Original Operating Instructions

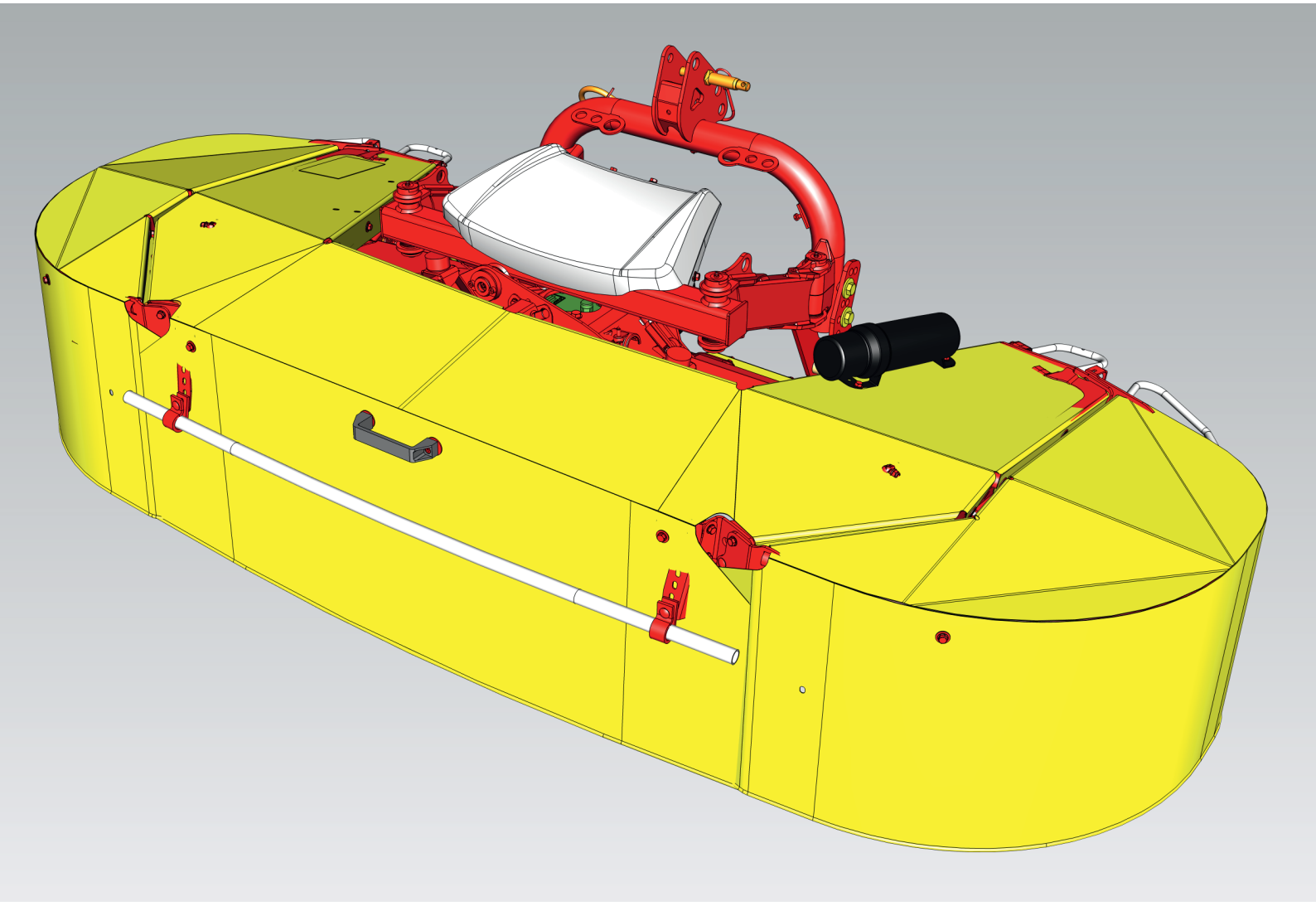
PÖTTINGER

Disc mower

NOVACAT F 2200 ALPIN

3731

Machine No.: +..00001



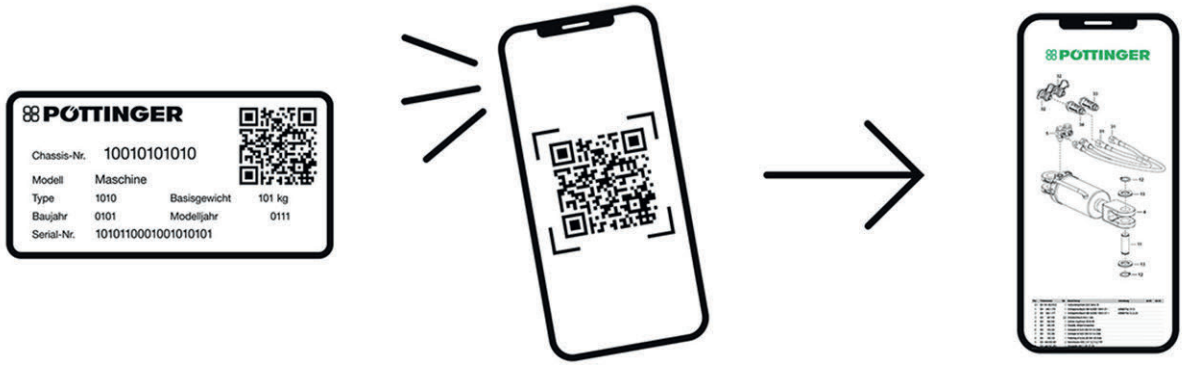
Technical alterations

As we are constantly developing our products, there may be deviations between these documents and the implement. Therefore no claims may be derived from the data, illustrations and descriptions. Please contact your Specialist Service Centre for any binding information about specific features of your machine.

Legal notes

Please note that only the operating instructions written in German constitute the original operating instructions regarding EU Directive 2006/42/EC. Operating instructions in all other languages are translations of the original operating instructions written in German.

We would ask you to please understand that changes to the scope of supply with regard to form, equipment and technical specifications are possible at any time.



MyPÖTTINGER – Simple. Anytime. Anywhere.

- Scan QR code on identification plate with Smartphone / tablet or type in www.mypoettinger.com on the Internet.
- Spare parts lists can be obtained exclusively via MyPÖTTINGER.
- Individual information, such as operating instructions and maintenance information for your machines, is available on MyPÖTTINGER in "My Machines" at any time after registration.

Dear Customer,

"Quality pays for itself." That is why we apply the highest quality standards to our products, which are permanently monitored by our in-house quality management team and our management board. Because the safety, trouble-free functionality, highest quality and absolute reliability of our machines in operation are the core competencies for which we stand.

These Operating Instructions are intended to make it easier for you to familiarise yourself with your machine and to clearly advise you on the safe and correct handling of the machine, as well as its care and maintenance. So, please take some time to read these instructions.

These Operating Instructions are a part of the machine. They are to be kept in a suitable place and be accessible to personnel at any time throughout the entire service life of the machine. Instructions based on existing national regulations on accident prevention, road traffic regulations and environmental protection are to be supplemented.

Any persons commissioned with the operation, maintenance or transport of the machine must read and understand these instructions prior to starting work, particularly the safety information. If these instructions are not observed, the warranty claim will be forfeited.

If there are any questions regarding the contents of these Operating Instructions or further questions regarding the machine, contact your PÖTTINGER service partner.

Ensure correct machine operational and road safety, and reliability through timely and meticulous care and maintenance, according to the specified maintenance intervals.

Use only original spare parts or spare parts and accessories that are approved by PÖTTINGER Landtechnik GmbH. Only the original spare parts approved by us have been tested by us and therefore have the appropriate prerequisites for use in your machine. The use of any unapproved parts forfeits any warranty claim. Even after the warranty period has expired we recommend the use of genuine replacement parts in order to ensure the continuous performance of the machine.

Product liability legislation obliges the manufacturer and the authorised dealer to issue Instructions when selling implements and to instruct customers in the use with reference to the safety, operating and maintenance regulations. Confirmation in the form of a Declaration of Transfer is required to verify that the implement and Instructions have been transferred correctly. The handover declaration is completed electronically by the dealer.

For the purposes of the Product Liability Act, every self-employed person and farmer is an entrepreneur. Entrepreneurial property damage under the terms of the Product Liability Act is therefore excluded from liability by PÖTTINGER. Property damage under the terms of the Product Liability Act is damage caused by a machine, but not to it.

The operating instructions are part of the machine, therefore pass them on to any new owner when transferring the machine. Instruct the new owner and make them aware of the regulations mentioned.

Your PÖTTINGER service team wishes you every success.

Representation conventions

This section contains explanations for a better understanding of the illustrations, safety and warning notes and textual descriptions used in these operating instructions.

Safety instructions / warnings

Safety instructions of a general nature are always placed at the beginning of a section. They warn of dangers that may occur during machine operation or when preparing to work on the machine. Warnings alert to hazards that may occur directly during an operation or work step on the machine. Warnings are listed together with the relevant procedures / work steps in the written instructions.

Safety instructions and warnings are presented as follows:

DANGER

If you do not follow the instructions in a text section with this marking, there is a *risk of fatal or life-threatening injury.*

► All instructions in such text sections must be followed!

WARNING

If you do not follow the instructions in a text section with this marking, there is a *risk of severe injury.*

► All instructions in such text sections must be followed!

CAUTION

If you do not follow the instructions in a text section with this marking, there is a *risk of injury.*

► All instructions in such text sections must be followed!

NOTICE

If you do not follow the instructions in a text section with this marking, there is a *risk of damage to property.*

► All instructions in such text sections must be followed!

TIP

Text sections marked in this way contain recommendations and advice for handling the machine.

ENVIRONMENT

Text sections marked in this way contain advice on the subject of environmental protection.

Directions

Directions (such as left, right, front, rear) are given based on the normal "working travel direction" of the machine.

Orientation information for an illustration of a machine detail refers to this illustration only, and is only to be understood as relative to the direction of travel in certain cases. The meaning of the orientation information (if required) is clearly evident from the accompanying text.

Designations

These operating instructions designate the interchangeable equipment for agricultural vehicles (in line with the EU Directive 2006/42/EC) as **machine**.

Vehicles intended to drive the existing machine are designated as **tractor**.

Equipment designated as **optional** is available only for certain machine models or only in certain countries.

Protective goggles, work gloves, safety shoes, tight fitting, long work clothing, hair nets in the case of long hair, hearing protection as well as suitable equipment to protect against seed treatment dusts (such as dust masks etc.) are designated as **personal protective equipment**. The complete selection of suitable personal protective equipment for the respective purpose remains the responsibility of the machine operator.

Cross-references

Cross-references to another location in the operating instructions or another document are provided in the text, specifying the chapter and subchapter, or section. The naming of subchapters or sections is in inverted commas. (Example: Check all screws on the machine for tightness. See "Tightening torques" on page xxx). A subchapter and/or section can be found in the document via an entry in the table of contents.

Action steps

An arrow ▶ or sequential numbering indicates action steps you should take.

A black bordered, indented arrow ▷ or sequential, indented numbering indicates intermediate results or intermediate steps that should be performed.

Illustrations

Illustrations may differ in detail to your machine and should only be considered as a principle diagram/symbol illustration.

Use of colours

Illustrations in the printed document provided by PÖTTINGER Landtechnik GmbH are shown only in grey scale or black and white.

Illustrations in electronically distributable documents (PDF) are displayed in colour also and can be printed out in colour if required.

Use of symbols

Illustrations may contain additional symbols, arrows and other lines that serve to improve the comprehensibility of the image content or are intended to draw attention to a specific area of the image.

Instructions for product handover

Please verify the listed items in accordance with the product liability obligation

☒	Please place a cross where appropriate.
☐	Machine checked according to delivery note. All packaged parts removed, all safety equipment, cardan shaft and operating equipment is present.
☐	Machine operation, commissioning and maintenance discussed with and explained to the clients using the operational instructions.
☐	Tyre air pressure verified.
☐	Tightness of wheel nuts verified.
☐	The correct p.t.o. speed and direction of rotation pointed out.
☐	Adaptation to tractor completed; three point adjustment, drawbar height, handbrake lever installed in tractor cab, forced steering linkage adjusted, compatibility of all necessary electrical, hydraulic and pneumatic connectors to tractor checked and established.
☐	Cardan shaft correctly cut to length.
☐	Test run of all machine functions in addition to parking brake and operating brake completed and no defects noted.
☐	Function explanation during test run.
☐	Pivoting to transport and working position explained.
☐	Information regarding optional equipment provided.
☐	The importance of reading the operating instructions has been pointed out.

Confirmation is required to prove that the machine and the operating instructions have been properly handed over. For this purpose you have received a confirmation e-mail from PÖTTINGER. If you have not received this mail, please contact your local dealer. Your dealer can fill in the handover declaration online.

Austria

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4710 Grieskirchen

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Amendment index

Date	Index	Amendment reason	Amended chapter

Factory standard tightening torques

Design and function

At a glance

Description

Technical data

Safety and the environment

Valves / cover / auxiliary equipment

Operation

Maintenance

Maintenance based on actual condition

Predetermined maintenance

Operating materials

Help and advice

Tightening torque

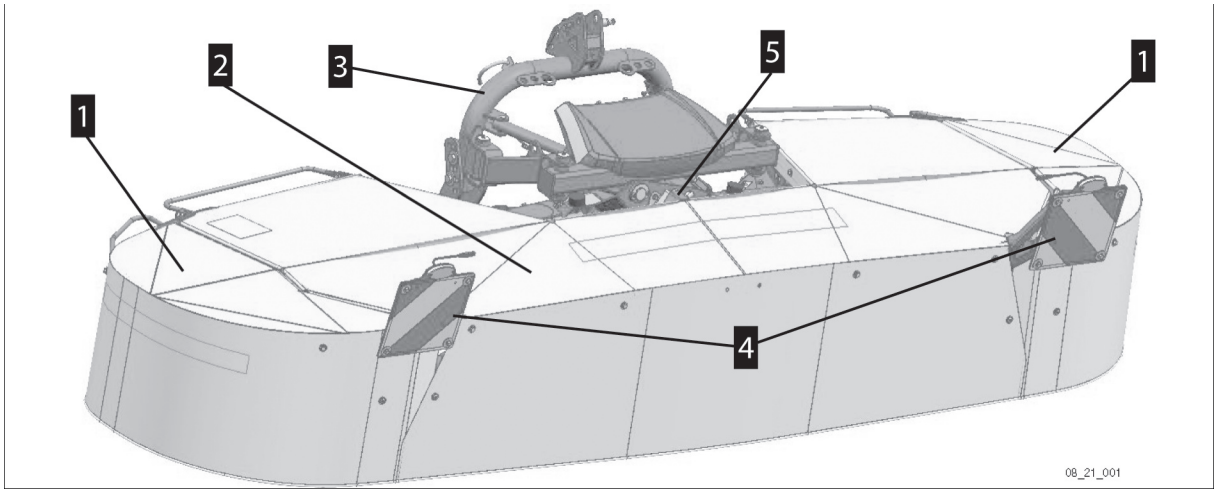
This factory standard applies to all metric bolts for which no special tightening torque is specified in the drawing/manual. The relevant grade is visible on the bolt head.

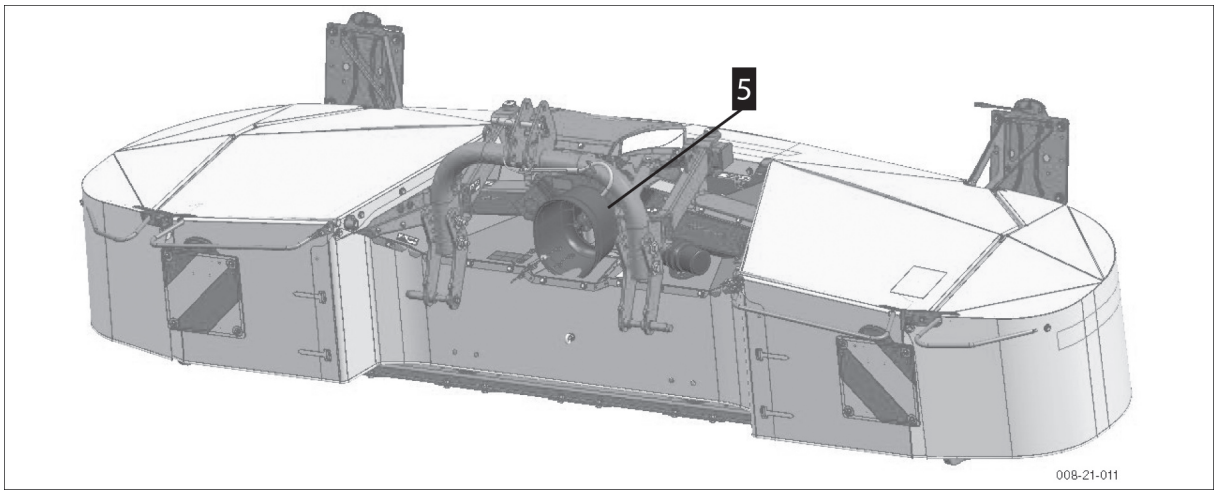
- The values given are nominal and are valid for a head friction rate of IJ=0.14 and a thread friction of IJ=0.125 Slight tensioning force differences can exist through differing friction rates. The values given are to be kept to a tolerance of ± 10%.
- By using the given tightening torque and the existing friction rate used, then up to 90% of the minimum yield strength of the bolt material is used in accordance with DIN ISO 898 .
- If a specific tightening torque is given for a bolt connection, then all these bolt connections are to be tightened to the specified tightening torque using a torque wrench.

Metric thread	Grade 8.8		Grade 10.9	
	Tightening torque	Tensioning force	Tightening torque	Tensioning force
M 4	3,1 Nm	4000 N	4,4 Nm	5700 N
M 5	6,2 Nm	6600 N	8,7 Nm	9300 N
M 6	10,5 Nm	9300 N	15 Nm	13000 N
M 8	25 Nm	17000 N	36 Nm	24000 N
M 10	50 Nm	27000 N	70 Nm	38000 N
M 12	86 Nm	39500 N	121 Nm	56000 N
M 14	135 Nm	54000 N	195 Nm	76000 N
M 16	215 Nm	75000 N	300 Nm	105000 N
M 20	410 Nm	117000 N	580 Nm	164000 N
M 24	710 Nm	168000 N	1000 Nm	237000 N
M 30	1400 Nm	270000 N	2000 Nm	380000 N
M 8 x 1	27 Nm	18700 N	38 Nm	26500 N
M 10 x 1.25	53 Nm	29000 N	74 Nm	41000 N
M 12 x 1.25	95 Nm	44500 N	130 Nm	63000 N
M 14 x 1.5	150 Nm	60000 N	210 Nm	85000 N
M 16 x 1.5	230 Nm	81000 N	320 Nm	115000 N
M 20 x 1.5	460 Nm	134000 N	650 Nm	189000 N
M 24 x 2	780 Nm	188000 N	1090 Nm	265000 N

Function elements

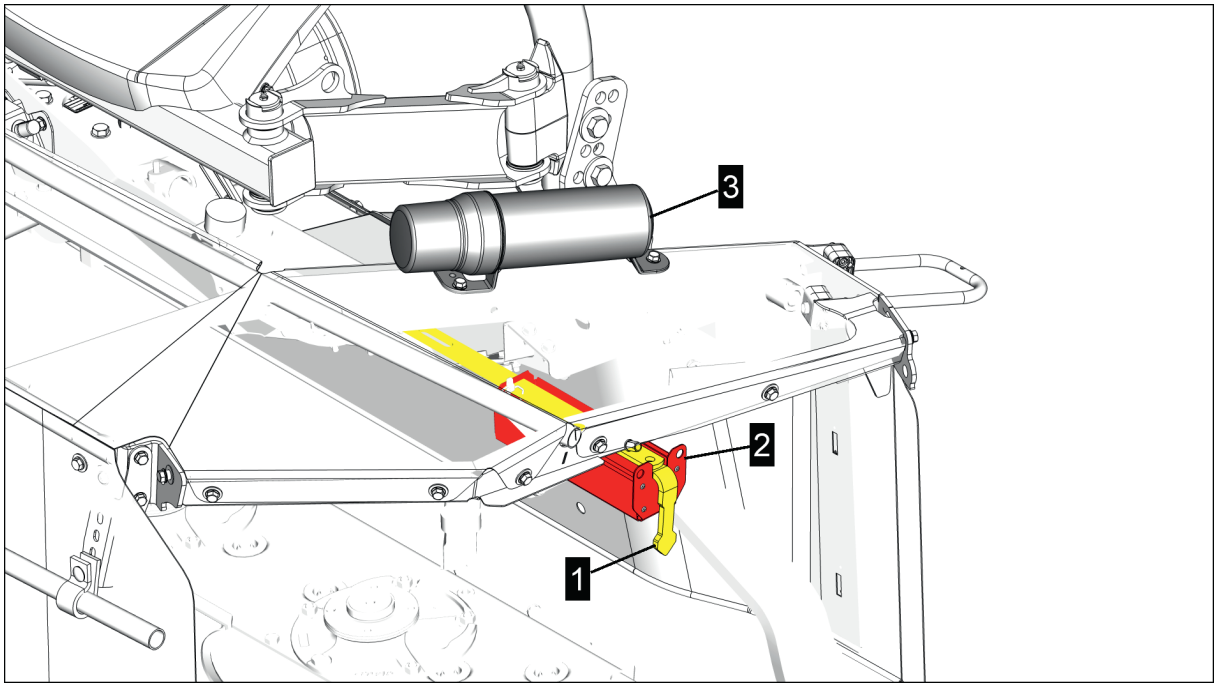
Pos.	Element
1	Side guards are swivelled mechanically (option: hydraulically)
2	Swivelling front guard
3	3-point headstock
4	Warning signs (option: with marker lights)
5	Driveline





Accessories included in the scope of delivery

- Blade wrench (1)
- Blade box (2)
- Operating Instructions (3)



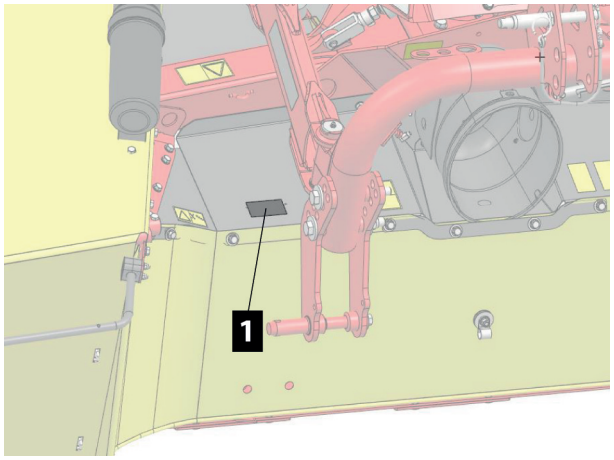
Safeguard displayed transparently

Upgrade program

The PÖTTINGER Landtechnik GmbH upgrade program offers many upgrade possibilities. You can receive additional information from your service dealer.

Identification

Type plate



1 = Type plate position

Type plate

Before making any enquiries about the machine or technical details, note down the model and type from the nameplate and keep them handy. Chassis no. and/or serial no. are required for ordering spare parts.

CE marking

The CE mark on the nameplate confirms that the machinery conforms to the provisions of the Machinery Directive (valid at the time of placing the machinery on the market).

Included data

The following data can be read on the nameplate, depending on the machine type and version.

Data	Data
Chassis number	Year of mfr.
Model	Model year
Vehicle ID number	Axle load per axle
Type	Bearing load
Serial number	Permissible total weight
Basic weight	

Declaration of Conformity

Declaration of conformity

Name and address of the manufacturer:

PÖTTINGER Landtechnik GmbH
Industriegelände 1
AT - 4710 Grieskirchen

Machine (interchangeable equipment):

mower	**NOVACAT F 2200 ALPIN**
Type	**3731**
Serial no.	

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object described above complies with the following statutory requirements :

Supply of Machinery (Safety) Regulations 2008, 2008 NO. 1597
Electromagnetic Compatibility Regulations 2016, 2016 NO. 1091

The following designated standards were applied:

EN ISO 12100:2010
EN ISO 4254-12:2012
EN ISO 14982:2009
EN ISO 4254-1:2015
EN ISO 4254-12:2012/A1:2017

The following standards and technical specifications were applied:

Person authorised to compile the technical documentation
Melanie Jane Gardner
St. Marks Road 15
GB - NN188AN Corby

Markus Baldinger
CTO R&D

Jörg Lechner
CTO Production

Grieskirchen, 12.07.2023

The EC norm is not valid in the United States and Canada.

EU declaration of conformity

Name and address of the manufacturer:

PÖTTINGER Landtechnik GmbH
Industriegelände 1
AT - 4710 Grieskirchen

Machine (interchangeable equipment):

mower	**NOVACAT F 2200 ALPIN**
Type	**3731**
Serial no.	

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

machinery 2006/42/EG
Electromagnetic compatibility 2014/30/EU

Source of applied, harmonised norms:

EN ISO 12100:2010
EN ISO 4254-12:2012
EN ISO 14982:2009
EN ISO 4254-1:2015
EN ISO 4254-12:2012/A1:2017

Source of applied miscellaneous technical norms and / or specifications:

Person authorised to compile the technical file:

Martin Baumgartner
Industriegelände 1
AT - 4710 Grieskirchen

Markus Baldinger
CTO R&D

Jörg Lechner
CTO Production

Grieskirchen, 12.07.2023

Designated use

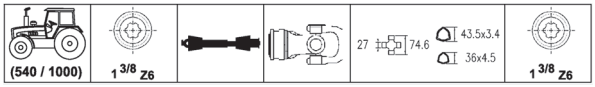
- The trailing mower is intended exclusively for the mowing of fields and short stemmed fodder.
- Intended use also implies compliance with the contents of these instructions and with the warning signs (icons) on the machine.

Non-intended useage

The following uses of the machine may void the warranty

- Storage and transport of seed/fertiliser or other materials/substances on the machine.
- Keeping animals on the machine.
- Transporting persons or animals on the machine.
- Immersion in liquids during transport, operation or storage of the machine.
- Working of roads, stony ground and other surfaces consisting essentially or partially of stone, sand or asphalt.

Possible cardan shaft section (tractor side)



Dimensions

Designation	NOVACAT F 2200 ALPIN
Type	3731
Working width	2200 mm

Weights

Designation	Type	Basic weight	Max. tractor weight
NOVACAT F 2200 ALPIN	3731	400 kg	4500 kg

TIP

If your machine is equipped with additional equipment, the indicated weight may differ!

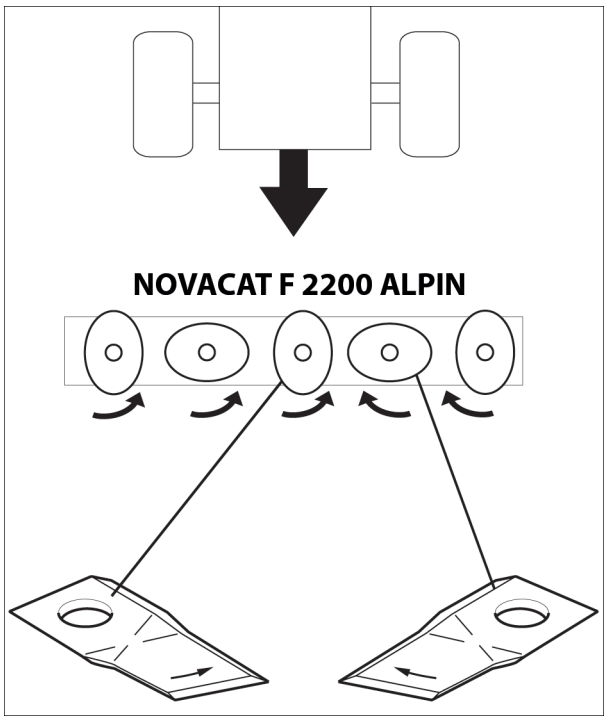
Mower discs and cutter blades

Designation	Type	Mower discs (unit)	Cutter blades per mower disc (unit)
NOVACAT F 2200 ALPIN	3731	5	2

TIP

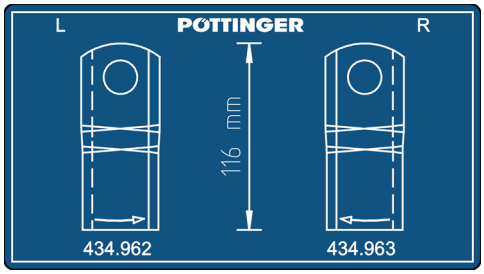
The outer and inner mower drum / mower disc on all mowers (for each mower unit) must turn inwards on the front of the machine!

Cutter blade direction of rotation



TIP

The blade equipment used is shown on the sticker on the blade box. See "Accessories included in the scope of delivery" on page 13.



Blade equipment

Power requirements

Designation	Type	Tractor	P.t.o. speed
NOVACAT F 2200 ALPIN	3731	From 26 kW	540 / 1000 U/min

Hydraulics

NOTICE

Damage to hydraulics due to incompatible hydraulic oils!

- ► Do no mix mineral oils with organic oils!
- ► Check hydraulic oil compatibility before connecting the machine to the tractor.

Hydraulic oil	
Hydraulic oil specification	DIN 51524 Part 1 and 2 Viscosity 46 mm^2/s at 40 °C
Oil temperature	Max. 80 °C
Operating pressure	170 up to max. 200 bar

Hydraulic connections	1x double-acting hydraulic connection for side guard folding (option) 1x double-acting hydraulic connection for lateral shifting (option)

Electrics

Voltage	12 V DC
Connections	1x 7-pin plug in accordance with DIN-ISO 1724 (lighting)

Noise emission

Continuous noise level	75,7 dB(A)

TIP

The actual noise level in the workplace may differ from the measured continuous sound level depending on the different tractor designs.

We recommend wearing hearing protection during the work!

