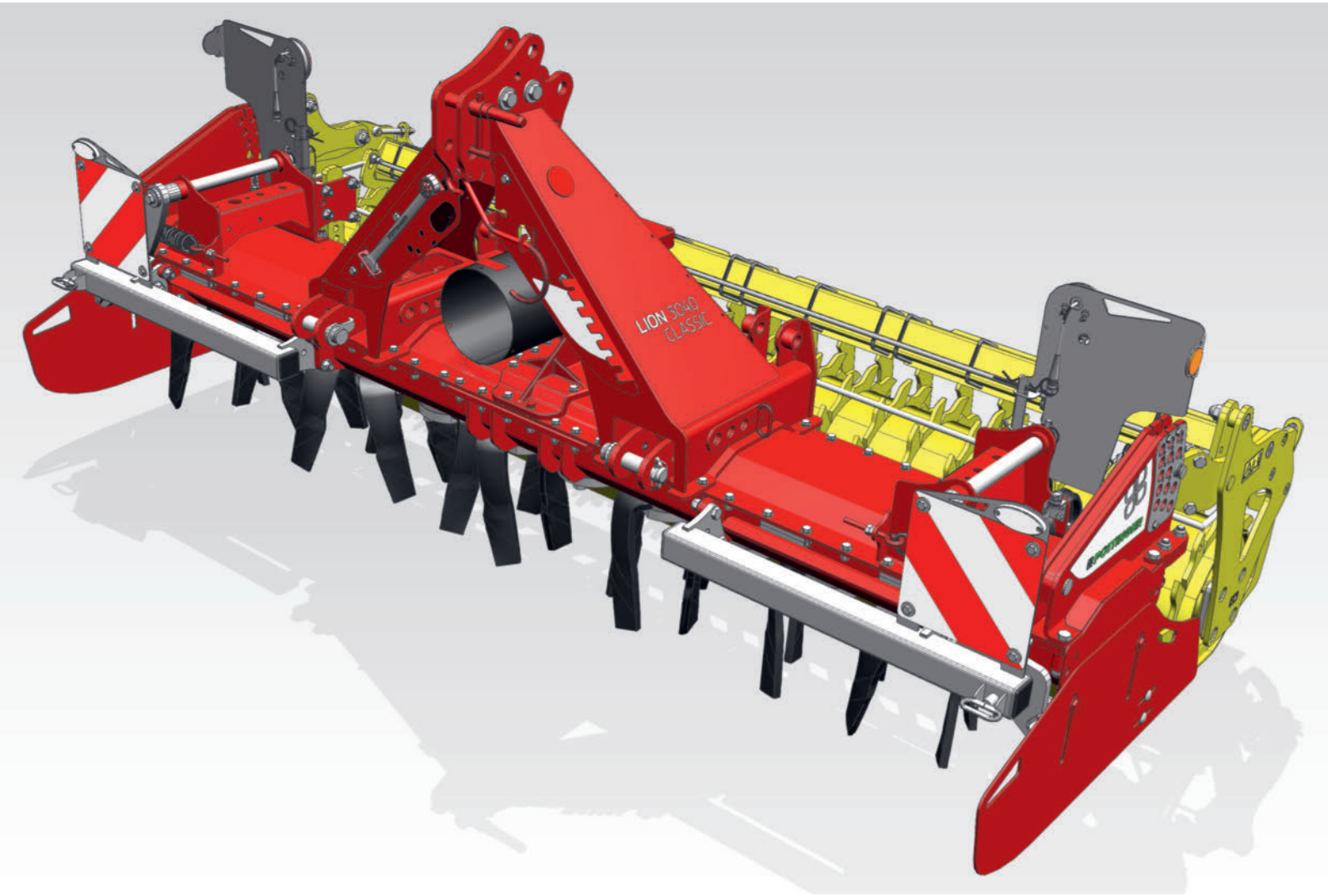
Original operating instructions

PÖTTINGER

Rotary harrow
LION 3040 Classic

8782

Chassis no.: +..00001



Technical changes

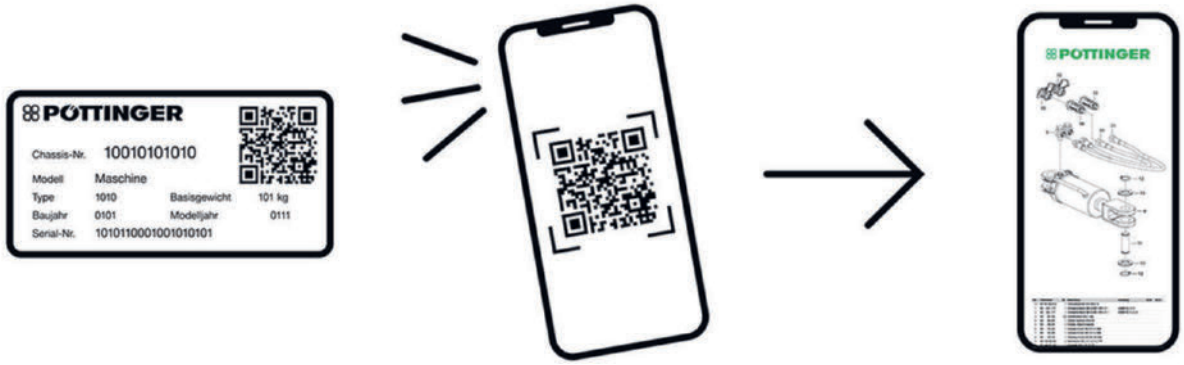
Since we are constantly working on the further development of our products, there may be deviations between the product and this publication. Therefore, no claims can be derived from the information, figures and descriptions. For binding information on the specific characteristics of your machine, please contact your service dealer.

Legal information

Please note that only the German operating instructions are the original operating instructions within the meaning of Directive 2006/42/EC. Operating instructions that are available in languages other than German are translations of the original German operating instructions.

Please understand that changes to the scope of delivery in terms of form, equipment and technology are possible at any time.

Reprinting, translation and reproduction in any form, including excerpts, require the written consent of PÖTTINGER Landtechnik GmbH.



MyPÖTTINGER – Easy. Anytime. Everywhere.

- Scan the QR code from the type plate with a smartphone / tablet or enter www.mypoettinger.com on the Internet.
- Spare parts lists are available 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 is value that pays for itself. Therefore, we apply the highest quality standards to our products, which are continuously monitored by our in-house quality management and by our management. Because safety, flawless function, the highest quality and absolute reliability of our machines in operation are our core competencies for which we stand.

These operating instructions are intended to facilitate getting to know your machine, and provide you with clear information on safe and proper handling, care and maintenance. Therefore, please take some time to read the instructions.

These operating instructions are part of the machine. They must be kept in a suitable location during the entire service life of the machine and must be accessible to personnel at all times. Instructions on the basis of existing national regulations on accident prevention, traffic regulations and environmental protection must be added.

All personnel charged with the operation, maintenance or transport of the machine must have read and understood these instructions, in particular the safety instructions, before starting work. Failure to follow these instructions will void the warranty.

If you have any questions regarding the contents of these operating instructions or any other questions about this machine, please contact your PÖTTINGER service partner.

Timely and conscientious care and maintenance according the established maintenance intervals will ensure operational and traffic safety as well as the reliability of your machine.

Only use original spare parts or spare parts and accessories approved by PÖTTINGER Landtechnik GmbH. Only the original spare parts approved by us have been tested by us and thus fulfill the suitable prerequisites for use in your machine. If unapproved parts are used, the warranty claim will be lost. Even after the warranty period has expired, we recommend using original spare parts to ensure the continuous performance of the machine.

The product liability law obligates the manufacturer as well as the dealer to hand over instructions when selling machines and to train the customer on the machine by referring to the safety, operating and maintenance instructions. A confirmation in the form of a delivery declaration is required to prove that the machine and the instructions have been handed over properly. The delivery declaration is filled out electronically by the dealer.

According to product liability law, every self-employed person and farmer is an entrepreneur. Entrepreneurial property damage is therefore excluded from liability by PÖTTINGER according to product liability law. Property damage within the meaning of product liability law is damage caused by a machine, but not to it.

The operating instructions are part of the machine, therefore hand them over to the new owner when passing on the machine. Train the new owner, and refer the owner to the aforementioned instructions.

Your PÖTTINGER service team wishes you much success.

Presentation conventions

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

Safety instructions / warnings

Safety instructions of a general nature are always at the beginning of a section. They warn of dangers that may arise during operation of the machine or during preparations for work on the machine. Warnings warn of dangers that may arise immediately during a procedure or work step on the machine. Warnings are listed together with the respective procedures / work steps in the instructional text.

Safety instructions and warnings are presented as follows:

DANGER

If the instructions in a text section marked in this way are not followed, there is a *risk of fatal or life-threatening injury.*

► Make sure to follow all instructions in such text sections!

WARNING

If the instructions in a text section marked in this way are not followed, there is a *risk of serious injury.*

► Make sure to follow all instructions in such text sections!

CAUTION

If the instructions in a text section marked in this way are not followed, there is a *risk of injury.*

► Make sure to follow all instructions in such text sections!

NOTICE

If the instructions in a text section marked in this way are not followed, there is a *risk of property damage.*

► Make sure to follow all instructions in such text sections!

TIP

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

ENVIRONMENT

Text sections marked in this way contain information on the topic of environmental protection.

Directional information

Directional information (such as left, right, front, rear) is given based on the normal “working direction of travel” of the machine.

Orientation information for a figure of a machine detail, refers to this figure itself and is only understood as relative to the direction of travel occasionally. The meaning of the orientation information (if required), is clear from the accompanying text itself.

Designations

In these operating instructions, the existing interchangeable equipment for agricultural vehicles (according to the EU Machinery Directive) is referred to as the **machine**.

Vehicles intended for driving the existing machine are referred to as **tractors**.

Equipment designated as **optional** is only offered on certain machine versions or only in certain countries.

Personal protective equipment includes safety goggles, work gloves, safety shoes, close-fitting long work clothes, hairnet for long hair, hearing protection, and suitable equipment to protect against seed treatment dusts (such as dust masks, etc.). 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 place in the operating instructions or another document are in the text, with specification of the chapter and subchapter or section. The name of the subchapter or section is in quotation marks. (Example: Check all screws on the machine for tightness. See “Tightening torques” on page xxx.) The subchapter or section can also be found in the document via an entry in the table of contents.

Action steps

An arrow  or sequential numbering indicates action steps that should be performed.

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

Figures

Figures may differ in detail from your machine and are to be understood as a schematic diagram/symbolic illustration.

Use of colors

Figures in this printed document supplied by PÖTTINGER Landtechnik GmbH are shown exclusively in grayscale or black and white.

Figures in electronically distributable documents (PDF) are also displayed in color and can be printed in color if required.

Use of symbols

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

Product delivery instructions

Please check the points listed according to the product liability obligation.

☒	Please mark with a cross where applicable.
☐	Machine checked according to delivery note. All enclosed parts removed; all safety equipment, cardan shaft and operating equipment present.
☐	Operation, commissioning and maintenance of the machine or device discussed and clarified with the customer based on the operating instructions.
☐	Tires checked for correct air pressure.
☐	Wheel nuts checked for tight fit.
☐	Correct PTO shaft speed and direction of rotation pointed out.
☐	Adjustment to the tractor performed; three-point adjustment, drawbar height, handbrake lever attachment in the tractor cab, forced steering linkage adjusted, compatibility of all required electrical, hydraulic and pneumatic plug connections to the tractor checked and established.
☐	Cardan shaft correctly cut to length.
☐	Test run of all machine functions as well as parking brake and service brake performed and no defects found.
☐	Function explanation during test run.
☐	Swinging into transport and working position explained.
☐	Information about desired or additional equipment given.
☐	Information on required reading of the operating instructions given.

A confirmation is required to prove that the machine and the operating instructions have been handed over properly. For this purpose, you have received a confirmation email from PÖTTINGER. If you have not received this email, please contact your local dealer. Your dealer can fill out the delivery declaration online.

Austria

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4710 Grieskirchen

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Change index

Date	Index	Reason for change	Changed chapter

Truck transport

Screw tightening torques factory standard

Design and function

At a glance

Description

Technical data

Safety and environment

Transport locks

Operation of machine functional elements

Operation

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Condition-based maintenance

Predetermined maintenance

Operating fluids

Advice and support

Schedules

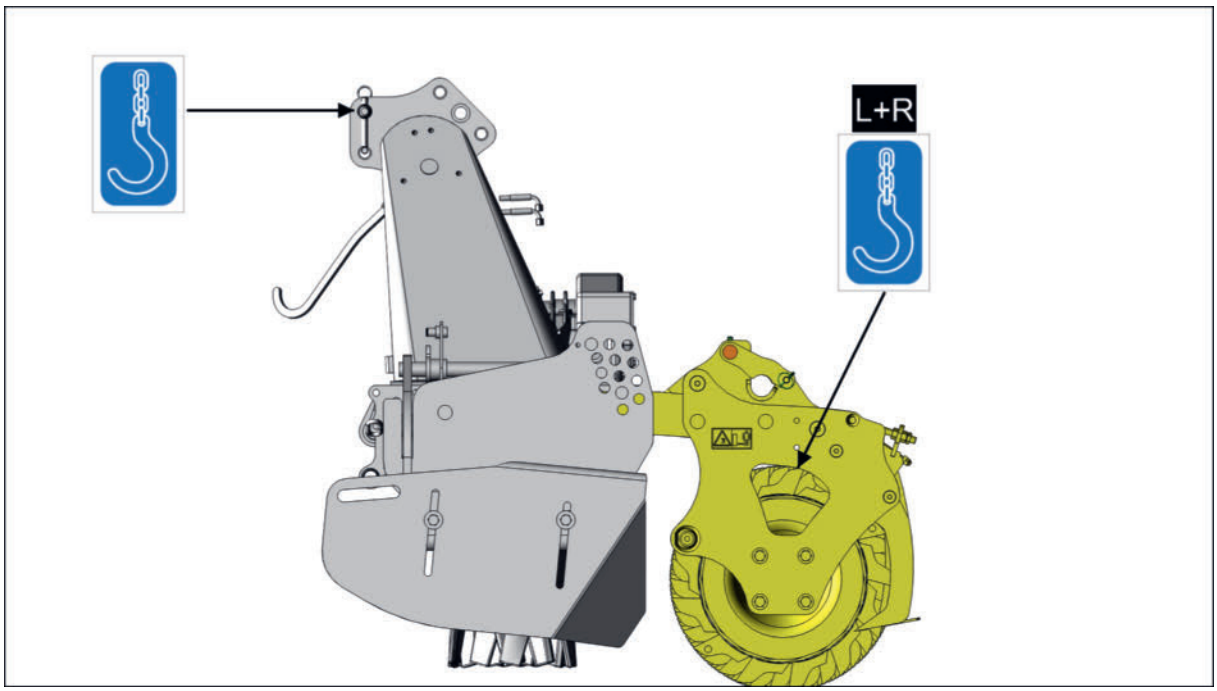
Supplement to the USA / CANADA operating instructions

Unloading the machine by crane

Prerequisite

- Observe technical data (weights)!
- Use only sufficiently dimensioned lifting gear.
- Make sure that the locking pin at the upper attachment point of the rotary harrow is properly secured.
- Locking pins for the working depth are pinned so that the trailer cannot swivel upwards while the machine is being lifted.

Attachment points for lifting gear



L + R = Attach the lifting gear on the left and right side of the trailer.

Implementation

► Carefully attach and secure the lifting gear to the attachment points.

⚠ CAUTION

Falling of the machine!

► Do not linger under the suspended load!

► Maintain a sufficient lateral distance to the suspended load.

► Remove fasteners from the loading area.

► Lift the machine horizontally from the loading area

▷ Park the machine on a level and stable surface and secure it against rolling away.

► Remove lifting gear.

Screw tightening torques

This factory standard applies to all metric screws for which no special tightening torque is specified in the drawing/instructions. The respective strength class can be seen on the screw head.

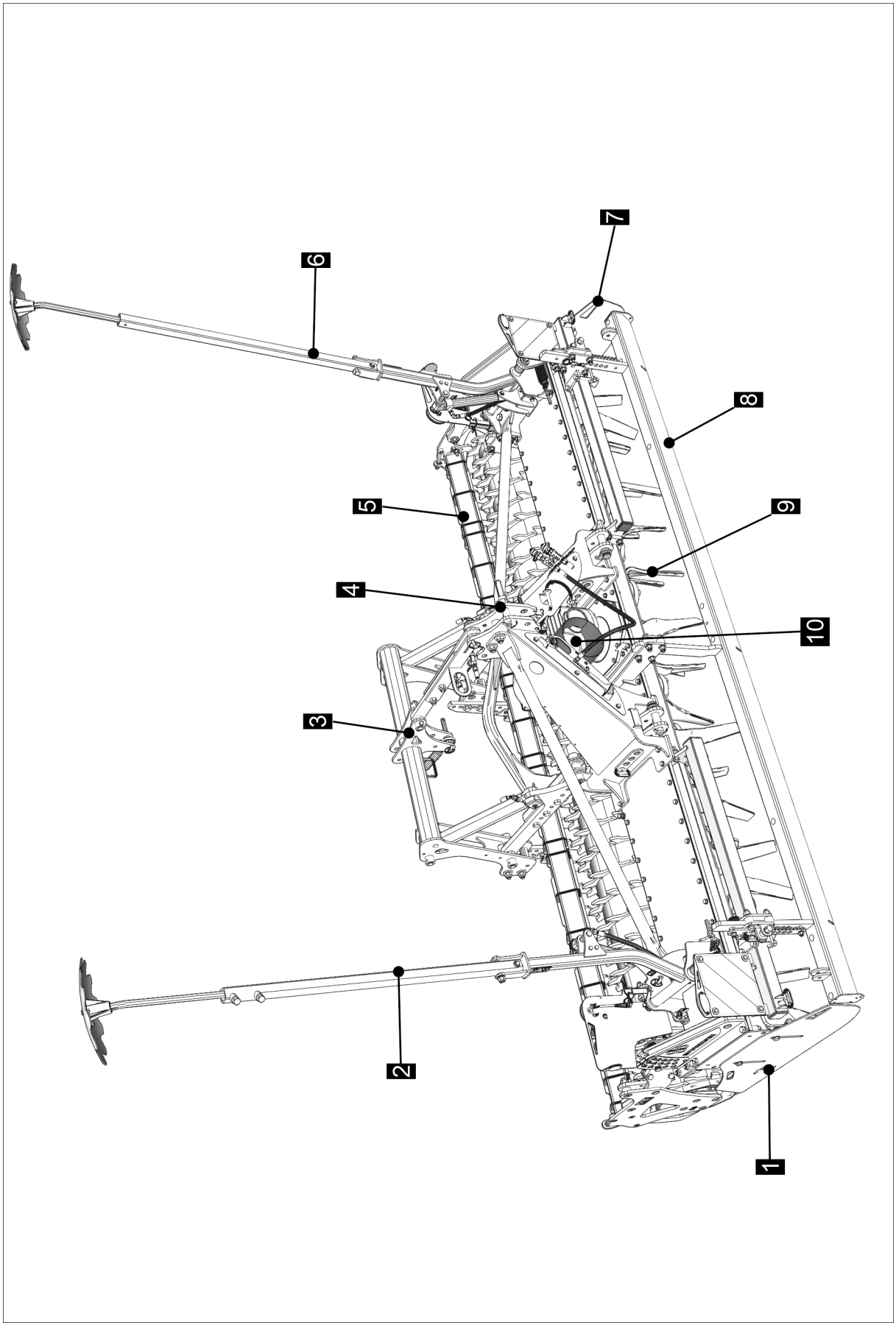
- The values specified are nominal values and apply to a head friction coefficient of IJ=0.14 and a thread friction of IJ=0.125. Slight deviations of the clamping force due to different friction coefficients may occur. The values listed must be observed with a tolerance of ± 10%.
- If the specified tightening torques are used and the friction coefficients used are present, the screw material is stressed to 90% of the minimum yield strength according to DIN ISO 898.
- If a special tightening torque is specified for a screw connection, all of these screw connections must be tightened with a torque wrench and the specified tightening torque.

Metric thread	Strength class 8.8		Strength class 10.9	
	Tightening torque	Clamping force	Tightening torque	Clamping force
M 4	2.29 lbf-ft	899.24 lbf	3.25 lbf-ft	1281.42 lbf
M 5	4.57 lbf-ft	1483.75 lbf	6.42 lbf-ft	2090.73 lbf
M 6	7.74 lbf-ft	2090.73 lbf	11.06 lbf-ft	2922.53 lbf
M 8	18.44 lbf-ft	3821.77 lbf	26.55 lbf-ft	5395.44 lbf
M 10	36.88 lbf-ft	6069.87 lbf	51.63 lbf-ft	8542.78 lbf
M 12	63.43 lbf-ft	8880 lbf	89.24 lbf-ft	12589.36 lbf
M 14	99.57 lbf-ft	12139.74 lbf	143.82 lbf-ft	17085.56 lbf
M 16	158.58 lbf-ft	16860.75 lbf	221.27 lbf-ft	23605.05 lbf
M 20	302.4 lbf-ft	26302.77 lbf	427.78 lbf-ft	36868.84 lbf
M 24	523.67 lbf-ft	37768.08 lbf	737.56 lbf-ft	53279.97 lbf
M 30	1032.58 lbf-ft	60698.7 lbf	1475.12 lbf-ft	85427.8 lbf
M 8 x 1	19.91 lbf-ft	4203.95 lbf	28.03 lbf-ft	5957.47 lbf
M 10 x 1.25	39.09 lbf-ft	6519.49 lbf	54.58 lbf-ft	9217.21 lbf
M 12 x 1.25	70.07 lbf-ft	10004.05 lbf	95.88 lbf-ft	14163.03 lbf
M 14 x 1.5	110.63 lbf-ft	13488.6 lbf	154.89 lbf-ft	19108.85 lbf
M 16 x 1.5	169.64 lbf-ft	18209.61 lbf	236.02 lbf-ft	25853.15 lbf
M 20 x 1.5	339.28 lbf-ft	30124,54 lbf	479.41 lbf-ft	42489.09 lbf
M 24 x 2	575.3 lbf-ft	42264.28 lbf	803.94 lbf-ft	59574.65 lbf

Functional elements

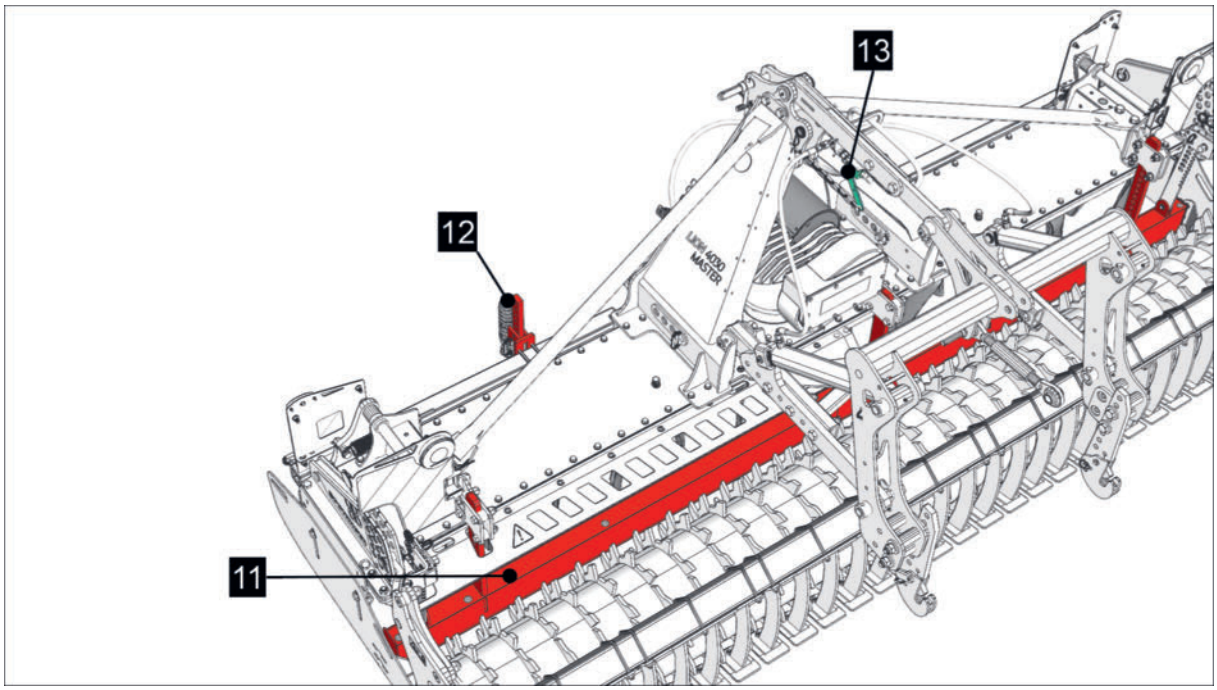
Name and function

Pos.	Element	Function
1	Right side plate	Prevents soil from being ejected sideways from the seedbed.
2	Right track marker (option)	Marks the lane.
3	Hydrolift (option)	Attachment of the Vitasem seed drills to the rotary harrow In the headland position / transport position, the weight of the seed drill is shifted further forward towards the rotary harrow.
4	Headstock	Solid mounting frame for attaching the machine to the tractor.
5	Trailer	Setting the working depth of the rotary harrow, crushing the topsoil and leveling the seedbed.
6	Left track marker (option)	Marks the lane.
7	Right side plate	Prevents soil from being ejected sideways from the seedbed.
8	Front impact rail (option)	Leveling of unevenness.
9	Rotor with tines	Loosening and crushing of the top soil.
10	Input gearbox	Power transmission from the tractor via the cardan shaft.
Without figure	Rear impact rail	Leveling of unevenness.


7
6
8
5
9
4
10
3
2
1

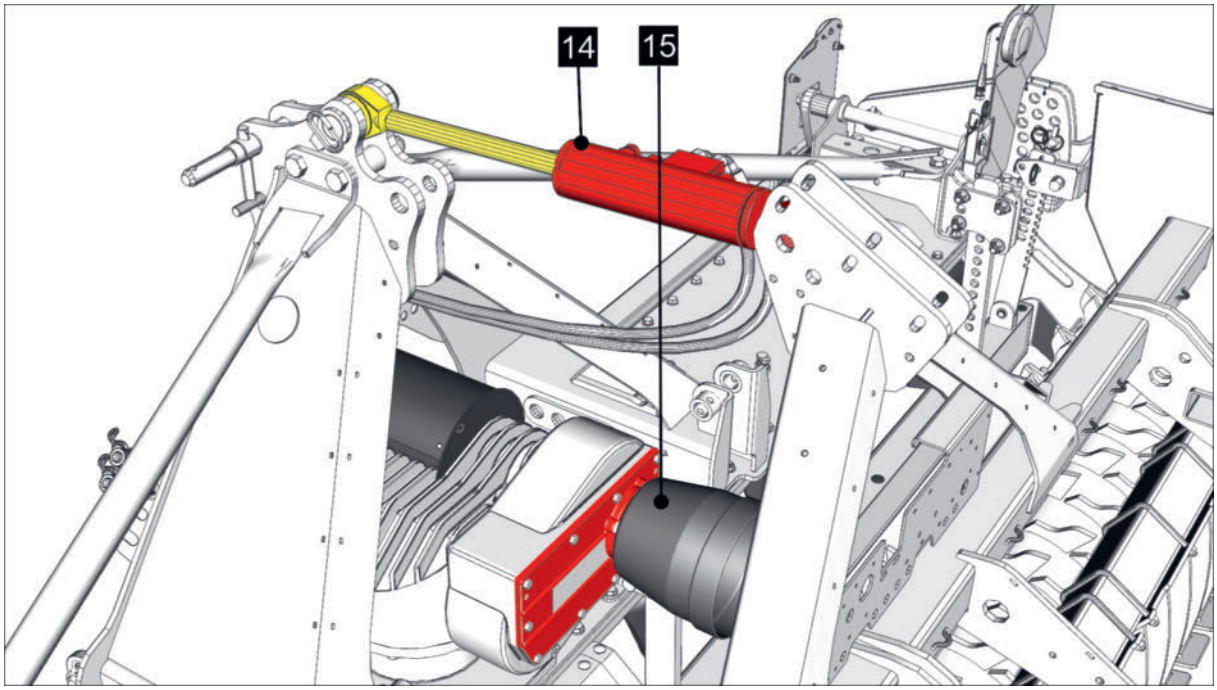
Name and function

Pos.	Element	Function
11	Rear leveling rail	Leveling of unevenness.
12	Wheel track loosener (option)	Loosening the tractor track (number and position of the wheel track looseners as needed). Not for machines with front impact rail.
13	Stroke limiter (option)	Only together with Hydrolift; adjustably limits the lifting height of the Hydrolift.



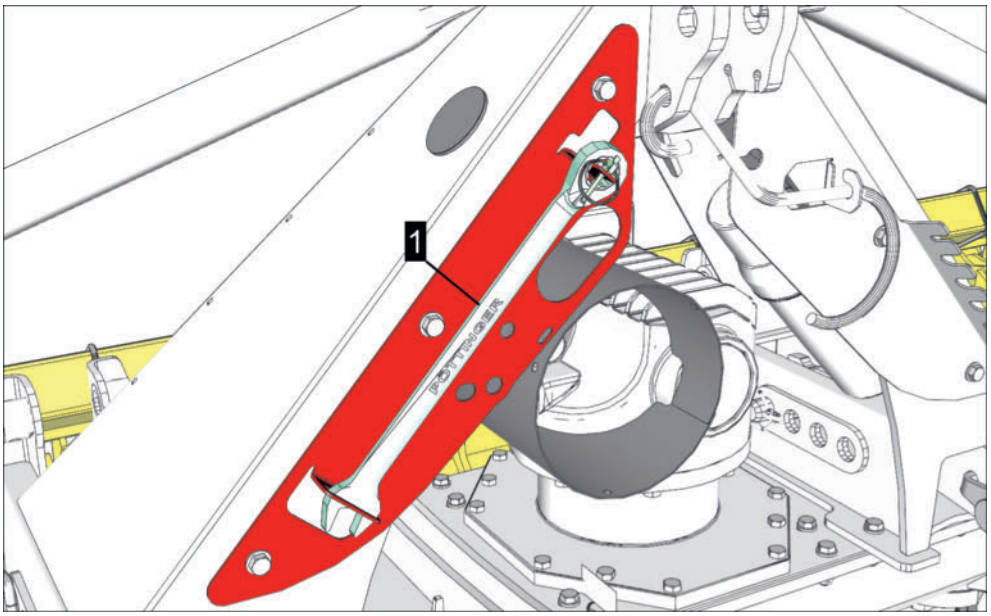
Name and function

Pos.	Element	Function
14	Hydraulic upper link (option)	Separate lifting of the attached seed drill in the headland or in road transport position (similar to Hydrolift). Inclination setting of the seed drill.
Without figure	Manual upper link (option)	Inclination setting of the seed drill.
15	Drive shaft (option)	PTO shaft for cardan shafts of attached seed drills

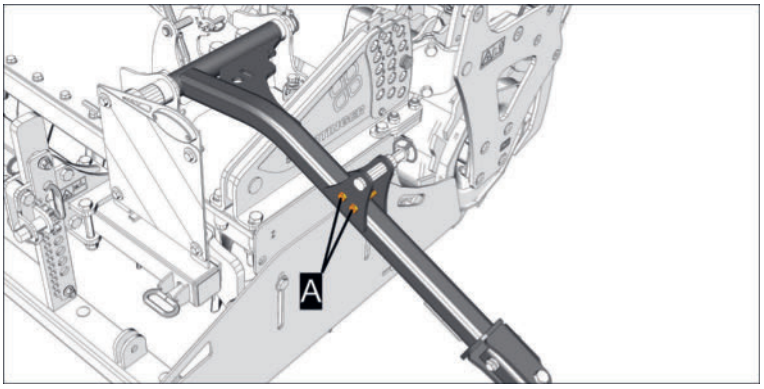


Included accessories

- Operating instructions
- Ratchet ring spanner (1)



- 4x breakaway bolts for the tracker marker (option)

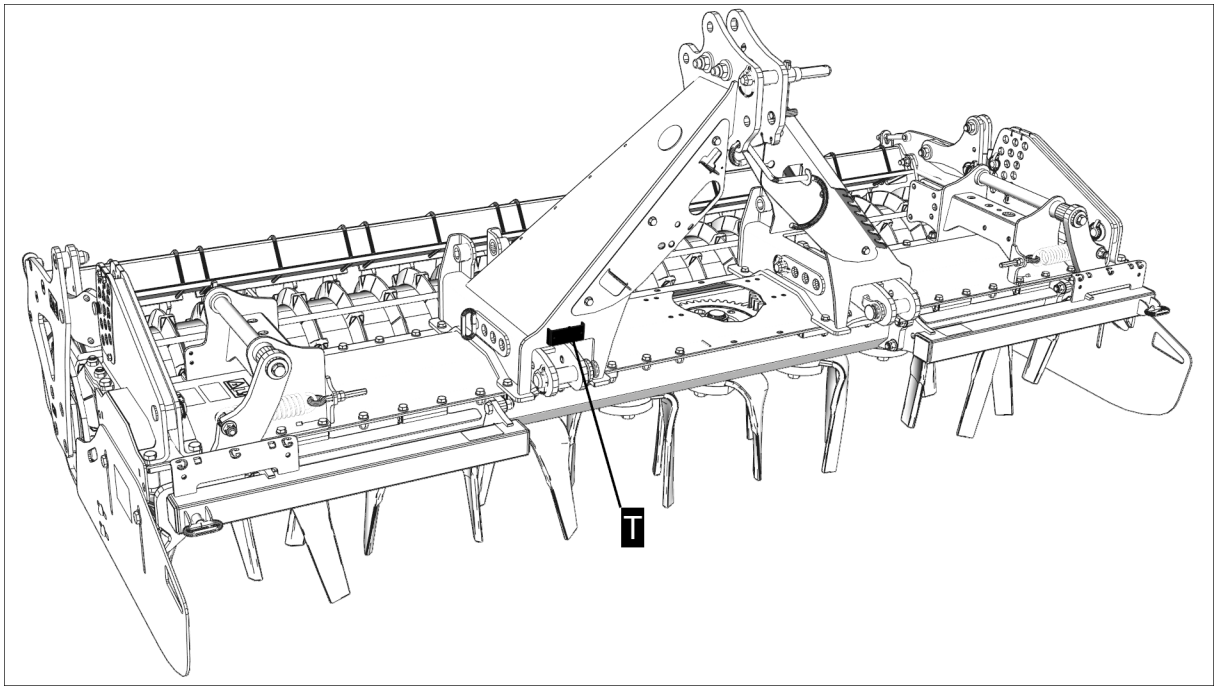


Retrofit program

The retrofit program of PÖTTINGER Landtechnik GmbH offers a wide range of retrofit options. Your service dealer will be pleased to provide you with further information.

Labeling

Type plate



T = Type plate position

Type plate

Before an inquiry about the machine or technical issues, read the model and type **from the type plate** and have it ready. Chassis no. and / or serial no. are absolutely necessary for ordering spare parts.

Immediately after acquiring the machine, note the complete chassis no. and / or serial no. on the title page of these operating instructions in order to be able to assign these operating instructions correctly to the respective machine.

CE mark

The CE mark on the type plate confirms the conformity of the machine with the provisions of the machinery directive (version valid at the time the machine was placed on the market).

Data included

The following data can be read on the type plate, depending on the machine type and design.

Data	Data
Chassis number	Year of manufacture
Model	Model year
Vehicle identification number	Axle loads per axle
Type	Drawbar load
Serial number	Permissible total weight

Data	Data
Base weight	

Declaration of conformity

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

PÖTTINGER

EU declaration of conformity

Name and address of the manufacturer:

PÖTTINGER Landtechnik GmbH
Industriegelände 1
AT - 4710 Grieskirchen

Machine (interchangeable equipment):

rotary harrow	**LION 3040 CLASSIC**
Type	**8782**
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 4254-1:2015
EN ISO 14982:2009	EN ISO 4254-5:2018

Source of applied miscellaneous technical norms and / or specifications:

Person authorised to compile the technical file:
Wilhelm Meindlhumer
Industriegelände 1
AT - 4710 Grieskirchen

Markus Baldinger	Jörg Lechner
CTO R&D	CTO Production

Grieskirchen, 14.03.2023

Intended use

- The machine is designed for operation as a solo machine and for operation as a machine combination, together with attached seed drills.
- The machine may only be used for preparing the top layer of the arable soil for subsequent seeding.
- Intended use also includes following all contents of these instructions and observing the warning signs (pictograms) on the machine.

Improper use

The following use of the machine may void the manufacturer's warranty

- Storage and transport of seed/fertilizer or other materials/substances on the machine.
- Keeping animals on the machine.
- Processing roads and trails with the machine.
- Immersion in liquids during transport, operation or storage of the machine.
- Use of the machine as a play object / climbing frame.

