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## Operator's manual

Original operator's manual

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Model	VF6918
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# Machine identification

In order for your dealer to assist you as efficiently as possible, you will need to provide some information about your machine. Please enter the details here.

Designation TE6583 T

Working width 8.30 m (27.25 ft)

Weight 900 kg

Machine number VF6918 \_ \_ \_ \_

Accessories

Address of supplier

Address of manufacturer Kverneland Group Kerteminde AS  
Taarpstrandvej 25  
DK-5300 Kerteminde  
Denmark  
  
Tel: +45 65 19 19 00

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# Preface

## Target group for this operator's manual



### WARNING

#### Simplified illustrations for better understanding

Illustrations of the machine in the operator's manual are shown without protective equipment – or with the protective equipment open – for better understanding. Be sure to observe the safety information and follow the handling instructions in the operator's manual. Serious or fatal injury may be caused if these guidelines are not followed.

This operator's manual is aimed at trained agriculturists and persons who are otherwise qualified for agricultural activities and have received instruction in working with this machine.

## For your safety

You must familiarise yourself with the contents of this operator's manual before assembly or initial operation of the machine. In this way, you will achieve optimum work results and operational safety. The operator's manual forms an integral part of the machine and must always be kept to hand. This will ensure that you:

- avoid accidents.
- comply with warranty conditions.
- have a fully functional machine in good working order at all times.

## Training

You will receive training from your dealer concerning using the controls and care of the machine.

#### Information for the employer

All personnel are to be regularly, but at least once a year, instructed on the use of the machine, in accordance with the regulations of the national organisation for Health and Safety at Work. Untrained or unauthorised persons are not permitted to use the machine.

You are responsible for ensuring that the machine is operated and maintained safely. Make sure that you and all other persons that operate, maintain or work in close proximity with the machine are familiar with the operating and maintenance regulations, as well as the corresponding safety instructions in this operator's manual.

## Symbols used

In this operator's manual, the following symbols and terms have been used:

- A bullet point accompanies each item in a list.
- ▶ A triangle indicates operating functions which must be performed.

→ An arrow indicates a cross-reference to other sections of this manual.

[+] A plus sign indicates additional equipment which is not included in the standard version.

### CAUTION

The warning triangle with the signal word "CAUTION" indicates important information. Failure to observe these safety instructions can result in:

- Serious faults in the correct operation of the machine
- Damage to the machine

We have also used pictograms to help you find instructions more quickly:



The "Information" pictogram indicates tips and additional information.



The "Examples" pictogram indicates examples that assist understanding of the instructions.



The spanner indicates tips for assembly or adjustment work.



The grease gun indicates the points that must be lubricated using the grease gun.



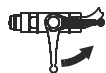
The brush indicates the points that must be lubricated using the brush.



Switch on the tractor.



Secure the tractor against rolling away, shut off the engine and remove the ignition key.



Open the ball valve.



Close the ball valve.



This arrow in the diagram shows the direction of travel.



Switch the pilotbox on.



Switch off the pilotbox.

# Preface

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## California Proposition 65

### **WARNING**

Engine exhaust, some of its constituents, certain machine components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

### **SAFETY FIRST**

This symbol, the industry's "Safety Alert Symbol", is used throughout this operator's manual and on warning signs on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the operator's manual and safety instructions before you attempt to assemble or use this machine.

### **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

### **CAUTION**

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



## For your safety

This chapter contains general safety instructions. Each chapter of the operator's manual contains additional specific safety information which is not described here. Observe the safety information:

- in the interest of your own safety.
- in the interest of the safety of others.
- to ensure the safety of the machine.

Numerous risks can result from handling agricultural machinery in the wrong way. Therefore, always work with particular care and never under time pressure.

### **Information for the employer**

Inform all persons who work with the machine about this safety information at regular intervals and in accordance with statutory regulations.

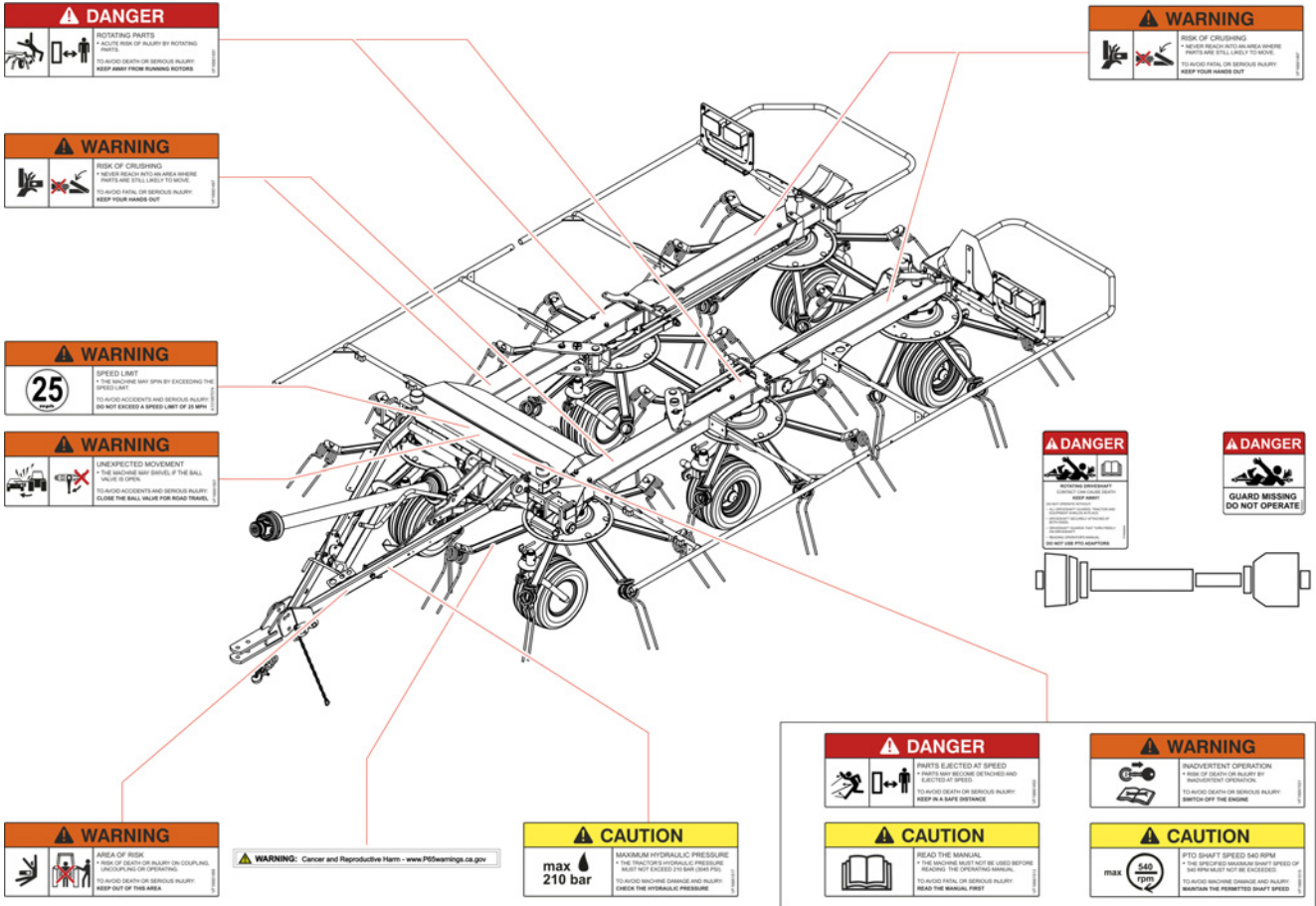




## Warning signs

Safety-related labels attached to the machine indicate potential hazards. The labels must not be removed. Illegible or missing labels should be replaced. You can obtain new labels as spare parts from your dealer.

## Warning signs on the machine





## Meaning of warning signs

<b>! DANGER</b>		
		<p><b>ROTATING PARTS</b></p> <ul style="list-style-type: none"> <li>• ACUTE RISK OF INJURY BY ROTATING PARTS.</li> </ul> <p>TO AVOID DEATH OR SERIOUS INJURY: <b>KEEP AWAY FROM RUNNING ROTORS</b></p>
		VF16661491

<b>! DANGER</b>		
		<p><b>PARTS EJECTED AT SPEED</b></p> <ul style="list-style-type: none"> <li>• PARTS MAY BECOME DETACHED AND EJECTED AT SPEED.</li> </ul> <p>TO AVOID DEATH OR SERIOUS INJURY: <b>KEEP IN A SAFE DISTANCE</b></p>
		VF16661493

<b>! DANGER</b>
<p><b>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!</b></p> <p>DO NOT OPERATE WITHOUT-</p> <ul style="list-style-type: none"> <li>• ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE.</li> <li>• DRIVELINES SECURELY ATTACHED AT BOTH ENDS.</li> <li>• DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.</li> </ul>
KT50909000

Outer tube.

<b>! DANGER</b>
<p><b>SHIELD MISSING DO NOT OPERATE</b></p>
KT50909000

Inner tube.



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 <b>WARNING</b>	
	<p><b>RISK OF CRUSHING</b></p> <ul style="list-style-type: none"> <li>NEVER REACH INTO AN AREA WHERE PARTS ARE STILL LIKELY TO MOVE.</li> </ul> <p>TO AVOID FATAL OR SERIOUS INJURY: <b>KEEP YOUR HANDS OUT</b></p>



VF16661497

 <b>WARNING</b>	
	<p><b>UNEXPECTED MOVEMENT</b></p> <ul style="list-style-type: none"> <li>THE MACHINE MAY SWIVEL IF THE BALL VALVE IS OPEN.</li> </ul> <p>TO AVOID ACCIDENTS AND SERIOUS INJURY: <b>CLOSE THE BALL VALVE FOR ROAD TRAVEL</b></p>

VF16661507

 <b>WARNING</b>	
	<p><b>AREA OF RISK</b></p> <ul style="list-style-type: none"> <li>RISK OF DEATH OR INJURY ON COUPLING, UNCOUPLING OR OPERATING.</li> </ul> <p>TO AVOID DEATH OR SERIOUS INJURY: <b>KEEP OUT OF THIS AREA</b></p>

VF16661499

 <b>WARNING</b>	
	<p><b>INADVERTENT OPERATION</b></p> <ul style="list-style-type: none"> <li>RISK OF DEATH OR INJURY BY INADVERTENT OPERATION.</li> </ul> <p>TO AVOID DEATH OR SERIOUS INJURY: <b>SWITCH OFF THE ENGINE</b></p>

VF16661501

 <b>WARNING</b>	
	<p><b>SPEED LIMIT</b></p> <ul style="list-style-type: none"> <li>THE MACHINE MAY SPIN BY EXCEEDING THE SPEED LIMIT.</li> </ul> <p>TO AVOID ACCIDENTS AND SERIOUS INJURY: <b>DO NOT EXCEED A SPEED LIMIT OF 25 MPH</b></p>

A131097574



<b>CAUTION</b>	
<b>max</b> <b>210 bar</b>	<p><b>MAXIMUM HYDRAULIC PRESSURE</b></p> <ul style="list-style-type: none"> <li>• THE TRACTOR'S HYDRAULIC PRESSURE MUST NOT EXCEED 210 BAR (3045 PSI).</li> </ul> <p>TO AVOID MACHINE DAMAGE AND INJURY:  <b>CHECK THE HYDRAULIC PRESSURE</b></p>
	VF16661517

<b>CAUTION</b>	
<b>max</b>	<p><b>PTO SHAFT SPEED 540 RPM</b></p> <ul style="list-style-type: none"> <li>• THE SPECIFIED MAXIMUM SHAFT SPEED OF 540 RPM MUST NOT BE EXCEEDED.</li> </ul> <p>TO AVOID MACHINE DAMAGE AND INJURY:  <b>MAINTAIN THE PERMITTED SHAFT SPEED</b></p>
	VF16661515

<b>CAUTION</b>	
	<p><b>READ THE MANUAL</b></p> <ul style="list-style-type: none"> <li>• THE MACHINE MUST NOT BE USED BEFORE READING THE OPERATING MANUAL.</li> </ul> <p>TO AVOID FATAL OR SERIOUS INJURY:  <b>READ THE MANUAL FIRST</b></p>
	VF16661513



### Lubrication points

Lubrication points are marked with an information label. Lubricate the machine in accordance with the instructions in the "Maintenance" chapter.

### Check tyre pressures

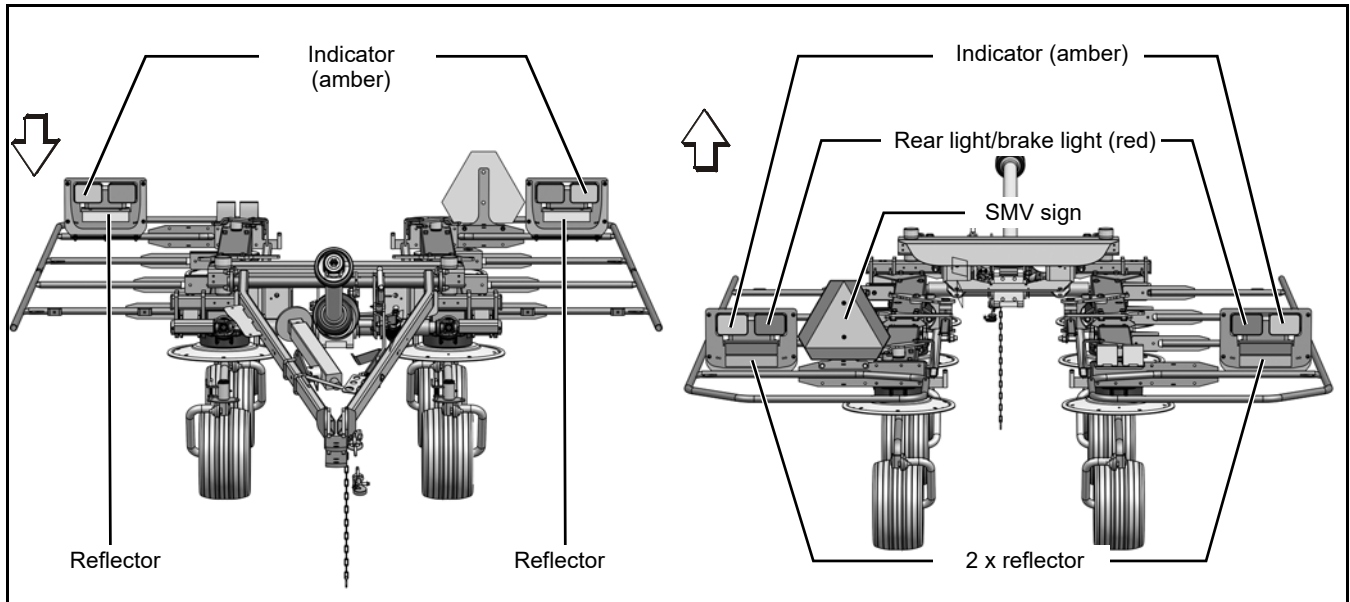
Check tyre pressures on a regular basis. Incorrect tyre pressures reduce the service life of a tyre and cause unstable driving characteristics. This can result in traffic accidents and accidents causing serious or fatal injuries.



## Signalling equipment and warning signs

On the machine there are signalling equipment, signs and stickers that serve to ensure safety in road traffic. The signalling equipment must be in good working order at all times. The signs and stickers must not be removed. Illegible or missing labels should be replaced. You can obtain new labels as spare parts from your dealer.

### Signalling equipment





## Signs

Additional markings are required for road transport in some U.S. states and some Canadian provinces:



### Marking for slow-moving vehicle – SMV

This SMV sign must be used on all slow-moving machines when operated or travelling on public roads.

- Slow-moving machines that are marked with a sign with a maximum permissible speed of up to 40 km/h (25 mph) must use the SMV sign.
- Slow-moving machines that are marked with a sign with a maximum permissible speed of more than 40 km/h (25 mph) but less than 65 km/h (40 mph):
  - must use the SMV sign and
  - must use the sign showing the maximum permissible speed.



### Marking for maximum speed (Speed identification symbol – SIS)

- The speed identification symbol (SIS) is required on all implements that exceed a speed of 40 km/h (25 mph). It indicates the maximum speed at which the vehicle may travel on public roads in the USA and Canada.

The 50 km/h (30 mph) symbol is used next to the Slow-Moving Vehicle (SMV) symbol to indicate the implement's maximum possible speed.



## Who is allowed to operate the machine?

### Only qualified persons may operate the machine

Only qualified persons who have been informed of the dangers associated with handling the machine are permitted to operate, service or repair the machine. The necessary knowledge can be gained in the course of agricultural vocational training, professional training or intensive instruction.

## General safety information



### WARNING

- The general safety information and warning signs apply to every phase of the life cycle of the machine and to every application.



### Switch off the tractor and secure it

Before you dismount:

- ▶ Switch off the PTO shaft drive.
- ▶ Lower all implements.
- ▶ Switch all operating controls to the neutral or park position.
- ▶ Put the tractor's parking brake into the park position.
- ▶ Switch off the tractor.
- ▶ Remove the ignition key.
- ▶ Secure the tractor against rolling away.

An unsecured tractor can run you over or trap you. Serious or fatal injury may be caused as a result.

