



***Fetor* 5511**

OPERATOR'S MANUAL

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12.5.11

Dear Tractor Owner,

This Manual will acquaint you with the operation and maintenance of your new ZETOR tractor.

We should like you to study carefully its contents, although many operations are well known to you.

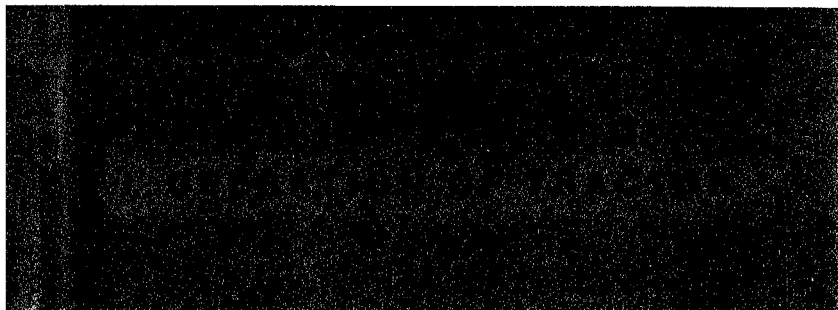
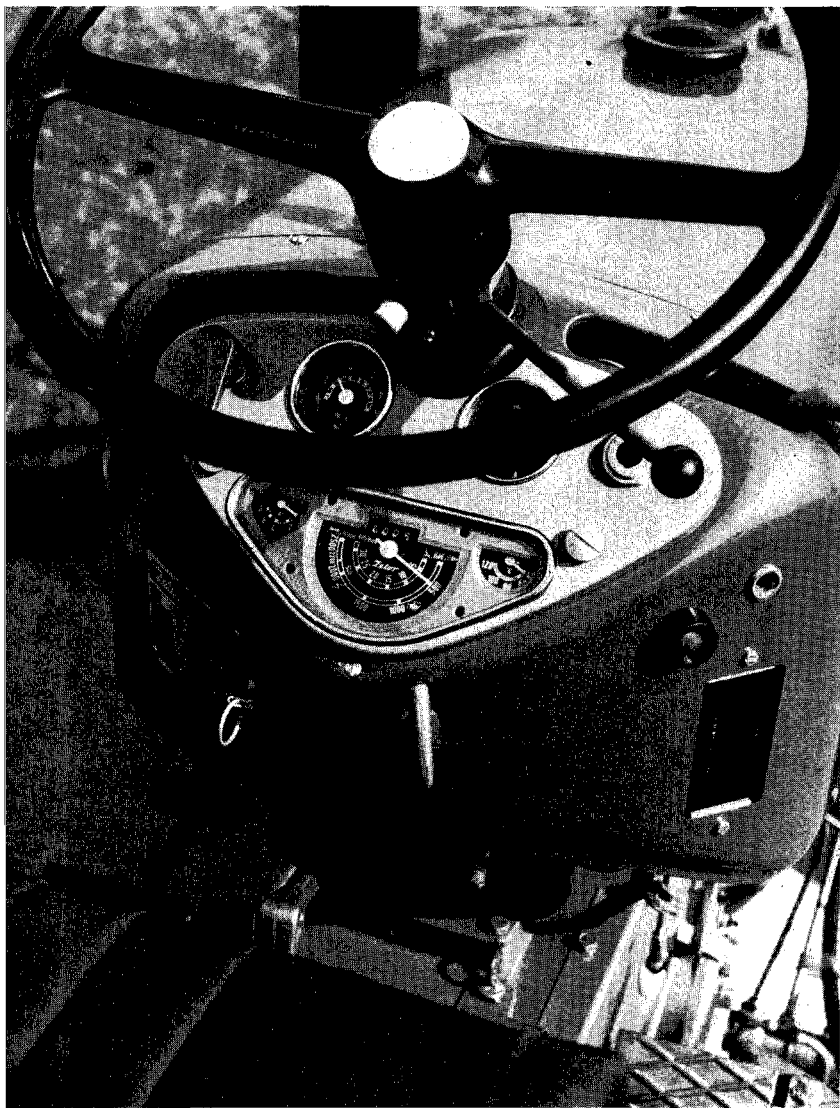
We most sincerely wish you full satisfaction with your tractor.

Z E T O R

Commercial and Technical Service Department
Documentation and Publicity Section

B R N O

The nameplate of the tractor is situated on the left hand side underneath the dashboard.



DASHBOARD (Fig. 1)

The combined panel instrument gives a lucid check of the functions of the tractor.

The air pressure gauge (Fig. 1/1) indicates air pressure in the air reservoir.

The orange light (Fig. 1/2) flickers when the left or right hand trafficator is switched on.

The engine-hour counter (Fig. 1/3) indicates the number of operating hours of the tractor. The speed indicator indicates the revolutions of the engine, and of the PTO shaft ones.

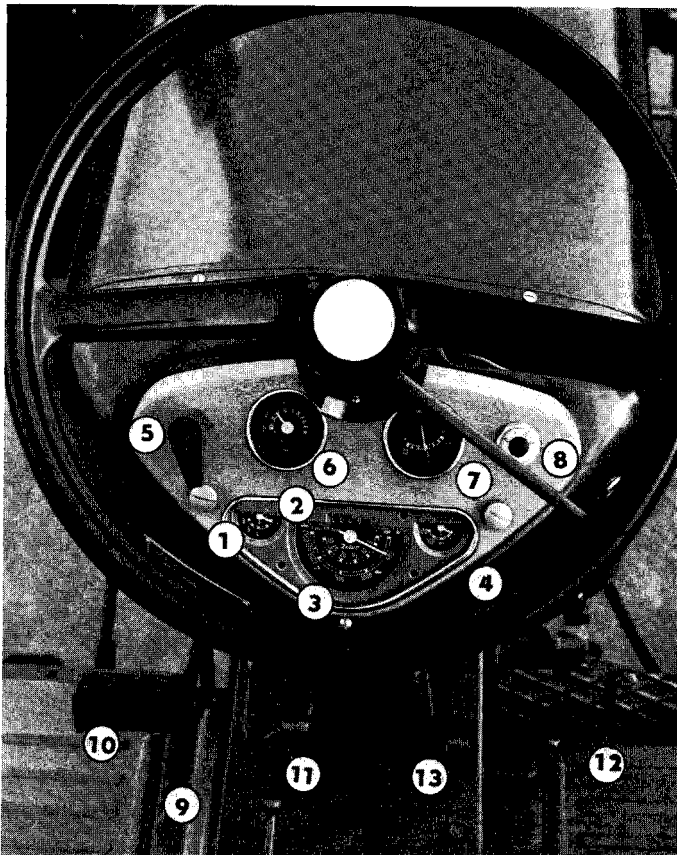


Fig. 1

The thermometer (Fig. 1/4) indicates the cooling water temperature. The most advantageous temperature range 80° — 95° C is marked green.

The trafficator switch (Fig. 1/5) serves to switch on the right or left hand trafficator. Switching is accomplished by turning the button to the right or to the left, by depressing the button the **horn** (Fig. 1/5) is operated.

The oil pressure gauge (Fig. 1/6) checks the oil pressure in the lubricating system — at 2200 r.p.m. and 80° C, it indicates 3 ± 0.3 atm. g.

The ammeter (Fig. 1/7) indicates the charging and discharging of the storage battery.

Any fault on the above instruments should be immediately repaired in a specialized workshop.

The starter push-button (Fig. 2/1) operates the engine starter. It is provided with a vent opening which must be located in the very bottom (the opening facing downwards).

The socket (Fig. 2/2) serves for connecting the cab windscreen wiper or the servicing lamp.

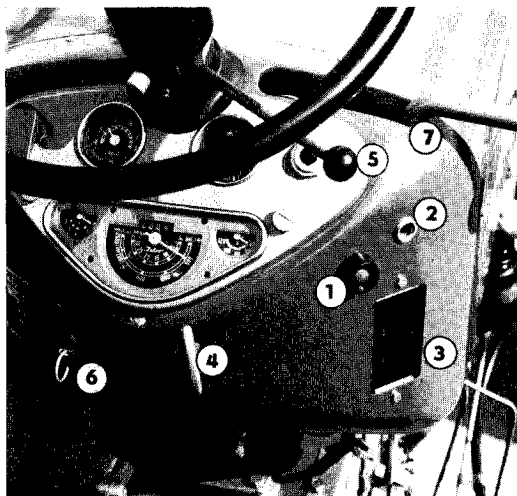


Fig. 2

The switchbox (Fig. 1/8) is used for switching various electric circuits. It has four positions:

Position 0	Start	Charging	Oil pressure	Trafficators	Socket	Key fully inserted
Position 1	Start	Charging	Oil pressure	Trafficators	Socket	
Position 2	Start	Charging	Oil pressure	Trafficators	Socket	
Position 3	Start	Charging	Oil pressure	Trafficators	Socket	

Position 0	Key only half inserted or removed		
Position 1	Contour lights	Dashboard	
Position 2	Contour lights	Dipped Lights	Dashboard
Position 3	Contour lights	Dipped Lights	Dashboard

The fuse box (Fig. 2/3) contains fuses for the following appliances:

- (1) main lights
- (2) dipped lights
- (3) front parking lights, dashboard lighting
- (4) rear lights
- (5) socket for servicing lamp
- (6) trafficator switch
- (7) charging circuit
- (8) brake lights and horn

The decompressor (Fig. 2/4) is employed to facilitate starting and is operating by slightly pulling out the decompressor button.

The radiator screen (Fig. 2/6) is controlled from the driver's seat by a chain. It serves as an auxiliary engine temperature regulator.

The fuel delivery (Fig. 2/5) can be adjusted by a hand lever situated underneath the steering wheel. By turning the lever from the right to the left, idling is adjusted right up to the maximum dose. In the outside right position the dose is zero.

The hand brake (Fig. 1/9) is operated by pulling the lever. A pawl holds the lever in the braked position. When releasing the brake, pull the lever gently (as when applying the brake) to relieve the pawl, depress with your thumb the push-button at the lever end and return the lever to its horizontal position.

The clutch (Fig. 1/10) combines two functions

- first depressing for travel
- second depressing for P. T. O shaft

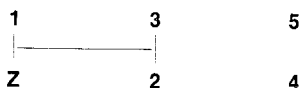
The mechanical clutch booster is controlled by a lever situated underneath the dashboard panel. When the lever is shifted in a downward direction, a smaller force is needed for depressing the clutch pedal. **The booster (Fig. 1/11) can only be employed for the first depression of the clutch pedal i. e. for tractor travel interruption when operating with P. T. O. shaft it is necessary to disengage it.**

Brakes (Fig. 1/12) the foot brake is hydraulic, shoe-type. Each wheel can be braked separately with disconnected pedals by depressing the right or left hand pedal. **It is prohibited to drive the tractor, unless the pedals are secured by the pawl!**

The accelerator (gas) pedal (Fig. 7/2) located on the right hand floor beside the brake pedals is used for foot control of the engine speed. By depressing the pedal down to the floor, the

maximum fuel dose is achieved. With the pedal released, the operation of the engine depends on the manual fuel delivery lever adjustment.

Gear shift lever (Fig. 2/7) — shift the individual speeds with the clutch disengaged by swinging and shifting into the positions shown in the diagram:



The right-hand auxiliary gear shift lever (Fig. 7/3) on the gearbox lid can be used for shifting:

- road speeds — upper position of auxiliary lever
- reduced speeds — lower position of auxiliary lever
- tractor at standstill — middle (neutral) position

The left-hand auxiliary gear shift lever (Fig. 7/4) on the gearbox lid is used for the shifting of drives.

- (1) P. T. O. shaft via gearbox — first position upwards.
- (2) P. T. O. shaft and hydraulic system 540 r.p.m. — first position downwards.
- (3) Hydraulic system 540 r.p.m. — second position downwards.

The hydraulic system (Fig. 3) is controlled by two main and by two auxiliary levers. The functions are indicated by labels.

The inner circuit lever (Fig. 3/1) (angular handle) controls in position control within 80° the position of carried implements, within further 60° the free position and antislip. In the power and mixed position it controls within the upper 20° the lifting of implements and within the lower 120° the working depth of the implements.

The outer circuit lever (Fig. 3/2) (ball handle) controls two power take offs for a single-acting or double-acting ram cylinder.

- Take-off 1** — pressure type, connected to single-acting cylinders.
- Take-off 2** — used only for connecting double-acting cylinders.
- Neutral** — lever held automatically in this position.
- Filling** — top marginal position (for double-acting cylinders).
- Draining** — bottom marginal position (for double-acting cylinders).
- Filling** — top marginal position (for single-acting cylinders).
- Draining** — **intermediate position** underneath neutral position (for single-acting cylinders).

