Operating Instructions

Cultivators

Karat 9 and 9U

- EN -

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LEMKEN GmbH & Co. KG

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Dear customer,

Thank you for the trust you have placed in us by purchasing this device. The device can only be used to its full advantage when operated and used properly. When the device was delivered, you will already have been instructed in operation, adjustment and maintenance by your dealer. However, this brief instruction is not a substitute for thorough study of the operating instructions.

These operating instructions will help to familiarise you with the LEMKEN GmbH & Co. KG device and the options available for using it.

The operating instructions contain important information about how to operate the device safely, properly and efficiently. Following the instructions will help to prevent hazards, faults and down times and will increase reliability and service life. Read the operating instructions carefully and attentively before commissioning.

Make sure that the operating instructions are always available at the location where the device is used.

The operating instructions must be read and followed by anyone who is involved in carrying out the following work:

- Coupling and uncoupling
- Adjustments
- Operation
- Maintenance and repairs
- Troubleshooting, and
- Final shutdown and disposal.

These operating instructions are deemed to be the original operating instructions.

Spare parts ordering

This device is supplied with a specification listing all assemblies that are relevant for the product. The spare parts list valid for your device includes both those assemblies relevant to you and those that are not intended for your device. Make sure that you only order spare parts that belong to the assemblies that can be found on your specification or the enclosed print out. When ordering spare parts, state the type designation and serial number of the device. This information can be found on the rating plate. Enter this data in the fields below so that it is always to hand.

Type designation:	
Serial number:	

Remember that you should only use genuine LEMKEN spare parts. Reproduction parts have a negative influence on the function of the device, have a shorter service life and present risks and hazards that cannot be estimated by LEMKEN GmbH & Co. KG. They also increase the maintenance costs.

Service and spare parts

Information on service and spare parts is available from your local dealer or our website at www.lemken.com.

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TechnischeDokumentation

1 GENERAL INFORMATION

1.1 Liability

In principle the "Standard Terms and Conditions of Sales and Delivery" of LEMKEN GmbH & Co. KG shall apply.

LEMKEN GmbH & Co. KG excludes liability claims in respect of injury and/or damage which can be attributed to one or more of the following causes:

- improper use of the device, see also section entitled "Intended use",
- non-compliance with the operating instructions and the enclosed safety instructions,
- unauthorised changes to the device,
- inadequate monitoring of parts which are subject to wear,
- maintenance work not carried out properly or in good time,
- the use of other than original spare parts of LEMKEN GmbH & Co. KG,
- Catastrophic events caused by external factors or force majeure.

1.2 Guarantee

In principle the "Standard Terms and Conditions of Sales and Delivery" of LEMKEN GmbH & Co. KG shall apply.

The guarantee period is one year from receipt of the device. We shall rectify any device faults according to the LEMKEN warranty guidelines

1.3 Copyright

These operating instructions represent a document in terms of the law on unfair competition.

Copyright is retained by

LEMKEN GmbH & Co. KG

Weseler Straße 5

D-46519 Alpen

These operating instructions are intended to be used by the operator of the device. They contain texts and drawings which must not be

- reproduced,
- divulged or
- communicated in any other way in whole or in part without the express permission of the manufacturer.

Infringements will result in a claim for damages.

1.4 Optional accessories

LEMKEN products feature a number of optional accessories. All accessories are described in these operating instructions.

Please note: These accessories will vary depending on the type of equipment.

2 SYMBOLS USED IN THE OPERATING INSTRUCTIONS

2.1 Hazard classes

The following symbols are used in the Operating Instructions for particularly important information:

DANGER

Denotes an imminent hazard with high risk, which will result in death or severe physical injury, if not avoided.

WARNING

Denotes a possible hazard with medium risk, which could result in death or severe physical injury, if not avoided.

CAUTION

Denotes a low-risk hazard, which could cause light or medium physical injury or property damage, if not avoided.

2.2 Information

Denotes special user tips and other particularly useful or important information for operation and efficient utilisation.

2.3 Environmental protection

Indication of special recycling and environmental protection measures.

2.4 Indication of passages

The following symbols are used for particular passages in the operating instructions:

– Indicates enumerations and work steps

- Indicates instructions for action and information in safety instructions

TechnischeDokumentation

3 SAFETY MEASURES AND PRECAUTIONS

General safety instructions for the operator are specified in the chapter entitled "Safety measures and precautions". At the start of some main chapters the safety instructions, which refer to all work to be carried out in this chapter, are listed together. Each safety-relevant work step includes other safety instructions specific to the work step.

3.1 Target group

These operating instructions are restricted exclusively to the use of the device by trained technicians and instructed persons.

3.2 Intended use

The device is manufactured in accordance with state-of-the-art standards and the recognised safety rules. However, the use of the device may result in a risk to life and limb of the user or third parties, or cause damage to the device and other material property. The device may be operated in a technically perfect condition only, in accordance with its designated use and by safety-conscious persons in compliance with the operating instructions.

Intended use also includes:

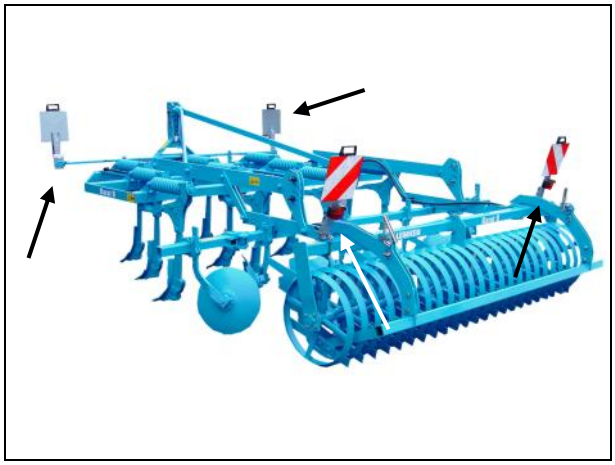
- compliance with the operating instructions and implementation of the work steps indicated in the operating instructions,
- compliance with the safety and warning signs on the device,
- observance of the power limits of the tractor and device,
- observance of all maintenance specifications and additional checks,
- the use of original spare parts,
- the use of the listed auxiliary and operating materials as well as their environmentally friendly disposal.

Safe operation is not guaranteed unless all instructions, settings and power limits applicable to the device are observed.

3.3 Safety equipment on the device

To protect the user and the device, the device features special safety equipment.

– Always keep all safety equipment in working order.



Warning sign with light

3.4 Safety and warning signs

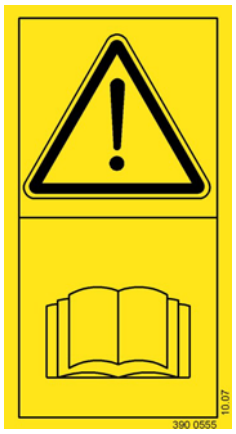
3.4.1 General information

The device features all equipment which ensures safe operation. If hazardous areas could not be completely secured with respect to operational safety, warning signs are affixed which indicate these residual risks. Damaged, lost or illegible warning signs must be replaced immediately. The indicated article numbers are used as order numbers.

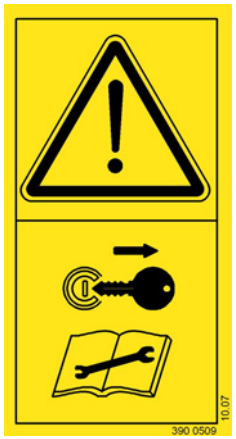
3.4.2 Meaning of warning signs

– Familiarise yourself with the meaning of the warning signs.

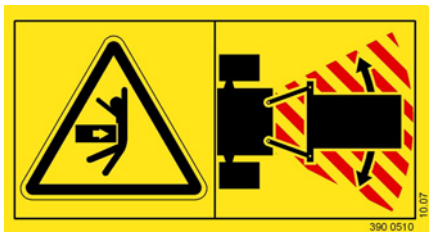
The following explanations provide detailed information.



ATTENTION: Please read and observe the operating instructions and safety instructions before starting up the device for the first time!



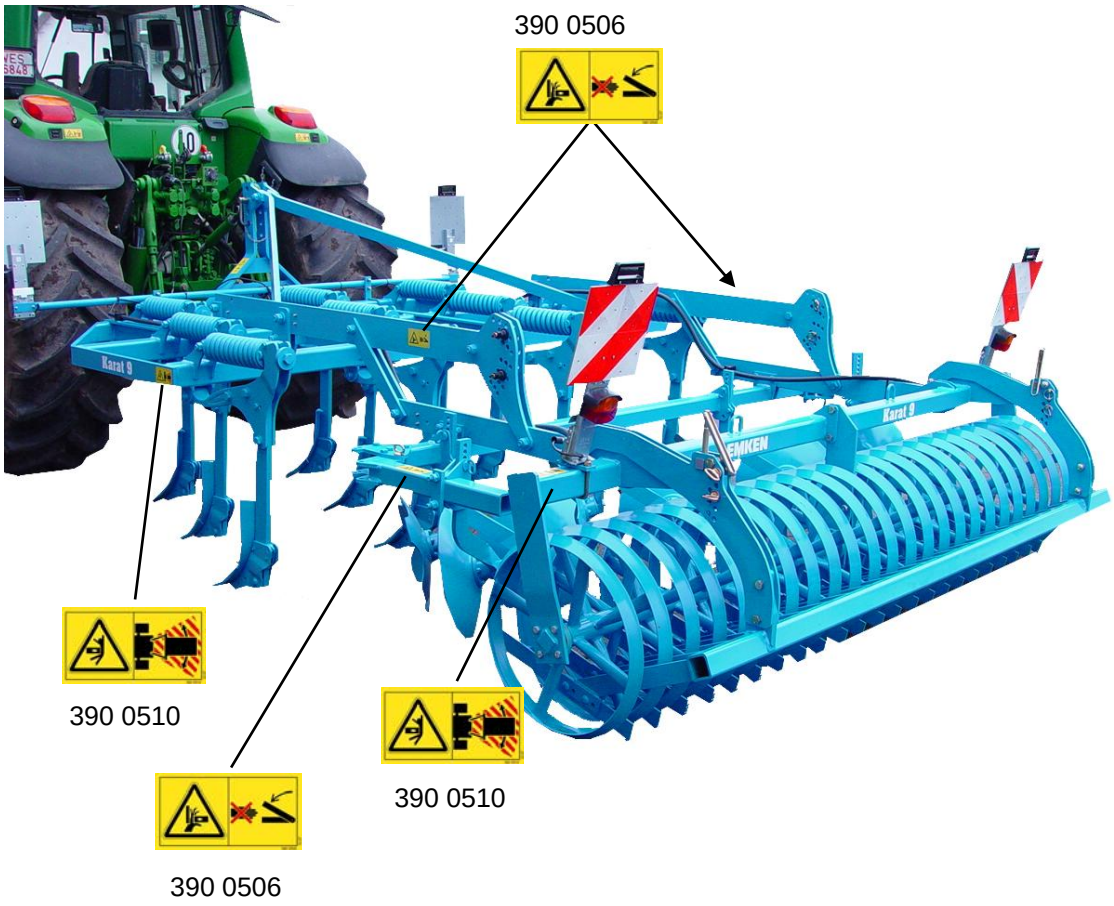
ATTENTION: Before carrying out maintenance or repair work, switch off the engine and remove key!