Safety advice

The safety instructions warn of dangers to life and limb, and of improper machine operation. Read these instructions carefully before putting machine into operation and/or before working with or on the machine, and observe the safety information given in the operating instructions as well as the warnings displayed on the machine. If the warnings on the machine are not observed, the machine operator is then fully responsible for any resulting injuries and damage!

Personnel qualification

- The only persons permitted to work with the machine are those who have reached the legal minimum age, are physically and mentally competent and have been appropriately trained and/or instructed. Personnel who still need to be trained, are partly trained or under instruction, may only work on/with the machine under the constant supervision of an experienced person.
- Testing and adjustment work may only be performed by authorised specialists. Authorised specialists are people who have been trained by PÖTTINGER Landtechnik GmbH or a PÖTTINGER Service Specialist.
- Assembly, repair and modification work can only be carried out by specialists. A specialist is a person who, on the basis of their professional training, knowledge and experience, can assess and properly perform the tasks assigned to them. The specialist has an understanding of all relevant standards and risks associated with their activity.

Performing maintenance work

- This manual describes only the cleaning, maintaining and repair works that the operators can carry out themselves. All other work must be carried out in a specialist workshop.
- Repairs to the electrical or hydraulic system, to preloaded springs, to pressure tanks, etc. require sufficient knowledge and proper fitting tools, and may therefore only be carried out in a specialist workshop.
- Use appropriate tools and personal protection equipment.

Organisational measures

- Always keep these instructions handy.
- Familiarise yourself with the functions of all the operating devices prior to starting work.
- In addition to the information in these instructions, also observe the relevant country-specific regulations on occupational health as well as the generally applicable, statutory or other binding regulations on accident prevention. Such obligations may pertain to the wearing of personal protective equipment or to road traffic regulations, for example.
- Appropriate workshop equipment is required to perform testing, adjustment and repair work.

Maintaining operational safety

- Only use the machine when it is in faultless technical condition, in accordance with its intended use, and in a safety-conscious and hazard-conscious manner.
- Immediately repair any defects that could impair safety or have them repaired by a workshop.
- Observe the warning signs on the machine.
- The operator must ensure that all warning signs are present and legible throughout the entire operating life of the machine.
- Do not undertake any unauthorized machine modifications. This also applies to the installation and adjusting of safety devices as well as welding or drilling in stress-bearing parts.
- Use only spare parts and accessories that are genuine parts or that are specifically approved by PÖTTINGER Landtechnik GmbH. For these parts, reliability, safety and suitability have been proven specifically for PÖTTINGER machines. We cannot evaluate other products and therefore cannot vouch for them.
- Maintenance work, as described in these instructions, must be fully carried out at the given time intervals or have them completed in a specialist workshop.
- Do not make any software alterations to the programmable control system.

Special hazards

DANGER

Body parts can become crushed or caught by powered machine components!

- ► No long, loose hair or loose clothing is permitted. Use personal protective equipment if necessary or as required by regulation.
- ► Only operate the machine when all safeguards are properly fitted, undamaged and in the protective position.
- ► No-one is permitted to reach into the area of moving machine parts during operation!
- ► Do not approach the switched-off machine before all moving machine parts have stopped.
- ► Only perform cleaning, maintenance and repair work when the drive is stationary. Always secure the machine against accidental switching on, rolling and/or tipping over.

WARNING

Damage to health due to noise!

- ► If the noise level exceeds 80 dB(A), hearing protection is highly recommended.
- ► If the noise level exceeds 85 dB(A), hearing protection is compulsory.

WARNING

Fire or explosion!

Dirt created by combustible materials in the vicinity of grinding and welding work may catch fire due to flying sparks.

- ► Before any welding or grinding work, clean dust and flammable substances from the machine and the surroundings, and ensure that there is sufficient ventilation.
- ► Do not carry out grinding and welding work over combustible surfaces.

WARNING

Skin, eye or respiratory tract irritation!

Oils, fats, solvents and cleaning agents may present a health risk.

- ► Observe the safety regulations applicable to the respective product.
- ► Provide sufficient ventilation.
- ► Use personal protective equipment such as protective clothing, gloves /safety goggles.

WARNING

Infections due to leaking hydraulic oil!

Hydraulic oil that is discharged under pressure may penetrate the skin, enter bodily orifices and cause severe infection.

- ► Depressurize the hydraulic system before carrying out maintenance work.
- ► Wear personal protective equipment such as goggles and gloves when working on the hydraulic system.
- ► Before starting operation, always check the hydraulic system for wear and damage.
- ► Only search for leaks with suitable aids (e.g. special spray for leak detection). Have any defects dealt with immediately in a specialist workshop.
- ► Do not seal off leaks using your hands or other body parts.
- ► Seek medical advice immediately in case of injury caused by hydraulic oil.

WARNING

Ejection of stones and soil!

During operation, foreign objects can fly past the machine's protective devices at high speed and hit distant areas.

- ► During operation, take special care near buildings, grazing animals and areas of pedestrian traffic.
- ► Brake, reduce p.t.o. speed and continue at reduced speed until the danger zone can be exited.
- ► If in doubt, stop and switch off the p.t.o. until the possibility of danger can be eliminated.

Operational danger area

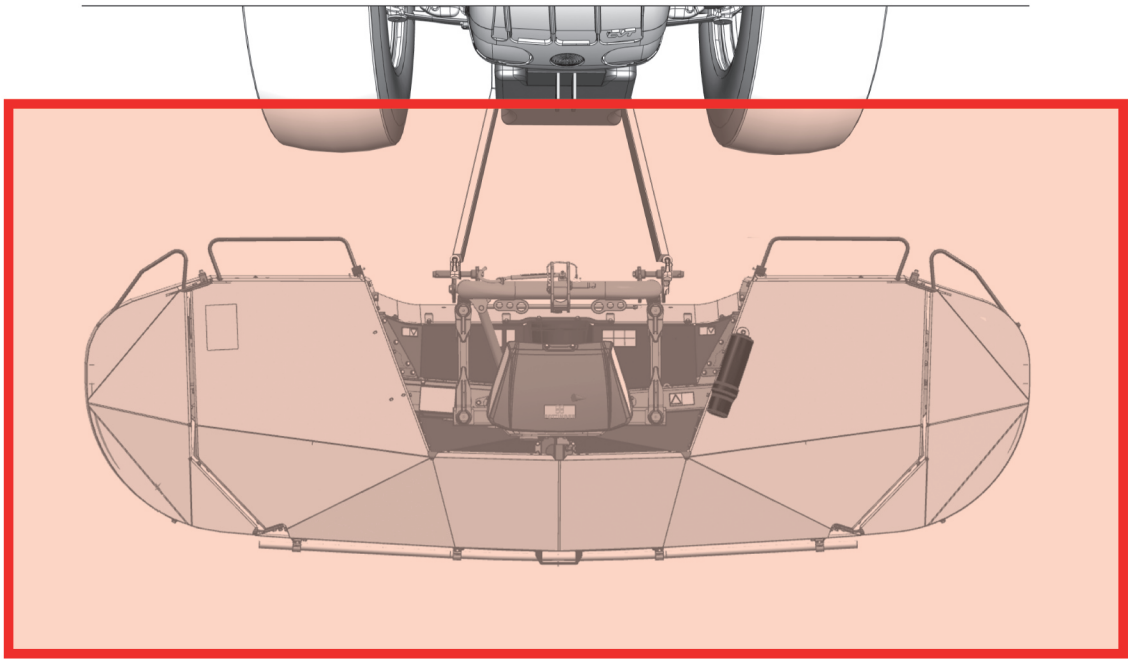
Entering the danger area while the machine is in operation and / or the tractor motor is running is strictly prohibited!

DANGER

Crushing, pulling in and severing of body parts!

When approaching moving machine parts, clothing, hair and body parts can become caught, which means an escape is not possible without sustaining serious to fatal injuries.

- ► Do not access the machine's danger area as long as machine parts can move there.
- ► Check that protective devices are complete and ready for operation before start-up.
- ► Before start-up and during operation, direct individuals away from the danger zone in and around the machine.



Marking = Machine danger area in all operating and transport positions.

DANGER

Injury caused through slipping!

► Accessing any of the protective equipment is not permitted!

Warning pictograms

Listed below are the positions and meanings of all warning signs used.

TIP

Warning signs (symbols) point to residual risks and how to avoid them.

Damaged or lost warning signs must be replaced.

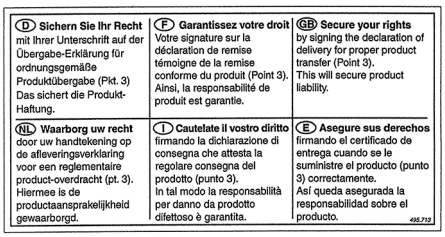
If machine parts with warning stickers are replaced, the relevant warning stickers must be stuck onto the new components.

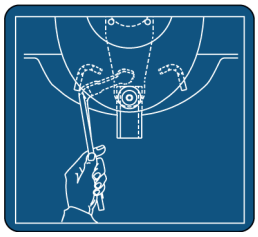
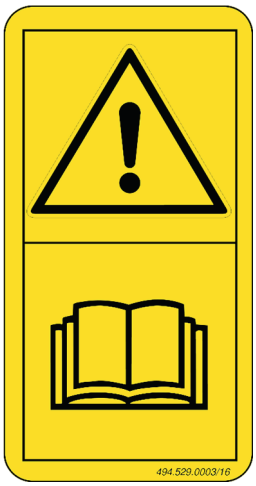
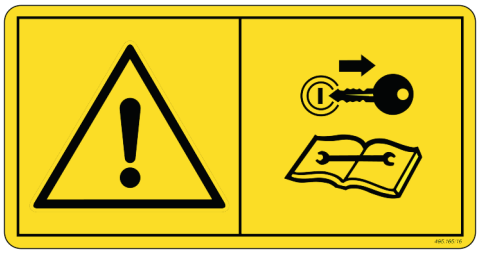
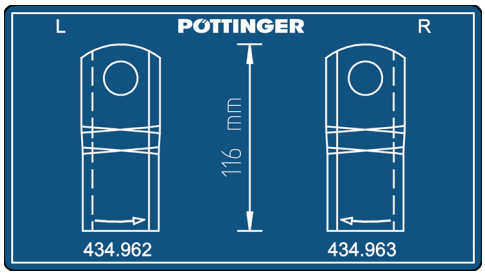
TIP

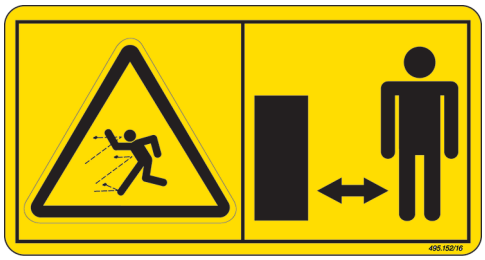
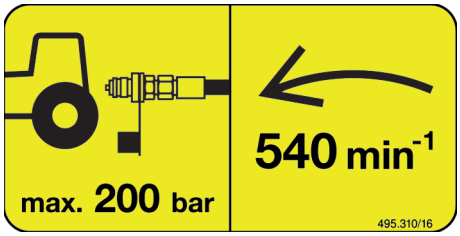
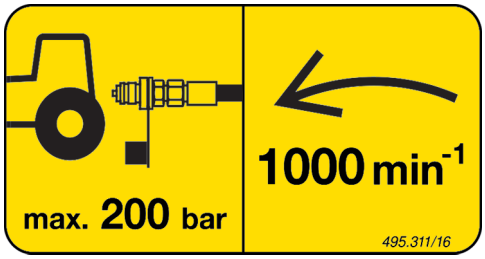
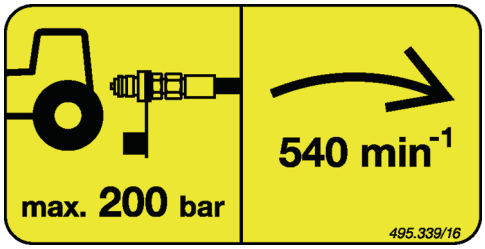
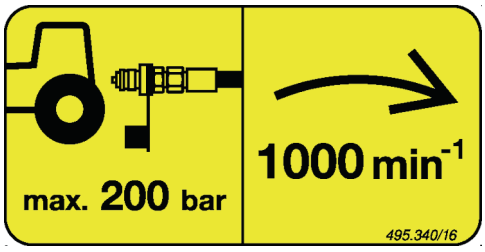
USA / CANADA

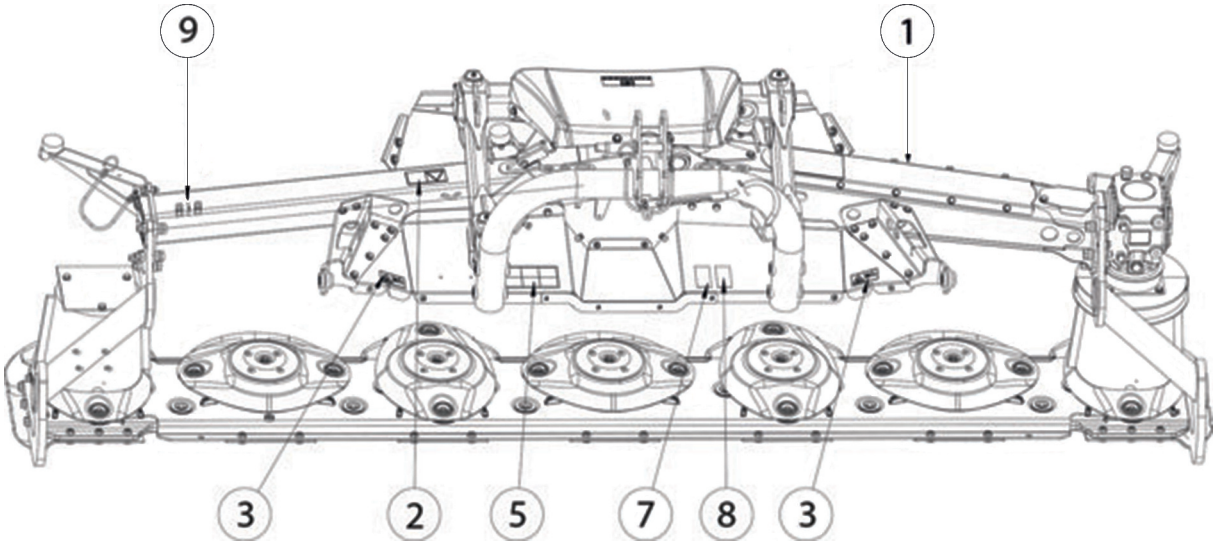
For machines to be operated in the USA / CANADA, a conversion kit with warning stickers (to adapt to local applicable regulations) is available from PÖTTINGER in English or French! See also "Supplement to the Operating Instructions USA / CANADA".

Explanation

Pos.	Warning signs	Meaning
1 (1x)		Risk of severing fingers Never reach into the danger area as long as parts can move there. 495.153
2 (1x)		Close both side guards before engaging PTO. 495.167
3(4x)		Never reach into the crushing danger area as long as parts may move. 495.171
4 (2x)		Position of the transport hooks 495.404
5 (1x)		Product liability 495.713

Pos.	Warning signs	Meaning
6 (1x)		Blade changing 495.725
7 (1x)		Read the operating manual thoroughly before putting the machine into operation. 494.529
8 (1x)		Remove the ignition key before maintenance work and keep it safe. 495.165.0001
9 (1x)		Blade equipment 495.720.0001
10 (1x)		Wait until all machine components have stopped completely before touching them. 495.158 (Printed on protective apron)

Pos.	Warning signs	Meaning
11 (1x)		Keep a safe distance as danger exists through parts being ejected while motor is running. 495.152 (Printed on protective apron)
12 (1x)		Risk of crushing! Keep a safe distance from moving or rotating parts. (Printed on protective apron)
13 (1x)	   	Maximum hydraulic pressure, p.t.o. direction of rotation and maximum p.t.o. speed. 495.310 495.311 495.339 495.340 Depending on the machine configuration, one of the warning signs might be placed in the area of the input gearbox.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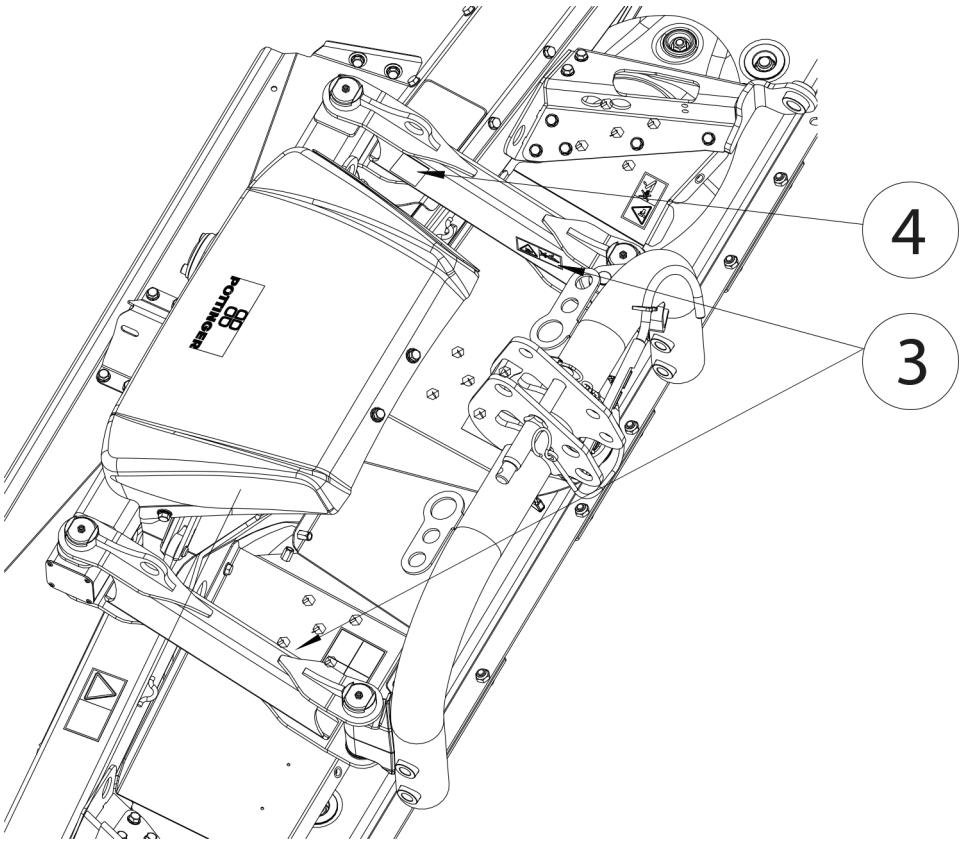
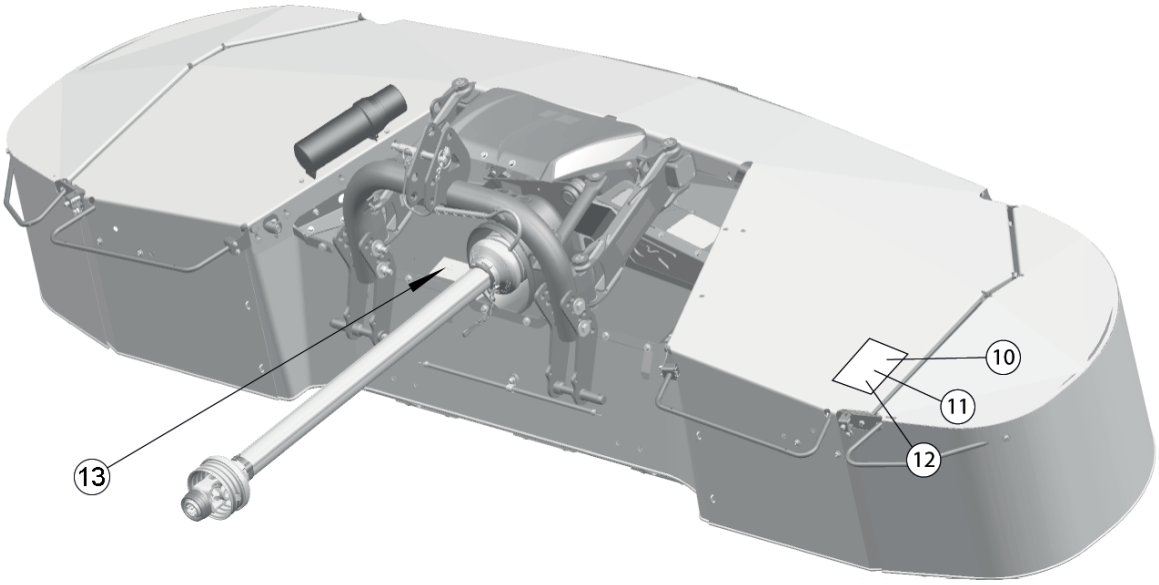
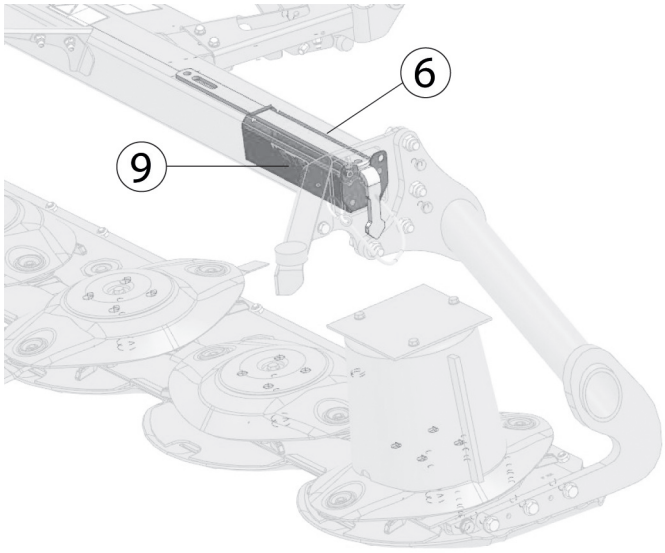

4
3





Traffic safety equipment

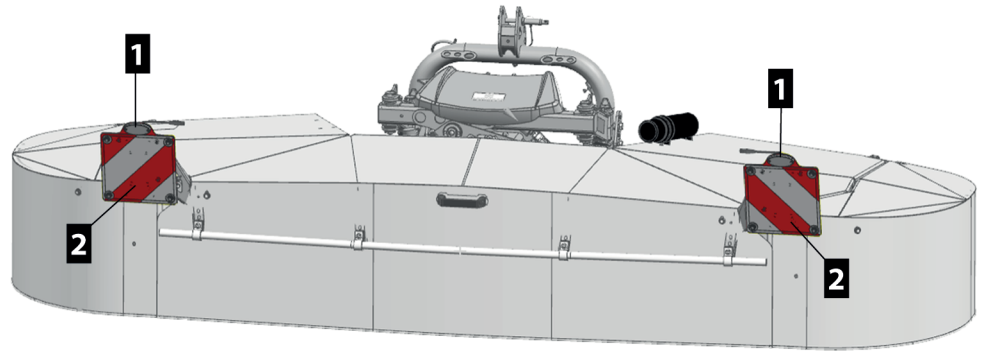
Traffic safety equipment is required when travelling on public roads. The equipment may vary depending on the country of destination.

TIP

USA / CANADA

For machines which are operated in the USA / CANADA, a "Flasher Control Module" (to adapt the direction indicator blinking frequency to the current applicable regulations) is available!

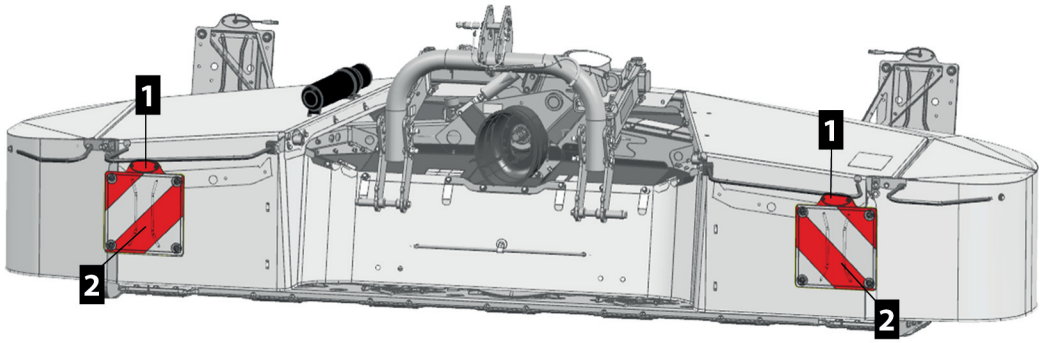
Front equipment is standard



1 = White marker light

2 = Warning sign

Rear equipment is standard



1 = Red marker light

2 = Warning sign

Handling hazardous substances

In addition to the information in these Instructions, the generally applicable, statutory or otherwise binding regulations on environmental protection are to be observed.

Fuel efficiency and soil protection

Careful adjustment of the machine preserves machine/soil and saves fuel.

Disposal of the machine

ENVIRONMENT

At the end of its service life, the machine should be taken to a legally regulated waste material recycling center.

Pressure tanks, shock absorbers, gas springs, etc.

- Depending on the machine, there are built-in hydraulic pressure tanks under high gas pressure (nitrogen) which must be discharged via a special device before the machine is scrapped.
- Depressurize airbrake compressed air tanks via the condensate drain before disposing of them.
- Gas pressure springs, gas pressure dampers or oil pressure dampers are under high pressure and must be removed before scrapping the machine and, if necessary, disposed of separately from metal scrap.

Dispose of lubricants and operating materials

- Drain, collect and dispose of gear lubricants and hydraulic oils appropriately.
- Empty lubricant containers of central lubrication systems and dispose of the lubricant appropriately.

Dispose of electrical and electronic components

- Remove lighting equipment, job computer, sensors and cables and take them to the recycling facility separately.

Dispose of plastic parts

- Plastic parts are supplied with a label which provides information on the material composition. Plastic parts can therefore be correctly sorted before being taken to the recycling centre.

Disposal of metal parts

- All metal parts must be brought to the relevant recycling plant, sorted as purely as possible.
- Remove lubricants such as gear oil, hydraulic oil, etc. from components before they are scrapped.

Disposal of rubber parts / tyres

- Take tyres with and without rims, and other rubber components to the relevant recycling point.

Disassembly of heavy parts of the machine

- Lift parts of the machine whose weight exceeds 25 kg only by crane.

⚠ WARNING

Health hazard due to heavy, manual lifting!

- ► Do not manually lift parts of the machine whose weight exceeds 25 kg.
- ► Use a crane, forklift or similar to remove or dismantle these parts.

Auxiliary equipment

Protective apron carrier operation

The side guards may be fitted with a hydraulic folding device (option).

CAUTION

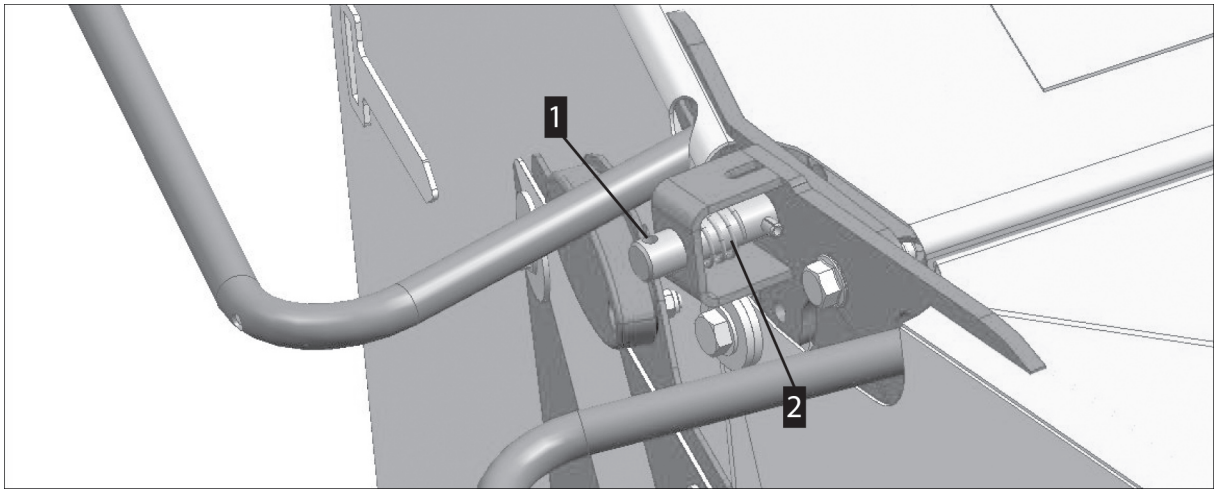
Ejected impurities / defects in machine parts

- ► Never open safety devices whilst the machine parts are rotating.
- ► Never leave safety devices open whilst the machine parts are rotating.
- ► Wait until all rotating machine parts are stationary before approaching the machine.
- ► Any defective parts on the safety equipment must be repaired or replaced immediately.

TIP

The guards may be operated hydraulically via the tractor control device, depending on the machine. If this is the case, no further manual intervention is required.

Operate the side guards manually



1 = Locking bolts with bored hole

2 = Pressure spring

Preparation

- Thin screwdriver, pin punch or similar tool.

Prerequisite

- Machine parked in working position and secured against rolling and/or tipping over.
- All rotating machine parts are stationary.

Implementation

- ► Insert the auxiliary tool into the hole of the locking bolt (1).

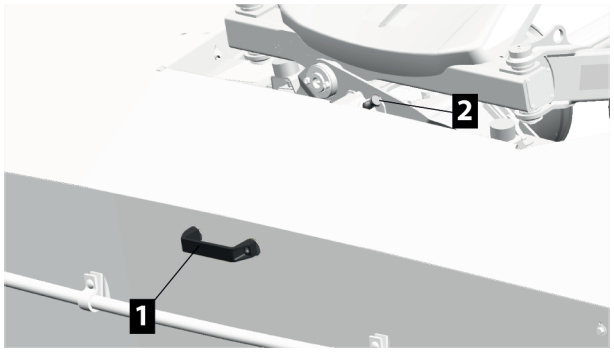
► Use the auxiliary tool to pull the locking bolt (1) out sideways.