System selector lever (Fig. 3/3) — situated on the right hand side of the upper lid. It has three positions marked P, M, S.

P — position control — in each position of the main inner circuit lever, the following positions can be set up: rigid, free, antislip.

M — mixed control — the inner circuit lever can set up mixed control and lifting of implements.

S — power control — the inner circuit lever can set up control according to soil resistance and lifting of implements.

The reaction speed control lever (Fig. 3/4) is located on the upper side of the lid underneath the seat. It has several functions:

- (a) selection of reaction speed for power and mixed control
- (b) selection of magnitude of floating force during antislip
- (c) selection of per minute oil feed into outer circuit
- (d) control of lifting speed for position control.

The cab is of all-metal construction, fully glazed, provided with a windscreen wiper and a rearview mirror. The windscreen wiper is put into operation by inserting the plug into the socket and by turning on the lever of the windscreen small electric motor.

Front axle (Fig. 4) — The sprung extension is changed into a rigid one by fitting a locking insert (Fig. 5/1) into the locking

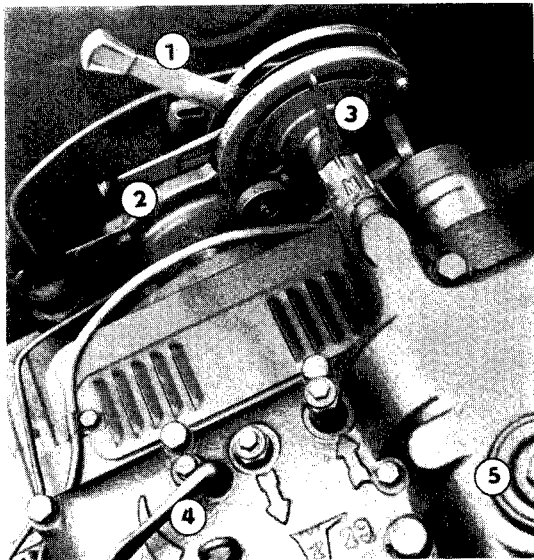


Fig. 3

coupling (Fig.5/1). Locking inserts are used to this purpose which are inserted in blocks of the extension body when the front axle has been lifted in such a way that front wheels don't touch the soil. Bosses of locking inserts must fit in the locking coupling groove.

For their removing a filling plug e. g. from gear box can be used.

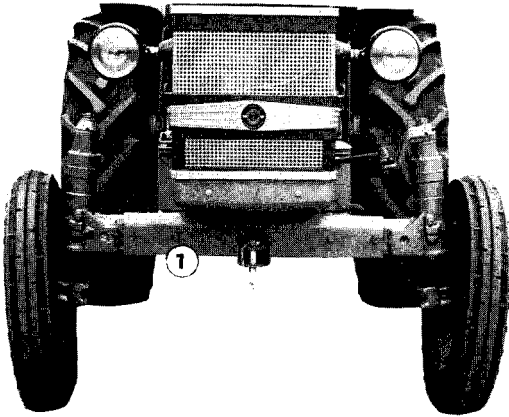


Fig. 4

The blocked position is determined, first of all, for front loaders and machines the function of which is influenced by the change of front axle height. The toe-in of front wheels is to be checked after each blocking and disblocking.

The front axle extensions, on which are mounted the front wheels, can be adjusted by sliding and secured in the individual posi-

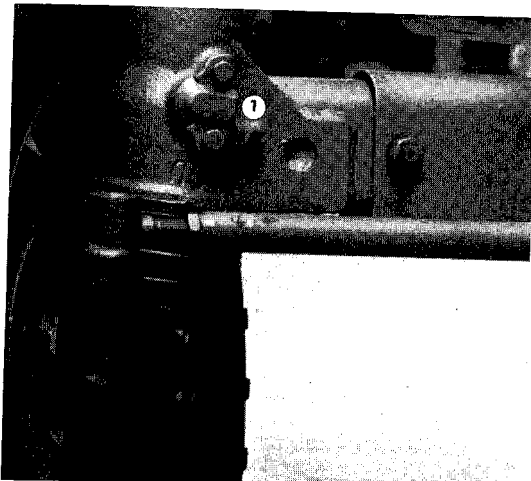


Fig. 5

tions (Fig. 4/1). Changes of wheel track should always be carried out with the lifted front axle so that sliding extensions are free to move.

Rear wheels — The track of the rear wheels can be adjusted to a total of 6 different positions. Changes of track should be carried out only with the respective tractor part lifted up, so that the wheels are free to rotate. Before lifting do not forget to secure the tractor against spontaneous movement by placing wedges etc. under the front wheels. The adjustment of the individual track values is carried out by changing the position of rims and disks. Tighten the bolts thoroughly.

The three-point linkage consists of the upper pull rod (Fig. 6/1) which is provided with ball-and-socket joints at both ends and has an adjustable length, and two bottom pull rods (Fig. 6/2) which are also provided with ball-and-socket-joints and the ends of which are free to swing to the sides.

The bottom pull rods have an adjustable height — the right hand strut crank is provided with a safety pin.

The pneumatic brakes are used for braking the trailer. The brake valve is linked with a pull rod with the brake pedals and simultaneously with the hand brake lever, so that when the tractor is stopped and secured with the hand brake, also the trailer

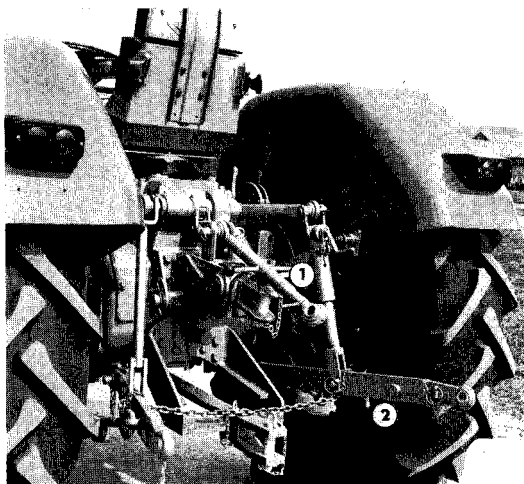


Fig. 6

brake is operated. The braking force in the trailer depends on the pressure acting on the pedal. The greater the pressure exerted by the driver into the pedal, the more intensive is the braking of the trailer.

The **differential lock** (Fig. 7/5) is employed if one of the rear wheels slips. It is engaged by depressing the pedal located on the right-hand floor.

Never use the differential lock when going round a bend — tyre wear increases out of all proportion!

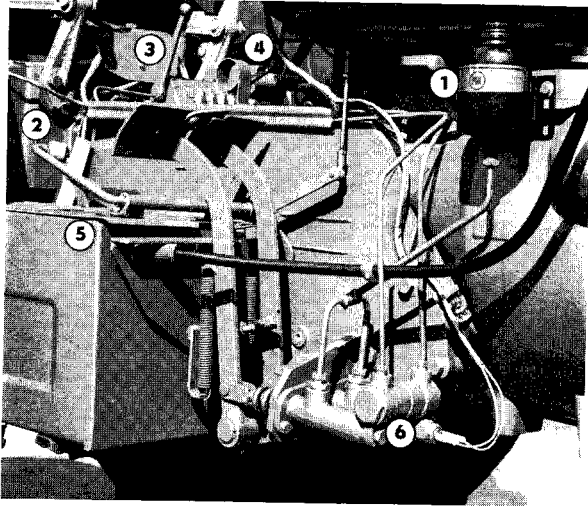


Fig. 7

The **seat** (Fig. 8) is provided with pneumatic springs, supplemented by a telescopic shock-absorber (Fig. 8/1). The distance from the driving wheel can be adjusted by sliding the seat into

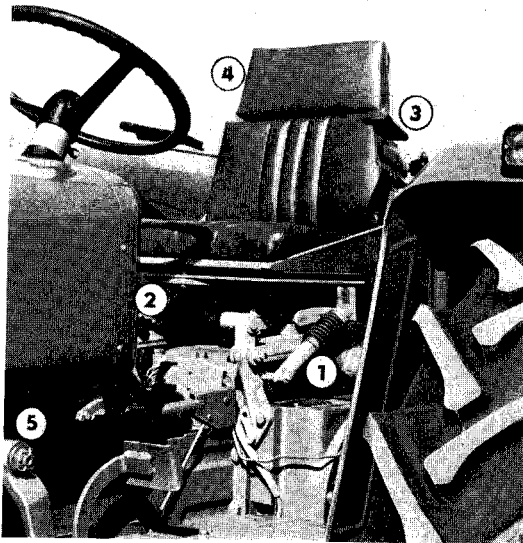


Fig. 8

one of three positions. The rigidity of the springing (according to the weight of the driver) is adjusted by varying the air pressure in the diaphragm with the aid of a valve for inflating inner tubes (Fig. 8/2). The pressure in the diaphragm varies from 1.5 to 2.5 kp/cm². The seat is also provided with tiltable hand rests (Fig. 8/3) and with a back rest, the height of which can be varied (Fig. 8/4).

Maintenance of Storage Battery

- Keep the storage battery dry and clean.
- Check the height of the electrolyte level, 15 mm above the rim of the plates.
- Give the greatest possible attention to your storage battery, since it is the basis for the correct functioning of all electrical appliances.

Maintenance of Tyres

Insufficient pressure or excessive pressure reduces the life of the tyres. Before inflating, do not forget to drain via the drain screw settled contamination from the tyre inflator.

Instructions for Travel

Never start the engine with insufficient oil, coolant and fuel. Always bear this in mind and simultaneously check at least visually that your tyres are sufficiently inflated: check also the height of the brake fluid level.

Starting the Engine

- (1) Check by a lateral swinging movement of the gear shift lever that it is in the neutral position; make also sure that the auxiliary drives lever is disengaged.
- (2) Insert the ignition key into the switchbox in position 0.
- (3) Depress the clutch pedal (to the first stop).
- (4) Adjust the maximum fuel dose by depressing the pedal or with the manual lever.
- (5) Depress the starter button — never start longer than 5 seconds. If the engine does not start at the first attempt, repeat starting only after **10 seconds**. Repeated, short starting puts the engine into operation sooner than prolonged uninterrupted starting. Immediately after starting, adjust with the hand lever the idling speed of the engine.

- (6) The correction starter facilitates the starting of the engine. It is operated by depressing the push-button (Fig. 11/10) on the control rod **from the maximum fuel dose setting** and it is switched off automatically by the least movement of the fuel delivery control lever.
- (7) Use the decompression device for difficult starts, under very low temperature conditions and with an insufficiently charged battery. It is operated by pulling out slightly the decompression device button (Fig. 2/4). As soon as the engine starts rotating, release first the decompression device button and after the engine has started, release the starter push-button.

During cold weather it is advisable to preheat the engine first with hot water and before the journey preheat also by prolonged idling. To shorten the warming-up process, cover the radiator with the screen that is controlled from the driver's seat. Check at increased revolutions the correct functioning of the ammeter and the pressure gauge.

Note: **Never aid a stalling engine by an auxiliary start. Wait, till the engine comes to a complete standstill. The starter can be operated only with the engine at rest.**

How to Start the Tractor Moving

Check whether the small right-hand lever is shifted to road speeds or reduced speeds. Reduce the engine revolutions to idling, depress the clutch pedal, and engage the proper speed. If it is not possible to engage this speed, release the clutch pedal, depress it again and try to engage gently the appropriate speed.

If the tractor stands on level ground, release the hand brake, slowly release the clutch pedal and increase the engine revolutions in order to give the tractor a smooth start. If the tractor stands on a slope, release the brake with simultaneous engagement of the clutch and increasing of engine revolutions.

How to Shift Gears

Once the tractor starts to move, shift the gears as follows: Reduce the revolutions of the engine, depress the clutch pedal, disengage the gear, engage the clutch, release it again and engage the next required gear, then smoothly engage the clutch. Gear shifting should be carried out noiselessly and smoothly.

Changing from higher to lower speeds should be carried out with double declutching, i.e. reduce the engine revolutions, release

the clutch, disengage the higher gear, engage the clutch, increase the engine revolutions (depending on your speed of travel), release the clutch, engage the lower gear, and smoothly engage the clutch.

Always watch:

— water temperature indicator, lubricating and charging pilot lights and air pressure gauge.

Never remove the ignition key from the switchbox while the engine is running.

When driving, do not leave your foot on the clutch pedal. Do not overcome increased resistance on uneven ground by slipping the clutch.

Running-in of Tractor

- (1) Drive without load for approx. 20 operating hours.
- (2) For the next 50 operating hours run the tractor with implements that do not overload it (i. e. seed harrows, drills, drags, hoes, sprinklers, etc.).
- (3) During the running-in period do not use the hydraulic equipment. **During this period bear in mind the shorter maintenance intervals.**

Storing of Tractor

If the tractor is not used for a longer period of time, observe the following instructions:

- (a) Drain water from the radiator and from the crank case.
- (b) Ease the tyres by placing the tractor on blocks.
- (c) Have the storage batteries attended by a specialist and store them in such a way that they cannot be damaged by frost during the winter season. If they have been stored for longer than 1 month, they should be recharged.

