerant oil from being extracted as well. (Observe the instructions given by the unit manufacturer.)

(Fig. 80)



81

Unscrew the discharge line (11) and hose line (10) from the filter receiver drier and plug with plugs on both sides.

Disconnect the cable plugs from the low-pressure switch (1) and the high-pressure switch (12).

Loosen the hose clamp (6) and remove filter receiver drier.

(Fig. 81, 84)



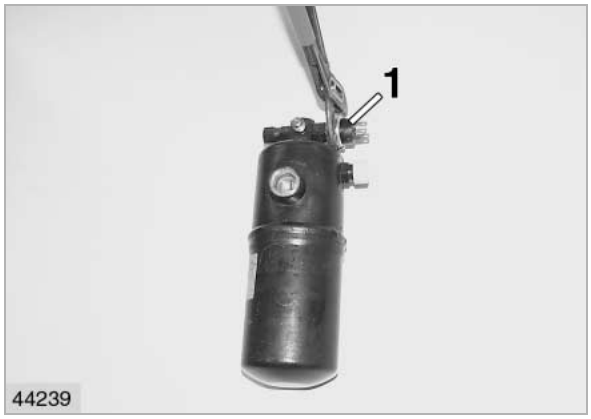
82

Unscrew the high-pressure switch (12) from the filter receiver drier.

NOTE!

The high-pressure switch (12) can also be replaced without loss of refrigerant when air conditioner is filled.

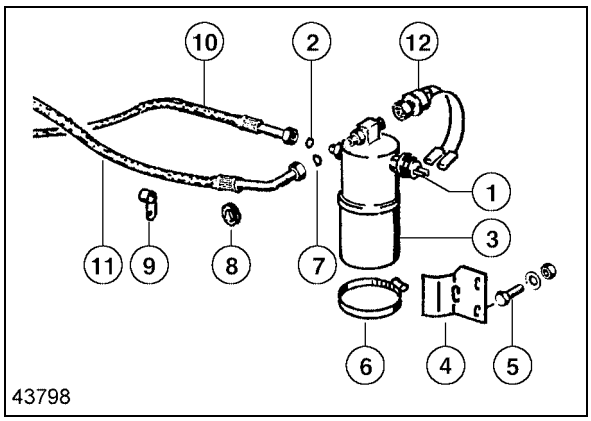
(Fig. 82, 84)



83

Unscrew the low-pressure switch (1) from the filter receiver drier.

(Fig. 83, 84)



84

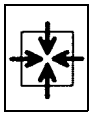
Filter receiver drier, disassembled

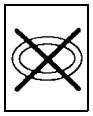
1 Low-pressure switch
2 O-ring 7.65 x 1.78-n DIN 3771
3 Cylinder
4 Mounting bracket
5 Hex. bolt M 6 x 12 DIN 933-8.8
Hex. nut M 6 DIN 934
Contact washer B 6
6 Hose clamp As 60-80 / 12-c7 DIN 3017
7 O-ring 11.1 x 1.78-n DIN 3771
8 Cable ring
9 Pipe clamp
10 Hose line
11 Discharge line
12 High-pressure switch

(Fig. 84)



85





Installing the filter receiver drier

1. Bolt down low-pressure switch (1) to the filter receiver drier with a new O-ring.

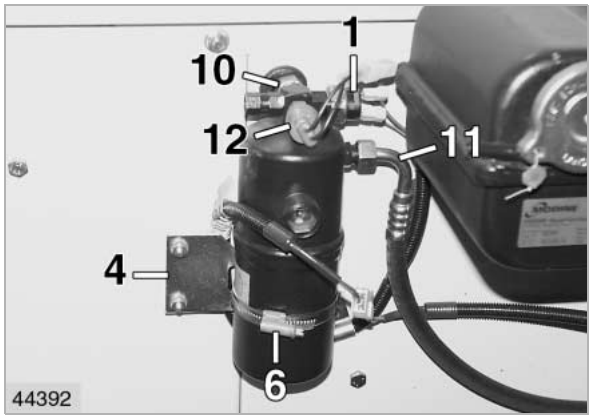
(Fig. 84, 85)



86

2. Bolt down high-pressure switch (12) to the filter receiver drier.

(Fig. 84, 86)



87

3. Fasten filter receiver drier to bracket (4) using a hose clamp (6).
4. Connect the cable plugs to the low-pressure switch (1) and the high-pressure switch (12).
5. Fit the discharge line (11) and hose line (10) to the filter receiver drier with new O-rings.
6. Top up refrigerant oil.
7. *Air conditioning system – Topping up refrigerant*, see page 2.1.3

(Fig. 84, 87)

STEERING

Scenes of failures on the Orbitrol steering unit

External leaks

External leaks are identified by oil leaking from the valve block and steering block mounting faces, by oil leaking from the pressure relief valve and from the shock valve.

Cause:

1. O-rings on the flange do not seal properly.
2. O-rings on the adjustment screw of the pressure relief valve do not seal properly.
3. O-rings on the shock valve plug do not seal properly.

Remedy:

In case of leaks replace the respective O-rings by new ones.

Internal leaks

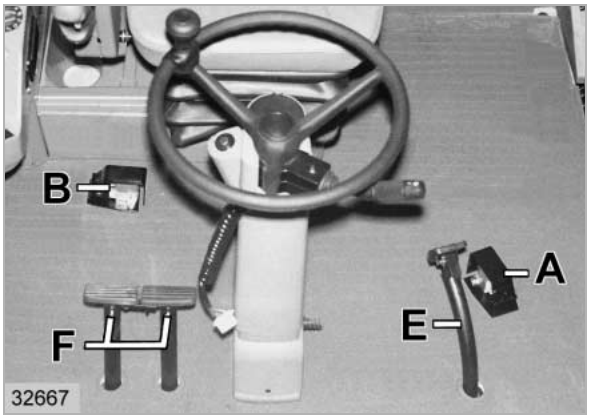
Internal leaks might be the reason when the rear wheels do not respond immediately to steering on soft ground, or when no firm resistance is felt on the steering wheel when the rear wheels are turned all the way to the to the left or right end position.

Cause:

The oil is leaking from the internal O-rings of the shock valve.

Remedy:

1. If oil is leaking from the valve block or steering block mounting faces, replace the shock valve O-rings by new ones.
2. If oil is leaking from the pressure relief valve, the shock valve and in case of internal leaks, replace the complete valve block by a new one.



1

Removing the steering column

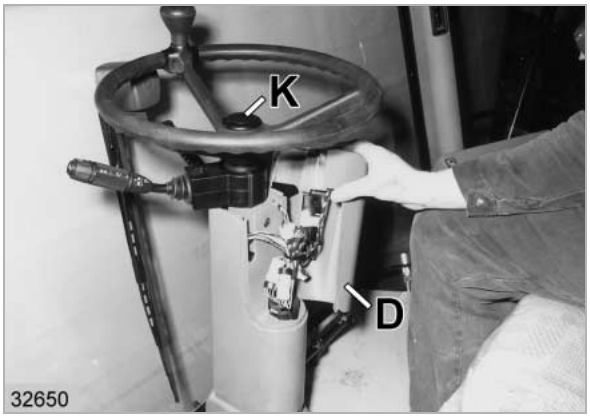
Unbolt the two foot switches (A and B) and disconnect the cable plugs.

Remove the top from the parking brake pedal (E). For this unscrew the M 6 bolt and drive out the pin.

Remove the tops from the two foot brake pedals (F) by unscrewing one M 8 bolt each.

Pull the floor mat halves over the pedals (E and F) and then remove them from the cab.

(Fig. 1)



2

Remove the inspection cover (D) from the cover to one side and disconnect the five cable plugs.

Remove the centre cover (K).

(Fig. 2)

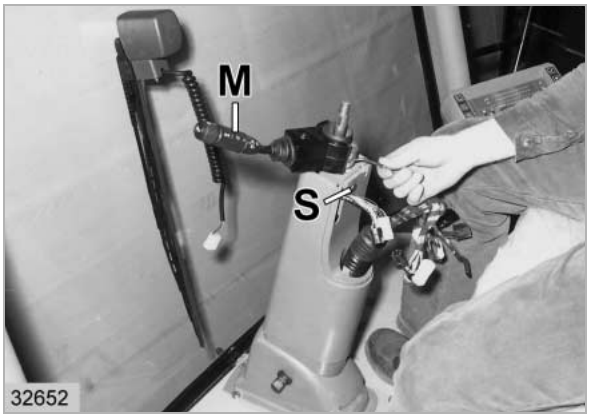


3

Unbolt the M 16 hex. nut.

Using a three-armed puller, pull the steering wheel off the shaft.

(Fig. 3)



4

Remove the M 5 x 16 cheese-head screw and then the multifunction switch (M).

Remove the screw (S) so that the upper section of the steering column cover can be removed.

(Fig. 4)



5

Pull off the steering column height adjuster (S) on the right-hand side.

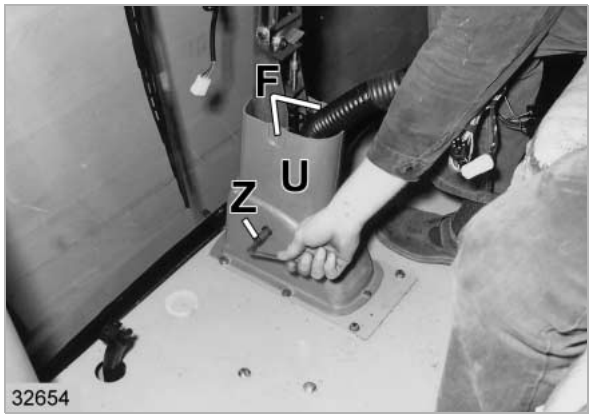
(Fig. 5)



6

Remove the upper steering column cover to the top.

(Fig. 6)

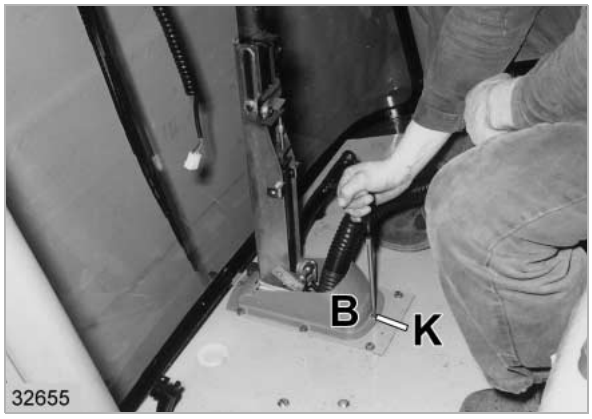


7

Unscrew the two lateral mushroom head bolts (F) and the cheese-head screw (Z).

Remove the lower section (U) to the top.

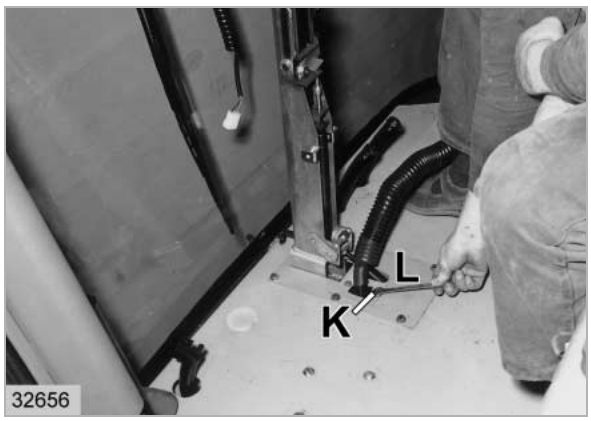
(Fig. 7)



8

Unscrew the hex. bolts (K) and remove the floor section (B).

(Fig. 8)



9

Slacken off the cable clamp (K) from the bearing assembly and push the cable downwards.

Unscrew the six hex. bolts from the bearing assembly (L).

(Fig. 9)



10

Unscrew the hydraulic hoses from the valve block on the steering assembly.

Plug hydraulic lines and screwed joints with plugs.

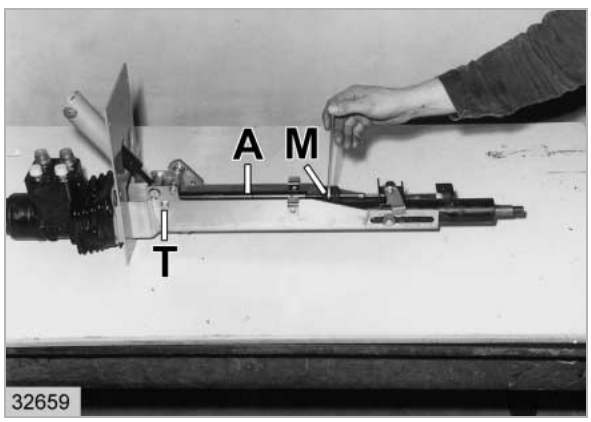
(Fig. 10)



11

Lift the complete steering column out to the top.

(Fig. 11)



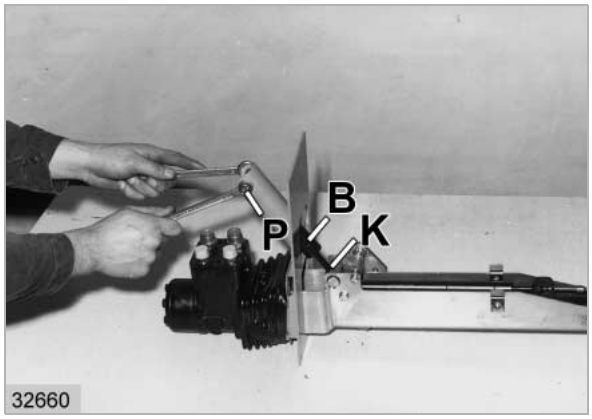
12

Disassembling the steering column

Removing the gas strut (A):

1. Push the gas strut together.
2. Remove the lock nut (M).
3. Unscrew the hex. bolt (T) completely.
4. Remove the gas strut (A) from the steering column.

(Fig. 12)

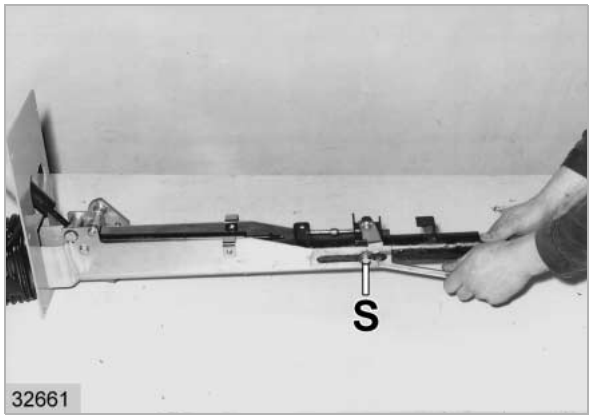


13

Removing the gas strut (B):

1. Remove the hex. bolt (P).
2. Slacken off the lock nut (K).
3. Unscrew the connecting rod.
4. Push the gas strut (B) out of the tube.

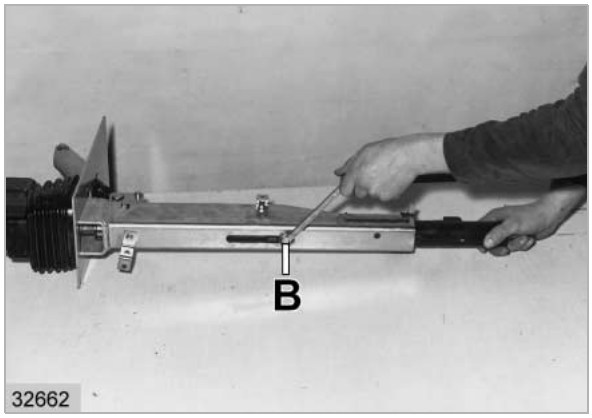
(Fig. 13)



14

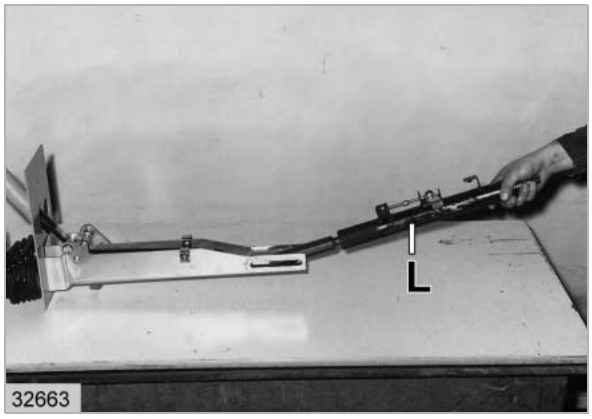
Removing the steering tube with the shaft:

1. Remove the lock nut (M) of gas strut (A).
   (Fig. 12)
2. Remove the two side-mounted bolts (S).
   (Fig. 14)



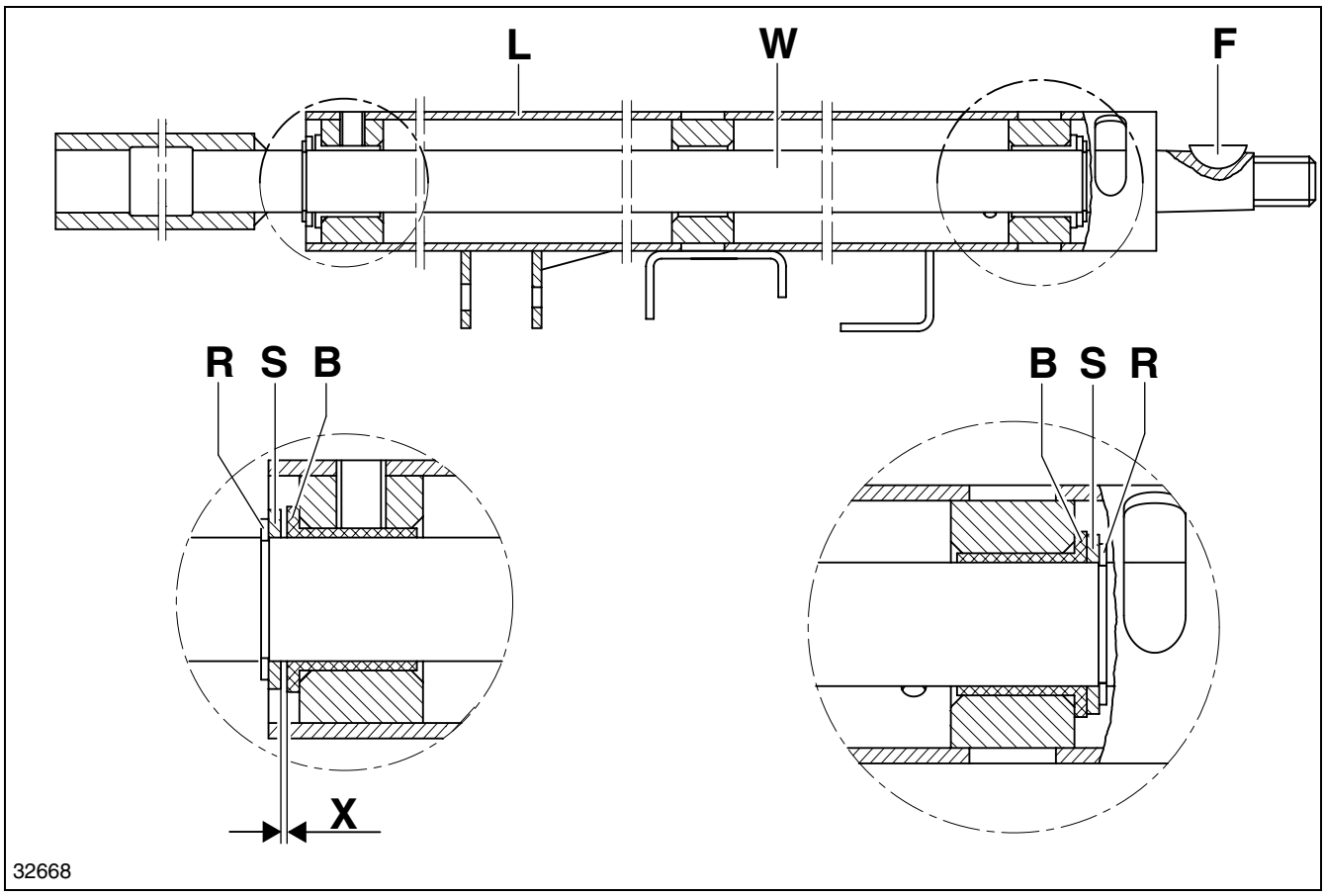
15

3. Remove the bolt (B) located on the rear side.
   (Fig. 15)



16

4. Remove the complete steering tube (L) towards the open side of the bearing assembly.
   (Fig. 16)



17

Disassembling the steering tube:

Remove the key (F) from the steering shaft (W).

Remove the circlip (R) and then pull the steering shaft (W) out of the steering tube (L).

Replace the bushings (B) if required.

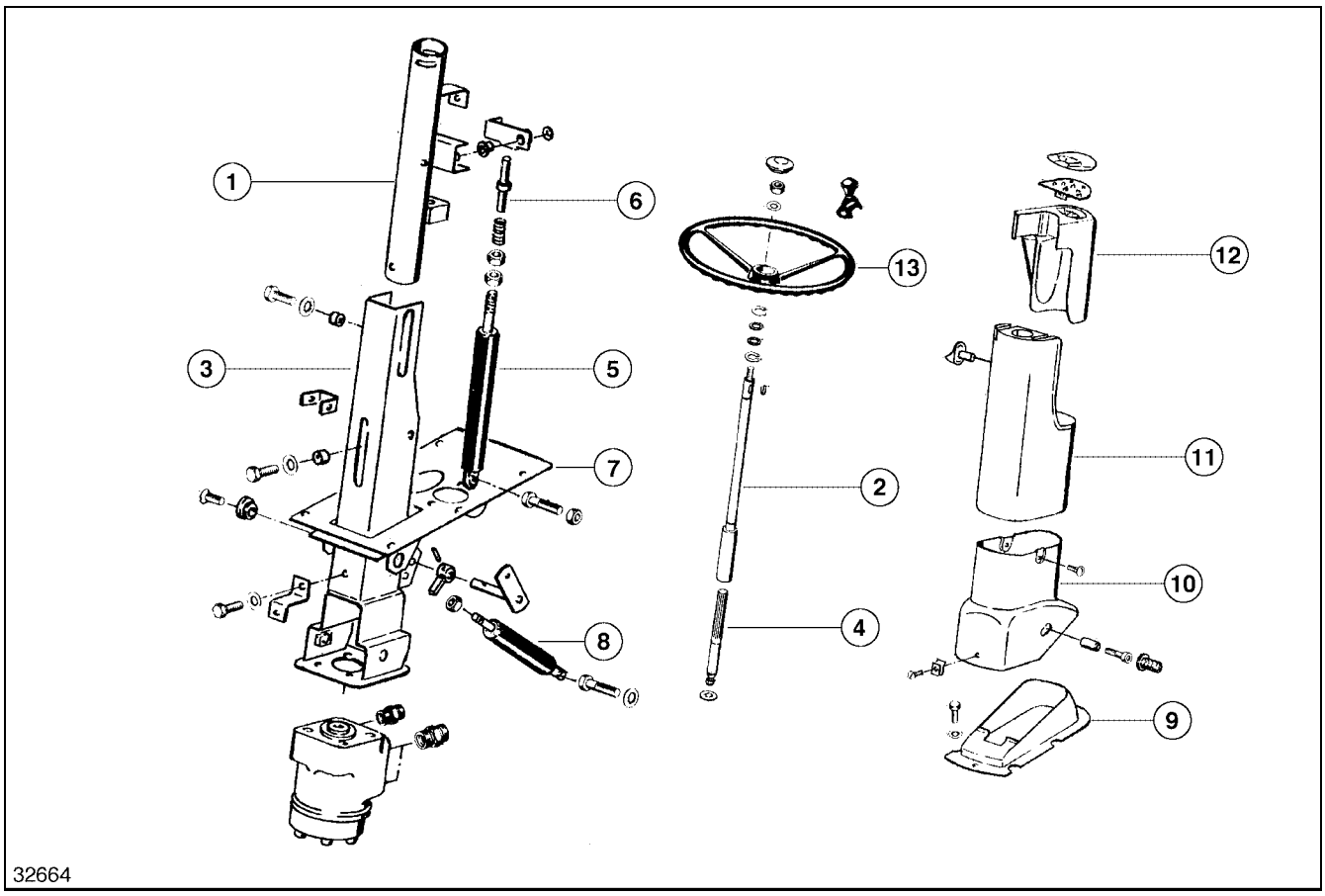
Assembling the steering tube:

Slide the steering shaft (W) back into the steering tube (L).

Put the support rings (S) and the circlips (R) into place.

Check the **max. permissible axial play on one side to be (X) = 0.3 mm** and adjust it using shims.

(Fig. 17)

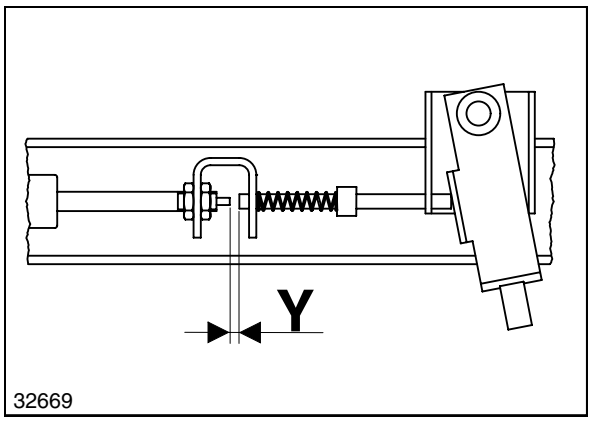


18

Steering column, disassembled:

1 Steering tube
Hex. bolt M 8 x 16 DIN 933-8.8
Contact washer B 8
Bushing
2 Steering shaft
3 Steering column
4 Shaft
5 Gas strut
Hex. bolt M 8 x 65 DIN 931-8.8
Self-locking nut VM 8
Contact washer B 8
Hex. nut M 8 x 1
6 Rod
7 Bearing bracket
8 Gas strut
Hex. bolt M 8 x 65 DIN 931-8.8
Self-locking nut VM 8
Contact washer B 8
Spacer bushing
Hex. nut M 10 x 1 DIN 936
9 Floor section
10 Lower section
11 Upper section
12 Inspection cover
13 Steering wheel
Dust cover
Hex. nut M 16 DIN 934-8
Contact washer A 16

(Fig. 18)



19

Assembling the steering column

1. Introduce the steering tube (1) and the steering shaft (2) together into the steering column (3), then fit onto the shaft (4) after applying grease.

   Screw the bolts with washers and bushings through the three slotted holes of steering column (3) into the steering tube (1).

   Tightening torque = 23 Nm

2. Bolt the gas strut (5) to the steering column at the joint.

   Push the gas strut (5) together, then using two M 8 x 1 nuts secure the connecting rod into position.

   There should be a gap of (Y) = **1 mm** between the end of the connecting rod and the rod (6) (Fig. 19).

   Lock the two nuts of the connecting rod.

   Tightening torque = 10 Nm

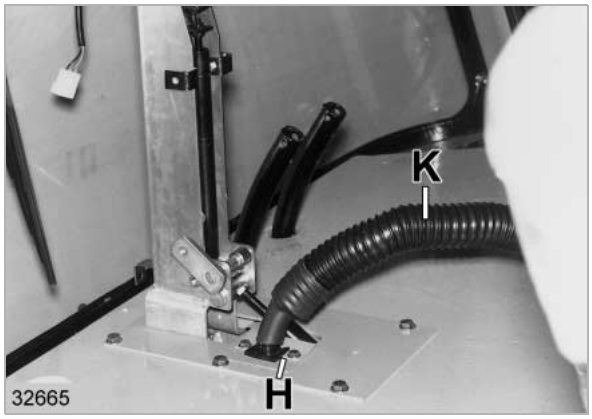
3. Push the gas strut (8) into the tube of the bearing assembly (7).

   Screw the connecting rod into position with the M 10 x 1 lock nut.

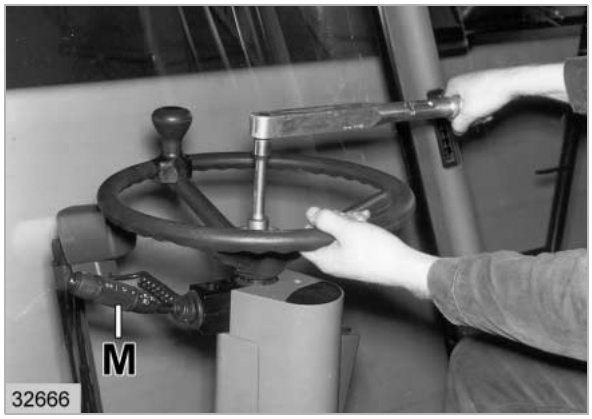
   Push the gas strut together, then using the M 8 bolt, the two spacer bushings, the self-locking nut and contact washers, screw into position at the joint. Tighten the lock nut.

   Tightening torque = 20 Nm

(Fig. 18, 19)



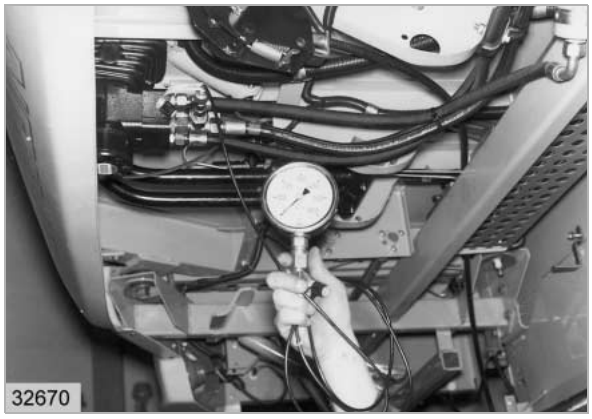
20



21



22



23

Installing the steering column

1. Insert the steering column and secure it on the platform at the bearing assembly (7).
2. Pull the cable (K) up through the floor, then secure it with the cable clamp (H).
3. Slide the floor section (9), the lower section (10) and then the upper section (11) respectively into position and secure them with screws.
4. Refit the multifunction switch (M) and reconnect all cable plugs.
5. Refit the inspection cover (12) and the steering wheel height adjuster.
6. Place the steering wheel (13) in position and bolt it down.

   Tightening torque = 35 Nm

   Refit the dust cover.
7. Refit the floor mat halves over the pedals. Put the parking brake and the two foot brake tops back into place and secure them with bolts.

   Screw on the two foot switches (A and B).

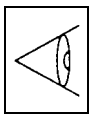
   (Fig. 1)
8. Refit the hydraulic hoses to the steering unit valve block. Ensure that absolutely no dirt enters the system.
9. Bleeding the steering hydraulic system:

   Jack the steering axle up in the centre, so that the load is off the steered wheels. Start the engine and bring the oil up to working temperature of approx. 50 °C in the tank.

   Keep the engine at max. no-load speed.

   Turn the steering wheel from one end position to the other several times, thus bleeding the system. Check the oil level.

(Fig. 20, 21, 22, 23)



10. Check the pressure settings:

    Valve block OVP 20 – setting of pressure relief valve = 150^{+10} bar

    Double shock valve = 200 bar



ATTENTION!

Check pressures only with the oil at working temperature (approx. 50 °C in the tank) and with the engine running at max. no-load speed.

Connect the pressure gauge to the test port (pressure line upstream of steering valve). Start the engine. Turn the steering wheel fully and hold it in that position. Take the pressure reading.



ATTENTION!

In the neutral position of the steering wheel, the circulation pressure from the oil at working temperature and with the engine at full speed must not exceed approx. 20 bar.

Should the circulation pressure exceed the permissible limit, the system will overheat.

(Fig. 20, 21, 22, 23)

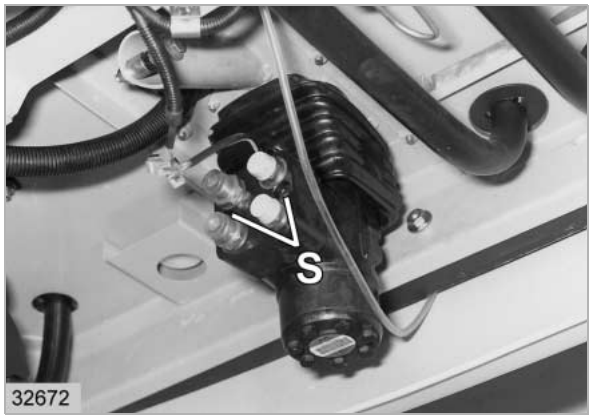


24

Removing the valve block from the Orbitrol

Unscrew the hydraulic hoses from the valve block on the steering assembly. Plug hydraulic lines and screwed joints with plugs.

(Fig. 24)

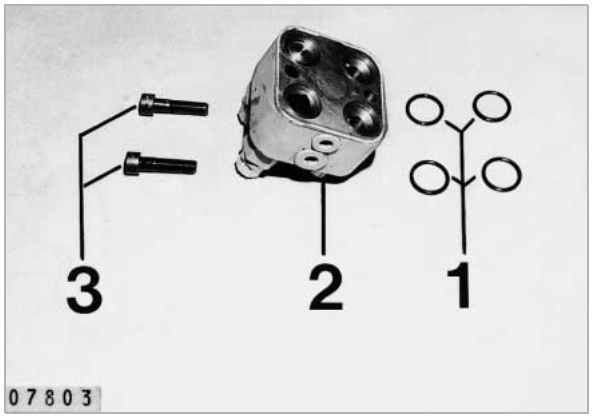


25

Remove the two cheese-head screws (S) from the valve block on the steering block, then remove the valve block.

Take care of the dowel pin.

(Fig. 25)



26

Valve block, removed:

1 O-ring OR 23, 47 x 2.62 N DIN 3771
2 Valve block, complete
3 Cheese-head screw M 10 x 1 x 45 DIN 912-10.9

(Fig. 26)

Installing the valve block on the Orbitrol

1. Clean the flange faces on the valve block (2) and steering block thoroughly.
2. If not already fitted, fit the dowel pin, this will ensure that the valve block will not be offset when fitted.
3. Fit the O-rings (1) into position and put the valve block in place.

NOTE!

The dowel pin must engage in the bore of the steering block.

Ensure the O-rings are properly positioned.

4. Bolt the cheese-head screws (3) into position.

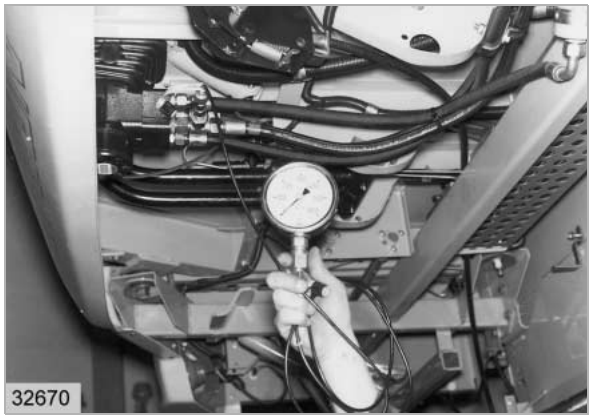
   Tightening torque = 65 Nm

(Fig. 26)

5. Refit the hydraulic lines back to the Orbitrol.

ATTENTION!

Ensure that absolutely no dirt enters the system.



27

6. Bleeding the steering hydraulic system:

   Jack the steering axle up in the centre, so that the load is off the steered wheels. Start the engine and bring the oil up to working temperature of approx. 50 °C in the tank.

   Keep the engine at max. no-load speed.

   Turn the steering wheel from one end position to the other several times, thus bleeding the system.

   Check the oil level.

7. Check the pressure settings:

   Valve block OVP 20 – setting of pressure relief valve = 150^{+10} bar

   Double shock valve = 200 bar

ATTENTION!

Check pressures only with the oil at working temperature (approx. 50° in the tank) and with the engine running at max. no-load speed.

Connect the pressure gauge to the test port (pressure line upstream of steering valve).

Start the engine.

Turn the steering wheel fully and hold it in that position. Take the pressure reading (Fig. 27).

ATTENTION!

In the neutral position of the steering wheel, the circulation pressure from the oil at working temperature and with the engine at full speed must not exceed approx. 20 bar.

Should the circulation pressure exceed the permissible limit, the system will overheat.

(Fig. 26, 27)

Removing the Orbitrol

NOTE!

Remove Orbitrol completely with the steering column to the top – see page 2.2.2, *Removing the steering column*.



28

Unscrew the hydraulic hoses from the valve block on the steering assembly. Plug hydraulic lines and screwed joints with plugs.

(Fig. 28)



29

Remove the rubber cover.

Remove the M 10 x 20 hex. bolts from the Orbitrol using a flat ring spanner.

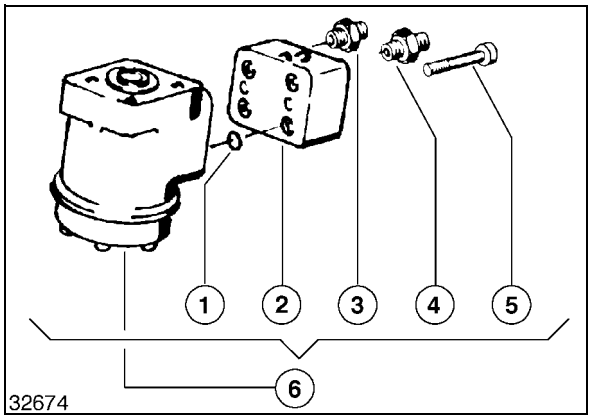
Steering column without Autopilot:

Remove the Orbitrol together with shaft and quick-release fastener.

Steering column with Autopilot:

Remove the Orbitrol together with the shaft, quick-release fastener, overrider switch and support washer.

(Fig. 29)



30

Orbitrol, disassembled

Replacing the O-rings (1) and/or the valve block (2) completely – see page 2.2.11, *Removing the valve block from the Orbitrol*.

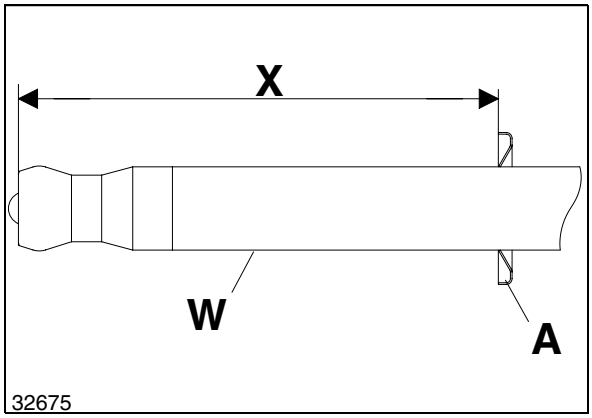
1 O-ring OR 23, 47 x 2.62 N DIN 3771
2 Valve block, complete
3 Male connector L12 e-g DIN 3901
4 Male connector L15 b-g DIN 3901
5 Cheese-head screw M 10 x 1 x 45 DIN 912-10.9
6 Steering unit

(Fig. 30)

Installing the Orbitrol

ATTENTION!

When assembling any part of the steering assembly, please ensure that maximum cleanliness is adhered to.



31

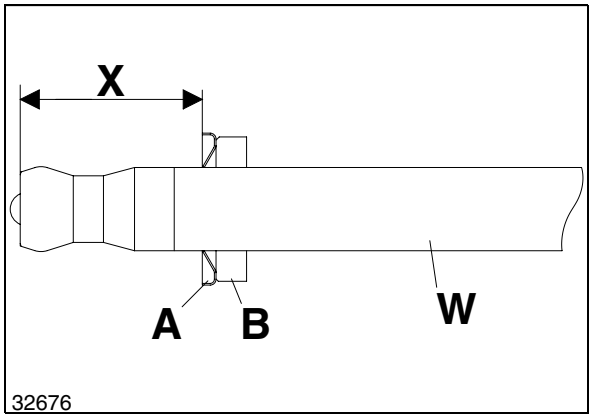
Steering column without Autopilot:

Position the quick-release fastener (A) on the shaft (W) at (X) = **115.3 mm**. Introduce shaft into the Orbitrol. Push the Orbitrol firmly under the console.

The axial play on the shaft (W) should be approx. **1 mm**, adjust the quick-release fastener (A) in order to achieve the setting if required. Bolt the Orbitrol into place.

Push the rubber cover upwards.

(Fig. 31)



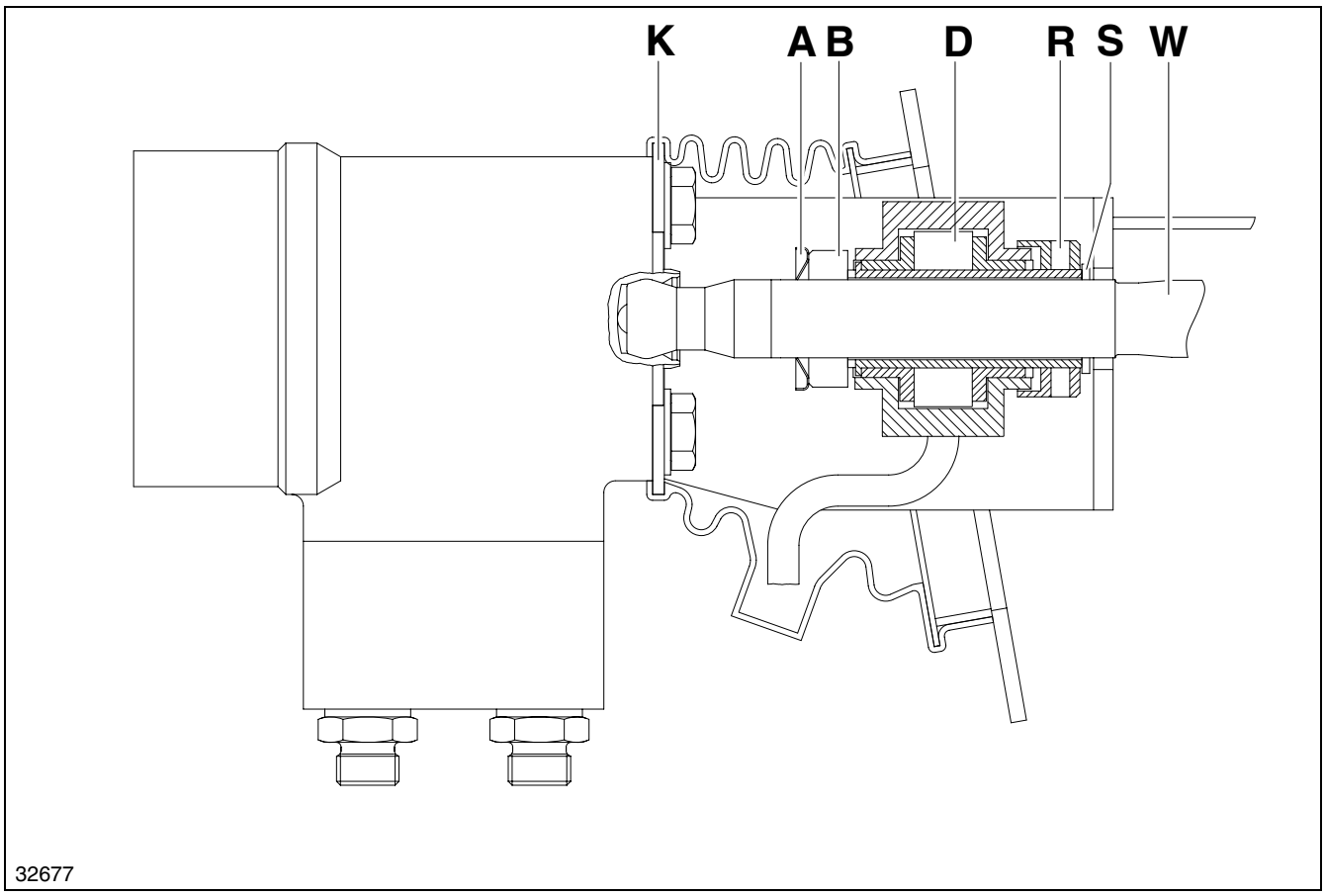
32

Steering column with Autopilot:

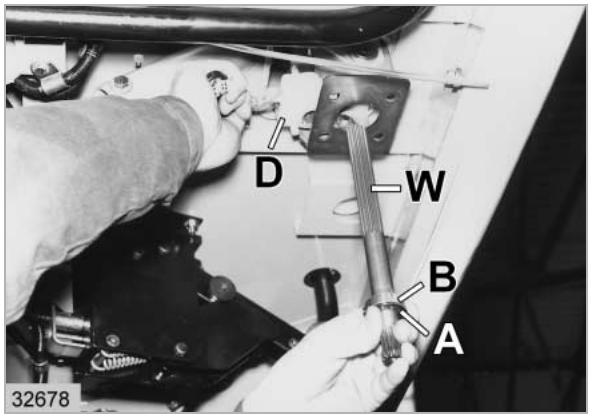
Slide the quick-release fastener (A) and the set collar (B) onto the shaft (W).

Now position the quick-release fastener (A) on the shaft at (X) = **43.3 mm**.

(Fig. 32)



33



34

Steering column with Autopilot:

Feed the prepared shaft (W) with quick-release fastener (A) and set collar (B) through the console (K) of the steering column.

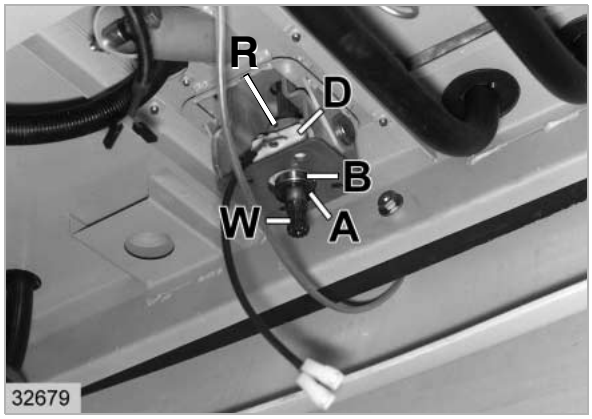
Push the overrider switch (D) from the side into the console (K). Pay particular attention to the fact that the support washer (S) of the overrider switch should be at the top and the wiring loom should come out at the back.

CAUTION!

The overrider switch should be free to turn.

With a new overrider switch, it may be necessary to grind it down a little in order for it to fit.

(Fig. 33, 34)



35

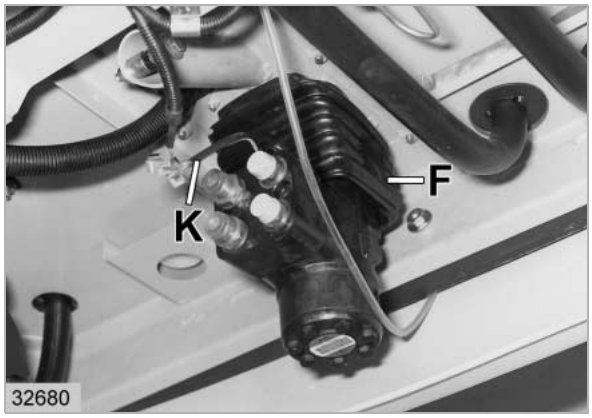
Push the shaft (W) through the overrider switch (D) and place the support washer (S) on the set collar (R) of the overrider switch (D).

Continue sliding the shaft (W) through until the overrider switch (D) makes contact with the set collar (B). Secure the set collar (R) of the overrider switch (D) on the shaft (W).

Check the axial play of the shaft (W). For this push the Orbitrol firmly under the console (K).

The axial play should be approx. **1 mm**, should this not be the case, then readjust the quick-release fastener (A).

(Fig. 33, 35)



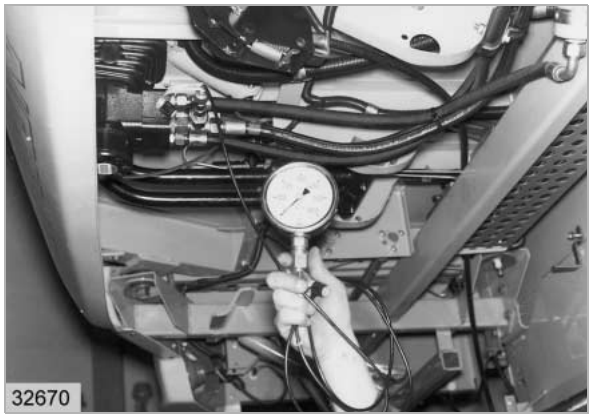
36

Bolt the Orbitrol into place. Check the axial play of the shaft (W) once more, and readjust it if necessary.

Push up the rubber cover (F) upwards.

Connect the cable (K) of the overrider switch (D) to the existing wiring loom.

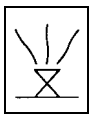
(Fig. 33, 36)



37

Refit the hydraulic lines back to the Orbitrol. Ensure that absolutely no dirt enters the system.

(Fig. 37)



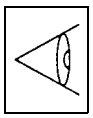
1. Bleeding the steering hydraulic system:

   Jack the steering axle up in the centre, so that the load is off the steered wheels. Start the engine and bring the oil up to working temperature of approx. 50 °C in the tank.

   Keep the engine at max. no-load speed.

   Turn the steering wheel from one end position to the other several times, thus bleeding the system.

   Check the oil level.



2. Check the pressure settings:

   Valve block OVP20 – setting of pressure relief valve = 150^{+10} bar

   Double shock valve = 200 bar



ATTENTION!

Check pressures only with the oil at working temperature (approx. 50 °C in the tank) and with the engine running at max. no-load speed.

Connect the pressure gauge to the test port (pressure line upstream of steering valve).

Start the engine.

Turn the steering wheel fully and hold it in that position. Take the pressure reading (Fig. 37).



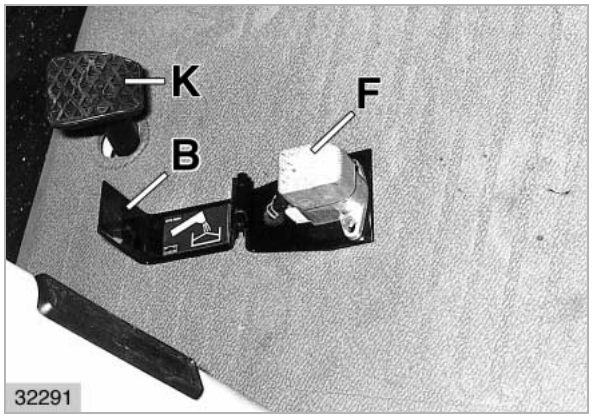
ATTENTION!

In the neutral position of the steering wheel, the circulation pressure from the oil at working temperature and with the engine at full speed must not exceed approx. 20 bar.

Should the circulation pressure exceed the permissible limit, the system will overheat.

(Fig. 37)

PARKING BRAKE



1

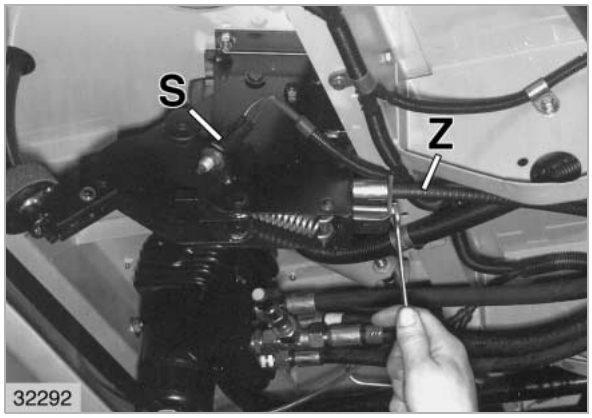
Removing the parking brake

Flip open the safety bow (B). Disconnect the cables from the switch (F) and then unbolt the switch.

Remove the cap (K). To do this, unlock the pin located below the cap and remove it.

Remove the floor mat from around the parking brake area.

(Fig. 1)

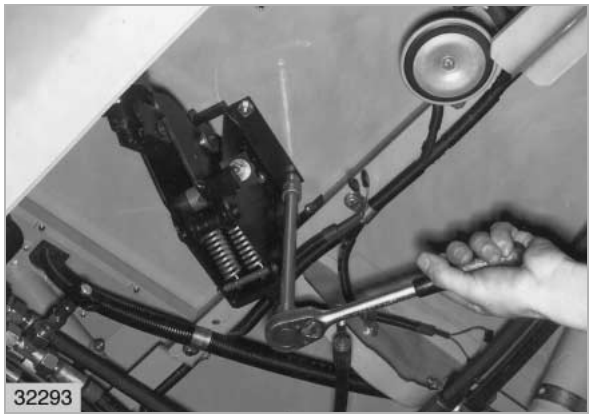


2

Disconnect the cable from switch (S).

Unhook the cable (Z). For this, slacken off the lock nut and unscrew the hex. nut completely.

(Fig. 2)



3

Unbolt the parking brake assembly and remove from underneath.

(Fig. 3)

Installing the parking brake

1. Refit the complete parking brake assembly from the platform underside.

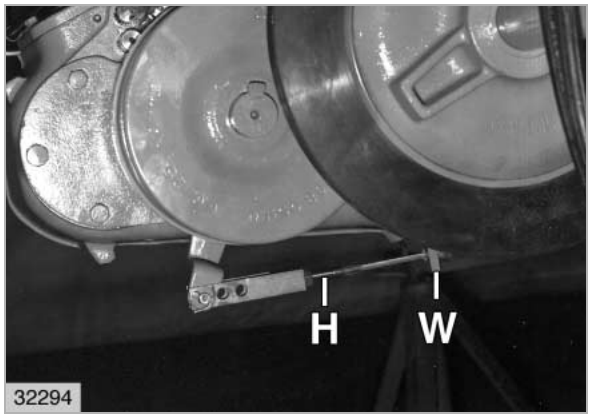
CAUTION!

The O-ring must not be damaged.

2. Refit the cable and secure with the lock nut.
3. Setting the parking brake on the gearbox:

   Reconnect the parking brake cable (H) at the retarder (W). Adjust the cable so that the parking brake is fully functional on the 3rd or 4th notch.

(Fig. 4)



4

FOOT BRAKE

Removing the master brake cylinder

Drain the brake fluid into a container.

ENVIRONMENT!

Dispose of used brake fluid in a way that is harmless to the environment and in accordance with existing anti-pollution regulations.



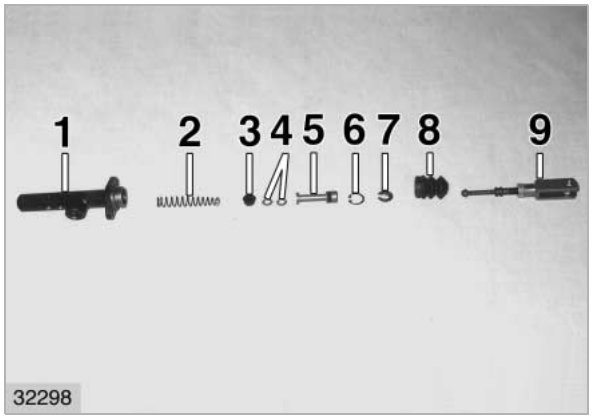
1

Unscrew the brake lines from the master brake cylinder.

Remove the split pin and the pin from the yoke of the cylinder.

Unscrew the hex. securing bolts from the master cylinder and remove master cylinder.

(Fig. 1)



2

Master brake cylinder, disassembled

1 Spring guide tube
2 Compression spring
3 Seal
4 Washers
5 Piston
6 Circlip
7 Fixing ring
8 Bellows
9 Yoke

(Fig. 2)

Assembling the master brake cylinder

1. Fit the seal into the master cylinder.
2. Push the piston along with piston rod and compression spring into the housing.
3. Secure the piston rod with the fixing ring and the circlip.
4. Fit the bellows on the piston rod and screw in the yoke.

(Fig. 2)

Installing the master brake cylinder

1. Place the master brake cylinder in position and then secure it using the hex. bolts.
2. Connect the brake lines.
3. Set the yoke so that with the brake pedal in its rest position (i.e. up) there is no pressure on the pin.

   Maximum play allowed = **0.5 mm**
4. Bleeding the braking system – see page 7.20.2, *Bleeding the brake system*.
5. Adjust master brake cylinder.



3

Adjusting the master brake cylinder

Adjust the yoke on the master cylinder so that the pin going through is free, with this having to be checked when the brake pedal is off (i.e. up).

Maximum play allowed = **0.5 mm**

Secure the pin with a split pin.

Afterwards, check the brakes, either on a special rolling road or in a secure area.

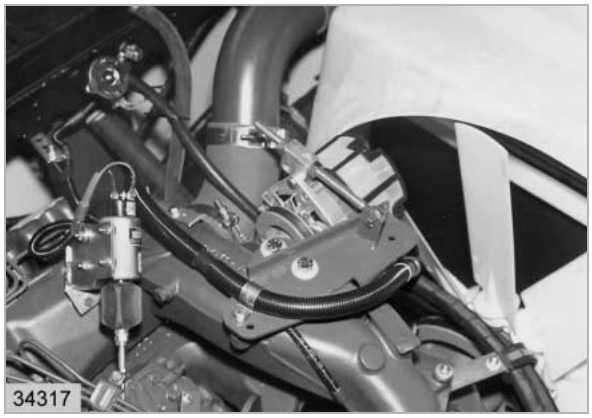
DANGER!

It is not permissible to check the brakes on the open road.

(Fig. 3)

ENGINE ELECTRIC SYSTEM

Alternator



1

ATTENTION!

For all work on the engine, the following points must be observed:

- Never disconnect the cables connecting the alternator and battery whilst the alternator is running.
- Ensure correct polarity when connecting the cables to the battery as otherwise the diodes will be burnt out.
- Do not carry out any work on live parts unless the engine is stopped and the battery cables are disconnected.
- Do not under any circumstances flash connections to check current flow on three-phase alternators. This will damage the semiconductors.
- When performing electrical welding work on the machine, the alternator must be disconnected.
- The battery provides the current for the field excitation required to start the alternator via the battery charge indicator bulb. Blown bulbs must therefore be replaced to ensure reliable field excitation.

(Fig. 1)

3
Threshing mechanism

FEED RAKE CONVEYOR

Removing the feed rake conveyor

Disconnect the cable of the magnetic pick-up (I) and remove the complete cutting height indicator (H) on the right-hand machine side.

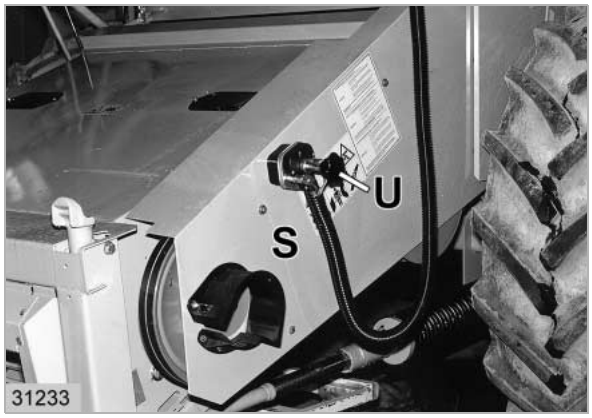
(Fig. 1)



1

First remove the universal coupling (U) on the left-hand side, then the guard (S).

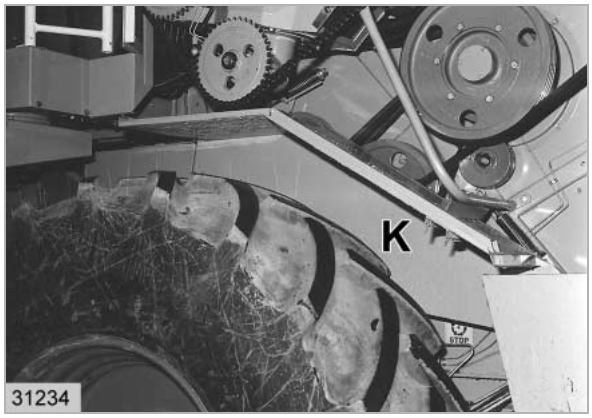
(Fig. 2)



2

Remove the mud guard (K).

(Fig. 3)



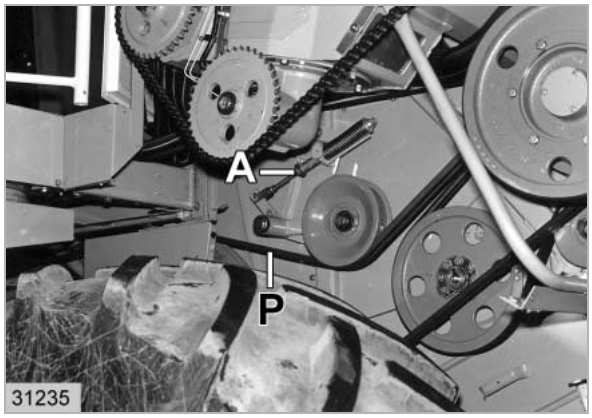
3

Release the tension of the spring-loaded cylinder (A) and remove V-belt (P) from the cutterbar drive pulley.

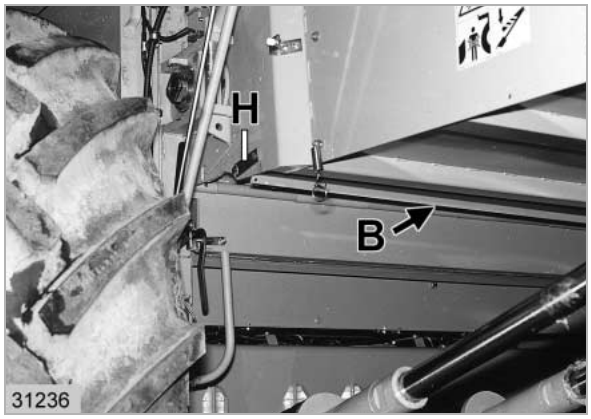
DANGER!

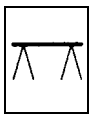
Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 4)



4





Raise the feed rake conveyor and support it safely.

Fold down the feed plate (B) below the feed rake conveyor. For this, remove the bolts with brackets (H) on the left- and right-hand side of the machine.

(Fig. 5)

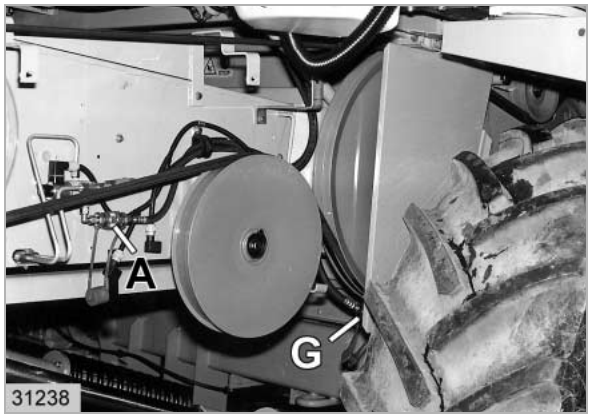
5



Loosen the two cable clamps (K) and disconnect the 7-pin connector (T).

(Fig. 6)

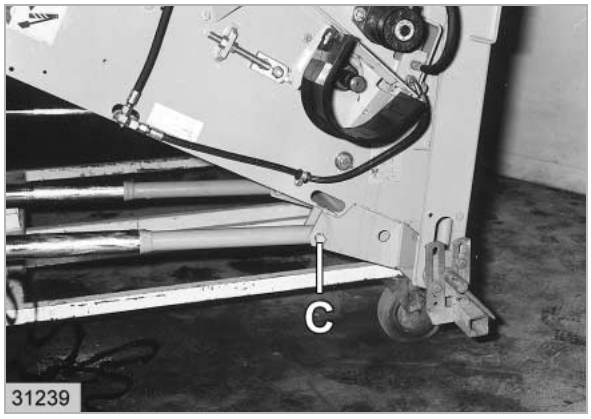
6



Disconnect the screwed coupling (A) and the plug-in coupling (G) and plug the hose ends with the plastic caps.

(Fig. 7)

7



Remove the pins (C) from the yokes and unhook the cutterbar cylinders.

(Fig. 8)

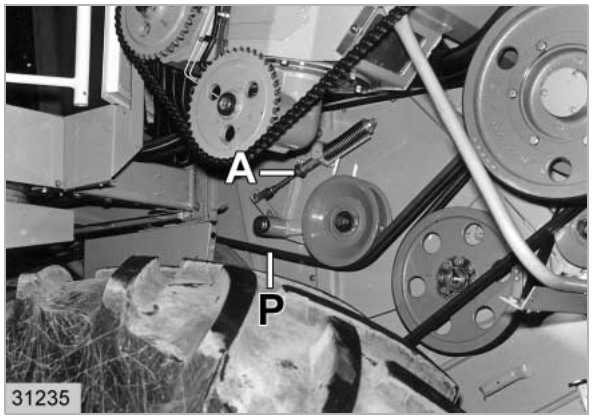
8



9

On both sides of the machine, remove the lock nuts M 20, then remove the pins (Z).

(Fig. 9)



10

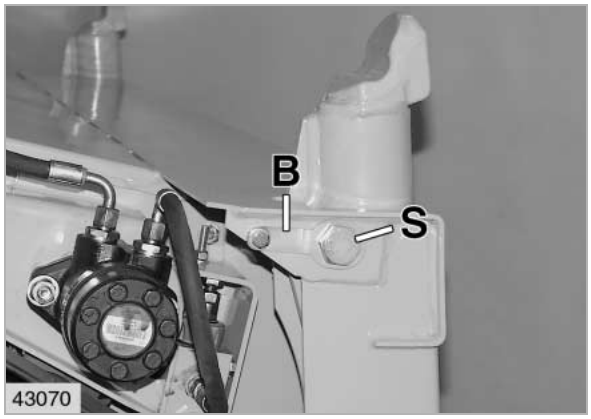
Installing the feed rake conveyor

1. Place the feed rake conveyor back on the machine and lock it with the pins.
2. Put the cutterbar cylinders in place and secure them with pins.
3. Connect the screwed coupling and the plug-in coupling on the left-hand side of the machine.

   Bolt down the two cable clamps and connect the 7-pin connector.
4. Raise the feed rake conveyor to its highest position, secure, then refit the feed plate underneath.
5. Refit the belt (P) and tension the spring-loaded cylinder (A).
6. Connect the magnetic pick-up cable and fit the cutting height indicator on the right-hand side.
7. Refit all guards and bolt down the universal coupling on the left-hand side.
8. Relearn the cutterbar end stops (CAC).

   See Operator's Manual “Operation CEBIS” or “Operation IMO”.

(Fig. 10)



11

Removing the intercepting piece

Unscrew the intercepting piece.

From serial no. …:

Unbolt the hex. bolt (S) M 20 x 150 x 30+4.

– If **1,700 mm** feed rake conveyor is fitted:
  Unscrew the tab washer (B).
– If **1,420 mm** feed rake conveyor is fitted:
  Unscrew the self-locking nut VM 20.

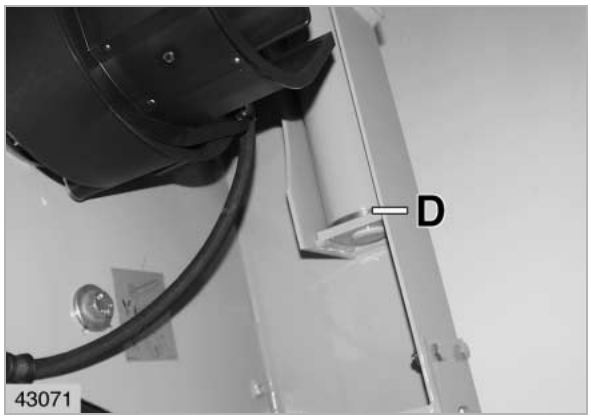
Up to serial no. …:
Unbolt the hex. bolt (S) M 16 x 140.

Observe number of washers (C).

Remove intercepting piece (F).

Observe number of washers (D).

(Fig. 11, 12, 13)



12

Installing the intercepting piece

1. Place the existing washers (D) under the intercepting piece and insert it.

   Insert the hex. bolt (S).

   The intercepting piece must make contact with the washers (D) without play.

(Fig. 11, 12)



13

2. Insert the existing washers (C) to limit the axial play and tighten the hex. bolt (S).

   From serial no. …:

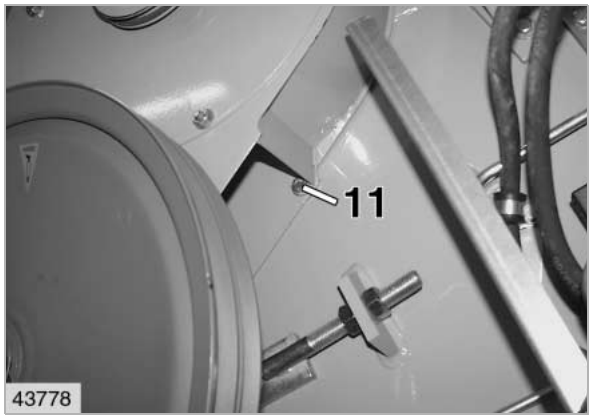
   Tighten hex. bolt (S) M 20 x 150 x 30+4 with a tightening torque of **78 Nm**.

   – If **1,700 mm** feed rake conveyor is fitted:
     Secure the hex. bolt (S) with tab washer (B).
   – If **1,420 mm** feed rake conveyor is fitted:
     Secure the hex. bolt (S) with self-locking nut VM 20.

   Up to serial no. …:

   Tighten hex. bolt (S) M 16 x 140 with a tightening torque of **195 Nm**.

(Fig. 11, 13)



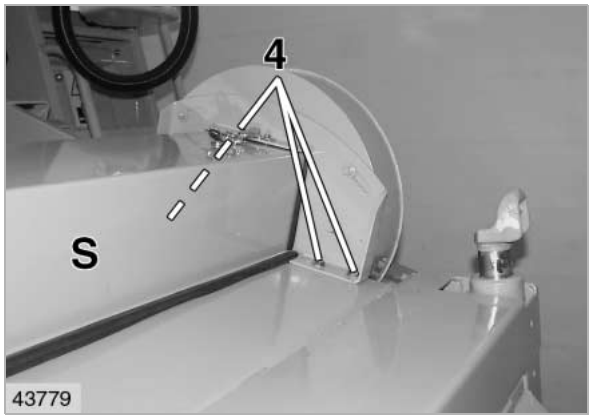
14

Removing the feed rake conveyor suction blower

Removing the feed rake conveyor suction blower drive belt (34), see page 7.3.26

Unscrew hex. bolt (11).

(Fig. 14, 22)



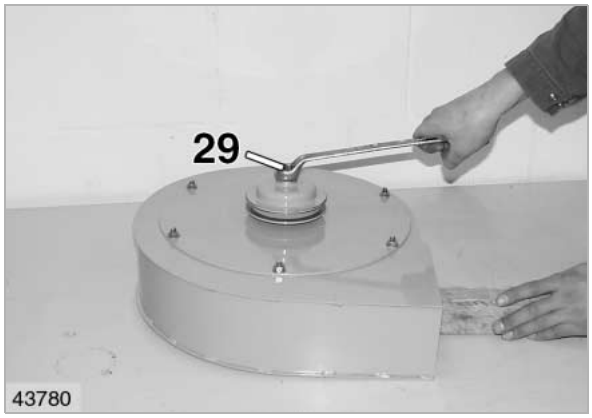
15

Remove the housing (S).

Unscrew the hex. bolts (4) from the support plate (3).

Remove the suction blower completely.

(Fig. 15, 22)

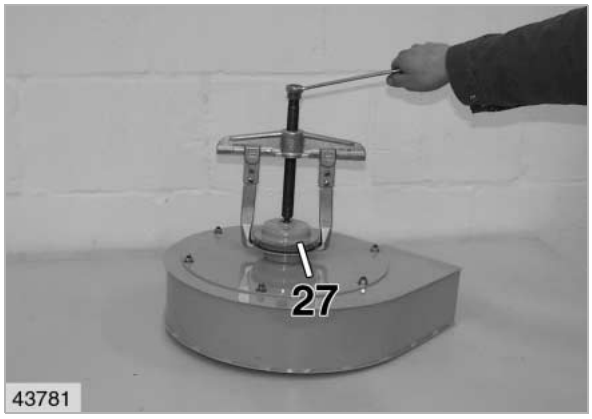


16

Disassembling the feed rake conveyor suction blower

Unscrew the support plate (3). Arrest the impeller (13) and unscrew the nut (29).

(Fig. 16, 22)



17

Pull off the V-belt pulley (27).

Remove the supporting ring (25) and the key (26).

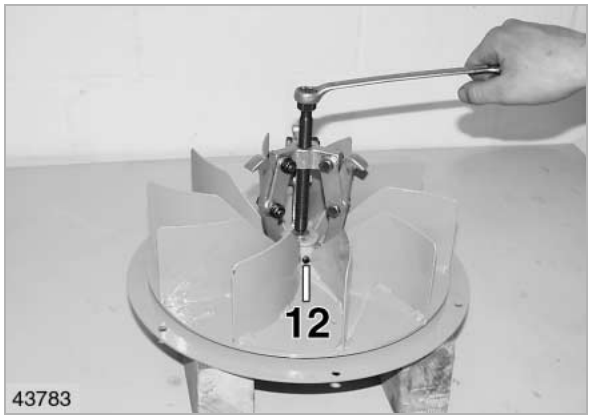
(Fig. 17, 22)



18

Unscrew the cover (15) and remove the impeller completely with its bearing.

(Fig. 18)

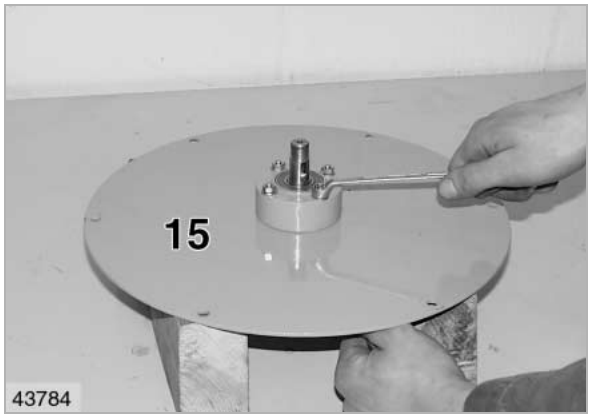


19

Loosen the set screw (12) and pull off the impeller (13).

Install parallel key (20).

(Fig. 19, 22)



20

Unscrew the bearing housing completely from the cover (15).

(Fig. 20)



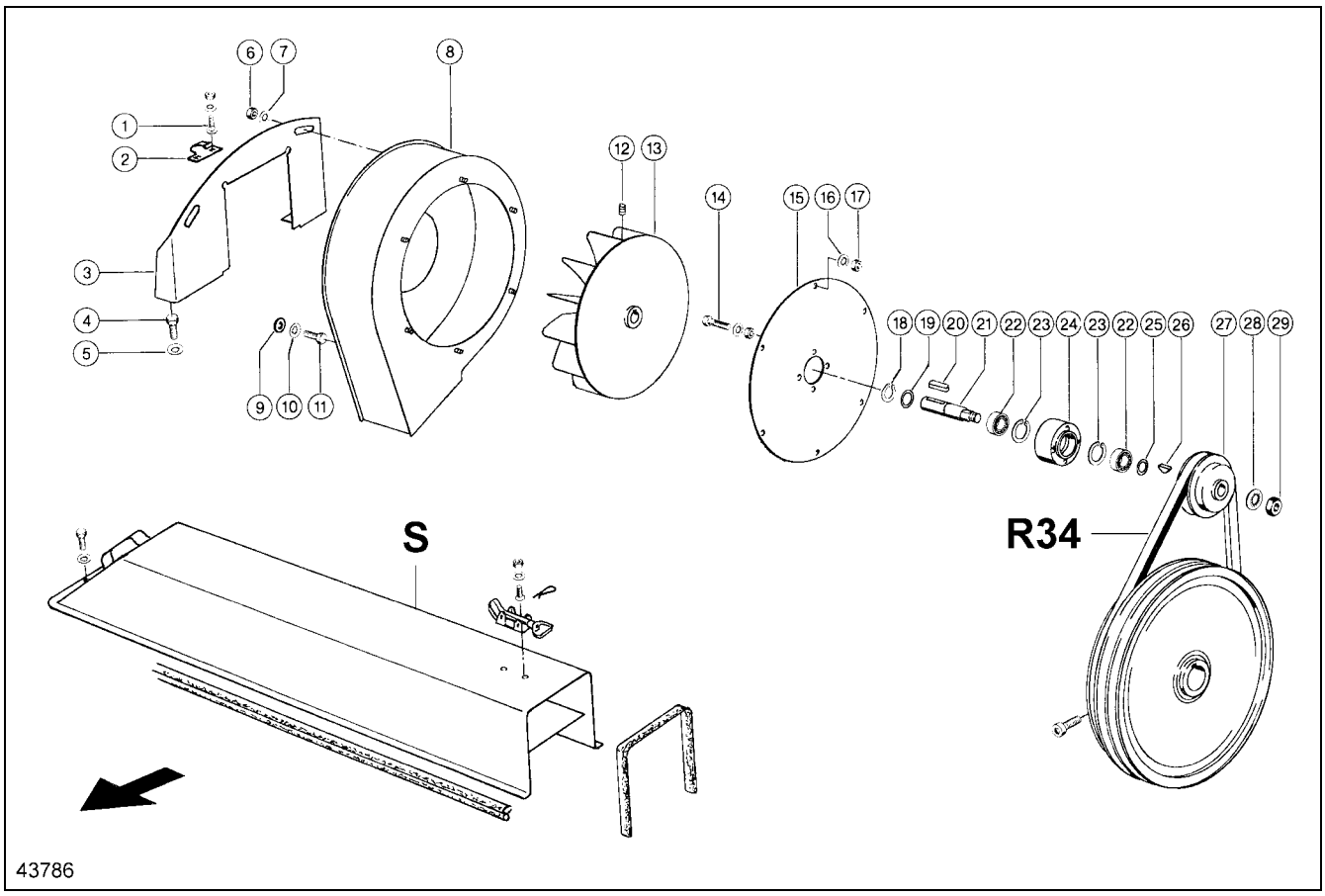
21

Pull off bearing housing (24) from the shaft (21).

Drive bearing (22) out of the bearing housing.

Pull the bearing (22) from the shaft.

(Fig. 21, 22)



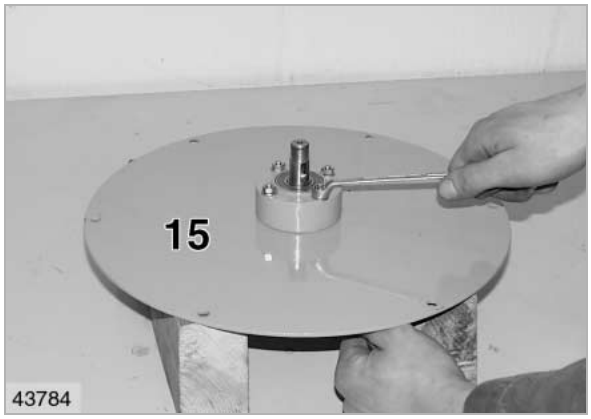
22

Feed rake conveyor suction blower, disassembled:

1 Mushroom head bolt M 6 x 16 x 10
Hex. nut M 6
Contact washer A 6
2 Mounting bracket
3 Support plate
4 Hex. bolt M 10 x 25
5 Contact washer A 10
6 Hex. nut M 8
7 Contact washer B 8
8 Housing
9 Washer
10 Contact washer A 8
11 Hex. bolt M 8 x 20
12 Set screw M 8 x 12
13 Land wheel
14 Hex. bolt M 6 x 40
Hex. nut M 6
Contact washer A 6
15 Cover
16 Contact washer A 8
17 Hex. nut M 8
18 Circlip
19 Supporting ring
20 Parallel key
21 Shaft
22 Deep groove ball bearing
23 Circlip
24 Bearing housing
25 Supporting ring
26 Key
27 V-belt pulley
28 Contact washer A 16
29 Hex. nut Bm 16 x 1.5

S =Housing
R34 =Suction blower drive belt

(Fig. 22)



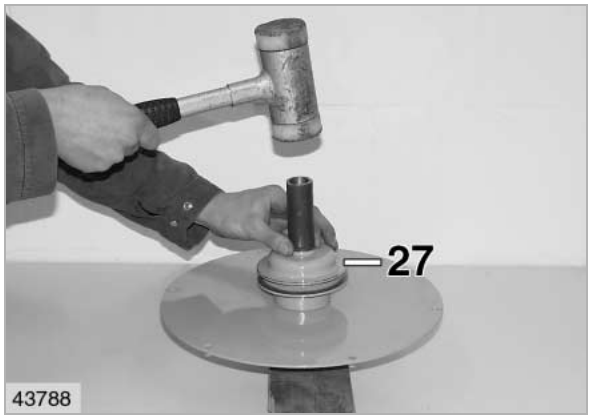
23

Assembling the feed rake conveyor suction blower

1. Pre-assemble the bearing (22) with bearing housing (24) and shaft (21) according to Fig. 22.
2. Screw the bearing housing down completely to the cover (15).

   Observe installation position of shaft.

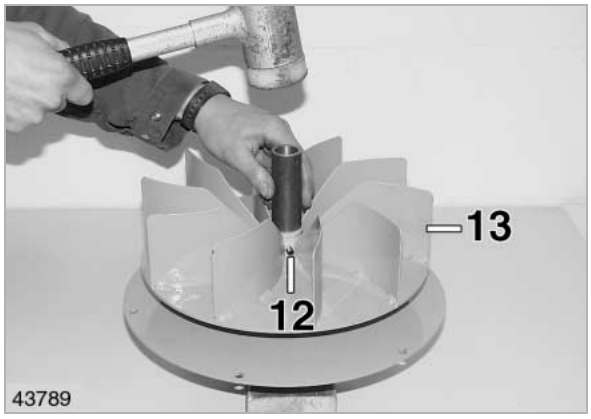
(Fig. 22, 23)



24

3. Insert the supporting ring (25) and key (26). Drive on the V-belt pulley (27) and support the shaft end on a wooden block.
4. Place contact washer (28) in position and screw nut on loosely (29).

(Fig. 22, 24)



25

5. Install parallel key (20). Drive on the impeller (13) and support the shaft end on a wooden block.

CAUTION!

The impeller (13) must make contact with the circlip (18).

6. Arrest the impeller (13) using the set screw (12). Insert the pre-assembled suction blower into the housing (8) and screw down the cover (15).

(Fig. 22, 25)

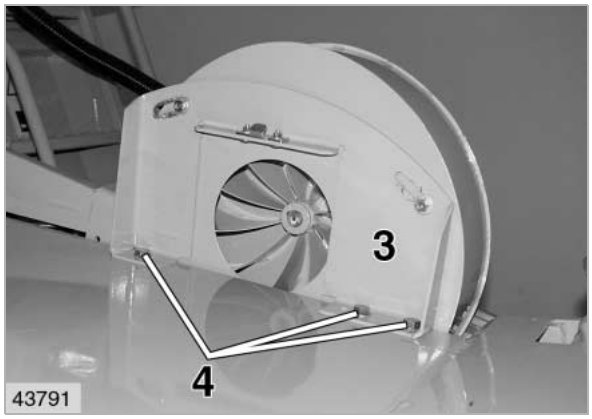


26

7. Arrest the impeller (13) and tighten the hex. nut (29).

   Tightening torque BM 16 x 1.5 = 78 Nm

(Fig. 22, 26)



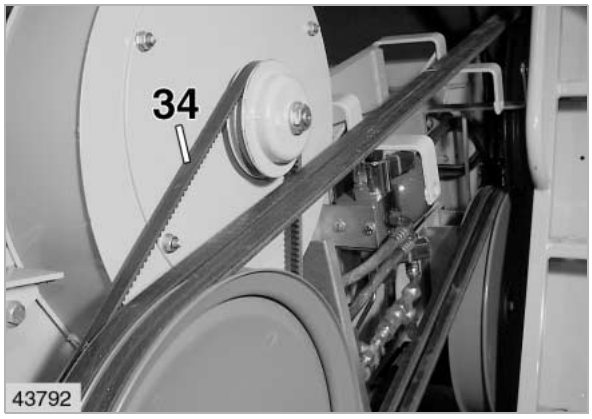
27

Installing the feed rake conveyor suction blower

Bolt down support plate (3) using the hex. bolts (4).

Place suction blower on the feed rake conveyor and bolt down loosely.

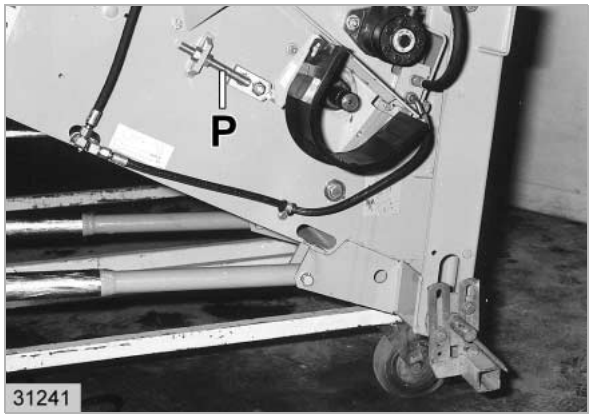
(Fig. 22, 27)



28

Installing and adjusting the feed rake conveyor suction blower drive belt (34), see page 7.3.27

(Fig. 28)



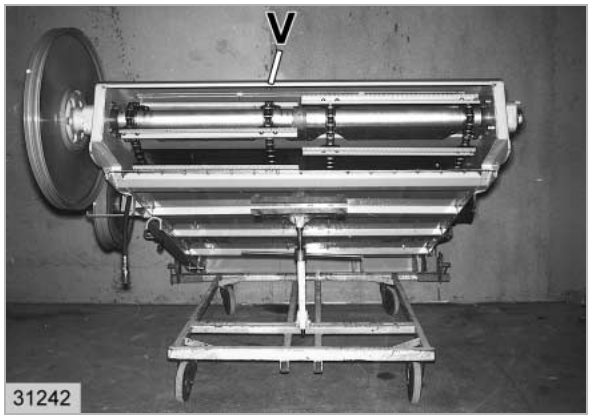
29

Removing the top feed rake shaft

Removing the feed rake conveyor, see page 3.1.1.

Release the tension of the chain tensioner (P).

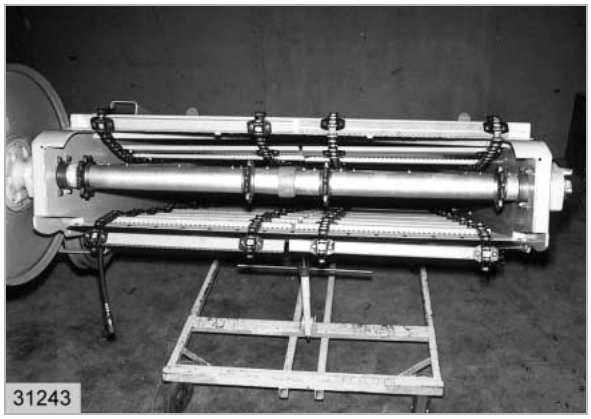
(Fig. 29)



30

Unscrew the wear plate (V).

(Fig. 30)

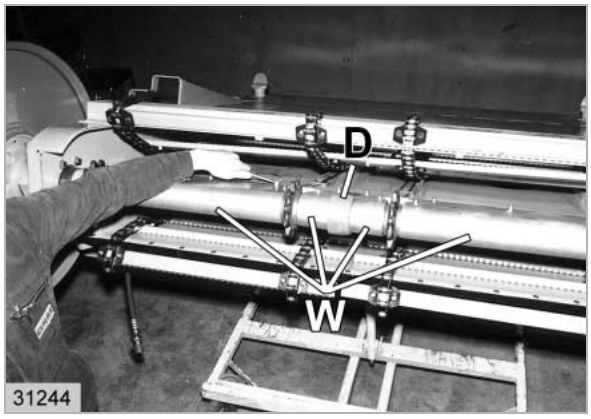


31

Turn the feed rake until the joining links are at the top.

Split the feed chains and secure both ends with wire so that they are kept out of the way but are not lost.

(Fig. 31)

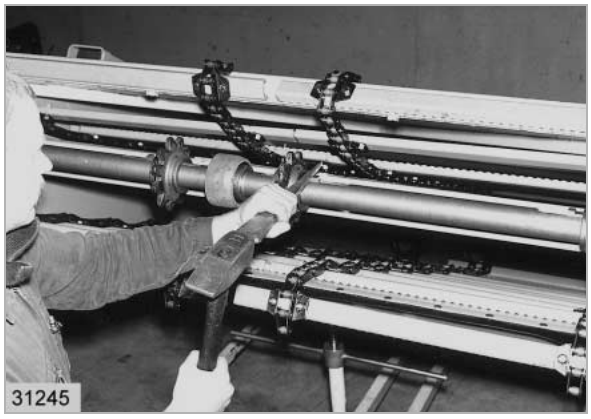


32

Remove the anti-wrapping guards (W) and the sealing plate (D).

Remove the filler blocks.

(Fig. 32)

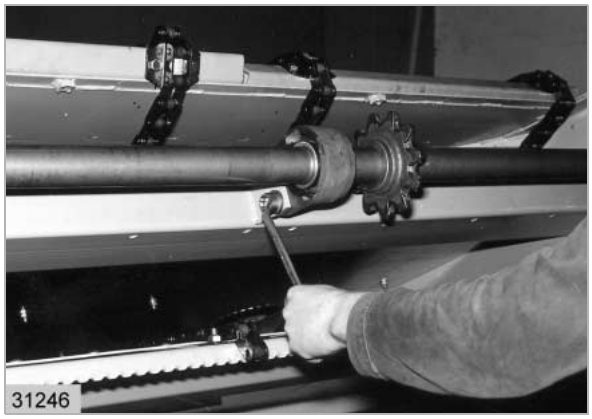


33

Mark the sprockets with numbers.

Using a key drawer, remove the gib head keys from each sprocket.

(Fig. 33)



34

Remove the centre bearing.

Unscrew and loosen the lock collar.

Smooth impression mark in the shaft, using emery paper.

(Fig. 34)

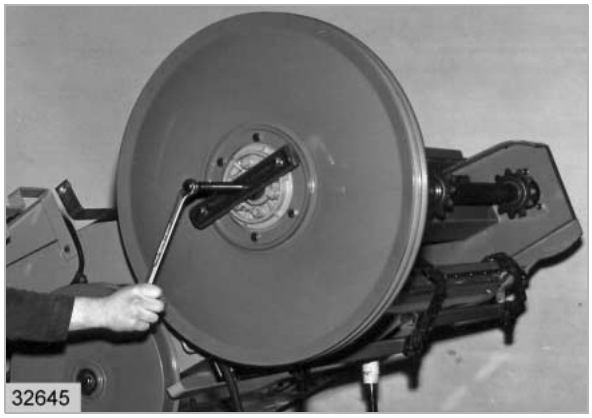


35

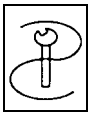
On the left-hand side, loosen bolt (S) from the pulley face end.

Unscrew two M 10 bolts located opposite of each other from the pulley.

(Fig. 35)



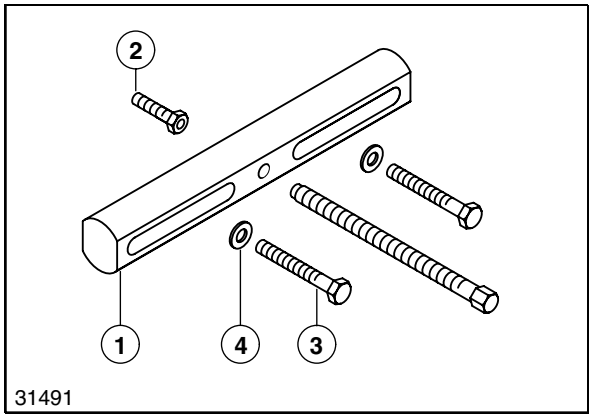
36



Pull off the slip clutch and the pulley in one piece from the shaft, using a special tool.

For the special tool, screw a M 16 x 30 hex. bolt with a centralising head into the shaft.

(Fig. 36)

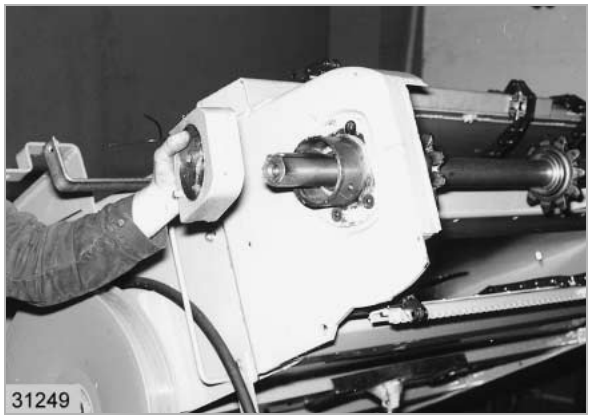


37

Special tool:

1 Puller bridge, 280 long
with pressure spindle G 1/2” x 260 long
part no. 181 621.0
2 Hex. bolt M 16 x 30 with centralising head
3 Hex. bolt M 10 x 70
part no. 237 806.1
4 Washers ∅ 10.5
part no. 236 913.2

(Fig. 37)

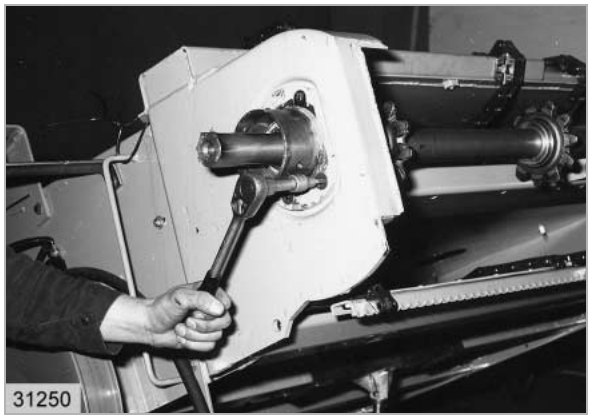


38

Remove the parallel key from the shaft.

Remove the bearing housing from the bearing assembly.

(Fig. 38)



39

Loosen the M 12 x 65 countersunk head bolts from both bearing assemblies on either side.

(Fig. 39)

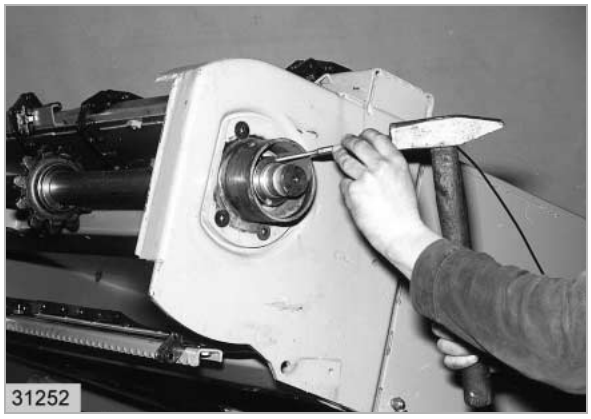


40

Remove the bearing housing from the right-hand side.

Slacken off the cam wheel (N) using an Allen key and remove it.

(Fig. 40)

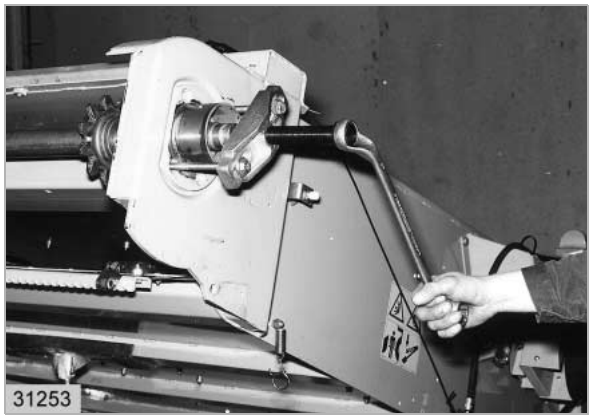


41

Unscrew the lock collar and remove it.

Smooth impression mark of headless screw in the shaft, using emery paper.

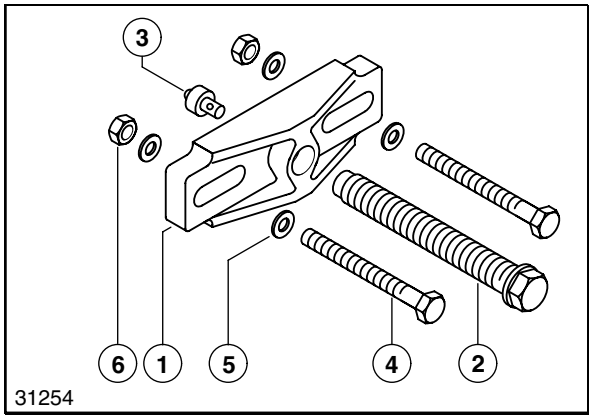
(Fig. 41)



42

Press the shaft out of the bearing assembly towards the left-hand side, using the special tool.

(Fig. 42)

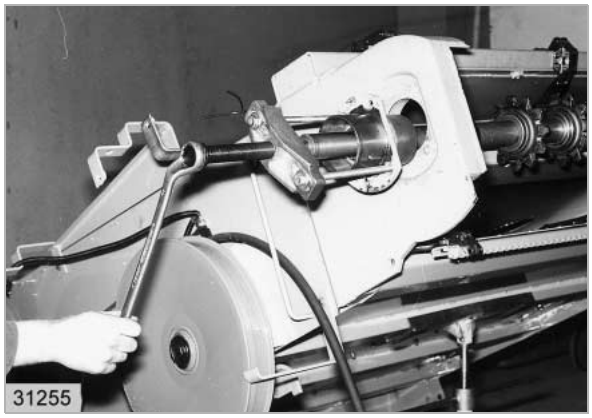


43

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 12 x 220 DIN 933-8.8
part no. 244 422.0
5 Washer, part no. 236 844.0
6 Hex. nut M 12 DIN 934-8
part no. 236 172.0

(Fig. 43)

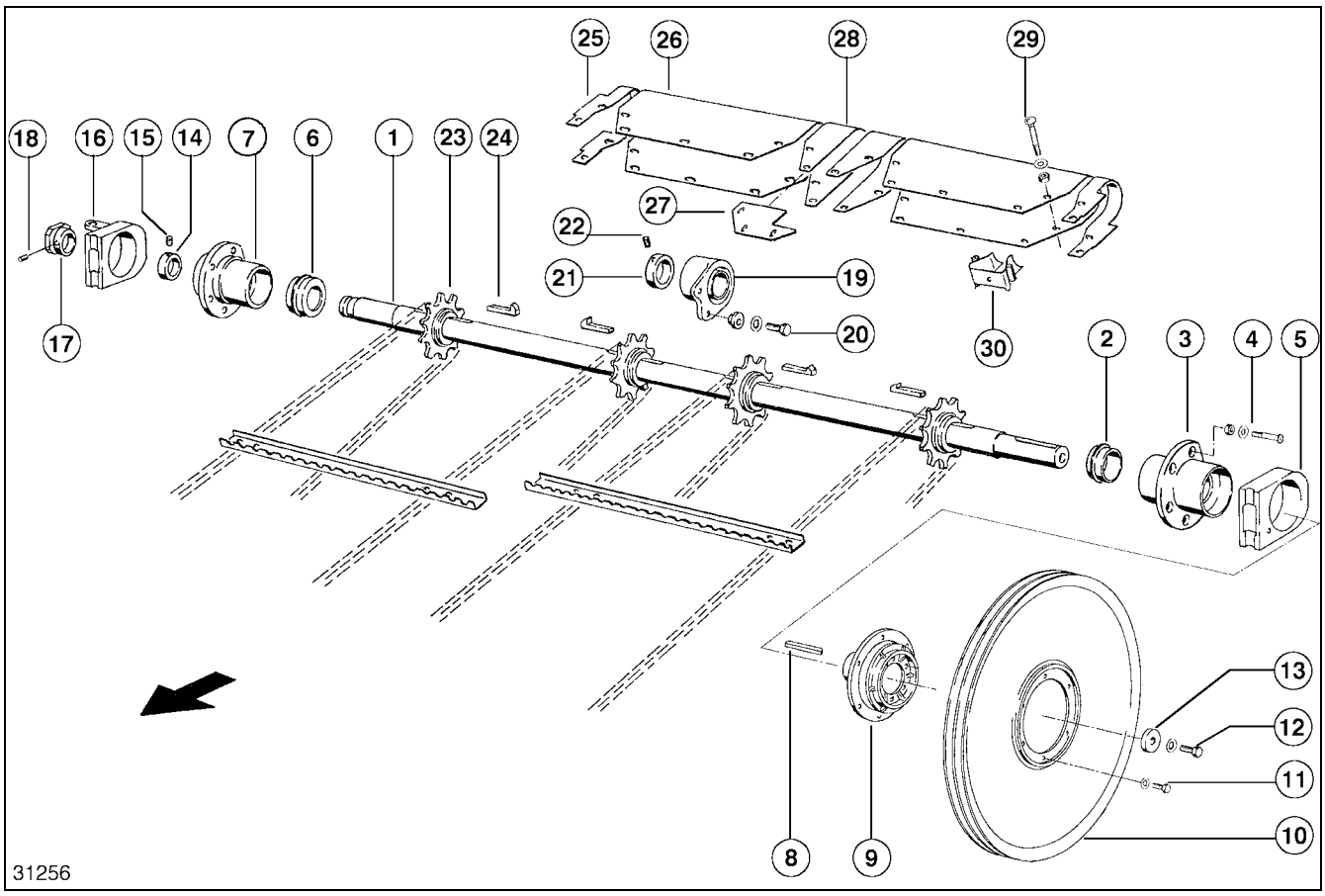


44

Pull the bearing assembly off of the shaft on the left-hand side, using the special tool (Fig. 43).

Now remove the shaft towards the left-hand side.

(Fig. 44)



45

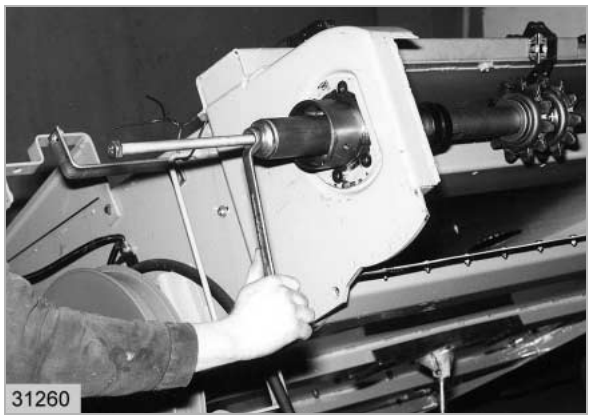
Feed rake top shaft, disassembled

1 Feed rake top shaft
2 Protective tube
3 Bearing assembly, mounted
4 Countersunk head bolt M 12 x 65 DIN 7991
Hex. nut M 12 DIN 934
Contact washer A 12
5 Bearing housing
6 Protective tube
7 Bearing assembly, mounted
8 Parallel key A 14 x 9 x 100
9 Slip clutch
10 V-belt pulley
11 Hex. bolt M 10 x 35 DIN 933-8.8
Contact washer A 10
12 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
13 Washer
14 Lock collar 45
15 Set screw M 10 x 1.25 x 8 DIN 916
16 Bearing housing
17 Cam wheel
18 Set screw M 10 x 8 DIN 916
19 Bearing assembly, mounted
Adjusting plate
20 Hex. bolt M 12 x 30 DIN 933-8.8
Contact washer A 12
21 Lock collar 50
22 Set screw M 10 x 1.25 x 8
23 Sprocket, 11 teeth
24 Gib head key 14 x 9 x 63
25 Anti-wrapping guard
26 Anti-wrapping guard
27 Sealing plate
28 Anti-wrapping guard
29 Mushroom head bolt M 8 x 25 DIN 603
Hex. nut M 8
Contact washer A 8
30 Filler section

(Fig. 45)

Installing the feed rake top shaft

Slide the marked sprockets, the central bearing assembly and the lock collars loosely onto the shaft.



46

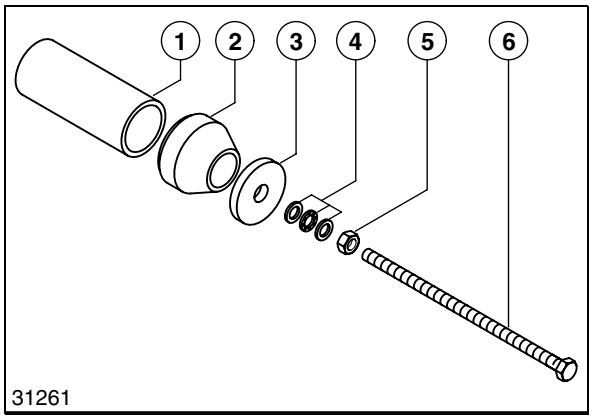
Introduce the shaft (1) into the feed rake, without the bearing assemblies.

Slide the protective tube (2) back onto the shaft (1).

Using the special tool, press the bearing assembly (3) back onto the shaft and bolt into place.

Press the protective tube (2) to the inside of the bearing assembly (3).

(Fig. 45, 46)

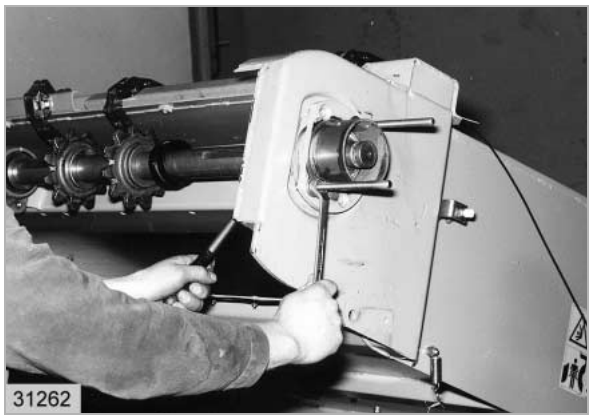


47

Special tool:

1 Tube inside ∅ 47 – 50 x 120 long (self-sourced)
2 Bushing, part no. 181 807.1
3 Washer, part no. 636 678.0
4 Axial grooved ball bearing, part no. 177 899.0
5 Hex. nut M 16, part no. 244 059.0
6 Hex. bolt M 16 x 300 part no. 237 375.1

(Fig. 47)



48

Slide the protective tube (6) back onto the shaft (1).

Using the special tool, press the bearing assembly (7) back onto the shaft. Press the protective tube (6) to the inside of the bearing assembly (7).

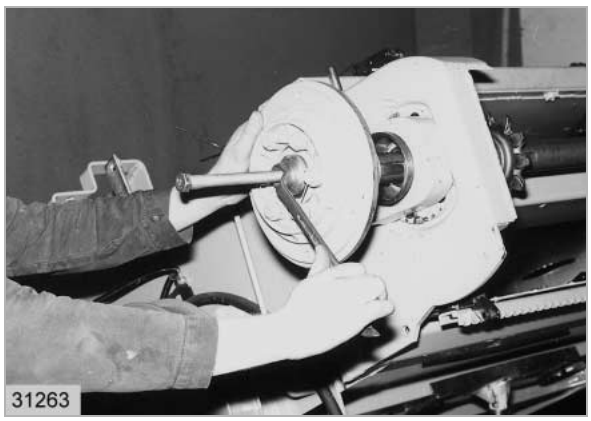
(Fig. 45, 48)

Special tool:

Hex. bolt M 12 x 220
part no. 244 422.0 – 2 pieces

Hex. nut M 12
part no. 236 172.0 – 2 pieces

(Fig. 48)



49

Slide the parallel key (8) into place.

Install the V-belt pulley (10) together with the slip clutch (9) on the shaft using the special tool.

Special tool:

Hex. bolt M 16 x 300 SP
part no. 237 375.1 (pointed)

Hex. nut M 16
part no. 236 173.0

Washer ∅ 55 x ∅ 17 x 10
part no. 688 484.0

(Fig. 45, 49)



50

Bolt the two M 10 x 35 hex. bolts through the V-belt pulley (10) into the slip clutch.

Tightening torque = 45 Nm

(Fig. 45, 50)



51

Fit the bolt (12) and the washer (13) into the face end of shaft (1).

(Fig. 45, 51)



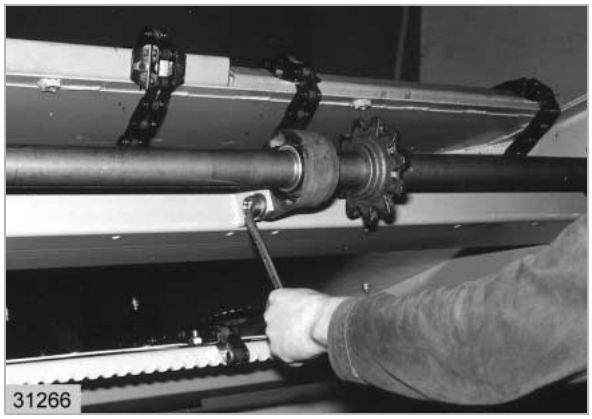
52

Refit the lock collar (14) of the right-hand bearing assembly, tighten in direction of travel, then secure with the set screw (15).

Now slide the bearing housing (16) on the bearing assembly (7).

Slide on the cam wheel (17) and secure with set screw (18).

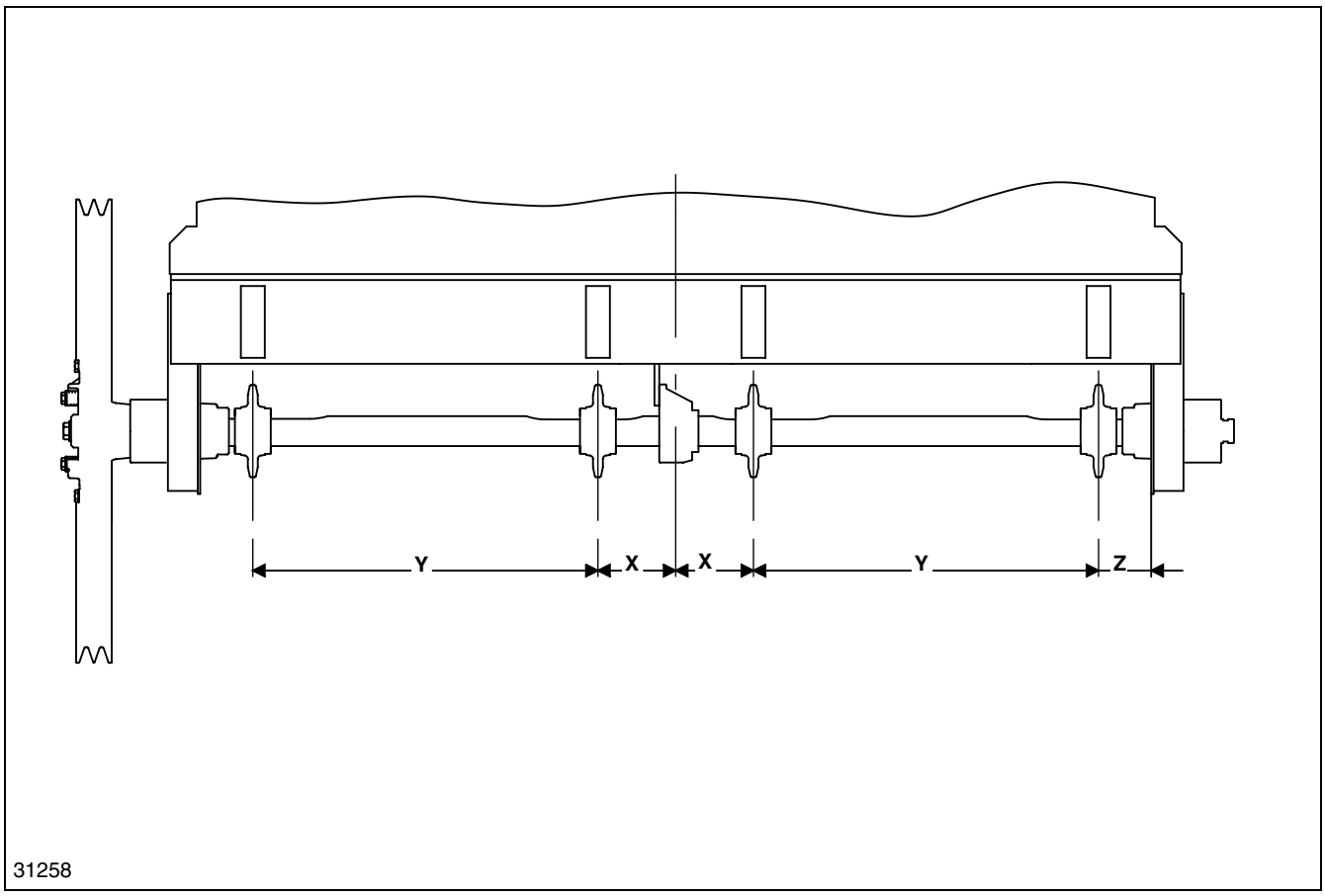
(Fig. 45, 52)



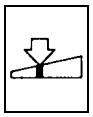
53

Bolt the centre bearing assembly (19) back into place using bolt (20). Refit the associated lock collar (21), tighten in direction of travel, then secure with the set screw (22).

(Fig. 45, 53)



54



Fix the sprockets (23) into position using the gib head keys (24).

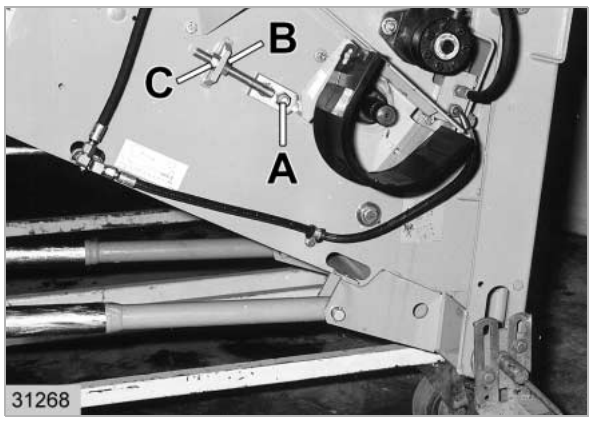
Dimensions to watch for:

X = 130 mm
Y = 577 mm
Z = 88 mm

Refit the anti-wrapping guards (25, 26 and 28) back into place, using the bolts (29).

Refit the sealing plate (27) and the filler sections (30).

(Fig. 45, 54)



55

Place the feeder chains in position, ensuring that the feed rake slats are staggered between one another.

Tensioning the feeder chains as specified:

Once the clamping bolt (A) and the lock nut (C) have been slackened, the feeder chains may be tensioned using adjusting nuts (B).

On both sides, tension the chains evenly and only to such an extent that the feed slats are just touching the runners.

(Fig. 55)

Refit the wear plates.



56

Lock the chains so that they cannot turn. Tighten bolt (12) using a torque wrench.

Tightening torque = 195 Nm

(Fig. 56)

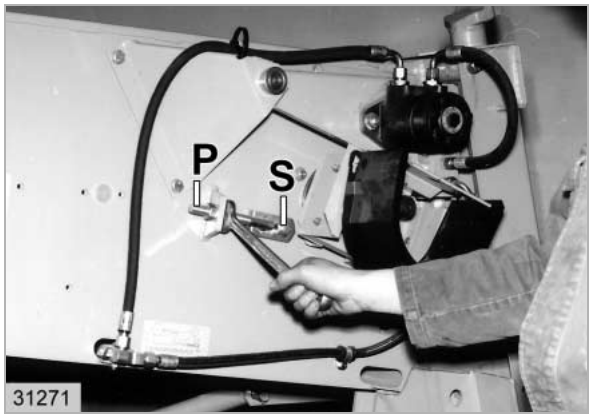


57

Removing the bottom feed rake roller

Remove the dust plate (T) and the end piece (V) on the right-hand side and the guide plate (W) on the left-hand side.

(Fig. 57)



58

Unscrew the universal coupling and the guard from the left-hand side of the machine.

Releasing the tension of the chains on the left- and right-hand side:

To do this, unlock the lock nut (S) on both sides and unscrew the tensioning screw (P).

(Fig. 58)

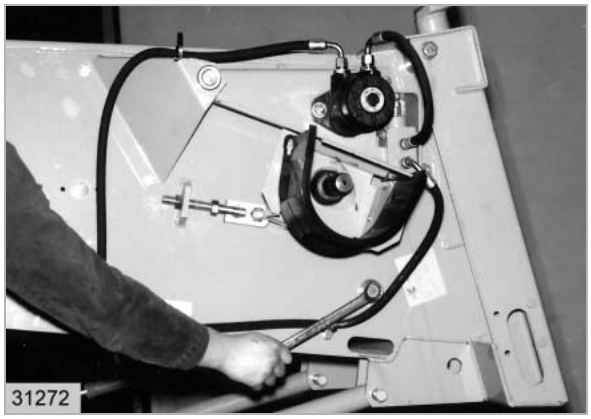


59

Turn the roller until the chain connectors are at the front, then split the chain.

Push the roller upwards, using a suitable tube and arrest the pins (11) on both sides with a self-grip wrench.

(Fig. 59)

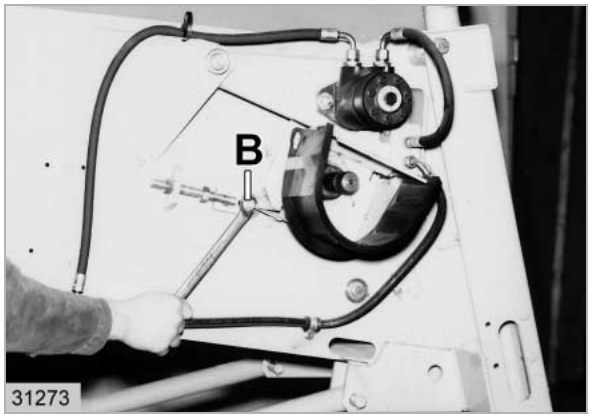


60

Remove the stops on both sides.

For this, remove the M 16 x 35 hex. bolts from the outside.

(Fig. 60)



61

Unscrew the hex. nut M 16 on both sides, then pull out pin (B) from the chain tensioner and the supporting arm to the inside.

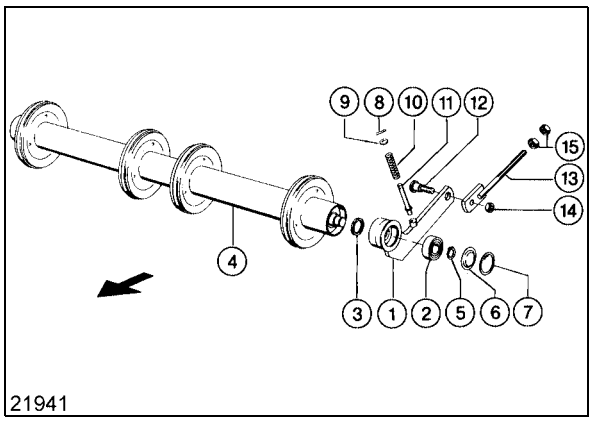
(Fig. 61)



62

Remove the shaft to the front.

(Fig. 62)



63

Bottom feed rake roller, disassembled

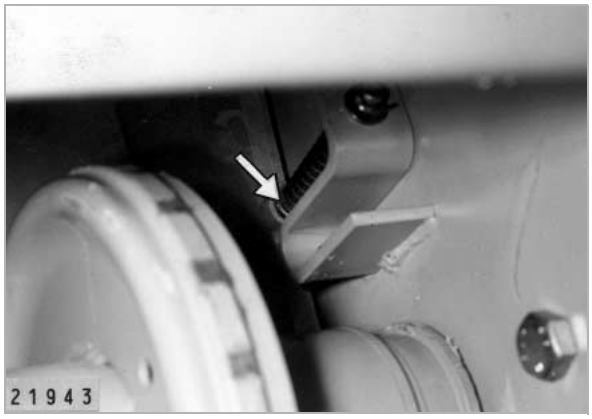
1 Left-hand supporting arm
  Right-hand supporting arm
2 Deep groove ball bearing 6306 2 RS DIN 625
3 Felt seal
4 Roller
5 Circlip 30 x 1.5 DIN 471
6 Dust cap
7 Circlip 72 x 2.5 DIN 472
8 Split pin 3.2 x 18 DIN 94
9 Washer
10 Compression spring
11 Pin
12 Pin
13 Chain tensioner
14 Self-locking nut VM 16
15 Hex. nut M 20 DIN 934-8

(Fig. 63)

Assembling the bottom feed rake roller

1. Press the deep groove ball bearing (2) into the supporting arm (1).
2. Replace the felt seal (3) each time the unit is assembled and drive the pre-assembled supporting arm on the feed rake shaft.
3. Install circlip (5). Re-fit the dust cap (6) with circlip (7).

(Fig. 63)



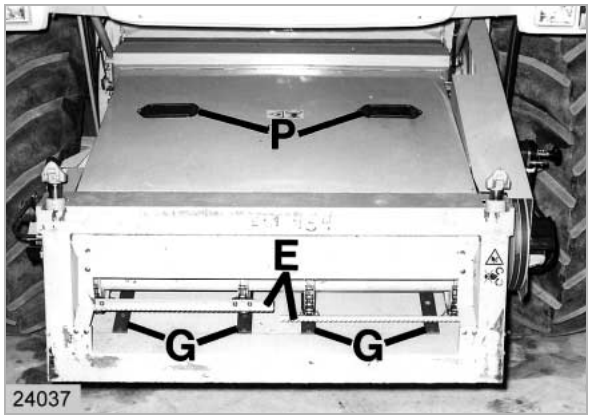
64

Installing the bottom feed rake roller

When installing the bottom feed rake roller, it is important to check that pin (11) correctly engages in the supporting arm guide bush.

Install the bolts (12) and the chain tensioner complete with the self-locking nut (14) and the hex. nuts (15).

(Fig. 63, 64)

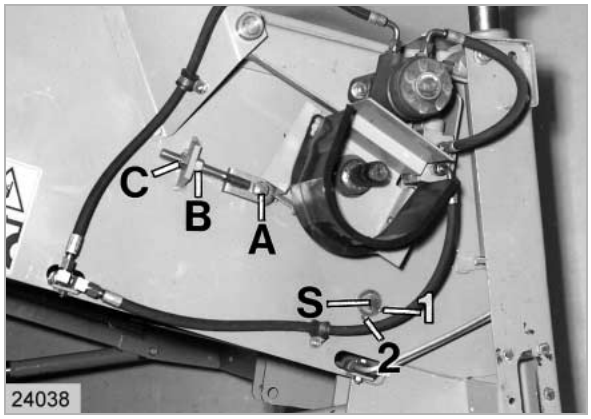


65

Place the feeder chains in position and ensure that the feed rake slats (E) are staggered between one another as shown.

Install the chain connectors and secure with new split pins.

(Fig. 65)



66

Tensioning the feeder chains:

Once the clamping bolt (A) and the lock nut (C) have been slackened, the feeder chains may be tensioned using adjusting nuts (B).

Tension the chains evenly on both sides and only adjust to such an extent that the feed rake slats are just touching the runners (G).

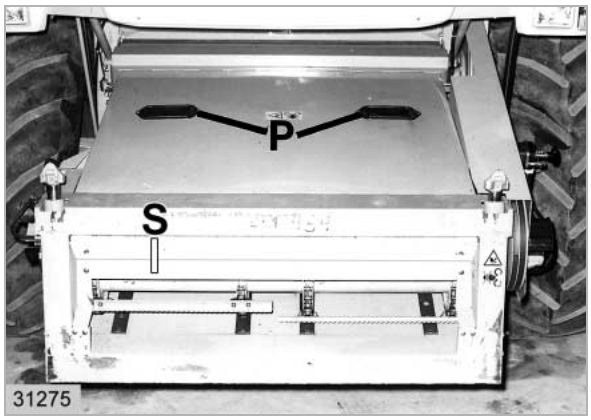
The tension of the chains can also be checked with a cutterbar fitted, using the inspection door (P) provided on the feed rake conveyor.

Stops on either side of the feed rake conveyor limit the low position of the feed rake. Relocate the stops by engaging the dowel pin in hole (1) for small grains and hole (2) for maize.

(Fig. 65, 66)

Refit the guard on the left-hand side and the universal coupling.

Bolt down the dust guard, the right-hand end piece and the left-hand guide plate.



67

Replacing the wooden ledges

Raise the feed rake conveyor and support it safely.

Remove the wear plate and the drum inspection cover.

Remove the dust guard (S) and the inspection door (P).

Remove the mushroom head bolts from the wooden ledges.

(Fig. 67)

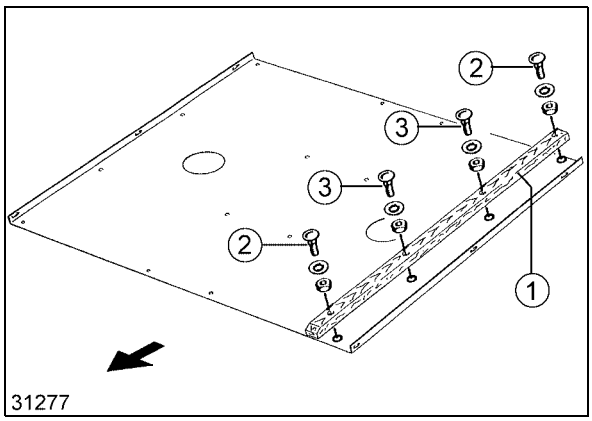


68

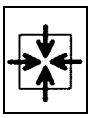
Using a suitable tube (R), raise the front roller and support it with squared timber.

Pull the wooden ledges (L) to the outside and push the feed rake slats upwards while doing so if required.

(Fig. 68)

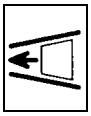


69



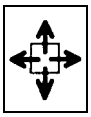
Installing the wooden ledges:

Insert the mushroom head bolts (2) M 8 x 35 and (3) M 8 x 25 into the wooden ledges (1) and secure using suitable tape.



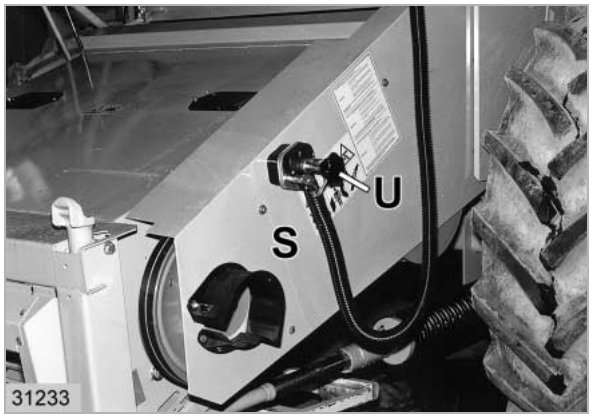
Push in the wooden ledges, watching the correct installation position, and bolt them down.

(Fig. 69)



Removing the intermediate floor

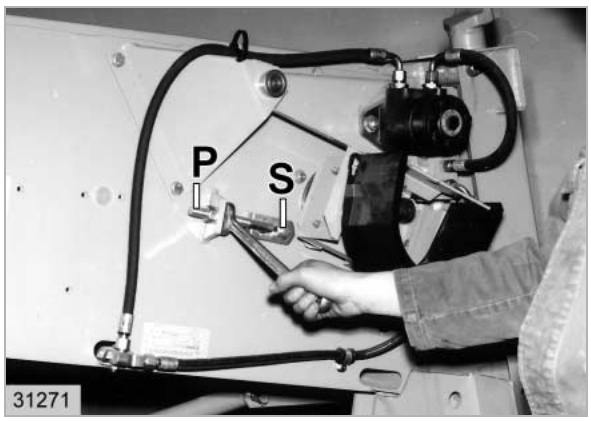
Raise the feed rake conveyor and support it safely.



70

Remove the universal coupling (U) and the guard (S) on the left-hand side of the machine.

(Fig. 70)

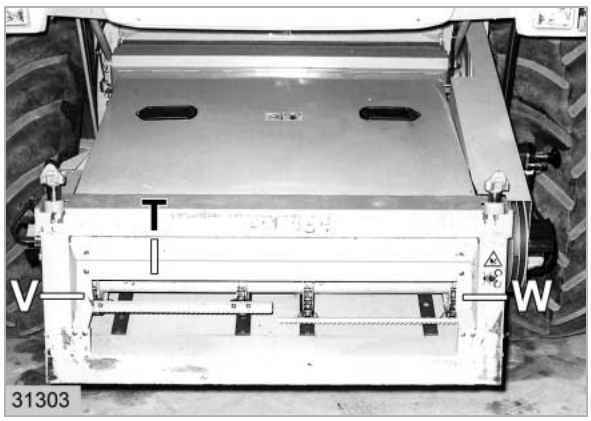


71

Release the tension of the feed rake chains on the left- and right-hand sides.

To do this, unlock the lock nut (S) on both sides and unscrew the tensioning screw (P).

(Fig. 71)



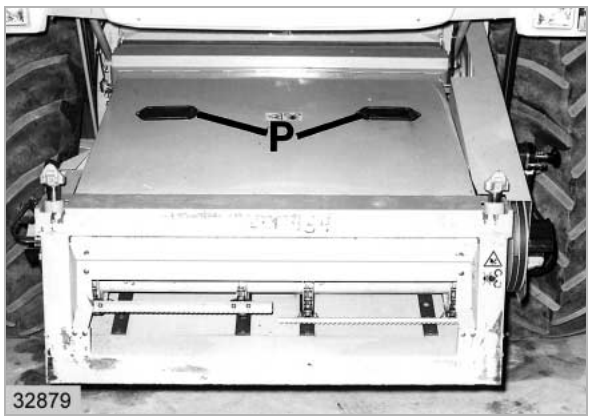
72

Remove the dust plate (T), the right-hand end piece (V) and the left-hand guide plate (W).

Turn the roller so that the chain connectors point to the front.

Split the chain and secure it with some wire to the bolt holes at the bottom.

(Fig. 72)



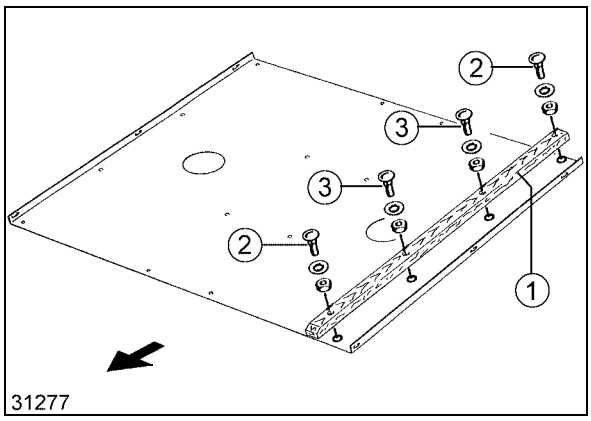
73

Unscrew the inspection doors (P).

Lift the feed rake chains using two lifting straps.

Unscrew the intermediate floor on the sides and remove it through the front.

(Fig. 73)

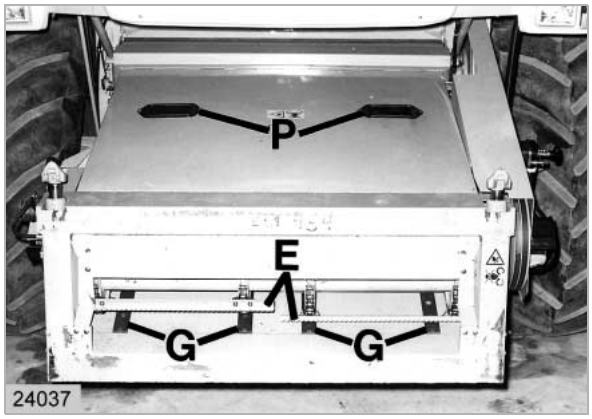


74

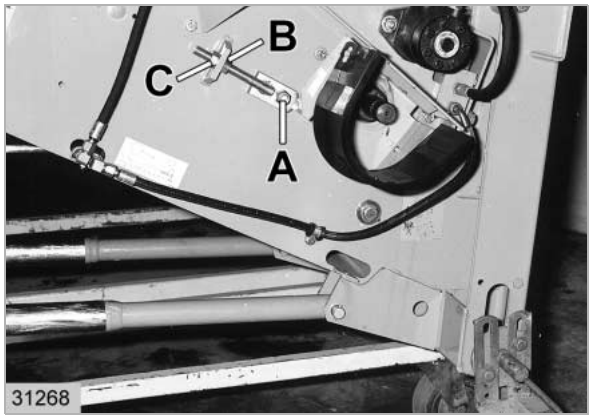
Replacing the wooden ledges:

When replacing the wooden ledges, insert the mushroom head bolts (2) M 8 x 35 and (3) M 8 x 25 into the wooden ledges (1) and tighten them.

(Fig. 74)



75



76

Installing the intermediate floor

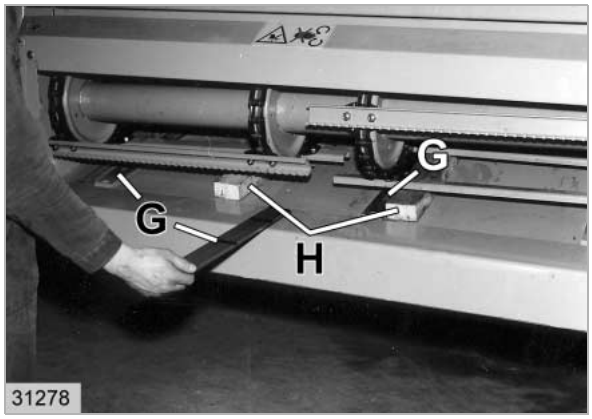
1. Push the intermediate floor into the feed rake conveyor.
2. Using a suitable tube, raise the intermediate floor and bolt it into position at the sides.
3. Remove the two straps.
4. Place the feed rake chains on the bottom roller so that the feed rake slats (E) are correctly positioned, i.e. staggered with one another.
5. Install the chain connectors and secure with new split pins.
6. Tensioning the feeder chains:

   Once the clamping bolt (A) and the lock nut (C) have been slackened, the feeder chains may be tensioned using adjusting nuts (B).

   Tension the chains evenly on both sides and only adjust to such an extent that the feed rake slats are just touching the runners (G).

   The tension of the chains can also be checked with a cutterbar fitted, using the inspection door (P) provided on the feed rake conveyor.
7. Refit the guard on the left-hand side and the universal coupling.
8. Bolt down the dust guard, the right-hand end piece, the left-hand guide plate and the inspection doors.

(Fig. 75, 76)



77

Replacing the runners

Raise the feed rake conveyor and support it safely.

Using a suitable tube raise the front roller and secure it using wooden blocks (H).

Remove the mushroom head bolts and pull them out inside the feed rake conveyor.

Pull the runners (G) towards the front and replace by new ones.

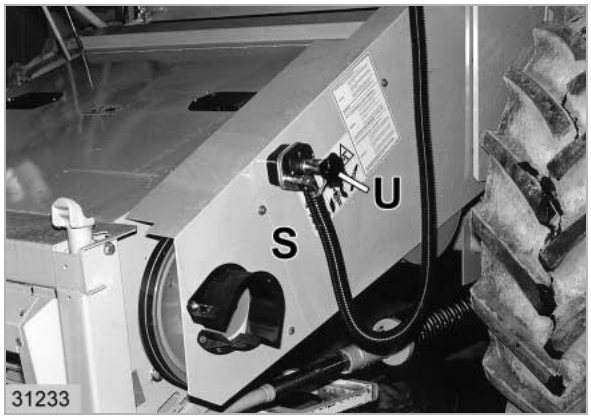
Installing the runners:

CAUTION!

Tape the mushroom head bolts to the runners.

Slide the runners up into the feed rake conveyor, then bolt into position.

(Fig. 77)



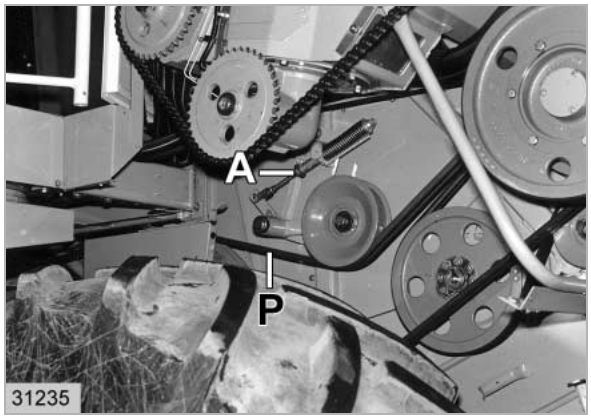
78

Removing the intermediate drive shaft

Raise the feed rake conveyor and support it safely.

Remove the universal coupling (U) and the guard (S) from the left-hand side.

(Fig. 78)



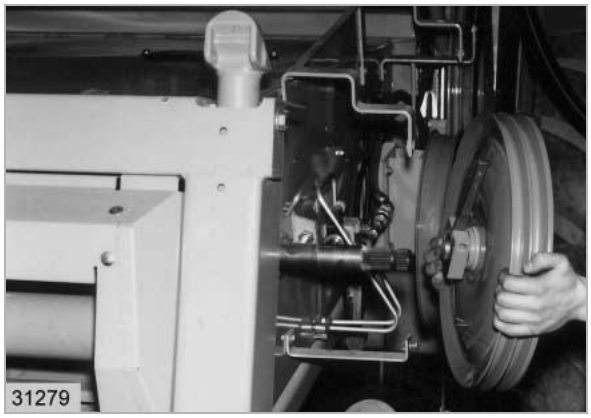
79

Release the tension of the spring-loaded cylinder (A) and remove V-belt (P) from the cutterbar drive pulley.

DANGER!

Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 79)



80

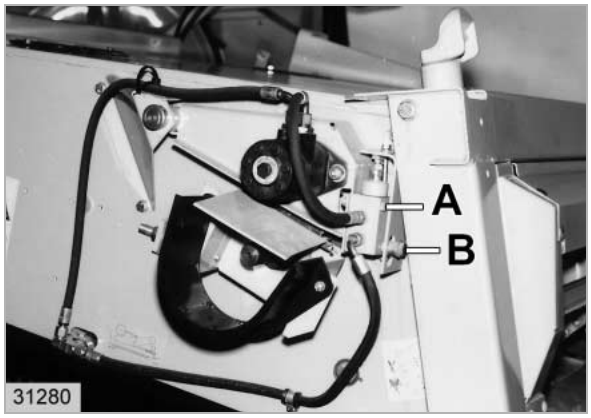
Remove the pulley along with the clamping hub.

For this, remove the M 12 x 85 hex. bolt of the clamping hub.

Open the clamping hub using a chisel and pull off the pulley with the hub.

Remove the parallel key from the shaft.

(Fig. 80)

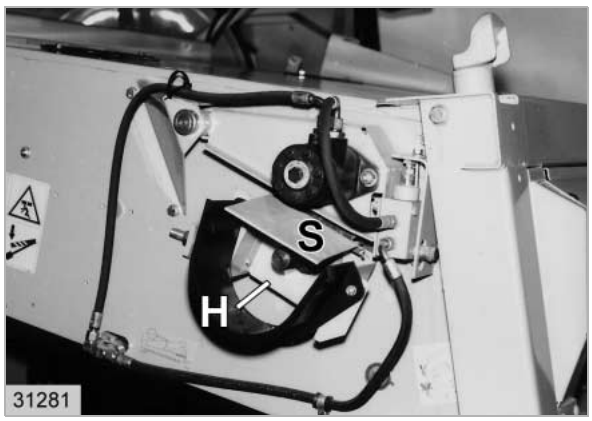


81

On the right-hand side, remove the hex. bolt (B) M 12 x 45 and the eccentric.

Remove the hex. bolt (A) M 8 x 65 and the M 12 x 25 hex. bolt located opposite, then remove cylinder.

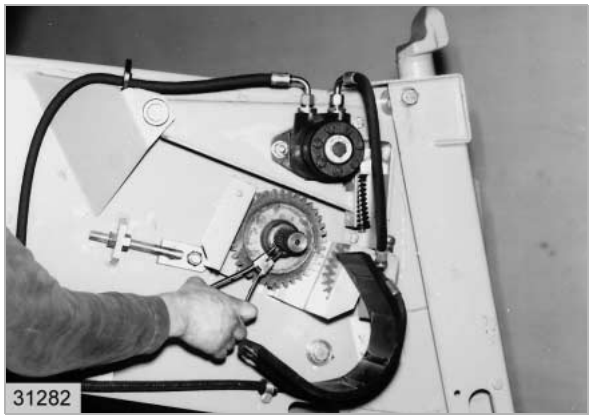
(Fig. 81)



82

Remove the three M 6 x 12 hex. bolts and remove the cover (S) from the bracket (H).

(Fig. 82)



83

Remove the circlip and slide the gear from the shaft.

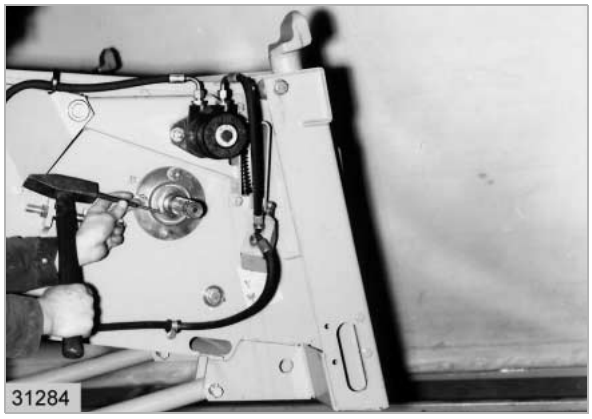
(Fig. 83)



84

Remove the three M 12 hex. nuts and remove the bracket.

(Fig. 84)



85

Remove the set screw and remove the lock collar by turning it against the direction of rotation.

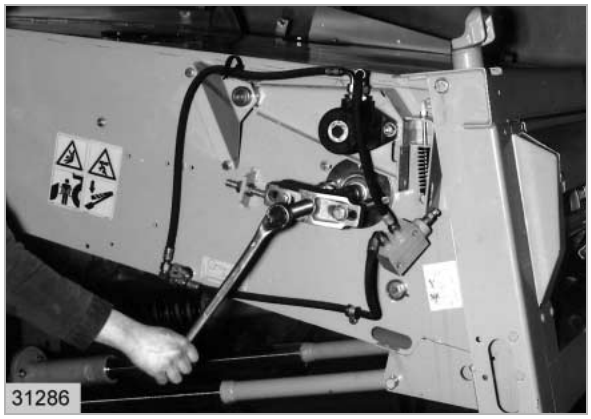
(Fig. 85)



86

On the left-hand side, remove the M 12 x 25 mushroom head bolts and slide sheet-metal flange bearing from the shaft.

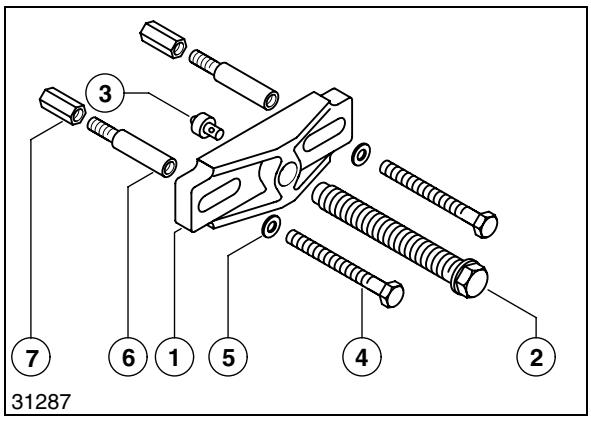
(Fig. 86)



87

Push the shaft to the left from the right-hand side, using the special tool.

(Fig. 87)



88

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball
part no. 181 849.0
4 Hex. bolt M 16 x 140
part no. 242 795.0 – 2 pieces
5 Washer 17, part no. 235 127.2 – 2 pieces
6 Extension pin
part no. 181 810.1 – 2 pieces
7 Reducing adapters M 12 to M 16
part no. 181 933.0 – 2 pieces

(Fig. 88)



89

Remove the intermediate drive shaft, with the left-hand bearing in place, to the side and lay on the bench.

(Fig. 89)

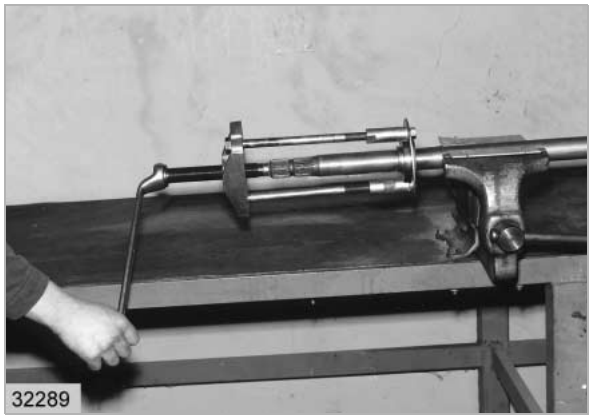


90

Removing the left-hand bearing from the shaft:

Remove the set screw and remove the lock collar by turning it against the direction of rotation.

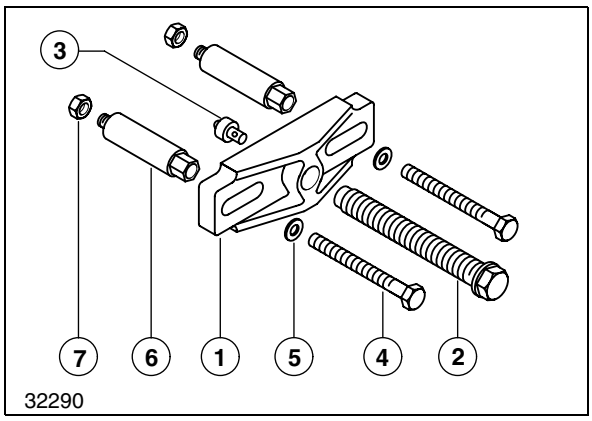
(Fig. 90)



91

Remove the sheet-metal flanges and, using the special tool, pull off the lock collar bearing.

(Fig. 91)

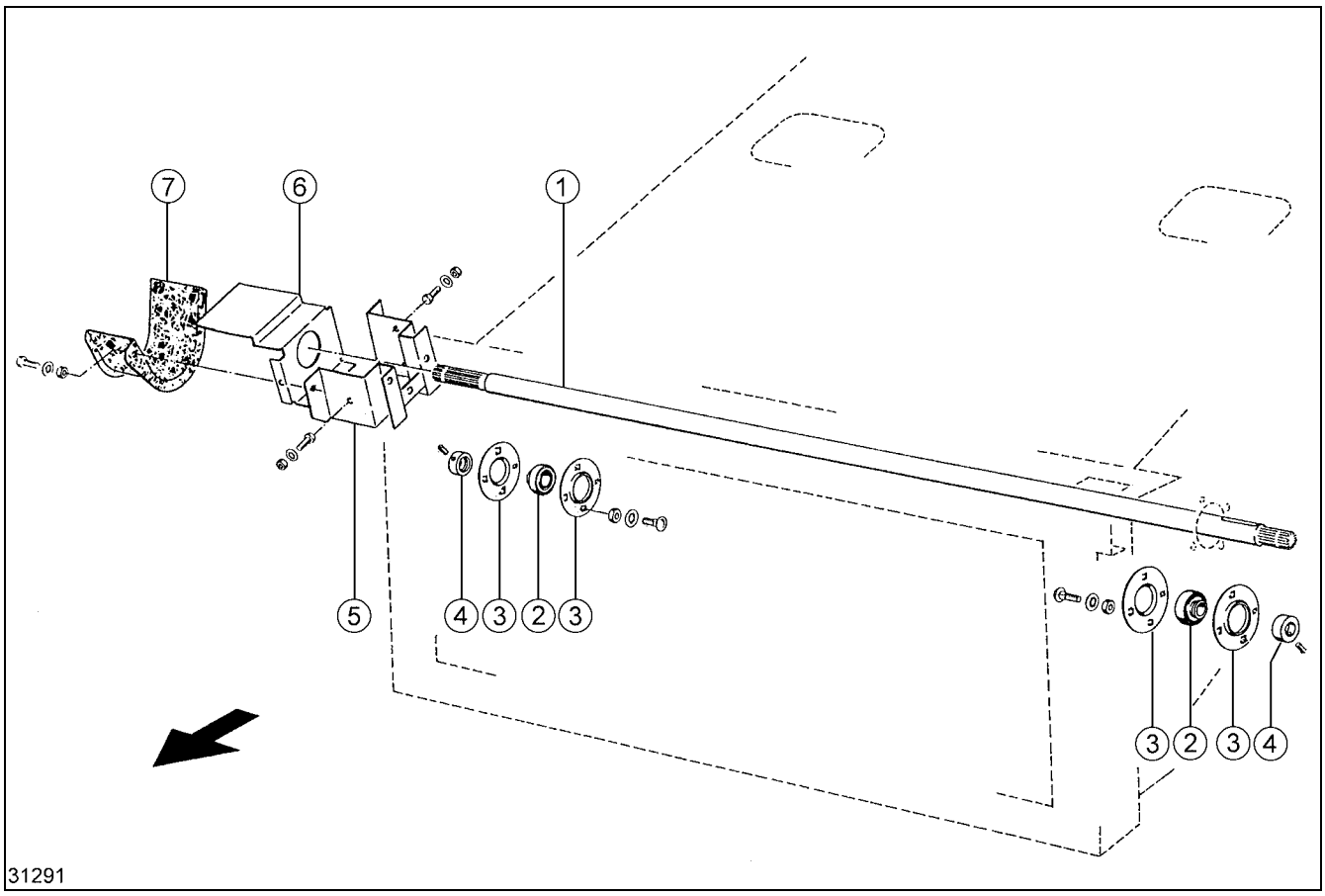


92

Special tool:

1 Puller bridge
part no. 181 800.0
2 Threaded spindle
part no. 181 801.0
3 Centraliser with ball
part no. 181 849.0
4 Hex. bolts M 16 x 260
part no. 235 816.0 – 2 pieces
5 Washers 17
part no. 235 127.2
6 Threaded pin
part no. 181 889.0 – 2 pieces
7 Hex. nut M 16
part no. 244 059.0 – 2 pieces

(Fig. 92)

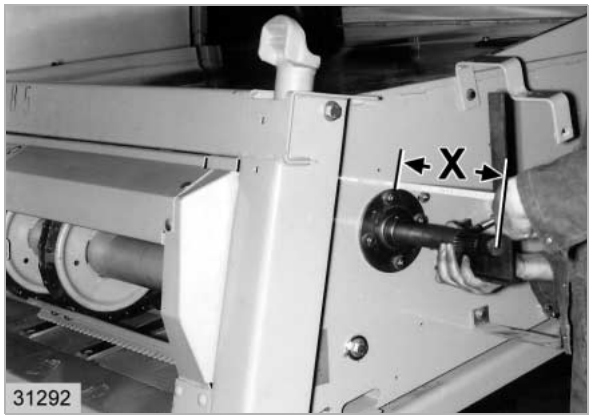


93

Intermediate drive shaft, disassembled

1 Intermediate drive shaft
2 Lock collar bearing PEA 208-2 S
3 Sheet-metal flange BF 80
4 Lock collar 40
Set screw M 10 x 1.25 x 8
5 Mounting bracket
Hex. bolt M 6 x 12 DIN 933-8.8
Hex. nut M 6 DIN 934-8
Contact washer A 6
6 Guard
7 Guard
Hex. bolt M 8 x 16 DIN 933-8.8
Self-locking nut VM 8
Contact washer B 8

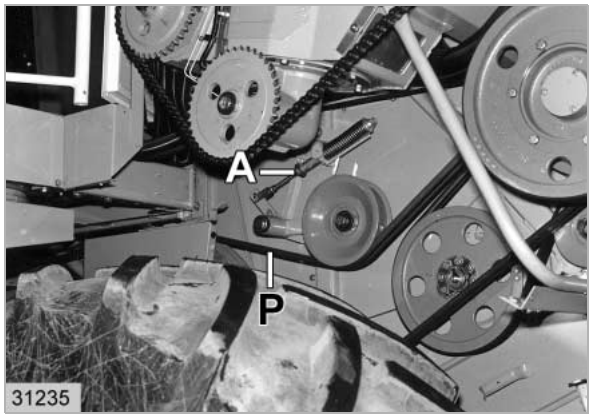
(Fig. 93)



94



95



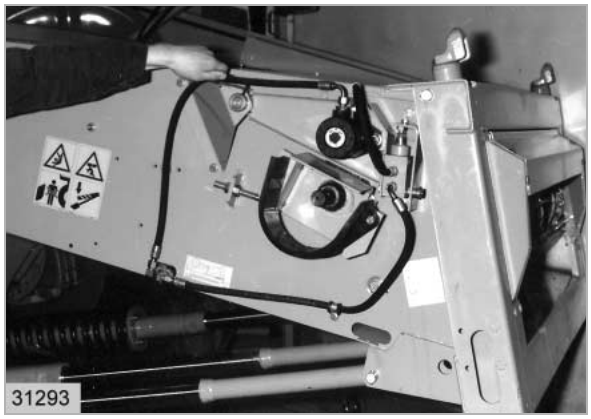
96

Installing the intermediate drive shaft

1. Slide the intermediate drive shaft (1) into the feed rake housing from the left.
2. Slide on the lock collar bearing (2) and both sheet-metal flanges (3) on the left and bolt them down.
3. Align the shaft axially. Adjust the dimension (X) from the end of the shaft to the feed rake conveyor as follows:
   LEXION 480 = **252 mm**
4. Slide on the lock collar bearing (2) and both sheet-metal flanges (3) on the right and bolt them down.
5. Slide the gear on the shaft and align the shaft so that both gears are aligned.
6. Slide on the lock collars (4) on the left- and right-hand side and tighten by hitting in direction of rotation, then insert the set screw.
7. On the left-hand side, place the parallel key in position, slide the V-belt pulley into place and tighten the clamping hub with the M 12 x 85 hex. bolt.
8. On the right-hand side, remove the gear and bolt down the bracket using the bolts that secure the sheet-metal flanges.

   Then fasten the gear with the circlip and now bolt down the cover to the bracket with the M 6 x 12 hex. bolts.
9. Bolt down the hydraulic cylinder to the supporting arm using the M 8 x 65 and M 12 x 25 hex. bolts and the eccentric bolts. Assemble the eccentric bolt so that there is still some free movement.
10. Adjusting the hydraulic cylinder:
    – Press the drive motor down into the gear.
    – Pull out the ram.
    – Set and lock setting screw (S) so there is **0.5 mm** of play (1/4 turns) up to the stop.
11. Install the cutterbar drive belt (P) and adjust it – see page 7.2.2, *Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)* and/or – see page 7.2.4, *Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.
12. Install the left-hand guard and the universal coupling.

(Fig. 93, 94, 95, 96)



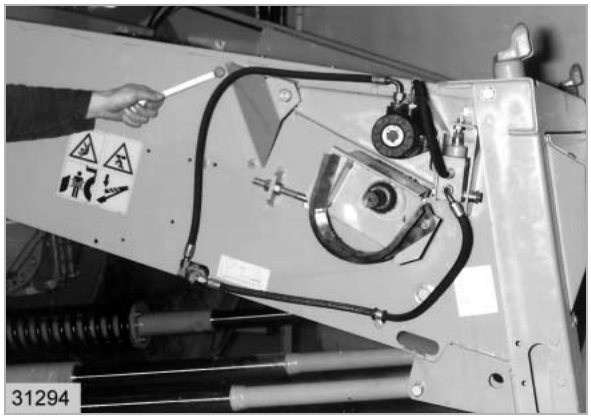
97

Removing the reverser drive

Raise the feed rake conveyor and secure by engaging the cutterbar cylinder safety lock.

Loosen and remove the set collar from the bearing plate.

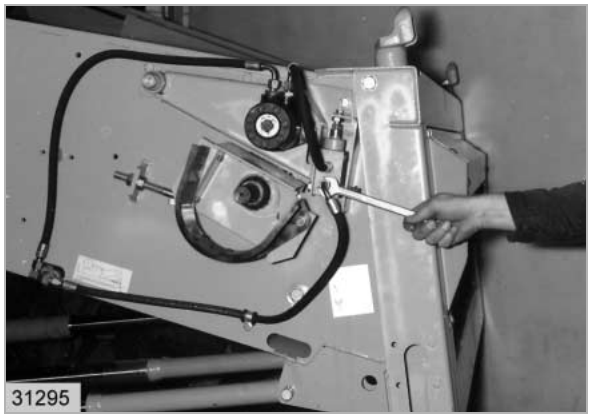
(Fig. 97)



98

Loosen the M 10 x 20 hex. bolt so that the bearing plate may be removed.

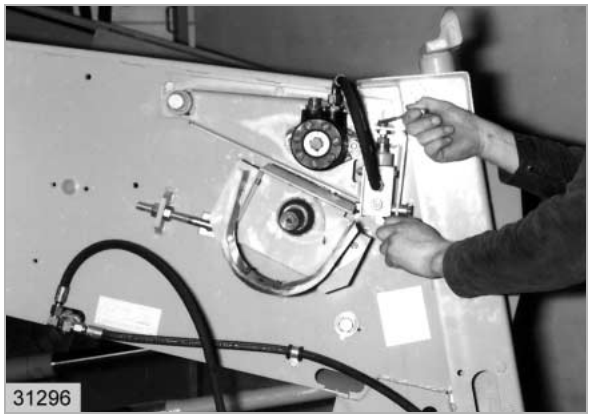
(Fig. 98)



99

Remove the hose end that goes off to the tank from the hydraulic cylinder and plug it with a plastic cap.

(Fig. 99)

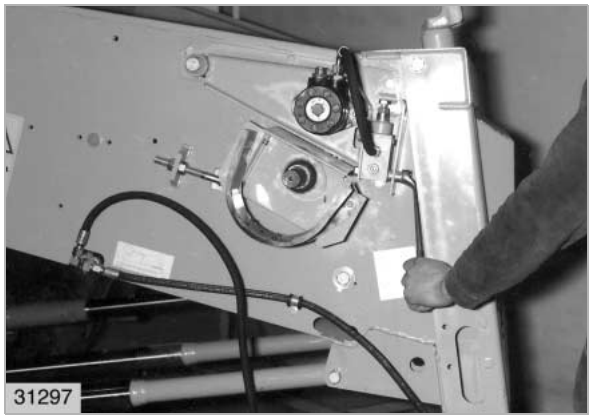


100

Loosen the M 8 x 180 hex. bolt.

Remove the spring clamp.

(Fig. 100)

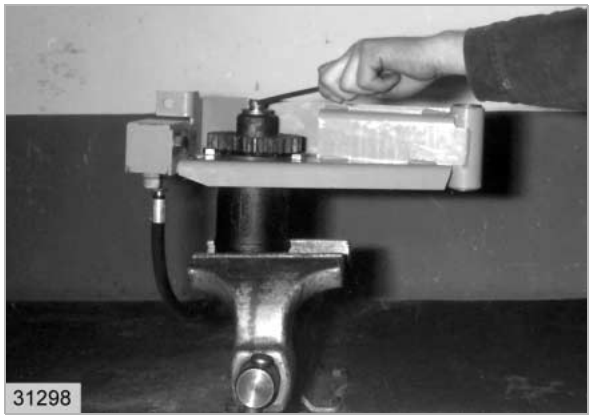


101

Remove the M 8 x 65, the M 12 x 25 and the M 12 x 45 hex. bolts with eccentric bolt from the hydraulic cylinder and remove the cylinder.

(Fig. 101)

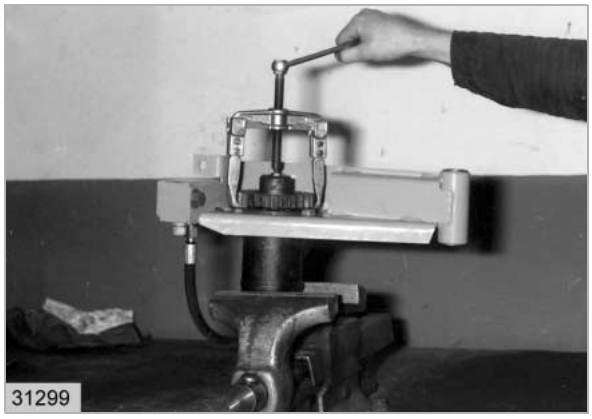
Remove the supporting arm with the hydraulic motor and the drive gear.



102

Unscrew the M 8 x 25 hex. bolt from the face end of the hydraulic motor.

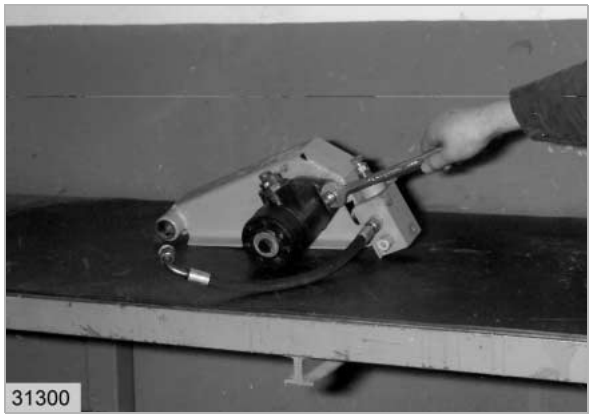
(Fig. 102)



103

Using a two-legged puller and a M 8 hex. bolt with centraliser, pull off the gear.

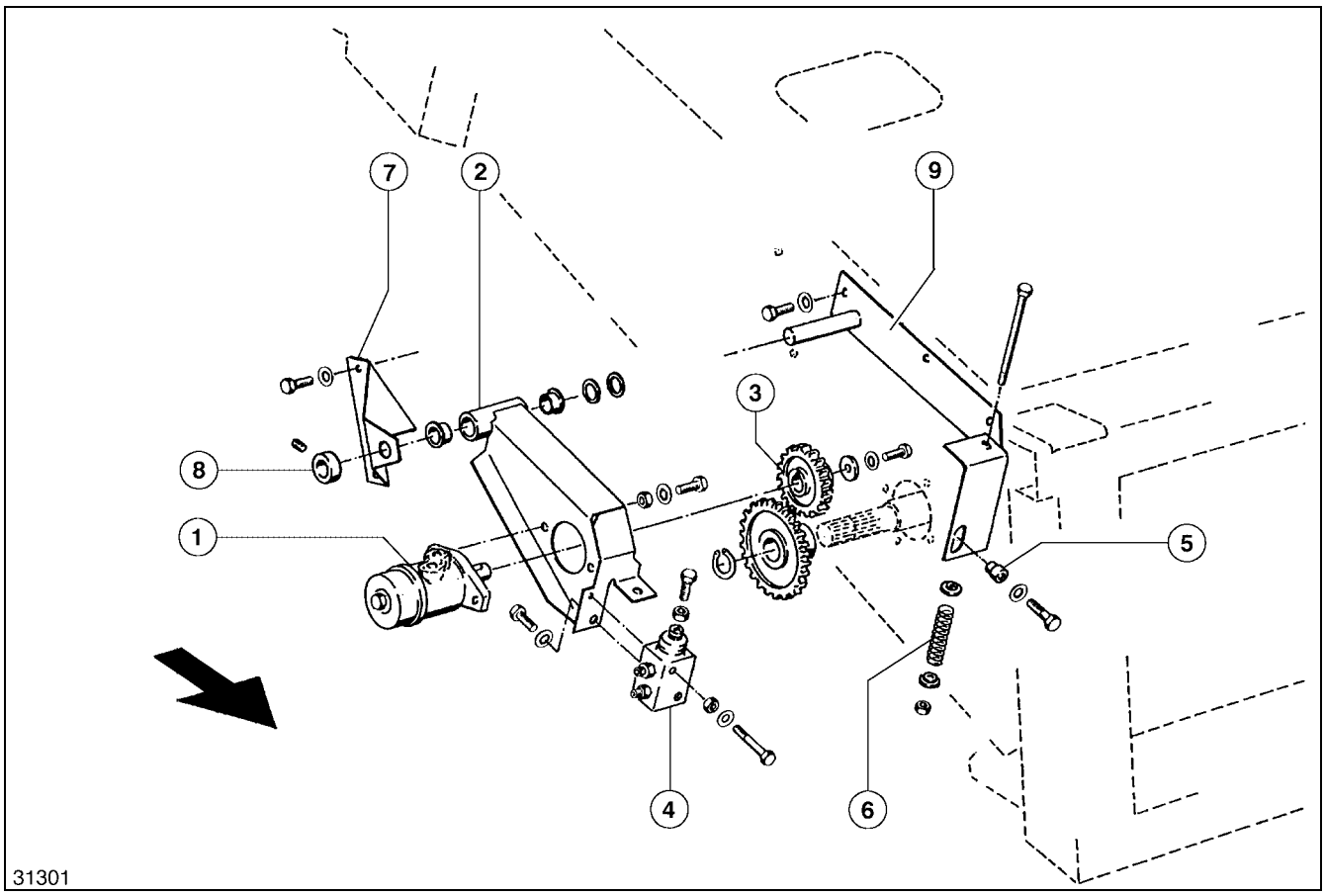
(Fig. 103)



104

Loosen the M 12 x 35 hex. bolts and remove the hydraulic motor from the supporting arm.

(Fig. 104)



105

Reverser drive, disassembled

1 Hydraulic motor
Hex. bolt M 12 x 35 DIN 933-8.8
Hex. nut M 12 DIN 934-8
Contact washer A 12
2 Supporting arm
Bushing
Washer
3 Gearwheel
Washer
Hex. bolt M 8 x 25 DIN 933-8.8
Contact washer A 8
4 Hydraulic cylinder
Hex. bolt M 8 x 65 DIN 931-8.8
Hex. nut M 8 DIN 934
Contact washer A 8
Hex. bolt M 12 x 25 DIN 933-8.8
Contact washer A 12
5 Eccentric
Hex. bolt M 12 x 45 DIN 931-8.8
Contact washer A 12
6 Compression spring
Hex. bolt M 8 x 180 DIN 931-8.8
Spring guide
Hex. nut M 8 DIN 934-8
7 Bearing plate
Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
8 Set collar
Set screw M 10 x 8
9 Mounting bracket

(Fig. 105)

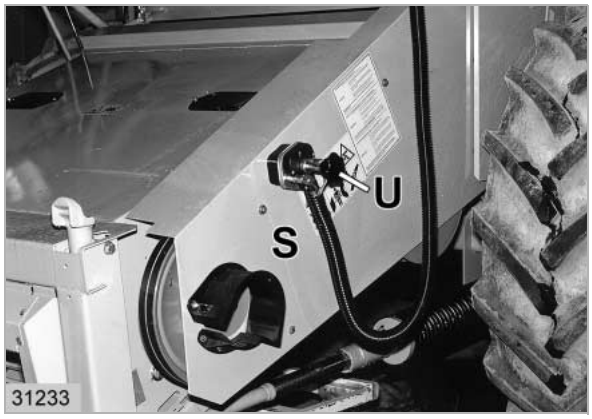


106

Installing the reverser drive

1. Bolt the hydraulic motor (1) to the supporting arm (2).
2. Fit the gear (3) with washer, contact washer and bolt to the shaft end of the hydraulic motor.
3. Bolt the hydraulic cylinder (4) to the supporting arm (2).
4. Slide the complete supporting arm (2) with bushings and washers on the bracket (9).
5. Bolt the eccentric (5) to the hydraulic cylinder (4) and adjust so there is some play.
6. Bolt the compression spring (6) in position. Tighten the nut until the end of the bolt thread.
7. Bolt down the bearing plate (7), slide on the set collar (8) and tighten.
8. Adjusting the hydraulic cylinder:
   – Press the drive motor down into the gear.
   – Pull out the ram.
   – Set and lock setting screw (S) so there is **0.5 mm** of play (1/4 turns) up to the stop.
9. Bolt the hydraulic hoses to the motor and the hydraulic cylinder.
10. Check the hydraulic oil level.

(Fig. 105, 106)



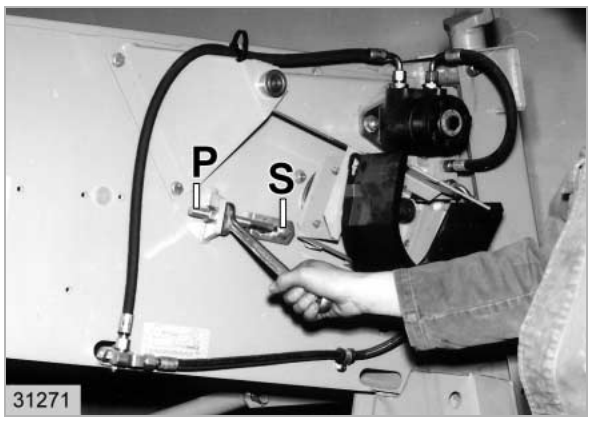
107

Replacing the feeder chains

Raise the feed rake conveyor and support it safely.

First remove the universal coupling (U) on the left-hand side, then the guard (S).

(Fig. 107)

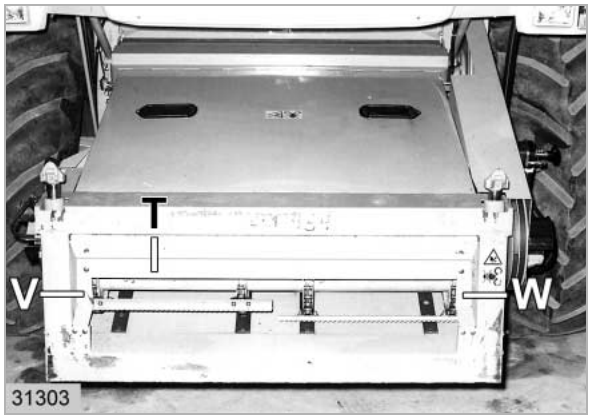


108

Relieving the tension of the left- and right-hand feeder chains:

To do this, unlock the lock nut (S) on both sides and unscrew the tensioning screw (P).

(Fig. 108)



109

Remove the dust plate (T), the right-hand end piece (V) and the left-hand guide plate (W).

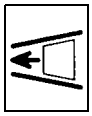
(Fig. 109)

Loosen the M 10 hex. bolts and remove the feed rake slats except two.

Turn the roller until the chain connectors are at the front, then split the chain.



110

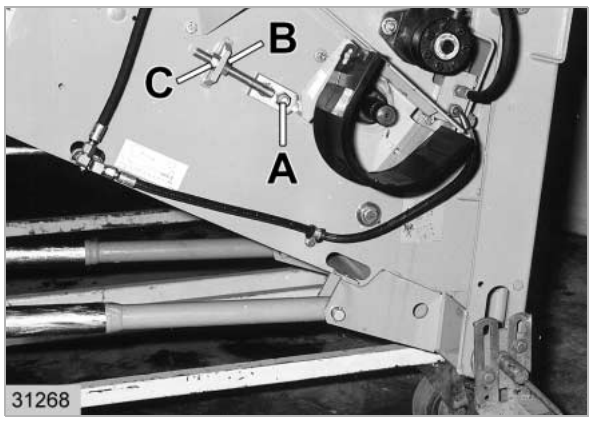


Bolt the feed rake slats onto the new chains.

Connect the new chains to the old chains. Ensure that the feed rake slats are offset.

Turn the roller so that the new chains are pulled in.

(Fig. 110)



111

Separate the new and the old chains.

Connecting and tensioning the new chains:

Once the clamping bolt (A) and the lock nut (C) have been slackened, the feeder chains may be tensioned using adjusting nuts (B).

On both sides, tension the chains evenly and only to such an extent that the feeder chains are just touching the runners (G).

(Fig. 111)

Bolt down the dust guard, the right-hand end piece and the left-hand guide plate.

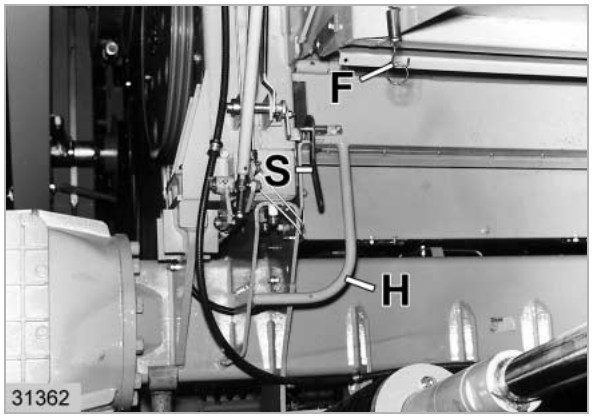
Refit the guard on the left-hand side and the universal coupling.

THRESHING CONCAVE

Removing the stone trap

DANGER!

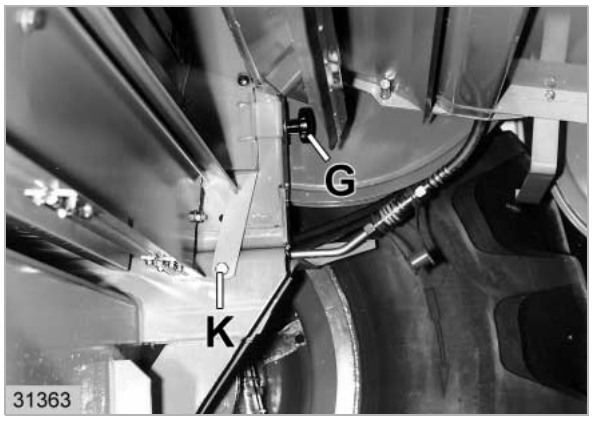
Raise the feed rake conveyor its highest position and put the cutterbar cylinder safety lock into position.



1

Pull the tensioning lever (S) forward, then swing the stone trap door to the front and arrest the spring hook (F) at lever (H).

(Fig. 1)



2

Remove the M 12 x 40 hex. bolts (K) from both sides of the stone trap.

Remove the turn lock (G) and remove the stone trap.

(Fig. 2)

Remove the 4.8 x 12 blind rivet from the terminal strip.

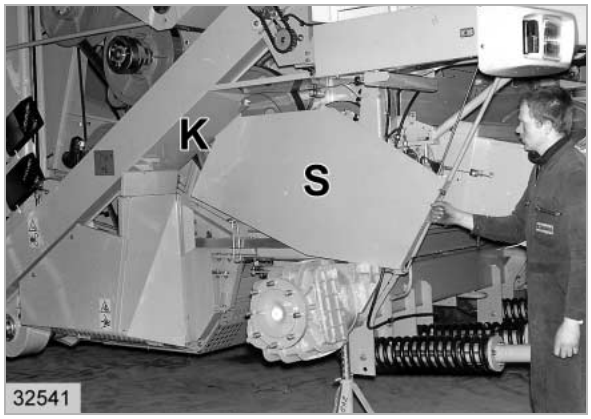
Replace the rubber seal and rivet it back to the terminal plate on the trough.

Installing the stone trap

Lift the stone trap into the machine and bolt the bearings on the left- and right-hand side back into position.

Swing stone trap up and screw on the turn lock.

Release the lever, then fold back door and secure with the tensioning lever.



Removing the preconcave

Lower the concave to its lowest position.

Removing the feed rake conveyor, see page 3.1.1

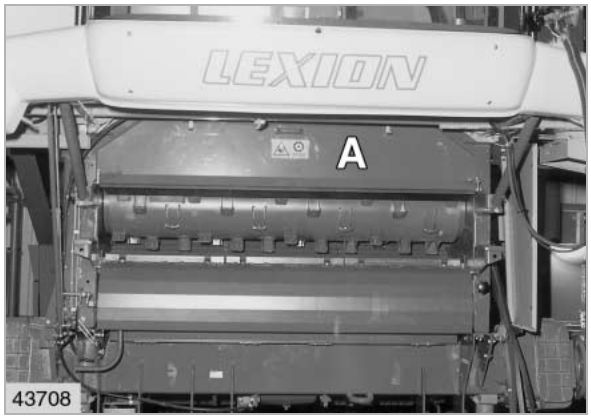
Place stands under the front axle and ensure that it is being supported in a safe manner.

Remove both front wheels.

Remove the guard (S) and the mud guards (K) from the right-hand side.

(Fig. 3)

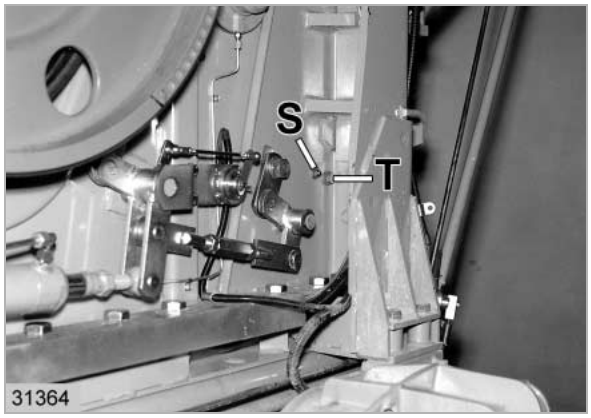
3



Remove the drum inspection cover (A).

(Fig. 4)

4

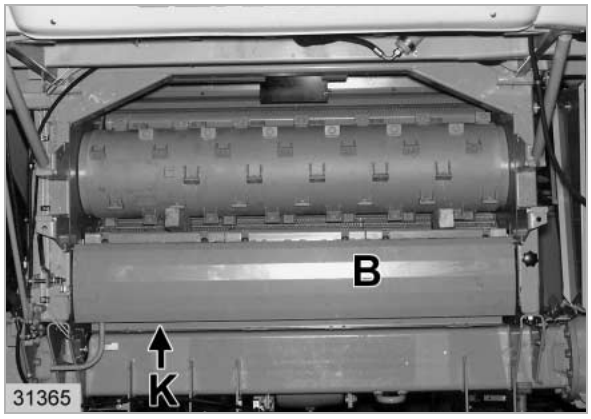


Remove the hex. bolts (T) from both sides of the machine.

Remove the screw plug (S) from both sides of the machine. Should the machine be fitted with the maize options, remove the feed plate for the stone trap.

(Fig. 5)

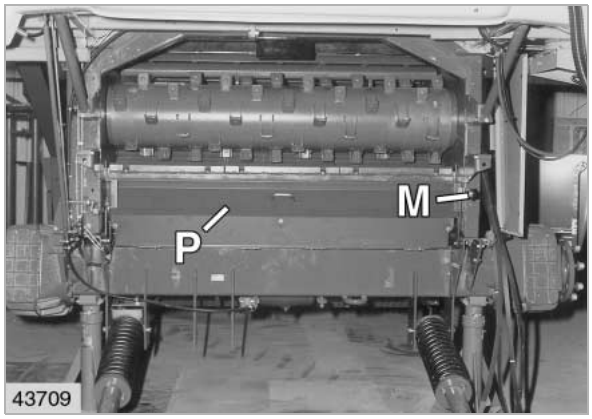
5



Remove the feed plate (B) along with the cover (K).

(Fig. 6)

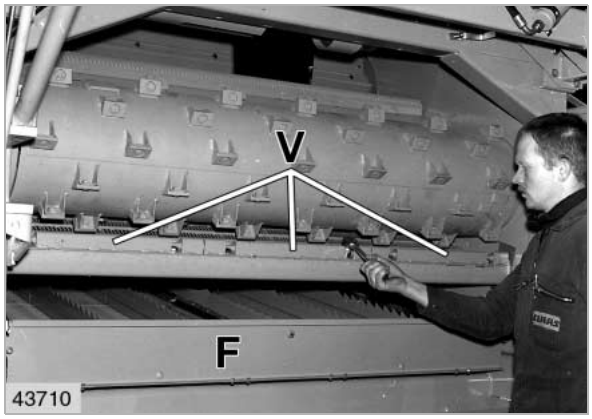
6



7

Unscrew the turn lock nut (M) and fold down the stone trap (P).

(Fig. 7)



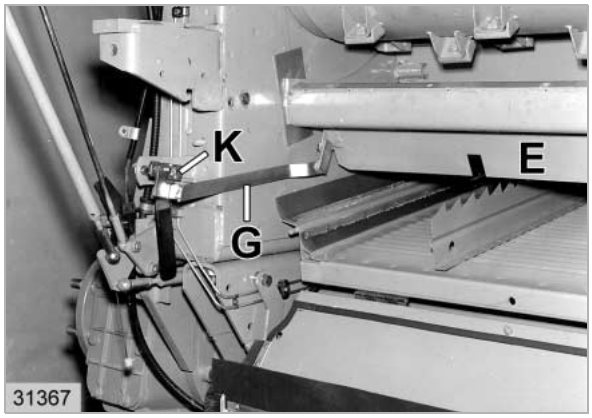
8

Remove the hex. bolts securing the preconcave segments (V).

Raise the segments and remove them from the machine.

Unscrew the cover (F) from the preparation floor and fold it open.

(Fig. 8)



9

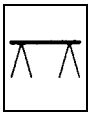
Unscrew hex. bolt (K) in order to remove brace (G).

Lift both disawner plates (E) out at the front of the machine.

(Fig. 9)

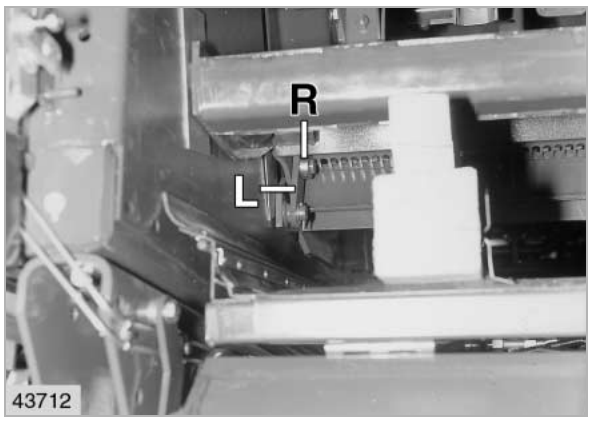


10



Support the underside of the preconcave with pieces of squared timber (H) of approx. **170 mm** height.

(Fig. 10)

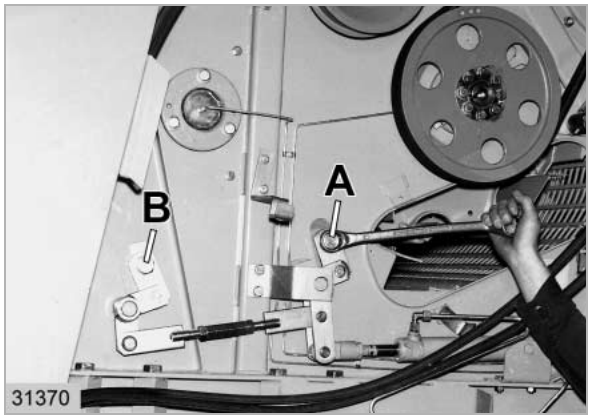


11

Pull out the split pins from the mounting plates (L) of the main concave and loosen the set collars (R).

Remove the mounting plates (L).

(Fig. 11)



12

Remove the bolts (A and B) from the centre and the front concave suspension on the right- and left-hand side.

(Fig. 12)



13

Pull out the sealing plates (3 and 7).

At the front sealing plates (3), also remove the wear strips (4).

(Fig. 13, 15)

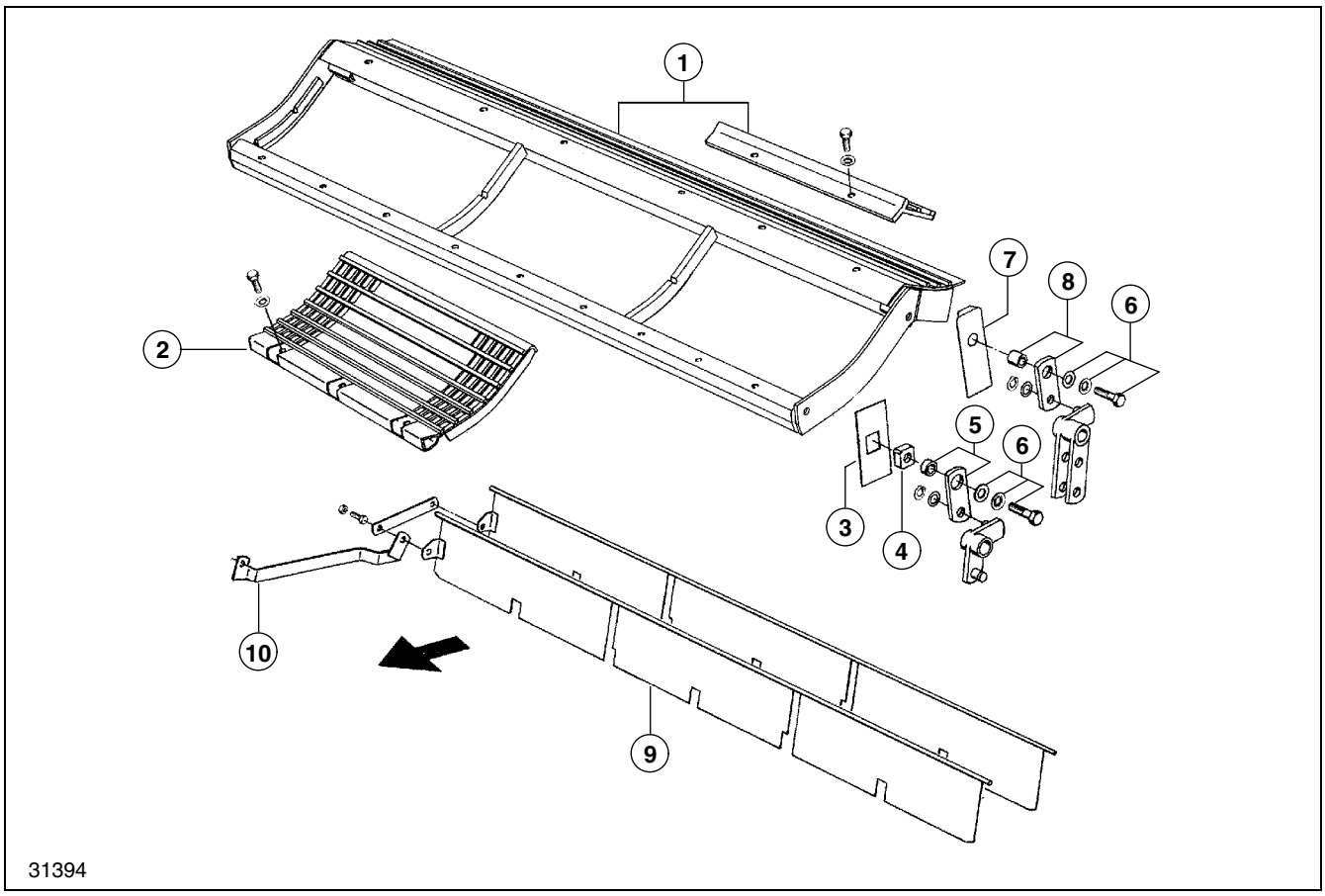


14

Raise the preconcave (1) at the rear and push it over the edge of the main concave.

Pull the preconcave out slowly towards the front on the squared timber.

(Fig. 14)



15

Preconcave, disassembled

1 Preconcave with concave segment
2 Preconcave segment
3 Sealing plate
4 Wear strip
5 Mounting plate with bushing
6 Hex. bolt M 20 x 80 DIN 931-8.8
Washer 21
Safety washer 20
7 Sealing plate
8 Mounting plate with bushing
9 Disawner plates
10 Brace

(Fig. 15)

Installing the preconcave

1. Push the preconcave (1) into the drum housing of the machine on pieces of squared timber of approx. **170 mm** in height.

   Raise the preconcave at the rear and push it over the edge of the main concave.

2. Push the sealing plates (3 and 7) between the preconcave (1) and the machine housing on the right- and left-hand side.

   Push the wear strips (4) into the elongated hole of the machine housing at the front sealing plates (3).

   Place the hex. bolts (6) with securing rings and washers through the mounting plates and bushings (5 and 8).

   Screw bolts (6) loosely into the preconcave (1).

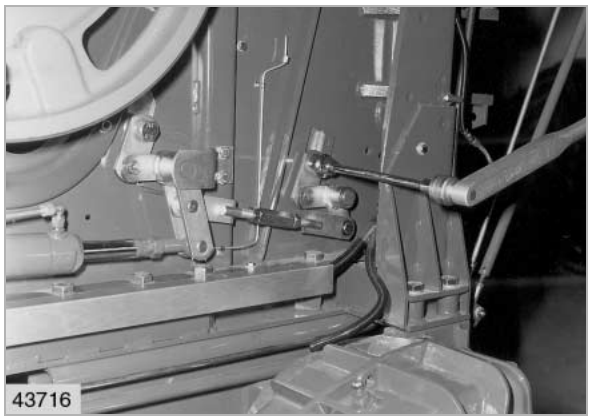


16

3. Raise the main concave at the front, using two tyre mounting levers, and slide the mounting plates on the pins on the left- and right-hand side.

   Secure the mounting plates with set collars and/or split pins.

(Fig. 16)



17

4. Bolt down the preconcave suspension bolts (6).

   Tightening torque = 370 Nm

(Fig. 15, 17)

5. Install the disawner plates (9) and bolt back brace (10).
6. Lift three preconcave segments (V) into the machine and bolt down. Fold up preparation floor cover (F) and bolt it down.

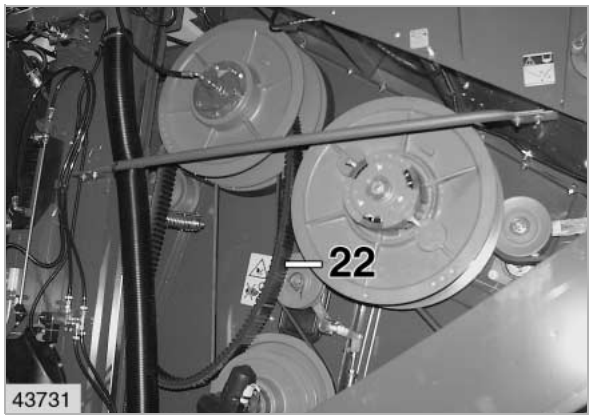
   (Fig. 8)
7. Install the feed plate (B) together with cover (K) and bolt down with bolts (T).

   (Fig. 5, 6)

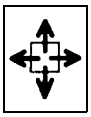
   Now insert screw plug (S).

   (Fig. 5)

   Should the machine be fitted with the maize options, install the feed plate for the stone trap.
8. Close the stone trap and lock it.
9. Set the basic concave adjustments – see page 3.2.16, *Basic concave setting*.
10. Bolt down the guard and drive wheels.
11. *Installing the feed rake conveyor*, see page 3.1.3



18



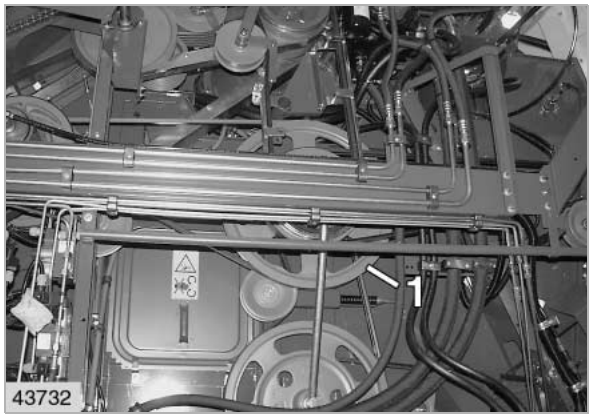
Removing the main concave

Lower the concave to its lowest position.

Remove the threshing mechanism variable-speed drive belt (22) at the front – see page 7.3.6, *Removing the threshing mechanism variable-speed drive belt (22)*. (The threshing drum can now easily be rotated.)

(Fig. 18)

Remove the preconcave.



19

Move the preparation floor to the foremost position by turning the step 1 chopper drive V-belt pulley (1) by hand.

(Fig. 19)



20

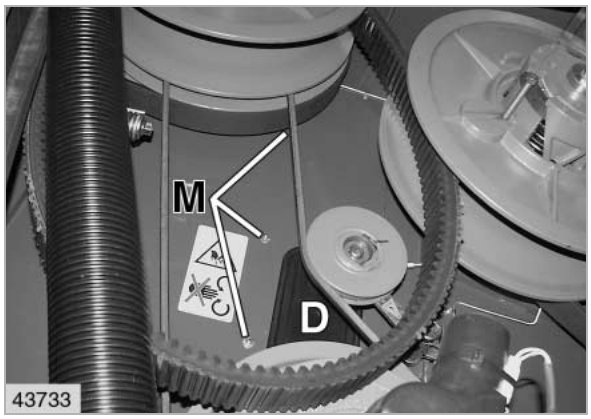
Unscrew the front rocker arms from the preparation floor and the machine frame on both sides.

CAUTION!

When removing the rocker arms, ensure that they have been marked, as they are not symmetrical!

(Fig. 20)

Securely support the underside of the concave with pieces of squared timber of approx. **120 mm** in height.



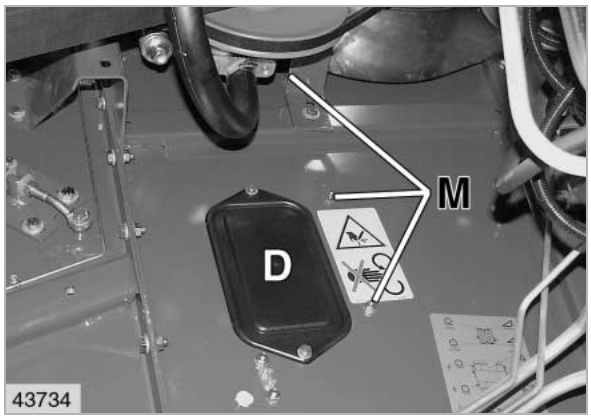
21

Remove the inspection hole cover (D) on the right-hand and left-hand side.

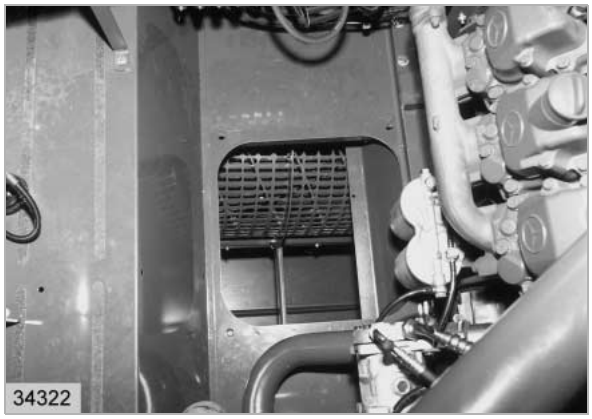
DANGER!

The hex. bolts (M) on the right-hand and left-hand side must be installed.

(Fig. 21, 22)



22

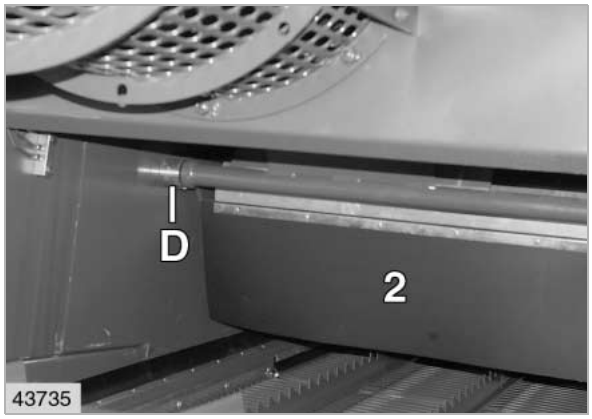


23

Completely remove the deflector curtain (2) from the main concave (1).

To do this, open the access door inside the engine compartment. Enter the inside of the machine through this opening.

(Fig. 23, 24, 27)

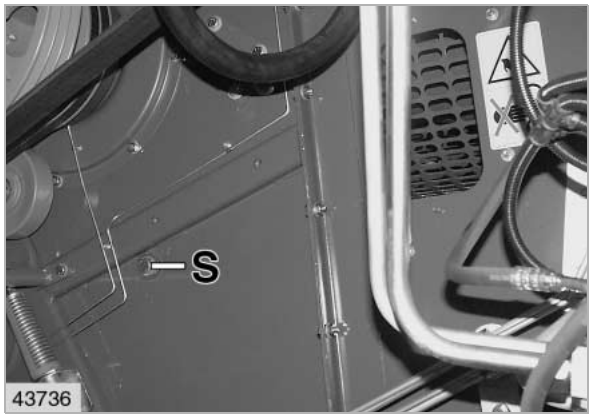


24

DANGER!

Leave the inside of the machine after removing the deflector curtain (2).

(Fig. 24)



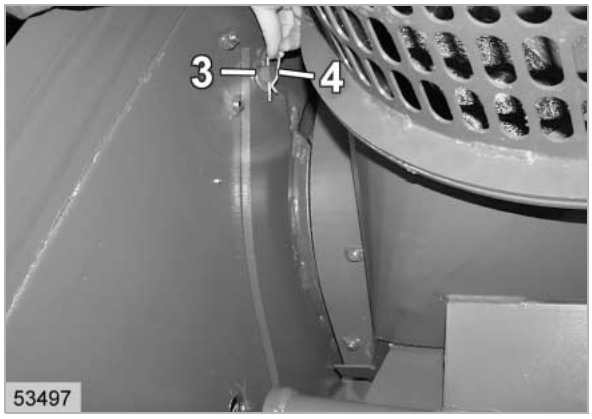
25

Remove the hex. bolts (S) from the left- and right-hand machine side.

CAUTION!

The thrust pieces (D) fall to the inside.

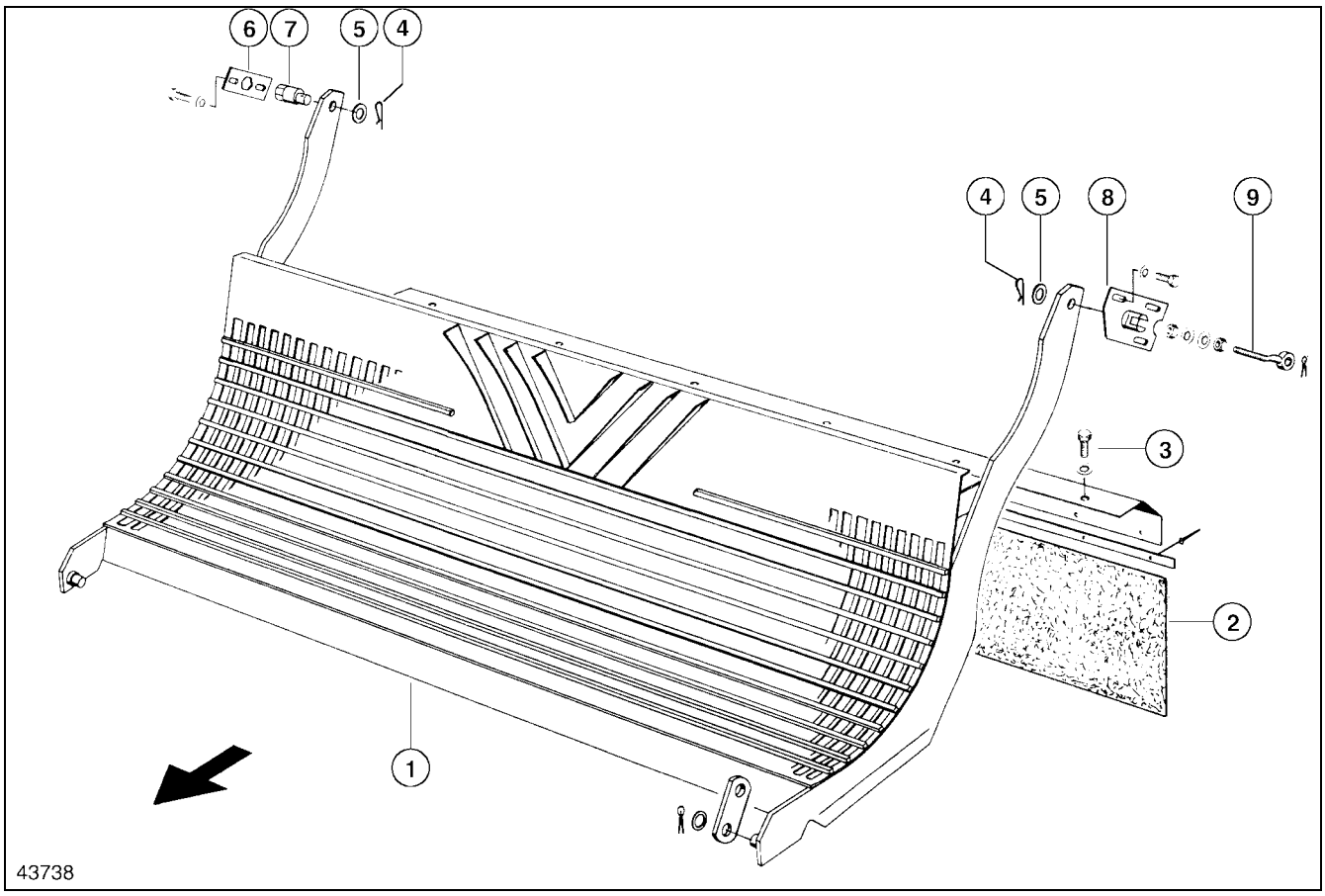
(Fig. 24, 25)



26

Remove the spring clip (4) from the eccentric bolt (7) and the safety plate (6) on the left- and right-hand machine side and remove the washers (5).

(Fig. 26, 27)

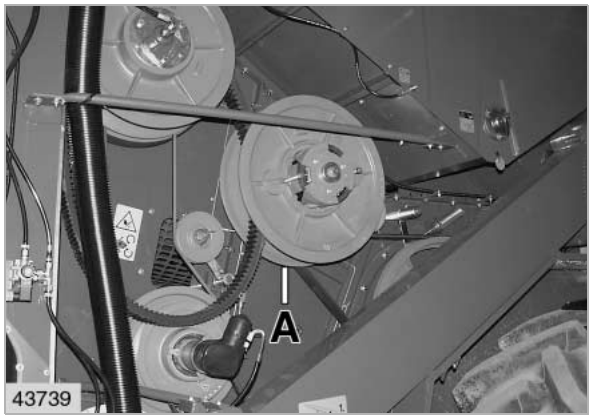


27

Main concave, disassembled

1 Main concave
2 Deflector curtain
3 Hex. bolt M 10 x 20
Contact washer A 10
4 Spring clip
5 Washer
6 Holder plate
Hex. bolt M 10 x 25
Contact washer A 10
7 Eccentric pin
8 Plate
9 Adjusting bolt
Hex. nut M 12
Contact washer A 12

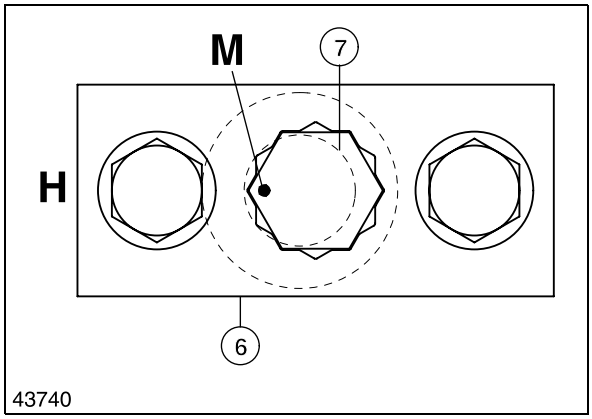
(Fig. 27)



28

On the right-hand machine side, unscrew the safety plate (6) near (A) and pull out eccentric bolt (7).

(Fig. 27, 28, 29)



29



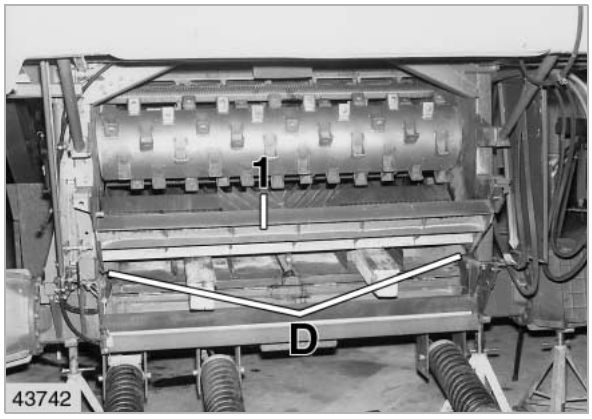
30

On the left-hand machine side, unscrew plate (8) and adjusting bolt (9).

CAUTION!

Upon removing the plate (8), the main concave (1) will drop in the drum housing.

(Fig. 27, 30)



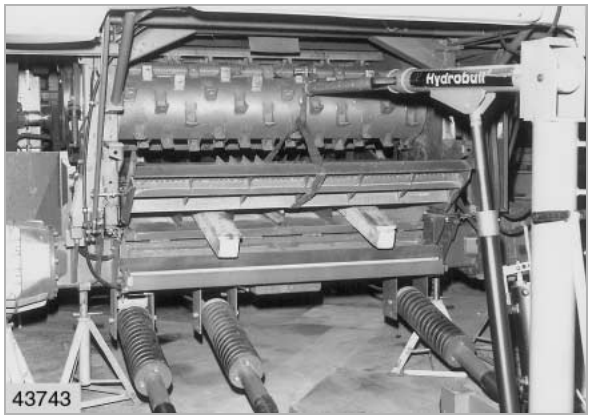
31

Turn the main concave (1) to the front below the threshing drum and pull it to the front on the pieces of squared timber.

ATTENTION!

The main concave (1) must not rest on the lateral rubber seals (D) of the preparation floor as the seals may be damaged.

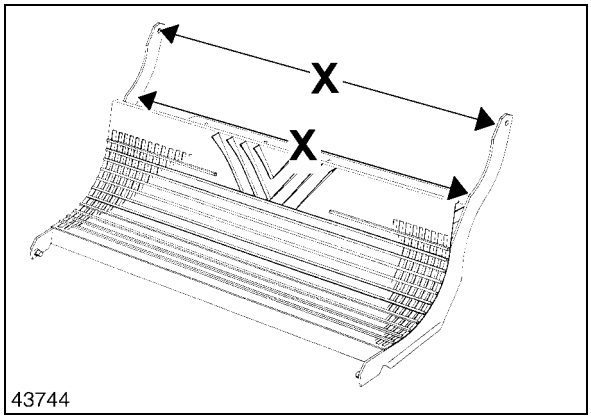
(Fig. 31)



32

Lift out the main concave, using a suitable lifting device.

(Fig. 32)



33

Installing the main concave

The parallel position (X) $^{+1}_{-2}$ of the two main concave sides must be checked and corrected if necessary.

(Fig. 33)

Lift the main concave into the drum housing, using a suitable lifting device, and support it with pieces of squared timber of approx. **120 mm** height.

ATTENTION!

The main concave (1) must not rest on the lateral rubber seals (D) of the preparation floor as the seals may be damaged.

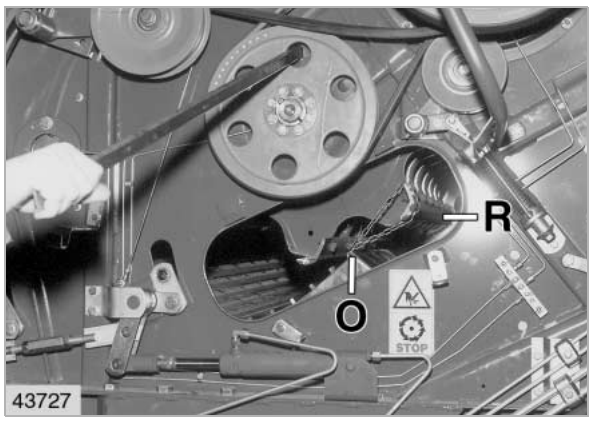
(Fig. 31)

CAUTION!

Fasten the main concave (1) to the threshing drum, using small chains or similar means. Turn the threshing drum by hand to move the main concave to its installation position. (Do not rotate drum by force.)

DANGER!

Never move your hands between the main concave, threshing drum and drum housing – **Danger of injury!**



34

Threshing drums without cover plates:

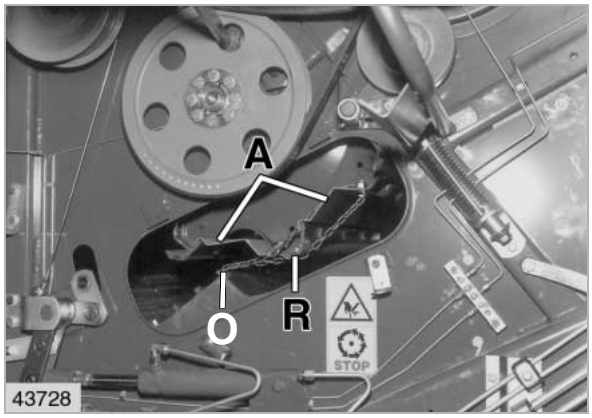
Attach the main concave with a chain of approx. **520 mm** length to a rasp bar (R) of the threshing drum.

CAUTION!

The top edge (O) of the main concave must be positioned precisely between two rasp bars so it can dip in between them when turning upwards.

Cut the chain on the left-hand machine side approx. **10 mm** shorter to allow passing a weld nut on the left-hand machine side.

(Fig. 34)



35

Threshing drums with cover plates:

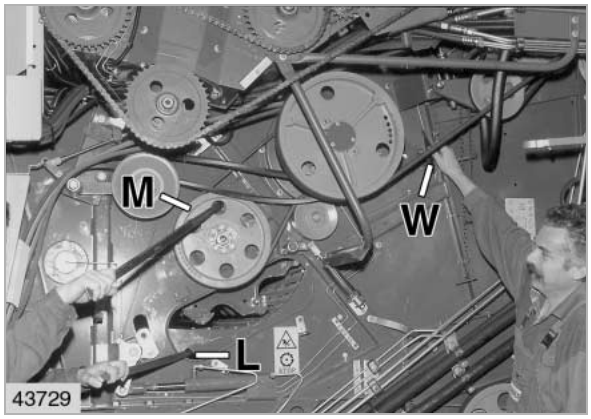
Attach the main concave with a chain of approx. **740 mm** length to a rasp bar (R) and a mounted cover plate (A) of the threshing drum.

CAUTION!

The top edge (O) of the main concave must be positioned precisely between two rasp bars so it can dip in between them or make contact with the cover plate (A) when turning upwards.

Cut the chain on the left-hand machine side approx. **10 mm** shorter to allow passing a weld nut on the left-hand machine side.

(Fig. 35)



36

Turn the pulley (M) of the impeller drive with a flat chisel (1,000 mm) until the main concave (1) is positioned below the threshing drum.

Raise the main concave at the front.

Raise the squared timber to approx. **240 mm** until an opening for the flat chisel appears at the side at (L).

Turn the pulley (M) of the impeller drive with a flat chisel (1,000 mm) and thus pull up the main concave (1) to its installation position.

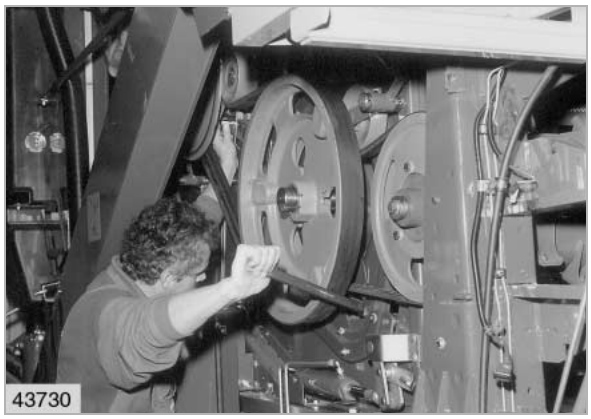
Using a second flat chisel, the main concave can be adjusted at opening (L) until the bore of plate (8) matches with the main concave (1).

DANGER!

Never move your hands (fingers) between the main concave and the drum housing (use a mirror or a punch) – **Danger of injury!**

Slide on plate (8) at (W) and bolt down loosely using adjusting bolt (9).

(Fig. 27, 36)



37

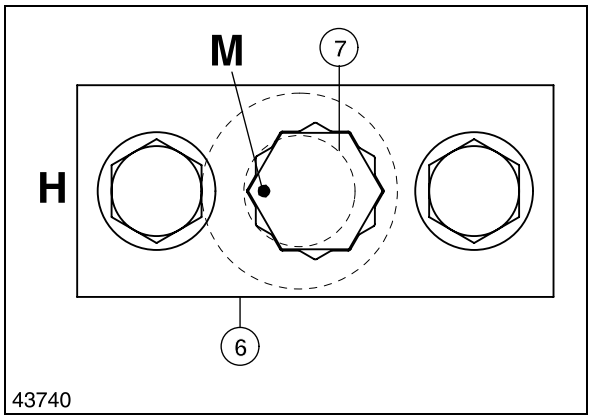
Remove the chain for lifting the main concave on the left-hand machine side.

Using a flat chisel (1,000 mm), slightly raise the main concave through the inspection opening on the right-hand side.

Using a flat chisel (1,000 mm), the main concave can be adjusted by turning the pulley (M) of the impeller drive can be adjusted until the bore of the eccentric bolt (7) matches with the main concave (1).

DANGER!

Never move your hands (fingers) between the main concave and the drum housing (use a mirror or a punch) – **Danger of injury!**



38

Push in the eccentric bolts (7). Bolt down safety plate (6).

The 0 position is reached when the mark (M) points to the rear (H).

Remove the chain for lifting the main concave on the right-hand machine side.

(Fig. 27, 37, 38)

Install the washers (5) and secure the eccentric bolt (7) and the plate (8) with spring clip (4) on the left- and right-hand machine side.

(Fig. 26, 27)

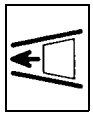
Insert the thrust pieces (D) from the outside on both sides and tighten with hex. bolts (S).

Tightening torque = 270 Nm

Enter the inside of machine and bolt down the deflector curtain (2) to the main concave.

(Fig. 24, 27)

Bolt down the front rocker arms supporting the preparation floor and the machine frame on both sides. Observe correct installation position.



CAUTION!

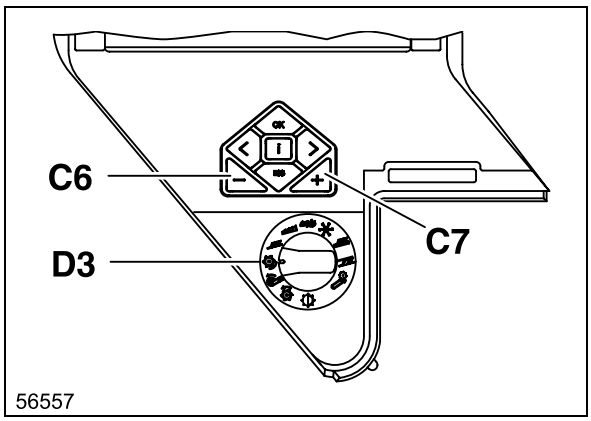
Position the sieve pan and preparation floor exactly in the middle of their oscillating travel. In this position, tighten the metal/rubber bearing.

Tightening torque M 10 = 45 Nm

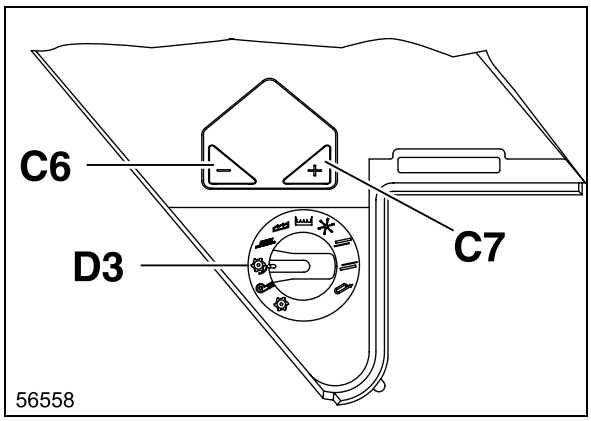
Installing and adjusting the fan intermediate drive belt (20), see page 7.3.4

Installing and adjusting the threshing mechanism variable-speed drive belt (22), see page 7.3.7

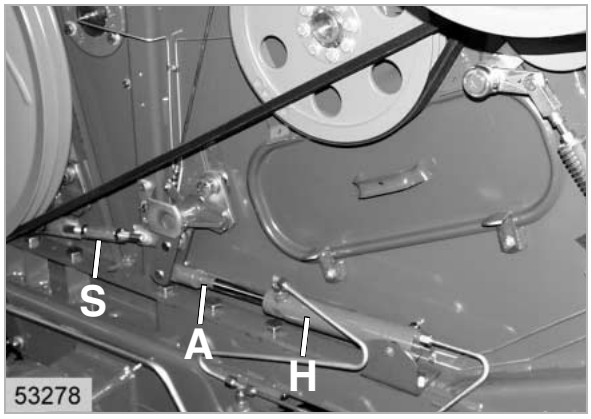
Installing the preconcave, see page 3.2.6



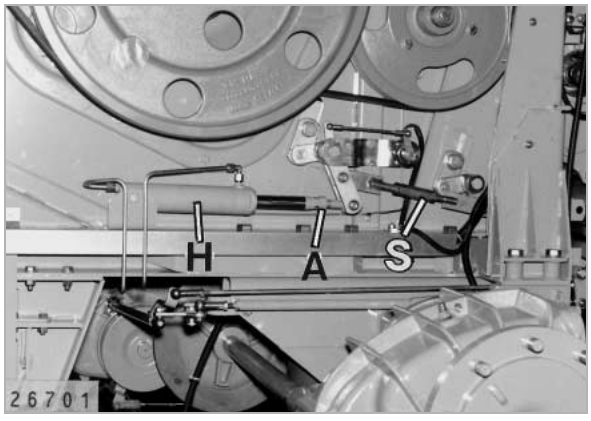
39



40



41



42

Basic concave setting

NOTE!

When engaging the threshing mechanism after an extended standstill period, the electronic unit moves the concave to the closest and the widest position.

After this, it moves the concave back to the pre-selected position.

1. Bleeding the hydraulic cylinder:

   Let the engine run during the bleeding process.

   Turn the rotary switch to position (D3).

   – Move the concave to the widest position by actuating pushbutton (C7).

   Once the concave is closed, leave your finger on the key (C7) for a further 15 – 20 sec.

   Important! Check that the concave adjustment hydraulic cylinders (H) are fully extended.

   – Then move the concave to the closest position by actuating pushbutton (C6).

   Once the concave is closed, leave your finger on the key (C6) for a further 15 – 20 sec.

   Important! Check that the concave adjustment hydraulic cylinders (H) are fully retracted.

   The bleeding process is complete.

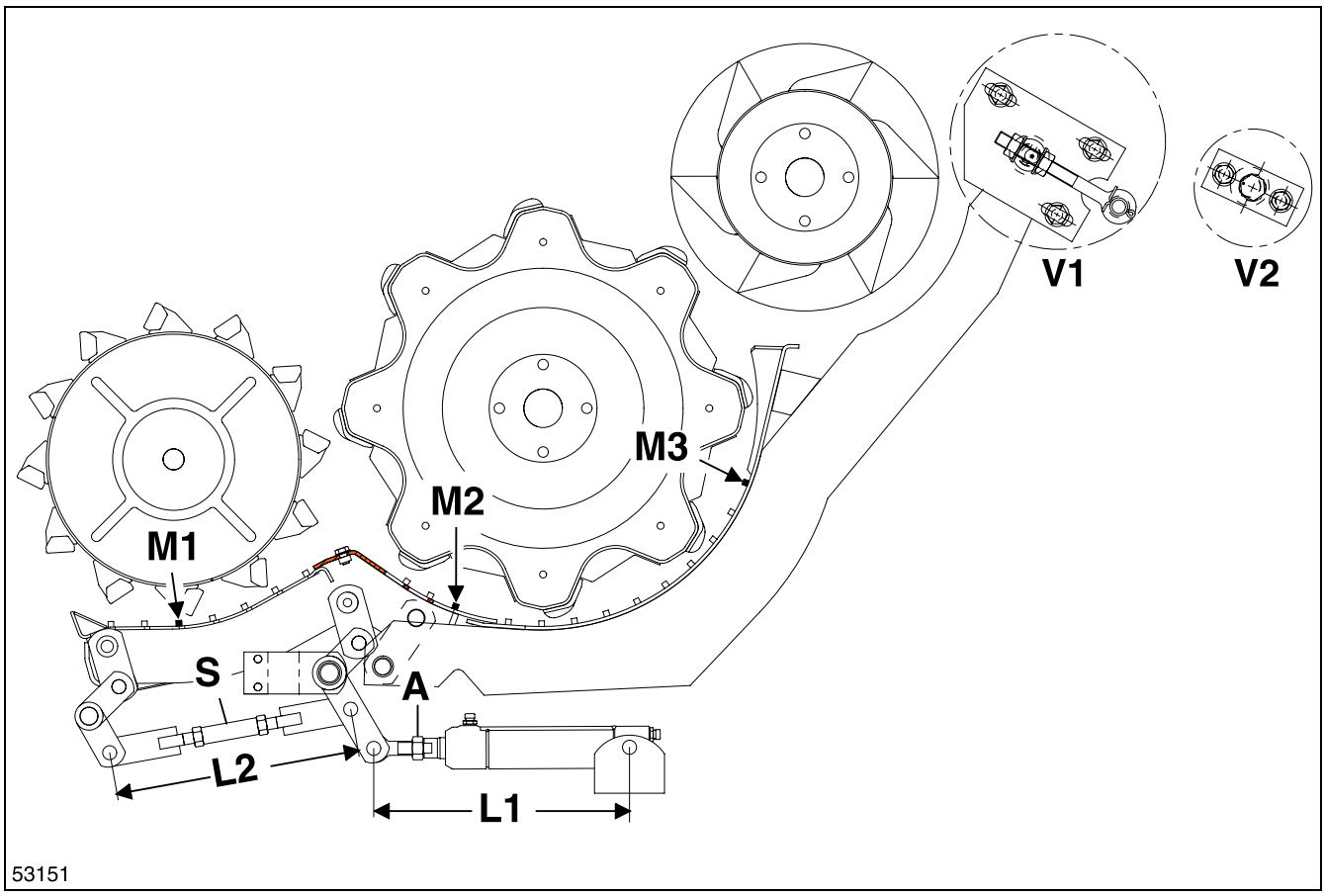
(Fig. 39, 40, 41, 42, 43)

2. Checking the basic concave settings:

   Measure the basic setting. To do this bleed the hydraulic cylinders and move the concave to the narrowest position.

   The lengths of the turnbuckles, hydraulic cylinders and potentiometer linkage must be set according to the specified dimensions.

   (Fig. 43, 44)



43

Designations and measures for grain / maize concave:

A = Piston rod
S = Turnbuckle
L1 = **370 mm** (cylinder length, retracted)
L2 = **350 mm** (turnbuckle length)

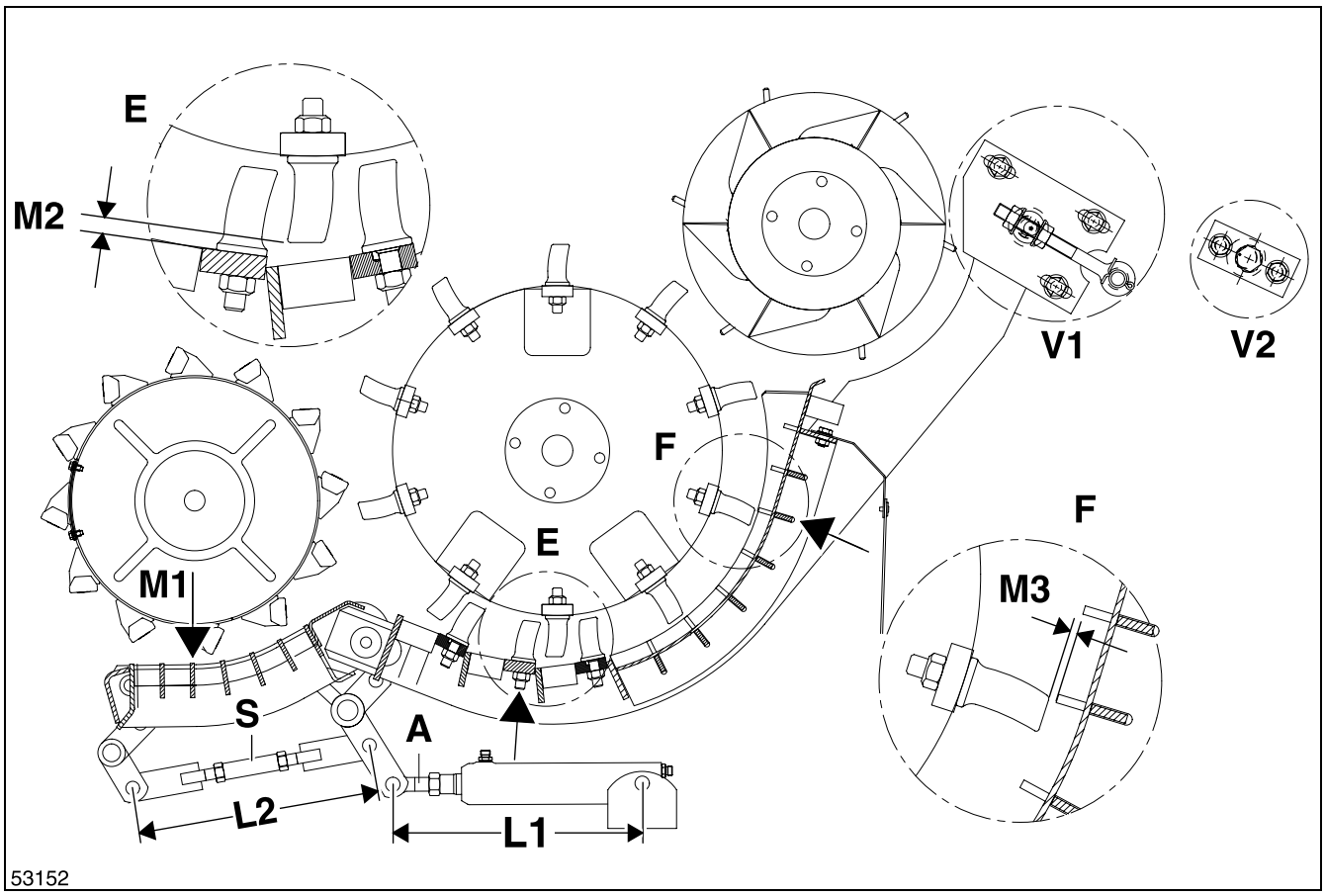
M1 Measuring point 1 = **± 2 mm**
– Pre-concave entrance – measure parallel position

M2 Measuring point 2 = **7 ± 1 mm**
– Main concave entrance – 3rd bar
Set at hydraulic cylinders at (A)

M3 Measuring point 3 = **4 ± 1 mm**
– Main concave output – 4th bar from the end
Setting to be carried out at the adjusting bolt (V1) and the eccentric bolt (V2)

V1 = Adjusting bolt (left-hand machine side)
V2 = Eccentric bolt (right-hand machine side)

(Fig. 43)



44

Designations and measures for spike tooth concave:

A = Piston rod
S = Turnbuckle
L1 = **370 mm** (cylinder length, retracted)
L2 = **350 mm** (turnbuckle length)

M1 Measuring point 1 = **± 2 mm**
– Pre-concave entrance – measure parallel position

M2 Measuring point 2 = **13 + 2 mm**
– Main concave entrance – 2nd spike tooth bar
Set at hydraulic cylinders at (A)

M3 Measuring point 3 = **7 + 2 mm**
– Main concave output – 4th bar from the end
Setting to be carried out at the adjusting bolt (V1) and the eccentric bolt (V2)

V1 = Adjusting bolt (left-hand machine side)
V2 = Eccentric bolt (right-hand machine side)

(Fig. 44)

3. Check free movement of threshing drum:

   First move the concave to the closest position by actuating pushbutton (C-).

DANGER!

Now stop the engine!

Turn the accelerator and the threshing drum by hand.

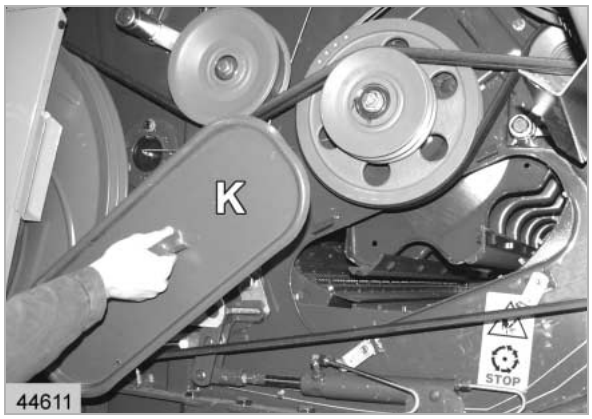
ATTENTION!

Important! Ensure that the accelerator and the drum will not touch the concave.

Mark the threshing drum rasp bar with the largest radius (measuring bar) at the left- and right-hand machine side. This marked rasp bar is later used for setting the clearance to the concave.

(Fig. 39, 40)

left-hand machine side



45

4. Adjusting the concave:

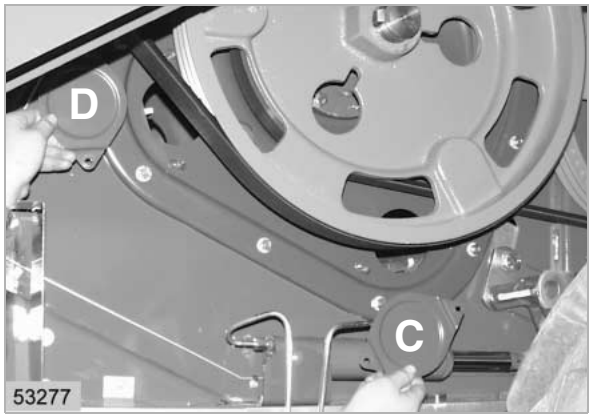
   Always set the turnbuckle lengths (L2) first.

   After this adjust the concave setting at measuring points (M2 and M3).

   Open door (K).

   (Fig. 43, 44, 45)

right-hand machine side



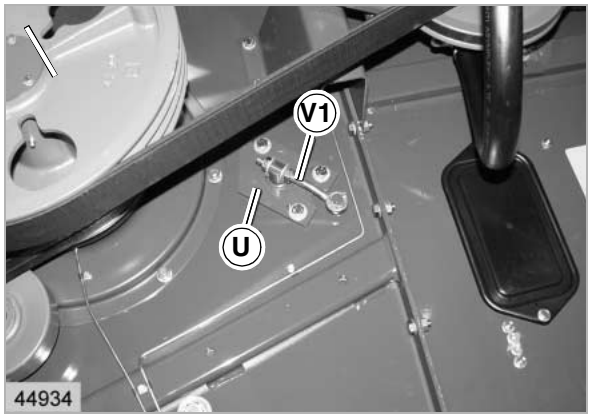
46

Open doors (C and D).

Set the main concave entrance (M2) to dimension (M2) in parallel on the left- and right-hand side by turning the piston rods (A).

(Fig. 43, 44, 45, 46)

left-hand machine side



47

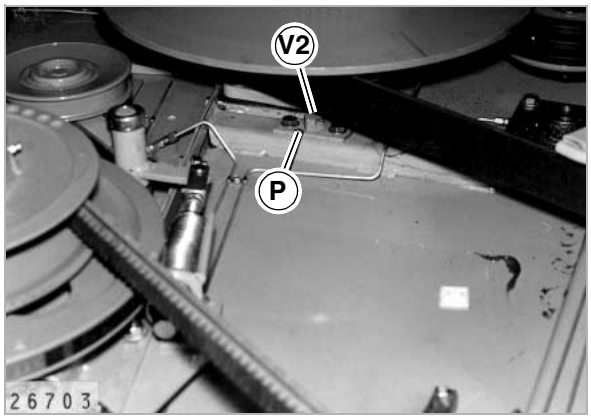
Set the main concave output (M3) to dimension (M3) in parallel on the left- and right-hand side by turning the adjusting bolt (V1) and the eccentric bolt (V2).

Main concave output adjustment (V1) on left-hand side:

Loosen plate (U).

(Fig. 43, 44, 47)

right-hand machine side



48

Adjusting the main concave output (V2) on the right-hand side:

When in basic position, the marking (M) shows to the rear (H) = 0 position.

Unscrew the safety plate (P).

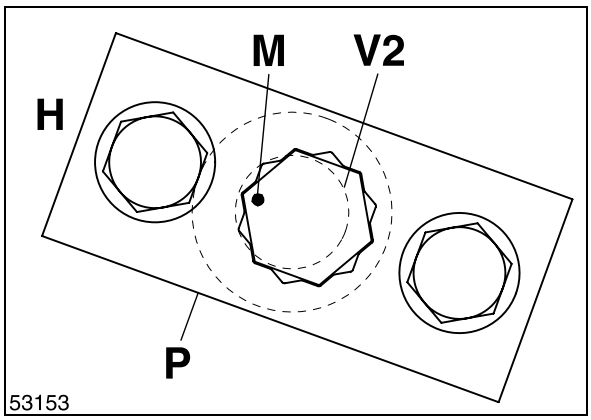
Now turn the hex. socket of the eccentric bolt (V2) by 30° or 60° to the left or right.

From serial no. …, up to serial no. …:
May be adjusted in 30° steps

Up to serial no. …:
May be adjusted in 60° steps

Re-tighten the safety plate (P).

right-hand machine side



49

Check for parallel position of preconcave entrance and accelerator by measuring at (M1).

The dimension (M1) can be checked through the open drum inspection cover and/or the stone trap. If necessary, change adjustment accordingly on the turnbuckle (S).

CAUTION!

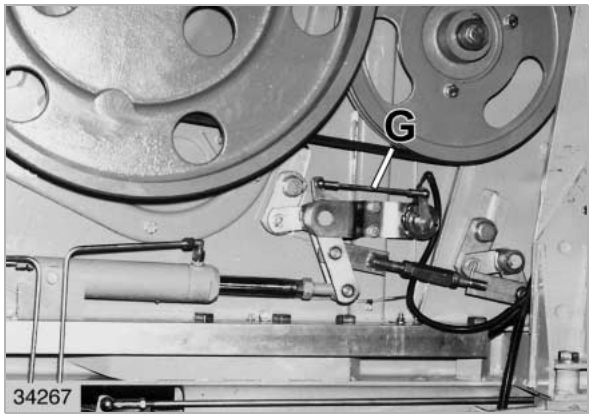
When adjusting the turnbuckle (S), the clearance and the measuring point (M2) have to be rechecked and corrected if necessary.

Re-tighten all bolts after adjusting the concave and jam hex. nuts. Insert all doors and arrest them.

(Fig. 43, 44 , 47, 48, 49)

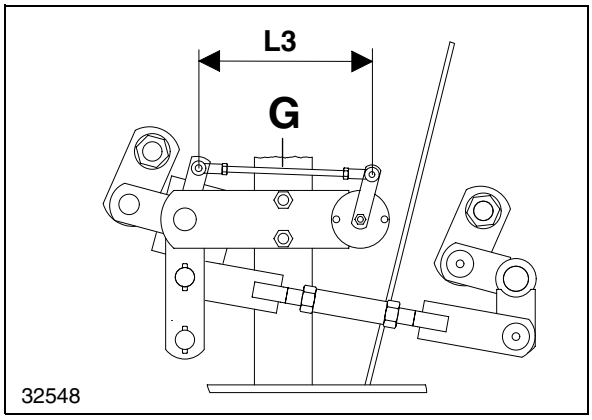
5. Adjusting the concave potentiometer – see page 3.2.21, *Adjusting the concave potentiometer*.

Up to serial no. ...



50

Up to serial no. ...



51

Adjusting the concave potentiometer

1. Setting the potentiometer linkage:
   (up to serial no. …)

   Close the concave so that it is in its narrowest position.

   There must be a clearance of **7 ± 1 mm** between the 3rd concave bar and the rasp bar of the threshing drum at measuring point (M2).

   The value on the screen should read “7”.

   Should this not be the case, adjust the threaded rod (G) of potentiometer until the display reads correctly.

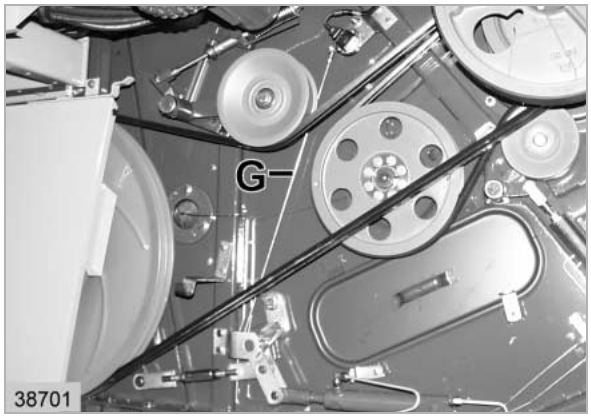
   The basic setting (L3) of the linkage is **180 mm**.

(Fig. 43, 44, 50, 51)

Learning the limit stops

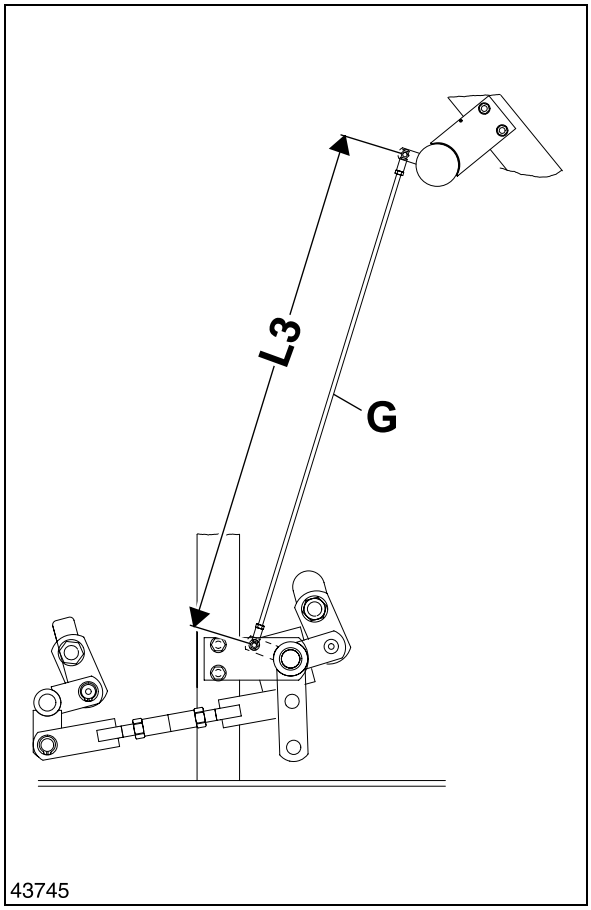
See section 8 of Operator's Manual “Learning the limit stops”.

From serial no. …



52

From serial no. …



53

2. Setting the potentiometer linkage:
(from serial no. …)

   Close the concave so that it is in its narrowest position.

   There must be a clearance of **7 ± 1 mm** between the 3rd concave bar and the rasp bar of the threshing drum at measuring point (M2).

   The value on the screen should read “7”.

   Should this not be the case, adjust the threaded rod (G) of potentiometer until the display reads correctly.

   The basic setting (L3) of the linkage is **726 mm**.

(Fig. 43, 44, 52, 53)

Learning the limit stops

See section 8 of Operator's Manual “Learning the limit stops”.

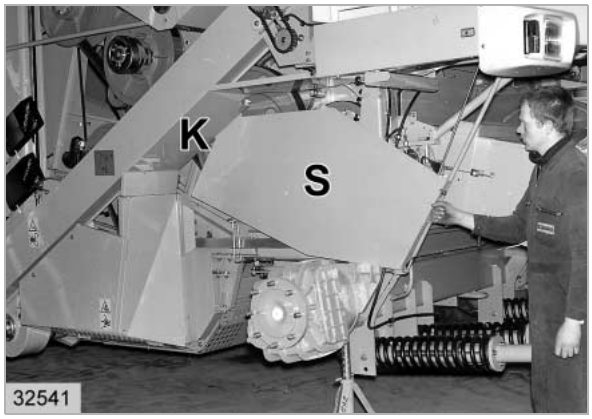
ACCELERATOR

Removing the bearing assembly and the shaft on the right-hand side

Support the machine safely under the front axle on the right-hand side.

Remove the right-hand wheel.

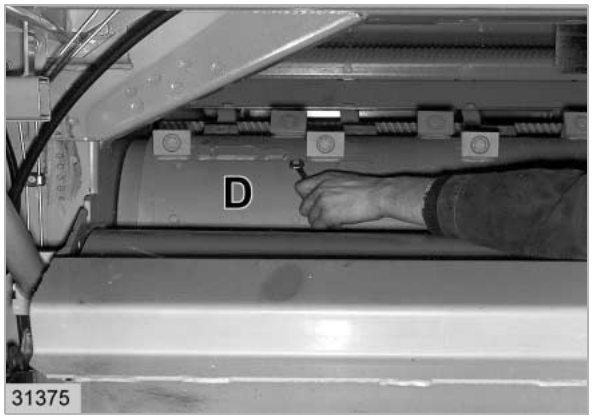
Remove the drum inspection cover.



1

Remove the guard (S) and the mud guard (K) on the right-hand side.

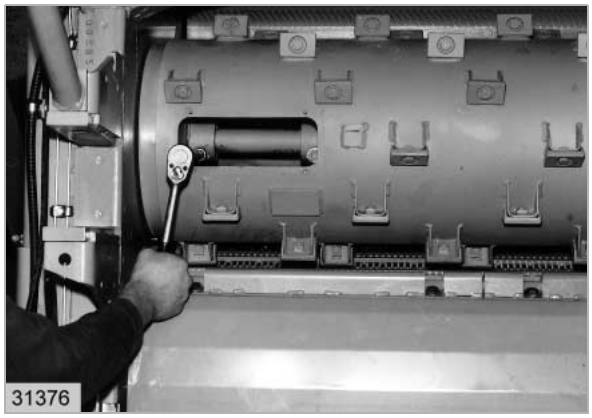
(Fig. 1)



2

Remove the cover (D) on the accelerator.

(Fig. 2)

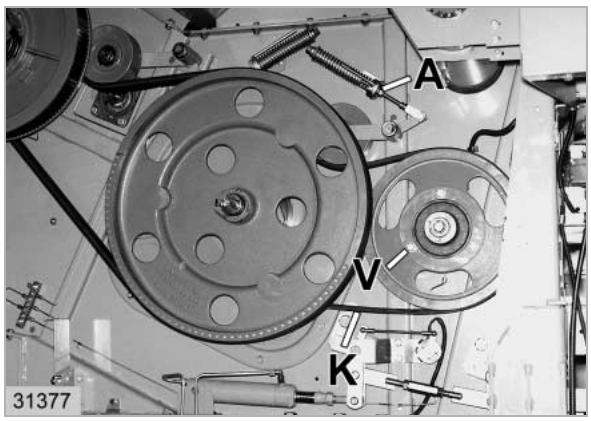


3

Clean the shaft with emery paper and grease it.

Remove the M 12 x 65 hex. bolts from the clamping hubs.

(Fig. 3)



4

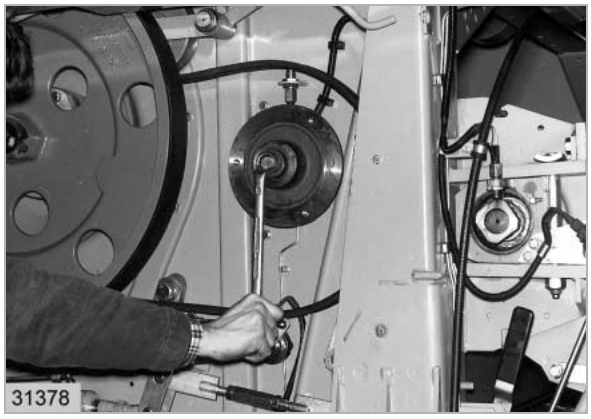
Loosen the bolts (V) from the V-belt pulley.

Release the tension from the spring-loaded cylinder (A) and remove the threshing mechanism drive belt (K) on the right-hand side of the machine.

DANGER!

Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 4)

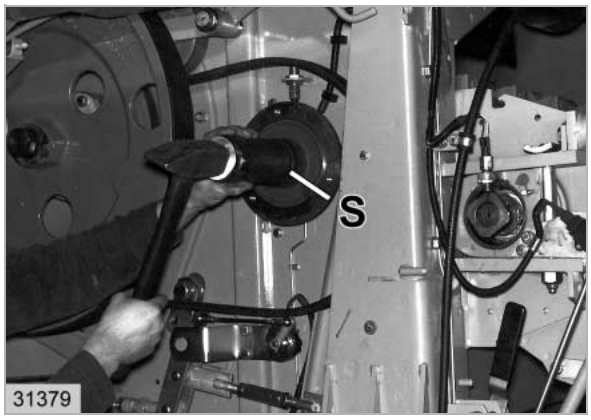


5

Remove the V-belt pulley from the hub.

Remove the M 16 hex. bolt from the face end of the shaft.

(Fig. 5)



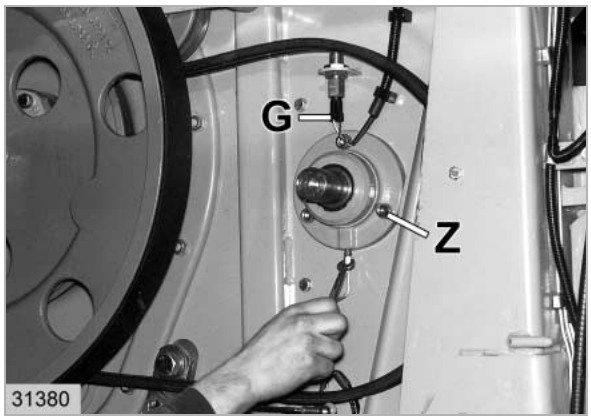
6

Using a suitable block-ended tube (S), apply a good sharp knock in order to release the tapered ring.

The block-ended tube must fit over the tapered ring.

Support the accelerator with a wedge-shaped piece of wood.

(Fig. 6)



7

Remove the hub, both tapered rings, the spacer and the parallel key from the shaft.

Remove the grease pipe from the bearing housing.

Disconnect the cable from the magnetic pick-up (G).

Unscrew the three cheese-head screws (Z) from the bearing assembly.

(Fig. 7)



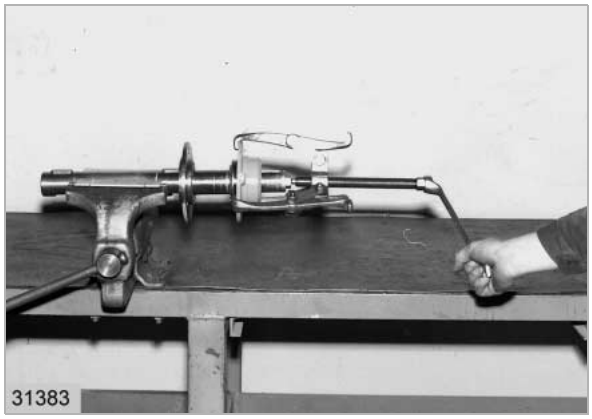
8

Using the special tool, drive the shaft and the bearing assembly out of the accelerator drum.

Special tool:

Tie rod 450 mm part no. 181 605.0
Striking tool part no. 181 604.0

(Fig. 8)



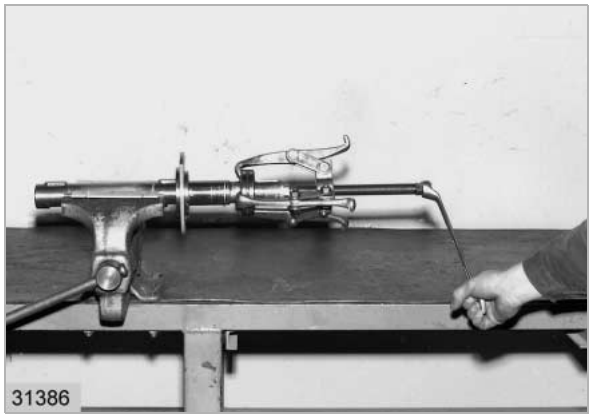
9

Disassembling the right-hand bearing assembly

Remove the bearing housing using a puller.

For this, turn a head-centred hex. bolt M 16 x 30 into the face end of the shaft.

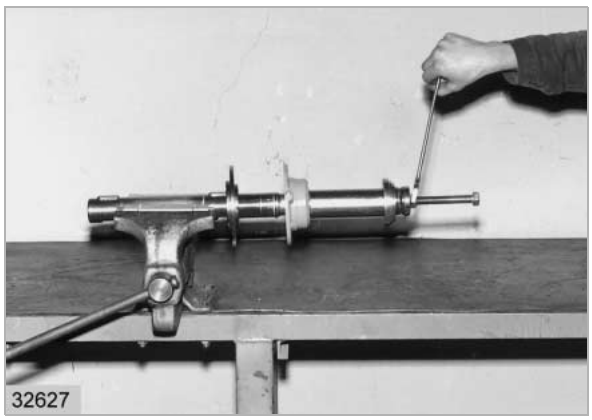
(Fig. 9)



10

Remove self-aligning roller bearing from the shaft using the puller.

(Fig. 10)



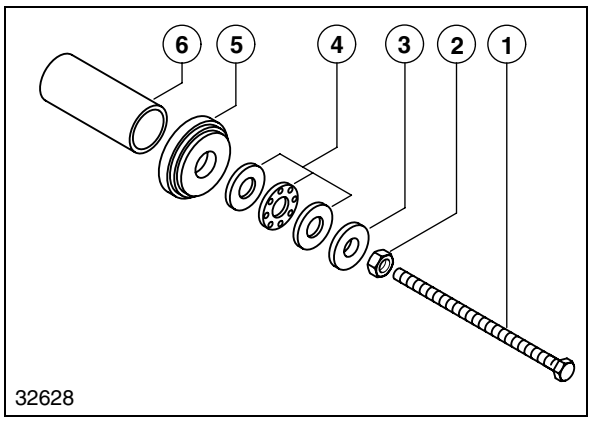
11

Assembling the right-hand bearing

Press the self-aligning roller bearing into the bearing housing.

Press the bearing assembly and the spacer on using the special tool.

(Fig. 11)

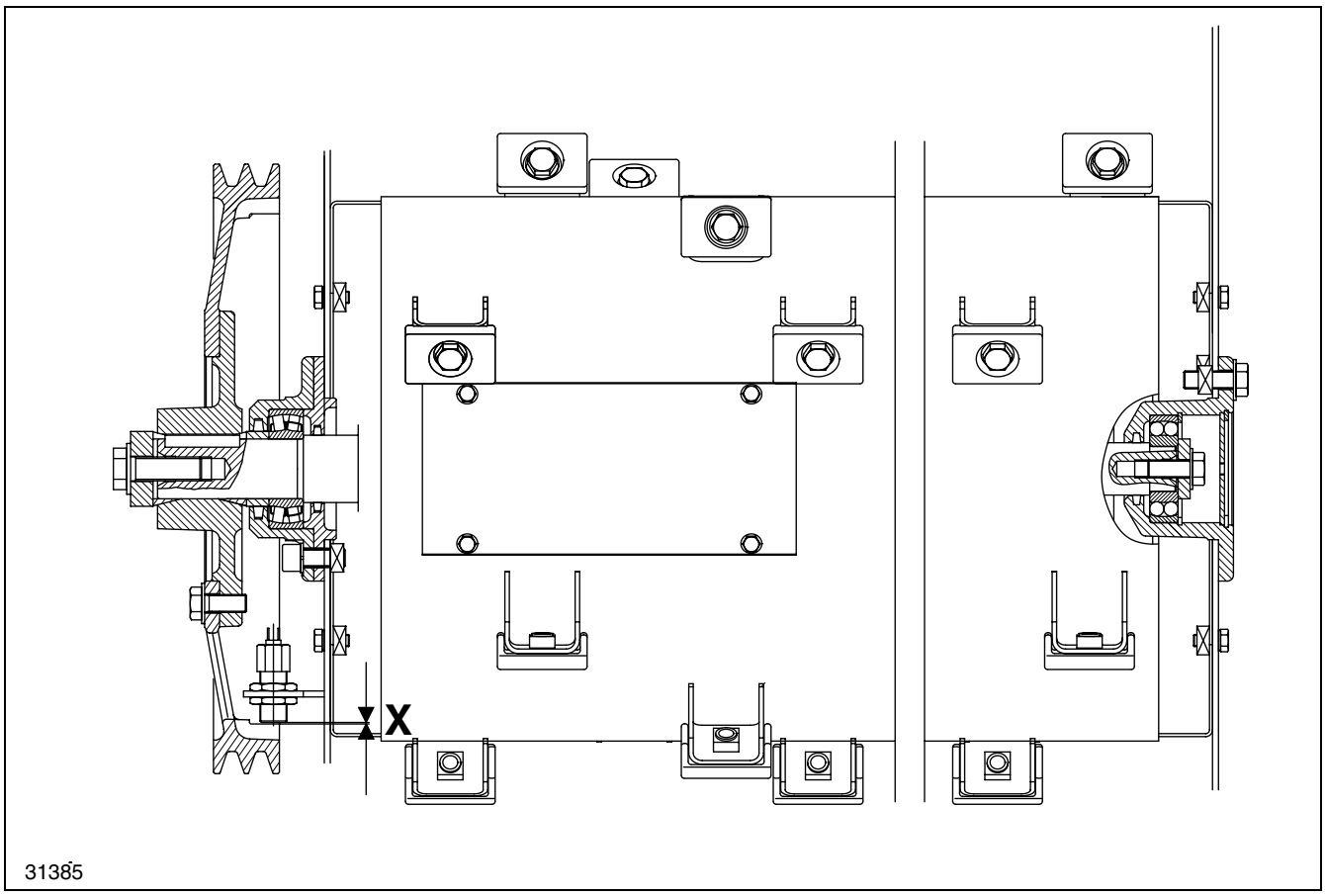


12

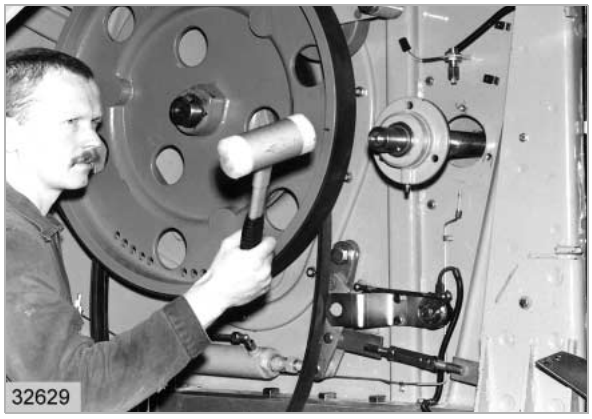
Special tool:

1 Hex. bolt M 16 x 300
part no. 237 375.1
2 Hex. nut M 16
part no. 244 059.0
3 Washer ∅ 50 x ∅ 17 x 15 thick
part no. 636 678.0
4 Axial bearing
part no. 177 899.0
5 Centring disc
part no. 181 879.0
6 Tube inside ∅ 42, outside ∅ 50 x 140 long
(self-sourced)

(Fig. 12)



13

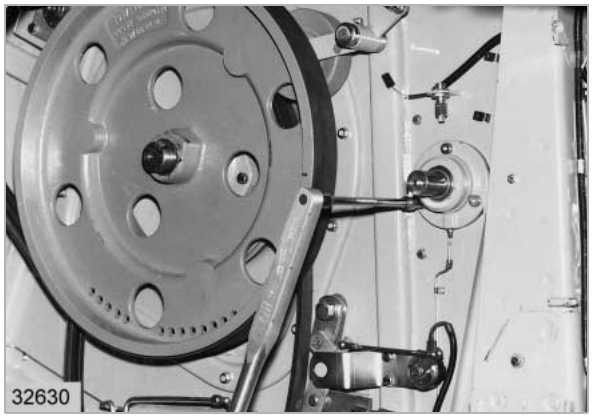


14

Installing the right-hand bearing assembly and shaft

Slightly grease the bearing seat. Using a plastic-tip hammer, drive the shaft together with the bearing assembly into the drum.

(Fig. 13, 14)

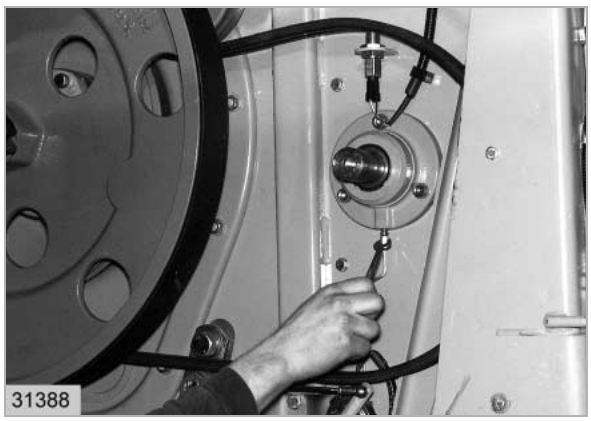


15

Using a tube, lift the shaft. Bolt the bearing assembly into place at the drum wall using three cheese-head screws.

Tightening torque = 80 Nm

(Fig. 13, 15)



16

Connect the grease pipe to the bearing assembly.

(Fig. 13, 16)



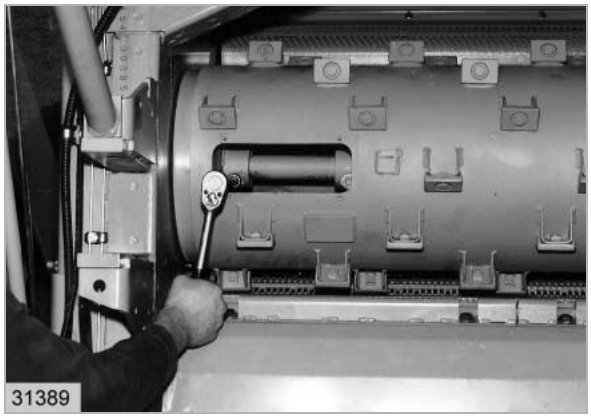
17

On the right-hand side, pull the shaft slightly to the outside using the special tool so that its shoulder locates correctly against the inner ring of the self-aligning ball bearing.

Special tool:

Tie rod 450 mm	part no. 181 605.0
Striking tool	part no. 181 604.0

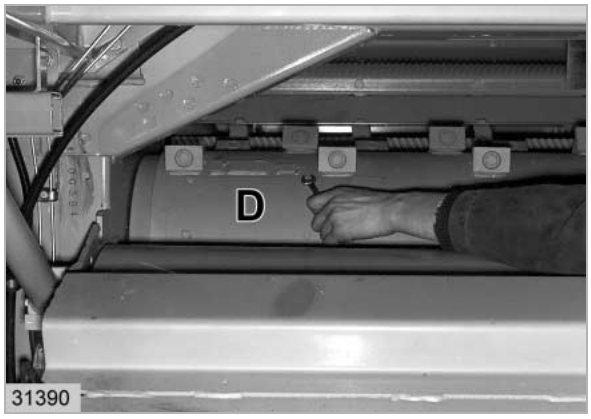
(Fig. 13, 17)



18

Screw the M 12 x 65 hex. bolts into the clamping hubs of the drum.

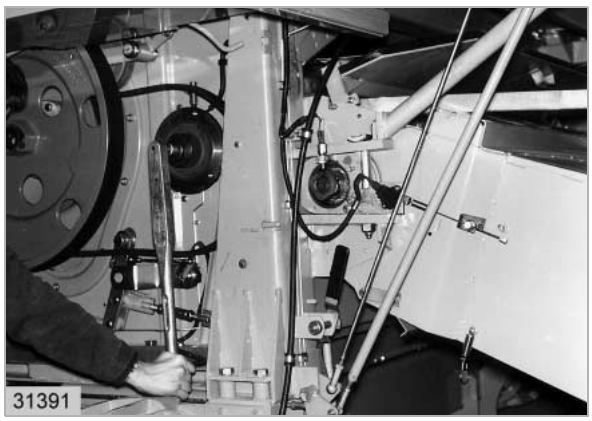
(Fig. 13, 18)



19

Refit the cover (D) to the drum.

(Fig. 13, 19)



20

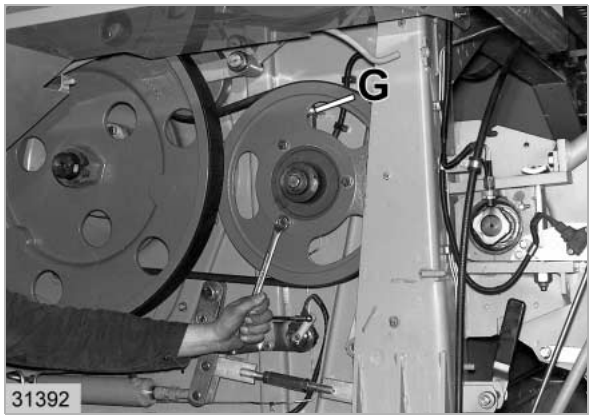
Place the first tapered ring on the shaft with semi-fluid lubricant.

Then put the parallel key and the hub into place.

Insert the second tapered ring, again ensuring sufficient semi-fluid lubricant is applied, then using the M 16 x 50 hex. bolt and the washers tighten to shaft face end.

Tightening torque = 180 Nm

(Fig. 13, 20)



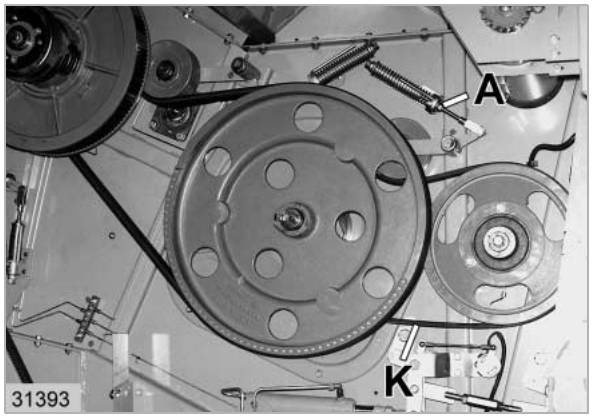
21

Bolt the V-belt pulley to the hub.

Connect the cable to the magnetic pick-up (G).

Check dimension (X) = **1 ± 0.5 mm** according to Fig. 13.

(Fig. 21)



22

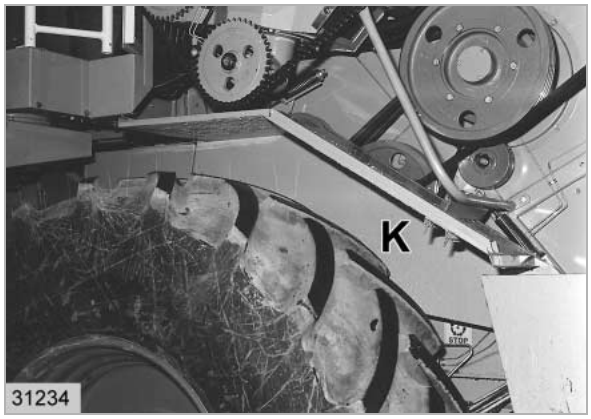
Install the V-belt (K) and adjust it – see page 7.3.11, *Installing and adjusting the accelerator drive belt (24)*.

(Fig. 13, 22)

Remove the wooden wedge from under the accelerator and replace and lock the drum inspection cover.

Refit the guard.

Refit the wheel.



23

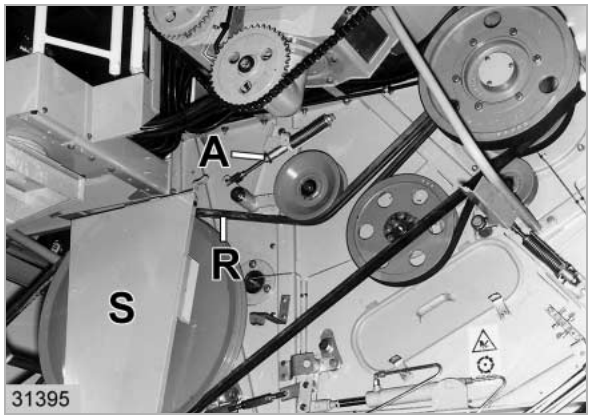
Removing the bearing assembly on the left-hand side

Support the machine safely on the left-hand side under the axle.

Remove the left-hand wheel.

Remove the mud guard (K).

(Fig. 23)



24

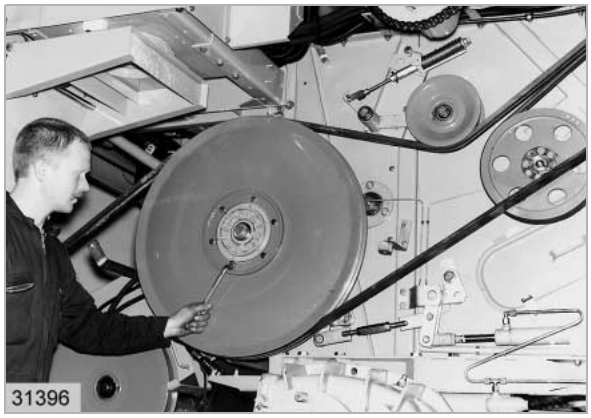
Remove the guard (S).

Release the tension from the spring-loaded cylinder (A) and remove the threshing mechanism drive belt (R) on the right-hand side of the machine.

DANGER!

Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

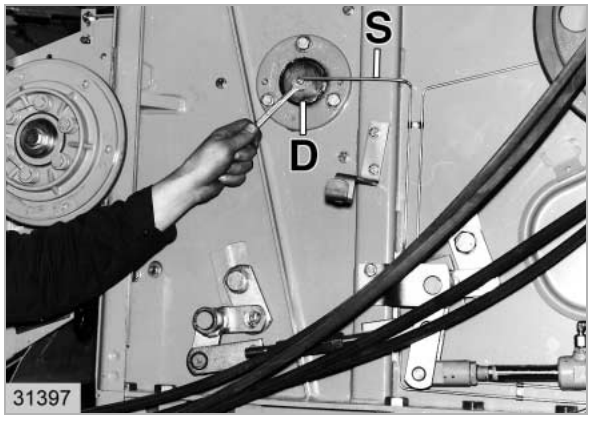
(Fig. 24)



25

Loosen the M 12 bolts and remove the V-belt pulley.

(Fig. 25)



26

Unscrew the grease pipe (S).

Remove the circlip and the washer (D).

(Fig. 26)

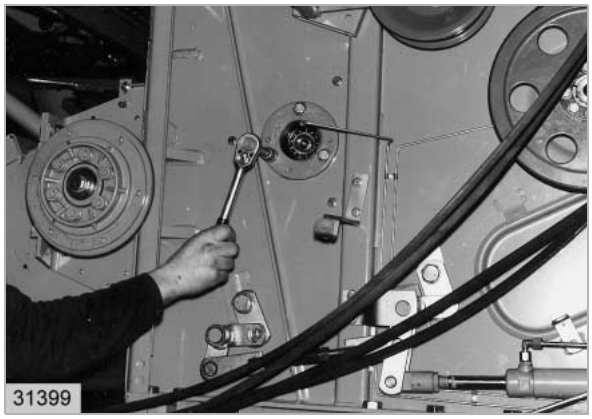


27

Remove the drum inspection cover and support the accelerator with a suitable wooden wedge.

Remove the M 12 x 30 hex. bolt from the face end of the shaft.

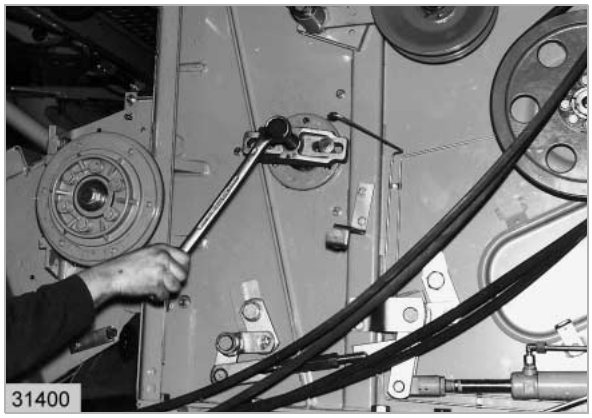
(Fig. 27)



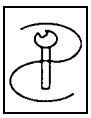
28

Remove the three M 12 x 35 hex. bolts from the bearing housing.

(Fig. 28)

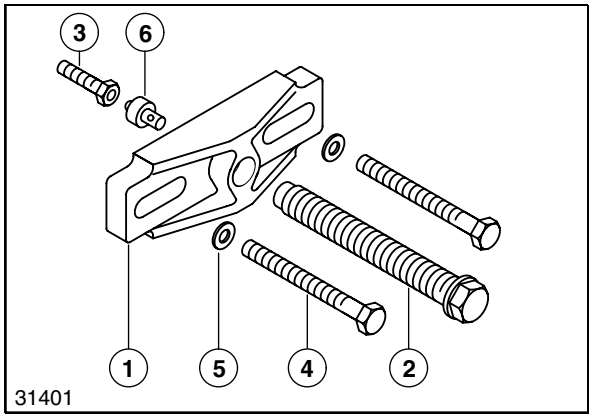


29



Using the special tool, pull the bearing assembly from the shaft.

(Fig. 29)

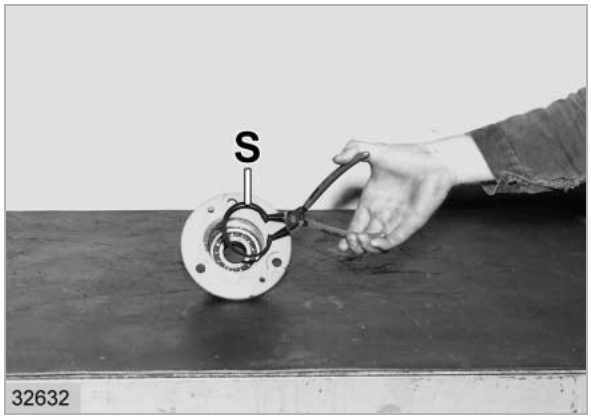


30

Special tool:

1 Puller bridge
part no. 181 800.0
2 Threaded spindle
part no. 181 801.1
3 Centraliser with ball
part no. 181 849.0
4 2 bolts M 10 x 70
part no. 235 538.0
5 2 washers 10.5
part no. 236 913.2
6 Bolt M 12 x 30 with punch point on the head
(self-sourced)

(Fig. 30)

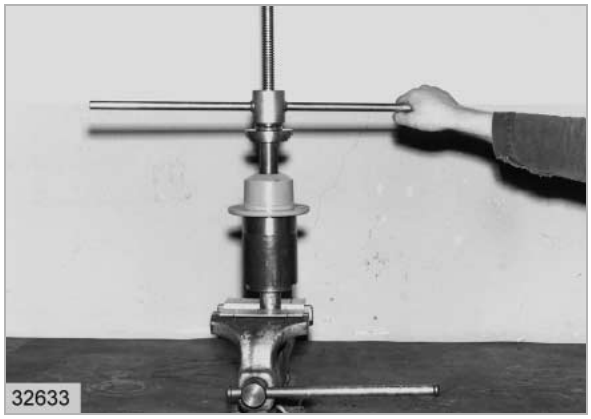


31

Disassembling the left-hand bearing assembly

Remove the circlip (S) from the bearing assembly.

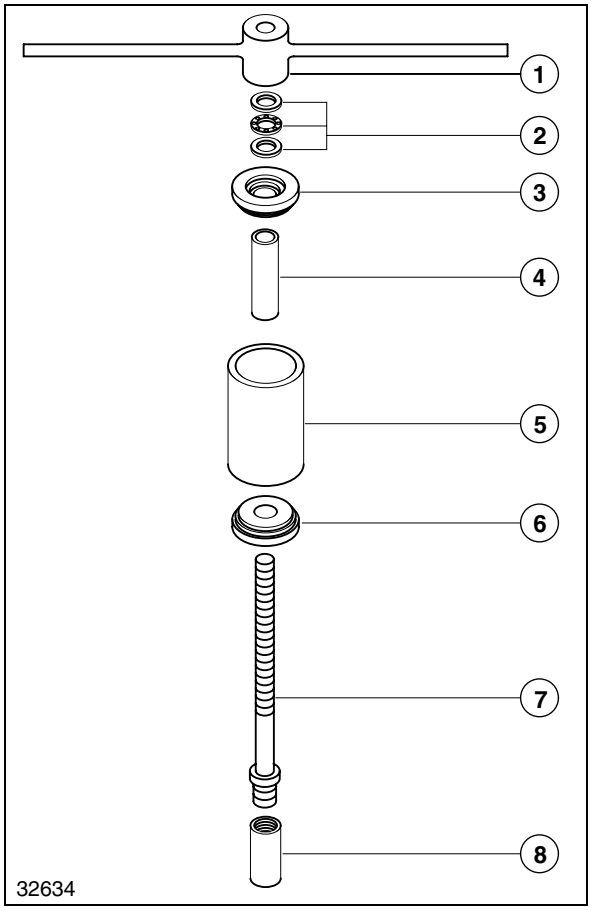
(Fig. 31)



32

Remove the self-aligning ball bearing using the special tool.

(Fig. 32)

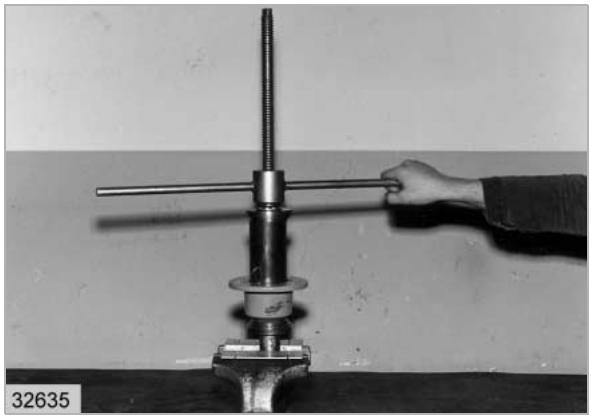


33

Special tool:

1 Lever nut, part no. 181 880.0
2 Axial grooved ball bearing, part no. 235 983.0
3 Locating disc, part no. 181 879.0
4 Tube, outside ∅ 35, inside ∅ 25 x 100 long
5 Tube, outside ∅ 100, inside ∅ 80 x 130 long
6 Locating disc, part no. 181 879.0
7 Spindle, part no. 181 877.0
8 Sleeve, part no. 181 881.0

(Fig. 33)



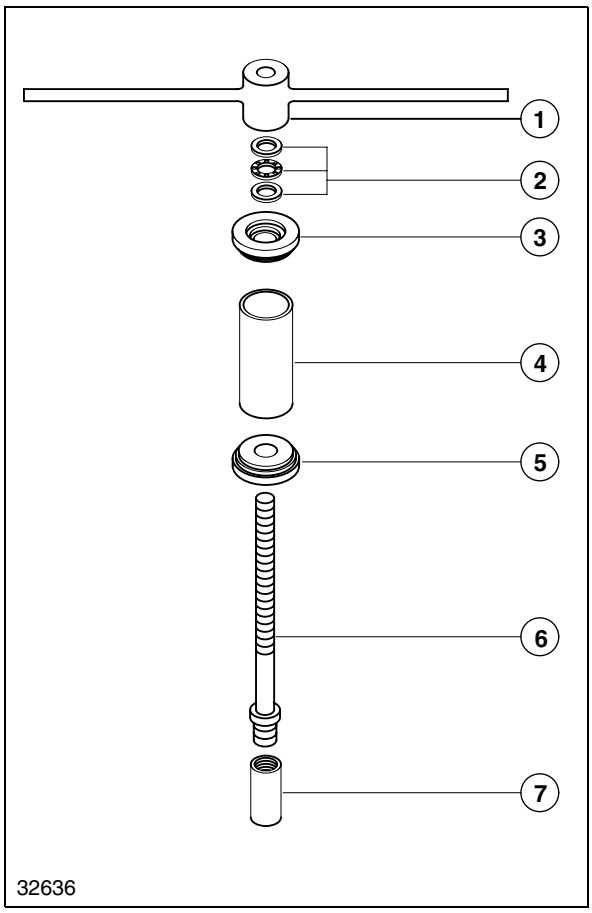
34

Assembling the left-hand bearing assembly

Use the special tool to push the self-aligning ball bearing into place.

Insert the circlip into the bearing assembly.

(Fig. 34)

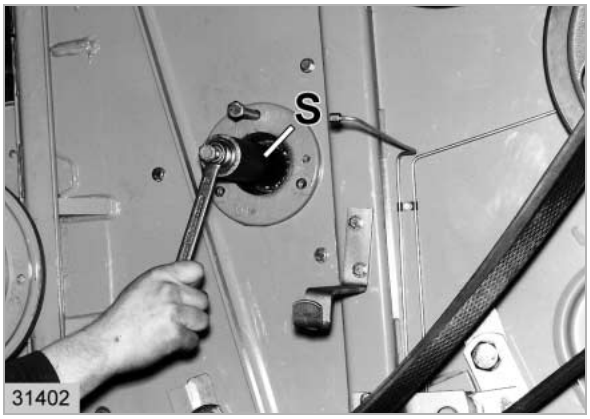


35

Special tool:

1 Lever nut, part no. 181 880.0
2 Axial grooved ball bearing, part no. 235 983.0
3 Locating disc, part no. 181 879.0
4 Tube, outside ∅ 70
inside ∅ 60 x 130 long
5 Locating disc, part no. 181 879.0
6 Spindle, part no. 181 877.0
7 Sleeve, part no. 181 881.0

(Fig. 35)



36

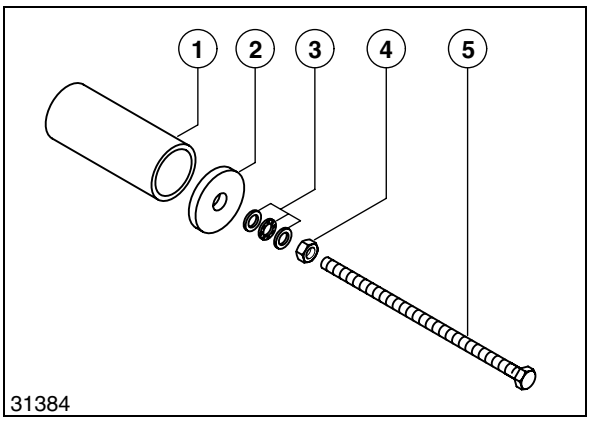
Installing the left-hand bearing assembly

The bearing bore and the shaft seat must be dry and free of grease.

Place the bearing housing with the self-aligning ball bearing onto the stub shaft.

Push the bearing assembly on the shaft end, using the special tool (S), and then secure it to the side wall with the M 12 x 35 hex. bolts.

(Fig. 36)



37

Special tool:

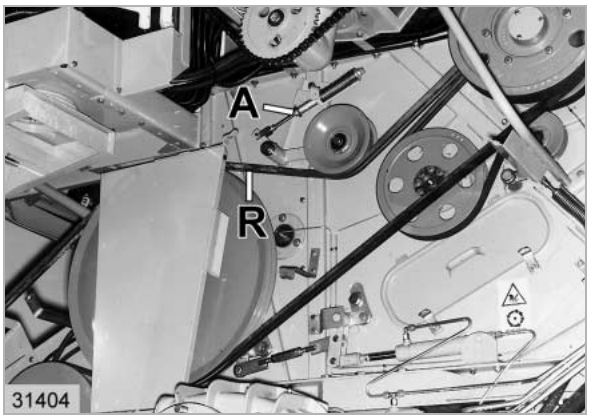
1 Tube ∅ 45 x ∅ 32 x 150 long (self-sourced)
2 Washer ∅ 75 x ∅ 13, part no. 642 929.0
3 Thrust bearing, part no. 177 899.0
4 Hex. nut M 12, part no. 239 418.0
5 Hex. bolt M 12 x 220, part no. 244 422.0

(Fig. 37)

Bolt down the washer with the M 12 x 30 bolt.

Fit the cover and the circlip.

Refit the grease pipe.



38

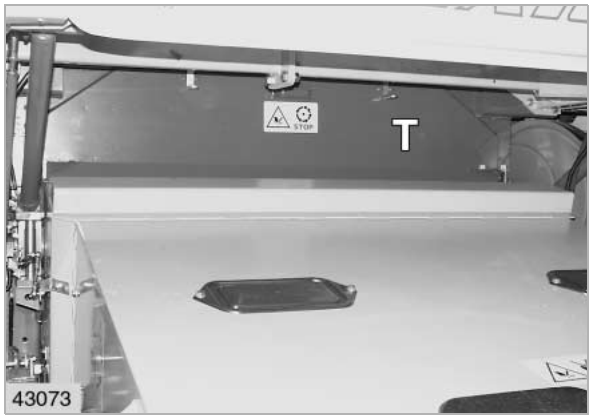
Install the V-belt (R) and adjust it – see page 7.2.2, *Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)* and/or – see page 7.2.4, *Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.

(Fig. 38)

Refit the guard and the mud guard.

Remove the wooden wedge from under the accelerator and replace and lock the drum inspection cover.

Refit the wheel.



39



40

Replacing the accelerator caps

Lower the feed rake conveyor.

DANGER!

Carry out the work only with the engine switched off and the ignition key removed.

Remove the drum inspection cover (T).

(Fig. 39)

The accelerator caps can now be replaced.

When screwing in the mushroom head bolts / hex. bolts, observe the following:

- From serial no. …:
  Bolt down mushroom head bolt M 10 x 25 x 20 - 10.9 DIN 603 with a tightening torque of **55 Nm**.
- From serial no. …, up to serial no. …:
  Bolt down mushroom head bolt M 10 x 25 - 8.8 DIN 603 with a tightening torque of **55 Nm**.
- Up to serial no. …:
  Bolt down hex. bolt M 10 x 20 - 8.8 DIN 933 with a tightening torque of **45 Nm**.

(Fig. 40)

Install the drum inspection cover (T).

(Fig. 39)

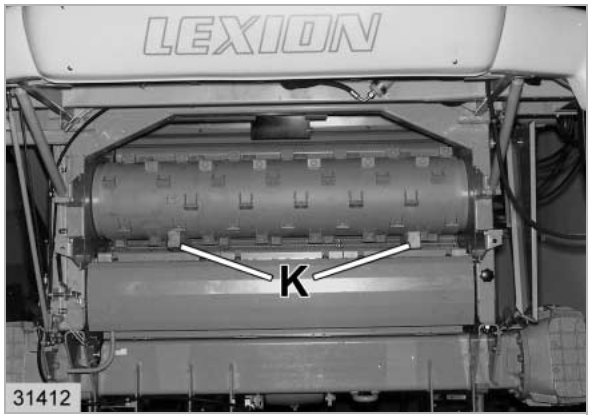
Removing the accelerator

Open the concave to its widest position.

Removing the feed rake conveyor, see page 3.1.1

Support the front axle with blocks in a safe manner. Now remove the two front wheels. Remove the drum inspection cover.

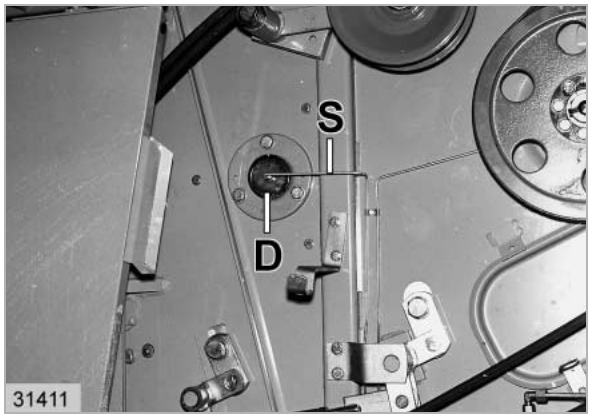
Removing the bearing assembly and the shaft on the right-hand side, see page 3.3.1



41

Support the accelerator safely with two wooden blocks (K).

(Fig. 41)

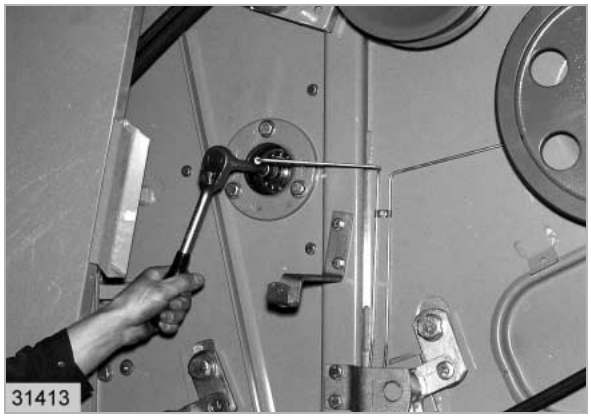


42

Remove the grease pipe (S) from the left-hand side.

Remove the circlip and the washer (D).

(Fig. 42)



43

Remove the M 12 x 30 hex. bolt from the face end of the shaft.

(Fig. 43)



44

Remove the three M 12 x 35 hex. bolts from the bearing assembly.

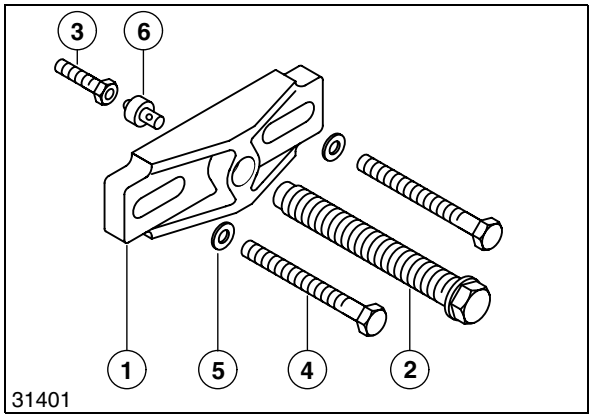
(Fig. 44)



45

Pull the bearing assembly out of the shaft using the special tool.

(Fig. 45)



46

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Bolt M 12 x 30 with punch point on the head (self-sourced)
4 Bolts M 10 x 70, part no. 235 538.0 – 2 pieces
5 Washers 10.5, part no. 236 913.2 – 2 pieces
6 Centraliser with ball, part no. 181 849.0

(Fig. 46)



47

Remove the three M 8 x 20 hex. bolts holding the anti-wrapping guard.

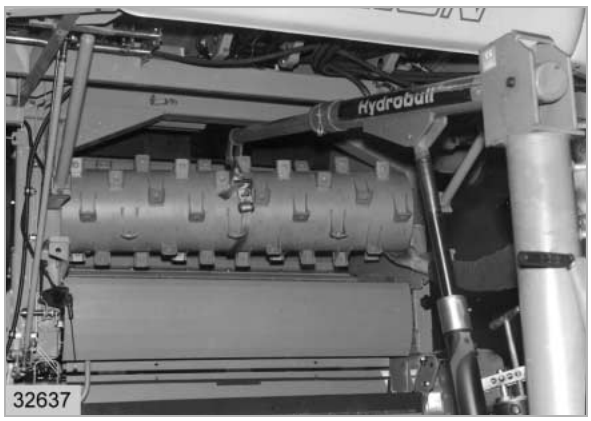
(Fig. 47)



48

Using a suitable lever, start pulling the accelerator forward on the left-hand side of the machine and then remove the anti-wrap guard on the left-hand side.

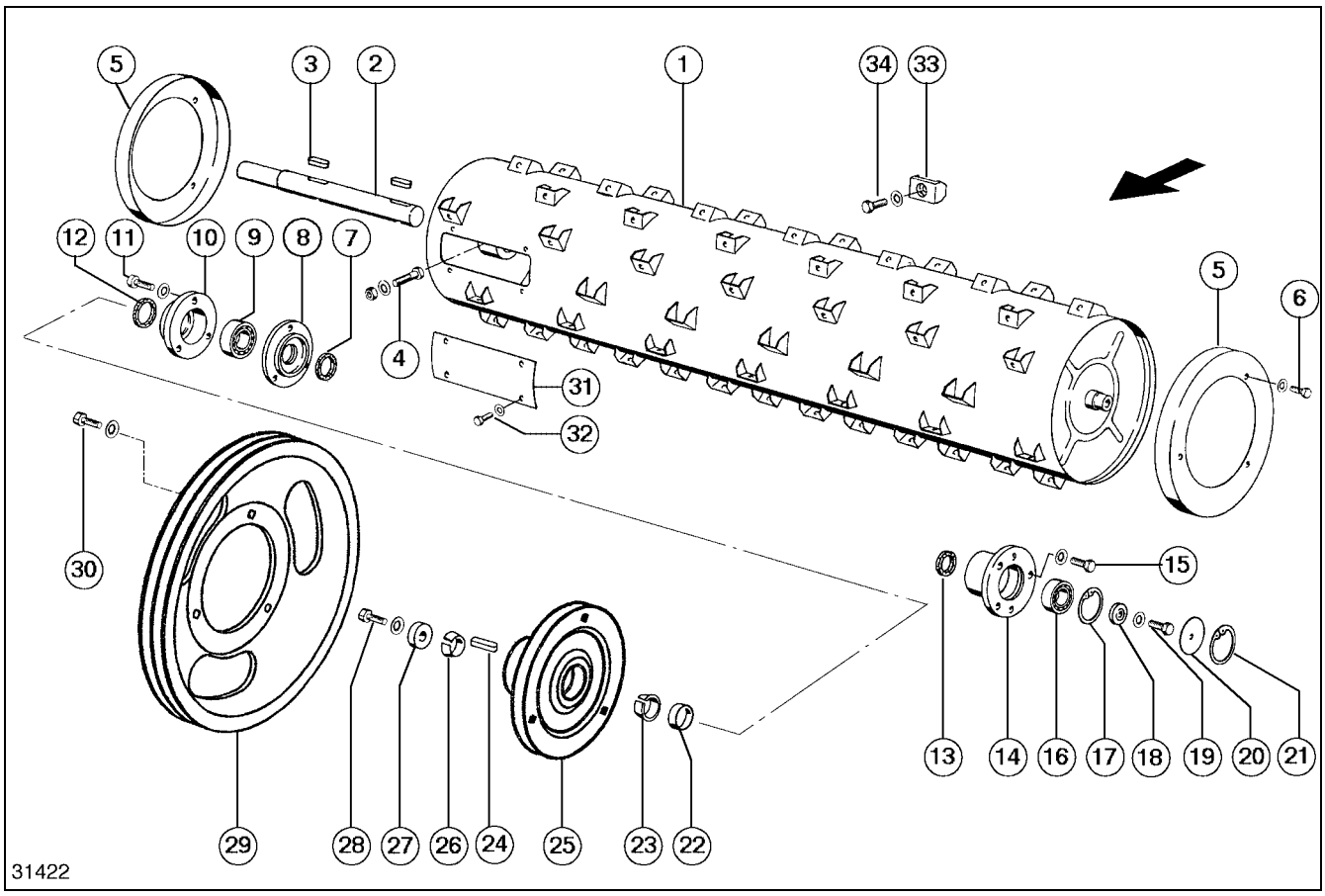
(Fig. 48)



49

Using a suitable lifting device, lift out the accelerator drum.

(Fig. 49)

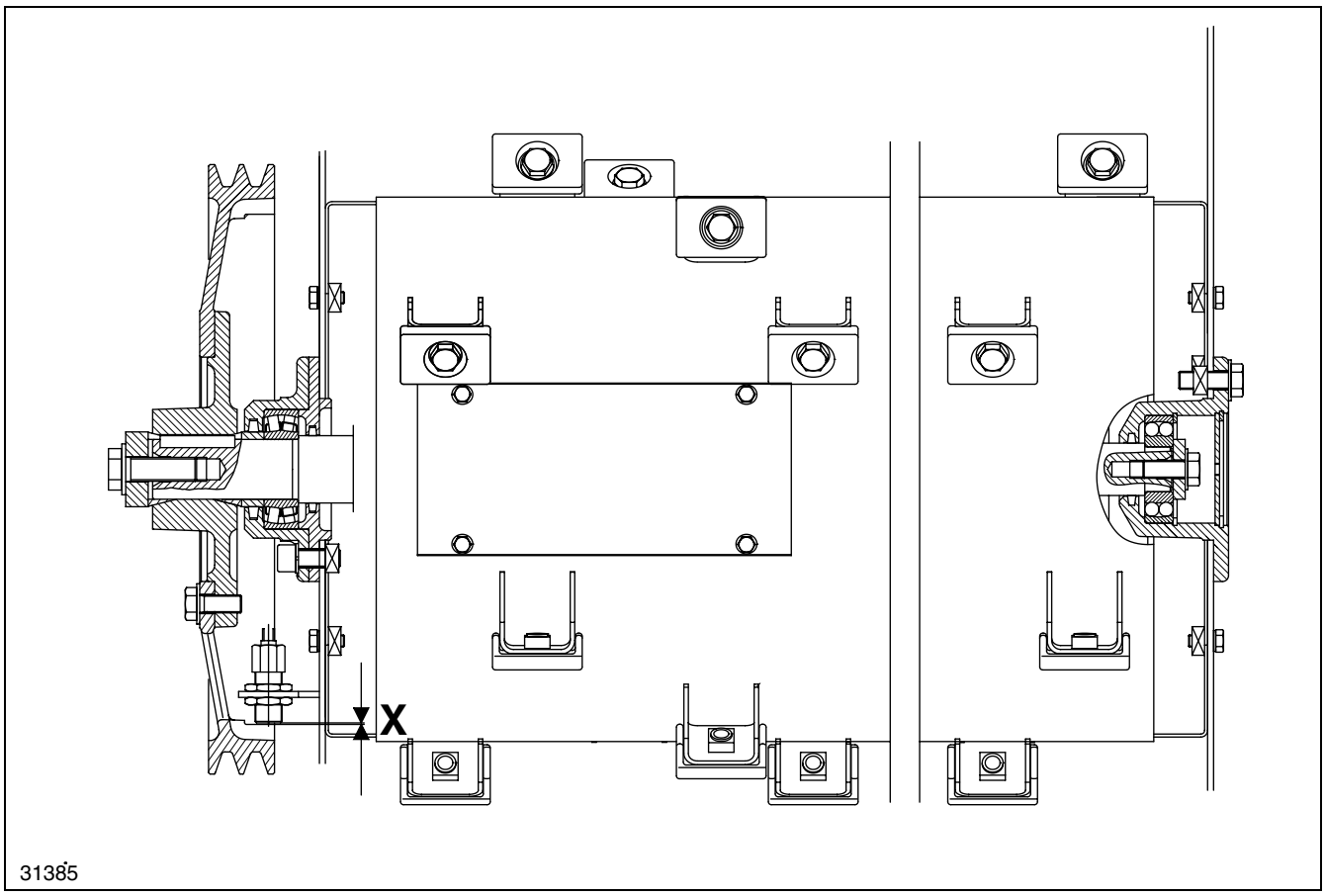


50

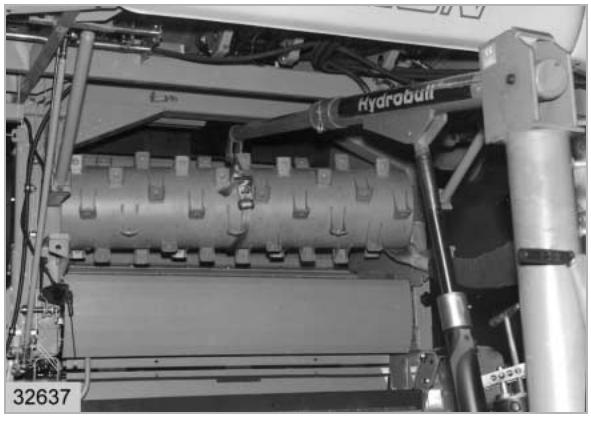
Accelerator, disassembled

1 Accelerator
2 Shaft
3 Parallel key A 14 x 9 x 40
4 Hex. bolt M 12 x 65 DIN 931-8.8
Hex. nut M 12 DIN 934
Contact washer A 12
5 Anti-wrapping guard
6 Hex. bolt M 8 x 18 DIN 933-8.8
Contact washer A 8
7 Felt ring
8 Bearing cover
9 Self-aligning roller bearing
10 Bearing housing
11 Cheese-head screw M 12 x 35 DIN 7984-8.8
Lock washer 12
12 Felt ring
13 Felt ring
14 Bearing housing
15 Hex. bolt M 12 x 35 DIN 933-8.8
16 Self-aligning roller bearing
17 Circlip
18 Washer
19 Hex. bolt M 12 x 30 DIN 933-8.8
Contact washer A 12
20 Washer
21 Circlip
22 Spacer ring
23 Tapered ring
24 Parallel key
25 Hub
26 Tapered ring
27 Washer
28 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
29 V-belt pulley
30 Hex. bolt M 12 x 30 DIN 933-10.9
Contact washer A 12
31 Cover
32 Hex. bolt M 8 x 20 DIN 933-8.8
Contact washer A 8
33 Cap
34 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10

(Fig. 50)



51



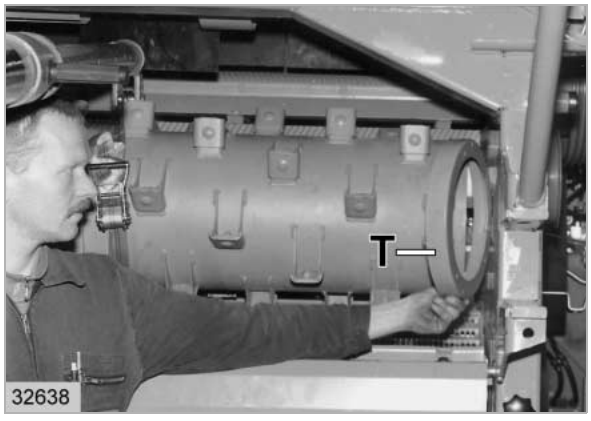
52

Installing the accelerator

Bolt the anti-wrapping guard (5) to the right-hand side of the machine.

Lift the accelerator (1) into the machine, using a suitable lifting device.

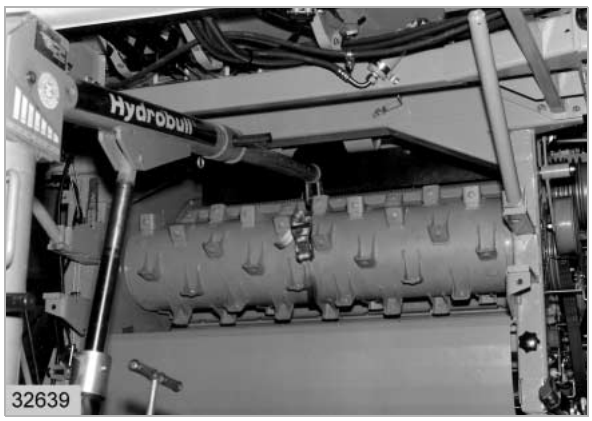
(Fig. 50, 51, 52)



53

Bolt the anti-wrapping guard (T) into the left-hand side of the machine housing.

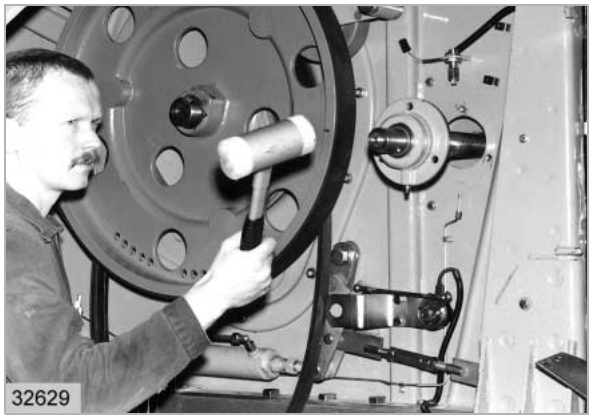
(Fig. 51, 53)



54

Place the accelerator (1) in position on the two anti-wrapping guards (5).

(Fig. 50, 54)

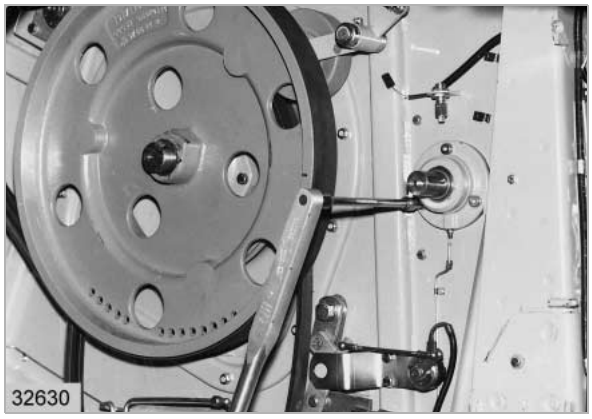


55

Slightly grease the bearing seat.

Using a plastic-tip hammer, drive the shaft (2) and the bearing assembly (7 – 12) together into the accelerator (1).

(Fig. 50, 55)



56

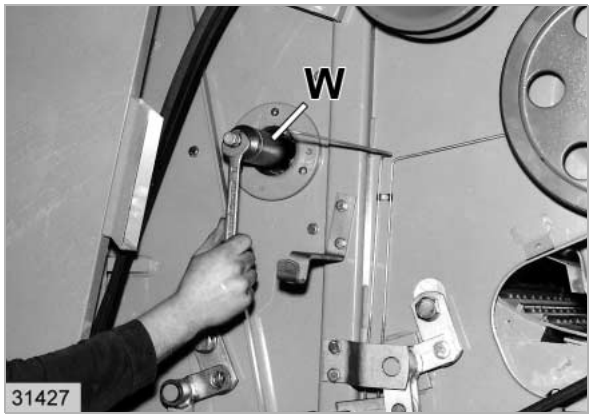
Using a suitable lever, raise the accelerator (1) up.

Bolt the bearing assembly to the drum housing using the three cheese-head screws (11).

Tightening torque = 78 Nm

Now reconnect the grease pipe to the bearing housing (10).

(Fig. 50, 56)



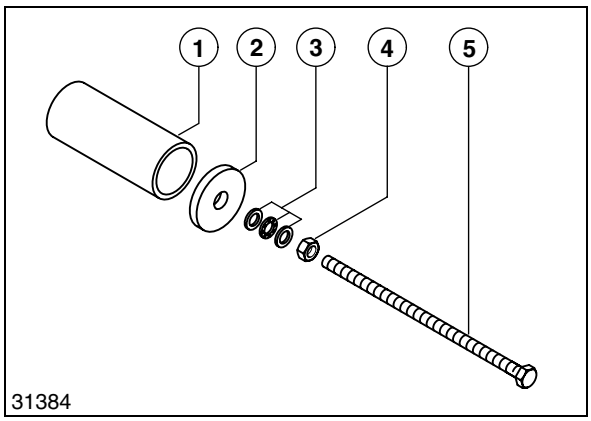
57

On the left-hand side of the machine, the bearing bore and the shaft seat should be clean and free from grease.

Push the bearing assembly (13 – 16) onto the shaft end.

Using the special tool (W), push the bearing assembly to the drum wall.

(Fig. 50, 57)



58

Special tool:

1 Tube ∅ 45 x ∅ 32 x 150 long (self-sourced)
2 Washer ∅ 75 x ∅ 13, part no. 642 929.0
3 Thrust bearing, part no. 177 899.0
4 Hex. nut M 12, part no. 239 418.0
5 Hex. bolt M 12 x 220, part no. 244 422.0

(Fig. 58)

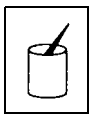
On the left-hand side of the machine, bolt the bearing housing (14) to the drum wall with bolts (15).

Tightening torque = 78 Nm

Screw the bolt (19) and the washer (18) into the face end and tighten.

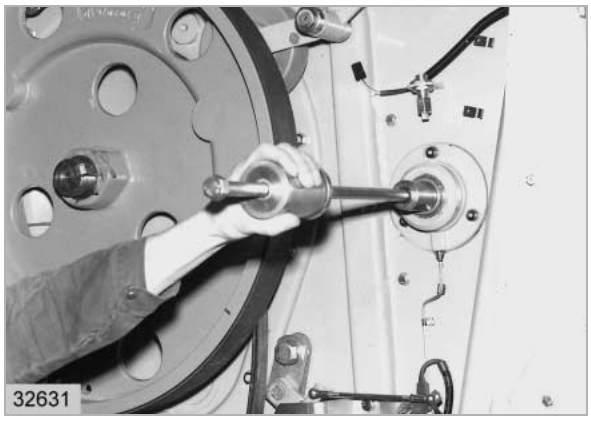
Tightening torque = 78 Nm

Insert the washer (20) and the circlip (21).

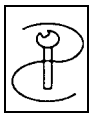


Fix the grease pipe back onto the bearing housing (14) and grease thoroughly.

(Fig. 50)



59



On the right-hand side, pull the shaft (2) slightly to the outside using the special tool so that its shoulder locates correctly against the inner ring of the self-aligning ball bearing (9).

Special tool:

Tie rod 450 mm	part no. 181 605.0
Striking tool	part no. 181 604.0

(Fig. 50, 59)

Insert the hex. bolts (4) into the clamping hubs of the accelerator (1).

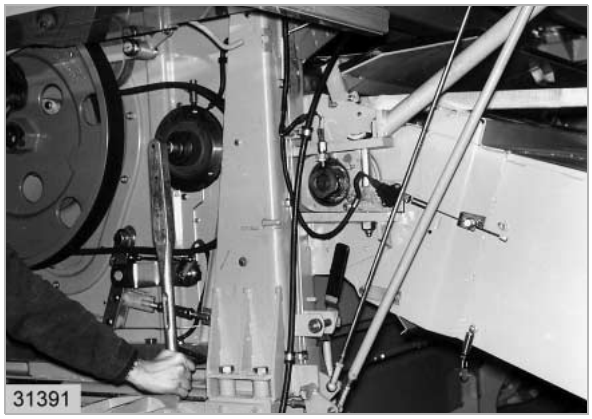
Tightening torque = 78 Nm

Bolt the cover (31) back into place with bolts (32).

Remove the two wooden wedges from under the accelerator, install and lock the drum inspection cover.

Installing the feed rake conveyor, see page 3.1.3

(Fig. 50)



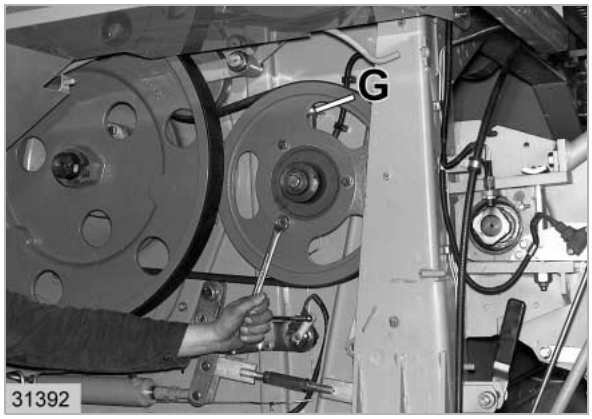
60

On the right-hand side, place the first tapered ring (23) on the shaft with semi-fluid lubricant. Then install the parallel key (24) and the hub (25) on the shaft.

Slide the second tapered ring (26) onto the shaft, again ensuring sufficient semi-fluid lubricant is applied, then insert washer (27) and bolt (28) on the face end of the shaft and tighten.

Tightening torque = 180 Nm

(Fig. 50, 60)



61

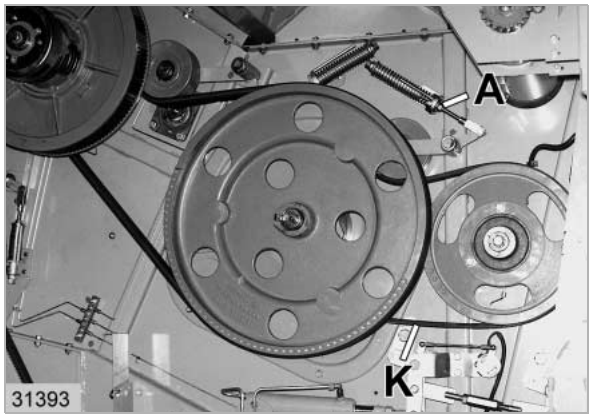
Bolt down the V-belt pulley (29) to the hub (25) with bolts (30).

Tightening torque = 110 Nm

Connect the cable to the magnetic pick-up (G).

Check dimension (X) = **1 ± 0.5 mm** according to Fig. 51.

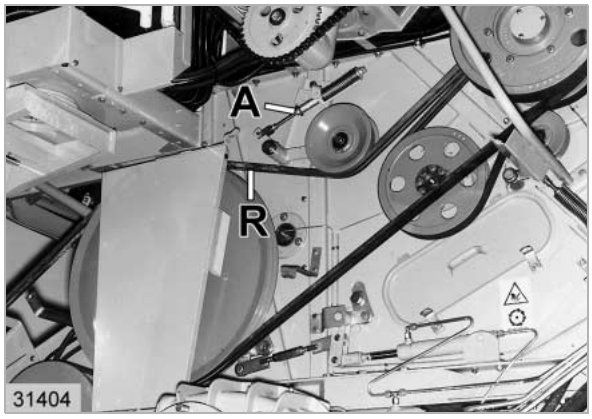
(Fig. 50, 61)



62

Install the V-belt (K) and adjust it – see page 7.3.11, *Installing and adjusting the accelerator drive belt (24)*.

(Fig. 62)



63

Install the V-belt (R) on the left-hand machine side and adjust it – see page 7.2.2, *Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)* and/or – see page 7.2.4, *Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.

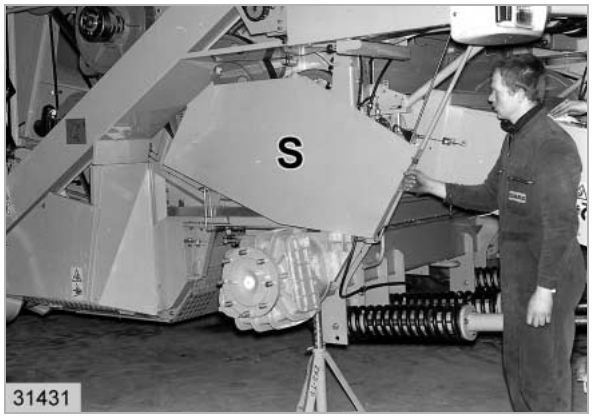
(Fig. 63)

Grease both sets of bearings on the left-hand and right-hand side.

Install the guard and the mud guard on both sides.

Refit the drive wheels.

THRESHING DRUM



1

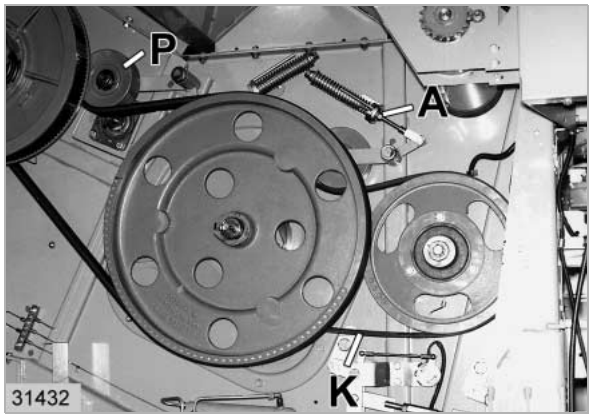
Removing the right-hand drum bearing assembly

Support the machine safely on suitable stands.

Remove the right-hand wheel.

Remove the right-hand guard (S).

(Fig. 1)



2

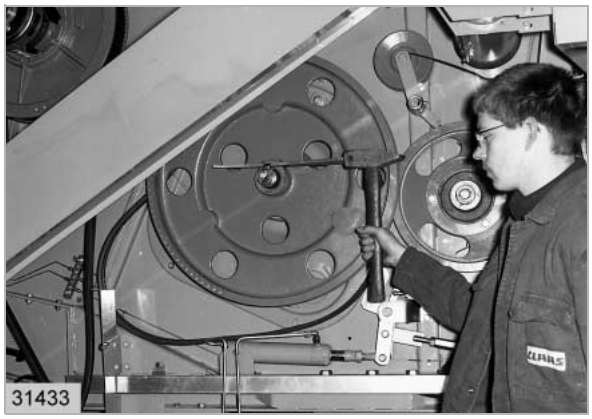
Release the tension of the spring-loaded cylinder (A) and remove the threshing mechanism drive belt (K) – see page 7.3.10, *Removing the accelerator drive belt (24)*.

DANGER!

Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

Relieve the tension of jockey pulley (P) and remove the belt.

(Fig. 2)



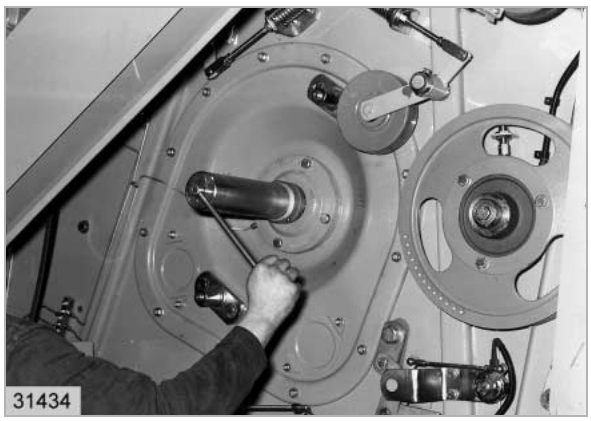
3

Remove the gib head key using a suitable key drawer.

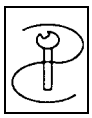
Remove the V-belt pulley.

If necessary, *Removing the threshing drum reduction gearbox*, see page 7.7.1

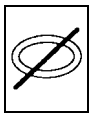
(Fig. 3)



4

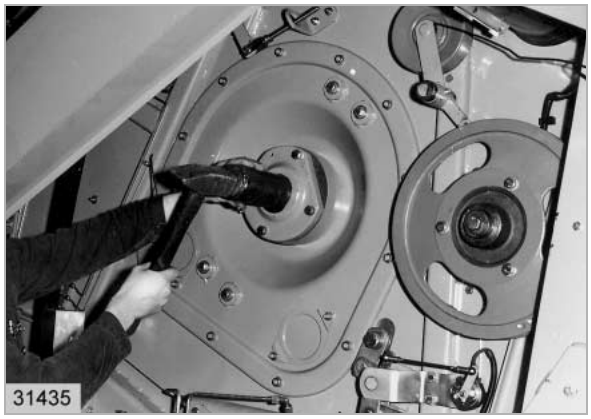


From serial no. …:
Unlock face-end slotted nut M 65 x 2 and loosen it using a special socket spanner (part no. 180 614.0) by about 2 turns.



Up to serial no. …:
Unlock face-end slotted nut M 60 x 2 and loosen it using a special socket spanner (part no. 180 143.0) by about 2 turns.

(Fig. 4)



5

Using a suitable block-ended tube, use a good sharp blow to release the expansion pin of the bearing.

Then unscrew the slotted nut.

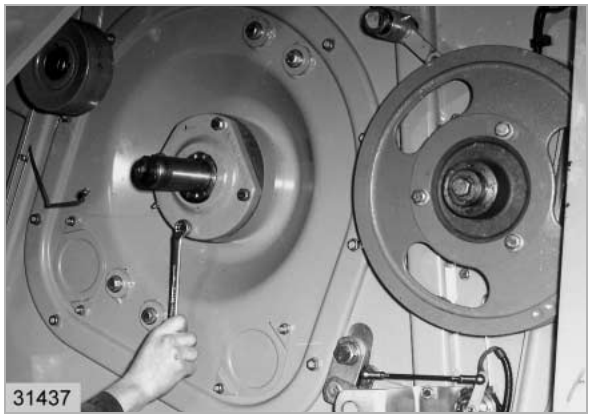
(Fig. 5)



6

Remove the grease pipe from the bearing housing.

(Fig. 6)



7

Remove the M 12 x 100 bolts from the bearing assembly.

(Fig. 7)



8

Remove the bearing assembly and the spacer from the flanged shaft, pull to the outside using a puller if required.

Support the underside of the threshing drum by a wooden wedge in order to prevent the drum from crashing down.

(Fig. 8)

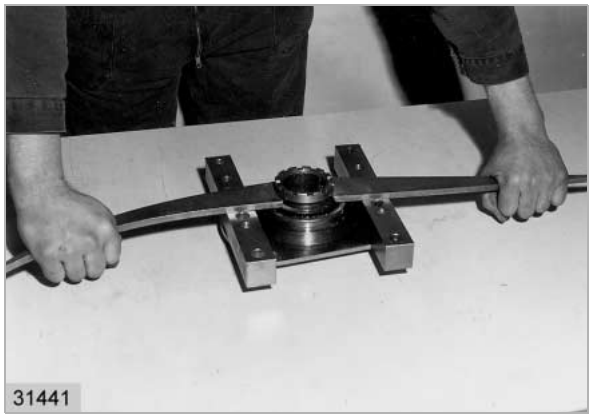


9

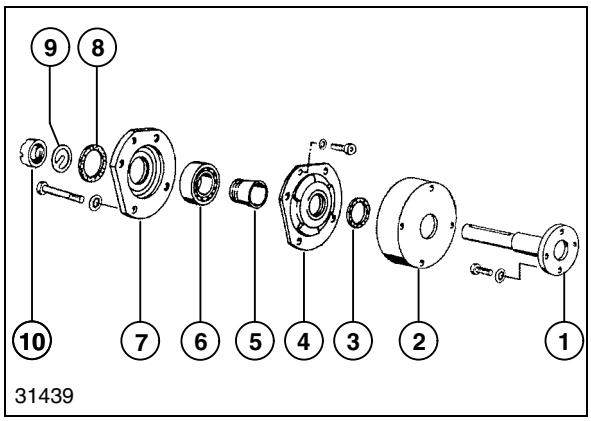
Disassembling the right-hand drum bearing

1. Separate the bearing assembly from the spacer.
2. Separate the outside bearing housing from the bearing assembly.
3. Using suitable tools, push the spherical roller bearing out of the inside bearing housing.

(Fig. 9, 10)



10

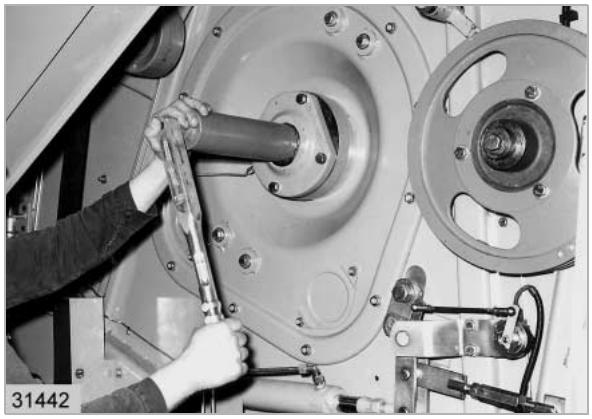


11

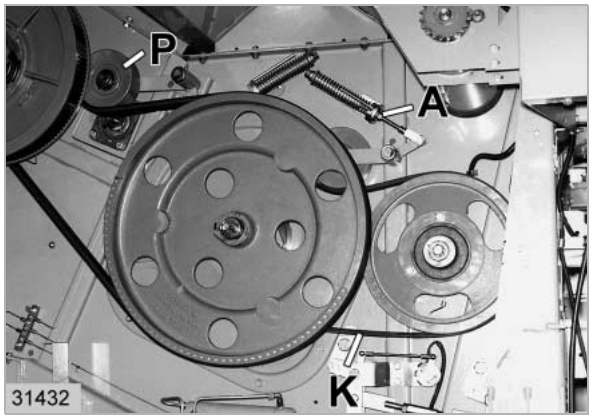
Right-hand drum bearing, disassembled:

1 Flanged shaft
Hex. bolt M 14 x 55 DIN 931-10.9
Contact washer A 14
2 Spacer
3 Felt ring
4 Bearing housing
Cheese-head screw M 8 x 20 DIN 912-8.8
Detent-edged ring VSKZ 8
5 Taper lock sleeve
6 Spherical roller bearing
7 Bearing housing
Hex. bolt M 12 x 100 DIN 931-8.8
Contact washer A 12
8 Felt ring
9 Tab washer
10 From serial no. …:
Face-end slotted nut M 65 x 2
Up to serial no. …:
Face-end slotted nut M 60 x 2

(Fig. 11)



12



13

Installing the right-hand drum bearing

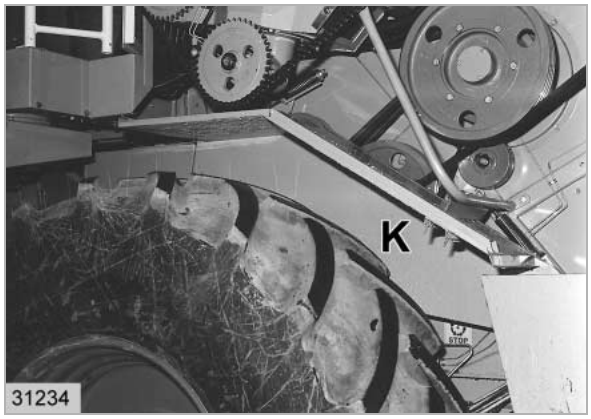
1. The flanged shaft (1), taper lock sleeve (5) and the spherical roller bearing (6) should all be dry and free of grease.
2. Pre-assemble the bearing housings (4 and 7) with taper lock sleeve (5) and the spherical roller bearing (6).

   Place this complete assembly plus the felt strips (3 and 8) and the spacer (2) on the shaft end.
3. Fit the M 12 x 100 bolts through the bearing assembly and the spacer (2) and fit into the assembly cover.
4. From serial no. …:
   Tighten the M 65 x 2 face-end slotted nut (10) to **55 Nm** using the special tool (part no. 181 614.0), then continue tightening by 64° and then to the next slot position, matching it with the securing tab (9). Tap tab down into the slot.

   Up to serial no. …:
   Tighten the M 60 x 2 face-end slotted nut (10) to **45 Nm** using the special tool (part no. 180 143.0), then continue tightening by 64° and then to the next slot position, matching it with the securing tab (9). Tap tab down into the slot.
5. Refit the grease pipe.
   Remove the wooden block and refit the cover.
6. Slide on the V-belt pulley, align it and lock it in position with the gib head key.
   If necessary, *Installing the threshing drum reduction gearbox*, see page 7.7.11
7. Install the V-belt (K) and adjust it – see page 7.3.11, *Installing and adjusting the accelerator drive belt (24)*.

   Tension the jockey pulley (P) in the same manner.
8. Refit the guard and the right-hand wheel.

(Fig. 11, 12, 13)

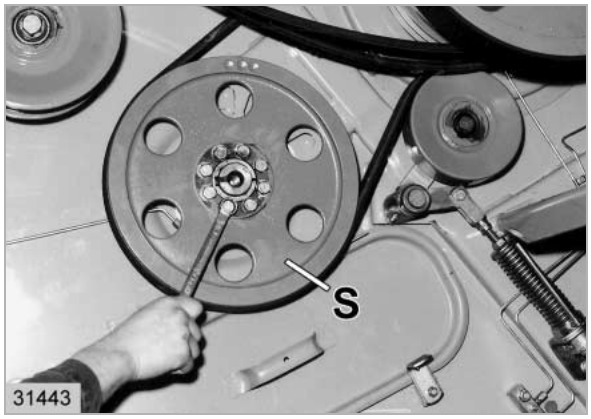


14

Removing the left-hand drum bearing assembly

Remove the mud guard (K).

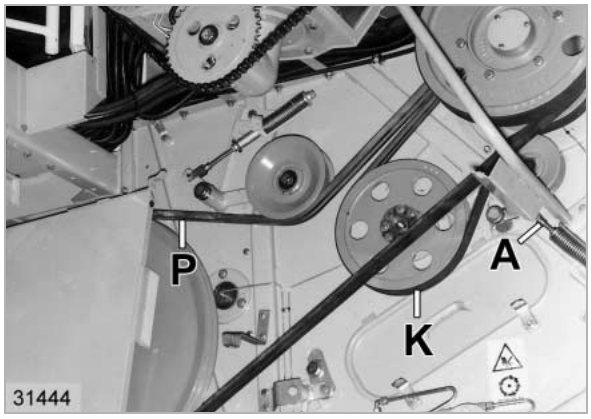
(Fig. 14)



15

Loosen the bolts of V-belt pulley (S).

(Fig. 15)



16

Relieve the tension of spring-loaded cylinder (A) and remove the drive belt (K) – see page 7.2.7, *Removing the impeller drive belt (4)*.

Relieve the tension on belt (P) and remove it – see page 7.2.1, *Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)* and/or – see page 7.2.3, *Removing the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.

DANGER!

Please be particularly careful when screwing out the spring guide tube. Do not unscrew the spring guide tube too far – **Danger of injury!**

Remove the pulley (S).

(Fig. 16)

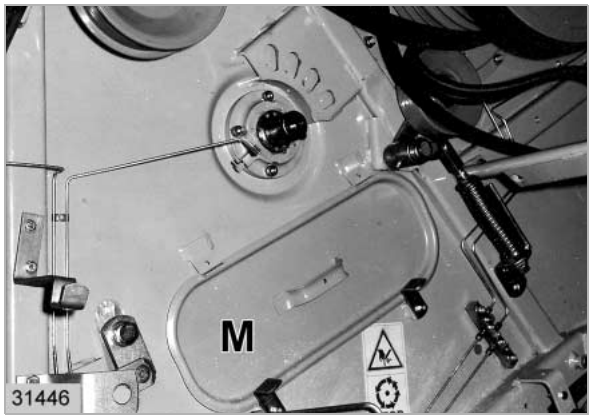


17

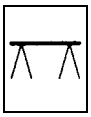
Unscrew the grease pipe (L) and the clamp hub (N).

Remove the clamping hub.

(Fig. 17)



18



Remove the parallel key from the shaft.

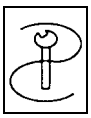
Unscrew and remove the assembly cover (M).

Support the underside of the drum with suitable wooden blocks.

(Fig. 18)



19



Unlock face-end slotted nut M 50 x 1.5 and loosen it using a slot-type spanner (special tool, part no. 180 142.0). Back off the face-end slotted nut by approx. two turns.

Using a suitable block-ended tube, apply a good sharp blow to release the tapered ring.

Then remove the slotted nut.

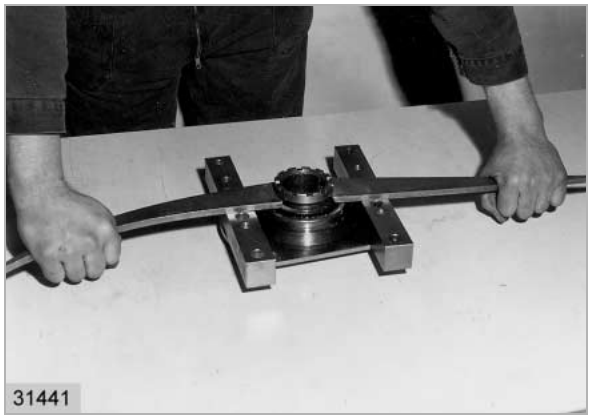
(Fig. 19)



20

Unbolt the bearing assembly from the drum wall and if necessary pull it off the shaft, using a puller.

(Fig. 20)

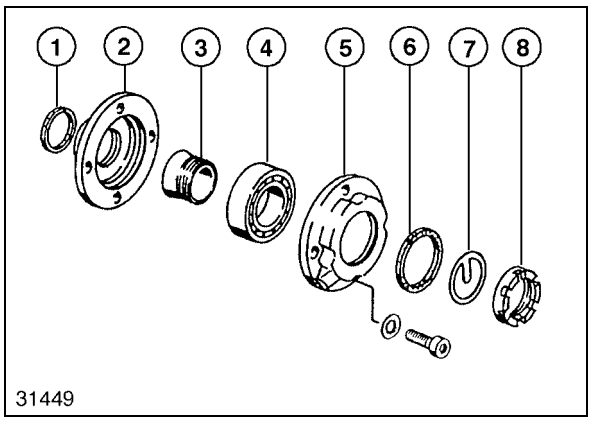


21

Disassembling the left-hand drum bearing

Separate the bearing housings and, using suitable tools, push the spherical roller bearing out.

(Fig. 21)



22

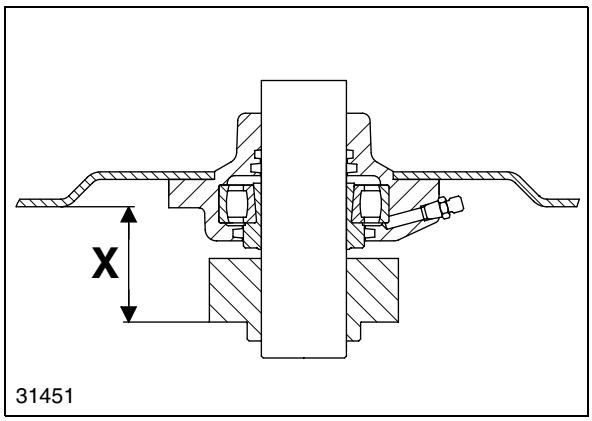
Left-hand drum bearing assembly, disassembled:

1 Felt seal
2 Bearing housing
3 Taper lock sleeve
4 Spherical roller bearing
5 Bearing housing
Cheese-head screw M 12 x 35 DIN 7984-8.8
Detent-edged ring VSKZ 12
6 Felt seal
7 Tab washer
8 Face-end slotted nut M 50 x 1.5

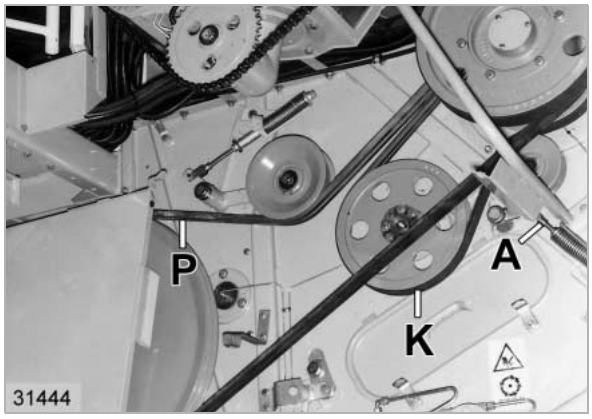
(Fig. 22)



23



24



25

Installing the left-hand drum bearing assembly

1. Ensure that the taper lock sleeve (3), the spherical roller bearing (4) and the shaft seat are dry and free from grease.
2. Pre-assemble the bearing housings (2 and 5) with the taper lock sleeve (3) and the spherical roller bearing (4).