► Move the side guard to the required position.

► Engage the locking bolt (1) again.

► Close side guard: Carry out process in the reverse order.

Operate the front guard manually.



1 = Handle

2 = Spring-loaded locking bolts

Prerequisite

- Machine parked in working position and secured against rolling and/or tipping over.
- All rotating machine parts are stationary.

Implementation

► Remove locking bolts (2) and raise front guard slightly using the handle (2).

► Release locking bolts (2) and fold front guard up until it stops.

► Close front guard: Carry out process in the reverse order. Make sure the the locking bolts (2) have correctly locked the front guard.

Operate guards hydraulically (option)

⚠ DANGER

Crushing, pulling in and severing of body parts!

When approaching moving machine parts, clothing, hair and body parts can become caught, which means an escape is not possible without sustaining serious to fatal injuries.

► Do not access the machine's danger area as long as machine parts can move there.

► Check that protective devices are complete and ready for operation before start-up.

► Before start-up and during operation, direct individuals away from the danger zone in and around the machine.

Implementation

► Depending on the design, actuate the tractor / control device and / or control terminal to move the relevant guard into the required position.

Set the hydraulic operation folding speed

► Actuate the hydraulic side guard folding device control unit until both guards are swung fully upwards.

► The folding speed is set by altering the oil flow.

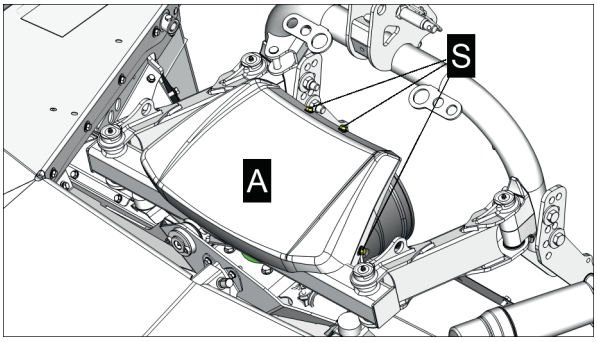
► Reduce the oil flow to slow down the folding mechanism. This will protect the optional equipment.

Fit / remove covering

The covering protects the moving parts underneath against contact.

Implementation

► Remove covering: Remove 4x screws (S) and take off the covering (A).



► Fit covering: Carry out process in the reverse order.

Initial operation

- Before intial operation, make sure the tractor is suitable for use with the machine. The information provided in the technical data of these operating instructions must be checked against the corresponding information in the tractor's operating instructions.
- Make sure that any transport safeguards on the machine have been removed.
- Ensure that spare parts, machine components or operating terminals packed in the machine (e.g. in seed hoppers, in loading spaces, under protective covers) and on the machine have been removed.

Coupling

NOTICE

Collisions with other road users!

Collisions may occur with other road users when travelling with machines whose components are not secured in road transport position.

► Move all machine components to road transport position before transportation on public roads and secure as stipulated.

► Before driving in traffic areas with other road users, bring the machine into road transport position.

DANGER

Pulling in and severing of body parts!

► Secure the PTO drive against unintentional starting.

WARNING

Crush hazard over the entire body!

Do not remain in the danger area around the tractor and the machine unless the mower combination has been secured against rolling and accidental operation.

1 Instruct bystanders to leave the danger area around the tractor and the machine.

2 Make sure that bystanders do not enter the danger area.

3 Park the machine on flat, firm ground.

4 Apply the emergency brake.

5 Turn off tractor engine, remove ignition key and keep safe.

6 Insert wheel chocks on the tractor and on the machine.

WARNING

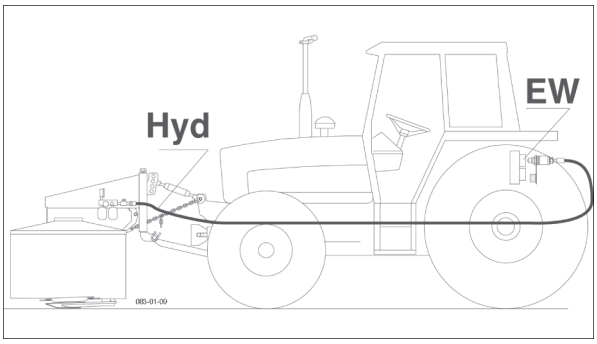
Danger of whole body being crushed when activating the power lift!

- ► Direct people away from the danger area around the power lift.
- ► Do not stand between the tractor and the power lift when operating the power lift via external buttons.

Potential attaching problems and solutions

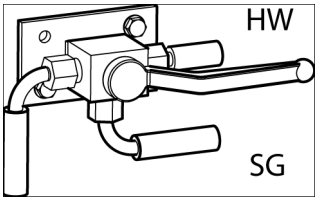
- **No front hydraulic connection**

  If the tractor has no hydraulic connection at the front, then a hydraulic hose must be run from the rear to the front.



- **Shared control device for front and rear lifting gear.**

  A three-way tap for switching between the front lifting gear (HW) and rear lifting gear may be necessary with some tractors.



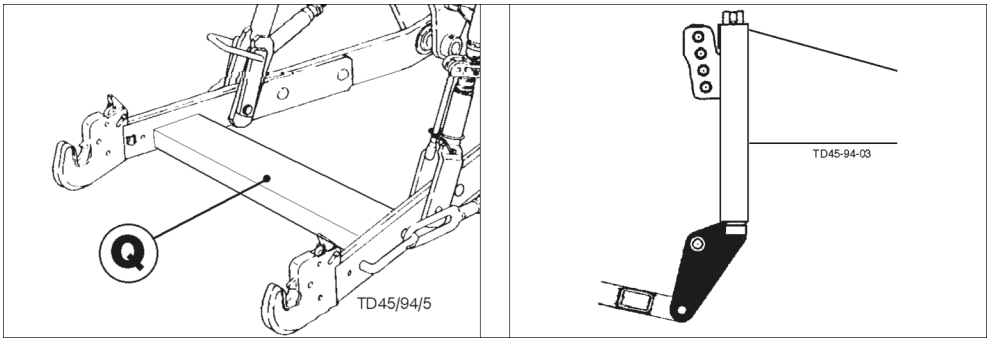
- **Lifting gear with cross member**

  When using lifting gear with a cross member (Q) between the lower links, damage could occur to the cardan shaft when lowering the attached machine.

  To avoid damage, an extension must be installed between the lifting gear and the A-frame.

TIP

In such a case, please contact the PÖTTINGER customer service.



Left = Cross brace

Right = Attachment heightening between lifting gear and A-frame

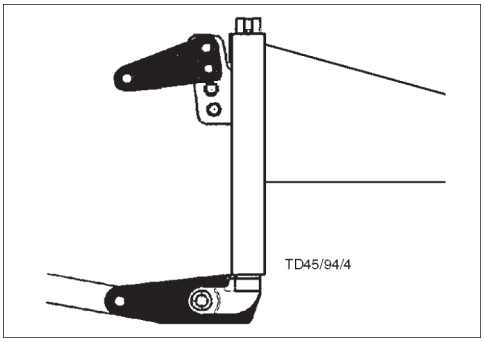
- **PTO stub mounted too far forward**

  On tractors where the PTO shaft stub is very far forward, the PTO shaft would have to be considerably shortened. If the machine is raised, there would then be insufficient PTO shaft pipe overlap, or the maximum cardan shaft angulation would be exceeded.

  In this case, an accessory kit is necessary which positions the implement approx. 200 mm forwards.

TIP

In such a case, please contact the PÖTTINGER customer service.



Attaching on tractor

WARNING

Crush hazard over the entire body!

Do not remain in the danger area around the tractor and the machine unless the mower combination has been secured against rolling and accidental operation.

1 Instruct bystanders to leave the danger area around the tractor and the machine.

2 Make sure that bystanders do not enter the danger area.

3 Park the machine on flat, firm ground.

4 Apply the emergency brake.

5 Turn off tractor engine, remove ignition key and keep safe.

6 Insert wheel chocks on the tractor and on the machine.

⚠ WARNING

Danger of whole body being crushed when activating the power lift!

► Direct people away from the danger area around the power lift.

► Do not stand between the tractor and the power lift when operating the power lift via external buttons.

Prerequisite

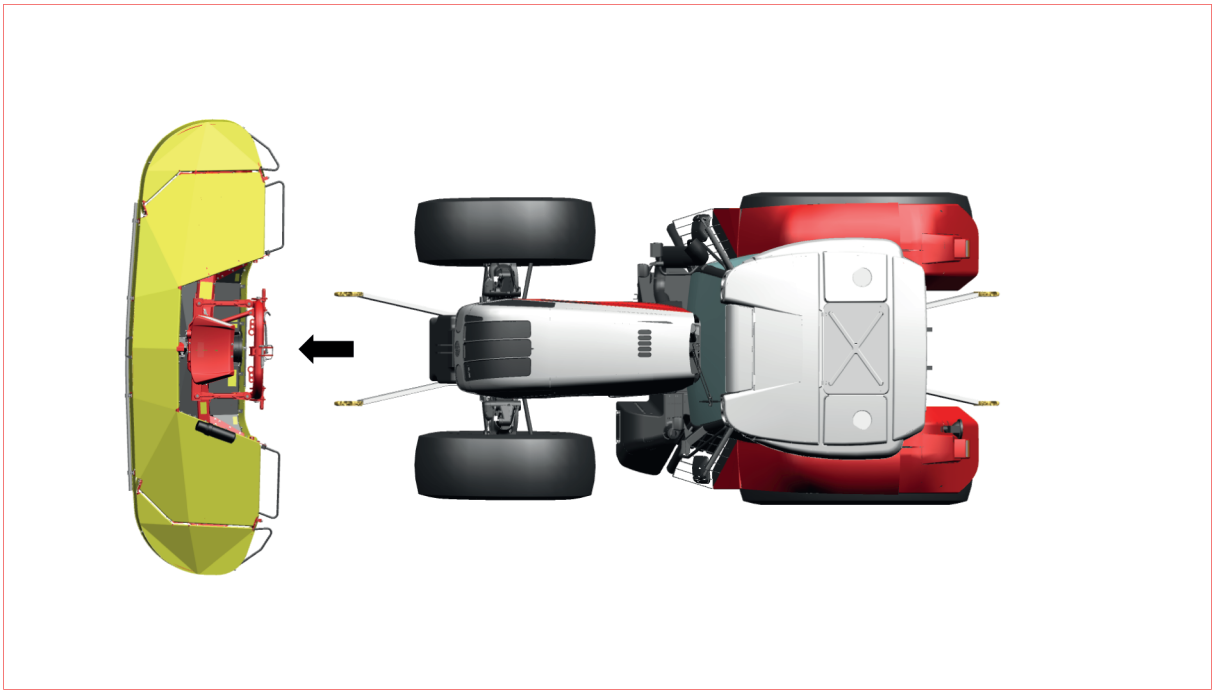
- Machine and tractor have been placed on a level, load-bearing surface.
- Lower link correctly adjusted and mounted.
- Tractor sufficiently ballasted. See "Tractor ballast" on page 45.
- Front lifting gear set for single-acting hydraulics or...
- ...front lifting gear adapted to single-acting function by a specialist workshop (bypass line).

3-point coupling

Implementation

1 Set front hydraulics to position control.

2 Bring the tractor up until it is just in front of the machine, stop and apply the locking brake.



3 Set the two lower links in parallel in the required setting for the height and width of the headstock and secure against lateral movement.

▷ Attach spacer sleeves and lower link balls on the lower link bolts if required, and secure with linchpin if not already done.

4 Bring the tractor up to the machine, attach the machine to the headstock with the lower links and lock the catch hooks.

5 Attach upper link ball on the machine if not already done.

6 Attach upper link ball and secure as specified.

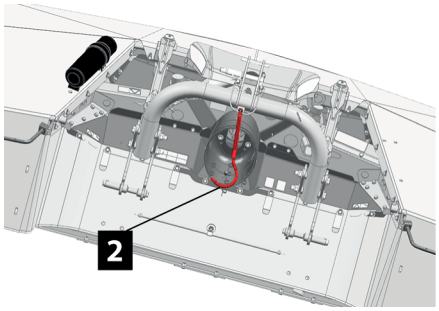
TIP

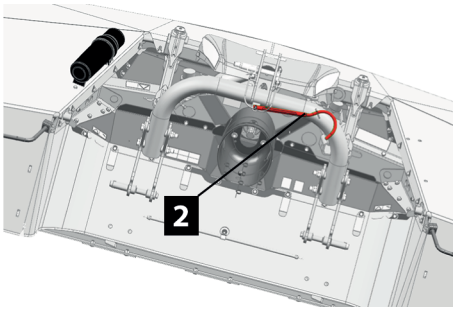
Use rigid upper link!

▷ Adapt cardan shaft to tractor and machine if not already done. See "Activating an articulated shaft" on page 50.

7 Connect the correctly adapted cardan shaft to machine and tractor as described in the cardan shaft manufacturer's operating instructions.

▷ Swivel cardan shaft retainer (2) into working position





Left = parking position

Right = working position

8 Secure cardan shaft protection to prevent it from rotating as described in the cardan shaft manufacture's operating instructions.

▷ Make sure that r.p.m. and direction of rotation of the PTO are correct (see sticker beside the input gearbox).

9 Connect the electric and hydraulic lines to the tractor.

The machine must then be adjusted to the correct cutter bar position (for disc mowing) / mowing drum position (for drum mowing).

Mounting adaptor

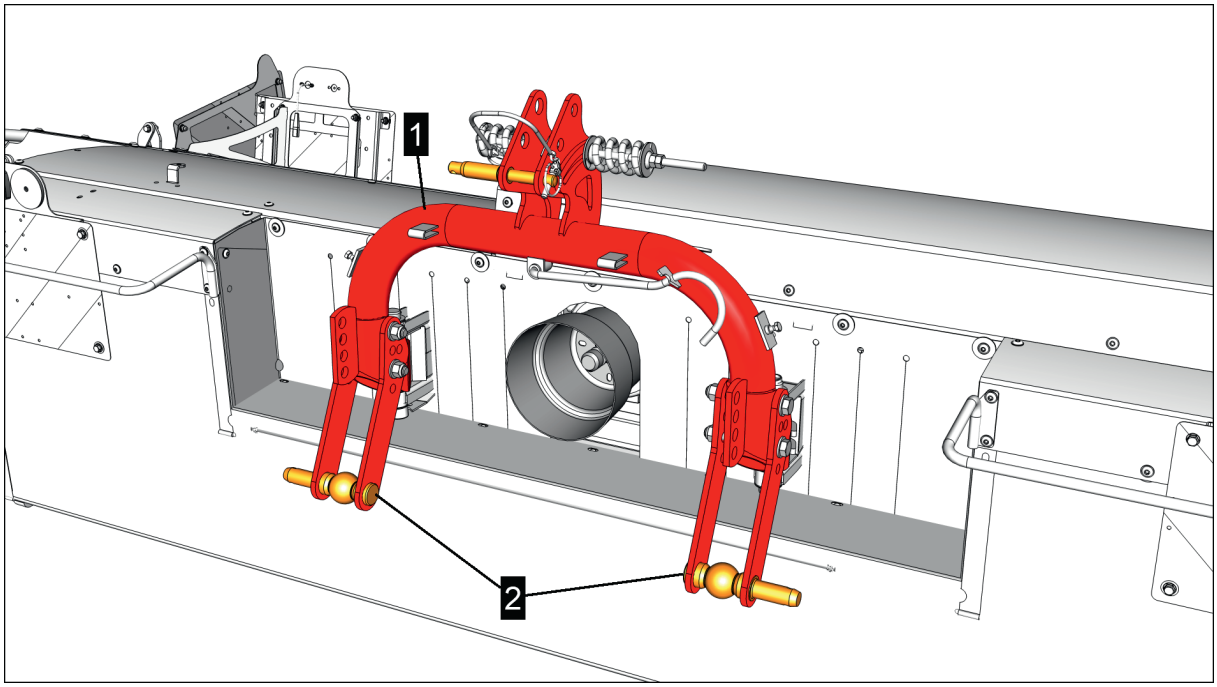
The available mounting adapter can be assembled in different positions to adapt to the mounting situation on the tractor.

NOTICE

Damage due to colliding components!

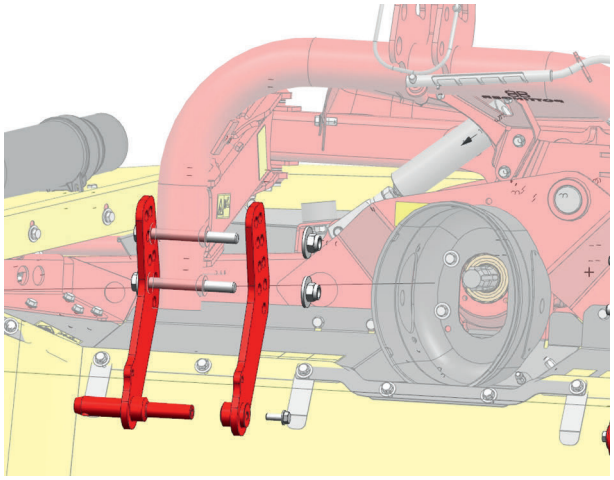
Machine parts may collide with the tractor during operation if the mounting situation is changed.

► Carry out a test run before commissioning.

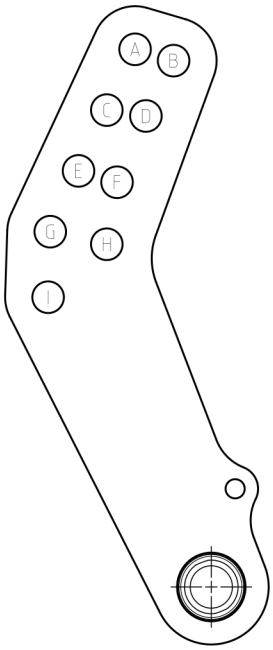


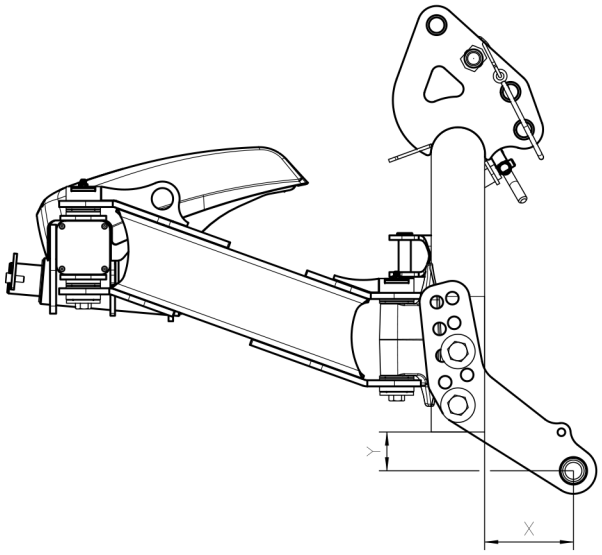
1 = mounting "B"

2 = mounting adapter



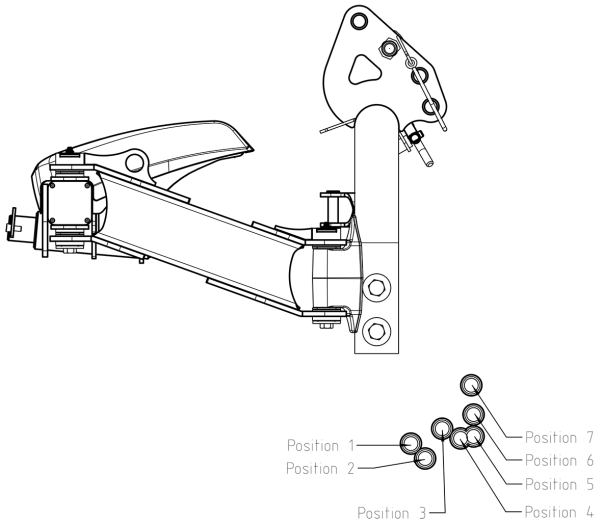
Assembly mounting adapter





Measurement X = distance from tractor

Measurement Y = vertical distance from hitch-on rack



Assembly adapter and distances

Position	Upper screw	Lower screw	Measurement X	Measurement Y
1	C	h	20 mm	144 mm
2	A	F	42 mm	168 mm
3	EN	H	70 mm	120 mm
4	B	F	99 mm	136 mm
5	A	E	120 mm	132 mm
6	C	G	120 mm	97 mm
7	F	I	116 mm	51 mm

Tractor ballast

CAUTION

Danger of accident due to ballasting errors!

With ballasting errors, the steering and braking ability of the tractor is impaired.

- ► Machines that are operated in various coupling modes, as a solo machine or as a machine combination, must be weighed in the respective mode.
- ► For weighing, establish the position of the machine / machine combination that extends furthest to the rear / to the front.
- ► After ballasting, carry out a brake test.

At least 20% of the tractor's net weight must be used as front axle load to ensure that the tractor can be steered and braked. Axle loads, total weight and tyre load capacity must not be exceeded.

For correct tractor ballasting, refer also to the tractor operating manual.

Two different methods can be used to determine the necessary ballasting.

Methods to determine tractor ballast weights

- *Weighing method*

  The most accurate result is achieved through the weighing method. Possible deviations from specified weights are also taken into account.
- *Calculation method*

  The calculation method only provides the calculated results from the weights in the technical data of the machine and tractor, at the time of delivery. These figures may differ from the actual weight due to subsequent technical changes.

TIP

Always use the weighing method if possible!

The correct ballasting must be re-determined each time the tractor and machine are changed.

Table of values to be filled out

	Actual value	Permissible value	Permissible tyre load capacity
Minimum front ballast	kg ($G_{V\ min}$)	-	-
Total weight	kg (G_{act})	≤ kg (G_{perm})	-
Front axle load	kg ($T_{V\ act}$)	kg ($T_{V\ perm}$)	≤ kg
Rear axle load	kg ($T_{H\ act}$)	≤ kg ($T_{H\ perm}$)	≤ kg

Determine the required tractor ballast weights using the weighing method

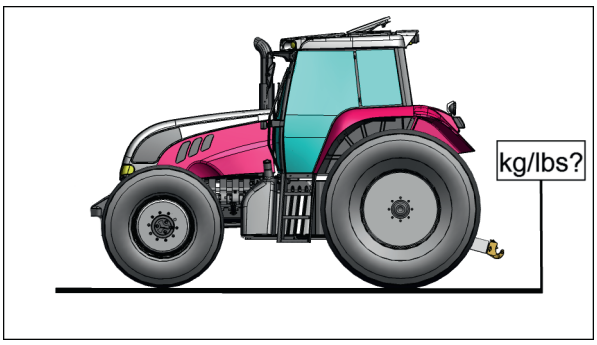
This method (preferred) can be used to check the tractor ballasting determined purely by calculation. See "Determine the required tractor ballast weights using calculation" on page 48.

Implementation

Weigh the tractor

► Remove mounted machines and ballast weights from the tractor, if any.

► Drive the tractor onto the scales with the front and rear axle on the scales.

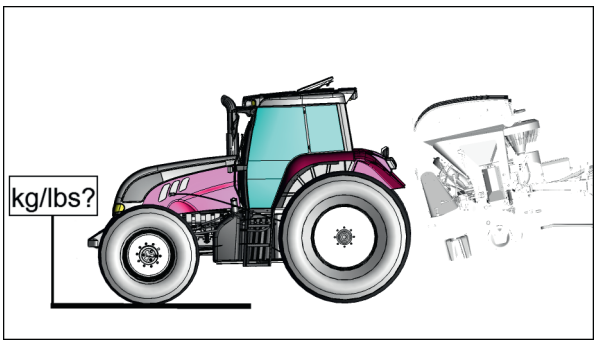


► Note weight as tractor tare weight (T_L) and enter in the table of figures.

Weigh the front axle load

► Attach the machine to the tractor and put in transport position.

► Drive the tractor onto the scales with the front axle on the scales.



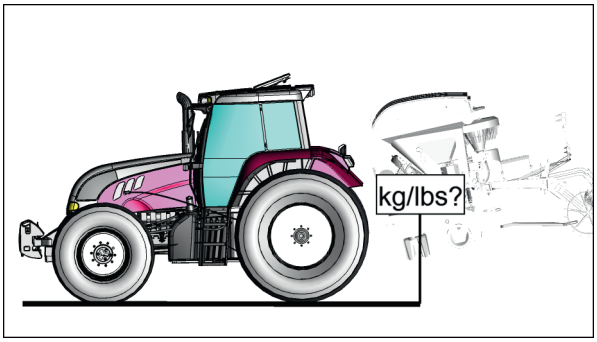
► Write down weight as actual front axle load ($T_{V\ act}$) and enter in the value table.

► Calculate whether the actual front axle load ($T_{V\ act}$) still corresponds to at least 20% of the tractor tare weight (T_L). If the front axle load is insufficient, add ballast until the actual front axle load ($T_{V\ act}$) corresponds to at least 20% of the tractor tare weight (T_L).

► Check that the maximum permissible front axle load ($T_{V\ perm}$) is not exceeded, taking into account the tyre load capacity. See the tractor operational instructions.

Weigh the total weight

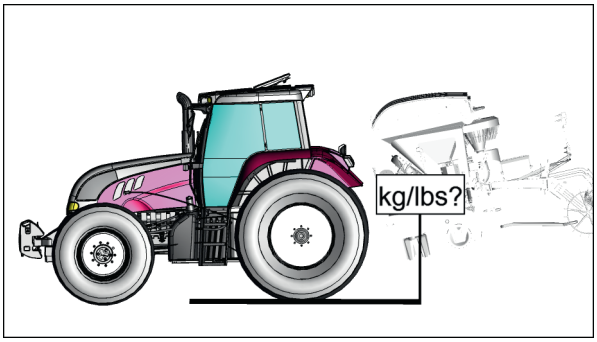
► Drive the tractor onto the scales together with the machine in transport position and the ballast weights, with the front and rear axle on the scales.



- ► Write down weight as total weight (G_{act}) and enter in the value table.
- ► Check to determine whether the measured value exceeds the maximal permissible total weight (G_{perm}) of the tractor. See the tractor operational instructions.

Weigh the rear axle load

- ► Drive the tractor onto the scales together with the machine and the ballast weights with the rear axle on the scales.



- ► Enter weight as actual rear axle load T_H in the value table.
- ► Check to determine whether the measured value exceeds the maximum authorized rear axle load ($T_{H\ perm}$) taking the tyre bearing capacity into account. See the tractor operational instructions.
- ► Verify if the technical data for the tyres and rims corresponds to the tractor manufacturer requirements. See the tractor operational instructions.

Determine the required tractor ballast weights using calculation

Implementation

- ► Distance (a) from centre of gravity of front ballast (G_V) to centre of front axis:
  a = ... mm (see tractor operational instructions or measure)
- ► Tractor centre distance (b):
  b = ... mm (see tractor operational instructions or measure)
- ► Distance (c) from centre of rear axle to the coupling point:
  c = ... mm (see tractor operational instructions or measure)
- ► Distance (d) from the rear coupling point to the centre of gravity (G_H) of the machine combination:
  d = ... mm (measure)
- ► Front axle load of unloaded tractor (TV):
  TV = ... kg (see tractor operational instructions)
- ► Rear axle load of unloaded tractor (TH):
  TH = ... kg (see tractor operational instructions)
- ► Tare weight of the tractor (TL):
  TL = ... kg (see tractor operational instructions)
- ► Calculate minimum front ballast ($G_{V\ min}$) and enter it in the table of values above.
  $G_{V\ min} = (G_H * (c + d) - T_V * b + 0.2 * T_L * b) / (a + b)$
  .....
- ► Calculate the actual front axle load ($T_{V\ act}$) and enter it in the table of values.
  $T_{V\ act} = G_V * (a + b) + T_V * b - G_H * (c + d) / b$
  .....
- ► Enter the value for the permissible front axle load ($T_{V\ perm}$) according to the tractor operating instructions in the table of values.
- ► Calculate the actual total weight (G_{act}) and enter it in the table of values.
  $G_{act} = G_V + T_L + G_H$
  .....
- ► Enter the value for the permissible total weight (G_{perm}) according to the tractor operating instructions in the table of values.
- ► Calculate the actual rear axle load ($T_{H\ act}$) and enter it in the table of values.
  $T_{H\ act} = G_{act} - T_{V\ act}$
  .....
- ► Enter the value for the permissible rear axle load ($T_{H\ perm}$) according to the tractor operating instructions in the table of values.
- ► Double the permissible tyre load capacity according to the tractor operating manual or from the tyre manufacturer's documentation (two tyres per axle) and enter in the table of figures.

Adjustment / conversion

Before starting work, carry out the adjustment and conversion work described below and/or check the machine for correct adjustment and equipment.

TIP

Careful adjustment of the machine preserves machine / soil and saves fuel!

DANGER

Catching and drawing in of the entire body can occur through moving machine parts when working on the machine.

- ► All work must be carried out only when the drive is at a complete standstill.
- ► Before performing any work on the machine, secure against switching back on.
- ► Long, loose hair or loose clothing is not permitted while working.
- ► Direct people out of the danger area.
- ► Only operate the machine when all safeguards are properly fitted, undamaged and in the protective position.
- ► During operation, never allow anyone to enter the danger zone of the moving machine parts.

WARNING

Crushing, cutting, getting caught and knocks possible over the whole body!

Danger exists during all adjustment work due to heavy machine components, some of which are under spring pressure, as well as sharp-edged components.

- ► Adjustment work must only be carried out by suitably qualified staff.
- ► Wear the appropriate personal protective equipment (such as work gloves, protective goggles, etc.) when working.
- ► Observe operating safety and accident prevention regulations.
- ► Direct people out of the danger area.