Utilisation of Zetormatic Multi-control Hydraulic System

In accordance with the field surface and the soil composition, the utilisation of the Zetormatic multi-control hydraulic system can be divided as follows:

(1) Level field — homogeneous soil

Under these circumstances equal depth is maintained for all types of control.

(2) Undulated field — homogeneous soil

(a) Position control "P"

The tractor with the implements forms one rigid unit, so that the swings of the tractor are transmitted onto the carried implements. When travelling over a ground wave, the implements are raised, especially the second and third blade; when travelling over a depression, an unproportional deepening takes place. Thus position control is under most ground conditions not suitable for ploughing, since only rarely completely level ground exists. This is, on the other hand, employed for implements, the working bodies of which are free to move individually and rest on the ground, such as hoes, drills, etc.

(b) Power control "S"

This is ideal for work in homogeneous soil. If the tractor is lifted at the front end, an increased pressure or tension is exerted on the upper pull rod which leads to the control process that raises or lowers the plough right up to the set resistance, i. e. the adjusted depth of the furrow is obtained.

(3) Level field — non-homogeneous soil

(a) Power control "S"

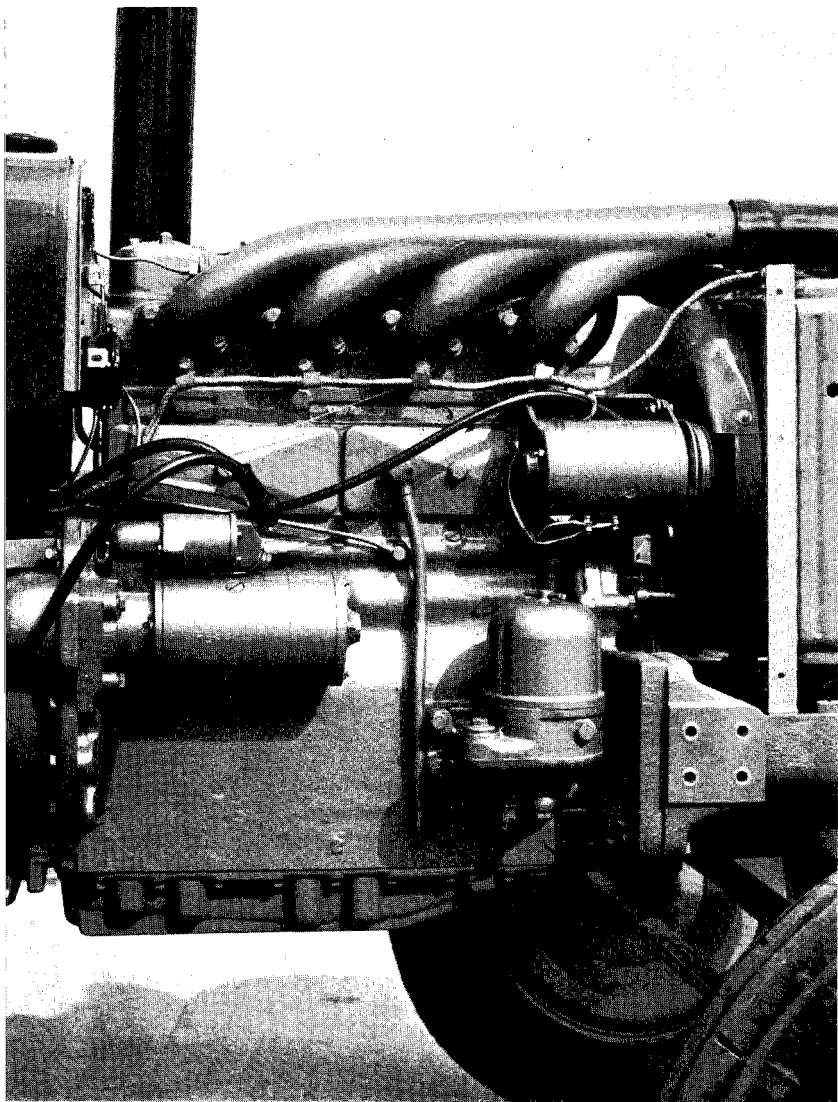
In case of small elements of other soil types or local stiffenings, e. g. tracks from a harvester, these influences can be eliminated by the speed of reaction. Before the delayed effect of raising or lowering takes place, the tractor has already passed the respective point.

(b) Mixed control "M"

For non-homogeneous soil conditions, mixed control exhibits the greatest advantage. Depth deviations are approximately half in comparison with power control. Depth deviations are usually within the tolerance limits of agrotechnical specifications.

(4) Undulated field — non-homogeneous soil

Unless the differences in soil compaction are excessive, it is recommended to employ power control, since control according to resistance maintains, as has already been pointed out, a uniform depth of the furrow. The greater, however, the irregularities, the more apparent become the advantages of mixed control. Through the action of mixed control, elevated sections are ploughed to a greater depth and depressions to a smaller depth, so that mixed control tends to level the field.



MAINTENANCE AND ADJUSTMENTS

Tractor maintenance is one of the most important operations. Timely and correctly executed maintenance work is a guarantee of trouble-free operation, therefore give it the attention it deserves. If you do not possess sufficient technical facilities or knowledge, have the operations executed by a specialized workshop. Average fuel consumption 4.50—5.00 litres per hour. Never fail to observe the following instructions!

Daily attendance (after 8—10 hours)

- (1) Clean the tractor and implements.
- (2) Replenish fuel and check fuel system for tightness.
- (3) Check and replenish water and check tightness of cooling system.
- (4) Check oil and tightness of oil system.
- (5) Remove dust from air tank by opening lock and tapping cleaner body.
- (6) Check function of hydraulic and pneumatic brakes, simultaneously check suspensions.
- (7) With engine running check regularity of operation, function of lubrication, charging, lights, and horn.
- (8) Check air pressure in tyres.

Technical inspection 1 (P1) — 350 litres of fuel or 70 engine hours

Carry out operations 1—8.

- (9) Change oil in crank case and clean by scraping the drum rotor of the centrifugal oil cleaner.
- (10) Check quantity of oil in portals.
- (11) Check quantity of oil in gearbox.
- (12) Check quantity of oil in fuel injection pump casing.
- (13) Regenerate the filter insert by removing the settled dust and by blowing the insert with compressed air.
- (14) Lubricate the water pump by giving the lubricator one turn, check tension of fan belts — maximum sag 15 mm.
- (15) Lubricate clutch releasing sleeve with oil.
- (16) Lubricate with grease gun front axle bracket (2×), wheel attachments (2×), clutch releasing shaft (2×), pedals (3×), right hand strut (1×), power control buckle (1×), struts-tensioning nuts (2×), sleeve with steering wheel lever (1×).
(Figures in brackets indicate number of lubricating points).

- (17) Check height of brake fluid level (quantity 0.3 litre). Drain oil from tyre inflator.
- (18) Check height of electrolyte level in storage battery — should be 15 mm above upper rim of plates. Clean cable terminals contaminated by oxidation.

Technical inspection 2 (P2) - 1250 litres of fuel or 250 engine hours

Carry out operations 1—18.

- (19) Flush engine with flushing oil and clean carefully centrifugal oil cleaner (simultaneously with operation 9).
- (20) Change insert of coarse fuel filter 1.
- (21) Check play between clutch releasing levers and sleeve.

Technical inspection 3 (P3) - 2500 litres of fuel or 500 engine hours

Carry out operations 1—21.

- (22) Change insert of fine fuel filter 2.
- (23) Lubricate cab door hinges.
- (24) Check valve play (have done in specialized workshop).
- (25) Check injectors, if necessary have them adjusted in specialized workshop.
- (26) Check toe-in of front wheels (6 ± 4 mm) and play of tapered roller bearings of front wheel hubs.
- (27) Check and adjust, if necessary, hand brake.
- (28) Flush cooling system with clean water under pressure to remove sediments.

Technical inspection 4 (P4) - 5000 litres of fuel or 1000 engine hours

Carry out operations 1—28.

- (29) Change oil in gearbox and flush same. Clean suction basket of hydraulic system pump. Replenish oil in steering wheel bearings.
- (30) Change oil in portals.
- (31) Replenish lubricating grease in front wheel hubs.
- (32) Clean suction basket of oil pump (simultaneously with operation 19).
- (33) Change tyre inflator insert at compressor.
- (34) Have tightness of injection pump elements checked by pressure gauge in specialized shop.

Current repair BO - 10.000 litres of fuel or 2000 engine-hours

Carry out operations 1—34.

- (35) Change oil in fuel injection pump casing.

- (36) Change oil in steering casing and check play steering in accordance with free travel of steering wheel. Have repaired, if necessary.
- (37) Check d. c. generator, starter have done in a specialized work-shop.
- (38) Clean and flush fuel tank.
- (39) Clean and flush radiator with soda solution.
- (40) Reverse front wheel tyres to eliminate effects of one-sided wear.
- (41) Grind-in engine valves — have done in a specialized work-shop.
- (42) Replace piston rings — have done in a specialized work-shop.

Running-in of tractor — maintenance of new or overhauled tractor — 175 litres of fuel or 35 engine-hours

Carry out operations 1—8.

- (43) Change oil in crank case and flush crank case.
- (44) Check tightness of centrifugal oil cleaner.
- (45) Drain oil from tyre inflator.

During technical inspection 1 (P 1) - 350 litres of fuel or 70 engine-hours

Carry out operations 1—18.

- (46) Check tightness of nuts on cylinder head bolts (tightening torque 14 to 15 kgm) — have done in a specialized work-shop.
- (47) Adjust valve play (with engine cold 0.20 mm for suction valve, 0.30 mm for exhaust valve) — have carried out in a specialized workshop.
- (48) Clean out fuel cleaners 1 and 2 (drain sludge from bowls).

During technical inspection P 2/1 - 1250 litres or 250 engine-hours

Carry out operations 1—21.

- (49) Change oil in portals.
- (50) Change oil in gearbox and flush gearbox.

All operations that come under the heading of maintenance are for greater lucidity listed in the table.

The individual operations are described in the section „Maintenance and Adjustments“.

Lubrication Chart

Lubricating point	Operation	Type sum. - win.	Quantity
Daily — 8 to 10 engine-hours			
Engine (1, 1a)	check	SAE	12 litres
Gearbox (2)	check	30 20 SAE 90	25 litres
P1 — 70 engine-hours			
Engine (1, 1a)	change	SAE	12 litres
Gearbox (2)	check	30 20 SAE 90	25 litres
			32 litres when working with hydraulic system in hilly ground
			37 litres when working with hydraulic system in mountainous ground
Portals (3)	check	SAE 90	3.8 litre
Fuel injection pump (4)	check	SAE 30 20	0.2 litre
Water pump (5)	give 1 turn	A4	0.1 kg
Clutch releasing sleeve (6)	lubricate	SAE 30 20	0.06 litre
Front axle bracket (7)	lubricate	A00	(2 lubr. points)
Wheel attachments (8, 8a)	lubricate	A00	(2 lubr. points)
Clutch releasing shaft	lubricate	A00	(2 lubr. points)
Pedals (9)	lubricate	A00	(3 lubr. points)
Right-hand strut (10)	lubricate	AV2	0.05 kg (1 lubr. point)
Power control buckle (11)	lubricate	A00	(1 lubr. point)
Struts - tensioning nuts	lubricate	A00	(2 lubr. points)
Steering wheel sleeve with lever (13)	lubricate	A00	(1 lubr. point)
P2 — 250 engine-hours			
Engine (1, 1a)	flush	B1 or B2	9 litres

Lubricating point	Operation	Type sum. - win.	Quantity
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P3 — 500 engine-hours

Gearbox (2)	change flush	SAE 90 B1 or B2	25—32—37 litres 15 litres
Portals (3)	change	SAE 90	3.8 litre
Front wheel hubs (14)	replenish	AV2	0.26 kg
Steering wheel bearing	replenish	SAE 90	0.01 litre

BO — 2000 engine-hours

Fuel injection pump (4)	change	SAE 30 20	0.2 litre
Steering (15)	change	SAE 90	1.6 litre

Running-in of New Tractor

Lubricating point	Operation	Type sum. - win.	Quantity
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P1/2 — 35 engine-hours

Engine	change	SAE 30 20	12 litres
	flush	B1 or B2	9 litres

P2/1 — 250 engine-hours

Gearbox	change flush	SAE 90 B1 or B2	25—32—37 litres 15 litres
Portals	change	SAE 90	3.8 litres