### Operate for the first time only after proper training

The machine may only be put into operation if thorough training has been carried out by an authorised dealer or by an employee of the manufacturer. Operation without proper training can lead to damage to the machine due to incorrect operation, or may cause accidents.

### Safety is your responsibility

Follow the safety regulations. Ensure that all operators comply with the safety instructions. Prevent serious or fatal accidents by following the safety instructions.

### Instructions in the event of malfunctions

In the event of a malfunction

- ▶ Shut down,
- ▶ Stop and secure the machine immediately.
- ▶ Immediately rectify the faults, if you are qualified to do so, or
- ▶ Commission an authorised dealer.

Operating a faulty machine can cause accidents or damage.



## **No persons in the working area**

Ensure that no persons – children in particular – are present in the slewing and working area of the machine. Persons could be caught by the machine within this area. Accidents with serious or fatal injuries may be caused as a result.

## **Safety for children**

Never assume that children will remain where you last saw them. Be alert and shut down the machine if children are in the working area of the machine. Prohibit children from playing on or around the machine and from operating the machine.

## **Perfect working condition**

Ensure that the tractor and the machine are always in perfect working condition. Make sure that the tractor brakes work in conjunction with the machine. Also follow the instructions in your tractor's operator's manual.



## **Switch off the PTO shaft drive when raising the machine**

Switch off the tractor's PTO shaft drive if people could enter the working area of the machine when you

- raise the machine,
- raise the rotors to the headland position.

Rotating, unprotected parts can damage the machine and cause life-threatening injuries.



## **Switch off the tractor PTO shaft drive**

Switch off the PTO shaft drive on the tractor when changing from work to transport position (and vice versa). Wait for the moving parts to stop moving. If this requirement is ignored, the consequence may be damage to the machine and even life-threatening injuries.



## **No reversing while the drive is running**

Never drive in reverse with the PTO shaft drive switched on and in the work position if people could enter the working area of the machine. Switch off the PTO shaft drive. Rotating, unprotected parts can damage the machine and cause life-threatening injuries.

## **Specified workwear**

Do not wear baggy, loose-fitting or other unsuitable clothing. Loose fitting items of clothing may become caught in rotating parts. Wear workwear and protective clothing which is suitable for the working environment and the operating conditions. Wear workwear and protective clothing, as specified by the Accident Prevention and Insurance Association. Serious or fatal injury may be caused if these guidelines are not followed.





### **No riding on the machine**

Persons or objects must never be transported on the machine. Carrying passengers – particularly children – on the machine is life-threatening and prohibited. Serious or fatal injury may be caused if these guidelines are not followed.

### **Safety for children**

Never assume that children will remain where you last saw them. Be alert and shut down the machine if children are in the working area of the machine. Prohibit children from playing on or around the machine and from operating the machine.

### **Never work on the machine while it is running**

No operations may be performed on the machine while it is running. Objects or persons can be caught, drawn in or crushed. Serious or fatal injury may be caused if these guidelines are not followed.

### **Safety distance from raised and unsecured loads**

Never work under suspended loads. Maintain a sufficient distance from raised and unsecured loads. Serious or fatal injury may be caused as a result.

### **Only use the PTO shaft specified**

Use only the PTO shafts specified by the manufacturer and read the attached operator's manual carefully. Adjust the length of the PTO shaft as required. Incorrect PTO shaft lengths can cause damage to the machine and personal injury.

### **Check and fasten the PTO shaft guard in position**

The rotating PTO shaft is protected by the PTO shaft guard. Ensure that the guard is not damaged. Fasten the PTO shaft guard in position by connecting the chains on the implement and the tractor. Unguarded PTO shafts can cause life-threatening injuries.

### **Make sure the machine is standing level**

Before changing from the transport to the work position (and vice versa), make sure the machine is standing level. The machine could tip over, particularly on hillside locations. Otherwise, damage to the machine and serious or fatal injury may be caused as a result.

### **Do not make any modifications to the machine**

No modifications of any kind may be made to the machine. Unauthorised modifications can adversely affect the correct operation and safety of the machine and shorten its service life. Unauthorised modifications to the machine render the manufacturer's guarantee null and void and free the manufacturer from all liability.



## **PTO shaft speed 540 rpm**

The specified maximum PTO shaft speed of 540 rpm must not be exceeded. A higher PTO shaft speed will damage the machine.

## **Do not use PTO shafts with disconnect couplings**

Only use PTO shafts which have been specified by the manufacturer. Other PTO shafts with disconnect couplings may allow higher disconnect torques. Higher disconnect torques may cause damage to the machine.

## **Unrestricted field of vision to the rear**

After it has been coupled, ensure that you have an unrestricted view of the machine, in both its work and transport positions. At the very least, use the panorama mirror provided by the tractor manufacturer. Dangerous situations may not be detected in good time. Accidents or damage may be caused as a result.

## **Coupling**

### **Increased risk of injury**

When the machine is being coupled to the tractor, there is an increased risk of injury. Therefore:



- Shut off the engine, set the parking brake, remove the ignition key and secure the tractor against rolling away.
- Never stand between the tractor and machine.
- Lock the PTO shaft securely to the PTO stub shaft on the tractor and the machine.

If this requirement is ignored, the consequence may be damage to the machine and even life-threatening injuries.

### **Do not connect power supply until equipment is fitted**

The electrical supply to the tractor must not be connected when the lighting equipment is being fitted. Otherwise, short circuits may occur and the electronic system may be damaged.

### **Observe the operator's manual of the PTO shaft manufacturer**

Observe the operator's manual of the PTO shaft manufacturer. It will provide you with instructions on how to handle the PTO shaft correctly. If these instructions are ignored, damage may be caused to the PTO shaft and machine.



## Hydraulics

### **Only connect hydraulics at zero pressure**

Only connect hydraulic hoses to the tractor hydraulic system if the tractor and machine hydraulic system is at zero pressure. A pressurised hydraulic system can trigger unforeseen movements on the machine and can cause serious machine damage and personal injury. Serious or fatal injury may be caused if these guidelines are not followed.

### **High pressures in the hydraulic system**

The hydraulic system is under high pressure. Regularly check all lines, hoses, and screwed connections for leaks and externally visible damage. Only use suitable tools when looking for leaks. Rectify any damage immediately. Oil escaping under pressure may result in injuries and fires. Seek medical attention immediately if injuries occur.

### **Uniquely coded hydraulic connections**

The hydraulic connections are uniquely coded. Only matching hydraulic couplings between the tractor and machine must be connected. Wrongly connected hydraulic couplings can trigger unpredictable movements of the machine.

### **Replace hydraulic hoses every six years or sooner**

Hydraulic hoses age without showing externally visible signs. Replace hydraulic hoses every six years or sooner. Use hydraulic hoses only with the same technical specifications. The required information is printed on the hydraulic hose. Defective or incorrect hydraulic lines can cause serious or fatal injuries.



## Road transport

### Ensuring road safety

The machine must conform to current national traffic regulations if you intend to drive with it on public roads. Ensure the following:

- Lighting, warning and protective equipment must be fitted.
- The permissible transport widths and weights, axle loads, tyre load-bearing capacities, laden weights and national speed restrictions must be complied with.
- The maximum permissible road transport speed must be complied with, but not exceed 40 km/h (25 mph).
- Before driving on public roads, fully fold in all guard bars and secure the machine. All tine supports which have tips that point at right angles to the direction of travel must be removed.
- All tine supports which protrude beyond the retracted guard bars must be removed.
- The machine should only be towed by agricultural or forestry tractors.

The empty weight of the tractor must be greater than the weight of the machine. The driver and keeper of the vehicle are liable should these conditions not be observed.



### Close the ball valve

Close the ball valve before driving on the road. If the ball valve is open and there is an operating error, the machine may drop or swing out unexpectedly. This can result in traffic accidents and accidents causing serious or fatal injuries.

### Check the tyre pressures

Check tyre pressures on a regular basis. Incorrect tyre pressures reduce the service life of a tyre and cause unstable driving characteristics. Accidents with serious or fatal injuries may be caused as a result.

### Altered driving and braking performance

Driving and braking characteristics are altered when the machine is coupled or hitched to the tractor. When cornering, take the overall width and centrifugal mass of the machine into consideration. Adapt your driving speed accordingly. A driving style which is not adapted to conditions can cause accidents. Accidents with serious or fatal injuries may be caused as a result.

### Speed adjustment

In poor road conditions and at high speeds, significant forces can be generated which subject the tractor and machine material to high or excessive stresses. Adjust your driving speed to the road conditions. A driving style which is not adapted to conditions can cause accidents. Accidents with serious or fatal injuries may be caused as a result.



## Operation

### **Speed adjustment**

In poor road conditions and at high speeds, significant forces can be generated which subject the tractor and machine material to high or excessive stresses. Adjust your driving speed to the road conditions. A driving style which is not adapted to conditions can cause accidents. Accidents with serious or fatal injuries may be caused as a result.

### **Check hitch pins**

Hitch pins must be in perfect condition. Hitch pins must show no signs of wear and be properly secured. Otherwise, hitched machines may detach themselves of their own accord. Accidents with serious or fatal injuries may be caused as a result.

### **Ensure that the machine is in technically perfect working condition**

Do not operate the machine unless it is in perfect working condition. Check all important components and replace any defective components before starting the machine. Defective components can cause material damage and personal injury.

### **Check the protective equipment**

The protective equipment must not be removed or by-passed. Check all protective equipment before using the machine. Unprotected machine parts can cause serious or fatal injury.

### **Check the immediate vicinity**

Check the area immediately surrounding the machine before driving off and continually during operation. Make sure that you have an adequate view. Only drive off if the immediate vicinity is clear of any persons or objects. Serious or fatal injury may be caused if these guidelines are not followed.

### **Retighten all nuts, bolts and screws**

Regularly check that bolts and nuts are correctly tightened. Retighten bolts if necessary. Nuts and bolts can work loose when the machine is used. Damage to the machine or accidents may be caused as a result.

→ Observe the correct torque specifications in chapter »Screw tightening torques« on page 64.

### **The PTO shaft continues turning after it has been switched off**

After the PTO stub shaft drive on the tractor has been switched off, the machine continues to run due to the moment of inertia. Maintain a sufficient safety distance until all moving parts have come to a complete standstill. Otherwise, damage to the machine and serious or fatal injury may be caused as a result.

### **Cornering and turning manoeuvres**

Centrifugal forces are active during cornering. The machine's centre of gravity at the rear of the tractor is displaced. Be aware of the turning radius and the moment of inertia. A driving style which is not adapted to conditions can cause accidents. Accidents with serious or fatal injuries may be caused as a result.



## Uncoupling

### Increased risk of injury

There is an increased risk of injury when uncoupling the machine from the tractor. Therefore:



- Shut off the engine, set the parking brake, remove the ignition key and secure the tractor against rolling away.
- Never stand between the tractor and machine.
- Set the machine down on firm, secure and level ground.
- Ensure that the parking stand is securely locked.
- Place the PTO shaft in the holder provided.
- Secure the machine against rolling away (use wheel chocks).
- Do not disconnect hydraulic hoses until there is no pressure in the tractor and machine hydraulic system.
- Disconnect all electrical connections.

Failure to observe these instructions can result in serious or fatal injury.



## Care and maintenance

### Observe the care and maintenance intervals

Observe prescribed intervals for maintenance checks and inspections specified in the operating manual. If these periods are not observed, damage to the machine and accidents may be caused as a result.

### Use original parts


Many components have special properties that are essential for the stability and correct operation of the machine. Only spare parts and accessories supplied by the manufacturer have been tested and approved. Other products may adversely affect the correct operation of the machine and safety. The use of non-OEM replacement parts renders the manufacturer's guarantee null and void and frees the manufacturer from all liability.

### Clean the machine each time you use it

Each time you use it, remove the worst of the dirt and any crop remnants from the machine afterwards. If dirt and crop remnants are left on moving parts, this may result in premature wear and fire breaking out due to overheating. Damage to the machine may be caused as a result.



### When performing care and maintenance work:

- Switch off the PTO shaft drive.
  - Depressurise the hydraulic system.
  - Ensure the machine is standing on firm, secure and level ground, and provide additional support, if necessary.
  - Secure the machine against rolling away (use wheel chocks).
  - Whenever possible, uncouple the tractor.
- 
- Shut off the engine, set the parking brake, remove the ignition key and secure the tractor against rolling away.
  - Only if these regulations are observed can safe working be ensured during care and maintenance work.

### Turn off the electrical supply

Prior to carrying out work on the electrical system, disconnect the system from the power supply. Systems being supplied with electrical power can cause damage to equipment and injury to persons.

### Caution when cleaning with a high-pressure cleaner

Exercise caution when cleaning with a high-pressure cleaner. Bearings, seals and pipe unions are not waterproof. In order to prevent damage to the machine, the bearings, seals and pipe unions must not be exposed to direct contact with the high pressure water jets.



## **No aggressive washing additives**

Do not use any aggressive washing additives for cleaning. Uncoated metal surfaces can be damaged.

## **Before carrying out welding work**

Disconnect all electrical connections from the tractor when carrying out welding on the hitched machine. Damage may otherwise be caused to the electrical system.

## **Retighten all nuts, bolts and screws**

All screwed/bolted connections that are loosened during maintenance and repair operations must be retightened. Serious injury and damage to equipment can be caused by loose pin and screwed connections.

→ Observe the correct torque specifications in chapter »Screw tightening torques« on Seite 64.

## **Further regulations**

### **Observe the regulations**

In addition to the safety information listed above, please observe the following:

- Regional accident prevention regulations.
- Generally recognised safety regulations, occupational health requirements and road traffic regulations.
- The instructions provided in this operator's manual.
- Standards and instructions relating to operation, maintenance and repair.

## **Warranty**

The warranty and manufacturer's liability will no longer be valid if the instructions provided in the chapter on Safety are not observed, if maintenance is inadequate or faulty, if the machine is used for purposes other than those for which it was intended and if it is overstressed, or if impermissible modifications are made to the machine.



# Familiarising yourself with the machine

## Range of application

The machine is a rotary tedder that is solely to be used for tedding, turning and swathing mown, stalked material such as straw and hay.

## Proper use

Any use other than the use described above - such as silo spreading, and any type of soil preparation, sweeping, or transmitting power to other machines - constitutes improper use. The manufacturer and dealers are not liable for damage caused by improper use. The risk is borne solely by the user.

## Features of the machine

### Use on large areas

This rotary tedder has a working width of 8.30 m (27.25 ft) and six rotors, and is ideal for large-scale operations.

### Low-maintenance gears

The machine is equipped with low-maintenance gears and seven tine arms per rotor. The fully enclosed gears run in an oil bath and provide perfect protection against wear.

### Clear field edges

The crop is turned away from the field edge by pivoting the guided running wheel axles. This helps to prevent fodder from being lost.

### Inclination of the rotors

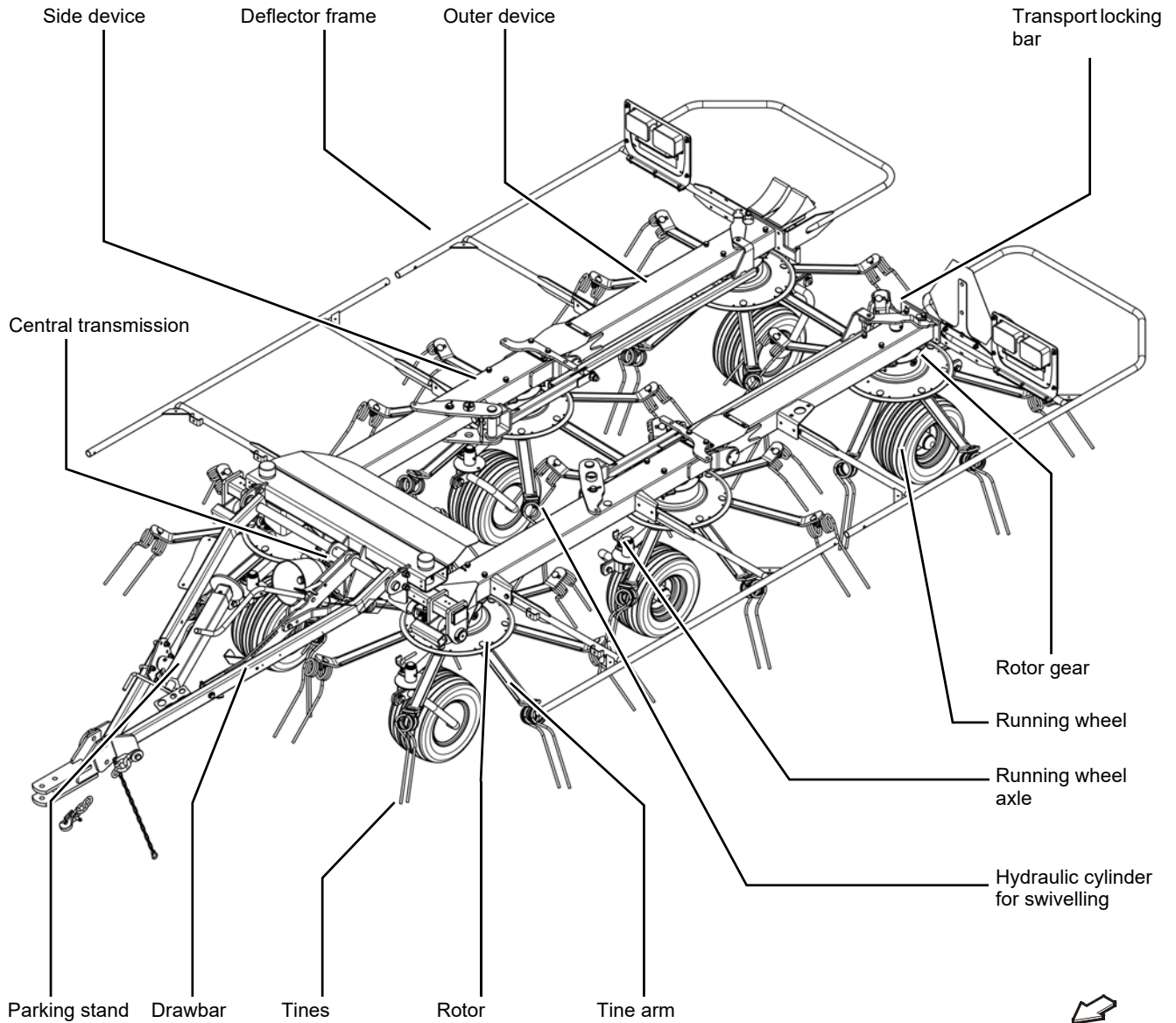
The inclination of the rotors is adjustable. This enables the processing of a wide spectrum of fodder types and quantities.