   Place this assembly on the shaft, along with the felt seals (1 and 6).
3. Bolt the bearing assembly to the drum wall using the M 12 x 35 cheese-head screw.
4. Tighten the M 50 x 1.5 face-end slotted nut (8) to **30 Nm** using the special tool (part no. 180 142.0), then continue tightening by 68° and then to the next slot position, matching it with the securing tab (7). Tap tab down into the slot.
5. Refit the grease pipe. Remove the wooden wedge and refit the assembly cover.
6. Place the parallel key into the slot on the shaft. Slide the clamping hub on the shaft and check the position of the hub with dimension (X) = **61 mm** according to Fig. 24.

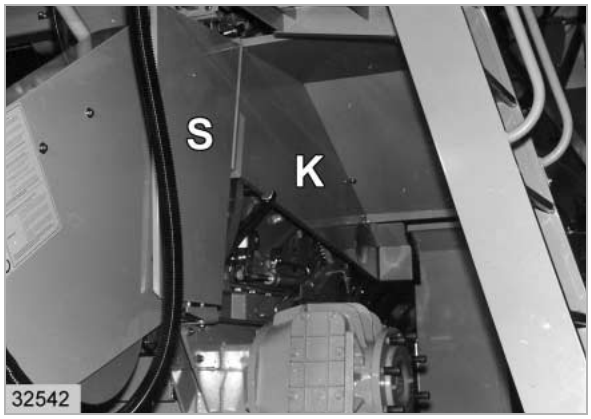
   Once the clamping hub is in place, tighten the M 10 x 60 hex. bolt.

   Tightening torque = 45 Nm
7. Bolt down the V-belt pulley using the M 10 x 25 bolt.

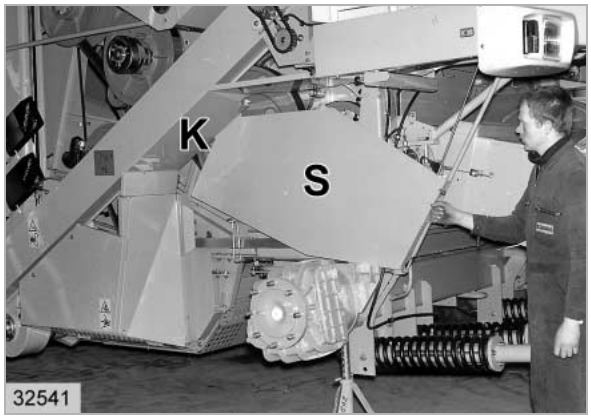
   Tightening torque = 72 Nm
8. Install V-belt (K) and adjust it – see page 7.2.8, *Installing and adjusting the impeller drive belt (4)*.

   Install cutterbar drive belt (P) and adjust it – see page 7.2.2, *Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)* and/or – see page 7.2.4, *Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.
9. Install the guard.

(Fig. 23, 24, 25)



26



27

Removing the threshing drum

Support the machine safely under the front axle.

Remove both wheels.

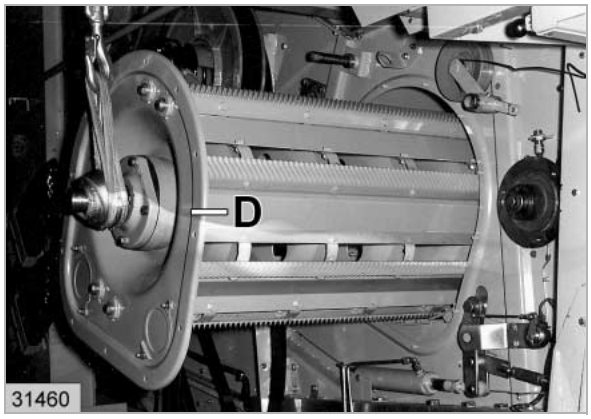
Remove the guard (S) and the mud guard (K) from the left- and right-hand side.

Removing the returns elevator, see page 5.1.6

(Fig. 26, 27)

On the right-hand machine side, remove the V-belt pulleys from the accelerator and threshing drum hubs – see page 3.4.1, *Removing the right-hand drum bearing assembly*.

Remove bearing on left-hand machine side – see page 3.4.6, *Removing the left-hand drum bearing assembly*.



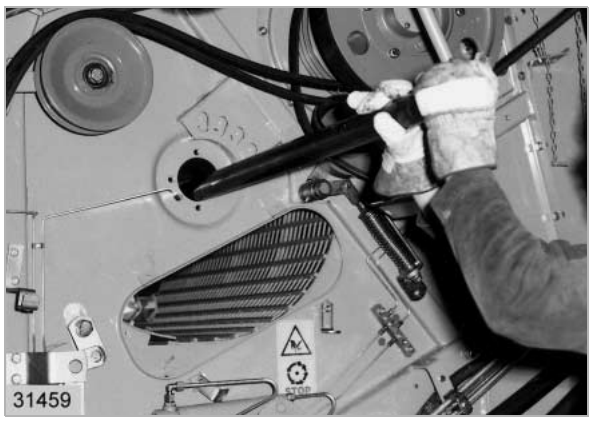
28

Loosen the assembly cover (D) on the right-hand side of the machine.

Attach a suitable lifting belt to the shaft end.

Lift the drum slightly and pull it slightly towards the right-hand side of the machine.

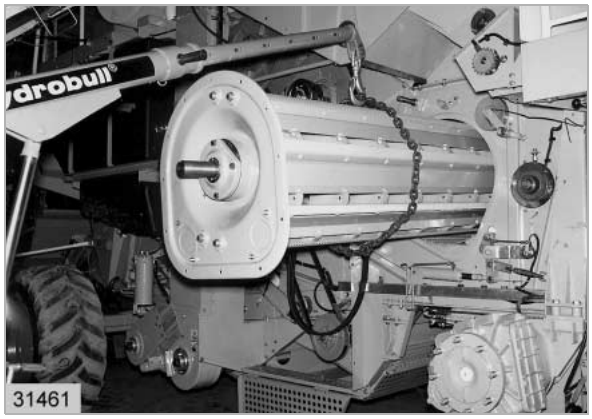
(Fig. 28)



29

On the left-hand side of the machine, place a suitable tube onto the shaft end.

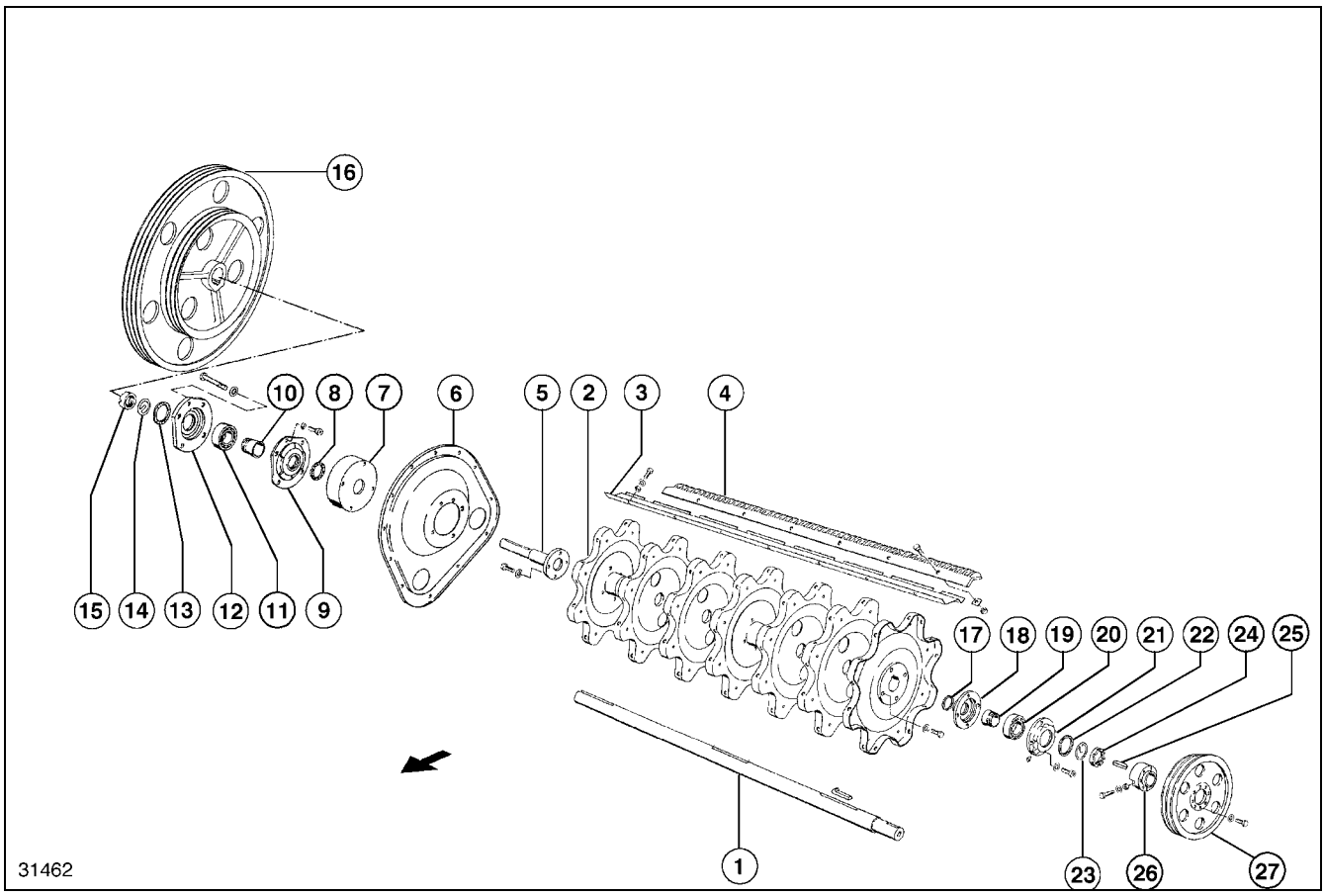
(Fig. 29)



30

Now relocate the lifting tool to the centre of the drum and remove the drum completely.

(Fig. 30)

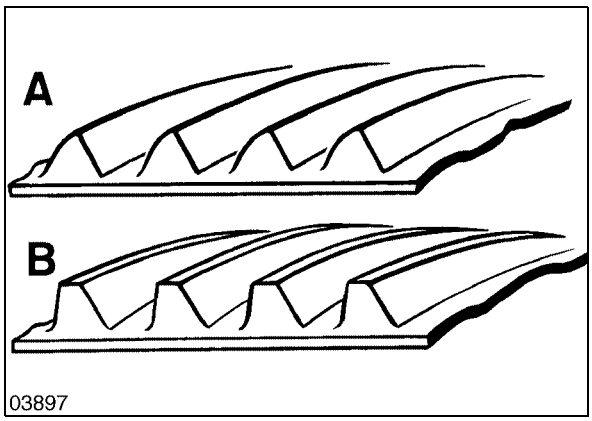


31

Threshing drum, disassembled

1 Threshing drum shaft
Gib-head keys
2 Drum discs
Hex. bolt M 14 x 40 DIN 933-8.8
Contact washer A 14
3 Drum cover plate
Hex. bolt M 12 x 20 DIN 933-8.8
Contact washer A 12
4 Beater bar
Hex. bolt M 12 x 30 DIN 933-8.8
Square washer 12.5 x 21 x 3
Self-locking nut VM 12
5 Flanged shaft
Hex. bolt M 14 x 55 DIN 931-10.9
Contact washer A 14
6 Assembly cover
7 Spacer
8 Felt ring
9 Bearing housing
Cheese-head screw M 8 x 20 DIN 912-8.8
Detent-edged ring VSKZ 8
10 Taper lock sleeve
11 Spherical roller bearing
12 Bearing housing
Hex. bolt M 12 x 100 DIN 931-8.8
Contact washer A 12
13 Felt ring
14 Circlip
15 Slotted nut M 60 x 2
16 V-belt pulley
Gib-head key
17 Felt ring
18 Bearing housing
19 Taper lock sleeve
20 Spherical roller bearing
21 Bearing housing
Cheese-head screw M 12 x 35 DIN 7984-8.8
Detent-edged ring VSKZ 12
22 Felt ring
23 Circlip
24 Slotted nut M 50 x 1.5
25 Parallel key
26 Clamping hub
Hex. bolt M 10 x 60 DIN 931-8.8
Hex. nut M 10
Contact washer A 10
27 V-belt pulley
Hex. bolt M 10 x 25 DIN 933-10.9
Contact washer A 10

(Fig. 31)



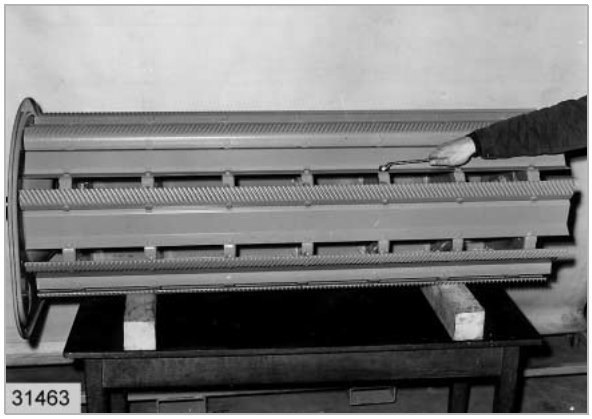
32

Renewing the beater bars

Replace damaged or worn beater bars while the drum is removed from the machine.

A Worn beater bar with pointed ribs
B New beater bar with perfect ribs

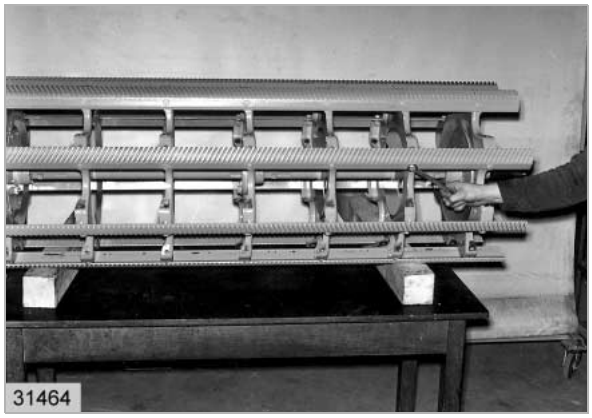
(Fig. 32)



33

Loosen the M 12 x 20 bolts and remove the cover plates.

(Fig. 33)



34

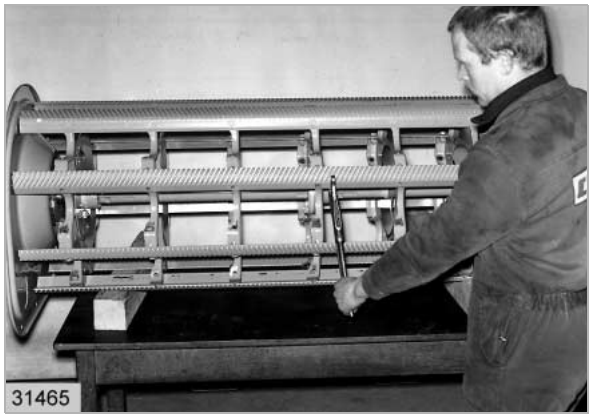
Remove the M 12 x 30 bolts and twist the beater bar back towards the weld seams. The weld seams break and the beater bar can be removed.

Grind the drum discs so they are clean and bolt down the new beater bar.

Tightening torque = 86 Nm

Re-weld the back of the beater bar.

(Fig. 34, 35)



35

ATTENTION!

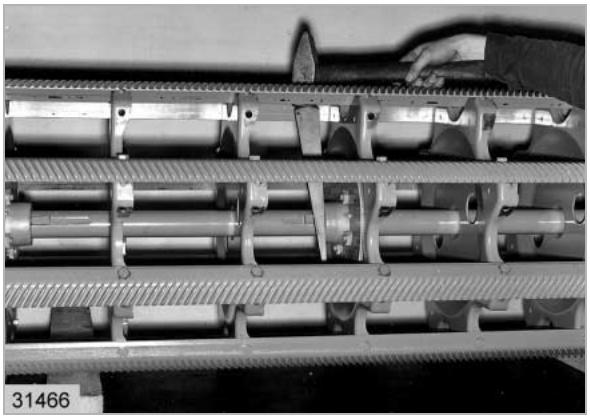
Do not weld along the complete width of the drum discs, but leave about **5 mm** on either end clear.

Re-balance the threshing drum after each repair.

If the drum is not running true and variations of the roundness relating to one or several beater bars exceed **1.5 mm**, turn the outside of the drum in a lathe.

If damage is extensive, e.g. if the drum discs or shaft are damaged, a new threshing drum should be installed.

When the drum has been repaired, retighten the beater bar bolts after the first ten hours of work.

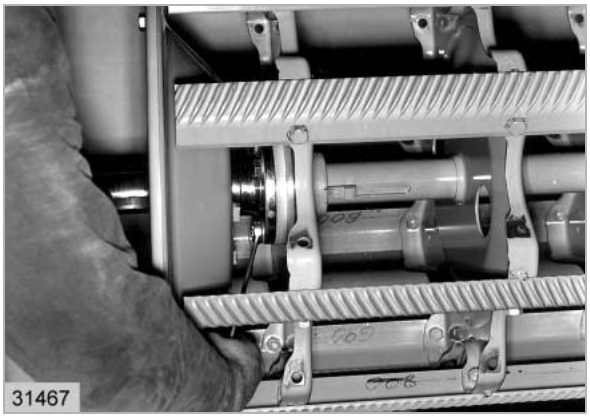


36

Removing the threshing drum shaft

Clean the full length of the shaft (1) and ensure it has been greased well. Pull out the gib head keys.

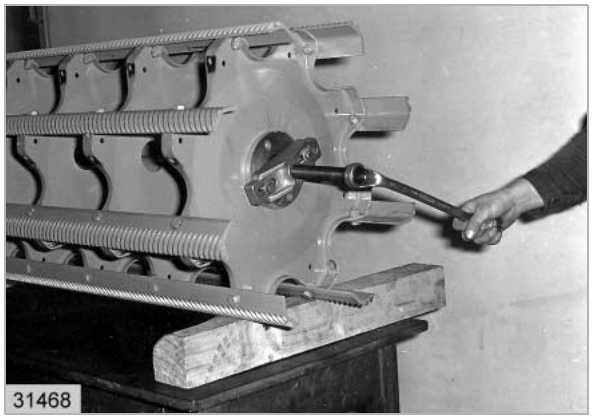
(Fig. 36)



37

On the right-hand side, remove the M 14 x 55 bolts, then remove the flanged shaft (5).

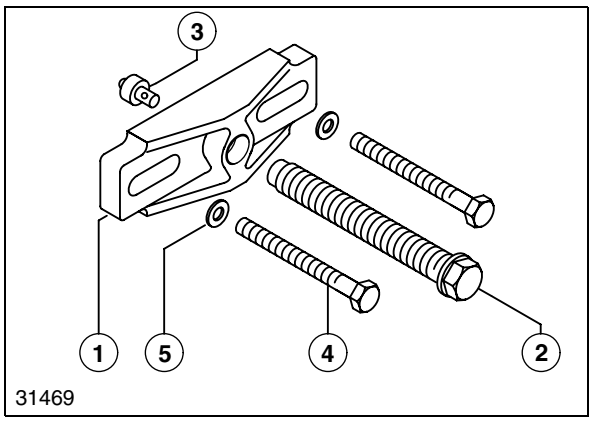
(Fig. 37)



38

Using a special tool, push out the shaft to the right-hand side.

(Fig. 38)

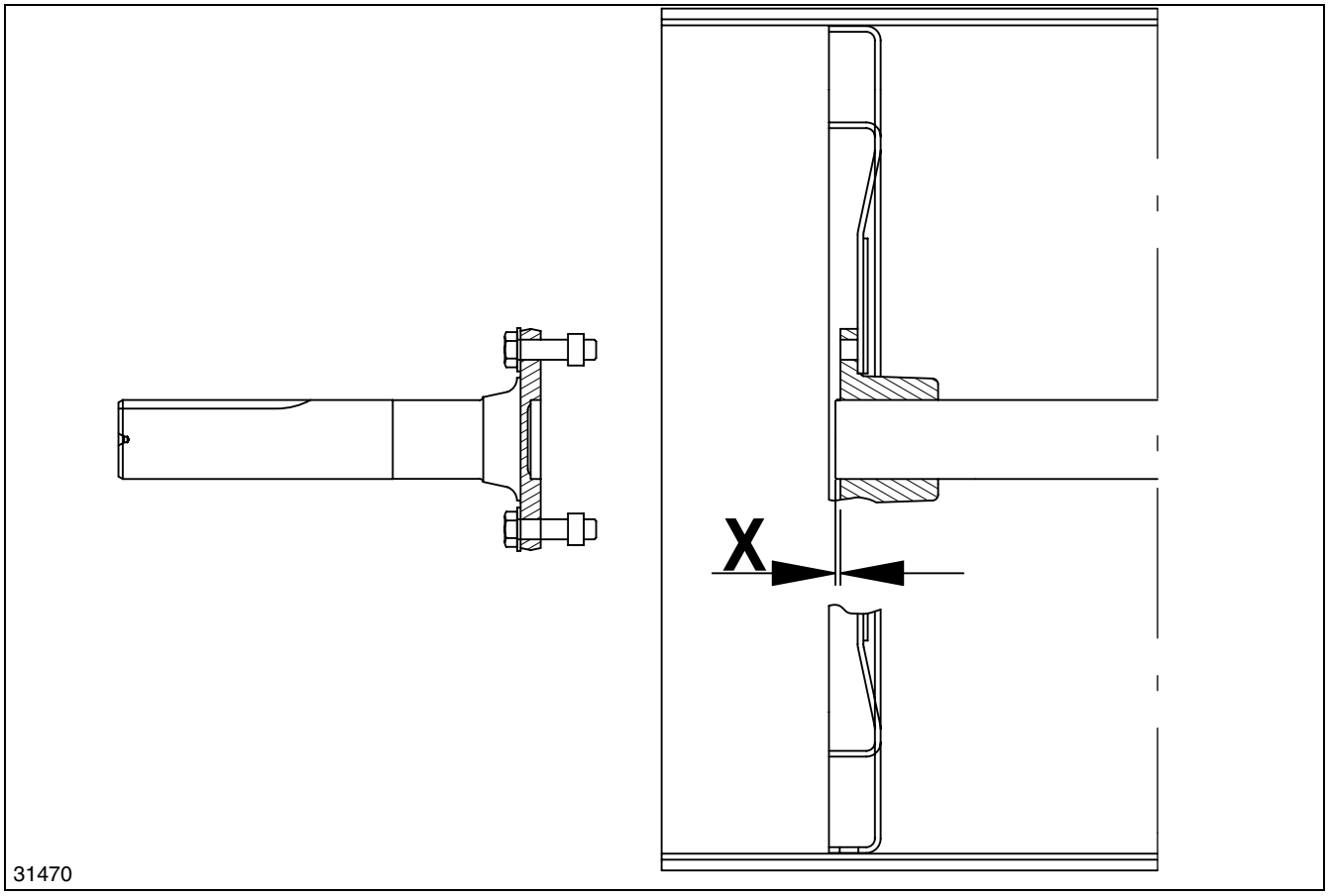


39

Special tool:

1 Puller bridge
part no. 181 800.0
2 Threaded spindle
part no. 181 801.1
3 Centraliser with ball
part no. 181 849.0
4 Hex. bolt M 14 x 55 DIN 931
part no. 212 116.0 – 2 pieces
5 Contact washer A 14
part no. 239 390.0 – 2 pieces

(Fig. 39)



40

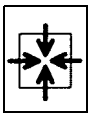
Installing the threshing drum shaft

Push the shaft (1) through the centre of the drum, starting from the left-hand side.

Observe dimension (X) = **3.5^{+1} mm** according to Fig. 40.

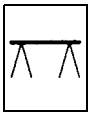
On the right-hand side of the drum, refit the flanged shaft (5) with the hex. bolts M 14 x 55.

Tightening torque = 175 Nm



Installing the threshing drum

1. Using a suitable lifting device, guide the drum into the machine housing from the right-hand side. While doing so, place a suitable tube onto the shaft end on the left-hand side. Use this tube to guide the shaft end into the notch.



2. Support the underside of the drum with wooden wedges on both sides.
3. The bearing bore, taper lock sleeve and the shaft seat must be dry and free from grease.
4. On the right-hand machine side, assemble the bearing assembly (8 – 12), the spacer (7) and the assembly cover (6) on the shaft end.
5. Guide the M 12 x 100 bolts through the bearing assembly (8 – 12) and the spacer (7) and bolt into the assembly cover (6).
6. Remove the wooden wedge from under the drum and reinstall the assembly cover to the drum housing.

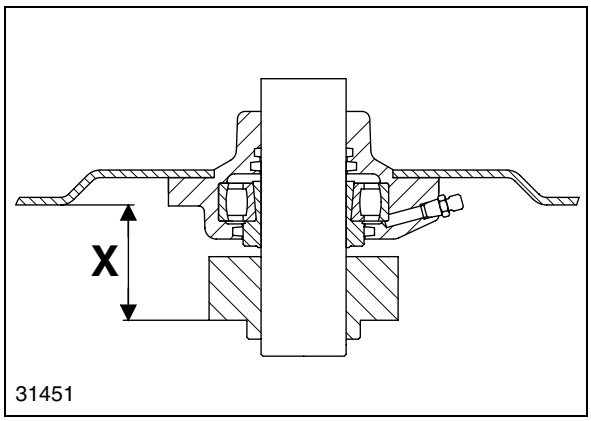
   Refit the grease pipe.
7. *Installing the right-hand drum bearing*, see page 3.4.5

   Installing the left-hand drum bearing assembly, see page 3.4.9

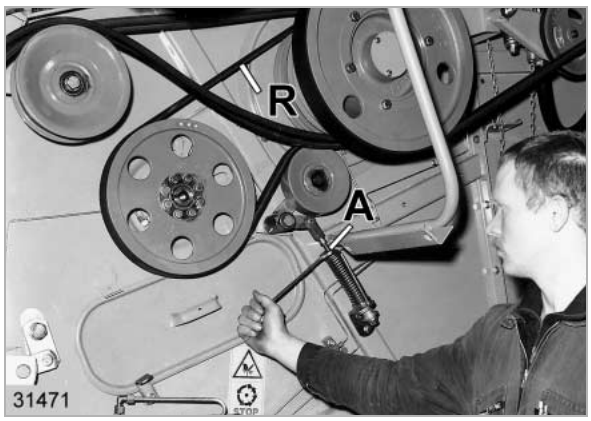
! **CAUTION!**

Align the threshing drum to be centred in the drum housing.

(Fig. 31)



41



42

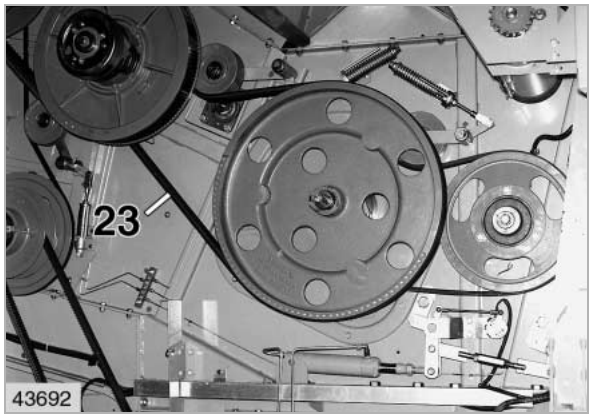
8. Tighten the M 50 x 1.5 face-end slotted nut (24) to **30 Nm** using the special tool (part no. 180 142.0), then continue tightening by 68° and then to the next slot position, matching it with the nose of circlip (23). Secure the slotted nut.
9. Refit the grease pipe.
10. Place the parallel key into the slot on the shaft. Slide the clamping hub (26) onto the shaft and align it, using the dimension (X) = **61 mm** according to Fig. 41. Tighten the clamping hub using the M 10 x 60 DIN 931-8.8 hex. bolt.

    Tightening torque = 45 Nm
11. Bolt down the V-belt pulley with the M 10 x 25 DIN 933-10.9 hex. bolt.

    Tightening torque = 72 Nm
12. On the left- and right-hand side, install the drive belts (R) and tension them.
13. Refit the guards and the wheels.

(Fig. 31, 41, 42)

IMPELLER



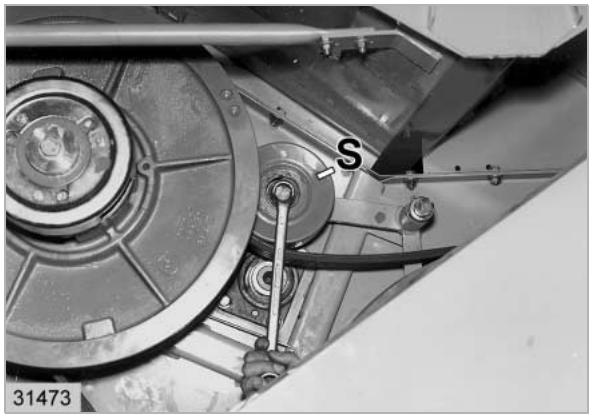
1

Removing the right-hand impeller bearing

Open the large side panel.

Relieve the tension of threshing drum drive belt (23).

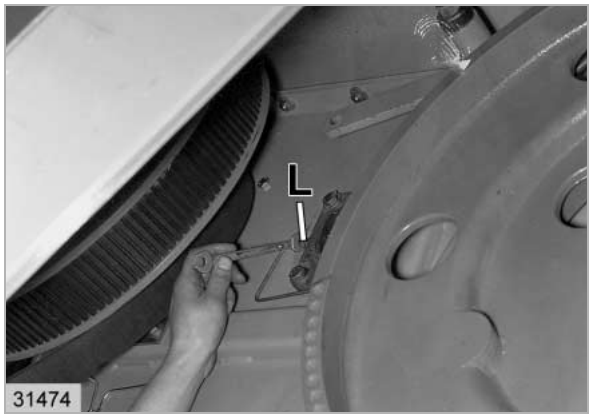
(Fig. 1)



2

Unbolt the jockey pulley (S).

(Fig. 2)

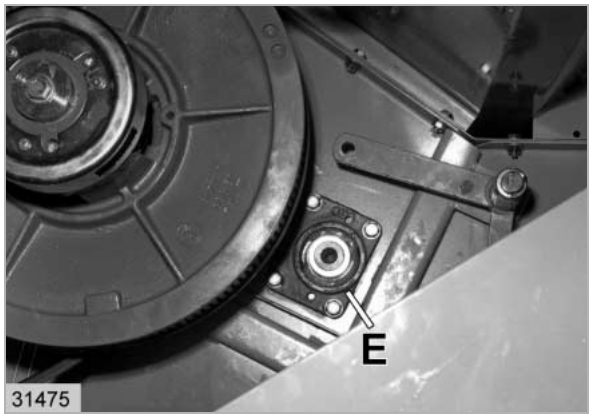


3

Remove the grease pipe (L) from the bearing assembly.

Unscrew the set screw from the lock collar and knock off the lock collar against its normal rotational direction.

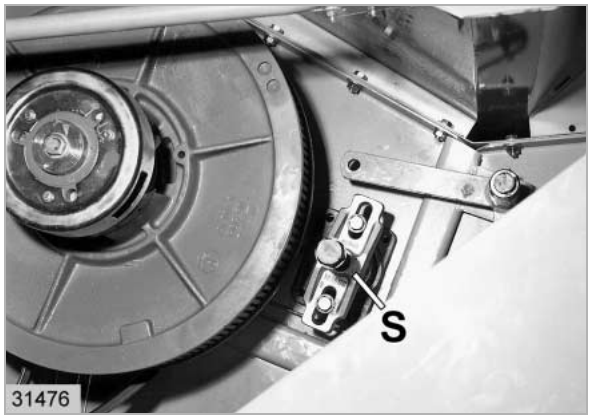
(Fig. 3)



4

Remove the four M 12 x 35 hex. bolts from bearing assembly (E).

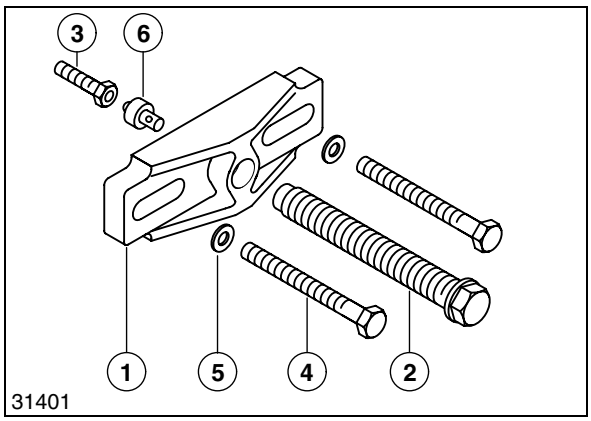
(Fig. 4)



5

Pull off the bearing assembly using a special tool (S).

(Fig. 5)

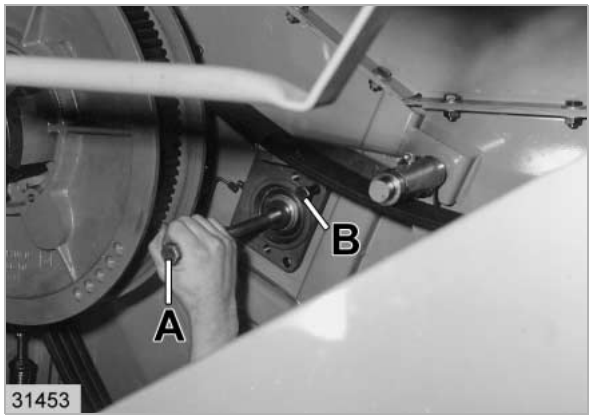


6

Special tool:

1 Puller bridge
part no. 181 800.0
2 Threaded spindle
part no. 181 801.1
3 Head-centred hex. bolt
part no. 603 038.0
4 Hex. bolts M 12 x 140
part no. 233 011.0 – 2 pieces
5 Washer 13, part no. 239 387.0
6 Centraliser with ball
part no. 181 849.0

(Fig. 6)



7

Installing the right-hand impeller bearing

1. Slide the bearing assembly on the shaft and push it into position at the drum wall, using the special tool.

   Special tool:

   A – Hex. bolt M 16 x 420
   part no. 235 321.0
   B – Hex. bolt M 12 x 60
   part no. 236 300.0

2. Screw bolt (A) into the face end of the impeller shaft. Using bolt (A), lift the impeller until the two bolts (B) can be located through the bearing assembly to provide proper guiding.

   Drive the bearing assembly on the shaft with a plastic-tip hammer.

3. Using the four M 12 x 35 bolts, fix the bearing assembly into place.

   Tightening torque = 78 Nm

ATTENTION!

Ensure that there is no pre-load on the bearing!

4. Refit the lock collar and tighten it in direction of rotation, then lock it with the set screw.
5. Attach the lubrication line.
6. Refit the jockey pulley. *Installing and adjusting the threshing drum drive belt (23)*, see page 7.3.9

(Fig. 7)

Removing the left-hand impeller bearing

Remove pulleys.

On machines equipped with cutterbar variable-speed drive:

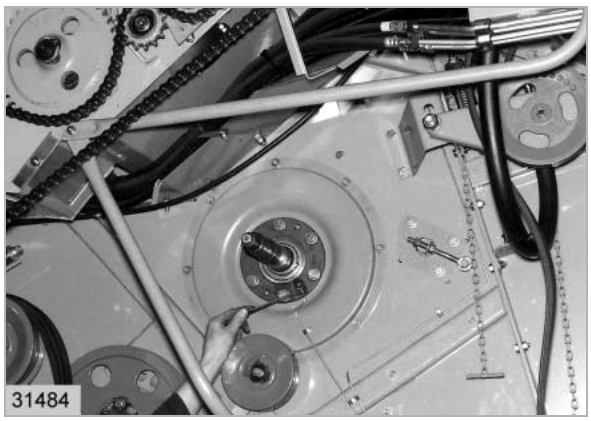
Removing the cutterbar variable-speed pulley assembly (hydraulic), see page 7.4.43

On machines without cutterbar variable-speed drive:

From serial no. …:
Removing the rear pulley of cutterbar drive (1) (from serial no. ...), see page 7.4.17

or

Up to serial no. …:
Removing the rear pulley of cutterbar drive (1) (up to serial no. ...), see page 7.4.7

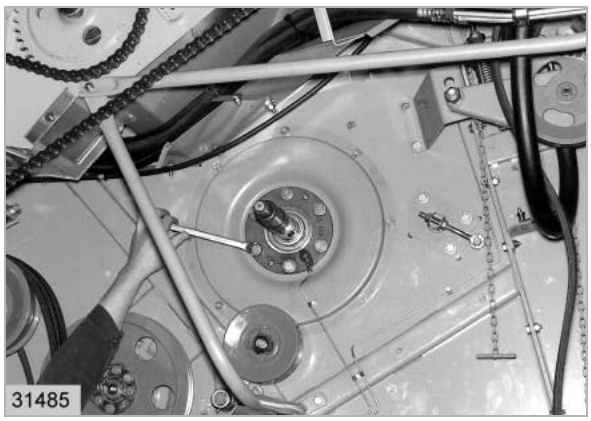


8

Remove the grease pipe.

Remove the parallel key and the tapered ring from the shaft.

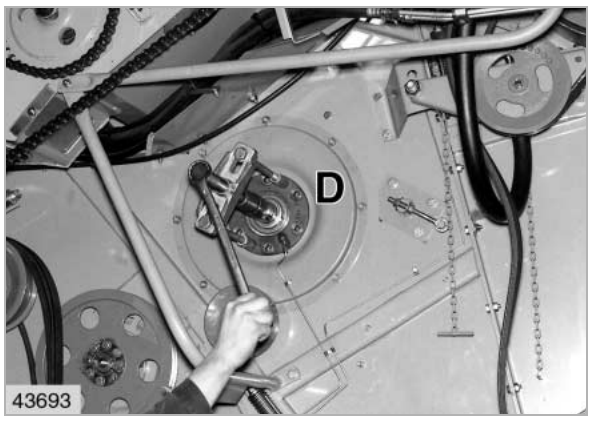
(Fig. 8)



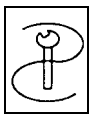
9

Remove the bearing assembly with the M 12 x 30 bolts.

(Fig. 9)



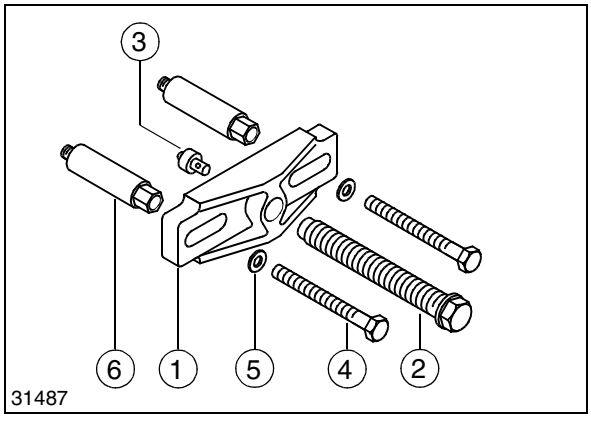
10



Pull off the bearing assembly using a special tool.

Remove the cover (D) if necessary.

(Fig. 10)

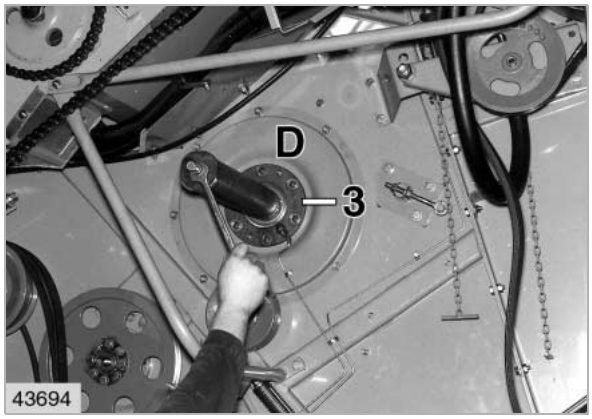


11

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 16 x 260
part no. 235 816.0 – 2 pieces
5 Washer 17, part no. 235 127.2 – 2 pieces
6 Threaded bolt, part no. 181 889.0 – 2 pieces

(Fig. 11)



12

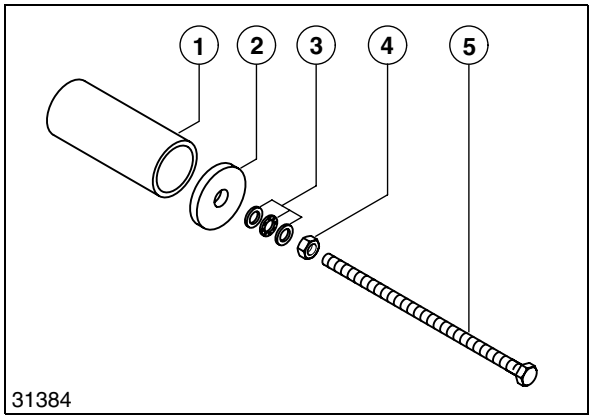
Installing the left-hand impeller bearing

Refit the cover (D) if necessary.

Apply a thin coat of oil to the bearing seat.

Using the special tool, install the bearing assembly (3) on the shaft.

(Fig. 12)

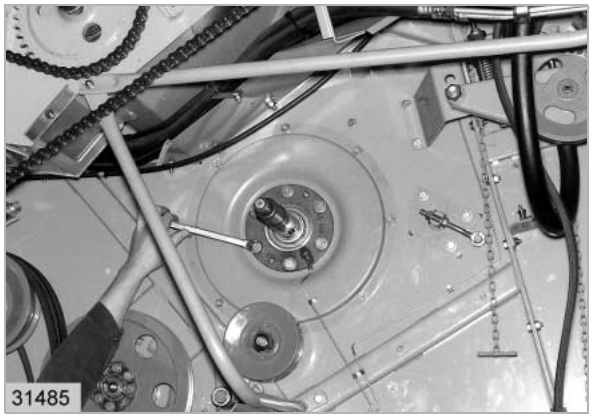


13

Special tool:

1 Tube, inside ∅ 55 x 242 long (self-sourced)
2 Washer ∅ 75 x ∅ 13, part no. 642 929.0
3 Thrust bearing, part no. 177 899.0
4 Hex. nut M 12, part no. 239 418.0
5 Hex. bolt M 12 x 220, part no. 244 422.0

(Fig. 13)



14

Bolt the bearing assembly to the cover. Attach the grease pipe to the bearing assembly.

(Fig. 14)

Install pulleys.

On machines equipped with cutterbar variable-speed drive:

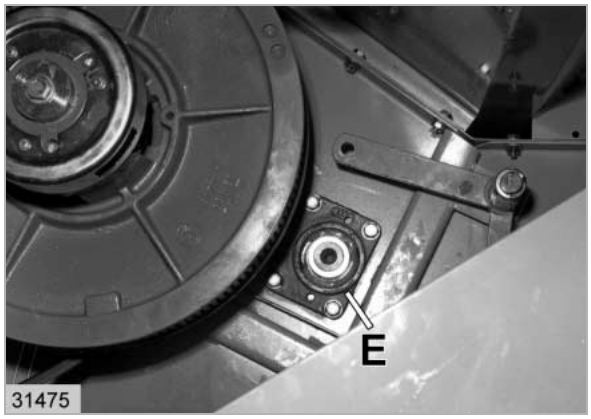
Installing the cutterbar variable-speed pulley assembly (hydraulic), see page 7.4.51

On machines without cutterbar variable-speed drive:

From serial no. …:
Installing the rear pulley of cutterbar drive (1) (from serial no. ...), see page 7.4.24

or

Up to serial no. …:
Installing the rear pulley of cutterbar drive (1) (up to serial no. ...), see page 7.4.15

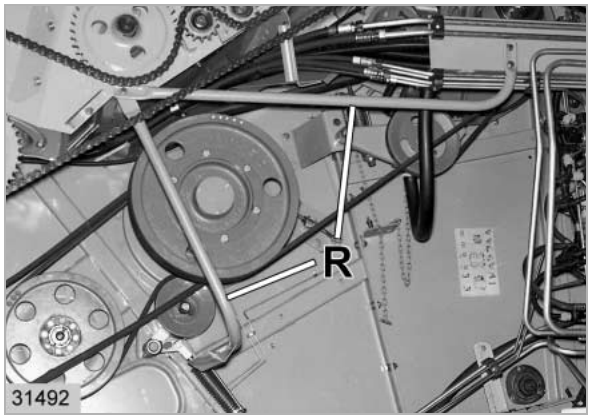


15

Removing the impeller

Removing the right-hand impeller bearing (E) – see page 3.5.1, *Removing the right-hand impeller bearing*.

(Fig. 15)



16

Remove the two bars (R).

(Fig. 16)

Remove belt.

On machines without cutterbar variable-speed drive:

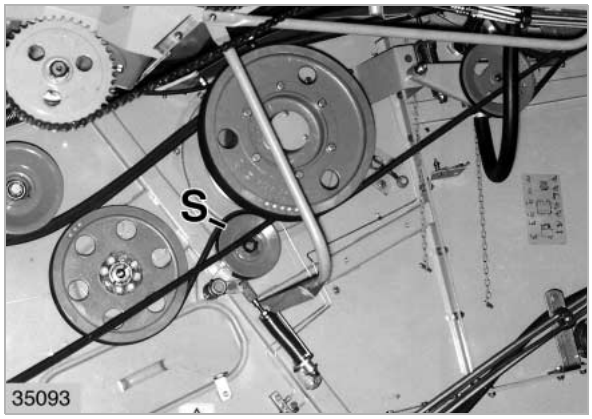
Remove the cutterbar drive belt (1) at the rear – see page 7.2.1, *Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)*.

Removing the impeller drive belt (4), see page 7.2.7

On machines equipped with cutterbar variable-speed drive:

Removing the cutterbar variable-speed drive belt (3), see page 7.2.5

Removing the impeller drive belt (4), see page 7.2.7



17

Remove the complete jockey pulley (S) with bracket from the impeller drive.

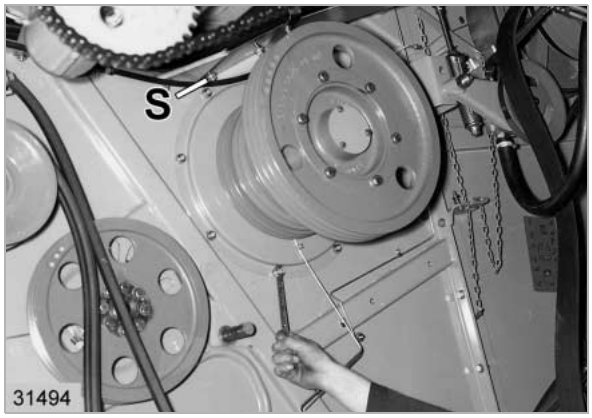
(Fig. 17)



18

Remove the grease pipe.

(Fig. 18)

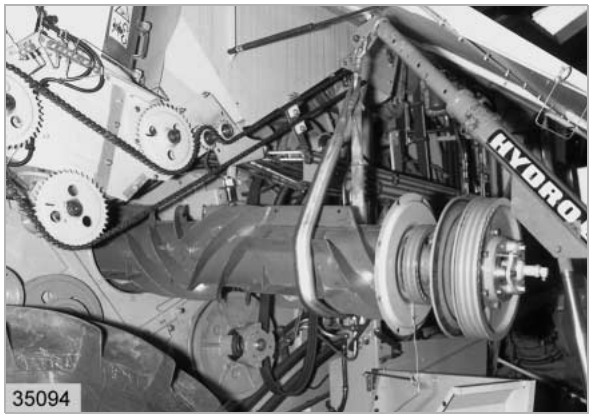


19

Remove all bolts from the cover.

Remove bolt (S) from the grain tank floor.

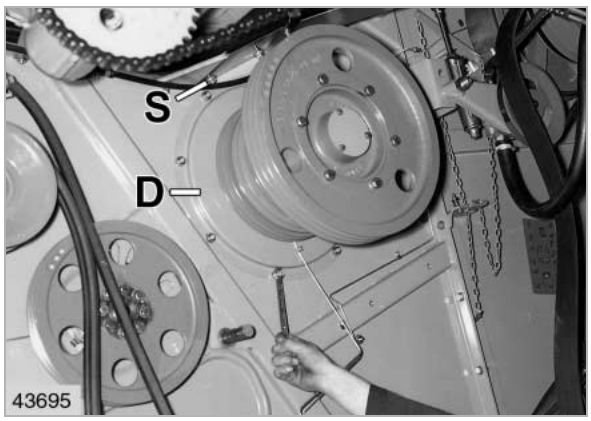
(Fig. 19)



20

Using a suitable lifting device, lift the impeller out of the machine to the left.

(Fig. 20)



21

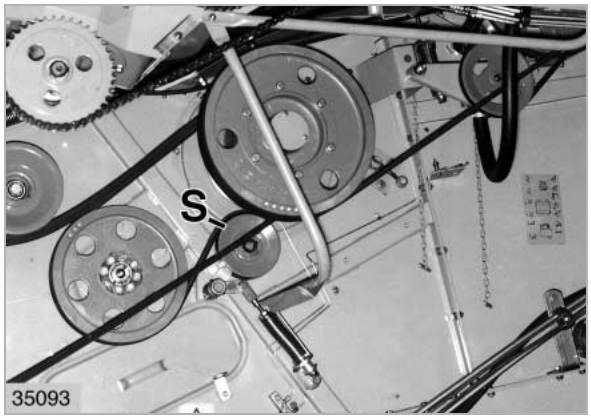
Installing the impeller

1. Using a suitable lifting device, lift the impeller into the machine on the left-hand side. For this, use a tube (inside ∅ 45 x 1000 long) on the right-hand side.

   Screw the bolt (S) back into position at the grain tank floor.

2. Fit cover (D) to the drum housing.

(Fig. 21)



22

3. *Installing the right-hand impeller bearing*, see page 3.5.3
4. Attach the lubrication line.
5. Refit the impeller drive jockey pulley (S) with the bracket.

   (Fig. 22)

6. Install belt.

   On machines without cutterbar variable-speed drive:

   Installing and adjusting the impeller drive belt (4), see page 7.2.8

   Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.2

   On machines equipped with cutterbar variable-speed drive:

   Installing and adjusting the impeller drive belt (4), see page 7.2.8

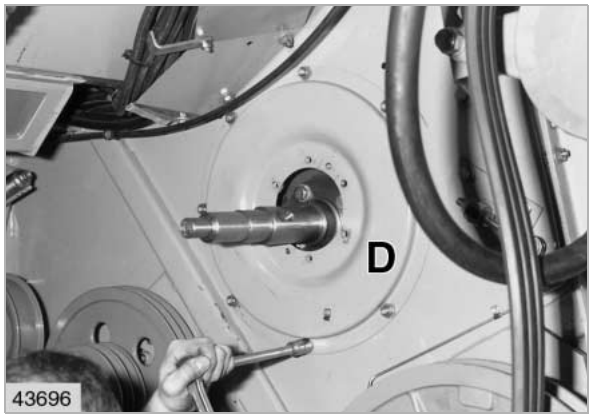
   Installing and adjusting the cutterbar variable-speed drive belt (3), see page 7.2.6

7. Reinstall the two bars.
8. Grease the impeller bearing and carry out a test run.
9. Reinstall the guard and the mud guard.

Removing the flanged shaft

(from serial no. ...)

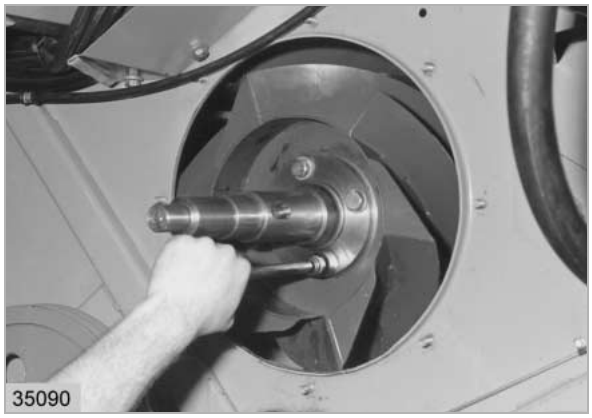
Removing the left-hand impeller bearing, see page 3.5.3



23

Unscrew cover (D).

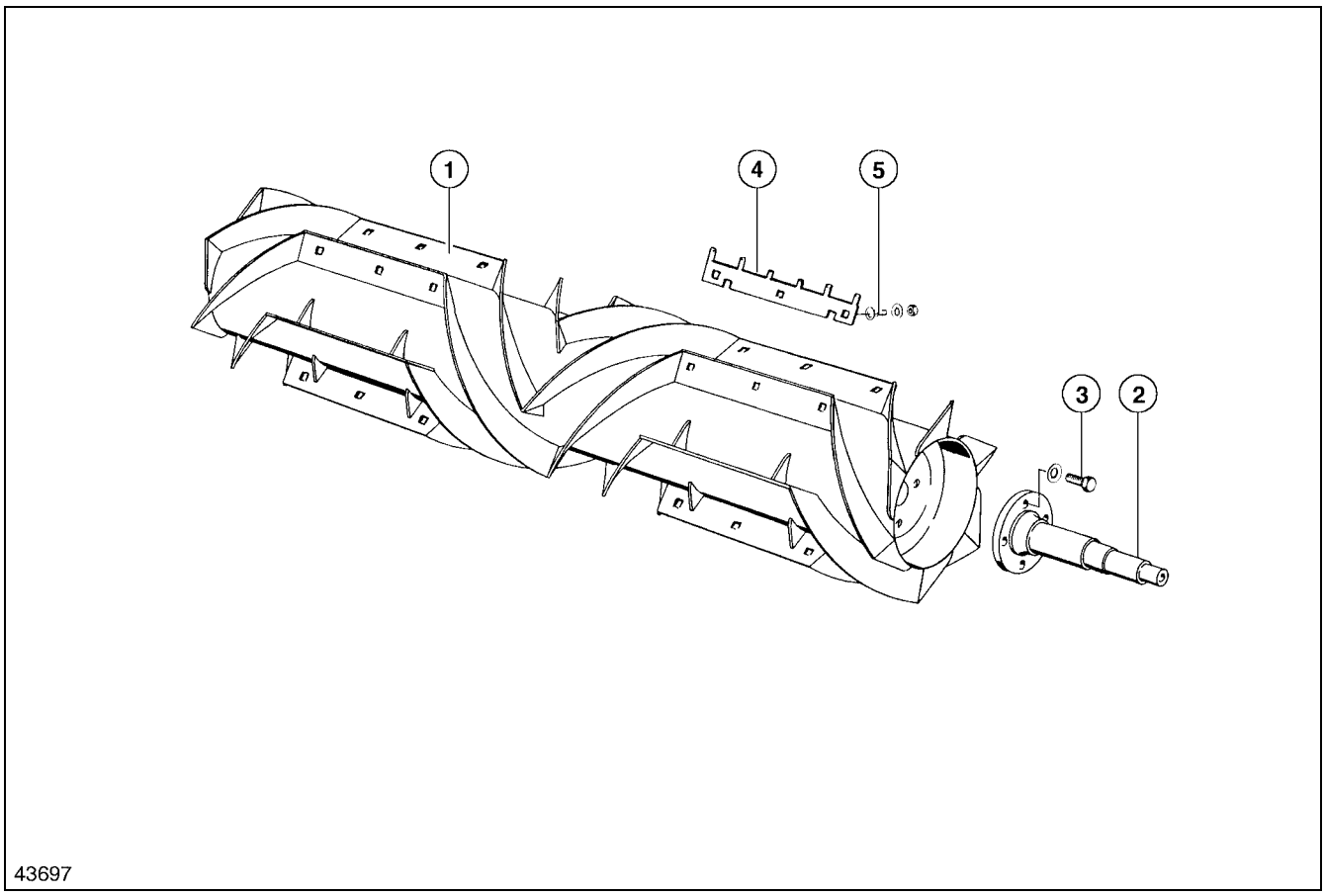
(Fig. 23)



24

Key the impeller in position and remove the flanged shaft from the impeller.

(Fig. 24)



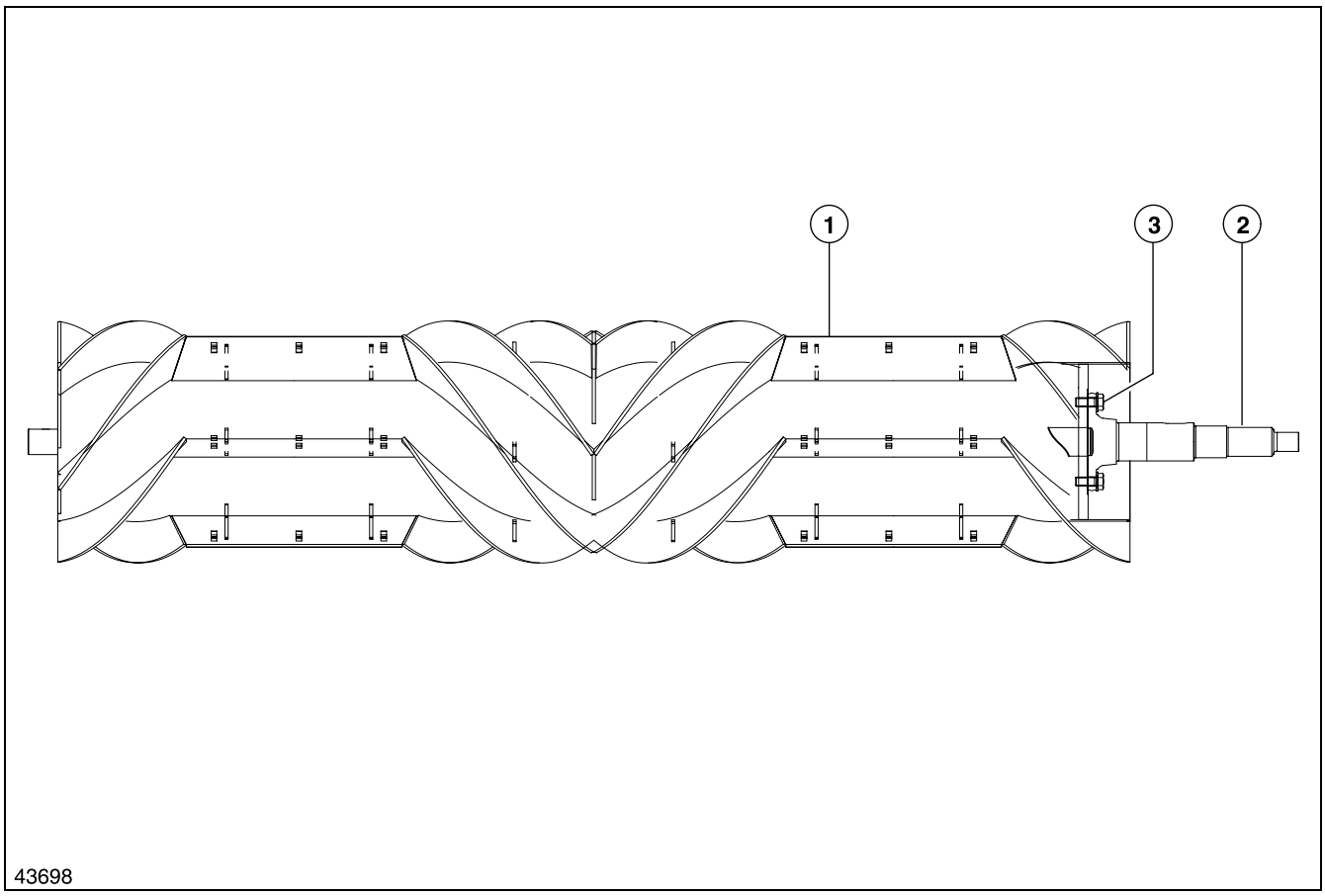
25

Impeller disassembled

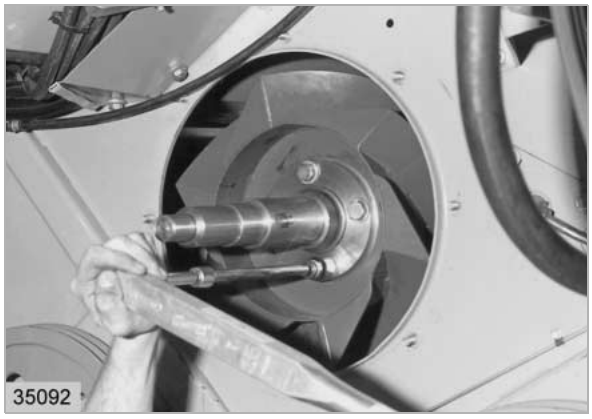
(from serial no. ...)

1 Impeller
2 Flanged shaft
3 Hex. bolt M 14 x 25 DIN 933-8.8
Contact washer A 14
4 Reed
5 Mushroom head bolt M 8 x 20 x 13 DIN 603
Hex. nut M 8 DIN 934
Contact washer A 8

(Fig. 25)



26



27

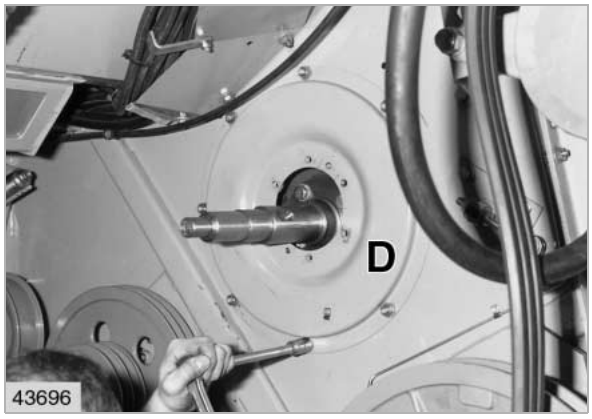
Installing the flanged shaft

Bolt the flanged shaft to the impeller.

Tightening torque = 122 Nm

Remove the key from the impeller.

(Fig. 27)



28

Bolt down the cover (D).

Installing the left-hand impeller bearing, see page 3.5.5

(Fig. 28)

Removing the impeller shaft

(up to serial no. ...)

Removing the impeller, see page 3.5.6

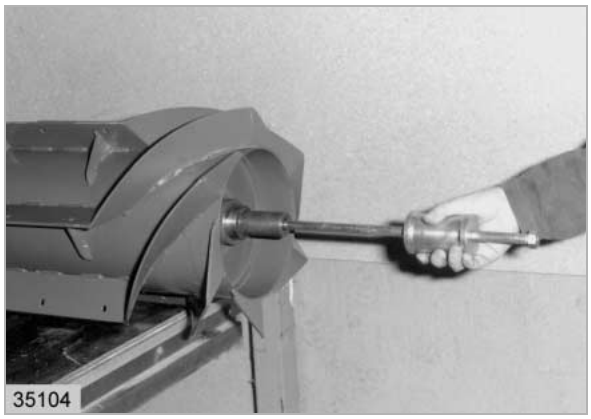
Removing the left-hand impeller bearing, see page 3.5.3



29

Remove the impeller shaft. To do this, unscrew the hex. bolt (3).

(Fig. 29)



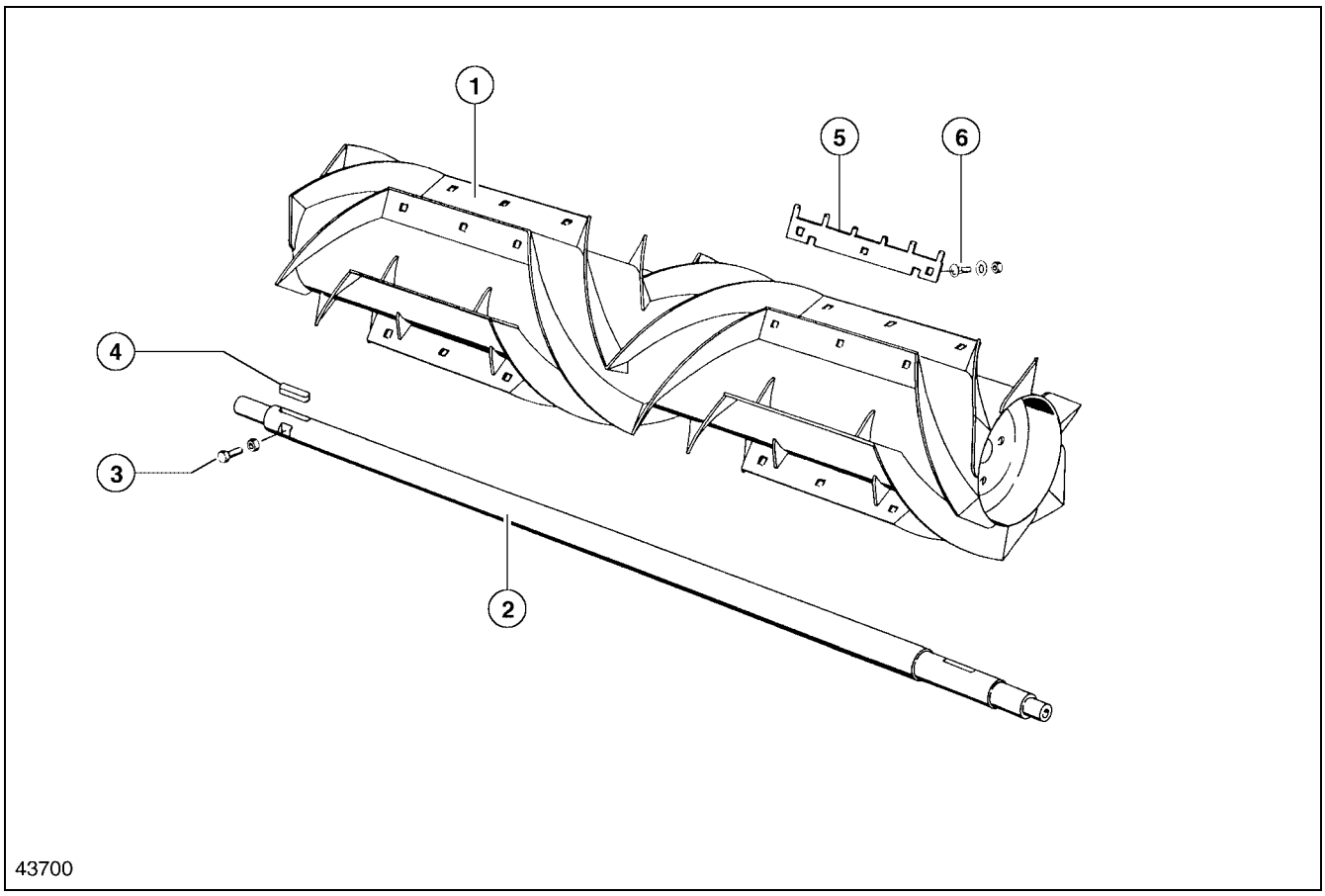
30

Clean the impeller shaft and pull out shaft with special tool.

Special tool:

Tie rod 450 mm	part no. 181 605.0
Striking tool	part no. 181 604.0

(Fig. 30)



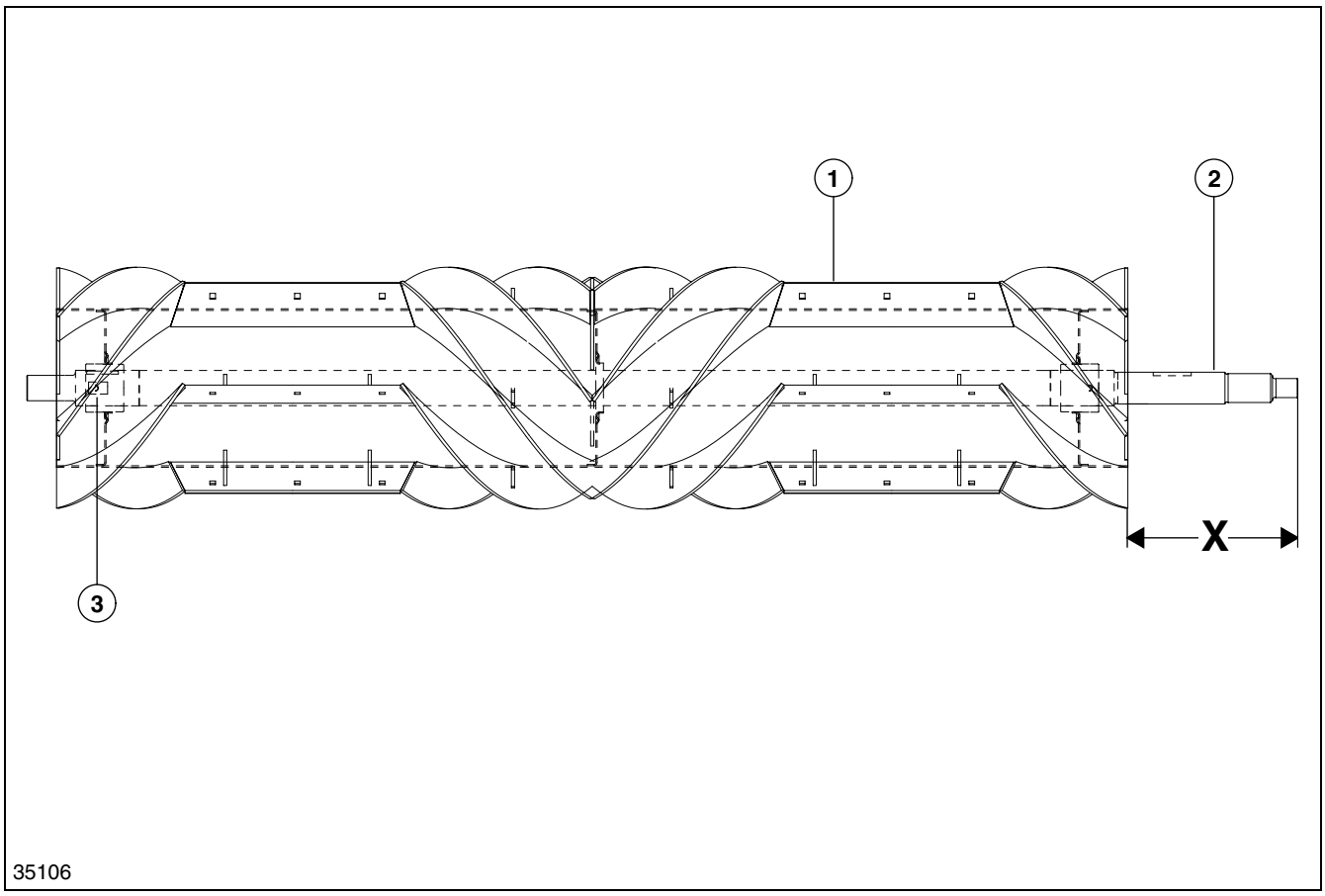
31

Impeller disassembled

(up to serial no. ...)

1 Impeller
2 Impeller shaft
3 Hex. bolt M 10 x 30 RS
Hex. nut M 10
4 Parallel key A 16 x 10 x 50 DIN 6885
5 Reed
6 Mushroom head bolt M 8 x 20 x 13 DIN 603
Hex. nut M 8 DIN 934
Contact washer A 8

(Fig. 31)



32



33

Installing the impeller shaft

(up to serial no. ...)

Insert parallel key (4) and drive the impeller shaft (2) into the impeller until the dimension (X) is **268.2 mm**.

Secure the impeller shaft (2) with hex. bolt (3).

(Fig. 31, 32, 33)

Installing the impeller, see page 3.5.8

Installing the left-hand impeller bearing, see page 3.5.5

AXIAL ROTORS



1

Removing the separation grates

From serial no. …:

– Open the access door inside the engine compartment.
or
lower the return pan.

– Enter the inside of the machine through the respective opening.

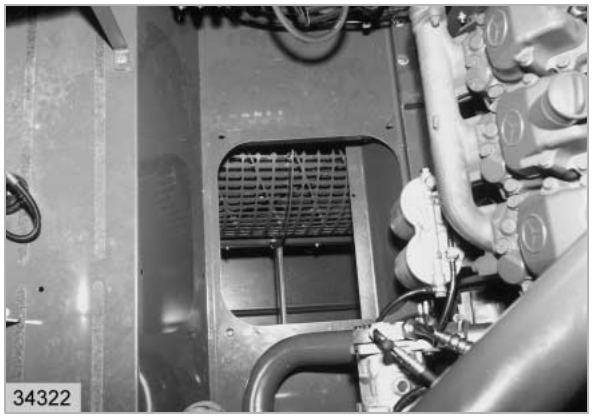
(Fig. 1, 2)

Up to serial no. …:

– Open the access door inside the engine compartment.

– Enter the inside of the machine through this opening.

(Fig. 1)



2

Remove the guide (F) that is toward the centre.

(Fig. 3)



3

Slacken off the M 12 lock nuts at the rear separation grate.

Undo the set screws. Thereby holding the separation grate up.

(Fig. 4)



4



5

Carefully lower the separating grate toward the middle, detach it from the outside guide rail and place it on to the return floor.

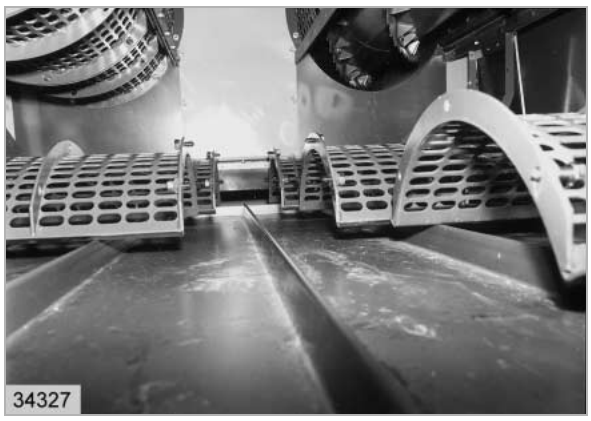
(Fig. 5)



6

Pull all the grates, one after the other, to the rear and remove.

(Fig. 6)



7

To ease removal of the separation grates, place the grates crosswise on to the return floor.

(Fig. 7)



8

When the separation grates have been removed, the toothed bars can be renewed for instance.

(Fig. 8)



9

The separation grates can be removed from the rear.

(Fig. 9)

Installing the separation grates

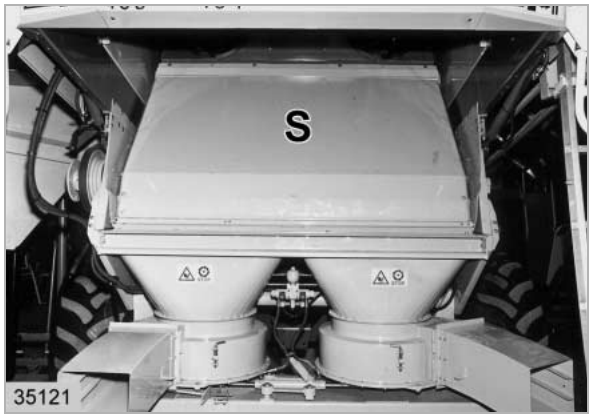
Install the separation grates by reversing the order of removal.

When installing the separation grates, ensure grates are pushed in their guides with the pin facing forward.

Retighten all the screws.

Close the access door in the engine compartment.

Raise and install the return pan if required – see page 4.1.2, *Raising and installing the return pan (from serial no. ...)*.



10

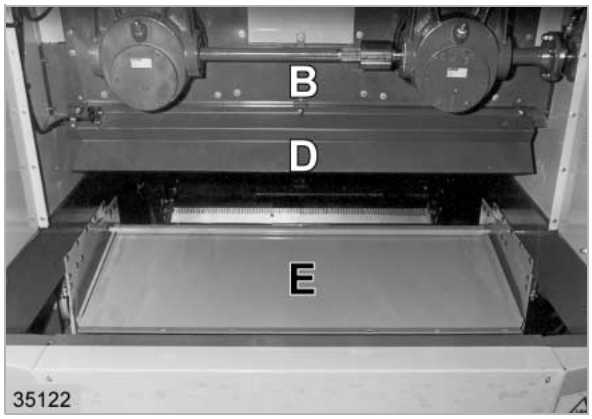
Removing the separating jacket

Remove the rear safety frames for better accessibility during installation.

Open the tailgate.

Remove the straw chopper cover plate (S) completely.

(Fig. 10)

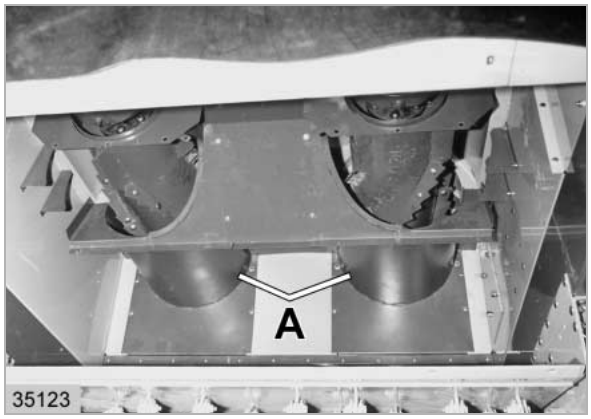


11

Unbolt the guide plate (E) at the top and fold it over the cutting cylinder as a mounting platform.

Completely remove the sensor plate (D) and the insulation plate (B).

(Fig. 11)



12

Remove the right- and left-hand discharge plate (A) and the cover plate.

(Fig. 12)

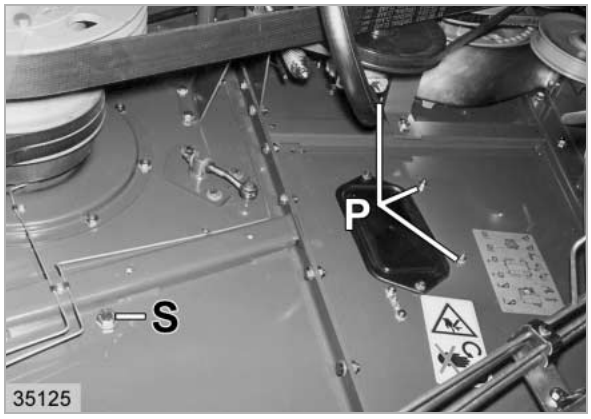


13

Removing the return pan, see page 4.1.3

Cover up the upper sieves with mounting plates. Pull out all separating grates to the rear.

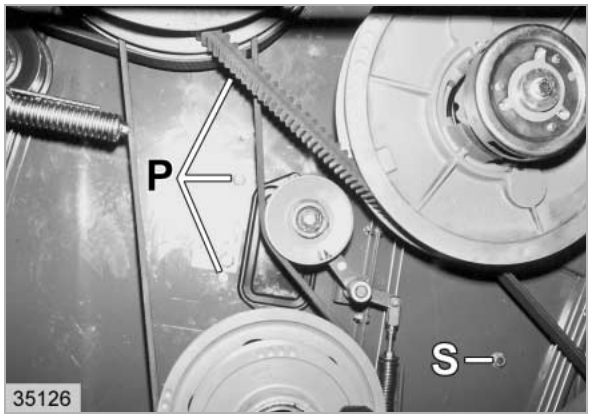
(Fig. 13)



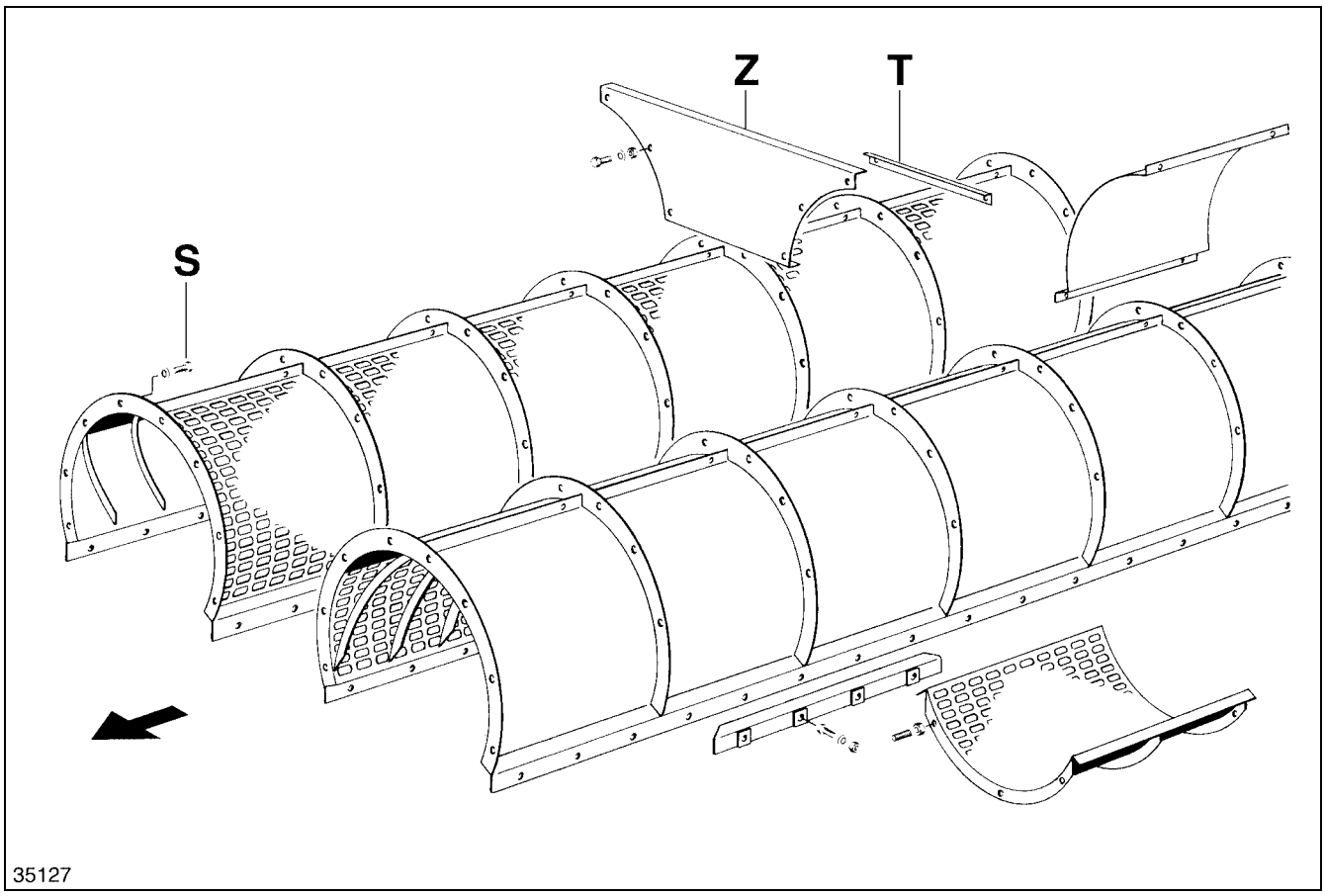
14

Only slacken off the hex. bolts (P and S) on the right- and left-hand side.

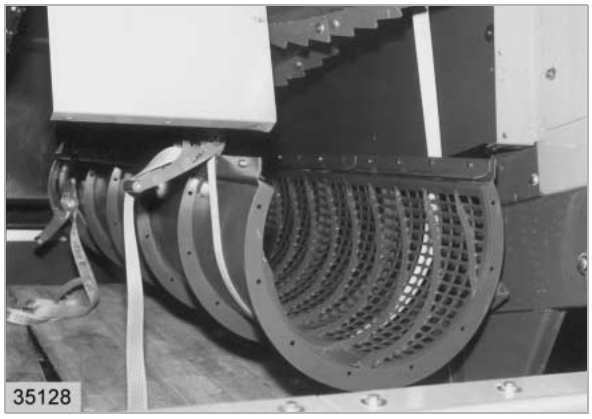
(Fig. 14, 15)



15



16



17



18

Unbolt the intermediate plate (Z) and the step (T).

Slacken off the hex. bolts (S).

Secure the separating jacket around the rotor with two lifting straps.

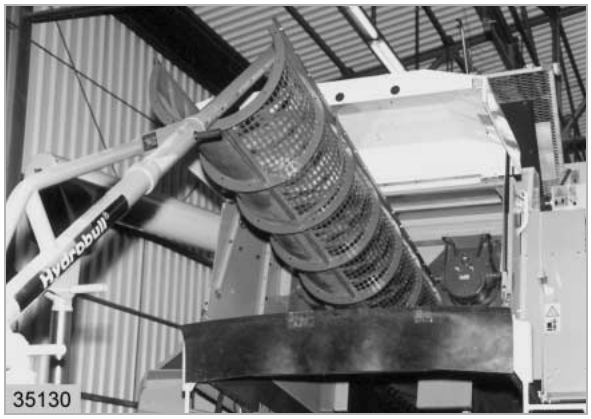
Unscrew the hex. bolts (S).

Oil the face ends of separating jacket, inlet head and of discharge housing well.

Rotate the separating jacket by approx. **160**° to the centre and slowly lower it with the lifting straps.

Lift out the separating jacket with a suitable lifting device.

(Fig. 16, 17, 18)

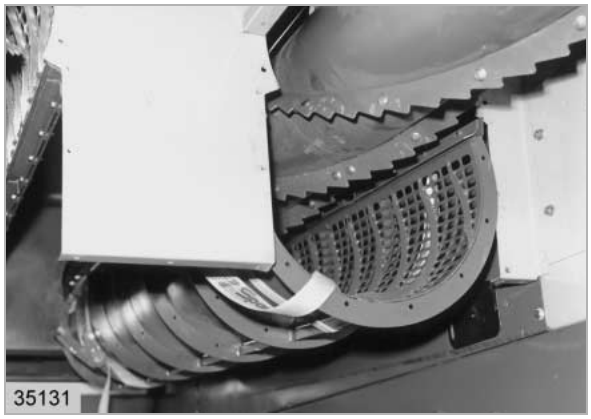


19

Installing the separating jacket

1. Using a suitable lifting device, lift the separating jacket into the machine.

(Fig. 19)



20

2. Secure the separating jacket around the rotor with two lifting straps.
3. Lift the separating jacket in parallel to the rotor up to a clearance of approx. **100 mm**. After that, rotate the separating jacket by **180**° around the rotor and screw in the hex. bolts (S).

(Fig. 16, 20)

4. Remove the lifting straps.
5. Install the intermediate plate (Z) and the step (T).

   (Fig. 16)
6. Firmly tighten the hex. bolts (P and S) on the right- and left-hand side.

   (Fig. 14, 15)
7. *Installing the separation grates*, see page 3.6.3
8. *Installing the return pan*, see page 4.1.5
9. Install the discharge plate (A).

   (Fig. 12)
10. Install the sensor plate (D) and the insulation plate (B) and bolt down guide plate (E).

    (Fig. 11)
11. Bolt down cover plate (S) and safety frame.

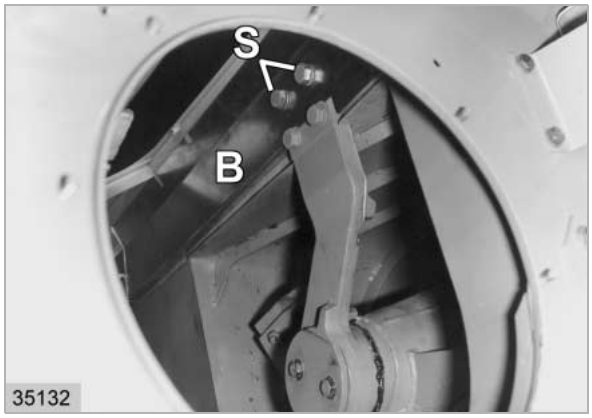
    (Fig. 10)

Removing the axial rotor supporting arm

Removing the impeller, see page 3.5.6

DANGER!

Key the threshing drum in position – danger of injury!



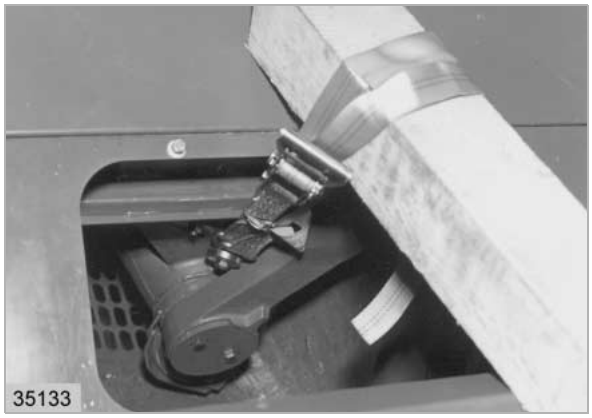
21

Remove the mounting plates inside the grain tank for better accessibility.

Unscrew two hex. bolts (S) from the supporting arm. Unscrew and remove the dust plate (B).

Disconnect the lubrication line at the connector.

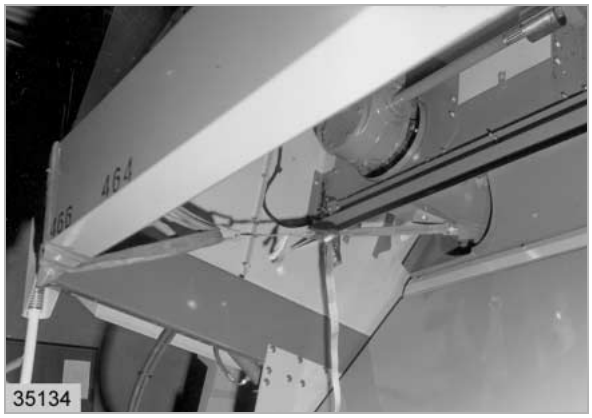
(Fig. 21)



22

Unscrew one countersunk head bolt M 10 x 30 from the wear edge. Bolt down the lifting strap safely with a M 10 x 60 bolt. This safeguards the axial rotor so it will not drop down.

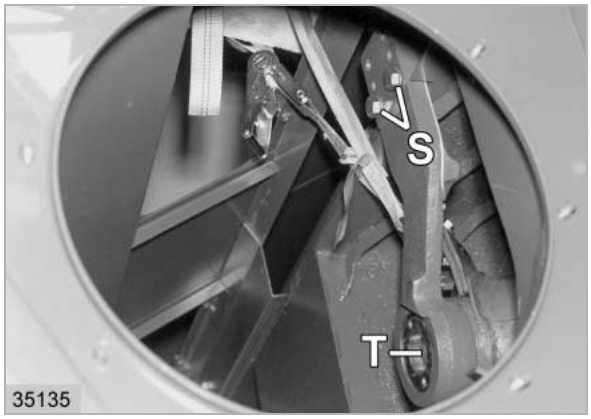
(Fig. 22)



23

Unscrew a mushroom head bolt from the serrated bar. Bolt down the lifting strap safely with a M 10 x 60 bolt. Suspend the lifting strap at the crossmember and thus secure the axial rotor.

(Fig. 23)

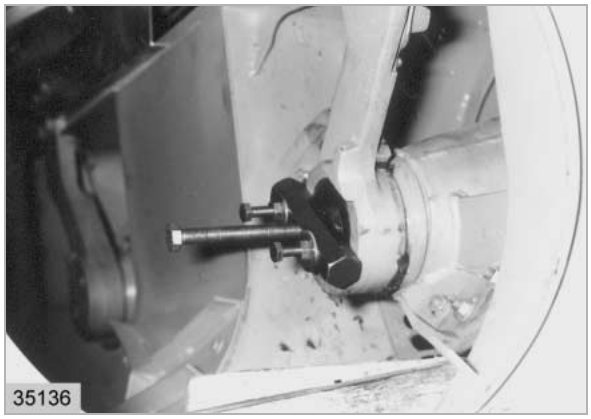


24

Remove the cover plate.

Unscrew the hex. bolts at (S and T) and remove along with the washer.

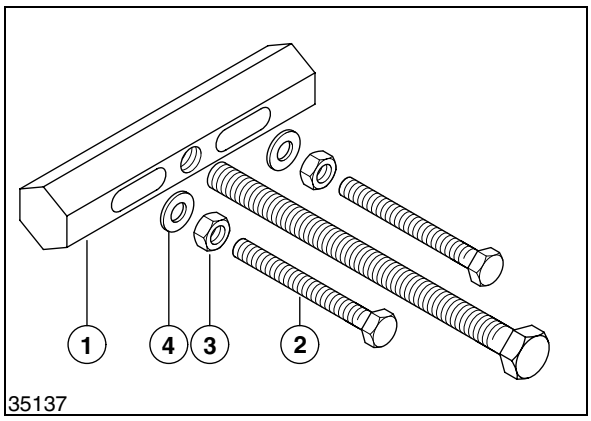
(Fig. 24)



25

Screw in a head-centred hex. bolt and pull off the supporting arm with a special tool.

(Fig. 25)



26

Special tool:

1 Puller bridge with spindle, part no. 181 622.0
2 Hex. bolt M 10 x 70 DIN 931-8.8
part no. 235 538.0
3 Hex. nut M 10 DIN 934
part no. 236 171.0
4 Washer 10.5 DIN 125, part no. 236 913.2

(Fig. 26)

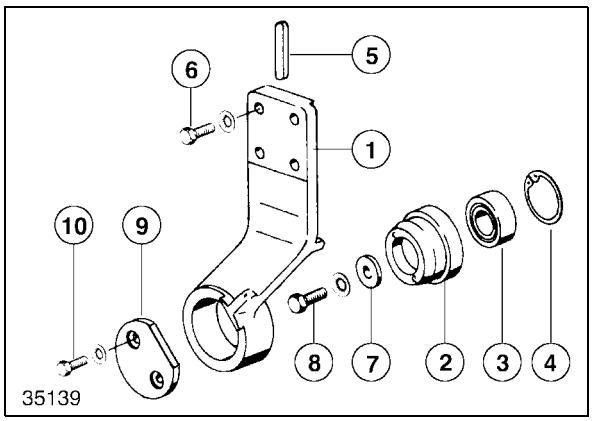


27

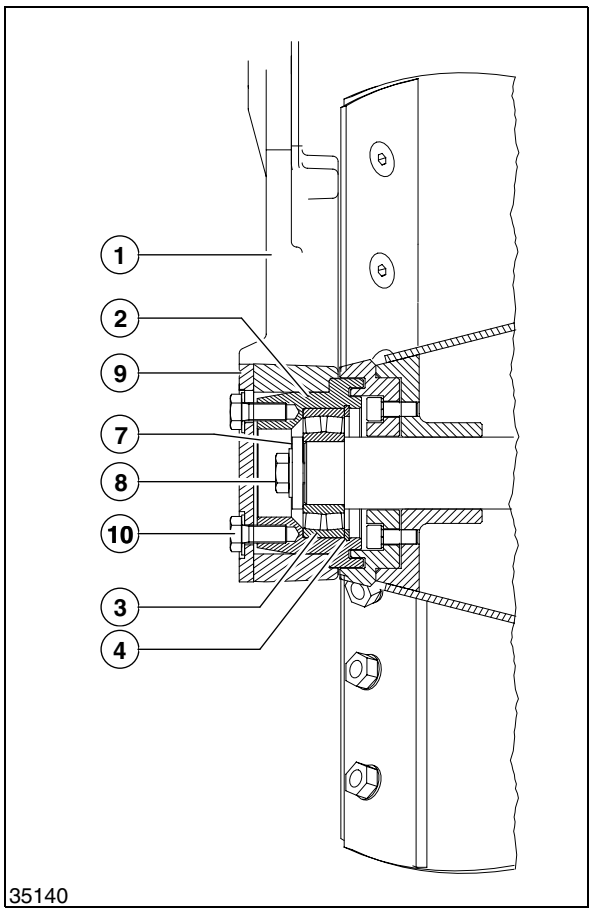
Disassembling the axial rotor supporting arm

Remove the circlip and force the bearing out.

(Fig. 27)



28

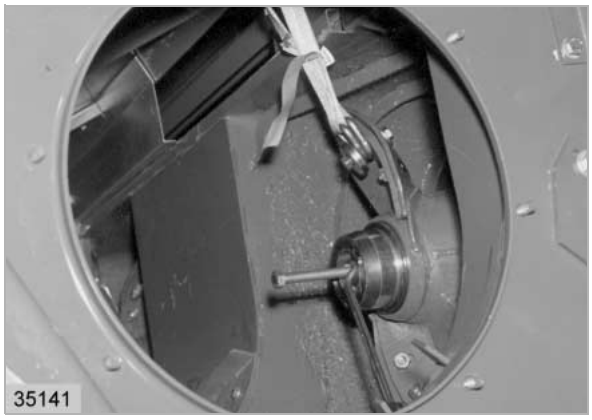


29

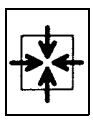
Supporting arm, disassembled:

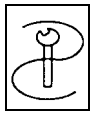
1 Supporting arm
2 Ball journal
3 Self-aligning roller bearing
4 Circlip
72 x 2.5 DIN 472
5 Parallel key
A 10 x 8 x 80 DIN 6885
6 (from serial no. ...)
Hex. bolt
M 16 x 60 DIN 931-10.9 MK
Contact washer A 16
7 Washer 13 x 40 x 6
8 Hex. bolt
M 12 x 30 DIN 933-8.8
Contact washer A 12
9 Cover
10 Hex. bolt
M 10 x 25 DIN 933-8.8
Contact washer A 10

(Fig. 28)



30





Installing the axial rotor supporting arm

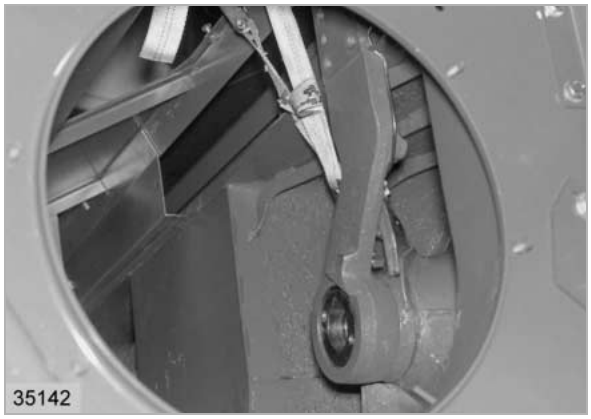
1. Pre-assemble the ball journal (2) with the self-aligning roller bearing (3) and insert circlip (4).
2. Press the pre-assembled ball journal (2) on the bearing pin, using the special tool. Rotate ball journal (2) by hand while pressing it on so it will not tilt.

(Fig. 28, 29, 30)

Special tool:

Hex. bolt M 12 x 140
Hex. nut M 12
Washer 13 x 40 x 6

(Fig. 28, 29, 30)



31

3. Clean the bolting surface of the supporting arm. It must show a bright metal finish.
   Insert the parallel key (5) and slide the supporting arm (1) on the ball journal.
4. Screw in two hex. bolts (6) crosswise.

CAUTION!

The supporting arm must not tilt.

Correct axial rotor position with lifting straps if necessary.

(Fig. 28, 29, 31)



32

5. Remove lifting straps.
6. Connect the lubrication line at the connector.
7. Install dust plate (B, Fig. 21).
8. Screw in all hex. bolts (6) and tighten to **270 Nm**.

(Fig. 28, 29, 32)

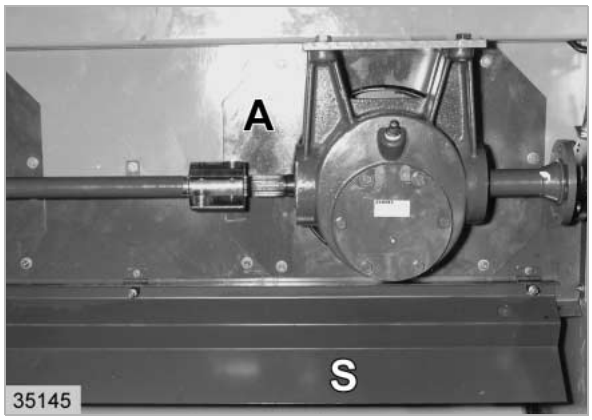


33

9. Insert washer (7) and tighten hex. bolt (8) to **78 Nm**.

(Fig. 28, 29, 33)

10. Bolt down cover (9) with hex. bolts (10).
11. Grease the axial rotor bearing.
12. Release the keyed threshing drum.
13. Adjust the wear edge of the axial rotor so that the clearance to the supporting arm is **0.5^{+1} mm**.
14. Install assembly cover in the grain tank.
15. *Installing the impeller*, see page 3.5.8



34

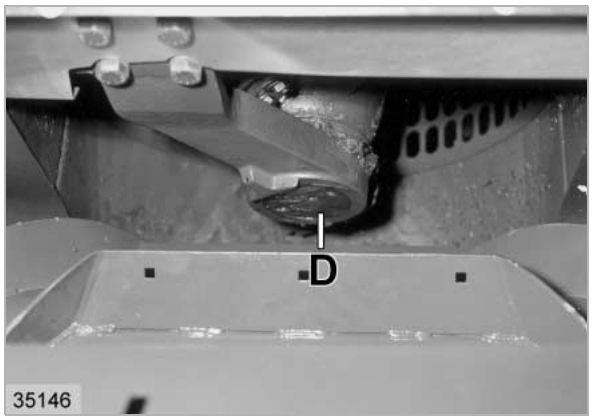
Removing the axial rotor

Removing the axial rotors drive, see page 7.15.11

Support the axial rotor at the discharge plate in the rear so it will not fall down.

Remove end plate (A) and sensor plate (S) completely.

(Fig. 34)

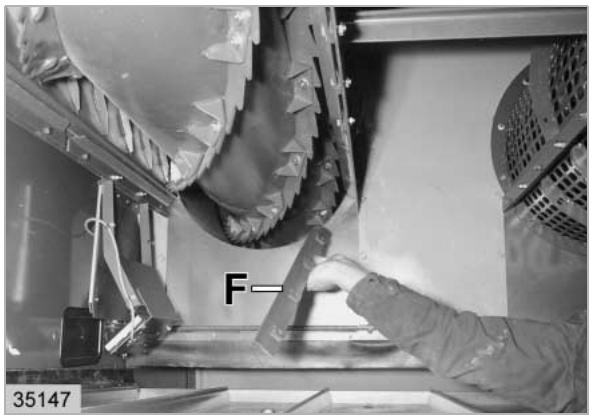


35

Open the assembly cover in the grain tank.

Unscrew cover (D) from the supporting arm.

(Fig. 35)

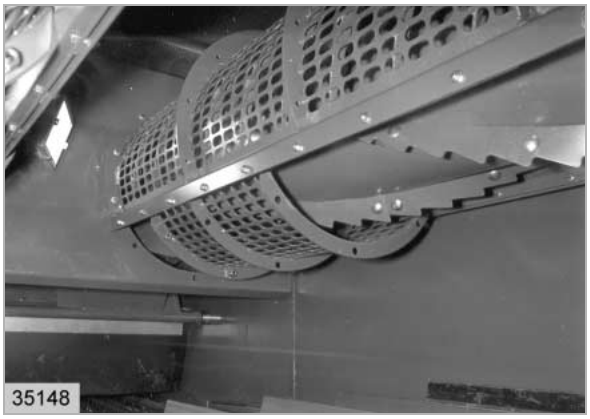


36

Removing the separation grates, see page 3.6.1
(Do not remove the front separating grate.)

Re-install the guide rail (F).

(Fig. 36)



37

Clean the guide rails and check the slight displacement of the foremost concave segment.

(Fig. 37)



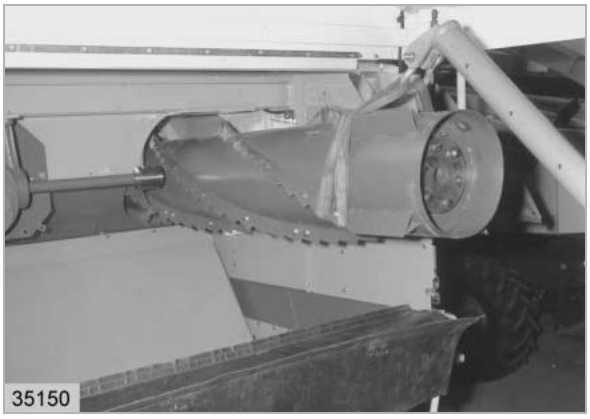
38

Unscrew a mushroom head bolt from the serrated bar and suspend a lifting strap with a hex. bolt M 10 x 60.

Suspend the lifting strap at the crossmember and lift the rotor with a chisel.

Pull the axial rotor out to the rear by approx. **0.5 m** using the lifting strap.

(Fig. 38)



39

Remove the lifting strap.

Suspend the axial rotor safely, raise it slightly and pull it out halfway to the rear.

CAUTION!

At the front, the axial rotor must rest on the separating grate and pull the grate along.

(Fig. 39, 40)



40



41

Suspend the rotor at the centre and lift it out of the machine.

(Fig. 41)

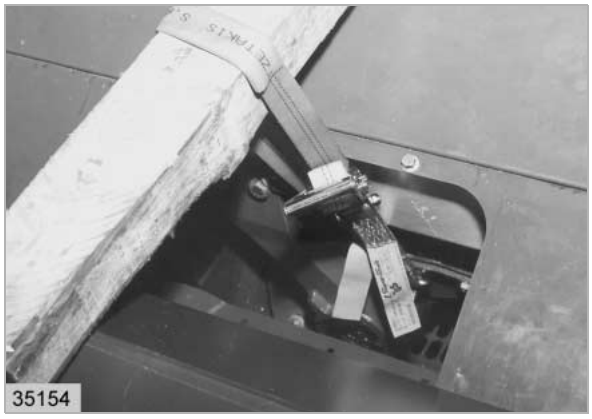


42

Installing the axial rotor

1. Suspend the axial rotor at the centre and lift it into the machine up to the middle.
2. Relocate the lifting strap and place the front of the axial rotor on the separating grate. Push the rotor into the machine up to the supporting arm.

(Fig. 42)



43

3. Unscrew one countersunk head bolt M 10 x 30 from the wear edge. Bolt down the lifting strap safely with a M 10 x 60 bolt. Now lift the axial rotor upwards through the grain tank opening.

(Fig. 43)

4. Lift the axial rotor with the ball journals into the supporting arm. Bolt down the cover with two hex. bolts and remove the lifting strap.
5. Bolt down end plate (A) and sensor plate (S).

   (Fig. 34)
6. *Installing the axial rotor gearbox*, see page 7.15.20
7. Adjust the wear edge of the axial rotor so that the clearance to the supporting arm is **0.5^{+1} mm**.
8. Grease axial rotor.



44

Removing the hybrid unit completely

Remove axial rotor drive belt (18).

Unscrew the engine back wall.

(Fig. 44)



45

Unscrew the air filter housing completely and plug all openings tightly.

(Fig. 45)

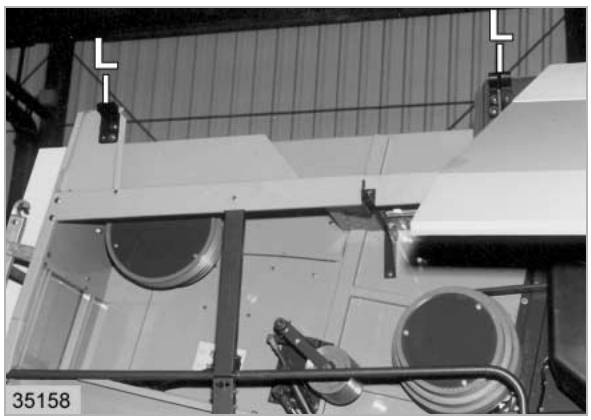


46

Unscrew the roof plate at the front.

Unscrew the bolts on the crossmember at the rear of the roof plate.

(Fig. 46)



47

Remove the right-hand side panel.

To do this, remove the catch ropes and the gas struts. Push the panel out of the holder (L).

Remove the side railings.

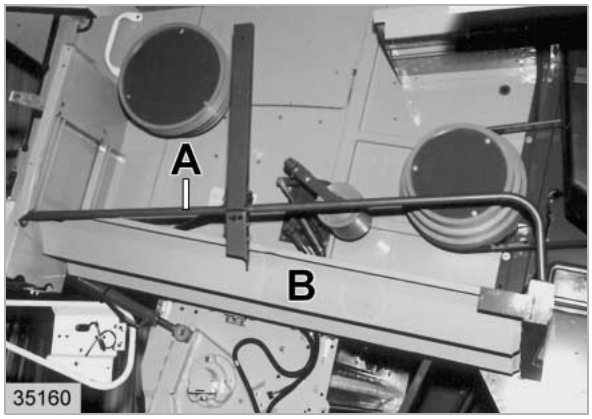
(Fig. 47)



48

Remove the covering.

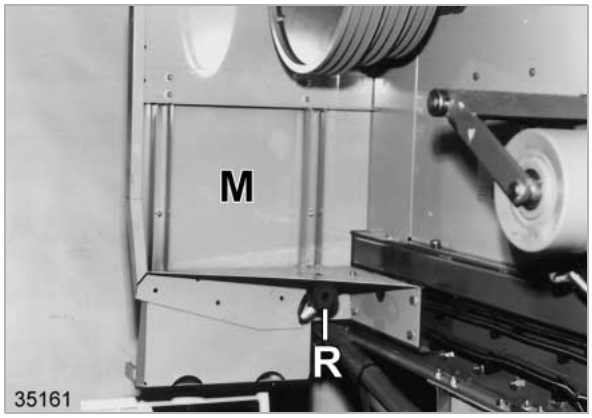
(Fig. 48)



49

Unscrew the ladder rest (A) with the brace. Remove lamellar plate and bottom plate (B).

(Fig. 49)

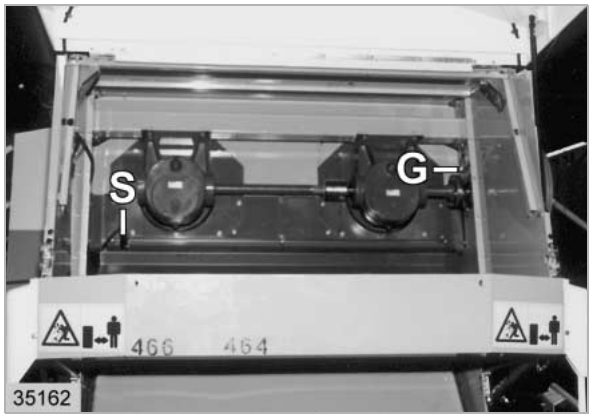


50

Remove the jacket sheet (M) with its bracket.

Unscrew the cable clamp from the reversing signal generator (R) and disconnect the cable plug.

(Fig. 50)

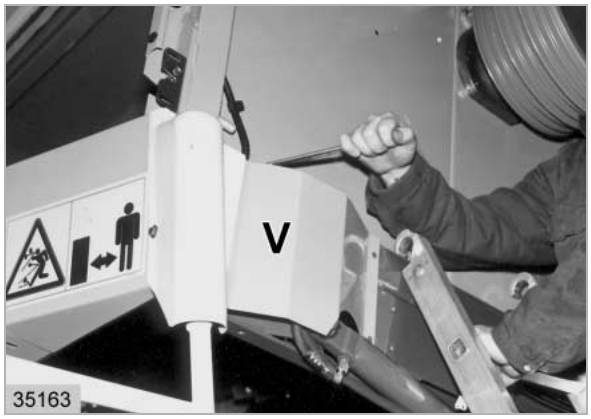


51

Disconnect the cable plug from the wind door switch (S) and the magnetic pick-up (G).

Unscrew the cable clamps and remove cables.

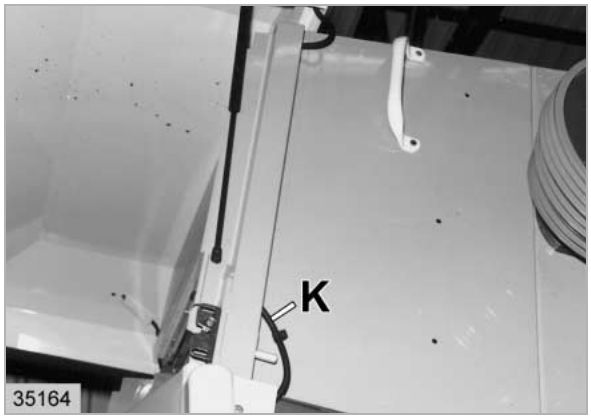
(Fig. 51)



52

Remove the left-hand and right-hand covering (V).

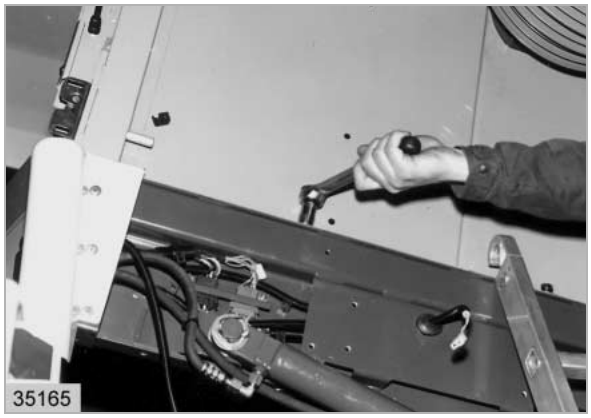
(Fig. 52)



53

Disconnect the cable plug of the back-up light and pull the cable (K) downward through the post.

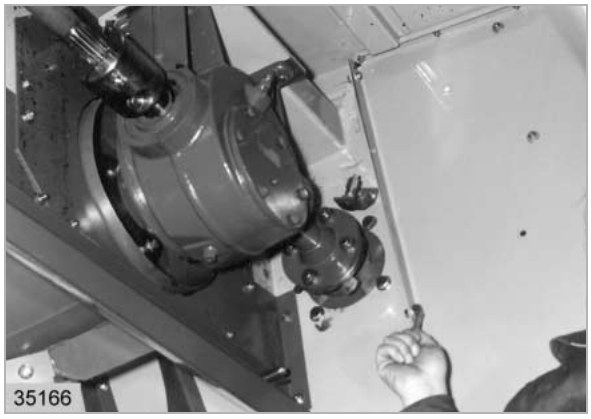
(Fig. 53)



54

Unscrew the side wall from the post on the right- and left-hand side.

(Fig. 54)



55

Remove the left and right side panels.

(Fig. 55)



56

Remove the straw cover completely using a suitable lifting device.

(Fig. 56)



57

Unscrew the straw chopper cover.

(Fig. 57)



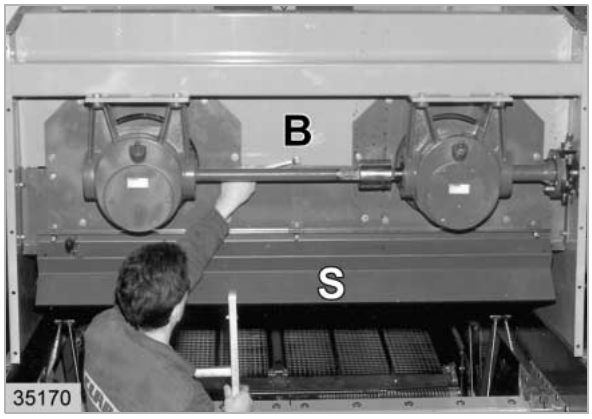
58

DANGER!

Cover up the cutting cylinder – Danger of injury!

Unscrew the guide plate.

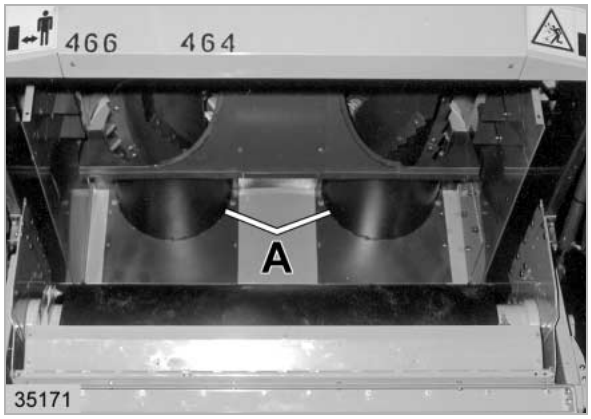
(Fig. 58)



59

Unscrew the insulation plate (B) and the sensor plate (S).

(Fig. 59)



60

Unscrew the discharge plate (A) on the left- and right-hand side and the cover plate.

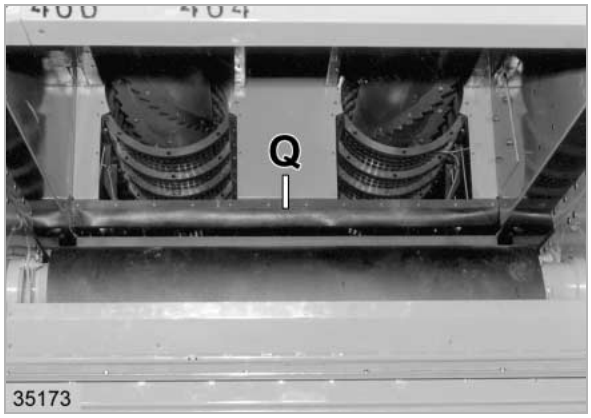
(Fig. 60)



61

Disconnect the cable plugs. Remove the cable clamps completely and guide the cable plugs through the side wall.

(Fig. 61)



62

Remove the cross connection (Q).

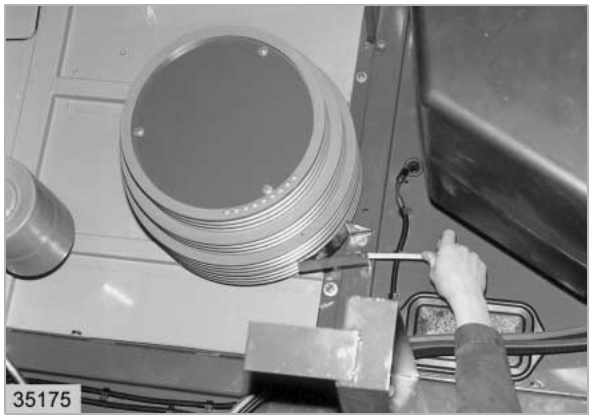
(Fig. 62)



63

Remove the loss indicator sensors on both sides.

(Fig. 63)



64

Remove axial rotor intermediate drive (19).

Remove the belt guard.

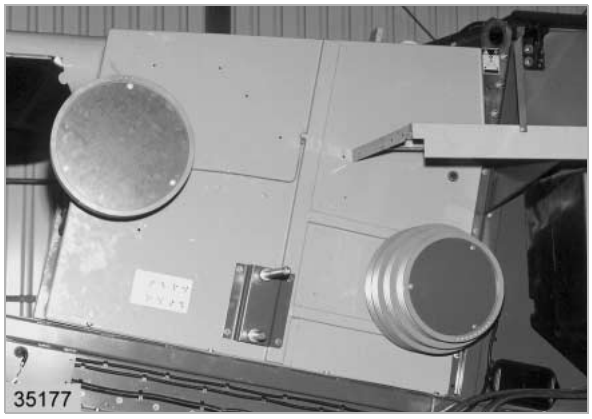
(Fig. 64)



65

Slacken off the set collars and pull off the jockey pulley arm.

(Fig. 65)

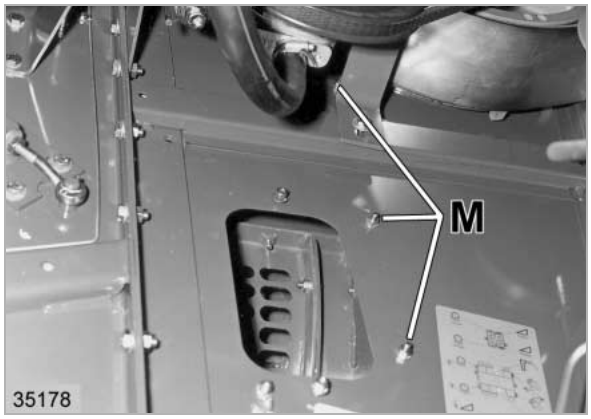


66

Slacken off bolts of discharge housing and crane eyelets.

Slacken off another two bolts from the platform on the right-hand side.

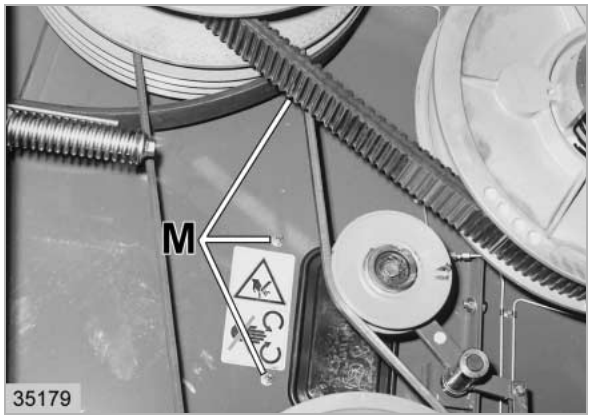
(Fig. 66)



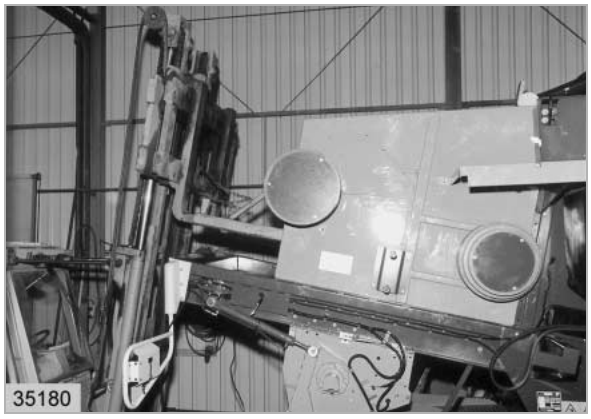
67

Remove the hex. bolts (M) from the inlet head on the left- and right-hand machine side.

(Fig. 67, 68)



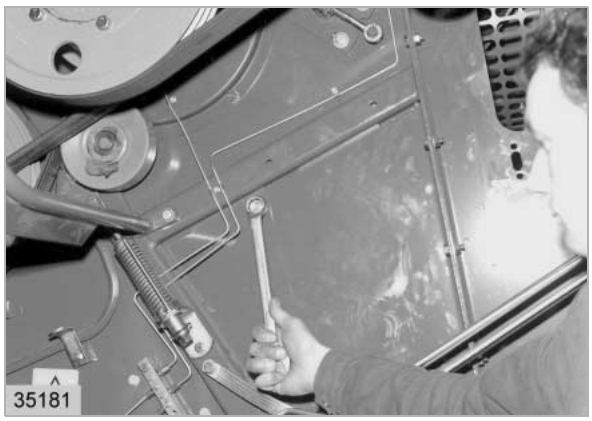
68



69

Safeguard the hybrid unit with a suitable lifting device.

(Fig. 69)



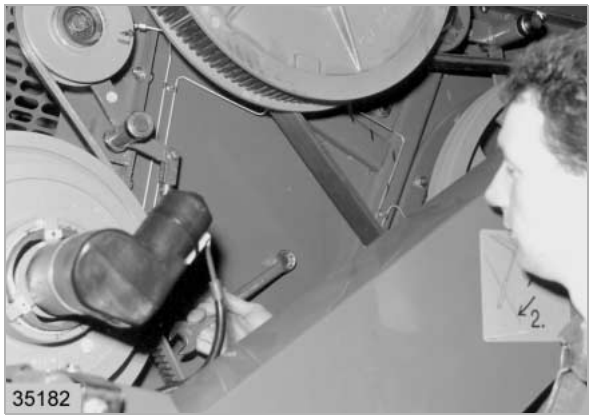
70

Unscrew the bolt from the inlet head on the left- and right hand side.

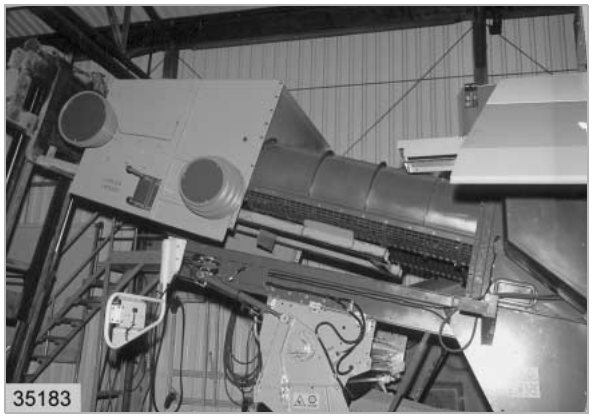
CAUTION!

The thrust piece falls down inside.

(Fig. 70, 71)



71



72

Pull out the hybrid unit to the rear. Ensure it is moved in parallel to the machine frame.

(Fig. 72)



73



74

Installing the hybrid unit

1. Lift the hybrid unit into the machine frame using a lifting device.
2. Screw in the inlet head bolt with the thrust piece on the left- and right-hand side.

   Tightening torque = 195 Nm

(Fig. 73, 74)

3. Screw in the bolts (M) on the inlet head on the left- and right-hand side.

   (Fig. 67, 68)
4. Screw the bolts of the discharge housing and the crane eyelets to the machine frame. Screw the bolts into the platform.

   (Fig. 66)
5. Slide on jockey pulley arm and lock it with set collars.

   (Fig. 65)
6. Install and tension the axial rotor intermediate drive (19). Bolt down the belt guard.
7. Bolt down the loss indicator sensors on both sides.

   (Fig. 63)
8. Bolt down the cross connection (Q). Connect the cable plugs and fasten the cables with clamps.

   (Fig. 62)
9. Bolt down the discharge plate (A), cover plate, insulation plate (B) and sensor plate (S). Bolt down the guide plate.

   (Fig. 58–60)

10. Place straw cover in position using a lifting device. Bolt the straw cover to the machine frame.

    (Fig. 54, 55, 56)

11. Pull the cable of the back-up light through the post and connect it. Bolt on the back-up light.

    (Fig. 53)

12. Bolt on covering (V) on the left- and right-hand side.

    (Fig. 52)

13. Lay and connect cables for wind door switch and magnetic pick-up.

    (Fig. 51)

14. Bolt on mounting plate (M) with holder, ladder rest (A), bottom plate (B) and covering. Lay and connect cable for reversing signal generator (R).

    (Fig. 48, 49, 50)

15. Bolt on front roof plate. Screw in bolts on the crossmember. Install the side guards.

    (Fig. 46, 47)

16. Install and connect air filter housing. Install engine back wall. Install and tension the axial rotor drive belt (18).

    (Fig. 44, 45)

4
Cleaning unit

RETURN PAN

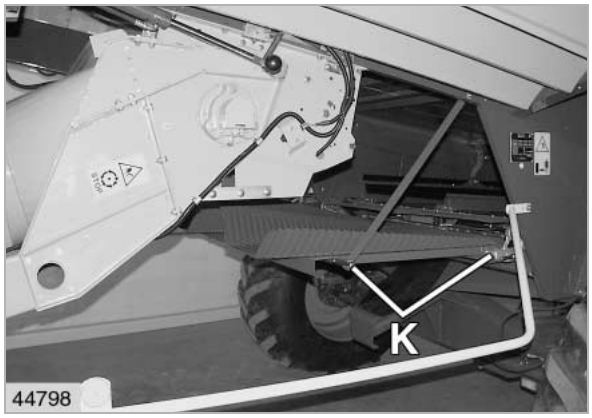
Lowering the return pan
(from serial no. ...)

For better accessibility of the rotors, the return pan can be lowered at the rear.

Move uni-spreader to transport position.

Unscrew the two toggle nuts (K) on both sides and remove the feed pan.

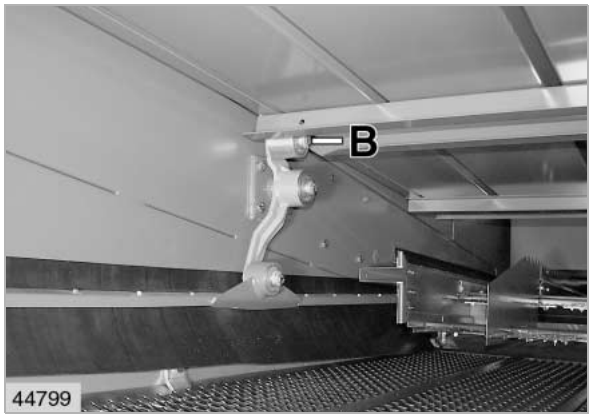
(Fig. 1)



1

Position the return pan exactly in the middle of its oscillating travel. Slacken off the hex. bolts (B) of the metal/rubber bearings on both sides.

(Fig. 2)



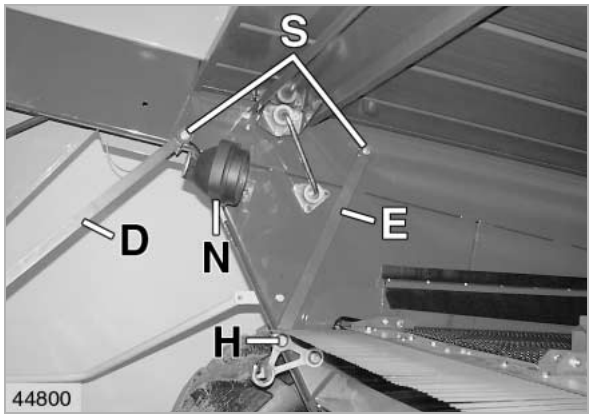
2

Unscrew the hex. bolts (S) on both sides and remove the rocker arms (D and E).

Slacken off hex. bolts (H) and fold rocker arm (E) on the sieve pan.

Remove the work light (N).

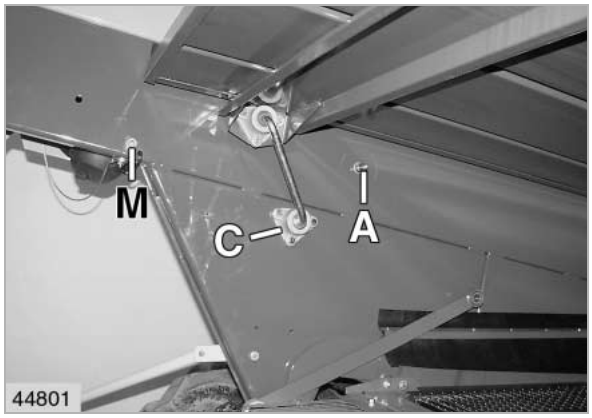
(Fig. 3)



3

Remove the pins (M and A) on both sides.

(Fig. 4)



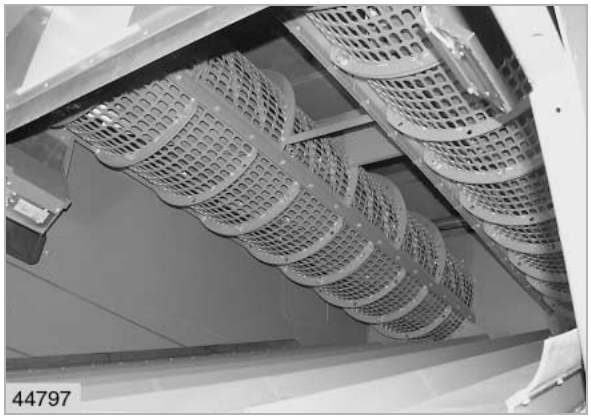
4



5

Unscrew the hex. bolts of rocker arm bearing (C) and lower the return pan.

(Fig. 4, 5)



6

The return pan can now be used as a working platform for work to be carried out beneath the rotors.

(Fig. 6)

Raising and installing the return pan

(from serial no. ...)

1. Raise the return pan and bolt down the rocker arm bearing (C).
2. Bolt down pins (M and A).

(Fig. 4)

3. Position the return pan exactly in the middle of its oscillating travel.

   Tighten the hex. bolts (B) on both sides.

   Tightening torque M 10 = **45 Nm**

(Fig. 2)

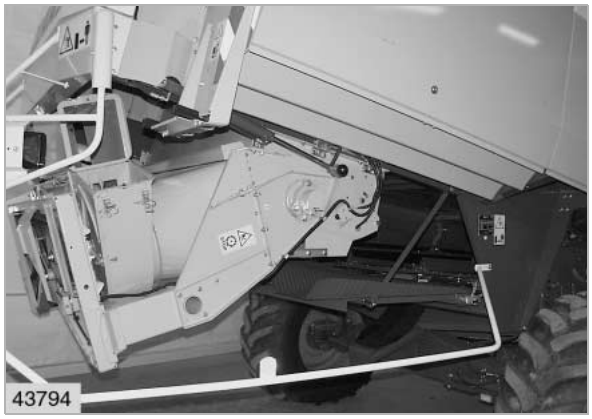
4. Slide the rocker arms (D and E) on the pins (M and A) and bolt on loosely.

(Fig. 3, 4)

5. Bolt down the return pan and fasten with toggle nuts (K).
6. Bolt down the hex. bolts (S and H).

   Tightening torque M 10 **= 45 Nm**

(Fig. 1, 3)



7

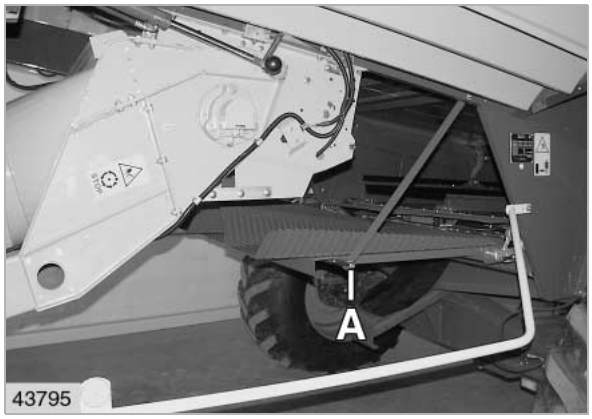
Removing the return pan

Move the uni-spreader to transport position in order to afford easier access.

CAUTION!

Make sure that the sieve pan linkages are not misadjusted in the removing process.

(Fig. 7)



8

Unscrew the screws (A) on both sides of the chopper preparation floor. Now fold down the preparation floor.

(Fig. 8)



9

Slacken off the screws (C) on both sides and remove the preparation floor.

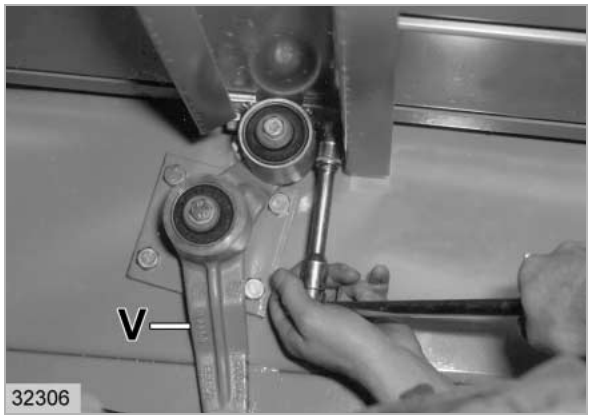
(Fig. 9)



10

Remove the sieve pan light.

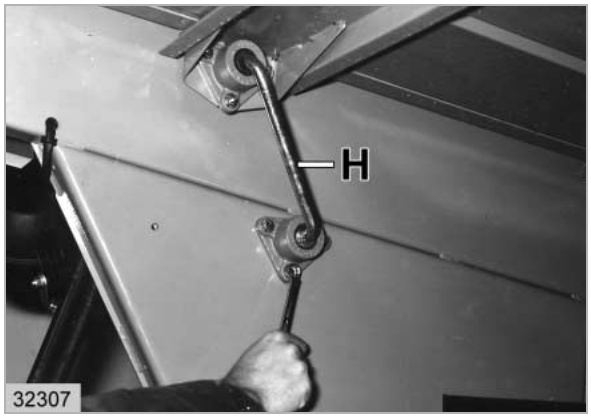
(Fig. 10)



11

Unbolt the return pan at the front rocker arms (V).

(Fig. 11)



12

Unbolt the rear rocker arms (H) at the combine side panel.

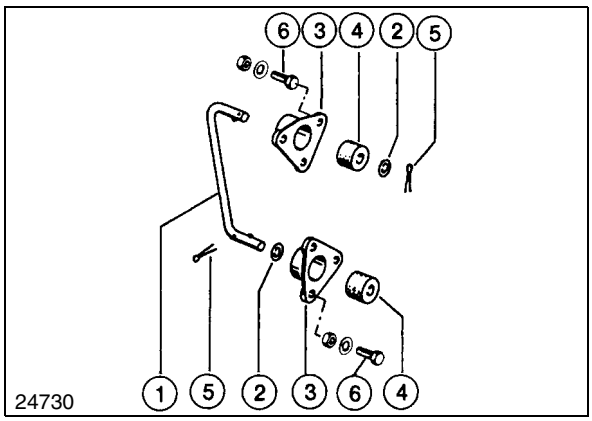
(Fig. 12)



13

Lift the return pan out of the combine to the rear.

(Fig. 13)



14

Rear rocker arm, disassembled

1 Rocker arm
2 Washer
3 Housing
4 Rubber bushing
5 Split pin 4 x 22 DIN 94
6 Hex. bolt M 8 x 20 DIN 933
Hex. nut M 8 DIN 934
Contact washer A 8

(Fig. 14)

Installing the return pan

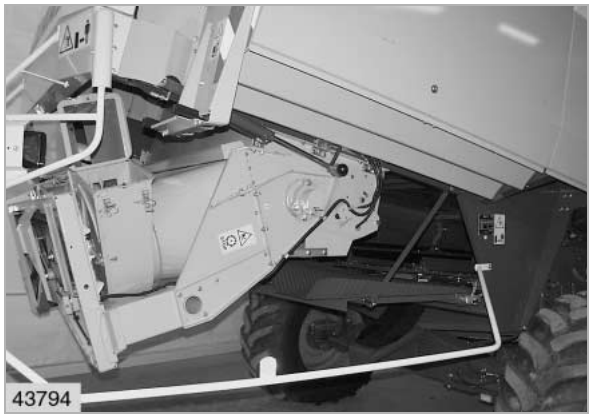
1. Lift the under-walker return floor into the combine from the rear and ensure that the rubber sealing strips on the side are not bent down.
2. Bolt on the rear rocker arm.

ATTENTION!

During installation of new rubber bushings (4), pay attention that the rubber bushings are not under load when the return floor is in the middle position of its travel. This will ensure that the rubber bushings can move freely to both sides during the oscillating movements of the return pan and do not wear unnecessarily.

3. Bolt the return pan to the front rocker arms.
4. Install the sieve pan light.

SIEVE PAN



1

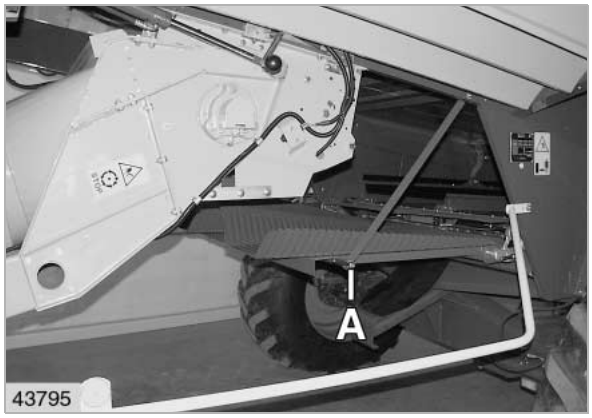
Removing and installing the sieves

Move the uni-spreader to transport position in order to afford easier access to the sieve pan.

CAUTION!

Make sure that the sieve pan linkages are not misadjusted in the removing process.

(Fig. 1)



2

Unscrew the screws (A) on both sides of the chopper preparation floor. Now fold down the preparation floor.

(Fig. 2)



3

Slacken off the screws (C) on both sides and remove the preparation floor.

(Fig. 3)



4

Removing the upper sieves

(from serial no. ...)

Unscrew positioning motor at the ball head.

Unscrew cable from electric motor.
Swing electric motor backwards.

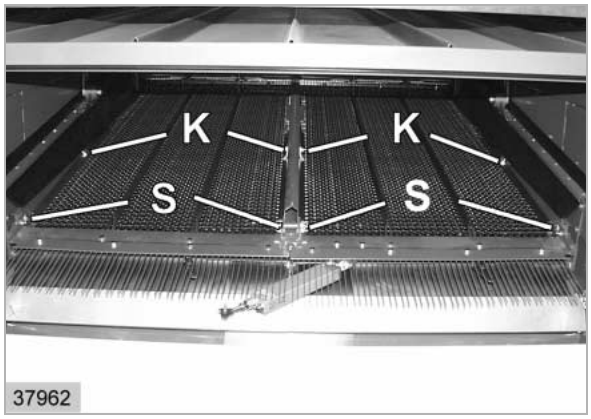
(Fig. 4)



5

Remove connecting linkage (V) from both sieves.

(Fig. 5)

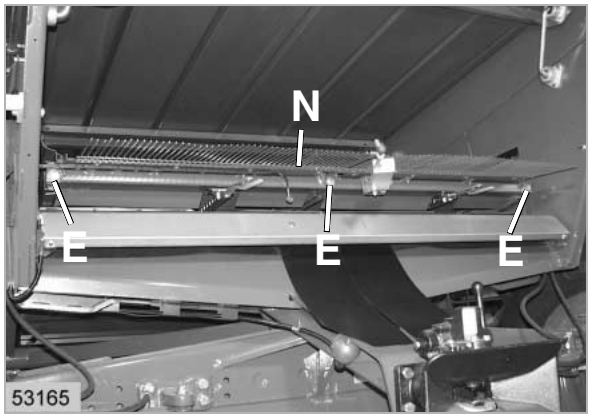


6

Unscrew the centre and lateral clamps (K).

Unscrew the hex. bolts (S) at the sides and in the middle.

(Fig. 6)



7

Remove end profile (N). For this unscrew the hex. bolts (E).

Remove the complete end profile (N) to the rear.

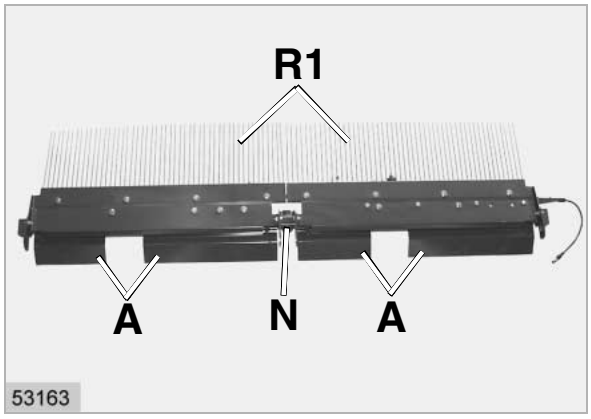
CAUTION!

The collecting plates (A) must not be removed from the end profile (N).

The sieves are fixed properly only if the collecting plates (A) are mounted on the end profile (N).

The rakes (R1) may be unscrewed from the collecting plate (A).

(Fig. 7, 8)



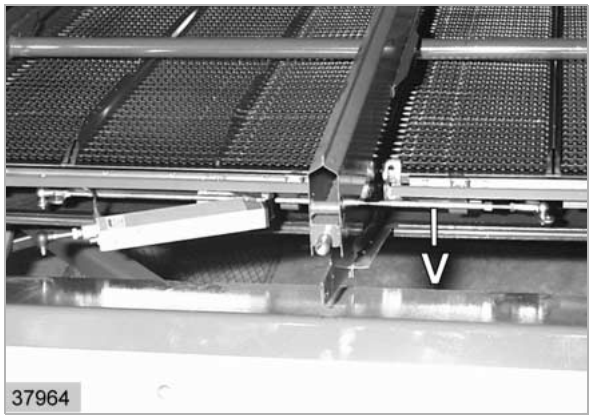
8



9

Pull out the upper sieves.

(Fig. 9)



10

Removing the lower sieves
(from serial no. ...)

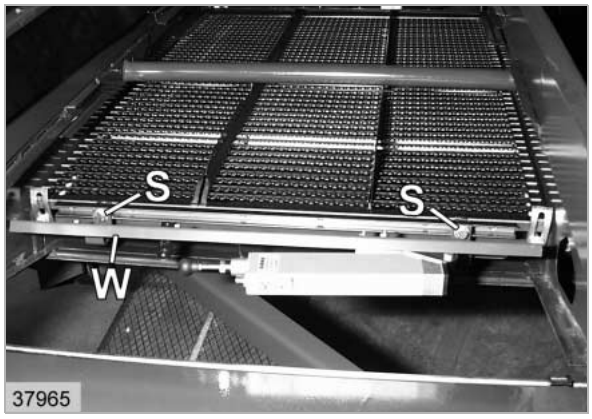
Remove return pans.

Unscrew positioning motor at the ball head.

Unscrew positioning motor at ball head.

Remove connecting linkage (V) from both sieves.

(Fig. 10)

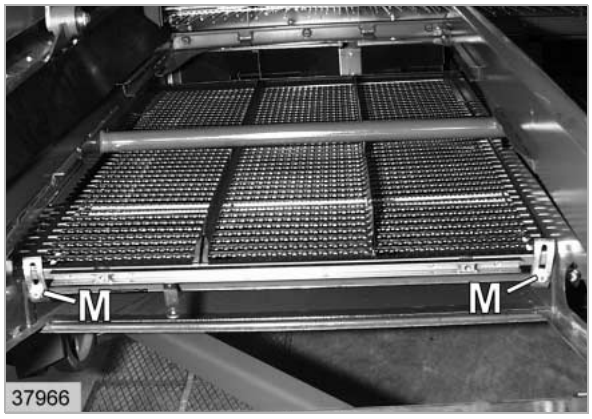


11

Loosen cable fixings.

Completely remove the wind board (W) along with the positioning motor. For this, unscrew the hex. bolts (S).

(Fig. 11)

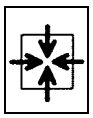


12

Loosen clamps (M) of the axial mounting of the sieves.

Pull out the sieves to the rear.

(Fig. 12)



Installing the sieves

(from serial no. ...)

Installation is in reverse order.

When installing the sieves, first tighten the axial mountings to the specified torques and then tighten the side clamps.

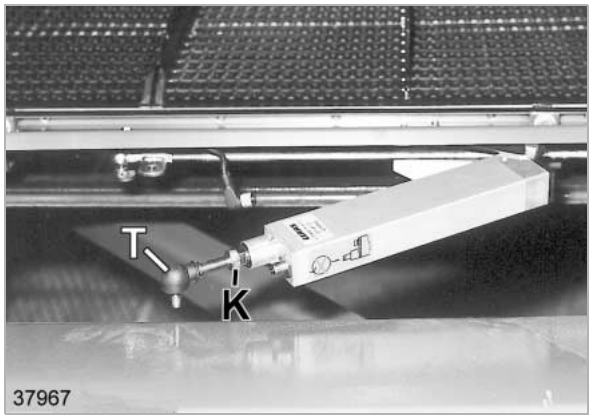
NOTE: Ensure that all bolts are securely tightened!

When sieve installation is complete, re-install the preparation floor and bolt it down.

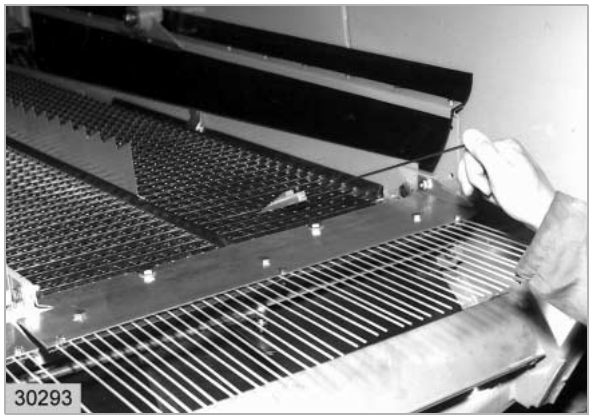
Tightening torques of axial mountings for the upper and lower sieves

(from serial no. ...)

Upper sieves = 110 Nm (M 12 hex. bolts)
Lower sieve = 23 Nm (M 10 hex. bolts)



13



14

Sieves – Basic setting

(electric sieve adjustment – from serial no. ...)

If the rods have been adjusted, the basic setting of the sieves has changed and must be reset.

This is done as follows:

1. Remove ball head (T) from sieve adjusting lever.
2. Using the rotary switch and +/– keys, move the sieve adjusting linkage to the “0” position.
3. Fully close the sieve openings.
4. Slacken off the lock nut (K).
5. Adjust ball head (T) so that it may be put in place without stress. Bolt down ball head and tighten lock nut (K).
6. Check if the frogmouth sieves have identical positions.

   Open sieves, e.g. to position “15”.

   Openings of the left-hand frogmouth sieve must be identical with the openings of the right-hand frogmouth sieve.

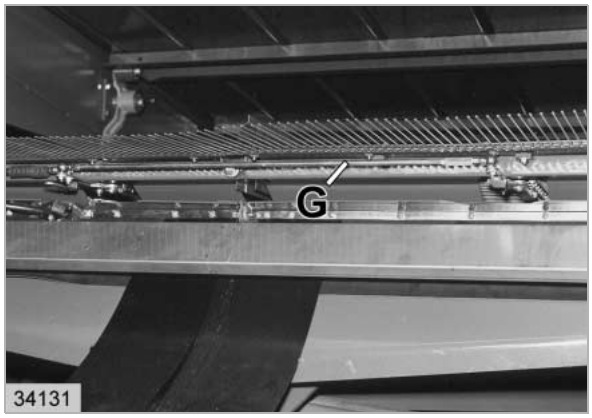
   To check the frogmouth sieve openings use a gauge (CLAAS special tool, part no. 181 625.0) if necessary.

   With this gauge the lower sieves can be checked too. But the upper sieves must then be in the fully open position.

   If necessary, set the frogmouth sieves by adjusting the rods. Make sure sieve openings are not set too narrow.

   To adjust the finishing sieves for identical openings, one of the upper sieves has to be removed.

(Fig. 13, 14)



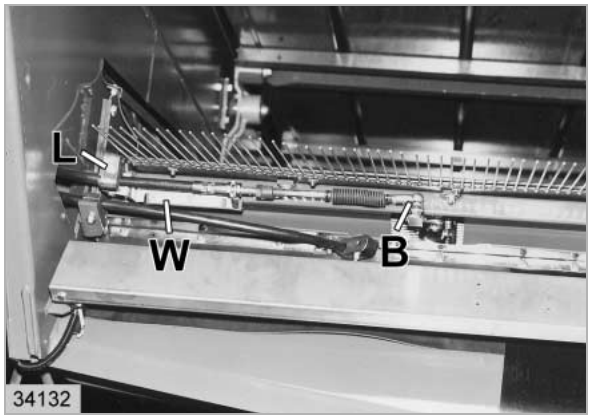
15

Removing the upper sieves

(up to serial no. ...)

Remove connecting linkage (G). For this unscrew the ball head joints on the adjusting levers of the sieves.

(Fig. 15)

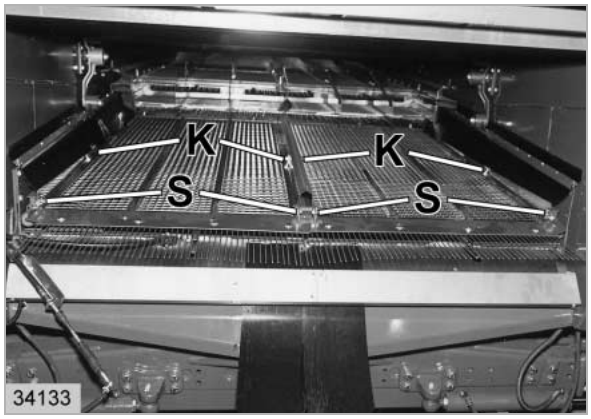


16

Unhinge Bowden cable (B) and unscrew cable retarder (W).

Unscrew the upper rubber pad (L).

(Fig. 16)

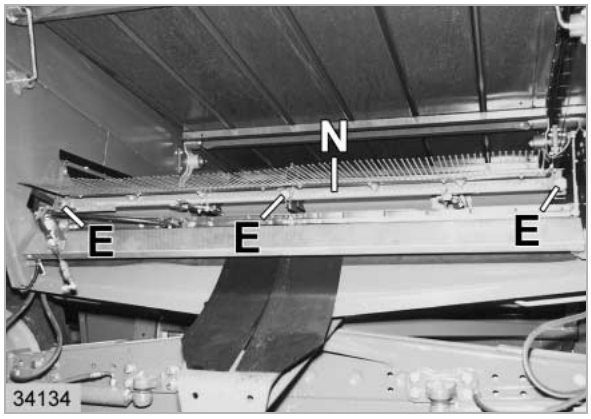


17

Unscrew the centre clamps (K) and the side clamps (K).

Unscrew the hex. bolts (S) at the sides and in the middle.

(Fig. 17)



18

Remove fixing rail (N). For this unscrew the hex. bolts (E).

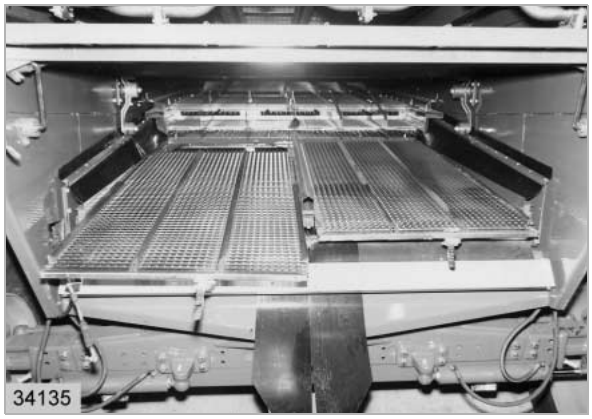
CAUTION!

Do not unscrew the wire rake!

If the wire rake was unscrewed, it has to be re-fitted prior to installing the fixing rail (N).

Then fit the mounting rail with the mounted wire rake to the combine.

(Fig. 18)



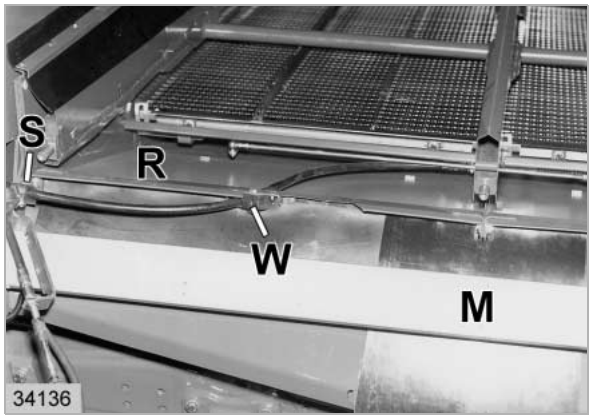
19

Pull out the frogmouth sieves to the rear.

NOTE!

If the sieve pan is in an awkward position, the left-hand sieve may jam at the rubber pad mounting. If this is the case, turn the sieve pan drives to change the position of the sieve pan.

(Fig. 19)



20

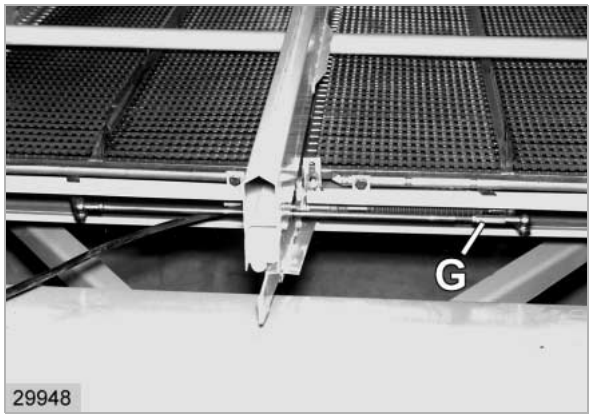
Removing the lower sieves

(up to serial no. ...)

Remove upper sieves.

Disconnect retarder (W) from the return pan. Loosen the rubber pad (S). Disconnect both returns pans (R) and remove them.

(Fig. 20)



21

Remove connecting linkage (G).

For this unscrew the ball head joints on the adjusting levers of the sieves.

(Fig. 21)



22

Unscrew the ball joint from the Bowden cable on the adjustment lever of the right-hand lower sieve.

(Fig. 22)

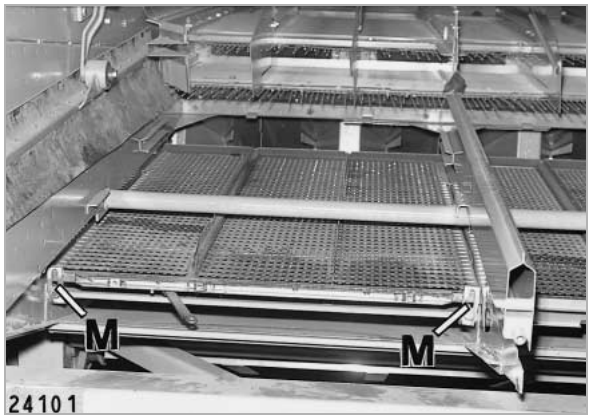


23

Disconnect the Bowden cable from retarder (W) and lay to one side.

Remove wind boards (F) (up to serial no. ...).

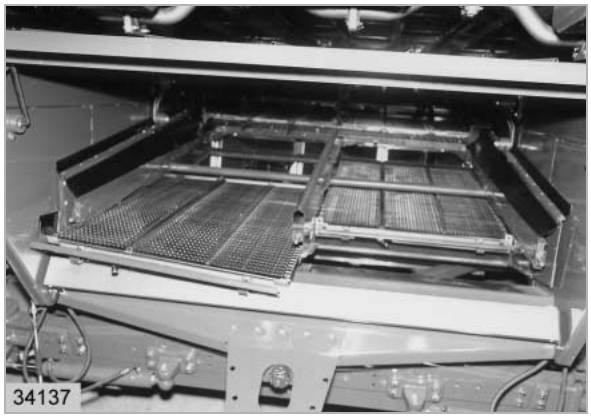
(Fig. 23)



24

Loosen clamps (M) of the axial mounting of the sieves. Pull out the sieves to the rear.

(Fig. 24, 25)



25

Installing the sieves

(up to serial no. ...)

Installation is in reverse order.

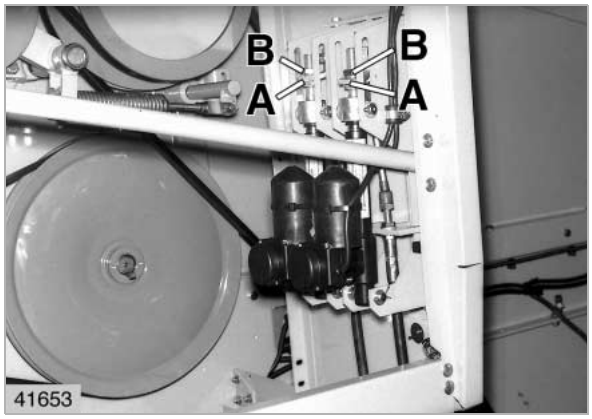
When installing the sieves, first tighten the axial mountings to the specified torques and then tighten the side clamps.

NOTE: Ensure that all bolts are securely tightened!

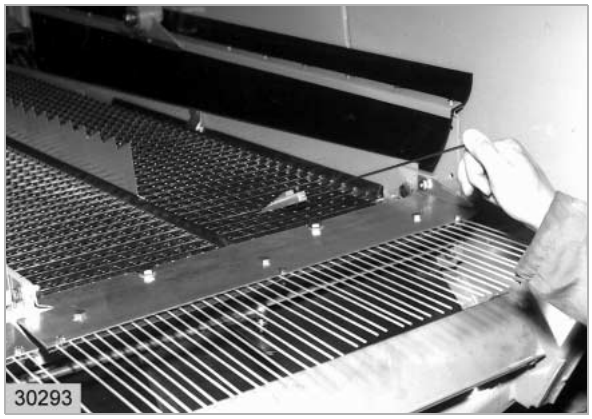
When sieve installation is complete, re-install the preparation floor and bolt it down.

Tightening torques of axial mountings for the upper and lower sieves
(up to serial no. ...)

Upper sieves = 45 Nm (M 12 hex. bolts)
Lower sieve = 23 Nm (M 10 hex. bolts)



26



27

Sieves – Basic setting

(electric sieve adjustment – up to serial no. ...)

If the rods have been adjusted, the basic setting of the sieves has changed and must be reset.

This is done as follows:

1. Unhinge the ball joints of the Bowden cables from the sieve adjusting levers.
2. Using the rotary switch and +/– keys, move the sieve adjusting linkage to the “0” position.
3. Fully close the sieve openings.
4. Adjust den cables so that the can be installed without stress and refit the Bowden cables.

   The Bowden cables can be adjusted at the hex. nuts (A and B at the electric motors) and / or at the Bowden cable retarders (behind the sieves).
5. Checking the identical positions of frogmouth sieves:

   Open sieves, e.g. to position “15”.

   Openings of the left-hand frogmouth sieve must be identical with the openings of the right-hand frogmouth sieve.

   To check the frogmouth sieve openings use a gauge (CLAAS special tool, part no. 181 625.0) if necessary.

   With this gauge the lower sieves can be checked too. But the upper sieves must then be in the fully open position.

   If necessary, set the frogmouth sieves by adjusting the rods. Make sure sieve openings are not set too narrow.

   To adjust the finishing sieves for identical openings, one of the upper sieves has to be removed.

(Fig. 26, 27)



28

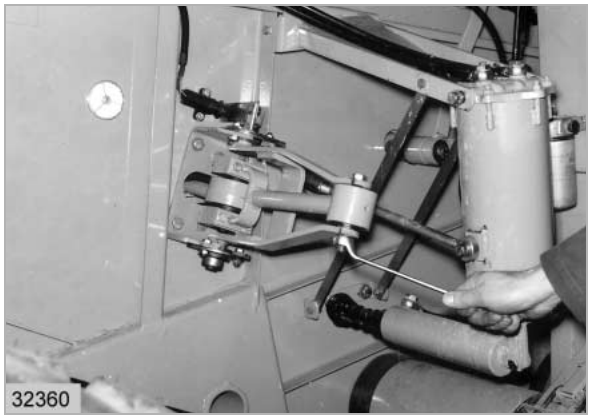
Removing the 3-D upper sieve frame

Remove upper sieves.

Unscrew and remove the sensor tray.

On the 3-D version, unbolt the control arm from the inside.

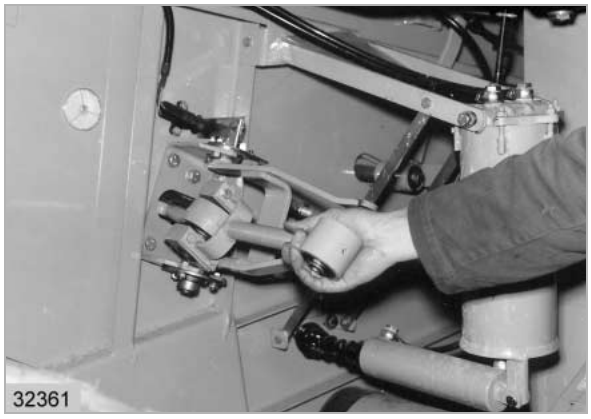
(Fig. 28)



29

Unscrew the control arm at the metal/rubber bearing and pull the complete assembly out to the side.

(Fig. 29, 30)



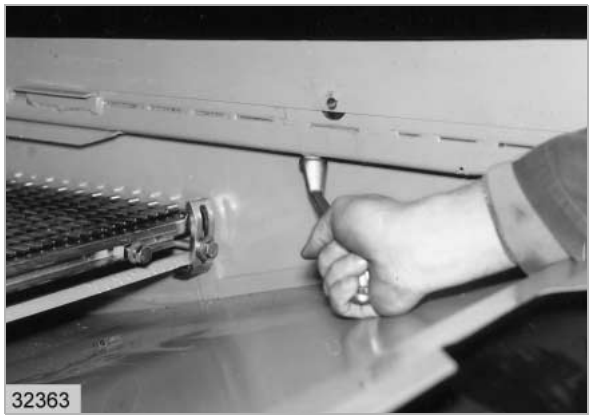
30



31

Unscrew the rear control arm and pull it off.

(Fig. 31)



32

Loosen the clamping bolt for the stud in the sieve pan frame.

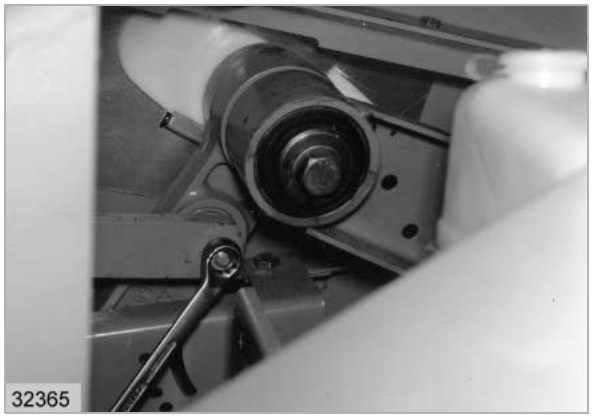
(Fig. 32)



33

Drive out the stud from the inside to the outside.

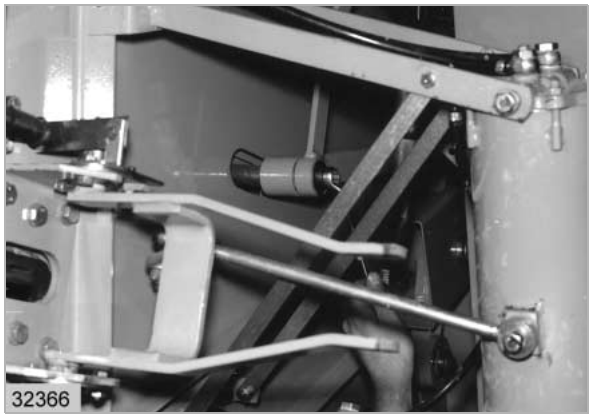
(Fig. 33)



34

Unbolt the connecting rod at the main rocker arm.

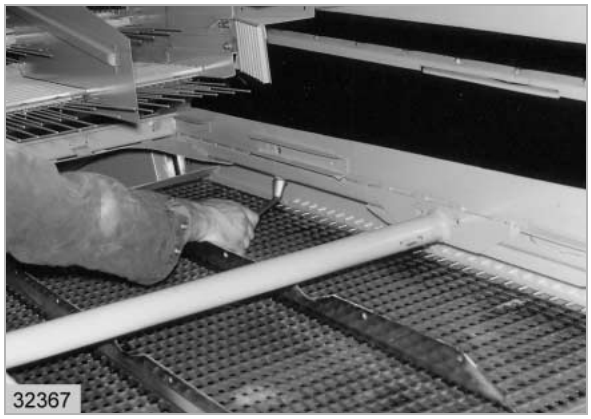
(Fig. 34)



35

Unscrew the connecting rod and rocker arm and pull it off using a puller.

(Fig. 35)



36

Loosen the clamping bolt for the stud in the sieve pan frame.

(Fig. 36)



37

Drive out the stud from the inside to the outside.

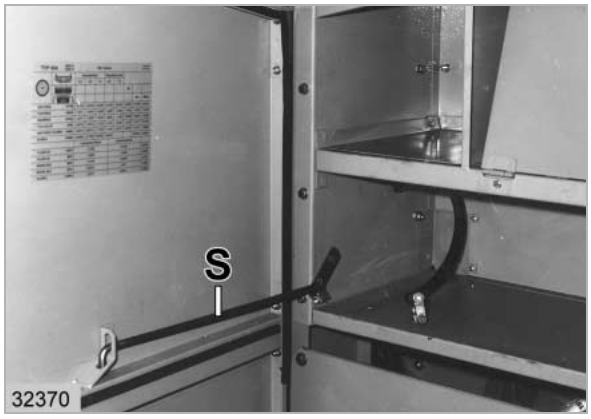
(Fig. 37)



38

On the left-hand side of the combine, disconnect the battery and remove it.

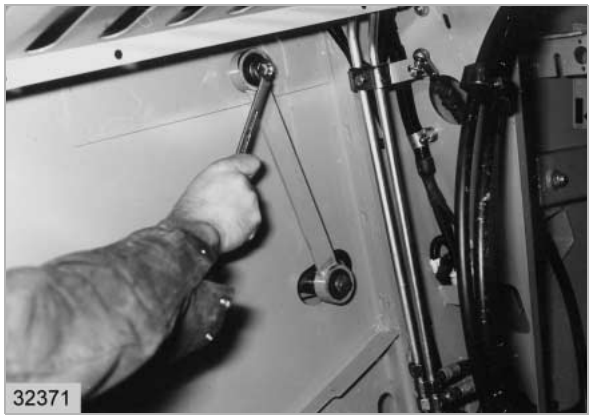
(Fig. 38)



39

Unhook the retaining strut (S) and remove the tool box.

(Fig. 39)



40

Unscrew the rear control arm and pull it off.

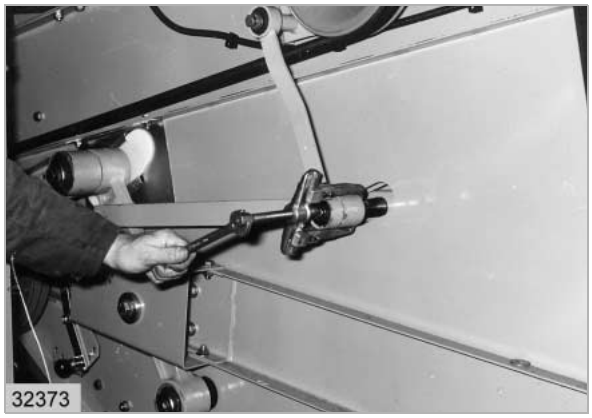
(Fig. 40)



41

Unbolt the connecting rod at the main rocker arm.

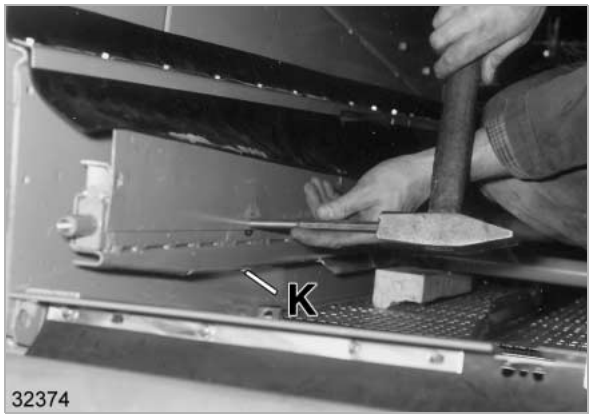
(Fig. 41)



42

Unscrew the connecting rod and rocker arm and pull it off using a puller.

(Fig. 42)



43

Loosen the clamping bolts (K) at the front and rear and drive out the studs from the inside.

(Fig. 43)



44

Remove the feed pan support on the left- and right-hand side.

Slacken off the hex. bolts in the metal/rubber bearings.

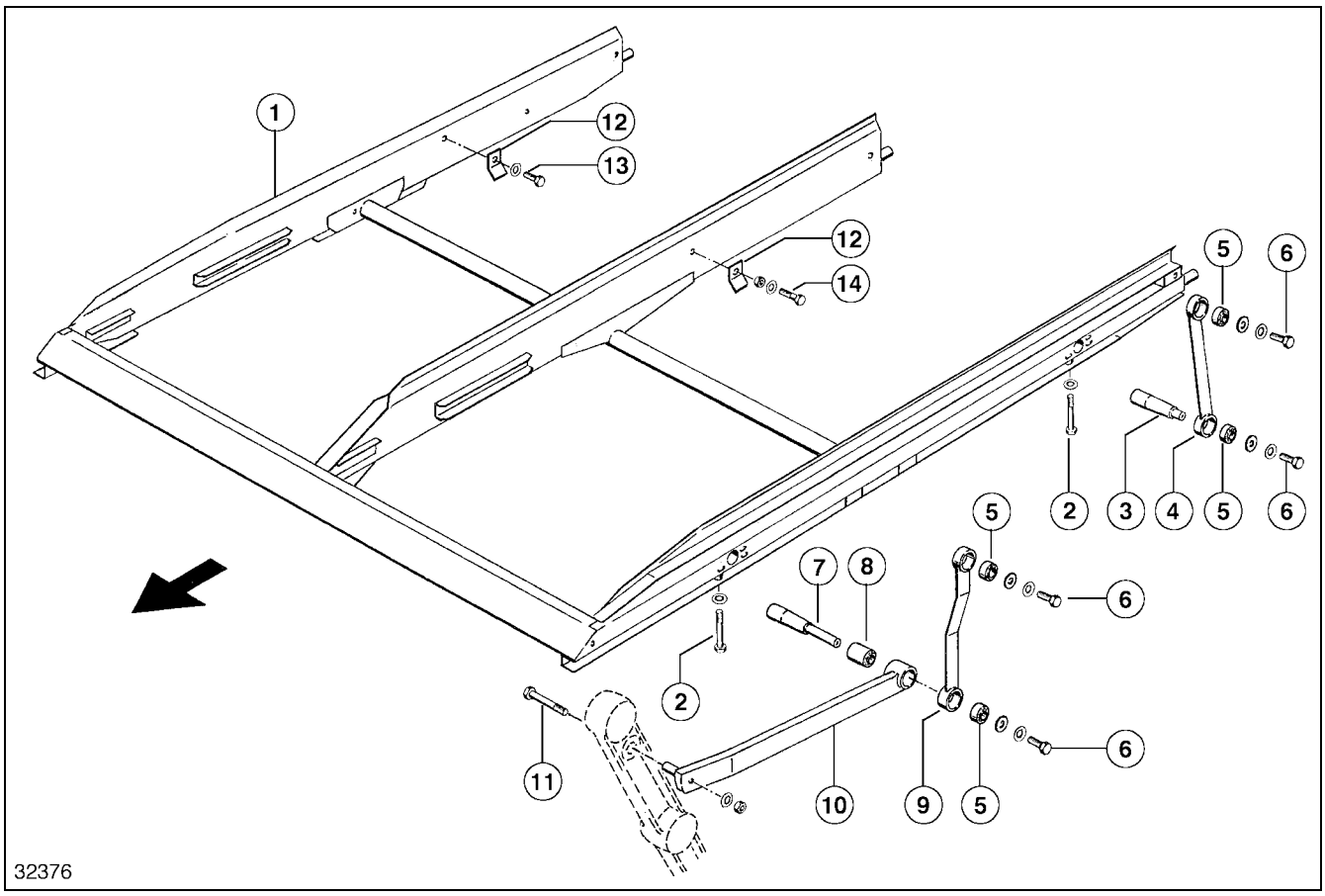
(Fig. 44)



45

Lift the sieve pan frame out of the combine to the rear.

(Fig. 45)



46

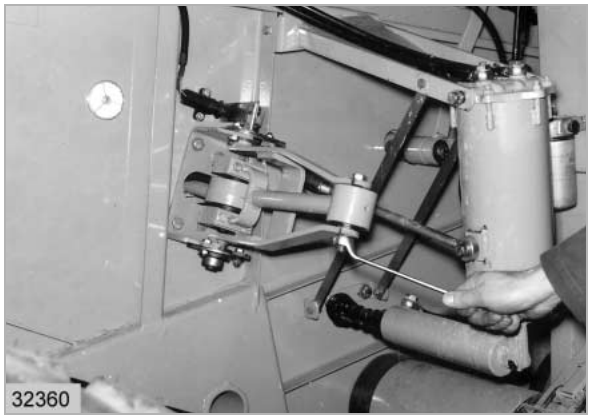
3-D upper sieve frame, disassembled

1 Upper sieve frame
2 Hex. bolt M 10 x 75 DIN 931-10.9
Contact washer A 10
3 Pin
4 Rear control arm
5 Metal/rubber bearing
6 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
Washer 11 x 26 x 4
7 Pin
8 Metal/rubber bearing
9 Front control arm
10 Thrust rod
11 Pin (up to serial no. ...)
Hex. bolt M 10 x 90 DIN 931-8.8
(from serial no. …)
Contact washer A 10
Hex. nut M 10 DIN 934-8.8
12 Clamping piece
13 Hex. bolt M 10 x 25 DIN 933-8.8
Contact washer A 10
14 Hex. bolt M 10 x 65 DIN 933-10.9
Contact washer A 10
Hex. nut M 10 DIN 934

(Fig. 46)



47



48

Installing the 3-D upper sieve frame

1. Lift the upper sieve frame into the combine from the rear.

CAUTION!

The rubber sealing strips must overlap the sides of the frame.

2. Press the metal/rubber bearings into the control arms and connecting rods. The outer metal ring of the bearing must be flush with the housing.
3. Push studs (3 and 7) into the upper sieve frame from the outside on both sides of the combine.
4. Secure the four studs with hex. bolts (2).

   Tightening torque = 63 Nm
5. Pre-assemble rear control arm (4) and front control arm (9) with connecting rod (10) on both sides. Do not tighten bolts (6 and 11) at this stage.
6. On the 3-D version, bolt the control arm to the upper sieve frame and the metal/rubber bearing.

(Fig. 46, 47, 48)

7. Position the sieve pan exactly in the middle of its oscillating travel. In this position, secure the metal/rubber bearings axially by tightening the hex. bolts and hex. nuts (6 and 11) to the prescribed torque.

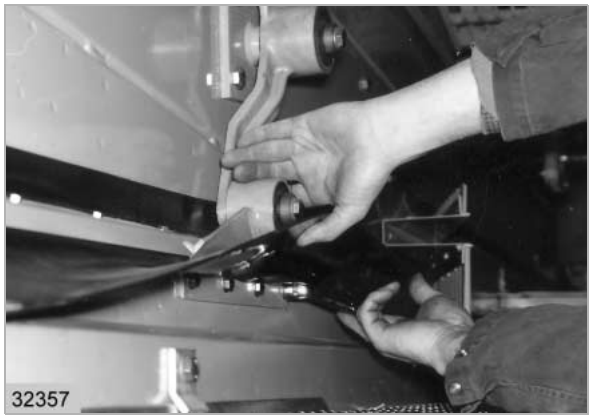
Tightening torques:

M 10 – 45 Nm
M 12 – 78 Nm
M 16 – 195 Nm

ATTENTION!

This assembly sequence must absolutely be followed in order that the rubber bushings of the metal/rubber bearings are subjected to the same torsional load on both sides during the oscillating movement of the sieve pan. If the sequence is not followed, the rubber bushings will be subjected to premature wear.

8. Install the sensor tray.
9. Install the complete tool box assembly and connect the battery.
10. Install the upper sieves.
11. *Adjusting the 3-D sieve pan control system*, see page 4.4.1



49

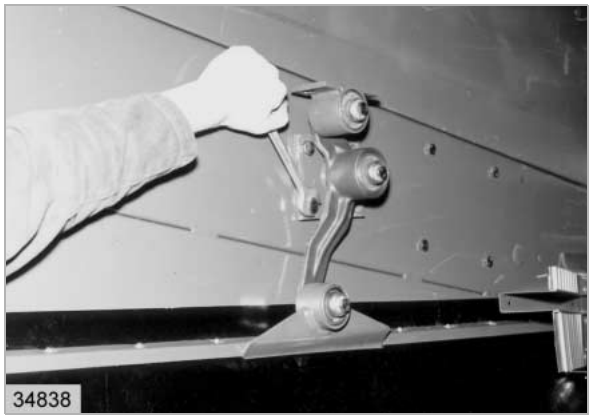
Removing the sieve pan

Removing the return pan, see page 4.1.3

Remove upper sieves.
Remove the lower sieves.
Remove the 3-D upper sieve frame.

Unscrew the double rocker arms on the left-hand and right-hand sides of the sieve pan frame.

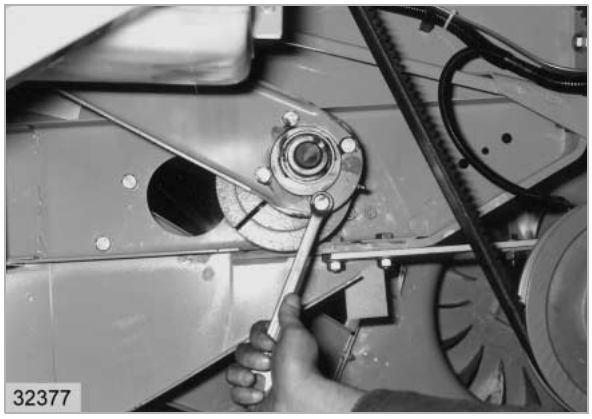
(Fig. 49)



50

Unscrew the rocker arm assemblies completely from the sidewall.

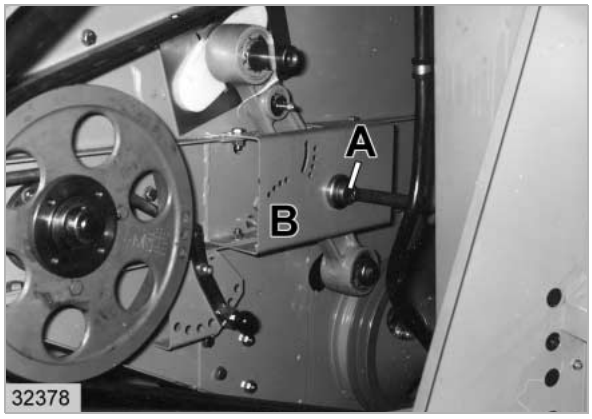
(Fig. 50)



51

Unscrew and pull off the connecting rods on left-hand and right-hand sides of the combine.

(Fig. 51)



52

Remove the hex. bolt from the main rocker arm at (A) on both sides.

Unscrew bridge (B).

(Fig. 52)



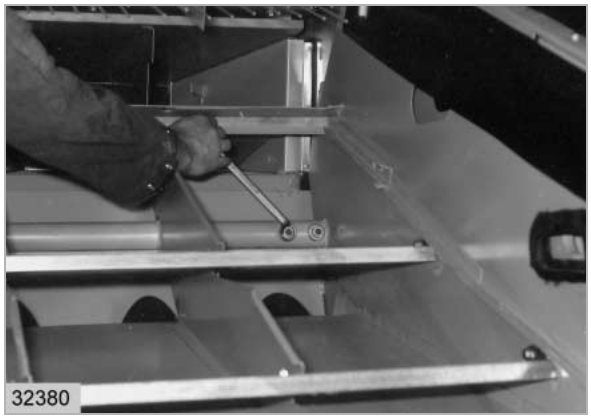
53

Unscrew the rocker arm and pull off uniformly using two pullers. Insert a hex. bolt into the thread so that it is not damaged.

CAUTION!

Observe the installation positions of the two rocker arms as they are not symmetrical.

(Fig. 53)



54

Remove the locking bolts for the studs on both sides.

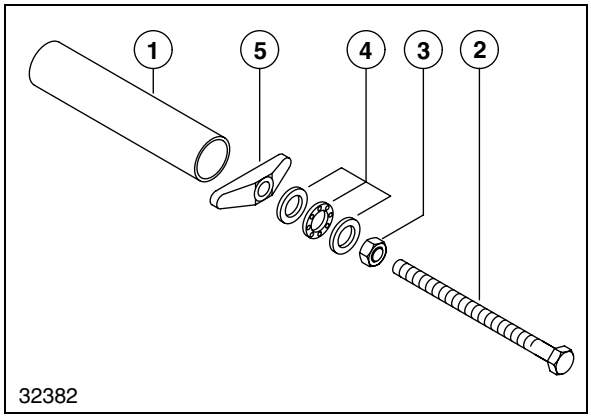
(Fig. 54)



55

Pull out the bolts to the outside using the special tool.

(Fig. 55)



56

Special tool:

1 Tube ∅ 52 x 200 (self-sourced)
2 Hex. bolt M 16 x 300 DIN 933-8.8, part no. 237 173.0
3 Hex. nut M 16 DIN 934-8
4 Axial grooved ball bearing, part no. 177 899.0
5 Puller shoe, part no. 181 836.0

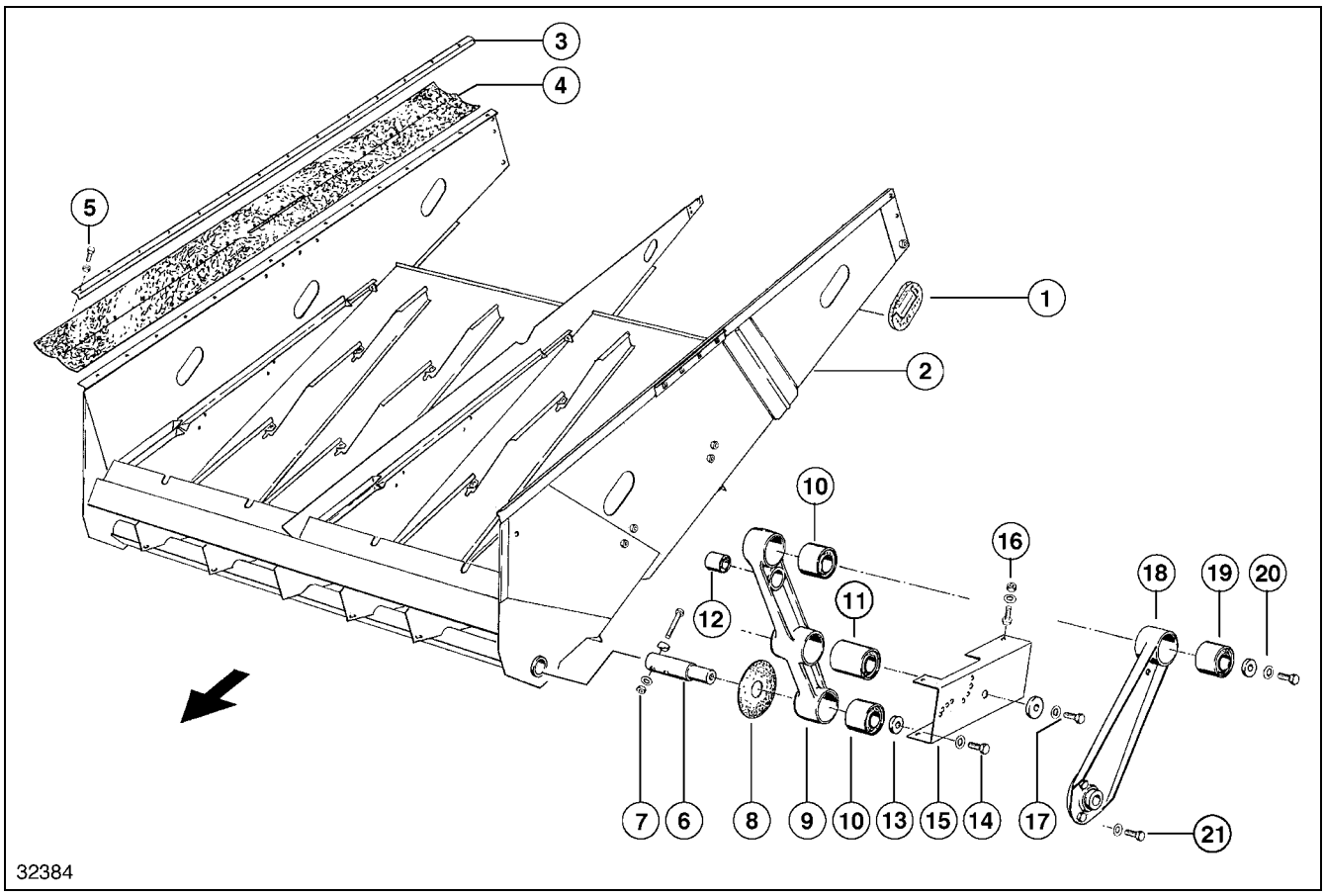
(Fig. 56)



57

Lift the sieve pan out of the combine to the rear.

(Fig. 57)

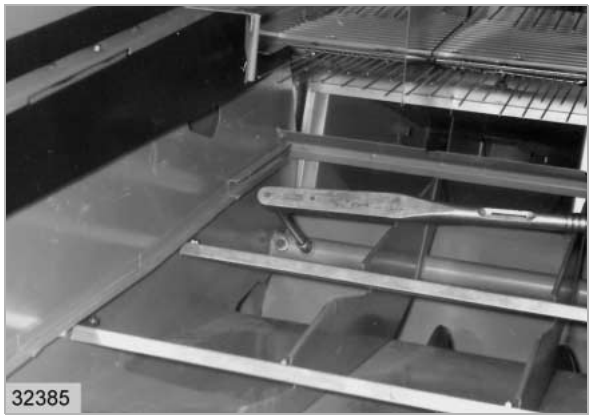


58

Sieve pan, disassembled

1 Seal
2 Sieve pan
3 Rail
4 Seal
5 Hex. bolt M 5 x 16 DIN 933-8.8
Self-locking nut VM 5
6 Pin
7 Hex. bolt M 10 x 75 DIN 931-10.9
Washer
Contact washer A 10
Hex. nut M 10 DIN 934
8 Sealing washer
9 Main rocker arm
10 Metal/rubber bearing
11 Metal/rubber bearing
12 Metal/rubber bearing
13 Washer
14 Hex. bolt M 10 x 50 DIN 933-8.8
Contact washer A 16
15 Bridge
16 Hex. bolt M 10 x 25 DIN 933-8.8
Contact washer A 10
Hex. nut M 10 DIN 934-8
17 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
Clamping washer
18 Connecting rod
19 Metal/rubber bearing
20 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
Washer
21 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10

(Fig. 58)



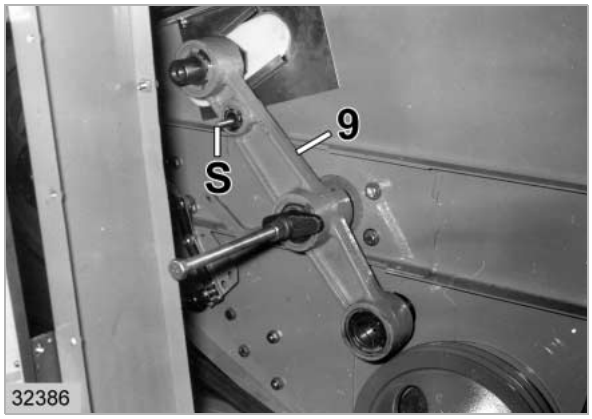
59

Installing the sieve pan

1. Before installing gaskets (1 and 4), inspect them for damage and replace, if necessary.
2. Lift the sieve pan into the combine from the rear.
3. Drive studs (6) into the sieve pan from the outside and secure with hex. bolts (7).

   Tightening torque = 63 Nm

(Fig. 58, 59)



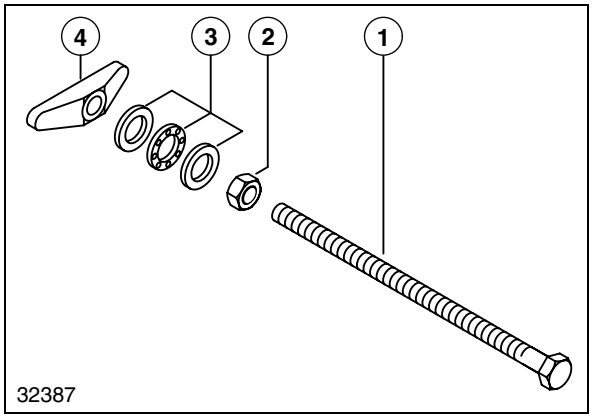
60

4. Press the metal/rubber bearing into rocker arm (9) and connecting rod (18). The outer metal ring of the bearing must be flush with the housing.
5. Screw in a hex. bolt M 10 x 90 DIN 933 at (S). Pull main rocker arm (9) uniformly on the studs using the special tool.

CAUTION!

Observe the installation positions of the two rocker arms as they are not symmetrical.

(Fig. 58, 60, 61)

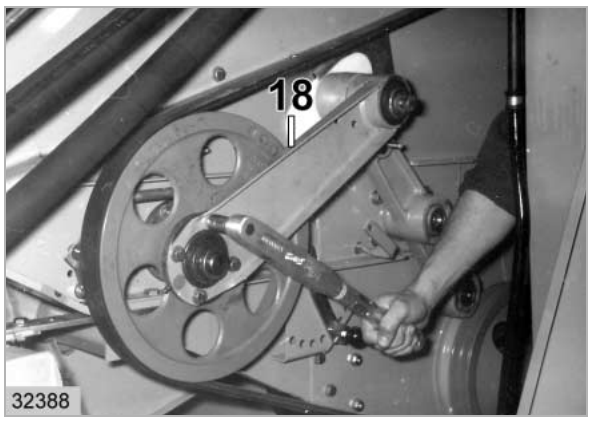


61

Special tool:

1 Hex. bolt M 16 x 300 DIN 933-8.8,
part no. 237 375.0
2 Hex. nut M 16 DIN 934-8, part no. 236 173.0
3 Axial grooved ball bearing
part no. 177 899.0
4 Puller shoe
part no. 181 836.0

(Fig. 61)



62

6. Push connecting rod (18) on the stud and bolt to the bearing assembly at the basic position with hex. bolts (21).

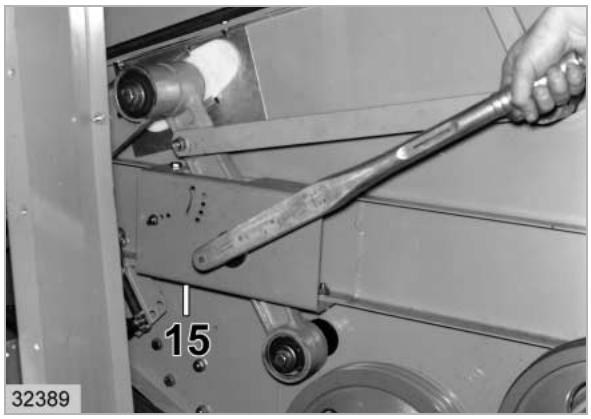
CAUTION!

In the basic position of the bearing assemblies, the grease nipples (S) and/or the male connectors on the right-hand and left-hand machine side are facing forward.

Tighten bolts (21) hand-tight.

The alignment of the preparation floor and of the sieve pan is to be checked **when all work is complete**!

(Fig. 58, 62)



63

7. Bolt on bridge (15) on the left-hand and right-hand sides.
8. Position the sieve pan and preparation floor exactly in the middle of their oscillating travel. In this position, secure the metal/rubber bearings axially by tightening the hex. bolts (14, 17 and 20) to the prescribed torque.

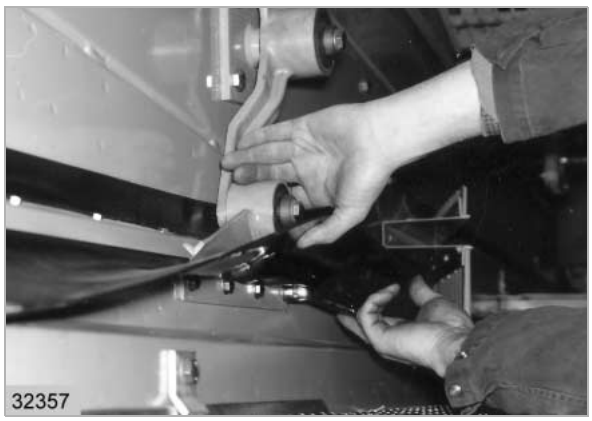
   Tightening torques:

   M 10 – 45 Nm
   M 12 – 78 Nm
   M 16 – 195 Nm

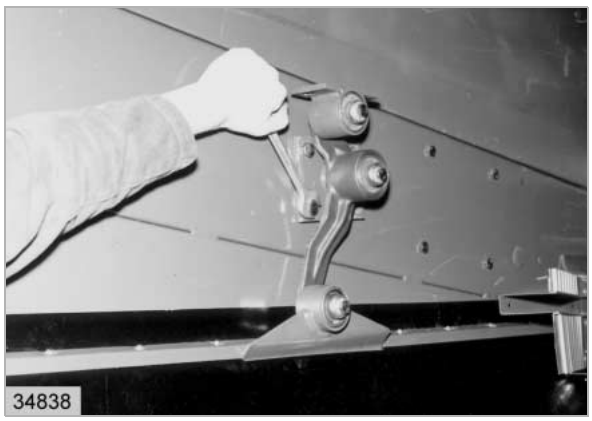
ATTENTION!

This assembly sequence must absolutely be followed in order that the rubber bushings of the metal/rubber bearings are subjected to the same torsional load on both sides during the oscillating movement of the sieve pan. If the sequence is not followed, the rubber bushings will be subjected to premature wear.

(Fig. 58, 63)



64



65

9. Install the inner sieve pan rocker arms.

CAUTION!

The sieve pan must be in the middle position.

(Fig. 64, 65)

10. Install the 3-D upper sieve frame.
    Install the lower sieves.
    Install the upper sieves.
    Installing the return pan, see page 4.1.5

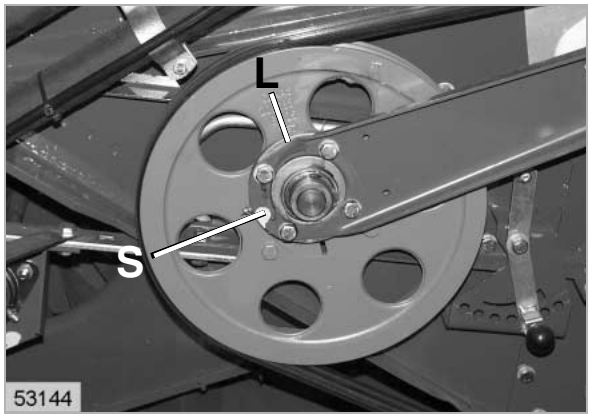
    Adjusting the 3-D sieve pan control system, see page 4.4.1

11. *Checking and adjusting the alignment of preparation floor and sieve pan*, see page 4.2.24

Checking and adjusting the alignment of preparation floor and sieve pan

The preparation floor and the sieve pan must be positioned in parallel in the combine housing at the front and the rear.

Turning the eccentric discs allow alignment and adjustment of the preparation floor and the sieve pan at the same time.



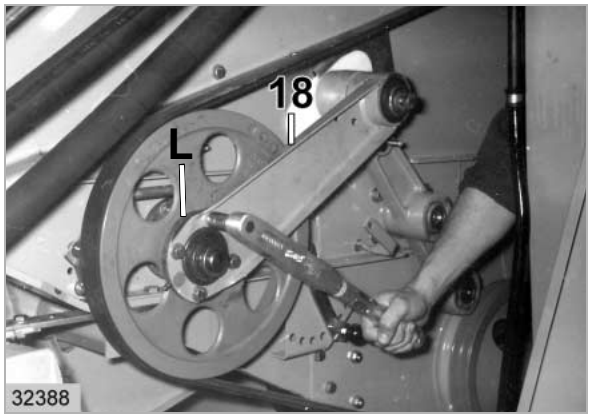
66

1. When pre-assembled, the eccentric discs of the bearing assembly (L) are in their basic position.

CAUTION!

In the basic position of the bearing assemblies, the grease nipples (S) and/or the male connectors on the right-hand and left-hand machine side are facing forward.

(Fig. 66)



67

2. Check the parallel position of the preparation floor and of the sieve pan and correct it by turning the bearing assemblies (L) if required.

NOTE!

Turning the bearing assembly (L) by 90° on one side causes a movement of approx. **3 mm** at the front and an opposite movement of approx. **2 mm** at the rear.

The alignment must be so that there is equal clearance on both sides of the sieve pan.

Tighten the hex. bolts of the bearing assembly.

Tightening torque M 10 = 45 Nm

(Fig. 67)

PREPARATION FLOOR

Removing the preparation floor

Removing the sieve pan, see page 4.2.17

The front part of the stepped preparation floor sections can be removed to the front.

Fully lift the feed rake.

DANGER!

Stop the engine and switch off the battery isolating switch! Engage the cylinder safety lock.



1

- Open the stone trap.
- Unscrew the three hex. bolts (S) which secure the cover (P) to the preparation floor.
- Open the cover (P).
- Pull out the stepped preparation floor sections with a suitable hook.

(Fig. 1, 2)



2

Unscrew flap (K) completely with the hinges.

(Fig. 3)



3

Unscrew the front rocker arms from the preparation floor and the machine frame on both sides.

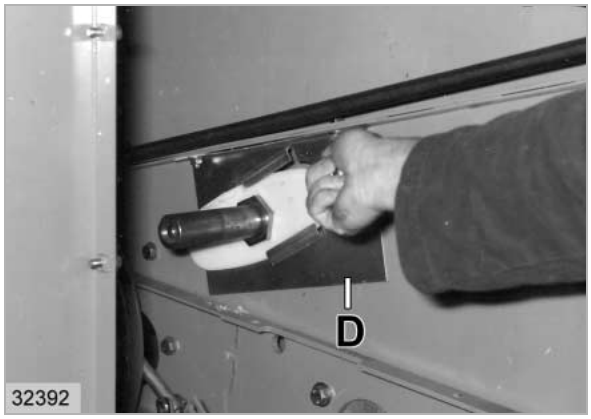
CAUTION!

Observe the installation positions of the two rocker arms when removing and mark this position. The rocker arms are not symmetrical.

(Fig. 4)



4



5

Unscrew the sealing plates (D) on the left and right and pull off the plates together with gasket and spacer ring from the journal.

(Fig. 5)



6

Unscrew the journals from the preparation floor.

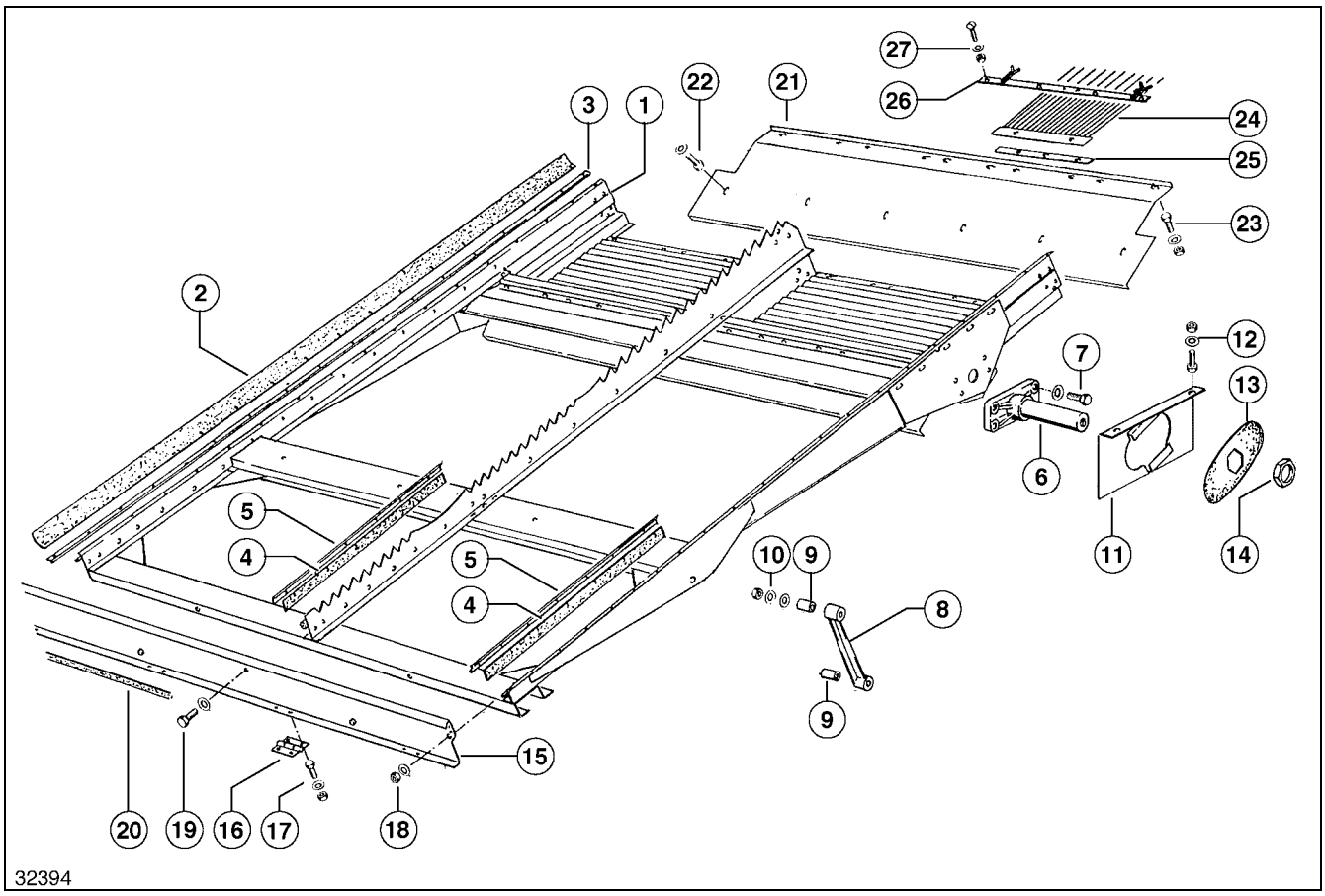
(Fig. 6)



7

Lift out the preparation floor to the rear using a suitable hoist.

(Fig. 7)



8

Preparation floor, disassembled

1 Preparation floor
2 Seal
3 Clamping rail
4 Seal
5 Clamping rail
6 Stub
7 Hex. bolt M 12 x 35 DIN 933-10.9
Contact washer A 12
8 Front rocker arm
9 Metal/rubber bearing
10 Hex. nut M 12 DIN 934
Contact washer A 12
Washer 13 x 26 x 6
11 Sealing plate
12 Hex. bolt M 8 x 20 DIN 933-8.8
Contact washer A 8
Hex. nut M 8 DIN 934
13 Seal
14 Spacer ring
15 Flap
16 Hinge
17 Hex. bolt M 6 x 16 DIN 933-8.8
Contact washer A 6
Hex. nut M 6 DIN 934
18 Hex. nut M 10 DIN 934
Contact washer A 10
19 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
20 Foam rubber strip
21 Baffle plate
22 Hex. bolt M 8 x 10 DIN 933-8.8
Contact washer A 8
23 Hex. bolt M 8 x 25 DIN 933-8.8
Contact washer A 8
Hex. nut M 8 DIN 934-8
24 Rake
25 Bar

(Fig. 8)



9

Installing the preparation floor

1. Bolt the rear stepped preparation floor sections into the preparation floor.
2. Lift the preparation floor into the combine from the rear and ensure that the rubber sealing strips (2) on the side are not bent down.
3. Bolt journals (6) to the preparation floor with hex. bolts (7).

   Tightening torque = 110 Nm
4. Bolt rocker arms (8) to the front of the preparation floor and to the combine frame, but do not tighten the bolts at this stage.

CAUTION!

The nuts (10) for the front rocker arms (8) must not be tightened until the sieve pan has been adjusted.

5. Install sealing plates (11) and push on the gasket with spacer ring.
6. Install flap (15) together with the hinges.
7. Push the front stepped preparation floor sections into the preparation floor from the front. Raise the flap and bolt on.

(Fig. 8, 9)

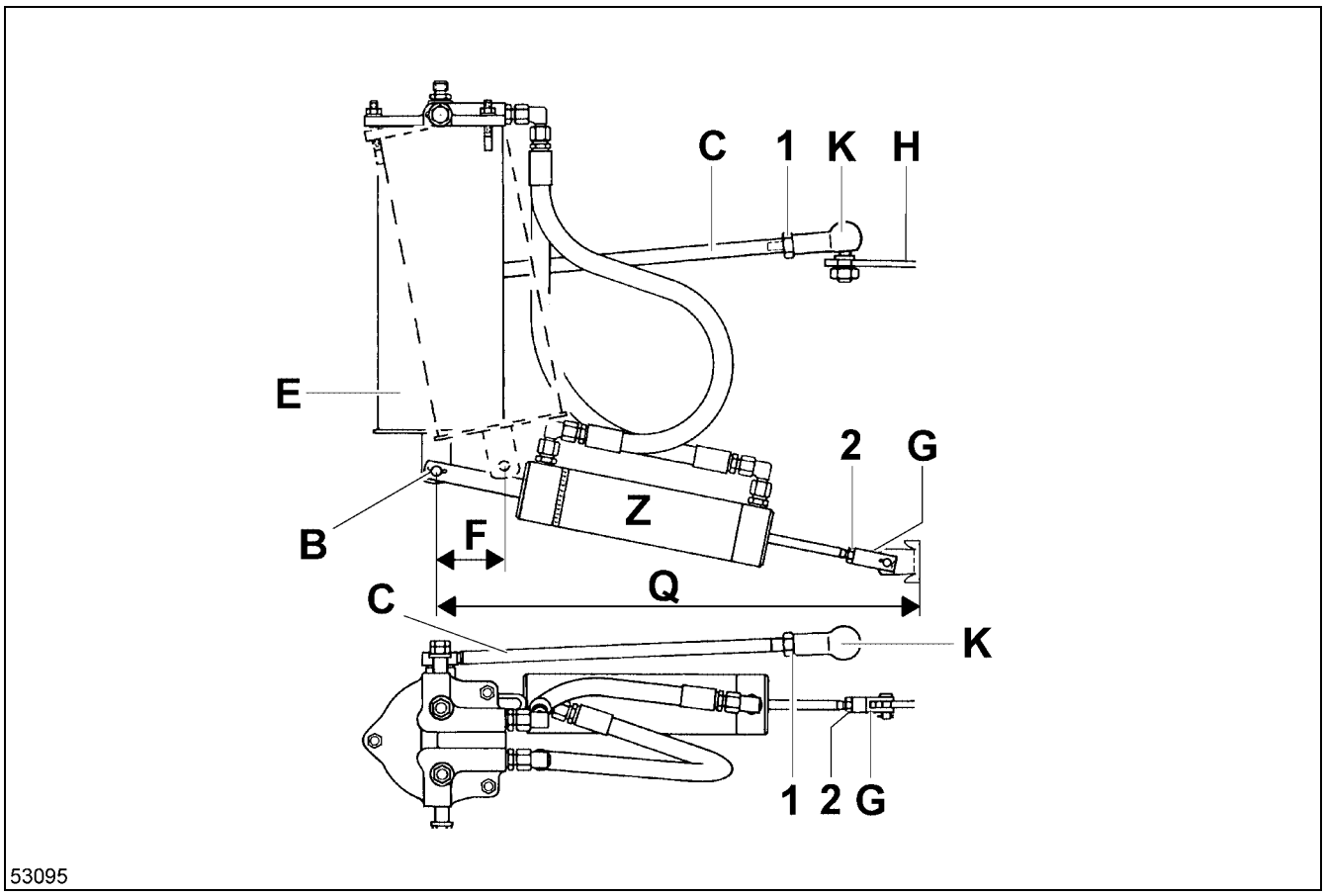
8. *Installing the sieve pan*, see page 4.2.21
9. *Checking and adjusting the alignment of preparation floor and sieve pan*, see page 4.2.24



10

10. On both side of the combine, tighten the front rocker arms (8) on the preparation floor and on the machine frame to **45 Nm**.

(Fig. 10)



1

3-D SIEVE PAN CONTROL SYSTEM

Adjusting the 3-D sieve pan control system

Park the combine so that it is horizontal and position the sieve pan exactly in the middle position.

Measure and note the distance (Q) from the combine wall to pivot point (B).

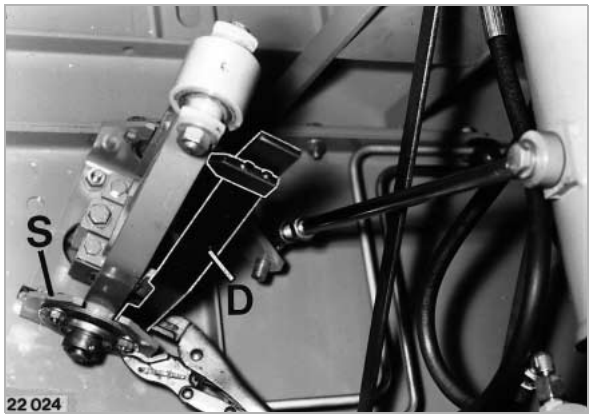
Disconnect cylinder (Z) from pivot point (B) and control lever (C) at bracket (H).

Start the engine and with the engine running, push pendulum housing (E) outwards in the direction of the arrow until the hydraulic ram is completely retracted.

CAUTION!

Hold the pendulum housing in this position and switch off the engine (a second person is required for this).

Now connect the pendulum housing again at (B).

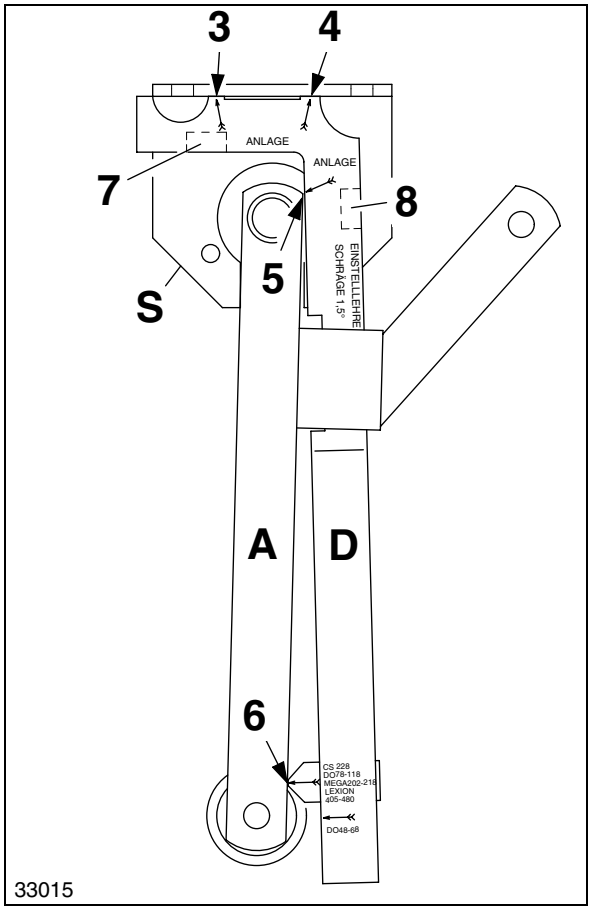


2

Distance (Q) must have decreased by the (F) = **70 mm**. If not, loosen lock nut (2) on yoke head (G) and adjust distance (Q) accordingly.

After the adjustment, connect control lever (C) and hydraulic cylinder (Z) again.

(Fig. 1, 2, 3)



3

Adjusting pivot arm (A) with the “3-D gauge”

Allow the engine to run briefly so that the pendulum housing is moved to the middle position.

CAUTION!

Park the combine so that it is horizontal and position the sieve pan exactly in the middle position.

DANGER!

Stop the engine!

Position the 3-D gauge (D), part no. 181 993.1, so that the points (3 and 4) are against the rear panel and blocks (7 and 8) are against the lower web (S) of the bracket. Then move the “3-D gauge” in parallel to the sidewall until point (5) contacts the pivot arm.

Now point (6) must make contact at the pivot arm and/ or be aligned, otherwise disconnect the control lever (C) from bracket (H).

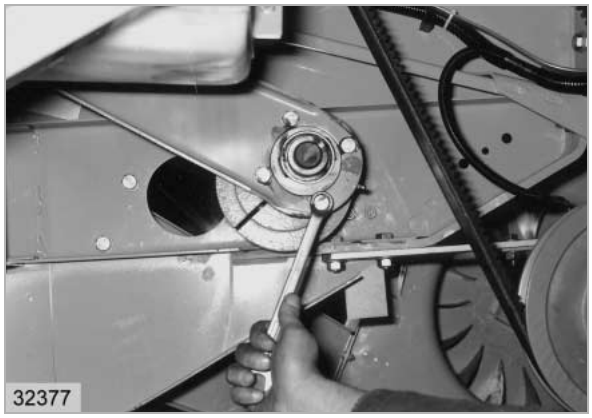
Loosen lock nut (1) and adjust control lever (C) at the ball head joint, then tighten the lock nut again.

During adjustment, ensure that the pivot arm is makes contact with the 3-D gauge (D) and that the pendulum housing is not moved.

After the adjustment, tighten all bolts.

(Fig. 1, 2, 3)

ROCKER ARM DRIVE

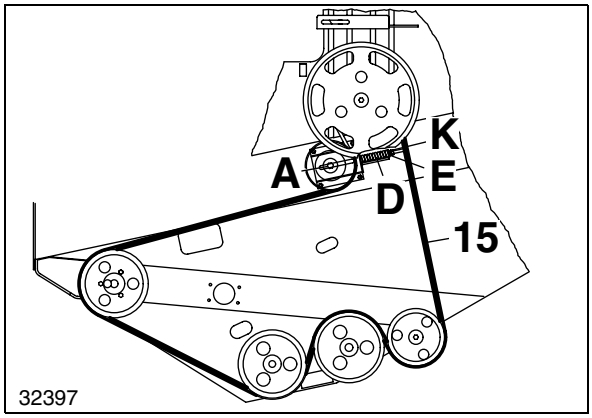


1

Removing the intermediate drive shaft for the rocker arm drive

Unscrew and pull off the connecting rods on both sides of the combine.

(Fig. 1)



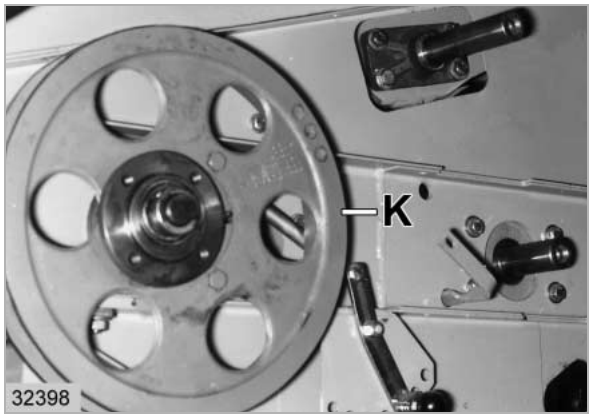
2

Remove belt (15).

For this loosen clamping bolt (A) on the jockey pulley.

Relieve the tension in compression spring (D) with nuts (K and E).

(Fig. 2)

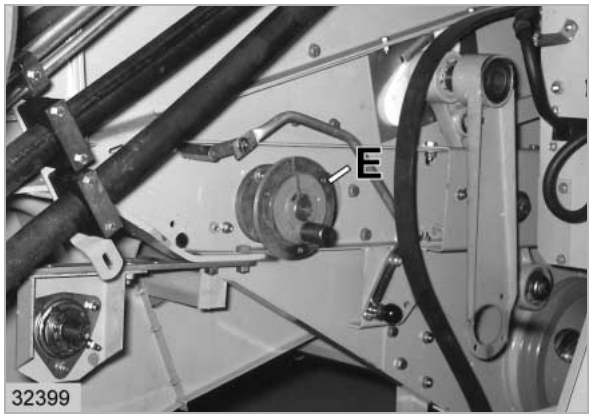


3

Loosen the lock collar of the lock collar bearing and pull it off the ball journal.

Unscrew the V-belt pulley (K).

(Fig. 3)



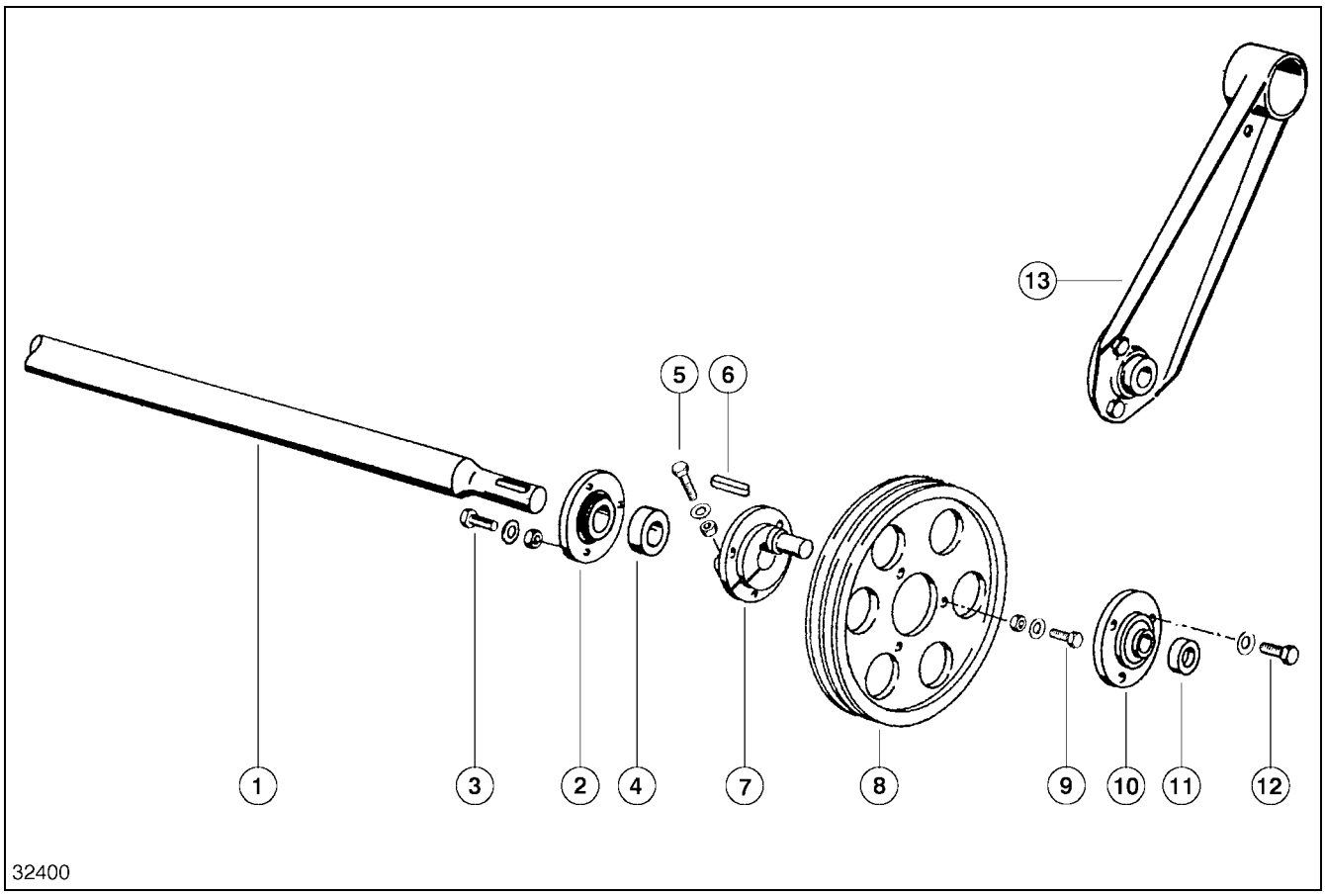
4

Loosen the clamping bolt of eccentric hub (E) on both sides of the combine and pull off the eccentric hub using a two-arm puller, if necessary.

Loosen and pull off the bearing assembly.

Pull out the intermediate drive shaft to the side.

(Fig. 4)

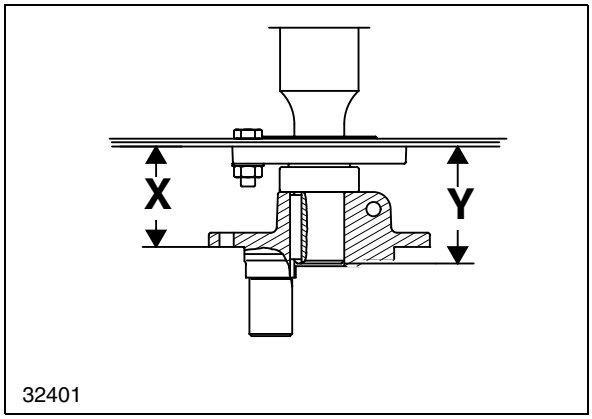


5

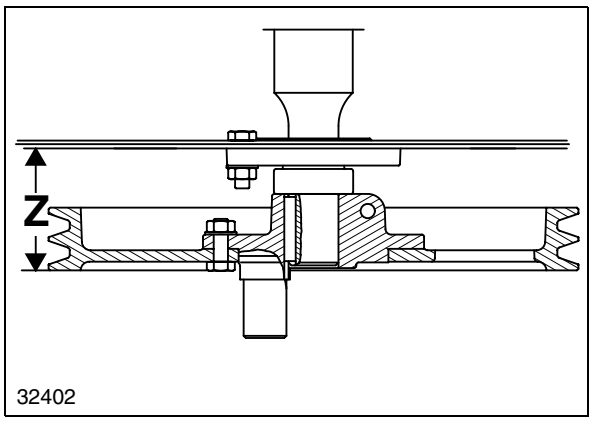
Intermediate drive shaft for rocker arm drive, disassembled

1 Shaft
2 Bearing assembly
3 Hex. bolt M 10 x 75 DIN 933-8.8
Hex. nut M 10 DIN 934-8
Contact washer A 10
4 Lock collar 35
5 Hex. bolt M 10 x 45 DIN 931-8.8
Hex. nut M 10 DIN 934-8
Contact washer A 10
6 Parallel key A 10 x 8 x 45 DIN 6885
7 Eccentric hub
8 V-belt pulley
9 Hex. bolt M 10 x 30 DIN 933-8.8
Hex. nut M 10 DIN 934-8
Contact washer A 10
10 Bearing assembly
11 Lock collar 30
12 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
13 Connecting rod

(Fig. 5)



6



7

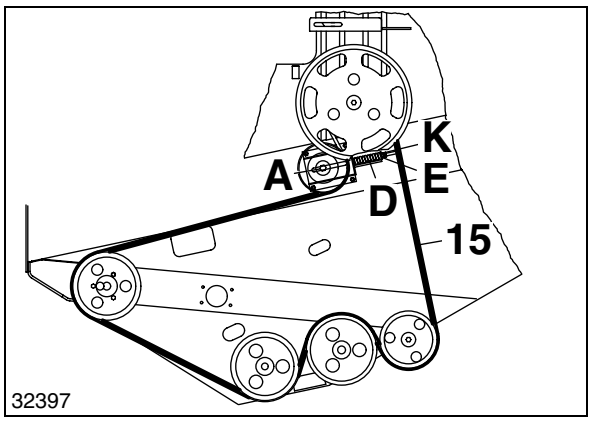
Installing the intermediate drive shaft for the rocker arm drive

1. Push shaft (1) into the combine.
2. Push on flange bearing (2) and bolt to the combine sidewalls.
3. Align the shaft so that clearance (Y) from the sidewall to the end of the shaft is **82 mm**.
4. Install eccentric hub (7) with parallel key (6) and hex. bolt (5).

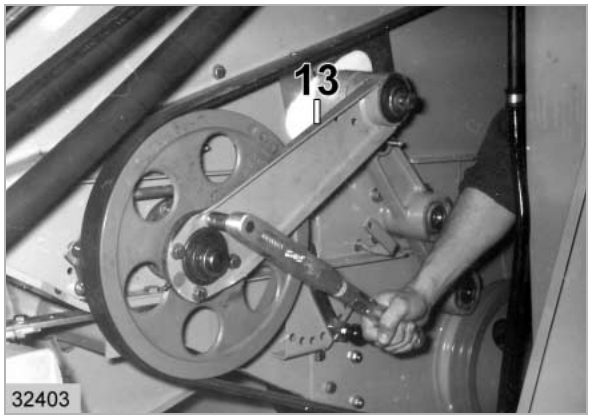
   The clearance (X) from the sidewall to the flange surface is **70.4 mm**.
5. Bolt V-belt pulley (8) to the eccentric hub.

   The clearance (Z) is **85.5 mm**.

(Fig. 5, 6, 7)



8



9

6. Pull bearing unit (10) on the eccentric hub and secure with the lock collar.
7. Push connecting rod (13) onto the studs and bolt to the bearing assembly with hex. bolts (12).

CAUTION!

The bearing assemblies on the right-hand and left-hand sides must be in the same position. Otherwise the preparation floor will not be guided in the centre of the combine housing.

8. Install and tension the V-belt (15). For this pretension the compression spring (D) with nut (E) to the gauge rod length.

   Lock the nuts (K and E) and tighten clamping bolt (A) on the jockey pulley.

9. Position the sieve pan and preparation floor exactly in the middle of their oscillating travel. In this position, secure the metal/rubber bearings axially by tightening the hex. bolts on the connecting rod to the prescribed torque.

   Tightening torque:

   M 10 – 45 Nm
   M 16 – 195 Nm

(Fig. 5, 8, 9)

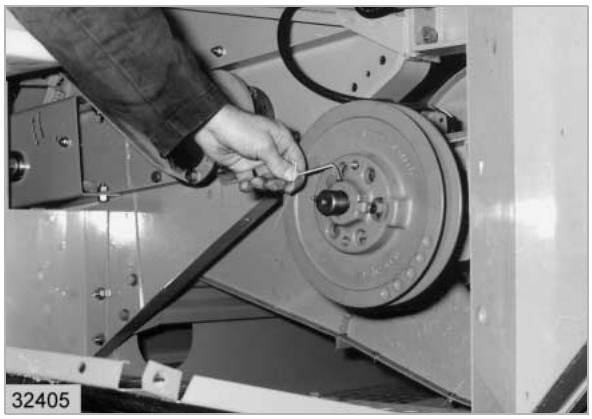
10. *Checking and adjusting the alignment of preparation floor and sieve pan*, see page 4.2.24

CLEANING FAN

Removing the bearings of the cleaning fan

Removing the fan drive belt (21), see page 7.3.5

Fold down the hinged bottom plate on the right-hand side of the combine. For this, remove the plug. Unscrew the lateral guard.

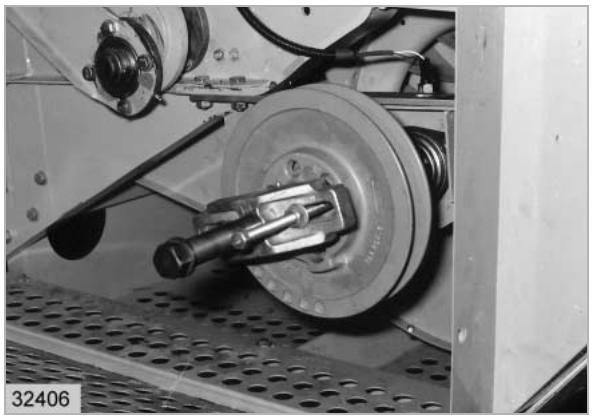


1

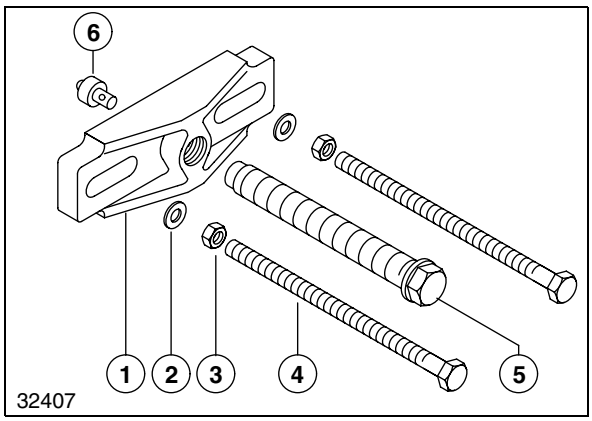
Loosen the two set screws M 10 x 8 of the variable-speed pulley.

Pull the variable-speed pulley assembly off the shaft, using the special tool and remove the parallel key.

(Fig. 1, 2)



2



3

Special tool:

1 Puller bridge, part no. 181 800.0
2 Washer 13
3 Hex. nut M 12 DIN 934, part no. 236 172.0
4 Hex. bolt M 12 x 50 DIN 933-8.8, part no. 237 573.0
5 Threaded spindle, part no. 181 801.1
6 Centraliser with ball, part no. 181 849.0

(Fig. 3)

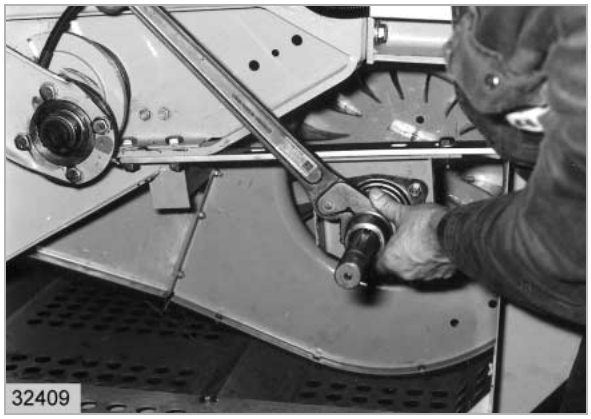


4

Disconnect the cable and unscrew the magnetic pick-up.

Remove the parallel key from the shaft.

(Fig. 4)



5

Unlock the face-end slotted nut and loosen with a slot-type spanner.

Unscrew the face-end slotted nut by approx. two turns.

(Fig. 5)



6

Using a block-ended tube of ∅ 50 x 4 x 300 (self-sourced), loosen the adapter sleeve of the bearing with a short, sharp blow.

Then unscrew the slotted nut.

(Fig. 6)



7

Unscrew the bearing bracket and pull off the complete bearing.

(Fig. 7)



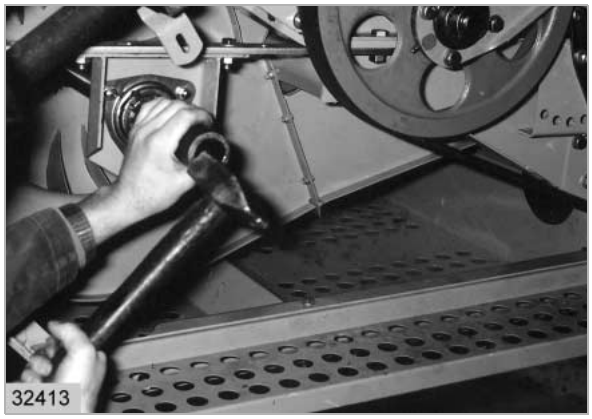
8

Fold down the hinged bottom plate on the left-hand side of the combine. For this, remove the plug. Unscrew the lateral guard.

Unlock the face-end slotted nut and loosen with a slot-type spanner.

Unscrew the face-end slotted nut by approx. two turns.

(Fig. 8)

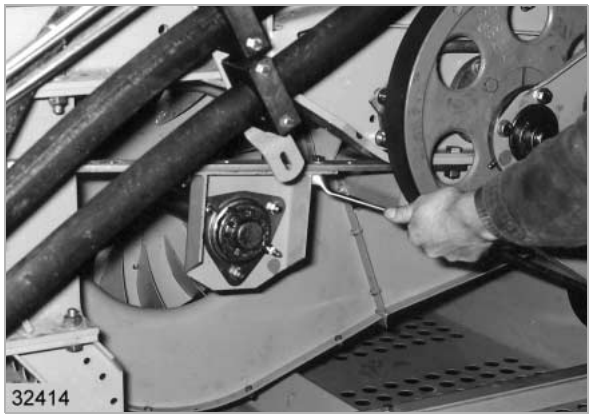


9

Using a block-ended tube of ∅ 50 x 4 x 300 (self-sourced), loosen the adapter sleeve of the bearing with a short, sharp blow.

Then unscrew the slotted nut.

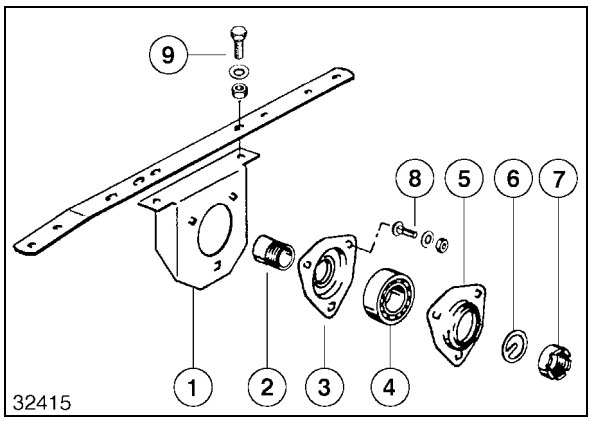
(Fig. 9)



10

Unscrew the bearing bracket and pull off the complete bearing.

(Fig. 10)

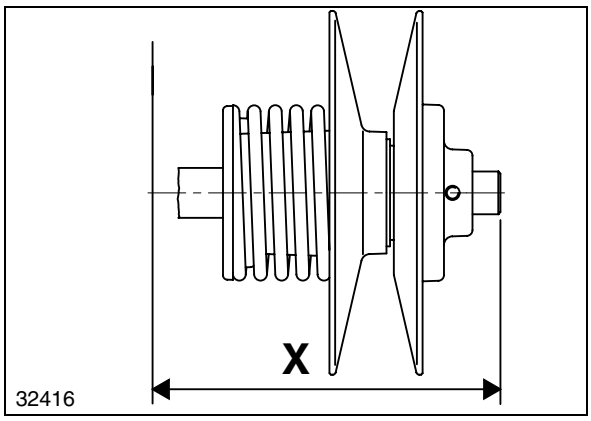


11

Cleaning fan bearing, disassembled

1 Bearing plate
2 Taper lock sleeve
3 Bearing housing
4 Self-aligning roller bearing
5 Bearing housing
6 Circlip
7 Face-end slotted nut
8 Mushroom head bolt M 80 x 20 DIN 603
Hex. nut M 8 DIN 934
Contact washer A 8
9 Hex. bolt M 10 x 30 DIN 933-8.8
Self-locking nut VM 10
Contact washer A 10

(Fig. 11)



12

Installing the cleaning fan bearing

1. The bearing bore, taper lock sleeve and the shaft seat must be dry and free from grease.
2. Pre-assemble the bearing unit, push onto the shaft and bolt to the bearing plate.

   Align the shaft. The clearance (X) from the machine side wall to the end of the shaft is approx. **244 mm**.
3. Pre-tighten face-end slotted nut M 40 x 1.5 to a torque of **20 Nm**, then turn further until the tab of the lock plate is aligned with a slot in the slotted nut.

   Turn the slotted nut by a further **62**°, then lock with the lock plate.
4. Push on the cam wheel on the right-hand side of the combine and secure with the set screw.

   Adjust the magnetic pick-up using a gauge so that the clearance is **0.2 ± 0.1 mm**.

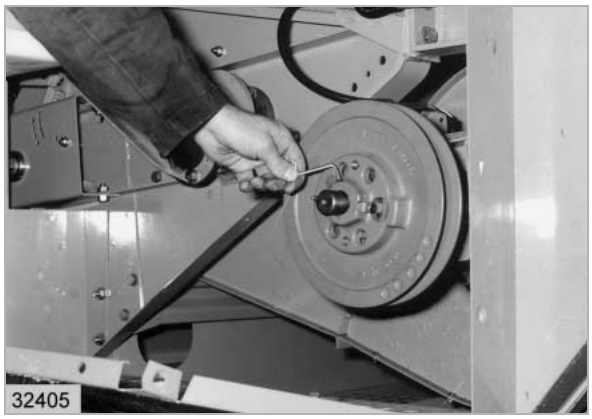
   Connect the cable plug.
5. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5
   Installing and adjusting the fan variable-speed pulley assembly (spring-loaded), see page 7.14.42

(Fig. 12)

Removing the cleaning fan shaft

Removing the fan drive belt (21), see page 7.3.5

Fold down the hinged bottom plate on the right-hand side of the combine. For this, remove the plug. Unscrew the lateral guard.

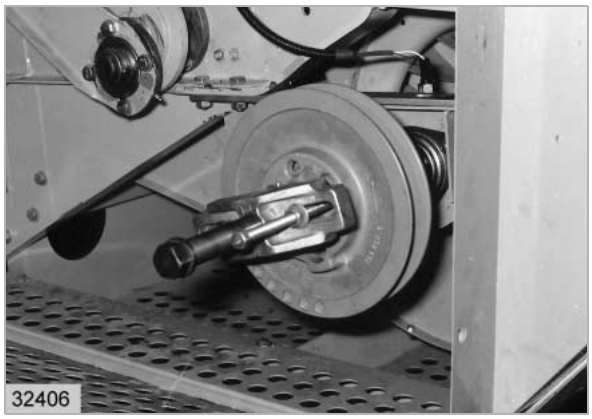


13

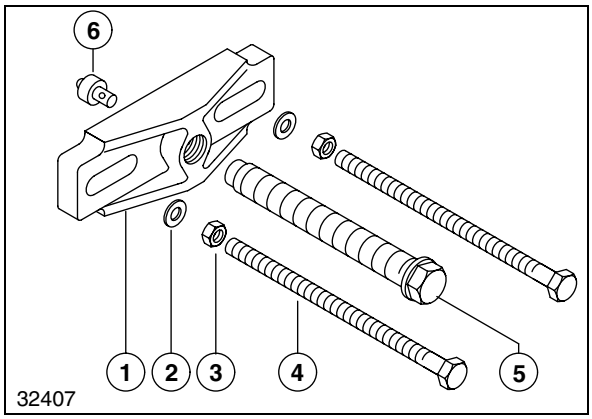
Loosen the two set screws M 10 x 8 of the variable-speed pulley.

Pull the variable-speed pulley assembly off the shaft, using the special tool and remove the parallel key.

(Fig. 13, 14)



14



15

Special tool:

1 Puller bridge, part no. 181 800.0
2 Washer 13
3 Hex. nut M 12 DIN 934, part no. 236 172.0
4 Hex. bolt M 12 x 50 DIN 933-8.8, part no. 237 573.0
5 Threaded spindle, part no. 181 801.1
6 Centraliser with ball, part no. 181 849.0

(Fig. 15)



16

Disconnect the cable and unscrew the magnetic pick-up.

Remove the parallel key from the shaft.

(Fig. 16)



17

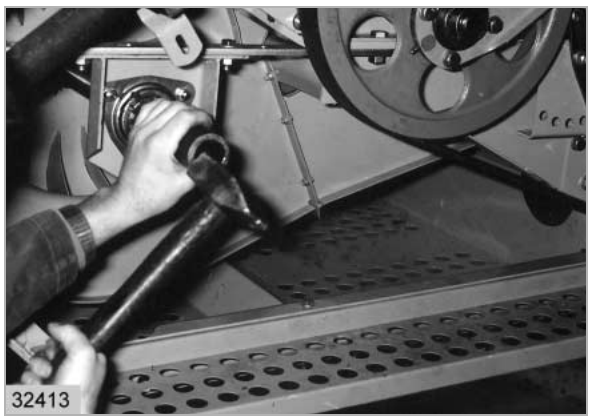
Fold down the hinged bottom plate on the left-hand side of the combine. For this, remove the plug.

Unscrew the lateral guard.

Unlock the face-end slotted nut and loosen with a slot-type spanner.

Unscrew the face-end slotted nut by approx. two turns.

(Fig. 17)

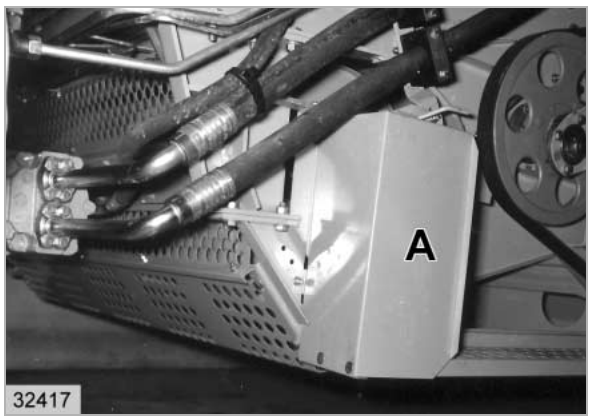


18

Using a block-ended tube of ∅ 50 x 4 x 300 (self-sourced), loosen the adapter sleeve of the bearing with a short, sharp blow.

Then unscrew the slotted nut.

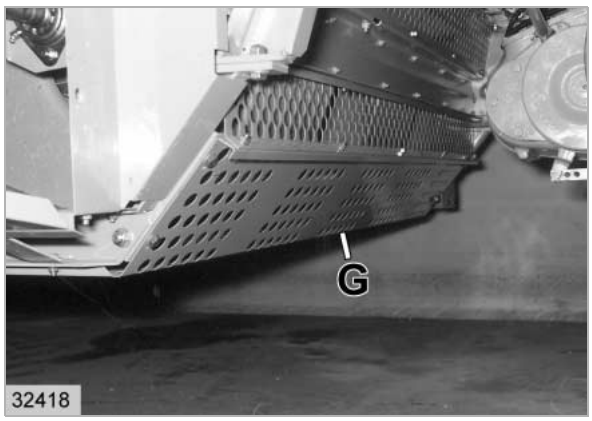
(Fig. 18)



19

Unscrew end plate (A).

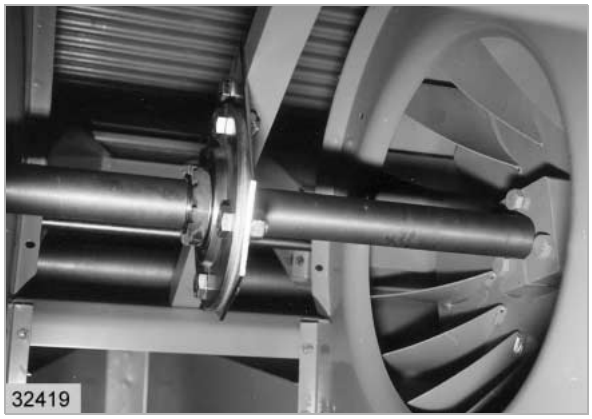
(Fig. 19)



20

Remove fan guard (G).

(Fig. 20)



21

Unlock the face-end slotted nut of the centre adapter sleeve bearing and loosen it using a sickle spanner.

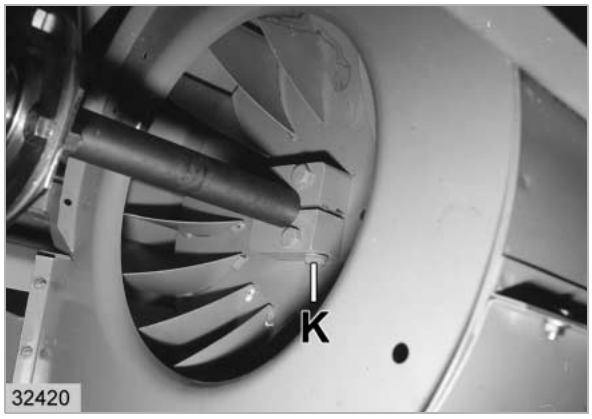
(Fig. 21)



22

Loosen the taper sleeve bearing by driving the shaft from the left-hand side of the machine a little bit inward (to the right). Hold a soft metal punch against the left outside end of the shaft and give it a short, sharp blow. Make sure the centre bearing plate is held steady with a heavy object (hammer [H] or similar) at the same time.

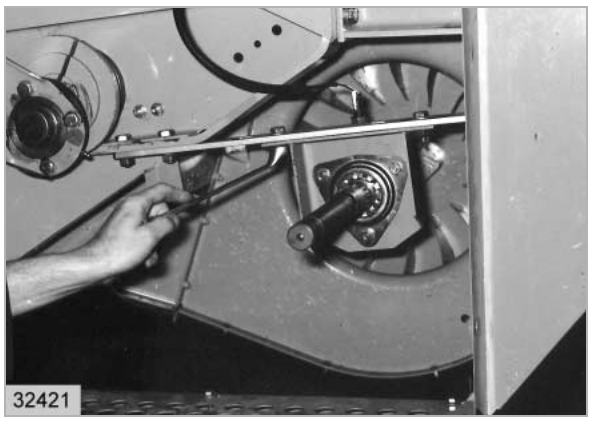
(Fig. 22)



23

Loosen clamping bolt (K) and spread slightly using a chisel.

(Fig. 23)



24

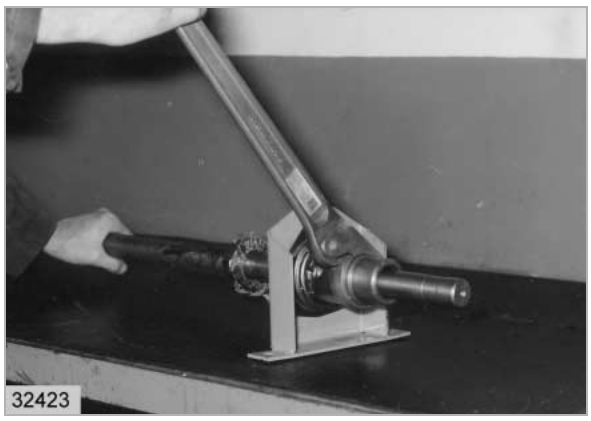
Unscrew the bearing plate on the right-hand side of the combine.

Clean the shaft thoroughly and pull out to the right-hand side.

(Fig. 24, 25)



25



26

Unlock the face-end slotted nut and loosen with a slot-type spanner.

Unscrew the face-end slotted nut by approx. two turns.

(Fig. 26)

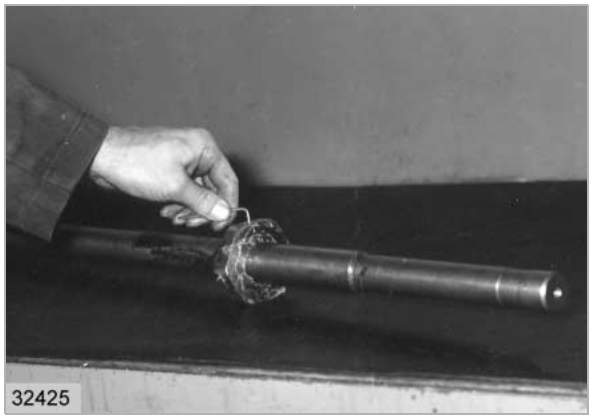


27

Using a block-ended tube of ∅ 50 x 4 x 300 (self-sourced), loosen the adapter sleeve of the bearing with a short, sharp blow.

Pull the bearing from the shaft.

(Fig. 27)



28

Remove the set screw from the cam wheel and pull off the cam wheel.

(Fig. 28)



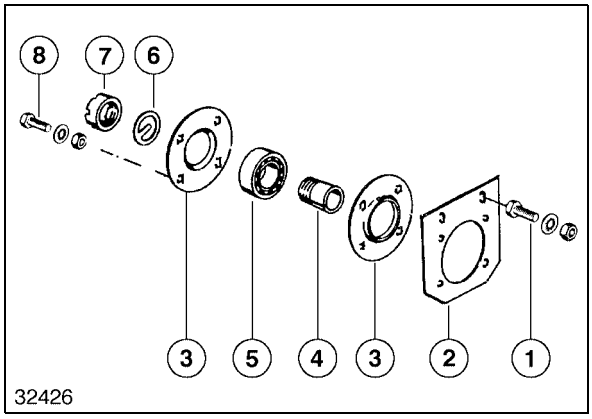
29

Removing the centre cleaning fan bearing

Remove the cleaning fan shaft.

Unscrew the bearing plate of the centre bearing.

(Fig. 29)

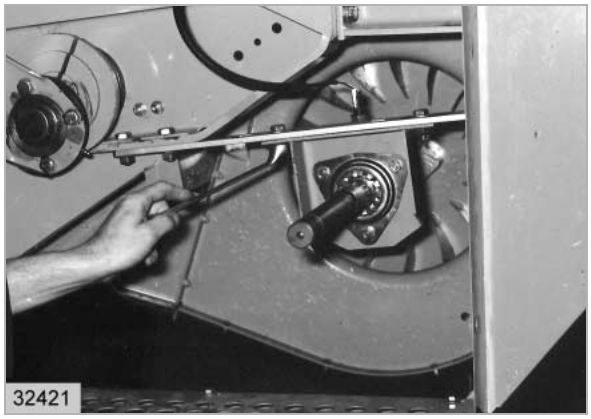


30

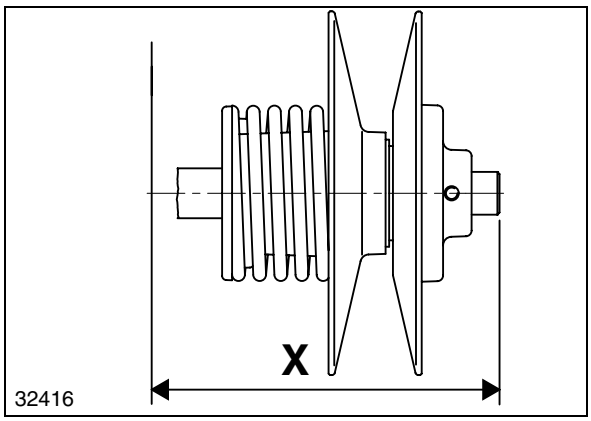
Centre cleaning fan bearing, disassembled

1 Hex. bolt M 10 x 20 DIN 933-8.8
Hex. nut M 10 DIN 934
Contact washer A 10
2 Bearing plate
3 Sheet metal flange
4 Taper lock sleeve
5 Adapter sleeve bearing
6 Circlip
7 Face-end slotted nut M 40 x 1.5
8 Hex. bolt M 12 x 25 DIN 933-8.8
Hex. nut M 12 DIN 934
Contact washer A 12

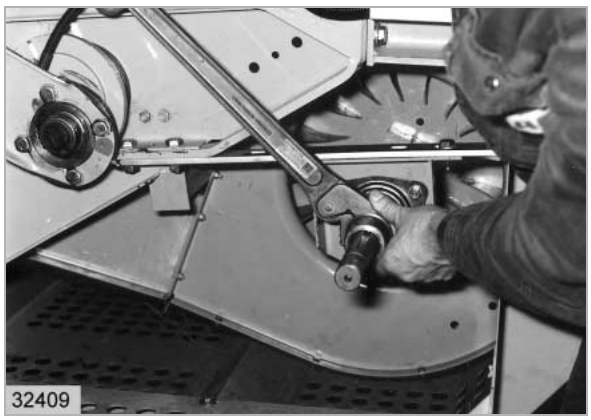
(Fig. 30)



31



32



33

Installing the cleaning fan shaft

1. Bolt on the centre cleaning fan bearing.
2. Slide the fan shaft into the combine from the right. At the same time, slide the rotors on the shaft.
3. Push the cam wheel onto the shaft. Also push the pre-assembled bearing with adapter sleeve and face-end slotted nut onto the shaft.

   Bolt the bearing plate to the frame.
4. Align the cleaning fan shaft so that clearance (X) on the right-hand side of the combine is approx. **244 mm**.

(Fig. 31, 32)

5. Pre-tighten face-end slotted nut M 40 x 1.5 of the adapter sleeve bearings (left, right and centre bearing) to a torque of **20 Nm**, then turn further until the tab of the tab washer is aligned with a slot in the slotted nut.

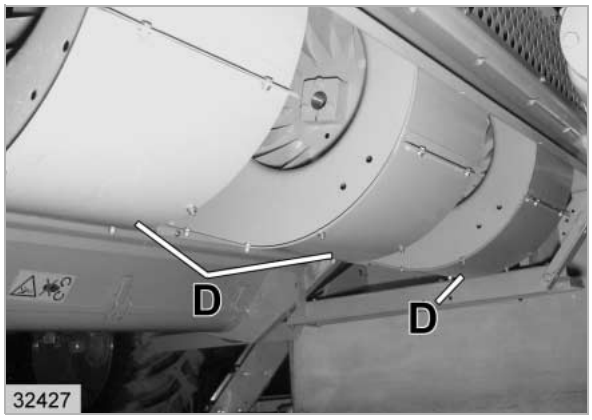
   Turn the slotted nut by a further **62**°, then lock with the tab washer.

(Fig. 33)

6. Align the cleaning fan rotors in the centre of their housings and secure on the shaft.
7. Push on the cam wheel on the right-hand side of the combine and secure with the set screw.

   Adjust the magnetic pick-up using a gauge so that the clearance is **0.2 ± 0.1 mm**.

   Connect the cable plug.
8. Insert the parallel key, push the variable-speed pulley assembly onto the shaft and secure axially with two set screws M 10 x 8.
9. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5
   Align the variable speed pulley assembly – see page 7.14.42, *Installing and adjusting the fan variable-speed pulley assembly (spring-loaded)*.
10. Bolt on fan guard and end plate.



34

Removing the cleaning fan rotors

Remove the cleaning fan shaft.

Unscrew cover (D) of the fan housing and remove the rotors from below.

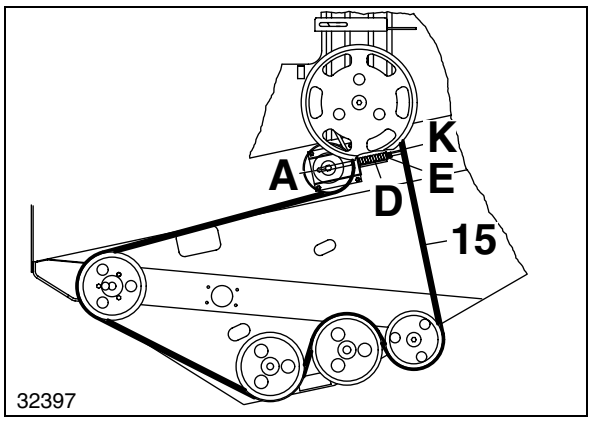
(Fig. 34)

Installing the cleaning fan rotors

Lift the cleaning fan rotors into the combine from below and bolt on cover (D).

Install the cleaning fan shaft.

(Fig. 34)



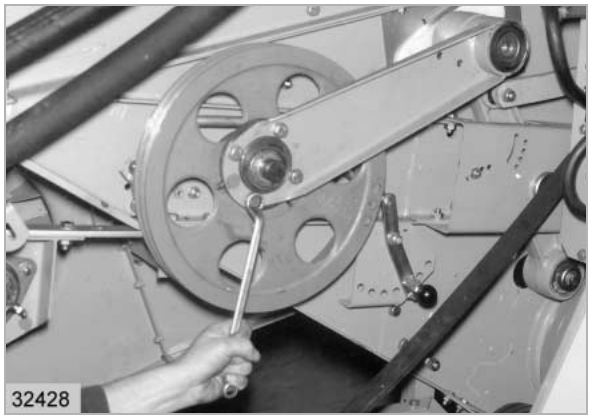
35

Removing the cleaning fan housing

Remove the cleaning fan shaft.
Remove the cleaning fan rotors.

Remove belt (15). For this loosen clamping bolt (A) on the jockey pulley. Relieve the tension in compression spring (D) with nuts (K and E).

(Fig. 35)

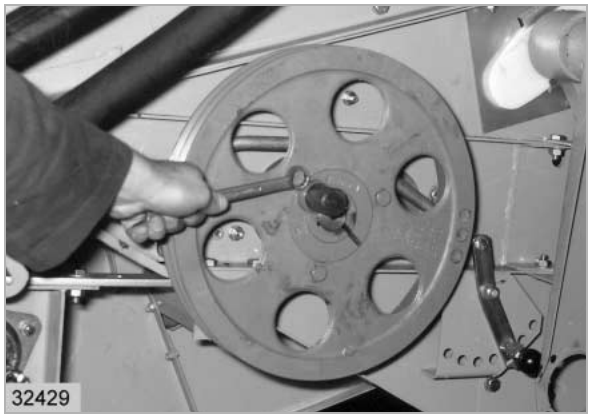


36

Unbolt the connecting rod on the metal/rubber bearing and the flange ball bearing.

Loosen the set collar and pull off the bearing.

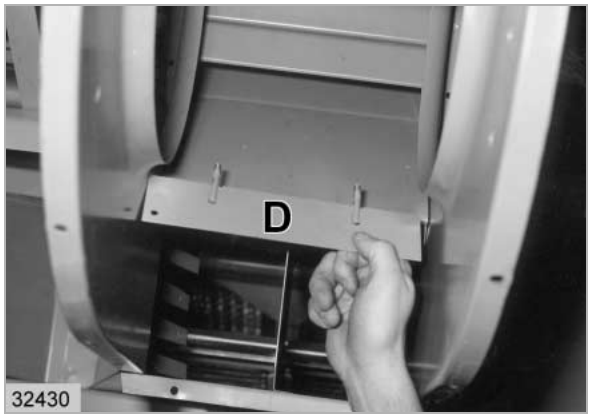
(Fig. 36)



37

Unscrew and remove the V-belt pulley from the eccentric hub.

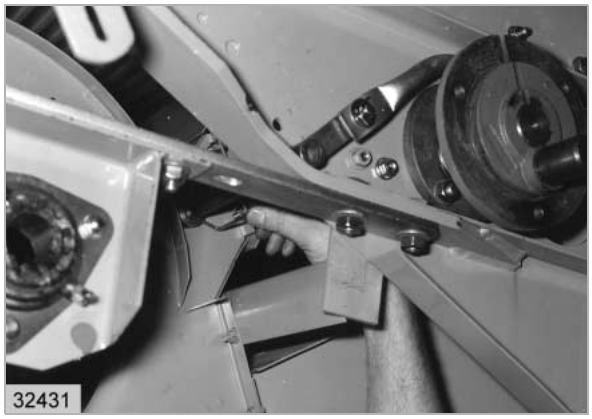
(Fig. 37)



38

Unscrew and remove control shutters (D) in the cleaning fan housing.

(Fig. 38)

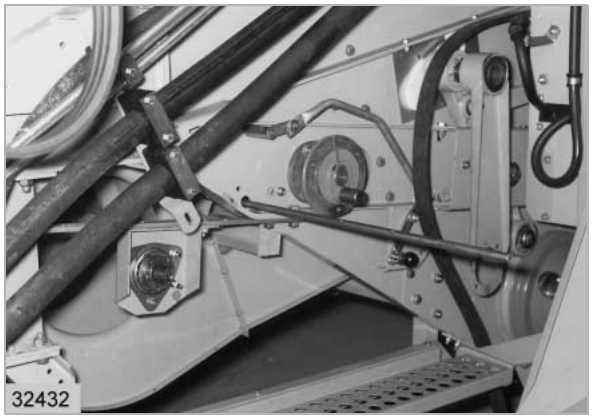


39

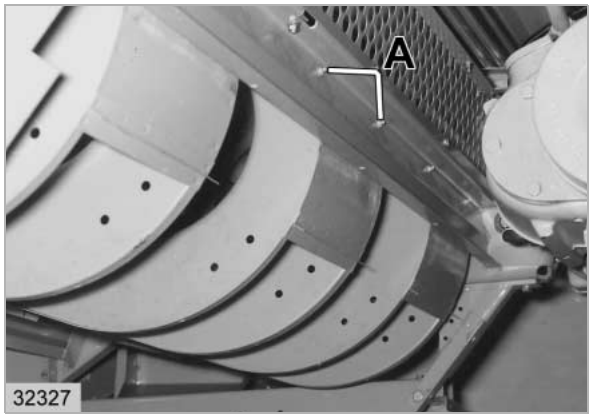
Loosen the set collars on the shaft.

Pull out the shaft to the left-hand side of the combine.

(Fig. 39, 40)



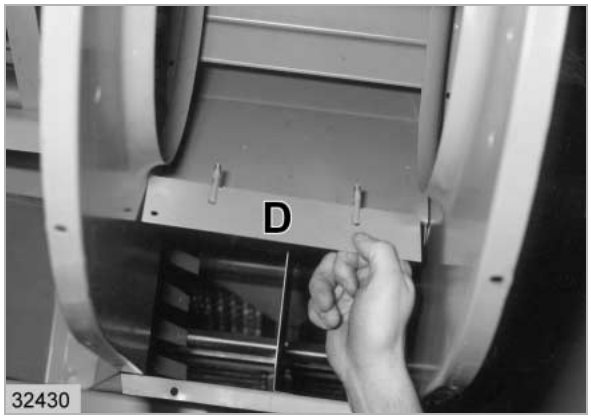
40



41

Unscrew the cleaning fan housing at (A) and remove from below.

(Fig. 41)



42

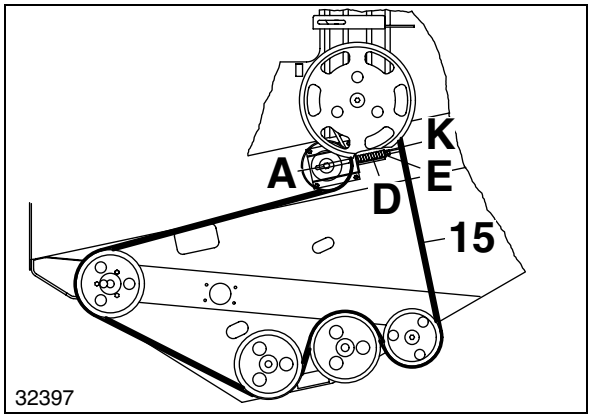
Installing the cleaning fan housing

1. Lift the cleaning fan housing into the combine from below and bolt in place.
2. Push the shaft into the combine from the left until the set collars can be pushed onto the shaft.

   Then push the shaft completely into the combine, align to the correct centre position and secure with the set collars.
3. Install the control shutters (D) in the cleaning fan housing and bolt in place.

   Ensure that the control shutters are in the centre of the housing and are easy to adjust.

(Fig. 42)



43

4. Install the bearing assembly on the eccentric hub and secure with the lock collar.
5. Push the connecting rod on the stud and bolt to the bearing assembly with the hex. bolts.

CAUTION!

The bearing assemblies on the right-hand and left-hand sides must be in the same position. Otherwise the preparation floor will not be guided in the centre of the combine housing.



44

6. Install and tension the V-belt (15). For this pretension the compression spring (D) with nut (E) to the gauge rod length. Lock the nuts (K and E) and tighten clamping bolt (A) on the jockey pulley.
7. Position the sieve pan and preparation floor exactly in the middle of their oscillating travel. In this position, secure the metal/rubber bearings axially by tightening the hex. bolts on the connecting rod to the prescribed torque.

   Tightening torque:

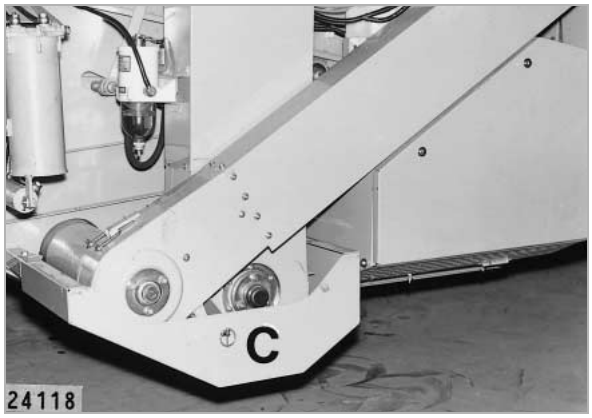
   M 10 – 45 Nm
   M 16 – 195 Nm

(Fig. 43, 44)

Install the cleaning fan rotors.
Install the cleaning fan shaft.

5
Grain delivery

RETURNS ELEVATOR



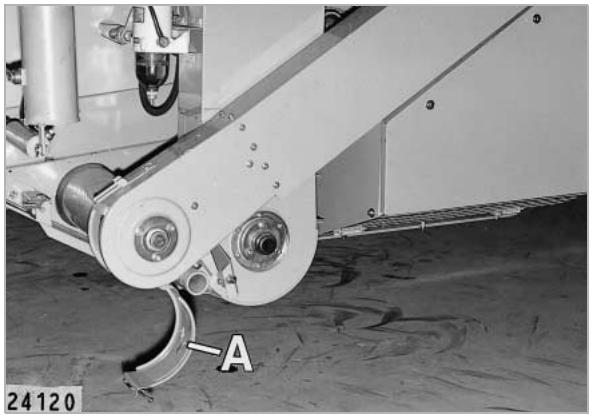
1

Removing the returns elevator chain

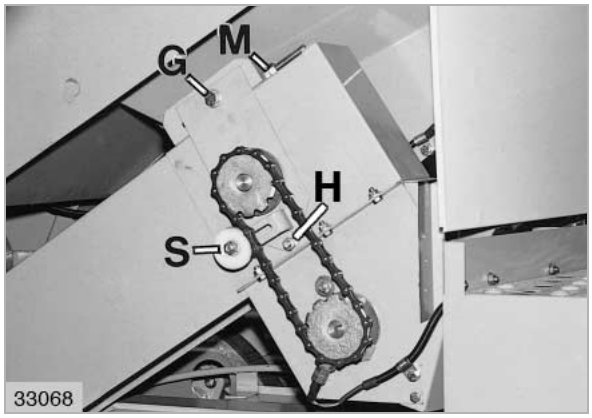
If fitted, remove the guard (C).

Open the returns elevator inspection door (A) and remove.

(Fig. 1, 2)



2



3

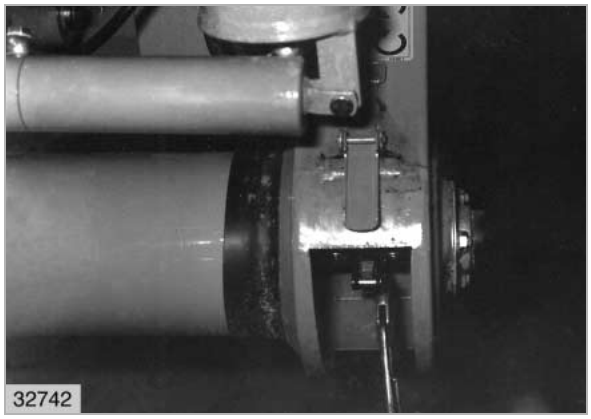
Turn the elevator chain until the chain connector is at the bottom.

Release the tension from the chain.

This is done as follows:

1. Loosen the hex. nuts (H).
2. Loosen the hex. bolts (G).
3. Loosen the block tensioner (S).
4. Release the tension from the chain, by unscrewing the hex. bolt (M).

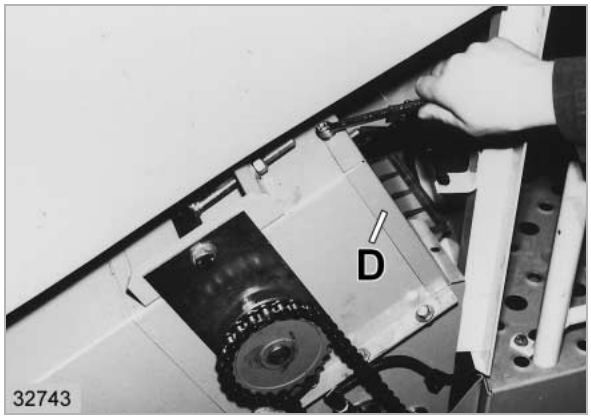
(Fig. 3)



4

Separate the chain at the chain connector.

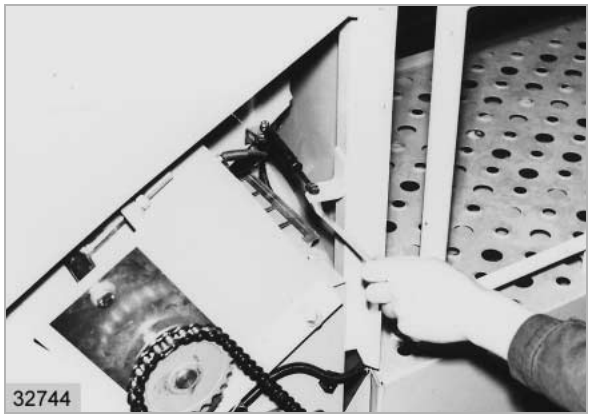
(Fig. 4)



5

Unscrew the returns elevator cover (D).

(Fig. 5)



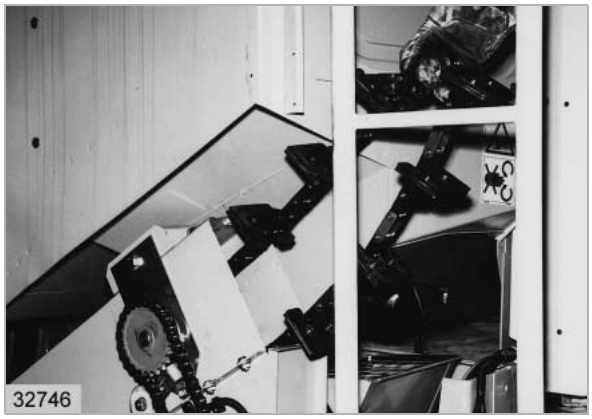
6

Unscrew the gas strut and the door.

(Fig. 6, 7)



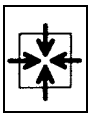
7



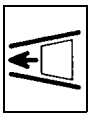
8

Pull the elevator chain out from the top.

(Fig. 8)



Installing the returns elevator chain



1. Introduce the elevator chain into the elevator from the top.

   Observe correct installation position!

2. Connect the two ends of the chain with the chain connector at the bottom.
3. Tension the chain using the hex. nut (M) so far that the paddles do not scrape the elevator housing.

   It must be possible to push the conveyor chain to the side manually at the bottom chain wheel. Re-tension the drive chain with the block tensioner (S). Re-tighten the clamping bolts (G) and nuts (H).

   (Fig. 3)

4. Close inspection door (A) and bolt down guard (C).

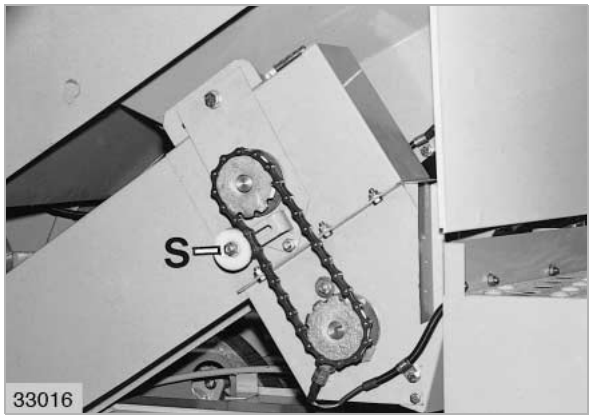
   (Fig. 1, 2)

5. Bolt down the cover (D).

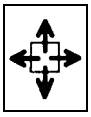
   (Fig. 5)

6. Fit the door and the gas strut.

   (Fig. 6, 7)



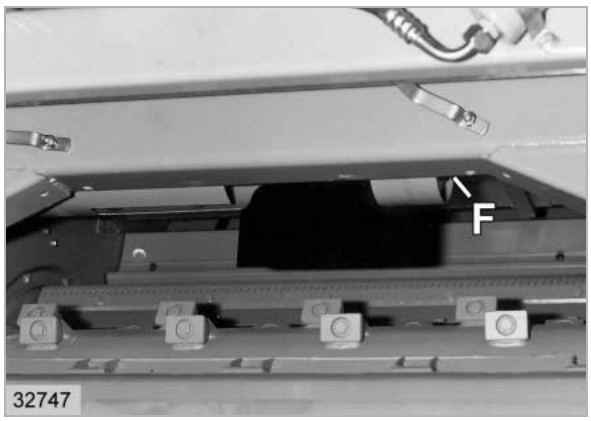
9



Removing the top returns auger

Remove the block tensioner (S) and remove the drive chain.

(Fig. 9)

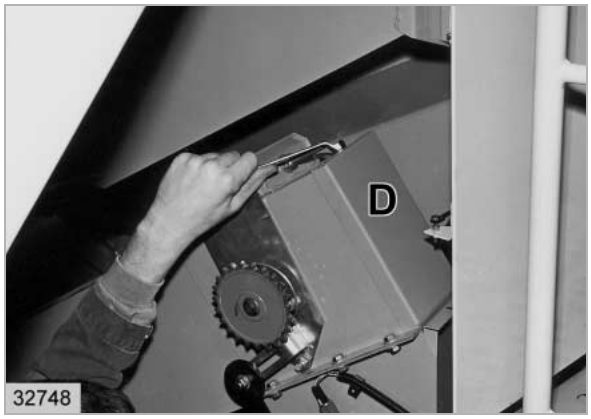


10

Remove the drum inspection cover.

Unlock and knock off the lock collar from the flange ball bearing at (F).

(Fig. 10)



11

Remove the cover (D) from the returns elevator.

(Fig. 11)



12

Disconnect the cable from the magnetic pick-up.

Unscrew the screw plug.

Unscrew the flange ball bearing on the right-hand side.

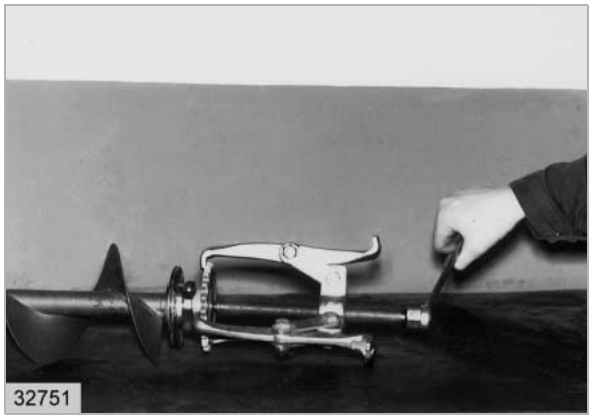
(Fig. 12)



13

Turn the returns auger out of the machine through the assembly slot.

(Fig. 13)



14

Drive the expansion pin out of the sprocket, then pull sprocket from the shaft.

(Fig. 14)



15

Remove the set screw from the cam wheel. Tap the cam wheel free, then pull the bearing off.

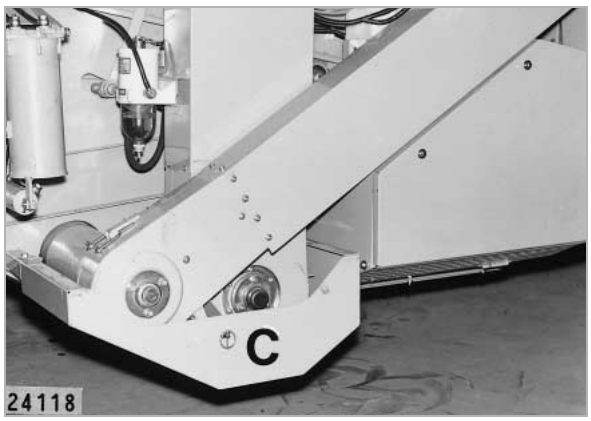
(Fig. 15)

Installing the top returns auger

1. Turn the returns auger in from the right through the assembly slot.
2. Install the flange ball bearings on both sides and bolt tight. Slide on the cam wheel on the right-hand side.
3. Screw the screw plug into the assembly slot.
4. Fit the sprocket into position on the returns auger and secure using an expansion pin.
5. Align the returns auger to the sprocket and tighten the lock collar and the cam wheel of the flange ball bearings by tapping them in direction of rotation, then secure.
6. Install the drive chain and tension it, using the block tensioner (S).

   (Fig. 9)

7. Refit the magnetic pick-up and adjust so that the clearance between the pick-up and the cam of the cam wheel is **1 ± 0.5 mm**. Connect the cable.
8. Refit the cover at the top of the returns elevator and the drum inspection cover.



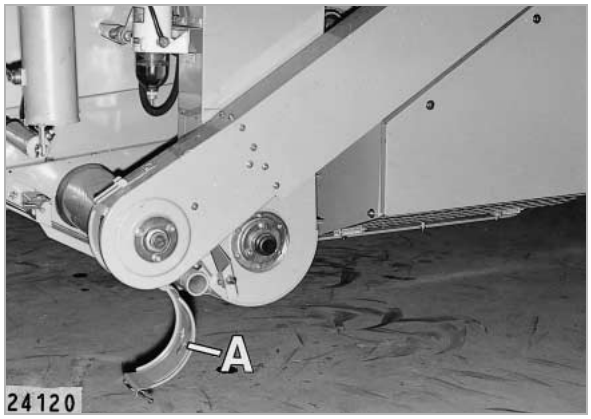
16

Removing the returns elevator

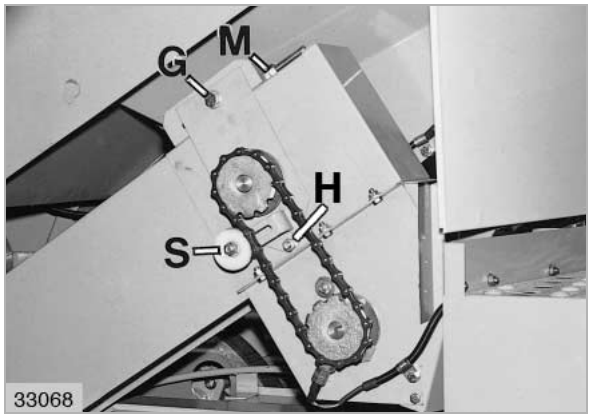
If fitted, remove the guard (C).

Open the returns elevator inspection door (A) and remove.

(Fig. 16, 17)



17



18

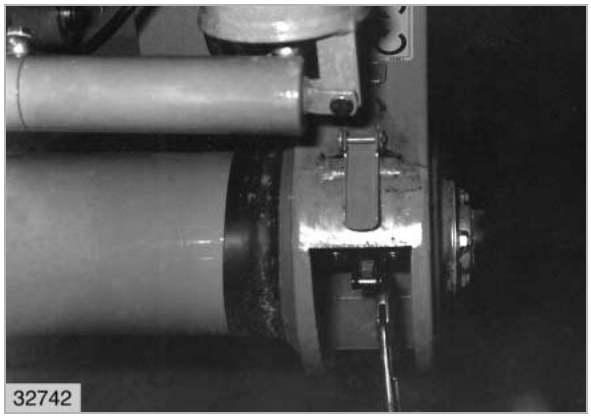
Turn the elevator chain until the chain connector is at the bottom.

Release the tension from the chain.

This is done as follows:

1. Loosen the hex. nuts (H).
2. Loosen the hex. bolts (G).
3. Loosen the block tensioner (S).
4. Release the tension from the chain, by unscrewing the hex. bolt (M).

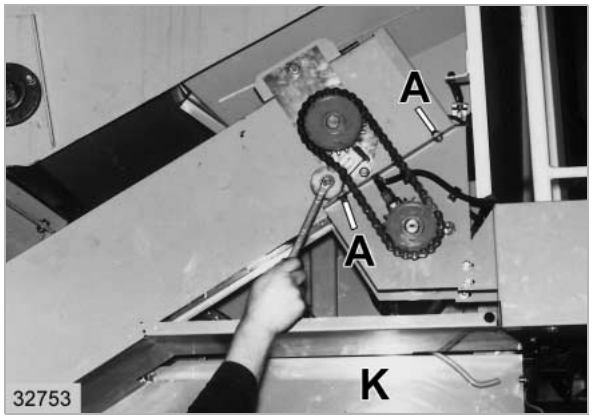
(Fig. 18)



19

Separate the chain at the chain connector.

(Fig. 19)



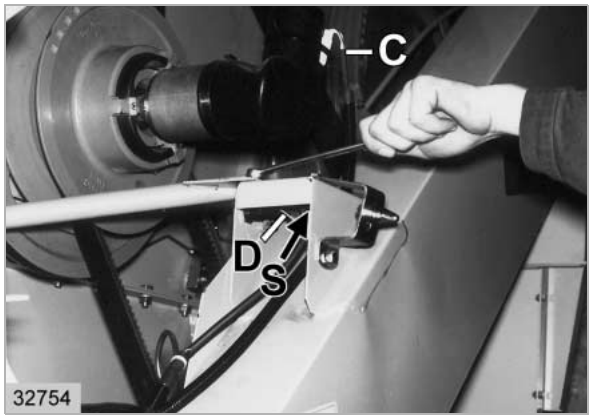
20

Release the tension from the returns auger drive chain and remove.

Remove the guard and mud guard (K).

Unscrew the returns elevator at (A).

(Fig. 20)



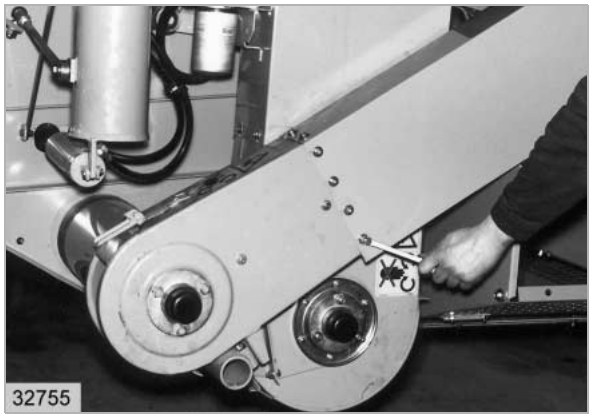
21

Unscrew the returns elevator from the support.

Disconnect the cables at (C and D).

Unscrew the bolt (S).

(Fig. 21)

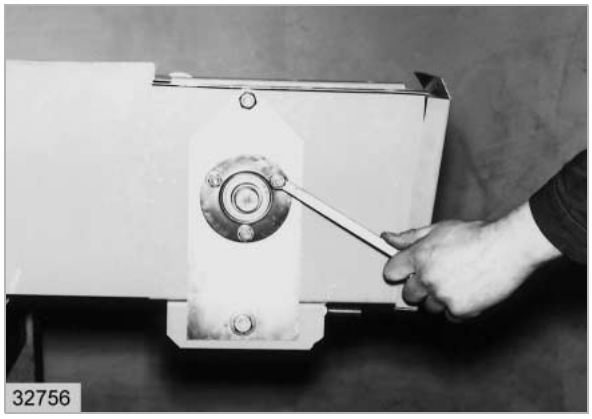


22

Loosen the bolts at the elevator boot.

Remove the returns elevator.

(Fig. 22)



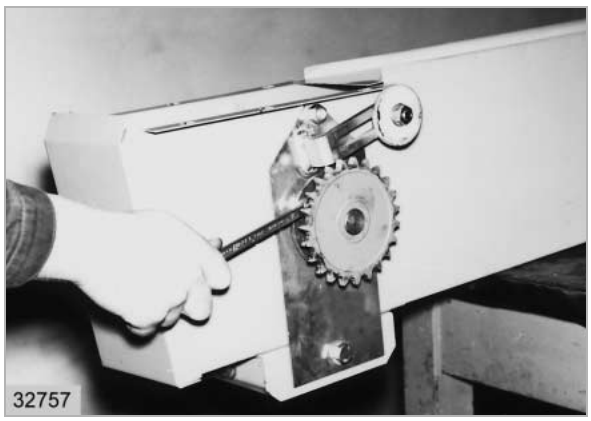
23

Disassembling the returns elevator

Remove the returns elevator.

Unscrew the flange ball bearing on the left-hand side. Loosen the lock collar and pull off the bearing.

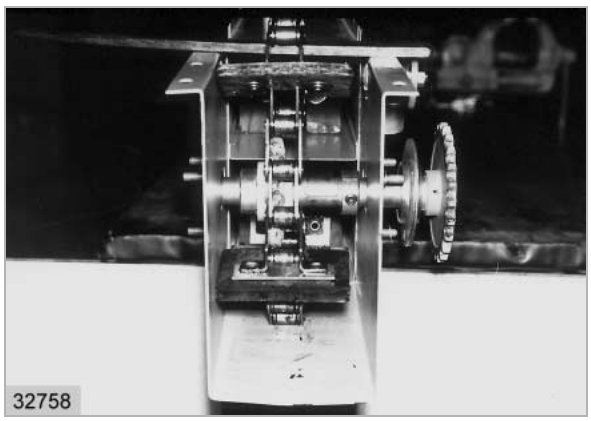
(Fig. 23)



24

Unscrew the flange ball bearing on the right-hand side.

(Fig. 24)



25

Remove the cover plate.

Loosen the two set collars on either side of the sprocket. Slide the sprocket to the left and then remove the parallel key.

Pull out the shaft to the right-hand side.

(Fig. 25)

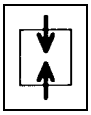


26

Drive the expansion pin out of the sprocket, then pull sprocket from the shaft.

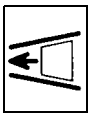
Pull off the flange bearing.

(Fig. 26)



Assembling the returns elevator

1. Slide the shaft into the returns elevator (observe correct installation position).



   Slide the set collars and the sprocket onto the shaft. Place the parallel key in position, then slide the sprocket on the key.

2. Install both flange ball bearings.

   Slide two washers ∅ 8.5 mm on every stud bolt, then bolt down the sheet-metal flange.

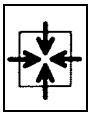
3. Slide the outside sprocket on the shaft and secure it with the expansion pin.

4. Push the shaft in until the sprocket makes contact with the flange ball bearing.

   Secure the left-hand flange ball bearing with the lock collar, then secure the lock collar.

5. Align the sprocket so that it lies in the centre of the elevator housing, then secure the sprocket with the set collars. Bolt down the cover.

6. Refit the returns elevator to the combine.



Installing the returns elevator

1. Place the returns elevator into the elevator boot and the base section.

2. Bolt the elevator to the elevator boot and the support to the elevator head.

3. Connect the cable plugs (C and D) and refit bolt (S).

   (Fig. 21)

4. Connect the two ends of the chain with the chain connector at the bottom.

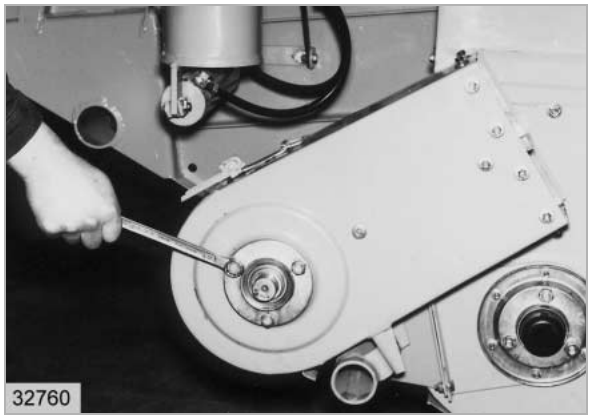
5. Tension the chain using the hex. nut (M) so far that the paddles do not scrape the elevator housing.

   It must be possible to push the conveyor chain to the side manually at the bottom chain wheel. Re-tension the drive chain with the block tensioner (S). Re-tighten the clamping bolts (G) and nuts (H).

   (Fig. 18)

6. Close inspection door (A) and bolt down guard (C).

   (Fig. 16, 17)



27

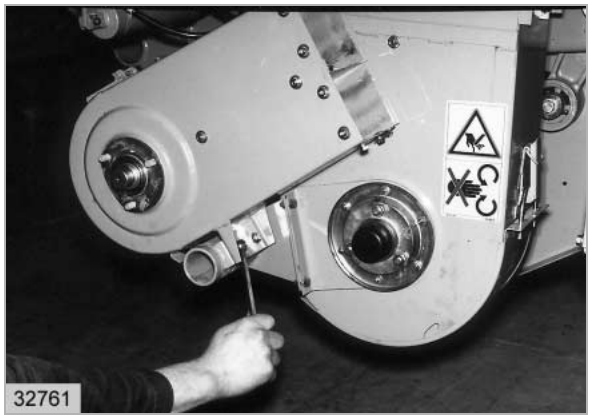
Removing the returns elevator boot

Remove the returns elevator.

Remove the cap.

Unlock the lock collar of the flange ball bearing, then knock it off. Unscrew the flange ball bearing.

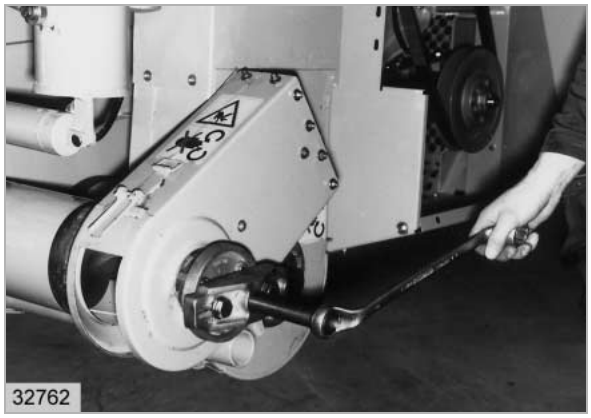
(Fig. 27)



28

Unscrew the elevator boot from the mounting beam.

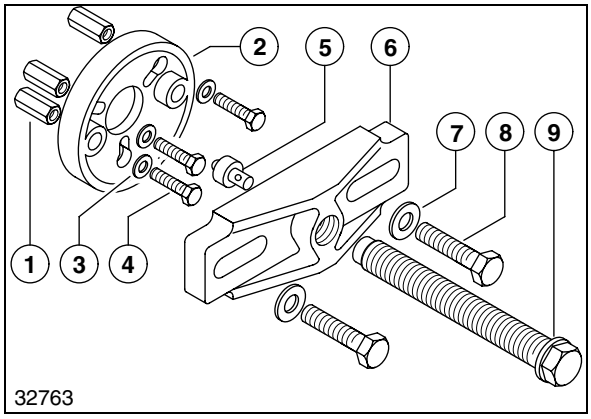
(Fig. 28)



29

Using the special tool, pull the elevator boot off.

(Fig. 29)



30

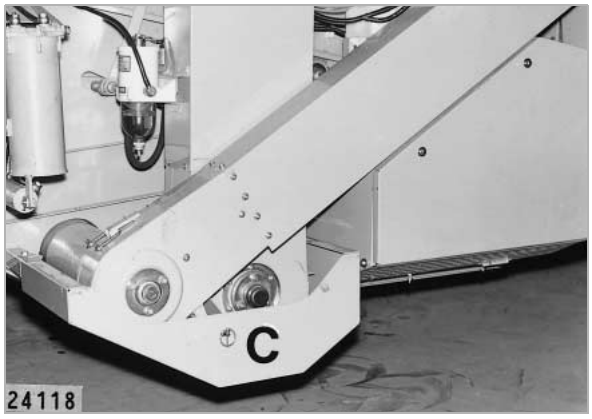
Special tool:

1 Extension M 10, part no. 181 943.0
2 Puller plate, part no. 181 935.3
3 Washer ∅ 10.5 DIN 125, part no. 236 913.2
4 Hex. bolt M 10 x 30 DIN 933-8.8, part no. 237 453.0
5 Centraliser with ball, part no. 181 849.0
6 Puller bridge, part no. 181 800.0
7 Washer ∅ 17 DIN 125
8 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0
9 Threaded spindle, part no. 181 801.1

(Fig. 30)

Installing the returns elevator boot

1. Bolt the elevator boot to the mounting beam.
2. Install the flange ball bearing on the returns auger and bolt it to the elevator boot.
3. Secure the flange ball bearing with the lock collar, then secure the lock collar. Refit the cap.
4. Refit the returns elevator to the combine.



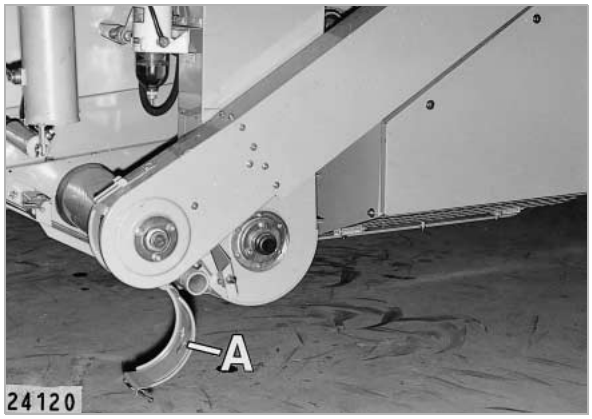
31

Removing the lower returns auger

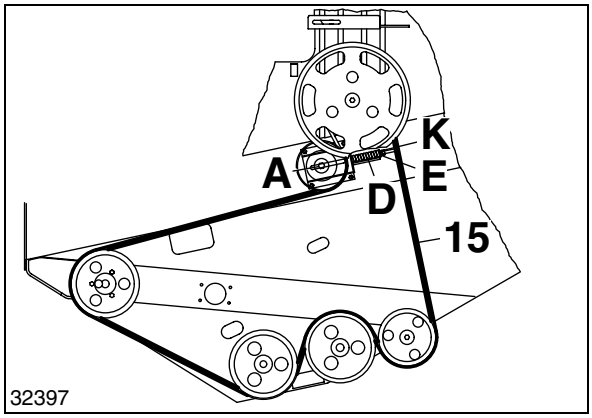
If fitted, remove the guard (C).

Open the returns elevator inspection door (A) and remove.

(Fig. 31, 32)



32

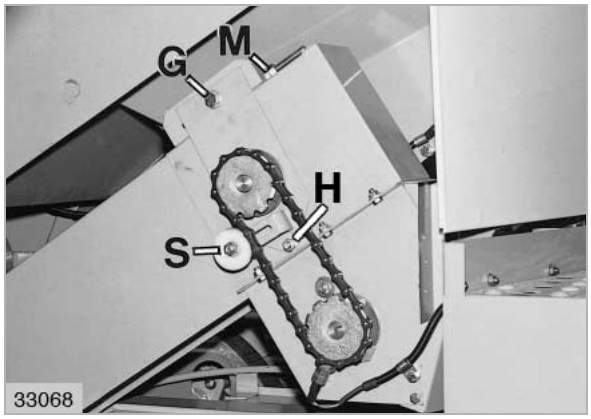


33

Remove belt (15). For this loosen clamping bolt (A) on the jockey pulley. Relieve the tension in compression spring (D) with nuts (K and E).

Turn the elevator chain until the chain connector is at the bottom.

(Fig. 33)



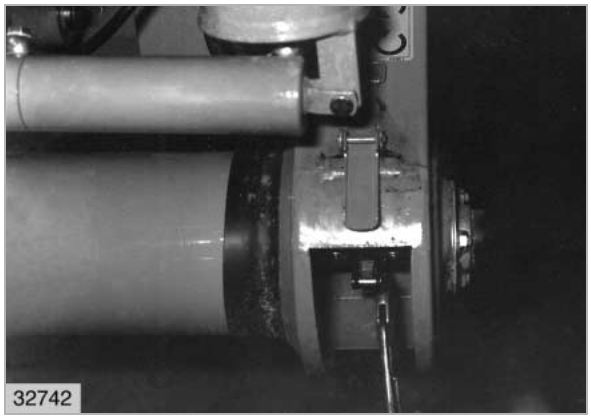
34

Release the tension from the chain.

This is done as follows:

1. Loosen the hex. nuts (H).
2. Loosen the hex. bolts (G).
3. Loosen the block tensioner (S).
4. Release the tension from the chain, by unscrewing the hex. bolt (M).

(Fig. 34)



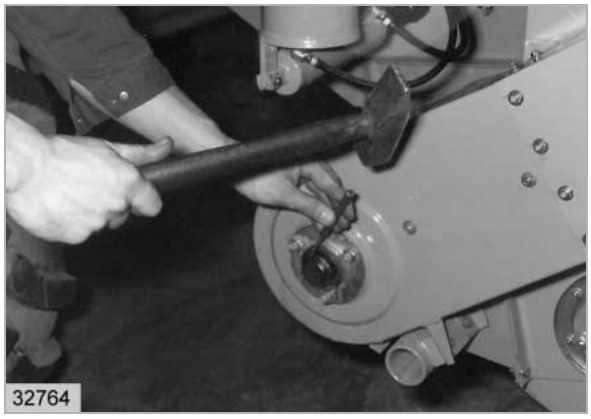
35

Separate the chain at the chain connector.

Loosen the set collars next to the sprocket.

Thoroughly clean the returns auger shaft in the elevator boot.

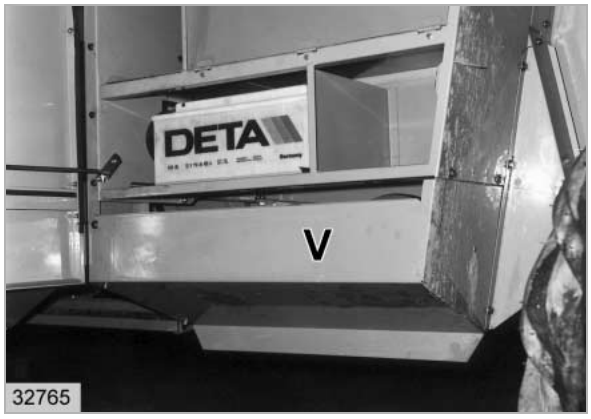
(Fig. 35)



36

Remove the cap. Unlock the lock collar and knock it off.

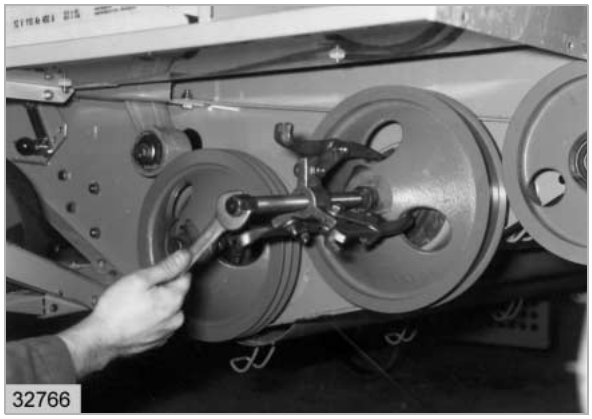
(Fig. 36)



37

Remove the cover plate (V) on the left-hand side of the machine.

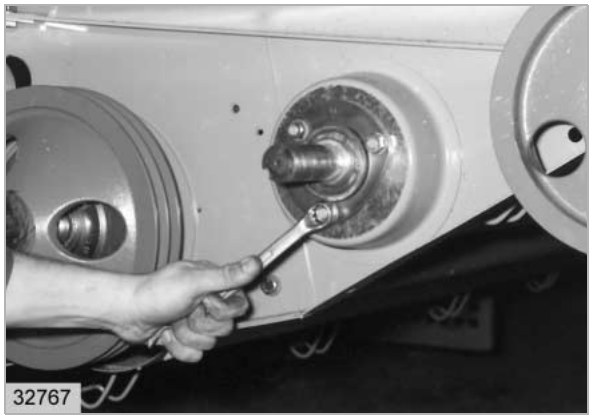
(Fig. 37)



38

Remove the key from the V-belt pulley and pull it off.

(Fig. 38)



39

Unscrew the flange ball bearing.

(Fig. 39)

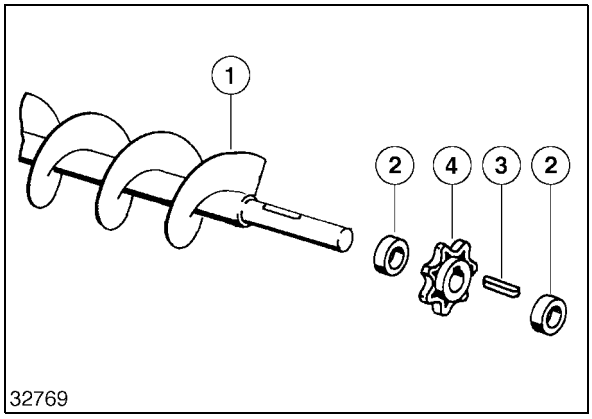


40

Turn out the grain auger to the left-hand side through the assembly slot. This will drive off the sprocket and the set collars in the elevator boot from the shaft on the right-hand side.

To make this job easier, temporarily fix the V-belt pulley and the key on the shaft.

(Fig. 40)

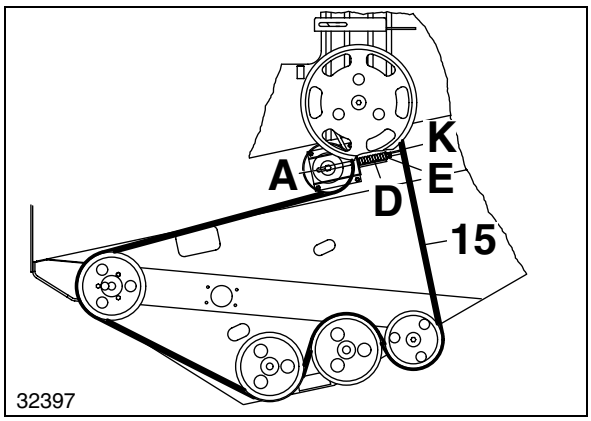


41

Installing the lower returns auger

1. Turn the returns auger in through the assembly slot on the left-hand side of the combine. While doing so, slide on the inner set collar (2), the parallel key (3), the sprocket (4) and the outer set collar (2) in the elevator boot at the same time.

(Fig. 40, 41)



42

2. Install the flange ball bearings on both sides of the machine and tighten.

   Align the auger so that the shaft shoulder makes contact with the inner race of the lock collar bearing on the left-hand side.

3. Secure the flange ball bearing with the lock collar, then secure the lock collar. Check the auger for free and easy rotation.

4. Align the V-belt pulley and insert the key.

   Install and tension the V-belt (15). To retension, pretension the compression spring (D) with the nut (E) to the gauge rod length. Lock the nuts (K and E) and tighten clamping bolt (A) on the jockey pulley.

(Fig. 42)

5. Align sprocket (4) so that it is centred to the elevator, then secure the sprocket with the set collars (2).

   (Fig. 41)

6. Insert the cap. Connect the two ends of the chain with the chain connector at the bottom.

7. Tension the chain using the hex. nut (M) so far that the paddles do not scrape the elevator housing. It must be possible to push the conveyor chain to the side manually at the bottom chain wheel.

   Re-tension the drive chain with the block tensioner (S). Re-tighten the clamping bolts (G) and nuts (H).

   (Fig. 34)

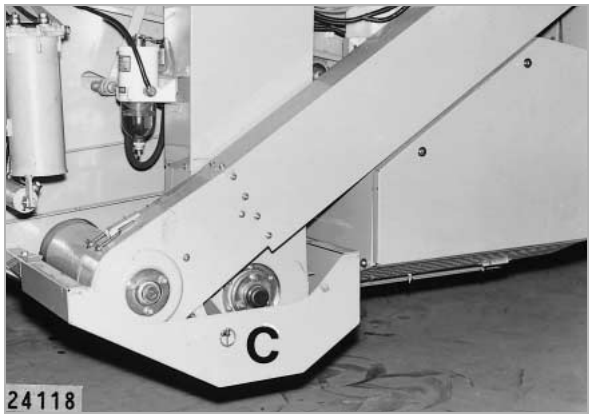
8. Close inspection door (A) and bolt down guard (C).

   (Fig. 31, 32)

9. Refit the cover plate (V).

   (Fig. 37)

GRAIN ELEVATOR



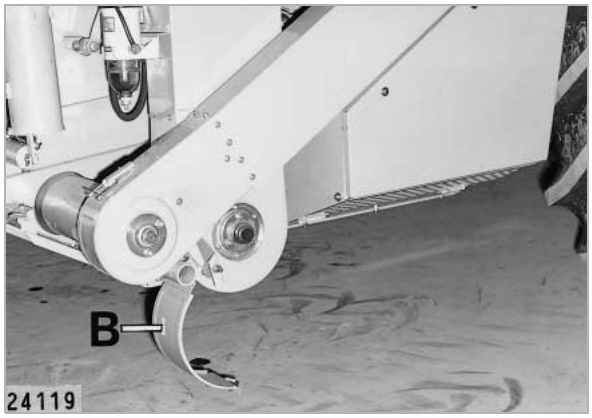
1

Removing the clean grain elevator chain

If fitted, remove the guard (C).

Open the inspection door (B) on the clean grain elevator and then remove.

(Fig. 1, 2)



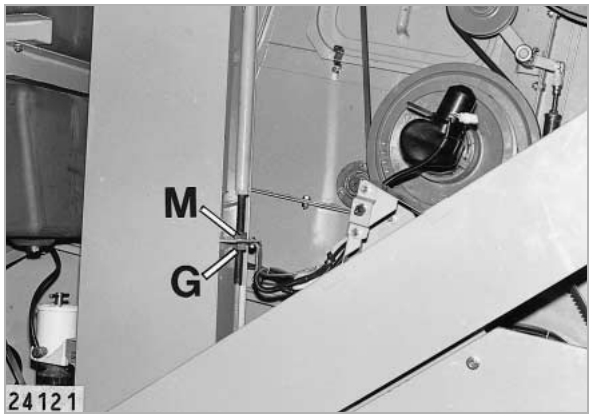
2

Turn the elevator chain until the chain connector is at the bottom.

Release the tension from the chain.

To release the tension, loosen the lock nut (G) and then release the chain tension on the nut (M).

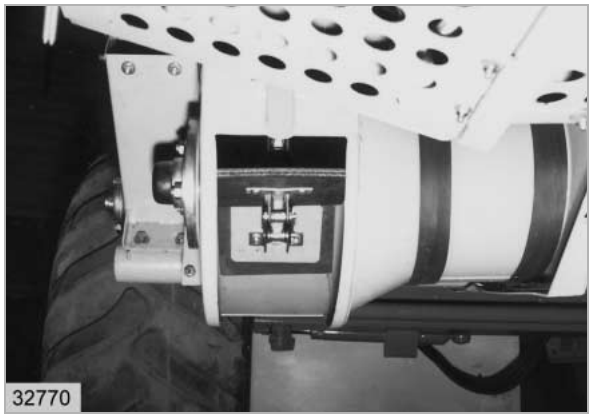
(Fig. 3)



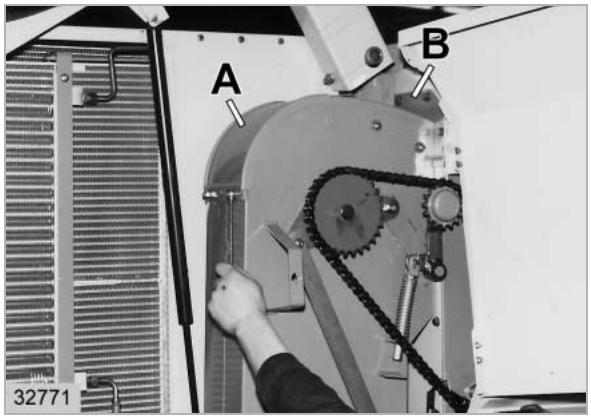
3

Separate the chain at the chain connector.

(Fig. 4)



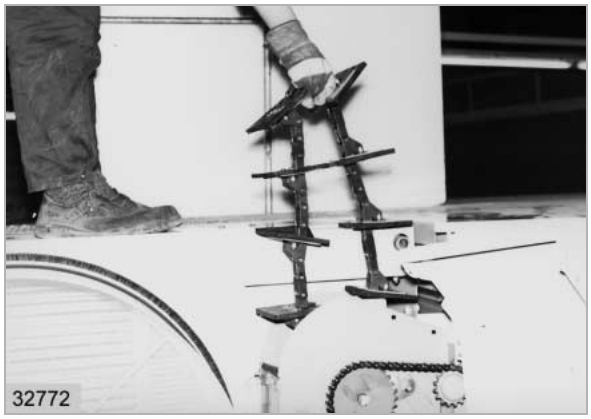
4



5

Remove the two cover plates (A and B) at the elevator head.

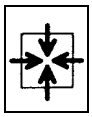
(Fig. 5)

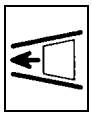


6

Pull the elevator chain out from the top.

(Fig. 6)





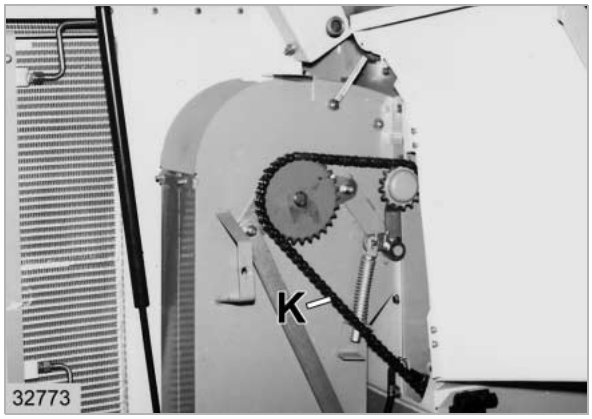
Installing the clean grain elevator chain

1. Introduce the elevator chain into the elevator from the top. Observe correct installation position!
2. Connect the two ends of the chain with the chain connector at the bottom.
3. Tension the chain using the hex. nut (M) so far that the paddles do not scrape the elevator housing. It must be possible to push the conveyor chain to the side manually at the bottom chain wheel. Secure the adjustment with the lock nut (G).

   (Fig. 3)
4. Close inspection door (B) and bolt down guard (C).

   (Fig. 1, 2)
5. Bolt down cover plates (A and B).

   (Fig. 5)



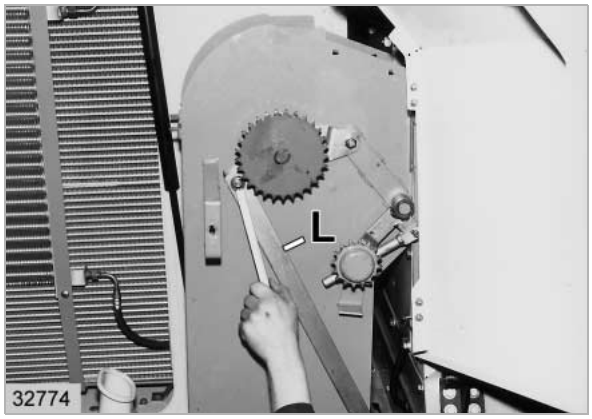
7

Removing the clean grain elevator head

Remove the grain elevator chain.

Release the tension of the grain tank filler auger drive chain (K) and remove chain.

(Fig. 7)



8

Remove the chain adjusting straps (L) from their mounting plate.

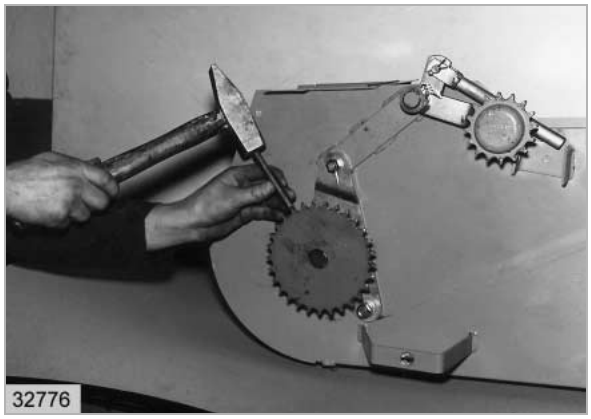
(Fig. 8)



9

Unbolt the elevator head from the main housing and remove by lifting it off.

(Fig. 9)



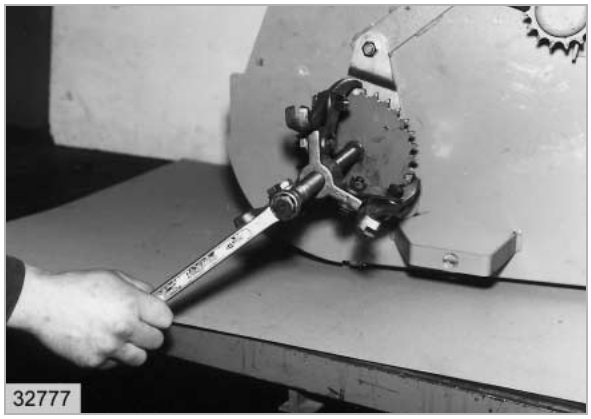
10

Dismantling the clean grain elevator head

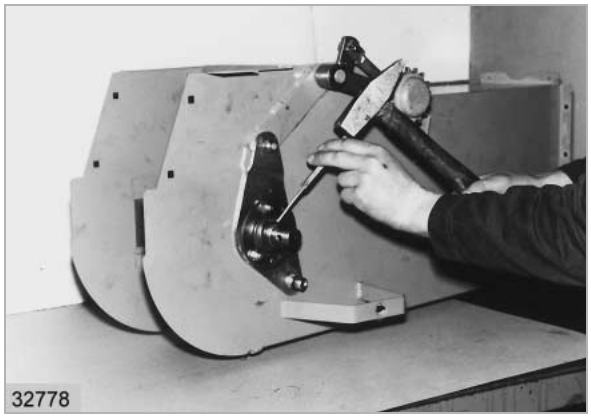
Remove the expansion pin from the sprocket.

Using a suitable puller, pull the sprocket off the shaft.

(Fig. 10, 11)



11

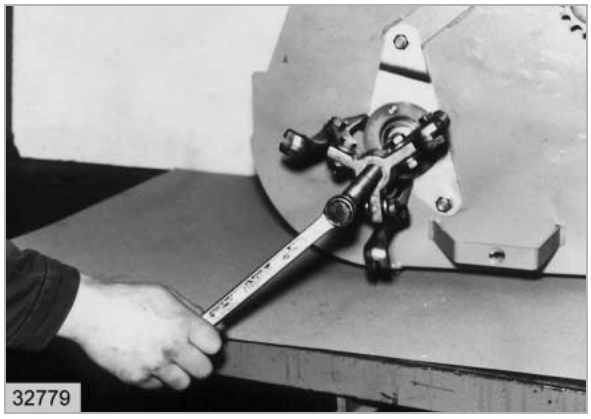


12

Unlock the lock collars on both sides and knock them off against the direction of rotation.

Remove the lock collars.

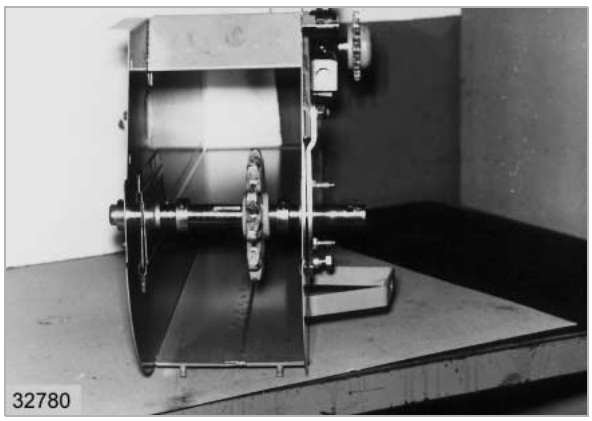
(Fig. 12)



13

Unscrew and pull off the flange ball bearing.

(Fig. 13)

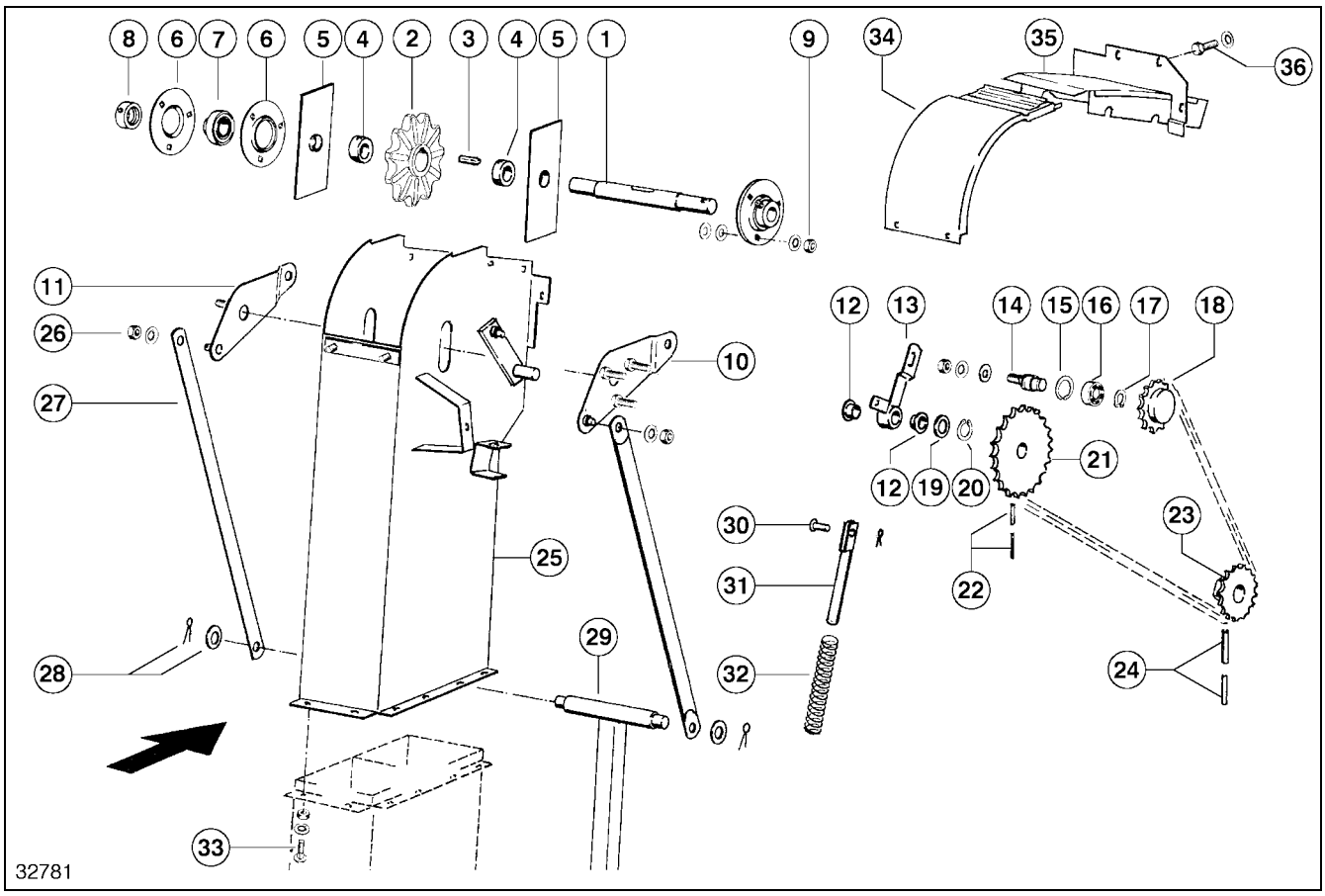


14

Loosen the two set collars on either side of the sprocket. Slide the sprocket to the side and remove the parallel key.

Remove the shaft out of the side of the housing.

(Fig. 14)



15

Clean grain elevator head, disassembled:

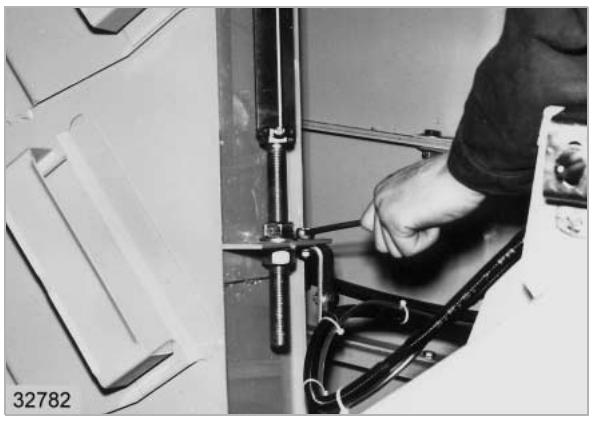
1 Shaft
2 Sprocket
3 Parallel key
4 Set collar
5 Sealing plate
6 Sheet metal flange
7 Lock collar bearing
8 Lock collar
9 Washer 8.4
Contact washer A 8
Hex. nut M 8 DIN 934
10 Right-hand clamping plate
11 Left-hand clamping plate
12 Bushing
13 Mounting bracket
14 Pin
Washer
Contact washer A 12
Hex. nut M 12 DIN 934
15 Circlip 47 x 1.75 DIN 472
16 Deep-groove ball bearing 6204 Z DIN 625
17 Circlip 20 x 1.2 DIN 471
18 Jockey pinion
19 Washer
20 Circlip 20 x 1.2 DIN 471
21 Sprocket
22 Expansion pin 8 x 40 B DIN 8752
Expansion pin 5 x 40 B DIN 8752
23 Sprocket
24 Expansion pin 8 x 60 B DIN 8752
Expansion pin 5 x 60 B DIN 8752
25 Elevator head
26 Self-locking nut VM 10
Washer 10.5 DIN 125
27 Tube
28 Split pin 5 x 32 DIN 94
Washer 21 DIN 125
29 Brace
30 Pin
Split pin 4 x 18 DIN 94
31 Tube
32 Compression spring
33 Mushroom head bolt M 6 x 16 x 10 DIN 603
Hex. nut M 6 DIN 934
Contact washer A 6
34 Cover
35 Cover
36 Hex. bolt M 8 x 16 DIN 933-8.8
Contact washer A 8

(Fig. 15)

Assembling and installing the clean grain elevator head

1. Slide the shaft (1) into the elevator head. Pre-assemble the sprocket (2), the parallel key (3) and the set collars (4) on the shaft.
2. Slide the flange ball bearing (6, 7 and 8) on the shaft and bolt into position. Place lock collars in position, but do not tighten at this stage.
3. Secure sprocket (21) on the shaft (1) with the expansion pins (22).
4. Place the elevator head on the clean grain elevator housing and secure with mushroom head bolts (33).
5. Bolt down the tubes (27) for tensioning the elevator chain.
6. Align shaft (1) according to the sprockets (18, 21 and 23) for the grain tank filler auger drive. Secure the lock collars (8) in direction of rotation.
7. Centralise the sprocket (2) with the elevator head and secure with the set collars (4).
8. Fit and tension the drive chain.
9. Install the grain elevator chain.

(Fig. 7–15)



16

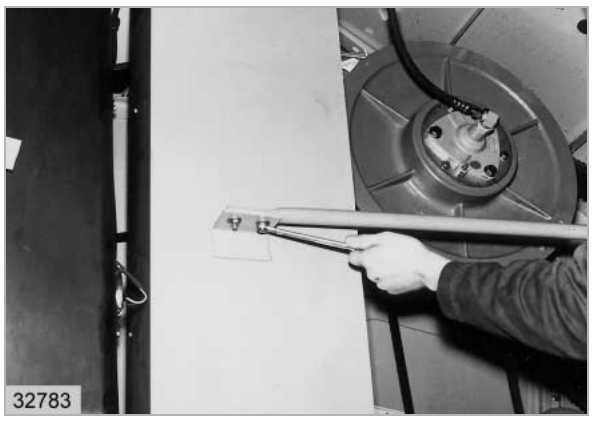
Removing the clean grain elevator shaft

Remove the grain elevator chain.

Remove the grain elevator head.

Remove the cable brackets from the grain elevator.

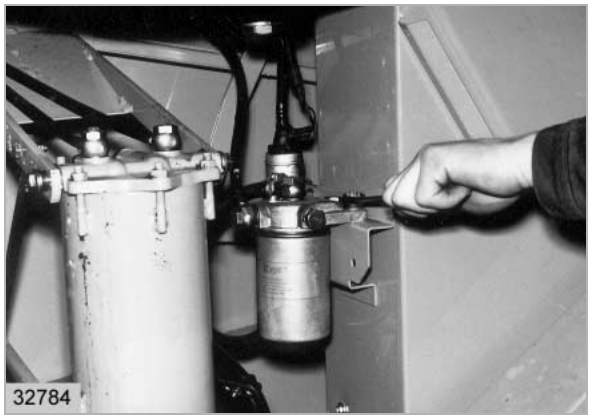
(Fig. 16)



17

Remove the supporting brace.

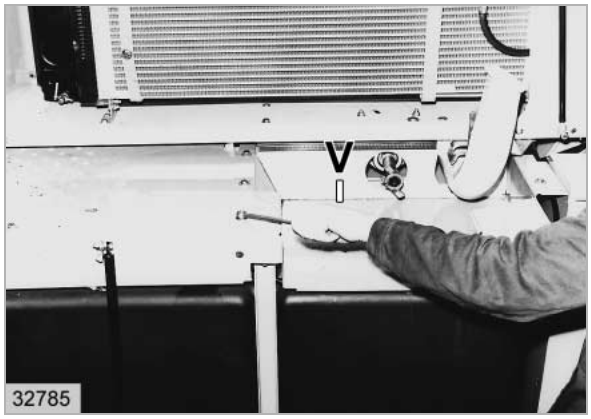
(Fig. 17)



18

Unscrew the fuel pre-filter and the fuel pump from the elevator shaft.

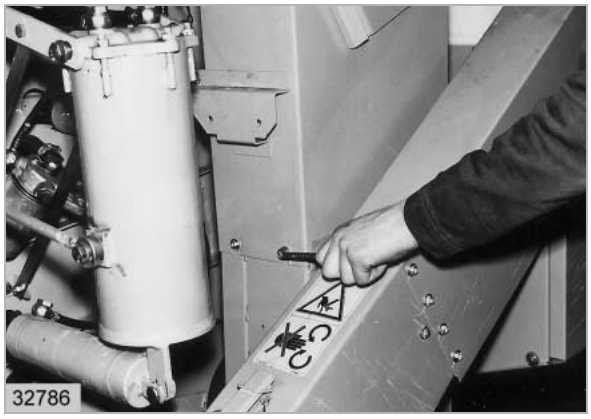
(Fig. 18)



19

Unscrew the extension plate (V).

(Fig. 19)



20

Unscrew the elevator shaft from the elevator boot.

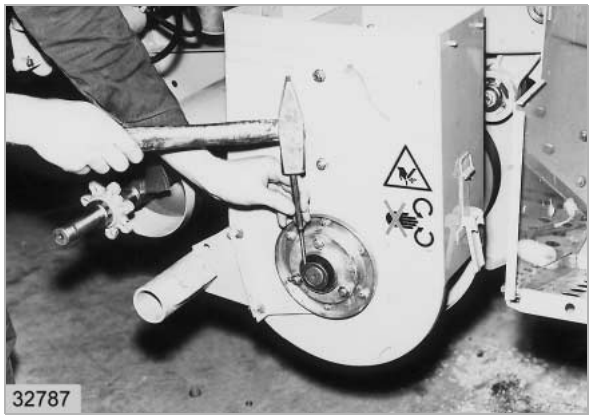
Lift the elevator shaft out of the machine.

(Fig. 20)

Installing the grain elevator shaft

1. Lower the grain elevator shaft into the elevator boot and bolt it down.
2. Bolt down the extension plate (V).
3. Refit the fuel pre-filter and fuel pump.
4. Bolt down the supporting brace and the cable bracket.
5. Install the grain elevator head.
   Install the grain elevator chain.