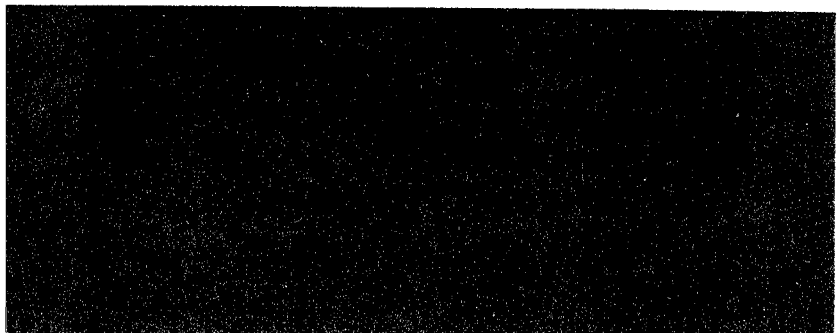
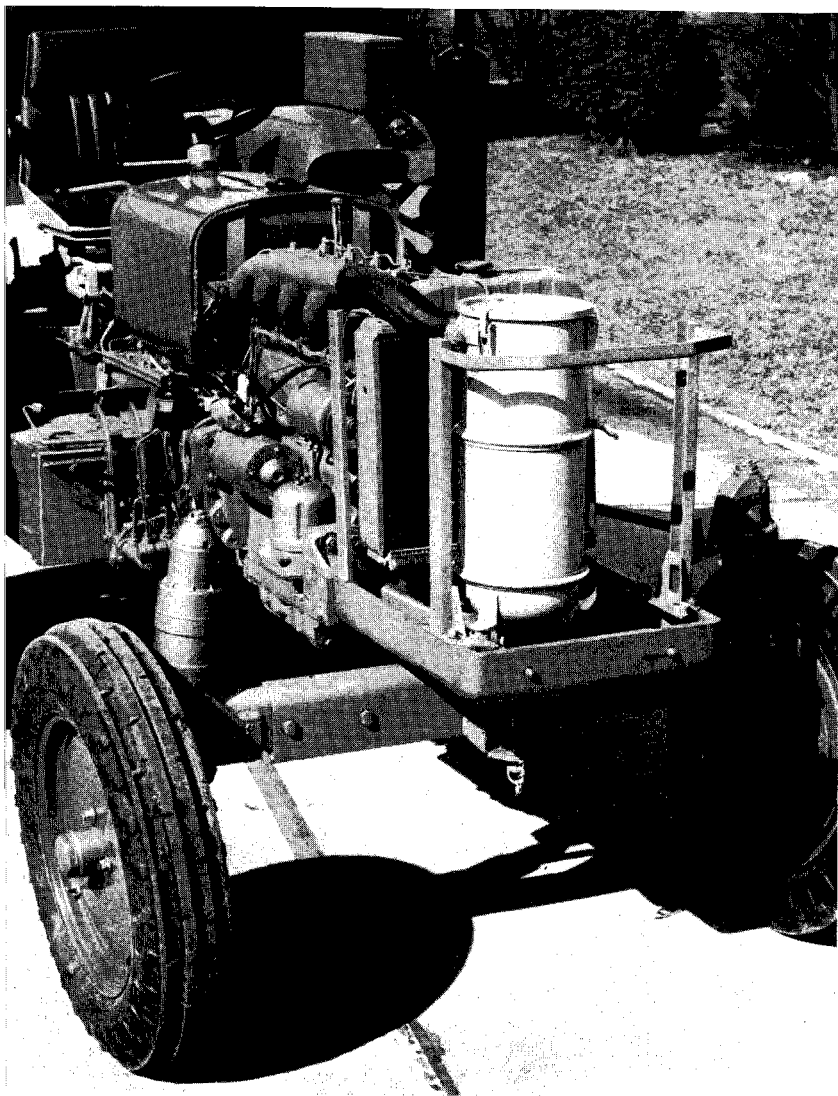
TABLE

for carrying out technical inspection and maintenance
(according to engine-hours worked or fuel consumption)

No of engine hours	Fuel consumption, litres	Degree of maintenance operations	Operations to be carried out	No of engine hours	Fuel consumption, litres	Degree of maintenance operations	Operations to be carried out
70	350	P1/1	1—18	2030	10150	P1/29	1—18
140	700	P1/2	1—18	2100	10500	P1/30	1—18
210	1050	P2/1	1—21	2170	10850	P2/9	1—21
280	1400	P1/4	1—18	2240	11200	P1/32	1—18
350	1750	P1/5	1—18	2310	11550	P1/33	1—18
420	2100	P1/6	1—18	2380	11900	P1/34	1—18
490	2450	P3/1	1—28	2450	12250	P3/5	1—28
560	2800	P1/8	1—18	2520	12600	P1/36	1—18
630	3150	P1/9	1—18	2590	12950	P1/37	1—18
700	3500	P2/3	1—21	2660	13300	P2/11	1—21
770	3850	P1/11	1—18	2730	13650	P1/39	1—18
840	4200	P1/12	1—18	2800	14000	P1/40	1—18
910	4550	P1/13	1—18	2870	14350	P1/41	1—18
980	4900	P4/1	1—34	2940	14700	P4/3	1—34
1050	5250	P1/15	1—18	3010	15050	P1/43	1—18
1120	5600	P1/16	1—18	3080	15400	P1/44	1—18
1190	5950	P2/5	1—21	3150	15750	P2/13	1—21
1260	6300	P1/18	1—18	3220	16100	P1/46	1—18
1330	6650	P1/19	1—18	3290	16450	P1/47	1—18
1400	7000	P1/20	1—18	3360	16800	P1/48	1—18
1470	7350	P3/3	1—28	3430	17150	P3/7	1—28
1540	7700	P1/22	1—18	3500	17500	P1/50	1—18
1610	8050	P1/23	1—18	3570	17850	P1/51	1—18
1680	8400	P2/7	1—21	3640	18200	P2/15	1—21
1750	8750	P1/25	1—18	3710	18550	P1/53	1—18
1820	9100	P1/26	1—18	3780	18900	P1/54	1—18
1890	9450	P1/27	1—18	3850	19250	P1/55	1—18
1960	9800	BO	1—42	3920	19600	GO	

Technical inspection 1 — P1
Technical inspection 2 — P2
Current repair (medium) — BO

Technical inspection 3 — P3
Technical inspection 4 — P4
Overhaul — GO



Engine

The oil filling neck (Fig. 9/1) is situated on the right-hand side of the centrifugal oil cleaner.

Replenishing of oil

Replenish the oil in the crank case right up to the top gauge mark on the oil dip stick. Then crank up the engine and let it run for 2—3 minutes at low revolutions. After allowing the oil level to settle, measure again and if necessary top up the oil to the top gauge mark on the dip stick.

Change of oil

Change the oil always at the end of the run, while it is still warm. First unscrew the magnetic drain plug (Fig. 11/8) on the bottom crank case lid. Clean the plug to remove the caught metal particles.

Centrifugal oil cleaner

Before cleaning screw off the wing nut (Fig. 9/2), remove the cover, screw off the M32 nut and separate the rotating parts.

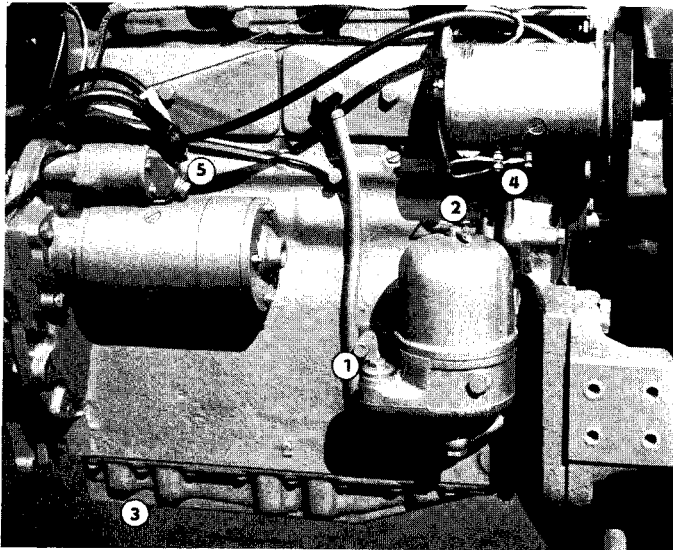


Fig. 9

Rinse thoroughly the inside and bottom parts and reassemble. The gauge marks on the rotating part must face each other.

The lubricating pressure is monitored by the pressure gauge (Fig. 1/6).

Flushing the engine

Drain the old oil and pour into the engine B 1 or B 2 flushing oil. The level of the flushing oil should be between the gauge marks on the oil dip stick (Fig. 11/9). Start the engine and let it run at minimum revolutions for about 10 minutes. Drain the flushing oil and fill the engine with fresh oil as specified.

Cleaning of oil pump suction basket

After draining the old oil, remove the bottom lid (Fig. 9/3) of the crank case, dismantle the oil pump suction basket and wash it in petrol or Diesel oil. Refit the thoroughly dried suction basket to the oil pump, secure against loosening and attach the bottom lid to the crank case. Tighten thoroughly the bottom bolts to prevent leaking through of oil.

Checking valve play

Valve play with engine cold:

suction valve	0.20 mm
exhaust valve	0.30 mm

Have this adjustment carried out in a specialized workshop.

Air cleaner

Only the filter element and the dust tank require attendance. It is recommended to regenerate the filter element by removing the settled dust and blowing the element with compressed air (after 7—70 engine-hours). After 400 engine-hours (current repair — medium), replace the elements.

It is advisable to remove daily dust from the tank (Fig. 10/1) by opening the lock (Fig. 10/2) (daily attendance) and tapping the cleaner body. It is also recommended to check the tightness of air cleaner sleeves, connections and pipes.

Fuel system

At the end of every tractor working shift, replenish the fuel tank via a fuel sieve.

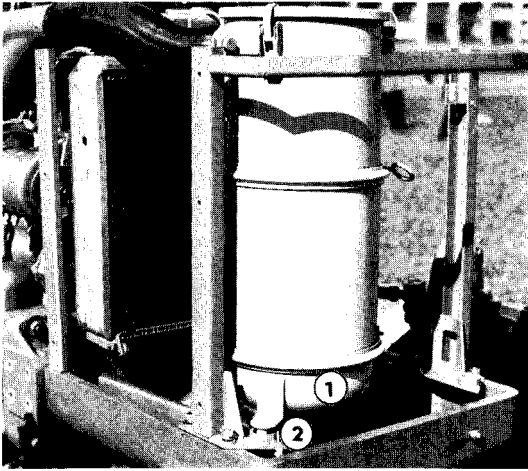


Fig. 10

If the sedimentation glass bowl (Fig. 11/1) contains impurities, remove the bowl and wash the sieve thoroughly in diesel oil.

Double cleaner

After loosening the central bolt lock nuts (Fig. 11/2), remove the bowls in a downward direction, wash them thoroughly, replace the

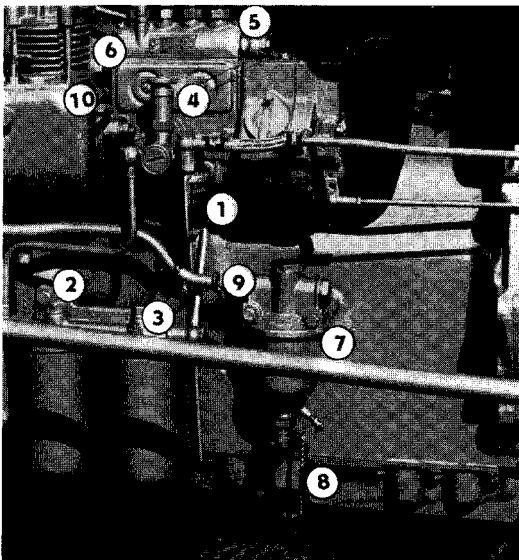


Fig. 11

cleaner elements and fit the bowls complete with elements back to the holder. During reassembly make sure not to damage the cleaner bowl gaskets and not to interchange the cleaner elements. The coarse cleaning element is designated with the figure "1" which is identical with the number on the cleaner holder. Analogically the fine cleaner element is marked with the figure "2".

Fuel injection pump and governor

Oil is poured into the flange-type fuel injection pump and output governor via an opening that is closed with a plug. The oil level should reach to the bottom rim of the inspection opening. Oil is drained via a plug located underneath the inspection opening.