### Simple changeover from work to transport position

The rotary tedder is easily changed from the work to the transport position. Hydraulic cylinders swivel the rotary tedder into the transport position. Dismounting from the tractor is not required.

# Familiarising yourself with the machine

## Designation of components

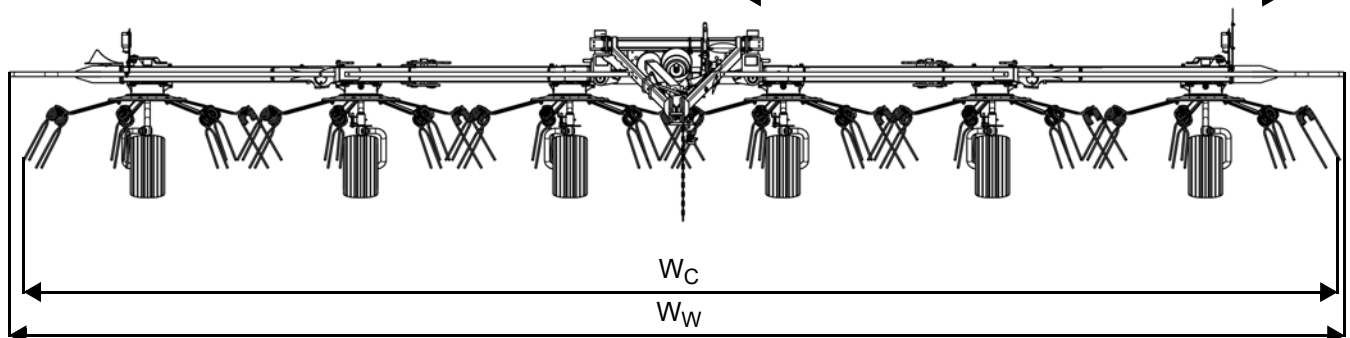
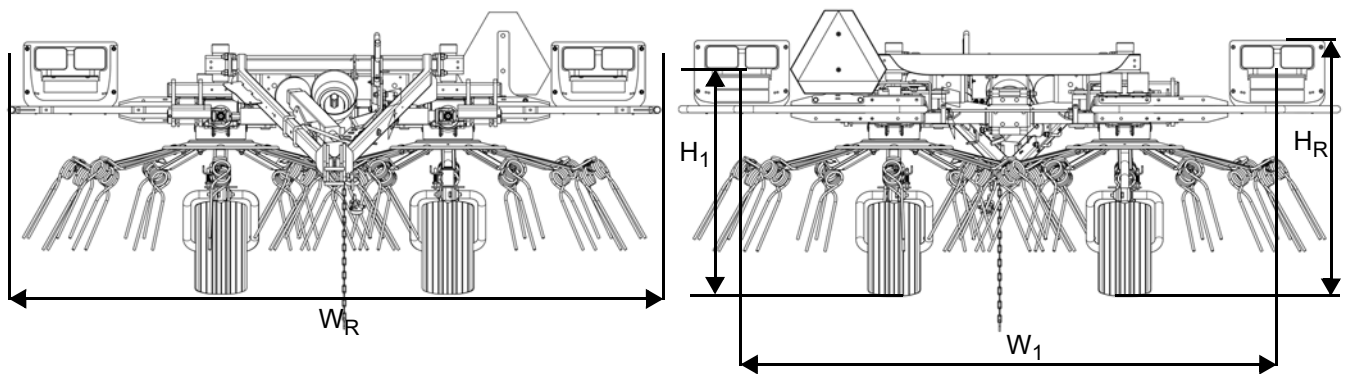
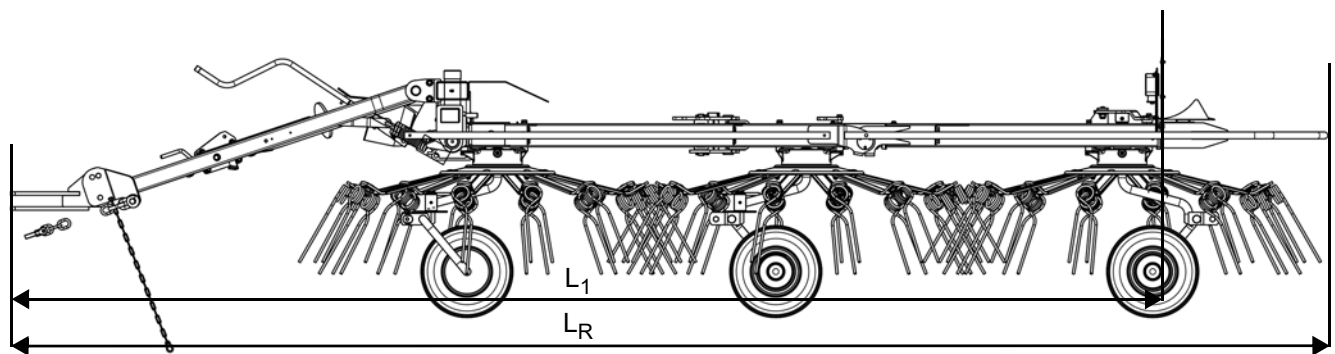


# Familiarising yourself with the machine

## Technical specifications

### Lower hitch dimensions

	Work position		Transport position	
Length	$L_W$	3.10 m (10.20 ft)	$L_R$	5.90 m (19.35 ft)
Length to reflector		-	$L_1$	5.14 m (16.85 ft)
Width	$W_W$	8.63 m (28.30 ft)	$W_R$	2.99 m (9.80 ft)
Height	$H_W$	1.25 m (4.10 ft)	$H_R$	1.25 m (4.10 ft)
Position of the lighting equipment	$W_1$	-	$H_1$	0.89 m (2.90 ft)
Working width	$W_C$	8.30 m (27.25 ft)		-



# Familiarising yourself with the machine

## Weights

Transport position		
	Total weight	850-900 kg (1875-1985 lb)
	Supported load at front	300 kg (660 lb)
	Axle load per wheel axle	200 kg (440 lb)

## Tractor equipment required

Output / connections		
	Minimum output of the tractor	20 kW (27 hp)
	Voltage supply for lighting units	12 V, 7-pin plug socket ISO 1724 <b>or:</b> 12 V, 7-pin plug socket SAE J560 (for the USA)
	Hydraulic connections	1 x double-acting
	Hydraulic pressure	160-210 bar (2320-3045 psi)
	PTO shaft speed	540 rpm
	Coupling device	<b>With lower hitch:</b> Lift link drawbar or pending attachment

## Machine equipment

Rotors / tine arms / tines		
	Number of rotors	6
	Number of arms per rotor	7
	Tine adjustment	Mechanical
	Tine saver	[+]
Wheels		
	Side device running wheel axles	16.0 x 9.50
Safety accessories		
	Lighting equipment	Standard
	Warning plates	Standard
	Wide-angle PTO shaft, free-wheel on one side	Standard
Axles		
	Number of axles	6
	Model	4 x swivel axles 2 x pivot axles

## Checking the scope of delivery

### Delivery is in the fully assembled state

The machine is delivered fully assembled. Using the check list, check the loose parts on delivery. If any parts of the machine have not been fitted or are missing, please contact your dealer.



### WARNING

Do not assemble the machine yourself

Trained personnel are required to assemble the machine. Do not perform assembly work yourself. The following points are required to be met for the machine to be in proper condition:

- Observance of a sequence of work steps.
- Compliance with tolerances and torques.
- Knowledge of work safety during assembly.

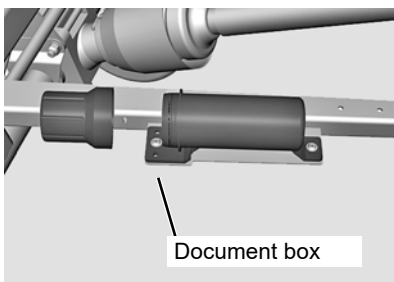
**Incorrect assembly can result in damage to the machine or accidents.**



If parts are missing or have been damaged during transportation, please inform the dealer, importer or manufacturer immediately.

Check list for parts which were supplied loose	Quantity
Operator's manual	1
Spare part manual	1
PTO shaft for drive	1
Wheel chock	2
Additional equipment	See delivery note

## Operator's manual



The operator's manual belongs with the machine and must always be kept on board. A document box for the operator's manual and spare part manual is mounted on the machine.

# Delivery and assembly

## Adjusting the PTO shaft

The length of the PTO shaft was selected at the factory to suit almost all types of tractors. Only in exceptional cases is a correction of the PTO shaft length required on individual tractors. Check the length of the PTO shaft on each tractor prior to first use.

A manufacturer's operator's manual for the PTO shaft is enclosed. This includes detailed information on the relevant version of the PTO shaft and must be observed.

## Safety



### WARNING

#### Switch off the tractor and secure it

Before you dismount:

- ▶ Switch off the tractor.
- ▶ Remove the ignition key.
- ▶ Secure the tractor against rolling away.



An unsecured tractor can run you over or trap you. Serious or fatal injury may be caused if these guidelines are not followed.

#### Checking the angle of lock

The tractor's PTO shaft has a wide hinge joint, allowing an angle of lock of up to 80°. Make sure that the PTO shaft is not damaged during sharp cornering. This would result in damage to the machine.

## Checking the length of the PTO shaft

- ▶ Couple the machine to the tractor without the PTO shaft.
- ▶ Lower the lower link of the tractor.
- ▶ Set the combination (tractor and machine) to the smallest steering angle.



### WARNING

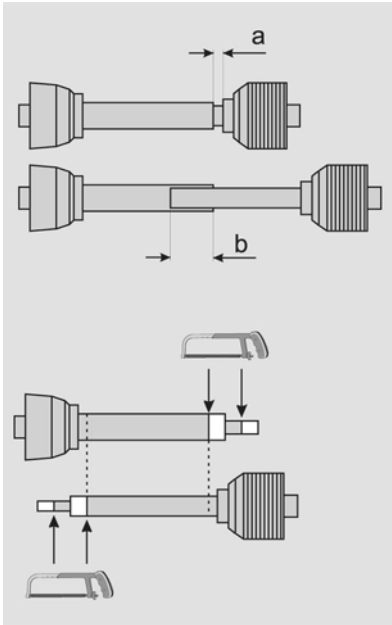
#### Correct length

Check the PTO shaft length at the tightest steering angle. A PTO shaft that is too long must not be used. Otherwise, damage to the drive bearings on the tractor and machine may be caused as a result.



- ▶ Switch off the tractor and secure it against rolling away.

## Shortening the PTO shaft



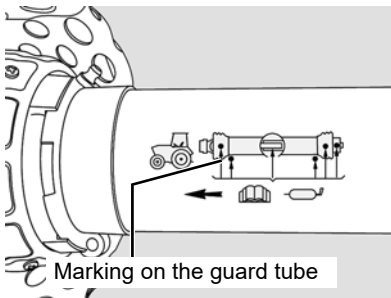
### Shorten the PTO shaft as follows:

- ▶ Pull the PTO shaft apart and connect one half to the tractor PTO shaft drive and one to the machine and secure them.
- ▶ Place the two shaft halves next to each other and:
  - Check for a minimum of 250 mm (10 in) overlap (b).
  - Check that the PTO shaft is not blocked at one end. Minimum distance (a) = 20 mm (0.8 in).
- ▶ If shortening is necessary, saw the same length off the slide tube and guard tube.
- ▶ Deburr the ends of the tube.
- ▶ Remove the swarf.
- ▶ Grease the sliding surfaces well.



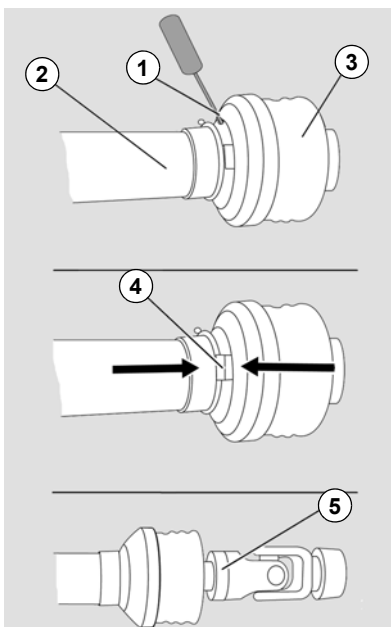
If the PTO shaft has been shortened, the minimum overlap and the minimum distance must be checked again when it is operated with another tractor.

## Fitting the PTO shaft on the machine



Make sure that you fit the PTO shaft in the correct installation position. There is a marking on the guard tube of the PTO shaft.

- ▶ Check the length of the PTO shaft and shorten it if necessary.



- ▶ Remove the locking screw (1) between the guard tube (2) and the guard cone (3).
- ▶ Twist the guard cone (3) and the guard tube (2) in opposite directions so that the "noses" of the slide ring (4) are positioned directly over the slots on the guard cone (3).
- ▶ Pull the guard cone (3) and guard tube (2) back until the single joint (5) is accessible.
- ▶ Connect the PTO shaft to the machine.
- ▶ Push the guard cone (3) and guard tube (2) back over the single joint (5).
- ▶ Tighten the locking screw (1).
- ▶ Secure the guard cone to the gear box using a jubilee clip.

# Coupling the machine

## Safety

### **WARNING**

#### **Observe the safety information**

Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

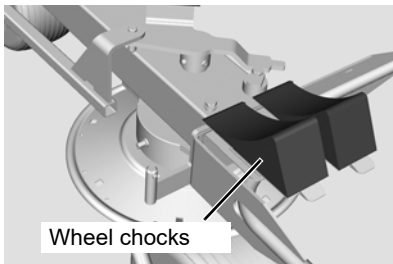
#### **Increased risk of injury**

When the machine is being coupled to the tractor, there is an increased risk of injury. Therefore:

- Never stand between the tractor and machine.
- Secure the tractor against rolling away.

**Failure to observe these instructions can result in serious or fatal injury.**

## Wheel chocks



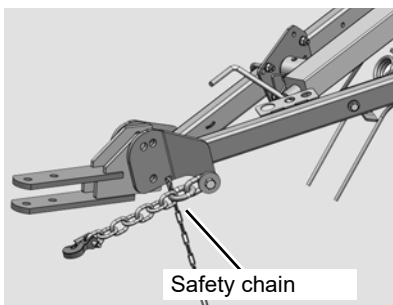
### **WARNING**

#### **Use wheel chocks**

Never remove the wheel chocks before the machine has been coupled to the tractor. Persons could be run over by the machine or the tractor. Serious or fatal injuries may be caused as a result.

Always secure the machine with wheel chocks before uncoupling it from the tractor. The wheel chocks are located in the brackets on the machine.

## Safety chain



### **WARNING**

#### **Safety chain**

When travelling on the road, always connect the machine and the tractor using a safety chain. Use a safety chain with a strength that corresponds to at least the total weight of the machine. Otherwise, serious or fatal injuries may be caused as a result.

- ▶ Fasten the supplied safety chain between the tractor and the machine.



In the USA and Canada, it is obligatory to secure the machine to the tractor with a safety chain. A suitable chain is included in the scope of delivery or can be supplied as an accessory.



Choose an appropriate length of chain so that the movement of the drawbar is not adversely affected and the chain does not hang down too low.



Also observe the national regulations regarding the length and fitting of safety chains.



## General

The machine is equipped with the fittings required for coupling to the fixed lift link drawbar or pending attachment.

**The following work steps are described in this section:**

- Hitch.
- Coupling the PTO shaft.
- Electrical connections.
- Hydraulic connections.
- Parking stand.
- Checking the machine.