(Fig. 15, 16, 17, 18, 19)



21

Removing the clean grain elevator boot

Remove the returns elevator.
Remove the returns elevator boot.

Remove the grain elevator chain.
Remove the grain elevator head.
Remove the clean grain elevator shaft.

Remove the protective cap. Unlock the lock collar and knock it off against the normal direction of rotation.

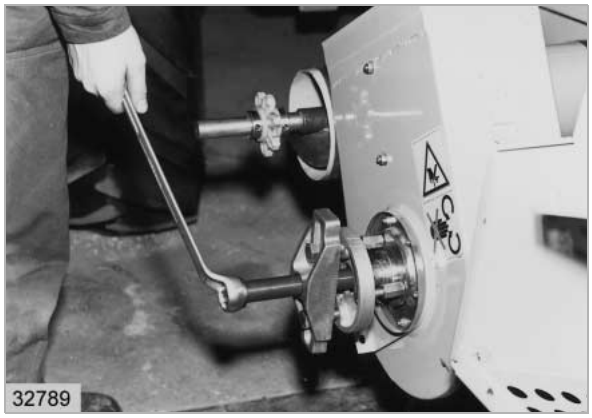
(Fig. 21)



22

Unscrew the bracket and remove it.

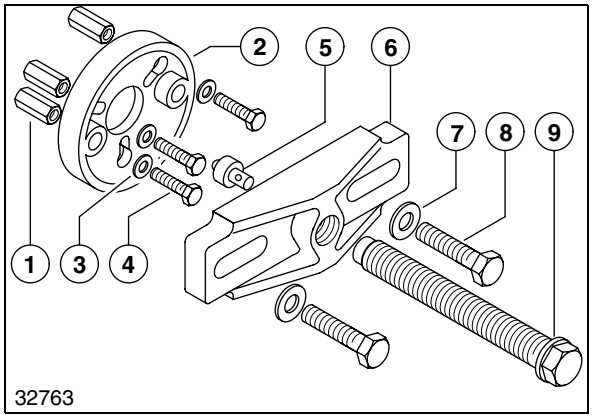
(Fig. 22)



23

Unbolt the flange ball bearing and pull it off using the special tool.

(Fig. 23)



24

Special tool:

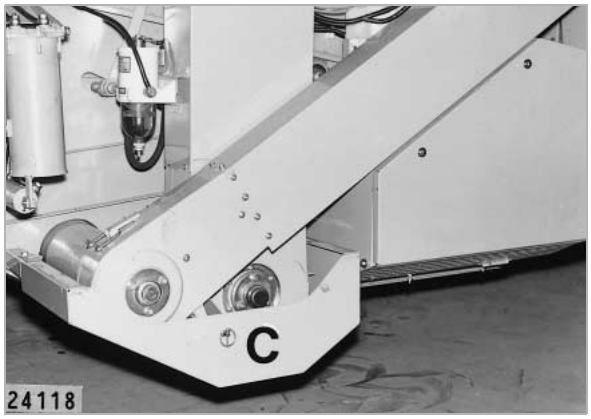
1 Extension M 10, part no. 181 943.0
2 Puller plate, part no. 181 935.3
3 Washer ∅ 10.5 DIN 125, part no. 236 913.2
4 Hex. bolt M 10 x 30 DIN 933-8.8, part no. 237 453.0
5 Centraliser with ball, part no. 181 849.0
6 Puller bridge, part no. 181 800.0
7 Washer ∅ 17 DIN 125
8 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0
9 Threaded spindle, part no. 181 801.1

(Fig. 24)

Installing the clean grain elevator boot

1. Refit the trim and slide the elevator boot into position.
2. Slide the bracket back into position and bolt on the cover. Install the flange ball bearing and tighten the mounting bolts. Install the lock collar and secure with a set screw. Refit the protective cap.
3. Bolt the elevator boot to the bracket.
4. Align the sprocket in the elevator boot to line up with the centre of the elevator shaft. To do this, loosen the set collars and align the sprocket. Once the sprocket is in place, secure with the set collars.
5. Install the clean grain elevator shaft.
   Install the grain elevator head.
   Install the grain elevator chain.
   Mount the returns elevator boot.
   Mount the returns elevator.

(Fig. 21, 22, 23, 24)



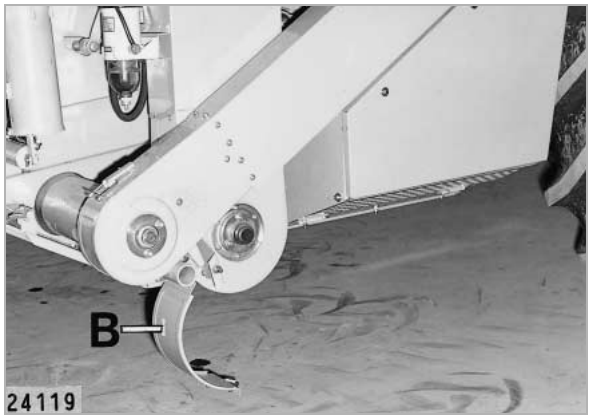
25

Removing the clean grain auger

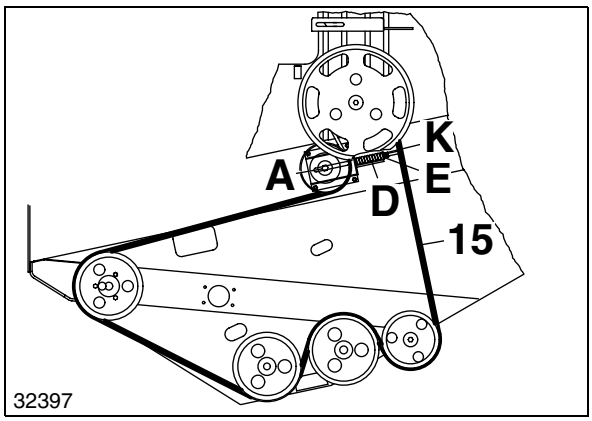
If fitted, remove the guard (C).

Open the inspection door (B) on the clean grain elevator and then remove.

(Fig. 25, 26)



26

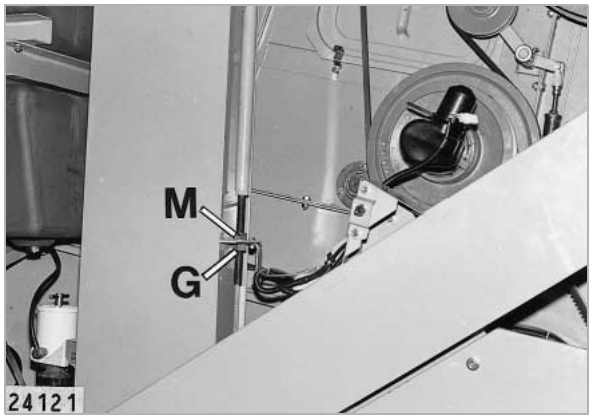


27

Remove belt (15). For this loosen clamping bolt (A) on the jockey pulley. Relieve the tension in compression spring (D) with nuts (K and E).

Turn the elevator chain until the chain connector is at the bottom.

(Fig. 27)

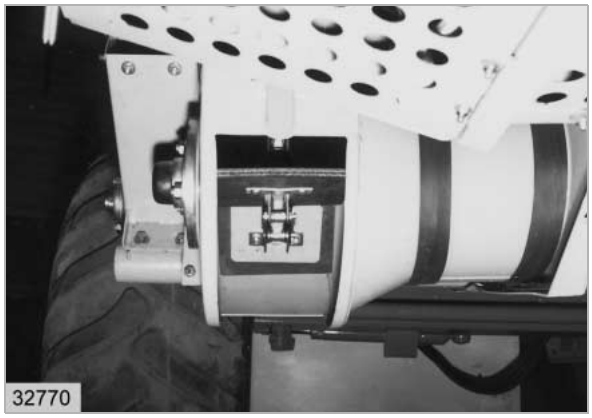


28

Release the tension from the chain.

To release the tension, loosen the lock nut (G) and then release the chain tension on the nut (M).

(Fig. 28)



29

Separate the chain at the chain connector.

Loosen the set collars next to the sprocket.

Thoroughly clean the grain auger shaft in the elevator boot.

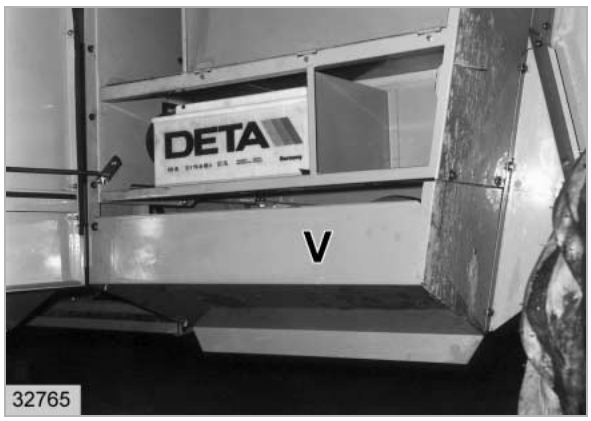
(Fig. 29)



30

Remove the cap. Unlock the lock collar and knock it off.

(Fig. 30)



31

Remove the cover plate (V) from the left-hand side of the machine.

(Fig. 31)



32

Remove the key from the V-belt pulley and pull it off.

(Fig. 32)



33

Unscrew the flange ball bearing.

(Fig. 33)

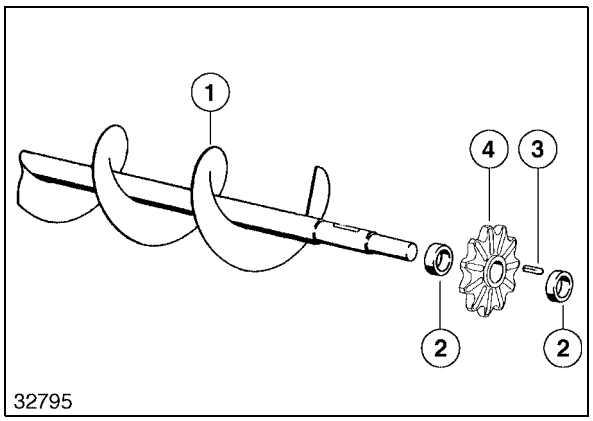


34

Turn out the grain auger to the left-hand side through the assembly slot. This will drive off the sprocket and the set collars in the elevator boot from the shaft on the right-hand side.

To make this job easier, temporarily fix the V-belt pulley and the key on the shaft.

(Fig. 34)



35

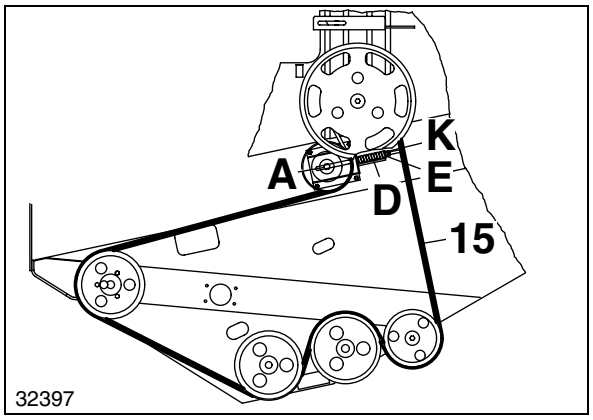
Installing the clean grain auger

1. Turn the grain tank auger in through the assembly slot on the left-hand side of the combine. At the same time slide on the sprocket (4) and the set collars (2).

(Fig. 34, 35)

2. Install the flange ball bearings on both sides of the machine and tighten. Align the grain auger so that the shaft shoulder makes contact with the inner race of the lock collar bearing on the left-hand side.

3. Secure the flange ball bearing with the lock collar, then secure the lock collar. Check the auger for free and easy rotation.



36

4. Align the V-belt pulley and insert the key. Install and tension the V-belt (15). To retension, pretension the compression spring (D) with the nut (E) to the gauge rod length. Lock the nuts (K and E) and tighten clamping bolt (A) on the jockey pulley.

(Fig. 36)

5. Align sprocket (4) so that it is centred to the elevator, then secure the sprocket with the set collars (2).

   (Fig. 35)

6. Insert the cap. Connect the two ends of the chain with the chain connector at the bottom.

7. Tension the chain using the hex. nut (M) so far that the paddles do not scrape the elevator housing. It must be possible to push the conveyor chain to the side manually at the bottom chain wheel. Secure the adjustment with the lock nut (G).

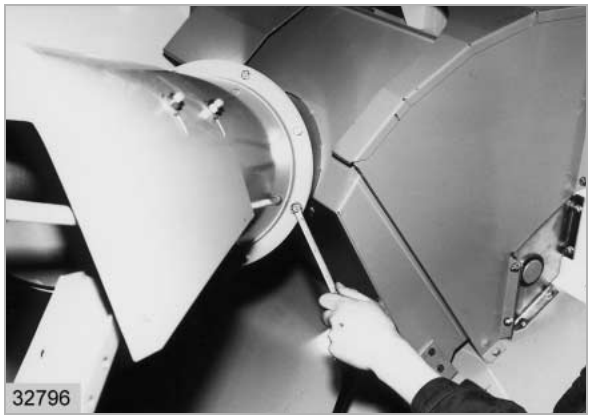
   (Fig. 28)

8. Close inspection door (B) and bolt down guard (C).

   (Fig. 25, 26)

9. Refit the cover plate (V).

   (Fig. 31)



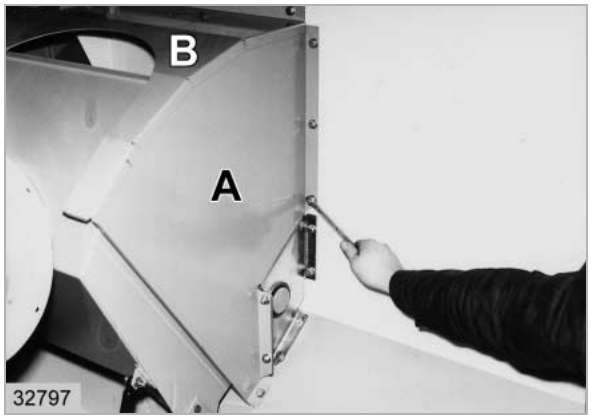
37

Removing the grain tank filler auger

Open the grain tank.

Unscrew the filling tube from the flange joiner.

(Fig. 37)



38

Unscrew the cover plates (A and B).

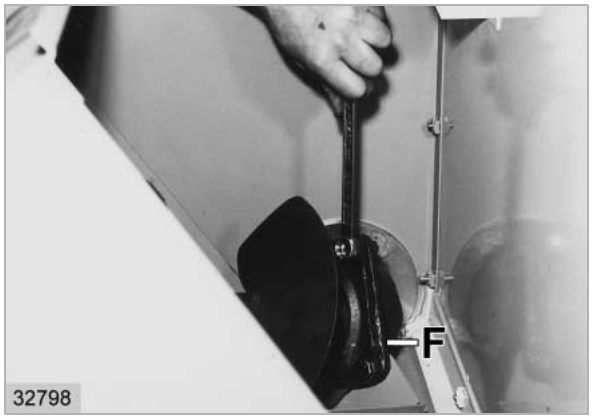
(Fig. 38)



39

Unscrew the pivot control rod.

(Fig. 39)



40

Unscrew the flange (F) at the filling head.

Lift the filler auger out along with the filling tube.

(Fig. 40)

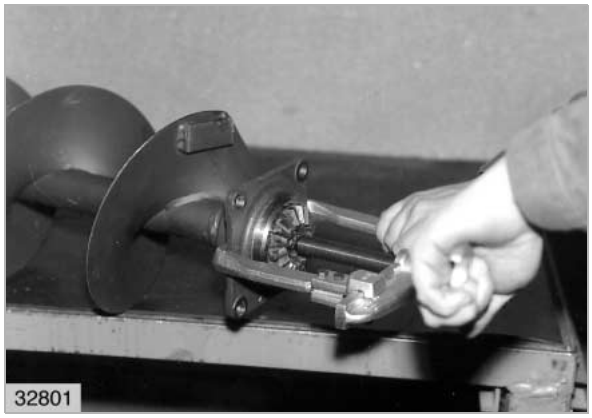


41

Knock off the lock collar from the flange bearing. Pull off the filler tube including the bearing.

Pull the grain tank filler auger out from the top.

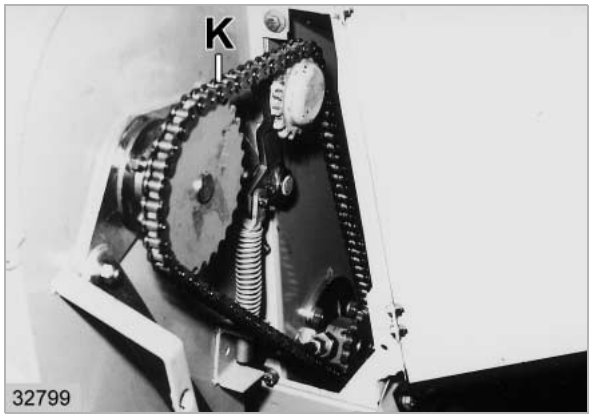
(Fig. 41)



42

Remove the hex. bolt and pull off the flange together with the bearing and the bevel gear.

(Fig. 42)



43

Removing the grain tank filler auger angle drive

Remove the grain tank filler auger.

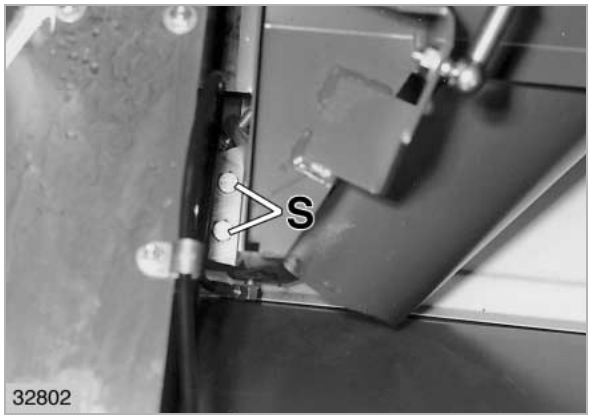
Release the tension of the grain tank filler auger drive chain (K) and remove chain.

Disconnect the cable from the magnetic pick-up.

Drive out the double expansion pins, then remove sprocket.

Unscrew the bearing plate.

(Fig. 43)

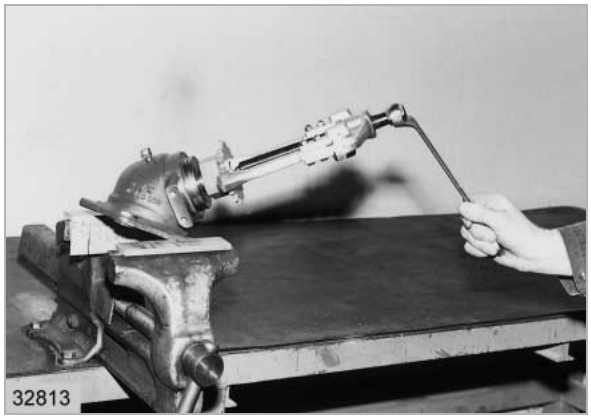


44

Remove the hose from the gearbox.

Unscrew the hex. bolts (S) M 10 x 16. Remove the gearbox housing.

(Fig. 44)



45

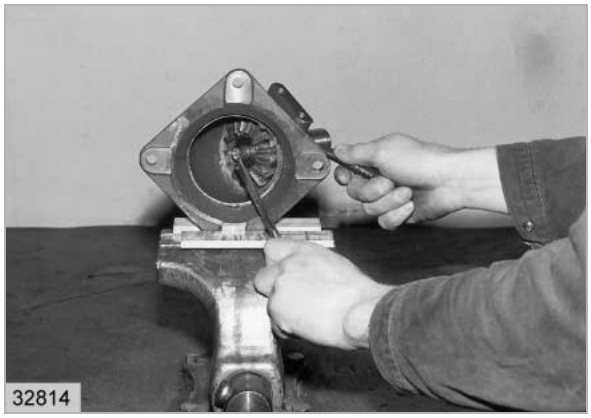
Disassembling the grain tank filler auger angle drive

Remove the bracket for the magnetic pick-up.

Drive the expansion pin from the sprocket.

Remove the sprocket, using a suitable puller.

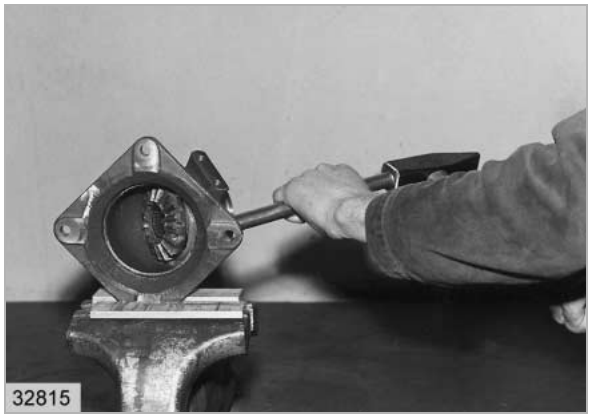
(Fig. 45)



46

Remove the hex. bolt and then drive out the shaft.

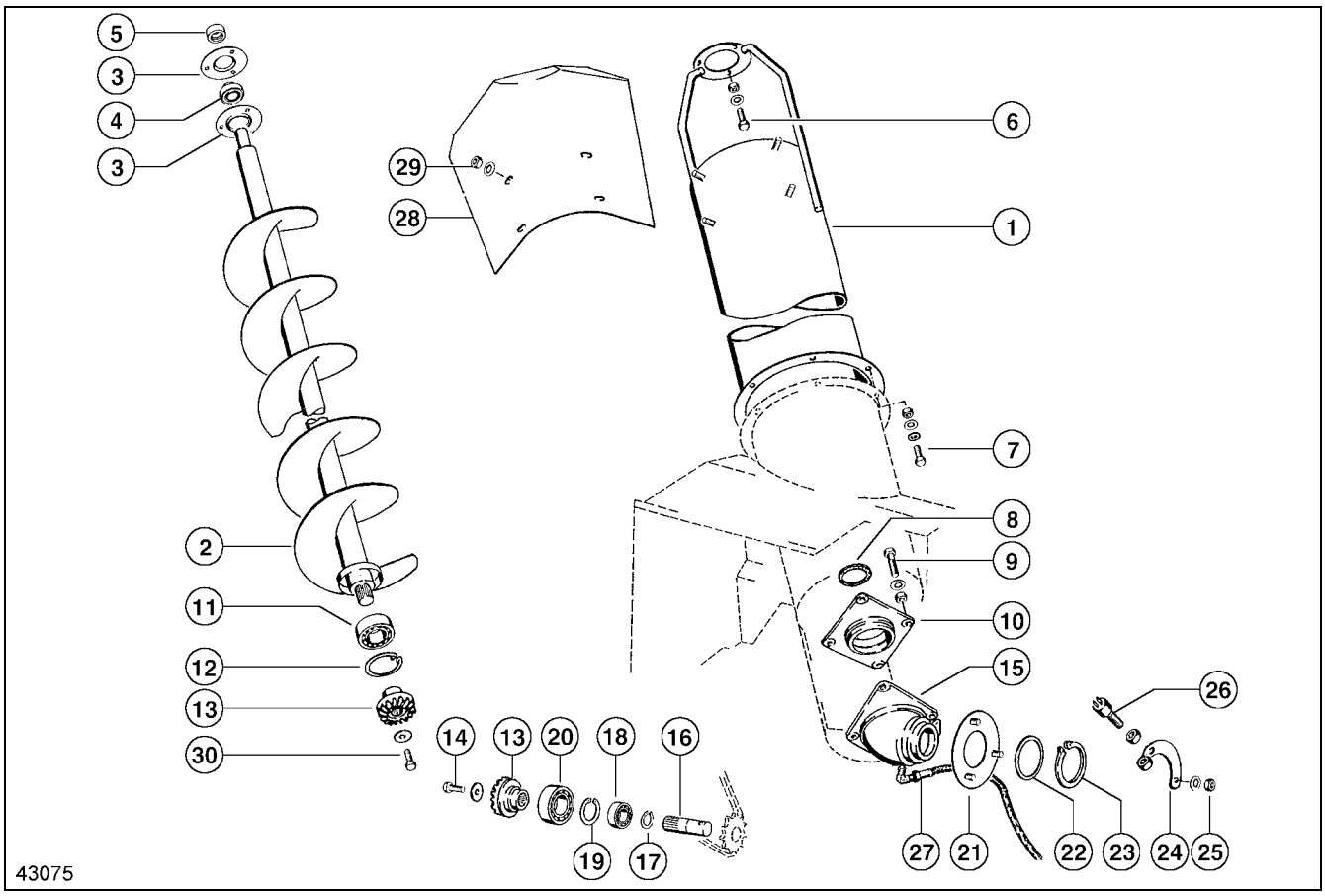
(Fig. 46)



47

Using a suitable brass punch, drive out the bevel gear.

(Fig. 47)

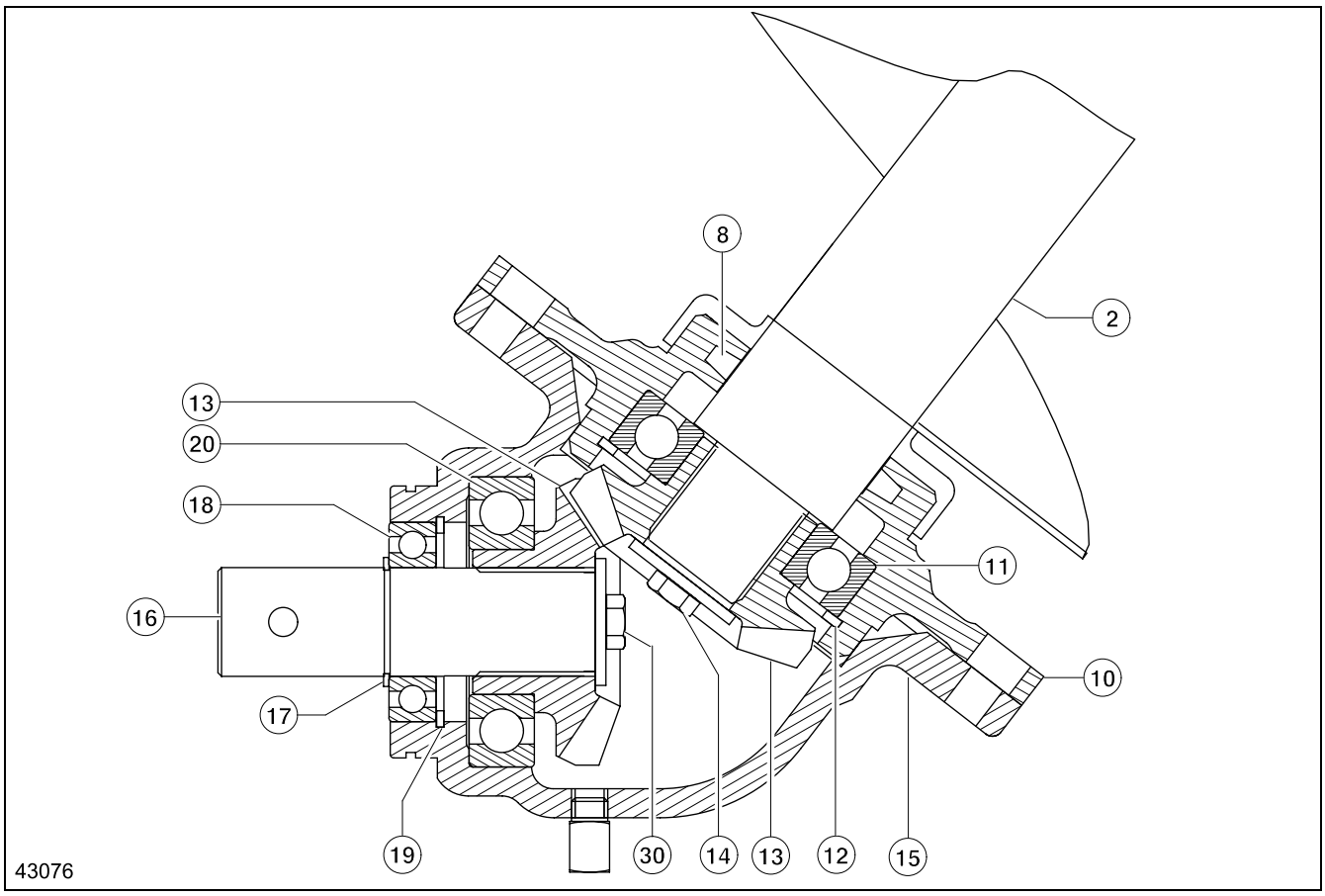


48

Grain tank filler auger, disassembled:

1 Filler tube
2 Filler auger
3 Sheet metal flange
4 Lock collar bearing
5 Lock collar
6 Hex. bolts M 10 x 25 DIN 933-8.8
Hex. nut M 10 DIN 934
Contact washer A 10
7 Hex. bolt M 8 x 20 DIN 933-8.8
Washer 8.4 x 23 x 2
Contact washer B 8
Hex. nut M 8 DIN 934
8 Felt ring
9 Hex. bolt M 10 x 40 DIN 931-8.8
Hex. nut M 10 DIN 934
Contact washer A 10
10 Flange
11 Deep-groove ball bearing 6208-2 RS
12 Circlip 80 x 2.5 DIN 472
13 Bevel gear
14 Hex. bolt M 8 x 20 DIN 933-10.9 MK
Washer
15 Housing
16 Shaft
17 Circlip 30 x 1.5 DIN 471
18 Deep-groove ball bearing 6006-2 RS
19 Circlip 55 x 2 DIN 472
20 Deep-groove ball bearing 6208-2 RS
21 Bearing plate
22 Shim
23 Circlip 75 x 2.5 DIN 471
24 Mounting bracket
25 Hex. nut M 10 DIN 934
26 Magnetic pick-up
Hex. nut BM 18 x 1.5
27 Hose line
28 Cover plate
29 Hex. nut M 10 DIN 934
Contact washer B 10
30 From serial no. …:
Hex. bolt M 10 x 25 DIN 933-10.9 MK
Washer
Up to serial no. …:
Hex. bolt M 8 x 20 DIN 933-10.9 MK

(Fig. 48)



49



50

Installing the grain tank filler auger

1. Press the deep groove ball bearing (11) into the flange (10), then secure with a circlip (12).

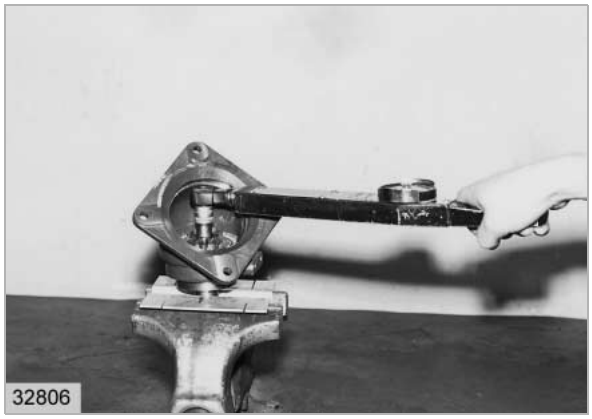
   Press the bevel gear (13) into the deep groove ball bearing (11). Insert the felt ring (8).

2. Install the filler auger (2). Insert hex. bolt (30) with liquid locking compound and tighten it.

   From serial no. …:
   Bolt down hex. bolt M 10 x 25 DIN 933-10.9 with a tightening torque of **63 Nm**.

   Up to serial no. …:
   Bolt down hex. bolt M 8 x 20 DIN 933-10.9 with a tightening torque of **33 Nm**.

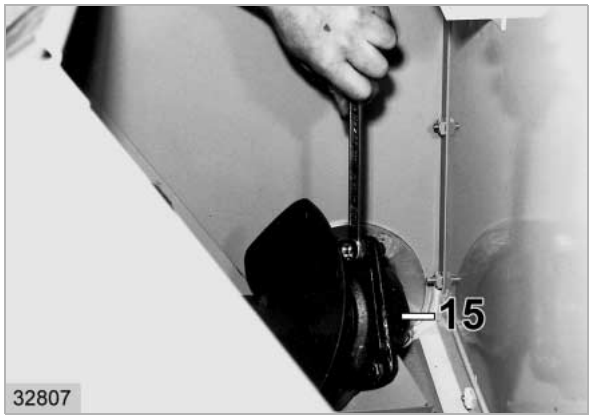
(Fig. 48, 49, 50)



51

3. Press the deep groove ball bearing (20) onto the bevel gear (13). Drive the bevel gear into the housing (15). Install circlip (19).
4. Press the deep groove ball bearing (18) on the shaft (16) and insert the circlip (17). Drive the shaft with the bearing into the gearbox housing.
5. Insert hex. bolt (14) with liquid locking compound and tighten it to **33 Nm**.

(Fig. 48, 49, 51)



52

6. Fit the pre-assembled housing (15) to the filler head with two hex. bolts M 10 x 16. Do not tighten the bolts at this stage.

   (Fig. 44)
7. Secure the housing (15), the bearing plate (21), the shim (22) and the circlip (23). Bolt the bearing plate (21) on.
8. Feed the hose line in to the grain tank and attach it.
9. Bolt the pre-assembled grain tank filler auger to the housing (15).

(Fig. 48, 49, 52)



53

10. Tighten the hex. bolts (S) M 10 x 16.

    (Fig. 48, 49, 53)

11. Bolt down the pivot control rod.

    (Fig. 39)
12. Bolt down the cover plates (A and B).

    (Fig. 38)
13. Bolt on the filler tube at the flange joiner.

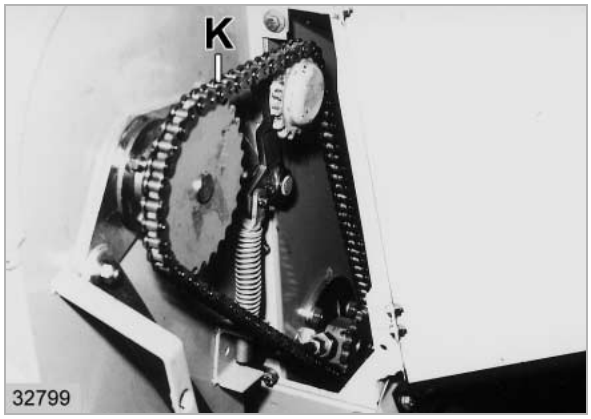
    (Fig. 37)



54

Secure the flange ball bearing with the lock collar, then secure the lock collar.

(Fig. 54)



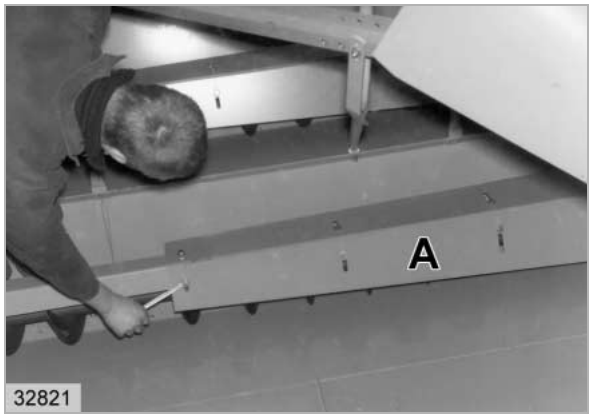
55

14. Slide the sprocket on the shaft and secure with the double expansion pin. Install chain (K) back and tension it. Bolt on the magnetic pick-up and adjust it. Clearance**1 ± 0.5 mm**.

    (Fig. 55)

15. Grease the angle drive.

GRAIN TANK UNLOADING

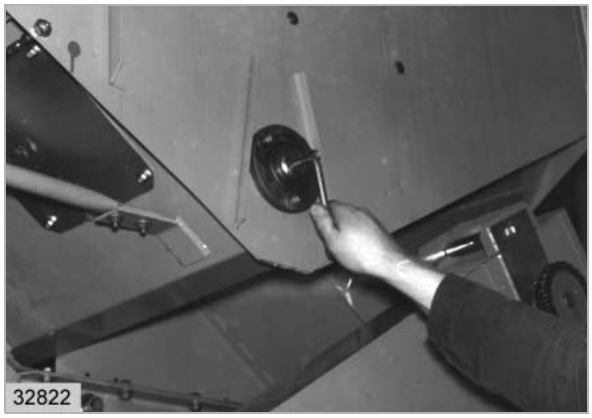


1

Removing the grain tank cross auger

Remove the conical graduation plates (A) located inside the grain tank above the cross augers.

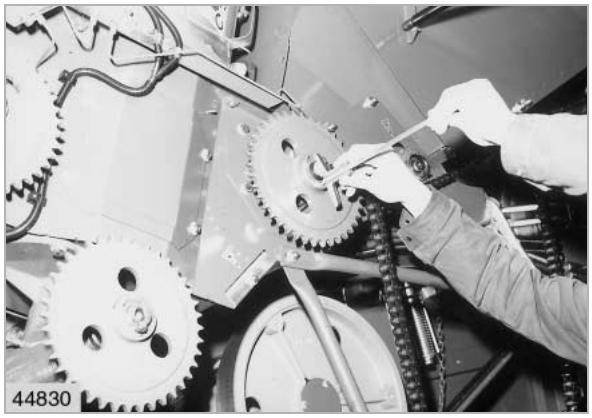
(Fig. 1)



2

Remove the bolts from the face end of cross augers on the right-hand side of the combine.

(Fig. 2)



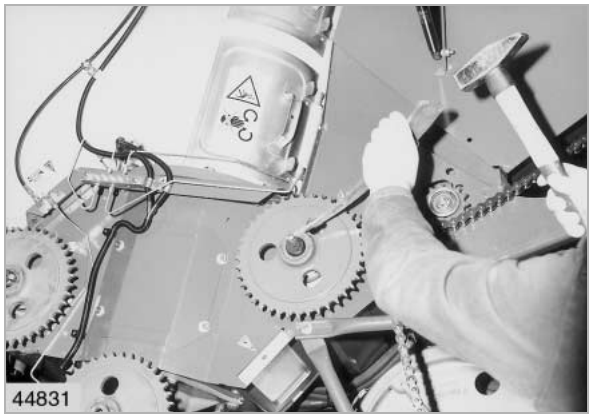
3

From serial no. …:

On the left-hand side of the combine, release the tension of the grain tank unloading drive chain and remove chain – see page 7.2.34, *Removing the grain tank unloading drive chain (17)*.

Measure the clearance between shaft end and sprocket.

(Fig. 3)

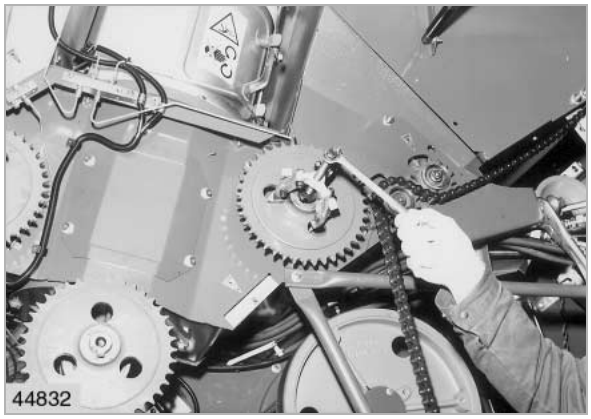


4

From serial no. …:

Remove gib head key using a key extractor.

(Fig. 4)

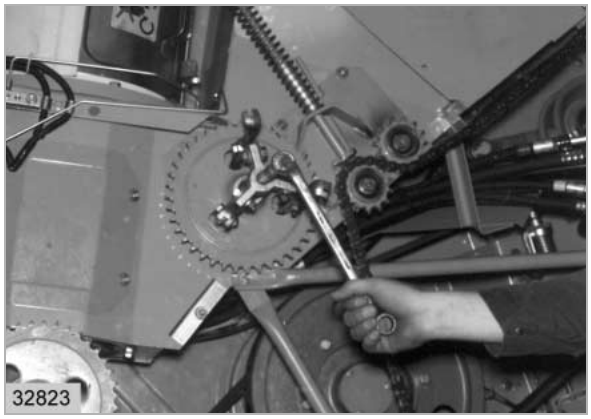


5

From serial no. …:

Remove the sprocket, using a suitable puller.

(Fig. 5)



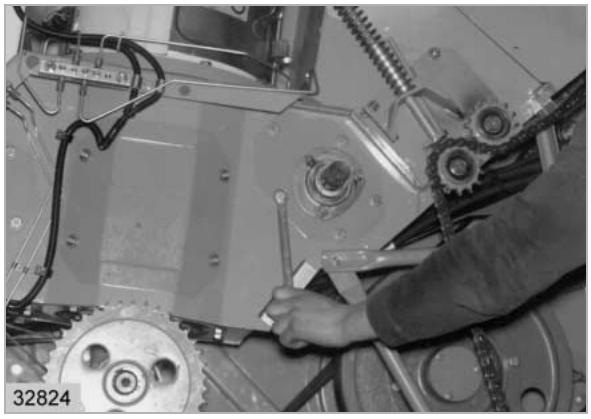
6

Up to serial no. …:

On the left-hand side of the combine, release the tension of the grain tank unloading drive chain and remove chain – see page 7.2.34, *Removing the grain tank unloading drive chain (17)*.

Remove the circlip from the sprocket. Pull off sprocket.

(Fig. 6)



7

Unscrew the hex. bolts from the bearing plate.

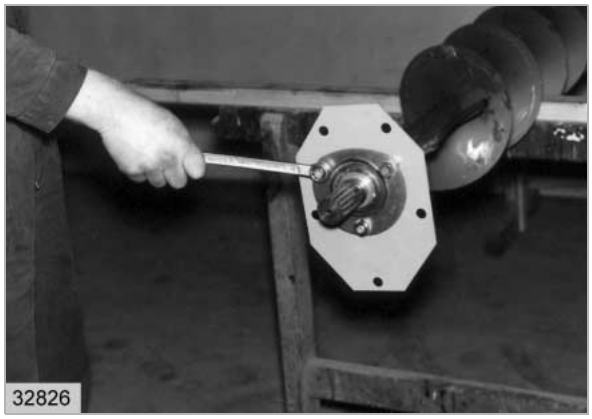
(Fig. 7)



8

Turn out the grain tank cross auger on the left-hand side of the combine.

(Fig. 8)

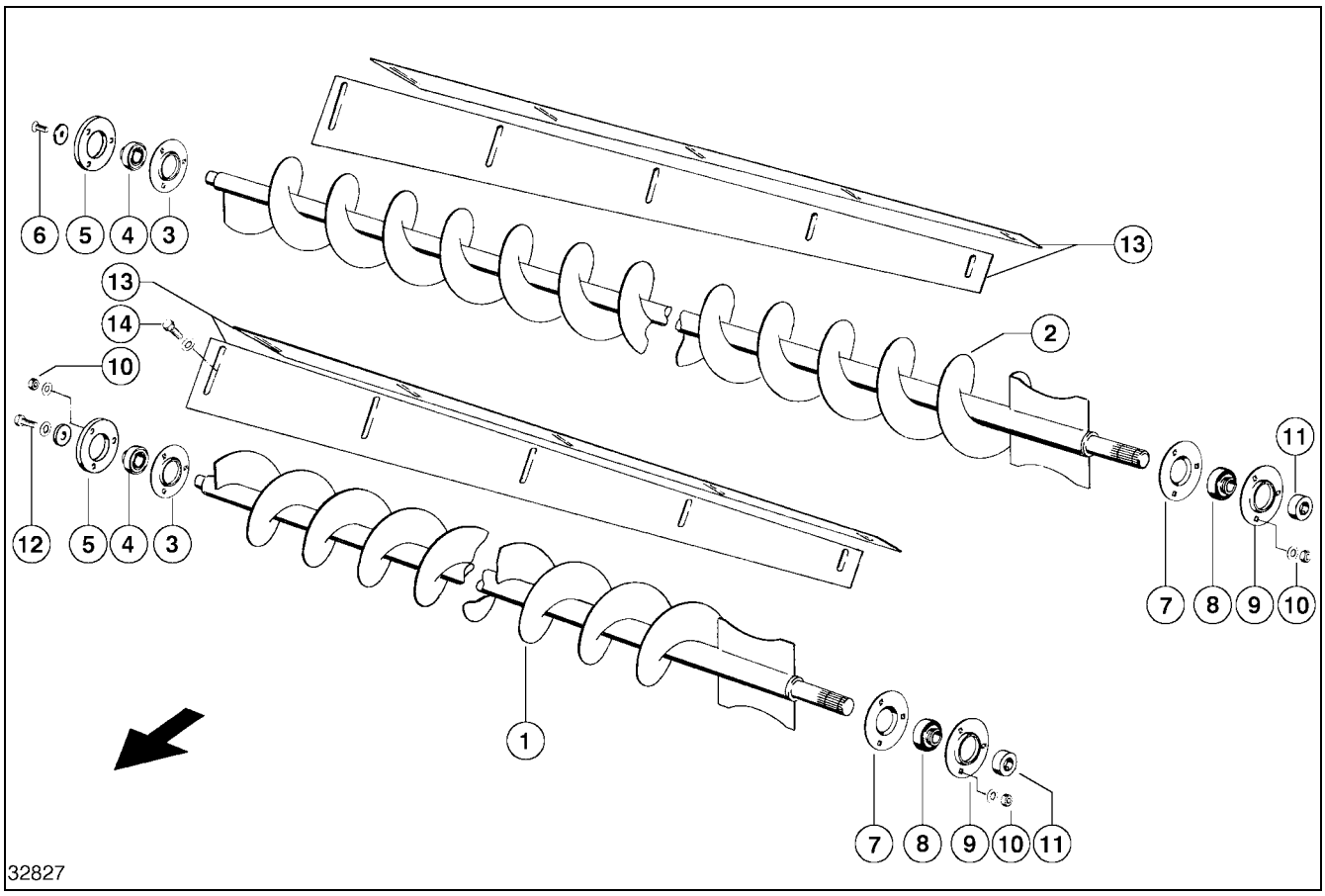


9

Remove the circlip from the shaft. Unlock the lock collar and knock it off.

Unscrew and pull off the flange ball bearing.

(Fig. 9)



10

Grain tank cross augers, disassembled

1 Front grain tank cross auger
2 Rear grain tank cross auger
3 Sheet metal flange
4 Lock collar bearing
5 Flange ring
6 Countersunk head bolt M 12 x 25 DIN 7991
Washer
7 Sheet metal flange
8 Lock collar bearing
9 Sheet metal flange
10 Hex. nut M 10
Contact washer A 10
11 Lock collar
12 Hex. bolt M 12 x 30 DIN 933-8.8
Contact washer A 12
Washer
13 Graduation plates
14 Hex. bolt M 8 x 16 DIN 933-8.8
Contact washer A 12

(Fig. 10)

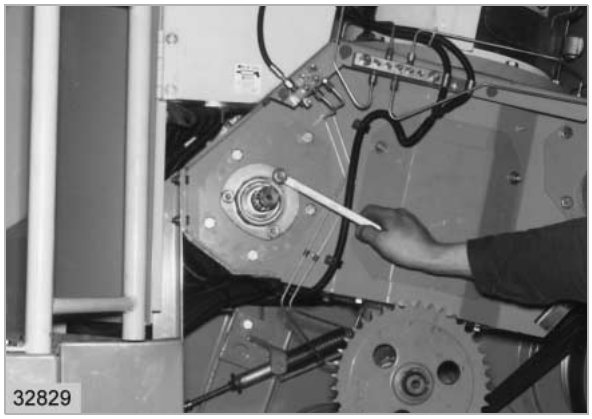


11

Installing the grain tank cross auger

1. Screw the grain tank cross auger (1 or 2) into the left-hand side of the combine.

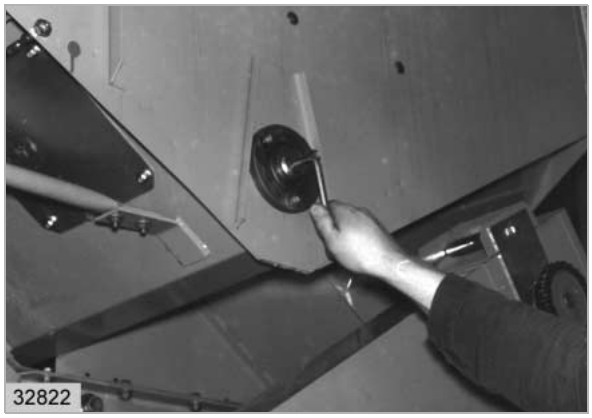
(Fig. 10, 11)



12

2. Refit the bearing plate. Bolt down the flange ball bearing (7, 8 and 9).

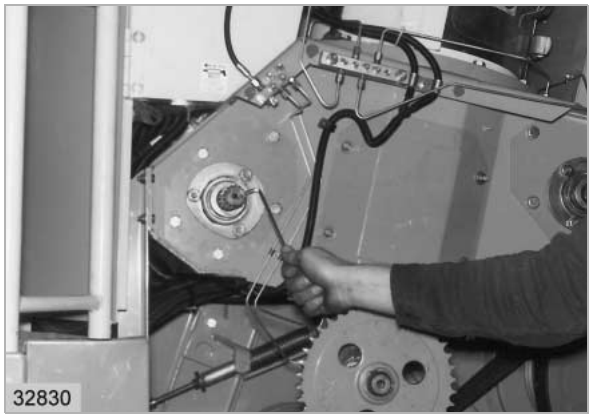
(Fig. 10, 12)



13

3. Refit the bolt (12 or 6) on the right-hand side.

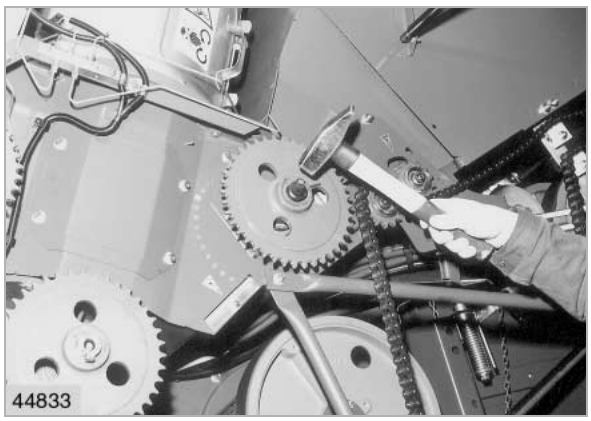
(Fig. 10, 13)



14

4. Tap the lock collar (11) tight and secure.

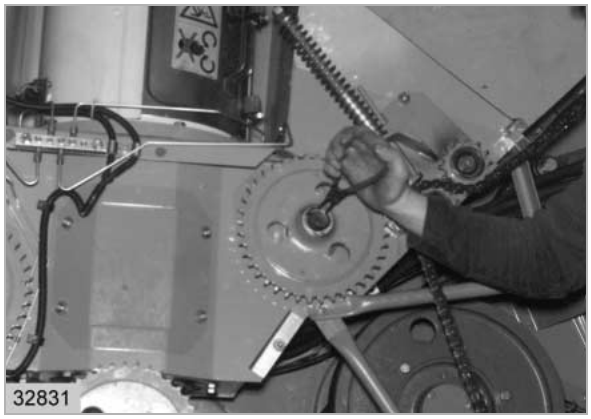
(Fig. 10, 14)



15

5. From serial no. …:
   Slide on sprocket and align it to the measured dimension, then secure gib head key.

(Fig. 15)

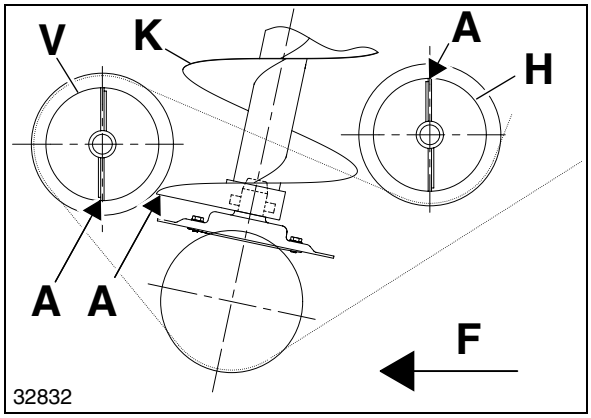


16

Up to serial no. …:
Insert the rear circlip.
Insert washers as required.
Slide on the sprocket and secure with the front circlip.

(Fig. 16)

Up to serial no. …



17

6. Align the grain tank cross augers.

   The start (A) of the unloading auger (K) flight must point toward the front cross auger (V).

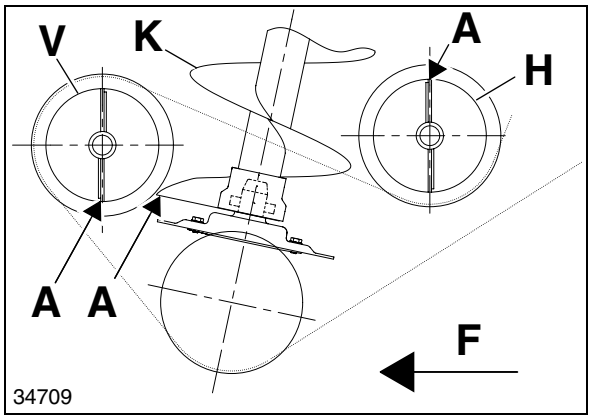
   The start (A) of the front cross auger (V) must be in the 6 o'clock position.

   The start (A) of the rear cross auger (H) must be in the 12 o'clock position.

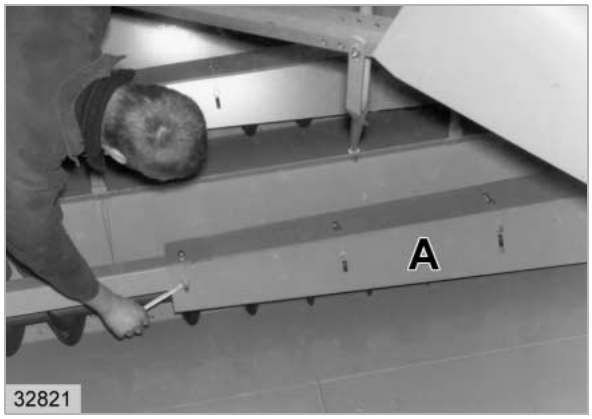
   F = Direction of travel

(Fig. 17, 18)

From serial no. …



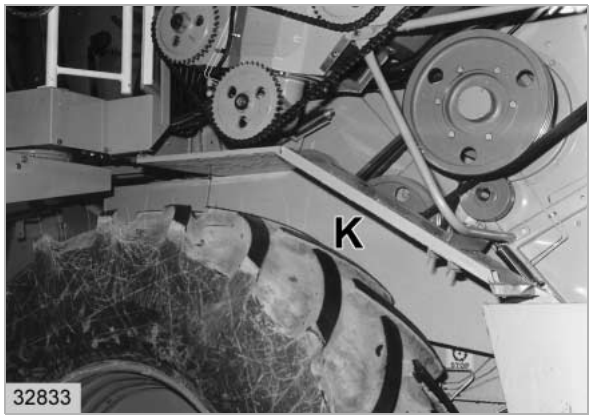
18



19

7. *Installing and adjusting the grain tank unloading drive chain (17)*, see page 7.2.35
8. Bolt on the conical graduation plates (13) above the horizontal cross augers, ensuring that the top edges will touch each other.

(Fig. 10, 19)



20

Removing the vertical grain tank unloading auger

Remove the drive wheel and the mud guard (K) on the left-hand side of the machine.

(Fig. 20)



21

From serial no. …:

Release the tension of the grain tank unloading drive chain and remove chain – see page 7.2.34, *Removing the grain tank unloading drive chain (17)*.

Measure the clearance between shaft end and sprocket.

(Fig. 21)



22

From serial no. …:

Remove gib head key using a key extractor.

(Fig. 22)



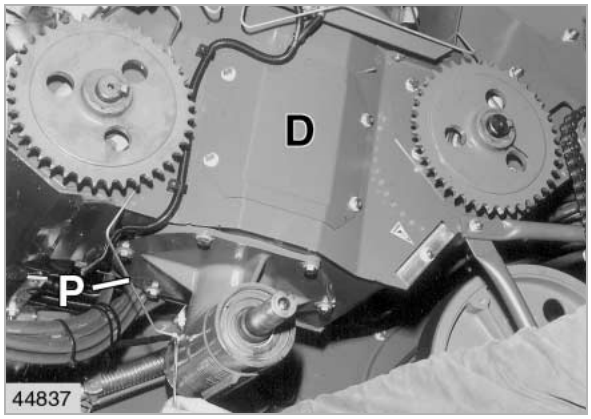
23

From serial no. …:

Remove the sprocket, using a suitable puller.

To do this, use centred M 12 x 25 bolts.

(Fig. 23)

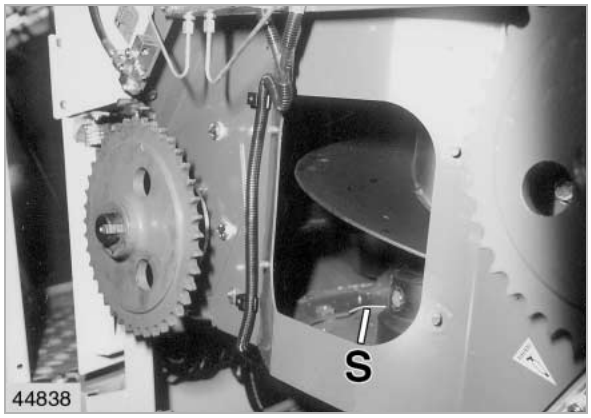


24

From serial no. …:

Unscrew the grease pipe (P) and the cover (D).

(Fig. 24)

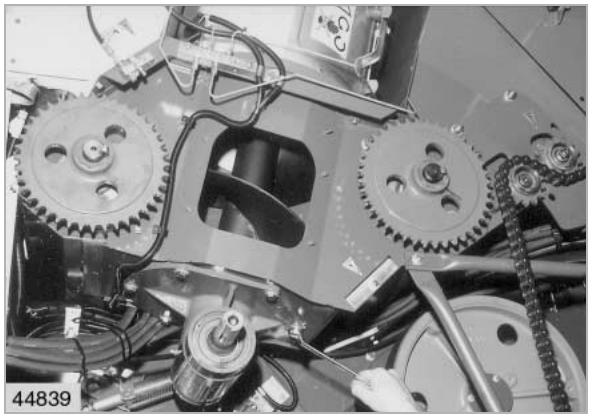


25

From serial no. …:

To prevent the auger from dropping out unexpectedly, rotate the auger so that the flight end is not near the gap (S).

(Fig. 25)



26

From serial no. …:

Unscrew the lower angle drive and remove it.

(Fig. 26)



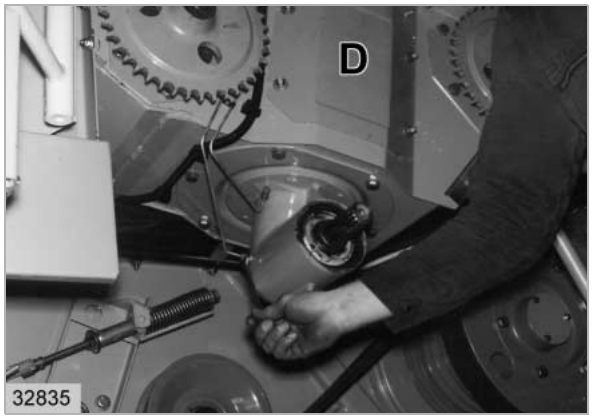
27

Up to serial no. …:

Release the tension of the grain tank unloading drive chain and remove chain – see page 7.2.34, *Removing the grain tank unloading drive chain (17)*.

Remove the circlip and then pull off the sprocket.

(Fig. 27)

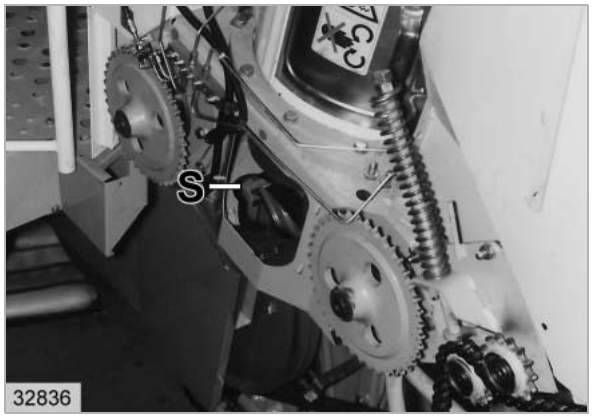


28

Up to serial no. …:

Unscrew the grease pipes and the cover (D).

(Fig. 28)

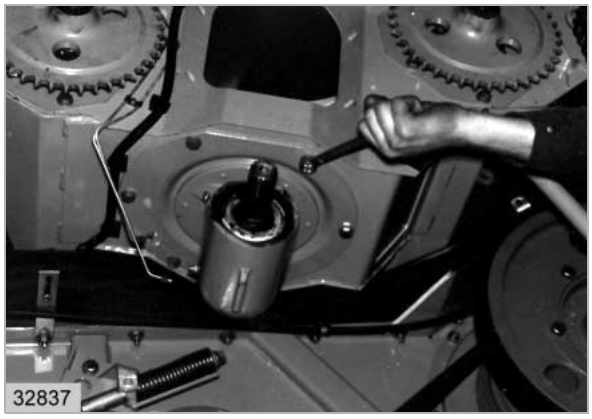


29

Up to serial no. …:

To prevent the auger from dropping out unexpectedly, rotate the auger so that the flight end is not near the gap (S).

(Fig. 29)



30

Up to serial no. …:

Unscrew the lower angle drive and remove it.

(Fig. 30)



31

Turn out the vertical grain tank unloading auger to the bottom.

(Fig. 31)

Installing the vertical grain tank unloading auger

1. Turn the vertical grain tank unloading auger into the machine from the bottom.

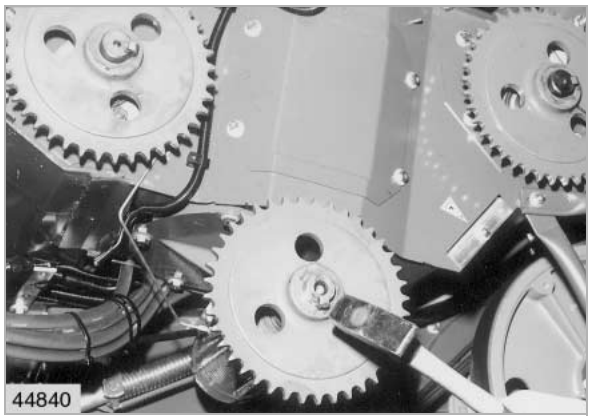
CAUTION!

The vertical auger must be offset by **180**°, relating to the horizontal auger in the grain tank unloading tube. The two flight ends must not touch each other. Check correct position by turning the augers.

To prevent the auger from dropping out unexpectedly, rotate the auger so that the flight end is not near the gap (S).

(Fig. 29, 31)

2. Insert the bottom angle drives and bolt them down.
3. Refit both grease pipes to the angle drive.



32

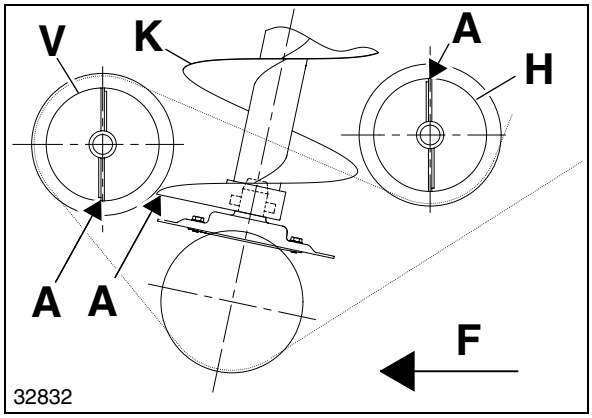
4. From serial no. …:
   Slide on sprocket and align it to the measured dimension, then secure gib head key.

   (Fig. 32)

   Up to serial no. …:
   Slide on shims and sprocket. Insert circlip.

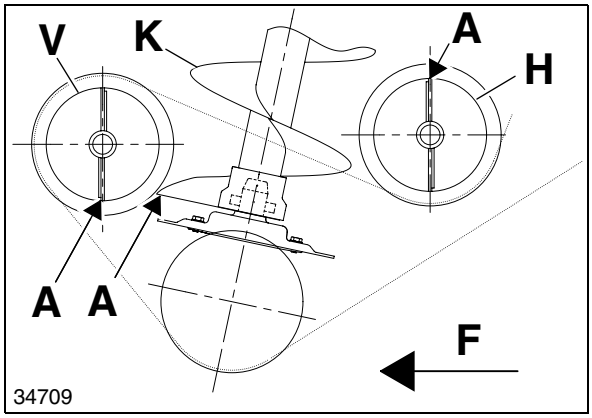
   (Fig. 16)

Up to serial no. …



33

From serial no. …



34

5. Bolt down the cover (D).

   (Fig. 24, 28)

6. Align the grain tank cross augers.

   The start (A) of the unloading auger (K) flight must point toward the front cross auger (V).

   The start (A) of the front cross auger (V) must be in the 6 o'clock position.

   The start (A) of the rear cross auger (H) must be in the 12 o'clock position.

   F = Direction of travel

   (Fig. 33, 34)

7. *Installing and adjusting the grain tank unloading drive chain (17)*, see page 7.2.35

8. Refit the drive wheel and the mud guard.



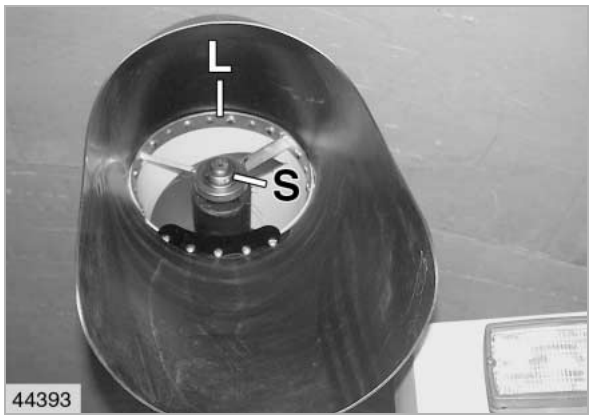
35

Removing the horizontal grain tank unloading auger

If a 90° outlet spout is fitted:

Remove the outlet spout (90°) and the cover.

(Fig. 35)

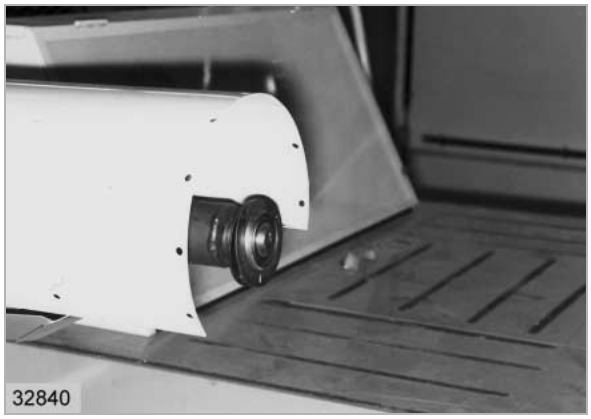


36

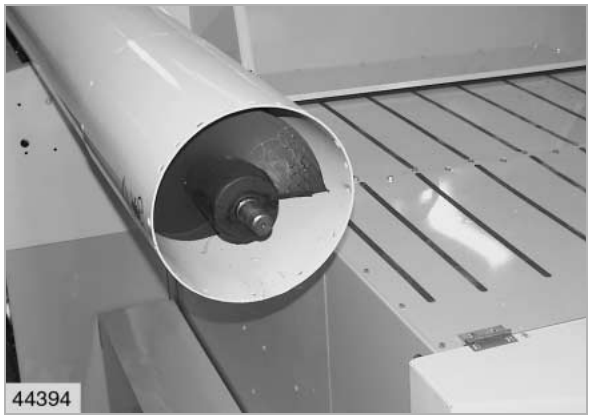
If a 35° outlet spout is fitted:

Unscrew the outlet spout (35°). Loosen the lock collar (S) and pull bearing (L) off the shaft completely.

(Fig. 36)



37



38

Pull the horizontal grain tank unloading auger out towards the back of the machine.

(Fig. 37, 38)



39

Installing the horizontal grain tank unloading auger

1. Slide the horizontal grain tank unloading auger into the unloading auger tube from the rear.

   The auger can be raised through the mounting opening, using a chisel.

(Fig. 39)

CAUTION!

The vertical auger must be offset by **180°**, relating to the horizontal auger in the grain tank unloading tube. The two flight ends must not touch each other. Check correct position by turning the augers.

2. If a 90° outlet spout is fitted:
   Push the grain tank unloading auger fully to the front. Slide the flange bearing onto the auger and bolt down cover (D). Fix and secure the auger with the lock collar.

   Bolt on discharge spout (90°).

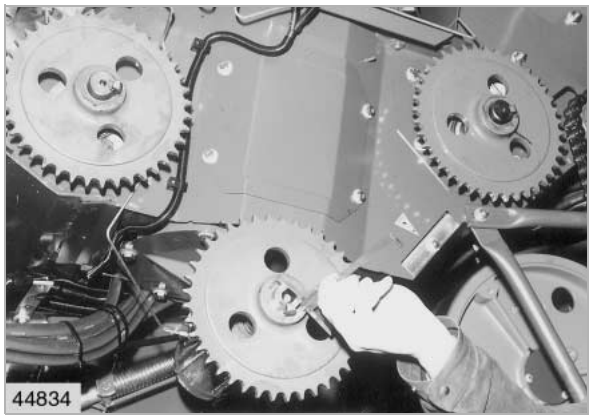
   (Fig. 35)

   If a 35° outlet spout is fitted:
   Push the grain tank unloading auger fully to the front. Slide the bearing (L) completely on the auger and bolt it down. Observe the installation position relative to the outlet spout (35°).

   Fix and secure the auger with the lock collar.

   Bolt on discharge spout (35°).

   (Fig. 36)



40

Removing the lower grain tank unloading angle drive

(from serial no. ...)

Release the tension of the grain tank unloading drive chain and remove chain – see page 7.2.34, *Removing the grain tank unloading drive chain (17)*.

Measure the clearance between shaft end and sprocket.

(Fig. 40)



41

Remove gib head key using a key extractor.

(Fig. 41)

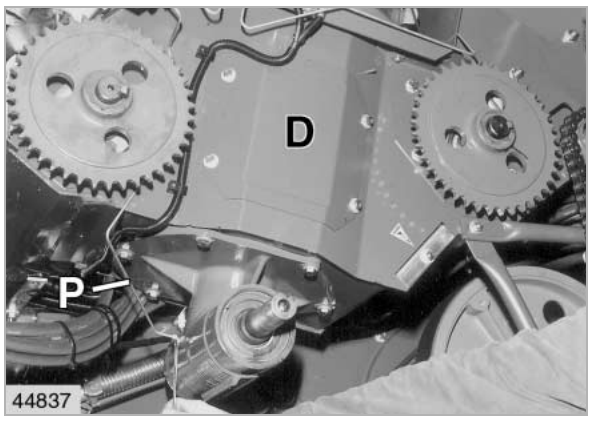


42

Remove the sprocket, using a suitable puller.

To do this, use a centred M 12 x 25 bolt.

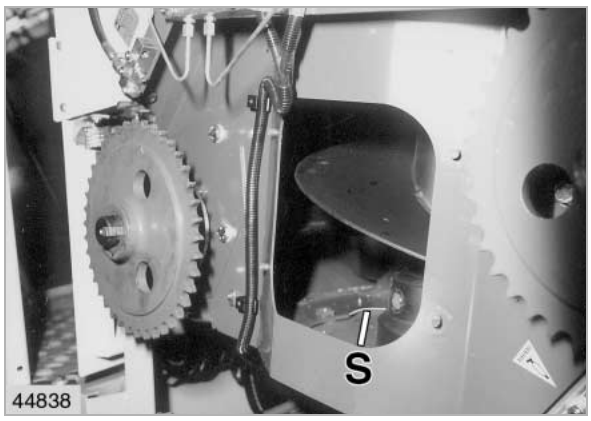
(Fig. 42)



43

Unscrew the grease pipe (P) and the cover (D).

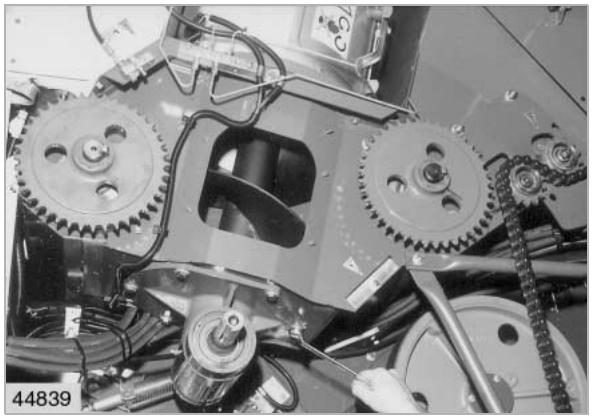
(Fig. 43)



44

To prevent the auger from dropping out unexpectedly, rotate the auger so that the flight end is not near the gap (S).

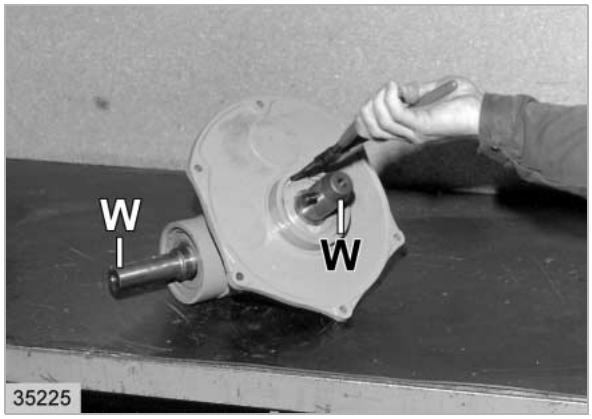
(Fig. 44)



45

Unscrew the lower angle drive and remove it.

(Fig. 45)



46

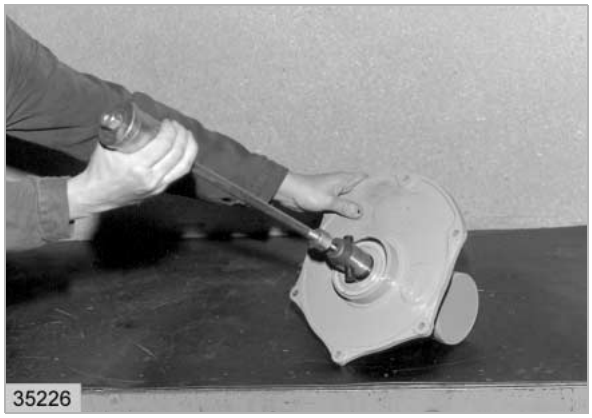
Disassembling the lower grain tank unloading angle drive
(from serial no. ...)

Remove the lower grain tank unloading angle drive.

Remove the circlip and the shims and remove the bearing seal ring from the bearing.

Mark the installation position of the two shaft ends (W) on the housing.

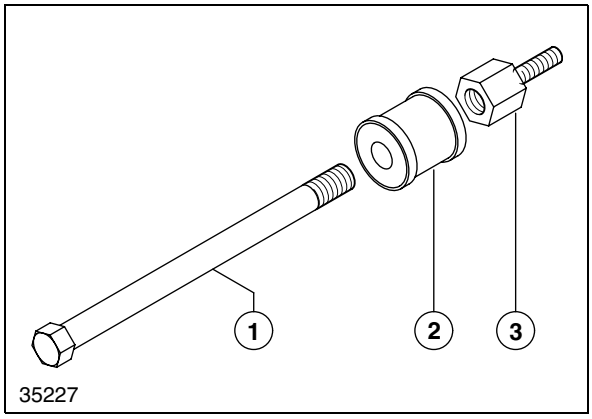
(Fig. 46)



47

Using a special tool, pull out the complete bevel gear with the bearing.

(Fig. 47)

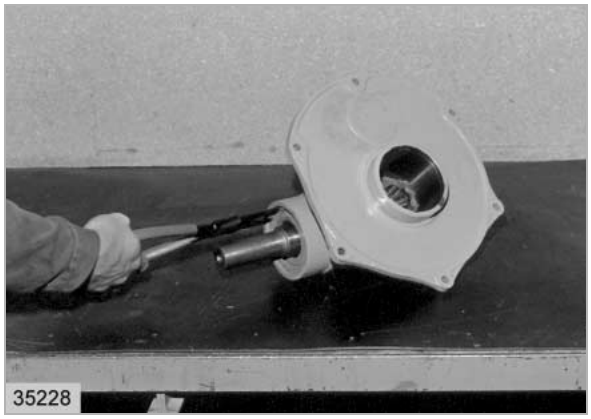


48

Special tool:

1 Tie rod 450 mm, part no. 181 605.0
2 Striking tool, part no. 181 604.0
3 Adapter section M 10, part no. 181 609.0

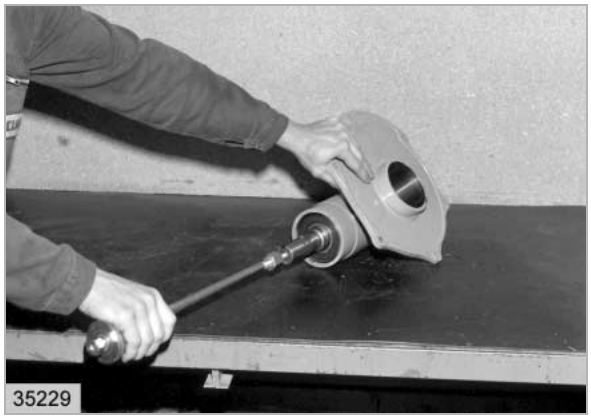
(Fig. 48)



49

Remove circlip, the shims, and the bearing seal ring.

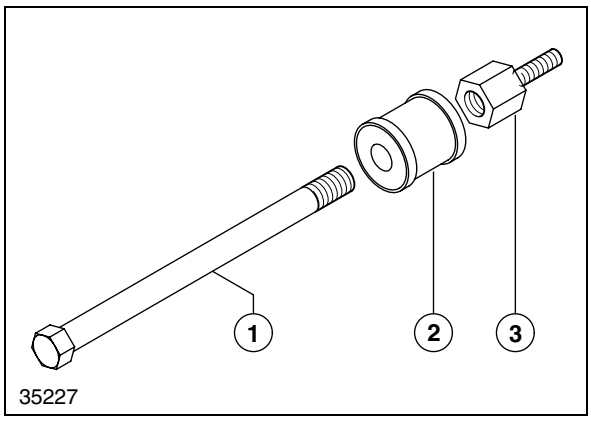
(Fig. 49)



50

Using a special tool, pull out the complete bevel gear with the bearing.

(Fig. 50)

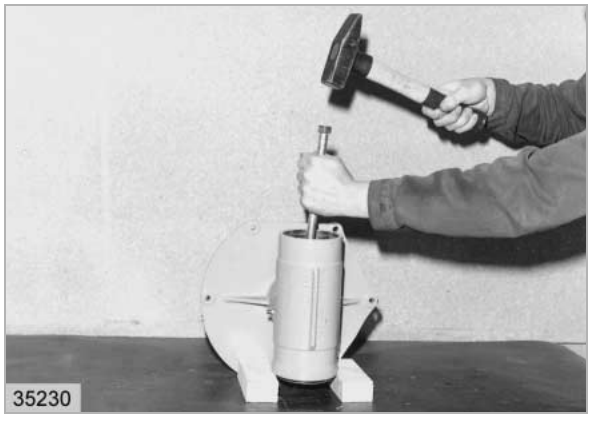


51

Special tool:

1 Tie rod 450 mm, part no. 181 605.0
2 Striking tool, part no. 181 604.0
3 Adapter section M 10, part no. 181 609.0

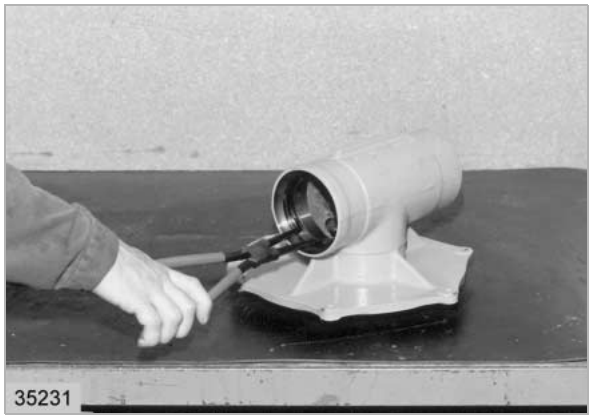
(Fig. 51)



52

Drive out the cap using a soft metal punch.

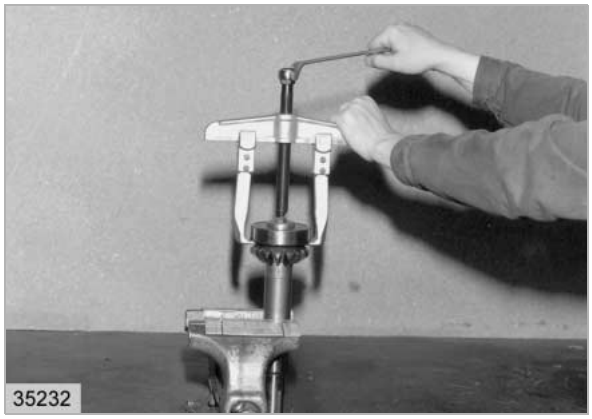
(Fig. 52)



53

Remove circlips and shims.

(Fig. 53)

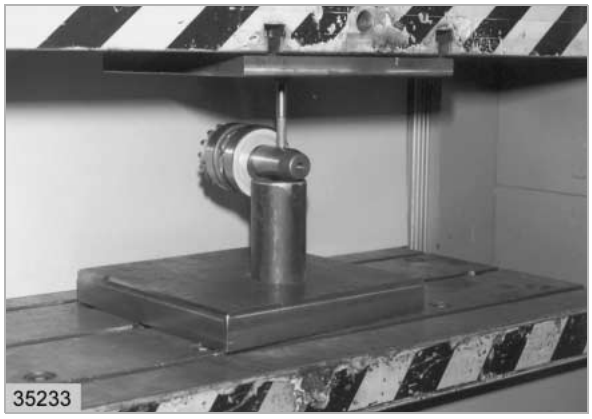


54

Unscrew the hex. bolt and remove the washer.

Pull off both deep groove ball bearing with a puller.

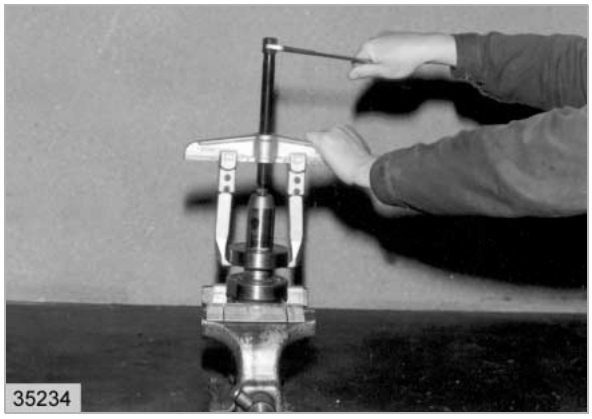
(Fig. 54)



55

Force out the drive pin using a hydraulic press.

(Fig. 55)

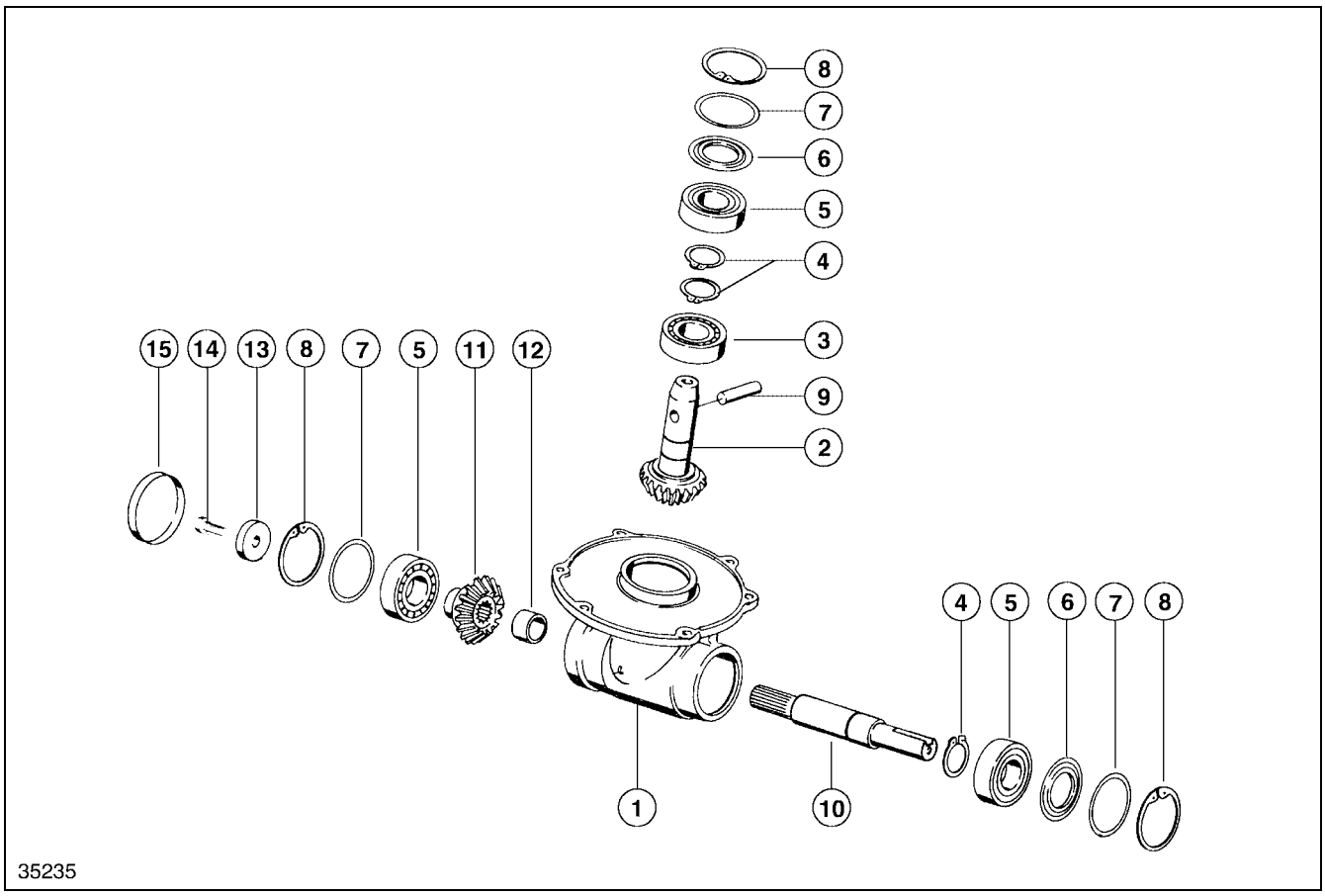


56

Remove the bearing seal ring and the circlip.

Pull off the deep groove ball bearing.

(Fig. 56)

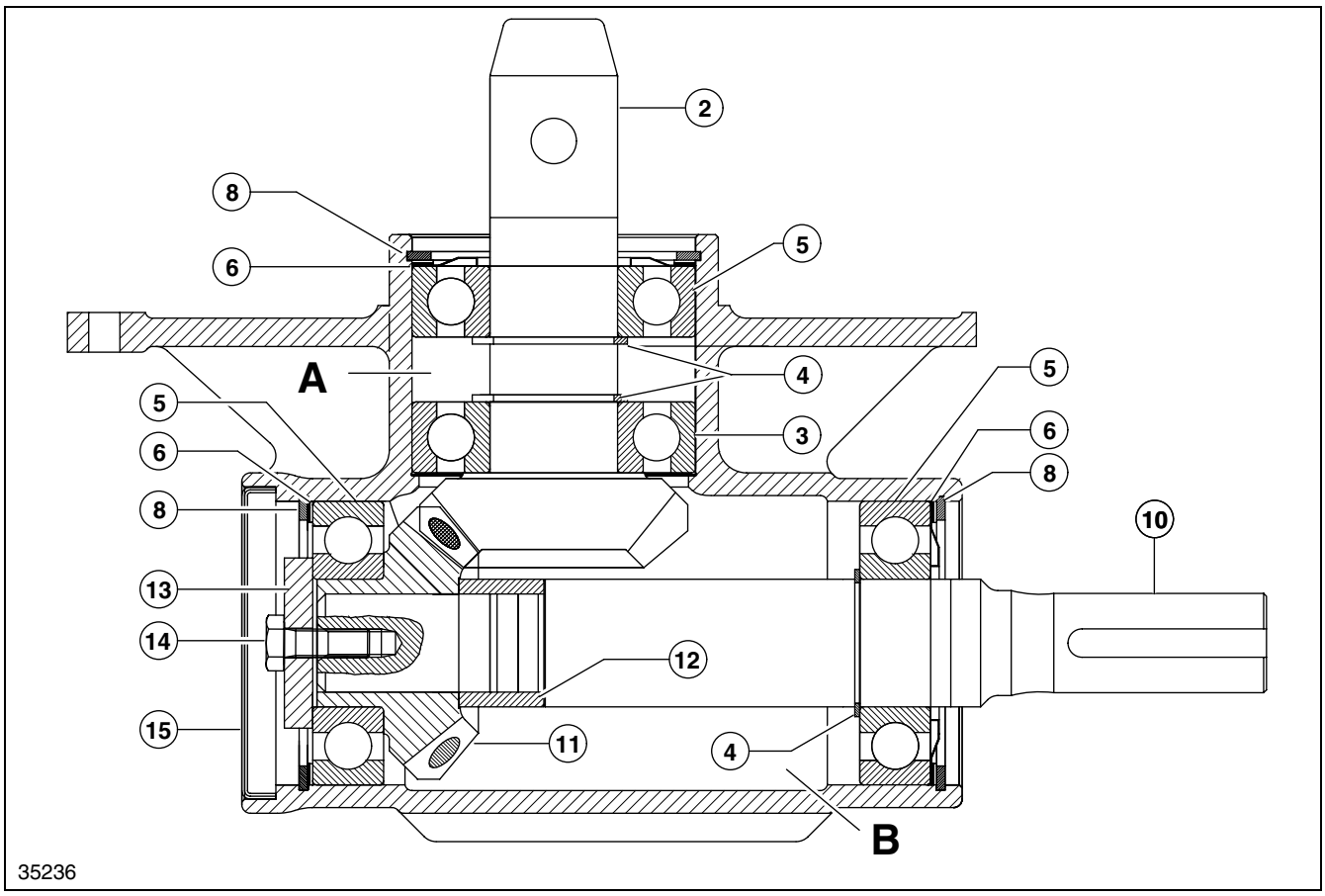


57

Lower grain tank unloading angle drive, disassembled: (from serial no. …)

1 Gearbox housing
2 Bevel gear
3 Deep groove ball bearing 6309 DIN 625
4 Circlip
5 Deep groove ball bearing 6309-RS-C3 DIN 625
6 Bearing seal ring
7 Shim
8 Circlip
9 Drive pin
10 Shaft
11 Bevel gear
12 Bushing
13 Washer
14 Hex. bolt M 10 x 30 MK DIN 933-10.9
15 Cap

(Fig. 57)



58



59

Assembling the lower grain tank unloading angle drive
(from serial no. ...)

1. Mount deep groove ball bearings (3 and 5) and circlips (4) on the bevel gear (2) by heating the deep groove ball bearings up to approx. **100 °C**.
2. Mount the bevel gear (11) with the bearing (5), washer (13) and hex. bolt (14) on shaft (10).

CAUTION!

Insert hex. bolt with liquid locking compound.

Tightening torque = 63 Nm

3. Insert circlip (4) and heat up deep groove ball bearing (5) to approx. **100 °C**, then press it on the shaft (10).
4. Insert the number of shims (7) of corresponding thickness found when disassembling into the housing (1) along with the circlip (8).

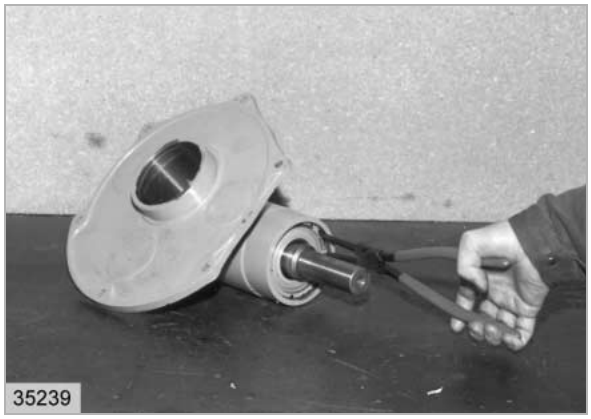
(Fig. 57, 58, 59)



60

5. Apply pattern identification paste to the bevel gear (11) tooth flanks and drive the bevel gear into the housing using a plastic-tip hammer.

(Fig. 57, 58, 60)



61

6. Insert the bearing seal ring (6), the number of shims (7) of corresponding thickness found when disassembling and the circlip (8).

(Fig. 57, 58, 61)



62

7. Apply pattern identification paste to the bevel gear (2) tooth flanks and drive the bevel gear into the housing using a plastic-tip hammer.

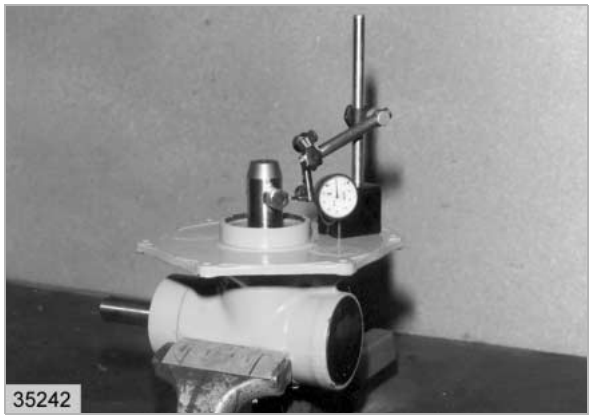
(Fig. 57, 58, 62)



63

8. Insert the bearing seal ring (6), the number of shims (7) of corresponding thickness found when disassembling and the circlip (8).

(Fig. 57, 58, 63)



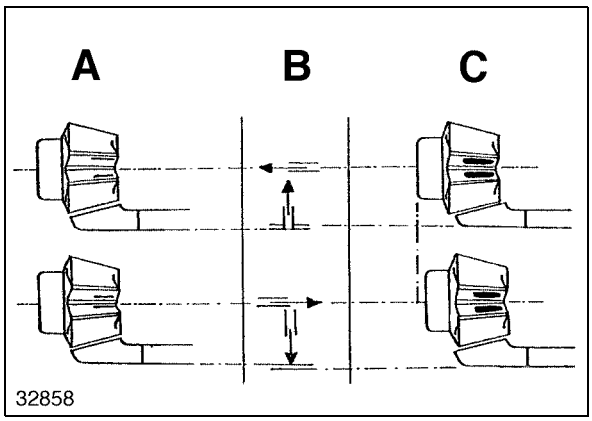
64

9. When determining the torsional backlash, the measuring point must be located inside the pitch-circle diameter of the bevel gear.

   The torsional backlash is **0.2 to 0.3 mm**.

   Adjust the torsional backlash using shims.

(Fig. 64)



65

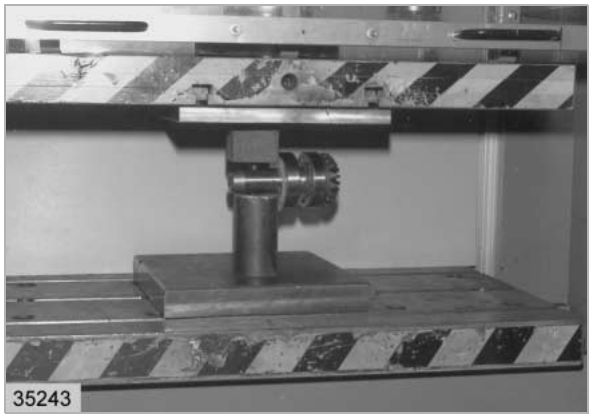
10. Remove the bevel gear (2) and have a look at the profile left in the Engineers blue.

    Correct the profile using shims.

    Example:

    A = Initial setting
    B = Required correction
    C = Correct setting

(Fig. 65)



66

11. Press in the drive pin (9) when the adjustment is complete.

(Fig. 66)



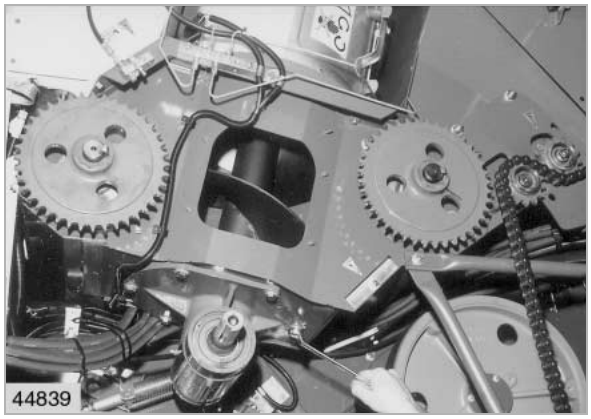
67

12. Fill space (A and B) with grease, e.g. Shell Alvania R3, part no. 413 981.0.

    A = 100 g
    B = 800 g

13. Drive in cap (15).

(Fig. 58, 67)



68

Installing the lower grain tank unloading angle drive

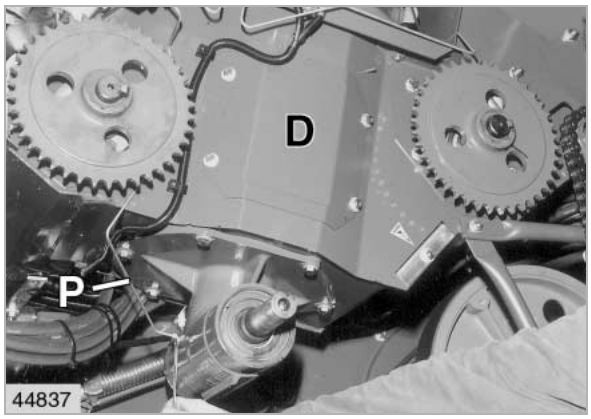
(from serial no. ...)

1. Insert and bolt down the lower angle drive.

ATTENTION!

The vertical auger must be offset by **180**°, relating to the horizontal auger in the grain tank unloading tube. The two flight ends must not touch each other. Check correct position by turning the augers.

(Fig. 68)



69

2. Refit the grease pipes (P) and the cover (D).

(Fig. 69)

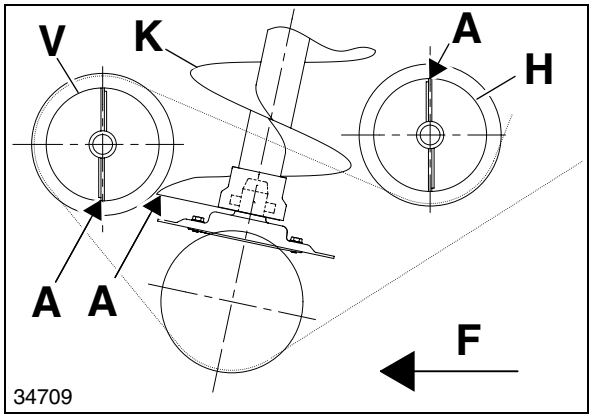


70

3. Slide on sprocket and align it to the measured dimension, then secure gib head key.

(Fig. 70)

From serial no. …



71

4. Align the grain tank cross augers.

   The start (A) of the unloading auger (K) flight must point toward the front cross auger (V).

   The start (A) of the front cross auger (V) must be in the 6 o'clock position.

   The start (A) of the rear cross auger (H) must be in the 12 o'clock position.

   F = Direction of travel

   (Fig. 71)

5. *Installing and adjusting the grain tank unloading drive chain (17)*, see page 7.2.35



72

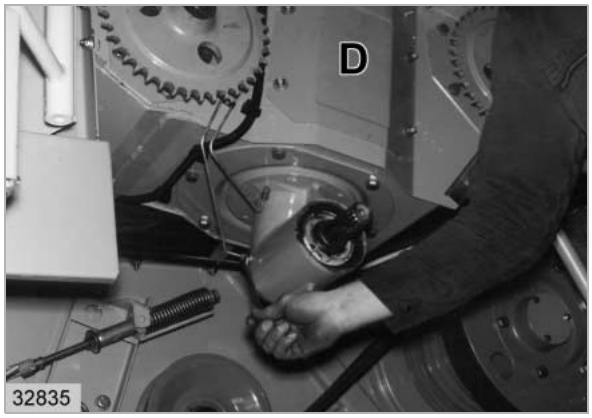
Removing the lower grain tank unloading angle drive

(up to serial no. ...)

Removing the grain tank unloading drive chain (17), see page 7.2.34

Remove the circlip and then pull off the sprocket.

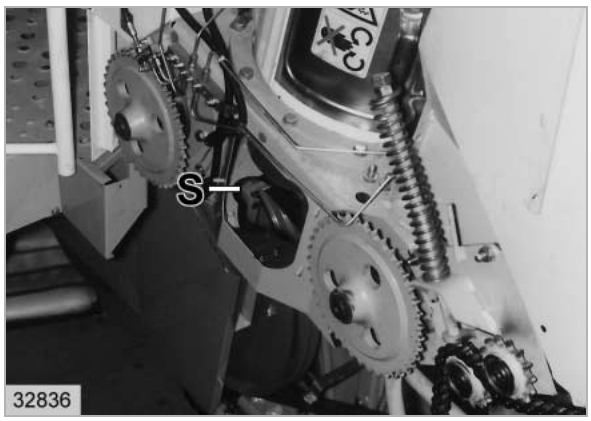
(Fig. 72)



73

Unscrew the grease pipes and the cover (D).

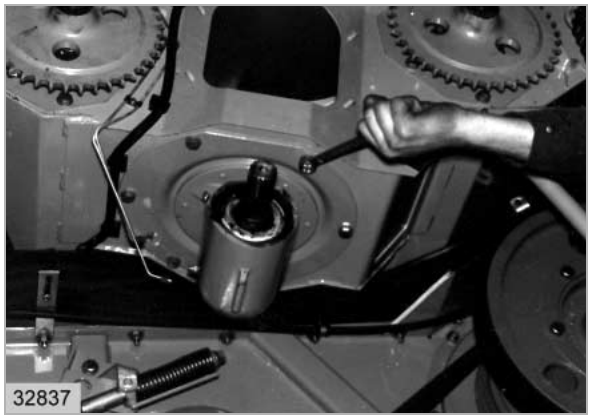
(Fig. 73)



74

To prevent the auger from dropping out unexpectedly, rotate the auger so that the flight end is not near the gap (S).

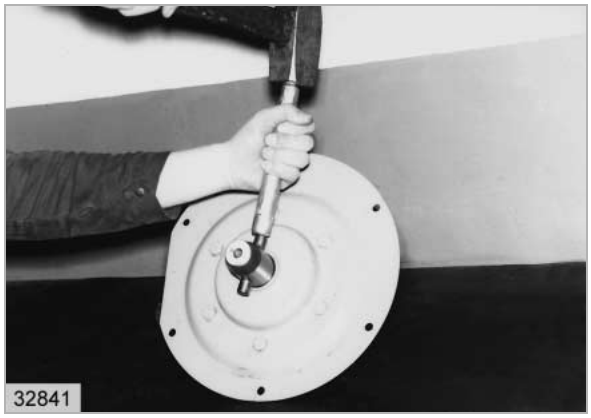
(Fig. 74)



75

Unscrew the lower angle drive and remove it.

(Fig. 75)



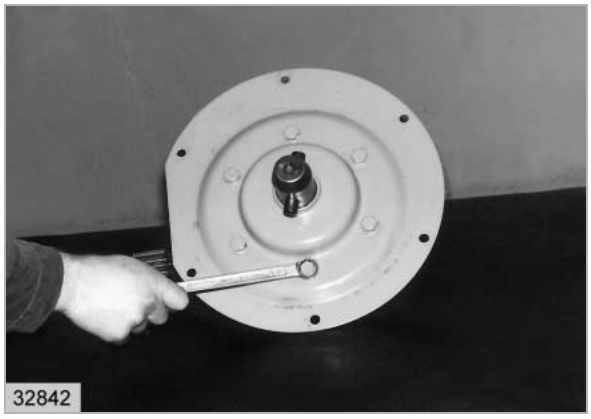
76

Disassembling the lower grain tank unloading angle drive
(up to serial no. ...)

Remove the lower grain tank unloading angle drive.

Drive out the drive pin.

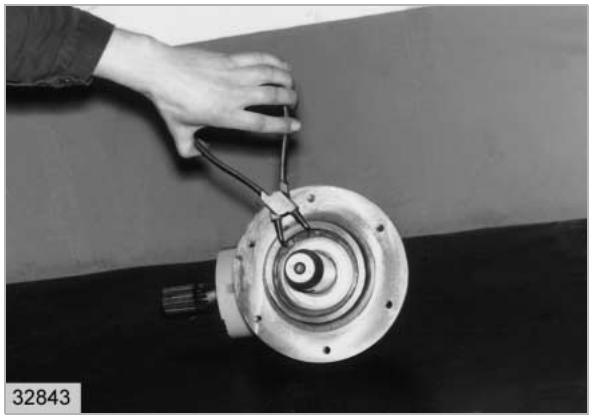
(Fig. 76)



77

Unscrew the gearbox cover.

(Fig. 77)



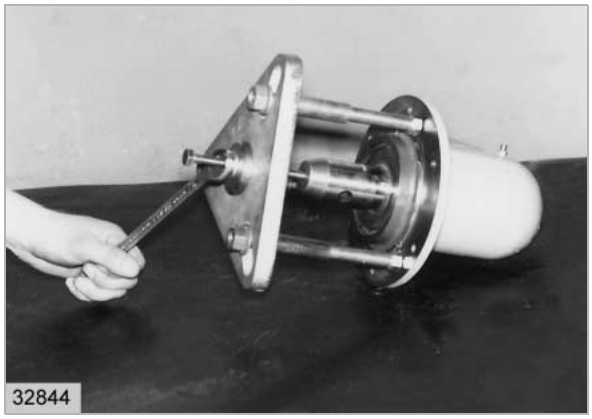
78

Remove the circlip. Remove the shims and the bearing seal ring.

CAUTION!

Observe number, position and thickness of shims.

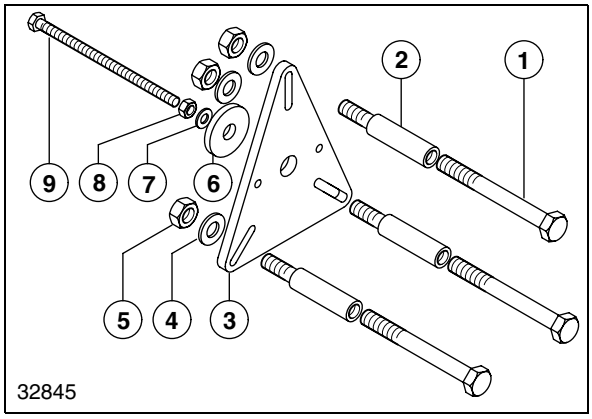
(Fig. 78)



79

Using the special tool, remove the bevel gear from the housing.

(Fig. 79)

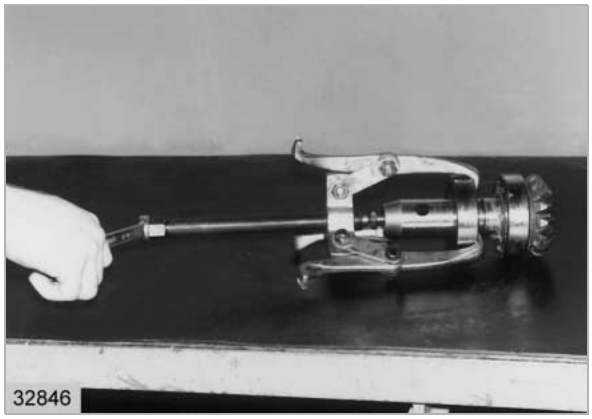


80

Special tool:

1 Hex. bolt BM 16 x 120
part no. 236 936.0
2 Extension, part no. 181 810.1
3 Puller plate, part no. 181 803.1
4 Washer ∅ 17, part no. 235 127.2
5 Hex. nut M 16, part no. 236 173.0
6 Washer ∅ 17 x ∅ 55, part no. 688 484.0
7 Washer ∅ 10.5, part no. 236 913.2
8 Hex. nut M 10, part no. 236 171.0
9 Hex. bolt M 10 x 180 DIN 933-8.8
part no. 237 796.0

(Fig. 80)



81

Pull off the deep groove ball bearing and remove the circlips.

(Fig. 81)



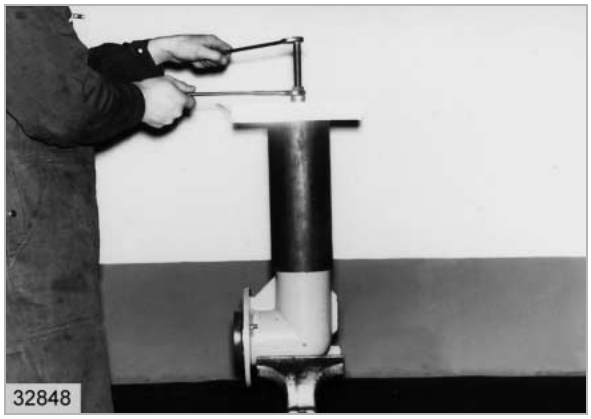
82

Remove the circlip. Remove the shims and the bearing seal ring.

CAUTION!

Observe number, position and thickness of shims.

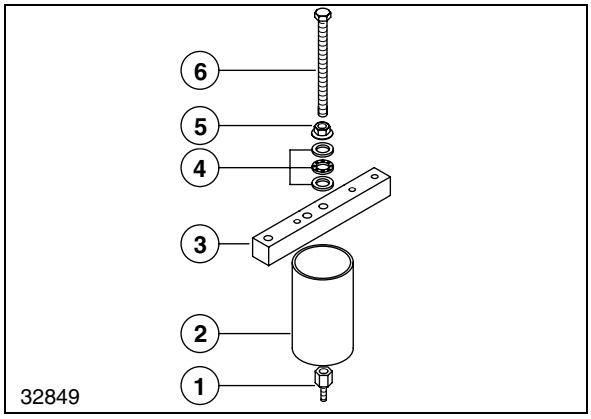
(Fig. 82)



83

Using the special tool, pull the complete bevel gear out of the housing.

(Fig. 83)

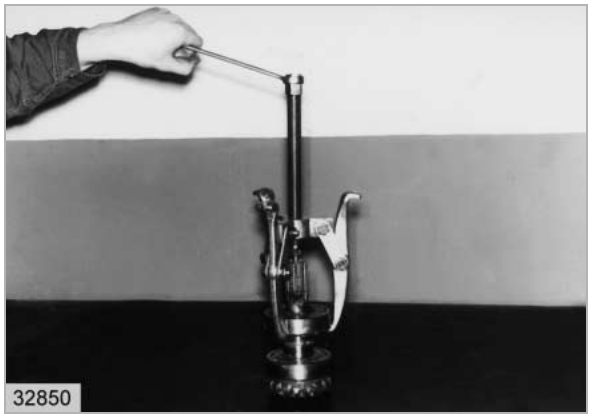


84

Special tool:

1 Adapter section M 10, part no. 181 609.0
2 Tube ∅ 115 x ∅ 105 x 200 long (self-sourced)
3 Puller bridge, part no. 181 816.3
4 Axial grooved ball bearing, part no. 177 899.0
5 Hex. nut with flange, part no. 244 059.0
6 Hex. bolt M 16 x 300, part no. 237 375.1

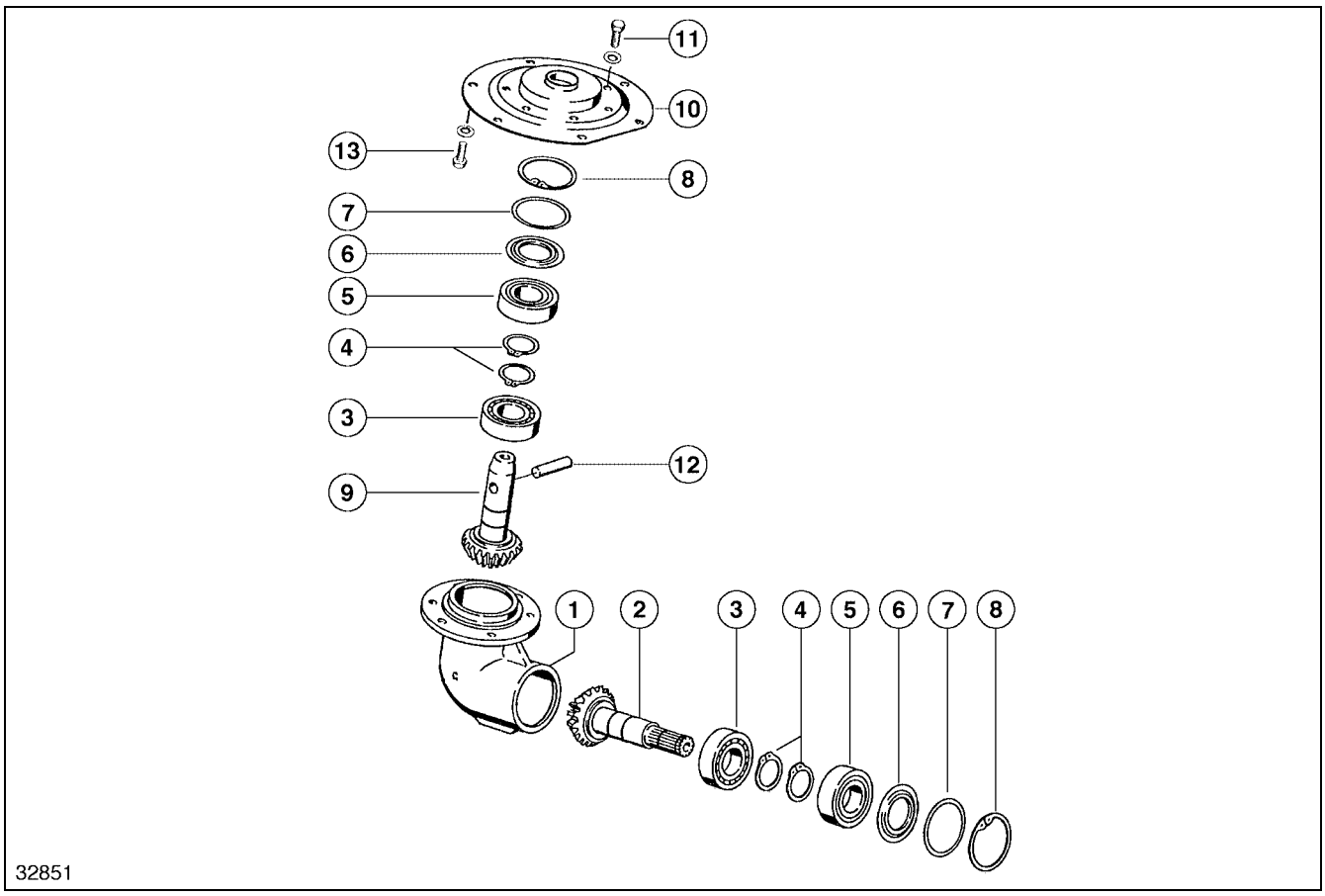
(Fig. 84)



85

Pull off the deep groove ball bearing and remove the circlips.

(Fig. 85)

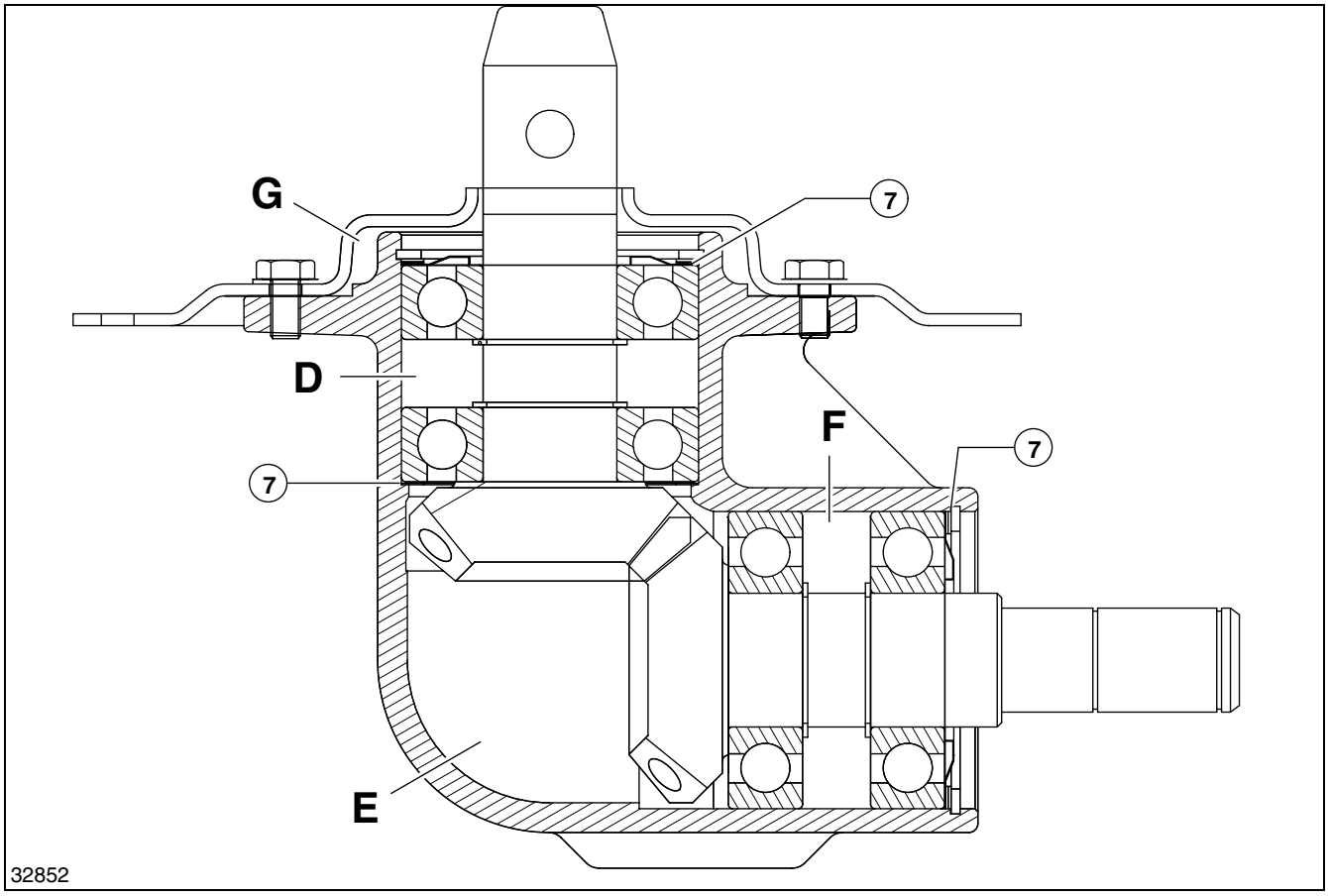


86

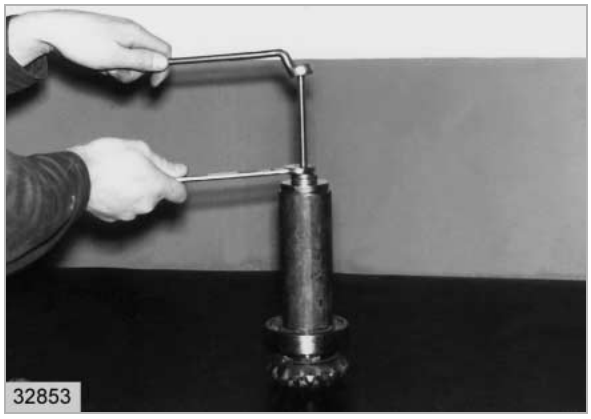
Lower grain tank unloading angle drive, disassembled: (up to serial no. …)

1 Gearbox housing
2 Bevel gear
3 Deep groove ball bearing 6309 DIN 625
4 Circlip 45 x 1.75 DIN 471
5 Deep groove ball bearing 6309-RS-C3
6 Bearing ring seal 6309 ZJV
7 Shim 1 mm; 0.5 mm; 0.3 mm; 0.1 mm
8 Circlip 100 x 3 DIN 472
9 Bevel gear
10 Gearbox cover
11 Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
12 Drive pin

(Fig. 86)



87

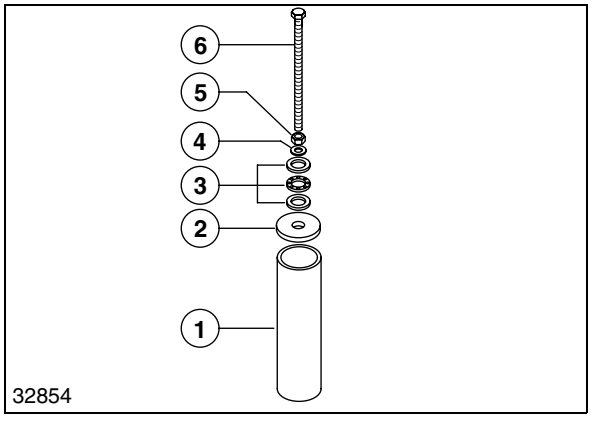


88

Assembling the lower grain tank unloading angle drive
(up to serial no. ...)

1. Pre-assemble the bevel gear shafts (2 and 9) with the deep groove ball bearings (3 and 5) and the circlips (4). Install the bearings with the special tool.

(Fig. 86, 87, 88)



89

Special tool:

1 Tube ∅ 60 x ∅ 50 x 180 long (self-sourced)
2 Washer, part no. 688 484.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer ∅ 10.5, part no. 236 913.2
5 Hex. nut M 10 DIN 934, part no. 236 171.0
6 Hex. bolt M 10 x 180 DIN 933 part no. 237 796.0

(Fig. 89



90

2. Apply Engineer's blue to the tooth flanks of pre-assembled bevel gear (2) and then press bevel gear into the gearbox.

CAUTION!

Fill in approx. **100 g** of grease between the deep groove ball bearings at (F), e.g. Alvania R 3 (Fig. 87).

3. Refit the bearing ring seal. Refit the correct thickness and number of shims (7) found when disassembling. Insert circlip (8) and pull the bevel gear back up against it.

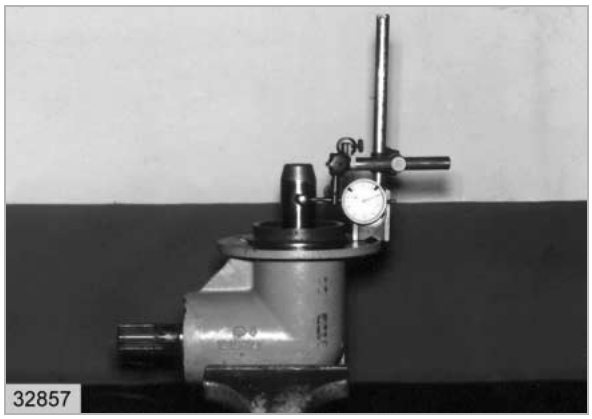
(Fig. 86, 87, 90)



91

4. Refit the correct thickness and number of shims (7) found when disassembling. Apply Engineer's blue to the tooth flanks of pre-assembled bevel gear (9) and then press bevel gear into the gearbox housing.

(Fig. 86, 87, 91)



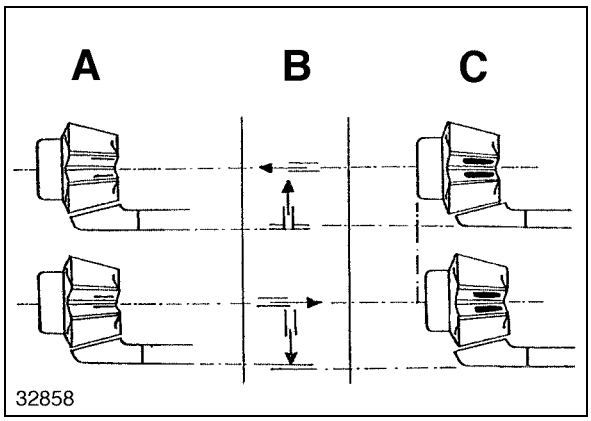
92

5. Insert the bearing seal ring (6), the shims (7) and the circlip. When determining the torsional backlash, the measuring point must be located inside the pitch-circle diameter of the bevel gear.

   The torsional backlash is **0.2 – 0.3 mm**.

   Adjust the torsional backlash using shims (7).

(Fig. 86, 87, 92)



93

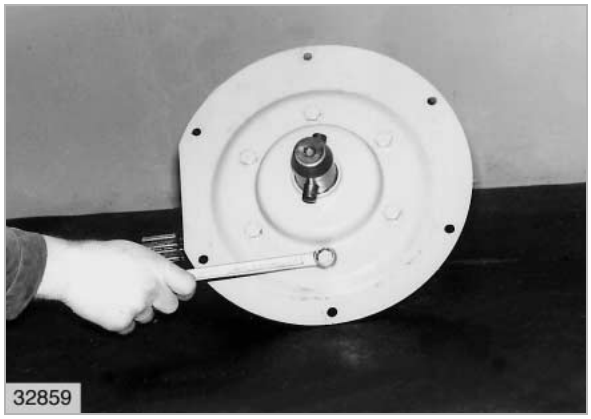
6. Remove the bevel gear (9) and have a look at the profile left in the Engineers blue.

   The profile can be corrected using shims.

   Example:

   A = Initial setting
   B = Required correction
   C = Correct setting

(Fig. 86, 93)



94

7. Fill gearbox housing with approx. **330 g** of grease, e.g. Alvania R 3 at (E).
8. Press the bevel gear (9) into the gearbox housing.

CAUTION!

Fill in approx. **100 g** of grease between the bearings, e.g. Alvania R 3 at (D).

9. Bolt on the gearbox cover.

CAUTION!

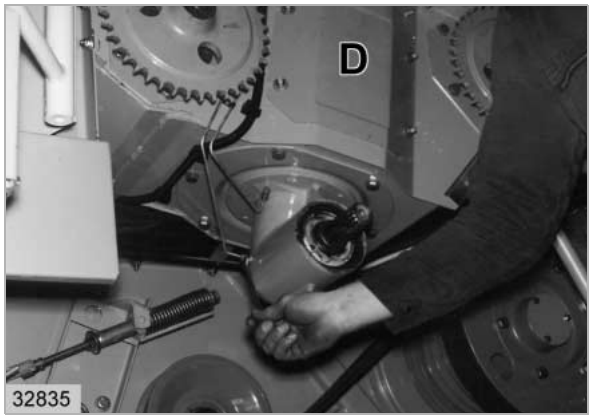
Fill in approx. **150 g** of grease all around at (G), e.g. Alvania R 3.

(Fig. 87, 94)

10. Insert drive pin (12) so that it is centred to the bevel gear.

    (Fig. 86)

11. Install the lower angle drive.



95

Installing the lower grain tank unloading angle drive

(up to serial no. ...)

1. Insert and bolt down the lower angle drive.

ATTENTION!

The vertical auger must be offset by **180**°, relating to the horizontal auger in the grain tank unloading tube. The two flight ends must not touch each other. Check correct position by turning the augers.

2. Refit the grease pipes and the cover (D).

(Fig. 95)

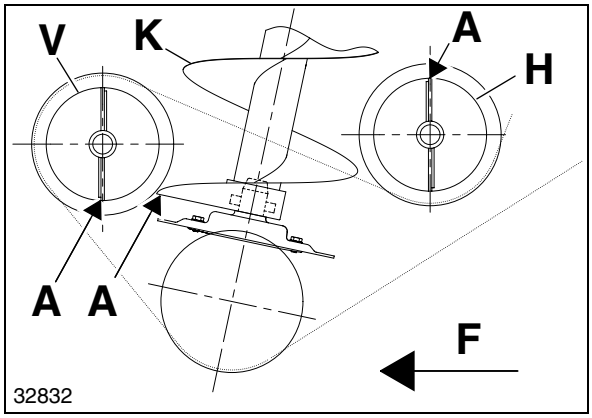


96

3. Slide on shims and sprocket. Insert circlip.

(Fig. 96)

Up to serial no. ...



97

4. Align the grain tank cross augers.

   The start (A) of the unloading auger (K) flight must point toward the front cross auger (V).

   The start (A) of the front cross auger (V) must be in the 6 o'clock position.

   The start (A) of the rear cross auger (H) must be in the 12 o'clock position.

   F = Direction of travel

   (Fig. 97)

5. *Installing and adjusting the grain tank unloading drive chain (17)*, see page 7.2.35

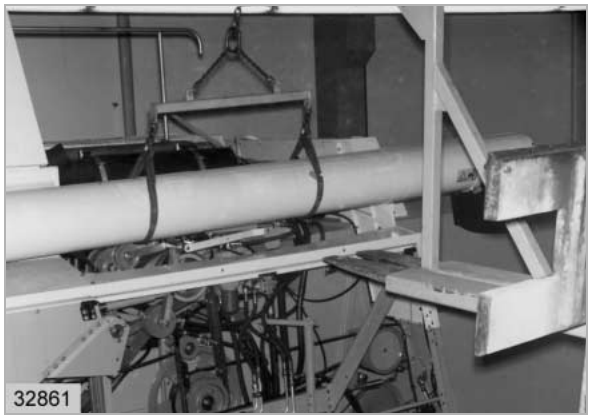


98

Removing the upper grain tank unloading angle drive

Remove the work light (S).

(Fig. 98)



99

Swing the grain tank unloading tube out, then remove the bolts at the back of the tube.

Swing the grain tank unloading tube back in and, using a suitable lifting device, support the tube.

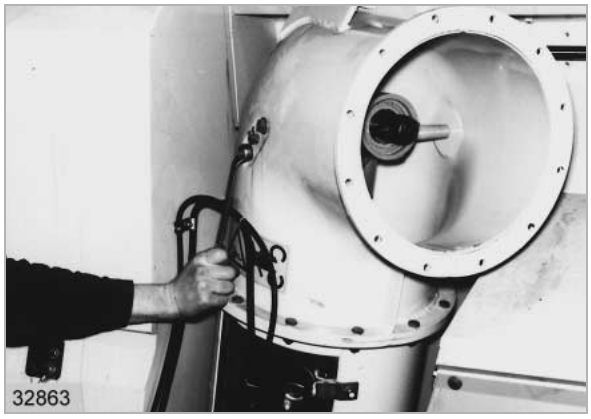
(Fig. 99)



100

Unscrew the bolts at the front around the flange, then remove the tube.

(Fig. 100)

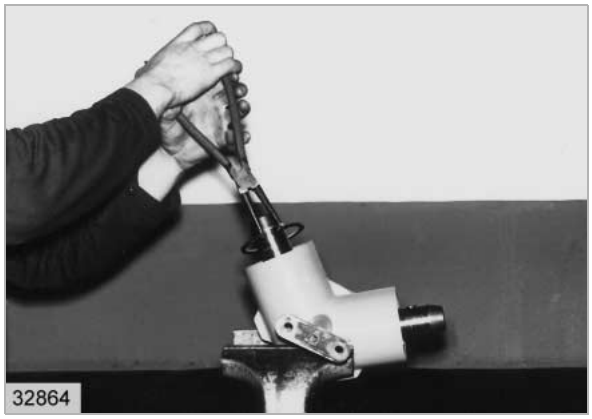


101

Remove the grease pipes.

Unscrew the angle drive and remove it.

(Fig. 101)



102

Disassembling the upper grain tank unloading angle drive

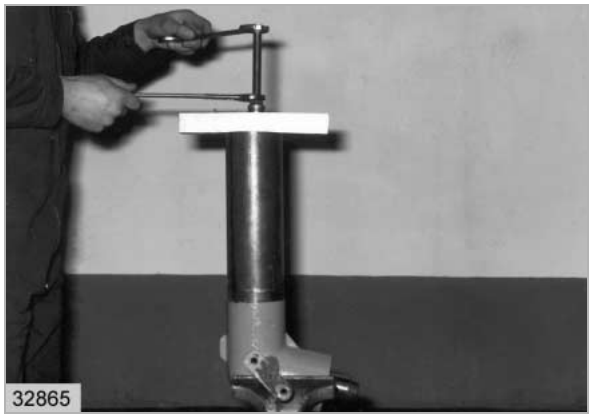
Remove the drive pins.

Remove the circlip. Remove the shims and the bearing seal ring.

CAUTION!

Observe number, position and thickness of shims.

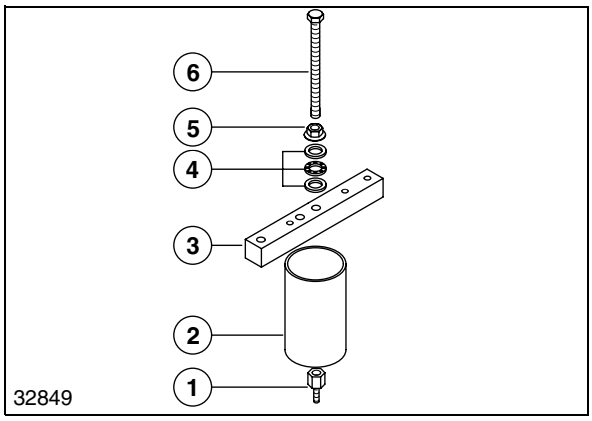
(Fig. 102)



103

Using the special tool, pull the complete bevel gear out of the housing.

(Fig. 103)



104

Special tool:

1 Adapter section M 10, part no. 181 609.0
2 Tube ∅ 115 x ∅ 105 x 200 long (self-sourced)
3 Puller bridge, part no. 181 816.3
4 Axial grooved ball bearing, part no. 177 899.0
5 Hex. nut with flange, part no. 244 059.0
6 Hex. bolt M 16 x 300, part no. 237 375.1

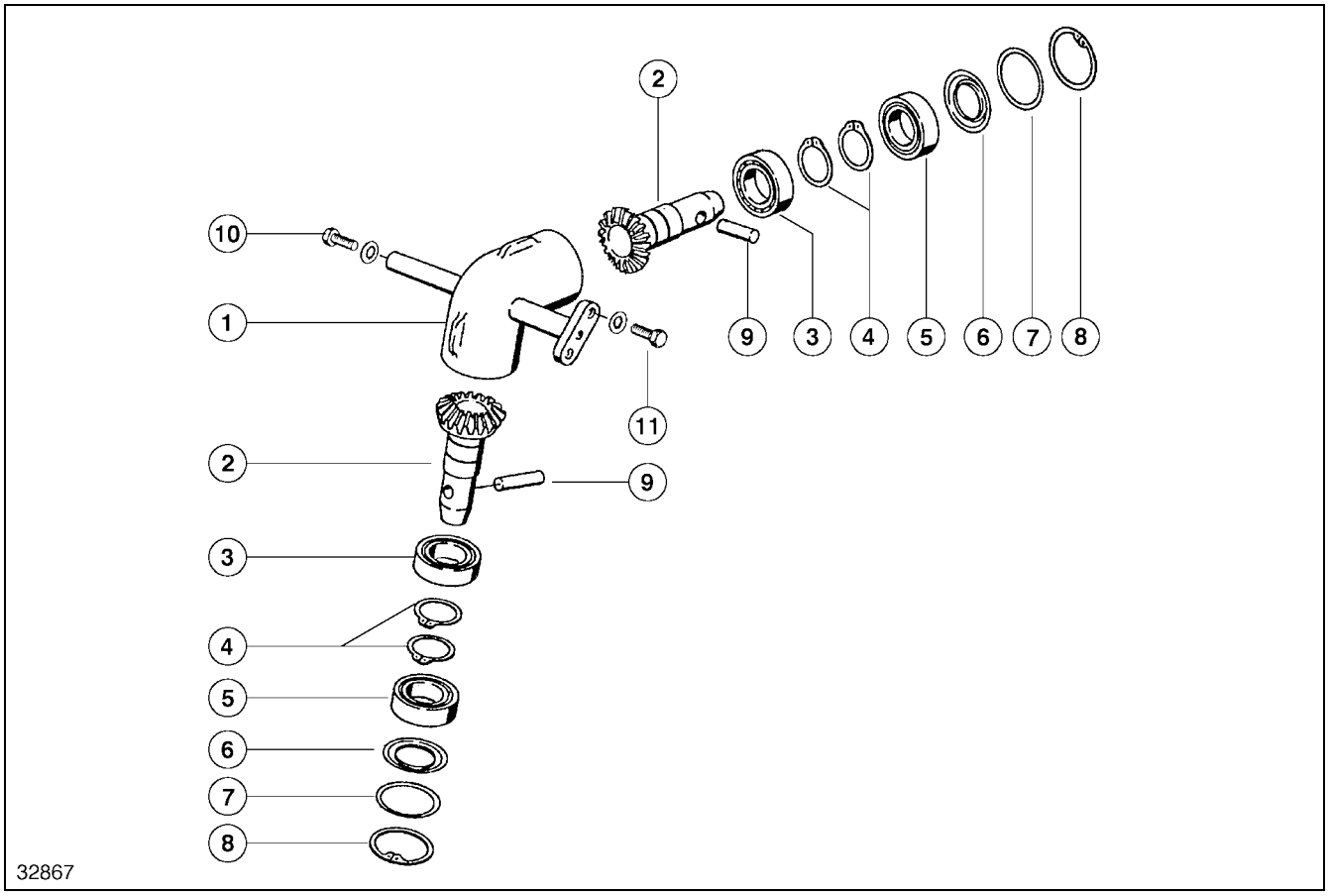
(Fig. 104)



105

Pull off the deep groove ball bearing and remove the circlips.

(Fig. 105)

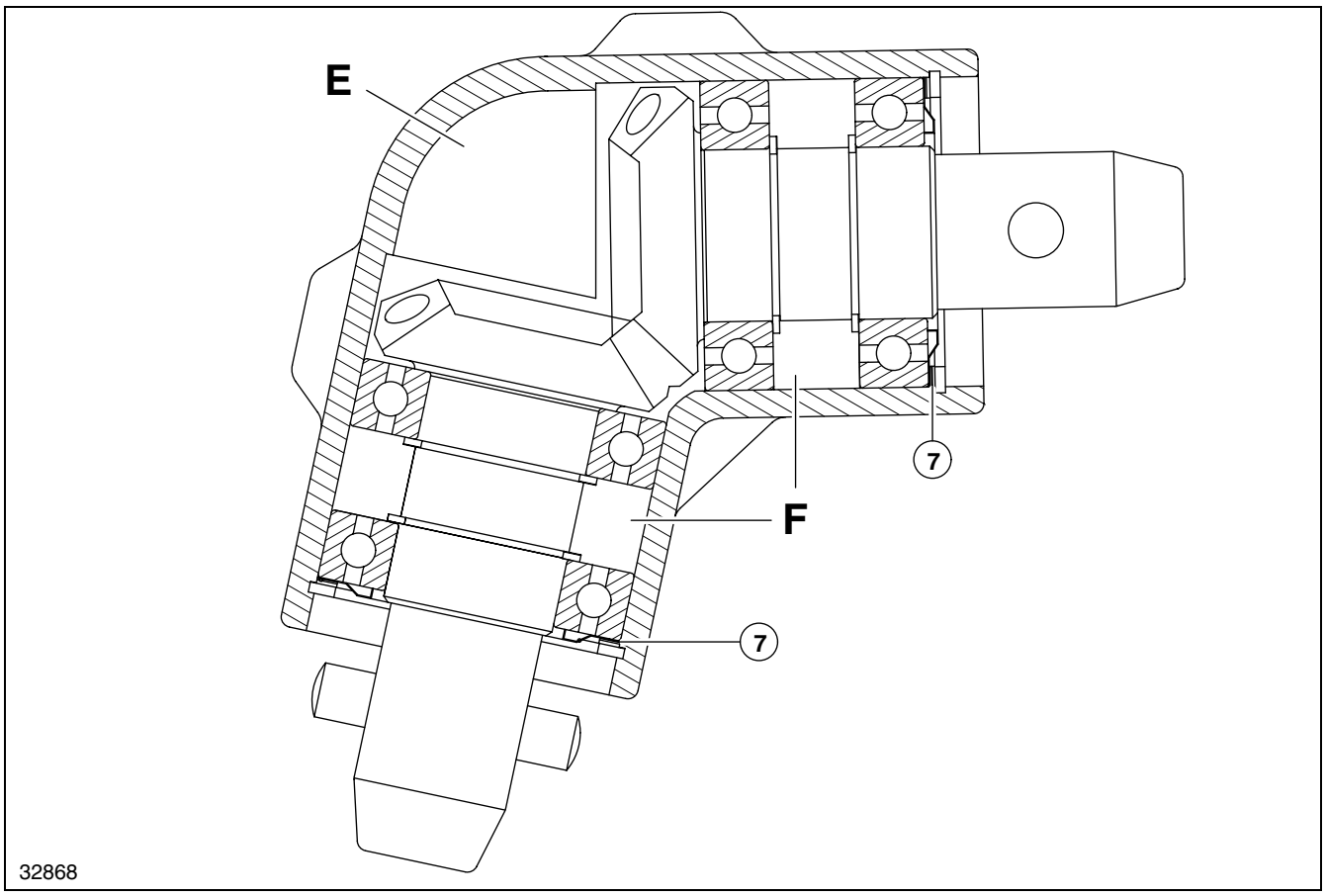


106

Upper grain tank unloading angle drive, disassembled:

1 Gearbox housing
2 Bevel gear
3 Deep groove ball bearing 6210 DIN 625
4 Circlip 50 x 2 DIN 471
5 Deep groove ball bearing 6210-RS-C3
6 Bearing ring seal 6210 ZJV
7 Shim 1 mm; 0.5 mm; 0.15 mm; 0.1 mm
8 Circlip 90 x 3 DIN 472
9 Drive pin
10 Hex. bolt M 12 x 25 DIN 933-8.8
Contact washer A 12
11 Hex. bolt M 12 x 20 DIN 933-8.8
Contact washer A 12

(Fig. 106)



107

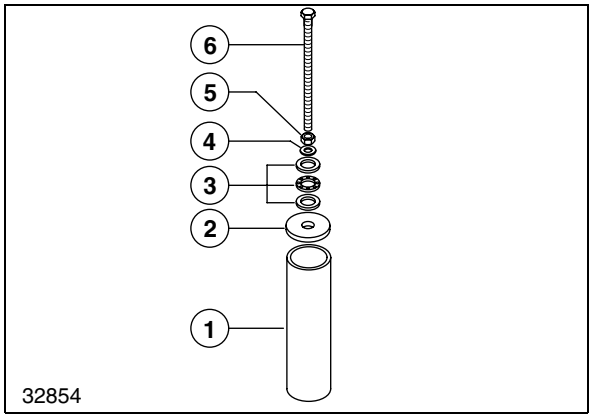


108

Assembling the upper grain tank unloading angle drive

1. Pre-assemble the bevel gears (2) with the deep groove ball bearings (3 and 5) and the circlips (4). Install the bearings with the special tool.

(Fig. 106, 107, 108)



109

Special tool:

1 Tube ∅ 60 x ∅ 50 x 180 long (self-sourced)
2 Washer, part no. 688 484.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer ∅ 10.5, part no. 236 913.2
5 Hex. nut M 10 DIN 934, part no. 236 171.0
6 Hex. bolt M 10 x 180 DIN 933 part no. 237 796.0

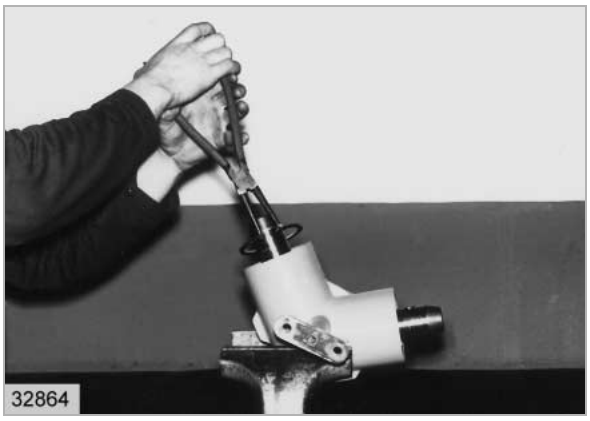
(Fig. 109)

2. Apply Engineer's blue to the tooth flanks of pre-assembled bevel gear (2) and then press bevel gear into the gearbox housing.

CAUTION!

Fill in approx. **70 g** of grease between the deep groove ball bearings at (F), e.g. Alvania R 3.

(Fig. 106, 107)



110

3. Refit the bearing ring seal. Refit the correct thickness and number of shims (7) found when disassembling. Insert circlip (8) and pull the bevel gear back up against it.

(Fig. 106, 110)



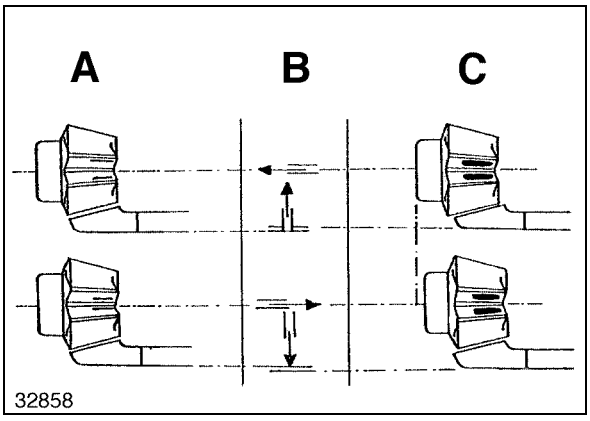
111

4. When determining the torsional backlash, the measuring point must be located inside the pitch-circle diameter of the bevel gear.

   The torsional backlash is **0.2 – 0.3 mm**.

   Adjust the torsional backlash using shims (7).

(Fig. 106, 107, 111)



112

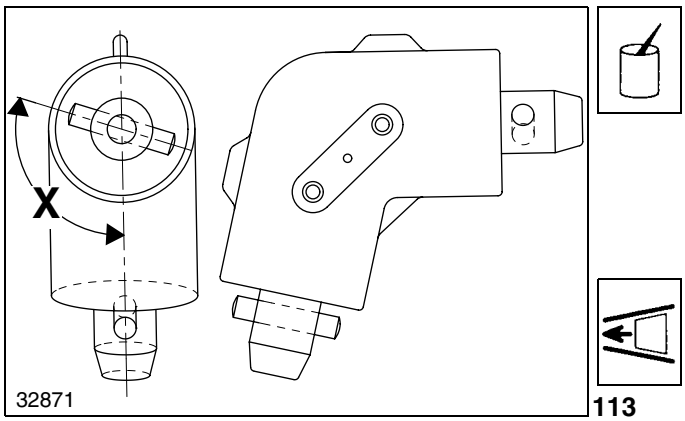
5. Remove the bevel gear (2) and have a look at the profile left in the Engineers blue.

   Correct the profile using shims (7).

   Example:

   A = Initial setting
   B = Required correction
   C = Correct setting

(Fig. 106, 112)



113

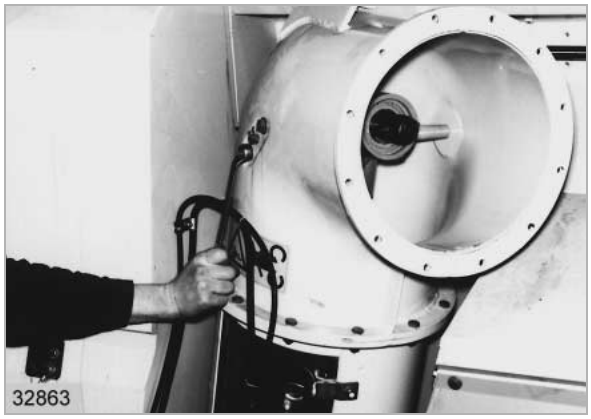
6. Fill gearbox housing with approx. **130 g** of grease, e.g. Alvania R 3 at (E).
7. Press the bevel gear (2) into the gearbox housing. Fill in approx. **70 g** of grease between the deep groove ball bearings at (F), e.g. Alvania R 3.

ATTENTION!

Observe correct installation position of bevel gears (2). The drive pins (9) must have an angle (X) of **108**° between each other.

(Fig. 106, 107, 113)

8. Insert drive pin (9) so that it is centred to the bevel gear.
9. Install the upper grain tank unloading angle drive. Refit the grain tank unloading tube.



114

Installing the upper grain tank unloading angle drive

1. Lift the angle drive into the elbow section and place it onto the vertical auger.
2. Bolt the angle drive down and refit the grease pipes.

(Fig. 114)

From serial no. ...



115

3. Slide the grain tank unloading tube including the auger on the angle drive.

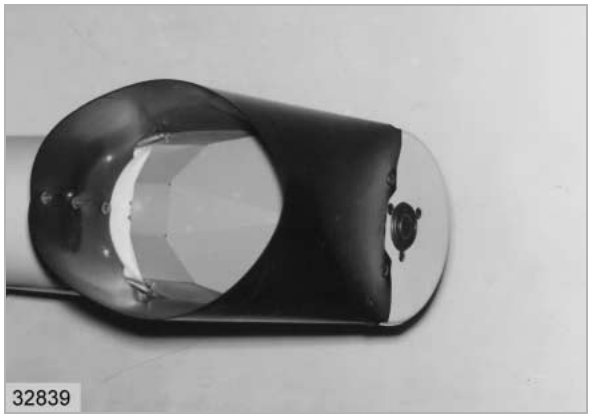
ATTENTION!

The vertical auger must be offset by **180**°, relating to the horizontal auger in the grain tank unloading tube. The two flight ends must not touch each other. Check correct position by turning the augers.

4. Unlock the lock collar in the unloading tube and knock it off.

(Fig. 115, 116)

Up to serial no. ...



116



117

5. Bolt the unloading tube back onto the flange.

(Fig. 117)

6. Arrest grain tank unloading auger.

   Push the grain tank unloading auger fully to the front. Fix and secure the auger with the lock collar.

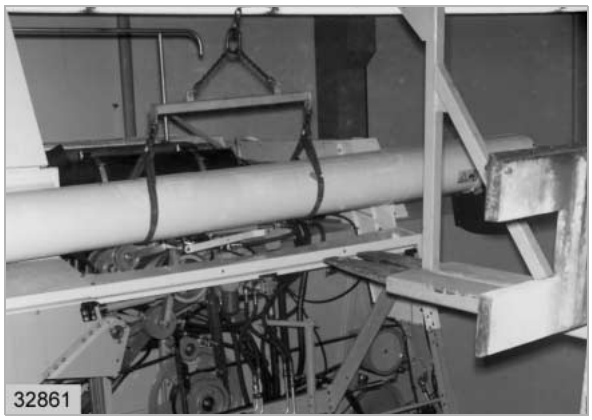
(Fig. 115, 116)



118

7. Refit the work light (S).

(Fig. 118)



119

Removing the grain tank unloading tube

Remove the work light (S) (Fig. 118).

Swing the grain tank unloading tube out, then remove the bolts at the back of the tube.

Swing the unloading auger tube back in and, using a suitable lifting device, support the tube.

(Fig. 119)



120

Unscrew the bolts at the front around the flange, then remove the tube.

Removing the horizontal grain tank unloading auger, see page 5.3.11

(Fig. 120)

Refitting the unloading auger tube

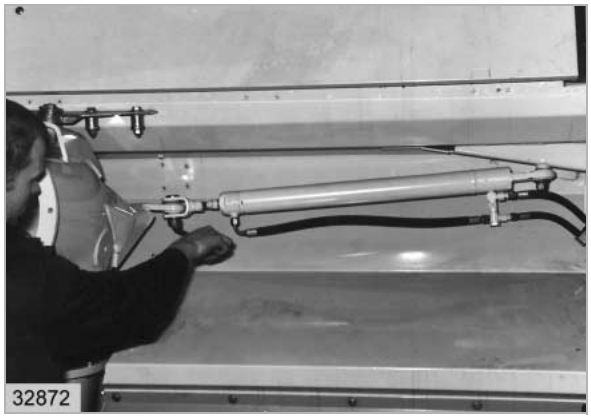
1. Bolt on the grain tank unloading tube at the flange.

   (Fig. 120)

2. Refit the work light (S).

   (Fig. 118)

3. *Installing the horizontal grain tank unloading auger*, see page 5.3.13



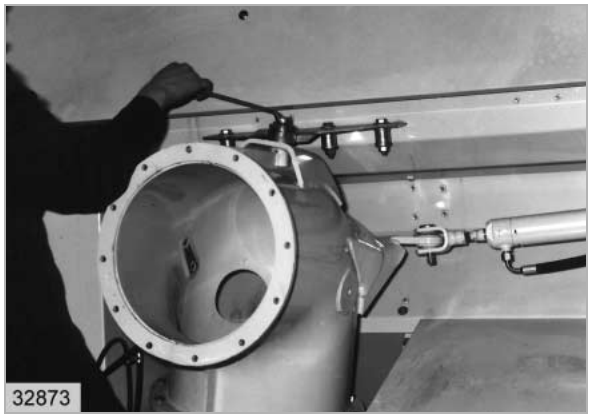
121

Removing the grain tank unloading tube elbow

Removing the upper grain tank unloading angle drive, see page 5.3.32

Remove the hydraulic cylinder.

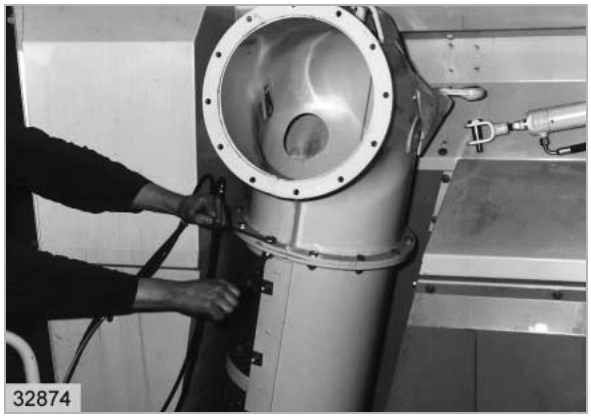
(Fig. 121)



122

Remove the bearing plate.

(Fig. 122)



123

Unscrew the elbow from the flange and remove it.

(Fig. 123)

Installing the grain tank unloading tube elbow

1. Bolt the elbow down to the flange.

   (Fig. 123)

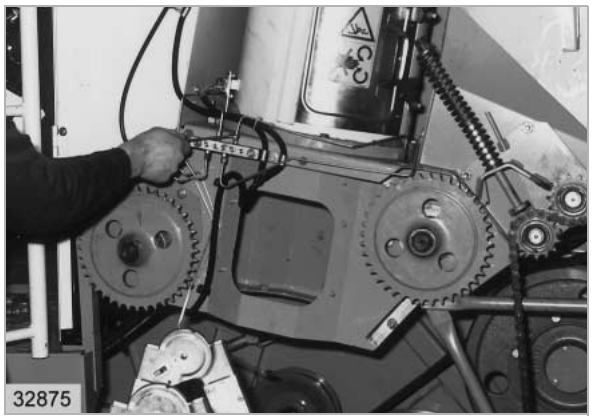
2. Refit the bearing plate.

   (Fig. 122)

3. Refit the hydraulic cylinder.

   (Fig. 121)

4. *Installing the upper grain tank unloading angle drive*, see page 5.3.38



124

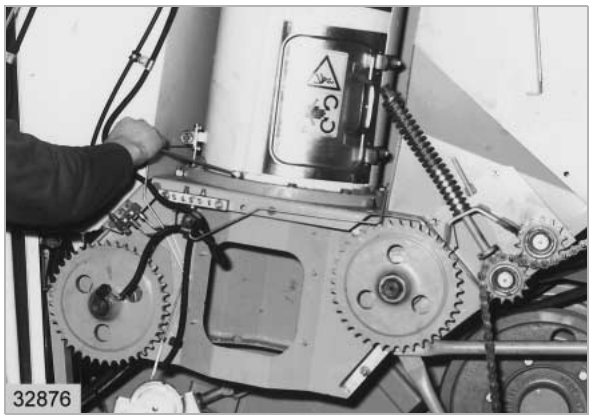
Removing the vertical unloading auger tube

Removing the vertical grain tank unloading auger, see page 5.3.7

Remove the grain tank unloading tube elbow.

Remove the grease pipes and the cable clamps.

(Fig. 124)



125

Remove the swivel support plate.

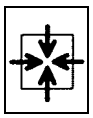
(Fig. 125)



126

Remove the vertical unloading auger tube.

(Fig. 126)



Installing the vertical unloading auger tube

1. Slide the vertical unloading auger tube under the swivel support plate from the side.

   (Fig. 126)

2. Bolt down the second swivel support plate.

   (Fig. 125)

3. Refit the grease pipes and the cable clamps.

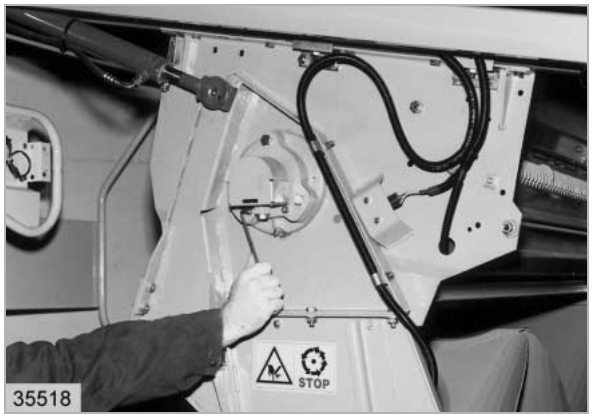
   (Fig. 124)

4. Install the elbow section.

5. *Installing the vertical grain tank unloading auger*, see page 5.3.10

6
Straw discharge

STRAW CHOPPER



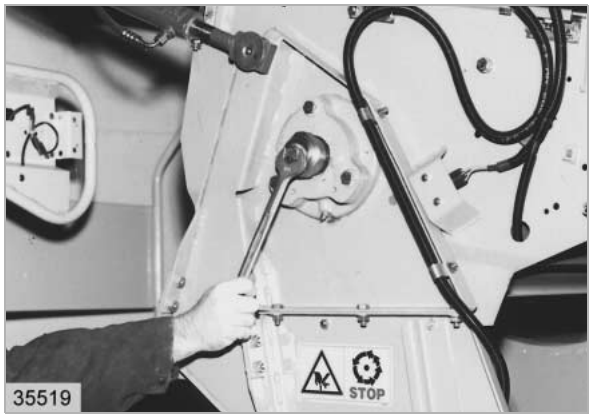
1

Removing the right-hand straw chopper bearing

Make sure the straw chopper is securely supported.

Remove the cover over the bearing housing on the right-hand side of the machine.

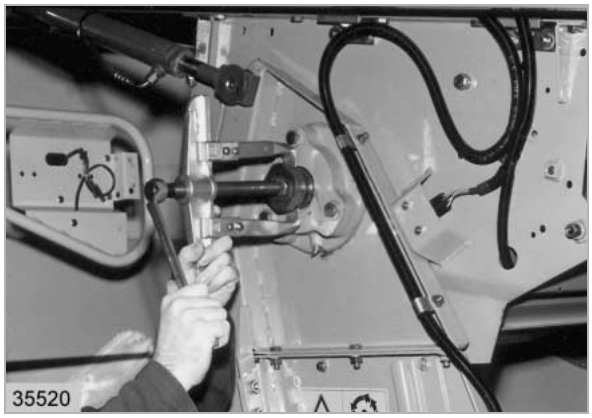
(Fig. 1)



2

Remove the hex. bolt from the face end of the shaft.

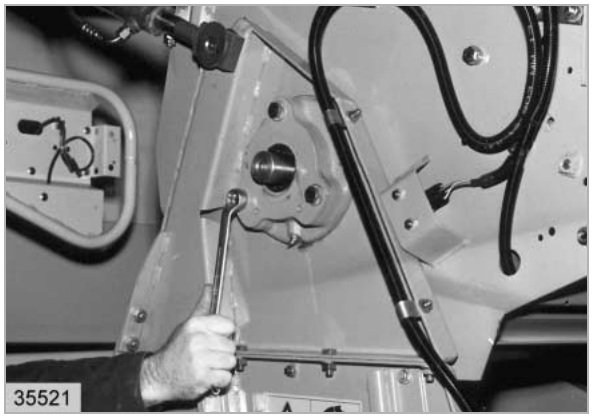
(Fig. 2)



3

Using a suitable puller, pull off the cam wheel.

(Fig. 3)



4

Unbolt the bearing housing from the machine side wall.

(Fig. 4)

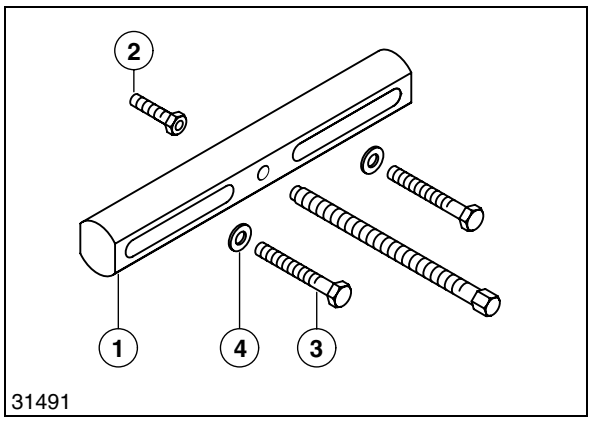


5

Remove the bearing cover.

Remove the bearing housing, using the special tool.

(Fig. 5)



6

Special tool:

1 Puller bridge, part no. 181 621.0
2 Hex. bolt M 16 x 30 with centralising head
3 Hex. bolt M 12 x 140 DIN 933-8.8, part no. 233 011.0
4 Washer 13

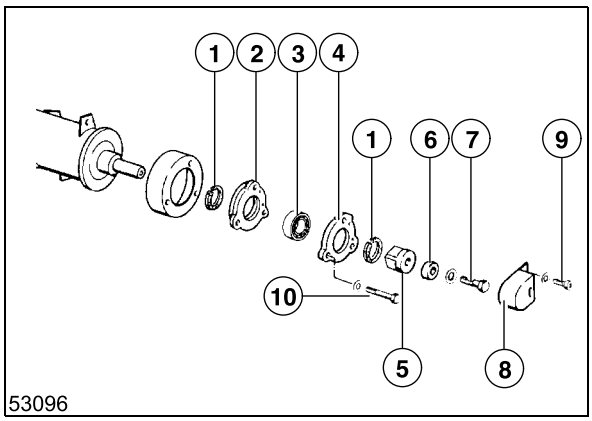
(Fig. 6)



7

Drive the self-aligning ball bearing out of the bearing housing using a tube ∅ 35 x ∅ 50 x 200 long.

(Fig. 7)

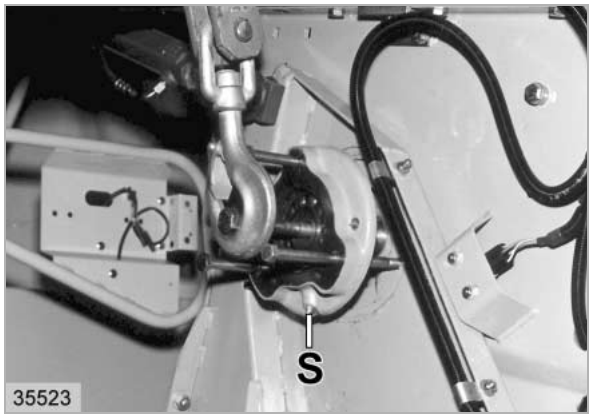


8

Right-hand straw chopper bearing assembly, disassembled

1 Felt ring
2 Bearing housing
3 Self-aligning roller bearing
4 Bearing cover
5 Cam wheel
6 Washer
7 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
8 Orifice plate
9 Cheese-head screw M 8 x 16 DIN 912
Detent-edged ring VSKZ 8
10 Hex. bolt M 12 x 75 DIN 931-8.8
Contact washer A 12

(Fig. 8)



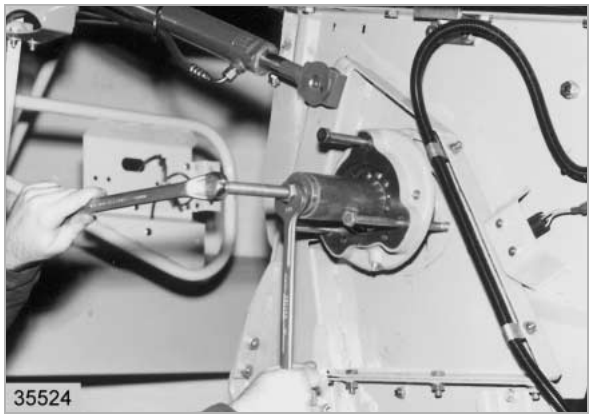
9

Installing the right-hand straw chopper bearing

1. Slide the felt ring (1) with bearing housing (2) on the chopper shaft, ensuring that the grease nipple (S) is facing down.

   Raise the chopper shaft until the bearing housing can be fixed with three hex. bolts M 12 x 180, part no. 236 302.0.

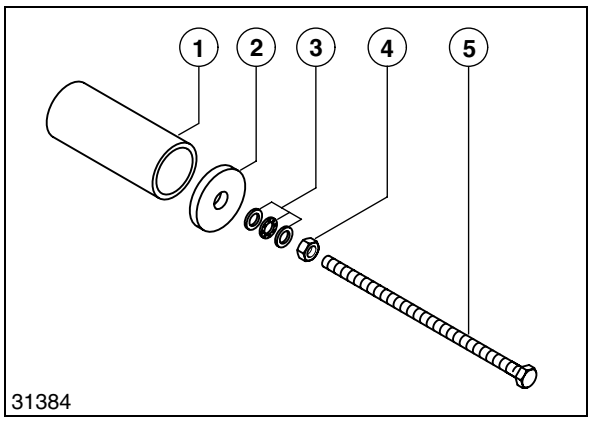
(Fig. 9)



10

2. Press the self-aligning ball bearing (3) into the bearing housing (2), using the special tool.

(Fig. 8, 10)

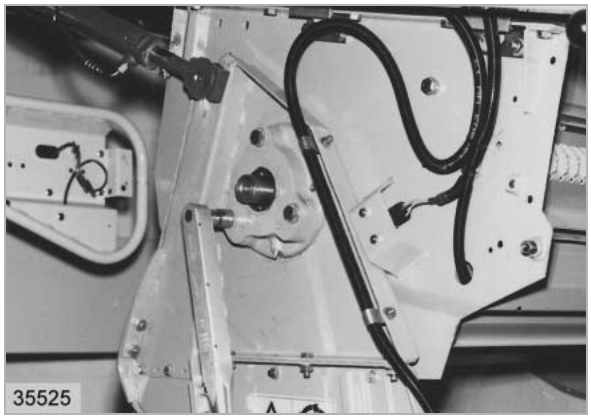


11

Special tool:

1 Tube ∅ 55 x ∅ 85 x 140 long (self-sourced)
2 Locating disc, part no. 181 879.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Hex. nut M 16 DIN 934
5 Hex. bolt M 16 x 300 DIN 933, part no. 237 375.1

(Fig. 11)



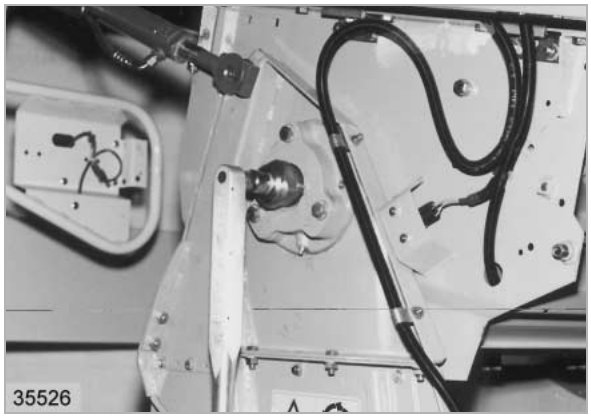
12

5. Install the bearing cover (4).

   Insert hex. bolts (10) with liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 78 Nm

(Fig. 8, 12)



13

6. Slide the cam wheel onto the shaft.

   Place washer (6) in position, then insert the hex. bolt (7).

   Tightening torque = 180 Nm

(Fig. 8, 13)

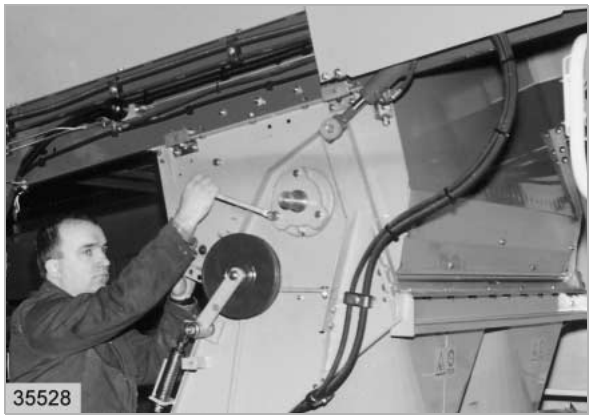


14

7. Bolt the cover (8) into position.

   (Fig. 8, 14)

8. Grease the bearing.



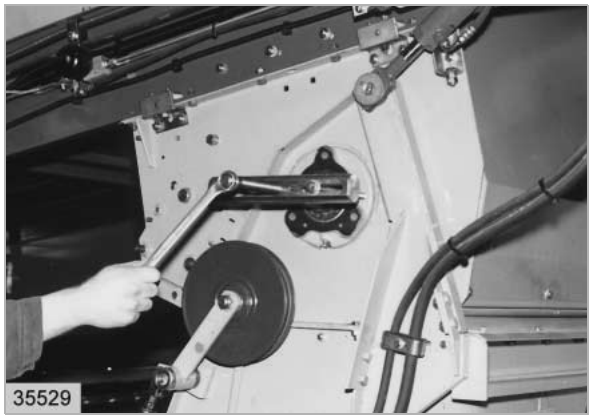
15

Removing the left-hand straw chopper bearing

Removing the stage 3 chopper drive V-belt pulley, see page 7.10.13

Remove the bearing cover from the machine side wall.

(Fig. 15)

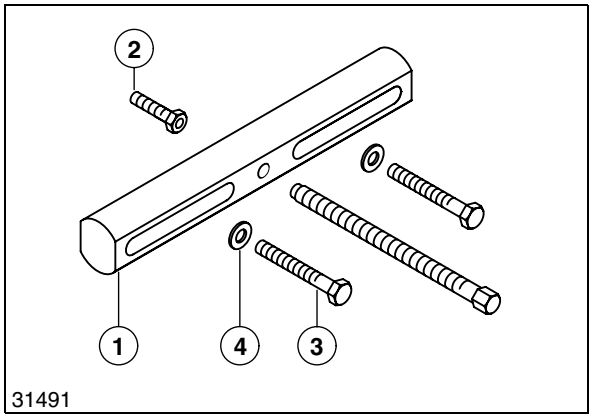


16

Remove the bearing cover.

Remove the bearing housing, using the special tool.

(Fig. 16)



17

Special tool:

1 Puller bridge, part no. 181 621.0
2 Hex. bolt M 16 x 30 with centralising head
3 Hex. bolt M 12 x 140 DIN 933-8.8, part no. 233 011.0
4 Washer 13

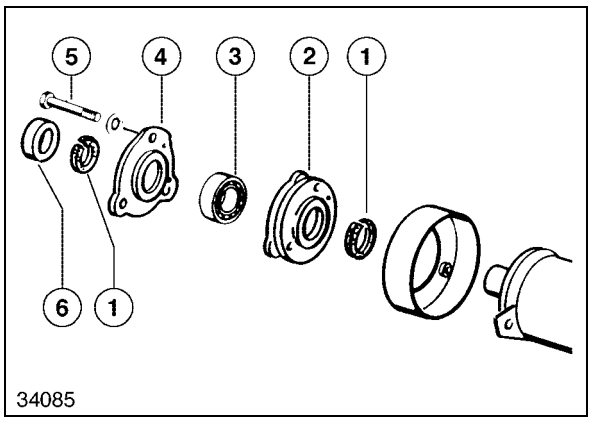
(Fig. 17)



18

Drive the self-aligning ball bearing out of the bearing housing using a tube ∅ 35 x ∅ 50 x 200 long.

(Fig. 18)



19

Left-hand straw chopper bearing assembly, disassembled

1 Felt ring
2 Bearing housing
3 Self-aligning roller bearing
4 Bearing cover
5 Hex. bolt M 12 x 75 DIN 931-8.8
Contact washer A 12
6 Spacer ring

(Fig. 19)



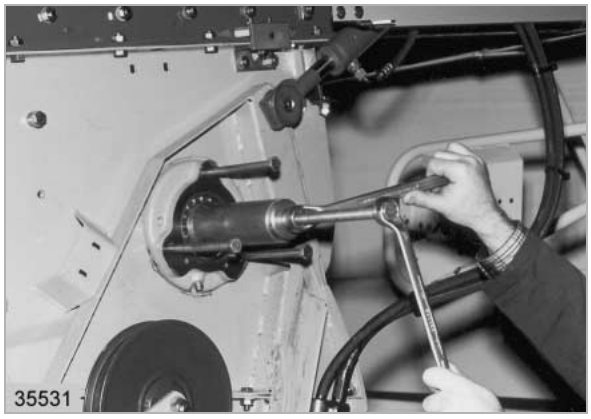
20

Installing the left-hand straw chopper bearing

1. Slide the felt ring (1) with bearing housing (2) on the chopper shaft, ensuring that the grease nipple (S) is facing down.

   Raise the chopper shaft until the bearing housing can be fixed with three hex. bolts M 12 x 180, part no. 236 302.0.

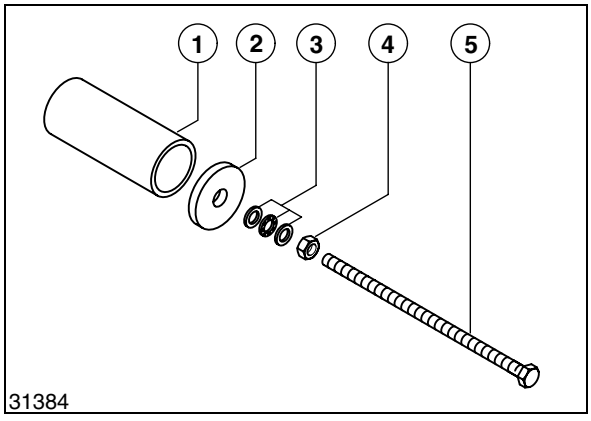
(Fig. 20)



21

2. Press the self-aligning ball bearing (3) into the bearing housing (2), using the special tool.

(Fig. 19, 21)

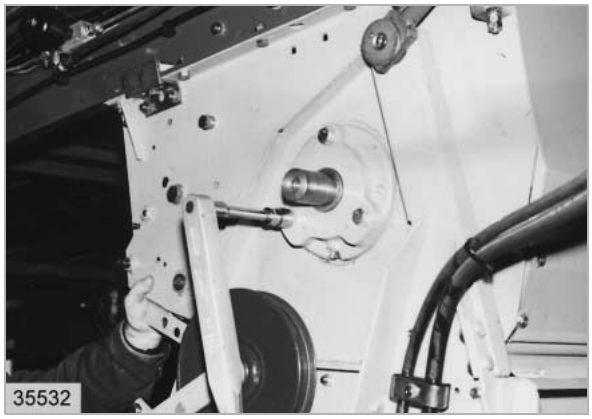


22

Special tool:

1 Tube ∅ 55 x ∅ 85 x 140 long
(self-sourced)
2 Locating disc, part no. 181 879.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Hex. nut M 16 DIN 934
5 Hex. bolt M 16 x 300 DIN 933, part no. 237 375.1

(Fig. 22)



23

3. Install the bearing cover (4).

   Insert hex. bolts (5) with liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 78 Nm

(Fig. 19, 23)

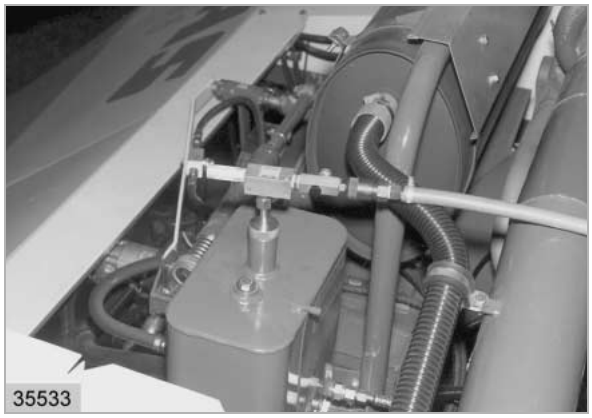
4. Installing the stage 3 chopper drive V-belt pulley – see page 7.10.18, *Assembling and installing the stage 3 chopper drive V-belt pulley*.
5. Grease the bearing.

Removing the cutting cylinder

Make sure the straw chopper is securely supported.

Removing the stage 3 chopper drive V-belt pulley, see page 7.10.13

Removing the right-hand straw chopper bearing, see page 6.1.1
Removing the left-hand straw chopper bearing, see page 6.1.5



24

Place valve combination part no. 181 619.0 on the hydraulic tank for creating a vacuum inside the tank.

(Fig. 24)



25

Remove the hydraulic hoses and seal the connections tightly with plastic caps.

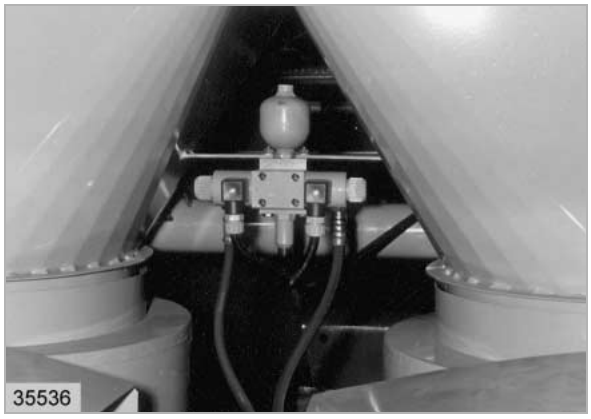
(Fig. 25)



26

Remove the hose clamps.

(Fig. 26)

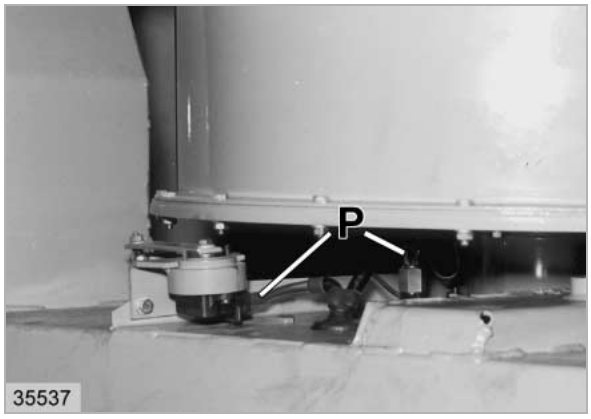


27

Disconnect the cable plug from the 4/3 way valve.

Unscrew the cable clamps up to the machine housing.

(Fig. 27)

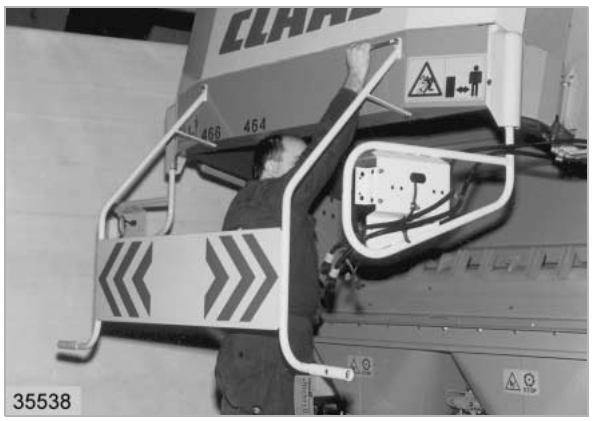


28

Disconnect the cable plug (P) from the magnetic pick-up and the potentiometer.

Remove the cable clamps.

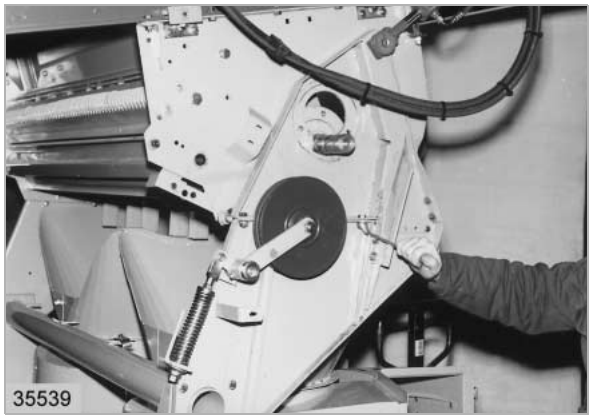
(Fig. 28)



29

Remove the safety frame.

(Fig. 29)



30

Make sure the uni-spreader is securely supported.

Remove the left and right side panels.

Remove the jockey pulley arm completely with the jockey pulley.

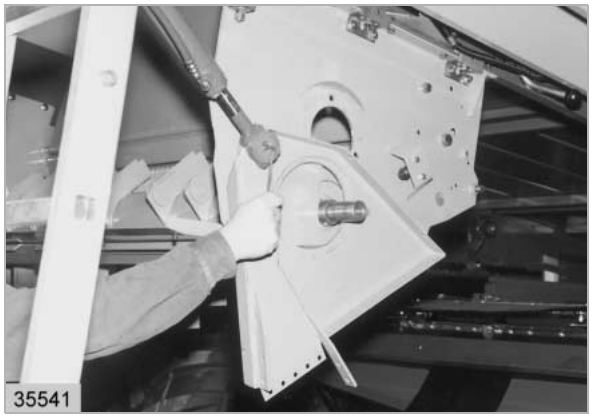
(Fig. 30)



31

Lower the uni-spreader remove it to the rear.

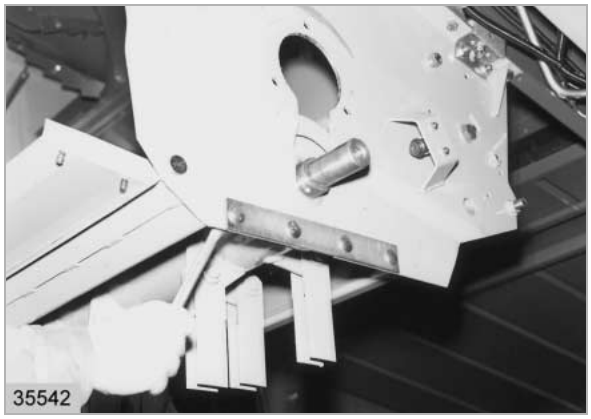
(Fig. 31)



32

Remove the hydraulic cylinders on the left-hand and right-hand side panels of the combine and remove side panels.

(Fig. 32)



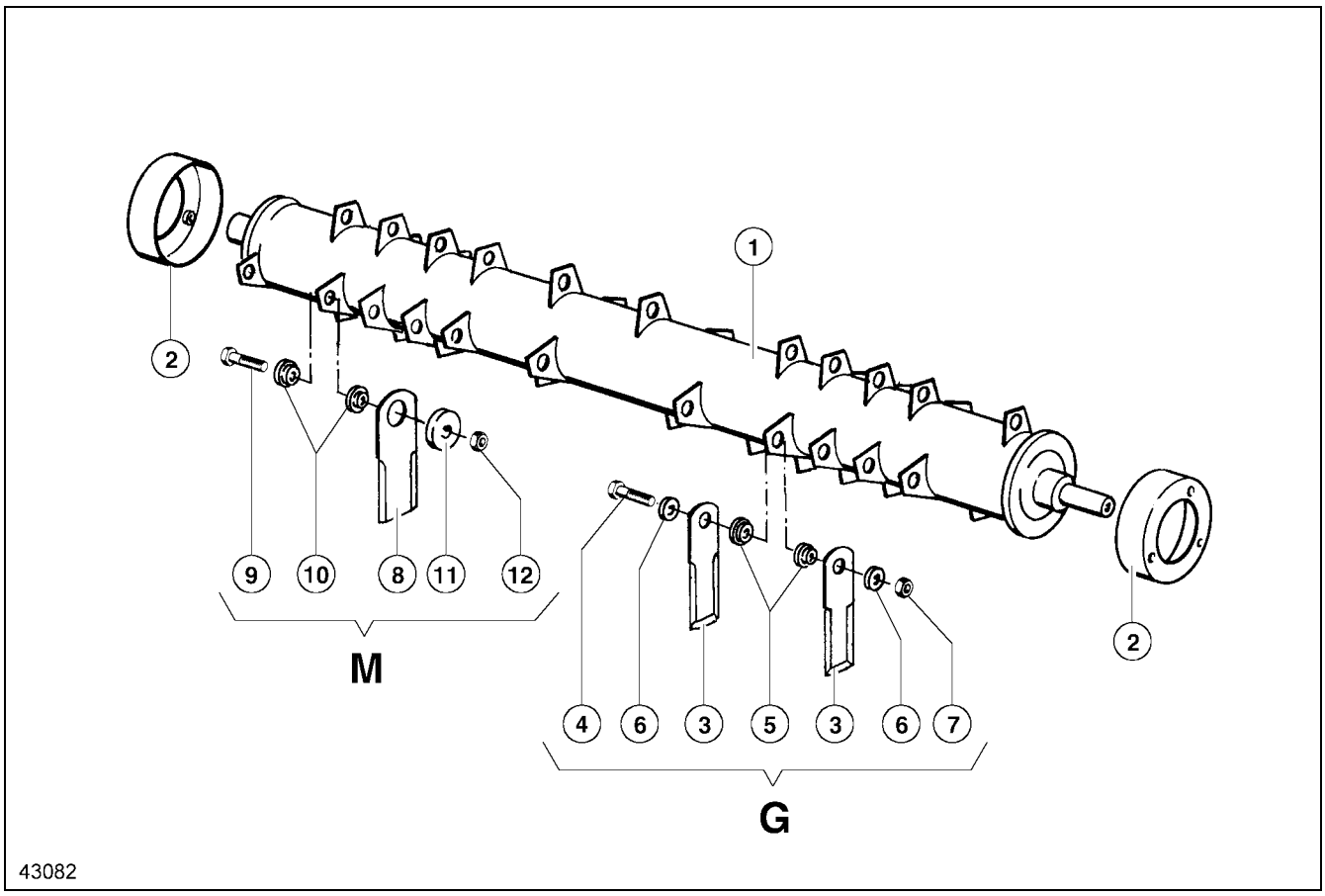
33

Suspend the cutting cylinder safely in a suitable lifting device.

Remove the reinforcements on the left- and right-hand side.

Remove the cutting cylinder towards the bottom.

(Fig. 33)



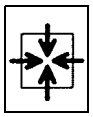
34

Cutting cylinder, disassembled

1 Cutting cylinder (disassembled)
2 Cover
3 Free-swinging knife (grain)
4 Hex. bolt M 12 x 65 DIN 931-10.9
5 Bushing ∅ 35 x 16
6 Washer ∅ 35 x 7.5
7 Lock nut VM 12 DIN 980-10
8 Free-swinging knife (maize)
9 Hex. bolt M 10 x 50 DIN 931-10.9
10 Bushing ∅ 30 x 14.25
11 Bushing ∅ 48 x 10 x 8.5
12 Lock nut VM 10 DIN 980-10

F = Direction of travel
G = Grain
M = Maize

(Fig. 34)



Installing the cutting cylinder

1. Pre-assemble the cutting cylinder (1) with the free-swinging knives – see page 6.1.13, *Replacing the free-swinging knives*.
2. Lift the pre-assembled cutting cylinder (1) with the covers (2) up into the machine.
3. Bolt down the reinforcements on the left- and right-hand side.

   (Fig. 33)
4. *Installing the right-hand straw chopper bearing*, see page 6.1.3
   Installing the left-hand straw chopper bearing, see page 6.1.6
5. Bolt down the left and right hydraulic cylinders.

   (Fig. 32)
6. Bolt down the uni-spreader and install the jockey pulley arm.

   (Fig. 30)
7. Bolt down the safety frame.

   (Fig. 29)
8. Connect all cable plugs and lay the cables.

   (Fig. 27, 28)
9. Connect and lay the hydraulic hoses.

   (Fig. 25, 26)
10. Remove the stage 3 chopper drive V-belt pulley – see page 7.10.18, *Assembling and installing the stage 3 chopper drive V-belt pulley*.

Replacing the free-swinging knives

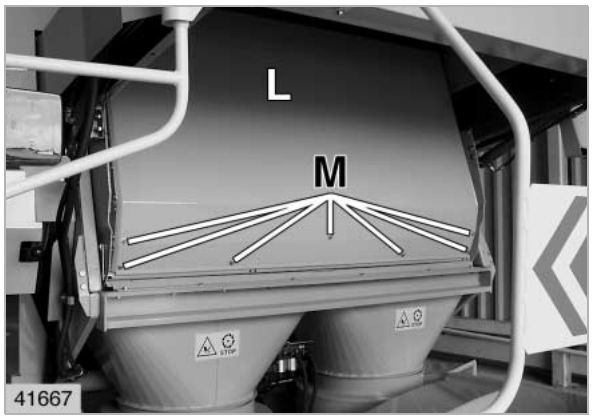
ATTENTION!

Always disengage the threshing mechanism, stop the engine and remove the ignition key before carrying out work on the chopper.

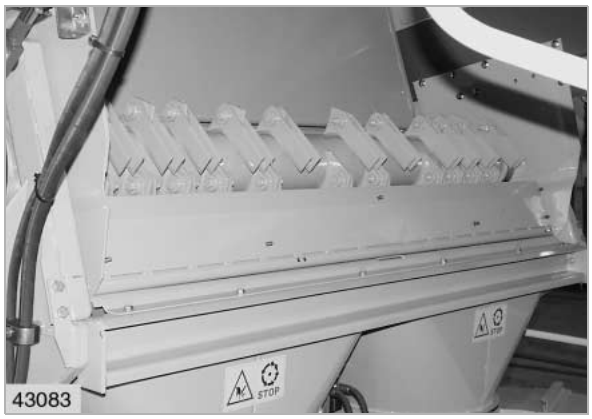
Note that the chopper knives run on after the machine drives have been disengaged!
Caution – Risk of injury!

☞ Wear gloves during all work on the chopper knives!

☞ Arrest the cutting cylinder so it will not rotate.



35



36

Unscrewing the free-swinging knives:

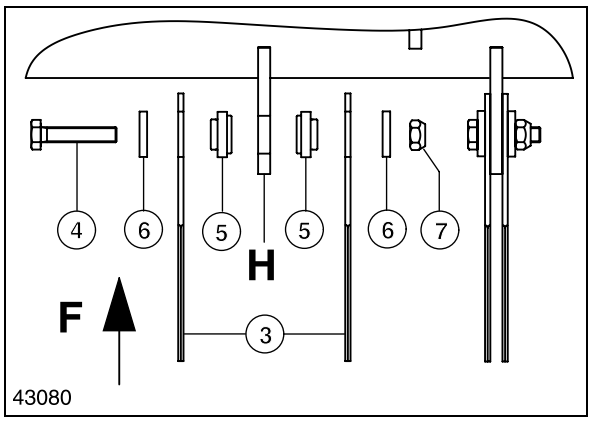
For better accessibility of the cutting cylinder, the straw guide plate (L) may be removed.

To do this, swing the straw guide plate to the front and unbolt the nuts (M).

Remove the straw guide plate (L).

Unscrew all free-swinging knives from the cutting cylinder.

(Fig. 35, 36)



37

Bolting down the free-swinging knives for grain:

Lightweight free-swinging knives are needed for chopping cereal straw.

Two free-swinging knives are bolted to each mounting plate (H). The knives must be able to move freely.

Bolt down free-swinging knives for grain (3) according to Fig. 37.

DANGER!

Use only the bolts and nuts recommended by the manufacturer.

Tightening torque
M 12-10.9 = 80 Nm

DANGER!

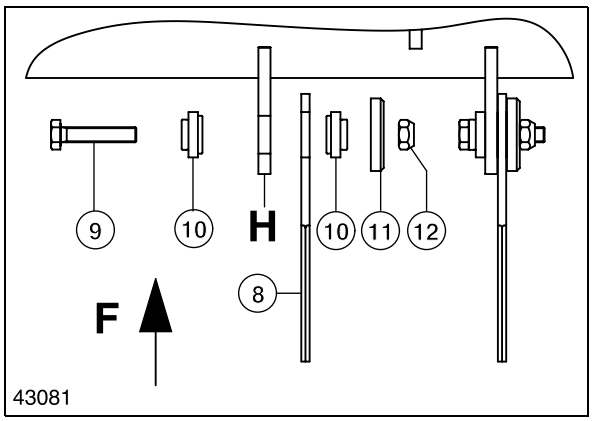
When using bolts and nuts with Dacromet coating (silvery grey), the tightening torque is reduced.

Tightening torque
Bolts with Dacromet coating
M 12-10.9 = 65 Nm

- 3 Free-swinging knives (grain)
- 4 Hex. bolt M 12 x 65 DIN 931-10.9
- 5 Bushing ∅ 35 x 16
- 6 Washer ∅ 35 x 7.5
- 7 Lock nut VM 12 DIN 980-10

- H Mounting plate
- F Direction of travel

(Fig. 37)



38

Bolting down the free-swinging knives for maize:

Heavy free-swinging knives are needed for chopping maize straw.

Only one free-swinging knife is bolted to each mounting plate (H). The knives must be able to move freely.

Bolt down free-swinging knives for maize (8) according to Fig. 38.

DANGER!

Use only the bolts and nuts recommended by the manufacturer.

Tightening torque
M 10-10.9 = 65 Nm

DANGER!

When using bolts and nuts with Dacromet coating (silvery grey), the tightening torque is reduced.

Tightening torque
Bolts with Dacromet coating
M 10-10.9 = 55 Nm

- 8 Free-swinging knives (maize)
- 9 Hex. bolt M 10 x 50 DIN 931-10.9
- 10 Bushing ∅ 30 x 14.25
- 11 Bushing ∅ 48 x 10 x 8.5
- 12 Lock nut VM 10 DIN 980-10

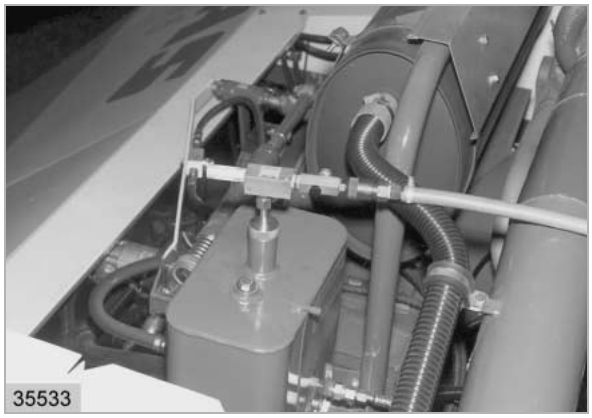
- H Mounting plate
- F Direction of travel

(Fig. 38)

Insert the straw guide plate (L) and bolt down with nuts (M).

(Fig. 35, 36)

UNI-SPREADER



1

Removing the fan blade bearings

Removing the uni-spreader intermediate drive belt (12), see page 7.2.23

Removing the uni-spreader drive belt (16), see page 7.2.32

Place valve combination part no. 181 619.0 on the hydraulic tank for creating a vacuum inside the tank.

(Fig. 1)



2

Remove the hydraulic hoses and seal the connections tightly with plastic caps.

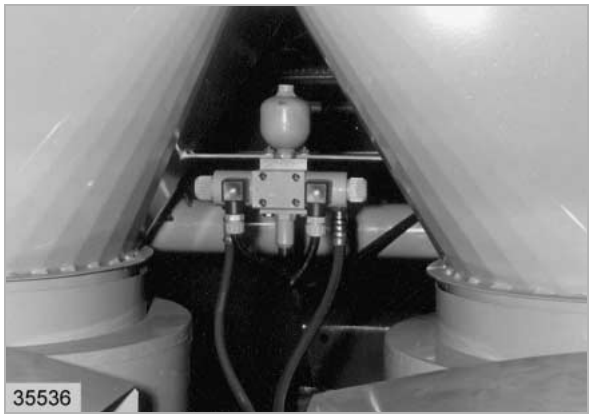
(Fig. 2)



3

Remove the hose clamps.

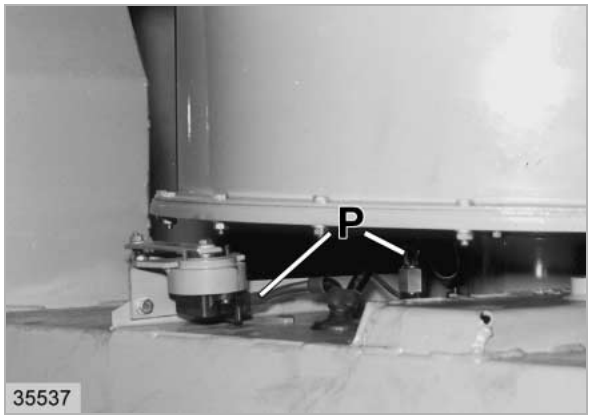
(Fig. 3)



4

Disconnect the cable plug from the 4/3 way valve. Unscrew the cable clamps up to the machine housing.

(Fig. 4)



5

Disconnect the cable plug (P) from the magnetic pick-up and the potentiometer.

Remove the cable clamps.

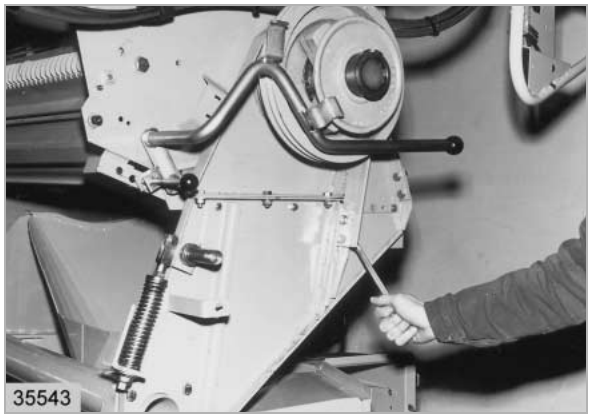
(Fig. 5)



6

Remove the safety frame.

(Fig. 6)



7

Make sure the uni-spreader is securely supported.

Remove the left and right side panels.

Remove the jockey pulley arm completely with the jockey pulley.

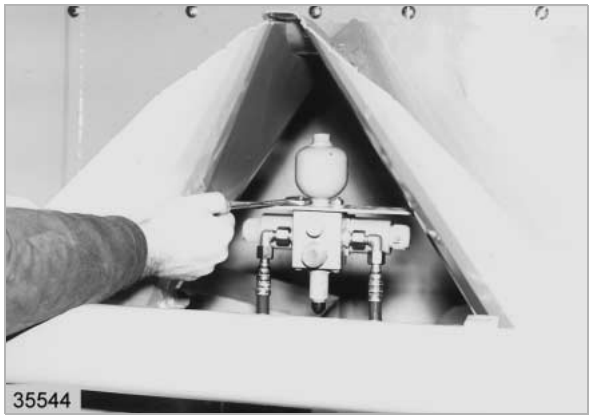
(Fig. 7)



8

Lower the uni-spreader remove it to the rear.

(Fig. 8)



9

Unscrew the 4/3 way valve from the feed hopper.

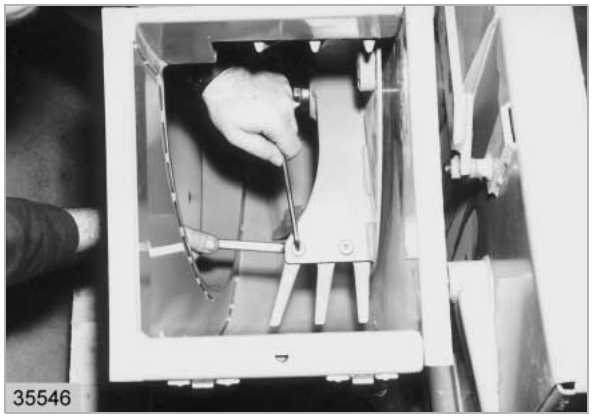
(Fig. 9)



10

Remove the feed hopper.

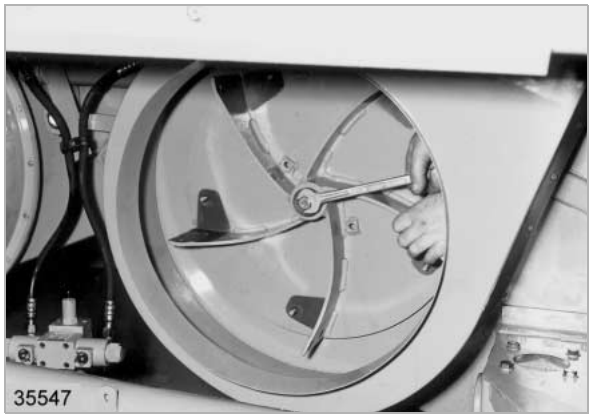
(Fig. 10)



11

Unbolt the scraper.

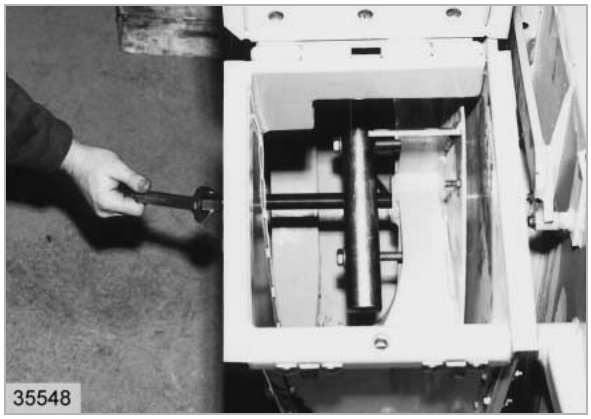
(Fig. 11)



12

Remove the hex. bolt from the fan blade.

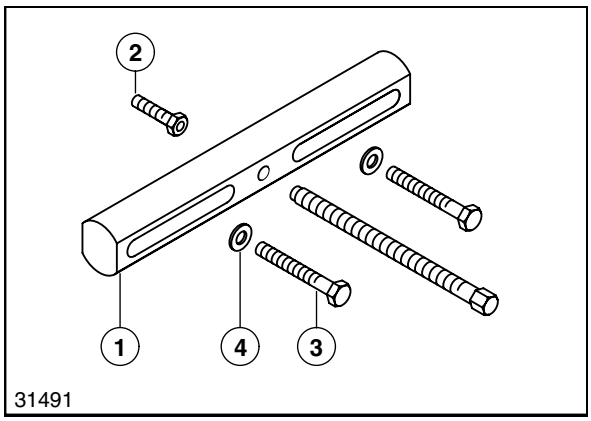
(Fig. 12)



13

Using the special tool, pull the fan blade off.

(Fig. 13)



14

Special tool:

1 Puller bridge, part no. 181 621.0
2 Hex. bolt M 12 x 20
head-centred
3 Hex. bolt M 12 x 140
part no. 233 011.0
4 Washer 13

(Fig. 14)



15

Remove the hex. bolt from the V-belt pulley.

(Fig. 15)

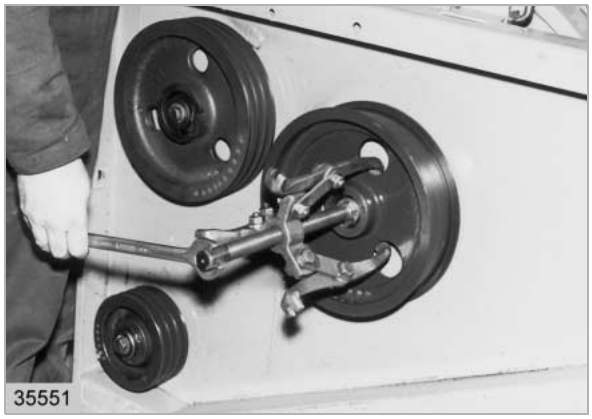


16

Using a suitable block-ended tube, apply a good sharp knock in order to release the tapered ring in the V-belt pulley.

The block-ended tube must fit over the tapered ring.

(Fig. 16)



17

Remove the tapered ring and pull off the V-belt pulley.

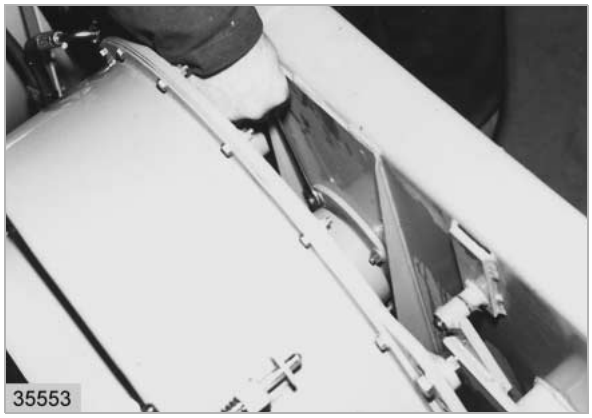
(Fig. 17)



18

Unscrew hex. socket head bolt and push out the hydraulic cylinder.

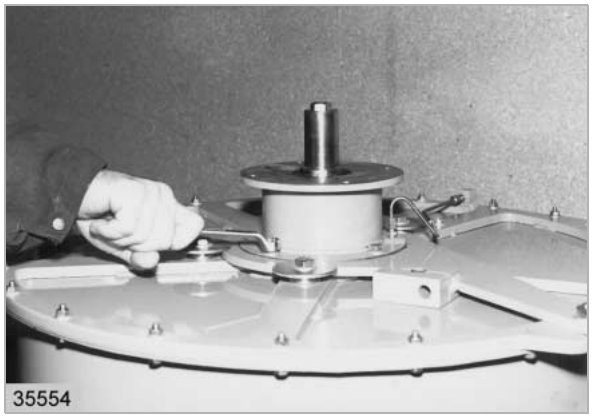
(Fig. 18)



19

Unbolt the hex. nuts and remove fan housing.

(Fig. 19)



20

Unscrew the lubricating line and remove the housing from the flange.

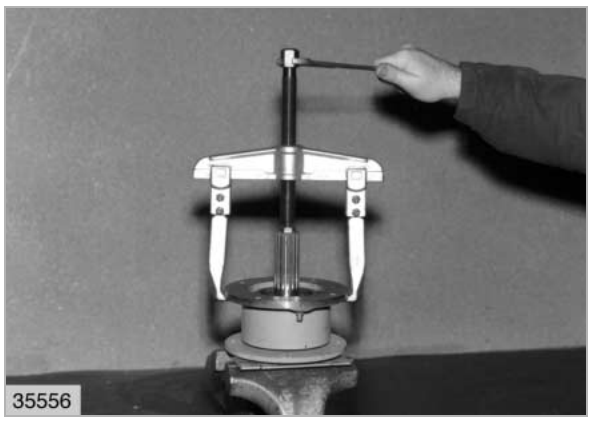
(Fig. 20)



21

Remove the circlip, then remove the housing using a suitable puller.

(Fig. 21, 22)

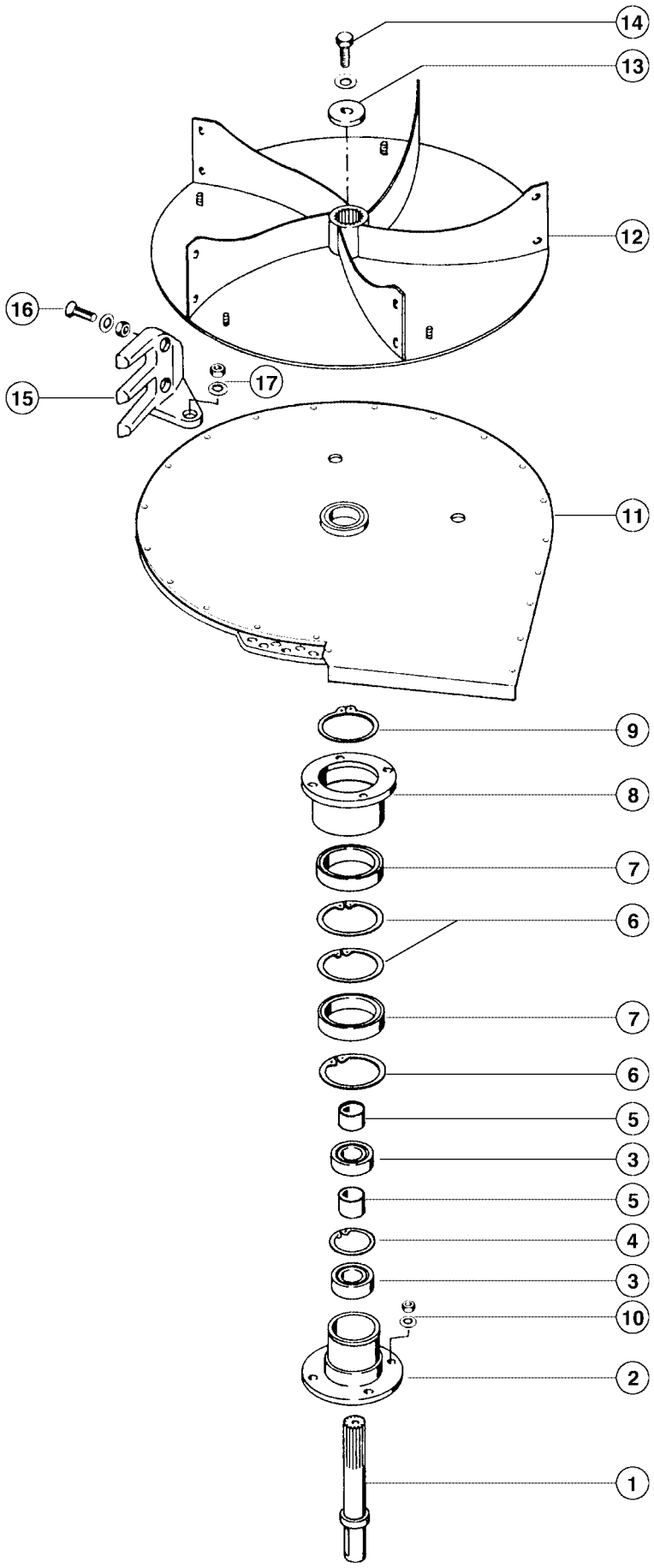


22

Fan blade bearings, disassembled:

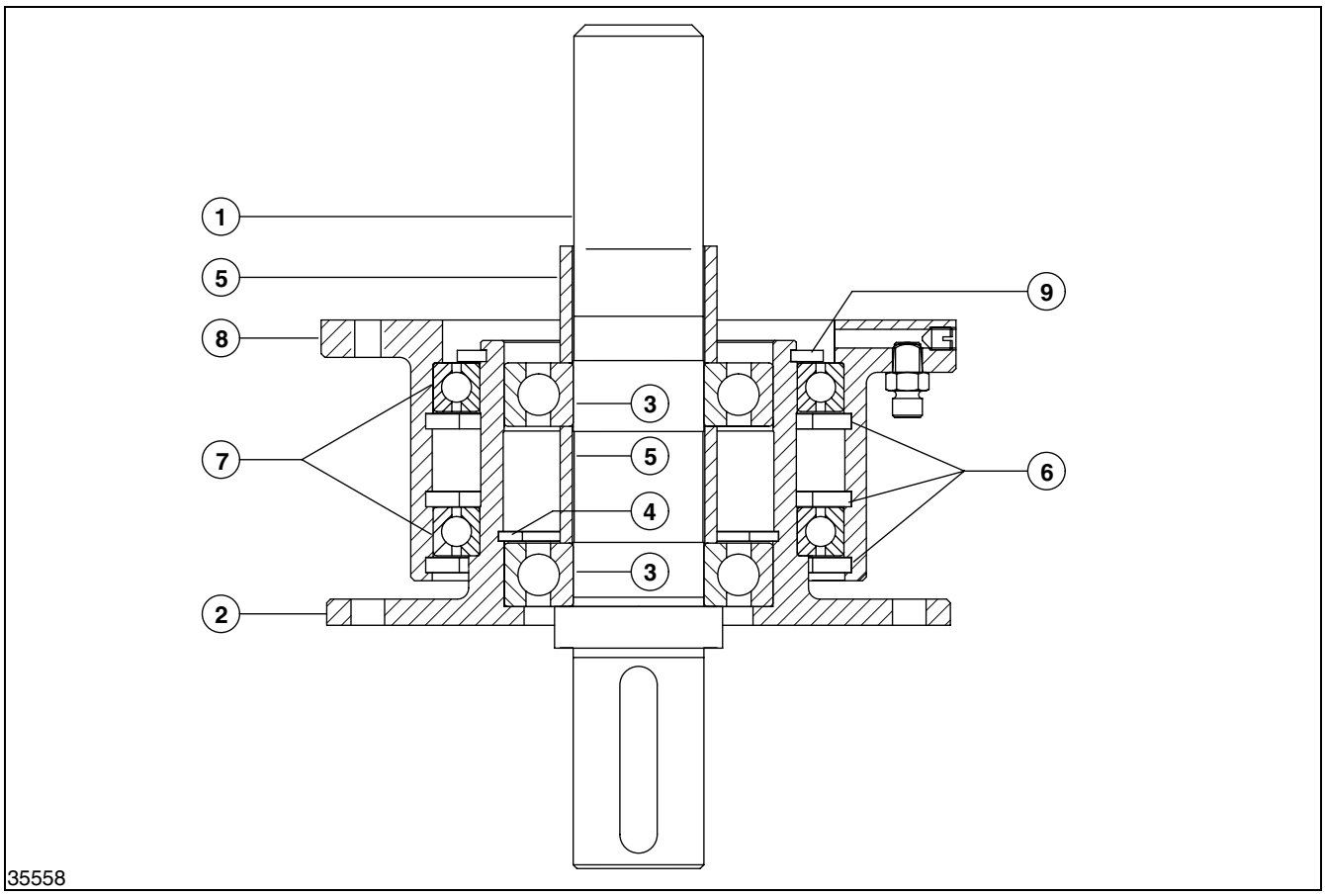
1 Shaft
2 Housing
3 Deep groove ball bearing 6207-2RS/C3
4 Circlip 72 x 2.5 DIN 472
5 Bushing
6 Circlip 110 x 4 DIN 472
7 Deep groove ball bearing 61817-2RS
8 Housing
9 Circlip 85 x 3 DIN 471
10 Hex. nut M 8 DIN 934
Contact washer A 8
11 Bottom plate
12 Fan blade
13 Washer
14 Hex. bolt M 12 x 50 DIN 933-8.8
Contact washer A 12
15 Scraper
16 Countersunk head bolt M 8 x 25 DIN 7991-8.8
Hex. nut M 8 DIN 934
Contact washer A 8
17 Hex. nut M 8 DIN 934
Contact washer A 8

(Fig. 23)

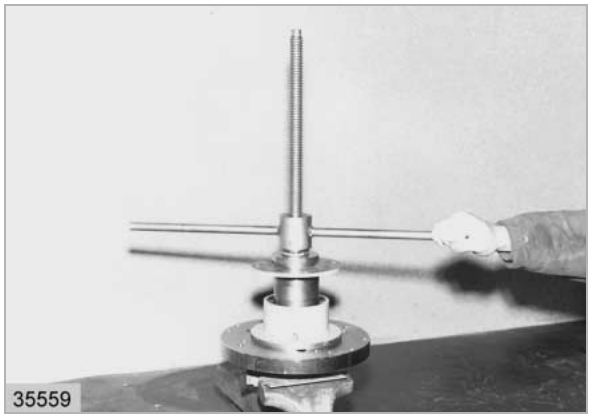


35557

23



24



25

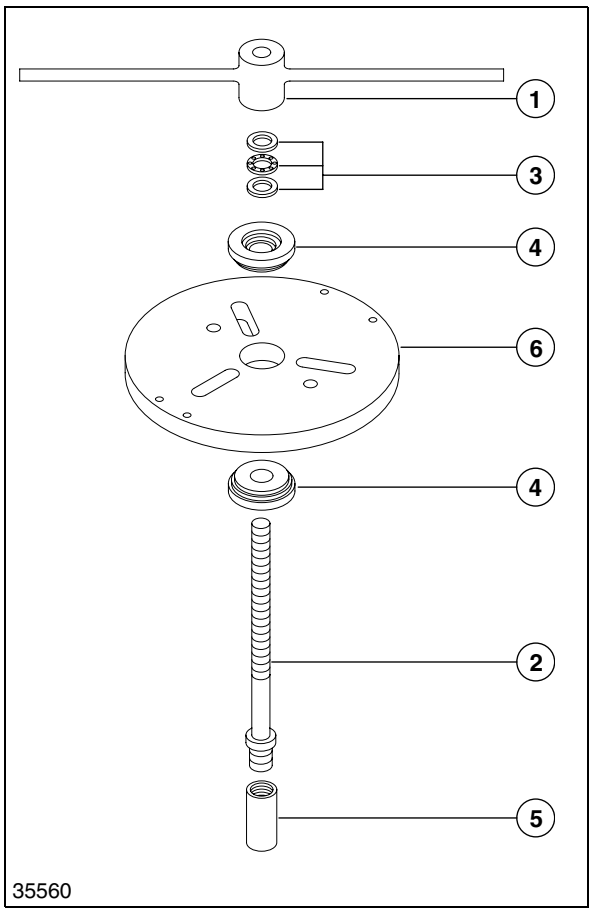
Assembling and installing the fan blade bearing

CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 533.1 applied prior to installation.

1. Press the deep groove ball bearing (3) into the housing (2).
2. Insert the circlip (4) and the bushing (5). Press the second deep groove ball bearing (3) into the housing (2).
3. Pre-assemble the housing (8) with deep groove ball bearing (7) and circlip (6).
4. Press together housing (2) and housing (8) with special tool.

(Fig. 23, 24, 25)

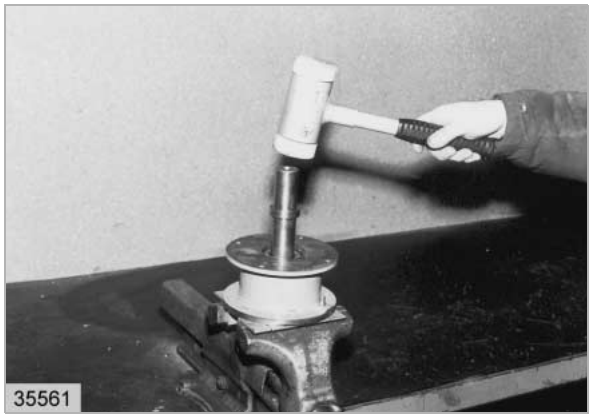


26

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Locating disc, part no. 181 879.0
5 Sleeve, part no. 181 881.1
6 Puller plate, part no. 181 617.0

(Fig. 26)



27

5. Install circlip (9).
6. Drive shaft (1) in with a plastic-tip hammer.

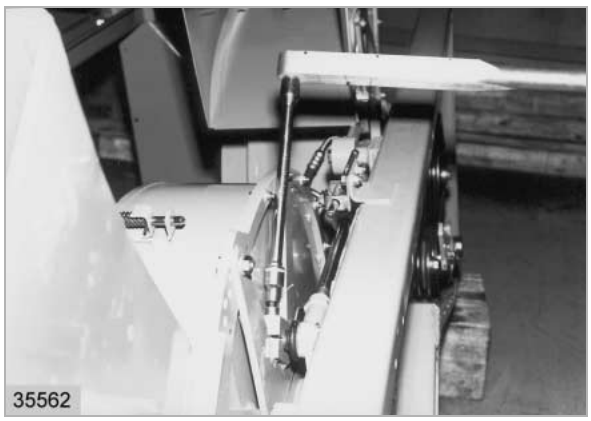
(Fig. 23, 24, 27)

7. Screw the pre-assembled housing to the flange. Attach the lubrication line.

   (Fig. 20)

8. Bolt the fan housing to the frame.

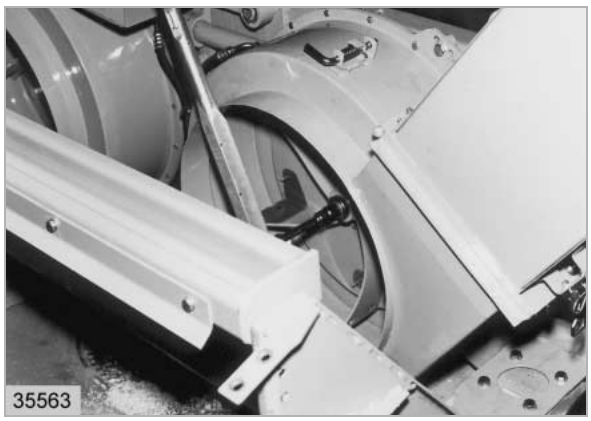
   (Fig. 19)



28

9. Install the hydraulic cylinder and tighten the socket head bolt to **48 Nm**.

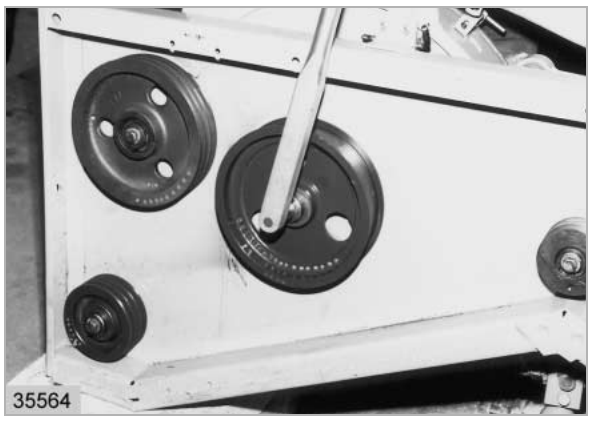
   (Fig. 28)



29

10. Slide the blower on the shaft and tighten to **78 Nm**. Bolt down the scraper.

    (Fig. 11, 29)



30

11. Slide on tapered ring and V-belt pulley. Install the front tapered ring and tighten the taper ring fastener to **78 Nm**.

(Fig. 30)

12. Bolt on the feed hopper.

    (Fig. 10)

13. Bolt down the 4/3-way valve.

    (Fig. 9)

14. Bolt down the uni-spreader and the jockey pulley arm.

    (Fig. 7)

15. Bolt down the safety frame.

    (Fig. 6)

16. Connect all cable plugs and lay the cables.

    (Fig. 4, 5)

17. Connect and lay the hydraulic hoses.

    (Fig. 2, 3)

18. *Installing and adjusting the uni-spreader drive belt (16)*, see page 7.2.33
    Installing and adjusting the uni-spreader intermediate drive belt (12), see page 7.2.24

7
Drives

DRIVE BELTS

General Information

The figures 1 and 2 show the layout of the drive belts.

CAUTION!

When the belts are removed and during extended standstill periods of the machine, protect the grooves and/or the contact faces of the drive belts on the pulleys against corrosion.

Before re-installing the belts, clean the groove faces and/or the contact faces of the pulleys.

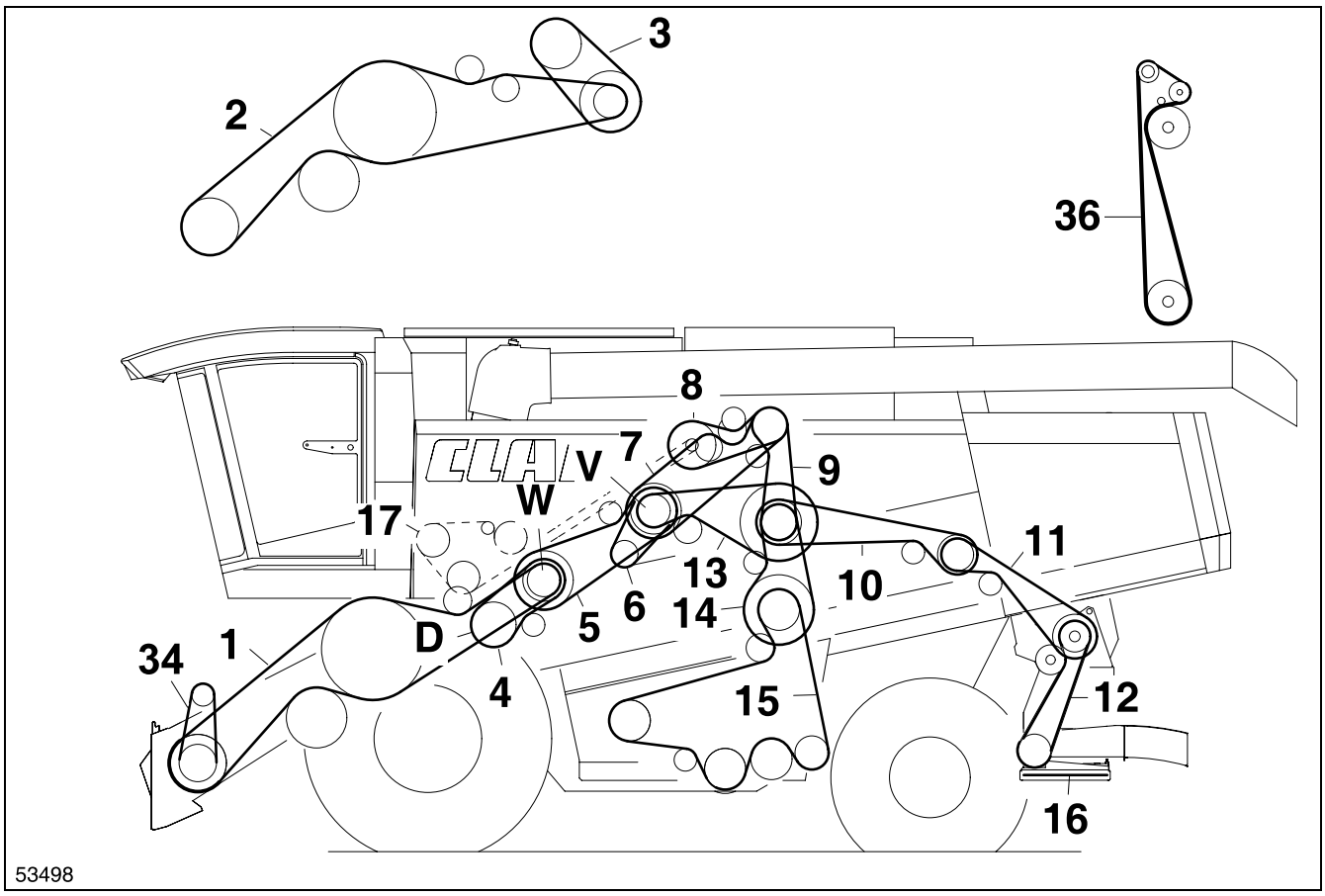
Use special tools for fitting and removing the variable speed drive belts.

For variable-speed pulleys which move easily, the pulley halves can be pressed apart or blocked using a special bolt BM 12 x 180 DIN 564-8.8 (part no. 236 302.0).

This special bolt is referred to in the following text as (B).

CAUTION!

If the pulley halves are difficult to move, use two bolts. If possible, always open the variable-speed pulleys with the drives still running and then switch off the engine and drives.



1

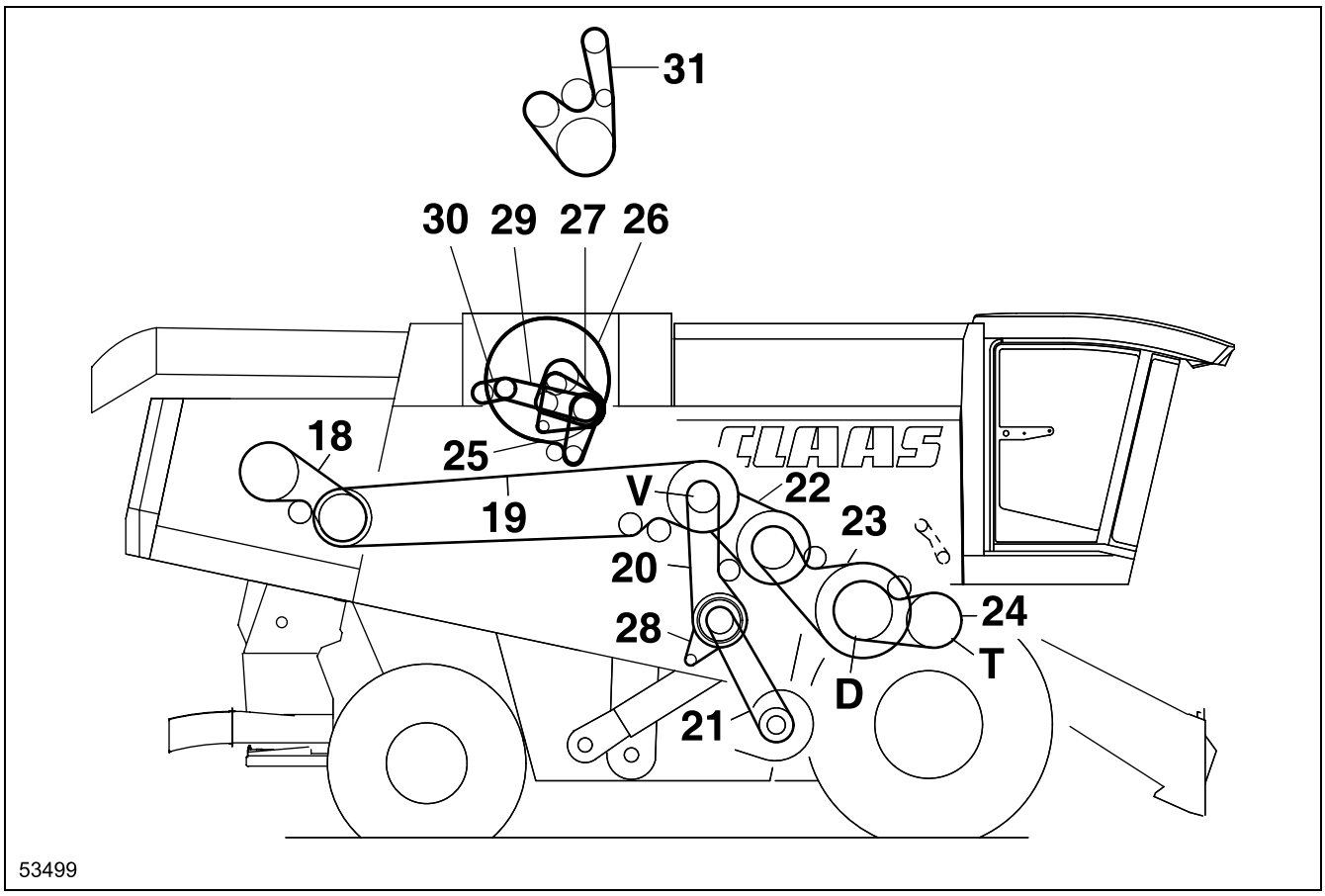
DRIVE DIAGRAM

Drive diagram, left-hand

1 Cutterbar drive
2 Cutterbar drive with variable-speed drive (optional equipment)
3 Cutterbar variable-speed drive (optional equipment)
4 Impeller drive
5 Intermediate drive for cutterbar
6 Uni-spreader hydraulic pump drive (swing)
7 Main intermediate drive
8 Intermediate drive to grain tank unloading system
9 Intermediate drive to straw chopper
10 Straw chopper and uni-spreader drive
11 Straw chopper and uni-spreader drive
12 Drive of uni-spreader intermediate drive
13 Drive of sieve pan intermediate drive
14 Drive of sieve pan intermediate drive
15 Sieve pan drive
16 Uni-spreader drive
17 Grain tank unloading auger drive
34 Suction blower drive (feed rake conveyor)
36 Straw spreader drive

W = Impeller
V = Main intermediate drive

(Fig. 1)



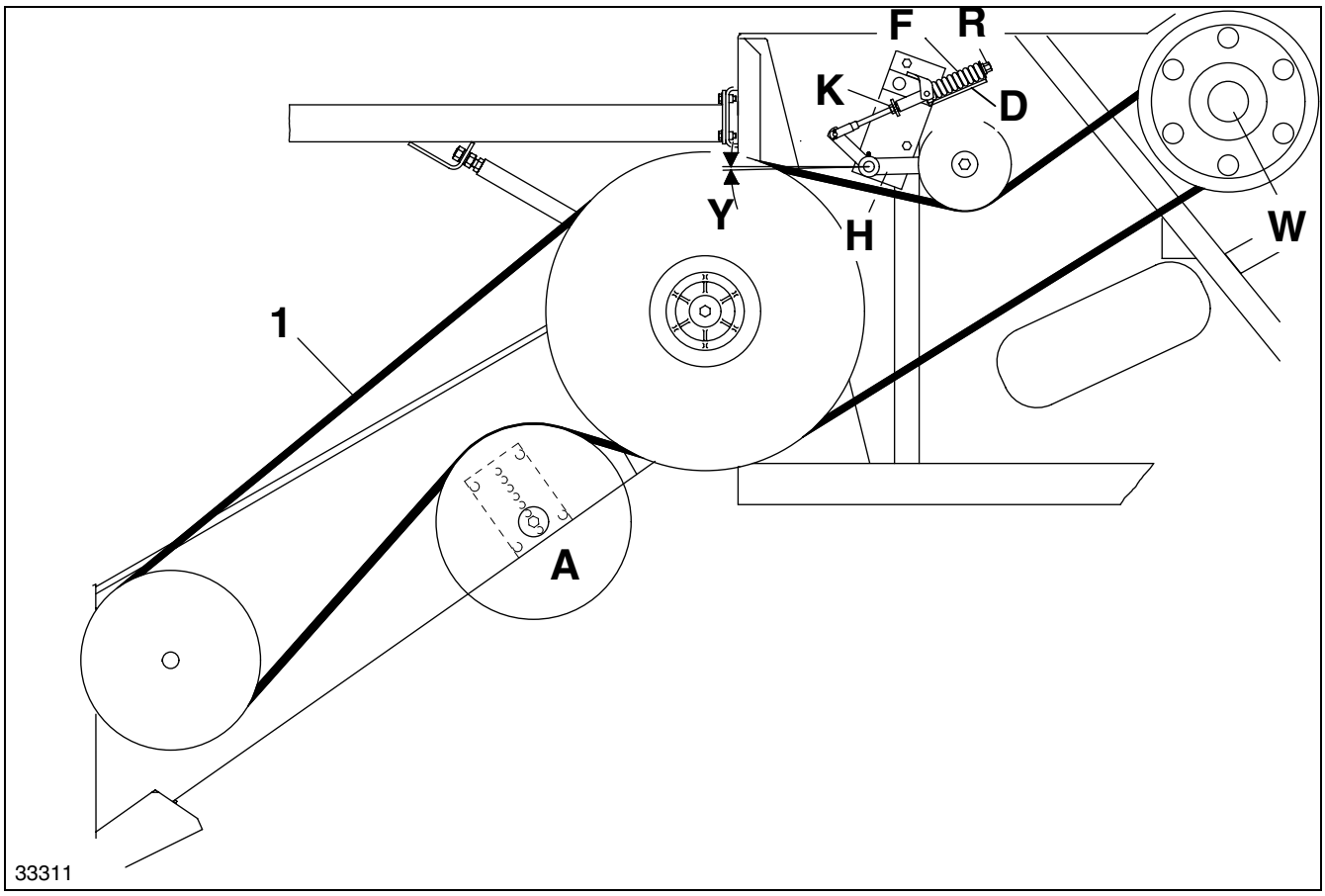
2

Drive system diagram, right-hand side

18 Axial rotors drive
19 Axial rotors intermediate drive
20 Intermediate drive to fan
21 Fan drive
22 Threshing mechanism variable-speed drive
23 Threshing drum drive
24 Accelerator drive
25 Rotary chaff screen intermediate drive
26 Rotary radiator screen drive
27 Fan drive
28 Rotary chaff screen suction drive
29 Air conditioning compressor drive
30 Compressed air compressor drive
31 Alternator drive

V = Main intermediate drive
D = Threshing drum
T = Accelerator

(Fig. 2)



1

LEFT-HAND DRIVE BELTS



2

Removing the cutterbar drive belt (1)

(Cutterbar drive without variable-speed drive)

Remove the front cutterbar intermediate drive belt (5) – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5).*

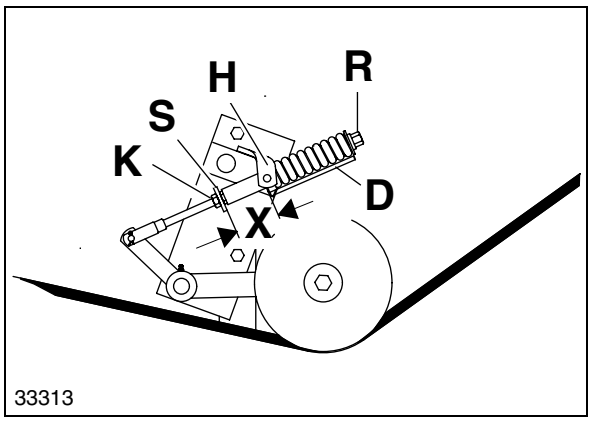
Remove guards (V).

(Fig. 1, 2)

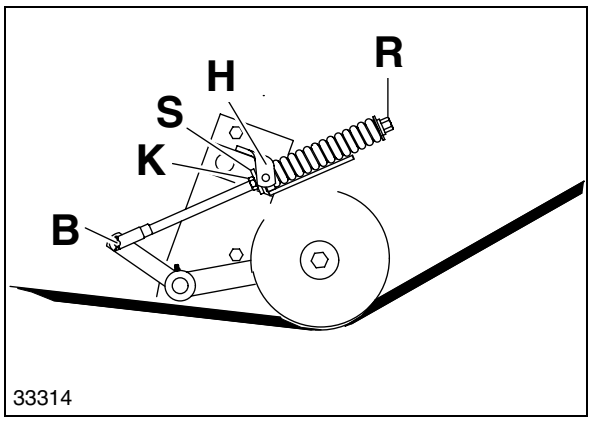
Relieving the tension of cutterbar drive (1):
(Pull-type cylinder)

DANGER!

Pay particular attention while unscrewing the spring guide tube (R). Do not unscrew the spring guide tube too far – **Danger of injury!**



3



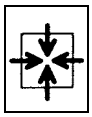
4

Relieve tension on spring-loaded cylinder. To do this, proceed as follows:

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (S) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).

(Fig. 3, 4)



Installing and adjusting the cutterbar drive belt (1)

(Cutterbar drive without variable-speed drive)

W = Impeller



DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Adjusting the jockey pulley (A):

Adjust the jockey pulley (A) so that the angle (Y) of the jockey pulley arm (H) is between **0**° **and 10**°.

Tightening torque = 130 Nm

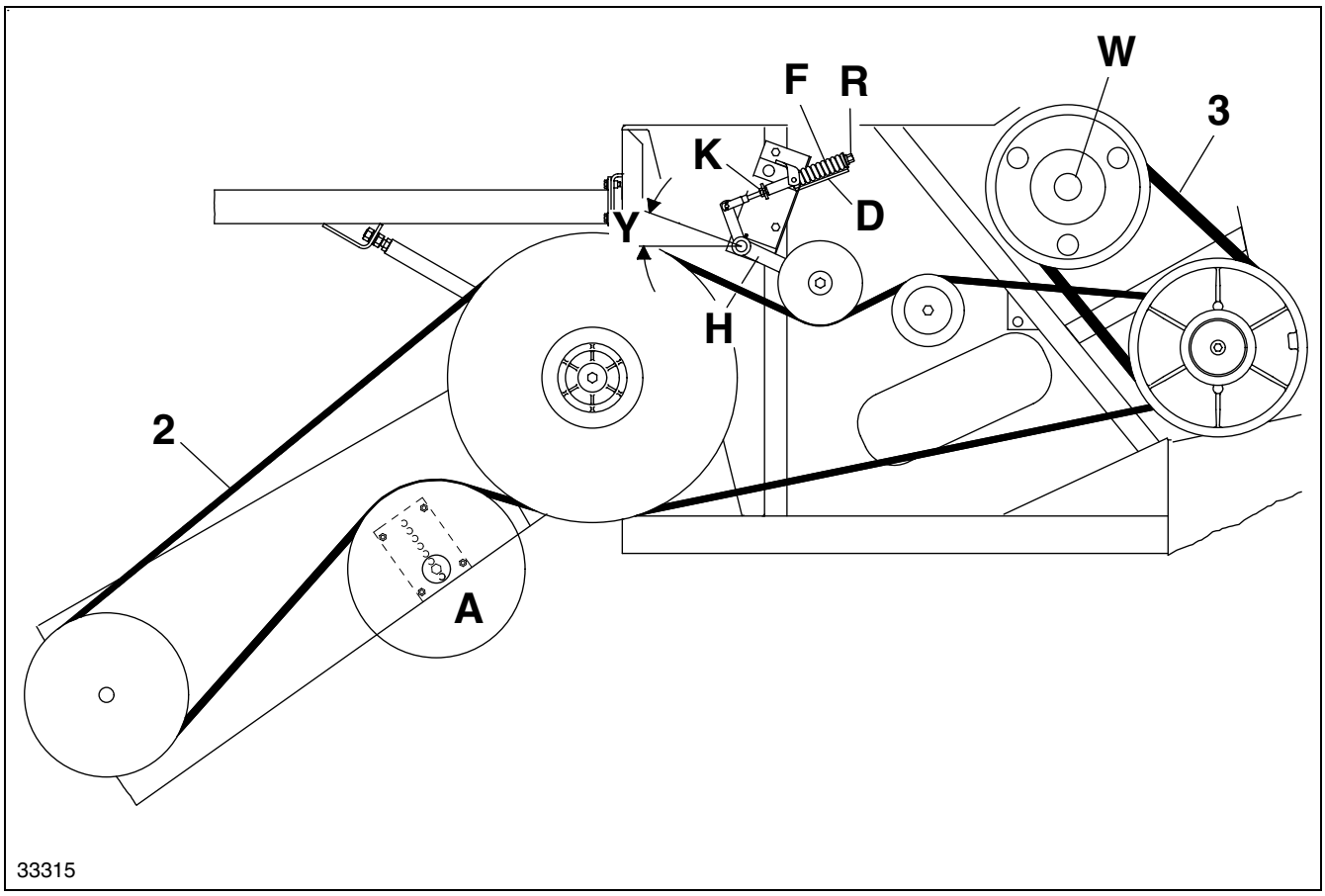
Adjusting spring-loaded cylinder (F):

Loosen lock nut (K) and adjust the spring guide tube (R) so that the end of the gauge rod (D) is level with the end of the spring. Tighten the lock nut (K).

Spring length = **138 mm**

Installing and adjusting the cutterbar intermediate drive belt (5), see page 7.2.10

(Fig. 1, 3, 4)



5

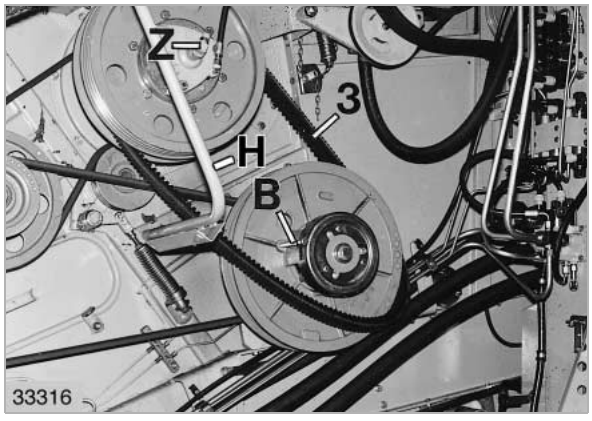


6

Removing the cutterbar drive belt (2)
(Cutterbar drive with variable-speed drive)

Remove guards (V).

(Fig. 5, 6)



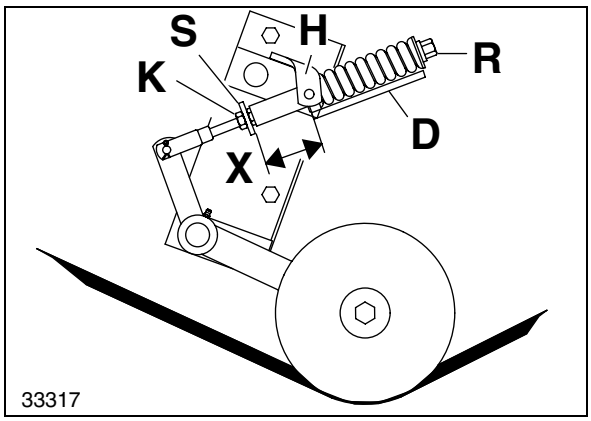
7

Unscrew the hydraulic hose from the cylinder (Z), ensuring the connections are tightly capped.

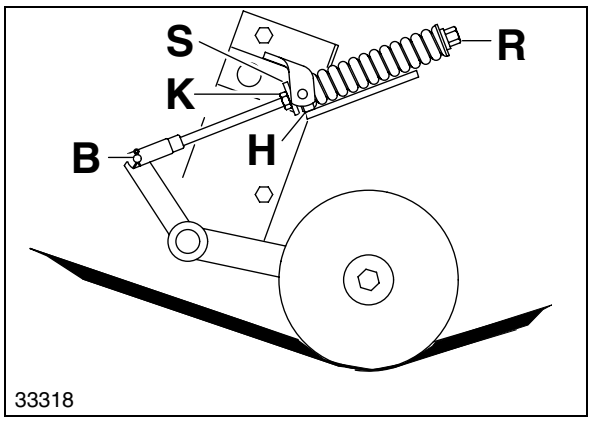
Remove the cutterbar variable-speed drive belt (3) at the bottom – see page 7.2.5, *Removing the cutterbar variable-speed drive belt (3)*.

Remove bracket (H).

(Fig. 7)



8



9

Relieving the tension of cutterbar drive (2):
(Pull-type cylinder)

DANGER!

Pay particular attention while unscrewing the spring guide tube (R). Do not unscrew the spring guide tube too far – **Danger of injury!**

Relieve tension on spring-loaded cylinder. To do this, proceed as follows:

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (S) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).

(Fig. 8, 9)

Installing and adjusting the cutterbar drive belt (2)

(Cutterbar drive with variable-speed drive)

W = Impeller
3 = Cutterbar variable-speed belt

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Adjusting the jockey pulley (A):

Adjust the jockey pulley (A) so that the angle (Y) of the jockey pulley arm (H) is between **20° and 30°**.

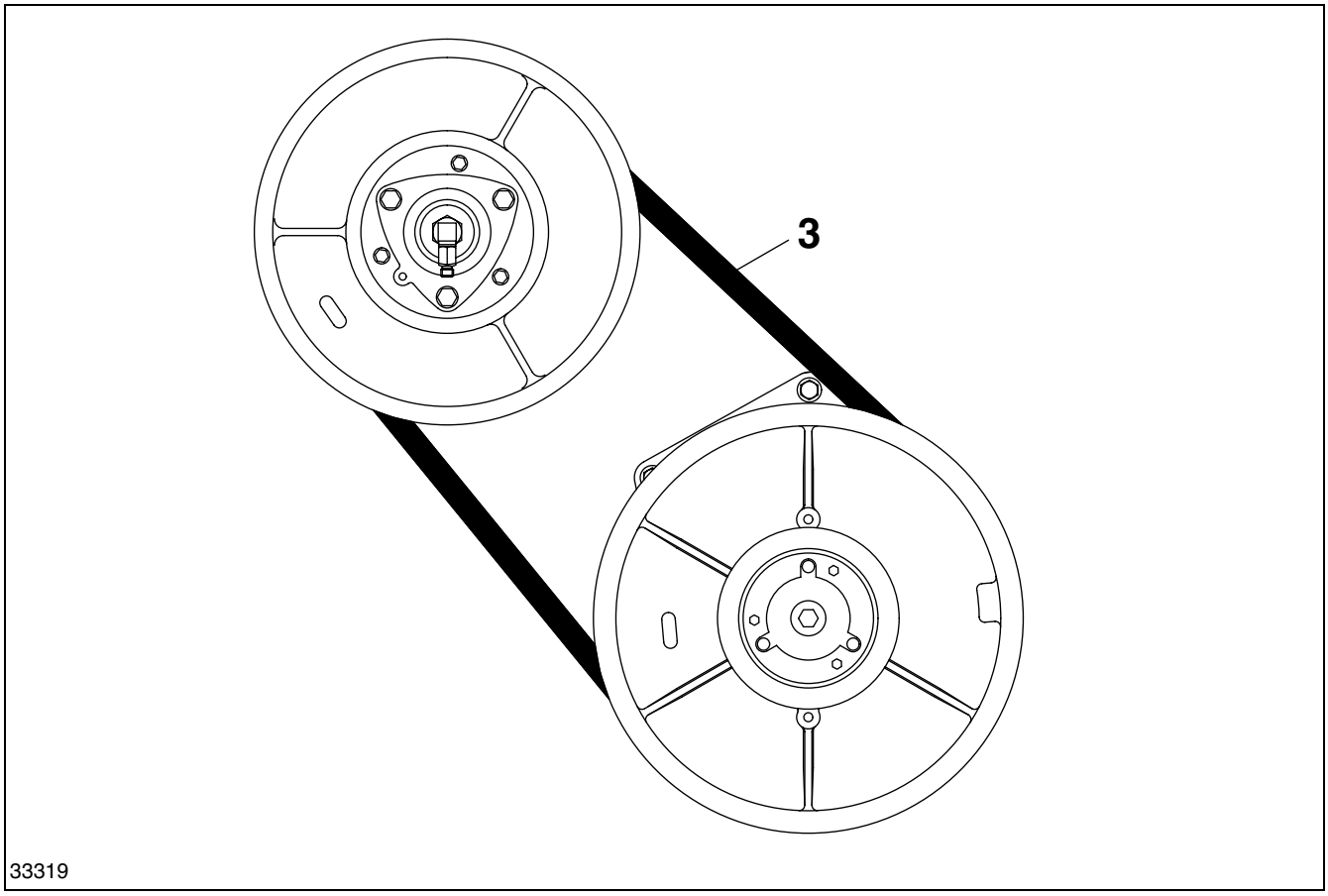
Tightening torque = 130 Nm

Adjusting spring-loaded cylinder (F):

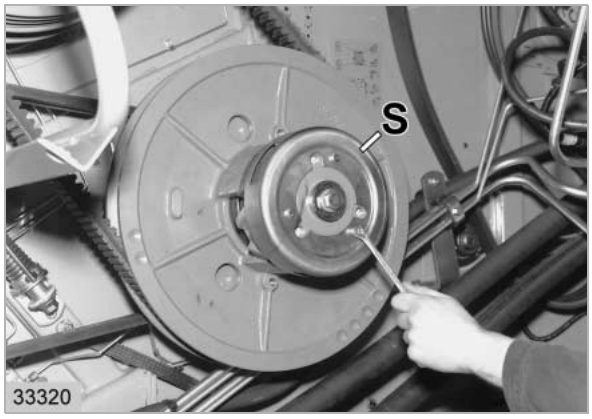
Loosen lock nut (K) and adjust the spring guide tube (R) so that the end of the gauge rod (D) is level with the end of the spring. Tighten the lock nut (K).

Spring length = **138 mm**

(Fig. 5, 6, 7, 8, 9)



10



11

Removing the cutterbar variable-speed drive belt (3)

DANGER!

Set the variable-speed drive to maximum speed with the engine running and the main and cutterbar drive engaged.

Stop the engine and remove the ignition key.

Remove the cutterbar intermediate drive belt (5) at the bottom – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

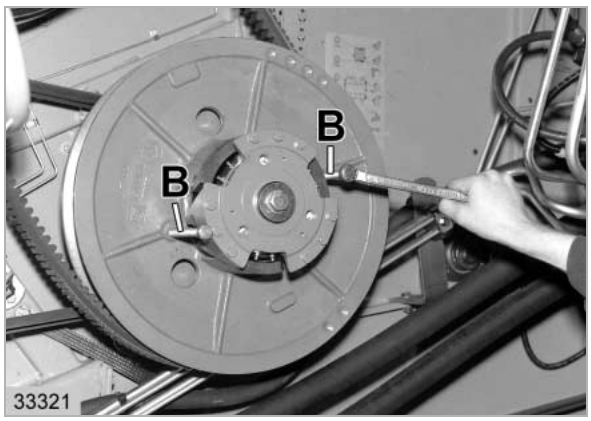
Block variable-speed pulleys with special tools, please refer to the text below.

DANGER!

Be careful when working on variable-speed drives. Never move your hands between the pulley halves – **Danger of accidents!**

Unscrew guard (S).

(Fig. 10, 11)

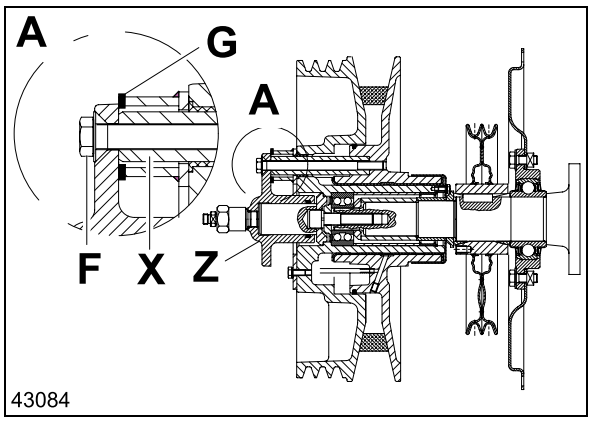


12

Bolt the hex. bolts (B) through the threaded holes in the front pulley half against the rear pulley half until the stop. This blocks the variable speed pulley in a spread position.

Remove the hydraulic hose from the hydraulic cylinder and pull the hydraulically variable pulley open. Collect the oil flowing out of the cylinder. Now remove the belt (3) from both pulleys.

(Fig. 10, 12)



13

Installing and adjusting the cutterbar variable-speed drive belt (3)

If the variable-speed belt is not sufficiently tensioned any more at the lowest feed rake speed due to belt growth or wear, this condition is compensated using washers – see detail (A).

Unscrew the three countersunk head bolts (F) and remove hydraulic cylinder (Z).

Place one washer (G) 26 x 42 x 3 each on the spacer tubes (X) below the flange of the hydraulic cylinder (Z) and refit the hydraulic cylinder (Z).

CAUTION!

Ensure absolutely that all three washers are placed on the spacer tubes and will not be pinched between the pipe ends and the cylinder flange.

When installing a new variable-speed belt, these washers (G) must be removed.

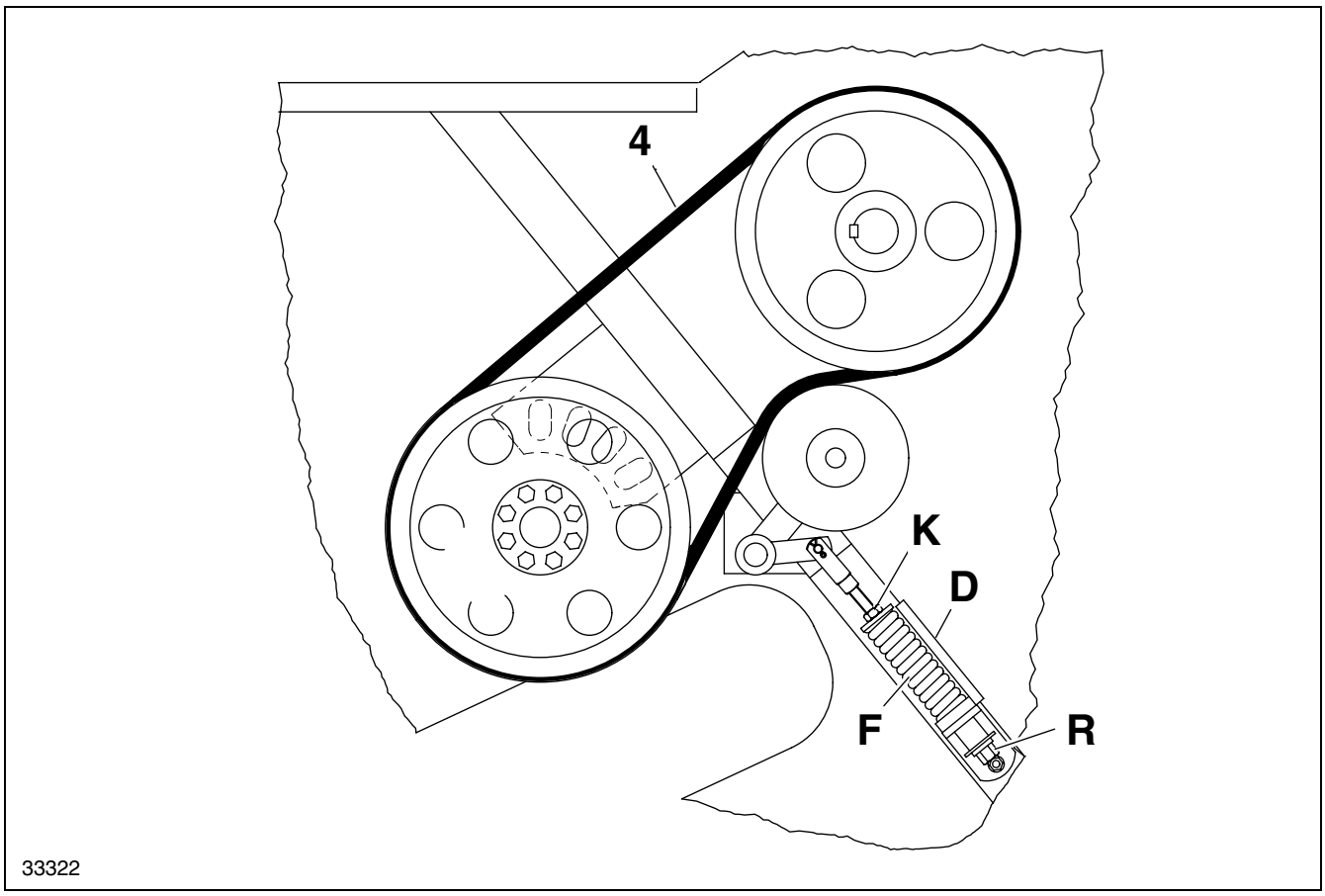
Firmly pull the belt between the pulley halves and unscrew the hex. bolts (B) from the threaded holes.

Re-fit hydraulic hose.

Re-fit guard (S).

Check oil level and replenish if required.

(Fig. 10, 11, 12, 13)



14

Removing the impeller drive belt (4)

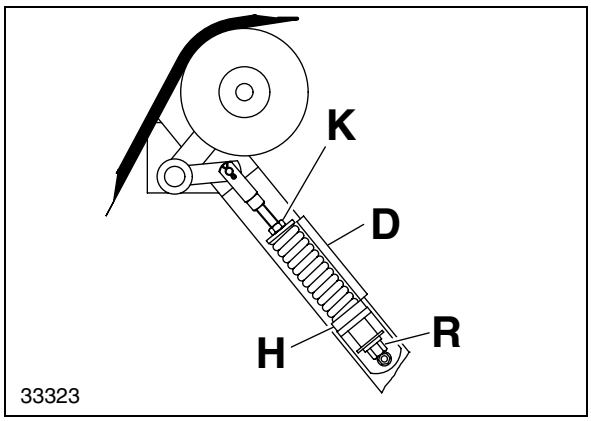
Remove cutterbar intermediate drive belt (5) at the bottom – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

Remove the cutterbar drive belt (1) at the top – see page 7.2.1, *Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)*.

Relieving the tension of impeller drive belt (4):
(Push-type cylinder)

DANGER!

Follow the correct order of assembly –
Danger of injury!

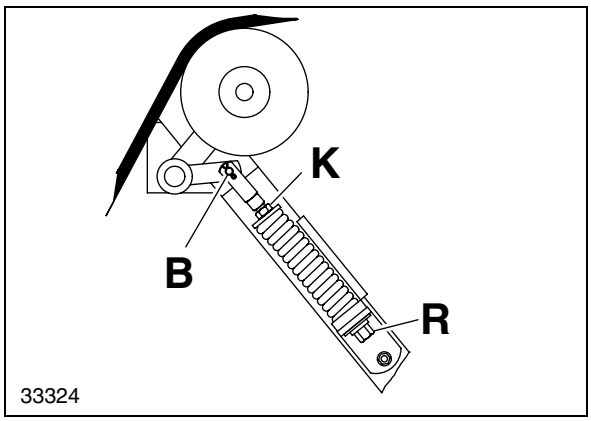


15

1. Fully turn lock nut (K) backwards.
2. Tighten spring guide tube (R) until pin (B) is slack.
3. Unlock and remove pin (B).

H = Bracket

(Fig. 14, 15, 16)



16

Installing and adjusting the impeller drive belt (4)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt.

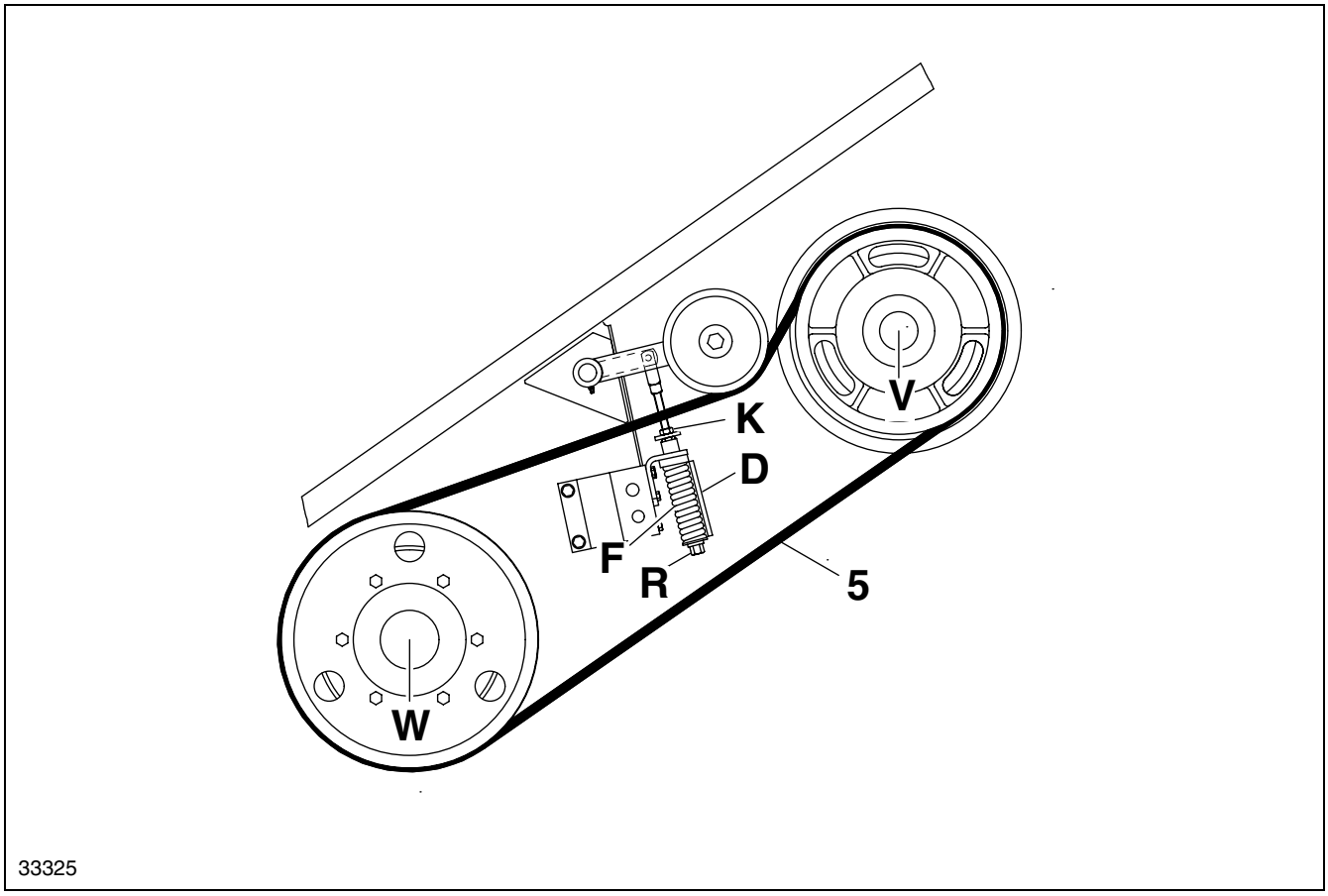
Insert pin (B) and secure with a split pin.

Adjusting spring-loaded cylinder (F):

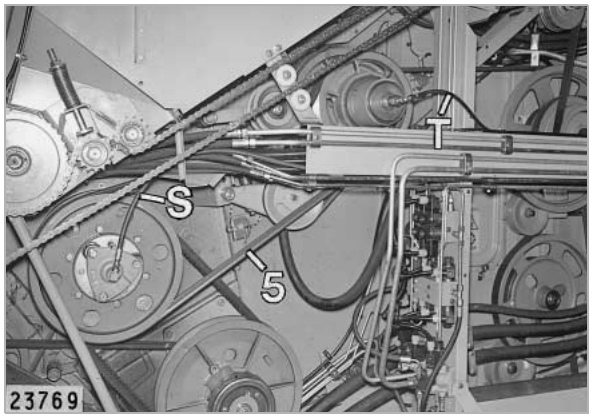
Loosen lock nut (K) and adjust the spring guide tube so that the end of the gauge rod (D) is level with the end of the spring with the lock nut tightened.

Spring length = **130 mm**

(Fig. 14, 15, 16)



17



18

Removing the cutterbar intermediate drive belt (5)

Unscrew hoses (T and S).

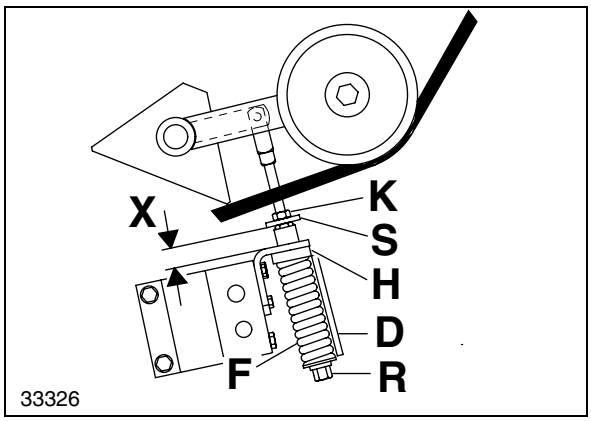
(Fig. 18)

Releasing the tension from the cutterbar intermediate drive belt (5):
(Pull-type cylinder)

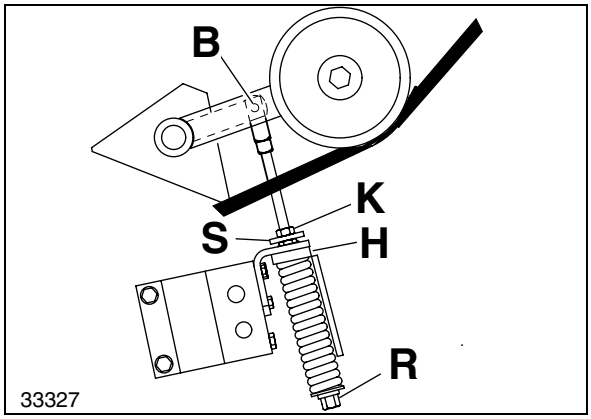
DANGER!

Pay particular attention while unscrewing the spring guide tube (R). Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 17)



19



20

Relieve tension on spring-loaded cylinder. To do this, proceed as follows:

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (S) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).

(Fig. 17, 19, 20)

Installing and adjusting the cutterbar intermediate drive belt (5)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt.

Insert pin (B) and secure with a split pin.

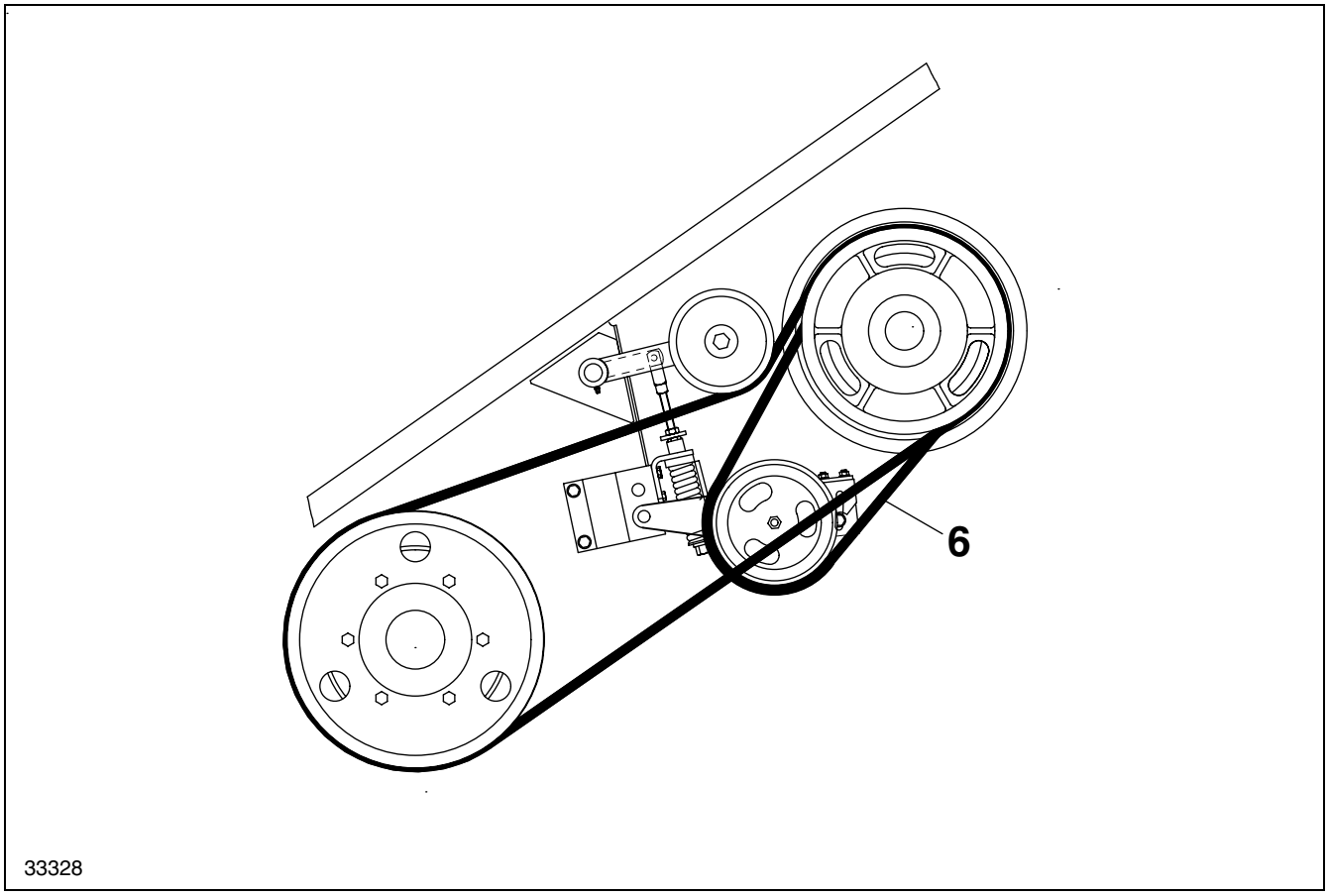
Re-fit hoses (S and T).

Adjusting spring-loaded cylinder (F):

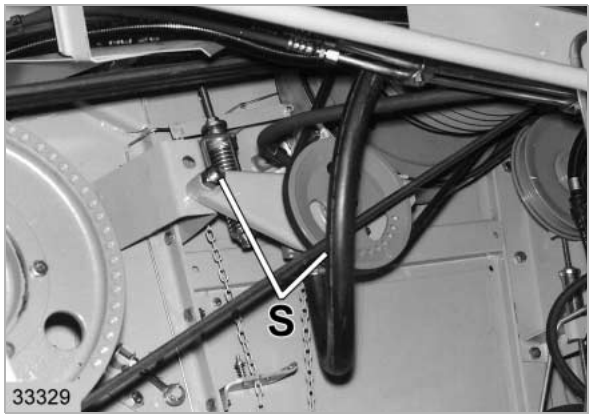
Loosen lock nut (K) and adjust the spring guide tube so that the end of the gauge rod (D) is level with the end of the spring. Tighten the lock nut (K).

Spring length = **130 mm**

(Fig. 17, 18, 19, 20)



21



22

Removing the uni-spreader hydraulic pump drive belt (6)

Remove the cutterbar intermediate drive belt (5) at the top – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

Loosen hex. bolts (S) and push the hydraulic pump upwards.

Remove belt (6).

(Fig. 21, 22)

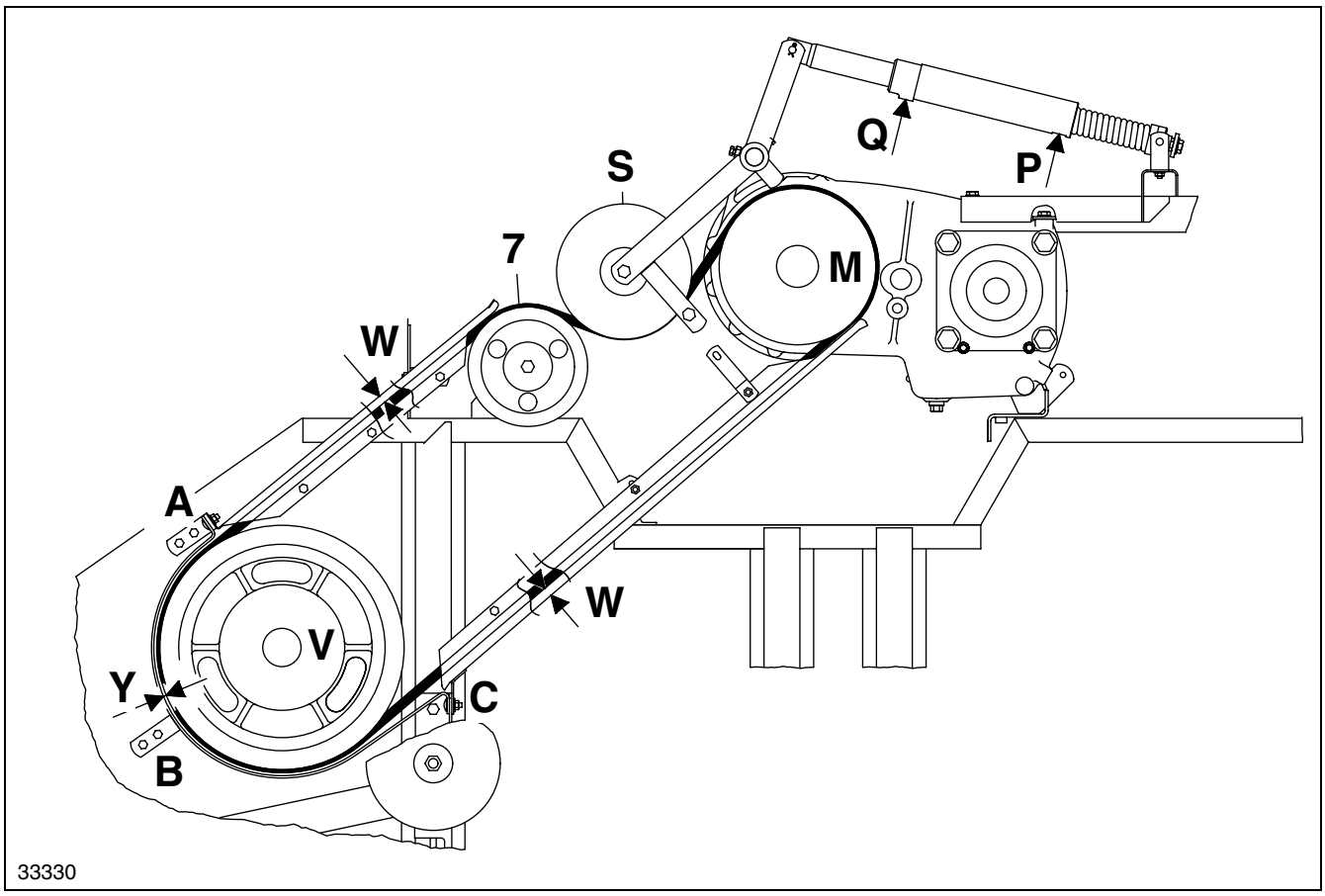
Installing and adjusting the uni-spreader hydraulic pump drive belt (6)

DANGER!

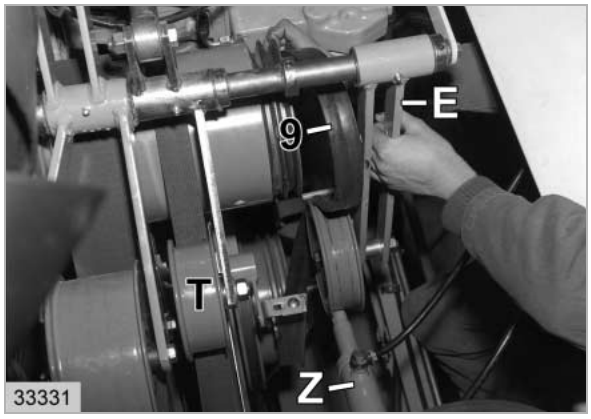
Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt (6). Push the hydraulic pump downwards and tighten hex. bolts (S).

(Fig. 21, 22)



23



24

Removing the main intermediate drive belt (7)

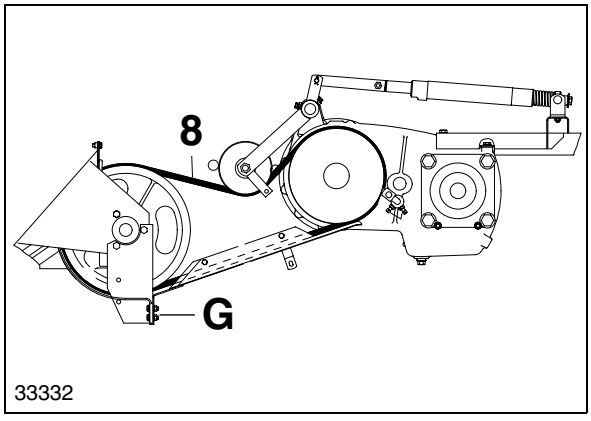
Unhinge hydraulic cylinder (Z) at lever (E).

Loosen set collar and push lever (E) to the outside on the shaft.

Remove drive belt (9) at the top from the engine output assembly (M).

Unscrew jockey pulley (T).

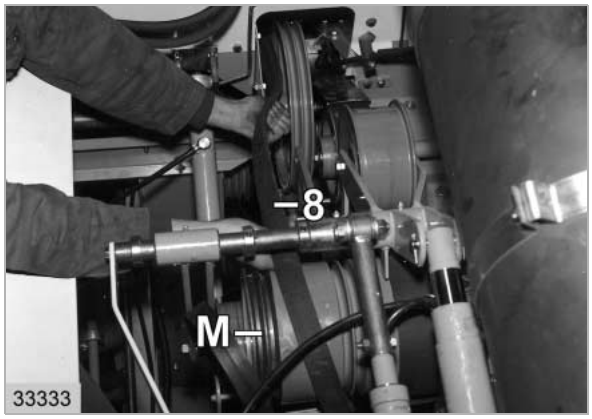
(Fig. 23, 24)



25

Loosen belt guide assembly at drive belt (8) at (G).

(Fig. 25)



26

Place drive belt (8) between grain tank unloading drive pulley and the bearing plate.

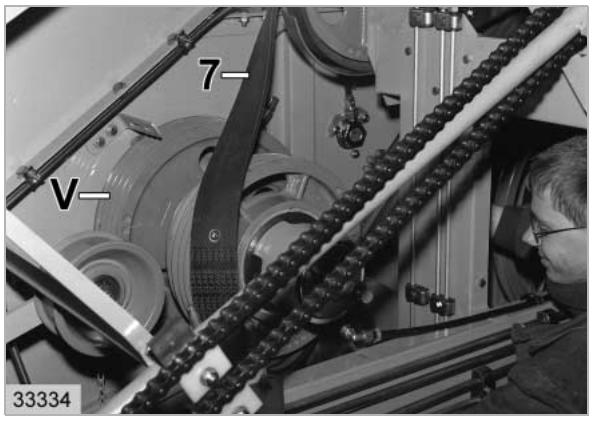
Now remove belt (8) from the engine output assembly (M).

(Fig. 26)

Remove the cutterbar intermediate drive belt at the top – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

Removing the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

Remove the sieve pan / straw walker intermediate drive belt (13) at the front – see page 7.2.25, *Removing the sieve pan intermediate drive belt (13)*.

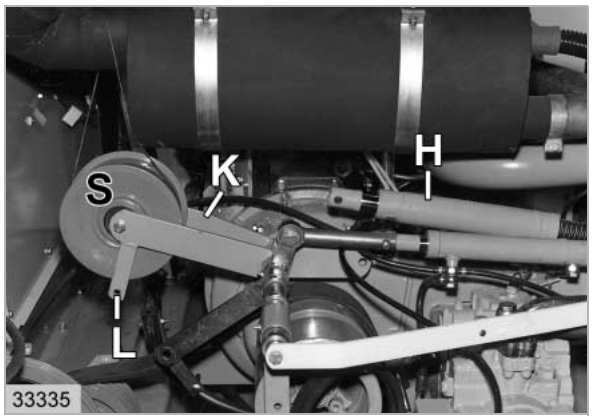


27

Completely remove belt cover assembly from belt (7).

Remove belt (7) from main intermediate drive (V).

(Fig. 23, 27)



28

Unscrew hex. bolt at (L).

Unhinge hydraulic cylinder (H) at lever (K). Tie up jockey pulley (S).

(Fig. 28)



29

Guide belt (7) through between deflection pulley and grain tank unloading drive pulley.

Now remove belt (7) from the engine output assembly (M).

(Fig. 23, 29)

Installing and adjusting the main intermediate drive belt (7)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

1. Install belt (7) on engine output assembly (M) and guide through between deflection pulley and V-belt pulley.

   Install belt (7) on main intermediate drive (V).

   (Fig. 23, 27, 29)

2. Bolt on hex. bolt at (L). Hang in hydraulic cylinder (H) at lever (K).

   (Fig. 28)

3. Pre-tension the belt by pushing the jockey pulley (S) downwards and adjust the belt guide assemblies at (A, B and C) so that the following dimensions result:

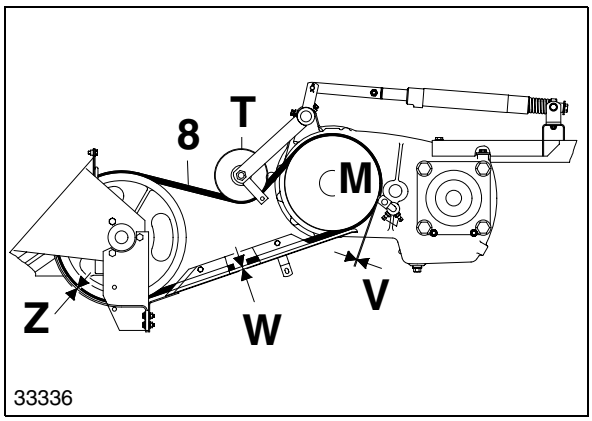
   Y = 5 – 7 mm
   W = 10 mm

   (Fig. 23, 28)

4. *Installing and adjusting the sieve pan intermediate drive belt (13)*, see page 7.2.26

   Installing and adjusting the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

   Installing and adjusting the cutterbar intermediate drive belt (5), see page 7.2.10



30

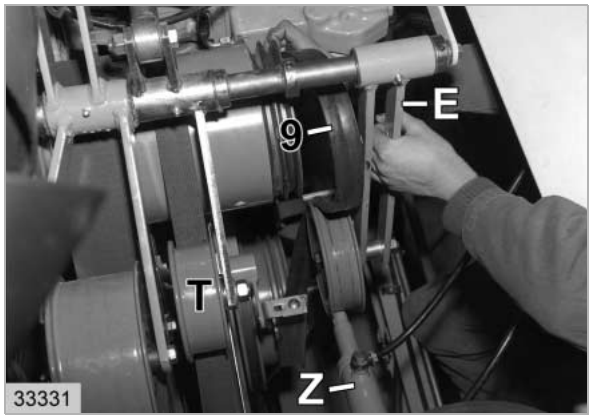
5. Install belt (8) on engine output assembly (M).

   Mount jockey pulley (T) with a tightening torque of **130 Nm**.

   Pre-tension belt (8) by pushing jockey pulley (T) downwards and adjust the belt guard assembly.

   Z = 5 – 7 mm
   W = 10 mm
   V = 3 mm

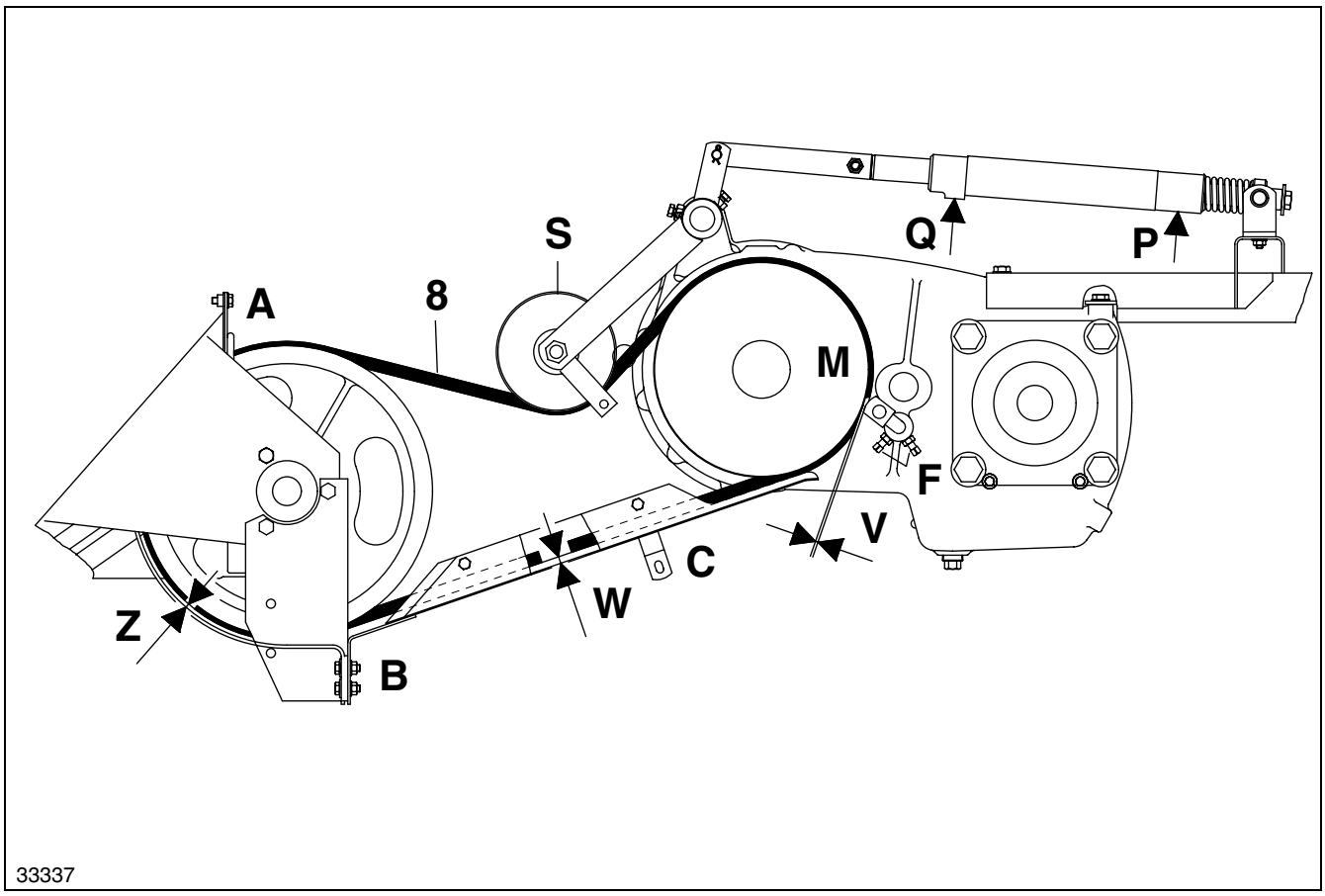
(Fig. 23, 30)



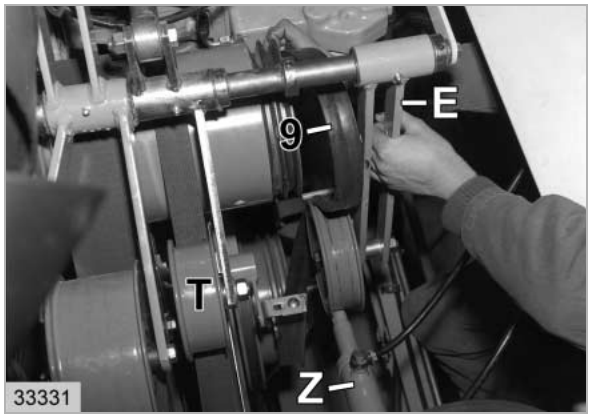
31

6. Install drive belt (9) on engine output assembly (M).
7. Push lever (E) to the inside on the shaft up to the set collar and arrest using the second set collar. Hang in hydraulic cylinder (Z) on the lever.

(Fig. 30, 31)



32



33

Removing the grain tank unloading intermediate drive belt (8)

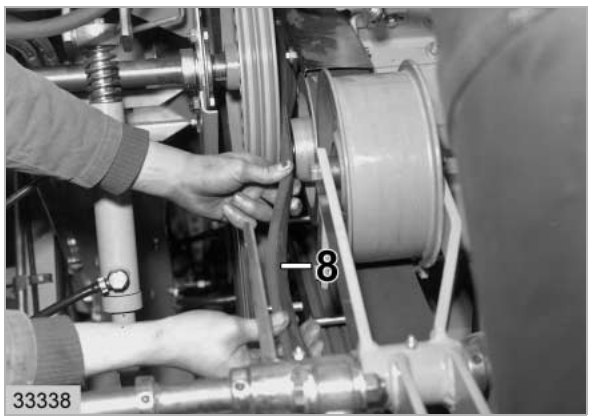
Unhinge hydraulic cylinder (Z) at lever (E).

Loosen set collar and push lever (E) to the outside on the shaft.

Remove drive belt (9) at the top from the engine output assembly (M).

Unscrew jockey pulley (T).

(Fig. 32, 33)



34

Place drive belt (8) between grain tank unloading drive pulley and the bearing plate.

Now remove belt (8) from the engine output assembly.

Remove belt cover and belt (8).

(Fig. 34)

Installing and adjusting the grain tank unloading intermediate drive belt (8)

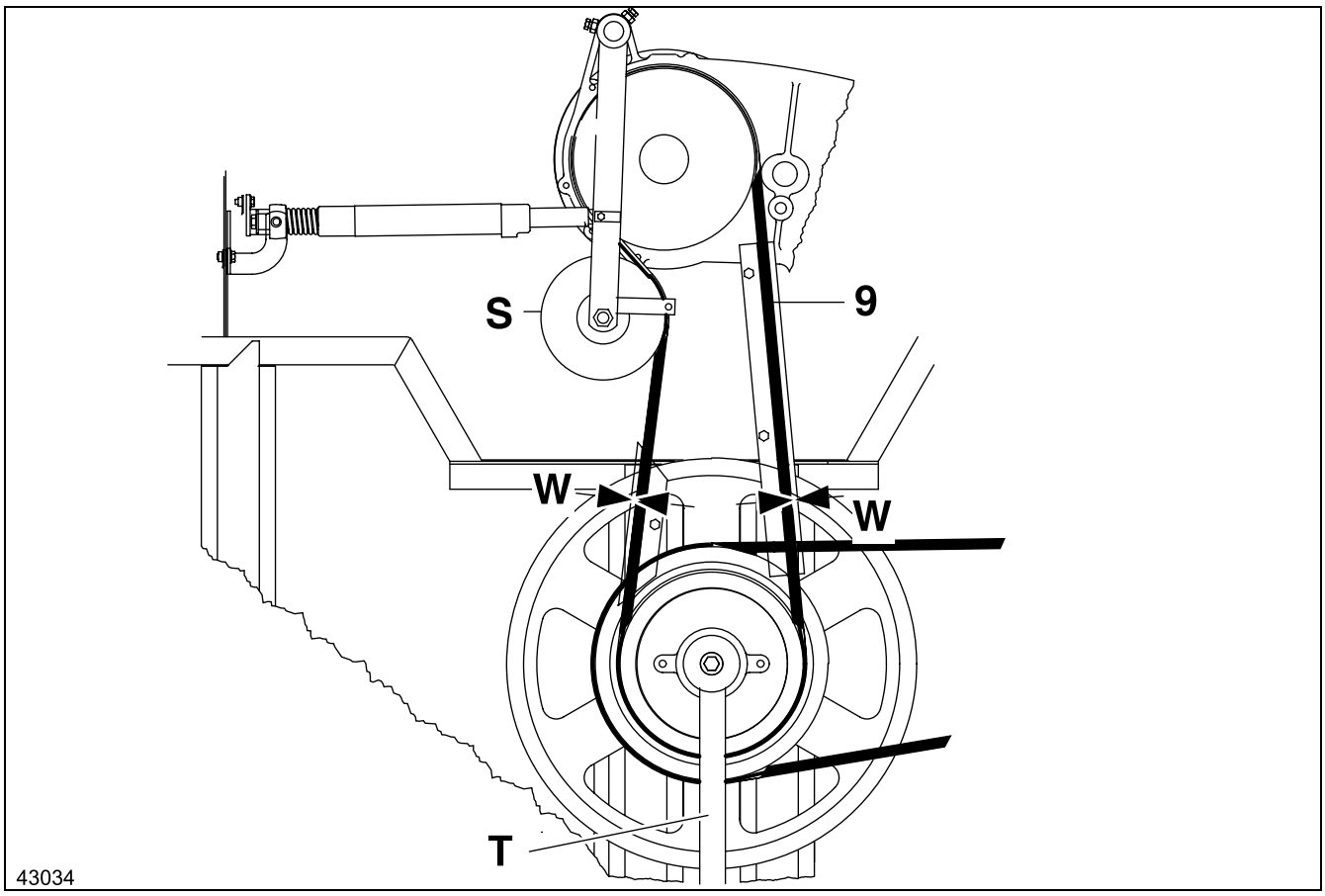
DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

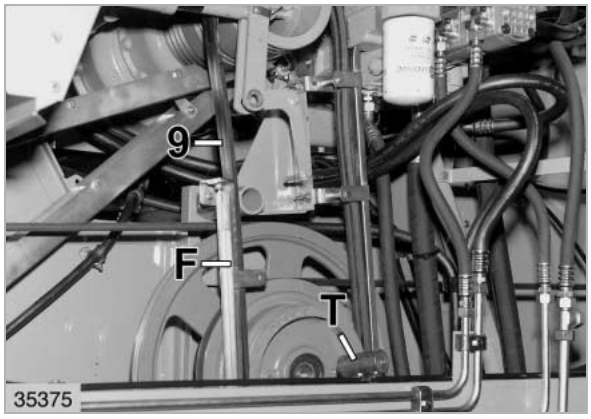
1. Install belt (8).
2. Mount jockey pulley (T) with a tightening torque of **130 Nm**.
3. Pre-tension belt (8) by pushing jockey pulley (T) downwards and adjust the belt guard assembly.

   Z = 5 – 7 mm
   W = 10 mm
   V = 3 mm
4. Install drive belt (9) on engine output assembly (M).
5. Push lever (E) to the inside on the shaft up to the set collar and arrest using the second set collar. Hang in hydraulic cylinder (Z) on the lever.

(Fig. 32, 33, 34)



35



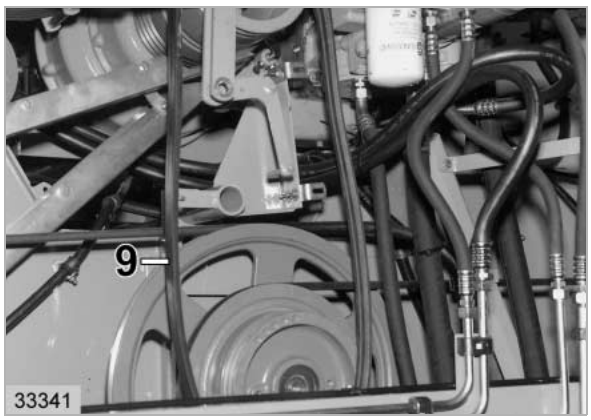
36

Removing the straw chopper intermediate drive belt (9)

Remove jockey pulley (S).

Completely remove brace (T) as well as belt guide assembly (F).

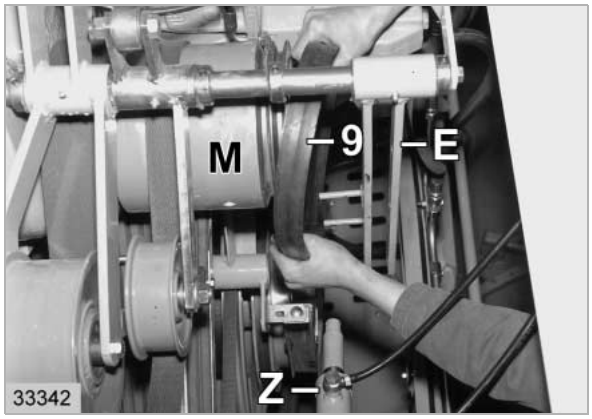
(Fig. 35, 36)



37

Remove the belt (9) at the bottom.

(Fig. 37)



38

Unhinge hydraulic cylinder (Z) at lever (E).

Loosen set collar and push lever (E) to the outside on the shaft.

Remove drive belt (9) from the engine output assembly (M).

(Fig. 38)

Installing and adjusting the straw chopper intermediate drive belt (9)

DANGER!

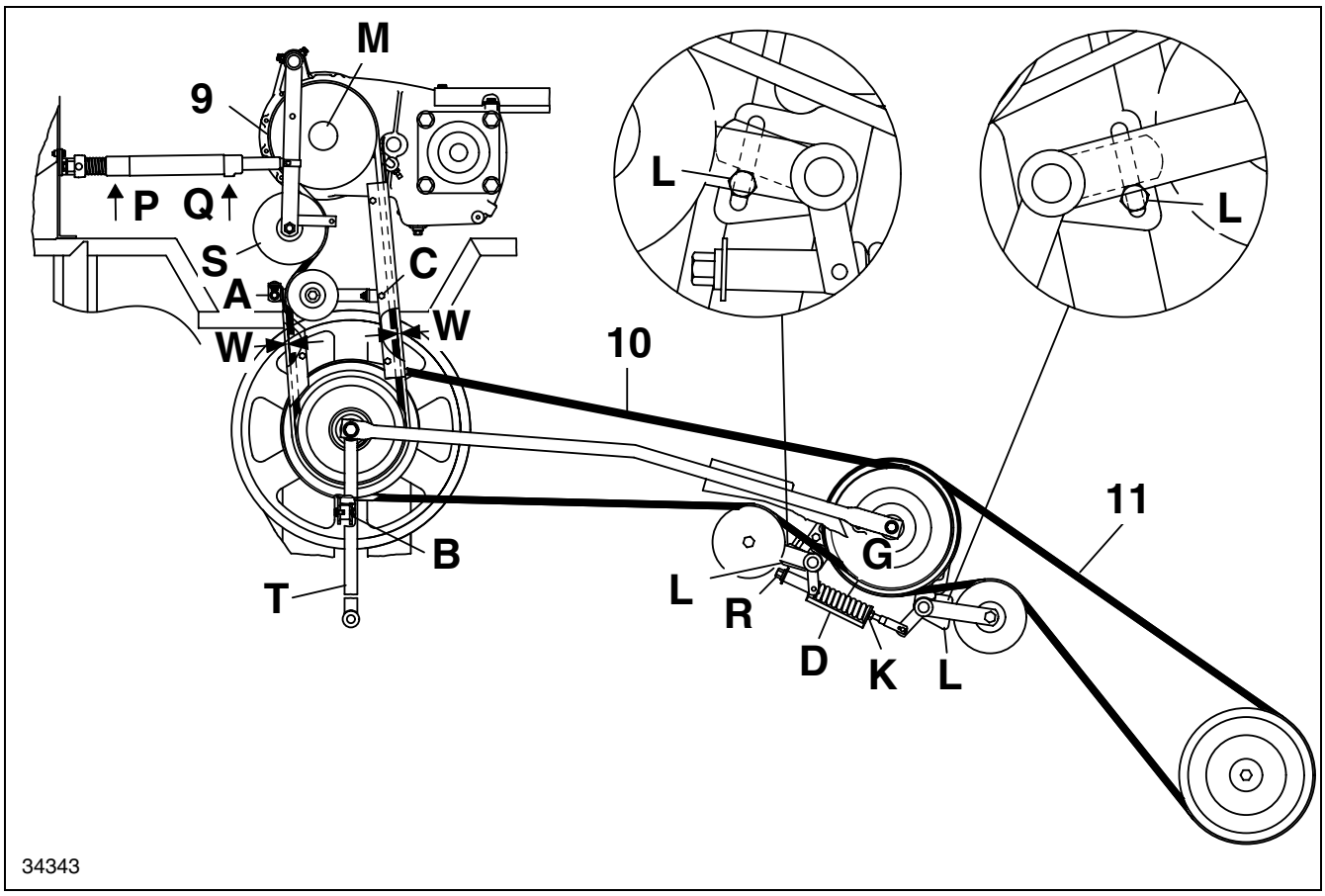
Carry out the adjustment only with the engine switched off and the ignition key removed.

1. Install belt (9) on engine output assembly (M).
2. Push lever (E) to the inside on the shaft up to the set collar and arrest using the second set collar. Hang in hydraulic cylinder (Z) on the lever.
3. Mount jockey pulley (S) with a tightening torque of **130 Nm**.
4. Mount brace (T) with a tightening torque of **130 Nm**.

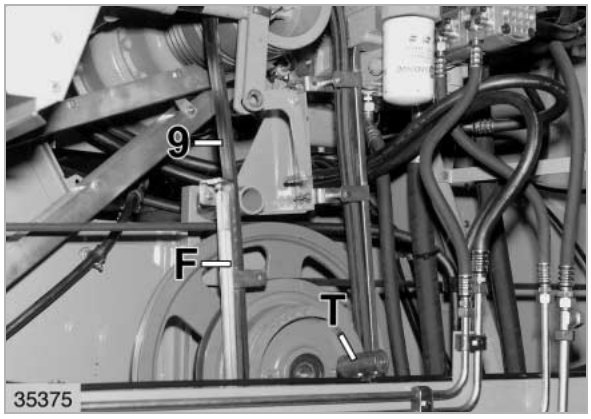
   (Fig. 36)
5. Pre-tension belt (9) by pushing the jockey pulley (S) downwards, mount and adjust the belt guide assembly (F).

   W = 4 – 6 mm

(Fig. 35, 36, 37, 38)



39



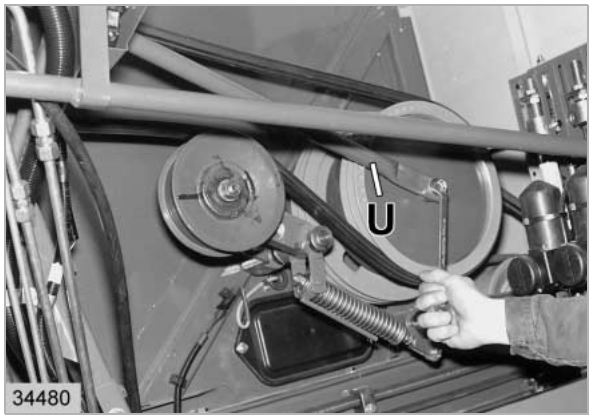
40

Removing the straw chopper drive belts (10 and 11)

Remove the brace (T) and the belt guide (F) completely.

Remove the straw chopper intermediate drive belt (9) at the bottom – see page 7.2.18, *Removing the straw chopper intermediate drive belt (9)*.

(Fig. 39, 40)



41



42

Release the tension of belt (10).

DANGER!

Follow the correct order of assembly –
Danger of injury!

1. Remove both the end stop bolts at (L).
2. Fully turn the lock nut (K) backwards.
3. Screw the spring guide tube (R) in completely.
4. Remove brace (U). While doing so, observe cover and spacer at the rear intermediate drive.
5. Push the jockey pulley down and remove the belts (10 and 11).

(Fig. 39, 41, 42)

Installing and adjusting the straw chopper drive belts (10 and 11)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

1. Push the jockey pulley down and install the belts (10 and 11).
2. Mount spacer, lid and brace (U) with a tightening torque of **130 Nm**.
3. Loosen lock nut (K) and adjust the spring guide tube (R) until the end of the gauge rod (D) is level with the end of the spring with the lock nut tightened.

   Spring length = **138 mm**
4. Bolt the end stop bolts into position at (L).

CAUTION!

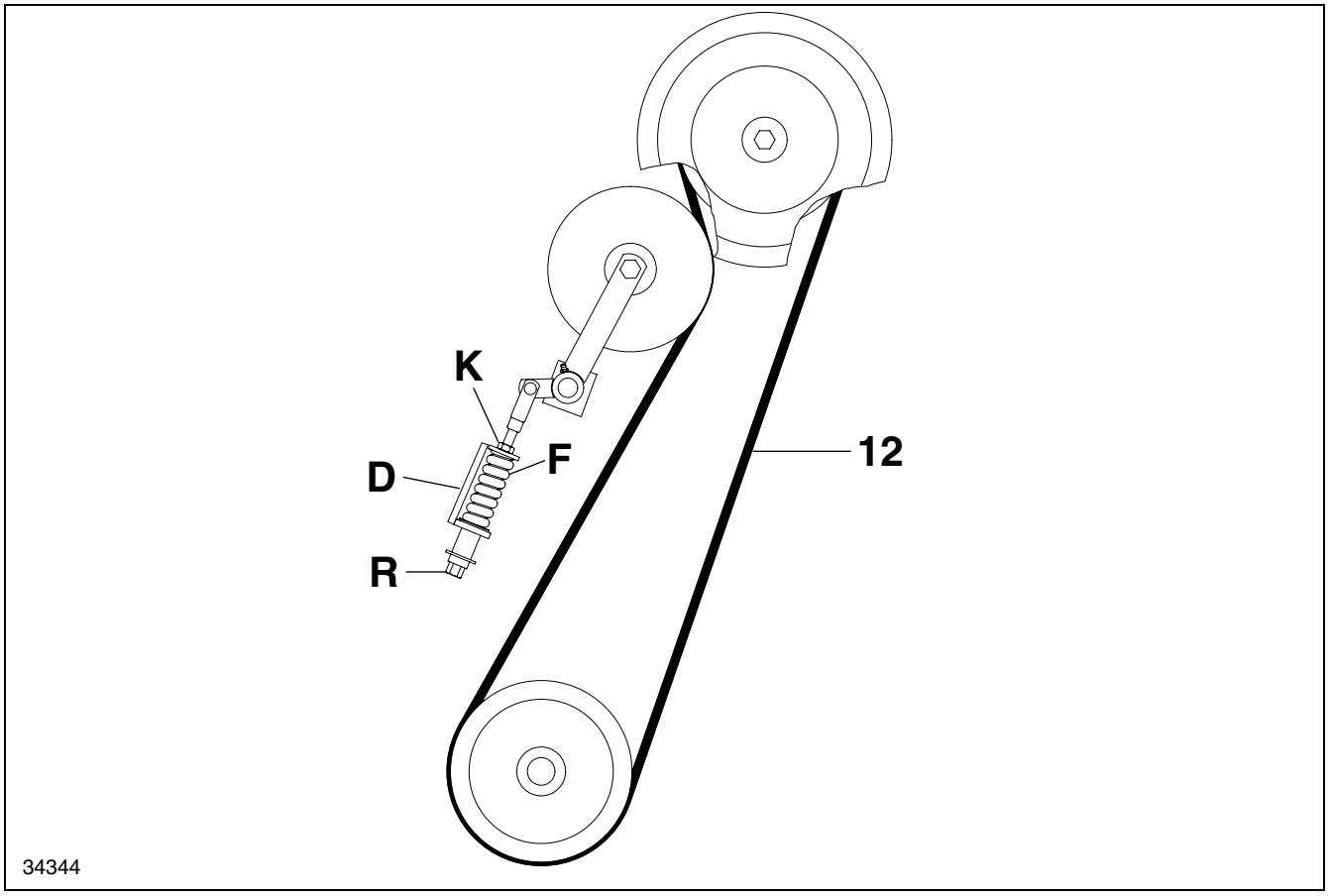
The stop bolts (L) must be set so they touch the jockey pulley arms.

5. Install belt (9).
6. Mount brace (T) with a tightening torque of **130 Nm**.

   (Fig. 40)
7. Pre-tension the belt (9) by pushing down the jockey pulley and bolt down and adjust the belt guide (F).

   W = 4 – 6 mm

(Fig. 39, 40, 41, 42)



43

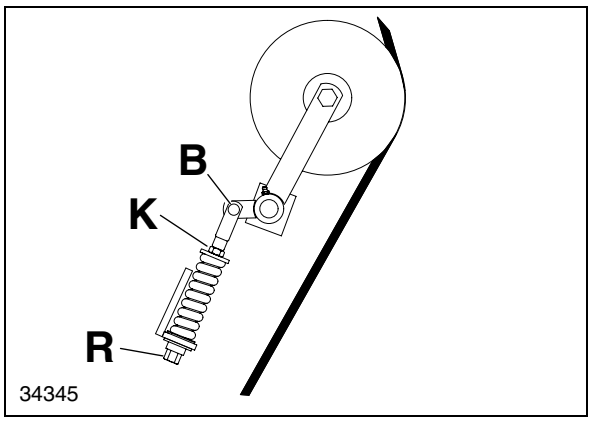
Removing the uni-spreader intermediate drive belt (12)

Remove the straw chopper drive belt (11) at the bottom – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*.

DANGER!

Follow the correct order of assembly – **Danger of injury!**

(Fig. 43)



44

1. Fully turn lock nut (K) backwards.
2. Tighten spring guide tube (R) until pin (B) is slack.
3. Release and remove pin (B).
4. Remove belt (12).

(Fig. 43, 44)

Installing and adjusting the uni-spreader intermediate drive belt (12)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt (12).

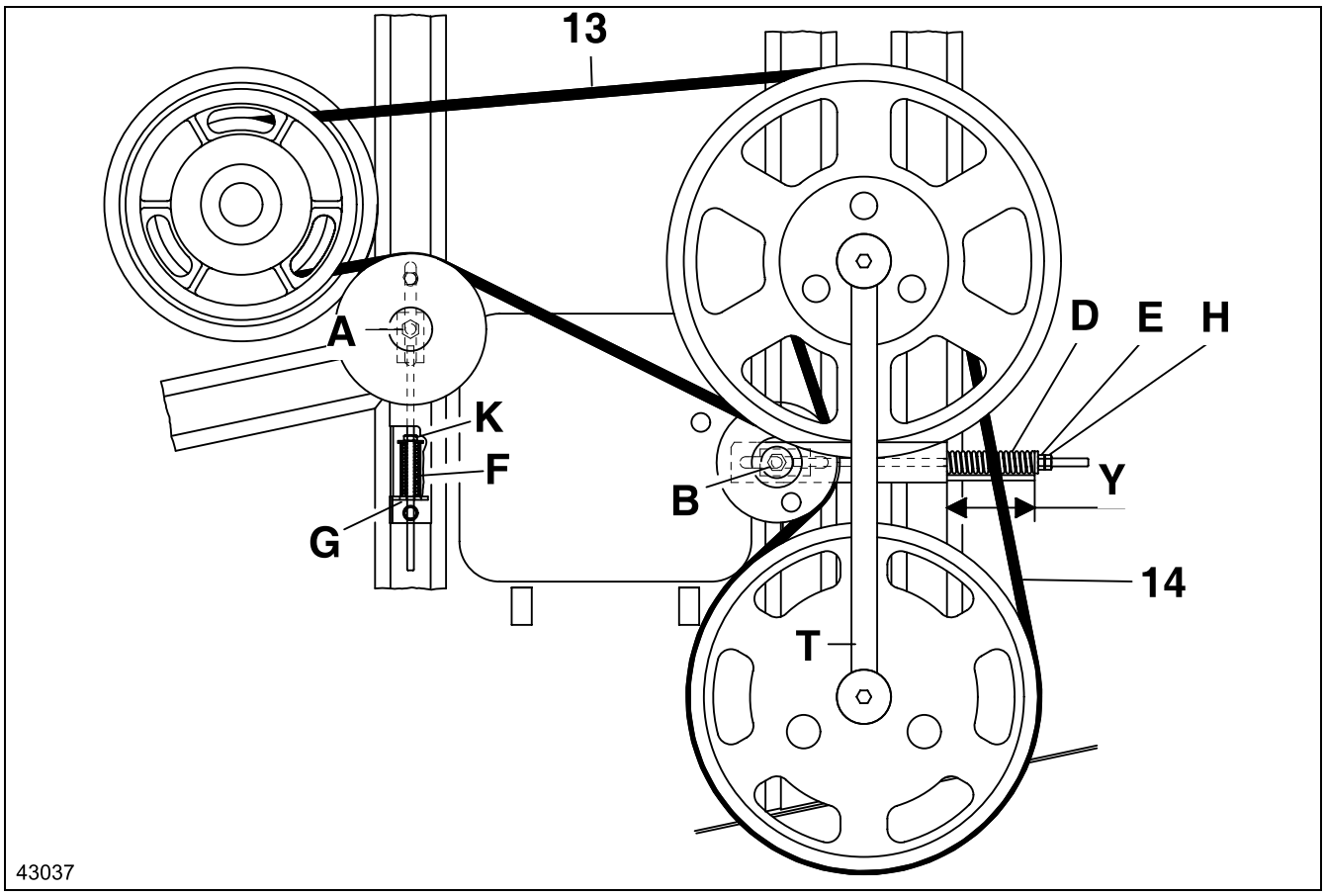
Insert pin (B) and secure with a split pin.

Adjusting the spring-loaded cylinder:

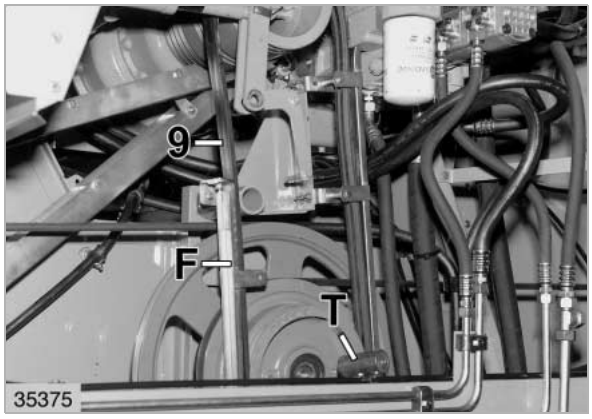
Loosen lock nut (K) and adjust the spring guide tube (R) so that the end of the gauge rod (D) is level with the end of the spring with the lock nut (K) tightened. The spring length will then be **100 mm**.

Install the straw chopper drive belt (11) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.

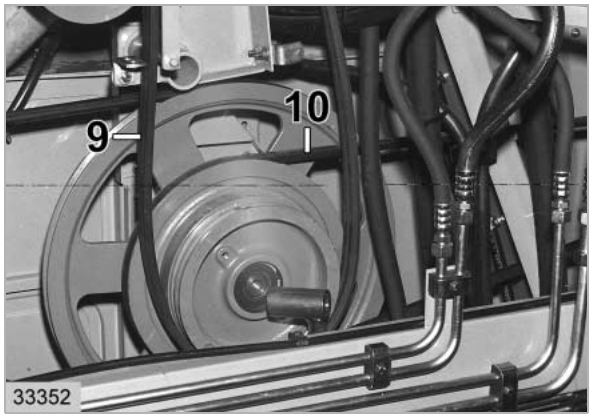
(Fig. 43, 44)



45



46



47

Removing the sieve pan intermediate drive belt (13)

Completely remove brace (T) as well as belt guide assembly (F).

Remove the straw chopper intermediate drive belt (9) at the bottom – see page 7.2.18, *Removing the straw chopper intermediate drive belt (9)*.

Remove the straw chopper drive belt (10) at the front – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*.

(Fig. 45, 46, 47)

Remove the cutterbar intermediate drive belt (5) at the top – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

Removing the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

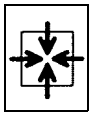
Relieving the tension on sieve pan intermediate drive belt (13):

Loosen clamping screw (A) at the jockey pulley.

Loosen nut (M) until the tension of the spring is relieved.

Remove belt (13).

(Fig. 45)



Installing and adjusting the sieve pan intermediate drive belt (13)



DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

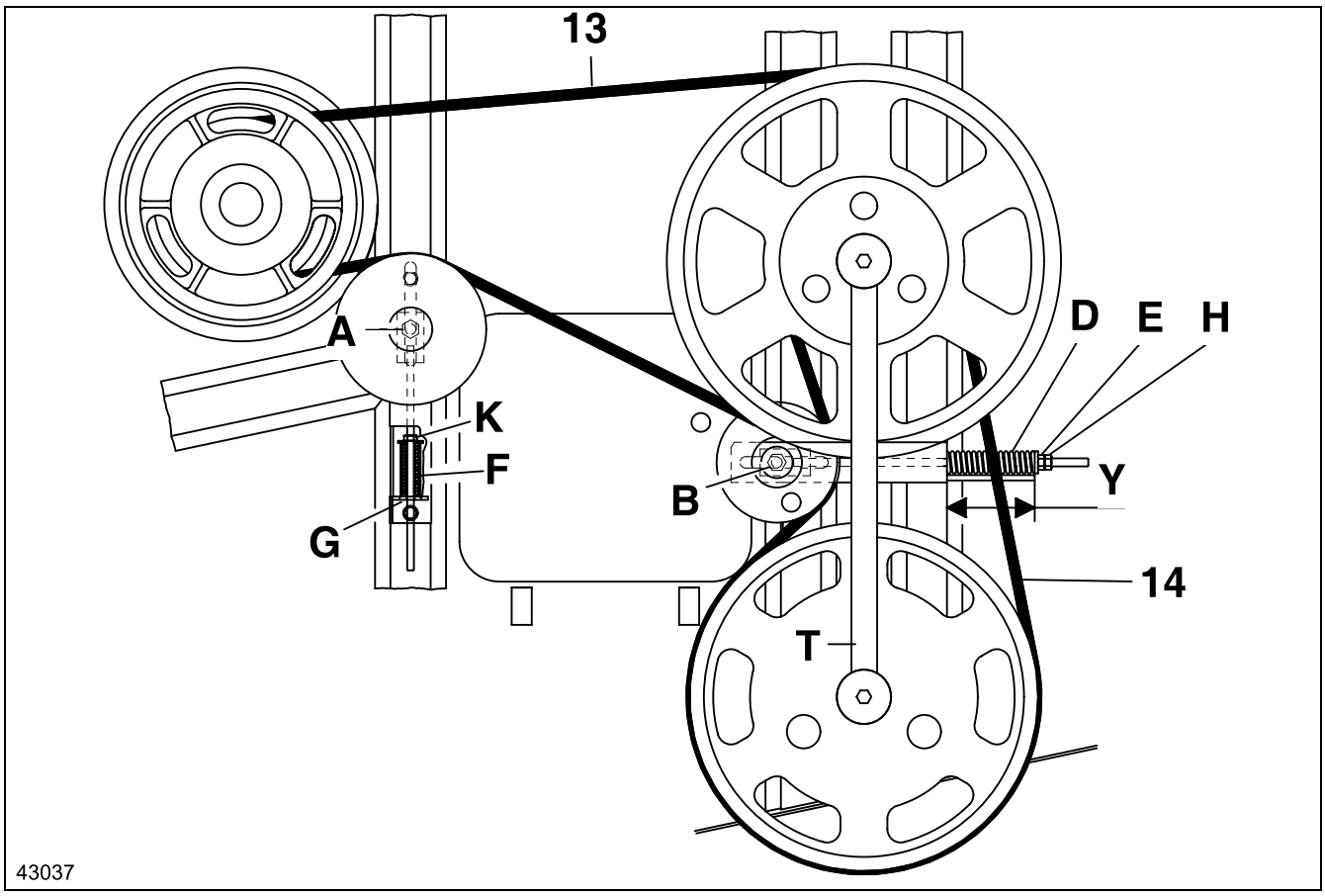
1. Install belt (13).
2. Tighten nut (K) until the gauge rod (F) makes contact with stop (G) without exerting any pressure.

   The distance between stop (G) and gauge rod (F) may be up to **1 mm**.

   Length of gauge rod = **80 mm**
3. Re-fit clamping screw (A).

   Tightening torque = 130 Nm
4. *Installing and adjusting the uni-spreader hydraulic pump drive belt (6)*, see page 7.2.11
5. *Installing and adjusting the cutterbar intermediate drive belt (5)*, see page 7.2.10
6. Install and adjust the straw chopper drive belt (10) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.
7. *Installing and adjusting the straw chopper intermediate drive belt (9)*, see page 7.2.19
8. Mount brace (T) with a tightening torque of **130 Nm**.

(Fig. 45, 46, 47)



48

Removing the sieve pan intermediate drive belt (14)

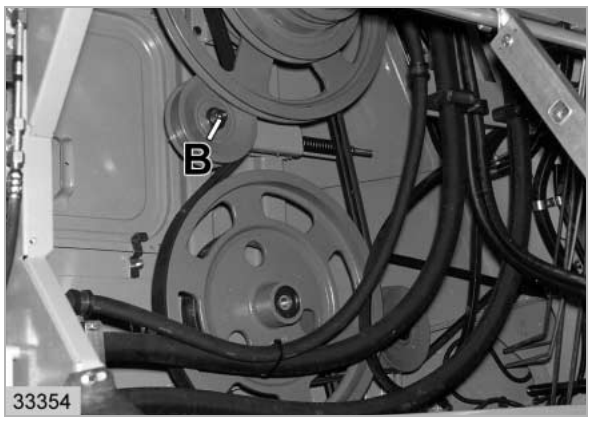
Completely remove brace (T) as well as belt guide assembly (F).

Remove the straw chopper intermediate drive belt (9) at the bottom – see page 7.2.18, *Removing the straw chopper intermediate drive belt (9)*.

Remove the straw chopper drive belt (10) at the front – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*.

Remove the sieve pan intermediate drive belt (13) at the rear – see page 7.2.25, *Removing the sieve pan intermediate drive belt (13)*.

(Fig. 46, 47, 48)



49

Relieving the tension of belt (14):

Loosen clamping screw (B) at the jockey pulley.

Loosen nuts (E and H) until the tension of the spring is relieved.

Remove jockey pulley and belt (14).

(Fig. 48, 49)

Installing and adjusting the sieve pan intermediate drive belt (14)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

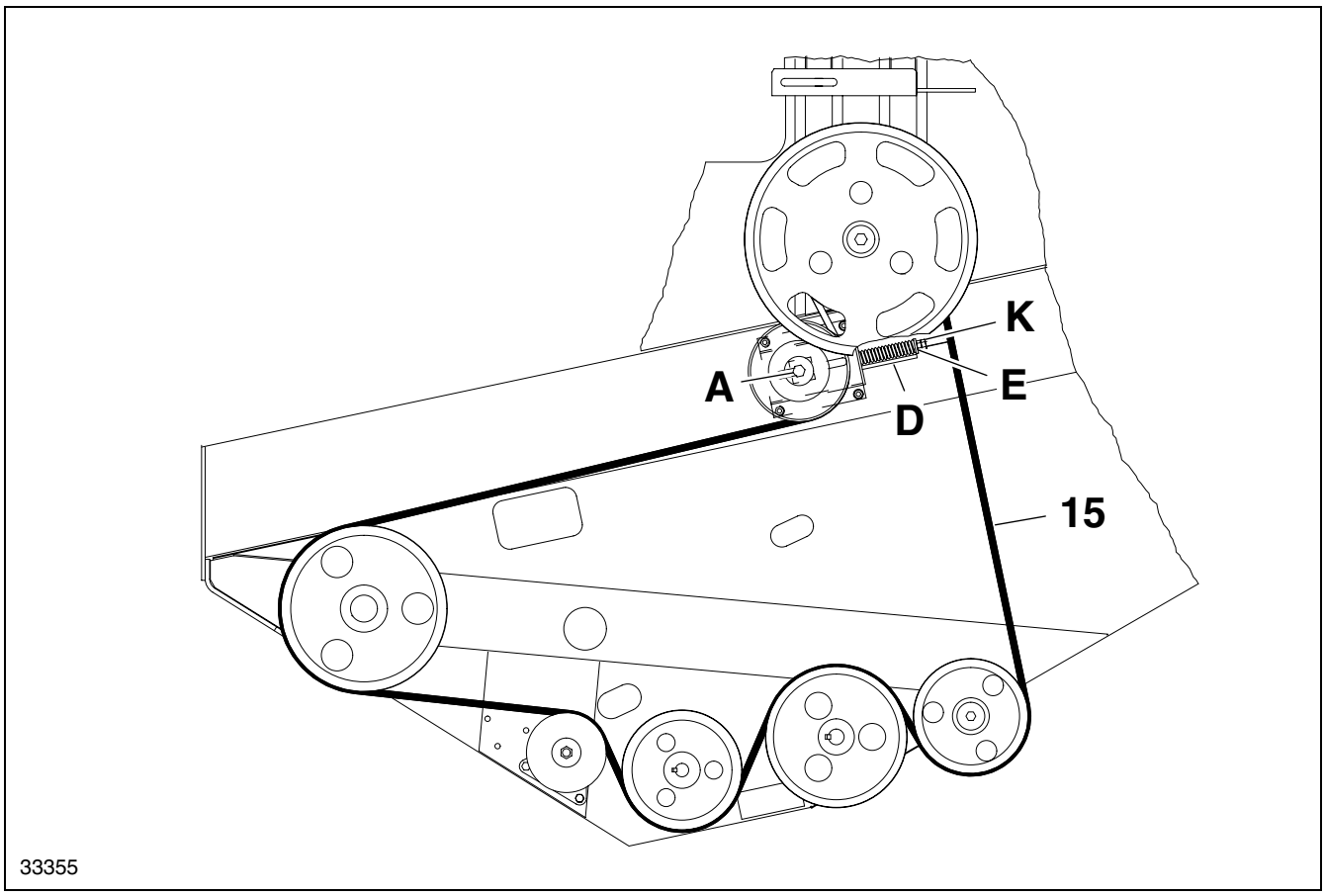
1. Install belt (14).
2. Mount jockey pulley loosely with clamping screw (B).
3. Pre-tension compression spring (D) by way of nut (E) to the gauge rod length.

   Spring length (D) = **131 mm**
4. Lock nuts (E and H) and re-tighten clamping screw (B) at the jockey pulley.

   Tightening torque = 130 Nm
5. *Installing and adjusting the sieve pan intermediate drive belt (13)*, see page 7.2.26
6. Install and adjust the straw chopper drive belt (10) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.
7. *Installing and adjusting the straw chopper intermediate drive belt (9)*, see page 7.2.19

   Mount brace (T) with a tightening torque of **130 Nm**.

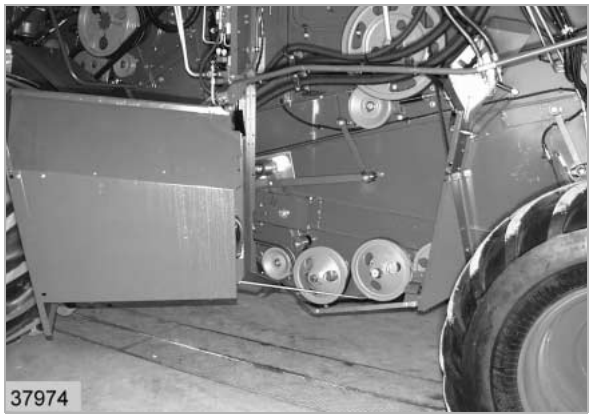
(Fig. 46, 47, 48, 49)



50



51



52

Removing the sieve pan drive belt (15)

1. Remove the sieve pan intermediate drive belt (14) at the bottom – see page 7.2.27, *Removing the sieve pan intermediate drive belt (14)*.
2. From serial no. …:

   Fold the battery / tool box open.

   The cabinet may be folded open for better accessibility. For this, unscrew the two hex. bolts (S).

(Fig. 50, 51, 52)



53

Up to serial no. …:

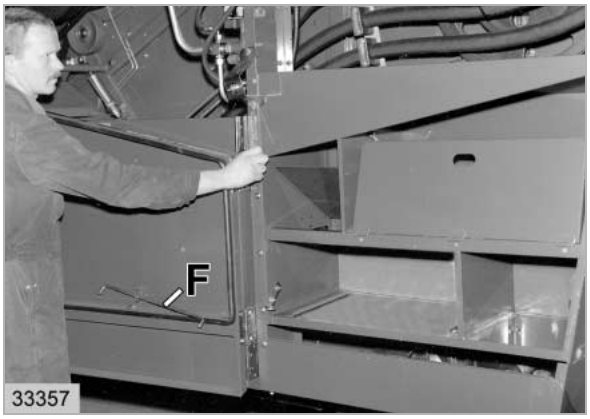
Unscrew the battery / tool box.