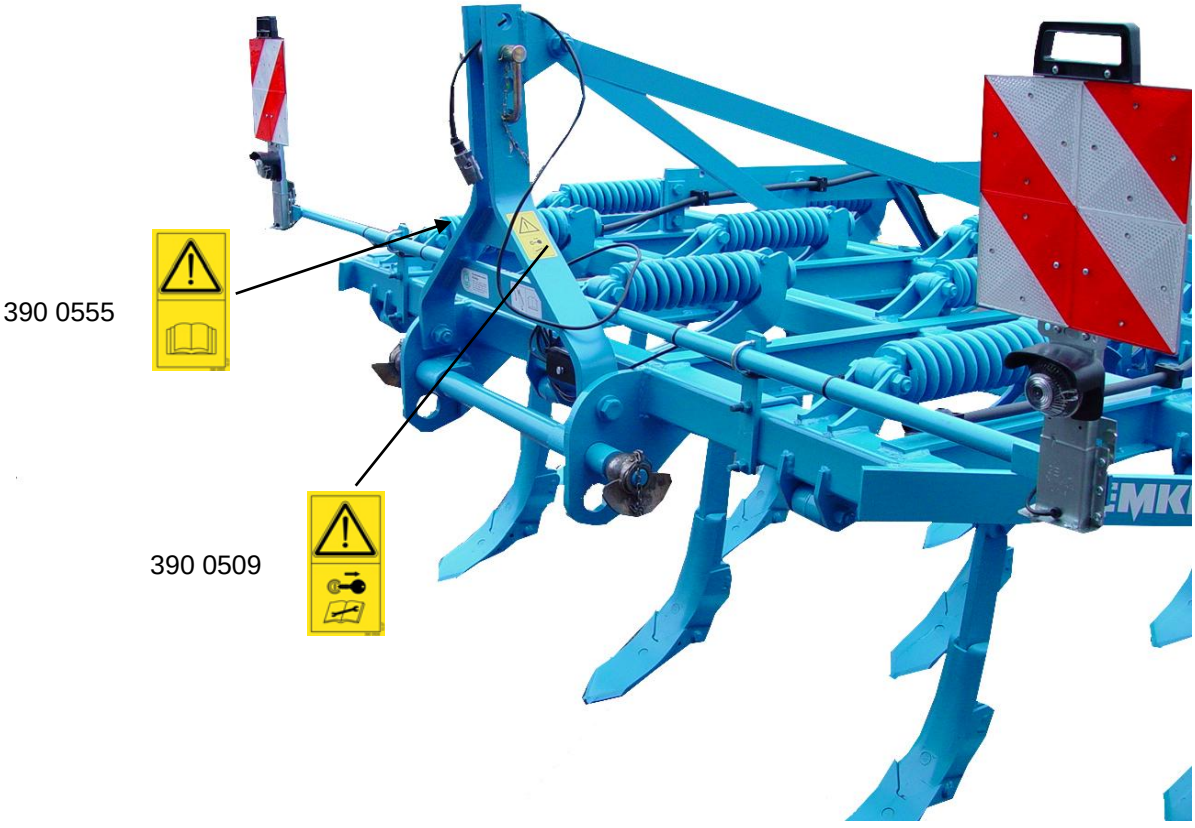


ATTENTION: Do not remain in the operating and swivel area of the device!

ATTENTION: Danger of crushing!

3.4.3 Position of the safety and warning signs





3.5 Special safety instructions

Risk of injury due to non-observance of the currently valid occupational safety guidelines

WARNING

If the currently valid occupational safety guidelines are bypassed or safety equipment is rendered unusable when handling the device, there is a risk of injury.

- The operator must personally monitor all work on and with the device.
- The operator instructs his personnel in occupational safety according to the currently valid occupational safety guidelines.

Risk of injury due to foreign objects ejected at high speed

WARNING

During work there is a risk of injury to the face and body by lumps of earth, soil constituents or stones ejected at high speed.

- During work there must be nobody directly in front of, behind or next to the device.
- During work nobody must accompany the device.

WARNING

Risk of injury when freeing casualties

When rescuing people trapped or injured by the device, there is a risk of additional serious injury to the casualty if the hydraulic connections were not connected according to their colour coding as described in the section entitled "Required hydraulic equipment". As a result, functions may run in the opposite direction or may be inverted.

– Before actuating the hydraulics, check that the hydraulic connections of the device are connected to the tractor according to the colour coding.

If there is no identification on the tractor and on the device or if the connections are not connected to the tractor according to their identification, it may not be possible to free the person safely.

If in doubt, leave casualties to be freed by specially trained rescue personnel.

3.6 Hazardous areas

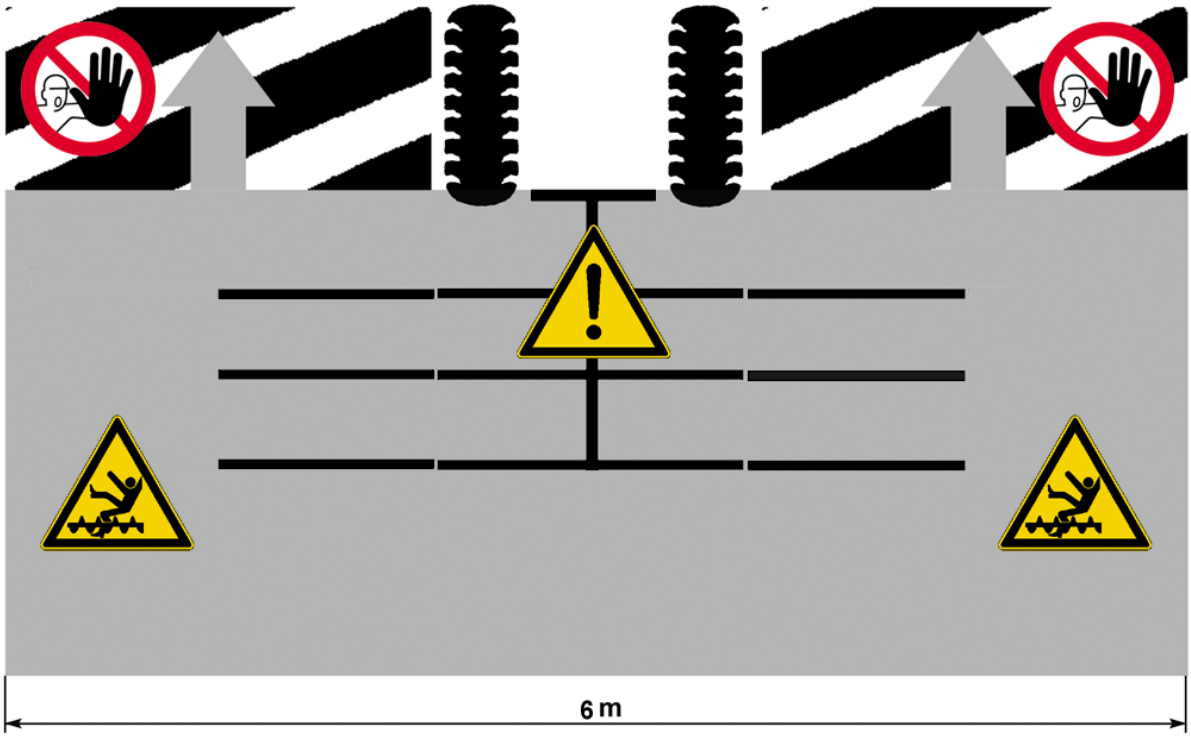
WARNING

Moving hazardous area

The hazardous area of the device moves during operation of the device!

During operation of the device there must be nobody in front of the actual hazardous area, as the hazardous area moves with the device!

3.6.1 Hazardous areas during operation of the device



3.7 Residual risks

Residual risks are particular hazards which occur when handling the device and which cannot be eliminated despite a design in accordance with safety requirements.

Residual risks are not usually obvious and may be the source of a potential injury or health hazard.

3.7.1 Hazard caused by mechanical systems

There is a risk of accidents due to crushing, cutting and striking body parts

- on abruptly moving machine parts,
- on moving machine parts caused by stored mechanical energy in elastic parts, such as springs,
- on an inadequately stable device,
- on the general shape or mounting location of components.

3.7.2 Hazard caused by hydraulic systems

There is a risk of injury to body parts, in particular the face, eyes and unprotected areas of skin, caused by burns and contamination with hydraulic fluid

- due to hot/pressurised hydraulic fluid spraying out of leaking joints or lines,
- due to bursting, pressurised lines or components.

3.7.3 Hazard during operation

During operation there is a risk of injury, particularly to the face, from ejected stones and lumps of earth.

3.8 Applicable rules and regulations

The applicable rules which must be observed during operation of the device are listed below:

- Observe the currently valid national highway code!
- Observe the currently valid national laws and regulations for occupational safety.
- Observe the currently valid national laws and regulations for operational safety.

3.9 Operation on public highways

3.9.1 Lighting system and identification

A proper lighting system, identification and equipment must be on the device if it is to be transported on public roads. Further information can be requested from the appropriate authorities.

3.9.2 Requirements of the tractor

– Ensure that the tractor with mounted device always reaches the stipulated braking deceleration.

Observe the permitted axle loads, gross weights and transportation dimensions, see also section entitled "Axle loads"!

Observe the permitted power limit of the tractor!

WARNING

Risk of accidents due to inadequate steerability

A tractor which is too small or which has inadequate front ballast cannot be manoeuvred safely or steered with adequate tracking stability. As a result, the driver or other road users may be injured or killed.

– Only use a tractor which can be adequately ballasted and safely manoeuvred.

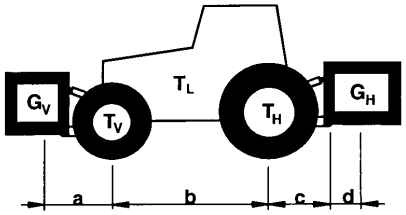
– Ensure that the front axle of the tractor is always loaded with at least 20% of the net weight of the tractor. See section on "Axle loads".

3.9.3 Axle loads

The mounting of devices on the front and rear three-point linkage must not cause the permitted gross weight, the permitted axle loads and the tyre load capacities of the tractor to be exceeded.

The front axle of the tractor must always be loaded with at least 20% of the tractor net weight.

Determining the minimum front ballasting and the increase in the rear axle load:



GV = Weight of front ballast (front device)
TV = Front axle load of the tractor without mounted device
TL = Net weight of the tractor
TH = Rear axle load of the tractor without mounted device
GH = Device weight

Calculating the minimum front ballasting GV min:

$$G_{V\ \min} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{a+b}$$

Calculating the increase in the rear axle load:

$$\text{Minimum increase in axle load} = G_H + \frac{G_H \bullet (c+d)}{b}$$

The calculation of the required minimum front ballasting and the increase in the rear axle load assumes that all the aforementioned dimensions and weights are known. If you do not know these dimensions and weights and you cannot determine them, there is only one reliable and precise method of avoiding overloads:

Weigh your tractor with the device mounted and lifted off to determine the actual rear axle load and front axle load relief of the tractor with the device mounted and lifted off in comparison with the front and rear axle loads of the tractor without mounted device!

3.9.4 Check before departure

– Before driving with the implement raised, lock the control lever, otherwise it may drop and the implement may be unintentionally lowered.

– Attach and check the transport equipment such as the lighting system, warning signs and protective devices!

The actuating cables for the quick-release couplings of the tractor must hang loose and must not actuate themselves in any position!

– Before starting up and operating the implement, check the immediate vicinity around it! Make sure that no-one is present in this area.

– Ensure that visibility is adequate.

Observe permitted axle loads, total weights and transportation dimensions.

3.9.5 Correct behaviour in road traffic

– When driving on public highways, observe the relevant statutory national regulations.

Driving behaviour, steering and braking performance are influenced by ballast weights.

– Ensure that the tractor has adequate steering and braking performance.

– When driving around corners, take into account the wide radius and the inertia of the device.

It is prohibited to transport people on the device.

3.10 Obligation of the operator

- Before switching on the device, read the operating instructions.
- Follow the safety instructions!
- Wear appropriate protective clothing when carrying out any work on the device. Protective clothing must be tight-fitting!
- Observe generally accepted and other obligatory regulations for the prevention of accidents and protection of the environment and add them to the operating instructions!

The operating instructions are an important component of the device.

- Ensure that the operating instructions are always ready available at the installation location of the device and are kept for the entire service life of the device.
- If the device is sold or the operating company changes, pass on the operating instructions with the device!
- Keep all safety instructions and danger warnings on the device in a completely legible state. The affixed safety and warning signs provide important information on safe operation. Comply with them to ensure your safety!
- Do not alter, retrofit or modify the device, potentially impairing safety, without the approval of the manufacturer. The manufacturer is not liable for any damage resulting from arbitrary modifications to the device!
- Operate the device only in compliance with all connection and default values provided by the manufacturer!
- Use original spare parts only!

3.11 Operating the device safely

3.11.1 General information

- Before starting work, familiarise yourself with all equipment and actuating elements as well as their functions!
- Do not operate the device until all protective devices have been attached and are in the safety position!
- Always attach the device in accordance with the regulations and only on the stipulated devices.
- Always exercise extreme caution when mounting the device on or removing it from the tractor!
- In the area of the three-point linkage there is a risk of injury from crushing and/or shearing!
- Before mounting the device on or removing it from the three-point linkage, move the operating equipment into the position which prevents the device from being uninitentionally raised or lowered!
- When actuating the external control for the three-point attachment, do not walk between the tractor and device!
- It is prohibited to be within the hazardous area of the machine and to climb up on the implement while it is operating!
- In the wider operating range of the device there is a risk of injury, e.g. from ejected stones!
- Before actuating hydraulic equipment (such as flap devices), ensure that there is nobody in the flap area! Risk crushing and/or shearing by remote power operated parts!
- Never stand between tractor and device. This is only permitted when the tractor is secured against rolling away by the parking brake and the chocks!
- Always keep the device in a clean state to prevent the risk of fire!
- Before leaving the tractor, deposit the device on the ground! Switch off the engine and remove the ignition key!

3.11.2 Personnel selection and qualifications

- The driver of the tractor must have the appropriate driving licence!
- Any work on the device may be carried out by trained and instructed personnel only. Personnel must not be on drugs, intoxicated or taking medication!
- Servicing and maintenance work may be carried out by trained technicians or appropriately instructed persons only!
- Only electricians may work on the electrical components in accordance with the electro-technical regulations!