Dimensions

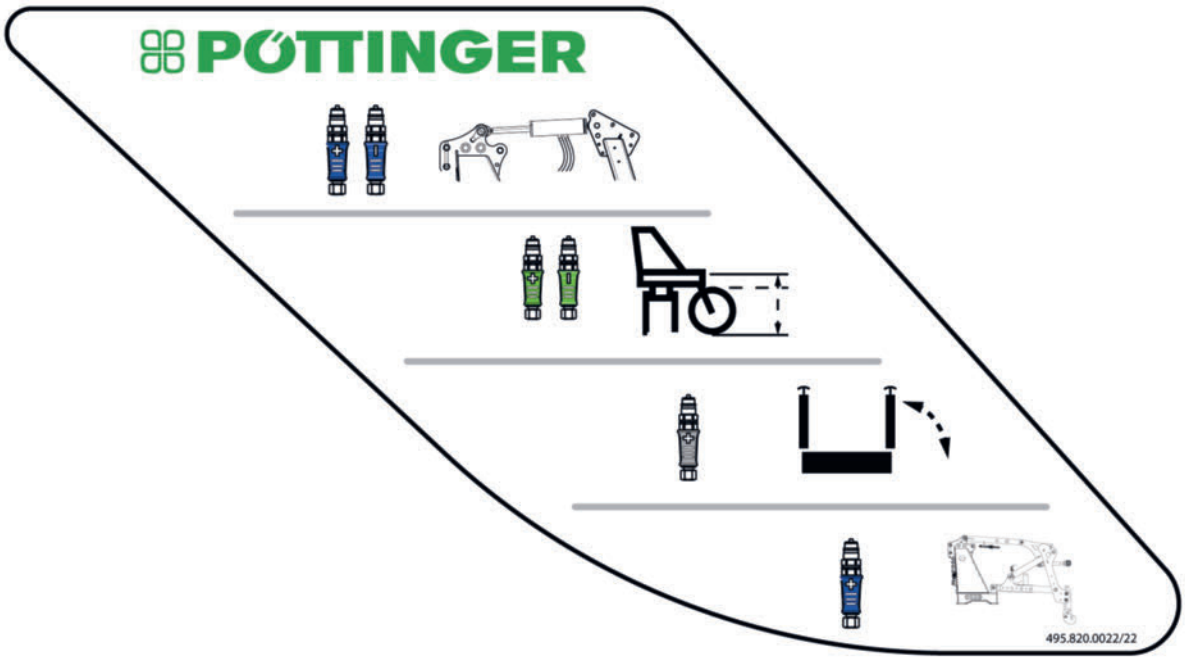
Designation			LION 3040 CLASSIC Type 8782
Length:	with packer roller		4 foot 7.12 inch
	with bar roller		3 foot 11.24 inch
Height:	Standard		4 foot 3.18 inch
	with Hydrolift		7 foot 2.61 inch
Working width:			9 foot 10.11 inch
Transport width:			< 9 foot 10.11 inch
Number of rotors:			12
Working depth / tine length:			9.45 inch / 13.39 inch
Drive speed:			1000 rpm
Weight:	Basic device		2149.5 lbs
	Tooth packer roller	ø 16.54 inch	-
		ø 19.69 inch	1124.36 lbs
		ø 21.65 inch	1212.54 lbs
	Cage roller	ø 16.54 inch	429.9 lbs
		ø 21.26 inch	716.5 lbs
	Cutting packer roller	ø 21.65 inch	1212.54 lbs
	Crumbling packer roller	ø 20.67 inch	1278.68 lbs
	Prism packer roller	ø 19.69 inch / 4.92 inch	1355.84 lbs
		ø 19.69 inch / 5.91 inch	1272.07 lbs
		ø 23.62 inch / 4.92 inch	1675.51 lbs
		ø 23.62 inch / 5.91 inch	1565.28 lbs
	Rubber packer roller	ø 23.23 inch	1399.93 lbs
	Hydrolift		440.92 lbs
	Front impact rail		99.21 lbs
Power requirement			< 177.01 hp
Cultivation			Cat. III / width II and III
Hydraulic oil specification			DIN 51524 part 1 and 2
Oil temperature			max. +176 °F
Working pressure			2030.53 psi to max. 2900.76 psi

Designation	LION 3040 CLASSIC Type 8782
Connections for single-acting tractor control valves	1x plug size 3 - track marker (option); gray marking 1x plug size 3 - Hydrolift (option); blue marking
Connections for double-acting tractor control valves	2x plug size 3 - hydraulic working depth adjustment (option); green marking 2x plug size 3 - hydraulic top link (option) for the seed drill; blue marking 2x plug - hydraulic top link on the tractor (option)
Voltage	12 V DC
Connections	1x 7-pole plug - according to DIN ISO 1724
Continuous sound pressure level	< 70 dB(A)

NOTICE

Damage to the hydraulic system due to incompatible hydraulic oils!

- ► Do not mix mineral oils with bio-oils!
- ► Check hydraulic oil compatibility before connecting the machine to the tractor.



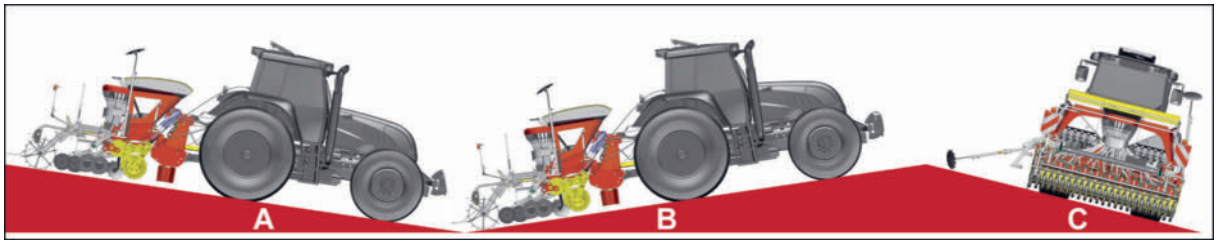
TIP

If the machine is equipped with additional equipment components, the weight and dimension specifications may differ from the actual condition!

Application limits when using as a machine combination

TIP

Together with PÖTTINGER seed drills!



Terrain descent A	max. 15 %
Terrain ascent B	max. 15 %
Terrain slope C	max. 25 %

Safety instructions

The safety instructions warn of health hazards, property damage and hazards due to improper operation of the machine. Read this manual carefully before commissioning and before working with or on the machine, and observe the safety instructions as well as the warnings attached to the machine. If the warnings described in this manual or attached to the machine are not observed, the operator of the machine is responsible for injuries and damage!

Qualification of the personnel

- Only personnel who have reached the legal minimum age, are physically and mentally fit and have been trained or instructed accordingly may work with the machine. Personnel who still need to be trained, taught or instructed, or who are in training, may only work on or with the machine under the constant supervision of an experienced person.
- Testing and setting work may only be carried out by authorized qualified personnel. Authorized qualified personnel are people who have been trained by PÖTTINGER Landtechnik GmbH or a PÖTTINGER service dealer.
- Assembly, repair and conversion work may only be carried out by specialists. Specialists are people who, based on their professional training, knowledge and experience, are able to assess and properly perform their assigned tasks. Specialists have knowledge of all relevant standards and dangers associated with their work.

Performing maintenance work

- This manual only describes the care, maintenance and repair work that the operator may perform independently. All work beyond this must be carried out by a specialist workshop.
- Repairs to the electrical or hydraulic system, preloaded springs, and pressure accumulators, etc. require sufficient knowledge and proper assembly tools and therefore may only be carried out in a specialist workshop.
- Use suitable tools and personal protective equipment.

Organizational measures

- Always keep the manual close at hand.
- Familiarize yourself with the functions of all operating devices before starting work.
- In addition to the instructions in this manual, also observe the respective country-specific occupational health and safety regulations and generally applicable, statutory or other binding regulations on accident prevention. Such obligations may, for example, relate to the wearing of personal protective equipment or to traffic regulations.
- Workshop equipment appropriate for the work is absolutely essential for carrying out testing, setting and repair work.

Ensuring operational safety

- Only use the machine in a technically faultless condition, for its intended purpose, and in a safety-conscious and hazard-conscious manner.
- Immediately rectify all defects that impair safety, or have them rectified at a specialist workshop.
- Observe the warning signs on the machine.
- The operator must ensure that all warning signs are present and legible throughout the entire service life of the machine.
- Do not make any unauthorized additions, conversions or modifications to the machine. This also applies to the installation and adjustment of safety devices and to welding or drilling on supporting parts.
- Spare parts and accessories must be either original spare parts or parts expressly approved by PÖTTINGER Landtechnik GmbH. For these parts, reliability, safety and suitability have been established specifically for PÖTTINGER machines. We cannot assess this for other products and also cannot be responsible for them.
- Perform maintenance work as described in this manual completely and at the specified intervals, or have it performed at a specialist workshop.
- Do not make any changes to the software on programmable control systems.

Special dangers

DANGER

Crushing and pulling in of body parts by driven machine parts!

- ► Do not wear unrestrained, long hair or loose clothing. Use personal protective equipment where necessary or required by regulations.
- ► Only put the machine into operation when all protective devices are properly attached, undamaged and in the protective position.
- ► During operation, no one may enter the area of moving machine parts.
- ► Do not approach the switched-off machine before all moving machine parts have come to a standstill.
- ► Only perform care, maintenance and repair work when the drive is at a standstill. Always secure the machine against switching on, rolling away and/or tipping over.

WARNING

Damage to health due to noise!

- ► At noise levels above 80 dB(A), hearing protection is strongly recommended.
- ► At noise levels above 85 dB(A), the use of hearing protection is mandatory.

WARNING

Fire or explosion!

Contamination through flammable substances in the area of the grinding and welding work can ignite when sparks fly.

- ► Before grinding and welding work, clean the machine and the surrounding area of dust and flammable substances and ensure sufficient ventilation.
- ► Do not perform grinding and welding work over combustible surfaces.

WARNING

Skin, eye or respiratory tract irritation!

Oils, greases, solvents and cleaning agents can adversely affect health.

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

WARNING

Infections due to escaping hydraulic oil!

Hydraulic oil escaping under high pressure can penetrate the skin, enter body orifices and cause serious infections!

- ► Depressurize the hydraulic system before performing maintenance work.
- ► Wear personal protective equipment, such as safety goggles and gloves, during all work on the hydraulic system.
- ► Before each commissioning, check the hydraulic system for wear and damage.
- ► Only search for leaks using suitable aids (e.g. special spray for locating leaks). Have defects immediately rectified at a specialist workshop.
- ► Do not seal leaks with your hand or other body parts.
- ► In case of injuries relating to hydraulic oil, consult a physician immediately.

WARNING

Ejection of stones and soil!

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

- ► Take special care during operation near buildings, pastures with animals and areas with movement of people.
- ► Slow down, reduce the PTO shaft speed and continue driving at reduced speed until the danger zone has been left.
- ► In case of doubt, stop and switch off the PTO shaft until the possibility of danger can be excluded.

Warning signs

The positions and meanings of all warning signs used are shown below.

TIP

Warning signs (pictograms) indicate residual hazards and how to avoid them.

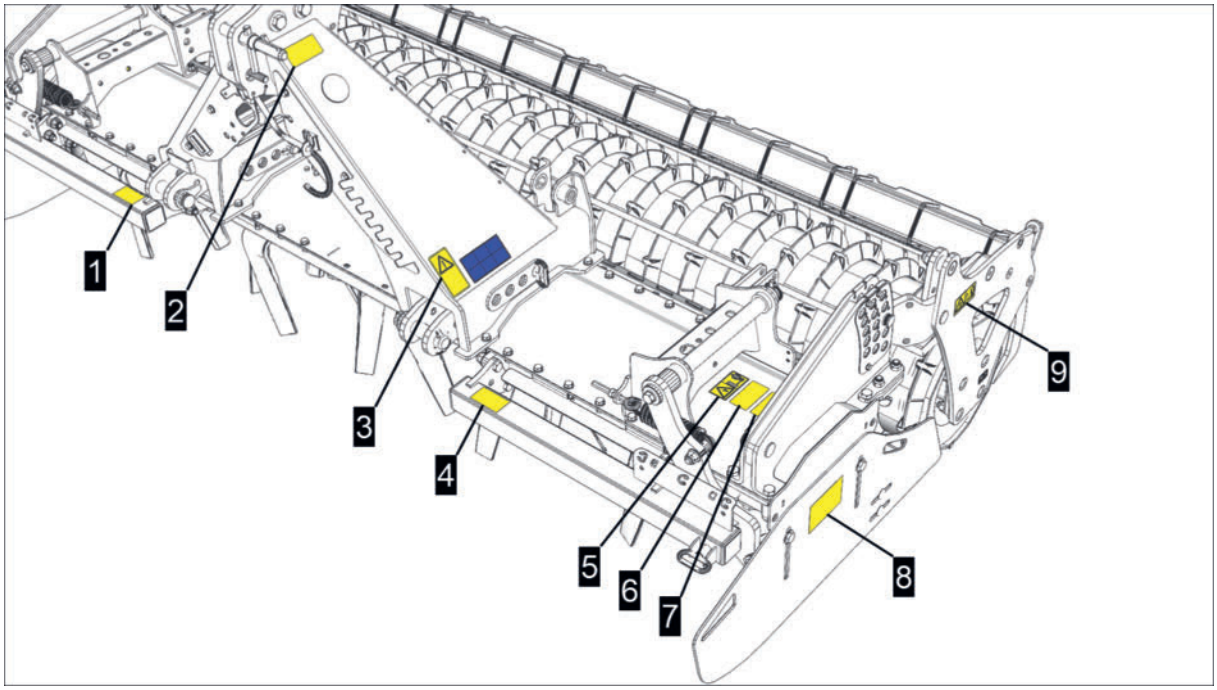
Damaged or lost warning signs must be replaced.

If machine parts with affixed warning signs are replaced, the corresponding warning signs must be affixed to the newly installed parts.

TIP

USA / CANADA

For machines operated in the USA / CANADA, a conversion kit with warning signs (for adaptation to locally applicable regulations) is available from PÖTTINGER either in English or French! See also “Supplement to the USA / CANADA operating instructions”.

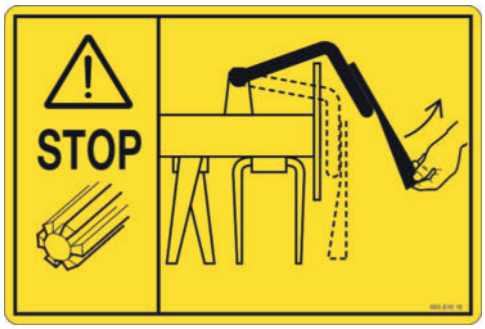


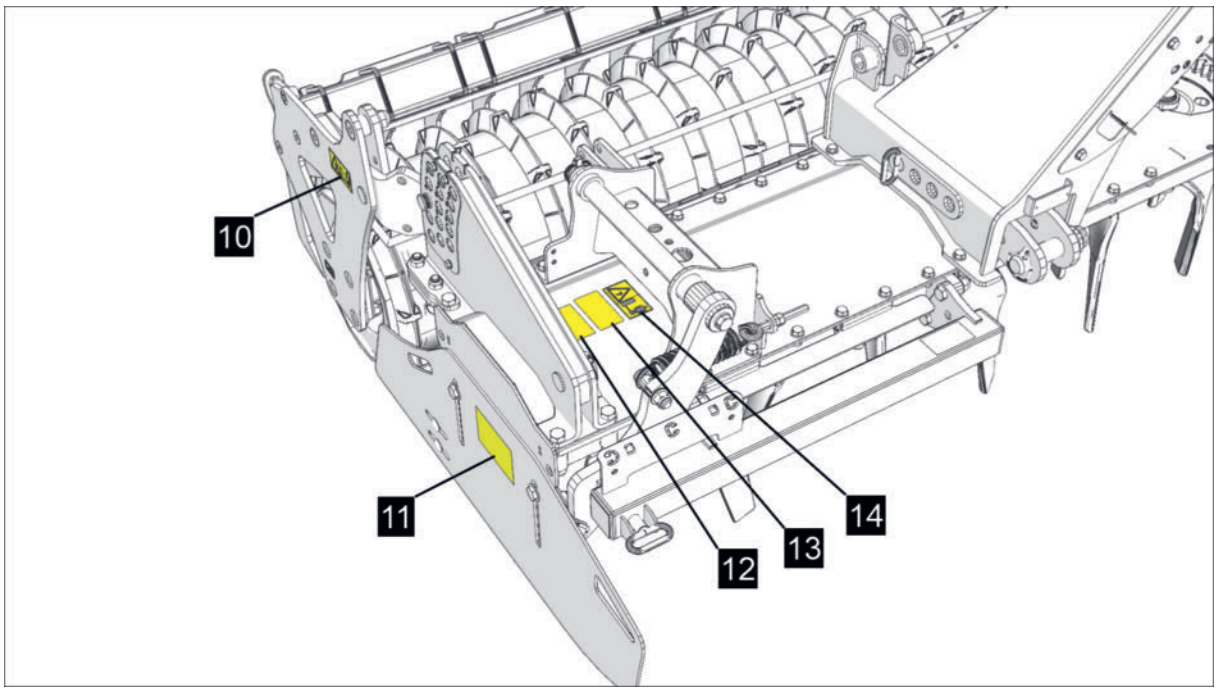
View from left front

Explanation

Pos.	Warning signs	Meaning
1		Risk of severing the fingers. Never enter the machine as long as parts can move.
2		Risk of crushing for hands! Do not reach into the crushing danger zone as long as parts can move there.

Pos.	Warning signs	Meaning
3		Read the operating instructions carefully before commissioning.
4		Risk of severing the fingers. Never enter the machine as long as parts can move.
5		Danger due to flung out parts when the engine is running - maintain safety distance.
6		Risk of crushing for hands! Do not reach into the crushing danger zone as long as parts can move there.
7		Risk of severing the fingers. Never reach into the danger zone as long as parts can move.

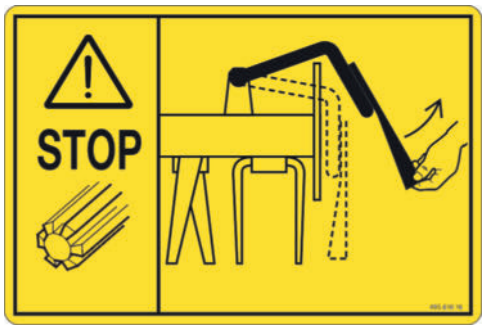
Pos.	Warning signs	Meaning
8		Danger of being pulled in and danger of parts being flung out when the PTO shaft is switched on. Lift the side plates only when the PTO shaft is at a standstill.
9		Danger due to flung out parts when the engine is running - maintain safety distance.



View from right front

Explanation

Pos.	Warning signs	Meaning
10		Danger due to flung out parts when the engine is running - maintain safety distance.

Pos.	Warning signs	Meaning
11		Danger of being pulled in and danger of parts being flung out when the PTO shaft is switched on. Lift the side plates only when the PTO shaft is at a standstill.
12		Risk of severing the fingers. Never reach into the danger zone as long as parts can move.
13		Risk of crushing for hands! Do not reach into the crushing danger zone as long as parts can move there.
14		Danger due to flung out parts when the engine is running - maintain safety distance.

Operational danger zone

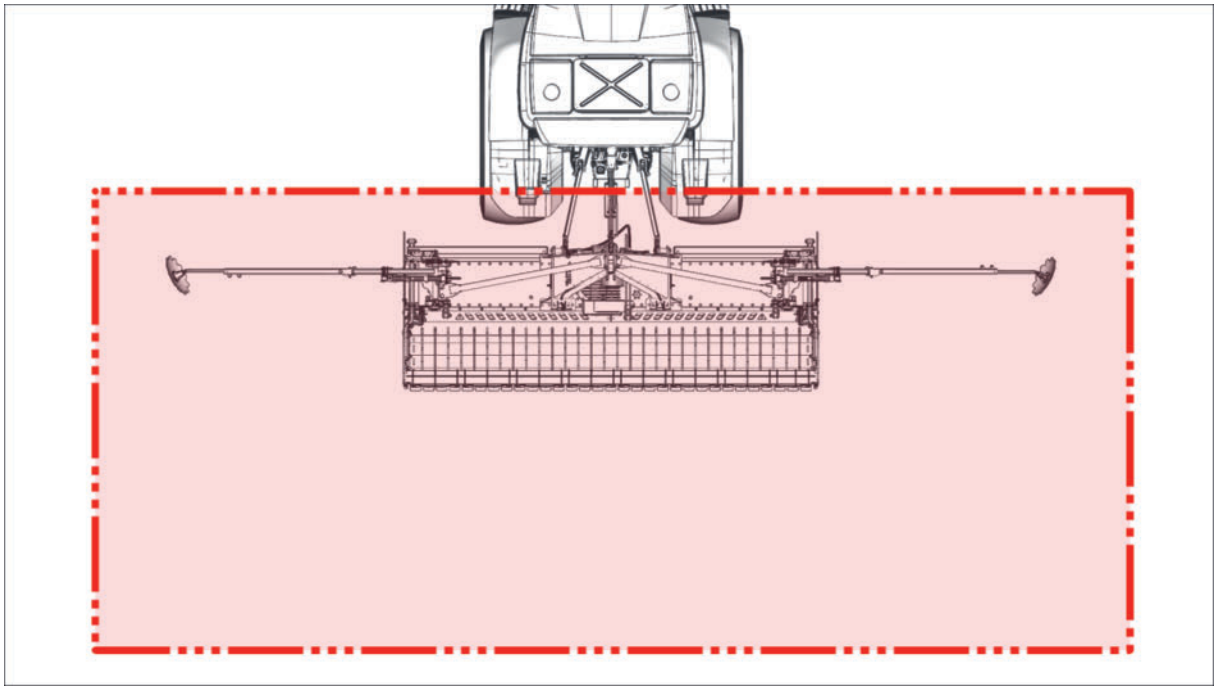
Entering the danger zone while the machine is in operation and / or the tractor engine is running is prohibited!

DANGER

Crushing, pulling in or severing of body parts!

When approaching moving machine parts, clothing, hair and body parts can be caught in such a way that escape is not possible without sustaining serious to fatal injuries.

- ► Do not enter the danger zone of the machine as long as machine parts can move there.
- ► Check safety devices for completeness and operational readiness before commissioning.
- ► Before commissioning and during operation, direct all people away from the danger zone around the machine.



Marking = The danger zone of the attached / assembled seed drill (see operating instructions for the seed drill) must be added to the danger zone of the existing soil cultivation machine and taken into account according to the respective dimensions of the seed drill.

Traffic safety equipment

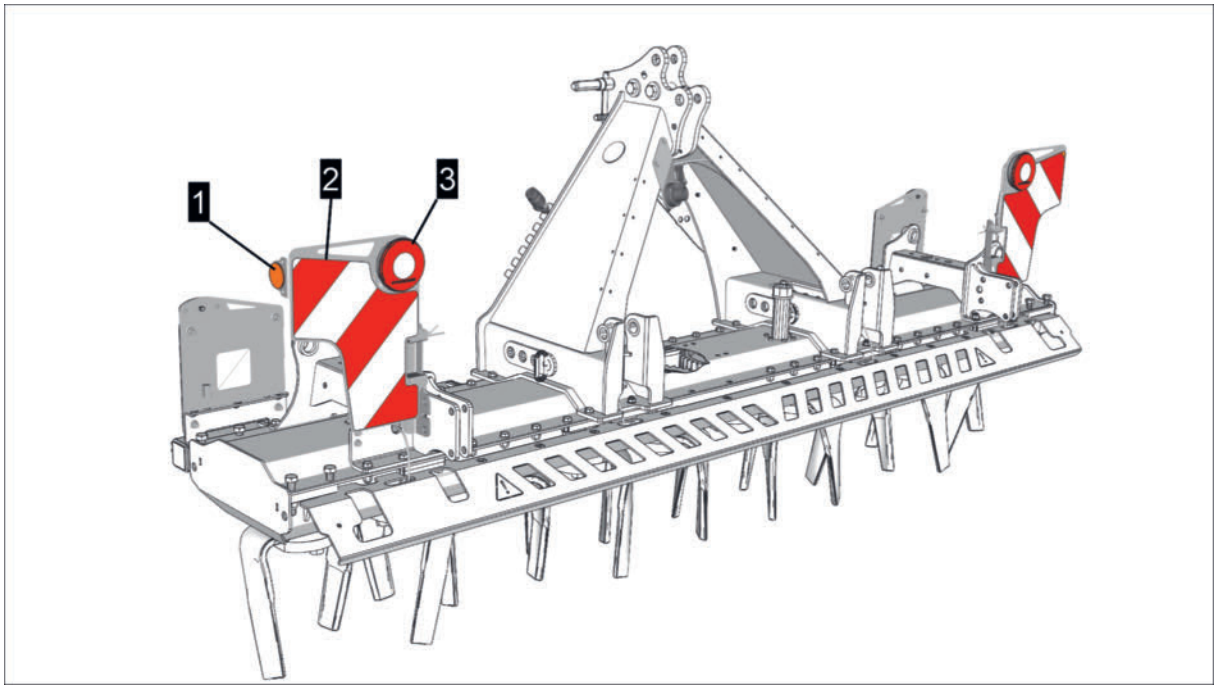
The traffic safety equipment is obligatory when driving on public traffic areas. It may vary depending on the destination country.

TIP

USA / CANADA

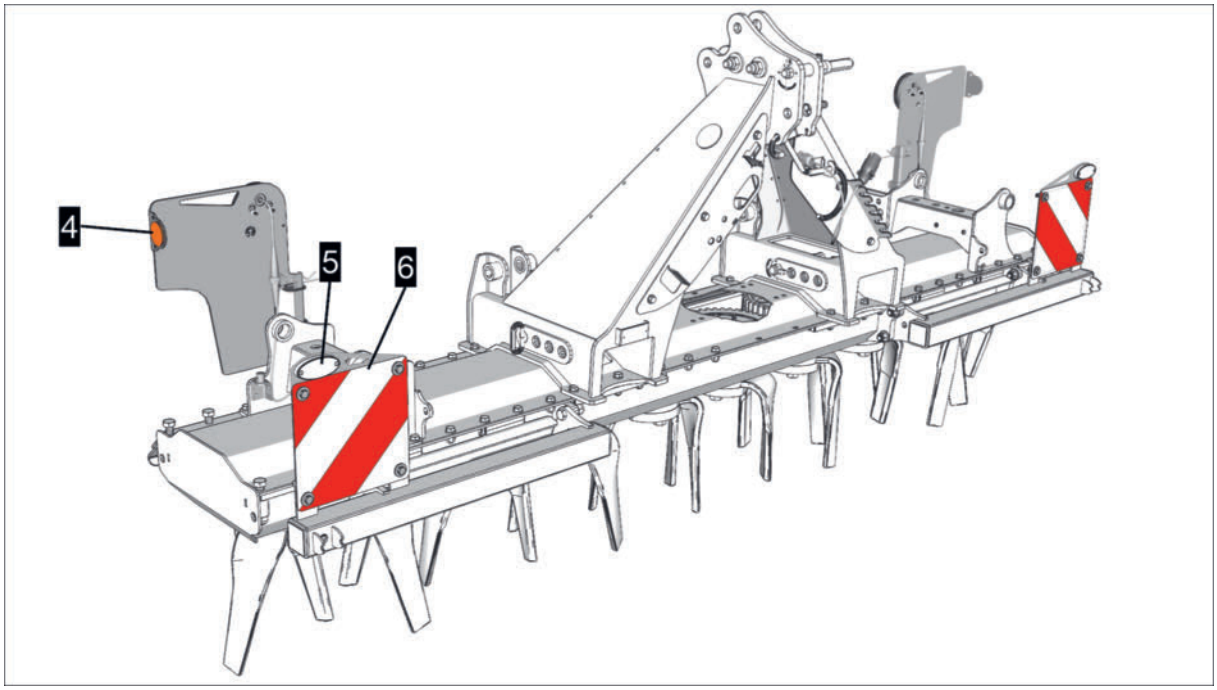
For machines operated in the USA / CANADA, a “Flasher Control Module” (for the adaptation of the flashing frequency of the direction indicators to currently applicable regulations) is available!

“Standard” rear lighting



Pos.	Equipment
1	Orange reflectors on both sides of the machine
2	Warning sign on both sides of the machine
3	LED tail lights / brake lights / indicator lights on both sides of the machine

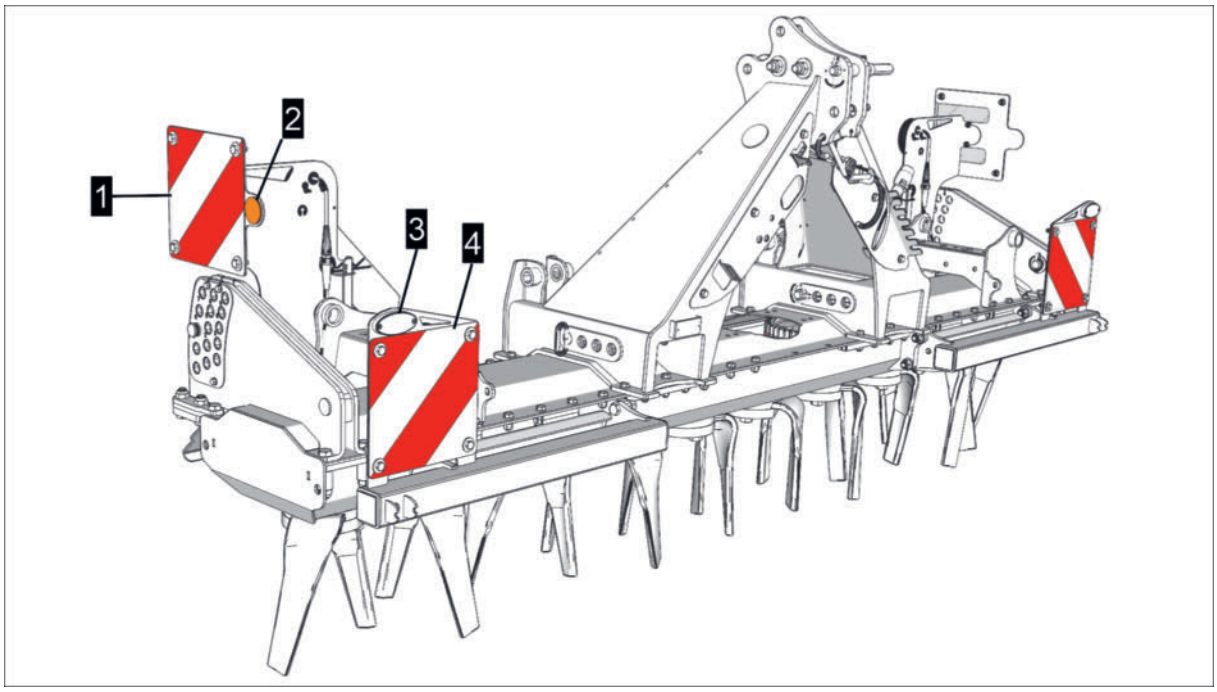
“Standard” front lighting



Pos.	Equipment
4	Orange reflectors on both sides of the machine

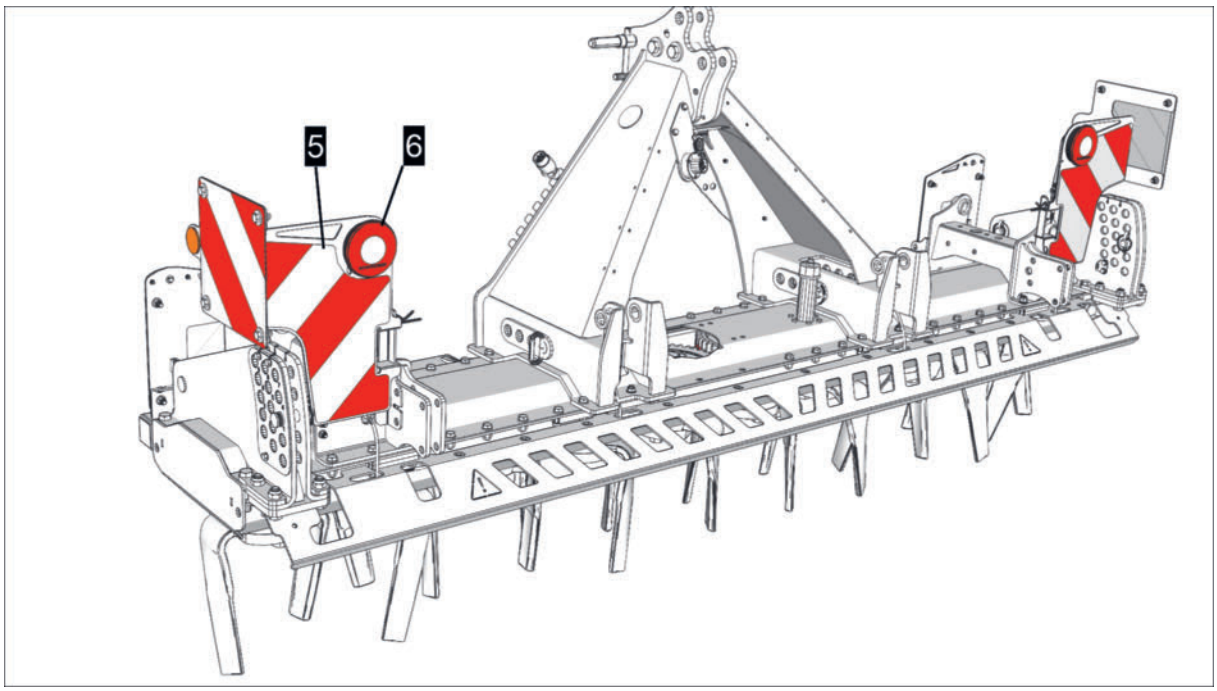
Pos.	Equipment
5	Warning sign on both sides of the machine
6	White LED front position lights on both sides of the machine

“French” front lighting



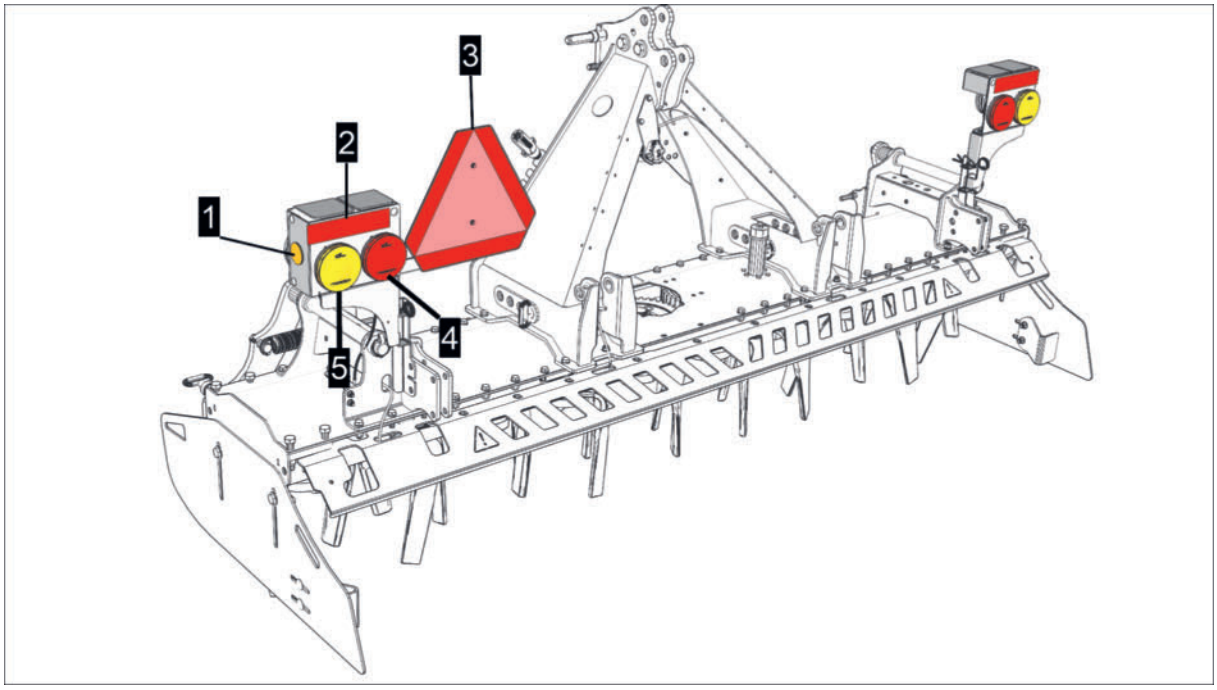
Pos.	Equipment
1	Warning sign on both sides of the machine
2	Orange reflectors on both sides of the machine
3	White LED front position lights on both sides of the machine
4	Warning sign on both sides of the machine

“French” rear lighting



Pos.	Equipment
5	Warning sign on both sides of the machine
6	LED tail lights / brake lights / indicator lights on both sides of the machine

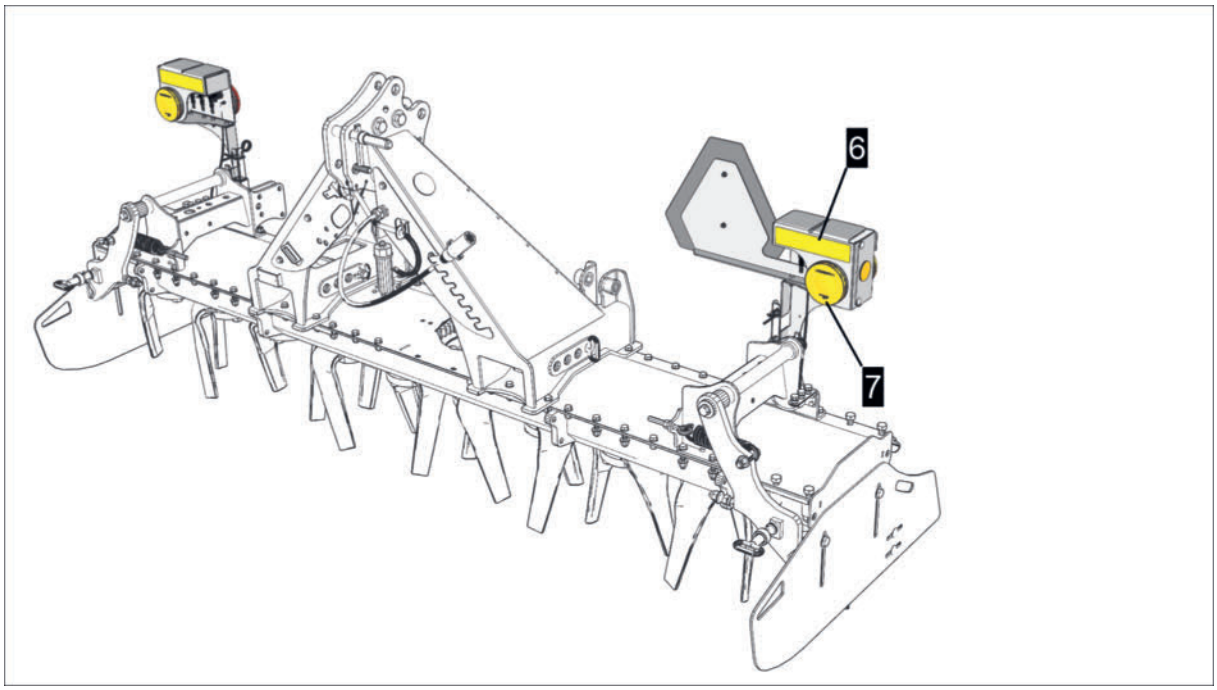
USA / CANADA rear lighting



Pos.	Equipment
1	Orange reflectors on both sides of the machine
2	Red reflective foil on both sides of the machine

Pos.	Equipment
3	Warning triangle (SMVI emblem)
4	Red LED tail lights / brake lights on both sides of the machine
5	Yellow LED indicator lights on both sides of the machine

USA / CANADA front lighting



Pos.	Equipment
6	Red reflective foil on both sides of the machine
7	Yellow LED indicator lights on both sides of the machine

Handling hazardous substances

In addition to the instructions in this manual, also observe generally applicable, statutory and other binding regulations on environmental protection.