Deaeration of fuel system

A non-vented fuel system causes irregular operation of the engine or makes it altogether impossible to start the engine. Carry out deaeration as follows:

- (1) Open fuel tank cock and loosen stirrup of sedimentation pre-cleaner glass bowl (Fig. 11/1), in order to fill the bowl with Diesel oil without any air bubbles. Secure the bowl by tightening the stirrup.
- (2) Loosen the deaeration screws of the fuel cleaners (Fig. 11/3) and operate manually the fuel transport pump (Fig. 11/4) until Diesel oil without bubbles flows out from both cleaners. Tighten the coarse cleaner screw and keep on pumping manually for a little while. Then tighten also the fine filter screw.
- (3) Loosen the deaeration screws of the fuel injection pump (Fig. 11/5) and pump manually until Diesel oil without air bubbles escapes around the screws. Keep on pumping and tighten first the left-hand screw, then the right-hand one. Set the control lever to full fuel dose and employ the pushbutton on the control rod.

Cooling system

Always fill the radiator with soft clean water up to the level of the overflow pipe in the filling neck.

In winter drain water from the radiator via the cock located in the bottom section of the radiator and from the crank case via a cock situated on the right-hand side behind the d. c. generator. If the radiator neck is closed with an overpressure valve, remove same when draining the water, so as to allow all the water to flow out. The V-belts must be sufficiently tensioned, otherwise the efficiency of the fan, water circulation and d. c. generator would

be reduced. The maximum permissible sag of the V-belts under average finger pressure is 15 mm.

Tensioning is carried out by skewing the d. c. generator, having first loosened the screws. The water pump hearings are grease lubricated by a Stauffer lubricator. According to the lubrication chart, give at regular intervals the lubricator lid one turn.

Cleaning the radiator

When hard water is used, furrings settle on the radiator walls and in the whole cooling system which then reducing the efficiency of the cooling system and cause the engine to overheat. To remove the sediment, drain water from the radiator and from the engine and fill the radiator with a solution containing 1 kg soda or 1.5 kg potash (potassium carbonate) in 10 litres of water. Allow this solution to act for 8—10 operating hours. Then drain the solution and flush the cooling system several times with clean water. Remove the sediment after 2000 operating hours, with certain types of water even more often.

Double purpose clutch

Check regularly the double purpose clutch to make sure that it functions correctly. Remove the lid situated on the LH gear box side and ascertain, whether there is sufficient play between the releasing levers and the clutch sleeve. This play should be for levers of the travel clutch 5 mm, for levers of the auxiliary drives clutch 11 mm. This play is adjusted with the pull rod between the releasing shaft and the pedal.

Front axle

The toe-in of the wheels is adjusted by shortening or lengthening the steering connecting rod which is for this purpose provided at both ends with right-hand — left-hand threads; readings are taken on the rims in the horizontal wheel axis. Checking and if necessary limiting of front wheel bearing play:

- (a) Insert lifting jack under the front axle bracket, so that the wheel is free to rotate.
- (b) If by applying hand pressure to the wheel periphery play is ascertained, it can be taken up by tightening the bearing nut, having first removed the lid and pulled out the split pin. After adjustment of play, the wheel must be free to rotate, and there must be practically no play in the bearings.
- (c) Secure the nut with the split pin, fill the bearings with lubricating grease and close the wheel hub with the lid.

The front wheel hubs are filled with lubricating grease at the manufacturer's. Replenish the grease in accordance with the lubrication chart so that both bearings are properly lubricated. Before screwing down fill the lock nut with grease.

Steering

The steering box is filled with oil through the filling opening (Fig. 8/5) located on the left-hand shaft sleeve. The oil is drained from the box via a hole on the left-hand side of the gearbox underneath the steering box. Check from time to time the free travel of the steering wheel. Turn the steering wheel to the right, until the front wheels start to turn, and arrest them with blocks. Then turn the steering wheel to the left, until you feel the resistance of the blocked wheels and with the aid of a gauge determine the magnitude of this angle. The free travel of the steering wheel should not exceed 15° . Repairs should be entrusted to a specialized workshop.

Gearbox, final drive box, portals

The moving elements of the gearbox are splash lubricated. The gearbox is filled with oil through an opening in the lid. (Fig. 1/13). The oil level is checked with a dip stick, the magnetic drain plug is at the lowest point of the gearbox.

The filling, inspection and draining openings on the outer gear boxes are marked in red.

Hydraulic system

The same hydraulic system oil is used for the gearbox and the final drive box. With the hydraulic system, great attention should be paid to cleanliness when changing oil. If the tractor is operated under extreme conditions, the oil level is raised (see lubrication chart). Before putting in new oil, clean the magnetic filter located in the hydraulic system (Fig. 3/5) lid and remove all contamination from the magnetic plugs. At least once a year remove the bottom lid of the hydraulic system and clean thoroughly the suction basket of the pump by flushing in Diesel oil.

Belt pulley

The belt pulley is provided with a plug for filling and draining the oil. Use the same type of oil as for the gearbox. The required oil quantity is approx. 0.9 litres. Change the oil after 2000 operating hours of the belt pulley. If the pulley is in constant use, check and top up the oil, if necessary, every day.

Brakes

Check the function of the brakes and the brake fluid container (Fig. 7/1) that should always be full. The container is filled at the manufacturer's with "Synthol 190 HD" brake fluid.

The brake fluid level should never be allowed to sink right to the bottom, otherwise air would enter the brake system and would render the brakes inoperative. Observe perfect cleanliness when replenishing the brake fluid.

If you are using for topping up the brake fluid left over from the bleeding operation, fill it into the container via a fine sieve or a clean rag.

Bleeding the brake system

If one of the piping connections has been dismantled or if there has been a brake fluid leak and the fluid had to be replenished, it is essential to carry out perfect bleeding of the whole brake system.

If you are not sufficiently experienced, have this work carried out in a specialized workshop.

Carry out bleeding as follows:

Fill the container with brake fluid and thread on the tapered end of the brake cylinder bleed screw a piece of rubber tubing, the other end of which is immersed in the fluid contained in a transparent vessel.

Always carry out bleeding with the pedals disconnected

Loosen the deaeration screw by about two turns and depress the clutch pedal. This drives out the brake fluid together with air bubbles. Keep on depressing the brake pedal, until only fluid out. Finally depress the pedal and tighten the deaeration screw. Make sure to have always sufficient brake fluid in the container. When bleeding, observe the following:

- (a) The level in the auxiliary vessel must be higher than the mouth of the deaeration screw. Watch the fluid level in the equalising container.
- (b) Do not tighten the deaeration screw until the pedal is fully depressed.
- (c) During the bleeding, depress the pedal quickly and release it slowly.
- (d) Having finished the deaeration process, replenish the fluid in the container and by depressing the disconnected pedals with a force of approx. 80 kg check for tightness in joints.

The brake cylinders of the shoes are not adjusted, they are self aligning. There is a pressure equalizer (Fig. 7/6) placed between brake valves.

Hand brake (Fig. 1/9)

Loosen the small screw securing the brake hand cover and turn the cover. Pull the hand brake lever, until it engages the fifth tooth of the pawl. Leave the lever in this position, loosen the lock nut and with the bottom nut tighten the brake band on the brake drum. Secure the adjusted band with the lock nut, turn the brake band cover and secure with the small screw.

Carry out the same procedure also for the second brake band of the hand brake. When the hand brake lever is released, also the bands on the brake drums are released sufficiently, so that during travel of the tractor no harmful overheating of the brakes takes place. Carry out a final check of the correct function of the brakes by observing the trace of the braked wheels.

Pneumatic brakes

The pneumatic brakes are used for braking the trailer. The air is conducted from the compressor (Fig. 11/6), into the tyre inflator (Fig. 11/7) and via a pressure equalizer (Fig. 12/1) into the air tank (Fig. 12/2). At the bottom of the latter is a plug (Fig. 12/3) for draining contamination; during frosts, this plug is used for dewatering. The air tank should be tested by an authorized institution once every two years, and the date of the test stamped on the air tank nameplate. The pressure gauge (Fig. 1/1) indicates the pressure in the air tank. Should it become necessary to adjust the pressure, have this done in a specialized workshop. The brake valve is linked by a pull rod with the brake pedal and simultaneously with the hand brake lever, so that when the tractor is stopped and secured with the hand brake, also the trailer is braked. The braking force acting on the trailer depends on the pressure exerted on the pedal. The greater the pressure exerted by the driver on the pedal, the more is the trailer braked with a certain advance.

Maintenance and care of tyres

Pay great attention to the maintenance and care of your tyres. Very important is the correct tyre pressure. Insufficient inflation causes rapid cracking of the tyre sides and the danger of fissures in the fabric. Excessive tyre pressure prevents normal bending of tyre sides and the runners are worn only in the centre.

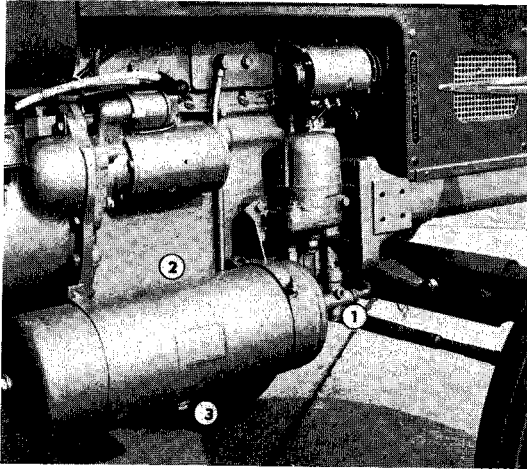


Fig. 12

Incorrect adjustment of wheel toe-in leads to considerably tyre wear.

Irregular functioning of the brakes causes a shortening of tyre life. One of the greatest enemies of tyre life is unskilled and forceful fitting. Tyres and rims are made in such a way that for fitting no excessive effort and force are required. Make sure that the rims are always free from dirt, especially rust.

Procedure for fitting tyres

Front wheel:

- (1) Onto the prepared table place the disk and put on it the tube strip; the tube strip opening should be on the opening in the disk.
- (2) Pour talcum powder into the tyre and turn the tyre to distribute the talcum powder along the entire tyre circumference.
- (3) Place the disk on the ground, apply the tyre and using the assembly lever fit one side of the tyre onto the disk. (Always fit the tyre from the outer side of the disk.)
- (4) Replace the disk with the tyre on the prepared table and apply to the tyre the inner tube with the valve facing upwards; pull out the valve cap.
- (5) Fold the inner tube at the valve, grip it with your right hand, lift the tyre a little with your left hand and slide the valve into the opening in the disk.

- (6) Lift the tyre a little and slide in the whole inner tube. Place the wheel onto the ground, apply the tyre lever opposite the valve and press your foot onto the tyre. Apply the lever alternately from the left and from the right, until complete sliding in of the tyre is achieved.
- (7) The fitting operation is completed at the valve. Inflate the assembled wheel and place the cap onto the valve.

Rear wheel

- (1) Insert onto the disk the tube strip with the recess towards the opening for the valve.
- (2) Place the disk onto the ground with the outer side downwards. Apply the tyre in such a way that the tyre patterns always point with the arrow forward. (When assembling make sure, whether you are mounting the left-hand or right-hand wheel.)
- (3) Moisten the tyre edges so that they slip easier into the disk.
- (4) Apply the tyre lever opposite the valve, slide the tyre onto the disk edge, hold it with your left foot, and using the tyre lever slide it from the left and from the right onto the disk. (Alternately, so that the valve does not get stuck in the disk.)
- (5) Apply onto the tyre the inner tube in such a way that the valve faces the opening in the disk, in an upward direction.
- (6) Tighten the bottom nut of the valve, screw off both the large and small caps, pull out the valve and pull off the large nut.
- (7) At the opening for the valve place a piece of wood, a stone, etc. under the tyre, so that the inner tube can be easily slid into the tyre.
- (8) Fold the inner tube at the valve and slide it into the tyre. Slide the piece of wood, stone, etc. along the tyre periphery right up to the point where you wish to insert the inner tube.
- (9) Stand the wheel upright, push the valve through and secure it with the nut. Place the wheel again onto the ground and moisten the other edge of the tyre.
- (10) Opposite the valve slide with the aid of the tyre lever the tyre over the disk edge and press it down with your foot, so that it cannot give way. Apply the tyre lever alternately from both the right and the left, until the tyre is slid in. Mount the valve, inflate the tyre and place the cap onto the valve.

Load Carrying Capacity of Tyres

Application	Dimension	Inflation atm. g.	Up to 30 km p. h.	With carried implem short-time on road up to 20 km p. h.		With front loader up to 6 km p. h.	
			Load capacity	Load capacity	Permissible axle load	Load capacity	Permissible axle load
Front tyres	6,00-18	0,8	245	294			
		1,5	385	462			
		2,5	550	666	230	1100	1100
Rear tyres	13-28	1,0	1345	1614	1265		
		1,2	1500	1800	1640		
Rear tyres	14-28	1,0	1520	1824	1640		
		1,3	1760	2112	1640		
		1,5	1920	2304	1640		
Rear tyres	11-32	1,0	1030	1236	510		
		1,3	1200	1440	920		
		1,5	1305	1566	1170		
Rear tyres	11-36	1,0	1085	1302	640		
		1,3	1260	1512	1060		
		1,5	1375	1650	1340		

Filling tyres with water

An increase in adhesion and tractive force of the tractor can also be obtained by filling the inner tubes in the rear tyres with water. Although it is possible to fill the tyres with water also through the normal valve, the inner tubes are provided for this purpose with a special valve that facilitates speedy and easy filling.