WARNING

Danger of burns!

During operation, machine parts (such as the gearbox, bearings, etc.) can become very hot (>45 °C) and remain hot for a long time!

- ► During operation and directly after operation, do not touch the gearbox and bearings etc. without personal protective equipment (such as gloves, long work clothes, etc.).

Activating an articulated shaft

Requirements

- Checking and adjusting the length of cardan shafts with tube sliding profile by an authorised service dealer.
- For brand-new cardan shafts, lubricate all lubrication nipples until clean grease comes out at the bearing points.

ENVIRONMENT

Collect and correctly dispose of oils and oil mixtures.

WARNING

Danger of injury due to damaged or ejected shaft parts!

If the profile overlap is insufficient when the cardan shaft is improperly fitted or structurally modified, or if the cardan shaft compresses when angled, persons can be struck and injured by damaged or ejected cardan shaft parts.

► Only an authorised service specialist may make adjustments to the cardan shaft. Observe the cardan shaft manufacturer's instructions.

► Before using the cardan shaft for the first time, have it checked in all operating conditions at an authorized service centre and have it adjusted there.

► When the machine is used with another tractor, check the cardan shaft and have it adjusted again.

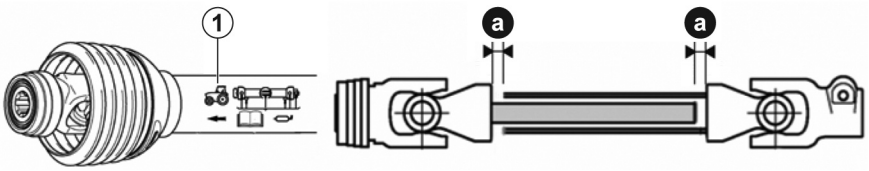
► For a cardan shaft with overload or freewheel coupling, the coupling point is on the machine.

► Do not attach any profile adapters or profile extensions to the cardan shaft or PTO shaft.

Instructions for the authorized service specialist

Check the cardan shaft length in all operating positions to ensure that the required sliding distance is available and that the profile overlap is sufficient.

Check the sliding distance in the shortest operating position



Implementation

1 Couple the machine to the tractor.

2 Dismantle the cardan shaft completely.

▷ The cardan shaft not consists of 2 halves.

3 Push the lock of the cardan shaft half, with the tractor symbol on the guard tube (1), onto the tractor's PTO shaft until the lock engages.

4 Push the lock of the other cardan shaft half onto the input shaft on the machine until the lock engages.

5 Hold both cardan shaft halves next to each other. The cardan shaft halves must not collide with one another. A sliding distance (a) of 40 mm must be available.

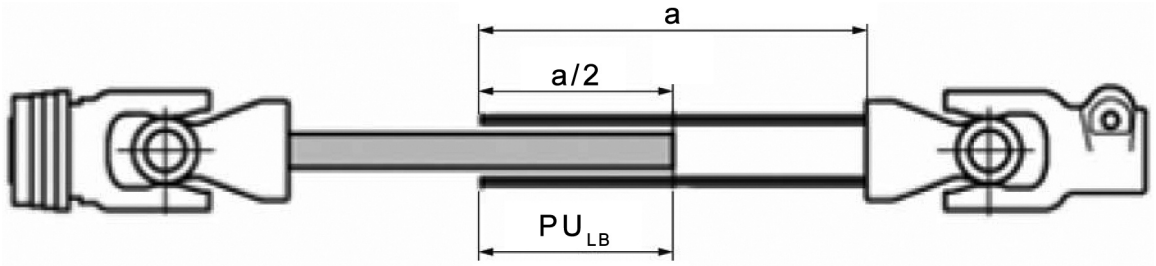
   ▷ If the cardan shaft halves do not collide and / or the sliding path of 40 mm is not maintained, the cardan shaft should be adjusted by a servie dealer.

6 Check the permissible cardan shaft angulation. Refer to the cardan shaft's operating manual.

7 The clearance around the cardan shaft must be sufficient, otherwise it will be damaged.

8 Remove both cardan shaft halves from the tractor and the machine, place on a clean surface and keep them close at hand for the next check on the profile overlap in the longest operating position.

Check profile overlapping for the longest operating position



a = Total profile length of an cardan shaft half

PU_{LB} = Profile overlapping

Implementation

1 Establish the longest possible operating position for the cardan shaft between tractor and machine.

2 Slide the cap of the articulated shaft half with the tractor symbol on the protective tube onto the PTO shaft of the tractor until the cap slides in.

3 Push the lock of the other cardan shaft half onto the input shaft on the machine until the lock engages.

4 Check profile overlap.

5 The minimum profile overlap (PU_{LB}) must be half the total length of the profile (a/2). Largest profile overlap is desirable.

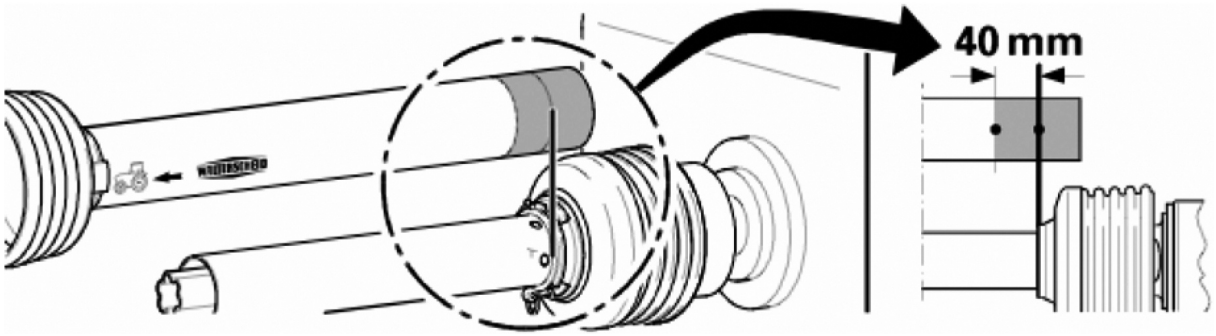
6 During transport, and with the drive switched off, the profile overlap (PU_{LB}) must be at least 100 mm.

7 The protective shield on the tractor and the protective cup on the machine must cover the cardan shaft protective funnels by at least 50 mm.

   ▷ If profile overlap is insufficient in one of the above-mentioned situations, order a new protective tube or a new cardan shaft.

Shorten cardan shaft

Only the service specialist is authorised to make adjustments to the cardan shaft. The cardan shaft manufacturer's instructions must be followed.



Implementation

- ► Place the cardan shaft halves next to each other and mark the minimum sliding distance of 40 mm from the edge of the inner guard tube to the outer guard tube.
- ► Remove the cardan shaft halves from the tractor gearbox or PTO stub.
- ► Shorten the outer protective tube at the marked point.
- ► Shorten the inner protective tube to the same length as the external protective tube.
- ► Shorten the external and interior profile tube to the same length as the outer protective tube.
- ► Round off the cut edges and carefully remove any filings.
- ► Lubricate the section tubes with lithium universal grease.
- ► Insert the shortened cardan shaft halves into one another.
- ► Check PTO drive.

Check PTO drive

⚠ WARNING

Pulling in and severing of limbs!

When the PTO is running, limbs, loose clothing or long hair can be caught and retracted.

- ► Direct all persons away from the hazard area in and around the machine prior to the trial run.
- ► Start the trial run from the tractor cabin.
- ► In the event of irregularities, immediately switch off the PTO on the tractor.

Requirements

- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on level and stable ground in working position.

Implementation

1 Make sure that r.p.m. and direction of rotation of the PTO are correct (see sticker beside the input gearbox).

2 Slowly increase the PTO speed to the nominal speed.

- Switch off the PTO immediately if unusual noises or strong vibrations occur.

3 If this occurs, search for faults along the entire drive train and make repairs before continuing to operate the machine.

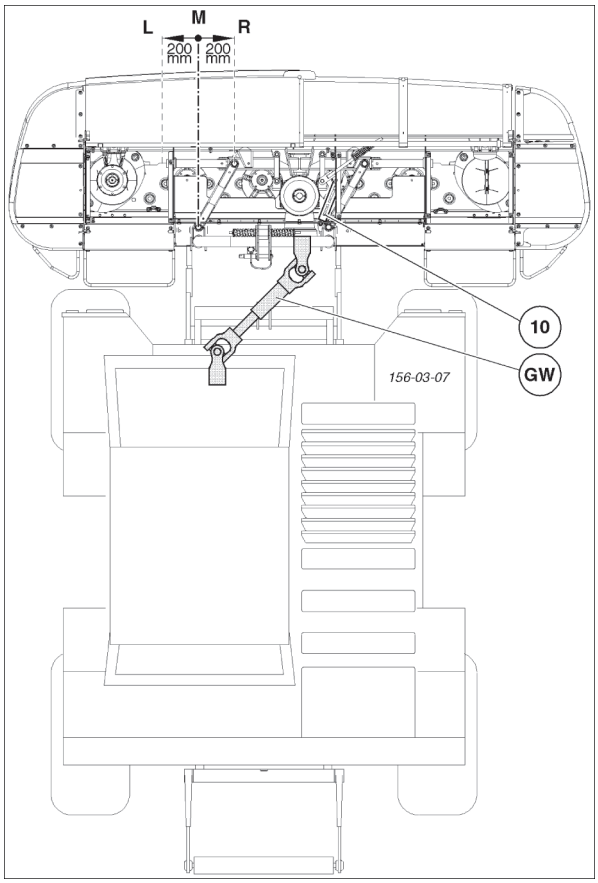
Lateral shift

Before initial operation, check the length of the cardan shaft and adapt it if necessary. See "Activating an articulated shaft" on page 50.

The cardan shaft length must be checked in every possible operating position, especially with the "lateral shift" option.

At checking positions

- Max. lateral shift to the left and mower in working or road transport position
- Max. lateral shift to the right and mower in working or road transport position



Mechanical relief

The cutter bar should rest on the ground with approximately 150 kg (75 kg each side) (recommendation).

TIP

Increase loading accordingly in wet weather or if the crop is heavy or damp = the cutter bar weight on the ground will be reduced.

The driving speed should be reduced at the same time to prevent the mower unit from jumping at higher driving speeds (due to reduced adaptation to terrain).

WARNING

Health hazard due to heavy, manual lifting!

► Do not manually lift parts of the machine whose weight exceeds 25 kg.

► Use a crane, forklift or similar to remove or dismantle these parts.

Determine relief

Preparation

- Tension scales
- Lifting sling
- Crane, forklift truck or similar equipment.

Prerequisite

- Front lifting gear set for single-acting hydraulics or...
- ...front lifting gear adapted to single-acting function by a specialist workshop (bypass line).
- Park tractor and machine on level and stable ground in working position and secure against rolling away.
- Lifting gear height correctly set!
- Cutting height correctly set
- Mower unit in float position
- External guards in working position
- During assembly work, turn the tractor engine off, apply the parking brake, remove the ignition key and keep it in a safe place.

NOTICE

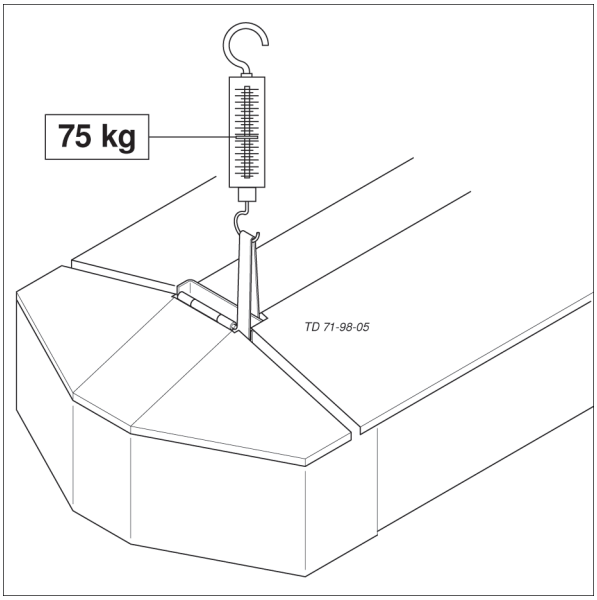
Broken limiting chains and coupling device

If pressure is used to lower the double-acting front lifting gear, suspension components of the relief and limiting chains may break.

► Never set the double-acting tractor control device of the front lifting gear to "LOWER" if the mower is attached to the tractor.

Implementation

► Complete weighing process: Lift the outside mower unit as shown using a sling and an intermediate tension scale.



▷ If the recorded weight corresponds to the factory setting (75kg) or the current requirement, skip the following procedures and continue with step 4.

▷ If the recorded weight does not correspond to the factory setting or the current requirement, adjust loading as described below.

Adjusting relief

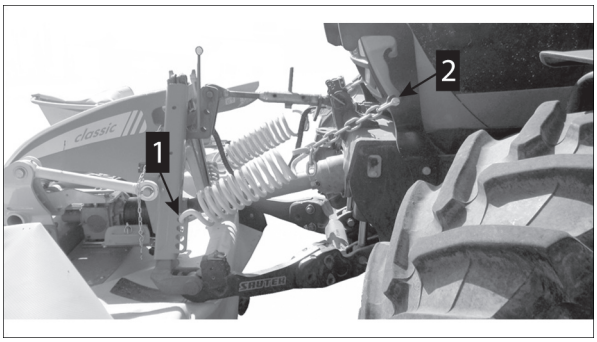
Prerequisite

- Front lifting gear set for single-acting hydraulics or...
- ...front lifting gear adapted to single-acting function by a specialist workshop (bypass line).

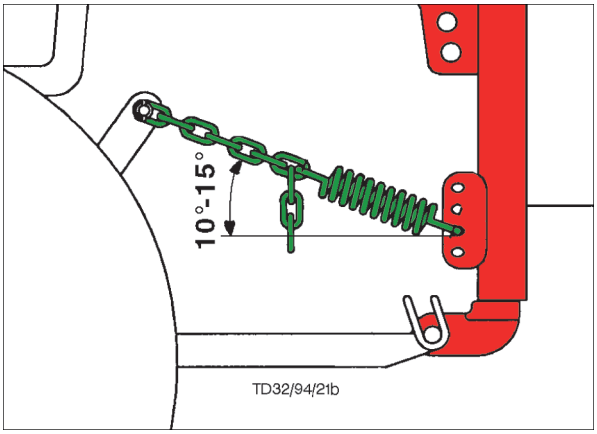
Implementation

1 Raise machine with front lifting gear.

2 Hook tension springs to the arm of the hitching frame (1) on both sides of the machine, and to the relief spring bracket (2) on the tractor..



Symbol illustration



Optimum angle!

TIP

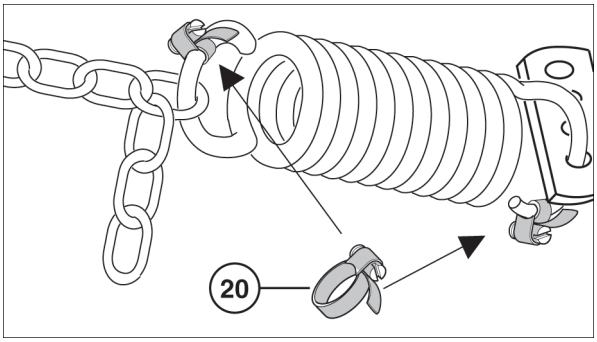
The optimal angle of 10 - 15 ° can only be maintained when springs are secured to a bracket.

3 Set front lifting gear to 'Lower' and lower the machine to the ground without applying pressure.

4 Check the spring tension by checking the relief, as described earlier in section "Determining the relief".

- ▷ If required relief has been achieved, then continue with step 5.
- ▷ Repeat the process from point 1 if the recommended relief is not reached or is exceeded.

5 Slip the hose clamp (20) onto the tension spring. Doing this means that spring tension does not have to be checked every time the unit is attached to the same tractor.



6 The spring tension must be checked whenever the tractor is changed and reset if necessary.

Disc mower cutter bar

The correct cutter bar position is set by adjusting the upper link.

The **"standard cutting height"** is set by adjusting the cutter bar position.

TIP

- The "standard cutting height" is based on the design of the machine and cannot be changed without increasing wear on the machine or risking damage.
- Increasing or reducing the "standard cutting height" by tipping the cutter bar (by adjusting the upper link) is not permitted!
- If the "standard cutting height" is insufficient, the machine may be fitted with high-cut skids (option) to increase the cutting height.

NOTICE

Wear and tear maximized on skids if upper link is incorrectly adjusted!

If the upper link is not adjusted correctly, the skids will be loaded on one side and will quickly wear through.

► Adjust the upper link so that the skids rest entirely on the ground.

► The cutting height must not be set by adjusting the upper link!

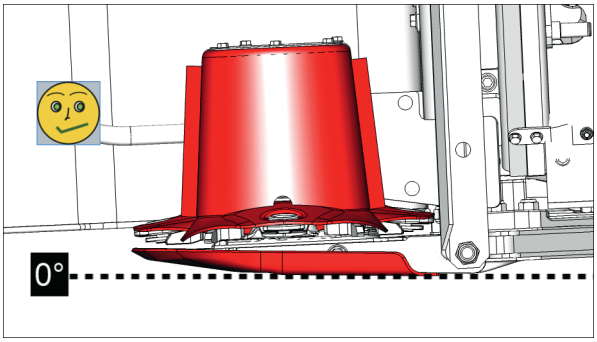
Adjust cutter bar length (standard cutting height)

Prerequisite

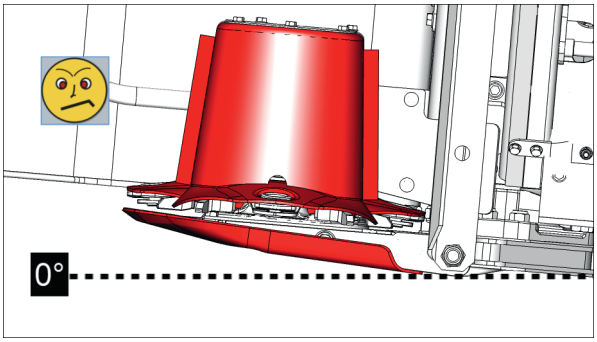
- Machine is fully attached and secured to a suitable tractor.
- Relief and height correctly set.
- Park machine on level and stable ground in working position and secure against rolling.
- Park machine, remove ignition key from tractor and wait for all rotating machine components to come to a standstill.

Implementation

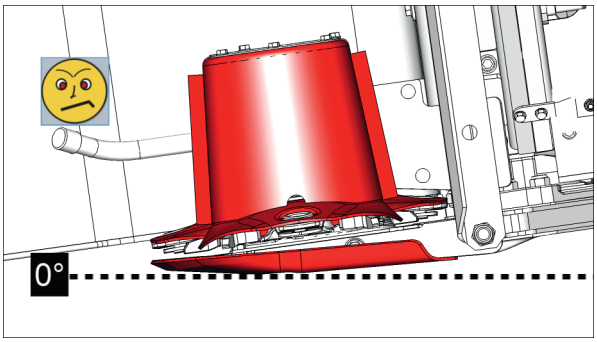
► Adjust the upper link and set the cutter bar position (and therefore the "standard cutting height") so that the surface of the skids underneath the cutter bar rest entirely on the ground.



Upper link **correctly** set!



Not like this! Upper link incorrectly set!



Not like this! Upper link incorrectly set!

► Check the operating setting over the first few meters of mowing based on the cutting pattern.

▷ If the "standard cutting height" is 50 mm - 60 mm, the upper link and cutter bar position are set correctly.

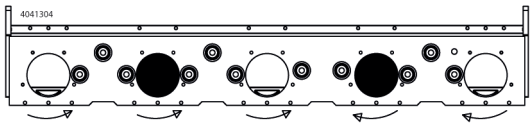
▷ If the "standard cutting height" is less than 50 mm or more than 60 mm, adjust the cutter bar length accordingly.

TIP

An unclean cut can be caused by dull blades, incorrect height setting, incorrectly set relief, wrong PTO speed, wrong PTO direction of rotation and unsuitable drive speed selection!

Conical disc assembly recommendation

Standard assembly position

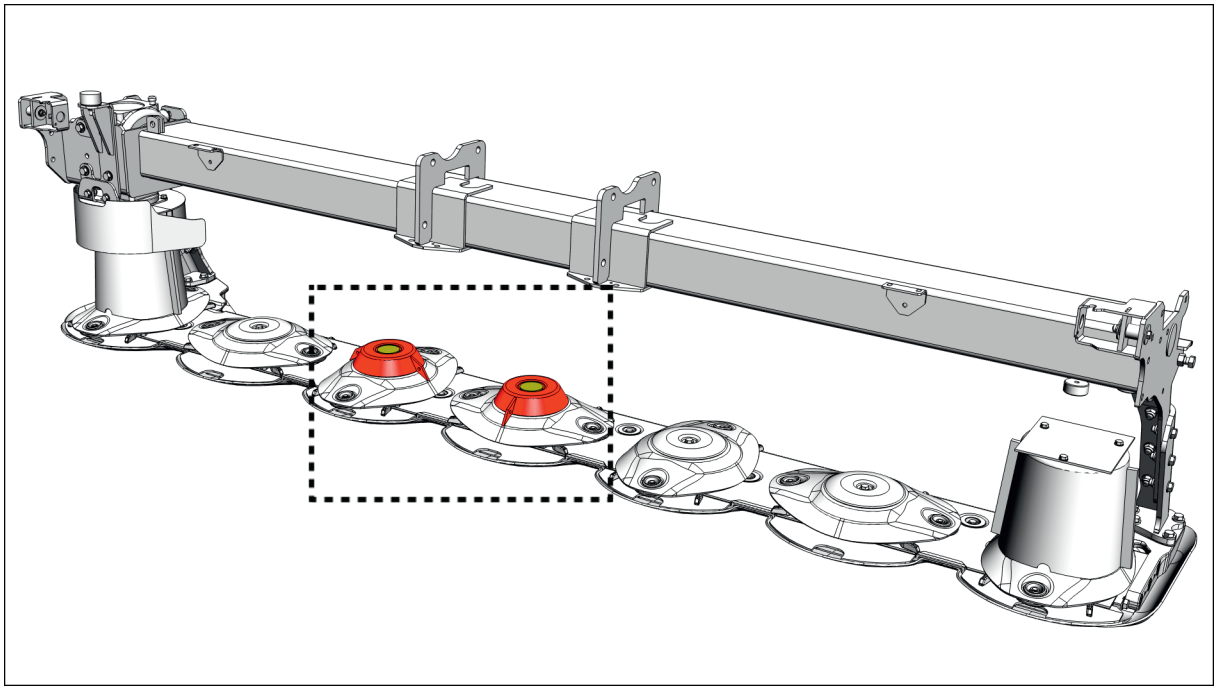
Type	Positions
NOVACAT F 2200 ALPIN	

Remove / reposition conveyor cones

The pre-assembled conveyor cones may be installed on another mower disc if necessary. If the conveyor cones are not required, they may also be replaced by the coverings supplied.

TIP

We recommend using the conveyor cone to improve output, particularly for heavy, dense quantities of fodder.



Symbol illustration!

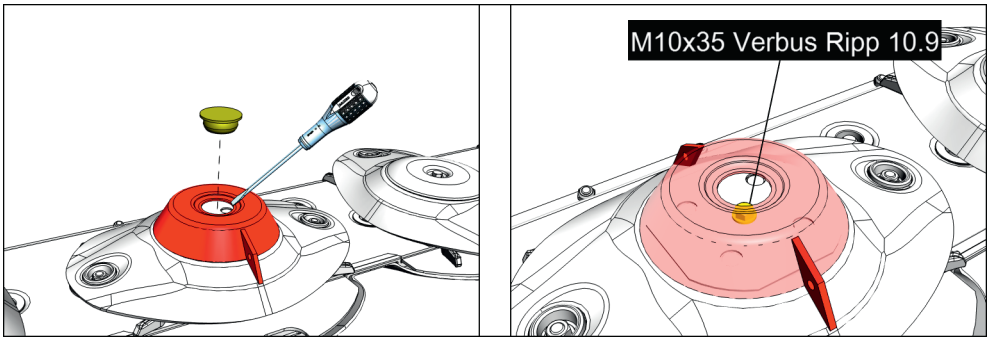
The number, appearance and fitting position of the conveyor cones may differ from the picture!

Prerequisite

- Flathead screwdriver, 15 mm socket spanner 1x long and 1x short / ratchet.
- 2x covers supplied and 2x screws M10x30 Verbus Ripp 10.9 supplied for fitting the covers if required.
- The machine is standing on even, load-bearing ground in the working position.
- PTO turned off
- Tractor motor turned off, parking brake applied, ignition key removed and stored.

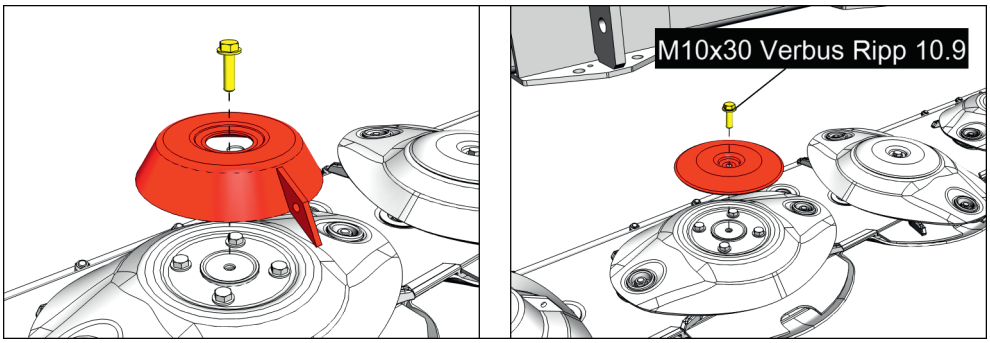
Implementation

► Remove the covering cap from the conveyor cone and keep handy.



► Loosen M10x35 screw, remove conveyor cones and keep both handy.

Assemble and tighten the cover supplied with the machine with the M10x30 screw.



TIP

The assembly of a conical disc instead of a cover is carried out in reverse order and generally in twos.

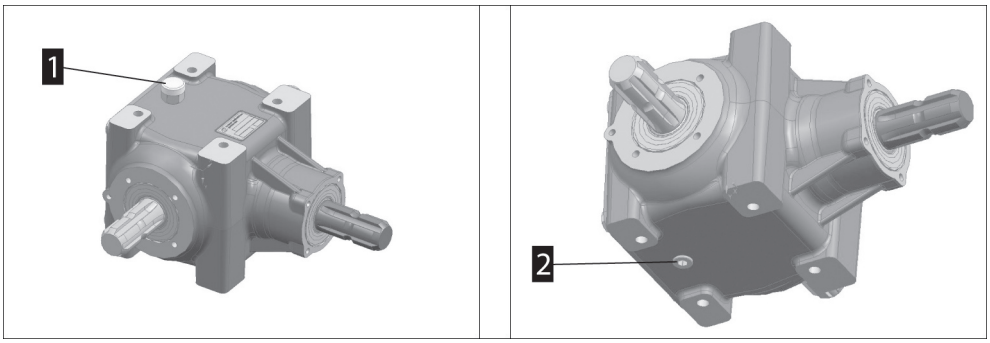
Conical discs may only be properly assembled on the mower disc in one possible position.

Adjust input gear direction of rotation

If it is not possible to switch the direction of rotation of the PTO shaft on the tractor (as per the sticker) or the mower equipment, then change the direction of rotation by reversing the angular gearbox.

Implementation

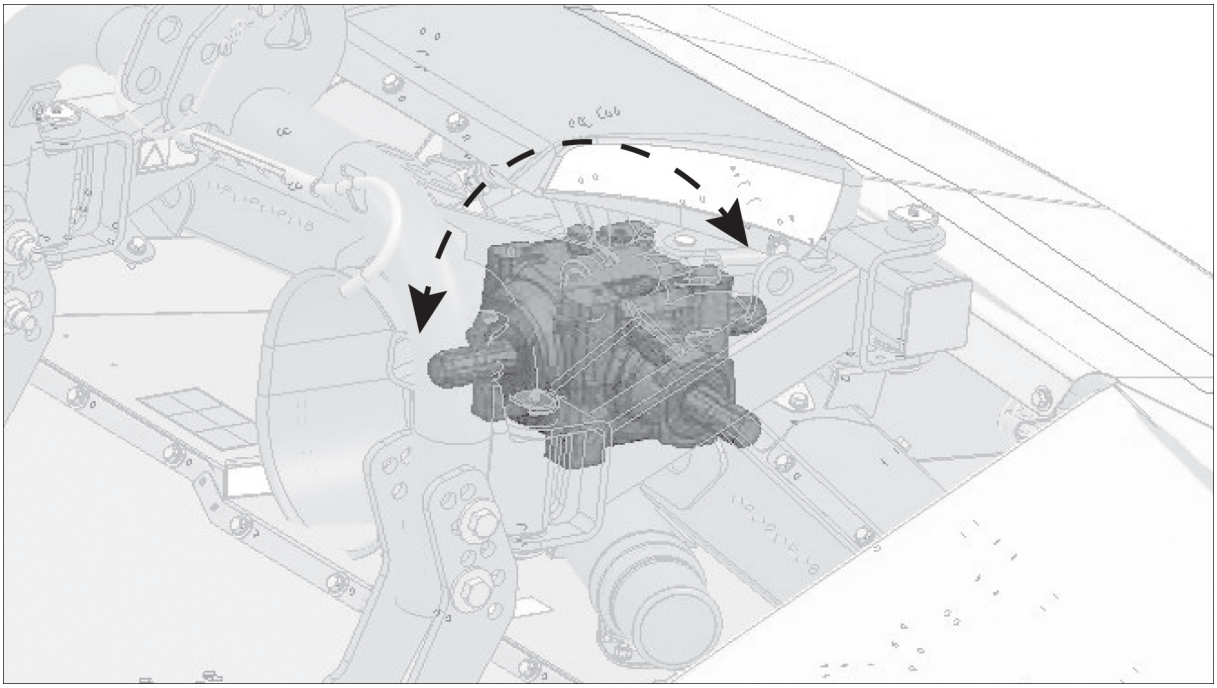
- ► Drain oil out of the angular gearbox (see "Maintenance" chapter for details)
- ► Remove angular gearbox.
- ► Exchange vent screw (1) and oil drain plug.