Disposal of the machine

ENVIRONMENT

At the end of its service life, the machine must always be sent for recycling in accordance with the country-specific legal regulations.

Pressure vessels, shock absorbers, gas pressure springs, etc.

- Depending on the machine, the installed hydraulic pressure accumulators are under high gas pressure (nitrogen) and must be emptied using a suitable device before scrapping.
- Depressurize compressed air tanks of pneumatic brakes via the condensate drain before disposal.
- Gas pressure springs, gas pressure dampers or oil pressure dampers are under high pressure and must be removed before the machine is scrapped and, if necessary, sent for recycling separately from metal scrap.

Disposing of lubricants and operating fluids

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

Disposing of electrical and electronic components

- Remove lighting equipment, job computers, sensors and cables and send them for recycling separately

Disposing of plastic parts

- Plastic parts are marked with a label that provides information about the material composition. Plastic parts can thus be sent for recycling according to type.

Disposing of metal parts

- Ideally, all metal parts are to be sent for the respective recycling process according to type.
- Remove lubricants such as gear oil, hydraulic oil, etc. from parts before scrapping them

Disposing of rubber parts / tires

- Take tires with and without rims and other rubber parts to the appropriate recycling center.

Disassembly of heavy parts of the machine

- Lift parts of the machine whose weight exceeds 55.12 lbs only by crane or forklift.

WARNING

Damage to health due to manual, heavy lifting!

► Do not lift parts of the machine whose weight exceeds 55.12 lbs manually.

► Use a crane, forklift or the like to remove or disassemble these parts.

Transport locks

Transport locks ensure that machine functions cannot be operated unintentionally while driving on public roads.

⚠ WARNING

Unintentional execution of machine functions!

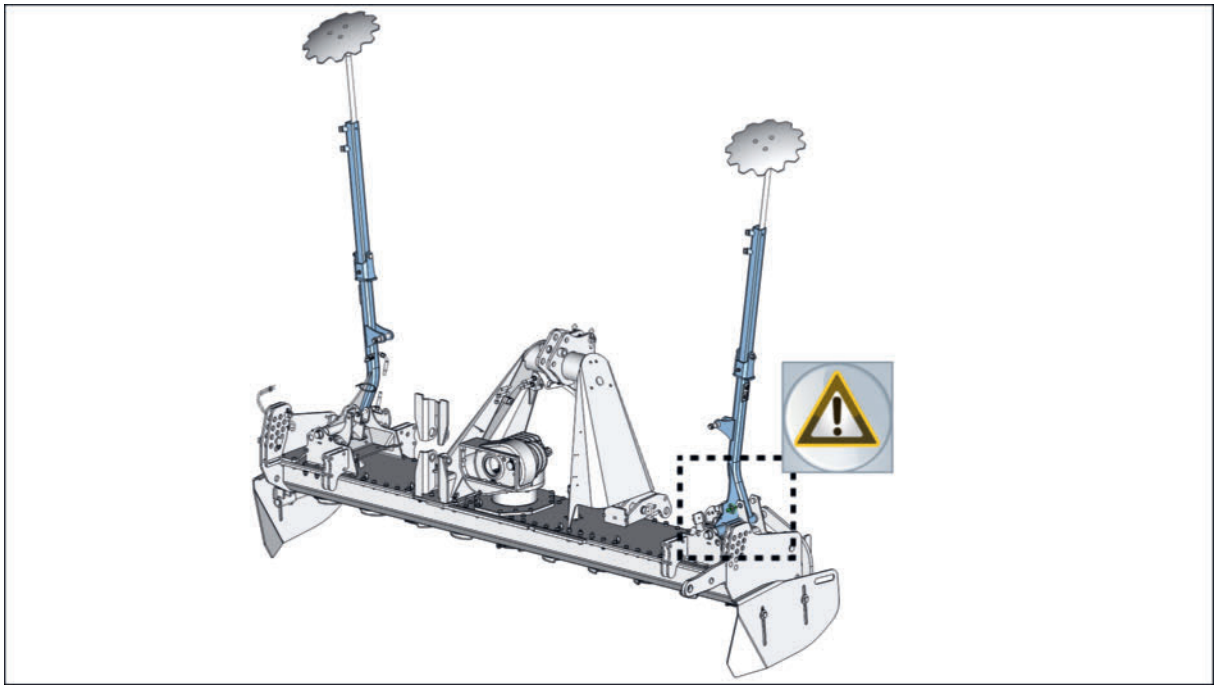
If transport locks are not completely closed / not completely activated, unintentional startup of machine functions and unforeseen movements of machine parts may occur.

► Attach / close all transport locks as specified before road transport journeys.

► Bring the machine into road transport position before road transport journeys.

Track marker (option)

Before driving on public traffic areas, the track markers must be secured via linch pins as described below.



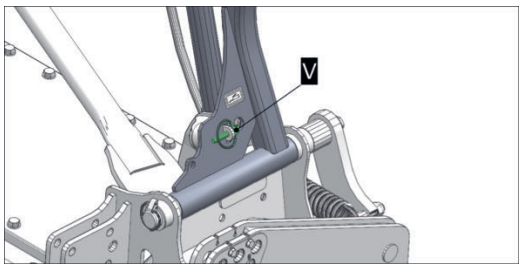
Removing / attaching the track marker transport lock

Prerequisite

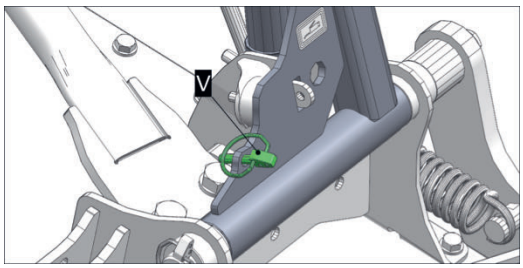
- Machine completely attached to a suitable tractor and secured.
- Tractor and machine are parked on a level and stable surface and secured against rolling away.
- Direct people out of the danger zone.

Implementation

► Remove transport locks: Remove the linch pins (V) on both sides of the machine and attach in park position on both sides of the machine as shown.



Example of right track marker: Linch pin (V) in its working position

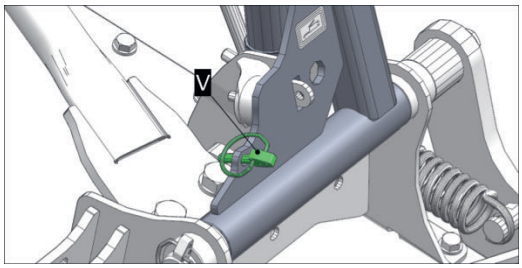


Example of right track marker: Linch pin (V) in its park position

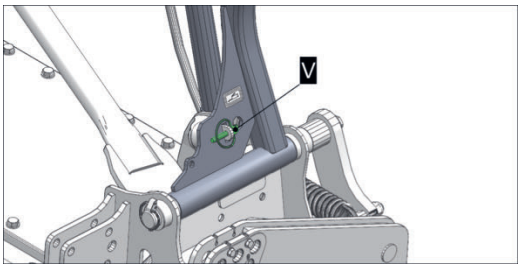
TIP

If the linch pin cannot be removed, set the tractor control valve to “Lift” and then remove the linch pin.

- ► Attach the transport lock: Set the tractor control unit to “Lift” and swing the lowered track marker up to the stop.
- ► Remove the linch pins (V) on both sides of the machine from their park position and attach in working position on both sides of the machine as shown.



Example of right track marker: Linch pin (V) in its park position



Example of right track marker: Linch pin (V) in its working position

Hydrolift (option)

Before driving on public traffic areas in road transport position, the Hydrolift must be decommissioned using the shut-off valve.

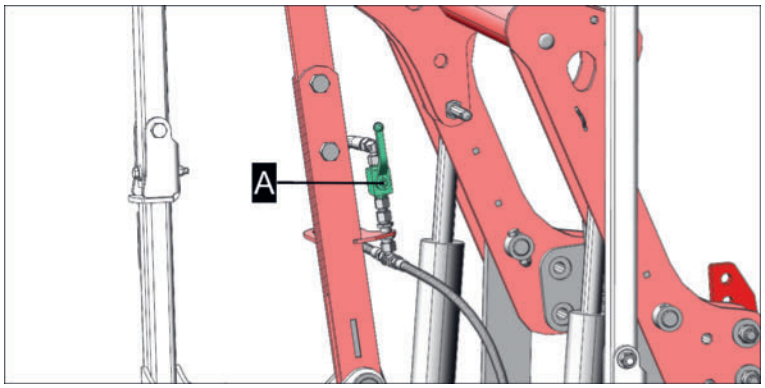


Fig.: Shut-off valve (A) open

⚠ WARNING

Unintentional swinging processes of machine parts!

If transport locks are not properly attached / activated, unintentional swinging processes of machine parts may occur.

► Before driving on public traffic areas, always attach / activate transport locks as prescribed.

Activating / deactivating the Hydrolift transport lock

Prerequisite

- Tractor and machine parked on a level and stable surface in working position.
- Hydrolift connected to a single-acting tractor control valve.
- Hydrolift raised into road transport position.

Implementation

► Close shut-off valve (A).

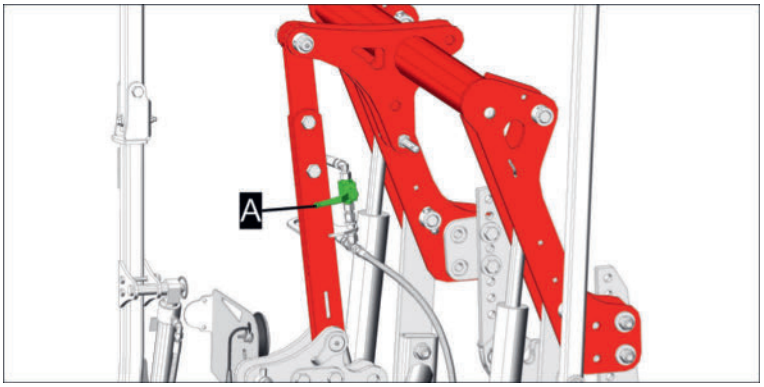


Fig.: Shut-off valve (A) closed

► Deactivate the transport lock before starting work: Open shut-off valve (A).

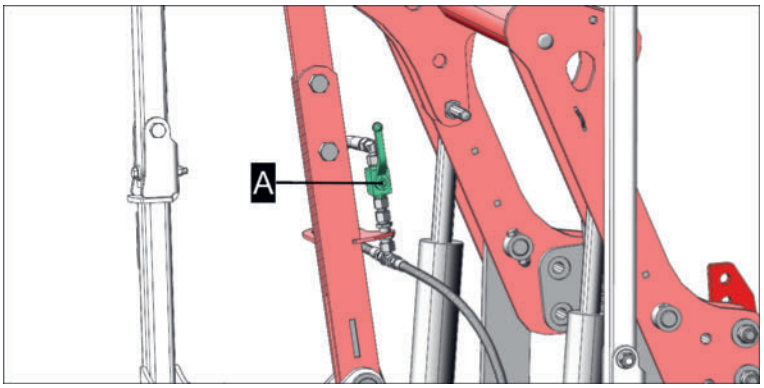


Fig.: Shut-off valve (A) open

Hydraulic working depth adjustment transport lock

To prevent uncontrolled swinging of the trailer up and down when driving in road transport position, the transport lock of the trailer must be activated as described below.

Activating / deactivating the transport lock

Prerequisites

- Machine completely attached to a suitable tractor and secured.
- Tractor and machine parked on a level and stable surface in working position and secured against rolling away.
- Before all work on the machine, tractor engine switched off, PTO shaft switched off, parking brake applied, ignition key removed and stored.

Implementation

► Operate the tractor control unit and lower the trailer to the stop at the lowest possible working depth according to the scale.

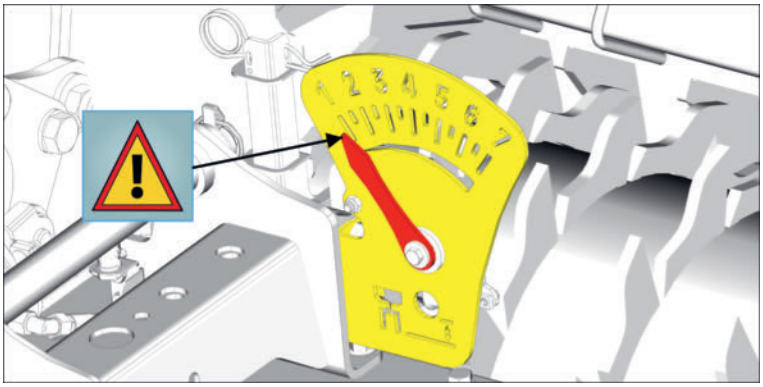


Fig.: lowest possible working depth according to the scale

► Close the shut-off valve on the hydraulic supply line (if present), and lock the tractor control unit to prevent unintentional commissioning if possible.

► Deactivate the transport lock: Carry out the process in reverse order.

Manual working depth adjustment transport lock

To prevent uncontrolled swinging of the trailer up and down when driving in road transport position and swinging up in park position, the trailer must be secured as described below.

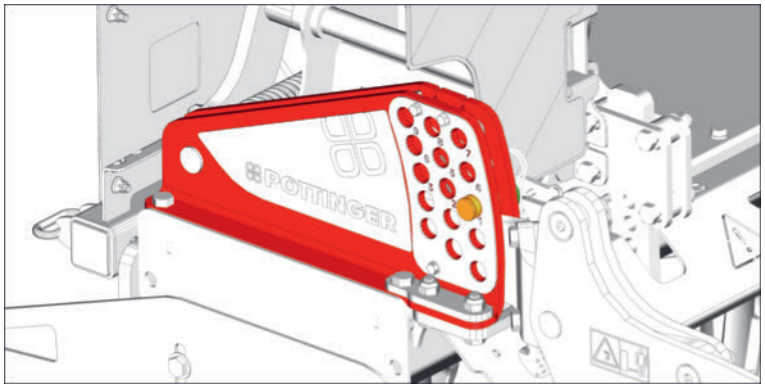


Fig.: Hole pattern on the left side of the machine

Activating / deactivating the transport lock

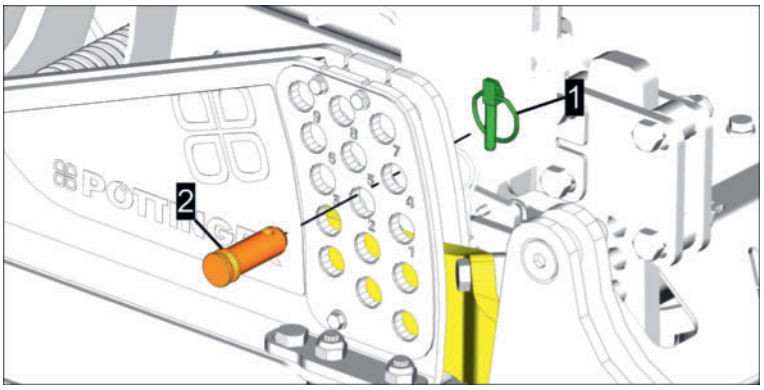
Prerequisites

- Machine completely attached to a suitable tractor and secured.
- Tractor and machine parked on a level and stable surface in working position and secured against rolling away.
- Before all work on the machine, tractor engine switched off, PTO shaft switched off, parking brake applied, ignition key removed and stored.

Implementation

► Actuate the rear power lift and lift the machine so that the trailer is completely lowered and can be freely turned manually.

► Remove the linch pin (1) and locking pin (2).



► Pin the locking pin (2) on the hole pattern in hole [1] and secure it with the linch pin (1) as shown.

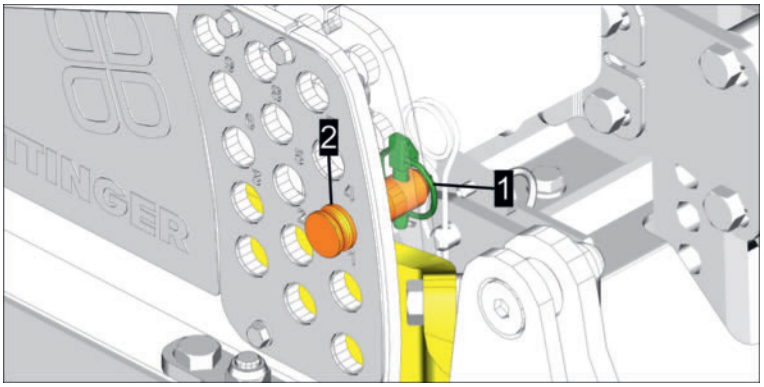


Fig.: Hole pattern partially shown transparently

► Perform the same processes on both sides of the machine.

► Deactivate the transport lock: Carry out the process in reverse order or set the working depth to the desired value. See "Setting the working depth manually" on page 62.

⚠ WARNING

Unclear division of labor!

If more than one person works with and on the machine, ambiguities may arise between areas of responsibility, creating hazards for all involved.

► Prior to all work on and with the seed drill, clearly define the areas of responsibility of the helpers present and agree on all planned work procedures.

► If new helpers are called in during the work or helpers are removed from work, the areas of responsibility of the helpers present must be clearly defined again and all planned work procedures must be agreed on.

⚠ WARNING

Failure to wear personal protective equipment!

► Use personal protective equipment (work clothes, work shoes, gloves, safety goggles) when handling the machine.

Lifting or lowering the machine / machine combination

Function execution via the rear power lift control valve.

Implementation

► Lift the machine / machine combination into road transport position: Set the rear power lift to “Lift”.

► Lower the machine / machine combination into working position: Set the rear power lift control valve to “Lower” and gently place the machine combination on the ground.

Track marker (option) operation

Prerequisites

- Machine completely attached to a suitable tractor and secured.
- Tractor and machine parked on a level and stable surface in working position.

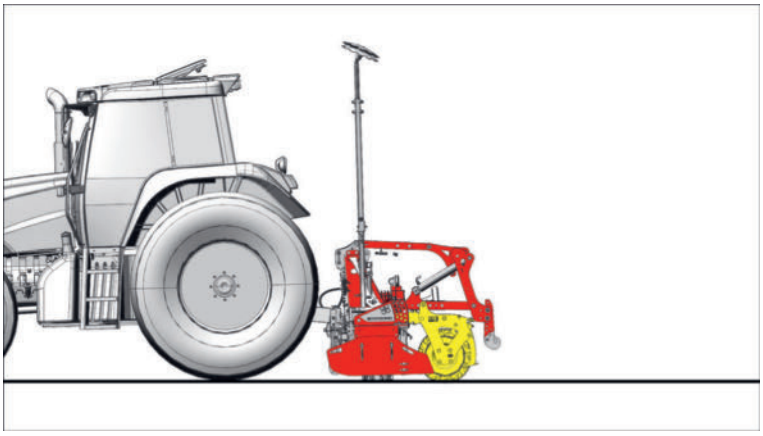


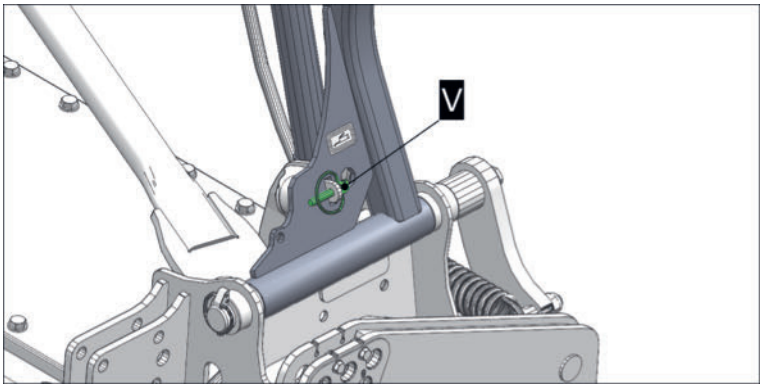
Fig.: Working position

- Track marker connected to a single-acting tractor control unit.
- Direct people out of the danger zone of the machine.

Bringing the track marker into working position

Prerequisite

- Linch pin (V) removed on the transport lock of both track markers.

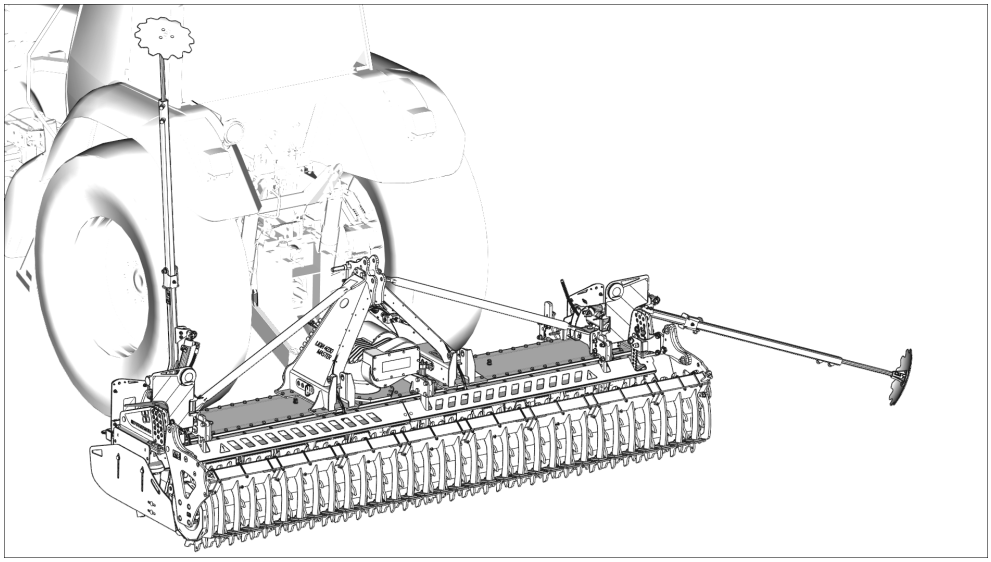


Example: right track marker linch pin (V) not yet removed.

Implementation

► Set the tractor control unit for the track marker to “Lower”.

▷ One of the two track markers is lowered to the stop, depending on the current position of the shuttle valve.



TIP

If the opposite track marker is needed first: Set the tractor control unit to “Lift” to lift the respective track marker up to the stop. Then set the tractor control unit back to “Lower” to lower the required track marker to the stop.

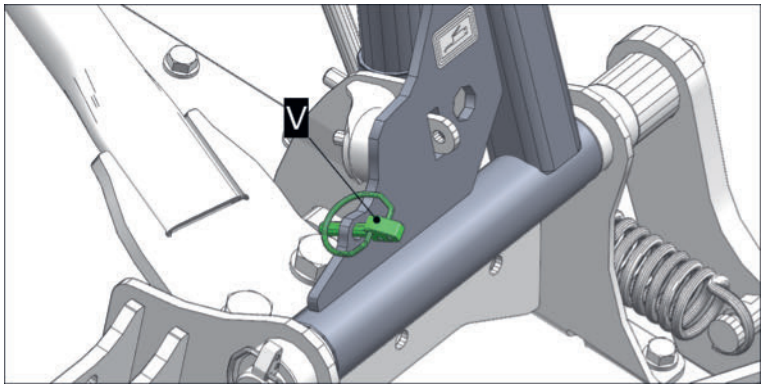
► Then set the tractor control unit to “float position”.

Bringing the track marker into road transport position

Implementation

► Set the tractor control unit to “Lift”, and lift track marker that is currently in working position up to the stop.

▷ Secure the track markers on both sides of the machine with linch pins (V).



Example: right track marker secured using linch pin (V).

▷ Then set the tractor control unit to “float position”.

Hydrolift (option) operation

Prerequisite

- Machine completely attached to a suitable tractor and secured.
- Tractor and machine parked on a level and stable surface in working position.

Hydrolift in road transport position / headland position

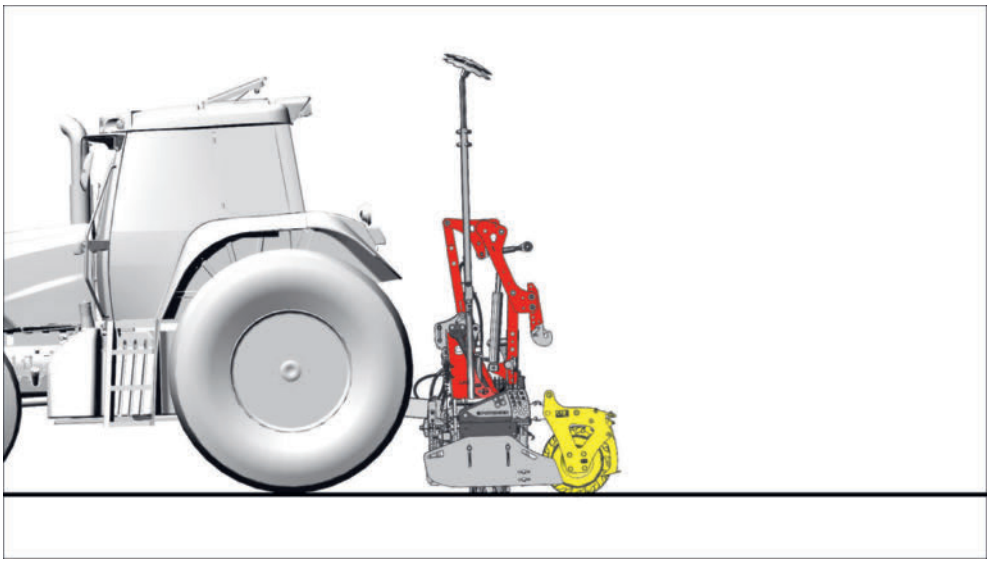


Fig.: Working position; Hydrolift in road transport position / headland position

- Shut-off valve (A) open on Hydrolift as shown.

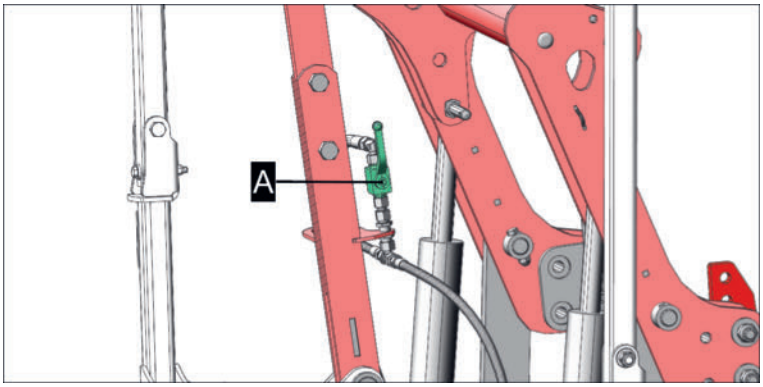


Fig.: Shut-off valve open [stroke limiter (option) hidden]

- Hydrolift connected to a single-acting tractor control unit.
- Direct people out of the danger zone of the machine.

Implementation

Bringing the Hydrolift into working position

Implementation

► Set the tractor control unit to “Lower” and lower the Hydrolift to the stop.

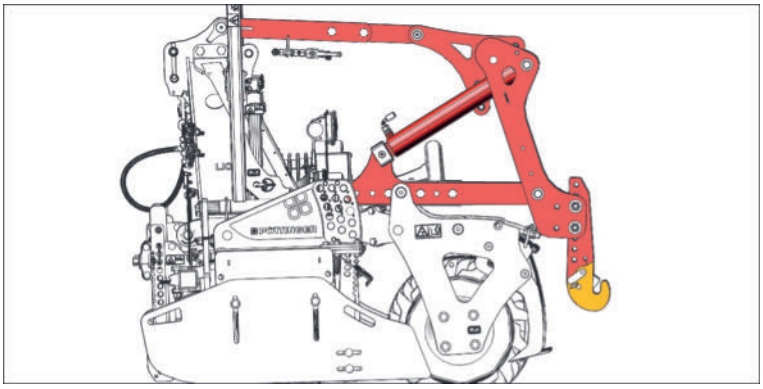


Fig.: Hydrolift in working position

Bringing the Hydrolift into road transport position / headland position

Prerequisite

- Tractor and machine parked on a level and stable surface in working position.
  Hydrolift in working position.

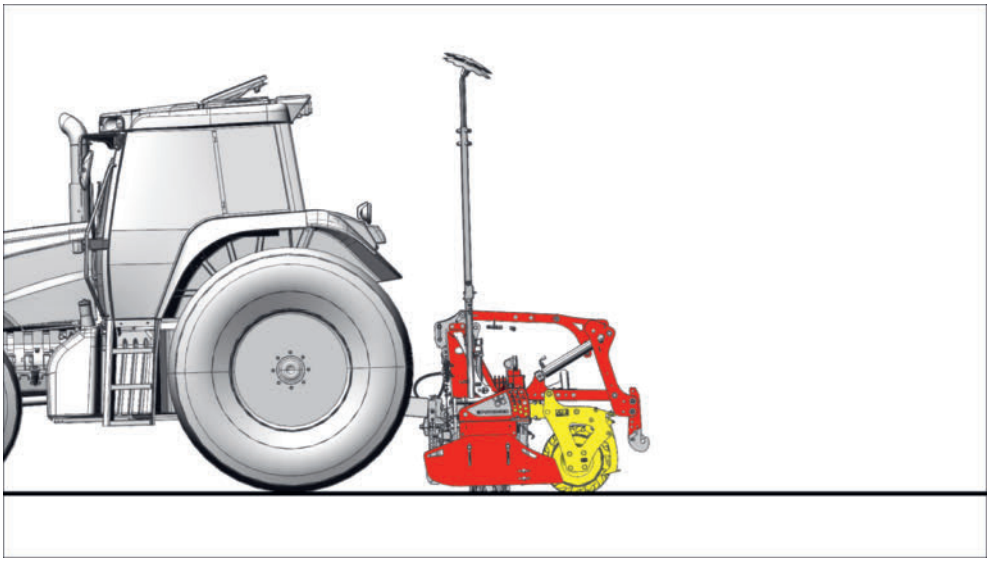


Fig.: Hydrolift in working position

Implementation

► Lift the Hydrolift into road transport position / headland position: Set the tractor control unit to “Lift”.

▷ The lifting operation is stopped at the position set on the optional stroke limiter.

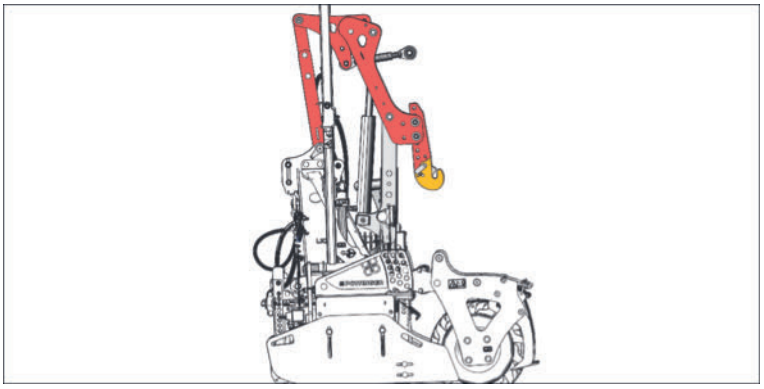


Fig.: Hydrolift in transport position

Hydraulic top link for seed drills (option) operation / setting

The hydraulic top link is used to...

- ... be able to tilt the seed drill forward so that the seed coulters have no ground contact (= harrow operation without seeding).
- ... move the seed drill closer to the tractor in road transport position to shift the center of gravity further forward.

Prerequisite

- Top link connected to a double-acting tractor control unit.
- Direct people out of the danger zone of the machine.

Bringing the top link into working position

Implementation

► Set the tractor control unit to “Lower” until the seed drill rests on the ground.

Bringing the top link into road transport position / headland position

Implementation

► Set the tractor control unit to “Lift” and lift the seed drill to the stop.

Side plate operation

If necessary, the side plates can be used in both possible side plate positions (working position / road transport position) on the field.

TIP

The most appropriate setting must be determined during operation.

Depending on the preferred position during field work, the setting of the side plates must be checked and adjusted if necessary. See "Side plate settings" on page 64.

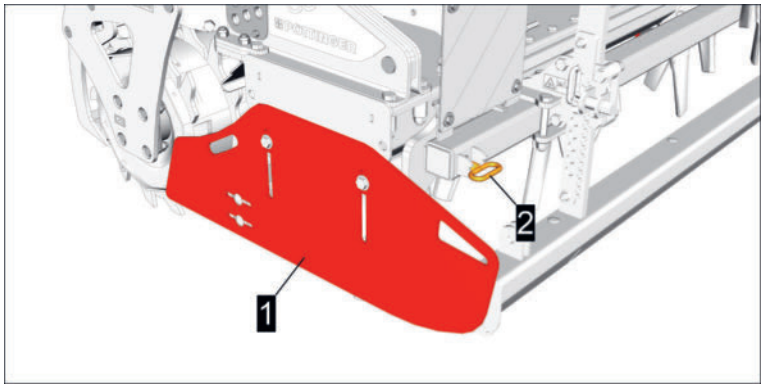


Fig.: Right side plate

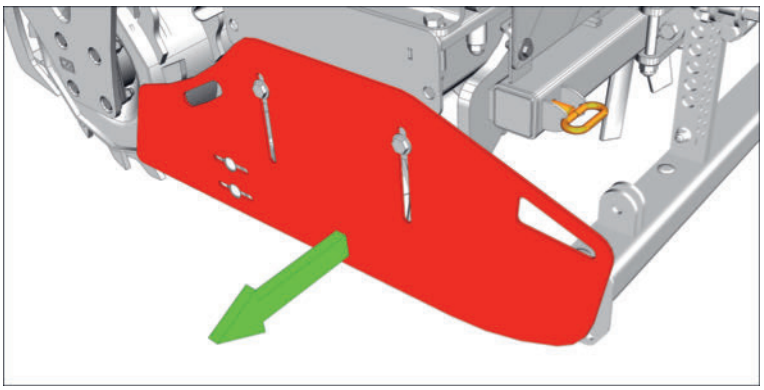
1 = Side plate

2 = Locking pin

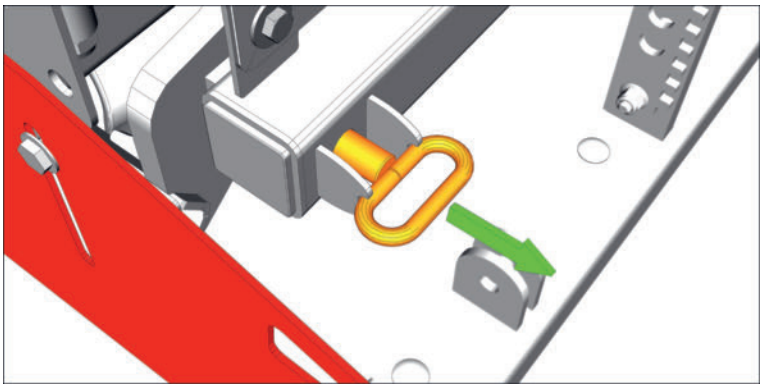
Establishing the working position

Implementation

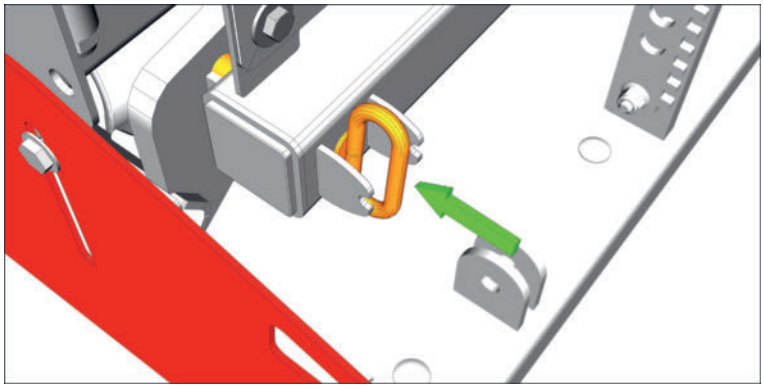
► Swing the spring-loaded side plate on the handle slightly outward.



► Pull the spring-loaded locking pin forward.



▷ Turn the locking pin 90° and release it.



► Slowly swing the side plate inward and then release it.

▷ The spring-loaded side plate can thus swing outward during operation and is stopped inward by the locking pin.