Remove the toolbox completely.

Please ensure that the minus terminal is the first disconnected and then the plus. Take out the battery.

Unclip the stay (F) and then remove the complete toolbox.

(Fig. 53, 54)

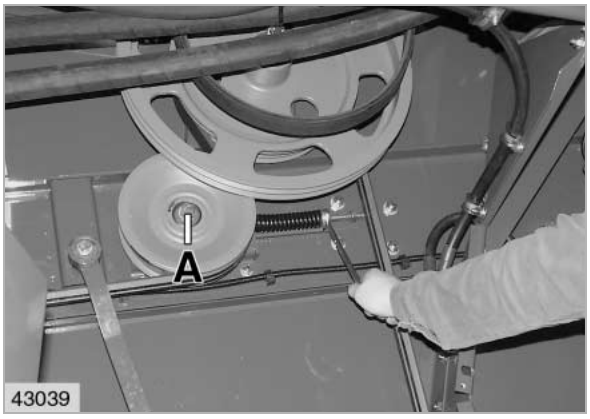


54

3. Loosen clamping screw (A) at the jockey pulley.

   Loosen nuts (K and E) until the tension of the spring is relieved.

(Fig. 50, 55)

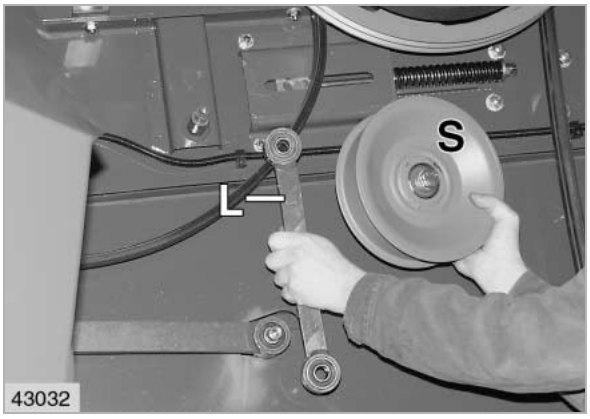


55

4. Remove jockey pulley (S) and control arm (L).

   Remove belt (15).

(Fig. 50, 56)



56

Installing and adjusting the sieve pan drive belt (15)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

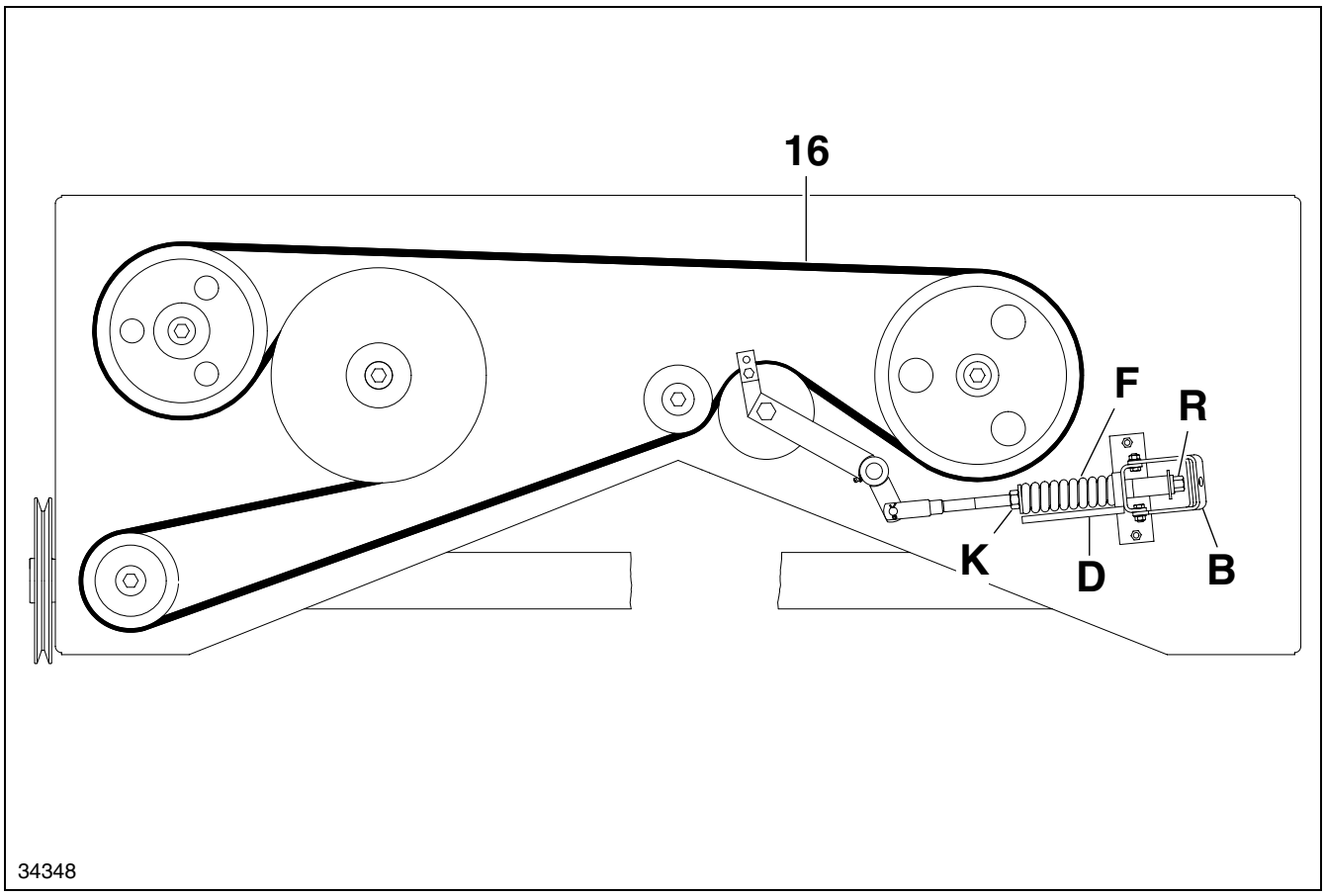
1. Install belt (15).
2. Mount control arm (L) loosely. Move sieve pan to centre position and tighten the control arm with **45 Nm**.
3. Bolt down the jockey pulley (S) loosely with the clamping bolt (A).
4. Pre-tension compression spring (D) by way of nut (E) to the gauge rod length.

   Spring length (D) = **125 mm**
5. Lock the nuts (K and E) and re-tighten clamping bolt (A) on the jockey pulley.

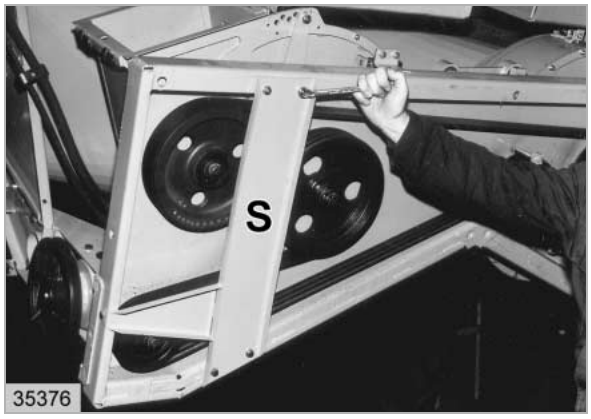
   Tightening torque = 130 Nm
6. From serial no. …:
   Close and bolt the toolbox.

   Up to serial no. …:
   Refit the toolbox.
7. *Installing and adjusting the sieve pan intermediate drive belt (14)*, see page 7.2.28

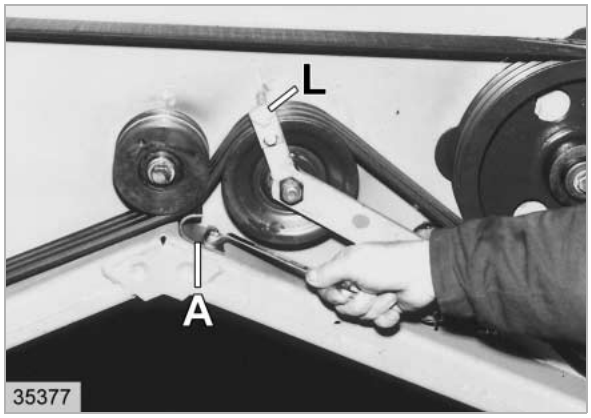
(Fig. 50–56)



57



58

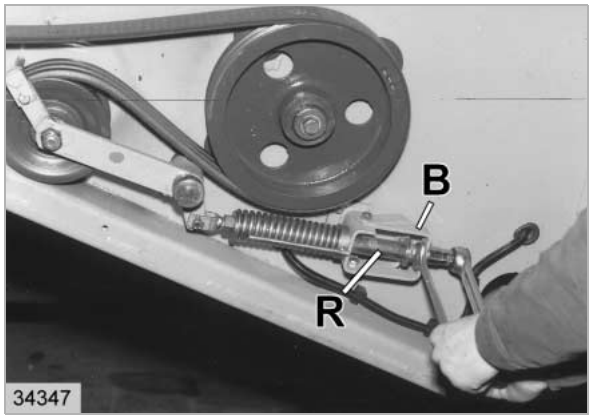


59

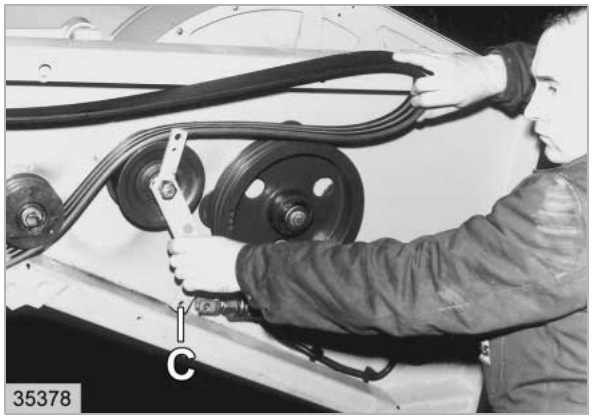
Removing the uni-spreader drive belt (16)

1. Fold uni-spreader to transport position.
2. Fully turn lock nut (K) backwards.
3. Unscrew guard (S), stop (A) and mounting plate (L).
4. Position the longer stop bracket (B) right in the middle over the spring guide tube (R).
5. Screw a M 12 x 35 bolt through the bracket (B) into the spring guide tube (R). Tighten the bolt until the tension in the drive belt is released.
6. Release and remove the pin (C). Slightly lift the jockey pulley and remove the belt.

(Fig. 57, 58, 59, 60, 61)



60

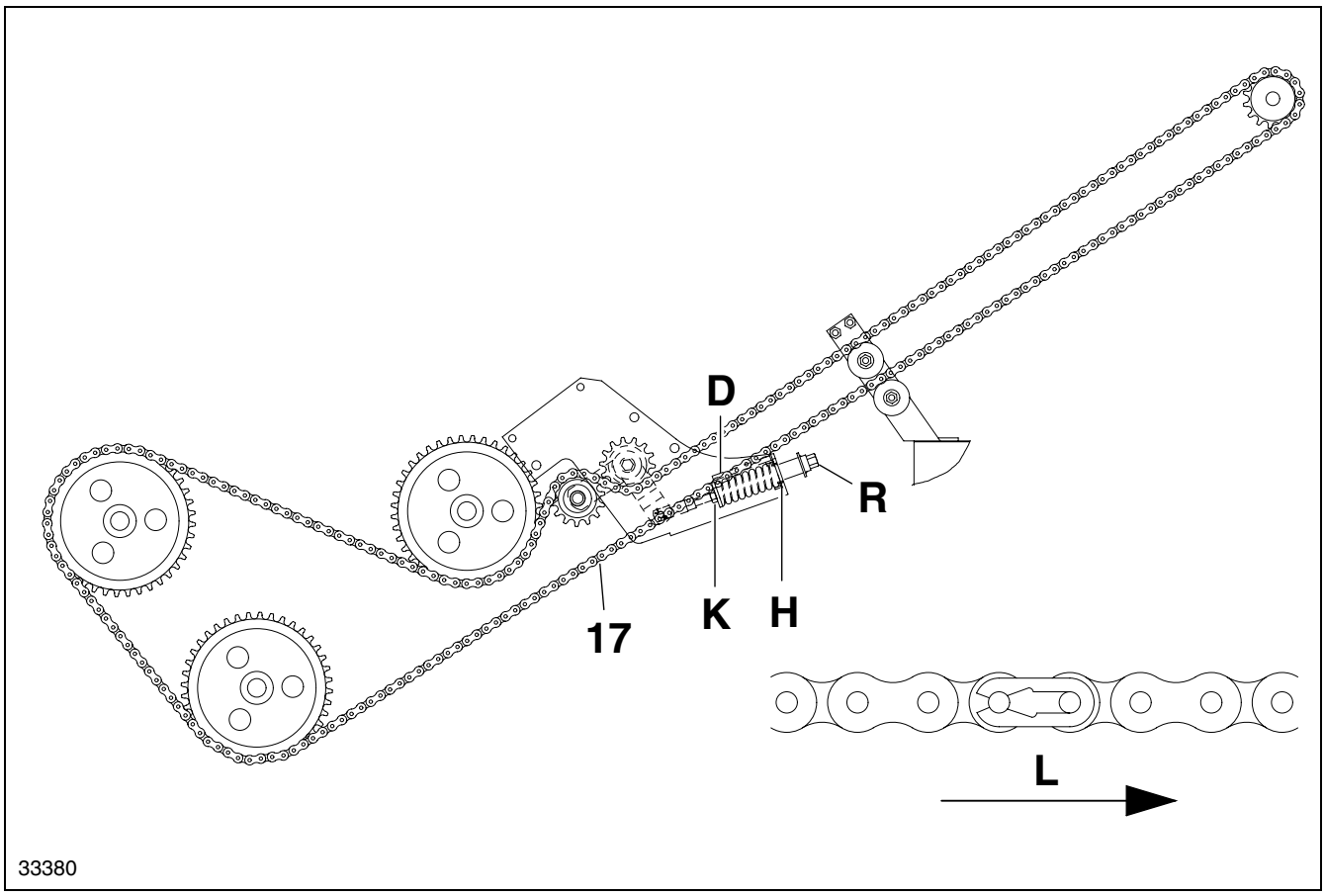


61

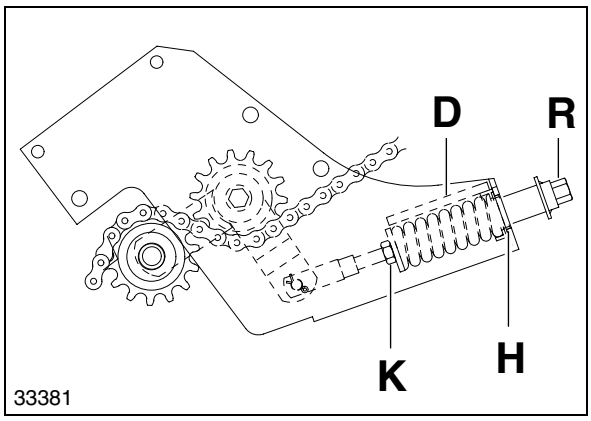
Installing and adjusting the uni-spreader drive belt (16)

1. Install belt (16), insert pin (C) and secure with a split pin.
2. Unscrew hex. bolt M 12 x 35.
3. Position the shorter stop bracket (B) right in the middle over the spring guide tube (R).
4. Adjust the spring-loaded cylinder. To do this, slacken off lock nut (K) and adjust the spring guide tube (R) so that the end of the gauge rod (D) is level with the end of the spring with the lock nut (K) tightened. The spring length will then be **134 mm**.
5. Bolt down guard (S), stop (A) and mounting plate (L).

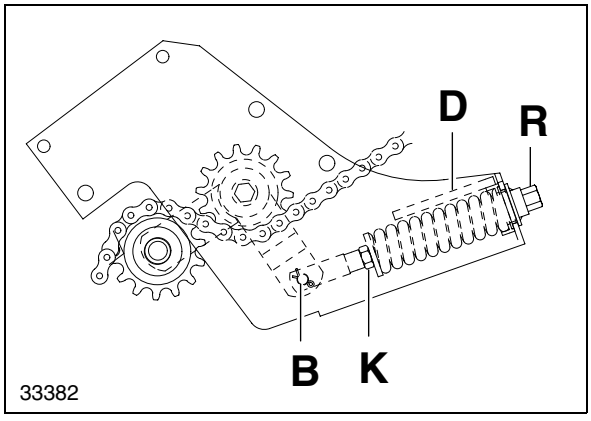
(Fig. 57, 58, 59, 60, 61)



62



63



64

Removing the grain tank unloading drive chain (17)

(Push-type cylinder)

DANGER!

Follow the correct order of assembly – **Danger of injury!**

1. Fully turn lock nut (K) backwards.
2. Tighten spring guide tube (R) until pin (B) is slack.
3. Open the chain connector and remove the chain.

   H = Bracket

(Fig. 62, 63, 64)

Installing and adjusting the grain tank unloading drive chain (17)

DANGER!

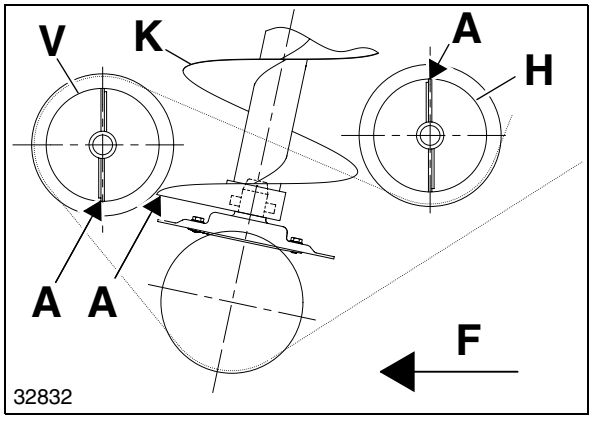
Carry out the adjustment only with the engine switched off and the ignition key removed.

Install chain and chain connector.

When installing the chain connector retention, observe correct moving direction (L) of chain.

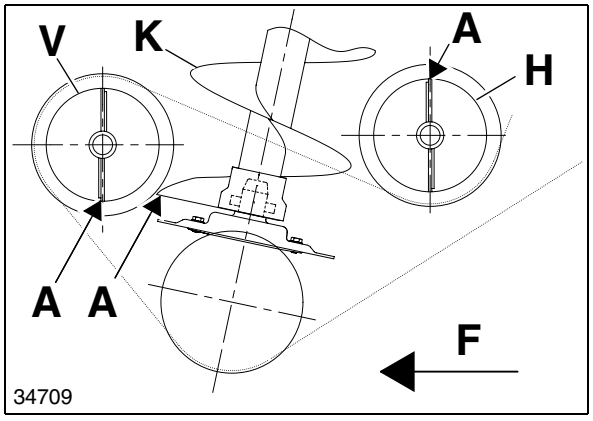
(Fig. 62)

Up to serial no. ...



65

From serial no. ...



66

CAUTION!

The unloading augers must be timed relative to each other when installing the chain.

The start (A) of the unloading auger (K) flight must point toward the front cross auger (V).

The start (A) of the front cross auger (V) must be in the 6 o'clock position.

The start (A) of the rear cross auger (H) must be in the 12 o'clock position.

F = Direction of travel

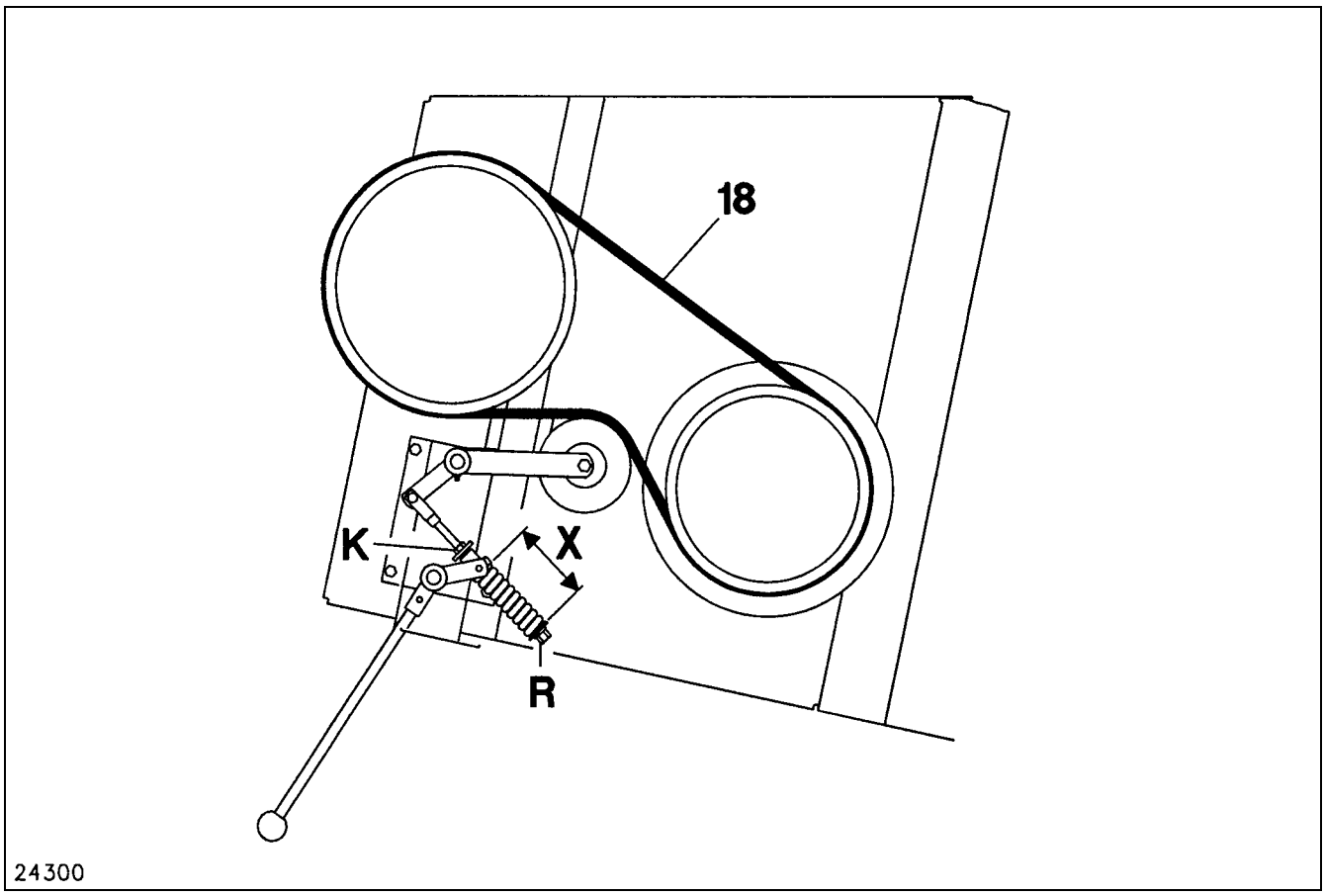
(Fig. 65, 66)

Adjusting the spring-loaded cylinder:

Loosen lock nut (K) and adjust the spring guide tube (R) until the end of the gauge rod (D) is level with the end of the spring with the lock nut tightened.

Spring length = **92 mm**

(Fig. 62, 63, 64)



1

RIGHT-HAND DRIVE BELTS

Adjusting the axial rotor step drive (18)

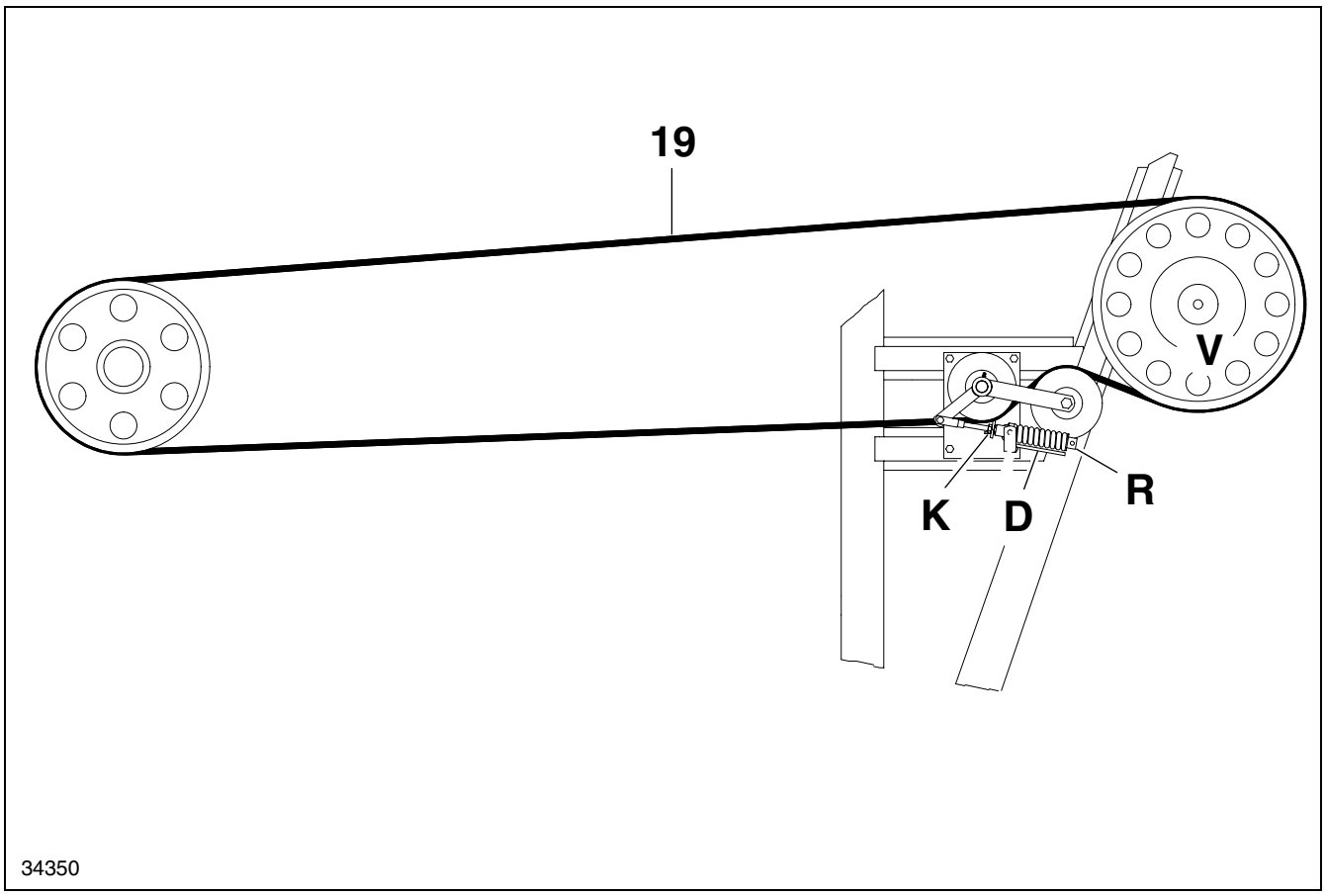
DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

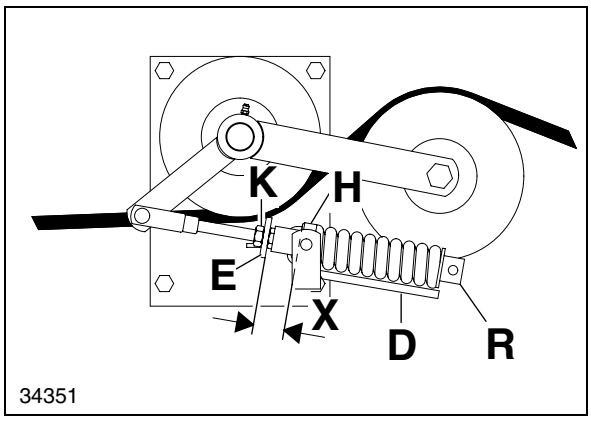
Adjusting the spring-loaded cylinder:

Loosen lock nut (K) and adjust the spring guide tube (R) so that the dimension (X) is **130 mm** with the nut tightened and the belt tensioned.

(Fig. 1)



2



3

Adjusting the axial rotor intermediate drive (19)

DANGER!

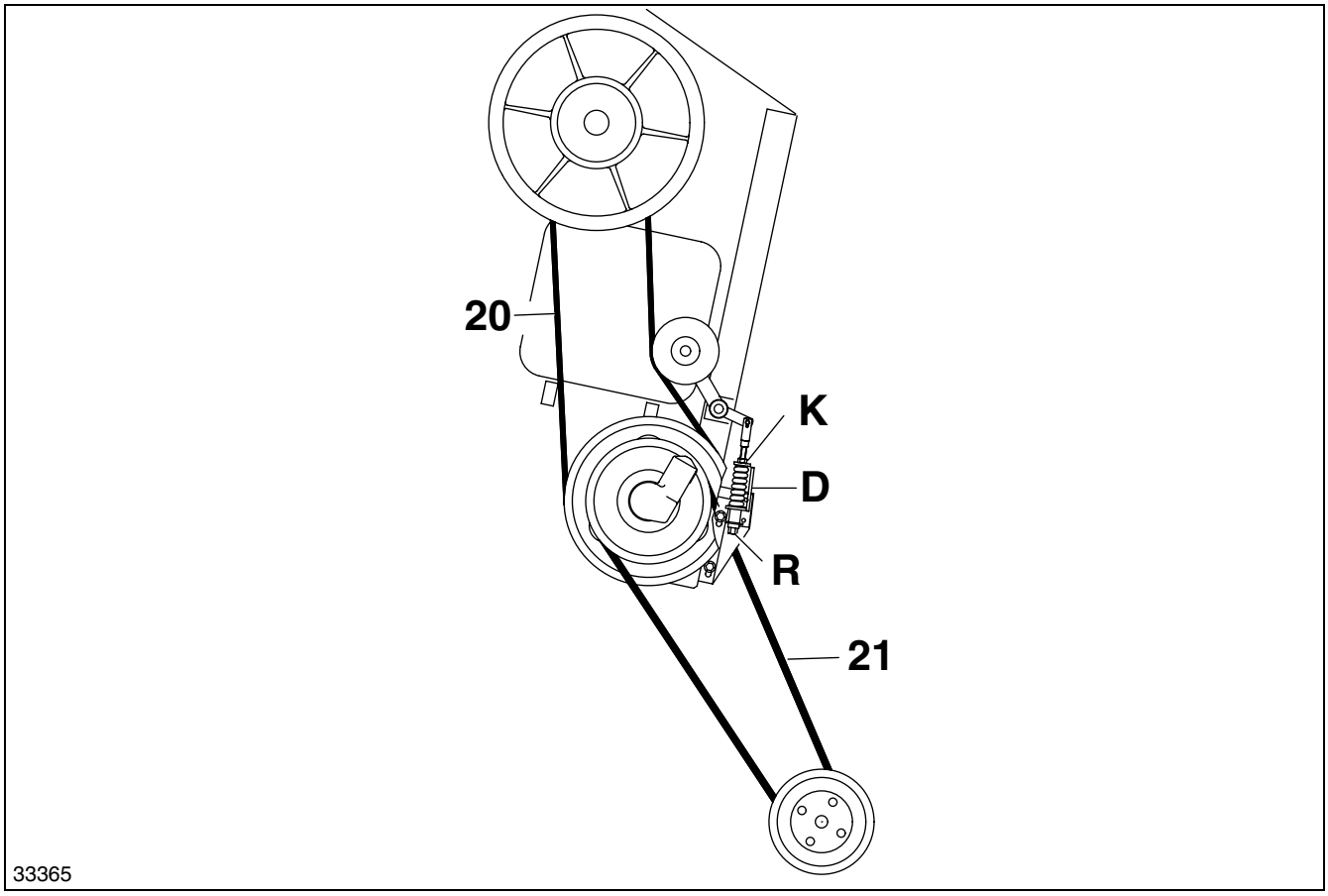
Carry out the adjustment only with the engine switched off and the ignition key removed.

Relieving the drive belt tension on spring-loaded cylinder (F):

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (E) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).

(Fig. 2, 3)



4

Removing the fan intermediate drive belt (20)

Removing the threshing mechanism variable-speed drive belt (22), see page 7.3.6

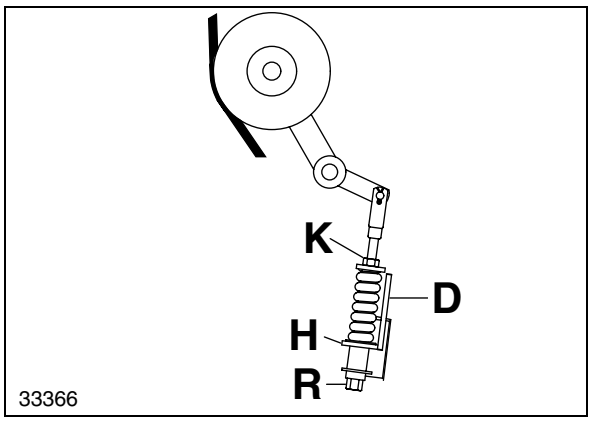
Removing the fan drive belt (21), see page 7.3.5

Relieving the tension of fan intermediate drive belt (20):
(Push-type cylinder)

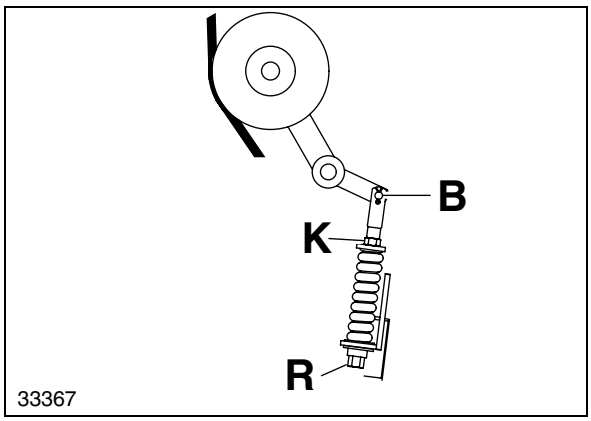
DANGER!

Follow the correct order of assembly –
Danger of injury!

(Fig. 4)



5



6

1. Fully turn lock nut (K) backwards.
2. Tighten spring guide tube (R) until pin (B) is slack.
3. Release and remove pin (B).

   H = Bracket

(Fig. 4, 5, 6)

Installing and adjusting the fan intermediate drive belt (20)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt.

Insert pin (B) and secure with a split pin.

(Fig. 4, 6)

Adjusting the spring-loaded cylinder:

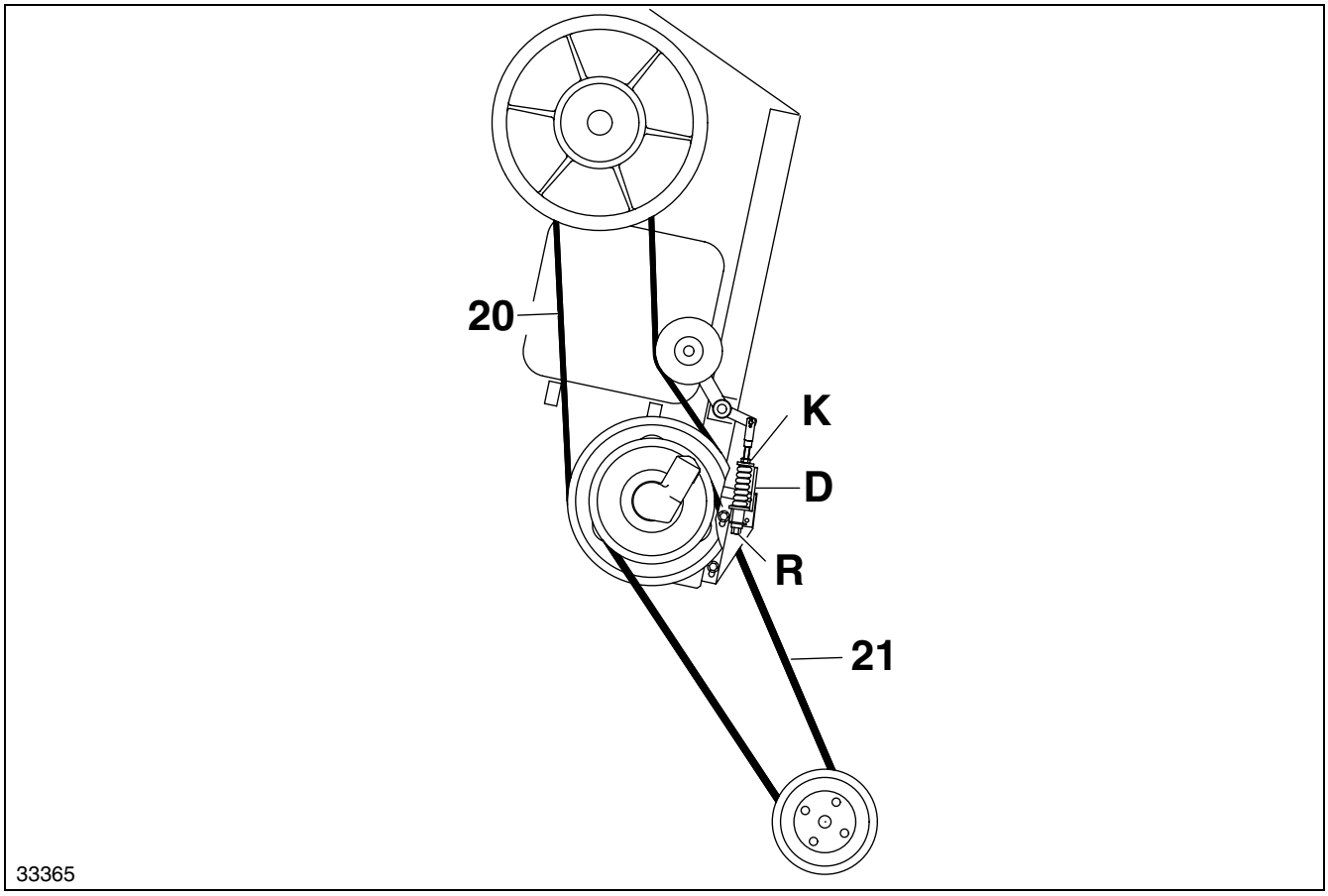
Loosen lock nut (K) and adjust the spring guide tube (R) so that the end of the gauge rod (D) is level with the end of the spring with the lock nut (K) tightened.

Spring length = **100 mm**

(Fig. 4, 5, 6)

Installing and adjusting the threshing mechanism variable-speed drive belt (22), see page 7.3.7

Installing and adjusting the fan drive belt (21), see page 7.3.5



7

Removing the fan drive belt (21)

DANGER!

With the engine running, set the fan to maximum speed. Disengage the threshing mechanism, stop the engine and remove the ignition key.

Tension the belt (21) manually until the spring-loaded variable speed pulley is fully spread.

Remove belt (21).

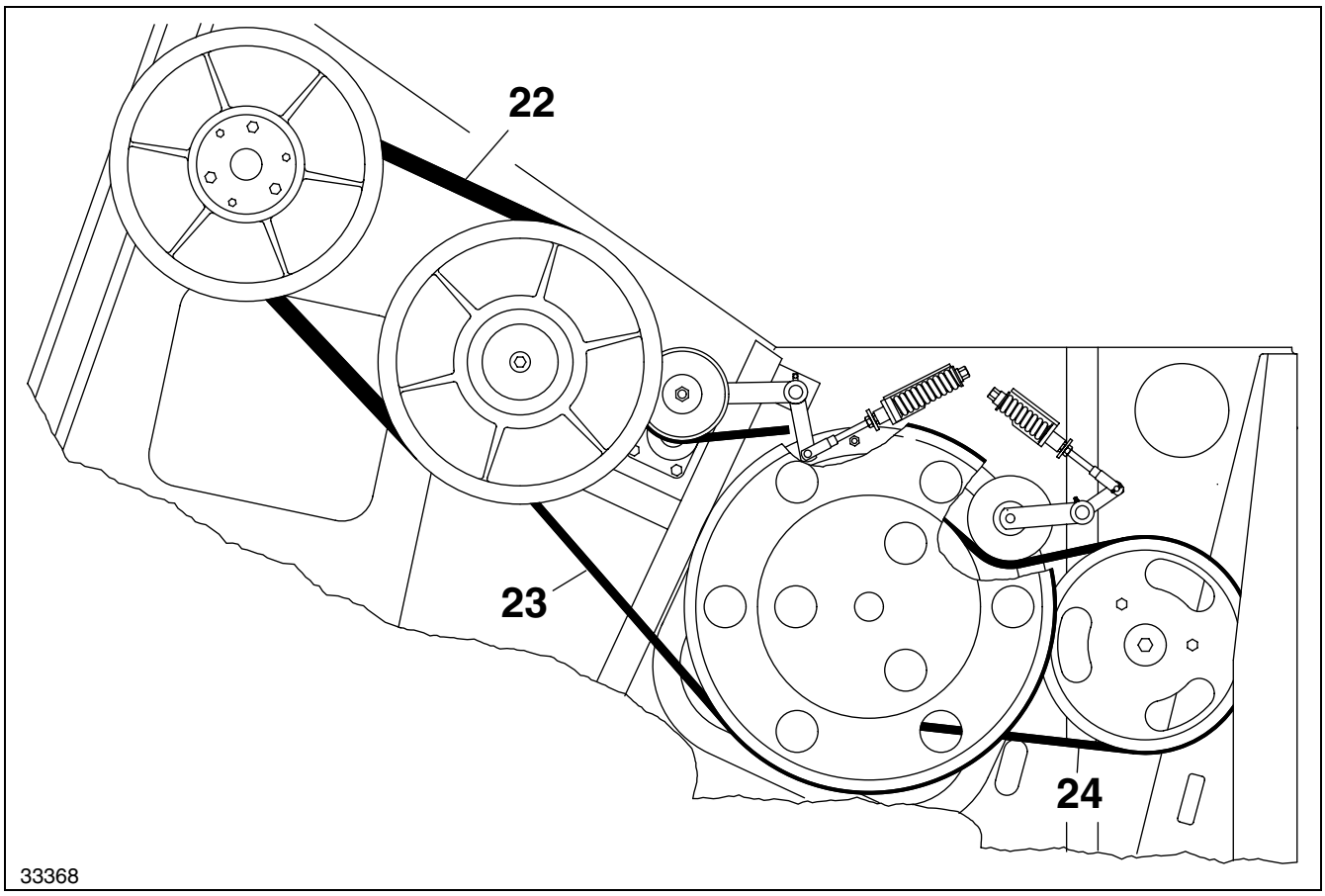
(Fig. 7)

Installing and adjusting the fan drive belt (21)

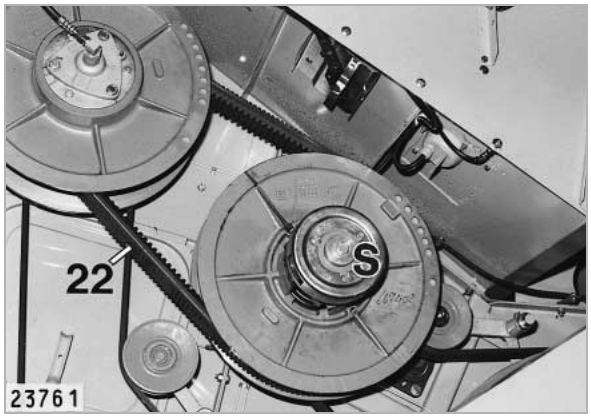
First put the belt (21) on the spring-loaded variable speed pulley. Pull the belt until the variable speed pulley assembly is fully spread.

Install the belt (21) on the upper variable speed pulley.

(Fig. 7)



8



9

Removing the threshing mechanism variable-speed drive belt (22)

DANGER!

With the engine running and the threshing mechanism engaged, set the variable-speed drive to maximum speed. Disengage the threshing mechanism. Stop the engine and remove the ignition key.

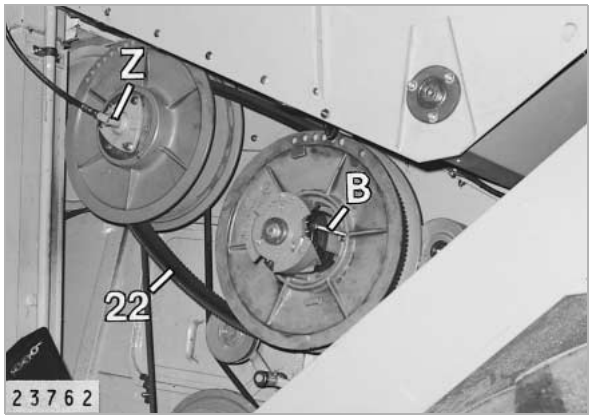
Block variable-speed pulleys with special tools – please refer to the text below.

DANGER!

Be careful when working on variable-speed drives. Never move your hands between the pulley halves – **Danger of accidents!**

Unscrew guard (S).

(Fig. 8, 9)



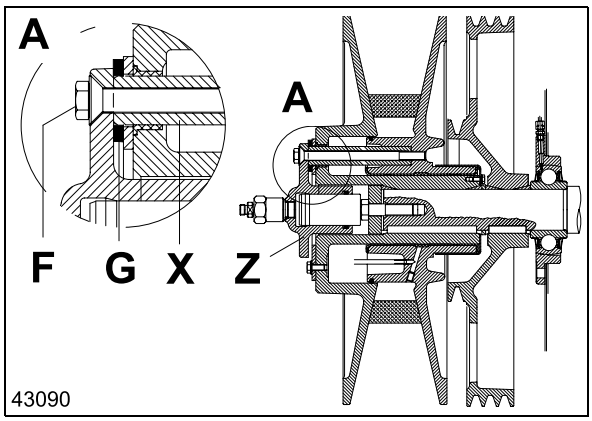
10

Bolt the hex. bolts (B) through the threaded holes in the front pulley half against the rear pulley half until the stop. This blocks the variable speed pulley in a spread position.

Disconnect hydraulic hose from hydraulic cylinder (Z) and force the hydraulically adjustable variable speed pulley apart. Collect the oil flowing out of the cylinder.

Now remove the belt (22) from both pulleys.

(Fig. 10)



11

Installing and adjusting the threshing mechanism variable-speed drive belt (22)

If the variable-speed belt is not sufficiently tensioned any more at the lowest threshing drum speed due to belt growth or wear, this condition is compensated using washers – see detail (A).

Unscrew the three countersunk head bolts (F) and remove hydraulic cylinder (Z).

Place one washer (G) 26 x 42 x 3 each on the spacer tubes (X) below the flange of the hydraulic cylinder (Z) and refit the hydraulic cylinder (Z).

CAUTION!

Ensure absolutely that all three washers are placed on the spacer tubes and will not be pinched between the pipe ends and the cylinder flange.

When installing a new variable-speed belt, these washers (G) must be removed.

(Fig. 8, 9, 11)

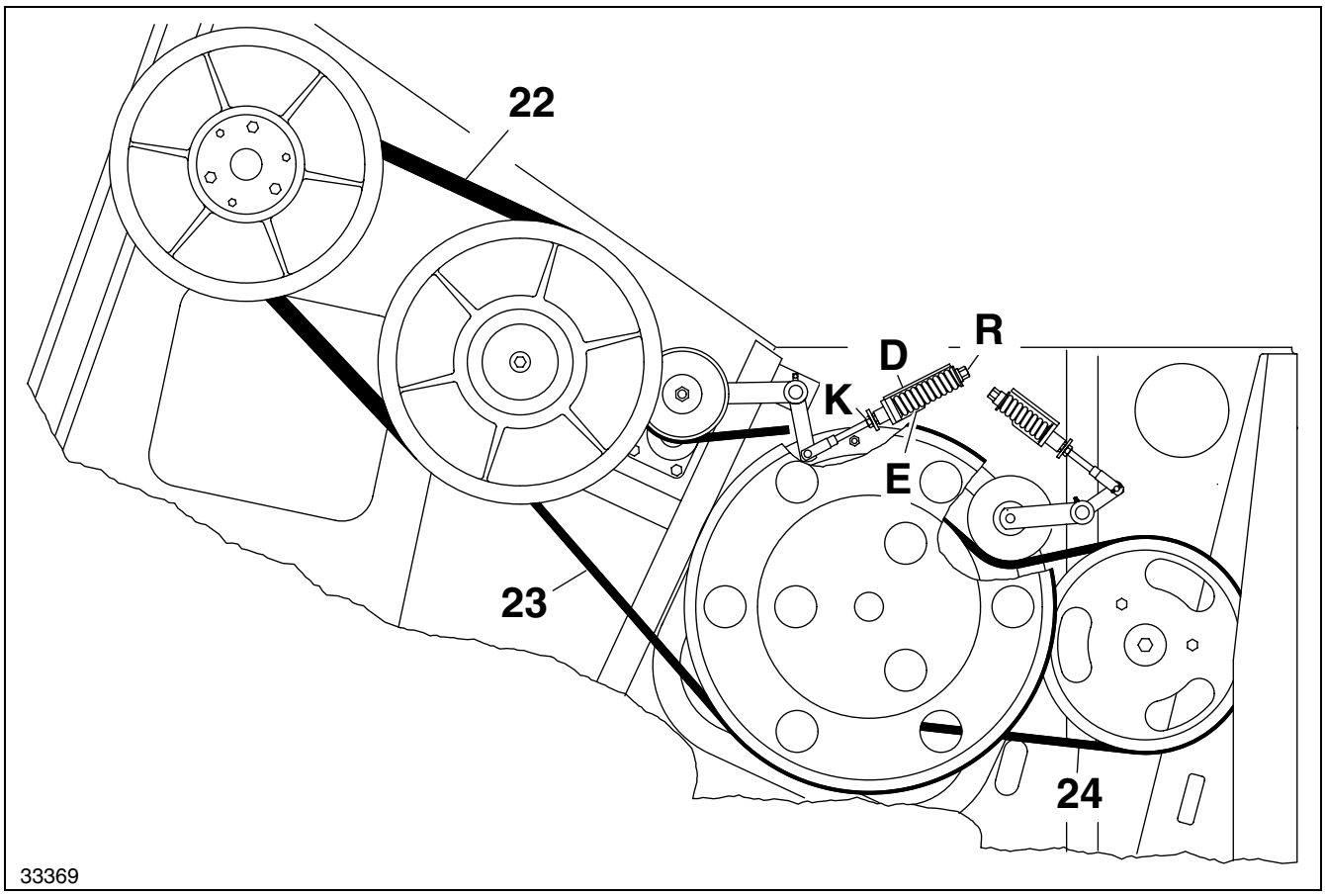
Firmly pull the belt between the pulley halves and unscrew the hex. bolts (B) from the threaded holes.

Re-fit hydraulic hose.

Re-fit guard (S).

Check oil level and replenish if required.

(Fig. 8, 9, 10, 11)



12

Removing the threshing drum drive belt (23)

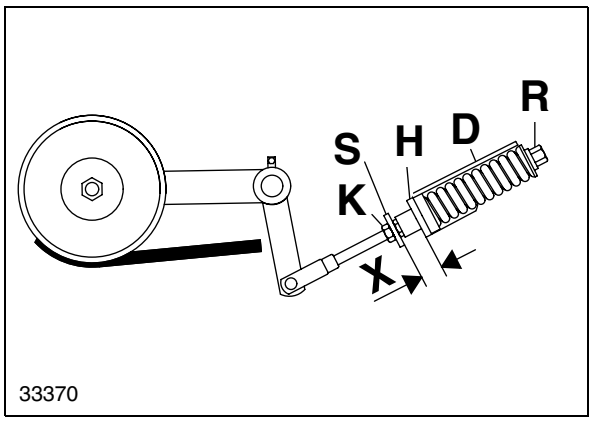
Remove the threshing mechanism variable-speed drive belt (22) at the front – see page 7.3.6, *Removing the threshing mechanism variable-speed drive belt (22)*.

Relieving the tension of threshing drum drive belt (23): (Pull-type cylinder)

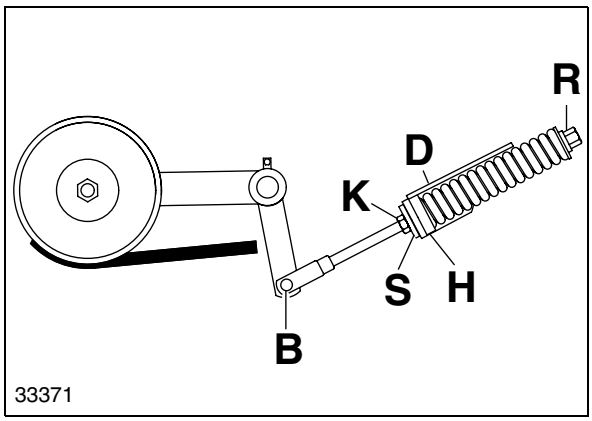
DANGER!

Pay particular attention while unscrewing the spring guide tube (R). Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 12)



13



14

Relieve tension on spring-loaded cylinder. To do this, proceed as follows:

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (S) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).
5. Remove belt (23).

(Fig. 12, 13, 14)

Installing and adjusting the threshing drum drive belt (23)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt (23).

Insert pin (B) and secure with a split pin.

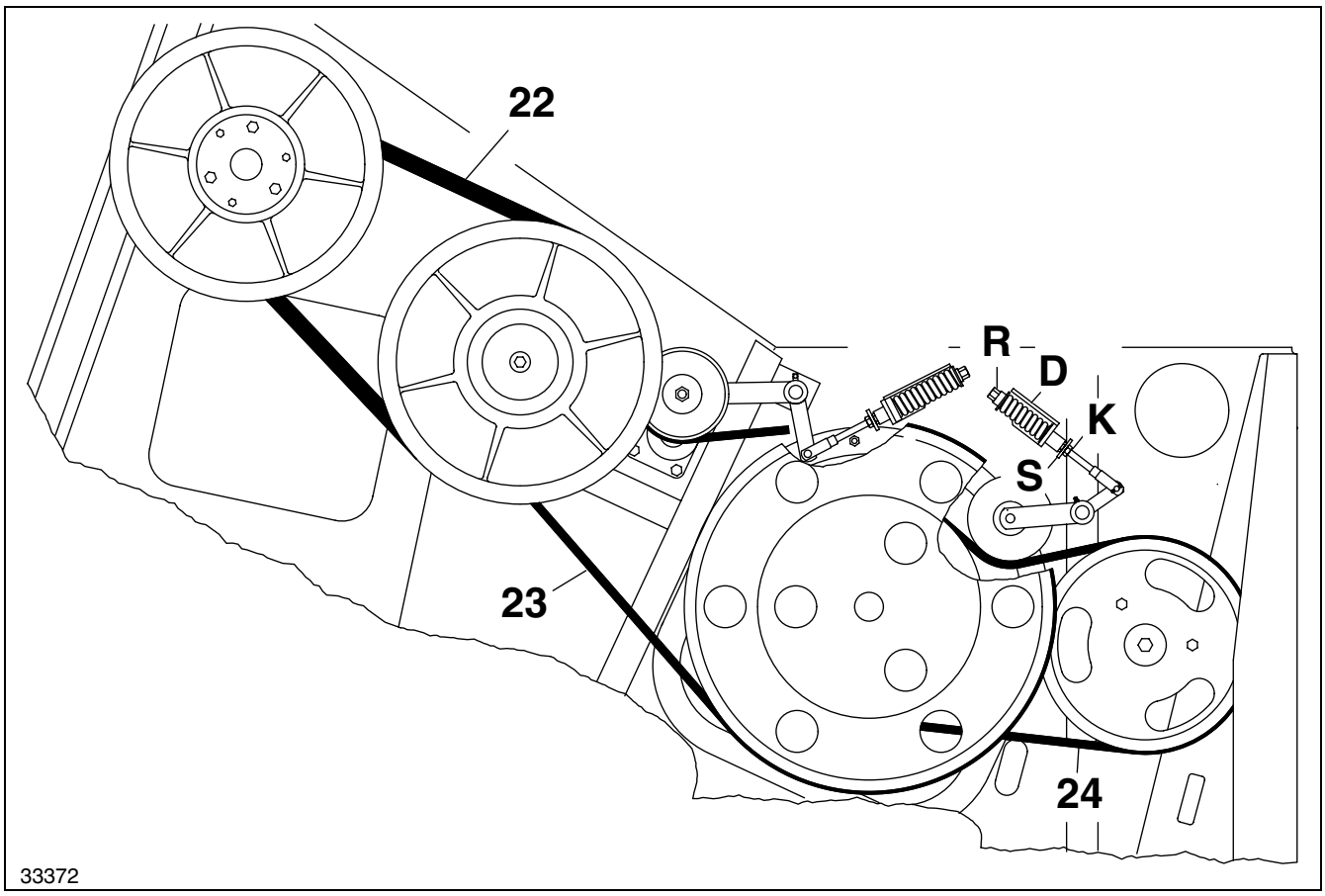
Adjusting the spring-loaded cylinder:

Loosen lock nut (K) and adjust the spring guide tube so that the end of the gauge rod (D) is level with the washer (S). Tighten the lock nut (K).

Spring length = **130 mm**

Installing and adjusting the threshing mechanism variable-speed drive belt (22), see page 7.3.7

(Fig. 12, 13, 14)



15

Removing the accelerator drive belt (24)

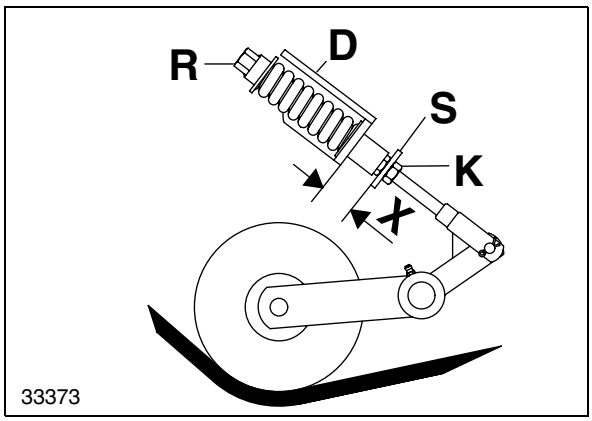
Remove threshing drum drive belt (23) at the front – see page 7.3.8, *Removing the threshing drum drive belt (23)*.

Relieve the tension of accelerator drive belt (24): (Pull-type cylinder)

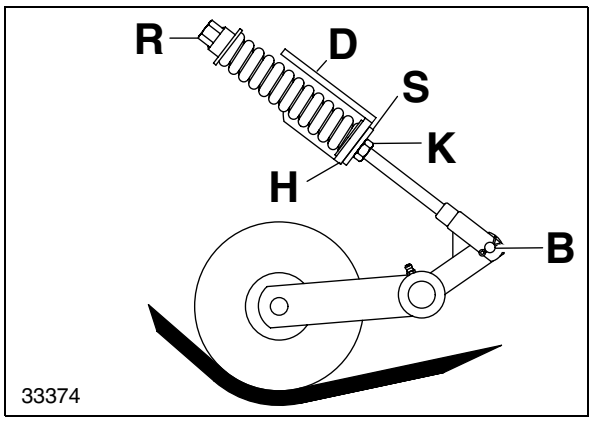
DANGER!

Pay particular attention while unscrewing the spring guide tube (R). Do not unscrew the spring guide tube too far – **Danger of injury!**

(Fig. 15)



16



17

Relieve tension on spring-loaded cylinder. To do this, proceed as follows:

1. Determine the dimension (X).
2. Slacken off the lock nut (K).
3. Slacken off the spring guide tube (R) by the previously determined distance (X). At the same time tighten the nut (K) until the washer (S) is up against the bracket (H).

   The pin (B) should now be tension-free. Should there be still a little tension on the pin, then a little bit of adjustment may still be required at the spring guide tube (R) and the nut (K).
4. Remove pin (B).
5. Remove belt (24).

(Fig. 15, 16, 17)

Installing and adjusting the accelerator drive belt (24)

DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt (24).

Insert pin (B) and secure with a split pin.

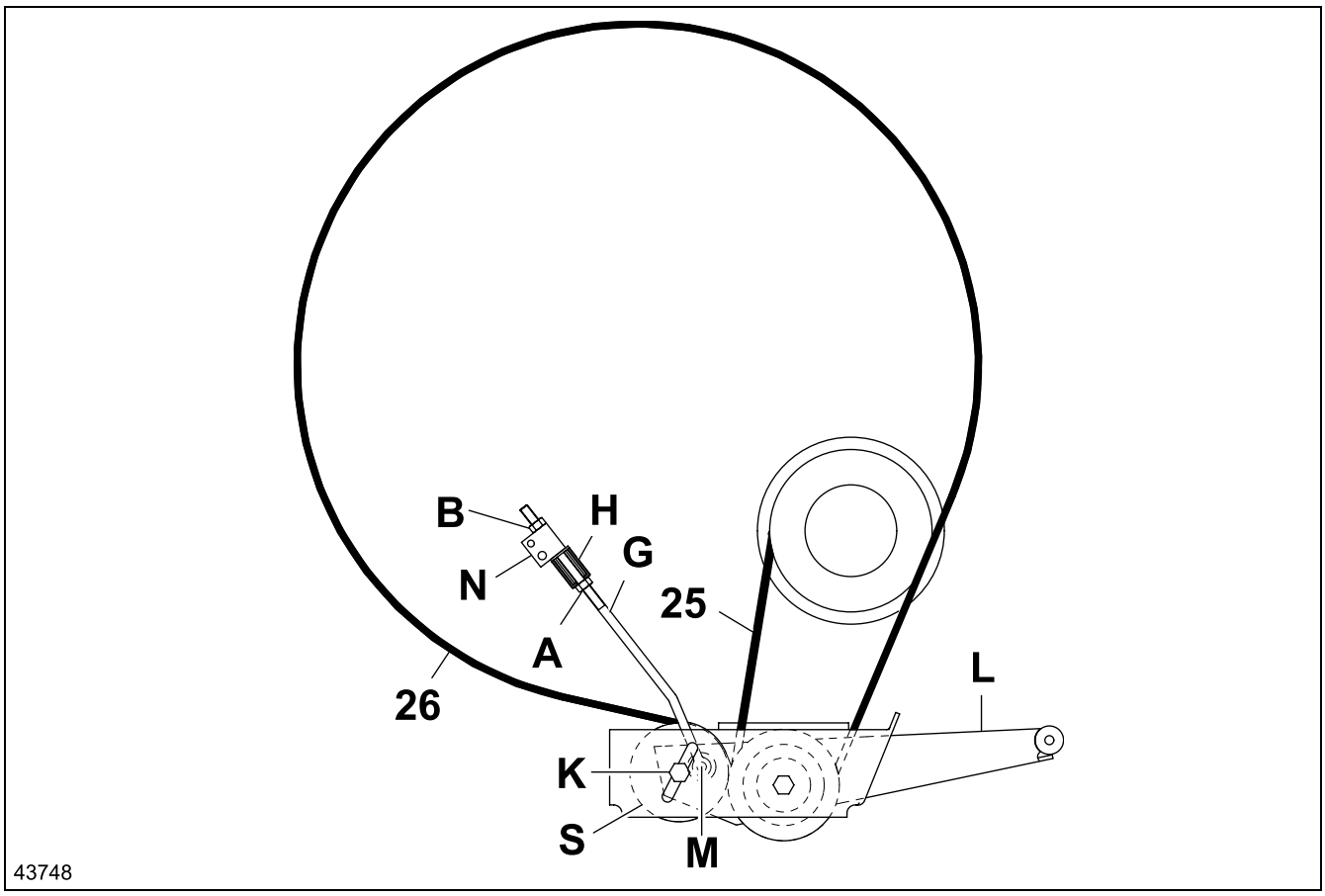
Adjusting the spring-loaded cylinder:

Loosen lock nut (K) and adjust the spring guide tube so that the end of the gauge rod (D) is level with the washer (S). Tighten the lock nut (K).

Spring length = **92 mm**

Installing and adjusting the threshing drum drive belt (23), see page 7.3.9

(Fig. 15, 16, 17)



18

Removing the radiator chaff screen intermediate drive belt (25)

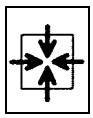
Removing the fan drive belt (27), see page 7.3.15

Slacken off the clamping bolt (M).

Slacken off the lock nut (B). Turn the nut (A) backwards until the belt tension is relieved. Unscrew clamping piece (N) if required in order to raise the bearing plate (L) by means of the eyebolt.

Remove belt (25).

(Fig. 18)



Installing and adjusting the rotary chaff screen intermediate drive belt (25)



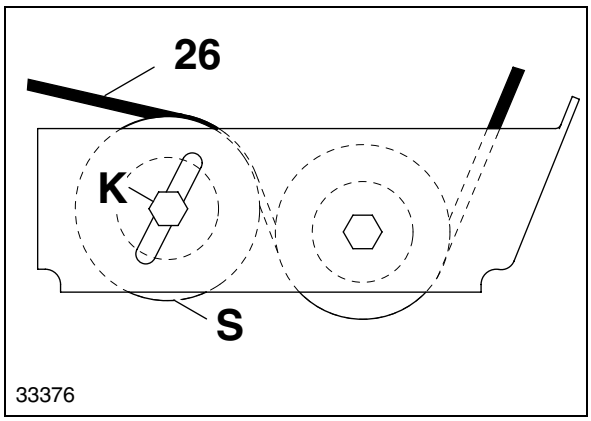
DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

1. Install belt (25).
2. Slacken off the lock nut (B).
3. Tighten the nut (A) until the spacer (H) makes contact with the tensioner (N) without exerting any pressure.

   A distance between the spacer (H) and the tensioner (N) of approx. **1 mm** is allowed.
4. Tighten the lock nut (B).
5. *Installing and adjusting the fan drive belt (27)*, see page 7.3.16

(Fig. 18)



19

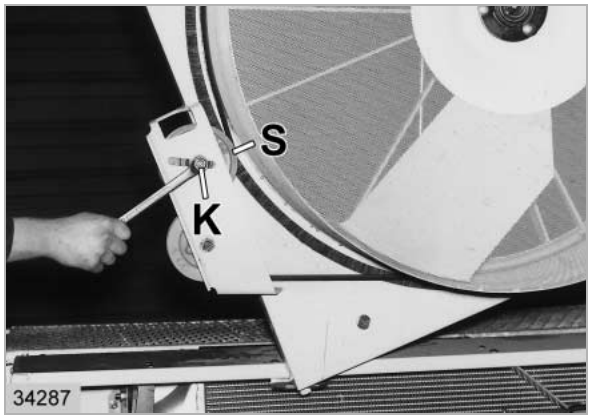
Removing the radiator chaff screen drive belt (26)

Swing the rotary chaff screen up.

Slacken off the clamping bolt (K) and push the jockey pulley (S) down by hand.

Remove belt (26).

(Fig. 18, 19)



20

Installing and adjusting the rotary chaff screen drive belt (26)

DANGER!

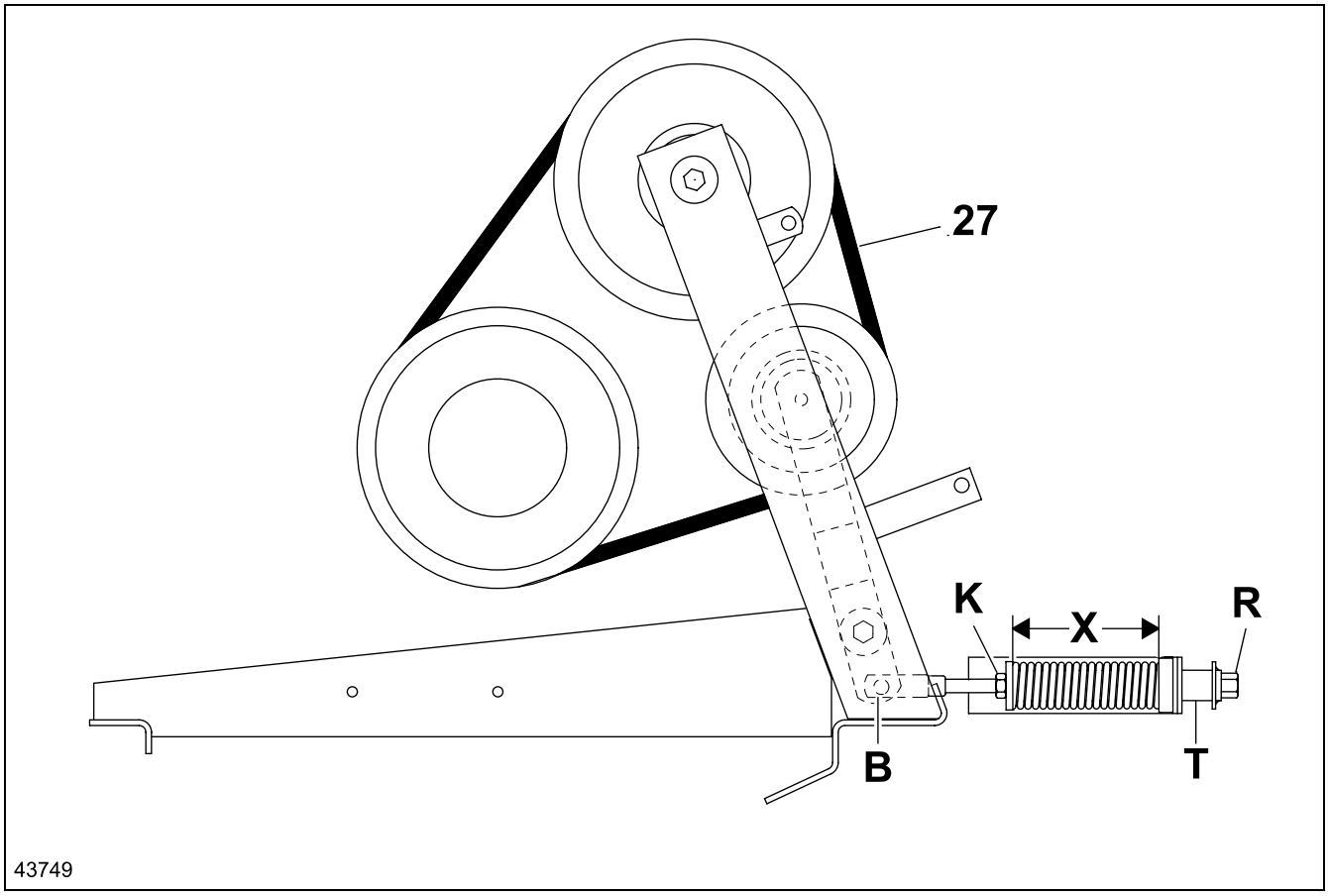
Carry out the adjustment only with the engine switched off and the ignition key removed.

1. Install belt (26).
2. Slacken off the clamping bolt (K).
3. Push the jockey pulley (S) up and tighten the clamping bolt (K).

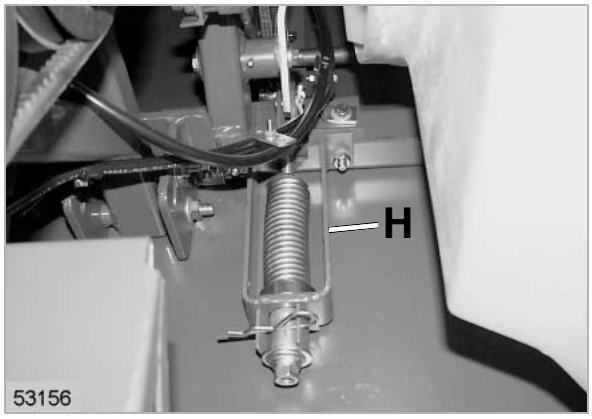
   Turn the rotary chaff screen round by hand and check the tension of the drive belt.

   If necessary, repeat this procedure until the belt is evenly tensioned.

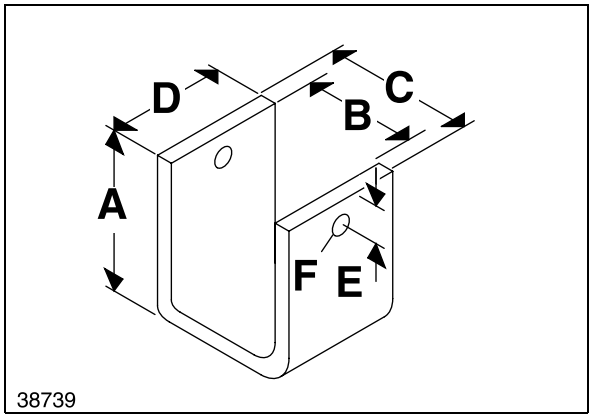
(Fig. 18, 19, 20)



21



22



23

Removing the fan drive belt (27)

Releasing the tension of fan drive belt (27):
(Push-type cylinder)

DANGER!

Follow the correct order of assembly –
Danger of injury!

1. Insert U-piece (self-sourced) at position (T) and secure with spring clip.

(Fig. 21, 22, 23)

U-piece (self-sourced):

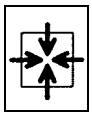
A = 38 mm
B = 30 mm
C = 38 mm
D = 30 mm
E = 5 mm
F = ∅ 4 mm

(Fig. 23)

2. Fully turn lock nut (K) backwards.
3. Tighten spring guide tube (R) until pin (B) is slack.
4. Release and remove pin (B).

   H = Bracket
5. Remove the fan drive belt (27).

(Fig. 21, 22, 23)



Installing and adjusting the fan drive belt (27)



DANGER!

Carry out the adjustment only with the engine switched off and the ignition key removed.

Install belt (27).

Insert pin (B) and secure with a split pin.

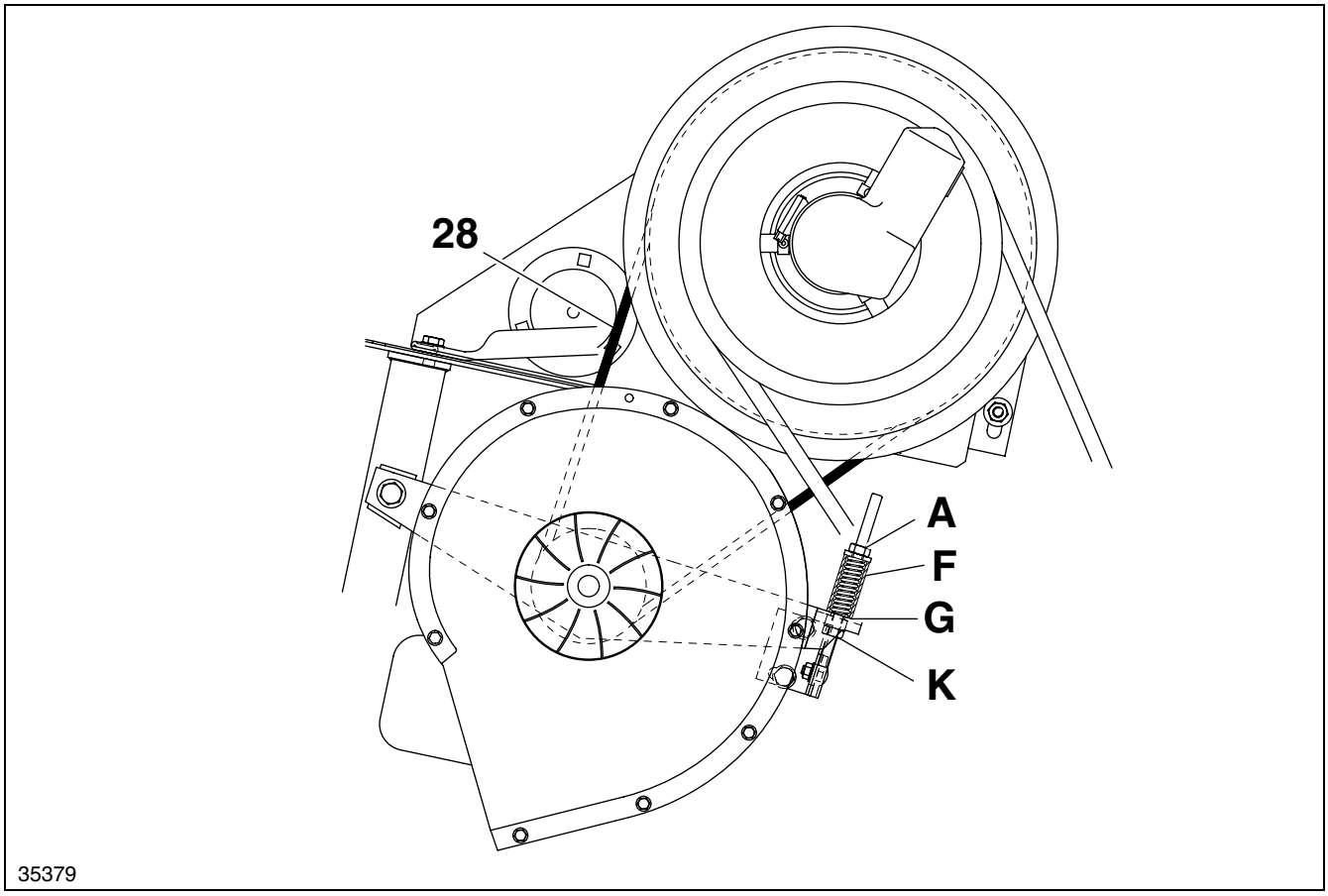
Remove U-piece.

Adjusting the spring-loaded cylinder:

Slacken off the lock nut (K) and turn the spring guide tube (R) slightly backwards. Turn lock nut (K) until the dimension (X) has been reached. Lock spring guide tube (R) against the nut (K).

Spring length (X) = **130 mm**

(Fig. 21, 22, 23)



24

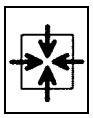
Removing the suction blower drive belt (28)

Removing the fan drive belt (21), see page 7.3.5

Removing the fan intermediate drive belt (20), see page 7.3.3

Slacken off nut (A) until the belt tension is relieved. Remove belt (28).

(Fig. 24)

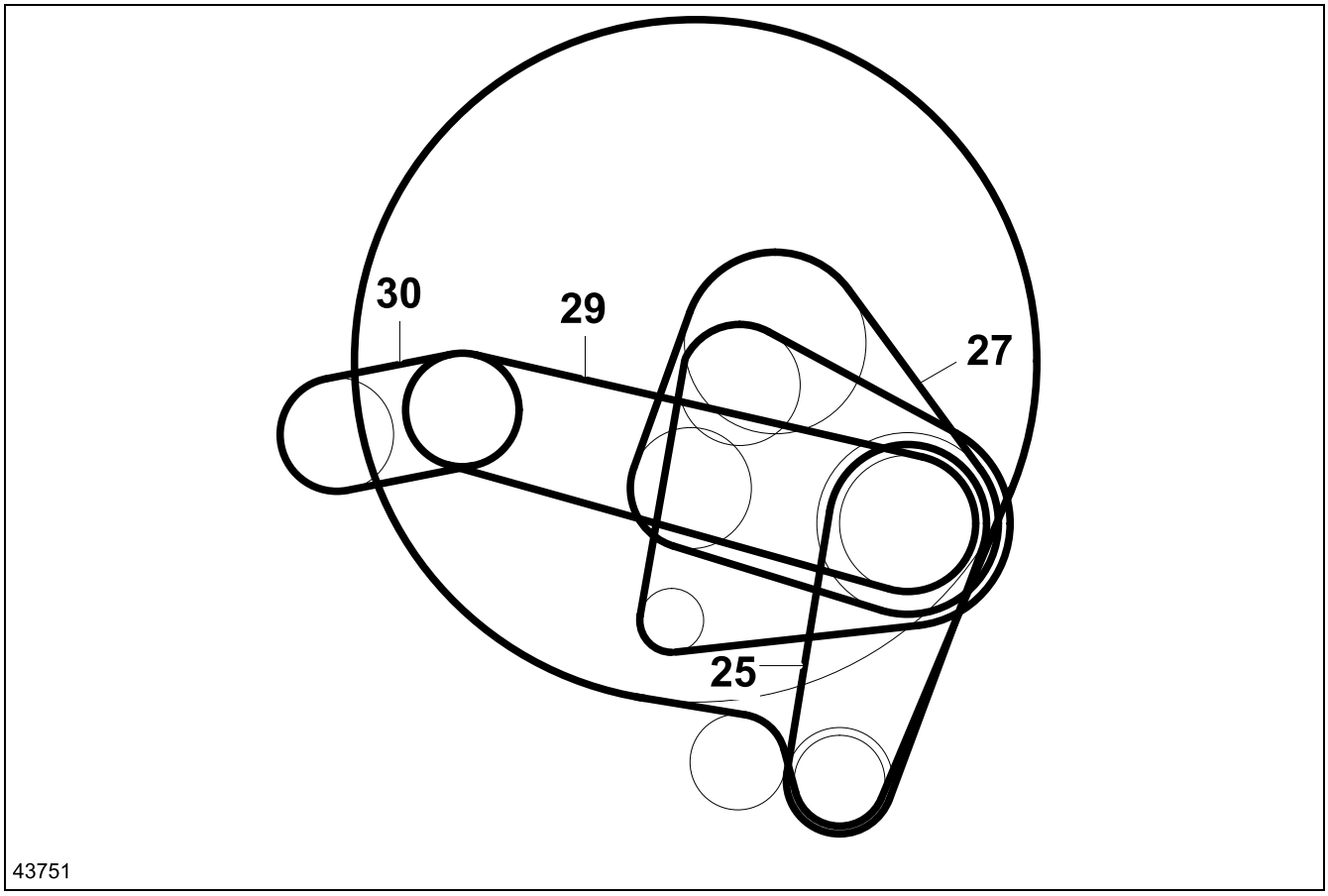


Installing and adjusting the suction blower drive belt (28)

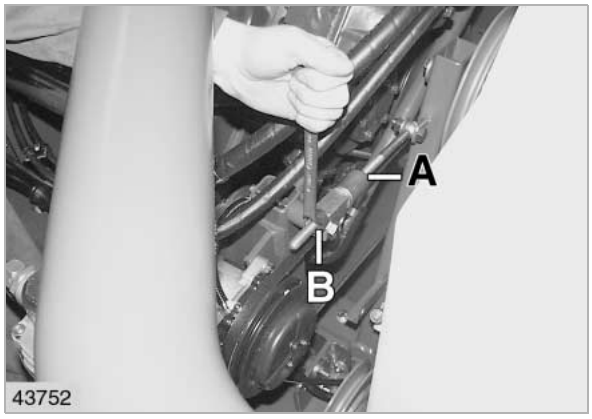
1. Install belt (28).
2. Turn lock nut (K) fully downwards.
3. Tighten nut (A) until the gauge rod (F) makes contact with stop (G) without exerting any pressure.

   The distance between stop (G) and gauge rod (F) may be up to **1 mm**.
4. Retighten the lock nut (A).
5. Length of gauge rod = **58 mm**
6. *Installing and adjusting the fan intermediate drive belt (20)*, see page 7.3.4
7. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5

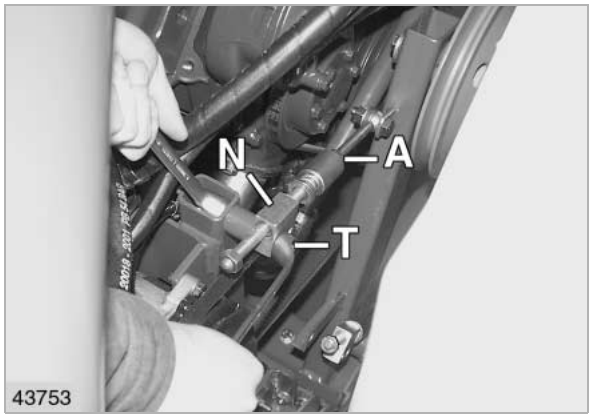
(Fig. 24)



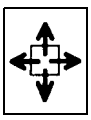
25



26



27



Removing the air conditioner compressor drive belt (29)

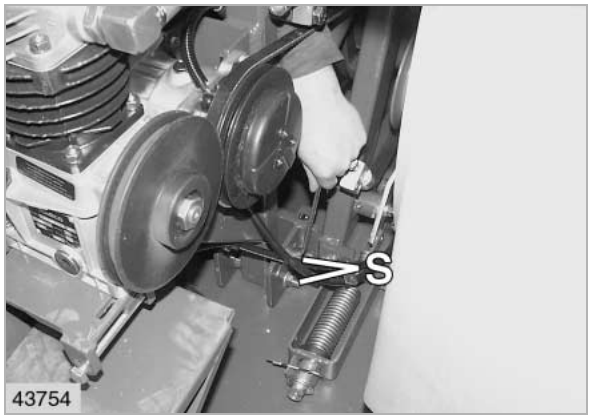
Removing the fan drive belt (27), see page 7.3.15

Removing the radiator chaff screen intermediate drive belt (25), see page 7.3.12

Removing the compressed-air compressor drive belt (30), see page 7.3.21

Slacken off the lock nut (B). Slacken off hex. nut (A) until it reaches the stop. Slacken off bolt (T) of the tensioner (N).

(Fig. 25, 26, 27)

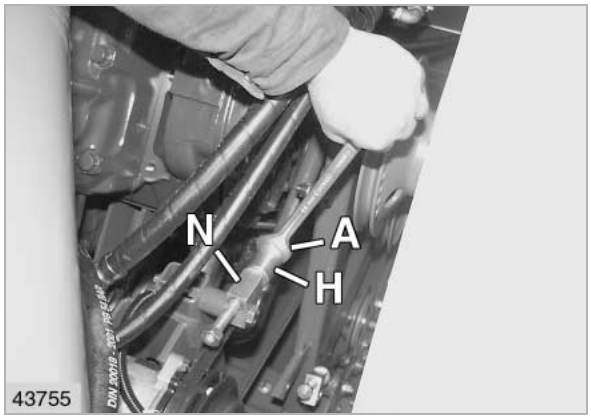


28

Loosen bolts (S) from support.

Remove belt (29).

(Fig. 28)



29

Installing and adjusting the air conditioner compressor drive belt (29)

1. Install belt (29).
2. Tighten the nut (A) until the spacer (H) makes contact with the tensioner (N) without exerting any pressure.

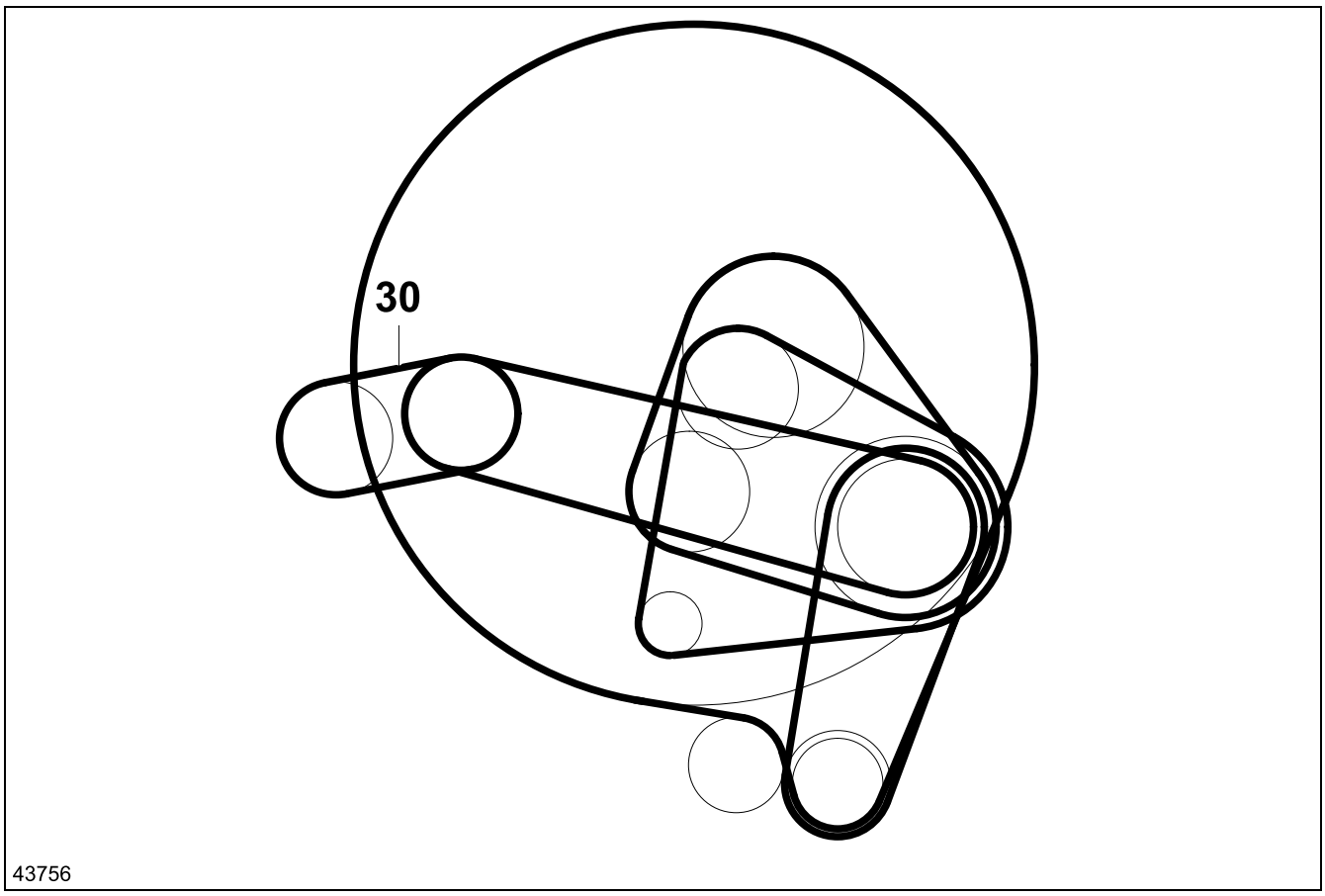
   A distance between the spacer (H) and the tensioner (N) of approx. **1 mm** is allowed.
3. Tighten the lock nut (B).
4. Tighten bolt (T) of the tensioner. Tighten bolts (S) at the support.

(Fig. 25, 26, 27, 28, 29)

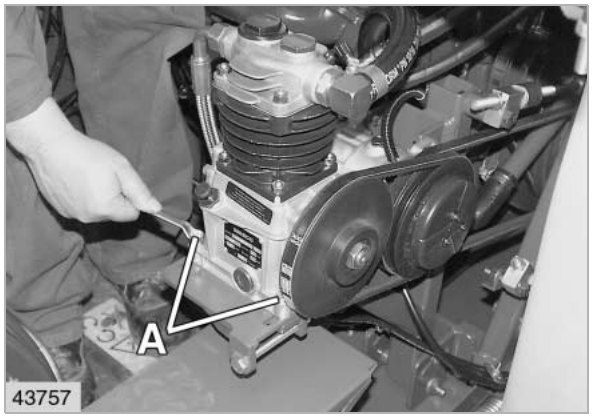
Installing and adjusting the compressed-air compressor drive belt (30), see page 7.3.22

Installing and adjusting the rotary chaff screen intermediate drive belt (25), see page 7.3.13

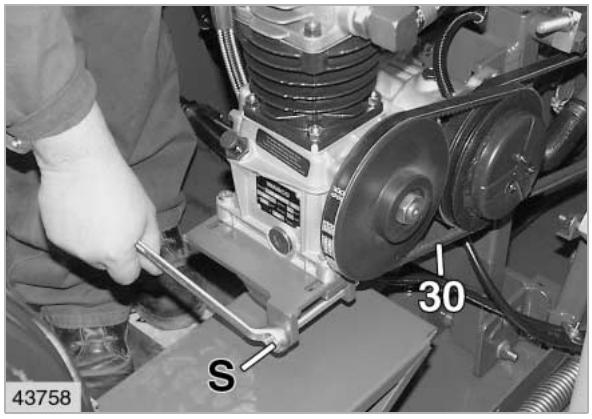
Installing and adjusting the fan drive belt (27), see page 7.3.16



30



31



32

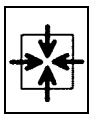
Removing the compressed-air compressor drive belt (30)

Unscrew four hex. bolts (A) from the compressed-air compressor foot.

Unscrew tensioning screw (S) until the tension of the compressed-air compressor drive belt (30) is released.

Remove belt (30).

(Fig. 30, 31, 32)



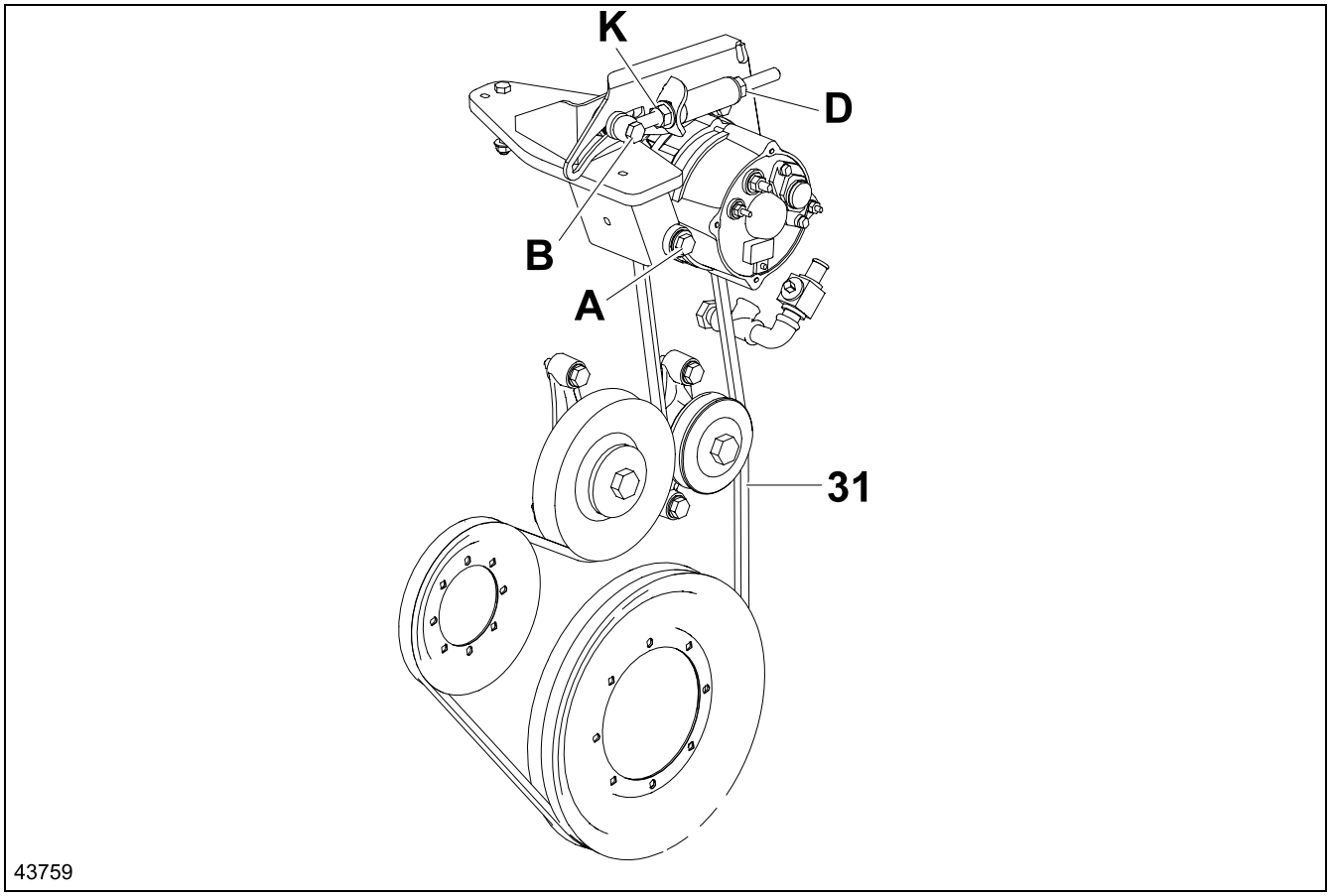
Installing and adjusting the compressed-air compressor drive belt (30)

Install compressed-air compressor drive belt (30).

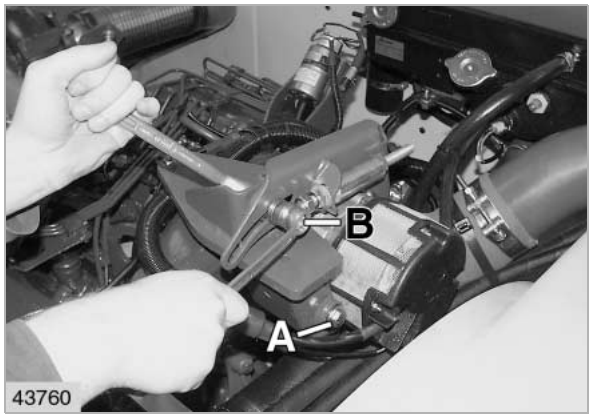
Tension compressed-air compressor using the hex. bolt (S).

Tighten hex. bolts (A) of the compressed-air compressor foot.

(Fig. 30, 31, 32)



33



34

Removing the alternator drive belt (31)

Removing the fan drive belt (27), see page 7.3.15

Removing the radiator chaff screen intermediate drive belt (25), see page 7.3.12

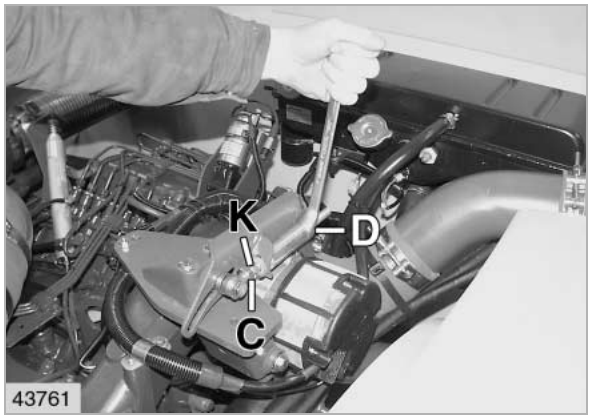
Removing the compressed-air compressor drive belt (30), see page 7.3.21

Removing the air conditioner compressor drive belt (29), see page 7.3.19

Loosen the hex. bolt (A) from the alternator holder.

Unscrew hex. bolt (B) from the eyebolt.

(Fig. 33, 34)

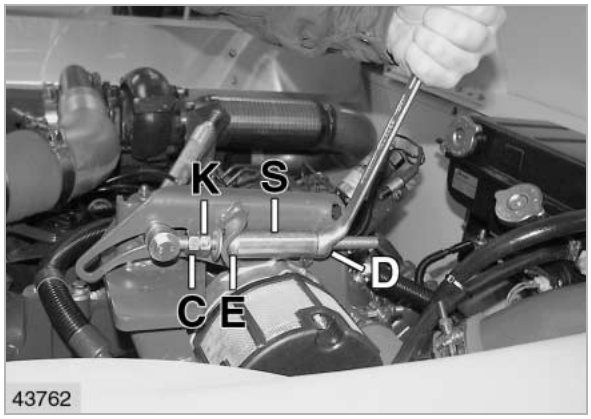


35

Slacken off the lock nut (K). Turn back hex. nut (D) until the tension of V-belt (31) is relieved.

Remove V-belt (31).

(Fig. 33, 35)



36

Installing and adjusting the alternator drive belt (31)

CAUTION!

In case of heavy belt growth, a hex. nut (C) can be mounted as a limit stop.

1. Install V-belt (31).
2. Tighten hex. nut (D) until the spacer tube (S) makes level contact with the ball washer (E).
3. Tighten the lock nut (K).
4. Tighten hex. bolt (B) of eyebolt and hex. bolt (A) of alternator holder.

(Fig. 33, 34, 36)

5. *Installing and adjusting the air conditioner compressor drive belt (29)*, see page 7.3.20
6. *Installing and adjusting the compressed-air compressor drive belt (30)*, see page 7.3.22
7. *Installing and adjusting the rotary chaff screen intermediate drive belt (25)*, see page 7.3.13
8. *Installing and adjusting the fan drive belt (27)*, see page 7.3.16

9. Let engine run for approx. 15 minutes and repeat adjusting procedure.

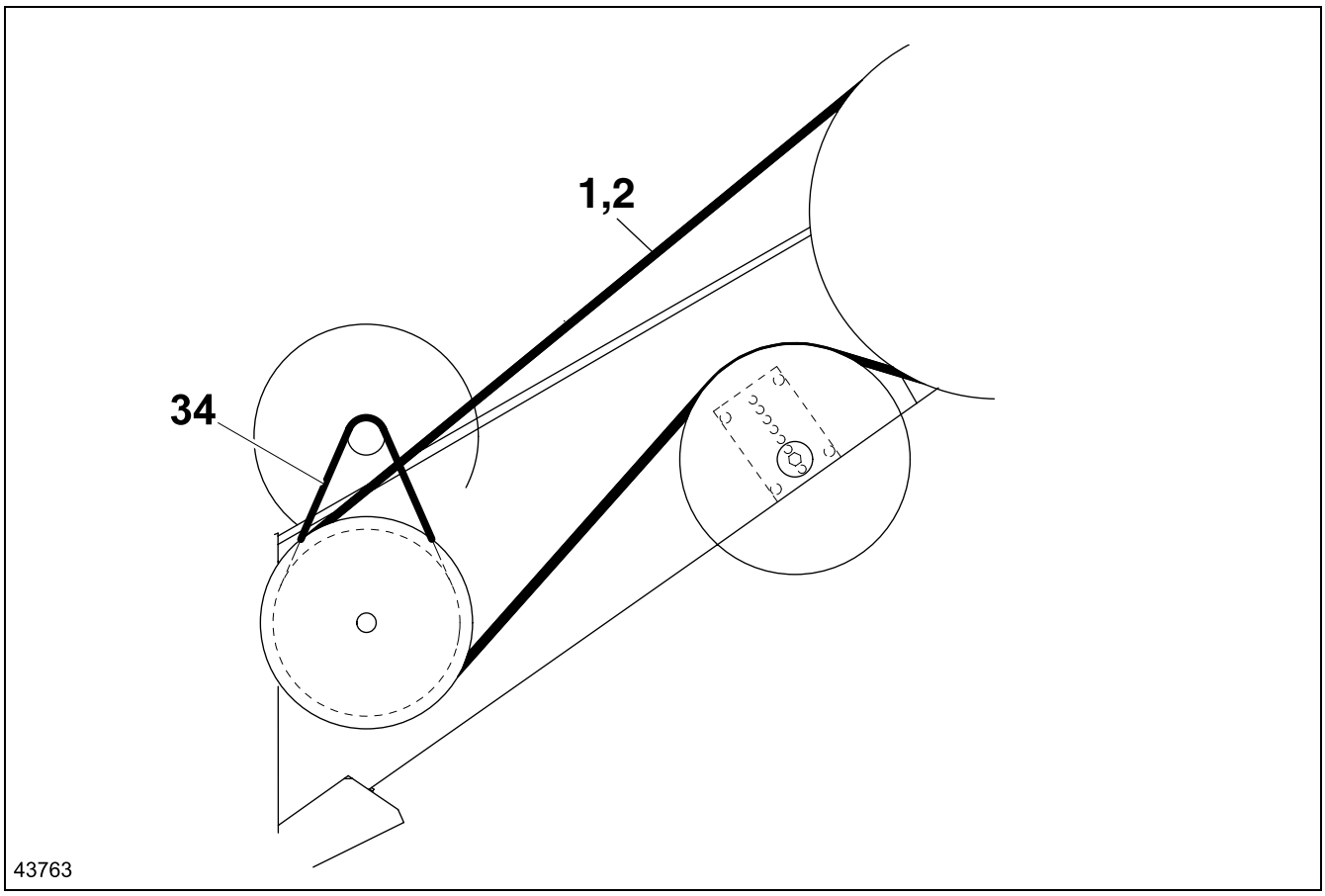
   To do this, unscrew the hex. bolts (A and B). Slacken off the lock nut (K).

   Tighten hex. nut (D) until the spacer tube (S) makes level contact with the ball washer (E).

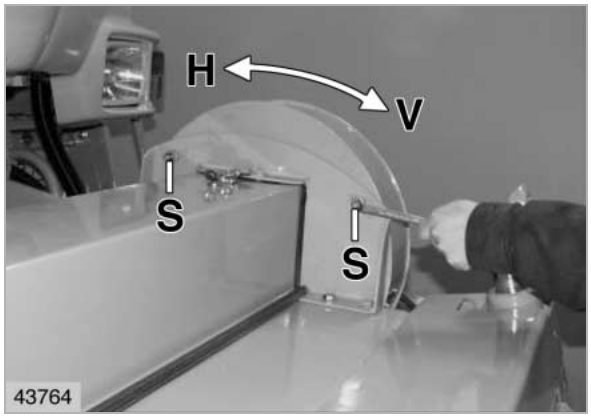
   Tighten the lock nut (K).

   Tighten hex. bolt (B) of eyebolt and hex. bolt (A) of alternator holder.

(Fig. 33, 34, 35)



37



38

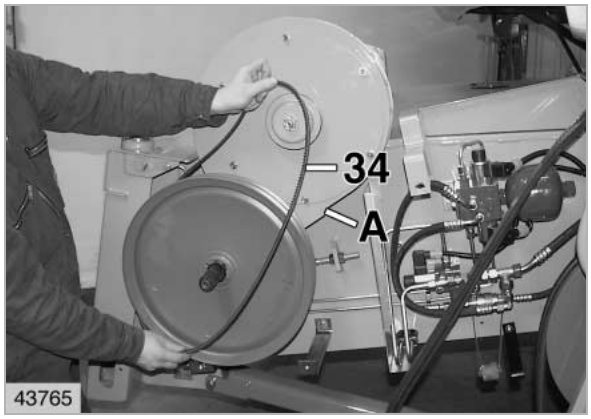
Removing the feed rake conveyor suction blower drive belt (34)

Remove cutterbar drive belt (1) or (2) at the front.

Slightly loosen the hex. bolt (A).

Loosen the two hex. bolts (S) and pull the blower to the front (V) until the tension of belt (34) is released.

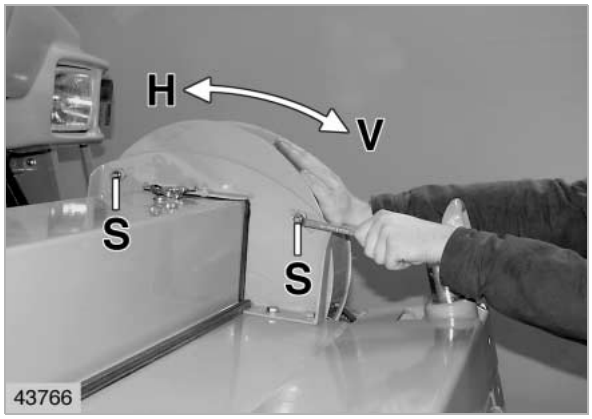
(Fig. 37, 38, 39)



39

Remove the feed rake conveyor suction blower drive belt (34).

(Fig. 39)



40

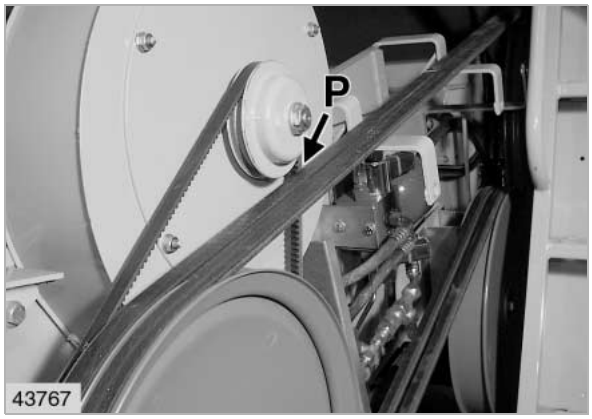
Installing and adjusting the feed rake conveyor suction blower drive belt (34)

Install belt (34).

Push the suction blower to the rear (H) by hand until belt (34) is sufficiently tensioned. Tighten the two hex. bolts (S).

Tighten the hex. bolt (A).

(Fig. 39, 40)



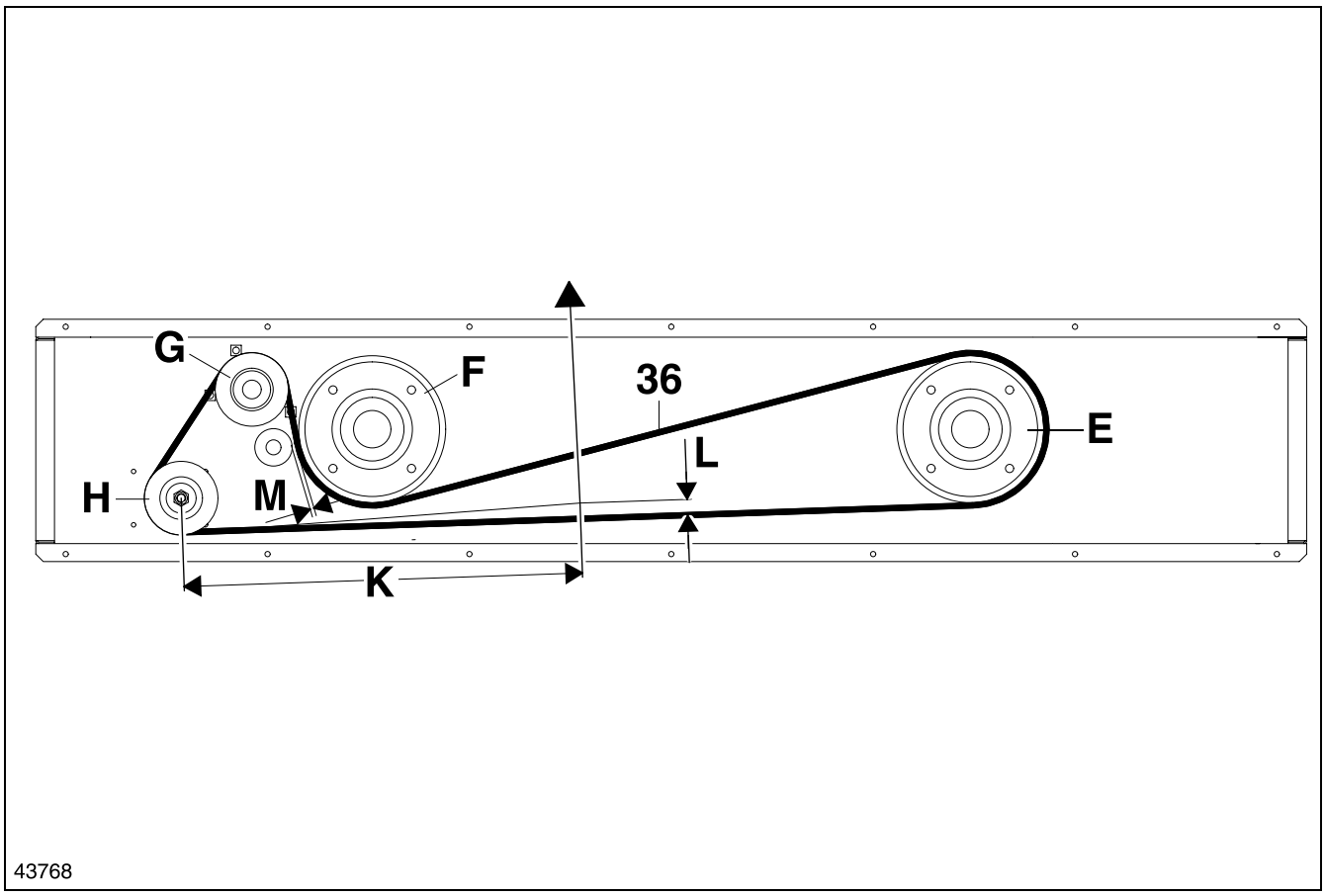
41

Install and adjust the cutterbar drive belt (1) and/or (2).

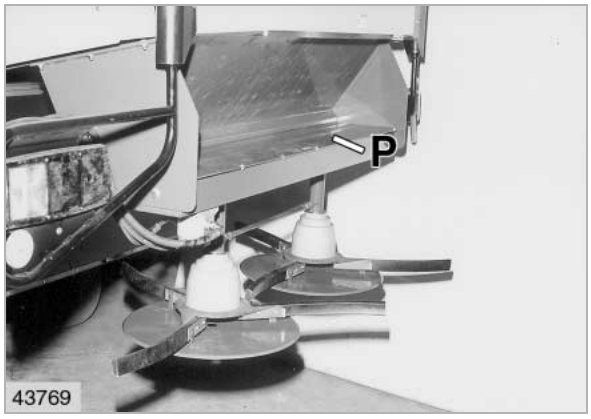
CAUTION!

The belts must not have contact at (P). Align pulley if required – see page 7.4.2, *Installing the front pulley of cutterbar drive (1)*.

(Fig. 41)



42

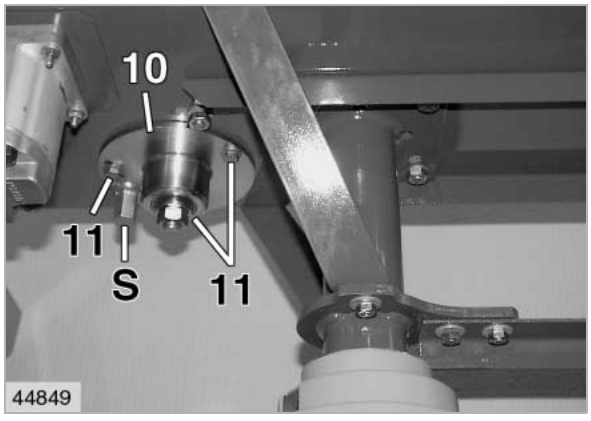


43

Removing the straw spreader drive belt (36)

Unscrew plate (P) and pull it out to the rear.

(Fig. 43)

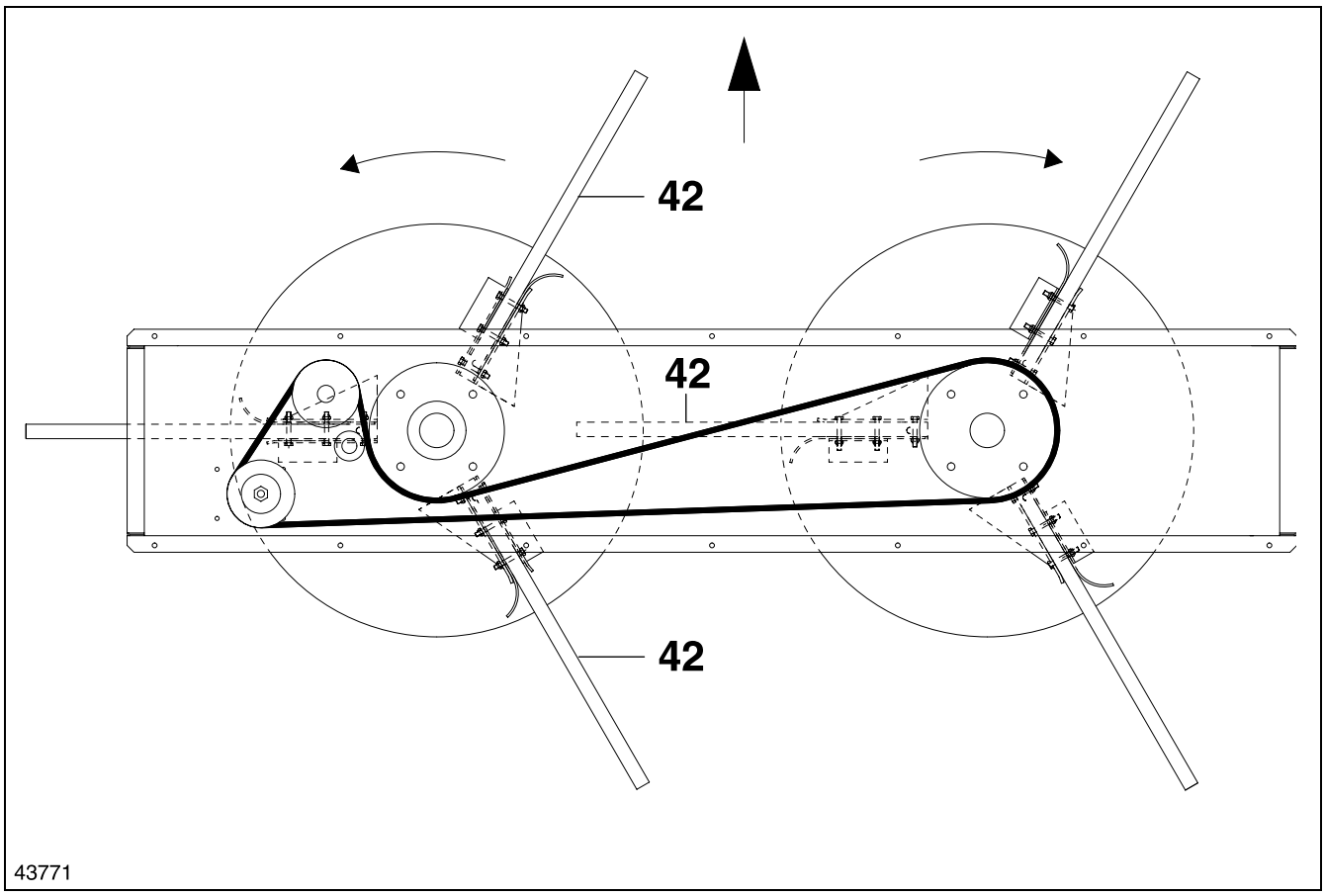


44

Loosen the hex. bolts (11) of the bearing housing (10).

Move the bearing housing (10) and first remove belt (36) from the toothed belt pulley (E). Then remove belt (36) from the toothed belt pulleys (F, G and H).

(Fig. 42, 44, 49)



45

Installing and adjusting the straw spreader drive belt (36)

1. Install belt (36) on the toothed belt pulleys (F, G and H). Now install belt (36) on toothed belt pulley (E).

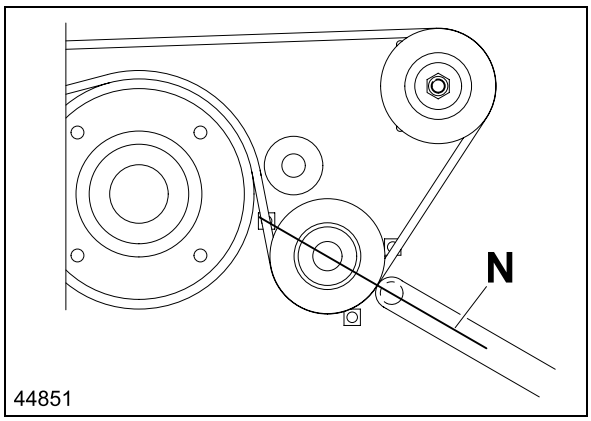
CAUTION!

Install the toothed belt (36) so that the spreader blades (42) of both rotors are offset to each other (60° offset).

(Fig. 42, 45)



46



47

2. Pre-tension the belt (36) by twisting the bearing housing (10) to **150 Nm** using the hex. nut (S).

CAUTION!

The torque wrench (action to the left) must be aligned (N) with the pivot point of the bearing housing (10).

3. Tighten the hex. bolts (11) of the bearing housing (10).

(Fig. 44, 46, 47)

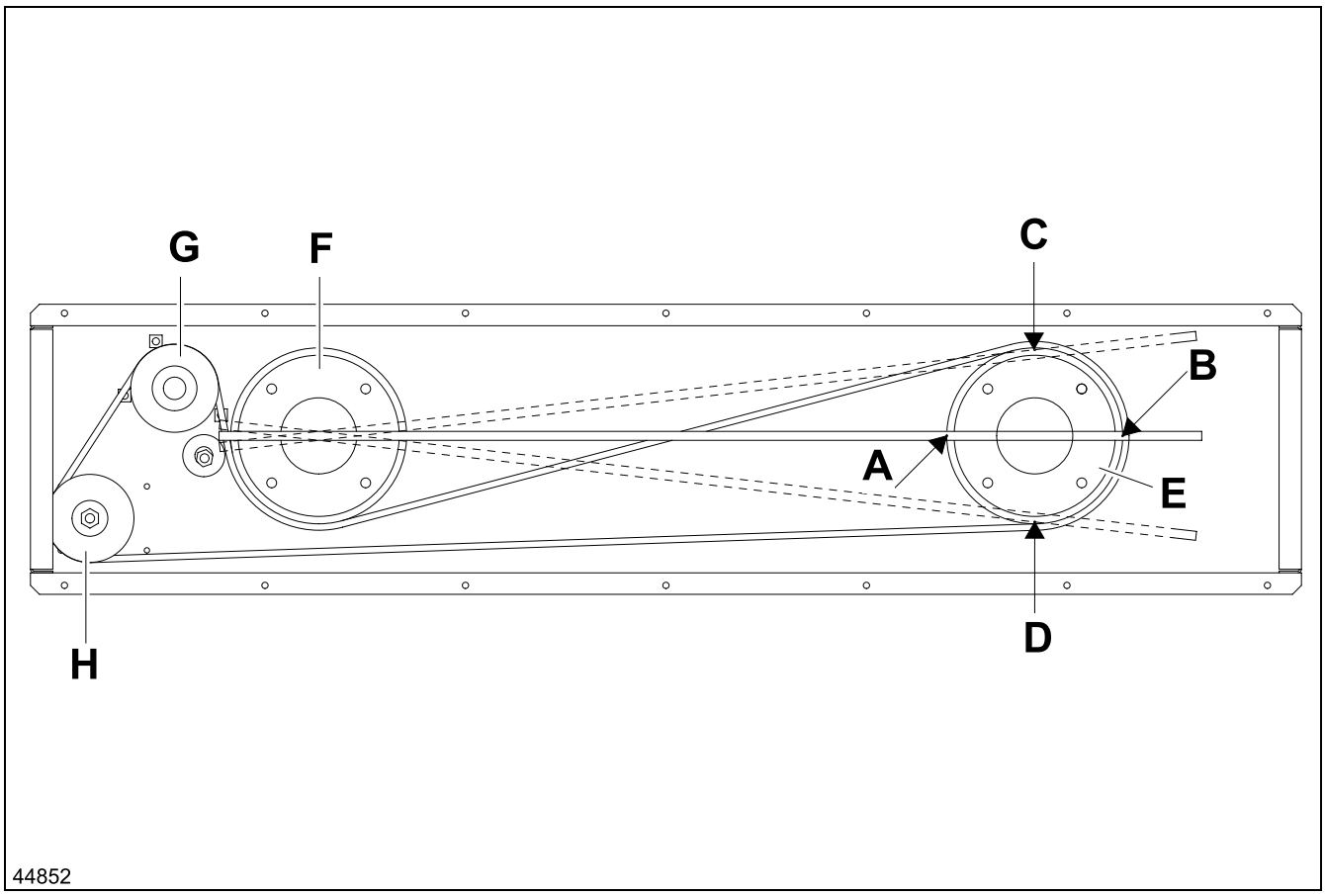
4. Check belt tension.

   A force of **75 ± 3 N** must be applied to the belt at deflection point (L). Observe clearance (K).

   K = 530 mm
   L = 21 mm

   If required, loosen the bearing housing (10) one more time and twist correspondingly.

(Fig. 42, 44, 47)



48

5. Check and if necessary adapt the flatness deviations of toothed belt pulleys (F and H) using a ruler.

   To do this, adjust the toothed belt pulley (F) so that it is level with the toothed belt pulley (H) of the hydraulic motor (16). Adjust using the short support (47), the long support (49) or the mounting bracket (46).

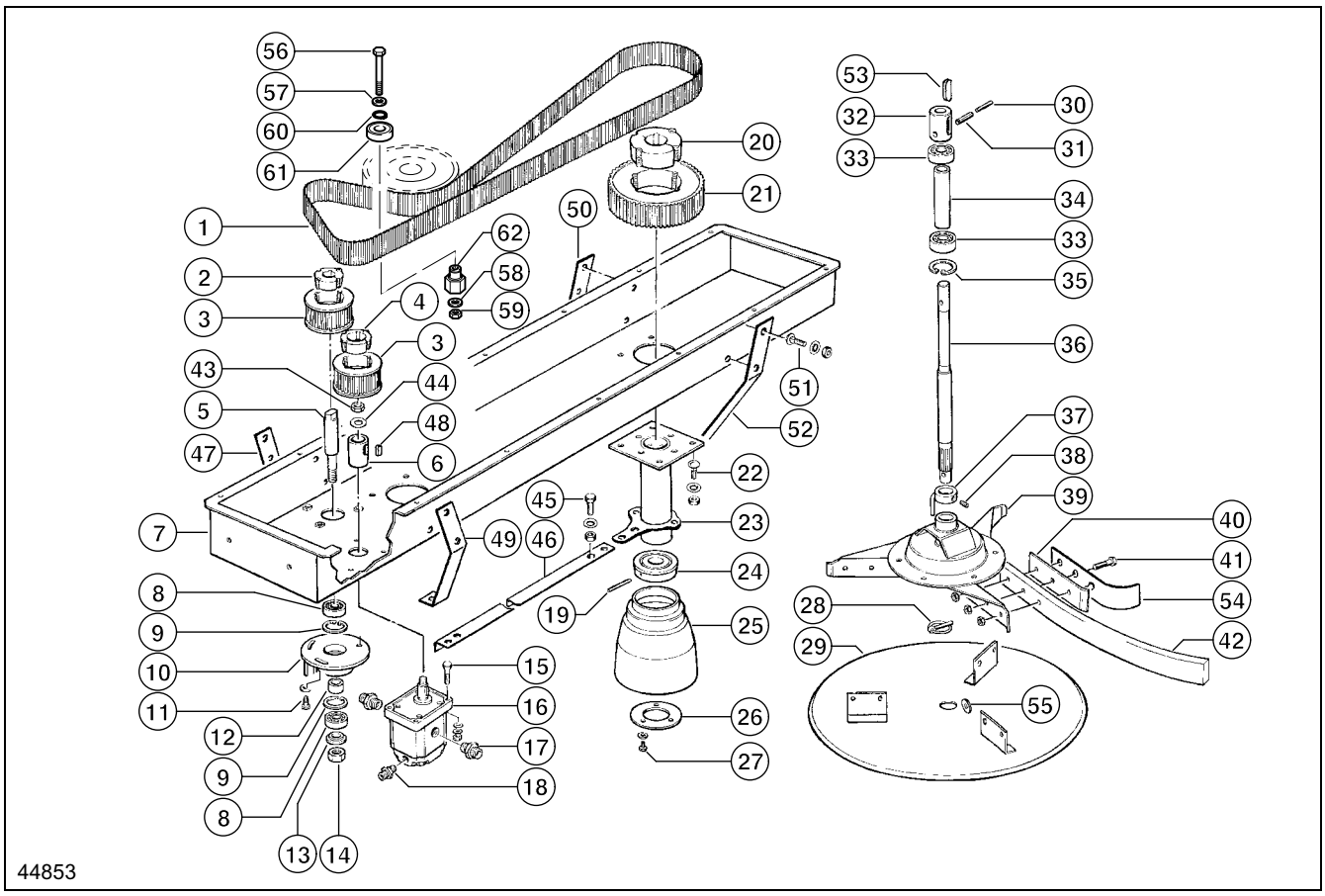
6. Check and if necessary adapt the flatness deviations of toothed belt pulleys (F and E) using a ruler.

   To do this, adjust the toothed belt pulley (E) so that it is level with the toothed belt pulley (F).

   The flatness deviation may be **1 mm** max. at points (A, B, C and D).

   Adjust using the short support (50), the long support (52) or the mounting bracket (46).

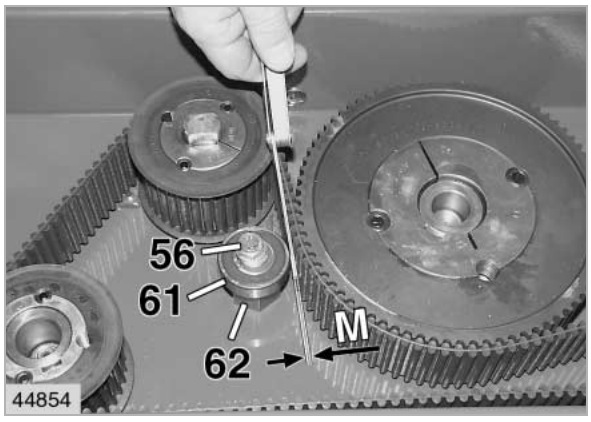
(Fig. 48, 49)



49

7. Check belt tension one more time and adapt if required.

(Fig. 47)



50

8. Set the clearance (M) between roller bearing (61) and belt (36).

   M = 1.2 mm

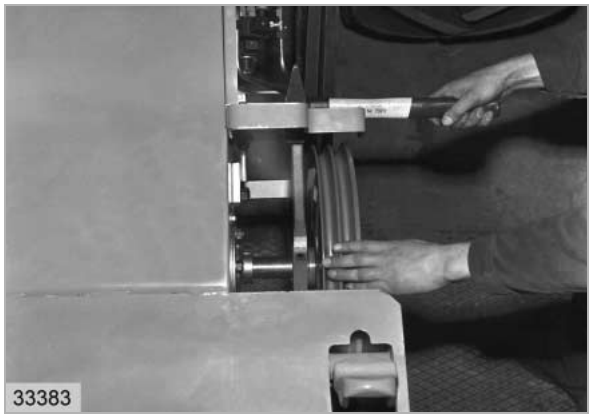
   To do this, slacken off the hex. bolt (56) and turn the eccentric (62) correspondingly. Now tighten the hex. bolt (56).

(Fig. 42, 49, 50)

9. Bolt down plate (P).

(Fig. 43)

CUTTERBAR DRIVE



1

Removing the front pulley of cutterbar drive (1)

Remove cutterbar drive belt (1) or (2) at the front.

Remove the feed rake conveyor suction blower drive belt (34) if necessary – see page 7.3.26, *Removing the feed rake conveyor suction blower drive belt (34)*.

Remove the clamping bolt from the clamping hub.

Open the clamping hub slightly with a chisel and remove the pulley.

(Fig. 1, 2)



2



3



4

Installing the front pulley of cutterbar drive (1)

Slide the pulley on the shaft, then install and adjust cutterbar drive belt (1) or (2).

If necessary, *Installing and adjusting the feed rake conveyor suction blower drive belt (34)*, see page 7.3.27

Align the pulley with a ruler.

Check the alignment by turning the belt by hand.

ATTENTION!

The belts (1) or (2) must not touch the belt (34) or the pulley of the suction blower.

The belts (1) or (2) must not touch the cutterbar drive deflection pulley (1) either.

Firmly tighten the clamping bolt in the clamping hub.

Torque settings

Hex. bolt M 12 x 85-8.8 = **78 Nm**
Cheese-head screw M 12 x 40-10.9 = **110 Nm**

Install the guard.

(Fig. 3, 4)



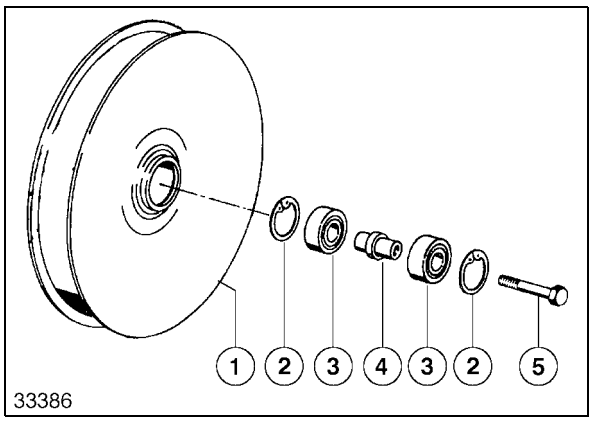
5

Removing the deflection pulley of cutterbar drive (1)

Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.1

Unscrew the hex. bolt and remove the deflection pulley.

(Fig. 5)



6

Deflection pulley of cutterbar drive (1), disassembled

1 Deflection pulley
2 Circlip
3 Deep-groove ball bearing 6305-2RS-C3 DIN 625
4 Hollow pin
5 Hex. bolt M 16 x 100 DIN 931-8.8

(Fig. 6)

Installing the deflection pulley of cutterbar drive (1)

Install deflection pulley according to Fig. 6.

Using hex. bolt (5), bolt the deflection pulley to the bracket.

Tightening torque = 130 Nm

(Fig. 5, 6)

Removing the slip clutch of cutterbar drive (1)

Remove the left-hand drive wheel.

Remove guard.

Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.1

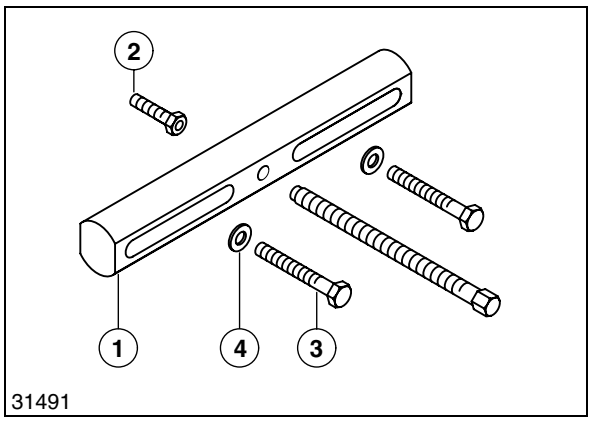
Remove the V-belt pulley from the slip clutch.



7

Remove the M 16 x 50 hex. bolt from the clutch and, using the special tool, remove the complete clutch.

(Fig. 7)

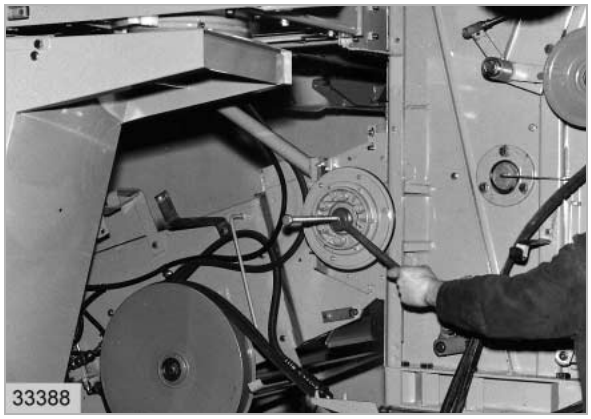


8

Special tool:

1 Puller bridge, part no. 181 621.0
2 Hex. bolt M 16 x 20, head-centred
3 Hex. bolt M 10 x 110 DIN 931-8.8
part no. 090 028.0
4 Washer 11

(Fig. 8)

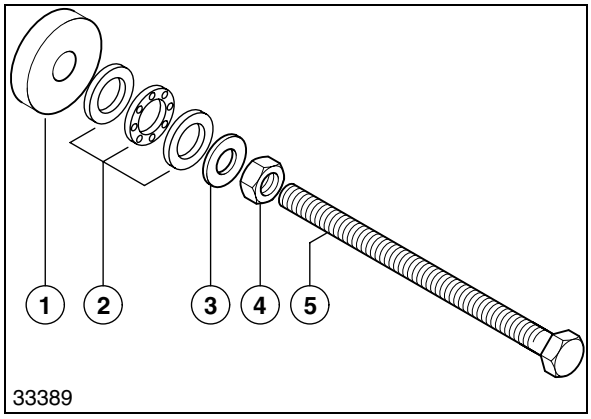


9

Installing the slip clutch of cutterbar drive (1)

Using the special tool, install the complete clutch on the shaft.

(Fig. 9)



10

Special tool:

1 Washer ∅ 55 x ∅ 17 x 12, part no. 575 774.0
2 Axial grooved ball bearing, part no. 235 983.0
3 Washer ∅ 17, part no. 235 127.2
4 Hex. nut M 16 DIN 934, part no. 236 173.0
5 Hex. bolt M 16 SP DIN 933-8.8
part no. 237 375.1

(Fig. 10)

Tighten the slip clutch firmly onto the shaft using the M 16 x 50 hex. bolt.

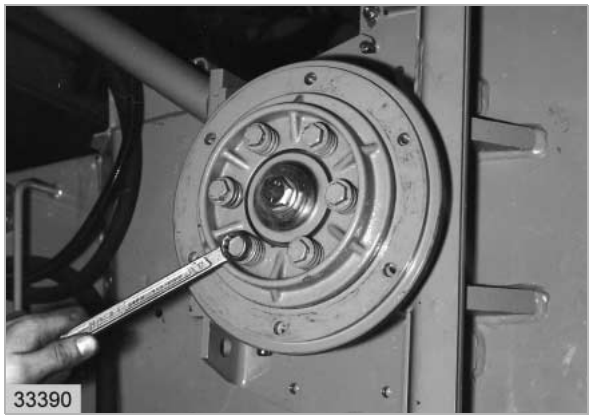
Tightening torque = 195 Nm

Bolt the V-belt pulley to the clutch.

Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.2

Install the guard.

Install the left-hand drive wheel.



11

Replacing the slip clutch linings of cutterbar drive (1)

Remove the left-hand drive wheel.

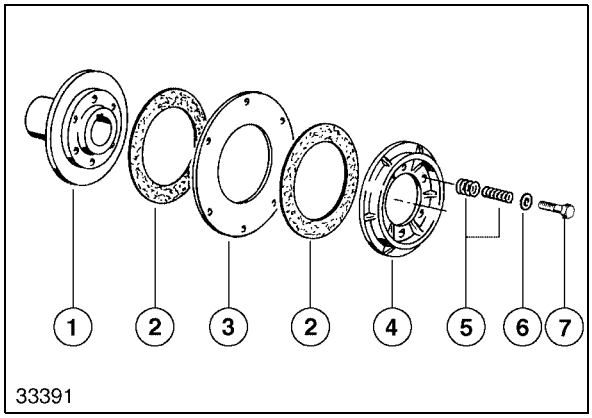
Remove guard.

Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.1

Remove the V-belt pulley from the slip clutch.

Remove the locking wire and disassemble the clutch.

(Fig. 11)

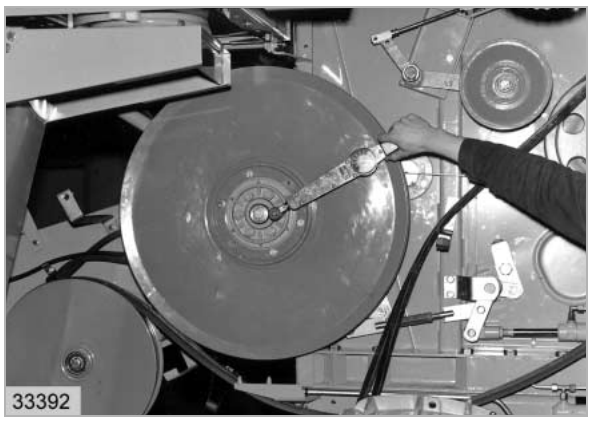


12

Slip clutch of cutterbar drive (1), dismantled

1 Clutch hub
2 Clutch lining
3 Clutch plate
4 Cover
5 Compression spring
6 Washer
7 Hex. bolt M 10 x 50

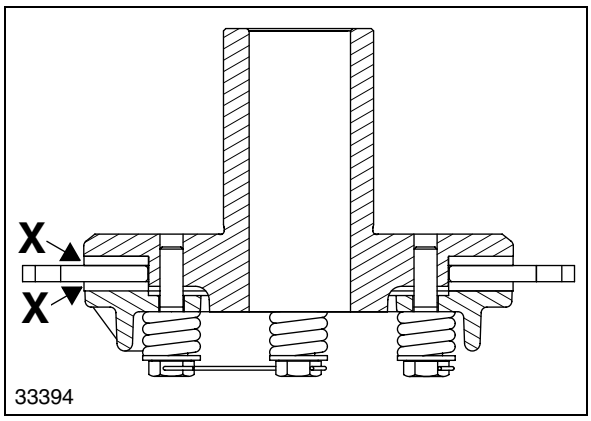
(Fig. 12)



13



14



15

1. Install clutch according to Fig. 12.

CAUTION!

The clutch linings must be clean and free from any grease or oil.

2. Tighten the hex. bolts (7) evenly to **30 Nm** and then back off by **180**°.
3. Bolt the pulley into position, but ensure that two opposing bolts are left out.
4. Jam the top feed rake shaft.
5. Bolt the test bridge part no. 181 623.0 into place.
6. Allow the slip clutch to slip twice first.
7. Now check the slip torque and adjust it if necessary.

   Slip torque = 840 Nm ± 40 Nm
8. Seal the clutch linings with paint at (X).
9. Remove the test bridge and screw in the two missing bolts.

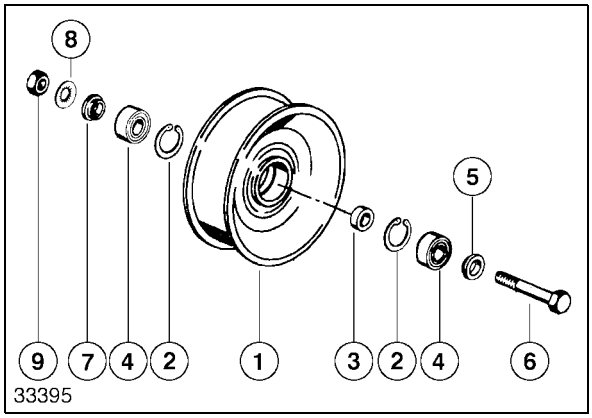
   Release the top feed rake shaft.
10. Install the locking wire.
11. *Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)*, see page 7.2.2
12. Install the guard and the drive wheel.

(Fig. 11, 12, 13, 14, 15)

Removing the jockey pulley of cutterbar drive (1)

Release the tension of cutterbar drive belt (1).

Unbolt the jockey pulley.

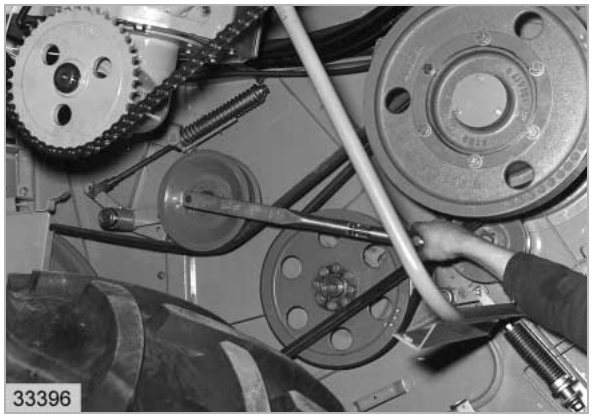


16

Jockey pulley of cutterbar drive (1), disassembled

1 Jockey pulley
2 Circlip
3 Spacer ring
4 Deep groove ball bearing
5 Spacer washer
6 Hex. precision-fit bolt M 16 x 85 DIN 7968
7 Spacer washer
8 Contact washer A 16
9 Hex. nut M 16

(Fig. 16)



17

Assemble the jockey pulley according to Fig. 16.

Bolt the jockey pulley to the bracket with hex. bolt (6).

Tightening torque = 130 Nm

(Fig. 17)

Removing the rear pulley of cutterbar drive (1)

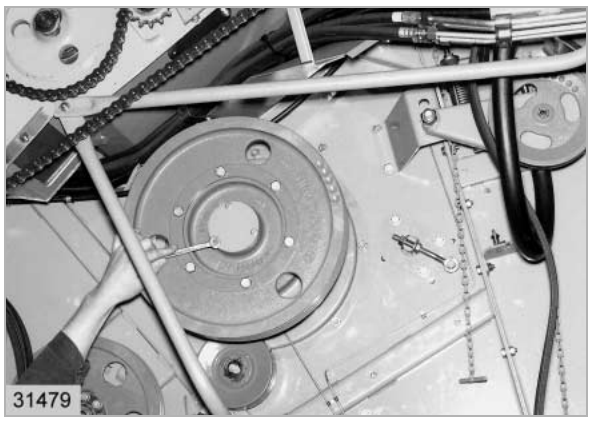
(up to serial no. ...)

Remove the cutterbar drive belt (1) at the rear – see page 7.2.1, *Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive)*.

Removing the impeller drive belt (4), see page 7.2.7

DANGER!

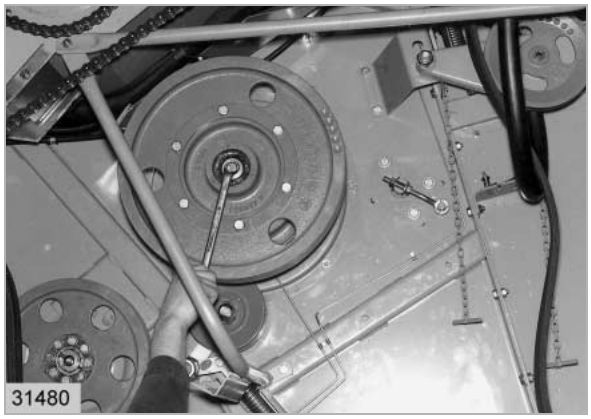
Follow the correct order of work steps when releasing the tension of spring-loaded cylinder **– Danger of injury!**



18

Remove the three hex. bolts and remove the cover.

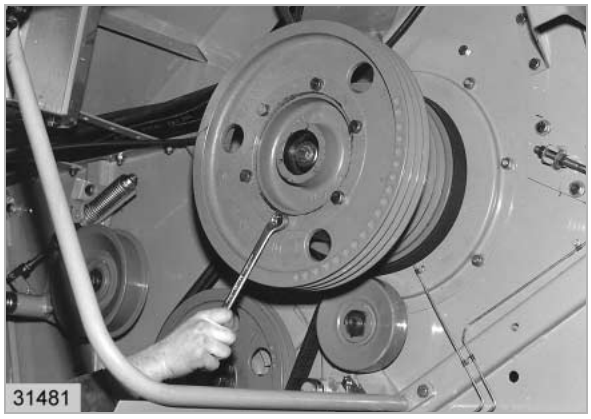
(Fig. 18)



19

Unscrew the hex. bolt from the face end of impeller shaft.

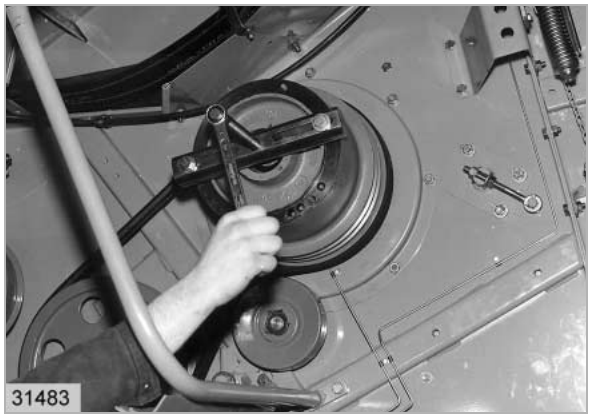
(Fig. 19)



20

Remove the front V-belt pulley.

(Fig. 20)

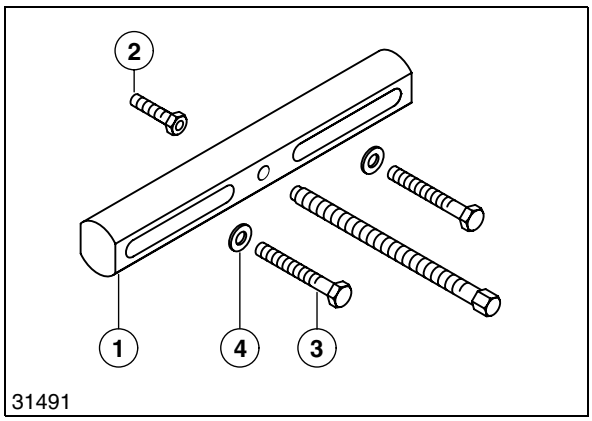


21

Screw the head-centred hex. bolt M 12 x 30 into the shaft.

Using the special tool, pull off the rear V-belt pulley.

(Fig. 21)

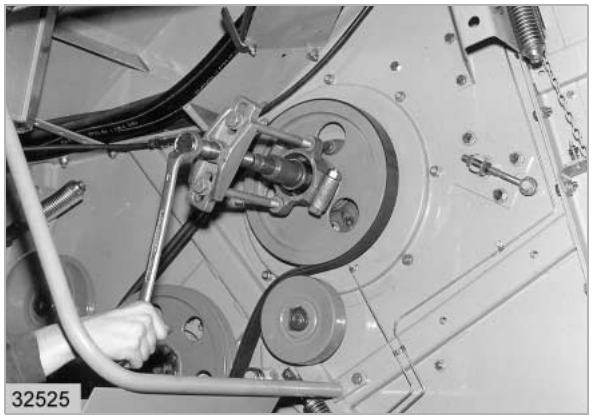


22

Special tool:

1 Puller bridge
part no. 181 621.0
2 Hex. bolt M 12 x 30, head-centred
3 Hex. bolt M 12 x 80
part no. 235 560.0
4 Washer 13, part no. 236 844.0

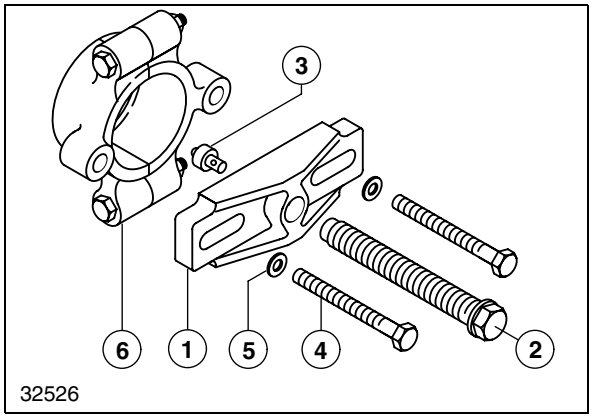
(Fig. 22)



23

Remove the inner race ring of the bearing and the spacer ring from the shaft, using the special tool.

(Fig. 23)

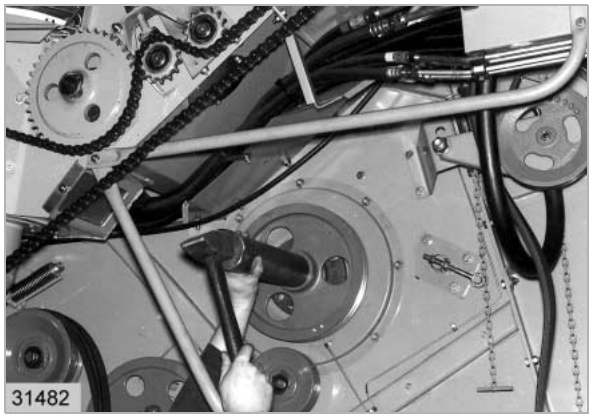


24

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 16 x 260
part no. 235 816.0 – 2 pieces
5 Washer 17, part no. 235 127.2 – 2 pieces
6 Complete puller assembly, part no. 181 857.0

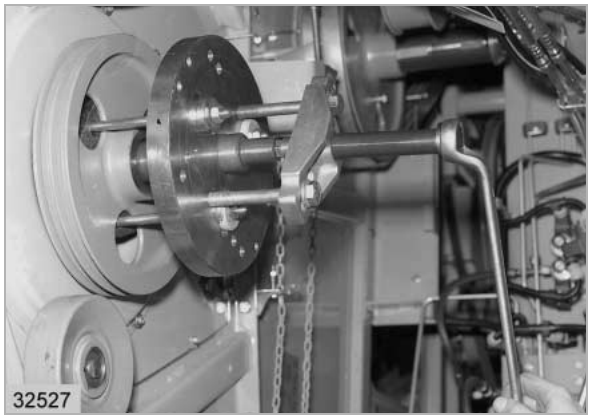
(Fig. 24)



25

Using a block-ended tube ∅ 60 x 400 long, give the hub of the pulley a good sharp blow. This should release the cones securing the pulley and the pulley should become loose. The block-ended tube must fit over the tapered ring.

(Fig. 25)

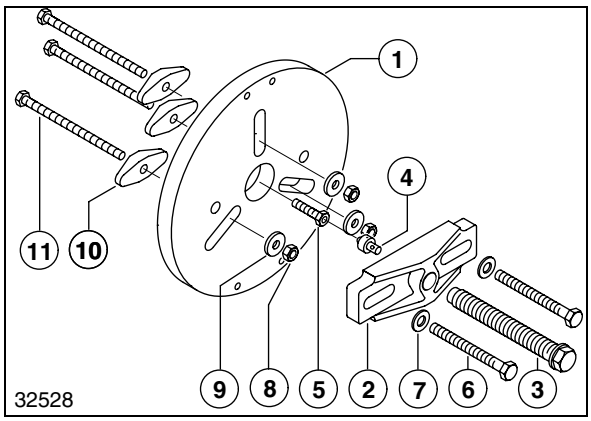


26

Pull off the cones and the V-belt pulley from the shaft, using the special tool.

For this, screw a M 12 x 30 head-centred hex. bolt into the shaft.

(Fig. 26)



27

Special tool:

1 Puller plate, part no. 181 617.0
2 Puller bridge, part no. 181 800.0
3 Threaded spindle, part no. 181 801.1
4 Centraliser with ball, part no. 181 849.0
5 Hex. bolt M 12 x 30 with centralising head
6 Hex. bolt M 16 x 140, part no. 242 795.0
7 Washer 17, part no. 235 127.2
8 Hex. nut M 12, part no. 236 172.0
9 Washer 13, part no. 236 844.0
10 Puller shoe, part no. 181 836.0
11 Hex. bolt M 12 x 180, part no. 236 302.0

(Fig. 27)



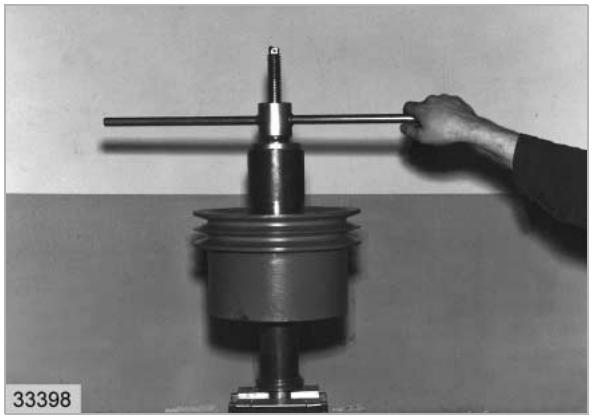
28

Dismantling the rear pulley of cutterbar drive (1)
(up to serial no. ...)

Remove the circlip.

Remove the snap ring using a screwdriver or a similar tool.

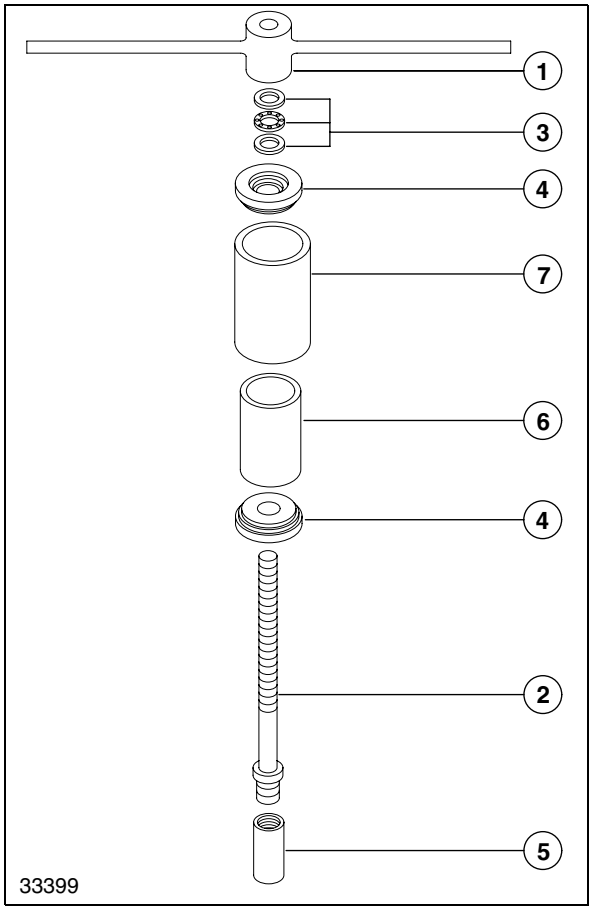
(Fig. 28)



29

Pull out the angular contact ball bearing with spacers (inside and outside), intermediate ring and spacer ring, using the special tool.

(Fig. 29)

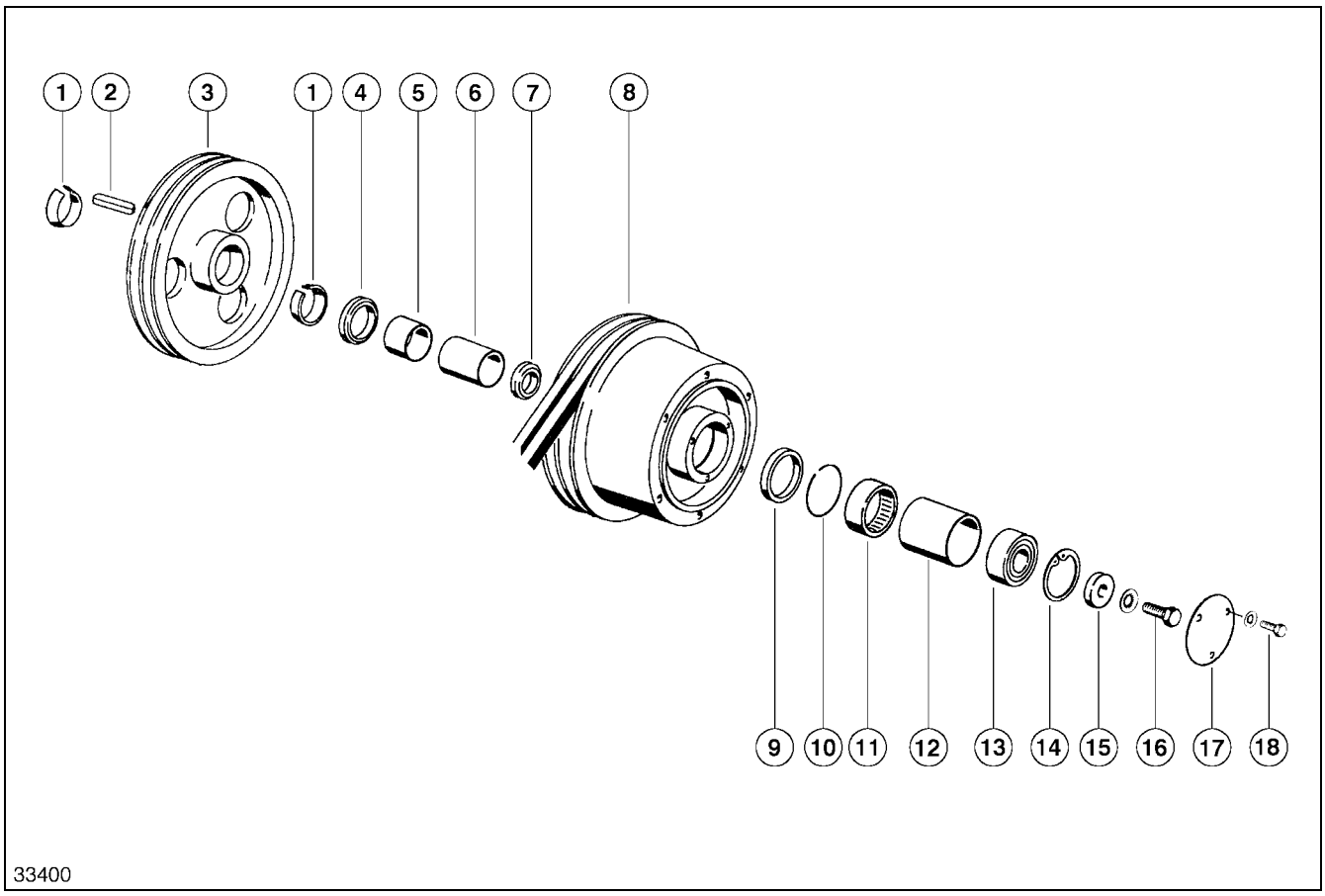


30

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Locating disc, part no. 181 879.0
5 Socket, part no. 181 881.1
6 Tube, outside ∅ 70 x 170 long (self-sourced)
7 Tube, inside ∅ 80 x 150 long (self-sourced)

(Fig. 30)

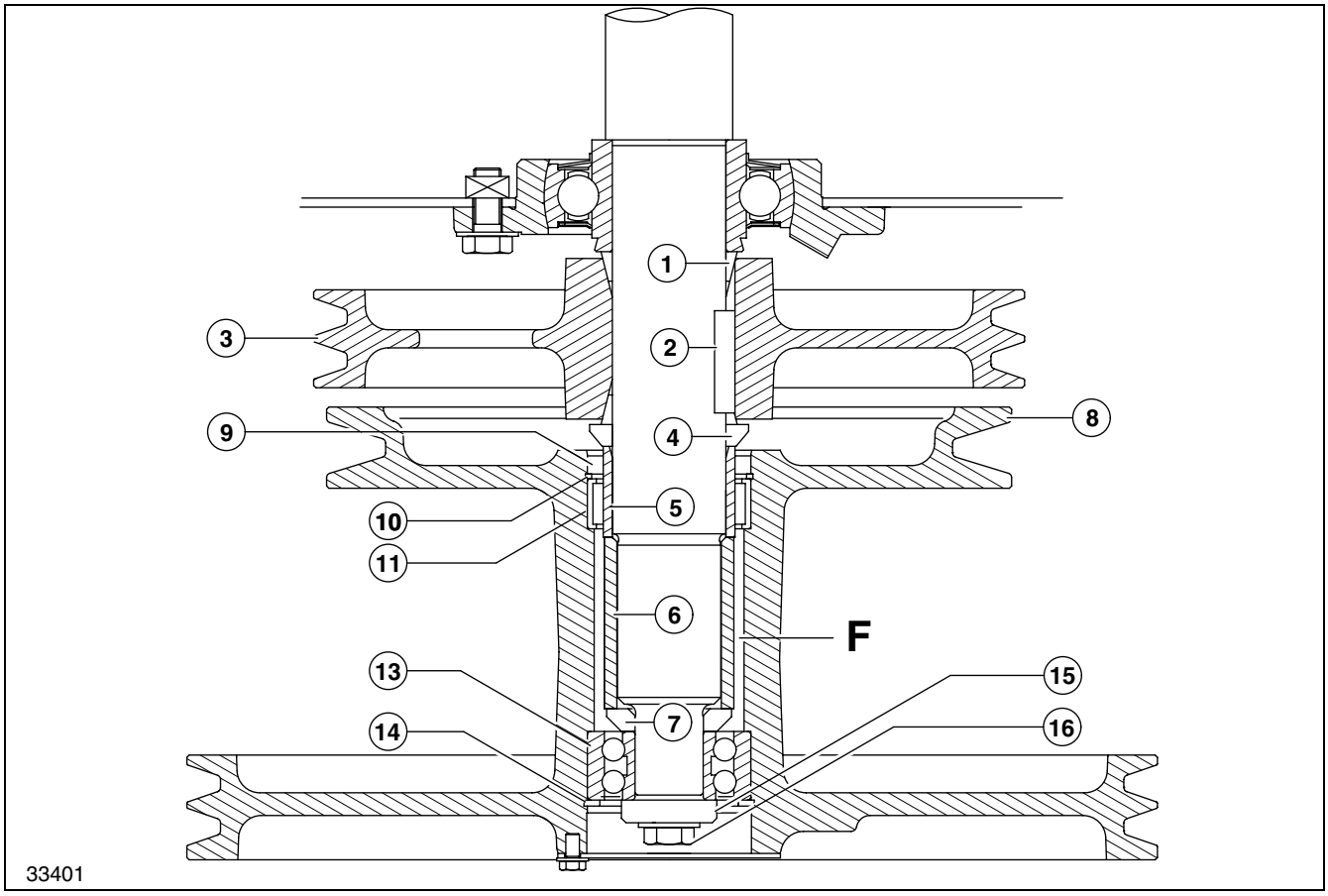


31

Rear pulley of cutterbar drive (1), disassembled:
(up to serial no. ...)

1 Tapered ring
2 Parallel key A 14 x 9 x 56 DIN 6885
3 V-belt pulley
4 Spacer ring
5 Inner ring Ir 50 x 58 x 40
6 Spacer sleeve
7 Intermediate ring
8 V-belt pulley
9 Shaft seal A 58 x 72 x 8 DIN 3760
10 Snap ring
11 Needle bearing RNA 4910
12 Spacer bushing (up to serial no. …)
13 Angular contact ball bearing 3306 RS / C3
DIN 628
14 Circlip 72 x 2.5 DIN 472
15 Washer
16 Up to serial no. …:
Hex. bolt M 12 x 35 DIN 933-10.9
Contact washer A 12
From serial no. …:
Hex. bolt M 16 x 60 MK DIN 931-10.9
17 Cover
18 Hex. bolt M 6 x 12 DIN 933-8.8
Contact washer A 6

(Fig. 31)



32



33

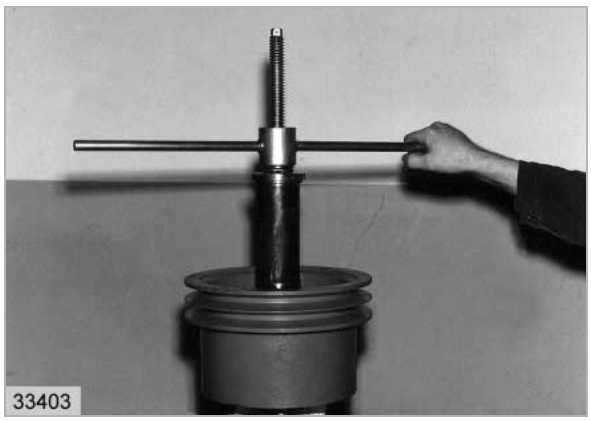
Assembling the rear pulley of cutterbar drive (1)
(up to serial no. ...)

1. Insert the angular contact ball bearing (13) and the circlip (14) into the V-belt pulley (8). Observe installation position!

CAUTION!

Fill bearing assembly completely with multi-purpose grease DIN 51825 part no. 147 451.0.

(Fig. 31, 32, 33)



34

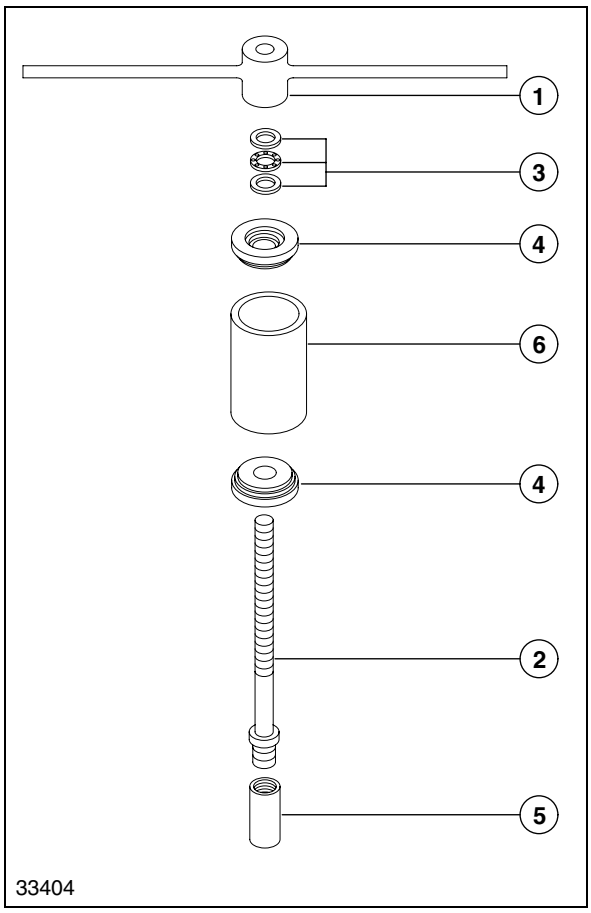
2. Insert the two spacer bushings (12 and 6) as well as the intermediate ring (7).

   Press the needle bearing (11) into position using the special tool.

CAUTION!

Fill space (F) completely with multi-purpose grease DIN 51825 part no. 147 451.0.

(Fig. 31, 32, 34)



35

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Locating disc, part no. 181 879.0
5 Sleeve, part no. 181 881.1
6 Tube, outside ∅ 70 x 170 long (self-sourced)

(Fig. 35)



36

3. Press in the inner ring (5) and the shaft seal (9), ensuring they are fitted in their correct installation position.

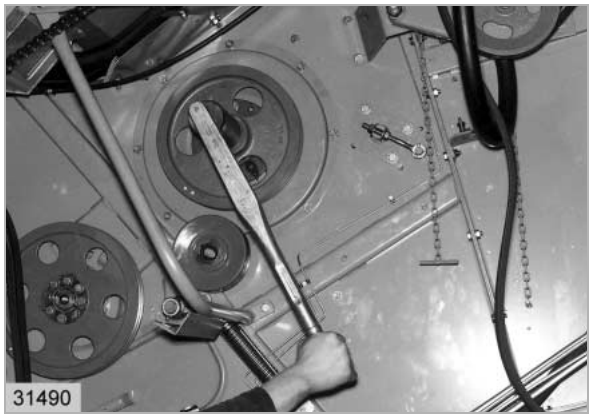
(Fig. 31, 32, 36)

Installing the rear pulley of cutterbar drive (1)

(up to serial no. ...)

CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 533.1 applied prior to installation.

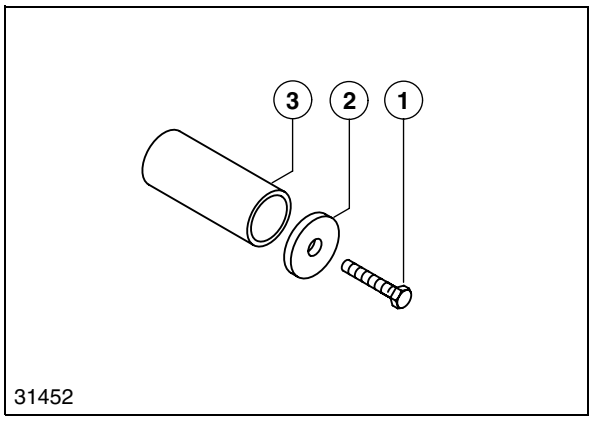


37

1. Slide the rear tapered ring (1), the parallel key (2) and the V-belt pulley (3) onto the shaft.
2. Then place the front taper ring in position and, using the special tool, pre-tighten it.

   Tightening torques
   M 16-10.9 = 180 Nm
   M 12-10.9 = 125 Nm

(Fig. 31, 32, 37)



38

Special tool:

1 Hex. bolt M 12 x 35 DIN 933-10.9, part no. 238 419.0
2 Washer ∅ 75 x ∅ 13 x 6 part no. 642 929.0
3 Tube, inside ∅ 51 x 166 long (self-sourced)

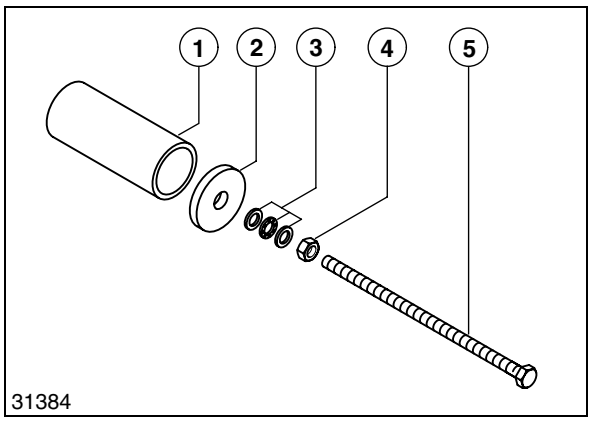
(Fig. 38)



39

3. Press the pre-assembled V-belt pulley (8) on the shaft using the special tool.

(Fig. 39)

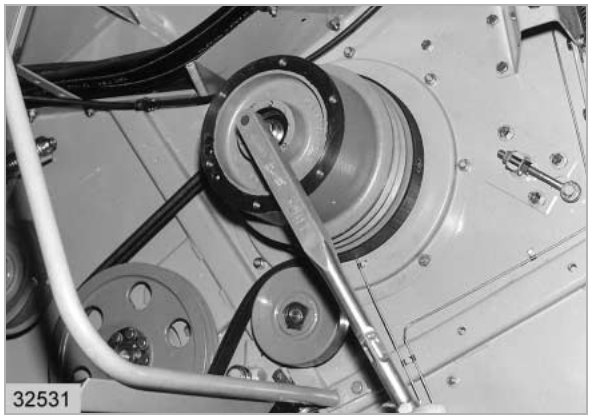


40

Special tool:

1 Tube, inside ∅ 32 x 100 long (self-sourced)
2 Washer ∅ 45 x ∅ 13 x 10
3 Axial grooved ball bearing, part no. 177 899.0
4 Hex. nut M 12 DIN 934, part no. 239 418.0
5 Hex. bolt BM 12 x 180 DIN 564-8.8, part no. 236 302.0

(Fig. 40)



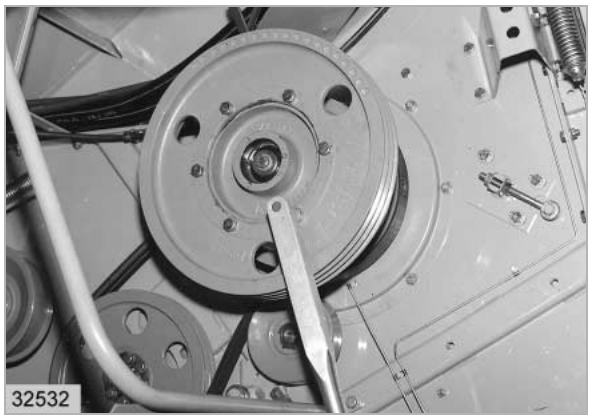
41

4. From serial no. …:
Insert hex. bolt (16) with liquid locking compound, e.g. DELO-ML 5349, and washer (15) and bolt it down.

Up to serial no. …:
Screw in the hex. bolt (16) with washer (15) and tighten.

Tightening torques
M 16-10.9 = 180 Nm
M 12-10.9 = 125 Nm

(Fig. 41)



42

5. Place the V-belt pulley into position and tighten.

Tightening torque = 78 Nm

(Fig. 42)



43

6. Fill the hollow with grease.

Clean the contact surfaces thoroughly and apply a sealing agent. Bolt on the cover (17).

(Fig. 43)

7. *Installing and adjusting the impeller drive belt (4)*, see page 7.2.8

Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.2

Removing the rear pulley of cutterbar drive (1)

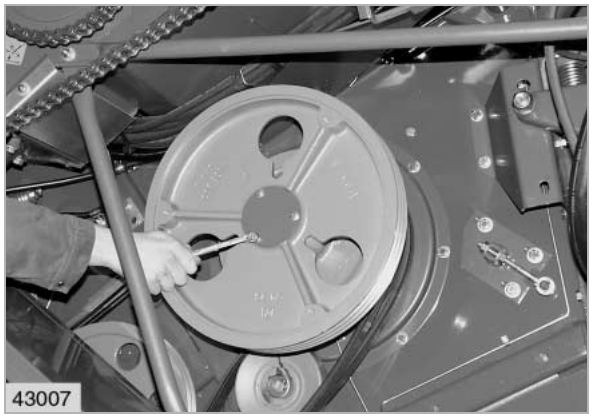
(from serial no. ...)

Remove the cutterbar drive belt (1) at the rear – see page 7.2.1, *Removing the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive).*

Removing the impeller drive belt (4), see page 7.2.7

DANGER!

Follow the correct order of work steps when releasing the tension of spring-loaded cylinder **– Danger of injury!**



44

Remove the three hex. bolts and remove the cover.

(Fig. 44)



45

Remove the hex. bolt from the face end of impeller.

(Fig. 45)

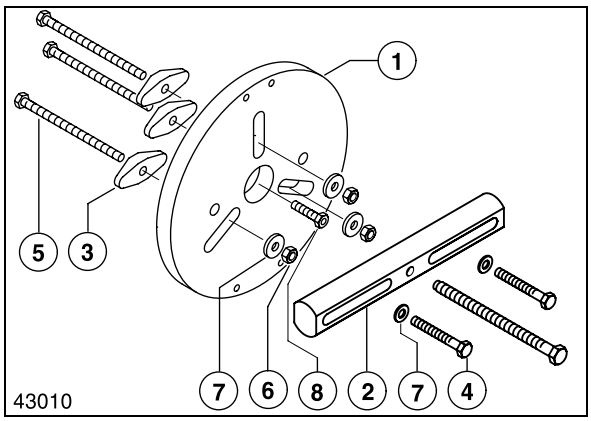


46

Screw the head-centred hex. bolt M 12 x 30 into the shaft.

Remove the V-belt pulley using the special tool.

(Fig. 46, 47)

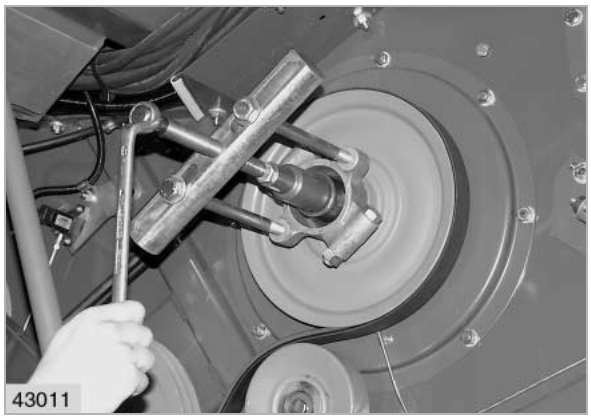


47

Special tool:

1 Puller plate, part no. 181 617.0 – 1 piece
2 Puller bridge, part no. 181 621.0 – 1 piece
3 Puller shoe, part no. 181 836.1 – 3 pieces
4 Hex. bolt M 16 x 70
part no. 235 590.0 – 2 pieces
5 Hex. bolt M 16 x 110
part no. 238 642.0 – 3 pieces
6 Hex. nut M 16
part no. 236 173.0 – 3 pieces
7 Washer ∅ 7, part no. 235 127.2 – 5 pieces
8 Head-centred hex. bolt M 16 x 30
(self-sourced) – 1 piece

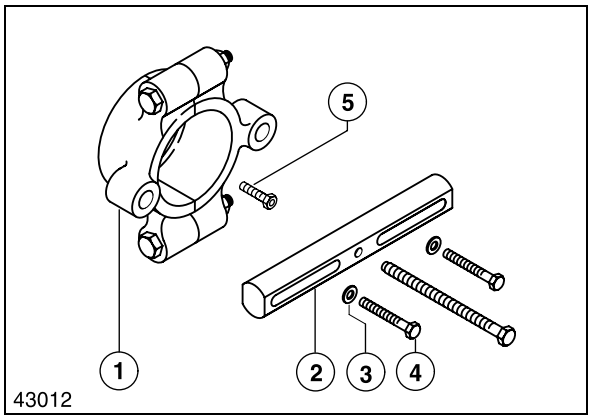
(Fig. 47)



48

Remove the inner race ring of the bearing and the spacer ring from the shaft, using the special tool.

(Fig. 48, 49)

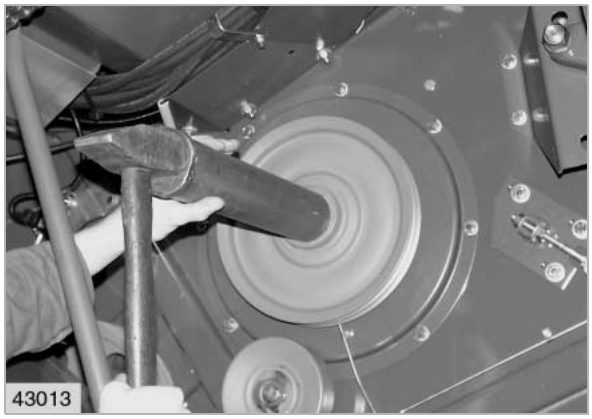


49

Special tool:

1 Puller assembly, complete
part no. 181 857.0 – 1 piece
2 Puller bridge, part no. 181 621.0 – 1 piece
3 Washer ∅ 17, part no. 235 127.2 – 2 pieces
4 Hex. bolt M 16 x 260
part no. 235 816.0 – 2 pieces
5 Head-centred hex. bolt M 16 x 30
(self-sourced) – 1 piece

(Fig. 49)

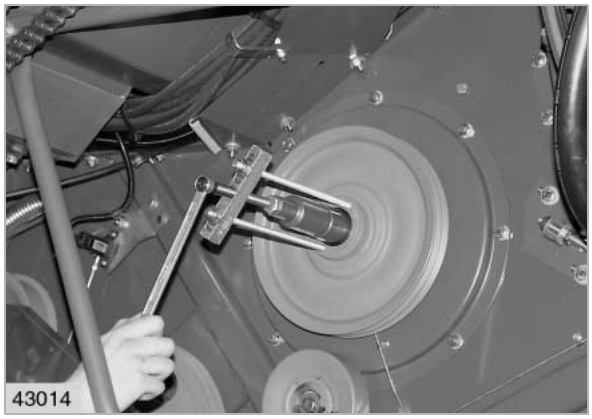


50

Using a block-ended tube of inside ∅ 60 x 400 long, give the tapered ring a good sharp blow. This should release the tapered ring in the V-belt pulley. The block-ended tube must fit over the tapered ring.

Remove tapered ring.

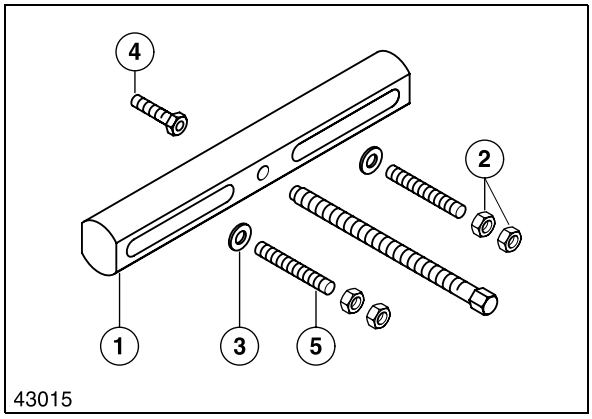
(Fig. 50)



51

Using the special tool, remove the V-belt pulley from the shaft.

(Fig. 51, 52)



52

Special tool:

1 Puller bridge, part no. 181 622.0 – 1 piece
2 Hex. nut M 10, part no. 236 171.0 – 4 pieces
3 Washer ∅ 10, part no. 236 913.2 – 2 pieces
4 Head-centred hex. bolt M 16 x 30 (self-sourced)
5 Threaded rod M 10 x 270 (self-sourced) – 2 pieces

(Fig. 52)



53

Dismantling the rear pulley of cutterbar drive (1)
(from serial no. ...)

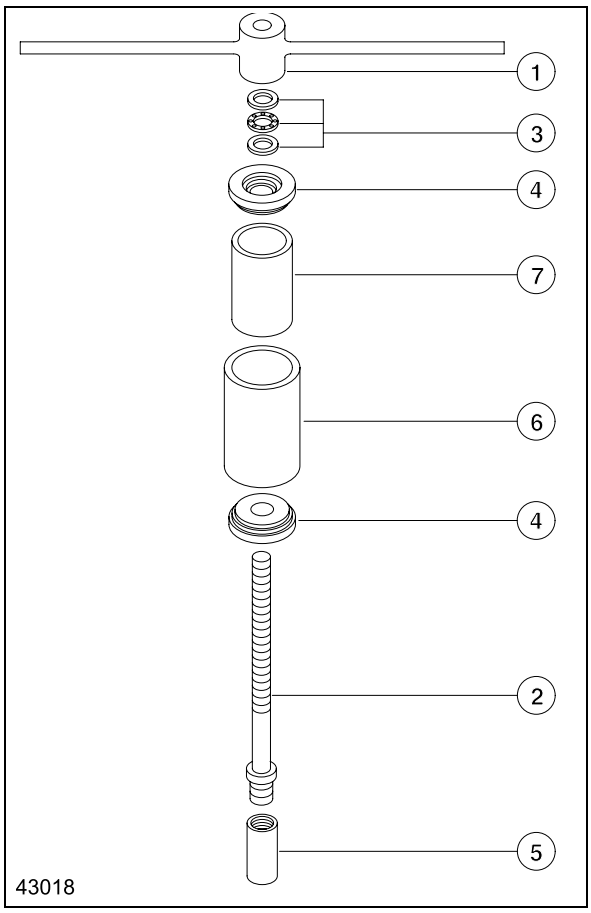
Remove circlip (14).

Push out angular contact ball bearing (13), intermediate ring (10) and spacer bushing (9), using the special tool.

(Fig. 53, 54, 55, 58)



54



55

Special tool:

1 Lever nut, part no. 181 880.0 – 1 piece
2 Spindle, part no. 181 877.0 – 1 piece
3 Axial grooved ball bearing, part no. 235 983.0 – 1 piece
4 Locating disc, part no. 181 879.0 – 2 pieces
5 Sleeve, part no. 181 881.1 – 1 piece
6 Tube, outside ∅ 57 mm x 200 mm (self-sourced) – 1 piece
7 Tube, inside ∅ 80 mm x 100 mm (self-sourced) – 1 piece

(Fig. 55)

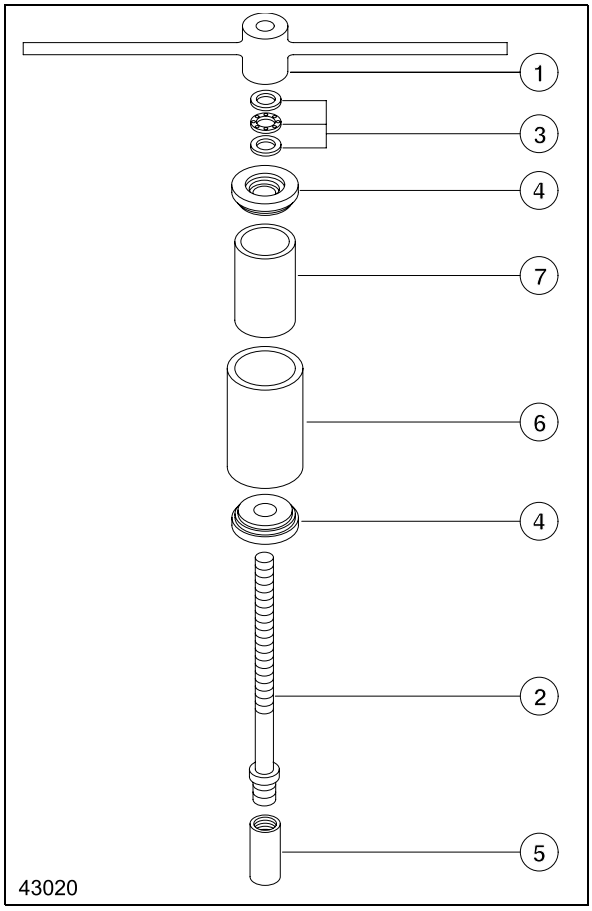


56

Remove shaft seal (5) and snap ring (6) using a screwdriver or a similar tool.

Push out needle bearing (7) with the special tool.

(Fig. 56, 57, 58)

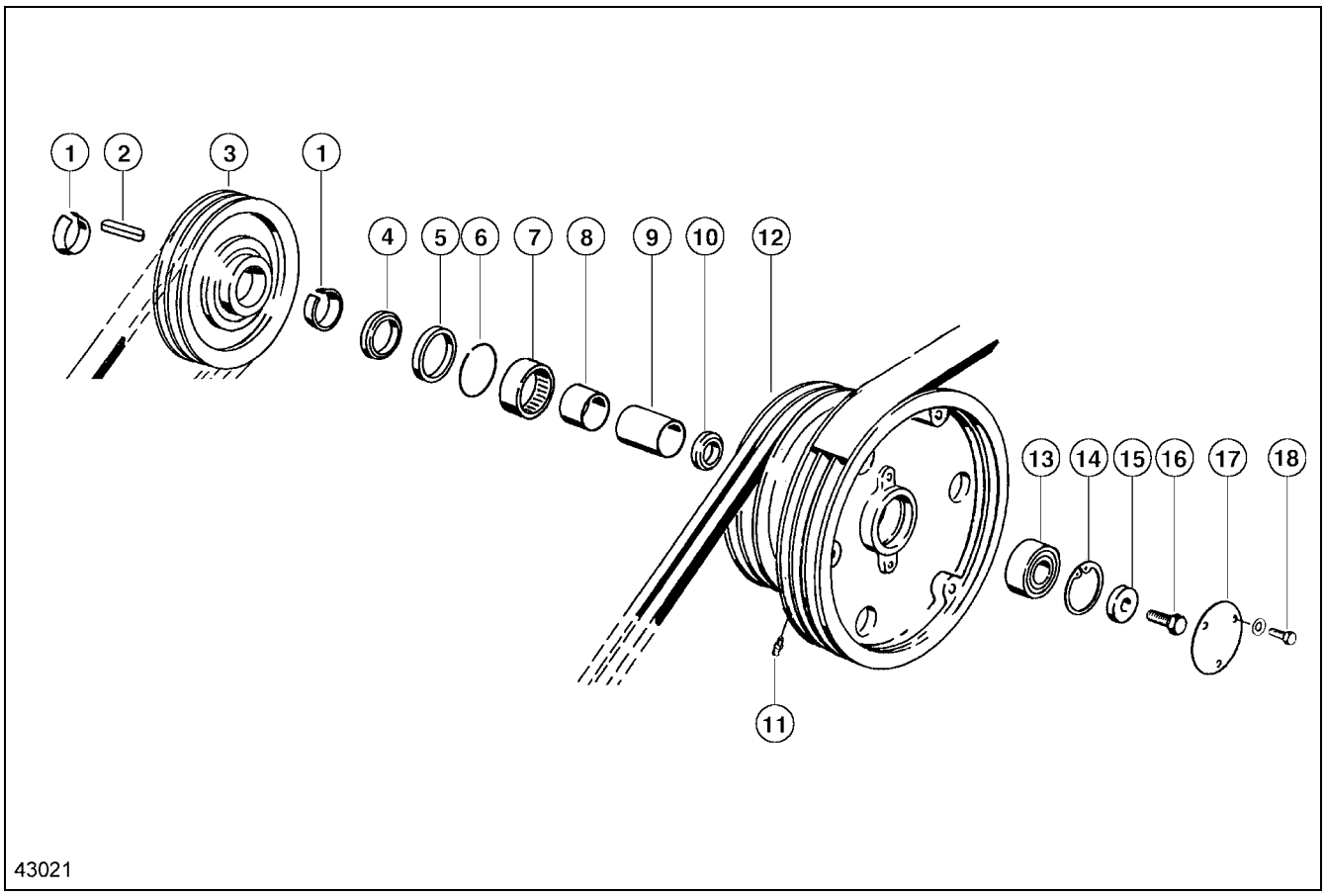


57

Special tool:

1 Lever nut, part no. 181 880.0 – 1 piece
2 Spindle, part no. 181 877.0 – 1 piece
3 Axial grooved ball bearing, part no. 235 983.0 – 1 piece
4 Locating disc, part no. 181 879.0 – 2 pieces
5 Sleeve, part no. 181 881.1 – 1 piece
6 Tube, outside ∅ 65 mm x 250 mm (self-sourced) – 1 piece
7 Tube, inside ∅ 80 mm x 100 mm (self-sourced) – 1 piece

(Fig. 57)

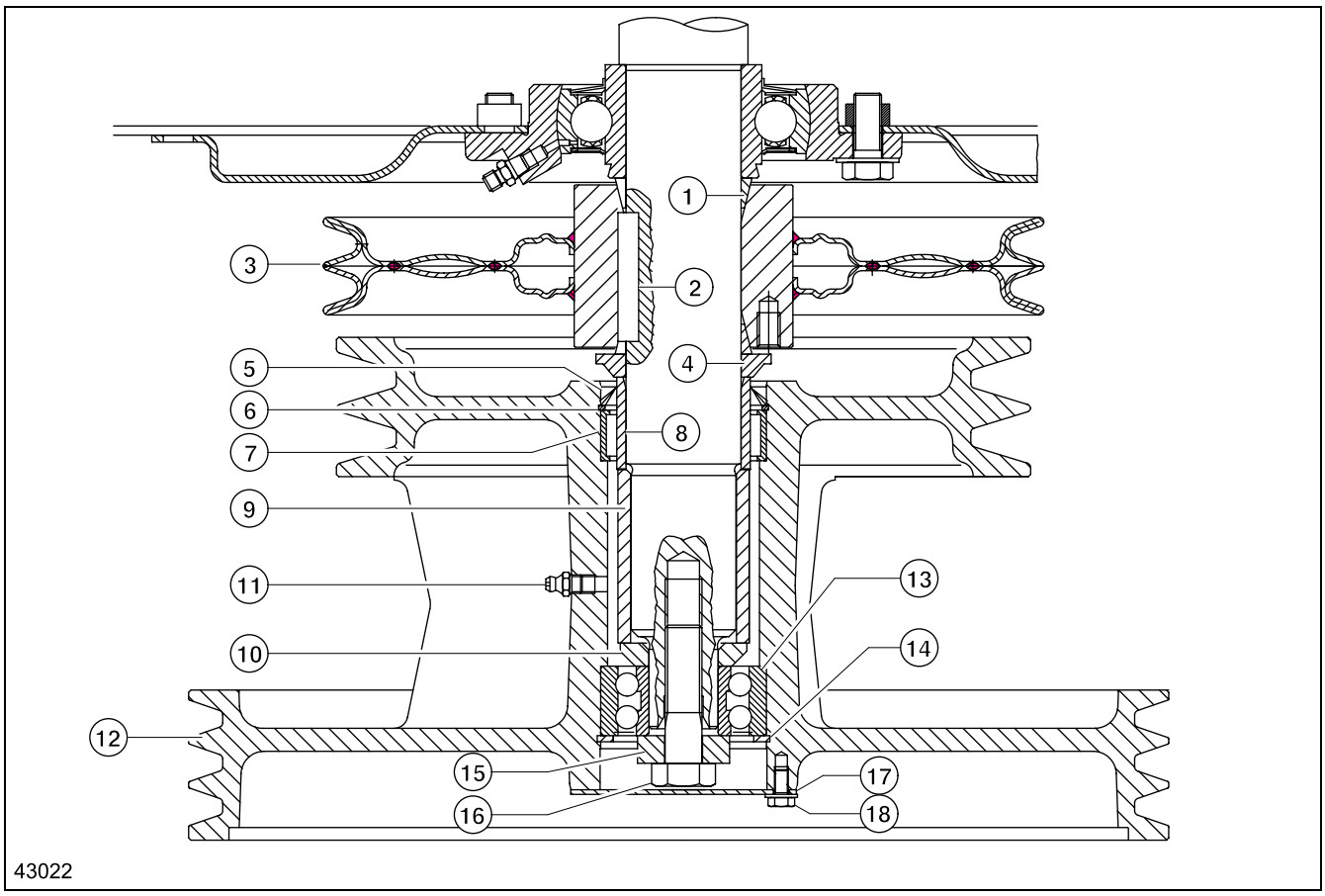


58

Rear pulley of cutterbar drive (1), disassembled:
(from serial no. ...)

1 Tapered ring
2 Parallel key
3 V-belt pulley
4 Spacer ring
5 Shaft seal A 58 x 72 x 8
6 Snap ring
7 Needle bearing RNA 4910
8 Inner ring Ir 50 x 58 x 40
9 Inner spacer bushing
10 Intermediate ring
11 Grease nipple AM 8 x 1
12 V-belt pulley
13 Angular contact ball bearing 3306 RS / C3 DIN 628
14 Circlip 72 x 2.5 DIN 472
15 Spacer ring
16 Hex. bolt M 16 x 60 DIN 931-10.9
17 Cover
18 Hex. bolt M 6 x 12 DIN 933-8.8
Contact washer A 6

(Fig. 58)



59



60

Assembling the rear pulley of cutterbar drive (1)
(from serial no. ...)

Insert the angular contact ball bearing (13) and the circlip (14) into the V-belt pulley (12).

Install angular contact ball bearing (13) using adhesive, e.g. DELO-ML 5328. Observe installation position!

NOTE!

Fill bearing assembly completely with multi-purpose grease DIN 51825 part no. 147 451.0.

(Fig. 58, 59, 60)



61

Place the intermediate ring (10), the spacer bushing (9) and the needle bearing (7) into the V-belt pulley (12).

Observe correct installation position of intermediate ring (10).

NOTE!

Fill space (F) and bearing assembly completely with multi-purpose grease DIN 51825 part no. 147 451.0.

(Fig. 58, 59, 61)



62

Place the snap ring (6), the shaft seal (5) and the inner ring (8) into the V-belt pulley (12).

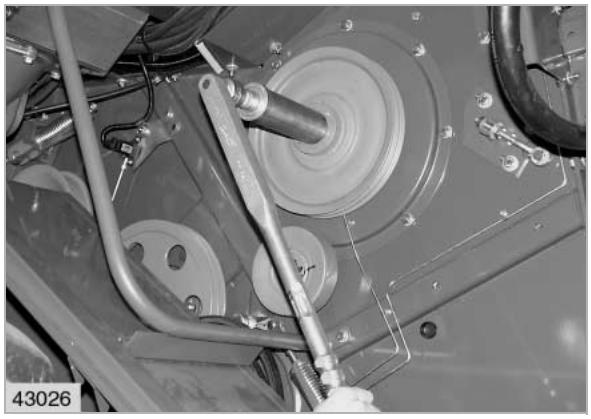
Observe correct installation position of shaft seal (5).

(Fig. 58, 59, 62)

Installing the rear pulley of cutterbar drive (1)
(from serial no. ...)

CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 553.1 applied prior to installation.

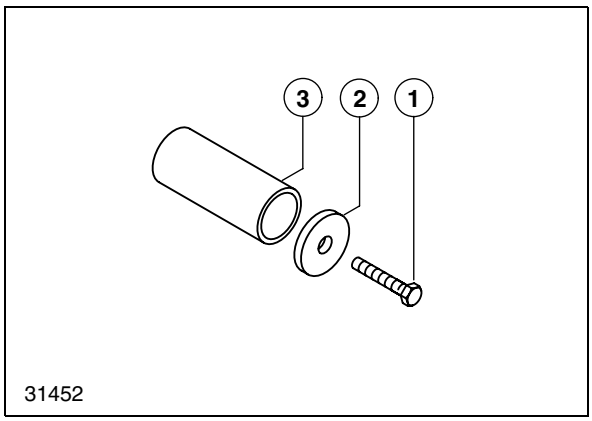


63

1. Slide the rear tapered ring (1), the parallel key (2) and the V-belt pulley (3) onto the shaft.
2. Then place the front taper ring in position and, using the special tool, pre-tighten it.

   Tightening torques M 16-10.9 = 180 Nm

(Fig. 58, 59, 63)



64

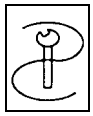
Special tool:

1 Hex. bolt M 16 x 60 DIN 933-10.9
part no. 234 839.0 – 1 piece
2 Thrust washer ∅ 65 mm x 16.5 mm x 15 mm
part no. 667 414.0 – 1 piece
3 Tube, inside ∅ 51 mm x 166 mm
(self-sourced) – 1 piece

(Fig. 63, 64)

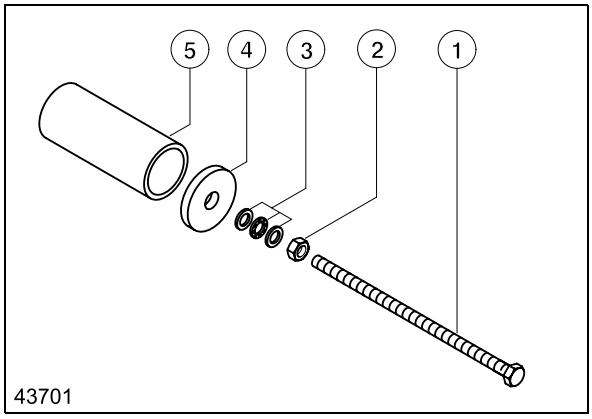


65



3. Press the pre-assembled V-belt pulley (12) on the shaft using the special tool.

(Fig. 65, 66)

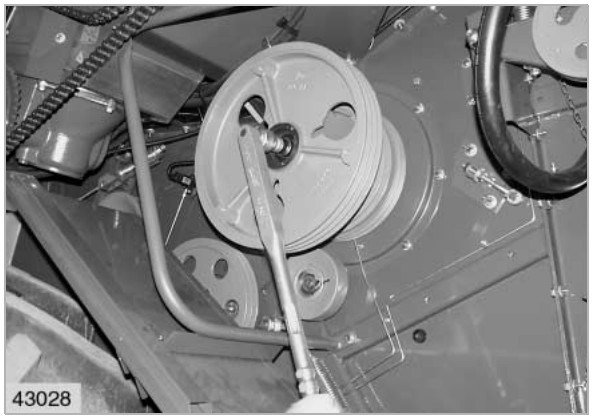


66

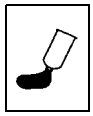
Special tool:

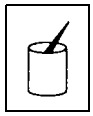
1 Hex. bolt M 16 x 300 DIN 933
part no. 237 375.1 – 1 piece
2 Hex. nut M 16 DIN 934
part no. 236 170.0 – 1 piece
3 Axial grooved ball bearing,
part no. 235 983.0 – 1 piece
4 Thrust washer ∅ 65 mm x 16.5 mm x 15 mm
part no. 667 414.0 – 1 piece
5 Tube, inside ∅ 32 mm x 100 mm
(self-sourced) – 1 piece

(Fig. 66)



67





4. Insert hex. bolt (16) with liquid locking compound, e.g. DELO-ML 5349, and washer (15) and bolt it down.

Tightening torques M 16-10.9 = 180 Nm

5. Fill the hollow with grease.

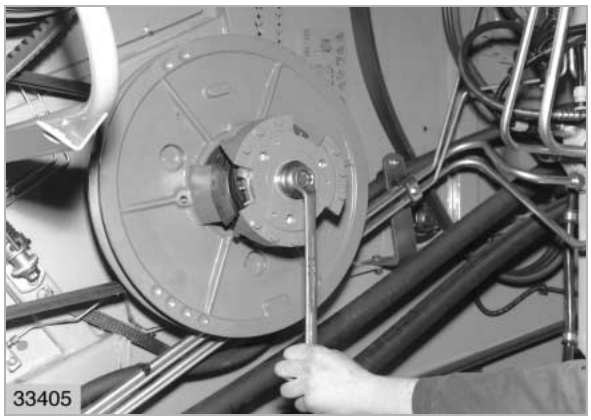
Clean the contact surfaces thoroughly and apply a sealing agent. Bolt on the cover (17).

Grease existing grease nipples (11).

(Fig. 58, 67)

6. *Installing and adjusting the impeller drive belt (4)*, see page 7.2.8

   Installing and adjusting the cutterbar drive belt (1) (Cutterbar drive without variable-speed drive), see page 7.2.2



68

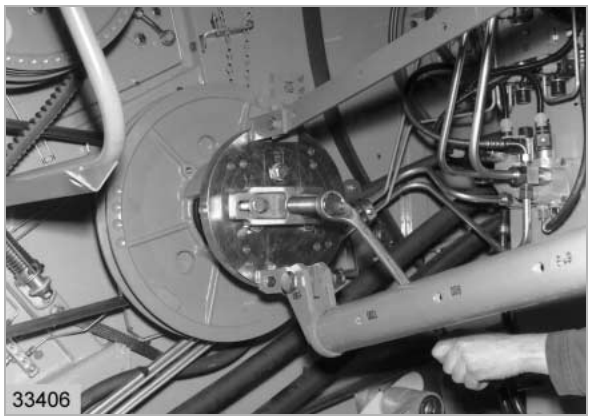
Removing the cutterbar variable-speed pulley assembly (spring-loaded)

Removing the cutterbar variable-speed drive belt (3), see page 7.2.5

Remove the hex. bolts used for spreading the variable-speed pulley open.

Remove the hex. bolt from the face end of the shaft and remove along with washer.

(Fig. 68)



69

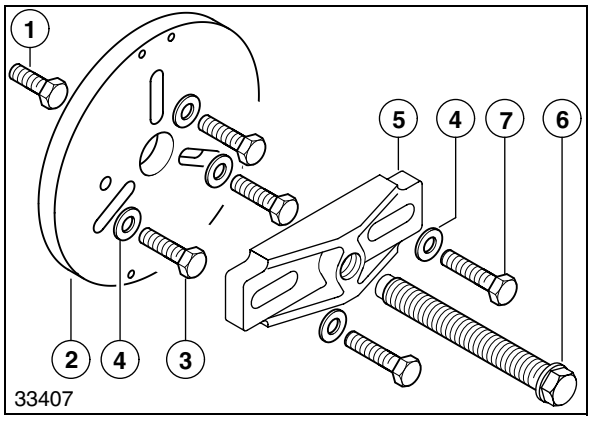
Screw a head-centred M 16 x 30 hex. bolt into the shaft.

Using a special tool and a suitable lifting device, such as “Hydrobull”, pull the variable-speed pulley assembly off of the shaft.

CAUTION!

Secure variable-speed pulley so it will not slip off the thrust piece (18).

(Fig. 69, 82)



70

Special tool:

1 Hex. bolt M 16 x 30 DIN 933-8.8 head-centred
2 Puller plate, part no. 181 617.0
3 Hex. bolt M 16 x 40 DIN 933-8.8, part no. 235 821.0
4 Contact washer A 16
5 Puller bridge, part no. 181 800.0
6 Threaded spindle, part no. 181 801.1
7 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

(Fig. 70)



71

Disassembling the cutterbar variable-speed pulley assembly (spring-loaded)

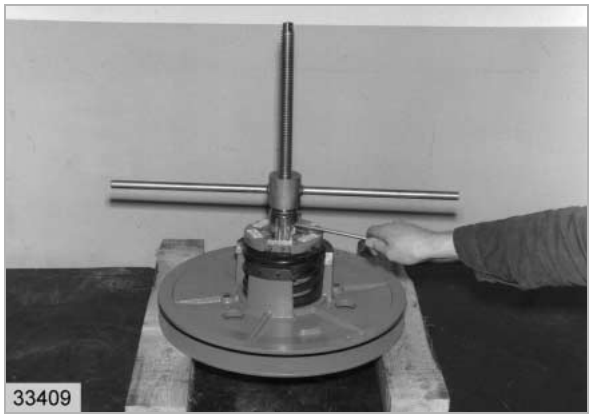
Remove the cutterbar variable-speed pulley assembly (spring-loaded).

Remove the thrust piece.

CAUTION!

Observe number, position and thickness of shims.

(Fig. 71)



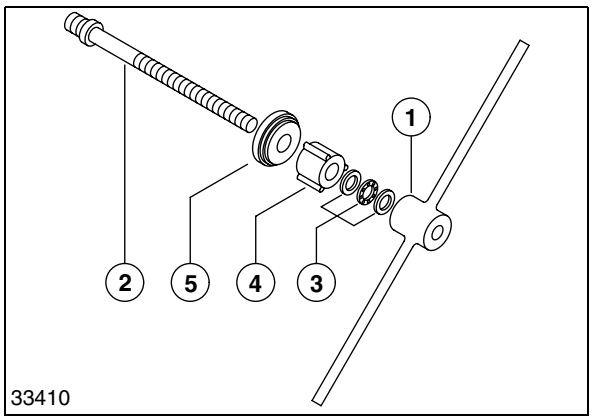
72

DANGER!

NEVER unscrew the countersunk head bolts from the mounting flange until the compression spring has been blocked with the special tool – extremely hazardous!

Using the special tool, block the compression spring and remove all countersunk head bolts from the mounting flange.

(Fig. 72)

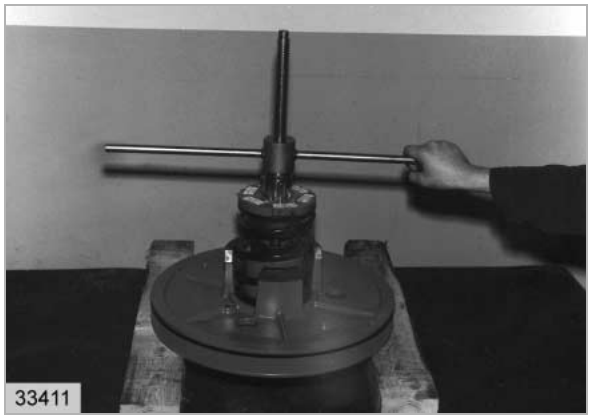


73

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing 51305 DIN 711, part no. 235 983.0
4 Centraliser, part no. 181 437.0
5 Locating disc, part no. 181 879.0

(Fig. 73)



74

By turning the handle of the lever nut, release all the pressure from the compression spring.

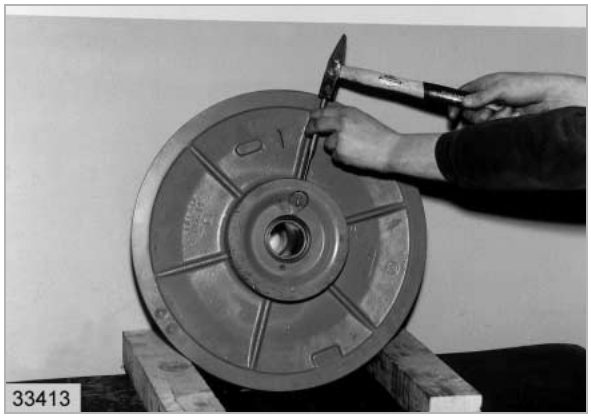
(Fig. 74)



75

Remove the compression spring and the mounting flange.

(Fig. 75)



76

Remove the variable-speed pulley half.

Drive out the roll pin.

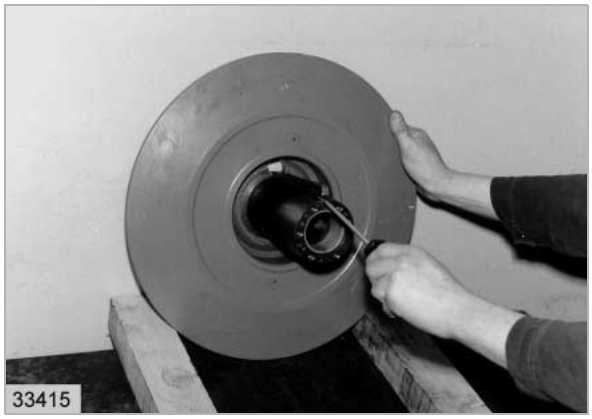
(Fig. 76)



77

Remove the M 12 x 1.5 screw plug and both M 6 x 13 cheese-head screws.

(Fig. 77)



78

Remove the parallel key and the notched dowel using a screwdriver.

(Fig. 78)



79

Remove the bearing bushings.

(Fig. 79)



80

Remove the sliding bushing.

Remove the support runners using a screwdriver. Ensure that you note the installation position and mark it.

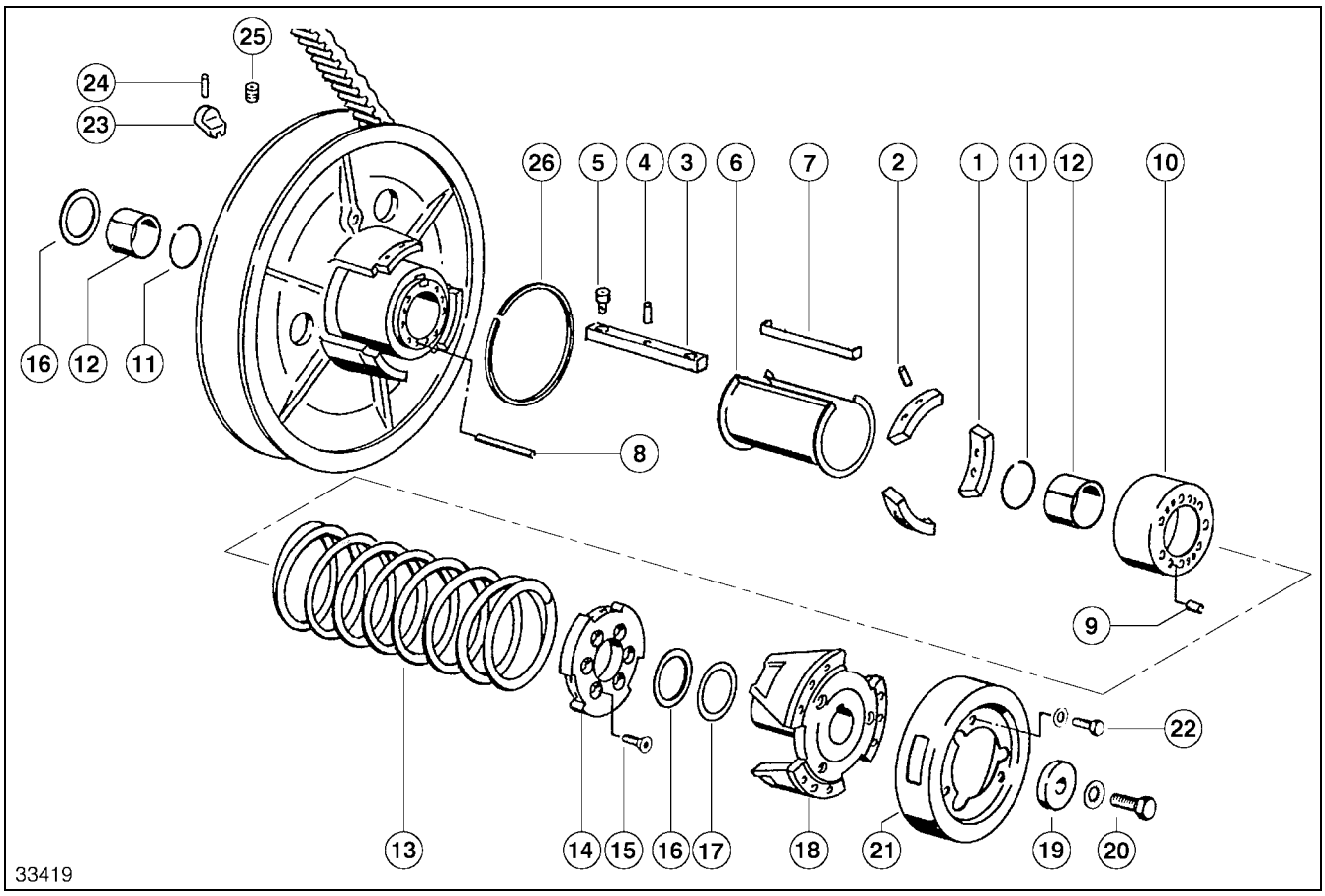
(Fig. 80)



81

Remove the expansion pins and then the support runners.

(Fig. 81)

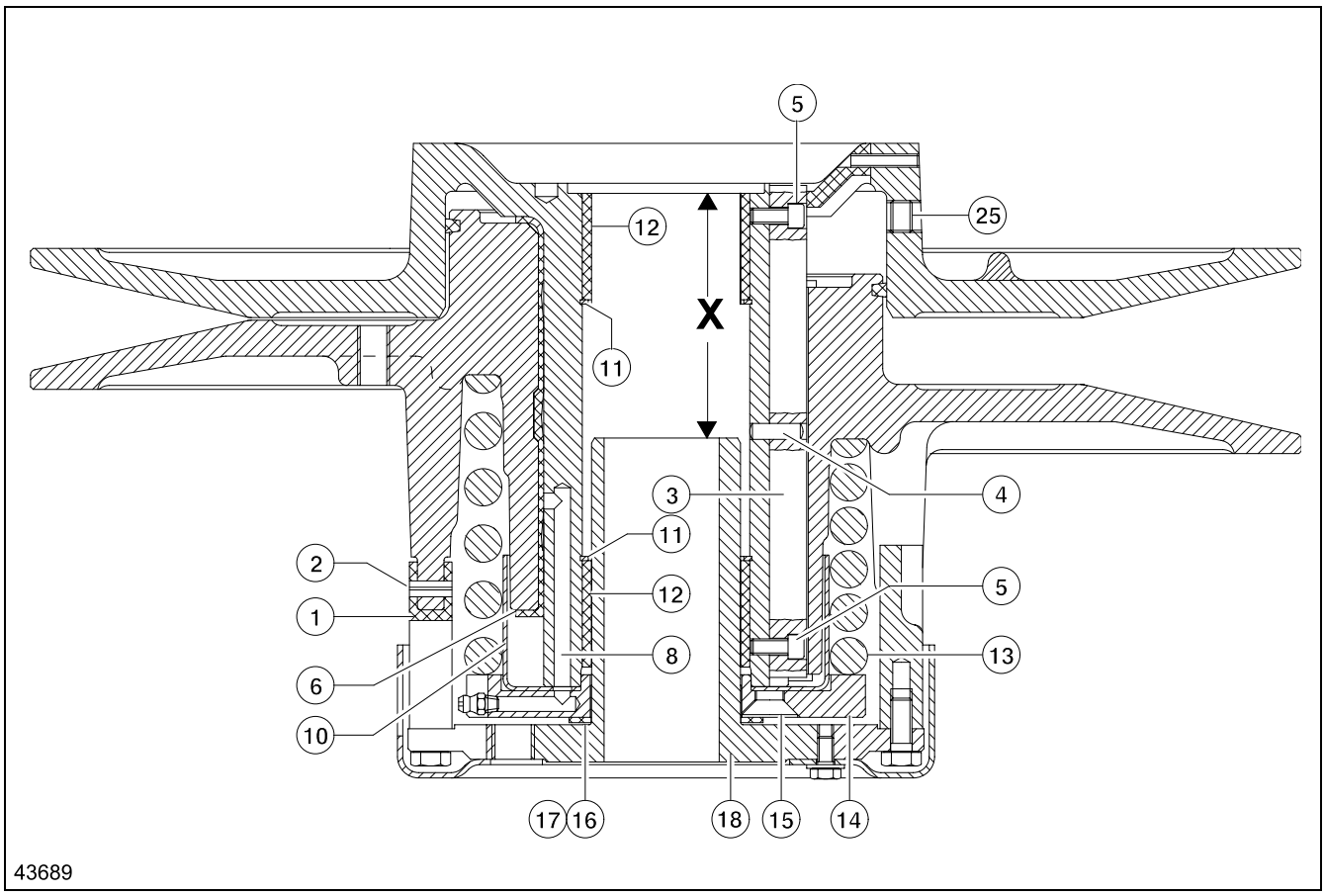


82

Cutterbar variable-speed pulley assembly (spring-loaded), disassembled:

1 Slide
2 Expansion pin 6 x 16 A DIN 8752
3 Parallel key
4 Notched dowel 6 x 20 DIN 1472
5 Cheese-head screw M 6 x 13.8
6 Sliding bushing
7 Support runner
8 Expansion pin 6 x 80 DIN 7346
9 Expansion pin 10 x 14 A DIN 8752
10 Cover
11 Snap ring
12 Bearing sleeve
13 Compression spring
14 Mounting flange
15 Countersunk head bolt M 10 x 30 DIN 7991
16 Thrust washer
17 Shim 56 x 72 x 0.3 DIN 988
Shim 56 x 72 x 0.5 DIN 988
18 Thrust piece
19 Clamping washer
20 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
21 Dust cap
22 Hex. bolt M 6 x 12 DIN 933-8.8
Contact washer A 6
23 Cap
24 Expansion pin 5 x 24 B DIN 8752
25 Screw plug M 12 x 1.5 DIN 906

(Fig. 82)



83

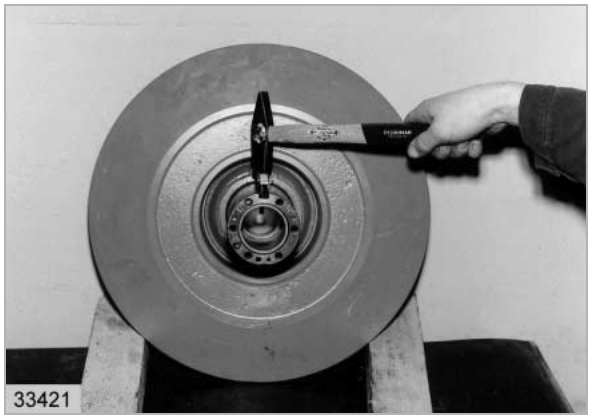


84

Assembling the cutterbar variable-speed pulley assembly (spring-loaded)

1. Insert the sliding bushing (6). Ensure correct installation position. The rounded side must face inwards.

(Fig. 82, 83, 84)



85

2. Centralise the parallel key (3) with a 6 x 50 expansion pin.

   Tap the parallel key into position with a hammer, then drive out the 6 x 50 expansion pin to the inside and remove it.

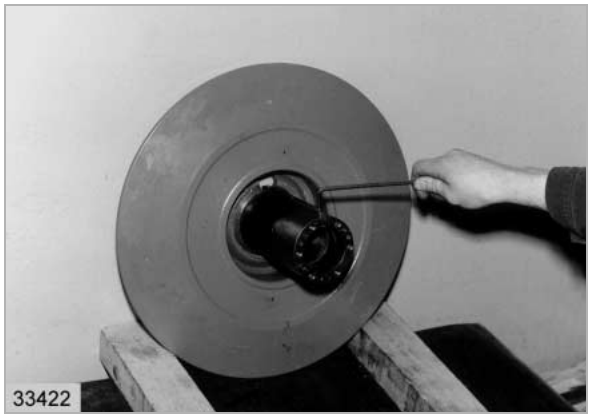
   Slightly pre-tension the parallel key (3) with two cheese-head screws (5).

   Drive in a new notched dowel (4).

CAUTION!

Install cheese-head screws (5) and notched dowel (4) using liquid locking compound, e.g. DELO-ML 5328.

(Fig. 82, 83, 85)

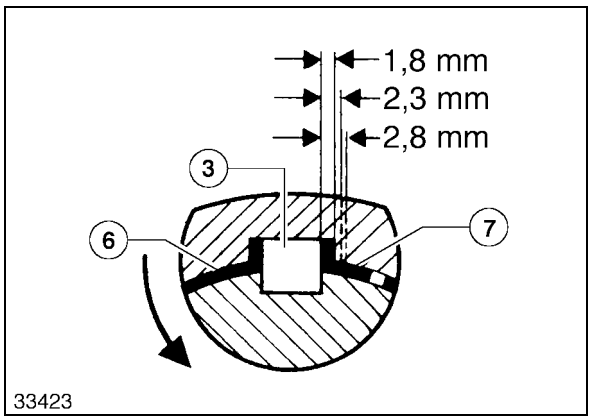


86

3. Tighten the cheese-head screws (5).

   Tightening torque = 10 Nm

(Fig. 82, 83, 86)



87

4. Clean both variable-speed pulleys thoroughly.
5. Apply oil to the sliding bushing (6) and support runner (7) all around, insert and then join the variable-speed pulley halves.
6. Determine the torsional backlash.

   To do this, twist both halves of the variable-speed pulley in opposite directions and measure the torsional backlash on the outer pulley diameter.

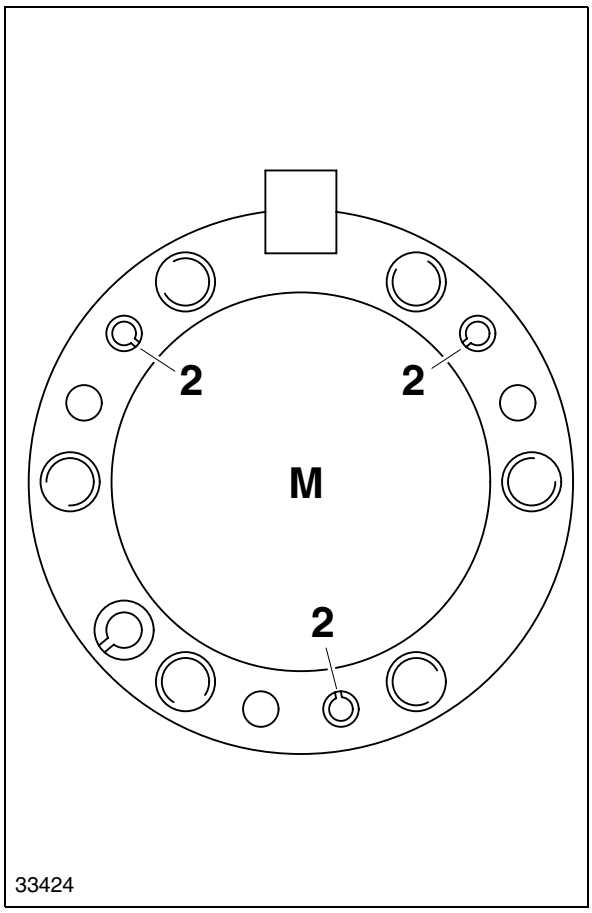
   To do this, apply marks on the outer pulley half.

   The torsional backlash should be as small as possible while the sliding surfaces move smoothly.

   It must not exceed **1 mm**.

   If necessary, the next thicker support runner (7) must be used.

(Fig. 82, 83, 87)



88

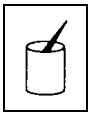
7. Insert the expansion pins (8) only into the grease bores of the grease nipples marked with a (2).

   The slot in the expansion pins must always face the centre (M).

   This ensures that the grease will always be able to get to the inner sliding faces.

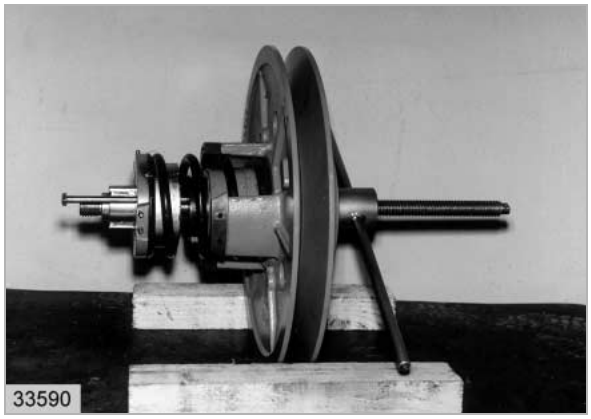
(Fig. 82, 83, 88)

8. Insert the expansion pin (9) to fix the mounting flange (14) and the cover (10).



9. Thoroughly grease the sliding bushing (6) and the sliding faces with good-quality grease.
10. Join the two variable-speed pulley halves together. Insert the cover (10), the compression spring (13) and the mounting flange (14) and twist so that the correct hole lines up with the expansion pin (9).
11. Screw hex. bolt (6) of the special tool through the mounting flange (14).

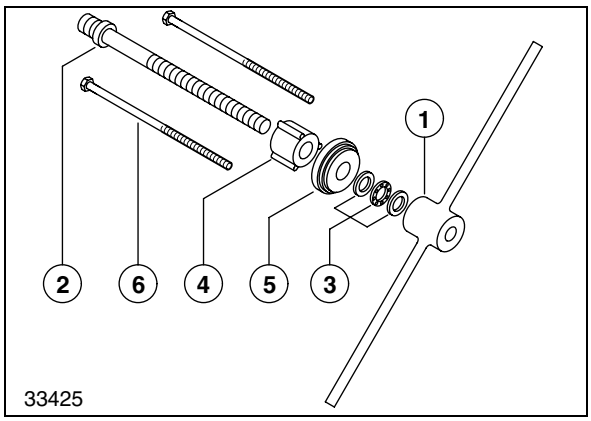
(Fig. 82, 83)



89

12. Using the special tool, pre-stress the compression spring.

(Fig. 89)



90

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing 51305 DIN 711, part no. 235 983.0
4 Centraliser, part no. 181 437.0
5 Locating disc, part no. 181 879.0
6 Hex. bolt M 10 x 200 DIN 931-8.8, part no. 211 739.0

(Fig. 90)



91

13. Screw in the countersunk head bolts (15), but do not tighten them at this time. Remove the special tool. Tighten countersunk head bolts with a tightening torque of **49 Nm**.

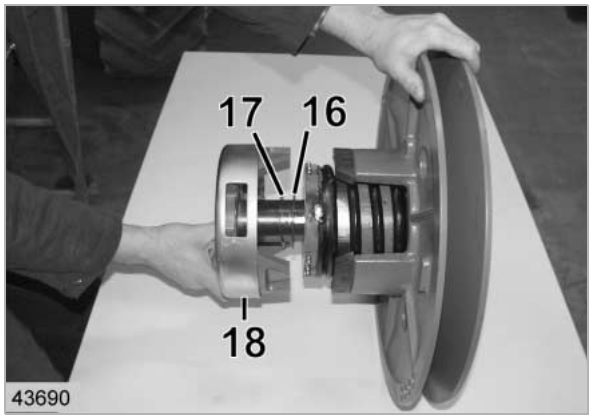
(Fig. 82, 83, 91)



92

14. Install the cap (23) with expansion pin (24). Screw in screw plug (25).

(Fig. 82, 83, 92)

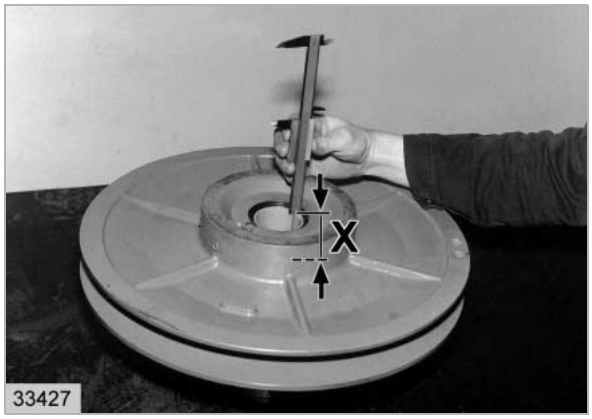


93

Installing the cutterbar variable-speed pulley assembly (spring-loaded)

Install thrust piece (18) with existing shims (17) and a thrust washer (16).

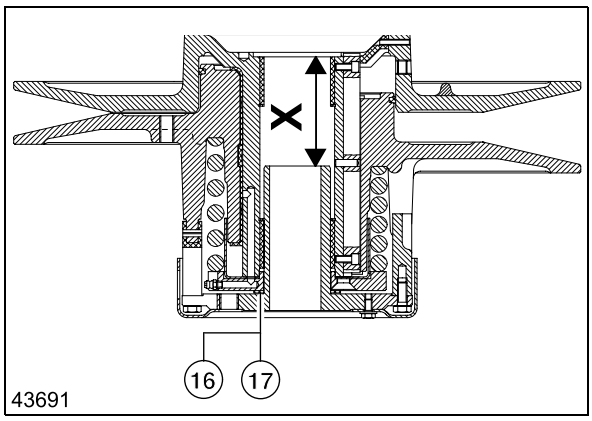
(Fig. 93)



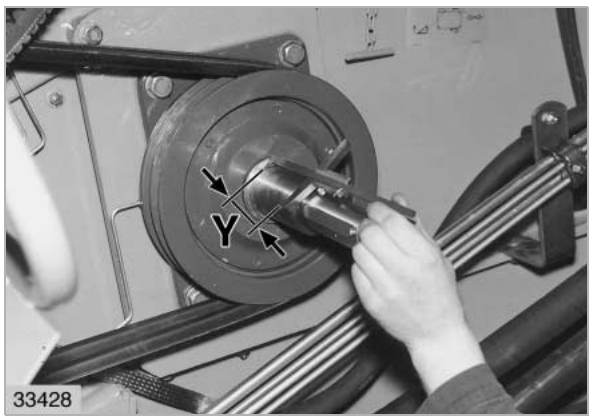
94

Determine the distance (X) between the thrust piece (18) and the top edge of the pulley.

(Fig. 94, 95)



95



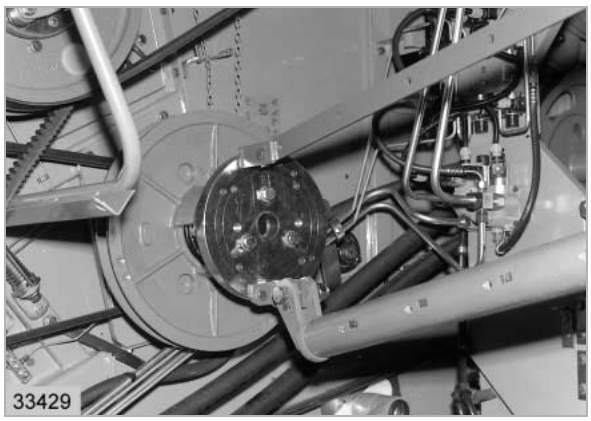
96

Slide a thrust washer (16) on the shaft shoulder and determine dimension (Y, length of shaft shoulder).

W = Y – X

The distance (W) must be **0.2 to 0.6 mm**. Should this not be the case, then correct it with shims.

(Fig. 96)



97

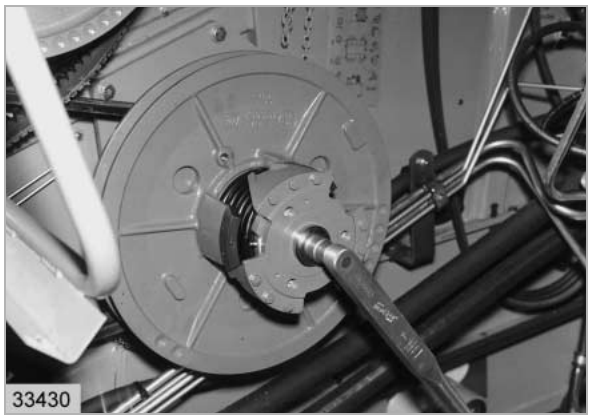
Grease the thrust piece hub as well as the pulley hub and the flange shaft.

Using a special tool and a lifting device such as a Hydrobull, slide the variable-speed pulley assembly onto the flange shaft.

CAUTION!

Secure variable-speed pulley so it will not slip off the thrust piece (18).

(Fig. 97)

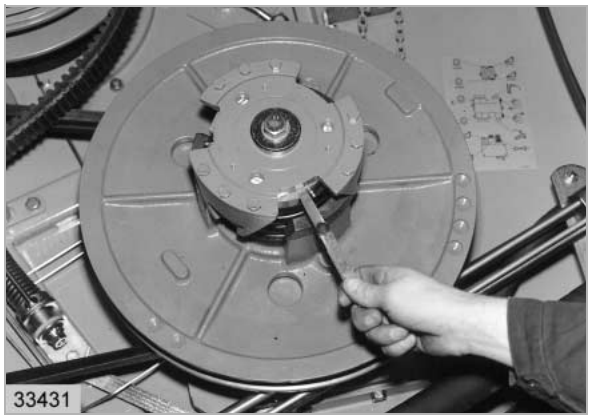


98

Bolt down the M 16 x 50 DIN 933-8.8 hex. bolts with lock washers.

Tightening torque = 180 Nm

(Fig. 98)



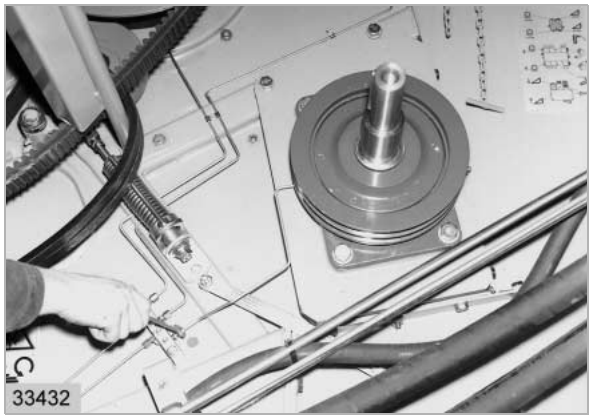
99

Using suitable feel gauges, check the axial play between the mounting flange and the thrust piece (0.2 to 0.6 mm).

(Fig. 99)

Installing and adjusting the cutterbar variable-speed drive belt (3), see page 7.2.6

Once the pulley has been completely installed, thoroughly grease at all grease nipples until all grease channels are full.



100

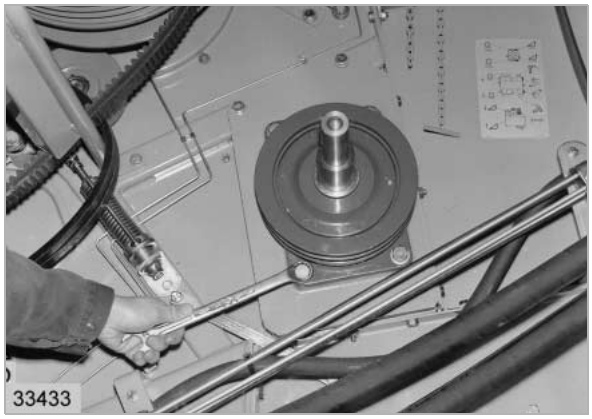
Removing the cutterbar drive V-belt pulley when a cutterbar variable-speed drive is fitted

Removing the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive), see page 7.2.3

Removing the cutterbar variable-speed pulley assembly (spring-loaded), see page 7.4.26

Remove the grease pipes.

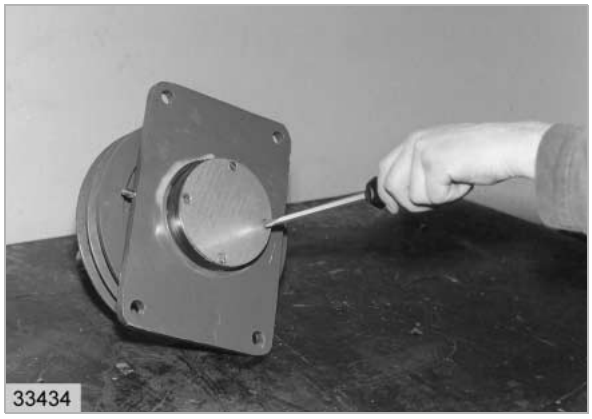
(Fig. 100)



101

Remove the V-belt pulley complete with the flange plate.

(Fig. 101)

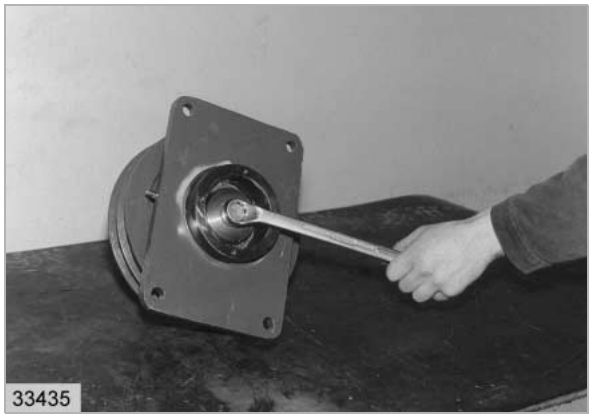


102

Disassembling the cutterbar drive V-belt pulley when a cutterbar variable-speed drive is fitted

Remove the cover.

(Fig. 102)



103

Remove the M 16 x 50 hex. bolt from the face end of the shaft.

(Fig. 103)

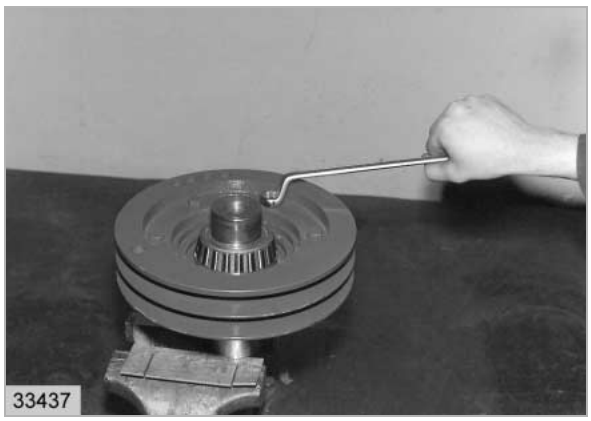


104

Screw a head-centred M 16 x 30 DIN 933 hex. bolt into the shaft.

Using a puller, remove the housing with the taper roller bearing.

(Fig. 104)



105

Unscrew the V-belt pulley.

(Fig. 105)



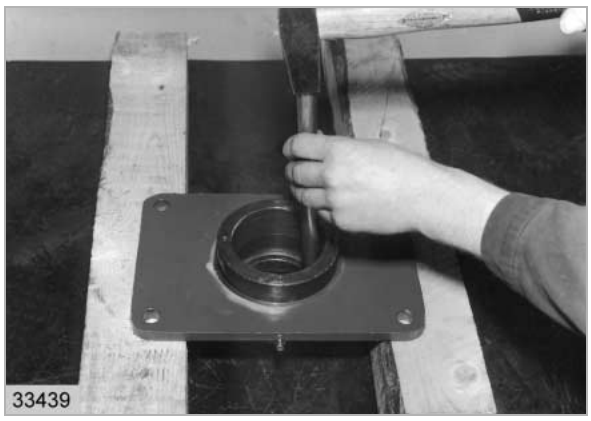
106

Using two tyre mounting levers, raise the outside taper roller bearing just enough to place a puller underneath.

CAUTION!

When assembling, ensure a new bearing is used.

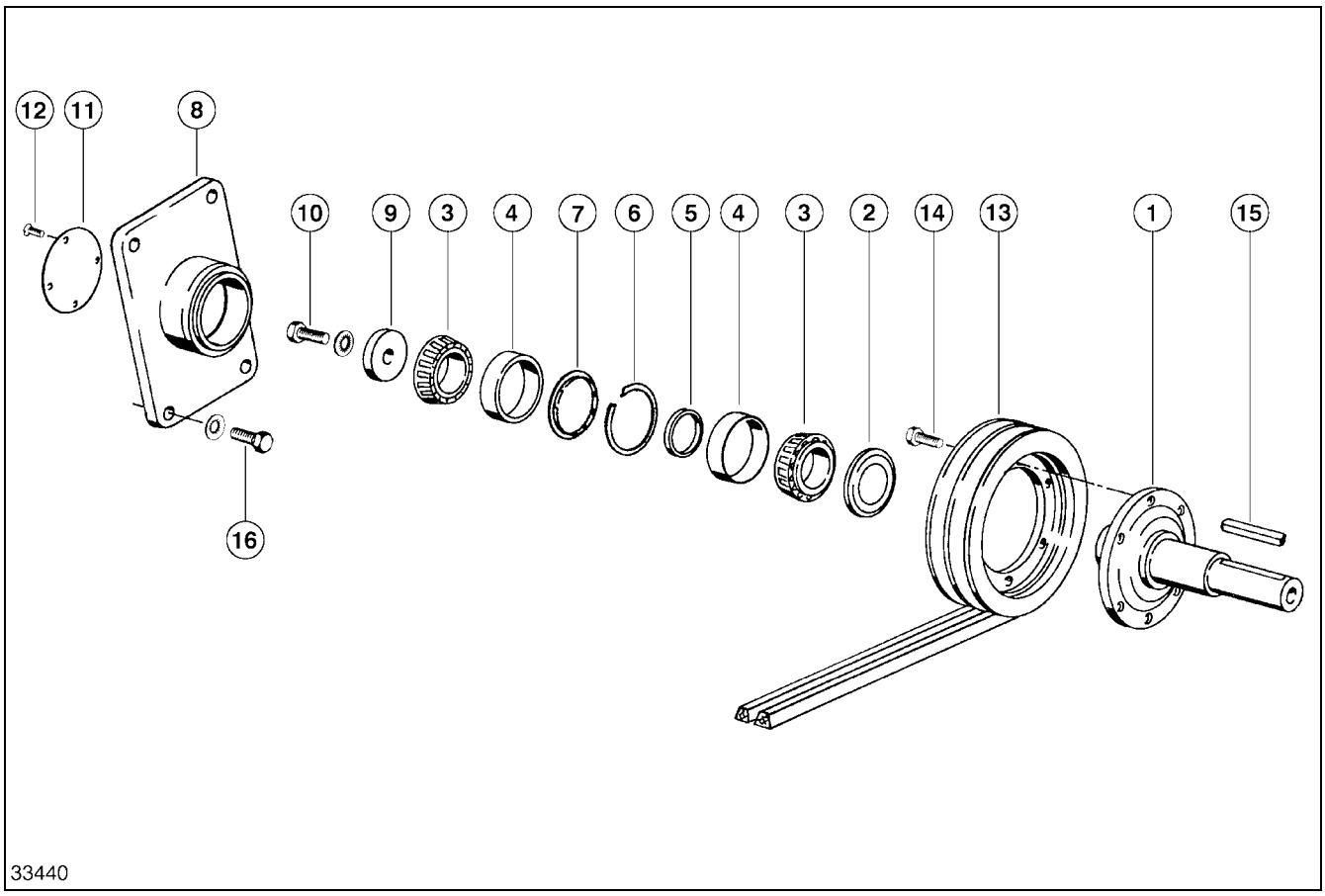
(Fig. 106)



107

Using a soft metal punch, drive the inner bearing race out of the housing.

(Fig. 107)

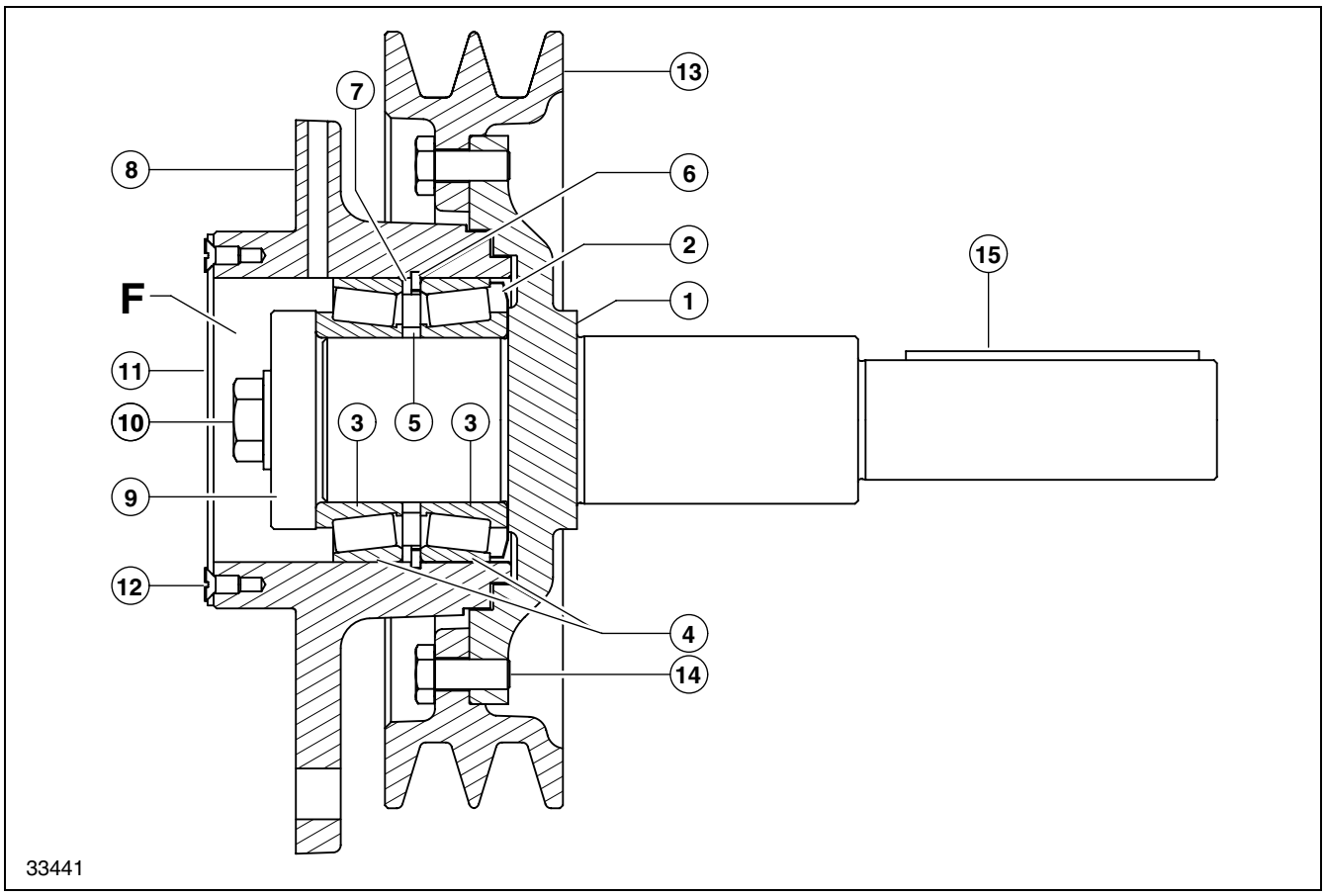


108

Cutterbar drive V-belt pulley with a cutterbar variable-speed drive fitted, disassembled:

1 Flanged shaft
2 Bearing seal ring
3 Bearing inner race
4 Bearing outer race
5 Inner spacer
6 Snap ring
7 Outer spacer
8 Housing
9 Washer
10 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
11 Cover
12 Countersunk head bolt M 6 x 12 DIN 963-5.8
13 V-belt pulley
14 Hex. bolt M 10 x 25 VP DIN 933-8.8
15 Parallel key A 12 x 8 x 98 DIN 6885
16 Hex. bolt M 16 x 45 DIN 933-8.8
Contact washer A 16

(Fig. 108)



109

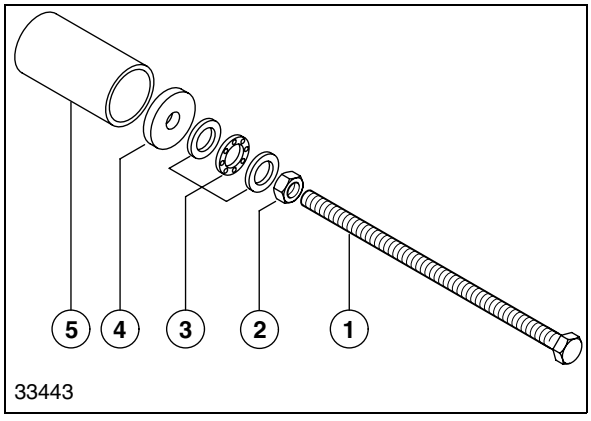


110

Assembling the cutterbar drive V-belt pulley with a cutterbar variable-speed drive fitted

1. Slide the bearing seal ring (2) onto the flanged shaft.
2. Press the bearing inner race (3) onto the flanged shaft using the special tool.

(Fig. 108, 109, 110)



111

Special tool:

1 Hex. bolt M 16 x 300 SP DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16 DIN 934, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer, part no. 577 557.0
5 Tube, inside ∅ 55 x 100 long (self-sourced)

(Fig. 111)



112

3. Insert snap ring (6) and outer spacer (7) into housing (8). Ensure the correct installation position.

   Press the bearing outer race (4) into position.

4. Bolt the V-belt pulley (13) to the flanged shaft.

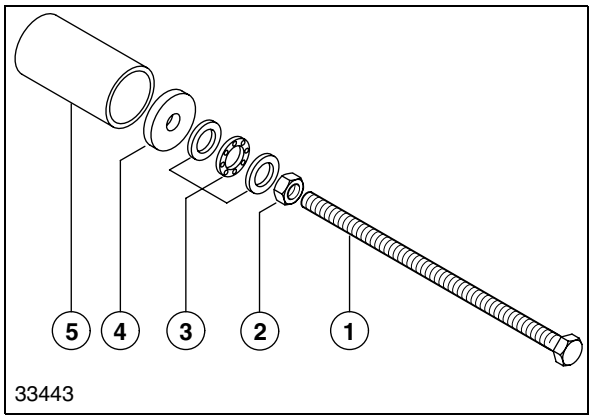
   Screw in the hex. bolts (14) using liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 45 Nm

5. Place the pre-assembled housing into position.

   Press the second bearing inner race on the flanged shaft using the special tool.

(Fig. 108, 109, 112)



113

Special tool:

1 Hex. bolt M 16 x 300 SP DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16 DIN 934, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer, part no. 577 557.0
5 Tube, inside ∅ 55 x 100 long (self-sourced)

(Fig. 113)



114

6. Insert the hex. bolt (10) with washer (9) and tighten.

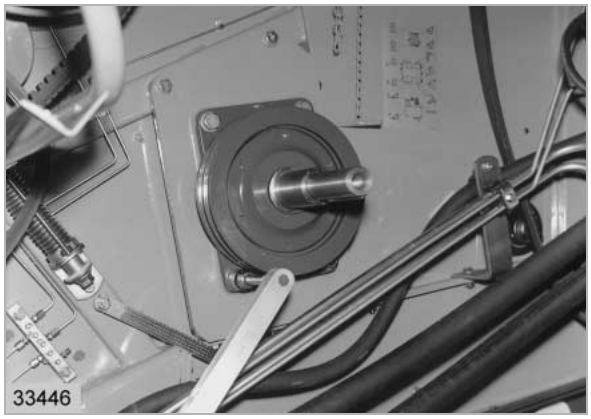
   Tightening torque = 195 Nm

(Fig. 108, 109, 114)

7. Fill space (F) completely with multi-purpose grease such as Shell “Retinax A”, part no. 147 451.0.
8. Clean the sealing surfaces of the cover and the housing, then apply a suitable sealing compound such as Epple type 33.

   Bolt on the cover (11).

(Fig. 108, 109)



115

Installing the cutterbar drive V-belt pulley with a cutterbar variable-speed drive fitted

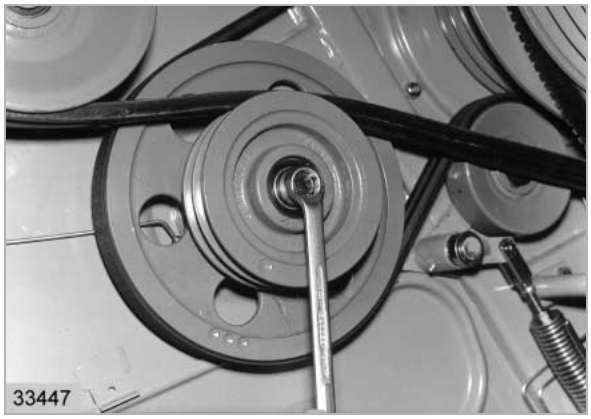
1. Bolt the complete flanged shaft to the side wall of the machine.

   Tightening torque = 195 Nm

(Fig. 115)

2. Attach the lubrication line.
3. *Installing the cutterbar variable-speed pulley assembly (spring-loaded)*, see page 7.4.35

   Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive), see page 7.2.4



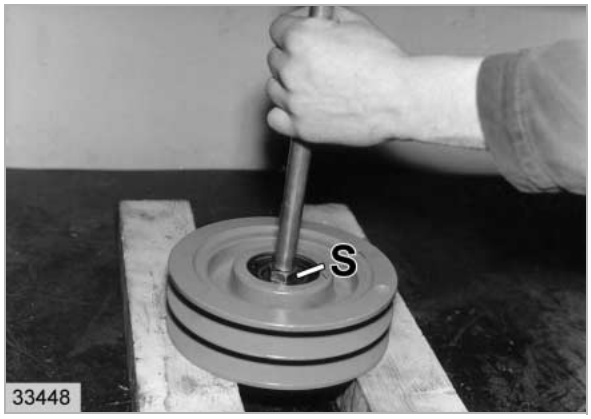
116

Removing and disassembling the cutterbar drive deflection pulley (2) with a cutterbar variable-speed drive fitted

Removing the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive), see page 7.2.3

Remove the hex. bolt M 16 x 100 and remove the deflection pulley.

(Fig. 116)

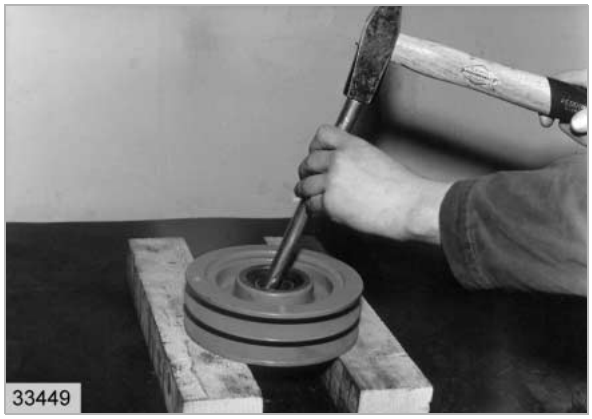


117

Place a M 16 x 50 hex. bolt (S) in the centering pin.

Drive out the centering pin.

(Fig. 117)



118

Remove the circlips and drive out the deep groove ball bearing using a soft metal punch.

(Fig. 118)



119

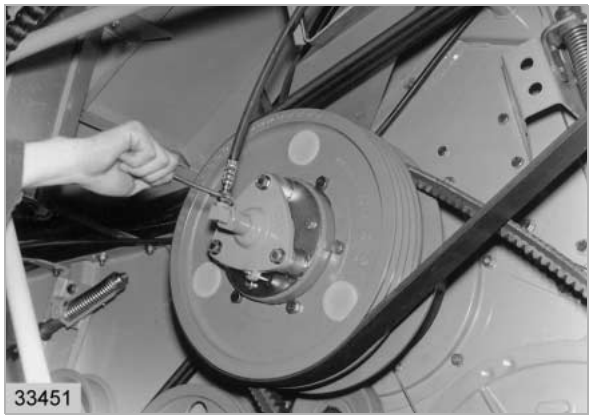
Assembling and installing the cutterbar drive deflection pulley (2) with a cutterbar variable-speed drive fitted

1. Press in the deep groove ball bearing with the spacer bushing.
2. Insert the circlips, then drive in the centering pin using a plastic-tip hammer.
3. Place the pre-assembled deflection pulley into position and bolt it down using the M 16 x 100 hex. bolt.

   Tightening torque = 130 Nm

(Fig. 119)

4. *Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*, see page 7.2.4

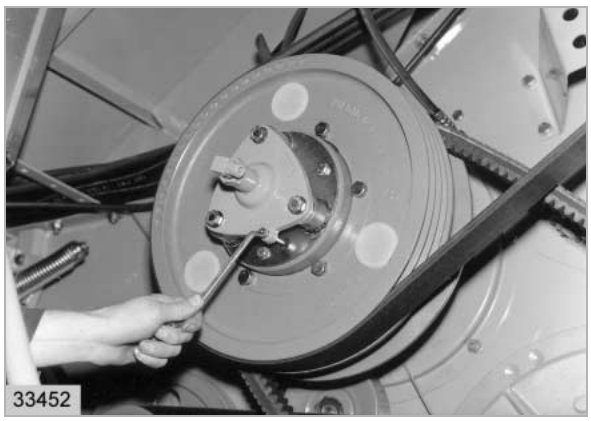


120

Removing the cutterbar variable-speed pulley assembly (hydraulic)

Remove the hydraulic hose and seal the connections with plastic caps.

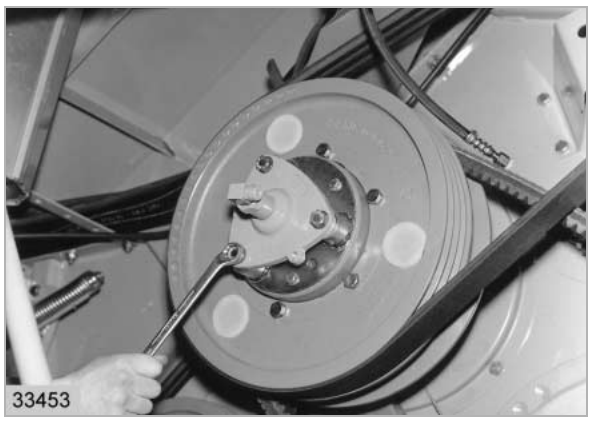
(Fig. 120)



121

Remove the grease nipple and the grease pipe.

(Fig. 121)



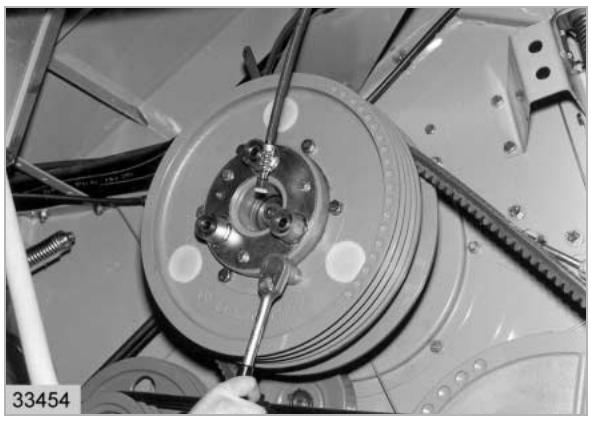
122

Unscrew the complete variable-speed drive cylinder.

CAUTION!

Observe number, position and thickness of shims if required.

(Fig. 122)



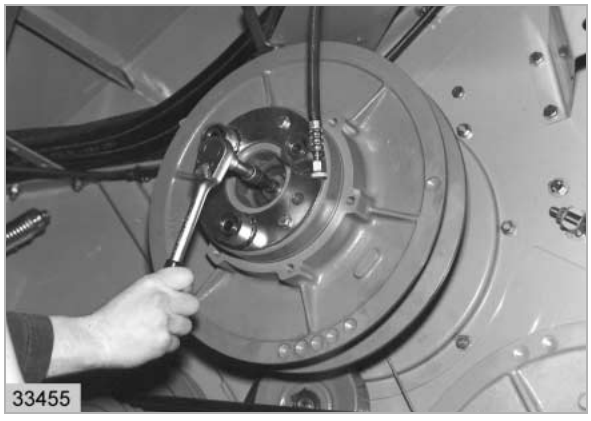
123

Removing the cutterbar intermediate drive belt (5) at the front – see page 7.2.9, *Removing the cutterbar intermediate drive belt (5)*.

Remove the cutterbar drive belt (2) at the rear – see page 7.2.3, *Removing the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive)*.

Unscrew the V-belt pulley.

(Fig. 123)



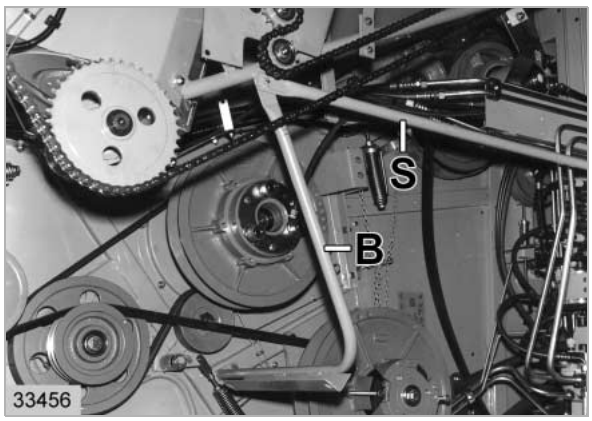
124

Removing the cutterbar variable-speed drive belt (3), see page 7.2.5

Remove the piston holder.

Remove the M 12 x 30 cheese-head screw and remove the thrust washer.

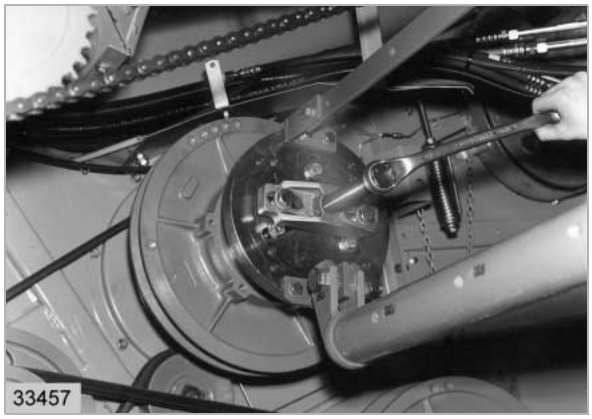
(Fig. 124)



125

Remove the bracket (B) and the strap (S).

(Fig. 125)

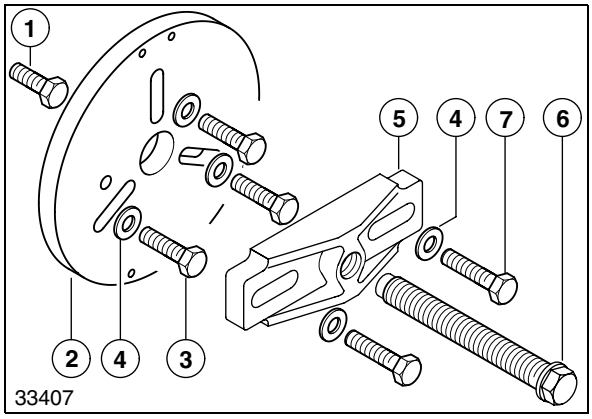


126

Screw a head-centred M 16 x 30 hex. bolt into the shaft.

Using a special tool and a suitable lifting device, such as “Hydrobull”, pull the variable-speed pulley assembly off of the shaft.

(Fig. 126)



127

Special tool:

1 Hex. bolt M 16 x 30 DIN 933-8.8 head-centred
2 Puller plate, part no. 181 617.0
3 Hex. bolt M 16 x 40 DIN 933-8.8, part no. 235 821.0
4 Contact washer A 16
5 Puller bridge, part no. 181 800.0
6 Threaded spindle, part no. 181 801.1
7 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

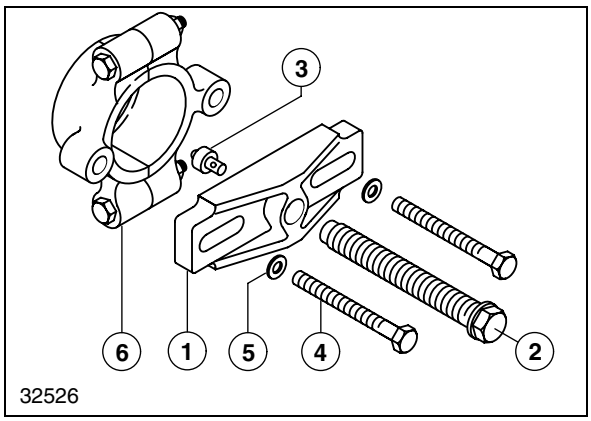
(Fig. 127)



128

Using the special tool, remove the inner race.

(Fig. 128)



129

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 16 x 260, part no. 235 816.0 – 2 pieces
5 Washer 17, part no. 235 127.2 – 2 pieces
6 Complete puller assembly, part no. 181 857.0

(Fig. 129)



130

Disassembling the cutterbar variable-speed pulley assembly (hydraulic)

Unscrew the spacer plate.

(Fig. 130)



131

Unscrew the cover and remove.

(Fig. 131)



132

Remove the variable-speed pulley half.

Remove the sliding bushing. Observe installation position and mark it.

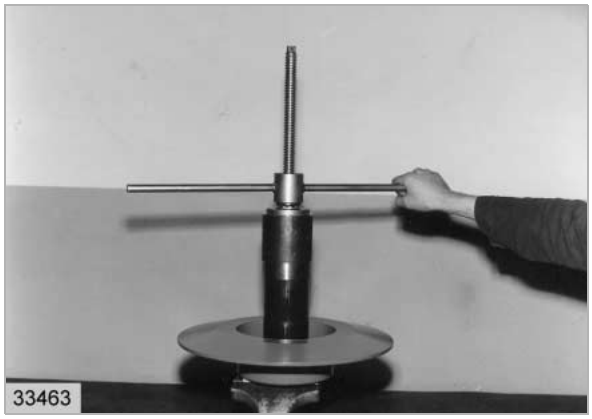
(Fig. 132)



133

Pinch out the shaft seal and the snap ring with a screwdriver.

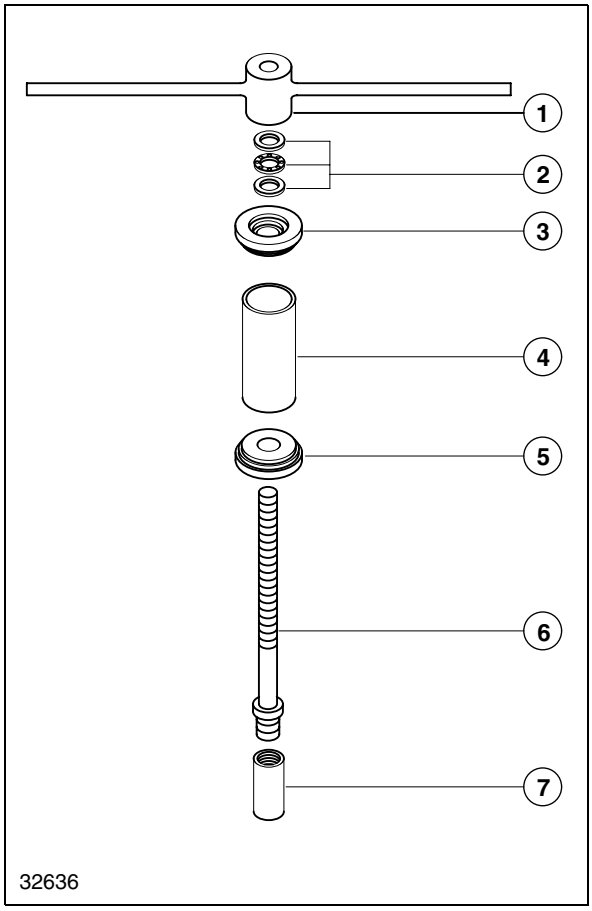
(Fig. 133)



134

Remove the needle bearing, the spacer bushing, the separating ring and the angular contact ball bearing with the special tool.

(Fig. 134)

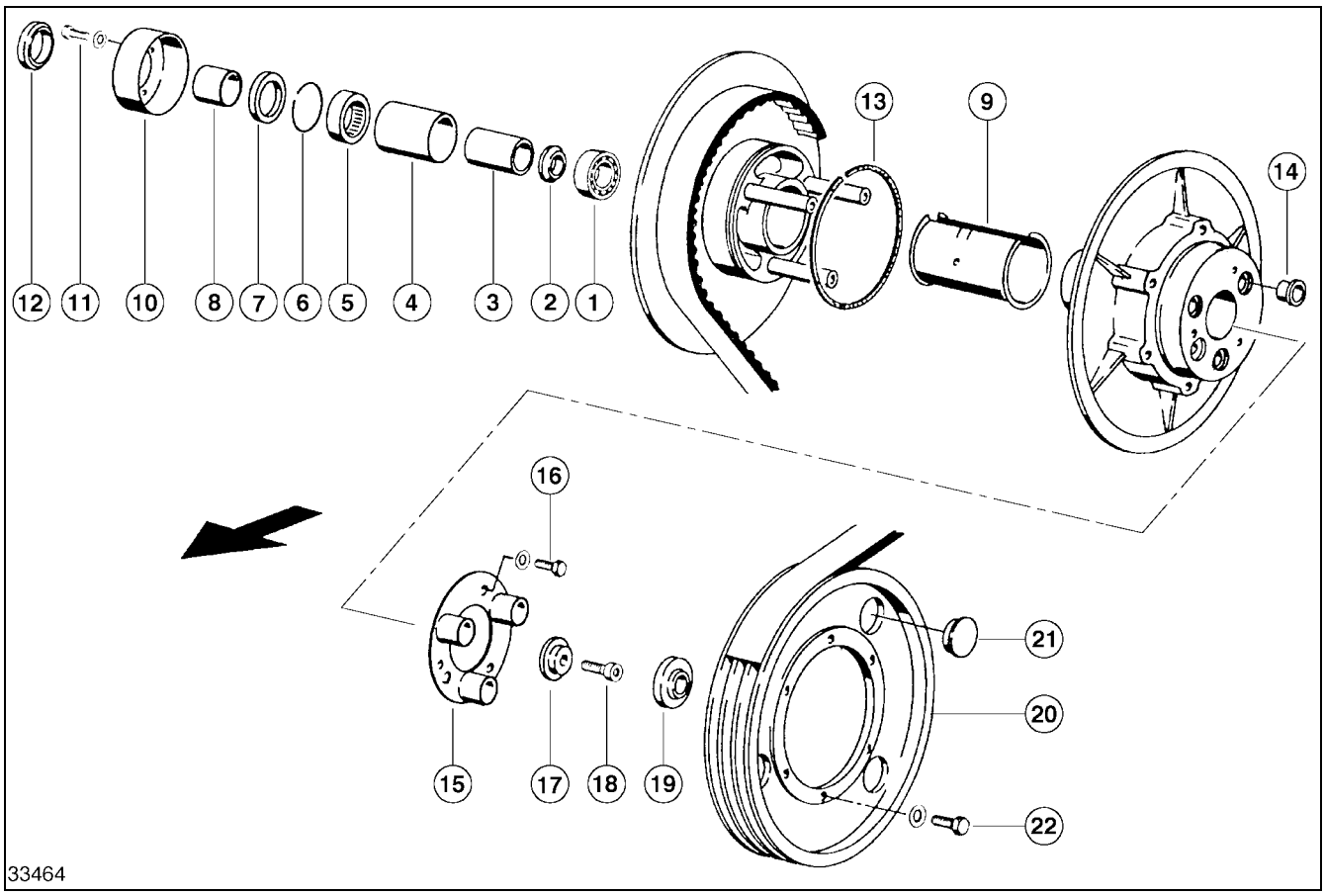


135

Special tool:

1 Lever nut, part no. 181 880.0
2 Axial grooved ball bearing, part no. 235 983.0
3 Locating disc, part no. 181 879.0
4 Tube, inside ∅ 80 x 150 long (self-sourced)
5 Locating disc, part no. 181 879.0
6 Spindle, part no. 181 877.0
7 Sleeve, part no. 181 881.1

(Fig. 135)

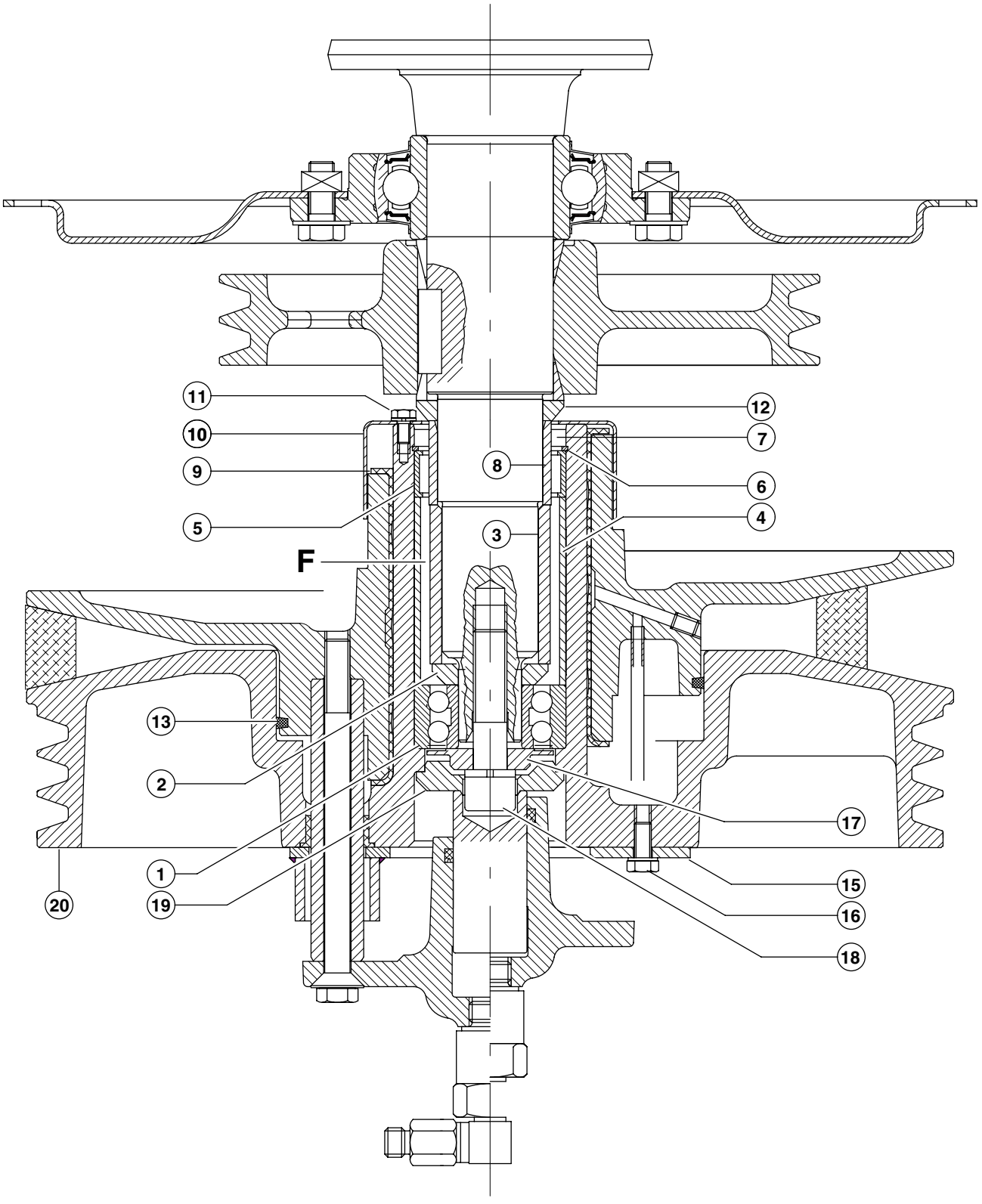


136

Cutterbar variable-speed pulley assembly (hydraulic), disassembled:

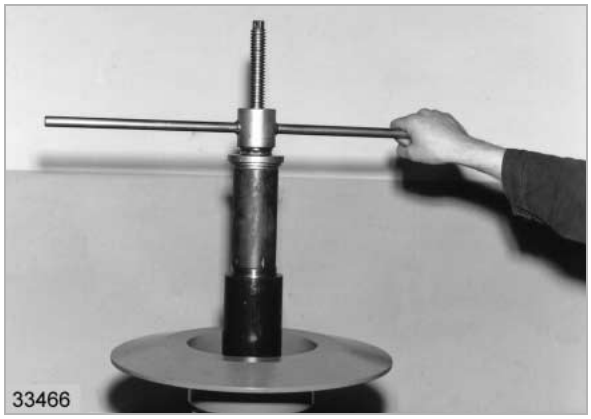
1 Angular contact ball bearing 3306 RS-C3 DIN 628
2 Intermediate ring
3 Inner spacer
4 Outer spacer
5 Needle bearing RNA 4910
6 Snap ring
7 Shaft seal A 58 x 72 x 8 DIN 3760
8 Inner ring Ir 50 x 58 x 40
9 Sliding bushing
10 Cover
11 Hex. bolt M 6 x 12 DIN 933-8.8
Lock washer 6
12 Spacer ring
13 Felt seal
14 Bushing
15 Spacer plate
16 Hex. bolt M 8 x 16 DIN 933-8.8
Contact washer A 8
17 Thrust washer
18 Cheese-head screw M 12 x 30 MK DIN 912-10.9
19 Piston holder
20 V-belt pulley
21 Plug
22 Hex. bolt M 12 x 35 DIN 933-8.8
Lock washer 12

(Fig. 136)



33465

137



138

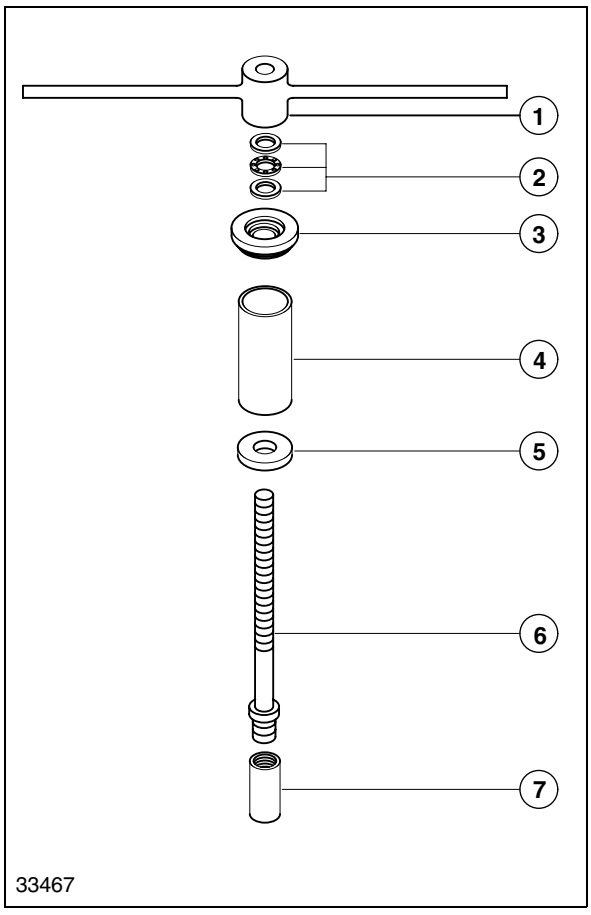
Assembling the cutterbar variable-speed pulley assembly (hydraulic)

1. Press in the angular contact ball bearing (1) with the special tool. Ensure the correct installation position.

! **CAUTION!**

Insert the outer race of the angular contact ball bearing with liquid locking compound, e.g DELO-ML 5349.

(Fig. 136, 137, 138)

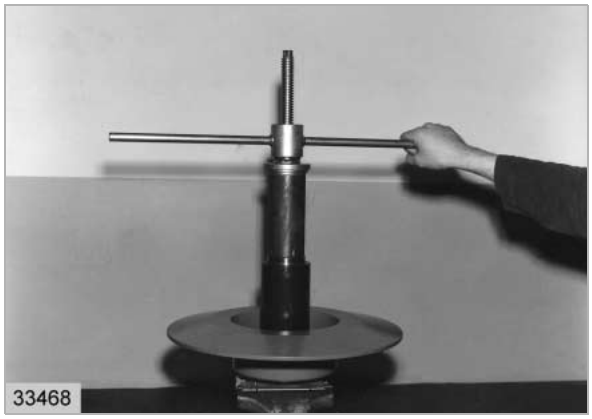


139

Special tool:

1 Lever nut, part no. 181 880.0
2 Axial grooved ball bearing, part no. 235 983.0
3 Locating disc, part no. 181 879.0
4 Tube, outside ∅ 70 x 150 long (self-sourced)
5 Washer, outside ∅ 70 x inside ∅ 20 x 8
6 Spindle, part no. 181 877.0
7 Sleeve, part no. 181 881.1

(Fig. 139)



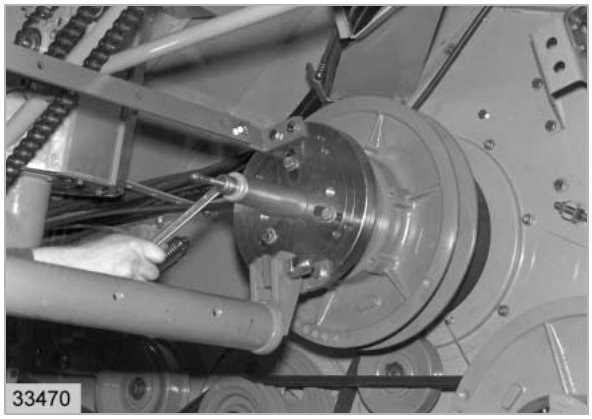
140

2. Insert the outer spacer (4), the inner spacer (3) and the intermediate ring (2).
3. Press the needle bearing (5) into position using the special tool.

(Fig. 136, 137, 140)

4. Press in the snap ring (6), the shaft seal (7) and the inner ring (8). Fill the space (F) completely with grease (Fig. 137).
5. Insert the felt seal (13) and the sliding bushing (observe installation position). In this process, grease all grease channels and plastic bushings. Assemble both variable-speed pulley halves together.
6. Bolt down the cover (10) and the spacer plate (15).

(Fig. 136, 137)



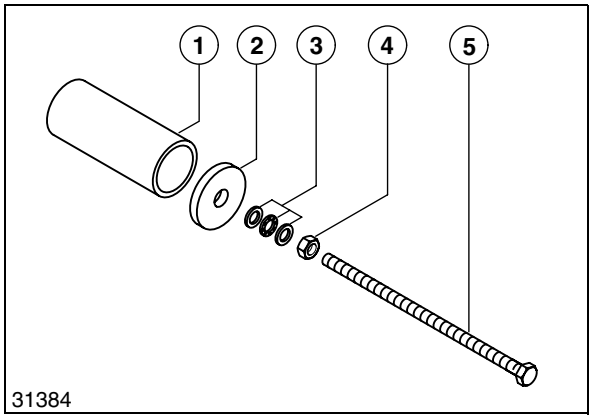
141

Installing the cutterbar variable-speed pulley assembly (hydraulic)

Using the special tool part no. 181 617.0 and a suitable lifting device, such as a Hydrobull, slide the variable-speed pulley assembly on the flanged shaft.

Using the special tool, press the variable-speed pulley assembly onto the shaft.

(Fig. 141)

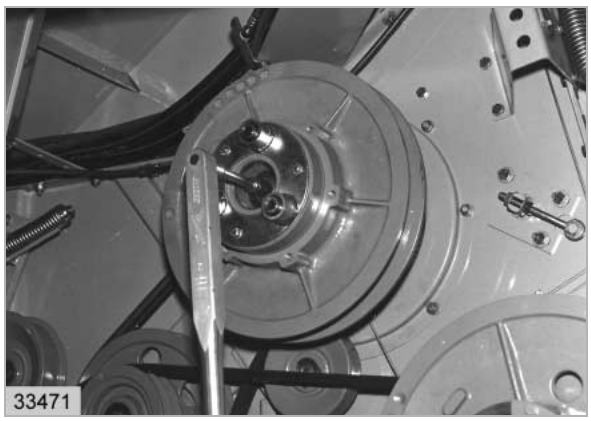


142

Special tool:

1 Tube, inside ∅ 32 x 100 long
2 Washer, outside ∅ 45 x inside ∅ 13 x 10
3 Axial grooved ball bearing, part no. 177 899.0
4 Hex. nut M 12 DIN 934, part no. 236 172.0
5 Hex. bolt M 12 x 180 DIN 933-8.8, part no. 236 302.0

(Fig. 142)



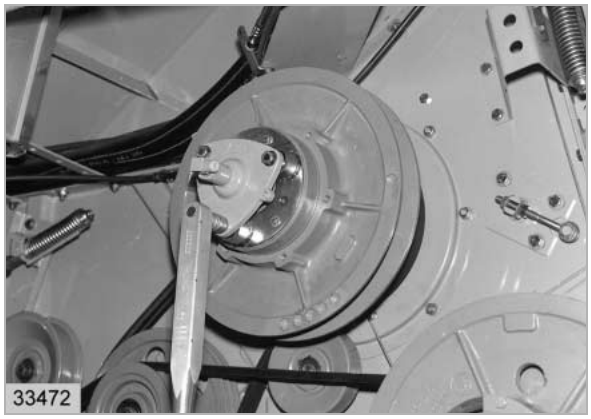
143

Insert the thrust washer (17) and bolt in cheese-head screw (18) with liquid locking compound, e.g DELO-ML 5349.

Tightening torque:

M 16 x 70-8.8 = **180 Nm**
M 12 x 30-10.9 = **125 Nm**

(Fig. 136, 137, 143)



144

Insert the piston holder and the variable-speed drive cylinder and bolt down. (If necessary, adjust the cutterbar variable-speed drive belt (3) using shims – see page 7.2.6, *Installing and adjusting the cutterbar variable-speed drive belt (3)*.)

Tightening torque = 86 Nm

(Fig. 144)

Screw in the grease nipple and the grease pipe.

Place the V-belt pulley into position and tighten.

Tightening torque = 78 Nm

Installing and adjusting the cutterbar variable-speed drive belt (3), see page 7.2.6

Installing and adjusting the cutterbar drive belt (2) (Cutterbar drive with variable-speed drive), see page 7.2.4

Removing the cutterbar clutch

Removing the cutterbar intermediate drive belt (5), see page 7.2.9

Removing the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

Removing the sieve pan intermediate drive belt (13), see page 7.2.25



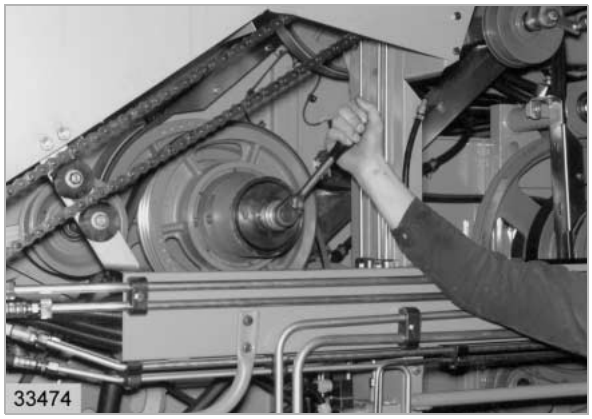
145

Remove the rotary coupling from the cutterbar drive clutch. Collect any leaking oil and seal the hydraulic connections with suitable plastic caps.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

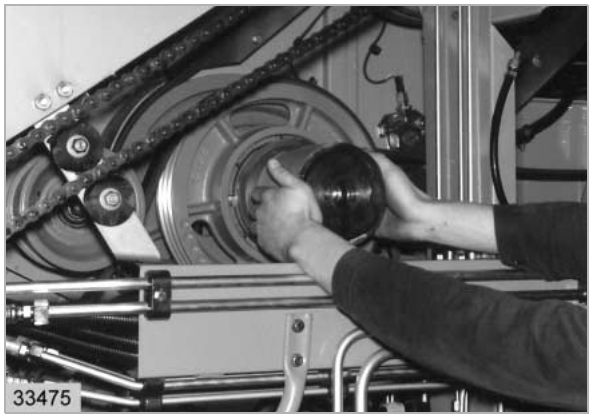
(Fig. 145)



146

Remove the two slotted nuts with the socket wrench part no. 181 809.0. Remove the back-up ring.

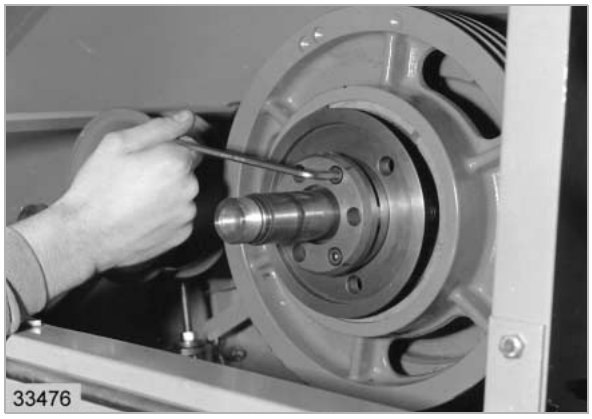
(Fig. 146)



147

Remove the cylinder and the six Belleville springs.

(Fig. 147)



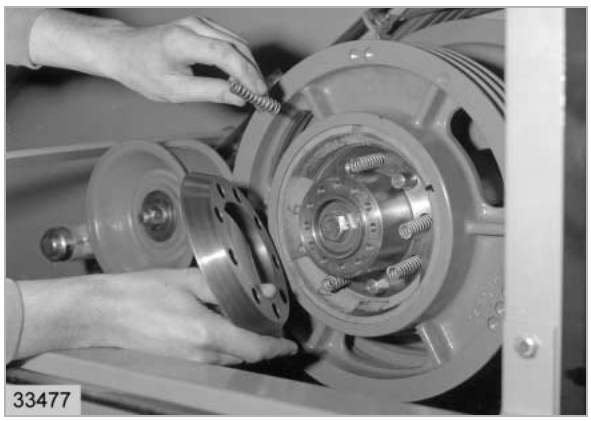
148

Remove the three cheese-head screws.

From serial no. …:
Remove the hydraulic ram (34).

Up to serial no. …:
Remove the hydraulic ram (22) and the mounting ring (23).

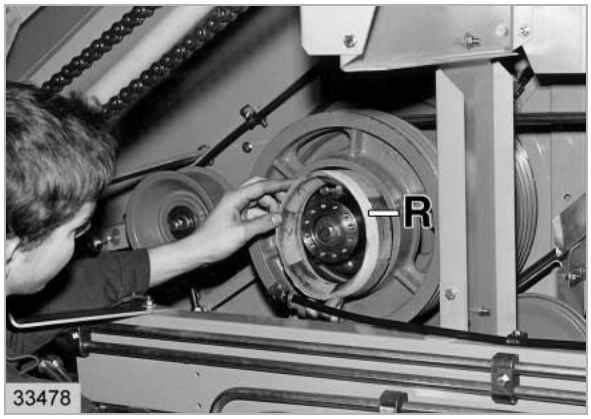
(Fig. 148, 164)



149

Remove the pressure plate with compression springs.

(Fig. 149)



150

Number the individual friction rings (R).

CAUTION!

Pull the friction rings out of the clutch housing only half of their size. Using suitable insulation tape bind the rings together and remove completely.

The wedges of the friction ring must not be confused, therefore mark the individual wedges. If a new friction ring is used, the sequence of wedges is numbered.

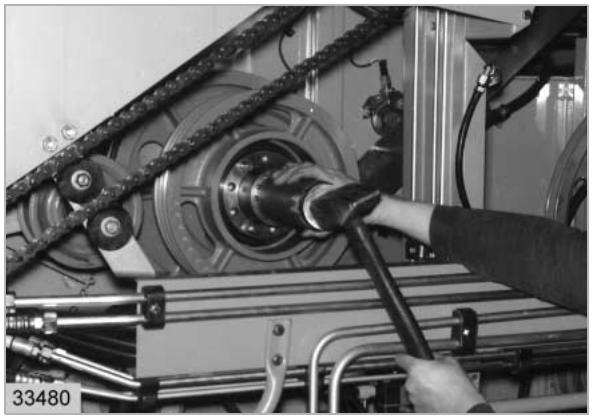
(Fig. 150)



151

Remove the M 16 hex. bolt with the thrust washer from the shaft face end.

(Fig. 151)

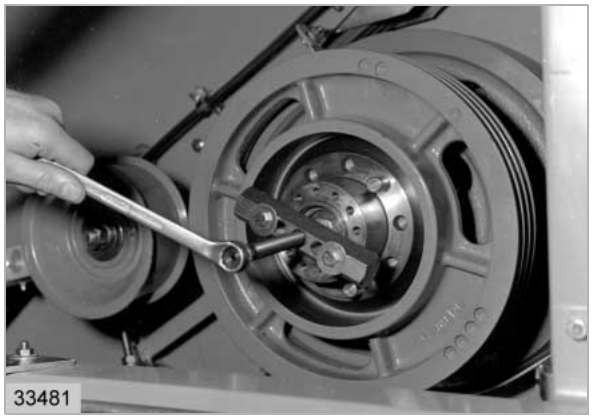


152

The clutch hub is fixed to the shaft using a taper ring fastener.

Using a suitable tube with an inner diameter greater than the centralising ring on the clutch hub, give the hub a good sharp blow with a hammer to slacken off the tapered ring.

(Fig. 152)

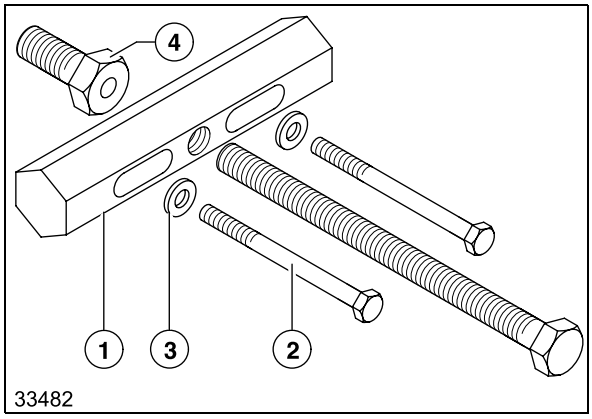


153

Remove the tapered ring and pull off the clutch hub using the special tool.

Remove the parallel key and the tapered ring.

(Fig. 153)

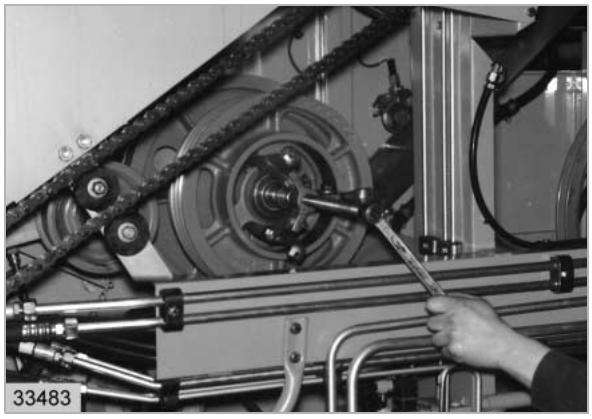


154

Special tool:

1 Small puller bridge, part no. 181 621.0
2 Hex. bolt M 8 x 80 DIN 931-8.8, part no. 235 525.0
3 Washer 8
4 Hex. bolt M 16 x 25 DIN 933-8.8 head-centred

(Fig. 154)

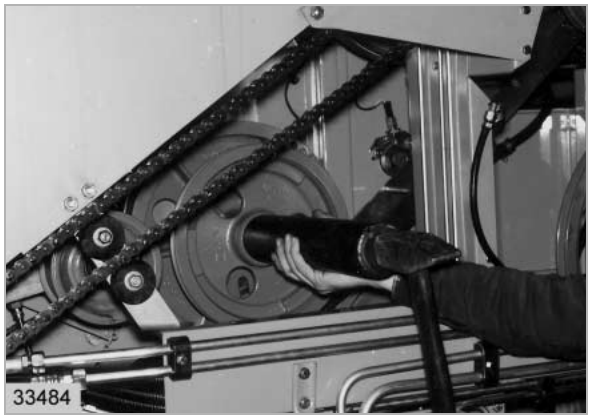


155

Remove the V-belt pulley, using a suitable puller.

Remove the spacer ring.

(Fig. 155)



156

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

(Fig. 156)

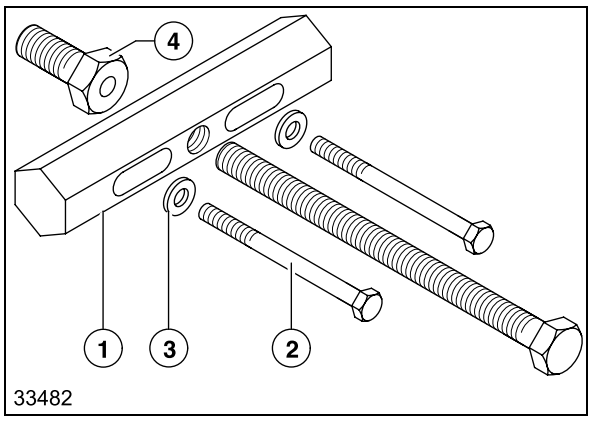


157

From serial no. …:

Remove the tapered ring and pull off the V-belt pulley using the special tool.

(Fig. 157)

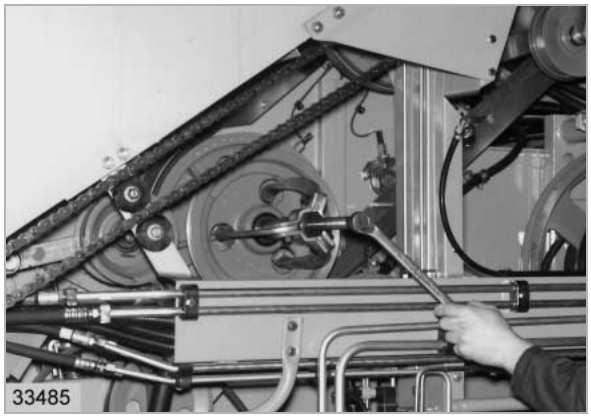


158

Special tool:

1 Universal puller bridge, part no. 181 622.0
2 Hex. bolt M 10 x 180 DIN 931-8.8, part no. 237 796.0
3 Washer ∅ 11, part no. 215 683.0
4 Hex. bolt M 16 x 25 DIN 933-8.8 head-centred

(Fig. 158)



159

Up to serial no. …:

Remove the tapered ring and, using a suitable puller, remove the V-belt pulley.

(Fig. 159)



160

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

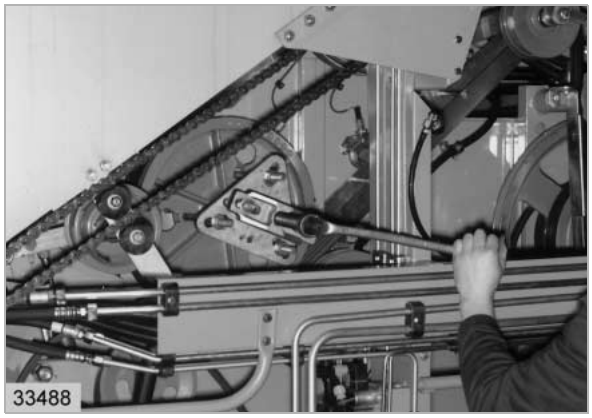
(Fig. 160)



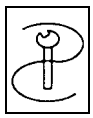
161

Remove the belt guide from the main drive pulley.

(Fig. 161)



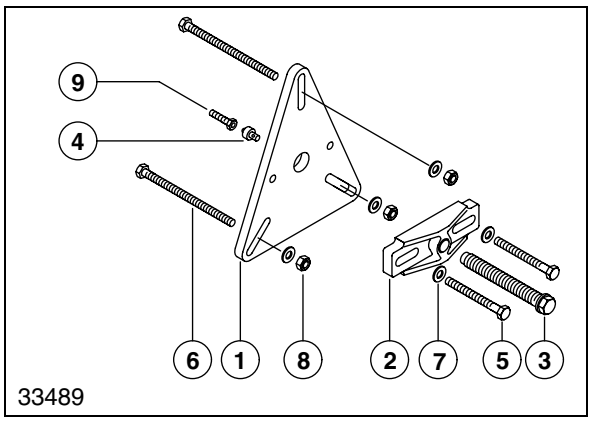
162



Remove the V-belt pulley using the special tool.

Remove the parallel key and the tapered ring.

(Fig. 162)

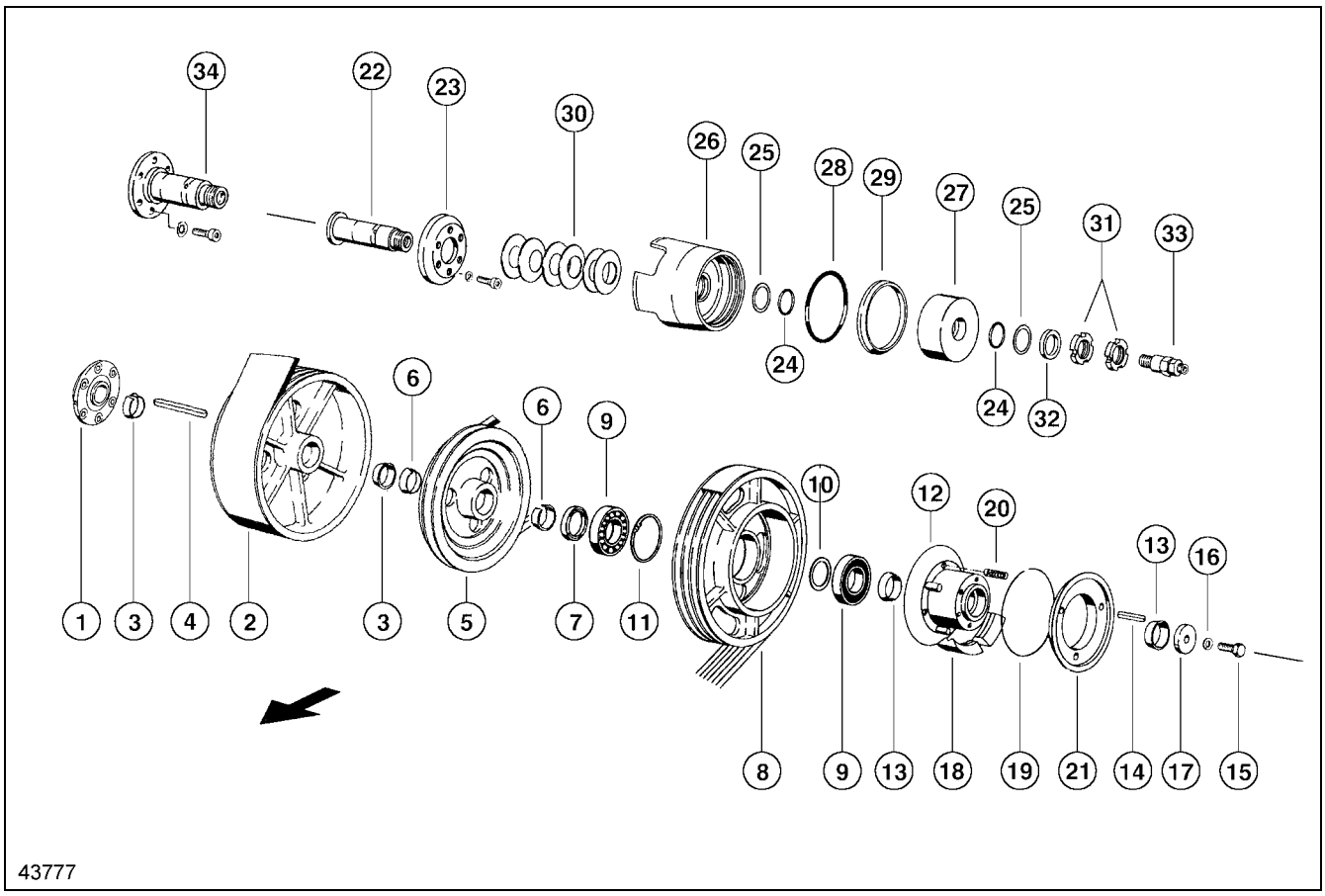


163

Special tool:

1 Puller plate, part no. 181 803.1
2 Puller bridge, part no. 181 800.0
3 Spindle, part no. 181 801.1
4 Centraliser with ball, part no. 181 849.0
5 Hex. bolt M 16 x 140, part no. 242 795.0 – 2 pieces
6 Hex. bolt M 16 x 260, part no. 235 816.0 – 3 pieces
7 Washer 17, part no. 235 127.2 – 5 pieces
8 Hex. nut M 16, part no. 236 173.0 – 5 pieces
9 Hex. bolt M 16 x 60 DIN 933 head-centred, part no. 603 038.0

(Fig. 163)

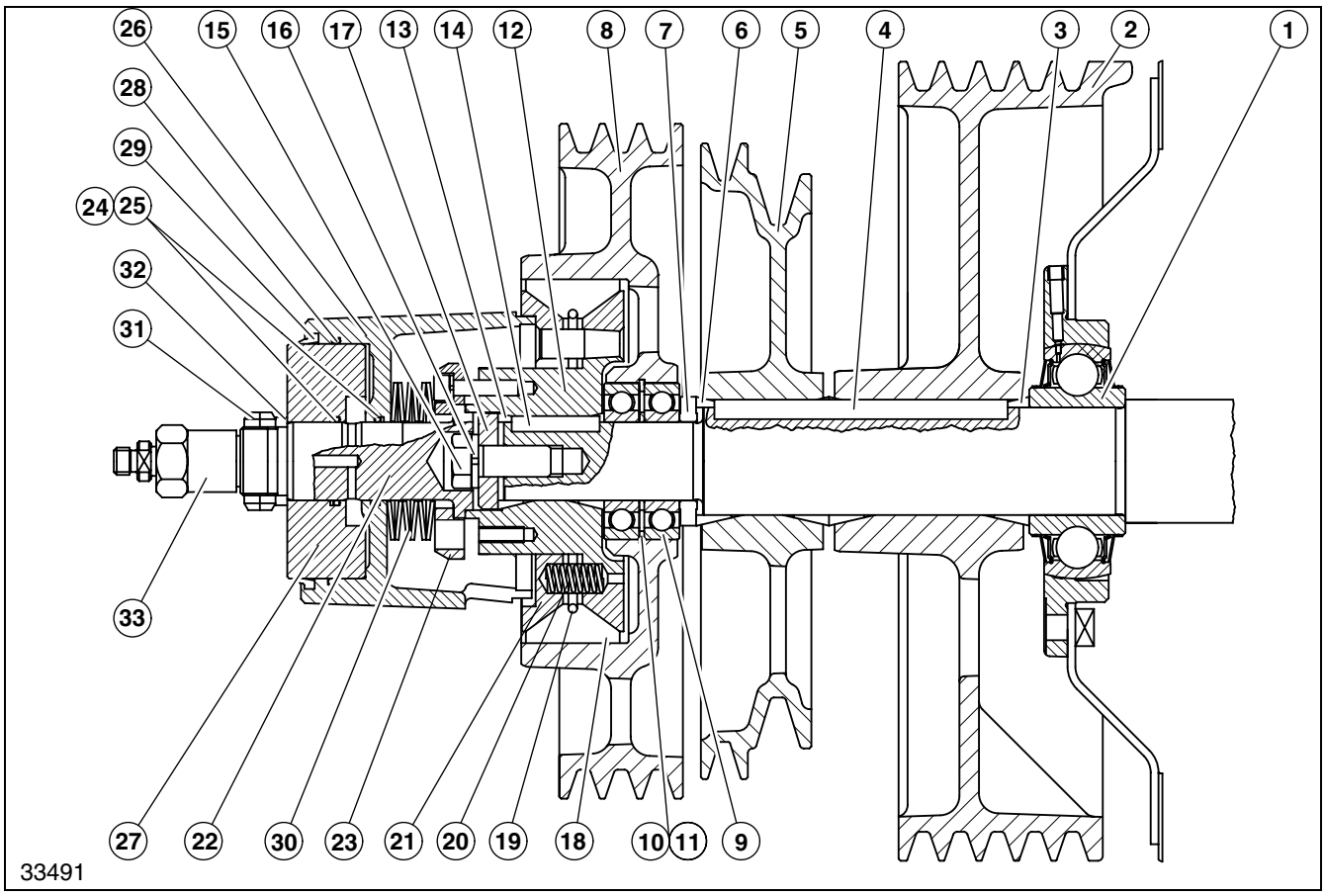


164

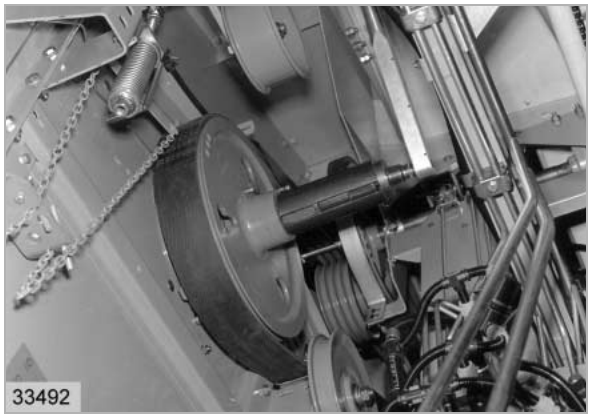
Cutterbar clutch, disassembled

1 Bearing assembly D 55
2 V-belt pulley (main drive)
3 Tapered ring
4 Parallel key A 16 x 10 x 150
5 V-belt pulley (sieve pan drive)
6 Tapered ring
7 Spacer ring
8 V-belt pulley (cutterbar drive)
9 Deep groove ball bearing 6208 RS
10 Supporting ring S 40 x 50
11 Circlip 80 x 2.5
12 Clutch hub
13 Tapered ring
14 Parallel key
15 Hex. bolt M 16 x 40 DIN 933-8.8
16 Circlip 16
17 Washer
18 Friction ring
19 Inner spring
20 Compression spring
21 Pressure plate
22 Hydraulic ram (up to serial no. …)
23 Mounting ring (up to serial no. ...)
Cheese-head screw M 8 x 35 DIN 912
Detent-edged ring VSKZ 8
24 O-ring
25 Back-up ring
26 Cylinders
27 Ram
28 O-ring
29 Scraper ring
30 Belleville spring
31 Slotted nut
32 Back-up ring
33 Rotary feed
34 Hydraulic ram (from serial no. ...)

(Fig. 164)



165



166

Installing the cutterbar clutch

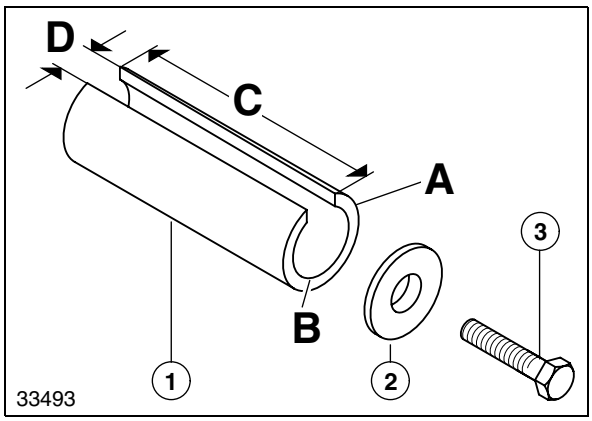
CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 553.1 applied prior to installation.

1. Slide the rear tapered ring (3), the parallel key (4) and the V-belt pulley (2) onto the shaft.
2. Insert the front tapered ring (3) and press into position using the special tool. For this, block the V-belt pulley up with a chain.

   Tightening torque = 210 Nm

(Fig. 164, 165, 166)

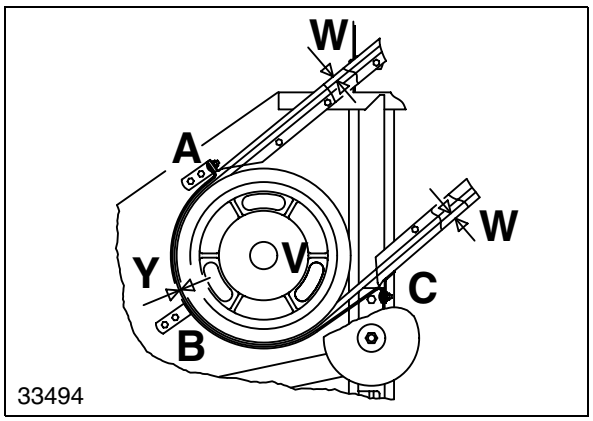


167

Special tool:

1 Tube (self-sourced)
A = ∅ 76 mm
B = ∅ 56 mm
C = 180 mm
D = 20 mm
2 Washer ∅ 76 x ∅ 17 x 10
3 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

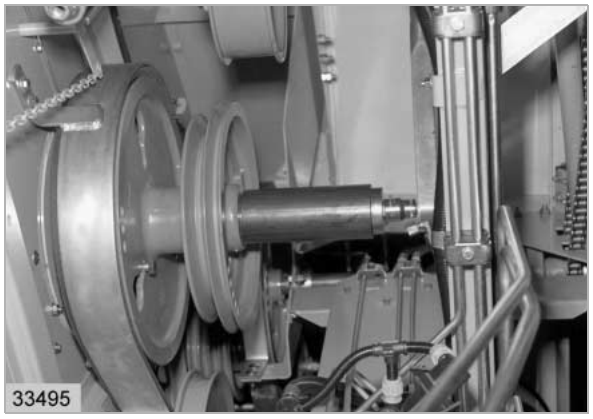
(Fig. 167)



168

3. Bolt down the belt guide completely and adjust at (A, B and C) so that with the belt tensioned, the distance (Y) is **5 to 7 mm** and dimension (W) is **10 mm**.

(Fig. 168)

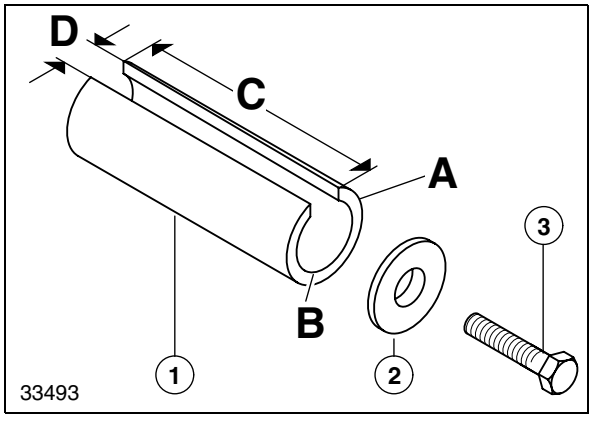


169

4. Slide the rear tapered ring (6) and the V-belt pulley (5) onto the shaft.
5. Insert the front tapered ring (6) and press into position using the special tool. For this, block the V-belt pulley up with a chain.

   Tightening torque = 210 Nm

(Fig. 164, 165, 169)

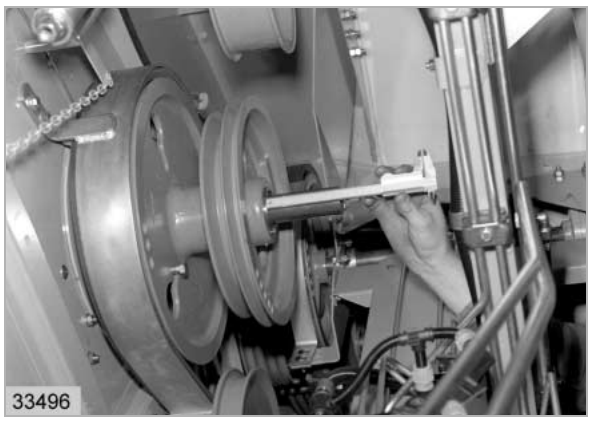


170

Special tool:

1 Tube (self-sourced)
A = ∅ 76 mm
B = ∅ 56 mm
C = 180 mm
D = 20 mm
2 Washer ∅ 76 x ∅ 17 x 10
3 Hex. bolt M 16 x 110 DIN 931-8.8, part no. 238 642.0

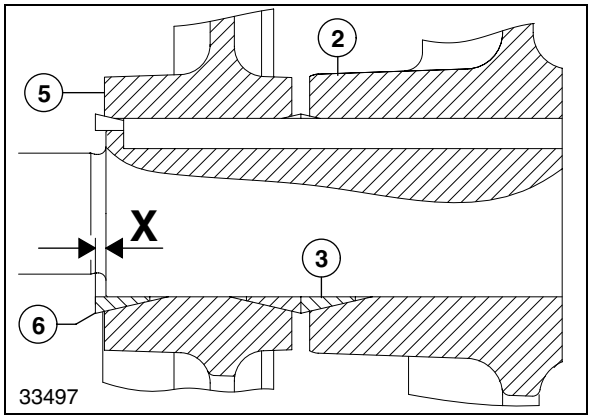
(Fig. 170)



171

6. The clearance (X) between the shaft shoulder and the tapered ring must be at least **0.8 mm**.

(Fig. 171, 172)



172



173

7. Insert both deep groove ball bearings (9) with support washer (10) and circlip (11) into the V-belt pulley (8).

CAUTION!

Fill the space between the two deep groove ball bearings with multi-purpose grease.

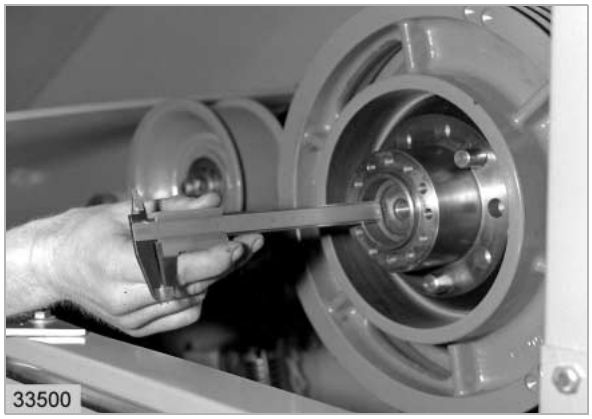
(Fig. 164, 165, 173)



174

8. Slide the pre-assembled spacer ring (7) and V-belt pulley (8) on the shaft up to the shoulder.
9. Insert the parallel key (14) and slide the clutch hub (12) with the tapered ring (13) on the shaft.
10. Tighten the hex. bolt (15) with washer (17) up to **210 Nm**.

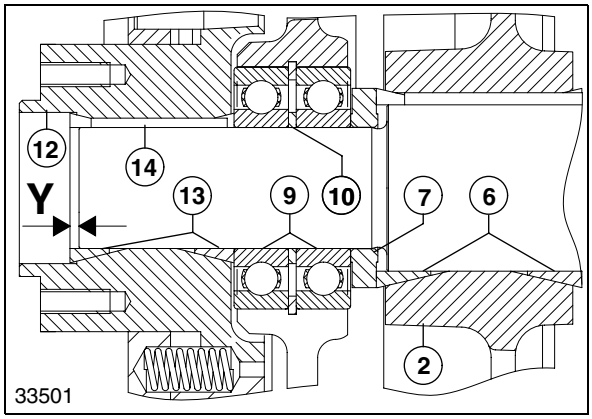
(Fig. 164, 165, 174)



175

11. Unscrew hex. bolt (15). The clearance (X) between the shaft end and the tapered ring must be at least **0.8 mm**.

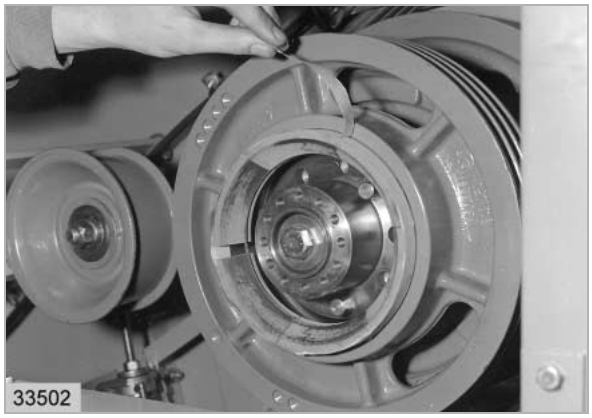
(Fig. 175, 176)



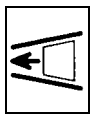
176

12. Refit hex. bolt (15) and tighten to **210 Nm**.

(Fig. 174)

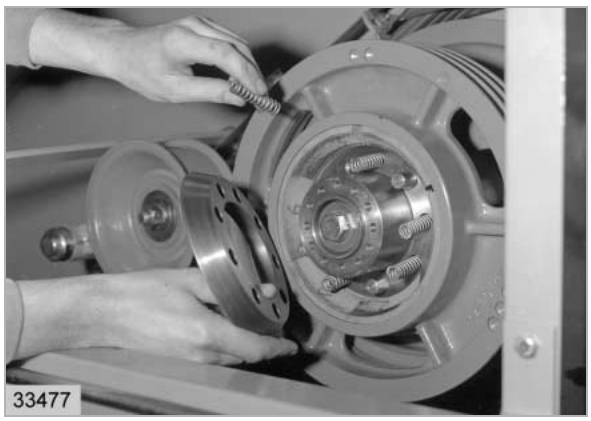


177



13. When fitting new friction rings (18), lay them around the inner spring (19) in the numbered order. Tape the outer edge of the friction rings with suitable tape.
14. Place the friction ring in the clutch hub (12), then remove the tape.

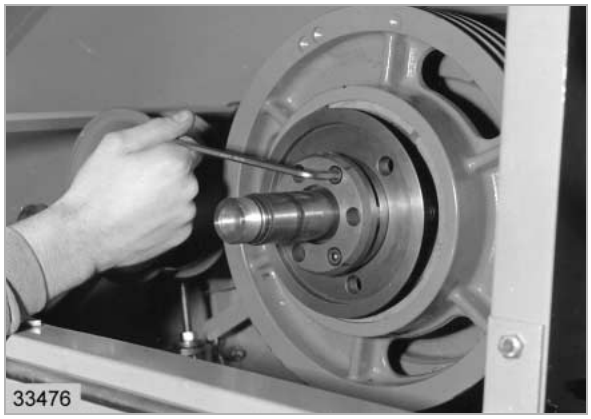
(Fig. 164, 165, 177)



178

15. Insert the compression springs (20) with the pressure plate (21). Ensure that all the springs are correctly located in their respective holes.

(Fig. 164, 165, 178)

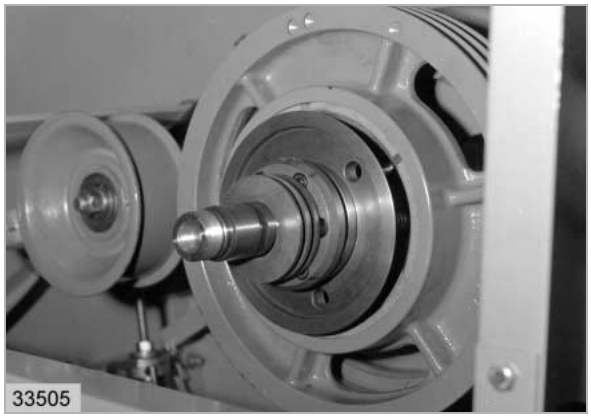


179

16. From serial no. …:
Bolt down hydraulic ram (34).

Up to serial no. …:
Refit the hydraulic ram (22) with mounting ring (23).

(Fig. 164, 165, 179)



180

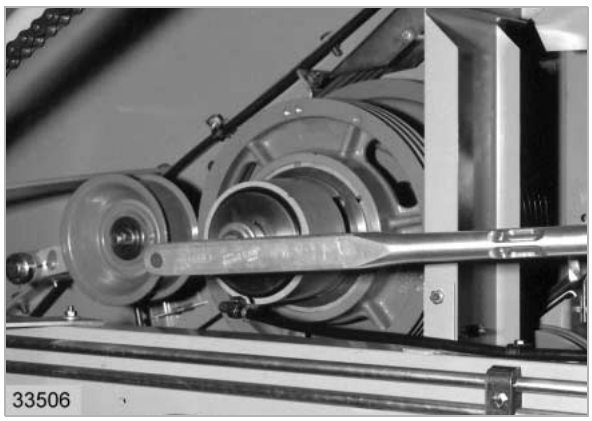
17. Place the O-rings (24 and 28), the back-up ring (25) and the scraper ring (29) into the cylinder (26) and piston (27).

CAUTION!

Take particular care not to damage the O-rings with sharp edges.

18. Apply gearbox grease G 00 to Belleville springs before inserting them. Observe correct installation position of Belleville springs.

(Fig. 164, 165, 180)



181

19. Slide the cylinder (26) onto the piston (27). Bolt down the slotted nuts (31) with support ring (32) individually.

    Tightening torque = 150 Nm

(Fig. 164, 165, 181)

20. *Installing and adjusting the sieve pan intermediate drive belt (13)*, see page 7.2.26

    Installing and adjusting the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

    Installing and adjusting the cutterbar intermediate drive belt (5), see page 7.2.10

LEFT-HAND THRESHING MECHANISM DRIVE

Removing the threshing mechanism drive pulley assembly

Removing the cutterbar intermediate drive belt (5), see page 7.2.9

Removing the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

Removing the sieve pan intermediate drive belt (13), see page 7.2.25



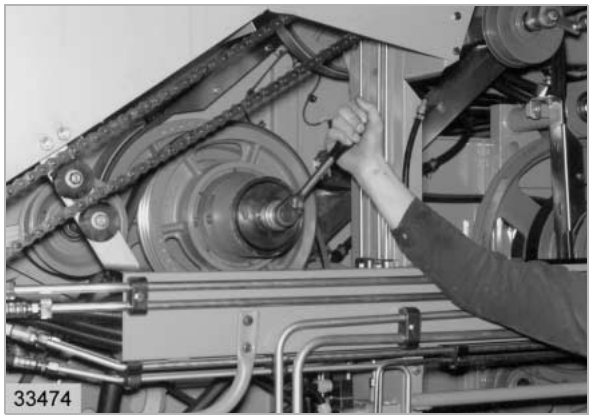
1

Remove the rotary coupling from the cutterbar drive clutch. Collect any leaking oil and seal the hydraulic connections with suitable plastic caps.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 1)



2

Remove the two slotted nuts with the socket wrench part no. 181 809.0. Remove the back-up ring.

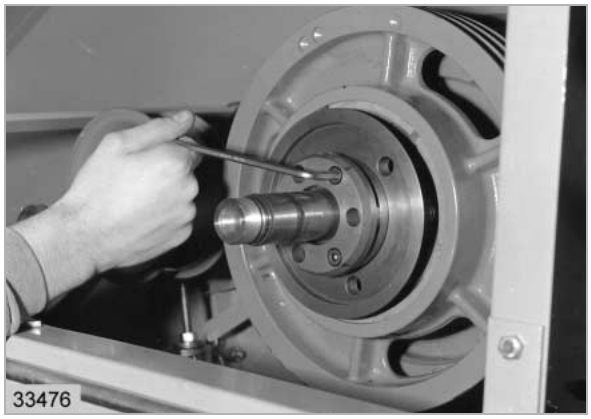
(Fig. 2)



3

Remove the cylinder and the six Belleville springs.

(Fig. 3)



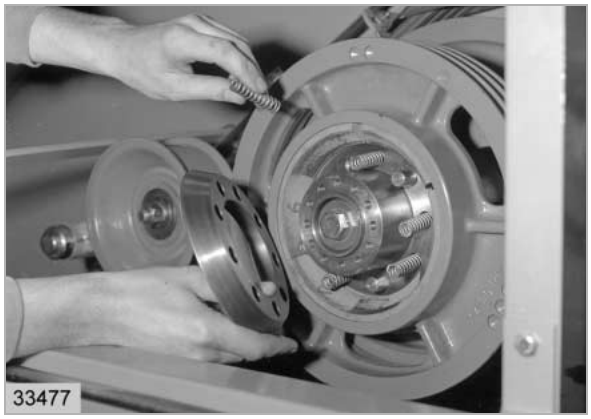
4

Remove the three cheese-head screws.

From serial no. …:
Remove the hydraulic ram (34).

Up to serial no. …:
Remove the hydraulic ram (22) and the mounting ring (23).