- ► Angular gear rotated by 180 ° around input shaft, refit and tighten.

TIP

The vent screw must be on the top of the gearbox!



► After assembly, restore the correct oil level in the angular gear (for details, see chapter "Maintenance").

Trial run

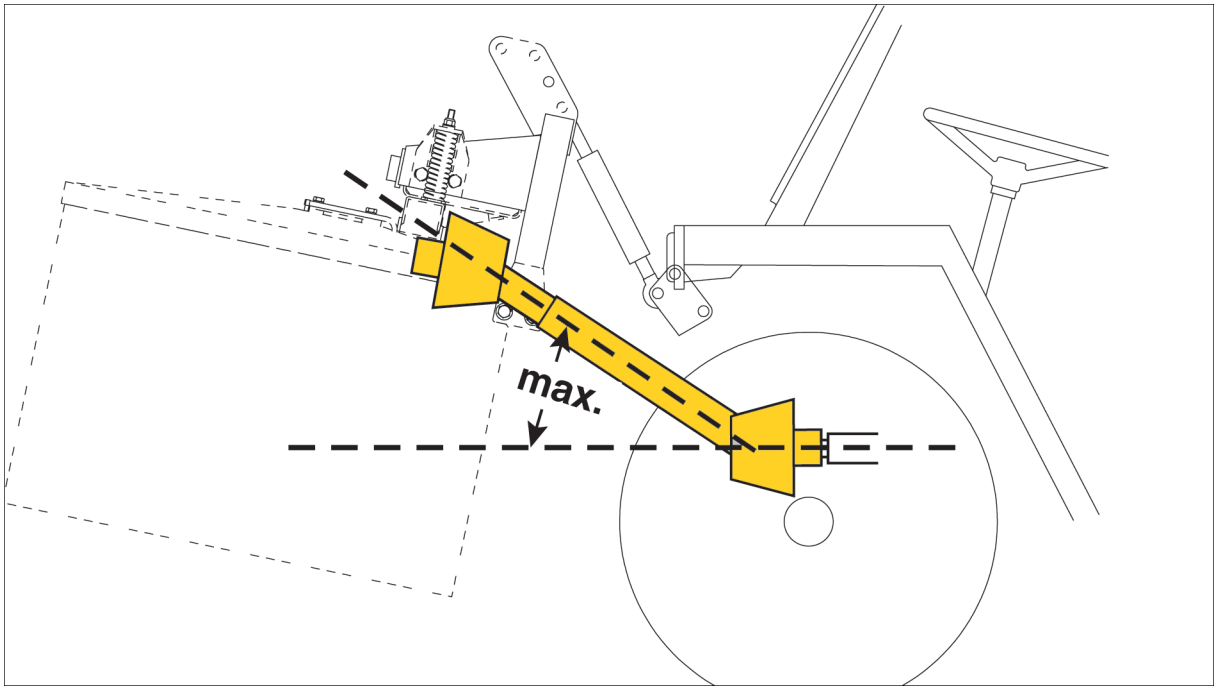
Carry out a trial run of all functions to ensure that the machine is operating correctly. Otherwise the tractor and machine could become damaged even before the machine is initially used.

Prerequisite

- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on level, stable ground and secure against rolling.
- Cutter bar correctly set. See "Disc mower cutter bar" on page 56.
- Cardan shaft completely attached and the cardan shaft guard safety chains are hooked on correctly (if available).
- Possible tyres (dual tyres) fitted to be used together with the machine.

Check cardan shaft angle

Take the maximum permissible cardan shaft angulation from the cardan shaft operating instructions and memorise it.



Max. = Maximum permitted cardan shaft angle

Implementation

► Gradually swivel machine from working position to road transport position and continually check the angle.

NOTICE

Damage due to breakage and bending!

The cardan shaft will become damaged if it is used outside its operating parameters.

► Observe maximum possible cardan shaft angle.

► If the maximum permissible angle is exceeded, the cardan shaft must be removed and the distance between the machine and the tractor optimised, taking into account the position of the cutter bar. This can be done by gradually modifying the machine's mounting adapters.

TIP

The greater the distance between the machine and the tractor, the smaller the cardan shaft angle.

▷ If machine attachment has been corrected, repeat procedure from step 1.

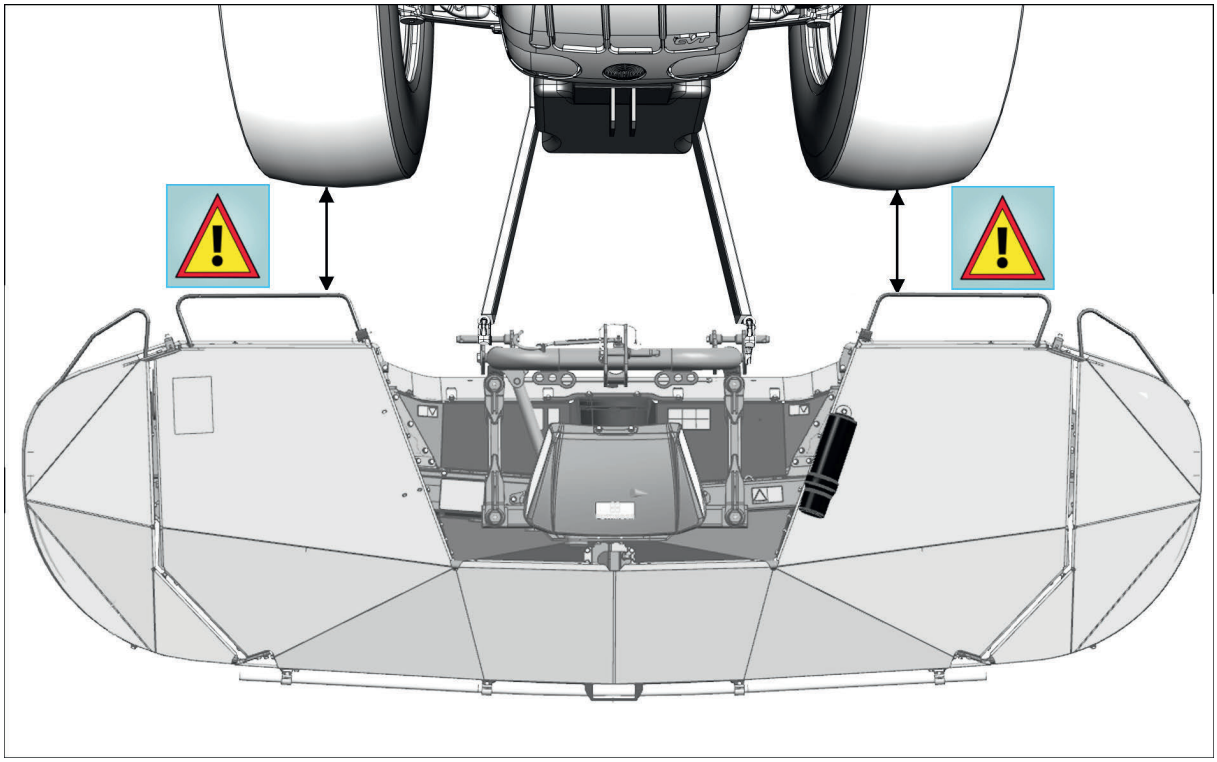
▷ No further action is required if the maximum permitted cardan shaft angle has not been exceeded.

Check steering lock

The tractor wheels must not touch the machine when cornering!

TIP

If the machine is fitted with a hydraulic lateral shift, this must also be taken into account when checking the steering lock!



Implementation

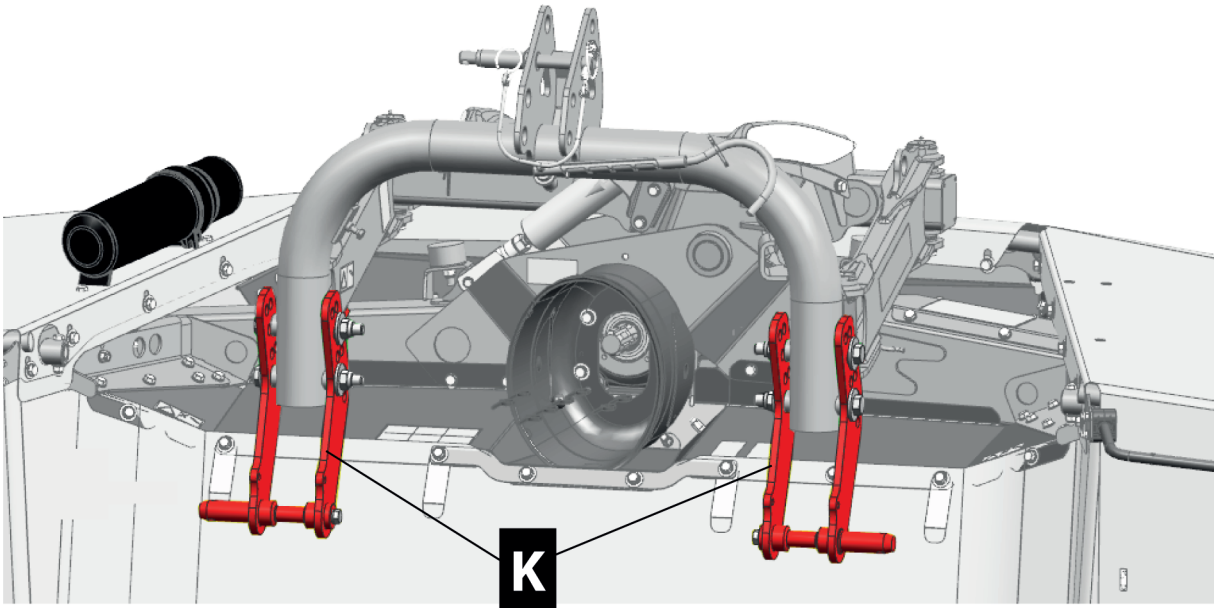
► Gradually lift the machine from working position to road transport position and at maximum steering angle, on both sides, check how close the tyres are to the machine.

TIP

Take into account the possible spring travel if the front axle is spring loaded.

▷ Carry out the procedure together with the lateral shift.

► Optimize the distance between the machine and the tractor taking the cutter bar position into account. This can be done by gradually modifying the lower link (K) on the machine.



▷ If machine attachment has been corrected, repeat procedure from step 1.

▷ No further action is necessary if mounting has not had to be corrected.

For special attachment situations to the tractor, it may be necessary to adjust the distance between the machine and the tractor differently than the available lower link brackets allow. In this case, please contact your specialist service dealer.

Work assignment

⚠ WARNING

Danger of injury!

- ► Check the machine for traffic and operational safety before starting work. Operate the machine only when all safety devices are properly installed and in working order.
- ► Couple the machine to the tractor. correctly and completely, before starting work.
- ► Before driving the machine, make sure that nobody is located in the danger area or behind the machine. If necessary, have a second person who is outside the danger area instruct you.
- ► Direct people out of the danger area.
- ► The driving performance is significantly impacted by ballast weights and the size of the attached/mounted machines. Avoid fast or sudden cornering, in particular when driving uphill or downhill or when driving transversely to the slope, because of the danger of tipping.
- ► Before leaving the tractor, apply the parking brake, turn motor off, remove ignition key and keep safe. If necessary, use wheel chocks.

WARNING

Damage to health due to noise!

- ► If the noise level exceeds 80 dB(A), hearing protection is highly recommended.
- ► If the noise level exceeds 85 dB(A), hearing protection is compulsory.
- ► You can close the tractor cab to reduce the noise level further.

WARNING

Ejected material (e.g. stones, lumps of earth...) can hit and injure people!

- ► Particular caution should be taken in stony fields, and near roads and paths.
- ► Place the protective covers in their operating positions.
- ► Keep a safe distance while engine is running!

  No-one is permitted in the danger area during operation. Direct people out of the danger area.

  No-one is permitted to travel on the machine during operation.
- ► Turn PTO shaft off and wait for the drive to come to a standstill before raising the machine.

NOTICE

Damage due to driving over obstacles!

- ► Drive carefully.
- ► Remove known obstacles if possible before starting work.

ENVIRONMENT

Avoid unnecessary change procedures. Before starting work, consider how the area could be optimally processed.

Starting from the parking position, move to the road transport position.

Drive on public roads only in the road transport position with fully functional, clearly visible warning and lighting systems.

CAUTION

Knocks and bruises possible over the whole body due to moving machine parts!

- ► Before starting the machine functions, direct people away from the danger area around the machine.

Prerequisite

- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on level, stable ground and secure against rolling.

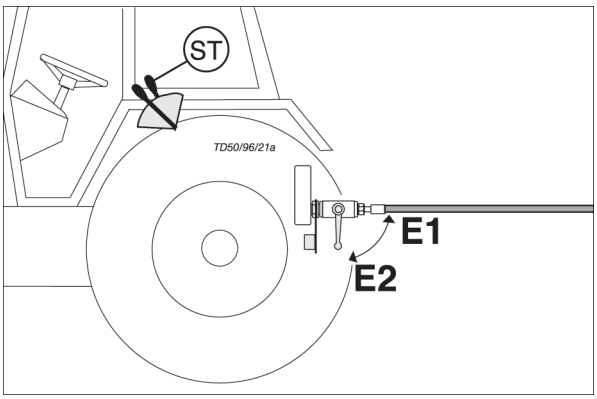
- PTO shaft brake switched off on tractor
- For mechanically folding side guards: Tractor engine switched off when working on the machine, PTO switched off, ignition key removed and kept in a safe place.
- For the optional "hydraulic folding side guards" fitting, the tractor engine and/or hydraulics must be running. The PTO shaft must be turned off.

Implementation

► Raise and secure side guards on both sides of the machine in the road transport position. See "Protective apron carrier operation" on page 35.

► Raise machine to road transport / headland position.

► Close shut-off valve on tractor hydraulic connection (position E2).



Starting from road transport position, move to working position.

⚠ CAUTION

Knocks and bruises possible over the whole body due to moving machine parts!

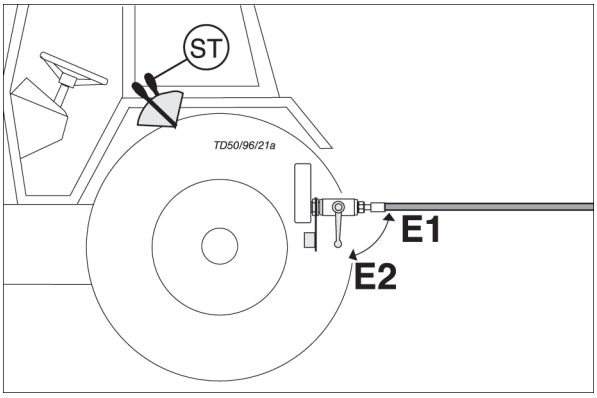
► Before starting the machine functions, direct people away from the danger area around the machine.

Prerequisite

- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on firm, stable ground and secure against rolling.
- PTO shaft brake switched off on tractor
- Tractor engine switched off when working on the machine, PTO switched off, ignition key removed and kept in a safe place.

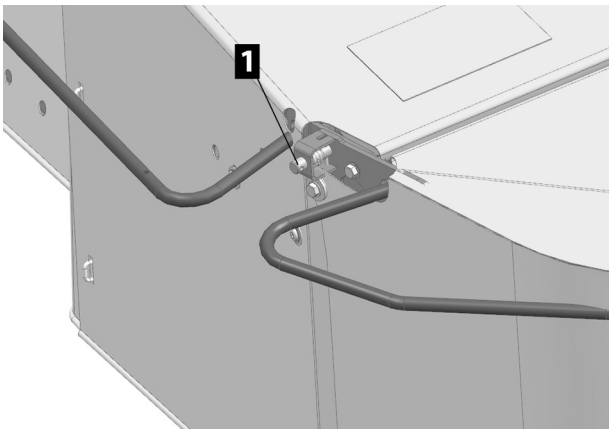
Implementation

► Open stop valve on tractor hydraulic connection (position E1).



► Activate tractor control device and lower the machine to working position without hydraulic pressure.

► Lower side guards on both sides of the machine. To do so, remove safety bolt (1) and press side guards downwards. The safety bolt (1) locks itself when in working position. See "Protective apron carrier operation" on page 35.



TIP

Optionally, the guards may be operated hydraulically via the tractor control device depending on the machine. In this case, no further manual intervention is required.

Mowing work

Prerequisite

- Machine is fully attached to a suitable tractor.
- Guards swivelled to working position.
- Tractor sufficiently ballasted.
- Cutter bar position correctly set.
- Check blades, blade fixings and mower discs for damage.
- Maximum permitted PTO speed noted and preset in the tractor if possible.

Implementation

► Bring the machine into the working position at the job site. See "Starting from road transport position, move to working position." on page 66.

► Slowly engage PTO away from the crop, then quickly and smoothly accelerate to full speed.

► Accelerate the tractor and adapt the drive speed to the crop and terrain.

Carry out turning manoeuvre

TIP

Do not reverse while in the working position, always raise to headland position first!

Implementation

► Reduce speed and raise the machine to headland position at the end of the mowing area.

TIP

The PTO speed must not be reduced during this process.

► Complete the turn at a reduced speed, then steer towards the unmown area.

► Shortly before the unmown area, lower the machine into the working position and do not re-mow the areas already mown (swathe) where possible.

► Accelerate the tractor and adapt the drive speed according to the crop and terrain.

Starting from the working position, move to the road transport position.

Drive on public roads only in the road transport position with fully functional, clearly visible warning and lighting systems.

CAUTION

Knocks and bruises possible over the whole body due to moving machine parts!

► Before starting the machine functions, direct people away from the danger area around the machine.

Prerequisite

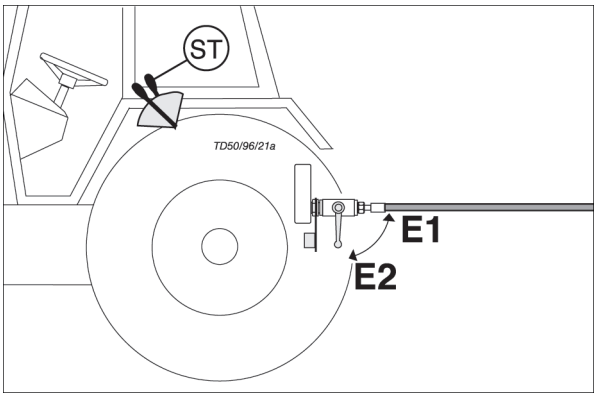
- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on firm, stable ground and secure against rolling.
- PTO shaft brake switched off on tractor
- For mechanically folding side guards: Tractor engine switched off when working on the machine, PTO switched off, ignition key removed and kept in a safe place.
- For the optional "hydraulic folding side guards" fitting, the tractor engine and/or hydraulics must be running. The PTO shaft must be turned off.

Implementation

► Raise and secure side guards on both sides of the machine in the road transport position. See "Protective apron carrier operation" on page 35.

► Raise machine to road transport / headland position.

► Close shut-off valve on tractor hydraulic connection (position E2).



► Remove heavy soiling before driving on public roads!

Uncoupling

DANGER

Danger of tipping due to incorrect operation of support devices!

If support devices such as support stands or parking supports are not used or not secured, the machine may tip over.

- ► Park the machine on flat, firm ground.
- ► Use support stands or parking supports when parking the machine.
- ► Secure support stands or parking supports as stipulated.

DANGER

Pulling in and severing of body parts!

- ► Secure the PTO drive against unintentional starting.

WARNING

Danger of whole body being crushed when activating the power lift!

- ► Direct people away from the danger area around the power lift.
- ► Do not stand between the tractor and the power lift when operating the power lift via external buttons.

WARNING

Crush hazard over the entire body!

Do not remain in the danger area around the tractor and the machine unless the mower combination has been secured against rolling and accidental operation.

1. Instruct bystanders to leave the danger area around the tractor and the machine.
2. Make sure that bystanders do not enter the danger area.
3. Park the machine on flat, firm ground.
4. Apply the emergency brake.
5. Turn off tractor engine, remove ignition key and keep safe.
6. Insert wheel chocks on the tractor and on the machine.

WARNING

Falling due to slipping / tripping!

Stepping on the parked machine can cause serious injuries.

- ► Do not step on the parked machine.
- ► Prevent children from stepping on the machine using suitable measures.

Establish parking position

Prerequisite

- Machine is fully attached and secured to a suitable tractor.
- Park tractor and machine on level and stable ground in headland / road transport position and secure against rolling.
- PTO drive switched off.
- Tractor motor turned off, parking brake applied, ignition key removed and stored while working.

Implementation

► Unhitch relieving springs on both sides of the tractor.

► Activate lifting gear and lower the machine without pressure until the cutter bars and support stand (if present) are on the floor.

Uncouple the cardan shaft

Prerequisite

- Tractor motor turned off, parking brake applied, ignition key removed and stored.
- Machine is parked on level and stable ground and secured against rolling away.

Implementation

► Move the cardan shaft holder to the stop / park position.

► Depending on the cardan shaft version, remove the clamping screw at the tractor end or loosen the spring-loaded coupling device at the tractor end and pull the cardan shaft off the PTO shaft.

► Place the cardan shaft with the front third in the cardan shaft holder. Ensure that the protective cover is not deformed by storage.

► Make sure that cardan shaft is protected from the weather during storage!

Uncouple the machine from the tractor

⚠ CAUTION

Knocks and bruises possible over the whole body due to moving machine parts!

► Before starting the machine functions, direct people away from the danger area around the machine.

⚠ WARNING

Danger of whole body being crushed when activating the power lift!

► Direct people away from the danger area around the power lift.

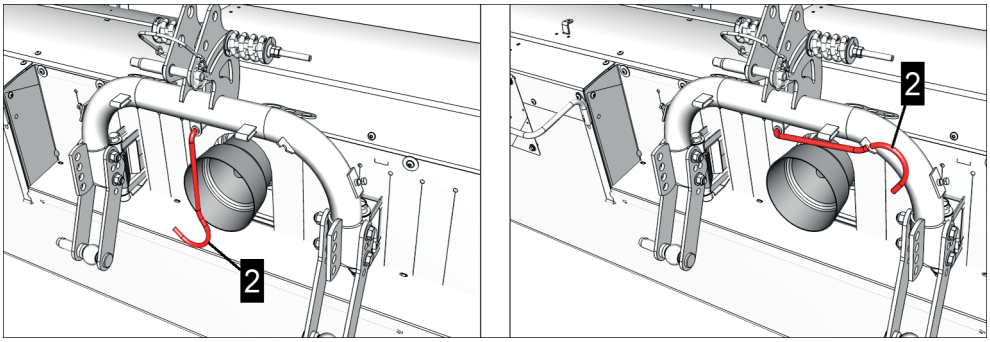
► Do not stand between the tractor and the power lift when operating the power lift via external buttons.

Prerequisite

- Park tractor and machine on level and stable ground in parking position and secure against rolling.
- External protection pivoted to road transport position.
- Support stand (if available) in parking position.
- Tractor motor turned off, parking brake applied, ignition key removed and stored during the work.

Implementation

► Swing PTO shaft holder (2) into parking position (if not already done).



Left = parking position

Right = working position

▷ Uncouple cardan shaft from the tractor and place in the cardan shaft holder.

► Place the control device in float position to release pressure in the hydraulic line.

TIP

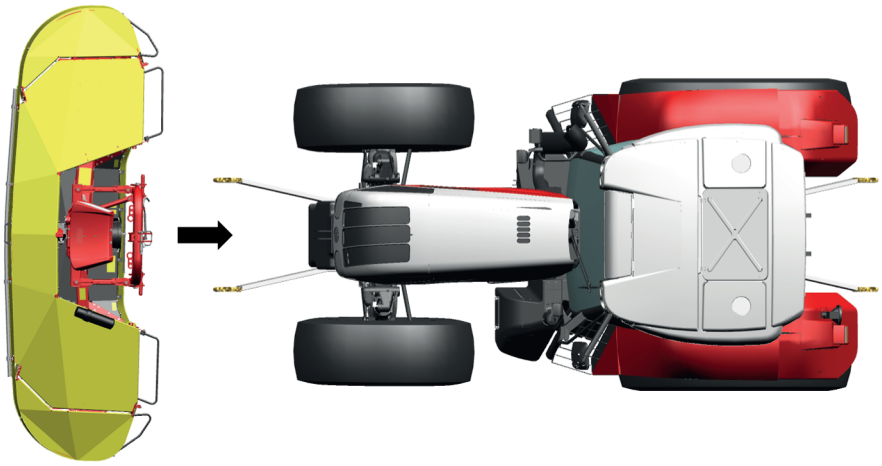
In the event your control unit does not have such floating position, move the control lever to and fro several times with the engine switched off.

► Uncouple hydraulic hose and cable from the tractor, apply dust caps and place rolled up on the hitching frame.

► Dismantle upper link and remove upper link ball if necessary.

► Loosen lower link, lower and remove lower link balls if necessary.

► Make sure that there are no connections remaining on the machine and drive off slowly with the tractor taking care to observe the coupling point.



Put machine out of operation at end of season

NOTICE

Damage due to unsuitable storage conditions!

- ► Store the machine in a clean, dry weather-protected area and not near artificial fertilizer or stabling.
- ► Apply rust protection to bare machine parts, e.g. hydraulic cylinder piston rods or similar.
- ► Disconnect drive shafts from the machine, push together fully lengthwise and store in dry weather-protected area

WARNING

Falling due to slipping / tripping!

Stepping on the parked machine can cause serious injuries.

- ► Do not step on the parked machine.
- ► Prevent children from stepping on the machine using suitable measures.

⚠ DANGER

Catching, being drawn in, severing of limbs, as well as crushing and running over for the entire body!

The danger zone between the tractor and the machine has to be entered during work.

- ► Switch off PTO and tractor engine during work, apply parking brake, remove ignition key and keep it safe.
- ► Wait until all machine components have stopped moving before entering the danger area between the tractor and the machine.

⚠ WARNING

Rotating parts behind protective covers!

Rotating parts behind protective covers can continue to run unnoticed for a long time!

- ► Wait for all rotating parts to come to a standstill.
- ► Make sure that third parties cannot inadvertently activate the movement of the machine.
- ► Make sure that third parties cannot inadvertently activate the movement of the machine.

⚠ WARNING

Not wearing personal protective equipment!

- ► Use personal protective equipment (protective clothing, work gl

Maintain operational readiness

Regular care and maintenance is a basic requirement for the machine to remain functional and safe to operate.

⚠ WARNING

Risk of injury when working on the machine!

- ► Use personal safety equipment such as protective glasses, gloves, etc.
- ► Park machine on firm, level ground and secure against rolling.
- ► Turn tractor motor off, apply park brake, remove ignition key and keep safe.
- ► Secure the work area so that bystanders / unauthorized persons cannot enter it.
- ► All work must be carried out only when the drive is at a complete standstill.
- ► Close stop cock on hydraulic lines before working on hydraulically controlled machine parts.
- ► Remove all electrical plug connections between tractor and machine before working on electrically driven machine parts.
- ► Use suitable supports to prevent accidental lowering / swinging of hydraulically controlled machine parts.
- ► On completion of the work, check tightness of loosened screw connections and check that safety / protective equipment function correctly.

General tips

Re-tighten all screws after the first hours of operation!

Spare parts

PÖTTINGER original parts and accessories are specially designed for the respective machines.

Please be advised that spare parts and accessories not supplied by PÖTTINGER are not approved for use on PÖTTINGER machines.

The installation and use of such products may affect the given characteristics of your machine. The manufacturer accepts no responsibility for damages caused through the use of non-genuine parts and accessories.

The manufacturer accepts no liability for unauthorised modifications to the machine or the use of components and attachments that are not part of the machine ex works.

Control terminals

Before wintering the machine, unplug the control terminals and store them in a dry, frost-proof area which is protected from direct sunlight. Fully charge battery-operated terminals before winter storage and then check the battery status regularly to prevent its destruction through deep discharge.

Cardan shafts

In principle, the instructions in this manual apply for the maintenance of cardan shafts

If there are no special instructions in this manual, then the instructions in the manual supplied by the relevant cardan shaft manufacturer apply.

Repair welding

Prior to any welding work on the tractor while the machine is attached, unplug the connectors on the machine's job computer. Prior to any welding work directly on the machine, the job computer plug connections must also be disconnected.

Battery charging and jump-start procedures

If the tractor battery is charged by means of a charger with the machine attached, all electrical plug connections to the machine must be disconnected beforehand.

If the tractor has to be started by means of a starting aid with the machine attached, all electrical plug connections to the machine must be disconnected beforehand.

Cardan shaft

TIP

The lubrication intervals for the cardan shaft are to be adjusted or halved in the case of dusty conditions or sharp operational angles.

TIP

For full cardan shaft cleaning and maintenance information, observe its manufacturer's operating manual which is enclosed with this cardan shaft!

Winter operation

If the cardan shaft is used in winter, the protection tubes must be greased with universal grease with lubricant code (IV) according to the equipment specification to prevent them from freezing. See page 109.

Implementation

► Extend the cardan shaft without protective tube lubrication to the maximum possible length and apply a thin layer of universal grease to the inner protective tube.