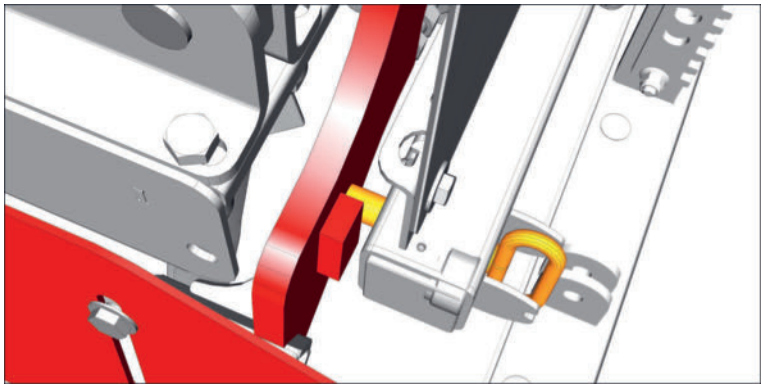
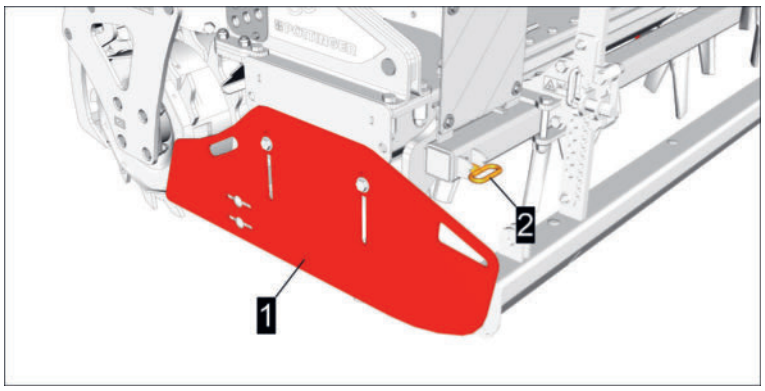


Fig.: Locking pin position during standard operation

► Perform the same process on both sides of the machine.

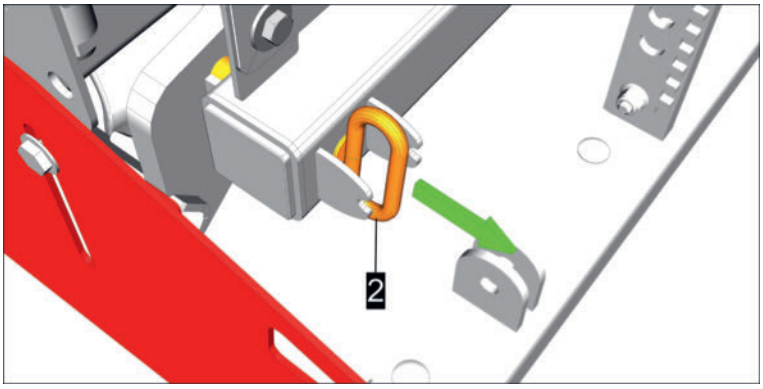
Establishing the road transport position

Before driving on public traffic areas, the side plates (1) on both sides of the machine must be completely folded inward and the locking pin (2) must be pulled out and engaged in the road transport position.

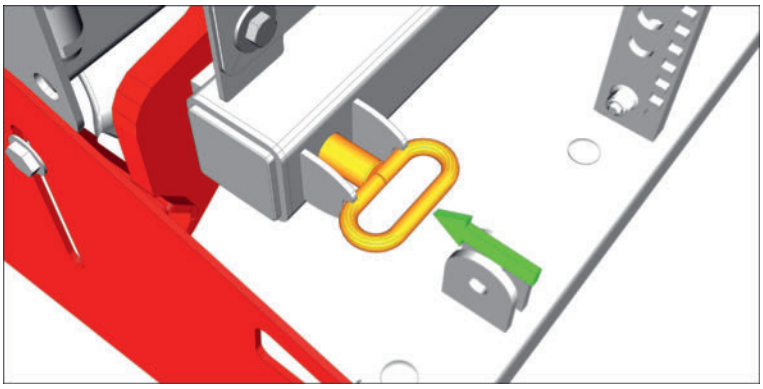


Implementation

► Pull the spring-loaded locking pin (2) on the handle forward.



► Turn the locking pin and insert it with the handle on the brackets on both sides, as shown below.



▷ If the pin is very tight, lift the respective side plate slightly to make it easier to operate the locking pin.

► Perform the same process on both sides of the machine.

Operation

DANGER

Catching, pulling in and severing of limbs, as well as crushing and rolling over of entire body!

When working on the machine, the danger zone in which machine components can move and the danger zone of the tractor must be entered.

- ► Before all work on the machine, switch off the tractor engine, switch off the PTO shaft, apply the parking brake, remove and store the ignition key.
- ► Wait for all machine components to come to a standstill before entering the danger zone of the tractor / the machine.
- ► When working under the machine or when the machine is raised, place trestles underneath to prevent unintentional lowering of the machine / machine components!

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 the machine cannot be set in motion unintentionally or by third parties.
- ► Make sure that the tractor cannot be set in motion unintentionally or by third parties.

WARNING

Failure to wear personal protective equipment!

- ► Use personal protective equipment (work clothes, work shoes, gloves, safety goggles) when handling the machine.

NOTICE

Damage to the drive train!

When the PTO brake is active on the tractor, tension can occur in the drive train, which can lead to damage to the machine components involved.

- ► Switch off the PTO brake of the tractor before folding processes!

Commissioning

- Before commissioning, check whether the tractor is suitable for operation with the machine. Compare the specifications with the corresponding specifications in the operating instructions for the tractor.
- Make sure that any transport locks have been removed.
- Check that any assembled seed drill (with track markers in transport position) does not touch the tractor or soil cultivation machine during lifting.

- Make sure that the (supplied) cardan shaft has been adapted to the tractor before commissioning.

Tractor ballasting

CAUTION

Risk of accident due to ballasting errors!

In the event of ballasting errors, the steering and braking ability of the tractor will be impaired.

► Weigh machines that are operated in different coupling states, as a solo machine or as a machine combination, in each of these states.

► For weighing, establish the position of the machine / machine combination that extends the farthest to the rear / to the front.

► Perform a brake test after ballasting.

At least 20% of the tractor empty weight must be present as front axle load to ensure steering and braking ability of the tractor. Axle loads, total weight and tire load capacity may not be exceeded.

For correct ballasting of your tractor, also see tractor operating instructions.

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

Methods for determining the tractor ballasting

- *Weighing method*

  The most accurate result is achieved with the weighing method. Possible deviations from specified weights are taken into account.

- *Calculation method*

  The calculation method provides only 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

If possible, always choose the weighing method!

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

Fillable number table

	Actual value	Permissible value	Permissible tire load capacity
Minimum front ballasting	kg (lbs) ($G_{V\ min}$)	-	-
Total weight	kg (lbs) (G_{act})	≤ kg (lbs) (G_{per})	-
Front axle load	kg (lbs) ($T_{V\ act}$)	kg (lbs) ($T_{V\ per}$)	≤ kg (lbs)
Rear axle load	kg (lbs) ($T_{H\ act}$)	≤ kg (lbs) ($T_{H\ per}$)	≤ kg (lbs)

Determining the tractor ballasting through the weighing method

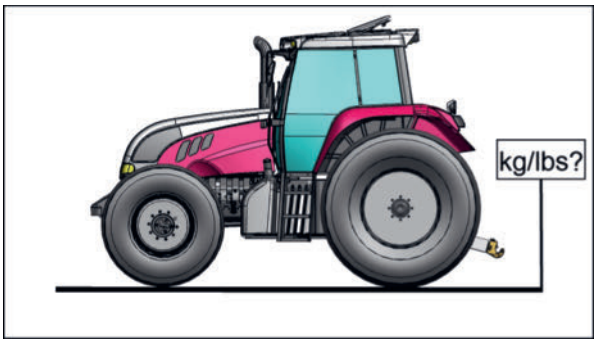
This (preferred) method can be used to check the tractor ballasting determined purely by calculation. See "Determining the tractor ballasting through calculation" on page 58.

Implementation

Weighing the tractor

► Remove any installed machines and ballast weights from the tractor.

► Drive tractor onto the scale with front and rear axle.

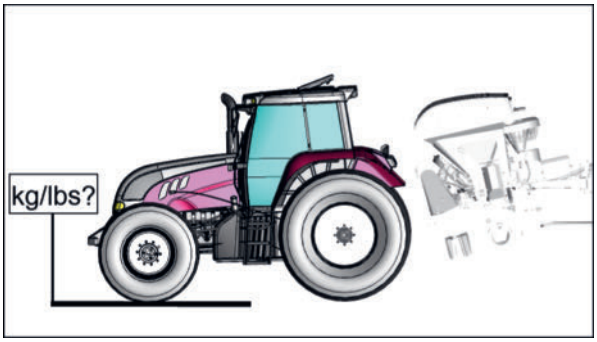


► Record weight as tractor empty weight (T_L) and enter it in the number table.

Weighing the front axle load

► Attach the machine to the tractor and bring it into transport position.

► Drive the tractor onto the scale with front axle.



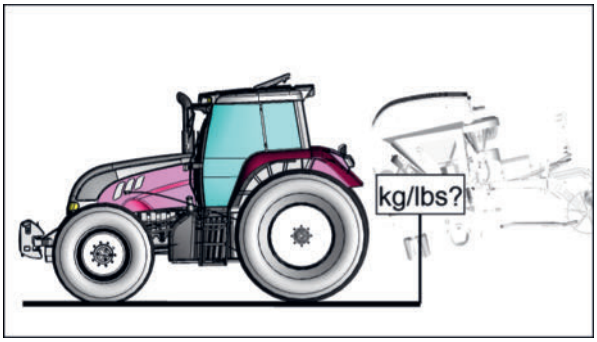
► Record weight as actual front axle load ($T_{V\,act}$) and enter it in the number table.

► Calculate if the actual front axle load ($T_{V\,act}$) is still at least 20% of the tractor empty weight T_L. If the front axle load is too low, attach ballast weights until the actual front axle load ($T_{V\,act}$) is at least 20% of the tractor empty weight (T_L).

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

Weighing the total weight

► Drive the tractor including machine in transport position and ballast weights onto the scale with front and rear axle.

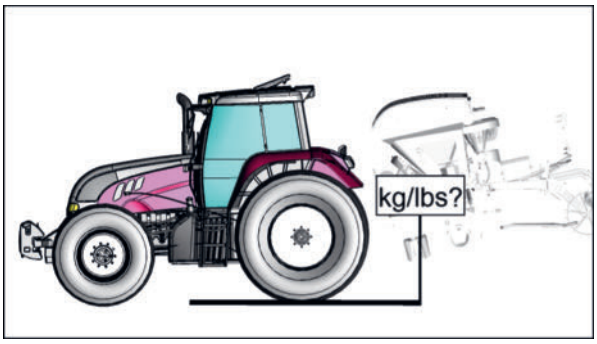


► Record weight as total weight (G_{act}) and enter it in the number table.

► Check if the measured value exceeds the maximum permissible total weight (G_{per}) of the tractor. See tractor operating instructions.

Weighing the rear axle load

► Drive the tractor including machine and ballast weights onto the scale with rear axle.



► Record weight as actual rear axle load T_H and enter it in the number table.

► Check that the measured value does not exceed the maximum permissible rear axle load ($T_{H\ per}$), taking into account the tire load capacity. See tractor operating instructions.

► Check if the technical data for the tires and rims is in accordance with the specifications of the tractor manufacturer. See tractor operating instructions.

Determining the tractor ballasting through calculation

Implementation

- ► Distance (a) of front ballast center of gravity (G_V) to center of front axle:
  a = ... mm (inches) (See tractor operating instructions or measure)
- ► Tractor axle spacing (b):
  b = ... mm (inches) (See tractor operating instructions or measure)
- ► Distance (c) of rear axle center to coupling point:
  c = ... mm (inches) (See tractor operating instructions or measure)
- ► Distance (d) of rear coupling point to machine combination center of gravity (G_H):
  d = ... mm (inches) (measure)
- ► Front axle load of unloaded tractor (TV):
  TV = ... kg (lbs) (See tractor operating instructions)
- ► Rear axle load of unloaded tractor (TH):
  TH= ..... kg (lbs) (See tractor operating instructions)
- ► Tractor empty weight (TL):
  TL = ... kg (lbs) (See tractor operating instructions)
- ► Calculate minimum front ballasting ($G_{V\,min}$) and enter it in the number table:
  $G_{V\,min} = (G_H * (c + d) - T_V * b + 0.2 * T_L * b) / (a + b)$
  .....
- ► Calculate actual front axle load ($T_{V\,act}$) and enter it in the number table:
  $T_{V\,act} = G_V * (a + b) + T_V * b - G_H * (c + d) / b$
  .....
- ► Enter the value for the permissible front axle load ($T_{V\,per}$) according to the tractor operating instructions in the number table.
- ► Calculate the actual total weight (G_{act}) and enter it in the number table:
  $G_{act} = G_V + T_L + G_H$
  .....
- ► Enter the value for the permissible total weight (G_{per}) according to the tractor operating instructions in the number table.
- ► Calculate the actual rear axle load ($T_{H\,act}$) and enter it in the number table:
  $T_{H\,act} = G_{act} - T_{V\,act}$
  .....
- ► Enter the value for the permissible rear axle load ($T_{H\,per}$) according to the tractor operating instructions in the number table.
- ► Double the permissible tire load capacity according to the tractor operating instructions or from the tire manufacturer documentation (two tires per axle) and enter it in the number table.

Setting / conversion

Before starting work, carry out the setting and conversion work described below and check the machine for the correct settings and equipment.

TIP

Careful setting of the machine protects the machine / soil and saves fuel!

DANGER

Catching and pulling in on the whole body by moving machine parts during all work on the machine.

- ► Perform all work only when the drive is at a standstill.
- ► Secure the machine against being switched on before all work.
- ► Do not wear unrestrained, long hair or loose / wide clothing during work.
- ► Direct people out of the danger zone.
- ► Only put the machine into operation when all protective devices are properly installed, undamaged and in the protective position.
- ► Do not allow anyone to enter the danger zone of moving machine parts during operation.

WARNING

Crushing, cutting, pinching and impacts on the entire body!

During all setting work, there are dangers due to heavy, partly spring-loaded parts, as well as sharp-edged parts of the machine.

- ► Setting work may only be carried out by appropriately instructed personnel.
- ► Wear personal protective equipment appropriate for the work (such as work gloves, safety goggles, etc.).
- ► Observe the operating safety and accident prevention regulations.
- ► Direct people out of the danger zone.

WARNING

Risk of burns!

During operation, machine parts (such as gearbox, bearings, etc.) can get very hot and remain hot for a long time!

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

Lower link rockers setting

To adjust the machine optimally to the tractor, the headstock is equipped with adjustable lower link rockers.

TIP

To move the center of gravity of the combination as far forward as possible, it is necessary to attach the soil cultivation machine as close as possible to the tractor.

Determining the optimum attachment position

Prerequisite

- Attachment Cat. III / width II or III
- Suitable tractor (see Technical data chapter)
- Tractor lower linkage secured against laterally swinging out.
- Machine parked on a level, stable surface.
- Track marker (option) lifted and transport lock attached.
- Hydrolift (option) raised and transport lock activated.
- Hydraulic top link (seed drill) (option) lifted and tractor control unit secured against unintentional commissioning.

Implementation

CAUTION

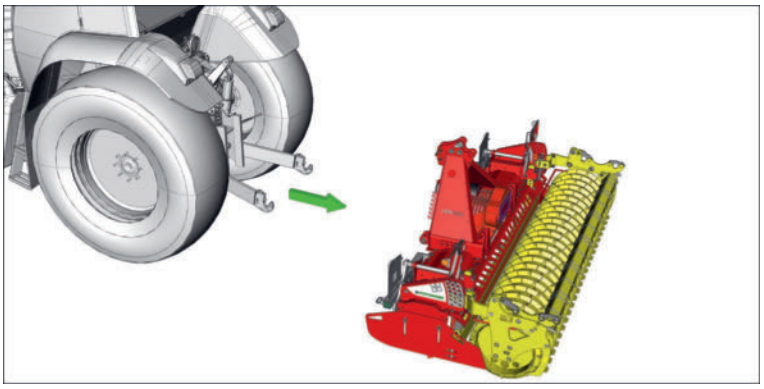
Risk of injury due to crushing!

► Direct people out of the danger zone between the tractor and machine as long as the tractor or machine parts can move.

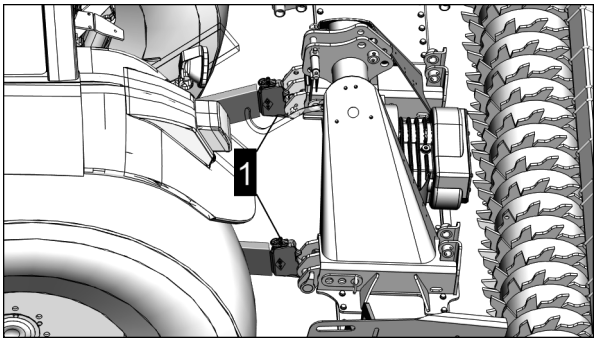
► Install the top link and lower linkage balls to the locking pins of the top link and lower linkage.

▷ Secure the top link and lower linkage pins as prescribed.

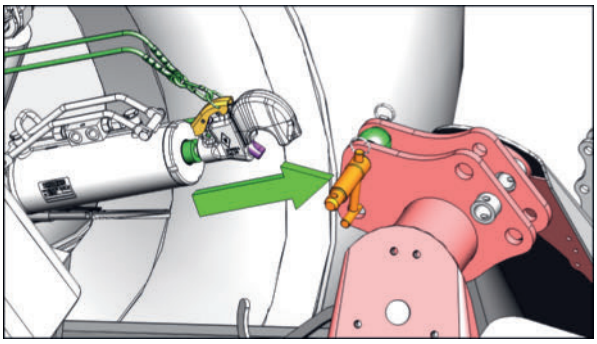
► Drive the tractor to the machine.



► Attach the lower linkage to the lower link rockers (1) and secure as prescribed.



► Attach the top link, secure as prescribed.



► Lift the machine / machine combination slightly.

► Adjust the top link until the machine / machine combination is horizontal to the ground.

▷ Slowly lift the machine further and check whether machine parts (especially the vent window) could collide with the tractor.

▷ Determine whether the distance between the machine and the tractor can possibly be reduced without machine parts being able to collide with the tractor.

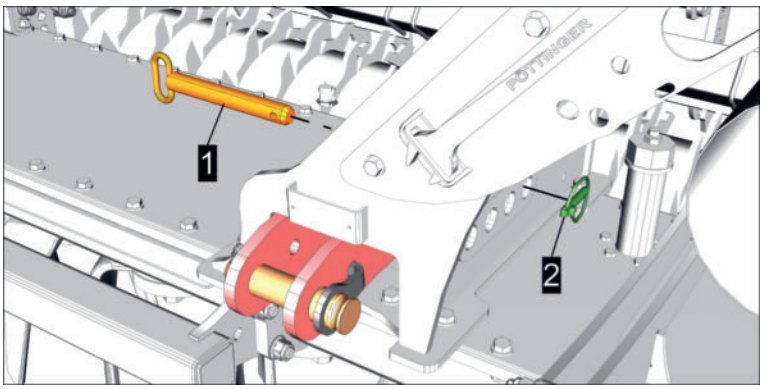
► Lower the machine to the ground, disconnect the tractor from the machine completely and roll it away from the machine.

► Then set the lower link rockers of the soil cultivation machine to the minimum dimension determined.

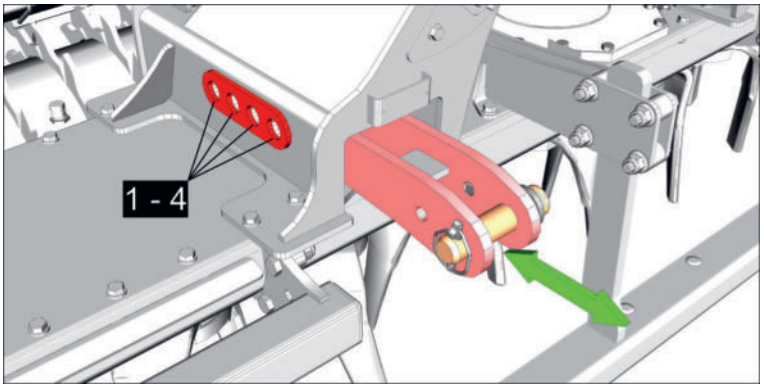
Setting the lower link rockers

The setting is shown using the right lower link rocker as an example.

► Remove the linch pin (1) and locking pin (2).

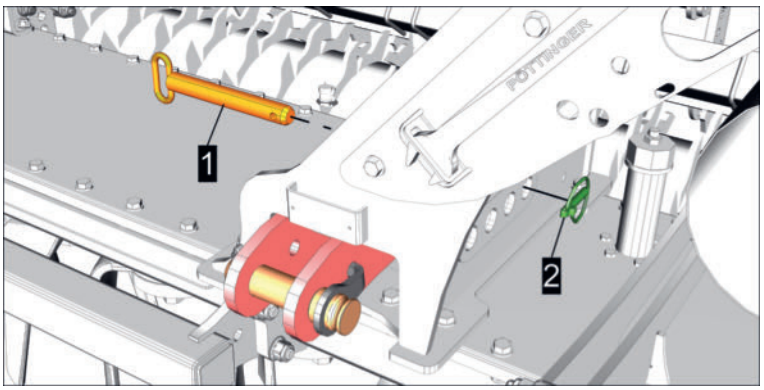


► Adjust the 4-fold adjustable lower link rocker to the distance determined earlier.



1-4 = possible pinning positions

► Reattach the locking pin (1) and secure it with the linch pin (2).



► Perform the same settings on both sides of the machine.

Rotor speed setting

The rotor speed is selected via the PTO shaft speed depending on the tractor power and ground conditions.

TIP

Recommended PTO shaft speed = 1000 rpm. This results in the lowest torque and protects the drive components.

Setting the working depth manually

The working depth of the rotary harrow is determined by the pendulum area of the attached trailer. The pendulum area is limited upward by locking pins on the hole pattern of the frame.

Prerequisite

- Machine completely attached to a suitable tractor and secured.
- Any attached seed drills lifted and secured in road transport position via Hydrolift or hydraulic top link.
- Machine is parked on a level and stable surface in working position and secured against rolling away.
- Adjusting device / hole pattern cleaned if necessary.

Implementation

► Lift the machine using the rear power lift until the trailer can rotate freely.

► Secure the machine with suitable supports against unexpected lowering and allow it to rest on the supports.

TIP

Support the machine on the frame or on the rear power lift, not on the trailer!

► Turn off the tractor, apply the parking brake, remove and store the ignition key.

► Move the locking pin (2) on both sides of the machine to the same desired working depth on the hole pattern and secure it with the linch pin (1).

NOTICE

Damage to the trailer and attachments!

If the working depth is not set to the same depth on both sides of the machine, the trailer guides and the associated brackets on the soil cultivation machine can be damaged during operation.

► Set the trailer on both sides of the machine to the same working depth.

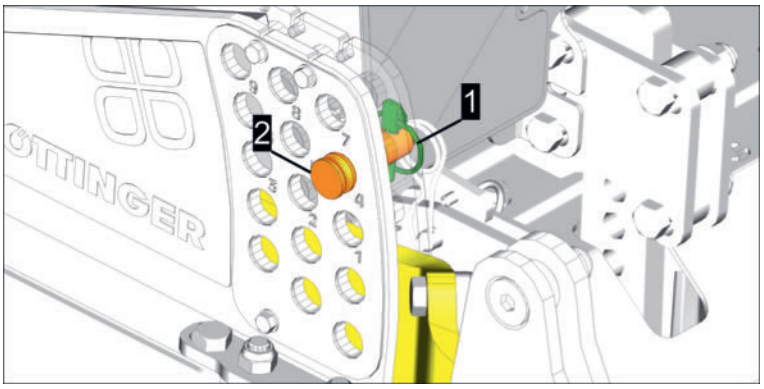


Fig.: Example setting, here at level [4] on the hole pattern

▷ The hole pattern enables the setting of the working depth of the machine (starting at level [1] = lowest working depth to level [9] = greatest working depth) in increments of 0.98 inch.

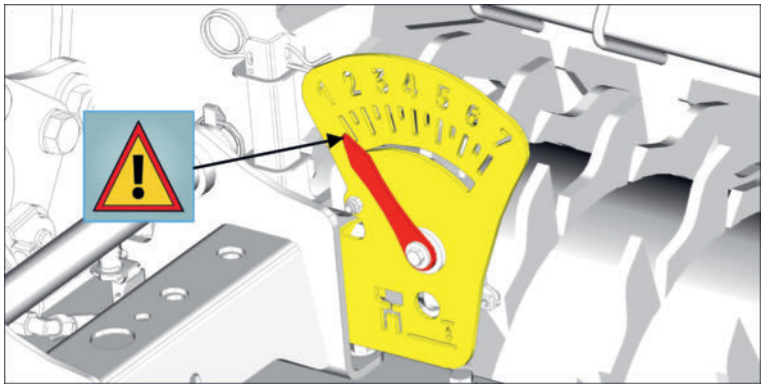
Setting the working depth hydraulically

The working depth of the rotary harrow is determined by the pendulum area of the attached trailer. On machines with hydraulic working depth adjustment, the pendulum area is set via the tractor control unit from the driver's seat. The display of the set working depth takes place through a pointer on the scale on the right side of the machine.

WARNING

Risk of crushing!

► When setting the working depth, bystanders must keep a distance of at least 6 foot 6.74 inch from the machine.



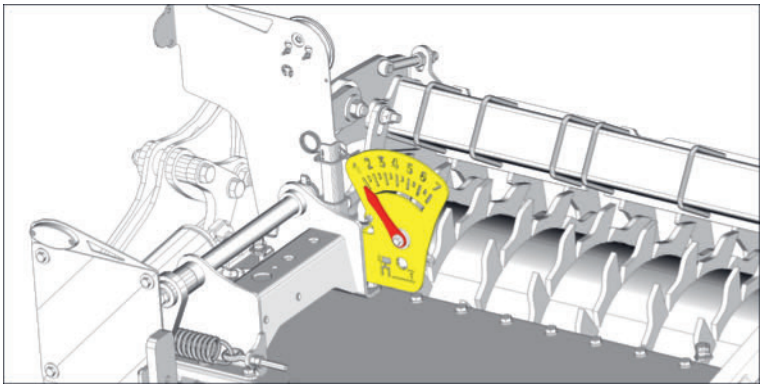
Scale and pointer

Prerequisite

- Machine completely attached to a suitable tractor and properly secured.
- Machine parked on a level and stable surface in working position.
- Adjusting device cleaned if necessary.

Implementation

► Operate the tractor control unit and set the trailer to the desired value according to the pointer on the scale.



Pointer position 1 = lowest working depth

Pointer position 7 = greatest working depth

Side plate settings

In the working position, the side plates protect access to the outer rotor units and support seedbed preparation.

TIP

Setting must take place in the field because the working depth of the side plates should be adjusted to the actual working depth of the soil cultivation machine.

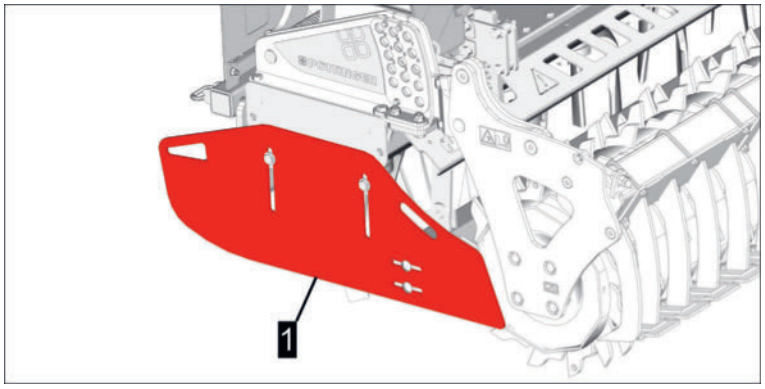


Fig.: 1 = left side plate

Prerequisite

- Machine completely attached to a suitable tractor and secured.
- Machine in working position at the field and at the selected working depth.
- The machine must be in the field and already be in working position at the desired working depth during operation.

TIP

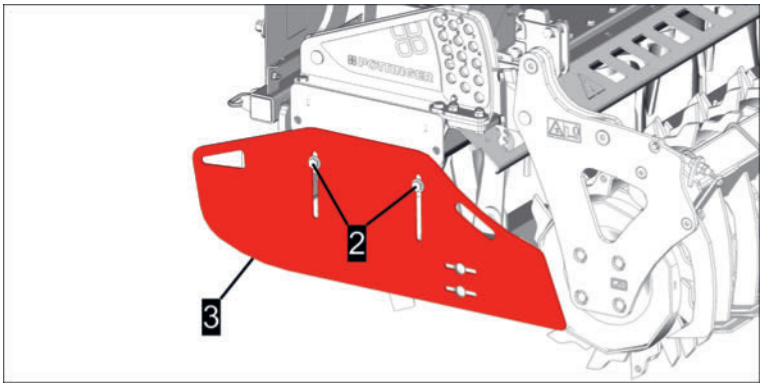
Perform the setting on a section of the field that is as level as possible.

- Side plates in working position. See "Side plate operation" on page 50.
- Tractor engine switched off, parking brake applied, ignition key removed and stored.

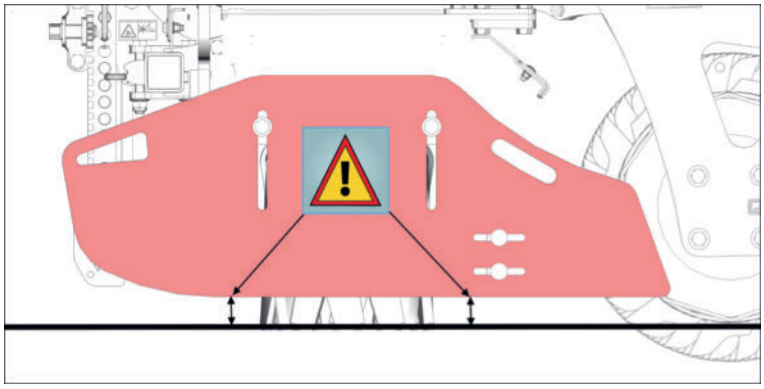
Setting the working depth

Implementation

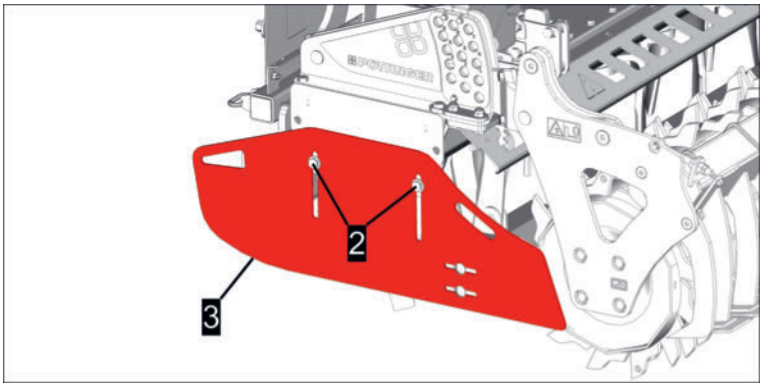
► Loosen the screws (2) on the side plate and adjust the plate (3) vertically as desired.



▷ The side plate basic setting should be set so that the lower edge of the side plate is set to a working depth of approx. 0.79 inch.



► Retighten the screws (2).



► Perform the same setting on both sides of the machine.

► Check the setting during the first meters of field work and repeat the setting process if necessary.

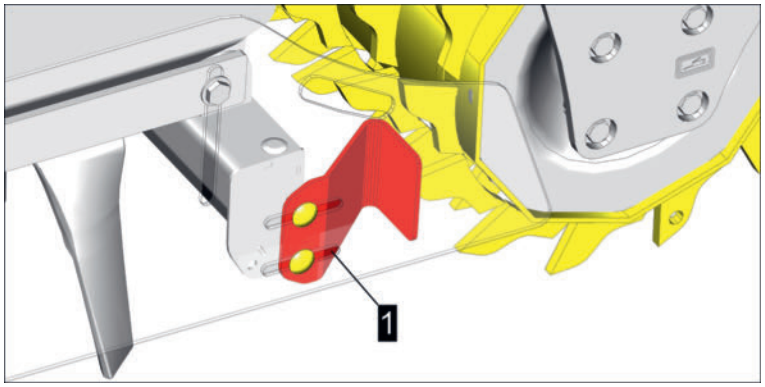
Setting the guiding plate

The guiding plate (1) is used to prevent dam formation in the edge area of the trailer, can be adjusted horizontally on the side plates and must be adapted to the trailer when it is changed.

NOTICE

Damage to guiding plates, side plates and trailers!

► Set the distance of the guiding plates to the trailer so that the guiding plates cannot collide with the trailer.

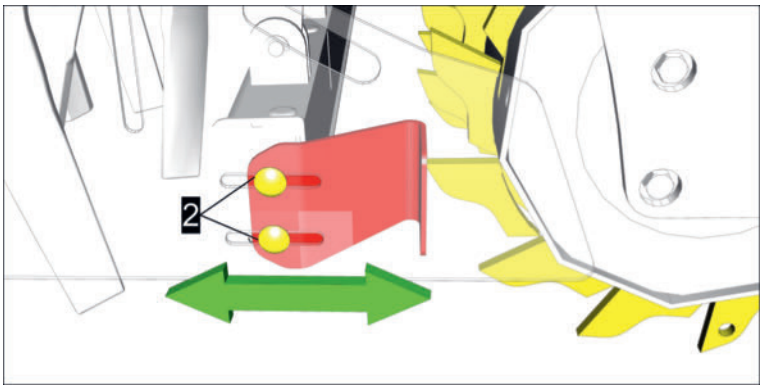


TIP

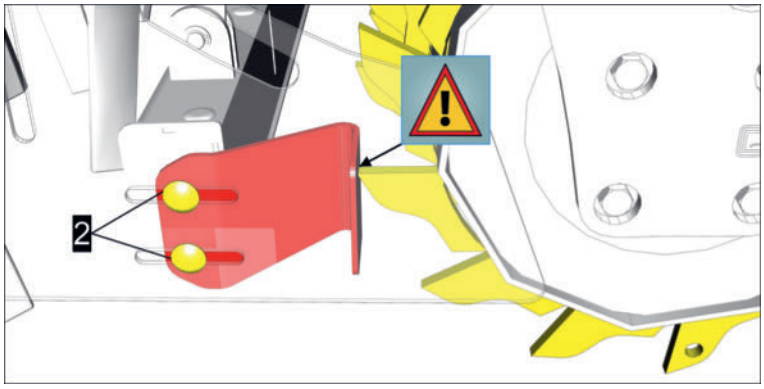
The setting of the guiding plate is shown below on the left side of the machine and based on a trailer with packer roller as an example.

Implementation

► Loosen the screws (2) and move the guiding plate (1) horizontally if necessary.



▷ Move the guiding plate so that it will not collide with the trailer during operation! Retighten the screws (2).



► Perform the same process on both sides of the machine.

Impact rail working depth setting

The machine is equipped with a rear impact rail (front impact rail = option) at the factory. The height of the impact rails can be adjusted manually (in 1.18 inch increments).

TIP

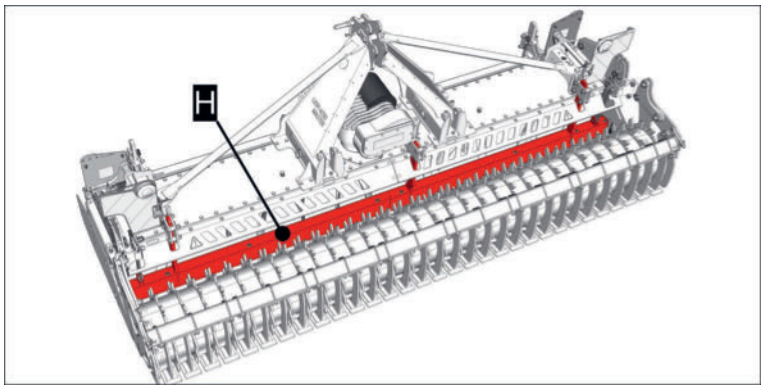
The rear impact rail is used to keep chunks of soil (clods) in the area of the rotors until they have been sufficiently crushed.

The working depth of the rear impact rail is to be set so that the desired degree of crumbling is achieved and the ground leveling keeps the drive torque on the trailer as low as possible.

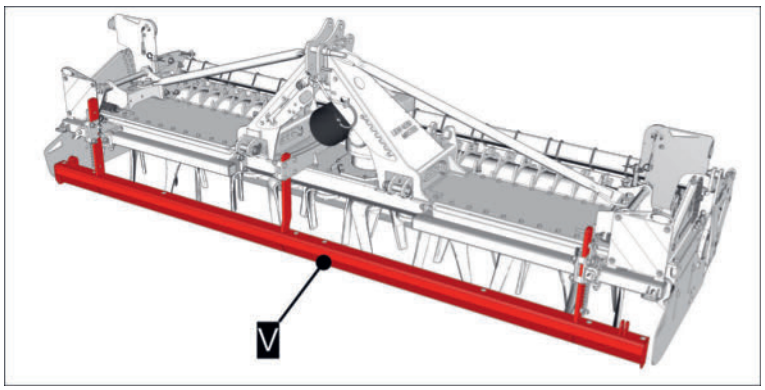
TIP

The front impact rail is used to smooth out uneven ground.

The working depth of the front impact rail is to be set so that it always pushes a small mound of soil in front of it in the center. Thus there is always material available to level out any unevenness.



Rear impact rail (series)

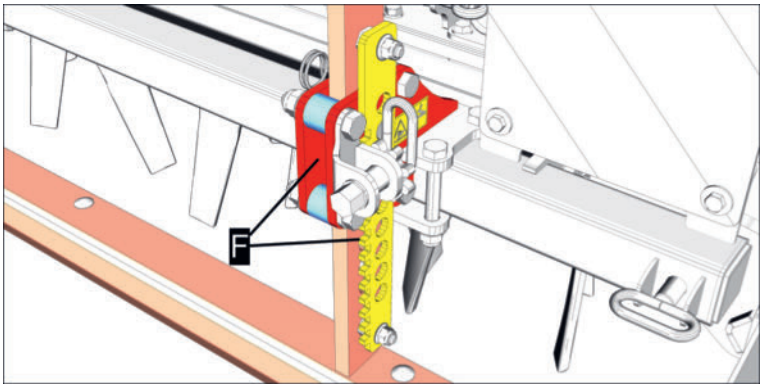


1 = Front impact rail (option)

Cannot be used together with the track loosener.