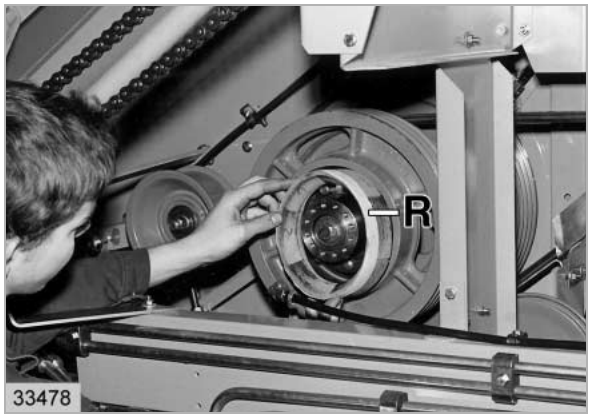
(Fig. 4, 20)



5

Remove the pressure plate with compression springs.

(Fig. 5)



6

Number the individual friction rings (R).

CAUTION!

Pull the friction rings out of the clutch housing only half of their size. Using suitable insulation tape bind the rings together and remove completely.

The wedges of the friction ring must not be confused when re-using them, therefore mark the individual wedges. In case of new friction rings, the sequence of wedges is numbered.

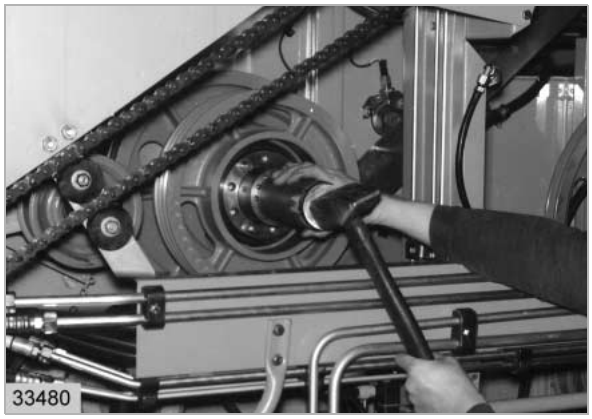
(Fig. 6)



7

Remove the M 16 hex. bolt with the thrust washer from the shaft face end.

(Fig. 7)

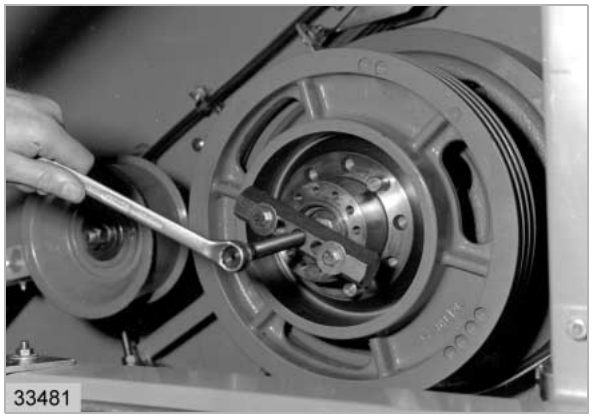


8

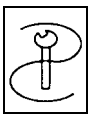
The clutch hub is fixed to the shaft using a taper ring fastener.

Using a suitable tube with an inner diameter greater than the centralising ring on the clutch hub, give the hub a good sharp blow with a hammer to slacken off the tapered ring.

(Fig. 8)



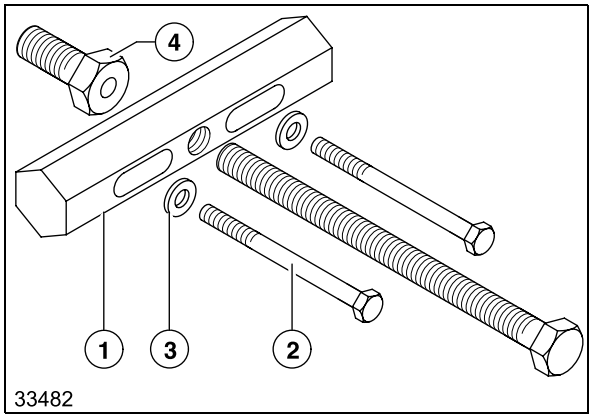
9



Remove the tapered ring and pull off the clutch hub using the special tool.

Remove the parallel key and the tapered ring.

(Fig. 9)

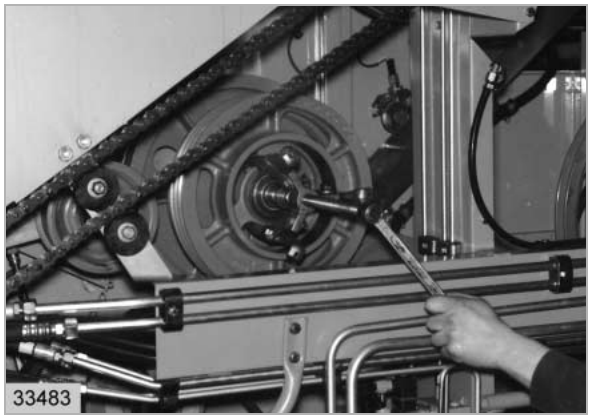


10

Special tool:

1 Small puller bridge, part no. 181 621.0
2 Hex. bolt M 8 x 80 DIN 931-8.8, part no. 235 525.0
3 Washer 8
4 Hex. bolt M 16 x 25 DIN 933-8.8 head-centred

(Fig. 10)

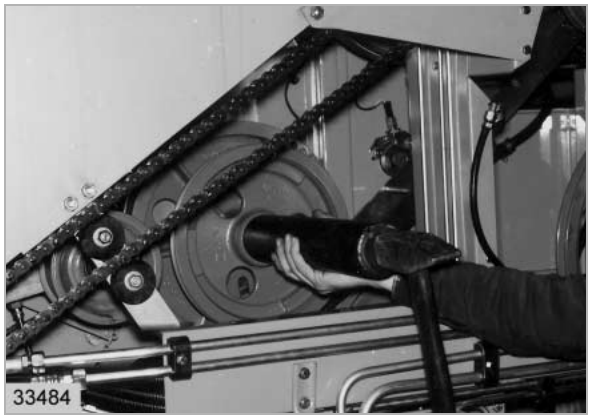


11

Remove the V-belt pulley, using a suitable puller.

Remove the spacer ring.

(Fig. 11)



12

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

(Fig. 12)

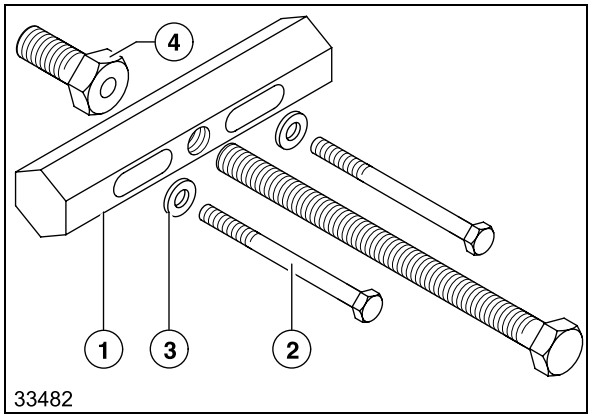


13

From serial no. …:

Remove the tapered ring and pull off the V-belt pulley using the special tool.

(Fig. 13)

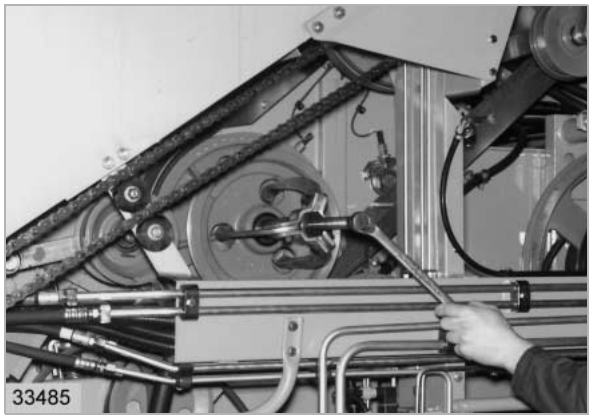


14

Special tool:

1 Universal puller bridge, part no. 181 622.0
2 Hex. bolt M 10 x 180 DIN 931-8.8, part no. 237 796.0
3 Washer ∅ 11, part no. 215 683.0
4 Hex. bolt M 16 x 25 DIN 933-8.8 head-centred

(Fig. 14)



15

Up to serial no. …:

Remove the tapered ring and, using a suitable puller, remove the V-belt pulley.

(Fig. 15)



16

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

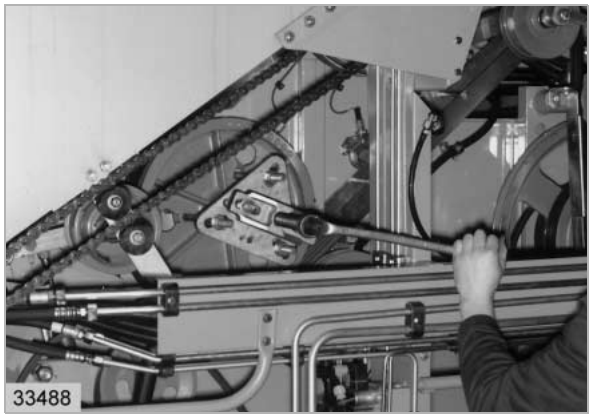
(Fig. 16)



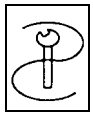
17

Remove the belt guide from the main drive pulley.

(Fig. 17)



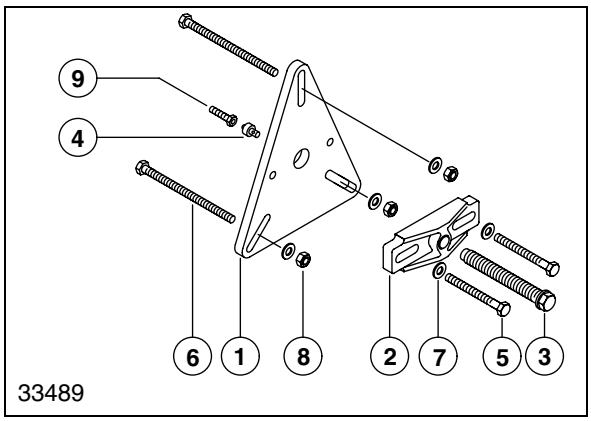
18



Remove the V-belt pulley using the special tool.

Remove the parallel key and the tapered ring.

(Fig. 18)

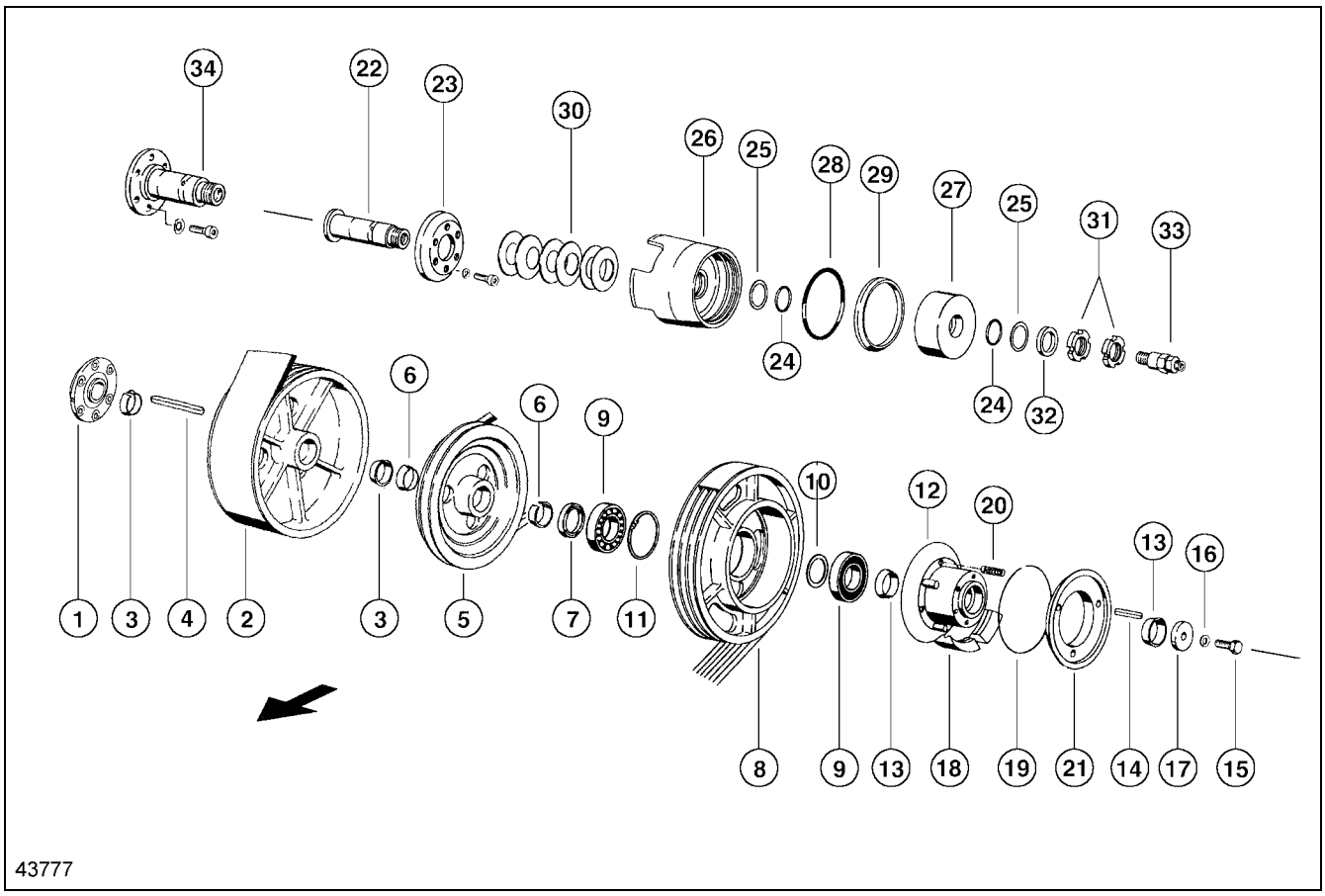


19

Special tool:

1 Puller plate, part no. 181 803.1
2 Puller bridge, part no. 181 800.0
3 Spindle, part no. 181 801.1
4 Centraliser with ball, part no. 181 849.0
5 Hex. bolt M 16 x 140, part no. 242 795.0 – 2 pieces
6 Hex. bolt M 16 x 260, part no. 235 816.0 – 3 pieces
7 Washer 17, part no. 235 127.2 – 5 pieces
8 Hex. nut M 16, part no. 236 173.0 – 5 pieces
9 Hex. bolt M 16 x 60 DIN 933 head-centred, part no. 603 038.0

(Fig. 19)

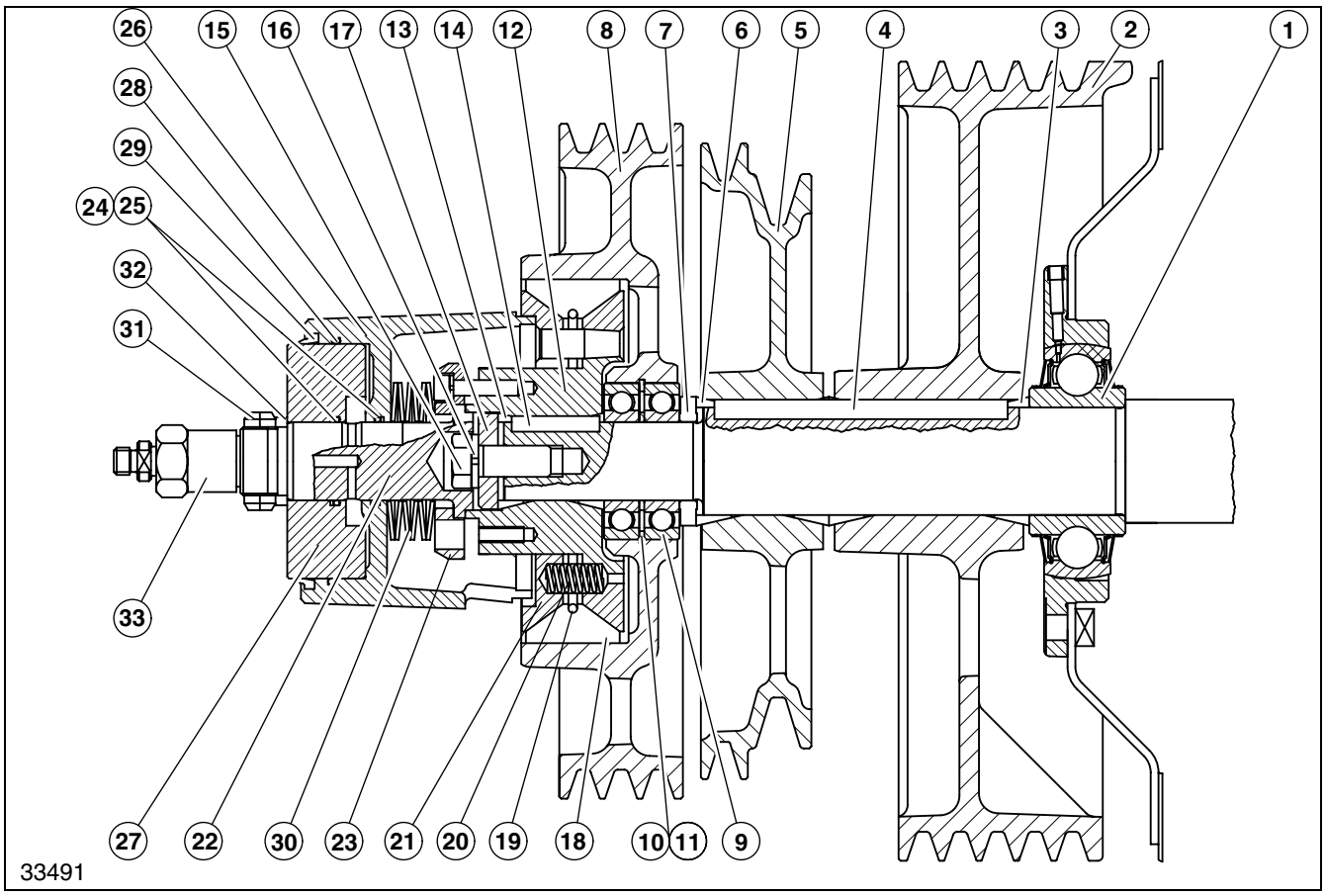


20

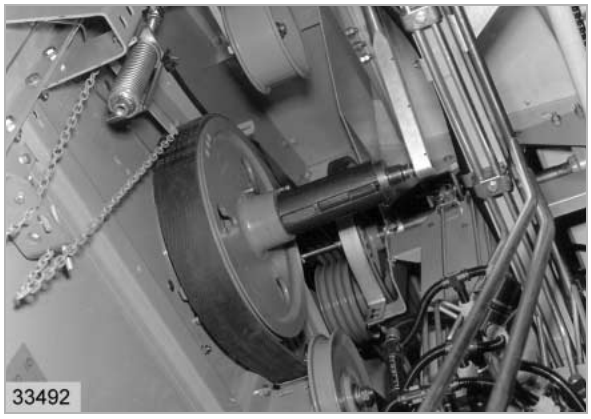
Threshing mechanism drive pulley assembly, disassembled

1 Bearing assembly D 55
2 V-belt pulley (main drive)
3 Tapered ring
4 Parallel key A 16 x 10 x 150
5 V-belt pulley (sieve pan drive)
6 Tapered ring
7 Spacer ring
8 V-belt pulley (cutterbar drive)
9 Deep groove ball bearing 6208 RS
10 Supporting ring S 40 x 50
11 Circlip 80 x 2.5
12 Clutch hub
13 Tapered ring
14 Parallel key
15 Hex. bolt M 16 x 40 DIN 933-8.8
16 Circlip 16
17 Washer
18 Friction ring
19 Inner spring
20 Compression spring
21 Pressure plate
22 Hydraulic ram (up to serial no. …)
23 Mounting ring (up to serial no. ...)
Cheese-head screw M 8 x 35 DIN 912
Detent-edged ring VSKZ 8
24 O-ring
25 Back-up ring
26 Cylinders
27 Ram
28 O-ring
29 Scraper ring
30 Belleville spring
31 Slotted nut
32 Back-up ring
33 Rotary feed
34 Hydraulic ram (from serial no. ...)

(Fig. 20)



21



22

Installing the threshing mechanism drive pulley assembly

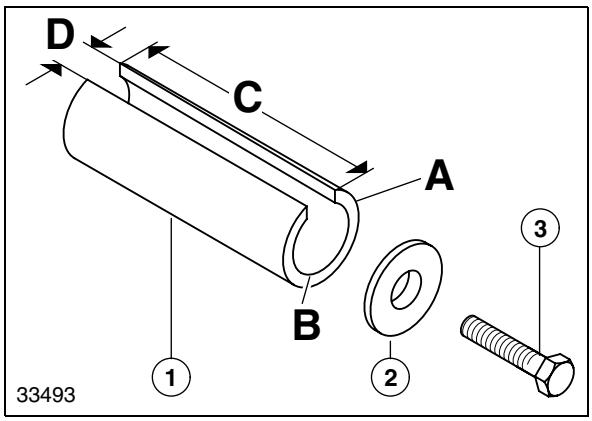
CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 553.1 applied prior to installation.

1. Slide the rear tapered ring (3), the parallel key (4) and the V-belt pulley (2) onto the shaft.
2. Insert the front tapered ring (3) and press into position using the special tool. For this, block the V-belt pulley up with a chain.

   Tightening torque = 210 Nm

(Fig. 20, 21, 22)

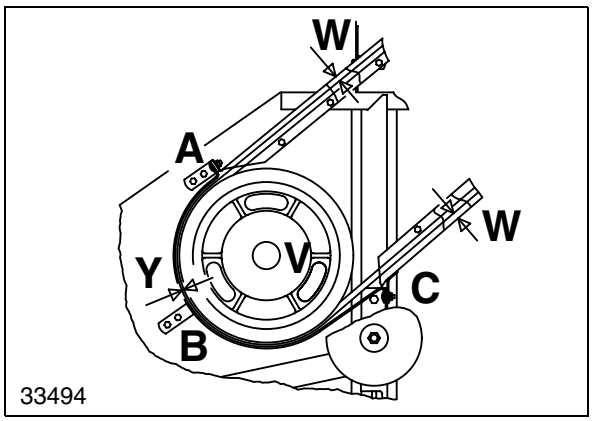


23

Special tool:

1 Tube (self-sourced)
A = ∅ 76 mm
B = ∅ 56 mm
C = 180 mm
D = 20 mm
1 Washer ∅ 76 x ∅ 17 x 10
2 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

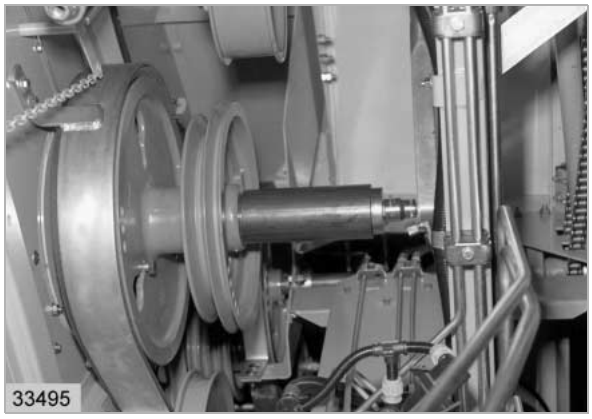
(Fig. 23)



24

3. Bolt down the belt guide completely and adjust at (A, B and C) so that with the belt tensioned, the distance (Y) is **5 to 7 mm** and dimension (W) is **10 mm**.

(Fig. 24)

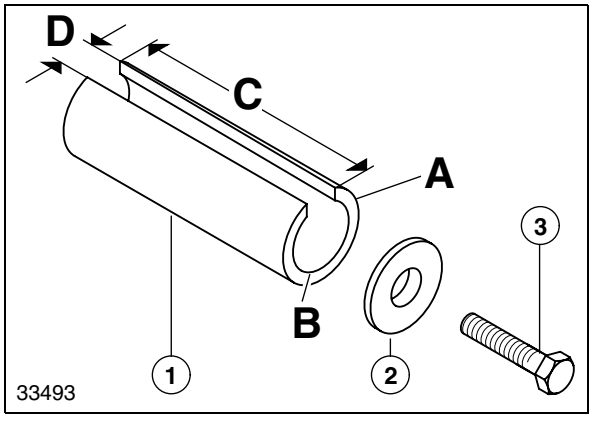


25

4. Slide the rear tapered ring (6) and the V-belt pulley (5) onto the shaft.
5. Insert the front tapered ring (6) and press into position using the special tool. For this, block the V-belt pulley up with a chain.

   Tightening torque = 210 Nm

(Fig. 20, 21, 25)

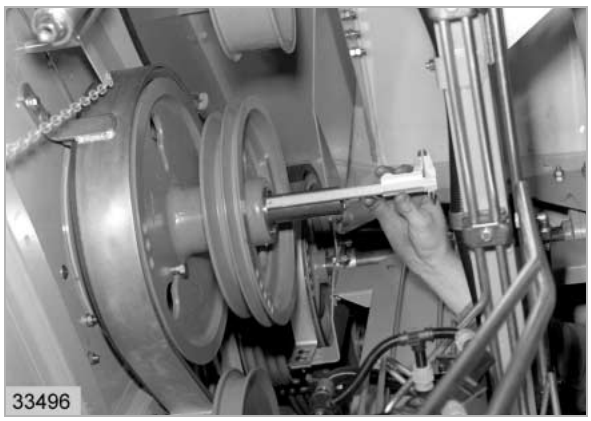


26

Special tool:

1 Tube (self-sourced)
A = ∅ 76 mm
B = ∅ 56 mm
C = 180 mm
D = 20 mm
1 Washer ∅ 76 x ∅ 17 x 10
2 Hex. bolt M 16 x 110 DIN 931-8.8, part no. 238 642.0

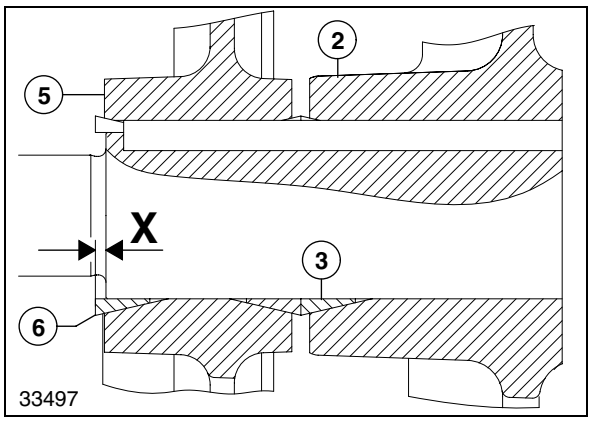
(Fig. 26)



27

6. The clearance (X) between the shaft shoulder and the tapered ring must be at least **0.8 mm**.

(Fig. 27, 28)



28



29

7. Insert both deep groove ball bearings (9) with support washer (10) and circlip (11) into the V-belt pulley (8).

CAUTION!

Fill the space between the two deep groove ball bearings with multi-purpose grease.

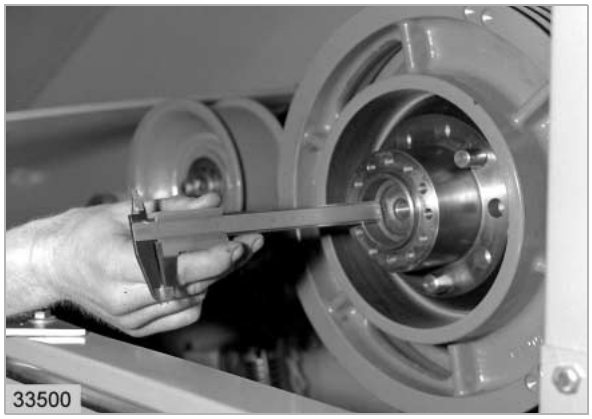
(Fig. 20, 21, 29)



30

8. Slide the pre-assembled spacer ring (7) and V-belt pulley (8) on the shaft up to the shoulder.
9. Insert the parallel key (14) and slide the clutch hub (12) with the tapered ring (13) on the shaft.
10. Tighten the hex. bolt (15) with washer (17) up to **210 Nm**.

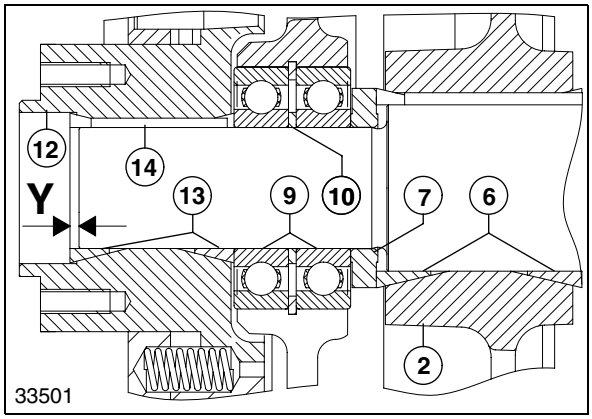
(Fig. 20, 21, 30)



31

11. Unscrew hex. bolt (15). The clearance (X) between the shaft end and the tapered ring must be at least **0.8 mm**.

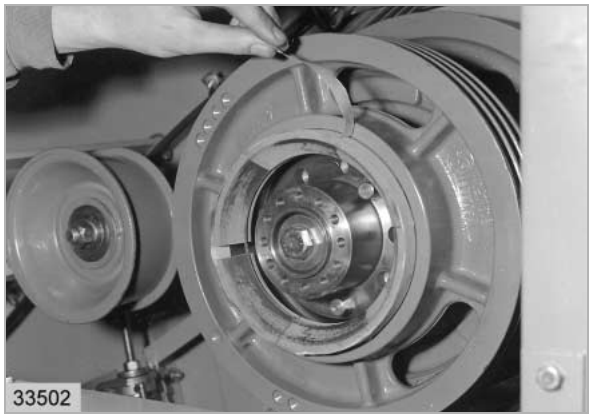
(Fig. 31, 32)



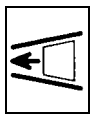
32

12. Refit hex. bolt (15) and tighten to **210 Nm**.

(Fig. 30)

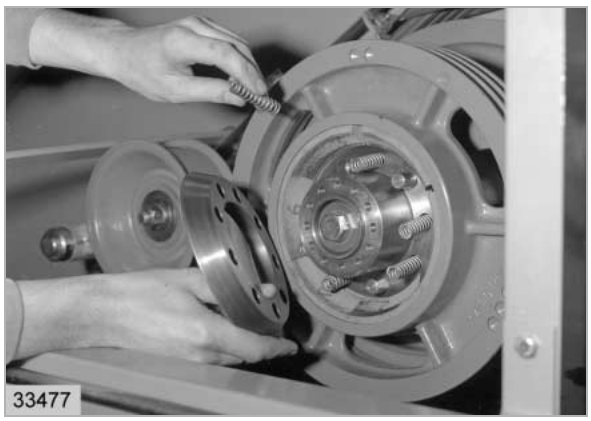


33



13. When fitting new friction rings (18), lay them around the inner spring (19) in the numbered order. Tape the outer edge of the friction rings with suitable tape.
14. Place the friction ring in the clutch hub (12), then remove the tape.

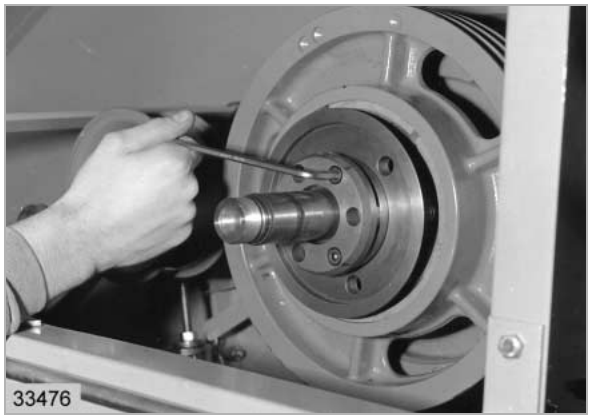
(Fig. 20, 21, 33)



34

15. Insert the compression springs (20) with the pressure plate (21). Ensure that all the springs are correctly located in their respective holes.

(Fig. 20, 21, 34)

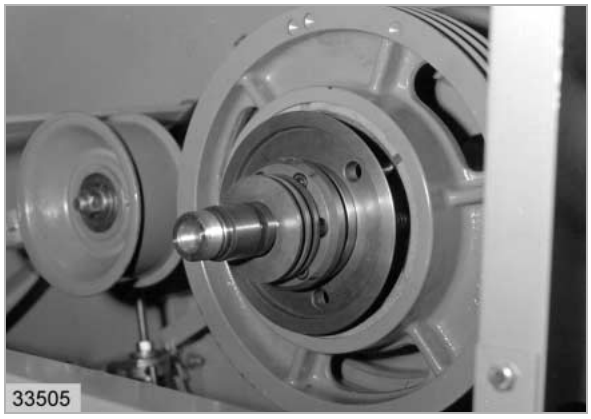


35

16. From serial no. …:
Bolt down hydraulic ram (34).

    Up to serial no. …:
Refit the hydraulic ram (22) with mounting ring (23).

(Fig. 20, 21, 35)



36

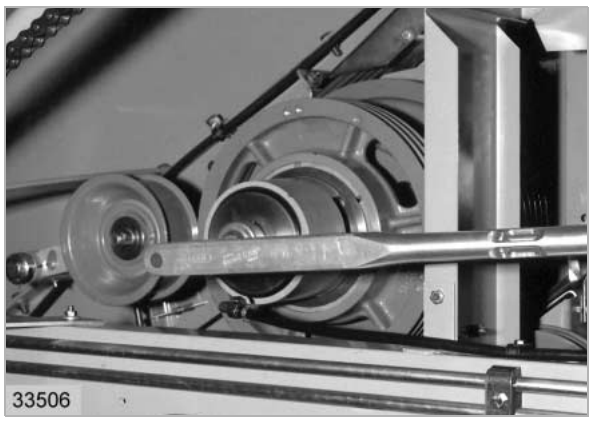
17. Place the O-rings (24 and 28), the back-up ring (25) and the scraper ring (29) into the cylinder (26) and piston (27).

CAUTION!

Take particular care not to damage the O-rings with sharp edges.

18. Apply gearbox grease G 00 to Belleville springs before inserting them. Observe correct installation position of Belleville springs.

(Fig. 20, 21, 36)



37

19. Slide the cylinder (26) onto the piston (27). Bolt down the slotted nuts (31) with support ring (32) individually.

    Tightening torque = 150 Nm

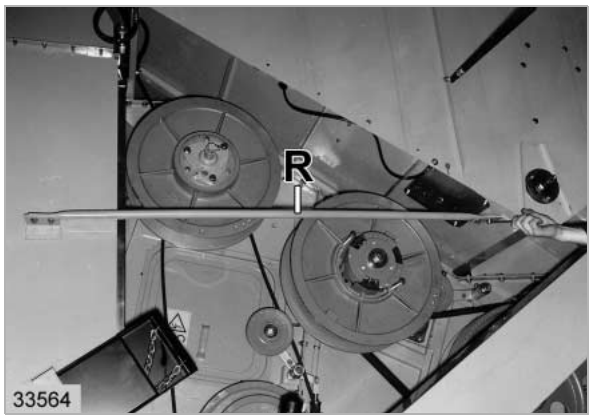
(Fig. 20, 21, 37)

20. *Installing and adjusting the sieve pan intermediate drive belt (13)*, see page 7.2.26

    Installing and adjusting the uni-spreader hydraulic pump drive belt (6), see page 7.2.11

    Installing and adjusting the cutterbar intermediate drive belt (5), see page 7.2.10

RIGHT-HAND THRESHING MECHANISM DRIVE



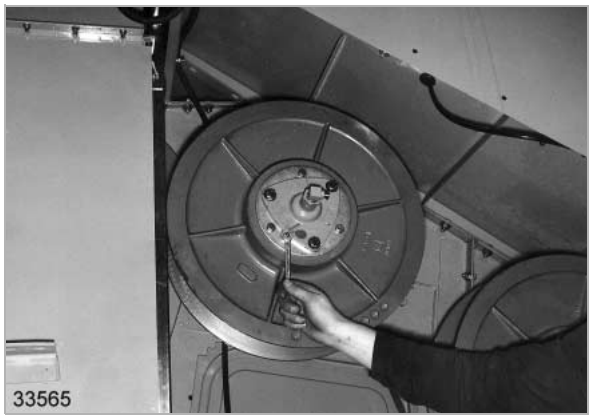
1

Removing the threshing drum variable-speed pulley assembly (hydraulic)

Removing the threshing mechanism variable-speed drive belt (22), see page 7.3.6

Remove the tube (R).

(Fig. 1)



2

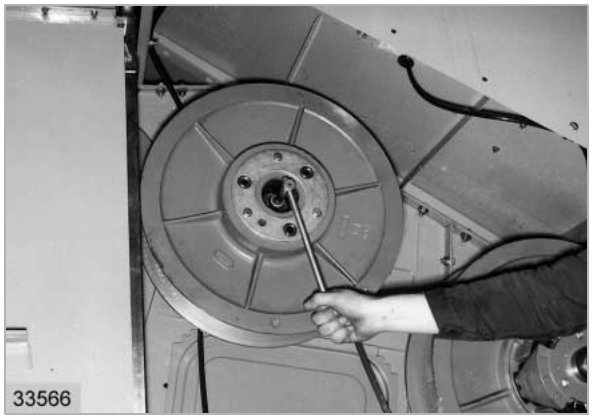
Remove the grease nipple and the grease pipe.

Remove the hydraulic cylinder.

CAUTION!

Observe number, position and thickness of shims.

(Fig. 2)



3

Unscrew the M 16 x 60 hex. bolt and remove together with thrust washer.

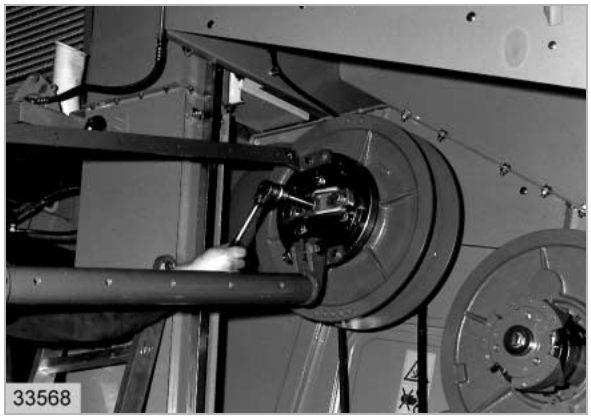
(Fig. 3)



4

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

(Fig. 4)

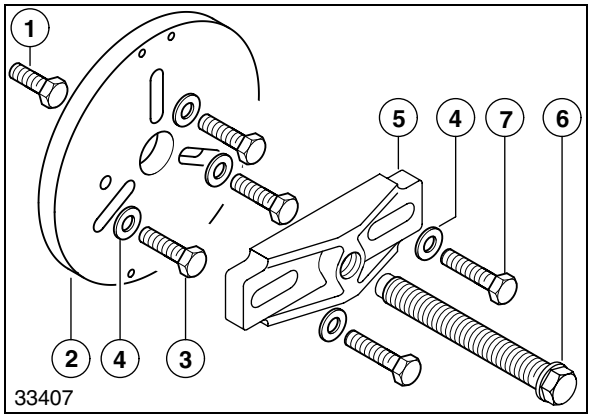


5

Screw a head-centred M 16 x 30 hex. bolt into the shaft.

Using a special tool and a suitable lifting device, such as “Hydrobull”, pull the variable-speed pulley assembly off of the shaft.

(Fig. 5)



6

Special tool:

1 Hex. bolt M 16 x 30 DIN 933-8.8 head-centred
2 Puller plate, part no. 181 617.0
3 Hex. bolt M 16 x 40 DIN 933-8.8, part no. 235 821.0
4 Contact washer A 16
5 Puller bridge, part no. 181 800.0
6 Threaded spindle, part no. 181 801.1
7 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

(Fig. 6)



7

Disassembling the threshing drum variable-speed pulley assembly (hydraulic)

Remove the cover.

(Fig. 7)



8

Remove the variable-speed pulley half.

Remove the cover from the front section of the pulley.

(Fig. 8)



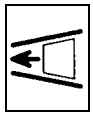
9

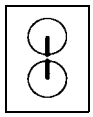
Drive the flanged bushings out of the front section of the pulley.

(Fig. 9)



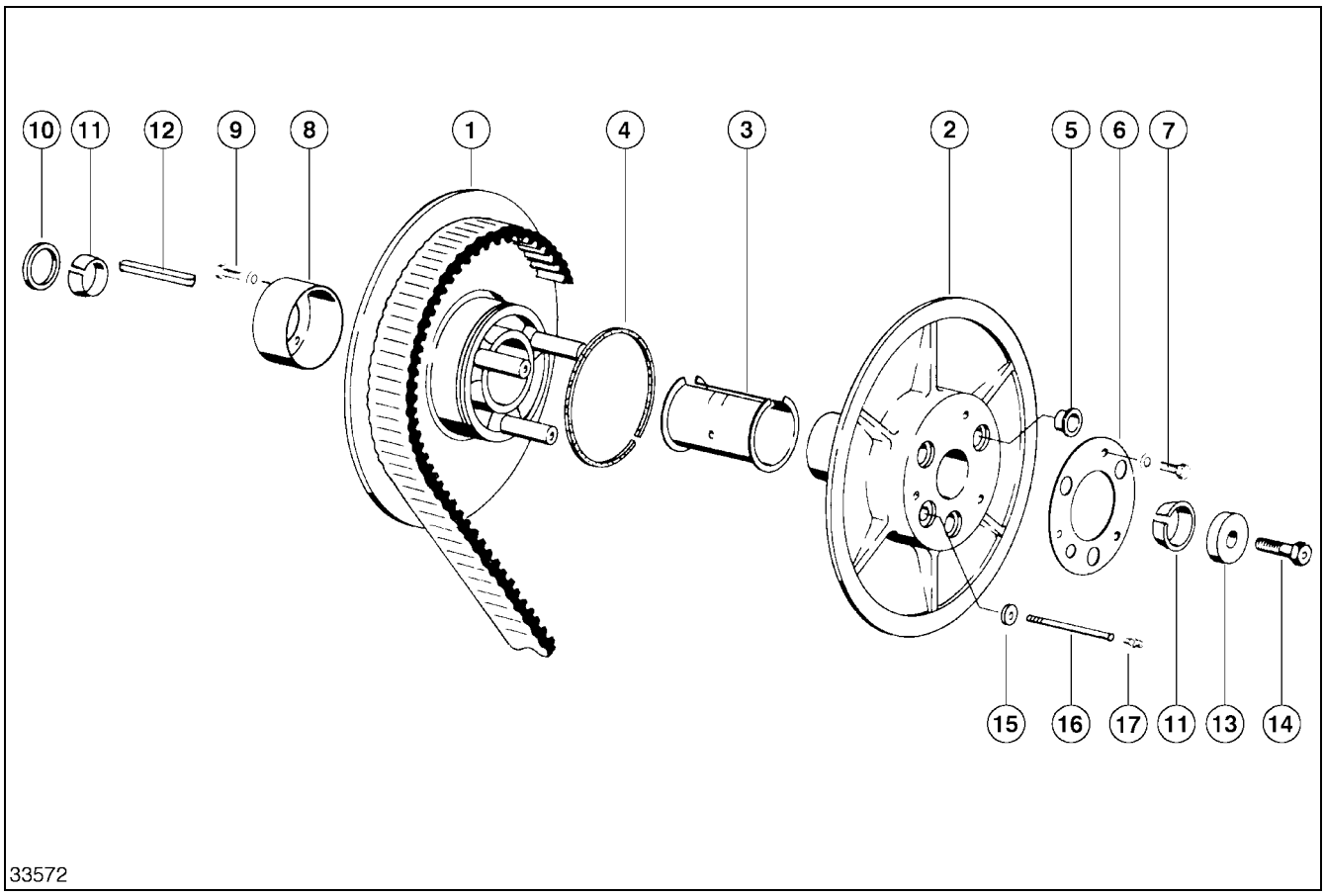
10





Pull out the sliding bushing from the rear section of the pulley. Observe installation position and mark it.

(Fig. 10)

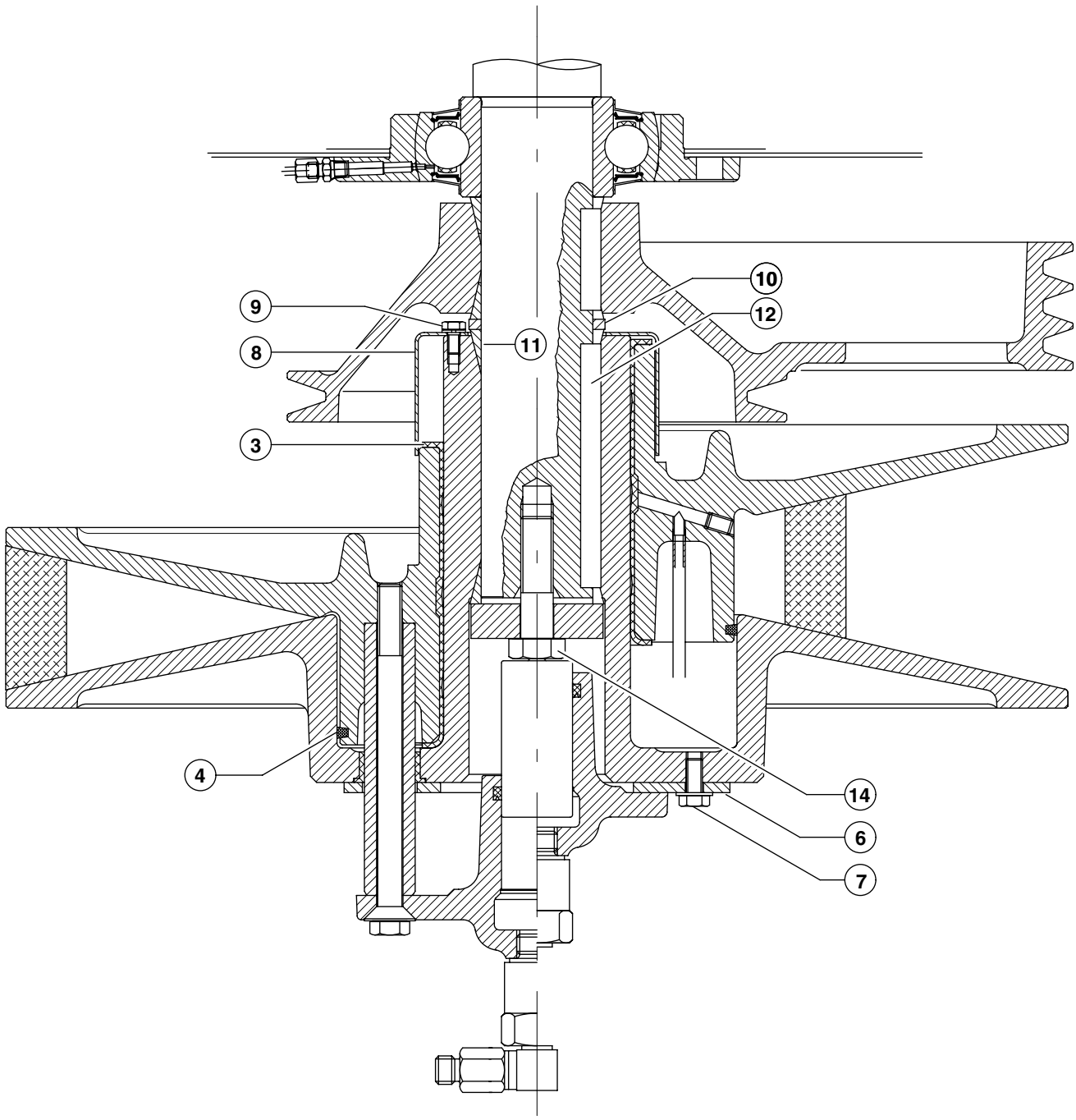


11

Threshing drum variable-speed pulley assembly (hydraulic), disassembled:

1 Rear section
2 Front section
3 Sliding bushing
4 Felt seal
5 Bushing
6 Cover
7 Hex. bolt M 8 x 20 DIN 933-8.8
Contact washer A 8
8 Cover
9 Hex. bolt M 6 x 12 DIN 933-8.8
Lock washer 6
10 Thrust washer
11 Tapered ring
12 Parallel key A 16 x 10 x 120 DIN 6885
13 Thrust washer
14 Hex. bolt M 16 x 60 DIN 931-10.9
15 Sealing washer
16 Grease pipe
17 Grease nipple

(Fig. 11)



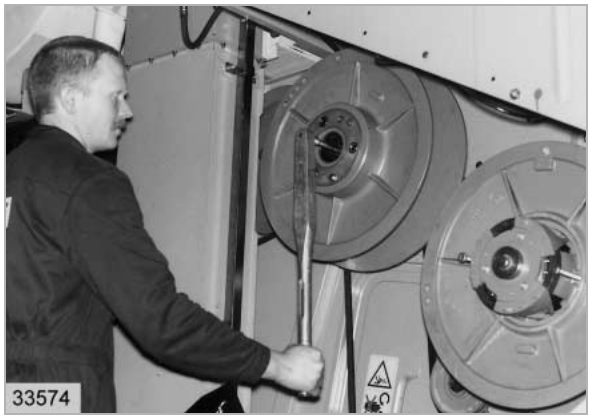
33573

12

Assembling the threshing drum variable-speed pulley assembly (hydraulic)

1. Insert the felt ring (4) and the bushings (5) into the front section (2).
2. Insert the sliding bushing (observe correct installation position). In this process, grease all grease channels and plastic bushings.
3. Slide the two sections of the pulley together, ensuring that the grease hole is in the correct position.
4. Bolt down the covers (6 and 8).

(Fig. 7–12)



13

Installing the threshing drum variable-speed pulley assembly (hydraulic)

CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 553.1 applied prior to installation.

1. Insert the thrust washer (10), the tapered ring (11) and the parallel key (12).
2. Using the special tool part no. 181 617.0 and a suitable lifting device, such as a Hydrobull, slide the variable-speed pulley assembly on the shaft.
3. Slide on the second tapered ring (11). Insert the hex. bolt (14) and tighten.

   Tightening torque = 310 Nm

(Fig. 11, 12, 13)



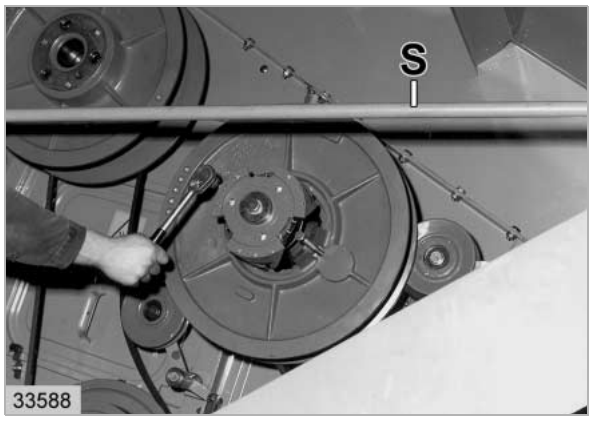
14

4. Bolt down the thrust flange with the countersunk head bolts M 12 x 165. (If necessary, adjust the threshing mechanism variable-speed drive belt (22) using shims – see page 7.3.7, *Installing and adjusting the threshing mechanism variable-speed drive belt (22)*.)

   Tightening torque = 86 Nm

(Fig. 14)

5. Install the grease pipe.
6. *Installing and adjusting the threshing mechanism variable-speed drive belt (22)*, see page 7.3.7



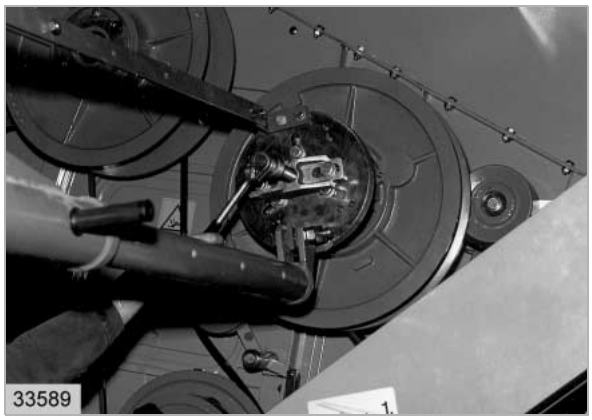
15

Removing the threshing drum variable-speed pulley assembly (spring-loaded)

Removing the threshing mechanism variable-speed drive belt (22), see page 7.3.6

Remove the hex. bolts used for spreading the variable-speed pulley open. Remove bar (S).

(Fig. 15)



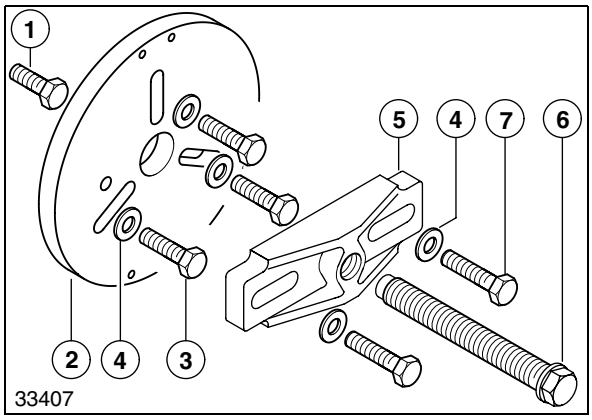
16

Unscrew the hex. bolt from the shaft face end and remove along with the washer.

Screw a head-centred M 16 x 30 hex. bolt into the shaft.

Using a special tool and a suitable lifting device, such as “Hydrobull”, pull the variable-speed pulley assembly off of the shaft.

(Fig. 16)

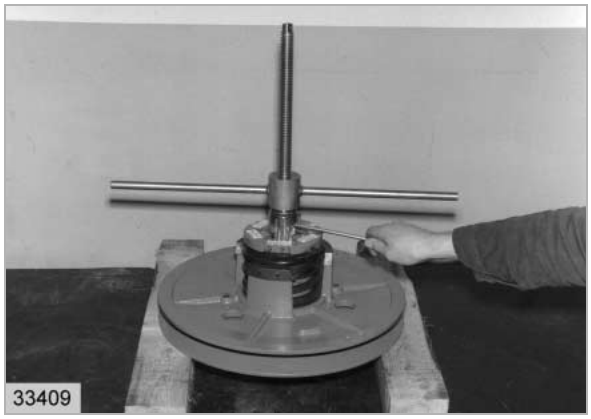


17

Special tool:

1 Hex. bolt M 16 x 30 DIN 933-8.8 head-centred
2 Puller plate, part no. 181 617.0
3 Hex. bolt M 16 x 40 DIN 933-8.8, part no. 235 821.0
4 Contact washer A 16
5 Puller bridge, part no. 181 800.0
6 Threaded spindle, part no. 181 801.1
7 Hex. bolt M 16 x 50 DIN 933-8.8, part no. 235 586.0

(Fig. 17)



18

Disassembling the threshing drum variable-speed pulley assembly (spring-loaded)

Remove the threshing drum variable-speed pulley assembly (spring-loaded).

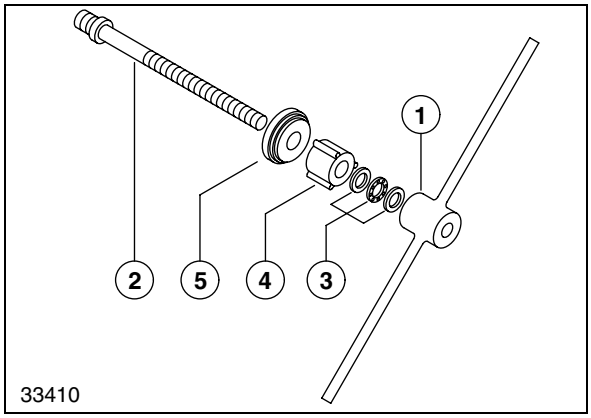
Remove the pressure plate.

DANGER!

Never unscrew the countersunk head bolts from the mounting flange until the compression spring has been blocked with the special tool – **Danger of accident!**

Using the special tool, block the compression spring and remove all countersunk head bolts from the mounting flange.

(Fig. 18)

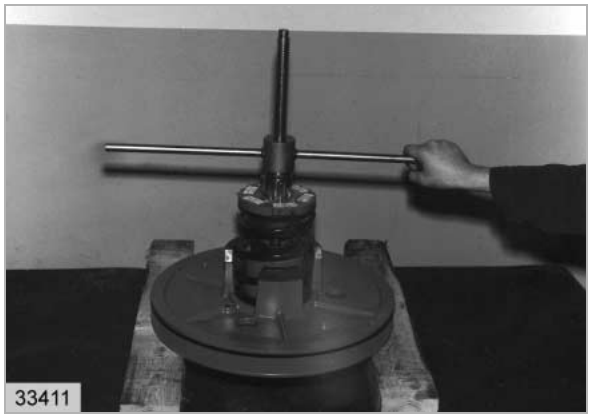


19

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing 51305 DIN 711, part no. 235 983.0
4 Centraliser, part no. 181 437.0
5 Locating disc, part no. 181 879.0

(Fig. 19)



20

By turning the handle of the lever nut, release all the pressure from the compression spring.

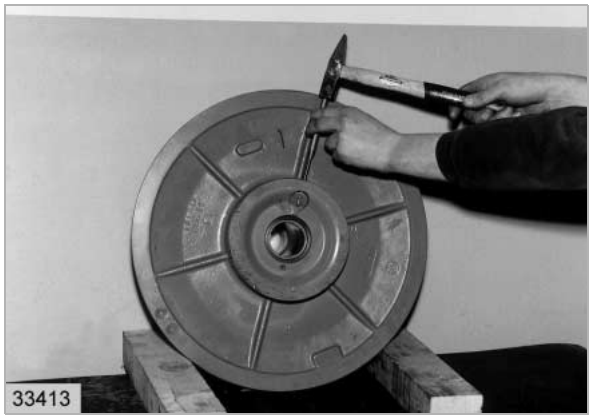
(Fig. 20)



21

Remove the compression spring and the mounting flange.

(Fig. 21)



22

Remove the variable-speed pulley half.

Drive out the roll pin.

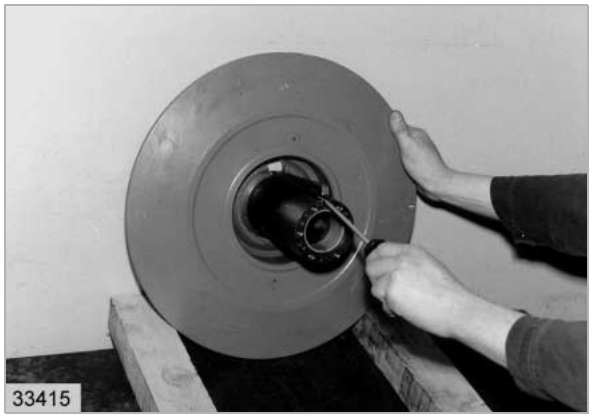
(Fig. 22)



23

Remove the M 12 x 1.5 screw plug and both M 6 x 13 cheese-head screws.

(Fig. 23)



24

Remove the parallel key with a notched dowel using a suitable screwdriver.

(Fig. 24)



25

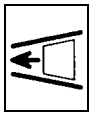
Remove the bearing bushings.

(Fig. 25)

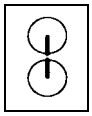


26

Remove the sliding bushing.



Remove the support runners using a screwdriver. Ensure that you note the installation position and mark it.



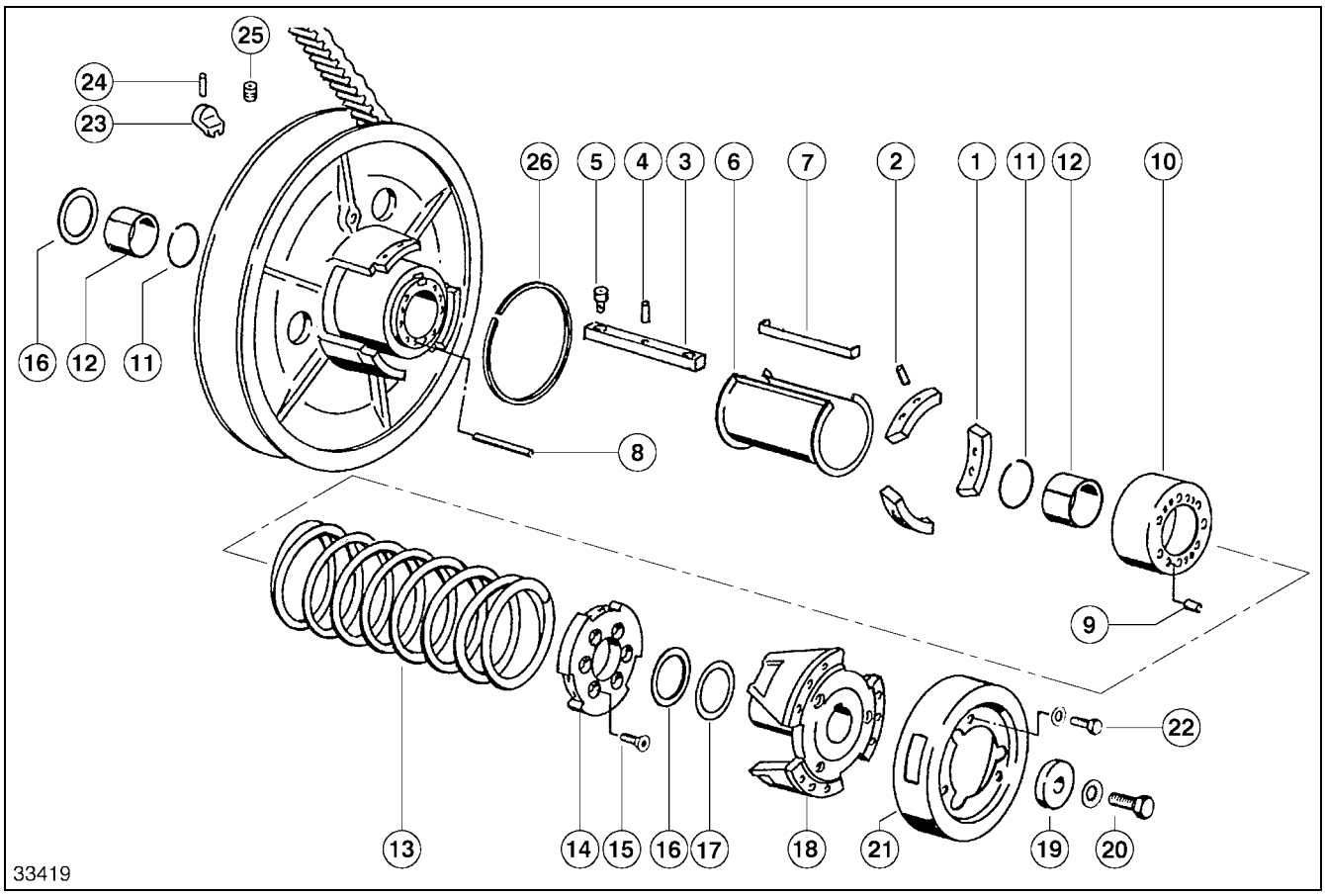
(Fig. 26)



27

Remove the expansion pins and then the support runners.

(Fig. 27)

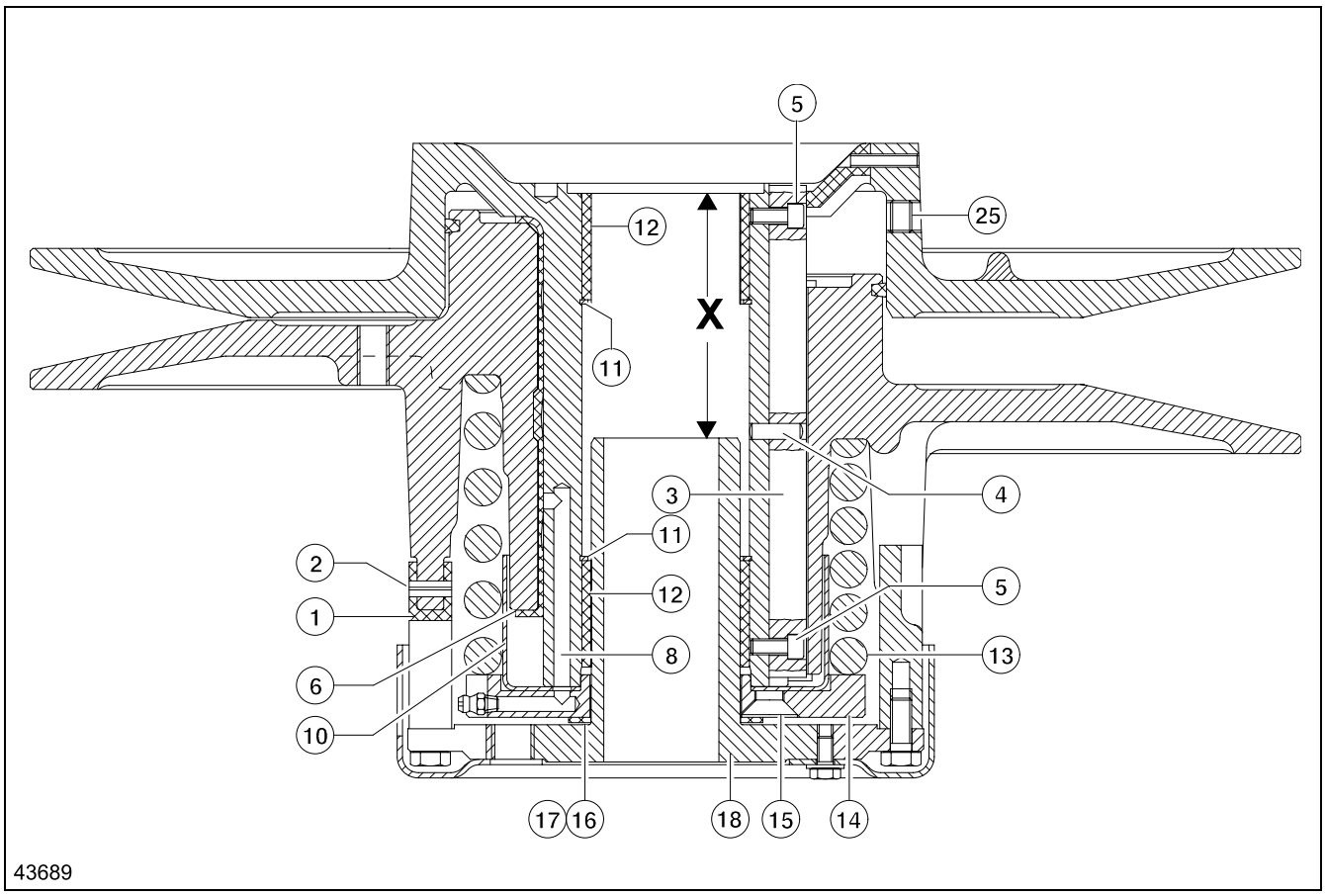


28

Threshing drum variable-speed pulley assembly (spring-loaded), disassembled:

1 Slide
2 Expansion pin 6 x 16 A DIN 8752
3 Parallel key
4 Notched dowel 6 x 20 DIN 1472
5 Cheese-head screw M 6 x 13.8
6 Sliding bushing
7 Support runner
8 Expansion pin 6 x 80 DIN 7346
9 Expansion pin 10 x 14 A DIN 8752
10 Cover
11 Snap ring
12 Bearing sleeve
13 Compression spring
14 Mounting flange
15 Countersunk head bolt M 10 x 30 DIN 7991
16 Thrust washer
17 Shim 56 x 72 x 0.3 DIN 988
Shim 56 x 72 x 0.5 DIN 988
18 Thrust piece
19 Clamping washer
20 Hex. bolt M 16 x 85 DIN 933-8.8
Contact washer A 16
21 Dust cap
22 Hex. bolt M 6 x 12 DIN 933-8.8
Contact washer A 6
23 Cap
24 Expansion pin 5 x 36 B DIN 8752
25 Screw plug M 12 x 1.5 DIN 906
26 Felt seal

(Fig. 28)



29

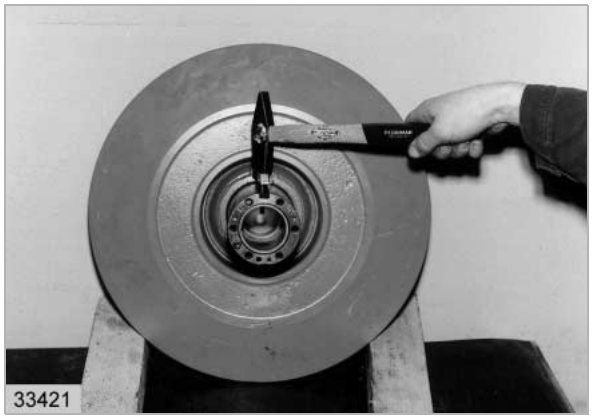


30

Assembling the threshing drum variable-speed pulley assembly (spring-loaded)

1. Insert the sliding bushing (6). Ensure correct installation position. The rounded side must face inwards.

(Fig. 28, 29, 30)



31

2. Centralise the parallel key (3) with a 6 x 50 expansion pin. Tap the parallel key into position with a hammer, then drive out the 6 x 50 expansion pin to the inside and remove it.

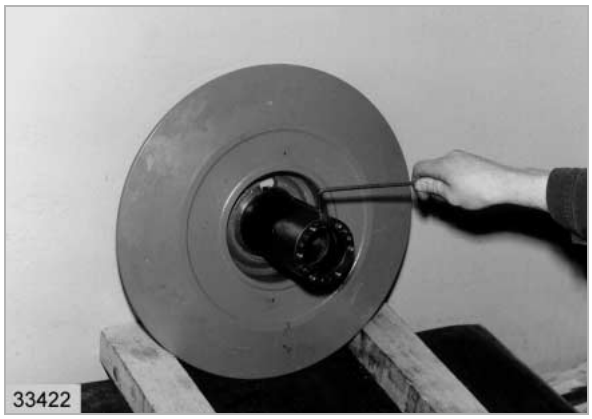
   Slightly pre-tension the parallel key (3) with two cheese-head screws (5).

   Drive in a new notched dowel (4).

CAUTION!

Install cheese-head screws (5) and notched dowel (4) using liquid locking compound, e.g. DELO-ML 5349.

(Fig. 28, 29, 31)

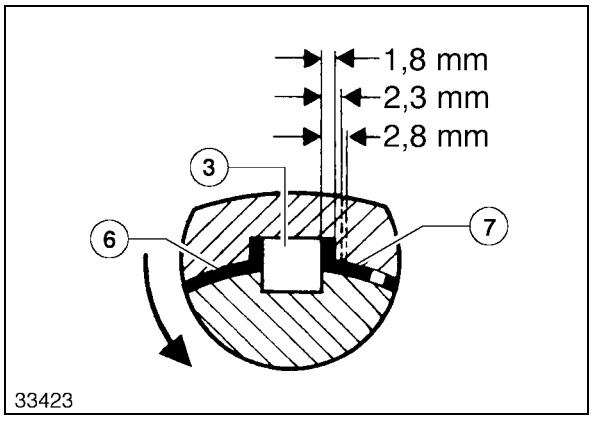


32

3. Tighten the cheese-head screws (5).

   Tightening torque = 10 Nm

(Fig. 28, 29, 32)



33

4. Clean both variable-speed pulleys thoroughly.
5. Apply oil to the sliding bushing (6) and support runner (7) all around, insert and then join the variable-speed pulley halves.
6. Determine the torsional backlash.

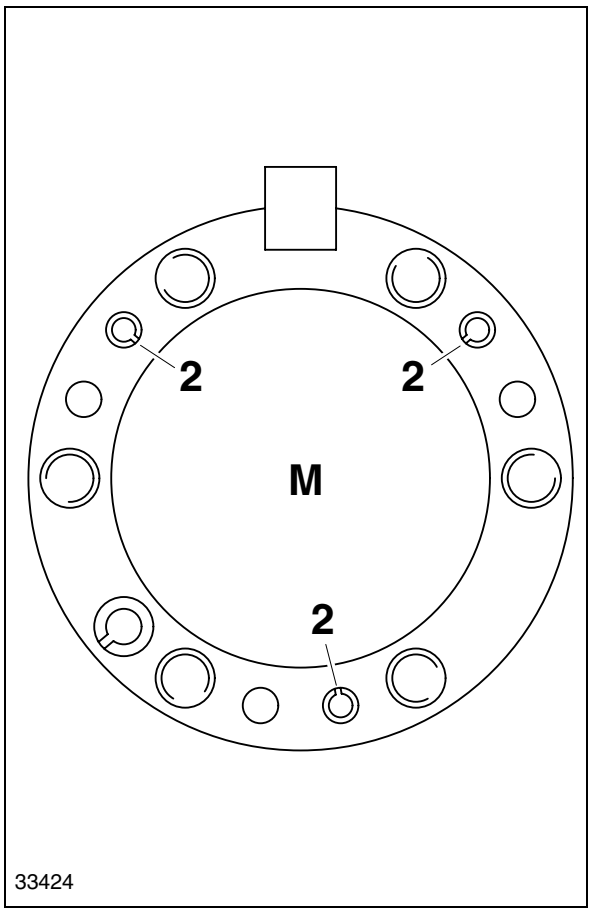
   To do this, twist both halves of the variable-speed pulley in opposite directions and measure the torsional backlash on the outer pulley diameter.

   Apply marks to the outer edge of the pulley before starting.

   The torsional backlash should be as small as possible while the sliding surfaces move smoothly.

   It must not exceed **1 mm**, if necessary, the next thicker slide (7) must be used.

(Fig. 28, 29, 33)



34

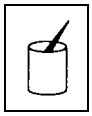
7. Insert the expansion pins (8) only into the grease bores of the grease nipples marked with a (2).

   The slot in the expansion pins must always face the centre (M).

   This ensures that the grease will always be able to get to the inner sliding faces.

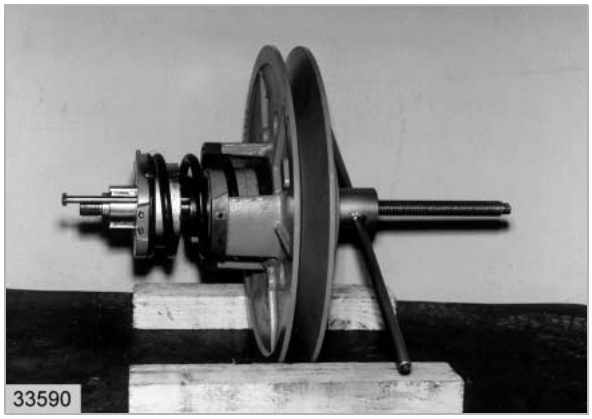
(Fig. 28, 29, 34)

8. Insert the expansion pin (9) to fix the mounting flange (14) and the cover (10).



9. Thoroughly grease the sliding bushing (6) and the sliding faces with good-quality grease.
10. Join the two halves of the pulley, place the cover (10) and the compression spring (13) with the mounting flange (14) in position and twist so that the correct hole lines up with the expansion pin (9).
11. Screw hex. bolt (6) of the special tool through the mounting flange (14).

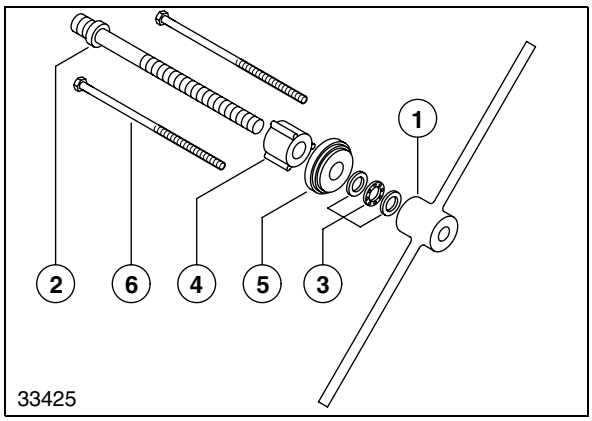
(Fig. 28, 29)



35

12. Using the special tool, pre-stress the compression spring.

(Fig. 35)



36

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing 51305 DIN 711, part no. 235 983.0
4 Centraliser, part no. 181 437.0
5 Locating disc, part no. 181 879.0
6 Hex. bolt M 10 x 200 DIN 931-8.8, part no. 211 739.0

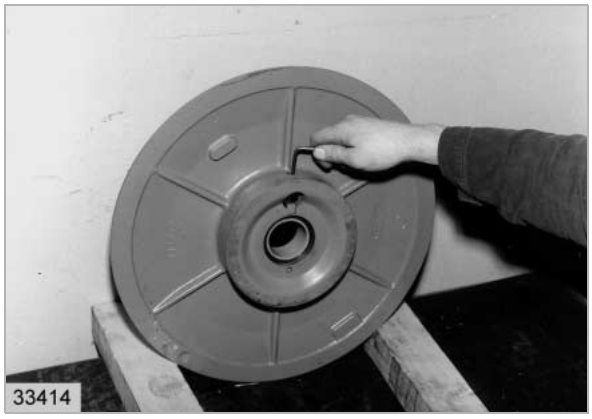
(Fig. 36)



37

13. Screw in the countersunk head bolts (15), but do not tighten them at this time. Remove the special tool. Tighten countersunk head bolts with a tightening torque of **49 Nm**.

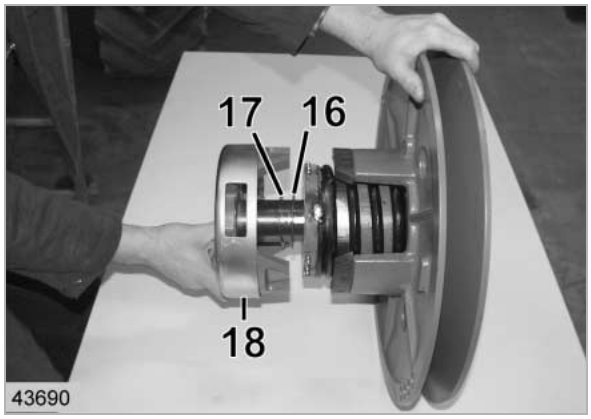
(Fig. 28, 29, 37)



38

14. Install the cap (23) with expansion pin (24). Screw in screw plug (25).

(Fig. 28, 29, 38)

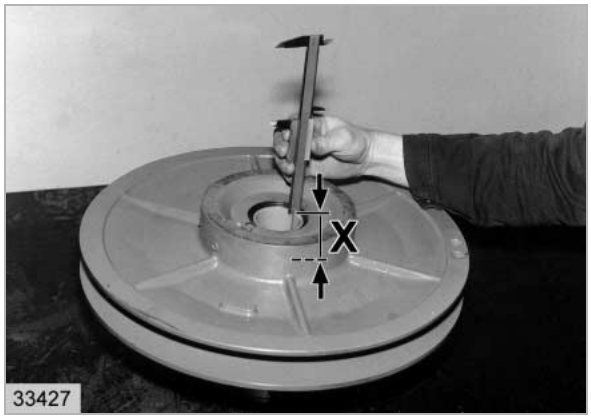


39

Installing the threshing drum variable-speed pulley assembly (spring-loaded)

Install thrust piece (18) with existing shims (17) and a thrust washer (16).

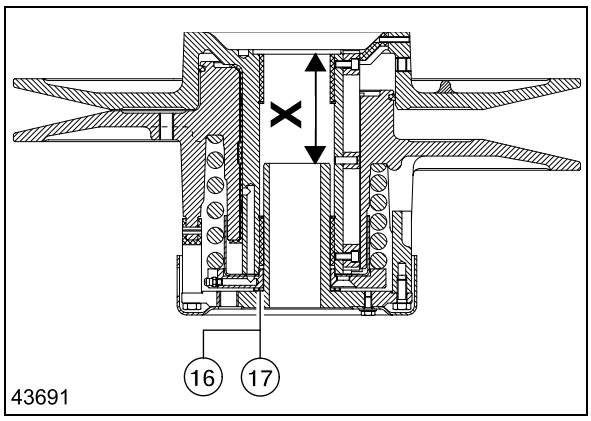
(Fig. 39)



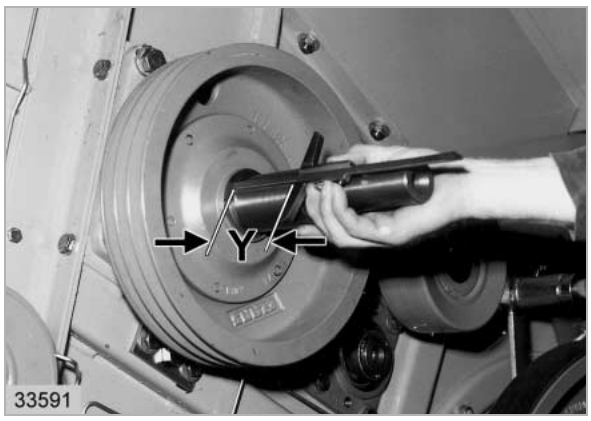
40

Determine the distance (X) between the thrust piece (18) and the top edge of the pulley.

(Fig. 40, 41)



41



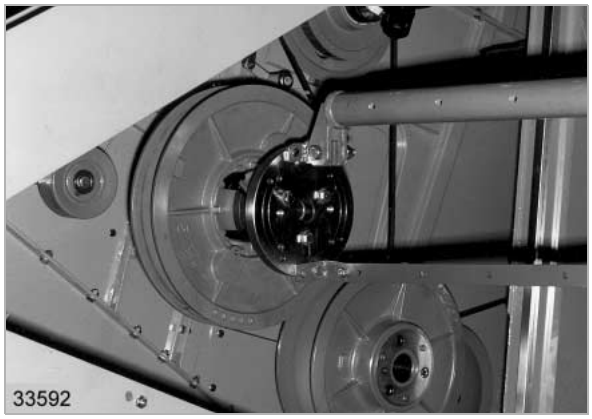
42

Slide a thrust washer (16) on the shaft shoulder and determine dimension (Y, length of shaft shoulder).

W = Y – X

The distance (W) must be **0.2 to 0.6 mm**. Should this not be the case, then correct it with shims.

(Fig. 42)



43

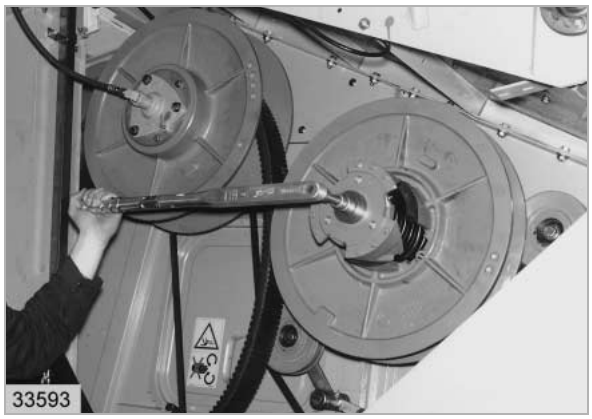
Grease the thrust piece hub as well as the pulley hub and the flange shaft.

Using a special tool and a lifting device such as a Hydrobull, slide the variable-speed pulley assembly onto the flange shaft.

CAUTION!

Secure variable-speed pulley so it will not slip off the thrust piece (18).

(Fig. 43)

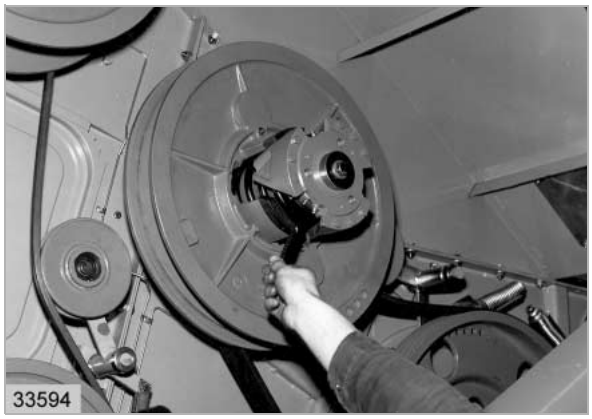


44

Bolt down the M 16 x 85 DIN 933-8.8 hex. bolts with lock washers.

Tightening torque = 195 Nm

(Fig. 44)



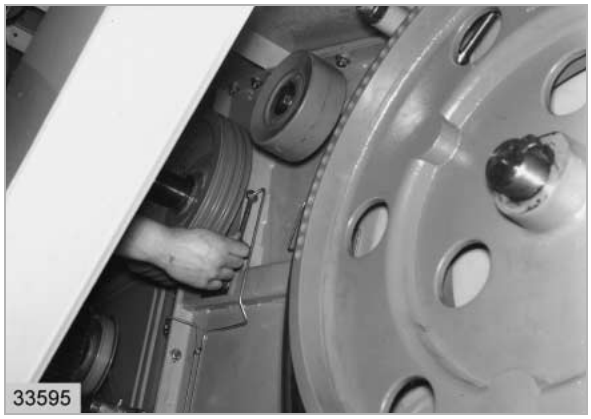
45

Using suitable feel gauges, check the axial play between the mounting flange and the thrust piece (0.2 to 0.6 mm).

(Fig. 45)

Installing and adjusting the threshing mechanism variable-speed drive belt (22), see page 7.3.7

Once the pulley has been completely installed, thoroughly grease at all grease nipples until all grease channels are full.



46

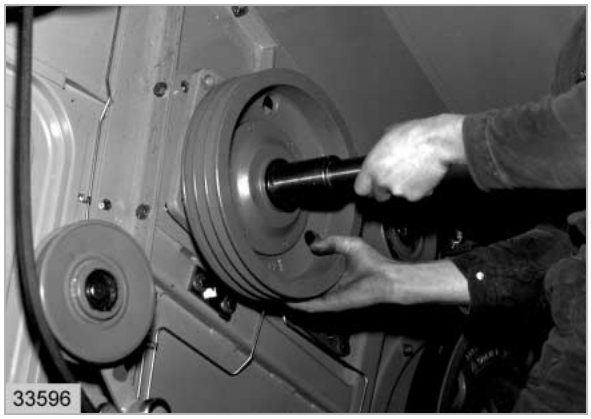
Removing the threshing mechanism drive pulley

Removing the threshing drum variable-speed pulley assembly (spring-loaded), see page 7.6.7

Removing the threshing drum drive belt (23), see page 7.3.8

Remove the grease pipe from the bearing assembly.

(Fig. 46)



47

Remove the complete flanged shaft including the V-belt pulley from the side wall of the machine.

(Fig. 47)



48

Disassembling the threshing mechanism drive pulley

Remove the cover plate.

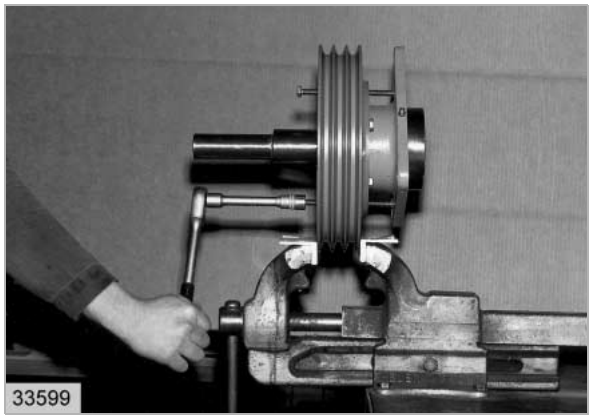
(Fig. 48)



49

Remove the hex. bolt M 16 x 50 from the face end of the shaft.

(Fig. 49)

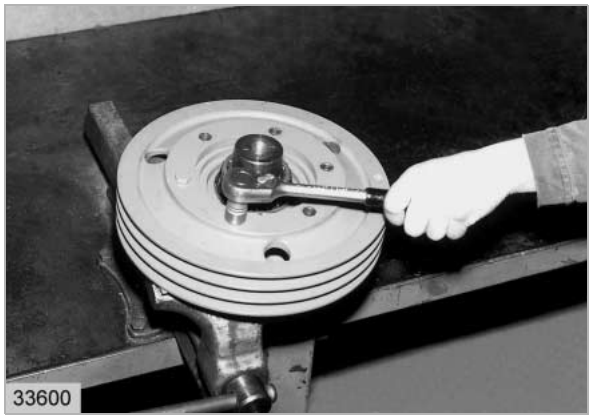


50

Unscrew two M 10 x 25 hex. bolts from the V-belt pulley.

Push the housing off using two M 10 x 140 hex. bolts.

(Fig. 50)



51

Unscrew the V-belt pulley.

(Fig. 51)



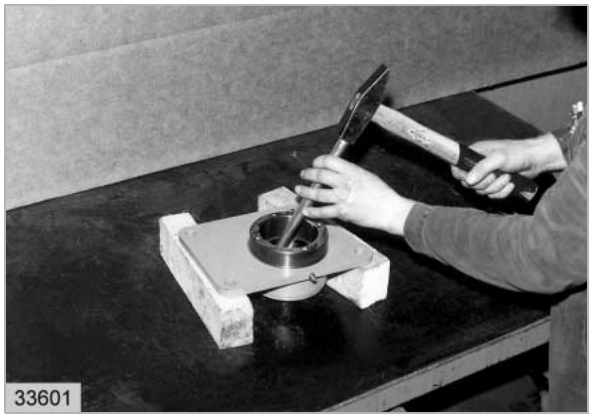
52

Using two tyre mounting levers, raise the outside taper roller bearing just enough to place a puller underneath.

CAUTION!

When reassembling, ensure a new bearing is used.

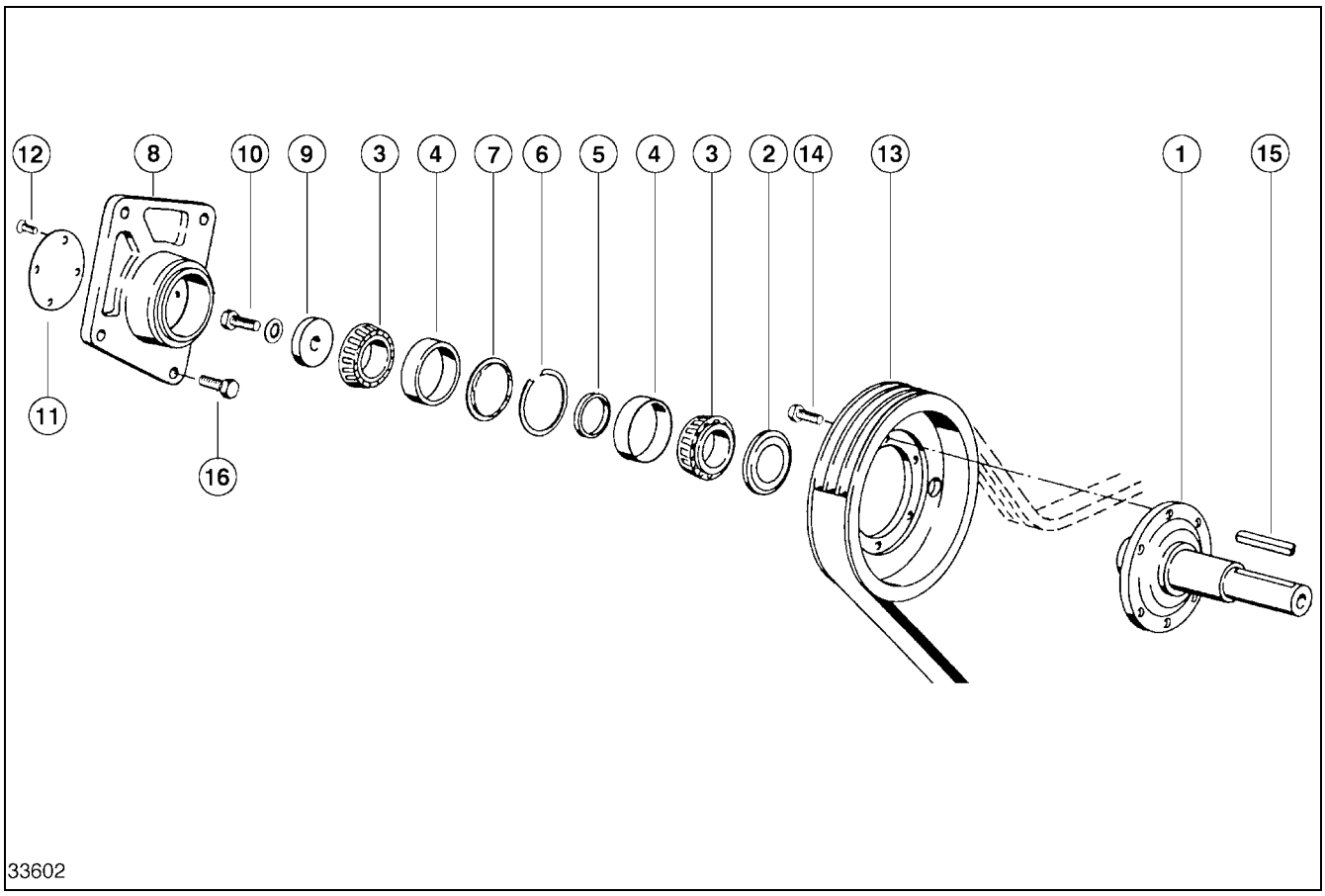
(Fig. 52)



53

Using a soft metal punch, drive the inner bearing race out of the housing.

(Fig. 53)

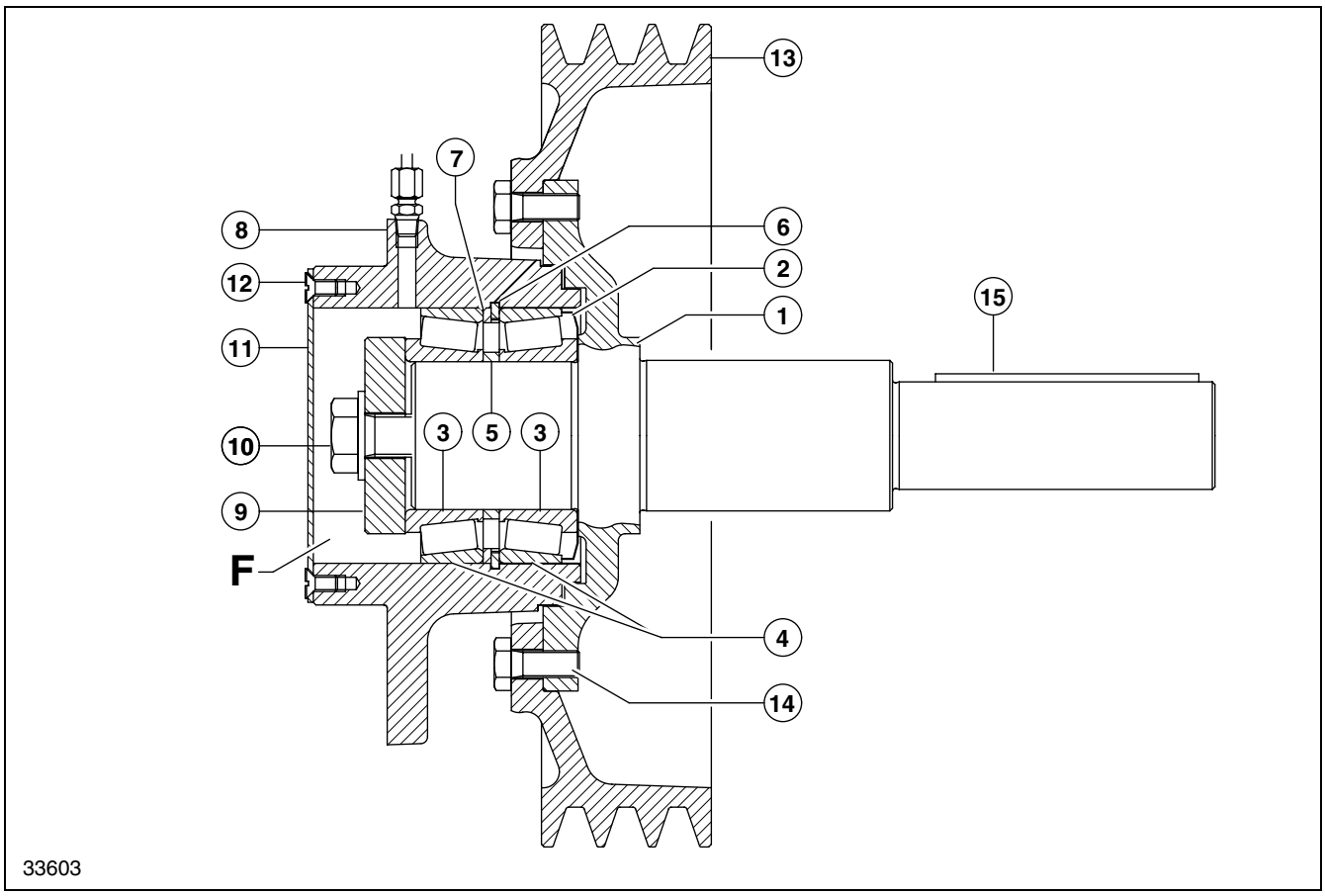


54

Threshing mechanism drive pulley, disassembled:

1 Flanged shaft
2 Bearing seal ring
3 Bearing inner race
4 Bearing outer race
5 Inner spacer
6 Snap ring
7 Outer spacer
8 Housing
9 Washer
10 Hex. bolt M 16 x 50 DIN 933-8.8
Contact washer A 16
11 Cover
12 Countersunk head bolt M 6 x 12 DIN 963-5.8
13 V-belt pulley
14 Hex. bolt M 10 x 25 VP DIN 933-8.8
15 Parallel key A 12 x 8 x 98 DIN 6885
16 Hex. bolt M 16 x 35 DIN 933-8.8 MK

(Fig. 54)



55

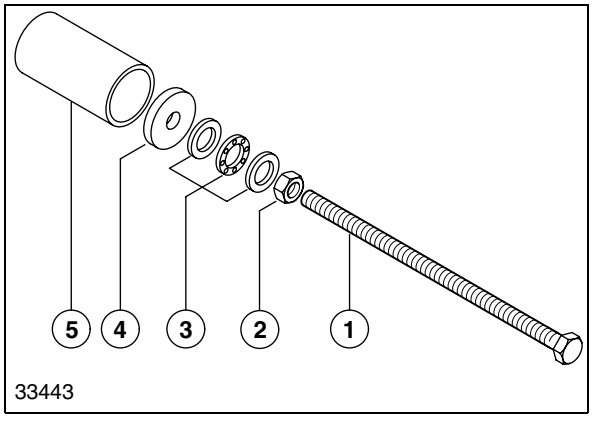


56

Assembling the threshing mechanism drive pulley

1. Slide the bearing seal ring (2) onto the flanged shaft.
2. Press the bearing inner race (4) onto the flanged shaft using the special tool.

(Fig. 54, 55, 56)

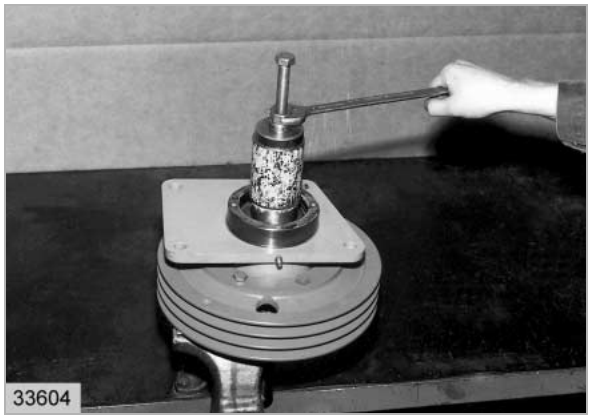


57

Special tool:

1 Hex. bolt M 16 x 300 SP DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16 DIN 934, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer, part no. 577 557.0
5 Tube, inside ∅ 55 x 100 long (self-sourced)

(Fig. 57)



58

3. Insert snap ring (6) and outer spacer (7) into housing (8). Ensure the correct installation position.

   Press the bearing outer race (4) into position.

4. Bolt the V-belt pulley (13) to the flanged shaft.

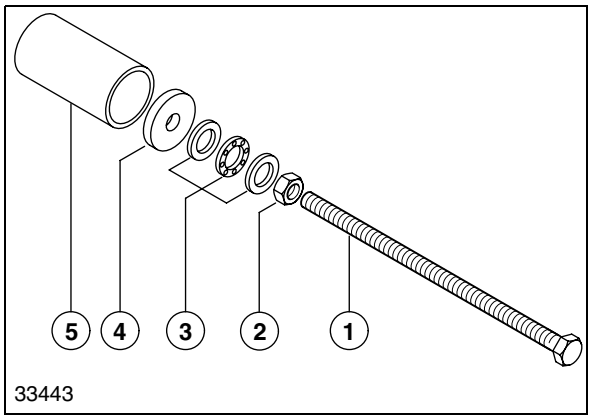
   Screw in the hex. bolts (14) using liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 45 Nm

5. Place the pre-assembled housing into position.

   Press the second bearing inner race on the flanged shaft using the special tool.

(Fig. 54, 55, 58)

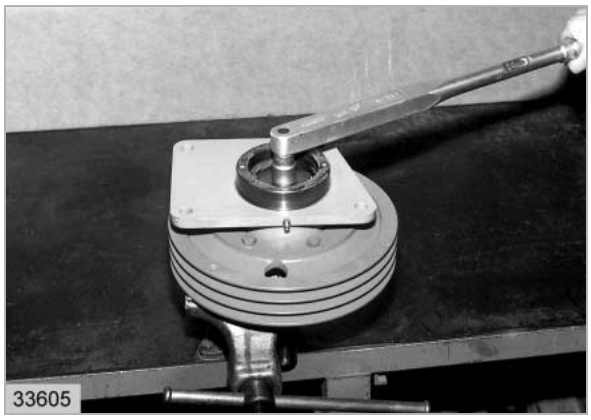


59

Special tool:

1 Hex. bolt M 16 x 300 SP DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16 DIN 934, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Washer, part no. 577 557.0
5 Tube, inside ∅ 55 x 100 long (self-sourced)

(Fig. 59)



60

6. Insert the hex. bolt (10) with washer (9) and tighten.

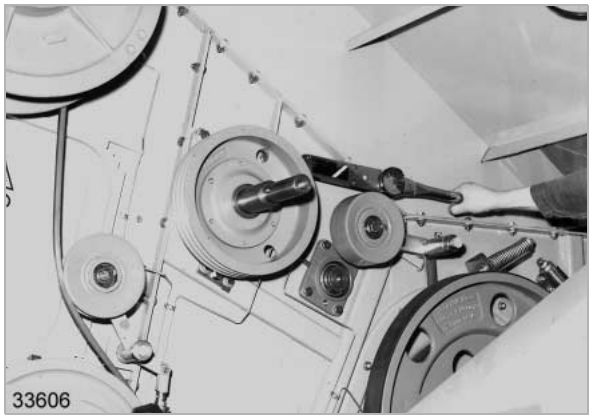
   Tightening torque = 195 Nm

(Fig. 54, 55, 60)

7. Fill space (F) completely with multi-purpose grease such as Shell “Retinax A”, part no. 147 451.0.
8. Clean the sealing surfaces of the cover and the housing, then apply a suitable sealing compound such as Epple type 33.

   Bolt on the cover (11).

(Fig. 54, 55)



61

Installing the threshing mechanism drive pulley

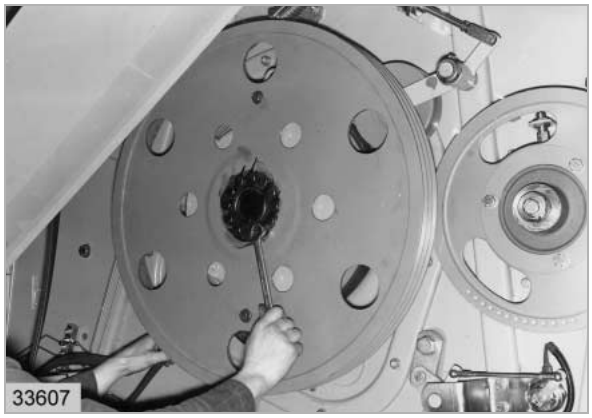
1. Bolt the complete flanged shaft to the side wall of the machine using hex. bolts (16).

   (Fig. 54, 61)

   Tightening torque = 195 Nm
2. Attach the lubrication line.
3. *Installing and adjusting the threshing drum drive belt (23)*, see page 7.3.9

   Installing the threshing drum variable-speed pulley assembly (spring-loaded), see page 7.6.16

THRESHING DRUM REDUCTION GEARBOX



1

Removing the threshing drum reduction gearbox

Remove the right-hand front wheel.

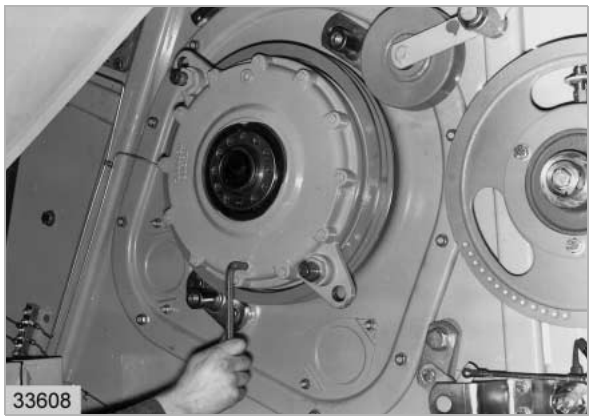
Remove the guard.

Removing the threshing drum drive belt (23), see page 7.3.8

Removing the accelerator drive belt (24), see page 7.3.10

Remove the V-belt pulley from the threshing drum reduction gearbox.

(Fig. 1)



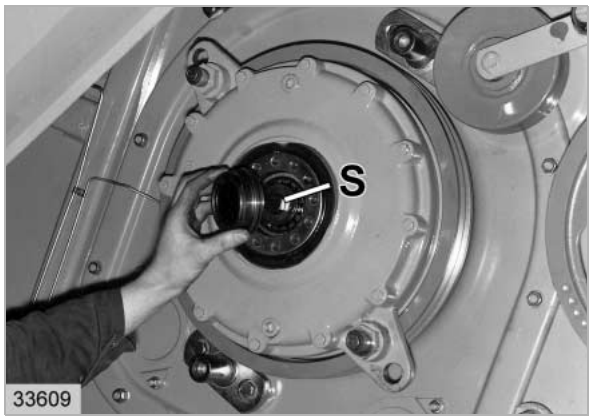
2

Drain the gearbox oil into a sufficiently large container (approx. 1.8 litres).

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 2)

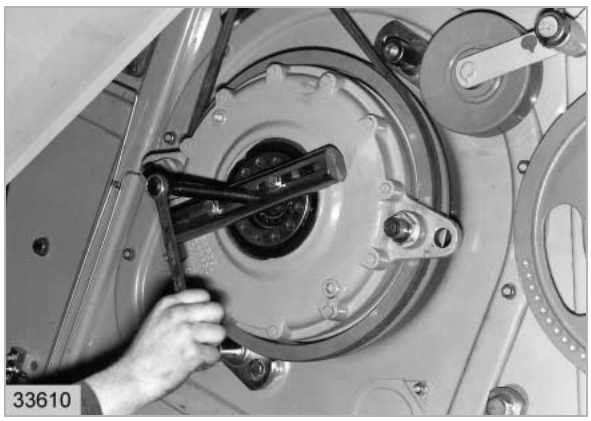


3

Remove the circlip and the centralising piece with the cap.

Remove the hex. bolt (S) from the face end of the shaft.

(Fig. 3)

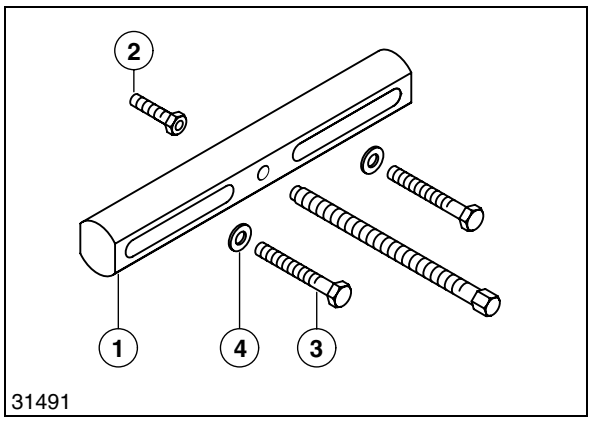


4

Secure the threshing drum reduction gearbox using a lifting device.

Using the special tool, pull the reduction gearbox from the shaft and then remove.

(Fig. 4)

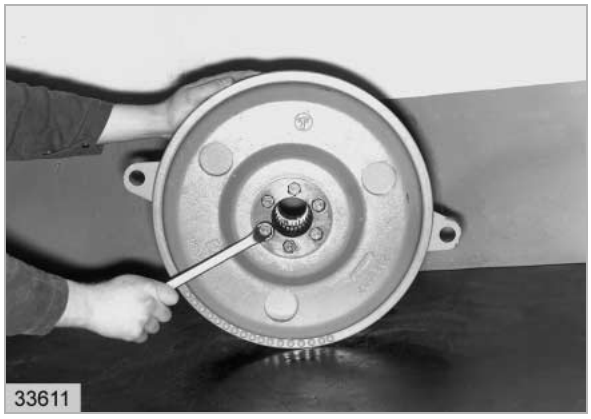


5

Special tool:

1 Puller bridge, part no. 181 621.0
2 Hex. bolt M 16 x 30, head-centred
3 Hex. bolt M 12 x 70 DIN 931-8.8, part no. 235 558.0
4 Washer 13

(Fig. 5)



6

Disassembling the threshing drum reduction gearbox

Unscrew the V-belt pulley.

The shaft seals can now be replaced.

(Fig. 6)

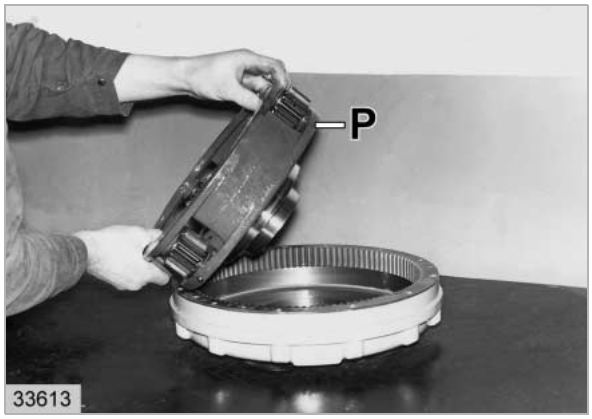


7

Unbolt the ring of bolts and remove the gearbox cover.

Count number of shims (21).

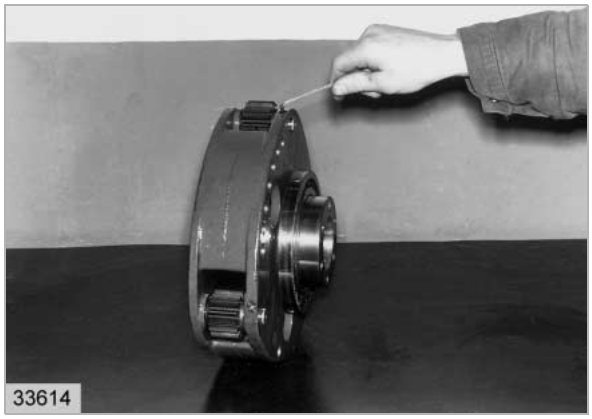
(Fig. 7)



8

Remove the sun gear carrier and planetary carrier (P).

(Fig. 8)

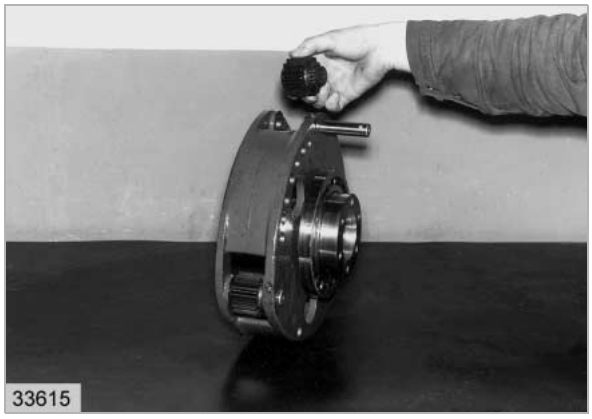


9

Unscrew the set screws and drive out the planetary axles.

Remove the planetary gears.

(Fig. 9, 10)



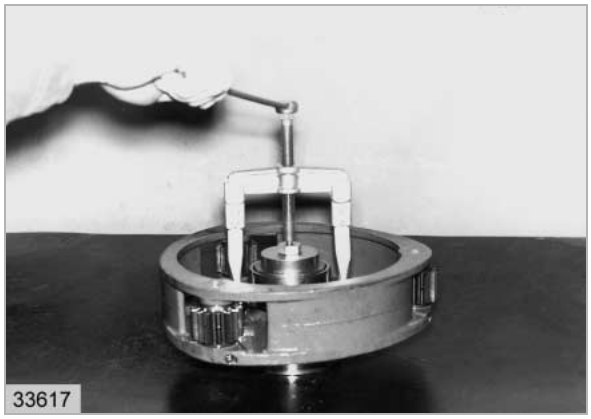
10



11

Remove the deep groove ball bearing, using a three-legged puller. For this use a head-centred hex. bolt M 16 x 30 and a puller plate, part no. 181 885.0.

(Fig. 11)



12

Lever the inner bearing ring from the cylinder roller bearing up sufficiently so that a two-legged puller may be attached.

Pull off the inner bearing ring.

(Fig. 12)



13

Remove the circlip from the sun gear carrier.

Remove the sun gear.

(Fig. 13)



14

Remove the circlip, then remove the cylinder roller bearing using a suitable tube.

(Fig. 14)



15

Remove the circlip and drive out the cylinder roller bearing with a soft metal punch.

(Fig. 15)

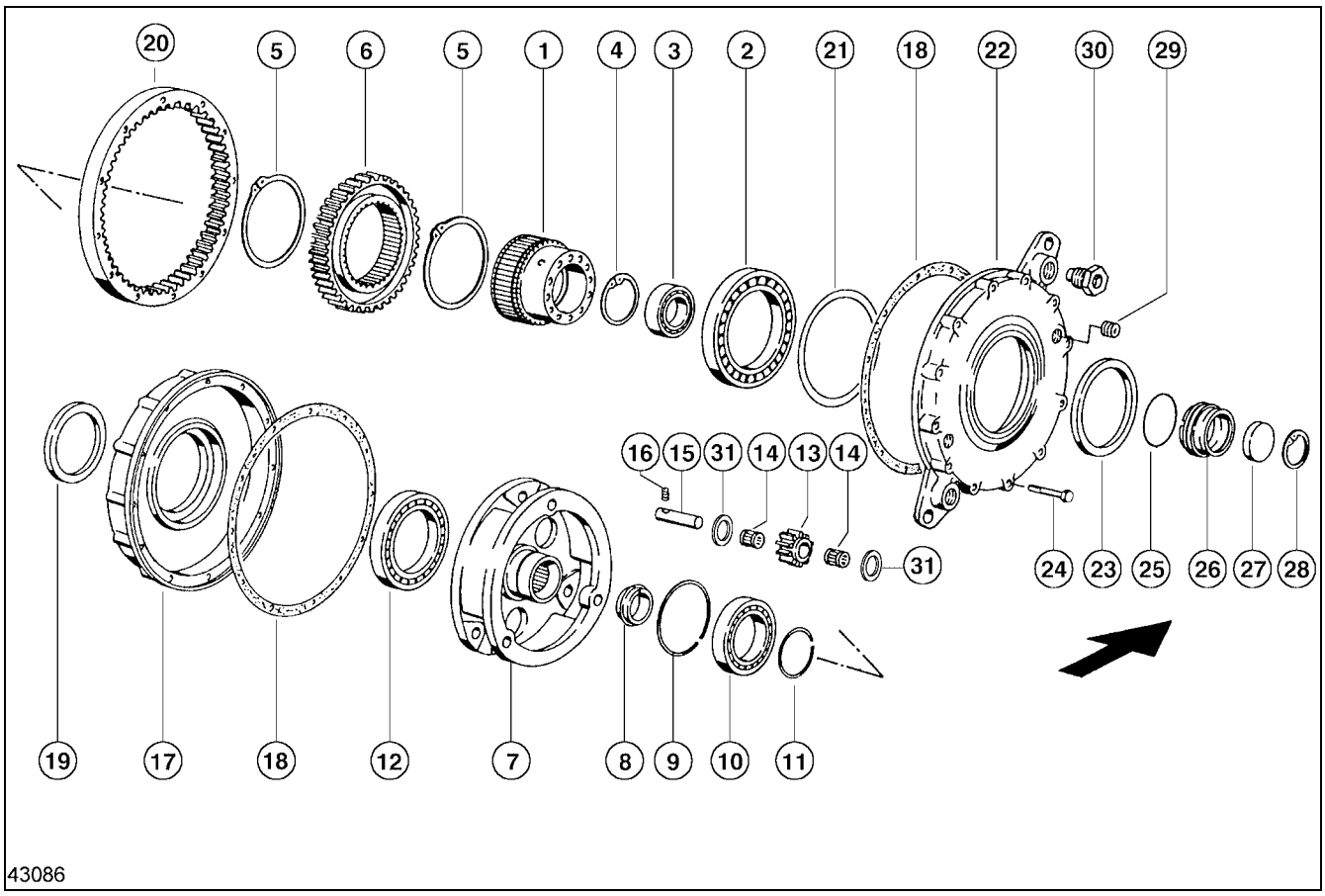


16

Remove the deep groove ball bearing, using a three-legged puller.

For this, use a
Hex. nut M 16 x 60, part no. 603 038.0,
a locating disc, part no. 181 879.0
and a thrust washer, part no. 667 414.0.

(Fig. 16)

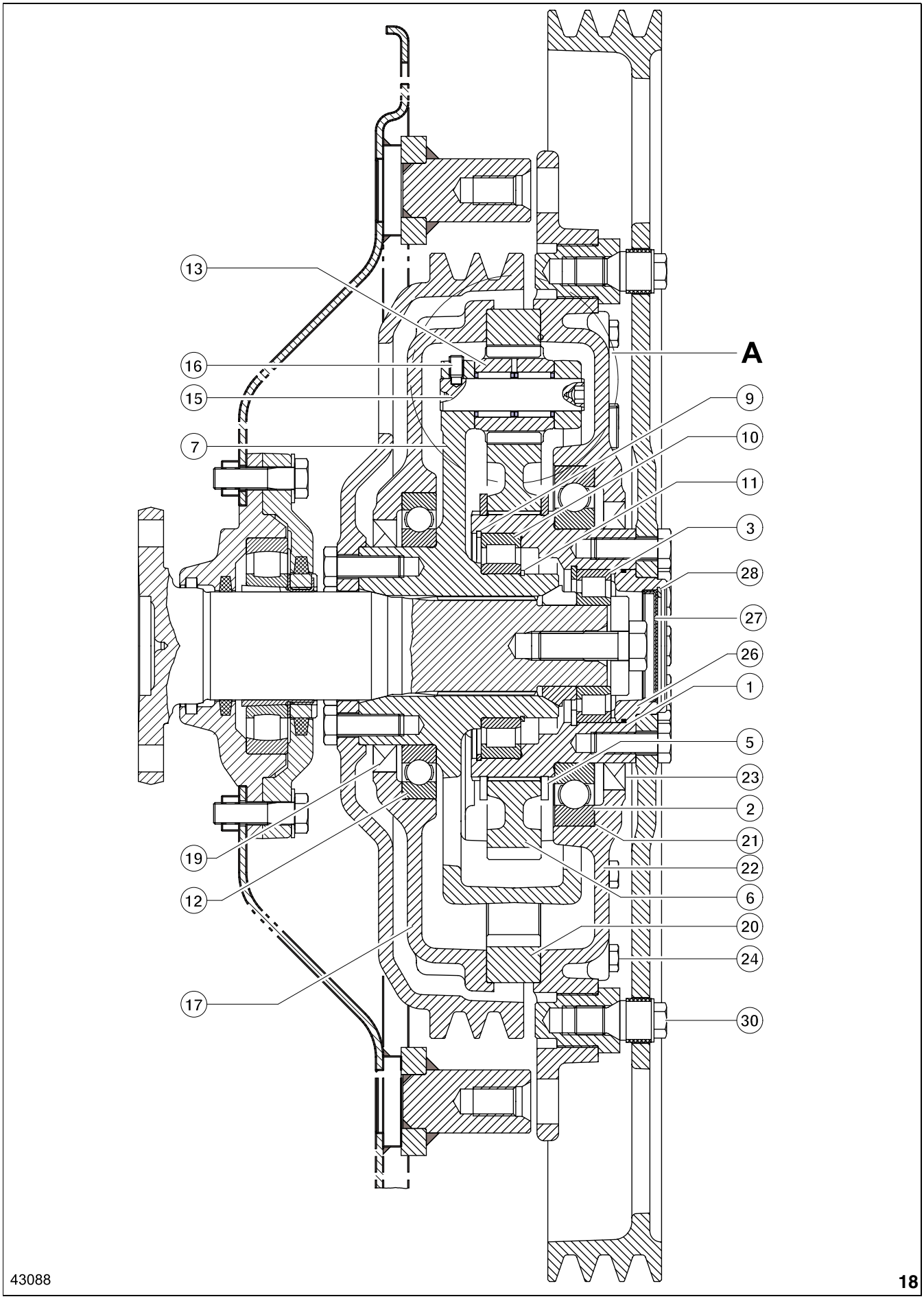


17

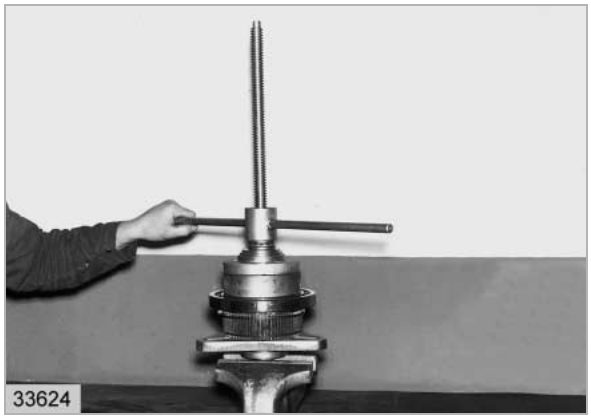
Threshing drum reduction gearbox, disassembled:

1 Sun gear carrier
2 Deep groove ball bearing 16026-C3 DIN 625
3 Cylinder roller bearing NJ 209-C3 / E CP DIN 5412
4 Circlip 85 x 3 DIN 472
5 Circlip 150 x 4 DIN 471
6 Sun gear
7 Planetary carrier
8 Thrust washer
9 Snap ring
10 Cylinder roller bearing NU 1016-C3 DIN 5412
11 Snap ring
12 Deep groove ball bearing 16022-C3 DIN 625
13 Planetary gear
14 Needle ring K 18 x 25 x 22
15 Planetary gear axle
16 Set screw M 8 x 16 DIN 915
17 Gearbox housing
18 Seal
19 Shaft seal AS 110 x 140 x 12 DIN 3760
20 Ring gear
21 Shim
22 Gearbox housing
23 Shaft seal AS 13 x 160 x 12 DIN 3760
24 Hex. bolt M 8 x 90 DIN 931-8.8
25 O-ring 80 x 2 - N DIN 3771
26 Centralising piece
27 Cover
28 Circlip 62 x 2 DIN 472
29 Screw plug M 24 x 1.5 DIN 906
30 Threaded pin
31 Thrust washer (from serial no. ...)

(Fig. 17)



18

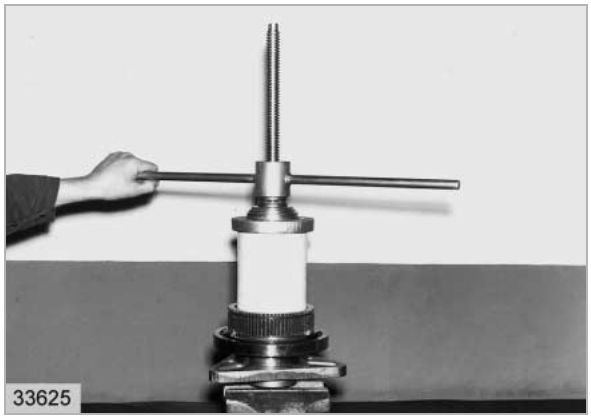


19

Assembling the threshing drum reduction gearbox

1. Using a tube with an inside ∅ 135 x 40 long and the special tool, press the deep groove ball bearing (2) onto the sun gear carrier (1).

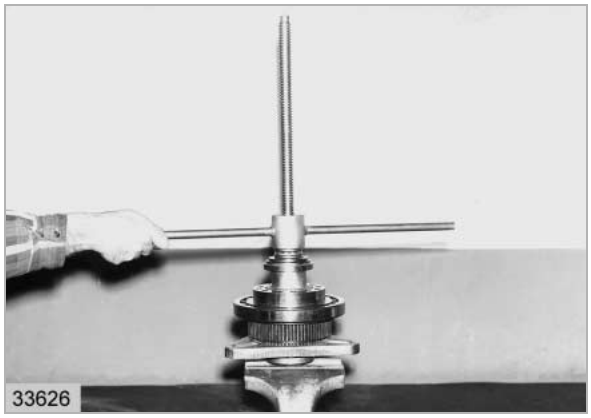
(Fig. 17, 18, 19)



20

2. Using a tube with an outside ∅ 115 x 150 long and the special tool, press the cylinder roller bearing (10) into the sun gear carrier (1).

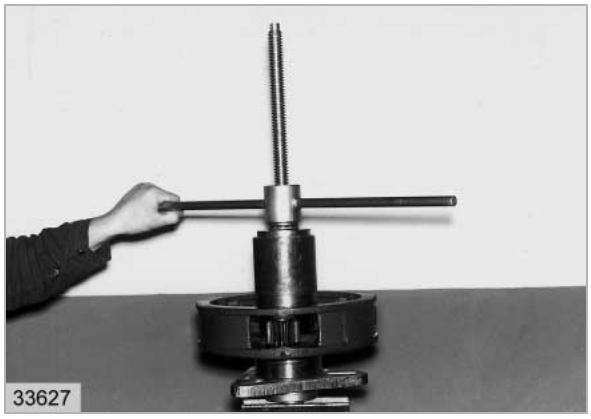
(Fig. 17, 18, 20)



21

3. Insert the snap ring (9) and the circlip (4) into the sun gear carrier (1).
4. Using a puller shell part no. 181 848.0 and a special tool, press the cylinder roller bearing (3) into the sun gear carrier (1).

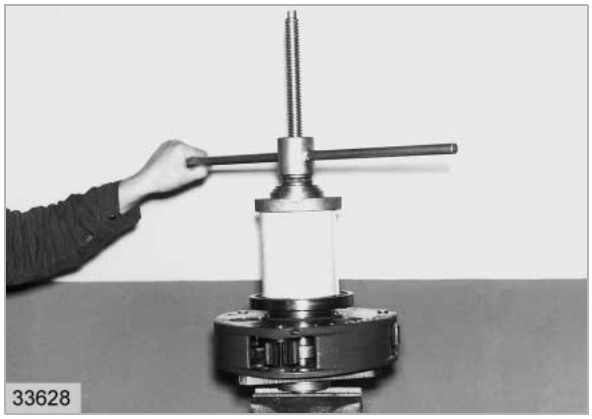
(Fig. 17, 18, 21)



22

5. Assemble the circlip (5) and the sun gear (6) onto the teeth of the sun gear carrier (1).
6. Using a tube with an inside ∅ 82 x 100 long and a special tool, press the inner bearing ring of cylinder roller bearing (10) onto the planetary carrier.

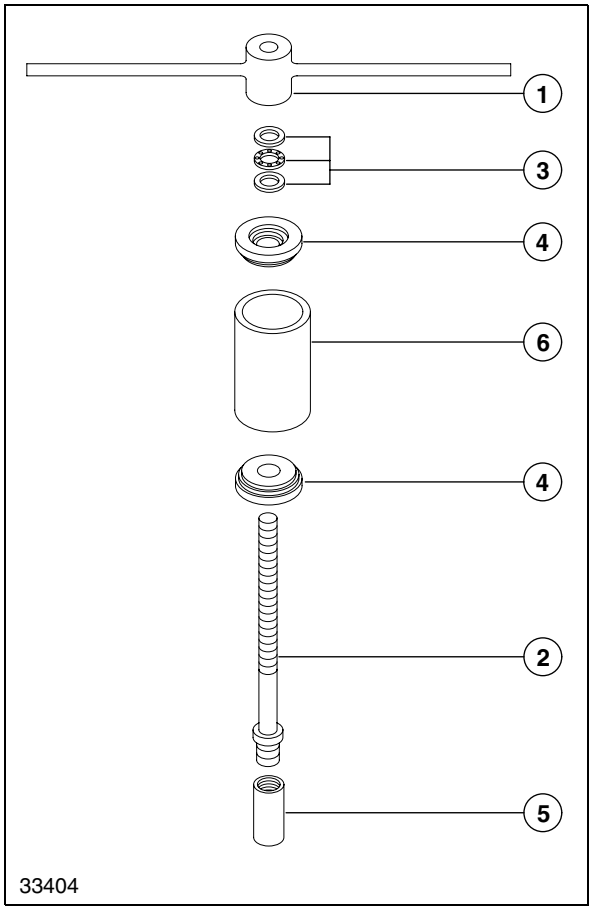
(Fig. 17, 18, 22)



23

7. Insert snap ring (11).
8. Using a tube with an inside ∅ 125 x 150 long and a special tool, press the deep groove ball bearing (12) onto the planetary carrier.

(Fig. 17, 18, 23)

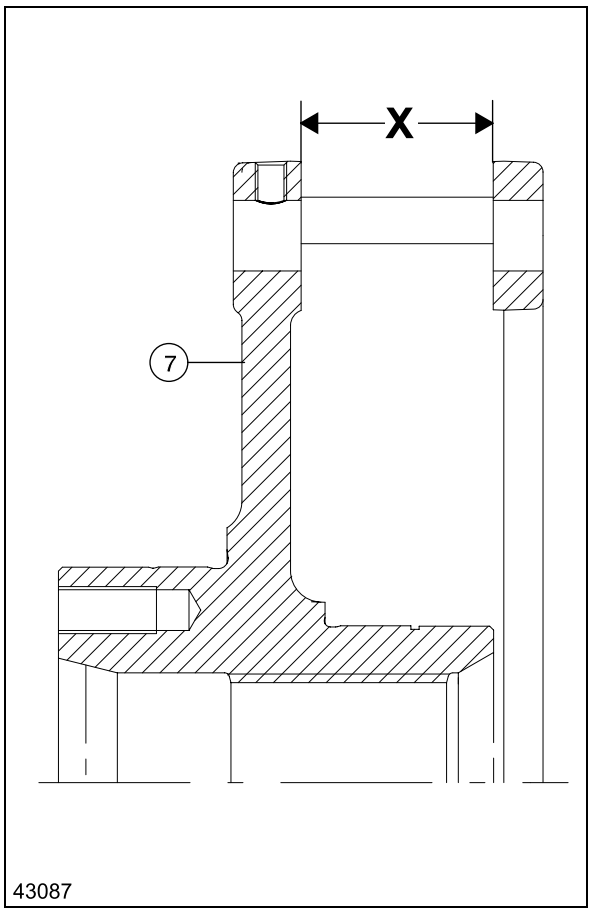


24

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Locating disc, part no. 181 879.0
5 Sleeve, part no. 181 881.1
6 Tube, outside ∅ 70 x 170 long (self-sourced)

(Fig. 24)



25

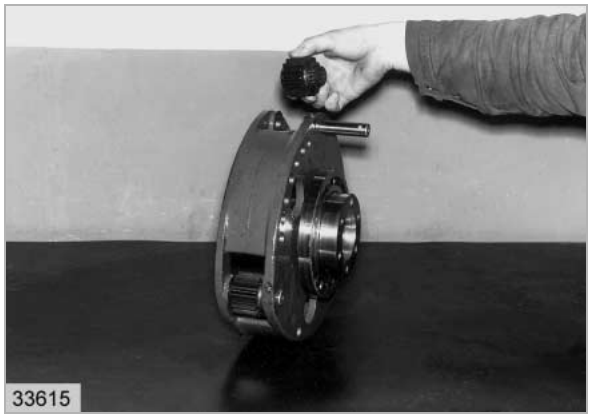
Measure planetary carrier (7) at position (A).

Determine the dimension (X).

$X = 49.0^{+0.2}$ mm assembly with thrust washer (31)

$X = 44.4^{+0.2}$ mm installation without thrust washer (31)

(Fig. 18, 25)



26

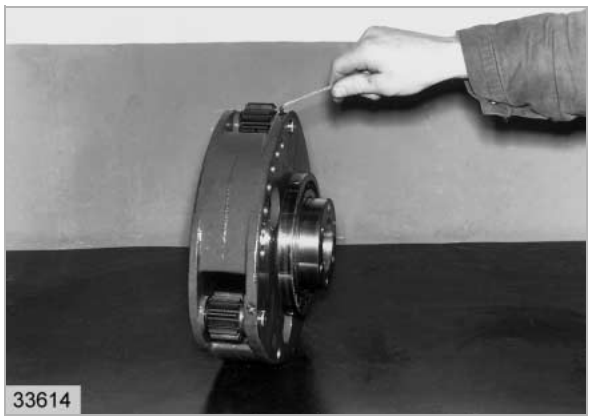
9. Fit the planetary gear (13), the needle ring (14), the thrust washer (31, if required) and the planet axle (15) into the planet carrier.

   Insert set screw (16) with liquid locking compound, e.g. DELO-ML 5349.

CAUTION!

Item (13 to 16) only replace in whole.

(Fig. 17, 18, 26, 27)



27



28

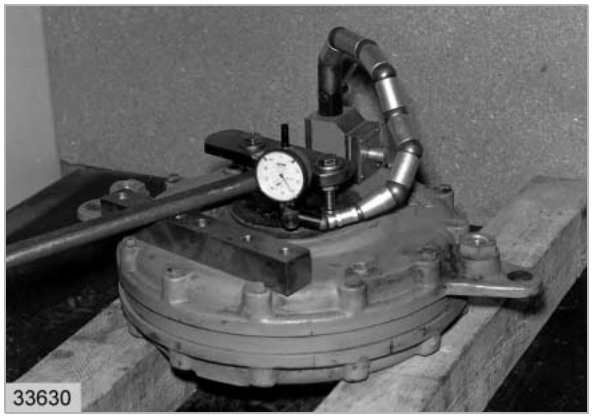
10. Insert the planetary carrier and the sun gear carrier into the gearbox housing.
11. Stick the seal (18) into place with grease and then insert ring gear (20).

    Insert the same number and thickness of shims (21) (see Fig. 7).
12. Bolt the gearbox (22) together.

    Insert the hex. bolts (24) using liquid locking compound, e.g. DELO-ML 5349.

    Tightening torque = 23 Nm

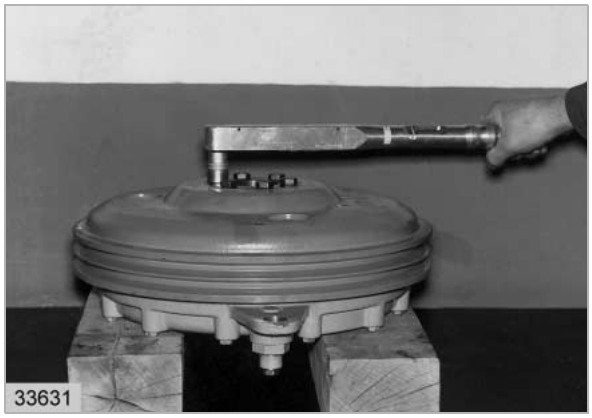
(Fig. 17, 18, 28)



29

13. Check the residual play between the gearbox housing and the planetary carrier and/or sun gear carrier to be **0.3 to 0.8 mm** and correct play with shims (21) if required.

(Fig. 17, 18, 29)



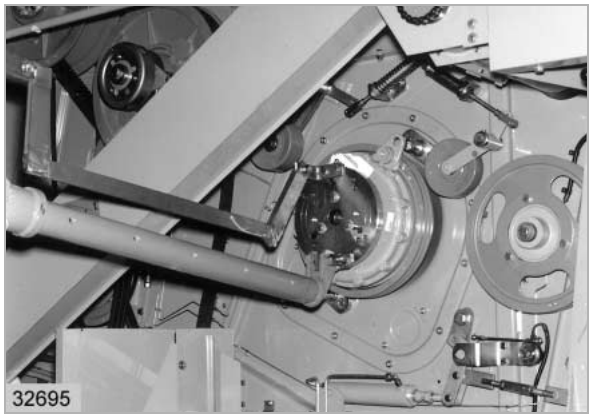
30

14. Insert the shaft seals (19 and 23), ensuring they have been greased first.
15. Bolt down V-belt pulley using the hex. bolt M 12 x 35 DIN 933-10.9.

    Insert hex. bolts with liquid locking compound, e.g. DELO-ML 5349.

    Tightening torque = 110 Nm

(Fig. 17, 18, 30)



31

Installing the threshing drum reduction gearbox

1. Slide the threshing drum reduction gearbox onto the flanged shaft using the special tool part no. 181 617.0 and a suitable lifting device.

(Fig. 31)



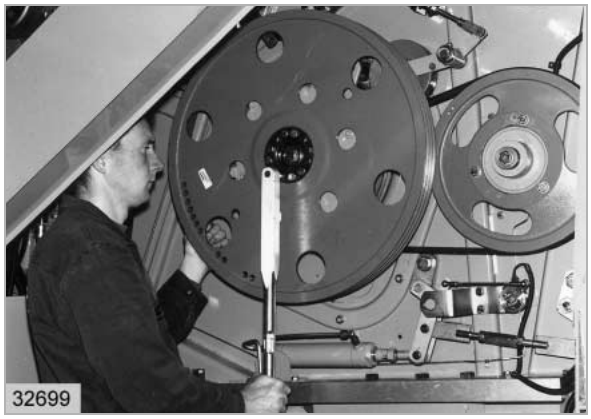
32

2. Bolt down reduction gearbox with clamping washer and hex. bolt M 16 x 50 DIN 933-10.9.

   Insert hex. bolt with liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 120 Nm

(Fig. 32)



33

3. Bolt down V-belt pulley using the hex. bolt M 12 x 35 DIN 933-10.9.

   Insert hex. bolts with liquid locking compound, e.g. DELO-ML 5349.

   Tightening torque = 110 Nm

(Fig. 33)

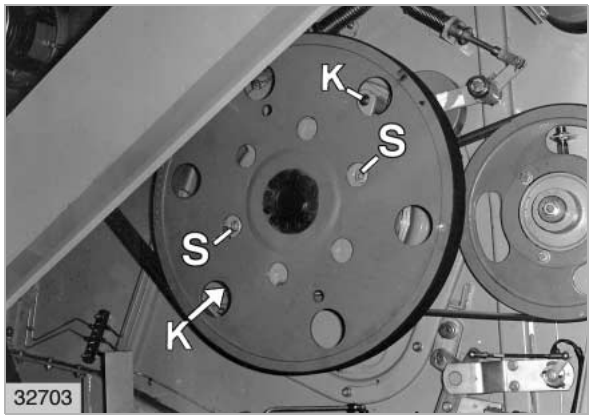


34

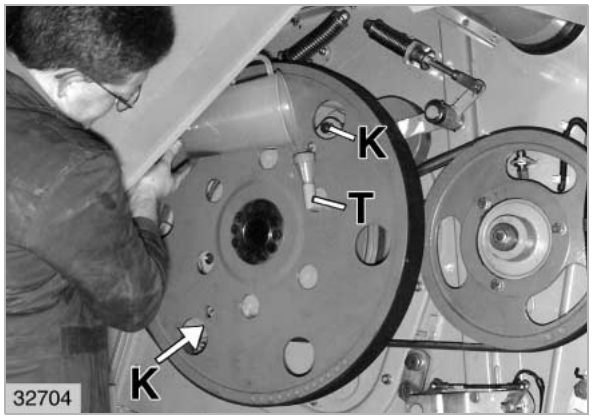
4. Insert the centralising piece (26).

   Tap the cap (27) in using a suitable punch, then insert the circlip (28).

(Fig. 17, 18, 34)



35



36

5. *Installing and adjusting the accelerator drive belt (24)*, see page 7.3.11

   Installing and adjusting the threshing drum drive belt (23), see page 7.3.9

6. Fill the gearbox with oil.

   For this, first bolt in the two conical seat bolts (K) in the “Reduction ON” position.

   Unscrew both caps (S).

   Insert an elbow union (T), part no. 669 885.0, into the top hole.

   Fill in gearbox oil at the oil filler plug until the oil starts running out through the lower hole.

   Remove the elbow union (T) from the top hole and refit both caps.

(Fig. 35, 36)

7. Refit the guard.
   Install the right-hand drive wheel.

THRESHING MECHANISM INTERMEDIATE DRIVE



1

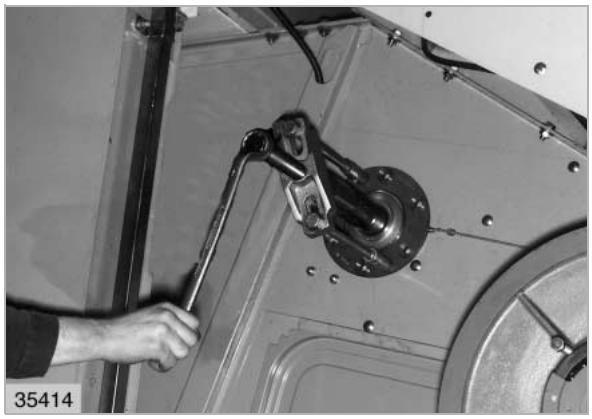
Removing the right-hand intermediate drive shaft bearing

Removing the threshing drum variable-speed pulley assembly (hydraulic), see page 7.6.1

Removing the stage 1 fan drive V-belt pulley, see page 7.14.1

Remove the grease pipe from the bearing assembly.

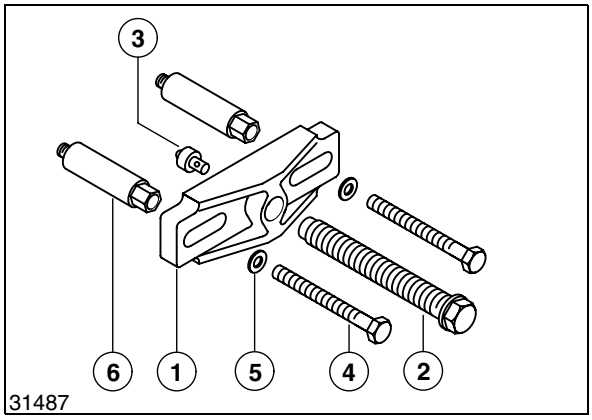
(Fig. 1)



2

Unbolt the bearing assembly from the side wall and remove it, using the special tool.

(Fig. 2)



3

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 16 x 260, part no. 235 816.0
5 Washer 17, part no. 235 127.2
6 Threaded bolt, part no. 181 889.0

(Fig. 3)

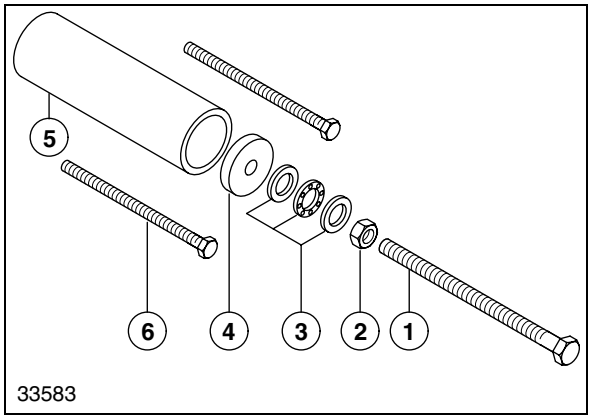


4

Installing the right-hand intermediate drive shaft bearing

1. Press the bearing assembly onto the shaft using a special tool.

(Fig. 4)



5

Special tool:

1 Hex. bolt M 16 x 260 DIN 933-8.8, part no. 235 816.0
2 Hex. nut M 16, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Thrust washer, part no. 667 414.0
5 Tube, inside ∅ 60 x 200 long (self-sourced)
6 Hex. bolt M 12 x 180 DIN 931-8.8, part no. 235 565.0

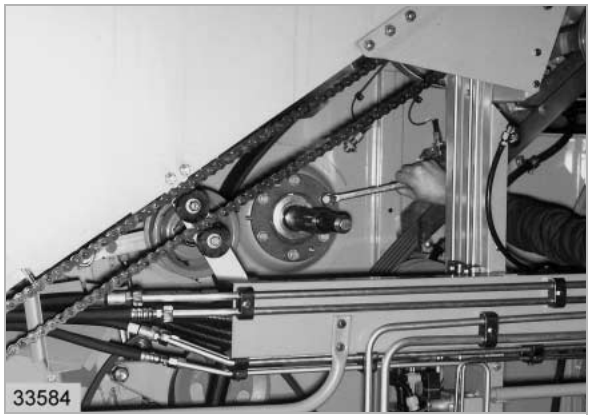
(Fig. 5)

2. Bolt down the bearing assembly and the grease pipe.

   (Fig. 1)

3. *Installing the stage 1 fan drive V-belt pulley*, see page 7.14.1

   Installing the threshing drum variable-speed pulley assembly (hydraulic), see page 7.6.6



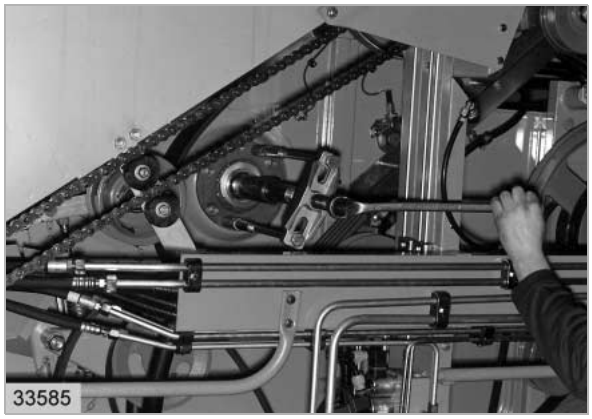
6

Removing the left-hand intermediate drive shaft bearing

Removing the threshing mechanism drive pulley assembly, see page 7.5.1

Remove the grease pipe and unbolt the bearing assembly.

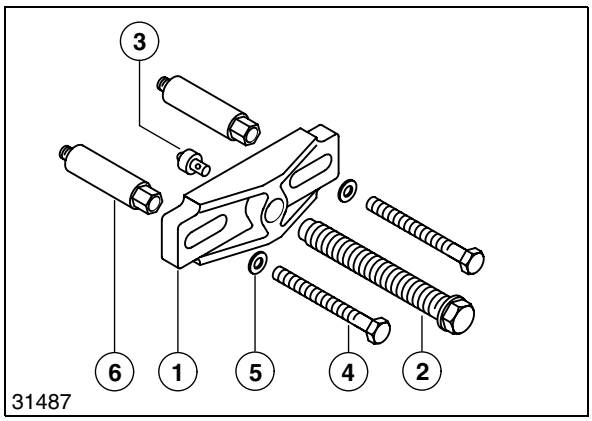
(Fig. 6)



7

Using the special tool, remove the bearing assembly from the shaft.

(Fig. 7)

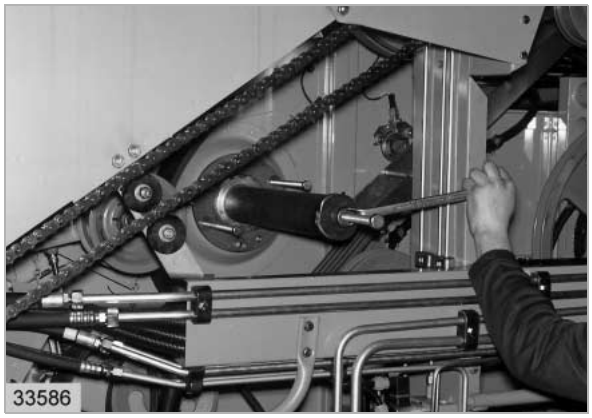


8

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 16 x 260, part no. 235 816.0
5 Washer 17, part no. 235 127.2
6 Threaded bolt, part no. 181 889.0

(Fig. 8)

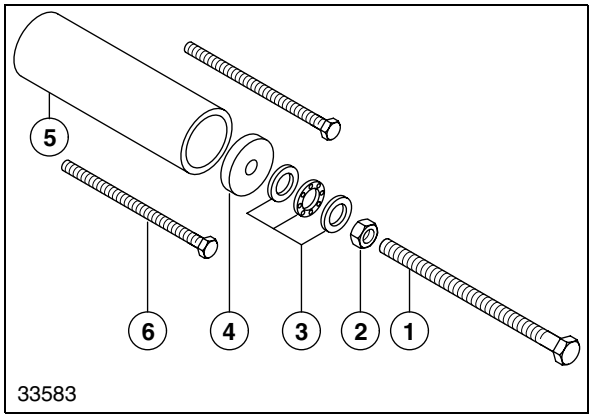


9

Installing the left-hand intermediate drive shaft bearing

1. Press the bearing assembly onto the shaft using a special tool.

(Fig. 9)



10

Special tool:

1 Hex. bolt M 16 x 300 DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16, part no. 236 173.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Thrust washer, part no. 667 414.0
5 Tube, inside ∅ 60 x 400 long (self-sourced)
6 Hex. bolt M 12 x 180 DIN 931-8.8, part no. 235 565.0

(Fig. 10)

2. Bolt down the bearing assembly and the grease pipe.

   (Fig. 6)

3. *Installing the threshing mechanism drive pulley assembly*, see page 7.5.8



11

Removing the intermediate drive shaft

Removing the threshing mechanism drive pulley assembly, see page 7.5.1

Removing the threshing drum variable-speed pulley assembly (hydraulic), see page 7.6.1

Removing the stage 1 fan drive V-belt pulley, see page 7.14.1

Removing the right-hand intermediate drive shaft bearing, see page 7.8.1

Removing the left-hand intermediate drive shaft bearing, see page 7.8.2

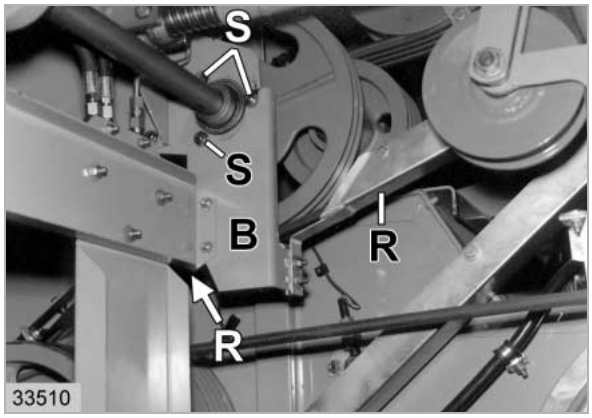
The intermediate drive shaft may be removed from the side of the machine.

(Fig. 11)

Installing the intermediate drive shaft

1. Slide the intermediate drive shaft into the machine from the side. Ensure correct installation position.
2. *Installing the left-hand intermediate drive shaft bearing*, see page 7.8.3
3. *Installing the right-hand intermediate drive shaft bearing*, see page 7.8.2
4. *Installing the stage 1 fan drive V-belt pulley*, see page 7.14.1
5. *Installing the threshing drum variable-speed pulley assembly (hydraulic)*, see page 7.6.6
6. *Installing the threshing mechanism drive pulley assembly*, see page 7.5.8

GRAIN TANK UNLOADING DRIVE



1

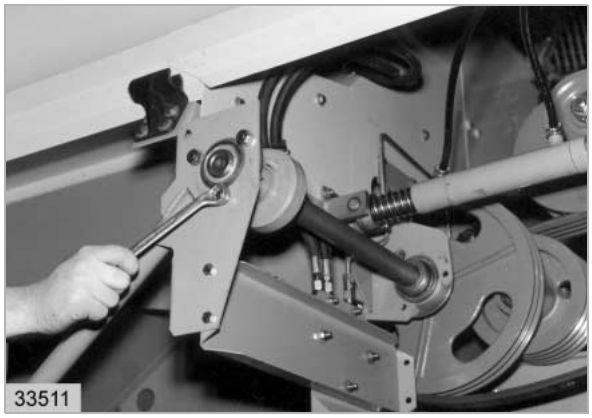
Removing the grain tank unloading drive pulley

Observe the position of the grain tank unloading drive sprockets and ensure they have been suitably marked.

Removing the grain tank unloading drive chain (17), see page 7.2.34

Remove the belt guard (R), the belt guide bracket (B) and the lock collar bearing (S).

(Fig. 1)



2

Unscrew the lock collar bearing and then remove the shaft completely.

(Fig. 2, 3)



3



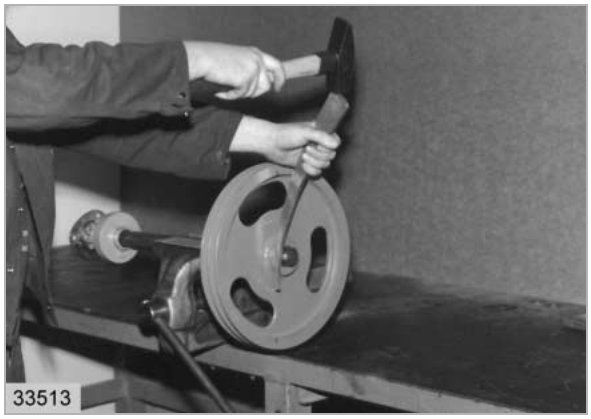
4

From serial no. …:

Mark the position of the V-belt pulley on the shaft.

Loosen the clamping hub and pull off the V-belt pulley.

(Fig. 4)



Up to serial no. …:

Mark the position of the V-belt pulley on the shaft.

Remove the gib head key and pull off the pulley.

(Fig. 5)

5



Knock off the lock collar and remove the bearing.

(Fig. 6)

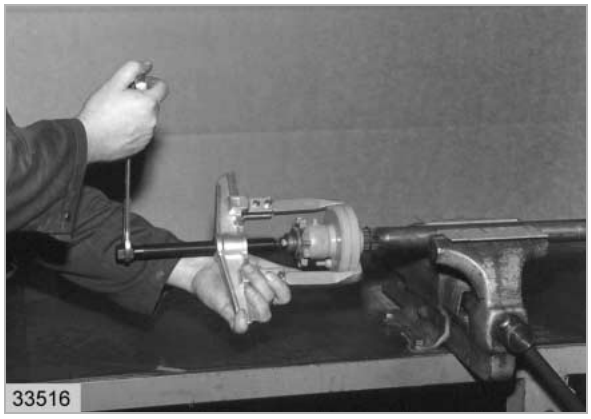
6



Unscrew the hex. bolt and pull off the bearing.

(Fig. 7)

7



Pull off the shear bolt coupling.

(Fig. 8)

8

Installing the grain tank unloading drive pulley

1. Insert the circlip and slide on the shear bolt coupling.
2. Slide on the left-hand lock collar bearing and secure with the hex. bolt.

   (Fig. 7)
3. Slide on the right-hand lock collar bearing, but do not secure at this stage.

   Observe correct installation position of lock collar bearings. The lock collars must face each other.
4. From serial no. …:
   Place the V-belt pulley in position and tighten clamping hub slightly.

   Up to serial no. …:
   Place the V-belt pulley on the shaft and lightly insert the gib head key.
5. Place the pre-assembled shaft into the machine and bolt down the lock collar bearings with the belt guide brackets (B). Secure lock collar bearings in place.

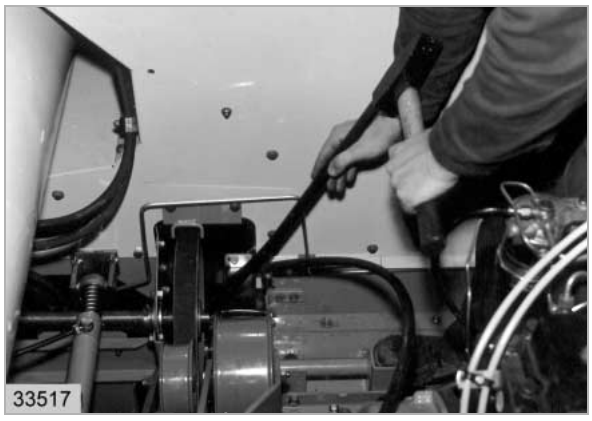
   (Fig. 2, 3)



9

6. From serial no. …:
   Align the V-belt pulley and bolt down the clamping hub.

   (Fig. 9)



10

Up to serial no. …:
Align the V-belt pulley and secure the gib head key by knocking it into position.

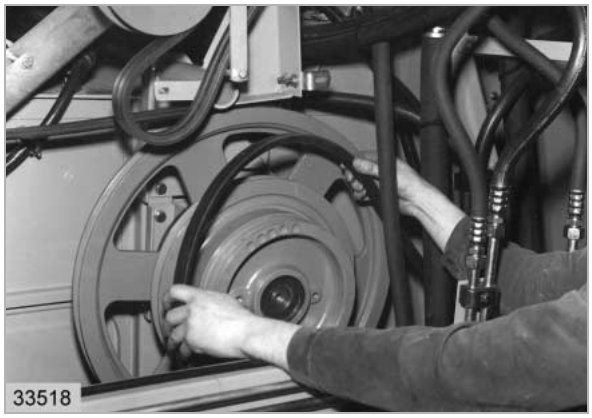
(Fig. 10)

7. Install the belt guard (R), the belt guide bracket (B) and the lock collar bearing (S).

   (Fig. 1)

8. *Installing and adjusting the grain tank unloading drive chain (17)*, see page 7.2.35

CHOPPER DRIVE



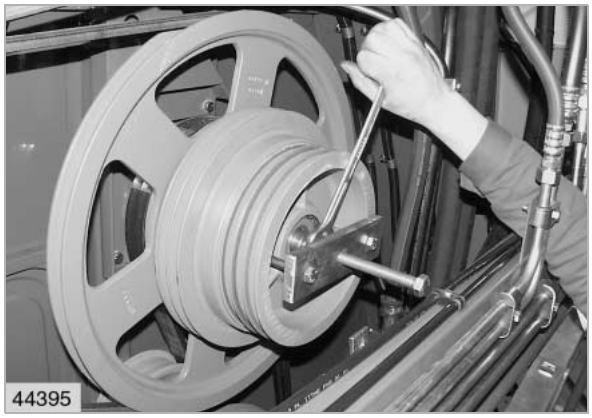
1

Removing the stage 1 chopper drive V-belt pulley

Remove the straw chopper intermediate drive belt (9) at the bottom – see page 7.2.18, *Removing the straw chopper intermediate drive belt (9)*.

Remove the straw chopper drive belt (10) at the front – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*.

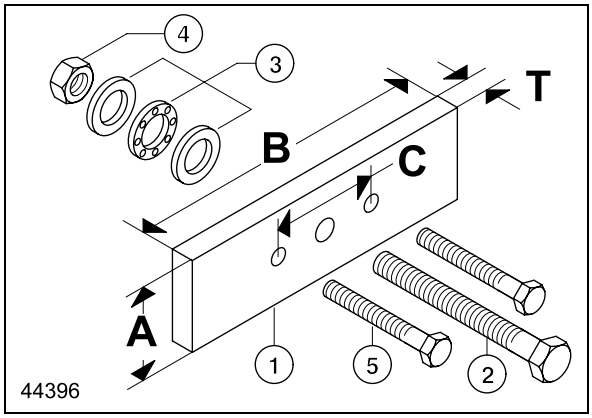
(Fig. 1)



2

From serial no. …:
Remove the V-belt pulley using the special tool.

(Fig. 2)



3

Special tool:
(from serial no. …)

1 Flat bar (self-sourced)
  A = 60 mm
  B = 200 mm
  C = 140 mm
  D = ∅ 13 mm
  E = ∅ 17 mm
  T = 15 mm
2 Hex. bolt M 16 x 180, part no. 212 653.0
3 Axial grooved ball bearing, part no. 177 899.0
4 Hex. nut M 16 with collar, part no. 244 059.0
5 Hex. bolt M 12 x 100, part no. 235 563.0

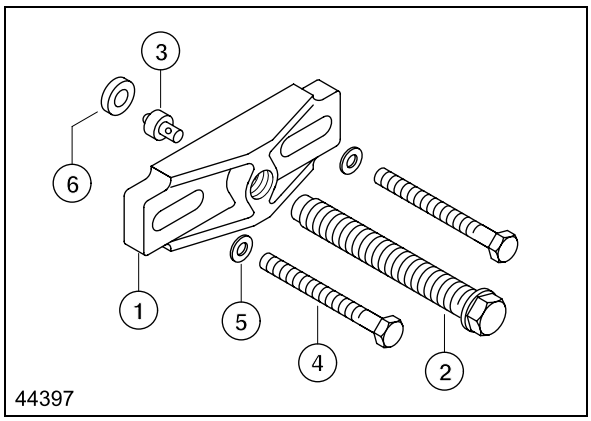
(Fig. 3)



4

Up to serial no. …:
Remove the V-belt pulley using the special tool.

(Fig. 4)

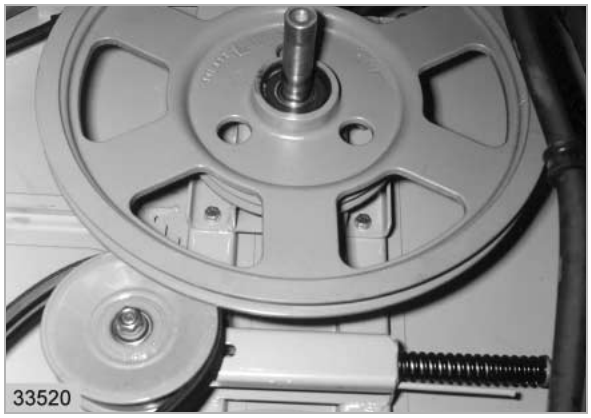


5

Special tool:
(up to serial no. …)

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt BM 12 x 60 DIN 933-8.8, part no. 266 300.0
5 Washer 13 x 30 x 3, part no. 236 844.0
6 Washer 8.5 x 30 x 3, part no. 237 957.0

(Fig. 5)



6

Removing the sieve pan intermediate drive belt (13), see page 7.2.25

Removing the sieve pan intermediate drive belt (14), see page 7.2.27

Unbolt the V-belt pulley completely with the bearing bracket.

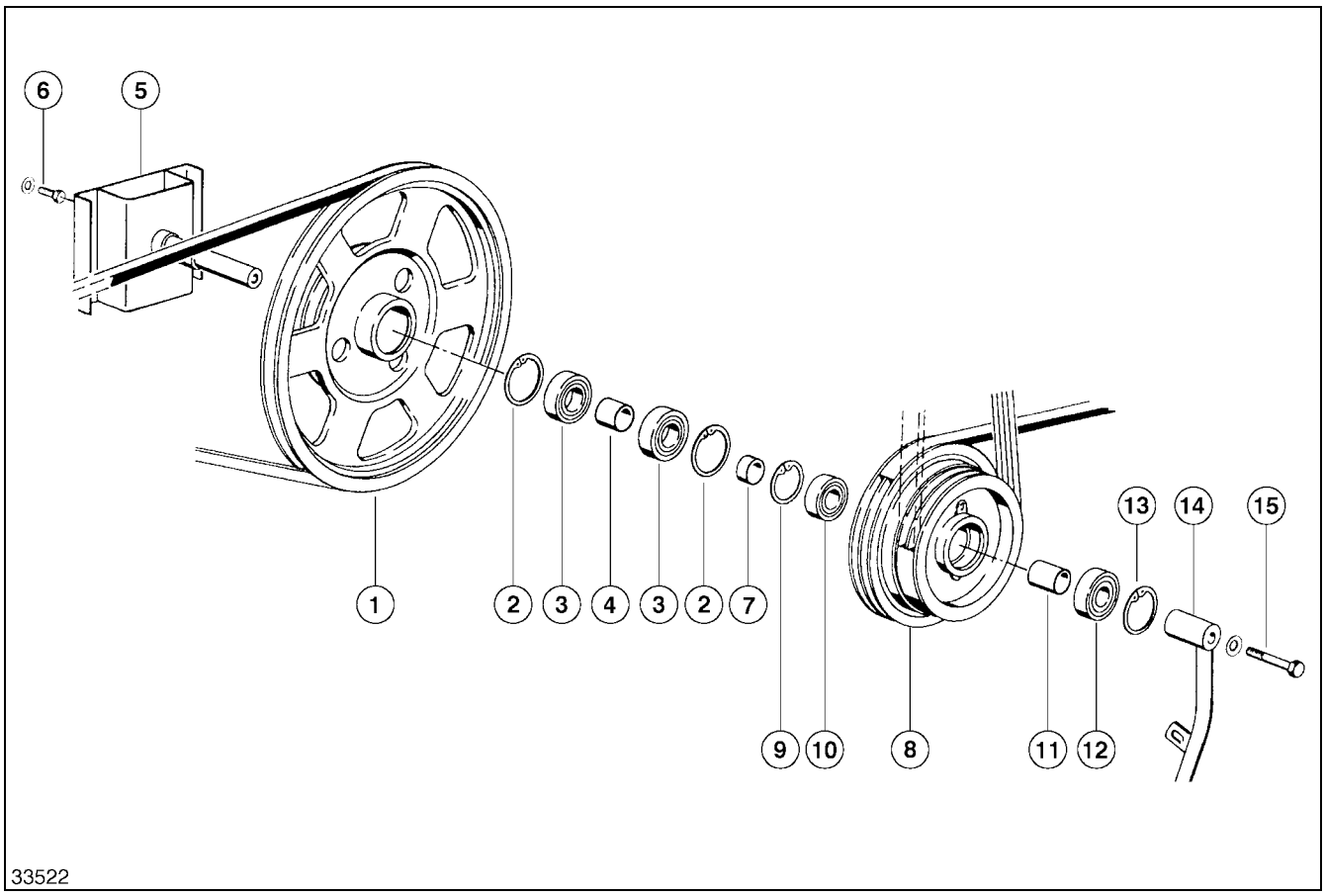
(Fig. 6)



7

Remove the V-belt pulley using a suitable puller.

(Fig. 7)

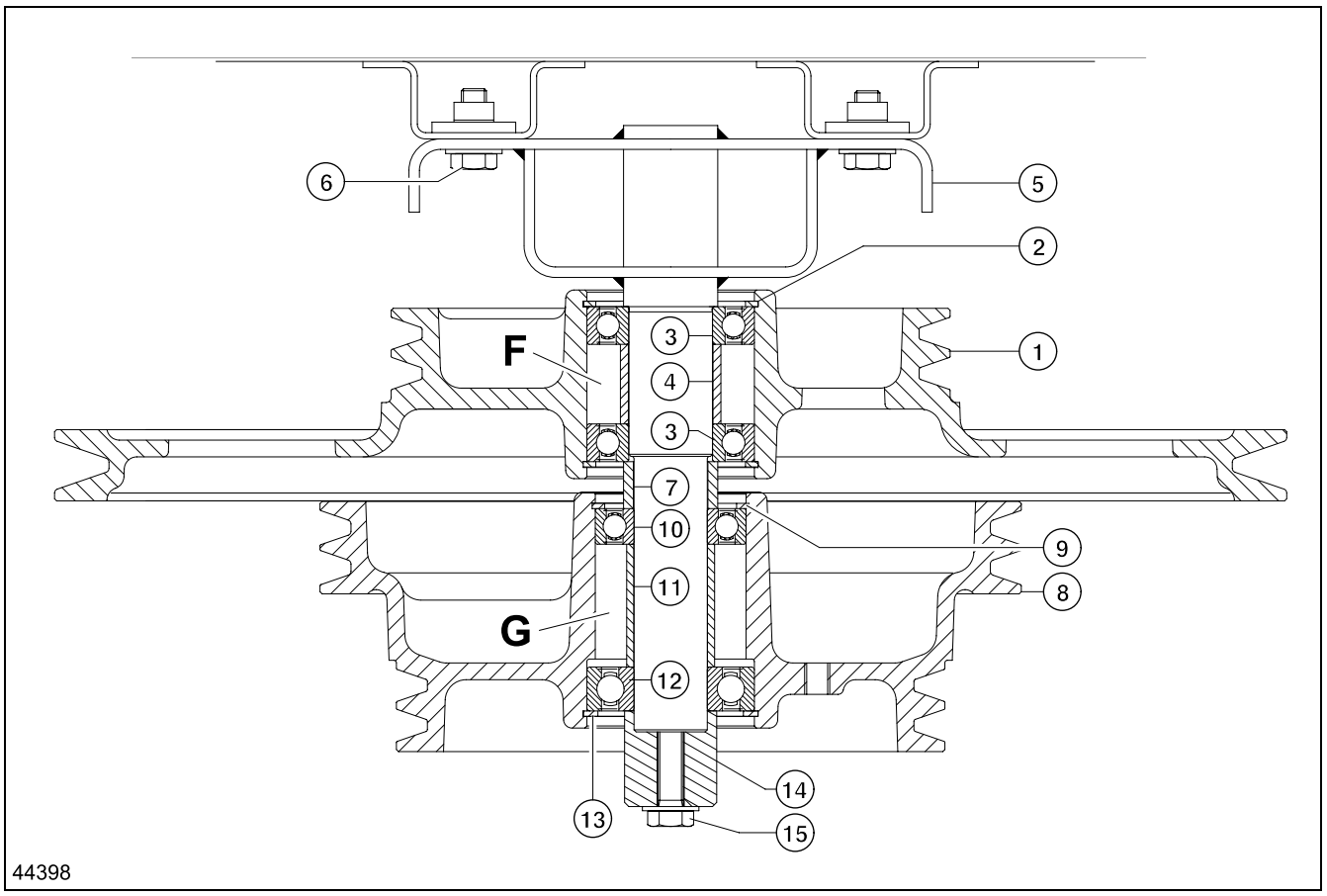


8

Stage 1 chopper drive V-belt pulley, disassembled

1 V-belt pulley
2 Circlip 80 x 2.5 DIN 472
3 Deep groove ball bearing 6208-RS-C3
4 Spacer tube
5 Mounting bracket
6 Hex. bolt M 10 x 25 DIN 933-8.8
Contact washer A 10
7 Spacer bushing
8 V-belt pulley
9 Circlip 72 x 2.5 DIN 472
10 Deep groove ball bearing 6207-RS-C4
11 Spacer bushing
12 Deep groove ball bearing 6207-RS-C3
13 Circlip 80 x 2.5 DIN 472
14 Brace
15 Hex. bolt M 16 x 110 DIN 931-10.9
Contact washer A 16

(Fig. 8)



9

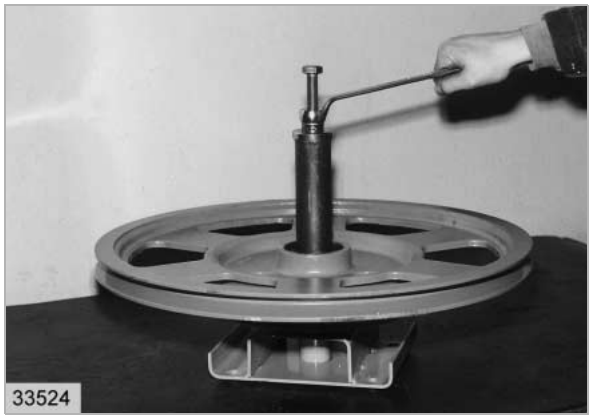
Assembling and installing the stage 1 chopper drive V-belt pulley

1. Place the circlip (2), the deep groove ball bearing (3) and the spacer tube (4) into the V-belt pulley (1).

CAUTION!

Fill 60 % of the space (F) with roller bearing grease (approx. 70 g). The deep groove ball bearings (3) must be completely filled with roller bearing grease such as Shell “Alvania G 3” part no. 413 981.0 when being assembled.

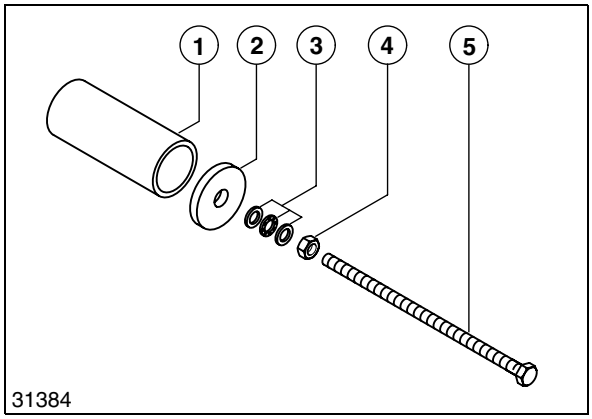
(Fig. 8, 9)



10

2. Press the pre-assembled V-belt pulley (1) on the bracket (5) using the special tool. Bolt the bracket to the side wall of the machine.

(Fig. 6, 8, 9, 10)



11

Special tool:

1 Tube ∅ 36 x ∅ 50 x 120 long (self-sourced)
2 Washer, part no. 629 071.1
3 Axial grooved ball bearing, part no. 177 899.0
4 Hex. nut M 16 DIN 934, part no. 236 173.0
5 Hex. bolt M 16 x 300 DIN 933-8.8, part no. 237 375.1

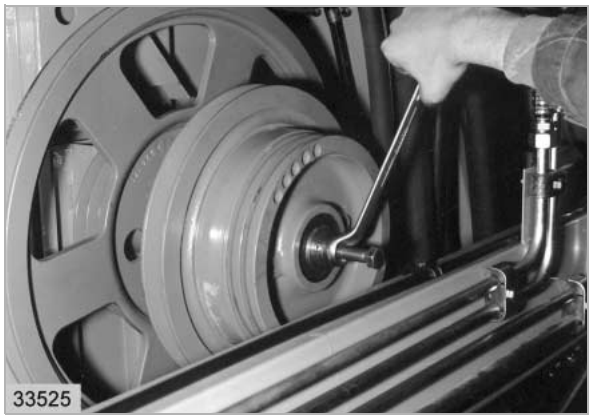
(Fig. 11)

3. Place the circlips (9 and 13), the deep groove ball bearings (10 and 12) and the spacer bushing (11) into the V-belt pulley (8).

CAUTION!

Fill 50 % of space (G) with roller bearing grease (approx. 82 g). The deep groove ball bearings (10 and 12) must be completely filled with roller bearing grease such as Shell “Alvania G3” part no. 413 981.0 when being assembled.

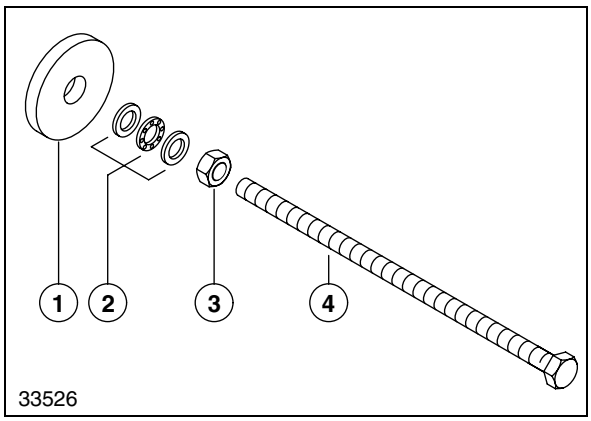
(Fig. 8, 9)



12

4. Press the pre-assembled V-belt pulley (8) on the shaft using the special tool.

(Fig. 12)



13

Special tool:

1 Washer, part no. 629 071.1
2 Axial grooved ball bearing, part no. 177 899.0
3 Hex. nut M 16 DIN 934, part no. 236 173.0
4 Hex. bolt M 16 x 180 DIN 933-8.8, part no. 212 653.0

(Fig. 13)



14

5. *Installing and adjusting the straw chopper drive belts (10 and 11)*, see page 7.2.22

   Installing and adjusting the straw chopper intermediate drive belt (9), see page 7.2.19

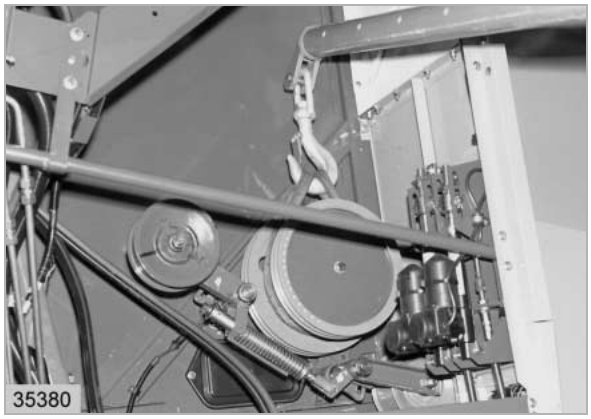
6. Refit the brace (14).

   Tightening torque = 130 Nm

(Fig. 14)

Removing the stage 2 chopper drive V-belt pulley

Removing the straw chopper drive belts (10 and 11), see page 7.2.20



15

Remove the complete assembly including the pulley and the jockey pulleys.

(Fig. 15)



16

Remove the round plate and the washer.

Unbolt the rear V-belt pulley.

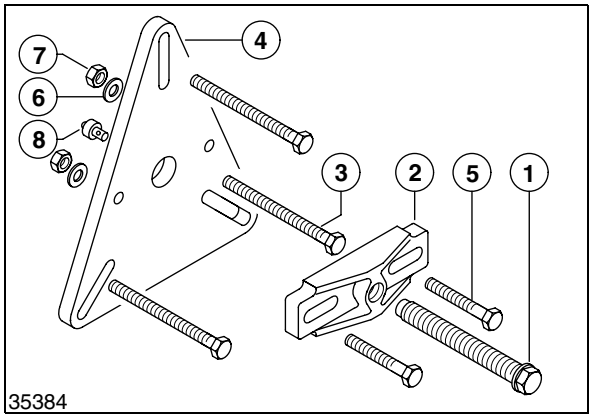
(Fig. 16)



17

Remove the V-belt pulley using the special tool.

(Fig. 17)

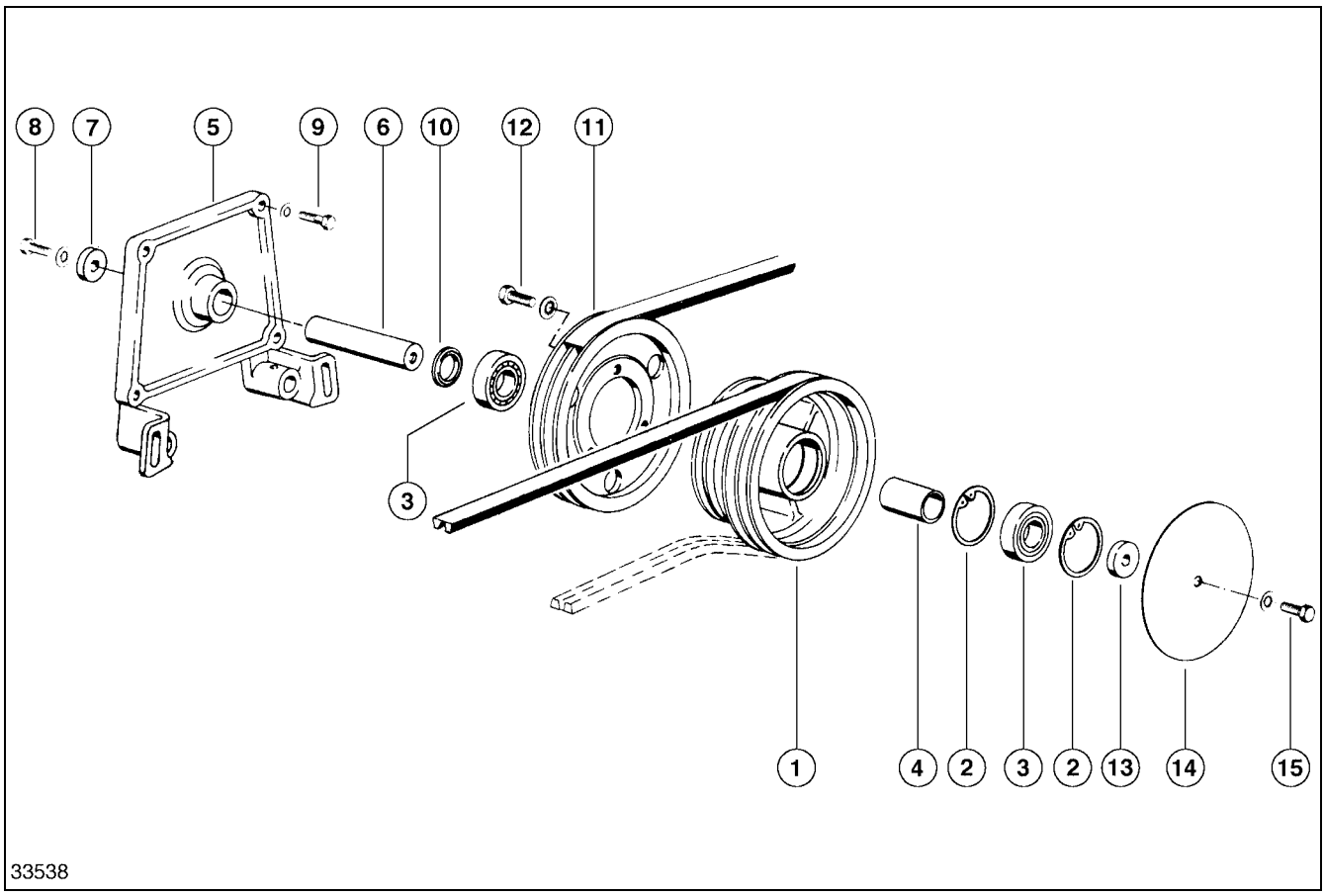


18

Special tool:

1 Threaded spindle, part no. 181 801.1
2 Puller bridge, part no. 181 800.0
3 Hex. bolt M 16 x 150 DIN 931, part no. 242 369.0
4 Puller plate, part no. 181 803.1
5 Hex. bolt M 16 x 79 DIN 933, part no. 242 467.0
6 Washer 17 DIN 125
7 Hex. nut M 16 DIN 934 part no. 236 173.0

(Fig. 18)

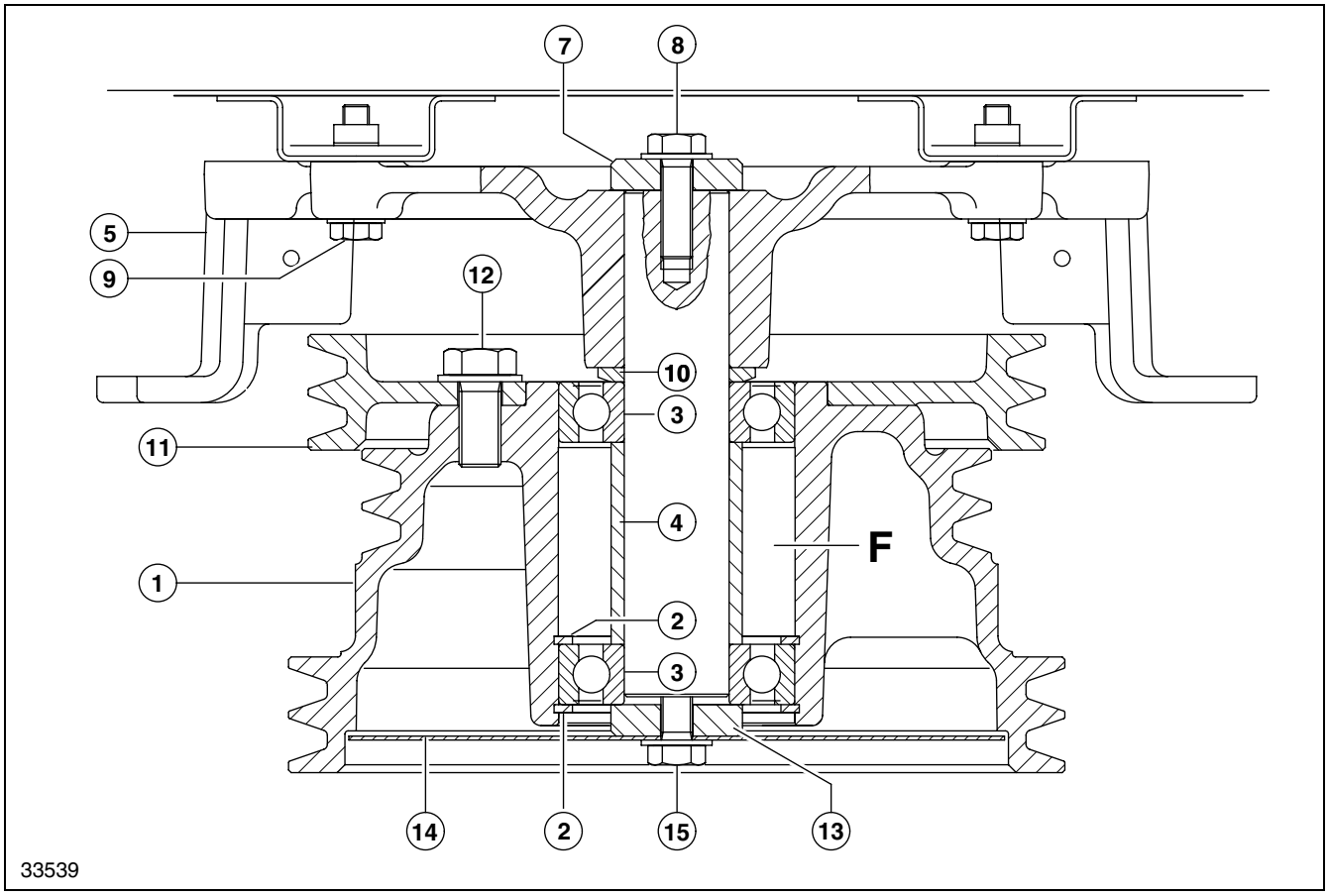


19

Stage 2 chopper drive V-belt pulley, disassembled

1 V-belt pulley
2 Circlip 90 x 3 DIN 472
3 Deep groove ball bearing 6308-RS-C3 DIN 625
4 Spacer tube
5 Base plate
6 Bearing pin
7 Washer
8 Hex. bolt M 12 x 40 DIN 933-8.8
Contact washer A 12
9 Hex. bolt M 10 x 45 DIN 931-8.8
Contact washer A 10
10 Thrust washer
11 V-belt pulley
12 Hex. bolt M 16 x 35 DIN 933-8.8
Contact washer A 16
13 Washer
14 Washer
15 Hex. bolt M 12 x 40 DIN 933-8.8
Contact washer A 12

(Fig. 19)



20

Assembling and installing the stage 2 chopper drive V-belt pulley

1. Place the circlip (2), the deep groove ball bearing (3) and the spacer tube (4) into the V-belt pulley (1).

CAUTION!

Fill 58 % of space (F) with multi-purpose grease (approx. 180 g). The deep groove ball bearings (3) must be completely filled with multi-purpose grease such as Shell “Retinax A” part no. 147 451.0 when being assembled.

2. Pre-assemble the base plate (5) with the bearing pin and the hex. bolt (8).

(Fig. 19, 20)

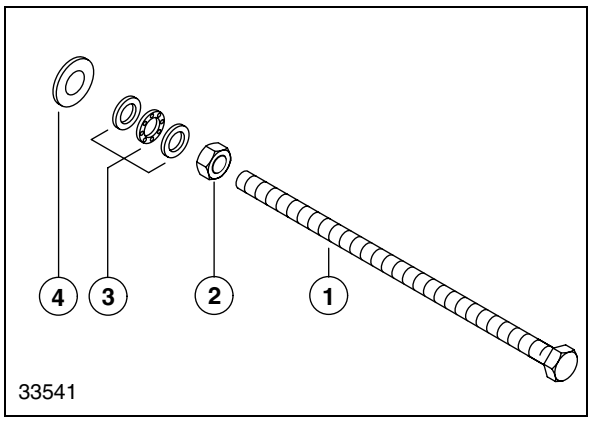


21

3. Bolt the V-belt pulley (11) to pulley (1).

   Press the pre-assembled V-belt pulley (1) on the bearing pin, using the special tool.

(Fig. 19, 20, 21)

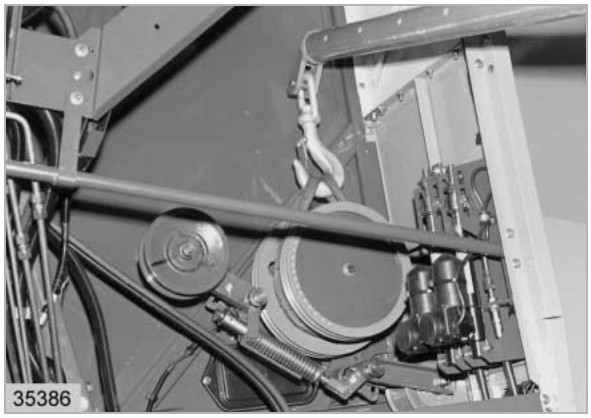


22

Special tool:

1 Hex. bolt M 12 x 220 DIN 933-8.8, part no. 244 422.0
2 Axial grooved ball bearing, part no. 177 899.0
3 Hex. nut M 12 DIN 934, part no. 236 172.0
4 Washer 13

(Fig. 22)



23

4. Bolt down the hex. bolt (15) with washers (13 and 14).

   Tightening torque = 78 Nm

5. Bolt the complete base plate to the machine side wall.

(Fig. 19, 20, 23)

6. *Installing and adjusting the straw chopper drive belts (10 and 11)*, see page 7.2.22



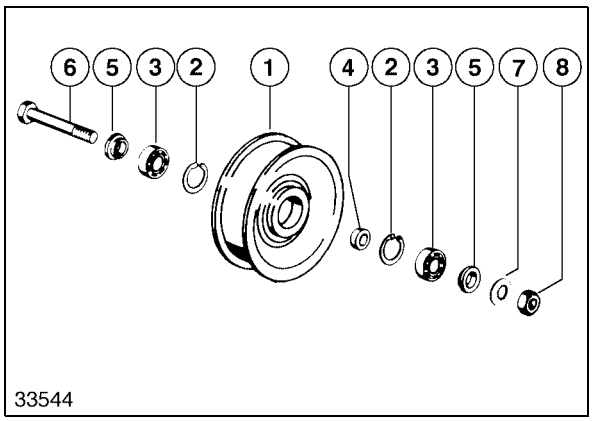
24

Removing the jockey pulley of straw chopper drive (10)

Removing the straw chopper drive belt (10) – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*

Unscrew the jockey pulley from the bracket.

(Fig. 24)

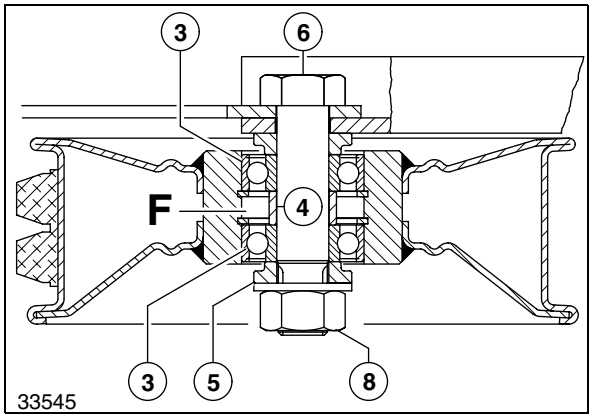


25

Jockey pulley of straw chopper drive (10), disassembled

1 Jockey pulley
2 Circlip 40 x 1.75 DIN 472
3 Deep groove ball bearing 6203-RS-C3
4 Spacer ring
5 Spacer washer
6 Hex. bolt M 16 x 75 DIN 7968-8.8
7 Contact washer A 16
8 Hex. nut M 16

(Fig. 25)



26

Assembling and installing the jockey pulley of straw chopper drive (10)

1. Insert the circlip (2), the deep groove ball bearing (3) and the spacer ring (4) into the jockey pulley (1).

CAUTION!

Fill 65 % of the space (F) with roller bearing grease (approx. 5 g). The deep groove ball bearings (3) must be completely filled with roller bearing grease such as Shell “Alvania G3” part no. 413 981.0 when being assembled.

(Fig. 25, 26)



27

2. Bolt the pre-assembled jockey pulley to the bracket.

   Tightening torque = 130 Nm

(Fig. 27)

3. Install the straw chopper drive belt (10) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.



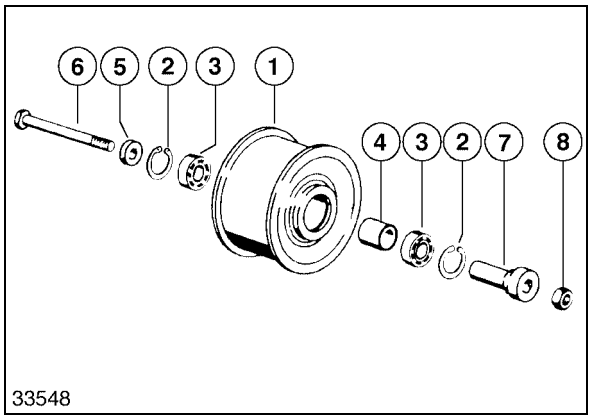
28

Removing the jockey pulley of straw chopper drive (11)

Removing the straw chopper drive belt (11) – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*.

Unscrew the jockey pulley from the bracket.

(Fig. 28)

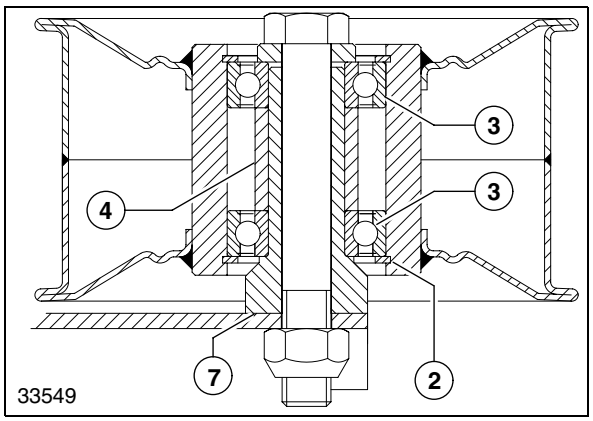


29

Jockey pulley of straw chopper drive (11), disassembled

1 Jockey pulley
2 Circlip 52 x 2 DIN 472
3 Deep groove ball bearing 6205-2RS-C3
4 Spacer bushing
5 Lock collar
6 Hex. bolt M 16 x 105 DIN 7968-8.8
7 Hollow pin
8 Hex. nut M 16

(Fig. 29)



30

Assembling and installing the jockey pulley of straw chopper drive (11)

1. Insert the circlip (2), the deep groove ball bearing (3) and the spacer bushing (4) into the jockey pulley (1).

(Fig. 29, 30)



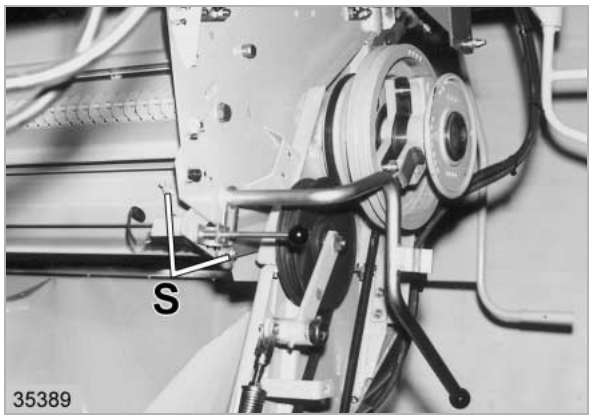
31

2. Bolt the pre-assembled jockey pulley to the bracket.

   Tightening torque = 130 Nm

(Fig. 31)

3. Install the straw chopper drive belt (11) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.



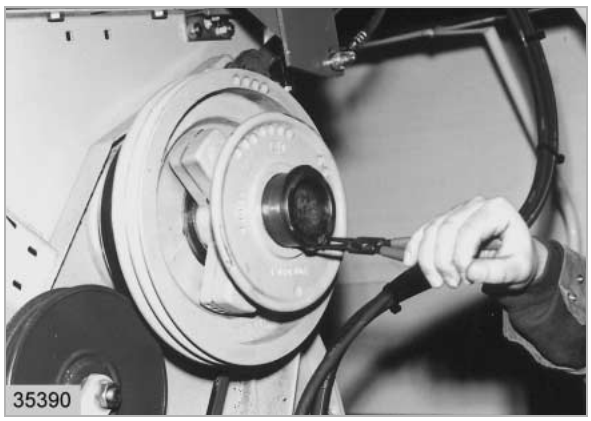
32

Removing the stage 3 chopper drive V-belt pulley

Removing the straw chopper drive belt (11) – see page 7.2.20, *Removing the straw chopper drive belts (10 and 11)*

Unscrew the bolts (S) and remove the lever.

(Fig. 32)



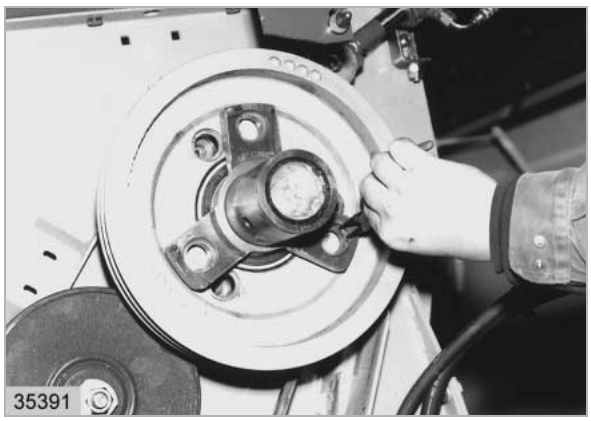
33

Remove the circlip and pull off the handwheel.

CAUTION!

Observe any balls falling out.

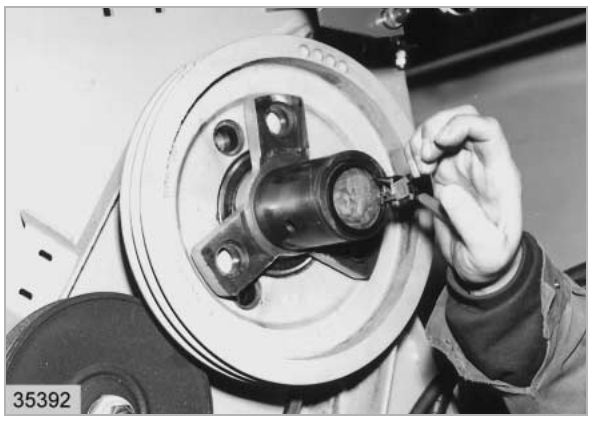
(Fig. 33)



34

Remove circlips and bushings.

(Fig. 34)

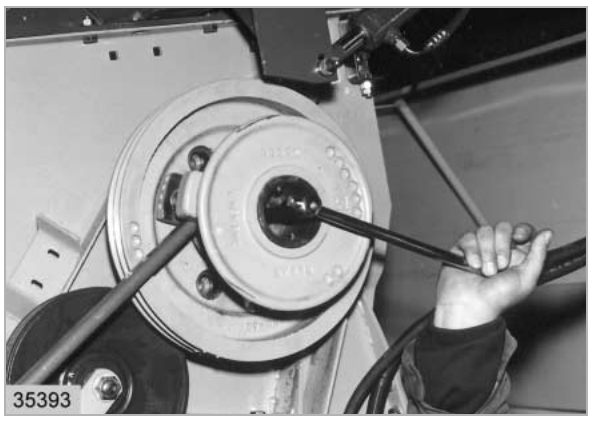


35

Removing the uni-spreader intermediate drive belt (12), see page 7.2.23

Remove circlip and washer.

(Fig. 35)



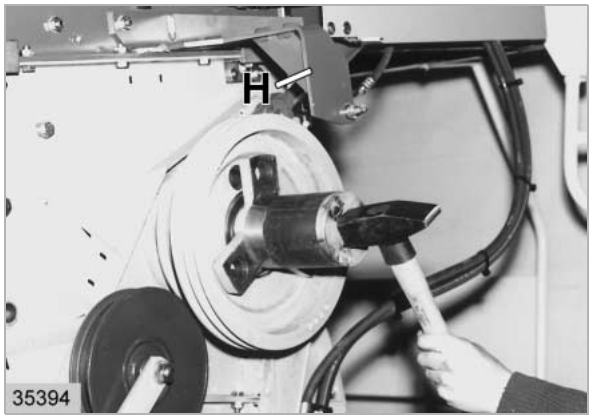
36

Put handwheel back in place.

Block the V-belt pulley and remove the bolt.

Remove handwheel again.

(Fig. 36)

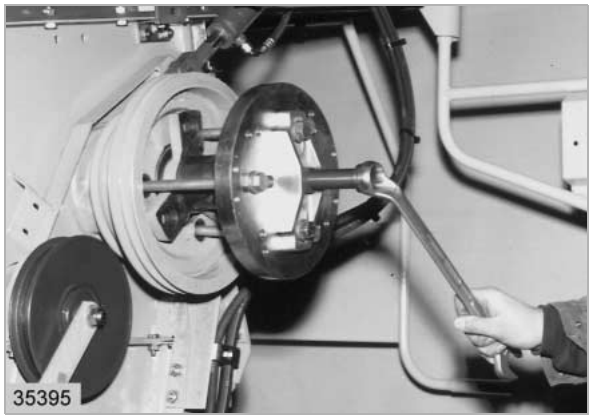


37

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

Remove bracket (H).

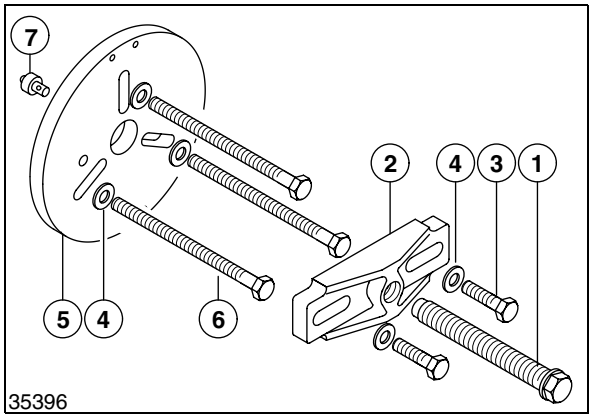
(Fig. 37)



38

Pull off hub and V-belt pulley using the special tool.

(Fig. 38)

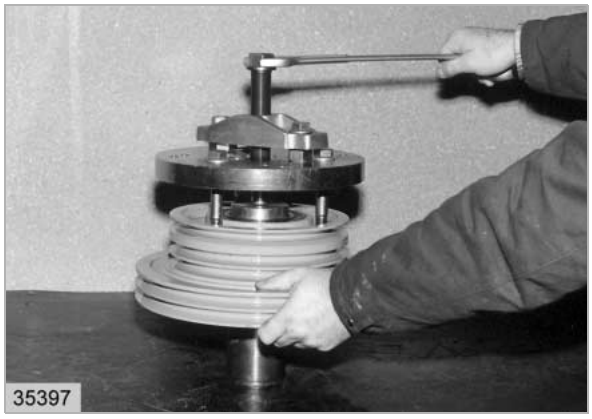


39

Special tool:

1 Spindle, part no. 181 801.1
2 Puller bridge, part no. 181 800.0
3 Hex. bolt M 16 x 50 DIN 933-8.8 part no. 235 586.0
4 Washer 17 DIN 125
5 Puller plate, part no. 181 617.0
6 Hex. bolt M 16 x 260 DIN 931-8.8 part no. 235 816.0
7 Centraliser, part no. 181 849.0

(Fig. 39)

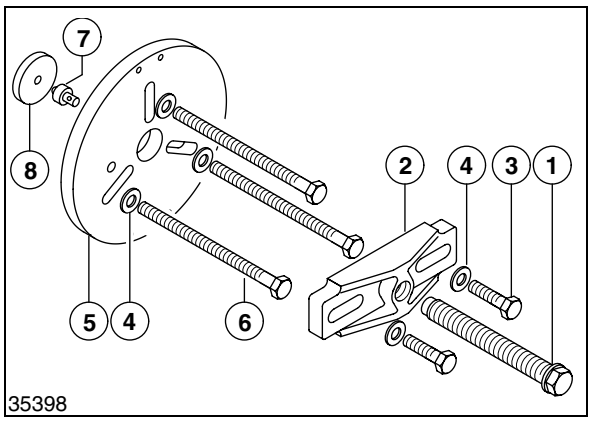


40

Disassembling the stage 3 chopper drive V-belt pulley

Pull off hub using the special tool.

(Fig. 40)

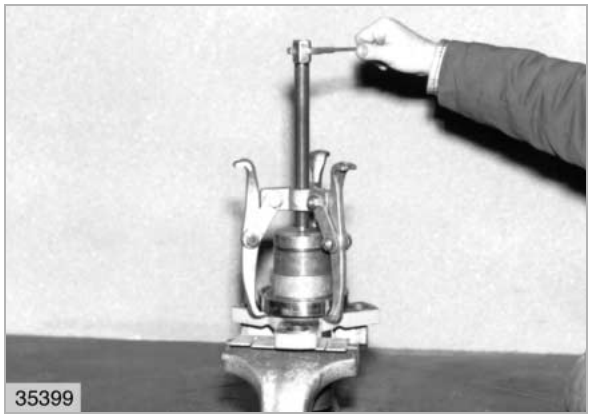


41

Special tool:

1 Spindle
part no. 181 801.1
2 Puller bridge
part no. 181 800.0
3 Hex. bolt
M 16 x 50 DIN 933-8.8
part no. 235 586.0
4 Washer 17 DIN 125
5 Puller plate,
part no. 181 617.0
6 Hex. bolt
M 16 x 260 DIN 931-8.8
part no. 235 816.0
7 Centralising piece
part no. 181 849.0
8 Washer ∅ 78 x 20
(self-sourced)

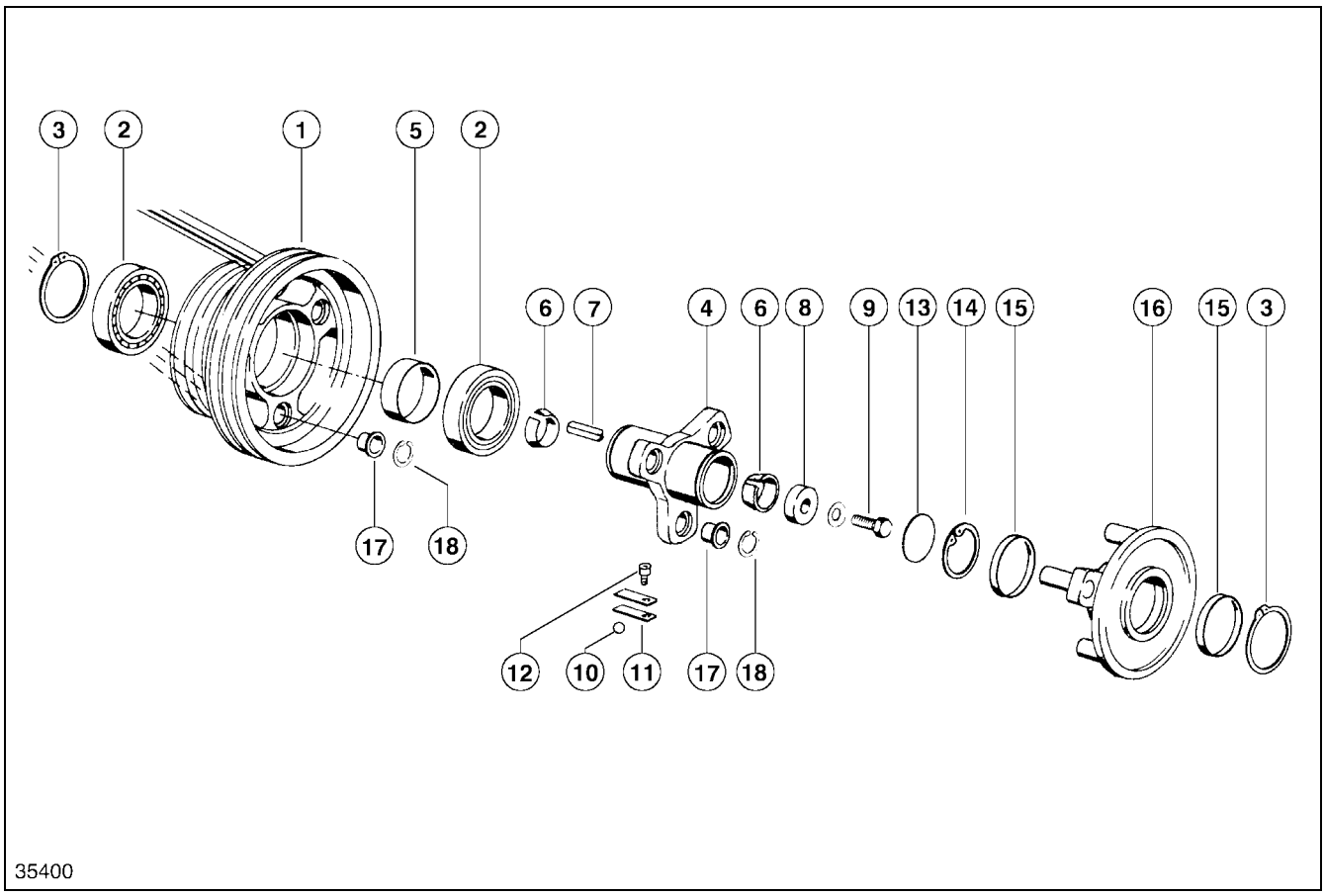
(Fig. 41)



42

Pull off deep groove ball bearing from the hub. For this, use a disc of ∅ 78 x 20 long (self-sourced).

(Fig. 42)

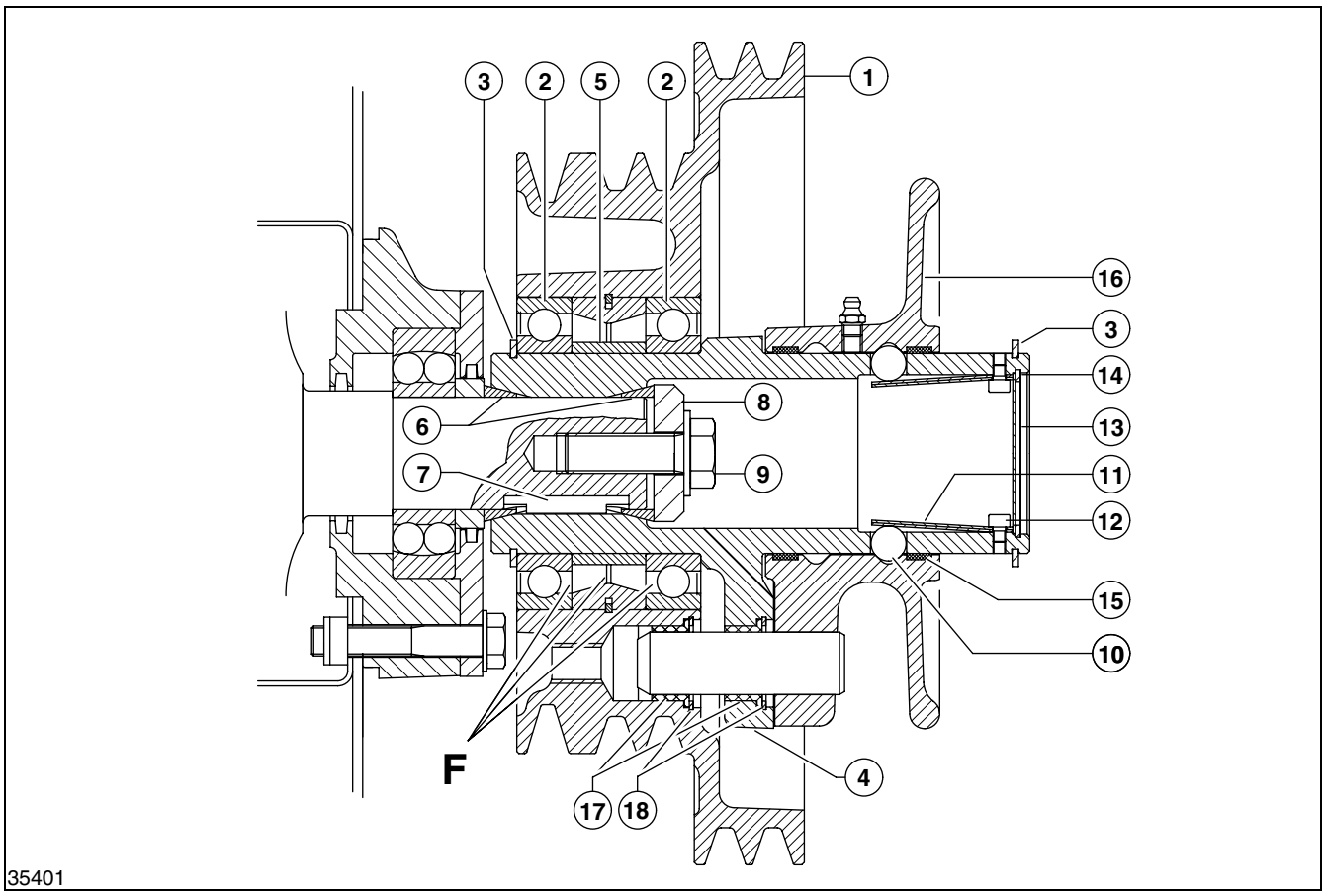


43

Stage 3 chopper drive V-belt pulley, dismantled:

1 V-belt pulley
2 Deep groove ball bearing
3 Circlip 80 x 2.5 DIN 472
4 Hub
5 Spacer bushing
6 Tapered ring
7 Parallel key
8 Washer
9 Hex. bolt M 16 x 40 DIN 933-8.8
10 Ball
11 Leaf spring
12 Cheese-head screw M 5 x 6 DIN 912
13 Washer
14 Circlip 64 x 2 DIN 472
15 Plastic ring
16 Hand wheel
17 Bushing
18 Circlip 35 x 1.5 DIN 472

(Fig. 43)

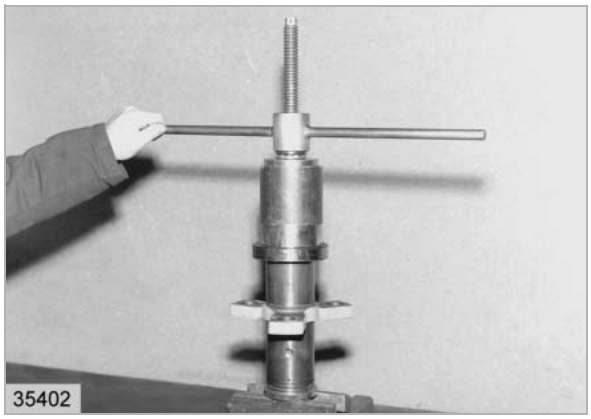


44

Assembling and installing the stage 3 chopper drive V-belt pulley

CAUTION!

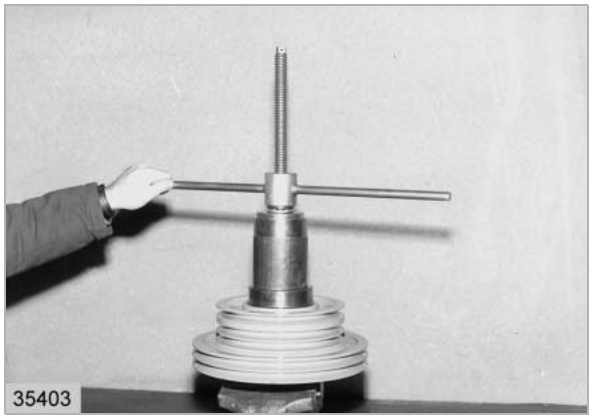
Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00, DIN 51502 part no. 411 423.0, applied prior to installation.



45

1. Press the deep groove ball bearing (2) on the hub (4) using the special tool.

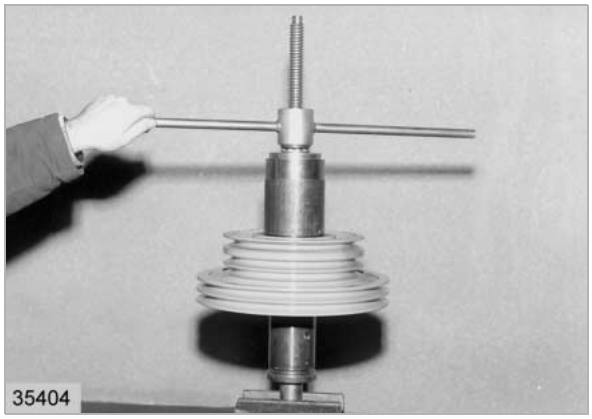
(Fig. 43, 44, 45)



46

2. Press the deep groove ball bearing (2) on the V-belt pulley (1) using the special tool.

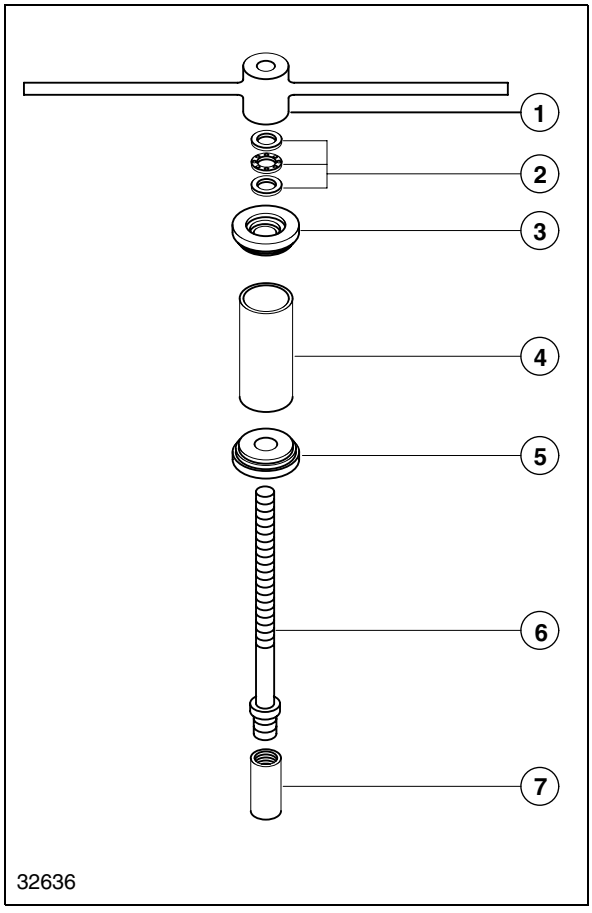
(Fig. 43, 44, 46)



47

3. Fill both bearings (2) and the space (F) with general purpose grease (approx. 40 %, i.e. 50 gr. of grease), e.g. Shell Alvania G3, part no. 413 981.0.

(Fig. 43, 44, 47)



48

Special tool:

1 Lever nut
part no. 181 880.0
2 Axial grooved ball bearing
part no. 235 983.0
3 Locating disc
part no. 181 879.0
4 Tube outside ∅ 90 x ∅ 81 x 150 long
(Fig. 45, 46)
Tube outside ∅ 125 x ∅ 110 x 150 long
(Fig. 46)
5 Locating disc
part no. 181 879.0
6 Spindle
part no. 181 877.0
7 Sleeve
part no. 181 881.0

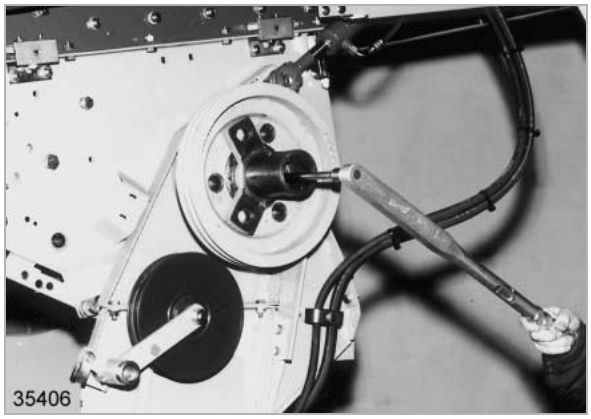
(Fig. 48)



49

4. Slide the spacer bushing, the parallel key (7) and the tapered ring (6) onto the shaft.
5. Push the pre-assembled V-belt pulley on the shaft.

(Fig. 43, 44, 49)



50

6. Slide on the front tapered ring. Screw in hex. bolt (9) along with washer (8).

   Tightening torque = 180 Nm

(Fig. 43, 44, 50)

7. Insert the balls (10) with leaf springs (11) into the hub. Slide the pre-assembled handwheel (16) with plastic rings (15) on the hub. Install circlip (3).

   (Fig. 43, 44)

8. *Installing and adjusting the uni-spreader intermediate drive belt (12)*, see page 7.2.24
9. Bolt down lever and check function. Bolt down bracket (H).

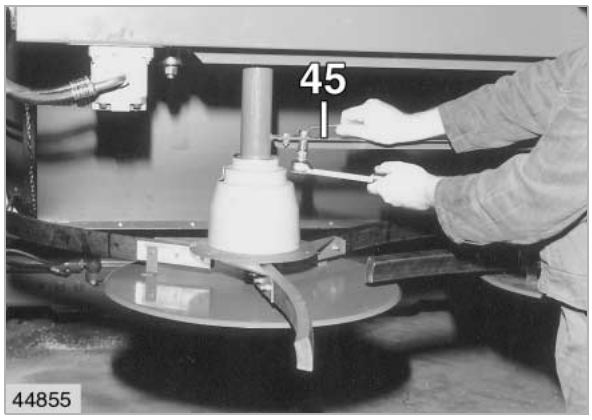
   (Fig. 32, 33)

10. Refit and adjust the straw chopper drive belt (11) – see page 7.2.22, *Installing and adjusting the straw chopper drive belts (10 and 11)*.

STRAW SPREADER DRIVE

Removing the straw spreader bearing housing

Removing the straw spreader drive belt (36), see page 7.3.28



1

Unscrew the angular brace (45).

(Fig. 1)



2

Unscrew hex. socket head bolts of set collar (20).

(Fig. 2)

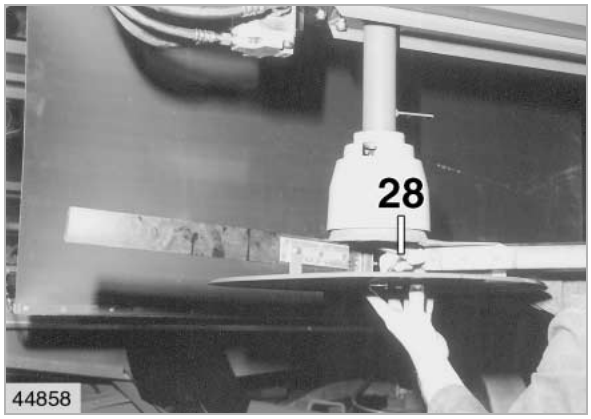


3

Screw the end of the hex. socket head bolts into the open hole of the toothed belt pulley (threaded face at the set collar).

This pulls the set collar off of the toothed belt pulley.

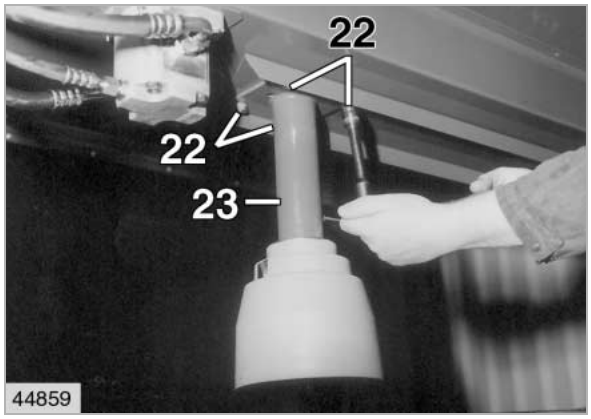
(Fig. 3)



4

Loosen the linch pin (28) and remove the complete straw spreader to the bottom.

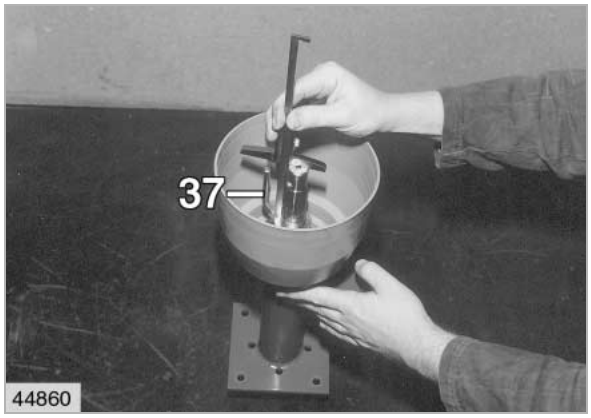
(Fig. 4)



5

Unscrew the mushroom head bolts (22) from the bearing housing (23) and remove the complete bearing housing (23) to the bottom.

(Fig. 5)



6

Disassembling the straw spreader bearing housing

Determine dimension (X) from shaft end to the bracket (H).

Mark the position of bracket (37) and shaft (36) with respect to each other.

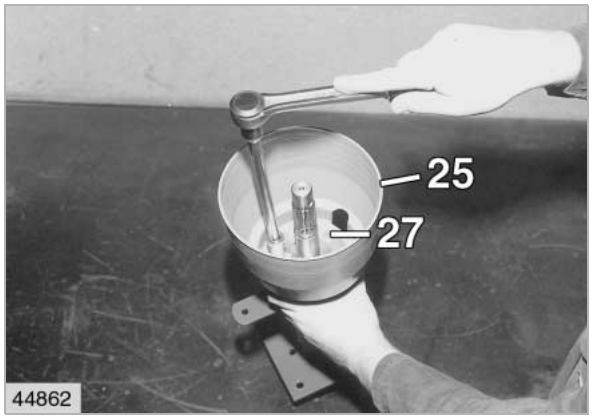
(Fig. 6)



7

Loosen hex. socket head bolt (38) and remove bracket (H).

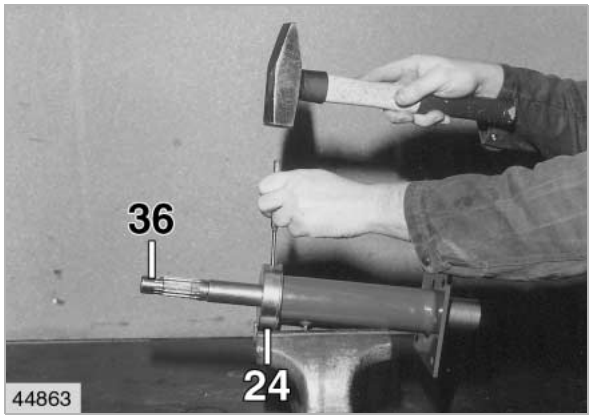
(Fig. 7, 14)



8

Unscrew hex. bolts (27) of conical guard (25) and remove the washer (26).

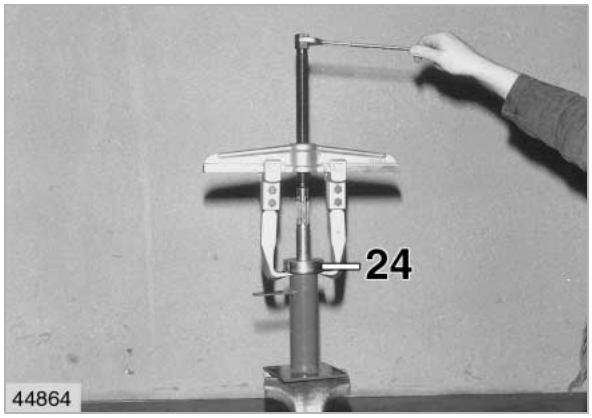
(Fig. 8, 14)



9

Secure sprocket (19) on the shaft (24) with the expansion pins (36).

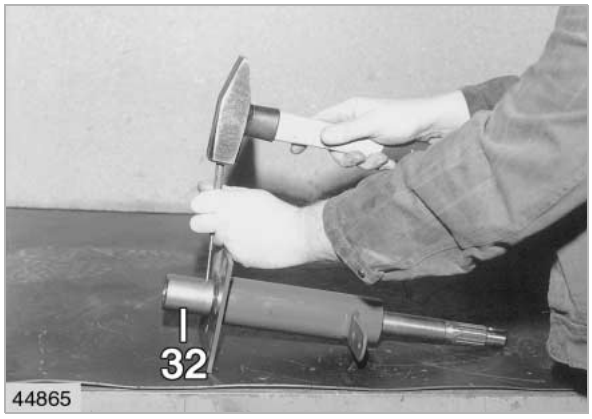
(Fig. 9, 14)



10

Pull off the hub (24) using a puller.

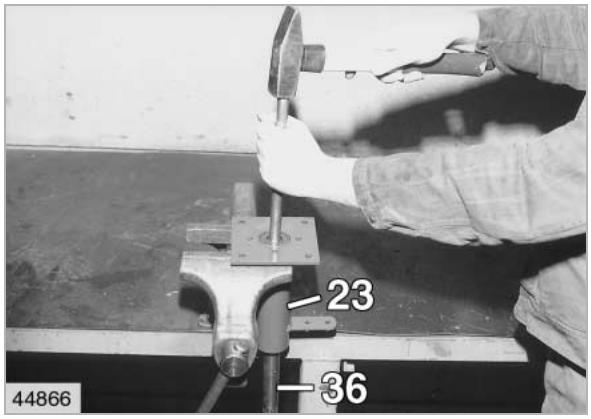
(Fig. 10)



11

Drive expansion pins (30 and 31) out of the bearing bushing (32).

(Fig. 11, 14)



12

Drive shaft (36) out of the bearing housing (23), using a brass punch.

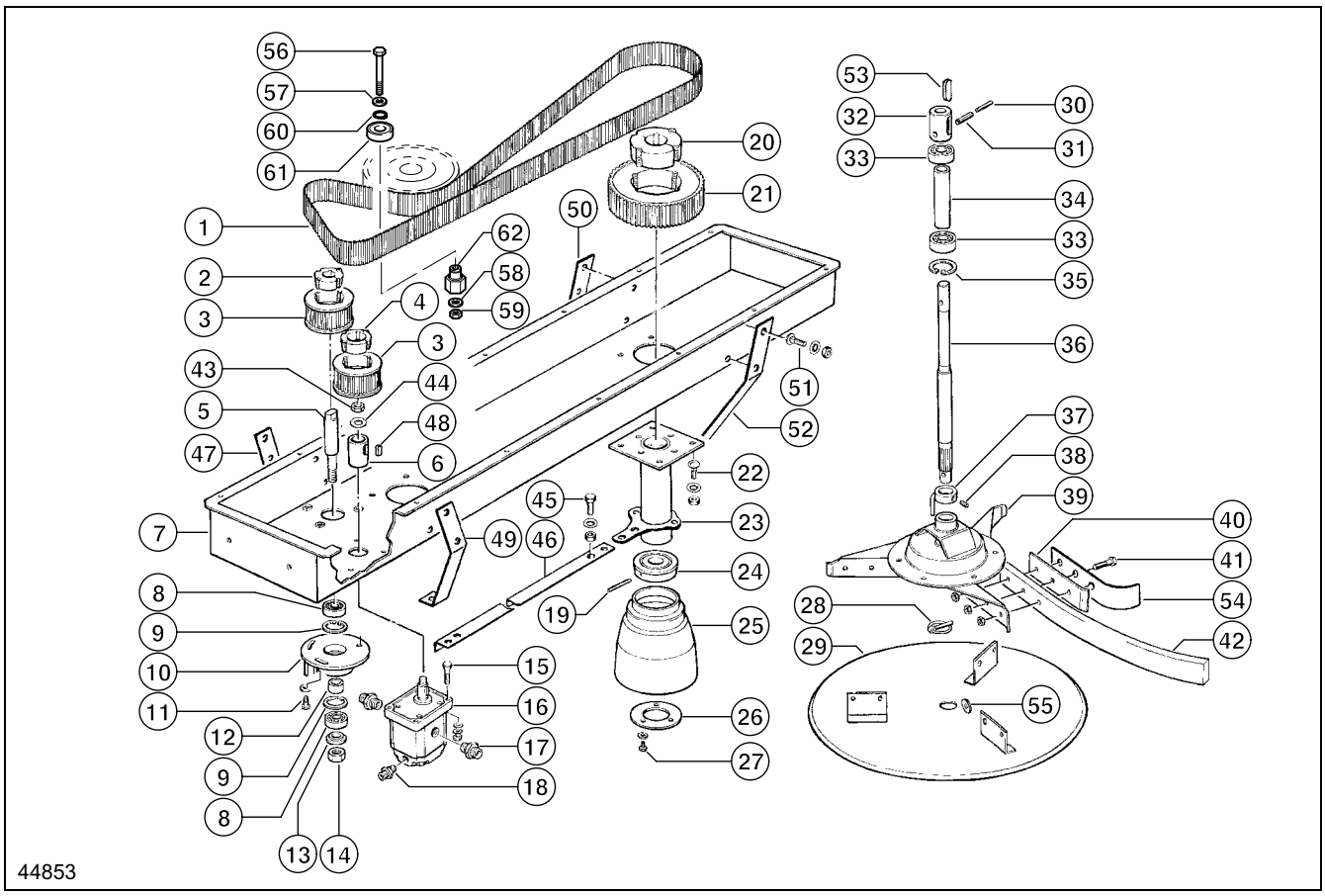
(Fig. 12)



13

Remove circlip (35). Drive out bearing (33) and spacer tube (13) with a brass punch.

(Fig. 13, 14)



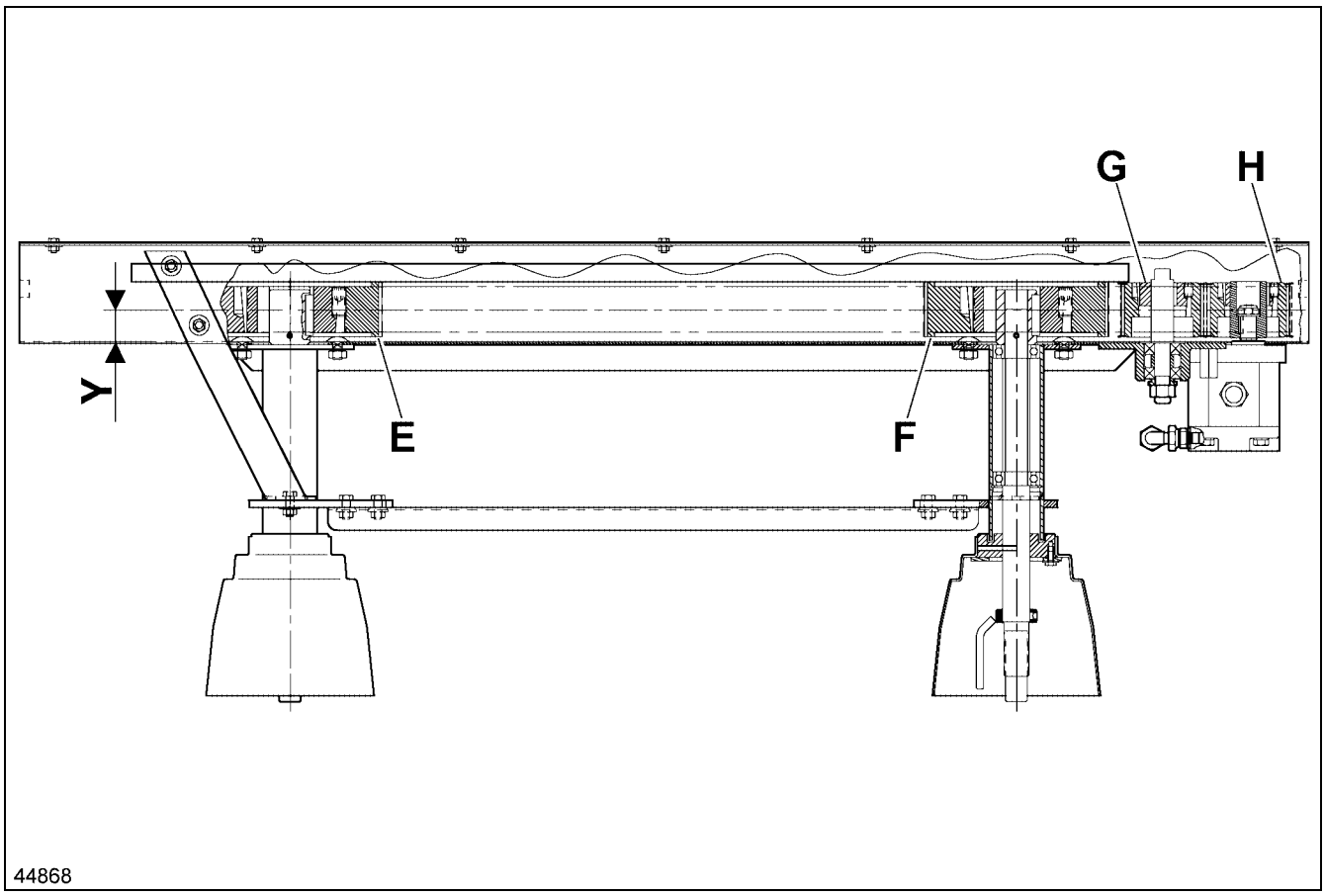
14

Straw spreader bearing housing, disassembled:

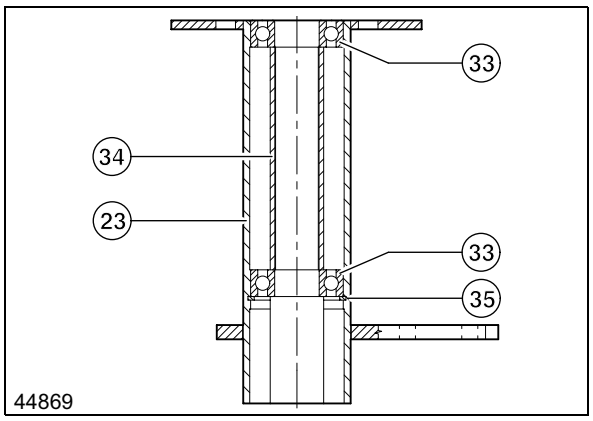
1 Toothed belt
2 Set collar
3 Toothed belt pulley
4 Set collar
5 Shaft
6 Bearing sleeve
7 Housing
8 Deep groove ball bearing 6203 - 2 rs*
9 Circlip 40 x 1.75 DIN 472
10 Bearing housing
11 Hex. bolt M 8 x 18 DIN 933
Contact washer A 8
12 Spacer tube
13 Spacer washer
14 Hex. nut M 16 DIN 934
15 Hex. bolt M 6 DIN 931
Hex. nut M 6 DIN 934
Contact washer A 6
16 Hydrostatic motor
17 Male connector
18 Male connector
19 Expansion pin 6 x 65 DIN 8752
20 Set collar
21 Toothed belt pulley
22 Mushroom head bolt M 10 x 20
Hex. nut M 10 DIN 934
Lock washer 10
23 Bearing housing
24 Hub
25 Universal drive shaft guard
26 Washer
27 Hex. bolt M 6 x 12 DIN 933
Contact washer B 6
28 Linch pin M 10 x 55
29 Washer
30 Expansion pin 3.5 x 45 -n DIN 8752
31 Expansion pin 6 x 45 -n DIN 8752
32 Bearing sleeve
33 Deep groove ball bearing 6205 -2 rs*
34 Spacer tube
35 Circlip 52 x 2 DIN 472
36 Shaft
37 Mounting bracket
38 Set screw M 10 x 8 DIN 916
39 Disc
40 Shim
41 Hex. bolt M 6 x 45 DIN 931
Hex. bolt M 6 x 40 DIN 931
Self-locking nut Vm 6
42 Spreader blades
43 Hex. nut
44 Washer 13 DIN 125
45 Hex. bolt M 8 x 20 DIN 933
Hex. nut M 8
Contact washer B 8
46 Mounting bracket
47 Short support

48 Parallel key A 12 x 8 x 28 DIN 6885
49 Long support
50 Short support
51 Mushroom head bolt M 8 x 16
Hex. nut M 8
Contact washer B 8
52 Long support
53 Parallel key
54 Baffle plate
56 Hex. bolt
57 Contact washer
58 Contact washer
59 Hex. nut
60 Circlip
61 Deep groove ball bearing
62 Eccentric

(Fig. 14)



15



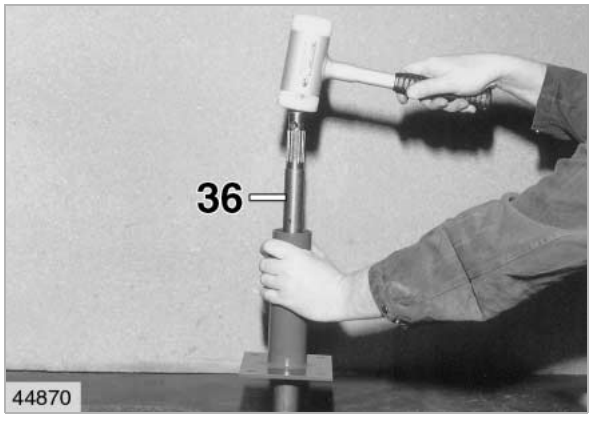
16

Assembling the straw spreader bearing housing

Insert the lower bearing (33) and the circlip (35) into the bearing housing (23).

Insert spacer tube (34) and upper bearing (33).

(Fig. 14, 16)

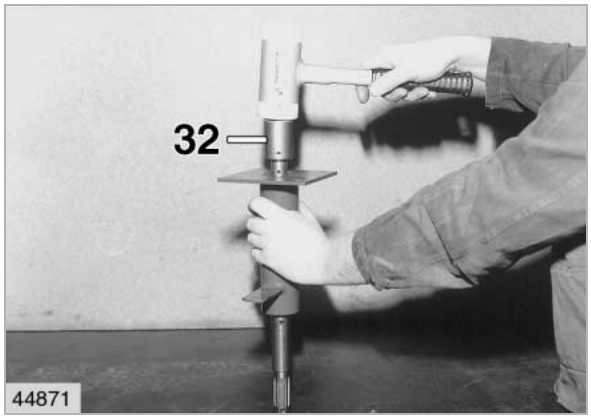


17

Drive shaft (36) into the bearing housing using a plastic-tip hammer. Use a tube as a backing while doing so.

Tube: Inside ∅ 30 mm
Outside ∅ 40 mm
Length 150 mm

(Fig. 17)



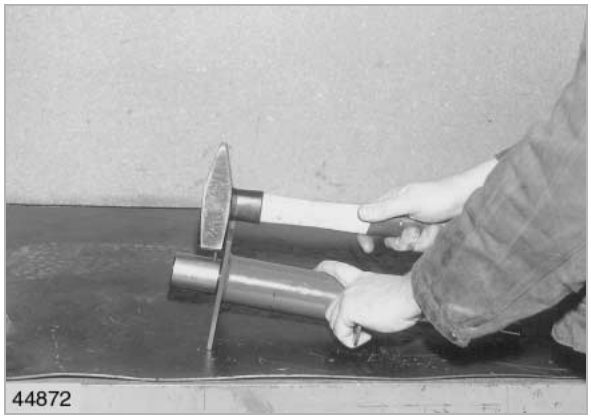
18

Drive bearing bushing (32) on the shaft with a plastic-tip hammer.

CAUTION!

The bores of the expansion pins (30 and 31) must be exactly above each other.

(Fig. 14, 18)



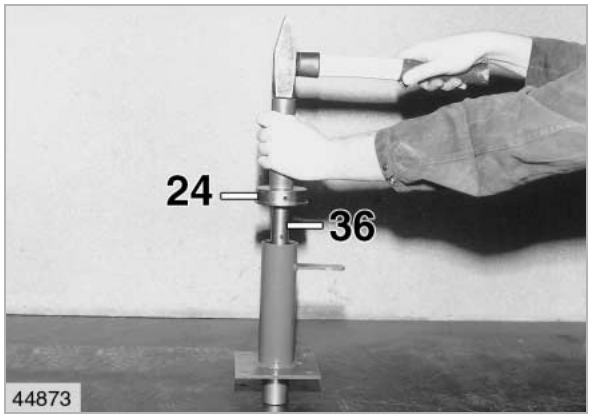
19

Drive in expansion pins (30 and 31).

CAUTION!

The expansion pins must not protrude on the sides, grind off on the outside if required.

(Fig. 14, 19)



20

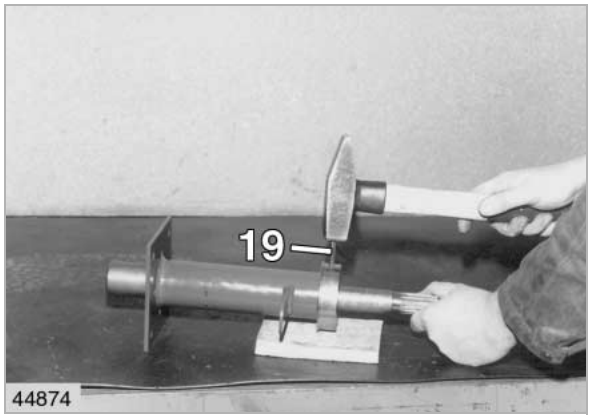
Using a tube, drive the hub (24) on the shaft (36).

Tube: Inside ∅ 30 mm
Outside ∅ 40 mm
Length 150 mm

CAUTION!

The bores for the expansion pin (19) must be exactly above each other.

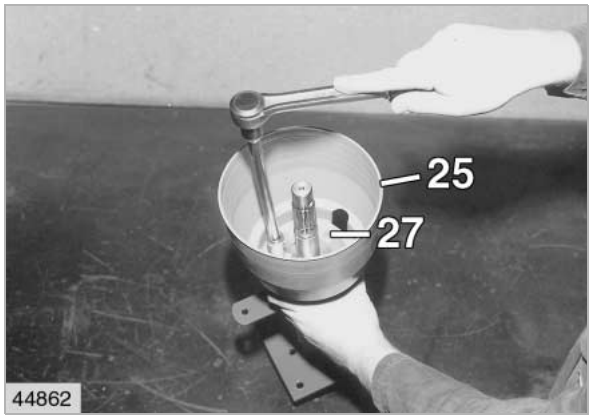
(Fig. 14, 20)



21

Drive in expansion pin (19).

(Fig. 21)



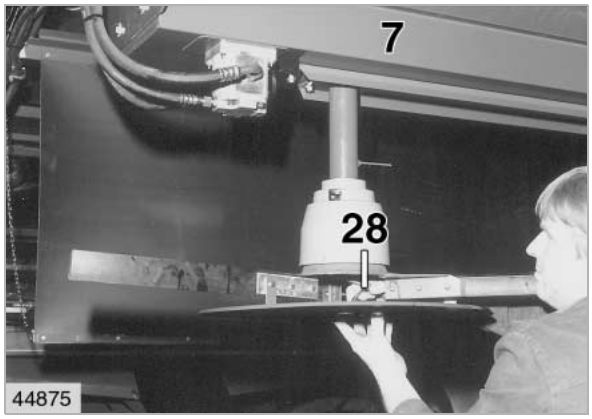
22

Bolt conical guard (25) and washer (26) down to the hub (24) with hex. bolts (27).

(Fig. 14, 22)

Bolt the mounting bracket (37) to the shaft at the point (X) previously determined. Observe lateral markings.

(Fig. 6)



23

Installing the straw spreader bearing housing

1. Bolt the complete bearing housing to the housing (7) using mushroom head bolts (22).
2. Slide the straw spreader wings on the shaft and secure it with linch pin (28).

(Fig. 14, 23)

3. Loosely bolt on the mounting bracket (46), the short supports (47 and 50) and the long supports (49 and 52).

(Fig. 14)



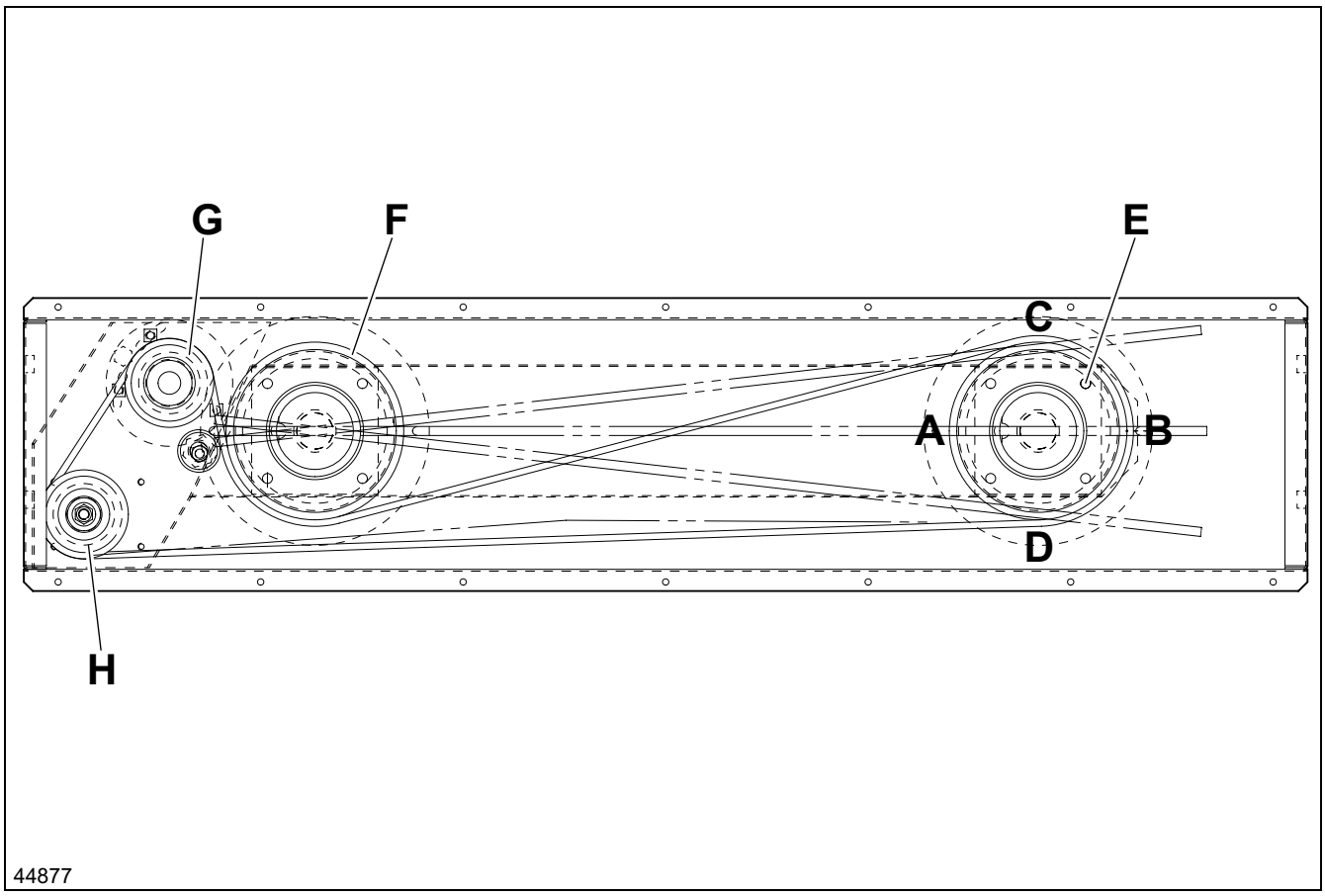
24

4. Insert the parallel key (53) into the bearing bushing (32). Place toothed belt pulley (21) in position.
5. Slide set collar (20) on the bearing bushing (32) and screw the socket head bolts into the bores (thread surface at the toothed belt pulley).
6. Align and/or check the toothed belt pulleys to the dimension (Y) vertically with respect to the housing, using a ruler.

   Y = 35.2 ± 0.5 mm

   If necessary, adjust the set collars vertically and tighten hand-tight.

(Fig. 14, 15, 24)



25

7. Check and if necessary adapt the flatness deviations of toothed belt pulleys (F and H) using a ruler.

   To do this, adjust the toothed belt pulley (F) so that it is level with the toothed belt pulley (H) of the hydraulic motor (16). Bolt down the short support (47) and the long support (49).

8. Check and if necessary adapt the flatness deviations of toothed belt pulleys (F and E) using a ruler.

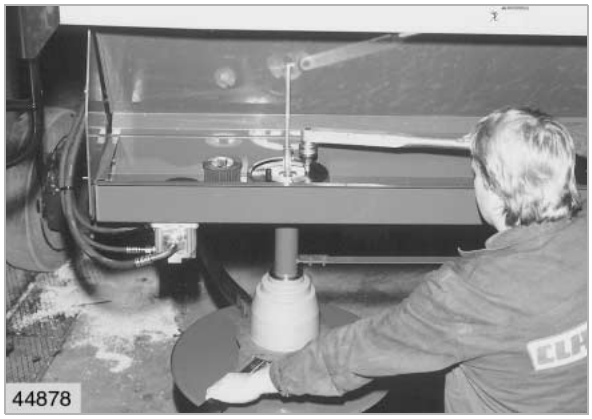
   To do this, adjust the toothed belt pulley (E) so that it is level with the toothed belt pulley (F).

   The flatness deviation may be **1 mm** max. at points (A, B, C and D).

9. Bolt down the short support (50) and the long support (52).

10. Tighten the mounting bracket (46).

(Fig. 14, 15, 25)



26

11. After aligning the toothed belt pulleys, tighten the socket head bolts.

    Tightening torque = 90 Nm

(Fig. 26)

12. *Installing and adjusting the straw spreader drive belt (36)*, see page 7.3.29

UNI-SPREADER DRIVE

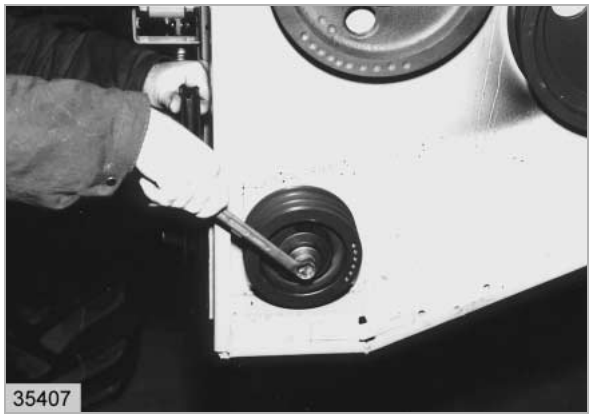
Removing the uni-spreader drive angle drive

Removing the uni-spreader intermediate drive belt (12), see page 7.2.23

Removing the uni-spreader drive belt (16), see page 7.2.32

Remove the bolt from the V-belt pulley.

(Fig. 1)



1

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

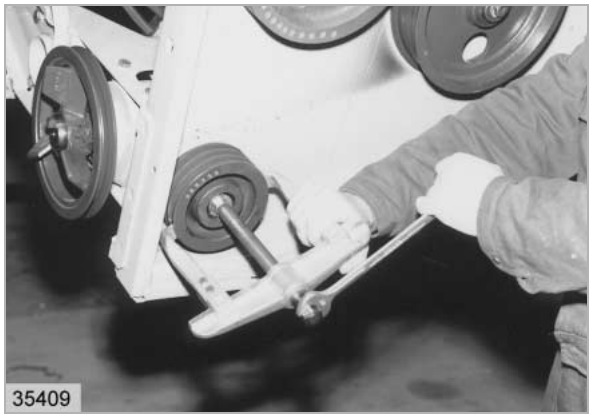
(Fig. 2)



2

Remove the tapered ring and then the V-belt pulley.

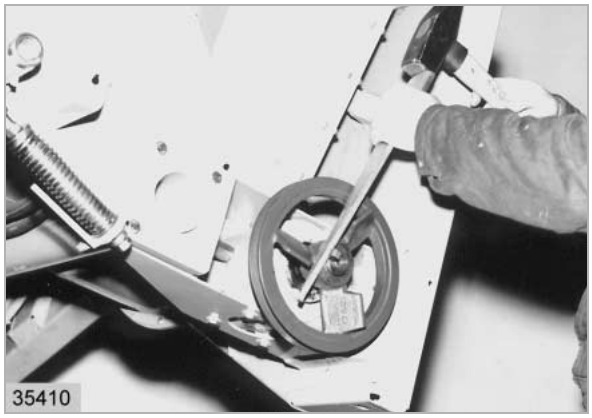
(Fig. 3)



3

Drive out the gib head key and pull off V-belt pulley.

(Fig. 4)



4



5

Unbolt the angle drive.

(Fig. 5)

Mounting the uni-spreader drive angle drive

CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00, DIN 51502, part no. 411 423.0, applied first.

1. Bolt on the angle drive.

   (Fig. 5)

2. Put V-belt pulley in position, align it and arrest it with gib head key.

   (Fig. 4)

3. Insert the parallel key and the tapered ring and slide on V-belt pulley. Insert the second tapered ring and screw in the hex. bolt with washer.

   Tightening torque = 78 Nm

   (Fig. 1, 2)

4. *Installing and adjusting the uni-spreader drive belt (16)*, see page 7.2.33

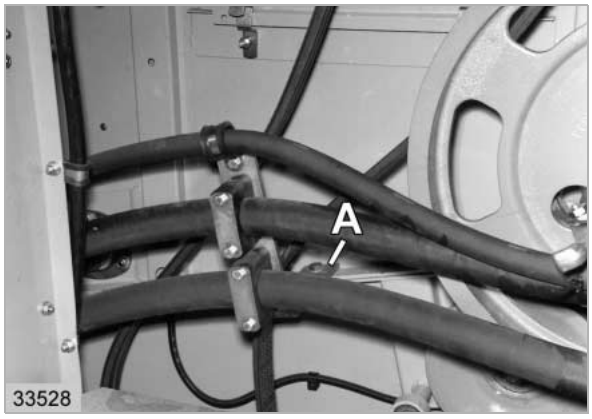
   Installing and adjusting the uni-spreader intermediate drive belt (12), see page 7.2.24

SIEVE PAN DRIVE

Removing the sieve pan drive V-belt pulley

Removing the sieve pan intermediate drive belt (14), see page 7.2.27

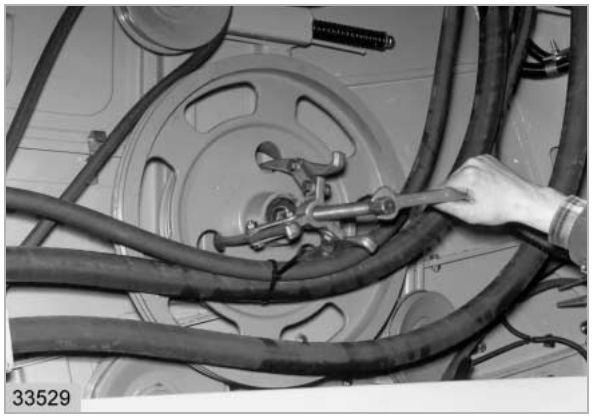
Removing the sieve pan drive belt (15), see page 7.2.29



1

Remove the bracket for the hydraulic hoses at (A) from the side wall.

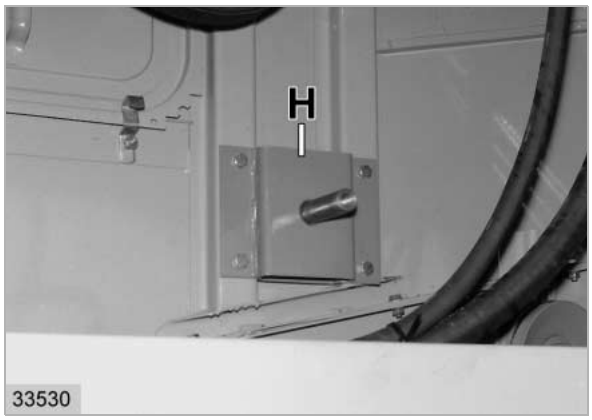
(Fig. 1)



2

Remove the V-belt pulley, using a suitable puller.

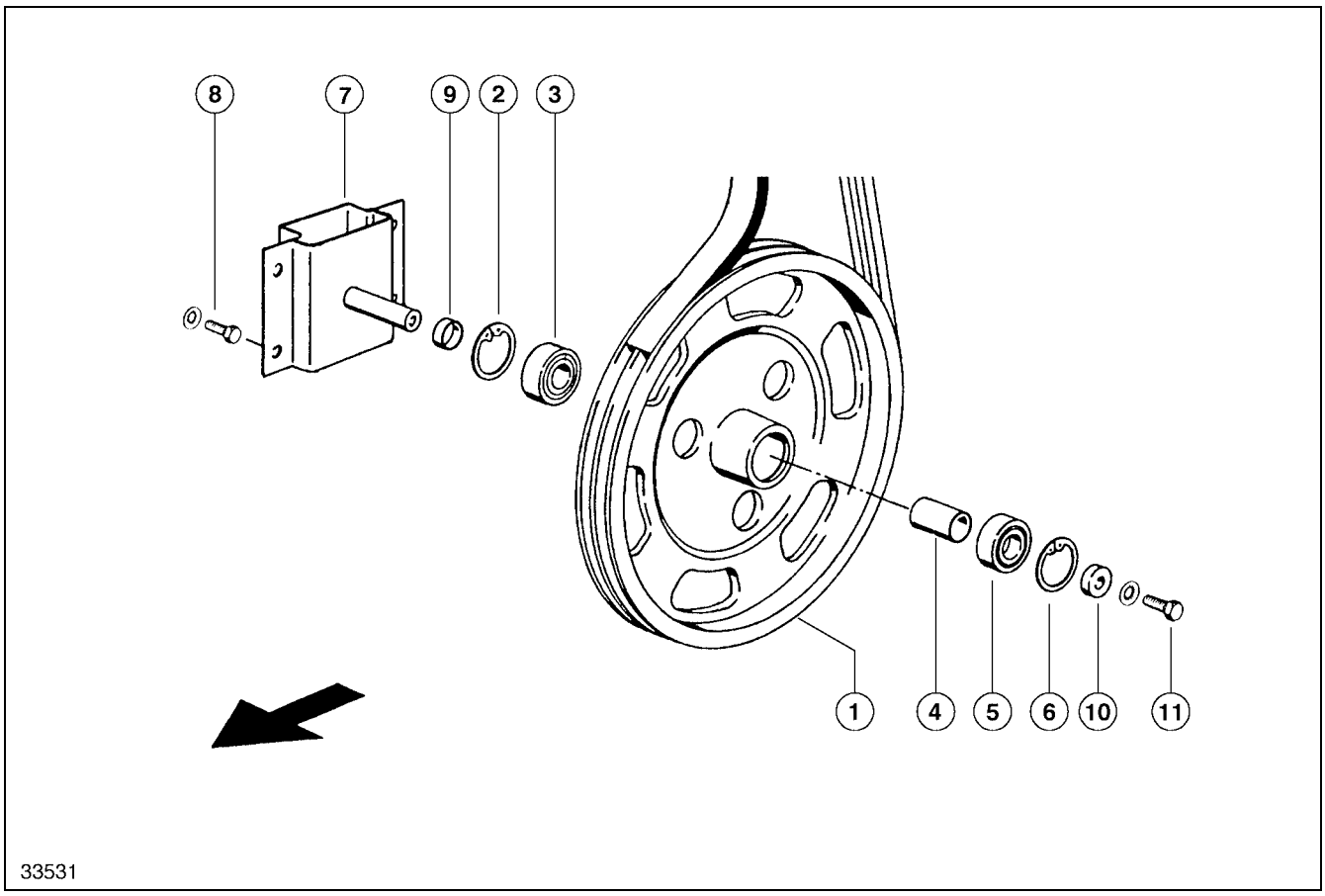
(Fig. 2)



3

Now the bracket (H) on the side wall can be renewed.

(Fig. 3)



4

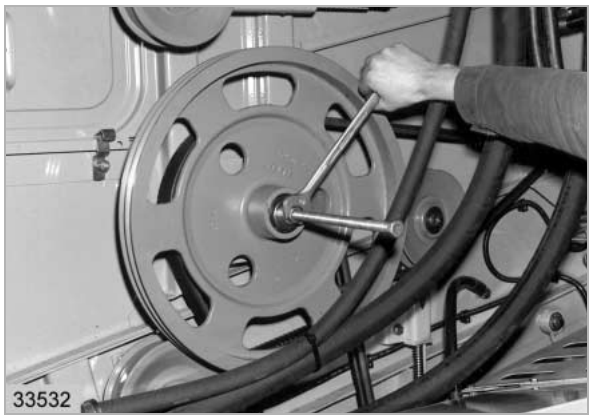
Sieve pan drive V-belt pulley, disassembled

1 V-belt pulley
2 Circlip 72 x 2.5 DIN 472
3 Deep groove ball bearing 6306-2RS-C3
4 Spacer bushing
5 Deep groove ball bearing 6206-2RS-C3
6 Circlip 62 x 2 DIN 472
7 Mounting bracket
8 Hex. bolt M 10 x 25 DIN 933-8.8
Contact washer A 10
9 Spacer ring
10 Spacer washer
11 Hex. bolt M 16 x 40 DIN 933-8.8

(Fig. 4)

Installing the sieve pan drive V-belt pulley

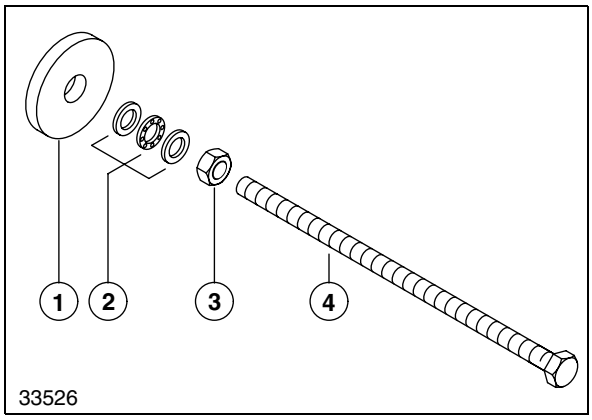
1. Insert the circlips (2 and 6), the deep groove ball bearings (3 and 5) and the spacer tube (4) into the V-belt pulley (1).



5

2. Press the pre-assembled V-belt pulley (1) on the shaft using the special tool.

(Fig. 4, 5)



6

Special tool:

1 Washer, part no. 629 071.1
2 Axial grooved ball bearing, part no. 177 899.0
3 Hex. nut M 16 DIN 934, part no. 236 173.0
4 Hex. bolt M 16 x 300 DIN 933-8.8, part no. 237 375.1

(Fig. 6)

3. *Installing and adjusting the sieve pan drive belt (15)*, see page 7.2.31

   Installing and adjusting the sieve pan intermediate drive belt (14), see page 7.2.28

4. Install the bracket for the hydraulic hoses at (A) on the side wall.

   (Fig. 1)

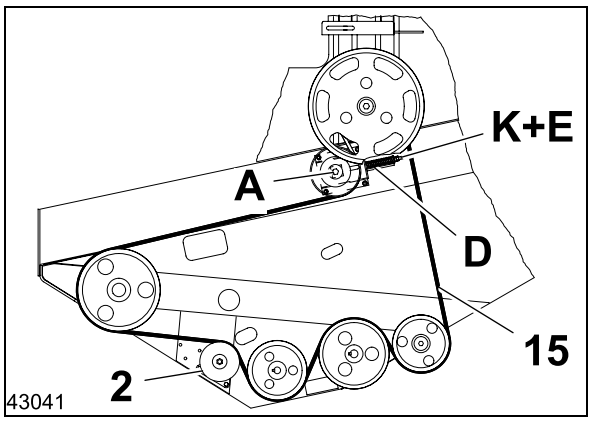


7

5. Bolt the brace into position.

   Tightening torque = 130 Nm

(Fig. 7)



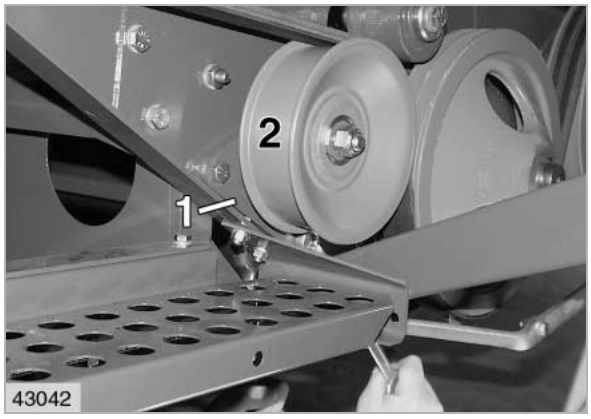
8

Removing the front sieve pan drive deflection pulley

Release the tension of sieve pan drive belt (15).

Loosen clamping screw (A) at the jockey pulley (S). Loosen nuts (K and E) until the tension of spring (D) is relieved.

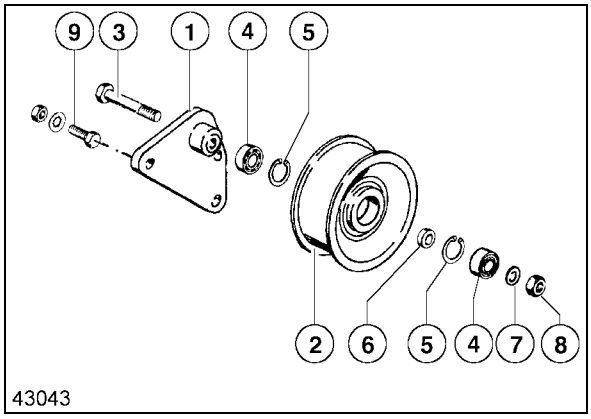
(Fig. 8)



9

Unscrew base plate (1) with deflection pulley (2) completely.

(Fig. 8, 9)

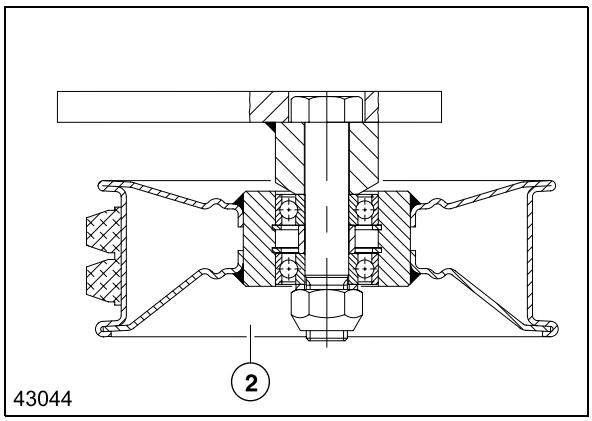


10

Front sieve pan drive deflection pulley, disassembled

1 Base plate
2 Deflection pulley
3 Hex. precision-fit bolt M 16 x 85 DIN 7968
4 Deep groove ball bearing 6203 rs / c3
5 Circlip 40 x 1.75 DIN 472
6 Spacer ring
7 Thrust washer
8 Self-locking nut Vm 16

(Fig. 10)



11

Assembling the front sieve pan drive deflection pulley

Insert the spacer ring (6), the circlips (5) and the deep groove ball bearings (4) into the deflection pulley (2).

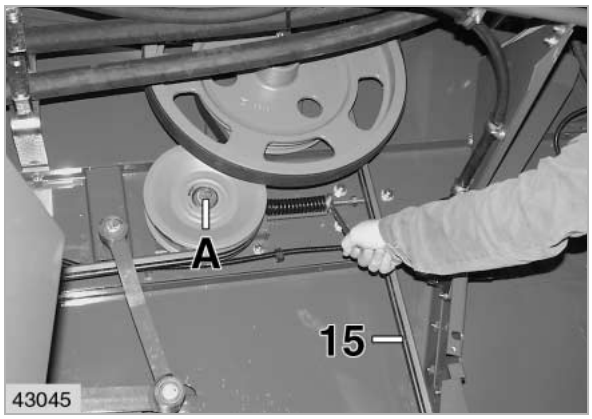
Bolt the deflection pulley to the base plate (1).

CAUTION!

Ensure correct installation position of the deflection pulley.

Tightening torque
M 16-8.8 = 130 Nm

(Fig. 10, 11)



12

Installing the front sieve pan drive deflection pulley

Bolt down the base plate (1) completely with the deflection pulley.

Install and tension the sieve pan drive belt (15).

Pre-tension compression spring (D) by way of nut (E) to the gauge rod length. Lock nuts (E and K) and tighten clamping screw (A).

Tightening torque
M 16 = 130 Nm

(Fig. 8, 12)



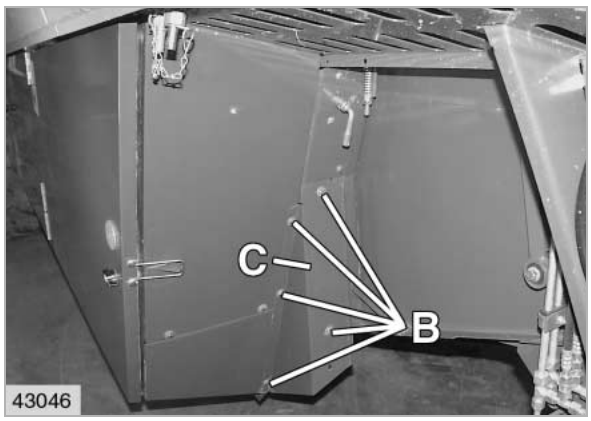
13

Removing the rear sieve pan drive deflection pulley

From serial no. …:

Fold down the toolbox. For this, unscrew the two hex. bolts (S).

(Fig. 13)

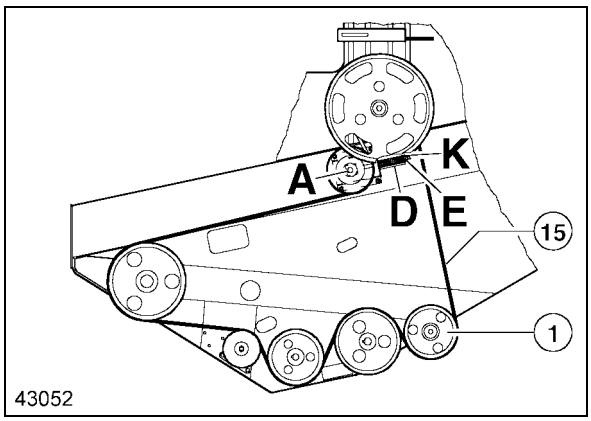


14

Up to serial no. …:

Unscrew the hex. bolts (B) and remove the adapter (C).

(Fig. 14)

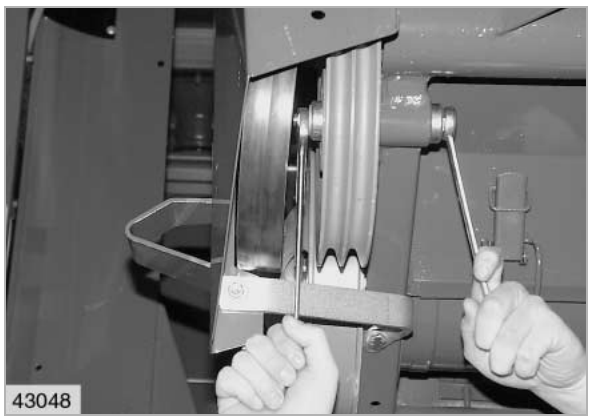


15

Release the tension of sieve pan drive belt (15). Loosen clamping screw (A) at the jockey pulley (S). Loosen nuts (K and E) until the tension of spring (D) is relieved.

Remove the belt (15) from the deflection pulley (1).

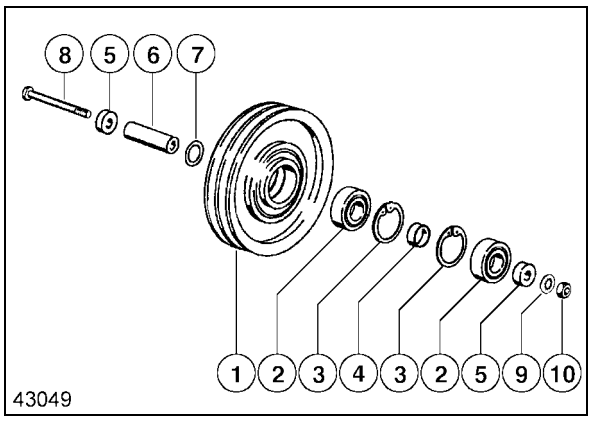
(Fig. 15, 19)



16

Unscrew deflection pulley (1) and remove along with pin (6).

(Fig. 16, 17)

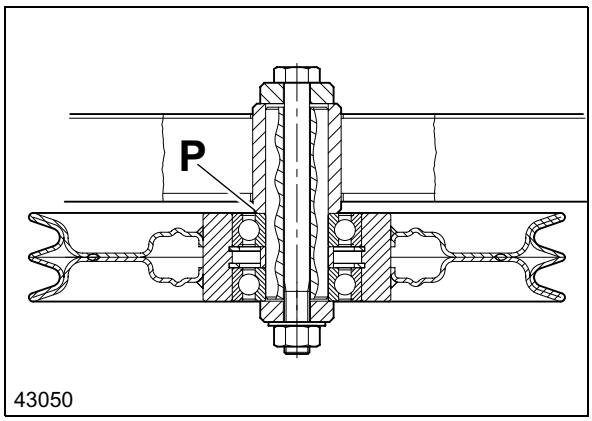


17

Rear sieve pan drive deflection pulley, disassembled

1 Deflection pulley
2 Deep groove ball bearing 6206 2rs-c3
3 Circlip 62 x 2 DIN 472
4 Spacer ring
5 Washer
6 Pin
7 Shim
8 Hex. bolt M 12 x 130 DIN 931
9 Contact washer A 12
10 Hex. nut M 12 DIN 934

(Fig. 17)



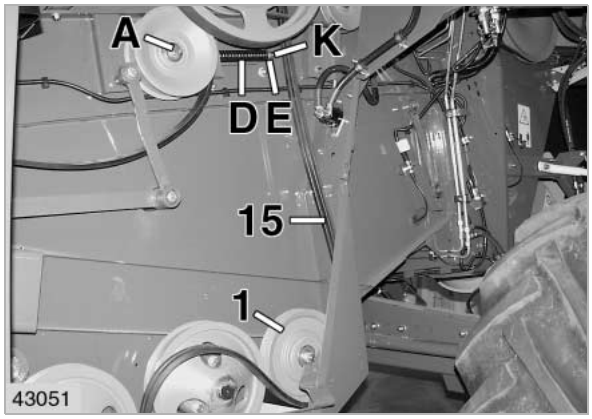
18

Assembling the rear sieve pan drive deflection pulley

Insert the spacer rings (4), the circlips (3) and the deep groove ball bearings (2) into the deflection pulley.

Insert pin (6).

(Fig. 17, 18)



19

Installing the rear sieve pan drive deflection pulley

Bolt down deflection pulley (1) with pin (6) and hex. bolt (8).

NOTE: At position (P), the deflection pulley may be backed up with shims (7) if required.

(Fig. 18, 19)

Installing and adjusting the sieve pan drive belt (15), see page 7.2.31

Pre-tension compression spring (D) by way of nut (E) to the gauge rod length. Lock nuts (E and K) and tighten clamping screw (A).

Tightening torque
M 16-8.8 = 130 Nm

(Fig. 15, 19)

From serial no. …:

Bolt down tool box with the two hex. bolts (S).

(Fig. 13)

Up to serial no. …:

Bolt down adapter (C) with hex. bolts (B).

(Fig. 14)

FAN DRIVE



1

Removing the stage 1 fan drive V-belt pulley

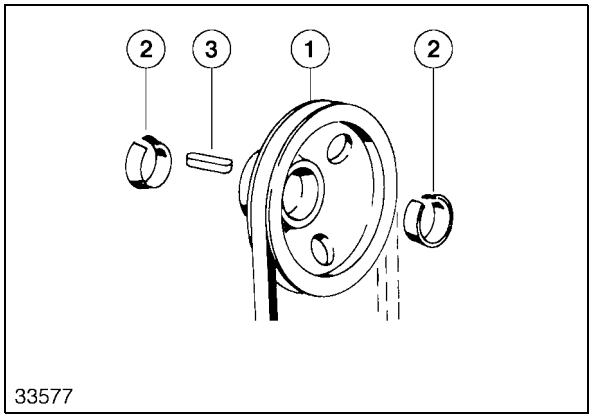
Removing the threshing drum variable-speed pulley assembly (hydraulic), see page 7.6.1

Removing the fan intermediate drive belt (20), see page 7.3.3

Using a suitable block-ended tube with an inner diameter greater than the tapered ring, give the pulley a good sharp blow, to loosen the tapered ring.

Remove the tapered ring and then the V-belt pulley.

(Fig. 1)



2

Stage 1 fan drive V-belt pulley, disassembled

1 V-belt pulley
2 Tapered ring
3 Parallel key

(Fig. 2)



3

Installing the stage 1 fan drive V-belt pulley

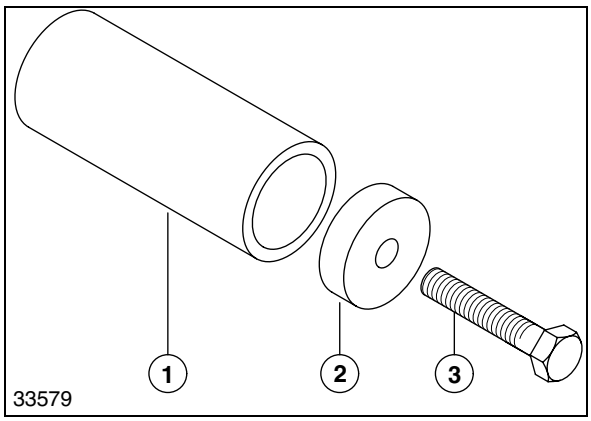
CAUTION!

Ensure that all taper ring fasteners and hub bores have gearbox grease type G 00 DIN 51502 part no. 177 553.1 applied prior to installation.

1. Assemble the V-belt pulley (1) with the tapered rings (2) and the parallel key (3).
2. Using the special tool, pre-stress the tapered rings.

   Tightening torque = 310 Nm

(Fig. 2, 3)



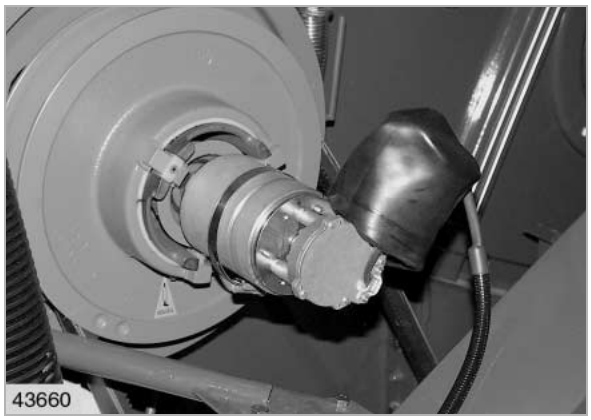
4

Special tool:

1 Tube ∅ 55.5 x ∅ 70 x 140 long
2 Thrust washer, part no. 667 414.0
3 Hex. bolt M 16 x 60 DIN 931-10.9, part no. 667 944.0

(Fig. 4)

3. *Installing the threshing drum variable-speed pulley assembly (hydraulic)*, see page 7.6.6
4. *Installing and adjusting the fan intermediate drive belt (20)*, see page 7.3.4



5

Fan adjustment (electric)

NOTE:

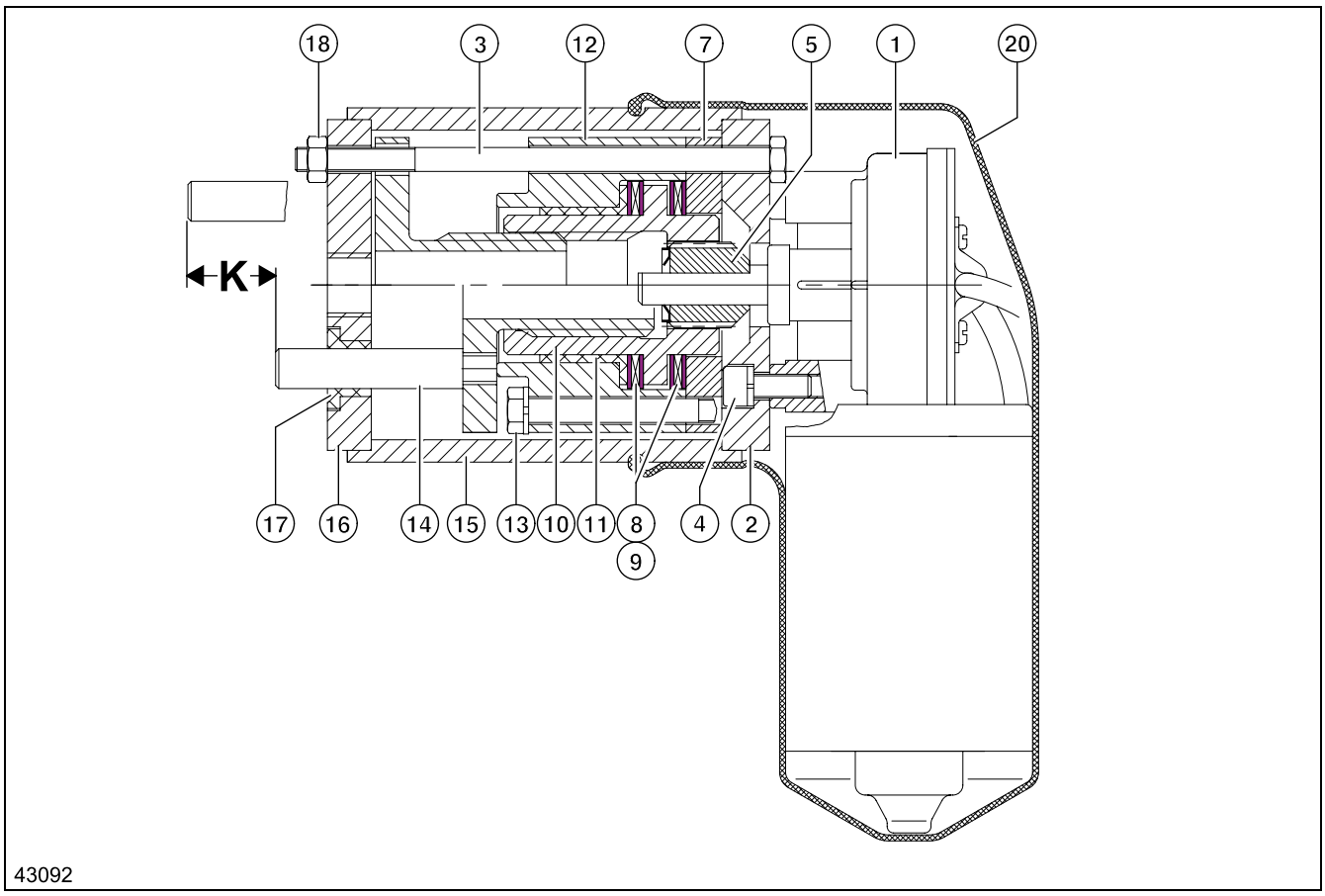
There are three different fan adjustment versions (electric):

Versions 1 and 3 are combined.

Version 2 is described separately.

With the protective cap removed, the differences are as described below:

(Fig. 5)



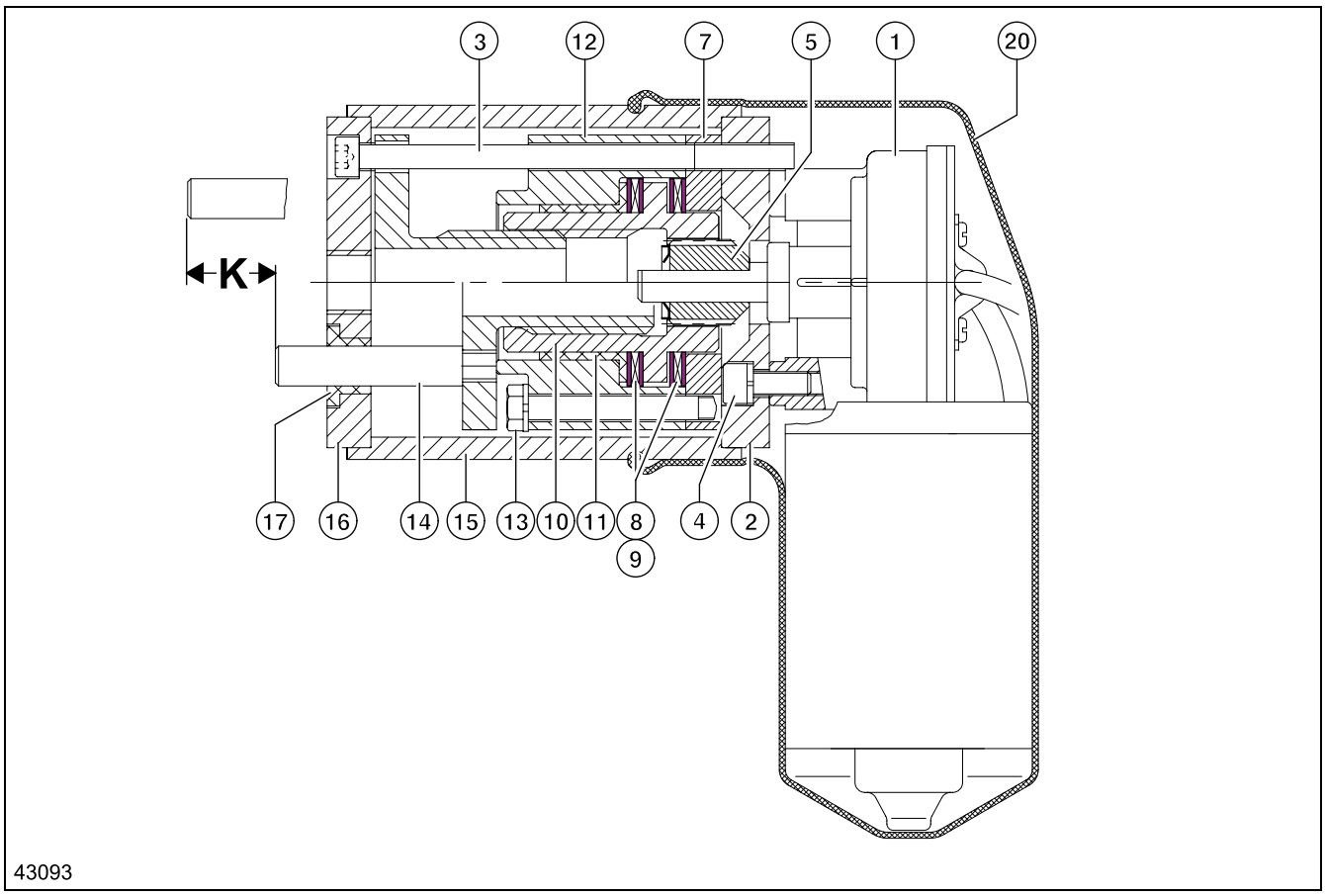
6

Fan adjustment (electric)
Version 1
(up to serial no. ...)

The fan adjustment is bolted to the supporting ring with three hex. bolts (3) and three hex. nuts (18).

3 Hex. bolt M 6 x 120 mm – 3 pieces
18 Hex. nut M 6 – 3 pieces

(Fig. 6)



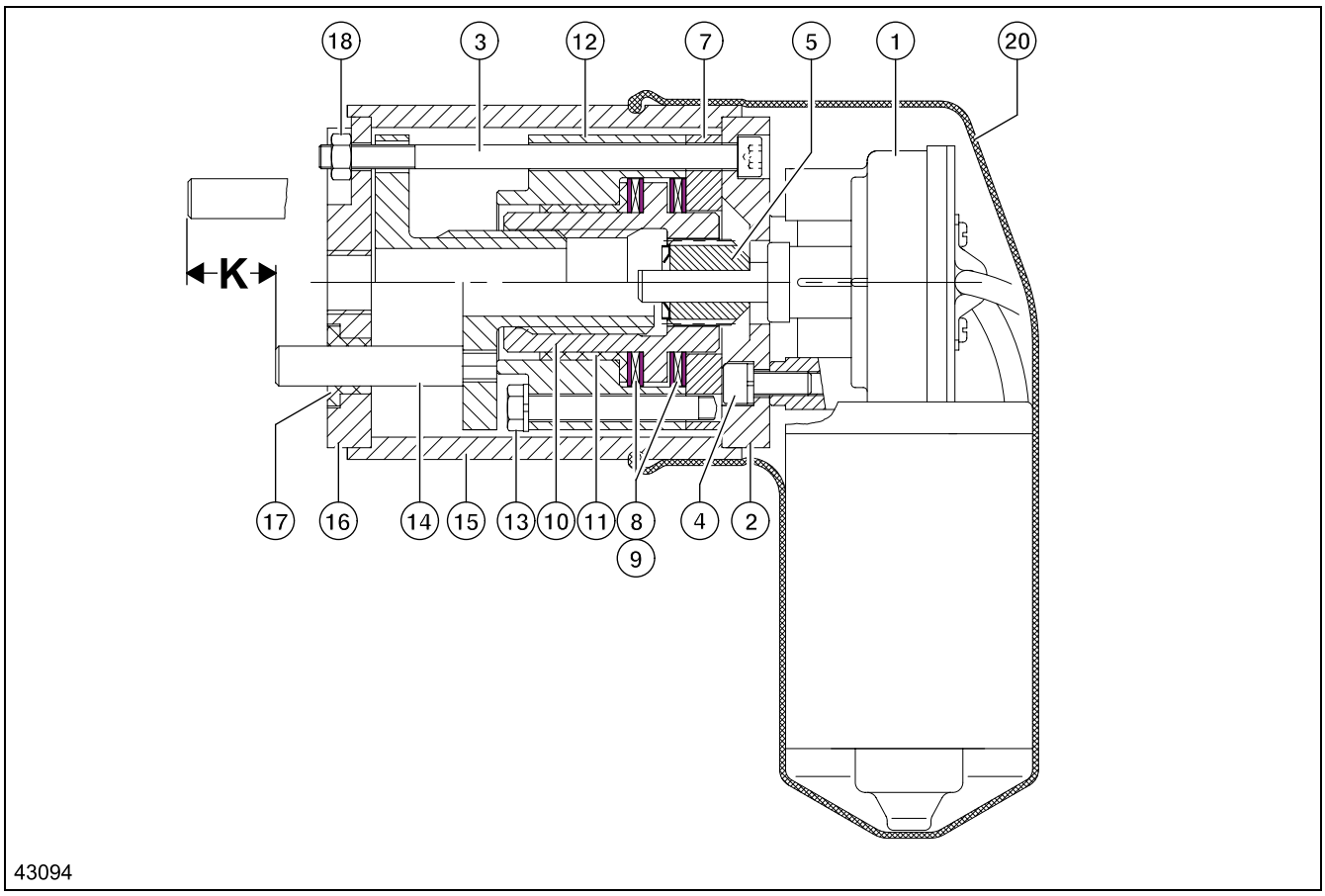
7

Fan adjustment (electric)
Version 2
(from serial no. …, up to serial no. …)

The fan adjustment is bolted to the supporting ring using three cheese-head screws (3).

3 Cheese-head screw M 6 x 110 mm – 3 pieces

(Fig. 7)



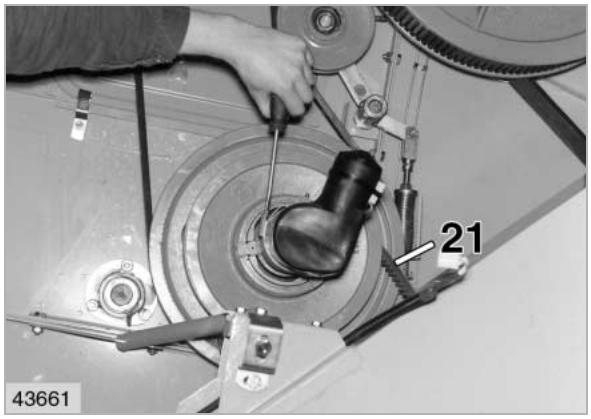
8

Fan adjustment (electric)
Version 3
(from serial no. ...)

The fan adjustment is bolted to the supporting ring with three cheese-head screws (3) and one hex. nut (18).

3 Cheese-head screw M 6 x 105 mm – 3 pieces
18 Hex. nut M 6 – 1 piece

(Fig. 8)



9

Removing the fan adjustment (electric)

(Version 1)

Removing the fan drive belt (21), see page 7.3.5

Disconnect the cable plug from the DC motor.

Loosen the hose clamp and remove the protective cap.

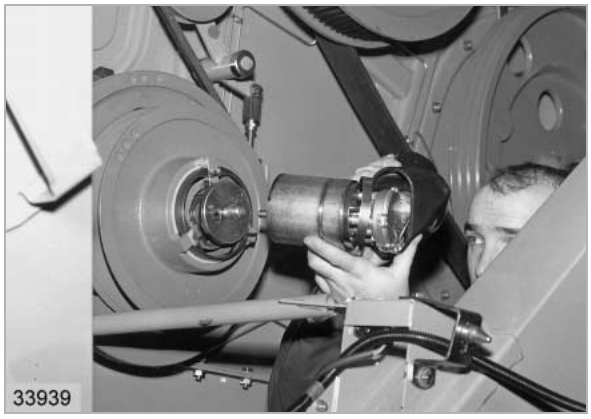
(Fig. 9)



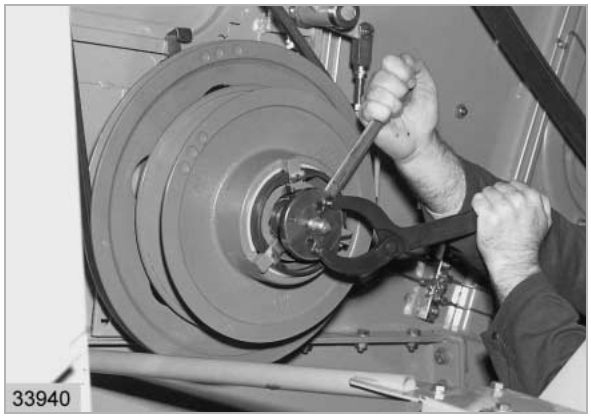
10

Remove the three hex. bolts or cheese-head screws (3) and remove the complete DC motor with the spacer tube.

(Fig. 6, 10, 11)



11



12

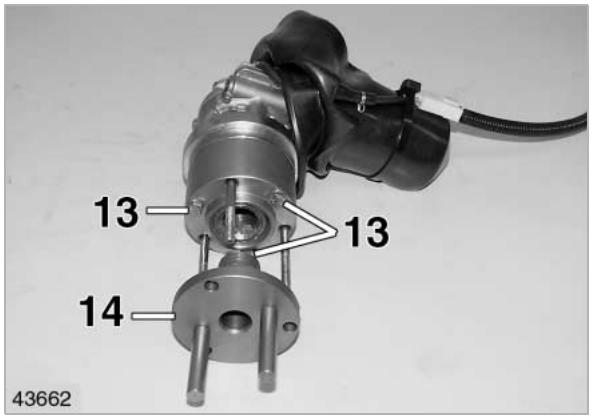
From serial no. …:

Slacken off the support washer and the capstan nut (39). Unscrew the supporting ring (16).

Up to serial no. …:

Slacken off the support ring and the hex. nut (39). Unscrew the supporting ring (16).

(Fig. 12, 18)



13

Disassembling the fan adjustment (electric)
(Version 1)

Drive out the pressure piece (14) using the electric motor. (If this is not possible, loosen the bolts [13]).

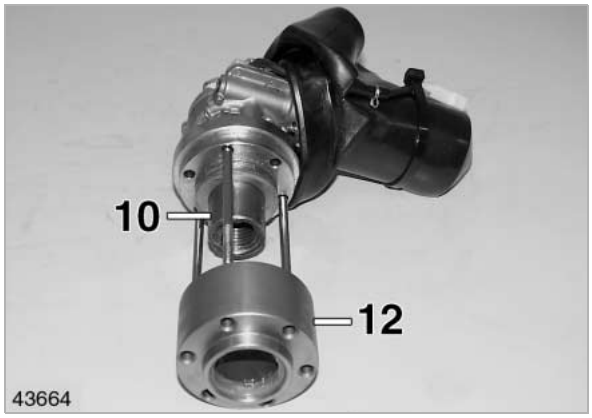
(Fig. 6, 13)



14

Unscrew the hex. bolts (13).

(Fig. 6, 14)

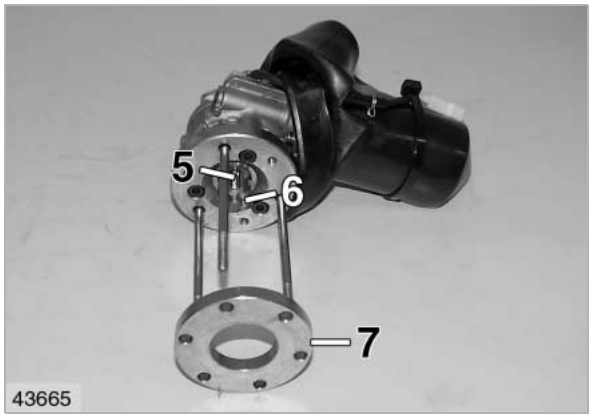


15

Pull off clamping piece (12) and remove adjustment nut (10) along with needle bearing (9) and axial washer (8).

Remove the left-hand and right-hand axial bearing from the adjusting nut.

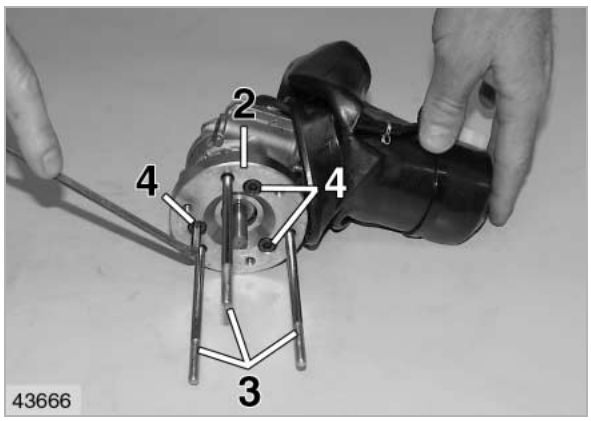
(Fig. 6, 15)



16

Remove the ring (7), the quick-release fastener (6) and the and the catch (5).

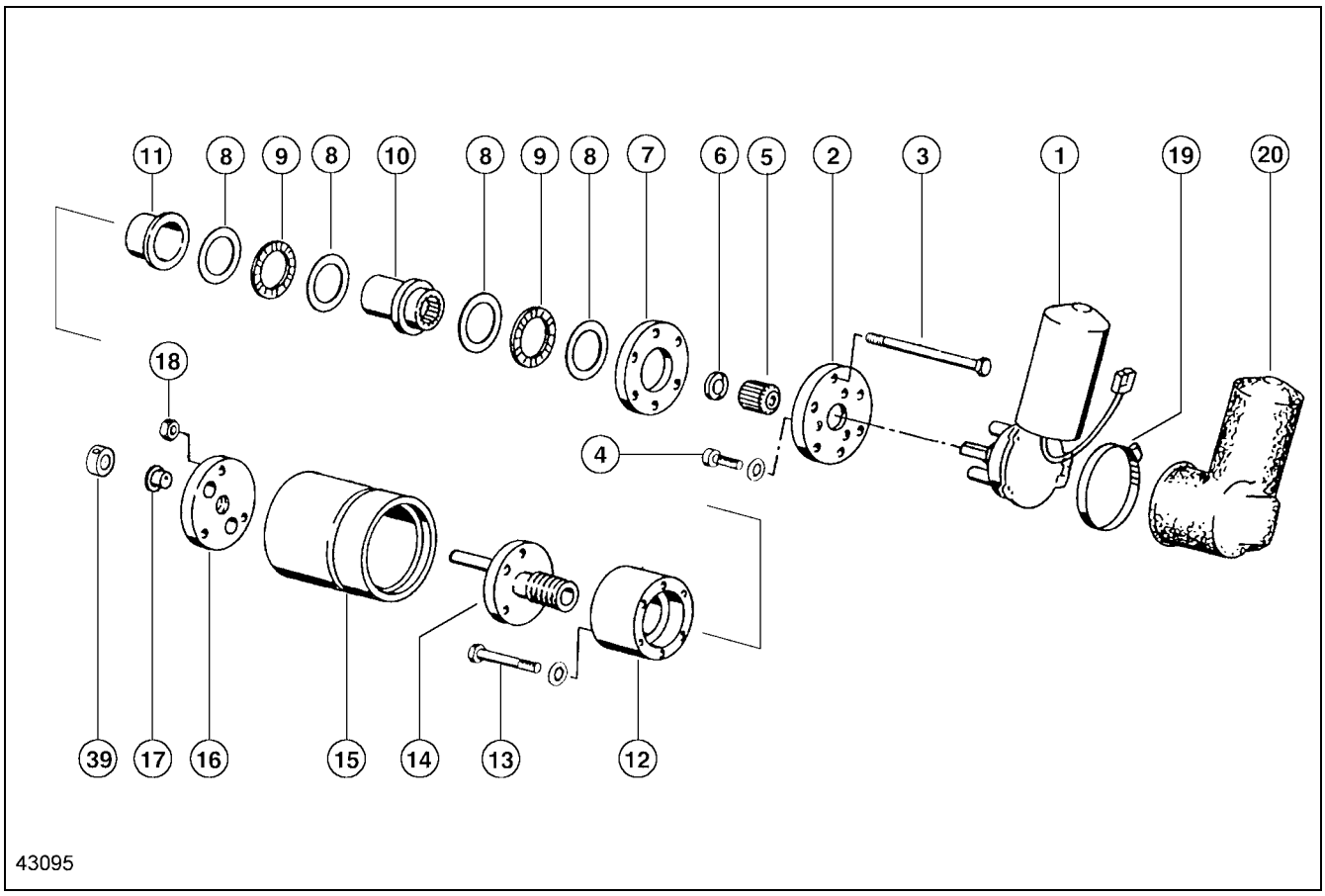
(Fig. 6, 16)



17

Unscrew cheese-head screws (4) and remove flange (2) along with hex. bolts (3).

(Fig. 6, 17)

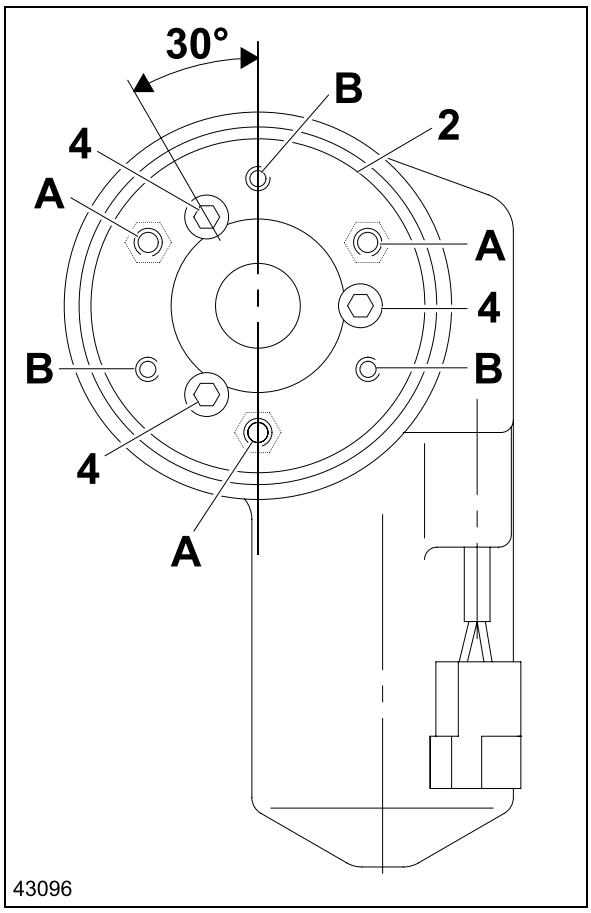


18

Fan adjustment (electric), disassembled:
(Version 1)

1 DC motor
2 Flange
3 Hex. bolt M 6 x 120 DIN 931-8.8
(from serial no. …)
4 Cheese-head screw M 6 x 16 DIN 912
(up to serial no. …)
Detent edged ring
5 Catch
6 Quick-release fastener
7 Ring
8 Axial washer
9 Needle bearing
10 Adjustment nut
11 Bushing
12 Clamping piece
13 Hex. bolt M 6 x 60 DIN 931-8.8
Lock washer
14 Thrust piece
15 Spacer tube
16 Supporting ring
17 Bushing
18 Hex. nut M 6 DIN 934
19 Hose clamp
20 Rubber cap
39 Capstan nut M 16 x 1 DIN 934
(from serial no. …)
Hex. nut M 16 x 1 DIN 934
(up to serial no. …)

(Fig. 18)



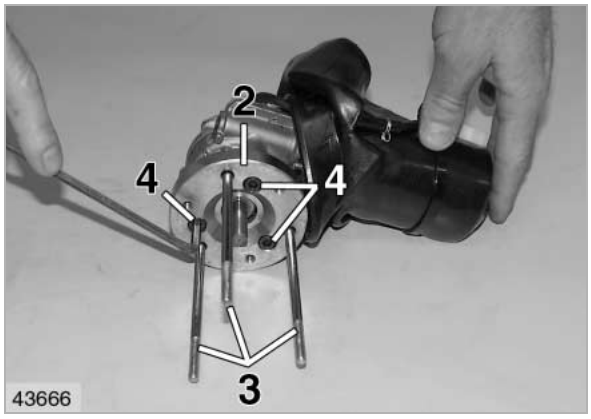
19

Assembling the fan adjustment (electric)
(Version 1)

CAUTION!

Prior to assembly, apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands to all sliding faces, shims, sheet gaskets and bearings.

(Fig. 6, 19)

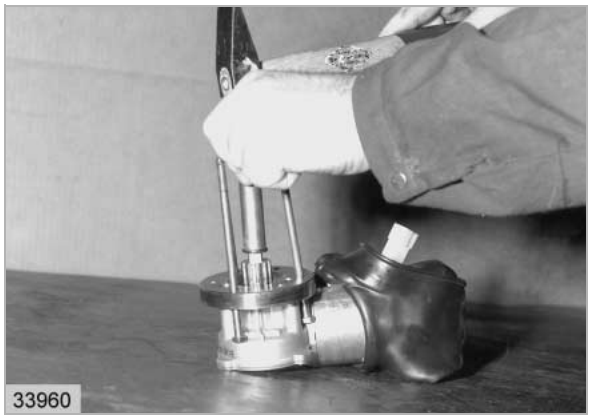


20

1. Slide the hex. bolts (3) through flange (2) at position A and bolt on the DC motor using cheese-head screws (4).

   Tightening torque M 6 x 16 = 8 Nm

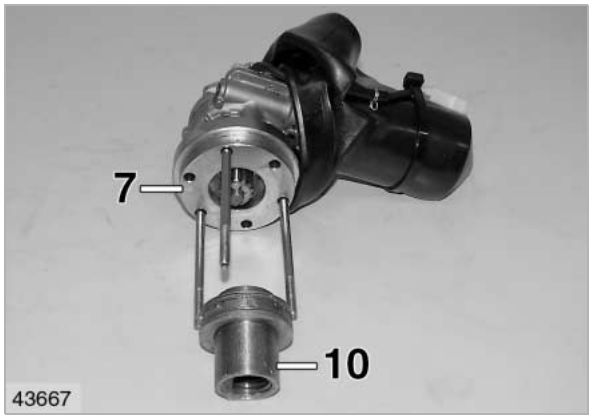
(Fig. 6, 19, 20)



21

2. Slide on the catch (5) and push on the quick-release fastener using a tube.

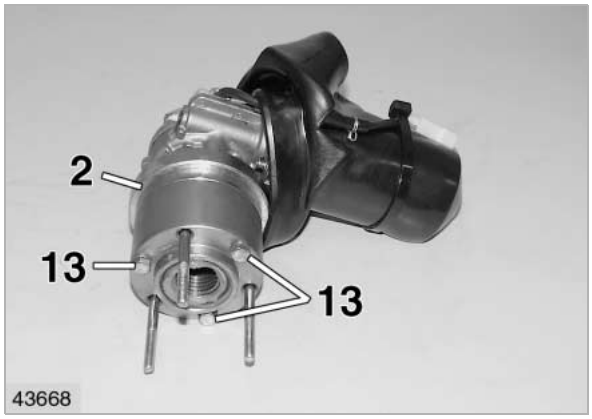
(Fig. 6, 21)



22

3. Slide on ring (7).
4. Pre-assemble the adjusting nut (10) with the axial washer (8) and the needle bearing (9) and push it on.

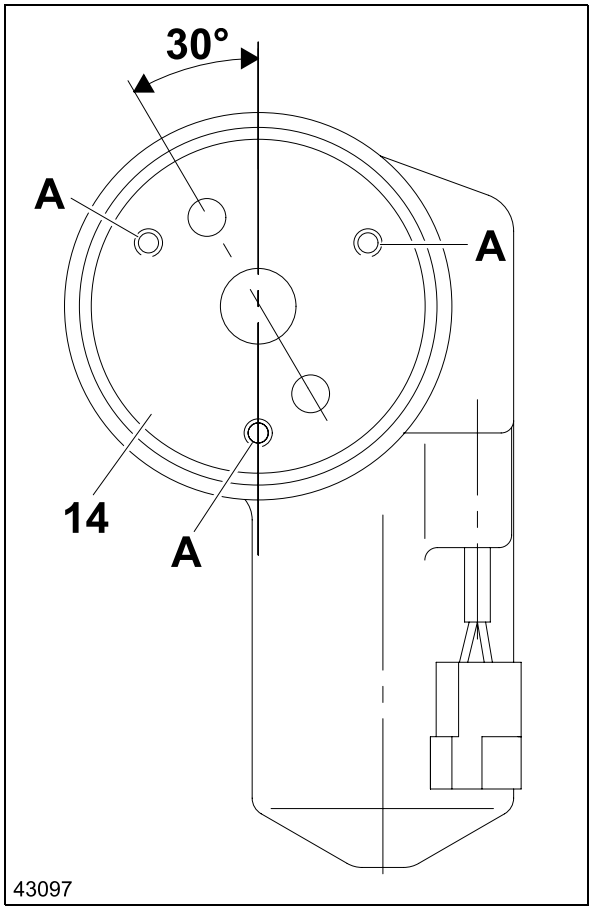
(Fig. 6, 22)



23

5. Slide on clamping piece (12) and bolt down to the flange (2) with hex. bolt (13) at position B.

(Fig. 6, 19, 23)



24

6. Attach push-on receptacles to one end of two cables.

   Form a loop at the other end of the cable and connect a 12 V battery to the plus and minus poles.

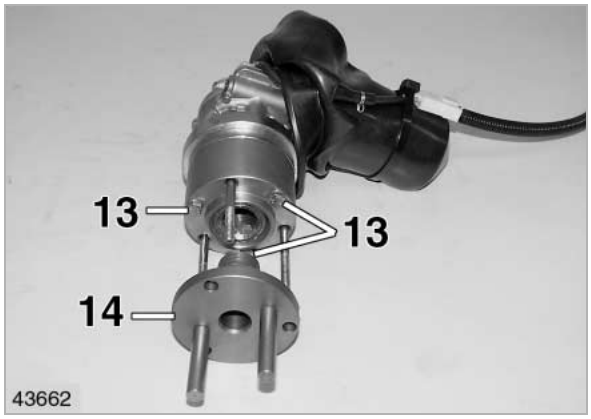
   Connect the cables to the blade terminals of the DC motor and make the motor run (check that the motor rotates in the correct direction, if not change the terminals over).

7. Apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands, to the thread of thrust piece (14).

CAUTION!

The pressure pins (D) of thrust piece (14) must be offset by **30**° relative to the centre axis of the DC motor when being screwed into the adjusting nut (10).

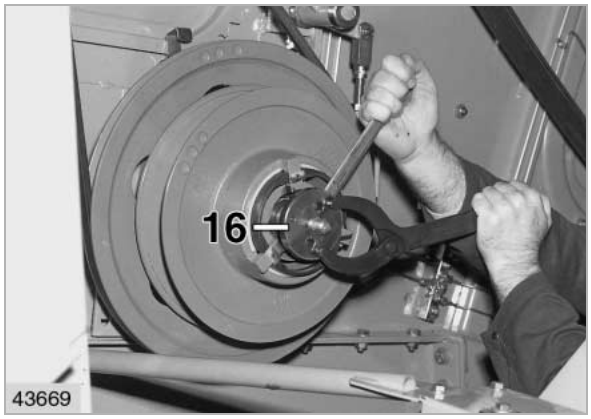
(Fig. 24)



25

Screw in the thrust piece (14) fully using the DC motor.

(Fig. 25)



26

Installing the fan adjustment (electric)

(Version 1)

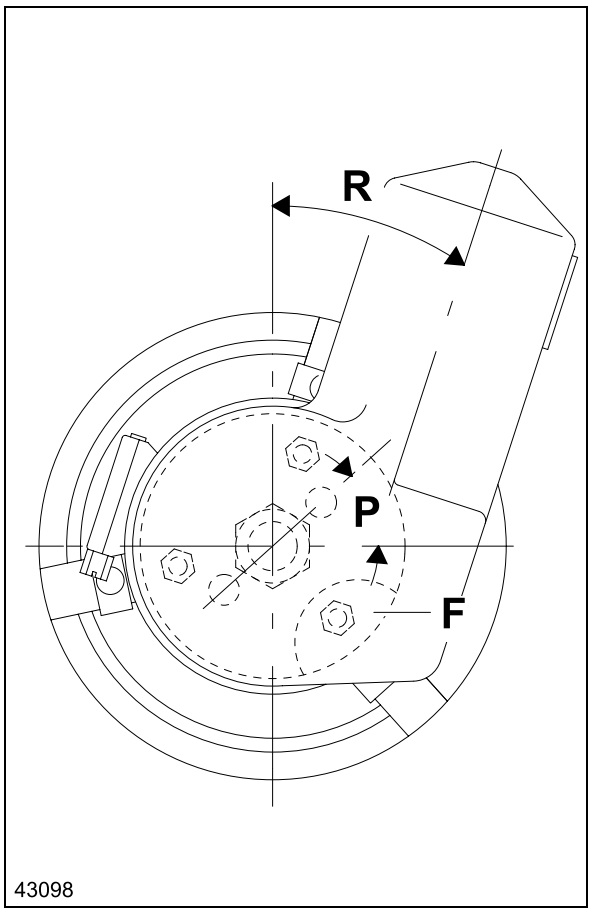
1. Screw on the supporting ring (16) roughly up to the stop at the capstan nut or the hex. nut. Observe installation position!

   Before locking the supporting ring (16) with the capstan nut or the hex. nut, check all adjustments of the fan variable-speed pulley assembly (electric) and adjust if necessary – see page 7.14.33, *Assembling and installing the electric fan variable-speed pulley assembly*.

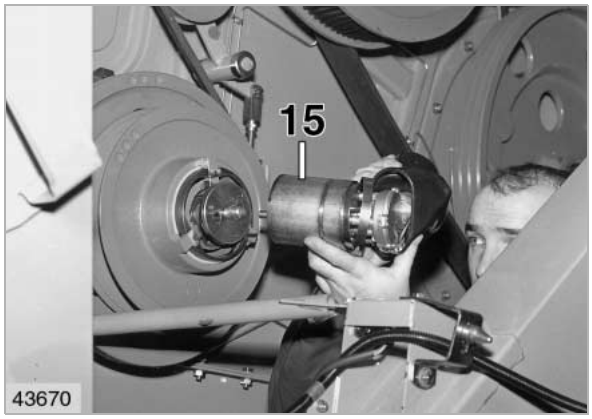
   With the hole pattern, set the supporting ring to the measure (P) = **42° ± 5°** from the horizontal line, then secure with the capstan nut or the hex. nut.

   Observe locking dimension (K).

(Fig. 26, 27, 81, 82)



27



28

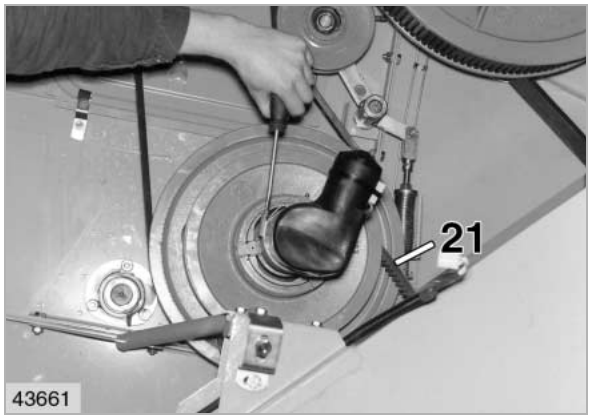
2. Slide on the spacer tube (15), then bolt the complete DC motor to the supporting ring (16) with the three hex. bolts (3) and nuts (18).

   Observe correct motor position (dimension R).

   Dimension R = 18° ± 5°

   (Fig. 27, 28)

3. Refit the rubber cap (20) and reconnect the push-on receptacle.
4. *Installing and adjusting the fan variable-speed pulley assembly (spring-loaded)*, see page 7.14.42
5. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5



29

Removing the fan adjustment (electric)

(Version 1, version 3)

Removing the fan drive belt (21), see page 7.3.5

Disconnect the cable plug from the DC motor.

Loosen the hose clamp and remove the protective cap.

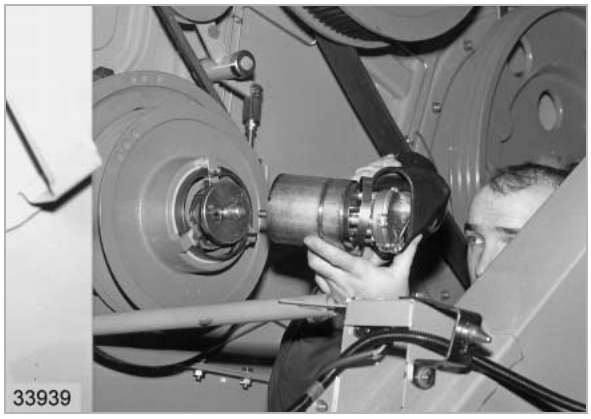
(Fig. 29)



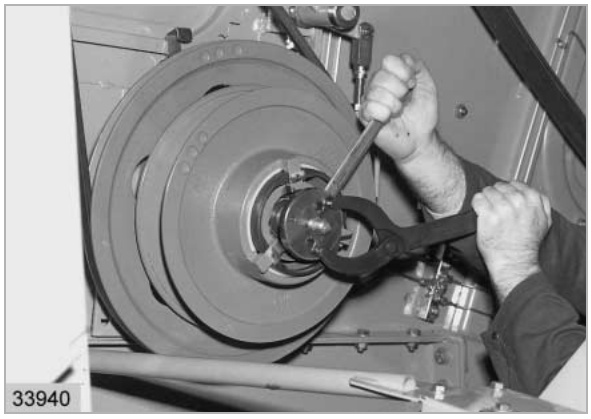
30

Remove the three hex. bolts or cheese-head screws (3) and remove the complete DC motor with the spacer tube.

(Fig. 6, 8, 30, 31)



31



32

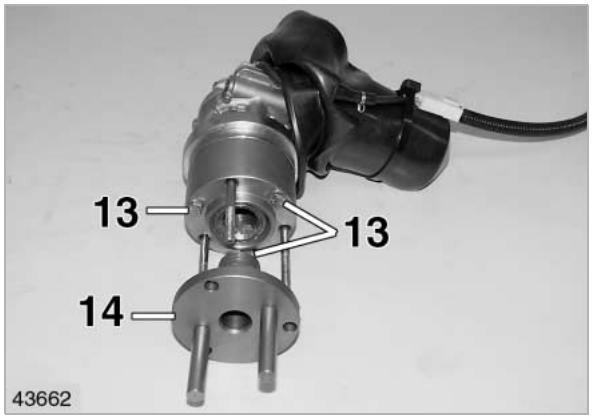
From serial no. …:

Slacken off the support washer and the capstan nut (39). Unscrew the supporting ring (16).

Up to serial no. …:

Slacken off the support ring and the hex. nut (39). Unscrew the supporting ring (16).

(Fig. 32, 38)



33

Disassembling the fan adjustment (electric)
(Version 1, version 3)

Drive out the pressure piece (14) using the electric motor. (If this is not possible, loosen the bolts [13]).

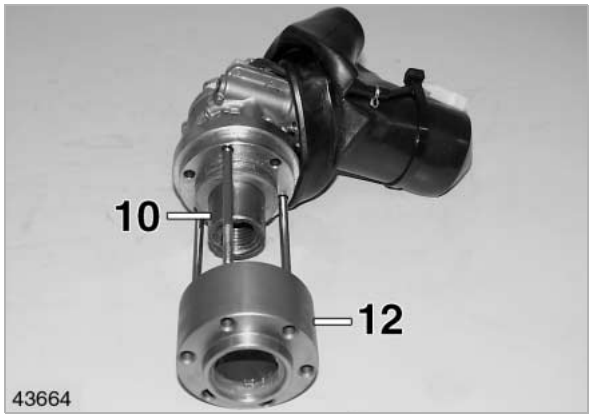
(Fig. 6, 8, 33)



34

Unscrew the hex. bolts (13).

(Fig. 6, 8, 34)

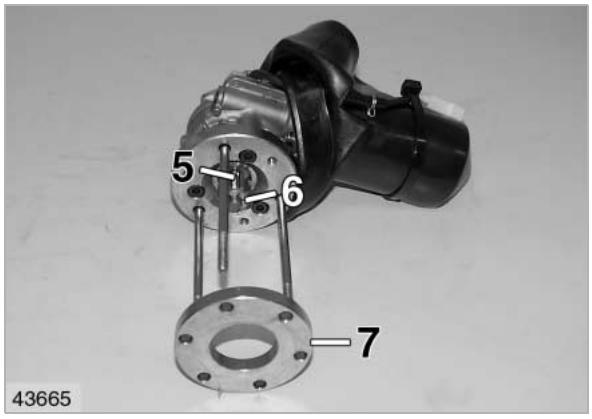


35

Pull off clamping piece (12) and remove adjustment nut (10) along with needle bearing (9) and axial washer (8).

Remove the left-hand and right-hand axial bearing from the adjusting nut.

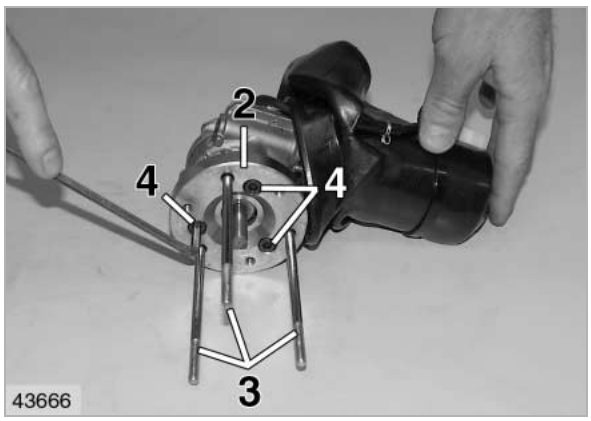
(Fig. 6, 8, 35)



36

Remove the ring (7), the quick-release fastener (6) and the and the catch (5).

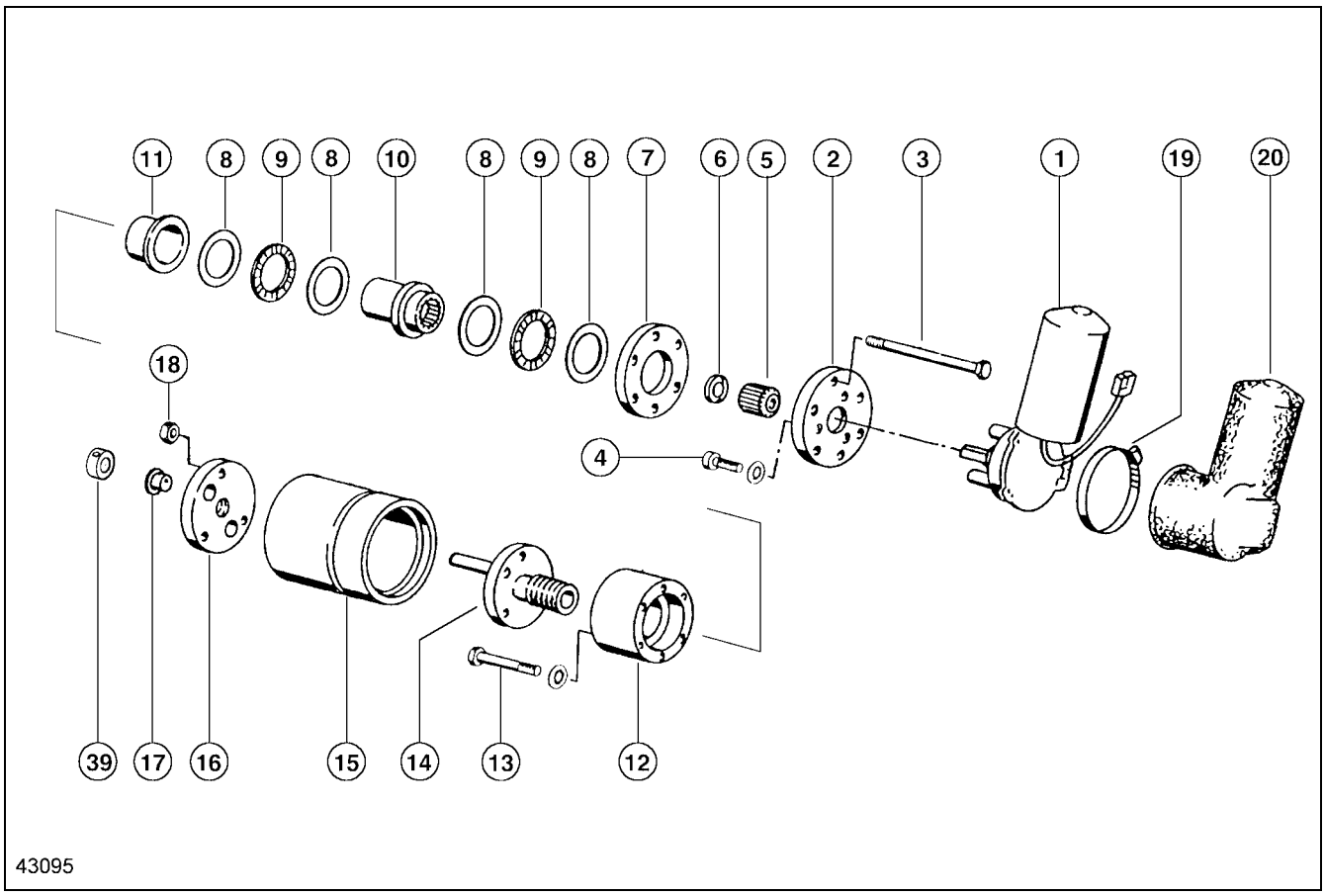
(Fig. 6, 8, 36)



37

Unscrew cheese-head screws (4) and remove flange (2) along with hex. bolts or cheese-head screws (3).