4 HANDING OVER THE DEVICE

– As soon as the device is delivered, ensure that it corresponds with the order package.

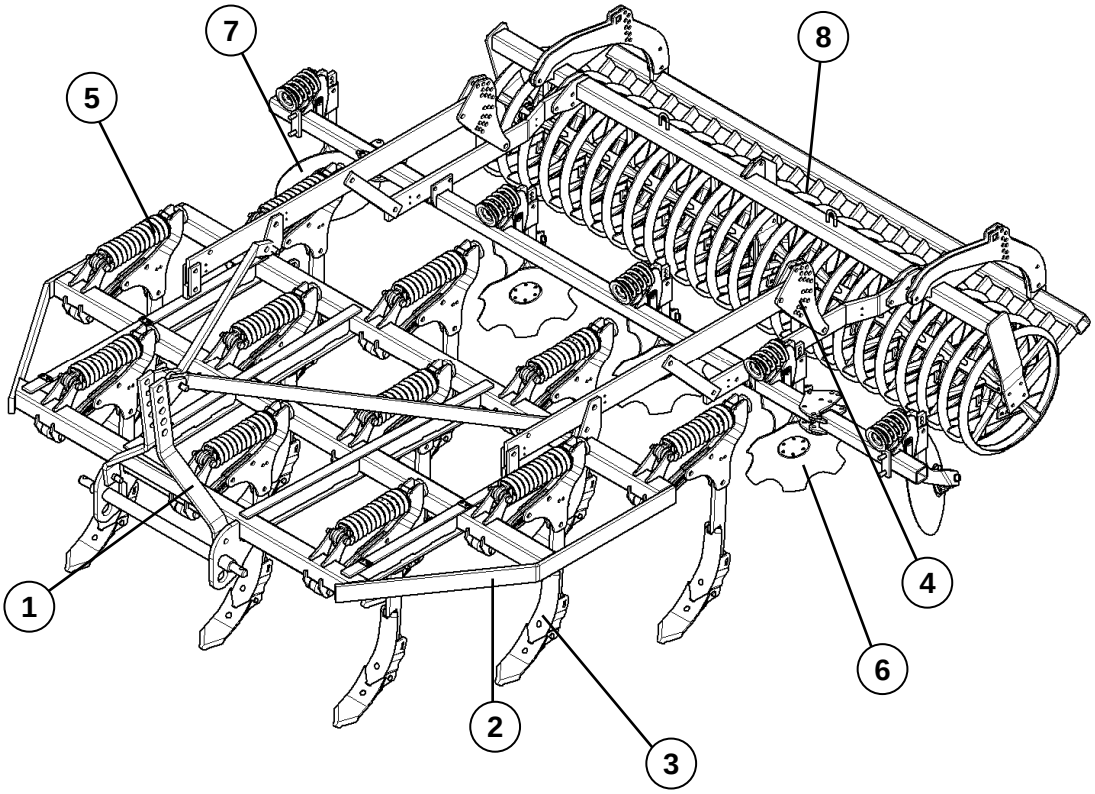
– Also check the type and completeness of any supplied accessories.

When the device is handed over, your dealer will explain how it works.

– As soon as trhe device is handed over, familiarise yourself with the device and its functions.

5 DESIGN AND FUNCTION

5.1 Overview



1 Three-point tower

2 Frame

3 Tines

4 Working depth adjustment for tines

5 Automatic overload safety device for tines

6 Hollow discs (serrated)

7 Edge discs

8 Roller (blade roller MSW 600)

5.2 Function

5.2.1 Three-point headstock

The three-point headstock with top link pin and draw bar complies with ISO 730.

The draw bar L3/Z3 complies with category 3.

The draw bar L2/Z3 complies with category 3N.

The implement with a 3 m working width is fitted with a choice of category 2 or 3 top link pin and the implement with a 3,5 m / 4 m working width is fitted exclusively with a category 3 top link pin.

5.3 Frame

In the version with shearbolt device the frame has tine pockets for holding the rigid tines. In the version with automatic overload safety device the frame has supports for the overload safety device elements. Overload safety device elements cannot be used on a frame with tine pockets.

5.4 Tines

Either tines with a permanently integrated share foot or tines with quick-change system can be used.

a) Tines with permanently integrated share foot

On this tine the different share tips, guide plates and wing shares can be screwed on and off independently of each other.

b) Tines with quick-change system

Share feet with different share systems can be attached to these tines and secured by linch pins.

5.4.1 Working depth adjustment of the tines

The working depth must be adjusted separately for the left and right sides of the device. This is done using an adjustment mechanism with pins.

5.4.2 Automatic overload safety device for the tines

The automatic overload safety device for the tines protects the frame and the tines from overload. The spring of the overload safety device has been preset. This setting must not be changed. The reset force on the share tip is 5500 N and the activation height 200 mm.

5.5 Hollow discs

The hollow discs protected by shear bolts are serrated and level the soil behind the tines. They level the ridges which are thrown up by the tines on the back row. The hollow discs are also available with an automatic overload safety device.

5.6 Edge discs

The depth and pitch angle of the edge discs, protected by shear bolts, can be adjusted. They should retrieve the soil which has been thrown out. The edge discs are also available with an automatic overload safety device.

5.7 Rollers

The rollers ensure reconsolidation and additional crumbling of the soil. During operation on the land they bear the weight of the device if the device has been lowered for work and they ensure exact depth guiding. The weight of the rollers can also support the feed behaviour of the device. The device can be fitted with different roller types. At the time these operating instructions went to press the following roller types were available: Tube bar rollers RSW 540, double rollers DRF 400/400 or DRR 400/400, blade rollers MSW 600.

6 PREPARATION OF THE TRACTOR

6.1 Tyres

The pressure - especially in the rear tractor tyres - must be equal. In heavy conditions it may be necessary to add wheel weights and/or water ballast. (See manufacturer's instructions).

6.2 Lift Rods

Adjust lift rods to equal length. (See manufacturer's instructions).

6.3 Check Chains or Sway Blocks of the Three Point Linkage

Check chains or sway blocks MUST be adjusted so that the lower links are always free to move sideways during working.

6.4 Required power sources

The following power sources are required on the tractor for the electrical consumers:

Consumer	Volt	Direct connection to the tractor battery	Power socket
Lighting system	12	-	In accordance with DIN-ISO 1724

Damage to electrical components

CAUTION

The tolerance range for the power supply is between 10 V and 15 V. Overvoltage and undervoltage may result in malfunctions and under certain circumstances may destroy electrical or electronic components.

– Ensure that the power supply of the device is always within the specified tolerance range.

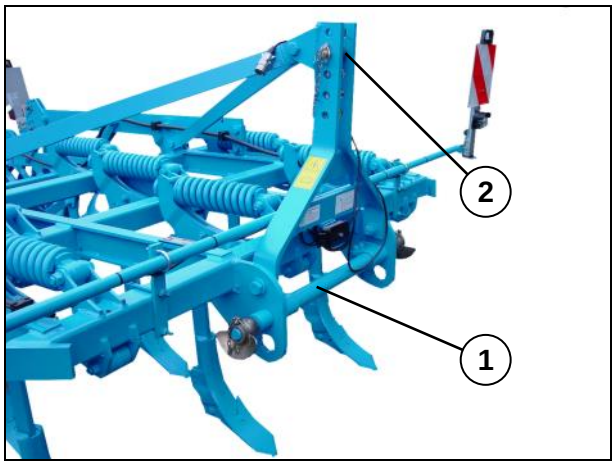
6.5 Required hydraulic equipment

The implement is supplied as standard with separate hydraulic connections for each consumer. The protective caps for the hydraulic connections are colour-coded and the hydraulic connections themselves are alphanumerically coded.

For operation of the individual hydraulic devices listed below, the tractor must be equipped with the following double-acting control units:

Consumer	**Single acting control unit**	**Double acting control unit**	**Tractor/Implement**	
			Colour	Code
Hydraulic working depth adjustment	-	x	Green	P2 T2

6.6 Three-point linkage



For this implement, the only draw rails (1) and top link pins (2) approved are those listed in the table below and corresponding to the category of the three-point linkage on the tractor. If they do not match, then either the tractor's three-point linkage or the device's draw rail (1) and the top link pin (2) must be replaced with a suitable, authorised version.

More information can be found in the following table.

Loss of the implement

WARNING

The category of the three-point linkage of the tractor and the category of the draw rail and the top link pin must match. Otherwise, the draw rail and the top link pin may slip out of the linkage when driving over uneven ground or due to vibrations.

- Always ensure that the category of the three-point linkage exactly matches the diameter of the draw rail and the top link pins.

	Working width 300 cm	Working width 350 cm	Working width 400 cm
Draw rail	Category 3N	Category 3N	Category 3N
Draw rail	Category 3	Category 3	Category 3
Draw rail			Category 4N
Draw rail			Category 4
Top link	Category 2 (approx. Ø 26 mm) or category 3 (approx. Ø 32 mm	Category 3 (approx. Ø 32 mm)	Category 3 (approx. Ø 32 mm)

The maximum permissible tractor outputs and dimensions as per ISO 730-1 for the corresponding category are available in the following table.

Tractor output		Cat.	Pintle diameter of draw rail (mm)	Length of draw rail (shoulder distance) (mm)
kW	HP			
80 - 185	109 - 251	3N	36,6	825
80 - 185	109 - 251	3	36,6	965
150 - 350	204 - 476	4N	50,8	965
150 - 350	204 - 476	4	50,8	1166

DANGER

Danger to life if a three-point linkage is used with a too small category

If a draw rail or a top link pin is used with a category that is too small, these components may be overloaded and break. As a result, the implement may fall down and injure or kill people in the immediate vicinity.

As a result, the implement may be damaged.

As a result, other road users may be injured or killed while the implement is being transported.

- Use only draw rails and top link pins which comply with a category that corresponds to the tractor's output in accordance with ISO 730-1.

6.7 Hydraulic system

6.7.1 Transport

CAUTION

Lowering the three-point linkage

The device may be damaged if the three-point linkage of the tractor is lowered due to an incorrect setting or operation.

– For transport always switch the hydraulic system of the tractor to "position control".

See operating instructions of the tractor manufacturer.

6.7.2 Work assignment

For use on the land switch the hydraulic system of the tractor to float position or mixed control.

See operating instructions of the tractor manufacturer.

6.7.3 Coupling and uncoupling

CAUTION

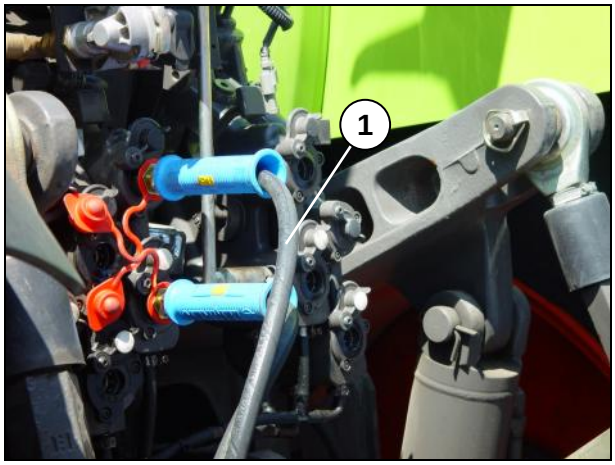
Lowering or raising the three-point linkage

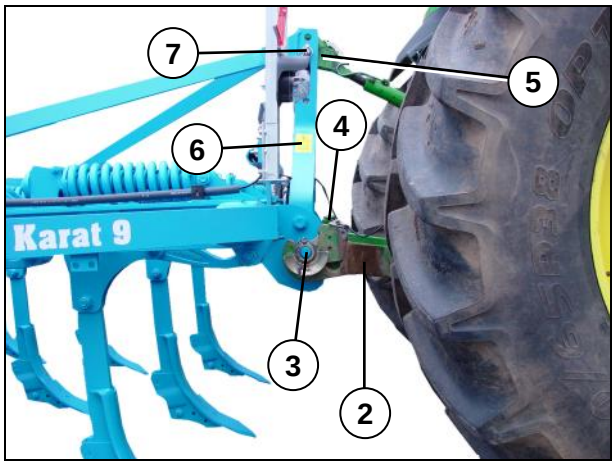
If the three-point linkage moves uncontrollably due to an incorrect setting or operation, the operator may be injured.

– To couple or uncouple the device, always switch the tractor hydraulics to position control.

7 COUPLING AND UNCOUPLING

7.1 Coupling





– When coupling the implement, switch the hydraulic system of the tractor to position control.

– Drive the tractor backwards towards the device until the tractor is in front of the device and the catch hooks of the lower links (2) can be coupled with the draw rail (3). However, keep a distance of approx. 40 cm between the tractor and device.