Prerequisites

- Machine completely attached to a suitable tractor and secured.
- Any attached seed drill swung into working position.
- The machine must be in the field and already be in working position at the desired working depth during operation.
  Perform the setting on a section of the field that is as level as possible.
- Machine parked in working position and secured against rolling away and unintentional commissioning.
- Impact rail guides (F) on both sides of the machine cleaned. This facilitates the setting and prevents jamming.



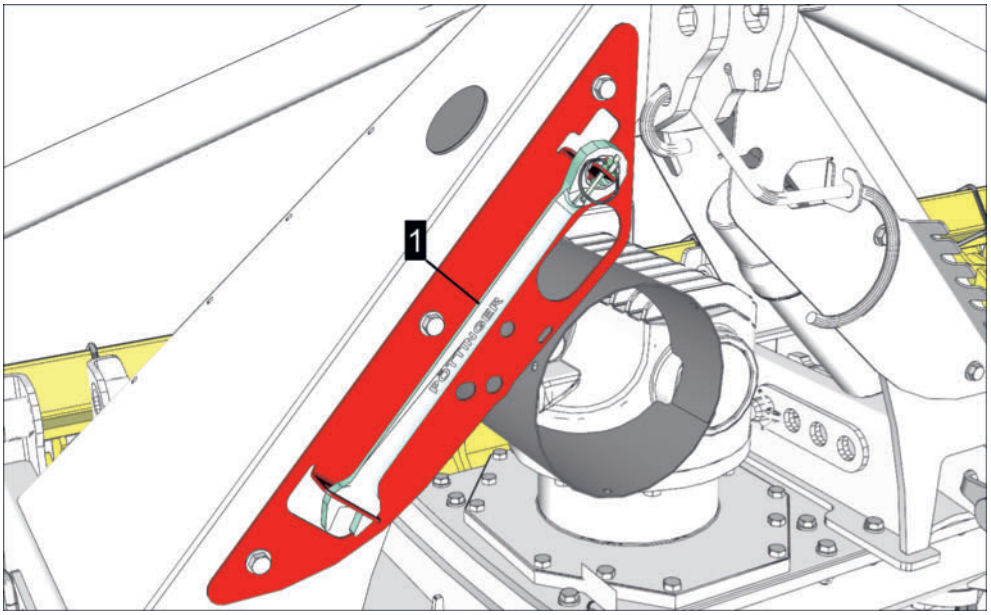
Setting the impact rails

TIP

The setting of the impact rails is shown below using the front impact rail as an example. The adjustment of the rear impact rail takes place the same way.

Implementation

► Remove the ratchet ring spanner (1) from the park position, store the linch pin.



► Remove the linch pin (2) on both sides of the machine.

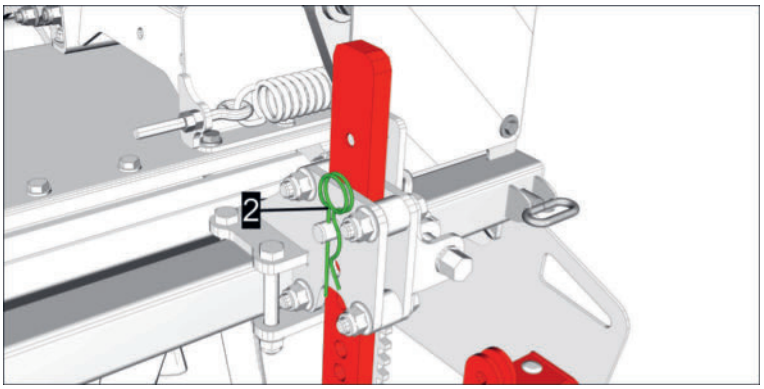
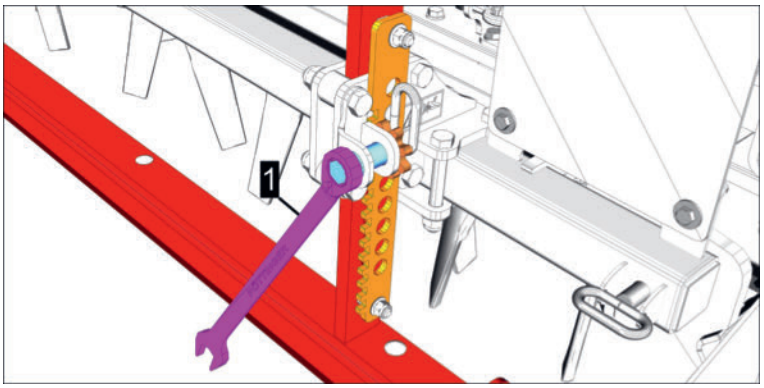
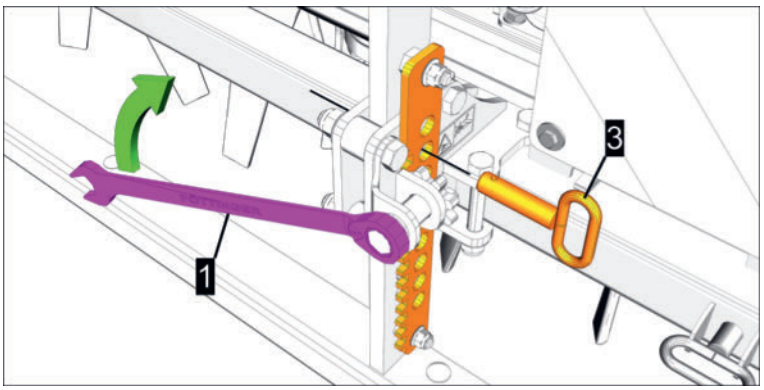


Fig.: Example of front impact rail on left side of the machine

► Insert the ratchet ring spanner (1) as shown and hold it with one hand.



► Remove the locking pin (3) with the other hand.



▷ If the locking pin cannot be removed, relieve the locking pin (3) by slightly lifting the impact rail with the ratchet ring spanner (1).

► Operate the ratchet ring spanner as needed and lift / lower the impact rail in small increments.

TIP

If the impact rail is adjusted in large increments, it can tilt in the guide!

▷ Insert the locking pin at the desired position.

► Remove the ratchet ring spanner and perform the setting on the opposite side of the machine in the same way and at the same pinning height.

► Reattach the linch pin to the locking pin.

► After completing the setting work, reattach the ratchet ring spanner in its park position and secure it with the linch pin.

Setting the Hydrolift

To prevent collisions between an assembled PÖTTINGER seed drill and the trailer of the rotary harrow, the Hydrolift can be adjusted to the soil cultivation machine and the respective trailer used.

TIP

The setting must be performed again when changing the trailer or changing the seed drill.

Prerequisite

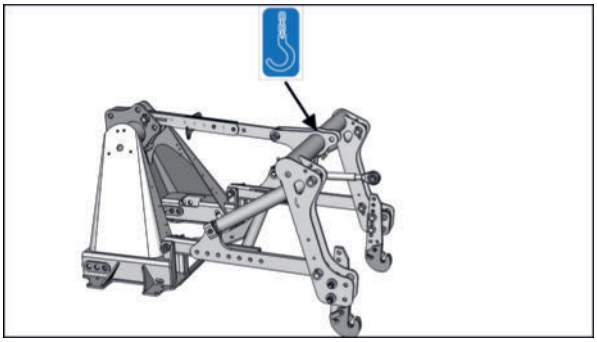
- Machine is parked on a level and stable surface and secured against rolling away.
- Hydrolift lowered into working position.
- Seed drill (if present) removed.

Implementation

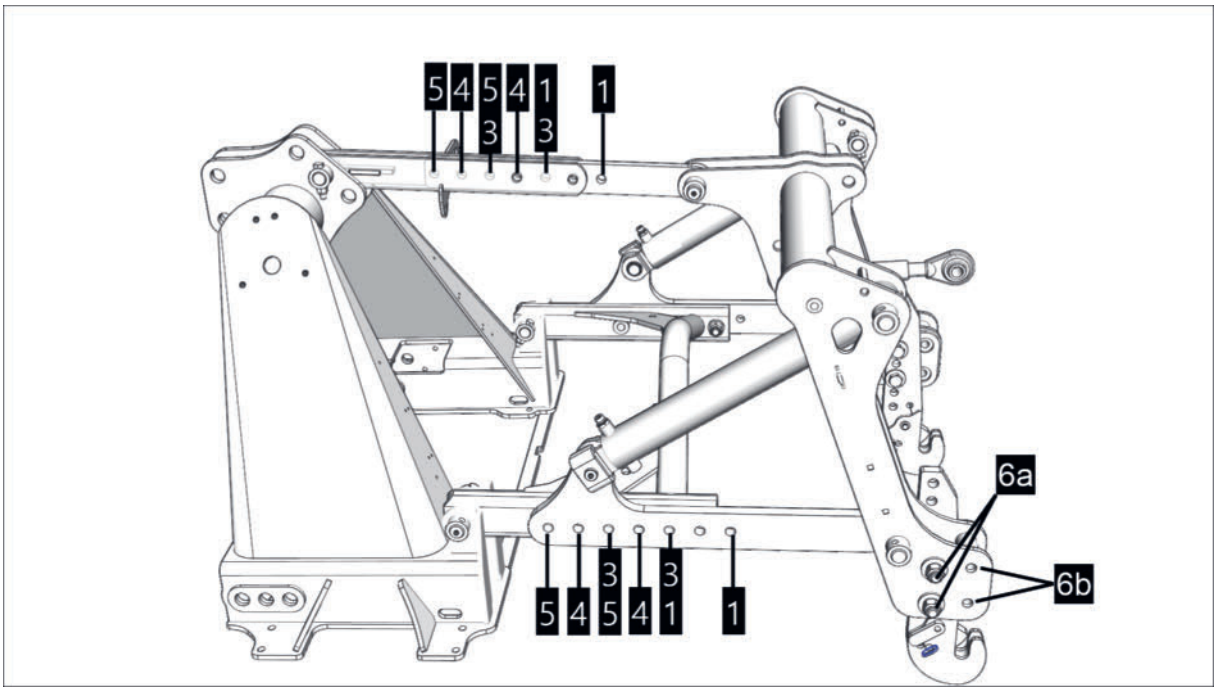
TIP

Always set the hole spacing the same on the upper and two lower support arms!

► Secure the Hydrolift at the point shown against unintentional lowering during assembly work using a lifting strap or suitable trestle.



► If necessary, reposition the spacing as shown in the figure.



1 - 6b = Assignment of the holes, see table below

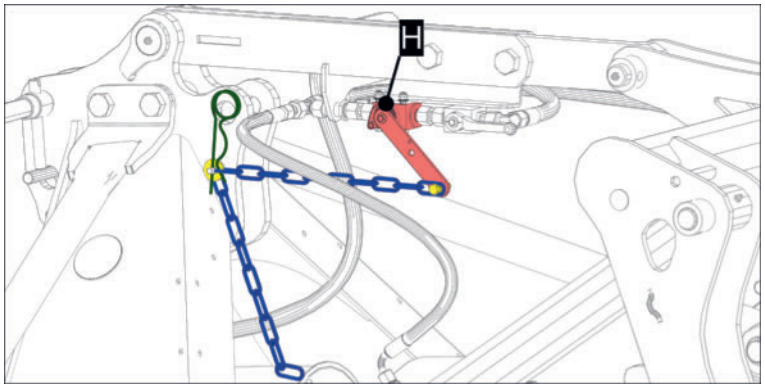
Assignment of the holes to machines and trailers

Hole num-bers	Machine	Trailer type	Trailer dimension
1	LION / FOX tine	Tooth packer roller	ø 16.54 inch
		Cage roller	ø 16.54 inch
		Cage roller	ø 21.26 inch
3	LION / FOX tine	Tooth packer roller	ø 19.69 inch
		Cutting packer roller	ø 21.65 inch
		Prism packer roller	ø 21.65 inch
	FOX disc	Tooth packer roller	ø 16.54 inch
		Cage roller	ø 16.54 inch
		Cage roller	ø 21.26 inch
4	LION / FOX tine	Tooth packer roller	ø 21.65 inch
		Crumbling packer roller	ø 20.67 inch
5	LION / FOX Tine	Rubber packer roller	ø 23.03 inch
		Prism packer roller	ø 23.62 inch
	FOX disc	Tooth packer roller	ø 19.69 inch
		Cutting packer roller	ø 21.65 inch
		Tooth packer roller	ø 21.65 inch
		Prism packer roller	ø 19.69 inch
		Crumbling packer roller	ø 20.67 inch
6a	Can be used with all of the above ma-chines	Can be used with all of the above trailers	Can be used with all of the above dimensions
6b	FOX disc	Tooth packer roller	ø 21.65 inch
		Prism packer roller	ø 19.69 inch
		Crumbling packer roller	ø 20.67 inch
	LION	Prism packer roller	ø 23.62 inch

► Tighten the screws using the torque wrench with 368.78 lbf-ft.

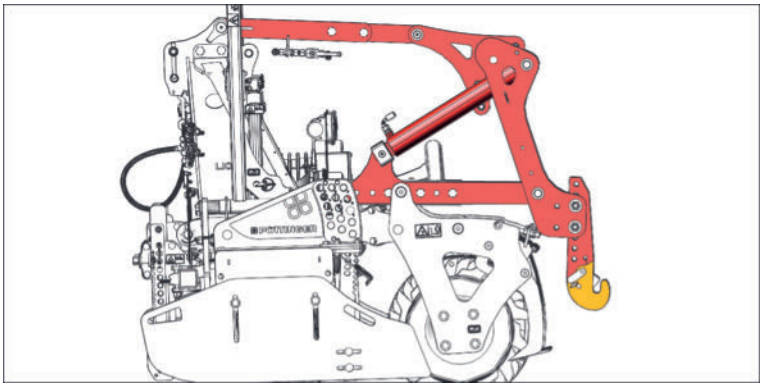
Setting the stroke limiter (option)

The stroke limiter (H) enables the maximum stroke of the Hydrolift to be limited to an adjustable range.



Prerequisites

- Machine parked in working position.
- Hydrolift lowered into working position.



- Machine secured against rolling away.
- Hydrolift (option) assembled.
- Stroke limiter (option) assembled.

Implementation

► Close the shut-off lever (A) for the transport lock.

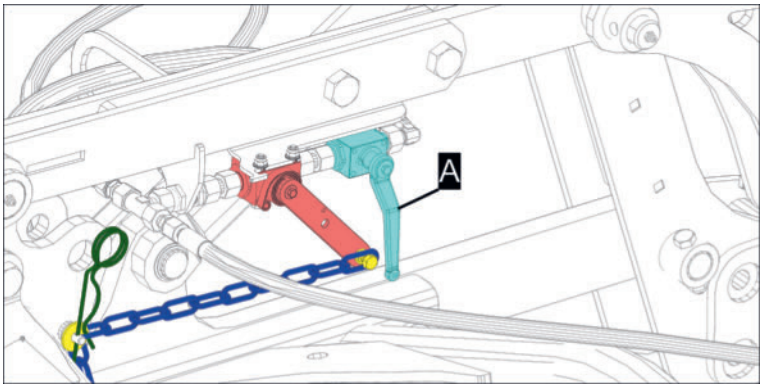
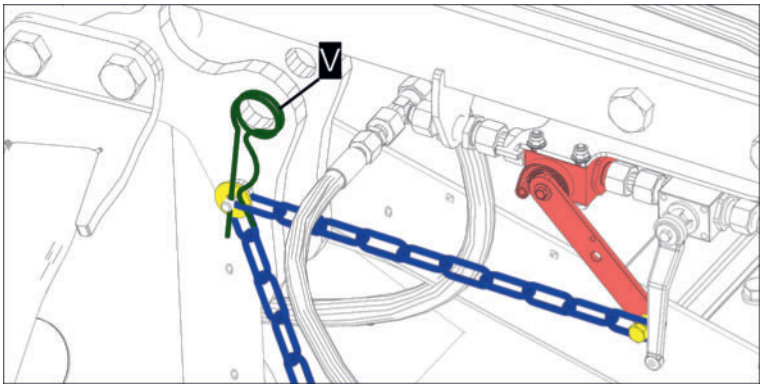
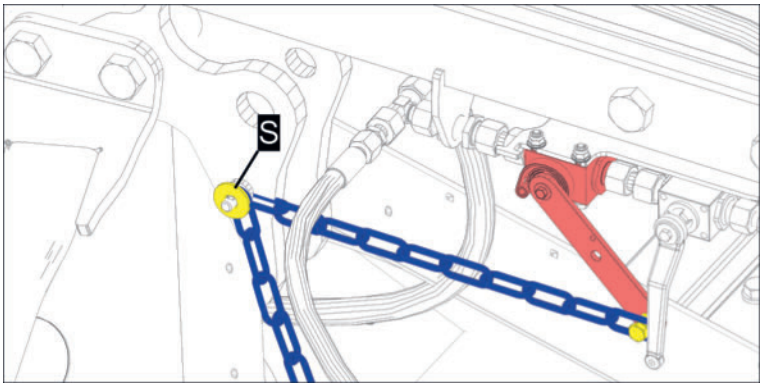


Fig.: Shut-off lever closed

► Remove the linch pin (V).



► Remove the washer (S).

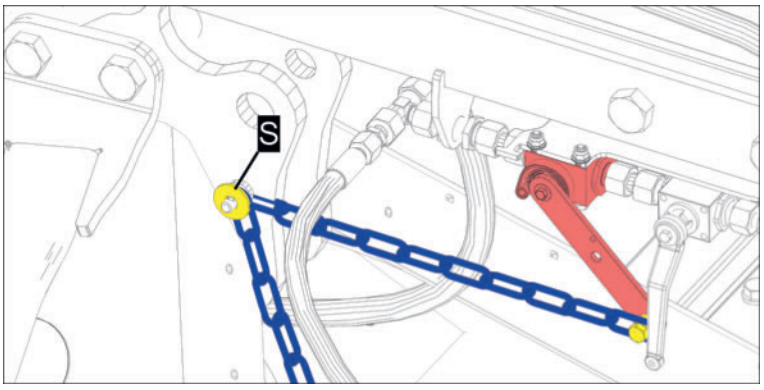


► Unhook the chain and reattach it one chain link longer / shorter.

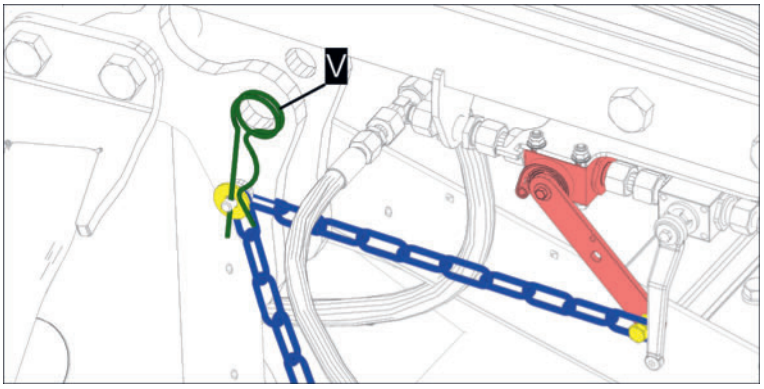
TIP

The longer the chain between the pinning position and the valve lever, the later the valve switches off and the higher the lifting height of the Hydrolift.

► Reattach the washer (S).



► Reattach the linch pin (V).



► Open the shut-off lever (A) for the transport lock and check the setting during a test run of the Hydrolift.

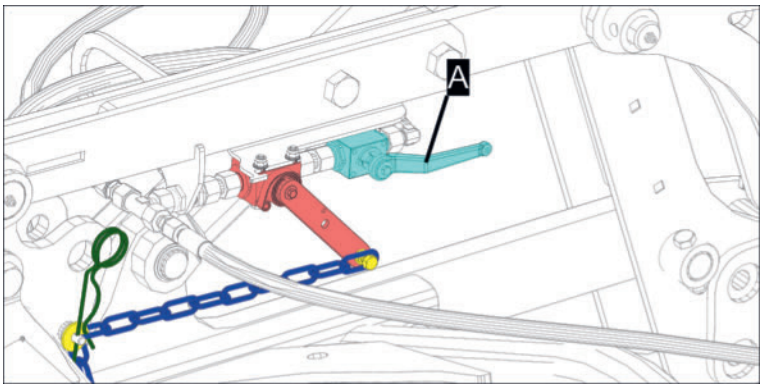


Fig.: Shut-off lever (A) open.

NOTICE

Collision of machine parts!

► Perform the test run slowly and under constant observation of possible collision points.

▷ If there are still possible collision points, repeat the setting process accordingly.

Activating / deactivating the stroke limiter

To deactivate the stroke limiter, attach the chain elsewhere as described below.

► Close the shut-off lever (A) for the transport lock.

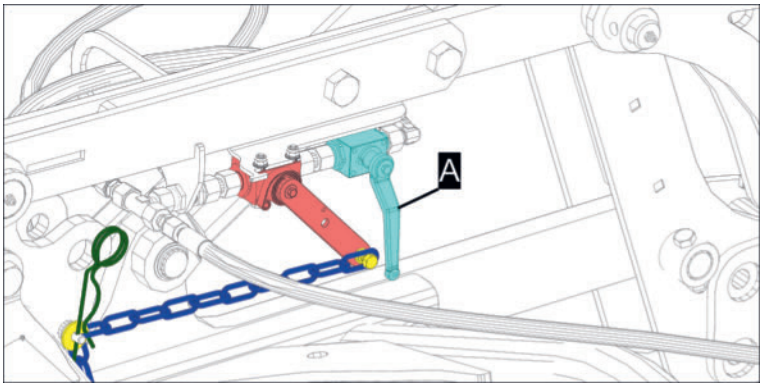
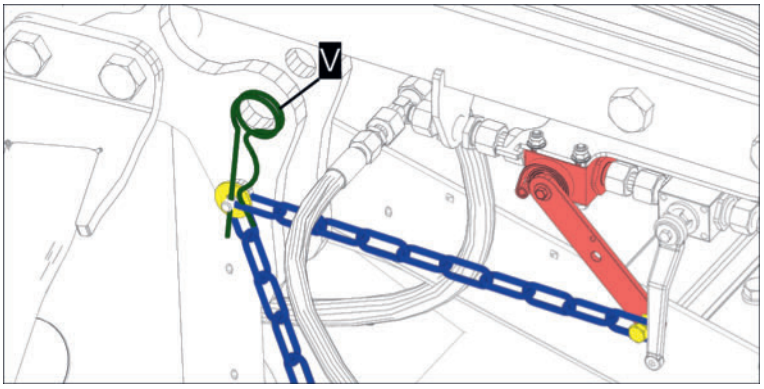
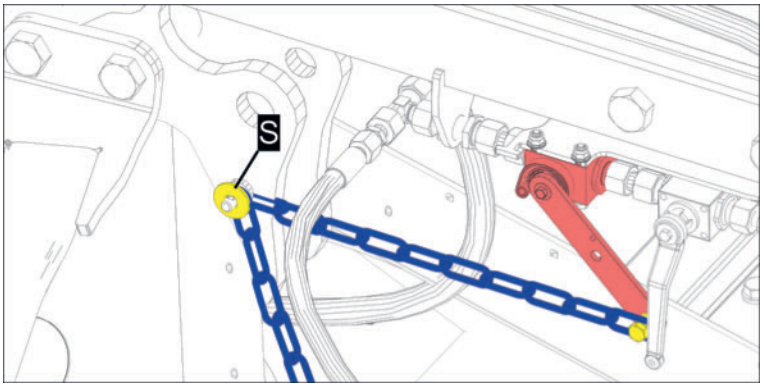


Fig.: Shut-off lever closed

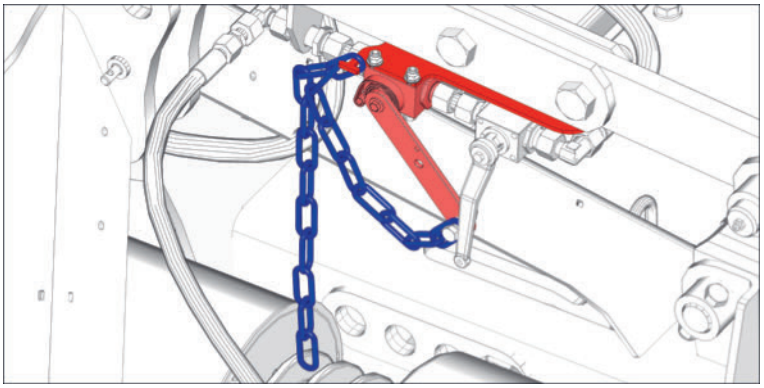
► Remove the linch pin (V)



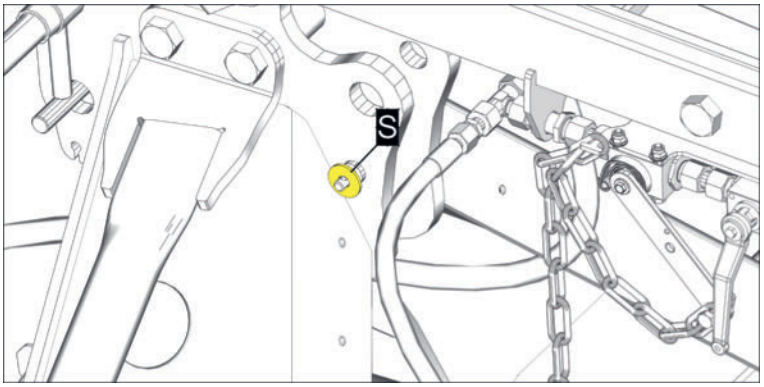
► Remove the washer (S).



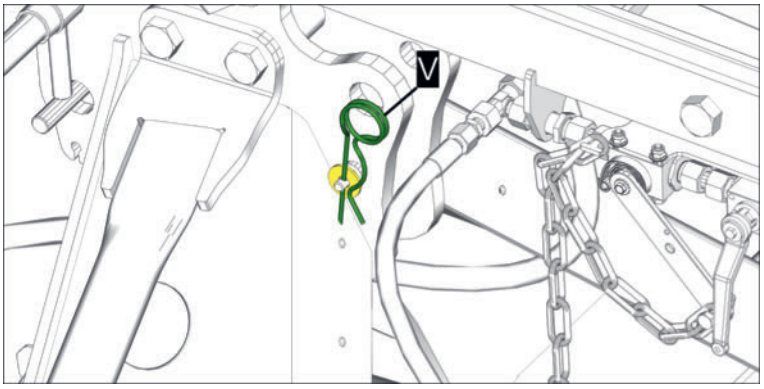
► Unhook the chain, and attach it to the hook (H) above the stroke limiter so that it cannot come loose and get caught on other machine parts.



► Reattach the washer (S).



► Reattach the linch pin (V).



► Open the shut-off lever (A) of the transport lock again if necessary.

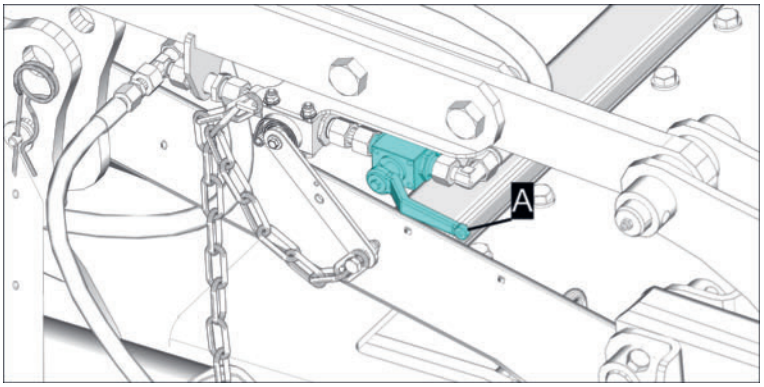


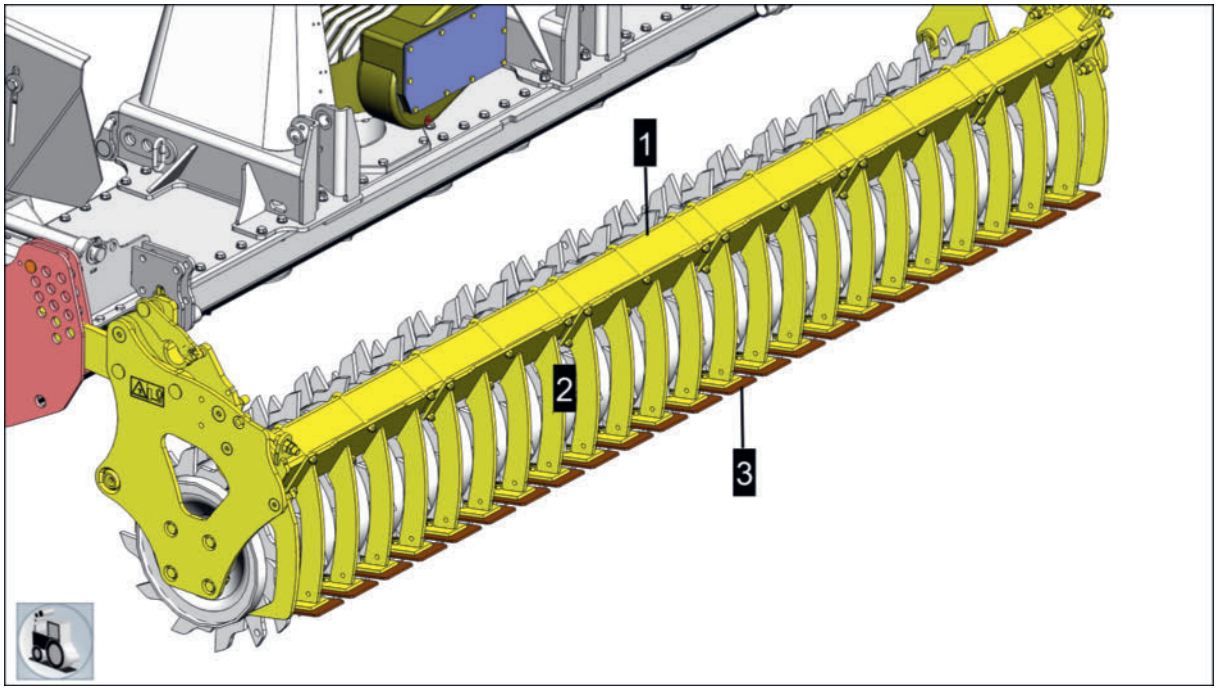
Fig.: Shut-off lever open

▷ Activate the stroke limiter: Carry out the process in reverse order.

Setting the scraper plates on the trailer

Scraper plates prevent soil from sticking to the spaces between the rollers.

The scraper plates can all be set at the same time via the adjustment mechanism on the scraper crossbeam, or individually per scraper.



1 = Scraper crossbeam

2 = Scraper holder

3 = Scraper plate

TIP

Adjustment is recommended when the cleaning effect of the scraper plates visibly decreases.

Individual setting of scraper plates is normally only carried out if individual scraper plates had to be replaced.

Setting the scraper crossbeam

Prerequisite

- Machine attached to a suitable tractor and properly secured.
- Any attached seed drills lifted and secured in transport position via Hydrolift or hydraulic top link.
- Any attached seed drill with manual top link removed from the soil cultivation machine.
- Machine is parked on a level and stable surface in working position and secured against rolling away.

Implementation

► Lift the machine using the rear power lift.

▷ The trailer is thereby unloaded and sinks downward.

► Lift the machine so that the trailer hangs freely and no longer rests on the ground

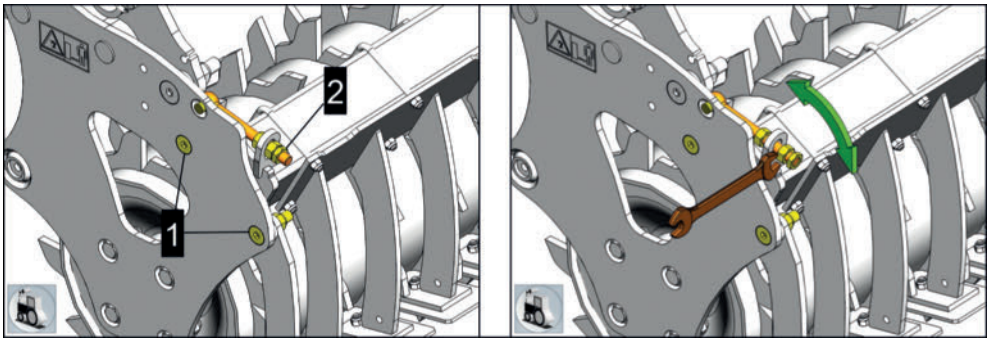
► Secure the machine with suitable supports against unexpected lowering and allow it to rest on the supports.

TIP

Support the machine on the frame and not the trailer, otherwise the trailer may not be able to be turned to check the setting.

► Turn off the tractor, apply the parking brake, remove and store the ignition key.

► Loosen the screws (1) on both sides of the machine.
Loosen the lock nuts (2) on both sides of the trailer.



► Twist the adjusting nuts on both sides of the machine and establish the desired distance (as small as possible) between the scraper plates and the roller.

► Rotate the roller as a check. The scraper plates may not brush against the roller.

► If necessary, correct the setting and check again.

► If the setting is correct, then retighten the lock nuts (2) and the loosened screws (1).

Setting the scraper plates individually

Implementation

1 Lift the machine and relieve the trailer until it no longer rests on the ground.

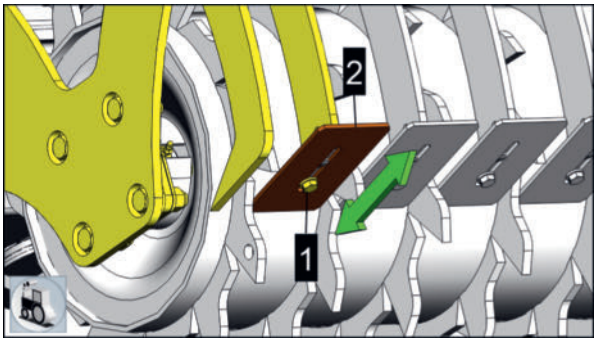
2 Secure the machine with suitable supports against unexpected lowering and allow it to rest on the supports.

TIP

Support the machine on the frame and not the trailer, otherwise the trailer may not be able to be turned to check the setting.

3 Turn off the tractor, apply the parking brake, remove and store the ignition key.

4 Loosen the screw (1) on the scraper plate.
Set the scraper plates (2) to the smallest possible distance from the roller without them brushing against the roller.



Symbolic illustration

5 Rotate the roller manually several times as a check. The scraper plates may not brush against the roller.

6 If necessary, correct the setting and check again.

7 Setting correct: Tighten the screws (1).

8 Perform the same process on each scraper plate.

Setting the track marker (option)

Seed change or changeover from drill seeding to precision seeding, and vice versa, may require adjustments.

The track marker (option) is used during seeding operation to alternately mark the next lane.

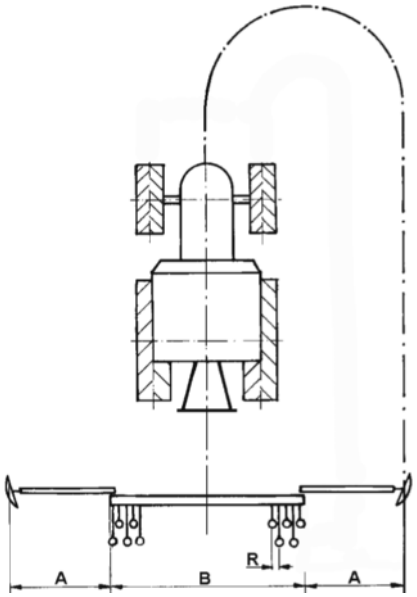
To set the track markers, first calculate the marking distance and then set the track markers to the calculated dimension.

TIP

Track markers installed on the soil cultivation machine (option) serve as a replacement for any missing track markers on the seed drill. During solo operation of the soil cultivation machine, the track markers are not normally needed / used.

Track marker marking distance calculation

Marking distance to “center of tractor”



Calculation example:
Setting distance A = (B + R) / 2
Working width B = 118.11 inch
Row spacing R = 4.92 inch
A = (118.11 inch + 4.92 inch) / 2 = 61.52 inch
The setting distance A is approx. 61.42 inch

Setting the track marker marking distance

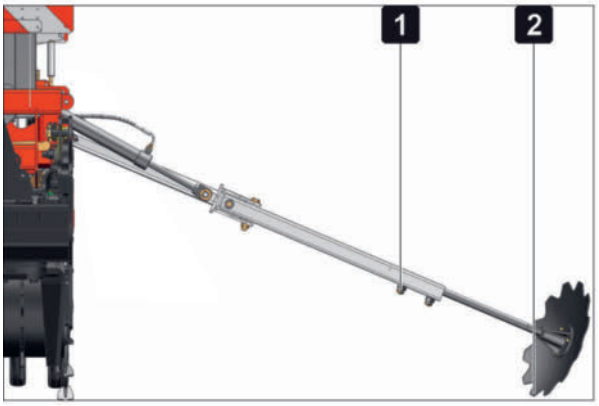
Prerequisites

- Machine completely attached to a suitable tractor and secured.
- Tractor and machine parked on a level and stable surface in working position and secured against rolling away.
- One of the two track markers is lowered into working position.
- Transport lock on both tracker markers deactivated.
- Before all work on the machine, tractor engine switched off, parking brake applied, ignition key removed and stored.

Implementation

1 Remove the transport lock on both tracker markers.

2 Loosen the fastening screws (1) of the marking disc (2).



Symbolic illustration

3 Set the marking disc (2) to the calculated marking distance for this machine side.

4 Tighten the fastening (1) that was loosened earlier.

5 Carry out the setting on the opposite track marker in the same way.

▷ The shearing action of the marking disc can then be adjusted to the soil conditions.

TIP

The most appropriate setting must be determined during operation.

Setting the track marker marking disc

If the marked track is difficult to see, set the marking disc more aggressively.

TIP

Adjusting the marking disc also adjusts the track width to be marked. Measure the marking distance again and correct if necessary.

NOTICE

Collision of machine parts!