(Fig. 6, 8, 37)

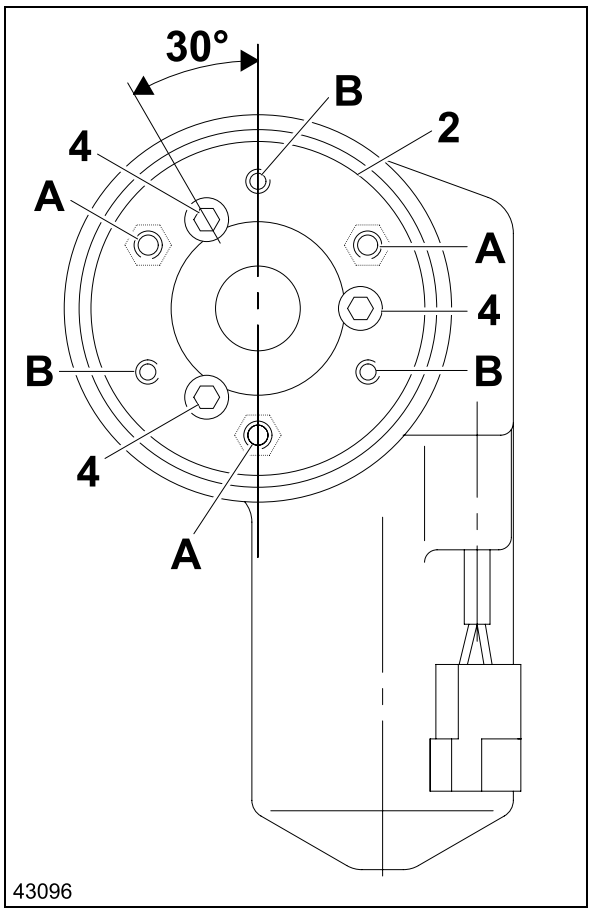


38

Fan adjustment (electric), disassembled:
(Version 1, version 3)

1 DC motor
2 Flange
3 Cheese-head screw M 6 x 105
DIN 4762-8.8 – 3 pieces
(from serial no. …)
4 Hex. bolt M 6 x 120 DIN 931-8.8 – 3 pieces
(up to serial no. …)
Detent edged ring
5 Catch
6 Quick-release fastener
7 Ring
8 Axial washer
9 Needle bearing
10 Adjustment nut
11 Bushing
12 Clamping piece
13 Hex. bolt M 6 x 60 DIN 931-8.8
Lock washer
14 Thrust piece
15 Spacer tube
16 Supporting ring
17 Bushing
18 Hex. nut M 6 DIN 934 – 1 piece
(from serial no. …)
Hex. nut M 6 DIN 934 – 3 pieces
(up to serial no. …)
19 Hose clamp
20 Rubber cap
39 Capstan nut M 16 x 1 DIN 934
(from serial no. …)
Hex. nut M 16 x 1 DIN 934
(up to serial no. …)

(Fig. 38)



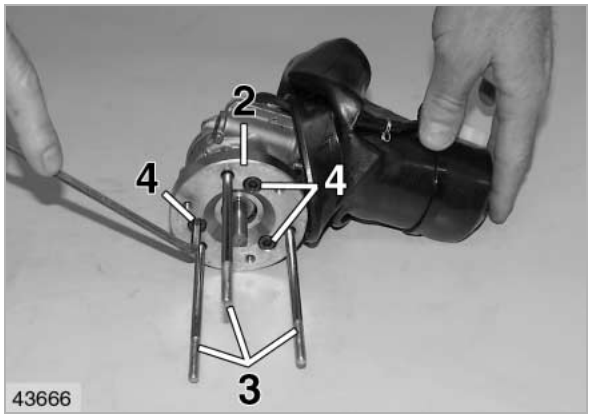
39

Assembling the fan adjustment (electric)
(Version 1, version 3)

CAUTION!

Prior to assembly, apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands to all sliding faces, shims, sheet gaskets and bearings.

(Fig. 6, 8, 39)

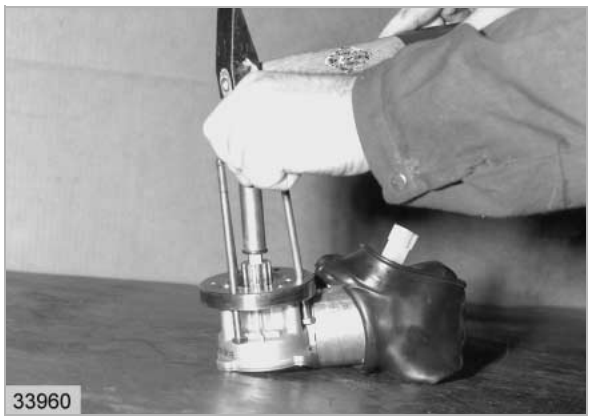


40

1. Slide the hex. bolts or cheese-head screws (3) through flange (2) at position A and bolt on the DC motor using cheese-head screws (4).

   Tightening torque M 6 x 16 = 8 Nm

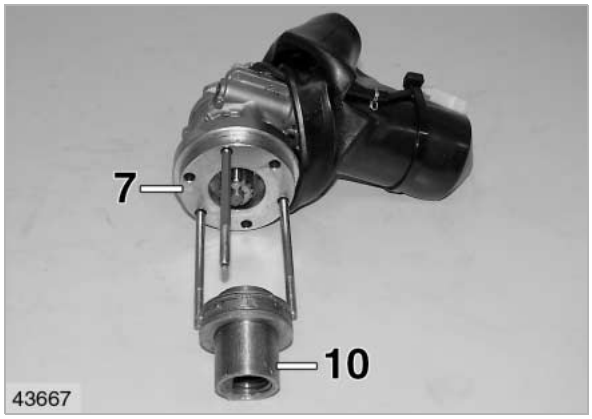
(Fig. 6, 8, 39, 40)



41

2. Slide on the catch (5) and push on the quick-release fastener using a tube.

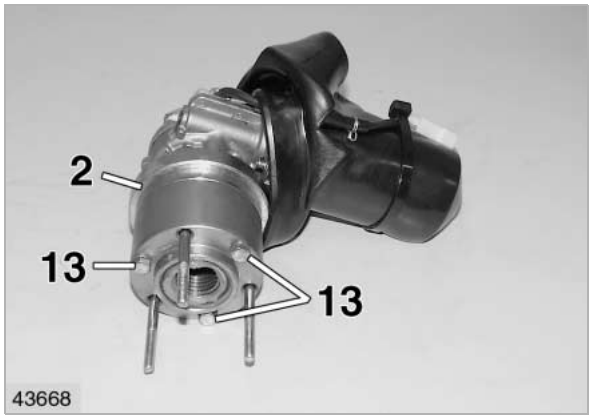
(Fig. 6, 8, 41)



42

3. Slide on ring (7).
4. Pre-assemble the adjusting nut (10) with the axial washer (8) and the needle bearing (9) and push it on.

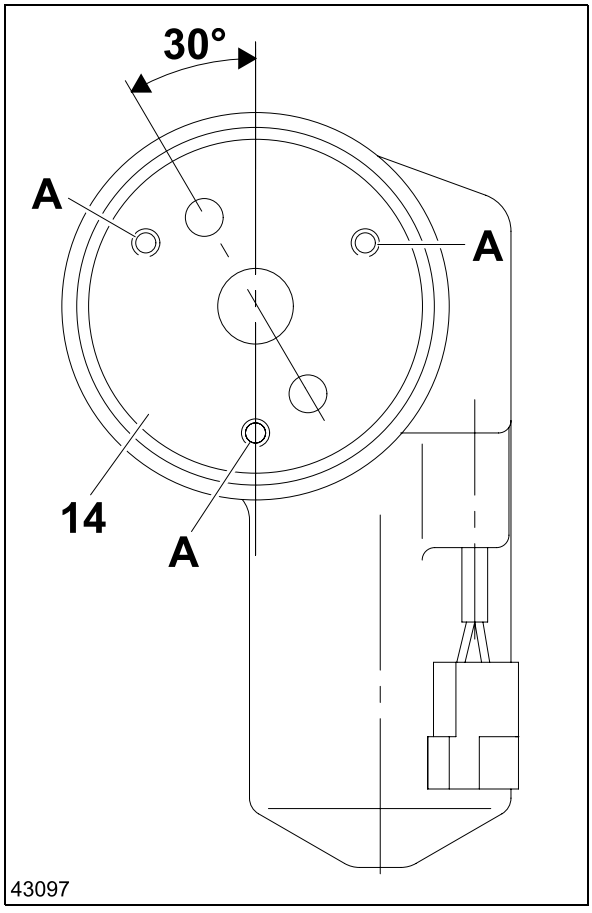
(Fig. 6, 8, 42)



43

5. Slide on clamping piece (12) and bolt down to the flange (2) with hex. bolt (13) at position B.

(Fig. 6, 8, 39, 43)



44

6. Attach push-on receptacles to one end of two cables.

   Form a loop at the other end of the cable and connect a 12 V battery to the plus and minus poles.

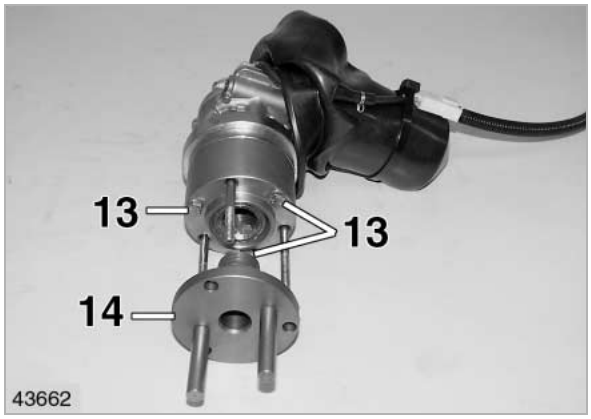
   Connect the cables to the blade terminals of the DC motor and make the motor run (check that the motor rotates in the correct direction, if not change the terminals over).

7. Apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands, to the thread of thrust piece (14).

CAUTION!

The pressure pins (D) of thrust piece (14) must be offset by **30**° relative to the centre axis of the DC motor when being screwed into the adjusting nut (10).

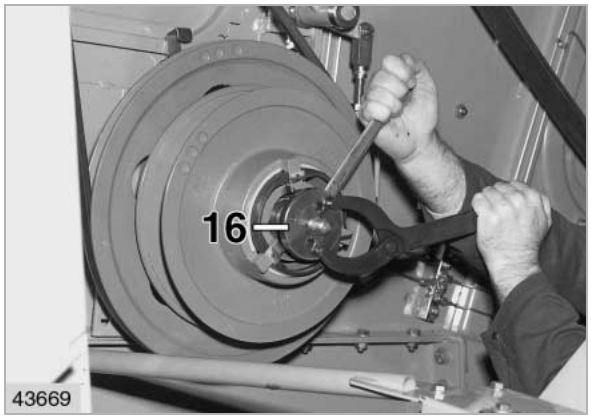
(Fig. 44)



45

Screw in the thrust piece (14) fully using the DC motor.

(Fig. 45)



46

Installing the fan adjustment (electric)

(Version 1, version 3)

1. Screw on the supporting ring (16) roughly up to the stop at the capstan nut or the hex. nut. Observe installation position!

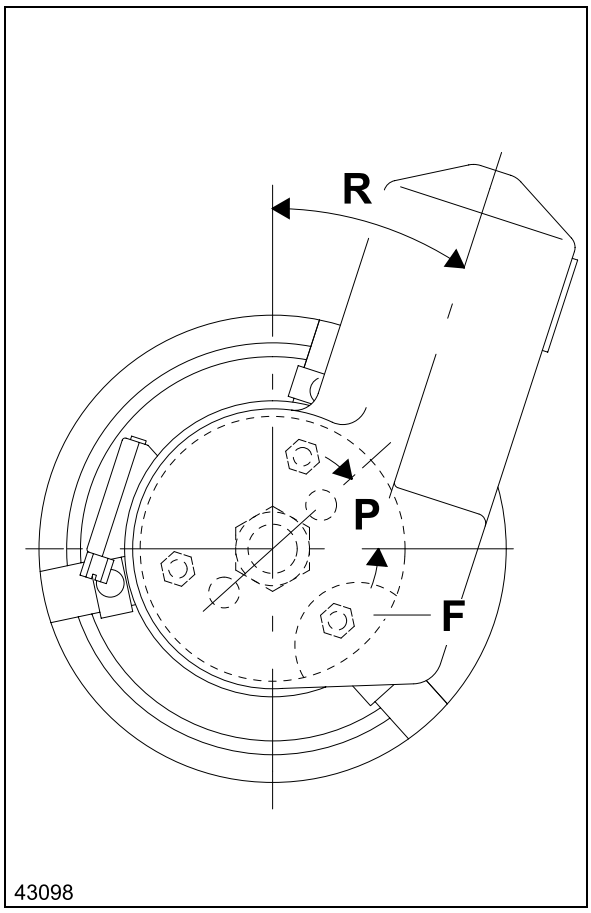
   F = Milled-out area (from serial no. ...)

   Before locking the supporting ring (16) with the capstan nut or the hex. nut, check all adjustments of the fan variable-speed pulley assembly (electric) and adjust if necessary – see page 7.14.33, *Assembling and installing the electric fan variable-speed pulley assembly*.

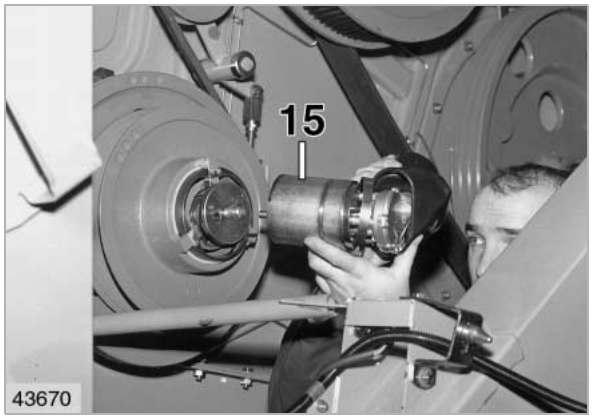
   With the hole pattern, set the supporting ring to the measure (P) = **42° ± 5°** from the horizontal line, then secure with the capstan nut or the hex. nut.

   Observe locking dimension (K) of capstan nut (39) or of hex. nut (39).

(Fig. 46, 47, 81, 82)



47



48

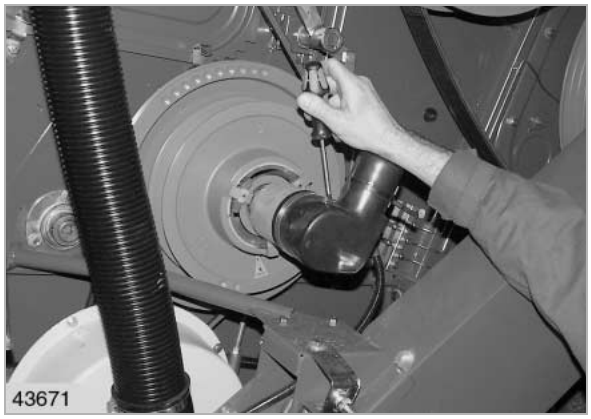
2. Slide on the spacer tube (15), then bolt the complete DC motor to the supporting ring (16) with the three hex. bolts or cheese-head screws (3) and nuts (18).

   Observe correct motor position (dimension R).

   Dimension R = 18° ± 5°

   (Fig. 6, 8, 47, 48)

3. Refit the rubber cap (20) and reconnect the push-on receptacle.
4. *Installing and adjusting the fan variable-speed pulley assembly (spring-loaded)*, see page 7.14.42
5. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5



49

Removing the fan adjustment (electric)

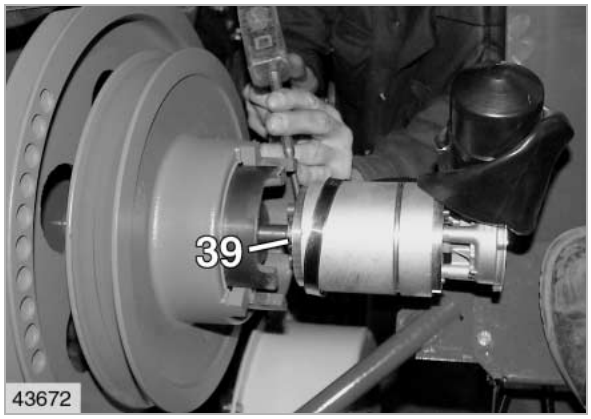
(Version 2)

Removing the fan drive belt (21), see page 7.3.5

Disconnect the cable plug from the DC motor.

Loosen the hose clamp and remove the protective cap.

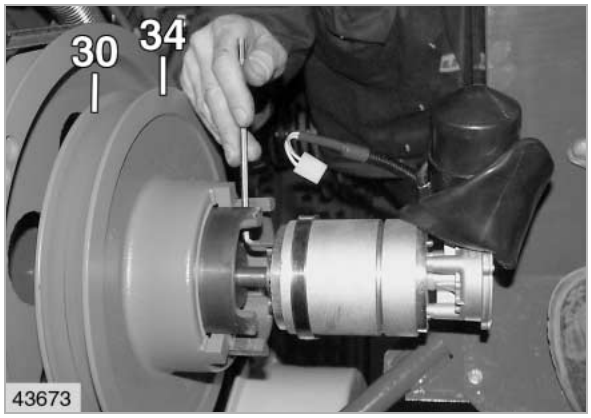
(Fig. 49)



50

Loosen the capstan nut (39) with a punch.

(Fig. 50, 59)



51

Loosen the cheese-head screws (3).

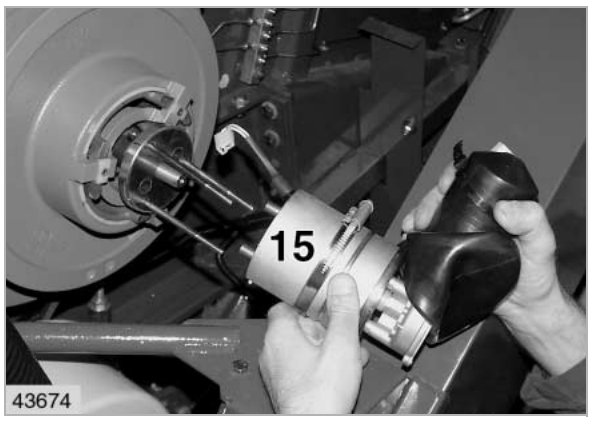
To do this, push variable-speed pulley (34) close to variable-speed pulley (30).

The cheese-head screws can be accessed with a cut-off hex. screwdriver (cranked).

NOTE!

The motor can be rotated to the right and the left by approx. **300**° (to make installation easier).

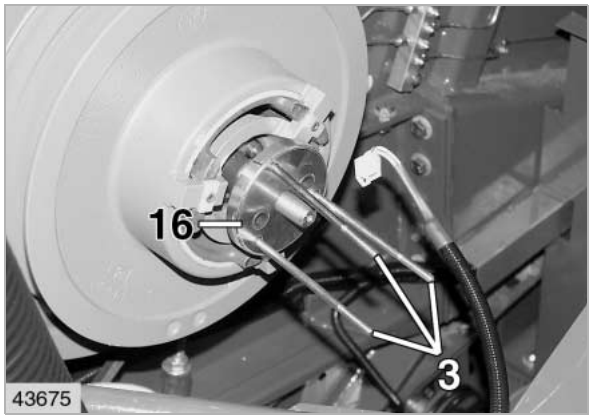
(Fig. 51, 59)



52

Remove complete DC motor with spacer tube (15).

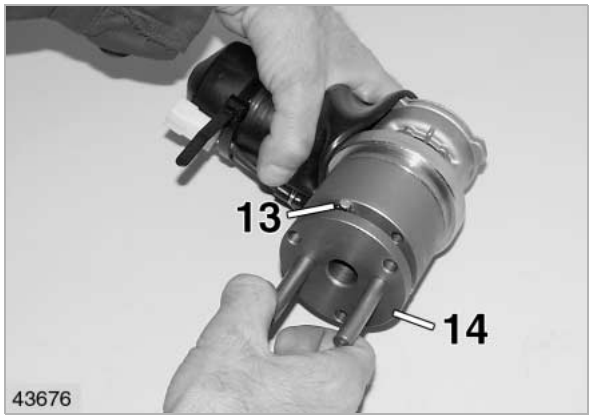
(Fig. 52)



53

Unscrew the supporting ring (16) with the cheese-head screws (3).

(Fig. 7, 53)

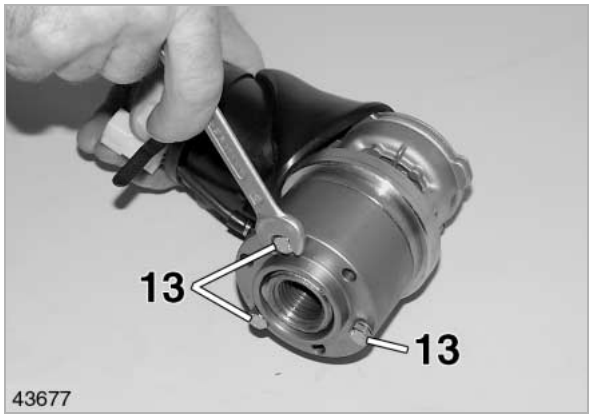


54

Disassembling the fan adjustment (electric) (Version 2)

Unscrew the thrust piece (14) by hand or extend it using the DC motor. (If this is not possible, loosen the bolts [13]).

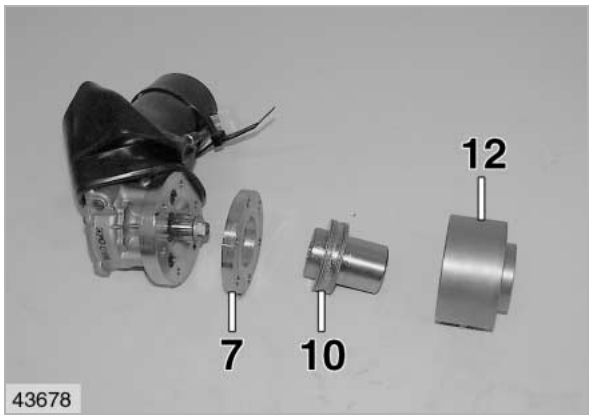
(Fig. 7, 54, 55)



55

Unscrew the hex. bolts (13).

(Fig. 7, 55)



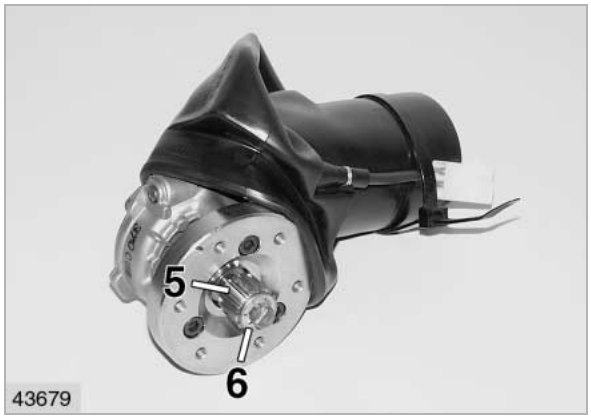
56

Pull off clamping piece (12) and remove adjustment nut (10) along with needle bearing (9) and axial washer (8).

Remove the left-hand and right-hand axial bearing from the adjusting nut.

Remove ring (7).

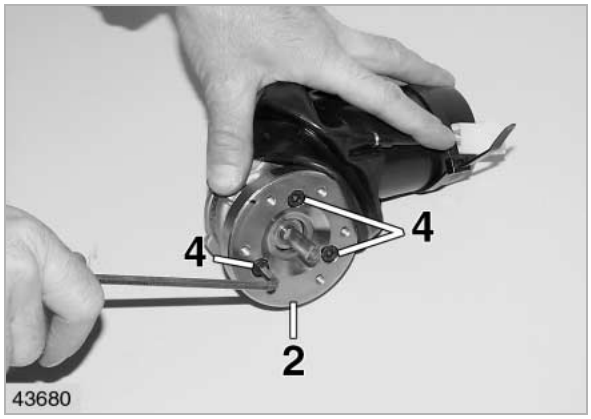
(Fig. 7, 56)



57

Remove the quick-release fastener (6) and the catch (5).

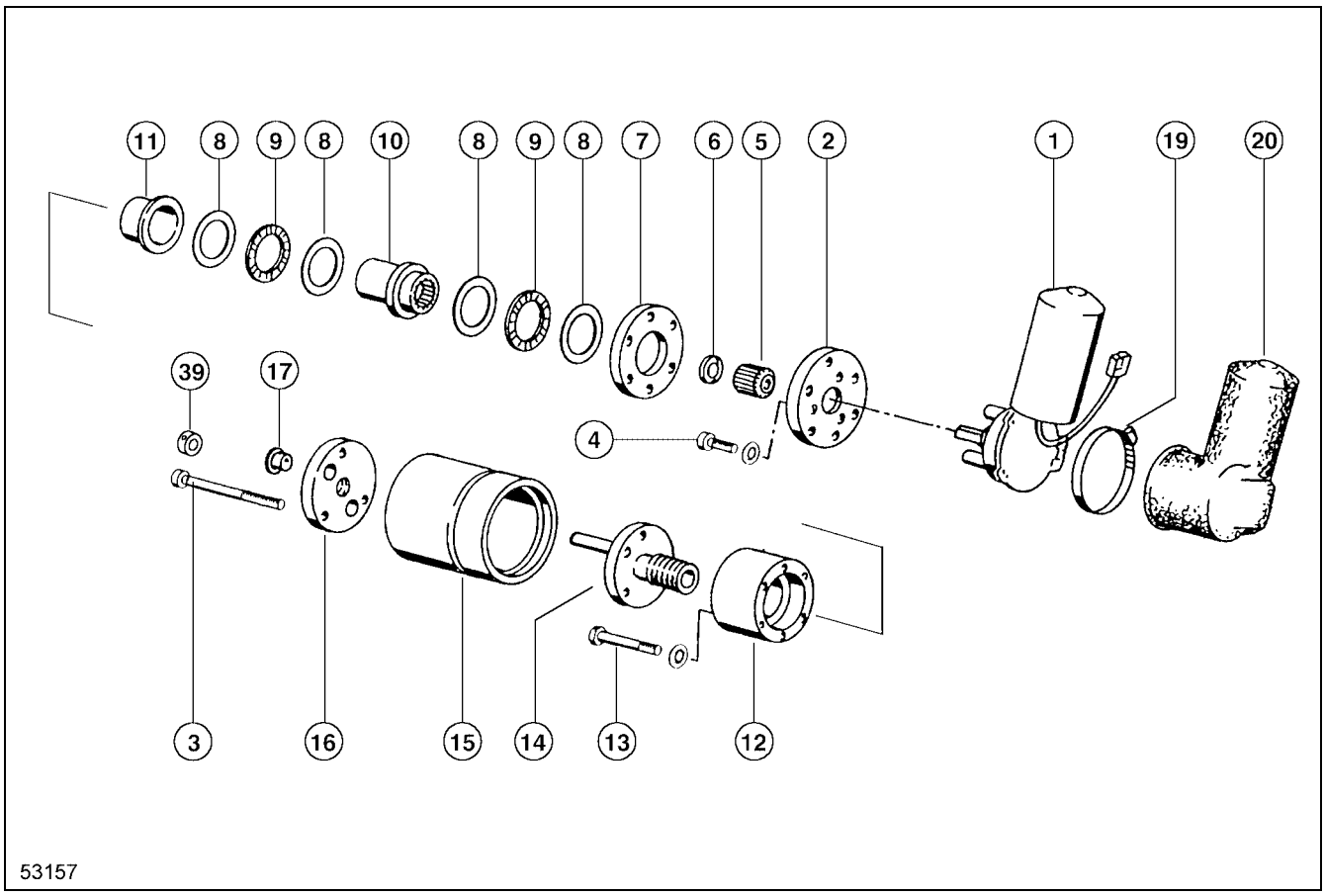
(Fig. 7, 57)



58

Unscrew cheese-head screws (4) and remove flange (2).

(Fig. 7, 58)

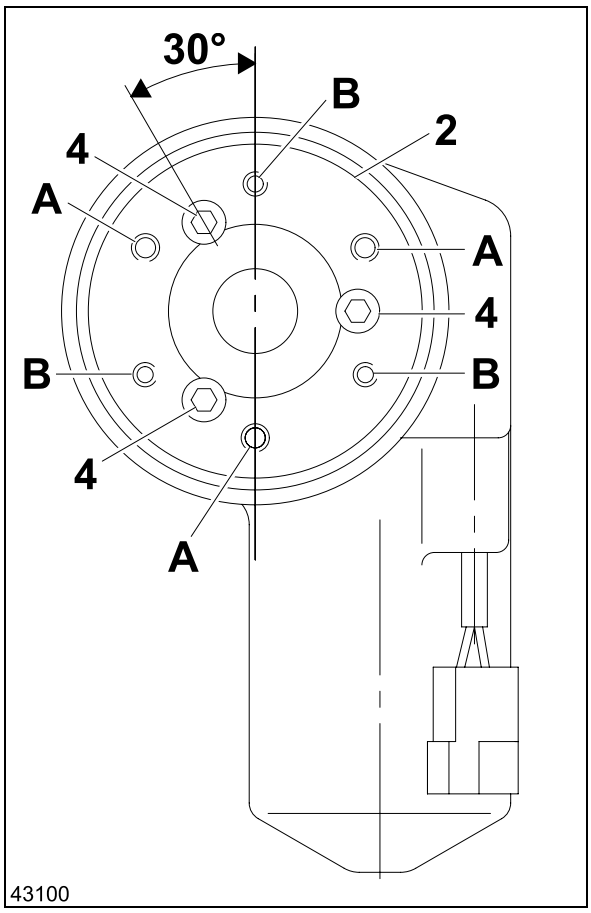


59

Fan adjustment (electric), disassembled:
(Version 2)

1 DC motor
2 Flange
3 Cheese-head screw M 6 x 110 DIN 931-8.8
4 Cheese-head screw M 6 x 16 DIN 912
Detent edged ring
5 Catch
6 Quick-release fastener
7 Ring
8 Axial washer
9 Needle bearing
10 Adjustment nut
11 Bushing
12 Clamping piece
13 Hex. bolt M 6 x 60 DIN 931-8.8
Lock washer
14 Thrust piece
15 Spacer tube
16 Supporting ring
17 Bushing
19 Hose clamp
20 Rubber cap
39 Capstan nut M 16 x 1 DIN 934
(from serial no. …)
Hex. nut M 16 x 1 DIN 934
(up to serial no. …)

(Fig. 59)



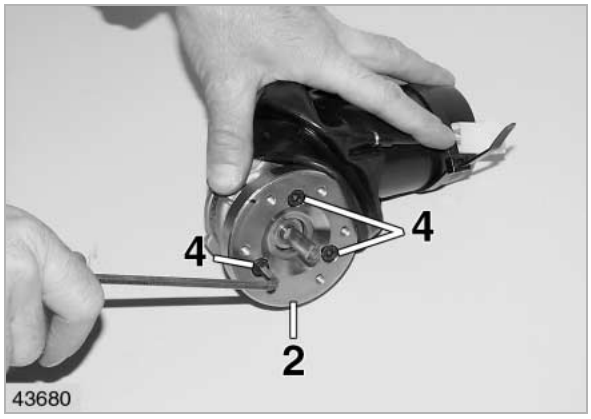
60

Assembling the fan adjustment (electric)
(Version 2)

CAUTION!

Prior to assembly, apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands to all sliding faces, shims, sheet gaskets and bearings.

(Fig. 7, 60)

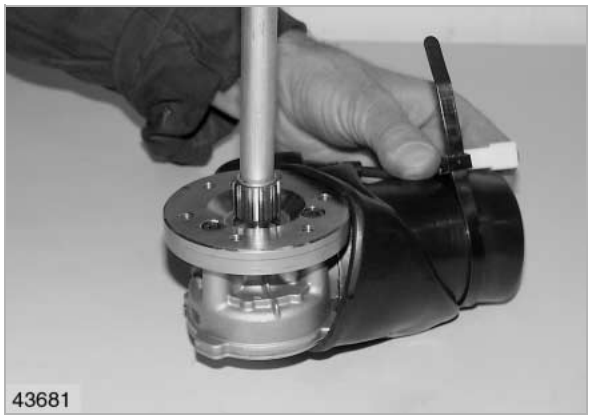


61

1. Bolt flange (2) on the DC motor with the cheese-head screws (4).

   Tightening torque M 6 x 16 = 8 Nm

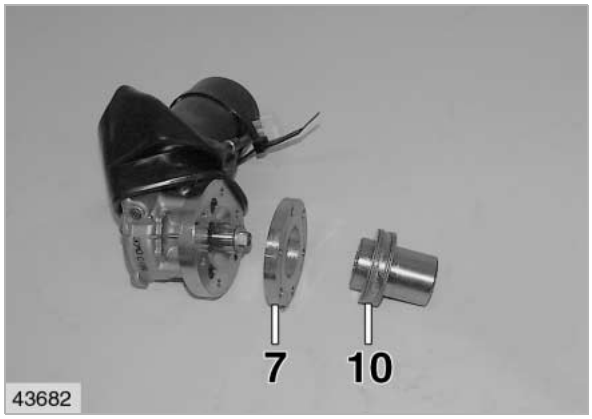
(Fig. 7, 61)



62

2. Slide on the catch (5) and push on the quick-release fastener using a tube.

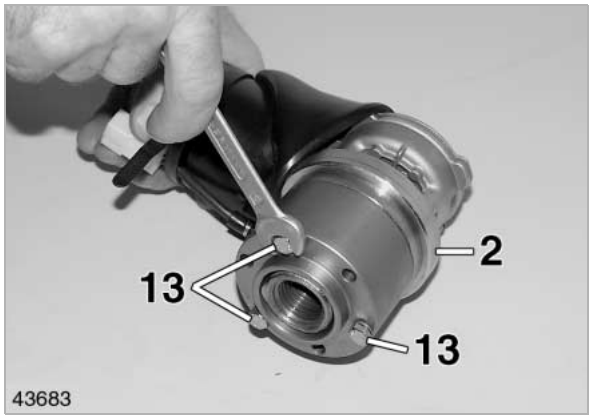
(Fig. 7, 62)



63

3. Slide on ring (7).
4. Pre-assemble the adjusting nut (10) with the axial washer (8) and the needle bearing (9) and push it on.

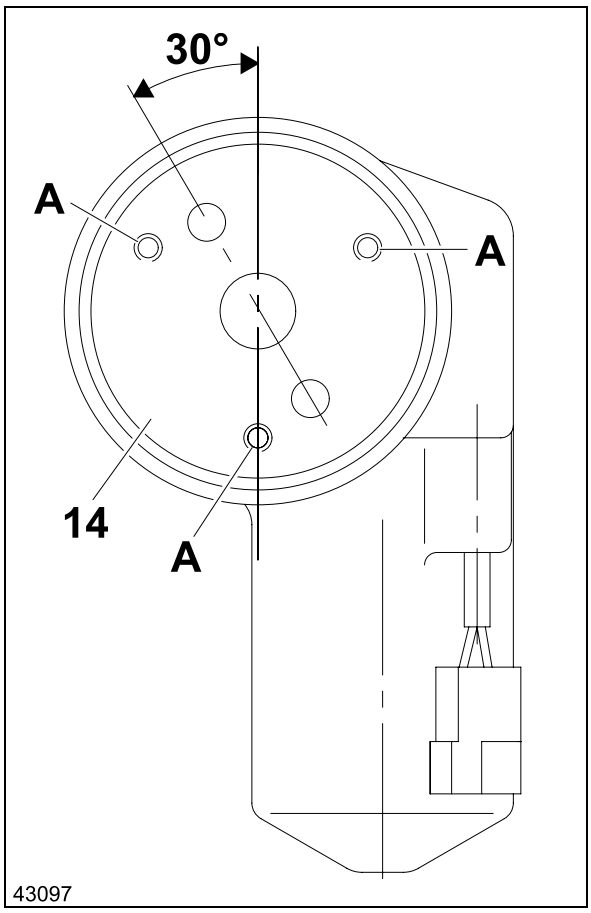
(Fig. 7, 63)



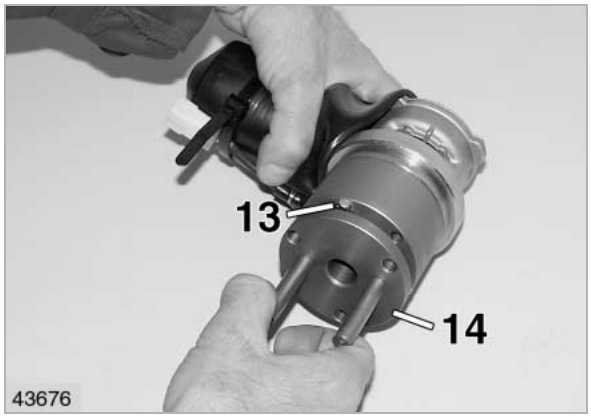
64

5. Slide on clamping piece (12) and bolt down to the flange (2) with hex. bolts (13) at position B.

(Fig. 7, 59, 64)



65



66

6. Apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands, to the thread of thrust piece (14).

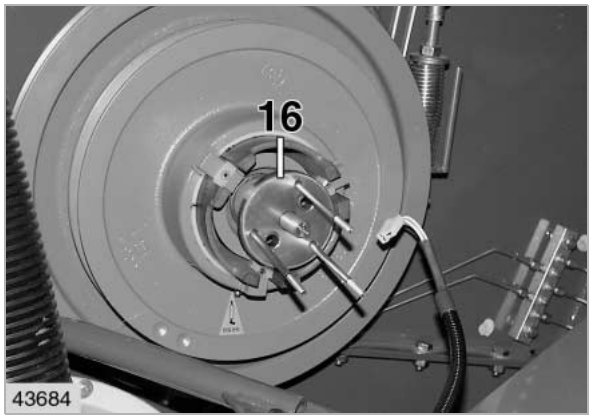
   Screw in thrust piece (14) by hand approx. 90 %.

CAUTION!

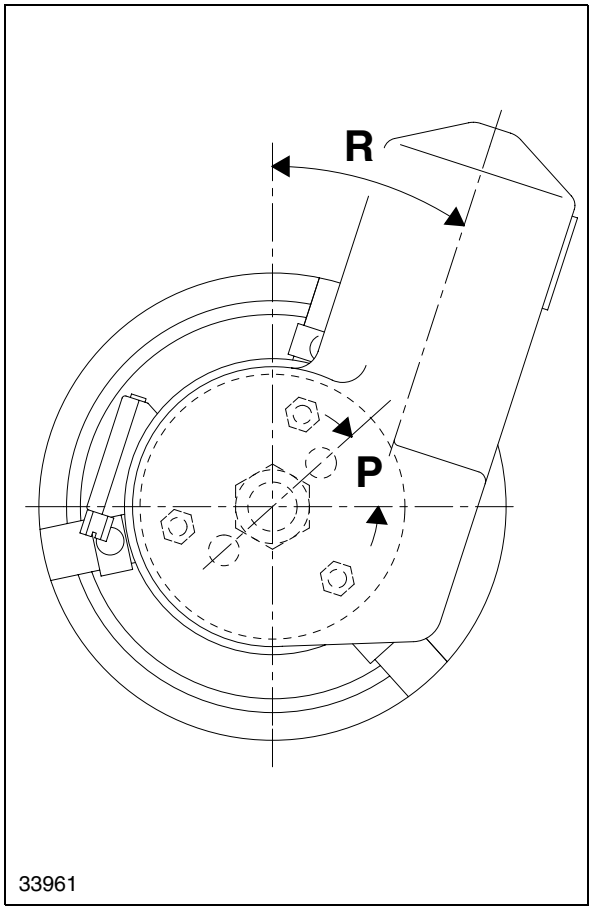
The pressure pins of thrust piece (14) must be offset by **30**° relative to the centre axis of the DC motor when being screwed into the adjusting nut (10).

The through-holes of the thrust piece now match position A of flange (2).

(Fig. 59, 65, 66)



67



68

Installing the fan adjustment (electric)

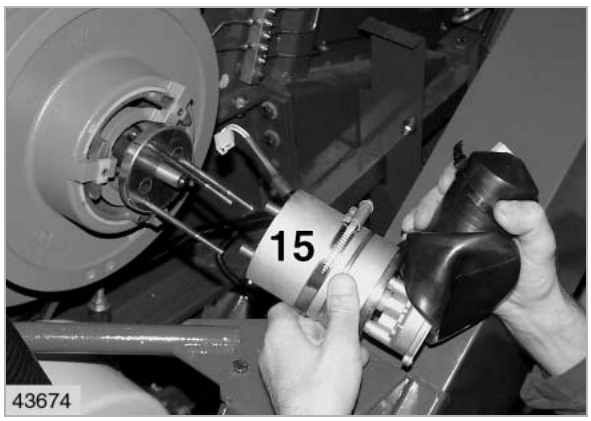
(Version 2)

1. Slide the cheese-head screws (3) through the supporting ring (16) and bolt on up to approx. the stop of the capstan nut or hex. nut. Observe installation position!
2. With the hole pattern, set the supporting ring to the measure (P) = **42**° **± 5**° from the horizontal line.

(Fig. 59, 67, 68)

3. Observe locking dimension (K) of capstan nut (39) or of hex. nut (39).
4. Check the adjustments of the fan variable-speed pulley assembly (electric) and correct if necessary – see page 7.14.33, *Assembling and installing the electric fan variable-speed pulley assembly*.

(Fig. 59, 81, 82)



69

5. Slide on the spacer tube (15), then bolt the complete DC motor to the flange (2) with the three cheese-head screws (3).

   The cheese-head screws can be accessed with a cut-off hex. screwdriver (cranked).

NOTE!

The motor can be rotated to the right and the left by approx. **300**° (to make installation easier).

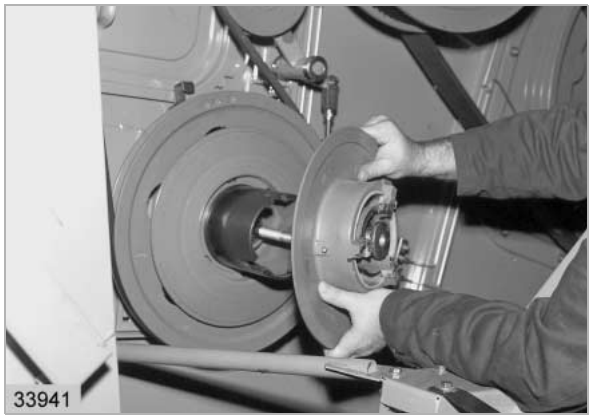
Lock the supporting ring (16) with the capstan nut (39) or the hex. nut (39).

Observe correct motor position (dimension R).

Dimension R = 18° ± 5°

(Fig. 59, 67, 68, 69, 81, 82)

6. Refit the rubber cap (20) and reconnect the push-on receptacle.
7. *Installing and adjusting the fan variable-speed pulley assembly (spring-loaded)*, see page 7.14.42
8. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5



70

Removing the fan variable-speed drive (electric)

Removing the fan adjustment (electric) (Version 1, version 3), see page 7.14.14

and/or

Removing the fan adjustment (electric) (Version 2), see page 7.14.22

Remove variable-speed pulley half.

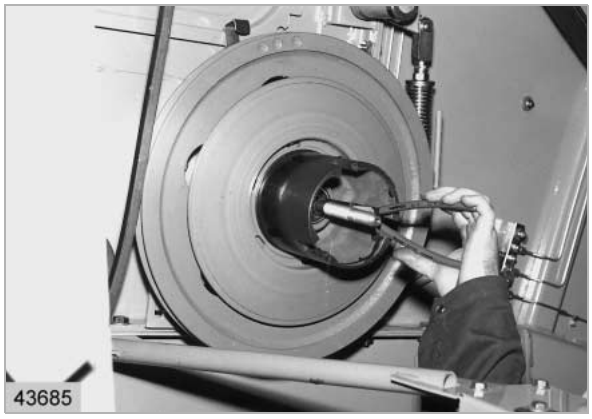
(Fig. 70)



71

Remove the sliding bushing and replace the bearing.

(Fig. 71)



72

Removing the fan intermediate drive belt (20), see page 7.3.3

Remove the circlip.

Loosen the three hex. bolts (42) by approx. **5 mm** to be able to apply a puller.

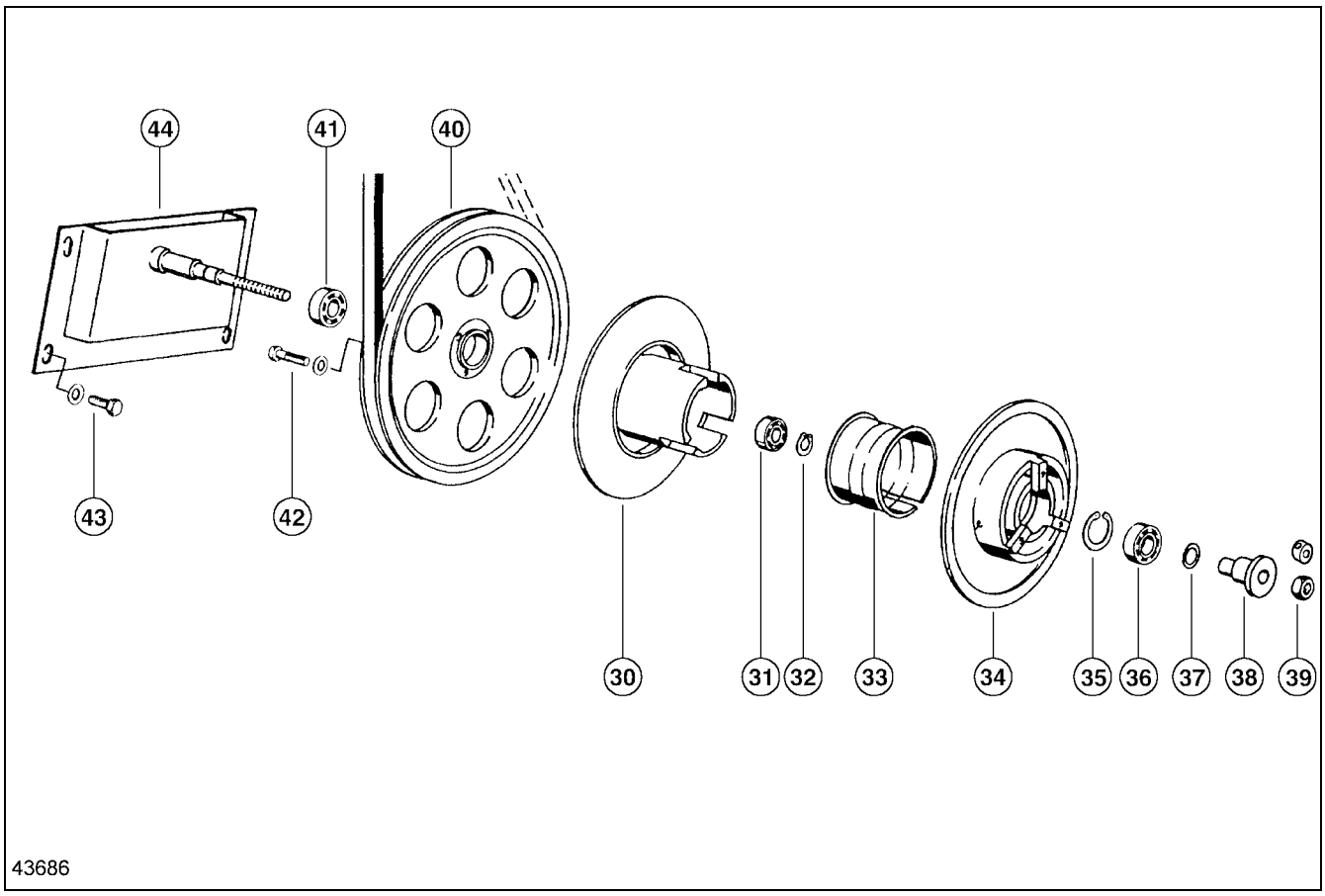
(Fig. 72, 73)



73

Pull off both pulleys completely.

(Fig. 73)

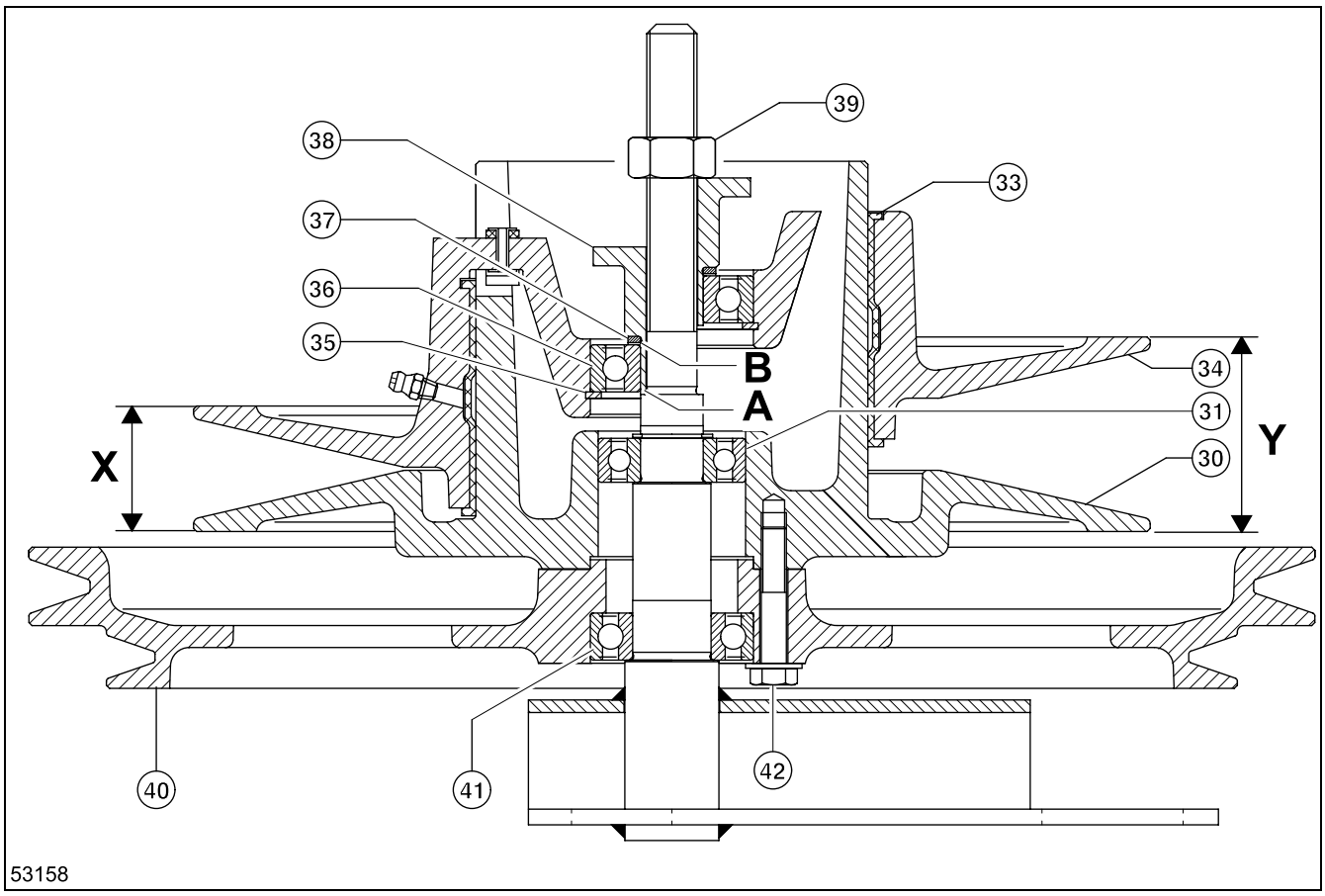


74

Electric fan variable-speed pulley assembly, disassembled

30 Variable-speed pulley half
31 Deep groove ball bearing 6204 -2 RS DIN 625
32 Circlip 20 x 1.2 DIN 471
33 Sliding bushing
34 Variable-speed pulley half
35 Circlip 52 x 2 DIN 472
36 Deep groove ball bearing 6304-2 RS DIN 625
37 Shim
38 Thrust sleeve
39 Capstan nut M 16 x 1 DIN 934
(from serial no. …)
Hex. nut M 16 x 1 DIN 934
(up to serial no. …)
40 V-belt pulley
41 Deep-groove ball bearing 6205-2RS-C3 DIN 625
42 Hex. bolt M 8 x 45 DIN 931-8.8
Contact washer A 8
43 Hex. bolt M 10 x 25 DIN 933-8.8
Contact washer B 10
44 Bearing bracket

(Fig. 74)



75

Assembling and installing the electric fan variable-speed pulley assembly

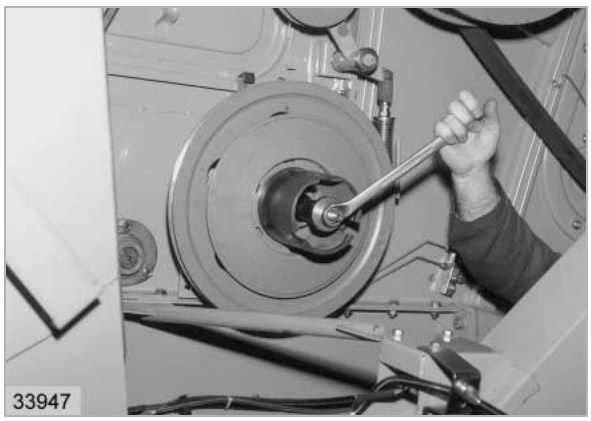
CAUTION!

Prior to assembly, apply K2K grease according to DIN 51825, lithium-stiffened multi-purpose grease, e.g. Shell “Alvania G2” or similar brands to all sliding faces, shims, sheet gaskets and bearings.

1. Press the bearing (41) into the V-belt pulley (40).
2. Bolt the V-belt pulley (40) to the variable-speed pulley (30).

   Tightening torque = 23 Nm

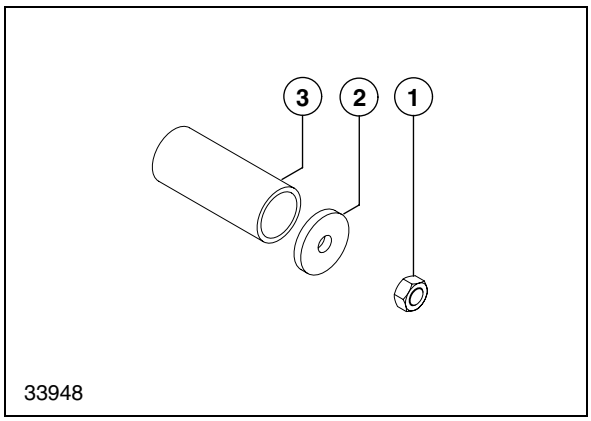
(Fig. 74, 75)



76

3. Clean the shaft, then slide on the pulley assembly up to the shaft collar using the special tool.

(Fig. 74, 75, 76)



77

Special tool:

1 Hex. nut M 16 x 1, part no. 238 928.0
2 Washer, part no. 688 484.0
3 Tube, outside ∅ 26 x 140 long (self-sourced)

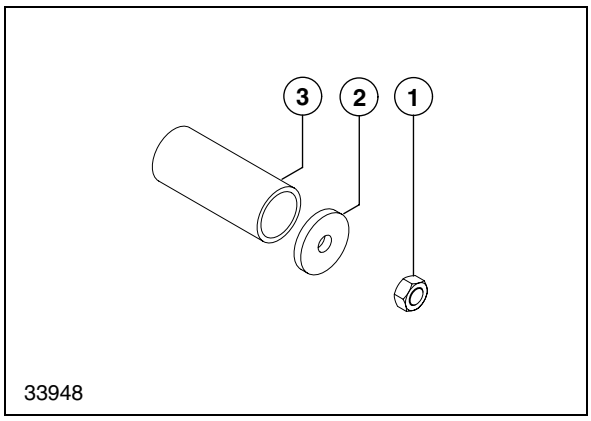
(Fig. 77)



78

4. Using the special tool, press the deep groove ball bearing (31) into position. Ensure that the bearing is not at an angle when installing it.

(Fig. 74, 75, 78)

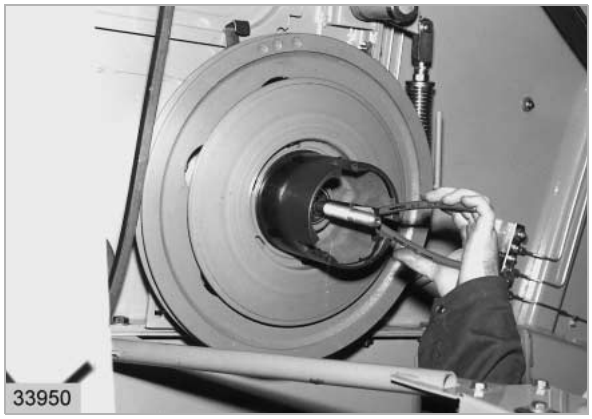


79

Special tool:

1 Hex. nut M 16 x 1, part no. 238 928.0
2 Washer, part no. 688 484.0
3 Tube, outside ∅ 21 x 100 long (self-sourced)

(Fig. 79)



80

5. Install circlip (32).

(Fig. 74, 75, 80)

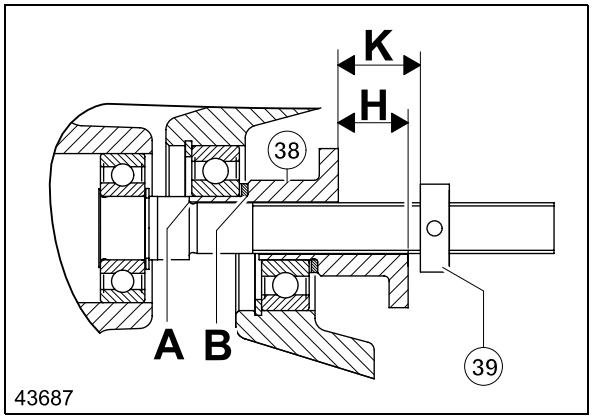
6. *Installing and adjusting the fan intermediate drive belt (20)*, see page 7.3.4
7. Slide on the variable-speed pulley (34).
8. Slide the shims (37) and the thrust sleeve (38) into position.

   Ensure contact of thrust sleeve (38) with capstan nut or hex. nut (39) at (A).

   Pull variable-speed pulley half (34) towards the thrust sleeve (38) so that the shims (37) make contact at (B) without play.

   The distance (X) must be **40^{+1} mm**, if required, correct it with shims (37).

(Fig. 74, 75)



81

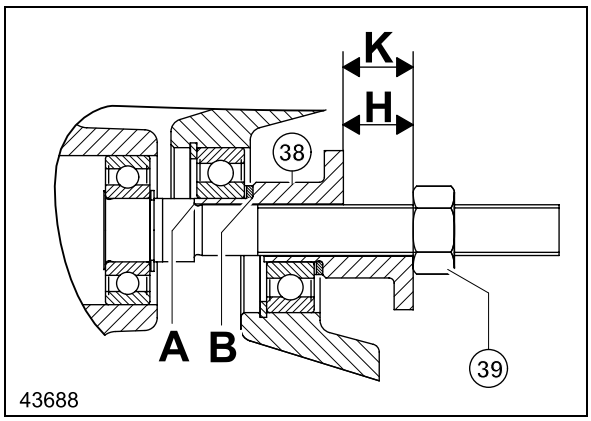
9. From serial no. …:

   When thrust sleeve (38) makes contact at position (A), turn back the capstan nut (39) until the locking dimension (K) is **25_{-1} mm**.

   The stroke dimension (H) of **22_{-1} mm** is limited by the thrust piece of the motor.

   A dimension (Y) of **62 mm** results.

(Fig. 75, 81)



82

Up to serial no. …:

When thrust sleeve (38) makes contact at position (A), turn back the hex. nut (39) until the locking dimension (K) is **22_{-1} mm**.

The stroke dimension (H) of **22_{-1} mm** is limited by the hex. nut (39).

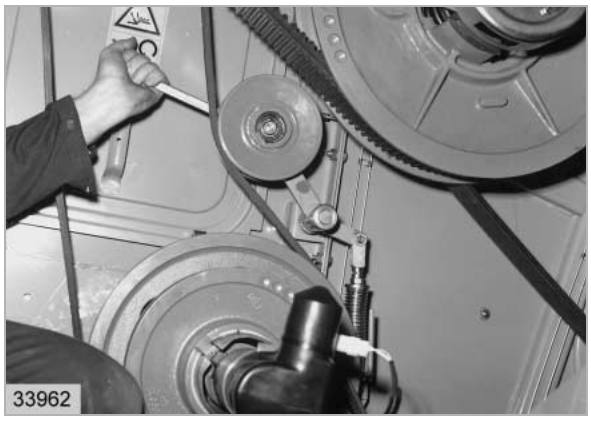
A dimension (Y) of **62 mm** results.

(Fig. 75, 82)

10. *Installing the fan adjustment (electric) (Version 1, version 3)*, see page 7.14.20

    Installing the fan adjustment (electric) (Version 2), see page 7.14.29

    Installing and adjusting the fan variable-speed pulley assembly (spring-loaded), see page 7.14.42



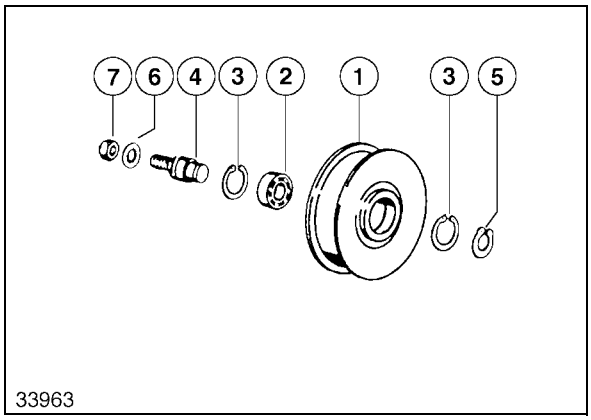
83

Removing the fan drive jockey pulley (20)

Removing the fan intermediate drive belt (20), see page 7.3.3

Unbolt the jockey pulley.

(Fig. 83)



84

Fan drive jockey pulley (20), disassembled

1 Jockey pulley
2 Deep-groove ball bearing 6204-2RS-C3 DIN 625
3 Circlip 47 x 1.75 DIN 472
4 Pin
5 Circlip 20 x 1.2 DIN 471
6 Contact washer A 12
7 Hex. nut M 12

(Fig. 84)



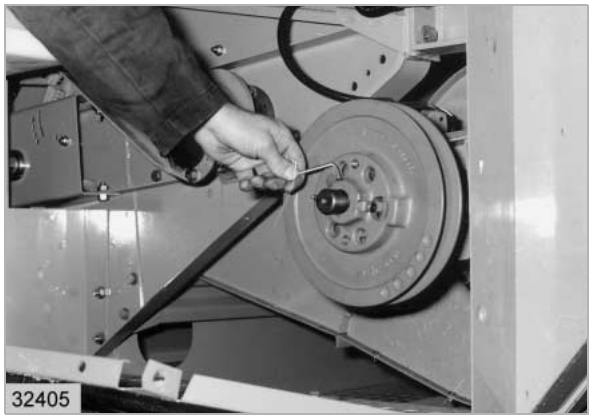
85

Installing the fan drive jockey pulley (20)

Assemble the jockey pulley and bolt it down with a tightening torque of **78 Nm**.

Installing and adjusting the fan intermediate drive belt (20), see page 7.3.4

(Fig. 85)



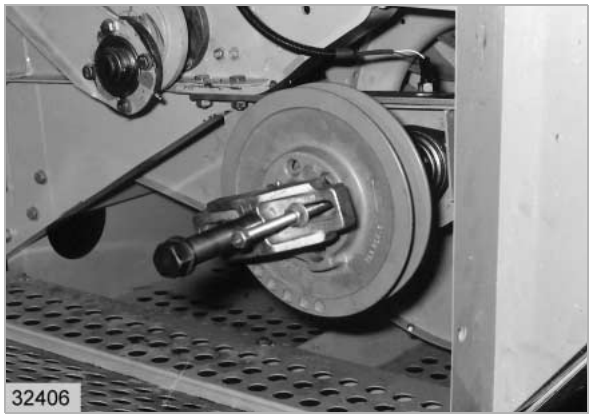
86

Removing the fan variable-speed pulley assembly (spring-loaded)

Removing the fan drive belt (21), see page 7.3.5

Loosen the two set screws M 10 x 8 of the variable-speed pulley.

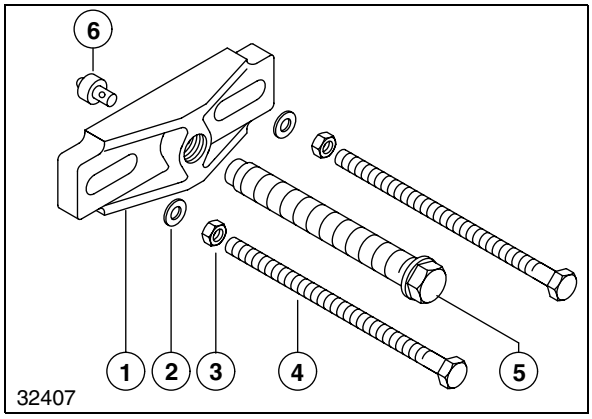
(Fig. 86)



87

Pull off the variable-speed pulley assembly from the shaft using the special tool.

(Fig. 87)

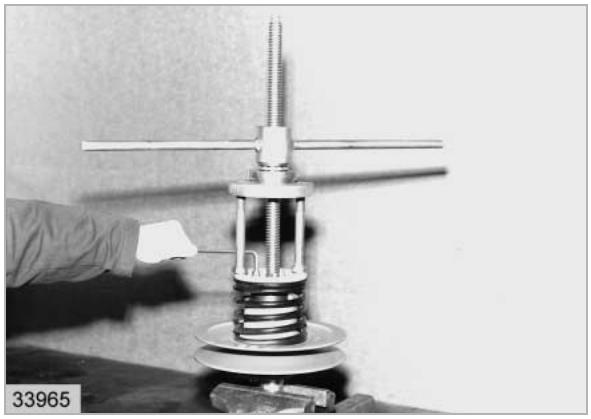


88

Special tool:

1 Puller bridge, part no. 181 800.0
2 Washer 13
3 Hex. nut M 12 DIN 934, part no. 236 172.0
4 Hex. bolt M 12 x 50 DIN 933-8.8, part no. 237 573.0
5 Threaded spindle, part no. 181 801.1
6 Centraliser with ball, part no. 181 849.0

(Fig. 88)



89

Disassembling the fan drive variable-speed pulley assembly (spring-loaded)

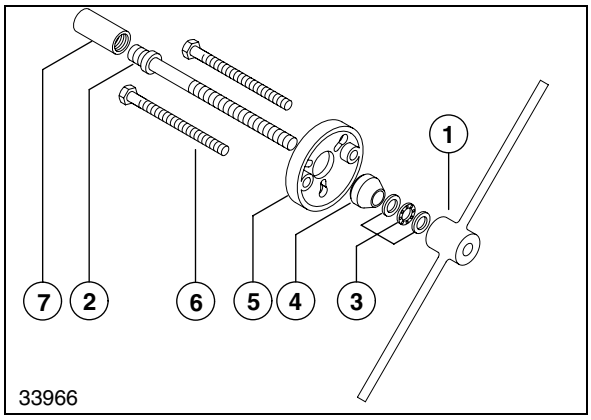
Remove the fan drive variable-speed pulley assembly (spring-loaded).

DANGER!

Never unscrew the countersunk head bolts from the mounting flange until the compression spring has been blocked with the special tool – **Danger of accident!**

Using the special tool, block the compression spring and remove all countersunk head bolts from the mounting flange.

(Fig. 89)

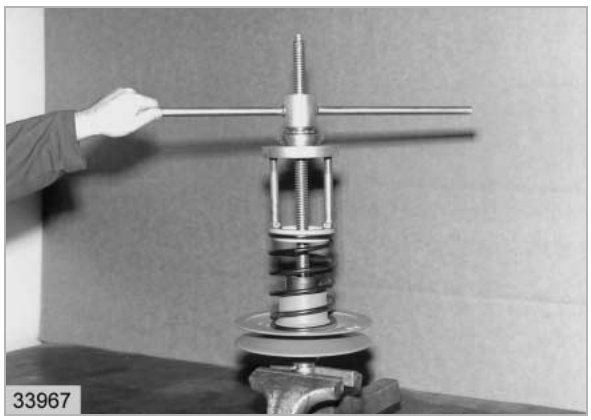


90

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Bushing, part no. 181 807.1
5 Puller plate, part no. 181 935.2
6 Hex. bolt M 16 x 140 DIN 931-8.8, part no. 242 795.0
7 Sleeve, part no. 181 881.1

(Fig. 90)



91

By turning the handle of the lever nut, release all the pressure from the compression spring.

(Fig. 91)



92

Remove the compression spring and the mounting flange.

(Fig. 92)



93

Remove the variable-speed pulley half.

(Fig. 93)



94

Remove the cheese-head screws and then lift out the parallel key.

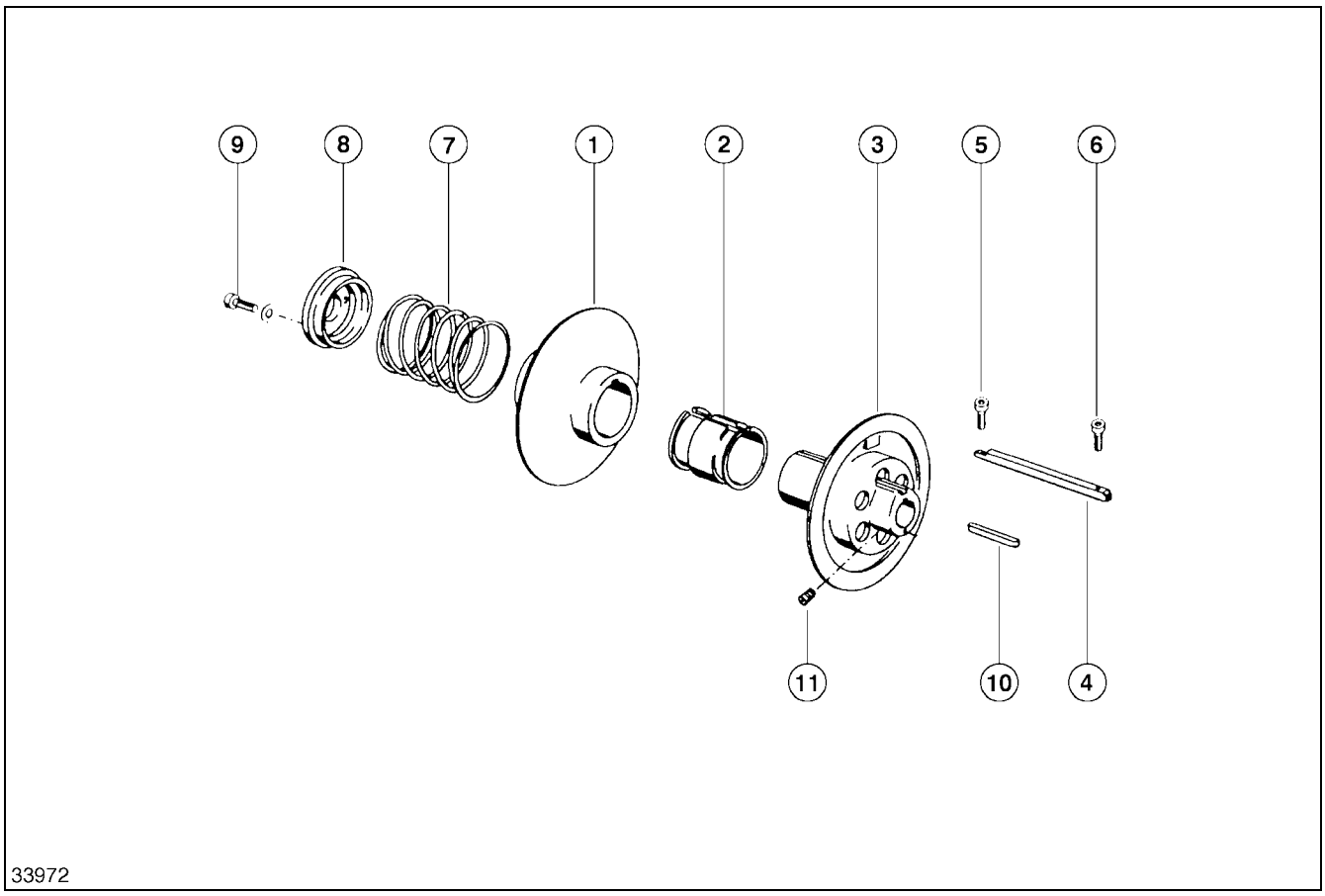
(Fig. 94)



95

Remove the bushing from the rear half of the variable-speed pulley.

(Fig. 95)

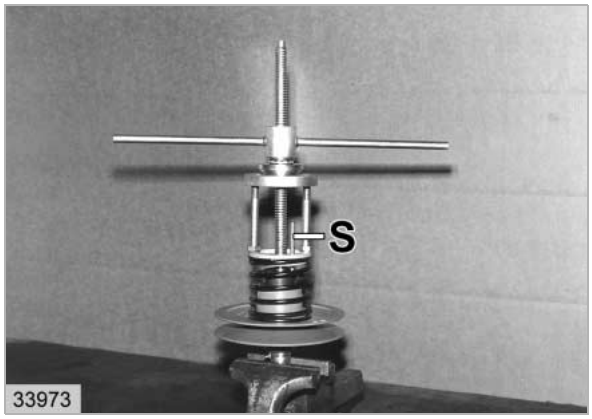


96

Fan variable-speed pulley assembly (spring-loaded), disassembled:

1 Variable-speed pulley half
2 Bushing
3 Variable-speed pulley half
4 Parallel key
5 Cheese-head screw M 8 x 12
6 Cheese-head screw M 8 x 20
7 Compression spring
8 Thrust plate
9 Cheese-head screw M 8 x 25 DIN 912
Lock washer 8
10 Parallel key A 8 x 5 x 75 DIN 6885
11 Set screw M 10 x 8 DIN 916

(Fig. 96)



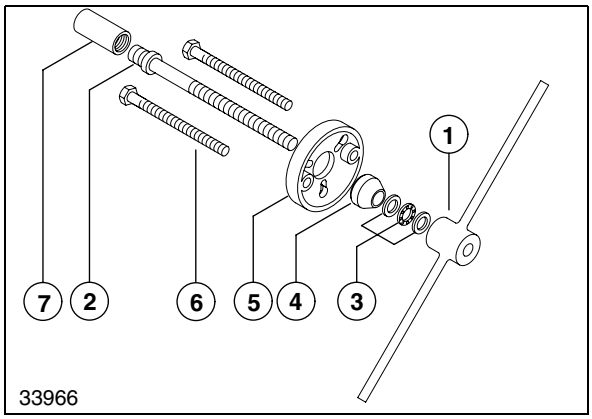
97

Assembling the fan variable-speed pulley assembly (spring-loaded)

1. Bolt the parallel key (4) into the pulley half (3) using the cheese-head screws (5 and 6).
2. Insert the bushing (2) into the pulley half (1) and observe correct installation position. While doing this, grease all sliding surfaces and grease channels.
3. Join the two halves of the pulley together.
4. Insert the thrust plate (8) and the compression spring and pre-stress the spring using the special tool.

   Screw in a M 8 x 100 hex. bolt (S) for guiding the thrust plate.

(Fig. 96, 97)



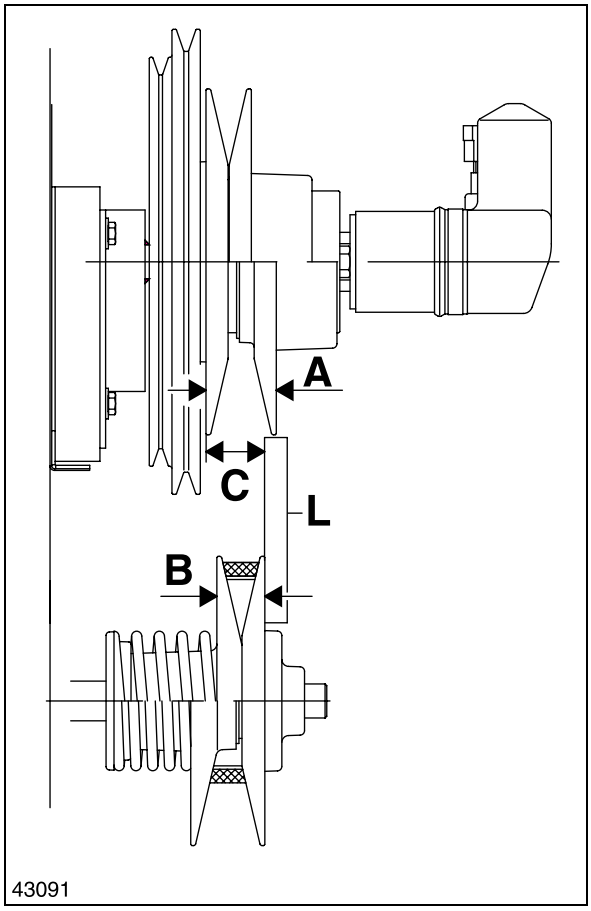
98

Special tool:

1 Lever nut, part no. 181 880.0
2 Spindle, part no. 181 877.0
3 Axial grooved ball bearing, part no. 235 983.0
4 Bushing, part no. 181 807.1
5 Puller plate, part no. 181 935.2
6 Hex. bolt M 16 x 140 DIN 931-8.8, part no. 242 795.0
7 Sleeve, part no. 181 881.1

(Fig. 98)

5. Bolt the cheese-head screws (9) into position and remove the special tool.



99

Installing and adjusting the fan variable-speed pulley assembly (spring-loaded)

1. Open the fan variable-speed pulley assembly (electric) completely.

   The distance (A) should now be **62 mm**.

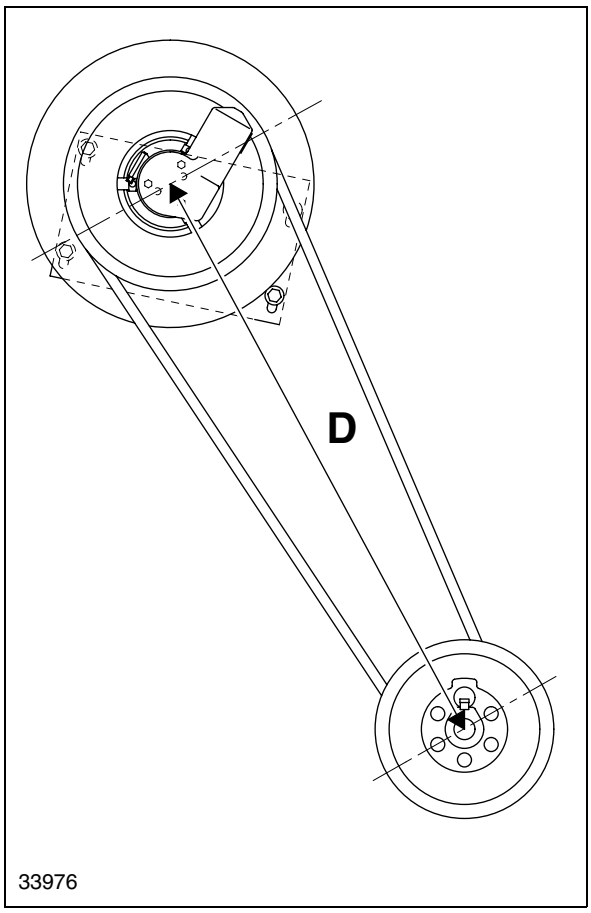
   Check and correct the adjustment of the fan variable-speed pulley assembly (electric) if necessary – see page 7.14.33, *Assembling and installing the electric fan variable-speed pulley assembly*.

2. Insert the parallel key and then slide the fan variable-speed pulley assembly (spring-loaded) on the shaft.

3. Place a ruler (L) against the fan variable-speed pulley assembly (spring-loaded) and close the variable-speed pulley assembly until dimension (C) is **$51.9^{+0.5}$ mm**.

   Lock the fan variable-speed pulley assembly (spring-loaded) on the shaft with the M 10 x 8 set screws.

(Fig. 99)



100

4. *Installing and adjusting the fan drive belt (21)*, see page 7.3.5

   To do this, open the fan variable-speed pulley assembly (electric) fully until dimension (A) is **62 mm**.

   Dimension (B) should now be **$42.3^{+0.5}$ mm**.

   Should this not be the case, then adjust the fan variable-speed pulley assembly (electric) down or up at the bearing bracket and check the adjustments.

5. Operating the fan speed from slow to fast must not reduce the distance (D).

   Should this not be the case, then adjust the fan variable-speed pulley assembly (electric) down or up at the bearing bracket and check the adjustments.

(Fig. 100)

AXIAL ROTOR DRIVE



1

Removing the axial rotor intermediate drive V-belt pulley

Remove the axial rotor step drive (18).

Remove the axial rotor intermediate drive (19).

Unscrew the round plate.

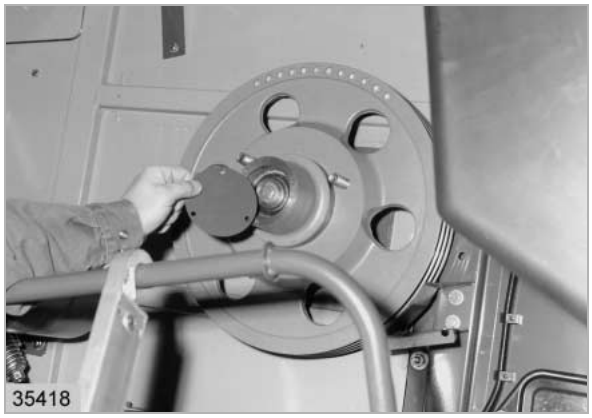
(Fig. 1)



2

Unscrew the hex. nuts and remove the front V-belt pulleys.

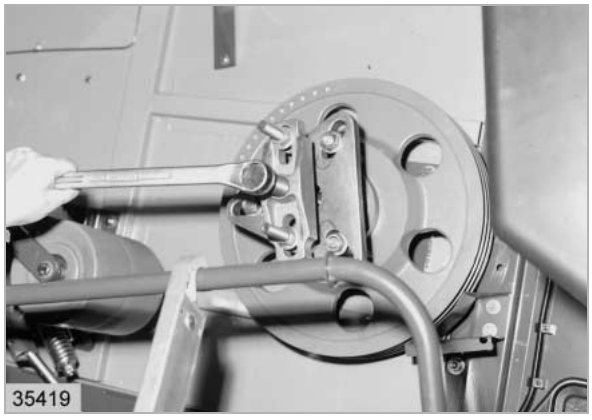
(Fig. 2)



3

Remove the cover and unscrew the bolt from the shaft face end.

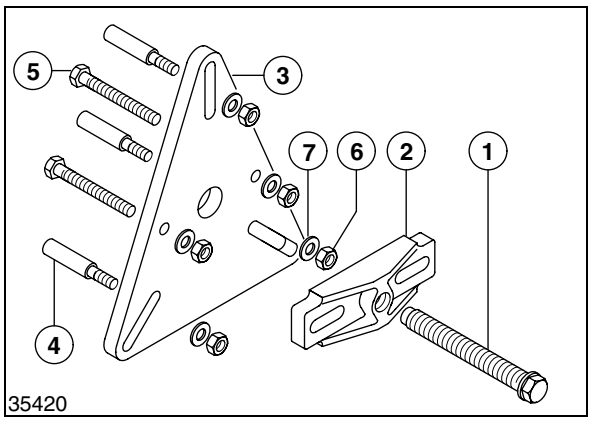
(Fig. 3)



4

Remove the V-belt pulley using the special tool.

(Fig. 4)



5

Special tool:

1 Spindle
part no. 181 877.0
2 Puller bridge
part no. 181 800.0
3 Puller plate
part no. 181 803.1
4 Extension pin
part no. 181 810.1
5 Hex. bolt
M 16 x 150 DIN 931-8.8
part no. 242 396.0
6 Hex. nut M 16 DIN 934
part no. 236 173.0
7 Washer 17 DIN 125
part no. 235 127.2

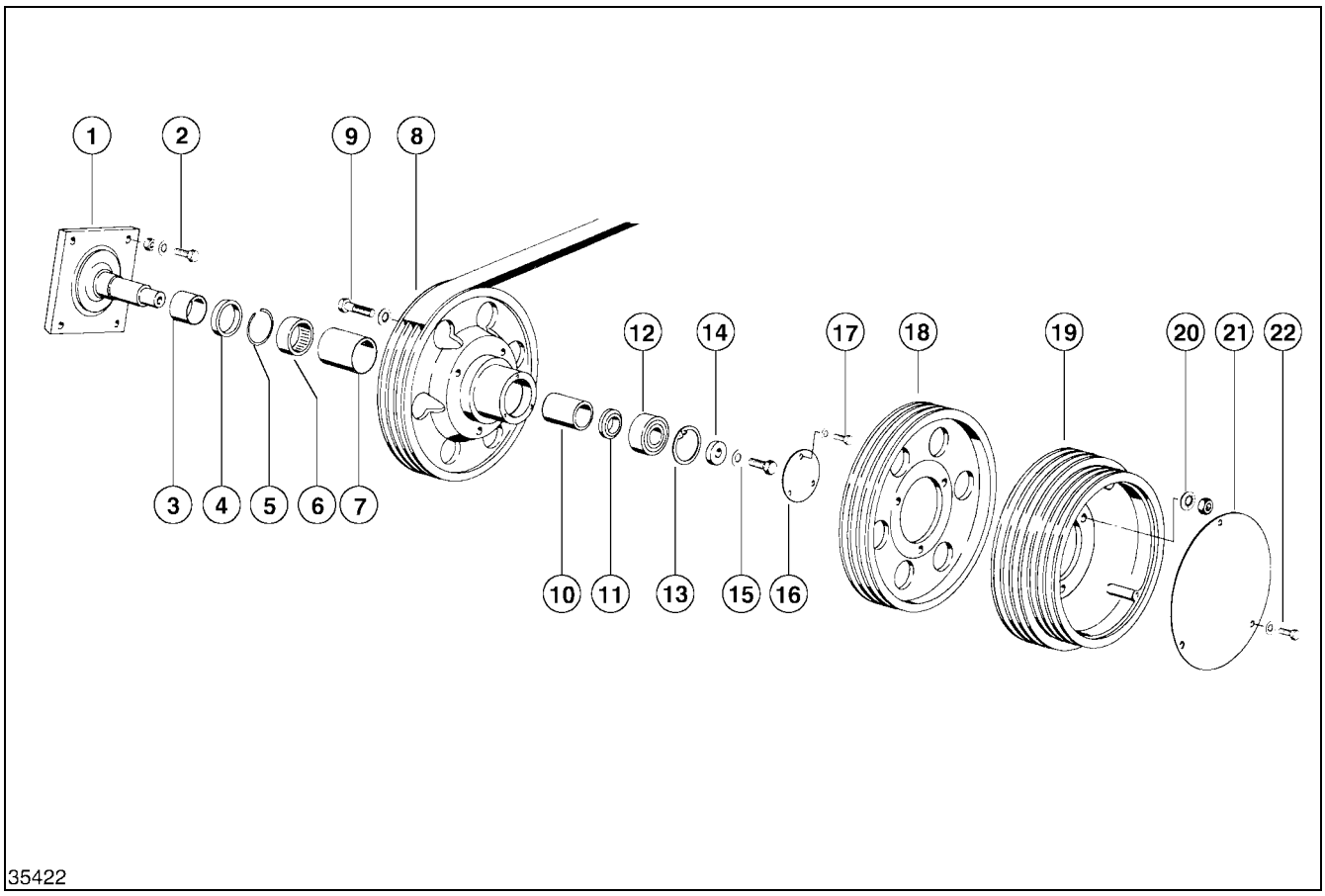
(Fig. 5)



6

Unbolt the bearing pin from the machine side wall.

(Fig. 6)

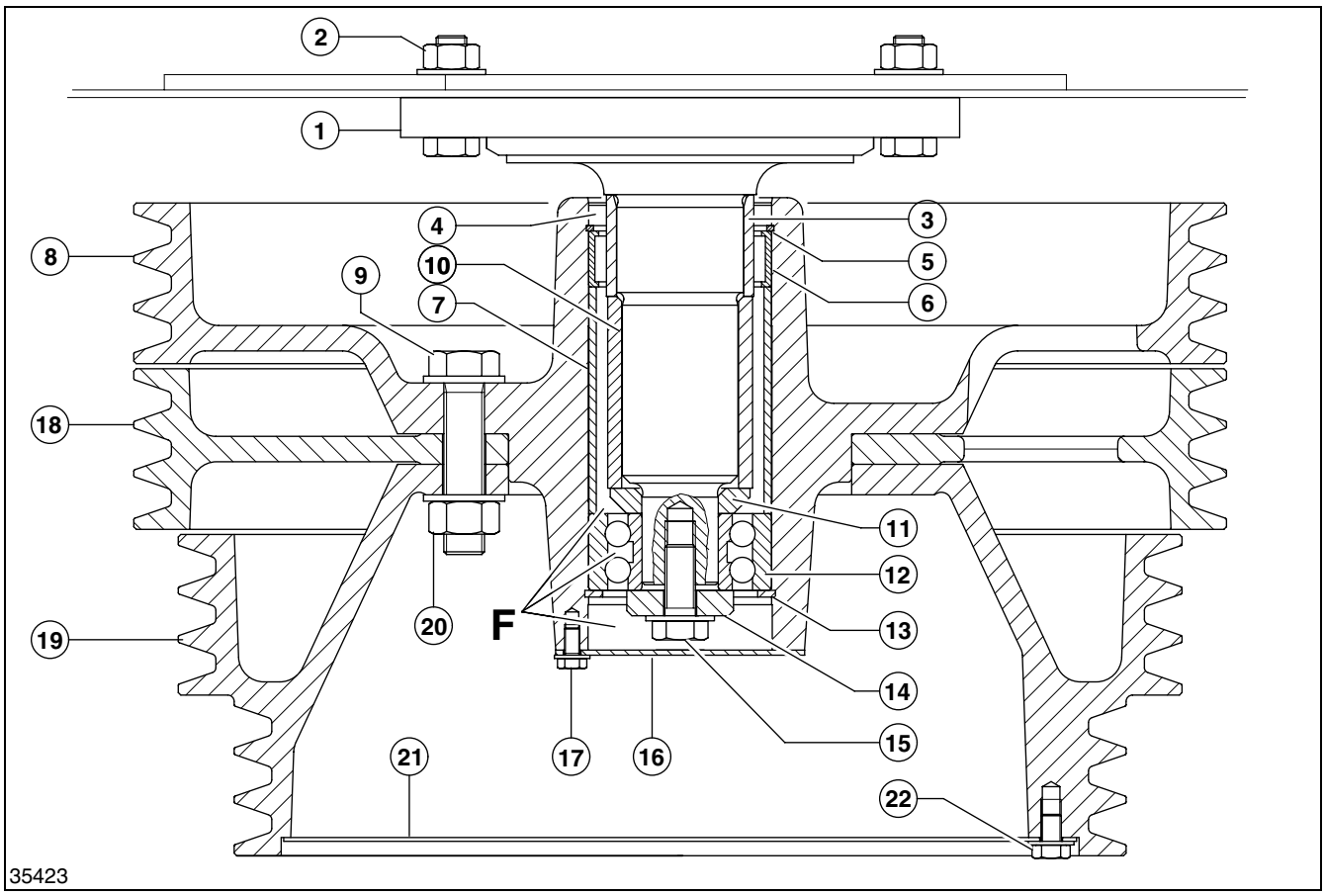


7

Axial rotor intermediate drive V-belt pulley, disassembled

1 Bearing neck
2 Hex. bolt M 12 x 40 DIN 933-8.8
Contact washer A 12
Hex. nut M 12 DIN 934-8
3 Inner race ring
4 Shaft seal A 58 x 72 x 8 DIN 3760
5 Snap ring
6 Needle bearing RNA 4910
7 Outer spacer
8 V-belt pulley
9 Hex. bolt M 16 x 70 DIN 933-8.8
10 Inner spacer
11 Intermediate ring
12 Angular contact ball bearing 3306 RS/C3 DIN 628
13 Circlip 72 x 2.5 DIN 472
14 Washer
15 Hex. bolt M 12 x 35 DIN 933-8.8
16 Cover
17 Hex. bolt M 6 x 12 DIN 933-8.8
Contact washer A 6
18 V-belt pulley
19 V-belt pulley
20 Hex. nut M 16 DIN 934-8
Contact washer A 16
21 Round plate
22 Hex. bolt M 8 x 12 DIN 933-8.8
Contact washer A 8

(Fig. 7)



8

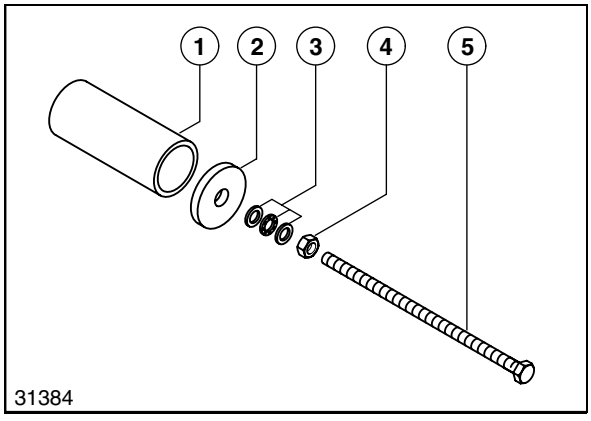


9

Assembling and installing the axial rotor intermediate drive V-belt pulley

1. Bolt the bearing pin to the side wall of the machine.
2. Press the inner race ring (3) on the bearing pin, using the special tool.

(Fig. 7, 8, 9)

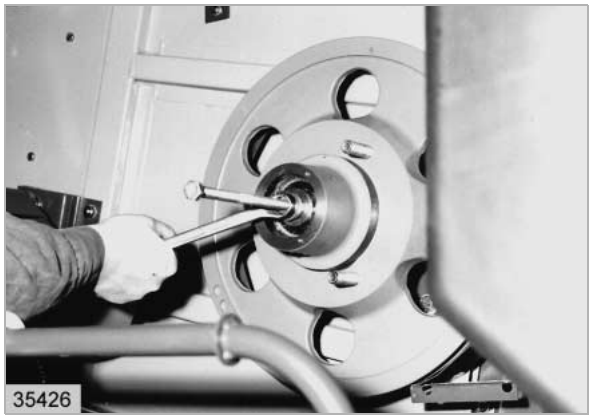


10

Special tool:

1 Tube ∅ 55 x ∅ 46 x 120 long
2 Washer ∅ 55 x ∅ 13
3 Axial grooved ball bearing, part no. 177 899.0
4 Hex. nut M 12 DIN 934
5 Hex. bolt M 12 x 220 DIN 933-8.8 part no. 244 422.0

(Fig. 10)



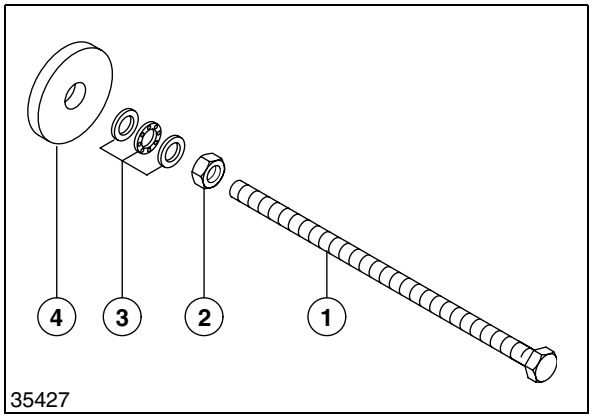
11

3. Pre-assemble the V-belt pulley (8). To do this, insert the needle bearing (6), snap ring (5), the shaft seal (4) and the spacer sleeve (7).

   Insert the outer race ring of the angular contact bearing (12) into the V-belt pulley with liquid locking compound, e.g. DELO-ML 5349. Install circlip (13).

4. Slide the spacer sleeve (10) and the compensating washer (11) on the bearing pin.
5. Fill the bearing units and the spaces at (F) completely with multi-purpose grease K2K DIN 81825 part no. 411 056.0.
6. Press the pre-assembled V-belt pulley (8) on the bearing pin, using the special tool.

(Fig. 7, 8, 11)

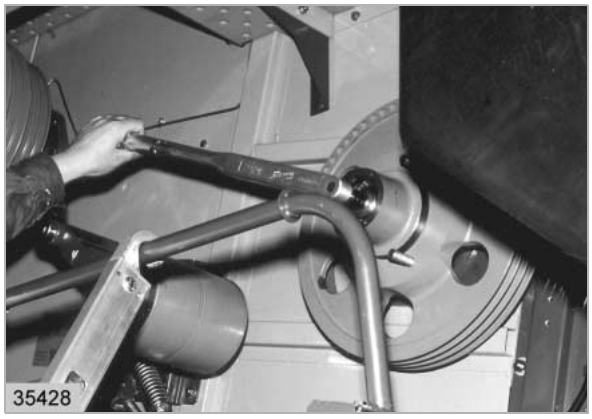


12

Special tool:

1 Hex. bolt
M 12 x 220 DIN 933-8.8
part no. 244 422.0
2 Hex. nut M 12 DIN 934-8
3 Axial grooved ball bearing
part no. 177 899.0
4 Washer, part no. 712 415.0
(Fig. 7, item 14)

(Fig. 12)

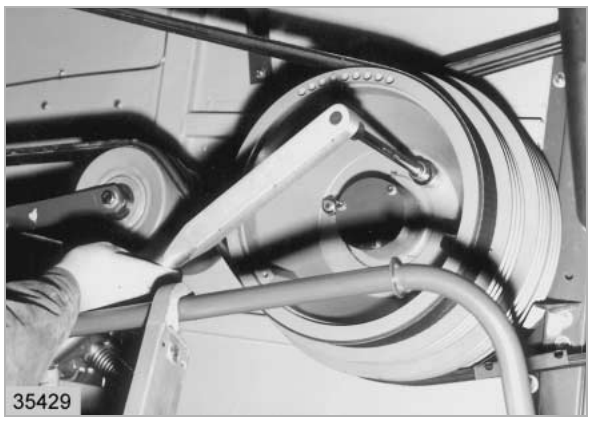


13

7. Fit the hex. bolt (15) along with washer (14).

   Tightening torque = 78 Nm

(Fig. 13)



14

8. Bolt down cover (16) and in this process, fill space (F) completely with multi-purpose grease K2K DIN 81825 part no. 411 056.0.
9. Slide on V-belt pulleys (18 and 19). Insert hex. nuts (20) with liquid locking compound and tighten them to **195 Nm**.

(Fig. 14)

10. Install and adjust the axial rotor intermediate drive (19).

    Install and adjust the axial rotor step drive (18).



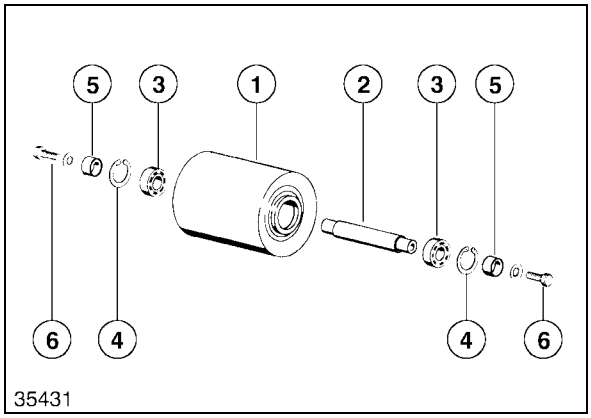
15

Removing the axial rotors drive jockey pulley (18)

Relieve the tension of axial rotors drive (18).

Unbolt the jockey pulley.

(Fig. 15)

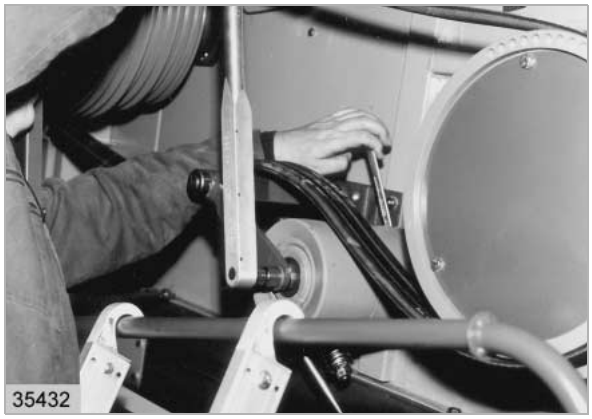


16

Axial rotor drive jockey pulley (18), disassembled

1 Jockey pulley
2 Bearing pin
3 Deep groove ball bearing 6205 RS/C3
4 Circlip 52 x 2 DIN 472
5 Spacer ring
6 Hex. bolt M 12 x 30 DIN 933-8.8
  Contact washer A 12

(Fig. 16)



17

Installing the axial rotors drive jockey pulley (18)

1. Pre-assemble jockey pulley (1) with bearing pin (2), deep groove ball bearing (3) and circlip (4).

   The deep groove ball bearing must be completely filled and the space must be 60 % (i.e. 120 g) filled with grease, e.g. Shell Alvania G3, part no. 413 981.0.

2. Bolt the jockey pulley to the mounting bracket.

   Tightening torque = 78 Nm

(Fig. 16, 17)



18

Removing the bearings of axial rotors drive (18)

Unscrew the round plate.

Arrest the threshing drum and slacken off the bolts.

(Fig. 18)

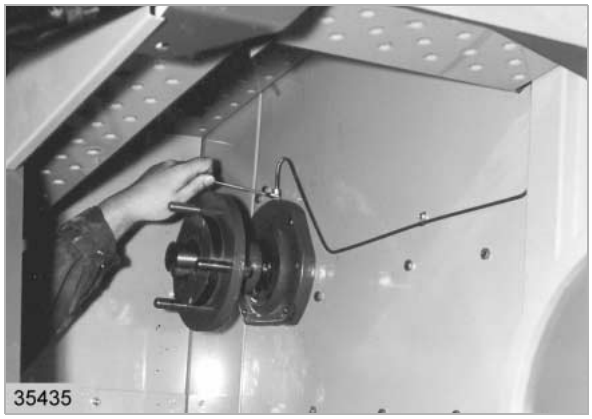


19

Remove the axial rotor step drive (18).

Remove the hex. nuts and the V-belt pulleys.

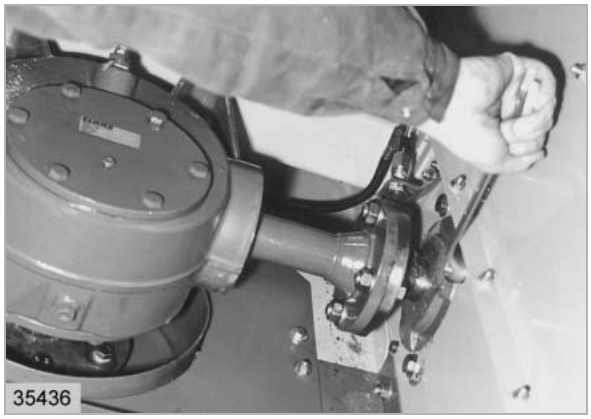
(Fig. 19)



20

Remove the grease pipe.

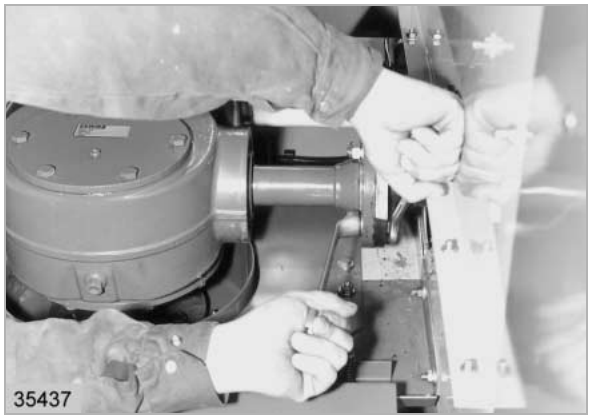
(Fig. 20)



21

Unscrew the bearing cover.

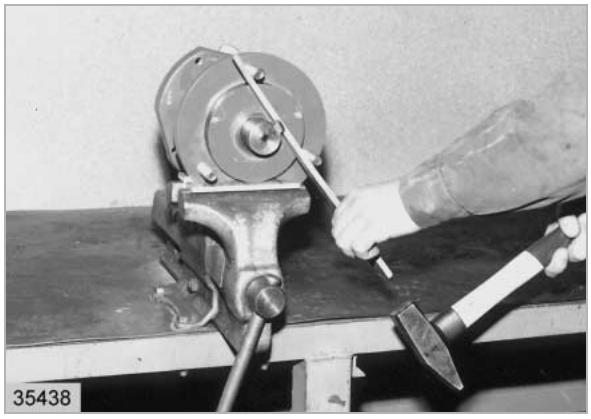
(Fig. 21)



22

Remove the four bolts from the stub. Lift the complete stub including hub and bearing out of the side wall of the machine.

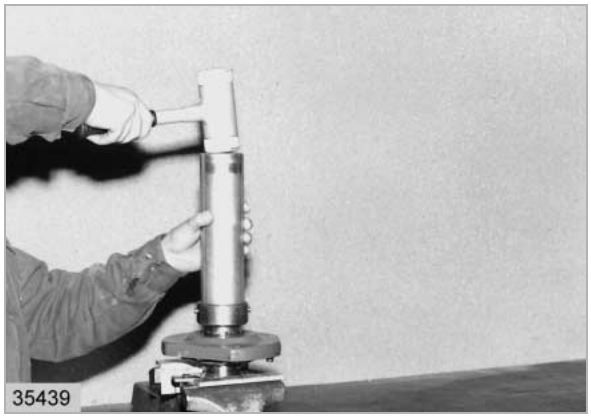
(Fig. 22)



23

Drive gib head key out of the hub.

(Fig. 23)

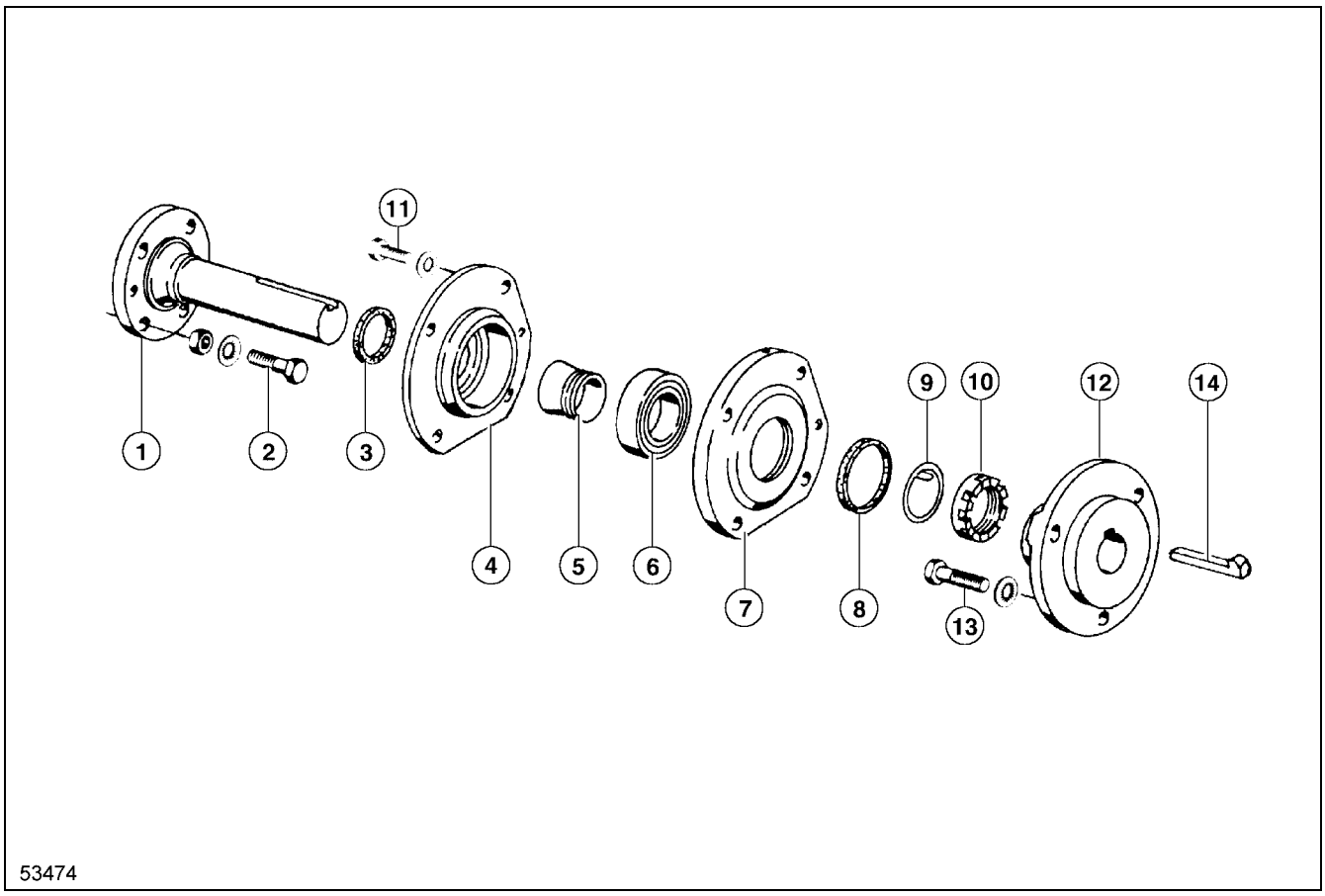


24

Unlock the face-end slotted nut and turn it out by approx. two turns. Using a suitable block-ended tube, use a good sharp blow to release the taper lock sleeve of the bearing. Then unscrew the slotted nut.

(Fig. 24)

Disassemble bearing according to Fig. 25.

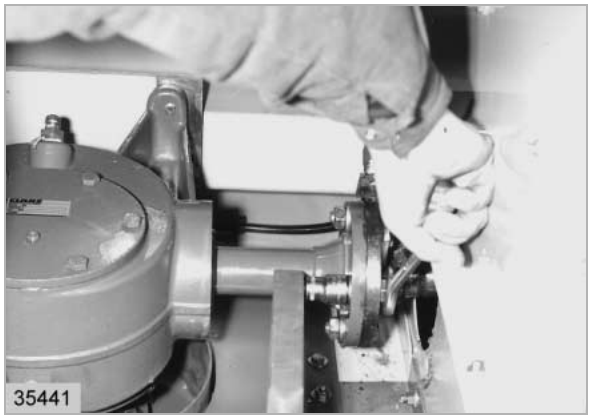


25

Bearing of axial rotors drive (18), disassembled

1 Stub
2 Hex. bolt M 14 x 45 DIN 933-8.8
Hex. nut M 14 DIN 934-8
Contact washer A 14
3 Felt ring
4 Bearing housing
5 Taper lock sleeve
6 Spherical roller bearing 20210 K/C3 DIN 635
7 Bearing housing
8 Felt ring
9 Tab washer
10 Face-end slotted nut M 50 x 1.5
11 Hex. bolt M 12 x 35 DIN 933-8.8
Contact washer A 12
12 Hub
13 Hex. bolt M 16 x 70 DIN 933-8.8
Contact washer A 16
14 Gib head key 14 x 9 x 75 DIN 6887

(Fig. 25)

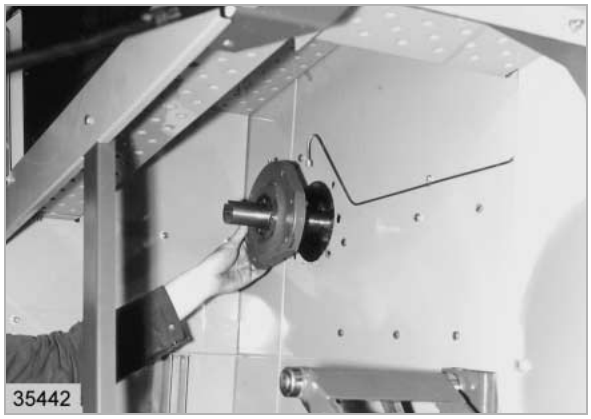


26

Installing the bearings of axial rotors drive (18)

1. Bolt on the stub (1).

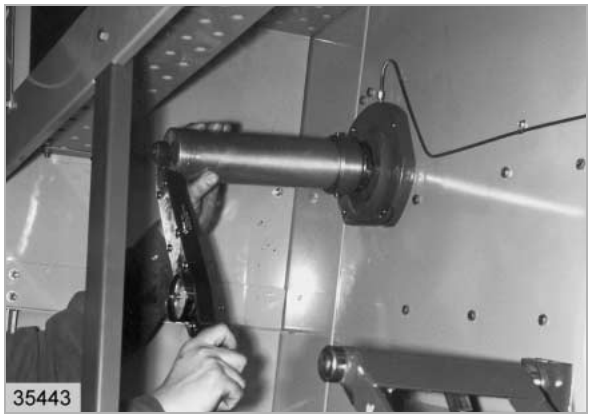
(Fig. 26)



27

2. Push the pre-assembled bearing with taper lock sleeve and face-end slotted nut onto the stub. Bolt the bearing to the side wall of the machine.

(Fig. 27)



28

3. Pre-tighten face-end slotted nut M 50 x 1.5 to a torque of **30 Nm**, then turn further until the tab of the tab washer is aligned with the slot of the slotted nut. Turn the face-end slotted nut by a further **68**°, then lock with the tab washer.

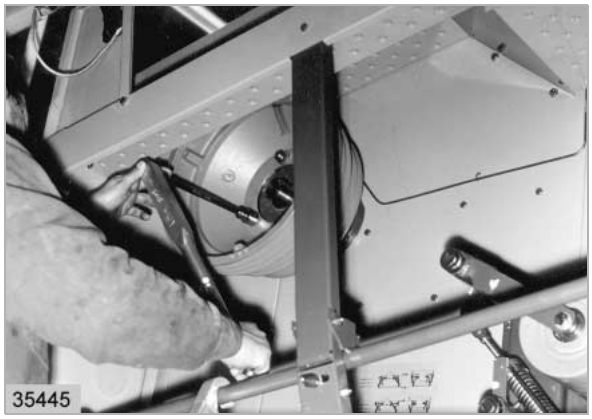
(Fig. 28)



29

4. Slide the hub (12) onto the stub and secure slightly with the gib head key. Place the V-belt pulley into position and adjust belt alignment. Knock in gib-head key.

(Fig. 29)



30

5. Refit both pulleys and tighten to **195 Nm**.

(Fig. 30)

6. Bolt down the round plate.
   Install and adjust the axial rotors drive (18).
7. Adjust the magnetic pick-ups.



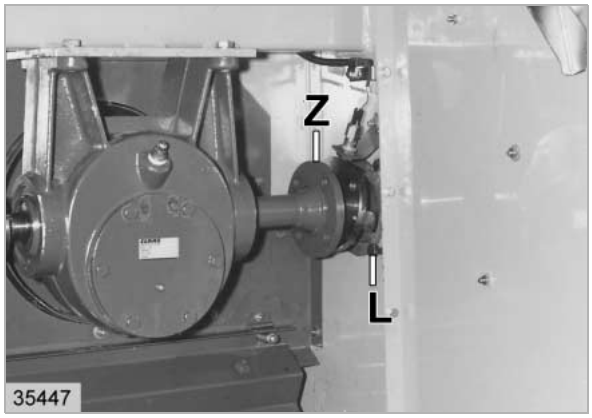
31

Removing the axial rotors drive

Remove the rear safety frames for better accessibility during installation.

Remove the axial rotor step drive (18).

(Fig. 31)



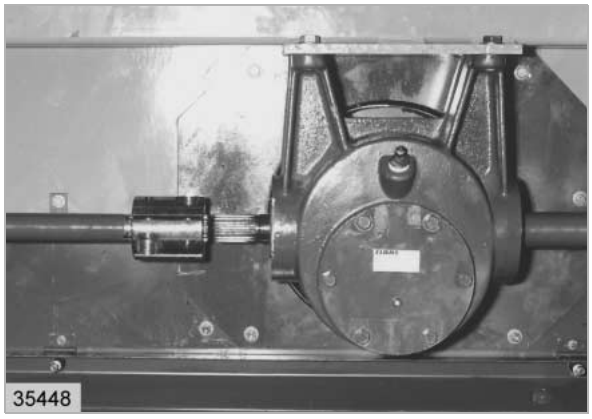
32

Remove the bearing housing (L) from the side panel. Now screw hex. bolts M 12 x 50 approx. **10 mm** deep into the bearing housing (L).

Unscrew the stub (Z).

Pull the V-belt pulley with the bearing pin (Z) to the outside so that the M 12 x 50 hex. bolts make contact with the side wall.

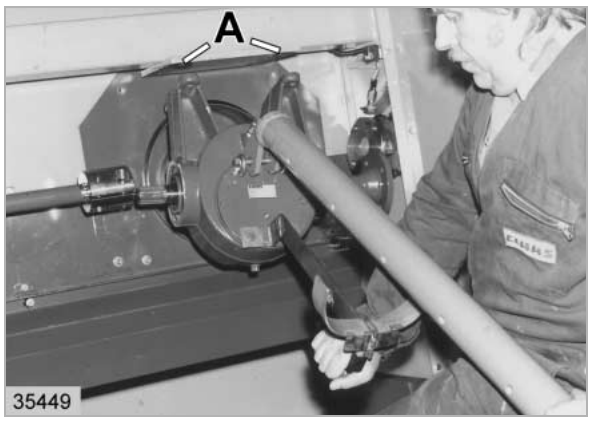
(Fig. 32)



33

Slacken off the bolts of the clamping hub and shift them to the left.

(Fig. 33)



34

Bolt two eyebolts and a lever to the axial rotors gearbox.

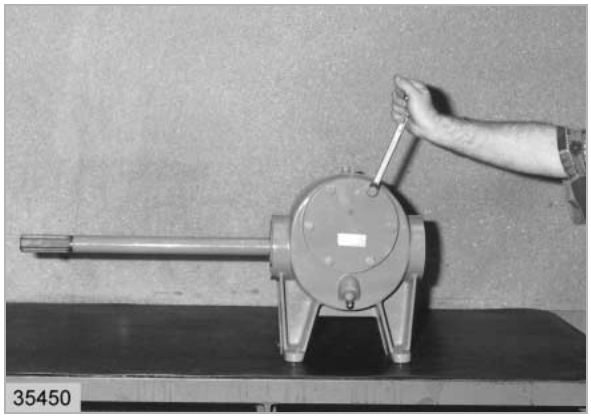
Suspend the gearbox in a suitable lifting device.

Unscrew the bolts at (A) and guide the gearbox with the lever while lifting it.

CAUTION!

Let the gearbox drop until the expansion pins are not engaged any more.

(Fig. 34)



35

Disassembling the axial rotor gearbox

Remove the axial rotors gearbox.

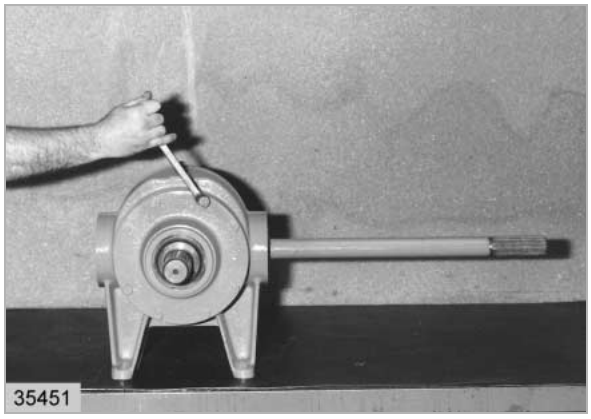
Drain the gearbox oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Unscrew cover of gearbox housing.

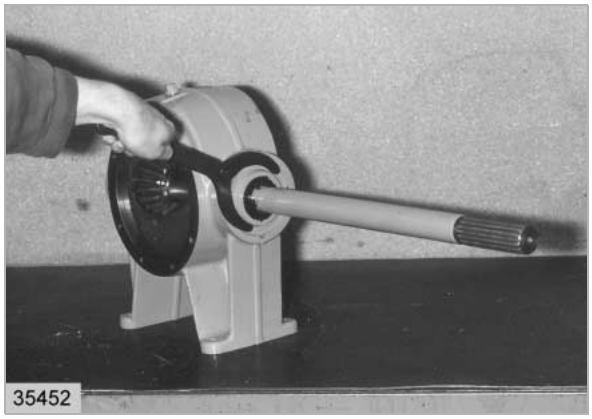
(Fig. 35)



36

Unscrew the power take-off housing.

(Fig. 36)

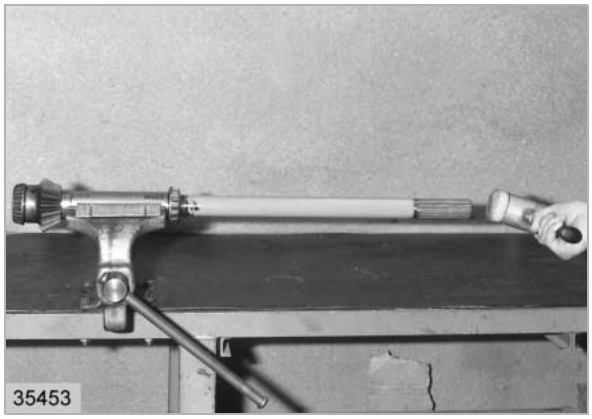


37

On both sides, unlock and remove the set screws.

Pull the shaft completely out of the housing.

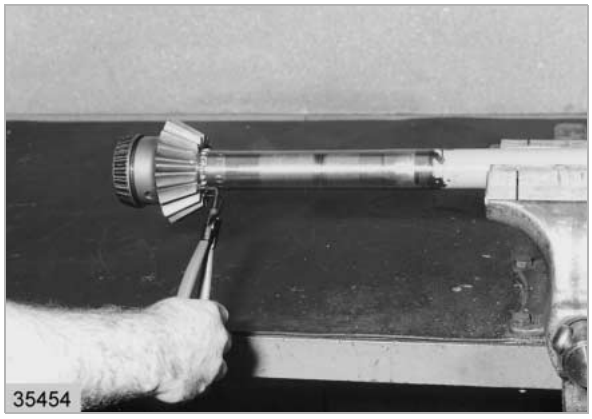
(Fig. 37)



38

Slightly chuck the tube in a vice and drive shaft out of the bearing.

(Fig. 38)



39

Remove circlip and bevel gear.

Remove the taper roller bearings.

(Fig. 39)



40

Unlock and unscrew lock nut.

Remove O-ring.

(Fig. 40)

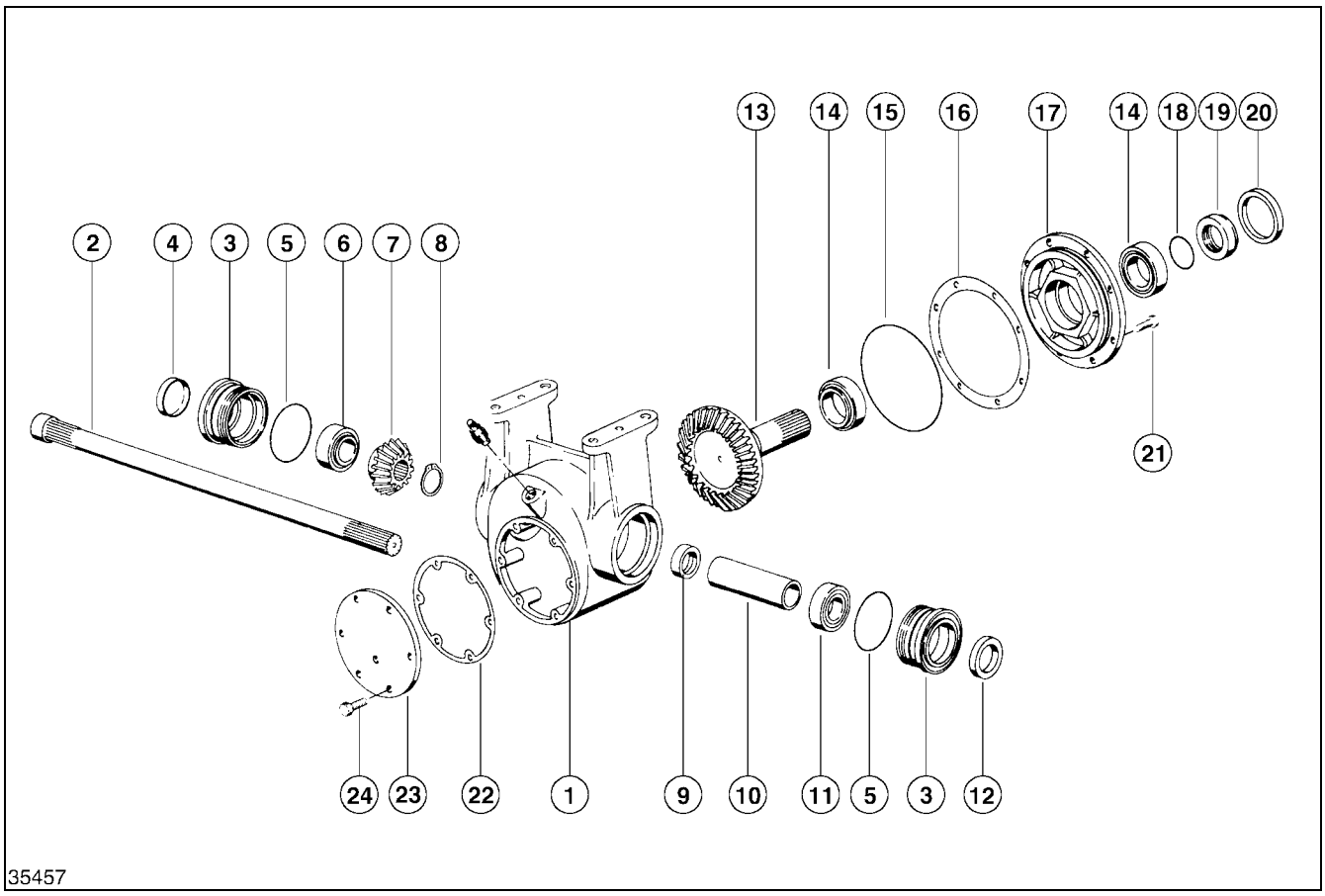


41

Using a suitable light metal punch, drive out the bevel gear.

Pull off the taper roller bearing from the bevel gear.

(Fig. 41)

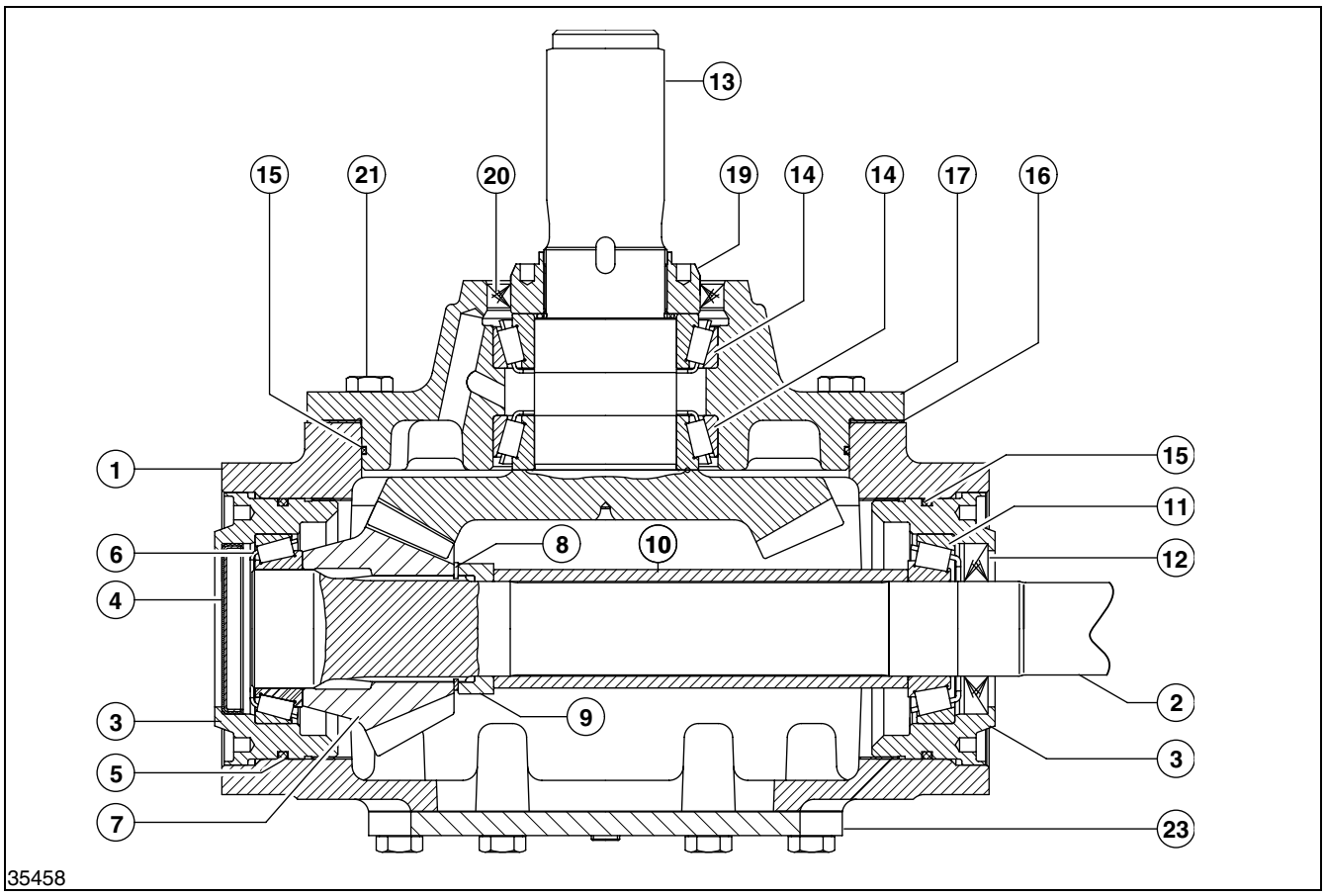


42

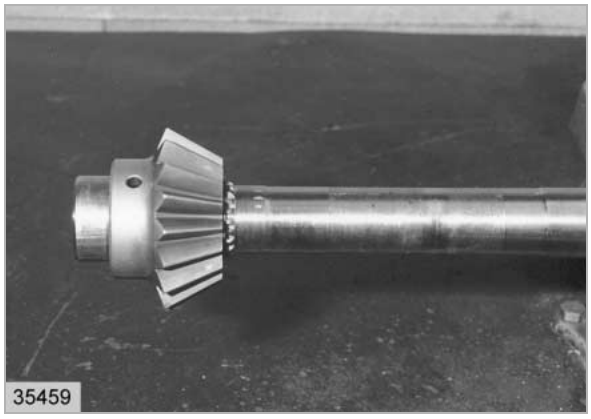
Axial rotor gearbox, disassembled:

1 Gearbox housing
2 Shaft
3 Adjusting bolt
4 Cover
5 O-ring
6 Taper roller bearing 32010 DIN 720
7 Bevel gear
8 Circlip 45 x 1.75 DIN 471
9 Spacer ring
10 Tube
11 Taper roller bearing 30208 DIN 720
12 Shaft seal
13 Bevel gear
14 Taper roller bearing 32012 DIN 720
15 O-ring
16 Compensating washer
17 Power take-off housing
18 O-ring
19 Self-locking nut
20 Shaft seal
21 Hex. bolt
M 10 x 30 DIN 933-8.8
22 Seal
23 Cover
24 Hex. bolt
M 10 x 30 DIN 933-8.8

(Fig. 42)



43

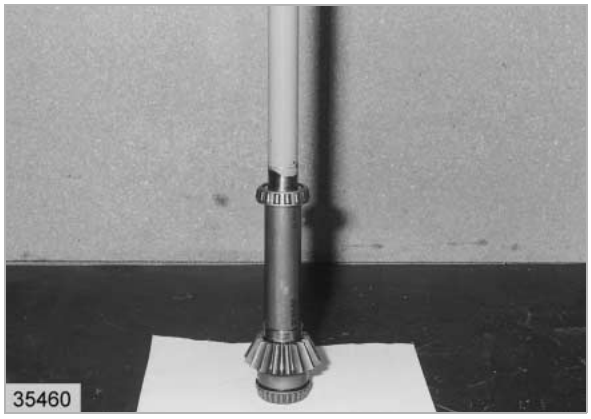


44

Assembling the axial rotor gearbox

1. Place the circlip (8) on the shaft (2) and slide on the bevel gear (7).

(Fig. 42, 43, 44)



45

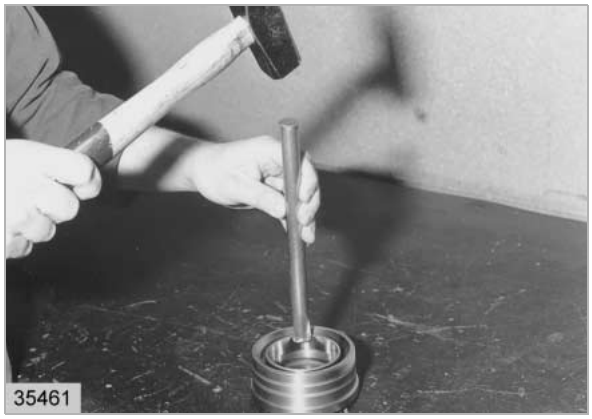
2. Heat the taper roller bearing (6) to approx. **100 °C** and press it on the shaft.

CAUTION!

The bevel gear and the bearing must make contact without play.

3. Slide on the spacer ring (9) and the tube (10). Heat the taper roller bearing (11) to approx. **100 °C** and press it on the shaft.

(Fig. 42, 43, 45)



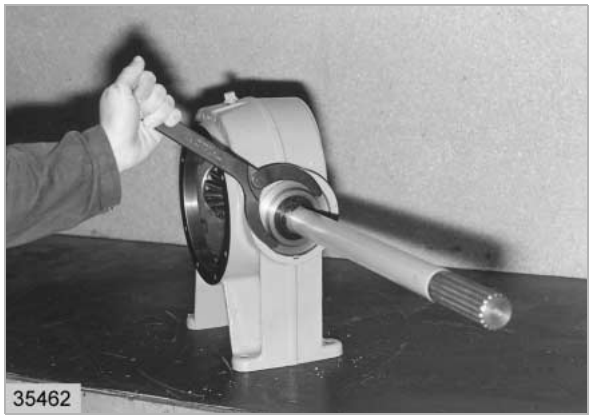
46

4. Drive the bearing outer races and the shaft seal (12) into the adjusting bolt.

CAUTION!

Ensure correct bearing size.

(Fig. 42, 43, 46)

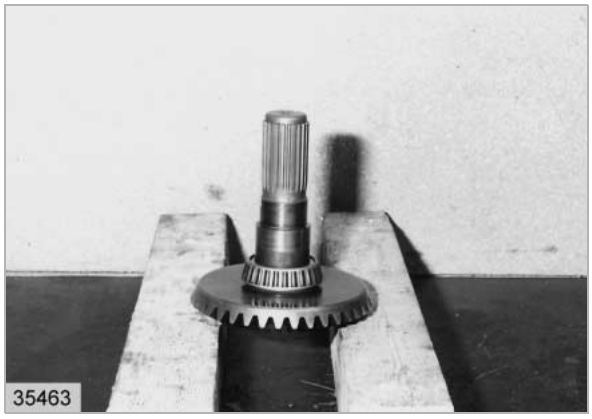


47

5. Apply some Anticorit 03W to the taper roller bearings (6 and 11).

   Bolt the pre-assembled shaft with the adjusting bolts into the gearbox housing. Tighten the adjusting bolts to **100 Nm** to ensure bearing seat without play.

(Fig. 42, 43, 47)



48

6. Heat up taper roller bearing (14) to approx. **100 °C** and press it on bevel gear (13). Apply some Anticorit 03W to the taper roller bearing.

(Fig. 42, 43, 48)



49

7. Put the power take-off housing (17) in position and heat the second taper roller bearings (14) to approx. **100 °C** and press it on the bevel gear.

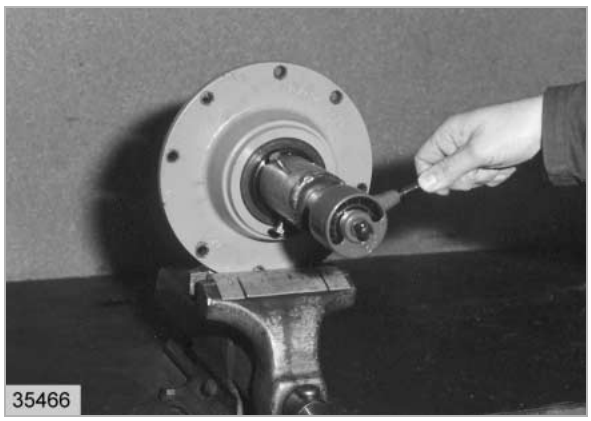
(Fig. 42, 43, 49)



50

8. Oil the O-ring (15), grease the shaft seal (20) and insert it into the power take-off housing (17).
9. Tighten the lock nut (19) to **100 Nm** while constantly turning the bearing.

(Fig. 42, 43, 50)



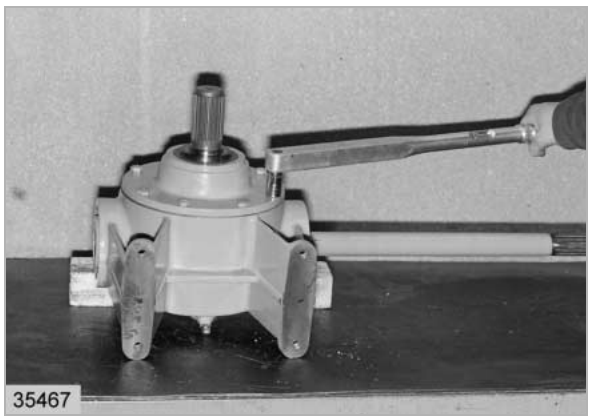
51

10. Slacken off the lock nut (19) again and tighten until the spinning torque is **3.5 Nm**.

    The allowed axial play is **0 to 0.03 mm**.

    Caulk the lock nut (19) without cracks.

(Fig. 42, 43, 51)



52

11. Use the same number and thickness of shims (16) and bolt down the power take-off housing.

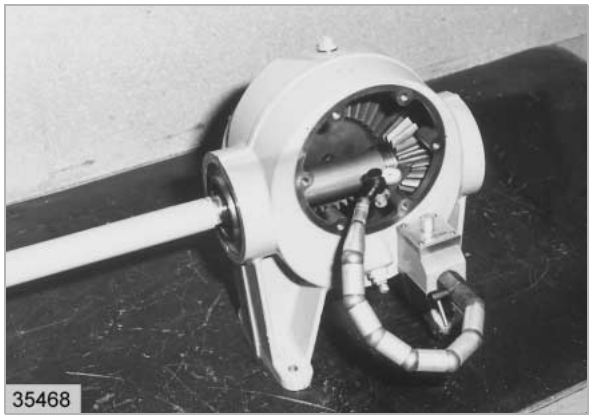
CAUTION!

When inserting the power take-off housing, ensure that the bevel gears will not be under strain (minimum torsional backlash **0.1 mm**).

Use the adjusting bolts for adjusting the shaft if necessary.

Tightening torque = 45 Nm

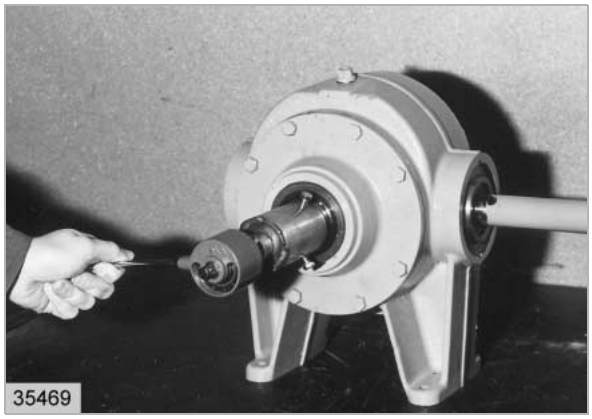
(Fig. 42, 43, 52)



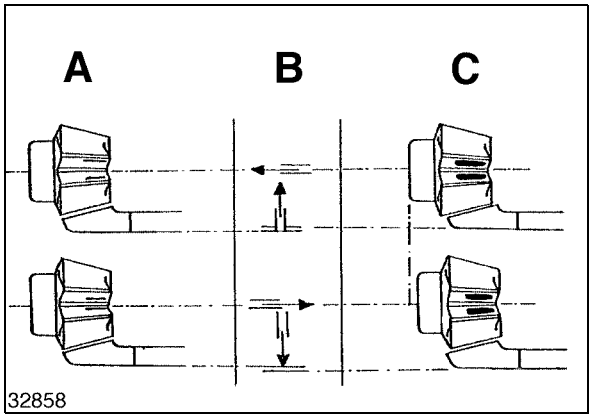
53

12. Adjust the torsional backlash of **0.15 to 0.25 mm** at the adjusting bolts (3). The spinning torque is **5.5 Nm** and the axial shaft play may be **0.03 to 0.06 mm**.

(Fig. 42, 43, 53, 54)



54

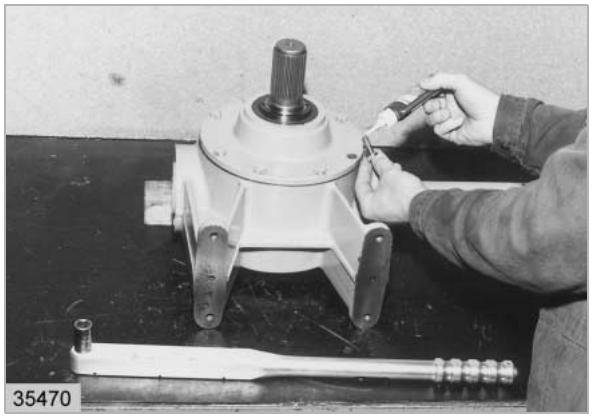


55

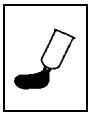
13. Apply Engineer's blue to the tooth flanks and check the contact pattern. Correct setting using compensating washers (16) if required and check settings.

    A = Initial setting
    B = Required correction
    C = Correct setting

(Fig. 42, 43, 55)



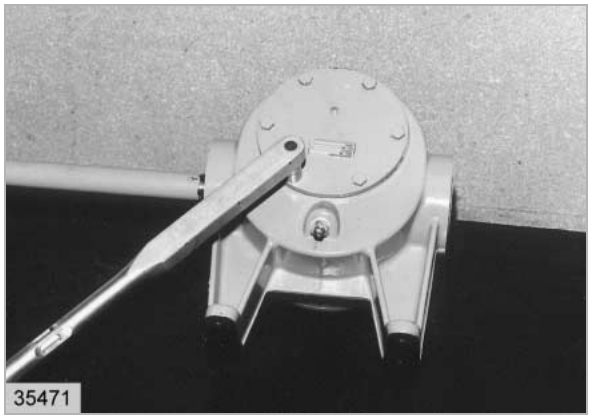
56



14. Screw out hex. bolts (21) one by one and insert them with liquid locking compound, e.g. DELO-ML 5349.

    Tightening torque = 45 Nm

(Fig. 42, 43, 56)



57

15. Bolt down the cover (23) with seal (22). Insert hex. bolts (24) with liquid locking compound, e.g. DELO-ML 5349.

    Tightening torque = 45 Nm

(Fig. 42, 43, 57)

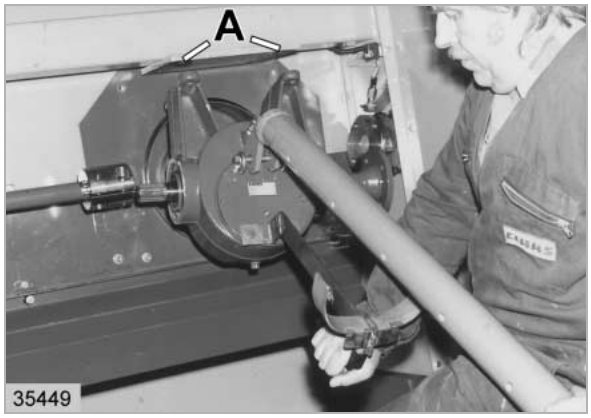


58

Installing the axial rotor gearbox

Bolt in the profiled hub.

(Fig. 58)



59

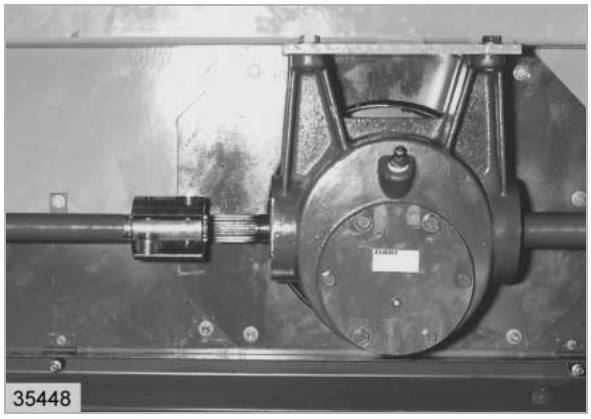
Suspend the axial rotor gearbox in a suitable lifting device and move it into the machine, using a lever. Ensure that the expansion pins are correctly seated.

Screw in hex. bolts at (A) and tighten to **122 Nm**.

Screw in gearbox cover hex. bolts M 10 x 30 with liquid locking compound, e.g. DELO-ML 5349 and tighten to **45 Nm**.

Fill in gearbox oil. Oil quantity and oil grade – see page 1.5.1, *Lubricants chart*.

(Fig. 59)

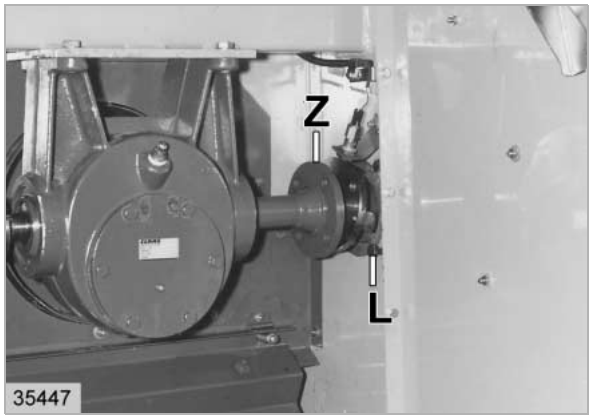


60

Move the clamping hub to the right and screw in hex. bolts with liquid locking compound, e.g. DELO-ML 5349.

Tightening torque = 78 Nm

(Fig. 60)



61

Screw in the stub (Z).

Replace the hex. bolts M 12 x 50 by the hex. bolts M 12 x 35.

Bolt the bearing housing (L) to the machine side wall.

Install and adjust the axial rotor step drive (18).

Bolt down the safety frame.

(Fig. 61)

ENGINE OUTPUT



1

Removing the engine output pulley

Removing the straw chopper intermediate drive belt (9), see page 7.2.18

Remove the split pin from the castellated nut, then remove nut.

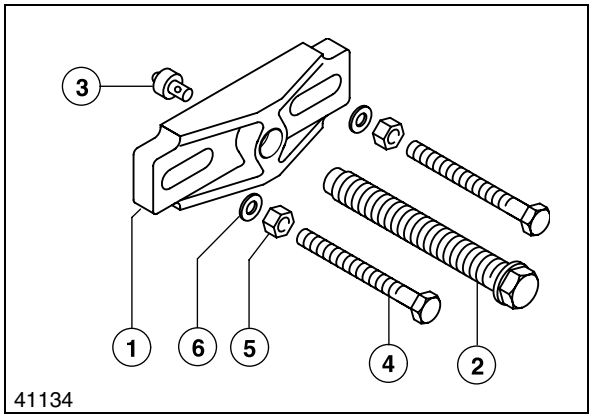
(Fig. 1)



2

Pull off the engine output pulley, using the special tool.

(Fig. 2)



3

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 12 x 140 DIN 933-8.8, part no. 233 011.0
5 Hex. nut M 12, part no. 236 172.0
6 Washer 13 x 30 x 3, part no. 236 844.0

(Fig. 3)



4

Installing the engine output pulley

1. Refit the engine output pulley. Ensure that the conical joint is free from grease.
2. Tighten the castellated nut M 36 x 1.5 to **520^{+80} Nm**. Secure the castellated nut with a split pin.
3. *Installing and adjusting the straw chopper intermediate drive belt (9)*, see page 7.2.19

(Fig. 4)



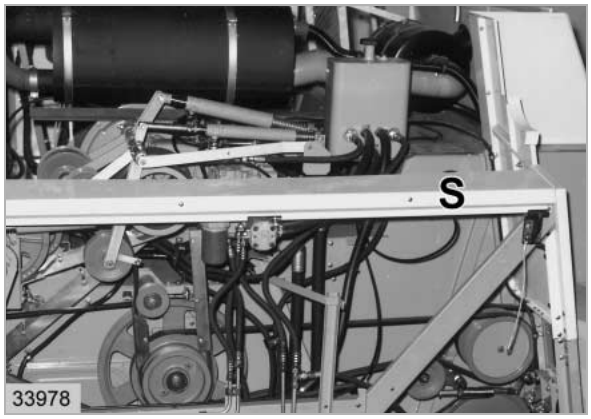
5

Removing the transfer gearbox

Remove the left-hand side guard from the machine. To do this, remove the gas struts and the securing ropes.

Push the guard up out of the hinges and remove it.

(Fig. 5)

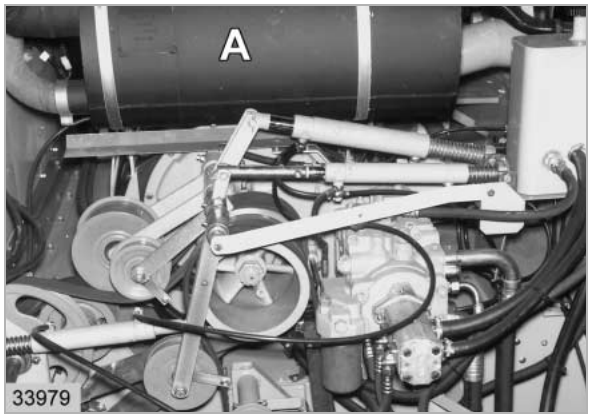


6

Swing the grain tank unloading tube out completely.

Unscrew the clamps of the intermediate panel (S) and then remove the intermediate panel.

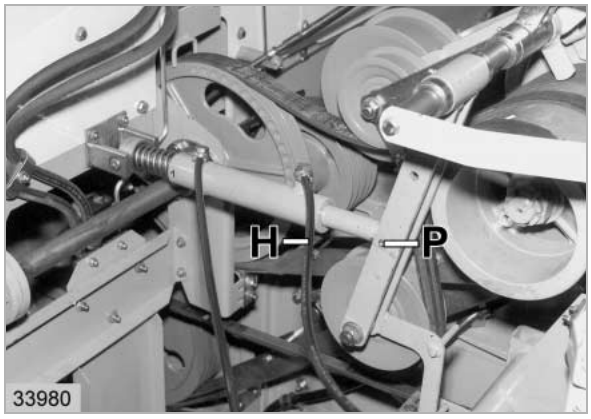
(Fig. 6)



7

Remove the silencer (A) complete with the brackets from the machine.

(Fig. 7)

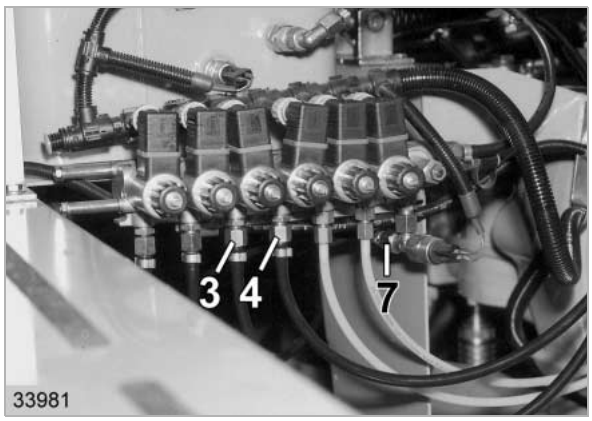


8

Remove the hydraulic hose (H) and protect the ends with plastic caps.

Remove the clamp and then the bolt (P).

(Fig. 8)

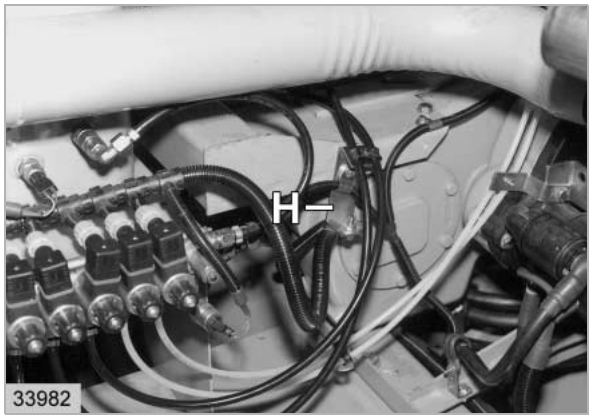


9

Remove the hydraulic hoses (3, 4 and 7) from the low pressure valve block, ensuring the ends are sealed with suitable plastic caps.

Mark the connections.

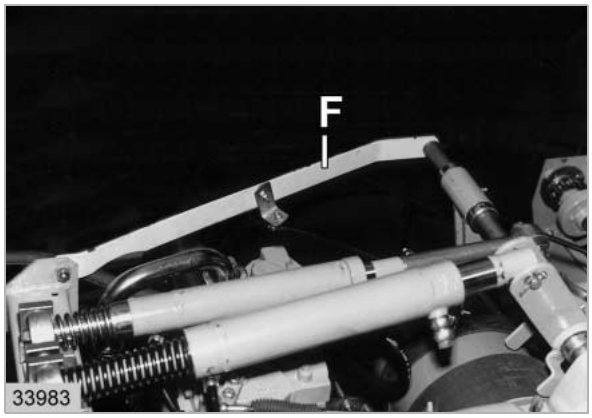
(Fig. 9)



10

Remove the hose and cable clamp from the bracket (H).

(Fig. 10)



11

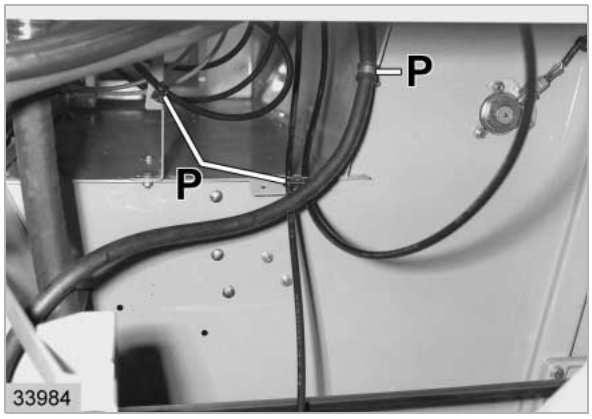
Remove the brace (F) and the hose clamp.

Loosen the hoses (G) to the hydraulic pump. Collect any leaking oil and cap the connections tightly.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

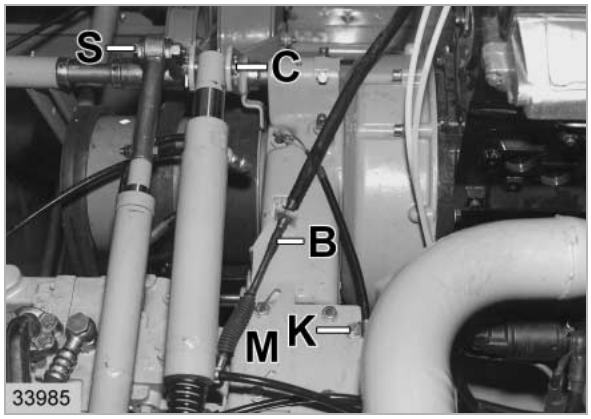
(Fig. 11)



12

Remove the hose clamps (P) from the hydraulic tank.

(Fig. 12)



13

Remove the bolt (S) and the pin (C) from the jockey pulley arms.

Remove the bolts from the bracket (M) and the Bowden cable (B).

Remove the cable clamp at (K) and then disconnect the connector.

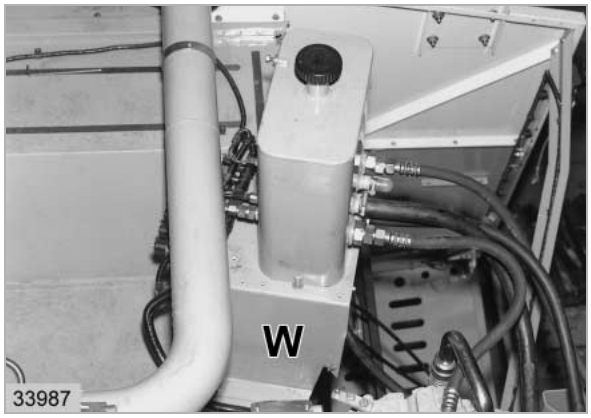
(Fig. 13)



14

Remove the bracket with the hydraulic cylinders.

(Fig. 14)



15

Remove the elbow (W) from the machine.

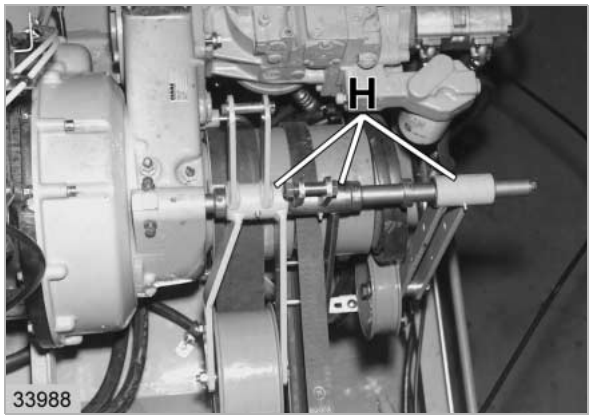
Push the tank towards the left and, by using a bolt and self grips, secure in place.

(Fig. 15)

Removing the main intermediate drive belt (7), see page 7.2.12

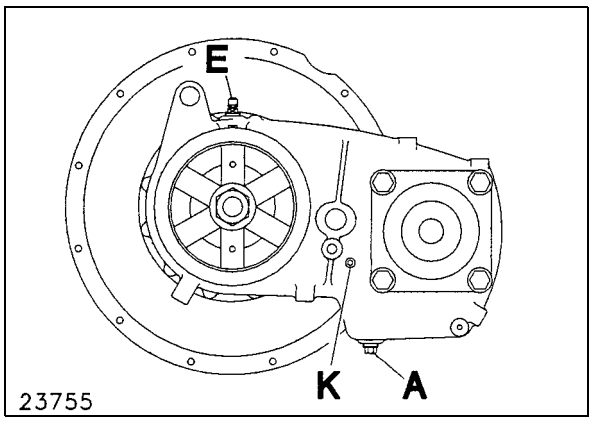
Removing the grain tank unloading intermediate drive belt (8), see page 7.2.16

Removing the straw chopper intermediate drive belt (9), see page 7.2.18



16

Slacken off the set collars and then remove the jockey pulley bracket (H).



17

Remove the old gearbox oil.

ENVIRONMENT!

Find a suitable container in which to put the old oil and then dispose off in a safe and orderly manner.

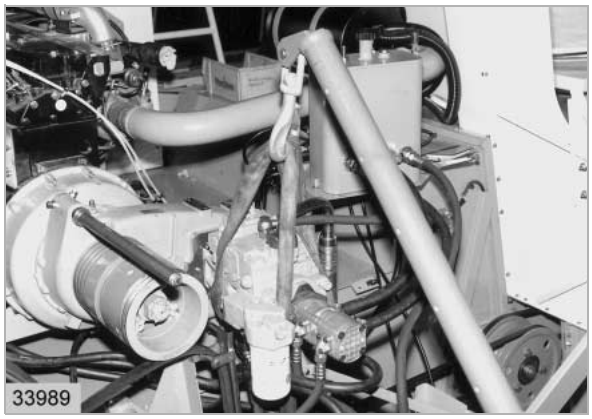
K = Oil level check plug
E = Oil filler plug and gearbox breather
A = Oil drain plug

(Fig. 17)

NOTE!

If the engine output pulley has to be removed for follow-up repairs of the transfer gearbox, unlock the castellated nut and loosen it slightly.

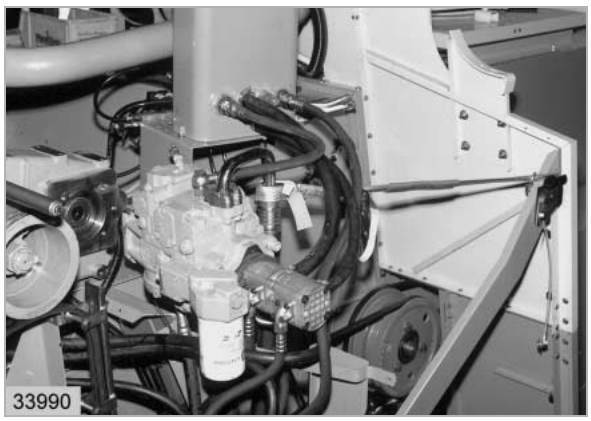
Lock the castellated nut again after loosening it.



18

Using a suitable crane, take the weight of the hydraulic pump, then unbolt the pump from the gearbox.

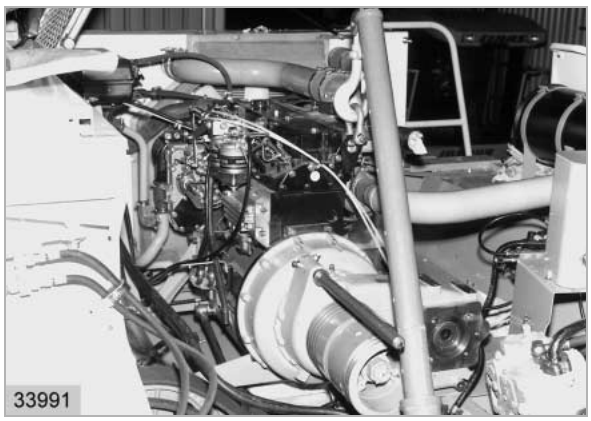
(Fig. 18)



19

Move the hydraulic tank out of the way of the gearbox and secure safely.

(Fig. 19)



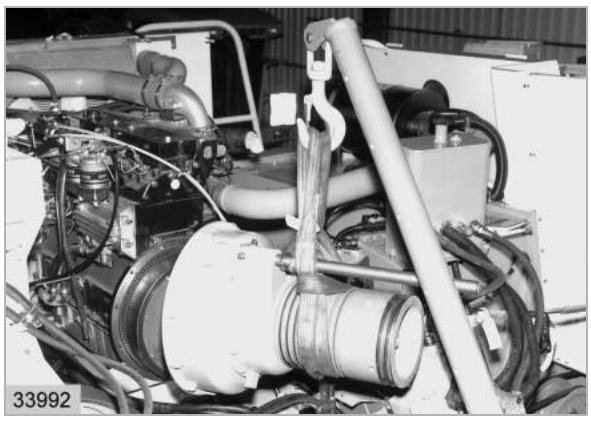
20

Using a suitable lifting device, carefully take the weight of the engine.

Remove the lower bolt from the gearbox housing and safely secure the underside of the engine with suitable blocks.

Lower the engine gently.

(Fig. 20)



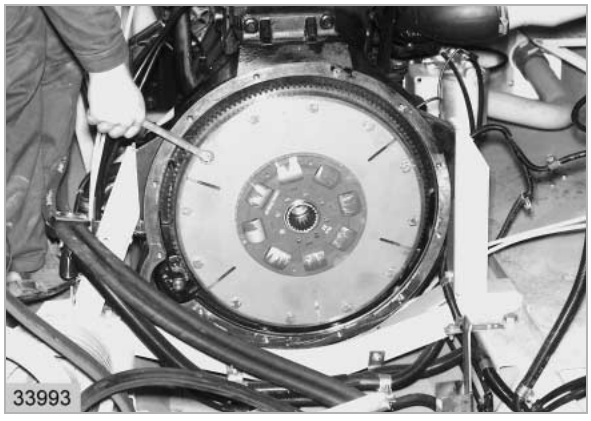
21

Using a suitable lifting device attached to the transfer gearbox, gently take the weight.

Remove the starter and unbolt the transfer gearbox.

Pull out the transfer gearbox to the left first and then remove it from the machine.

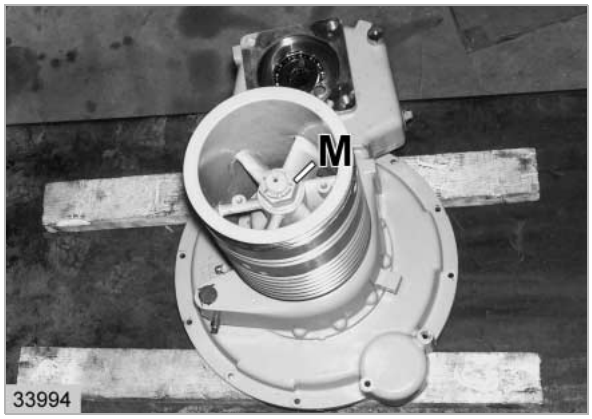
(Fig. 21)



22

Remove the torsion damper.

(Fig. 22)



23

Disassembling the transfer gearbox

There are two different gearbox versions (A and B).

In the following disassembly instructions, the differences will be pointed out at the corresponding passage of the text.

Removing the drive shaft:

Remove the split pin from the castellated nut (M) and remove nut.

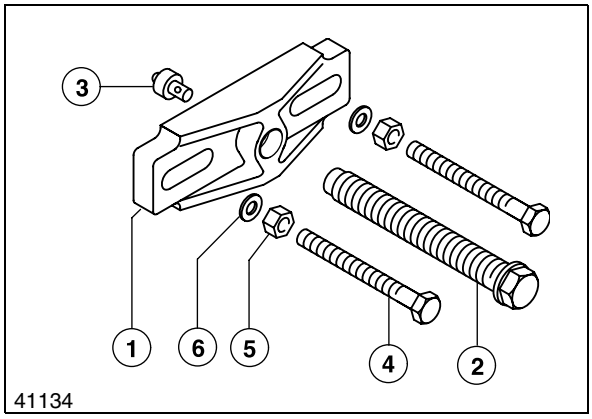
(Fig. 23)



24

Pull off the engine output pulley, using the special tool.

(Fig. 24)

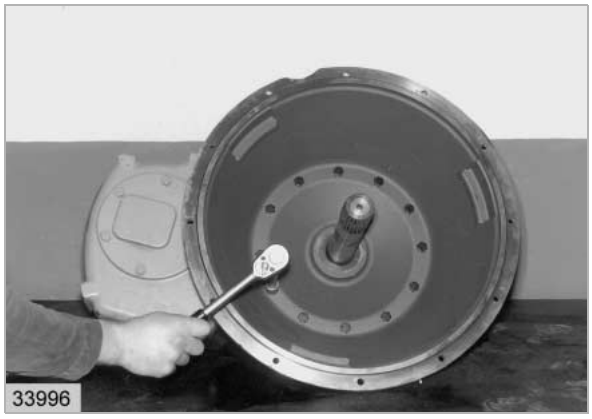


25

Special tool:

1 Puller bridge, part no. 181 800.0
2 Threaded spindle, part no. 181 801.1
3 Centraliser with ball, part no. 181 849.0
4 Hex. bolt M 12 x 140 DIN 933-8.8, part no. 233 011.0
5 Hex. nut M 12, part no. 236 172.0
6 Washer 13 x 30 x 3, part no. 236 844.0

(Fig. 25)



26

Remove the engine cover.

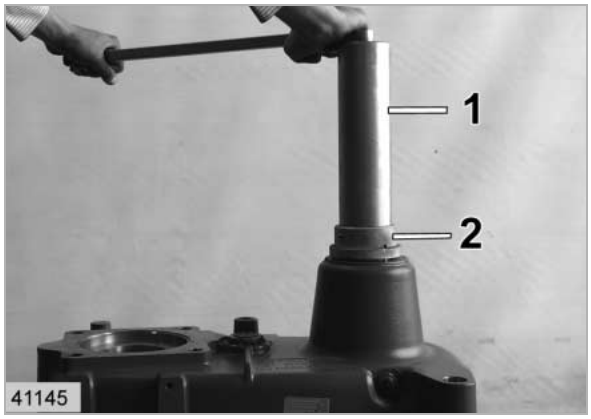
(Fig. 26)



27

Remove the drive shaft.

(Fig. 27)



28

Depending on the gearbox version, unbolt the cover (25) with the special tool.

With gearbox version (A) the caulking of cover (25) must be removed.

With the (B) version gearbox, the cover (25) is glued in. Before the cover come loose, the threads must be warmed.

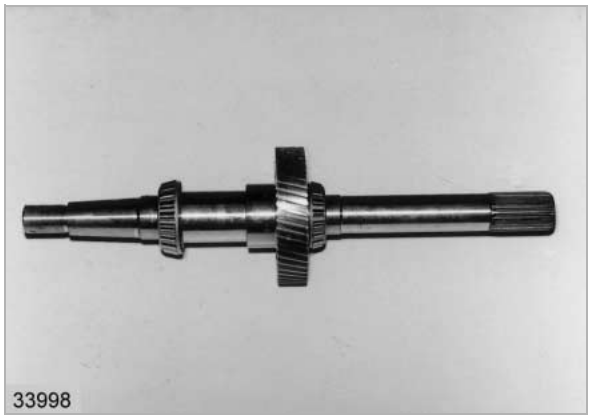
CAUTION!

The dowel pins of the special tool must be inserted according to the pitch-circle diameter (∅ 90 mm or ∅ 92 mm).

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 356.1

(Fig. 28, 38, 39)



29

Remove the taper roller bearing and the spur gear from the drive shaft.

CAUTION!

With drive shafts (15) fitted with an inner ring, it is not possible to remove the inner ring and the taper roller bearing (16). When damaged, the drive shaft must be replaced completely.

(Fig. 29)

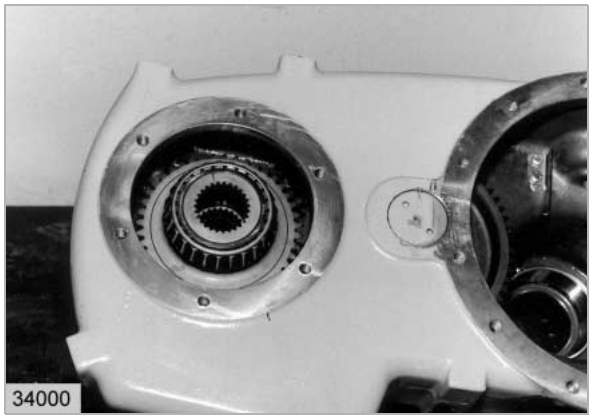


30

Removing the drive shaft:

Unbolt the bearing cover plate and remove.

(Fig. 30)



31

Remove the spur gear along with the taper roller bearings.

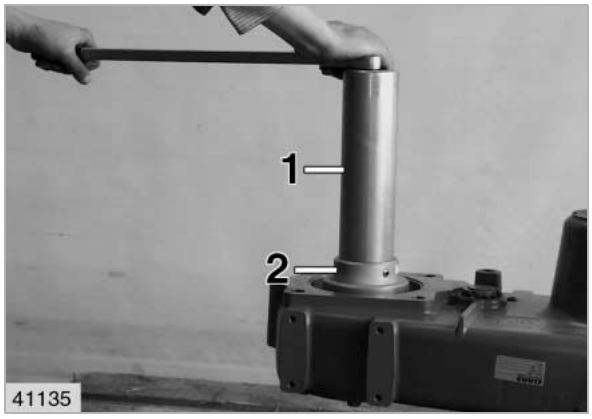
(Fig. 31)



32

Pull off the taper roller bearing from the spur gear.

(Fig. 32)



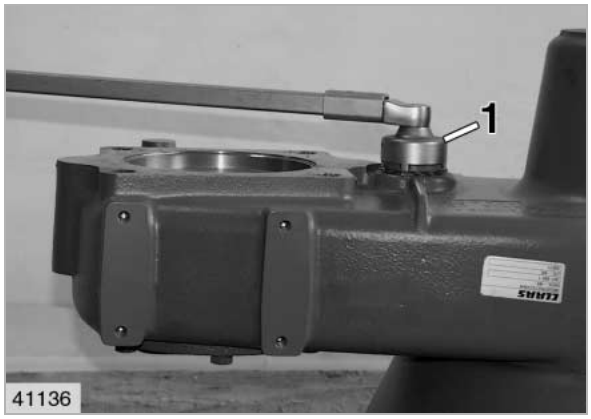
33

Using the special tool unscrew the slotted nut and press the bearing outer ring out of the slotted nut.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 357.0

(Fig. 33)



34

Removing the intermediate shaft:

Remove the split pin from the slotted nut (N), then using the special tool remove the nut.

Special tool:

1 Socket wrench, part no. 181 809.0

(Fig. 34)



35

Using a suitable soft punch, drive the intermediate shaft out of the gearbox.

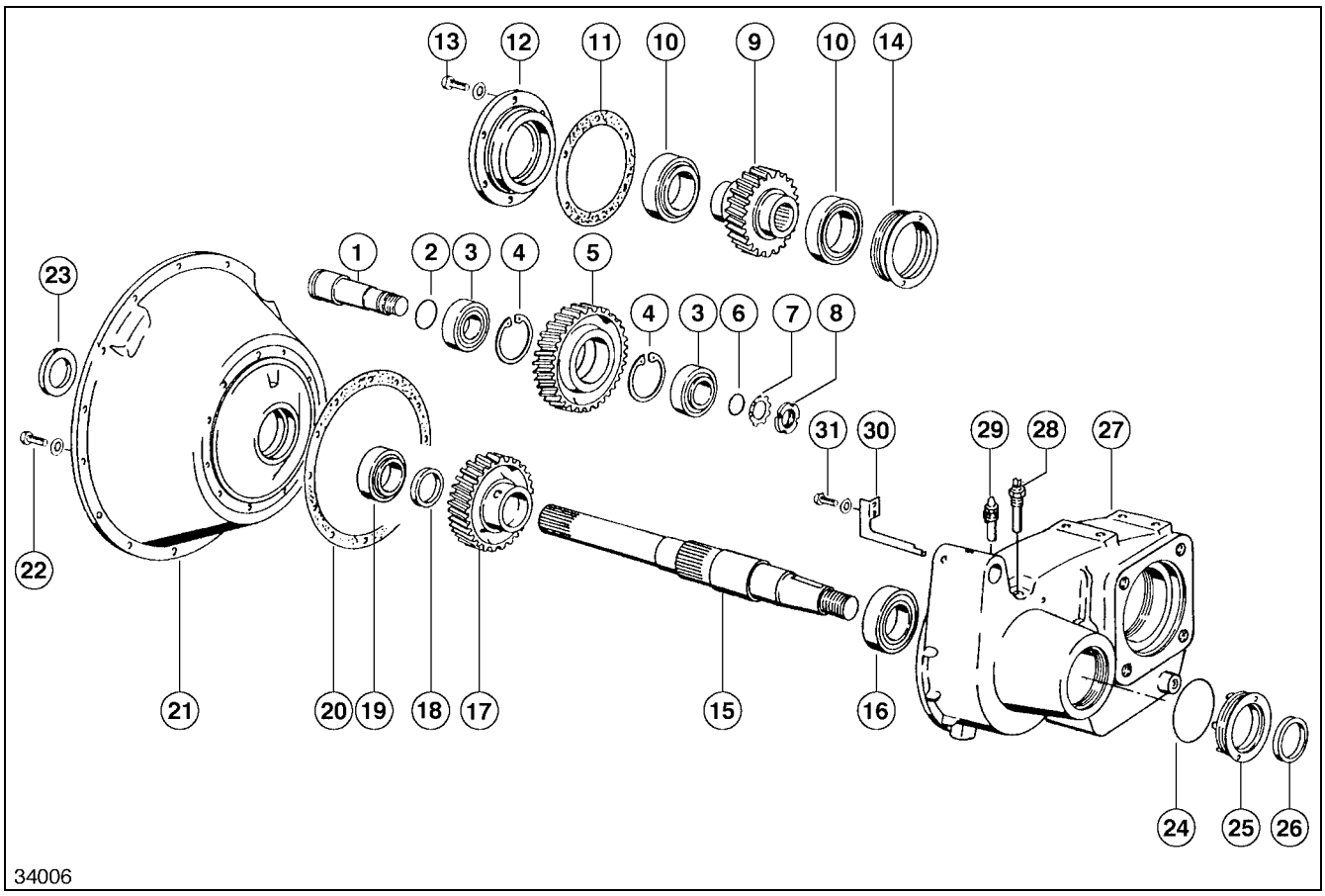
(Fig. 35)



36

Remove the spur gear.

(Fig. 36)



37

Transfer gearbox, disassembled:

1 Intermediate shaft
2 O-ring
3 Taper roller bearing
4 Circlip
5 Intermediate gear wheel
6 O-ring
7 Tab washer
8 Slotted nut
9 Spur gear
10 Taper roller bearing
11 Seal
12 Bearing cover
13 Hex. bolt M 10 x 25 DIN 933-8.8
Lock washer 10
14 Cover
15 Drive shaft
16 Taper roller bearing
17 Spur gear
18 Locating ring
19 Taper roller bearing
20 Seal
21 Engine cover
22 Hex. bolt M 10 x 30 DIN 933-8.8
Lock washer 10
23 Shaft seal
24 O-ring
25 Cover
26 Shaft seal
27 Gearbox housing
28 Magnetic pick-up
29 Screw plug
30 Oil guide plate
31 Hex. bolt M 6 x 12 DIN 933-8.8
Lock washer 6

(Fig. 37)

Assembling the transfer gearbox

There are two different gearbox versions.

In the following assembly instructions, the differences will be pointed out at the corresponding passage of the text.

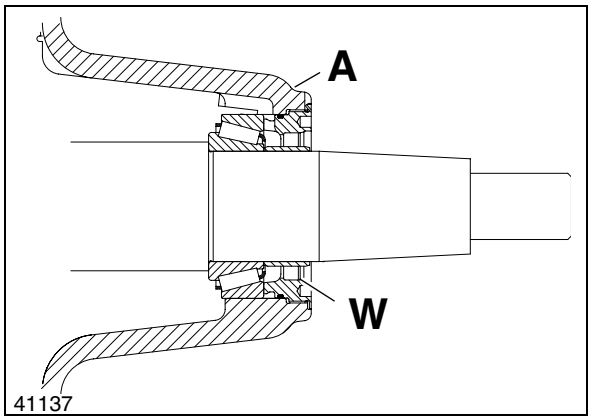
With the two different gearbox versions (A and B), the following should be observed when ordering spare parts:

– ∅ = 55 mm, 60 mm or 65 mm, as measured on the shaft seal (W)

– Cover (25) with or without O-ring (24)

(Fig. 37, 38, 39)

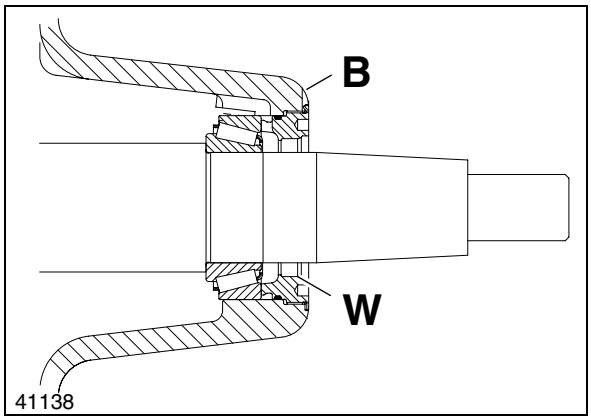
The gearbox versions (A and B) can be identified by:



38

Gearbox version (A) **has a** bearing neck shoulder.

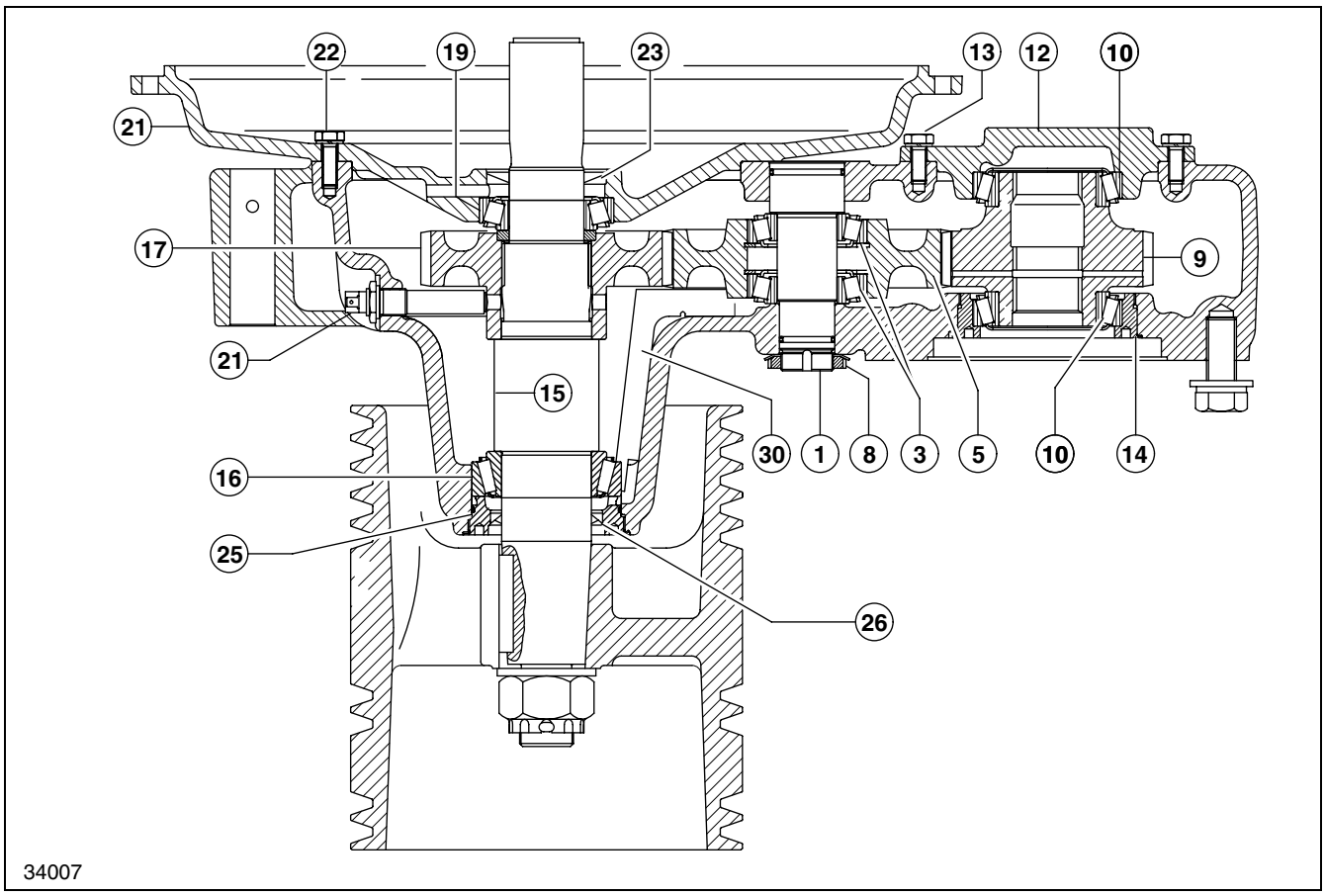
(Fig. 38)



39

Gearbox version (B) **has no** bearing neck shoulder.

(Fig. 39)



40



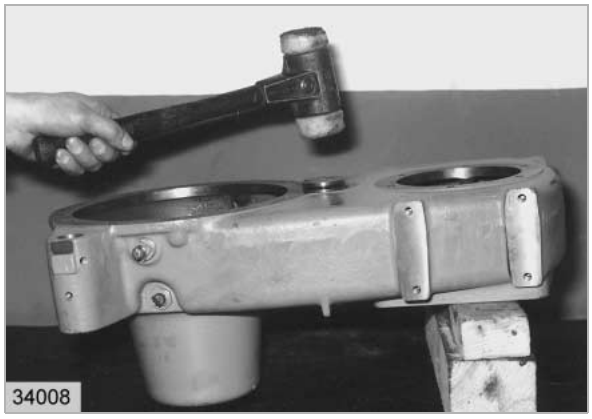
41

Installing the intermediate gear (5):

Insert the circlips (4) into the intermediate gear (5). Press in the bearing outer rings (3) and insert the inner bearing parts.

Insert the pre-assembled intermediate gear (5) into the gearbox housing.

(Fig. 37, 40, 41)

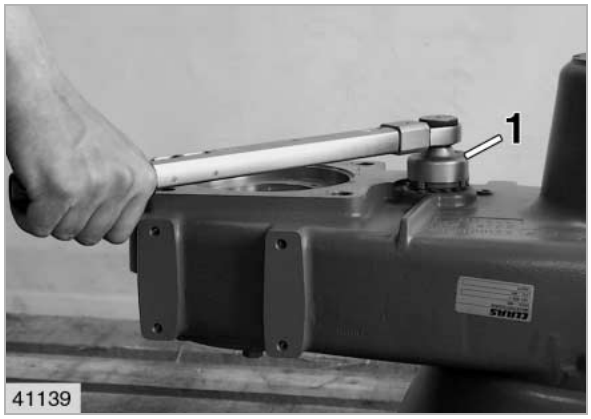


42

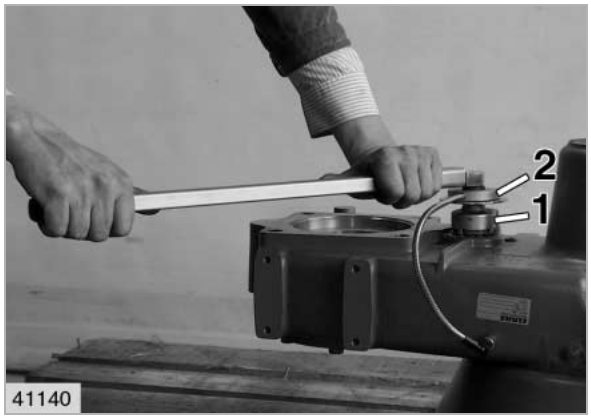
Apply some oil to the O-ring (2) and insert it into the housing.

Drive the intermediate shaft (1) into the gearbox housing using a plastic-tip hammer.

(Fig. 37, 40, 42)



43



44

Apply some oil to the O-ring (6) and insert it.

Bolt down the tab washer (7) and the slotted nut (8).

Tighten the slotted nut (8) to **85 Nm**.

Use some slight blows and rotate the intermediate gear (5) while doing so.

Tighten the slotted nut to **85 Nm** again.

With the help of the special tool, loosen the castellated nut by **90°$^{+1}$**.

Apply more slight blows and rotate the intermediate gear wheel (5) in both directions. The intermediate gear should be easily rotated.

Special tool:

1 Socket wrench, part no. 181 809.0
2 Angle washer, part no. 174 358.0

Secure the slotted nut (8) with the tab washer (7).

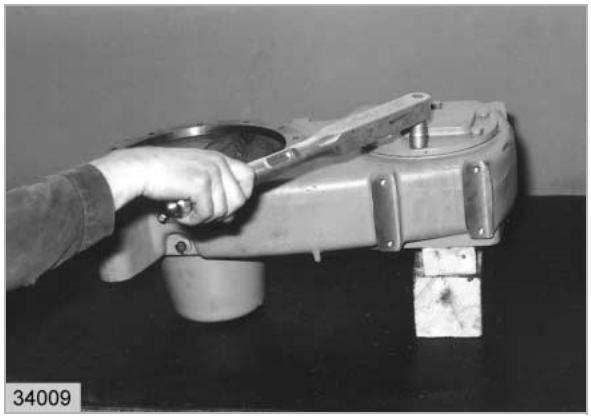
(Fig. 37, 40, 43, 44)

Fitting the spur gear (9):

Press the bearing outer rings of the taper roller bearings (10) into the covers (12 and 14).

Press the taper roller bearings (10) onto the spur gear (9).

(Fig. 37, 40)

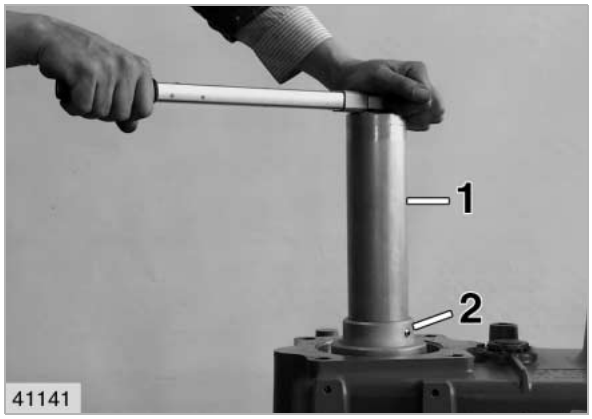


45

Insert the pre-assembled spur gear (9) into the gearbox housing (observe installation position) and bolt down the cover (12) with the seal (11).

Tightening torque = 45 Nm

(Fig. 37, 40, 45)



46

CAUTION!

The threads of cover (14) and the gearbox housing (27) must be dry and free from grease when assembling.

Screw in the cover (14) using the special tool and tighten to **85 Nm**.

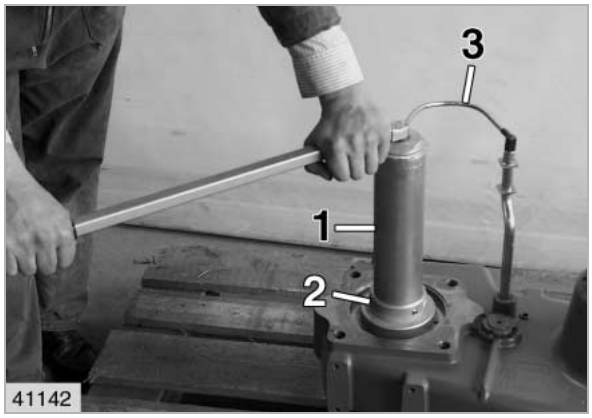
Use some slight blows and rotate the spur gear (9) while doing so.

Retighten the cover to **85 Nm** again.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 357.0

(Fig. 37, 40, 46)



47

If the cover **turns more than 15 mm** at its circumference when tightening it with a torque wrench, the setting has to be repeated.

If the cover **does not turn** when tightening it with a torque wrench, the cover with the angle washer needs to be loosened by **55**°.

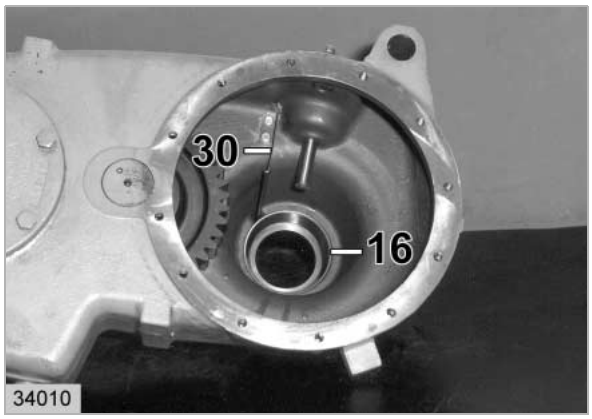
Check that the gear rotates freely.

Caulk the cover without cracks.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 357.0
3 Angle washer, part no. 174 358.0

(Fig. 37, 40, 47)



48

Bolt the oil guide plate (30) into the gearbox housing.

CAUTION!

The oil guide plate (30) must have space towards the intermediate gear (5) and the pre-assembled drive shaft (15).

Insert the hex. bolts (31) with sealing compound.

Press the bearing outer ring (16) into the housing.

(Fig. 37, 40, 48)



49

Press the taper roller bearing (16), the spur gear (17), the centralising ring (18) and the taper roller bearing (19) on the drive shaft (15).

Insert the pre-assembled drive shaft (15) into the gearbox housing.

(Fig. 37, 40, 49)



50

Place engine cover (21) in position with gasket (20) and bolt it down.

CAUTION!

Insert hex. bolts (22) with sealing compound.

Tightening torque = 45 Nm

(Fig. 37, 40, 50)

Gearbox version (A)

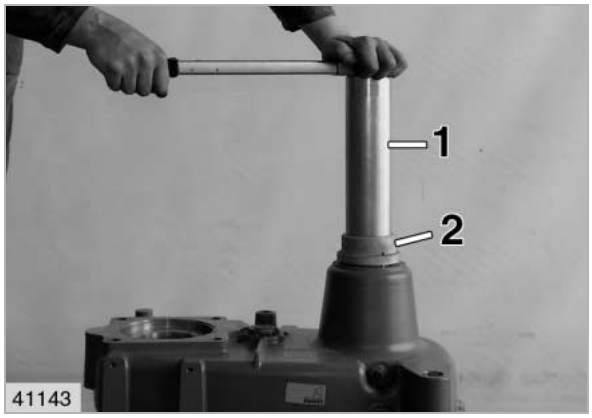
Slightly grease the O-ring (24) and place it into the cover (25).

CAUTION!

The threads of cover (25) and the gearbox housing (27) must be dry and free from grease when assembling.

(Fig. 37, 38, 40)

Gearbox version (A)



51

– Screw in the pre-assembled cover and tighten it to **85 Nm** by tightening slightly, then slackening etc., using the special tool.

CAUTION!

The dowel pins of the special tool must be inserted according to the pitch-circle diameter (∅ 90 mm or ∅ 92 mm).

– Use some slight blows and rotate the shaft (15) while doing so.

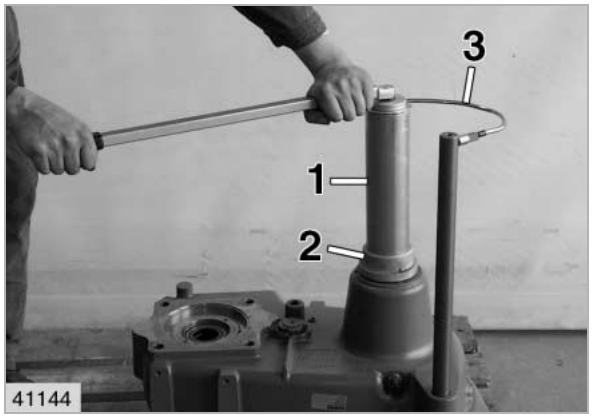
– Turn the cover down further and tighten to **85 Nm**.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 356.1

(Fig. 37, 38, 40, 51)

Gearbox version (A)



52

– If the cover **turns more than 15 mm** at its circumference when tightening it with a torque wrench, the setting has to be repeated.

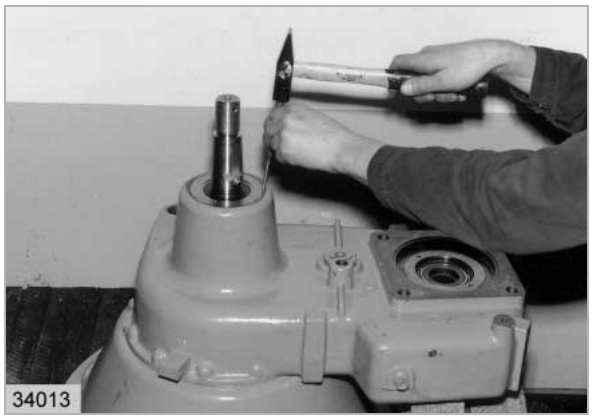
– If the cover **does not turn** when tightening it with a torque wrench, the cover with the angle washer needs to be loosened by **42**°.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 356.1
3 Angle washer, part no. 174 358.0

(Fig. 52)

Gearbox version (A)



53

– Caulk the cover without cracks.

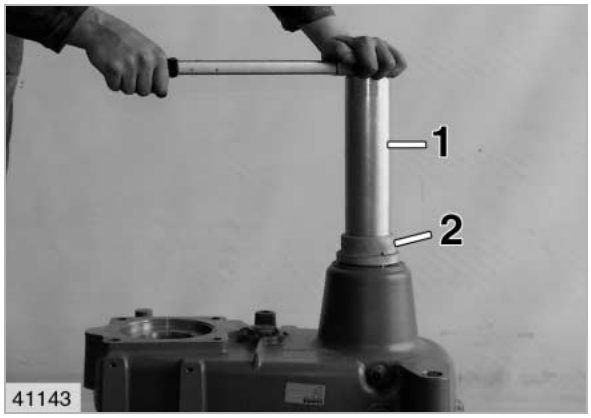
(Fig. 53)

Gearbox version (B)

CAUTION!

The threads of cover (25) and the gearbox housing (27) must be dry and free from grease when assembling.

Gearbox version (B)



54

– Screw in the cover and tighten it to **85 Nm** by tightening slightly, then slackening etc., using the special tool.

CAUTION!

The dowel pins of the special tool must be inserted according to the pitch-circle diameter (∅ 90 mm or ∅ 92 mm).

– Use some slight blows and rotate the shaft (15) while doing so.

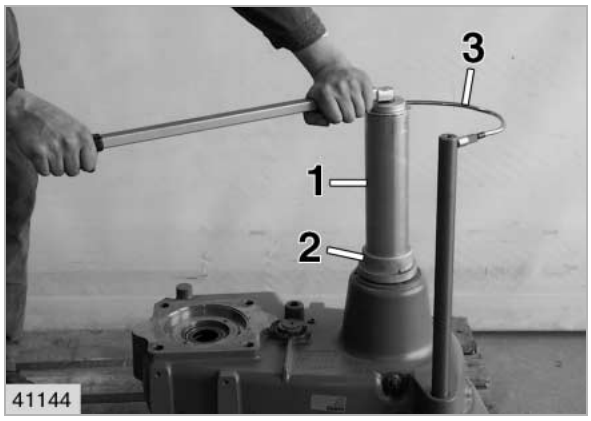
– Turn the cover down further and tighten to **85 Nm**.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 356.1

(Fig. 37, 39, 40, 54)

Gearbox version (B)



55

– If the cover **turns more than 15 mm** at its circumference when tightening it with a torque wrench, the setting has to be repeated.

– If the cover **does not turn** when tightening it with a torque wrench, the cover with the angle washer needs to be loosened by **42°**.

After the adjustment, mark the cover (25) with respect to the housing.

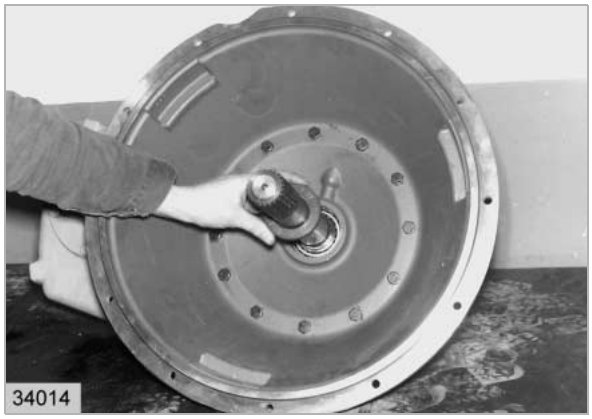
Unscrew the cover (25).

Apply Loctite, part no. 260 270.0, to the cover (25), then screw the cover into the housing until it is at the marked point.

Special tool:

1 Tube, part no. 181 611.0
2 Castellated spanner, part no. 174 356.1
3 Angle washer, part no. 174 358.0

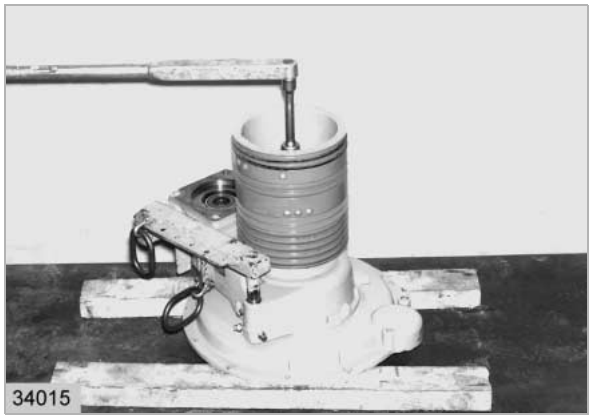
(Fig. 37, 39, 40, 55)



56

Fill the shaft seals (23 and 26) with grease and press in so they are flush with the housing edge.

(Fig. 37, 40, 56)



57

Screw in the magnetic pick-up (28) with sealing compound.

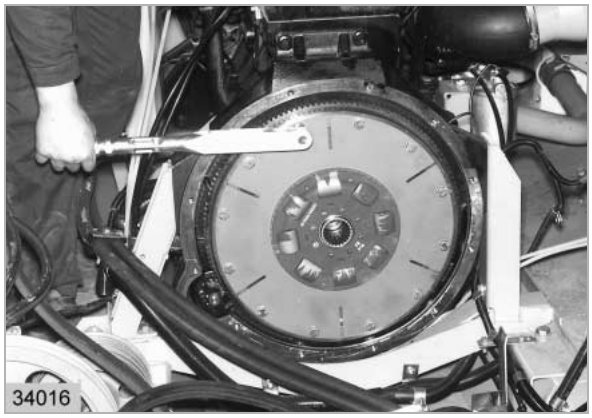
Refit the engine output pulley. Ensure that the taper ring fastener is free from grease.

Tighten the castellated nut M 36 x 1.5 to **520^{+80} Nm**. Secure the castellated nut with a split pin.

NOTE!

The castellated nut can also be tightened to a given torque if the transfer gearbox is bolted to the engine.

(Fig. 57, 59)



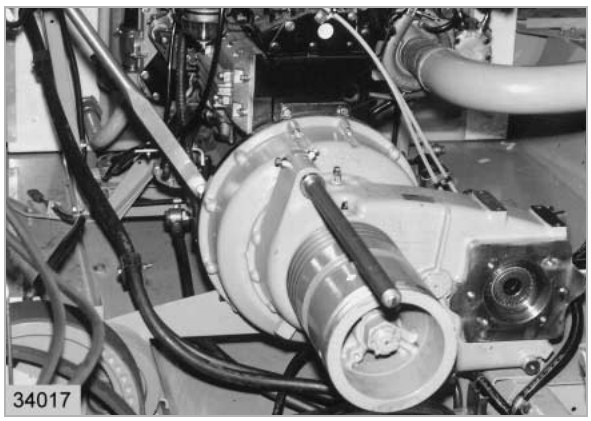
58

Installing the transfer gearbox

1. Bolt down the torsion damper.

   Tightening torque = 45 Nm

(Fig. 58)



59

2. Lift the transfer gearbox to the engine.

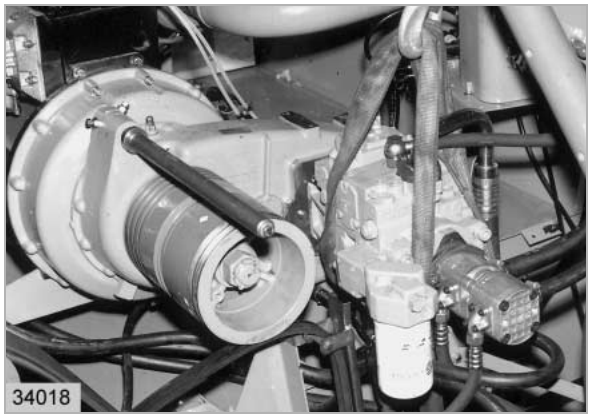
   Cover the drive shaft gearing with a high-temperature assembly paste, part no. 205 380.0, then introduce the shaft into the torsion damper.

   Bolt the transfer gearbox down to the engine.

   Install the starter and remove the blocks from under the engine.

   Tighten the castellated nut M 36 x 1.5 to **520^{+80} Nm**. Secure the castellated nut with a split pin.

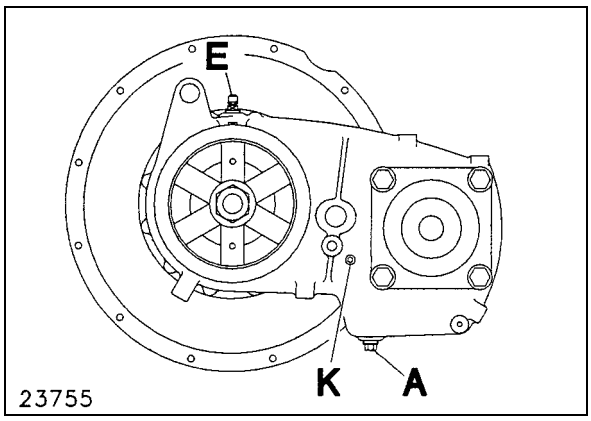
(Fig. 59)



60

3. Introduce the hydraulic pump with a new O-ring into the gearing and bolt it down to the transfer gearbox.

(Fig. 60)



61

4. Fill in gearbox oil.

   Oil quantity and oil grade
   – see page 1.5.1, *Lubricants chart*.

   K = Oil level check plug
   E = Oil filler plug and gearbox breather
   A = Oil drain plug

   Insert the oil drain plug (A) with sealing compound, part no. 241 743.0.

   Tightening torque = 40^{+5} Nm

(Fig. 61)

5. Install the jockey pulley bracket (H).

   (Fig. 16)

6. *Installing and adjusting the main intermediate drive belt (7)*, see page 7.2.14

   Installing and adjusting the grain tank unloading intermediate drive belt (8), see page 7.2.17

   Installing and adjusting the straw chopper intermediate drive belt (9), see page 7.2.19

7. Install the hydraulic tank and the bracket with the hydraulic cylinders. Refit the Bowden cable and connect the hydraulic hoses.

   (Fig. 8–15)

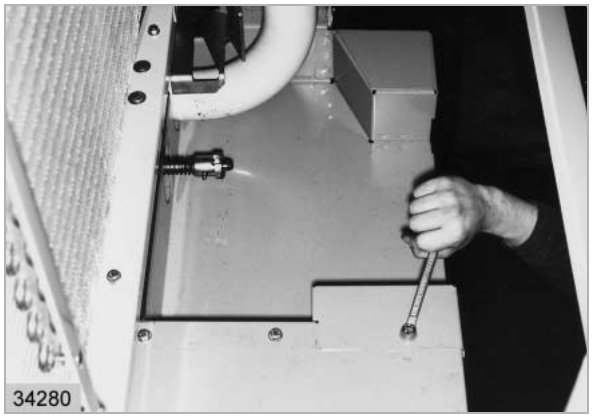
8. Install the silencer (A) and the intermediate panel (S).

   (Fig. 6, 7)

9. Install the side guards.

   (Fig. 5)

ROTARY SCREEN DRIVE



1

Removing the rotary screen drive

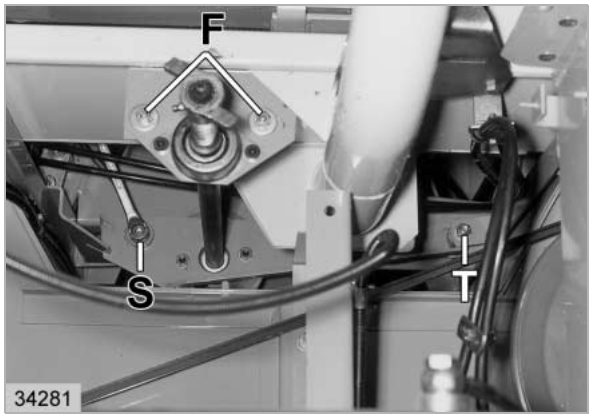
Removing the fan drive belt (27), see page 7.3.15

Removing the radiator chaff screen intermediate drive belt (25), see page 7.3.12

Swing up the rotary screen.

Remove the extension above the fuel tank. To do this remove the M 6 x 16 hex. bolts.

(Fig. 1)

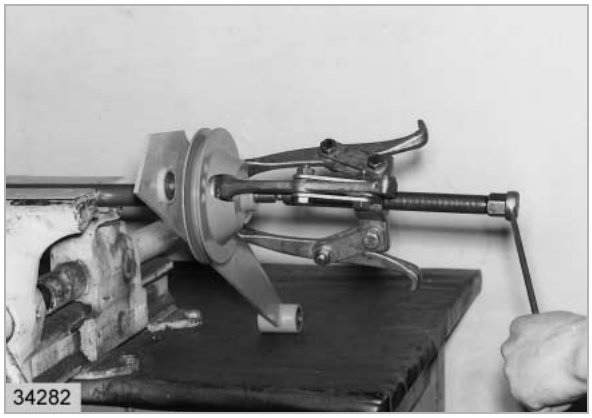


2

Remove the hex. bolt (S) M 12 x 55 from the eye bolt and the hex. bolt (T) M 12 x 85 from the metal/rubber bearings.

Unscrew the mushroom head bolts (F) and lift out the complete spline shaft towards the right-hand side.

(Fig. 2)



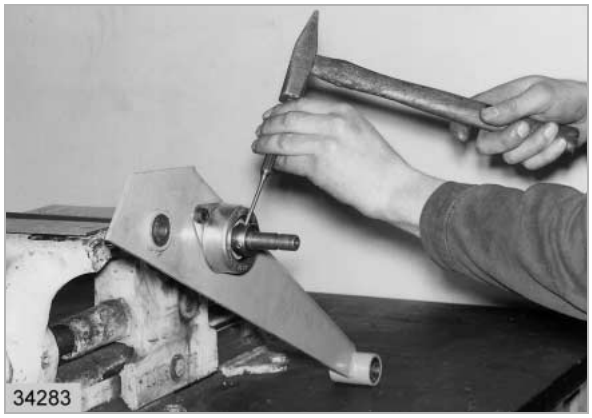
3

Disassembling the rotary screen drive

Remove the VM 16 x 1.5 lock nut.

Pull off the V-belt pulley and remove the key along with the washer.

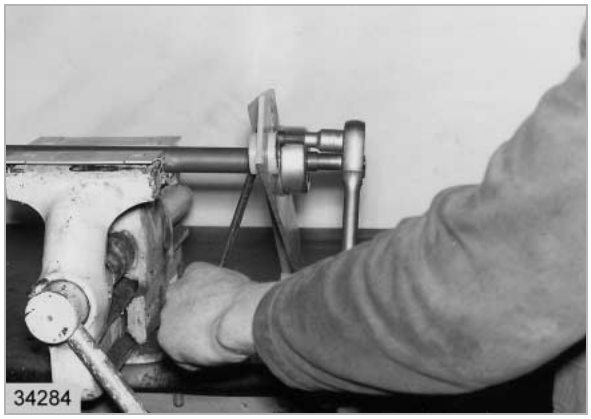
(Fig. 3)



4

Unlock the lock collar and knock it off against the normal direction of rotation.

(Fig. 4)



5

Unbolt the flange bearing and pull off the bearing.

(Fig. 5)



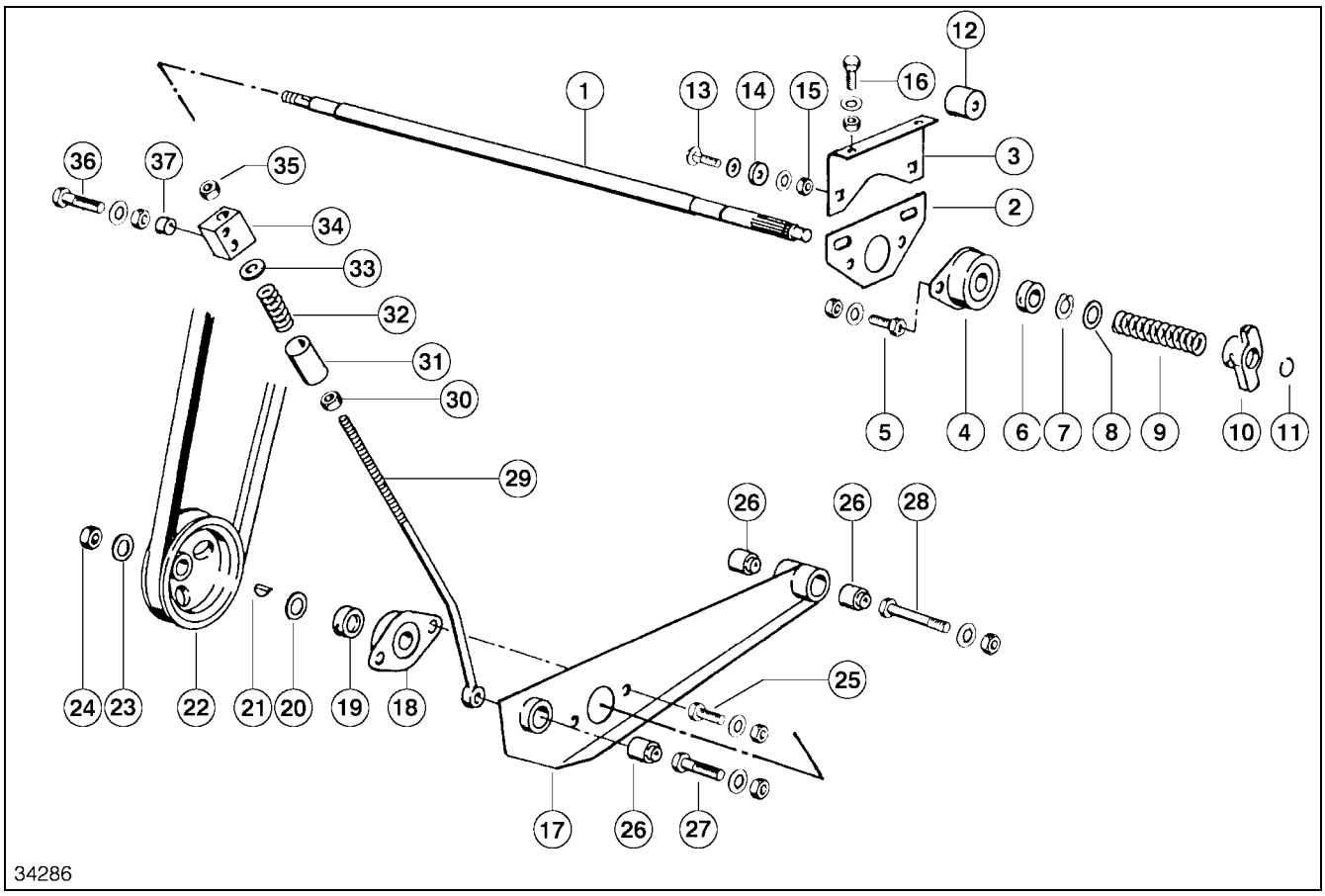
6

Remove the snap ring, catch, compression spring and supporting ring.

Unlock the lock collar and knock it off against the normal direction of rotation.

Remove the flange bearing along with the support plate from the spline shaft.

(Fig. 6)

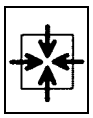


7

Rotary screen drive, disassembled:

1 Spline shaft
2 Support plate
3 Angle bracket
4 Flange bearing
5 Cheese-head screw M 10 x 20 DIN 7984
Contact washer A 10
Hex. nut M 10
6 Lock collar
7 Circlip 20 x 1.2
8 Supporting ring S 20 x 28
9 Compression spring
10 Catch
11 Snap ring
12 Spacer
13 Mushroom head bolt M 8 x 25
Washer
14 Washer
15 Hex. nut M 8
Contact washer A 8
16 Hex. bolt M 8 x 16 DIN 933-8.8
17 Bearing plate
18 Flange bearing
19 Lock collar
20 Washer
21 Key
22 V-belt pulley
23 Washer
24 Lock nut VM 16 x 1.5
25 Cheese-head screw M 10 x 20 DIN 7984
Contact washer A 10
Hex. nut M 10
26 Metal/rubber bearing
27 Hex. bolt M 12 x 55 DIN 931-8.8
Contact washer A 12
Hex. nut M 12 DIN 934
28 Hex. bolt M 12 x 85 DIN 931-8.8
Contact washer A 12
Hex. nut M 12 DIN 934
29 Eyebolt
30 Hex. nut M 12 DIN 934
31 Spacer sleeve
32 Compression spring
33 Washer
34 Tensioner
35 Hex. nut M 12 DIN 934
36 Hex. bolt M 12 x 55 DIN 931-8.8
Contact washer A 12
Hex. nut M 12 DIN 934
37 Bushing

(Fig. 7)

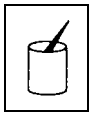


Assembling and installing the rotary screen drive

1. Pre-assemble the support plate (2) and the flange bearing (4) then slide up to the stop on the spline shaft (1).
2. Install circlip (7). Slide the supporting ring (8), compression spring (9), catch (10) and the snap ring (11) on the shaft.

CAUTION!

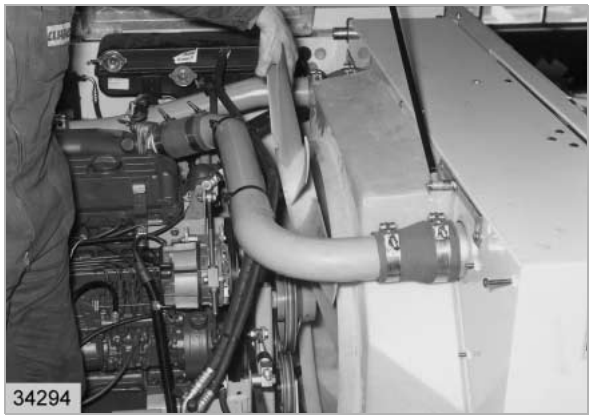
Apply grease to catch (10) before assembling it.



3. Pre-assemble the flange bearing (18) and the bearing plate (17), then slide on the spline shaft (1). Tighten the lock collar (19) in direction of rotation and secure it.
4. Insert the washer (20) and key (21). Slide the V-belt pulley (22) into position and bolt down with lock nut (24).
5. Place the metal/rubber bearing (26) into position.
6. Lift the pre-assembled spline shaft into the machine from the right-hand side and then bolt to the bearing plate (17).
7. Align the spline shaft with the rotary screen, then bolt down the support plate (2) and the angle bracket (3).
8. Tighten the lock collar (6) in direction of rotation and secure it.
9. Bolt down the extension above the fuel tank.

   (Fig. 1)
10. *Installing and adjusting the rotary chaff screen intermediate drive belt (25)*, see page 7.3.13

    Installing and adjusting the fan drive belt (27), see page 7.3.16



8

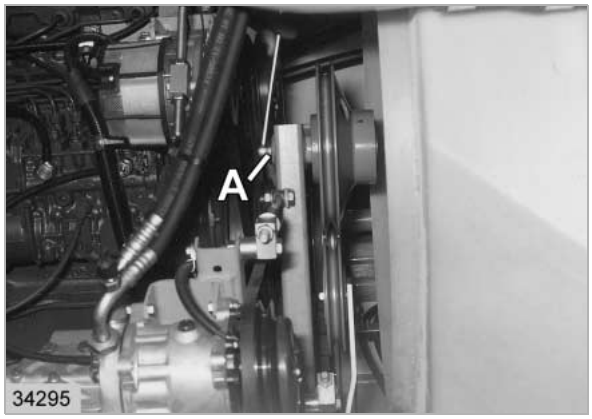
Removing the fan drive

Unlock the catwalk and fold it up.

Removing the fan drive belt (27), see page 7.3.15

Unbolt the axial fan and remove along with the spacers.

(Fig. 8)



9

Unbolt the hex. bolts at (A) and remove the V-belt pulley.

(Fig. 9)

Installing the fan drive

1. Bolt down the V-belt pulley.

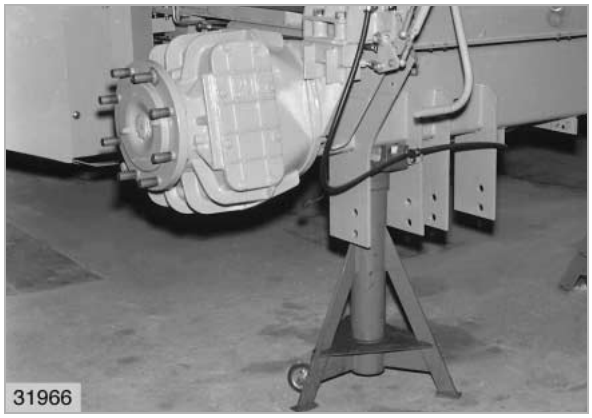
   (Fig. 9)

2. Bolt down axial fan with spacer washers.

   (Fig. 8)

3. *Installing and adjusting the fan drive belt (27)*, see page 7.3.16

FINAL DRIVES



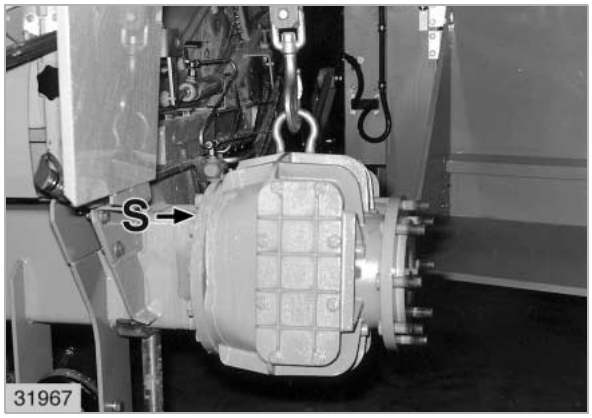
Removing the final drive gearbox

Jack the machine up under the drive axle and support machine safely.

Remove front wheel.

(Fig. 1)

1



Drain the gearbox oil.

ENVIRONMENT!

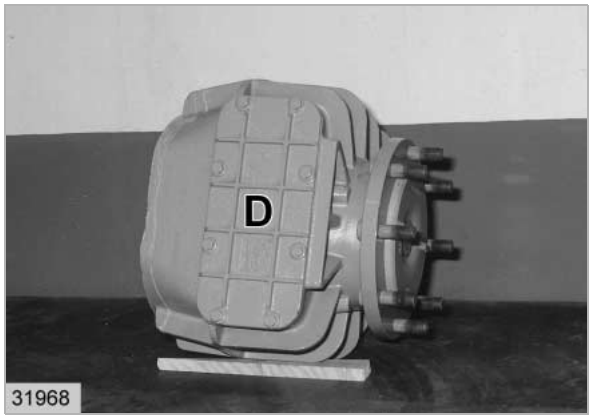
Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Suspend the final drive gearbox using a suitable lifting device. Remove the hex. bolts and the cheese-head screws at (S).

2

Lift off the final drive gearbox.

(Fig. 2)



Disassembling the final drive gearbox

Removing the wheel drive shaft

Remove the final drive gearbox.
Drain the gearbox oil.

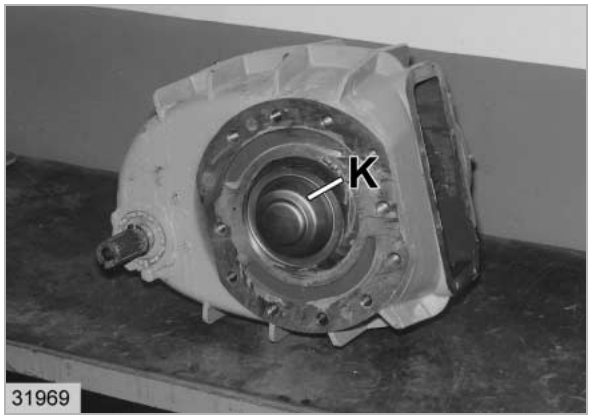
ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

3

Remove the hex. bolts from cover (D) and lift cover off.

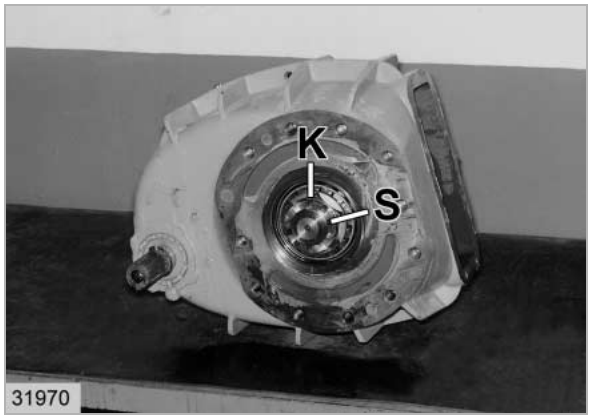
(Fig. 3)



4

Remove cap (K) and the O-ring. Whenever the cap and O-ring have been removed, they must be replaced by new ones.

(Fig. 4)



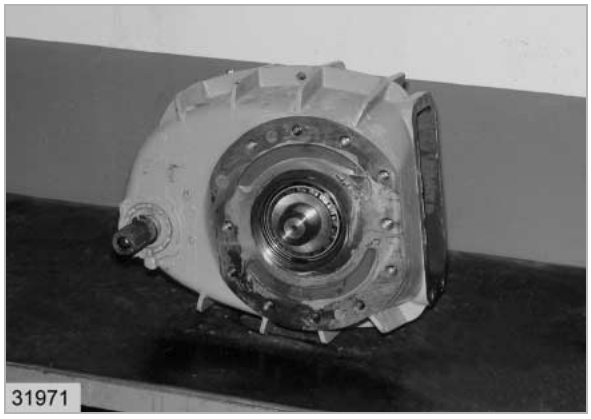
5

Drive out the double expansion pin (S) and unscrew the castellated nut (K).

NOTE!

The castellated nut is tightened to a torque of **600 Nm**.

(Fig. 5)



6

Push out the wheel drive shaft.

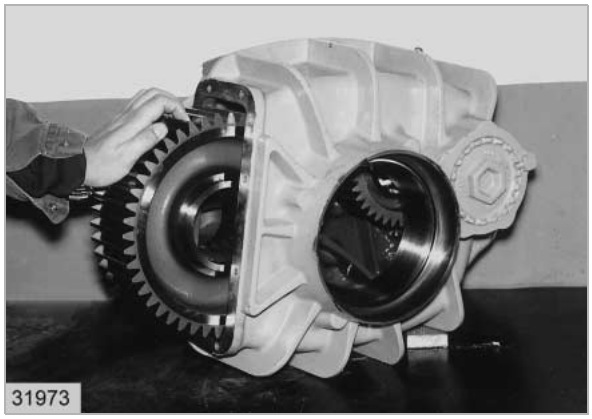
(Fig. 6)



7

Remove the taper roller bearing and the spacer bushing.

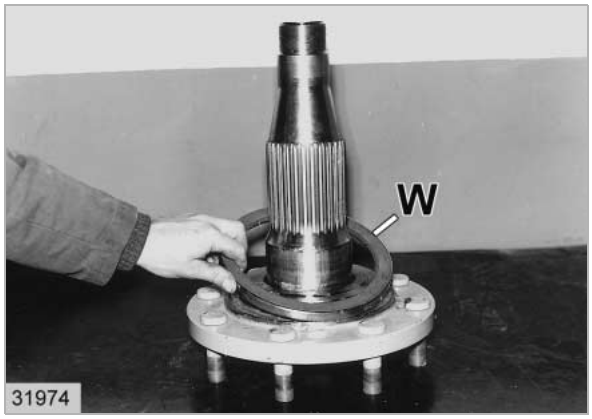
(Fig. 7)



8

Remove the gear and the washer out of the front.

(Fig. 8)



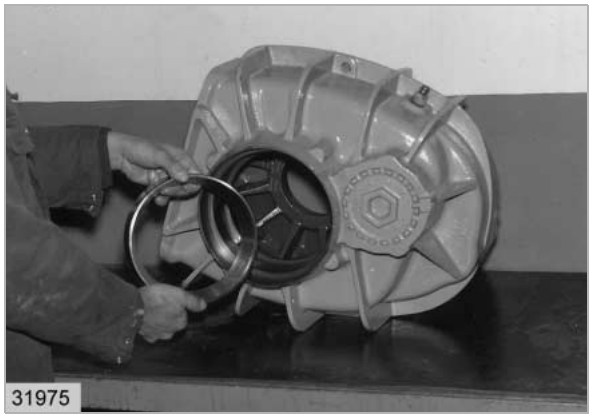
9

Remove the taper roller bearings.

Remove the shaft seal (W).

The shaft seal must always be replaced when re-assembling.

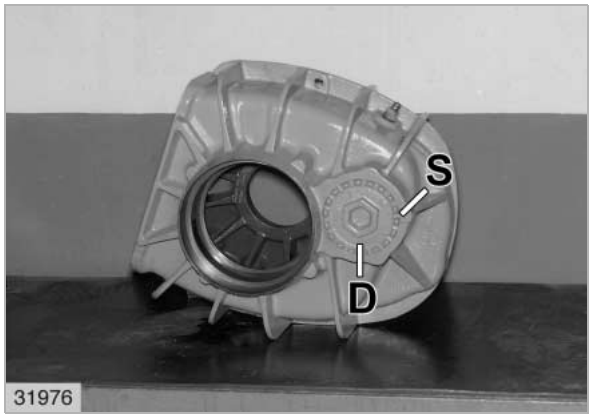
(Fig. 9)



10

Pull the outside bearing ring out of the gearbox.

(Fig. 10)



11

Removing the intermediate shaft

Remove the wheel drive shaft.

Drive out the expansion pin (S) and unscrew the cover (D).

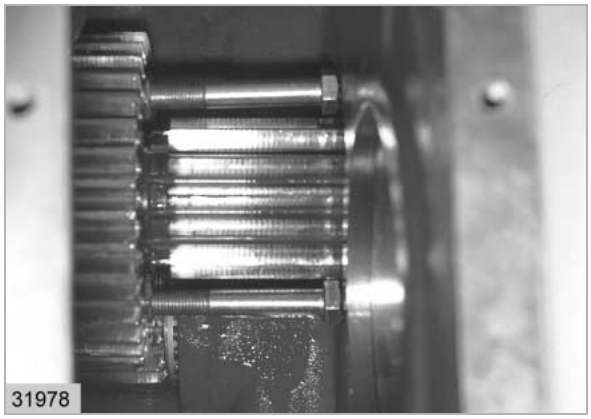
(Fig. 11)



12

Remove the outside bearing ring.

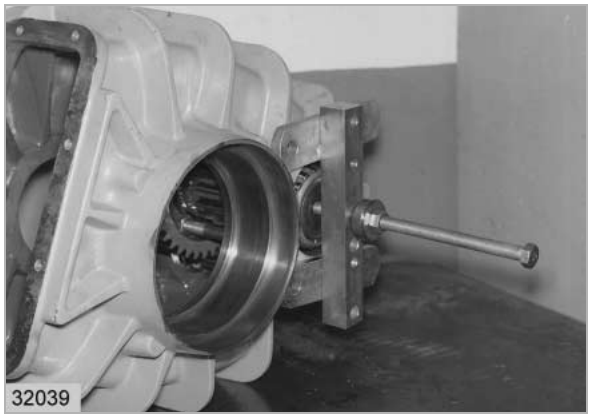
(Fig. 12)



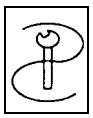
13

Using two M 14 x 110 hex. bolts and two M 14 hex. nuts, support the gear in the gearbox so that the shaft cannot tilt.

(Fig. 13)

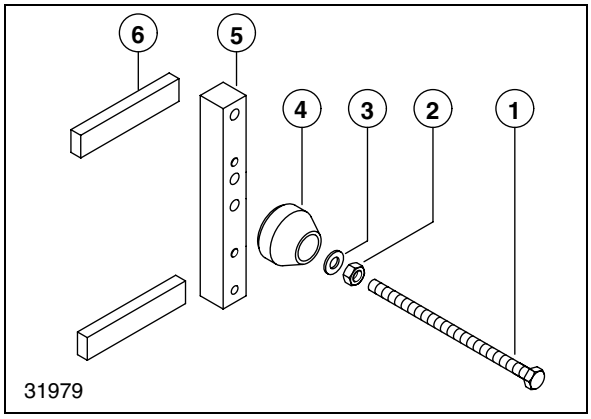


14



Remove the intermediate shaft using the special tool.

(Fig. 14)



15

Special tool:

1 Hex. bolt M 16 x 260 DIN 931-8.8, part no. 235 816.0
2 Hex. nut M 16 DIN 934-8, part no. 236 173.0
3 Washer 17
4 Bushing, part no. 181 807.1
5 Push-off bridge, part no. 181 816.3
6 Flat steel 30 x 15 x 150 (self-sourced)

(Fig. 15)

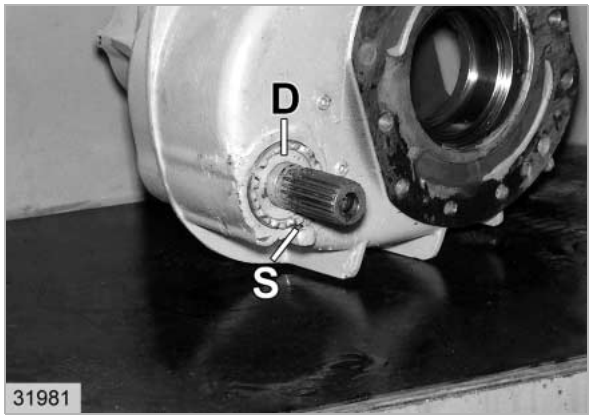


16

Remove the gear, washer and taper roller bearing from the gearbox towards the front.

Using a flat steel, drive the taper roller bearing off of the shaft so that a puller can be applied. Using the puller, remove the taper roller bearing.

(Fig. 16)



17

Removing the drive shaft

Remove the wheel drive shaft.
Remove the intermediate shaft.

Drive out the expansion pin (S) and unscrew the cover (D).

Pull the intermediate shaft out of the gearbox towards the side.

(Fig. 17)

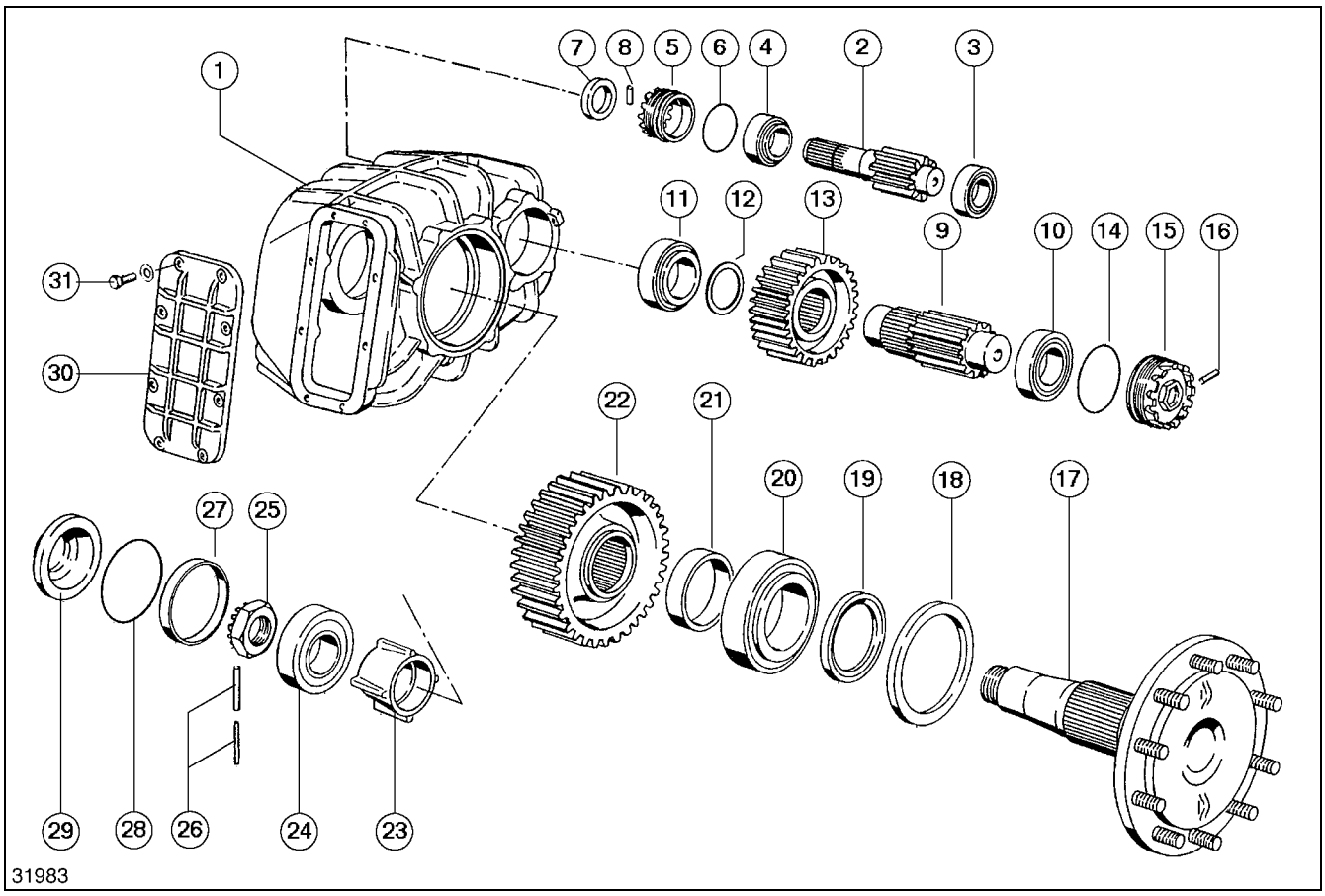


18

Using a flat steel, drive the taper roller bearings off of the shaft so that a puller can be applied.

Remove the taper roller bearings.

(Fig. 18)

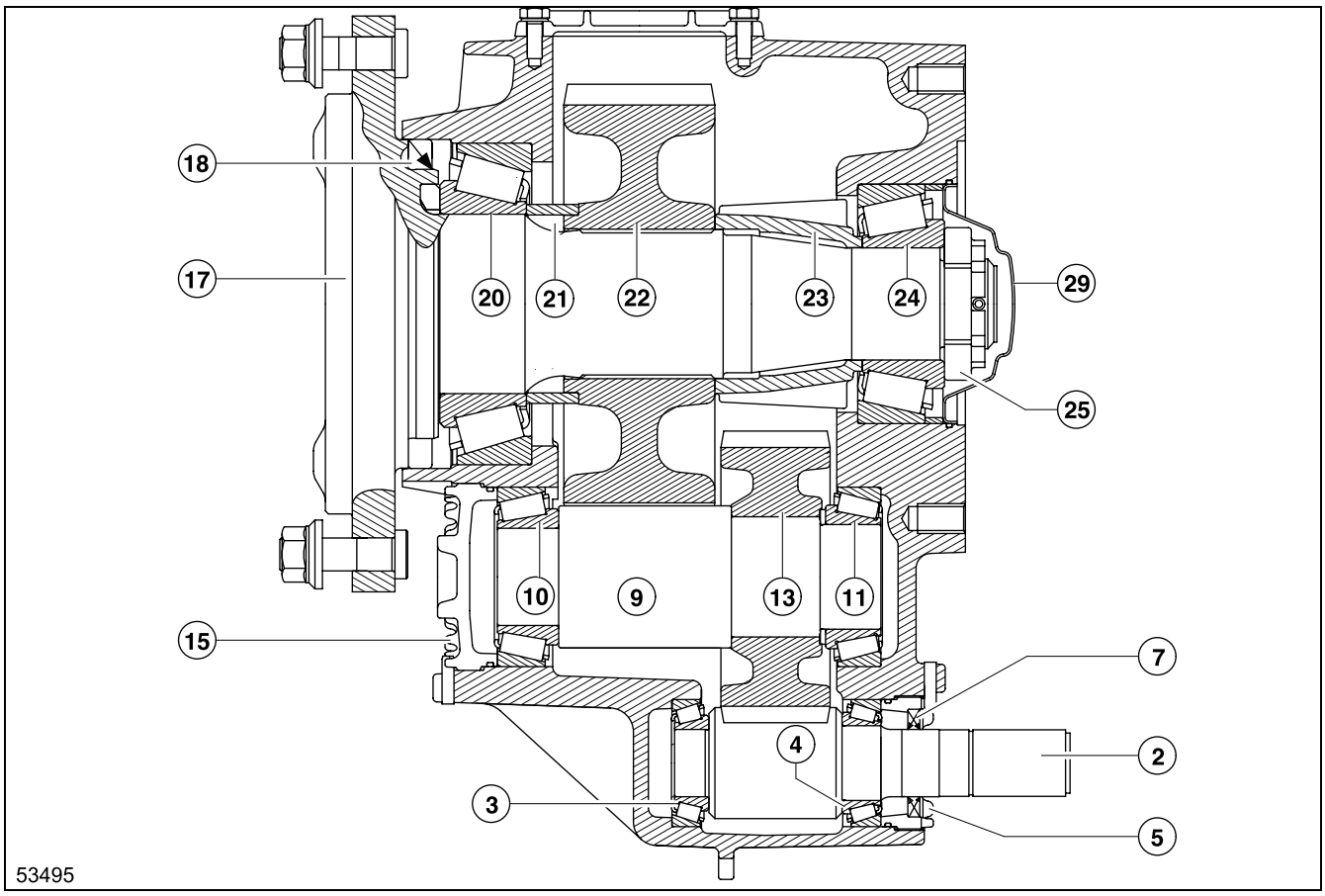


19

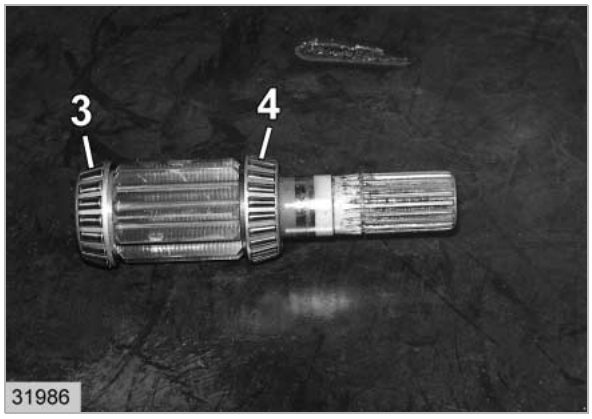
Final drive gearbox, disassembled:

1 Gearbox housing
2 Drive shaft
3 Taper roller bearing 322 09 DIN 720
4 Taper roller bearing 331 10 DIN 720
5 Bearing cover
6 O-ring 79 x 3 N DIN 3771
7 Shaft seal AS 45 x 72 x 8 DIN 3760
8 Expansion pin 8 x 32 A DIN 8752
9 Intermediate shaft
10 Taper roller bearing 331 13 DIN 720
11 Taper roller bearing 331 14 DIN 720
12 Supporting ring
13 Spur gear
14 O-ring 110 x 3.5 72 NBR DIN 3771
15 Bearing cover
16 Expansion pin 8 x 32 A DIN 8752
17 Wheel drive shaft
18 Shaft seal
19 Axial load pressure ring
20 Taper roller bearing
21 Spacer ring
22 Spur gear
23 Spacer sleeve
24 Taper roller bearing
25 Castellated nut M 60 x 2
26 Expansion pin 5 x 85 A DIN 8752
Expansion pin 8 x 85 A DIN 8752
27 Spacer ring
28 O-ring 160 x 3 N DIN 3771
29 Dust cap
30 Housing cover
31 Hex. bolt M 10 x 25 DIN 933-8.8
Lock washer 10 DIN 127

(Fig. 19)



20



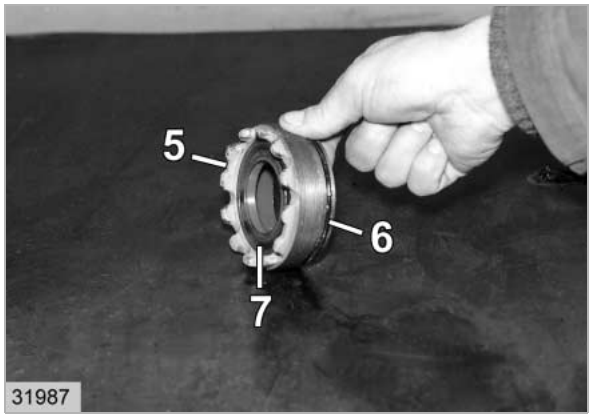
21

Assembling the final drive gearbox

Installing the drive shaft

1. Heat the taper roller bearings (3 and 4) to approx. **100 °C** and press them onto the drive shaft.
2. Press the outer race of taper roller bearing (3) into the gearbox housing. Insert the drive shaft and press the outer race of bearing (4) into position.

(Fig. 19, 20, 21)



22

3. Drive the shaft seal (7) into the bearing cover (5) so that it meets the end stop. Insert the O-ring (6).

(Fig. 19, 20, 22)



23

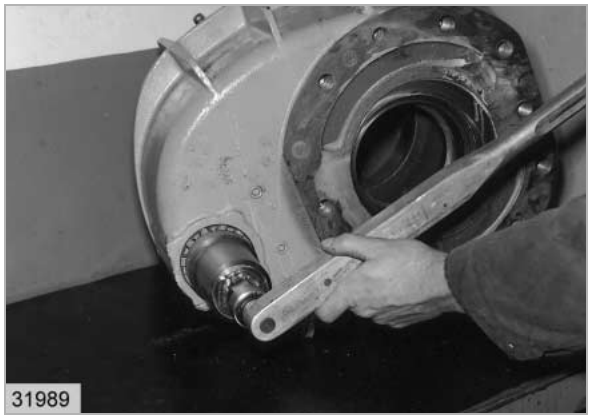
4. Apply oil to the shaft seal all around.

ATTENTION!

Avoid damage to the sealing lips of shaft seal.

☞ Wrap a foil or the like around the shaft.

(Fig. 23)



24

5. Adjust bearings by constantly turning the bearing in both directions until no more play can be measured.

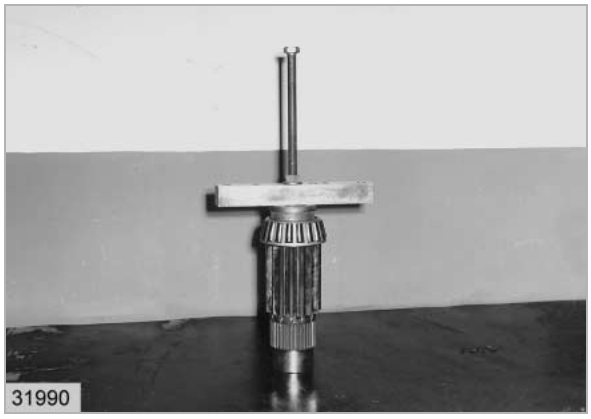
   Tighten the bearing cover to a tightening torque of **110 Nm** using the special tool. Secure the bearing cover with an expansion pin.

   The spinning torque of the shaft may be **1.8 to 3.5 Nm**.

   Special tool, part No. 181 616.0

(Fig. 24)

Install the intermediate shaft.
Install the wheel drive shaft.
Install the final drive gearbox.

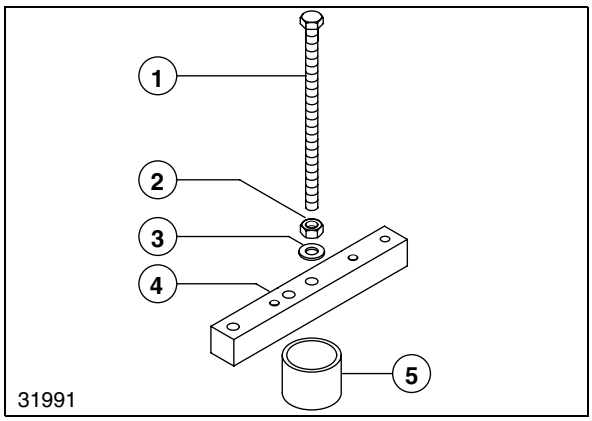


25

Installing the intermediate shaft

1. Heat the taper roller bearing (10) to approx. **100 °C** and press it onto the intermediate shaft using the special tool.

(Fig. 19, 20, 25)



26

Special tool:

1 Hex. bolt M 16 x 300 SP DIN 933-8.8, part no. 237 375.1
2 Hex. nut M 16 DIN 934, part no. 236 173.0
3 Washer 17, part no. 235 127.2
4 Push-off bridge, part no. 181 816.3
5 Tube ∅ 78 x ∅ 66 x 50 (self-sourced)

(Fig. 26)

2. Press the outer race of taper roller bearing (11) into the gearbox housing.

   Heat the taper roller bearing (11) to approx. **100 °C** and insert it into the outer bearing race.

   Stick the supporting ring (12) with grease to the spur gear (13).

   Lift the spur gear into the gearbox housing.

   Insert the intermediate shaft.

(Fig. 19, 20)

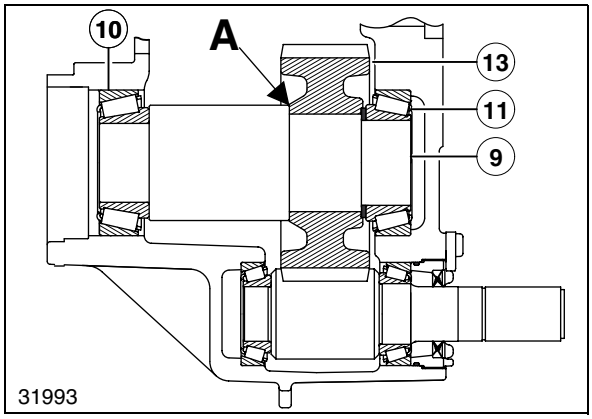


27

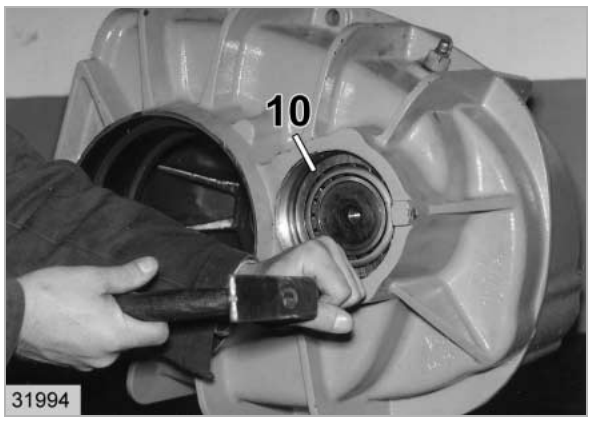
3. Once the taper roller bearing (11) has cooled down, measure the play between the spur gear and the shaft shoulder at (A) which should be **0.4 to 0.8 mm**.

   Should this not be the case, repeat installation of taper roller bearing (11).

(Fig. 19, 20, 27, 28)



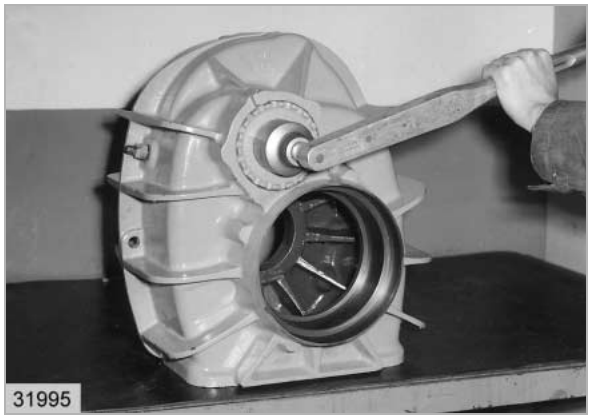
28



29

4. Press the outer race of taper roller bearing (10) into position.

(Fig. 19, 20, 29)



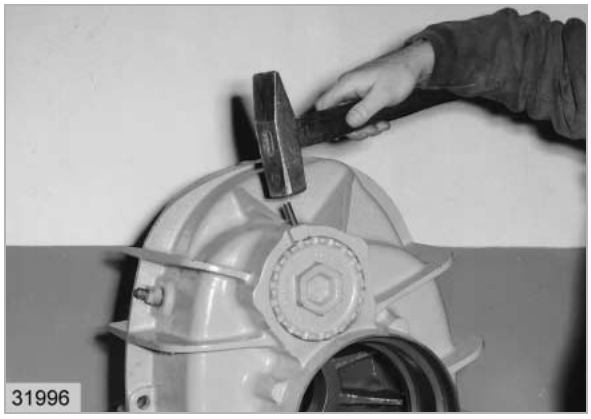
30

5. Apply oil to the O-ring (14) and install it on the bearing cover.

   Tighten the bearing cover by constantly turning the intermediate shaft until no more play can be measured.

   Once the play has been removed, tighten to a tightening torque of **250 Nm**.

(Fig. 19, 20, 30)

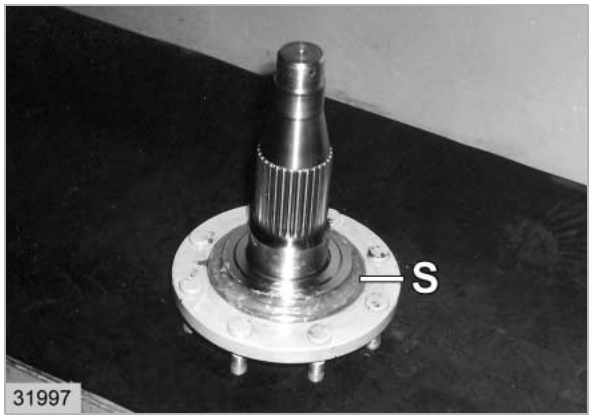


31

6. Secure the bearing cover (15) with an expansion pin (16).

(Fig. 19, 20, 31)

Install the wheel drive shaft.
Install the final drive gearbox.

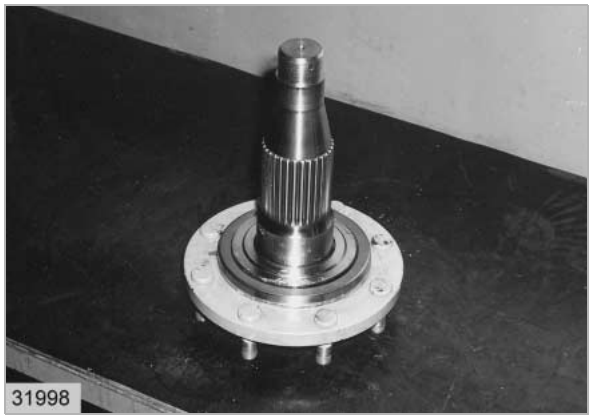


32

Installing the wheel drive shaft

1. Fill the circular groove (S) of the main shaft completely with grease.

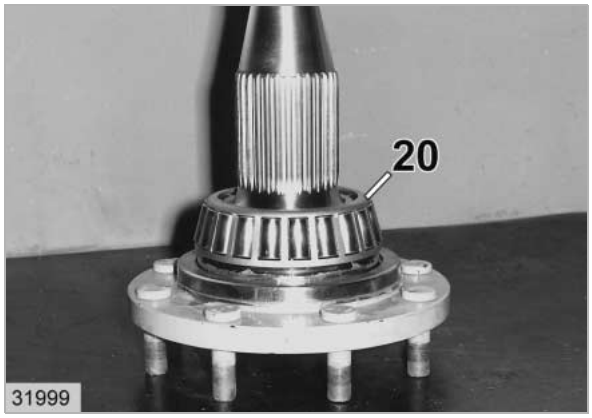
(Fig. 32)



33

2. Slide on the shaft seal. Ensure correct installation position.

(Fig. 33)



34

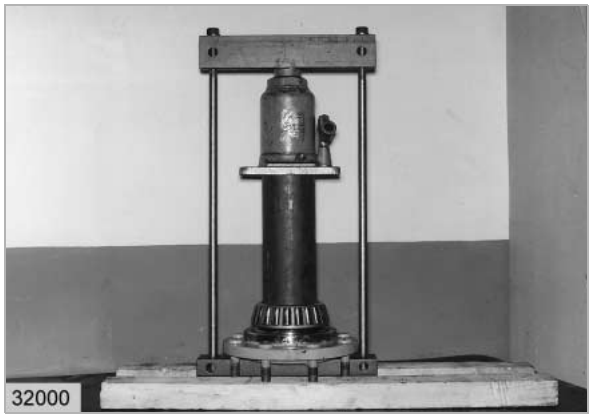
3. Heat the taper roller bearing (20) up to approx. **100 °C** and press it on the wheel drive shaft.

   Once the bearing (20) has cooled down, press it into position using an axial pressure of **20 t**.

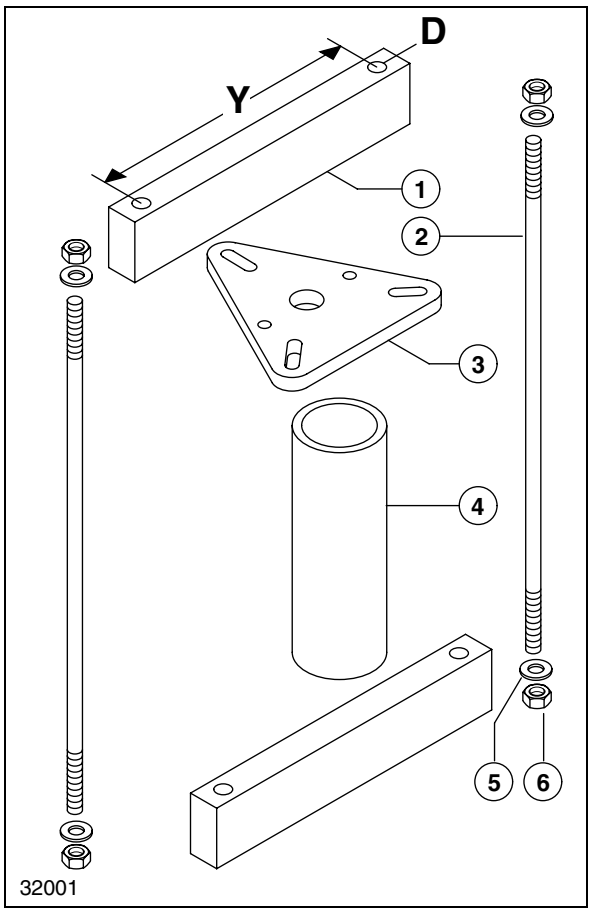
CAUTION!

There must be no more gap between the taper roller bearing and the shaft shoulder. Should this be the case, repeat the procedure.

(Fig. 34, 35, 36)



35



36

Press:

1 Flat steel 80 x 40 x 420 mm
  Y = 355 mm
  D = ∅ 22 mm
2 Threaded rod M 20 x 680 mm
3 Puller plate, part no. 181 803.1
4 Tube ∅ 125 x ∅ 110 x 305 mm
5 Washer 21
6 Hex. nut M 20, part no. 237 521.0
7 Jack 20 t

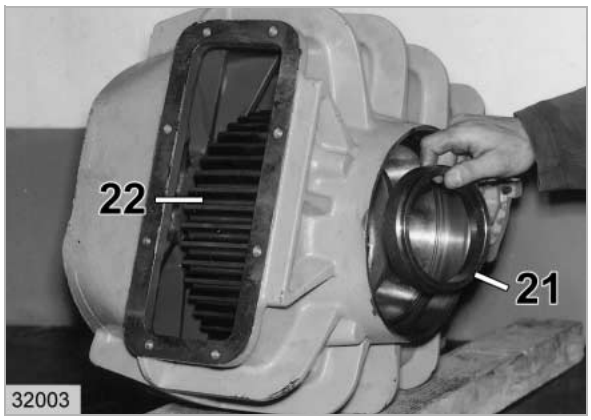
(Fig. 35, 36)



37

4. Press the outer race of taper roller bearing (20) into the gearbox housing.

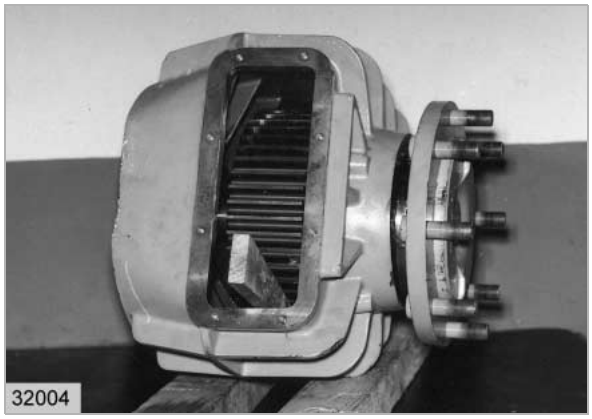
(Fig. 37)



38

5. Place the spur gear (22) with the spacer (21) into the gearbox housing.

(Fig. 38)

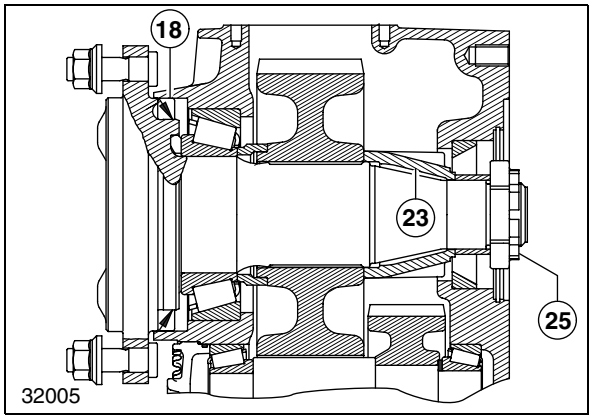


39

6. Introduce the main shaft up to the shaft seal.

   Align the spur gear with the holes in the gearbox and secure with a wedge.

(Fig. 39)



40

7. Insert the spacer sleeve (23) and press in the outer race of taper roller bearing (24).
8. Using a tube ∅ 75 x ∅ 68 x 35 mm and castellated nut (25) pull in the shaft seal (18).

(Fig. 40)



41

9. Release the castellated nut and remove the tube.

   Heat the taper roller bearing (24) to approx. **100 °C** and press on the main shaft.

10. Check the thread of the castellated nut. Replace castellated nut if damaged. Oil the thread and the contact face of the castellated nut.

    Tighten up the castellated nut while constantly turning the wheel drive shaft until no more play can be measured.

11. Tighten the castellated nut to **1000 Nm**. Hit the wheel drive shaft with several short, sharp blows to eliminate the settling effect.

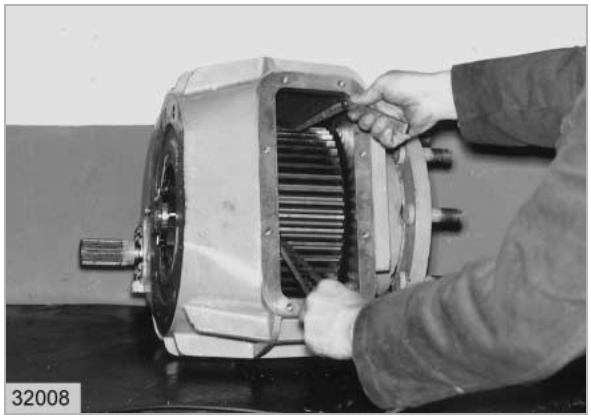
    Tighten the castellated nut to **600 Nm**. Hit the wheel drive shaft with several short, sharp blows to eliminate the settling effect.

    Tighten the castellated nut to **600 Nm** and then tighten to the next notch.

(Fig. 41, 42)



42



43

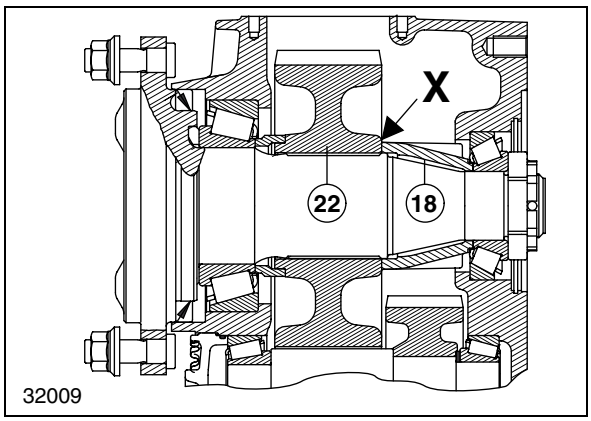
12. Measure the axial play of spur gear (22).

    Using a key drawer, push the gear to its end stop.

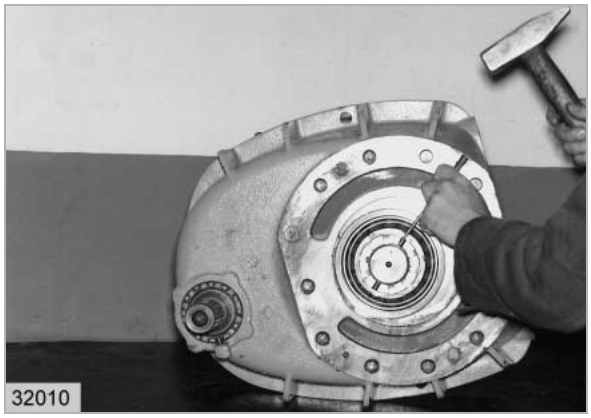
    The axial play at (X) should be **0.2 mm to 0.9 mm**.

    The spinning torque of the main shaft may be **9 to 12 Nm**.

(Fig. 43, 44)



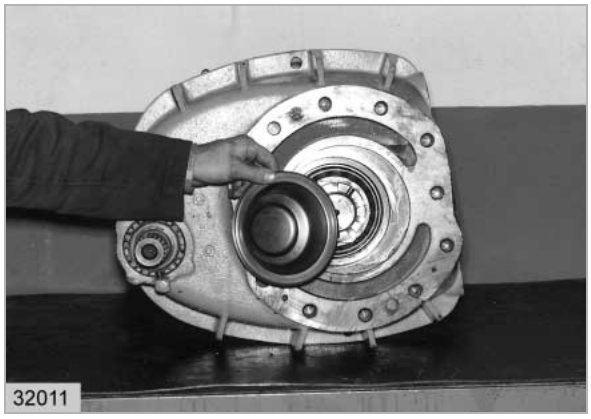
44



45

13. Use a double expansion pin (26) to secure the castellated nut.

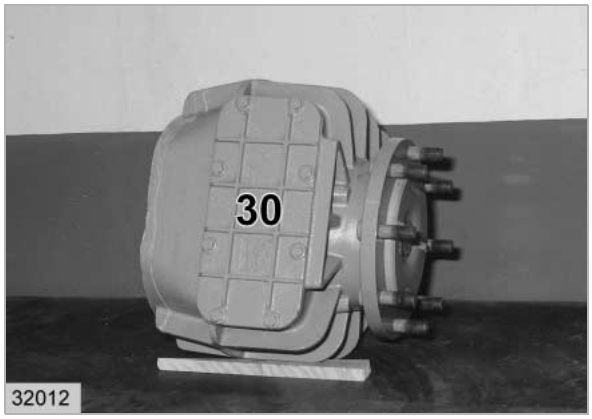
(Fig. 45)



46

14. Insert spacer bushing. Insert the O-ring into the groove with grease. Press in the cap (29).

(Fig. 46)



47

15. Clean the contact surface of the gearbox housing and the cover (30). Apply a thin coat of sealing compound, e.g. Epple Type 33, to the surface. Bolt down the cover.

(Fig. 47)

Install the final drive gearbox.

Disassembling the planetary final drive gearbox

Remove the final drive gearbox.

Drain the gearbox oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations!

Clean magnetic plug in oil drain plug at every oil change. Screw in the oil drain plug tightly after draining the oil.



48

Remove the cap and the O-ring.

Whenever the cap and O-ring have been removed, they must be replaced by new ones.

(Fig. 48)



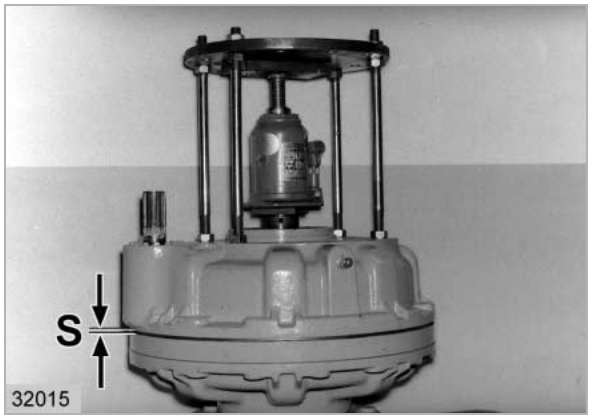
49

Drive out the double expansion pin (S) and unscrew the castellated nut (K).

NOTE!

The castellated nut is tightened to a torque of **580 Nm**.

(Fig. 49)



50

Mark the gearbox halves with respect to each other.

Remove the 16 M 16 x 100 hex. bolts.

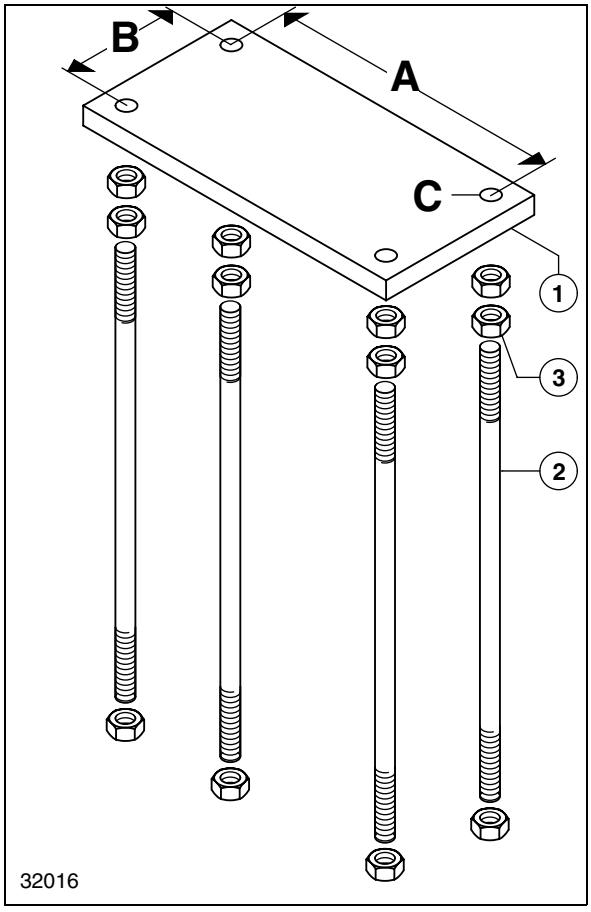
ATTENTION!

Using a jack and a special tool, lift the gearbox housing only so that the gap (S) is **5 mm max.**

Failure to observe this procedure may damage the gearbox.

Then lower the gearbox housing again.

(Fig. 50)



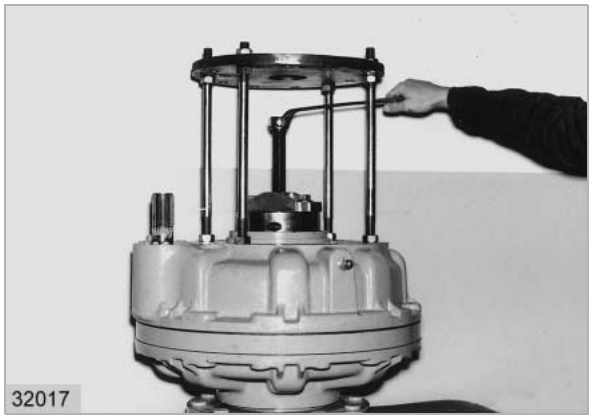
51

Special tool:

Self-manufactured

1 Plate 350 x 230 x 20 mm
A = 300 mm
B = 180 mm
C = ∅ 22 mm
2 Threaded rods M 20 x 450 (4 pieces)
3 Hex. nuts M 20 DIN 934-8 (12 pieces)

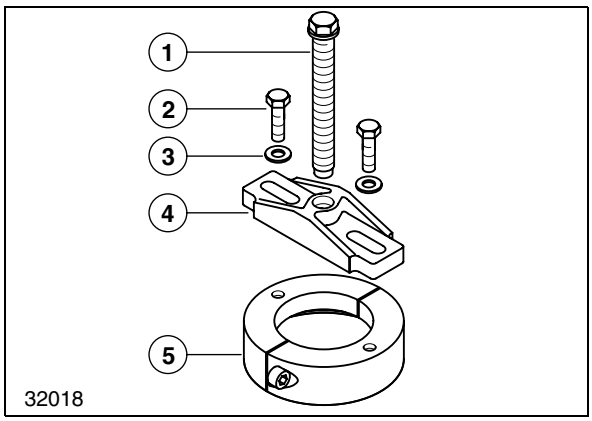
(Fig. 51)



52

Remove the taper roller bearing using the special tool.

(Fig. 52)



53

Special tool:

1 Threaded spindle, part no. 181 801.1
2 Hex. bolt M 16 x 50 DIN 933, part no. 235 586.0
3 Washer 17 DIN 125, part no. 235 127.2
4 Puller bridge, part no. 181 800.0
5 Puller bridge, part no. 174 047.0

(Fig. 53)



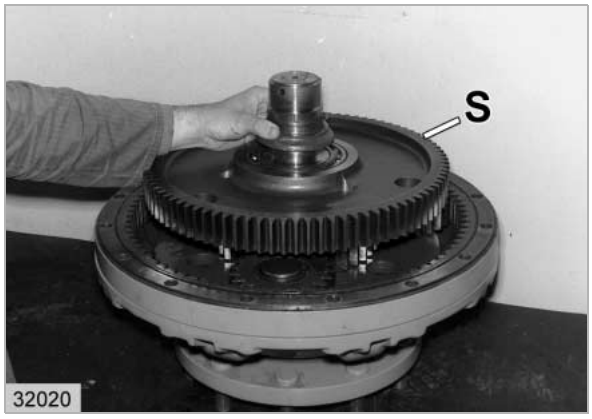
54

Lift the gearbox housing off using a lifting device.

ATTENTION!

A second person is required to guide the gearbox housing (G) so that the bearing of pinion shaft (W) does not touch the spur gear (S).

Failure to observe this procedure may damage the gearbox.



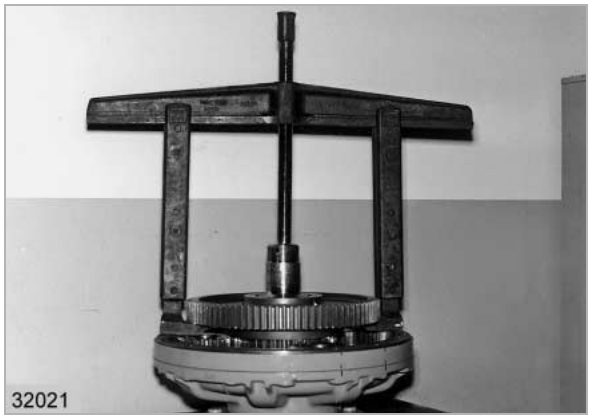
55

CAUTION!

Observe number, position and thickness of shims.

Remove compensating washer and spacer sleeve.

(Fig. 54, 55)

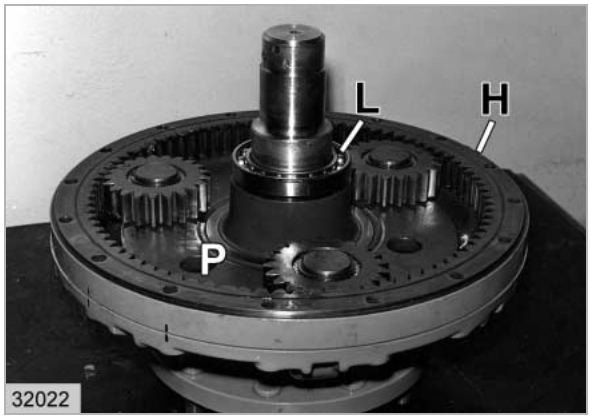


56

Using a puller, pull off the spur gear.

Drive the deep groove ball bearing out of the spur gear.

(Fig. 56)

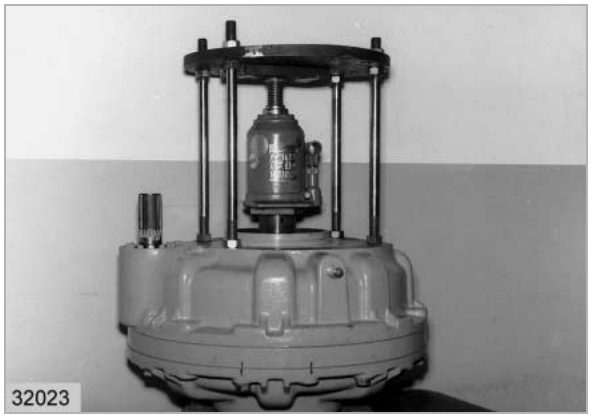


57

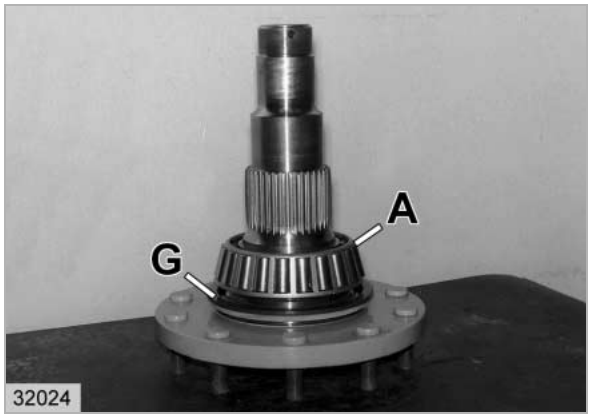
Bolt on the axle housing with 8 bolts.

Using a jack and a special tool (see Fig. 51), remove the complete axle housing including the planetary carrier (P), ring gear (H) and the deep groove ball bearing (L).

(Fig. 57, 58)



58

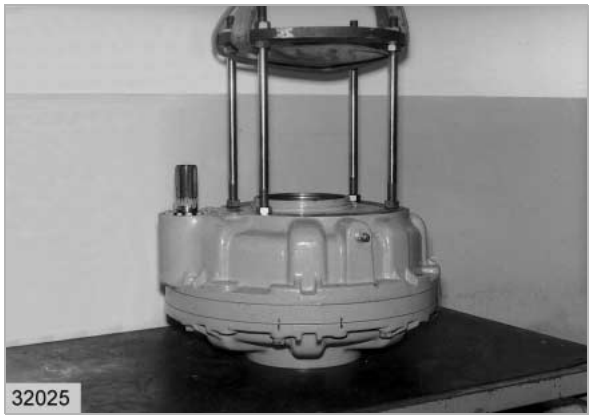


59

Pull off taper roller bearing (A) from the wheel drive shaft.

Remove the mechanical shaft seal (G).

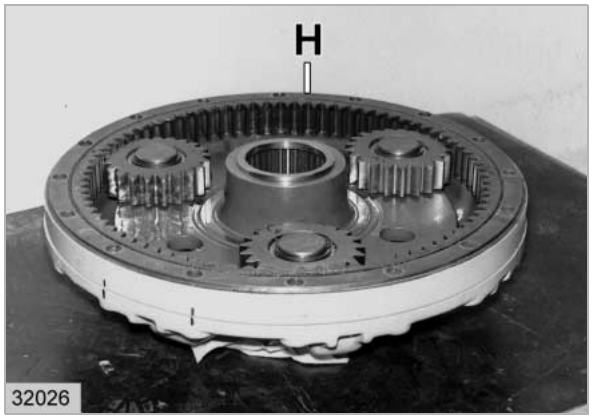
(Fig. 59)



60

Unscrew the hex. bolts (8 pcs.) from the axle housing and lift off the housing.

(Fig. 60)

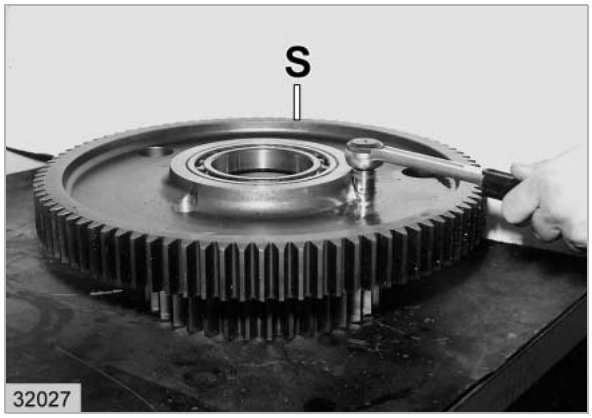


61

Remove the ring gear (H) and the circlips from the planetary gears.

Remove the planetary gears.

(Fig. 57, 61)



62

Remove the hex. bolts from the spur gear (S) and remove the bushings.

CAUTION!

The hex. bolts have been fitted with liquid locking compound and will therefore be tight.

(Fig. 62)



63

Drive out the expansion pin.

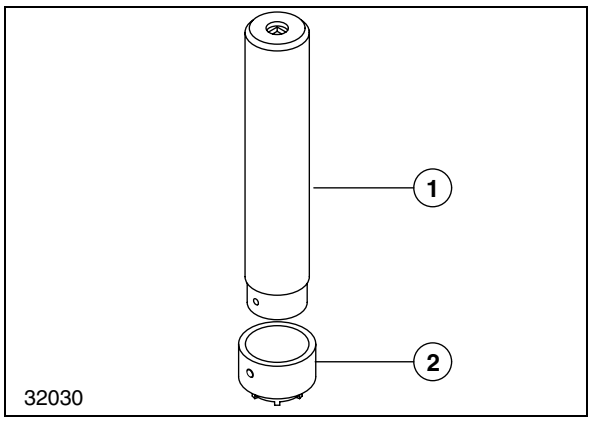
(Fig. 63)



64

Remove the bearing cover using the special tool.

(Fig. 64)



65

Special tool:

1 Tube, part no. 181 611.0
2 Socket wrench, part no. 174 048.0

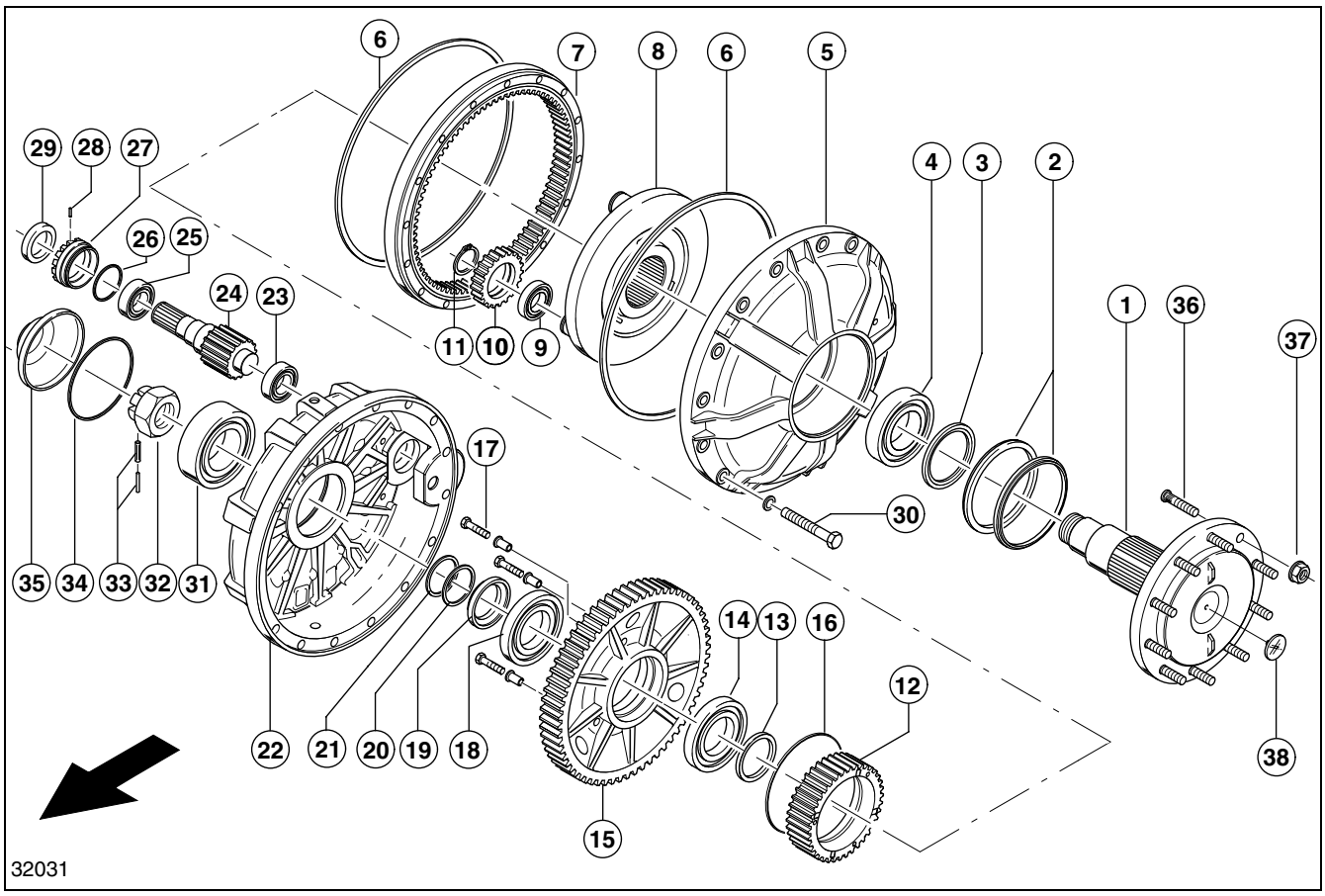
(Fig. 65)



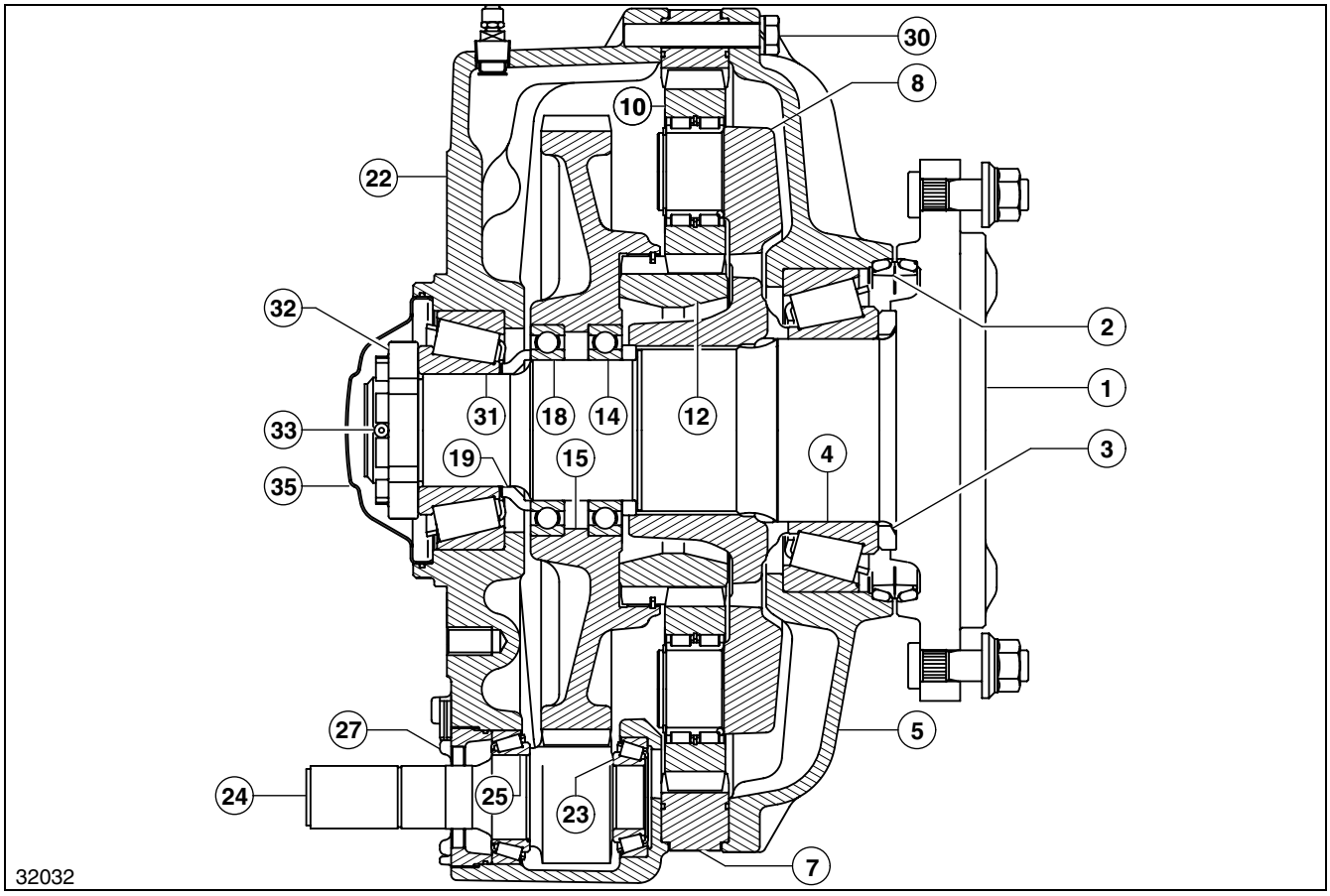
66

Using a flat steel, drive the taper roller bearings off of the shaft so that a puller can be applied.

(Fig. 66)


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67

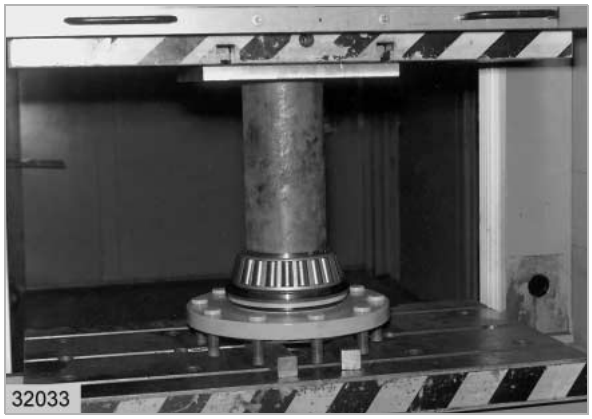

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68

Planetary final drive gearbox, disassembled:

1 Wheel drive shaft
2 Mechanical shaft seal
3 Axial load pressure ring
4 Taper roller bearing 322 26 DIN 720
5 Axle housing
6 O-ring 3 x 1670
7 Ring gear
8 Planetary carrier
9 Cylinder roller bearing
10 Planetary gear
11 Circlip 55 x 2 DIN 471
12 Sun gear
13 Locating ring
14 Deep groove ball bearing 6020 DIN 625
15 Spur gear
16 Snap ring (from serial no. ...)
17 Cheese-head screw M 10 x 45 DIN 912-10.9 (up to serial no. ...)
Round bushing (up to serial no. ...)
18 Deep groove ball bearing 6020 DIN 625
19 Spacer sleeve
20 Compensating washer
21 Shim
22 Axle housing
23 Taper roller bearing 322 09 DIN 720
24 Pinion shaft
25 Taper roller bearing 330 12 DIN 720
26 O-ring
27 Bearing cover
28 Expansion pin 8 x 28 A DIN 8752
29 Shaft seal AS 45 x 72 x 8 DIN 3760
30 Hex. bolt M 16 x 100 DIN 931-10.9
Safety washer 16
31 Taper roller bearing 323 16 DIN 720
32 Castellated nut M 75 x 1.5
33 Expansion pin 10 x 100 A DIN 8752
Expansion pin 6 x 100 A DIN 8752
34 O-ring 190 x 3 -n DIN 3771
35 Dust cap
36 Wheel studs
37 Thrust piece nut H 12
38 Reflector

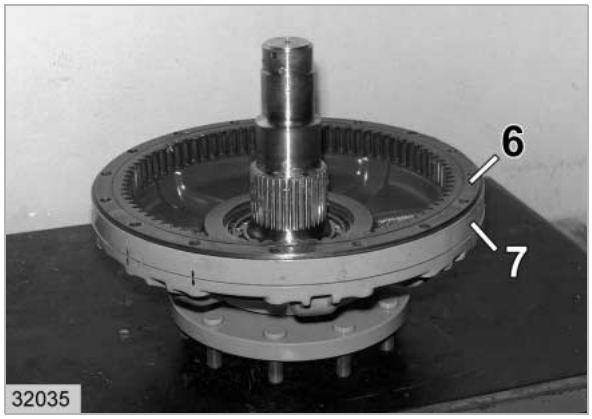
(Fig. 67, 68)



69



70



71

Assembling the planetary final drive gearbox

1. Apply some oil to mechanical shaft seal (2) and slide it on the wheel drive shaft (1). Ensure correct installation position.
2. Heat the taper roller bearing (4) up to approx. **100 °C** and press it on the wheel drive shaft.

   Once the bearing has cooled down, press it into position using an axial pressure of **20 t**.

ATTENTION!

There must be **no** more gap between the taper roller bearing and the shaft shoulder. Should this be the case, repeat the procedure.

3. Press the outer race of taper roller bearing (4) into the gearbox housing (5).
4. Grease the taper roller bearing (4) and gently lift the gearbox housing (5) on the wheel drive shaft.

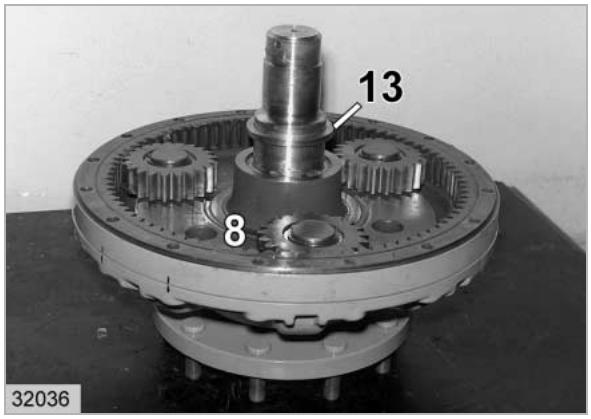
CAUTION!

The mechanical shaft seal (2) must not be tilted and consequently damaged during the installation.

(Fig. 67, 68, 69, 70)

5. Fit the O-ring (6) with grease into the groove of the ring gear (7). Place the ring gear on the gearbox housing.

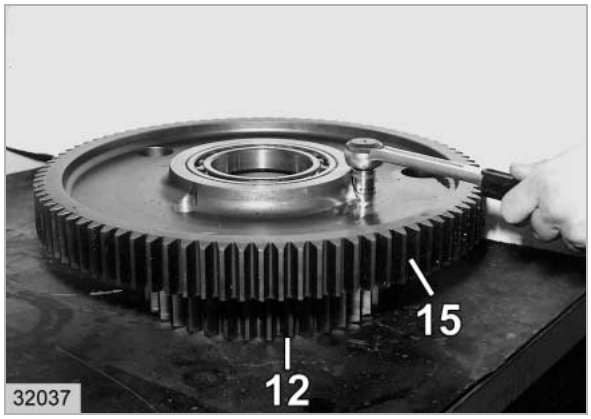
(Fig. 67, 68, 71)



72

6. Push the pre-assembled planetary carrier (8) with the planetary gears (10) on the wheel drive shaft.
7. Press the centralising ring (13) onto the wheel drive shaft.

(Fig. 67, 68, 72)



73

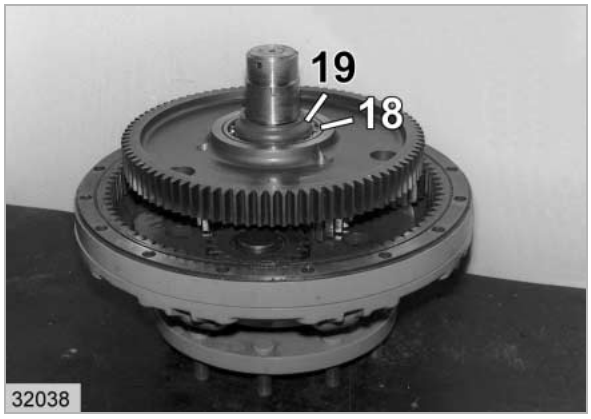
8. Press the deep groove ball bearing (14) on the shaft.
9. Pre-assemble the spur gear (15) and the sun gear (12).

   From serial no. ... place the snap ring (16) in the groove of the sun gear. Press the snap ring together and push on the spur gear (15).

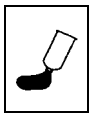
   Up to serial no. ... insert the bushings, then screw the spur gear (15) and the sun gear (12) together.

! **CAUTION!**

Insert bolts with liquid locking compound, e.g. DELO-ML 5349.



74

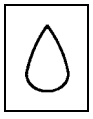


Tightening torque = 63 Nm

10. Push the pre-assembled spur gear on the wheel drive shaft.
11. Press the deep groove ball bearing (18) on the shaft.
12. Slide the spacer sleeve (19) and the compensating washer (20) on the wheel drive shaft.

(Fig. 67, 68, 73, 74)

13. Heat the taper roller bearings (23 and 25) to approx. **100 °C** and press them on the pinion shaft (24).



14. Pre-assemble bearing cover (27) with shaft seal (29) and O-ring (26). Oil the sealing lips of the shaft seal and the O-ring.
15. Drive the outer race of taper roller bearing (23) into the housing and insert the pre-assembled pinion shaft.

(Fig. 67, 68)



75

16. Slide on the pre-assembled bearing cover.

ATTENTION!

Avoid damage to the sealing lips of shaft seal.

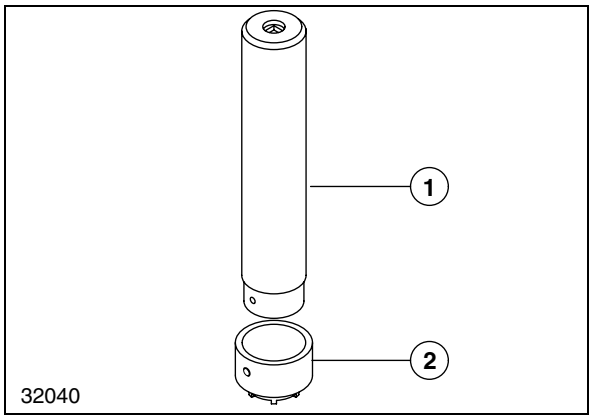
☞ Wrap a foil or the like around the shaft.

Tighten up the bearing cover using the special tool, thereby constantly turning the pinion shaft, until there is no more play in the shaft. A guide value of approx. **110 Nm** applies.

The spinning torque of the pinion shaft must be between **1.8 and 3.5 Nm**.

Now secure the bearing cover with an expansion pin.

(Fig. 67, 68, 75)

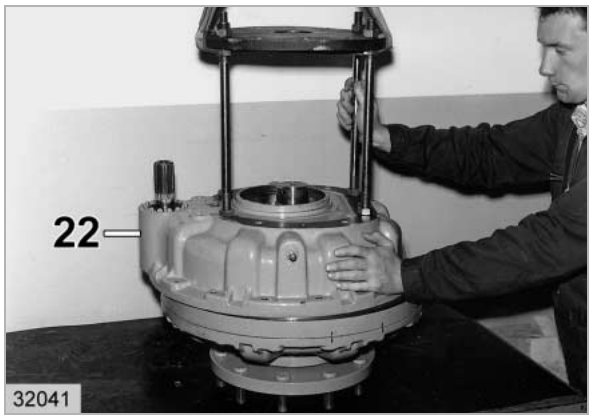


76

Special tool:

1 Tube, part no. 181 611.0
2 Socket wrench, part no. 174 048.0

(Fig. 76)



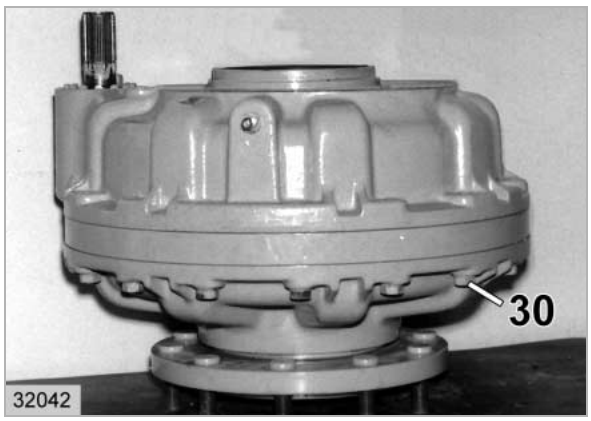
77

17. Attach the pre-assembled axle housing (22) using a lifting device.

CAUTION!

A second person is required to guide the axle housing so that the bearing (23) does not touch the spur gear (15).

(Fig. 67, 68, 77)

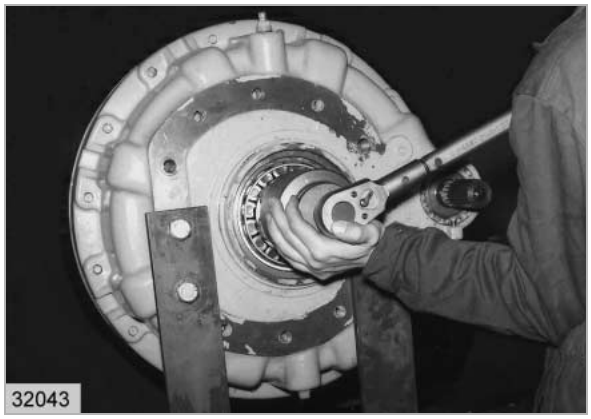


78

18. Bolt the axle housing together using the hex. bolts (30).

    Tightening torque = 270 Nm

(Fig. 67, 68, 78)



79

19. Insert the outside bearing ring.

    Heat the taper roller bearing (31) to approx. **100 °C** and press it on the main shaft. Grease bearing after cooling down.

20. Check the thread of the castellated nut. Replace castellated nut if damaged. Oil the thread and the contact face of the castellated nut.

    Tighten up the castellated nut while constantly turning the wheel drive shaft until no more axial play can be measured.

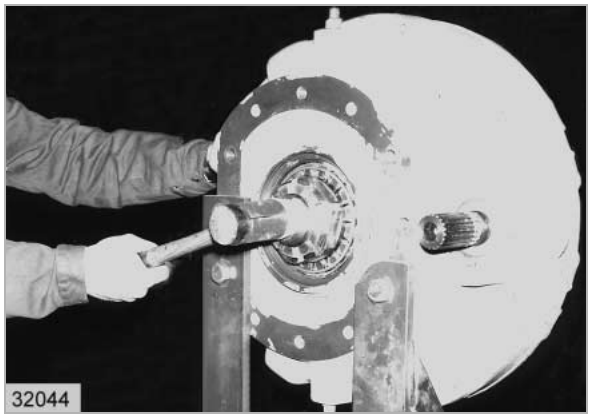
21. Tighten the castellated nut to **980 Nm**. Hit the wheel drive shaft with several short, sharp blows to eliminate the settling effect.

    Tighten the castellated nut to **580 Nm**. Hit the wheel drive shaft with several short, sharp blows to eliminate the settling effect.

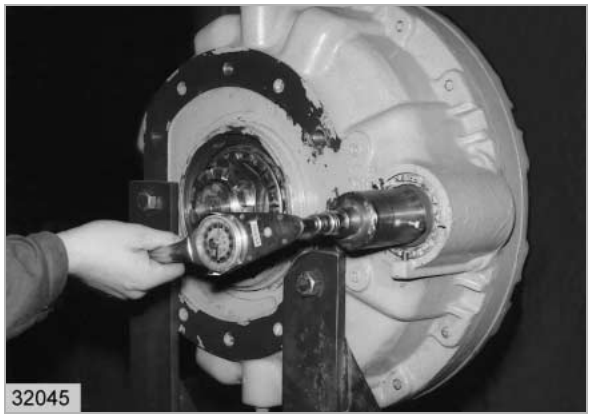
    Tighten the castellated nut to **580 Nm** and then tighten to the next notch.

    The spinning torque of the pinion shaft may be **8 to 11 Nm**.

(Fig. 67, 68, 79, 80, 81)



80



81

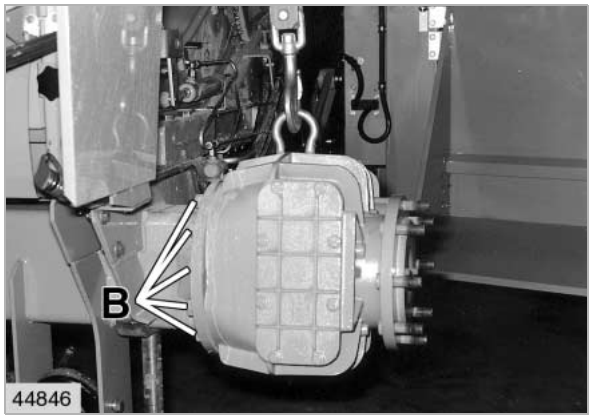


82

22. Secure the castellated nut with expansion pin (33).
23. Insert the O-ring (34) and press in the cap (35).

(Fig. 67, 68, 82)

Install the final drive and fill with gearbox oil.



83

Installing the final drive gearbox

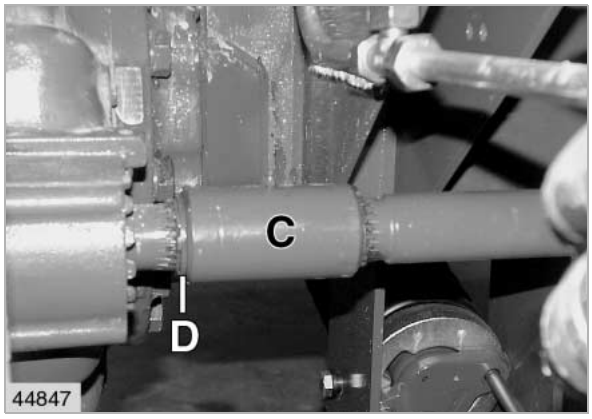
1. Secure the machine from rolling by applying wheel chocks.
2. Move gear lever to neutral position.
3. Release the parking brake.
4. Clean bolting surfaces on the final drive gearbox and on the drive axle and drive out the expansion pin there.
5. Lift the final drive gearbox to the drive axle using a suitable lifting device.
6. Slide the profiled bushing (C) with the existing washers (D) on the intermediate drive shaft and bolt the final drive gearbox to the drive axle with four hex. bolts (B) without sealant.
7. Determine the axial play of the intermediate drive shafts on the brake discs using a measuring device on the left-hand and right-hand side.

   To do this, shift the intermediate drive shafts in both directions, using a tyre mounting lever.

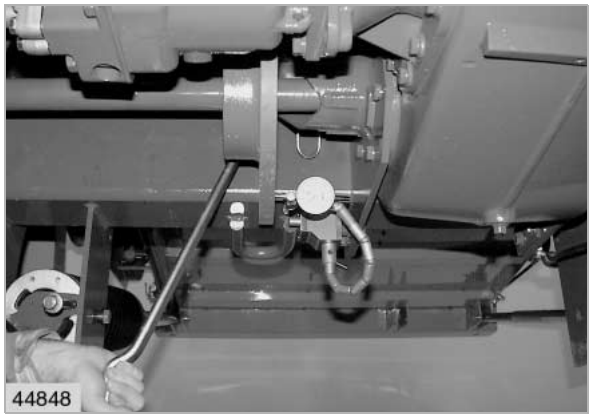
   The total axial play on both sides is **1.7 mm max.**

   Axial play on one side **= 0.5 mm min.**

   Correct with washers (D) at the profiled bushing (C) if required.



84



85

8. Apply liquid sealing compound, e.g. omni-FIT-FD-10, to the bolting surface of the axle housing.
9. Slide the determined number of washers (D) and profiled bushings (C) on the intermediate drive shaft.
10. Bolt down the final drive gearbox to the drive axle with hex. bolts (B) and new safety washers.

(Fig. 83, 84, 85)

11. Check if the intermediate drive shafts move easily by turning the brake discs. If required, correct by slackening off the hex. bolts (B) and slightly twisting the final drive.

CAUTION!

If the two final drive gearboxes have been removed at the same time, the intermediate drive shaft on the opposite side must be held tight for checking smooth operation.

12. Arrest the final drive gearbox and drive axle with new expansion pins.

CAUTION!

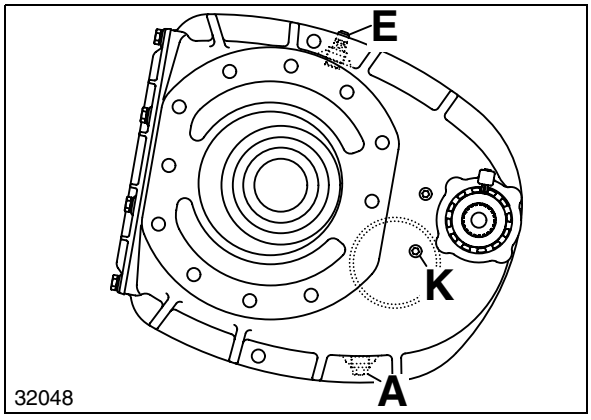
If the existing bores do not match, a new bore must be made for the expansion pin if necessary.

13. Tighten the hex. bolts (B).

    Tightening torque M 20 = 370 Nm

14. Grease profiled bushing (C) with multi-purpose grease, e.g. CLAAS multi-purpose grease EP 2.

(Fig. 83, 84, 85)

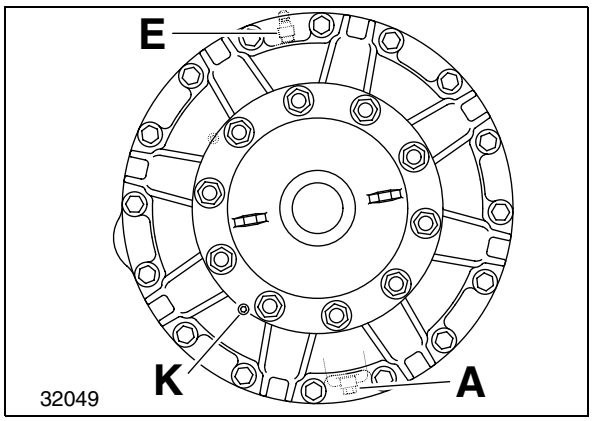


86

15. Fill in gearbox oil.

    E = Oil filler plug and gearbox breather
    A = Oil drain plug
    K = Oil level check plug

(Fig. 86)



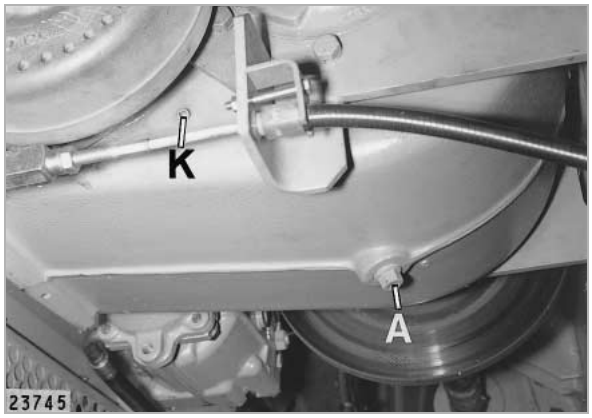
87

E = Oil filler plug and gearbox breather
A = Oil drain plug
K = Oil level check plug

(Fig. 87)

16. Install wheel.

MANUAL GEARBOX



1

Removing the manual gearbox

Remove the drive wheels.
Remove both final drive gearboxes.

Drain the gearbox oil.

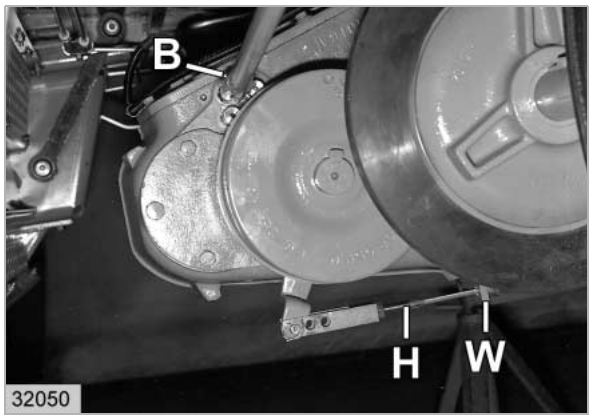
K = Oil level check plug
A = Oil drain plug with magnetic plug

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations!

Clean magnetic plug in oil drain plug at every oil change. Screw the drain plug back in tightly.

(Fig. 1)

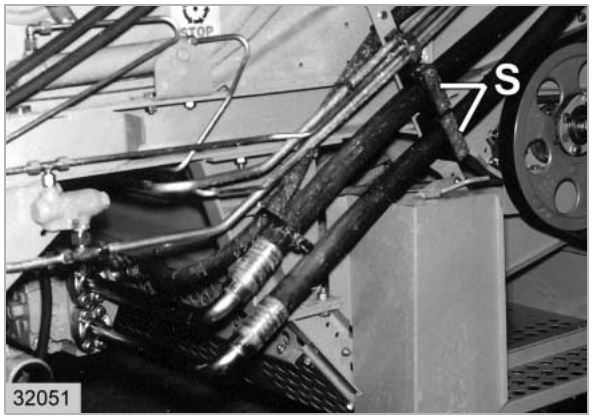


2

Unlock the pin (B) at the gearshift linkage and pull it out.

Unhinge the parking brake rope (H) and unscrew it from the retarder (W).

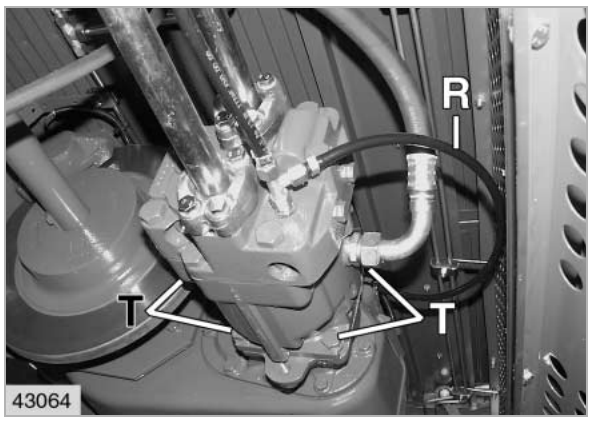
(Fig. 2)



3

Unscrew clamps (S) for attaching the hydraulic hoses.

(Fig. 3)



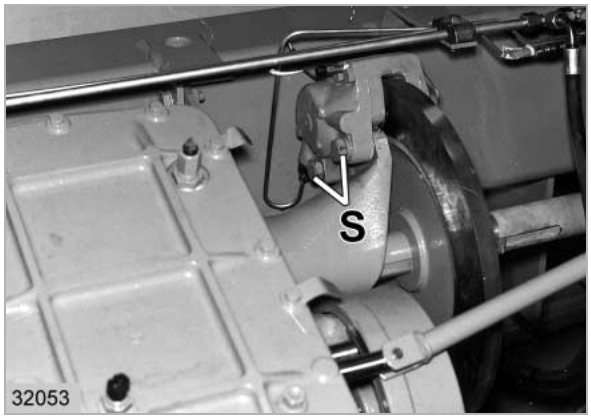
4

For servo gearshift:

Unscrew the hose (R) from the cover of the manual gearbox. Plug the pipe and unions tightly with plastic caps.

Remove the 4 hex. bolts (T) securing the hydrostatic motor and pull the motor away from manual gearbox.

(Fig. 4)



5

Disconnect the cable plugs from the manual gearbox and bend up the cable clamps on the gearbox.

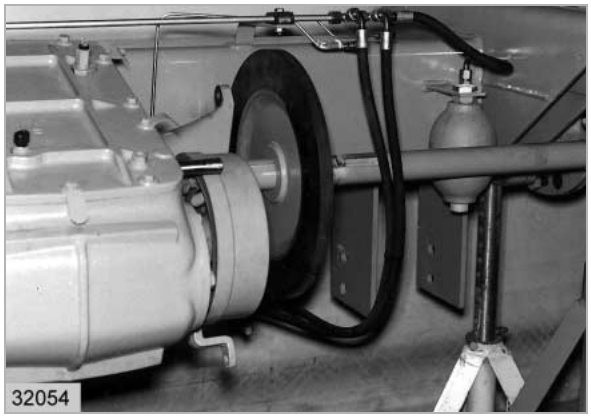
On both sides remove the brake lines from the brake callipers and plug the pipes tightly with plastic caps.

Unscrew the hex. bolts (S) and remove the brake calliper.

CAUTION!

The hex. bolts have been fitted with liquid locking compound.

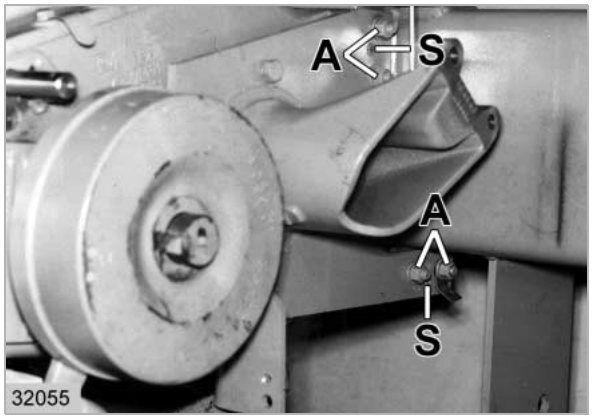
(Fig. 5)



6

Pull both drive shafts with brake discs out of the side of the manual gearbox.

(Fig. 6)



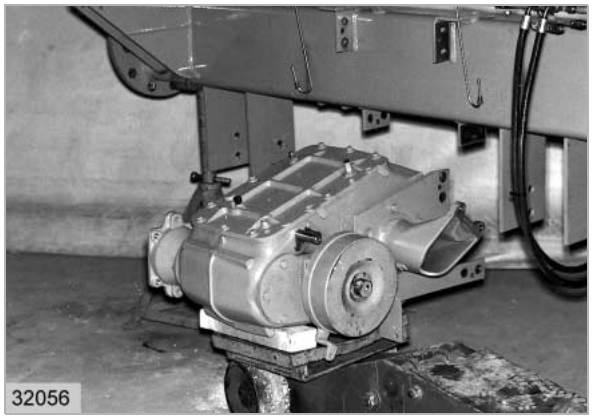
7

Safely support the manual gearbox with a mobile jack.

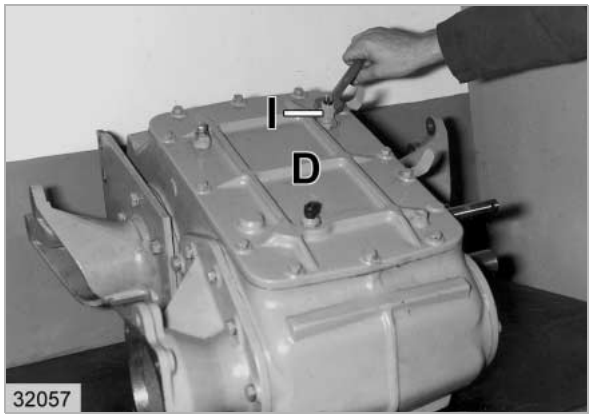
Drive out the expansion pins (S) on both sides and unscrew the hex. bolts (A).

Slowly lower the gearbox and remove it to the right-hand side of the machine.

(Fig. 7, 8)



8



9

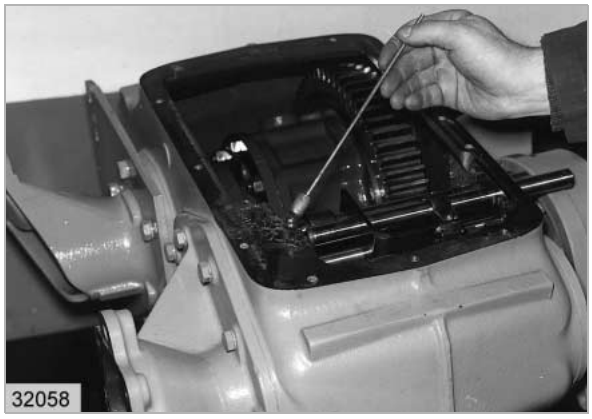
Disassembling the manual gearbox

Removing the shifter rails

Remove manual gearbox.

Remove the magnetic pick-up (I).
Unscrew the gearbox cover (D).

(Fig. 9)

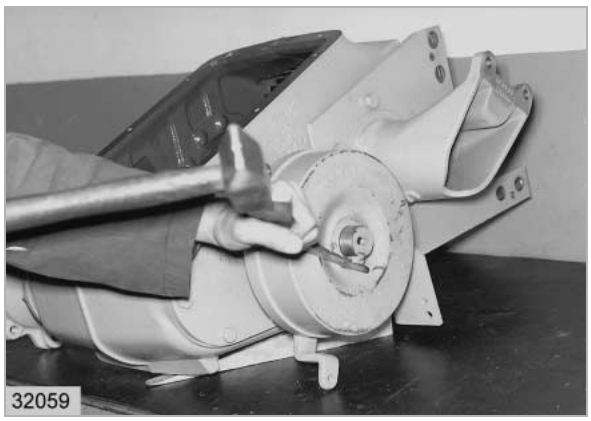


10

Remove the compression springs.

Remove the arresting balls with the magnetic rod (M, special tool part no. 171 842.0).

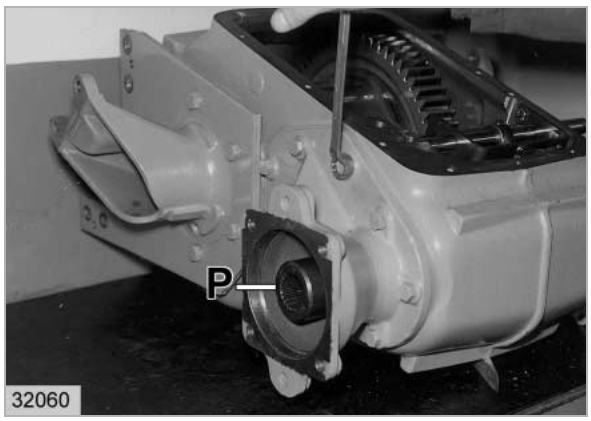
(Fig. 10)



11

Remove the key of the handbrake drum, then remove the drum itself.

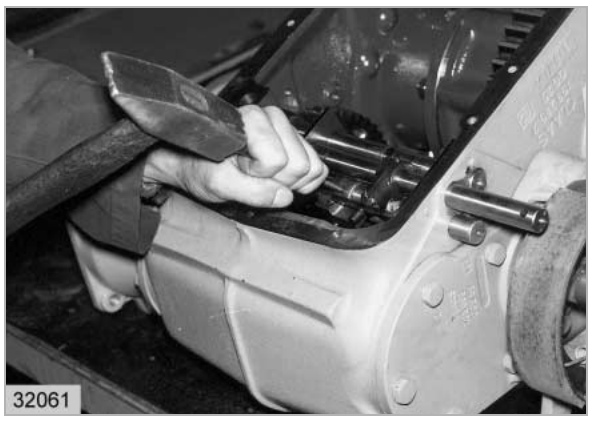
(Fig. 11)



12

Remove the profiled bushing (P) and then remove the flange housing.

(Fig. 12)



13

Drive out the expansion pin. Pull out the shifter rail out to the right and remove the shifter fork.

(Fig. 13)



14

Drive out the expansion pin. Pull out the shifter rail out to the right and remove the shifter fork.

(Fig. 14)



15

Drive out the expansion pin. Remove the shifter rail to the right-hand side and remove the shifter finger.

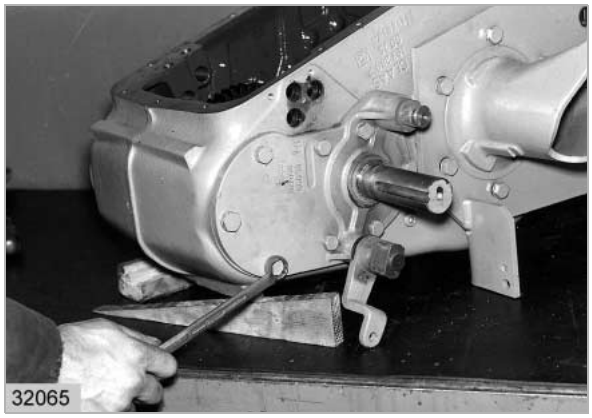
(Fig. 15)



16

Remove the shift gate.

(Fig. 16)



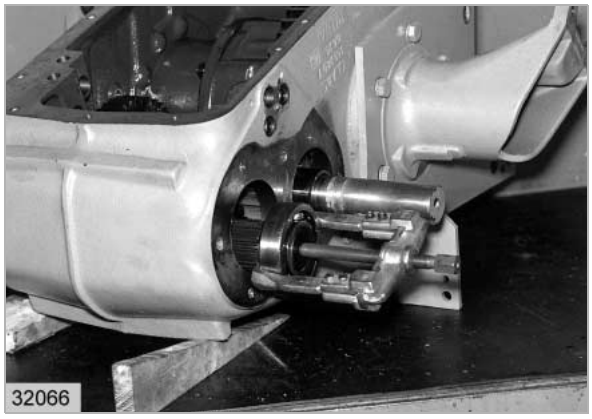
17

Removing the drive shaft

Remove manual gearbox.
Remove the shifter rails.

Remove the brake linings and the right-hand gearbox cover.

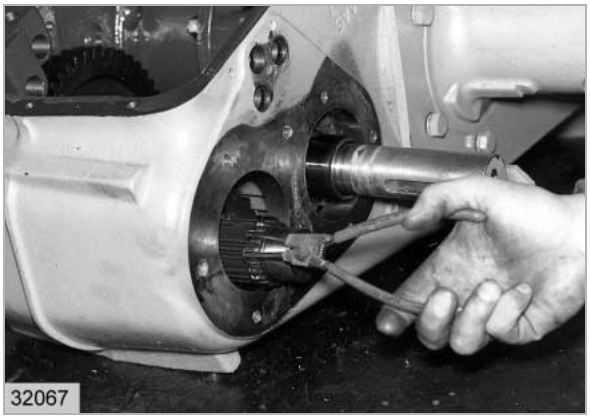
(Fig. 17)



18

Push the drive shaft through to the right-hand side. Pull off the deep groove ball bearing with a puller.

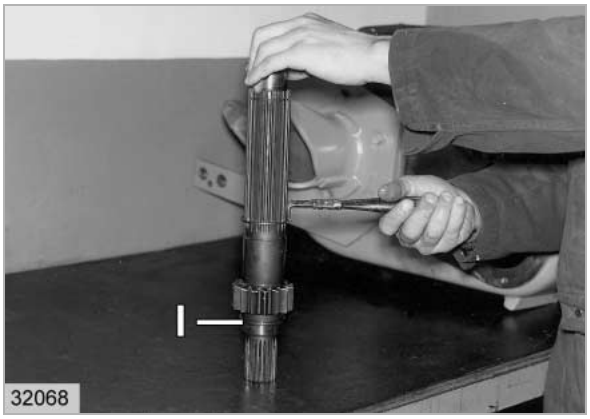
(Fig. 18)



19

Remove the circlip.

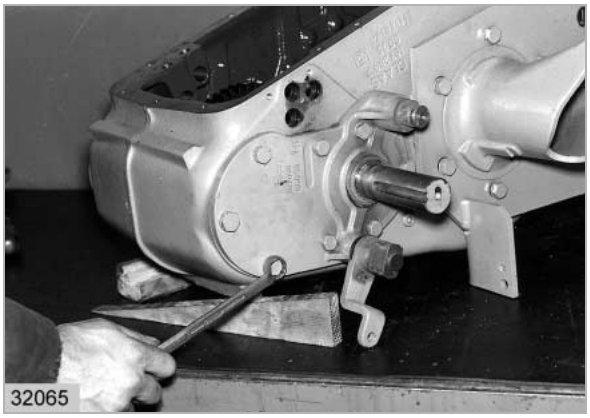
(Fig. 19)



20

Pull out the drive shaft. Remove the circlip and pull off the inner bearing race (I).