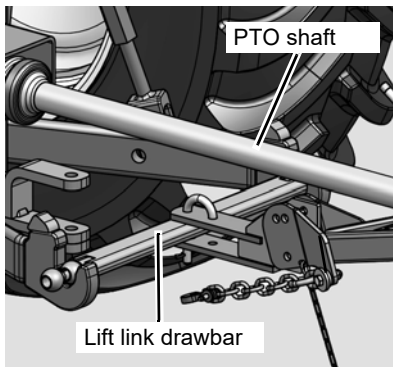
# Coupling the machine

## Hitch

When coupling with the lower hitch, proceed as follows:

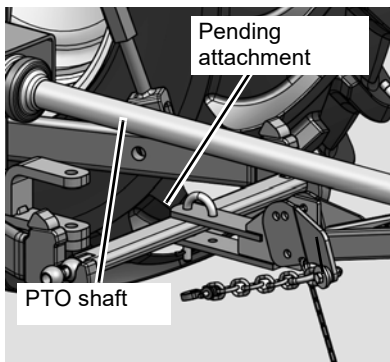
- »Coupling the lift link drawbar«, page 34
- »Coupling the pending attachment«, Seite 34
- »Coupling the PTO shaft«, page 35

## Coupling the lift link drawbar



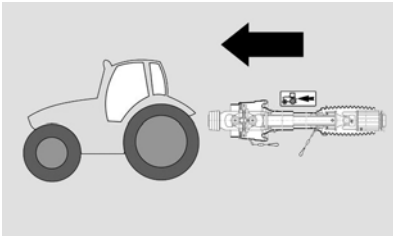
- ▶ Couple the machine to the lift link drawbar.
- ▶ Secure the hitch pin in position (a) with a split pin.
- ▶ Using the tractor's control device, lift the drawbar slightly to relieve the load on the parking stand.
- ▶ Swivel the parking stand into its park position.
- ▶ Couple the PTO shaft.

## Coupling the pending attachment



- ▶ Couple the machine to the pending attachment.
- ▶ Secure the hitch pin in position (z) with a split pin.
- ▶ Swivel the parking stand into its park position.
- ▶ Couple the PTO shaft.
- ▶ Swivel the PTO shaft holder into the park position.

## Coupling the PTO shaft

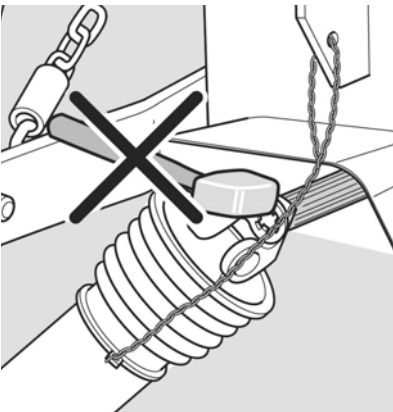


Make sure that you fit the PTO shaft in the correct installation position. There is a marking on the guard tube of the PTO shaft.  
→ See chapter »Fitting the PTO shaft on the machine«, page 31.

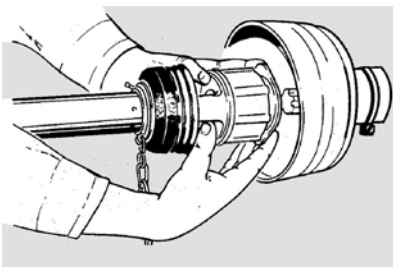
### **WARNING**

#### **Do not use force**

When coupling the PTO shaft, do not use a hammer or any similar tools. Using these types of tool can severely damage the PTO shaft. A damaged PTO shaft can cause damage to the tractor and the machine.



- ▶ Check whether the PTO shaft must be shortened before coupling.
- ▶ Shorten the PTO shaft if necessary.  
→ »Shortening the PTO shaft«, page 31
- ▶ Check that the tractor's PTO stub shaft is clean and lubricated.
- ▶ Couple the PTO shaft to the tractor and the machine.



- ▶ Ensure that the PTO shaft is engaged on the shaft ends.
- ▶ Secure the guard tubes so that they cannot rotate at the same time.
- ▶ Swivel the PTO shaft holder into the park position.
- ▶ Secure the lift link drawbar against unintentional raising. This would damage the PTO shaft.

# Coupling the machine

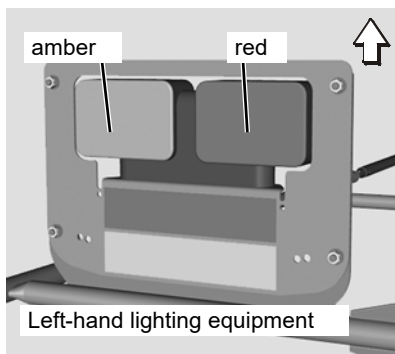
## Electrical connections

### **WARNING**

#### Checking the electrical cables

Check the electrical cables. The electrical cables must not chafe or hang loose. Electrical cables that have been torn away or worn through must be replaced. Damage to the machine may be caused as a result.

## Lighting equipment



The machine is fitted with lighting equipment for road transport. The lighting equipment is mounted on the left and right-hand side of the rear guard bar and connected to the tractor by a 7-pin plug. The design of the lighting equipment depends on the local road traffic regulations.

#### For use in the USA and Canada:

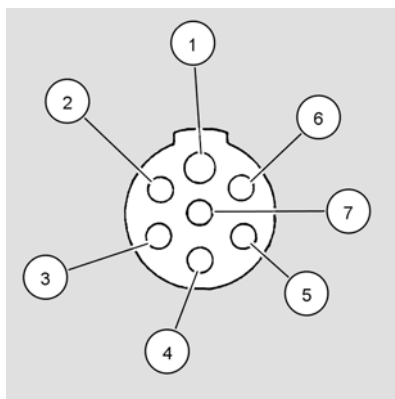


The corresponding connection must be present on the tractor (SAE J560). If your tractor does not have the corresponding connection, a corresponding connection must be retrofitted. Consult your dealer.



The lighting equipment is controlled by the lighting controls in the tractor. The lamps on the machine are only switched on when either the parking lights or the headlight of the tractor is switched on.

## SAE J560 plug arrangement



PIN	Cable	Connection to
1	White	Earth; all lights
2	Black	Not used
3	Yellow	Left-hand indicator (amber)
4	Red	Brake lights
5	Green	Right-hand indicator (amber)
6	Brown	Rear lights (red)
7	Blue	Not used



- ▶ Connect the plug for the 12 V power supply to the 7-pin plug socket on the tractor.



Alternative lighting equipment is available for use **within the European Union and in numerous other countries**. Please consult your dealer.

## Hydraulic connections



### WARNING

#### **Check hoses and couplings**

Check all hydraulic hoses for damage before connecting them. Check all hydraulic couplings for firm seating after connecting them. Defective hydraulic hoses and poorly fitting hydraulic connections can trigger unanticipated movements in the machine, causing severe damage to the machine as well as personal injury. Serious or fatal injury may be caused if these guidelines are not followed.

#### **Hydraulic connection at zero pressure only**

Only connect hydraulic hoses to the tractor hydraulic system if the tractor and machine hydraulic system is at zero pressure. A hydraulic system which is under pressure can trigger unpredictable movements of the machine.

#### **Secure the tractor's control devices**

In the transport position, secure the control devices on the tractor against unintended actuation and lock them if possible. Unintentional activation of a control device can trigger unpredictable movements on the machine and cause serious machine damage and personal injury. Serious or fatal injury may be caused if these guidelines are not followed.

#### **Check the routing of the hydraulic hoses**

Close or disconnect the quick couplings with great care. Remove any dirt or air which has entered the hydraulic system. The hydraulic system may otherwise be seriously damaged. Material damage or personal injury may be caused as a result.

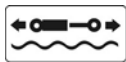
#### **Avoid mixing oils**

If the machine is used on different tractors, an impermissible mixing of oil may occur. Impermissible oil mixtures can destroy tractor components.

# Coupling the machine

## Connecting the hydraulics

Connecting the hydraulics:



- ▶ Set the tractor's hydraulic control devices to the floating position.



- ▶ Switch off the tractor and secure it.



- ▶ Close the ball valve.

- ▶ Connect the machine's hydraulic couplings to the connections on the double-acting control devices.

- ▶ Unroll the control cables and lay them in the tractor cab.

Hydraulic line	Marking
Pressure line	red
Return line	yellow



### WARNING

#### Connect the hydraulics correctly

Make sure that the hydraulics are connected correctly. Otherwise, injuries and damage to the machine may be caused as a result.

## Parking stand

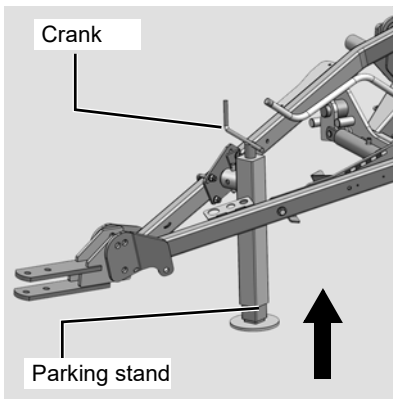


### WARNING

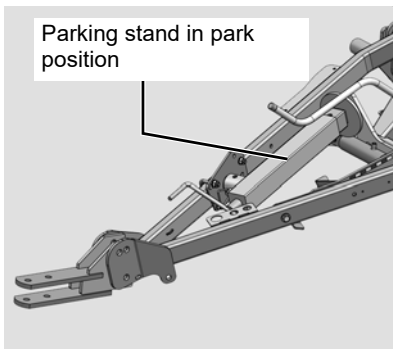
#### Parking stand in the correct park position

Lock the parking stand in the park position once the implement has been coupled using the upper hitch. Damage to the machine may be caused as a result.

## Relieving the load on the parking stand



- ▶ Hitch the machine to the tractor.
- ▶ Fully screw in the crank.
- ▶ Remove the safety splint from the pin.
- ▶ Remove the pin from the parking stand.
- ▶ Slide the parking stand fully upwards.
- ▶ Insert the pin into the hole in the parking stand and secure it with the safety splint.



- ▶ Remove the plug on the swivel joint for the parking stand.
- ▶ Swivel the parking stand into its park position.
- ▶ Insert the plug on the swivel joint for the parking stand and secure.

# Coupling the machine

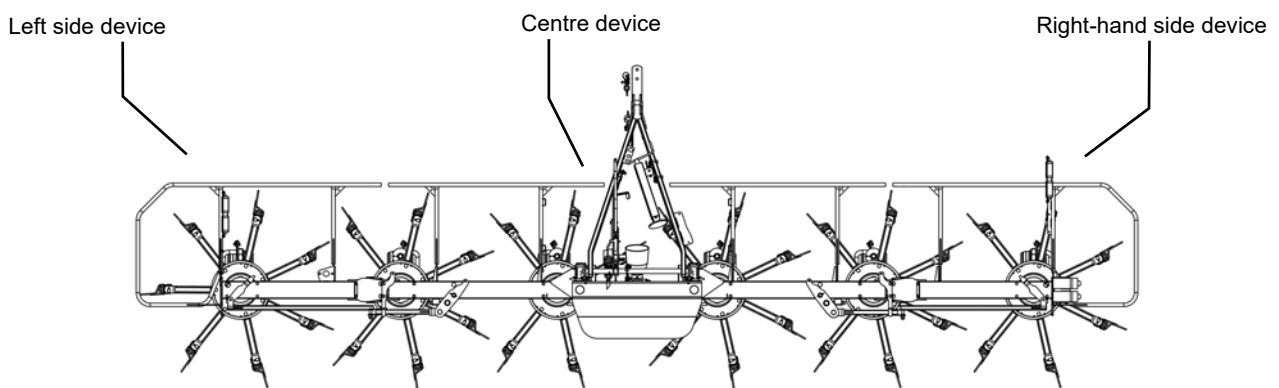
## Checking the alignment of the side devices

The alignment of the side devices is preset in the factory. Before using the machine for the first time, check that, when both side devices are folded out in the work position, they are positioned in a straight line in relation to the centre device.

If the side devices are not positioned in a straight line in relation to the centre device when they are folded out, they must be correctly aligned.

► Please contact your dealer.

→ See »Aligning the side devices«, page 76.



Correct alignment of the machine in work position



## Safety

The following applies to all preparations for operation:



### WARNING

#### Observe the safety information

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

#### Securing the machine

Secure the machine against accidental starting and rolling away. Use wheel chocks. The machine must stand on a level, firm and secure surface and be supported during the work, if necessary. Unsecured or non-supported machines can cause accidents. Serious or fatal injury may be caused if these guidelines are not followed.

#### No persons in the working area

Ensure that no persons are present in the slewing and working area of the machine. Persons could be caught by the machine within this area. Serious or fatal injury may be caused if these guidelines are not followed.

#### Avoid the hazard area

The rotors are considered a hazard area. Do not stand in the hazard area. The rotors may lower or turn. Serious or fatal injury may be caused if these guidelines are not followed.

## General

**The following applies when performing all adjustment work:**

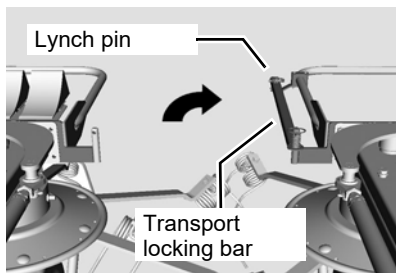
- ▶ Secure the machine.
- ▶ Check the tyre pressures.
- ▶ Fold the machine into its work position.
- ▶ Make the settings.

**The following work steps are described in this section:**

- Release the transport locking bar.
- Fold the machine into its work position.
- Working depth.
- Adjust rotor pitch.

# Preparation work

## Releasing the transport locking bar



Release the transport locking bar at the rear of the machine before it is moved to the work position.

- ▶ Release the lynch pin on the transport locking bar.
- ▶ Swivel the transport locking bar into its park position.
- ▶ Refit the lynch pin.



When the tractor is reversing or travelling on public roads in the transport position, the transport locking bar must be refitted so that the side device can be connected.

## Folding the machine into the work position

### **WARNING**

#### **Observe the contour of the terrain**

Move the implement onto a flat surface or uphill before changing from transport to work position. Avoid inclines on which the combination (tractor and implement) could slip or overturn. The side device can swivel out uncontrollably. This could damage the implement. There is an increased risk of tipping and injury in a position at right angles to the direction of the slope.

#### **No persons within the slewing range**

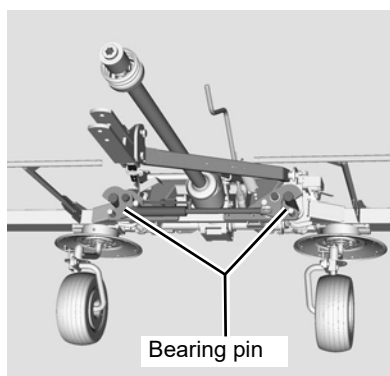
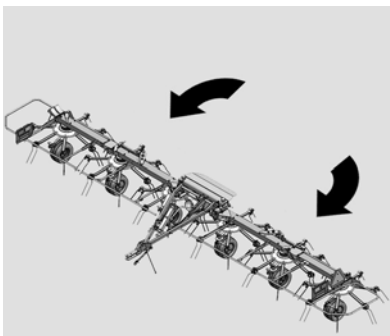
No persons may be present within the folding range and working area. Persons may be caught by the implement. Serious or fatal injury may be caused if these guidelines are not followed.

#### **On slopes, only change the position with the implement facing uphill**

On slopes, the implement must only be moved from work to transport position (and vice versa) when it is facing uphill. Sideways to the slope, the implement can slew out uncontrollably and cause serious personal injuries and damage to the implement.

#### **Unfold fully and evenly**

Ensure that the side devices are evenly unfolded. If there is a malfunction, fold the side devices back in and repeat the process at a higher engine speed. The hydraulic cylinders must be completely extended in the work position. Otherwise, damage may be caused to the implement.



- ▶ Use the tractor's hydraulic control unit to bring the implement into the work position. At the same time, drive forward a few metres until the locks on the centre device engage in the bearing pins.
- ▶ Check the position of the side devices.
- ▶ See »Checking the alignment of the side devices«, Seite 40.

- ▶ Couple the machine to the tractor.
- See »Coupling the machine«, page 32.



- ▶ Set the tractor's hydraulic control devices to the floating position.



- ▶ Switch off the tractor and secure it.

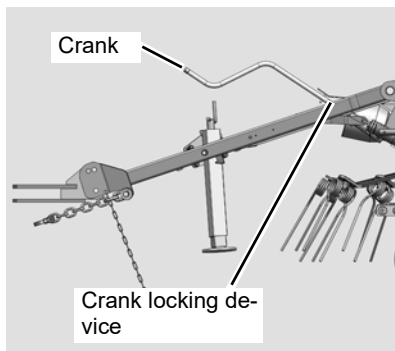


- ▶ Close the ball valve.

Connect the machine's hydraulic couplings to the connections on the double-acting control devices.

# Preparation work

## Adjusting the working depth



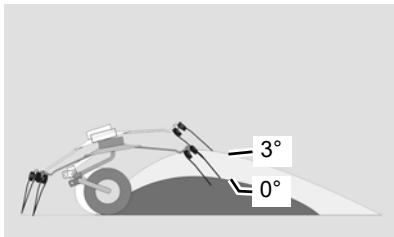
The clearance of the tines from the ground is adjusted in the work position via the crank.

- ▶ Use the tractor's hydraulic control device to move the machine into its work position.
- ▶ Drive forward approximately 2 metres (6.5 ft) until the running wheels are correctly aligned.
- ▶ Release the crank locking device.
- ▶ Adjust the working depth using the crank.
- ▶ Secure the crank with the crank locking device to ensure it does not twist.



The tines should lightly touch the ground.