– Secure the tractor to prevent it from rolling away.

– Connect the hydraulic hoses (1) to the tractor as specified in the table in the “Required hydraulic equipment” section.

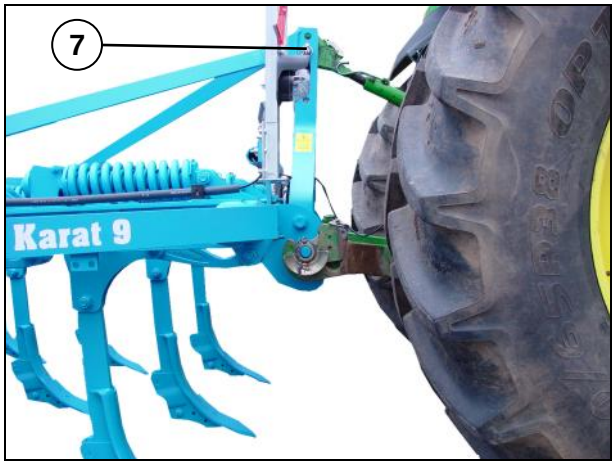
– Connect the electrical cables to the tractor as specified in the table in the “Required power sources” section.

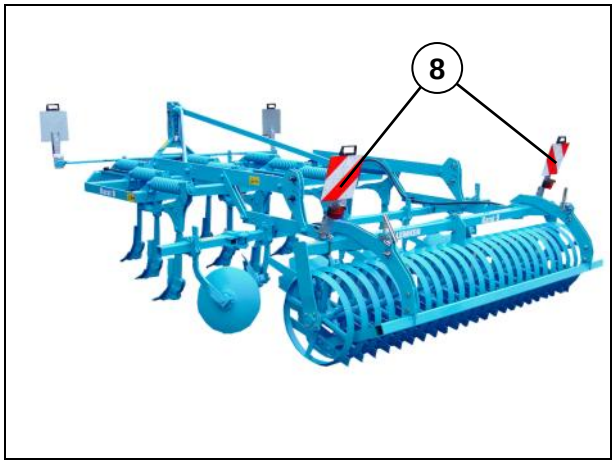
– Now drive up to the device and connect the lower links (2) on the tractor to the draw rail (3).

– Secure the draw rail (3) with the safety equipment (4). Refer to the tractor manufacturer's operating instructions for further information.

– Connect the top link (5) to the three-point tower (6) using the top link pin (7).

The position of the top link also presets the pressure load of the rollers and therefore the degree of crumbling and reconsolidation of the soil. See also the “Pressure load of the rollers” section.





– Secure the top link pin (7) with the lynch pin.
– Attach the lighting system with warning signs (8) if the drive to the field is via public highways.

WARNING

Risk of injury when coupling the device

There is a risk of body parts being crushed between the tractor and device

The tractor must be secured against unintentionally rolling away.

– Never actuate the hydraulic system of the tractor if there are people between the tractor and device.

Risk of accident from spurting hydraulic fluid

Hydraulic fluid which escapes under high pressure may penetrate your skin and cause severe injuries. If injuries occur, call a doctor immediately

WARNING

– Before connecting the hydraulic hoses to the tractor hydraulics, check that the hydraulics are depressurised on the tractor and device.

– Always ensure that the hydraulic hoses are connected as stipulated.

To prevent operating errors, coupling sleeves and plugs must be identified for hydraulic function connections between tractor and device. If the connections are interchanged, functions will be reversed (e.g. raise/lower or fold in/fold out).

Risk of injury from unsecured top link pin

If the top link pin is not secured, it may slip out or get lost.

CAUTION

- As a result, the device may fall down or be damaged.
- As a result, people in the immediate vicinity may be injured.
- The top link pin must always be secured.
- When the device is lifted out, there must be nobody in the immediate vicinity of the device.

DANGER

Danger to life due to unsecured connection between lower link and draw rail

If the connection between lower link and draw rail is not secured, the pintle of the draw rail may slip out.

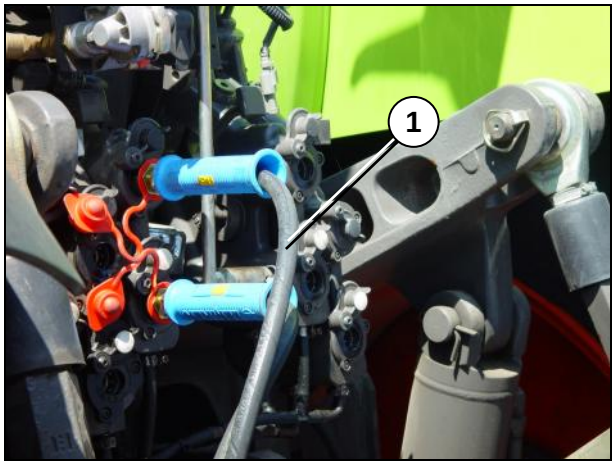
As a result, the device may fall down at the side and injure or kill people in the immediate vicinity.

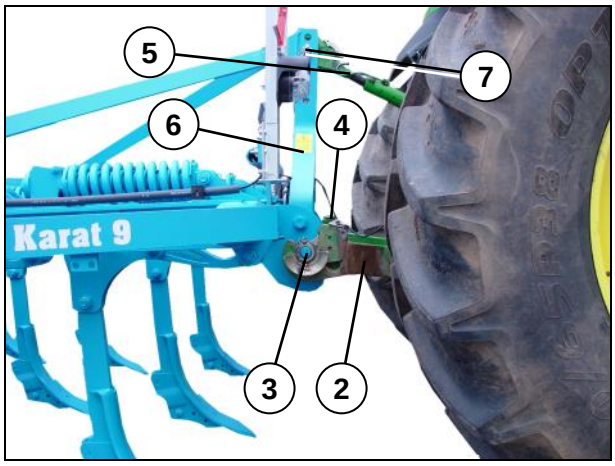
As a result, other road users may be injured or killed while the device is being transported.

- The connection between lower link and draw rail must always be secured.
- When the device is lifted out, there must be nobody in the immediate vicinity of the device.

7.2 Uncoupling

Lower the implement before uncoupling.





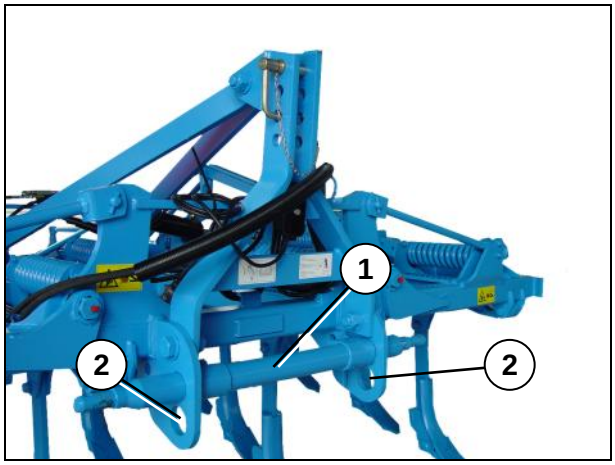
- To depressurise the hydraulic hoses, move the actuation levers for the control units to the "float position".
- Actuate the hydraulic system of the tractor until the top link pin (7) is relieved.
- Release the top link pin (7) and remove it.
- Remove the top link (5) from the three-point tower (6) and position it in the designated holder on the tractor.
- Release the safety equipment (4) and remove the lower links (2) from the pintles of the draw rail (3).

(See also operating instructions from tractor manufacturer).

- Drive approx. 20-30 cm away from the device and secure the tractor to prevent it from rolling away.
- Detach the electric cables.
- Disconnect the hydraulic hoses (1) and push on the protective caps.
- Carefully drive the tractor away from the implement.

7.3 Draw rail

7.3.1 Mounting position



The draw rail (1) can be mounted on the device at two heights = draw point positions. The picture shows the draw rail (1) in the upper mounting position = low draw point. The bores (2) are used to hold the draw rail (1) in the lower mounting position = high draw point.

Draw rail mounted above = low draw point

Draw rail mounted below = high draw point

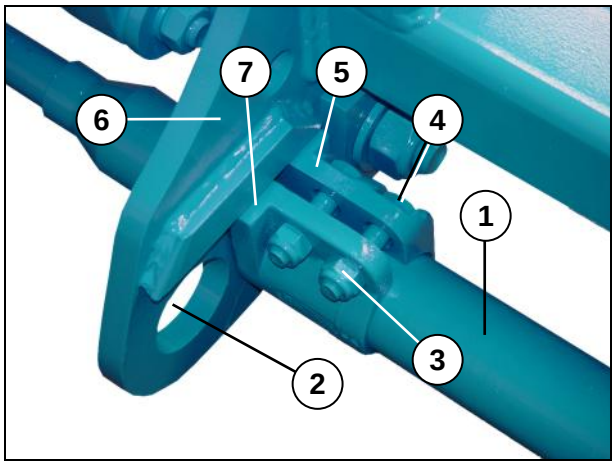
Switch to the upper mounting position of the draw rail (1)

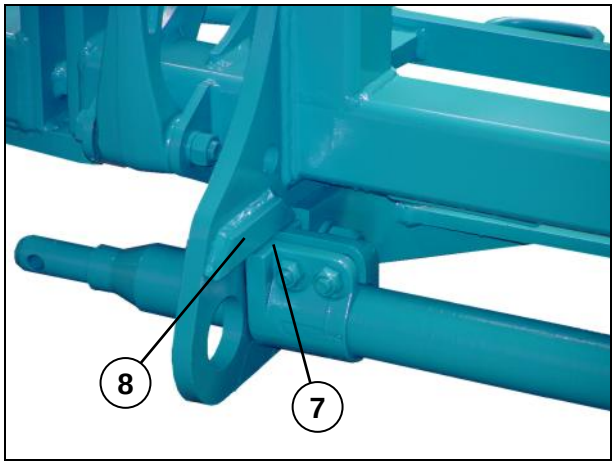
- to improve the infeed of the device
- to increase the roller pressure
- to reduce the lifting force requirement

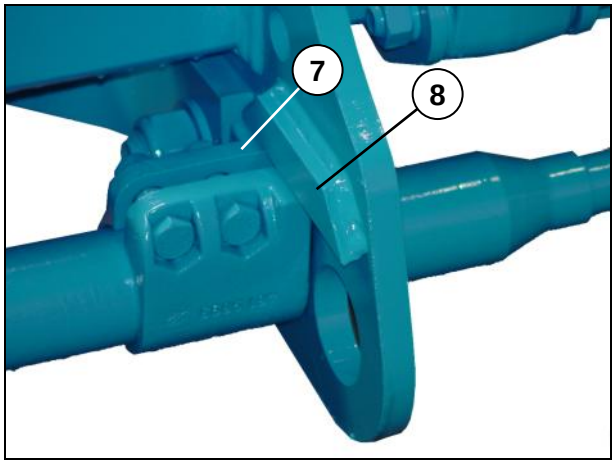
Switch to the lower mounting position of the draw rail (1)

- to increase the lifting height
- to reduce the slippage
- to reduce the roller pressure

7.3.2 Changing the mounting position







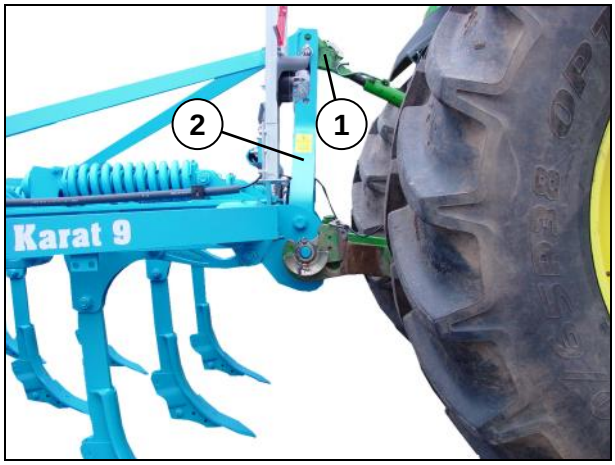
If a different mounting position of the draw rail (1) is required, the draw rail (1) must be removed as follows and placed in the new mounting position.

The device must be deposited in the extended position and detached from the tractor.

- Loosen the nuts (3) on the bolts (4) of the two locking pieces (5)
- Pull the draw rail (1) as far as the middle out of the bores of the rail plates (6).
- Push the locking pieces (5) down off the draw rail (1) and deposit them on the ground.
- Pull the draw rail (1) all the way out of the bores.
- Insert the draw rail (1) into the required bore (2) of the rail plate (6) and push them in by approx. 50 cm.
- Push the locking pieces (5) onto the draw rail (1). Ensure that the side with the support surface (7) is facing the rail plate (6).
- Push the draw rail (1) through the bores until the two ends of the draw rail (1) on the left and right are the same distance from the rail plates (6).
- Push the locking pieces (5) up to the rail plates (6). Ensure that the support surfaces (7) are positioned on the stop (8) of the rail plates (6).
- Tighten the nuts (3) on the bolts (4).