During the winter season it is recommended to use an antifreeze agent for filling the tyres.

Filling procedure

For filling employ a vessel or a gravity tank.

Ease the tyre by means of a lifting jack and turn it so that the valve faces upwards. Deflate the air completely.

Connect onto the valve a hose from the solution tank and pump in the solution. Then inflate the tyre to the specified pressure.

Draining procedure

Caution: Water splashes out when unscrew the air section of the valve. During the draining of water a vacuum may be caused in the tyre and therefore it is necessary to turn the wheel slightly from time to time, so that the valve comes into the upper position. Screw onto the bottom section of the valve the water valve body and onto the body the air section of the inner tube valve. Inflate the inner tube with air until water stops flowing out through the tube in the body.

After emptying the inner tube, screw off the water valve.

Table of antifreeze solution for filling tractor tyres

Water for preparation of solution in litres	Anhydrous calcium chloride CaCl_2 in kg	Quicklime in kg	Density of solution at 20° C (approx.)	Freezing point ° C (approx.)	Total volume in litre (approx.)	Extra weight total in kg (approx.)
45	11.8	0.21	1.13	—18	50	56.5
45	13.9	0.23	1.18	—25	50	58.9
45	15.4	0.25	1.21	—29.5	50	60.4

ELECTRICAL EQUIPMENT AND ACCESSORIES

Storage battery

For the correct functioning of the entire electrical equipment is of greatest importance the correctly charged and attended storage battery. When the tractor is running, the d. c. generator automatically charges the storage battery. If the power consumption is greater than the power the d. c. generator is capable of delivering, then it is necessary to charge the storage battery outside the tractor from time to time. During the charging process water is evaporated and the density of the electrolyte increases. Therefore it is necessary to dilute the electrolyte by topping up with distilled water.

Never use ordinary water, even if it looks clean; the accumulator could suffer damage.

Electrolyte with a spicified density of 1.28—1.285, i. e. 32° Bé is used for filling the storage battery only when it **has been spilled**. **If the storage battery is supplied from the manufacturer's empty and uncharged, it should be given the so called first charge in strict accordance with the instructions.**

Attendance

Evaporation decreases the fluid content of the storage battery and therefore it should be topped up with water from time to

time. Check every week or every second week (according to temperature) whether the electrolyte reaches 15 mm above the upper rim of the plates.

If the storage battery is not being used for a longer period of time, it should be charged and attended once every 4 to 6 weeks. If the storage battery is to be put out of operation for a longer period of time, it is recommended to have it stored in a specialized workshop.

Clean from time to time the terminals to remove sediments caused by evaporation of the cells. You will prolong the life of your storage battery, if you will have it charged and attended in a specialized workshop after every 3 months of operation.

During the winter season protect the storage battery against frost; especially a discharged battery freezes easily!

D. c. generator

It is generally necessary to check the tightness of the connecting cable terminals (Fig. 9/4). Loose terminals or damaged insulation cause short circuits which damage the generator.

Maintain the generator surface clean; this improves cooling and prevents corrosion.

Checking the d. c. generator

Have the d. c. generator repaired in a specialized workshop in specified intervals of time. For the lubrication of bearings use the T-AV2 lubricating grease. All faults on the d. c. generator should be repaired in a specialized workshop.

Starter

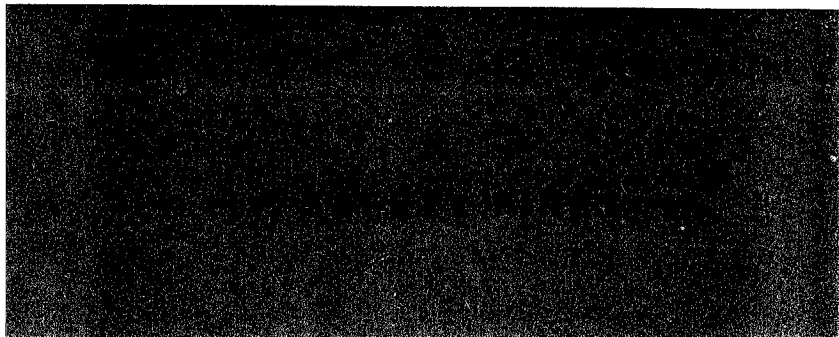
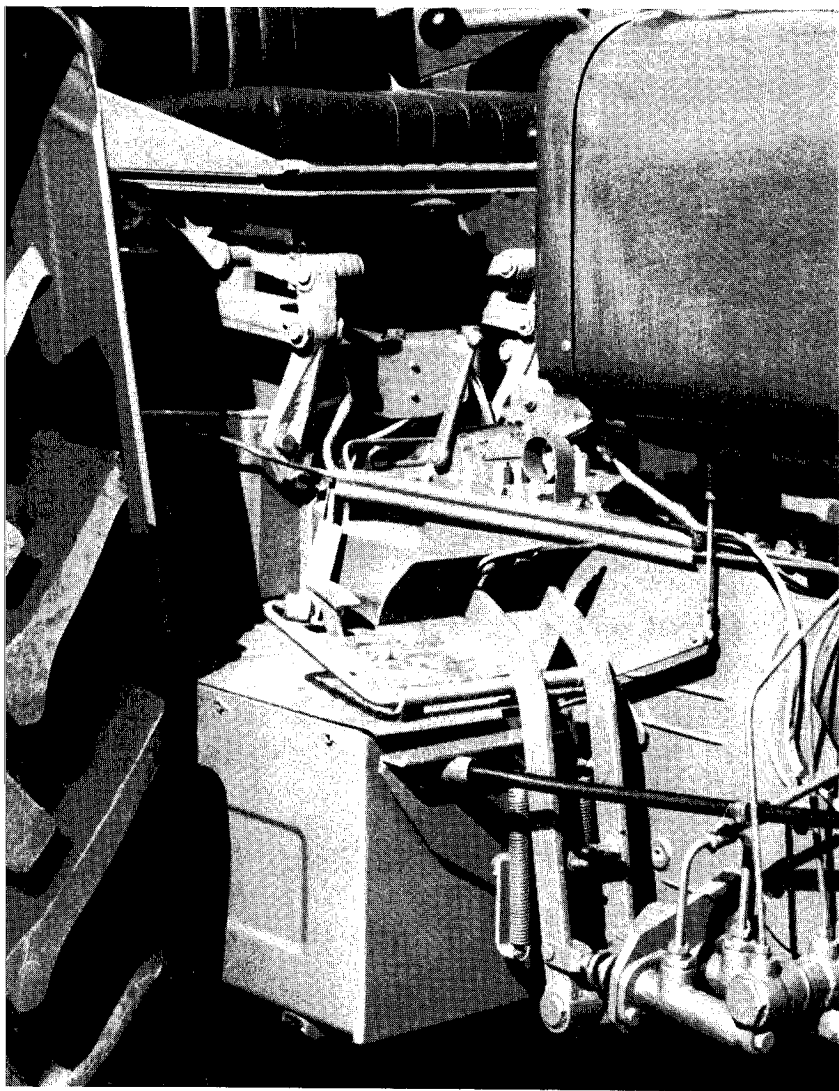
The basic requirement for the correct operation of the starter is a properly charged storage battery.

Starter maintenance is limited to regular inspections, during which the following principles should be respected:

- (1) The input cable (Fig. 9/5) terminals must be thoroughly tightened and protected against corrosion by a thin coating of petroleum jelly. Damaged cables should be replaced with new ones.
- (2) Once every six months check the commutator, carbon brushes, and brush holder springs.
- (3) Once a year have the starter tested in a specialized workshop.

Voltage regulator

If the function of the regulator is impaired, have it repaired in a specialized workshop. Any unauthorized action can lead not only to the destruction of the voltage regulator, but also to serious damage of further accessories.



Some points of advice for safe operation:

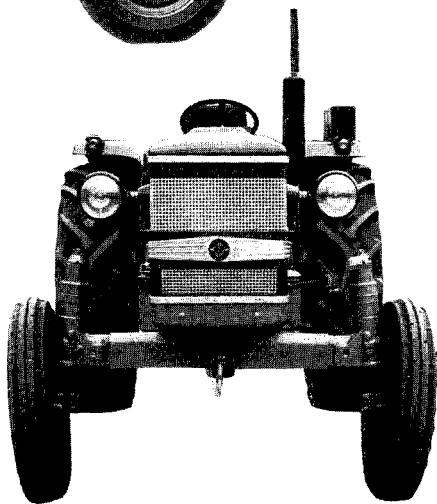
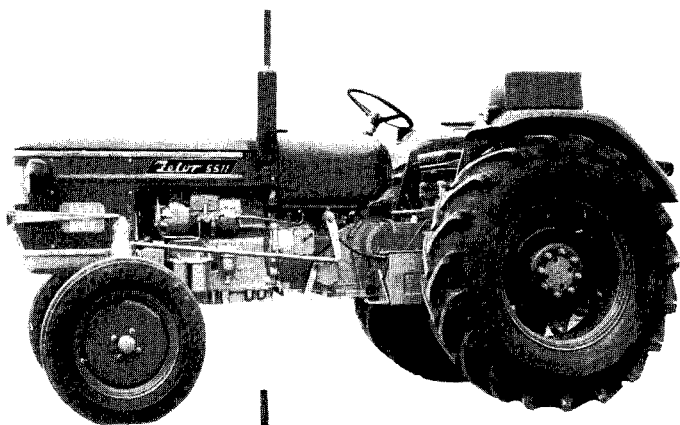
- (1) **Inspect before every journey the vehicle, the vehicle equipment and accessories, as well as the location and securing of the load and remedy any defects found.**
- (2) During work, never stand between the tractor and the suspended implements.
- (3) During travel fasten securely the attached implements in their upper position with the safety suspension. Also implements carried by the hydraulic system should during transport be secured mechanically in a similar manner. When stepping down from the tractor, lower the implements to the ground.
- (4) The speed of the tractor with carried or suspended implements should correspond to the construction of the implements and the suspended machine, respectively.
- (5) Do not drive downhill without the engagement of the appropriate speed. **Before driving down a hill, engage already before the beginning of the downward slope such a speed as would be required for driving up the same slope with the same load.**
- (6) Do not exceed the maximum engine revolutions, i. e. 2200 r. p. m., when driving downhill. Should this critical speed be exceeded, damage may occur, for which the manufacturers can take no responsibility.
- (7) **It is prohibited to drive the tractor, unless the pedals are secured with the pawl.**
- (8) When using the tractor as a prime mover (for threshing, cutting, etc.), make sure that the tractor stands with brakes applied and is secured by shaped wedges against shifting and movement.
- (9) The articulated shaft for driving machinery should be provided with a protective cover. Do not descend from the tractor, unless the articulated shaft drive is disengaged.
- (10) **Before starting work on sloping ground, consider carefully the potentialities in order to avoid a dangerous slope of the tractor. The operation of the tractor on sloping ground can only be entrusted to an experienced and careful driver.**
- (11) When using the tractor for freeing a stuck vehicle, proceed very carefully to prevent injuries.
- (12) Persons can be transported on tractors only up to the number specified in the technical certificate. **It is prohibited to drive without the interconnection of the brake system or without an operator at the mechanical brake of the trailer.**

- (13) Always carry out the hitching of the trailer with the hand brake applied, since air is drained from the coupling head and connecting line and the cap is not under pressure. When driving without a trailer, slide the coupling head lid onto the contact surface of the cap.

Do not continue your journey, if your braking system is not in perfect order. Check the entire braking system before each trip.

- (14) Do not use the tractor for pushing other vehicles and trailers with the aid of a bar or plank introduced between the tractor and the pushed object.
- (15) Do not carry out maintenance work on the tractor with the engine running, apart from checking the operation of the engine and the effectiveness of the brakes, charging and trafficators.
- (16) Do not use an open flame for checking the electrolyte level in the storage battery.
- (17) Do not open the radiator lock when the engine is overheated and do not pour cold water into the radiator.
- (18) The driver's mate must sit in such a way as to have his left leg between the mudguard and the driver's seat and his right leg behind the driver on the final drives box.

