

Operation manual EN

CondiMaster 6831 7631





EC Declaration of Conformity as defined by the EC directives

- Machines 89/392/EEC (14.06.89) amended by 91/368/EEC (20.06.91) and 93/44/EEC (14.06.93) and 93/68/EEC (22.07.93)

The machine

product : Rotary Tedder
type : CondiMaster 6831 / Fanex 683 C / Taarup 8068 C
CondiMaster 7631 / Fanex 763 C / Taarup 8076 C
identity no. : 6910 / 6911
serial no. : 6910 / 11 -
6911 / 11 -
year of construction : 1998

was solely developed, designed and manufactured, in accordance with the aforementioned EC directives,
by

Kverneland Gottmadingen GmbH & Co. KG
Hauptstraße 99
78244 Gottmadingen
Germany.

The following harmonised norms were applied:

- DIN EN 292/1 and EN 292/2, safety of machines, equipment and systems

The complete technical documentation is available.

The machine 's operating instructions are available

- in the original version : German
- in the languages : English, French, Dutch, Italian

Gottmadingen, 21.04.1999

i.V

R. Willburger
Head of Development/Design

A handwritten signature in black ink, appearing to read 'Willburger', is written over a horizontal line.

Foreword

Dear customer!

We would like to congratulate you on the purchase of your Rotary Tedder and thank you for choosing our product.

These operating instructions provide you with detailed information concerning system set up and maintenance of your new Rotary Tedder. In addition, the instructions also include safety instructions which ensure safe employment of the machine. The operating instructions contain descriptions of all the available equipment, the various models and all of the special and additional pieces of equipment which are not usually included in the delivery.

These operating instructions are intended to aid you in getting the best possible use out of your new Rotary Tedder.

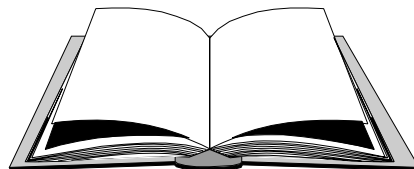
The performance of your machine depends to a great extent on correct use and careful maintenance. For this reason, read the instructions carefully before the first system start up and always keep them near at hand. By doing so you will avoid accidents, preserve the manufacturer's warranty and always enjoy the advantages of an efficient and reliable machine.

The Kverneland company is continuously making every effort to improve their products. The company reserves the right to make any alterations or improvements to the machines considered necessary. This does not, however, obligate the company to modify machines which have been previously delivered.

If you have any questions which are not covered by the operating instructions, please contact your nearest dealer.

We hope you reap a bountiful harvest with the help of the Rotary Tedder.

Read and observe the operating and safety instructions before system start up!



Kverneland Gottmadingen GmbH & Co. KG

Hauptstraße 99

D-78244 Gottmadingen

Tel. +49-7731-788-0

Fill in your machine details here:

Machine type :

Serial number :

Initial start-up on :

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1 Safety

1.1 For your safety

On delivery, your dealer gave you an explanation of the operation and maintenance of the implement. Please read these operating instructions before operating the implement for the first time. It is essential that you observe all of the safety instructions. Parts of the text which are of particular importance are marked with a pictogram.



This symbol can be found where all the important safety instructions appear in these operating instructions. Strictly follow these instructions and take special care in these cases.

This Rotary Tedder is equipped with safety devices and has been controlled by the German „Landwirtschaftliche Berufsgenossenschaft“ (Agricultural Trade Association) in terms of safety and accident protection. However, incorrect use or mishandling of the implement can endanger:

- life and limb of the operator or other persons or animals who are standing within the vicinity of the implement,
- the implement and other material assets of the owner or third persons,
- the performance of the implement.

Anyone who is involved in installation, system start up, operation or maintenance of the implement must read the following instructions very carefully and observe them at all times.

It's a question of your safety!

1.2 Safety instructions contained in this manual

Safety alert signs:



Danger!

This sign signalizes the danger of accidents or injury leading to death. If you see this safety alert sign in the operating instructions, make sure you employ every necessary and prescribed safety precaution.



Attention!

This alert sign is a warning against the possibility of damage to equipment or of financial and penal disadvantages (e.g. loss of guarantee rights, product liability etc.).



Note:

Instructions and important information.

1.3 Nameplate

The nameplate stating the machine type and serial number is fastened to the bracket on the left.



Note:

Enter the data on the nameplate in the box provided on page 3.

1.4 Application as stipulated

The Rotary Tedder is built solely for use in the field of agricultural work and is intended and suitable for the processing of blades of grass and haulms which have been mown and are lying on the ground.

Use of the implement for any other purpose is considered as operation which is not in accordance with specifications and is undertaken as such at the owner's risk. The manufacturer is not liable for any resulting damages!

The operation, maintenance and repair work conditions fall under the prescribed application stipulations laid down by the manufacturer and must be adhered to at all times. The implement may only be operated, serviced and repaired by personnel who have read and understood these instructions and who have been thoroughly instructed of the inherent dangers.

All relevant accident prevention regulations, as well as all generally recognized safety, health and highway regulations, must be complied with.



Attention!

Never carry out changes yourself; otherwise no warranty will be assumed for resulting damage.

1.5 Liability and warranty

These operating instructions must be read and observed by all personnel who work on or with this implement. In addition, this implement is to be used solely for the purpose stipulated (see chapt. 1.4).

1. You may only work with this implement according to the instructions in the valid documentation.

This documentation can be made up of the following instruction manuals:

- Mounting instructions
- Operating instructions
- Supplement pages

2. The following regulations must be observed:
 - all applicable local accident prevention regulations,
 - all recognized traffic, safety and industrial medical regulations,
 - the system limits and safety instructions listed in the technical manual.
3. Any work on the implement should be carried out using suitable, tools and apparatus in perfect condition.
4. You may not use any parts (spares, accessories, lubricants etc.) other than those complying with implement manufacturer's requirements. All parts must be used according to the regulations (including the quoted starting torques).

A part complies with the manufacturer's requirements when either genuine or approved by the manufacturer.
5. Never carry out changes yourself; otherwise no warranty will be assumed for resulting damage.

**Attention!**

Those who disregard the regulations mentioned above are acting with gross negligence. In this case the implement manufacturer's liability and warranty no longer applies. The same applies for any resulting damage. The negligent person bears all risks.

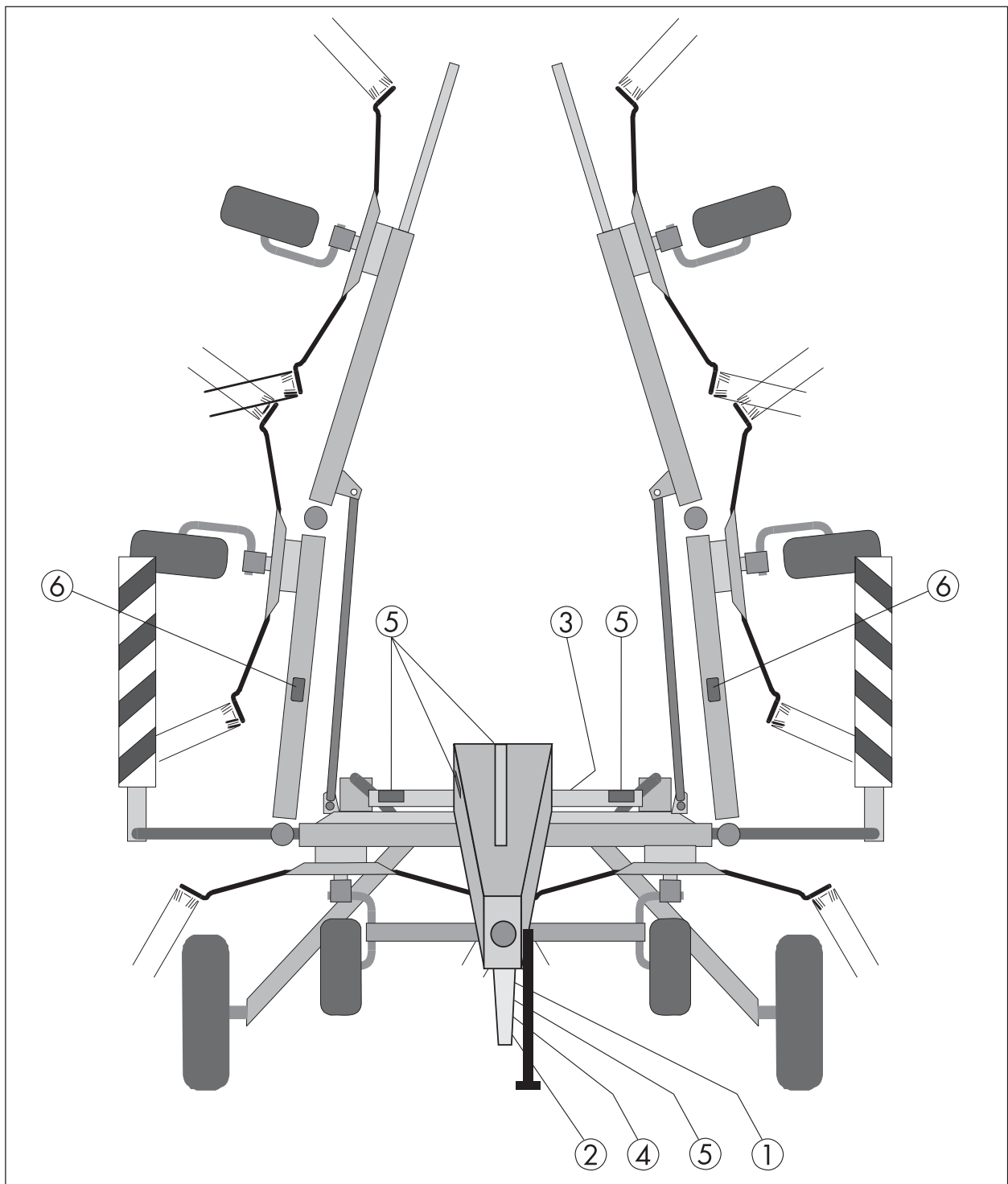
1.6 Safety stickers and warning signs

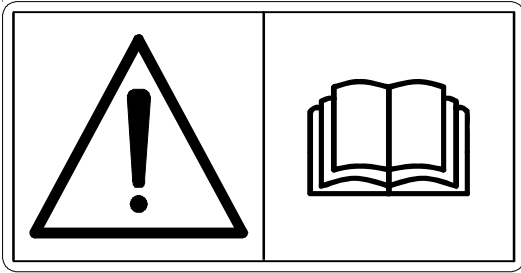


Attention!