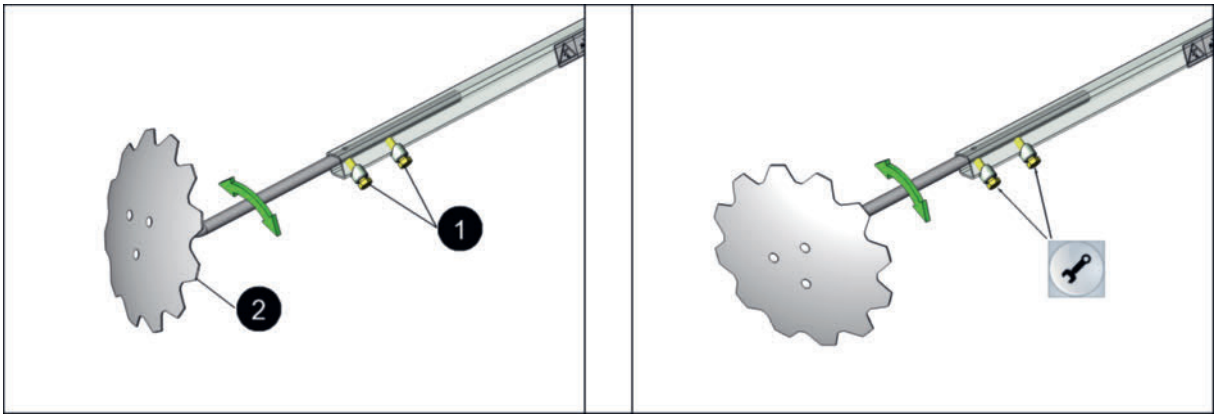
On seed drills with a seed hopper attachment, certain marking disc settings could cause the marking disc to collide with the seed hopper.

► Pay attention to the risk of collision when the track markers are folded up. Adjust the marking disc setting such that the marking disc cannot collide with the seed tank attachment.

► Set the marking discs such that they are not in contact with the seed tank in the road transportation position/headland position.

Implementation

1 Undo the hexagon head screws (1) on one of the two track markers.



2 Adjust the marking disc (2) as required.

3 Tighten the hexagon head screws (1).

4 Perform the same setting on both sides of the machine.

TIP

The most appropriate setting must be determined during operation.

Functional expansion through additional machines

Install possible additional machines according to the manufacturer's specifications.

NOTICE

Damage due to overloading!

If additional machines are assembled, the carrier machine and the tractor may be damaged due to overloading.

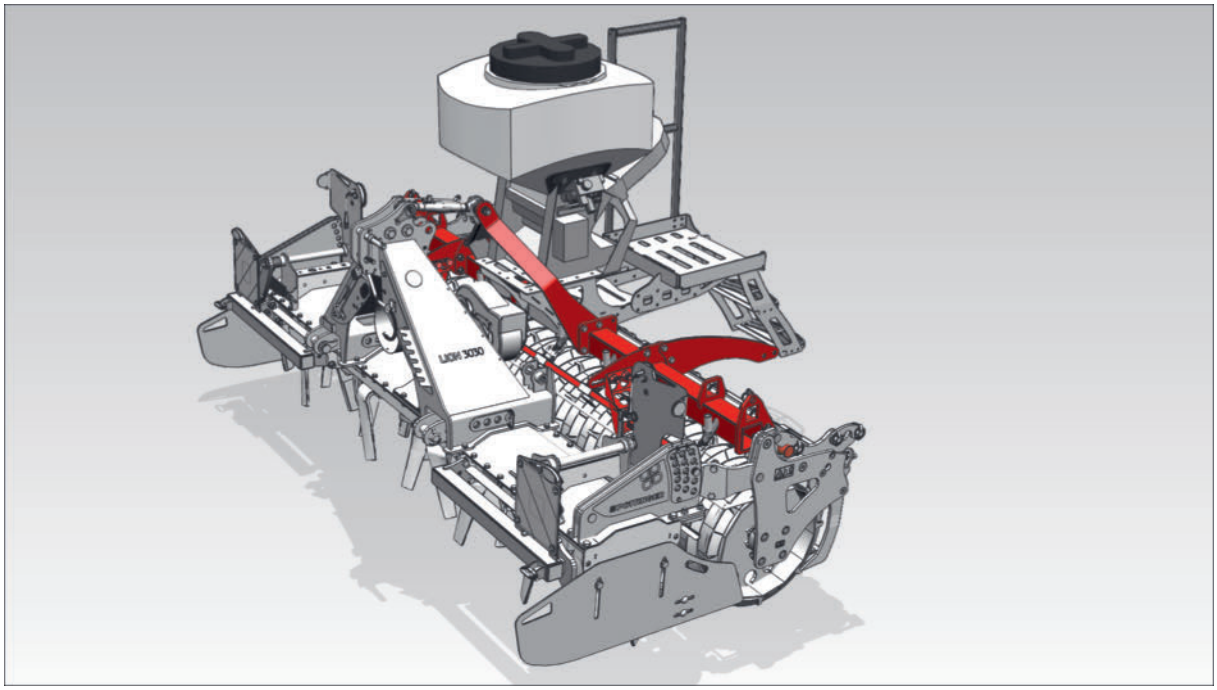
► Do not overload the carrier machine. If case of doubt, consult PÖTTINGER customer service.

► Observe the performance limits of the tractor used.

Assembling the TEGOSEM catch crop seed drill on the trailer

The assembly of a TEGOSEM seed drill (with manual top link) on a soil cultivation machine with a prism packer roller is described below.

The assembly takes place the same way on all PÖTTINGER trailer types.



TIP

The top link suitable for the respective PÖTTINGER seed drill and the respective trailer roller diameter must be used for attachment, according to the table below.

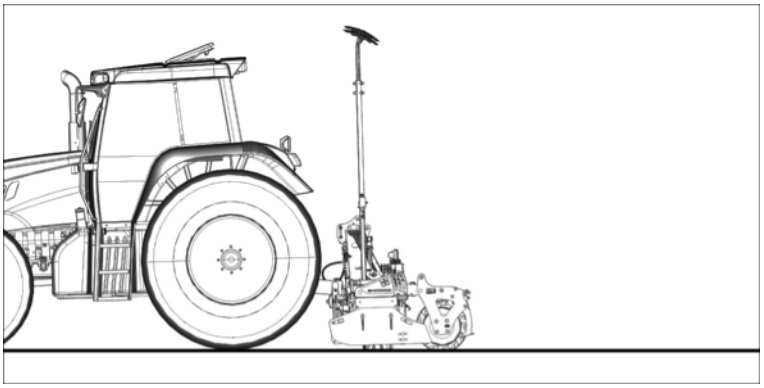
Mechanical top link

	Trailer roller diameter	VITASEM	AEROSEM	TEGOSEM
LION	to 21.65 inch	17.8 inch to 26.77 inch	11.81 inch to 14.96 inch	17.8 inch to 26.77 inch
	from 22.05 inch		17.8 inch to 26.77 inch	11.81 inch to 14.96 inch

Set up the seed drill

Prerequisites

- Soil cultivation machine completely attached to a suitable tractor and secured.
- Hydraulic / mechanical top link (option) assembled on the seed drill.
- Tractor and soil cultivation machine parked on a level and stable surface in working position and secured against rolling away.



- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.
- Auxiliary pins (for solo operation of the soil cultivation machine without assembled AER-OSEM / VITASEM seed drill) inserted on both sides of the machine and secured with linch pins as shown.

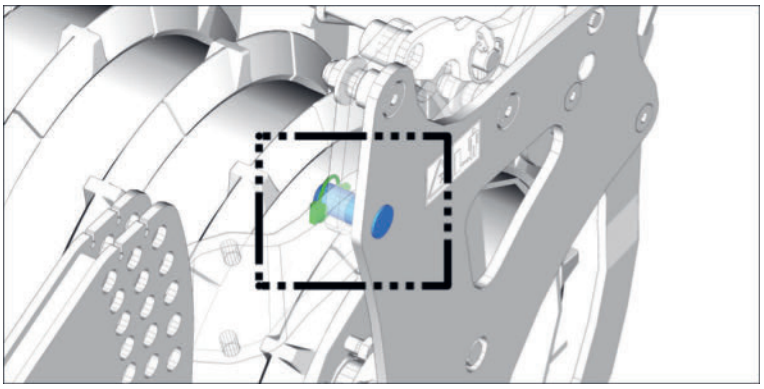
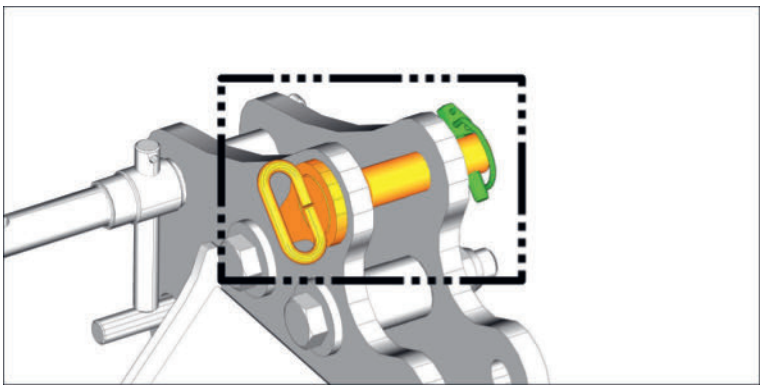


Fig.: Example of the left side of the machine

- The locking pin for the top link is on the headstock of the soil cultivation machine and secured with a linch pin, as shown.



- Mount for the seed drill attached on both sides of the machine, as shown.

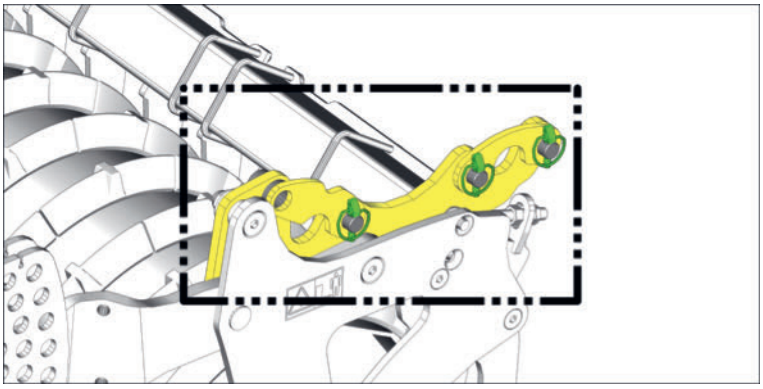
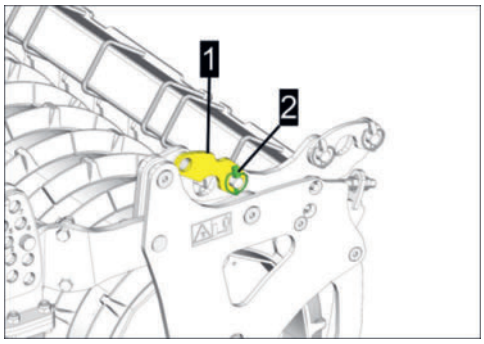


Fig.: Example of the left side of the machine

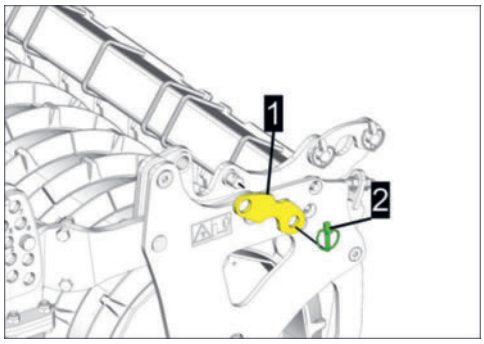
- Rear lighting /if necessary) removed on the soil cultivation machine. See "Repositioning the lighting supports" on page 114.

Implementation

1 Open the lock on the trailer on both sides of the machine: Remove the linch pin (2) and lock (1) and keep them to hand.

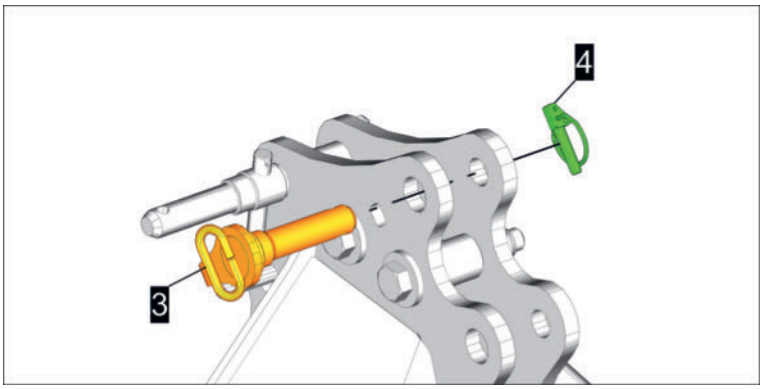


Locking closed

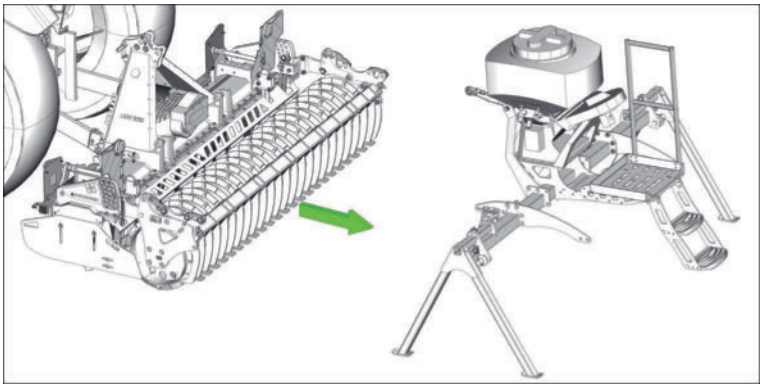


Locking removed

2 Remove the linch pin (4) and top link locking pin (3) on the headstock of the soil cultivation machine and keep handy.



3 Lift the soil cultivation machine slightly using the rear power lift and drive it to the seed drill as shown.



4 Slowly thread the soil cultivation machine under the seed drill, taking possible collisions into account, and align the guide pin on the seed drill with the guide recess on the trailer on both sides of the machine.

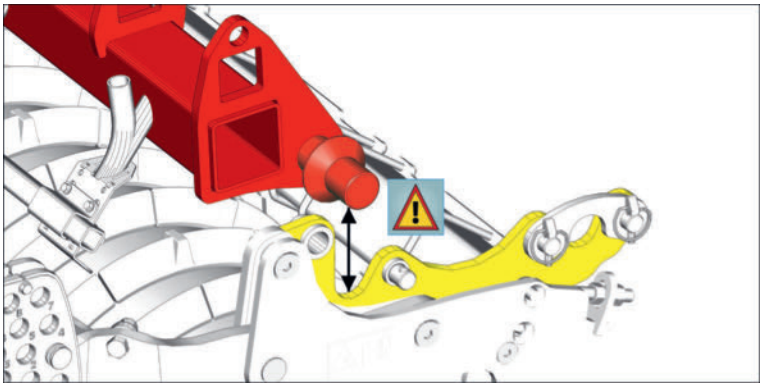


Fig.: Example of the left side of the machine.

Parking supports of the seed drill hidden.

5 Lift the soil cultivation machine using the rear power lift so that the guide pin of the seed drill rests fully on the guide recess on both sides of the machine as shown below.

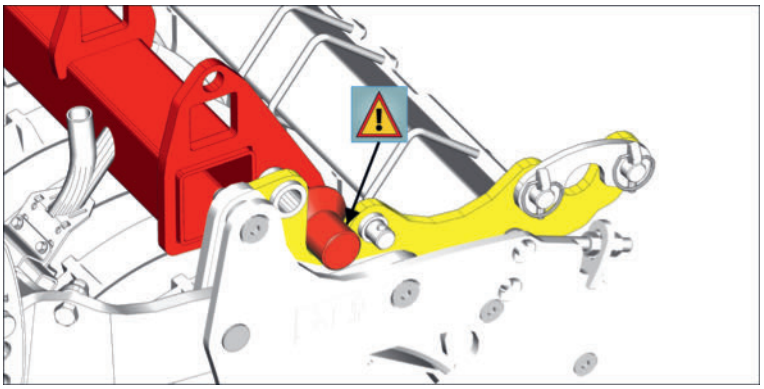
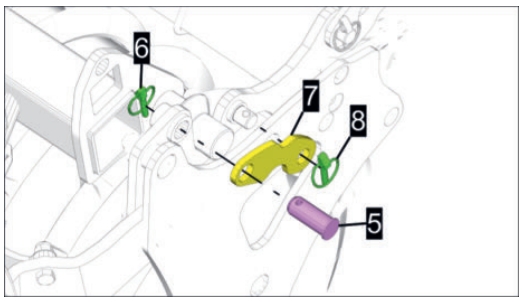
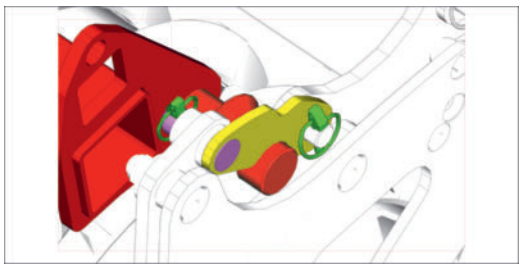


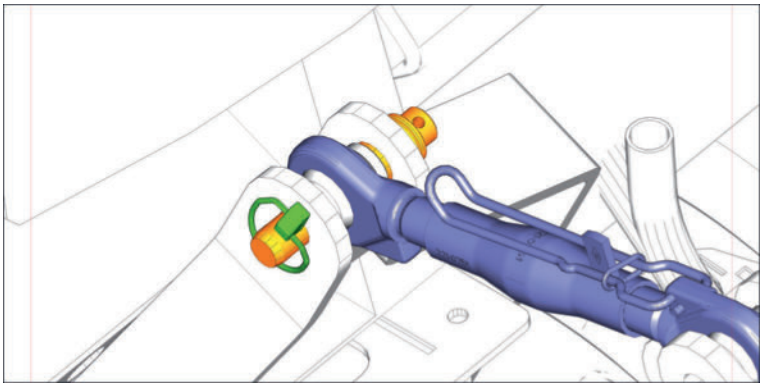
Fig.: Example of the left side of the machine

6 Attach the bolt (5) and linch pin (6) [included in the scope of delivery of the seed drill], locking (7) and linch pin (8) on both sides of the machine as shown.

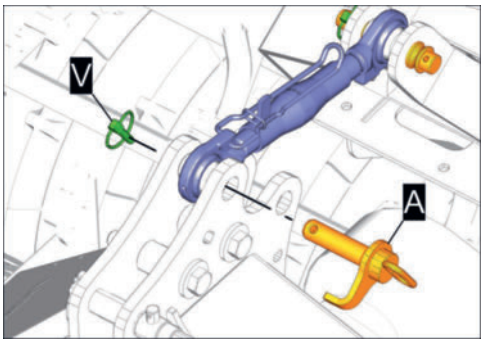


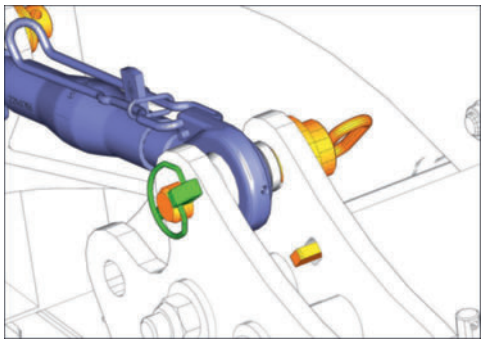


7 Attach the top link to the seed drill, attach the locking pin and secure with linch pin as shown.



▷ Attach the top link on the headstock of the soil cultivation machine, attach the locking pin (A) and secure it with the linch pin (V) as shown.





8 Establish all hydraulic, electrical and mechanical connections of the seed drill to the tractor and to the soil cultivation machine. See operating instructions for the seed drill.

9 Attach rear lighting to the seed drill. See "Repositioning the lighting supports" on page 114.

10 Lift the soil cultivation machine using the rear power lift / tractor top link so that the parking supports of the seed drill no longer rest on the ground.

11 Remove the linch pin (V) on both sides of the machine so that the parking supports (A) can be removed.

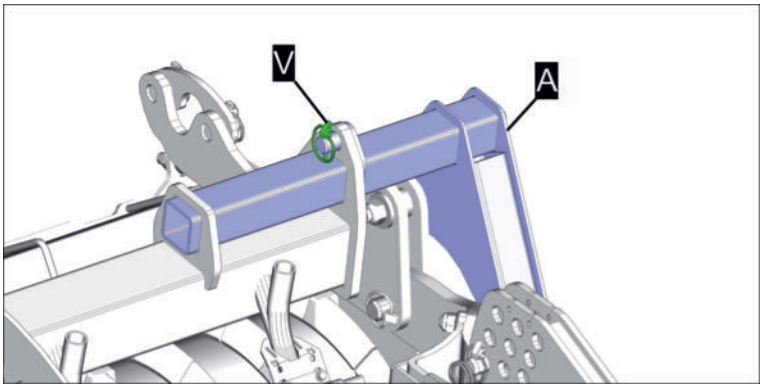


Fig.: Example of the left side of the machine

12 Pull the parking supports on both sides of the machine out to the side, and store them with the previously removed linch pins.

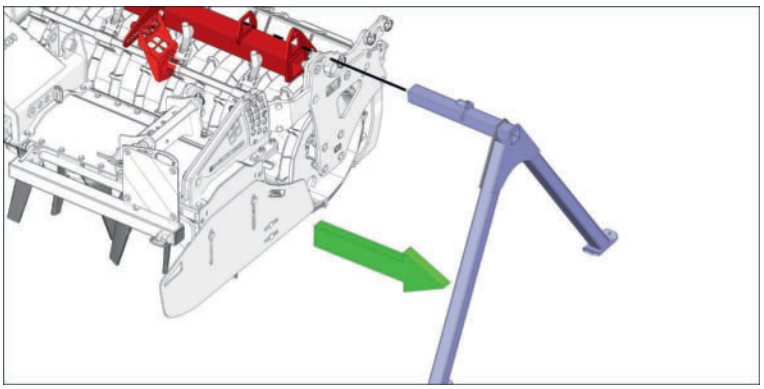


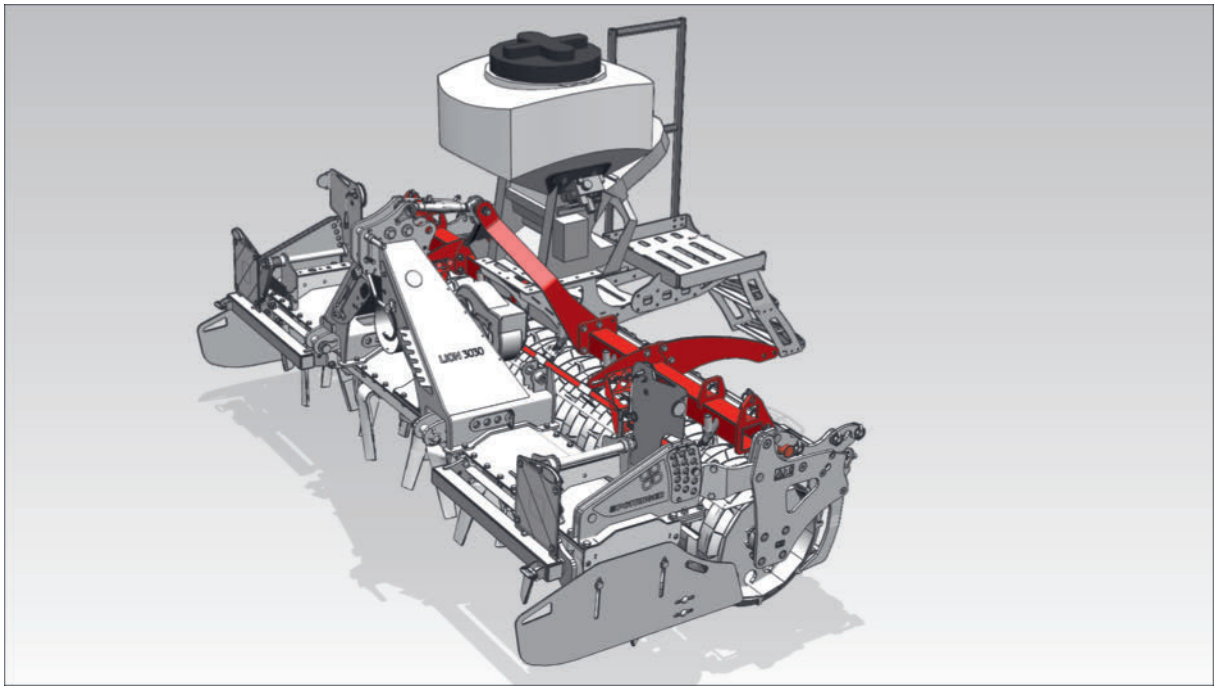
Fig.: Example of the left side of the machine

▷ The inclination of the seed drill to the soil cultivation machine can then be set via the top link. See operating instructions for the seed drill.

Removing the TEGOSEM catch crop seed drill from the trailer

The removal of a TEGOSEM seed drill (with manual top link) from a soil cultivation machine with a prism packer roller is described below.

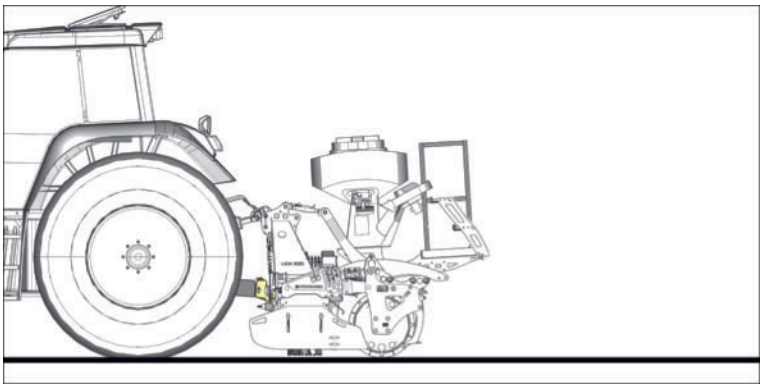
The removal takes place the same way on all PÖTTINGER trailer types.



Removing the seed drill

Prerequisites

- Machine combination completely attached to a suitable tractor and secured.
- Tractor and machine combination parked on a level and stable surface in working position and secured against rolling away.



- Auxiliary pins (for solo operation of the soil cultivation machine without assembled AEROSEM / VITASEM seed drill) inserted on both sides of the machine and secured with linch pins as shown.

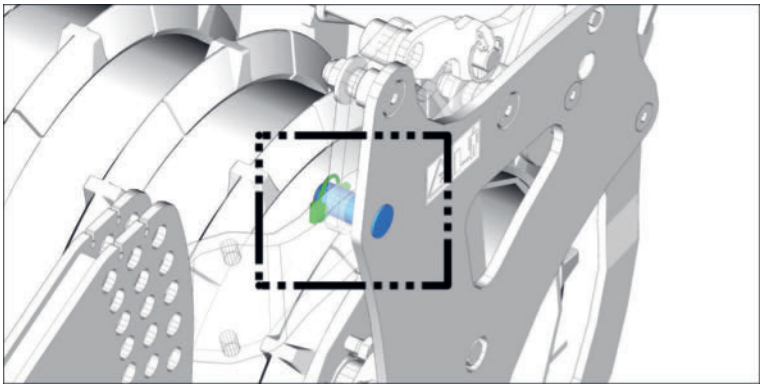
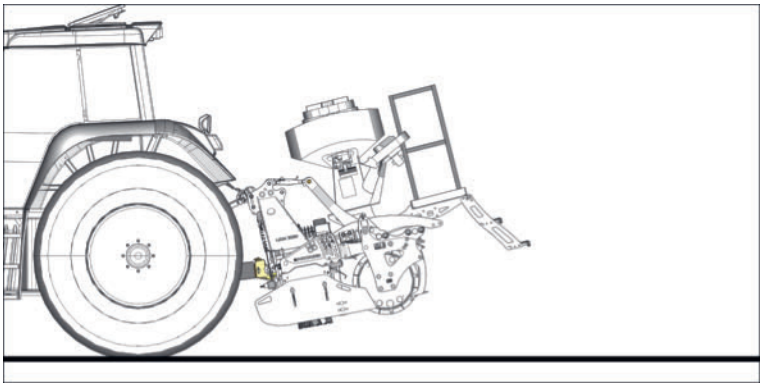


Fig.: Example of the left side of the machine

- Rear lighting (if necessary) removed on the seed drill. See "Repositioning the lighting supports" on page 114.
- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.

Implementation

1 Raise the machine combination with the rear power lift.



2 Attach the parking supports on both sides of the machine and secure with linch pins.

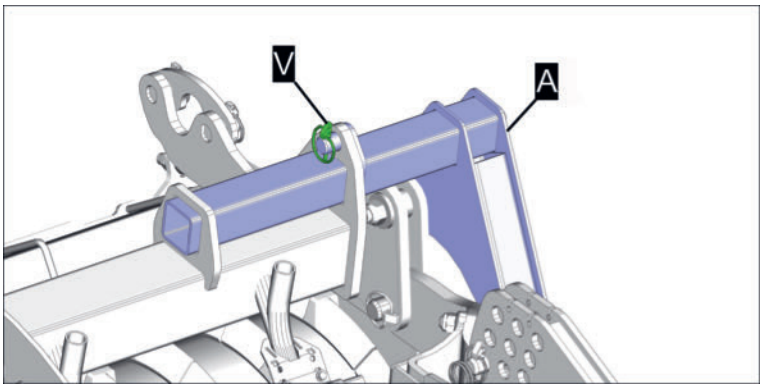
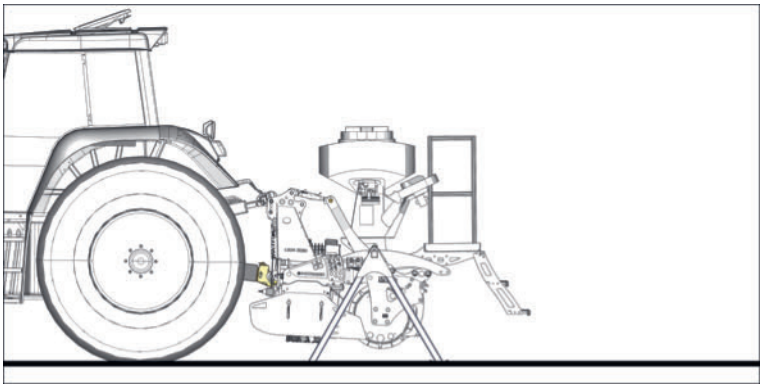


Fig.: Example of the left side of the machine

3 Actuate the rear power lift / tractor top link and place the machine combination on the parking supports.

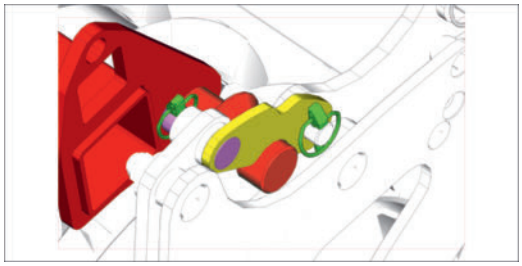


4 Disconnect all hydraulic, electrical and mechanical connections of the seed drill to the tractor and to the soil cultivation machine (e.g. cardan shaft). See operating instructions for the seed drill.

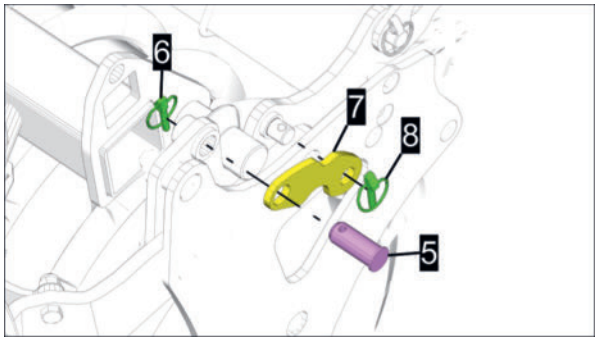
5 Remove the linch pin (6), bolt (5) [included in the scope of delivery of the seed drill], linch pin (8), locking (7) on both sides of the machine as shown.

TIP

If necessary, lift the machine combination slightly using the rear power lift to relieve the locking.

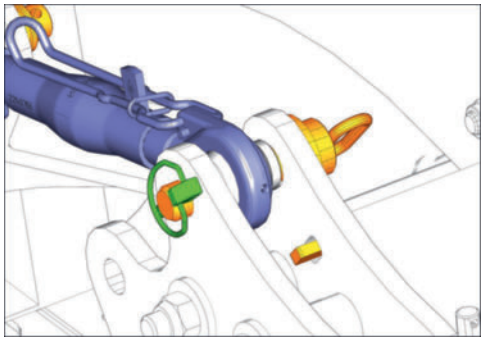


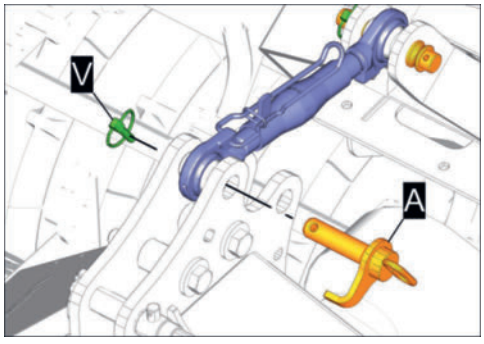
Example of the left side of the machine



Example of the left side of the machine

6 Relieve the top link, remove the linch pin (V) and locking pin (A) on the headstock of the soil cultivation machine, and swing the top link to the seed drill.





7 Actuate the rear power lift / tractor top link and lower the soil cultivation machine so that the guide pins of the seed drill are unthreaded from the guide recesses on both sides of the machine as shown below.

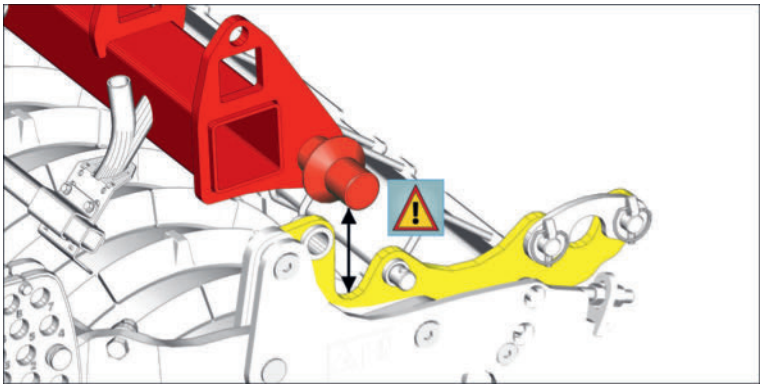
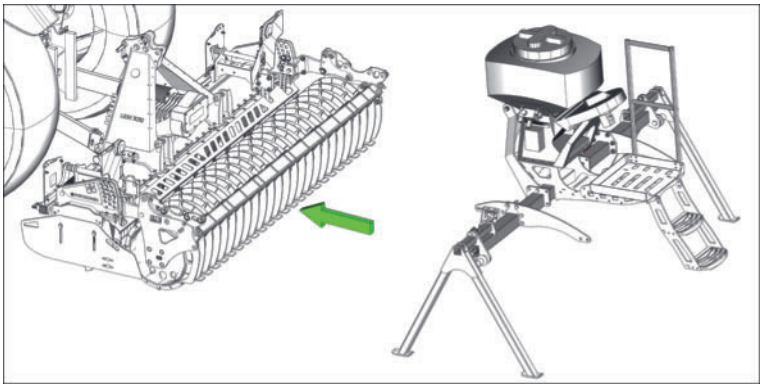
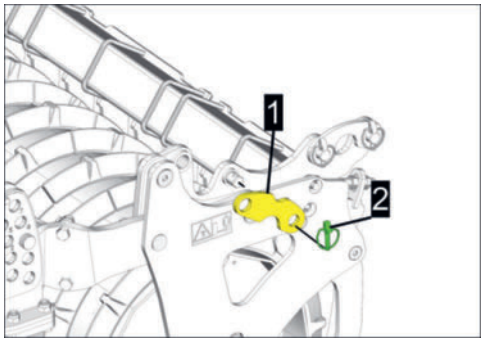


Fig.: Example of the left side of the machine.
Parking supports of the seed drill hidden.

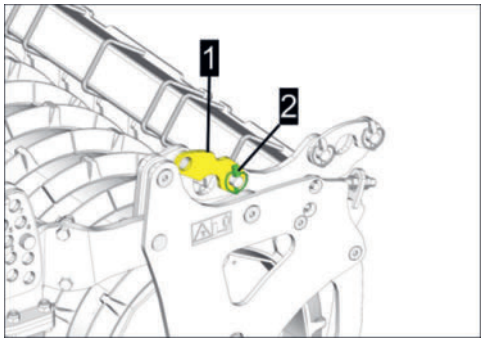
8 Drive away from the seed drill, paying attention to possible collisions.



9 Reattach the linch pin (2) and locking (1) on both sides of the machine on the trailer as shown.



Locking removed



Locking assembled

10 Attach rear lighting (if necessary) to the soil cultivation machine. See "Repositioning the lighting supports" on page 114.