## Adjusting the rotor pitch

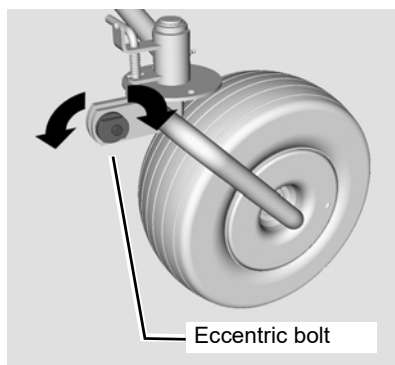


The rotor pitch determines how far the crop is ejected from the rear. Using the eccentric bolt on the wheel, allow the running wheel axles to move by 3° (infinitely variable).

All wheels must be set the same. The flatter the rotor pitch, the better the crop pick-up.

Adjust rotor pitch in the work position as follows:

- ▶ Using a spanner (WAF 30), turn the eccentric bolt until you achieve the required rotor pitch equally on all running wheels.
- ▶ Check the working depth and adjust if necessary.



Check the position of the tines. Reset the tines where required.

- ▶ Check the tine position.

→ »Additional equipment«, Seite 72

## Checking the tine position

## Safety

Before transporting the machine on public roads, please read the following safety information. Compliance is mandatory and will help you to avoid accidents.

### **WARNING**

#### **Observe the safety information**

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

#### **Ensuring road safety**

The machine must conform to current national traffic regulations if you intend to drive with it on public roads. Ensure the following:

- Lighting, warning and protective equipment must be fitted.
- The permissible transport widths and weights, axle loads, tyre load-bearing capacities, laden weights and national speed restrictions must be complied with.
- The maximum permissible road transport speed must be complied with, but not exceed 40 km /h (25 mph).
- Before driving on public roads, fold in all guard bars and rotors and secure the machine. All tine supports which have tips that point at right angles to the direction of travel and which are at a height of less than 2 metres must be removed.
- The machine should only be towed by agricultural or forestry tractors.
- The empty weight of the tractor must be greater than the weight of the machine.

The driver and keeper of the vehicle are liable should these conditions not be observed.



#### **Close the ball valve**

Close the ball valve before driving on the road. If the ball valve is open and there is an operating error, the machine may drop or swing out unexpectedly. Otherwise, traffic accidents and accidents with fatal injuries may be caused as a result.

#### **Clean the machine before travelling on the road**

Before any road transport, remove any coarse dirt, crop residues and clods of earth and clean the machine. Crop residues or dirt that drop onto the road can cause slippery road conditions. Otherwise, traffic accidents and accidents with fatal injuries may be caused as a result.



## WARNING

### **Observe transport width**

Observe the permissible transport widths. Put the machine in the transport position and attach lights, warning signs and protective devices. The driver and keeper of the vehicle are liable for any non-compliance with national traffic regulations.

### **Clean lighting equipment before travelling on the road**

All lighting equipment must be cleaned before road transport. Crop residue or dirt may cover up the lighting equipment and adversely affect its correct operation. Otherwise, traffic accidents and accidents with fatal injuries may be caused as a result.

### **Observe the slewing range**

The rear wheel of the tractor should not come into contact with the drawbar when cornering. This may happen when turning sharply. Unsuitable driving behaviour can cause serious damage to the machine.

### **Observe the contour of the terrain**

Move the machine onto ground that is as flat as possible before changing from the working to the transport position. Avoid inclines on which the combination (tractor and machine) could slip or overturn. There is an increased risk of tipping and injury in a position at right angles to the direction of the slope.

## General

### **The following work steps are described in this section:**

- Prior to road transport.
- Bring the machine into the transport position.
- Release the locking mechanism on the running wheels.
- Secure the machine.

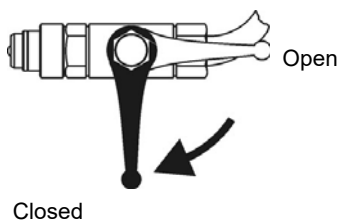
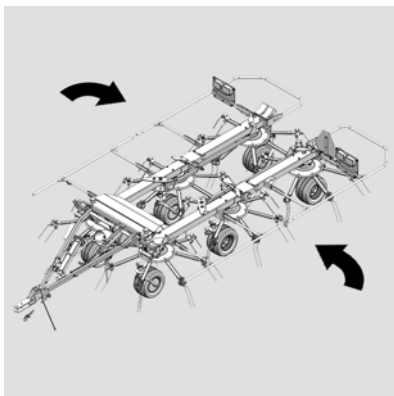
## Prior to road transport

When driving on the road, the machine must be in the transport position. The following steps are necessary to bring the implement into the transport position:

- ▶ Remove any crop residues and coarse dirt.
- Release the locking mechanism on the running wheels.

# Road transport

## Folding the machine into the transport position



When driving on the road, the machine must be in the transport position.

### **WARNING**

#### **Observe the contour of the terrain**

Move the implement onto a flat surface or uphill before changing from work to transport position. Avoid inclines on which the combination (tractor and implement) could slip or overturn. The side devices can swivel unevenly. This could damage the implement. There is an increased risk of tipping and injury in a position at right angles to the direction of the slope.

#### **No persons within the slewing range**

No persons may be present within the folding range and working area. Persons may be caught by the implement. Serious or fatal injury may be caused if these guidelines are not followed.

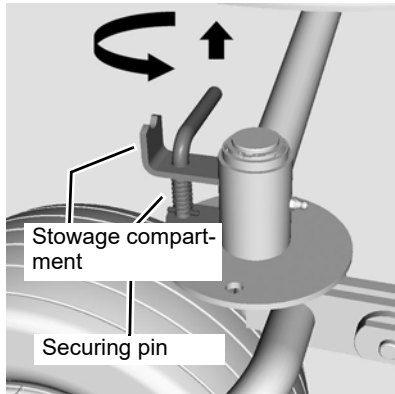
#### **Folding up the implement completely**

Ensure that the implement is always completely folded up. Never drive with a partially folded side device. This could lead to accidents and personal injury.

- ▶ Switch off the tractor PTO stub shaft drive.
- ▶ Use the tractor's hydraulic control unit to bring the implement into the transport position.
- ▶ Drive a short distance forward to align the side devices, so that they are positioned parallel to one another.
- ▶ Switch off the tractor engine and secure the tractor.
- ▶ Remove the ignition key.
- ▶ Close the ball valve.



## Release the running wheel locking mechanism



### **WARNING**

#### **Release the running wheel locking mechanism**

Before the machine is folded into the transport position, ensure that the running wheels are not locked. Damage to the machine may be caused as a result.

#### **To release the running wheel locking mechanism:**

Before the implement is folded into the transport position, ensure that the running wheels are not locked. Damage to the implement may be caused as a result.

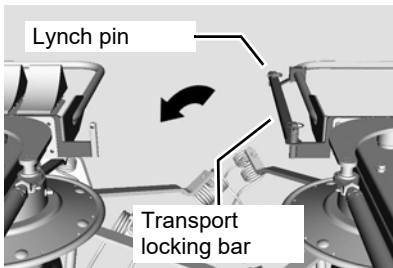
- ▶ Raise the securing pins for all running wheels and engage them in the recess.

The running wheel locking mechanism for all wheels is released. The caster function for all running wheels is available for use.

→ See also »Securing the running wheel locking mechanism«, page 55

# Road transport

## Securing the machine



In transport position, connect the two side devices using the transport locking bar.

- ▶ Release the lynch pin on the transport locking bar.
- ▶ Swivel the transport locking bar into its secured position.
- ▶ Refit the lynch pin.

## Checking the machine

**Prior to driving on the road, check the machine against the check list:**

- Tractor's PTO stub shaft drive switched off?
- Side devices completely folded in?
- Side devices secured with the transport locking bar?
- Tractor control system for hydraulics "OFF"?
- Ball valve on hydraulic coupling closed?
- Tyre pressures correct?
- Crop residues and dirt removed?
- Lighting cables and hydraulic hoses routed so that they are not strained and cannot be caught by the tractor's wheels when cornering?
- Lighting equipment in good working order?

## Road transport



### WARNING

**Follow the instructions below for road transport. Otherwise, traffic accidents and accidents with fatal injuries may be caused as a result.**

- ▶ Before pulling away, check the immediate vicinity. Always make sure that you have a clear field of vision and, in particular, look out for children within the operating area of the machine.
- ▶ When the vehicle is in motion, lock the control devices on tractor.
- ▶ Do not transport people or objects on the machine.
- ▶ Adjust your speed to road conditions.
- ▶ Do not exceed a maximum speed of 40 km/h (25 mph). Comply with the national speed limits.
- ▶ Ensure sufficient steering and braking capability. Driving characteristics, steering, and braking capability are all influenced if the machine is coupled (increased braking distance as a result of greater inertia).
- ▶ There is a danger of tipping on slopes and if corners are taken too fast. Ensure that you drive in a careful manner that is adapted to the road conditions.
- ▶ Drive around corners at a suitable speed. There is a risk that the trailed machine may swing out if corners are driven around at speed.

## Safety

The following applies for all work on the field:

### **WARNING**

#### **Observe the safety information**

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.



#### **Switch off the tractor and secure it**

Before you dismount:

- ▶ Switch off the tractor.
- ▶ Remove the ignition key.
- ▶ Secure the tractor against rolling away.

An unsecured tractor can run you over or trap you. Serious or fatal injury may be caused if these guidelines are not followed.

#### **No persons in the working area**

Ensure that no persons are present in the slewing and working area of the machine. Persons could be caught by the machine within this area. Serious or fatal injury may be caused if these guidelines are not followed.

#### **No riding on the machine**

Persons or objects must never be transported on the machine. Carrying passengers on the machine is life-threatening and prohibited. Serious or fatal injury may be caused if these guidelines are not followed.

#### **Maximum PTO stub shaft speed 540 rpm**

The PTO stub shaft speed must not exceed 540 rpm and must be adapted to the condition of the crop. Higher revolution rates can cause damage to the machine.

#### **Only allow the PTO shaft clutch to respond for a short time**

Do not allow the slip clutch to respond for longer than 10 seconds. If the clutch responds for a longer period of time, it will become worn and the disconnect torque will drop.

#### **Do not compress the PTO shaft**

The PTO shaft between the tractor and machine must not be compressed when in the work or transport position. If compressed, PTO shafts can cause damage to the machine and tractor.

#### **Observe the contour of the terrain**

Pay even more attention when driving on an incline. Avoid inclines on which the combination (tractor and machine) could slip or overturn. There is an increased risk of tipping and injury in a position at right angles to the direction of the slope.

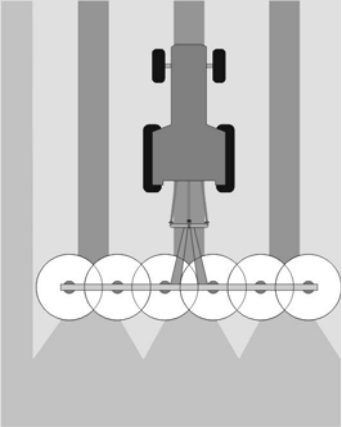
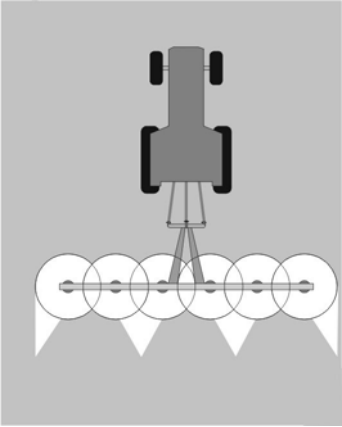
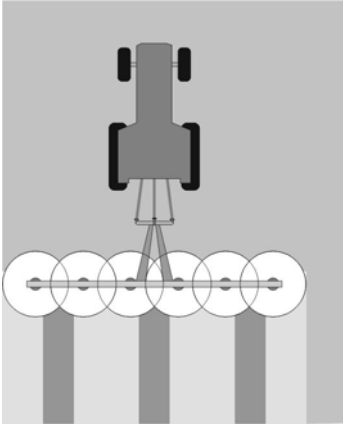
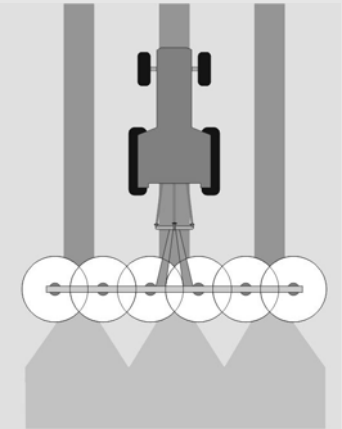
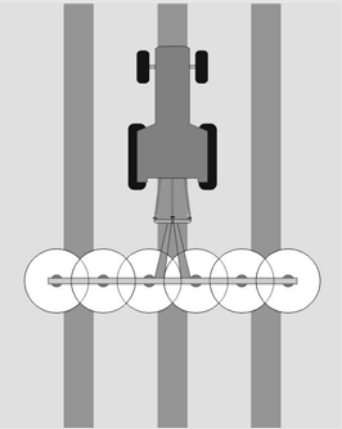
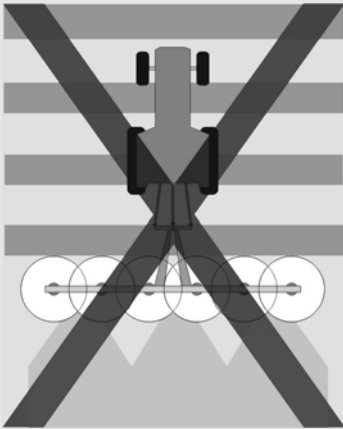
#### **No reverse travel in the work position**

Do not reverse in the work position. The machine could tip over. Otherwise, the machine may be damaged as a result.

## Crop processing

The following methods of crop processing are possible with the rotary tedder:

- Tedding.
- Turning.
- Night swath laying.
- Swath laying
- Night swath turning.

Tedding	Turning	Night swath laying
		
<p>When tedding, the freshly cut crop is distributed over the swath.</p> <ul style="list-style-type: none"> <li>▶ Run the PTO stub shaft at roughly 500 rpm.</li> </ul>	<p>Turning ensures uniform drying of the crop after cutting.</p> <ul style="list-style-type: none"> <li>▶ Run the PTO stub shaft at roughly 400 rpm.</li> </ul>	<p>During night swath laying, the crop is spread and arranged into small swathes.</p> <ul style="list-style-type: none"> <li>▶ Fit the swathing gear.</li> <li>▶ Run the PTO stub shaft at maximum 300 to 400 rpm.</li> </ul>
Swath laying	Night swath turning	Avoid crossing over swathes
		
<p>Swath laying separates out the available swath, which allows it to dry better.</p>	<p>For uniform drying, night swathes can be turned.</p>	<p>Swaths should not be crossed over. This puts uneven stresses on the machine.</p>

# Operation

## Using the machine

Please check during operation:

- PTO shaft speed
- Working speed
- Working at the field edge

## PTO shaft

- ▶ Switch on the tractor's PTO shaft drive at the lowest engine speed.

Select a PTO shaft speed depending on crop processing requirements.

## Working speed

A constant working speed is essential for uniform crop processing. The working speed should be set between 4 km/h and 8 km/h (between 2.5 mph and 5 mph). The working speed depends on ground and crop conditions.

### **WARNING**

#### **Avoid crossing over swathes**

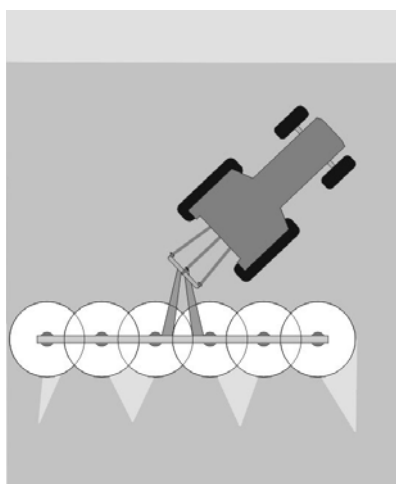
As a general rule, avoid crossing over swathes. The crop is distributed unevenly and the machine is subjected to abrupt stresses. Damage to the machine may be caused as a result.

#### **Allow ample space when driving around obstacles**

Obstacles must be circumnavigated in good time and at a distance. Due to the width and length of the machine, it reacts slowly and tends to overrun. Damage to the machine may be caused as a result.

- ▶ Select a working speed at which the crop is picked up cleanly and completely.

## Cornering



Ensure that, when cornering, the corner radius is not taken too tightly. During tight cornering, the slip clutch can respond too early leading to an uneven spreading pattern.

- ▶ Anticipate cornering in advance.

## Spreading pattern

Depending on the crop, the spreading pattern is changed via the following settings:

- The rotor pitch
- The PTO shaft speed
- The working speed

## PTO shaft speed

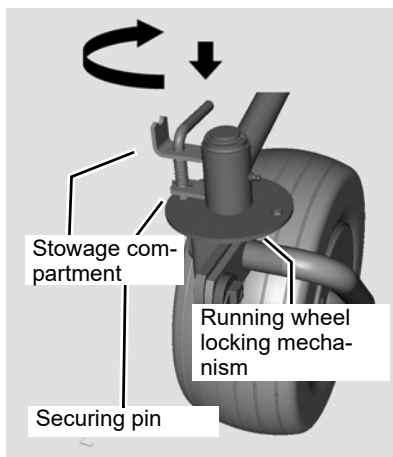
Too high a PTO shaft speed results in shatter losses and swath formation if the crop is dry.