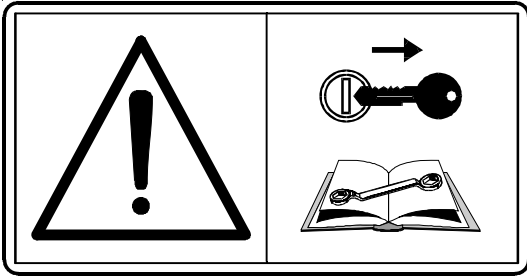
Real safety means that you know all safety stickers. This means the type and place of danger, and in particular the relevant safety measures. Always remain alert and be aware of the danger(s).

This Helipede Rotary Windrower is equipped with warning signs (safety stickers). The stickers with the corresponding explanations are listed below and illustrated in the main drawing:

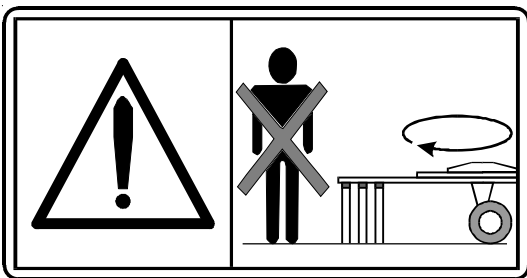




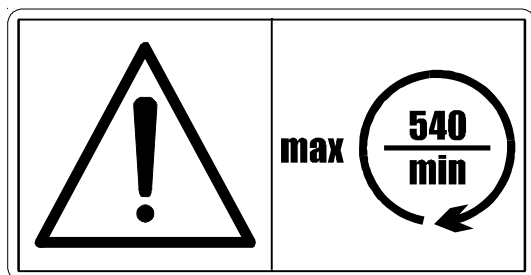
1. Read and observe the instruction manual and the safety instructions before start-up.



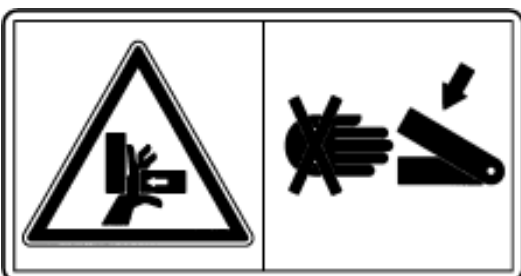
2. Before proceeding with any maintenance and repair work, you must read the corresponding instructions! All maintenance, repair and adjustment work may only be carried out with the Rotary Tedder at a standstill. Shut down the engine and remove the ignition key!



3. Keep away from the rotating unit. No-one may be in the immediate vicinity of the Rotary Tedder when the machine is running! Before switching on the p.t.o shaft, make sure that no-one can be hit by the rotating unit!

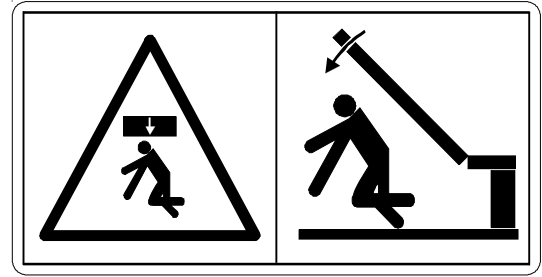


4. Do not exceed the prescribed p.t.o. shaft speed of $n_{\max} = 540 \text{ rpm}$.



5. Never reach into the area where there is a risk of being crushed until it is certain that no parts can move.

6. Keep clear of the swivel area of the implement.



1.7 Authorized operators

Youths under the age of 16 may not operate the Rotary Tedder.

The owner of the implement must provide the operator with the operating instructions and make sure that they have read and understood them. Only then may the implement be put into operation.

The allocation of responsibility for the various tasks on the implement must be clearly determined and complied with. There may be no uncertainties regarding authority, as these could endanger the safety of the operator.

The owner must ensure that only authorized persons operate/work on the implement. He is responsible for any third persons within the working area of the Rotary Tedder.

1.8 General safety and accident prevention regulations

Fundamental rule:

Before the start of every operation check both the implement and the tractor for operation and road safety! In addition to the instructions in these operating instructions, observe the general safety and accident prevention regulations.

1.8.1 General

1. The appropriate warning and safety alert signs provide important advice to ensure the safe operation of the implement. Observe these instructions at all times, for the sake of your own safety!
2. Before operation, make yourself familiar with all elements and controls of the implement, as well as with their function. Make sure that all protective equipment is correctly mounted!
3. The operator's clothing should be close fitting. Avoid any loose fitting, wide clothing! Always wear substantial footwear!
4. Keep the implement clean at all times! (Fire precaution)!
5. When travelling on public roads, observe the following:
 - all traffic regulations in force in your country,
 - the permissible axle load and total weight of the implement and
 - the permissible transport dimensions,
 - and comply with the prescribed transport speed for mounted implements (max. 25 km/h).Never leave the driver's seat during the journey!
6. Before any transport on public roads, make sure the implement is in the condition prescribed and lock it in accordance with the manufacturer's instructions!
7. Inspect and install all equipment required for transportation such as lighting, warning and protective devices!
8. All operating devices such as ropes, chains, rods, etc. which act on remote-controlled implement elements, have to be installed in such a way that any unintentional movement is excluded in all possible transport and operating positions!

9. Couple the implement to the tractor at the prescribed position and secure according to the instructions given in this manual! Proceed with special care when mounting and removing the implement on/from the tractor!
10. When mounting or dismounting the support devices, make sure that they are in the appropriate prescribed position in order to ensure stability! Only deposit the implement on level and solid ground.
11. Ballast weights are only to be installed to the points designed for this purpose!
12. Do not leave the engine on within closed spaces (indoors)!
13. Before start up and operation, inspect the area around you. Make sure that no-one, (especially children) is in the danger area! Good visibility is essential!
14. No-one (other than the driver) is allowed on the implement during transport!
15. Always select the speed according to travel conditions. Avoid sudden turns when travelling up-hill, down-hill or across a slope!
16. Trailed implements and ballast weights, influence the driving of the implement and the steering and braking performance! Make sure there is sufficient steering and braking capacity!
17. When negotiating curves take notice of the implement's overhang and/or flywheel mass!
18. Make sure all protective devices are installed and in position before operating the implement!
19. Keep clear of the working and danger area of the implement!
20. Keep clear of the swinging/turning area of the implement!
21. Caution when working on implement elements operated by additional driving systems (e.g. hydraulics). There are squeezing and shearing points!
22. Secure the implement prior to leaving the tractor. Mounted implements have to be lowered completely to the ground. Stop the engine and remove the ignition key!
23. No-one is allowed to step between the tractor and implement as long as the vehicle is not secured against unintentional movement by means of the parking brake and/or wheel chocks!
24. Observe the permissible axle load and total weight of the implement as well as the permissible transport dimensions!

1.8.2 Trailed implements

1. Prior to coupling or uncoupling implements to/from the tow bar, all controls of the tractor hydraulics have to be positioned in such a way that any unintentional lifting or lowering of the implement is ruled out!
2. It is essential that the hitch category of the implement matches that of the tractor!
3. There is danger of squeezing or shearing in the area of the tow bar!