Assemble the seed drill on the trailer

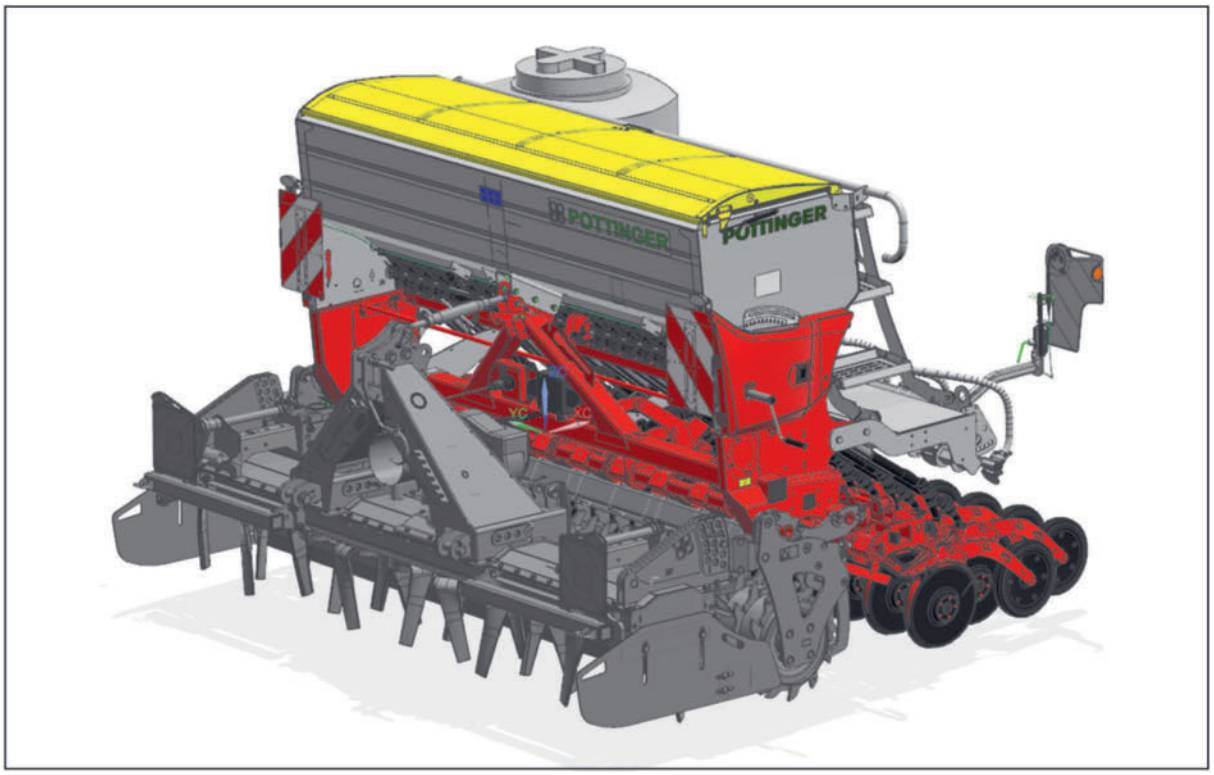
The assembly of a Vitasem seed drill (with hydraulic top link) on a soil cultivation machine with a prism packer roller is described below.

TIP

The assembly takes place **in the same way on all PÖTTINGER trailer types**, with **all PÖTTINGER seed drills** with mechanical or hydraulic top link **intended for this method of attachment**.

TIP

This method of attachment is not intended for the attachment of **seed drills from other manufacturers**.



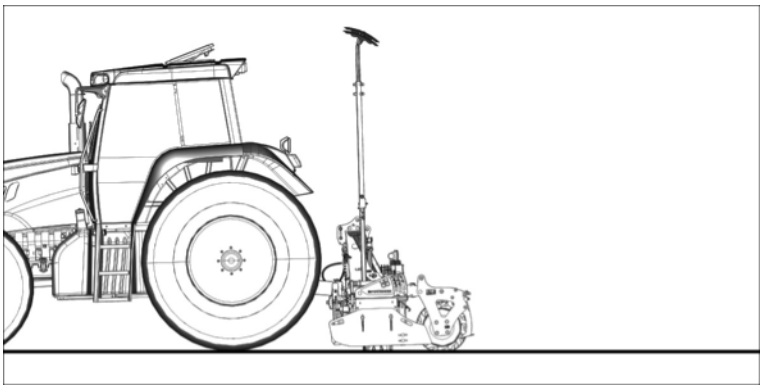
TIP

We recommend using a hydraulic top link between the soil cultivation machine and seed drill!

Set up the seed drill

Prerequisites

- Soil cultivation machine attached to a suitable tractor and secured.
- Hydraulic / mechanical top link (option) assembled on the seed drill.
- Tractor and soil cultivation machine parked on a level and stable surface in working position and secured against rolling away.



- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.
- Auxiliary pins (for solo operation of the soil cultivation machine without assembled AER-OSEM / VITASEM seed drill) inserted on both sides of the machine and secured with linch pins as shown.

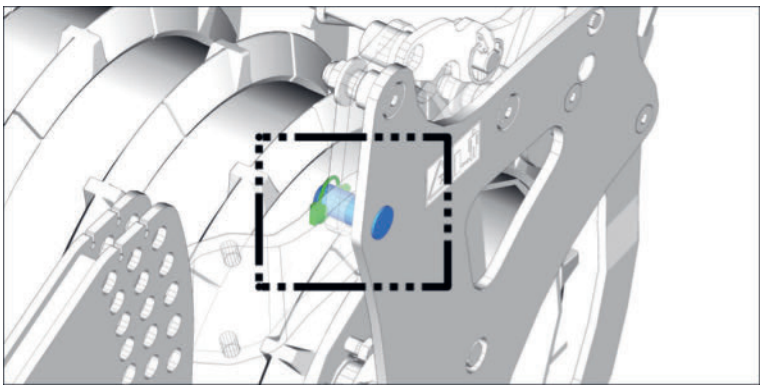
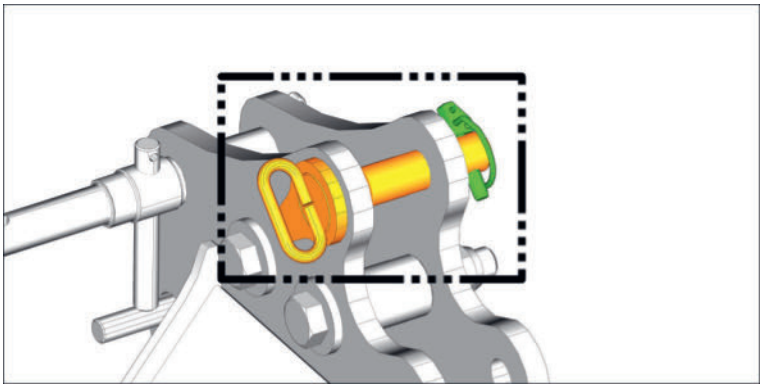


Fig.: Example of the left side of the machine

- The locking pin for the top link is on the headstock of the soil cultivation machine and secured with a linch pin, as shown.



- Mount for the seed drill attached on both sides of the machine, as shown.

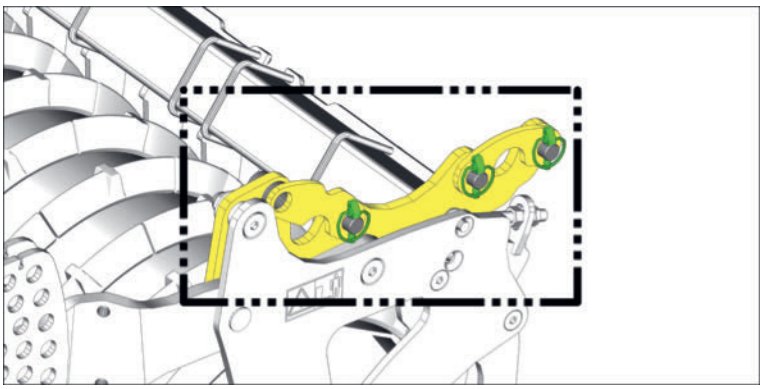
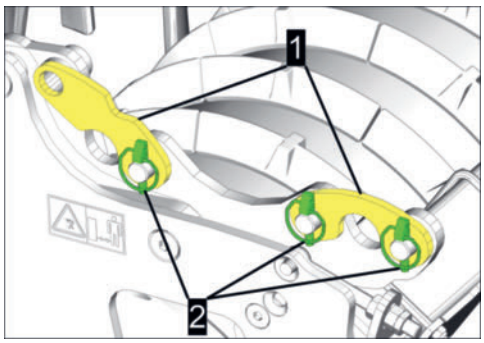


Fig.: Example of the left side of the machine

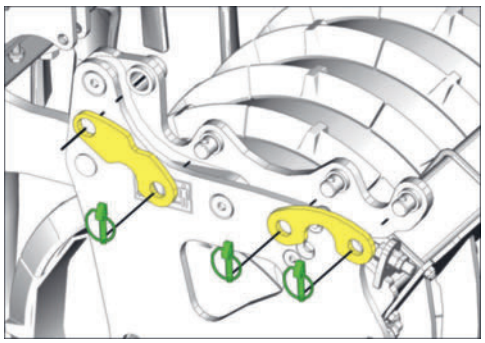
- Rear lights removed from the soil cultivation machine. See "Repositioning the lighting supports" on page 114.

Implementation

1 Open the lock on the trailer on both sides of the machine: Remove the linch pin (2) and lock (1) and keep them to hand.

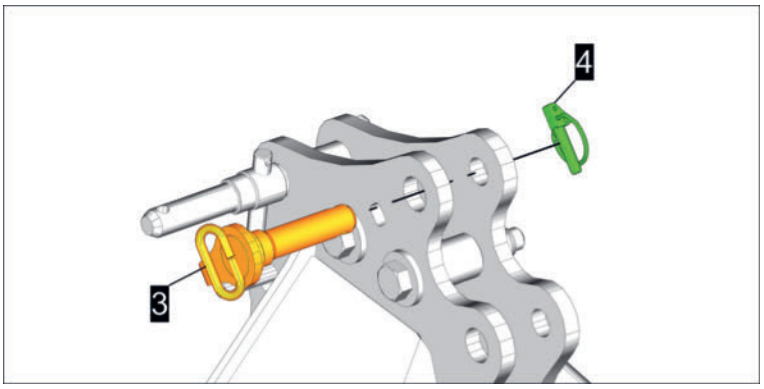


Locking closed

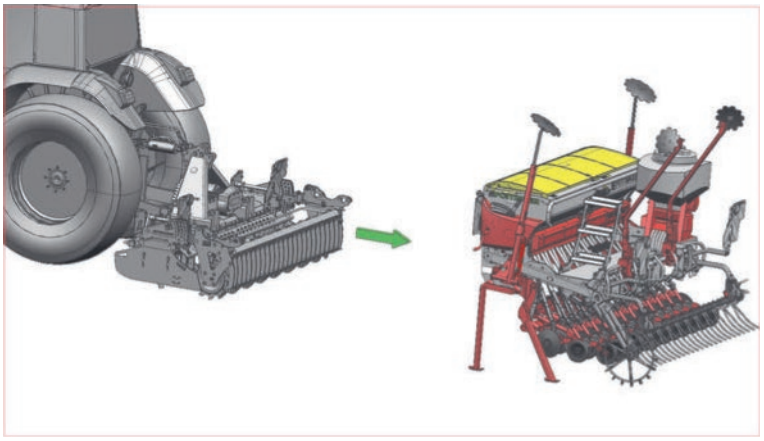


Locking open

2 Remove the linch pin (4) and top link bolt (3) (if present) from the headstock of the soil cultivation machine and keep them to hand.



3 Lift the soil cultivation machine slightly using the rear power lift and drive it to the seed drill as shown.



4 Paying attention the risk of collision, slowly thread the soil cultivation machine under the seed drill and align the guide bolts on the seed drill with the guide recesses on the trailer on both sides of the machine.

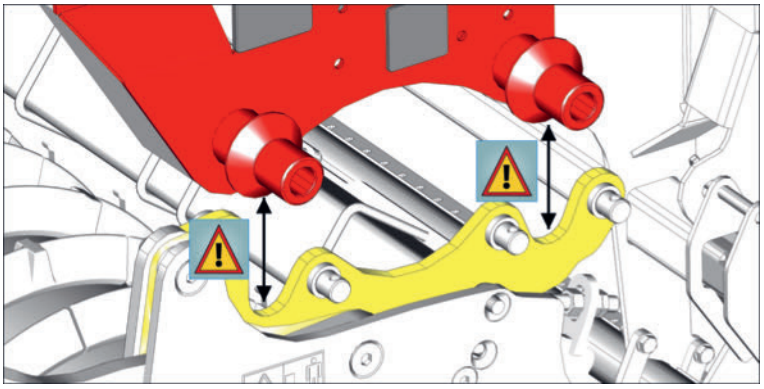


Fig.: Example of the left side of the machine.

Parking supports of the seed drill hidden.

5 Raise the soil cultivation machine with the rear power lift/tractor top link such that the guide bolts of the seed drill are firmly seated in the guide recesses on both sides of the machine, as shown below.

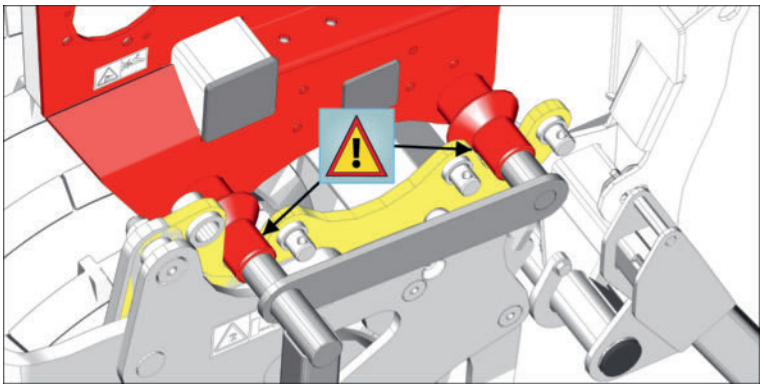


Fig.: Example of the left side of the machine

6 Close the rear lock (1b) and reattach the linch pins (on both sides of the machine), as shown below.

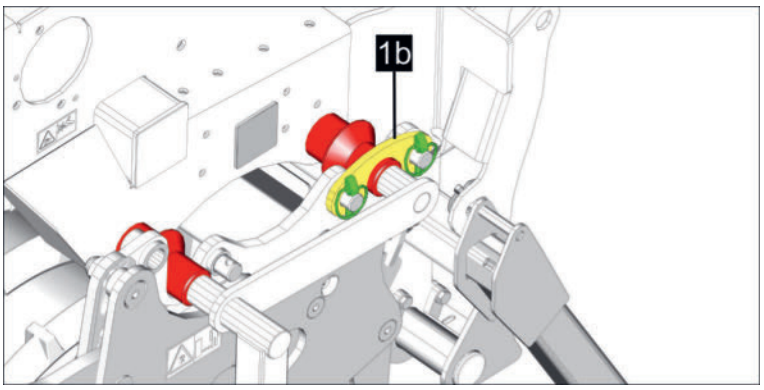


Fig.: Example of the left side of the machine

7 Remove the front linch pins (V) from both sides of the machine so that the front parking support (VA) can be removed.

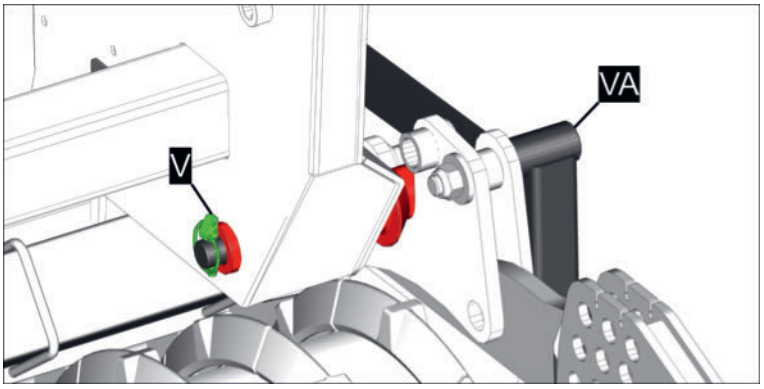


Fig.: Example of the left side of the machine

▷ Pull out the front parking supports (VA) from both sides of the machine and retain.

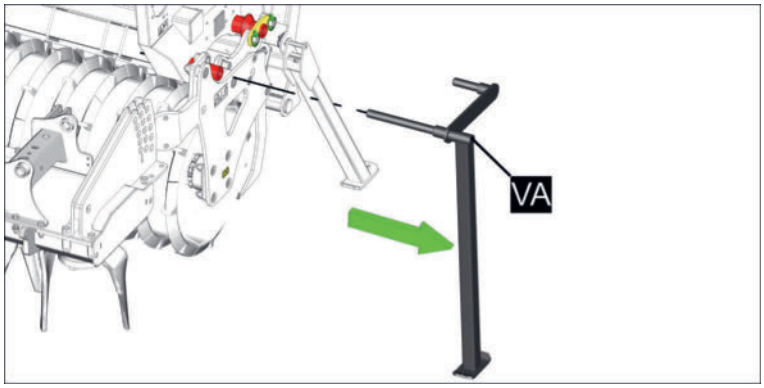


Fig.: Example of the left side of the machine

8 Set the rear power lift/tractor top link to “lower” and lower the soil cultivation machine until the rear parking support is resting on the ground.

9 Remove the linch pins (5) and auxiliary bolts (6) from both sides of the machine and keep them to hand. If necessary, relieve the strain from the bolt with the rear power lift/ tractor top link so that the bolt can be removed.

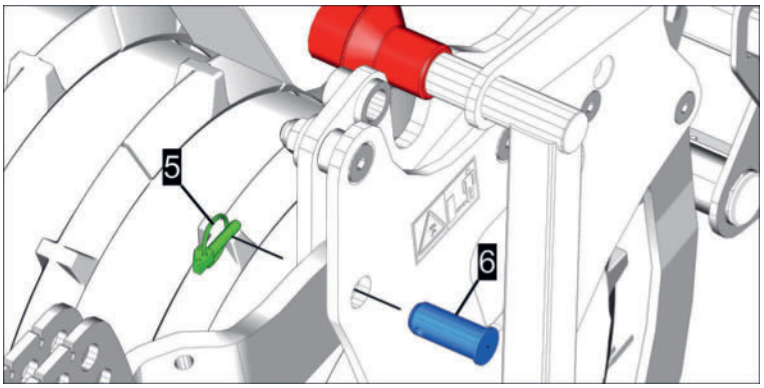


Fig.: Example of the left side of the machine

10 Actuate the rear power lift/tractor top link and raise the soil cultivation machine so that the front guide bolt on the seed drill is resting fully in the front guide recess on the trailer.

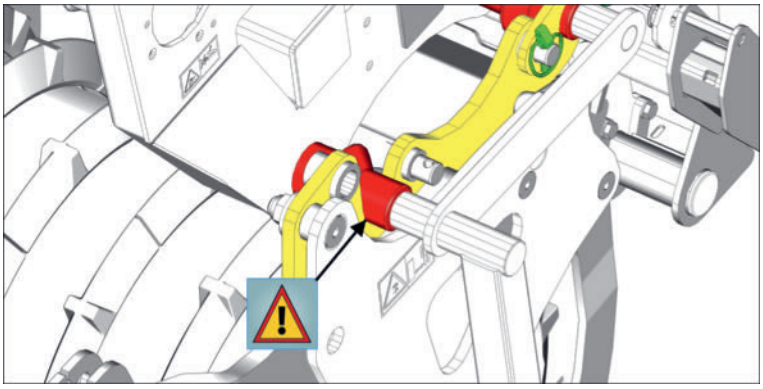


Fig.: Example of the left side of the machine

11 Attach the front lock (1a) to both sides of the machine with the auxiliary bolts (6) and linch pins (5) provided and secure with linch pins as shown below.

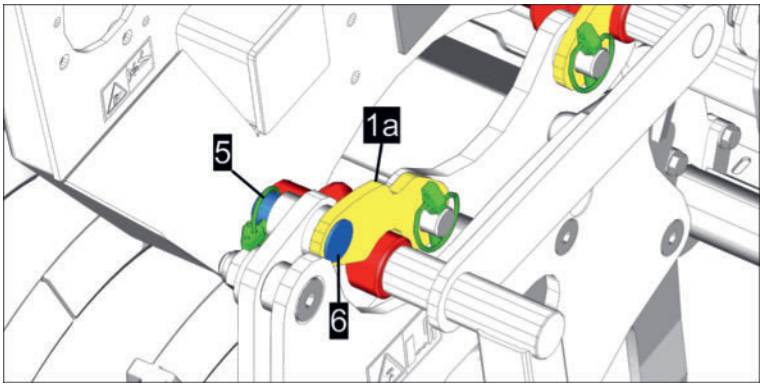


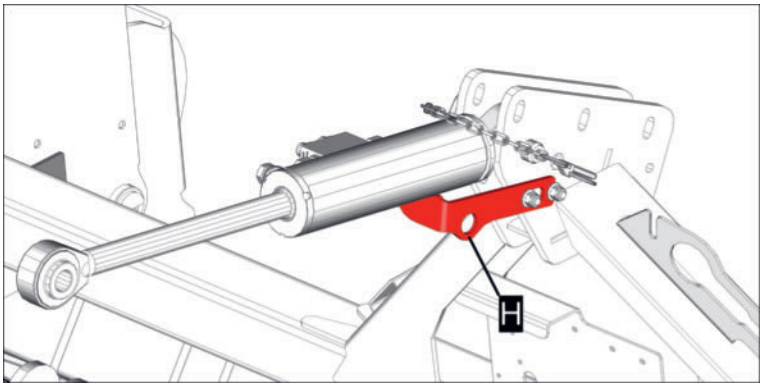
Fig.: Example of the left side of the machine

12 Set the rear power lift to “lower” and lower the soil cultivation machine until the top link can be attached to the headstock of the soil cultivation machine.

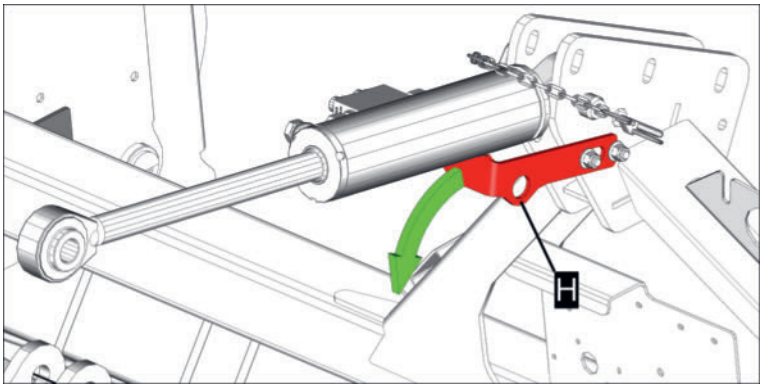
TIP

The seed drill rests on the rear parking supports and the trailer is thus pivoted upward.

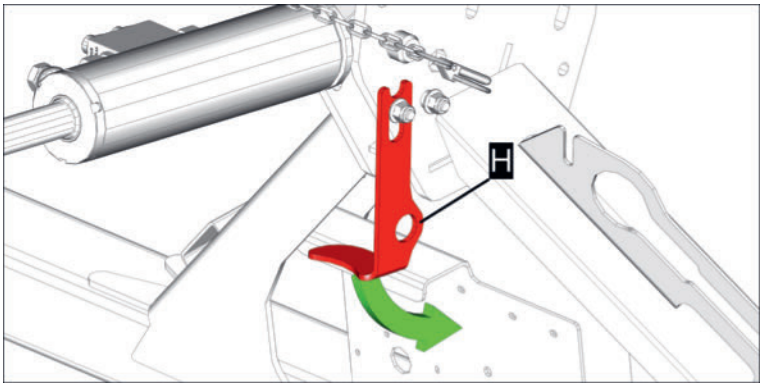
If necessary, actuate the tractor control unit for the top link of the seed drill and extend/ retract the top link to enable mounting, or manually adjust the mechanical top link (if available).



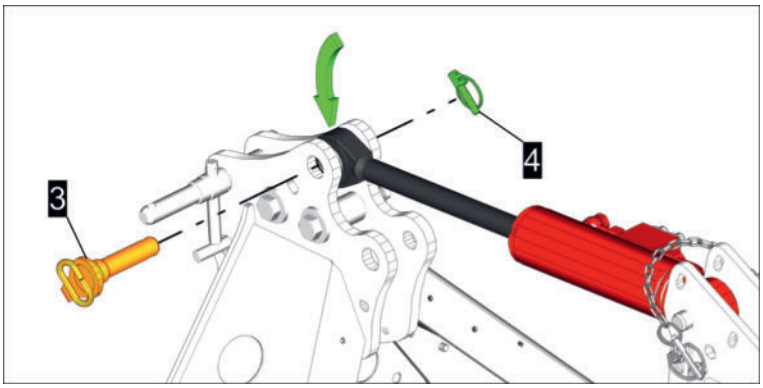
13 Hold the top link with one hand, raise it slightly, then pull the top link bracket (H) toward the tractor to unlock it.



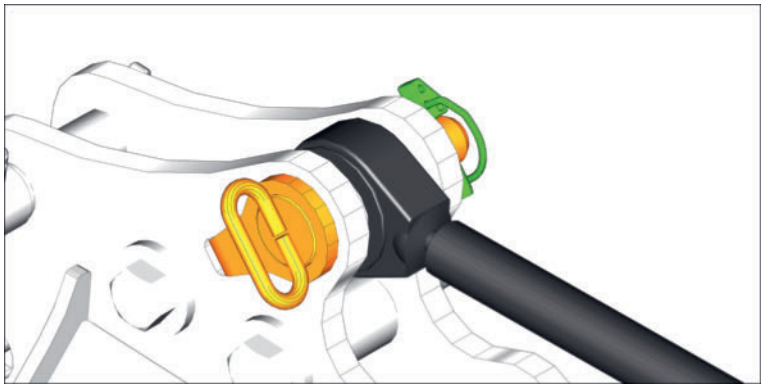
14 Keep holding the top link and pivot the bracket (H) downward, as shown.



15 Pivot the top link on the headstock of the soil cultivation machine.



▷ Attach the locking pin (3) and secure it with the linch pin (4).



16 Establish all hydraulic, electrical and mechanical connections of the seed drill to the tractor and to the soil cultivation machine (e.g. cardan shaft). See operating instructions for the seed drill.

17 Attach rear lighting to the seed drill. See "Repositioning the lighting supports" on page 114.

18 Raise the soil cultivation machine with the rear power lift/tractor top link so that the rear parking support of the seed drill is off the ground.

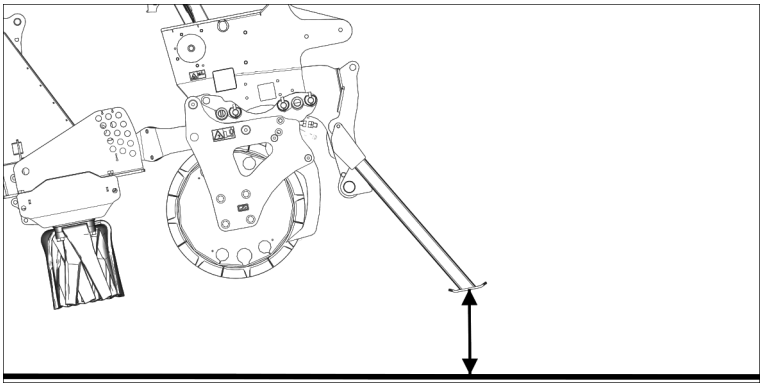


Fig.: Example of the left side of the machine

19 Remove the linch pins (V) from both sides of the machine.

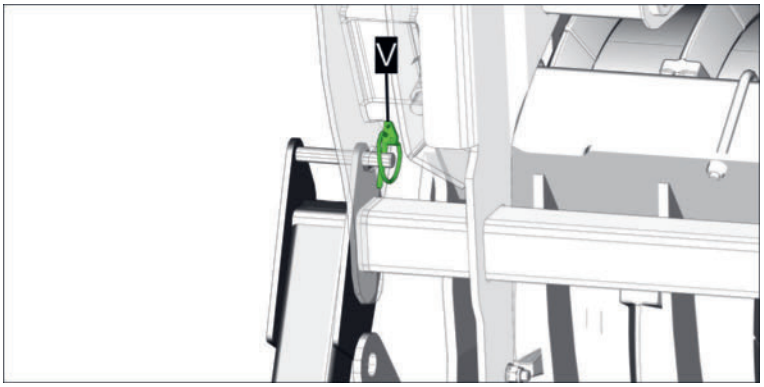


Fig.: Example of the left side of the machine

20 Pull the parking supports on both sides of the machine out to the side and store them.

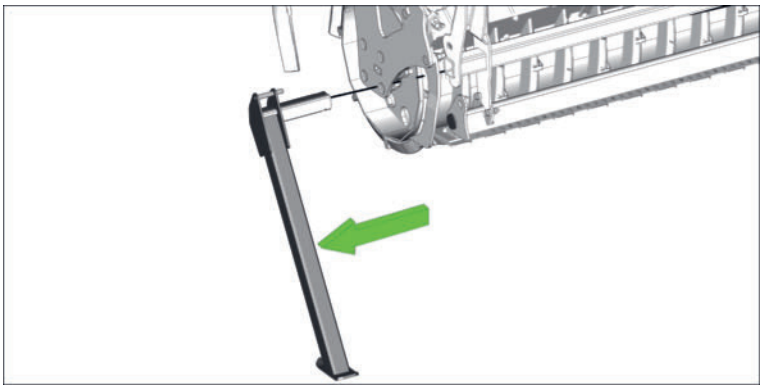
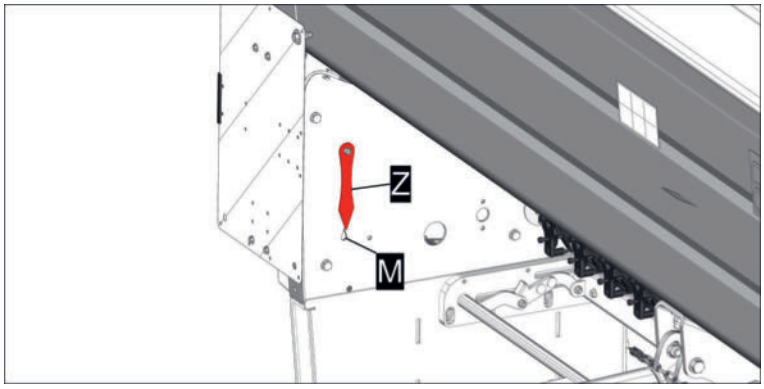


Fig.: Example of the left side of the machine

▷ Observe the alignment of the seed drill to the soil cultivation machine during operation. To do this, check the position of the pointer (Z) on the seed drill frame and set the position so that the pointer points exactly to the marking (M) or is slightly behind it, resulting in a slight inclination of the seed drill to the rear.



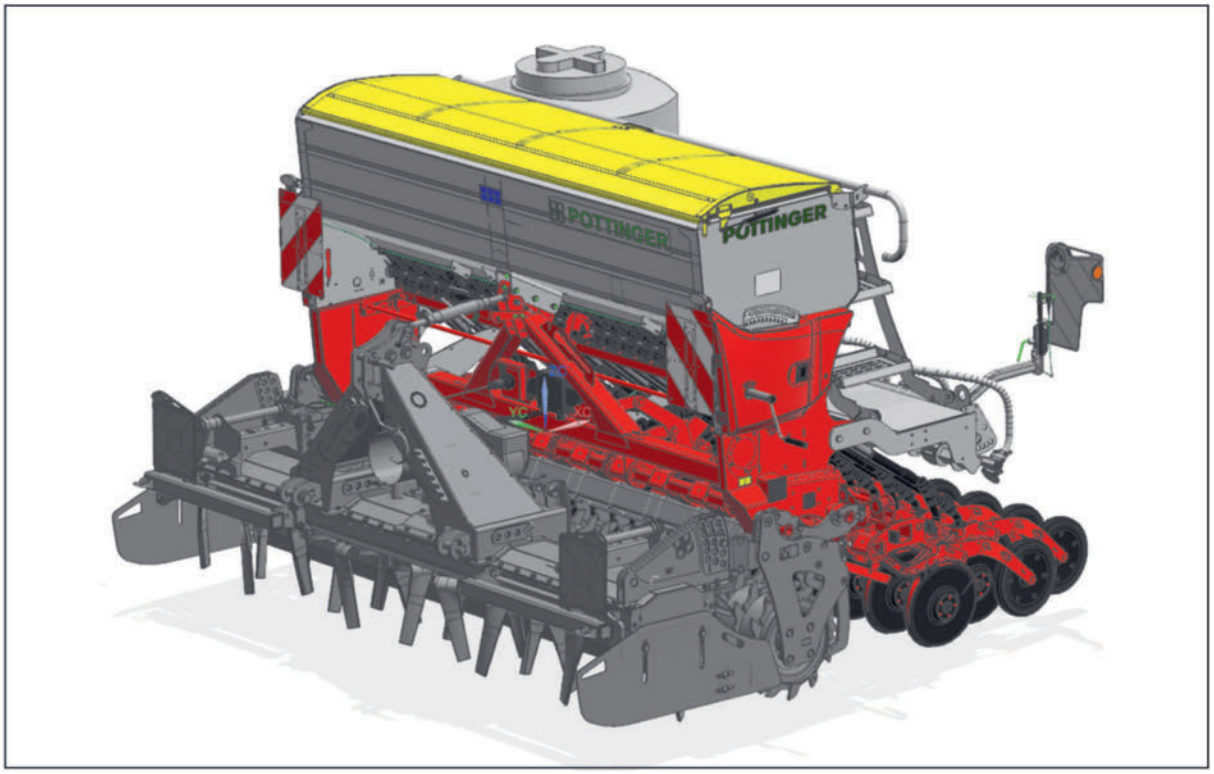
For more detailed information, see operating instructions for the seed drill.

Remove the seed drill from the trailer

The removal of a Vitasem seed drill (with hydraulic top link) is described below.

TIP

The removal takes place the same way on all PÖTTINGER trailer types, with all PÖTTINGER seed drills with mechanical or hydraulic top link intended for this method of attachment.



Removing the seed drill

Prerequisites

- Soil cultivation machine completely attached to a suitable tractor and secured.
- Machine combination parked on a level and stable surface in the working position and secured against rolling away.
- Transport locks completely attached to the seed drill and secured. See operating instructions for the seed drill.

- Rear lighting removed on the seed drill. See "Repositioning the lighting supports" on page 114.
- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.

Implementation

► Raise the machine combination with the rear power lift.

► Push the rear parking supports on both sides of the machine into the holder and secure with linch pin (V).

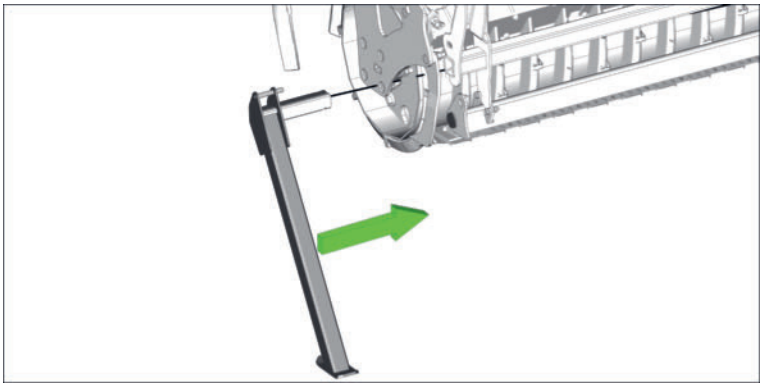
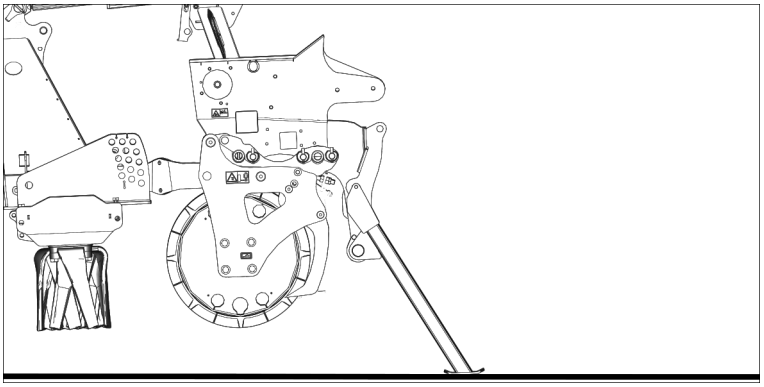


Fig.: Example of the left side of the machine

► Lower the machine combination onto the rear parking supports with the rear power lift.



► Remove the top link of the seed drill from the soil cultivation machine. If necessary, actuate the rear power lift/tractor control unit for the hydraulic top link or the mechanical top link to depressurize the top link.

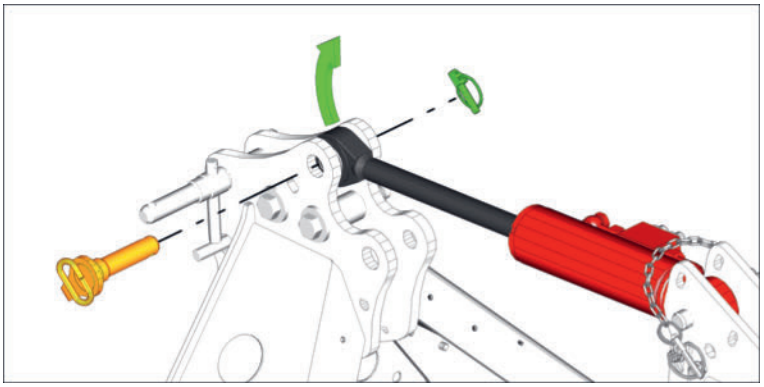
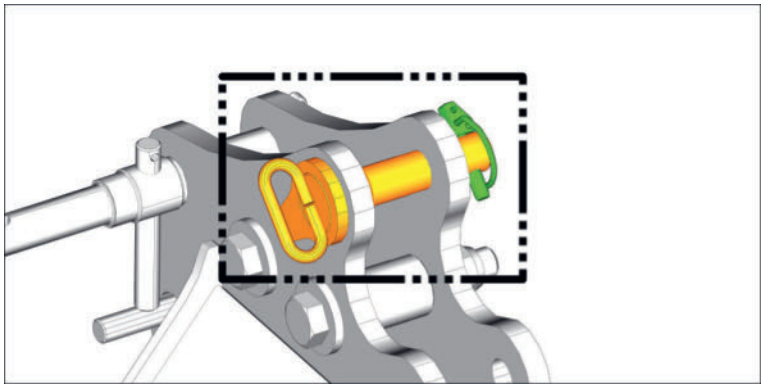
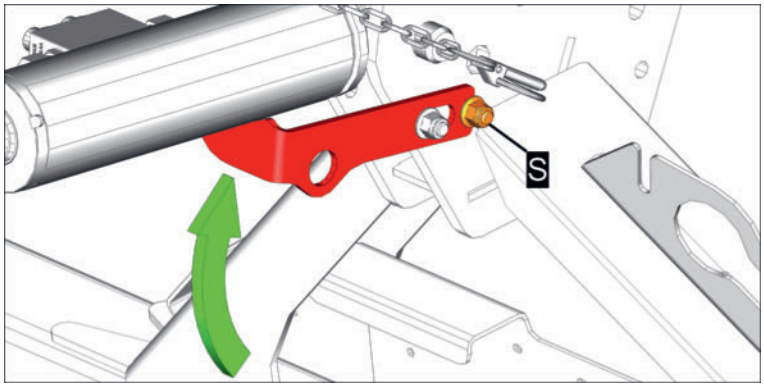


Fig.: Example, hydraulic top link

▷ Reattach the locking pin and linch pin.