Too low a speed produces swath formation.

## Working speed

Too high a working speed produces an uneven spreading pattern and heap formation.

## Securing the running wheel locking mechanism



The running wheels can be secured to allow uniform work to be carried out on slopes. This adjustment is only possible in the work position. Proceed as follows:

- ▶ Align the running wheels by driving forwards.
- ▶ Turn off the PTO stub shaft.
- ▶ Switch off the tractor engine and secure the tractor.
- ▶ Remove the ignition key.
- ▶ Raise the securing pins for all running wheels and engage them in the running wheel locking mechanism.

→ See also »Securing the machine«, page 50.

The running wheels cannot be turned manually. Align the running wheels by driving forwards when the securing pins are not engaged in the running wheel locking mechanism.

## Safety

The following applies to all cleaning and care work:



### **WARNING**

#### **Observe the safety information**

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

#### **Securing the machine**

- Before starting cleaning operations, always switch off the tractor's PTO shaft drive and secure it against accidental restarting.
- Secure the machine against rolling away by using chocks.
- The machine must be standing on firm and level ground and, if necessary, be supported during the work.

**Unsecured or non-supported machines can cause accidents.**

#### **No persons in the working area**

Ensure that no persons are present in the slewing and working area of the machine. Persons could be caught by the machine within this area. Serious or fatal injury may be caused if these guidelines are not followed.

#### **Do not clean bearings or hydraulic parts with high-pressure cleaners**

Do not clean bearings or hydraulic parts with high-pressure cleaners. The high-pressure cleaner removes the grease film from the bare metal surfaces. Metal surfaces treated in this way can corrode. After each cleaning procedure, lubricate the bearing points and grease uncoated parts.

#### **Clean the bearings and hydraulic parts with care**

Exercise caution when cleaning with a high-pressure cleaner. Bearings, seals and pipe unions are not waterproof. In order to prevent damage to the machine, the bearings, seals and pipe unions must not be exposed to direct contact with the high pressure water jets.



## Cleaning

- ▶ Lower the machine to the work position.
- ▶ After each use, clean the machine of any coarse dirt and crop residues.
- ▶ Do not clean the bearings and piston rods of hydraulic cylinders using a high-pressure cleaner.

## After cleaning

- ▶ Lubricate all bearings after cleaning.

## Care

**For a long service life, we recommend the following:**

- ▶ Apply a protective layer of oil to all uncoated work tools. Only use approved, biodegradable oil, e.g. rapeseed oil.
- ▶ Repair any paint damage.

# Parking and storage

## Setting down the machine in a secure position

When setting down and parking the machine, special safety precautions have to be observed:

### **WARNING**

#### **Observe the safety information**

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

#### **Keep children away from the machine**

Prohibit children from playing on or around the machine. Select a parking area to which no unauthorised persons have direct access. Metal edges and machine work tools can cause serious injury.

#### **Make sure the machine is standing level**

Before changing from the transport to the work position (and vice versa), make sure the machine is standing level. The machine could tip over, particularly on hillside locations. Otherwise, damage to the machine and serious or fatal injury may be caused as a result.

## General

The machine must be uncoupled in the reverse order to that in which it was coupled.

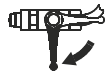
- »Folding the machine into the transport position«, page 48.
- See »Coupling the machine«, page 32.

## Uncoupling and securing the machine



**To uncouple the machine from the tractor, proceed as follows:**

- ▶ Set the machine down on a firm, level surface.
- ▶ Secure the tractor against rolling away, turn off the engine and remove the ignition key.
- ▶ Fold in the parking stand and secure it with pin.
- ▶ Secure the machine against rolling away by using chocks.



- ▶ Close the ball valve and release the hydraulic couplings.
- ▶ Place the hydraulic couplings in the storage pockets.
- ▶ Disconnect the lighting equipment plugs and place them in the storage pockets.
- ▶ Wind the electrical cables onto the hook.
- ▶ Pull off the PTO shaft and place it on the holder provided.
- ▶ Unhitch the machine.

## After the end of the season

**After the end of the season and if the machine is to be stored for a long period of time, perform the following work:**

- ▶ Clean the machine thoroughly.
- ▶ Check all the screw joints and tighten the screws.
- ▶ Repair or replace any damaged components.
- ▶ Repair any paint damage.
- ▶ Lubricate the machine in accordance with the lubrication schedule.
- ▶ Preserve the piston rods of the hydraulic cylinder.
- ▶ Check the tyre pressures.
- ▶ Replace missing warning signs and stickers.



### WARNING

#### **Preserve the piston rods of the hydraulic cylinder**

For winterising or storing, preserve the piston rods of the hydraulic cylinder with grease. Otherwise the piston rods may corrode. Damage to the machine may be caused as a result.

## Safety



### **WARNING**

#### **Observe the safety information**

Observe the safety information. Disregard for safety information can lead to serious or fatal injury. See chapter »For your safety«, page 8.

#### **Requirements for maintenance work**

Only perform the maintenance operations if you have the required expert knowledge and suitable tools. The absence of technical knowledge or suitable tools can cause accidents and injuries.

#### **Protect the machine against unintended starting**

The following conditions must be observed for carrying out repairs and maintenance work and rectifying malfunctions on the machine when it is coupled:

- Switch off the tractor PTO shaft drive.
- Switch off the tractor engine.
- Remove the ignition key.

Serious accidents may be caused if the machine starts unintentionally.

#### **Use OEM replacement parts**

Many components have special properties that are essential for the stability and correct operation of the machine. Only spare parts and accessories supplied by the manufacturer have been tested and approved. Other products may adversely affect the correct operation of the machine and safety. The use of non-OEM replacement parts renders the manufacturer's guarantee null and void and frees the manufacturer from all liability.

#### **Secure moving parts**

Moving parts must be secured with lifting gear against sliding, folding or swivelling. Otherwise, serious injury to persons or damage to the machine may be caused as a result.

#### **Disconnect electrical connections before performing welding work**

Disconnect all electrical connections from the tractor when carrying out welding on the hitched machine. Otherwise, electrical and hydraulic systems will be damaged as a result.

## Protective measures when handling oils or lubricants

Additives in oils and lubricants may have adverse effects on health. Identification in accordance with the hazardous goods regulation is not necessary; however, please always observe the following:



### WARNING

#### Avoid skin contact

Avoid skin contact with these materials. Protect your skin by means of protective skin cream or oil-resistant gloves. Contact can result in skin damage.

#### Do not use oils for cleaning

Do not use oils or lubricants to clean your hands. Swarf and abraded material in these materials can also result in injuries.

#### Change out of soiled clothing

Change out of clothing that is heavily soiled with oil as soon as possible. Oils can be hazardous to your health.



- Used oil must be collected and disposed of.
- If the skin is damaged by oil or lubricant, seek medical advice immediately.

# Maintenance

## General

This information relates to general servicing work. For any maintenance work, the machine must be in the work position and be secured in place. If the transport position is required, find the relevant instructions.

- ▶ Lower the machine to the work position.
- ▶ Secure the machine against rolling away by using chocks.

## Direction information

Direction information (right, left, front, rear) is given in relation to the direction of travel.

### Rotary direction is defined as follows:

- Rotary direction right = clockwise.
- Rotary direction left = counterclockwise.
- Rotation about a vertical axis, viewed from top to bottom.
- Rotation about a horizontal axis, viewed at right angles to the direction of travel, from left to right.
- The rotation of screws and nuts, etc. is always viewed from the operating side.

## Maintenance terms

Listed in this table are short explanations of the most important maintenance terms.

Task	Explanation
Greasing	Apply grease to the slide surfaces using a brush.
Lubrication	One or two presses of the grease gun, unless specified otherwise.
Oiling	Unless specified otherwise, use only plant-based oils, such as rapeseed oils. The use of used oil will endanger your health and is also strictly prohibited.
Replacement	Replace the appropriate part in accordance with the instruction in the Maintenance chapter.
Inspection	Check the tyre pressures, adjustment dimensions and seal tightness as required, and replace any worn parts or seals.
Observe the maintenance intervals	The specifications relate to an average usage of the machine. If subjected to heavier duty (e.g. by contracting companies), select maintenance intervals which are shorter. Also, for extreme working conditions (for example heavy dust creation), shorter maintenance intervals are possible.

## Maintenance intervals

	After 5 hours of operation	Daily	After 20 hours of operation	After 50 hours of operation	After 250 hours of operation	Once per season	After heavy use	As required	In case of wear	Lubrication	Greasing	Inspection	Replacement	Cleaning	Page
<b>General</b>															
All screws	●					●		●							64
Visual inspection		●					●					●			
Bearing				●			●			●					66
Hose connections						●						●			
Tyre pressure		●						●				●			70
Lighting equipment								●				●		●	
Lubrication points for grease				●				●			●	●		●	66
<b>Hydraulics</b>															
Hydraulic hoses every 6 years						●		●					●		71
Hydraulic cylinders						●	●	●				●			
Hydraulic couplings								●						●	
<b>PTO shafts</b>															
Single joints		●		●		●	●			●					66
PTO shaft guard		●			●	●				●		●			69
Profile section tube		●		●		●					●				69
<b>Gear box</b>															
Rotor gear								●				●			68
Angular gear box								●				●			68

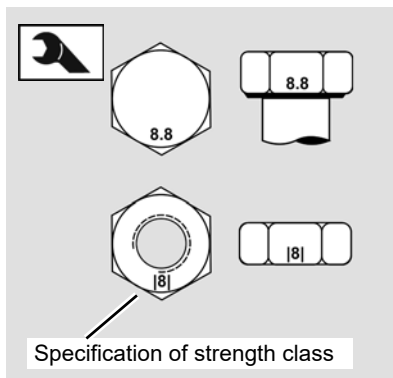
## Lubricant

Lubricant used on this machine must meet the following requirements:

Lubricant	Specifications
Gear oil	SAE 90 API-GL-4 or 5
e.g.: KUBOTA HEAVY DUTY 80W-90 GEAR OIL	
Grease	NLGI GC/LB
e.g.: KUBOTA Polyurea Grease	

# Maintenance

## Screw tightening torques



### **WARNING**

#### Use the correct screw and bolt tightening torques

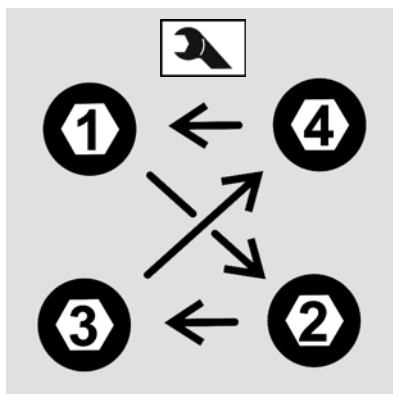
Securely tighten screws, nuts and bolts to the specified torques. Otherwise, damage to the machine and serious or fatal injury may be caused as a result.

Note the strength class specification for screws, nuts and bolts. Refer to the table for the corresponding tightening torque. Securely tighten screws, nuts and bolts to the specified values, provided that no other value is specified. The torque specifications refer to a dry coefficient of friction (0.12).

Bolt size	Bolt quality		
	8.8	10.9	12.9
<b>M 6</b>	9.9 Nm (7.3 ft.lbs)	14 Nm (10.3 ft.lbs)	17 Nm (12.5 ft.lbs)
<b>M 8</b>	24 Nm (18 ft.lbs)	34 Nm (25 ft.lbs)	41 Nm (31 ft.lbs)
<b>M 10</b>	48 Nm (36 ft.lbs)	68 Nm (51 ft.lbs)	81 Nm (60 ft.lbs)
<b>M 12</b>	85 Nm (63 ft.lbs)	120 Nm (89 ft.lbs)	145 Nm (107 ft.lbs)
<b>M 14</b>	135 Nm (100 ft.lbs)	190 Nm (140 ft.lbs)	230 Nm (166 ft.lbs)
<b>M 16</b>	210 Nm (155 ft.lbs)	290 Nm (214 ft.lbs)	350 Nm (258 ft.lbs)
<b>M 20</b>	410 Nm (302 ft.lbs)	580 Nm (428 ft.lbs)	690 Nm (509 ft.lbs)



Tighten safety bolts and lock nuts to a 10% higher value.

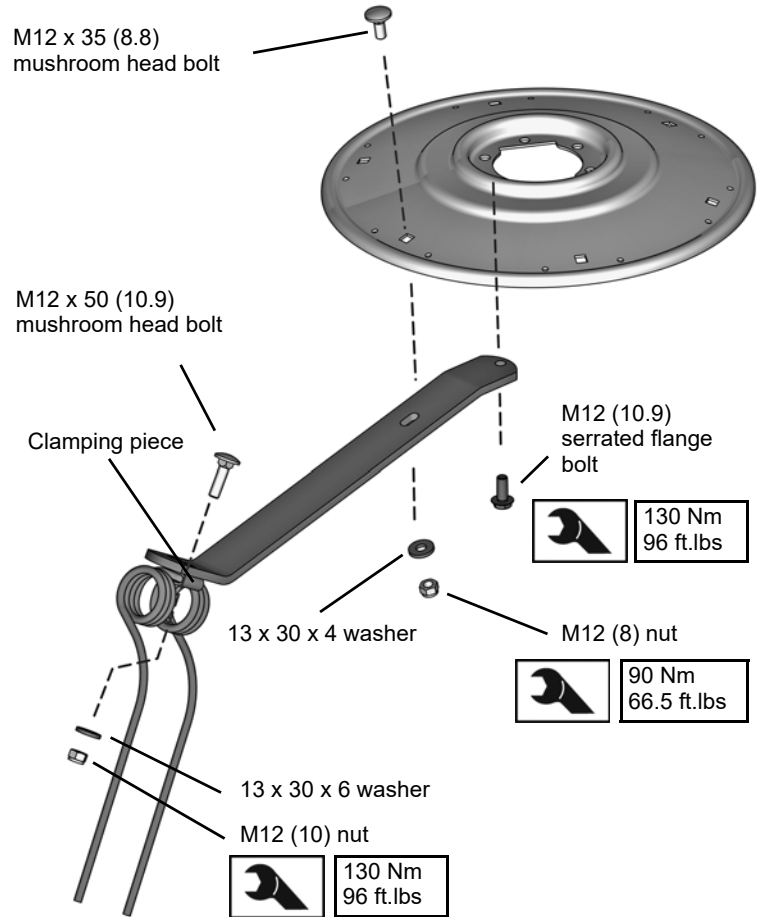


On a level surface, tighten the bolts evenly, alternating between the bolts. This ensures that the connection is distortion-free. Damage to the machine may be caused as a result.

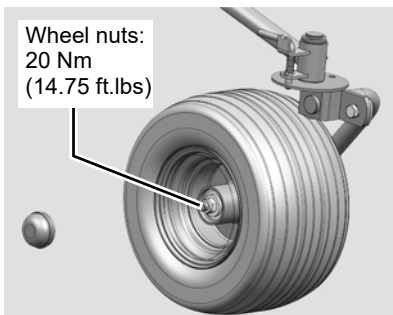


## Special tightening torques

Observe the special tightening torques for the following screwed connections:



- Inner tine arms: 130 Nm (96 ft.lbs)
- Outer tine arms: 90 Nm (66.5 ft.lbs)
- Spring tines: 130 Nm (96 ft.lbs)
- Wheel nuts on the rotor chassis: 20 Nm (14.75 ft.lbs)



# Maintenance

## Lubrication points for grease

### Working with a grease gun

Before applying the grease gun

- Clean the lubricating nipple on the machine and the attachment fitting on the grease gun.

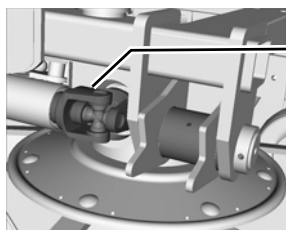
Lubricate the bearings with one or two presses of the grease gun. If you feel resistance at the second press, do not press a second time. Too much grease will force the bearings apart. This could allow dust and dirt to enter the bearing, resulting in premature wear.



Lubrication points are marked with an information label. If any labels are illegible or have been lost, it is possible to order new labels as replacement parts and affix them to the implement.