1.8.3 Power take-off operation

1. Do not use cardan shafts other than those specified by the manufacturer!
Make sure that the cardan shaft is always properly installed and secured!
The protecting tube as well as the cardan shaft guard must be installed. All guards must be in perfect condition! Secure the cardan shaft against rotation by fastening the chains to the tractor and the implement!
Observe the overlap prescribed for cardan shaft tubes, both in transport and working position!
2. When working with the cardan shaft, no-one is allowed to be in the vicinity of the rotating cardan shaft!
3. Only attach or remove the cardan shaft when the p.t.o. shaft is disengaged, the engine is off and the ignition key removed!
Place the detached cardan shaft onto its support!
After the cardan shaft has been detached, slide the protective caps over the p.t.o. stub!
4. The p.t.o. shaft guard must be positioned correctly and in perfect condition! Before engaging the p.t.o. shaft, make sure the selected speed and direction of rotation of the tractor p.t.o. shaft corresponds with the permissible speed and direction of rotation of the implement! Before engaging the p.t.o. shaft, make sure that no-one is in the danger area of the implement!
5. Never engage the p.t.o. shaft when the engine is off!
6. Always disengage the p.t.o. shaft if the angle becomes too wide or if the p.t.o. shaft is not needed!
7. Attention! Working elements continue to rotate after the p.t.o. shaft is disengaged. Do not approach the implement for the duration. Make sure the implement has completely stopped rotating before carrying out any work on it!
8. Before cleaning, lubricating or adjusting the p.t.o.-driven implement or the cardan shaft, disengage the p.t.o. shaft, stop the engine and remove the ignition key!
9. Repair any damage prior to working with the implement!

1.8.4 Hydraulics

1. Attention! The hydraulic system is under high pressure!
2. Check the hydraulic hoses at regular intervals and renew them when damaged, at the latest, however, every 6 years! The spare hoses must comply with the technical requirements laid down by the manufacturer of the implement! Only use genuine parts!
3. Before working on the hydraulics, lower the implements and aggregates. Then release pressure from the system and stop the engine.
4. When tracing leakages, use suitable tools. Danger of injury!
5. When connecting hydraulic cylinders, make sure the hydraulic hoses are coupled as prescribed!
Pressure should be released from the system both on the tractor and implement side prior to coupling hydraulic hoses to the tractor hydraulics!

6. In the case of hydraulic connections between tractor and implement, it is advisable to mark the coupling sleeves and plugs to avoid any incorrect connections!
Should the connections be confused, the function is reversed (e.g. raising/lowering). Danger of accidents!
7. Hydraulic oil forced out under high pressure can break the skin and cause severe damage! In the case of injury, report to a doctor immediately as there is a risk of infection!

1.8.5 Tyres

1. Prior to working on the tyres, make sure the Rotary Tedder is standing safely and secured against rolling away! Wheel chocks!
2. The fitting of tyres and wheels presupposes sufficient knowledge as well as the availability of all necessary tools!
3. Only skilled workers using appropriate tools may repair or mount tyres and wheels!
4. Check the inflation pressure at regular intervals. Observe the prescribed inflation pressure!

1.9 Safety when implement is not in use or is in storage

1. Store the Rotary Tedder in a safe place.
2. Make sure that no children play on or around the Rotary Tedder.
3. Only couple or uncouple the Rotary Tedder on firm, dry and level ground. This minimizes the danger of the implement tipping, or sinking into the soft ground or mud.
4. Place the detached cardan shaft onto its support!
5. Use wheel chocks to prevent the Rotary Tedder from rolling away.
6. Only park the Rotary Tedder with the rotary unit lowered (danger of tipping, injury from tines)!

1.10 Maintenance

Directions quoted ("right", "left", "in front", "behind") are always taken as being in the direction of travel.

The direction of rotation is defined as follows:

- Direction of rotation right = clockwise,
- Direction of rotation left = anticlockwise,
- Rotations around a vertical axis, taken from top to bottom,
- Rotations around a horizontal axis, at a right angle to the direction of travel, taken from left to right,
- Rotations of nuts, bolts etc. are always taken from the side from which they are operated.

1. As a rule, disengage the driving system, secure the tractor and stop the engine prior to carrying out any maintenance, servicing, cleaning or repair work! Always remove the ignition key!
2. Check all nuts and bolts at regular intervals and retighten as required! Comply with prescribed torques!
3. If the Rotary Tedder is raised, prop up the implement with suitable supports before carrying out maintenance!
4. When changing working elements, use appropriate tools and protective gloves!
5. Dispose of used oil, grease and filters according to regulations!
6. Always disconnect the power supply before carrying out any work on the electrical system!
7. The protection devices which are subject to wear and tear must be inspected frequently and be exchanged in good time.
8. The generator and battery cables should be disconnected before any electrical welding is carried out on the tractor or the mounted Rotary Tedder!
9. Do not clean the Rotary Tedder with aggressive cleaning agents. This can cause corrosion to polished metal surfaces, e.g. hydraulic cylinders.

1.11 Safety instructions for the Rotary Tedder

1. General safety instructions are contained in this documentation and in the accident prevention regulations UVV 1.1 §1 of the German "Landwirtschaftliche Berufsgenossenschaft" (Agricultural Trade Association).
2. Prior to mounting the implement or lifting the implement for the first time, check the space available.
3. Check the cardan shaft before the first operation and adjust it to your tractor, if necessary (see chapter "Adjusting the cardan shaft")!
4. Check the tyre pressure 1.5 bar (16x6.50-8 4PR) and 2.5 bar (215/65-15) at regular intervals.
5. Before each transport:
 - disengage p.t.o shaft,
 - wait until rotary units come to a complete standstill,
 - place the Rotary Tedder in transport position,
 - check that it is correctly secured,
6. Make sure that no-one is within reach of the implement when raising, lowering, and swivelling in the rotary unit.
7. Repair work on pre-tensioned energy storers (springs, accumulators etc.) may only be carried out by specialists using the correct tools which comply with all prescribed standards. All such repairs may only be carried out in specialist workshops!
8. Before proceeding with any maintenance and repair work, you must read the corresponding instructions! All maintenance, repair and adjustment work may only be carried out with the Rotary Tedder at a standstill! Shut down the engine and remove the ignition key!

9. Keep away from the rotating unit. No-one may be in the immediate vicinity of the Rotary Tedder when the implement is running! Before switching on the p.t.o shaft, ensure that no-one can be hit by the rotating unit!
10. The prescribed p.t.o. shaft speed $n_{\max} = 540 \text{ rpm}$ must not be exceeded!
11. Do not step between the tractor and the Rotary Tedder. Risk of being squeezed and crushed!
12. When actuating the power lift, stay out of the lifting area of the three-point linkage.
13. Check all bolted joints and, if necessary, tighten them after approx. 5 operating hours. Observe torque!
14. When parking the implement, place the cardan shaft into the support!

1.12 Regulations for travelling on public roads

Only valid for the Federal Republic of Germany!

The German road traffic licensing regulations (Straßenverkehrs-Zulassungs-Ordnung - StVZO) specify that all mounted and trailed implements have to be equipped with rear reflectors and electric lighting. In order to draw attention to the sharp corners and edges, mark the outer edges on the front and rear of the implement with red and white striped warning boards so that they are clearly visible from the front and the rear.

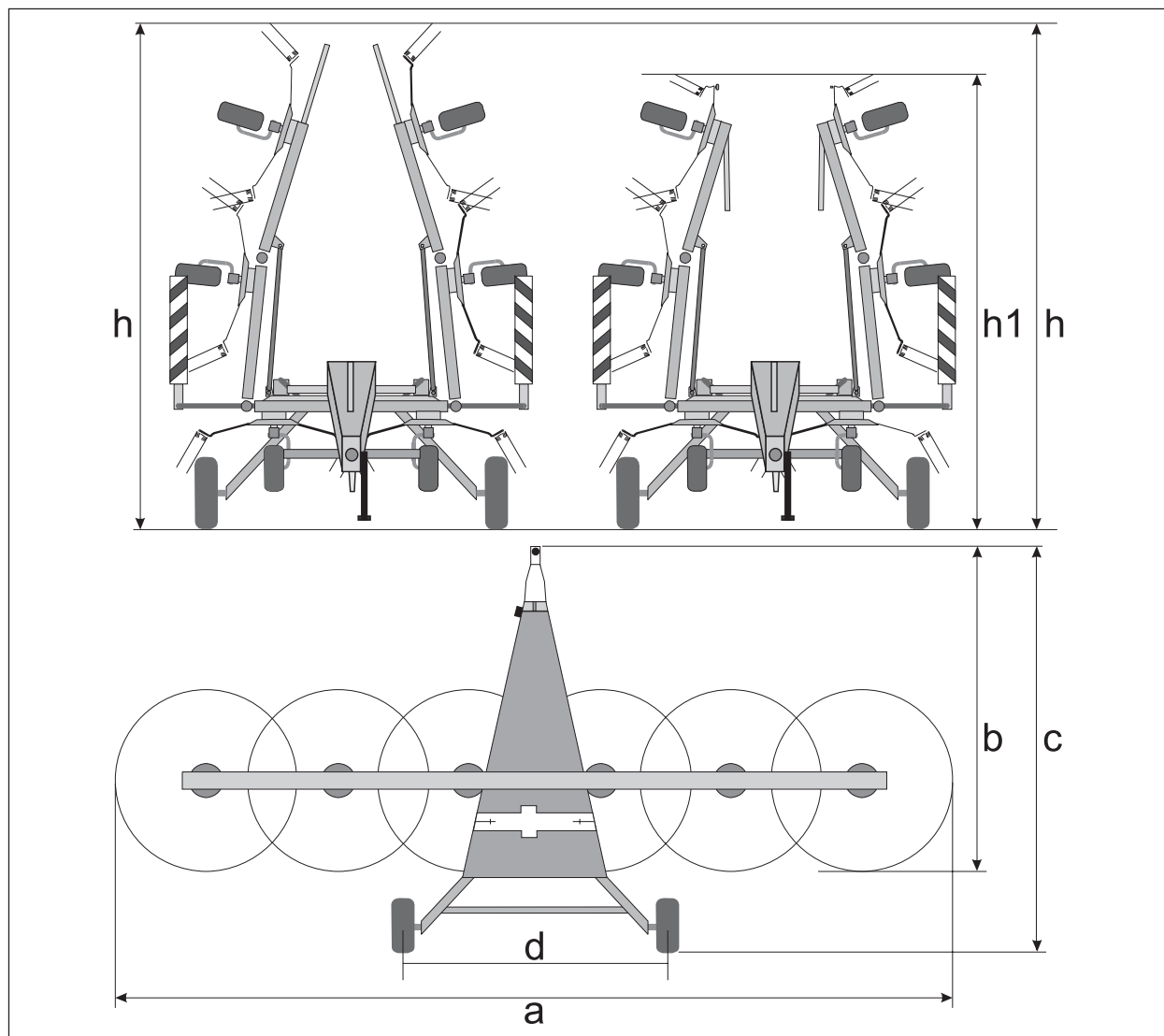
When using public roads, the legal provisions on width marking, lighting etc. are to be observed. If the implement exceeds the prescribed maximum width, special permission is to be applied for.