7.4 Top link

7.4.1 Mounting position



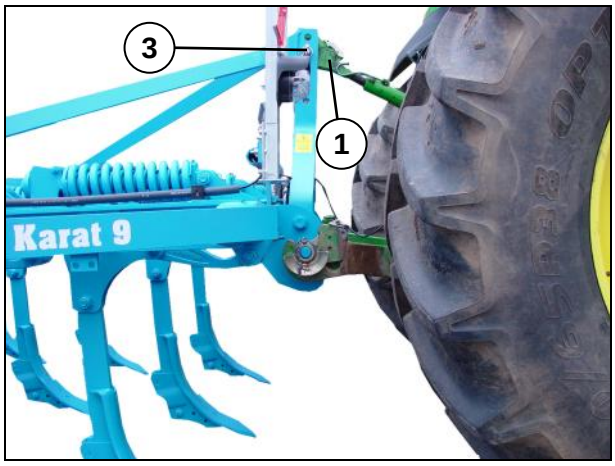
The top link (1) can be mounted in several positions on the three-point tower (2). A total of four mounting positions are provided. Select a lower mounting position for the top link (1)

- to improve the infeed of the device
- to relieve the load on the front axle of the tractor
- to increase the roller pressure
- to reduce the lifting force requirement

Select a higher mounting position for the top link (1)

- to increase the lifting height
- to reduce the slippage
- to reduce the roller pressure

7.4.2 Changing the mounting position



If the top link (1) is to be placed in a different mounting position, reposition the top link (1) as follows. To do this, extend and completely lower the device and switch the hydraulic system of the tractor to position control.

– Actuate the hydraulic system of the tractor until the top link pin (3) is relieved.

– Release the top link pin (4) and pull it out.

– Move the top link to its new position by adjusting the length until the top link pin (3) can be inserted without actuating the hydraulic system of the tractor.

– Secure the top link pin (3) with the linch pin.

CAUTION

Risk of injury from unsecured top link pin

If the top link pin is not secured, it may slip out or get lost.

- As a result, the device may fall down or be damaged.
- As a result, people in the immediate vicinity may be injured.
- The top link pin must always be secured.
- When the device is lifted out, there must be nobody in the immediate vicinity of the device.

8 SAFETY EQUIPMENT

8.1 General information

Before each use, the function of all safety equipment must be checked and it must be used or operated as specified in this manual.

8.2 Warning sign with light

Fit the warning signs with lights if you will be driving on public highways.

8.3 Transport dimensions

Before transportation on public highways, ensure that the maximum permitted transport width of 3m is not exceeded.

– If fitted, swivel the edge discs backwards into the transport position. See “Edge discs” section.

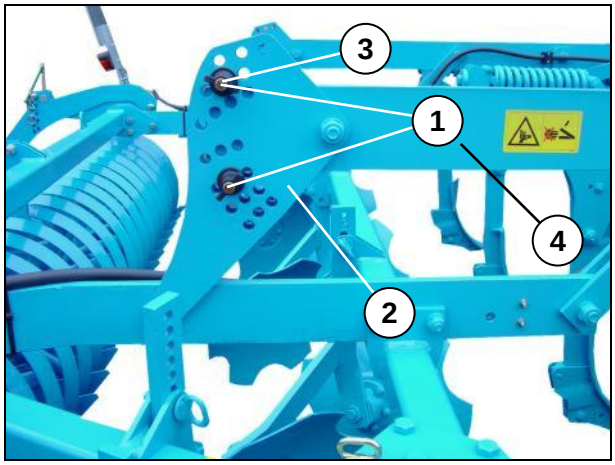
The Karat 9/350, 9/400, 9/350 U and 9/400 U are more than 3m wide. They may only be transported on public highways where this is permitted by law or a certificate of exemption.

9 ADJUSTMENTS

DANGER 	**Risk of accident when making adjustments** When making any adjustments to the device, there are risks of crushing, cutting, clamping and striking your hands, feet and body on heavy and occasionally compressed and/or sharp-edged parts. • Always park implement on the ground. • Adjustment work may be carried out by appropriately instructed personnel only. • Always wear appropriate protective clothing. • Always observe the currently valid operational safety and accident prevention regulations. • Switch off tractor engine. • Pull on handbrake.

9.1 Working depth of tines

9.1.1 General information



The working depth of the implement can be adjusted by approx. 5 to 30 cm. This is done using the guide pins (1).

– Raise the implement using the three-point hydraulics on the tractor.

– Release the lower guide pins (1) by removing the securing pins.

– Insert the lower guide pin (1) in a hole in the adjusting plates (2) corresponding to the desired working depth.

  Lower hole => Greater working depth

  Higher hole => Less working depth

– Insert the implement. When the working depth is reached, the load on the upper guide pins (3) is relieved.

– Insert the upper guide pins (3) directly above the carrier (4) so that the weight of the rollers provides additional support for the implement's penetration. Raising the implement increases the clearance between the rollers and the ground.

– Secure the guide pins by inserting the securing pins.

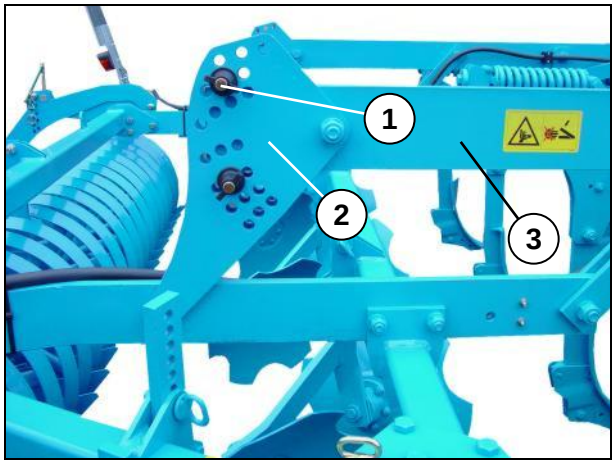
If the implement features feeler wheels, they must also be adjusted if the working depth is changed. See "Feeler wheels" section.

9.1.2 Hydraulic working depth adjustment

In the hydraulic working depth adjustment the guide pins (1) are used to set the maximum required working depth and the guide pins (9) are used to set the minimum required working depth.

The hydraulic cylinders are used to set either the maximum or minimum working depth adjustment as required.

9.2 Lowering depth of the rollers



To ensure that the roller is not lowered too far when raising, the guide pins (1) must be inserted as deep as possible into a hole in the adjustment plates (2) above the carrier (3) in the working position.

– With the implement in the working position and the guide pin (1) unloaded, release the guide pin (1) and pull it out.

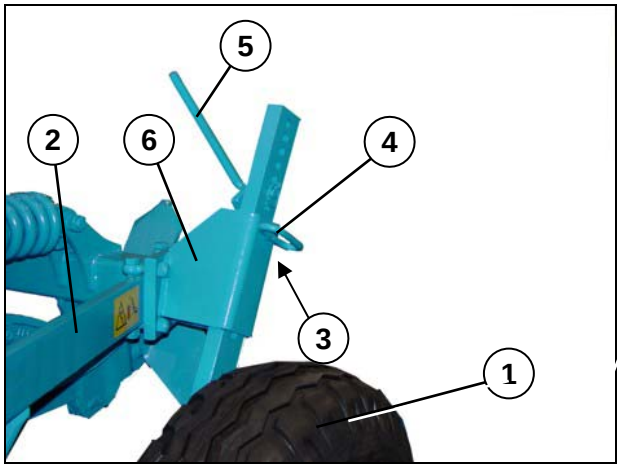
– Insert the guide pin (1) into a deeper hole in the adjustment plates (2).

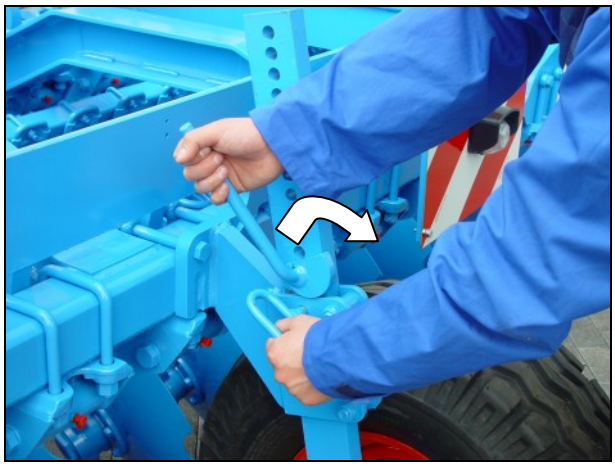
– Secure the guide pin (1).

9.3 Support wheels

The support wheels (1) are attached to the outside of the frame (2) at the front and improve the depth guide of the device.

The support wheels must not be loaded with too much weight, otherwise the feed behaviour of the mounted devices will be negatively affected.





- Lift the device out slightly.
- The depth is adjusted via the pin adjustment (3) with pin (4) and the cam lever (5).
- Insert the cam lever (5) directly above the bracket (6) and secure the cam lever (5) with the linch pin.
- Unload the pin (4) by swivelling the cam lever (5).
- Release the pin (4) and pull it out.
- Move the support wheel (1) into the required position by swivelling the cam lever (5).
- Re-insert the pin (4).
- Secure the pin (4) with the linch pin.

WARNING

Risk of injury due to unsecured support wheel

If pin and cam lever are removed simultaneously, the support wheel is no longer held in place and will slide down. This may result in crushing and/or injury to feet.

- Never simultaneously remove pin and cam lever.
- Secure the cam lever with the linch pin.

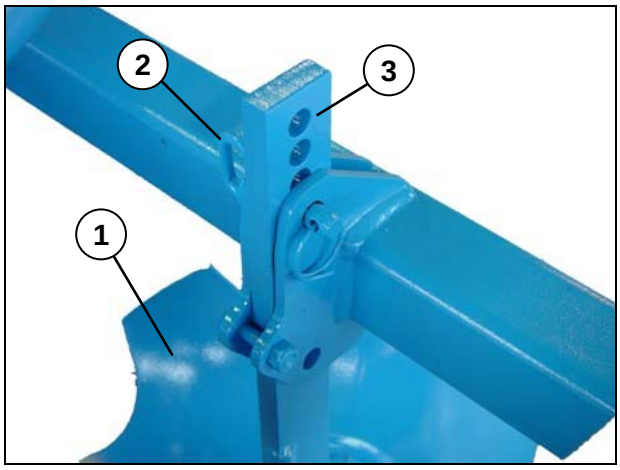
CAUTION

Loss of components

If connector pin and cam lever are not secured, vibrations during operation may cause them to fall out.

- Never simultaneously remove connector pin and cam lever.
- Secure the cam lever with the linch pin.

9.4 Working depth of the hollow discs



The hollow discs (1) are adjusted with the pins (2) as follows:

– Release pin (2).

– Push up the disc carrier (3) slightly to unload the pin (2).

– Pull the pin (2) out.

– Push the disc carrier (3) into the required position.

– Re-insert the pin (2).

– Secure the pin (2).

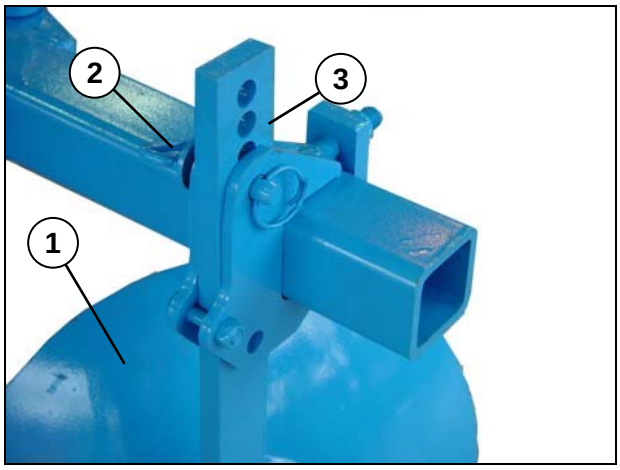
DANGER

Loss of components

If the guide pins are not secured, they can fall out due to vibrations in operation. This can result in components being lost during operation and transportation and can cause accidents or damage to the device and the tractor.

The guide pins must always be secured.

9.5 Working depth of the edge discs



The edge discs (1) are adjusted with the pins (2) as follows:

- Release pin (2).
- Push up the disc carrier (3) slightly to unload the pin (2).
- Pull the pin (2) out.
- Push the disc carrier (3) into the required position.
- Re-insert the pin (2).
- Secure the pin (2).