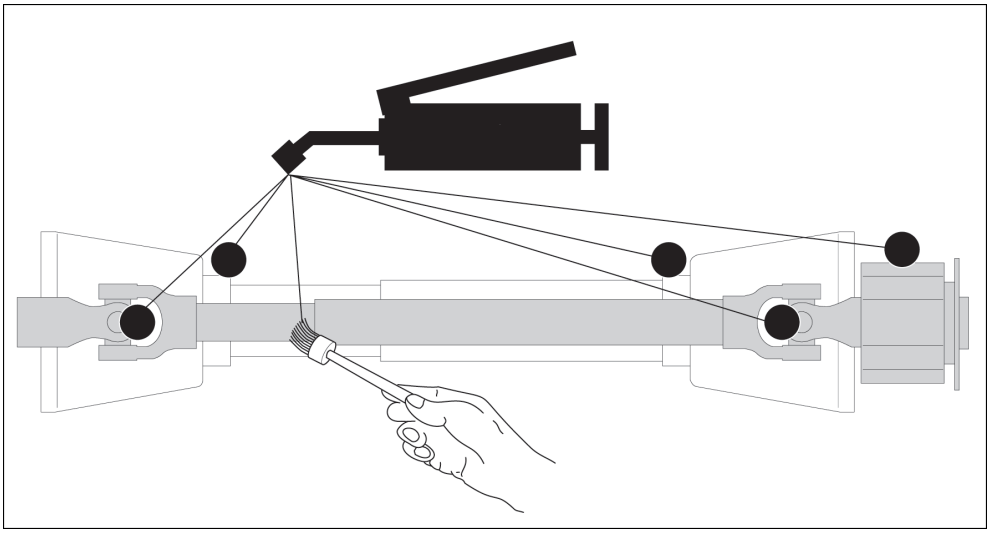
▷ Push the cardan shaft back together.

► Lubricate the cardan shaft with integrated protective tube lubrication at the lubricating points according to the cardan shaft manufacturer's operating instructions.

Clean and grease cardan shaft

Implementation

► Brand-new cardan shafts or ones that have been stationary for a long time before commissioning should be cleaned and greased with universal grease with lubricant code (IV) until grease flows from the bearings. See "Equipment specification" on page 109.



Symbol illustration of possible lubrication points

▷ Dispose of escaping lubricant correctly.

► Cardan shafts should then be greased regularly according to the manufacturer's instructions / lubrication plan.

The activities described below are carried out after checking and evaluating the condition of certain machine areas / machine parts.

Replace / refit reversible cutter blades

If one side of the reversible blades is worn out, the blades can be remounted rotated 180 °.

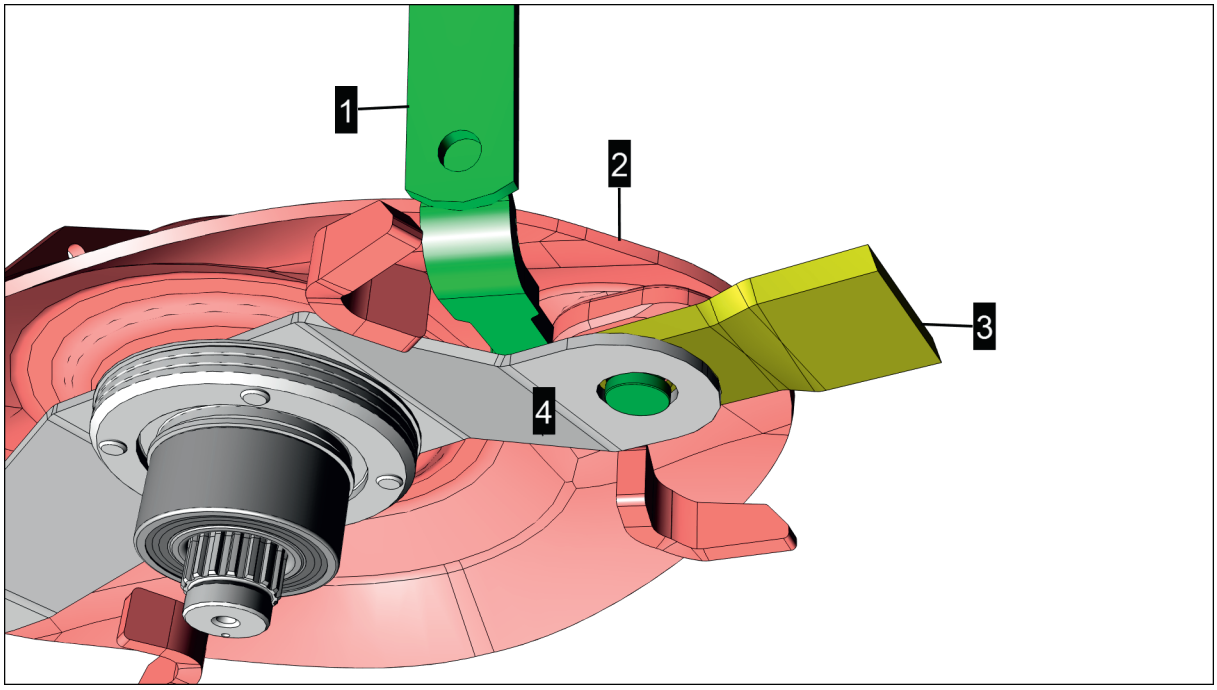
If both sides of the reversible blades are worn out or the blade is damaged, the blades must be replaced.

Always replace the blades with new blades *in twos* to avoid imbalances.

CAUTION

Danger of lacerations from cutter blades!

- ► Never hold cutter by the cutting edges!
- ► During all work with and on the cutters use cut protection gloves.



1 = knife wrench

2 = mower disc

3 = mower blade

4 = blade holder

Preparation

- Remove blade wrench from the toolbox / bracket.
- If necessary, mark new mower blades with the corresponding direction of rotation.

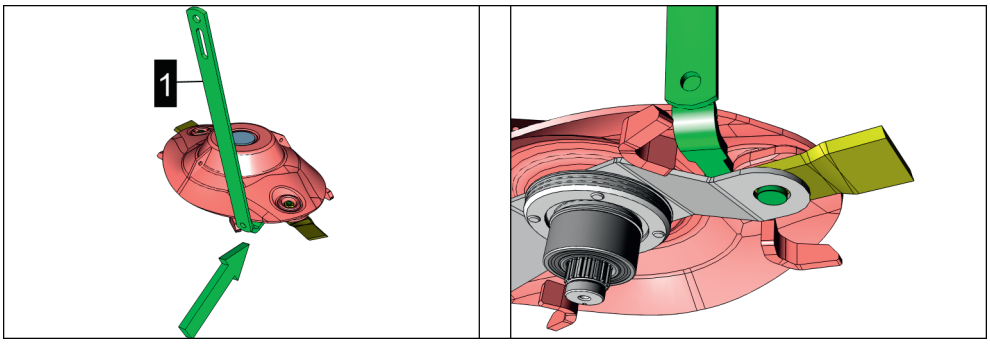
Prerequisite

- Park the tractor and the machine on level, load-bearing ground.
- Tractor motor turned off, ignition key removed and stored, and parking brake applied.
- Front guard folded up.
- Side guards folded up.

Remove mower blades

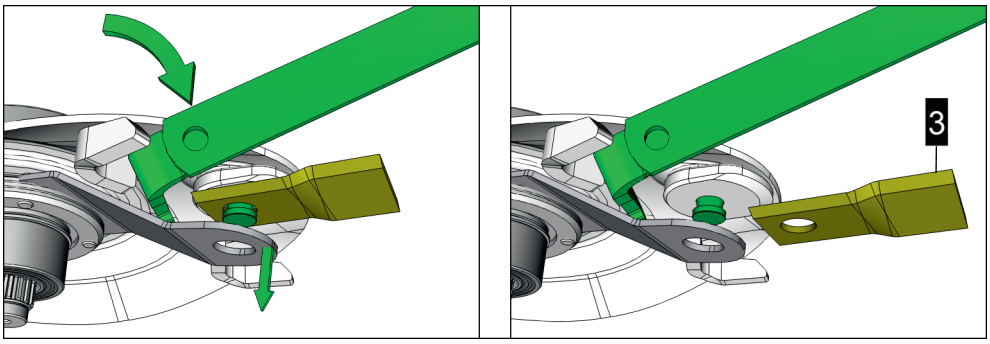
Implementation

► Place the blade wrench (1) on any side of the blade between the mowing disc and the blade holder, as shown.



► Push the blade wrench down and hold it firmly.
The blade holder is also pushed down and the blade is released.

▷ Loosen and remove the blade in a circular motion.



► Swing the blade wrench back to its original position.

► Clean the contact surfaces of the blade, the blade holder and mowing disc, using the blade wrench if required.

► Repeat procedure for all blades if required

⚠ CAUTION

Mower blade breakage and ejected mowing blade parts!

► Do not repair damaged mower blades, replace them with new ones.

► Always change all mower blades at the same time.

► Always replace worn mower blades, never re-sharpen them and likewise with mowing discs / mowing drums, always replace them with new ones to avoid imbalances.

► Always note direction of rotation markings when fitting new mower blades.

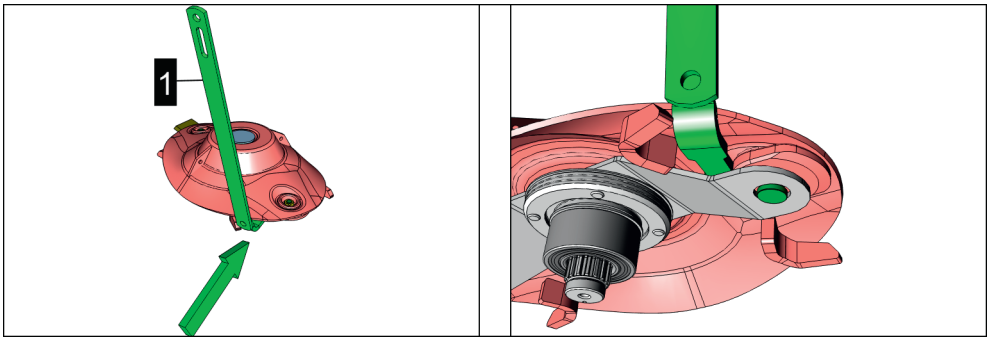
Fit the mower blade

Prerequisite

- Contact surfaces of the blade, the blade holder and mowing disc have been cleaned.
- With new mower blades, remove the anti-corrosion paint at the attachment points around the hole.

Implementation

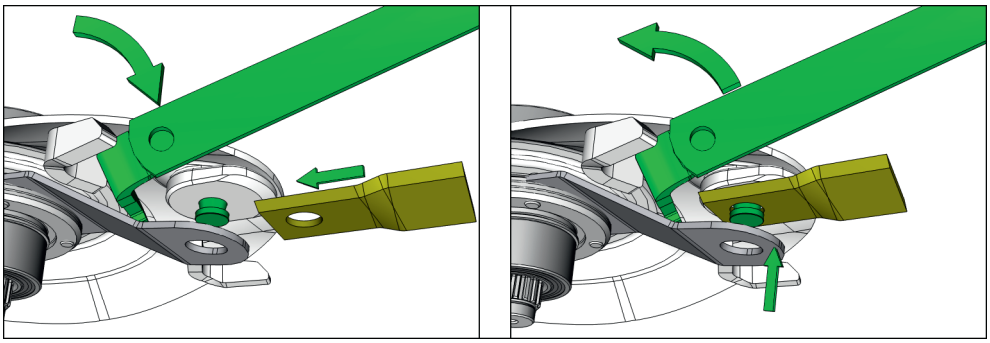
► Place the blade wrench (1) on any side between the mowing disc and the blade holder as shown.



► Push the blade wrench downwards.

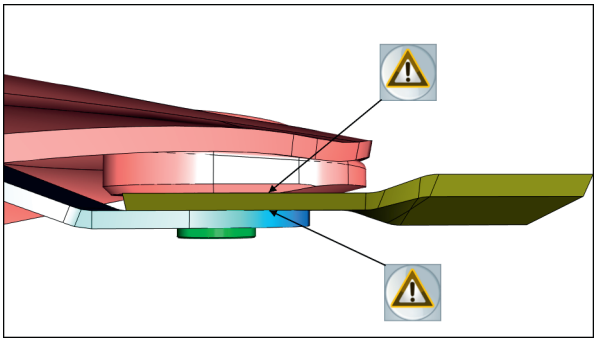
The blade holder is also pushed down and the blade bolt is released.

► Fit the mower blade to the blade bolt in the correct direction of rotation for the mower disc in question (see embossed arrow on the blade).



► Swivel blade wrench back to the original position. The blade holder is pressed against the blade contact surface and holds it in position.

► Ensure that the blade can move on the blade bolt and that the blade rests fully on the cutting disc and the blade holder on the blade.



► Remove the knife wrench and store it.

► Carry out the same procedure for all cutter blades.

The activities described below are carried out at a specific time or at specific intervals.

Before every season

Check the cardan shaft cam clutch

The cardan shaft cam clutch should be checked (pulled off) once a year. This inspection is important, especially if it never responds during normal operation.

NOTICE

Overload in powertrain!

If the cam clutch coupling never releases during operation, the release torque may increase sharply by itself or the cam clutch coupling may get stuck.

► Have the cardan shaft made part by an authorized service specialist annually!

A tolerance of +/- 10% release torque is permitted.

If the limit value is exceeded or not reached, the cardan shaft must be replaced.

TIP

For full cardan shaft cleaning and maintenance information, observe its manufacturer's operating manual which is enclosed with this cardan shaft!

Checking the friction clutch

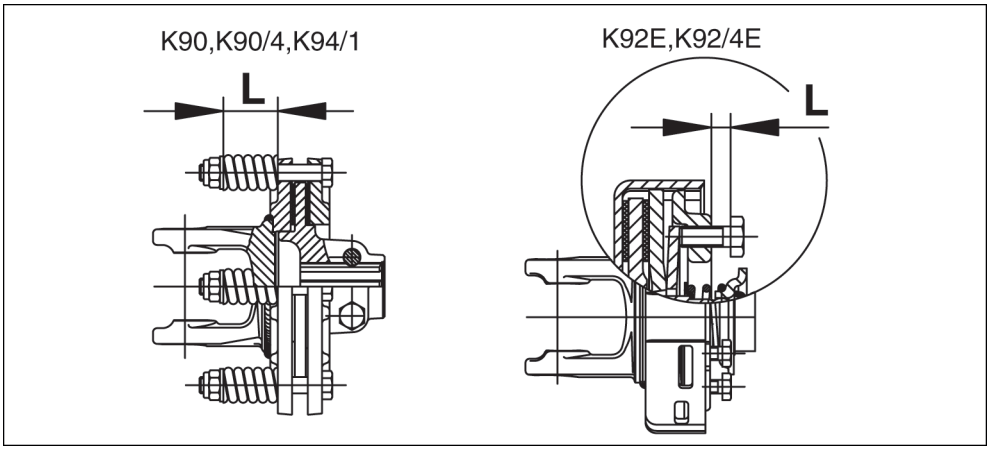
Before initial use of a brand-new cardan shaft and after prolonged standstill, the friction clutch function may be impaired as a result of the friction linings sticking together. Therefore, the friction clutch must be checked for correct function before use.

Implementation

TIP

Under no circumstances endeavour to make clutch linings functional with oils, greases or rust removers!

► Measure and note the dimension (L) on the compression spring (for friction clutch K90, K90/4) or on the setting screw (for friction clutch K92E, K92/4E).



- ► Loosen the screws to relieve the clutch linings.
- ► Turn the clutch a few turns. This will remove impurities from the friction linings.
- ► Adjust the screws to the previously noted dimension (L).
  The clutch is ready for use again.

Daily maintenance

Maintenance is to be carried out at the beginning of each working day before using the machine.

Check hydraulic system

WARNING

Infections due to leaking hydraulic oil!

Hydraulic oil that is discharged under pressure may penetrate the skin, enter bodily orifices and cause severe infection.

- ► Depressurize the hydraulic system before carrying out maintenance work.
- ► Wear personal protective equipment such as goggles and gloves when working on the hydraulic system.
- ► Before starting operation, always check the hydraulic system for wear and damage.
- ► Only search for leaks with suitable aids (e.g. special spray for leak detection). Have any defects dealt with immediately in a specialist workshop.
- ► Do not seal off leaks using your hands or other body parts.
- ► Seek medical advice immediately in case of injury caused by hydraulic oil.

Check for damage and leaks

NOTICE

Rupturing of old hydraulic hoses

- ► Hydraulic hoses that are older than 6 years should be replaced. Use only replacement hoses with the same specifications. See the spare parts list.

Predetermined maintenance

Prerequisite

- Machine is parked on level, stable ground and secured against rolling away.
- Tractor motor turned off, ignition key removed and stored.

Implementation

► Check hydraulic system (e.g. hydraulic hoses, pressure reservoir) for damage and leaks and replace components if necessary (see spare parts list).

TIP

Possible damage to hydraulic hoses

- Kinks
- Blistering
- Porous or cracked hose surface
- Abrasion points and exposed mesh on the hose sheathing

▷ If a leak exists in the screw connection, then retighten each screw connection if possible. If this does not stop the leak, the hydraulic component concerned must be replaced immediately.

▷ Depressurize the hydraulic system before carrying out any maintenance and repair work on the hydraulics.

To do so, move the tractor control device several times between "Raise" and "Lower" with the hydraulic pressure supply turned off.

Check / change lighting / illuminants

TIP

Faulty lights or illuminants must be replaced before driving in public traffic areas (this does not apply to work lights)

TIP

LED light maintenance

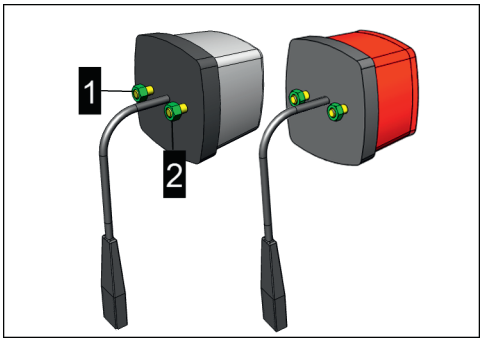
Illuminants cannot be replaced with LED lights!

Change the LED lights when faulty.

Changing bulbs for the limiting lights

Implementation

► Loosen the bolts 1 and 2 and remove the cover keeping in mind the gasket inside.



▷ Replace defective lamps.

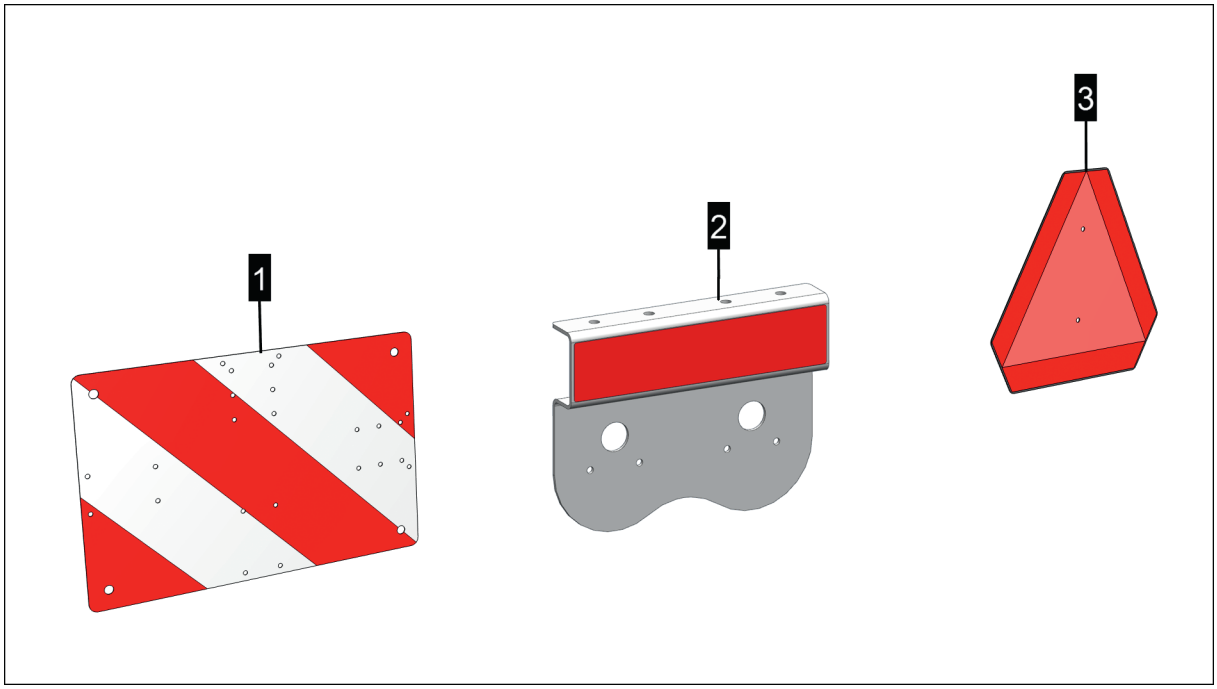
▷ Installation in reverse order.

Check / replace warning signs, warning triangles, warning sheets

TIP

Warning signs, triangles and foils consist of an object holder (of different materials) with a layer of light-reflecting material applied on top.

The design and assembly positions may differ depending on the machine and country of destination.



Symbol illustration

1 = Warning sign

2 = Warning foils (red and yellow)

3 = Warning triangle (SMVI emblem)

CAUTION

Danger of accident due to poor visibility of warning equipment.

- ► Clean soiled warning signs, warning triangles, warning foils before travelling in public traffic areas with the machine.
- ► Replace damaged warning signs, warning triangles, warning foils before travelling on public roads with the machine.

Implementation

- ► Check that warning signs, triangles and foils are clean.
  - ▷ Remove all dirt using an acid and alcohol-free cleaner, a smooth cloth or sponge and if possible a little warm water.
- ► Check warning signs, triangles and foils for damage.
  - ▷ Replace all warning signs, triangles and foils that have been damaged by adverse weather or mechanical influences (see spare parts list).

TIP

When replacing the warning signs, be aware of the direction of the warning sign stripes when fitting!

Once after 1 hour

Retighten blade bolts

TIP

Mower discs with attached conveyor drum or with attached conveyor cone are also referred to as mower discs in the following!

CAUTION

Danger of lacerations from cutter blades!

- ► Never hold cutter by the cutting edges!
- ► During all work with and on the cutters use cut protection gloves.

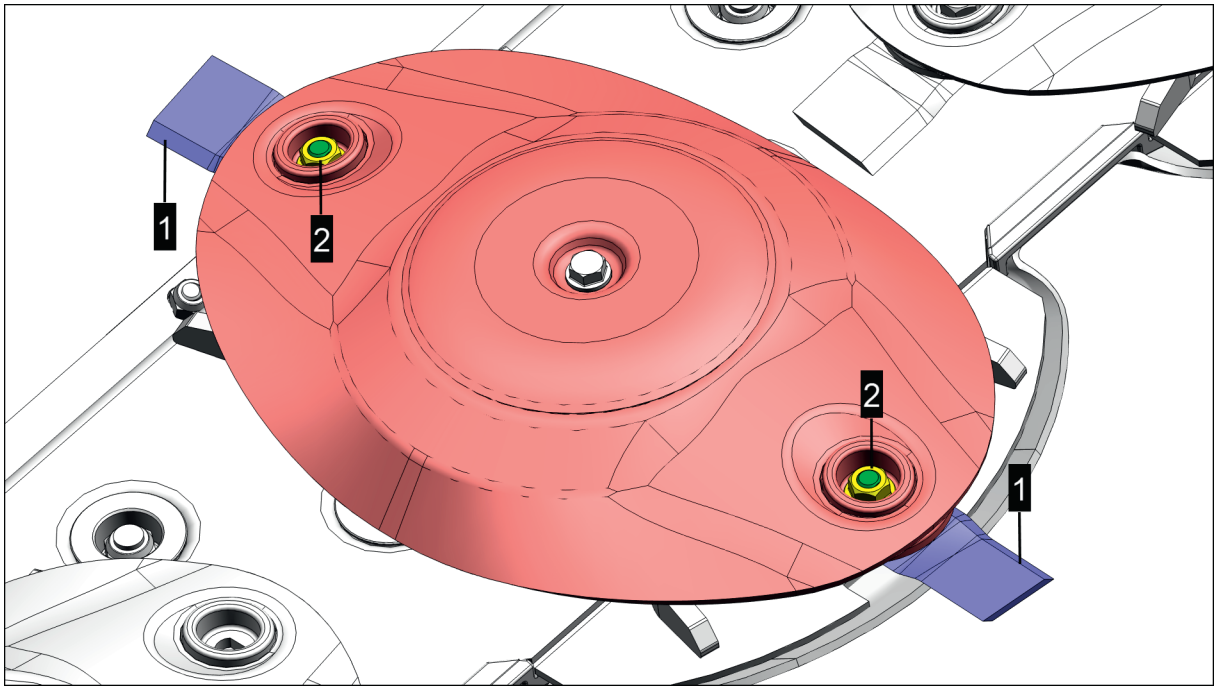


Illustration of mower disc without conveyor drum and conveyor cone

1 = Mower blade

2 = Blade bolt

Preparation

- 17 mm Socket wrench
- Torque wrench adjustable to at least 120 Nm tightening torque.
- Use cut protection gloves

Prerequisite

- The machine is standing on even, load-bearing ground in the working position.
- Tractor motor turned off, ignition key removed and stored, an parking brake applied.
- Front guards folded up (if possible).
- Side guards folded up (if possible).

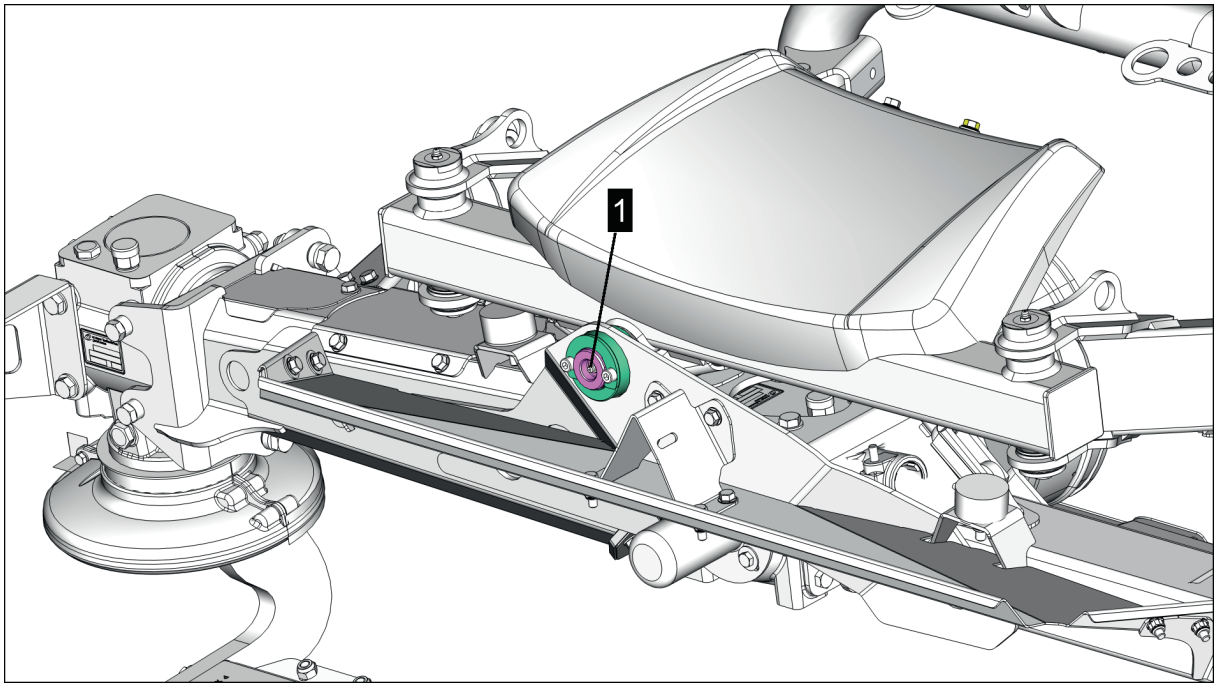
Implementation

► Start on the very outer edge (left or right) of the cutter bar and retighten both blade bolts on the outermost mowing disc to 120 Nm before moving to the next adjacent mowing disc.

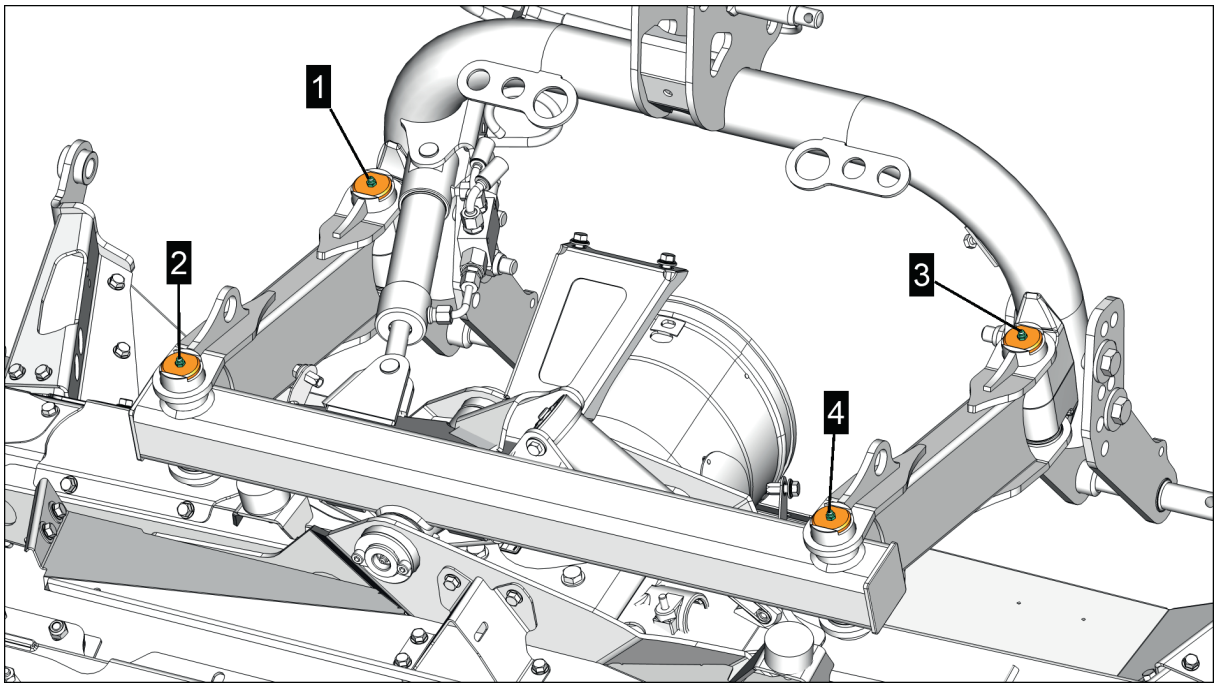
▷ Repeat the process as many times are necessary until all blade bolts on all mowing discs of the entire mower unit have been checked.