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ENGINE	Zetor 5501
Bore	95 mm
Stroke	110 mm
Power output category	55–60 H. P.
Valve gear	O. H. V. system
Fuel consumption	195 + 5 g/H. P. per hour
Oil consumption	1.0 + 0.5 g/H. P. per hour
Nominal engine speed	2200 r. p. m.
Cooling	forced water circulation type with thermostat
Lubrication	pressure type circulation system with full-flow centri- fugal cleaner
Fuel tank capacity	70 litres

CLUTCH

Design	double-purpose with mechanical booster
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GEARBOX

Number of gears	10 + 2
I. gear road — reduced	4.7 km p. h. — 1.1 km p. h.
II. gear road — reduced	7.1 km p. h. — 1.6 km p. h.
III. gear road — reduced	9.9 km p. h. — 2.3 km p. h.
IV. gear road — reduced	15.2 km p. h. — 3.5 km p. h.
V. gear road — reduced	25.4 km p. h. — 5.9 km p. h.
Reverse gear road — reduced (for tractor with 13-28 tyres)	6.2 km p. h. — 1.4 km p. h.

STEERING

Type	not self-aligning
------	-------------------

BRAKES

Double pedal foot brakes	hydraulic with pressure equalizer
Hand brake	band type, mechanical

P. T. O. SHAFT DRIVE

At 2000 r. p. m. of engine	540 ± 10 r. p. m.
At 2200 r. p. m. of engine	595 ± 10 r. p. m.
Via gearbox at 2200 r. p. m. of engine	

I. gear	250.4 r. p. m.
II. gear	381.3 r. p. m.
III. gear	519.3 r. p. m.
IV. gear	797.2 r. p. m.
V. gear	1331.0 r. p. m.
Reverse gear	326.9 r. p. m.

ZETORMATIC MULTI-CONTROL HYDRAULIC SYSTEM

Max. working pressure	150 + 10 atm. g.
Pump output	20 litres (at 540 r. p. m. of P. T. O. shaft)
Oil quantity for outer circuit	8—10 litres
Max. lifting force at end of pull rods	1400 kp

ELECTRICAL EQUIPMENT

Storage batteries, connected in parallel	2 × 12 V, 6SST, 2 × 95 A/hours
D. c. generator	12 V, 12 A
Starter	12 V, 4 H. P.

DIMENSIONS OF TYRES

Front tyres	6.00-18
Rear tyres	13-28 (11-32, 14-28, 11-36)
Weight of water in rear tyres	2 × 150 kg for 13-28 tyres

MAIN DIMENSIONS AND WEIGHTS

Length	3475 mm
Width for rear wheel track of 1425 mm	1740 mm
Height to upper rim of steering wheel	1620 mm
Road clearance under air tank	415 mm
Wheelbase	2257 mm
Front wheel track — adjustable	1350 mm - 1575 mm - 1725 mm
Rear wheel track — adjustable in increments of 75 mm	1425 mm - 1800 mm
Minimum turning radius with braking of one wheel	6.95 m
Weight of tractor in "agricultural" version	3060 kg
Tractive force of tractor at suspension for trailer without ballast weights	1500 kp
with ballast weights	2400 kp



APPLICATION OF FOUR WHEEL DRIVE TRACTOR

The tractor ZETOR 5545 is a modification derived from the basic tractor type ZETOR 5511. Instead of the normal front axle with extensions, tractors ZETOR 5545 are provided with the front wheel drive. The front wheels are steered and have a smaller diameter than the rear ones.

Tractors ZETOR 5545 have been designed especially for the service in heavy soils with decreased passability and with a lower coefficient of adhesion and for operations on maximum slope of 16°.

They are suitable especially for agricultural duties in hilly, humid, marshy or sandy terrains. It is also possible to carry out all works and operations with this tractor ZETOR 5545 as with ZETOR 5511. The tractor ZETOR 5545 can be used for:

- (a) agricultural operations — in hilly terrain for traction or drive
- (b) forest operations — for the work with the winch, for bringing near stems and their transport to the stockyard
- (c) transport in agriculture and forestry.

Attention: In order to ensure an easy passability of the tractor ZETOR 5545 in hilly terrain, it must be absolutely equipped with a safety frame.

ATTENDANCE OF FRONT WHEEL DRIVE

The front wheel drive is controlled from the driver's seat by means of a shifting lever fitted on the left-hand gear box side. When moving the shifting lever upwards and dropping the catch into the floor cut-out, the engaging spring is prestressed, and engages automatically the front wheel drive during the travel of the tractor. When freeing the catch and moving the control lever downwards, the front wheel drive is disengaged. At the driven front axle with differential, the drive is distributed on both front wheels by means of the differential, two halfaxles, double joints (homocinetic); the differential is not provided by any differential lock.

Increased traction power can be used also for the reverse speed at the tractor ZETOR 5545 with differential. At braking a good use is made of the front axle weight.

For the correct function of the front wheel drive it is important to respect prescribed dimensions of both front and rear tyres. Front wheel drive can be applied for all travel and reduced speeds.

Note: It is recommended to disengage the front wheel drive when travelling on solid roadway in order to decrease augmented stress and wear of tyres.

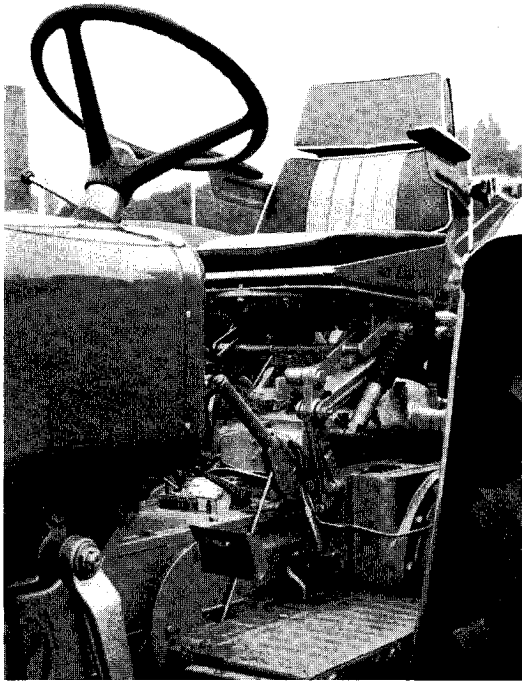


Fig. 13

GENERAL INFORMATION

Instead of the front axle RH and LH sprung extensions following assemblies are fitted on the tractor ZETOR 5545:

- drive box and cardan joint shaft (Fig. 14)
- front driven axle (Fig. 15)
- double joint and driven wheel (Fig. 16)

Front axle drive is transmitted from the bevel pinion shaft. Reduction gears on this tractor have been changed in comparison with the basic tractor type. Its gears are in constant mesh and shifting in is carried out by means of a toothed sleeve provided with teeth on the outer periphery. An intermediate gear, freely turning on the reduction hollow shaft, meshes in it. With this intermediate gear intermeshes the drive gear, placed in the drive box of the front drive axle, under the gear box rear part.

Front driven axle

The front driven axle is of the rocking bridge-type, unsprung. The

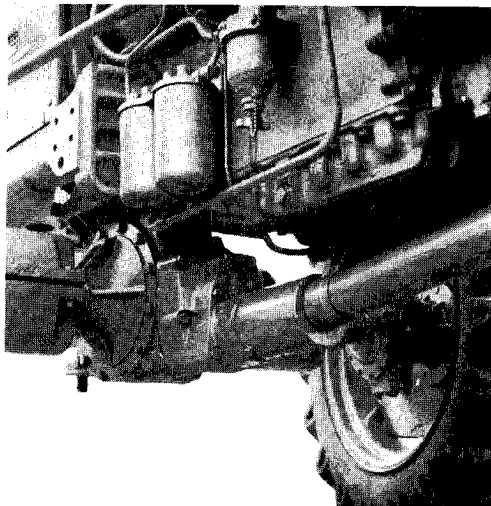


Fig. 14

drive is carried out from the drive box by means of an enclosed connecting shaft (Fig. 14). The drive distribution on both front wheels is carried out by means of the differential. The front wheel drive is provided by a safety slip clutch against overload. Front wheels are driven by semi-axes by means of double (homocinetic) joints (Fig. 16). In the front driven axle no differential lock is applied. (The safety slip clutch is set-up to 50—53 kpm.).

Steering

Steering is not self-locking; it is designed as screw and nut type

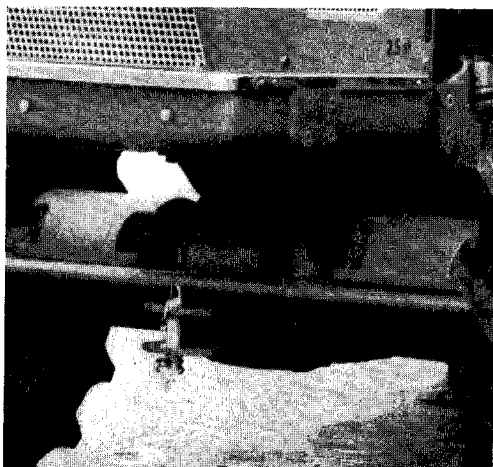


Fig. 15

with one steering bar (Fig. 17) arm lead on the LH tractor side. Front wheels are united by a connecting bar (Fig. 17). Front wheel toe-in is determined by the design and can't be augmented. Front wheels are not adjustable vertically i. e. the tractor ground clearance under the front axle can't be increased.

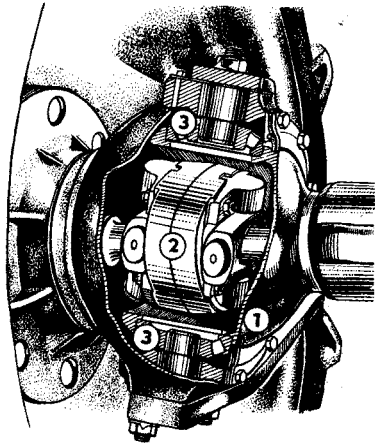


Fig. 16

Inflating of Tyres

Front tyres:

for ploughing and road service

2 at. g.

Rear tyres:

for ploughing

0.8 at. g.

for road service

1.5 at. g.

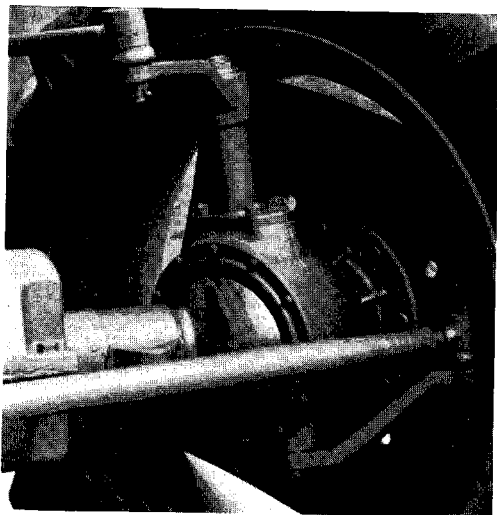


Fig. 17

Front and rear wheel rims are of Wide-Base type. When replacing tyres it is necessary to use the same tyre size of BARUM make. Abroad tyres in size and dimension corresponding with Czechoslovak ones can be applied.

Running-in of the tractor

The running-in of the tractor ZETOR 5545 is to be carried out in the same way as the tractor ZETOR 5511, but ever with engaged front wheel drive.

SPECIAL ACCESSORIES

In the consequence of the fact that the front axle is driven, the following accessories are not fitted on the tractor ZETOR 5545:

- front axle (group No. 33)
- front sprung extensions (group No. 36)
- front wheel ballast weight (group No. 63)
- front mudguards (group No. 70)

Remaining special accessories can be ordered according to the conditions mentioned in the List of Spare Parts for the tractor ZETOR 5511.

How to fill tyres with water

In order to increase the adhesion weight, it is possible to fill front tyres of the tractor ZETOR 5545 with water. The preparation of respective solution for filling and filling itself is to be carried out in accordance with specification indicated in the Operator's Manual for tractor ZETOR 5511. The quantity of water in front tyres equals to 2×50 kgs i. e. in total 100 kgs.