(Fig. 20)



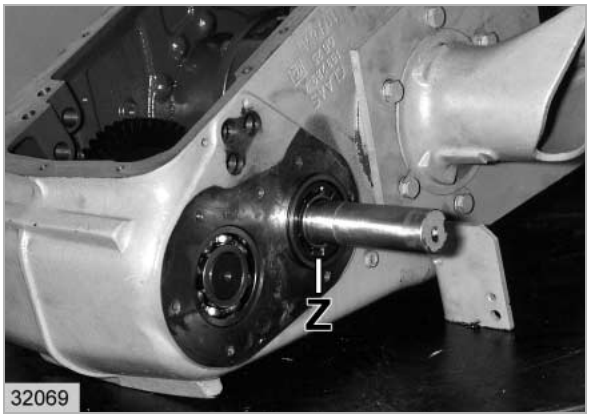
21

Removing the main shaft

Remove manual gearbox.
Remove the shifter rails.

Remove the brake linings and the right-hand gearbox cover.

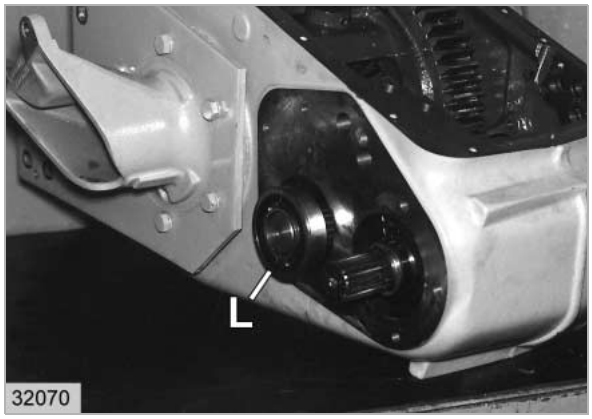
(Fig. 21)



22

Shift the main shaft to the right and remove the cylinder roller bearing (Z).

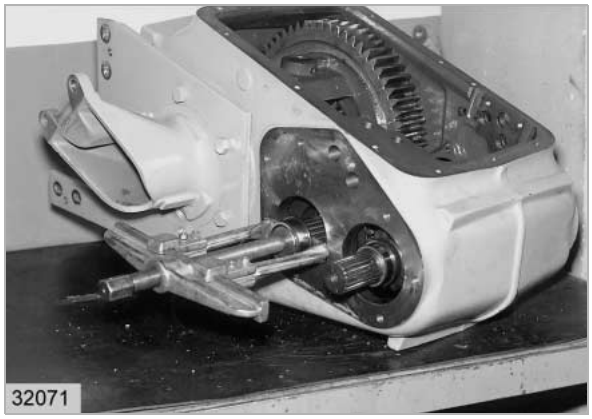
(Fig. 22)



23

Slide the main shaft to the left and remove the cylinder roller bearing (L).

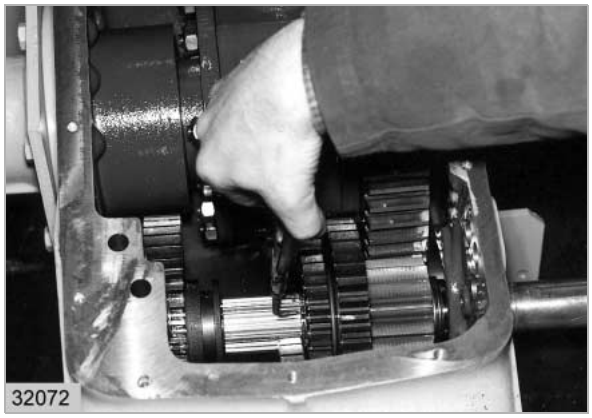
(Fig. 23)



24

Pull off the inner race of the cylinder roller bearing using a puller.

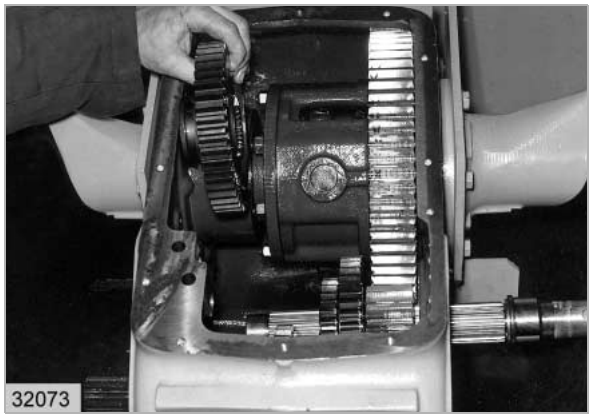
(Fig. 24)



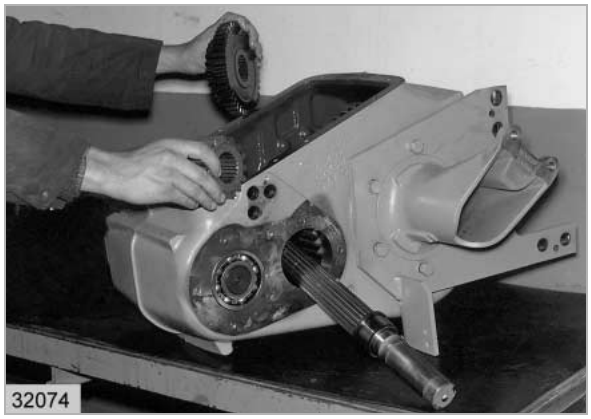
25

Shift the circlip along the shaft and pull the shaft to the right until the sliding gear can be removed.

(Fig. 25, 26)



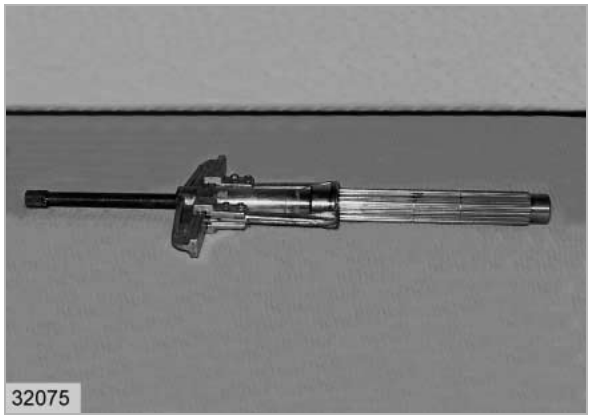
26



27

Remove both circlips from the shaft. Pull the shaft out to the right. Remove the double gear and the pinion.

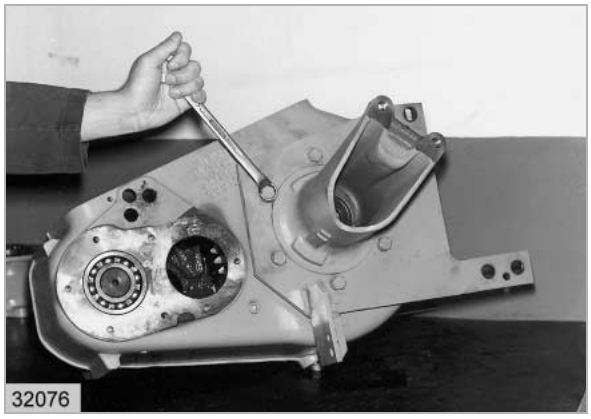
(Fig. 27)



28

Remove the inner race of the bearing from the main shaft.

(Fig. 28)



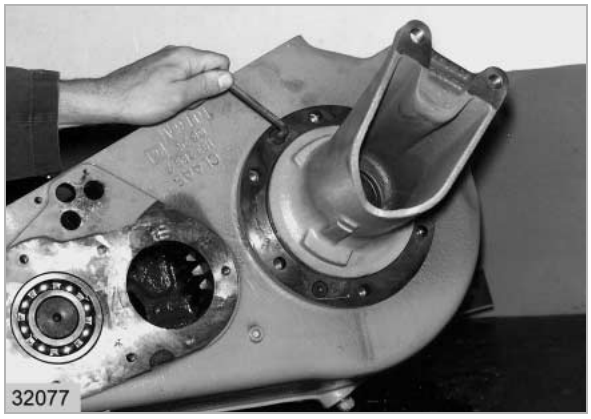
29

Removing the differential

Remove manual gearbox.
Remove the shifter rails.
Remove the main shaft.

Remove the support plate on both sides.

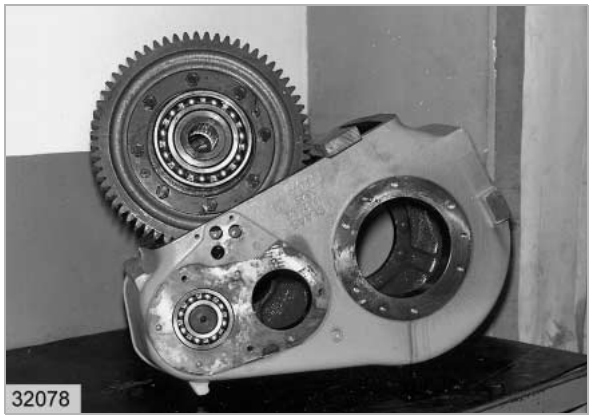
(Fig. 29)



30

Remove the cheese-head screws on both sides and remove the brake plate flange.

(Fig. 30)



31

Push the complete differential with bearings and gear ring in and remove it to the top.

(Fig. 31)



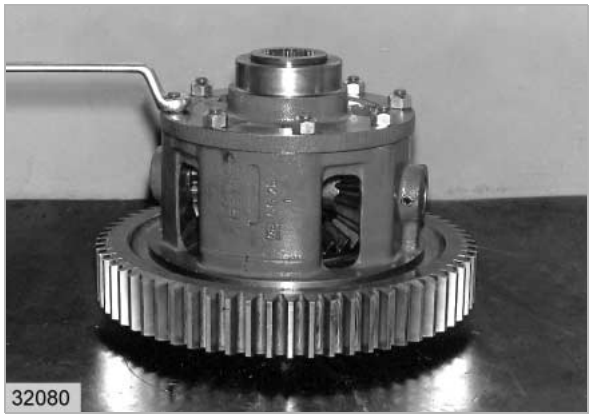
32

Disassembling the differential

Remove manual gearbox.
Remove the shifter rails.
Remove the main shaft.
Remove the differential.

Pull off deep groove ball bearing with a puller.

(Fig. 32)



33

Unbolt the ring gear from the differential housing.

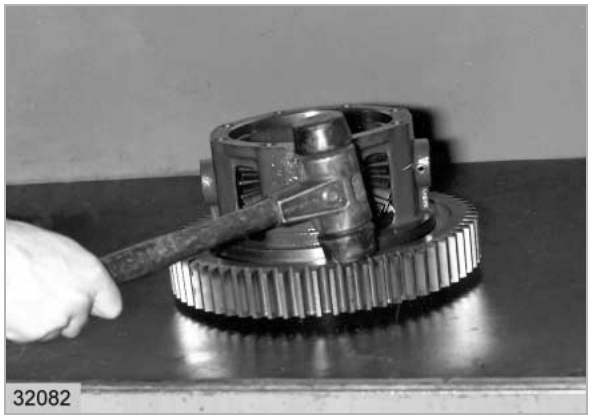
(Fig. 33)



34

Remove the claw flange and the crown wheel.

(Fig. 34)



35

Separate the ring gear from the differential housing, using a plastic-tip hammer.

(Fig. 35)



36

Drive the expansion pins out of the ring gear.

(Fig. 36)



37

Pull off deep groove ball bearing from the differential housing.

(Fig. 37)



38

Drive expansion pins out of the differential housing.

(Fig. 38)

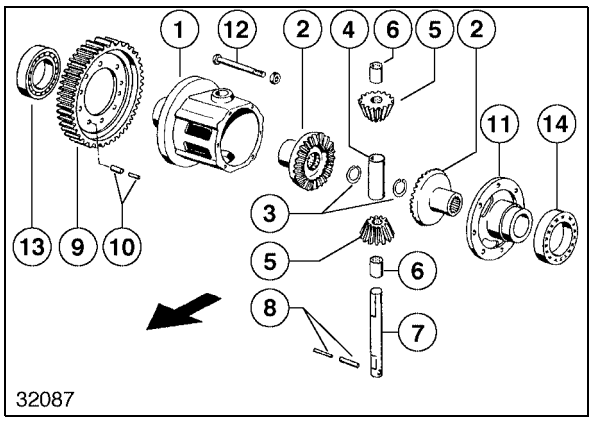


39

Drive the differential axle out of the differential housing with a brass punch.

Remove the differential pinions, crown wheel and spacer tube.

(Fig. 39)

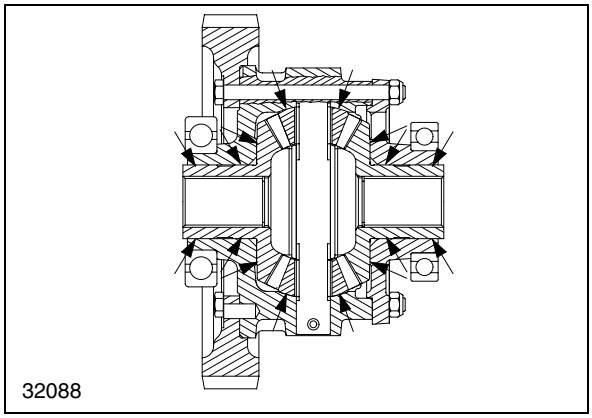


40

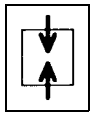
Differential, disassembled:

1 Differential housing
2 Crown wheel
3 Circlip 42 x 1.75
4 Spacer tube (up to serial no. …)
5 Differential pinions
6 Bearing sleeve
7 Differential axle
8 Expansion pin 6 x 50 DIN 1481
Expansion pin 10 x 50 DIN 1481
9 Ring gear
10 Expansion pin 13 x 30 DIN 1481
Expansion pin 8 x 30 DIN 1481
11 Claw flange
12 Hex. bolt M 12 x 160 DIN 931-10.9
Self-locking nut VM 12
13 Deep groove ball bearing 6217 DIN 625
14 Deep groove ball bearing 6018 DIN 625

(Fig. 40)



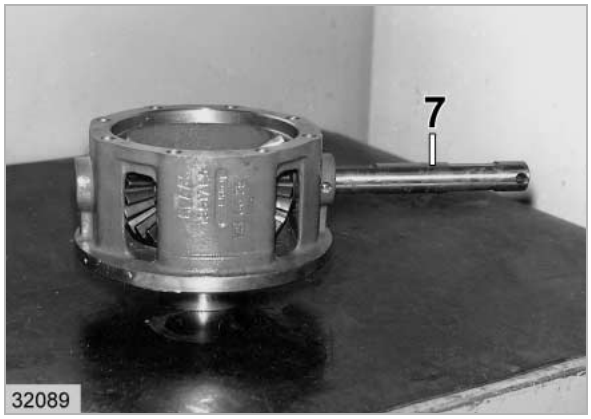
41



Assembling the differential

Apply a coat of Molykote paste, part no. 177 571.0, to the contact areas of the crown wheels and the bevel gears.

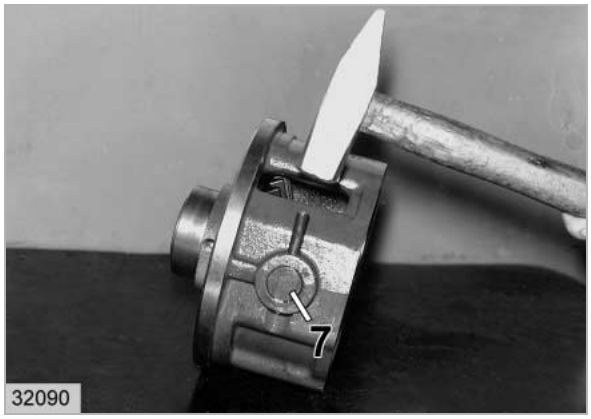
(Fig. 41)



42

Insert the crown wheel (2) and differential pinions (5) with spacer tube (4), bearing bushing and differential axle (7).

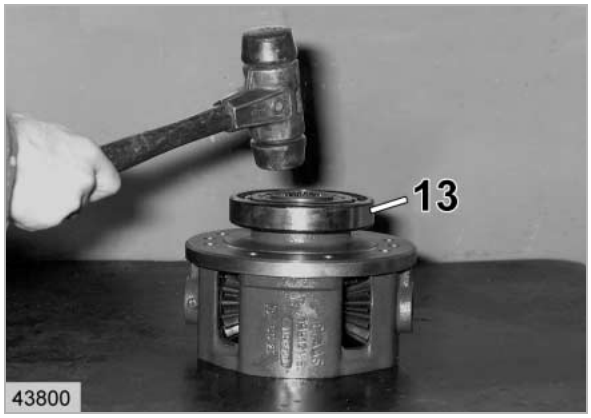
(Fig. 40, 42)



43

Secure the differential axle (7) with expansion pins (8).

(Fig. 40, 43)

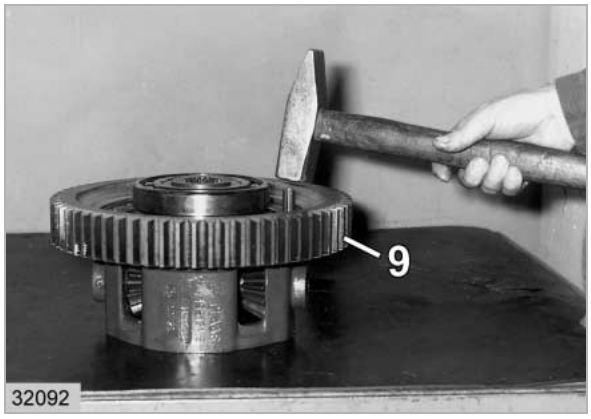


44

Heat the inner race of deep groove ball bearing (13) to approx. **100 °C** and place into position.

Once the bearing has cooled down, check bearing seat with a short hammer blow.

(Fig. 44)



45

Place the ring gear (9) on the differential housing and fix it using the expansion pins (10).

(Fig. 40, 45)



46

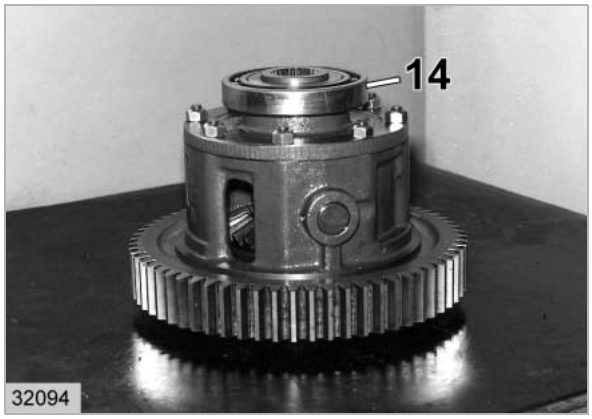
Insert crown wheel (2) and claw flange (11).

Apply a coat of Molykote paste, part no. 177 571.0, to the contact areas.

Install the hex. bolts (12).

Tightening torque = 100 Nm

(Fig. 40, 46)



47

Heat the inner race of deep groove ball bearing (14) to approx. **100 °C** and place into position.

(Fig. 47)



48

Installing the differential

Push the complete differential with ring gear and bearings into the right-hand side of the gearbox housing.

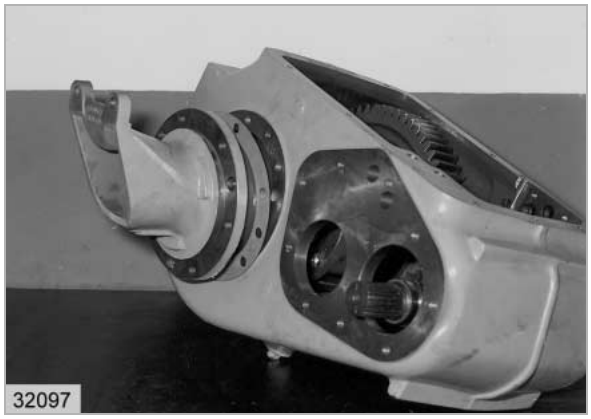
(Fig. 48)



49

Replace the shaft seals (W) in the left-hand and right-hand brake plate flanges.

(Fig. 49)

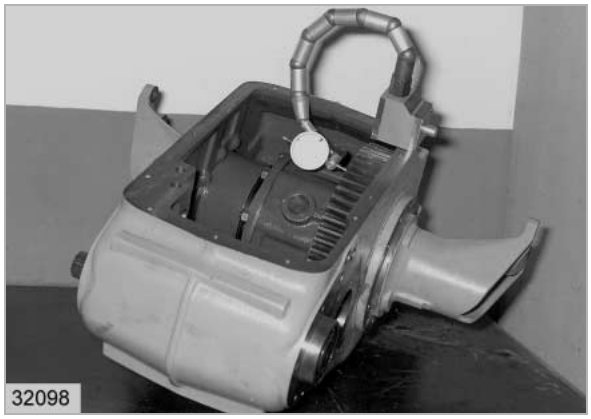


50

Bolt down left-hand and right-hand brake plate flanges with gaskets.

Ensure correct installation position.

(Fig. 50)

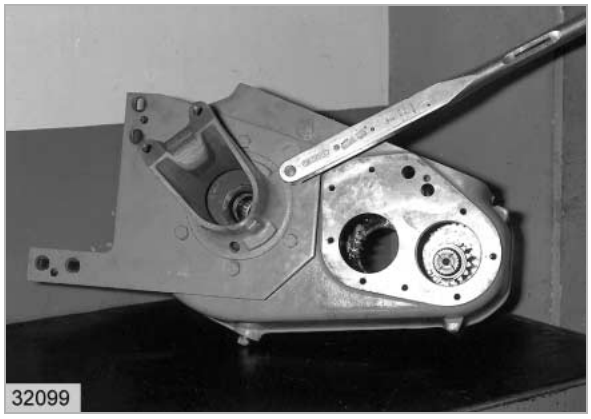


51

Check the axial play of the differential.

The axial play must be between **0.30 mm and 1.40 mm**.

(Fig. 51)



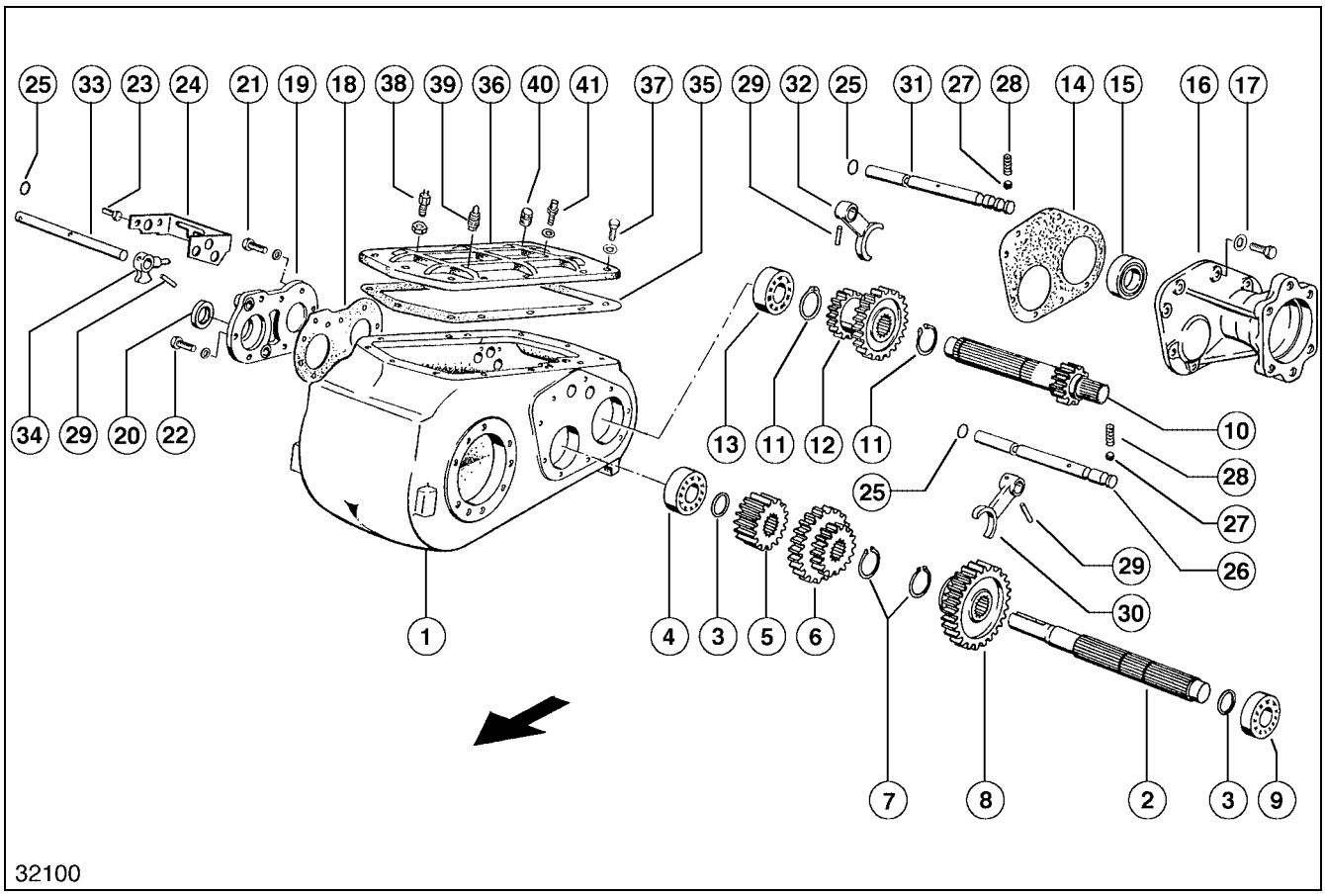
52

Bolt down the left and right support plates.

Tightening torque = 78 Nm

(Fig. 52)

Install main shaft.
Install shifter rails.
Install manual gearbox.

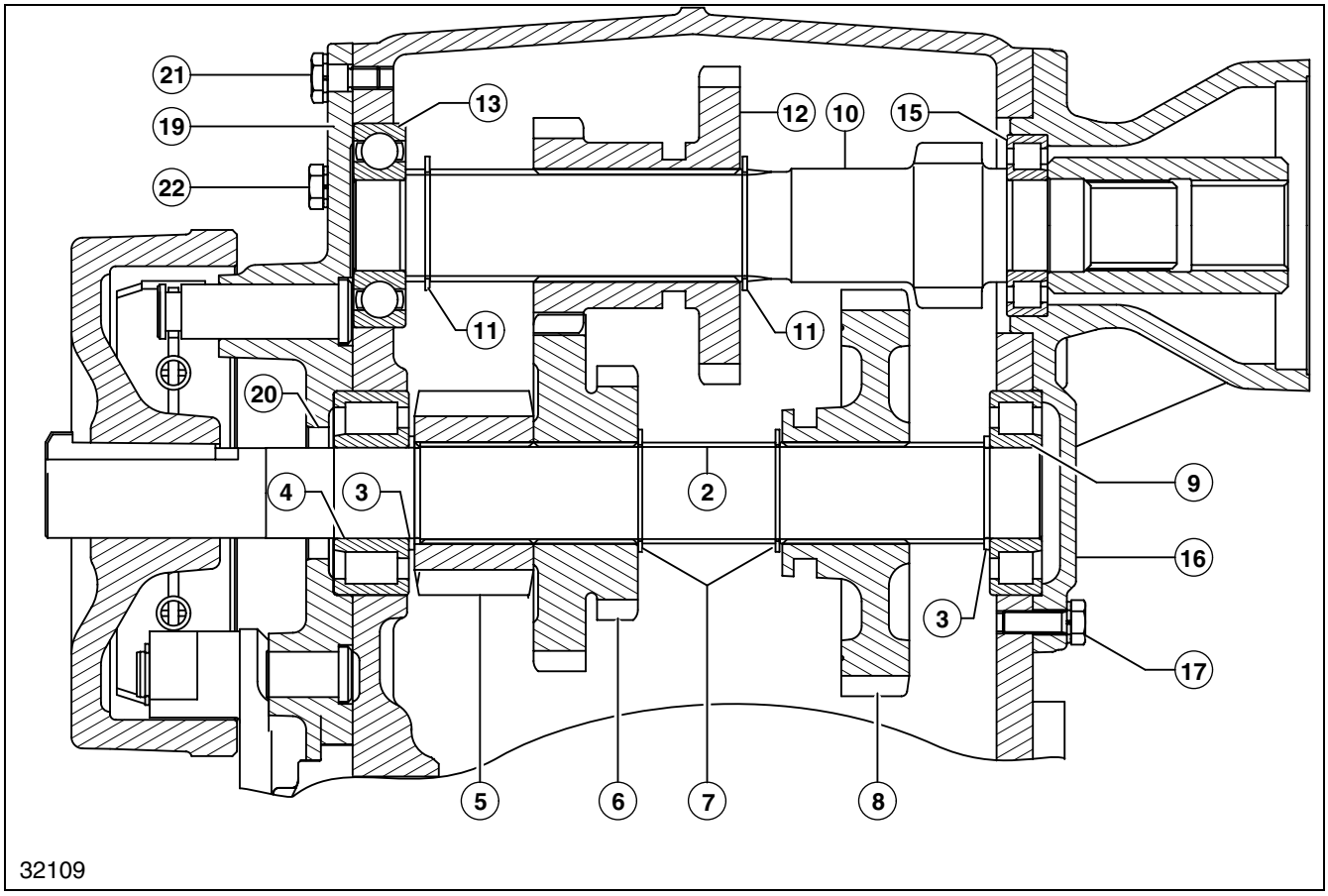


53

Manual gearbox, disassembled

1 Gearbox housing
2 Main shaft
3 Supporting ring S 40 x 50 DIN 988
4 Cylinder roller bearing
5 Pinion
6 Twin gear
7 Circlip 45 x 1.75 DIN 471
8 Sliding gear
9 Cylinder roller bearing
10 Drive shaft
11 Circlip 50 x 2 DIN 471
12 Double sliding gear
13 Deep groove ball bearing
14 Seal
15 Cylinder roller bearing
16 Flanged housing
17 Hex. bolt M 10 x 30 DIN 933-8.8
Lock washer 10
18 Seal
19 Right-hand gearbox cover
20 Shaft seal BASL 40 x 58 x 9
21 Precision fit bolt
Lock washer 10 DIN 128
22 Hex. bolt M 10 x 25 DIN 933-8.8
Lock washer 10 DIN 128
23 Hex. bolt M 8 x 20 DIN 933-8.8
24 Shift gate
25 O-ring 20 x 4 DIN 3771
26 Shifter rail
27 Ball
28 Compression spring
29 Spiral pin 6 x 30 DIN 8748
30 Shifter fork
31 Shifter rail
32 Shifter fork
33 Shifter rail
34 Shifter finger
35 Seal
36 Gearbox cover
37 Hex. bolt M 8 x 25 DIN 933-8.8
Lock washer 8 DIN 128
38 Magnetic pick-up
Hex. nut BM 18 x 1.5 DIN 439
39 Bleeder
40 Screw plug
41 Switches

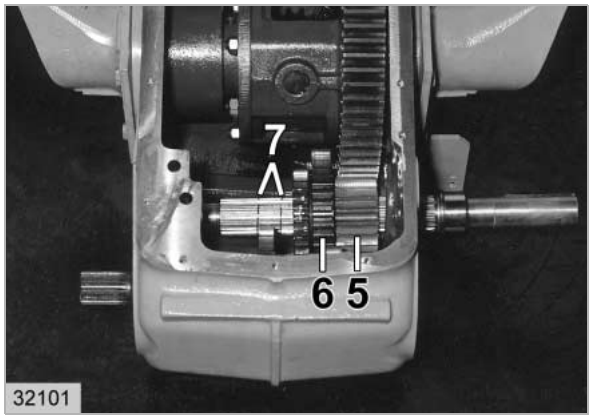
(Fig. 53)



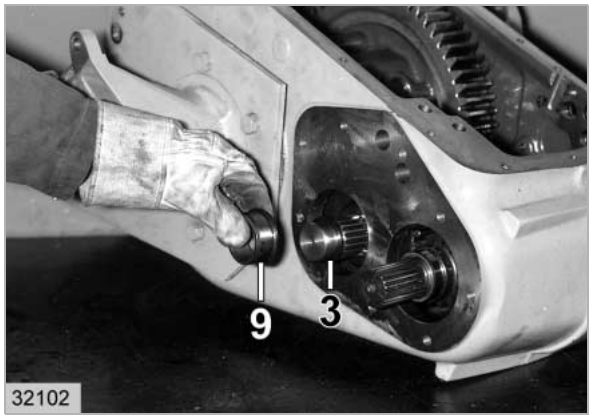
54

Assembling the manual gearbox

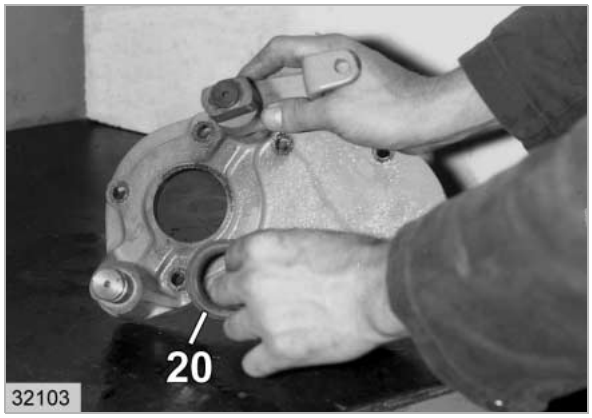
Clean all threads in the gearbox housing.



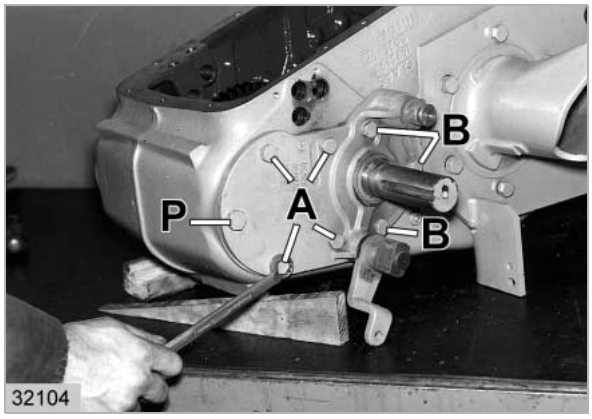
55



56



57



58

Installing the main shaft

1. Introduce the main shaft into the gearbox from the right-hand side. Slide the pinion (5) and the double gear (6) on the shaft. Slide the circlips (7) approx. **50 mm** on the shaft.
2. Slide the sliding gear (8) on the main shaft and place the circlips (7) into the notch.
3. Heat the inner race of the cylinder roller bearings (4 and 9) to approx. **100 °C** and press on the main shaft with one supporting ring (3) each.

   Once the cylinder roller bearings (4 and 9) have cooled down press them into the gearbox housing.

(Fig. 53, 54, 55, 56)

4. Press the shaft seal (20) into the right-hand gearbox cover so that it is flush.

(Fig. 57)

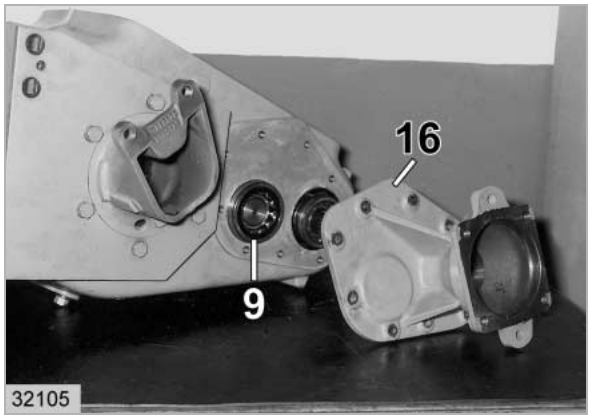
5. Install the drive shaft.

   Bolt on the gearbox cover with the seal on the right-hand side. Insert the bolts (21 and 22) with sealing compound.

CAUTION!

Screw in the precision fit bolt (21) at (P), the M 10 x 25 hex. bolts at (A) and the M 10 x 30 hex. bolts at (B).

(Fig. 53, 58)

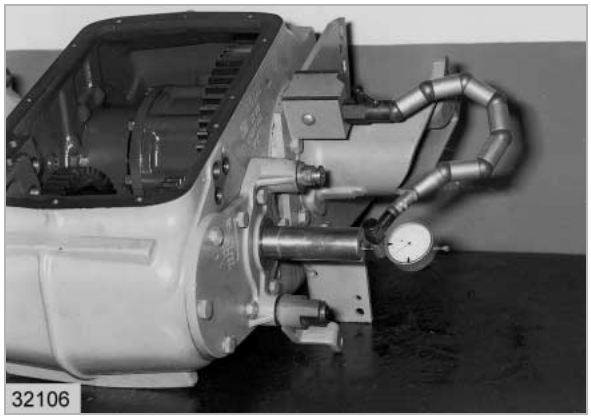


59

6. Install the bearing (9) and bolt the flanged housing (16) in place with the seal.

   Insert hex. bolts (17) with sealing compound.

(Fig. 53, 59)

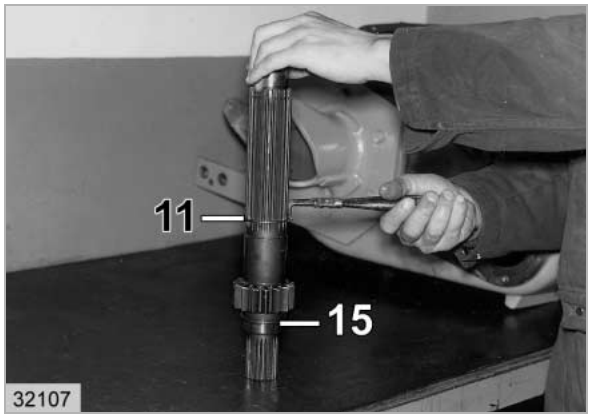


60

7. Check the axial play of the main shaft.
   The play must be **0.10 mm to 1.04 mm**.

(Fig. 60)

Install the shifter rails.
Install manual gearbox.

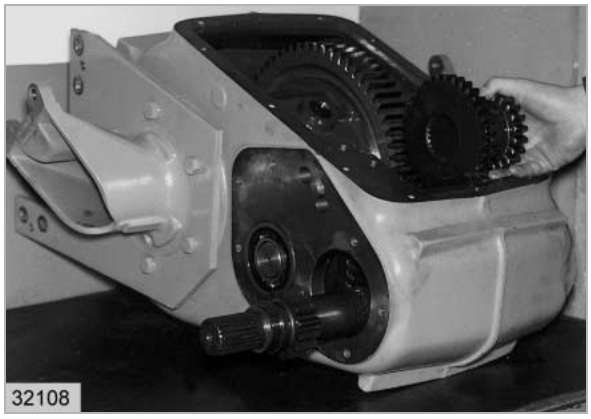


61

Installing the drive shaft

1. Heat the inner race of cylinder roller bearing (15) to approx. **100 °C** and install it.
2. Insert the circlip (11) into the notch.

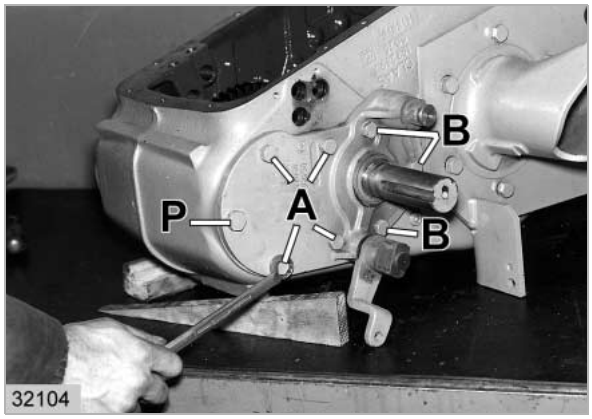
(Fig. 61)



62

3. Feed the drive shaft into the gearbox from the left-hand side and slide on the double sliding gear.
4. Install circlip (11).

(Fig. 61, 62)



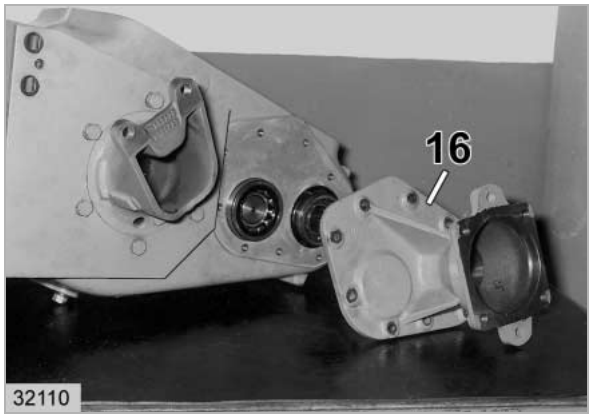
63

5. Install the deep groove ball bearing (13).
6. Bolt on the right-hand gearbox cover with the seal. Insert the bolts (21 and 22) with sealing compound.

CAUTION!

Screw in the precision fit bolt (21) at (P), the M 10 x 25 hex. bolts at (A) and the M 10 x 30 hex. bolts at (B).

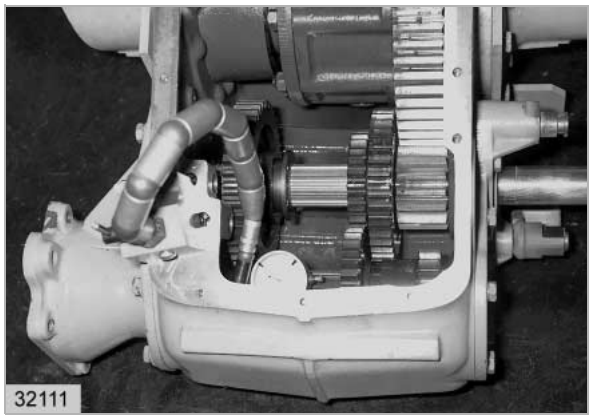
(Fig. 53, 63)



64

7. Bolt on the flanged housing (16) with its seal. Insert the hex. bolts (17) with sealing compound.

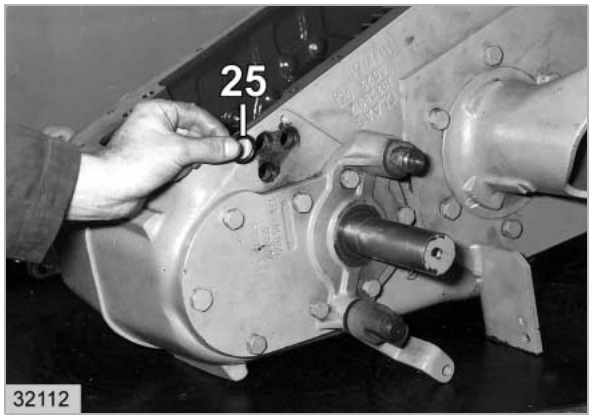
(Fig. 53, 64)



65

8. Check the axial play of the drive shaft. The play must be **0.20 mm to 1.16 mm**.

(Fig. 65)

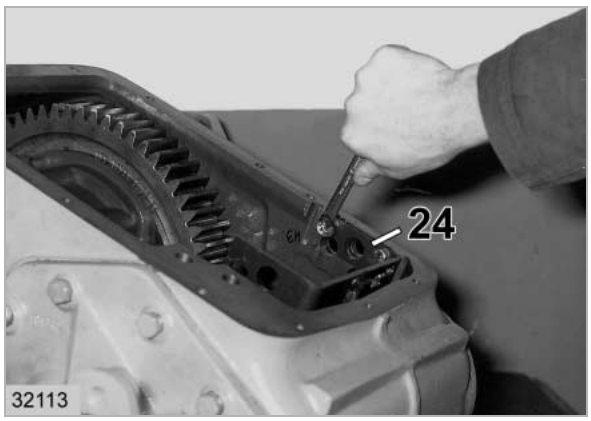


66

Installing the shifter rails

1. Replace the three O-rings (25) every time the rails are installed.

(Fig. 66)



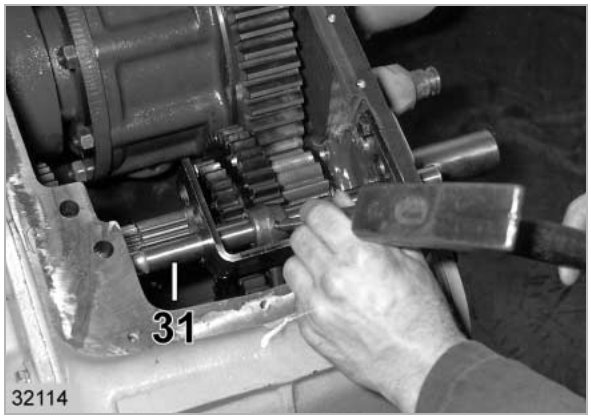
67

2. Bolt on the shift gate (24).

CAUTION!

Insert the hex. bolts with sealing compound, e.g. omni-FIT-FD-10.

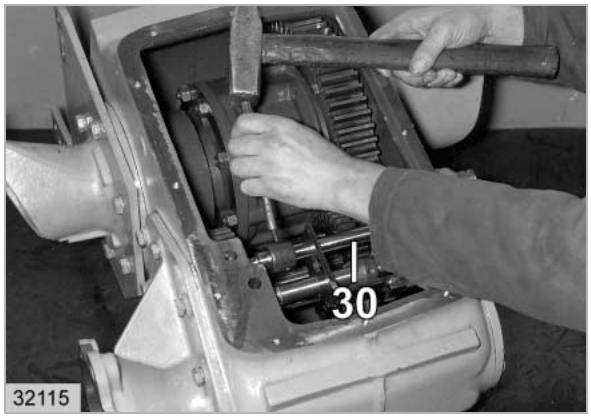
(Fig. 67)



68

3. Push the shifter rail (31) into the gearbox and through the gate. Push on the shifter fork (32) and fix into position with an expansion pin.

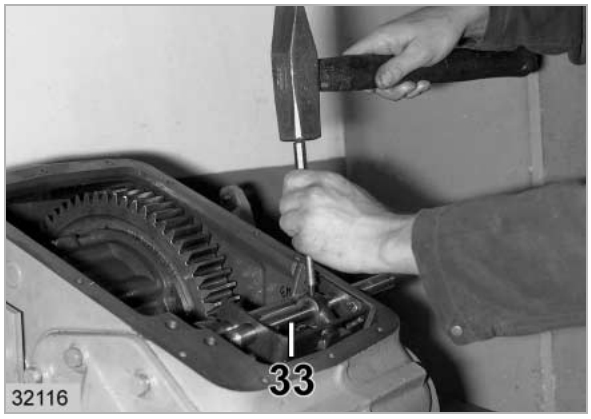
(Fig. 53, 68)



69

4. Push the shifter rail (26) into the gearbox and through the gate. Push on the shifter fork (30) and observe installation position, then fix with an expansion pin.

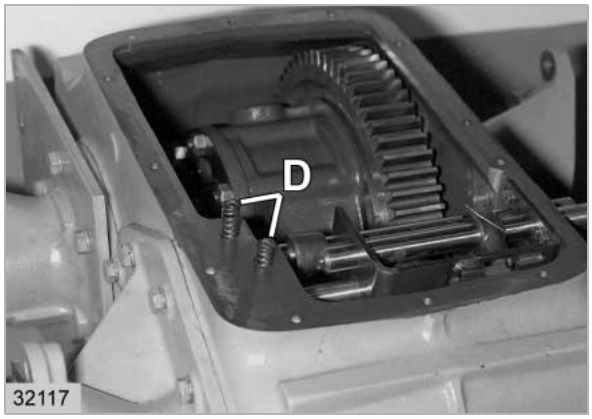
(Fig. 53, 69)



70

5. Push in the shifter rail (33) and the shifter finger (34), then fix with an expansion pin.

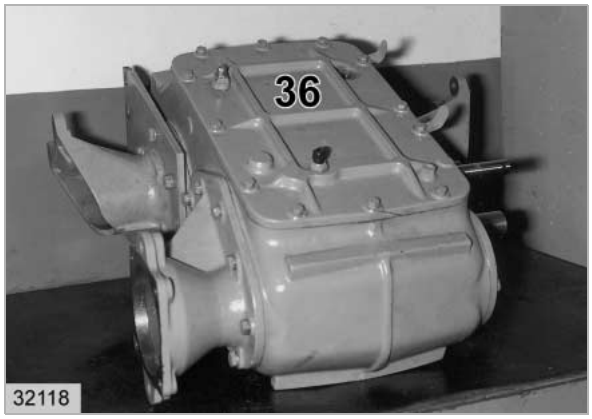
(Fig. 53, 70)



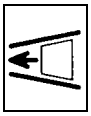
71

6. Insert the balls and compression springs (D).

(Fig. 71)



72

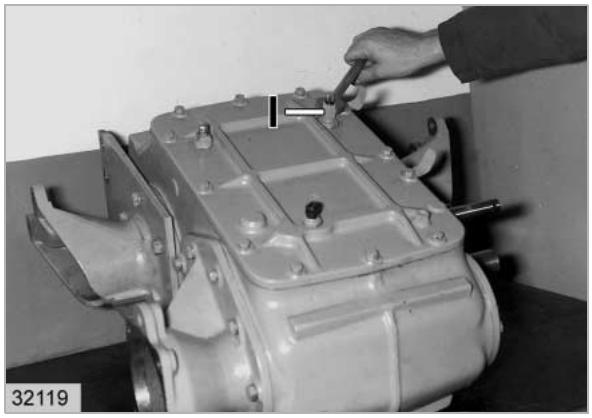


7. Bolt on the gearbox cover (36) with the seal (35). Ensure correct installation position.

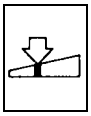
CAUTION!

Check the installation position of the clamps.

(Fig. 53, 72)



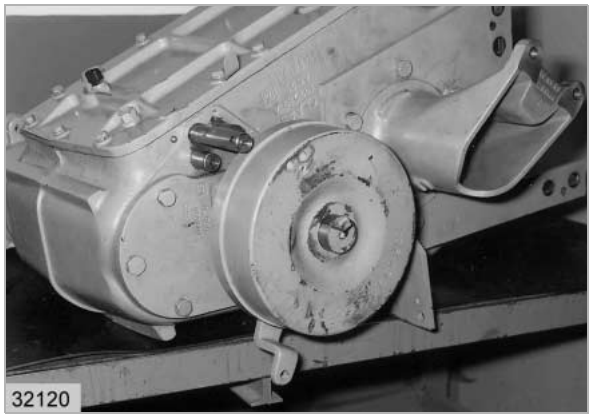
73



8. Screw in the magnetic pick-up (I) with sealing compound up to the stop of the tooth tip, then loosen by half a turn.

   Lock in place with the lock nut.

(Fig. 73)

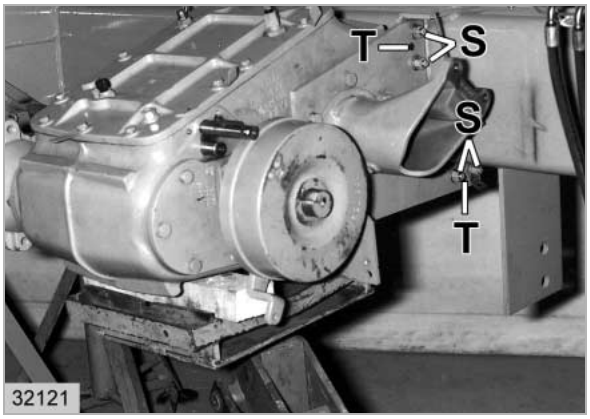


74

9. Install the brake linings and the drum brake and key them in position.

(Fig. 74)

Install the manual gearbox.



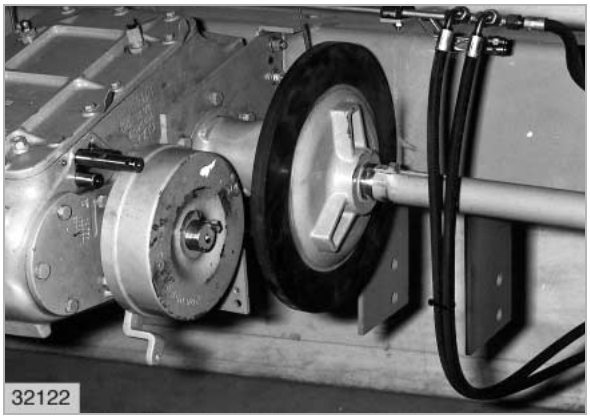
75

Installing the manual gearbox

With the aid of a jack, move the manual gearbox into position from the right-hand side of the machine. Lift gearbox high enough to allow installation of hex. bolts (S).

Drive in the expansion pins (T) and then tighten the hex. bolts (S).

(Fig. 75)



76

Introduce the complete left and right intermediate drive shafts with brake discs into the gearbox.

(Fig. 76)

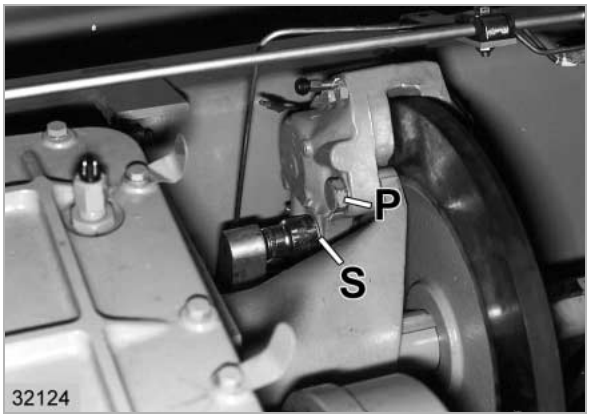


77

Install the left and right final drive gearboxes.

Remove the key from the brake disc.

(Fig. 77)



78

Bolt down the brake calliper. Insert the precision fit bolt (P) and the hex. bolt (S) with liquid locking compound, e.g. DELO-ML 5349.

Tightening torque = 210 Nm

(Fig. 78)



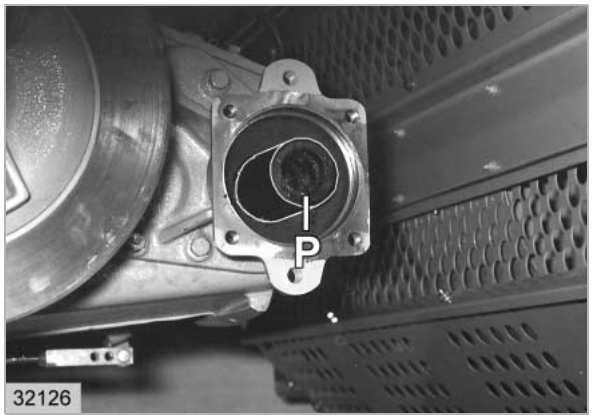
79

Adjust the brake disc so that it is free within the calliper, considering the axial play of the intermediate drive shafts.

Key the brake discs into position and refit the brake lines.

Bleed the brake system.

(Fig. 79)



80

Grease the external spline of the drive shaft from the manual gearbox.

Slide on profiled bushing (P) with the turned-out area of the toothed hub profile facing the manual gearbox.

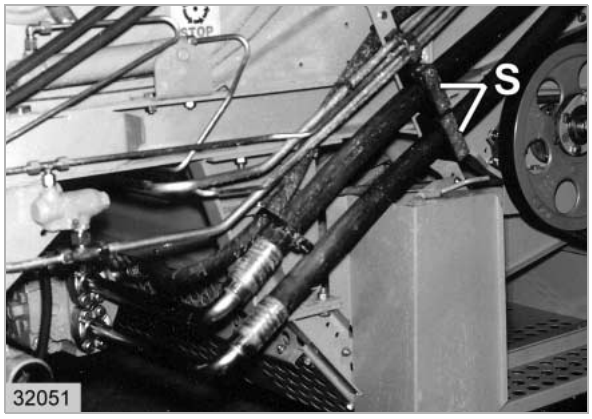
(Fig. 80)



81

Insert the O-ring and bolt on the hydrostatic motor.

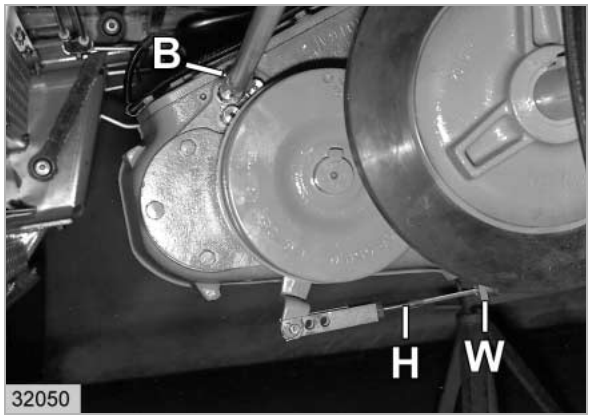
(Fig. 81)



82

Bolt down the clamps (S) for attaching the hydrostatic hoses.

(Fig. 82)

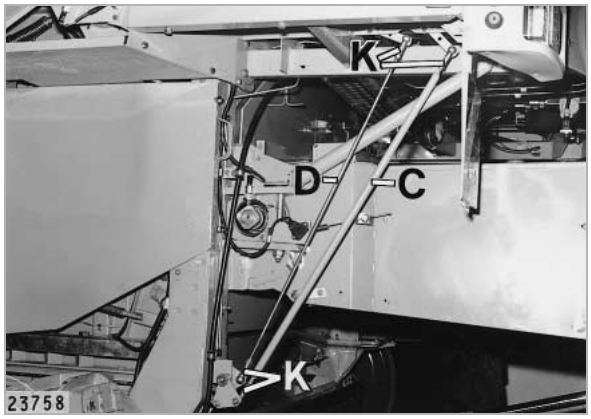


83

Refit the parking brake cable (H) at its retarder (W) and reconnect. Adjust the cable so that the brake is applied on the 3rd or 4th tooth.

Slide on the gearshift linkage and insert and lock pins (B).

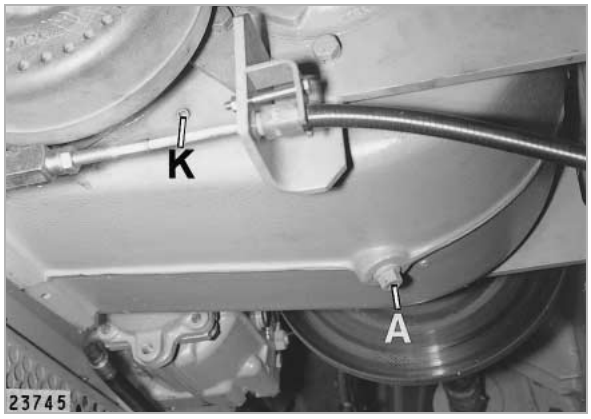
(Fig. 83)



84

Check gearbox operation. Adjust the shifter rails (C and D) next to the operator's platform at the ball joints (K) so that the shifter wheels are fully intermesh and the arresting balls of the selector shafts engage.

(Fig. 84)



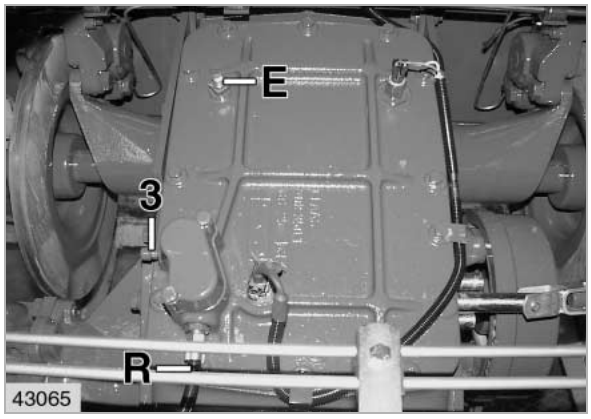
85

Fill in gearbox oil. Oil quantity and oil grade – see page 1.5.1, *Lubricants chart*.

K = Oil level check plug
A = Oil drain plug
E = Oil filler plug and gearbox breather

(Fig. 85, 86)

Install the drive wheels.

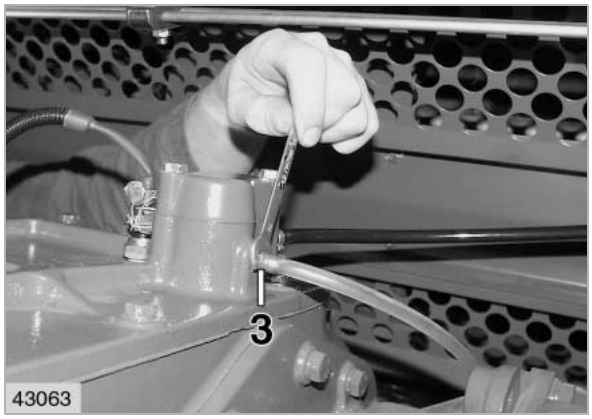


86

For servo gearshift:

Bolt down the hose (R) to the cover of the manual gearbox.

(Fig. 86)



87

Bleeding the shifter piston:
(for servo gearshift)

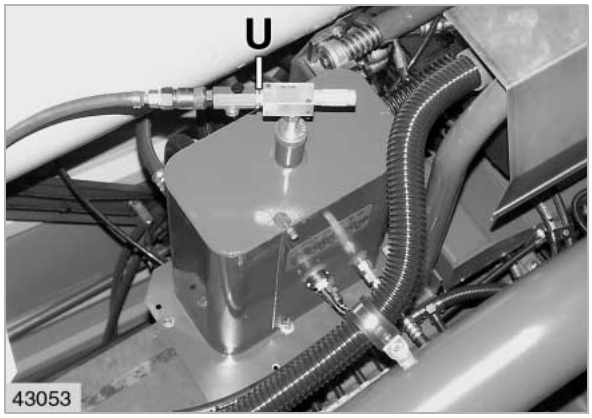
Take the machine out of gear and secure against rolling away.

Connect a bleed hose to the bleed valve (3) and place the end of the hose in a suitable container.

Start diesel engine, actuate servo gearshift on the gear lever and loosen the bleed valve (3) until the oil comes out without bubbles.

After bleeding check the oil level and top up if necessary.

(Fig. 86, 87)



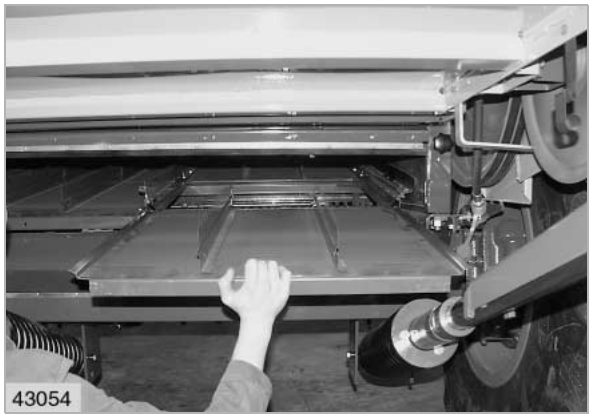
88

Servo gearshift

Removing the shifter pistons

Set up the special tool (U), part no. 181 619.0, which is a valve combination enabling a vacuum to be created.

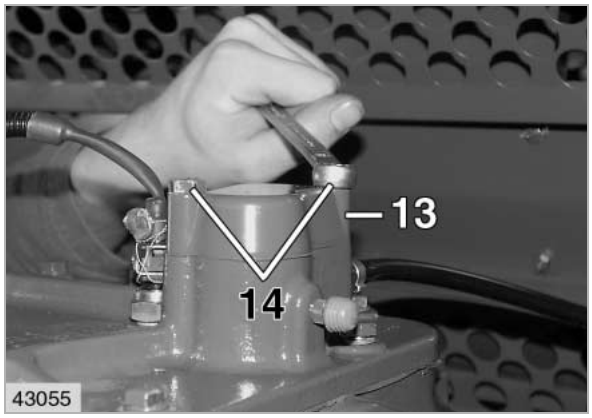
(Fig. 88)



89

Raise the feed rake conveyor and safely support it in that position. Remove the left-hand stepped preparation floor section.

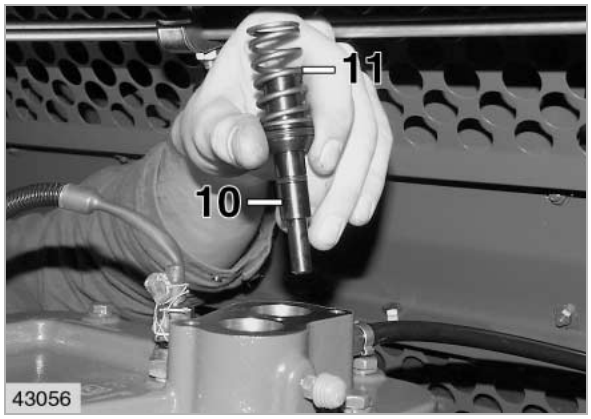
(Fig. 89)



90

Unscrew the cylinder cover (13) with the hex. bolts (14).

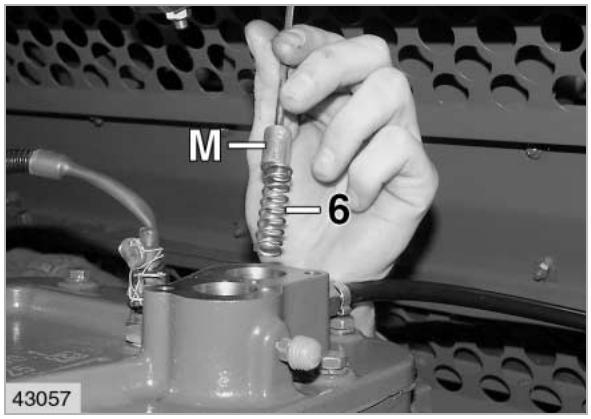
(Fig. 90)



91

Remove the shifter pistons (9 and 10) with the upper compression springs (11).

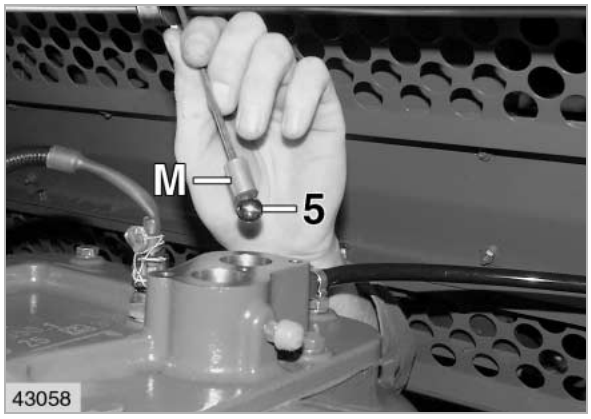
(Fig. 91, 98)



92

Remove lower compression spring (6) with the magnetic rod (M, special tool part no. 171 842.0).

(Fig. 92)



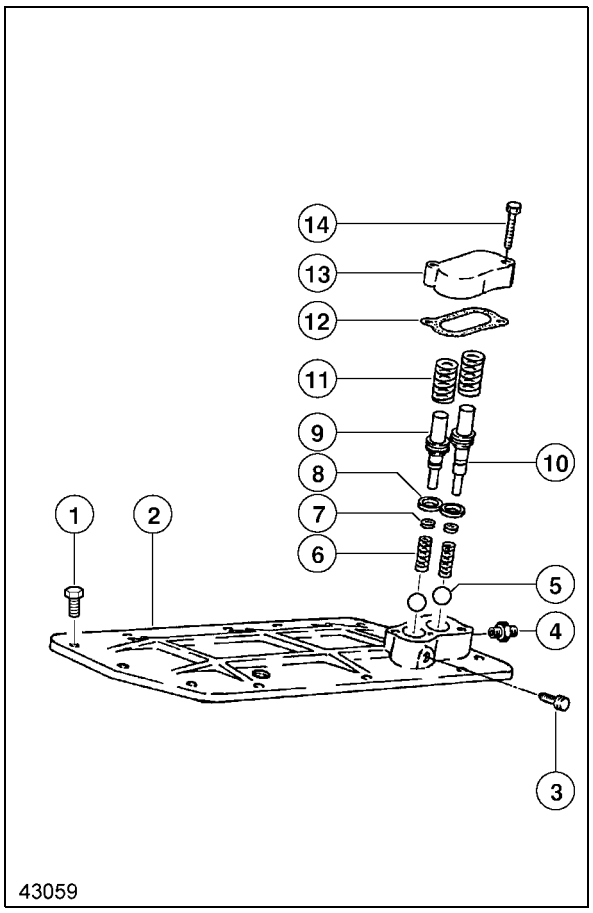
93

Remove the arresting ball (5) with the magnetic rod (M, special tool part no. 171 842.0).

CAUTION!

Loosen the hex. bolts (1) from the gearbox cover (2) if required.

(Fig. 93, 94)

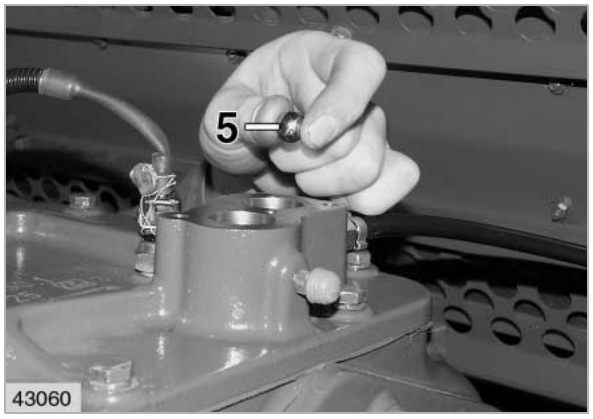


94

Servo gearshift, disassembled:

1 Hex. bolts M 8 x 25
2 Gearbox cover
3 Bleeder valve
4 Male connector
5 Locking ball
6 Compression spring (lower)
7 Square ring
8 Square ring
9 Shifter piston (front)
10 Shifter piston (rear)
11 Compression spring (upper)
12 Seal
13 Cylinder cover
14 Hex. bolt M 8 x 40

(Fig. 94)



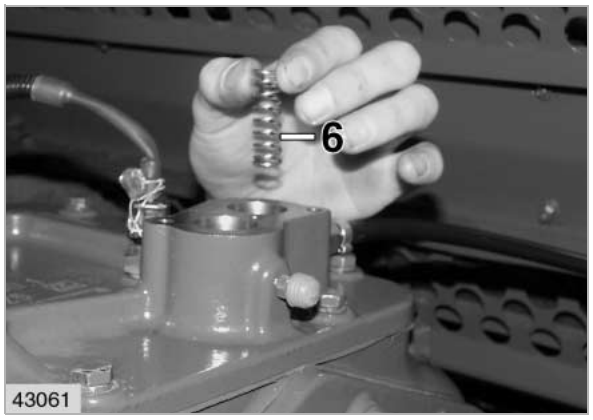
95

Installing the shifter pistons

Insert the locking balls (5).

Bolt down gearbox cover (2) if necessary.

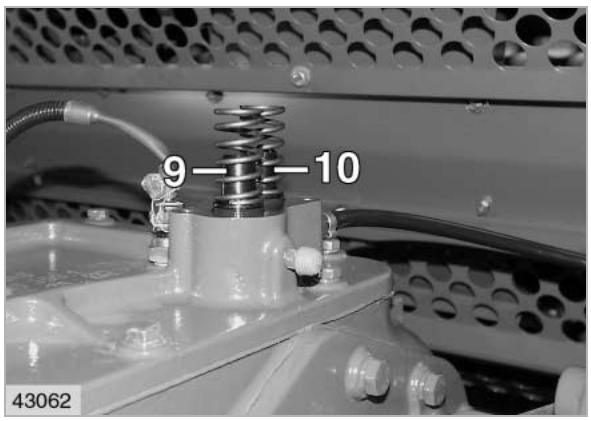
(Fig. 94, 95)



96

Insert the lower compression springs (6).

(Fig. 96)



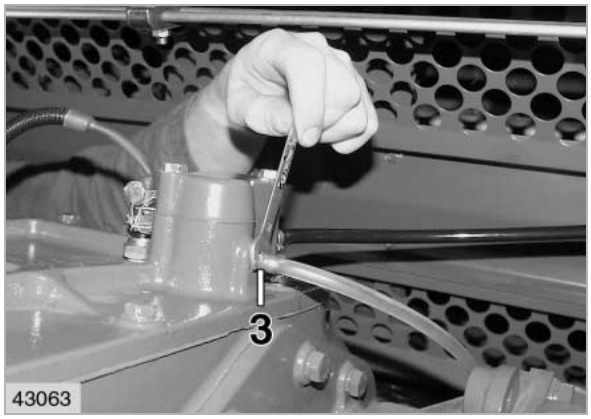
97

Insert shifter pistons (9 and 10) with square rings (7 and 8) and compression springs (11). Observe correct installation position.

Shifter piston (9) front = 75.5 mm long
Shifter piston (10) rear = 89.5 mm long

Bolt down cylinder covers (13) with hex. bolts (14).

(Fig. 94, 97)



98

Bleeding the shifter piston

Remove valve combination for creating a vacuum. Take the machine out of gear and secure against rolling away.

Connect a bleed hose to the bleed valve (3) and place the end of the hose in a suitable container.

Start diesel engine, actuate servo gearshift on the gear lever and loosen the bleed valve (3) until the oil comes out without bubbles.

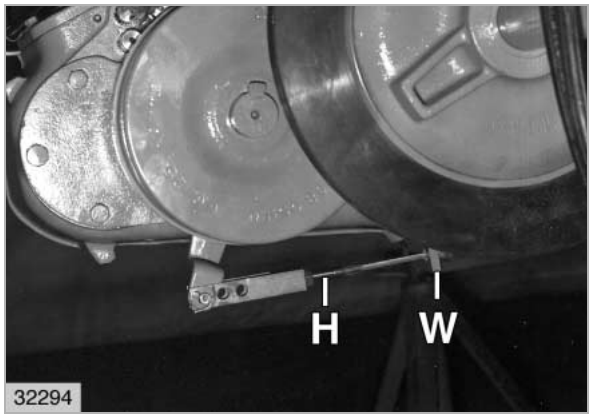
After bleeding check the oil level and top up if necessary.

Install the left-hand stepped preparation floor section.

(Fig. 89, 98)

BRAKE

Parking brake – Replacing the brake linings



1

Unhinge the parking brake rope (H) and unscrew it from the retarder (W).

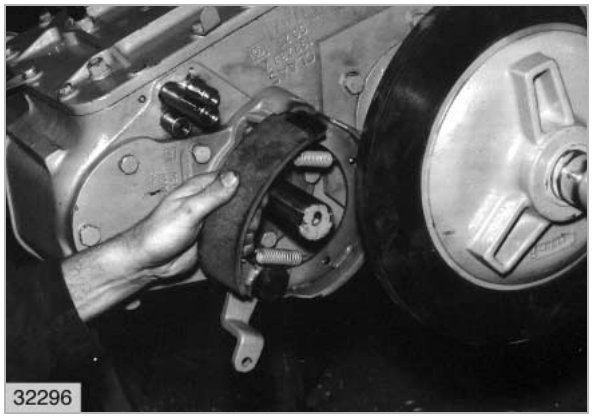
(Fig. 1)



2

Using a cranked key drawer, remove the brake drum.

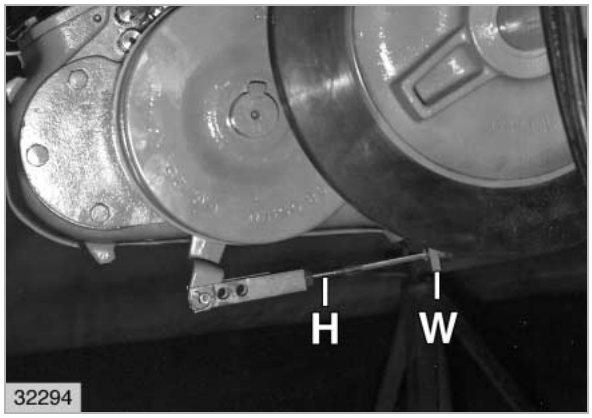
(Fig. 2)



3

Remove the brake linings and replace with new linings.

(Fig. 3)



4

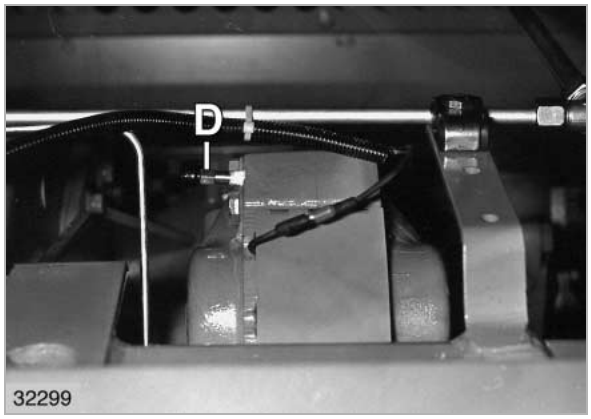
Install the brake linings and refit the tension spring.

Slide on the brake drum and align so that it does not touch the new brake linings.

Secure the brake drum with a key.

Reconnect the parking brake cable (H) at the retarder (W). Adjust the cable so that the parking brake is fully functional on the 3rd or 4th notch.

(Fig. 4)



5

Bleeding the brake system

Top up the brake fluid reservoir on the operator platform.

Connect a bleed hose to the bleed valve (D) and place the end of the hose in a suitable container.

Loosen the bleed valve (D) and push the brake pedal down completely. Hold the brake lever in this position and, at the same time, close the bleed valve (D). Release the brake lever.

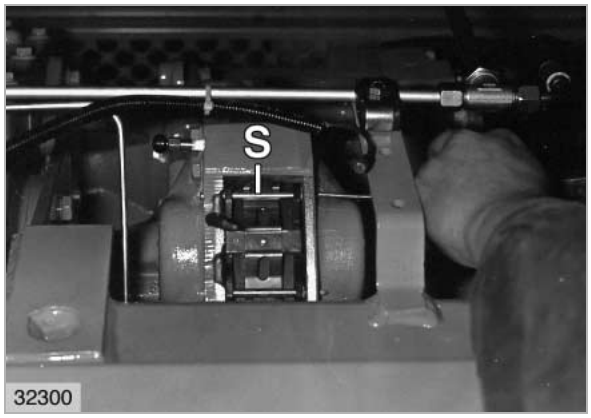
Repeat this procedure until the brake fluid comes out of the bleed hose without bubbles.

CAUTION!

Ensure that there is sufficient brake fluid in the brake fluid reservoir on the operator's platform.

Use only **ATE brake fluid** according to SAE Class DOT 4.

(Fig. 5)

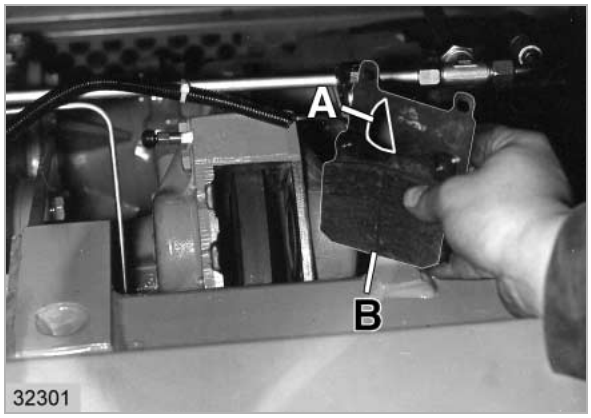


6

Disc brake – Changing the brake pads

Disconnect the cable and remove the cap. Drive out pins (S) holding the brake pads on the disc brake calliper.

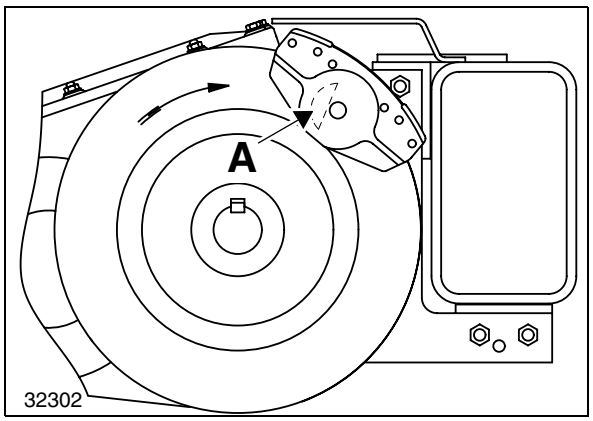
(Fig. 6)



7

Push back the brake cylinders by forcing the brake pads apart. Remove the brake pads (B) from above.

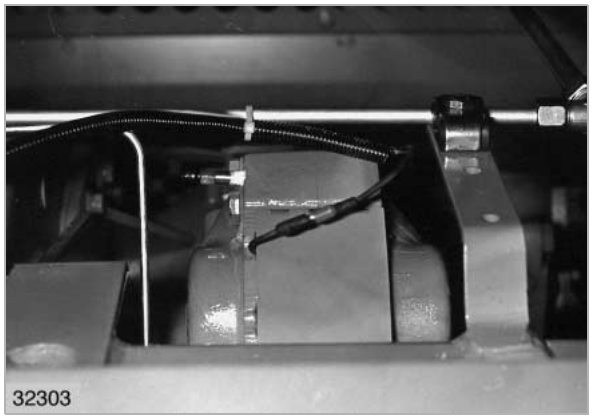
(Fig. 7)



8

Insert the new brake pads and pay particular attention to the position of the spacers. The segment-shaped cavity (A) in the spacer must be installed in opposite direction to the rotation of the disc.

(Fig. 7, 8)



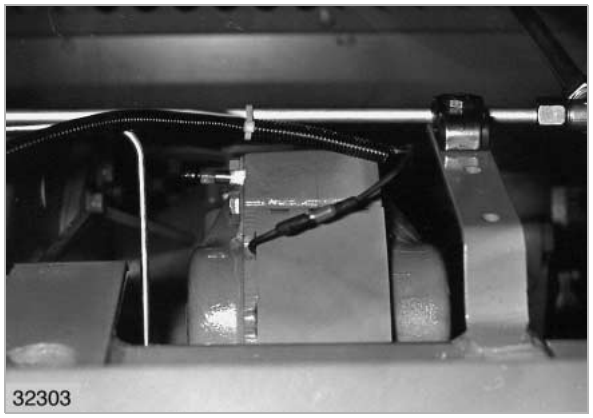
9

Replace the pins and the spring every time brake pads are installed.

Place the spring in position and drive the pins into the brake calliper.

Install the cap and connect the cable.

(Fig. 9)



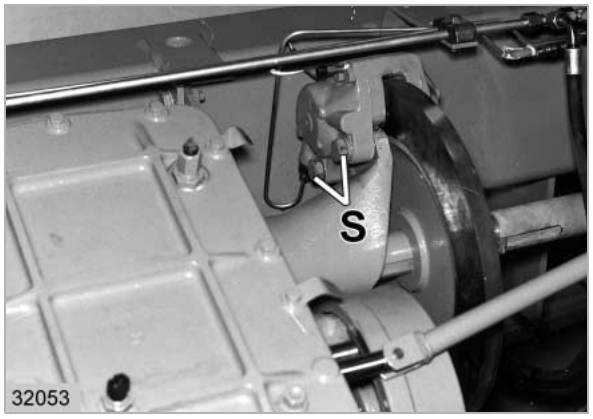
10

Removing a brake calliper

Press the brake pedals down and secure in this position. This avoids that the brake fluid reservoir loses all its fluid when removing the brake line.

Remove the brake line from the calliper and disconnect the cable.

(Fig. 10)



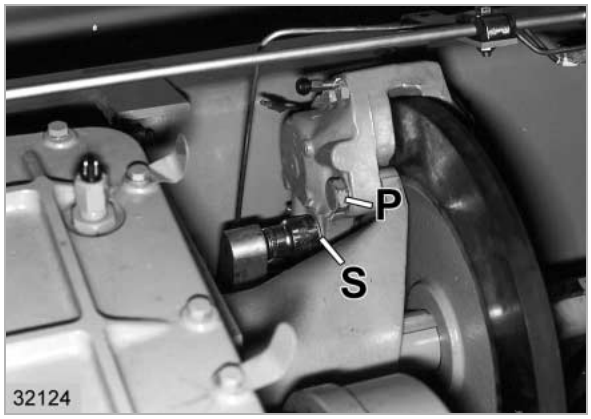
11

Unscrew the hex. bolts (S) and remove the brake calliper.

CAUTION!

The hex. bolts have been fitted with liquid locking compound.

(Fig. 11)



12

Installing a brake calliper

Bolt down the brake calliper.

Insert the precision fit bolt (P) and the hex. bolt (S) with liquid locking compound, e.g. DELO-ML 5349.

Tightening torque = 210 Nm

(Fig. 12)

Install the brake lines and connect the cable.

Once the calliper has been completely fitted, align the brake disc to the intermediate drive shaft so that it is centralised to the calliper centre.

Consider the axial play in the intermediate drive shaft.

Secure the brake disc with a key.

Bleeding the brake system, see page 7.20.2

STEERING AXLE

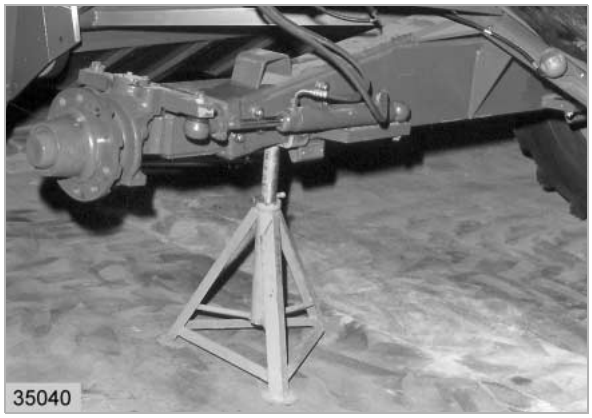


1

Removing the wheel bearing

Slacken off the wheel bolts on the rim.

(Fig. 1)



2

Safely support the steering axle with a stand.

Screw out the wheel bolts and remove the wheels.

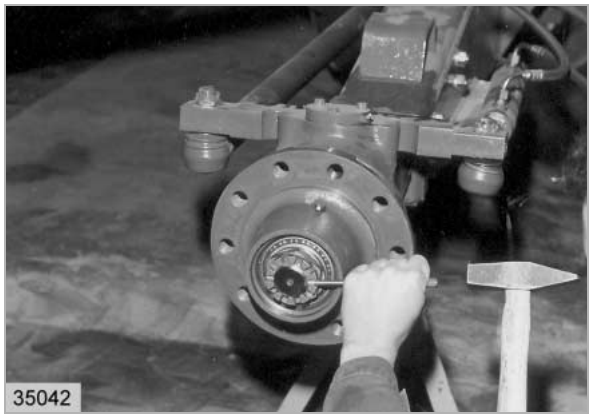
(Fig. 2)



3

Remove cap (K). – The cap will be destroyed in this process.

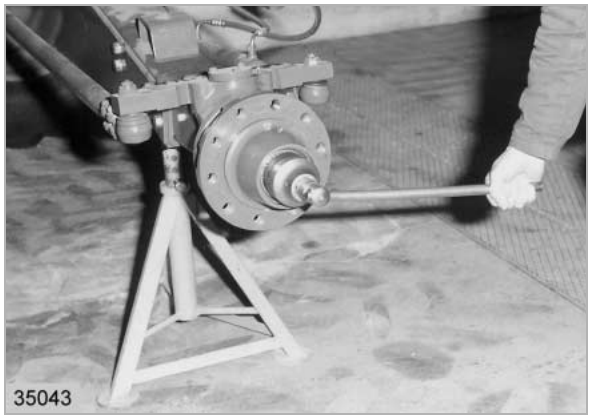
(Fig. 3)



4

Remove the expansion pin from the castellated nut.

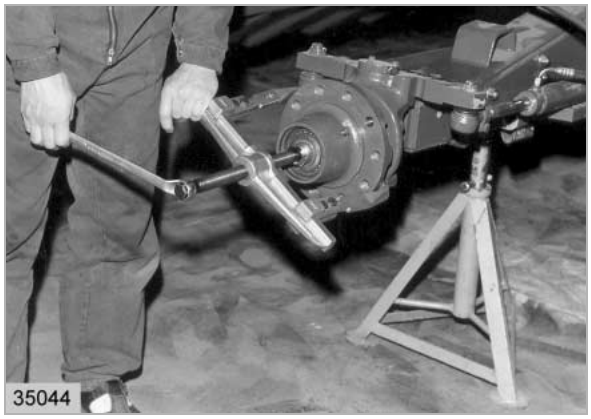
(Fig. 4)



5

Remove the castellated nut (M).

(Fig. 5)

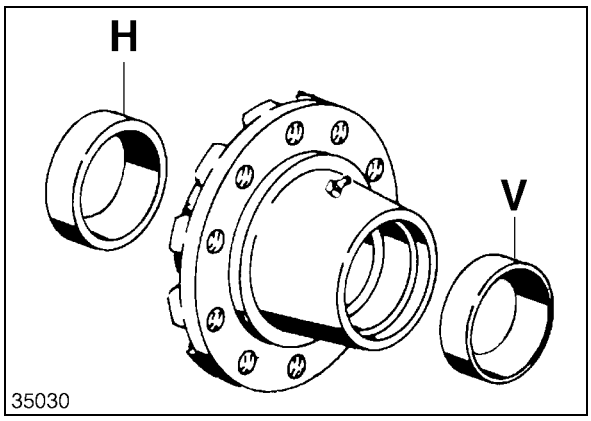


6

If the wheel hubs are difficult to move, pull off wheel hubs using a puller.

During the pulling process, the outer taper roller bearing will slip out of the hub without its outer race.

(Fig. 6)



7

Drive the outer races (V and H) of the outer and inner bearing out of the hub, using a punch.

(Fig. 7)



8

If necessary, first drive the inner taper roller bearing forward a little with a chisel. Now pull off the bearing with a puller.

ATTENTION!

Take care not to damage the sealing rings.

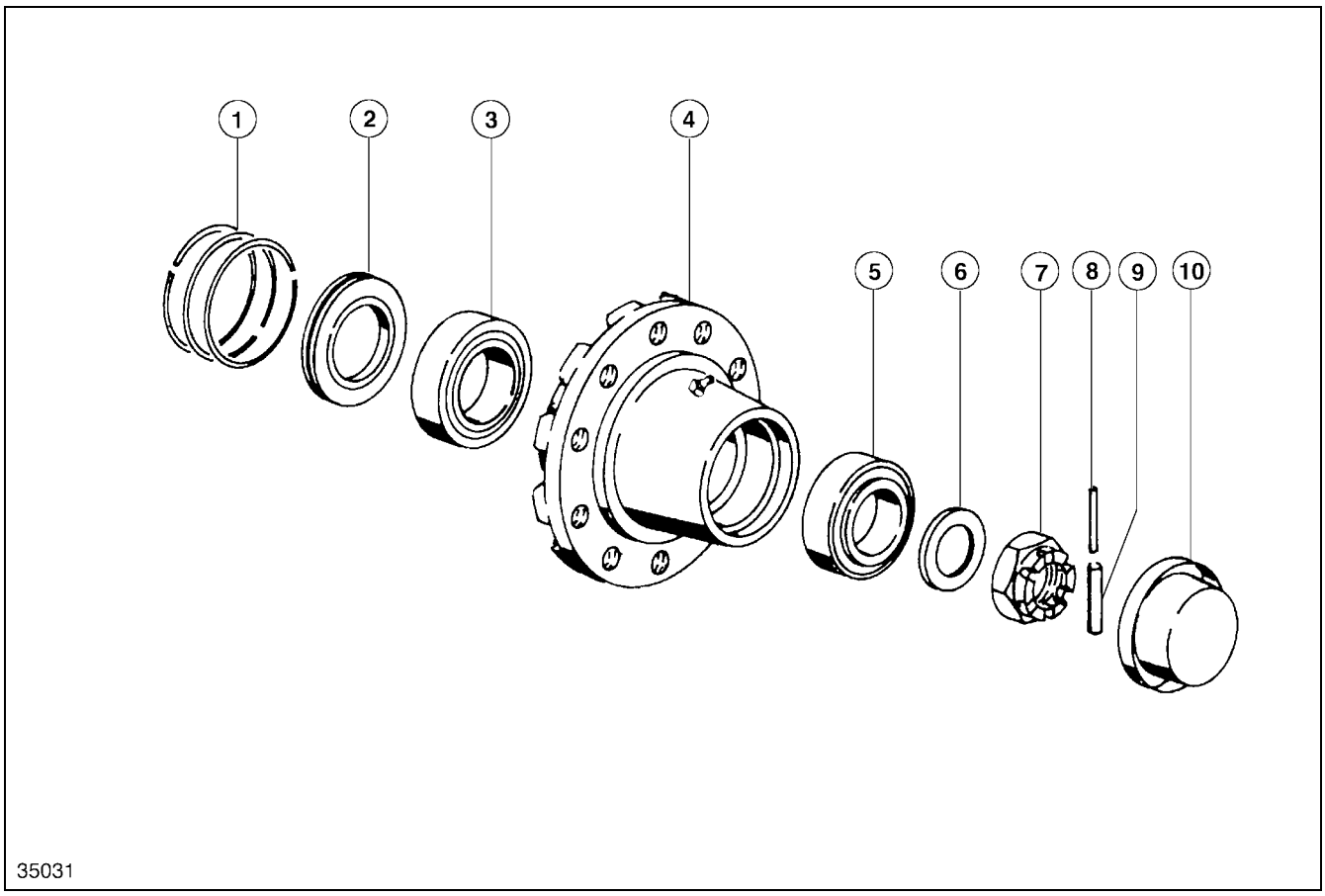
(Fig. 8)



9

Pull off the seal retainer (T) with the seals from the stub axle, using a puller.

(Fig. 9)

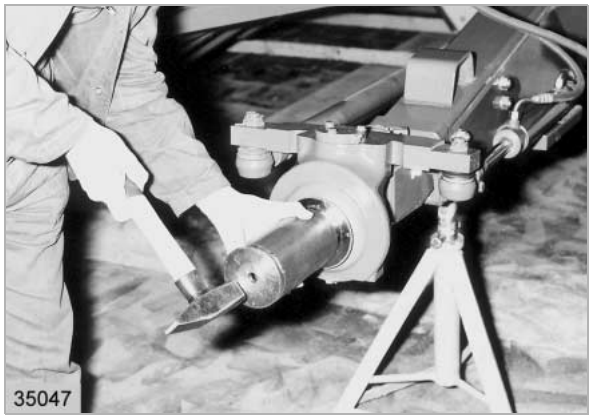


10

Wheel bearing, disassembled

1 Seals
2 Seal retainer
3 Taper roller bearing 332 14 DIN 720
4 Hub
5 Taper roller bearing 332 11 DIN 720
6 Shim
7 Castellated nut M 42 x 1.5
8 Expansion pin 5 x 60-A DIN 8752
9 Expansion pin
10 Dust cap

(Fig. 10)



11

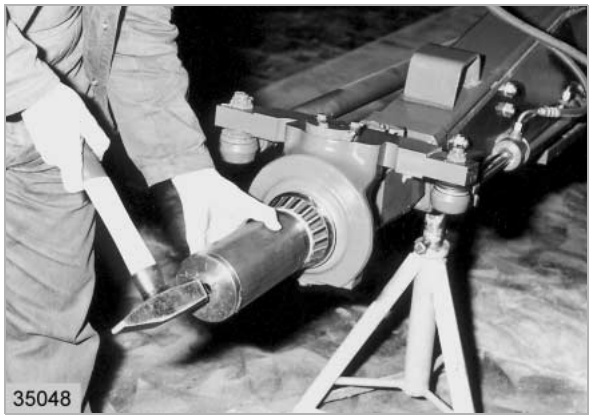
Installing the wheel bearing

Using a block-ended tube, drive the seal retainer (2) with seals (1) on the stub axle.

Align the seals so that the openings are staggered between one another by **120**°.

Slightly grease the seals.

(Fig. 10, 11)



12

Slightly oil the inner bearing seat of the wheel hub.

Heat the inner taper roller bearing (3) to approx. **100 °C** and slide it on.

Once the bearing has cooled down, give the bearing a short hammer blow with a block-ended tube.

(Fig. 10, 12)



13

Grease taper roller bearing (3) and slide on wheel hub (4).

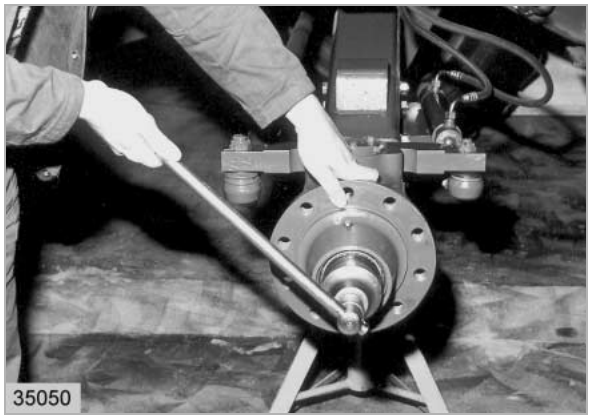
CAUTION!

To ensure correct seat of the seals, compress the seals with a screwdriver if necessary while sliding the wheel hub on.

Apply some oil to the outer bearing seat of the wheel hub and grease the outer taper roller bearing (5).

Drive on the outer taper roller bearing, using a block-ended tube.

(Fig. 10, 13)



14

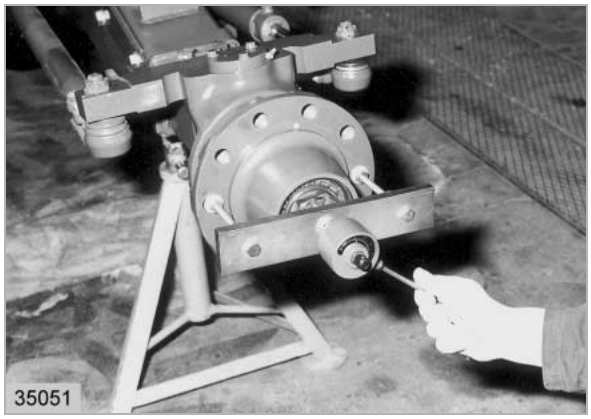
Adjusting the taper roller bearing:

Slide on shim (6). Tighten the castellated nut (7) until no more play can be measured while constantly turning the bearing in both directions.

Now slacken off the castellated nut by one slot.

Spinning torque = **1.5 – 5.5 Nm**

(Fig. 10, 14)



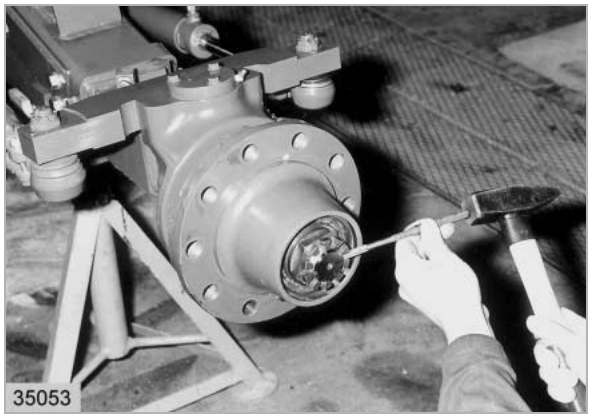
15

Check the spinning torque using a special tool (S).

Special tool (S):

1 Test bridge part no. 181 623.0
2 Hex. bolt M 10 x 180 DIN 931-8.8
3 Hex. nut M 10 DIN 934

(Fig. 15)



16

Secure the castellated nut with expansion pins (8 and 9).

(Fig. 10, 16)



17

Drive the new cap (10) into the wheel hub, using a block-ended tube.

ATTENTION!

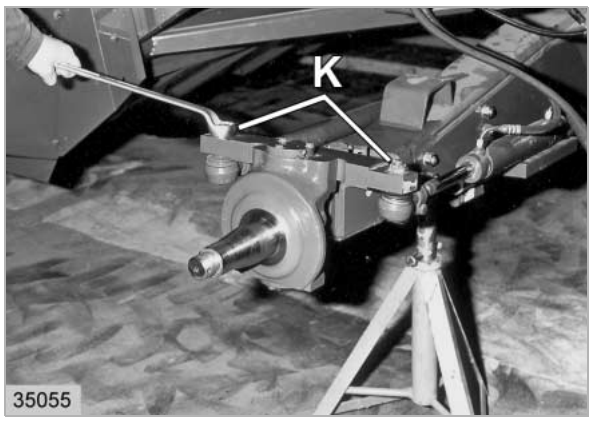
Apply the tube on the cap only inside the flanged edge!

Grease the bearing using the grease nipple provided on the wheel hub.

Install the wheels with M 22 x 1.5 wheel bolts.

Tightening torque = 520 Nm

(Fig. 10, 17)



18

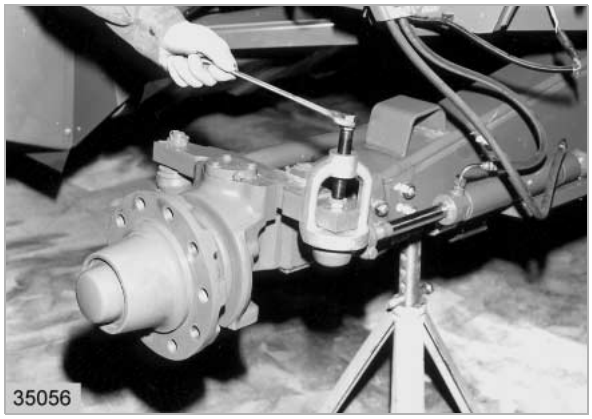
Removing the stub axle

Remove the wheel bearings.

Remove the split pins from the castellated nuts.

Slacken off the castellated nuts (K).

(Fig. 18)



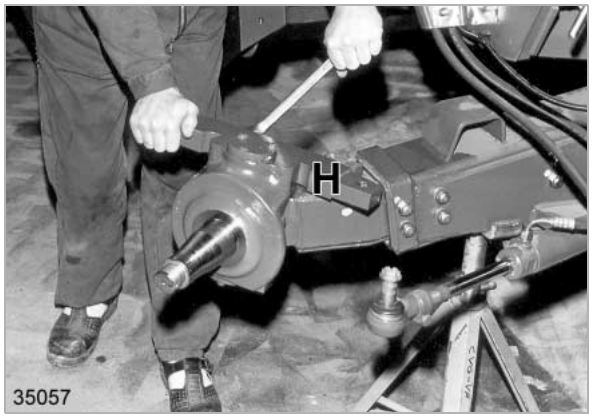
19

Push the ball joints out of the tapered seats using a ball head puller.

Alternatively, the ball joint should come loose after tapping with a hammer on one side of the tapered seat and holding a hammer against it on the on the other side.

Remove the castellated nuts completely.

(Fig. 19)



20

Unscrew the two bolts from the steering track arm. Remove steering track arm (H).

(Fig. 20)



21

Remove the upper cover.

(Fig. 21)



22

Remove the bottom cover.

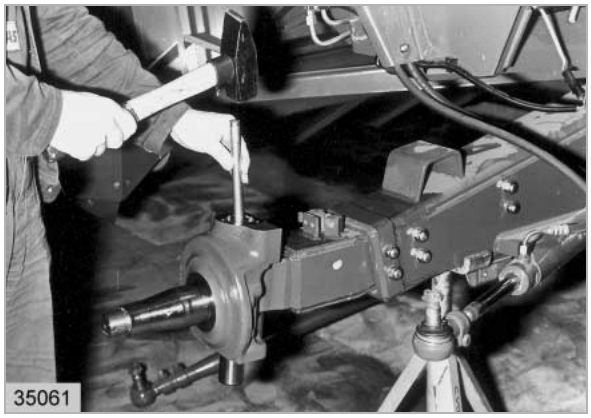
(Fig. 22)



23

Screw out set screw.

(Fig. 23)



24

Drive out the kingpin with a brass punch.

Remove the stub axle.

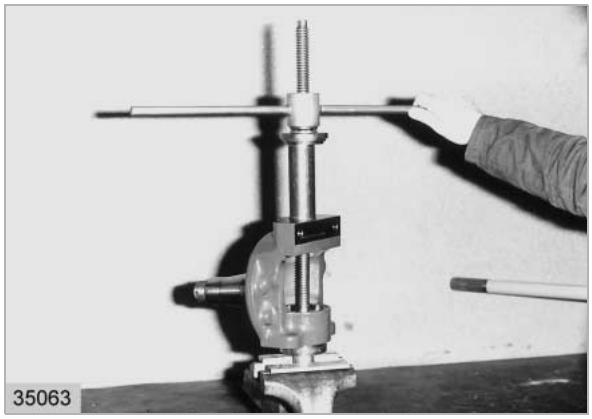
(Fig. 24)



25

Remove axial taper roller bearing (13) and O-rings from the stub axle.

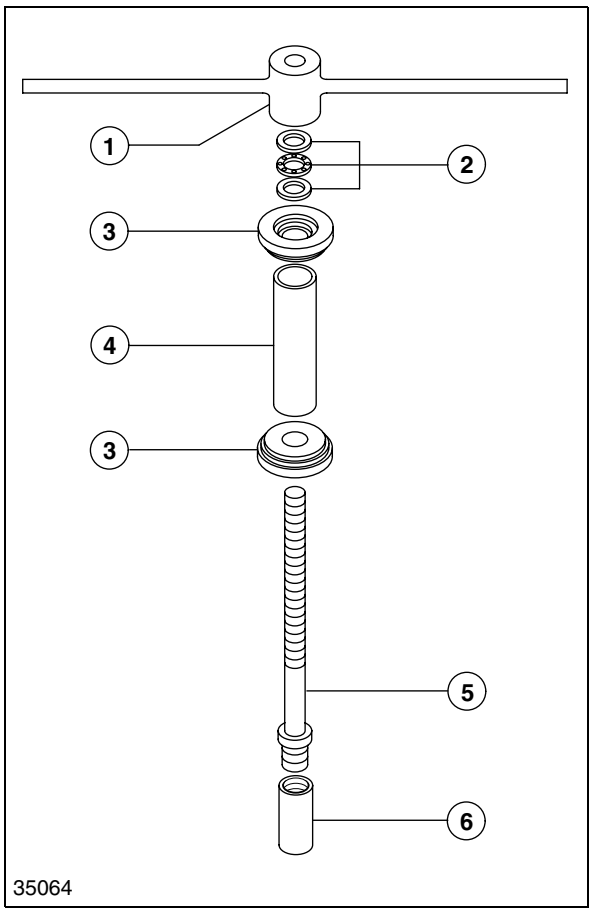
(Fig. 25)



26

Press the needle bushings out of the stub axle, using a special tool (T).

(Fig. 26)

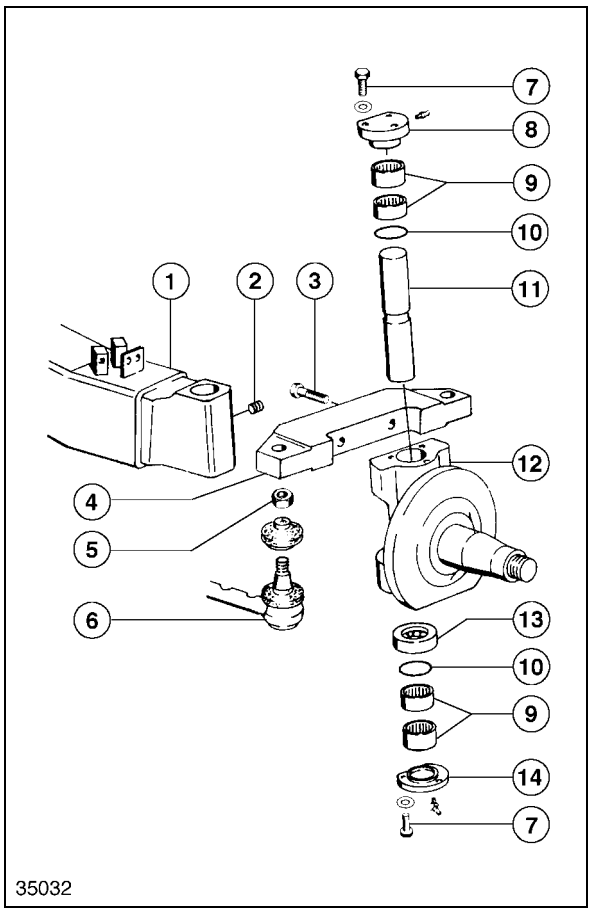


27

Special tool (T):

1 Lever nut
part no. 181 880.0
2 Axial deep groove ball bearing
part no. 235 983.0
3 Centring disc
part no. 181 879.0
4 Tube
Outside diameter: 50 mm
Inside diameter: 40 mm
Length: 150 mm
5 Spindle
part no. 181 877.0
6 Sleeve
part no. 181 881.1

(Fig. 27)

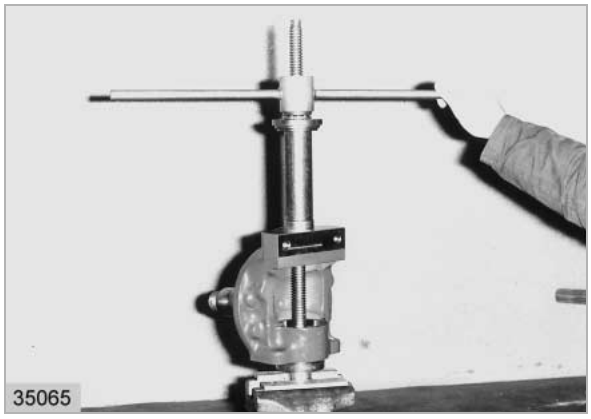


28

Stub axle, disassembled

1 Steering axle housing
2 Set screw M 12 x 16 DIN 915
3 Hex. bolt M 16 x 1.5 x 80
DIN 960-10.9
4 Steering track arm
5 Lock nut VM 24 x 1.5 DIN 980-8.8
6 Ball joint
Seal
7 Hex. bolt M 8 x 20 DIN 933
Lock washer 8
8 Top cover
9 Needle bushing
10 O-ring
11 Kingpin
12 Stub axle
13 Axial taper roller bearing
14 Bottom cover

(Fig. 28)

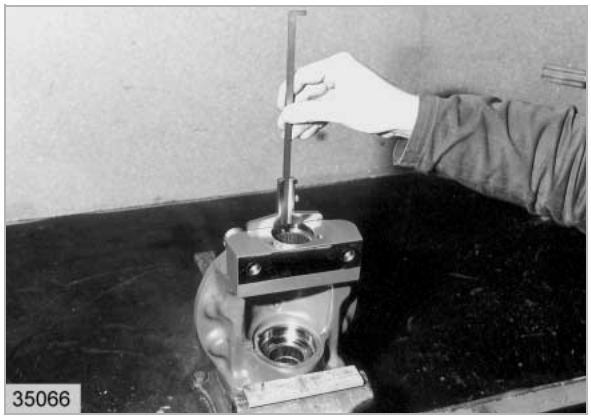


29

Installing the stub axle

Press the needle bushings (9) into the stub axles one after another, using the special tool (T).

(Fig. 27, 28, 29)

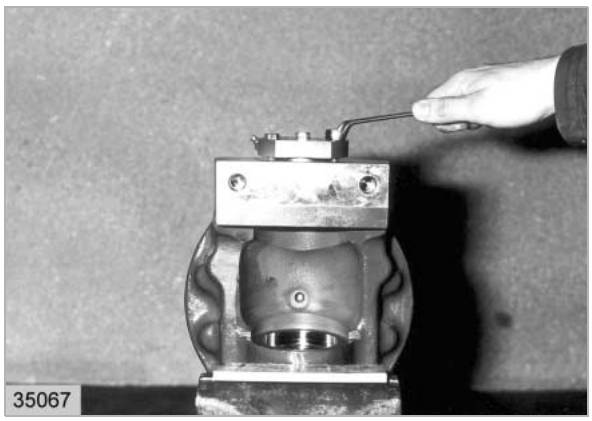


30

Press in the top needle bushings until the dimension from the upper stub axle surface to the top needle bushing is **13 mm**.

Press in the bottom needle bushings until the bottom needle bushing is flush with the bottom stub axle surface.

(Fig. 30)



31

Place the top and bottom covers (8 and 14) in position. Tighten the cover bolts until the covers make contact with the stub axle surfaces.

Remove the cover.

(Fig. 28, 31)



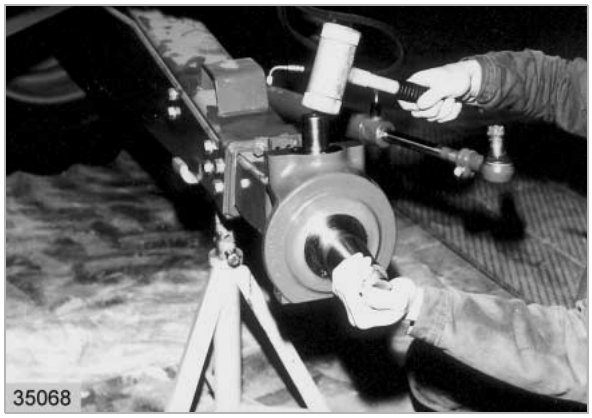
32

Grease the needle bushings.

Grease and insert new O-rings (10).

Grease and insert axial taper roller bearings (13).

(Fig. 28, 32)



33

Slide the stub axles on the adjusting element.

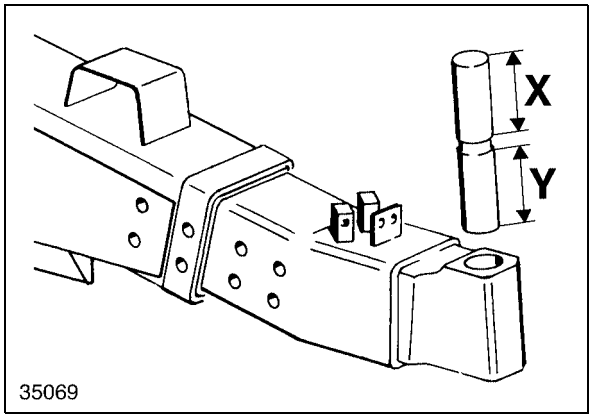
Carefully drive in the kingpin using a plastic-tip hammer – observe correct installation position!

X = 96 mm
Y = 109 mm

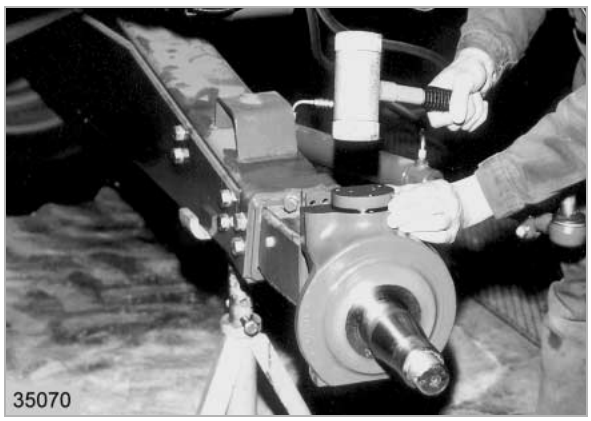
CAUTION!

Ensure that the O-rings are not pushed away to the bottom.

(Fig. 33, 34)



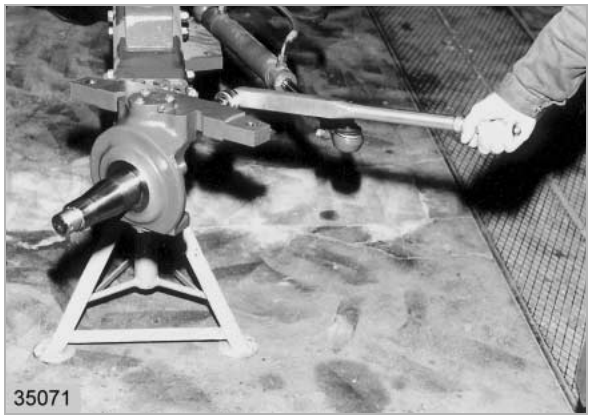
34



35

Drive in the top and bottom covers using a plastic-tip hammer and bolt them down.

(Fig. 35)



36

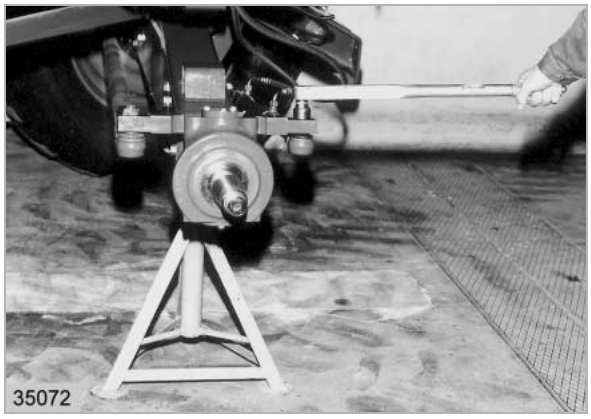
Screw in the lateral set screw (2).

Bolting down the steering track arm (4):

Insert bolts (3) with liquid locking compound.

Tightening torque = 290 Nm

(Fig. 28, 36)



37

Installing the steering cylinders and the steering track rod:

Using a plastic-tip hammer, push the ball joints into the tapered seats. Bolt down the castellated nuts.

Castellated nut of steering track rod (M 24 x 1.5):

Tightening torque = 270 – 290 Nm

Castellated nut of steering cylinder (M 20 x 1.5):

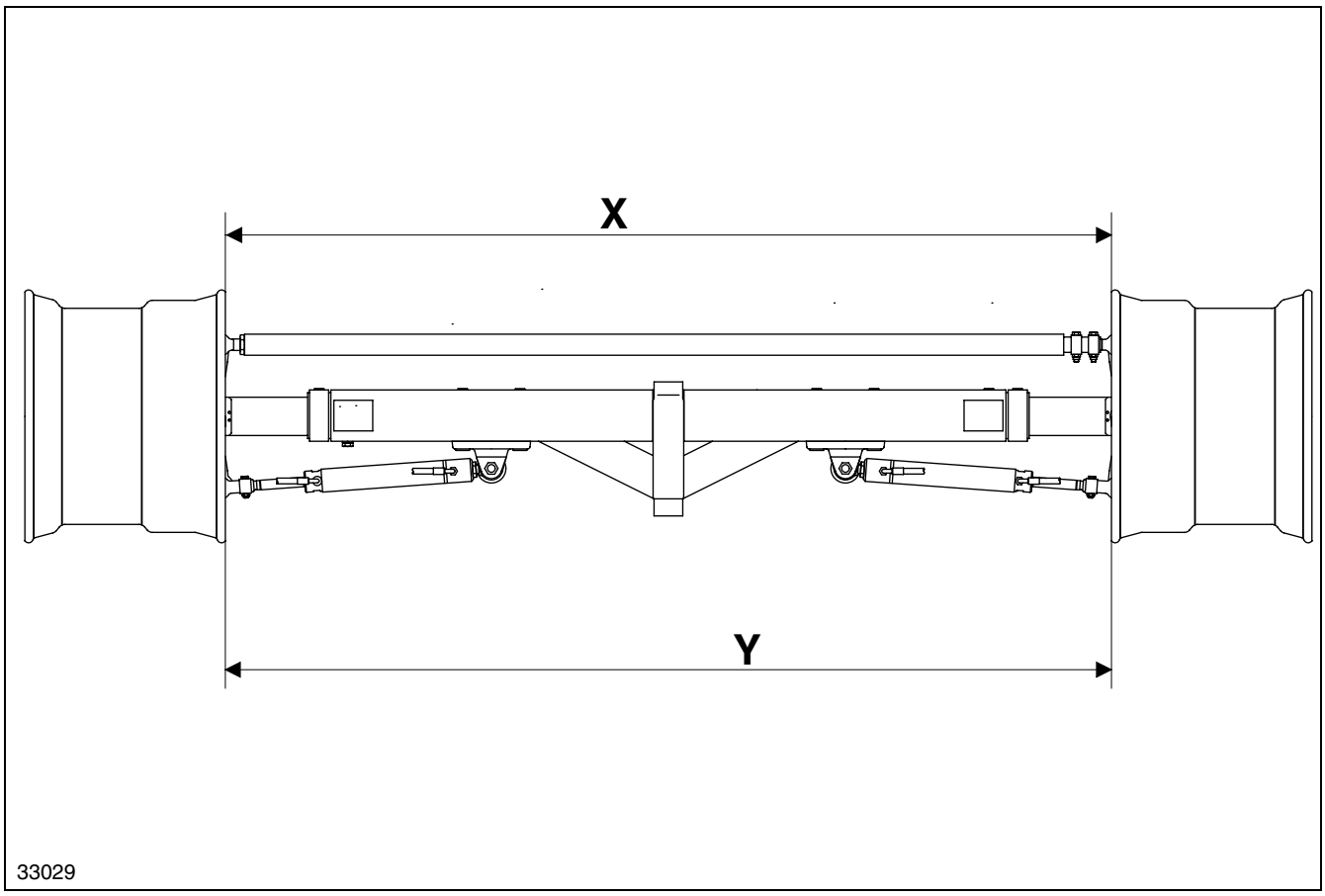
Tightening torque = 200 Nm

Secure the castellated nuts with split pins.

(Fig. 37)

Grease the stub axle bearing by means of grease nipples.

Install the wheel bearing.



38

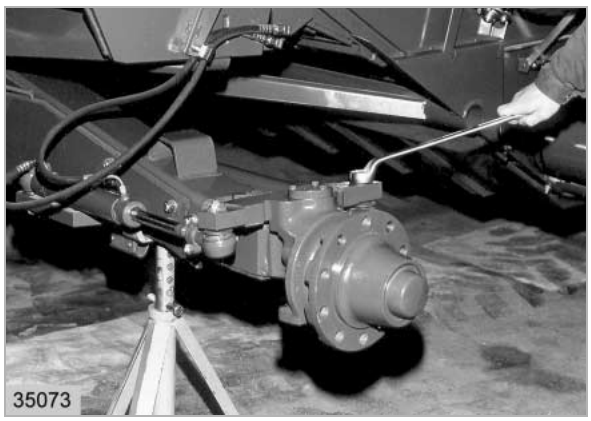
Setting the track width

The track width is measured on the rim flanges:

Adjust the steering axle wheel track width to a toe-in of **0 to 15 mm**.

For this reason set check distance (Y) **0 to 15 mm** larger than check distance (X).

(Fig. 38)



39

Remove the right-hand wheel.

Remove the split pin from the castellated nut at the steering track rod ball joint.

Slacken off the castellated nut.

Push the ball head out of the tapered seat using a suitable puller.

Alternatively, the ball joint should come loose after tapping with a hammer on one side of the tapered seat and holding a hammer against it on the other side.

Remove the castellated nut completely.

(Fig. 39, 40)



40



41

The setting is made by adjusting the steering track rod.

Loosen clamp (S) and adjust the ball joint as needed.

(Fig. 41)



42

Using a suitable puller, push the ball joints into the tapered seats.

Bolt the castellated nut to the ball joint.

Tightening torque = 200 Nm

Secure the castellated nut with a split pin.

CAUTION!

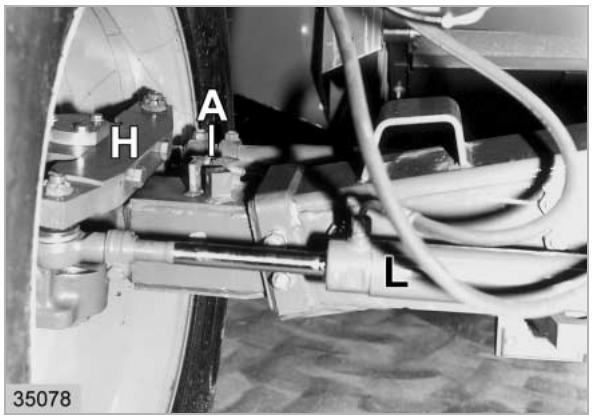
After every adjustment of the steering track rod, check the steering axle end stops and re-adjust if necessary.

Refit the right-hand wheel.

(Fig. 42)



43



44

Adjusting the steering axle end stops

Re-adjusting the steering end stop bolts (A) on both sides every track width adjustment:

1. Place a suitable jack under the centre of the steering axle and then raise the machine off the ground.
2. Screw the steering end stop bolt (A) in fully.
3. Turn the steering wheel fully to one side.
4. Adjust the steering end stop bolt (A) so that the bolt head lightly touches the steering track arm (H).

   Now screw out the end stop bolt (A) by one turn, so that the hydraulic piston of the steering cylinder (L) still has about **2.5 mm** possible travel before it meets the stops.

   Carry out the same procedure on the other side of the machine. Secure the stop bolts with the lock nuts.

(Fig. 43, 44)



45

Removing the steering axle

Remove wheels.

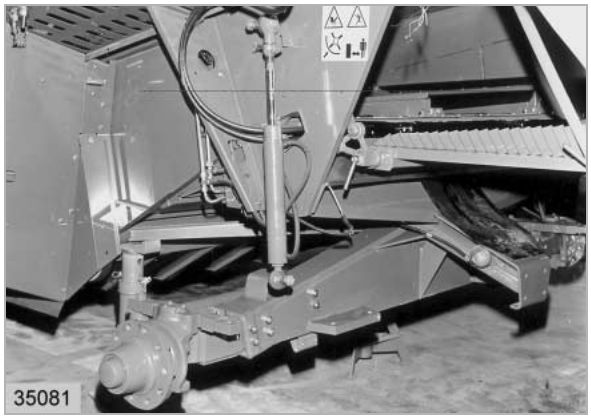
Removing the steering cylinders:

Remove the split pins from the castellated nuts at the ball heads. Slacken off castellated nuts.

Push the ball heads out of the tapered seats using a suitable puller.

Unscrew the castellated nuts.

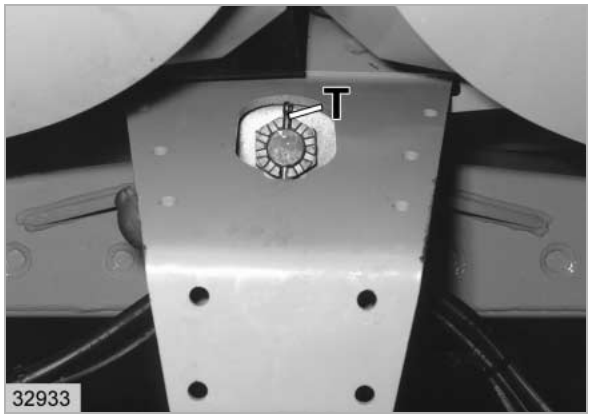
(Fig. 45)



46

Tie up the hydraulic cylinder at the side.

(Fig. 46)



47

Remove the split pin (T) from the castellated nut.

(Fig. 47)

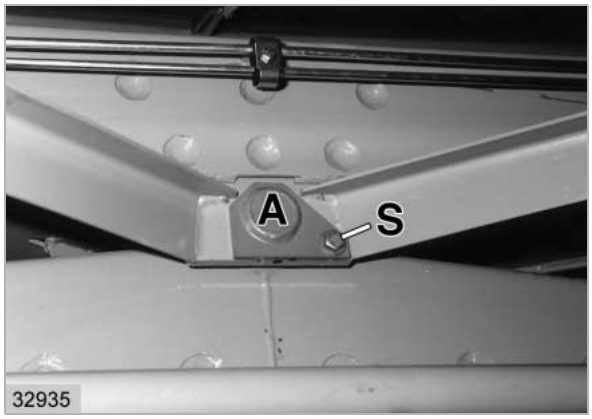


48

Remove the castellated nut (K).

Remove the supporting ring and the back-up ring.

(Fig. 48)



49

Remove the locking bolt (S) at axle pivot pin (A).

(Fig. 49)



50

Support the steering axle with a mobile lifting device, e.g. a pallet truck. Raise the steering axle slightly so that the load is off the axle pivot pin (A).

Drive out the axle pivot pin (A) using a soft metal punch.

CAUTION!

Take particular care of shims falling out!

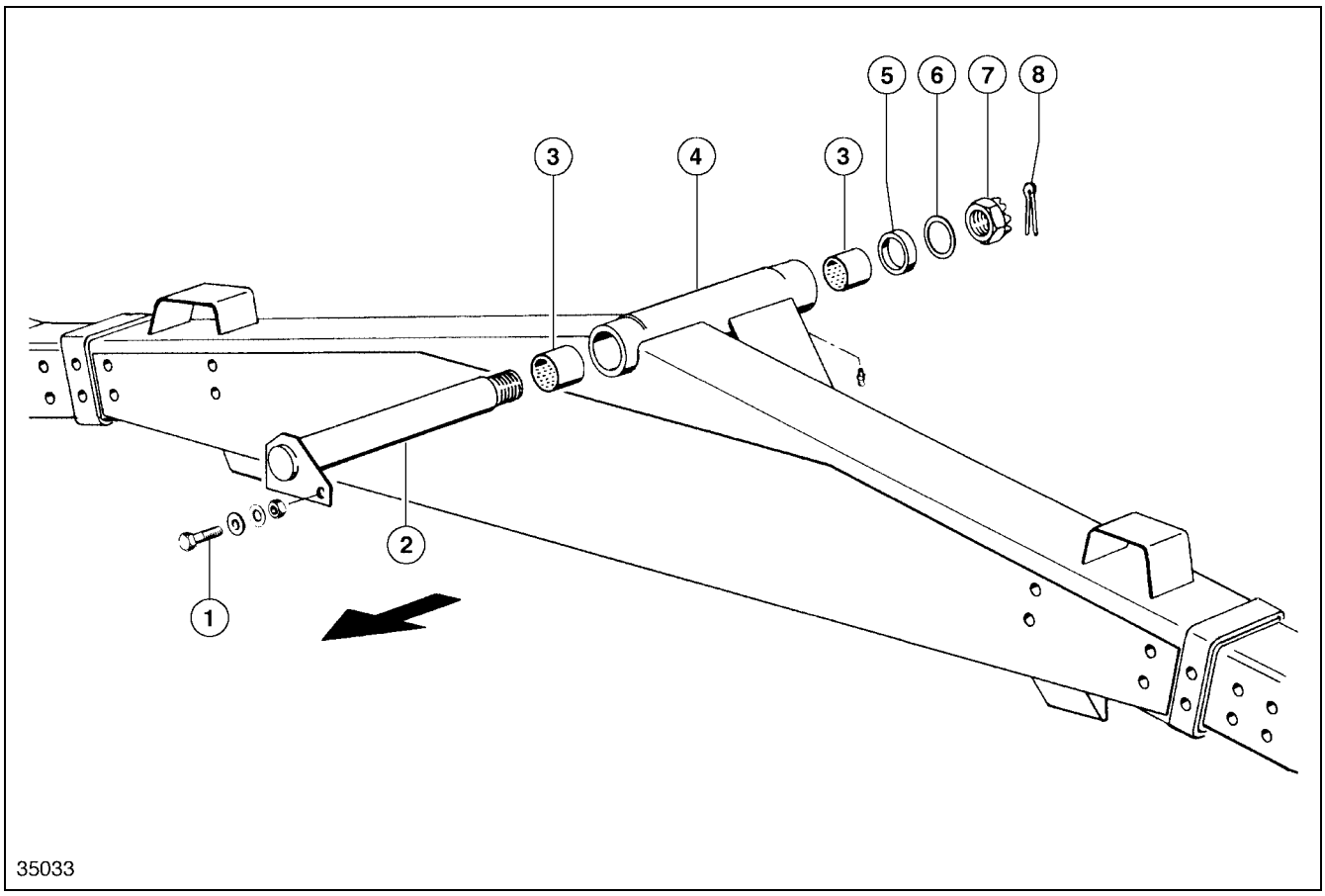
(Fig. 49, 50)



51

Lower the steering axle and move it away from the machine to the rear.

(Fig. 51)



52

Steering axle bearing, disassembled

1 Hex. bolt M 12 x 40 DIN 933-8.8
Washer 13 DIN 125
Contact washer A 12
Hex. nut M 12
2 Pin
3 Bushing
4 Steering axle housing
5 Back-up ring
6 Supporting ring
Shim
7 Castellated nut M 42 x 1.5
8 Split pin 8 x 71

(Fig. 52)



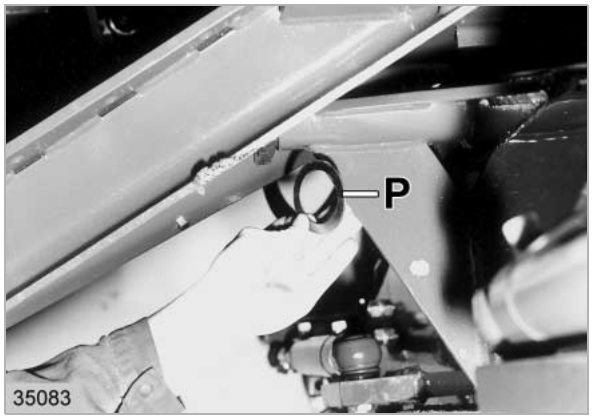
53

Replacing the bearing bushings:

Using a punch, remove the worn-out bearing bushings from the steering axle housing.

Press the bushings into the steering axle housing using a plastic-tip hammer.

(Fig. 53)



54

Installing the steering axle

1. Raise the steering axle with a pallet truck. Slightly grease the pin (2) and insert it.
2. Compensate the axial play with shims (P).

ATTENTION!

The steering axle should not have any play once the axle pivot pin has been fitted!

3. Secure the pin (2) with hex. bolt (1).

   Tightening torque = 78 Nm

4. Bolt down the castellated nut (7) with supporting ring (6) and back-up ring (5) and secure with a split pin.
5. Grease the axle pivot pin bearing.
6. Install the steering cylinder and secure with castellated nuts (M 20 x 1.5).

   Tightening torque = 200 Nm

7. Install wheels.

(Fig. 52, 53, 54, 55, 56)



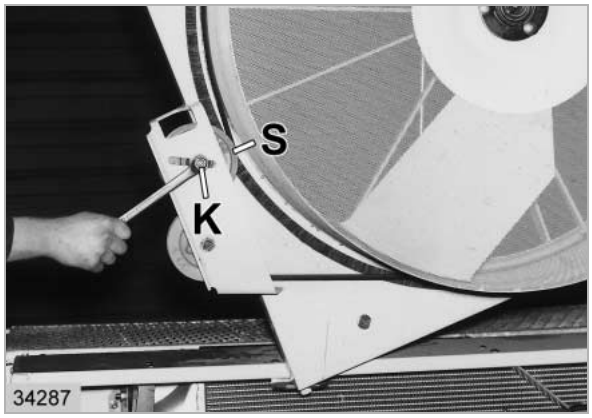
55



56

8
Machine body

ROTARY SCREEN



1

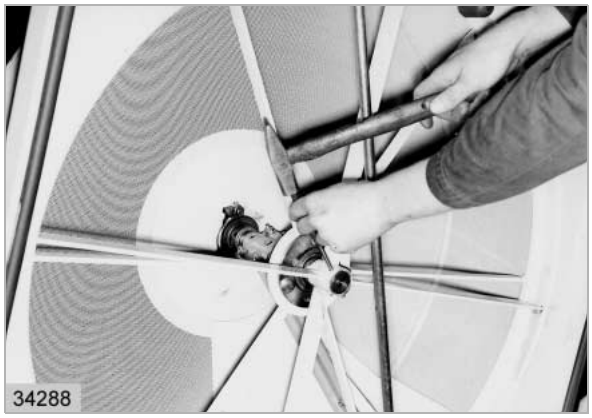
Removing the rotary screen

Unlock the rotary screen, swing up and secure safely.

Releasing the tension from the drive belt:

For this, loosen the clamping bolt (K), push the jockey pulley (S) back by hand and then remove the V-belt.

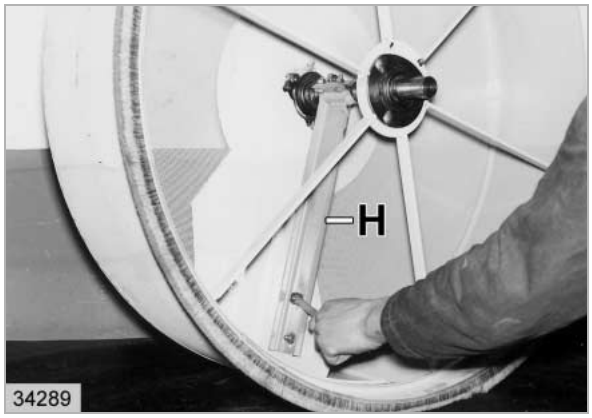
(Fig. 1)



2

Drive the expansion pin out of the axle and remove the rotary screen.

(Fig. 2)



3

Disassembling the rotary screen

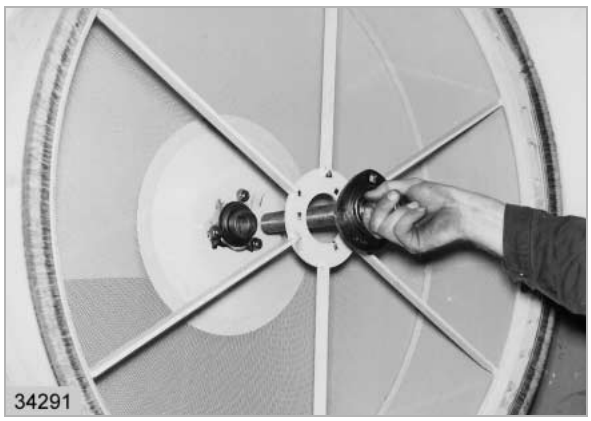
Remove the deflector plate and the bracket (H).

(Fig. 3)



4

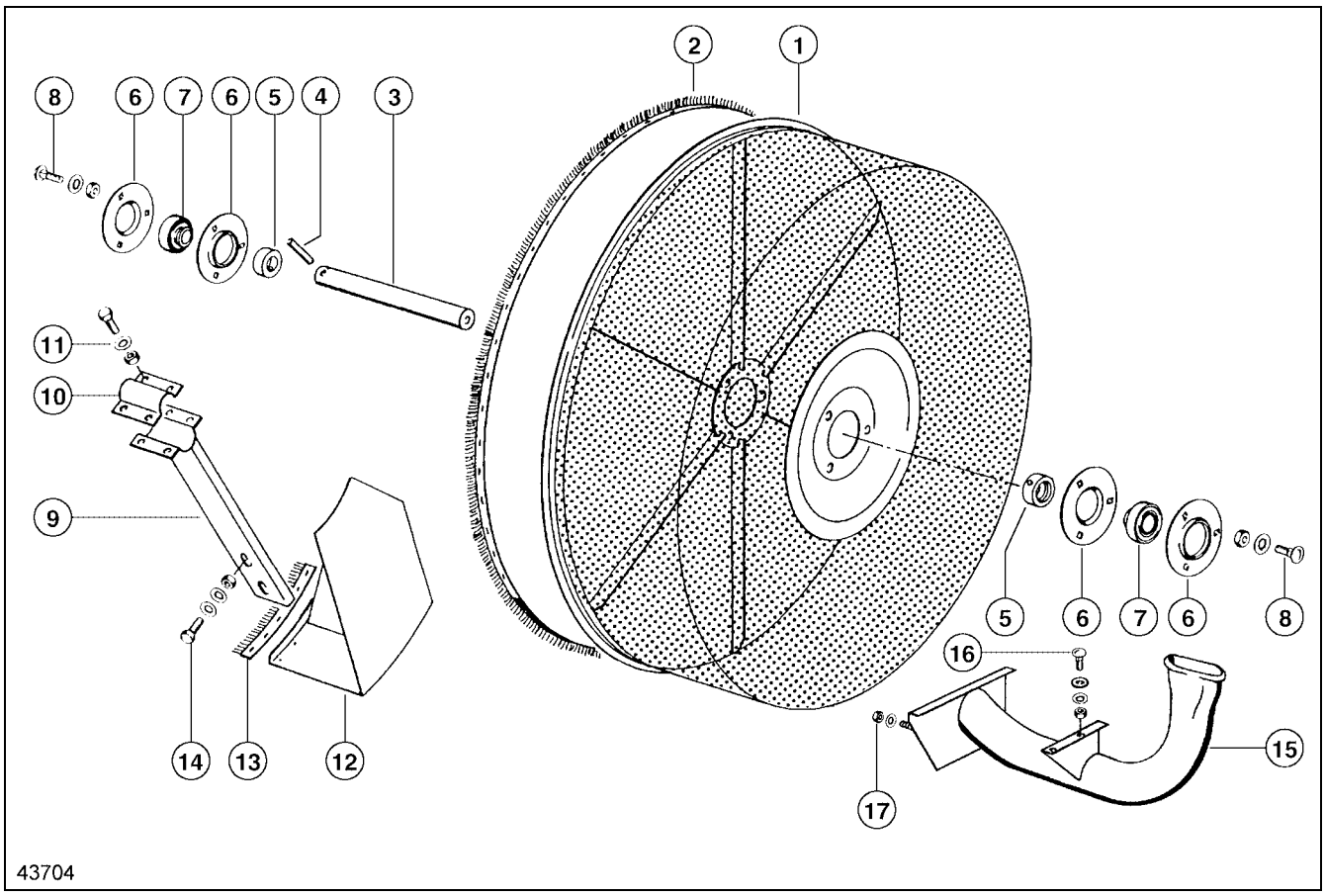
Unlock the lock collar and knock it off against the normal direction of rotation.



5

Unbolt the flange ball bearing and remove along with the axle.

(Fig. 5)

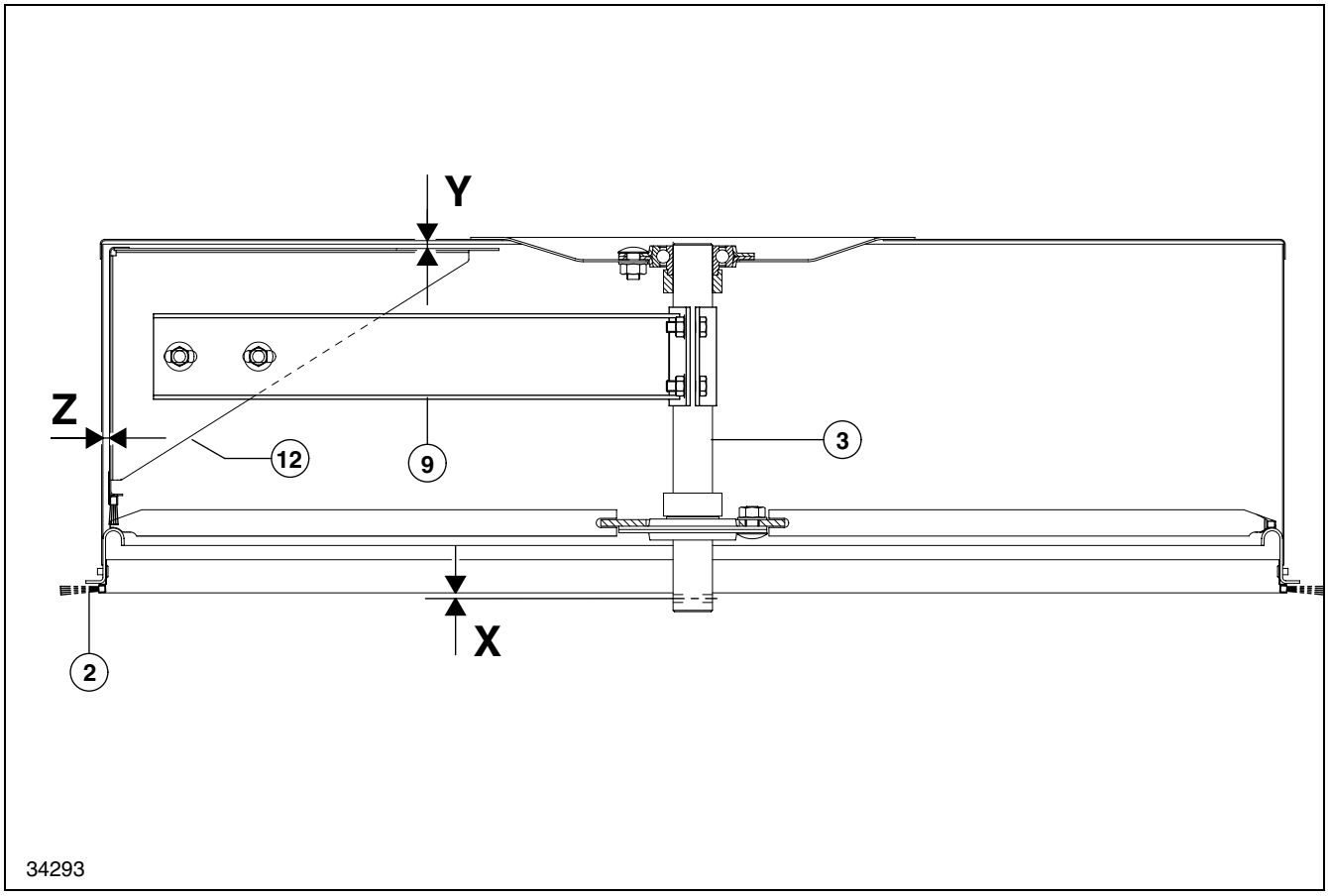


6

Rotary screen, disassembled:

1 Rotary screen
2 Sealing brush
3 Axle
4 Expansion pin 6 x 40-B DIN 8752
5 Lock collar
6 Sheet metal flange
7 Lock collar bearing
8 Mushroom head bolt M 10 x 20 x 12 DIN 603
Contact washer A 10
Hex. nut M 10 DIN 934
9 Support plate
10 Clamp
11 Hex. bolt M 8 x 25 DIN 933-8.8
Contact washer A 8
Hex. nut M 8 DIN 934
12 Deflector plate
13 Sealing brush
14 Hex. bolt M 8 x 25 DIN 933-8.8
Contact washer B 8
Hex. nut M 8 DIN 934
15 Suction tube
16 Mushroom head bolt M 8 x 20
Hex. nut M 8
Contact washer A 8
17 Hex. nut M 6
Contact washer B 6

(Fig. 6)



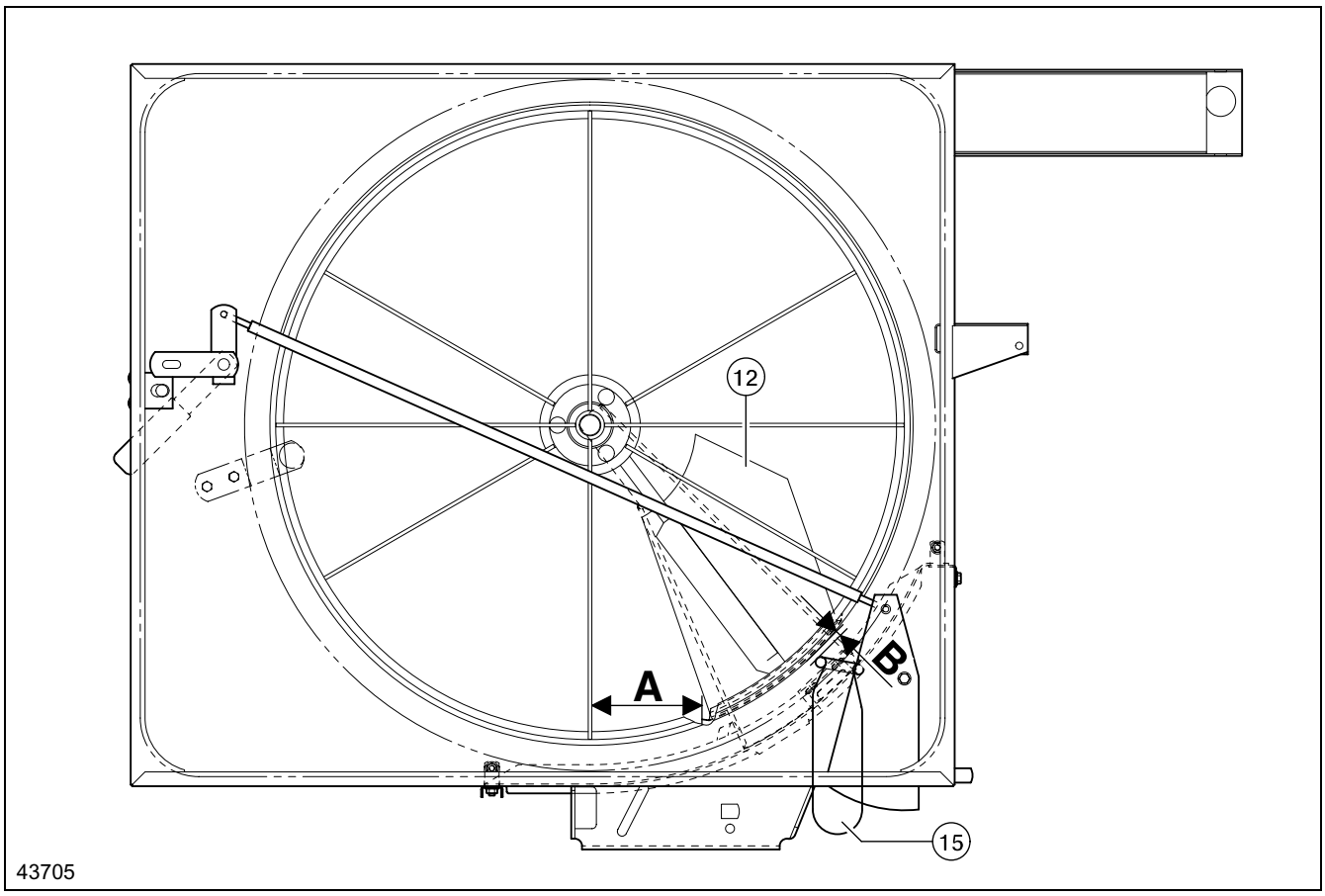
7

Assembling and installing the rotary screen

1. Pre-assemble the flange ball bearings (5, 6 and 7) with the axle (3) in the rotary screen.
2. Align the axle (3) so that dimensions (X) (centre of bore up to outer edge of brush – with a solid support) is **4.3 ± 0.5 mm**.

   Lock axle in place with lock collars (5).
3. Install bracket (9) and deflector plate (12) and align so that the dimensions **Y = 6^{+5} mm** and **Z = 5^{+5} mm**.
4. Place rotary screen into the back plate and secure with the expansion pin (4).

(Fig. 6, 7)



8

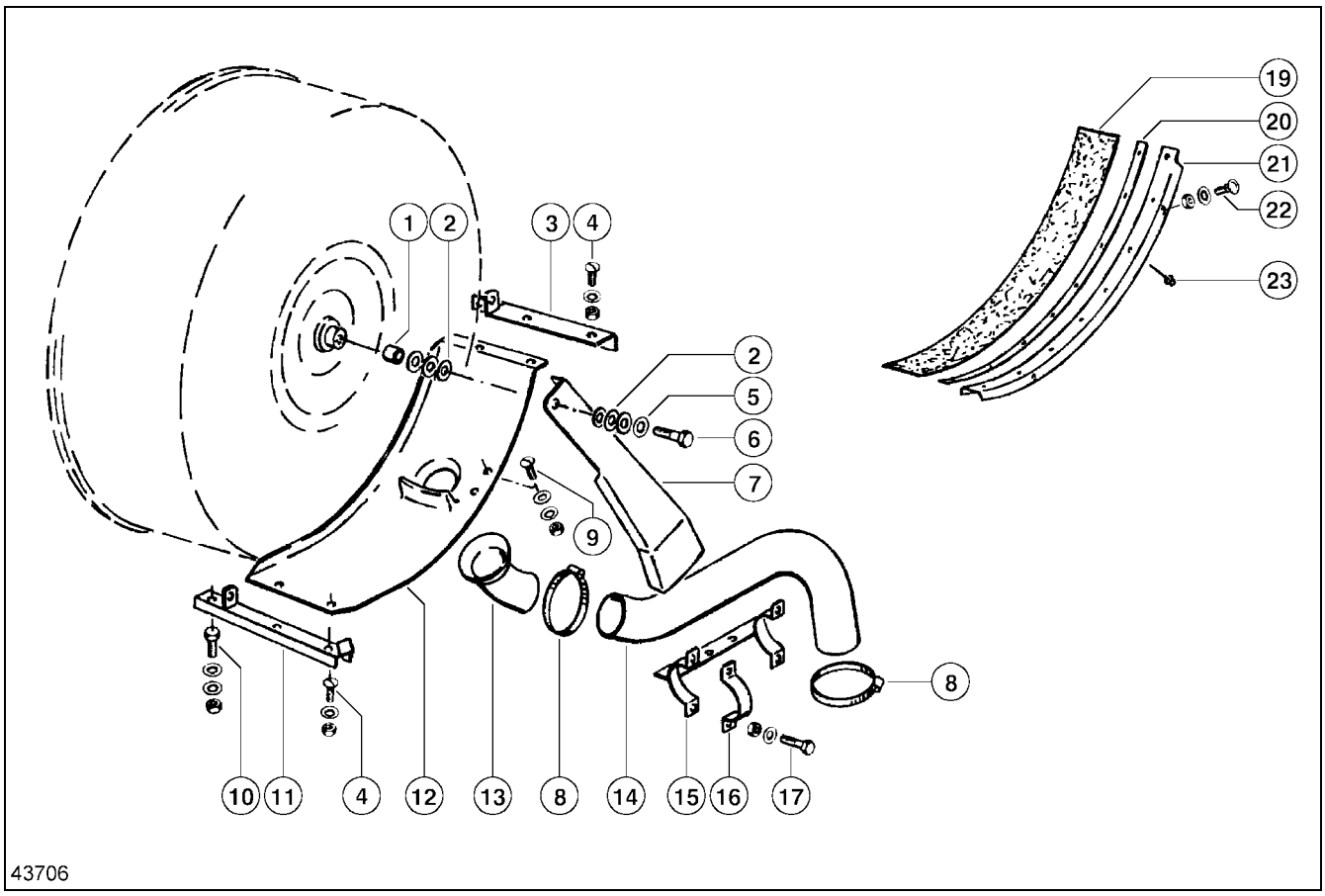
5. Adjust the deflector plate (12) so that the dimension (A) is **156 ± 5 mm** relative to the vertical brace of back wall (R).
6. *Installing and adjusting the rotary chaff screen drive belt (26)*, see page 7.3.14
7. Adjust the suction unit.

   On machines with a suction tube:
   Adjust the suction tube (15) so that dimension (B) is **10 ± 2 mm**.

(Fig. 6, 8)

On machines with a suction blower (drive):
Adjust the trough and the lateral panel.

(Fig. 8, 9)

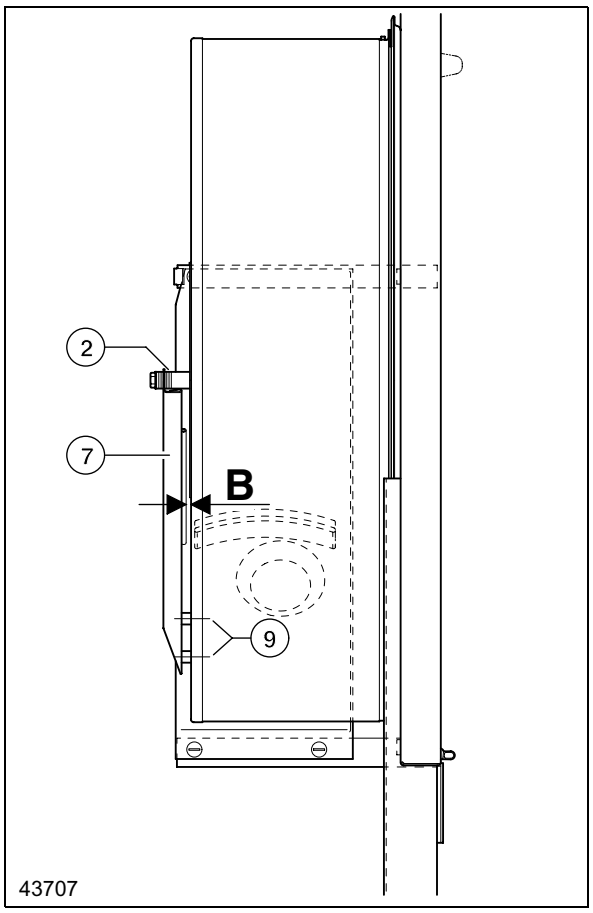


9

Trough and lateral panel, disassembled

1 Tube
2 Washer 10.5 x 22 x 3
3 Mounting bracket
4 Mushroom head bolt M 8 x 16
Contact washer A 8
5 Contact washer A 10
6 Hex. bolt M 10 x 65
7 Lateral panel
8 Hose clamp
9 Mushroom head bolt M 6 x 16 x 10
Hex. nut M 6
Contact washer A 8
Washer 105 x 22 x 3
10 Hex. bolt M 8 x 20
Hex. nut M 8
Contact washer A 8
11 Mounting bracket
12 Trough
13 Nozzle
14 Suction tube
15 Mounting bracket
16 Clamp
17 Hex. bolts M 8 x 45
Hex. nut M 8
Contact washer A 8
18 Plastic hose
19 Sealing strip
20 Clamping rail
21 Sealing
22 Mushroom head bolt M 6 x 12
Hex. nut M 6
Contact washer A 8
23 Blind rivet

(Fig. 9)



10

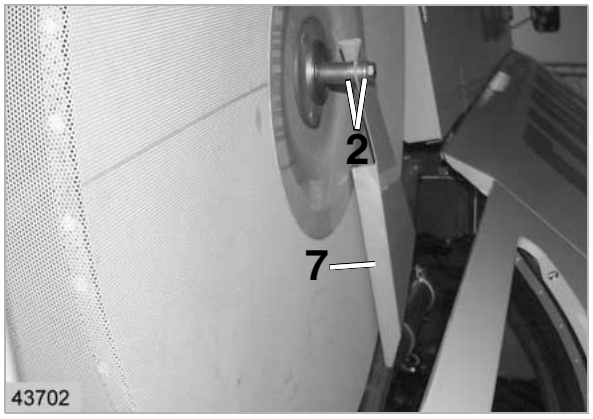
Adjusting the trough and the lateral panel

(if suction blower with drive is fitted)

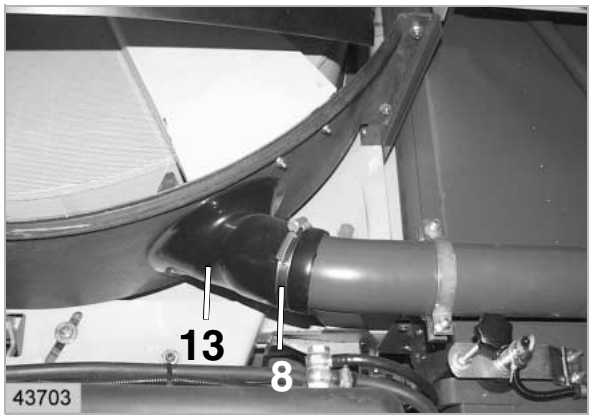
The side panel (7) must be adjusted in parallel with the rotary screen to the dimension (B) = **5 ± 3 mm**.

Dimension (B) can be corrected by compensating with washers (2) and by adjusting the bolts (9).

(Fig. 9, 10, 11)



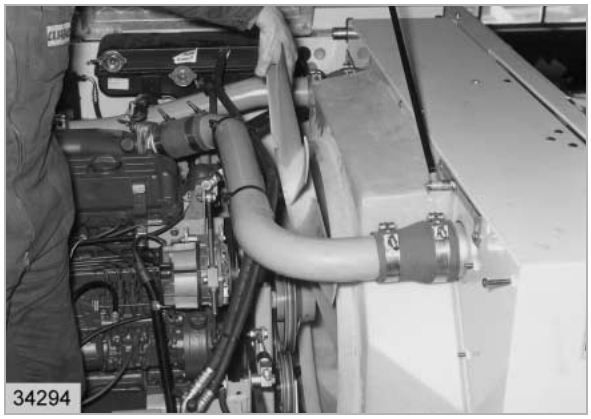
11



12

Fold down the back plate along with the rotary screen and lock it. The nozzle (13) must make tight contact with the trough (12), if necessary loosen the hose clamp (8) and shift the nozzle to the correct position.

(Fig. 12)



13

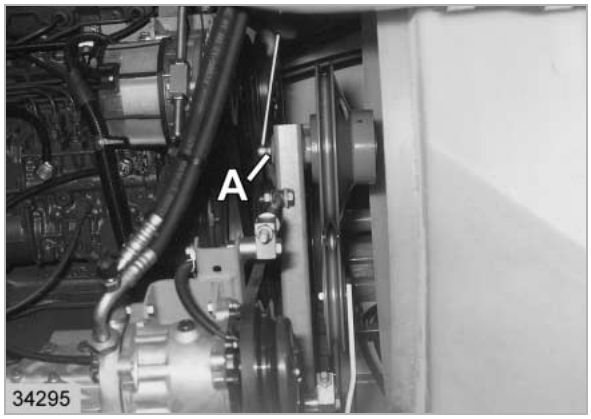
Removing the fan drive

Unlock the catwalk and fold it up.

Removing the fan drive belt (27), see page 7.3.15

Unbolt the axial fan and remove along with the spacers.

(Fig. 13)



14

Unbolt the hex. bolts at (A) and remove the V-belt pulley.

(Fig. 14)

Installing the fan drive

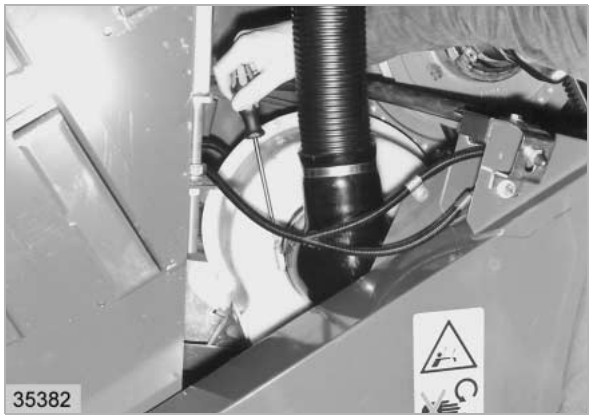
1. Bolt down the V-belt pulley.

   (Fig. 14)

2. Bolt down axial fan with spacer washers.

   (Fig. 13)

3. *Installing and adjusting the fan drive belt (27)*, see page 7.3.16



15

Removing the rotary screen suction blower

Removing the suction blower drive belt (28), see page 7.3.17

Loosen the clamp and remove suction hose.

(Fig. 15)



16

Loosen two bolts from the spindle and remove spindle.

(Fig. 16)



17

Unscrew the bolt from the bracket and remove the complete suction blower.

(Fig. 17)

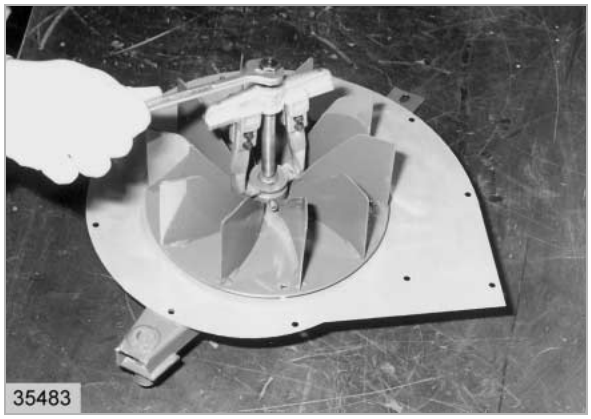


18

Disassembling the rotary screen suction blower

Unbolt the blower housing and remove it.

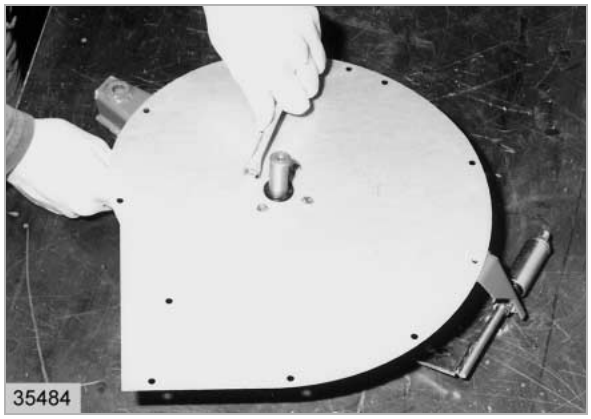
(Fig. 18)



19

Loosen the set screw and pull off the blower wheel.

(Fig. 19)



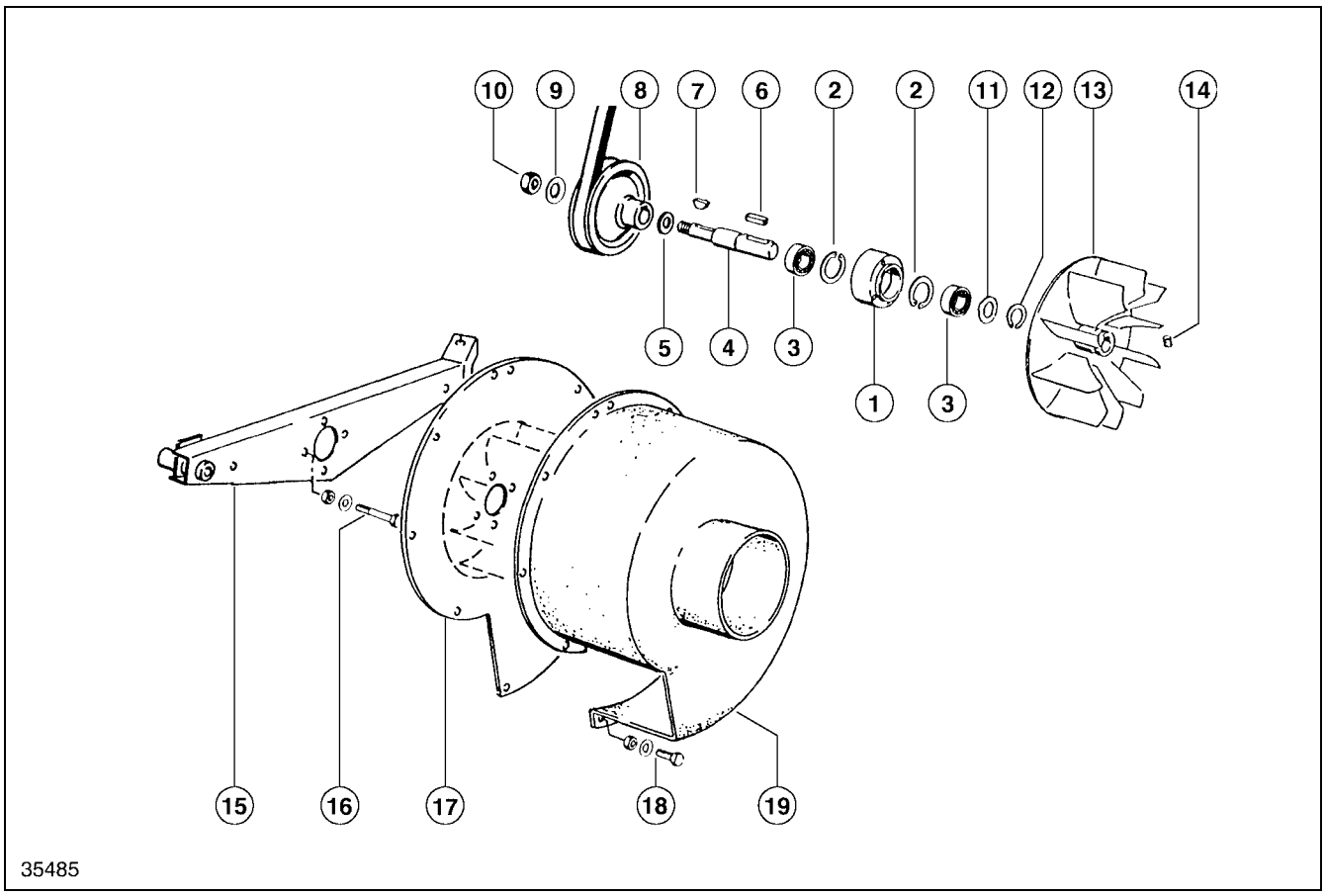
20

Remove parallel key and sheet metal cover.

Drive bearing housing out of the bracket.

Remove the circlips and drive out the shaft.

(Fig. 20)

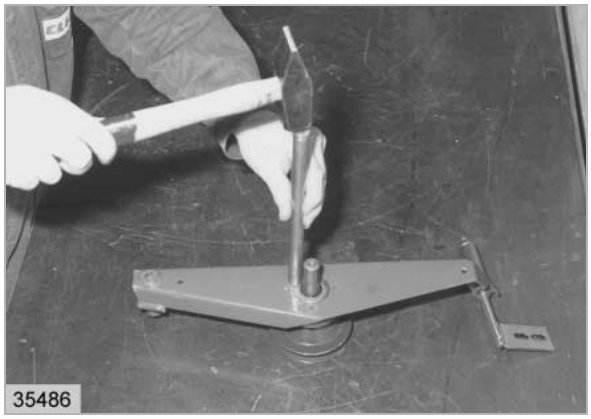


21

Rotary screen suction blower, disassembled:

1 Bearing housing
2 Circlip 42 x 1.75 DIN 472
3 Deep groove ball bearing 6004 2RS
4 Shaft
5 Supporting ring 17 x 24 DIN 988
6 Parallel key A 6 x 6 x 32 DIN 6885
7 Curved washer 5 x 7.5 DIN 6888
8 V-belt pulley
9 Contact washer A 16
10 Hex. nut
BM 16 x 1.5 DIN 439
11 Supporting ring 20 x 28 DIN 988
12 Circlip 20 x 1.2 DIN 471
13 Blower wheel
14 Set screw M 8 x 12 DIN 916
15 Mounting bracket
16 Hex. bolt
M 6 x 40 DIN 931-8.8
Hex. nut M 6 DIN 934
Lock washer 6
17 Back plate
18 Hex. bolt
M 6 x 16 DIN 933-8.8
Hex. nut VM 6
Contact washer A 6
19 Blower housing

(Fig. 21)



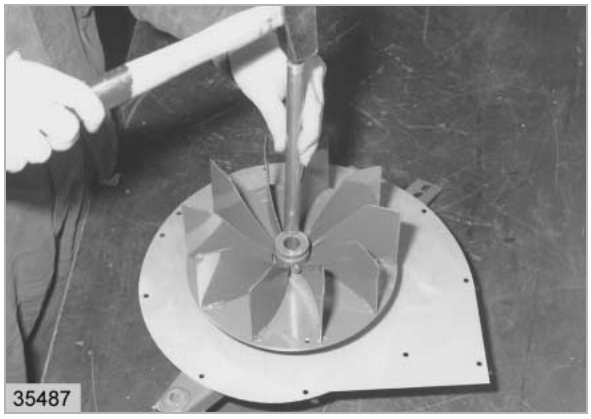
22

Assembling and installing the rotary screen suction blower

1. Insert the circlips (2) and the deep groove ball bearings (3) into the bearing housing (1).
2. Press shaft (4) into the bearing housing and insert circlip (12) with supporting ring. Place the V-belt pulley (8) in position and bolt it down.

   Tightening torque
   BM 16 x 1.5 = 78 Nm
3. Drive the bracket (15) onto the bearing housing (1).

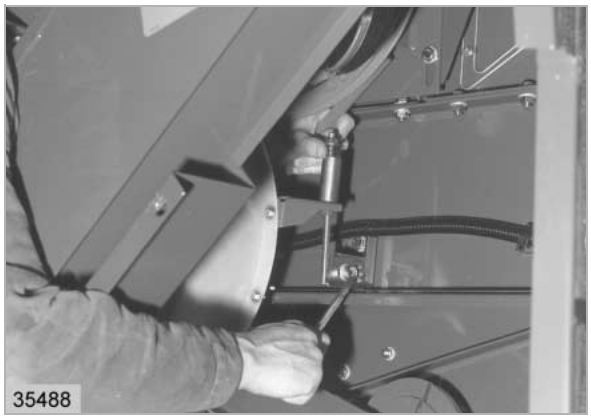
   (Fig. 21 , 22)



23

4. Bolt the back plate (17) to the bracket.
5. Insert the parallel key (6) and slide on the blower wheel up to the stop at the circlip. Secure blower wheel with set screw (14).

   (Fig. 21 , 23)

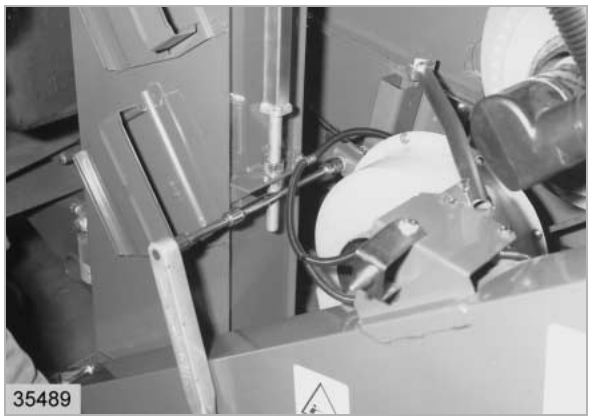


24

6. Bolt down blower housing (19).
7. Bolt the complete blower loosely to the side wall of the machine.
8. Bolt down the spindle with two bolts.

   Align the blower drive and bolt down the blower.

   (Fig. 21 , 24)

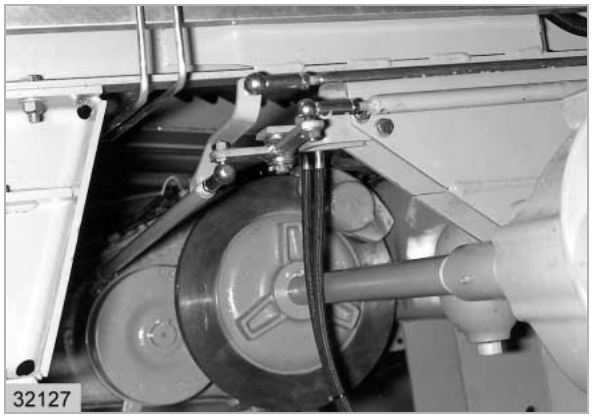


25

9. *Installing and adjusting the suction blower drive belt (28)*, see page 7.3.18
10. Tighten the M 12 x 90 bolt to **78 Nm**.
11. Place the suction tube in position and fasten with a clamp.

    (Fig. 25)

DRIVE AXLE



1

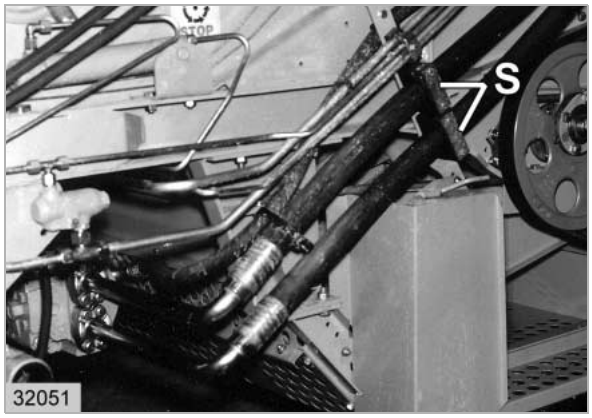
Removing the drive axle

Raise the feed rake conveyor fully and support safely.

Loosen the shifter rails from the ball heads and separate them.

Unbolt the shifter rail mounting bracket.

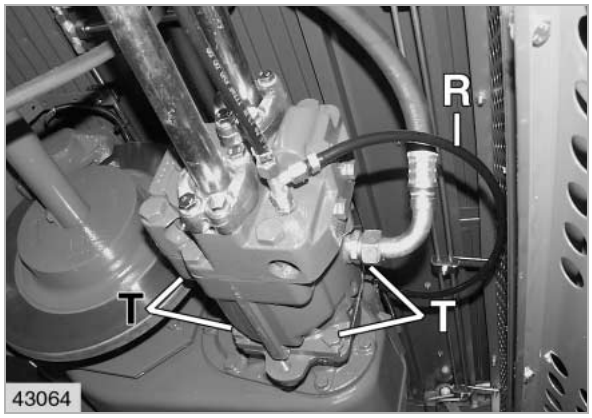
(Fig. 1)



2

Remove the hydraulic hose clamps (S) located on the left-hand side of the machine.

(Fig. 2)



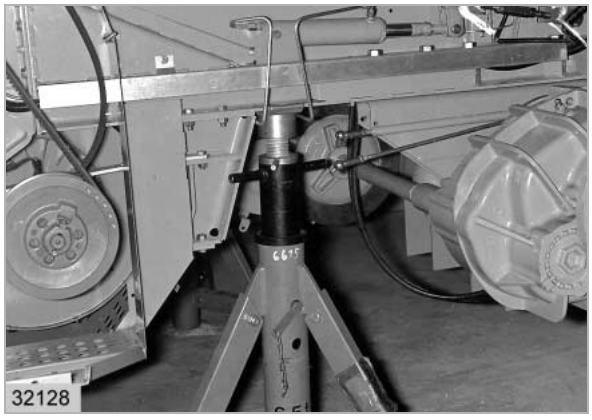
3

For servo gearshift:

Unscrew the hose (R) from the cover of the manual gearbox. Plug the hose and unions tightly with plastic caps.

Unbolt the four hex. bolts (T) from the hydrostatic motor and pull motor off of the gearbox.

(Fig. 3)

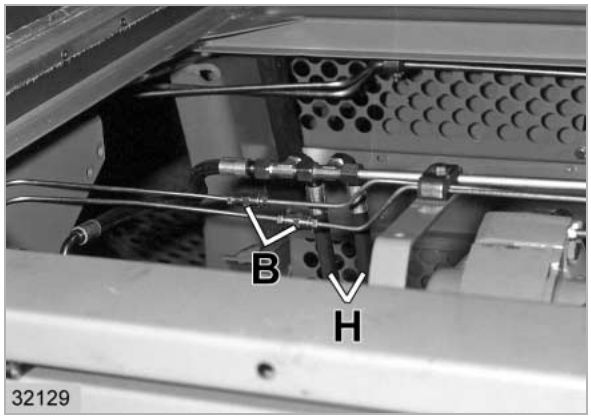


4

Jack up the machine safely on both sides and underneath the machine frame.

Remove the drive wheels.

(Fig. 4)



5

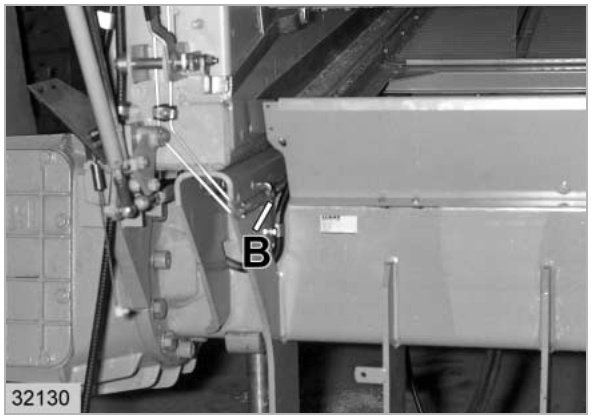
Disconnect the electrical connection on the cutterbar cylinder.

Separate the hydraulic lines (H) from the cutterbar cylinders and plug connections tightly with plastic caps.

Remove the two or three, where fitted, cutterbar cylinders.

Separate the brake lines (B).

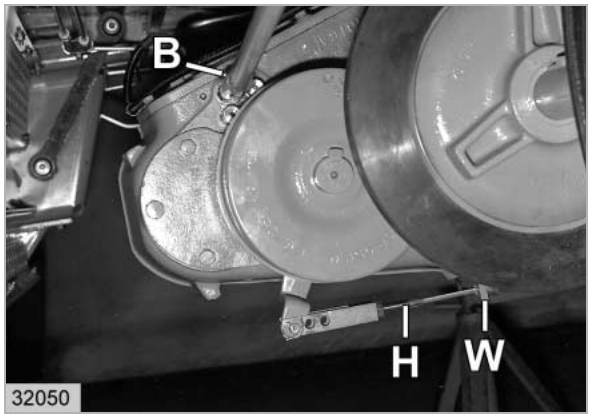
(Fig. 5)



6

Remove the brake lines (B) from the drive axle.

(Fig. 6)

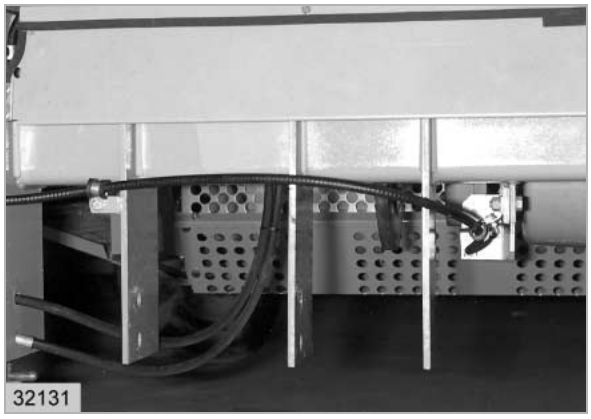


7

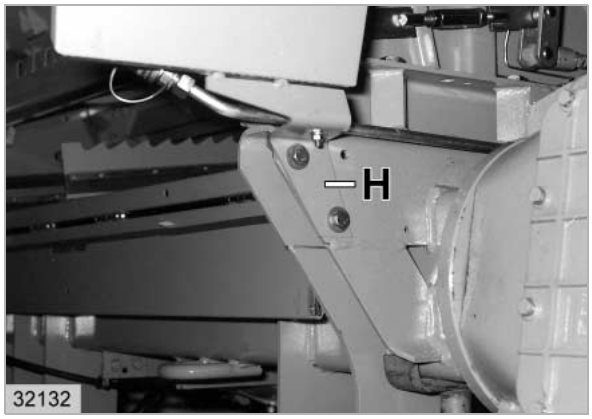
Unhook the parking brake cable (H) and unscrew it from retarder (W).

Remove the clamps from the drive axle and hang the cable on the side of the machine.

(Fig. 7, 8)



8



9

Removing the stone trap, see page 3.2.1

Remove the bracket (H) completely with hydraulic line and hang it somewhere on the side.

(Fig. 9)



10

Move a suitable lifting device, e.g. a pallet truck, under the axle and the manual gearbox.

(Fig. 10)



11

Unbolt the complete axle from the frame of the machine and remove towards the front of the machine.

(Fig. 11)

Removing the final drive gearbox, see page 7.18.1

Removing the manual gearbox, see page 7.19.1

Installing the drive axle

1. *Installing the manual gearbox*, see page 7.19.22
   Installing the final drive gearbox, see page 7.18.27
2. Move the completely pre-assembled drive axle under the machine chassis from the front.
   Insert the M 20 bolts.

   Tightening torque M 20 = 410 Nm
3. Install the stone trap and the bracket (H) complete with the hydraulic line.

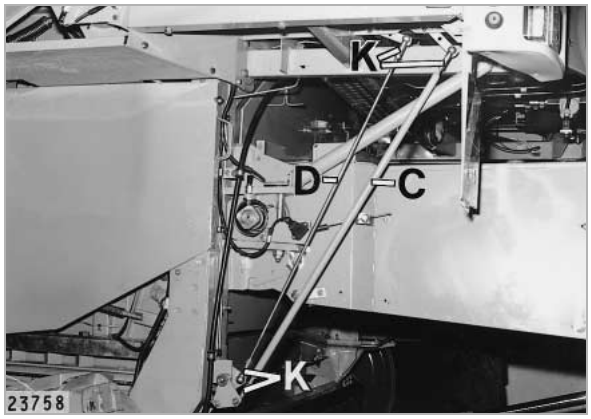
(Fig. 11)

4. Fit the parking brake cable (H) at its retarder (W) and reconnect.

   Adjust the cable so that the brake is applied on the 3rd or 4th tooth.

   Bolt the clamps to the drive axle.

(Fig. 9, 10)



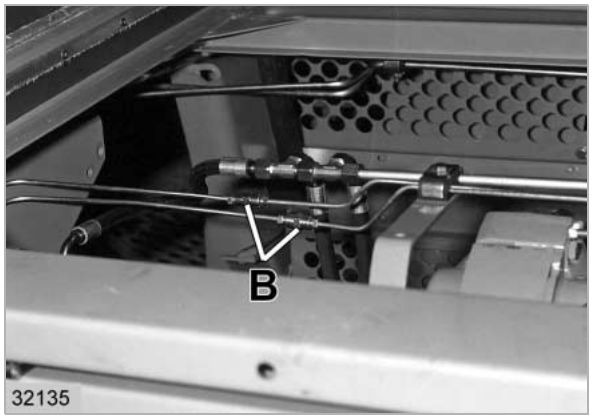
12

5. Install the drive wheels.
6. Bolt the shifter rails with the bracket in position.

   Check the gear shifting.

   Adjust shifter rails (C and D) underneath the operator's platform at ball joints (K) if necessary so that the gears are fully in mesh and the detent balls lock properly in the selector shafts.

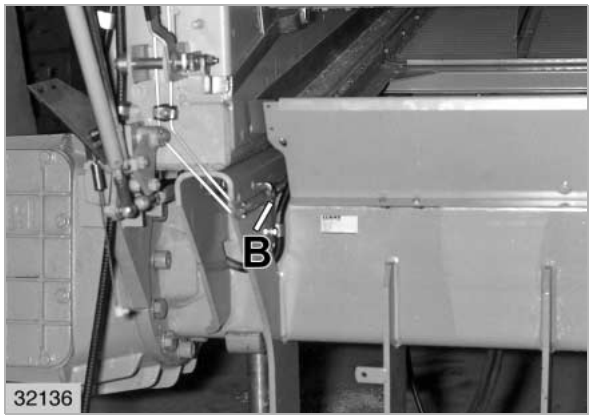
(Fig. 1, 12)



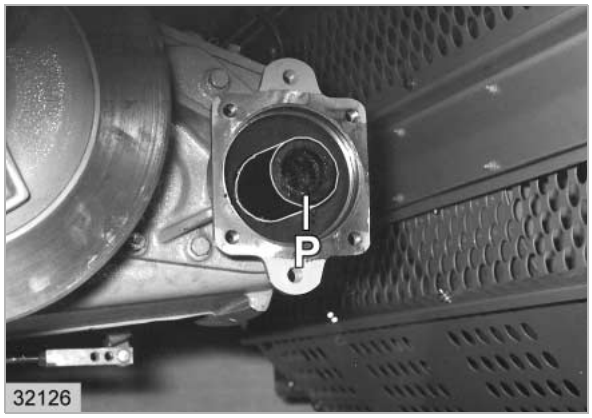
13

7. Connect the brake line (B) and bleed the brake system.

(Fig. 13, 14)



14



15

8. Install the cutterbar cylinders. Connect the hydraulic lines and electrical connections.
9. Grease the external spline of the drive shaft from the manual gearbox.

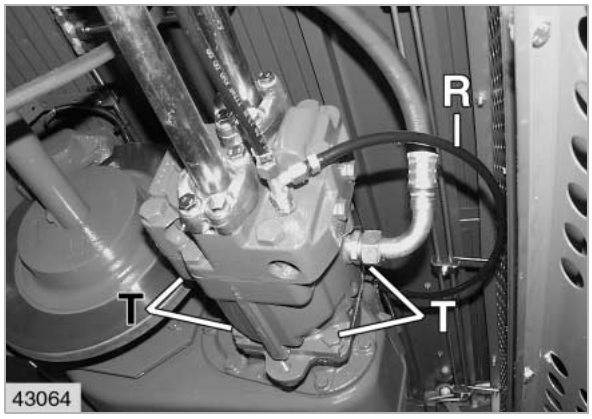
   Slide on profiled bushing (P) with the turned-out area of the toothed hub profile facing the manual gearbox.

   Insert O-ring and bolt down hydrostatic motor with hex. bolts (T).

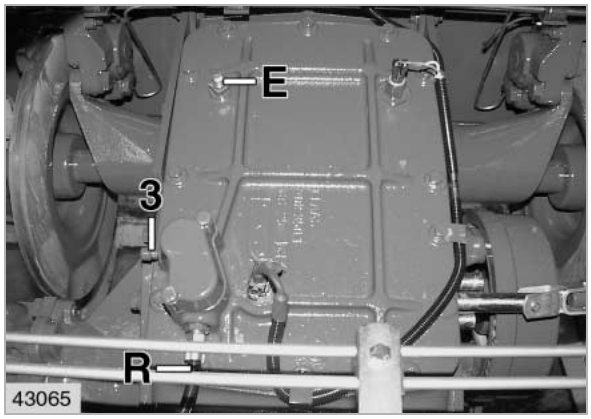
(Fig. 15, 16)

10. Bolt down hydraulic hose clamps.

(Fig. 2)



16

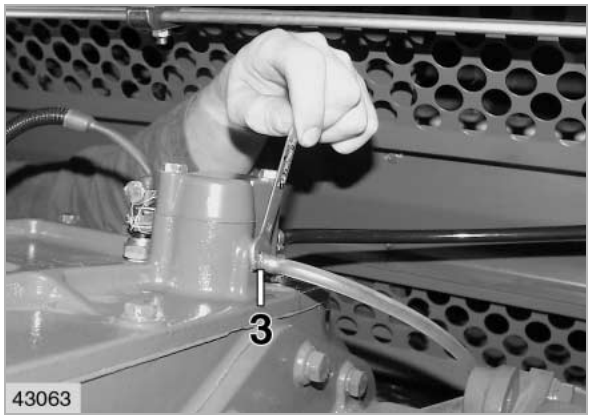


17

11. For servo gearshift:

    Bolt down the hose (R) to the cover of the manual gearbox.

(Fig. 16, 17)



18

Bleeding the shifter piston:
(for servo gearshift)

Take the machine out of gear and secure against rolling away.

Connect a bleed hose to the bleed valve (3) and place the end of the hose in a suitable container.

Start diesel engine, actuate servo gearshift on the gear lever and loosen the bleed valve (3) until the oil comes out without bubbles.

After bleeding check the oil level and top up if necessary.

(Fig. 17, 18)

9
Hydraulic system

OIL COOLER



1

Removing the oil cooler

Drain the oil from the hydraulic system oil drain nozzle (H).

DANGER!

Be careful when draining hot oil – **Beware of burns!**

Drain the oil only when the engine is switched off!

Place a sufficiently large container under the oil drain nozzle. Unscrew the cap from the oil drain nozzle and drain the oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Once the oil has been drained, re-tighten the cap to the oil drain nozzle.

(Fig. 1)



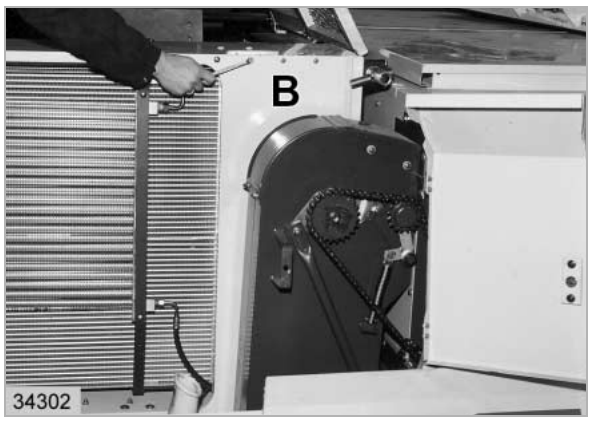
2

Fold up the rotary screen.

Remove the pin from the gas strut.

Remove the bolt from the bearing and remove the rotary screen completely.

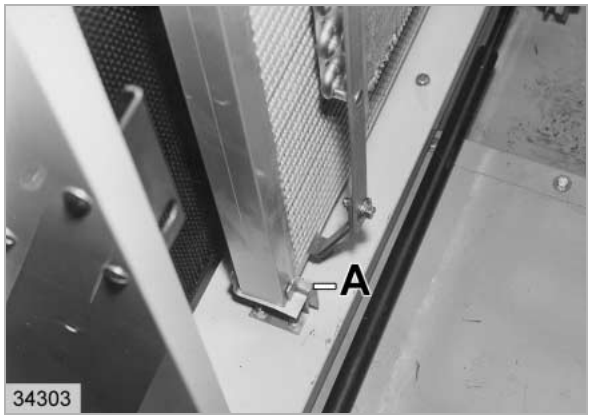
(Fig. 2)



3

Remove the cover (B) from the air intake box.

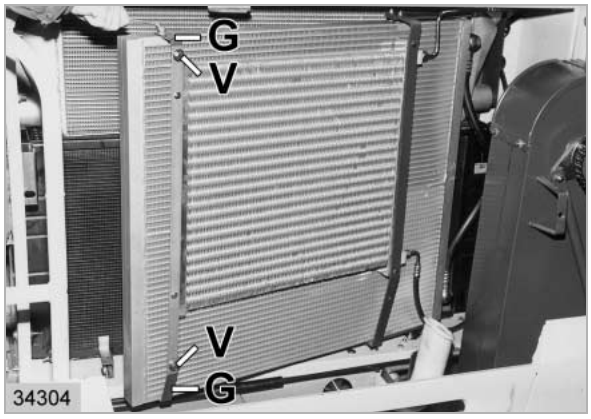
(Fig. 3)



4

Remove the stop (A).

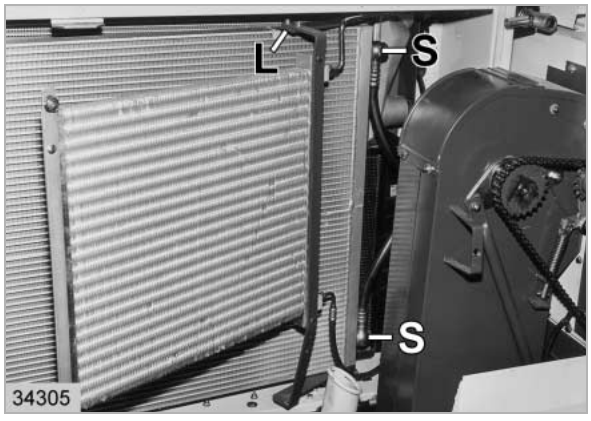
(Fig. 4)



5

Loosen the catches (V) and remove the bearing plate (G).

(Fig. 5)



6

Open the condenser and unbolt the bearing plate (L).

Remove the hydraulic hoses (S) from the oil cooler and collect any leaking oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Plug the hydraulic connections tightly.

(Fig. 6)



7

Swing the condenser out of the way and hold back safely with a rope.

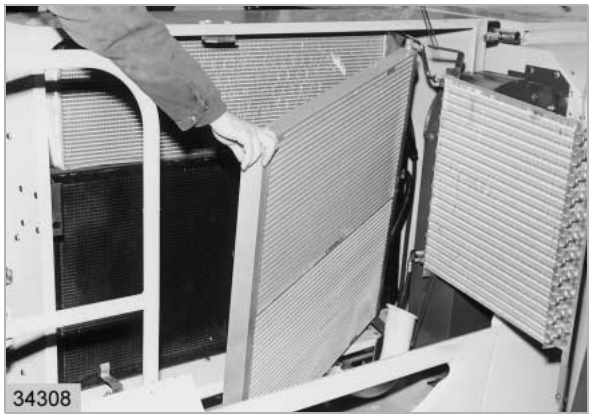
(Fig. 7)



8

Unbolt the bracket (H) from the air intake box and remove along with the bearing plate.

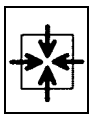
(Fig. 8)



9

Remove the oil cooler.

(Fig. 9)



Installing the oil cooler

1. Place the oil cooler with the condenser bearing plate into the lower bracket.

   Bolt down bracket (H) and the bearing plate to the air intake box.

   (Fig. 8, 9)

2. Bolt the bearing plate (L) to the oil cooler.

   Bolt the condenser with its bracket and the bearing plate to the oil cooler.

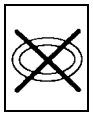
   (Fig. 5, 6)

3. Close the radiator and secure with stop (A).

   (Fig. 4)

4. Fit the hydraulic hoses to the oil cooler. Bolt on the cover (B).

! **CAUTION!**



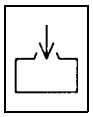
Always use new sealing rings.

(Fig. 3)

5. Fasten the rotary screen in the pivot and secure with a bolt. Insert the gas strut bolt and secure with a split pin.

   (Fig. 2)

6. Close the rotary screen and lock it.



7. Refill the hydraulic system with oil – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

MAINTENANCE

Hydraulic system

DANGER!

When working on the hydraulic system, stop the engine, remove the ignition key and ensure that the machine will not roll away (parking brake, wheel chocks).

ATTENTION!

Please ensure that when working on the hydraulic system, cleanliness is adhered to at all times, since this will ensure good operation of any hydraulic component.

When disassembling any hydraulic components, use a clean surface, e.g. paper or cardboard.

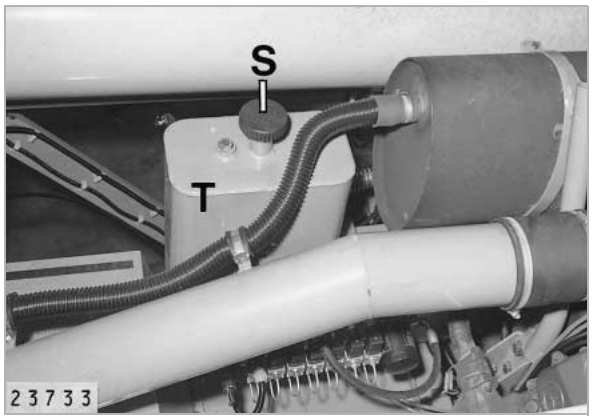
When leaving hydraulic components for a period of time, plug all ports tightly in order to keep dirt out of the components.

Checking the oil level

Check oil level daily, with engine stopped.

ATTENTION!

Before checking the oil level, lower the cutterbar and the reel completely. Set the drum variable-speed drive and the cutterbar variable-speed drive (if available) to Slow.



1

T = Hydraulic oil reservoir
S = Oil level dipstick and oil filling

The hydraulic oil level must be at least at the lower mark on the dipstick (S).

(Fig. 1)

Changing the hydraulic oil

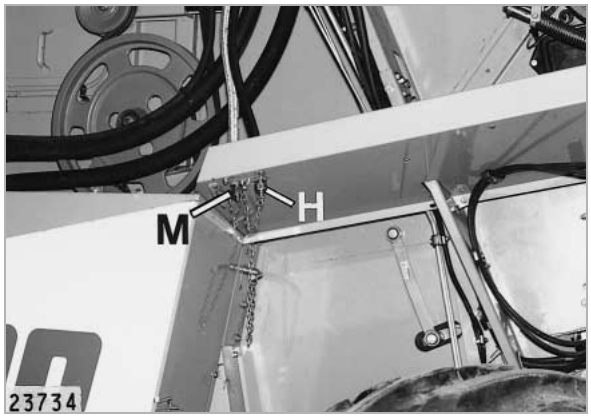
DANGER!

Be careful when draining hot oil –
Beware of burns!

Change the oil and check the oil level only with the engine switched off!

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.



2

H = Hydraulic oil drain fitting
M = Engine oil drain fitting

(Fig. 2)

Place a sufficiently large container under the oil drain nozzle.

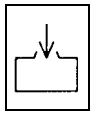
Unscrew the cap from the oil drain nozzle and drain the oil.

Once the oil has been drained, re-tighten the cap to the oil drain nozzle.

(Fig. 2)

Filling instructions when changing the hydraulic oil

(Sauer 90 R 130 / 90 M 100)



1. Fill hydraulic oil reservoir (T) with hydraulic oil at oil filler cap (S) (see Operator's Manual). To do this, use a screen filter.

   Fill in the hydraulic oil so slowly that the air can escape from the hydrostatic pump housing via the lines into hydraulic oil tank (T).

2. Shift gear shift lever to neutral. Run engine at slow idling speed for approx. 10 seconds. Stop the engine. Top up the missing oil in the hydraulic oil tank.

   Repeat this procedure until a constant oil level is being obtained in the oil tank.



3. To bleed and flush the hydrostatic gearbox, let hydrostatic gearbox rotate for approximately two minutes in both directions (manual gearbox in 0 position) with the engine at lower idle speed and the ground speed control lever at halfway forward setting.
4. With the ground speed control lever in neutral, stop the diesel engine.

   Should it be required, top up hydraulic oil up to the mark on the dipstick.

5. Test run

(Fig. 1)

HYDRAULIC PUMPS



1

Removing the uni-spreader hydraulic pump

First either drain the hydraulic oil from the tank at nozzle (H) or create a vacuum in the hydraulic oil tank. See special tool (U), part no. 181 619.0, which is a valve combination enabling a vacuum to be created.

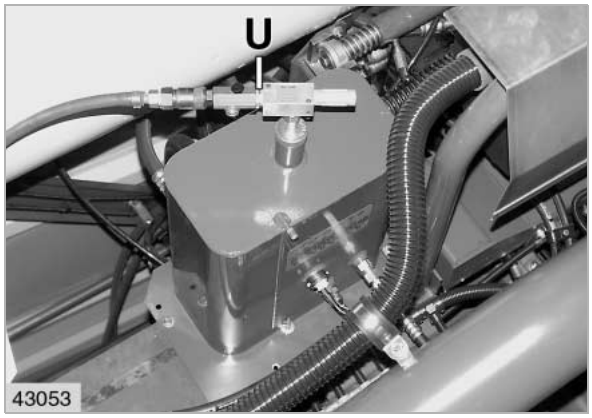
DANGER!

Be careful when draining hot oil – **Beware of burns!**

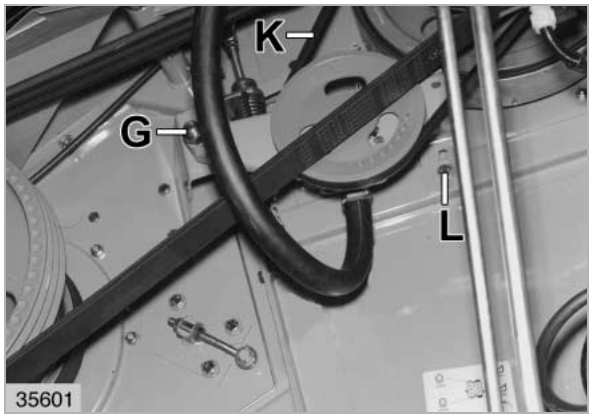
ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 1, 2)



2

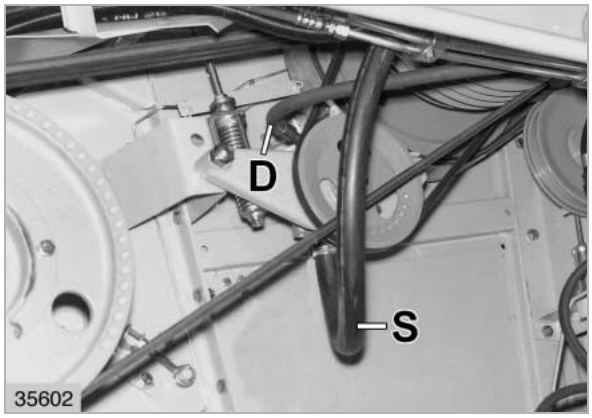


3

Release the tension on the V-belt (K) by loosening the bolts (G and L).

Push the hydraulic pump bracket up and remove the V-belt (K).

(Fig. 3)

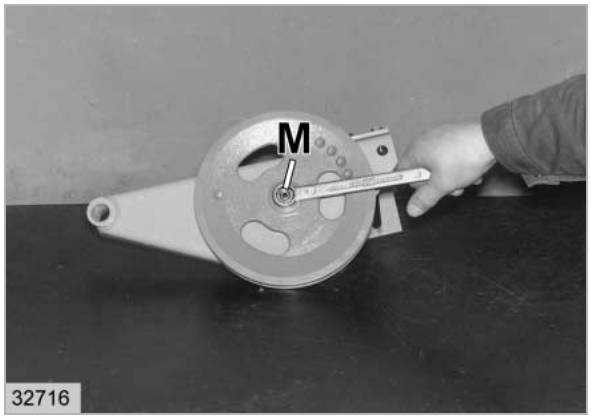


4

Loosen the hose clamps on the suction (S) and the pressure (D) side of the pump. Remove the lines and plug them with plastic caps.

Remove the bolts (G and L) and the hydraulic pump, the bracket and the V-belt pulley.

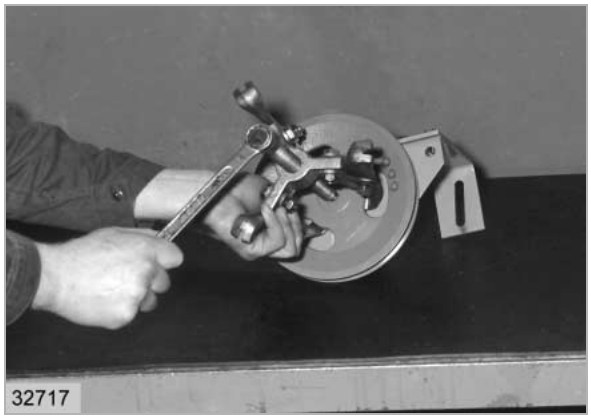
(Fig. 3, 4)



5

Remove the hex. nut (M) from the V-belt pulley.

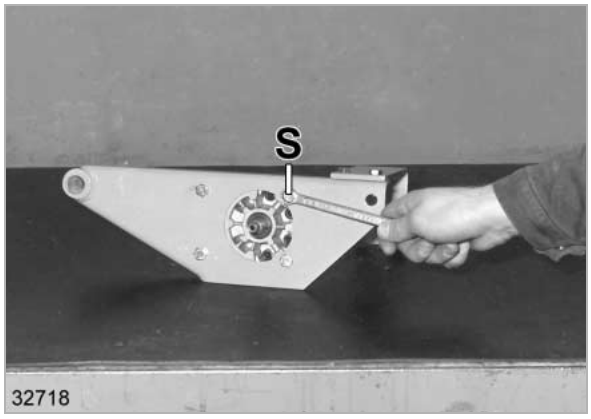
(Fig. 5)



6

Using a suitable three-legged puller, remove the V-belt pulley.

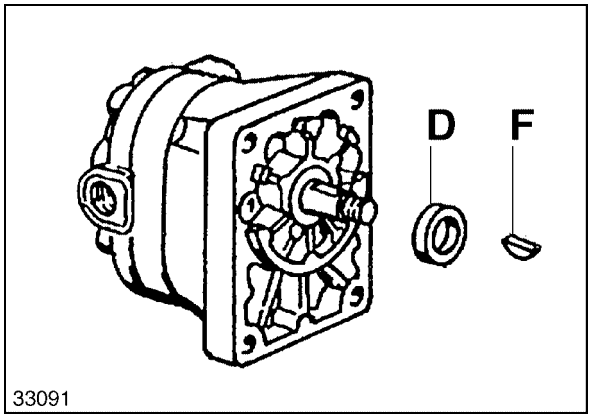
(Fig. 6)



7

Remove the four bolts (S) from the bracket and remove the pump.

(Fig. 7)



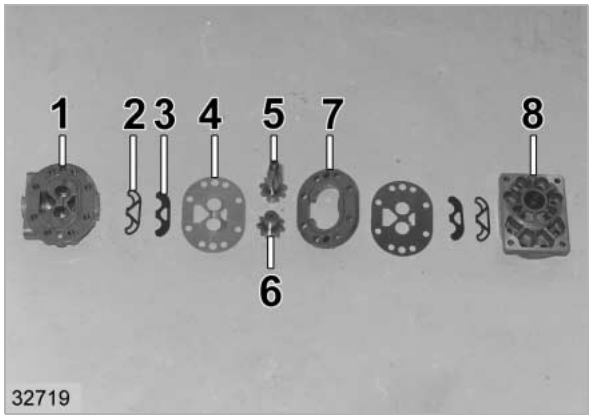
8

Disassembling the uni-spreader hydraulic pump

Remove the key (F) and the shaft seal (D) from the pump shaft.

Remove the M 8 cheese-head screws from the pump housing and disassemble the pump.

(Fig. 8)

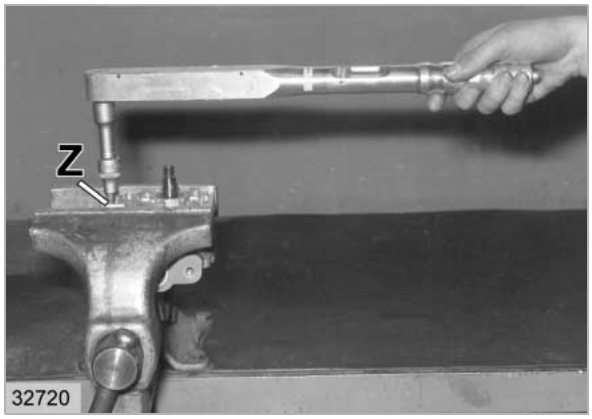


9

Uni-spreader hydraulic pump, disassembled:

1 Housing half
2 Seal – 2 pieces
3 Back-up ring – 2 pieces
4 Slide plate – 2 pieces
5 Gearwheel
6 Gearwheel
7 Base unit
8 Housing half

(Fig. 9)



10

Assembling the uni-spreader hydraulic pump

1. Check the seal (2), back-up ring (3) and the slide plate (4) and replace if necessary.

   Insert the gears (5 and 6) into the housing parts (1, 7 and 8). Assemble the pump with the cheese-head screws (Z).

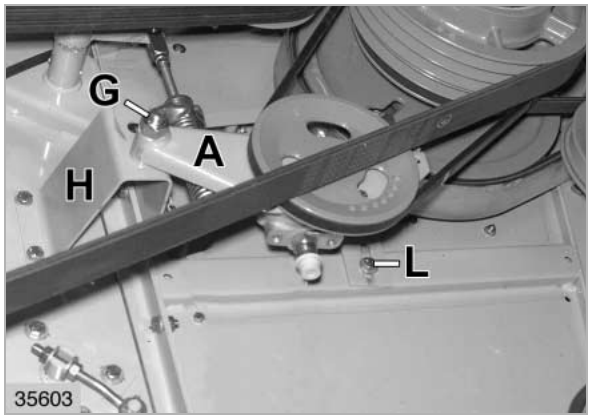
   Tightening torque = 35 Nm

2. Bolt down the pump bracket using the M 8 x 30 hex. bolts.

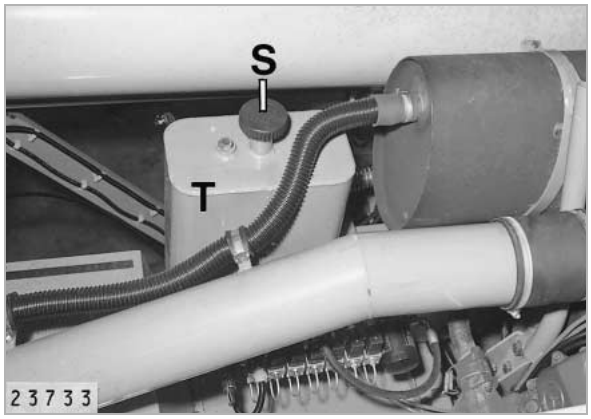
3. Fit the shaft seal and the key on the pump shaft. Bolt the V-belt pulley to the pump with the M 12 x 1.5 hex. nut.

   Tightening torque = 50^{+10} Nm

(Fig. 9, 10)



11



12

Installing the uni-spreader hydraulic pump

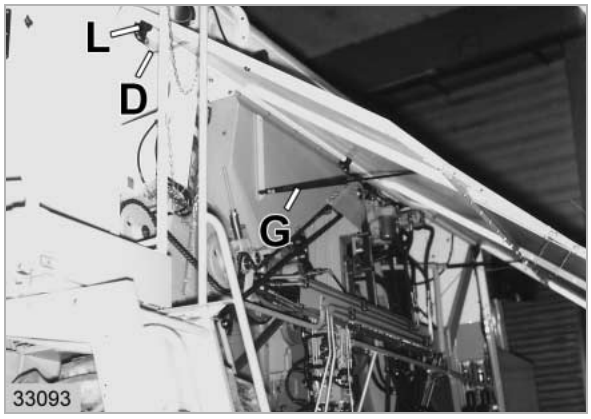
1. Bolt the complete pump to the bracket (H) with hex. bolt (G), but do not tighten at this time. Tension the V-belt (K). In order to tension, pull down on bracket (A) of the pump and then tighten bolt (L).

   Tightening torque = 45 Nm

   Now tighten the hex. bolt (G) with the lock nut as well.

2. Refit the hydraulic hoses to the pump with clamps.
3. Either refill the hydraulic oil tank (T) through the filler plug (S) – see page 9.2.3, *Filling instructions when changing the hydraulic oil* or remove the valve combination for creating a vacuum from the tank.

(Fig. 11, 12)



13

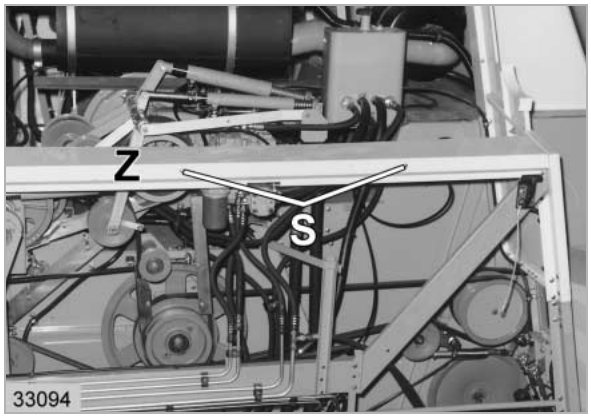
Removing the ground drive hydraulic pump

Remove the left-hand side guard from the machine. To do this remove two gas struts (G).

Unscrew the outside cables (D) on the left- and right-hand side.

Push the side guard out of the locating bearings (L) and remove it.

(Fig. 13)

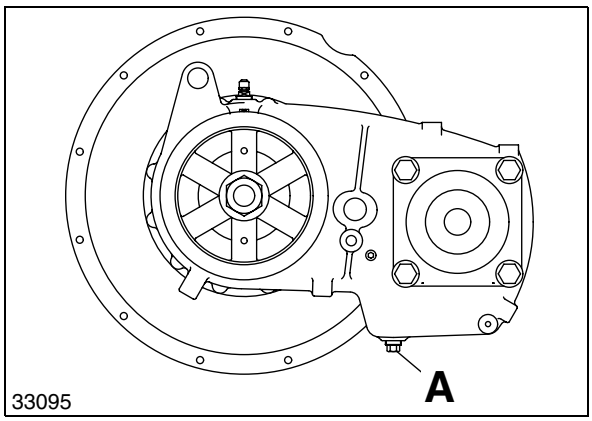


14

Unscrew two inside hydraulic hose clamps (S) from the intermediate panel (Z).

Unbolt the intermediate panel (Z) from the left- and right-hand side.

(Fig. 14)



15

Remove the gearbox oil from the transfer gearbox at bolt (A).

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations!

(Fig. 15)



16

Drain the hydraulic oil on the left-hand side at nozzle (H).

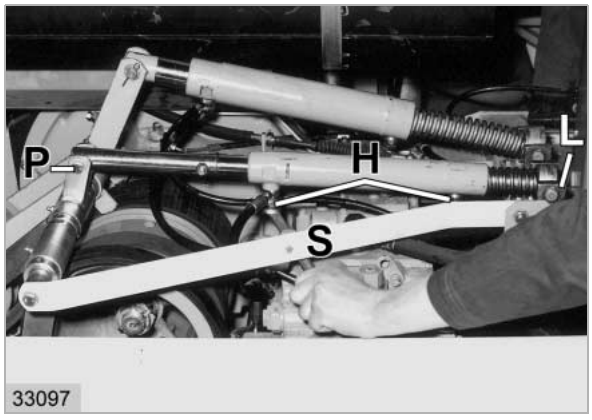
DANGER!

Be careful when draining hot oil – **Beware of burns!**

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 16)



17

Remove the grain tank unloading hydraulic cylinder.

Remove the hydraulic lines (H) from the cylinder and plug them plastic caps.

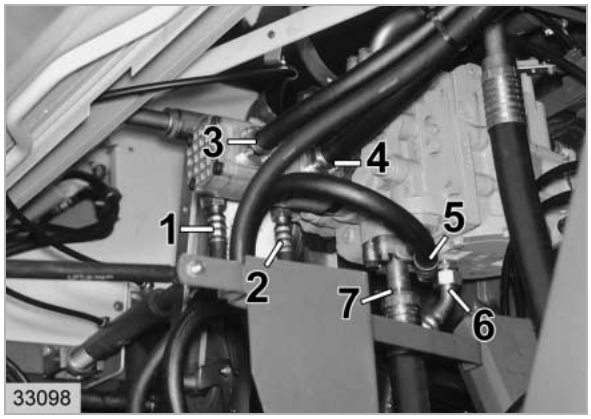
Remove the dowel screw (P) and pull it out of the jockey pulley arm.

Remove one mounting plate (L) on the left-hand side.

Push the cylinder sideways out of the mounting plate from the right-hand side and remove it.

Remove the left-hand and right-hand brace (S).

(Fig. 17)

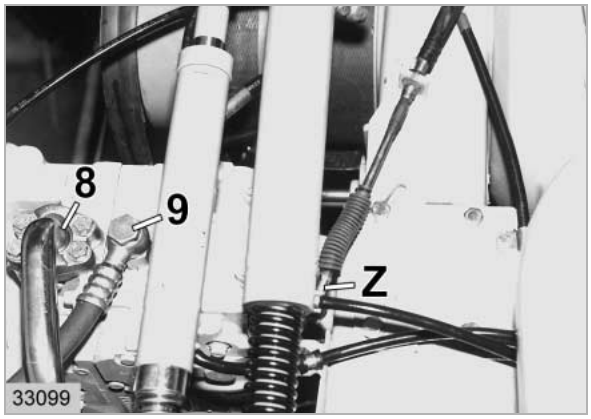


18

Remove the hydraulic hoses (1 to 4) from the double pump and plug them.

Remove the hydraulic hoses (5 to 7) from the main pump and plug them.

(Fig. 18)

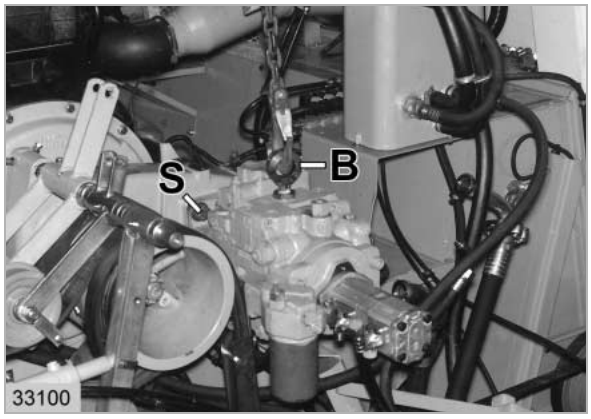


19

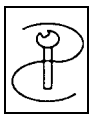
Unhook the Bowden cable (Z) from the lever.

Remove the hydraulic hoses (8 and 9) from the main pump and plug them.

(Fig. 19)



20

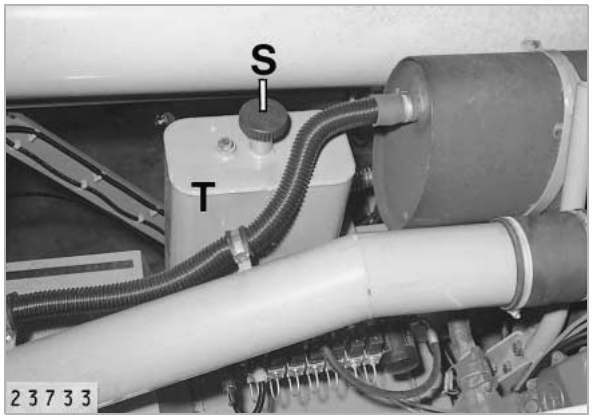


Screw in the special eye bolt (B), part no. 181 618.0, into the top of the pump and then attach to a suitable lifting device.

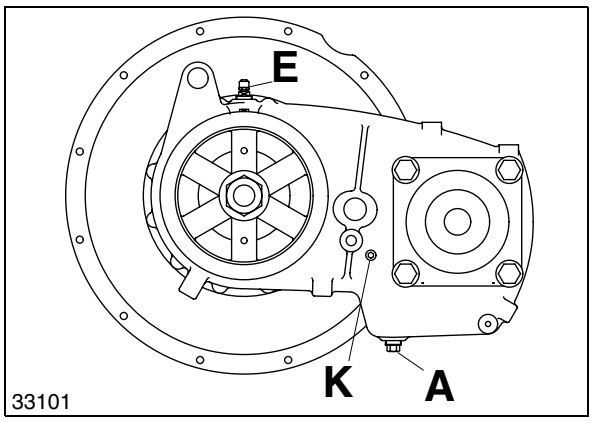
Using the lifting device, lift the pump slightly and remove the four bolts (S) from the flange.

Pull the pump out of the transfer gearbox and remove from the machine.

(Fig. 20)



21



22

Installing the ground drive hydraulic pump

1. Apply assembly paste, part no. 205 380.0, to the splined shaft of the hydraulic pump.

   Use a lifting device for introducing the hydraulic pump into the transfer gearbox and bolt it into position.

   Tightening torque = 370 Nm

   Remove the eyebolt.

2. Attach the Bowden cable.

   Connect the hydraulic hoses to the main and double pump.

3. Fit the hydraulic cylinder into the jockey pulley arm and the right-hand mounting plate. Bolt down the left-hand mounting plate. Push in the dowel screw and tighten.

   Tightening torque = 122 Nm

   Bolt the hydraulic hoses to the cylinder with new copper washers.

4. Bolt the brace into position.

   Tightening torque = 45 Nm

5. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

6. Screw the drain plug (A) into the transfer gearbox. Fill in gearbox oil at the filler plug (E). Check the oil level through the oil level check plug (K).

7. Bolt down the intermediate panel.

   Bolt two hydraulic hose clamps to the intermediate panel from the inside.

8. Push the side guard into the bearings.

   Fit the gas struts and the cables.

(Fig. 21, 22)



23

Removing the hydraulic double pump

Drain the hydraulic oil on the left-hand side at nozzle (H).

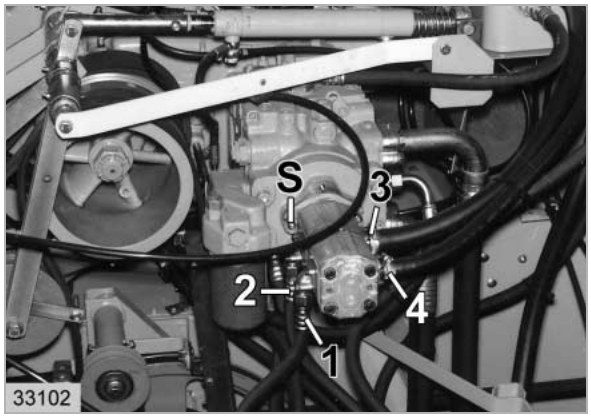
DANGER!

Be careful when draining hot oil – **Beware of burns!**

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 23)



24

Remove the hydraulic hoses (1 to 4) from the double pump and plug them.

Remove two bolts (S) from the flange.

Pull the double pump out of the main pump.

(Fig. 24)

Installing the hydraulic double pump

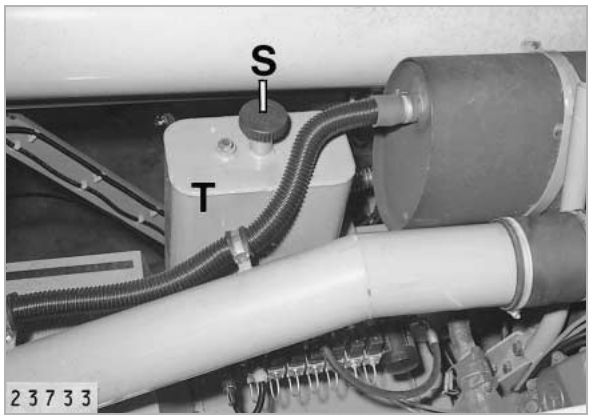
1. Apply assembly paste, part no. 205 380.0, to the splined shaft of the hydraulic pump.

   Introduce the double pump into the main pump and bolt into position.

   Tightening torque = 45 Nm

2. Connect the hydraulic hoses.
3. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

(Fig. 25)



25

HYDROSTATIC FIXED DISPLACEMENT MOTORS



1

Removing the ground drive hydrostatic fixed displacement motor

Drain the hydraulic oil on the left-hand side of the machine at nozzle (H).

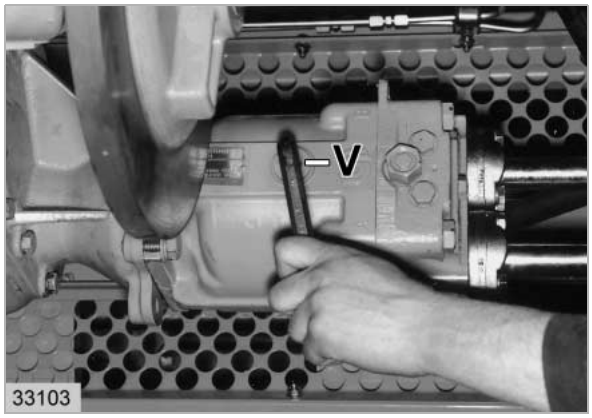
DANGER!

Be careful when draining hot oil – **Beware of burns!**

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

(Fig. 1)

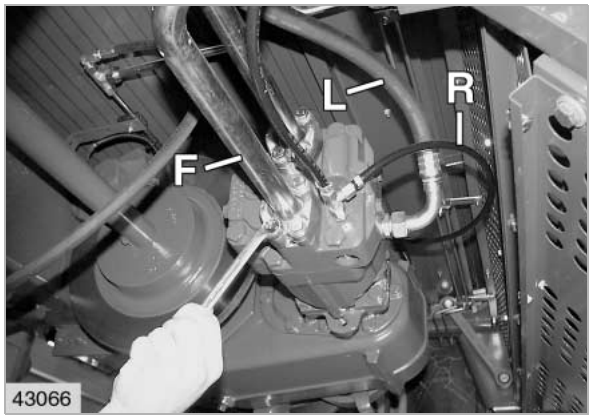


2

Drain the hydraulic oil from the motor into a sufficiently large container after loosening the screw plug (V) on the underside of the motor.

After the oil has been drained, re-tighten the screw plug (V) tightly.

(Fig. 2)



3

Loosen the flanged joint (F) of the high-pressure hoses from the motor and collect the oil into a suitable container.

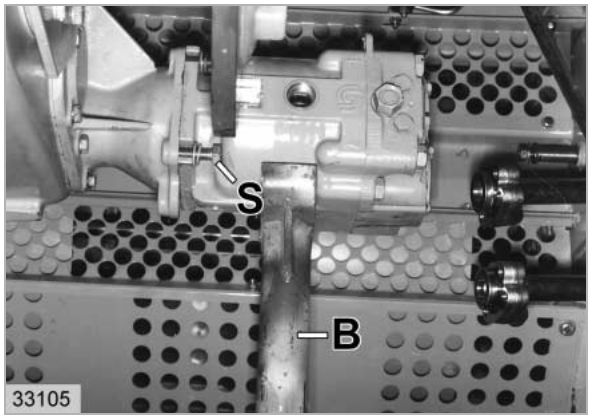
Now loosen the leakage oil line (L) and drain the remaining oil.

Plug all lines and connections tightly with suitable caps.

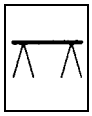
For servo gearshift:

Unscrew the hose (R) from the cover of the manual gearbox. Plug the hose and unions tightly with plastic caps.

(Fig. 3)

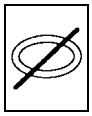


4



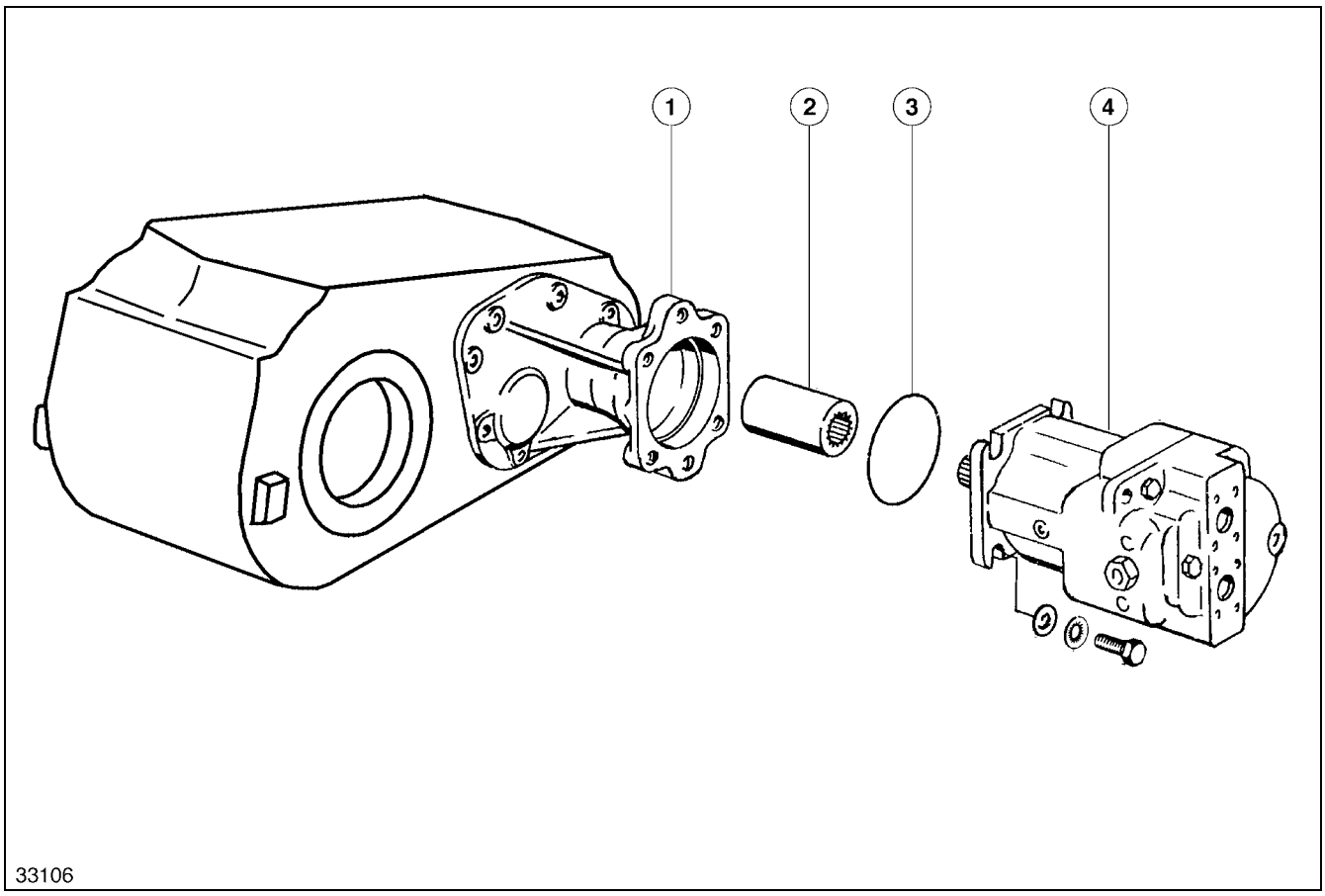
Support the underside of the motor with a suitable adjustable jack (B).

Remove the bolts (S) from the flange housing. Pull the motor straight out of the profiled bushing.

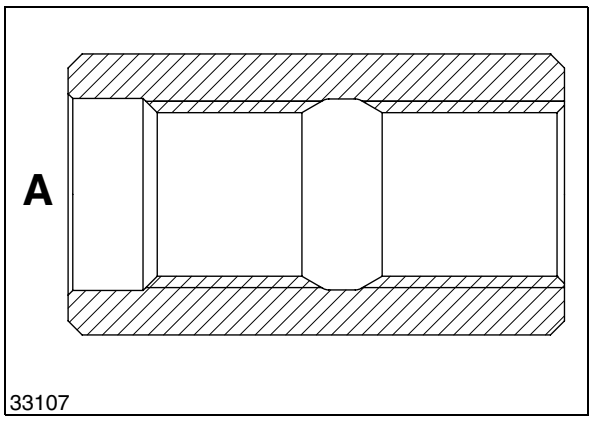


Remove damaged O-ring from the flange facing.

(Fig. 4)



5



6

Installing the ground drive hydrostatic fixed displacement motor

ATTENTION!

When a hydrostatic motor has to be changed, the hydraulic pump must also be replaced. Flush the oil cooler and the hydraulic lines.

1. Thoroughly clean the flange facings of manual gearbox (1) and hydrostatic motor (4).
2. Install profiled bushing (2) with rolling bearing grease.

CAUTION!

Slide in the profiled bushing (2) with side (A) towards the gearbox (1).

(Fig. 5, 6)

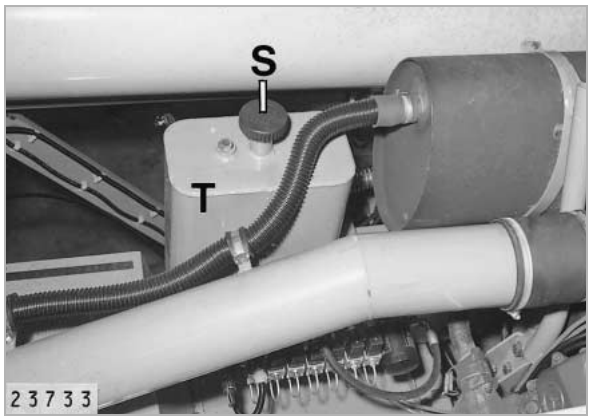
3. Bolt down the fixed displacement motor (4) with oiled O-ring (3).

ATTENTION!

When bolting the hydrostatic motor (4) into position, use new spring washers, otherwise damage could be caused to the motor.

Tightening torque = 122 Nm

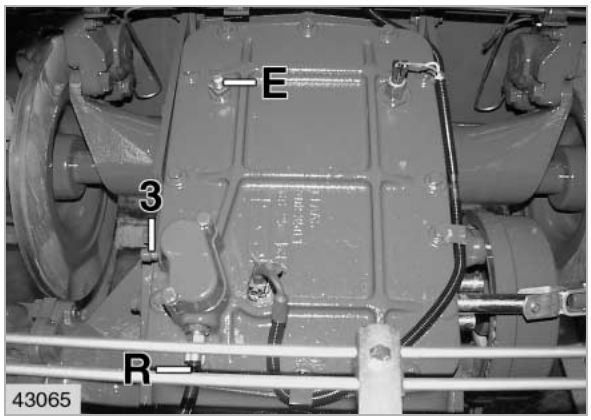
(Fig. 5, 6)



7

4. Connect the hydraulic lines.
5. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
6. Test run the machine and check for any leaks.

(Fig. 7)

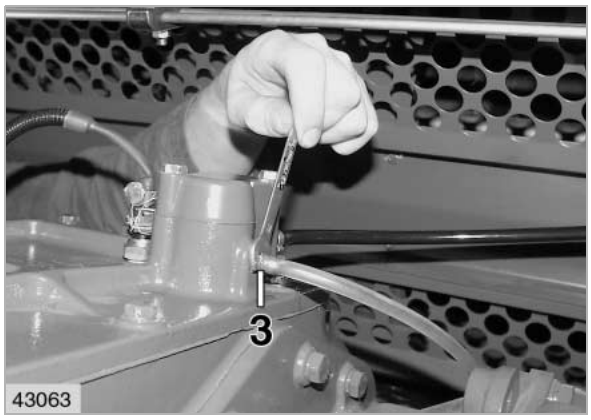


8

For servo gearshift:

Bolt down the hose (R) to the cover of the manual gearbox.

(Fig. 8)



9

Bleeding the shifter piston:
(for servo gearshift)

Take the machine out of gear and secure against rolling away.

Connect a bleed hose to the bleed valve (3) and place the end of the hose in a suitable container.

Start diesel engine, actuate servo gearshift on the gear lever and loosen the bleed valve (3) until the oil comes out without bubbles.

After bleeding check the oil level and top up if necessary.

(Fig. 8, 9)



10

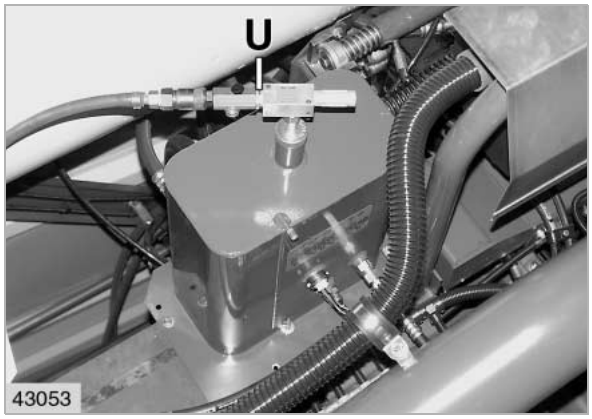
Removing the reverser drive hydrostatic fixed displacement motor

Raise the feed rake conveyor and secure by engaging the cutterbar cylinder safety lock.

Drain the hydraulic oil at the nozzle (H) on the left-hand side or create a vacuum in the hydraulic oil tank, see special tool (U), part no. 181 619.0, which is a valve combination enabling a vacuum to be created.

DANGER!

Be careful when draining hot oil – **Beware of burns!**

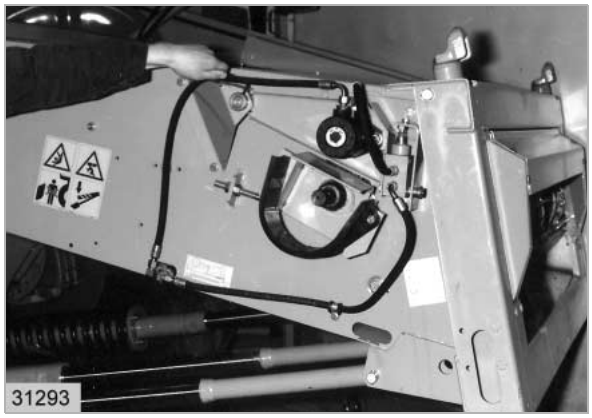


11

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

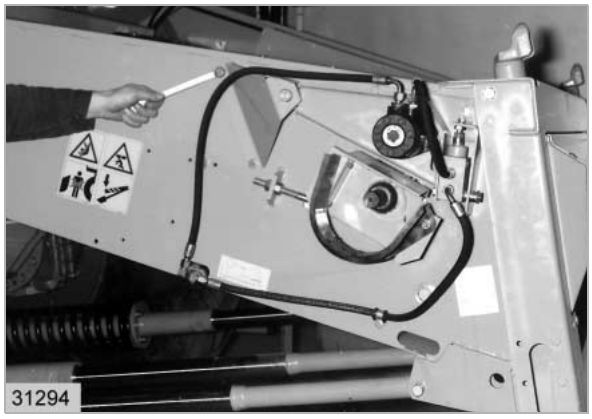
(Fig. 10, 11)



12

Loosen and remove the set collar from the bearing plate.

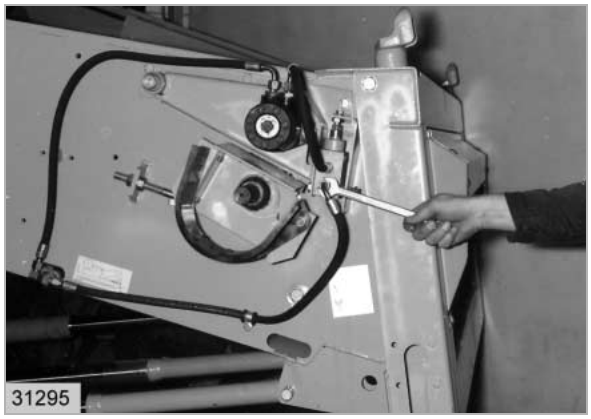
(Fig. 12)



13

Loosen the M 10 x 20 hex. bolt so that the bearing plate may be removed.

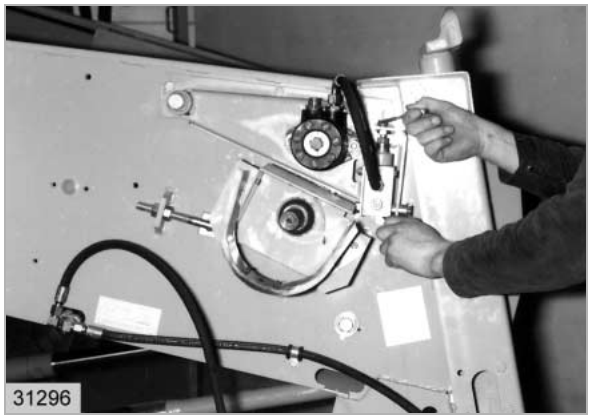
(Fig. 13)



14

Remove the hose end that goes off to the tank from the hydraulic cylinder and plug it with a plastic cap.

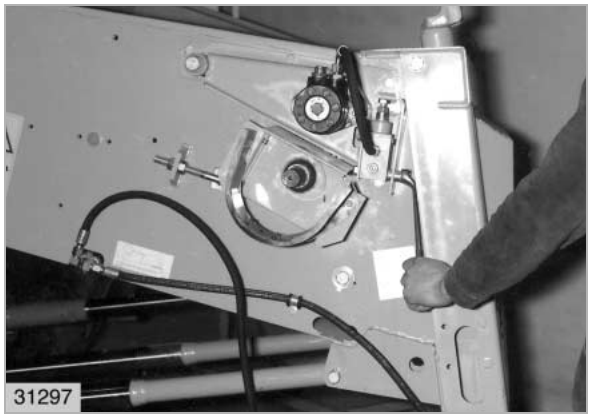
(Fig. 14)



15

Remove the M 8 x 180 hex. bolt from the spring tensioner.

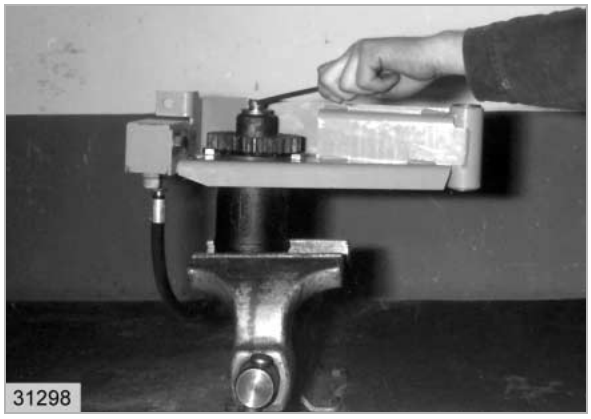
(Fig. 15)



16

Remove the M 8 x 65, the M 12 x 25 and the M 12 x 45 hex. bolts with eccentric bolt from the hydraulic cylinder and remove the cylinder.

(Fig. 16)

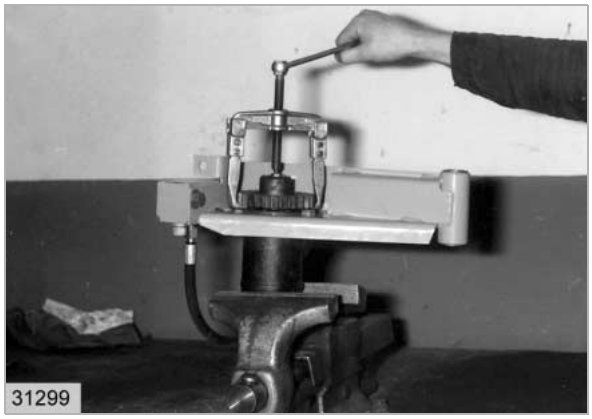


17

Remove the supporting arm with the hydraulic motor and the drive gear.

Unscrew the M 8 x 25 hex. bolt from the face end of the hydraulic motor.

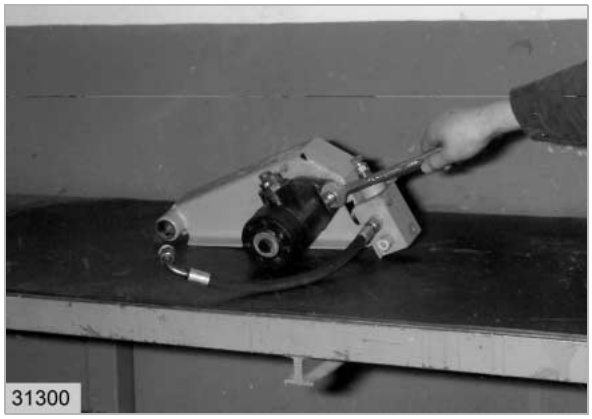
(Fig. 17)



18

Using a two-legged puller and a head-centred M 8 hex. bolt, pull the gear off of the shaft.

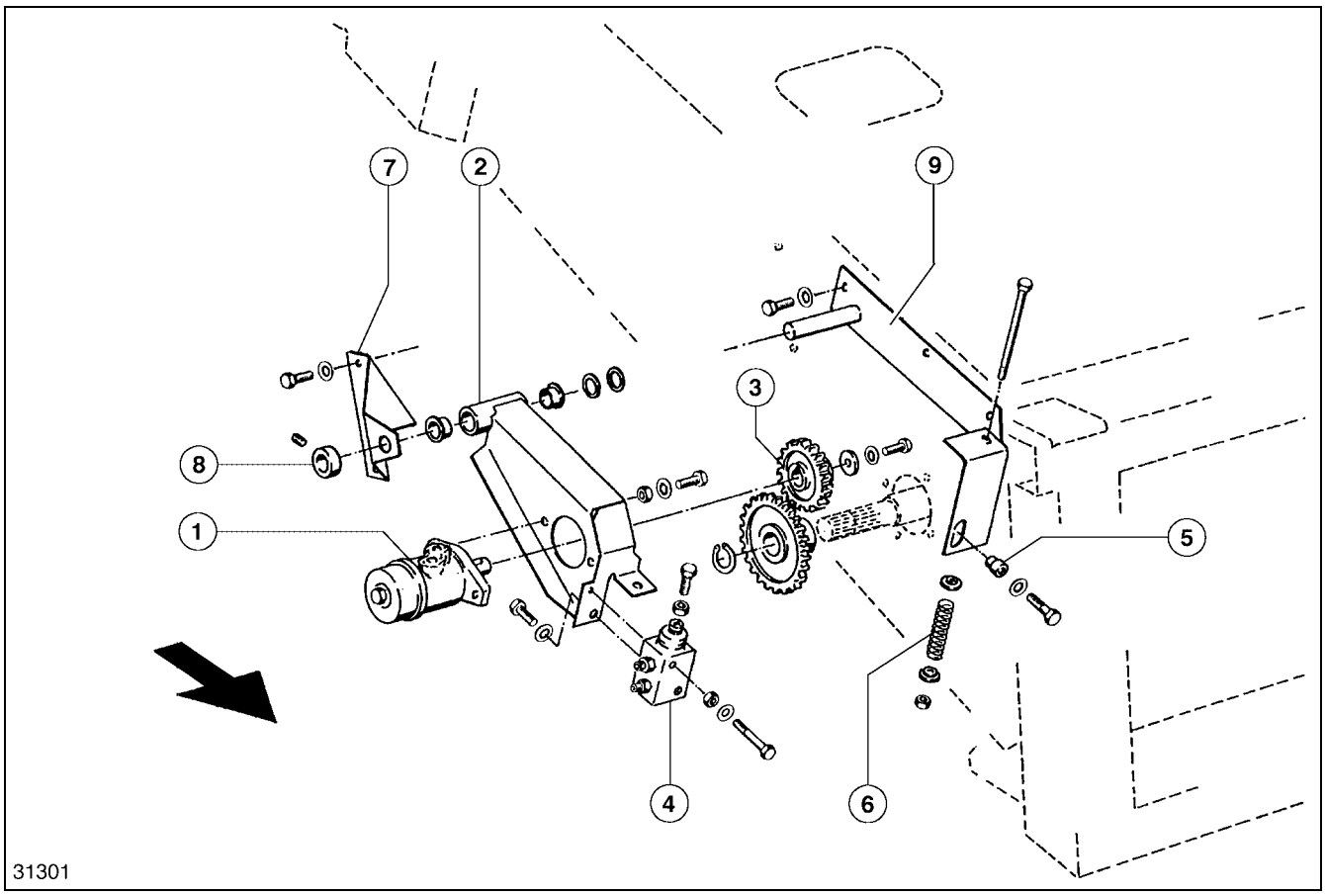
(Fig. 18)



19

Loosen the M 12 x 35 hex. bolts and remove the hydraulic motor from the supporting arm.

(Fig. 19)



20

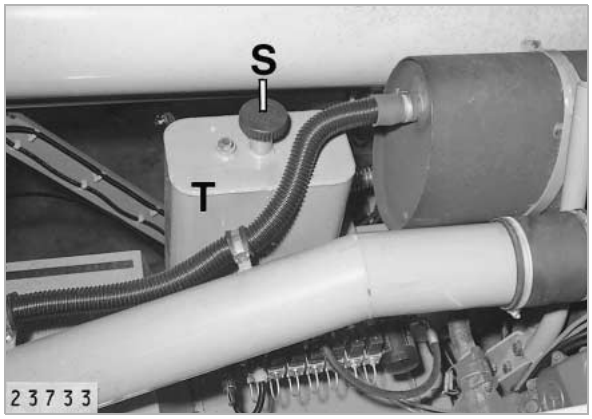
Reverser drive hydrostatic fixed displacement motor, disassembled

1 Hydraulic motor
Hex. bolt M 12 x 35 DIN 933-8.8
Hex. nut M 12 DIN 934-8
Contact washer A 12
2 Supporting arm
Bushing
Washer
3 Gearwheel
Washer
Hex. bolt M 8 x 25 DIN 933-8.8
Contact washer A 8
4 Hydraulic cylinder
Hex. bolt M 8 x 65 DIN 931-8.8
Hex. nut M 8 DIN 934
Contact washer A 8
Hex. bolt M 12 x 25 DIN 933-8.8
Contact washer A 12
5 Eccentric
Hex. bolt M 12 x 45 DIN 931-8.8
Contact washer A 12
6 Compression spring
Hex. bolt M 8 x 180 DIN 931-8.8
Spring guide
Hex. nut M 8 DIN 934-8
7 Bearing plate
Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10
8 Set collar
Set screw M 10 x 8
9 Mounting bracket

(Fig. 20)



21



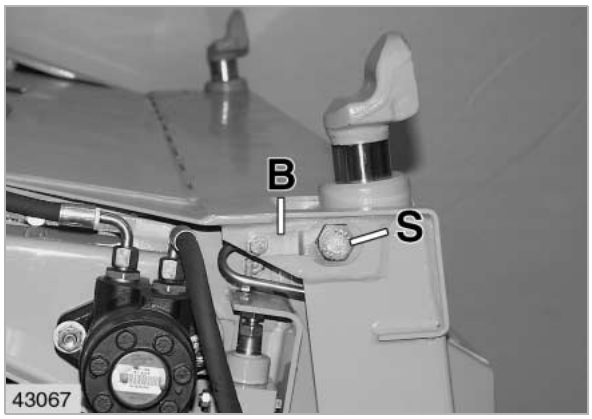
22

Installing the reverser drive hydrostatic fixed displacement motor

1. Bolt the hydraulic motor (1) to the supporting arm (2).
2. Fit the gear (3) with washer, contact washer and bolt to the shaft end of the hydraulic motor.
3. Bolt the hydraulic cylinder (4) to the supporting arm (2).
4. Slide the complete supporting arm (2) with bushings and washers on the bracket (9).
5. Bolt the eccentric (5) to the hydraulic cylinder (4) and adjust so there is some play.
6. Bolt the compression spring (6) in position. Tighten the nut until the end of the bolt thread.
7. Bolt down the bearing plate (7), slide on the set collar (8) and tighten.
8. Adjusting the hydraulic cylinder:
   – Press the drive motor down into the gear.
   – Pull out the ram.
   – Set and lock setting screw (S) so there is **0.5 mm** of play (1/4 turns) up to the stop.
9. Bolt the hydraulic hoses to the motor and the hydraulic cylinder.
10. Either refill the hydraulic oil tank (T) through the filler plug (S) – see page 9.2.3, *Filling instructions when changing the hydraulic oil* or remove the valve combination for creating a vacuum from the tank.

(Fig. 21)

HYDRAULIC CYLINDERS – HIGH-PRESSURE HYDRAULIC CIRCUIT



1

Removing the cutterbar cross levelling hydraulic cylinders

Remove the hydraulic lines and plug the connections tightly with plastic caps.

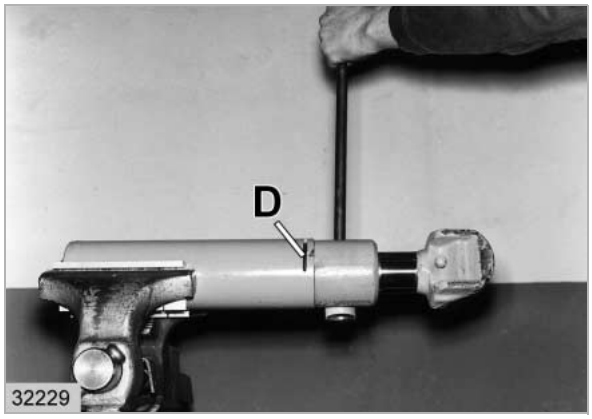
From serial no. …:
Unbolt the hex. bolt (S) M 20 x 150 x 30+4.

- If a **1700 mm** feed rake conveyor is fitted, unscrew tab washer (B).
- If a **1420 mm** feed rake conveyor is fitted, unscrew the VM 20 lock nut.

Up to serial no. …:
Unbolt the hex. bolt (S) M 16 x 140.

- Observe number of washers (C).
- Remove cylinder.
- Observe number of washers (D).

(Fig. 1)

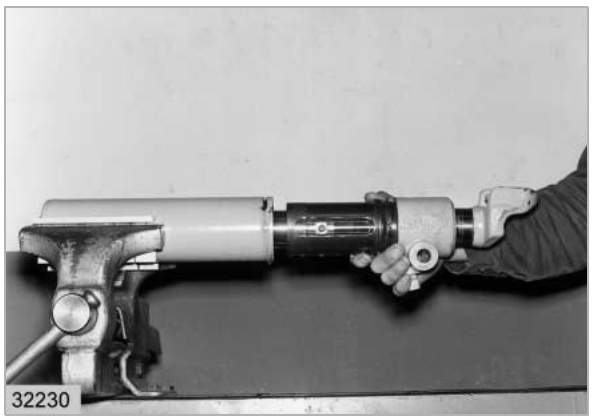


2

Disassembling the cutterbar cross levelling hydraulic cylinders

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

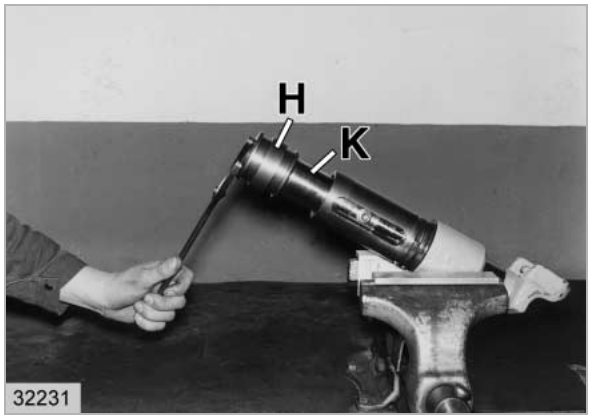
(Fig. 2)



3

Pull the cylinder head and the ram rod out of the cylinder barrel.

(Fig. 3)



4

Unscrew the ram (H) from the male screwed end of ram rod (K) using a sickle spanner.

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200** °**C**.

The seals can now be replaced.

(Fig. 4)



5

Remove the M 10 x 20 cheese-head screw.

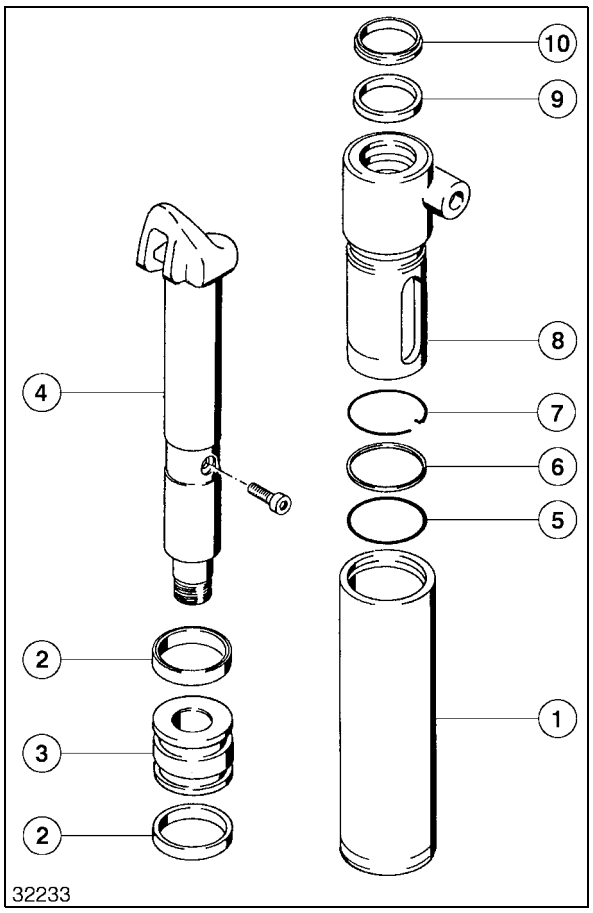
NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200** °**C**.

(Fig. 5)

Pull the ram rod out of the cylinder head.

The dust guard, seal, back-up ring and O-ring can now be removed from the cylinder head.



6

Cutterbar cross levelling hydraulic cylinder, disassembled:

1 Hydraulic cylinder
Male connector
2 Seal
3 Ram
4 Ram rod
Male connector
Cheese-head screw M 10 x 20 DIN 912-8.8
5 O-ring (up to serial no. …)
6 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
7 Securing wire
8 Cylinder head
Hex. bolt M 16 x 140 DIN 931-8.8
Contact washer A 16
Washer
9 Seal
10 Dirt scraper

(Fig. 6)

Assembling the cutterbar cross levelling hydraulic cylinders

1. Place the two oiled seals (2) on the ram (3).
2. Secure the ram (3) on the ram rod (4) with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.
3. Insert seal (9) and dirt scraper (10) into the cylinder head (8).
4. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (8).

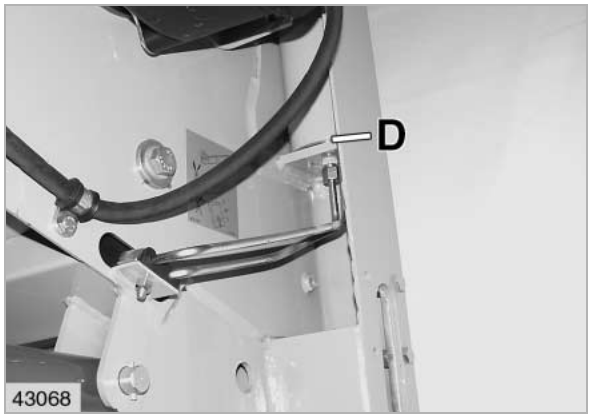
   Up to serial no. …:
   Oil the O-ring (5) and the back-up ring (6) and insert them into the groove of the cylinder head (8).
5. Insert the complete cylinder head (5 to 10) on the ram rod and then slide it into the cylinder barrel (1).

   Insert the cheese-head screw M 10 x 20 into the ram rod (4), using liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.
6. Twist the complete cylinder head (5 to 10) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

   Hang in the greased securing wire (7) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.

   For every assembly of the cylinder, use a new securing wire.

(Fig. 6)

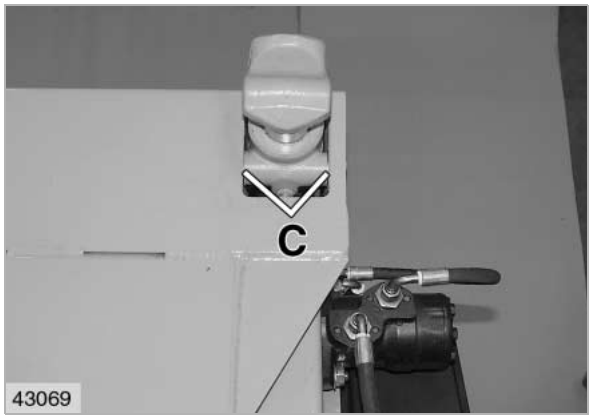


Installing the cutterbar cross levelling hydraulic cylinders

1. Place the existing shims (D) underneath the cylinder and insert the cylinder. Insert the hex. bolt (S). The cylinder must make contact with the shims (D) without play.

(Fig. 7)

7



8

2. Insert the existing washers (C) to limit the axial play and tighten the hex. bolt (S).

   From serial no. …:
   Tighten hex. bolt (S) M 20 x 150 x 30+4 with a tightening torque of **78 Nm**.

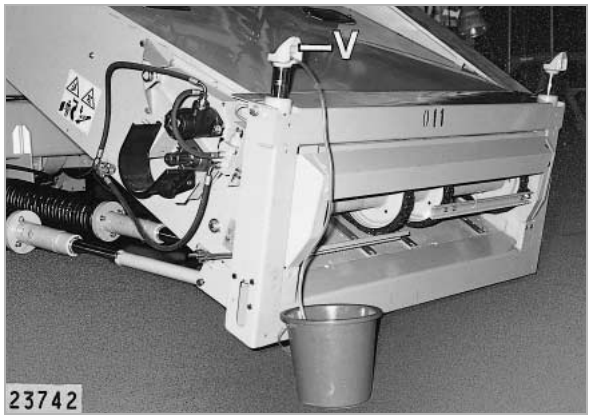
   – If a **1700 mm** feed rake conveyor is fitted, secure hex. bolt (S) with tab washer (B).

   – If a **1420 mm** feed rake conveyor is fitted, secure hex. bolt (S) with VM 20 lock nut.

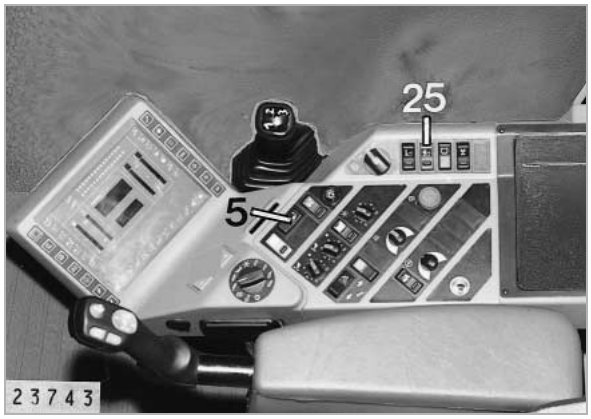
   Up to serial no. …:
   Tighten hex. bolt (S) M 16 x 140 with a tightening torque of **195 Nm**.

(Fig. 1, 8)

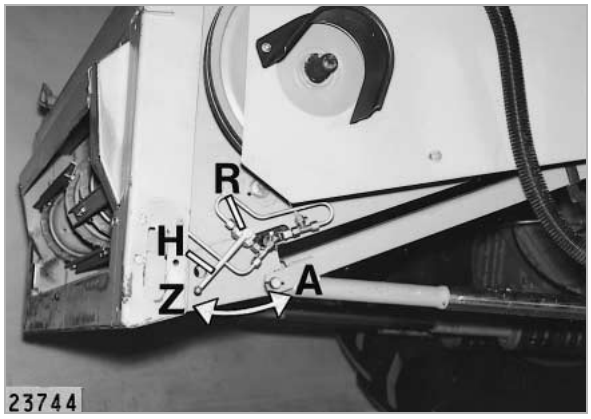
3. Connect the hydraulic lines.
4. *Bleeding the cutterbar cross levelling hydraulic cylinders*, see page 9.5.6



9



10



11

Bleeding the cutterbar cross levelling hydraulic cylinders

This procedure is necessary after the hydraulic system has been repaired.

1. Start the engine and switch on safety rocker switch (25).

   Lower the front attachment to the ground.

2. Collect the hydraulic oil during the bleeding procedure.

   To do this connect a transparent hose to the nipple provided for that purpose on screw plugs (V). Place the other end of the hose in a container to collect the oil.

ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

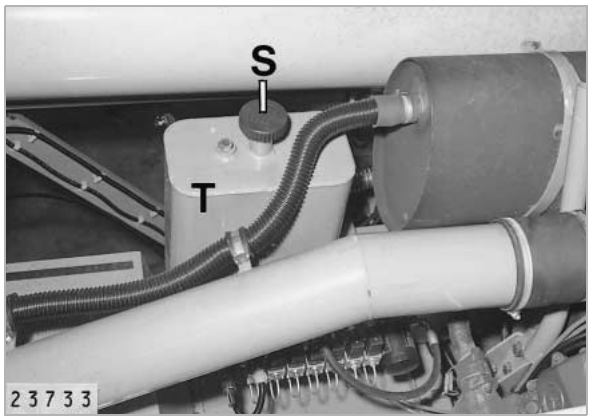
3. Open the shut-off tap (R) by setting lever (H) to position (A).
4. Actuate rocker switch (5) to the right until both cylinders are fully extended.
5. Loosen screw plugs (V), one after the other, on both coupling lugs.

   Actuate rocker switch (5) to the right until the oil comes out without bubbles.

6. Retighten the screw plugs.
7. Actuate rocker switch to the left until the left-hand cylinder is fully retracted.
8. Close the shut-off tap (R) by setting lever (H) to position (Z).

   Operate rocker switch (5) to retract and extend the cylinders several times one after another.

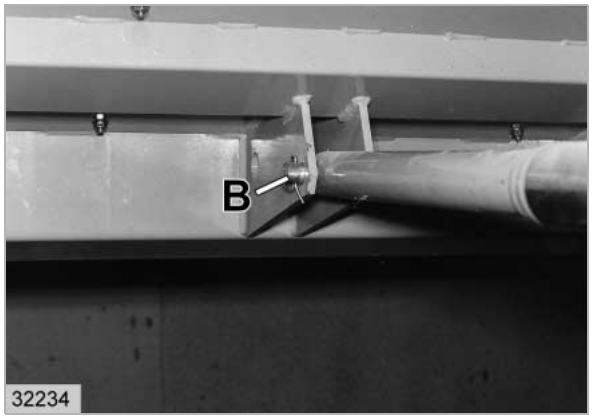
(Fig. 9, 10, 11)



12

9. Carry out a test run. Check system tightness and hydraulic oil level in the tank (T), top up oil if required.

(Fig. 12)



13

Removing the cutterbar hydraulic cylinders

Raise the feed rake conveyor and secure it in that position.

Retract the hydraulic rams until the cylinders are not under load.

Remove the pins (B) from the coupling forks and remove the cylinders.

(Fig. 13)



14

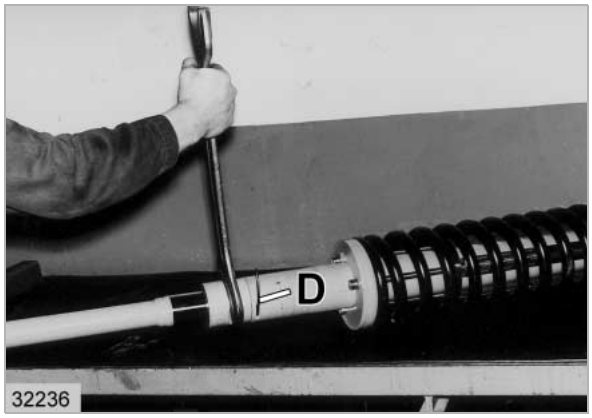
Remove the hydraulic lines from the cylinder.

Disconnect cable (K) from the potentiometer of the position indicator.

Unscrew the hex. bolts (S) from the drive axle and pull the flanged bushings out of the rear spring plate of the cylinder.

Now the cylinder can be removed.

(Fig. 14)



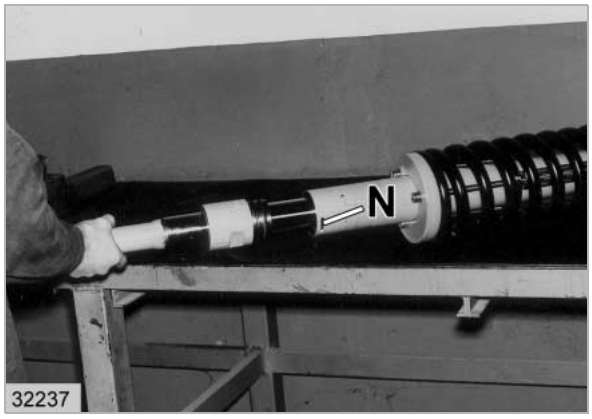
15

Cutterbar hydraulic cylinders – Replacing the seals

Removing the cylinder head:

On the removed cutterbar cylinder, turn the cylinder head so that the securing wire (D) is pushed out of the groove of the cylinder barrel.

(Fig. 15)



16

Pull the cylinder head out of the cylinder barrel.

(Fig. 16)

All seals may now be changed.

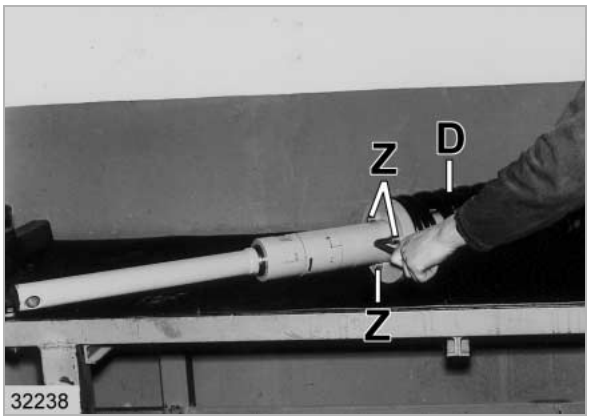
Assembling the cylinder head:

Push the cylinder head into the cylinder barrel up to the stop and turn so that the bore in the cylinder head groove matches the slot in the cylinder barrel.

Hang in the greased securing wire (D) with its hook in the cylinder head bore and turn cylinder head. The securing wire is pulled into the groove (N).

For every assembly of the cylinder, use a new securing wire.

(Fig. 15, 16)



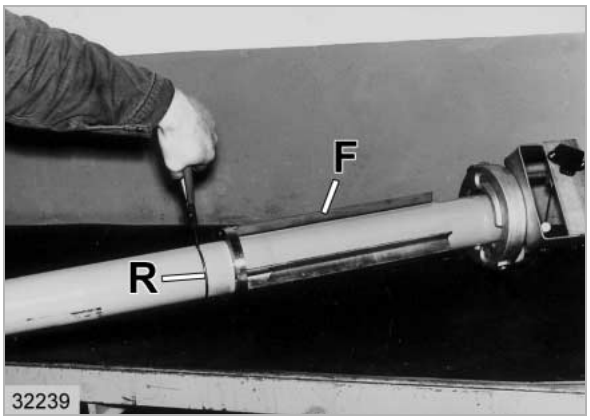
17

Disassembling the cutterbar hydraulic cylinders

Unscrew the three cheese-head screws (Z) evenly. The compression spring (D) is now completely released.

Remove the front spring plate with the cheese-head screws.

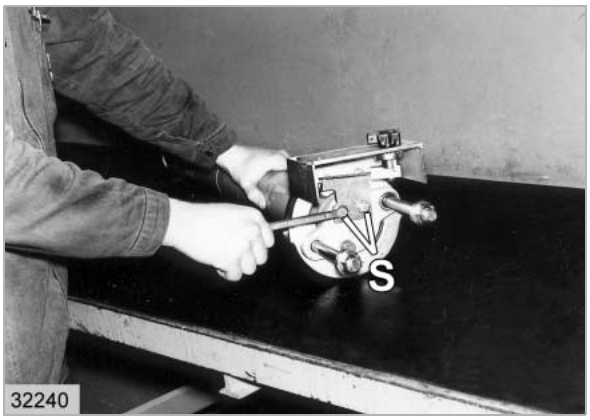
(Fig. 17)



18

Remove the snap ring (R) and the spring guide (F) from the cylinder.

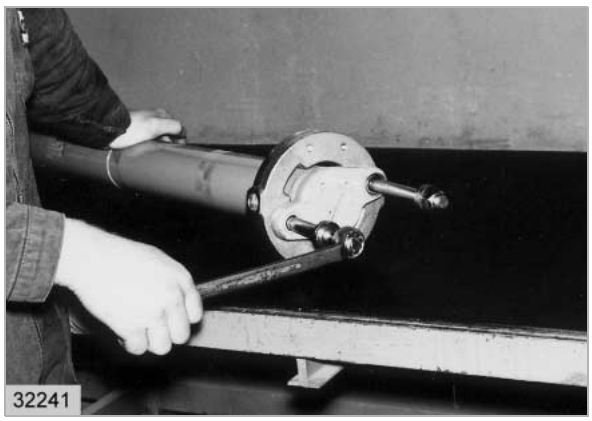
(Fig. 18)



19

Remove the two hex. bolts (S) from the rear spring plate and remove the position indicator.

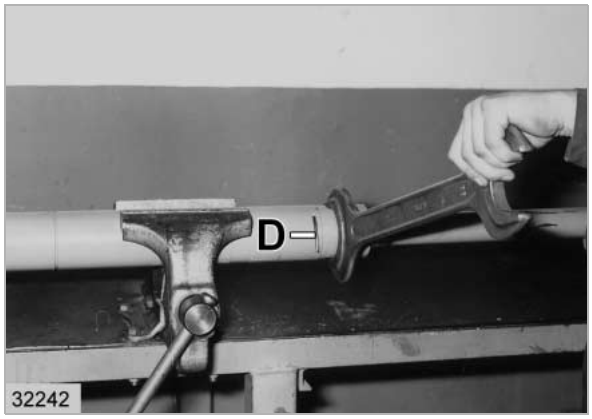
(Fig. 19)



20

Unscrew the two lock nuts VM 16 x 1.5 from the rear spring plate, feed the cylinder through the spring plate and remove it.

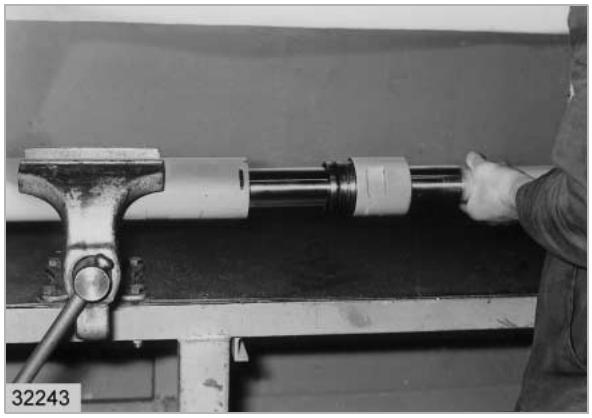
(Fig. 20)



21

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 21)



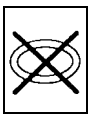
22

Pull the cylinder head and the ram out of the cylinder barrel.

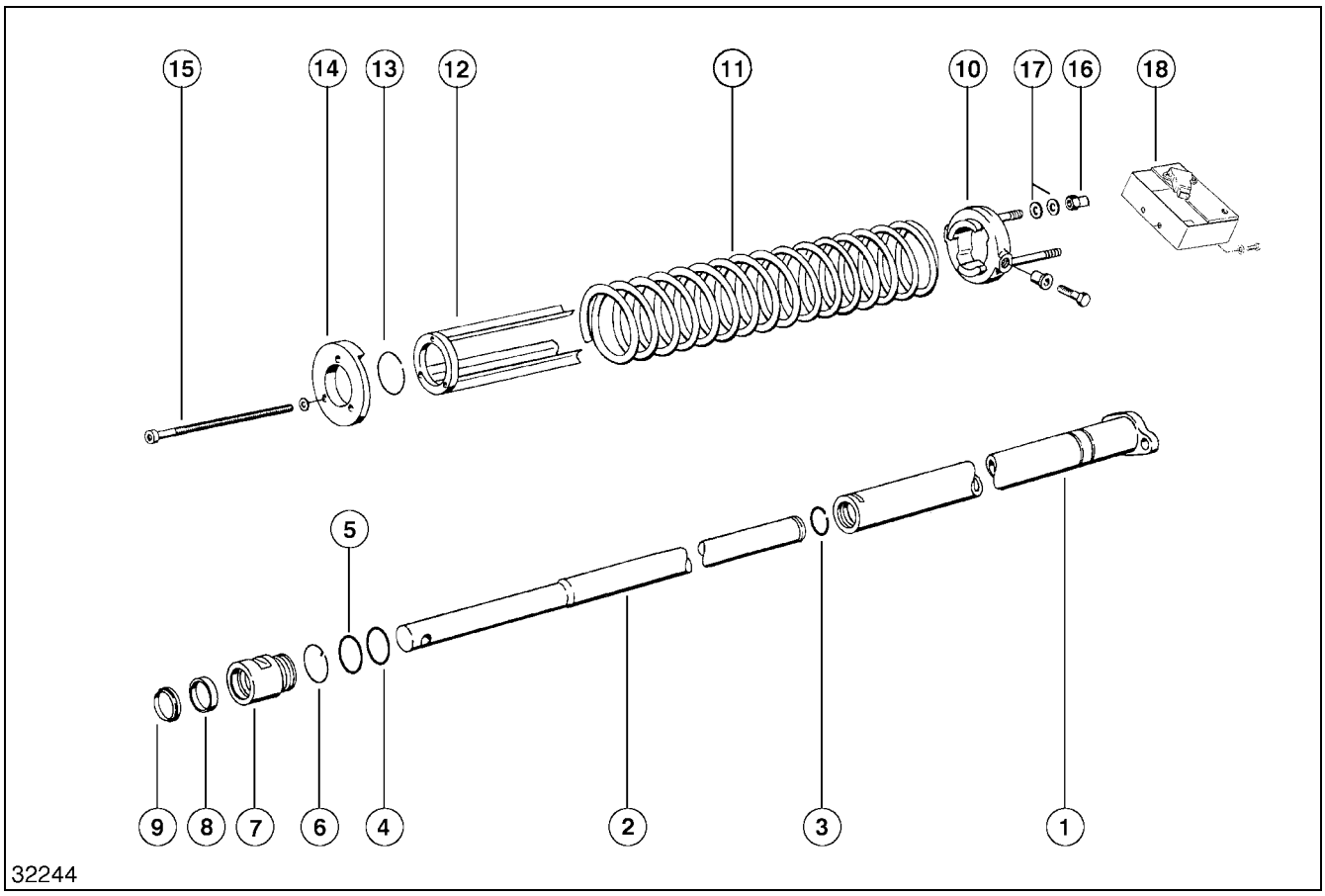
Clean the ram rod and remove the cylinder head.

(Fig. 22)

Clean the ram.



The dust guard, seal, back-up ring and the O-ring in the cylinder head can now be replaced.

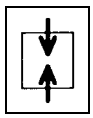


23

Cutterbar hydraulic cylinder, disassembled:

1 Hydraulic cylinder
Male connector L 10 F-M
2 Ram
3 Snap ring
4 O-ring 58 x 3 DIN 3771 (up to serial no. ...)
5 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
6 Securing wire
7 Cylinder head
8 Seal
9 Dirt scraper
10 Spring plate
Lock nut VM 16 x 1.5
Washer 16.5 x 33 x 5
11 Compression spring
12 Spring guide
13 Snap ring
14 Spring plate
15 Cheese-head screw M 12 x 380 x 360
DIN 912-8.8
16 Lock nut VM 16 x 1.5
17 Washer 16.5 x 33 x 5
18 Position indicator
Hex. bolt M 10 x 20 DIN 933-8.8
Contact washer A 10

(Fig. 23)

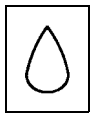


Assembling the cutterbar hydraulic cylinder

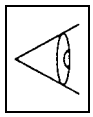
1. Insert the snap ring (3) securely into the groove of the hydraulic ram (2).

   Slide the ram (2) into the cylinder (1).

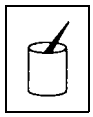
2. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (7).



   Up to serial no. …:
   Apply some oil to the seal (8), the dirt scraper (9), the back-up ring (5) and the O-ring (4) and insert into the cylinder head (7).

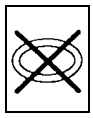


3. Check the cylinder barrel for any burrs. Now push the cylinder head into the cylinder barrel until it reaches the stop and turn until the bore in the cylinder head groove is below the slot of the cylinder barrel.



   Hang in the greased securing wire (6) with its hook in the cylinder head bore and turn. The securing wire is pulled into the groove.

   For every assembly of the cylinder, use a new securing wire.



4. Bolt down the complete cylinder (1 to 9) to the spring plate (10) with two washers and a lock nut VM 16 each.
5. Slide on the spring guide (12) and secure with snap ring (13).
6. First slide on the compression spring (11) and then the second spring plate (14), then bolt down with the cheese-head screws (15) and washers.

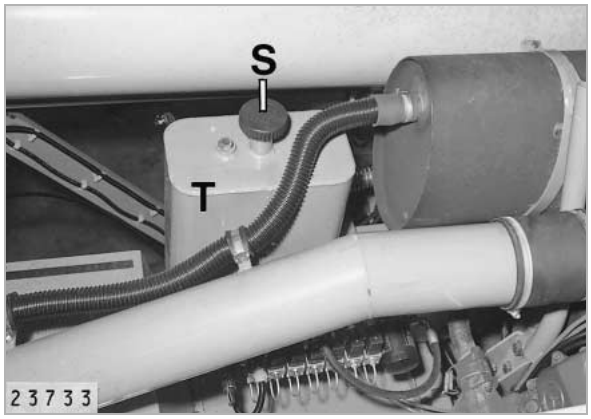


CAUTION!

Pre-tension the compression spring only slightly.

7. Bolt the position indicator (18) to the cylinder flange.

(Fig. 23)



24

Installing the cutterbar hydraulic cylinders

1. Bolt the cylinder to the drive axle. Connect the hydraulic line.
2. Connect the cable to the position indicator potentiometer.
3. Insert the pins at the yokes. Hang in the cylinders using the pins. Secure the pins with split pins.
4. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
5. Operate the cylinders several times to ensure the air has been expelled and that there are no leaks.

(Fig. 24)

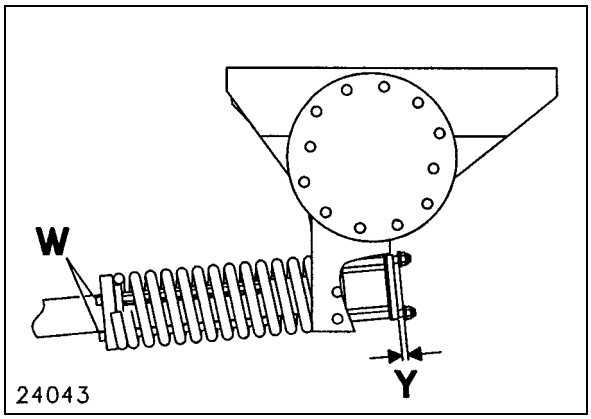
Adjusting the cutterbar hydraulic cylinders

Adjust the compression springs of the re-fitted cylinder with the cutterbar attached.

The reel should be in a middle position.

Lower the cutterbar until the skids are about **100 mm** from the floor.

Adjust the spring pre-tension on the cheese-head screws (W).



25

Adjustment of screws (W):

Increasing the distance = turn in the screws
Reducing the distance = turn out the screws

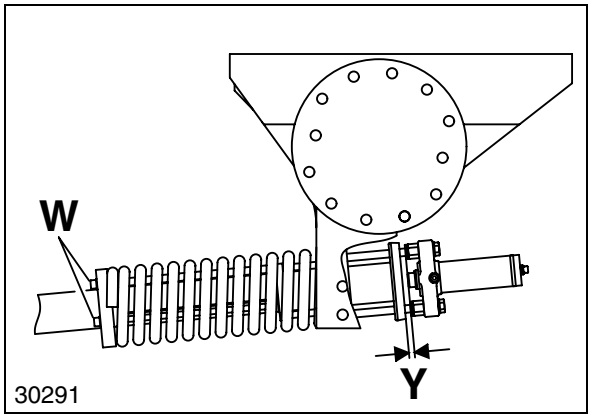
The gap (Y) between the cylinder base plate and the washer with the nut should be **5 – 10 mm**.

This setting applies to cutterbar cylinders with a mechanical lock (Fig. 25) and for cutterbar cylinders with a hydraulic lock (Fig. 26).

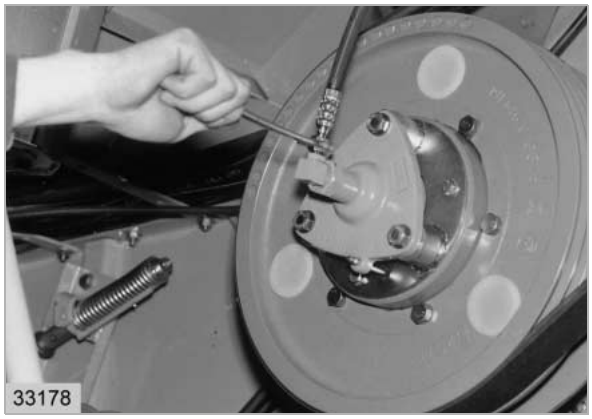
CAUTION!

Ensure that all compression springs are adjusted evenly!

(Fig. 25, 26)



26

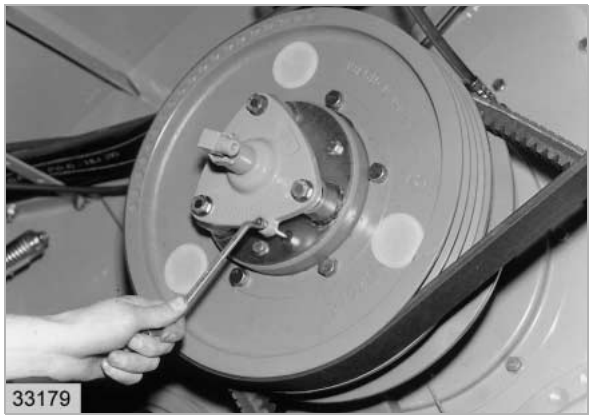


27

Removing the cutterbar variable-speed drive hydraulic cylinder

Remove the hydraulic line from the variable speed drive cylinder and plug tightly with a plastic cap.

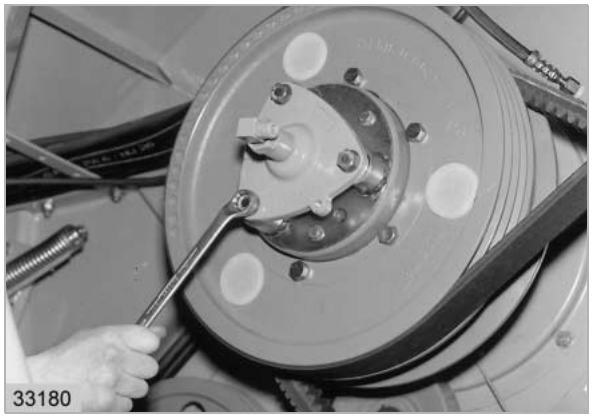
(Fig. 27)



28

Unscrew the grease nipple along with the grease tube complete from the variable-speed pulley assembly.

(Fig. 28)



29

Unscrew three M 12 x 165 countersunk head bolts from the thrust flange and remove the variable speed drive cylinder.

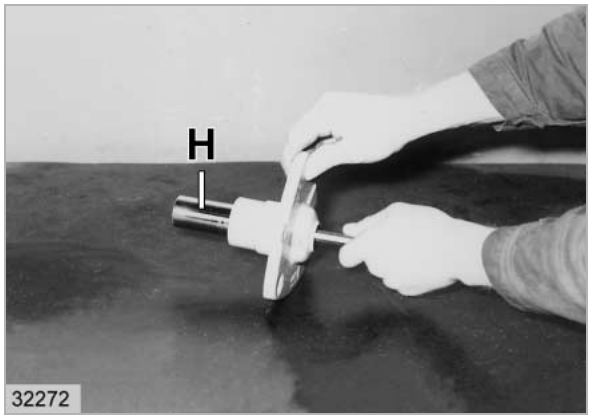
(Fig. 29)



30

Remove the complete hydraulic coupling from the thrust plate.

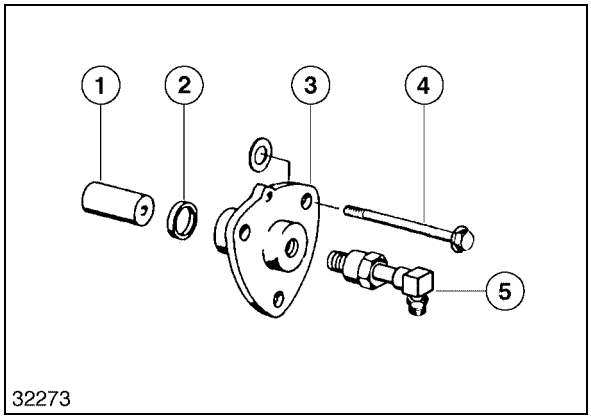
(Fig. 30)



31

Push the ram (H) out of the thrust plate using a punch.

(Fig. 31)

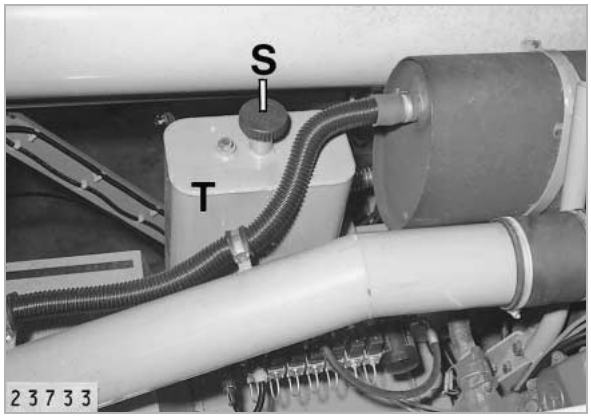


32

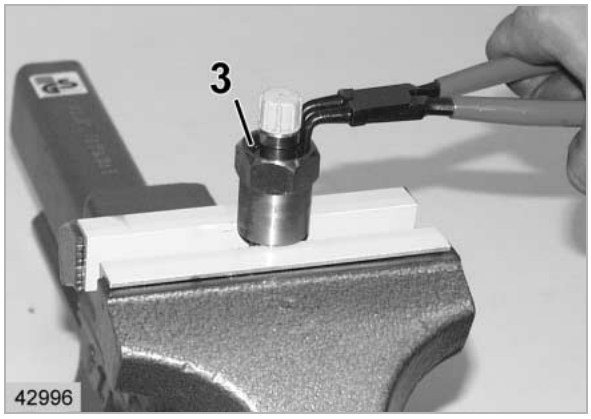
Installing the cutterbar variable-speed drive hydraulic cylinder

1. First insert the oiled seal (2) and then the oiled ram (1) into the thrust flange (3).
2. Bolt the complete hydraulic coupling (5) into the thrust flange (3).
3. Bolt the complete variable speed drive cylinder to the variable-speed drive using the three countersunk head bolts (4) M 12 x 165 and shims.
4. Bolt the grease nipple and the grease tube with the sealing washer into position.
5. Connect the hydraulic line.
6. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
7. Start the diesel engine and operate the variable speed drive cylinder several times until all the air has been expelled.

(Fig. 32, 33)



33

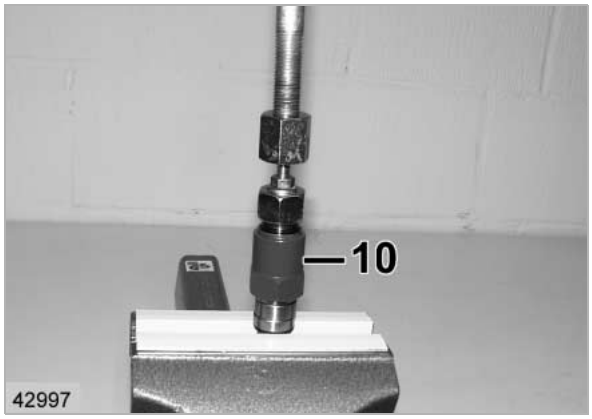


34

Disassembling the rotary coupling

Remove circlip (3).

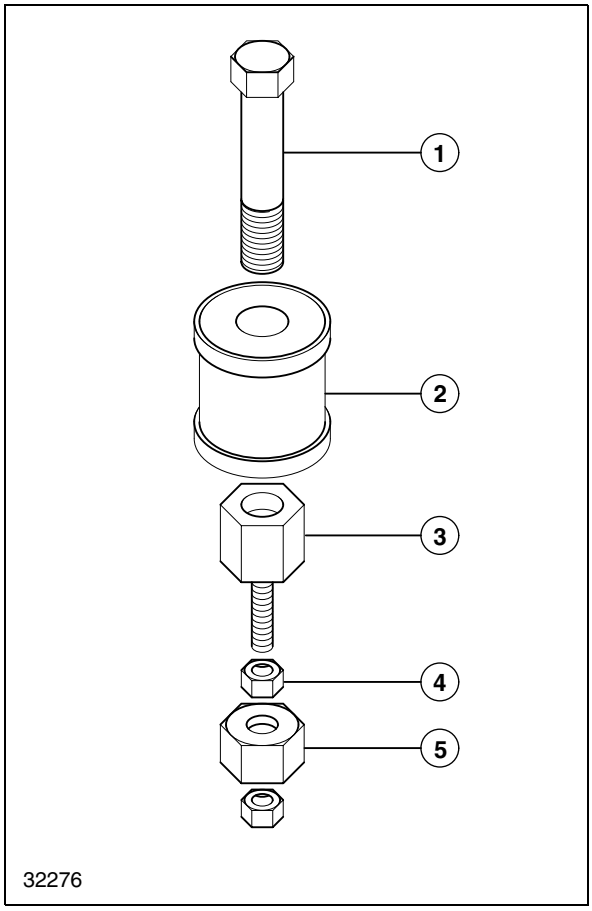
(Fig. 34, 40)



35

Pull off the adapter (10) from the hydraulic coupling (2) using a special tool. Observe any parts which may fall down.

(Fig. 35, 36, 40)



36

Special tool:

1 Tie rod, part no. 181 606.0
2 Striking tool, part no. 181 604.0

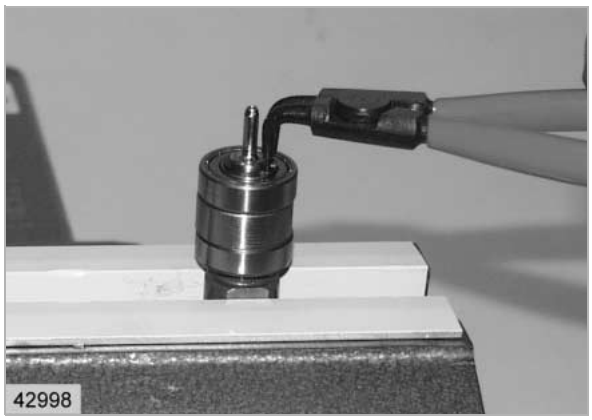
From serial no. …:

3 Adapter section M 10, part no. 181 609.0
4 Hex. nut M 10 DIN 934 (2 pieces)
5 Union nut 15 L DIN 3870, part no. 633 589.1

Up to serial no. …:

3 Adapter section M 8, part no. 181 608.0
4 Hex. nut M 8 DIN 934 (2 pieces)
5 Union nut 12 S DIN 3870, part no. 244 061.1

(Fig. 36)



37

Remove snap ring (8) from the hydraulic coupling (2).

(Fig. 37, 40)



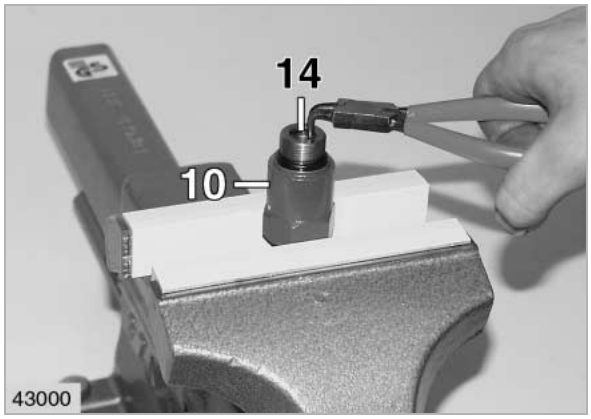
38

Pull off deep groove ball bearing (4), spacer rings (5) and belleville springs (7) with a spacer ring (6) located in between from the hydraulic coupling (2).

(from serial no. ... parts 6 and 7 already exist)

Tube (self-sourced):
Inside ∅ 6 mm, outside ∅ 8 mm, 30 mm long

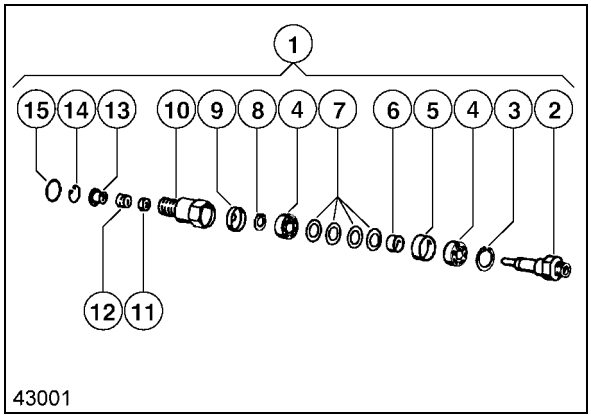
(Fig. 38, 40)



39

Remove snap ring (14), stepped washer (13) and seal (12) from the adapter (10).

(Fig. 39, 40)

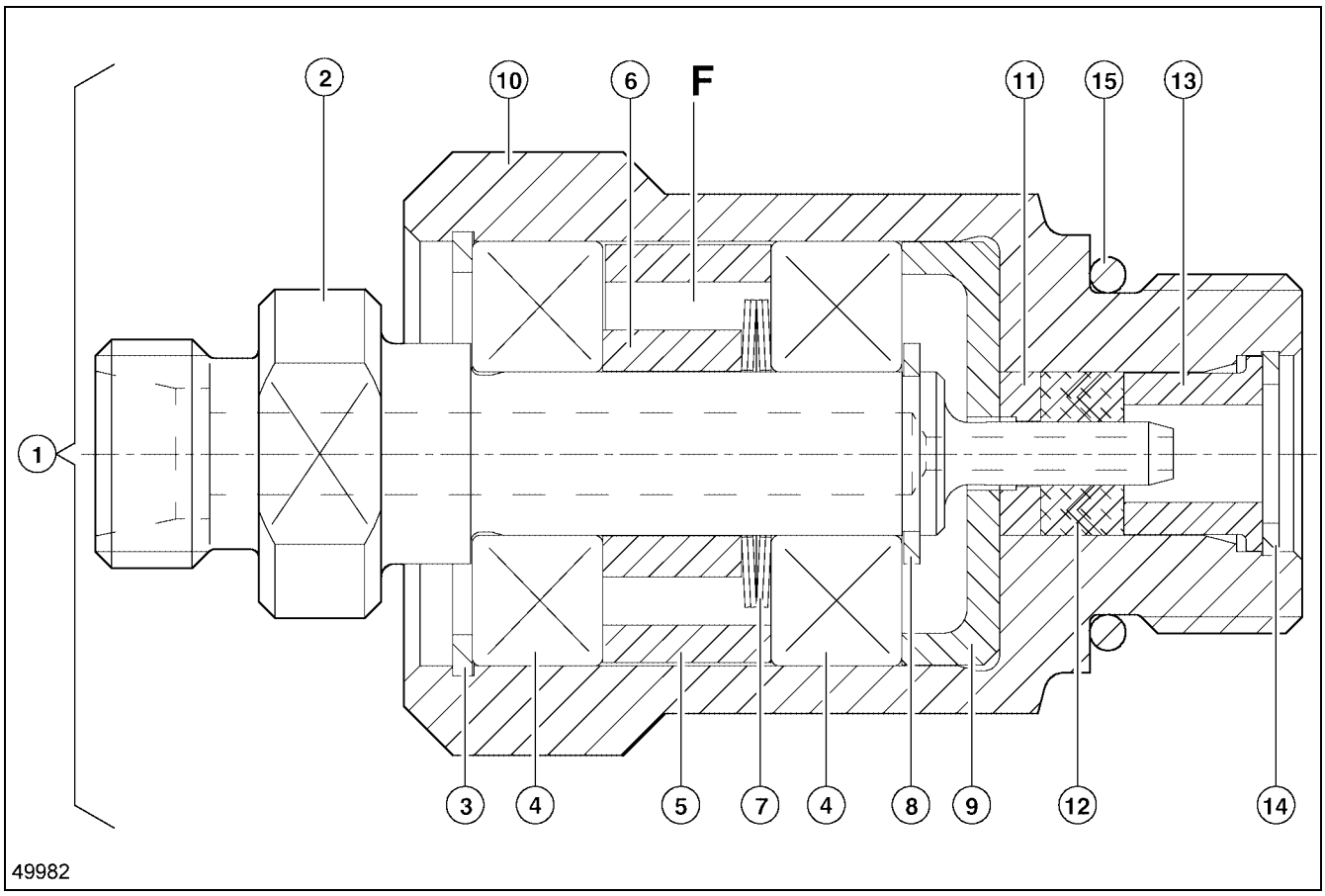


40

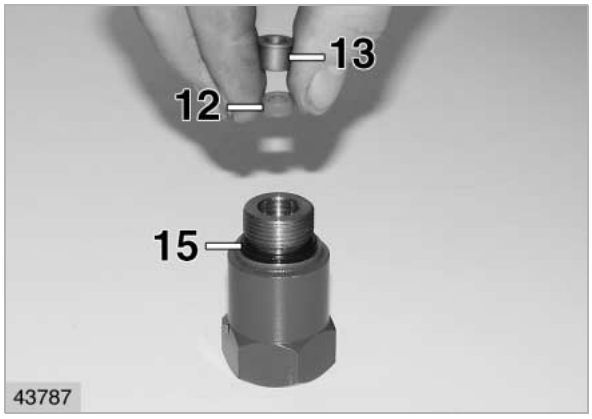
Rotary coupling, disassembled

1 Rotary feed
2 Hydraulic coupling
3 Circlip
4 Deep groove ball bearing
5 Spacer ring
6 Spacer ring (from serial no. ...)
7 Belleville spring (from serial no. ...)
8 Circlip
9 Stop washer
10 Adapter
11 Back-up ring (from serial no. ...)
12 Seal
13 Stepped washer
14 Circlip
15 O-ring

(Fig. 40)



41



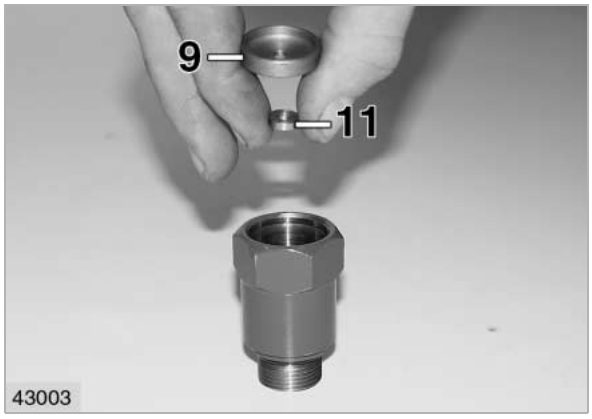
42

Assembling the rotary coupling

Insert the O-ring (15), the seal (12) and the stepped washer (13) into the adapter (10) and secure with circlip (14).

Observe installation position of seal (12) and stepped washer (13).

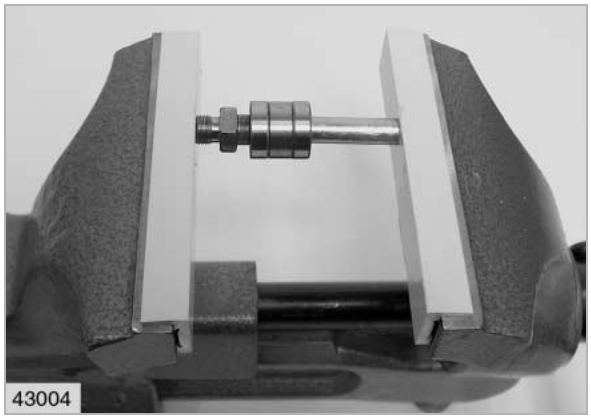
(Fig. 40, 41, 42)



43

When installing the back-up ring (11) and the stop washer (9) into the adapter (10), observe correct installation position.

(Fig. 41, 43)



44

Fill deep groove ball bearing (4) with grease (Rhenus Norlith STM3) prior to installation.

Press deep groove ball bearings (4), spacer rings (5 and 6) and belleville springs (7) on the hydraulic coupling (2) using a tube and secure with circlip (8).

CAUTION!

The open side of the deep groove ball bearings (4) must face the spacer rings (5 and 6).

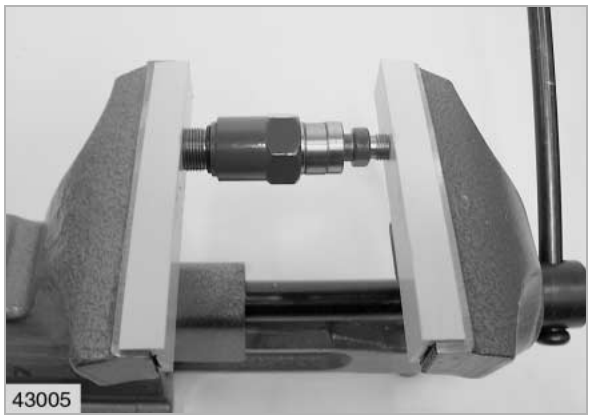
The space (F) between the bearings (4) must be filled with grease (Rhenus Norlith STM3).

Observe the installation position of the belleville springs (7).

The hydraulic coupling (2) must absolutely not be twisted while pressing on.

Tube (self-sourced)
Inside ∅ 10.5 mm, outside ∅ 12 mm, 50 mm long

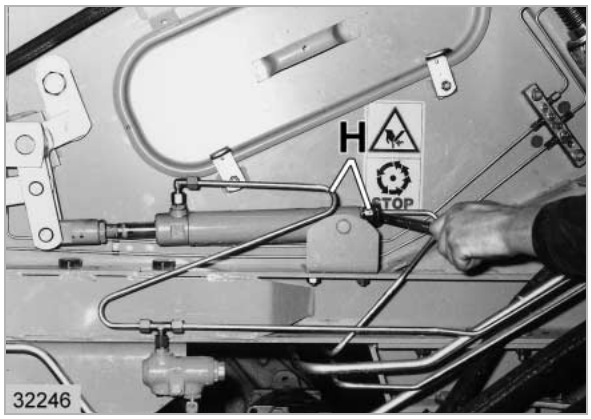
(Fig. 41, 44)



45

Press the pre-assembled hydraulic coupling (2) into the adapter (10) and secure with the circlip (3).

(Fig. 41, 45)



46

Removing the concave adjustment hydraulic cylinder

Support the drive axle safely and remove the wheel on the side where the cylinder is to be removed.

Remove the guard.

Remove the hydraulic lines (H) from the cylinder and plug them tightly with caps.

(Fig. 46)



47

Knock the expansion pin out of the pin at the cylinder eye.

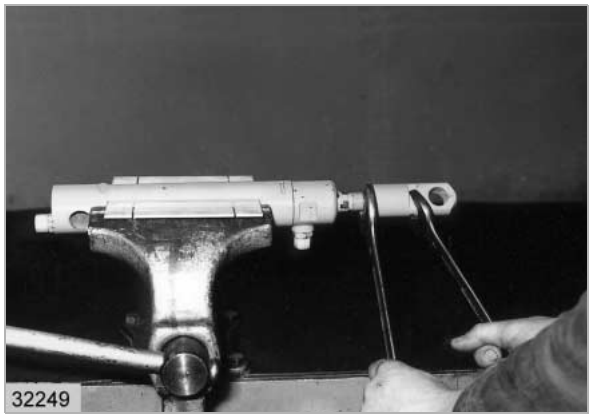
(Fig. 47)



48

Remove the M 10 x 25 hex. bolts from the mounting bracket and remove the cylinder completely.

(Fig. 48)

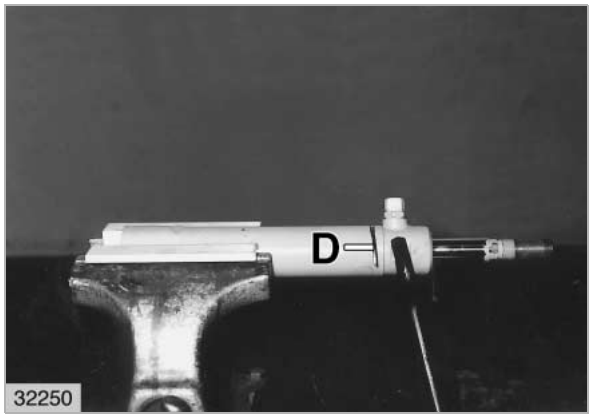


49

Disassembling the concave adjustment hydraulic cylinder

Loosen the M 20 x 1.5 lock nut and unscrew together with the cylinder eye.

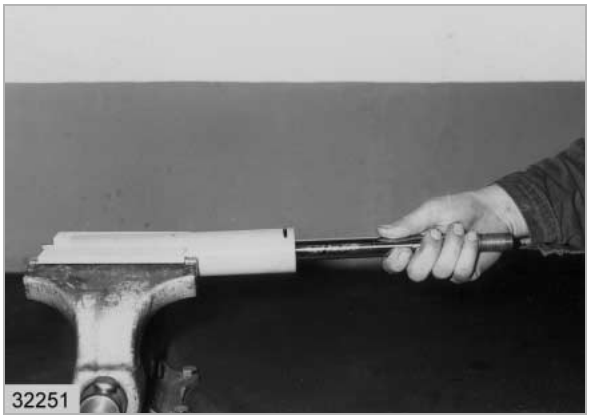
(Fig. 49)



50

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 50)



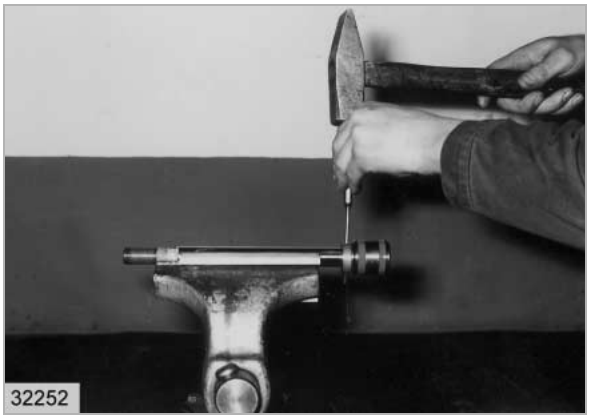
51

Pull the cylinder head and the ram rod out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

The scraper ring, seal, back-up ring and the O-ring can now be removed from the cylinder head.

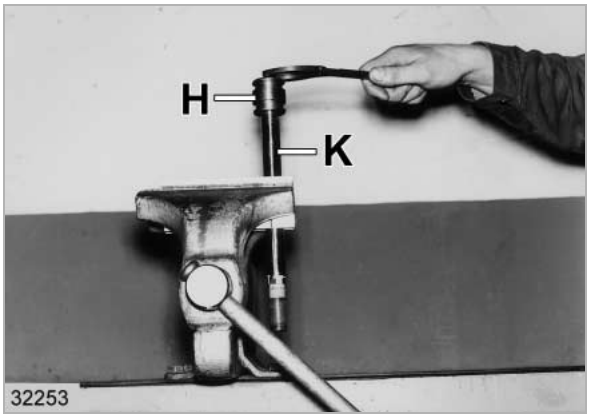
(Fig. 51)



52

Knock the expansion pins out of the stop ring.

(Fig. 52)



53

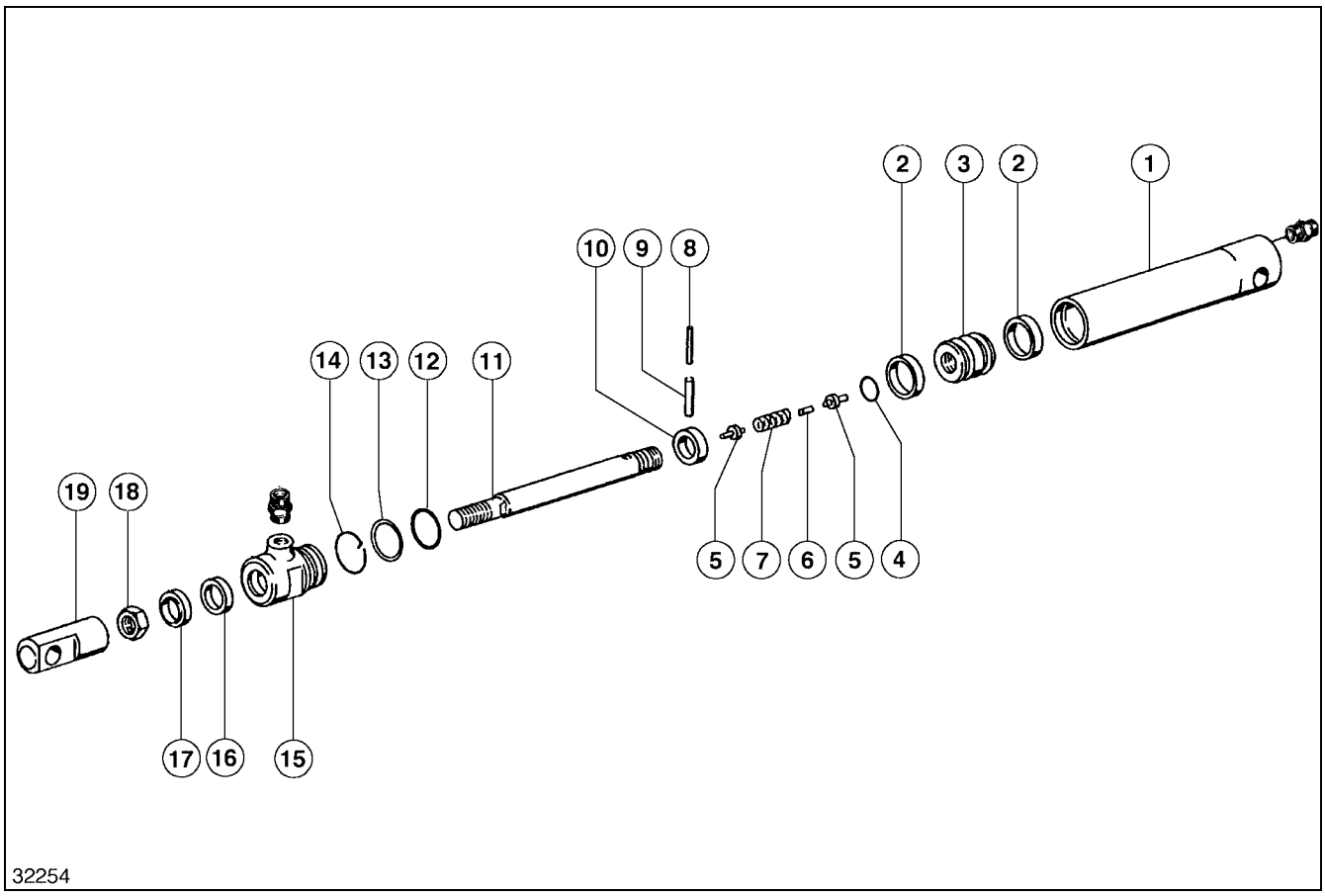
Unscrew the ram (H) from the male screwed end of ram rod (K) using a sickle spanner.

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200** °**C**.

Remove the valves along with compression spring, cylinder pin and the stop ring. The seals and the O-rings can now be replaced.

(Fig. 53)

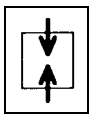


54

Concave adjustment hydraulic cylinder, disassembled:

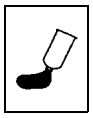
1 Hydraulic cylinder
Male connector
2 Seal
3 Ram
4 O-ring 18 x 2.5 DIN 3771
5 Valve
6 Cylinder pin
7 Compression spring
8 Expansion pin
9 Expansion pin
10 Stop ring
11 Ram rod
12 O-ring 34.2 x 3 DIN 3771 (up to serial no. ...)
13 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
14 Securing wire
15 Cylinder head
Male connector
16 Seal
17 Scraper ring
18 Hex. nut M 20 x 1.5
19 Eye section

(Fig. 54)



Assembling the concave adjustment hydraulic cylinder

1. Slide the stop ring (10) on the ram rod (11) and secure with the expansion pins (8 and 9).
2. Heat both seals (2) in hot water and then fit on the ram (3). Insert the two valves (5) with the cylinder pin (6) and the compression spring (7) into the ram (3).

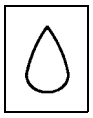


3. Secure the ram (3) on the ram rod (11) with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.

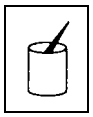
   Tightening torque = 50 Nm

4. Insert seal (16) and the scraper ring (17) into the cylinder head (15).
5. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (15).

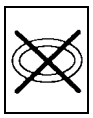
   Up to serial no. …:



   Insert the oiled O-ring (12) and the back-up ring (13) into the groove of the cylinder head (15).
6. Insert the complete cylinder head (12 to 17) on the ram rod and then slide it into the cylinder barrel (1).
7. Twist the complete cylinder head (12 to 17) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.



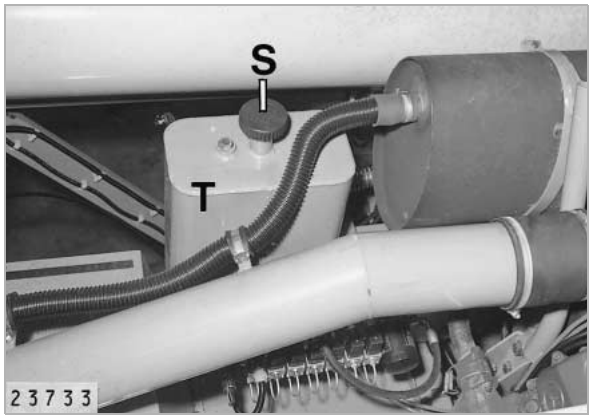
   Hang in the greased securing wire (14) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.



   For every assembly of the cylinder, use a new securing wire.
8. Screw the hex. nut (18) and the eye section (19) on the ram rod (11).

   Adjust the retracted cylinder to the basic settings, which is (L1) = **370 mm**, by adjusting on the eye section and lock this setting.

(Fig. 54)



55

Installing the concave adjustment hydraulic cylinder

1. Bolt the cylinder to the mounting bracket.

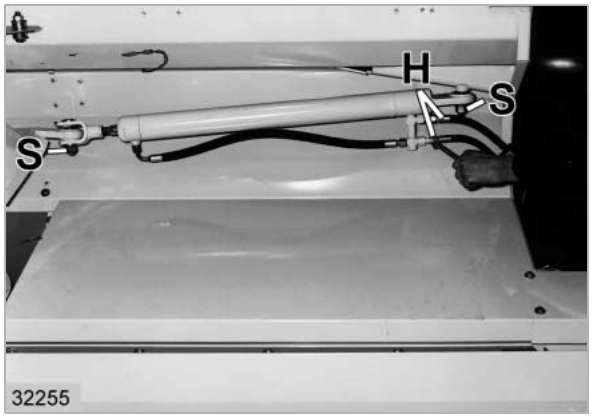
   Insert the eye section into the toggle joint. Insert the pin and secure with an expansion pin. Tighten the M 20 x 1.5 lock nut.

2. Bolt the hydraulic lines to the cylinder.

   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

3. Set the basic concave adjustments – see page 3.2.16, *Basic concave setting*.

(Fig. 55)



56

Removing the grain tank unloading tube swing hydraulic cylinder

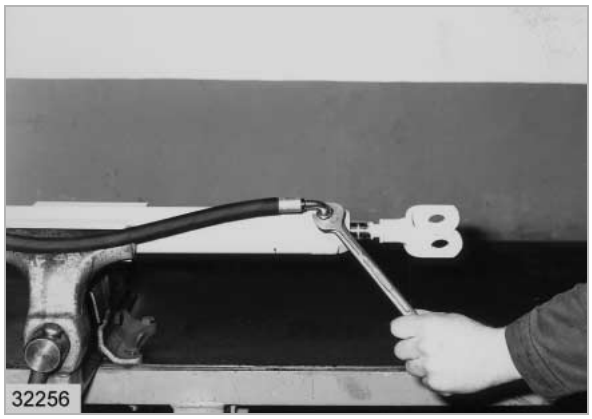
Swing out the grain tank unloading tube and secure it against moving back in.

Remove the two hydraulic lines (H) from the non-return valve of the hydraulic cylinder and plug them tightly.

Remove the lock nuts (S) from either end of the cylinder and pull the threaded pin out of the yoke.

The cylinder may now be removed.

(Fig. 56)

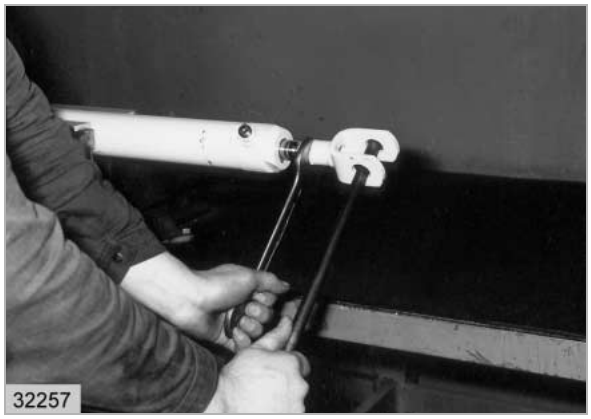


57

Disassembling the grain tank unloading tube swing hydraulic cylinder

Remove the hydraulic line from the cylinder head.

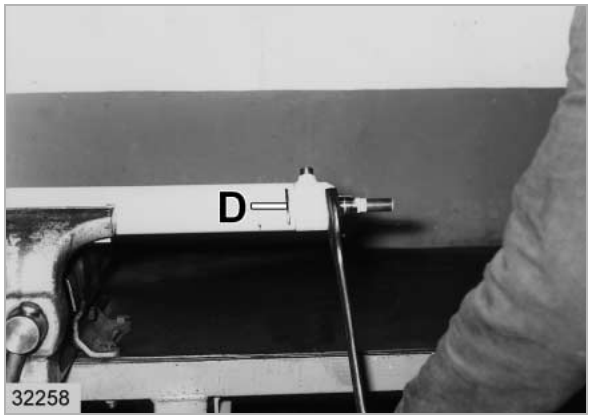
(Fig. 57)



58

Once the M 18 x 1.5 lock nut has been loosened, unscrew the yoke from ram rod.

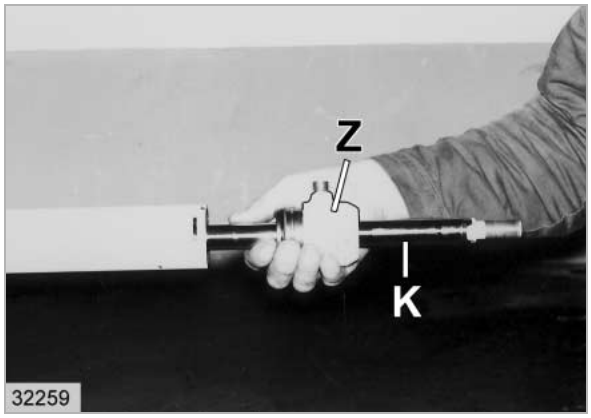
(Fig. 58)



59

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 59)

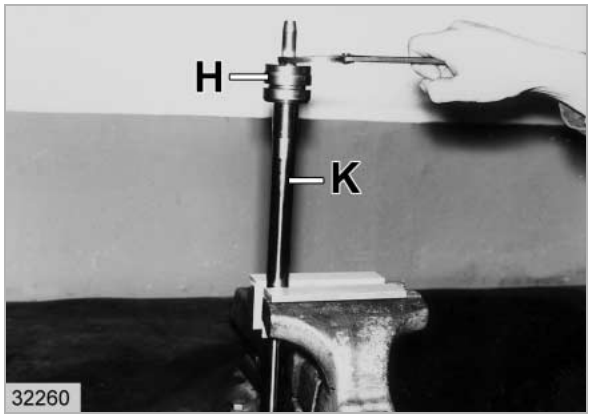


60

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

(Fig. 60)



61

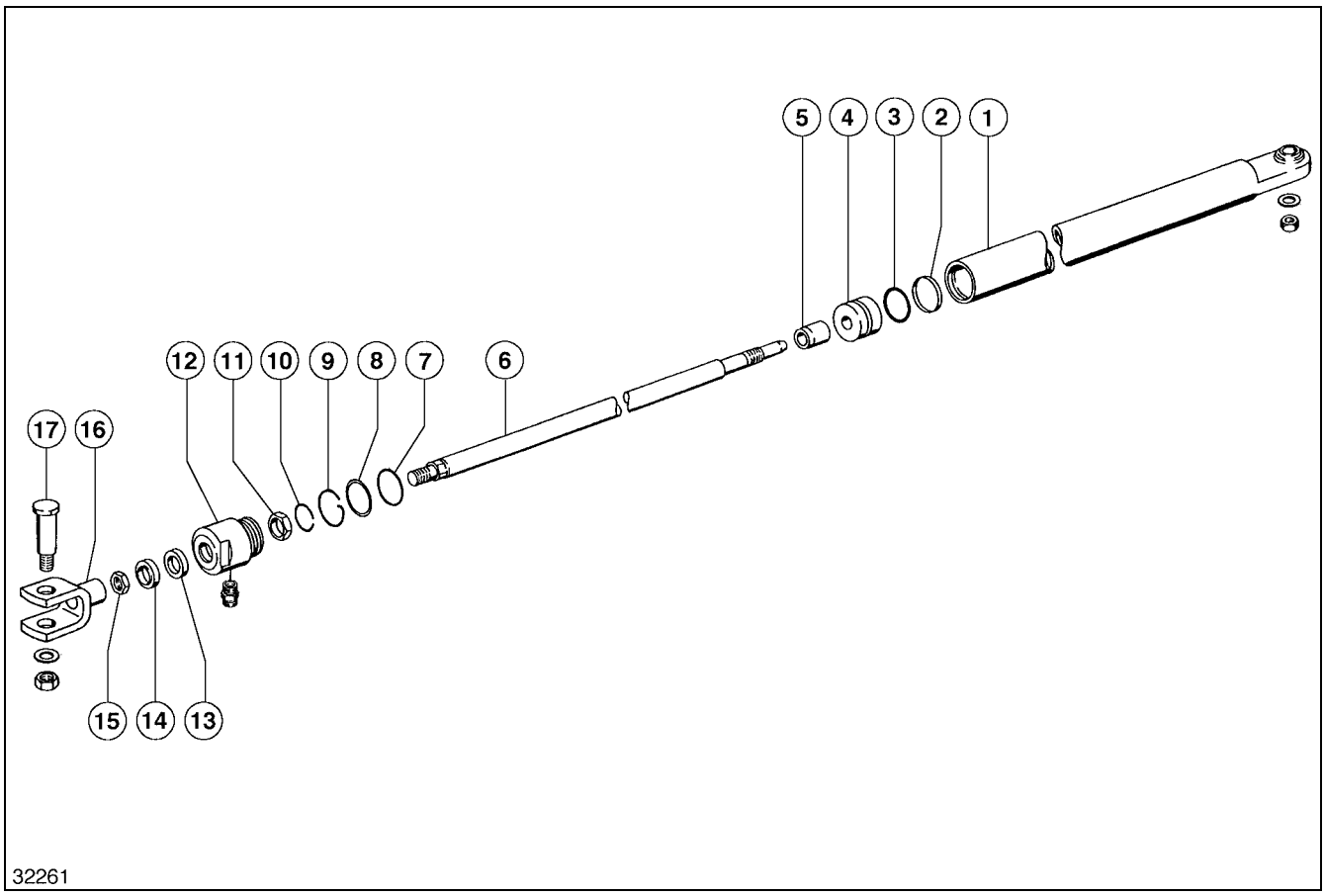
Unscrew the ram (H) from the male screwed end of the ram rod (K).

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200 °C**.

The ram seal and the O-ring can now be replaced.

(Fig. 61)

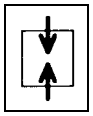


62

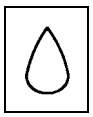
Grain tank unloading tube swing hydraulic cylinder, disassembled:

1 Hydraulic cylinder
  Non-return valve
2 Ram seal
3 O-ring 37 x 3.5 DIN 3771
4 Ram
5 Damper
6 Ram rod
7 O-ring 44.2 x 3 DIN 3771 (up to serial no. ...)
8 Dual seal ring (from serial no. ...)
  Back-up ring (up to serial no. ...)
9 Securing wire
10 Snap ring
11 Damping ring
12 Cylinder head
  Male connector
13 Seal
14 Dirt scraper
15 Hex. nut M 18 x 1.5
16 Yoke
17 Pin
  Self-locking nut VM 16
  Washer 17

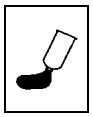
(Fig. 62)



Assembling the grain tank unloading tube swing hydraulic cylinder



1. Place the oiled ram seal (2) and the O-ring (3) on the ram (4). The ram seal (2) should be placed in hot water before assembly. Prior to assembly, remove any burrs.

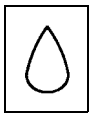


2. First slide the damper (5) on the ram rod (6), then secure the ram (4) on the ram rod (6) with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.

3. Insert seal (13) and dirt scraper (14) into the cylinder head (12).

4. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (12).

   Up to serial no. …:

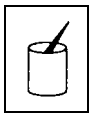


   Insert the oiled O-ring (7) and the back-up ring (8) into the groove of the cylinder head (12).