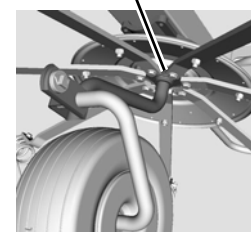
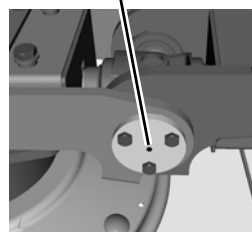
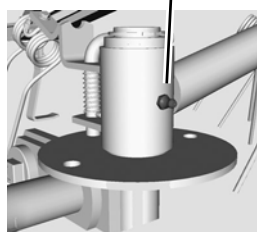
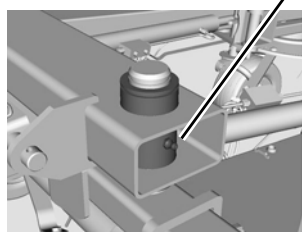
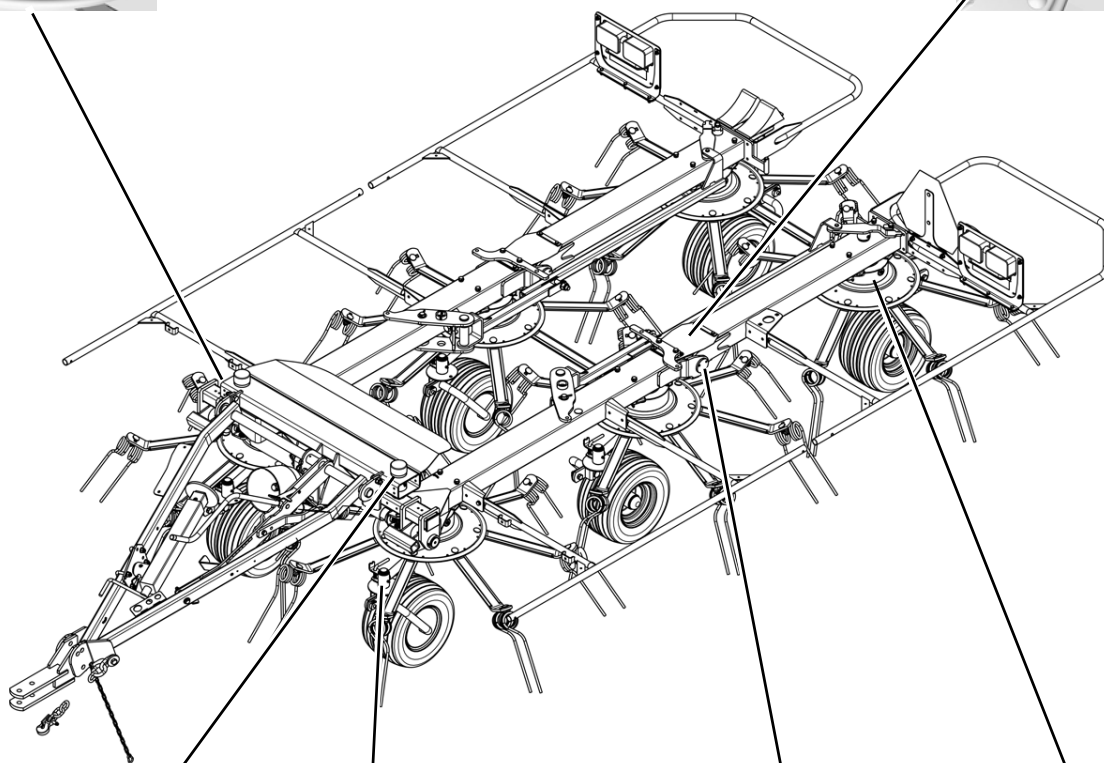
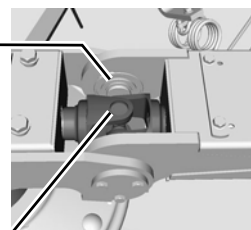
Lubricate the places listed in the illustration as follows:

- after 30 hours of operation.
- before and after the season.
- each time after cleaning with a high-pressure cleaner.



Lubricate the single universal joint in the work position

Single universal joint on both side devices



## Lubrication points for oil lubrication

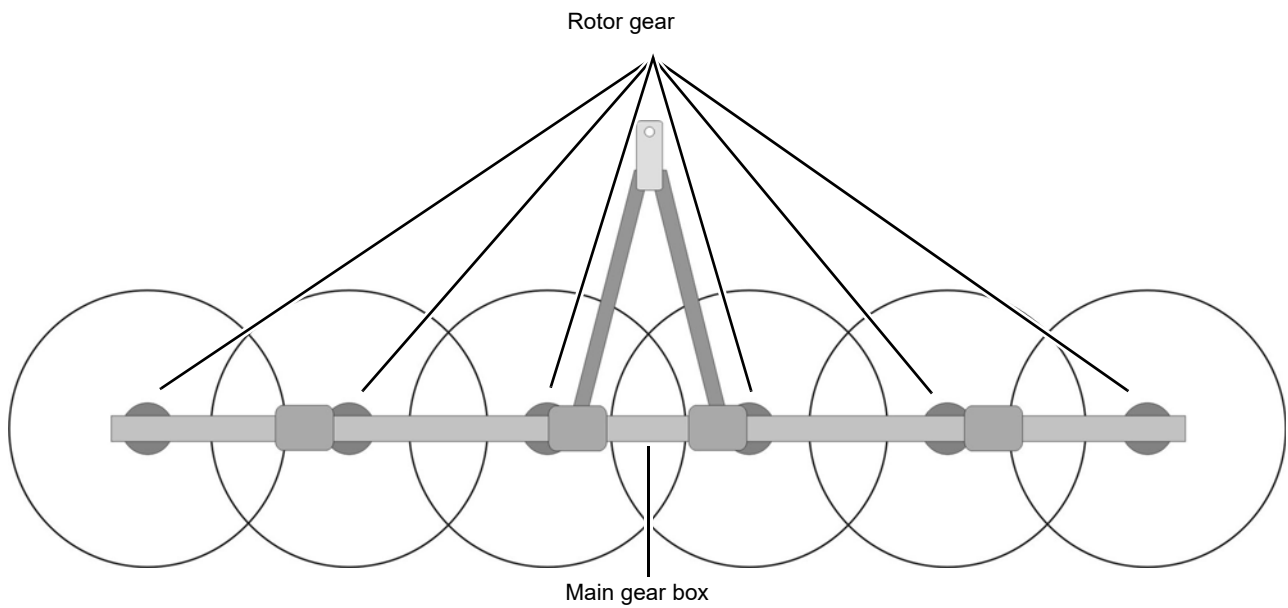
Check the oil level of the main gear box and rotor gears regularly.

→ »Main gear box«, page 68

→ »Rotor gear«, page 68

The gear boxes must be checked and, if there is visible oil loss, refilled.

The points shown in the picture indicate the position of the gearboxes:



# Maintenance

## Filling quantities



### WARNING

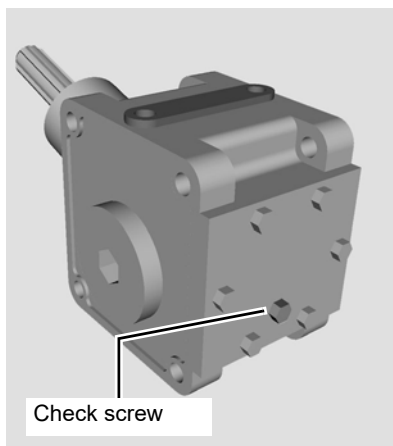
#### Observe the correct fill quantities

Observe the correct lubricant fill quantities. Check them regularly. A lubricant level which is too low or too high may result in damage to the machine.

The main gear box and rotor gear require no maintenance. Check the lubricants if there is visible loss of lubricant when the machine is in a horizontal position – at least once per season. If there is a visible loss of lubricant, consult your dealer.

Gear box	Fill quantity
Main gear box	1.2 l (1.3 US qt) SAE 90 API-GL-4 or 5
Rotor gear	0.2 l (0.2 US qt) Semi-fluid grease NLGI GC/LB

## Main gear box

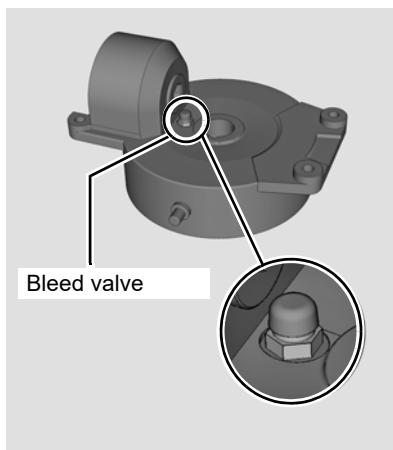


The maintenance-free main gear box is filled ex works with sufficient oil.

#### Checking:

- ▶ Ensure the machine is level.
- ▶ Undo the check screw completely.
- ▶ Check the oil level.
  - Correct oil level: bottom edge of check screw hole.

## Rotor gear



The maintenance-free rotor gear is supplied ex works with sufficient semi-fluid grease.

#### Checking:

- ▶ Ensure the machine is level.
- ▶ Undo the bleed valve completely.
- ▶ Check the lubricant level.
  - Correct fill level: lubricating film present in the gear box.

## Lubricating the PTO shafts

The manufacturer's own operator's manual is included with each PTO shaft. This includes detailed information on the relevant version of the PTO shaft.

### WARNING

#### Check the guard components

Check all guard components of the PTO shafts for wear or damage (visual inspection). Replace any defective guard components. An unguarded PTO shaft or damaged guard components can cause very serious injuries during operation.

#### Lubricate the single joints (G) and their couplings as follows:

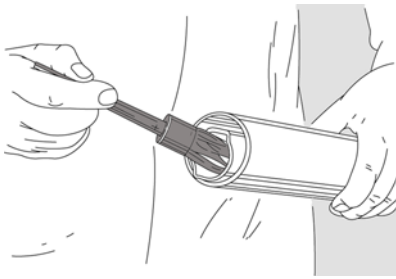
- after 50 hours of operation.
- before and after the season.
- each time after cleaning with a high-pressure cleaner.

#### Grease the profile section tubes (P):

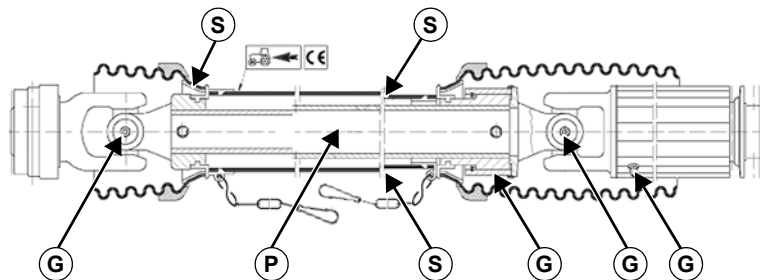
- daily.
- after 50 hours of operation.
- before and after the season.
- each time after cleaning with a high-pressure cleaner.

#### Lubricate the guard (S) as follows:

- after 250 hours of operation.
- before and after the season.
- each time after cleaning with a high-pressure cleaner.



## Single universal shaft for the lower hitch



## Slip clutch



### Slip clutch:

The slip clutch requires no maintenance.

## Tyres



### WARNING

**Do not drive with worn or damaged tyres**

Replace worn or damaged tyres immediately. There is a high risk of accident when driving on the road with such tyres.

## Tyre pressure

**Check the tyre pressures on a regular basis:**

- Daily
- Before any road transport
- As required (for example before setting the tine height)
- before and after the season

Tyre size	Tyre pressure
16 x 9.50 - 8 6PR	2.3 bar (34 psi)

## Hydraulics

### **WARNING**

#### **Hydraulic system at zero pressure**

Work must only be performed on the hydraulic system if the tractor and machine hydraulic system is at zero pressure. A pressurised hydraulic system can trigger unforeseen movements on the machine and can cause serious machine damage and personal injury. Serious or fatal injury may be caused if these guidelines are not followed.

#### **Exercise caution when welding**

Do not perform any welding work in the vicinity of the hydraulic hoses. Hydraulic oil can catch fire very easily.

#### **Clean hydraulic system**

Close or disconnect the quick couplings with great care. Remove any dirt or air which has entered the hydraulic system. The hydraulic system may otherwise be seriously damaged. Material damage or personal injury may be caused as a result.

#### **Collect escaping oil**

Escaping oil must be collected and disposed of in accordance with national regulations. Otherwise, damage may be caused to the environment.

## Hydraulic hoses

### **WARNING**

#### **Replace hydraulic hoses every six years**

Hydraulic hoses age without showing externally visible signs. Replace hydraulic hoses every six years. Defective hydraulic lines can cause serious or fatal injuries.

#### **To replace the hydraulic hoses:**



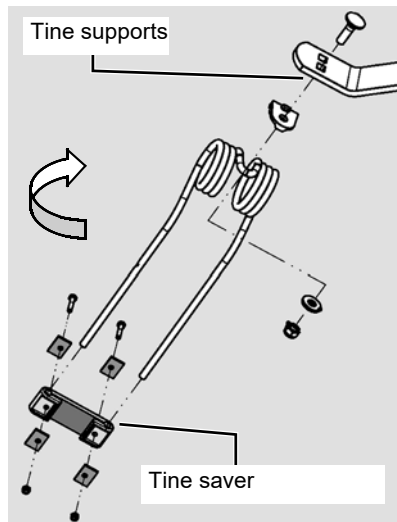
- ▶ Lower the machine to the work position.
- ▶ Depressurise the system.
- ▶ Switch off the tractor.
- ▶ Remove the ignition key.
- ▶ Disconnect the hydraulic hoses.
- ▶ Replace hydraulic hoses.

# Additional equipment

## Available options

Optional additional equipment does not form part of the standard scope of delivery, and is indicated by a plus symbol [+]. Additional equipment is available to order from your dealer.

### Tine saver



If tines are broken, the tine savers can prevent the broken-off part from being lost. Broken-off tine parts in the crop may damage machines that are following behind.

- The flexible plastic holders can be easily attached and released again.
- One tine saver is required for each tine.

► Fit the tine saver as illustrated.

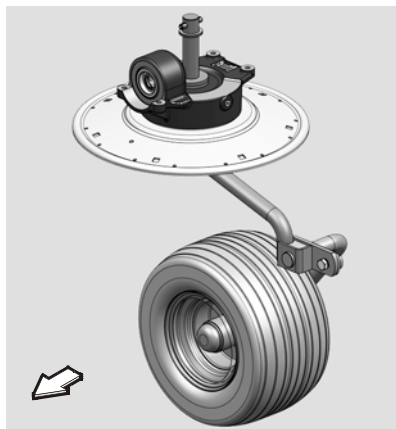


For a good crop pickup, both tine legs must be parallel after fitting the tine saver.

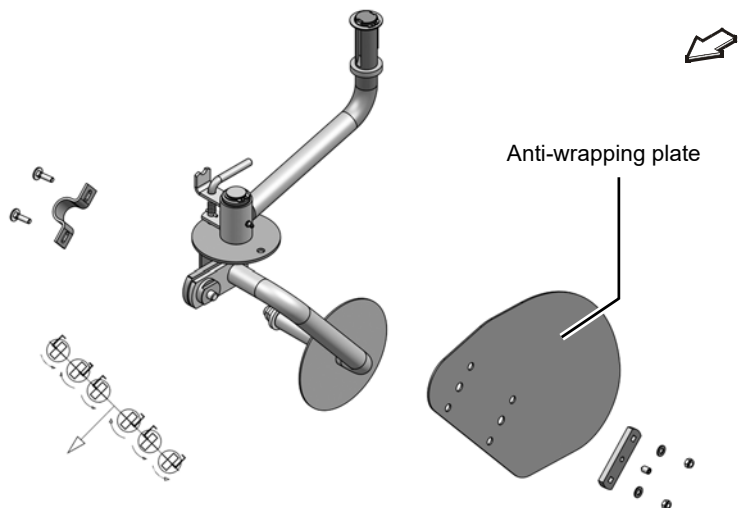


If the tine saver is overtightened, the tine legs become splayed.

### Anti-wrapping plate



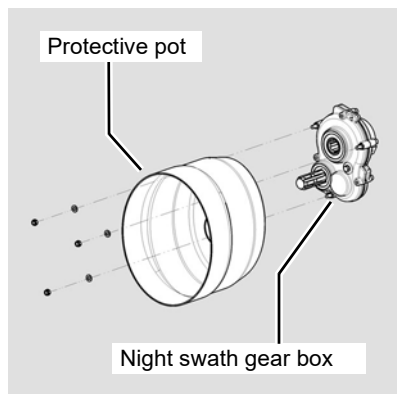
The anti-wrapping plate ensures a perfect, uniform feed flow. It prevents the fodder from wrapping around the running wheel axles.



- The anti-wrapping plates are fitted to the running wheel axles in the work position, as shown.



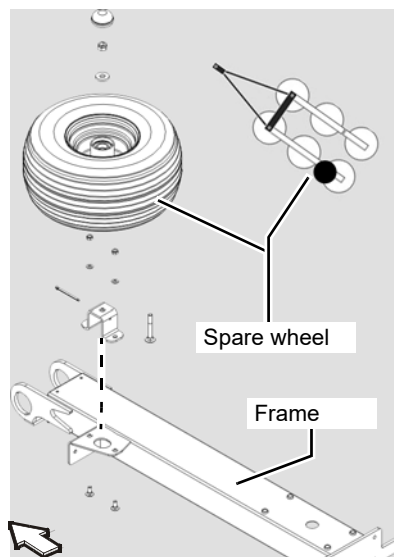
## Swathing gear



The swathing gear reduces the speed of the PTO shaft. The crop is not spread but deposited between two rotors as a swath.

- ▶ Remove the existing protective pot on the central transmission.
- ▶ Slide the swathing gear with the protective pot onto the central transmission shaft and secure it with a circlip.
- ▶ Secure the swathing gear with a clamping bolt.
- ▶ Fit the PTO shaft on the side shaft end.

## Spare wheel



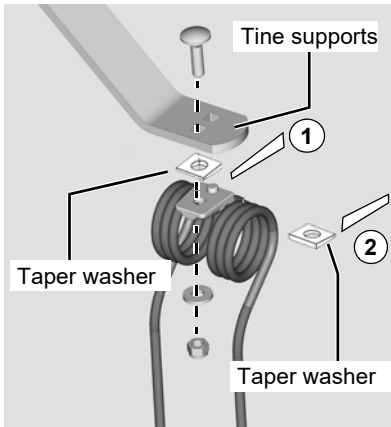
The optionally available spare wheel is fitted to the frame for the right-hand outer device and can replace any of the running wheels.