Every 25 hours

Grease cutter bar bearing



1 = Grease nipple for cutter bar self-aligning bearing



1-4 = Lubricating nipple for cutter bar bearing and lateral shift.

Covering blanked out

Implementation

► Grease lubricating nipple (1) with universal grease as shown.

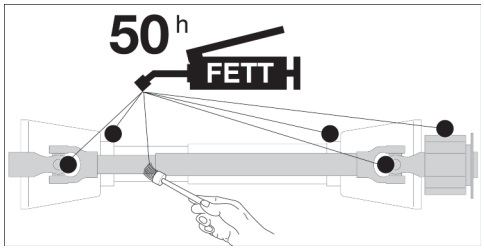
Every 50 hours

Lubricate cardan shafts

Lubricate the cardan shafts every 50 operating hours. Refer to the cardan shaft manufacturer's operator's manual provided with the cardan shafts for further information.

TIP

The lubrication intervals for the cardan shaft are to be adjusted or halved in the case of dusty conditions or sharp operational angles.



Mowing blade holder wear check

To fully inspect the mower blade holder, it is necessary to remove the mower blades and blade bolts.

TIP

If the machine is frequently operated on stony ground or under difficult operating conditions, the intervals between checking for wear should be shortened.

CAUTION

Mower blade holder or blade bolt breakage and ejected mower machine parts!

- ► Worn blade bolts must not be reused but replaced with new ones.
- ► Worn mower blade holders must not be reused but replaced with new ones.
- ► Do not reuse blade bolts that have become loose but replace them with new ones.

Preparation

- Calipers
- 17 mm Socket wrench
- Blade bolts and nuts as required (see spare parts list).

Prerequisite

- The machine is standing on even, load-bearing ground in the working position.
- Tractor motor turned off, ignition key removed and stored, an parking brake applied.
- Mower blades removed.
- Front guards folded up (if possible).

- Side guards folded up (if possible).

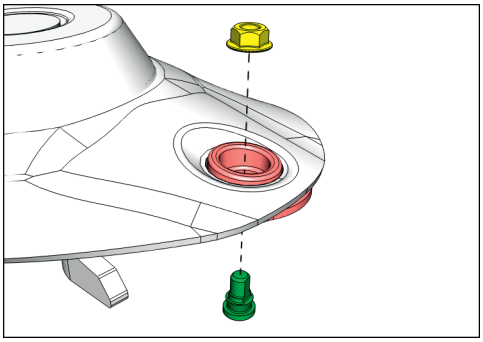
Remove blade bolts

TIP

If it is confirmed that the blade bolts have obliviously already worked loose, replace the blade bolt with a new bolt and nut rather than carrying out the check.

► Unscrew nut anti-clockwise.

► Remove the blade bolt downwards through the hole in the blade holder.



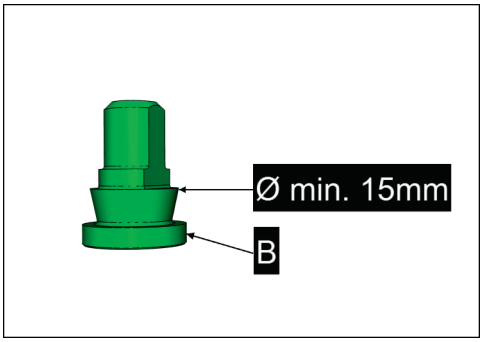
Check / fit the blade bolt

TIP

If the blade bolt has obviously loosened before removal, do not check it again but replace it with a new blade screw and nut.

► Re-measure the diameter at the widest part of the blade bolt cone.

The minimum diameter should not be less than 15 mm.



B = Blade bolt head

▷ If the minimum diameter has almost been reached or even falls below, then the blade bolt must be replaced immediately with a new screw.

▷ If the minimum diameter has not almost been reached, the bolt can still be used unless the blade bolt head shows signs of wear.

► Check blade bolt head (B).

▷ If the blade bolt head shows signs of wear, they must definitely be replaced.

▷ If the blade bolt definitely shows no signs of wear, then it can still be used unless excessive wear and tear was detected on the bolt cone at the start of the checking process.

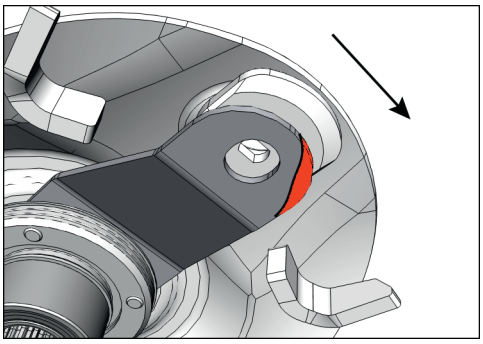
► Remove any dirt from the area around the blade bolt and the hole.

► Refit the blade bolt (as removed) and tighten to 120 Nm.

► The mower blade can then be refitted if necessary (note the direction of rotation).

Check mower blade holder

► The mower blade holder may show some traces of wear and tear in the area of the holes but this must not reach the extent of the marking as shown in the picture below.



The red marking shows unacceptable traces of wear on one of the mower blade holders.

Arrow = Rotation direction during operation.

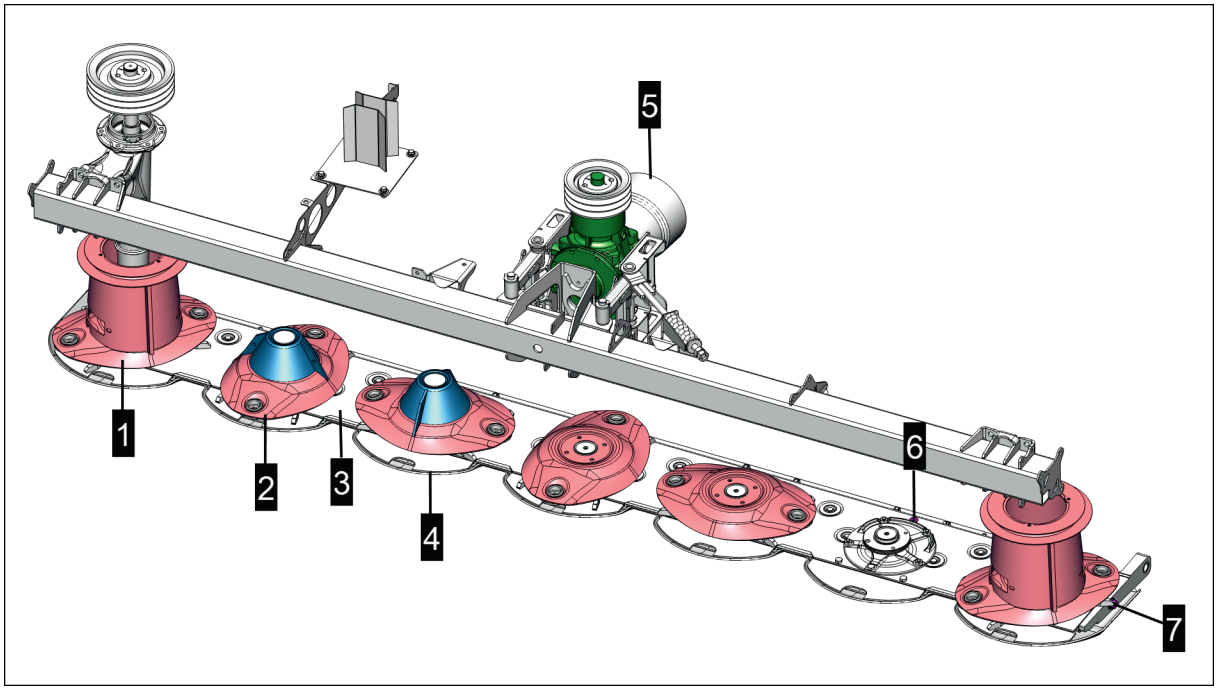
► If traces of wear and tear are found in the extent shown in the picture, the machine must no longer be used. Have the mower blade holder replaced with a new holder immediately by a specialist dealer.

▷ Replace mower blade holders in twos for each mower disc to avoid imbalances.

► Carry out the inspection on all mower blade holders in the same way.

For the first time after 50 hours and then every 100 hectares

Cutter bar oil change



1 = Conveyor drum

2 = Mower disc

3 = Cutter bar

4 = Skid

5 = Input gear

6 = Oil filler plug / oil level control plug

7 = Oil drain plug

Preparation

- Tool
- Cleaning paper or similar
- Oil catch pan with sufficient capacity
- New gear oil as per Operating Lubricant Code (III) according to the List of Operating Fluids / Lubrication Schedule

TIP

So that the oil can be drained as completely as possible, it is necessary to bring it almost up to operating temperature.

We recommend carrying out the change on warm days of >15 °C.

Change oil

Prerequisite

- Oil is almost at operating temperature.
- Machine and tractor on level, stable ground and secured against rolling.
- Cutter bar in headland position

Implementation

► Support cutter bar right-hand side with a wooden block or similar item so that the oil catch pan can be placed underneath the cutter bar left-hand side, without the cutter bar resting on the oil catch pan.

▷ Lower cutter bar to working position.

► Turn tractor engine off.

► Clean dirt away from the area around the drain plug.

► Open drain splug and drain lubricant completely.

► Wait until the lubricant has stopped dripping out of the opening in the drain plug.

► Re-insert and tighten the drain plug.

► Clean oil residue away from the area around the drain plug.

► Dispose of lubricant contaminated cleaning paper and other lubricant residues properly.

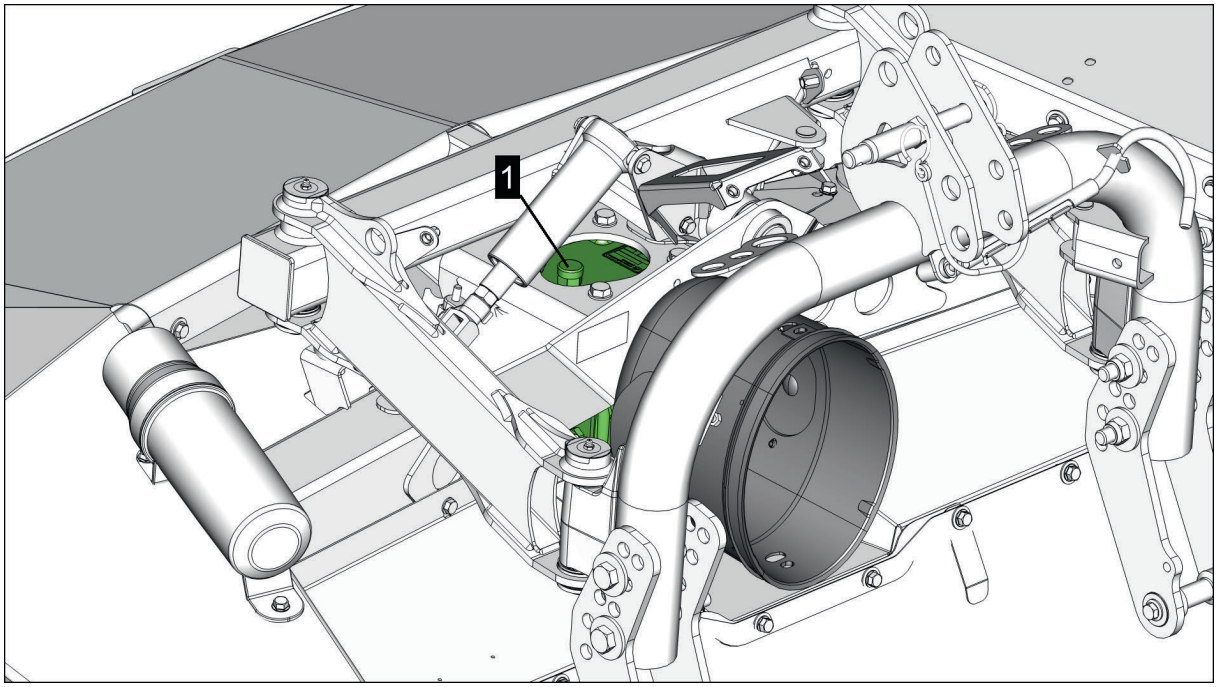
► Add new gear oil as described in chapter "Check / replenish cutter bar oil level".

Change mower input gear oil

TIP

So that the oil can be drained as completely as possible, it is necessary to bring it almost up to operating temperature.

We recommend carrying out the change on warm days of >15 °C.



1 = Mower input gear

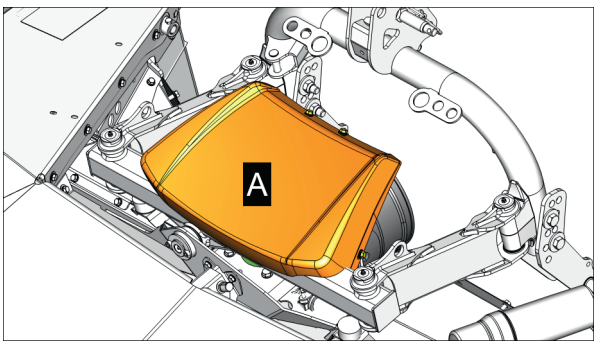
Covering hidden

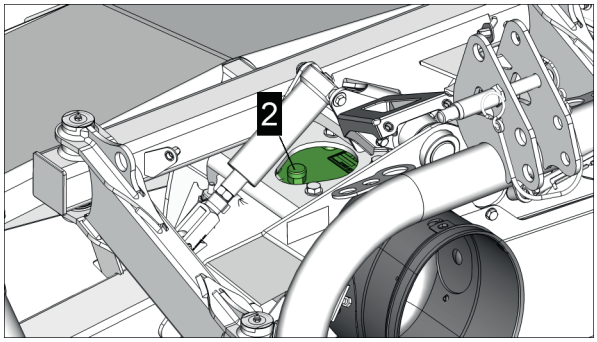
Preparation

- Tool
- Gear oil according to lubricant table
- Waste oil collecting pan with a minimum capacity of 2 litres.
- Cleaning paper or similar

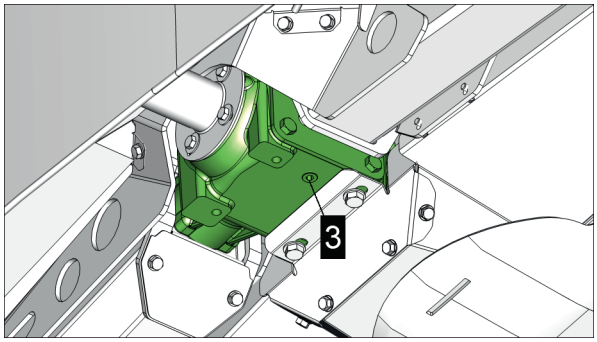
Prerequisite

- Machine must be parked on level, stable ground in the working position and secured against rolling.
- Gear oil close to operating temperature.
- Covering (A) removed.





2 = Oil filler plug / oil level measuring rod



3 = Oil drain plug

Implementation

- ► Clean dirt away from the area around the filler plug.
- ► Clean dirt away from the area around the drain plug.
- ► Place catch pan underneath.
- ► Loosen filling plugs but do not remove yet.
- ► Open drain splug and drain lubricant completely.
- ► Reinsert cleaned oil drain plug and tighten.
- ► Clean oil residue away from the area around the drain plug.
- ► Remove filler plug.
- ► Gradually add lubricant. Check fill level of oil level measuring rod continuously. Do not overfill.

TIP

The oil level can only be correctly determined if the oil level measuring rod is screwed in fully!

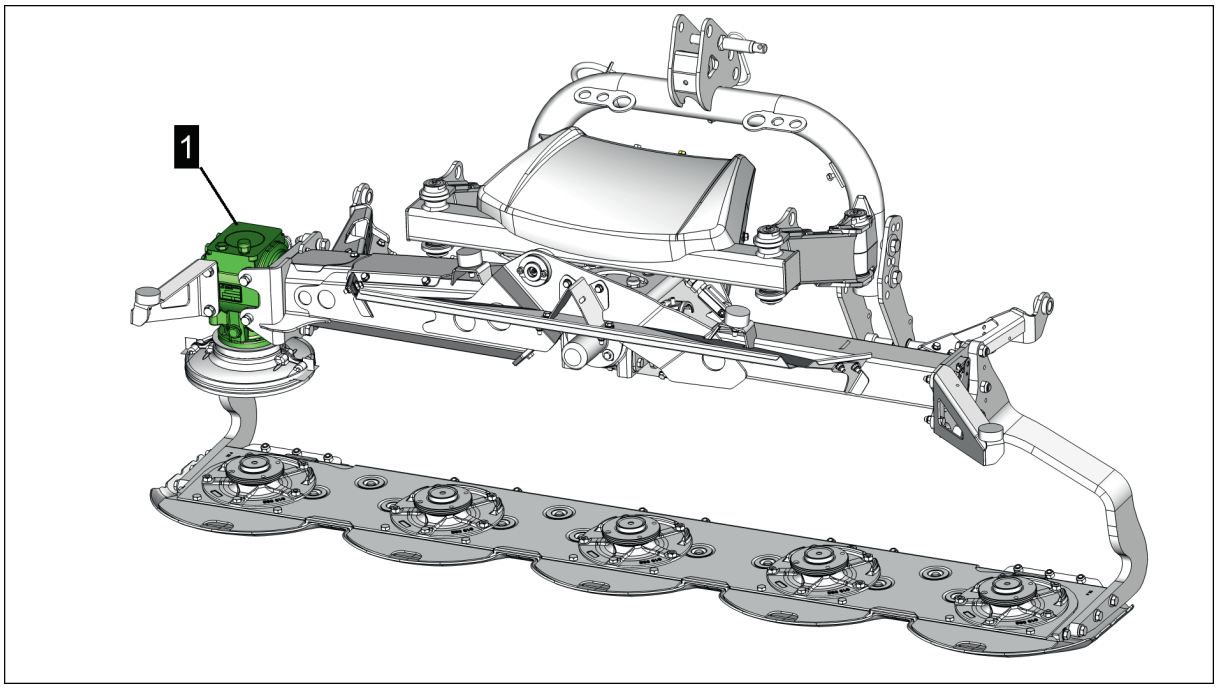
  - ▷ Add more oil until the fill level approaches the upper marking of the oil level measuring rod. Do not fill gears above the marking of the oil level measuring rod!
- ► Clean the filler plug, reinsert and tighten with new seal.
- ► Clean dirt away from the area around the filler plug.
- ► Dispose of lubricant contaminated cleaning paper and other lubricant residues properly.

Change cutter bar side gear oil

TIP

So that the oil can be drained as completely as possible, it is necessary to bring it almost up to operating temperature.

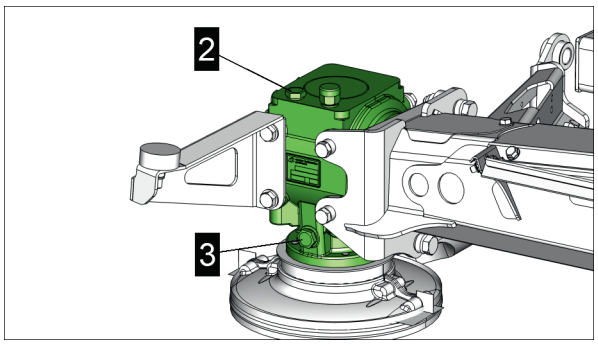
We recommend carrying out the change on warm days of >15 °C.



1 = Cutter bar side gear

Preparation

- Tool
- Gear oil as per Operating Lubricant Class (III) according to lubricant specification / lubrication plan / lubricant table and fill quantities.
- Old oil catch pan with a minimum capacity of 1.5 litres.
- Wastepaper or similar.
- Front guards opened and locked.



2= Oil level control plug with dipstick

3 = Oil drain plug

Implementation

1 Clean dirt away from the area around the oil level control plug.

2 Clean dirt away from the area around the drain plug.

3 Loosen oil level inspection plug, but do not remove yet.

4 Place catch pan underneath.

5 Open drain splug and drain lubricant completely.

6 Reinsert cleaned oil drain plug and tighten.

7 Clean oil residue away from the area around the drain plug.

8 Remove oil level inspection plug and pour new transmission oil in gradually, up to the top mark on the dipstick.

TIP

The fill level control screw must be tightened fully to measure the fill level.

9 Check oil level continuously during filling.

NOTICE

Maximum level has been exceeded!

► Fill gears up to the maximum level of the upper marking on the measuring rod.

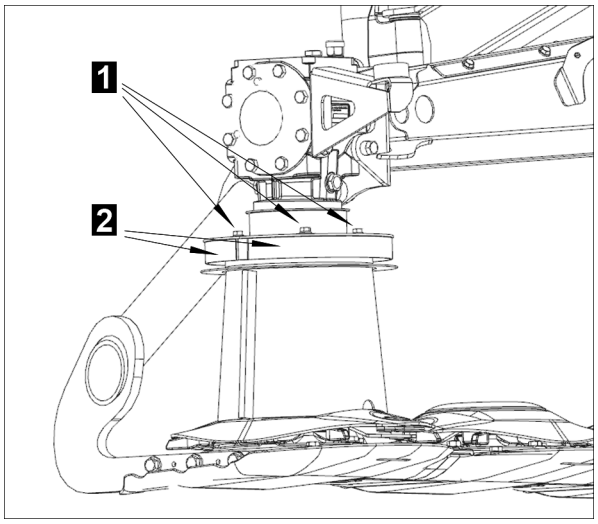
10 Clean oil level control plug and screw back in with a new seal, and tighten.

11 Clean oil residue away from the area around the oil level control plug.

12 Dispose of lubricant contaminated cleaning paper and other lubricant residues properly.

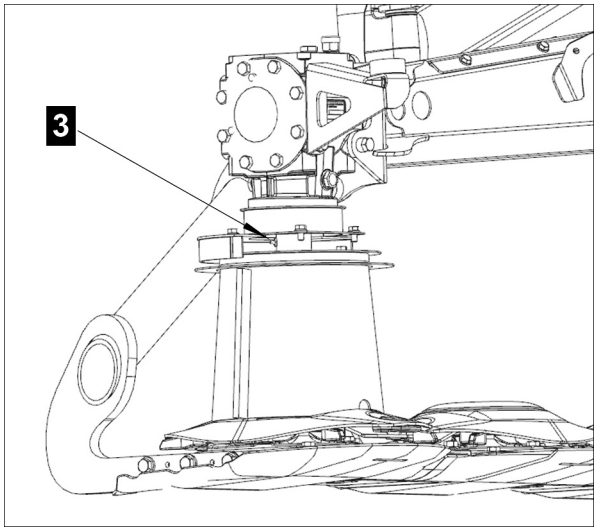
13 Close and lock front guards if necessary.

Lubricate the cardan shaft sliding gear under the side gear



1 = Fastening screws

2 = Cover plate



3 = Grease nipple for cardan shaft sliding gear height compensation

Prerequisite

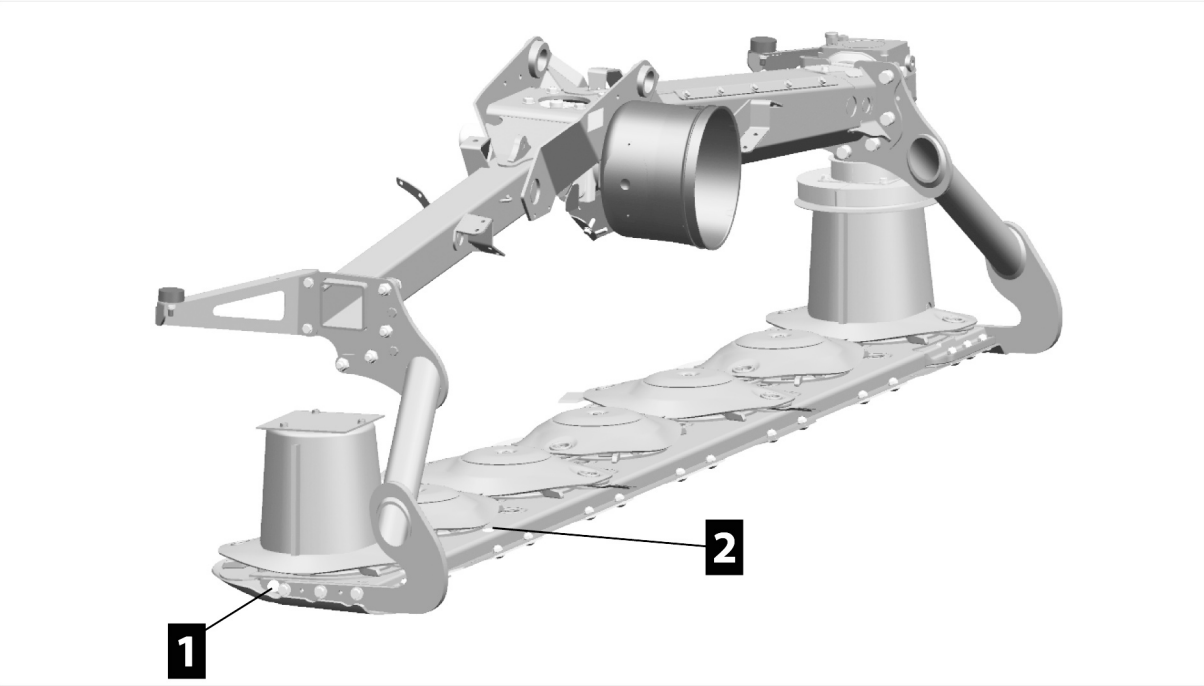
- The machine is standing on even, load-bearing ground in the working position.
- Tractor motor turned off, ignition key removed and stored, and parking brake applied.
- Front guard folded up.
- Side guard folded up.

Implementation

1 Remove fastening screws (1)
2 Remove cover plate (2)
3 Grease lubricating nipple (3) with universal grease as shown.
4 After greasing, refit the cover plates in reverse order.
5 Fold the front and side guards down again.

Annually

Check / top-up cutter bar oil level



1 = Oil drain plug

2 = oil filler plug / oil level control plug

Preparation

- Tool
- Cleaning paper or similar
- New gear oil operating material code (III) according to operation material specifications / lubrication plan

Prerequisite

- Machine is correctly and fully attached to a suitable tractor.
- Park tractor and machine on level and stable ground in working position.
- Tractor motor turned off, ignition key removed and stored, an parking brake applied.
- Machine secured against unintentional lowering by positioning.
- Gear oil close to operating temperature.

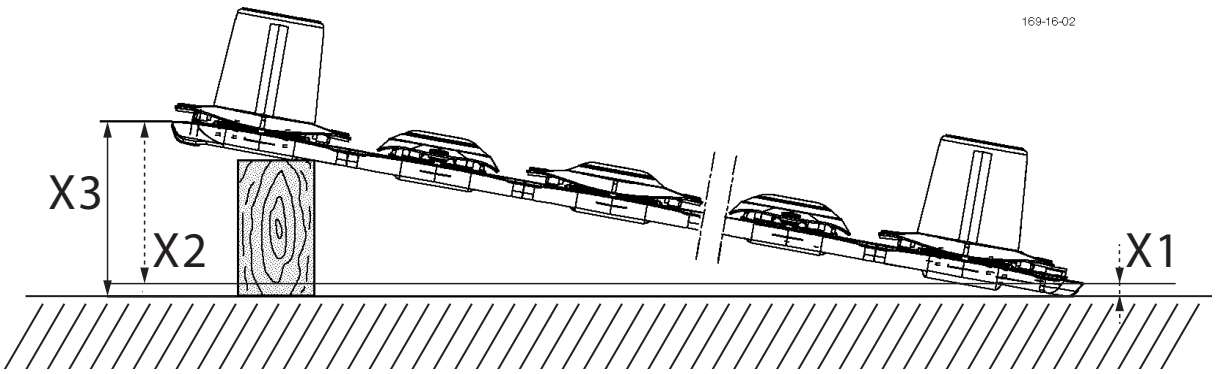
⚠ CAUTION

Machine slipping and falling!

► Lift or prop up the machine so that it cannot slip / fall down.

Implementation

► Prop up the cutter bar on the long side opposite the oil drain plug, as shown.



X3 = X2 + X1

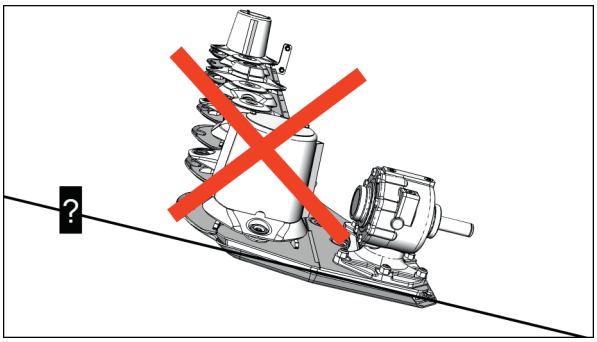
X1 = Distance from ground to upper skid edge.

X2 = 290 mm = Distance from the left upper skid edge to the right upper skid edge.

▷ Let the side of the cutter bar where the oil filler plug is located rest on the ground.