Also observe the legal provisions in the Instructions for mounted implements (Merkblatt für Anbaugeräte). These instructions stipulate for example that for each type of load the front axle load must be at least 20 % of the tractor tare weight.

2 Technical data

2.1 General

Type	6910	6911
Number of rotors	6	
Working width	6.80 m	7.60 m
Machine width in working position "a"	7.13 m	7.89 m
Transport width with protective yoke and warning plates "c"	2.98 m	
Length in working position "b"	3.10 m	3.15 m
Length in transport position "c"	3.67 m	3.67 m
Maximum height "h"	3.88 m	4.11 m
Maximum height "h1" with protective yokes and tine arms folded in	3.50 m	3.75 m
Track width "d"	2.50 m	2.50 m
Required tractor output	min. 37 kW	min. 45 kW
Weight with cardan shaft	1050 kg	1110 kg
Maximum PTO speed	540 rpm	
PTO diameter	Ø 35 mm DIN 9611	
Tyres (rotary unit)	16 x 6.50-8 6PR (1.5 bar)	
Tyres (chassis)	215/65-15 (2.5 bar)	



2.2 Noise metering

The emission sound level was measured in accordance with EN 31 201 and EN 31 204.

A-evaluated equivalent sound level

	Tractor	Tractor and Rotary Tedder
Cab window open	76.6 dB(A)	79.6 dB(A)
Cab window closed	74.2 dB(A)	74.8 dB(A)

3 Operation

3.1 Mounting on the tractor

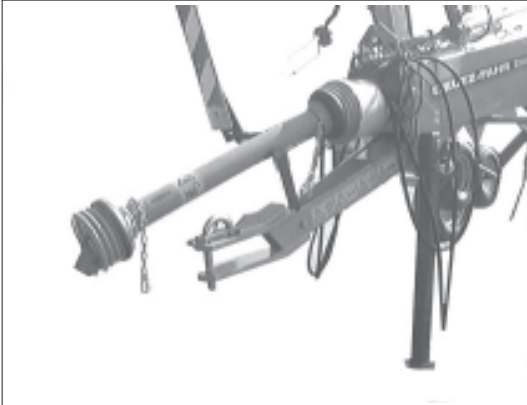


Fig. 3-1

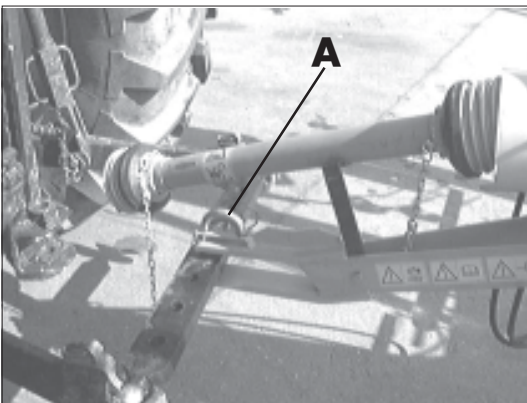


Fig. 3-2



Danger!

Work may only be carried out with the implement at a standstill! Shut down the engine and remove the ignition key!

- Attach the Rotary Tedder to the tow bar.

For the optional feature "bottom link assembly", ensure that the linch pin is locked properly!

- Bottom link height: set to approx. 40 mm from the ground (fig. 3-1).
- Attach the Rotary Tedder to the tractor with bolt "A" and secure it with spring pin (fig. 3-2).
- Connect the cardan shaft to the tractor p.t.o. shaft
- Lock the protecting tube with the chain to prevent it from rotating
- Connect the four hydraulic remote connections (red = lateral machines/chassis; bare metal = hydraulic clearing of the field edges) to two double-acting control units.



Attention!

Make sure that the hydraulic lines do not get jammed, scrub or get caught.

- Connect the lighting cables and lay the traction rope into the tractor cabin.
- Raise the support foot



Attention!

When connecting and disconnecting the hydraulic lines, adjust the tractor hydraulic system to "free float".

3.2 Adjusting the cardan shaft

The length of the cardan shaft has been rated in the factory to fit practically all types of tractors. It will only need to be adjusted in exceptional cases for individual tractors. Check the length of the cardan shaft as follows before using it for the first time (fig. 3-3):



Danger!

Work may only be carried out with the implement at a standstill! Shut down the engine and remove the ignition key!

- Pull the cardan shaft apart and push both halves on the p.t.o. shaft.
- Hold the two shaft halves next to each other and check that when the Rotary Tedder is raised and lowered, or when going round bends,
 - there is an overlap of at least 150 mm (b) and
 - the cardan shaft does not come into contact with the block (minimum clearance (a) = 20 mm).
- If the cardan shaft has to be shortened, cut off the sliding and protecting tubes by the same amount.
- Deburr the tube ends, remove any loose chips, grease the contact points well.
- After shortening the cardan shaft, the minimum overlap and the minimum clearance has to be verified if a different tractor is used.

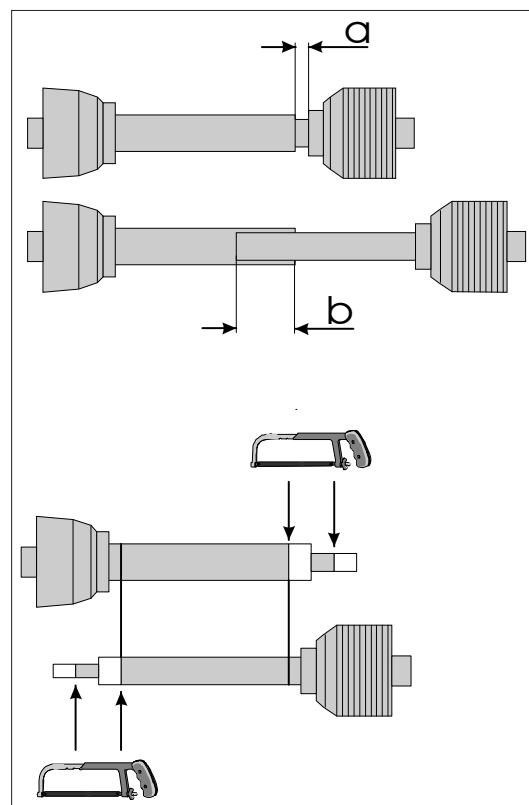


Fig. 3-3



Fig. 3-4

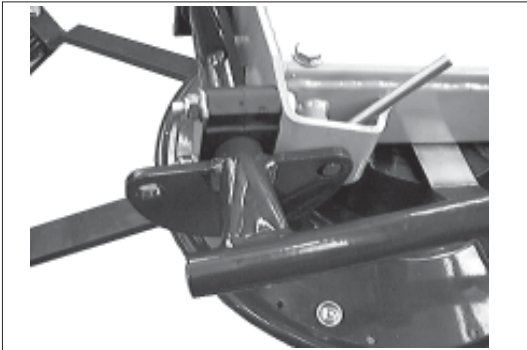


Fig. 3-5

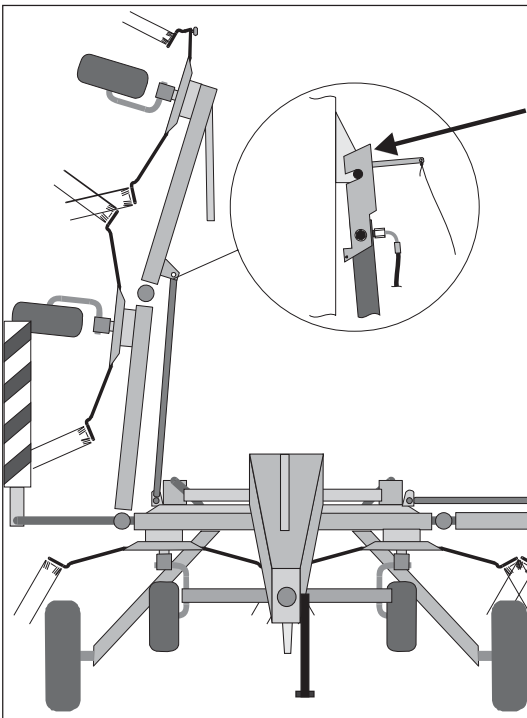


fig. 3-6

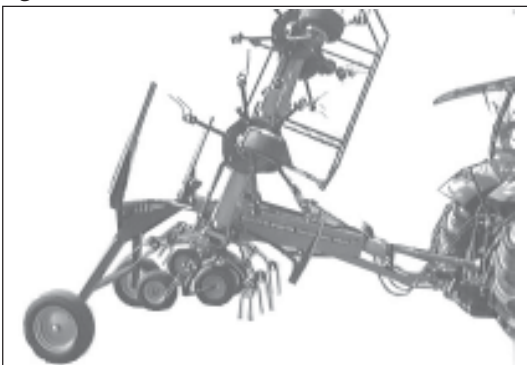


Fig. 3-7

3.3 Changing over from working to transport position

1. *Equipment hinged protective yokes and tine arms:*



Danger!