# Additional equipment

## Tine position

The ejection angle of the spring tines is adjusted by means of taper washers. This function enables consistent, uniform and optimum work results. The smaller the angle, the steeper and more aggressive the tine position.

## Adjusting the tines



### Correct the tine position of each tine:

- ▶ Attach taper washers to tine supports.
- ▶ Angle of tine position (1): gentle ( $8^\circ$ ).
- ▶ Angle of tines without taper washer: Normal ( $4^\circ$ ).
- ▶ Angle of tine position (2): aggressive ( $0^\circ$ ).

## Faults

Faults can often be eliminated quickly and easily. Before contacting Customer Service, refer to the table to check whether you can remedy the fault yourself.

### **WARNING**

#### What to do in the event of a fault

In case of a fault, proceed as follows:

- ▶ Immediately stop operation.
- ▶ Switch off the tractor PTO stub shaft drive.
- ▶ Switch off the tractor and secure it.



The fault must be repaired before work can be resumed. Otherwise, damage to the machine and serious or fatal injury may be caused as a result.

Faults	Causes	Remedy
Rotor is leaving crop behind across the entire width	Working depth set too high	→ »Adjusting the working depth«, Seite 44
Fodder contains a lot of dirt	Working depth set too low	
Machine not operating cleanly at high speed	Rotor tines set too high	Reduce speed
	Uneven terrain	
	Speed too fast to process the amount of fodder	
Slip clutch responding frequently	Fodder mass too great or irregular	Reduce speed Reduce PTO stub shaft speed
	Working depth set too low	→ »Adjusting the working depth«, Seite 44
Noise production during work	Loose screwed connections or worn-out tine arms.	Check tine arms and screwed connections on tines.
	Broken tines on the tine saver.	Replace the tines.
Side devices do not remain in the transport position	Dirt in the hydraulic system Stop valves do not close	Flush the hydraulic system
	Operating error and ball valve not closed	→ »Securing the machine«, Seite 50
Rear wheel axles lose their adjustment after prolonged parking periods	Hydraulic system not completely bled	Hydraulics for folding together actuated after hitching the machine
		Swivel the machine out and in several times. The hydraulic system bleeds itself.
Machine slides down sideways on slopes	Trailing axles not secured	→
Machine does not run smoothly during road transport	Wheel swing brakes not set correctly	Consult your dealer

# Fault elimination

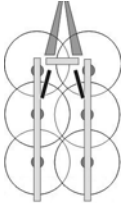
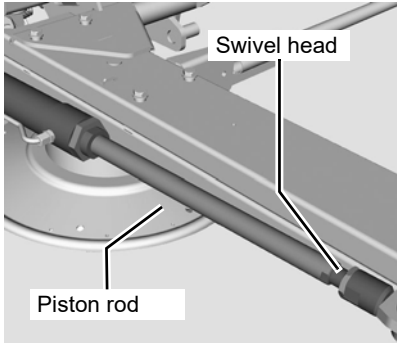
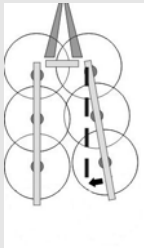
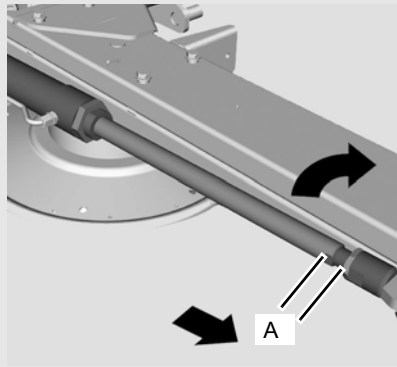
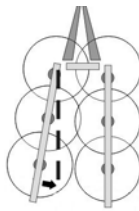
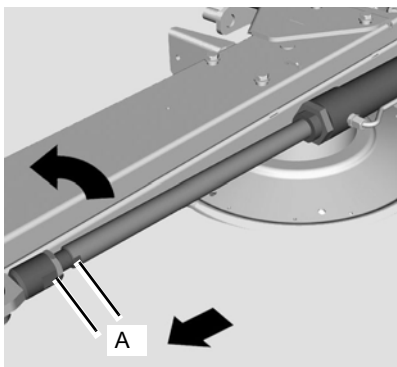
## Aligning the side devices

In the work position, the side devices must always be positioned in a straight line in relation to the centre device. In the transport position, the side devices must move in a straight line behind the tractor.

## Aligning the side devices in the transport position

The alignment of the side devices is first set in the transport position via the swivel head of the hydraulic cylinder. Proceed as follows:



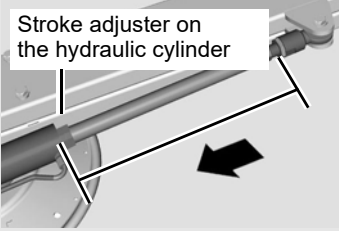
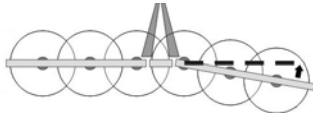
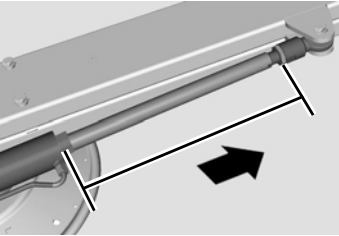

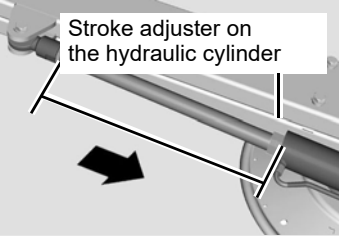
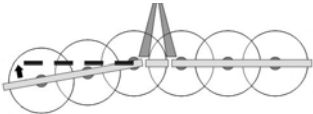
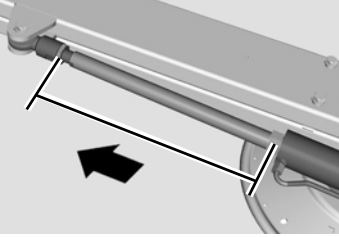
- ▶ Use the tractor's hydraulic control unit to fold the machine into the transport position.
- ▶ Drive forward a few metres until the running wheels are correctly aligned.
- ▶ Use the hydraulic control device to relieve the load on the hydraulic cylinders.
- ▶ Switch off the tractor and secure it.
- ▶ Check the alignment of the side devices.

Position	Solution	
		<p>Correct transport position.</p> <ul style="list-style-type: none"> <li>• The side devices are aligned at 90° to the centre device, and</li> <li>• the side devices are parallel to one another.</li> </ul>
		<p>Reduce the length of the hydraulic cylinder piston rod on the right-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nuts.</li> <li>▶ Turn the piston rod into the swivel head until the right-hand side device is parallel to the left-hand side device (A).</li> <li>▶ Tighten the lock nuts.</li> <li>▶ Check the positioning in the transport and work positions.</li> </ul>
		<p>Reduce the length of the hydraulic cylinder piston rod on the left-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nuts.</li> <li>▶ Turn the piston rod into the swivel head until the left-hand side device is parallel to the right-hand side device (A).</li> <li>▶ Tighten the lock nuts.</li> <li>▶ Check the positioning in the transport and work positions.</li> </ul>

## Aligning the side devices in the work position

The alignment of the side devices is then set in the work position using the swivel head of the hydraulic cylinder. Proceed as follows:

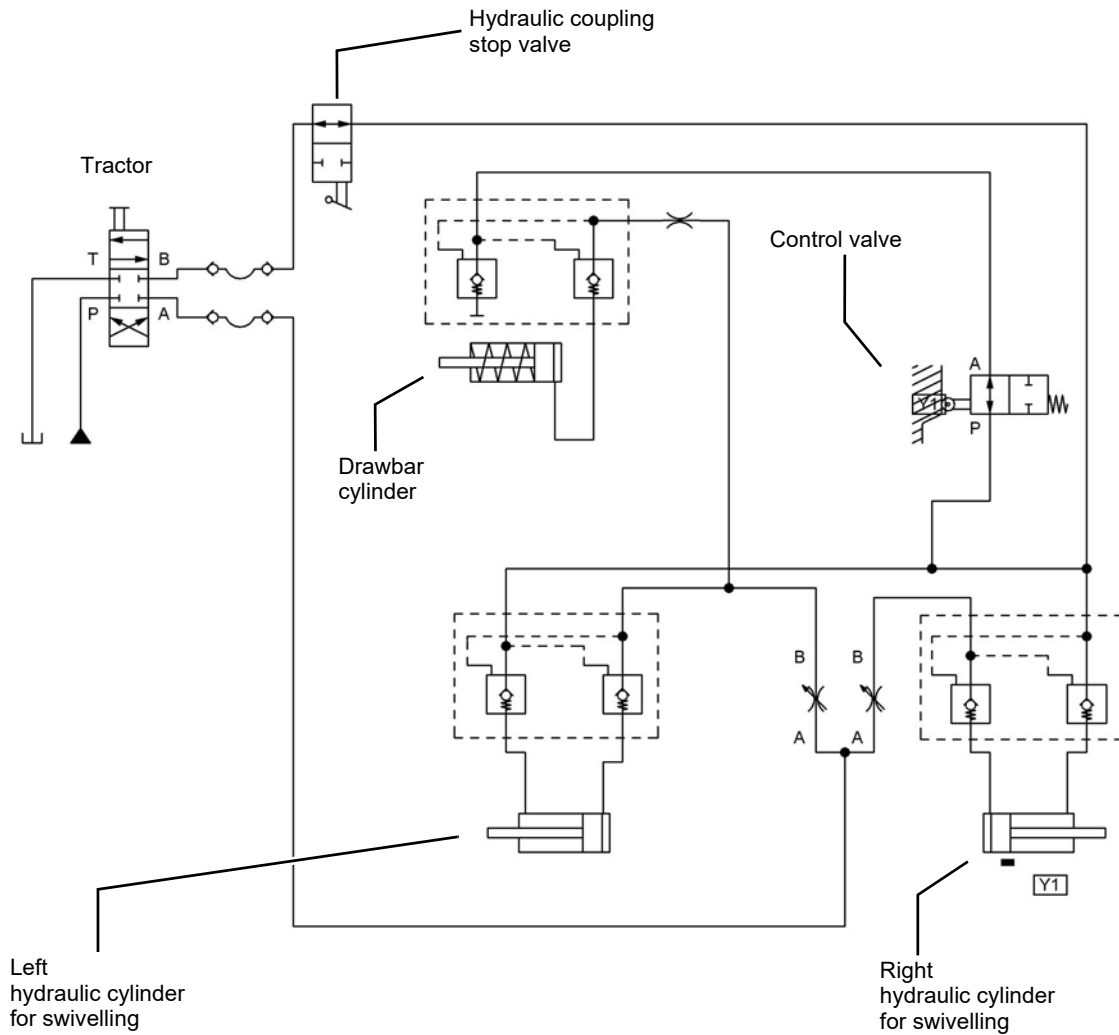
- ▶ Use the tractor's hydraulic control device to move the machine into its work position.
- ▶ Drive forward a few metres until the running wheels are correctly aligned.
- ▶ Use the hydraulic control device to relieve the load on the hydraulic cylinders.
- ▶ Switch off the tractor and secure it.
- ▶ Check if all frame parts are in a straight line.

Position	Solution	
	Correct work position	
		<p>Reduce the stroke of the hydraulic cylinder on the right-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nut.</li> <li>▶ Turn in the stroke adjuster on the hydraulic cylinder.</li> <li>▶ Tighten the lock nut.</li> </ul>
		<p>Increase the stroke of the hydraulic cylinder on the right-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nut.</li> <li>▶ Turn out the stroke adjuster on the hydraulic cylinder.</li> <li>▶ Tighten the lock nut.</li> </ul>
		<p>Reduce the stroke of the hydraulic cylinder on the left-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nut.</li> <li>▶ Turn in the stroke adjuster on the hydraulic cylinder.</li> <li>▶ Tighten the lock nut.</li> </ul>
		<p>Increase the stroke of the hydraulic cylinder on the left-hand side device.</p> <ul style="list-style-type: none"> <li>▶ Undo the lock nut.</li> <li>▶ Turn out the stroke adjuster on the hydraulic cylinder.</li> <li>▶ Tighten the lock nut.</li> </ul>

# Circuit diagrams

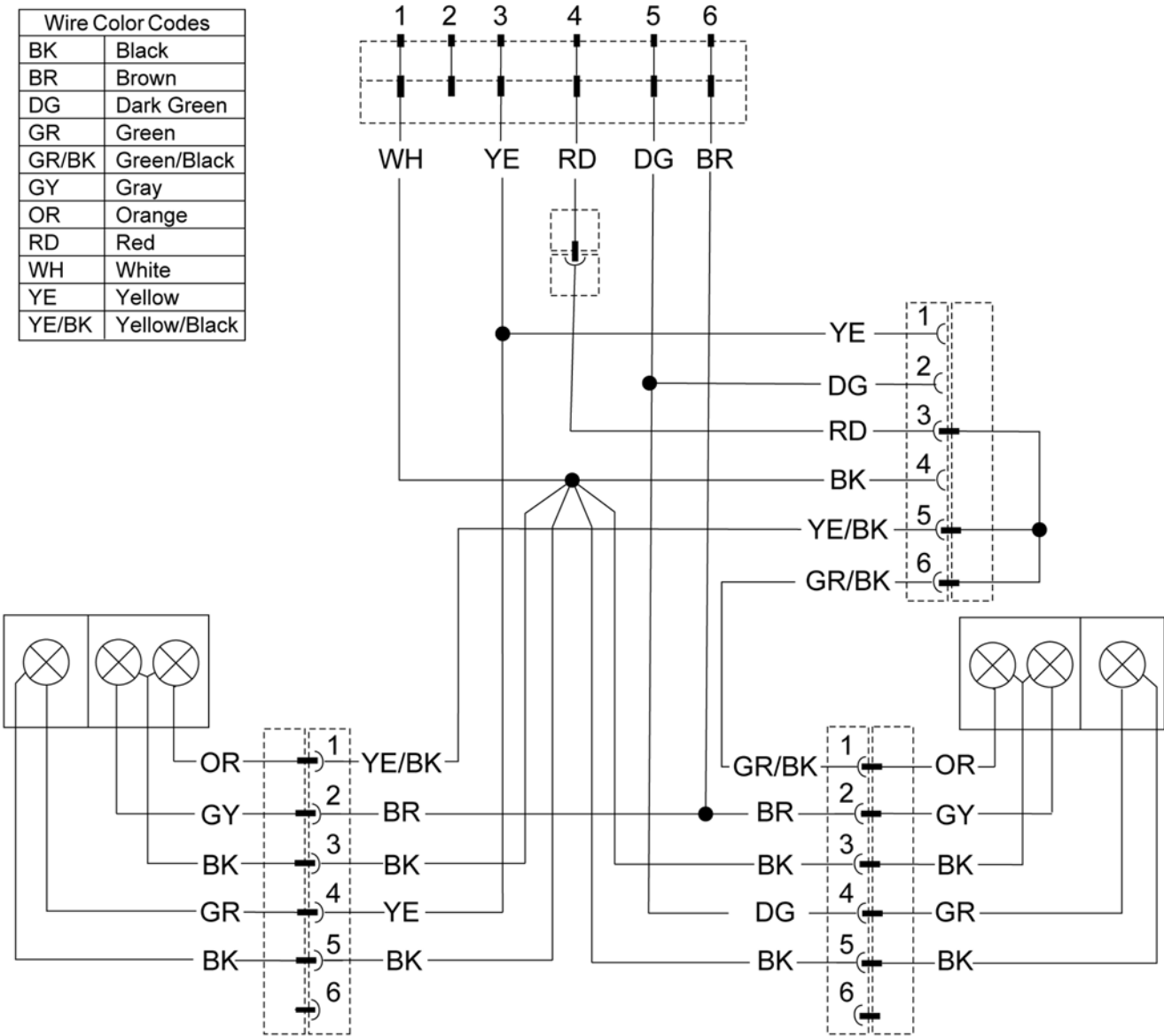
## Hydraulic diagrams

### Standard version



## Circuit diagram

Wire Color Codes	
BK	Black
BR	Brown
DG	Dark Green
GR	Green
GR/BK	Green/Black
GY	Gray
OR	Orange
RD	Red
WH	White
YE	Yellow
YE/BK	Yellow/Black



# Decommissioning

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## Environment

During decommissioning, the individual parts must be disposed of properly and in an environmentally friendly manner. Please observe the waste disposal guidelines that are currently in force.

### **Plastic parts**

Depending on the laws specific to your country, the plastic parts can be disposed of in the normal household waste (residual waste), or must be recycled.

### **Metal parts**

All metal parts can be sent for recycling. Hydraulic parts must only be removed if they are completely depressurised.

### **Oil / lubricant**

Use only environmentally friendly oils and lubricants. In terms of waste legislation, hydraulic oils and lubricants must be stored, collected and disposed of separately in accordance with regulations.

### **Rubber**

Rubber parts, such as hoses or tyres, must be brought to a rubber recycling centre.



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