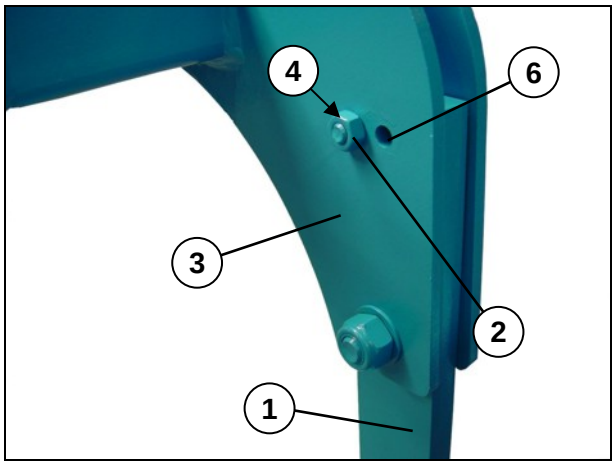
DANGER

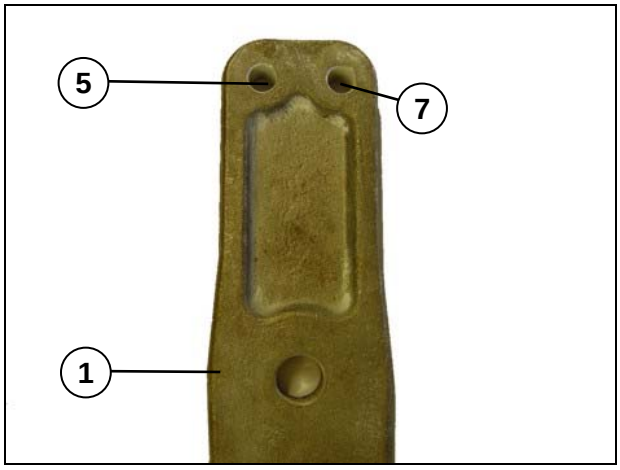
Loss of components

If the guide pins are not secured, they can fall out due to vibrations in operation. This can result in components being lost during operation and transportation and can cause accidents or damage to the device and the tractor.

The guide pins must always be secured.

9.6 Share position





The share position and the pitch angle of the tines (1) can be altered. A “flat” share position in conjunction with wing shares ensures a flat tillage horizon (share tip and wing shares work at almost the same depth) and reduces traction requirement, even in heavy soils.

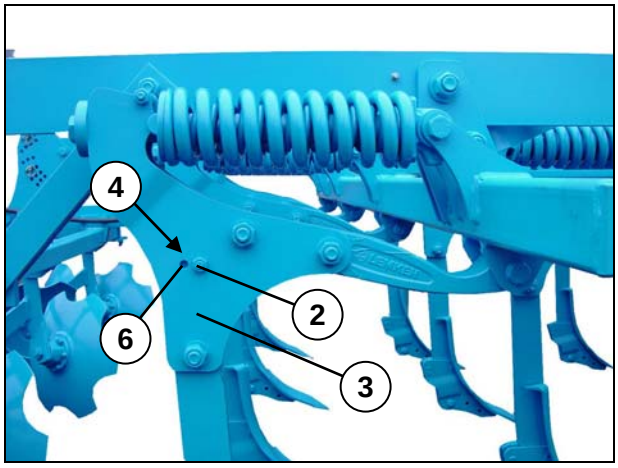
A “steep” share position ensures that the tines (1) penetrate well even in hard and dry soils.

The share position is altered by inserting the shear bolt (2) in a different position.

Flat share position = insert shear bolt through the bore (4) of the tine pocket (3) and the bore (5) of the tine (1).

Steep share position = insert shear bolt through the bore (6) of the tine pocket (3) and the bore (7) of the tine (1).

– Lift out the mounted device by several centimetres.



– Loosen and remove nut from the shear bolt (2). Press out the shear bolt with a suitable tool.

– Swivel the tine into the required position.

– Insert the shear bolt as required into bore A or B of the tine pocket (3).

– Screw the nut on.

– Tighten the nut.

WARNING

Risk of injury from removed shear bolt

If the shear bolt is removed, the tines can pivot freely. This can lead to crushing of the fingers around the tine carrier.

– Replace a removed shear bolt immediately.

WARNING

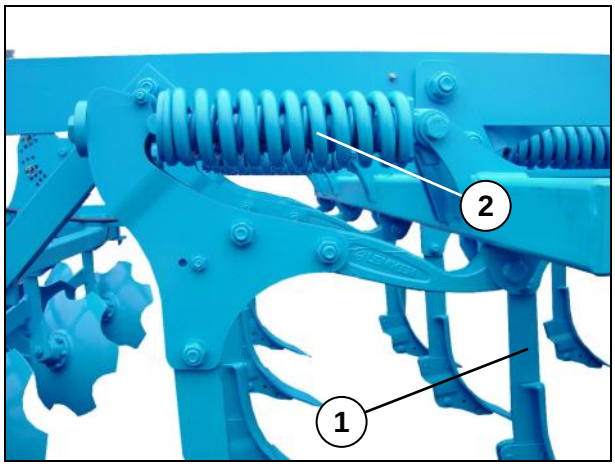
Risk of injury due to removed shear bolt

If the shear bolt is removed, the tine can swing freely. This may result in crushed fingers in the area of the tine pocket.

- Immediately insert removed shear bolt.

9.7 Automatic overload protection

9.7.1 Tine



The tines (1) on the Karat 9 U feature an automatic overload safety device with compression springs (2) which are highly pretensioned.

The overload protection is preset to a release force of approx. 5500 N (550 kp) at the share point. This setting may not be altered.

When an obstruction is encountered in the soil, the tine tilts backwards and upwards and is then returned to the working position automatically when the obstruction has been passed.

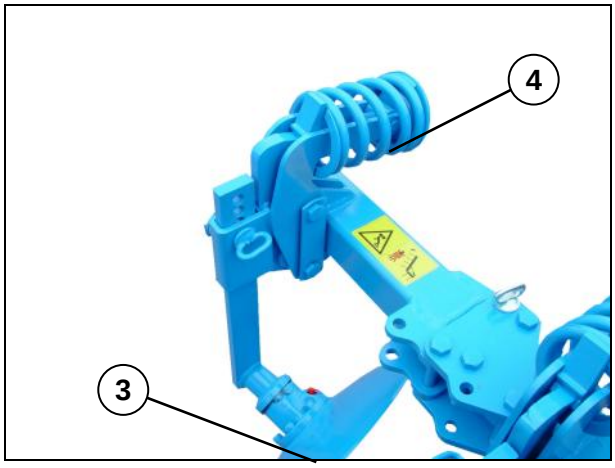
DANGER

Risk of accidents due to moving tines

When an obstruction is encountered, the tine tilts very quickly upwards by spring force. This can cause injury to persons in the area of the tines.

- Never climb onto the implement when working.

9.7.2 Hollow discs



The hollow discs (3) with overload protection are fitted with a compression spring (4) that is under high pretension. When an obstruction is encountered in the soil, the hollow disc tilts backwards and upwards and is then returned to the working position automatically after passing over the obstruction.

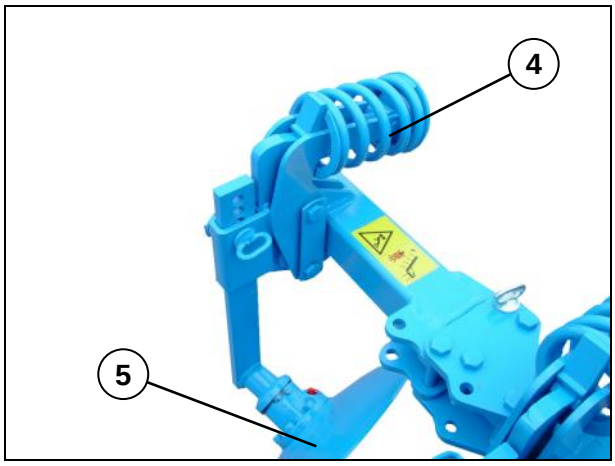
9.7.3 Edge discs

Danger to life due to high spring energy

DANGER

If the tine, the hollow disc or the edge disc is actuated and has still not been moved back into the working position, it can suddenly rebound into the working position with great force and at high speed. As a result, people who are in the swivel area of the tine may be seriously injured or even killed.

– Do not approach the tine, the hollow disc or the edge disc until it has swivelled all the way back into the working position.



The edge discs (5) with overload safety device feature a compression spring (4) which is highly pretensioned. If an obstruction in the soil is struck, the edge disc moves backwards and upwards and is automatically reset to the working position after running over the obstruction.

9.8 Rollers

9.8.1 General information

The mounted devices can be fitted with different roller types, see the following roller table. The rollers control the device at the working depth. Irrespective of the roller type used, the soil is more or less re-consolidated or more or less crumbled.

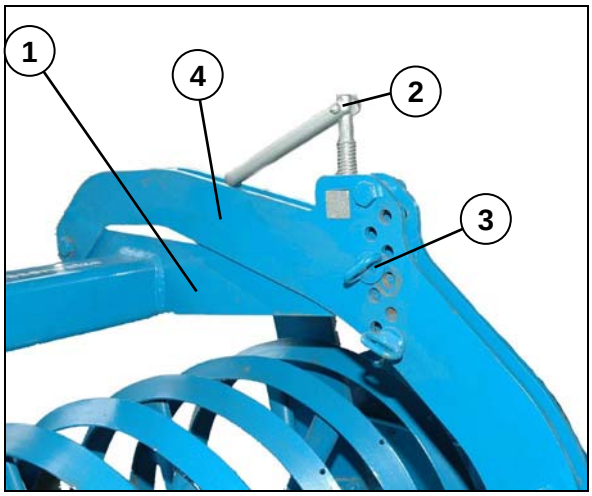
Roller type		**Mounted devices Karat 9 U**	**Mounted devices Karat 9 U**
Tube bar roller	RSW 400	x	x
	RSW 540	x	x
Double rollers	DRF 400	x	x
	DRR 400	x	x
Blade roller	MSW 600	x	x

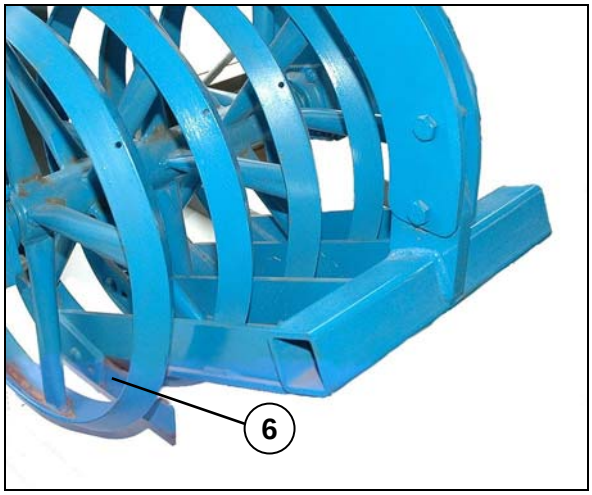
The tube bar rollers and double rollers do not require any special adjustment measures.

The blade roller features a knife bar with blades used as scrapers which are highly adjustable, see section entitled "Blade roller".

9.8.2 Blade rollers

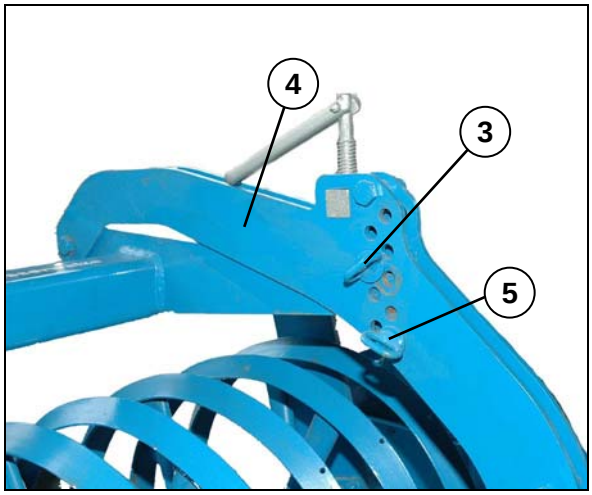
Working depth of blades

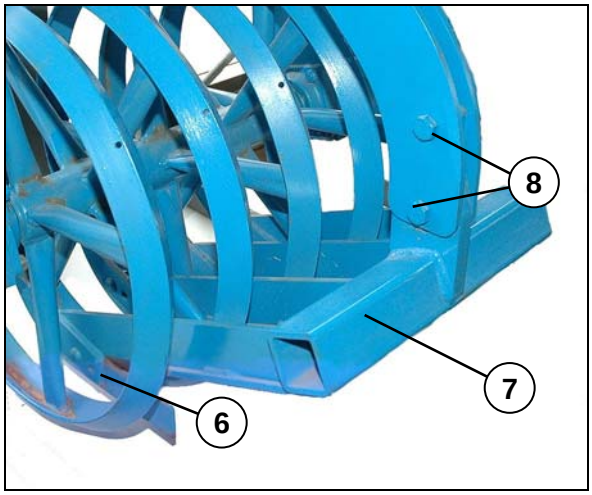




The working depth of the blades (6) is adjusted using the guide pins (3) as follows:

- Turn the spindles clockwise to the stop until the guide pins (3) have been relieved of load.
- Release and remove the guide pins (3) above the support plate (1).
- Move the supporting arms (4) to the desired position using the spindles (2).
- Insert the guide pins (3) in one of the free holes on the supporting arms (4).
- Secure the guide pins (3) with split rings.
- Turn the spindles (2) back slightly anticlockwise to relieve them of load.