Work may only be carried out with the implement at a standstill! Shut down the engine and remove the ignition key!

In order to achieve a minimum transport height, the outer protective yokes as well as two tine arms on each side (6911) or two tine arms on the l.h.s. and one tine arm on the r.h.s. (6910) can be folded in manually. To this end, swivel in the hinged tine arms and fold up the protective yokes. (fig. 3-4 / fig. 3-5)



Danger!

Keep clear of the swivel area!

2. Folding in the implement. To this end, set the control unit to "Raise" until the hooks lock in on both sides and the cylinder of the chassis is fully extended (fig. 3-6 / fig. 3-7).



Danger!

Check locking hooks before each journey!

3.4 Changing over from transport to working position



Danger!
Before lowering the side machines,
ensure that there is no-one in the swivel
area!

1. Pull the rope to release the locking device of the lateral machine (fig. 3-8).
2. Lower the side machines to the working position using the tractor control unit.
3. Then pull the rope of the stop valve for the chassis cylinder to raise the axle to the end position (fig. 3-9 / fig. 3-10).
4. *Equipped with "hinged protective yokes and tine arms":*

Swivel out the hinged tine arms into working position, and unfold the protective yokes (fig. 3-11 and fig. 3-12).

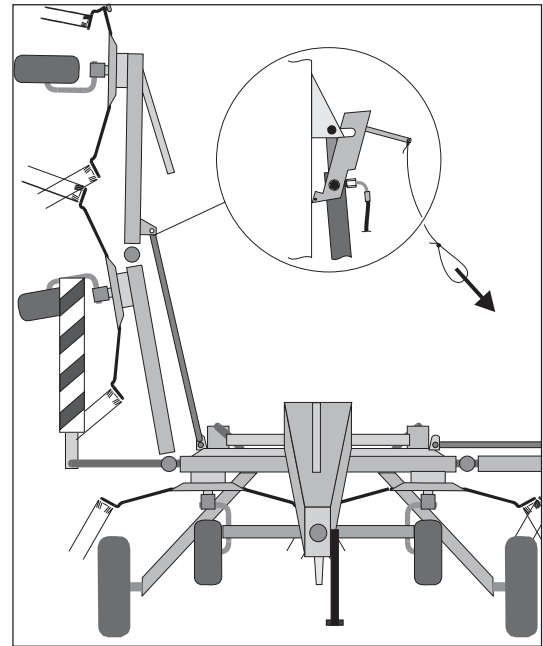


Fig. 3-8

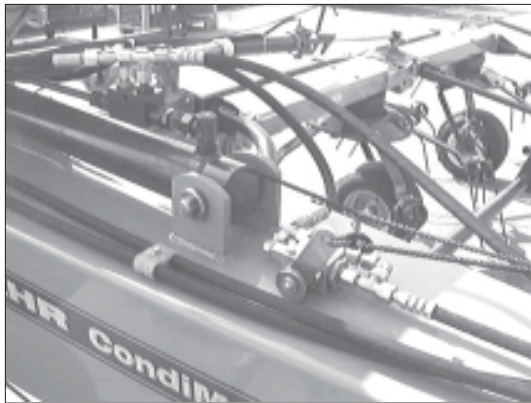


Fig. 3-9

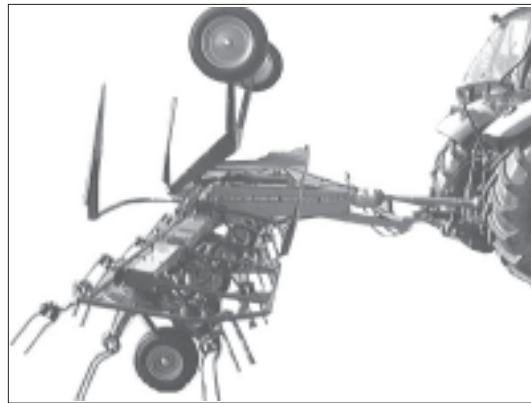


Fig. 3-10



Fig. 3-11

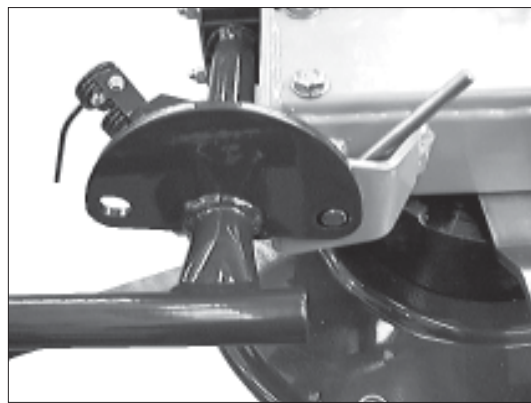
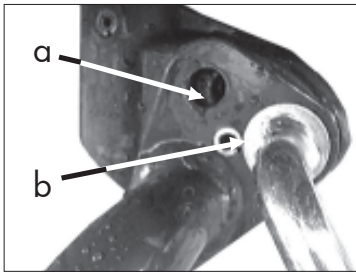


Fig. 3-12

**Fig. 3-13**

3.5 Adjusting the tines

Rotor angle:

The rotor angle is adjusted by positioning the wheel axles. Two settings can be selected without needing any tools (fig. 3-13).

Type	6910	6911
a	15.5	13
b	17.5	15

**Note:**

Choose the flat angle for short crops and the steep angle for long crops!

Check that the same adjustment is made to all wheel axles!

Tine height:

The ground clearance of the tines is adjusted by the tow bar height.

The tines should just touch the ground, depending on crop volume and quality.

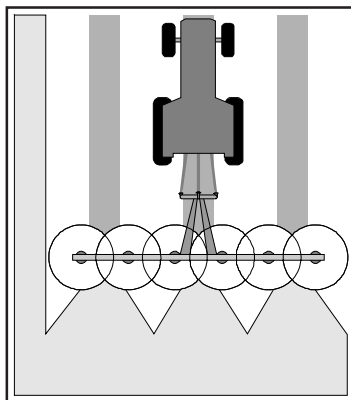
3.6 Operating the machine

3.6.1 General

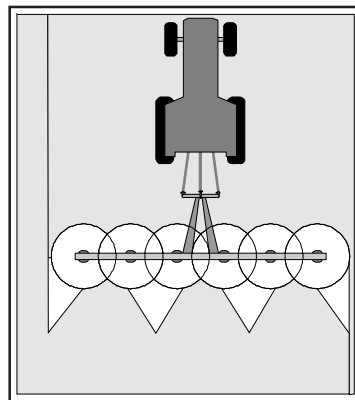
Select the speed so that all the harvest can be picked up cleanly. Do not use the slip clutch for longer than 10 seconds at a time. Reduce a gear when machine is subject to overload. Switch off p.t.o. shaft when cardan shaft is at large angle.

Set the tractor control unit to "idle" (float setting), so that the side machines adjust to unevenness in the ground.

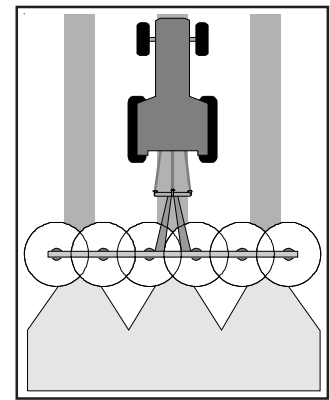
The following work can be done with the Rotary Tedder:



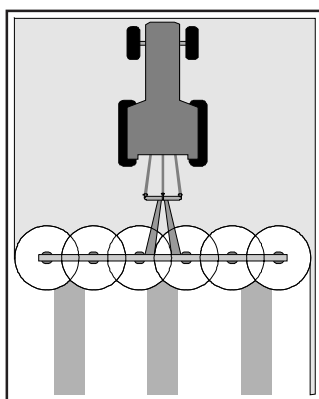
tedding



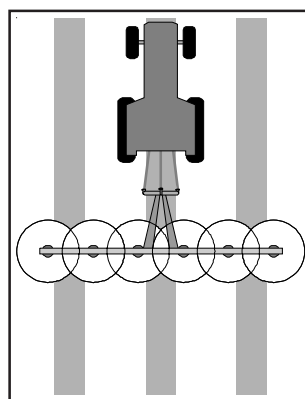
turning



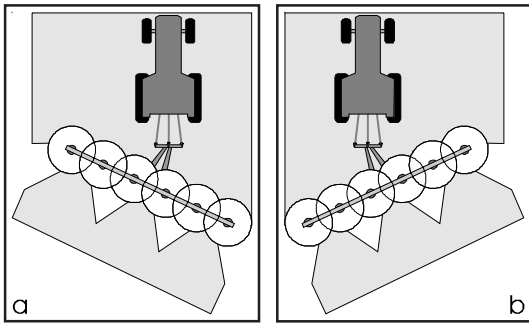
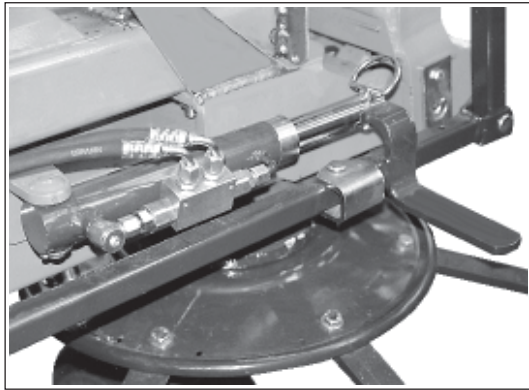
swath spreading



pulling night swaths
(with swath gear)



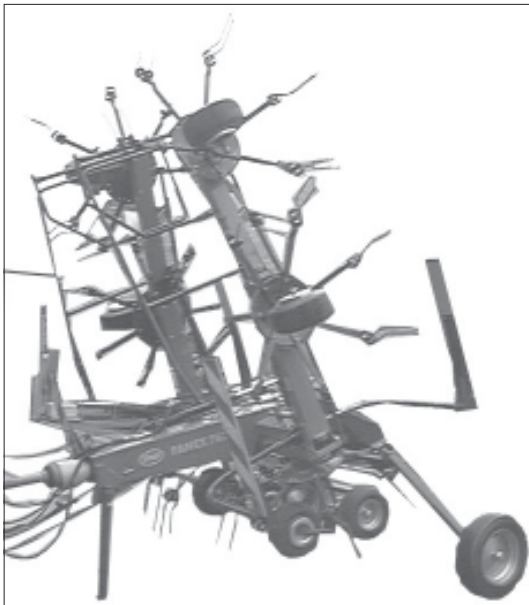
turning night swaths
(with swath gear)

**Fig. 3-14****Fig. 3-15**

3.6.2 Hydraulic setting for clearing the edges of the field

When clearing the edges of the field to the right or to the left, the wheels can be easily adjusted from the driver's seat by means of a hydraulic double-acting cylinder (fig. 3-14).

To this end, operate the double-acting control unit whilst in motion until the implement has achieved the required angled position. After the edges of the field have been cleared, straighten up the implement or the wheels in the same way (fig. 3-15).

**Fig. 3-16**

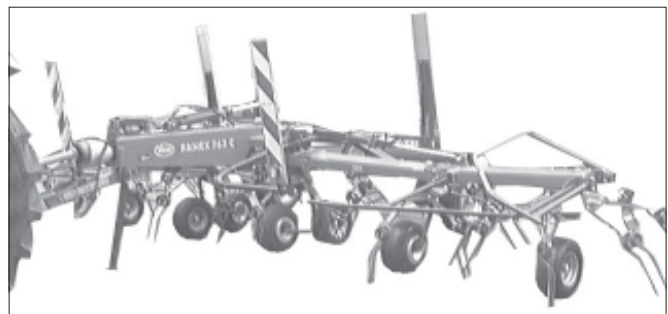
3.7 Unhooking from the tractor

There are two possible ways of parking the implement: either in transport position (fig. 3-16) or in working position with the chassis lowered (fig. 3-17).



Danger!

Work may only be carried out with the machine at a standstill! Shut down the engine and remove the ignition key!

**Fig. 3-17**

3.7.1 Parking in transport position

- Unlock the parking support at the support arm, lower and secure (fig. 3-18).
- Lower the tow bar until the implement is resting safely on the parking support.
- Remove the hydraulic hoses, traction ropes and lighting plugs and hang them on the parking latches on the support arm (fig. 3-19).
- Remove the cardan shaft on the tractor side and place it onto its support (fig. 3-20).
- Remove the fixing pin from the drawbar and unhook the implement (fig. 3-21).



fig. 3-18



Fig. 3-19

3.7.2 Parking in working position with the chassis lowered

- Unlock the parking support at the support arm, lower and secure (fig. 3-18).
- Lower the tow bar until the implement is resting safely on the parking support.
- Pull the rope to release the locking device of the lateral machines.
- Lower lateral machines to working position via the tractor control unit.
- Then pull the rope of the stop valve for the chassis cylinder in order to lower the axle so that the wheels touch the ground.
- Continue as in 3.7.1

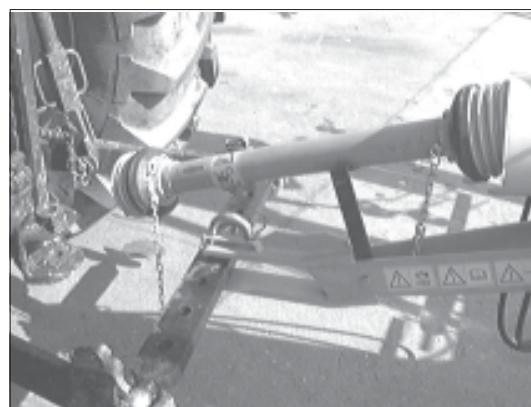


Fig. 3-20

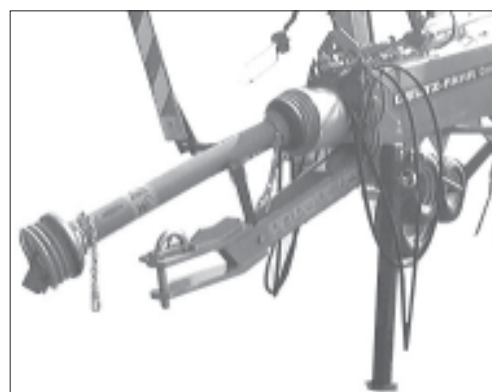


Fig. 3-21

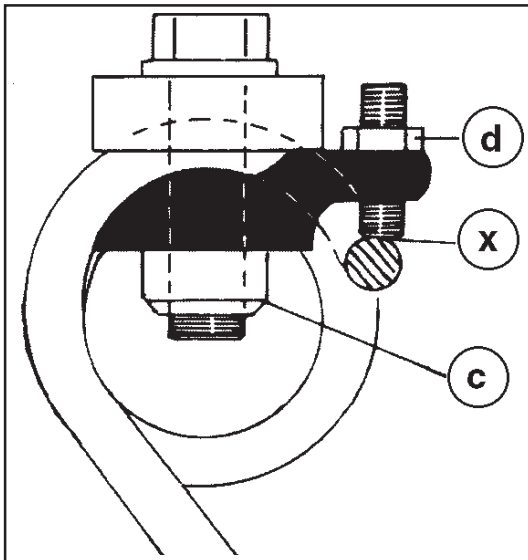


Fig. 4-1

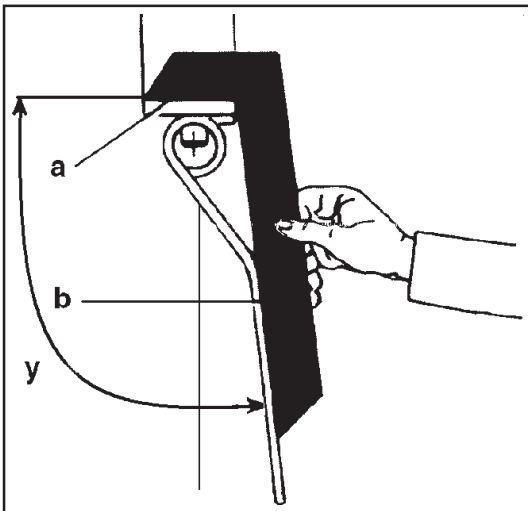


Fig. 4-2

4 Settings



Danger!

All jobs to be carried out only when engine switched off and machine at a standstill. Remove the ignition key!

4.1 Tine setting

Check the tine setting and readjust if necessary:

- unscrew hexagonal nut (c) and locknut (d) (fig. 4-1)
- adjust tines by adjusting the stopper screw (x) so that the gauge is parallel for (a) and (b) (fig. 4-2).

Type 6910: Angle $y = 97^\circ$

Type 6911: Angle $y = 92^\circ$

- Tighten hexagonal nut (c) and locknut (d) again.
The torque for fastening the tines (c) is 120 Nm.



Attention!

The stopper screw (x) must be positioned at the tine eyelet so that the tine cannot become misadjusted.

4.2 Wheels

If the wheels have to be changed, the wheel nuts should only be tightened with 20 Nm to prevent damage to the plastic rings.

Check tyre pressure regularly:

1.5 bar (16 x 6.50-8 4PR)

2.5 bar (215/65-15)

5 Maintenance

**Danger!**

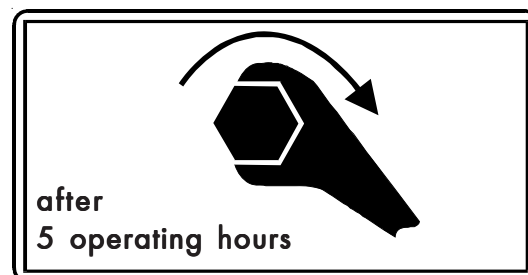
All jobs to be carried out only when engine switched off and machine at a standstill. Remove the ignition key!