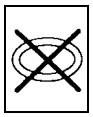
5. Insert the damping ring (11) with the snap ring (10) into the cylinder head (12).

6. Insert the complete cylinder head (7 to 14) on the ram rod and then slide it into the cylinder barrel (1).

7. Twist the complete cylinder head (7 to 14) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.



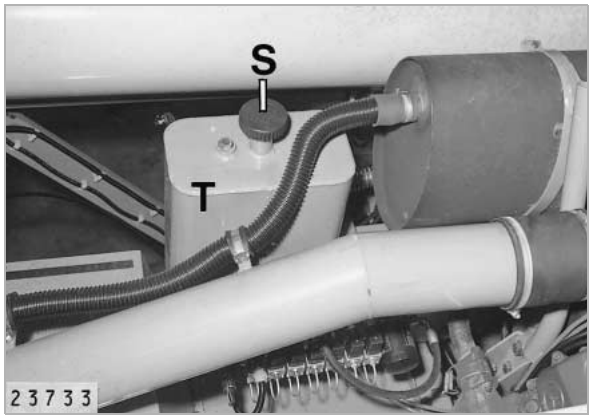
   Hang in the greased securing wire (9) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.



   For every assembly of the cylinder, use a new securing wire.

8. Screw the hex. nut (15) and the yoke (16) to the ram rod (6).

(Fig. 62)



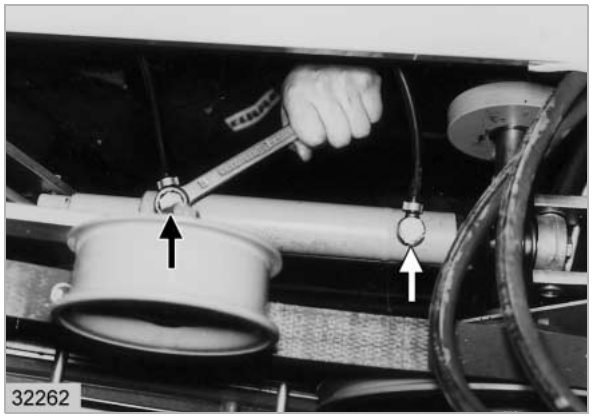
63

Installing the grain tank unloading tube swing hydraulic cylinder

1. Bolt the cylinder with bolt (17), lock nuts and washers to the unloading tube chute. Lock up the yoke (16).
2. Bolt the hydraulic lines to the cylinder.

   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
3. Start the diesel engine and operate the cylinder several times until the air has been completely expelled.

(Fig. 63)

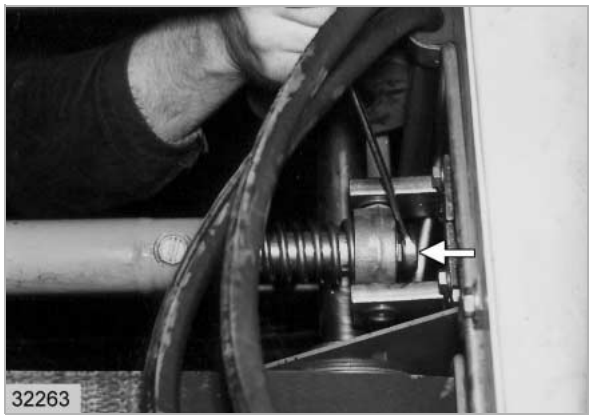


64

Removing the straw chopper drive hydraulic cylinder

Remove the hydraulic hoses from the cylinder and seal tightly.

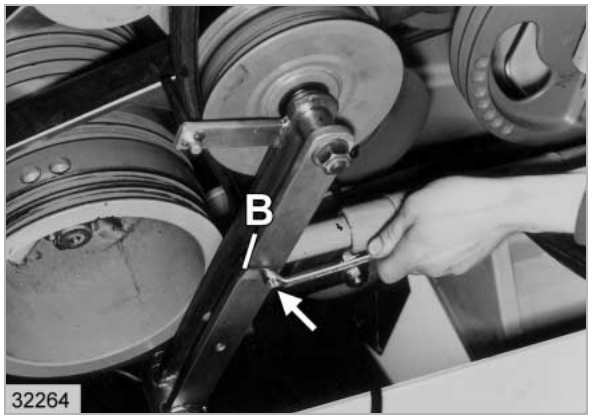
(Fig. 64)



65

Remove the hex. bolt M 12 x 120 from the cylinder and remove the bushing, the compression spring and the cylinder barrel.

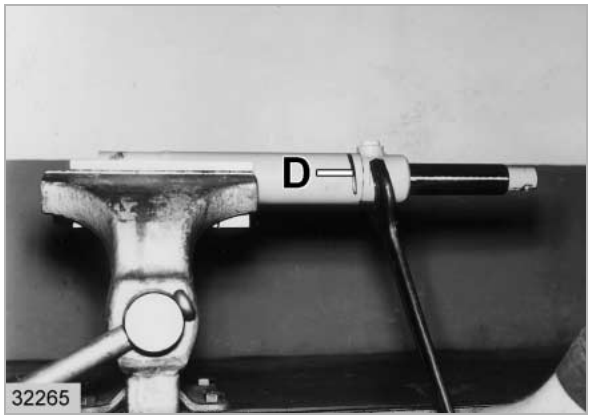
(Fig. 65)



66

Unscrew the M 6 x 12 hex. bolt in order to be able to remove clamp (B) and the cylinder with the cylinder pin from the jockey pulley arm.

(Fig. 66)

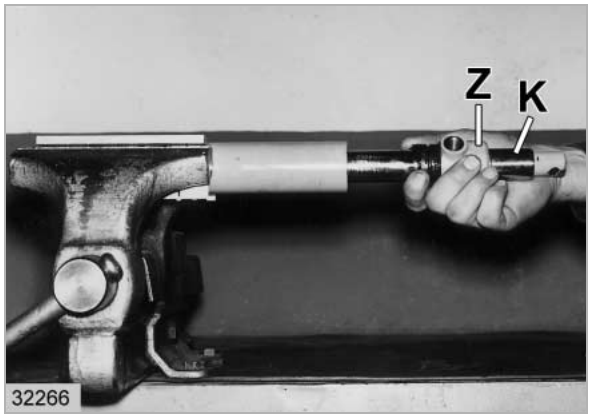


67

Disassembling the straw chopper drive hydraulic cylinder

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 67)



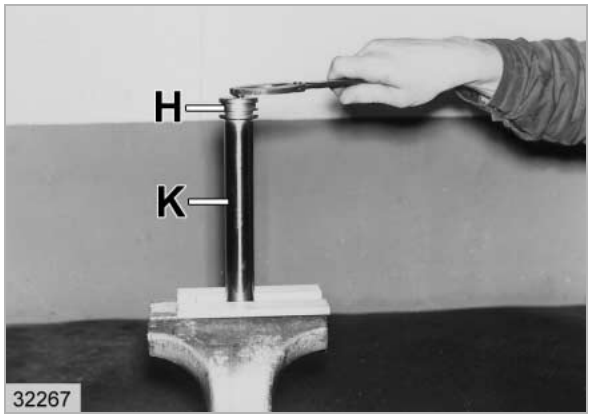
68

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

The O-ring and the back-up ring can be removed from the cylinder head.

(Fig. 68)



69

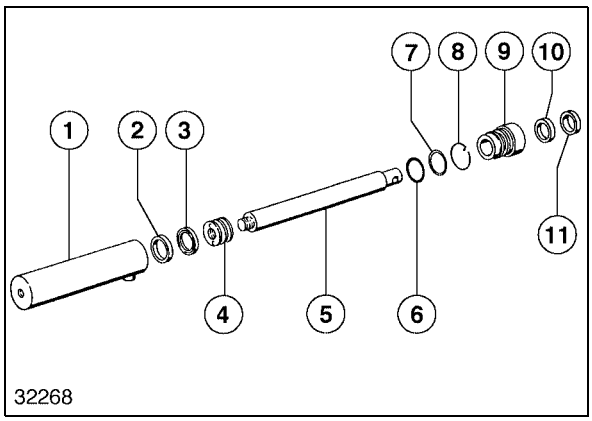
Unscrew the ram (H) from the male screwed end of ram rod (K) using a sickle spanner.

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200 °C**.

The ram seal and the rod lead ring can now be replaced.

(Fig. 69)



70

Straw chopper drive hydraulic cylinder, disassembled:

1 Hydraulic cylinder
2 Rod guide ring
3 Ram seal
4 Ram
5 Ram rod
6 O-ring (up to serial no. …)
7 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
8 Securing wire
9 Cylinder head
10 Seal
11 Dirt scraper

(Fig. 70)

Assembling the straw chopper drive hydraulic cylinder

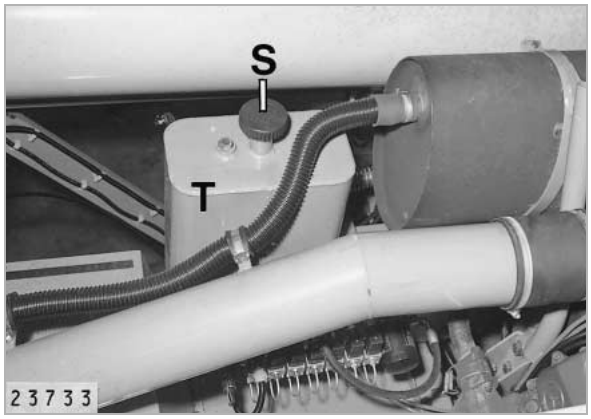
1. Place the ram seal (3) and the rod lead ring (2) on the ram (4). The ram seal (3) should be placed in hot water before assembly. Prior to assembly, remove any burrs.
2. Secure the ram (4) on the ram rod (5) with liquid locking compound, e.g. DELO-ML 5328.
3. Insert seal (10) and dirt scraper (11) into the cylinder head (9).
4. From serial no. …:
Insert a dual seal ring into the ring groove of the cylinder head (9).

   Up to serial no. …:
Insert the oiled the O-ring (6) and the back-up ring (7) into the groove of cylinder head (9).
5. Insert the complete cylinder head (7 to 11) on the ram rod and then slide it into the cylinder barrel (1).
6. Twist the complete cylinder head (7 to 11) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

   Hang in the greased securing wire (8) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.

   For every assembly of the cylinder, use a new securing wire.

(Fig. 70)



71

Installing the straw chopper drive hydraulic cylinder

1. Bolt the cylinder with the guide tube, compression spring and bushing to the bracket.
2. To do this, use the hex. bolt M 12 x 120 with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.

   Tightening torque = 110 Nm
3. Fit the ram rod to the jockey pulley arm, using the cylinder pin, clamp and M 6 x 12 hex. bolt.
4. Connect the hydraulic hoses to the cylinder.

   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
5. Operate the cylinders several times in order to bleed it.

(Fig. 71)



72

Removing the threshing drum variable-speed drive hydraulic cylinder

Remove the hydraulic line from the variable speed drive cylinder and plug it tightly.

Unscrew the grease tube (S) completely from the variable-speed pulley assembly.

(Fig. 72)



73

Remove the countersunk head bolts M 12 x 165 in order to loosen the thrust flange.

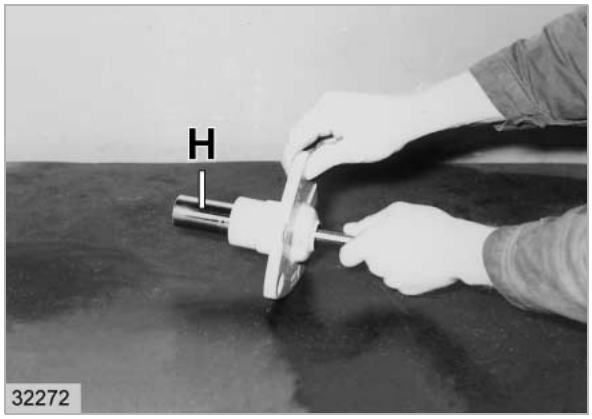
(Fig. 73)



74

Remove the complete hydraulic coupling from the thrust plate.

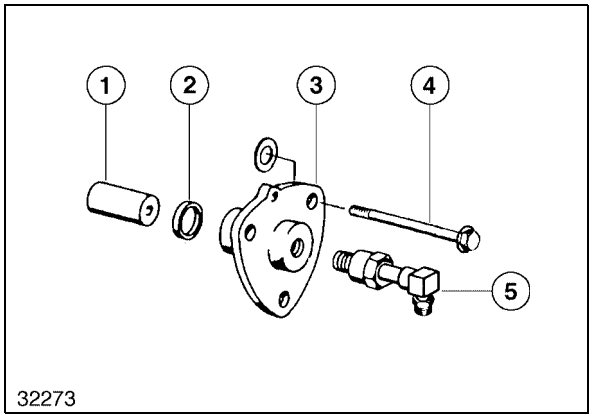
(Fig. 74)



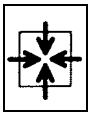
75

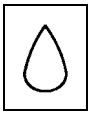
Push the ram (H) out of the thrust plate using a punch.

(Fig. 75)



76



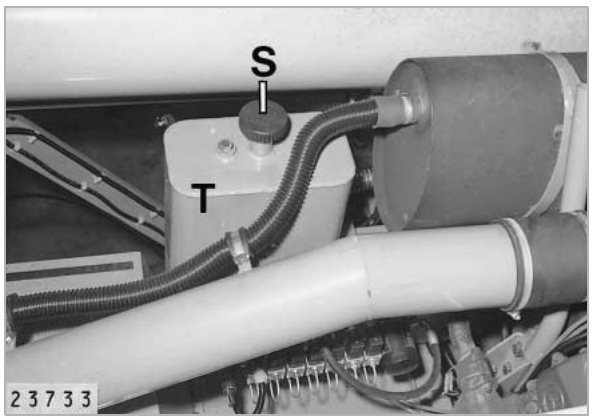


Installing the threshing drum variable-speed drive hydraulic cylinder

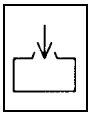
1. Insert the oiled seal (2) and the ram (1) into the thrust flange (3).
2. Bolt the complete hydraulic coupling (5) into the thrust flange (3).
3. Bolt the complete variable speed drive cylinder to the variable-speed drive using the three countersunk head bolts (4) and shims.
4. Bolt down the grease tube with the sheet gasket.
5. Connect the hydraulic line to the cylinder.

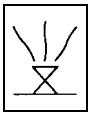
   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
6. Start the diesel engine and operate the variable speed drive cylinder several times until all the air has been expelled.

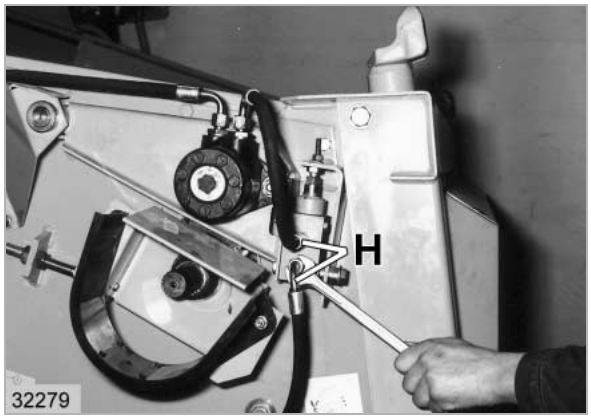
(Fig. 76, 77)



77







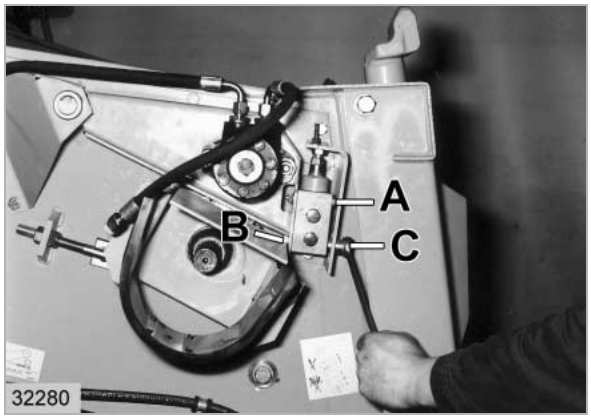
78

Removing the reverser drive hydraulic cylinder

Raise the feed rake conveyor and secure by engaging the cutterbar cylinder safety lock.

Remove the hydraulic lines (H) from the cylinder and plug them with plastic caps.

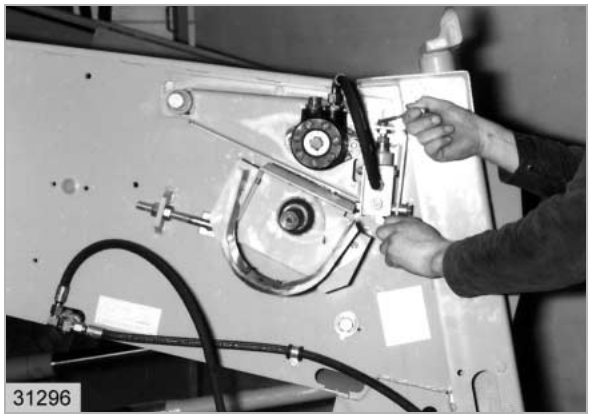
(Fig. 78)



79

Remove the M 8 x 65 hex. bolts (A), the M 12 x 25 (B) on the opposite side, and the M 12 x 45 bolt (C) with the eccentric from the hydraulic cylinder and remove the cylinder.

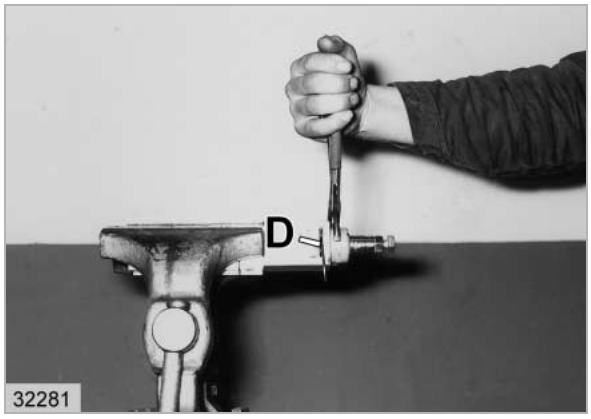
(Fig. 79)



80

Remove the M 8 x 180 hex. bolt to release the spring tensioner.

(Fig. 80)

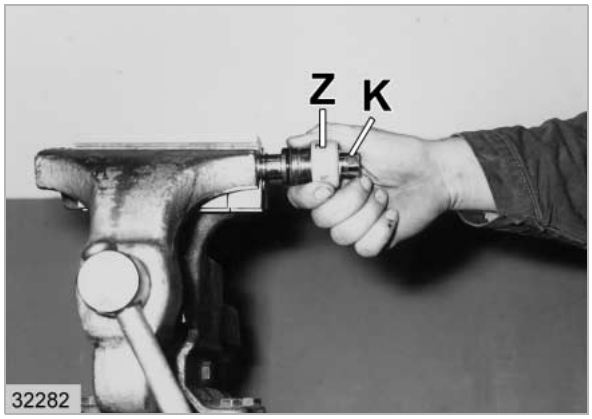


81

Disassembling the reverser drive hydraulic cylinder

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 81)



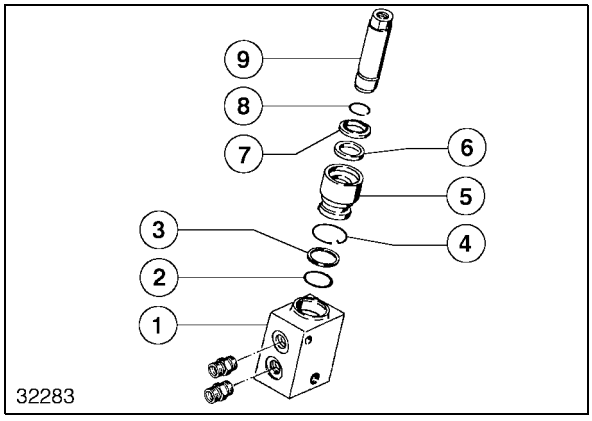
82

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel. Remove the stop bolt M 12 x 30 and the nut from the ram rod.

(Fig. 82)

Clean the ram rod and pull off the cylinder head.

The dust guard, seal, back-up ring and O-ring can now be removed from the cylinder head.

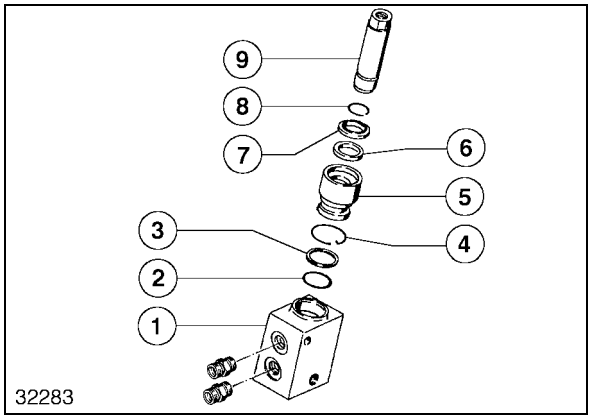


83

Reverser drive hydraulic cylinder, disassembled:

1 Hydraulic cylinder
  Male connector
2 O-ring (up to serial no. …)
3 Dual seal ring (from serial no. ...)
  Back-up ring (up to serial no. ...)
4 Securing wire
5 Cylinder head
6 Seal
7 Dirt scraper
8 Snap ring
9 Ram rod

(Fig. 83)



84

Assembling the reverser drive hydraulic cylinder

1. Insert the seal (6) and the dirt scraper (7) into the cylinder head (5).
2. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (5).

   Up to serial no. …:
   Insert the oiled O-ring (2) and the back-up ring (3) into the groove of the cylinder head (5).
3. Guide the complete cylinder head (2 to 7) on the ram rod (9) and slide it into the hydraulic cylinder (1).
4. Twist the complete cylinder head (2 to 7) until the bore in the groove of the cylinder head lines up with the slot in the cylinder.

   Hang in the greased securing wire (4) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.

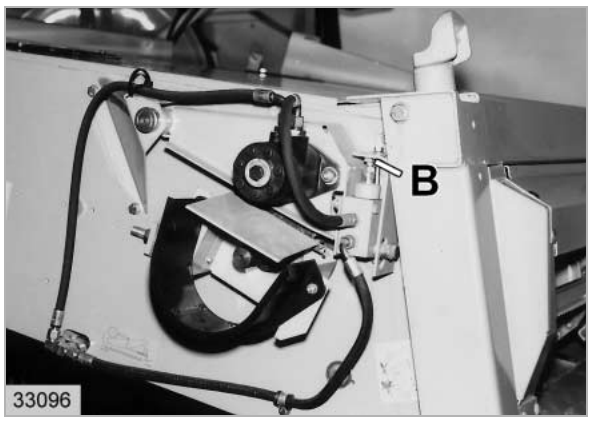
   For every assembly of the cylinder, use a new securing wire.
5. Screw the stop bolt M 12 x 30 and the lock nut to the ram rod.

(Fig. 84)

Installing the reverser drive hydraulic cylinder

1. Using the M 8 x 65, the M 12 x 25 and the M 12 x 45 hex. bolts with the eccentric, bolt the cylinder to the support arm and the bracket.
2. Screw the M 12 x 45 bolt with the eccentric to the cylinder and adjust so there is some play.
3. Adjust the spring tensioner:

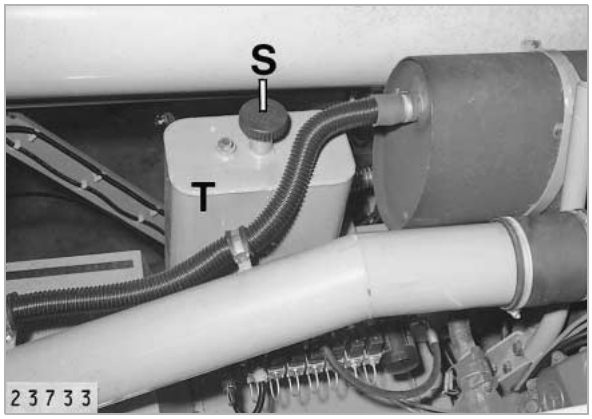
   Tighten the nut until the end of the bolt thread.



85

4. Setting the hydraulic cylinder:
   – Press the drive motor down into the gear.
   – Pull out the ram.
   – Adjust and lock the bolt (B) so there is **0.5 mm** of play
     (1/4 turns) up to the stop.

(Fig. 85)



86

5. Bolt the hydraulic lines to the cylinder.

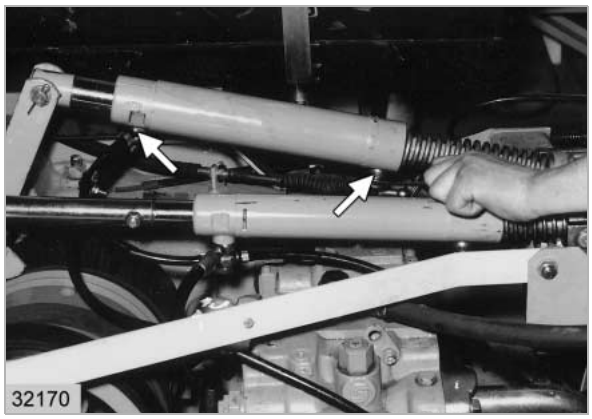
   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

(Fig. 86)

6. Check the hydraulic system for any leeks.

   Operate the cylinder several times in order to bleed it.

HYDRAULIC CYLINDERS FOR LOW-PRESSURE HYDRAULICS

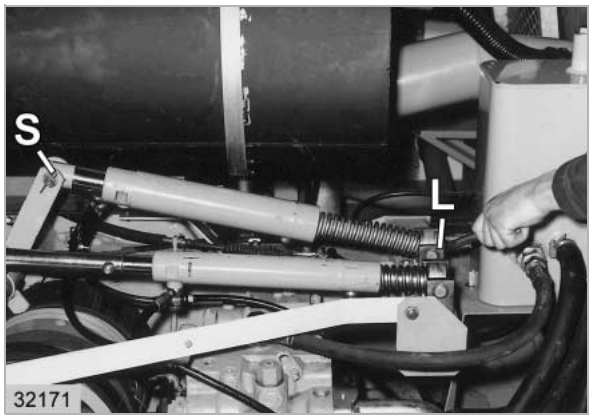


1

Removing the threshing mechanism engagement hydraulic cylinder

Remove the hydraulic lines from the cylinder plug them with plastic caps.

(Fig. 1)



2

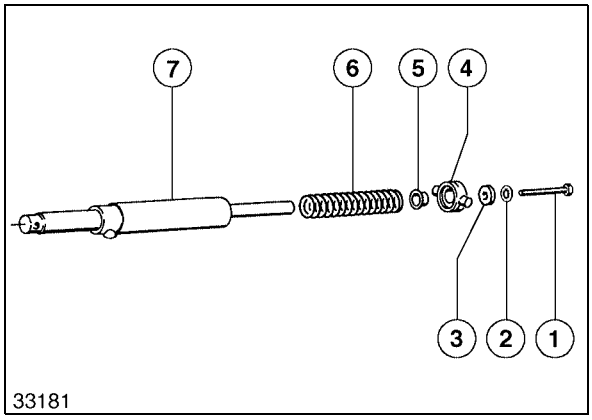
Remove the split pin (S) from the pin.

Remove the pin from the lever.

Remove the mounting plate (L) on the right-hand side.

Push the cylinder out of the mounting plate and remove to the left-hand side.

(Fig. 2)



3

Chuck the cylinder in a vice.

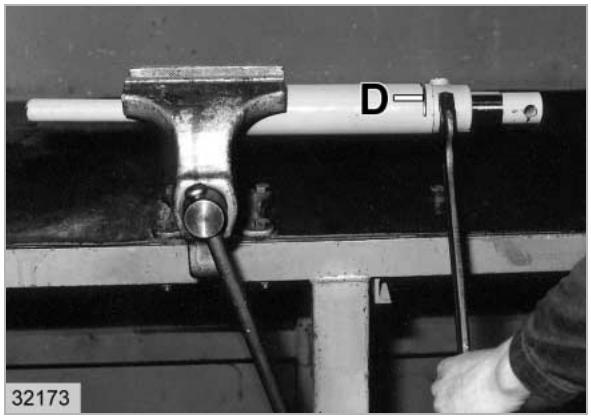
Remove the hex. bolt (1) from the cylinder (7).

DANGER!

The compression spring is tensioned!

Remove the contact washer (2), the washer (3), thrust washer (4), bushing (5) and the compression spring (6).

(Fig. 3)

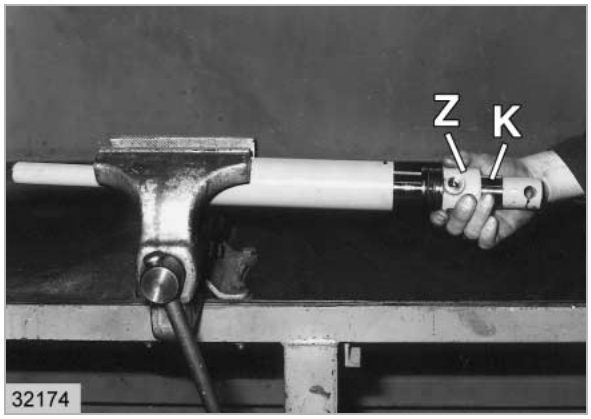


4

Disassembling the threshing mechanism engagement hydraulic cylinder

With the cylinder barrel chucked, turn the cylinder head so that the securing wire (D) is pushed out of the groove in the cylinder barrel.

(Fig. 4)

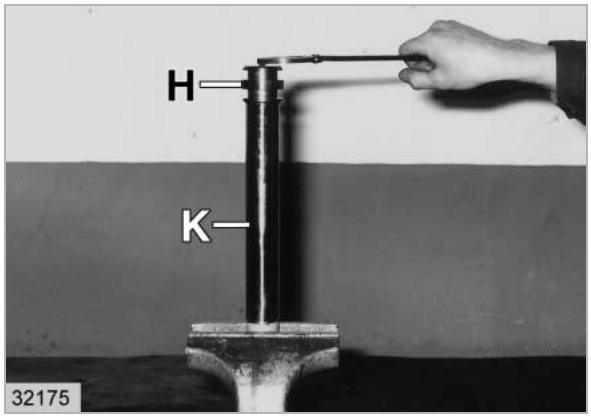


5

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

(Fig. 5)



6

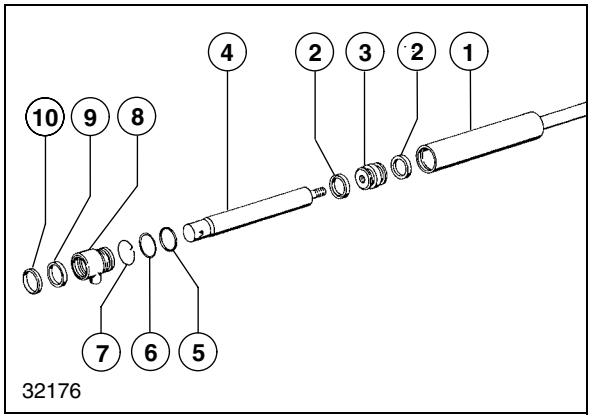
Unscrew the ram (H) from the male screwed end of ram rod (K).

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200 °C**.

All seals can now be replaced.

(Fig. 6)

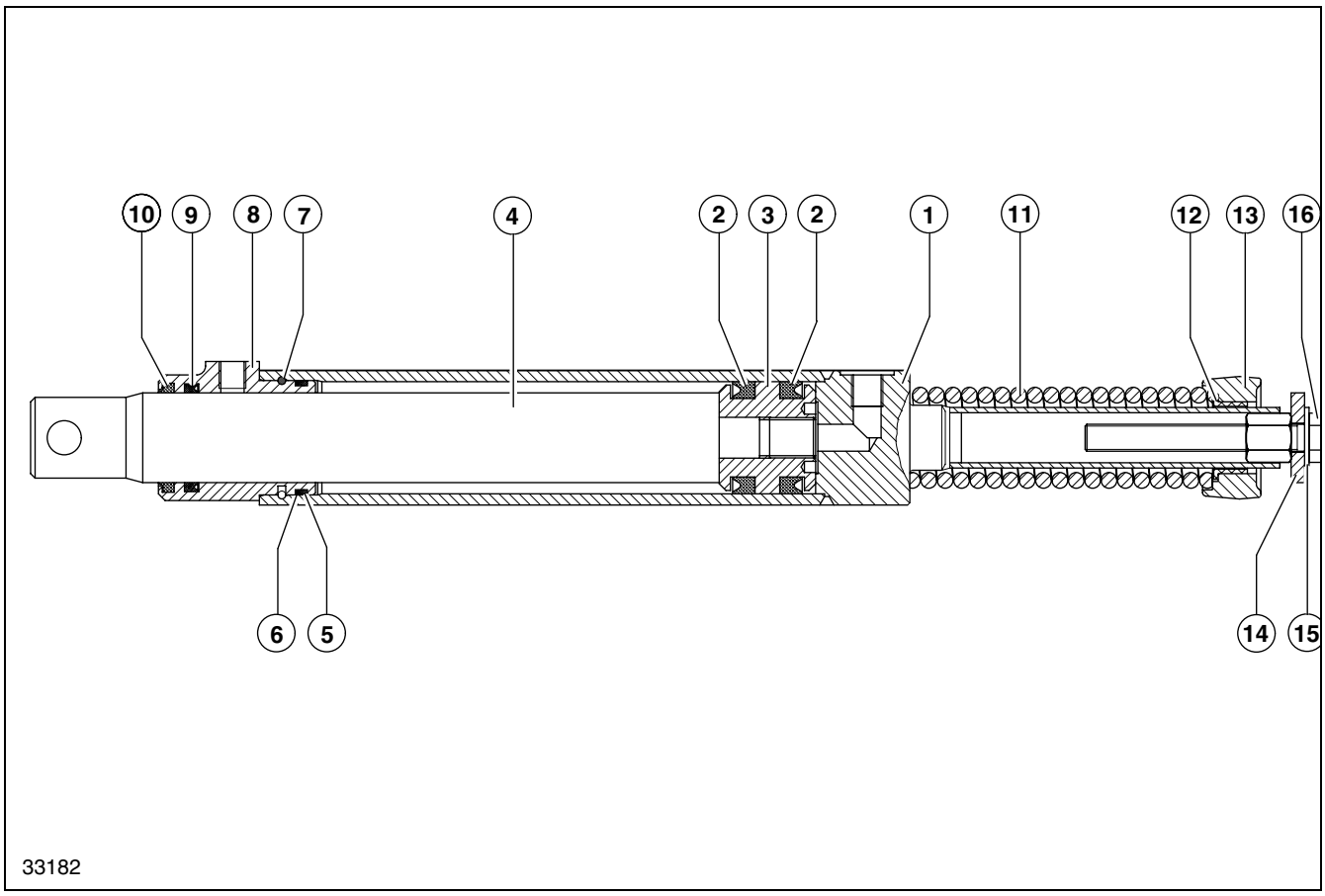


7

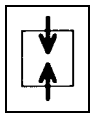
Threshing mechanism engagement hydraulic cylinder, disassembled:

1 Cylinder barrel
2 Seal 35 x 50 x 10
3 Ram
4 Ram rod
5 O-ring 46.2 x 3-N 3771 (up to serial no. ...)
6 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
7 Securing wire
8 Cylinder head
9 Seal 40 x 48 x 6
10 Dirt scraper

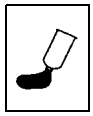
(Fig. 7)



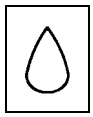
8



Assembling the threshing mechanism engagement hydraulic cylinder



1. Slide both seals (2) on the ram (3) and screw the ram to the ram rod (4). Use liquid locking compound, e.g. DELO-ML 5328, for this.
2. Slide the complete ram rod (2 to 4) into the cylinder barrel (1).
3. Insert seal (9) and dirt scraper (10) into the cylinder head (8).
4. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (8).



   Up to serial no. …:
   Lightly oil the back-up ring (6) and the O-ring (5) and insert into the groove of the cylinder head (8).
5. Insert the complete cylinder head (5 to 10) on the ram rod and then slide it into the cylinder barrel (1).

(Fig. 8)

6. Twist the complete cylinder head (5 to 10) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

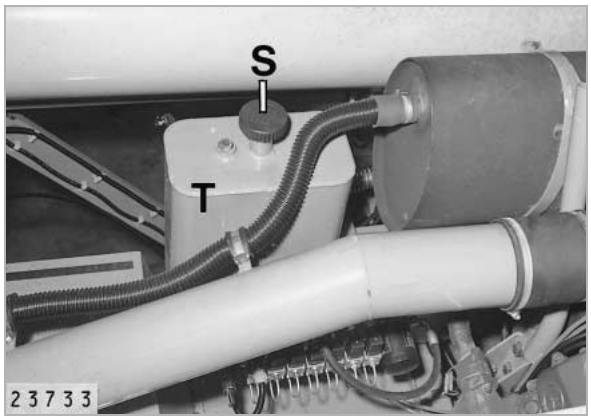
   Hang in the greased securing wire (7) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.

   For every assembly of the cylinder, use a new securing wire.

7. Slide the compression spring (11) into position, then screw down with the bushing (12), thrust washer (13), washer (14), contact washer (15) and bolt (16).

   Tightening torque = 78 Nm

(Fig. 8)

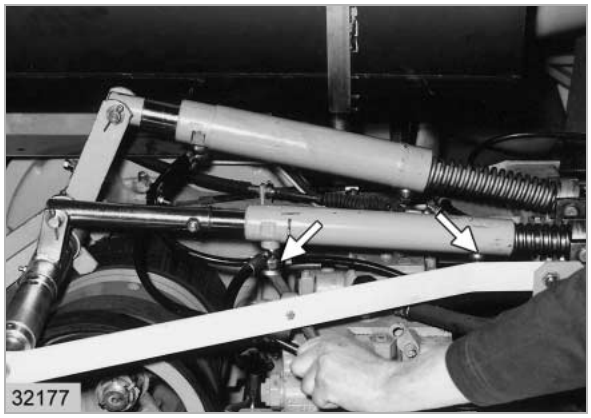


9

Installing the threshing mechanism engagement hydraulic cylinder

1. Insert the cylinder into the lever and into the left-hand mounting plate, then push in pin and secure with the split pin. Bolt the right-hand side of the mounting plate into place.
2. Connect the hydraulic hoses to the cylinder, using new copper washers.
3. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
4. Check the hydraulic system for any leaks. Bleed the cylinder by operating it several times.

(Fig. 9)

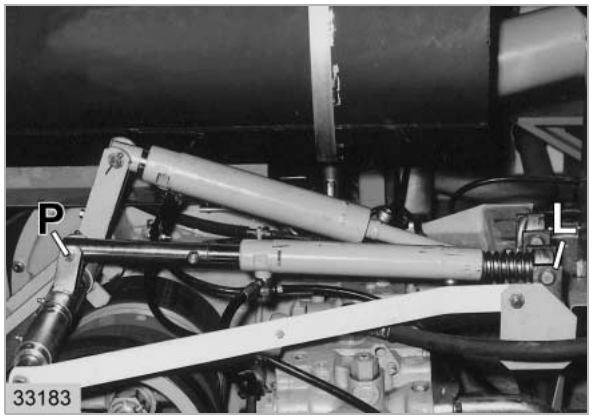


10

Removing the grain tank unloading engagement hydraulic cylinder

Remove the hydraulic lines from the cylinder plug them with plastic caps.

(Fig. 10)



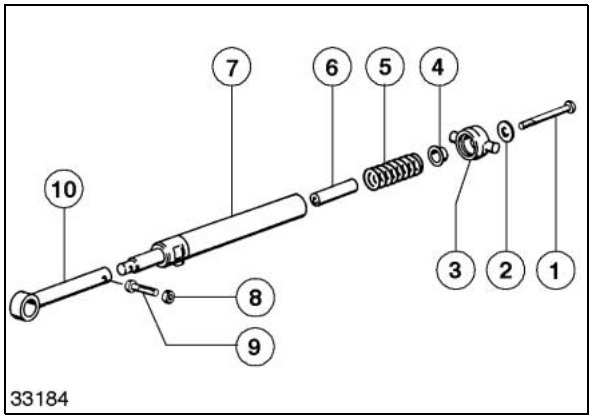
11

Unbolt the dowel screw (P) and pull it out of the jockey pulley arm.

Remove the left-hand mounting plate (L).

Push the cylinder sideways out of the mounting plate from the right-hand side and remove it.

(Fig. 11)



12

Clamp the cylinder (7) in a vice. Remove the hex. bolt (1) from the cylinder (7).

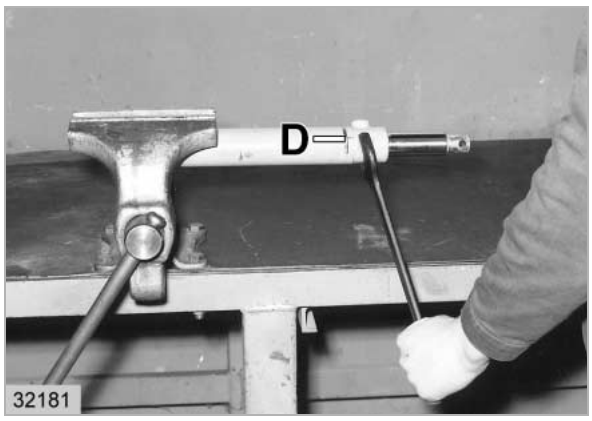
DANGER!

The compression spring is tensioned!

Remove the washer (2), thrust washer (3), bushing (4) compression spring (5) and the guide tube (6).

Unscrew the hex. nut (8) and remove the hex. bolt (9). Remove the extension (10) from the cylinder (7).

(Fig. 12)

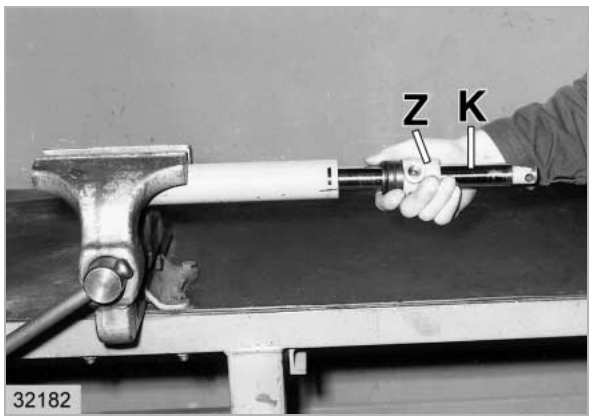


13

Disassembling the grain tank unloading engagement hydraulic cylinder

Turn the cylinder head so that the securing wire (D) is pushed out of the groove in the cylinder barrel.

(Fig. 13)

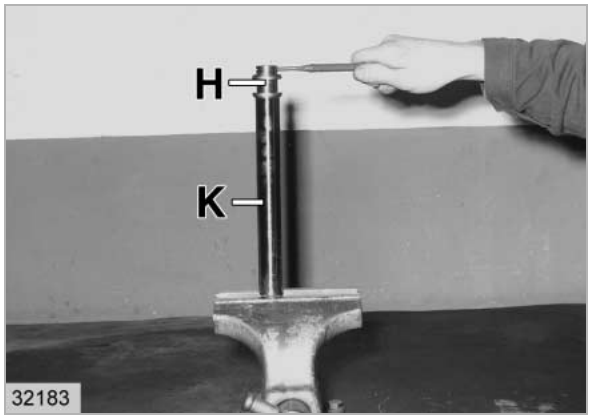


14

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod (K) and remove the cylinder head (Z).

(Fig. 14)



15

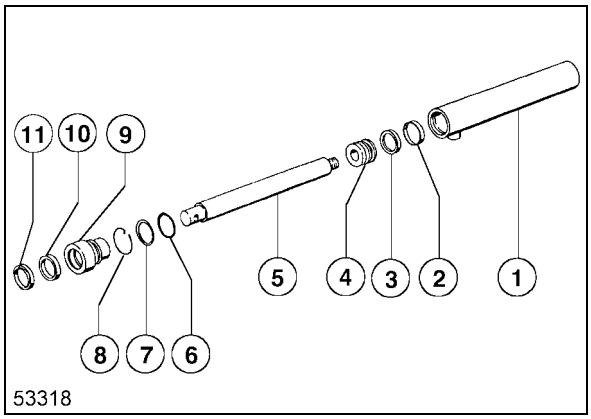
Unscrew the ram (H) from the male screwed end of the ram rod (K).

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200** °**C**.

All seals can now be replaced.

(Fig. 15)

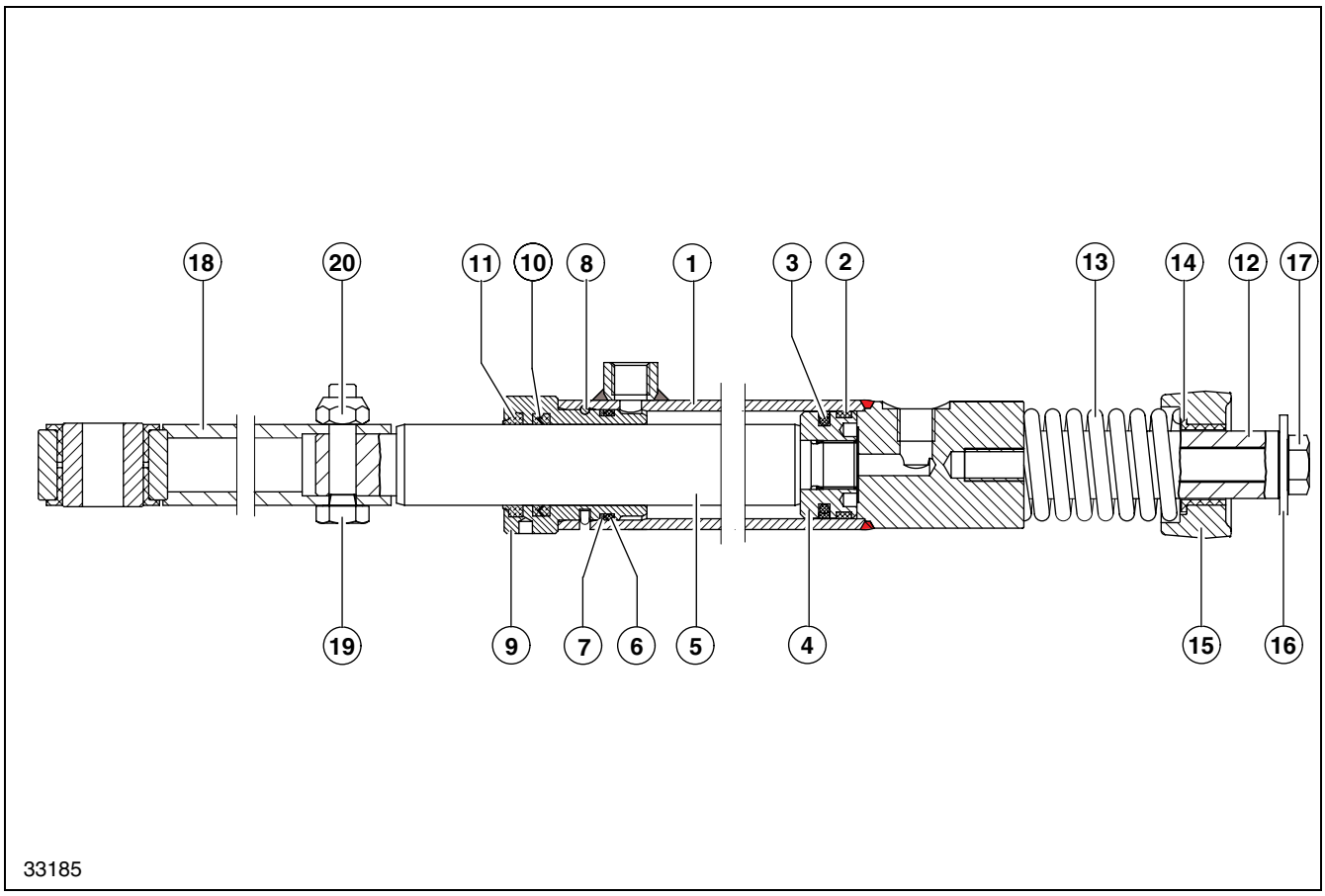


16

Grain tank unloading engagement hydraulic cylinder, disassembled:

1 Cylinder barrel
2 Rod guide ring
3 Ram seal
4 Ram
5 Ram rod
6 O-ring 34.2 x 3-N 3771 (up to serial no. ...)
7 Dual seal ring (from serial no. ...)
Slotted back-up ring (up to serial no. …)
8 Securing wire
9 Cylinder head
10 Seal 30 x 38 x 6
11 Dirt scraper

(Fig. 16)



17

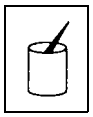
Assembling the grain tank unloading engagement hydraulic cylinder

1. Place the rod guide ring (2) and the ram seal (3) on the ram (4). The ram seal (3) should be placed in hot water before assembly. Prior to assembly, remove any burrs.
2. Screw the complete ram (2 to 4) to the ram rod (5). Use liquid locking compound, e.g. DELO-ML 5328, for this.
3. Slide the complete ram rod (2 to 5) into the cylinder barrel (1).
4. Lightly oil the seal (10) and the dirt scraper (11), then insert into the cylinder head (9).
5. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (9).

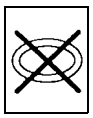
   Up to serial no. …:
   Insert the oiled O-ring (6) and the back-up ring (7) into the groove of the cylinder head (9).

(Fig. 17)

6. Insert the complete cylinder head (6 to 11) on the ram rod and then slide it into the cylinder barrel (1).
7. Twist the complete cylinder head (6 to 11) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

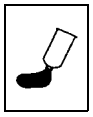


Hang in the greased securing wire (8) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.



For every assembly of the cylinder, use a new securing wire.

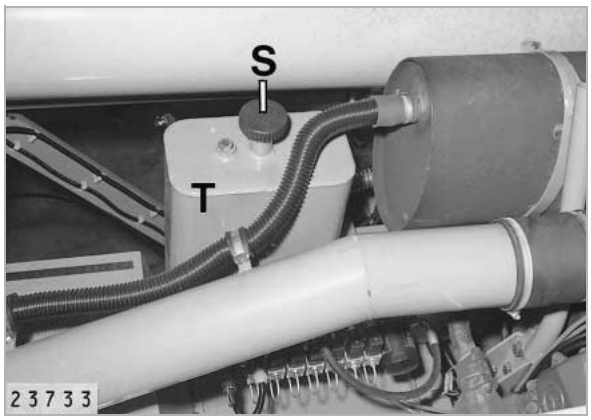
8. Insert the guide tube (12) into the compression spring (13), and screw down with bushing (14), thrust washer (15), washer (16) and bolt (17). Insert bolt with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.



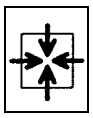
Tightening torque = 110 Nm

9. Slide the extension (18) on the ram rod (5). Insert the bolt (19) and screw to lock nut (20).

(Fig. 17)

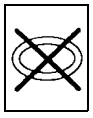


18



Installing the grain tank unloading engagement hydraulic cylinder

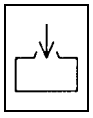
1. Insert the cylinder into the jockey pulley arm and into the right-hand mounting plate. Bolt down the left-hand mounting plate.



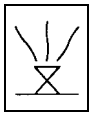
Push in the dowel screw and tighten.

Tightening torque = 122 Nm

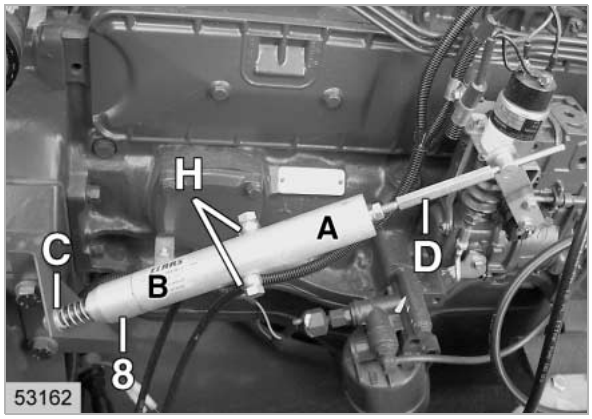
2. Connect the hydraulic hoses to the cylinder, using new copper washers.
3. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.



4. Check the hydraulic system for any leaks. Bleed the cylinder by operating it several times.



(Fig. 18)



19

Removing the engine speed control hydraulic cylinder

(from serial no. ...)

Mark the sides of cylinder barrel (19).

A from rod (D) = 30 mm stroke
B from threaded bushing (8) = 35 mm stroke

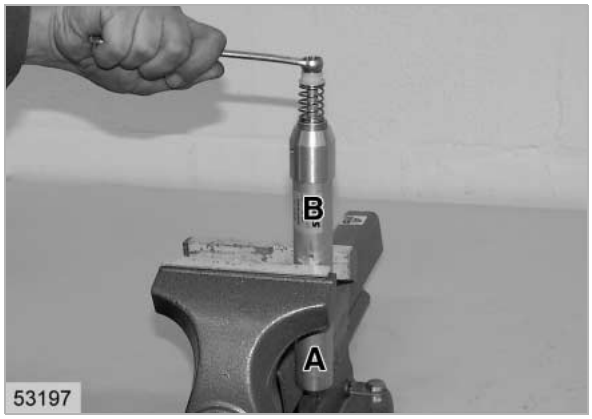
(Fig. 19, 26)

First mark the hydraulic lines (H) at the cylinder barrel (19), then remove them from the cylinder.

Remove the circlip (C). Pull hydraulic cylinder out of its fixing and remove it.

Loosen the hex. nut and remove rod (D).

(Fig. 19, 26)



20

Disassembling the engine speed control hydraulic cylinder

(from serial no. ...)

Cylinder side **B** (35 mm stroke)

Unscrew the hex. bolt (2) and remove spring plate (4), spacer tube (5), compression spring (6) and threaded bushing (8) with the threaded rod (9) completely.

(Fig. 20, 26)



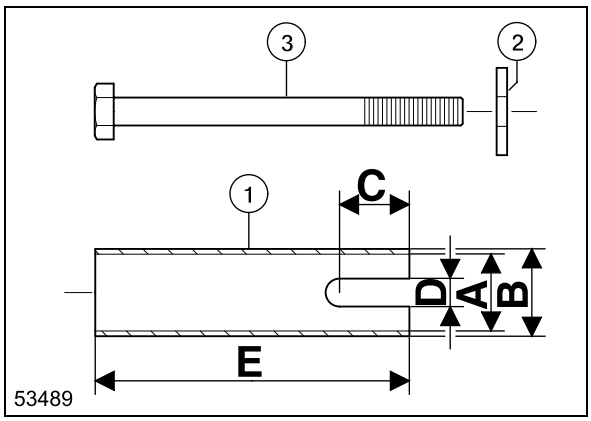
21

Cylinder side **B** (35 mm stroke)
Cylinder side **A** (30 mm stroke)

Pull out ram (16) approx. **10 mm** with the special tool.

Press the cylinder head (13) into the cylinder barrel (19) over the special tool for approx. **2 mm** and remove snap ring from the cylinder barrel.

(Fig. 21, 26)

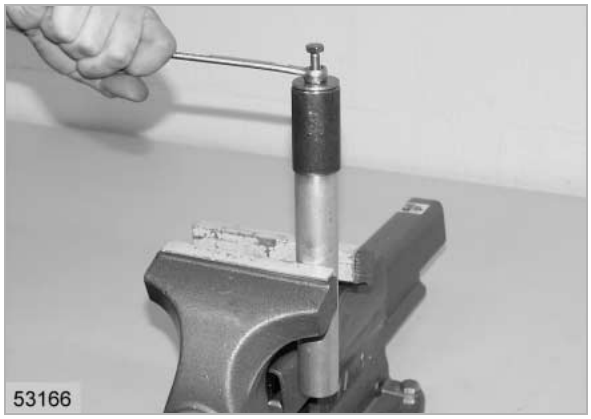


22

Special tool:

1 Tube (self-sourced)
A = ∅ 22 mm
B = ∅ 25 mm
C = 20 mm
D = 16 mm
E = 90 mm
2 Washer ∅ 25 x ∅ 8.5 x 3
3 Hex. bolt M 8 x 100 DIN 933

(Fig. 21, 22)



23

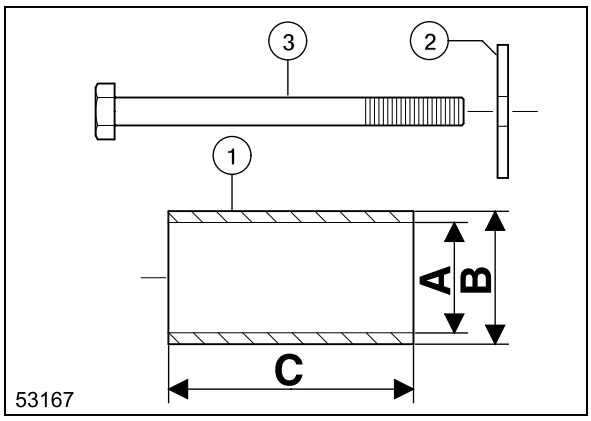
Cylinder side **A** (35 mm stroke)

Pull the cylinder head (13), compression spring (15) and the ram completely out of the cylinder barrel, using the special tool.

Cylinder side **B** (30 mm stroke)

Pull the cylinder head (13), compression spring (15), spacer tube (20) and the ram completely out of the cylinder barrel, using the special tool.

(Fig. 23, 26)

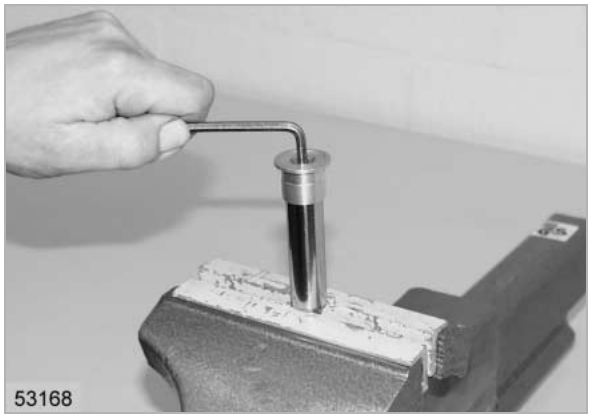


24

Special tool:

1 Tube (self-sourced)
A = ∅ 38 mm
B = ∅ 31.5 mm
C = 70 mm
2 Washer ∅ 38 x ∅ 8.5 x 3
3 Hex. bolt M 8 x 100 DIN 933

(Fig. 23, 24)

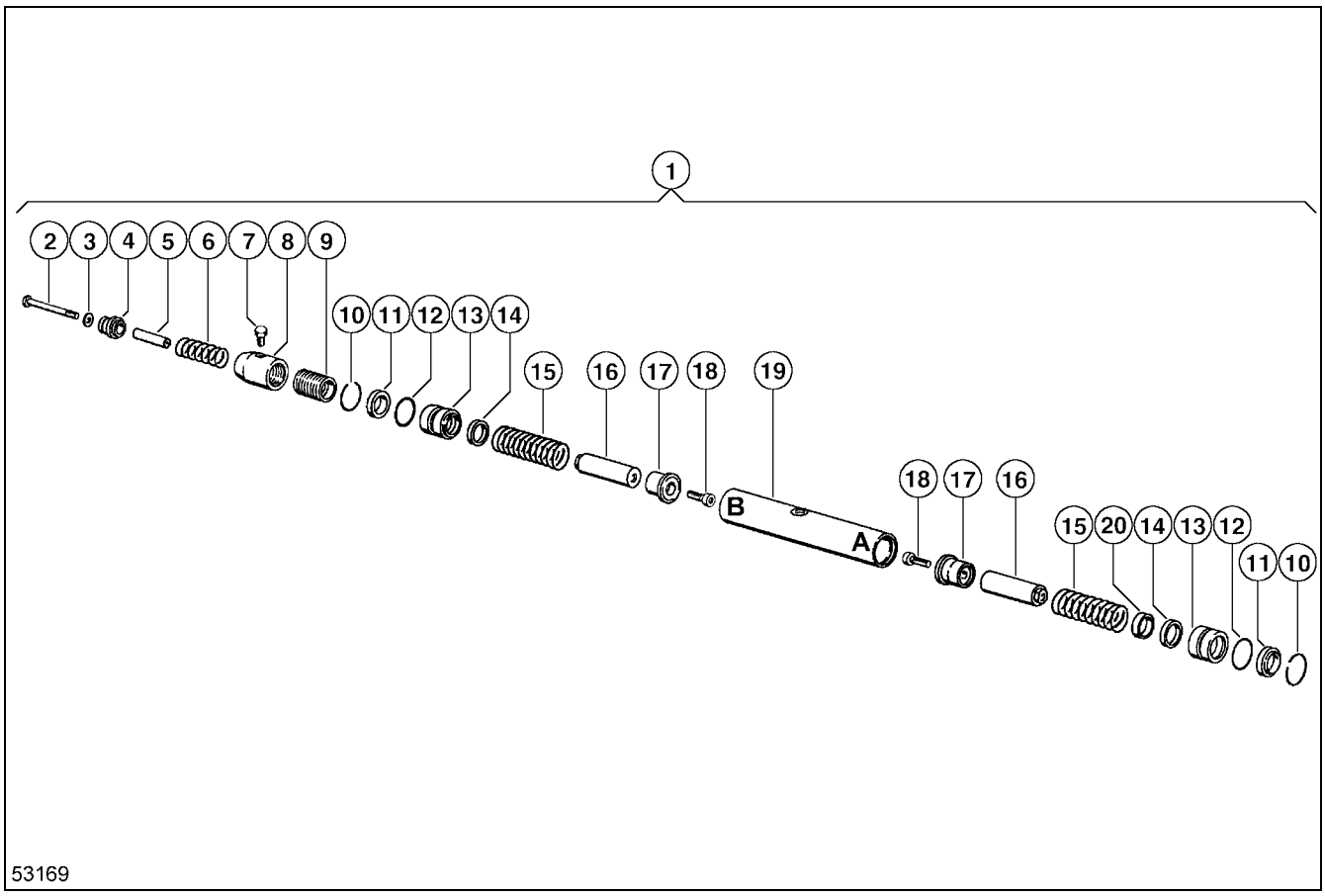


25

Cylinder side **A** (35 mm stroke)
Cylinder side **B** (30 mm stroke)

Unscrew cheese-head screw (18) and guide (17) from ram (16) if required.

(Fig. 25, 26)

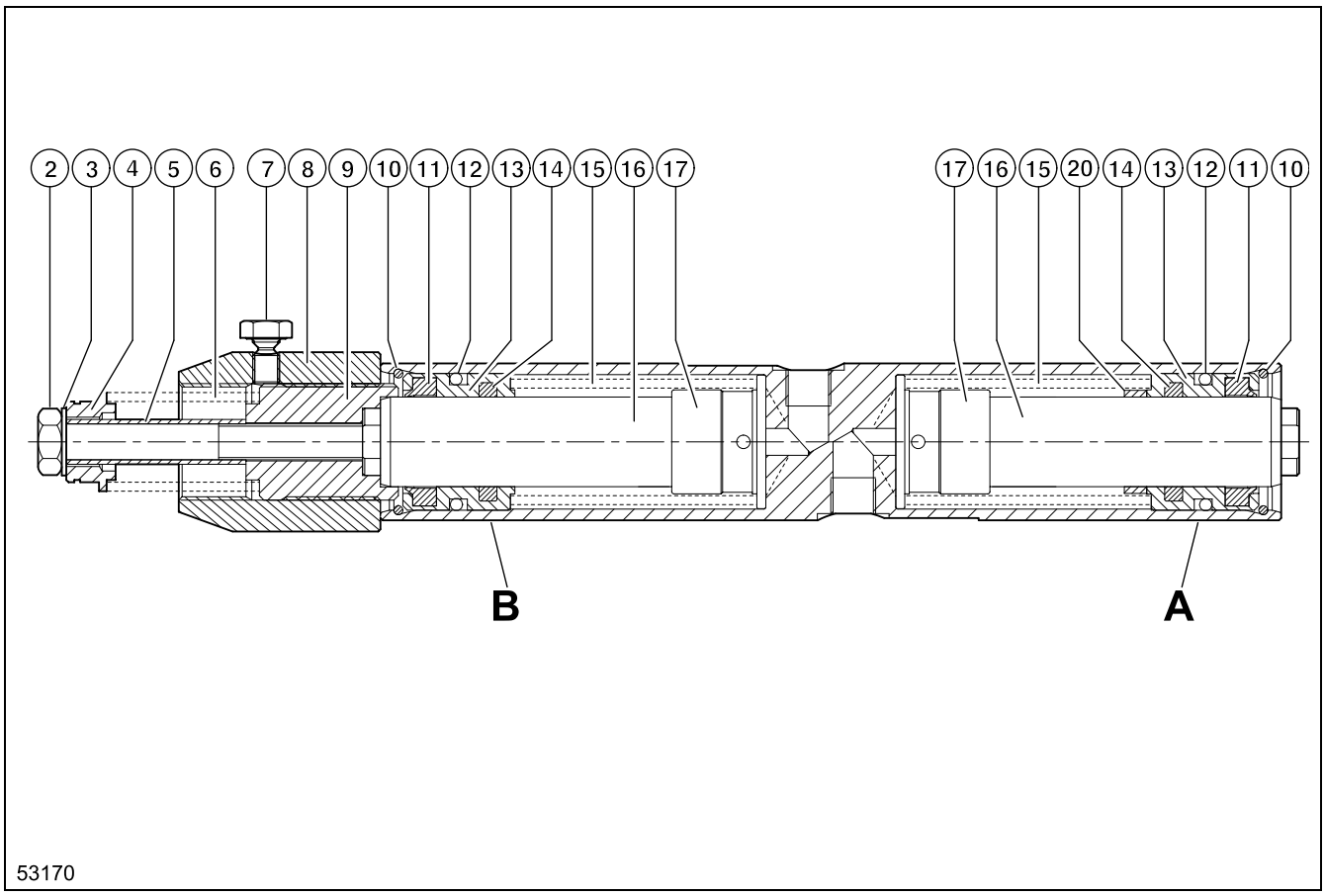


26

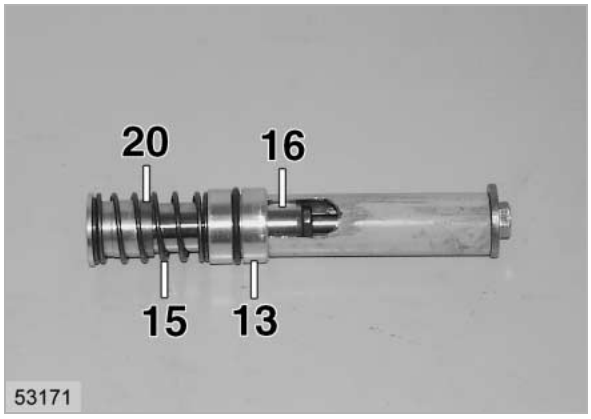
Engine speed control hydraulic cylinder, disassembled:
(from serial no. ...)

1 Hydraulic cylinder, complete
2 Hex. bolt M 8 x 75
3 Washer 8.4 x 17 x 1
4 Spring plate
5 Spacer tube
6 Compression spring
7 Tear-off bolt M 6 x 10
8 Threaded bushing
9 Threaded piece
10 Snap ring B30
11 Scraper ring
12 O-ring
13 Cylinder head
14 Square ring
15 Compression spring
16 Ram
17 Guide
18 Cheese-head screw M 6 x 20
19 Cylinder barrel
20 Spacer tube (right-hand cylinder side)

(Fig. 26)



27



28

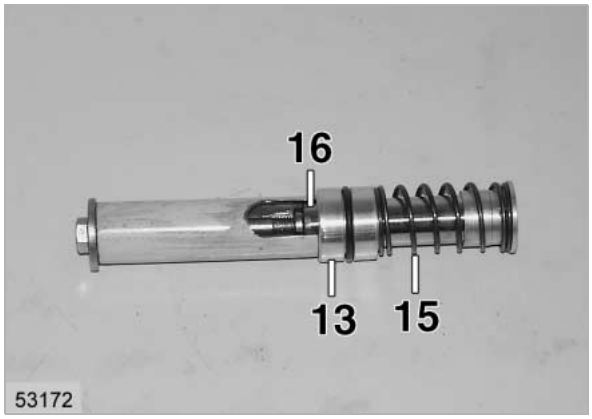
Assembling the engine speed control hydraulic cylinder
(from serial no. ...)

Assemble cylinder side **A** (30 mm stroke).

1. Bolt the guide to the ram using the cheese-head screw.
2. Slide the compression spring (15), the spacer tube (20) and the complete cylinder head (13) on the ram (16) and pre-stress with a special tool.

   Observe installation position of cylinder head!
3. Slide the complete unit into the cylinder barrel (cylinder side **A**) and secure with a snap ring.

(Fig. 22, 27, 28)



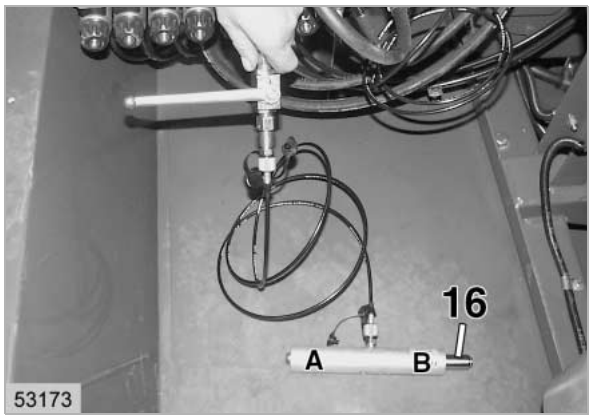
29

Assemble cylinder side **B** (35 mm stroke).

4. Bolt the guide to the ram using the cheese-head screw.
5. Slide the compression spring (15) and the complete cylinder head (13) on the ram (16) and pre-stress with a special tool.

   Observe installation position of cylinder head!
6. Slide the complete unit into the cylinder barrel (cylinder side **B**) and secure with a snap ring.

(Fig. 22, 27, 29)



30

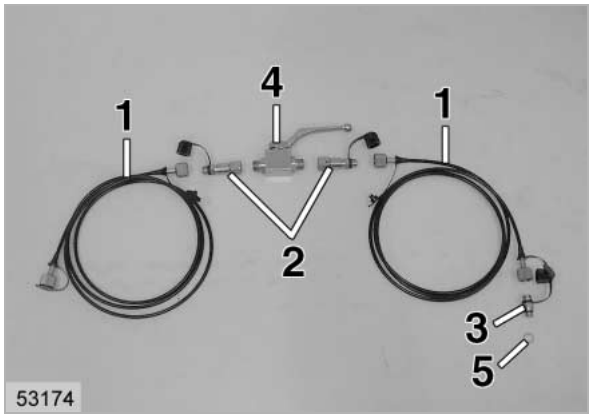
Cylinder side **B** (35 mm stroke)

7. Extend the ram (16) using the special tool.

   Connect the special tool to the measuring port (low pressure, **19^{+4} bar** max.) of another machine and extend the ram.

   Close the blocking ball valve and remove the mini test hose from the machine.

(Fig. 30, 31)

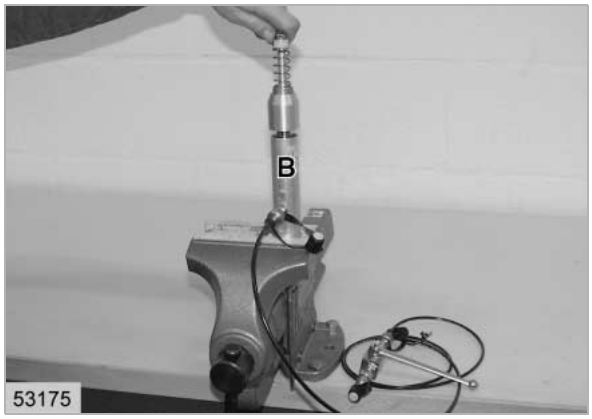


31

Special tool:

1 Mini test hose
part no. 181 951.1 – 2 pieces
2 Measuring nozzle
part no. 683 656.1 – 2 pieces
3 Measuring nozzle
part no. 667 137.0 – 1 piece
4 Blocking ball valve
part no. 697 801.0 – 1 piece
5 Seal
part no. 244 842.0 – 1 piece

(Fig. 30, 31)

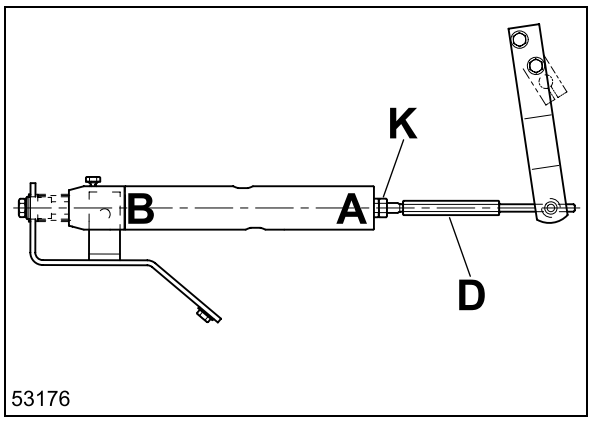


32

Cylinder side **B** (35 mm stroke)

8. Bolt on the complete threaded bushing (8) with the threaded piece (9), the compression spring (6), the spacer tube (5) and the spring plate (4) with the hex. bolt (2).

(Fig. 27, 32)



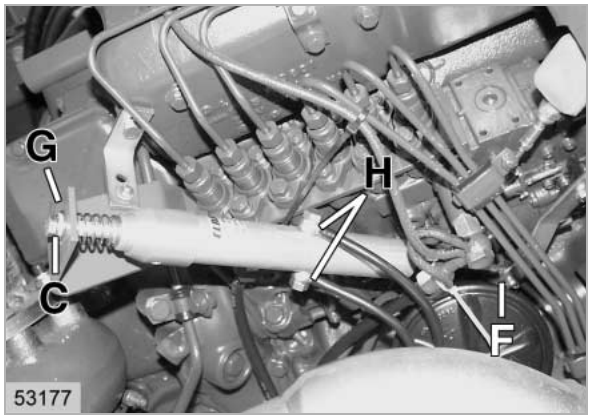
33

Pre-setting the engine speed control hydraulic cylinder
(from serial no. ...)

Cylinder side **A** (30 mm stroke)

1. Screw the lock nut (K) on the rod (D).
2. Screw in rod (D) completely. (Lock that setting with the lock nut (K) after setting to full throttle).

(Fig. 33)

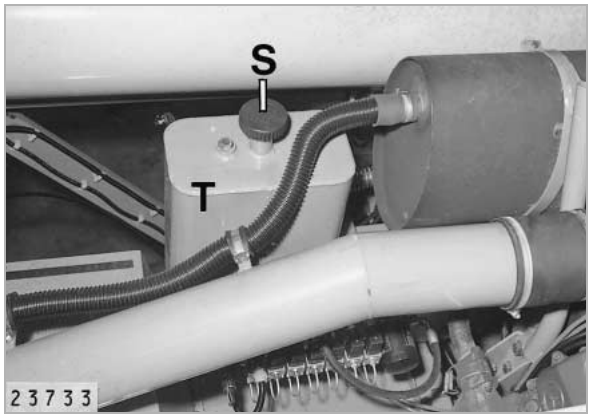


34

Installing the engine speed control hydraulic cylinder
(from serial no. ...)

1. Introduce the hydraulic cylinder into the mounting (F).
2. Introduce the hydraulic cylinder into the mounting (G) and secure with circlip (C).
3. Screw on hydraulic lines (H).

(Fig. 34)



35

4. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
5. Check the hydraulic system for any leaks. Bleed the cylinder by operating it several times.

(Fig. 35)

Setting the engine speed control hydraulic cylinder

(from serial no. ...)

CAUTION!

To adjust the hydraulic cylinder, a second person is required for operating the machine.

1. Setting the hydraulic cylinder at max. no-load speed:

   Take the machine out of gear and start the engine.

   Set engine to max. no-load speed at the rotary switch.

   Check the max. no-load speed.

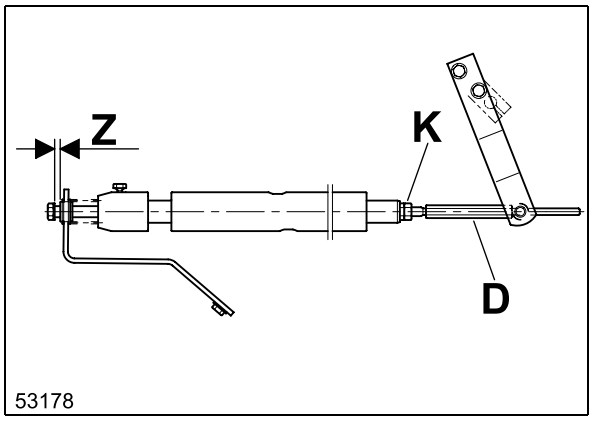
ATTENTION!

The max. no-load speed has been set by the engine manufacturers.

This speed may only be adapted by specialist engine workshops.

Failure to observe this rule results in expiry of the operating permit!

2184^{+20}_{-30} rpm
MERCEDES OM 441 LA



36

Set the clearance (Z) to **5^{+3} mm** by twisting the rod (D). Lock that setting with the lock nut (K).

(Fig. 36)

2. Setting the engine speed for road travel:

ATTENTION!

The road travel engine speed has been set at the factory and is secured by the tear-off bolt (7).

Changing this speed is not required.

Failure to observe this rule results in expiry of the operating permit!

(Fig. 26)

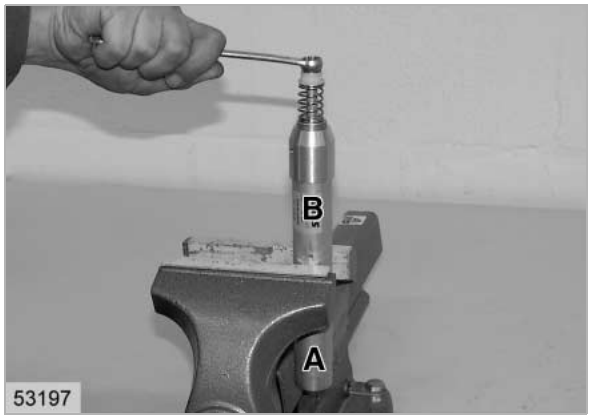
Changing the road travel engine speed (country variants 20 km/h and/or 25 km/h) by converting the cylinder

NOTE!

The existing cylinder (1) on one machine has been set to a road travel engine speed at the factory, this setting being secured by the tear-off bolt (7).

Adjusting the road travel engine speed requires the use of new parts (7, 8 and 9).

(Fig. 26)



37

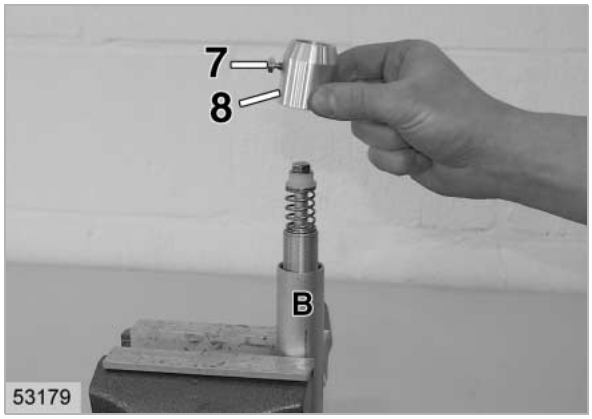
Conversion of cylinder to another country variant (20 km/h and/or 25 km/h)

1. *Removing the engine speed control hydraulic cylinder (from serial no. ...)*, see page 9.6.9

Cylinder side **B** (35 mm stroke)

2. Unscrew the hex. bolt (2) and remove spring plate (4), spacer tube (5), compression spring (6) and threaded bushing (8) with the threaded rod (9) completely.

(Fig. 26, 37)



38

Cylinder side **B** (35 mm stroke)

3. Bolt on the threaded piece (9), the compression spring (6), the spacer tube (5) and the spring plate (4) with the hex. bolt (2).

   Bolt on the threaded bushing (8) with the tear-off bolt (7).

(Fig. 26, 38)

4. *Installing the engine speed control hydraulic cylinder (from serial no. ...)*, see page 9.6.14

(Fig. 34, 35)

5. Adjusting the engine speed control hydraulic cylinder (from serial no. ...)

CAUTION!

For this operation, a second person is required for operating the machine.

5.1 Setting the hydraulic cylinder at max. no-load speed:

– Take the machine out of gear and start the engine.

– Set engine to max. no-load speed at the rotary switch.

– Check the max. no-load speed.

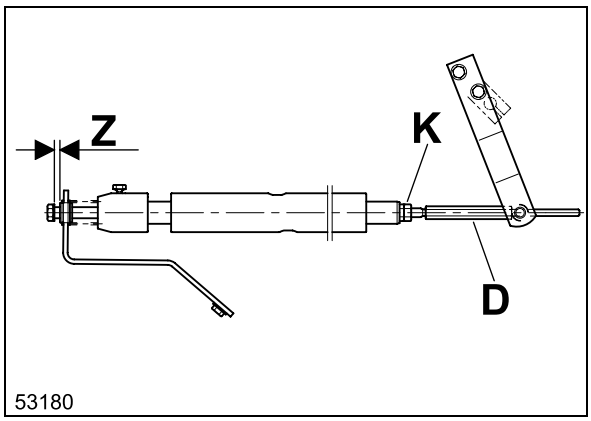
DANGER!

The max. no-load speed has been set by the engine manufacturers.

This speed may only be adapted by specialist engine workshops.

Failure to observe this rule results in expiry of the operating permit!

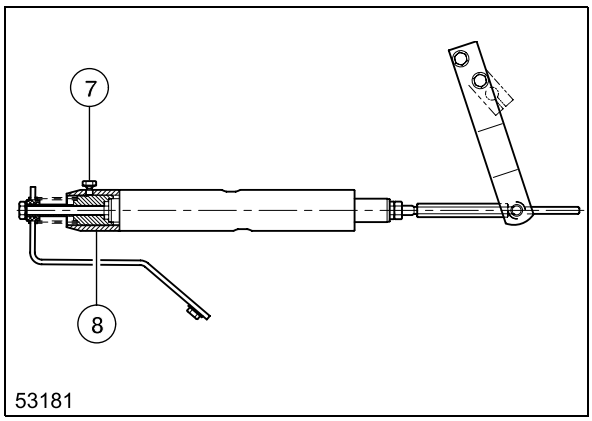
2184^{+20}_{-30} rpm
MERCEDES OM 441 LA



39

Set the clearance (Z) to **5^{+3} mm** by twisting the rod (D). Lock that setting with the lock nut (K).

(Fig. 39)



40

5.2 Setting the engine speed for road travel:

– Take the machine out of gear and start the engine.

– Set the engine to max. no-load speed, move multi-function lever to neutral position (centre position) and engage third gear. Set the engine speed by twisting the threaded bushing (8).

Ground speed of 20 km/h in third gear:

Engine speed:

MERCEDES OM 441 LA = 1560 ± 20 rpm

Ground speed of 25 km/h in third gear:
(only for certain countries!)

Engine speed:

MERCEDES OM 441 LA = 1950 ± 20 rpm

ATTENTION!

Pay particular attention to the speed limit for your country.

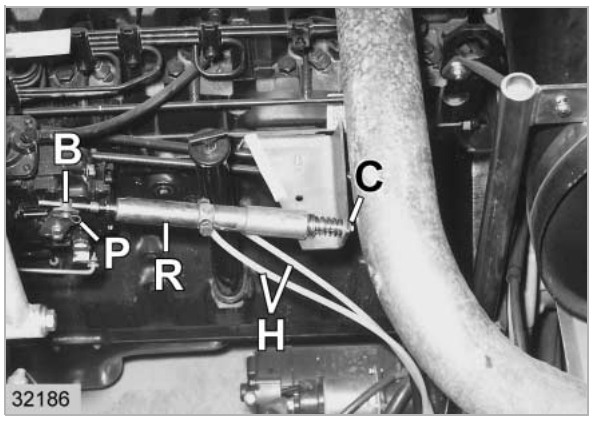
Failure to observe this rule results in expiry of the operating permit!

– Secure this setting with the tear-off bolt (7) and turn off the bolt head.

CAUTION!

After the bolt head has been turned off, no more adjustments are possible.

(Fig. 39, 40)



41

Removing the engine speed control hydraulic cylinder

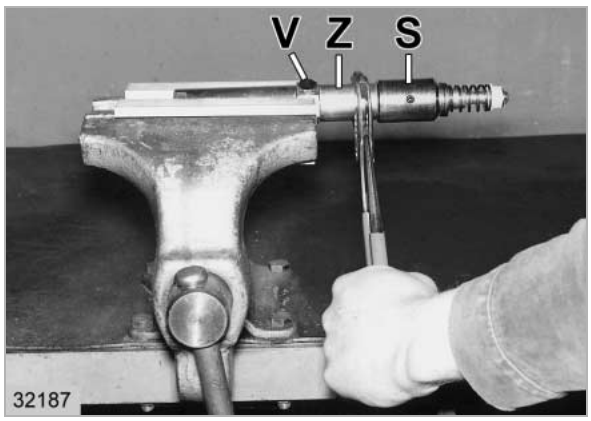
(up to serial no. ...)

First mark the position of the hydraulic lines (H) on the cylinder barrel (R), then remove them.

Remove the circlip (C). Remove the split pin (P) from the mounting (B).

Remove the cylinder with the mounting (B).

(Fig. 41)

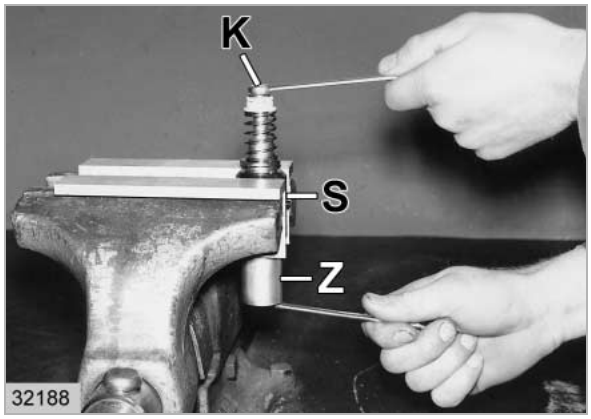


42

Disassembling the engine speed control hydraulic cylinder
(up to serial no. ...)

Unscrew the cylinder (Z) with the stop collar (S) from the union (V).

(Fig. 42)

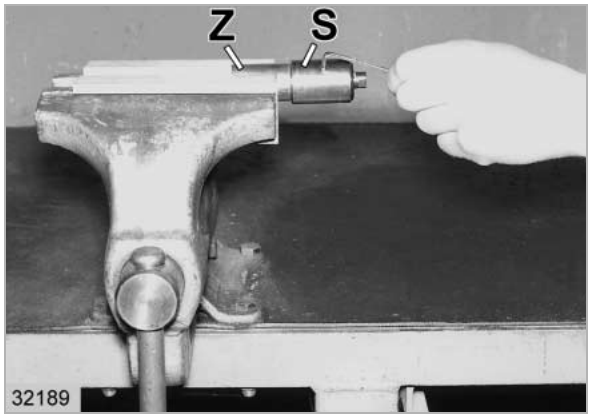


43

Separating the stop collar (S) from the cylinder (Z):

Remove the hex. bolt (K), then take off the spacer with three washers, the compression spring and the spring plate.

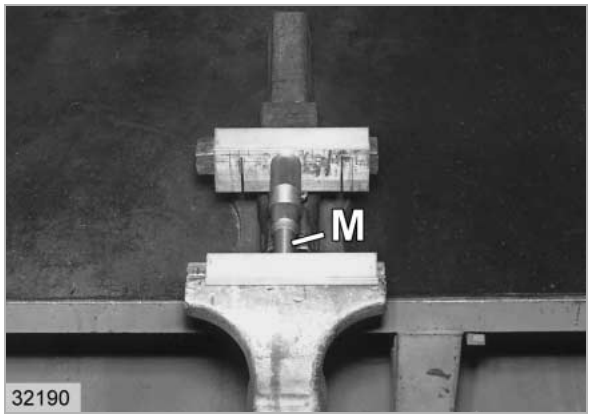
(Fig. 43)



44

Remove the set screw from the stop collar (S) and unscrew the stop collar (S) from the cylinder (Z).

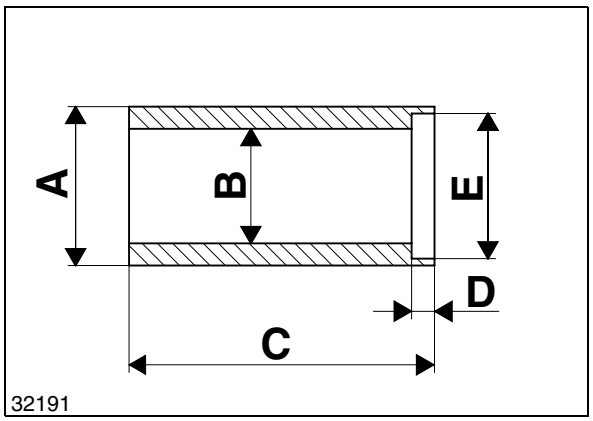
(Fig. 44)



45

Using the special tool (M), press the scraper seal deeper into the cylinder, thus allowing removal of the snap ring from the cylinder.

(Fig. 45)

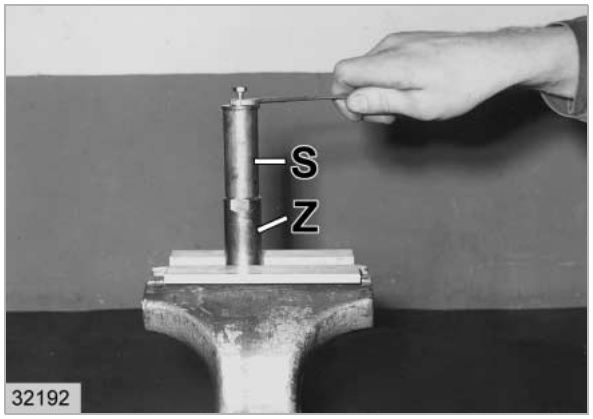


46

Special tool (mounting bushing):

A = ∅ 20.8 mm
B = ∅ 15.0 mm
C = 40.0 mm
D = 3.0 mm
E = ∅ 19.0 mm

(Fig. 46)

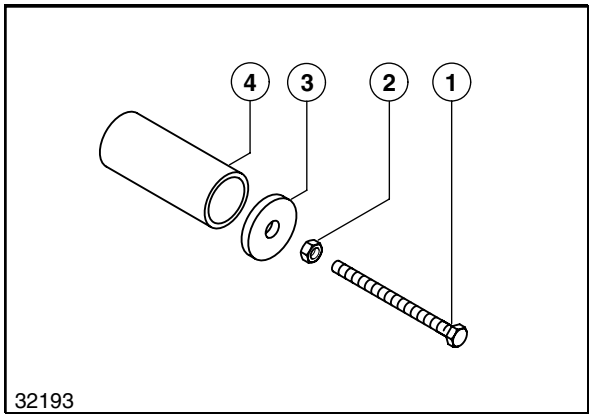


47

Using the special tool (S), pull the scraper seal out of the cylinder (Z).

Remove the compression spring and the back-up ring.

(Fig. 47)

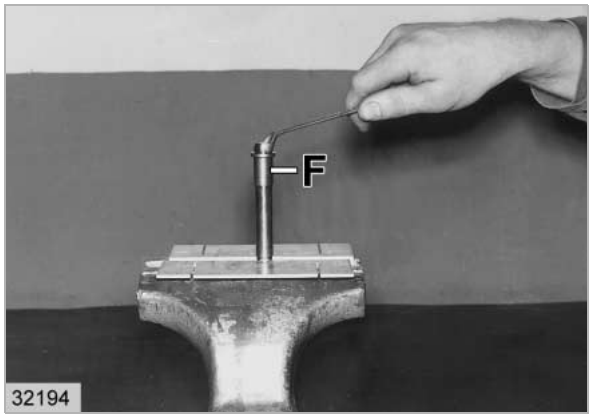


48

Special tool:

1 Hex. bolt M 6 x 60, part no. 211 371.0
2 Hex. nut M 6, part no. 236 169.0
3 Washer ∅ 30 x ∅ 6.5 x 3 thick, part no. 236 823.0
4 Tube, inside ∅ 22 x 70 long

(Fig. 48)

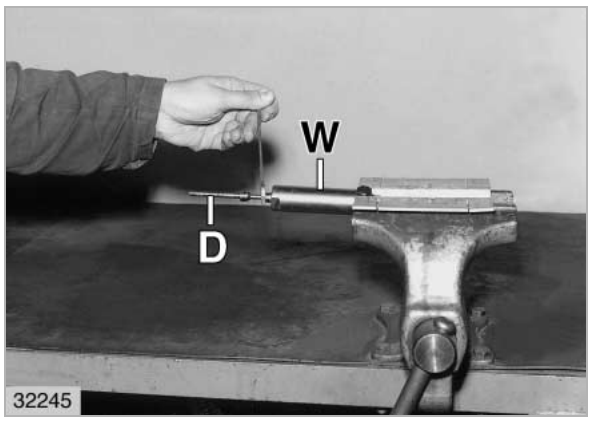


49

Disassembling the ram:

Unscrew the M 6 x 30 hex. bolt and remove the guide (F).

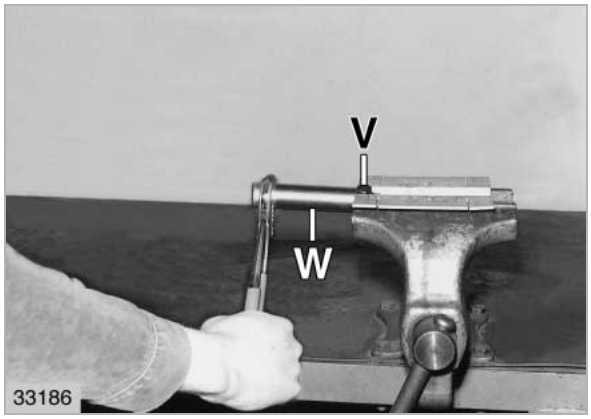
(Fig. 49)



50

By unscrewing the M 6 lock nut, remove rod (D) from the ram of the second cylinder (W).

(Fig. 50)

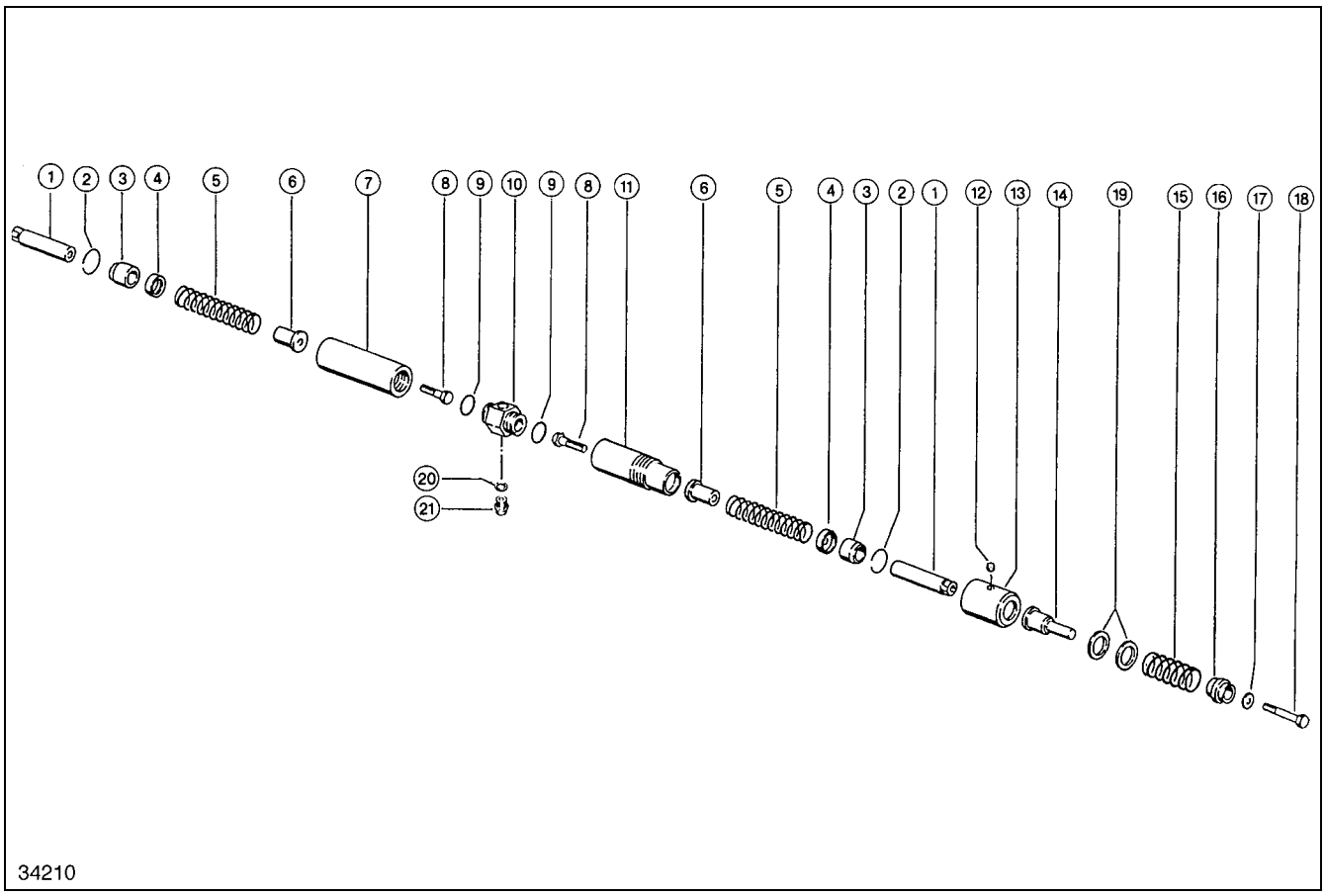


51

Unscrew the second cylinder (W) from the union (V).

Disassemble cylinder (W) in the same order as the previous cylinder.

(Fig. 51)

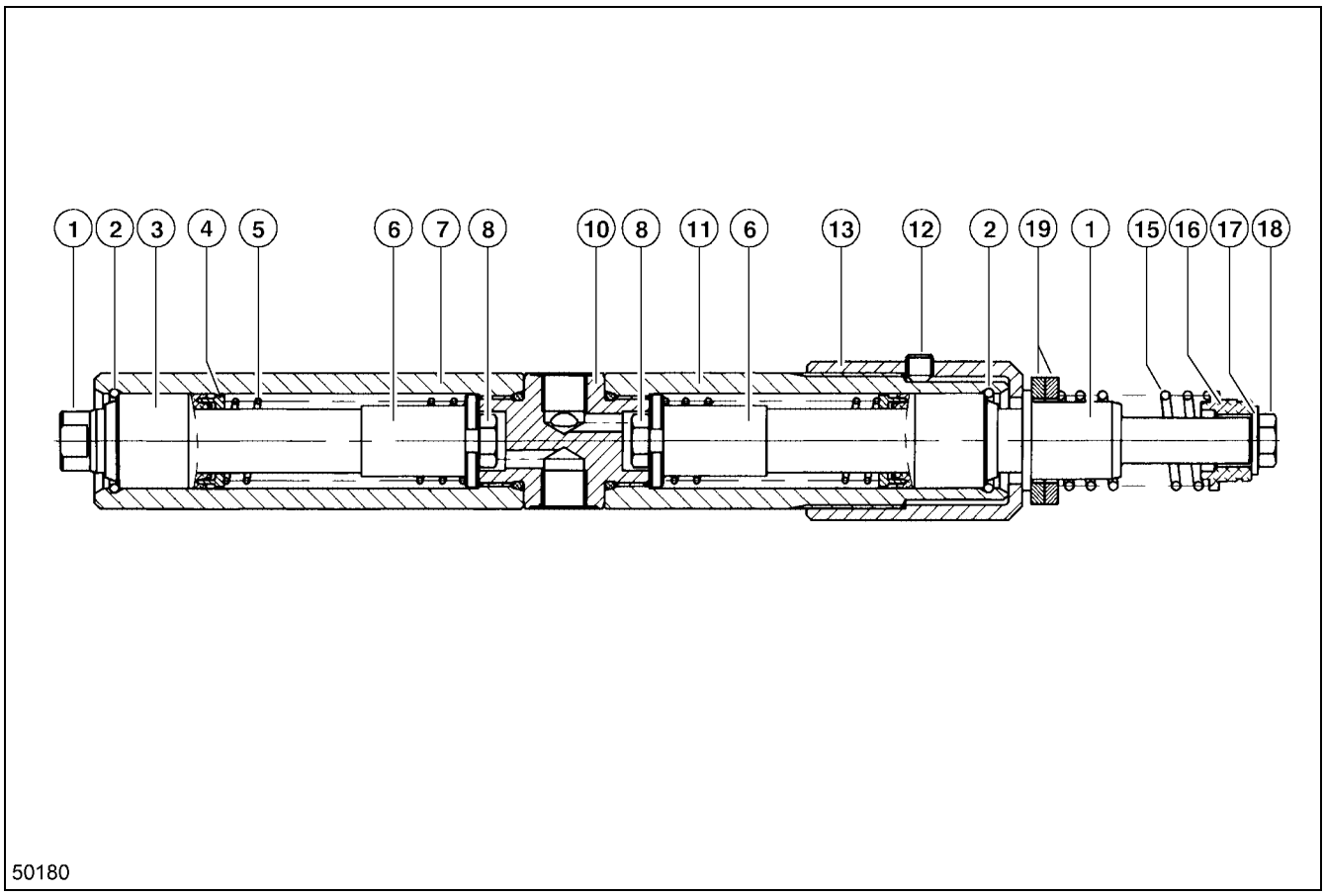


52

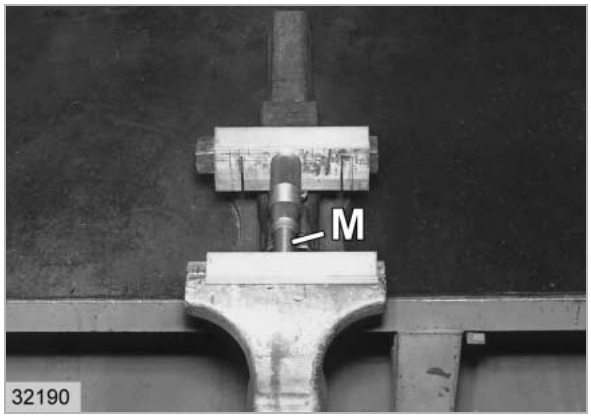
Engine speed control hydraulic cylinder, disassembled:
(up to serial no. …)

1 Ram
2 Snap ring
3 Scraper seal
4 Back-up ring
5 Compression spring
6 Guide
7 Cylinder barrel
8 Hex. bolt M 6 x 30 DIN 933-8.8
9 O-ring 17 x 2-N DIN 3771
10 Union
11 Cylinder barrel
12 Set screw M 6 x 6 DIN 916
13 Stop collar
14 Spacer
15 Compression spring
16 Spring plate
17 Washer
18 Hex. bolt M 6 x 50 DIN 931-8.8
19 Washer 18.5 x 28 x 3
20 Seal
21 Screw plug AM 10 x 1 DIN 7604

(Fig. 52)



53



54

Assembling the engine speed control hydraulic cylinder
(up to serial no. ...)

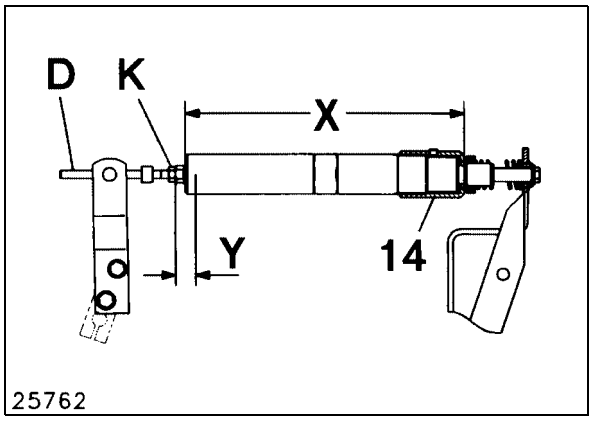
1. Bolt the guide (6) to the ram (1) with hex. bolt (8).
2. Lightly oil the guide (6) and the ram (1) and insert into the cylinder barrels (7 and 11).

   Insert the compression spring (5) and place back-up ring (4) in position, with the larger surface facing the compression spring (5).
3. Fill the cavities of the scraper seal (3) with multi-purpose grease, e.g. Shell “Retinax A”, part no. 147 451.0.

   Using the assembly tool (M), press the scraper seal into the cylinder barrel and secure with the snap ring (2).

4. Bolt on the stop collar (13) and secure with set screw (12).
5. Assemble the spacer (14) with both washers (19), compression spring (15), spring plate (16), washer (17) and bolt (18).
6. Screw the cylinder barrels (7 and 11) to union (10) while inserting lightly oiled O-rings (9). Take care to observe the marks made on the cylinder during removal.

(Fig. 53, 54)



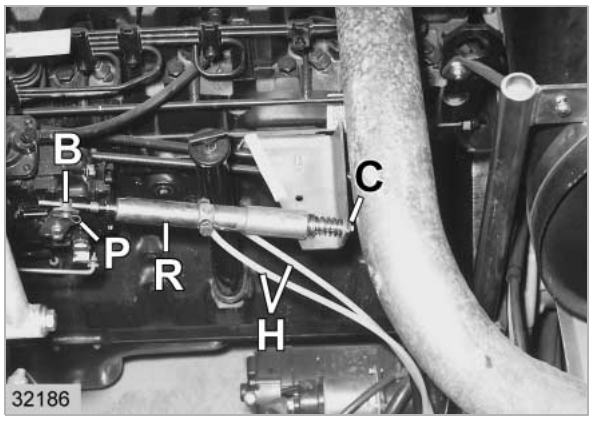
55

Pre-setting the engine speed control hydraulic cylinder
(up to serial no. ...)

Screw in rod (D) until the dimension (Y) is about **20 mm**. Lock that setting with the lock nut (K).

Y = Thread length

(Fig. 55)

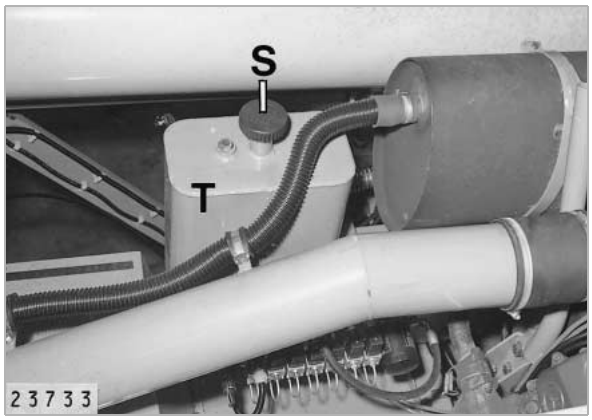


56

Installing the engine speed control hydraulic cylinder
(up to serial no. ...)

1. Assemble the cylinder (R) with the mounting (B) and split pin (P) to the lever.
2. Insert the other end of the cylinder (R) into the bracket bore and secure with the circlip (C).
3. Screw on hydraulic lines (H).
4. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
5. Check the hydraulic system for any leaks. Bleed the cylinder by operating it several times.

(Fig. 56, 57)



57

Setting the engine speed control hydraulic cylinder

(up to serial no. ...)

CAUTION!

To adjust the hydraulic cylinder, a second person is required for operating the machine.

1. Setting the hydraulic cylinder at max. no-load speed:

   Take the machine out of gear and start the engine.

   Set engine to max. no-load speed at the rotary switch.

   Check the max. no-load speed.

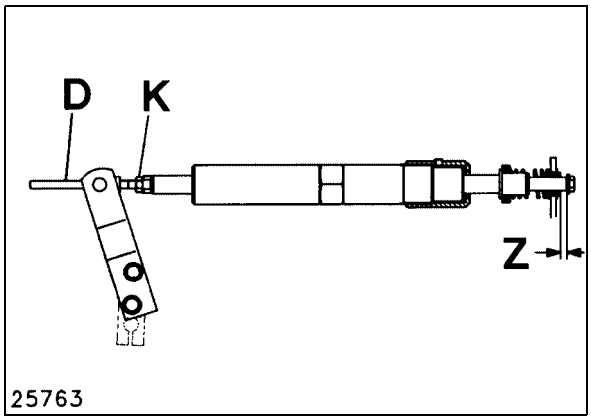
ATTENTION!

The max. no-load speed has been set by the engine manufacturers.

This speed may only be adapted by specialist engine workshops.

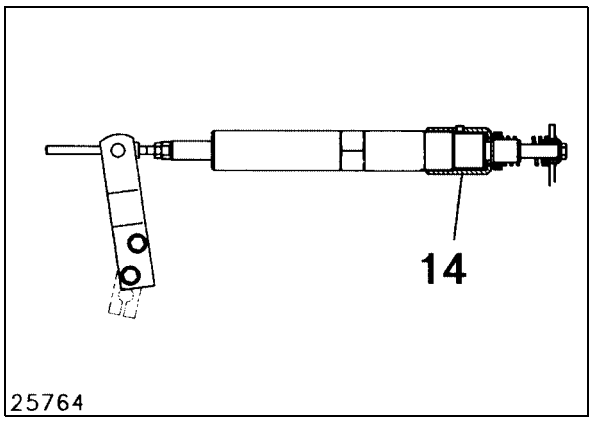
Failure to observe this rule results in expiry of the operating permit!

2184^{+20}_{-30} rpm
MERCEDES OM 441 LA



Set the clearance (Z) to **5^{+3} mm** by twisting the rod (D). Lock that setting with the lock nut (K).

58



59

2. Setting the engine speed for road travel:

   Take the machine out of gear and start the engine.

   Set engine to max. no-load speed at the rotary switch.

   Move multi-function lever to neutral position (centre position) and engage third gear.

   The engine speed can be adjusted by twisting the spacer bushing (14).

   Ground speed of 20 km/h in third gear:

   Engine speed:

   MERCEDES OM 441 LA = 1560 ± 20 rpm

   Ground speed of 25 km/h in third gear:
   (only for certain countries!)

   Engine speed:

   MERCEDES OM 441 LA = 1950 ± 20 rpm

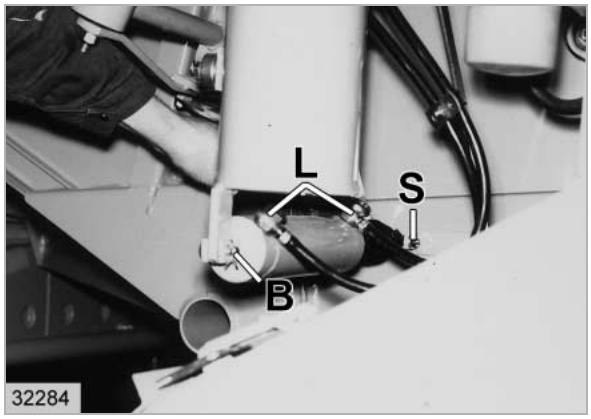
ATTENTION!

Pay particular attention to the speed limit for your country.

Failure to observe this rule results in expiry of the operating permit!

3. Secure the adjustment with the set screw.

(Fig. 58, 59)



60

Removing the 3-D sieve pan hydraulic cylinder

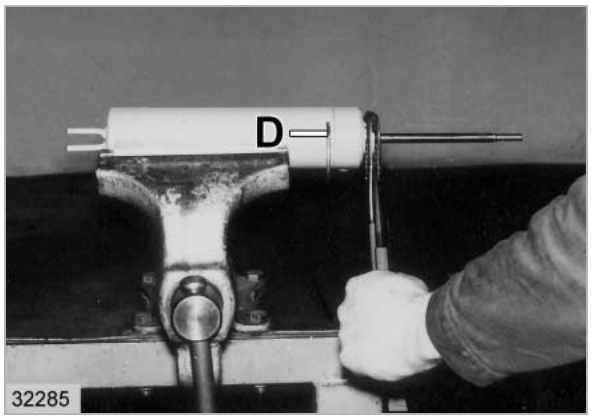
Unscrew the hydraulic lines (L) from the cylinder.

Remove the hex. nut (S) from the angle joint on the ram rod and thus loosen the cylinder from the sieve box bracket.

Remove the split pin from pin (B) of the cylinder yoke, then remove pin (B) from the mounting plate of the pendulum control unit.

Remove the complete cylinder.

(Fig. 60)



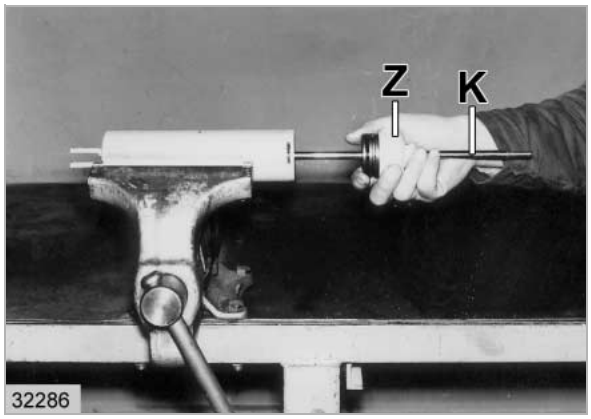
61

Disassembling the 3-D sieve pan hydraulic cylinder

Unscrew the angle joint from the ram rod. Loosen the two cable bands and remove the bellows.

Chuck the cylinder and turn the cylinder head until the securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 61)

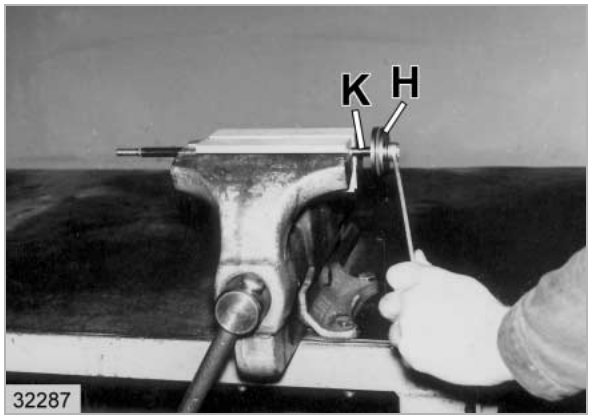


62

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

(Fig. 62)

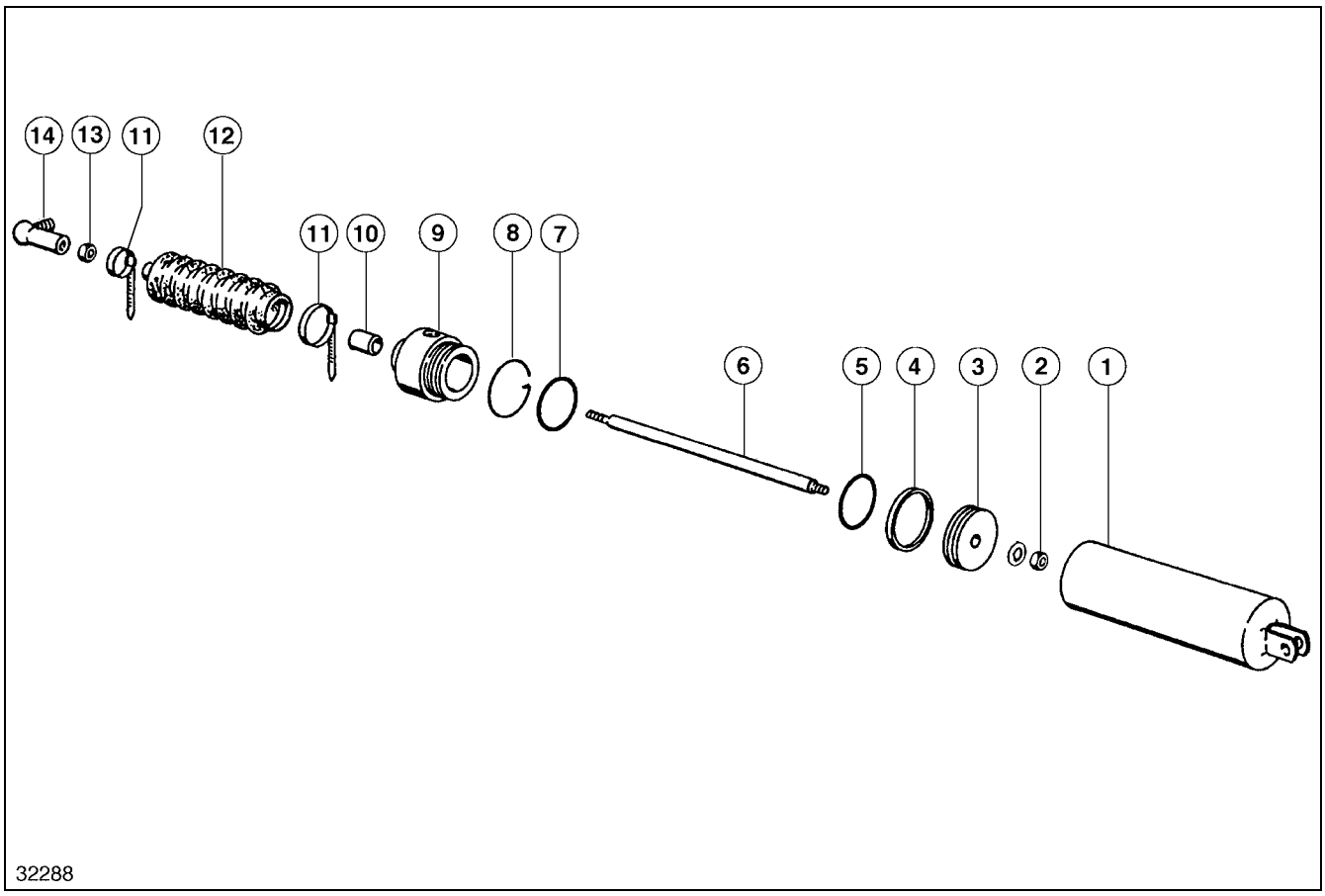


63

Unscrew the ram (H) from the male screwed end of the ram rod (K). For this unscrew the M 8 hex. nut.

The ram seal and the O-ring can now be replaced.

(Fig. 63)

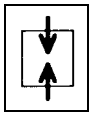


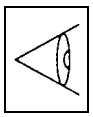
64

3-D sieve pan hydraulic cylinder, disassembled:

1 Hydraulic cylinder
2 Hex. nut M 8 DIN 934-8
Contact washer A 8
3 Ram
4 Ram seal
5 O-ring 37 x 3.5 DIN 3771
6 Ram rod
7 O-ring 45 x 3 DIN 3771
8 Securing wire
9 Cylinder head
10 Ram seal
11 Cable band
12 Bellows
13 Hex. nut M 8 DIN 934-8
14 Angle joint CS 13 DIN 71802

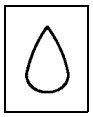
(Fig. 64)



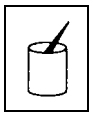


Assembling the 3-D sieve pan hydraulic cylinder

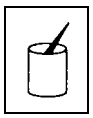
1. Slide the ram seal (4) and the O-ring (5) on the ram (3). The ram seal (4) should be placed in hot water before assembly. Before assembly remove any unwanted burrs.
2. Bolt the complete ram (3 to 5) to the ram rod (6) using the hex. nut (2) and the contact washer.
3. Slide the complete ram rod (2 to 6) into the cylinder (1).



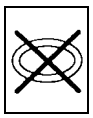
4. Lightly oil the O-ring (7) and slide it into the cylinder head (9). Fill the ram seal (10) with multi-purpose grease, e.g. Shell “Retinax A”, part no. 147 451.0, and then press into the cylinder head (9).



5. Guide the complete cylinder head (7 to 9) on the ram rod and then slide into the hydraulic cylinder (1).
6. Twist the complete cylinder head (7 to 9) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.



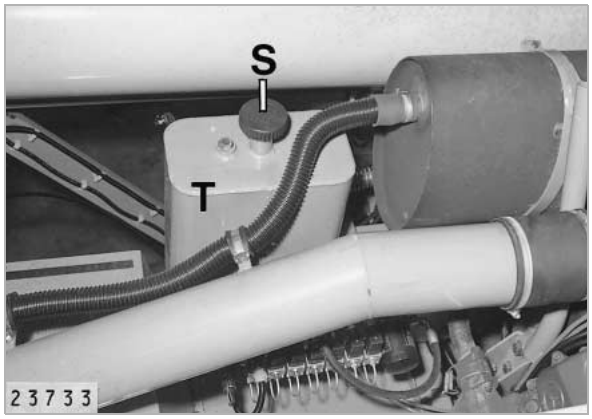
Hang in the greased securing wire (8) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.



For every assembly of the cylinder, use a new securing wire.

7. Slide the bellows (12) with both cable bands (11) on the ram rod (6), then tighten the cable bands (11).
8. Loosely bolt on the hex. nut (13) and the angle joint (14) to the ram rod (6).

(Fig. 64)

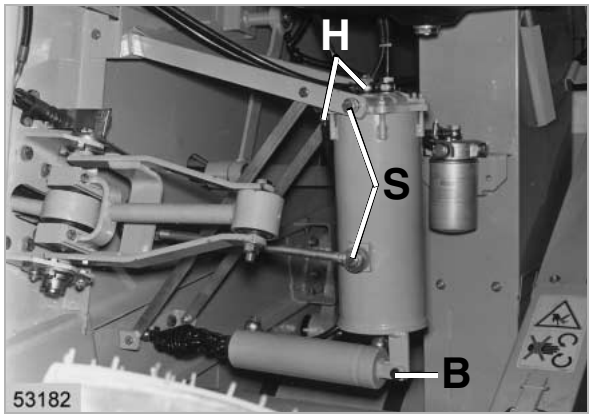


65

Installing the 3-D sieve pan hydraulic cylinder

1. Bolt the cylinder to the sieve box bracket with the angle joint.
2. Insert the cylinder yoke into the mounting plate on the pendulum control unit. Insert the pin and secure with a split pin. Lock the angle joint with the M 8 hex. nut.
3. Bolt the hydraulic lines to the cylinder. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
4. Check the hydraulic system for any leaks. Bleed cylinders by operating them several times.
5. Adjust and/or check the 3-D cleaning system – see page 4.4.1, *Adjusting the 3-D sieve pan control system*.

(Fig. 65)



66

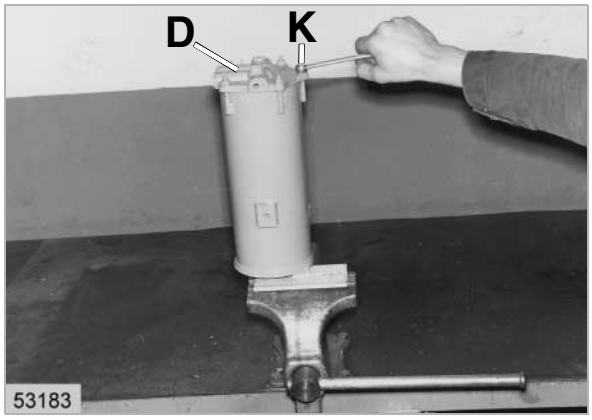
Removing the pendulum control unit of the 3-D sieve pan

Remove the four hydraulic lines (H) from the pendulum control unit and plug them tightly with plastic caps.

Remove the split pin and pull pin (B) out of the mounting plate of the pendulum control unit.

Unscrew the hex. bolts (S) from the control arm and the bracket on both sides, then remove the control unit.

(Fig. 66)

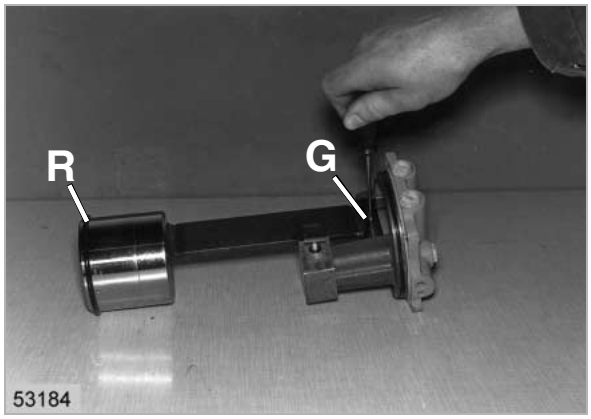


67

Disassembling the 3-D sieve pan pendulum control unit

Unbolt the hex. nuts (K) and pull cover (D) along with the valve housing and the pendulum out of the cylinder.

(Fig. 67)

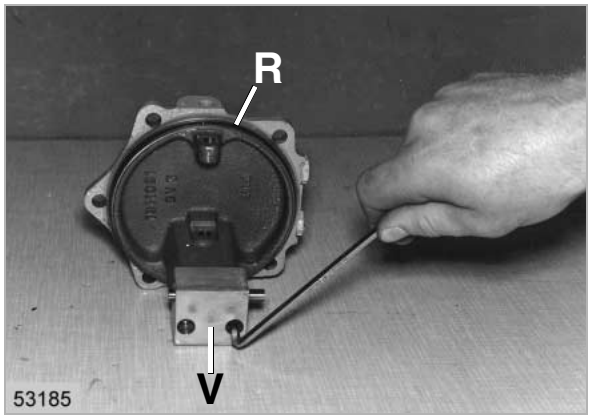


68

Loosen the set screw (G) at the pendulum and push the cylinder pin out of the pendulum.

Replace the O-ring (R) of the pendulum.

(Fig. 68)

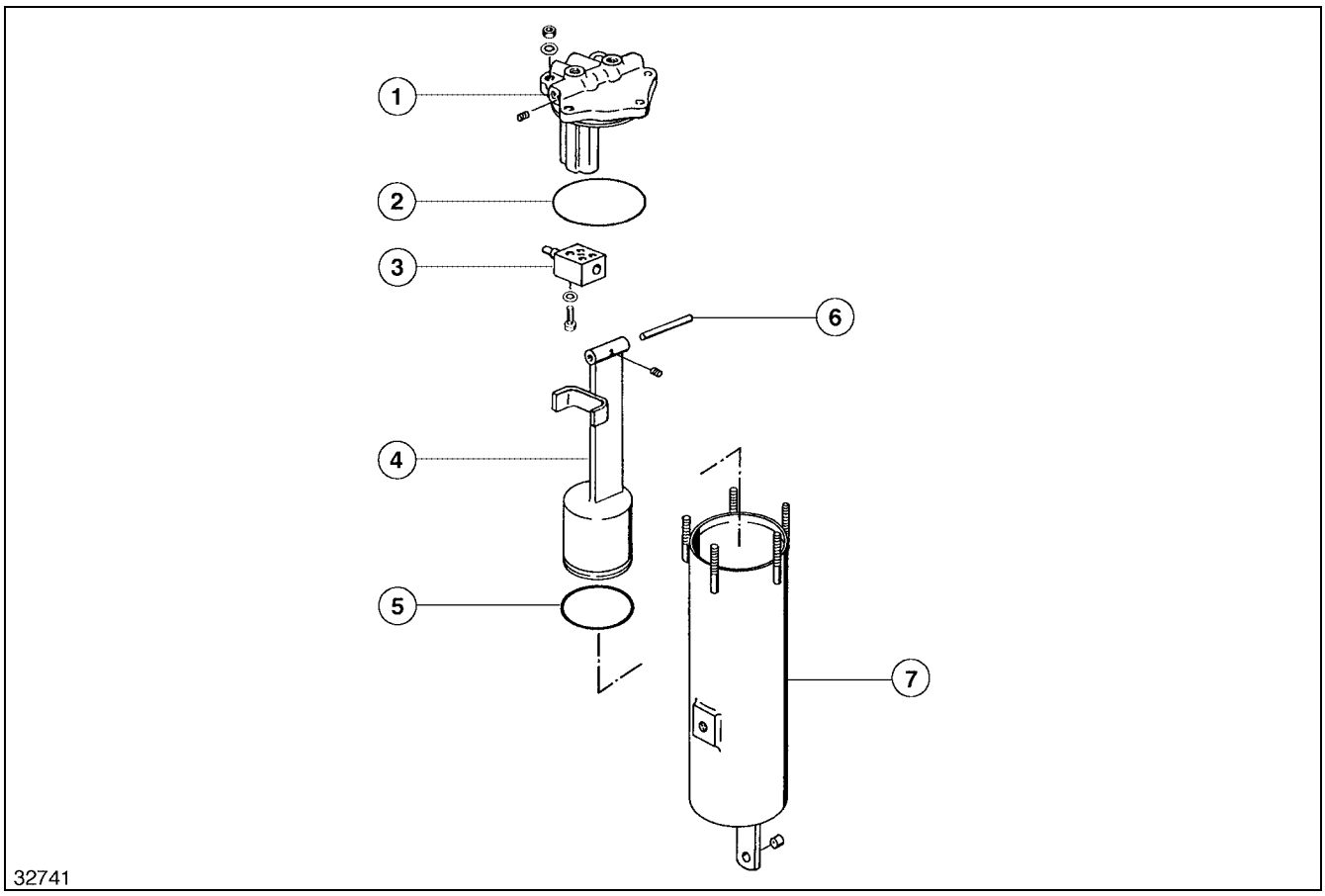


69

Remove the cheese-head screw from the cover and remove the valve housing (V).

Replace the O-ring (R) of the cover.

(Fig. 69)



70

Pendulum control unit of 3-D sieve pan, disassembled:

1 Cover
Hex. nut M 8
Contact washer A 8
Set screw M 6 x 8
2 O-ring 115 x 3 DIN 3771
3 Valve housing
Cheese-head screw M 6 x 20 DIN 912
Detent-edged ring VSKZ 6
4 Pendulum
Set screw M 6 x 8
5 O-ring 85 x 5 DIN 3771
6 Cylinder pin 8 x 80 DIN 7979
7 Cylinder
Plastic bushing

(Fig. 70)

Assembling the pendulum control unit for 3-D sieve pan

1. Lightly oil the O-ring (2) and insert it into the groove of cover (1).
2. Bolt on the valve housing (3) to the cover (1) using the two cheese-head screws M 6 x 20 and the detent edged rings.
3. Lightly oil the O-ring (5) and insert it into the groove of the pendulum (4).
4. Insert the pendulum (4) into the valve housing (3) along with the cylinder pin (6) and secure with the set screw.
5. Insert the pendulum (4) along with the valve housing (3) and cover (1) into the cylinder (7).

   Bolt the cylinder (7) and the cover (1) together using the M 8 hex. nuts and contact washers.

(Fig. 70)

Installing the 3-D sieve pan pendulum control unit

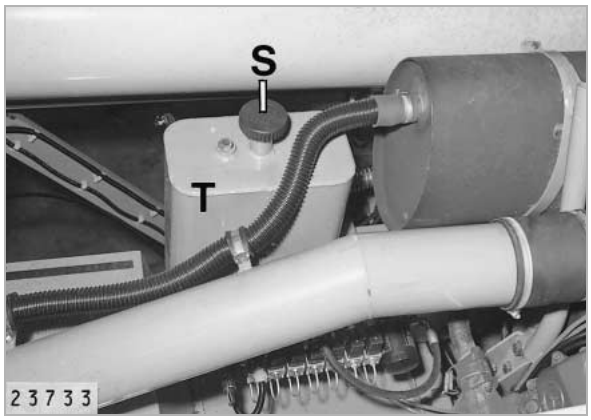
1. Bolt the control unit to the bracket and the control arm.

   Connect the control unit to the hydraulic cylinder by sliding the pin into the mounting plate. Secure the pin with a split pin.

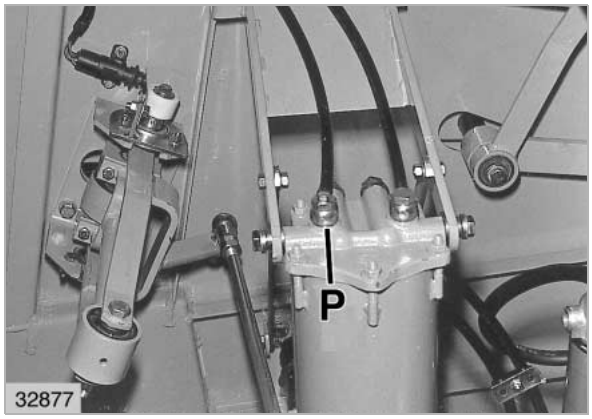
2. Connect the hydraulic lines.

   Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

(Fig. 71)



71



72

3. Bleeding the pendulum housing:

DANGER!

Take the machine out of gear and secure against rolling away.

Unscrew the M 6 bleed screw inside the hollow screw on the pendulum housing for approx. **10 mm** at (P).

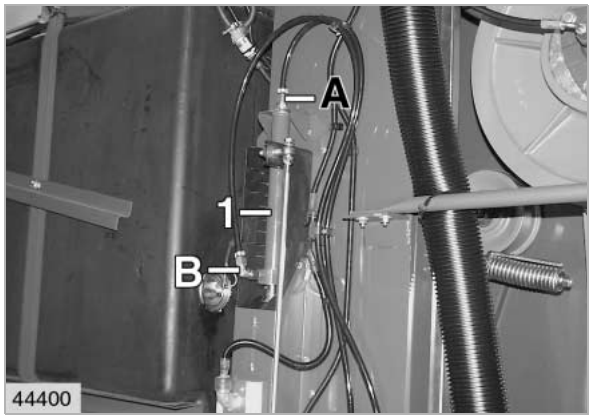
Push the pendulum housing in and out by hand until the oil comes out of the bleed screw free of bubbles. Once the air has been bleed out of the system, retighten the bleed screw.

DANGER!

Stop the engine!

Top up the hydraulic oil level.

(Fig. 72)

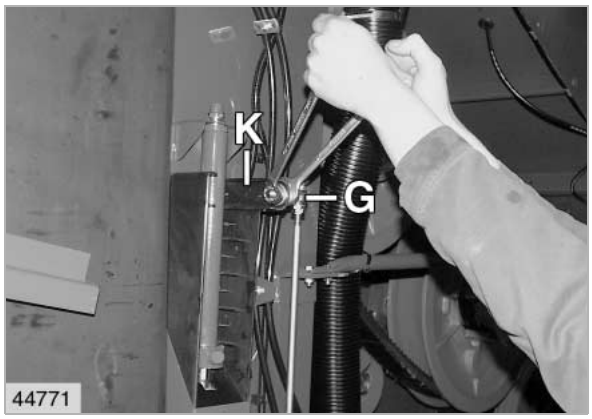


73

Removing the yield meter moisture sensor hydraulic cylinder

Unscrew the hydraulic lines (A and B) from cylinder (1). Plug all connection carefully with plugs.

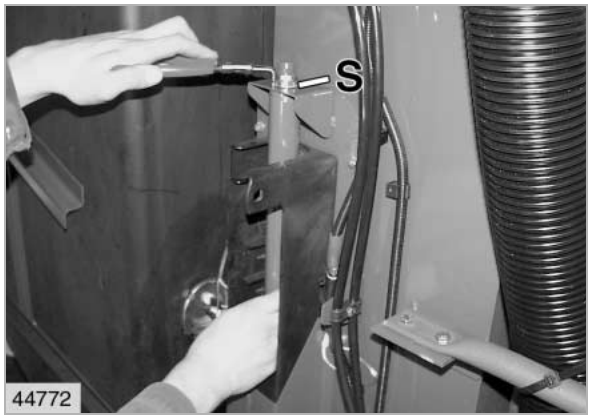
(Fig. 73, 79)



74

Unscrew the eyebolt (G) from the ram (K).

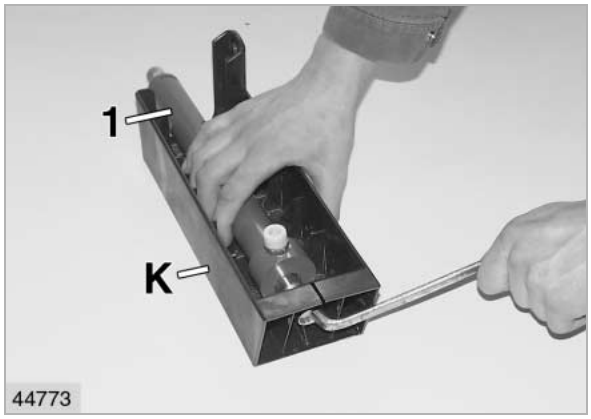
(Fig. 74, 79)



75

Remove the circlip (S) and remove cylinder (1) completely with ram (K).

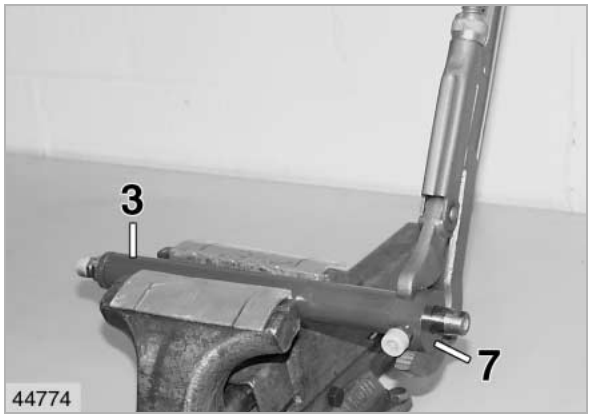
(Fig. 75, 79)



76

Unscrew the ram (K) from cylinder (1).

(Fig. 76, 79)

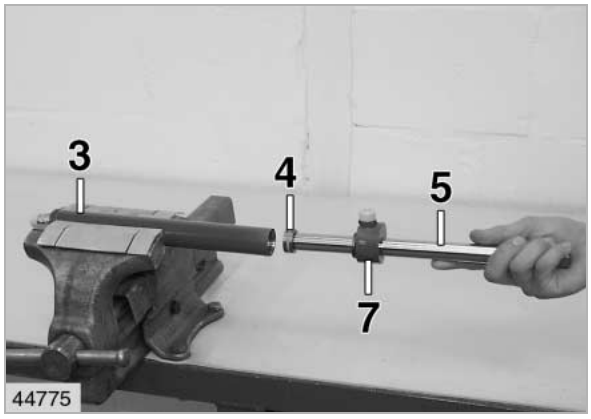


77

Disassembling the yield meter moisture sensor hydraulic cylinder

Unscrew the cylinder head (7) from the cylinder barrel (3).

(Fig. 77, 79)



78

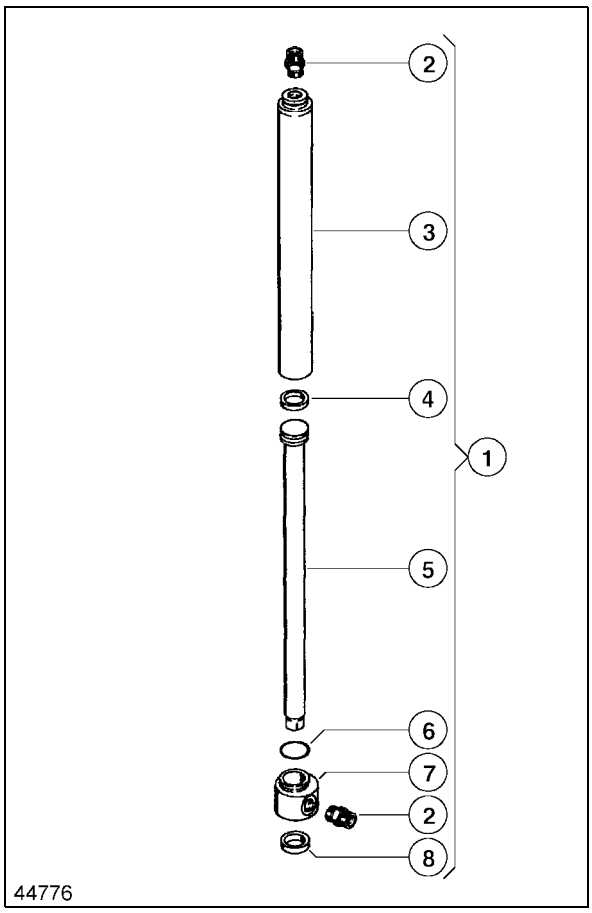
Pull off the cylinder head (7) and the ram rod (5) from the cylinder barrel (3).

Remove the two-part ram seal (4).

Pull off the cylinder head (7).

Remove the double scraper (8) and the O-ring (6) from the cylinder head (7).

(Fig. 78, 79)

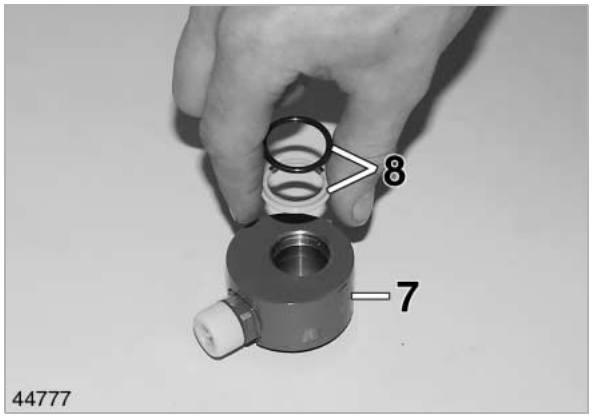


79

Yield meter moisture sensor hydraulic cylinder, disassembled:

1 Hydraulic cylinder, complete
2 Male connector
3 Cylinder barrel
4 Ram seal
5 Ram rod
6 O-ring
7 Cylinder head
8 Double scraper

(Fig. 79)

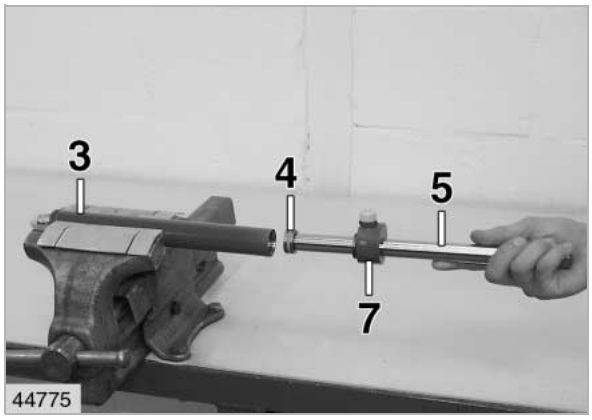


80

Assembling the yield meter moisture sensor hydraulic cylinder

Insert the two-part double scraper (8) into the groove of the cylinder head (7). Ensure that the double scraper is installed with the O-ring facing the top side of the cylinder head (7).

(Fig. 79, 80)



81

Insert the two-part ram seal (4) into the ring groove of the ram rod (5).

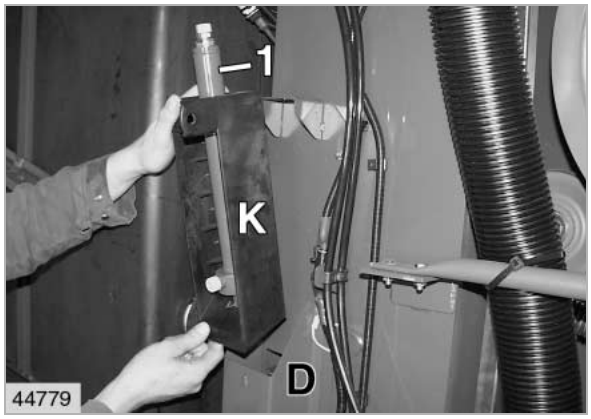
Oil all parts with hydraulic oil.

Slide cylinder head (7) with O-ring (6) on the ram rod (5).

Slide the pre-assembled ram rod (5) into the cylinder barrel (3).

Tighten cylinder head (7).

(Fig. 79, 81)

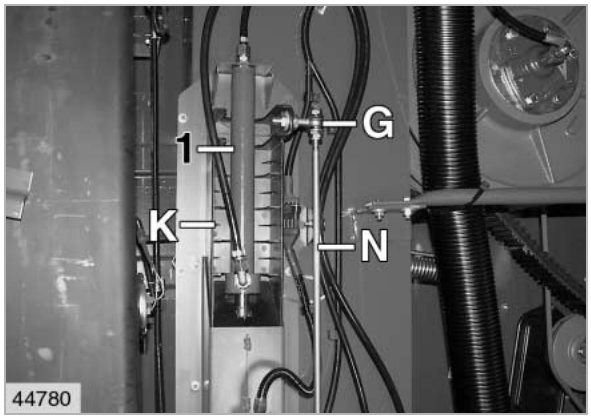


82

Installing the yield meter moisture sensor hydraulic cylinder

1. Bolt ram (K) to cylinder (1).
2. Insert cylinder (1) with the ram (K) into the ram guide (D) and secure with a circlip (S).

(Fig. 75, 76, 82)



83

3. Screw on the hydraulic lines (A and B).
4. Bolt the eyebolt (G) down to ram (K). Set the eyebolt so that rod (N) is parallel to the ram (K) and the cylinder (1).

(Fig. 83)

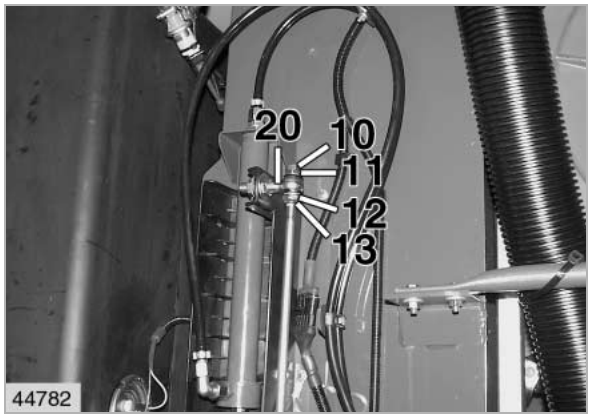


84

5. Check hydraulic oil level and top up if necessary.
6. Start the engine and operate the valve (T) manually. Extend and retract the cylinders several times.

   Stop the engine and check the hydraulic oil.
7. Check yield meter hydraulic cylinder and adjust it.

(Fig. 84)



85

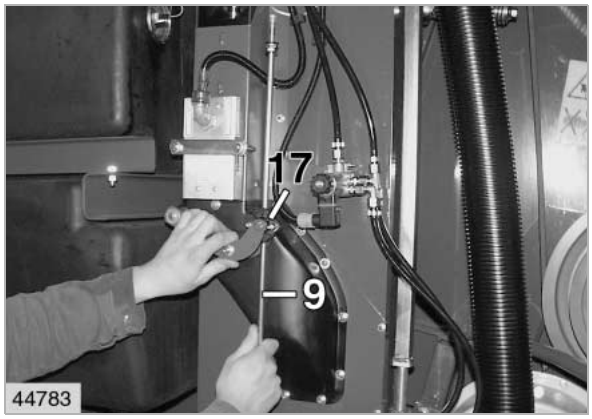
Checking and adjusting the yield meter hydraulic cylinder

Check the tractive power of rod (9).

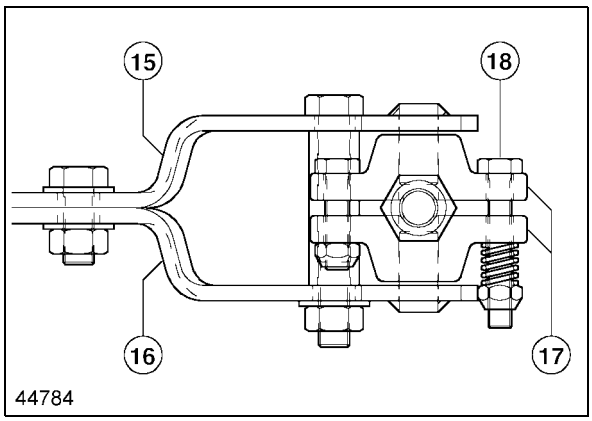
This is done as follows:

1. The cylinder (1) must be fully retracted.
2. Unscrew the hex. nuts (10 and 11).
3. Loosen hex. nuts (12 and 13) and turn them to the end of the thread.

(Fig. 85, 90)



86



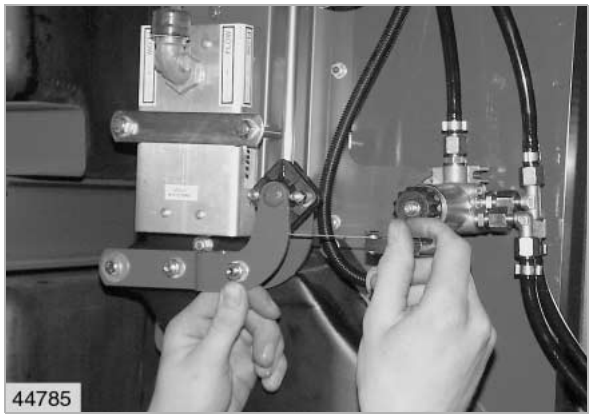
87

4. The flap (14) must be easy to move over the levers (15 and 16) manually with rod (9).
5. The sliding surfaces of the rod (9) and of the bushing (17) must be free of grease and dirt. Clean if necessary.
6. It must be possible to pull rod (9) through bushing (17) with a force of approx. **50 ± 10 Nm**. If required, adapt spring force at the hex. bolt (18).

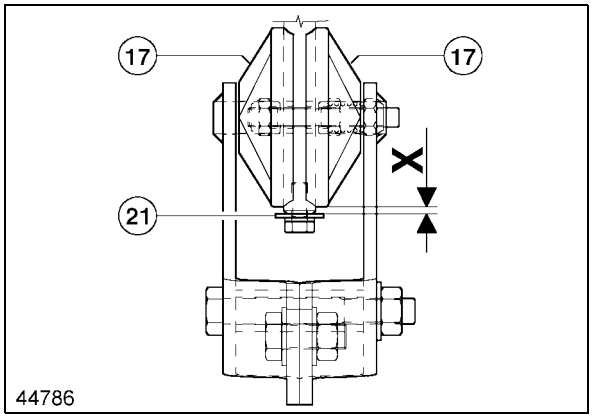
   When the machine is in operating condition, it is thus guaranteed that the flap (14) is opened and closed fully by rod (9).

   When the flap is at its end stops, rod (9) slides through the bushings (17) accordingly.

(Fig. 86, 87, 90)



88



89

7. Set the clearance (X) between bushing (17) and pulley (21).

   To do this, the cylinder (1) must be fully retracted. Push up flap (14) via the levers (15 and 16) manually until the flap (14) is fully closed.

   The rod (9) here must be guided through the eyebolt (20).

   Place top washers (23 and 24) in position, screw on hex. nut (11) and adjust clearance (X).

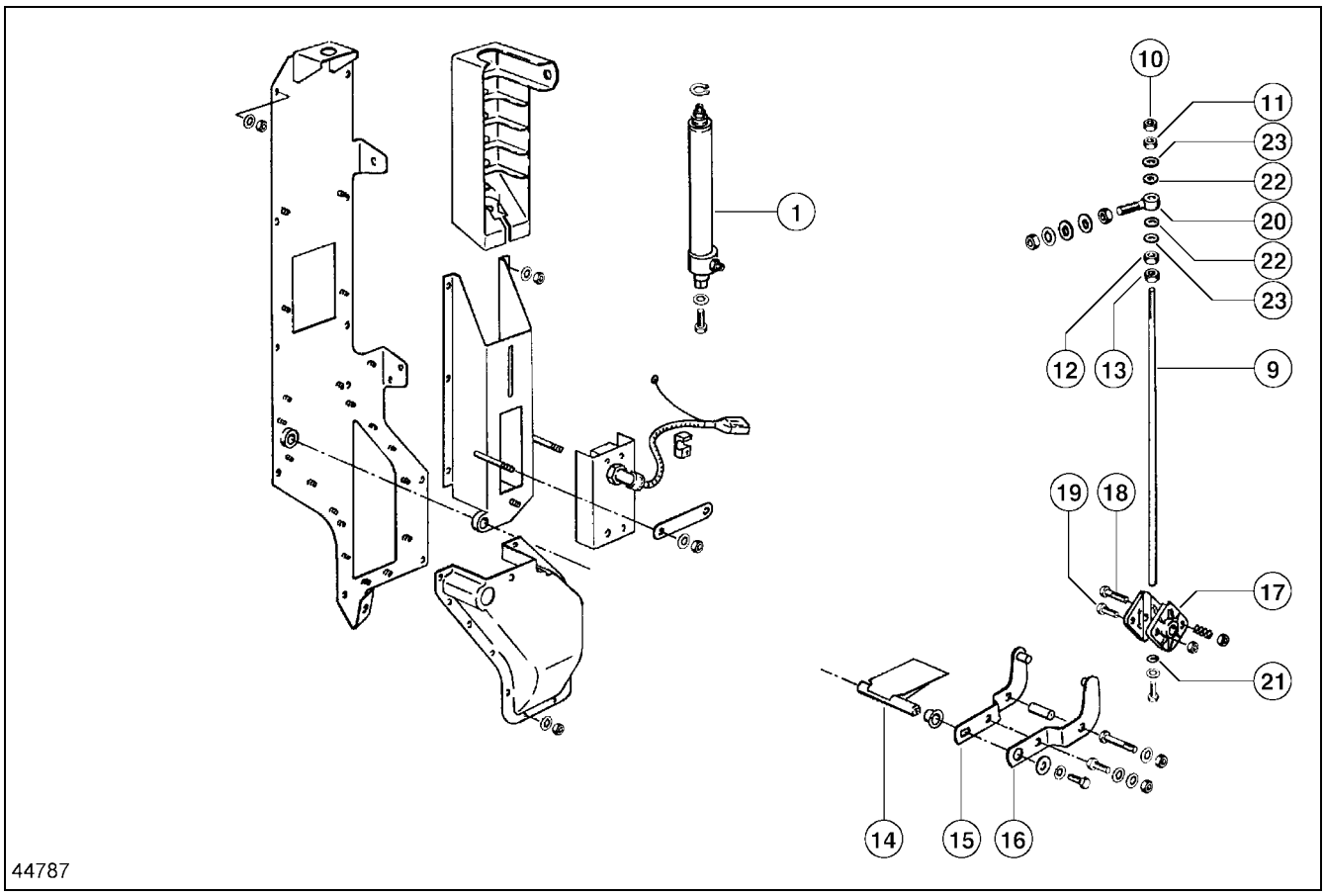
   X = 1 mm

   The washers (22) must have no play when making contact with the eyebolt (20).

   Jam hex. nut (10) with hex. nut (11).

   Jam hex. nut (12) with hex. nut (13).

(Fig. 88, 89, 90)



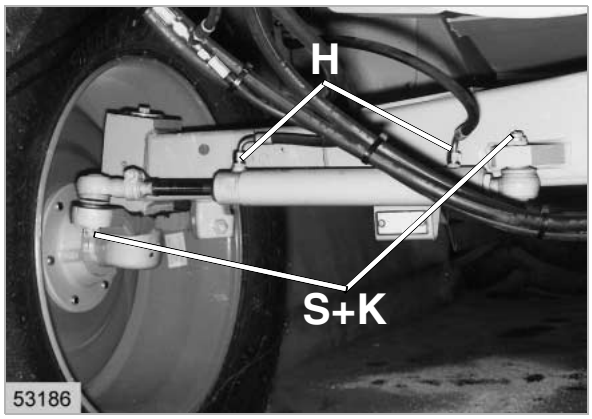
90

Yield meter hydraulic cylinder, disassembled

1 Hydraulic cylinder, complete
2 Male connector
3 Cylinder barrel
4 Ram seal
5 Ram rod
6 O-ring
7 Cylinder head
8 Double scraper
9 Rod
10 Hex. nut Bm 10
11 Hex. nut Bm 10
12 Hex. nut Bm 10
13 Hex. nut Bm 10
14 Flap
15 Inside lever
16 Outside lever
17 Bushing
18 Hex. bolt M 6 x 40
Compression spring
Self-locking nut Vm 6
19 Hex. bolt M 6 x 25
20 Eyebolt
21 Washer (rubber)
22 Washer 10.5

(Fig. 90)

HYDRAULIC CYLINDERS – STEERING HYDRAULICS



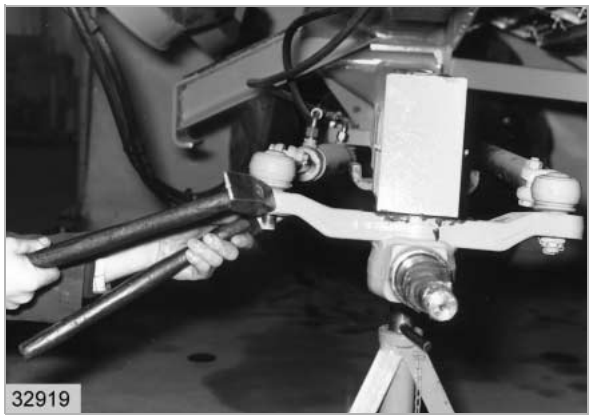
1

Removing the steering cylinder

Remove the hydraulic lines (H) from the cylinder.

Pull out the split pins (S) and unscrew the castellated nuts (K) from the ball joints.

(Fig. 1)

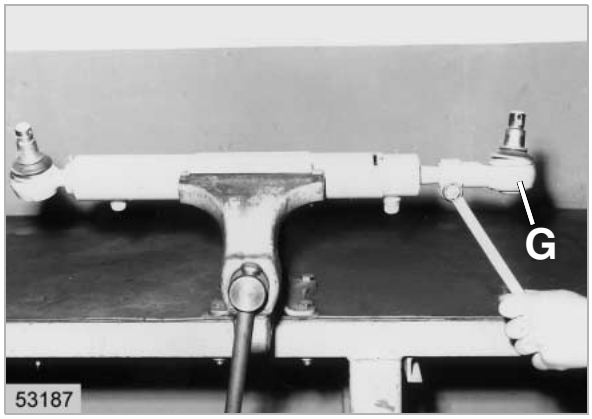


2

Push the ball joints out of the tapered seats using a suitable puller.

Alternatively, the ball joint should come loose after tapping with a hammer on one side of the tapered seat and holding a hammer against it on the other side. Remove the cylinder.

(Fig. 2)

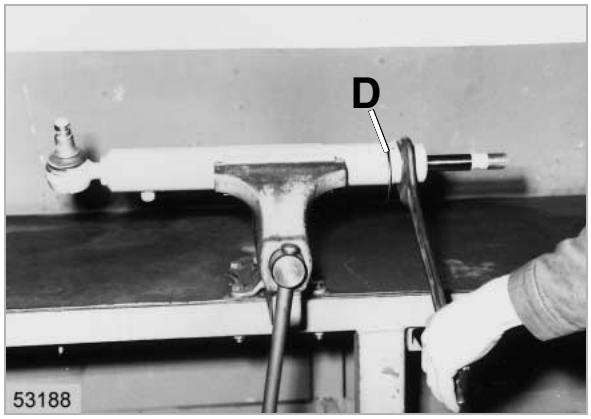


3

Disassembling the steering cylinder

Unscrew the ball joint (G) at the cylinder head from the ram rod.

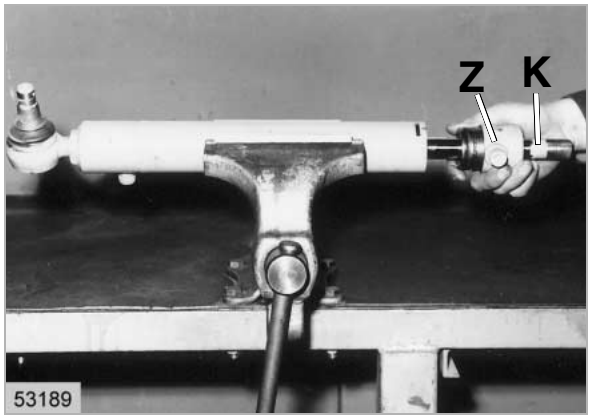
(Fig. 3)



4

With the cylinder barrel chucked, turn the cylinder head so that the securing wire (D) is pushed out of the groove in the cylinder barrel.

(Fig. 4)

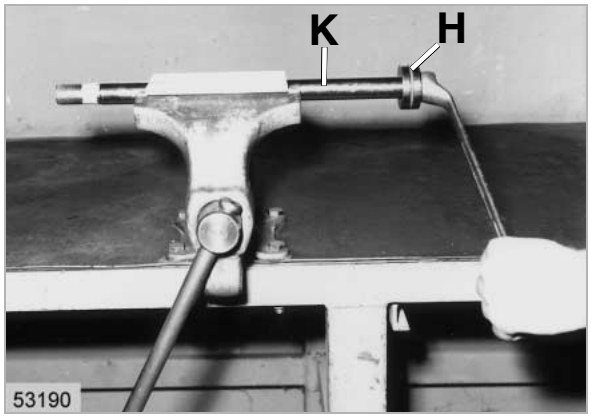


5

Pull the cylinder head (Z) and the ram rod (K) out of the cylinder barrel.

Clean the ram rod and pull off the cylinder head.

(Fig. 5)

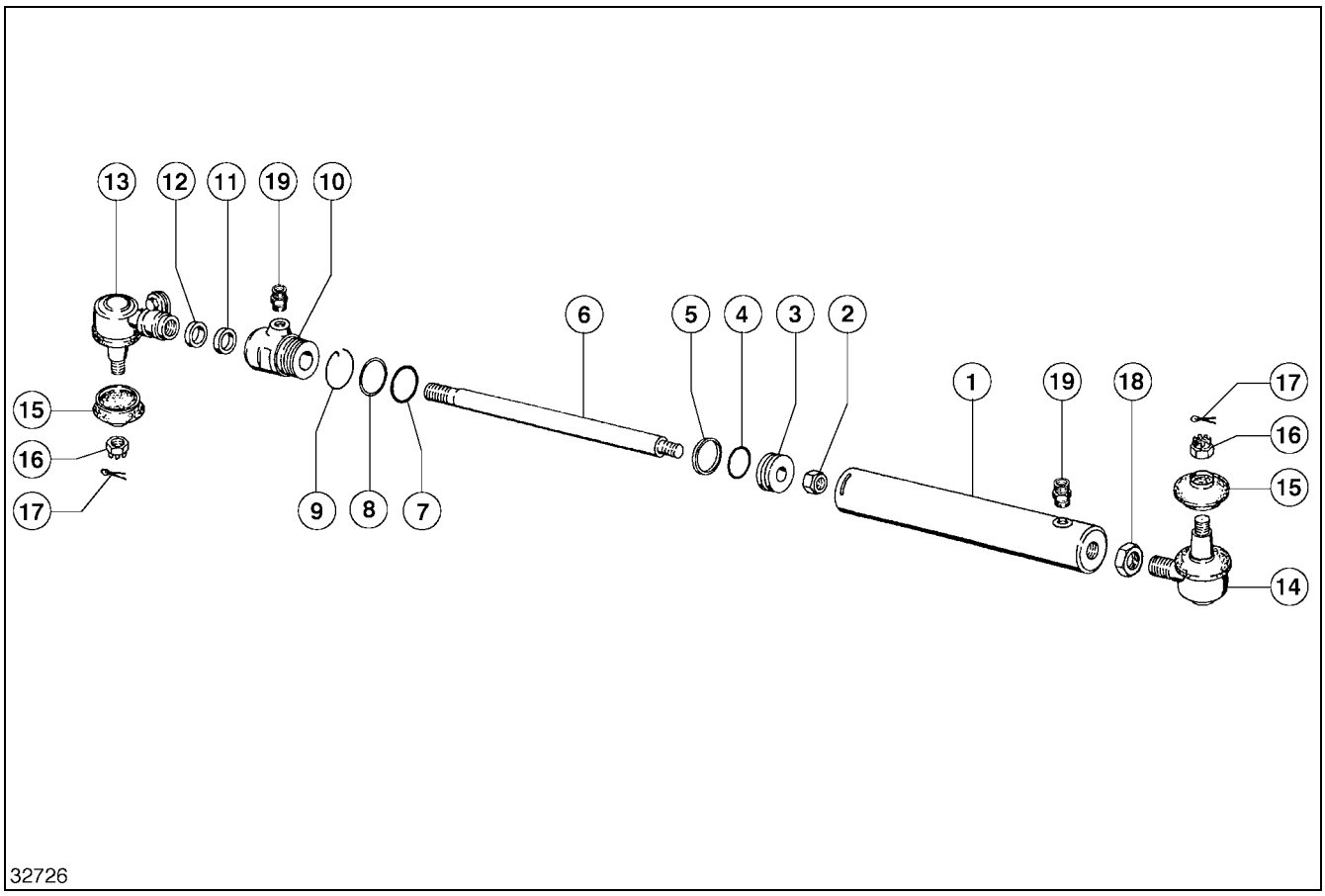


6

Unscrew the ram (H) from the male screwed end of the ram rod (K). For this remove lock nut VM 16 x 1.5.

The ram seal and the O-ring can now be replaced.

(Fig. 6)

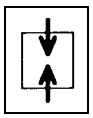


7

Steering cylinder, disassembled:

1 Hydraulic cylinder
2 Lock nut VM 16 x 1.5
3 Ram
4 O-ring 37 x 3.5 DIN 3771
5 Ram seal
6 Ram rod
7 O-ring 44.2 x 3 DIN 3771 (up to serial no. ...)
8 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
9 Securing wire
10 Cylinder head
11 Seal
12 Dirt scraper
13 Ball joint, part no. 668 998.0
14 Ball joint, part no. 668 997.0
15 Bellows
16 Castellated nut M 20 x 1.5
17 Split pin 4 x 36
18 Hex. nut M 24 x 1.5
19 Male connector

(Fig. 7)



Assembling the steering cylinder

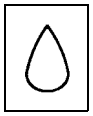
1. Slide the O-ring (4) and the ram seal (5) on the ram (3).

   The ram seal (5) should be placed in hot water before assembly.

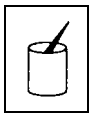
   Prior to assembly, remove any burrs.

2. Bolt the complete ram (3 to 5) to the ram rod (6) with the lock nut (2).
3. Slide the complete ram rod (2 to 6) into the cylinder (1).
4. Insert seal (11) and dirt scraper (12) into the cylinder head (10).
5. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (10).

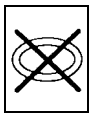
   Up to serial no. …:



   Oil the O-ring (7) and the back-up ring (8) and insert them into the groove of the cylinder head (10).
6. Insert the complete cylinder head (7 to 12) on the ram rod and then slide it into the cylinder barrel (1).
7. Twist the complete cylinder head (7 to 12) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

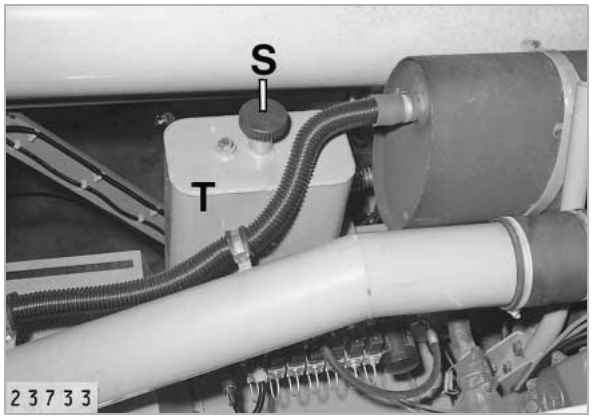


   Hang in the greased securing wire (9) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.



   For every assembly of the cylinder, use a new securing wire.
8. Connect the ball joint (13) to the ram rod (6).

(Fig. 7)



8



9

Installing the steering cylinder

1. Press the ball joints of the cylinder into the tapered seats using a suitable puller.

   Bolt on the castellated nut and secure with a split pin.

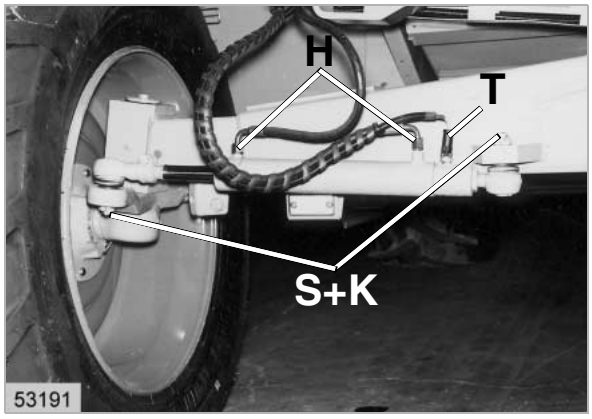
   Tightening torque = 200 Nm

2. Connect the hydraulic lines.
3. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.
4. Bleeding the steering system:

   Jack up and support the steering axle.

   Start the engine, then turn the steering from right to left and vice versa until the system is completely bled.
5. Check the hydraulic system for any leeks.

(Fig. 8, 9)



10

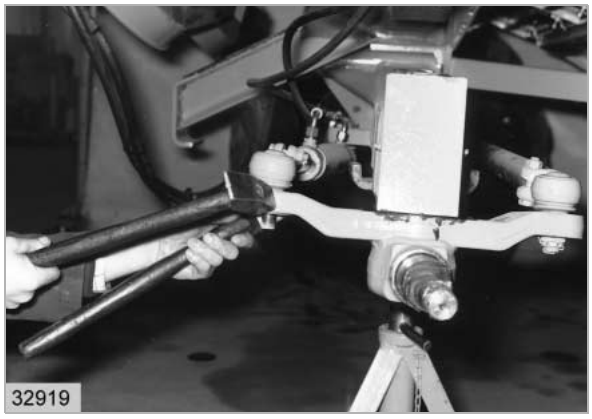
Removing the Autopilot steering cylinder

Remove the wiring loom (T) from the sensor connector on the cylinder.

Remove the hydraulic lines (H) from the cylinder.

Remove the split pins (S) and the castellated nuts (K).

(Fig. 10)

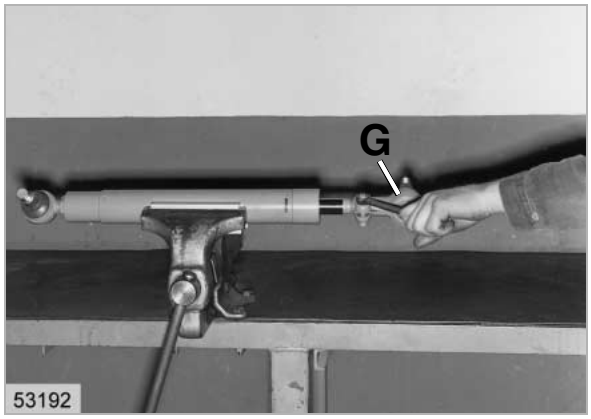


11

Push the ball joints out of the tapered seats using a suitable puller.

Alternatively, the ball joint should come loose after tapping with a hammer on one side of the tapered seat and holding a hammer against it on the other side. Remove the cylinder.

(Fig. 11)

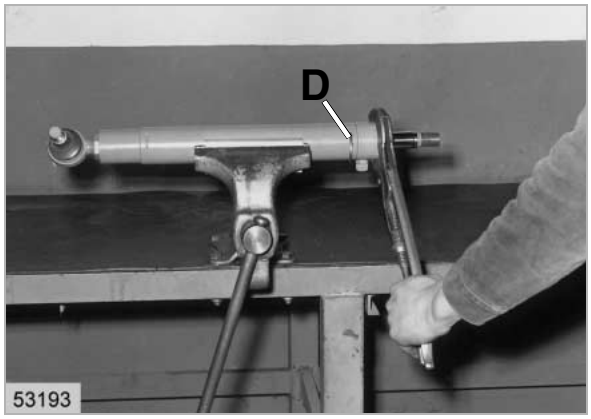


12

Disassembling the Autopilot steering cylinder

Unscrew the ball joint (G) at the cylinder head from the ram rod.

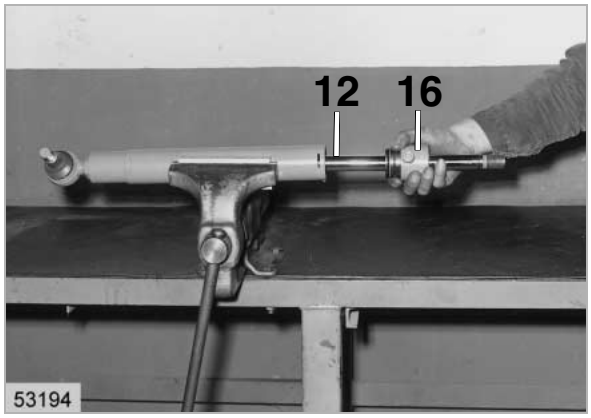
(Fig. 12)



13

With the cylinder barrel chucked, turn the cylinder head so that the securing wire (D) is pushed out of the groove in the cylinder barrel.

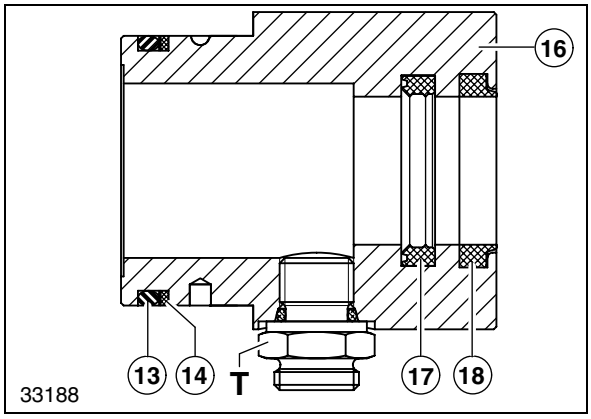
(Fig. 13)



14

Pull the cylinder head (16) and the ram rod (12) out of the cylinder barrel.

(Fig. 14)



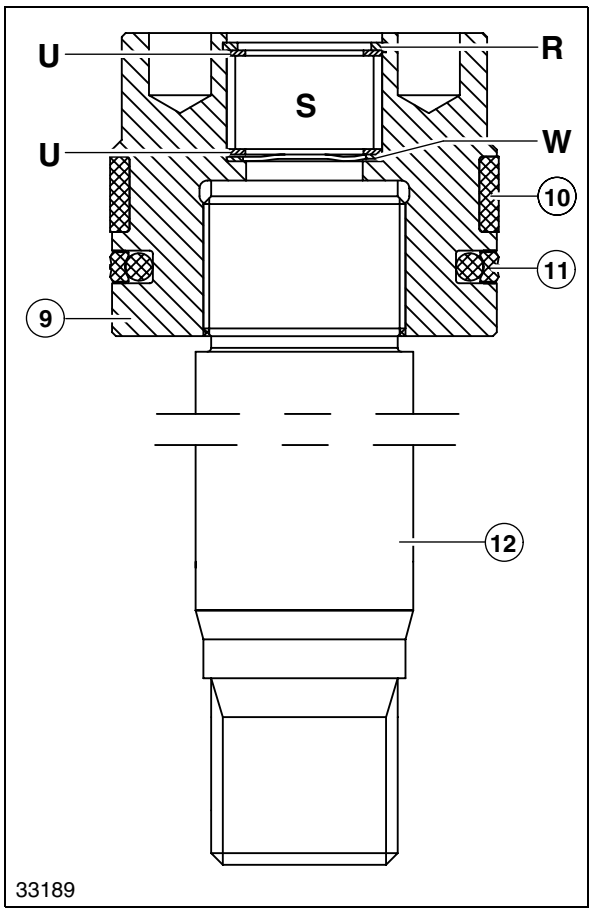
15

First clean the ram rod (12), then remove the cylinder head (16).

The scraper ring (18), seal (17), back-up ring (14) and O-ring (13) can now be removed from the cylinder head for replacement.

Remove the male connector (T) and replace the O-ring.

(Fig. 15, 20)



16

Remove the circlip (R) from the ram (9).

Remove the slider (S) of the position sensor with two washers (U) and a wave washer (W).

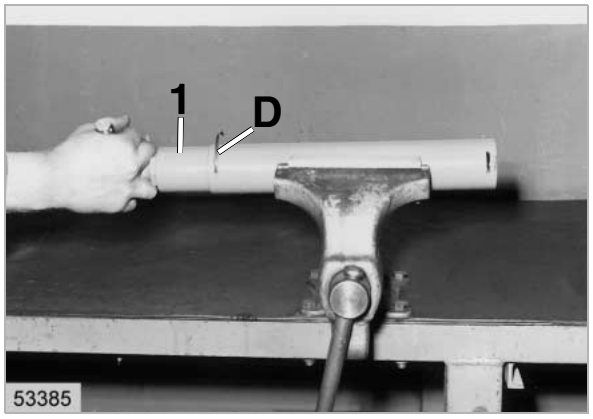
The ram seal (11) and the rod guide ring (10) can also be replaced.

Unscrew the ram (9) from the male screwed end of ram rod (12) using a sickle spanner.

NOTE!

The joint is secured with liquid locking compound. It can be released easily by heating it to about **200** °**C**.

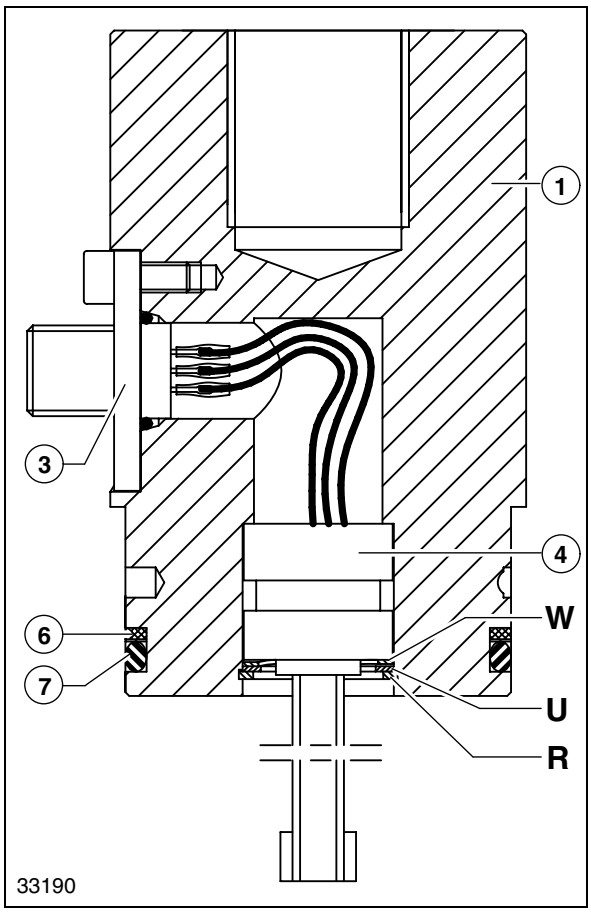
(Fig. 16)



17

Twist the cylinder base (1) so that the second securing wire (D) comes out of the groove in the cylinder barrel.

(Fig. 17)



18

Pull cylinder base (1) off of the cylinder barrel.

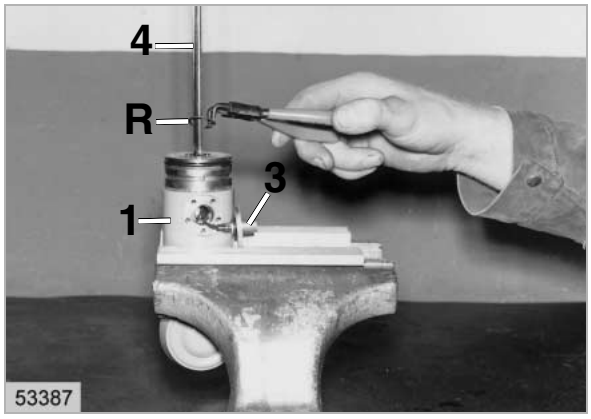
The O-ring (7) and the back-up ring (6) can now be replaced.

Remove the cheese-head screws from the sensor connector (3).

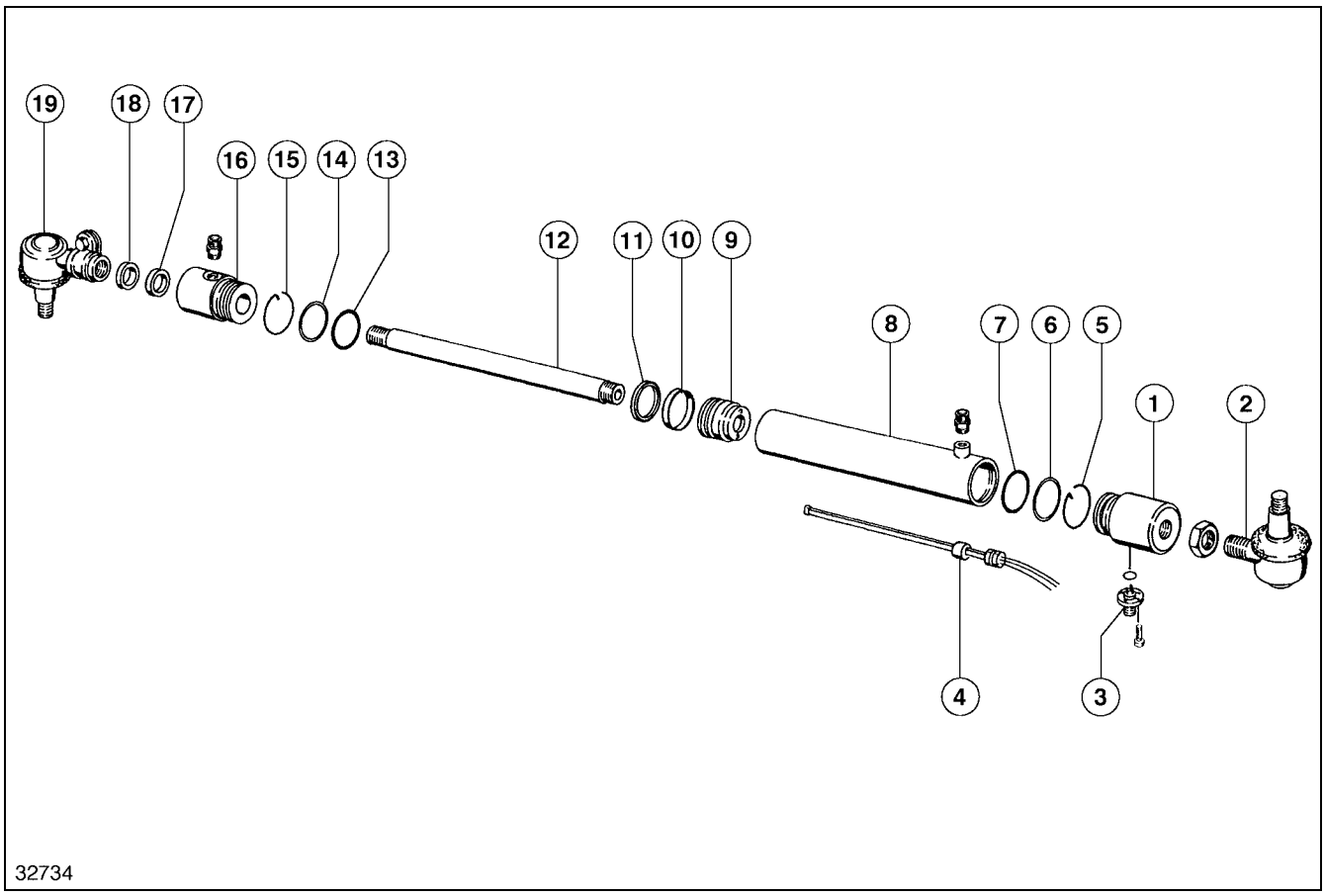
Pull the sensor connector (3) out of the cylinder base (1) so far that the soldered cable can be removed.

Remove the circlip (R), washer (U), wave washer (W) and the position sensor (4) from the cylinder base (1).

(Fig. 18, 19)



19



20

Autopilot steering cylinder, disassembled:

1 Cylinder base
2 Ball joint
Hex. nut M 24 x 1.5
3 Sensor connector
Cheese-head screw M 4 x 10 DIN 912
O-ring
4 Position sensor
Wave washer
Washer
Circlip
5 Securing wire
6 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
7 O-ring (up to serial no. …)
8 Cylinder barrel
9 Ram
10 Rod guide ring
11 Ram seal
12 Ram rod
13 O-ring (up to serial no. …)
14 Dual seal ring (from serial no. ...)
Back-up ring (up to serial no. ...)
15 Securing wire
16 Cylinder head
17 Seal
18 Scraper ring
19 Ball joint

(Fig. 20)

Assembling the Autopilot steering cylinder

1. Slide the rod guide ring (10) and the ram seal (11) on the ram (9). The ram seal (11) should be placed in hot water before assembly.

   Prior to assembly, remove any burrs.

2. Screw the complete ram (9 to 11) to the ram rod (12) with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.1.

   Tightening torque = 50 Nm

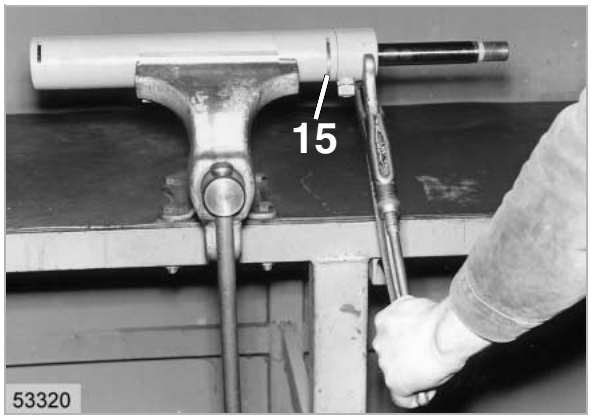
3. Insert the slider of the position sensor (4) with wave washer, two washers and circlip into the ram (9).

4. Lightly oil the seal (17) and scraper ring (18) and insert into the cylinder head (16).

5. From serial no. …:
   Insert a dual seal ring into the ring groove of the cylinder head (16).

   Up to serial no. …:
   Lightly oil the O-ring (13) and the back-up ring (14) and insert into the grooves of the cylinder head (16).

(Fig. 20)



21

6. Guide the complete cylinder head (13 to 18) on the ram rod (12) and slide into the cylinder barrel (8).

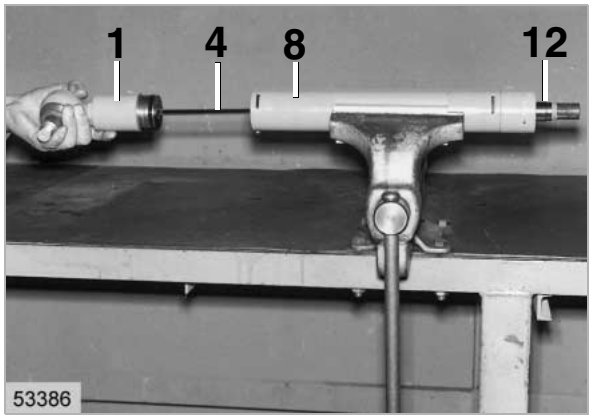
7. Twist the complete cylinder head (13 to 18) so that the hole in the cylinder head groove lines up with the slot in the cylinder barrel.

   Hang in the greased securing wire (15) with its hook in the cylinder head bore and turn the cylinder head. The securing wire is pulled into the groove.

   For every assembly of the cylinder, use a new securing wire.

8. Connect the ball joint (19) to the ram rod (12).

(Fig. 20, 21)



22

9. Insert the position sensor (4) with the wave washer, washer and the circlip into the cylinder base (1).
10. Solder the sensor connector (3) to the cable of position sensor (4) and insert it into the cylinder base (1) and secure with the cheese-head screws.
11. Lightly oil the O-ring (7) and the back-up ring (6) and insert into the grooves of the cylinder base (1).
12. Insert the cylinder base (1 to 7) into the cylinder barrel (8). Take care when inserting the position sensor (4) into the ram (9) and into the ram rod (12).

(Fig. 20, 22)

13. Twist the cylinder base so that the bore in the base groove lines up with the slot in the cylinder barrel.

Hang in the greased securing wire (5) with its hook in the cylinder head bore and turn the cylinder base. The securing wire is pulled into the groove.

For every assembly of the cylinder, use a new securing wire.

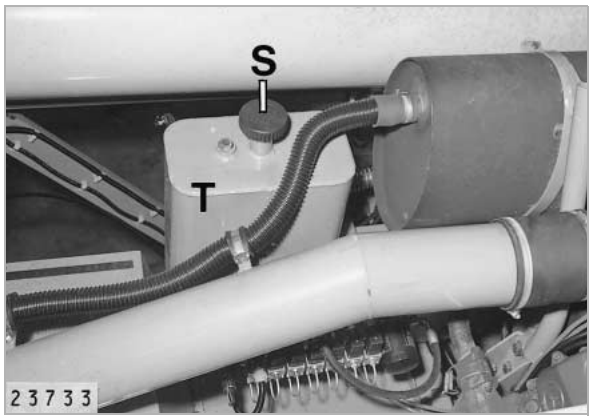
(Fig. 20)

Installing the Autopilot steering cylinder

1. Using a suitable puller, press the ball joints of the cylinder into the tapered seats.

   Bolt on the castellated nut and secure with a split pin.

   Tightening torque = 200 Nm



23

2. Screw the cable to the sensor connector.
3. Connect the hydraulic lines.
4. Fill in hydraulic oil at the filler plug (S) of tank (T) – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.

(Fig. 23)



24

5. Bleeding the steering system:

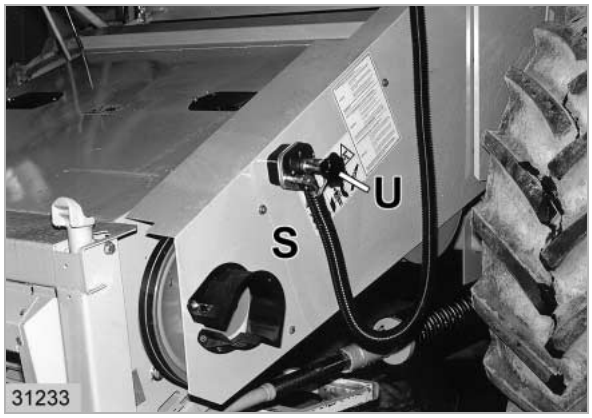
   Jack up and support the steering axle.

   Start the engine, then turn the steering from right to left and vice versa until the system is completely bled.

6. Check the hydraulic system for any leeks.

(Fig. 24)

VALVE COMBINATIONS

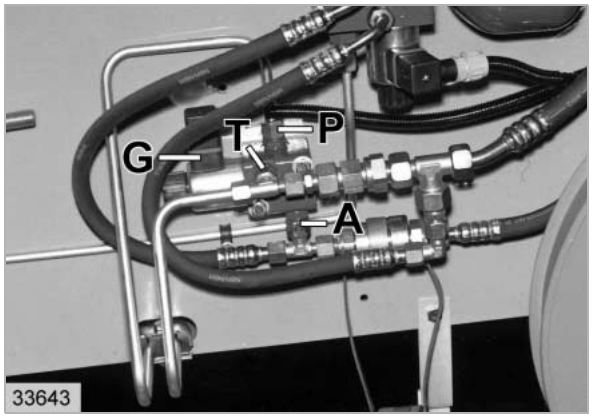


1

Removing the feeder reversing 3/2-way valve

First remove the universal coupling (U) on the left-hand side, then the guard (S).

(Fig. 1)



2

CAUTION!

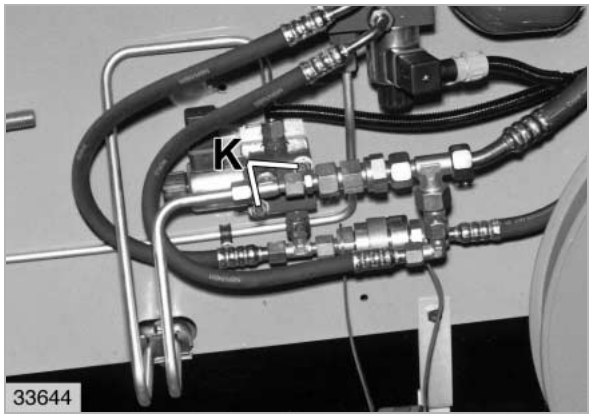
Thoroughly clean the area around the valve.

Loosen the screw and disconnect the power supply plug (G).

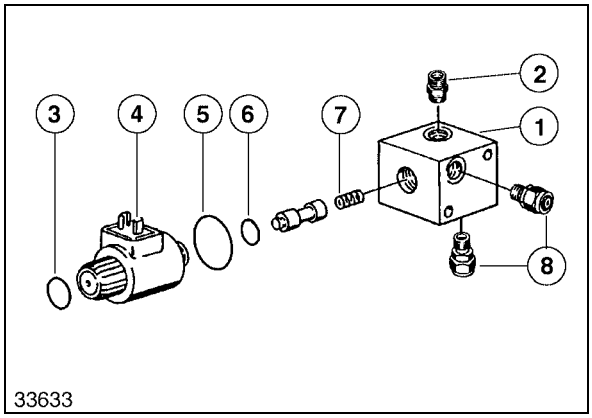
Remove the hydraulic lines (A, P, and T). Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (K) and remove the valve.

(Fig. 2, 3)



3



4

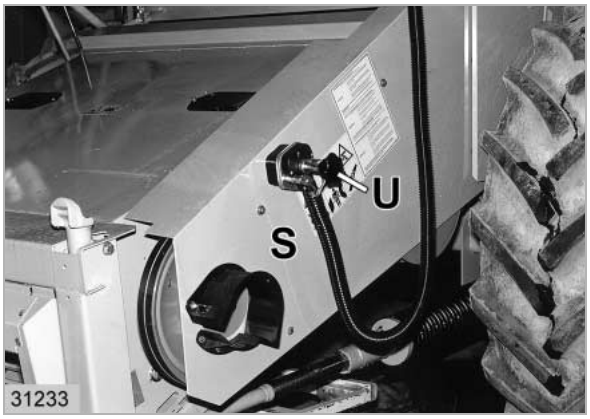
Feeder reversing 3/2-way valve, disassembled

1 Base unit
2 Male connector L 10 F-M DIN 3901
O-ring
3 O-ring 22 x 2 - N DIN 3771
4 Solenoid 3 mm / 12 V DC / 60 % on-load factor
5 O-ring 40 x 1.5 - N DIN 3771
6 O-ring 15.4 x 2.1 - N DIN 3771
7 Compression spring
8 Male connector with insert – 2 pieces

(Fig. 4)

CAUTION!

Before assembly ensure the O-rings have been coated with oil.

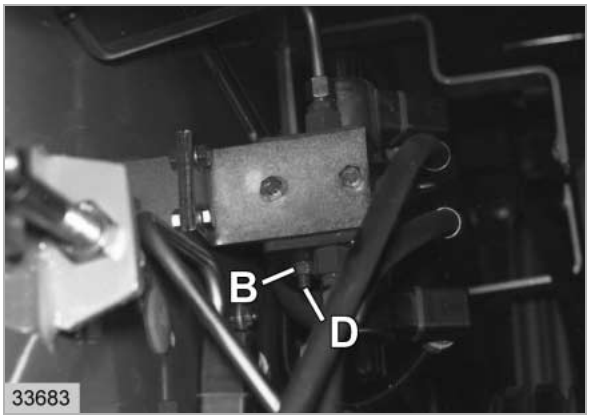


5

Removing the cutterbar cross levelling 4/ 3-way valve

First remove the universal coupling (U) on the left-hand side, then the guard (S).

(Fig. 5)



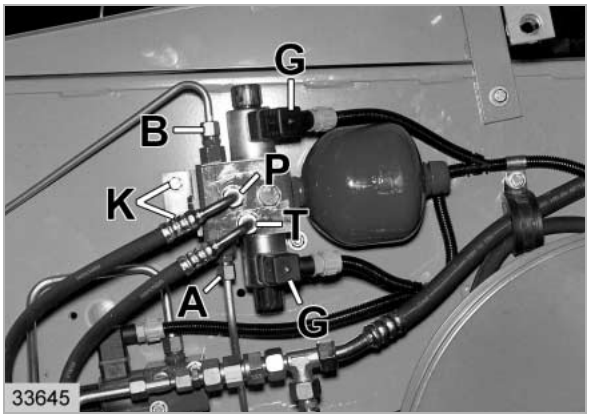
6

CAUTION!

Thoroughly clean the area around the valve.

Loosen the flange nut (B) and unscrew the restrictor bolt (D) about one turn in order to release the internal pressure.

(Fig. 6)



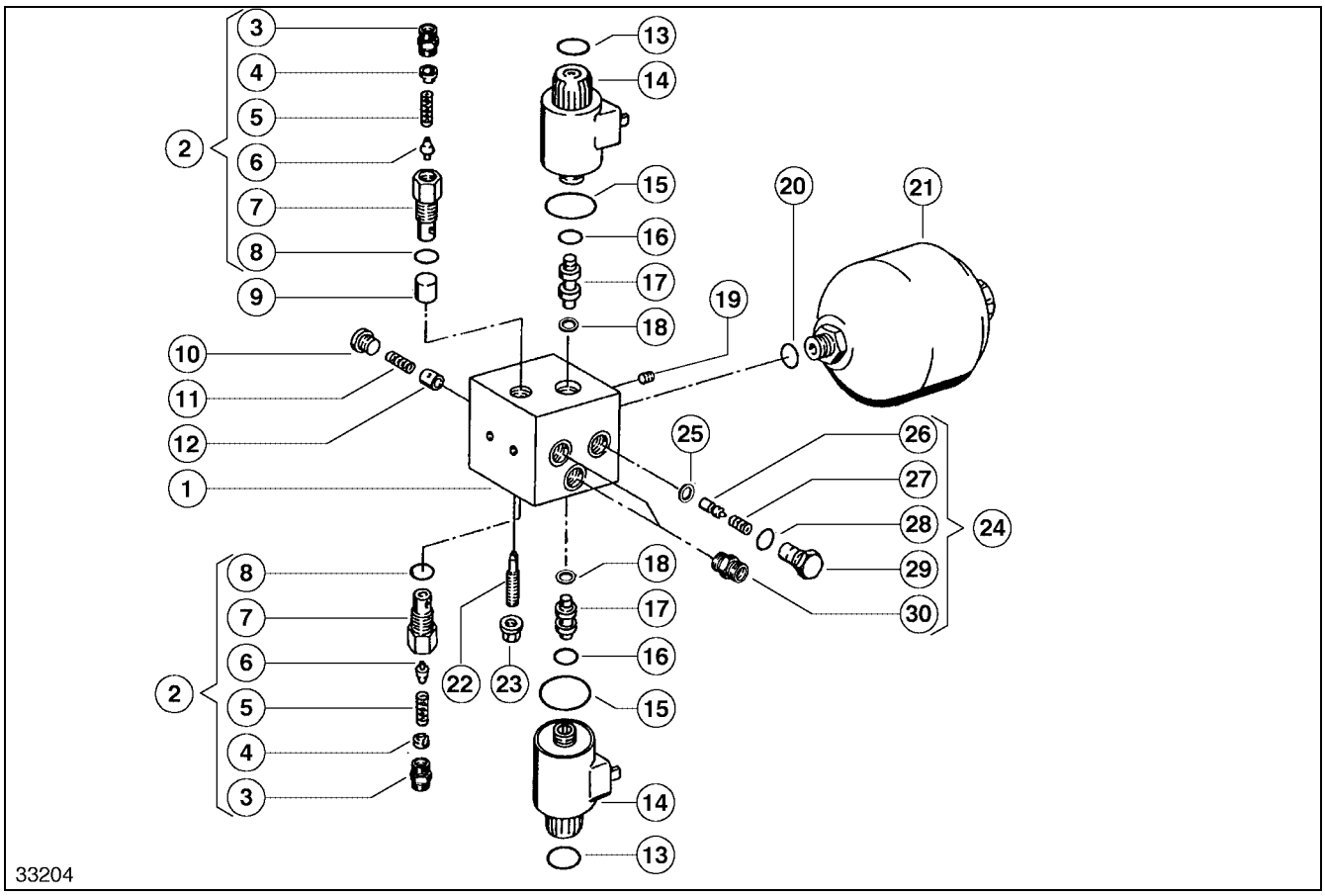
7

Loosen the screws and remove two power supply connectors (G). Mark the power supply plugs before removing them.

Remove the hydraulic lines (A, B, P and T). Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (K) and remove the valve.

(Fig. 7)



8

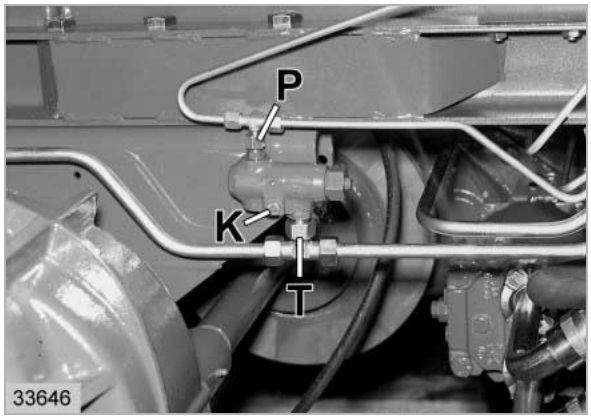
Cutterbar cross levelling 4/3-way valve, disassembled

1 Base unit
2 Valve cartridge – 2 pieces
3 Male connector L 8 F-M DIN 3901 – 2 pieces
O-ring 9.4 x 2.1 - N DIN 3771 – 2 pieces
4 Spring guide – 2 pieces
5 Compression spring – 2 pieces
6 Drop rate valve – 2 pieces
7 Threaded insert – 2 pieces
8 O-ring 15.4 x 2.1 - N DIN 3771 – 2 pieces
9 Cylindrical roller 15 x 15
SORT. M 1 – M 6 DIN 5402
10 Screw plug VSTI M 14 x 1.5 - OR
11 Compression spring
12 Non-return valve
13 O-ring 22 x 2 - N
DIN 3771 – 2 pieces
14 Solenoid coil 3 mm /
12 V DC / 60 % OLF – 2 pieces
15 O-ring 40 x 1.5 - N DIN 3771 – 2 pieces
16 O-ring 15.4 x 2.1 - N DIN 3771 – 2 pieces
17 Valve insert – 2 pieces
18 Seal – 2 pieces
19 Set screw M 6 x 6 DIN 914 – 4 pieces
20 O-ring 15.4 x 2.1 - N DIN 3771
21 Pressure accumulator
22 Restrictor screw
23 Flange nut
24 Flow control valve
25 Seal
26 Pressure balance
27 Compression spring
28 O-ring 13.4 x 2.1 - N DIN 3771
29 Threaded insert
30 Male connector L 10 F-M DIN 3901 – 2 pieces
O-ring – 2 pieces

(Fig. 8)

CAUTION!

Before assembly ensure the O-rings have been coated with oil.



9

Removing the concave adjustment pressure relief valve

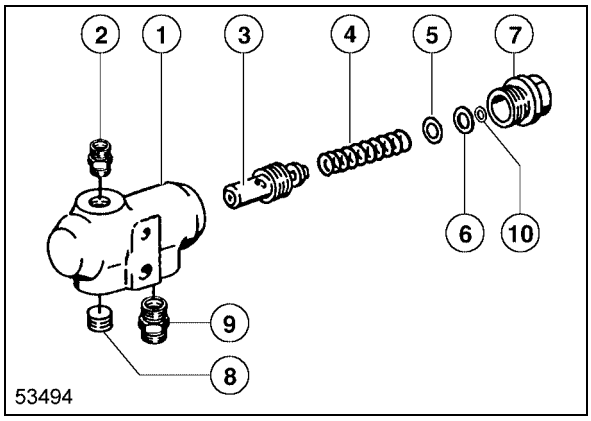
CAUTION!

Thoroughly clean the area around the valve.

Remove the hydraulic lines (P and T). Plug the lines and connections tightly with plastic caps.

Loosen screw (K) and remove the valve.

(Fig. 9)



10

Concave adjustment pressure relief valve, disassembled

1 Base unit
2 Male connector L 8 B-M DIN 3901
3 Valve
4 Compression spring
5 Shim 10 x 16 x 0.5 DIN 988 – 4 pieces
6 Supporting ring S 10 x 16 x 1.2
7 Spring hood (from serial no. ...)
8 Screw plug M 18 x 1.5 DIN 906
9 Male connector L 15 B-M DIN 3901
10 O-ring

(Fig. 10)

Assembling the concave adjustment pressure relief valve

1. Lightly oil the O-rings before inserting.
2. Mount the screw plug (8) with liquid locking compound, e.g. DELO-ML 5328, part no. 201 802.0.

(Fig. 10)



11

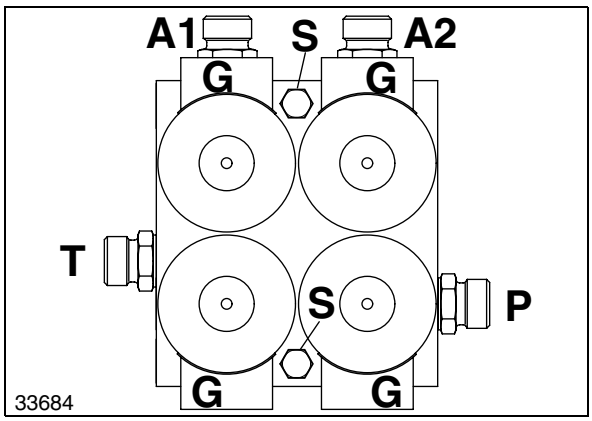
Removing the cutterbar and threshing drum variable-speed drive 3/3-way valves

Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve (V).

(Fig. 11)



12

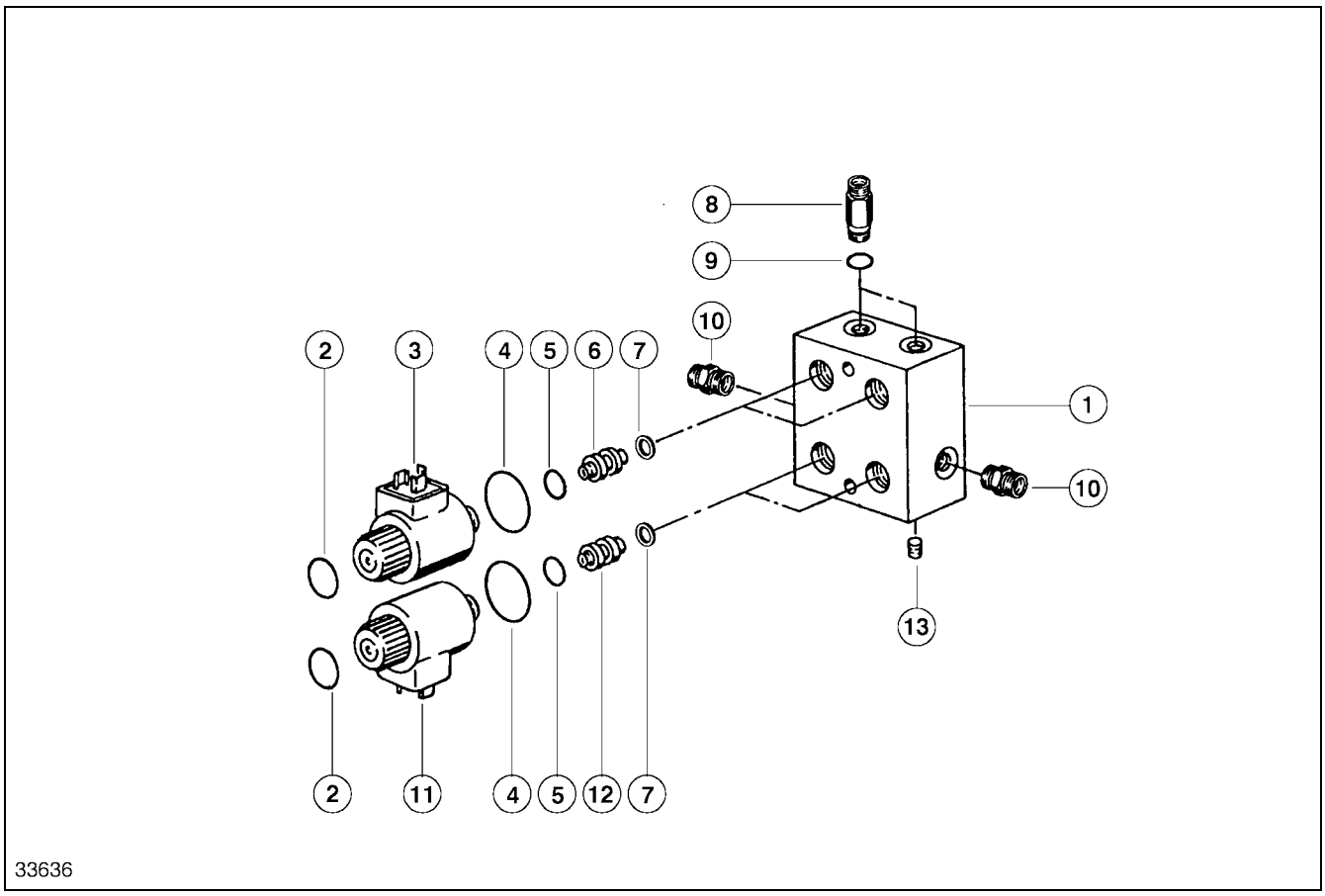
Loosen the bolts and disconnect the four power supply connectors (G).

Remove the hydraulic lines (A1, A2, P and T).

Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valves.

(Fig. 12)



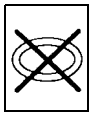
13

Cutterbar and threshing drum variable-speed drive 3/3-way valve, disassembl

1 Base unit
2 O-ring 22 x 2 - N DIN 3771 – 4 pieces
3 Solenoid coil 3 mm / 12 V DC / 60 % OLF / F – 2 pieces
4 O-ring 40 x 1.5 - N DIN 3771 – 4 pieces
5 O-ring 15.4 x 2.1 - N DIN 3771 – 4 pieces
6 Valve insert – 2 pieces
7 Seal – 4 pieces
8 Assembled restrictor – 2 pieces
9 O-ring 9.4 x 2.1 - N DIN 3771 – 2 pieces
10 Male connector L 10 F-M DIN 3901 – 2 pieces
O-ring – 2 pieces
11 Solenoid 3 mm / 12 V DC / 60 % on-load factor – 2 pieces
12 Valve insert – 2 pieces
13 Set screw M 6 x 6 DIN 916 – 2 pieces

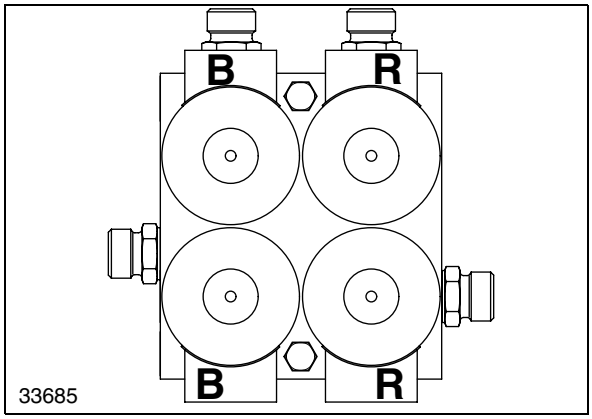
(Fig. 13)





CAUTION!

Before assembly ensure the O-rings have been coated with oil.



14

Installing the cutterbar and threshing drum variable-speed drive 3/3-way valves

Once the directional control valves have been fitted, connect the power supply plugs as follows:

Connect the power supply plugs with the red cable band to (R) and secure.

Connect the power supply plugs with the blue cable band to (B) and secure.

(Fig. 14)



15

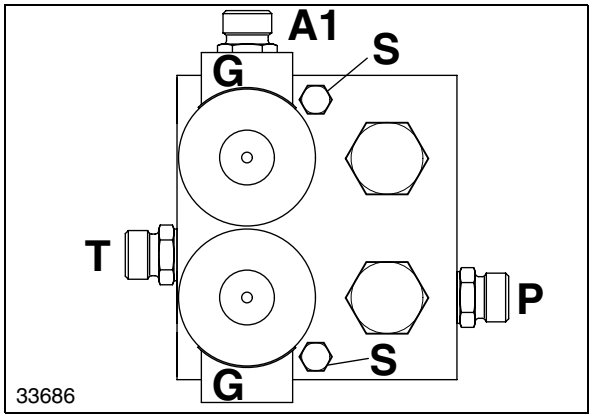
Removing the threshing drum variable-speed drive 3/3-way valve

Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve (V).

(Fig. 15)



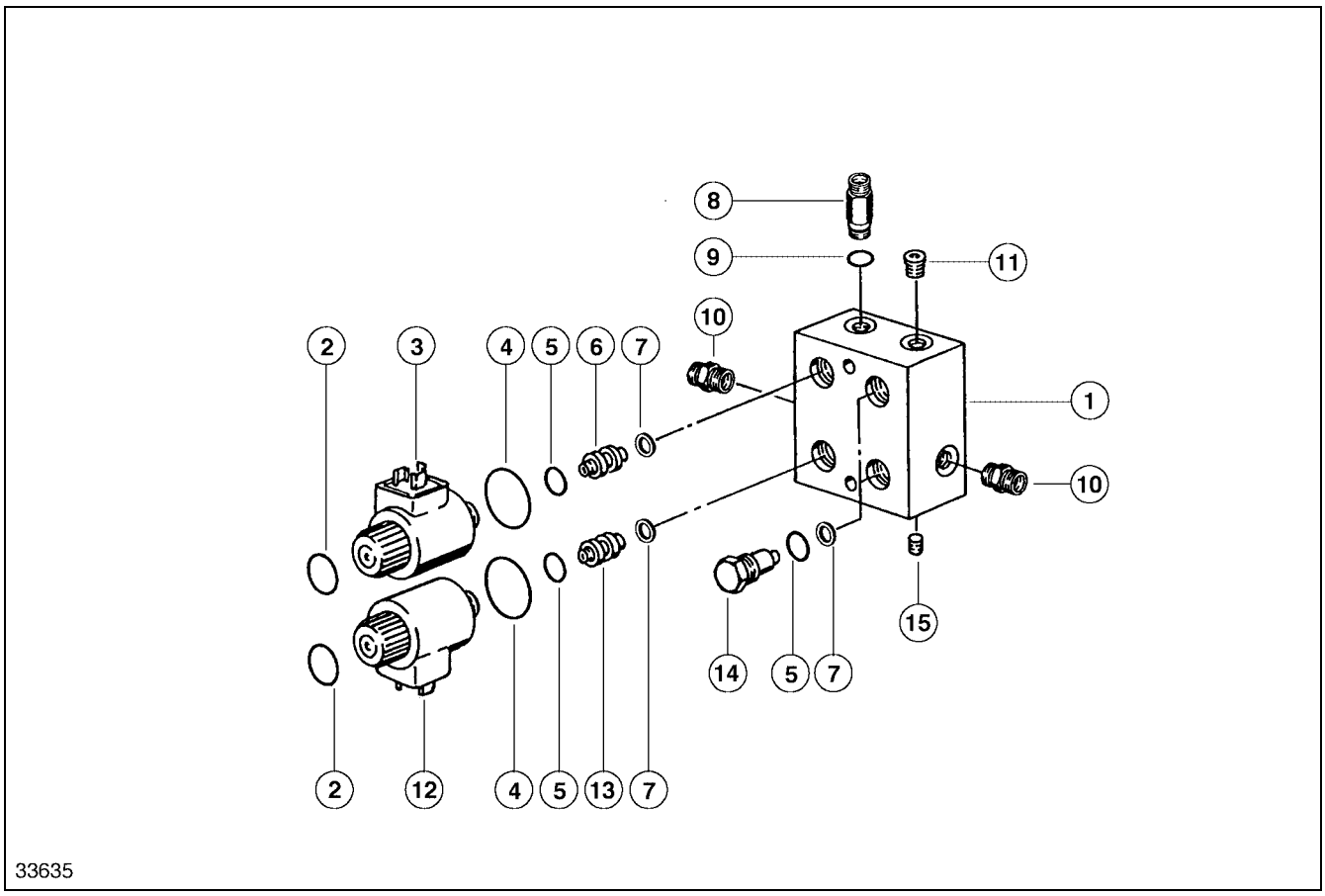
16

Loosen the screws and disconnect the power supply plugs (G).

Remove the hydraulic lines (A1, P and T). Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valve.

(Fig. 16)



17

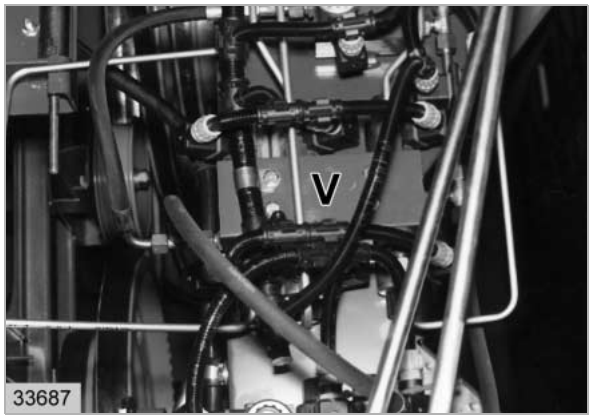
Threshing drum variable-speed drive 3/3-way valve, disassembled

1 Base unit
2 O-ring 22 x 2 - N DIN 3771 – 2 pieces
3 Solenoid coil 3 mm / 12 V DC / 60 % OLF / F
4 O-ring 40 x 1.5 - N DIN 3771 – 2 pieces
5 O-ring 15.4 x 2.1 - N DIN 3771 – 4 pieces
6 Valve insert
7 Seal – 4 pieces
8 Assembled restrictor
9 O-ring 9.4 x 2.1 - N DIN 3771
10 Male connector L 10 F-M DIN 3901 – 2 pieces
O-ring – 2 pieces
11 Screw plug
12 Solenoid 3 mm / 12 V DC / 60 % on-load factor
13 Valve insert
14 Plug – 2 pieces
15 Set screw M 6 x 6 DIN 916 – 2 pieces

(Fig. 17)

CAUTION!

Before assembly ensure the O-rings have been coated with oil.



18

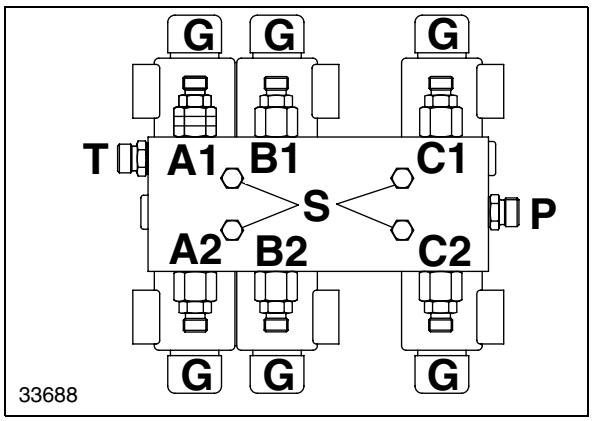
Removing the concave, grain tank unloading tube and straw chopper 4/3-way valves

Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve (V).

(Fig. 18)



19

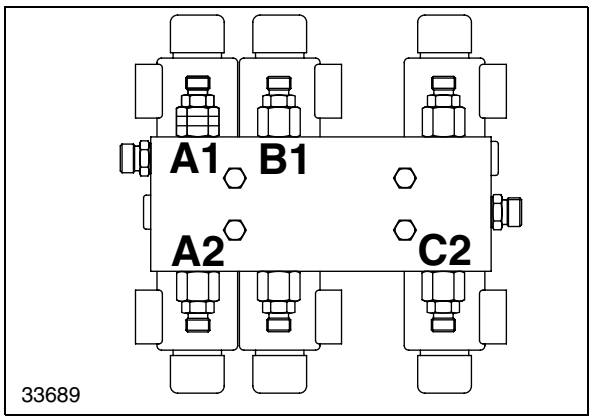
Loosen the screws and remove the power supply plugs (G).

Remove the hydraulic lines (A1, A2, B1, B2, C1, C2, P and T).

Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valves.

(Fig. 19)



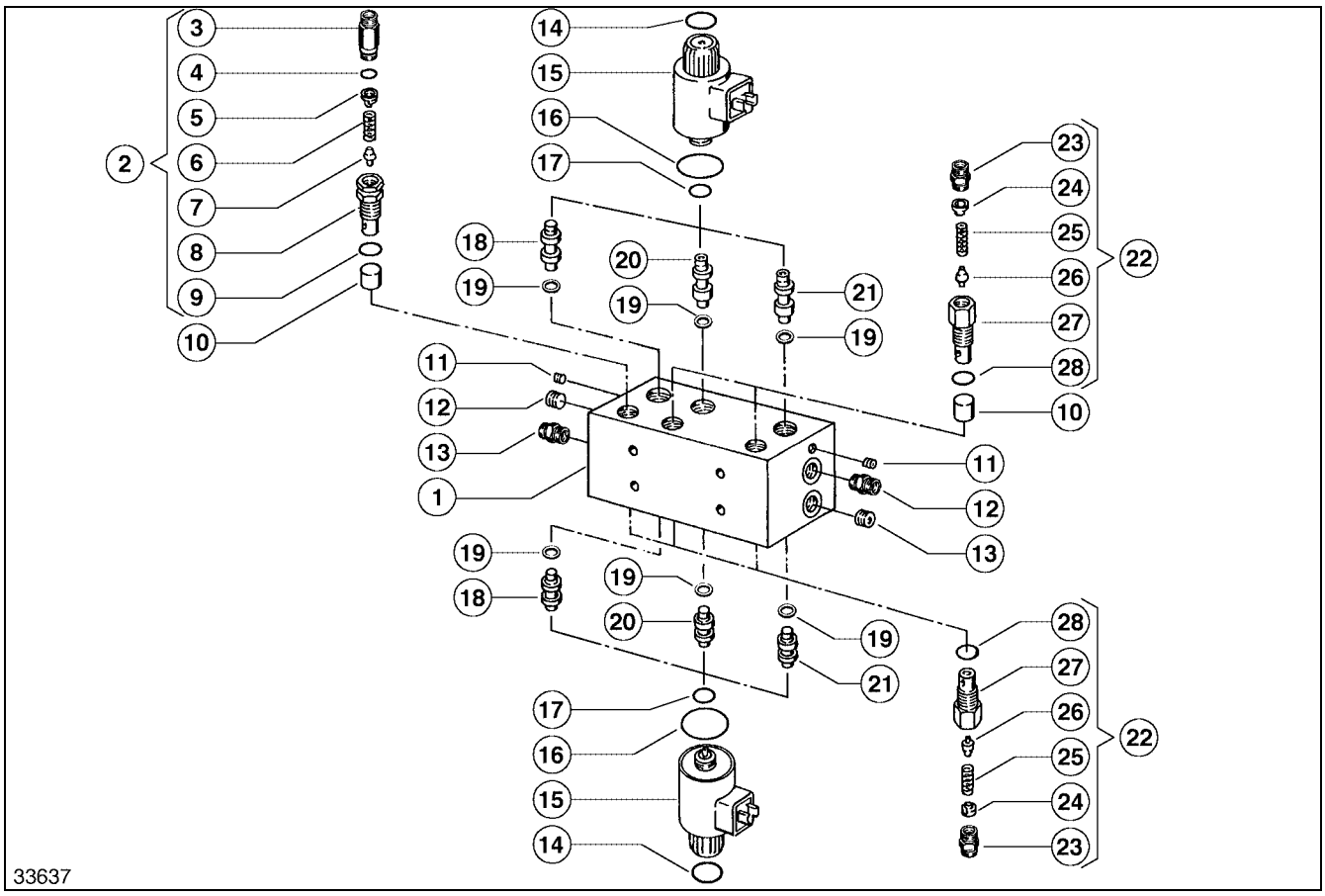
20

CAUTION!

Before disassembling the valve, please ensure the valve cartridges have been marked accordingly.

A1 = Valve cartridge with restrictor
A2 = Valve cartridge with orifice plate ∅ 0.6 caulked
B1 = Valve cartridge with orifice plate ∅ 0.8 caulked
C2 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 20)

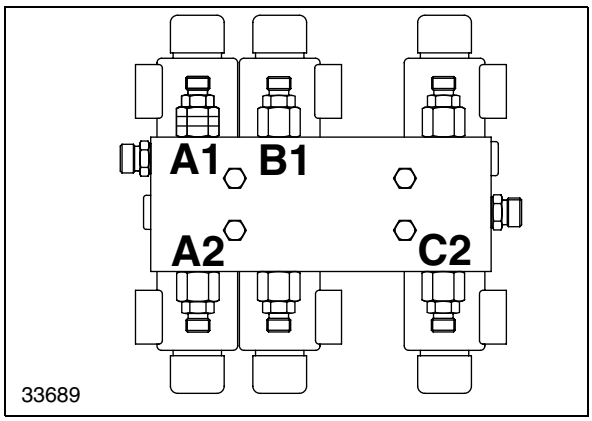


21

Concave, grain tank unloading tube and straw chopper 4/3-way valve, disassembled

1 Base unit
2 Valve cartridge
3 Assembled restrictor
4 O-ring 9.4 x 2.1 - N DIN 3771
5 Spring guide
6 Compression spring
7 Drop rate valve
8 Threaded insert
9 O-ring
10 Cylindrical roller 15 x 15 SORT. M 1 – M 6 DIN 5402 – 3 pieces
11 Set screw M 8 x 8 DIN 916 – 3 pieces
12 Screw plug VSTI M 14 x 1.5 - OR – 2 pieces
13 Male connector L 10 F-M DIN 3901 – 2 pieces O-ring – 2 pieces
14 O-ring 22 x 2 - N DIN 3771 – 6 pieces
15 Solenoid 3 mm / 12 V DC / 60 % OLF – 6 pieces
16 O-ring 40 x 1.5 - N DIN 3771 – 6 pieces
17 O-ring 15.4 x 2.1 - N DIN 3771 – 6 pieces
18 Valve insert – 2 pieces
19 Seal – 6 pieces
20 Valve insert – 2 pieces
21 Valve insert – 2 pieces
22 Valve cartridge – 5 pieces
23 Male connector L 8 F-M DIN 3901 – 5 pieces
24 Spring guide – 5 pieces
25 Compression spring – 5 pieces
26 Drop rate valve – 5 pieces
27 Threaded insert – 5 pieces
28 O-ring

(Fig. 21)



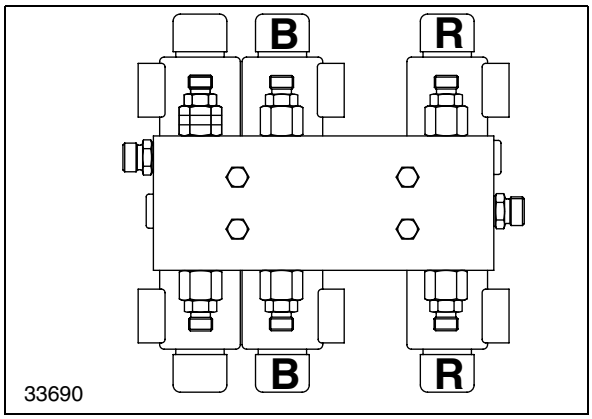
22

Assembling the concave, grain tank unloading tube and straw chopper 4/3-way valves

1. Before assembly ensure the O-rings have been coated with oil.
2. Bolt the valve cartridges on the base unit according to the markings:

   A1 = Valve cartridge with restrictor
   A2 = Valve cartridge with orifice plate ∅ 0.6 caulked
   B1 = Valve cartridge with orifice plate ∅ 0.8 caulked
   C2 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 22)



23

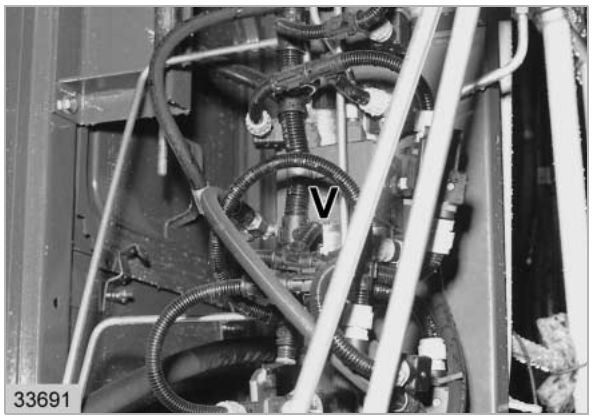
Installing the concave, grain tank unloading tube and straw chopper 4/3-way valves

Once the valve has been fitted, connect the power supply plugs as follows:

Connect the power supply plugs with the red cable band to (R) and secure.

Connect the power supply plugs with the blue cable band to (B) and secure.

(Fig. 23)



24

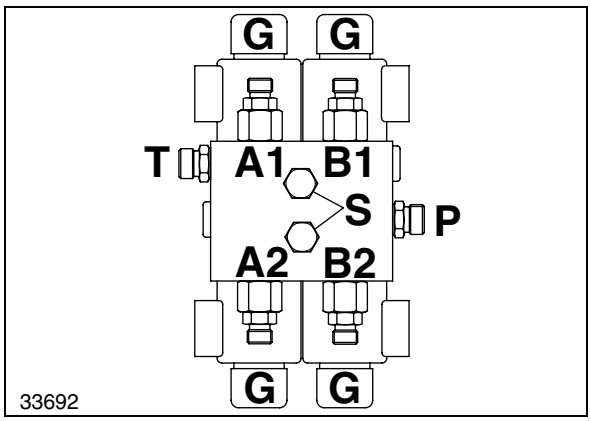
Removing the concave and grain tank unloading tube 4/3 way valves

Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve (V).

(Fig. 24)



25

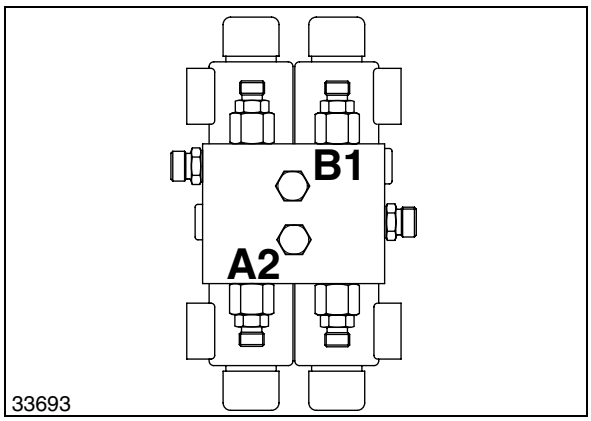
Loosen the screws and disconnect the power supply plugs (G).

Remove the hydraulic lines (A1, A2, B1, B2, P and T).

Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valves.

(Fig. 25)



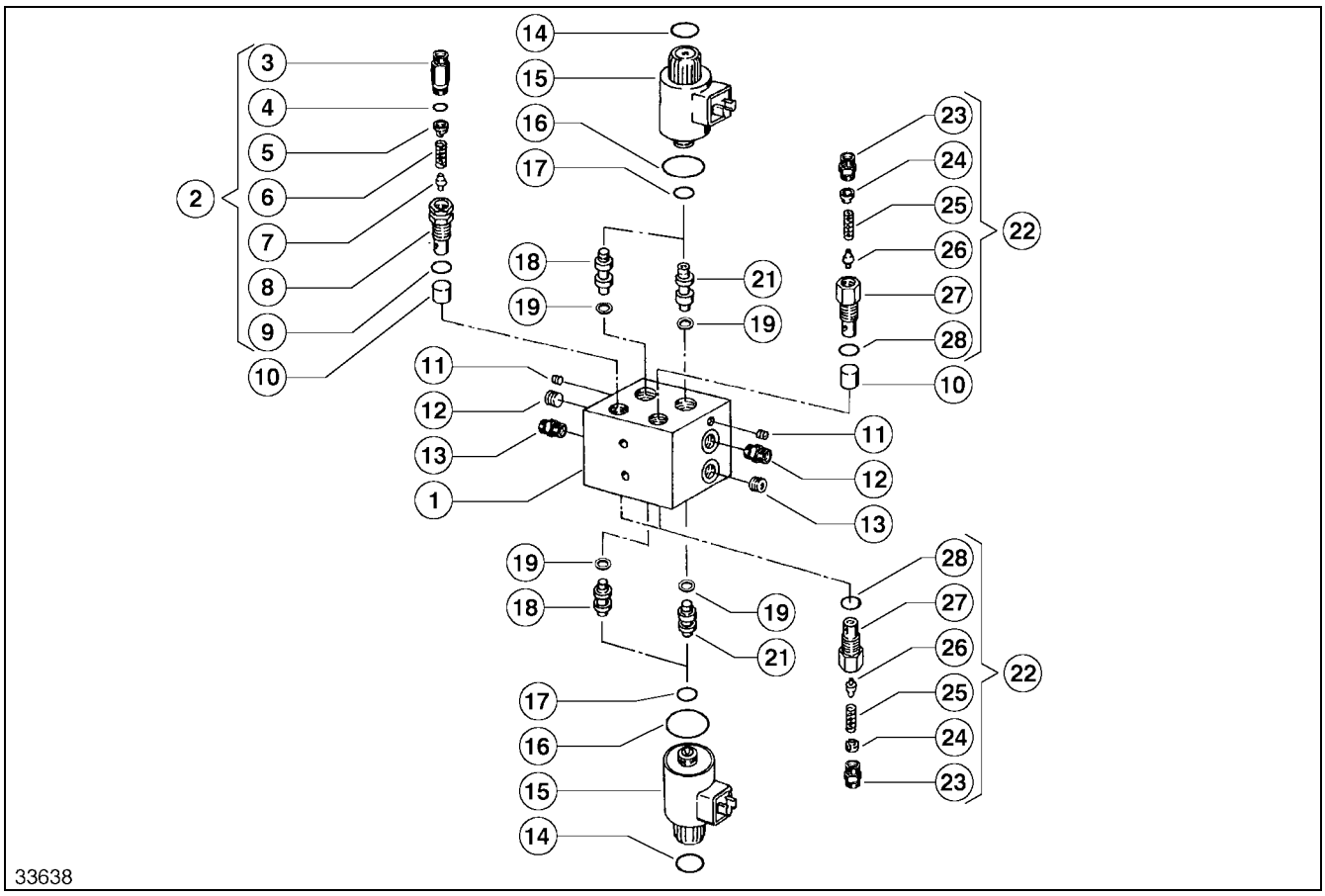
26

CAUTION!

Before disassembling the valve, please ensure the valve cartridges have been marked accordingly.

A2 = Valve cartridge with orifice plate ∅ 0.6 caulked
B1 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 26)



27

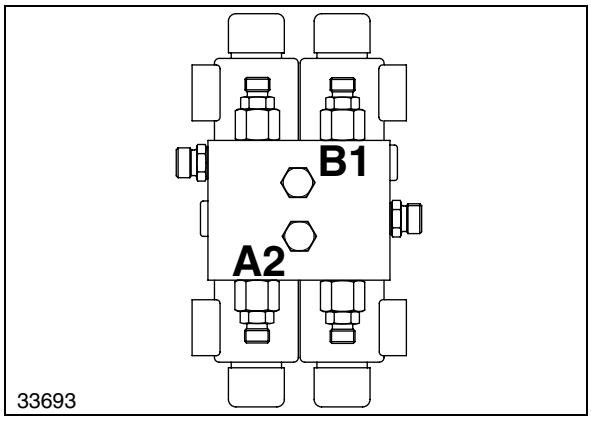
Concave and grain tank unloading tube 4/3-way valve, disassembled

1 Base unit
2 Valve cartridge
3 Assembled restrictor
4 O-ring 9.4 x 2.1 - N DIN 3771
5 Spring guide
6 Compression spring
7 Drop rate valve
8 Threaded insert
9 O-ring 15.4 x 2.1 - N DIN 3771
10 Cylindrical roller 15 x 15 SORT. M 1 - M 6 DIN 5402 – 2 pieces
11 Set screw M 8 x 8 DIN 916
12 Screw plug VSTI M 14 x 1.5 - OR – 2 pieces
13 Male connector L 10 F-M DIN 3901 – 2 pieces
O-ring – 2 pieces
14 O-ring 22 x 2 - N DIN 3771 – 4 pieces
15 Solenoid 3 mm / 12 V DC / 60 % OLF – 4 pieces
16 O-ring 40 x 1.5 - N DIN 3771 – 4 pieces
17 O-ring 15.4 x 2.1 - N DIN 3771 – 4 pieces
18 Valve insert – 2 pieces
19 Seal – 4 pieces
21 Valve insert – 2 pieces
22 Valve cartridge – 3 pieces
23 Male connector L 8 F-M – 3 pieces
O-ring 9.4 x 2.1 - N DIN 3771 - 3 pieces
24 Spring guide – 3 pieces
25 Compression spring – 3 pieces
26 Drop rate valve – 3 pieces
27 Threaded insert – 3 pieces
28 O-ring – 3 pieces

(Fig. 27)

Assembling the concave and grain tank unloading tube 4/3-way valves

1. Before assembly ensure the O-rings have been coated with oil.
2. Glue in set screw (11) with liquid locking compound, e.g. DELO-ML 5328 so it is pressure-tight.

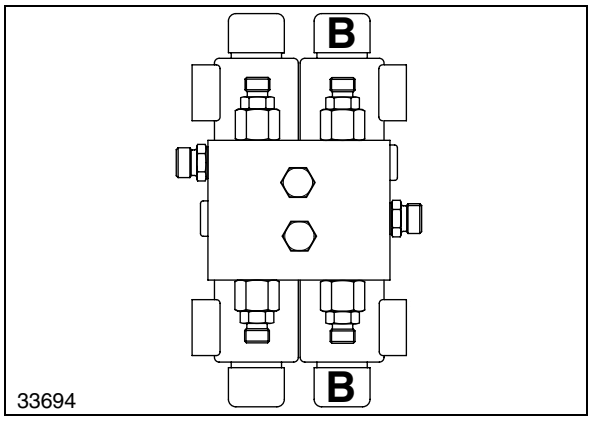


28

3. Bolt the valve cartridges on the base unit according to the markings:

   A2 = Valve cartridge with orifice plate ∅ 0.6 caulked
   B1 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 28)



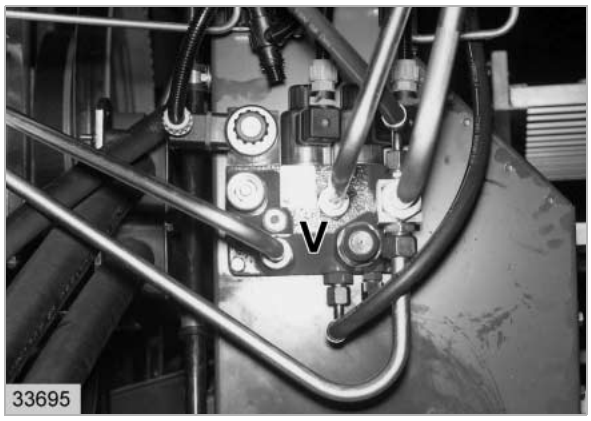
29

Installing the concave and grain tank unloading tube 4/3-way valves

Once the valve has been fitted, connect the power supply plugs as follows:

Connect the power supply plugs with the blue cable band to (B) and secure.

(Fig. 29)



30

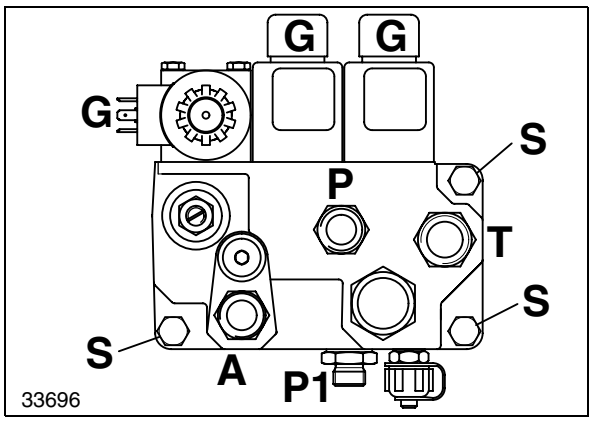
Removing the main valve

Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve (V).

(Fig. 30)



31

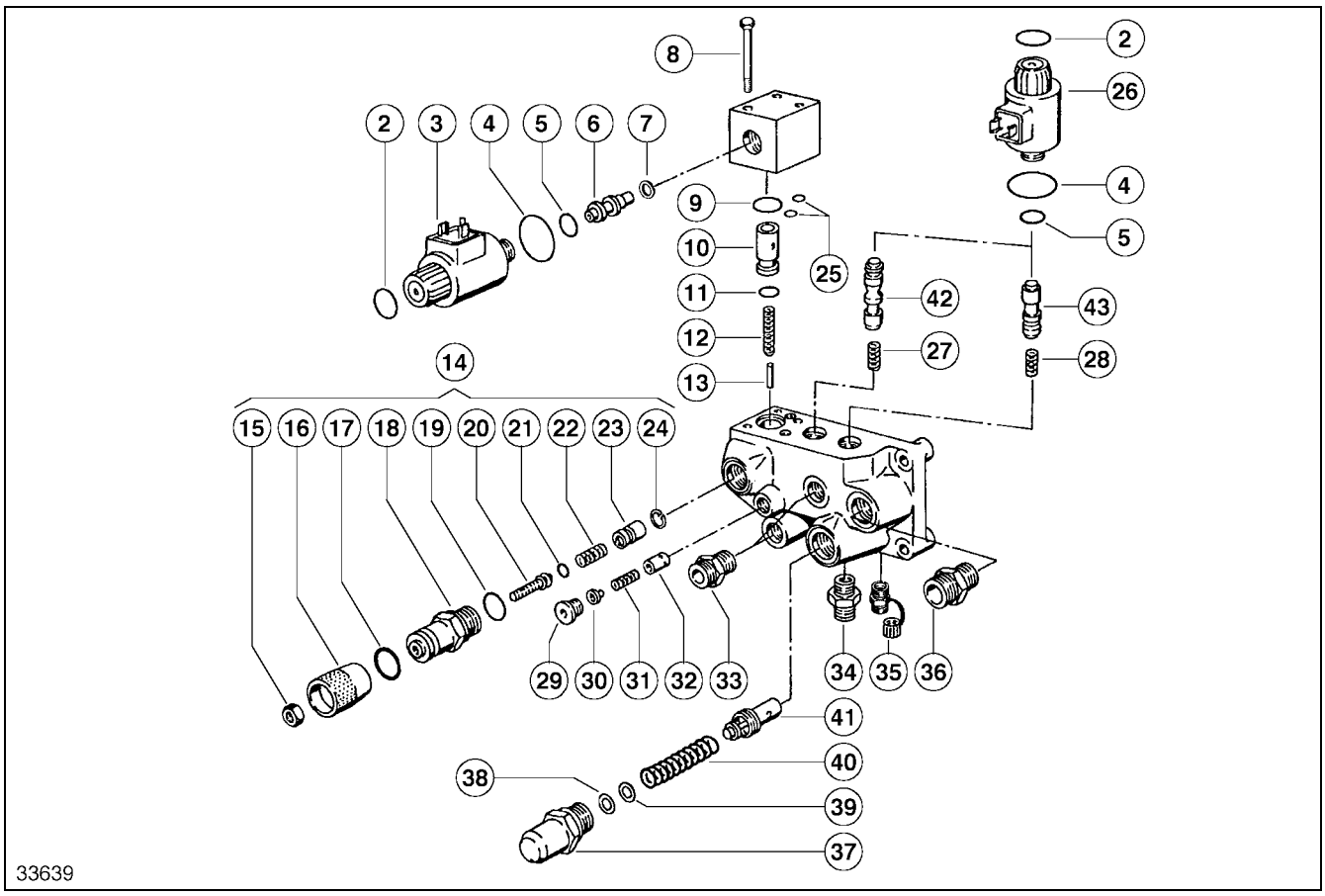
Loosen the screws and disconnect the power supply plugs (G).

Remove the hydraulic lines (A, P, P1 and T).

Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valves.

(Fig. 31)

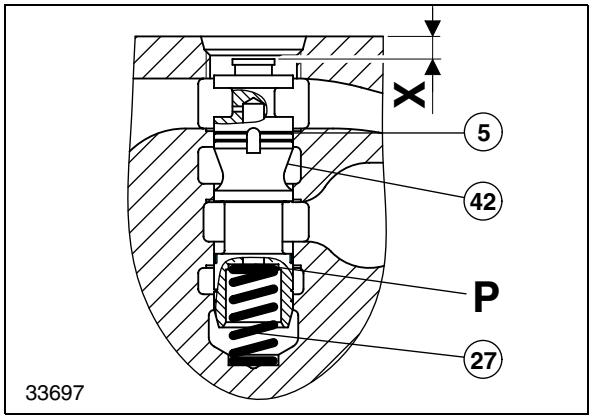


32

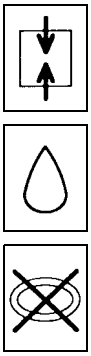
Main valve, disassembled

1 Base unit
2 O-ring 22 x 2 - N DIN 3771 – 3 pieces
3 Solenoid 3 mm / 12 V DC / 60 % OLF / F
4 O-ring 40 x 1.5 - N DIN 3771 – 3 pieces
5 O-ring 15.4 x 2.1 - N DIN 3771 – 3 pieces
6 Valve insert
7 Seal
8 Hex. bolt M 6 x 55 DIN 931 – 3 pieces
9 O-ring 19.3 x 2.4 - N DIN 3771
10 Valve insert
11 O-ring 14 x 2 - N DIN 3771
12 Compression spring
13 Expansion pin 5 x 20 - B DIN 8752
14 Flow control valve
15 Hex. nut M 10 DIN 934
16 Knob
17 O-ring 19 x 3.5 - N DIN 3771
18 Threaded insert
19 O-ring 19.4 x 2.1 - N DIN 3771
20 Ram
21 O-ring 8.3 x 2.4 - N DIN 3771
22 Compression spring
23 Pressure balance
24 Circlip 15 x 1 DIN 472
25 O-ring 6 x 2 - N DIN 3771 – 2 pieces
26 Solenoid 3 mm / 12 V DC / 60 % OLF – 2 pieces
27 Compression spring
28 Compression spring
29 Screw plug VSTI M 14 x 1.5 - OR
30 Spring guide
31 Compression spring
32 Non-return valve
33 Male connector L 15 F-M DIN 3901 – 2 pieces
O-ring 15.4 x 2.1 - N DIN 3771 – 2 pieces
34 Male connector L 10 F-M 18 x 1.5 DIN 3901
35 Mini test port M 12 x 1.5
36 Male connector L 18 F-M DIN 3901
O-ring 19.4 x 2.1 - N DIN 3771
37 Spring housing
38 Shim 10 x 16 x 0.5 DIN 988 – 3 pieces
39 Supporting ring S 10 x 16 x 1.2
DIN 988 – 2 pieces
40 Compression spring
41 Valve
42 Valve insert
43 Valve insert

(Fig. 32)



33

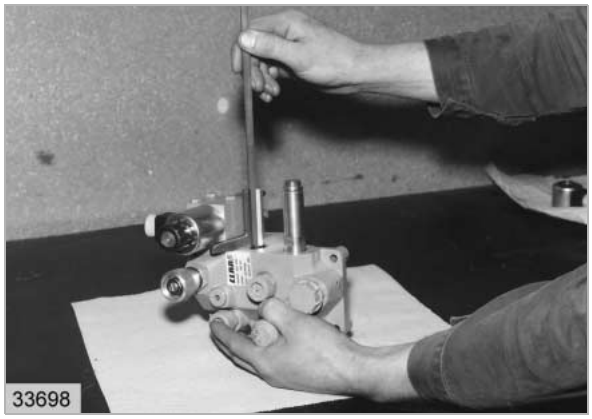


Assembling the main valve

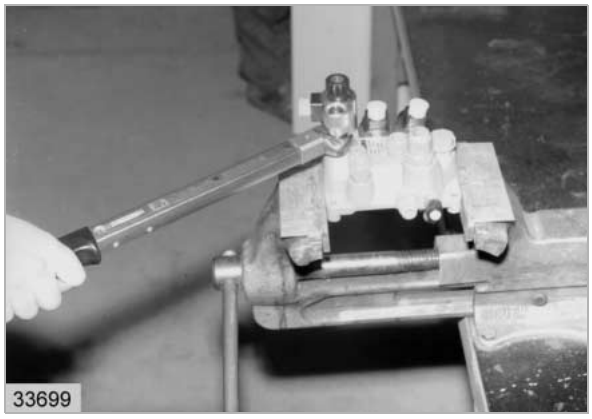
1. Before assembly ensure the O-rings have been coated with oil.
2. Secure the valve (41) with liquid locking compound, e.g. DELO-ML 5349, part no. 201 801.1.
3. Set the valve insert (42) with shims (P), part no. 213 250.0 (s = 0.2) and part no. 213 251.0 (s = 0.3) to control dimension (X) = 4.3 ± 0.1.
4. Bolt down the spring housing (37).

   Tightening torque = 20 Nm

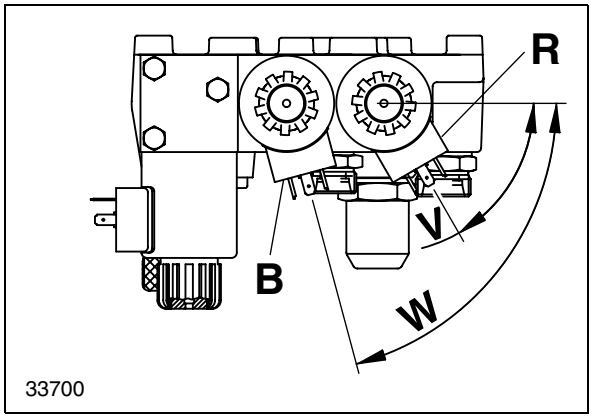
(Fig. 32, 33, 34, 35)



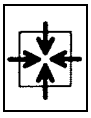
34



35



36

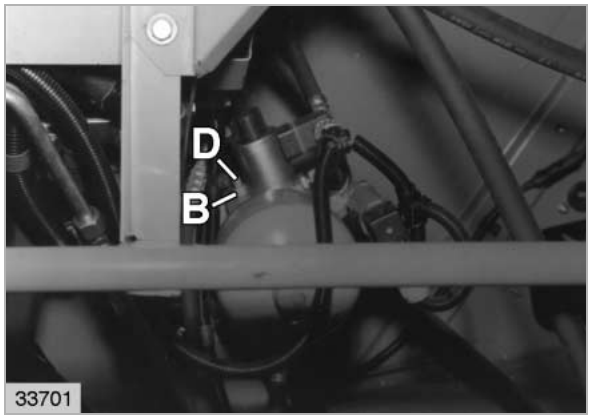


Installing the main valve

1. Set the solenoid valves (26) to the angles (V) = 60° and (W) = 75°.
2. Connect the power supply plugs with the red cable band to (R) and secure.

   Connect the power supply plugs with the blue cable band to (B) and secure.

(Fig. 36)



37

Removing the CLAAS Autopilot solenoid valve

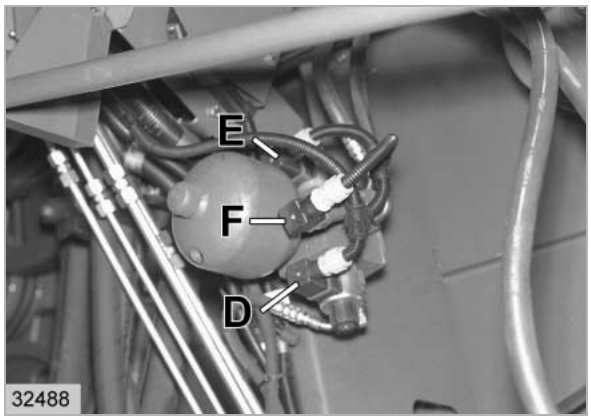
Fold up the left-hand guard.

CAUTION!

Thoroughly clean the area around the valve.

Loosen the flange nut (B) and unscrew the restrictor bolt (D) about one turn in order to release the internal pressure.

(Fig. 37)

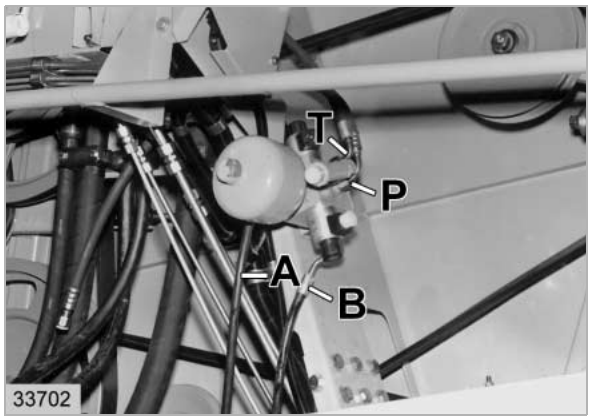


38

Mark the power supply plugs and the solenoid valves accordingly.

Loosen the screws and disconnect the power supply plugs (D, E and F).

(Fig. 38)



39

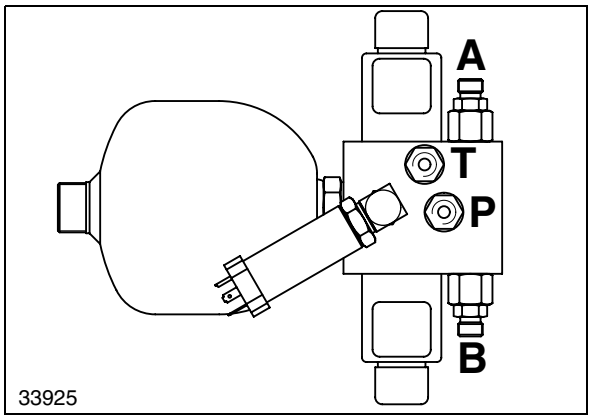
Mark the hydraulic lines and the male connectors accordingly.

Remove the hydraulic lines (A, B, P and T).

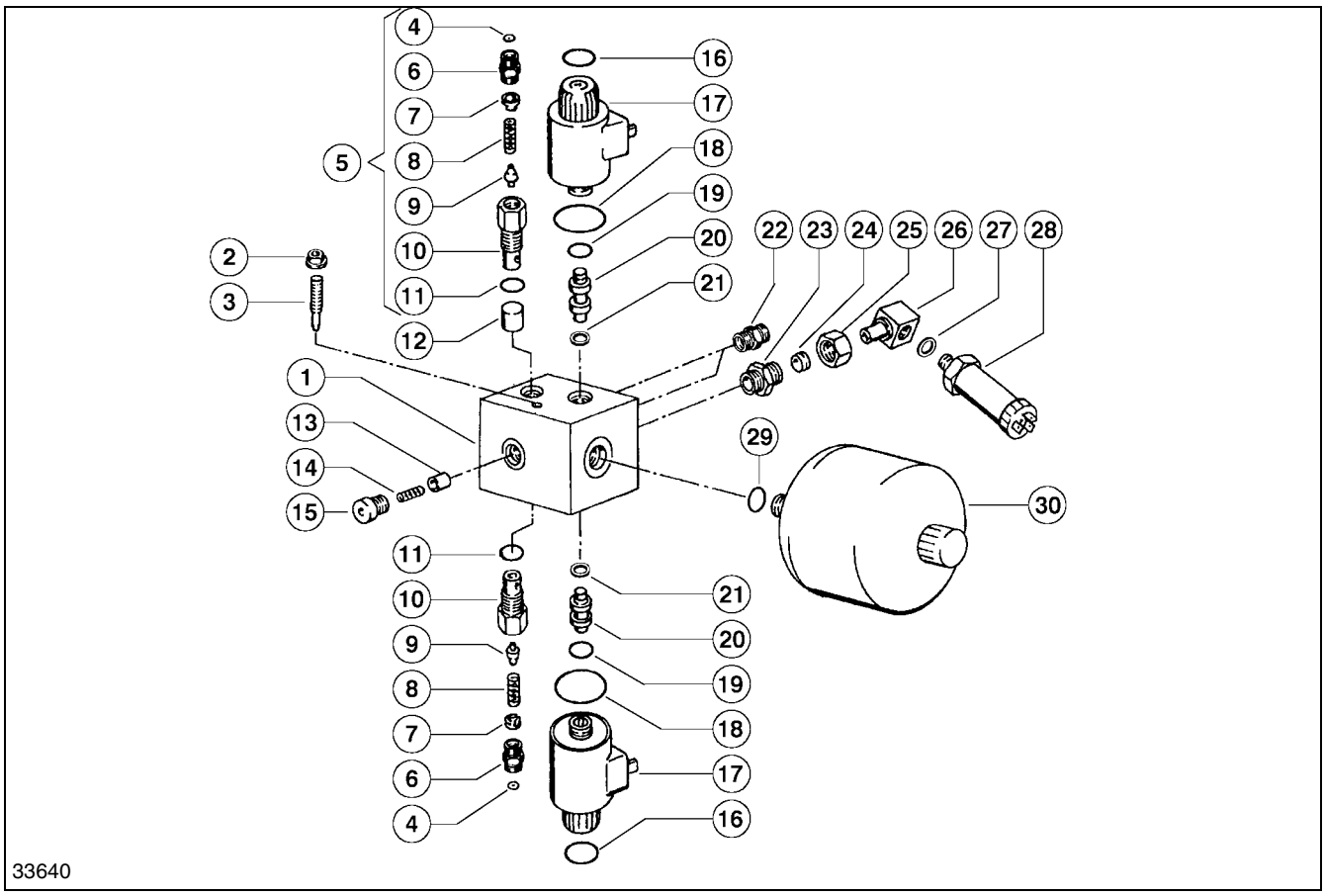
Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts and remove the valve with the bracket.

(Fig. 39, 40)



40

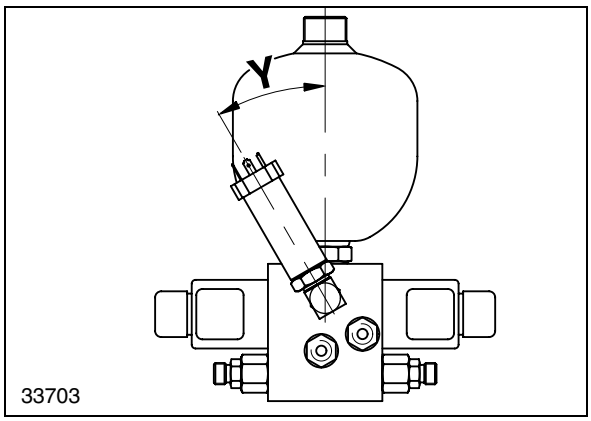


41

CLAAS Autopilot solenoid valve, disassembled

1 Base unit
2 Flange nut
3 Restrictor screw
4 Orifice plate – 2 pieces
5 Valve cartridge – 2 pieces
6 Male connector L 8 F-M DIN 3901 – 2 pieces
7 Spring guide – 2 pieces
8 Compression spring – 2 pieces
9 Drop rate valve – 2 pieces
10 Threaded insert – 2 pieces
11 O-ring 15.4 x 2.1 - N DIN 3771 – 2 pieces
12 Cylindrical roller 15 x 15 SORT. M 1 – M 6 DIN 5402
13 Non-return valve
14 Compression spring
15 Screw plug VSTI M 14 x 1.5 - OR
16 O-ring 22 x 2 - N DIN 3771 – 2 pieces
17 Solenoid coil 3 mm / 12 V DC / 60 % OLF / F – 2 pieces
18 O-ring 40 x 1.5 - N DIN 3771 – 2 pieces
19 O-ring 15.4 x 2.1 - N DIN 3771 – 2 pieces
20 Valve insert – 2 pieces
21 Seal – 2 pieces
22 Male connector L 10 F-M DIN 3901 – 2 pieces
O-ring – 2 pieces
23 Male connector L 12 F-M DIN 3901
O-ring 13.4 x 2.1 - N DIN 3771
24 Profiled ring P-R 12 L / S DIN 3861
25 Union nut A 3 L 12 DIN 3870
26 Adapter
27 Seal
28 Pressure switch
29 O-ring 15.4 x 2.1 - N DIN 3771
30 Pressure accumulator

(Fig. 41)



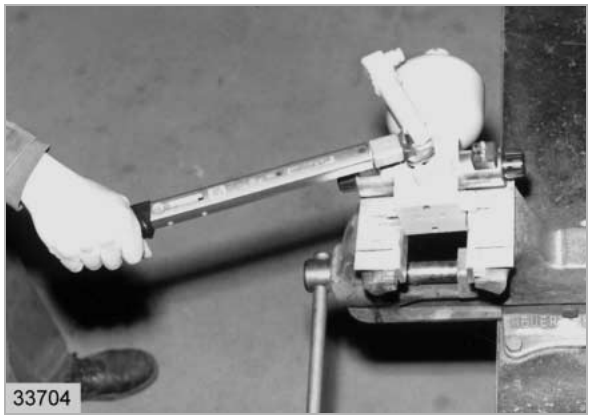
42

Assembling the CLAAS Autopilot solenoid valve

1. Before assembly ensure the O-rings have been coated with oil.
2. Align the pressure switch (28) at an angle of (Y) = 30° ± 5° and secure with DELO-ML 5328, part no. 201 802.1.
3. Tighten the union nut (25).

   Tightening torque = 20 to 30 Nm

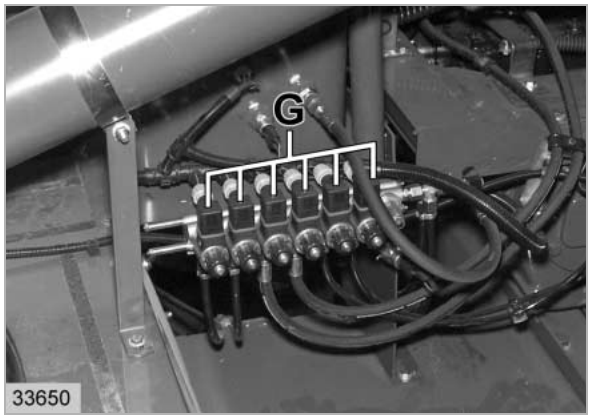
(Fig. 41, 42, 43)



43

Installing the CLAAS Autopilot solenoid valve

1. Connect the corresponding power supply plugs to the marked solenoid coils and fasten them.
2. Connect the respective hydraulic lines to the marked male connectors.



44

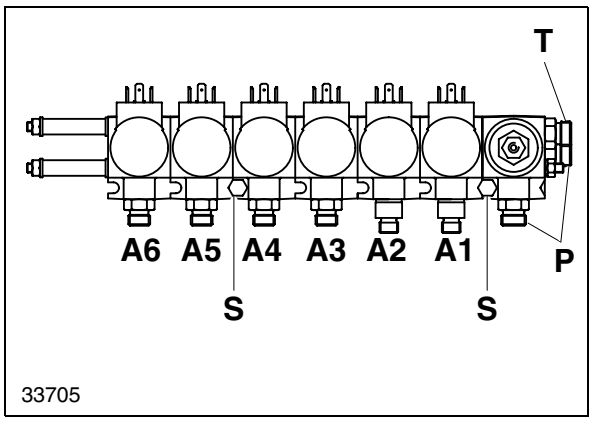
Removing the low-pressure solenoid valve block

CAUTION!

Thoroughly clean the area around the valve.

Loosen the screws and disconnect the power supply plugs (G).

(Fig. 44)



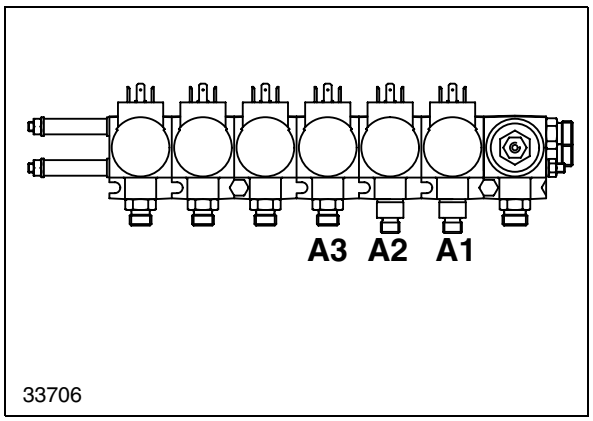
45

Remove the hydraulic lines (A1 to A6, P and T).

Plug the lines and connections tightly with plastic caps.

Remove the hex. bolts (S) and then the valve.

(Fig. 45)



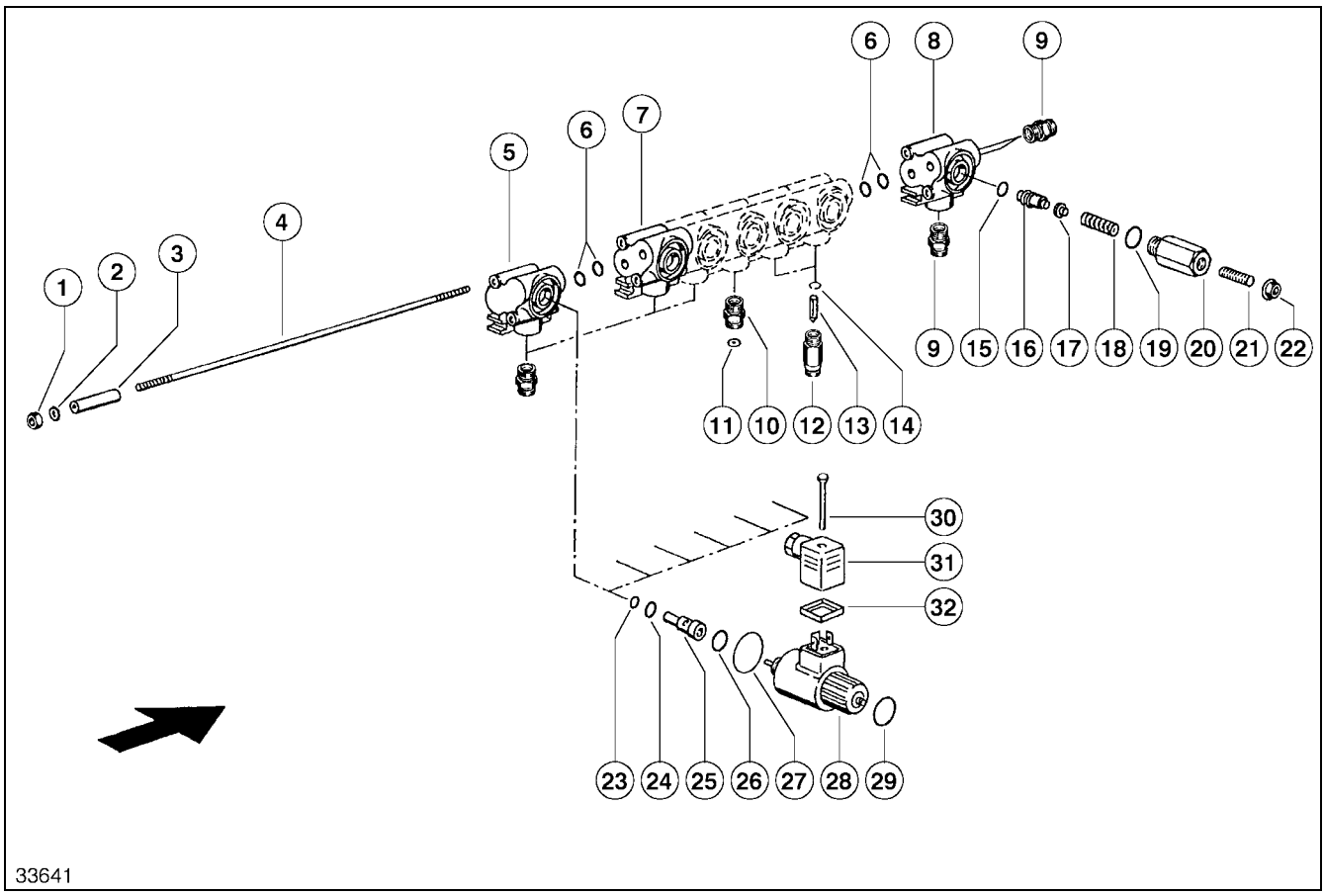
46

CAUTION!

Before disassembling the valve, mark the valve cartridges accordingly.

A1 = Valve cartridge with one-way restrictor valve
A2 = Valve cartridge with one-way restrictor valve
A3 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 46)

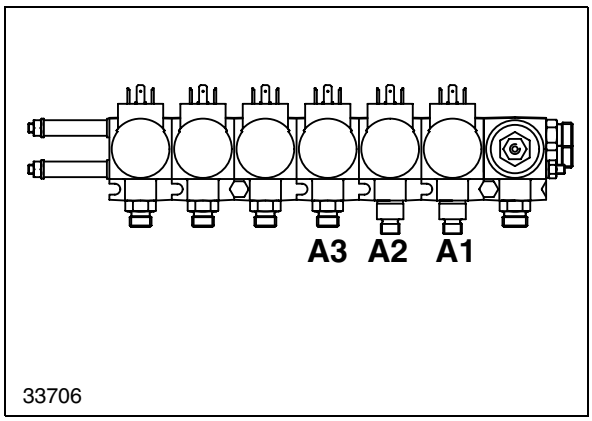


47

Low-pressure solenoid valve block, disassembled

1 Hex. nut M 6 DIN 934 – 4 pieces
2 Washer 6.4 DIN 125 – 4 pieces
3 Spacer tube – 2 pieces
4 Threaded rod – 2 pieces
5 Assembled low-pressure valve
6 O-ring 8.3 x 2.4 - N DIN 3771 – 12 pieces
7 Assembled low-pressure valve – 5 pieces
8 Low-pressure pressure relief valve
9 Male connector – 3 pieces
O-ring 9.4 x 2.1 - N DIN 3771 – 3 pieces
10 Male connector L 8 F-M DIN 3901 – 4 pieces
11 Orifice plate
12 Restricted one way valve – 2 pieces
13 Orifice plate – 2 pieces
14 Snap ring B 7 – 2 pieces
15 O-ring 10 x 1.5 - N DIN 3771
16 Low-pressure PRV insert
17 Spring plate
18 Compression spring
19 O-ring 13 x 2 - N DIN 3771
20 Cap
21 Set screw M 8 x 1 x 25 DIN 914
22 Flange nut
23 O-ring 6.07 x 1.78 - N DIN 3771 – 6 pieces
24 O-ring 10 x 1.5 - N DIN 3771 – 6 pieces
25 Valve insert – 6 pieces
26 O-ring 13 x 2 - N DIN 3771 – 6 pieces
27 O-ring 30 x 1.5 - N DIN 3771 – 6 pieces
28 Solenoid – 2 mm / 12 V DC / 100 % OLF – 6 pieces
29 O-ring 18 x 2 - N DIN 3771 – 6 pieces
30 Cheese-head screw M 3 x 35 DIN 84 – 6 pieces
31 Power supply plug – 6 pieces
32 Rectangular seal – 6 pieces

(Fig. 47)



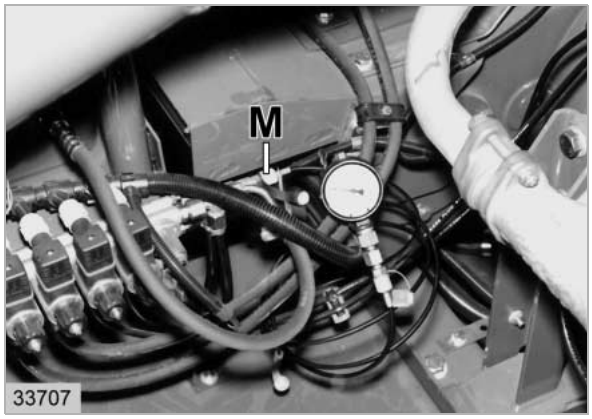
48

Assembling the low-pressure solenoid valve block

1. Before assembly ensure the O-rings have been coated with oil.
2. Bolt the valve cartridges on the base unit according to the markings:

   A1 = Valve cartridge with one-way restrictor valve
   A2 = Valve cartridge with one-way restrictor valve
   A3 = Valve cartridge with orifice plate ∅ 0.8 caulked

(Fig. 48)



49

Installing the low-pressure solenoid valve block

Checking the pressure setting:

Pressure setting of PRV = 21^{+1} bar at 4.0 l/min.

CAUTION!

Only check the oil pressure when the oil is at operating temperature, i.e. approx. **50 °C**, and with the engine running at max. no-load speed.

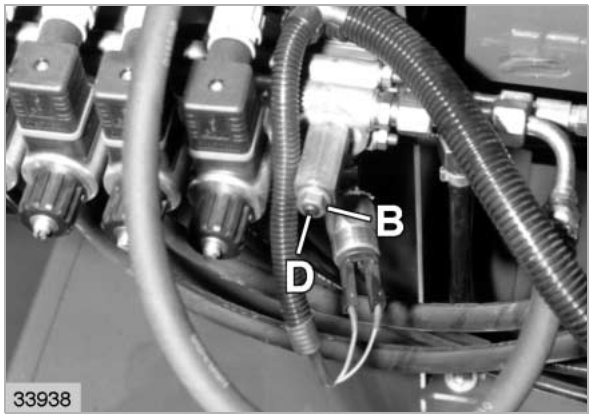
Connect the pressure gauge to the test port (M). Start the engine. Check the pressure reading at the test port.

Correct the setting on the one-way restrictor valve:

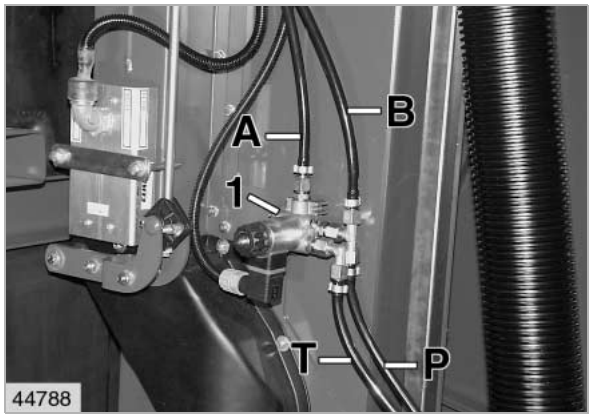
Loosen the flange nut (B).

Screw set screw (D) in = higher pressure
Screw set screw (D) out = lower pressure

(Fig. 49, 50)



50

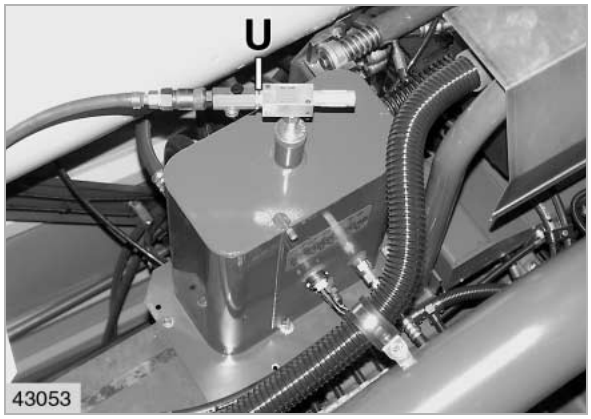


51

Removing the low-pressure solenoid valve (yield meter)

1 Yield meter 3/2-way solenoid valve
A Working line (extend)
B Working line (retract)
T Tank connection
P Ground drive feed pump connection

(Fig. 51)



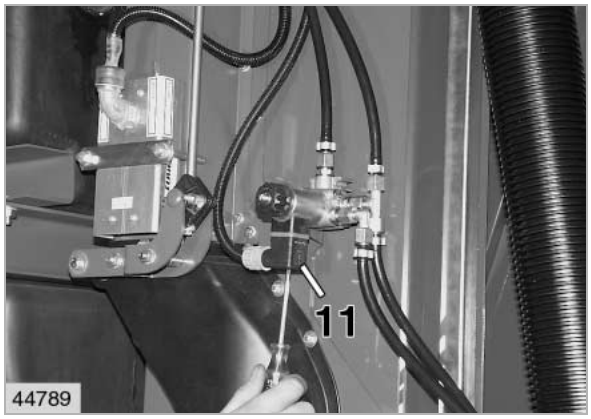
52

Create a vacuum in the hydraulic oil tank using the special tool (U).

Special tool:

Valve combination for creating a vacuum
part no. 181 619.0

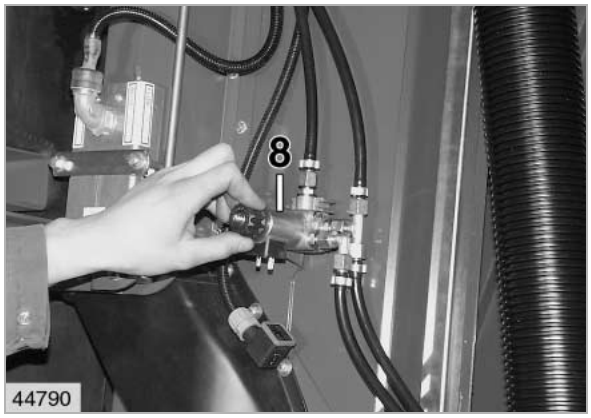
(Fig. 52)



53

Loosen and pull off the power supply plug (11).

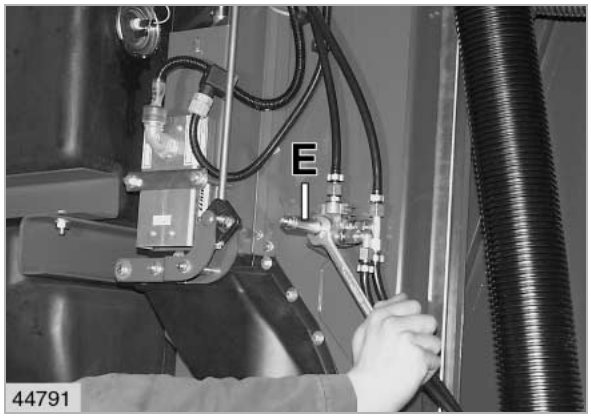
(Fig. 53, 58)



54

Unscrew the screwed cap from the solenoid (8) and pull off solenoid (8).

(Fig. 54, 58)



55

Unscrew the iron core (E).

(Fig. 55)



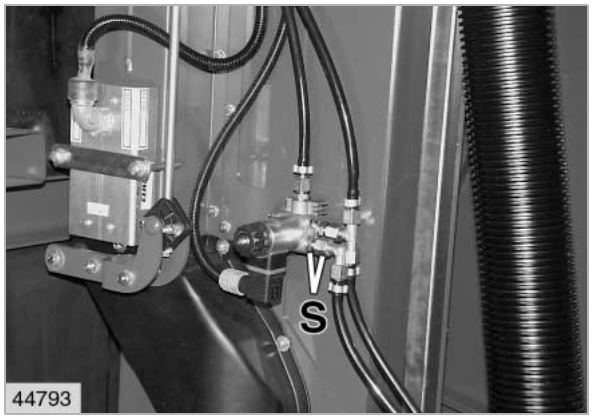
56

Pull out valve insert (5) and turn it at the same time.

ATTENTION!

Never use force for this operation! If necessary, the vacuum in the hydraulic oil tank must be reduced since the suction effect may be too strong.

(Fig. 52, 56, 58)

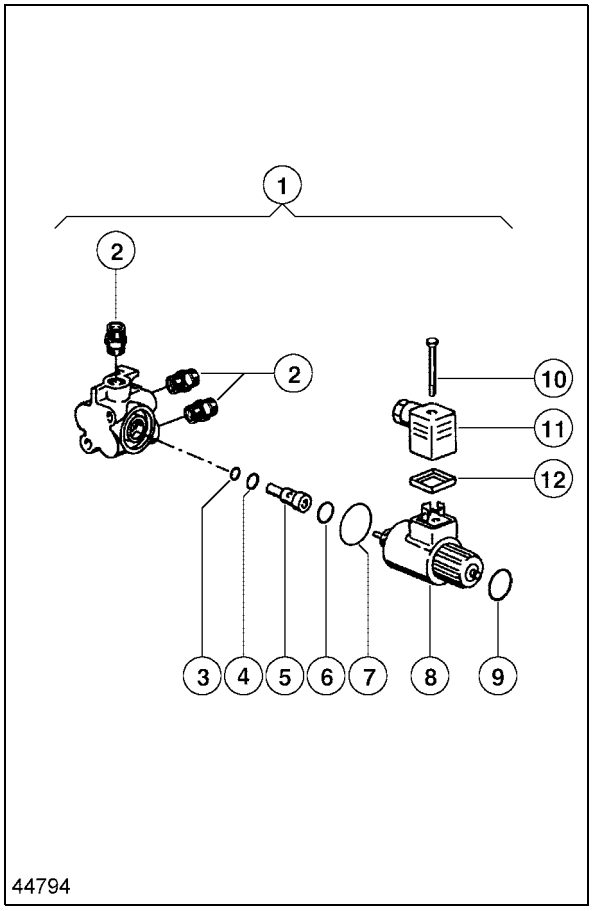


57

To completely disassemble the 3/2-way valve, the hydraulic lines must be removed and plugged with plugs at both ends.

Unscrew hex. bolts (S).

(Fig. 57)

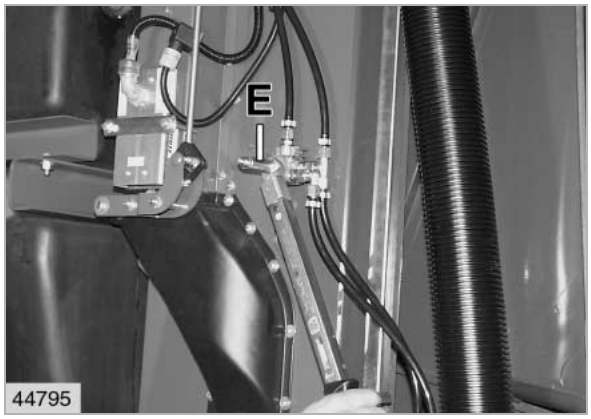


58

Yield meter 3/2-way solenoid valve, disassembled

1 Assembled 3/2-way solenoid valve
2 Male connector
O-ring
3 O-ring
4 O-ring
5 Valve insert
6 O-ring
7 O-ring
8 Solenoid
9 O-ring
10 Cheese-head screw M 3 x 35
11 Power supply plug
12 Rectangular seal

(Fig. 58)



59

Installing the low-pressure solenoid valve (yield meter)

1. Insert the valve insert (5) with O-rings (3 and 4) into the low-pressure valve block.
2. Grease thread of iron core (E) and O-ring (6) and screw into the low-pressure valve block.

(Fig. 58, 59)

3. Slide solenoid (8) with O-ring (7) on the iron core (E).
4. Screw screwed cap with O-ring (9) on the solenoid (8).
5. Fit power supply plug (11) with rectangular seal (12) and bolt it on.

(Fig. 58)

6. Check hydraulic oil level and top up if necessary – see page 9.2.3, *Filling instructions when changing the hydraulic oil*.



60

7. Start the engine and operate the valve (1) manually. Extend and retract the cylinders several times.

NOTE!

The mechanical function of the 3/2-way solenoid valve can be checked by screwing in the adjusting screw (F) for a short period while the engine is running.

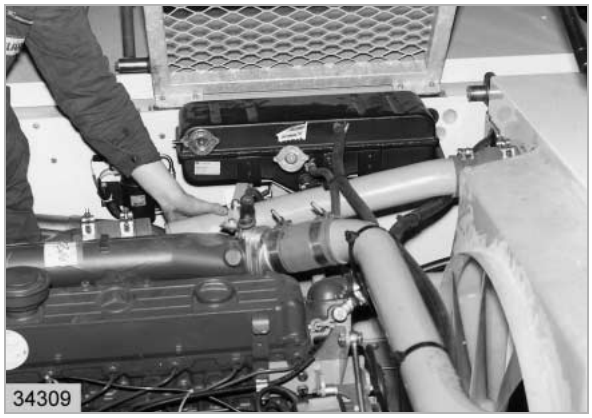
CAUTION!

For a flawless function of the 3/2-way solenoid valve (in operating status), the adjusting screw (F) must be turned counterclockwise to the stop.

(Fig. 58, 60)

10
Engine

COOLING SYSTEM



1

Removing the intercooler

Remove the two air intake hoses from the intercooler. For this loosen the jubilee clips.

Plug the connections tightly.

(Fig. 1)



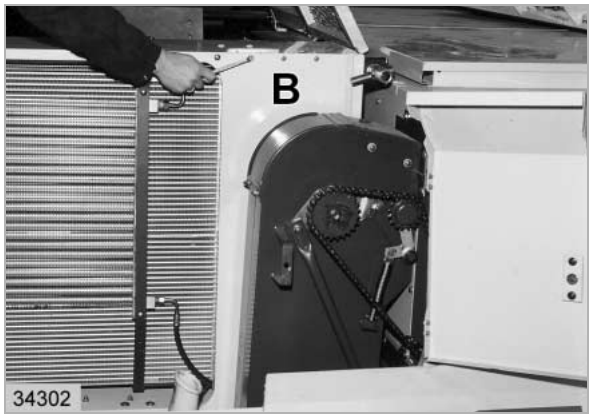
2

Fold up the rotary screen.

Remove the pin from the gas strut.

Remove the bolt from the bearing and remove the rotary screen completely.

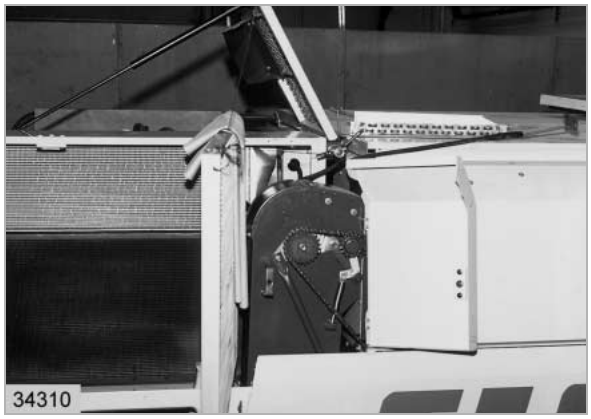
(Fig. 2)



3

Remove the cover (B) from the air intake box.

(Fig. 3)



4

Remove the hose clamps from the condenser and the oil cooler hoses.

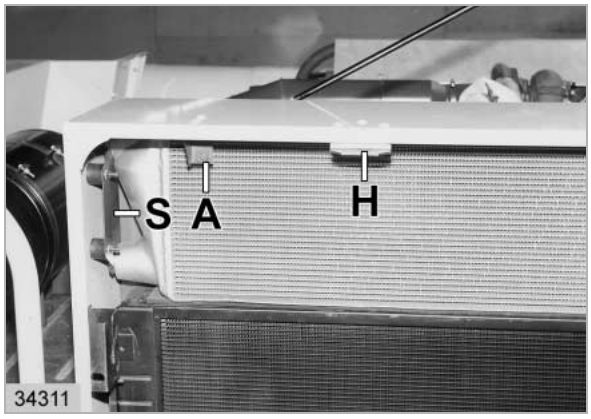
Remove the condenser and place it on the grain tank so that it is safe.

CAUTION!

The hoses remain connected to the condenser.

Move the oil cooler out of the way, along with the pipes, and secure with suitable means, e.g. a rope.

(Fig. 4)



5

Remove the bracket (H) and the stop plate (A).

Remove the side brackets (S) from the intercooler. Remove the rubber mountings from the bracket (S).

(Fig. 5)



6

Remove the intercooler from the side of the machine.

(Fig. 6)

Installing the intercooler

1. Lift the intercooler into the machine.

   (Fig. 6)

2. Bolt down brackets (S and H) and the stop plate (A).

   (Fig. 5)

3. Swing the oil cooler back into place. Refit the condenser completely with the hoses. Fit the hose clamps.

   (Fig. 4)

4. Bolt down the cover (B) of the air intake box.

   (Fig. 3)

5. Fasten the rotary screen in the pivot and secure with a bolt. Insert the gas strut bolt and secure with a split pin.

   (Fig. 2)

6. Connect the two intake pipes and tighten the jubilee clips.

   (Fig. 1)



7

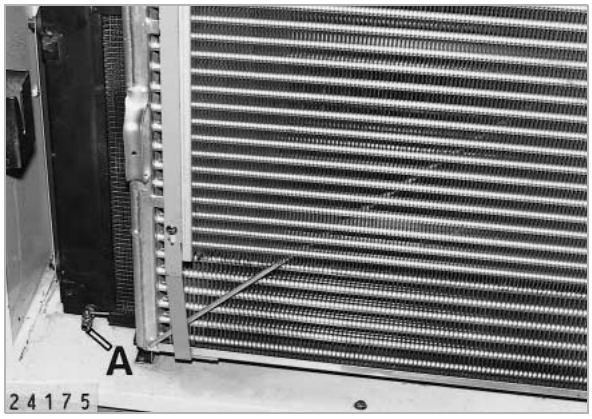
Removing the radiator

Fold up the rotary screen.

Remove the pin from the gas strut.

Remove the bolt from the bearing and remove the rotary screen completely.

(Fig. 7)



8

Drain the water from the radiator at tap (A).

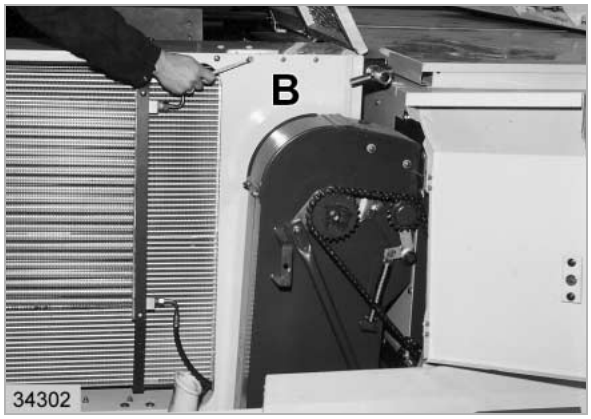
DANGER!

Take care when opening the hot radiator!

☞ Only open the tap to the end stop only and let the overpressure escape first – **Danger of burns!**

(Fig. 8)

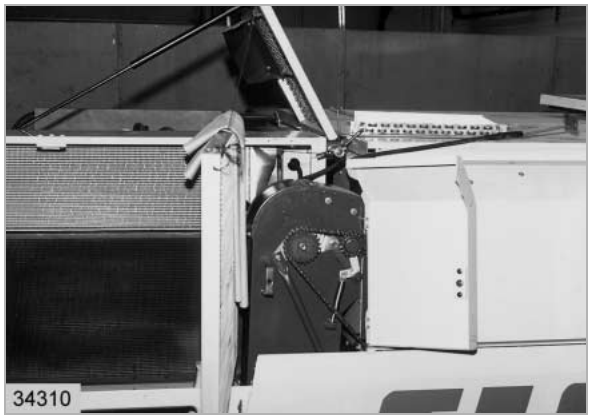
Before draining or filling in cooling water, the shut-off taps of the heater feed and return lines on the engine must be opened.



9

Remove the cover (B) from the air intake box.

(Fig. 9)



10

Remove the hose clamps from the condenser and the oil cooler hoses.

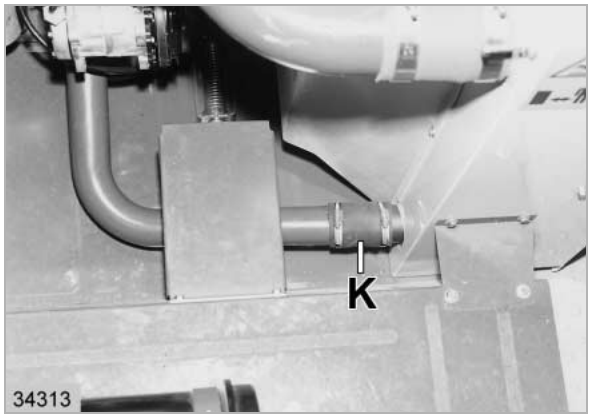
Remove the condenser and place it on the grain tank so that it is safe.

CAUTION!

The hoses remain connected to the condenser.

Move the oil cooler out of the way, along with the pipes, and secure with suitable means, e.g. a rope.

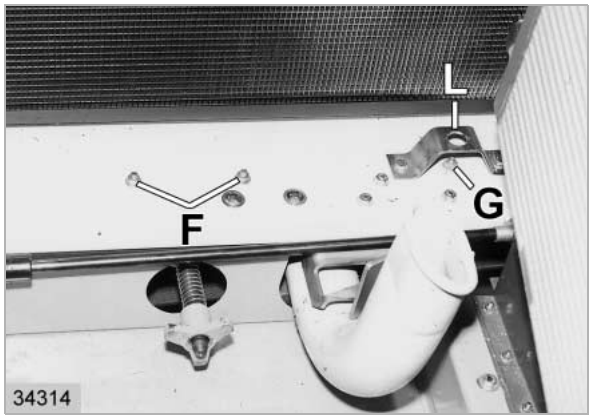
(Fig. 10)



11

Loosen the hose clamps and remove the hoses (K) from the radiator.

(Fig. 11)

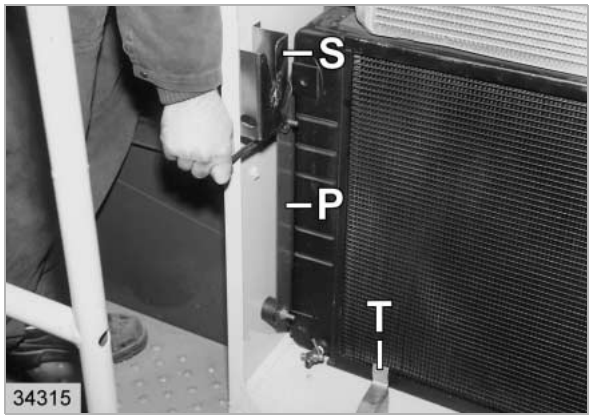


12

Remove the bracket (L).

Loosen the bolts (F and G) and turn them back slightly.

(Fig. 12)



13

Remove the support (T).

Remove the locking plate (S).

Remove the radiator brackets (P) on both sides.

(Fig. 13)



14

Remove the radiator to the side and remove the rubber cushions from the brackets if necessary.

(Fig. 14)

Installing the radiator

1. Insert the radiator into the air intake box and bolt down the brackets (P) at the sides. Fit the locking plate (S) and the support (T).

   (Fig. 13, 14)

2. Tighten the bolts (F and G). Bolt down bracket (L).

   (Fig. 12)

3. Connect radiator hoses (K).

   (Fig. 11)

4. Swing the oil cooler back into place. Refit the condenser completely with the hoses. Fit the hose clamps.

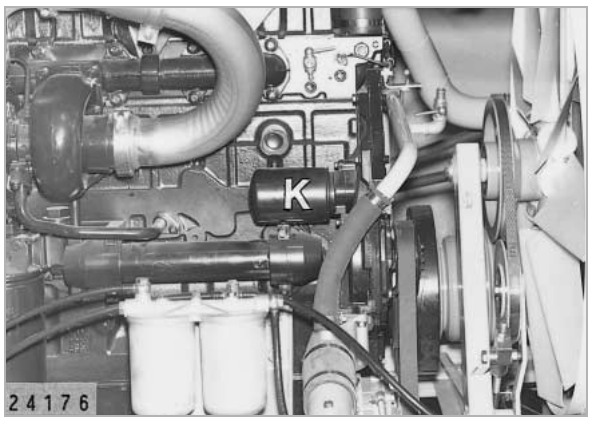
   (Fig. 10)

5. Bolt down the cover (B) of the air intake box.

   (Fig. 9)

6. Fasten the rotary screen in the pivot and secure with a bolt. Insert the gas strut bolt and secure with a split pin.

   (Fig. 7)



15

7. Changing the coolant filter (K) if it is installed:

ATTENTION!

The filter must only be replaced by an original filter cartridge.

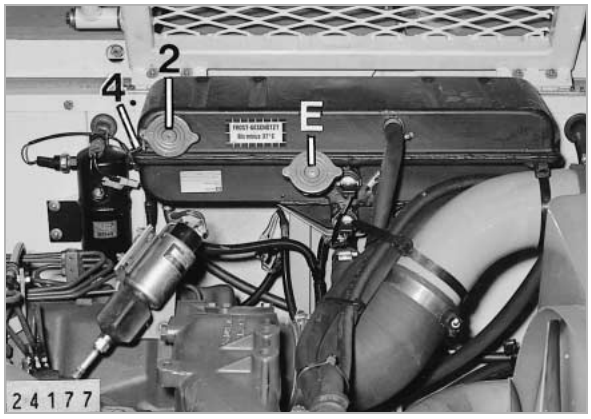
8. Filling in coolant:

   Open the shut-off taps of the heater feed and return lines.

   Fill the system with coolant at point (E), until the level is at the edge. Now let the engine run for a short period of time.

   Stop the engine and check coolant level again. Top up coolant if required.

(Fig. 15, 16)



16

FUEL SYSTEM

Removing the fuel tank

Drain the fuel into a clean fuel container.

To drain the tank, either remove the suction pipe from the fuel filter or open the drain plug on the tank or, if the tank is full, pump off the fuel.

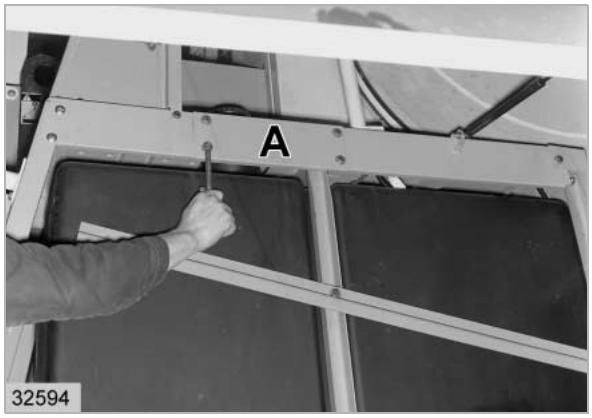
(Fig. 1)



1

Remove the cover plate (A) from the catwalk.

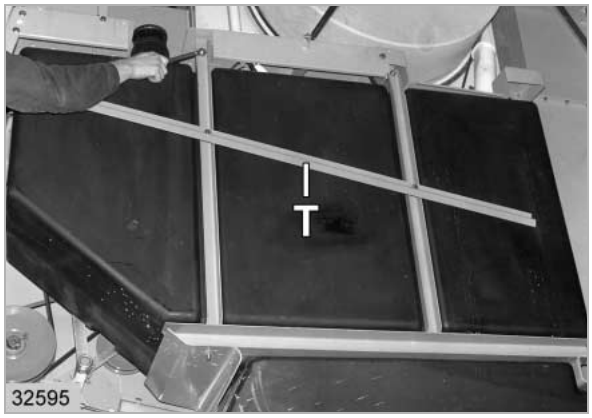
(Fig. 2)



2

Remove the tank bracket (T).

(Fig. 3)



3

Remove the return fuel pipe. Remove the cable from the fuel level sensor.

Remove the fuel tank.

(Fig. 4)



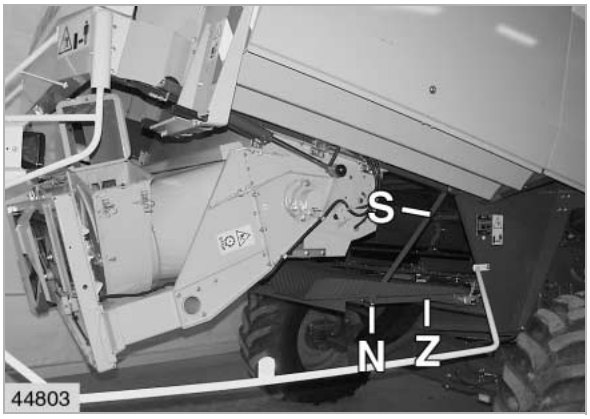
4

Installing the fuel tank

1. Lift the fuel tank into the machine.
2. Fit the return fuel pipe and connect the fuel level sensor cable.
3. Bolt down the tank bracket (T).

   (Fig. 3)
4. Bolt down the cover plate (A) on the catwalk.

   (Fig. 2)
5. Connect the suction pipe and refill the tank.
6. Bleed the fuel system.



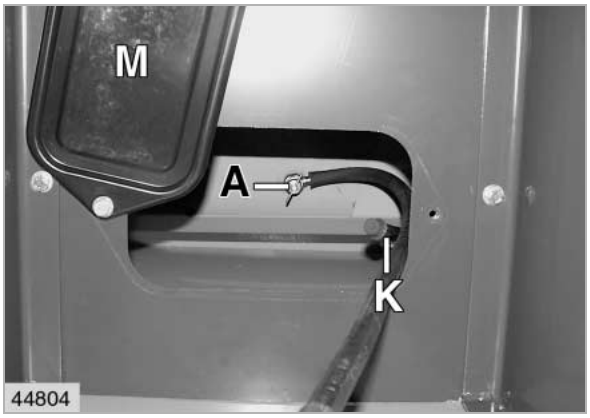
5

Installing the additional fuel tank

Move uni-spreader to transport position. Unscrew the toggle nuts (N) on both sides and pull off the rocker arms (S).

Fold down the feed pan (Z).

(Fig. 5)



6

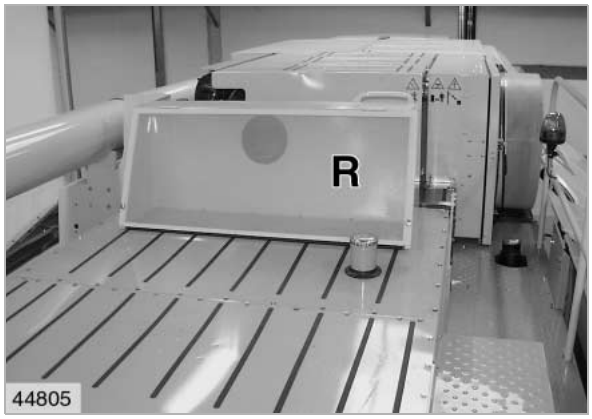
The cover (M) is located above the feed pan between the two rotors.

Unscrew the cover (M) and fold it open. Close the shut-off tap (A).

Slacken off the hose clamp, remove the fuel hose (K) from the drive-in connection and plug it tightly. Connect a fuel-resistant hose to the drive-in connection and secure it.

Open the shut-off tap (A) and drain the fuel into a clean container.

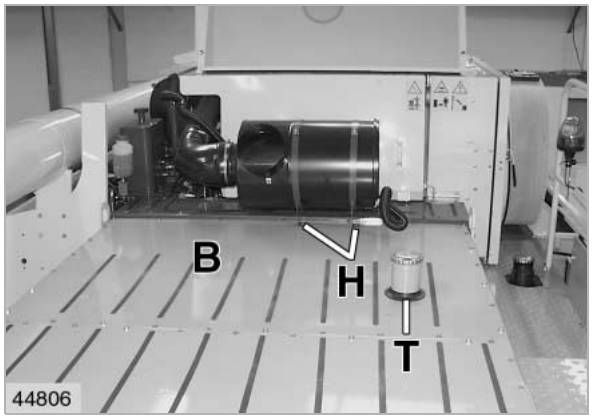
(Fig. 6)



7

Remove the engine back wall (R) completely. Place the engine back wall on the engine bonnet and secure it.

(Fig. 7)



8

Unscrew the roof plate (B) all around. Remove the air filter mounting bracket (H) from plate (B).

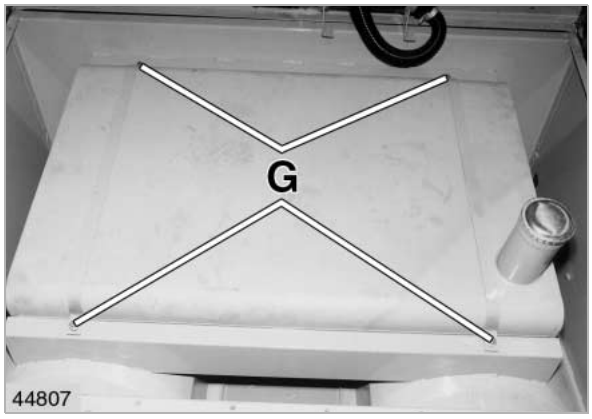
Unscrew the fuel filler cap and remove plate (B).

CAUTION!

Be careful not to damage seal (T).

Screw the fuel filler cap on again.

(Fig. 8)



9

DANGER!

Do not walk on surfaces without floor covering (E) – **Danger of falling!**

Unscrew the four hex. bolts (G) and remove the steel straps. Close shut-off tap (A) and remove the drain hose.

Using a suitable lifting device, lift the fuel tank out of the machine. (empty weight approx. 35 kg)

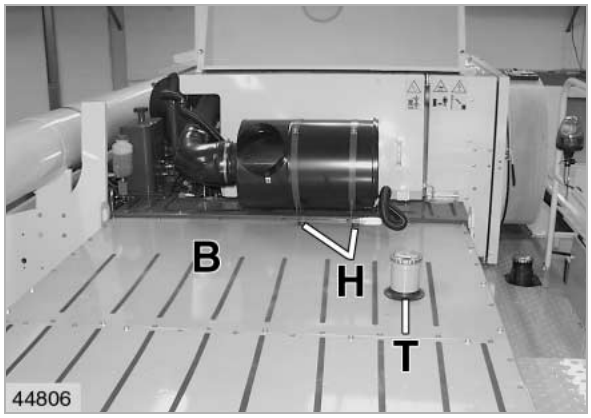
(Fig. 6, 8, 9)

Installing the additional fuel tank

Lift the fuel tank on the machine and place it in the tank support.

Install steel straps and bolt down with bolts (G).

(Fig. 9)



10

Unscrew the fuel filler cap. Guide the roof plate (B) over the filler neck and bolt it down all around.

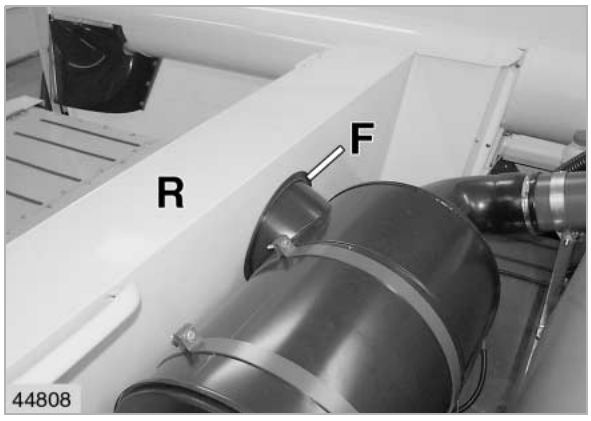
CAUTION!

The seal (T) must be placed tightly around the fuel tank nozzle.

Screw on the fuel filler cap.

Bolt down air filter mounting bracket (H).

(Fig. 10)



11

Bolt down the engine back wall (R) completely.

CAUTION!

The seal (F) must close tightly.

(Fig. 7, 11)

Push the fuel hose (K) on the drive-in connection and secure with the hose clamp.

Open shut-off tap (A) and close cover (M).

(Fig. 6)

Fold up feed pan and push on the rocker arms (S). Bolt on toggle nut (N).

(Fig. 5)

ENGINE

Removing the engine

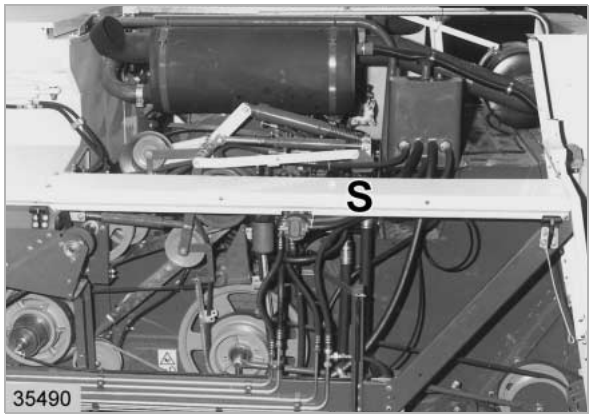


1

Remove the left-hand side guard from the machine. To do this, remove the gas struts and the securing ropes.

Push the guard up out of the hinges and remove it.

(Fig. 1)

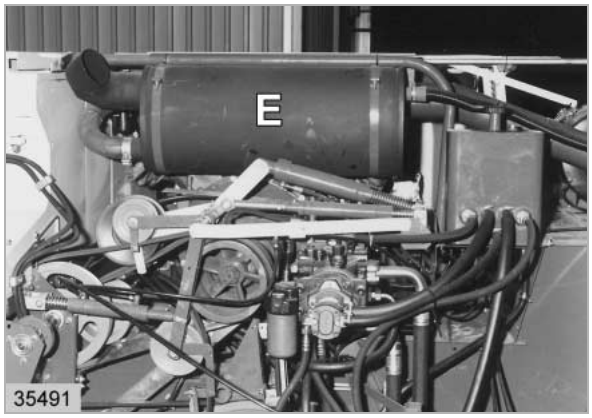


2

Swing the grain tank unloading tube out completely.

Unscrew the clamps of the intermediate panel (S) and then remove the intermediate panel.

(Fig. 2)



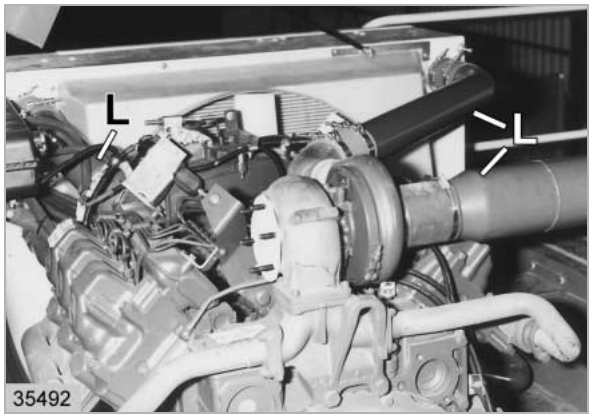
3

Remove the battery isolating switch.

Remove the exhaust gas pipe from the turbocharger. Unscrew the complete rear silencer (E) with its bracket and remove it.

Plug all openings so they are dust-tight.

(Fig. 3)



4

Disconnect three air-intake pipes (L) from the engine block and remove them completely.

Plug all openings so they are dust-tight.

(Fig. 4)



5

Unscrew the catwalk completely.

Drain coolant at the radiator.

(Fig. 5)



6

Between the compressor and the grain tank back wall, remove the hose clamps and cable binders from the air conditioner and heater hoses.

Remove the two heater hoses from the shut-off taps and at the engine block.

Remove the compressor drive belt.

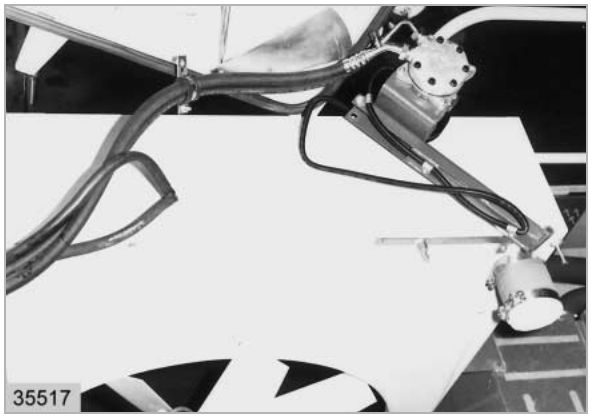
Disconnect the cable plugs from the compressor.

Unscrew the compressor completely with its bracket and place it on the air intake box.

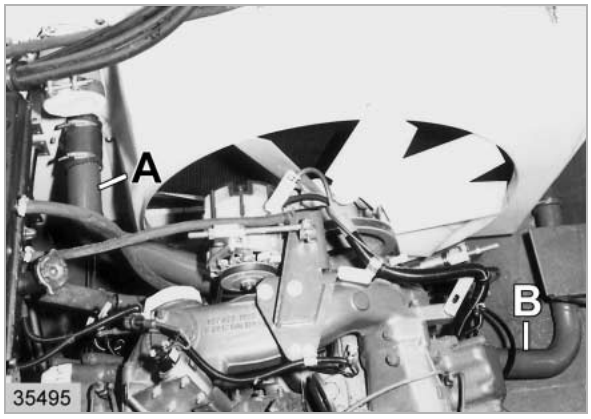
CAUTION!

The compressor hoses must not be loosened.

(Fig. 6, 7)



7



8

Unscrew the coolant pipes (A and B).

(Fig. 8)

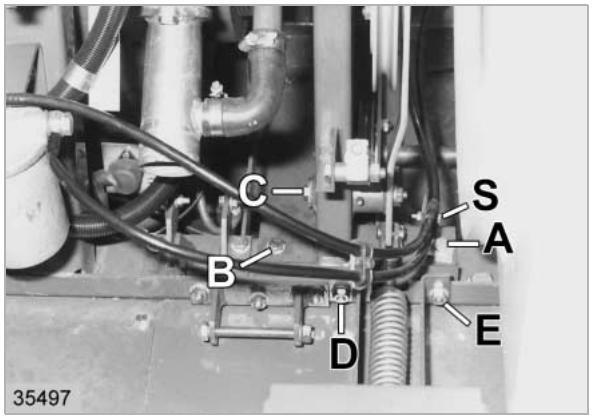


9

Remove the fan drive belt (27).

Unscrew the hex. bolt and pull out the blower wheel.

(Fig. 9)



10

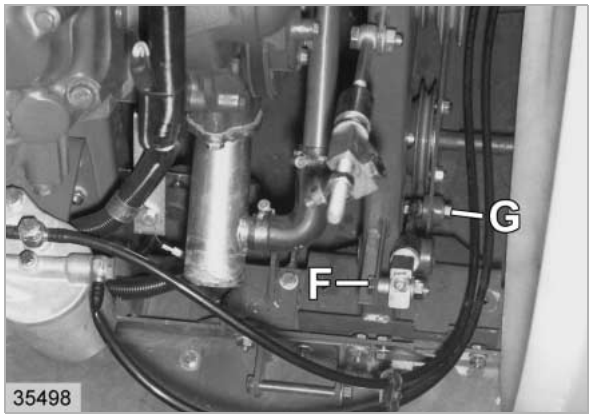
Remove the rotary screen drive belt (26).

Remove the clamp (S).

Unscrew the bolts (A and B) with mounting bracket.

Unscrew the bolts (C, D and E) and remove the jockey pulley bracket completely with the spring.

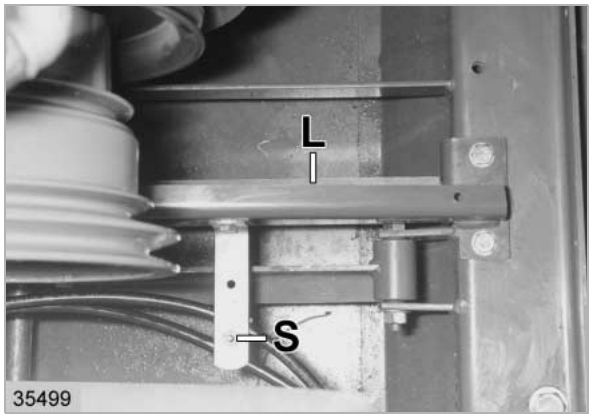
(Fig. 10)



11

Unscrew the bolts (F and G) and remove the tensioning arm.

(Fig. 11)



12

Remove the clamp (S).

Unscrew the blower bracket (L) and remove it.

(Fig. 12)



13

Unscrew the diesel feed and return line completely from the injection pump and at the filter housing. Plug the hydraulic connections tightly.

Stow away the diesel line in the air intake box.

ATTENTION!

Be careful not to kink the diesel line.

(Fig. 13)



14

Remove the alternator wiring loom from the engine block and from the alternator.

(Fig. 14)



15

Completely disconnect the shut-off solenoid wiring loom from the engine block.

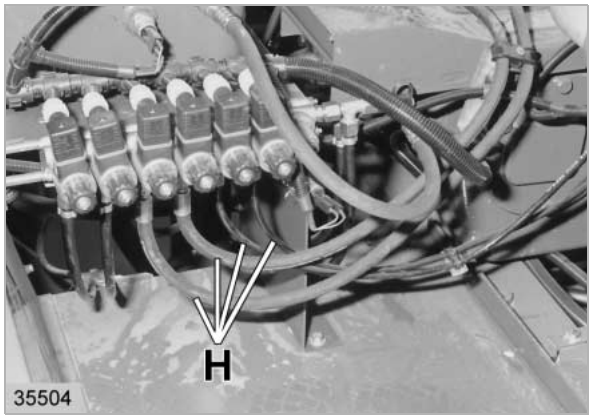
(Fig. 15)



16

Unscrew the cable from starter.

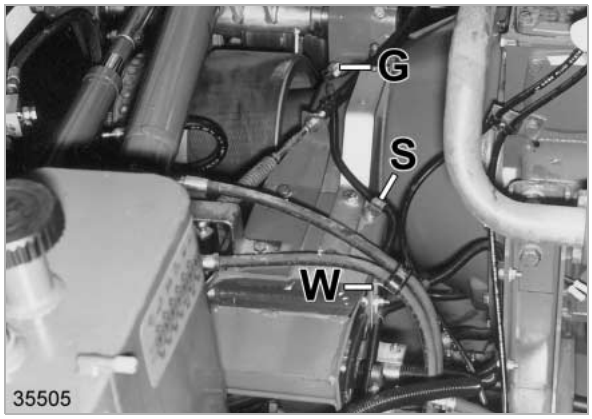
(Fig. 16)



17

Mark hydraulic lines (H) and unscrew at the solenoid valves. Plug the hydraulic connections tightly.

(Fig. 17)

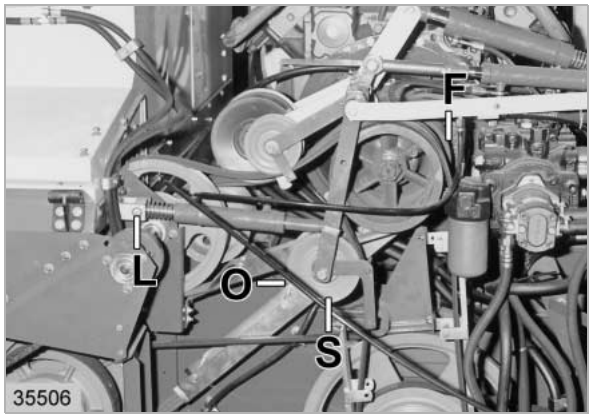


18

Unscrew the cover and remove cable from the magnetic pick-up (G).

Unscrew the mounting bracket (W) and the clamp (S).

(Fig. 18)



19

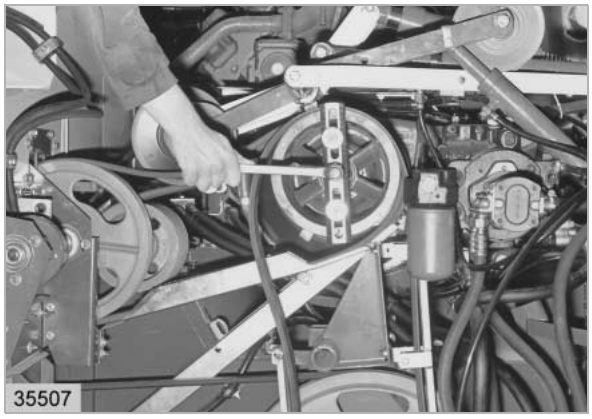
Remove mounting plate (L) and unhook the hydraulic cylinder.

Loosen the jockey pulley (S) and remove the belt from the lever. The hydraulic cylinder and the lever overlap.

Remove the belt guide at (O).

Unscrew guide (F) and pull it out.

(Fig. 19)

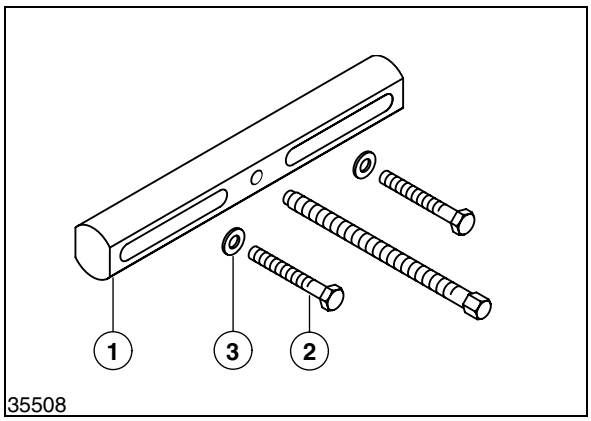


20

Remove castellated nut and pull off the V-belt pulley using a special tool.

Ensure that the pulley, the jockey pulley arm and the belt guide will not tilt.

(Fig. 20)

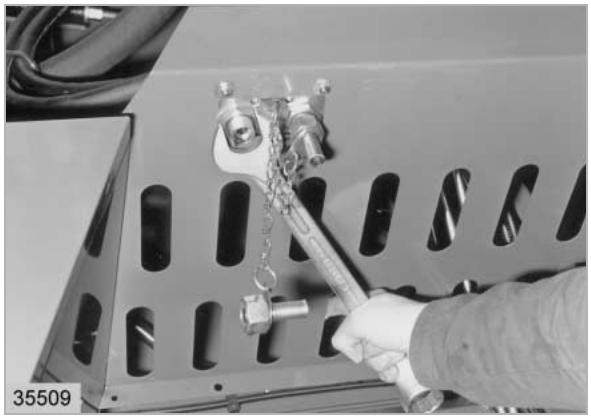


21

Special tool:

1 Puller bridge
part no. 181 621.0
2 Hex. bolt
M 12 x 220 DIN 931-8.8
part no. 233 523.0
3 Washer 13 DIN 125

(Fig. 21)



22

Drain the engine oil.

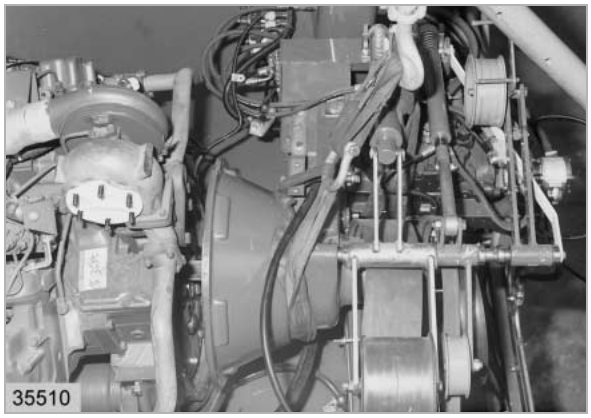
ENVIRONMENT!

Dispose of the old oil in a way that is harmless to the environment and in accordance with existing environmental regulations.

Loosen the lock nut and remove oil hose from the bracket.

Plug oil hose. Loosen the hose clamps and place the reeled-up hose under the engine oil pan.

(Fig. 22)



23

Unscrew the hydraulic oil tank from the machine housing and secure it.

Suspend the transfer gearbox completely with the hydraulic pump in a suitable lifting device.

Unscrew the bolts from the power output housing.

Pull out the drive shaft and the transfer gearbox by approx. **80 mm** from the torsion carrier.

(Fig. 23)

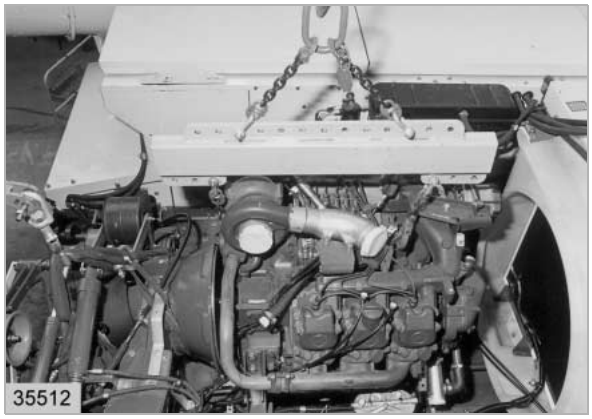


24

Suspend the engine block in a suitable lifting device (cross beam) at the crane eyelets.

Unscrew the brackets on the left-hand side of the engine block and the engine mounting frame.

(Fig. 24, 25)



25

Now unscrew the engine block completely from the engine mounting frame and lift it out.

CAUTION!

Check if all cables, hoses and mechanical connections have been loosened.

ATTENTION!

The oil drain hose must not be kinked while lifting.

(Fig. 25)

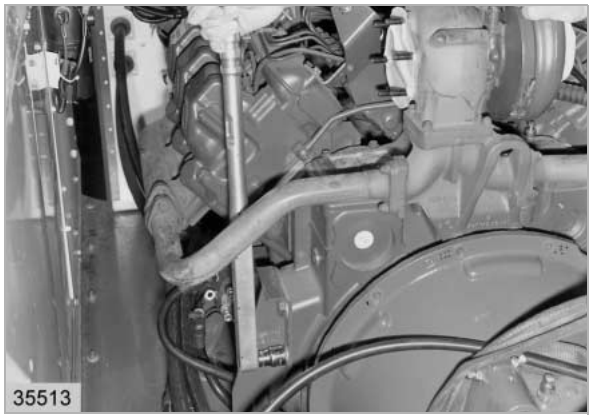
Depending on the repair needed, the components still mounted to the engine block can be removed.

Installing the engine

1. Pre-assemble the engine block with starter, alternator, shut-off solenoid and hydraulic cylinder.
2. Suspend the engine block in a suitable lifting device (cross beam) at the crane eyelets and place it on the engine mounting frame.

   Be careful not to jam any hoses and wiring looms.

(Fig. 25)

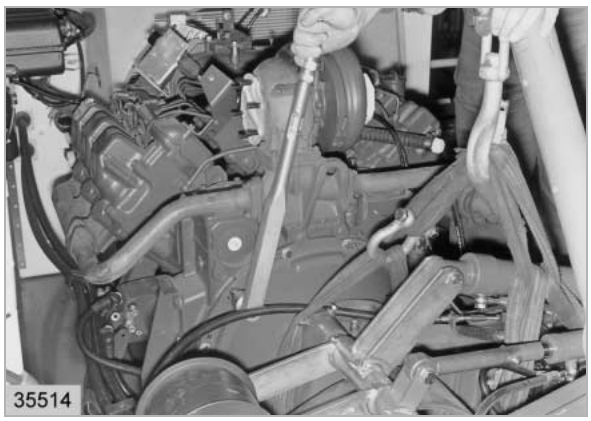


26

3. Bolt the engine block down to the engine mounting frame.

   Tightening torque M 16 = 195 Nm

(Fig. 26)



27

4. Insert the drive shaft with transfer gearbox and the hydraulic pump into the torsion carrier. Bolt down the power output housing.

   Tightening torque M 10 = 45 Nm

(Fig. 27)

5. Bolt down the hydraulic tank to the machine housing.
6. Insert the oil drain hose at the bracket and secure with the lock nut. Mount the hose clamps and ensure that the hose will not chafe.

   (Fig. 22)



28

7. Slide the pulley on the drive shaft and tighten the castellated nut with **520 Nm**. Secure the castellated nut with a split pin.

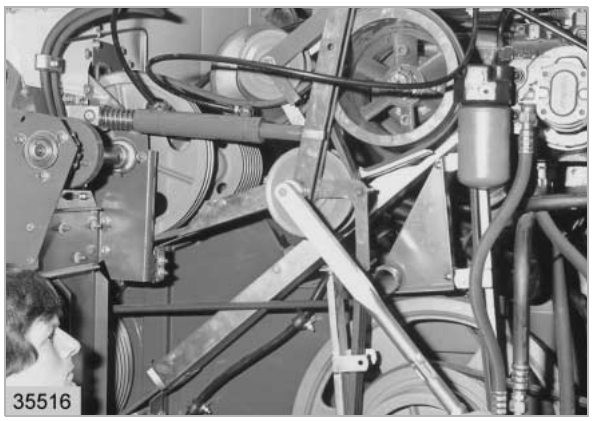
(Fig. 28)

8. Screw the cable to the starter.

   (Fig. 16)

9. Install the main intermediate drive belt (7) and adjust.
10. Install the grain tank unloading intermediate drive belt (8) and adjust.
11. Fold back the lever and the hydraulic cylinder. Bolt on mounting plate (L) and connect the hydraulic cylinder.

    (Fig. 19)



29

12. Install the belt between the lever and the jockey pulley. Bolt down jockey pulley with **130 Nm**.

(Fig. 29)

13. Screw hydraulic lines to the solenoid valves. Ensure proper order of installation!

(Fig. 17)

14. Bolt the mounting bracket (W) and the clamp (S) down to the support. Connect the cable plug to the engine speed magnetic pick-up and bolt on the cover plate.

(Fig. 18)

15. Install the shut-off solenoid wiring loom completely on the engine block and connect it.

(Fig. 15)

16. Install the alternator wiring loom on the engine block and connect it.

(Fig. 14)

17. Lay the diesel line completely at the engine block.

CAUTION!

Use new sealing rings.

(Fig. 13)

18. Install the blower bracket (L). Insert the tensioning arm and screw in the bolts (F and G).

(Fig. 11, 12)

19. Bolt down the complete bracket with the spring. Bolt on the diesel line clamp.

(Fig. 10)

20. Install the rotary screen drive belt (26) and adjust.
21. Slide in the blower wheel and tighten M 10 bolt with **45 Nm**.

(Fig. 9)

22. Install the fan drive belt (27) and adjust.

23. Screw on the coolant pipes (A and B).

    (Fig. 8)

24. Bolt on the complete compressor with the bracket. Install and adjust drive belt. Connect the cable plug to the compressor.

    (Fig. 6)

25. Lay and connect the heater and water hoses.

    (Fig. 6)

26. Fit the catwalk.

    (Fig. 5)

27. Fit the air-intake pipes (L) at the engine block. Ensure that the pipes have been pushed on sufficiently on both sides.

    (Fig. 4)

28. Fit the rear silencer (E) and the exhaust gas pipe to the turbocharger.

    (Fig. 3)

29. Bolt on the intermediate panel (S) and the intermediate panel clamps.

    (Fig. 2)

30. Install side panel. Bolt on safety rope and gas strut.

    (Fig. 1)

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