Movement of blades

Upward movement of the blades (6) is limited using the guide pins (5). If necessary, slight movement upwards can be permitted.

Position of blades

The blades are generally screwed onto the blade frame (7) in the front position. In case of wear, the blades (6) can be moved backwards.

Adjusting the blade frame

If the adjusting range using the guide pins (3) is insufficient, the blade frame (7) can be moved higher in relation to the supporting arms (4). To do this, remove the screws from the holes (8) and move the blade frame (7).

With extremely sticky or light ground conditions, adjusting the blades upwards is recommended.

If a greater working intensity is required, the blades (6) must be lowered. This is done by moving the blade frame (7) downwards.

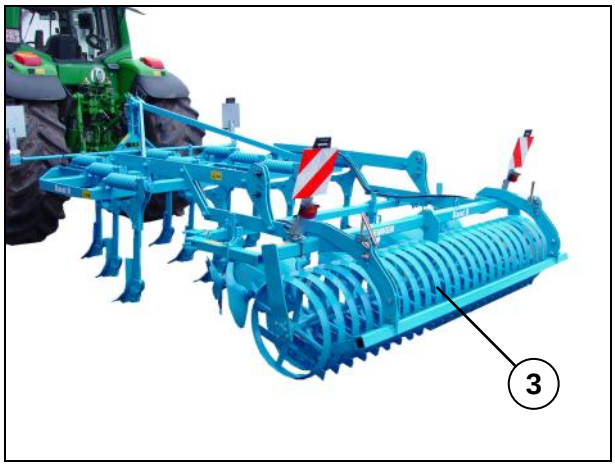
CAUTION

Loss of components

If the guide pins are not secured, they can fall out due to vibrations in operation.

- The guide pins must always be secured by split rings.

9.9 Pressure load on rollers



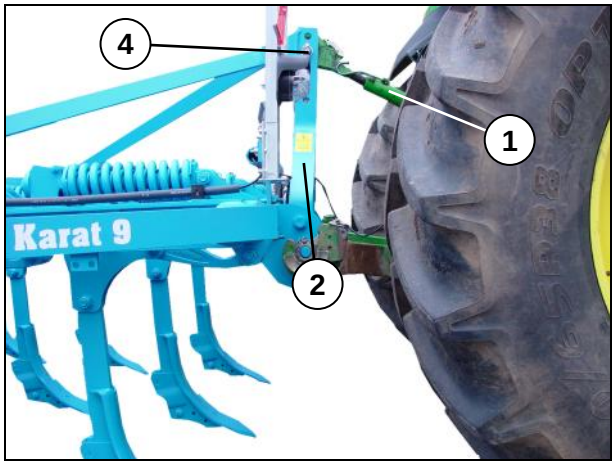
The pressure load on the rollers is determined by the position of the top link (1). The hydraulic system on the tractor must be switched to the float position.

The higher the top link (1) is mounted on the three-point tower of the mounted implement, the lower the pressure load on the rollers.

The lower the top link (1) is mounted on the three-point tower (2) of the mounted implement, the lower the pressure load on the rollers.

If the pressure load is too high, and the rollers get clogged up as a result, or if they sink too far into the soil, it is advisable to reduce the weight load on the rollers. The top link must then be mounted higher on the three-point tower (2).

If the pressure load is too low and the re-consolidation or the crumbling effect of the rollers (3) is inadequate, it is advisable to increase the weight load on the rollers. The top link must then be mounted lower on the three-point tower (2).



Change the position of the top link (1) with the implement lowered as follows:

- Actuate the hydraulic system on the tractor until the top link pin (4) is relieved.
- Release the top link pin (4) and pull it out!
- Move the top link (1) into the required position and adjust the length of the top link until the top link pin (4) can be attached!
- Attach the top link pin (4)!
- Secure the top link pin (4)!

CAUTION

Risk of injury from unsecured top link pin

If the top link pin is not secured, it may slip out or get lost.

As a result, the device may fall down or be damaged.

As a result, people in the immediate vicinity may be injured.

- The top link pin must always be secured.
- When the device is lifted out, there must be nobody in the immediate vicinity of the device.

10 SWITCHING OVER TO DIFFERENT SHARE SYSTEMS

DANGER

Danger presented by implement not secured against lowering

If the raised implement is not secured to prevent it from lowering, people underneath may be injured or killed.

A raised implement must be supported when people are carrying out maintenance or service work in its danger zone.

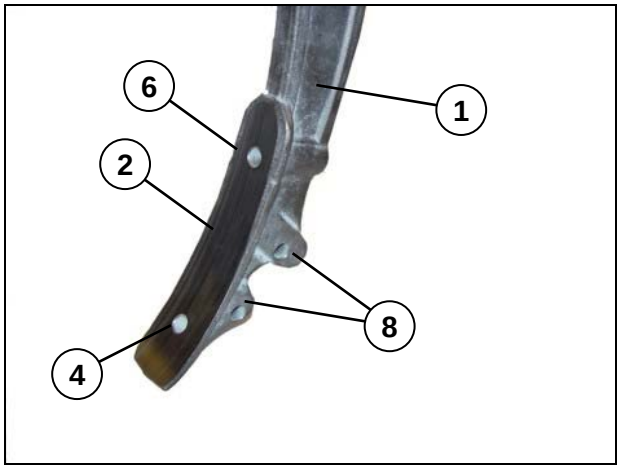
10.1 Share tips, guide plates and wing shares

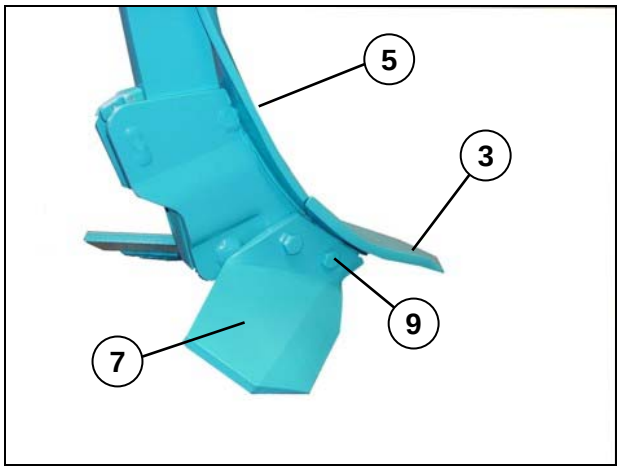
The device can be used with different share systems which enable both deep soil processing and flat full-surface soil processing.

Both the share tips and the wing shares are also available in an armoured version. Armoured share tips and wing shares have considerably higher service lives than non-armoured share tips and wing shares.

10.2 Tine with integrated share foot

To switch over to a different share system, the corresponding components of the tine (1) must be removed and replaced with the components required for the desired share system.



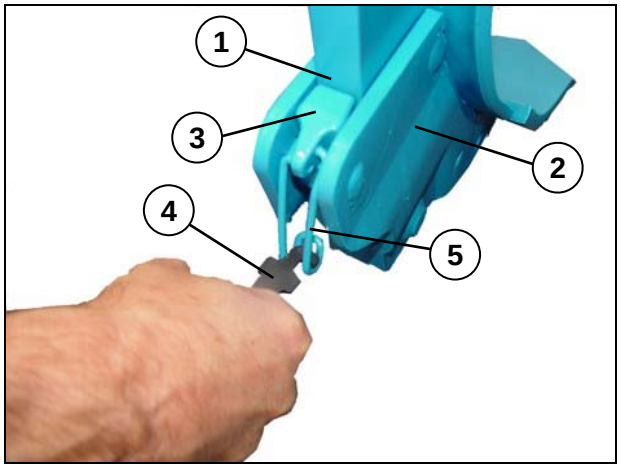


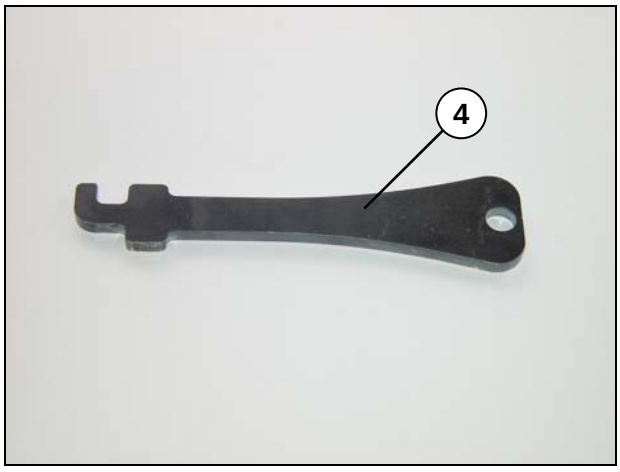
- To do this, lift out the device by approx. 20 cm.
- Secure the device with a support to prevent it from unintentionally dropping.
- Lock the control units of the tractor and switch the tractor engine off.
- Connect the respective share tip (3) via the bore (4),
- the respective guide plate (5) via the bore (6) and
- the wing share (7) via the bores (8) by means of screws (9) to the tine (1) with integrated share foot (2).

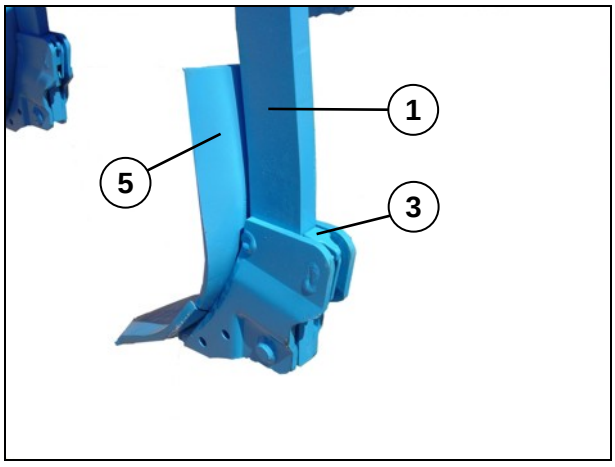
10.3 Tine with quick-change system

If the tine (1) features a quick-change system with exchangeable share foot (2), the share foot (2) can be removed together with the share system after the linch pin (3) has been removed and replaced by a share foot (2) with a different share system. In this way the device can be switched over to a different soil processing method within a few minutes.

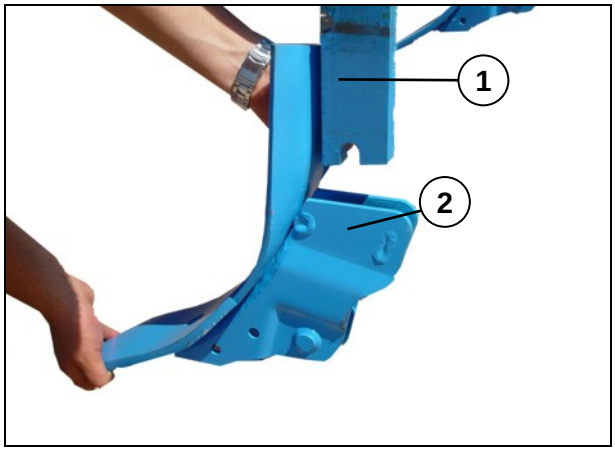
10.3.1 Removing the share foot







- Switch the tractor hydraulics to position control.
- Lift the device out all the way.
- Secure the device with a support to prevent it from unintentionally dropping.
- Lock the control units of the tractor and switch the tractor engine off.
- Using the LEMKEN hook wrench (4), swivel the retaining wire (5) of the linch pin (3) backwards.
- Hold the share foot (2) in the detent position by pressing the guide plate (5) against the tine (1).
- Remove the linch pin (3) by pulling it upwards.



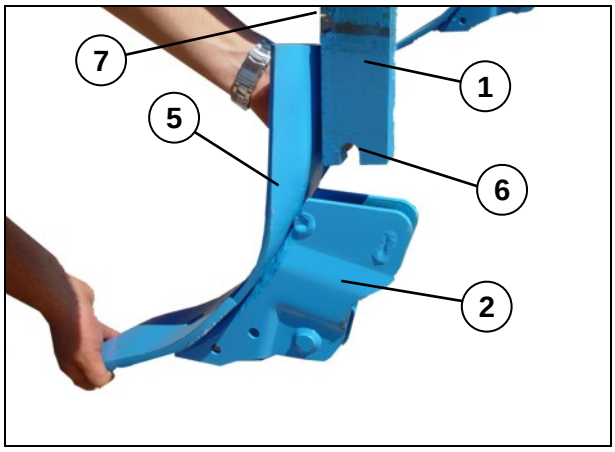
– Hold the share foot (2) with both hands and swivel the share foot (2) forwards to detach it from the tine (1).
– Pull the share foot (2) downwards and deposit it outside the device.