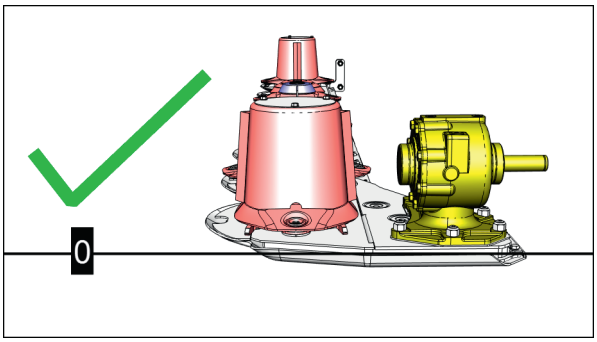
► Lift the other side of the mower bar by (X3) and support with a suitable prop.

► When propping up, make sure that the cutter bar is not inclined on the broad side but is in a fully horizontal position. Otherwise the oil level shown at the oil filler plug will be incorrect.



Symbol illustration

Horizontally incorrectly aligned!



Symbol illustration

Horizontally correctly aligned!

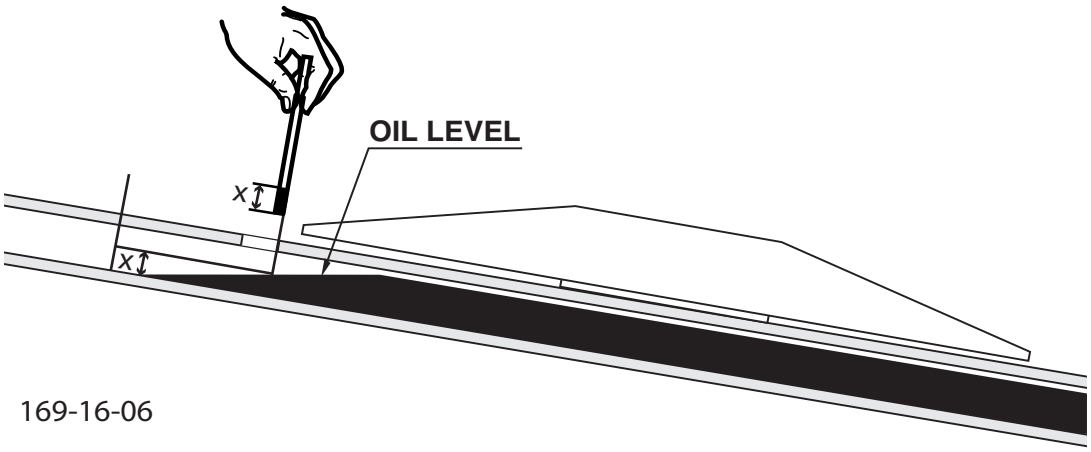
► Clean dirt away from the area around the filler plug.

► Leave cutter bar in this position for at least 15 minutes so that the transmission oil collects in the lower part of the cutter bar.

► Remove filler screw and check oil level.

▷ Insert a clean, solid object (e.g. screwdriver or a straight piece of wire) like a dipstick vertical to the hole and against the "lower" edge of the hole until it stops, as shown. Remove improvised dipstick and measure the oil level.

The distance between the lower edge of the dipstick and the upper edge of the oil level (= measurement X) should be a maximum of 9 mm.



169-16-06

X = 9 mm

▷ If the oil level is less than 9 mm, gradually top-up the lubricant to the required level.

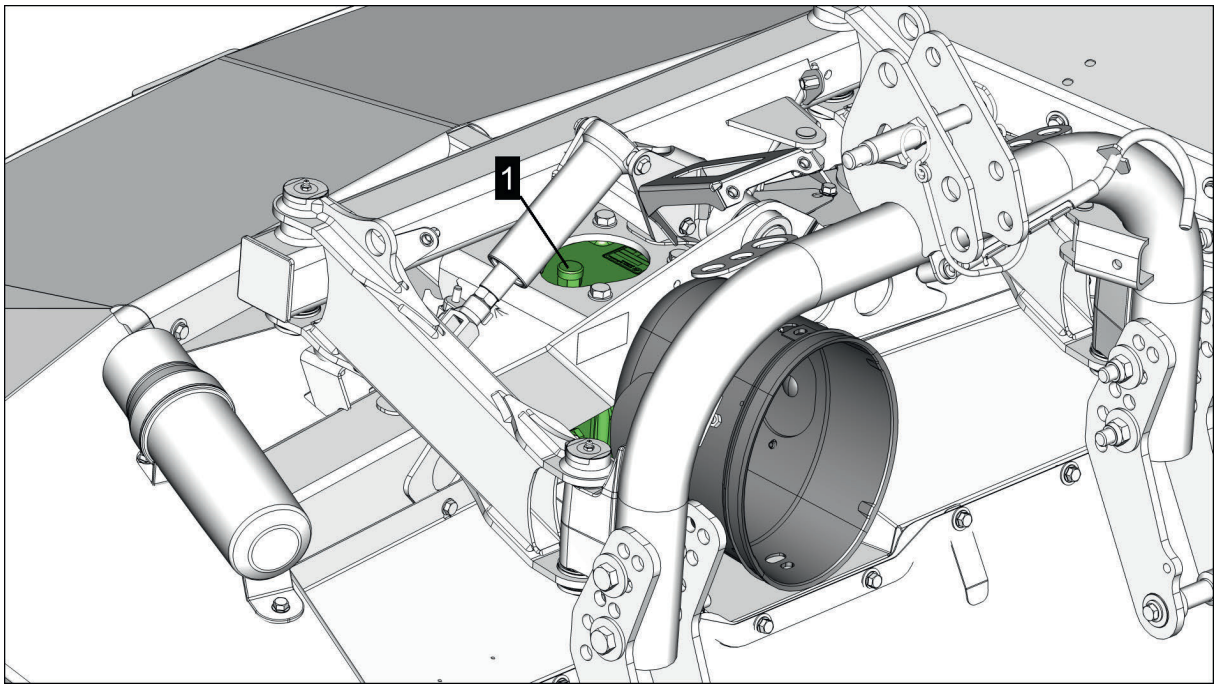
▷ If the oil level is already 9 mm, continue with the next step.

► Clean the filler plug, reinsert and tighten with new seal.

► Clean dirt away from the area around the filler plug.

► Dispose of cleaning paper which has been contaminated with lubricant correctly.

Check / top-up mower input gear oil level



1 = Mower input gear

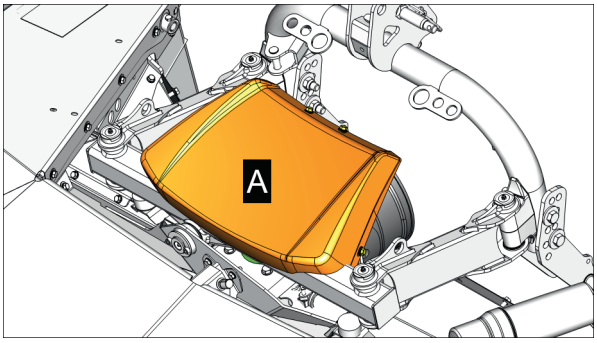
Covering blanked out

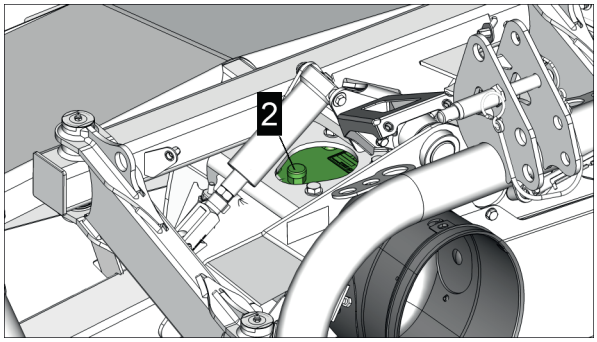
Preparation

- Tool
- Gear oil according to lubricant table
- Catch pan for old oil
- Cleaning paper or similar

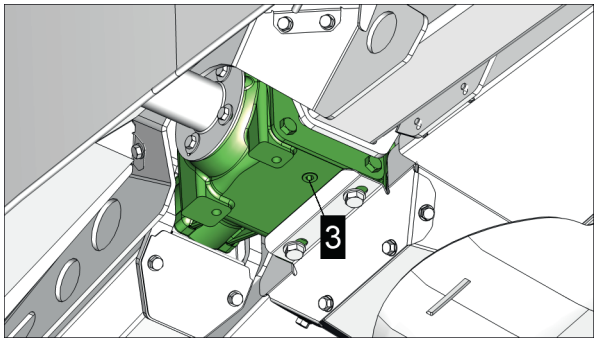
Prerequisite

- Park machine in working position on ground that is as horizontal, level and stable as possible.
- Tractor motor turned off, parking brake applied, ignition key removed and stored.
- Covering (A) removed.





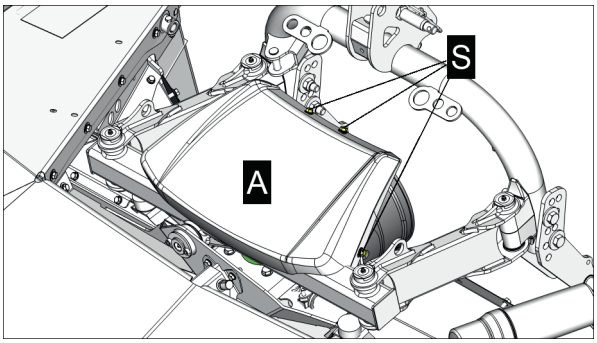
2 = Oil filler plug / oil level dipstick



3 = Oil drain plug

Implementation

1 Remove 4x screws (S) and take off the covering (A).



2 Clean dirt away from the area around the filler plug.

3 Place old oil catch pan underneath if necessary.

4 Remove filler plug.

5 Wipe dipstick and screw back in completely but do not tighten.

TIP

The oil level can only be correctly determined if the oil level measuring rod is screwed in fully!

6 Remove dipstick again and read oil level.

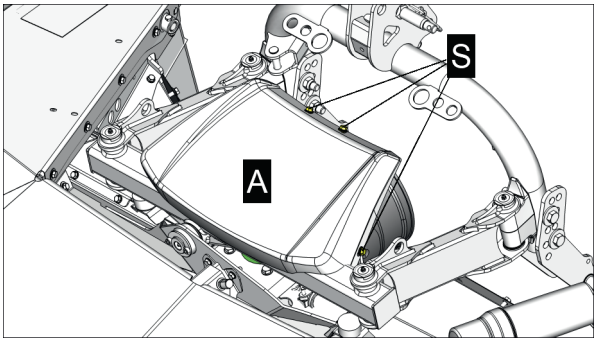
- ▷ No further action is necessary if the oil level on the dipstick is close to the upper marking. In this case, continue with step 8.
- ▷ If the oil level on the dipstick is close to the lower marking, extra oil needs to be added. In this case, continue with the next step.

7 Gradually add fresh lubricant and check the oil level continuously until the oil level reaches the upper marking on the dipstick. Do not overfill!

8 Clean the filler plug, reinsert and tighten with new seal.

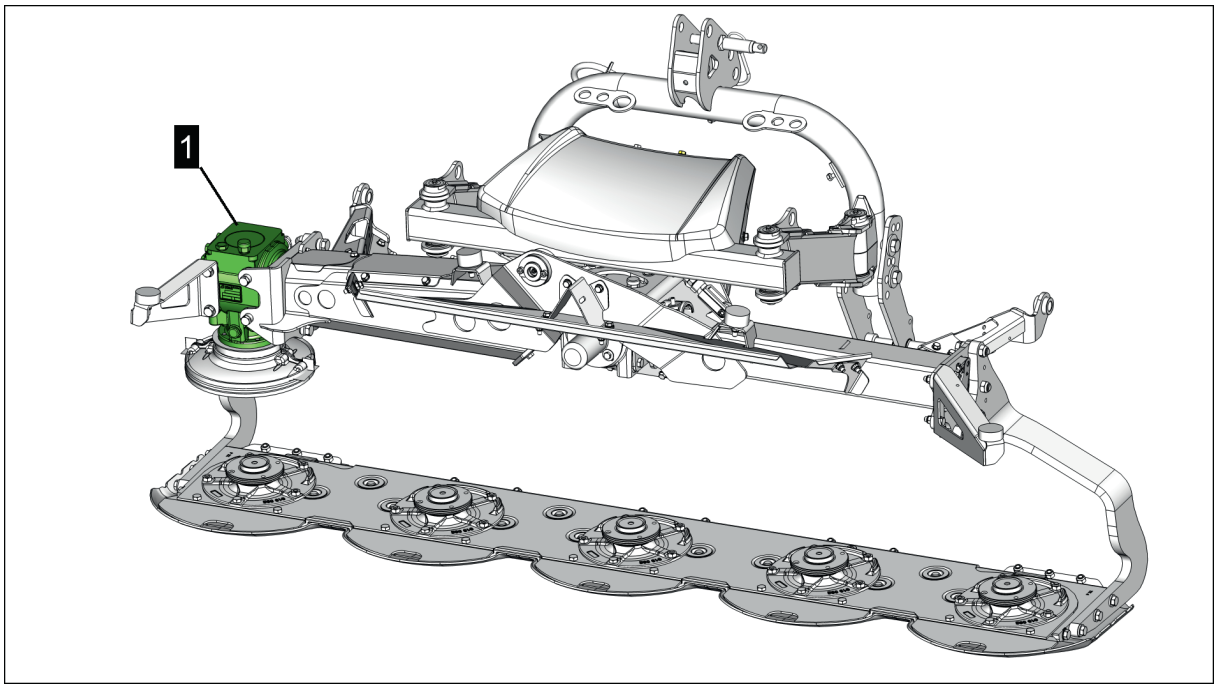
9 Clean dirt away from the area around the filler plug.

10 Replace covering (A) and tighten 4 x screws (S).



11 Dispose of lubricant contaminated cleaning paper and other lubricant residues properly.

Check / top-up side gear cutter bar oil level



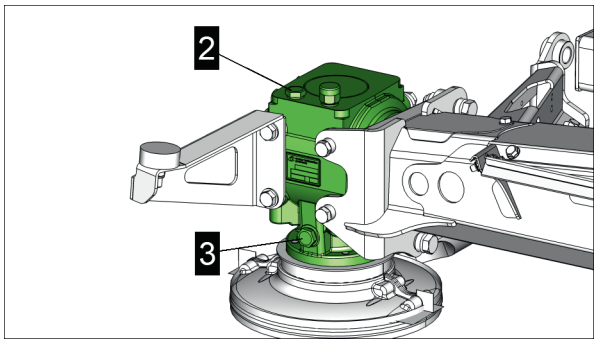
1 = Cutter bar side gear

Preparation

- Tool
- Gear oil as per Operating Lubricant Code (III) according to lubricant specifications / lubrication plan
- Cleaning paper or similar.
- Front guards opened and locked.

Prerequisite

- Machine is correctly and fully attached to a suitable tractor.
- Lubricant almost at operating temperature.
- Tractor PTO switched off
- Park tractor and machine on level and stable ground in working position.
- Tractor motor turned off, ignition key removed and stored, an parking brake applied.



2 = Oil level control plug with dipstick

3 = Oil drain plug

Implementation

1 Clean dirt away from the area around the oil level control plug.

2 Remove oil level control plug

3 Wipe oil level control plug and screw back in completely, but do not tighten.

4 Remove oil level control plug and read oil level.

▷ Continue with step 6 if the oil level is close to the upper marking.

▷ Continue with the next step if the oil level is close to the lower marking.

5 Gradually add lubricant. Do not overfill.

▷ Check oil level continuously during filling.

NOTICE

Maximum level has been exceeded!

► Fill gears up to the maximum level of the upper marking on the measuring rod.

6 Clean oil level control plug and screw back in with a new seal, and tighten.

7 Clean oil residue away from the area around the oil level control plug.

8 Dispose of lubricant contaminated cleaning paper and other lubricant residues properly.

9 Close and lock front guard if necessary.

After every season (winter storage)

Machines that are stored without appropriate rust protection may sustain damage when they are put back into operation at the beginning of the season. Therefore, the machine must be

protected from dust deposits (especially from artificial fertiliser and seed dressing), not be parked near stables and be protected from the weather.

NOTICE

Rust damage on uncoated machine parts without rust protection!

If uncoated machine parts are not protected, rust damage may appear when the machine is restarted after a long period of inactivity (e.g. after winter storage).

- ► Clean bare hydraulic cylinder piston rods before storing the machine for the winter and protect with universal grease.
- ► Clean shaft stubs on gearboxes and cardan shaft profiles before wintering the machine, and protect them with universal grease.
- ► Lubricate all greasing points according to the maintenance instructions before winter storage.

Clean and protect the machine

Prerequisite

- Machine is parked on level and stable ground and secured against rolling away.
- Tractor motor turned off, ignition key removed and stored.

Preparation

- High-pressure cleaner
- Preserving oil

Implementation

1 Thoroughly clean with a high-pressure cleaner.

CAUTION

Danger to eyes from using high-pressure cleaners!

- ► Wear safety goggles when carrying out cleaning activities with high-pressure cleaners or compressed air.

NOTICE

High-pressure cleaners can damage machine components.

- ► Maximum water temperature 80 °C
- ► Do not use round jet nozzles, dirt blasters or power cleaner nozzles.
- ► Maintain a minimum distance of approx. 30 cm between the high-pressure nozzle and the surface.
- ► Always keep the water jet moving during cleaning.
- ► Do not direct water jet directly at electrical or hydraulic components, bearings, suction openings, cardan shafts, stickers and tyres.

2 After wet cleaning let the machine dry.

3 Touch-up any possible coating damage.

4 Oil/spray uncoated machine components with preservative oil.

5 Check that warning symbols are complete and replace if necessary.

Every 6 years

Replace hydraulic hoses

⚠ WARNING

Hydraulic oil that is discharged under pressure may penetrate the skin and cause severe infection.

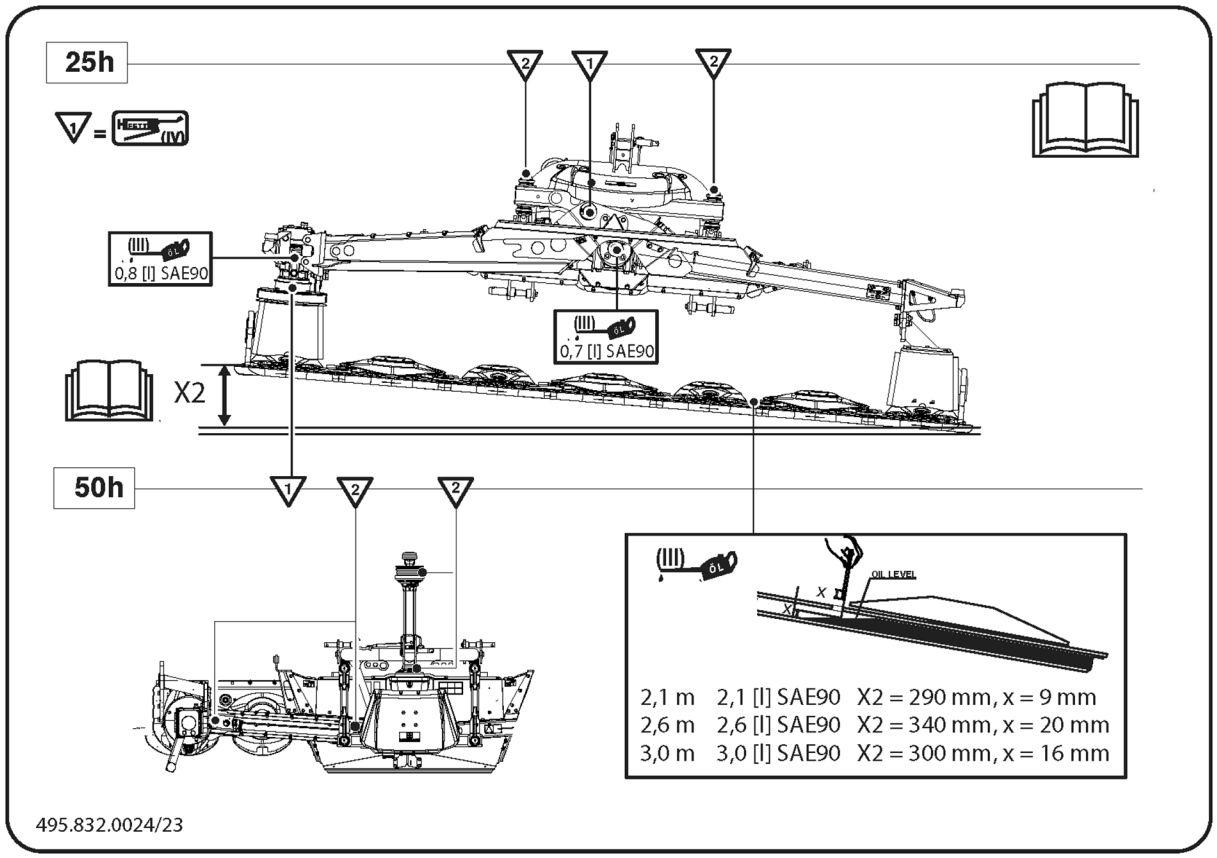
- ► Depressurise the hydraulic system before connecting or disconnecting the hydraulic hoses.
- ► Depressurise the hydraulic system before disconnecting the hydraulic hoses, or carrying out maintenance or repair work.
- ► Should injuries occur, contact a doctor immediately.

Hydraulic hoses that are older than 6 years should be replaced. Only use replacement hoses of the same specification and use the attachment points and attachment method of the "old" hoses, or transfer them to the new hoses. See Spare Parts List also.

Lubrication chart

Lubrication plan symbol explanation

Symbol	Explanation
X ^{h}	Every "X" operating hours of the PTO shaft
1 J	Annually
100 ha	Every 100 hectares
	Grease
	Oil
	The number and position of the grease nipple
(III), (IV)	Operating materials code (see Operating materials specifications)
[l]	Quantity of the operating fluid in litres
	Observe the manufacturer's safety instructions!


25h
0,8 [l] SAE90
0,7 [l] SAE90
X2
50h
OIL LEVEL
2,1 m 2,1 [l] SAE90 X2 = 290 mm, x = 9 mm
2,6 m 2,6 [l] SAE90 X2 = 340 mm, x = 20 mm
3,0 m 3,0 [l] SAE90 X2 = 300 mm, x = 16 mm
495.832.0024/23

Equipment specification

TIP

Minimum quality standards specified by PÖTTINGER Landtechnik G.m.b.H. for equipment used on PÖTTINGER machines.

NOTICE

Danger of machinery damage!

► If operating materials with lower quality standards than those specified are used, the machine may become damaged.

Equipment reference number According to lubrication plan	Designation	Specification
I	Hydraulic oil	HLP 46 DIN 51524 Section 2
II	Motor oil	SAE 30 according to API CD/SF
III	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 4 or API-GL 5
IV	Lithium grease	DIN 51 502, KP 2K
V	Liquid grease for gears	DIN 51 502:GOH
VI	Complex grease	DIN 51 502:KP 1R
VII	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 5
VIII	Gear oil	SAE 75W - 90 according to API-GL 5
IX	Gear oil	SAE 80W - 90 according to API-GL 5
X	Biological lubrication oil	SAE 15W-40
XI	Liquid grease for gears	DIN 51 825:KP2k-20

Operating materials and filling quantities

Where	Operating material code	Designation	Specification	Quantity
Lubricating points (also with grease nipples)	(IV)	Lithium universal grease	NLGI 2	If required
Cutter bar	(III)	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 4 or API-GL 5	2.1 litres

Where	Operating material code	Designation	Specification	Quantity
Mower input gear	(III)	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 4 or API-GL 5	0.7 litres
Cutter bar side gear drive	(III)	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 4 or API-GL 5	0.8 litres

Cardan shaft cam clutch coupling operation

The cam clutch is an overload clutch that completely disengages the torque in the event of an overload. Therefore, no torque is transmitted at the moment of overload. The prerequisite for the intended function is that the cardan shaft with the overload clutch is run in the prescribed direction of rotation and in the prescribed installation position.

The disengaged clutch automatically engages again when the PTO speed drops to around 200 U/min, without the cardan shaft coming to a complete standstill.

TIP

Frequent cam clutch engagements reduce the service life due to increased wear.

As a rule, do not allow the cam clutch to rotate for more than 10 seconds.

What to do if...

This section describes possible faults and remedies. If the recommended measures are not sufficient to remedy the fault, please contact your service dealer.

WARNING

Risk of injury when working on the machine!

- ► Use personal safety equipment such as protective glasses, gloves, etc.
- ► Park machine on firm, level ground and secure against rolling.
- ► Turn tractor motor off, apply park brake, remove ignition key and keep safe.
- ► Secure the work area so that bystanders / unauthorized persons cannot enter it.
- ► All work must be carried out only when the drive is at a complete standstill.
- ► Close stop cock on hydraulic lines before working on hydraulically controlled machine parts.
- ► Remove all electrical plug connections between tractor and machine before working on electrically driven machine parts.
- ► Use suitable supports to prevent accidental lowering / swinging of hydraulically controlled machine parts.
- ► On completion of the work, check tightness of loosened screw connections and check that safety / protective equipment function correctly.

Lighting

Lighting complete without function

Causes and remedies

- ► Defective fuse.
  - ▷ Replace with fuse of identical specification.
- ► Present contact error of the cable.

- ▷ Turn lighting off and on again.
- ▷ Verify correct connection of all cable connectors.
- ▷ Defective cable. Have it replaced or repaired by the service workshop.

Lighting partly without function

► Defective lamp.

- ▷ Replace with lamps of identical specification.
- ▷ With LED lighting the lamps may be impossible to exchange (for example, side marking lamps). In that case the lamps must be replaced in a service workshop.

► Present contact error of the cable.

- ▷ Turn lighting off and on again.
- ▷ Verify correct connection of all cable connectors.
- ▷ Defective cable. Have it replaced or repaired by the service workshop.

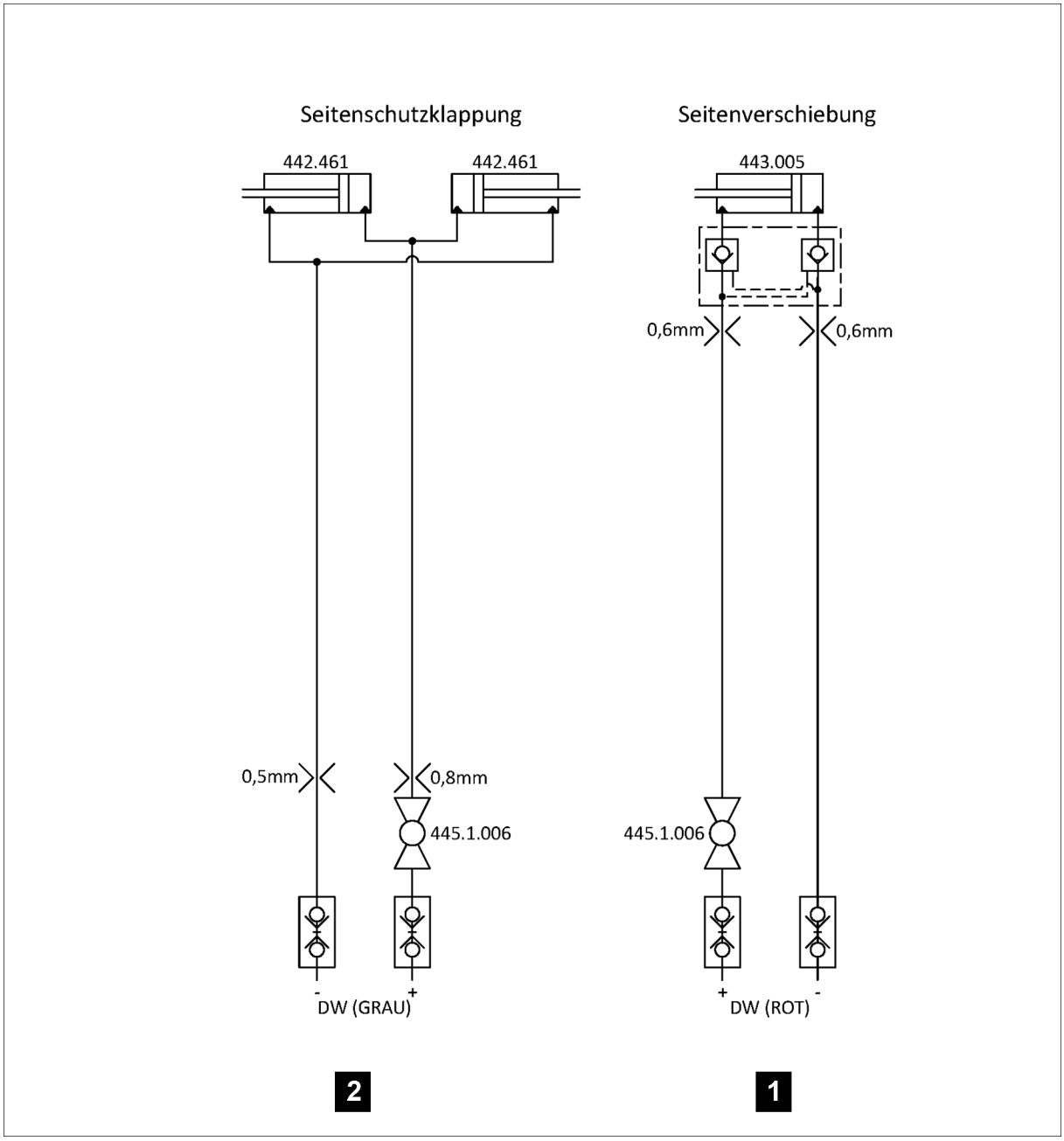
► Defective fuse.

- ▷ Replace with fuse of identical specification.

► Defective relay. Have it replaced by the service workshop.

Hydraulics

Hydraulic plan



1. Double-acting hydraulic connection for hydraulic lateral shift (red) option
2. Double-acting hydraulic connection for hydraulic lateral shift folding (grey) option

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