MAINTENANCE AND SET-UP

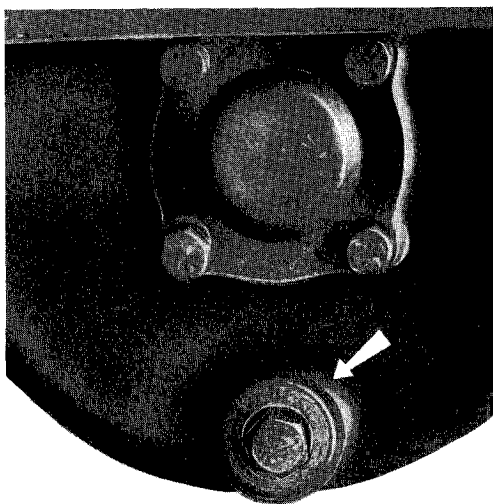


Fig. 18

All necessary attention to the maintenance of the tractor ZETOR 5545 is to be paid and instructions given in the Operator's

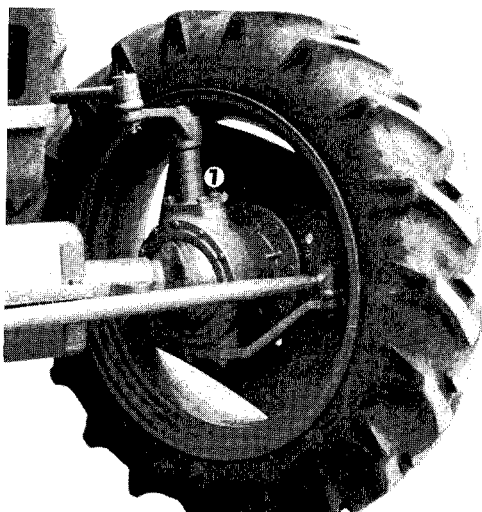


Fig. 19

Manual for tractors ZETOR 5511 have to be followed. Control and exchange of oil of individual groups of the front wheel drive are to be carried out in the following way:

Drive Box has a common oil space with the gearbox. Checking and topping of the oil level is carried out simultaneously with the inspection of the gearbox oil level.

When changing oil, screw out the drain bolt on the drive box body and remove sediments from the plug (Fig. 18).

Axle housing is provided with its own oil filling. Checking, topping as well as change of oil is to be carried out at the same time as it is done with the gearbox. Inspection and filling orifice is located on the axle housing. Drain orifice is located on the bottom part of the axle housing (Fig. 14/1).

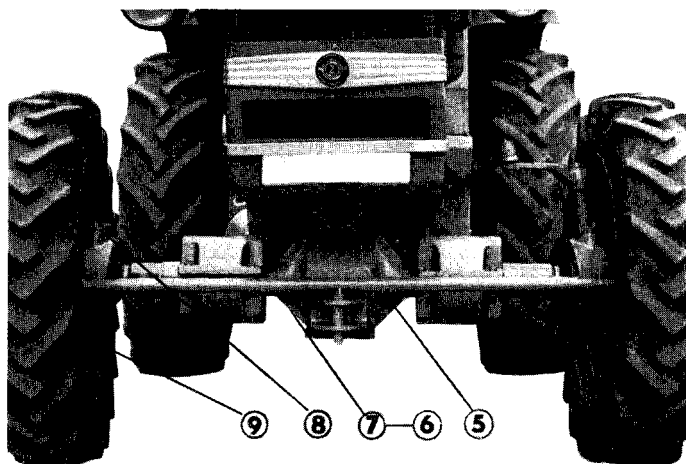
Double joint*) and bearings of the pivot are lubricated with oil which is poured in through the filling orifice in the top part of the pivot (Fig. 19/1). Each joint has its own oil filling. Change of oil is also carried out in the same time intervals as it is done with the gearbox — see the lubrication chart of the front wheel drive. Oil is drained when the draining plug, which is in the bottom of the pivot, was unscrewed. This pivot is sealed against oil leakage by means of a special sealing ring.

The remaining maintenance is to be carried out according to the results of technical inspections as mentioned in the Operator's Manual for tractors ZETOR 5511.

Note: It is necessary to check oil of the double joint once a week.

Lubrication Chart for Front Wheel-Drive

Fig.	Spot to be lubricated	Operation	Kind of oil Sumer Winter	Quantity
Attendance after 70 service hours				
5	Drive box — gear box	Inspection	PP7 (SAE 90)	25 lit. + 7 lit. at operations with hydraulic control system in hilly terrain
6,7	Front axle housing	Inspection	PP7 (SAE 90)	2 litres
8,9	Double joint	Inspection	PP 13 SAE 90 PP 44 SAE 140	2 x 0.75 litres
Attendance after 1000 service hours				
5	Drive box — gear box	Oil change, rinsing	PP7 (SAE 90) B1 (B2)	25 + 7 litres
6,7	Front axle housing	Oil change, rinsing	PP7 (SAE 90) B1 (B2)	2 litres
8,9	Double joint	Oil change, rinsing	PP 13 SAE 90 PP 44 SAE 140 B1 (B2)	2 x 0.75 litres



Front wheel toe-in

is adjusted by shortening or prolonging the connecting link, located under the front axle of the tractor.

The toe-in of the front wheels of the tractor ZETOR 5545 is set to 3—5 mm and it is measured on rims in the horizontal wheel axis.

Checking of play of taper roller bearing of the front wheels

Front wheel heads are filled at the assembly in the Works with lubricating grease. This grease serves for lubrication of roller bearings only to the moment when the plain bearing of the half-axle begins to push oil from the pivot space.

Inspection or the eventual adjustment of play of the taper roller bearings of front wheels and those ones of the pivot is carried out in the course of Technical inspection No. 3 (P3). The play of taper roller bearings of front wheels is set up in the same way as on the tractor ZETOR 5511.

MAIN DIMENSIONS AND WEIGHTS

Main dimensions

Length (with Hydraulic lift controls)	3475 mm
Width (rear wheels track of 1350 mm)	1740 mm
Width to the top edge of steering wheel (without cab)	1620 mm
Minimum ground clearance	325 mm
Wheelbase	2220 mm
Front wheel track	1450 mm
Minimum turning circle (with one wheel braked)	7000 mm
Travel capacity when turning (with one wheel braked)	7260 mm
Water quantity in front tyres 2×50 kgs	100 kgs
Water quantity in rear tyres 2×150 kgs	300 kgs
Weight of the tractor ready for service, with special accessories	3460 kgs
Out of which:	
front axle load	1200 kgs
rear axle load	2260 kgs

Tyre dimensions

Front wheel tyre

8—24"

Rear wheel tyre

11—28"

(optional 14—28"
or 11—32")

Output

Tractive force in drawbar with ballast
weights and water in tyres on dry
concrete road:

with front wheel drive

2600 kps

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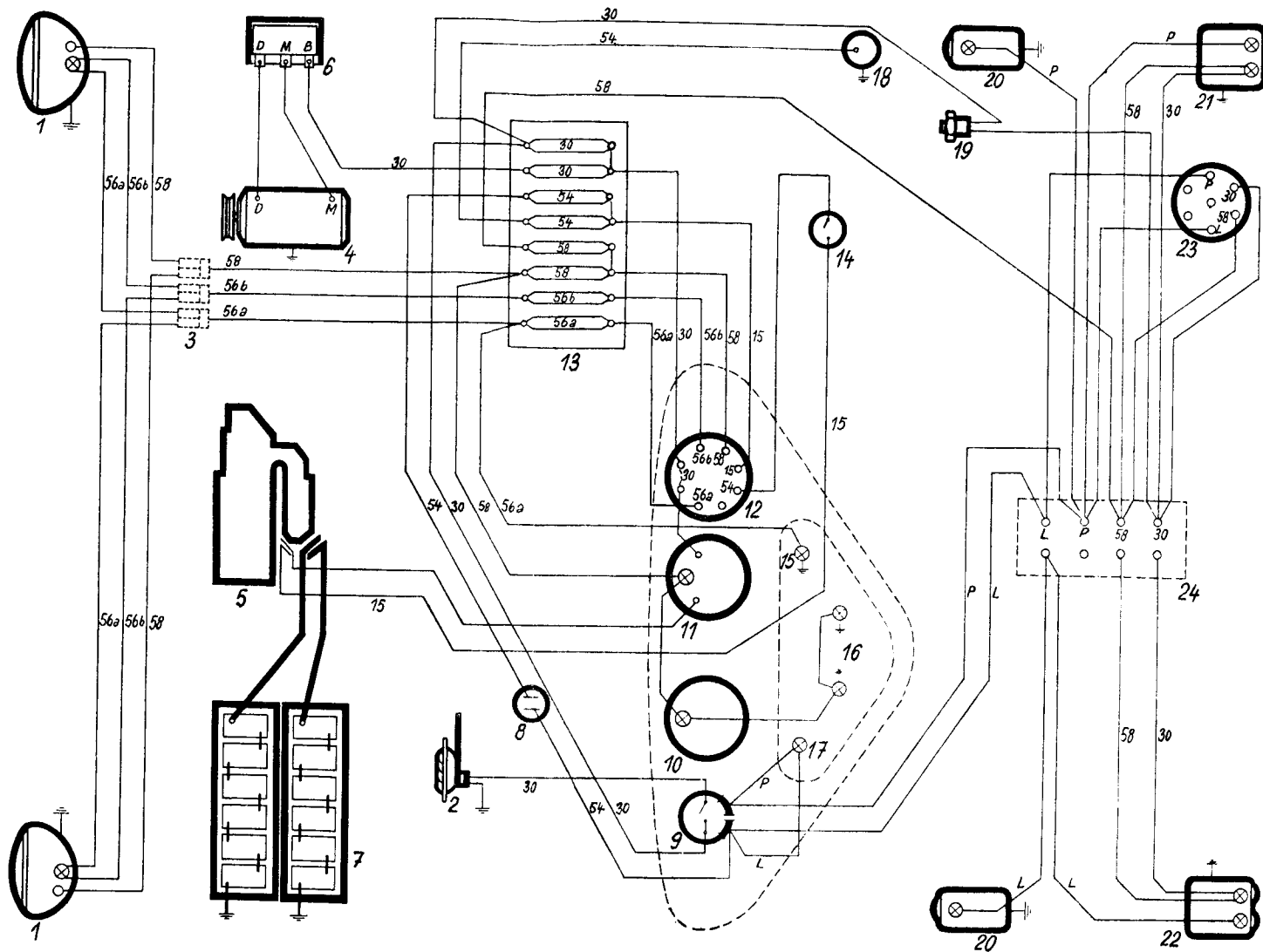
The tractors are being constantly improved. Therefore the manufacturers reserve the right to make alterations, whilst maintaining the substantial features of the herein described Zetor 5511 tractor.

It is not permitted to use text information and illustrations given in this Manual for further publication.

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1. Headlamp
 2. Horn
 3. Terminal board box
 4. Dynamo
 5. Starter motor
 6. Regulating relay
 7. Storage battery
 8. Circuit breaker of traffic direction indicator
 9. Toggle switch
 10. Pressure gauge
 11. Ammeter
 12. Switch box with key
 13. Fuse box
 14. Starter motor push-button
 15. Pilot lamp of distance lights
 16. Dashboard light
 17. Pilot lamp of traffic direction indicator
 18. Socket
 19. Hydraulic switch of brakes
 20. Front direction indicator cluster
 21. R. H. tail lamp cluster
 22. L. H. tail lamp cluster
 23. Socket
 24. Terminal board box
- Earthing:
Earthing of minus pole

LUBRICATION CHART

Lubricating point	Operation	Type summer — winter		Quantity
Daily — 8 to 10 engine-hours				
Engine (1, 1a)	check	SAE 30	SAE 20	12 litres
Gearbox (2)	check	SAE 90		25 litres
P1 — 70 engine-hours				
Engine (1, 1a)	change	SAE 30	SAE 20	12 litres
Gearbox (2)	check	SAE 90		25 litres
				32 litres when working with hydraulic system in hilly ground
				37 litres when working with hydraulic system in mountains ground
Portals (3)	check	SAE 90		3.8 litre
Fuel injection pump (4)	check	SAE 30	SAE 20	0.2 litre
Water pump (5)	give 1 turn	A4		0.1 kg
Clutch releasing sleeve (6)	lubricate	SAE 30	SAE 20	0.06 litre
Front axle bracket (7)	lubricate	A00		(2 lubr. points)
Wheel attachments (8, 8a)	lubricate	A00		(2 lubr. points)
Clutch releasing shaft	lubricate	A00		(2 lubr. points)
Pedals (9)	lubricate	A00		(3 lubr. points)
Right-hand strut (10)	lubricate	AV2		0.05 kg (1 lubr. point)
Power control buckle (11)	lubricate	A00		(1 lubr. point)
Struts — tensioning nuts	lubricate	A00		(2 lubr. points)
Steering wheel sleeve with lever (13)	lubricate	A00		(1 lubr. point)
P2 — 250 engine-hours				
Engine (1, 1a)	flush	B1 or B2		9 litres
P3 — 500 engine-hours				
Gearbox (2)	change	SAE 90		25—32—37 litres
	flush	B1 or B2		15 litres
Portals (3)	change	SAE 90		3.8 litre
Front wheel hubs (14)	replenish	AV2		0.26 kg
Steering wheel bearing	replenish	SAE 90		0.01 litre
BO — 2000 engine-hours				
Fuel injection pump (4)	change	SAE 30	SAE 20	0.2 litre
Steering (15)	change	SAE 90		1.6 litre