The share foot with share tip, guide plate and wing share weighs approx. 12 kg.

10.3.2 Attaching the share foot

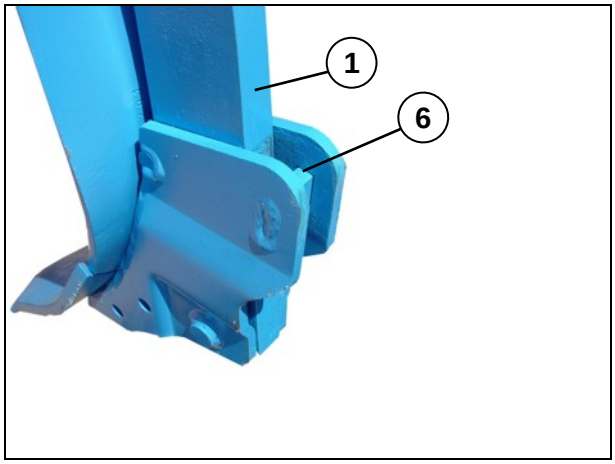
The share foot (2) is attached to the tine (1) in reverse sequence to its removal.

When the device has been lifted out, it must be secured with the aid of a suitable support to prevent it from unintentionally dropping.

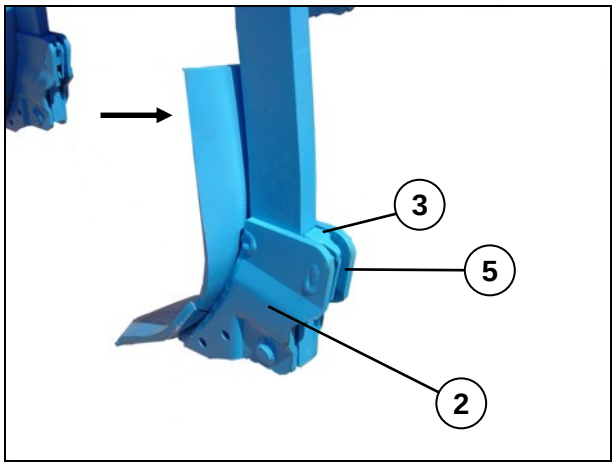


– Push the share foot (2) from below onto the tine (1)!

– Ensure that the reinforcing struts of the share foot (2) engage first in the notch (6) and then in the notch (7) of the tine (1)! In doing so, press the guide plate (5) against the tine (1) to keep the share foot (2) locked in position and prevent it from falling down!



– Push the linch pin (3) between the guide (6) of the share foot (2) and the tine (1).



– Fold the retaining clip (5) downwards! The retaining clip prevents the linch pin (3) from slipping out. The linch pin (3) holds the share foot (2) in the detent position.

– When all share feet have been attached, lift the device out slightly to relieve the support.

– Remove the support and store it until the next time the device is switched over.

DANGER

Danger due to unsupported device

If the lifted out device is not secured on supports to prevent it from dropping, people underneath may be injured or killed.

- It is imperative to support the lifted out device if people are carrying out maintenance or service work in the hazardous area of the device.

CAUTION

Risk of injury

If the share foot is not held with both hands, it may fall down. As a result, your feet may be injured.

- The share foot must always be held with both hands.
- For service and maintenance work always wear safety gloves!

If carrying out work under the frame in the area of the lifted out device, you may bang your head against the frame or other components. As a result, you may injure your head.

- When working under the device, always wear a hard hat.

11 SWITCHING OFF THE DEVICE

11.1 Shutting down the device in an emergency

– In an emergency shut down the device via the tractor.

– Switch the tractor engine off.

– Remove the key.

CAUTION

Damage caused by improper storage of the device

If incorrectly or improperly stored, the device may be damaged, e.g. by humidity and dirt.

The device should be deposited on a flat and adequately stable base only.

– Clean the device prior to storage.

– Lubricate the device according to "Lubrication diagram".

11.2 Disposal

– When disposing of the device, ensure that the individual components as well as the auxiliary and operating materials are disposed of in an environmentally friendly manner.

Metal and plastic components must be recycled.

12 MAINTENANCE AND REPAIRS

12.1 Special safety instructions

12.1.1 General

WARNING

Risk of injury during maintenance and repair work

During maintenance and repair work, there is always a risk of injury.

- Only use suitable tools, climbing equipment, platforms and supports.
- Always wear protective clothing.
- Carry out maintenance and repair work only on a deposited implement or on an implement secured by suitable support elements to prevent it from extending or dropping.

12.1.2 Personnel qualifications

CAUTION

Risk of accident due to inadequate qualifications of the maintenance and repair personnel

Maintenance and repair work requires appropriate training.

- All the maintenance and repair work described in the section entitled "MAINTENANCE/REPAIRS" may be carried out by trained and instructed personnel only.
- Any maintenance and repair work which is not described in the section entitled "MAINTENANCE AND REPAIRS" may be carried out by specialist workshops only.

12.1.3 Protective clothing

CAUTION

Risk of accident due to working without protective clothing

There is always an increased risk of accidents when carrying out maintenance work and repairs.

- Always wear appropriate protective clothing.

12.1.4 Shutting down the device for maintenance and repairs

WARNING

Risk of accident due to tractor starting up

Injuries may occur if the tractor starts moving during maintenance and repair work.

- Switch off the tractor engine before carrying out any work on the device. Secure the tractor to prevent it from unintentionally starting. Remove the ignition key.
- Affix a warning sign in front of the device and in front of the tractor to advise outsiders of maintenance work.
- Secure the tractor with chocks to prevent it from rolling away.

12.1.5 Working on the hydraulics

WARNING

Risk of accident from spurting hydraulic fluid

Fluid (hydraulic fluid) which escapes under high pressure may penetrate your skin and cause severe injuries. If injuries occur, call a doctor immediately.

- Always depressurise the hydraulic system before working on it.
- Always wear appropriate protective clothing before working on the hydraulic system.

12.1.6 Working on the electrics

CAUTION

The device will be damaged if it is connected to the power supply while work is being carried out on it

If the device is still connected to the power supply of the tractor, the device will be damaged if work is carried out on the electrics.

– Before carrying out any work on the electrics of the device, always disconnect the power supply from the tractor.

12.1.7 Working under the raised device

Risk of accident due to lowering and extending of components and devices

WARNING

It is extremely dangerous to work under raised or next to retracted components and devices.

- Always secure the tractor to prevent it from rolling away. Remove the ignition key and secure the tractor to prevent it from being started up by unauthorised persons.
- Support and secure raised or retracted components and devices with suitable support elements.

12.1.8 Utilised tool

WARNING

Risk of accident due to use of unsuitable tool

If working with an unsuitable or defective tool, there is a risk of accidents and injuries.

– Perform all work on the device with a suitable and functional tool only. This applies in particular to the use of lifting gear.

WARNING

Risk of back injuries

If your posture is not correct when installing or fixing heavy or cumbersome components, you may suffer back injuries which require long convalescence.

Installation and maintenance work may be carried out by trained and instructed personnel only.

– Perform all work on the device with a suitable and functional tool only. This applies in particular to the use of lifting gear.

Risk of accident due to tool slipping off

WARNING

If applying a large force, e.g. when loosening bolts, the tool may slip off. This may result in hand injuries on sharp-edged parts.

– Avoid applying a large force by using suitable auxiliary equipment (e.g. extensions).

Check nuts and bolt heads, etc. for wear and, if required, consult an expert.

12.2 Environmental protection

– Ensure that all materials and operating supplies used to maintain and care for the device are disposed of in line with environmental regulations.

– All recyclable components should be recycled.

– Observe the national regulations applicable in your country.

12.3 Maintenance intervals

12.3.1 After the initial start-up (at the latest after 2 hours)

Check	What to do?
Wheel nuts	– Retighten all wheel nuts to the appropriate torque. See section entitled "Tightening torques".
Screw connections	– Retighten all other bolts and nuts on the device to the appropriate torque. See section entitled "Tightening torques".

12.3.2 Daily inspection

Check	What to do?
Tyres	– Check the tyres for damage and wear. – Check the air pressure and, if required, correct. See section entitled "Tyres and air pressure".
Hydraulic hoses	– Check hydraulic hoses for damage and leaks. Immediately replace damaged or defective hydraulic hoses. The hydraulic hoses must be replaced at the latest 6 years after the date of manufacture. Use hydraulic hoses authorised by LEMKEN only.
Safety equipment	– Check that the safety equipment functions properly. See section entitled "Safety equipment".
Soil processing tools	– Check all soil processing tools for damage and wear. Replace damaged or worn components.

12.3.3 Weekly inspection

Check	What to do?
Wheel nuts	– Check that all wheel nuts are tight and, if required, retighten the wheel nuts to the appropriate torque.
Screw connections	– Retighten all other bolts and nuts on the device to the appropriate torque. – If required, secure the screw connections with locking compound. See section entitled "Tightening torques".

12.4 Tightening torques

12.4.1 Wheel nuts

Diameter / Thread	Tightening torque [Nm]
M12x1.5	80
M14x1.5	125
M18x1.5	290
M20x1.5	380
M22x1.5	510

12.4.2 Other screw connections

Diameter / Thread	Strength - category 8.8 [Nm]	Strength category 10.9 [Nm]	Strength - category 12.9 [Nm]
M6	9,7	13,6	16,3
M8 / M8x1	23,4	32,9	39,6
M10 / M10x1.25	46,2	64,8	77,8
M12 / M12x1.25	80,0	113	135
M14	127	178	213
M16 / M16x1.5	197	276	333
M20	382	538	648
M24 / M24x2	659	926	1112
M30 / M30x2	1314	1850	2217

12.5 Checking connections to the tractor

Visually inspect the hydraulic couplings.

Check that the hydraulic couplings are not leaking hydraulic fluid.

Connect the hydraulic lines to the tractor and check for leaks under pressure.

Defective or leaking couplings must be repaired or replaced immediately by a specialist workshop.

Visually inspect the connectors and cables. Check that there are no bent or broken contact pins in the plugs and exposed cable locations.

Defective connectors must be repaired or replaced immediately by a specialist workshop.

WARNING

Risk of accident from spurting hydraulic fluid

Fluid (hydraulic fluid) which escapes under high pressure may penetrate your skin and cause severe injuries. If injuries occur, call a doctor immediately.

- When searching for leaks, use suitable aids to prevent eye injuries.
- Always wear appropriate protective clothing.

12.6 Tyres and air pressure

WARNING

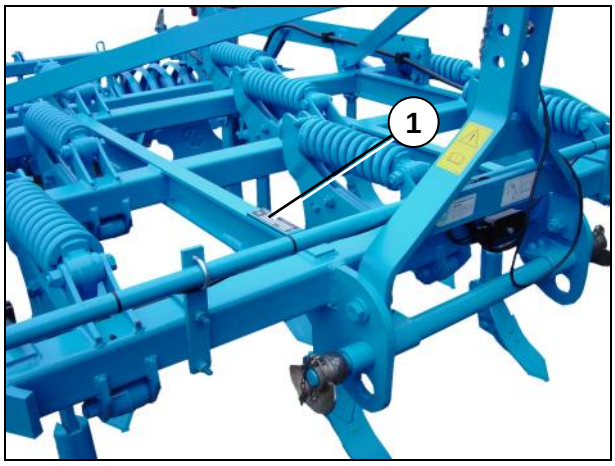
Danger due to incorrect air pressure

Too high air pressure in the tyres may cause the tyres to burst and too low air pressure may overload the tyres.

Depending on the tyre size, the following minimum and maximum permitted air pressures are authorised for the profile and the PR number or the load index. The PR number or the load index and the profile designation are vulcanised in the tyres.

Designation	Profile	Ply rating [PR]	min. permitted air pressure [bar]	max. permitted air pressure [bar]
Sensor wheels 10.0/80-12	AW	8	2,6	2,8

13 IDENTIFICATION PLATE



The identification plate (1) is situated on the front of the frame.

14 NOISE, AIRBORNE SOUND

The noise level of the implement does not exceed 70 dB (A) during work.

It is advisable for:

- tractors with a cab, to keep the cab door closed when working.
- tractors without a cab, to wear suitable hearing protection.

15 NOTES

As the version of equipment is depending from the order, the equipment of your implement and its description concerned may deviate in some cases. To ensure a continuously updating of the technical features, we reserve the right to modify the design, equipment and technique.

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