5.1 Inspection

After approx. 5 operating hours, check the Rotary Tedder thoroughly. All screws, particularly those fastening the spring-mounted tines, rotary unit arms and wheels, must be checked and tightened where necessary.

Torques:

- Spring-mounted tines = 120 Nm
- Rotary unit arms, outside = 120 Nm
- Rotary unit arms, inside = 155 Nm
- Wheels = 20 Nm



5.2 Caring for the cardan shaft

Regular maintenance results in a long service life. Check proper functioning of the cardan shaft and the safety parts every time before use. At the end of the season, clean and lubricate all parts thoroughly.

5.3 Winter storage

Before putting the implement into winter storage, the following work must be done:

- Clean the implement thoroughly
- Check all screwed connections and tighten all screws
- Repair or replace all damaged parts
- Repair any damage to the paintwork
- Lubricate the implement according to the lubrication diagram
- Check tyre pressure

5.4 Lubrication

The lubrication diagram indicates all lubrication points (fig. 5-1 / fig. 5-2).

You can achieve a long service life for your machine by observing all maintenance and lubrication intervals stated in these instructions.

Use lubricating grease K2 k in acc. with DIN 51825, e.g. "Deutzer Öl", "HFL 300 W", or "Shell Retinax A".

Clean the lubrication nipples and application nipples of the grease gun before applying the grease gun.

Lubrication points:

- Cardan shaft, pivot pin, all joints and contact points
- Universal joints of the rotary unit drive shafts + hinge pin

Check the oil level of the gears with the implement in a horizontal position.

- Main gear (A):
1.1l / SAE 90 API-GL-4
- Rotary gear (B):
0.32l / SAE 90 API-GL-4

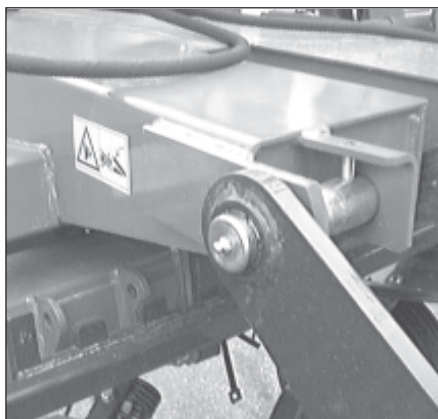
A – main gear:



B – rotary gear:

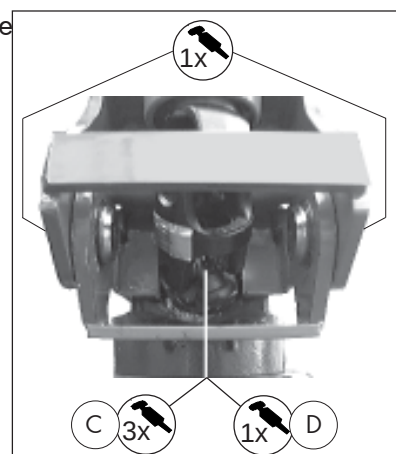


E - pivot pin:



C – hinge pin, double universal joint:

D - hinge pin, single universal joint:



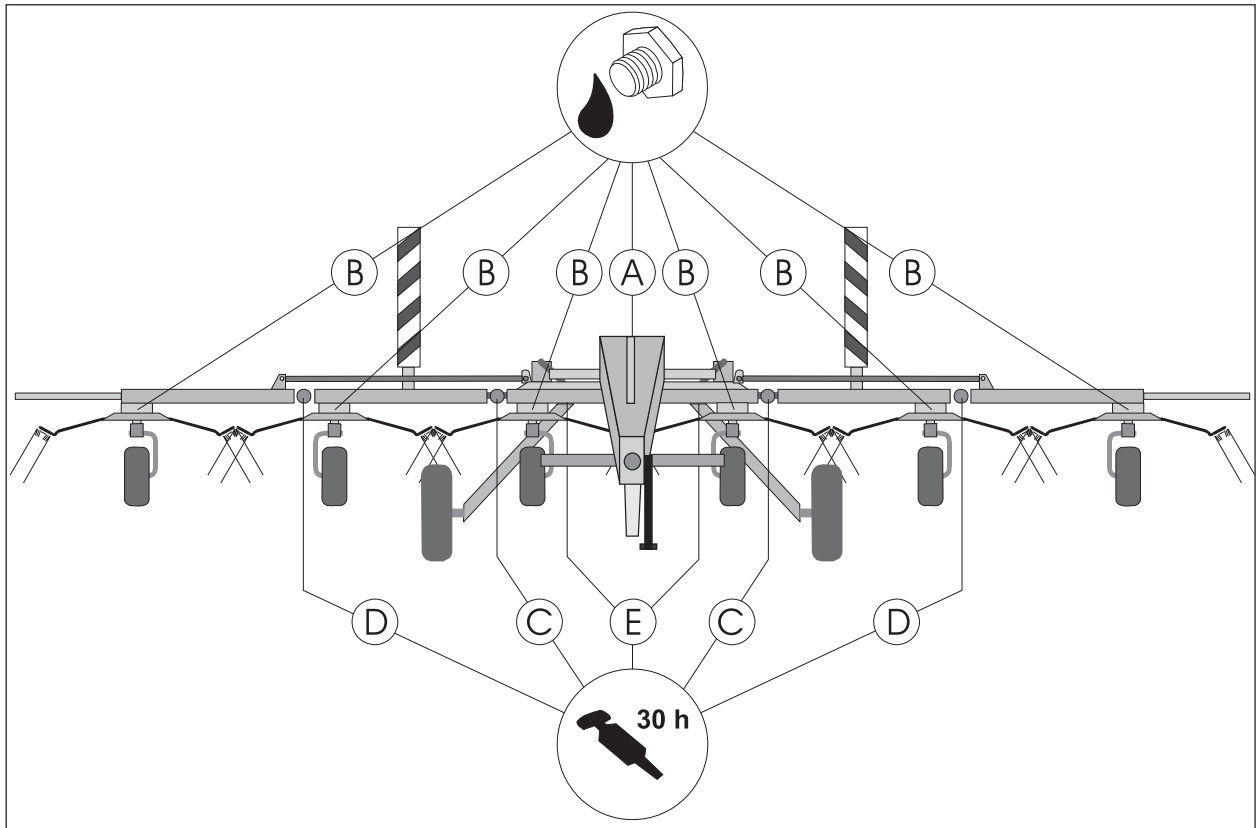


Fig. 5-1

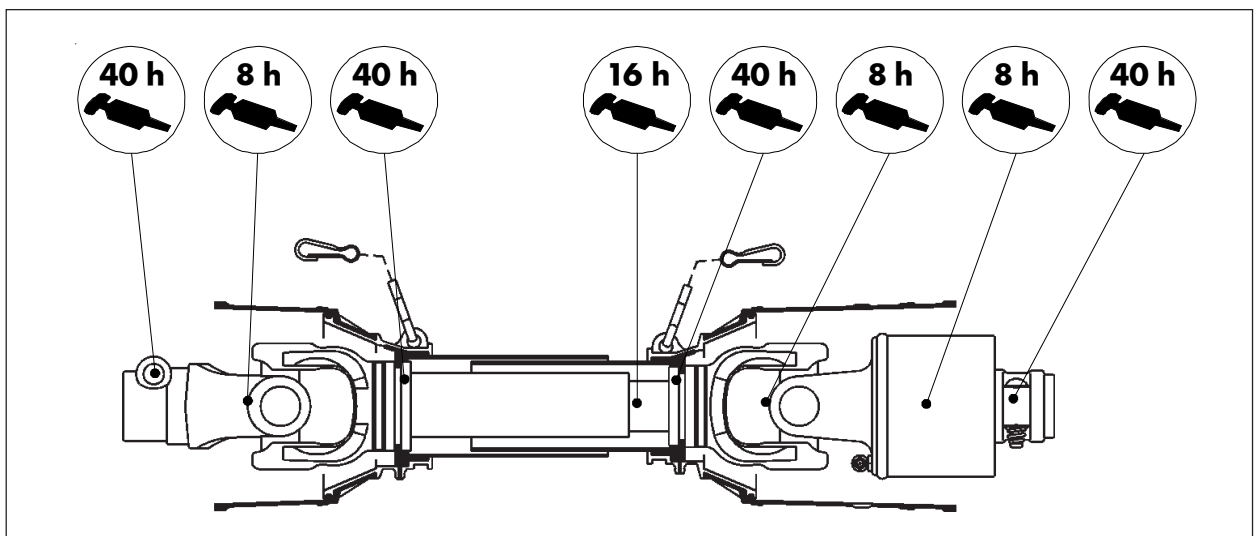


Fig. 5-2

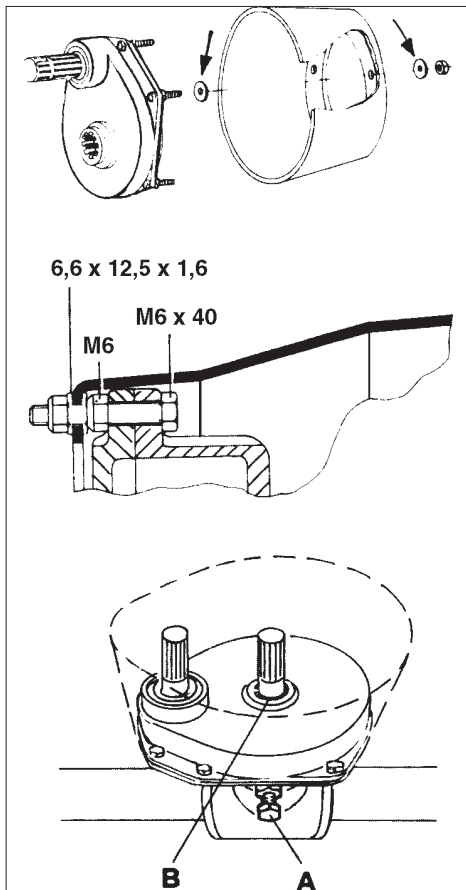


Fig. 6-1

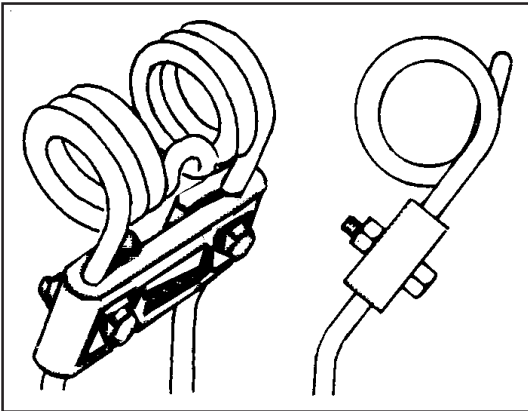


Fig. 6-2

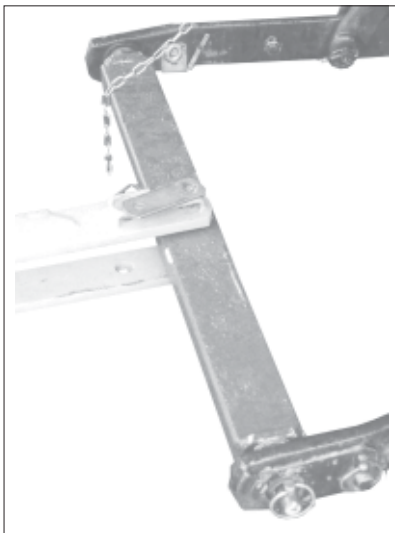


Fig. 6-3

6 Special and additional equipment



Danger!

Work may only be carried out with the implement at a standstill! Shut down the engine and remove the ignition key!

6.1 Swath gear

First mount the funnel-shaped guard to the swath gear as shown in the diagram, and remove the safeguard mounted to the gear housing (fig. 6-1). Then mount the flange housing according to the mounting instructions.

- Clean extension housing and wedge profile.
- Remove plastic cap from swath gear, slide swath gear onto extension housing (possibly gently knocking the chain wheel hub (B)) and secure with circlip.
- Turn clamping screw (A) in corresponding countersunk groove in the extension housing and secure with locknut.

For raking operations, the cardan shaft is mounted on the lateral drive stump. Select travel speed and rotor speed to produce perfect swaths.

6.2 Tine loss safeguard

The flexible plastic holders can be easily clamped in position and released again. If a tine now breaks, it is held by its neighbouring tine. It cannot be lost and cause any damage to following machines, e.g. shredder. The screws are correctly tightened when the screw thread protrudes approx. 6 mm out of the hexagonal nut (fig. 6-2).

6.3 Tow bar

The accessories delivered include a tow bar that can be freely swivelled "KAT I + II" (fig. 6-3).

A Appendix

A.1 Torque values for international metric thread joints

All bolted joints must be torqued in accordance with the values given in the following table unless otherwise indicated. On this implement "8.8" is both the standard and minimum quality used.



Attention!

When lock bolts or lock nuts are used the given value must be increased by 10%.

Thread	Torque value for material quality codes in acc. with DIN ISO 898 (dry)						Size of jaw		Remarks
	8.8		10.9		12.9				
	Nm	lbf-ft*	Nm	lbf-ft*	Nm	lbf-ft*	mm	inch	
M3	1.9	(11.5)	1.8	(16.0)	2.1	(18.6)	6	1/4	*Values in brackets = lbf-in.
M4	2.9	(25.5)	4.1	(36.5)	4.9	(43.5)	8	5/16	
M5	5.7	(50.5)	8.1	(71.5)	9.7	(86.0)	9	23/64	
M6	9.9	7.3	14	10.3	17	12.5	10	13/32	
M8	24	17.7	34	25.0	41	30.3	14	9/16	
M10	48	35.4	68	50.2	81	59.8	17	11/16	
M12	85	62.7	120	88.6	145	107	19	3/4	
M14	135	99.6	190	140	225	166	22	7/8	
M16	210	155	290	214	350	258	24	121/128	
M18	290	214	400	295	480	354	27	1 9/128	
M20	400	295	570	421	680	502	30	1 3/16	
M22	550	406	770	568	920	679	32	1 17/64	
M24	700	517	980	723	1180	871	36	1 27/64	
M27	1040	767	1460	1077	1750	1291	41	1 79/128	
M30	1410	1041	1980	1461	2350	1734	46	1 13/16	
M33	1910	1410	2700	1996	3200	2362	50	1 31/32	
M36	2450	1808	3450	2546	4150	3063	55	2 11/64	
M39	3200	2362	4500	3321	5400	3985	60	2 3/8	
Tensile strength	8.8		10.9		12.9				
	< M16	> M16							
N/mm² lbf/sq.in.	808	830	1040		1220				
	117.222	120.414	150.880		176.994				

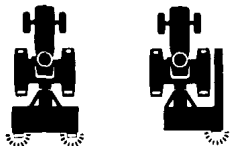
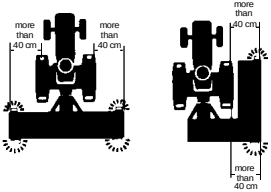
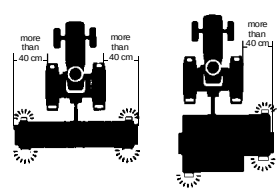
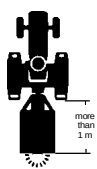
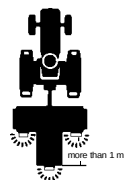
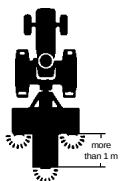
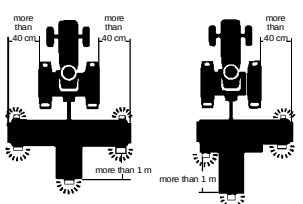
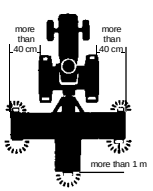
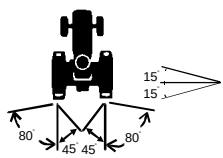
A.2 Legal provisions concerning the lighting of implements when using public roads and paths in the Federal Republic of Germany

Prescribed lighting for different types of mounting. The lighting may be permanently installed or removable (e.g. DIN 11027).



Attention!

Please observe the regulations regarding lighting specific to each country!

Mounted implements (installation of lights)	Trailer implements (installation of lights)
The mounted implement covers the lights of the carrier vehicle. 	All trailer implements. 
The mounted implement projects by more than 40 cm laterally over the outer edge of the area from which the light of the side lamps or tail lamps of the carrier vehicle exits. 	The trailer implement projects by more than 40 cm laterally over the outer edge of the area from which the light of the side lamps of the tractor vehicle exits. 
On the rear, the mounted implement projects by more than 1 m over the tail lamps, but does not cover the lights of the carrier vehicle. 	On the rear, the trailer implement projects by more than 1 m over the tail lamps. 
On the rear, the mounted implement projects by more than 1 m over the tail lamps, and covers the lights of the carrier vehicle. 	On the rear, the trailer implement projects by more than 1 m over the tail lamps and projects by more than 40 cm laterally over the outer edge of the area from which the light of the side lamps exits. 
On the rear, the mounted implement projects by more than 1 m over the tail lamps and projects by more than 40 cm laterally over the outer edge of the area from which the light of the side lamps or tail lamps exits. 	Turn-signal indicators An unobstructed viewing angle must be observed on the tractors and implements. 

Rear reflector

The upper edge of the rear reflector may not be higher than 90 cm, measured from the ground. This is especially important when transporting the mounted implements. The lateral distance of the rear reflector may not be greater than 40 cm, except for rear reflectors mounted in the middle. It is imperative to always permanently install a set of rear reflectors on trailer implements, any type.

The logo consists of the words "DEUTZ" and "FAHR" stacked vertically in a bold, sans-serif font, enclosed within a rectangular border.

Kverneland Gottmadingen
GmbH & Co. KG
Hauptstraße 99
78244 Gottmadingen
Germany

Tel. +49 7731 788 0
Fax +49 7731 788 353

Prod. series nr. 11 -

effective from ident. nr. (PIN)

6910 0101
6911 0101