▷ Hold the top link with one hand, pivot the top link bracket up with the other hand, and push it backward until it engages with the screw (S), as shown



▷ Ensure that the bracket is properly engaged and place the top link in the bracket.

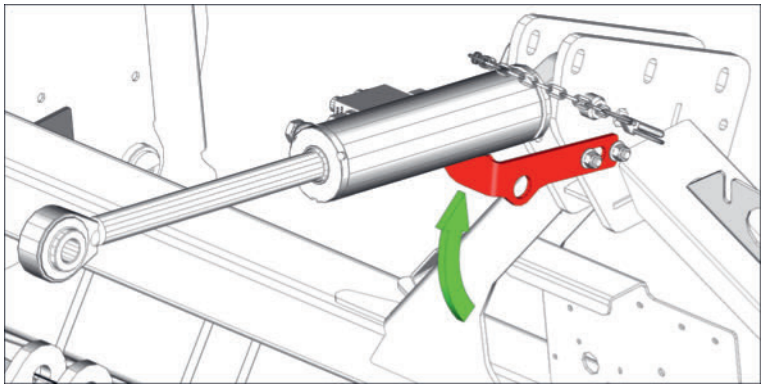


Fig.: Example, hydraulic top link

► Remove the front lock (1a) together with the linch pin, linch pin (5), and bolt (6) from both sides of the machine.

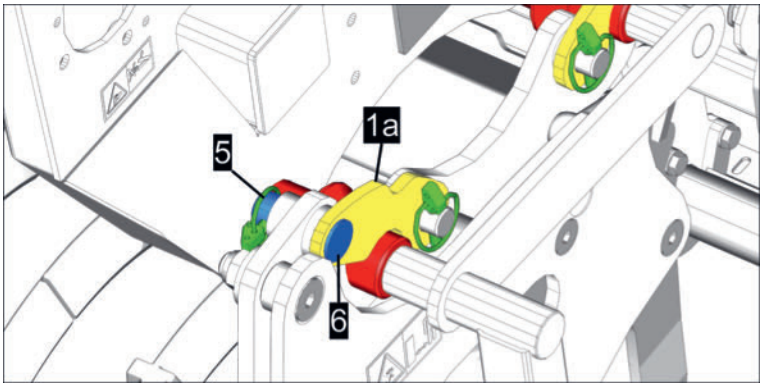
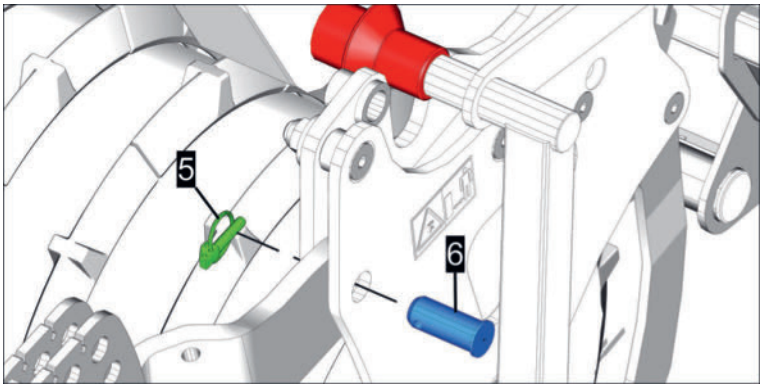


Fig.: Example of the left side of the machine

► Attach the linch pin (5) and auxiliary bolt (6) to both sides of the machine, as shown. If necessary, actuate the rear power lift so that the auxiliary bolt can be inserted.



► Raise the machine combination with the rear power lift, attach the front parking supports to both sides of the machine, and secure with linch pin.

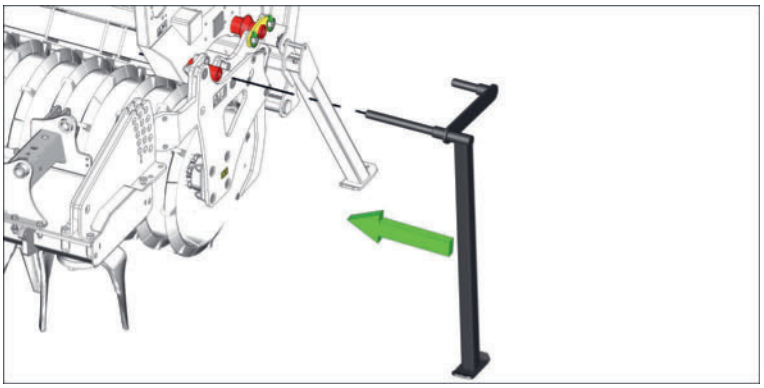
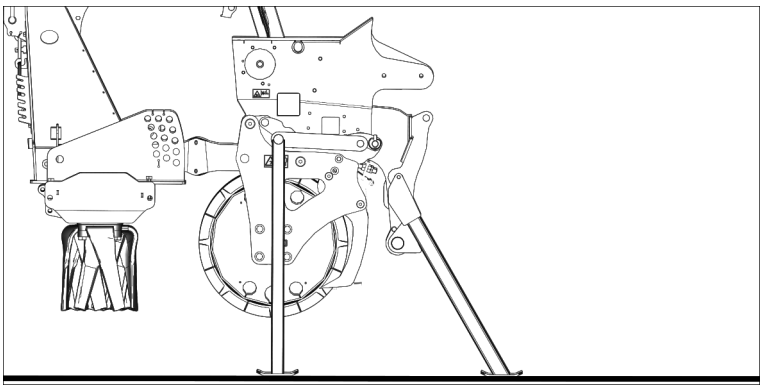


Fig.: Example of the left side of the machine

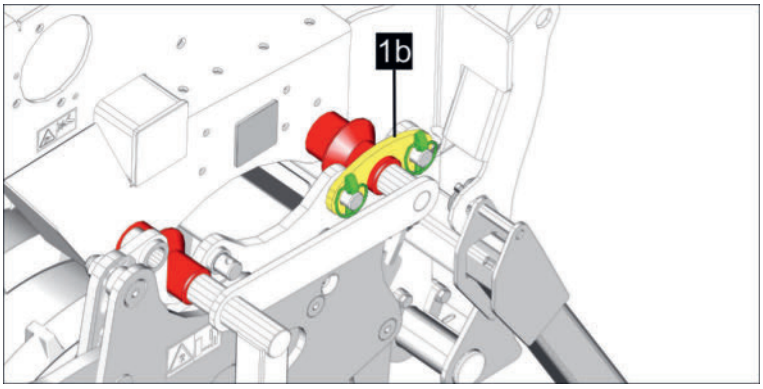
► Actuate the rear power lift and park the machine combination on the parking supports.



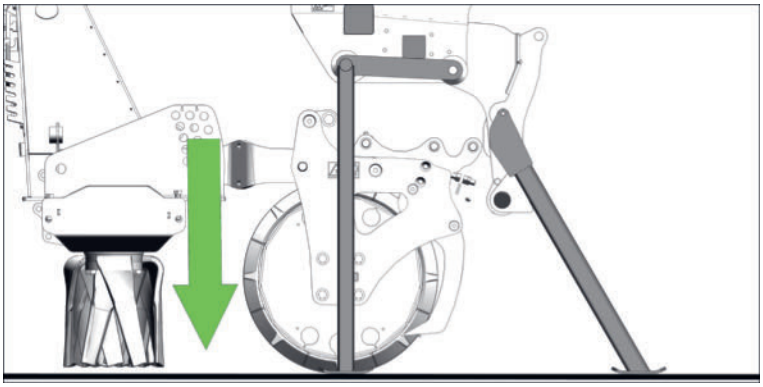
► Depressurize the hydraulic connections between the tractor and seed drill.

▷ Disconnect the electrical and hydraulic connections between the soil cultivation machine and seed drill and place the hoses/lines in the hose holder of the seed drill (rolled up, if necessary).

► Remove the linch pin and open the rear lock (1b) on both sides of the machine.



► Actuate the rear power lift and lower the soil cultivation machine.



► Paying attention to the risk of collision, drive the soil cultivation machine out from under the seed drill.

► Assemble the rear lighting on the soil cultivation machine. See "Repositioning the lighting supports" on page 114.

Attaching the AEROSEM / VITASEM seed drill to the Hydrolift

The attachment of a Vitasem seed drill to the rotary harrow is described below.

TIP

The attachment takes place the same way on all PÖTTINGER seed drill types intended for this method of attachment.

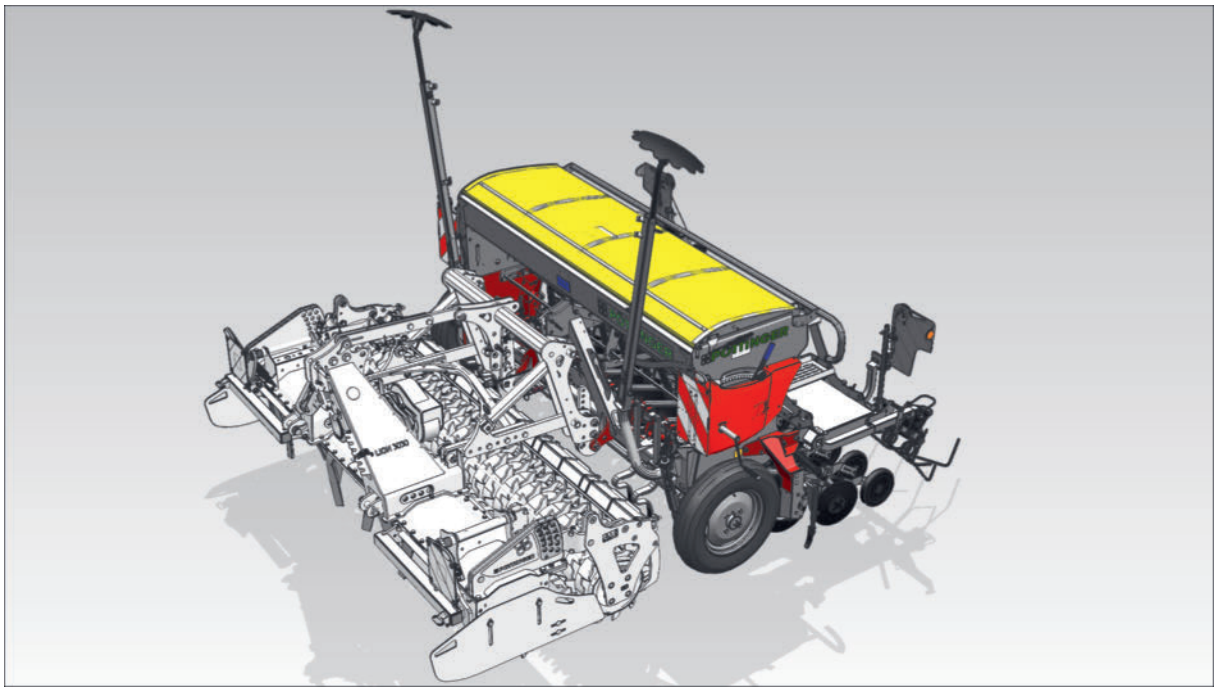
If a seed drill from another manufacturer is to be attached to the LION rotary harrow, the procedure described here may differ from the procedure required for the respective seed drill. In any case, the operating instructions for the respective seed drill must also be consulted in order to prevent any hazards that may arise during the attachment.

TIP

The top link suitable for the respective PÖTTINGER seed drill and the respective trailer roller diameter must be used for attachment, according to the table below.

Mechanical top link

	Trailer roller diameter	VITASEM	AEROSEM	TEGOSEM
LION	to 21.65 inch	17.8 inch to 26.77 inch	11.81 inch to 14.96 inch	17.8 inch to 26.77 inch
	from 22.05 inch		17.8 inch to 26.77 inch	11.81 inch to 14.96 inch



Attaching the seed drill

Prerequisites

- Soil cultivation machine completely attached to a suitable tractor and secured.
- Hydrolift assembled on the soil cultivation machine and adjusted accordingly for use with the trailer and seed drill. See "Setting the Hydrolift" on page 70.
- Tractor and soil cultivation machine parked on a level and stable surface in working position and secured against rolling away.

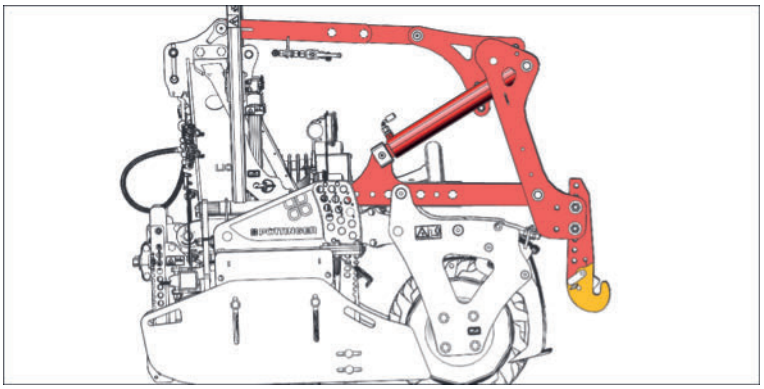
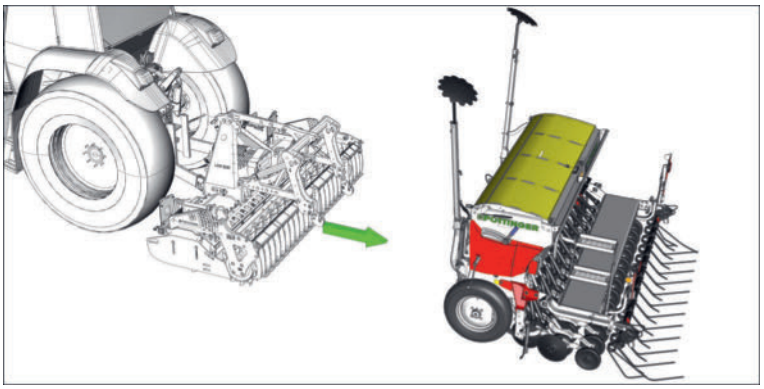


Fig.: Machine and Hydrolift in working position

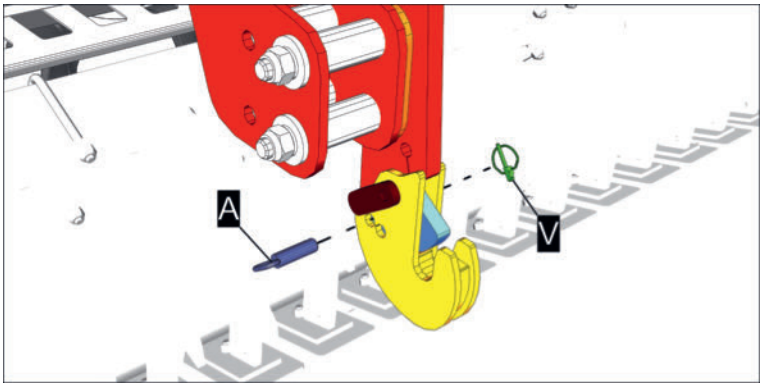
- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.
- Rear lighting removed on the soil cultivation machine. See "Repositioning the lighting supports" on page 114.

Implementation

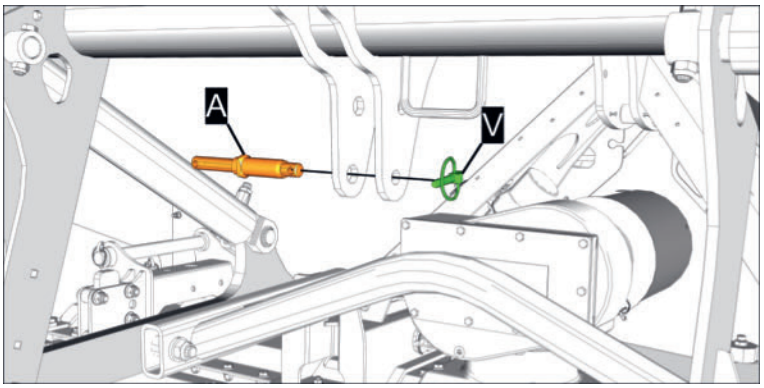
► Lift the soil cultivation machine slightly using the rear power lift and drive it to the seed drill as shown.



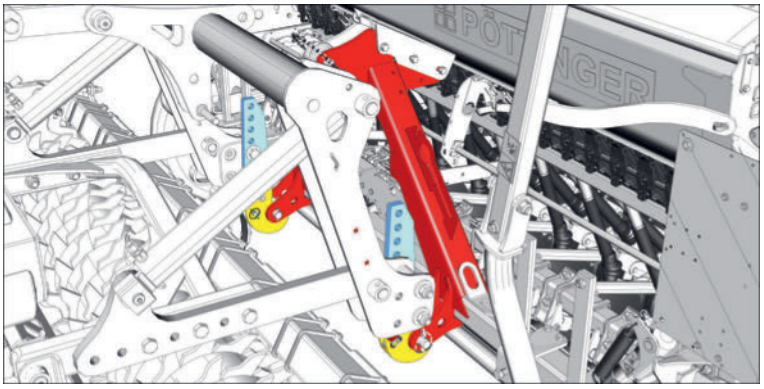
► Remove the linch pin (V) and locking pin (A) on the catch hook on the Hydrolift lower linkage (on both sides of the machine) and keep handy.



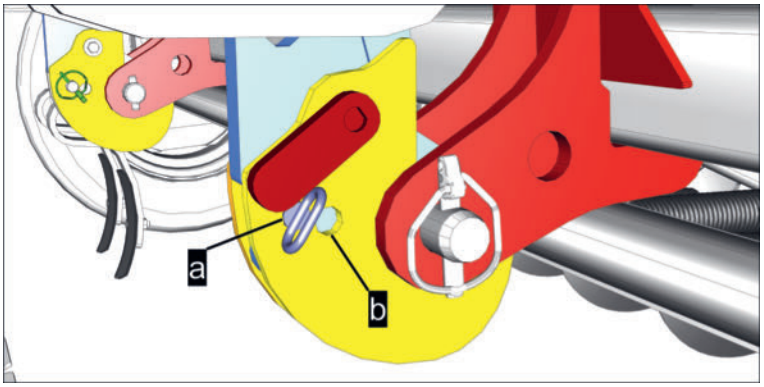
► Remove the linch pin (V) and locking pin (A) for the top link on the Hydrolift and keep handy.



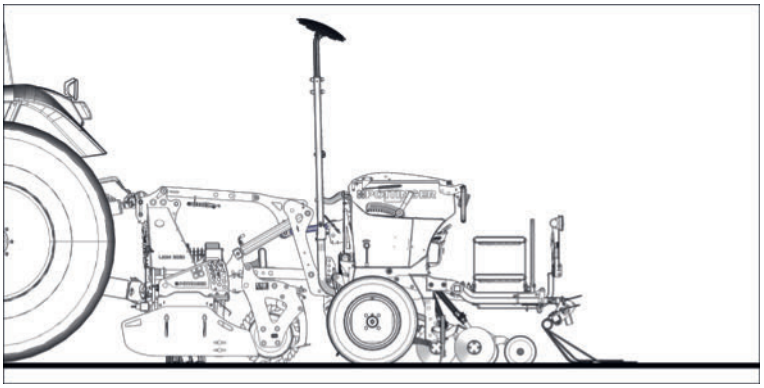
► Drive closer with the soil cultivation machine, actuate the rear power lift and attach the lower linkage of the Hydrolift to the lower linkage pin of the seed drill.



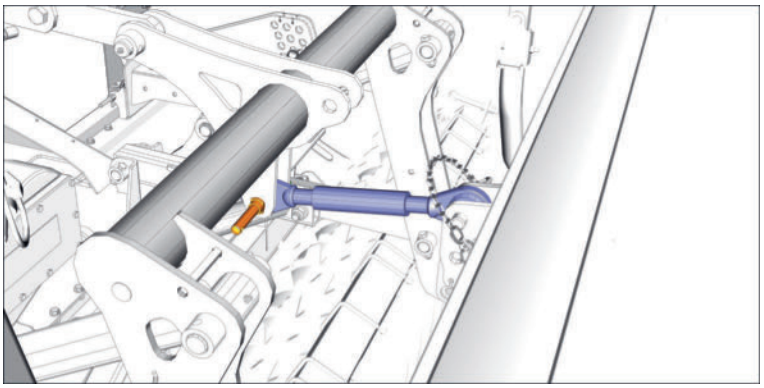
► Attach the locking pin (A) and the linch pin (V) on both sides of the machine so that the bolt in the lower linkage catch hook cannot move. The pinning position to be selected (a or b) depends on the bolt diameter on the headstock of the seed drill.



► Actuate the rear power lift and place the soil cultivation machine on the ground.



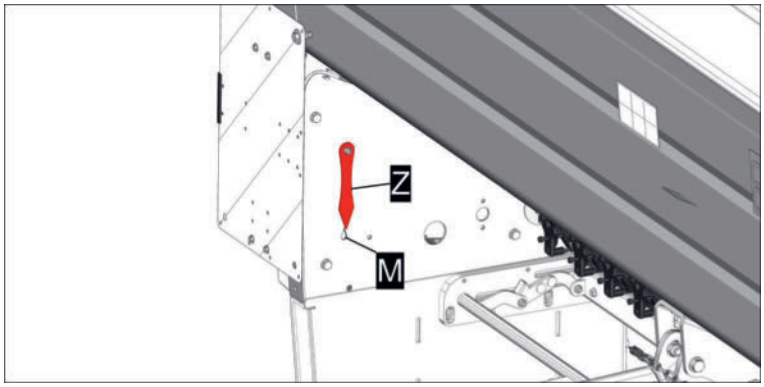
► Thread the top link onto the Hydrolift and attach the locking pin (A) and linch pin (V).



► Establish all hydraulic, electrical and mechanical connections of the seed drill to the tractor and to the soil cultivation machine (e.g. cardan shaft). See operating instructions for the seed drill.

► Attach rear lighting of the soil cultivation machine to the seed drill. See "Repositioning the lighting supports" on page 114.

▷ Observe the alignment of the seed drill to the soil cultivation machine during operation. To do this, check the position of the pointer (Z) on the seed drill frame and set the position so that the pointer points exactly to the marking (M) or is slightly behind it, resulting in a slight inclination of the seed drill to the rear.



For more detailed information, see operating instructions for the seed drill.

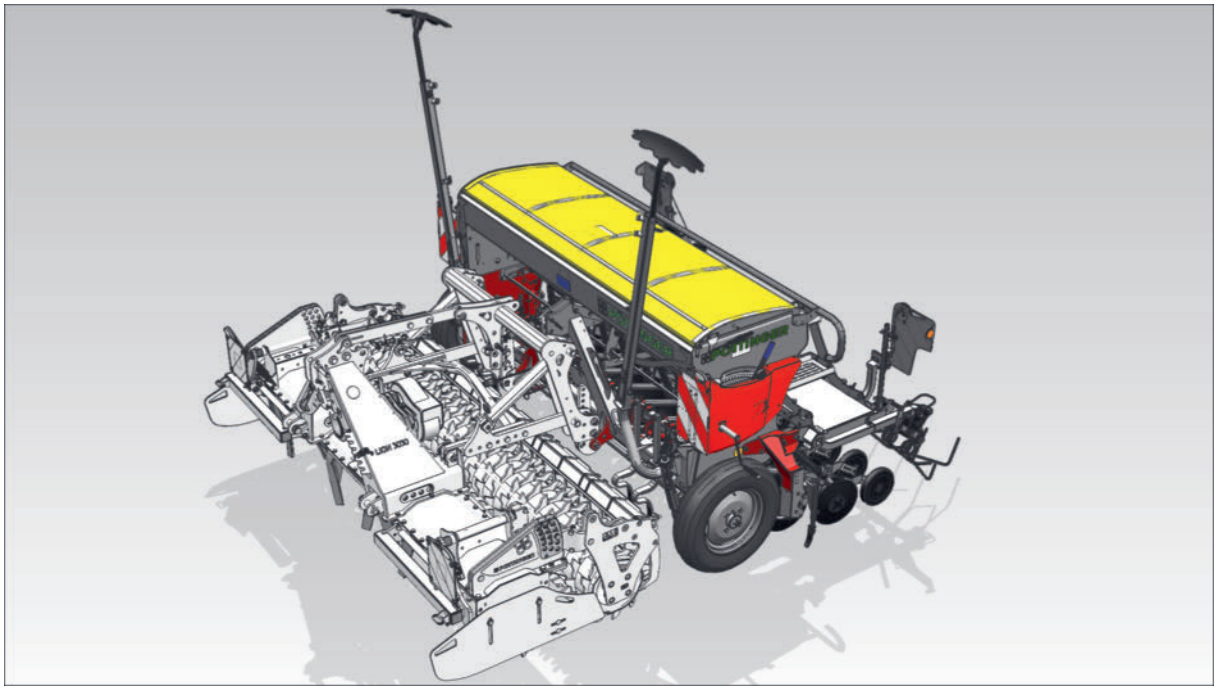
Removing the AEROSEM / VITASEM seed drill from the Hydrolift

The removal of a PÖTTINGER VITASEM seed drill is described below.

TIP

The removal of PÖTTINGER seed drills takes place the same way for all seed drill types intended for this method of attachment.

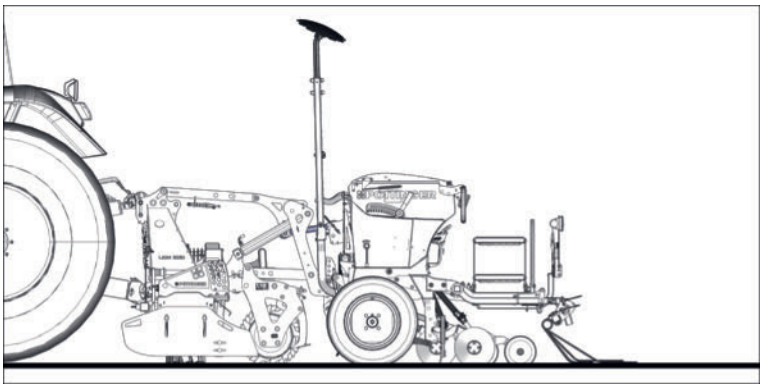
If a seed drill from another manufacturer is to be removed, the procedure described here may differ from the procedure required for the respective seed drill. In any case, the operating instructions for the respective seed drill must also be consulted in order to prevent any hazards that may arise during the removal.



Removing the seed drill

Prerequisites

- Machine combination completely attached to a suitable tractor and secured.
- Tractor and soil cultivation machine parked on a level and stable surface in working position and secured against rolling away.



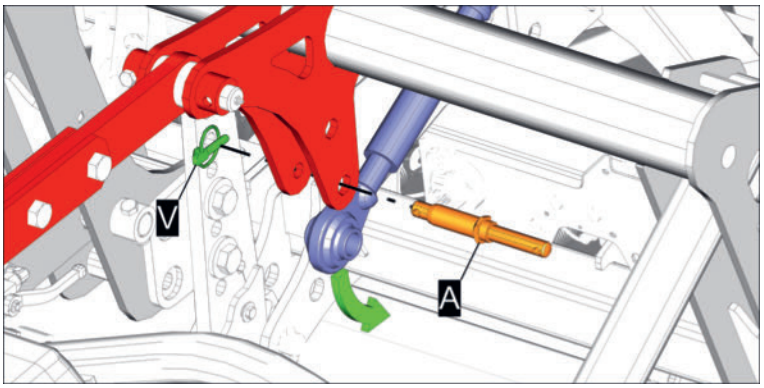
- Rear lighting removed on the seed drill. See "Repositioning the lighting supports" on page 114.
- Transport locks completely attached to the seed drill and secured. See operating instructions for the seed drill.
- During all work on the machine, tractor engine switched off, PTO drive switched off, parking brake applied, ignition key removed and stored.

Implementation

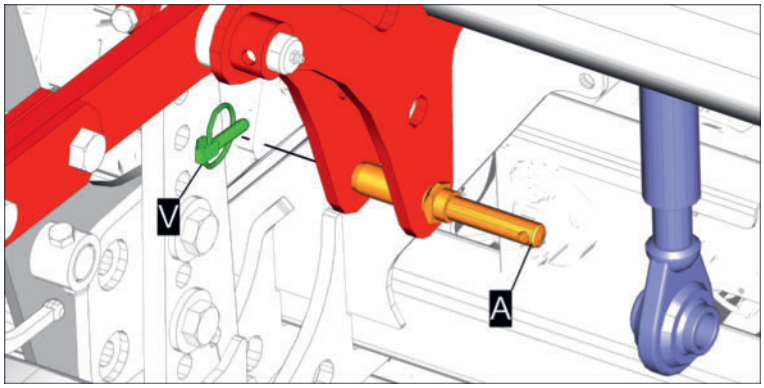
► Disconnect all electrical, hydraulic and mechanical connections to the tractor and to the soil cultivation machine. See operating instructions for the seed drill.

► Remove the top link. To do this, hold the top link with one hand, remove the linch pin (V) and the locking pin (A) and slowly swing the top link down towards the seed drill.

If necessary, adjust the top link so that the locking pin can be removed.



▷ Reattach the locking pin (A) and linch pin (V).



► Operate the tractor control unit and lift the Hydrolift slightly to relieve the locking hook in the lower linkage catch hook. The seed drill should not be lifted noticeably.

► Remove the linch pin (V) and locking pin (A) on both sides of the machine and keep handy.

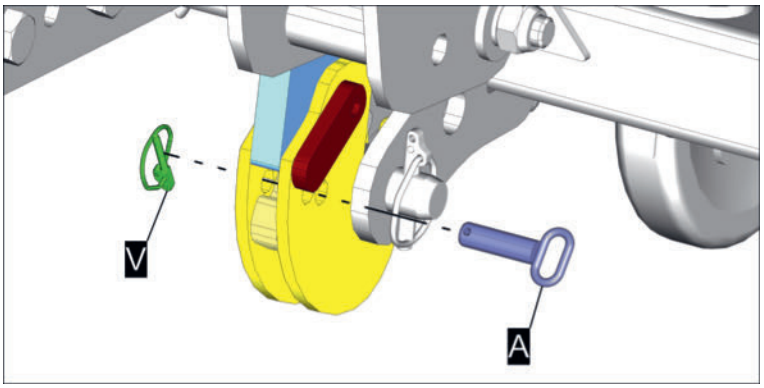
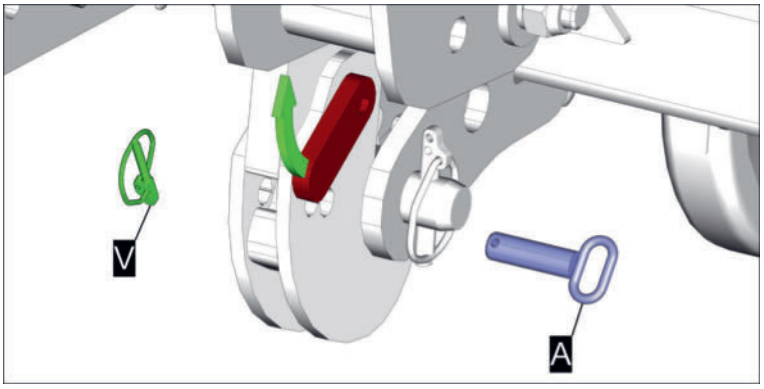


Fig.: Example of the left side of the machine

► Press the adjusting lever for the internal locking hook on both sides of the machine up to the stop.



▷ Reattach the locking pin (A) and linch pin (V) to lock the locking hook on both sides of the machine in the open position as shown.

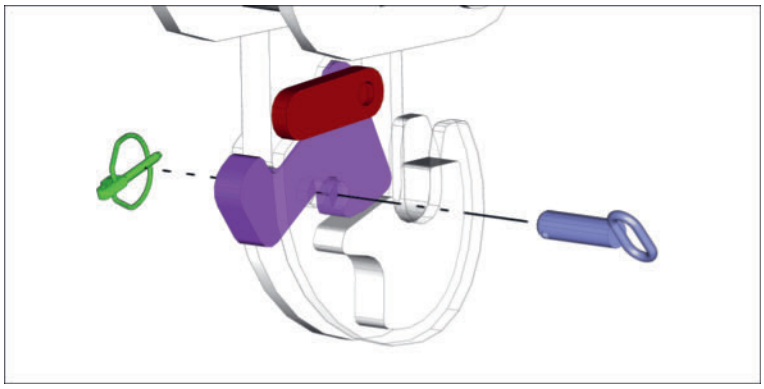
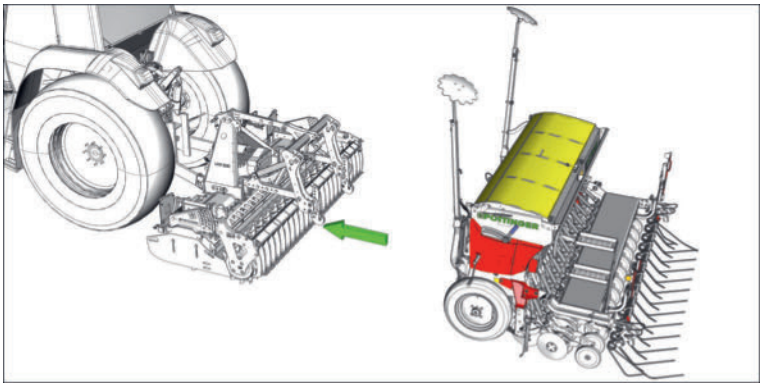


Fig.: Example of the left side of the machine; catch hook partially shown transparently

► Operate the tractor control unit and lower the Hydrolift completely.

► Actuate the rear power lift and lift the soil cultivation machine slightly.

► Drive away from the seed drill, paying attention to possible collisions.



▷ Reattach the linch pin (V) and locking pin (A) on both sides of the machine.

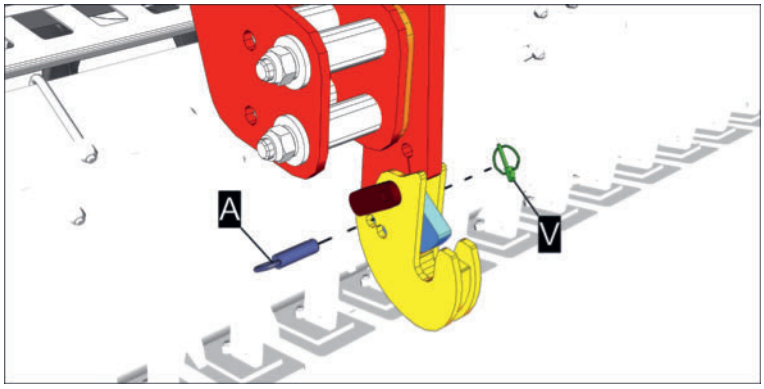


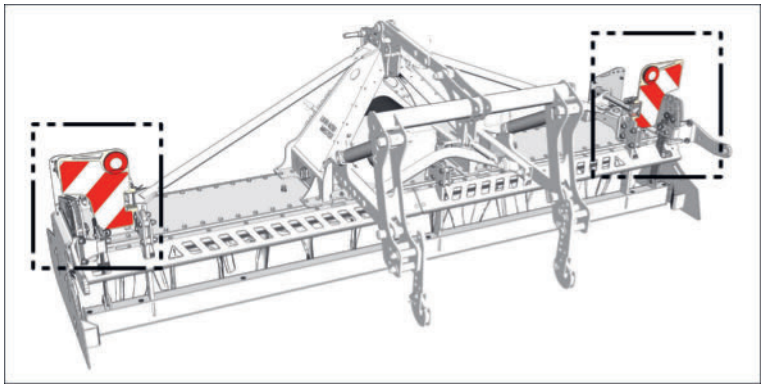
Fig.: Example of the left side of the machine

Repositioning the lighting supports

If the rear lighting of the soil cultivation machine is completely or partially hidden (by a possibly assembled seed drill in road transport position), it must be switched to the respective seed drill before driving on public traffic areas, as described below.

TIP

The suitability of seed drills from other manufacturers for assembly of the PÖTTINGER warning signs with lighting must be checked before the first drive on public traffic areas and, if necessary, must be manufactured, or have manufactured by an authorized service dealer, according to the local legal requirements.



Implementation

► Disconnect the bayonet connector of the lighting cable from the connection on the soil cultivation machine: to do this, turn the bayonet lock on the connector to the left to the stop and pull the connector upward.

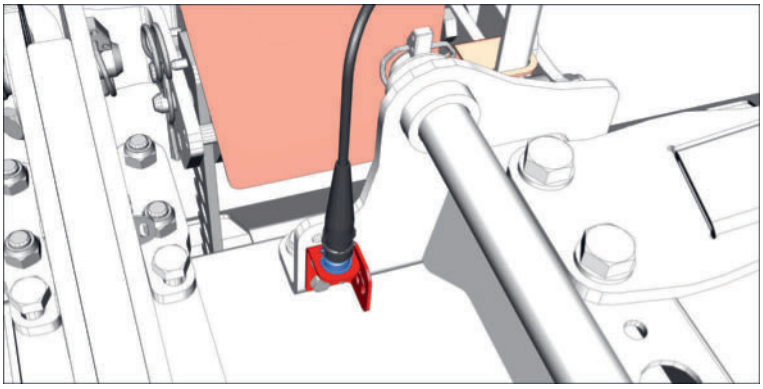
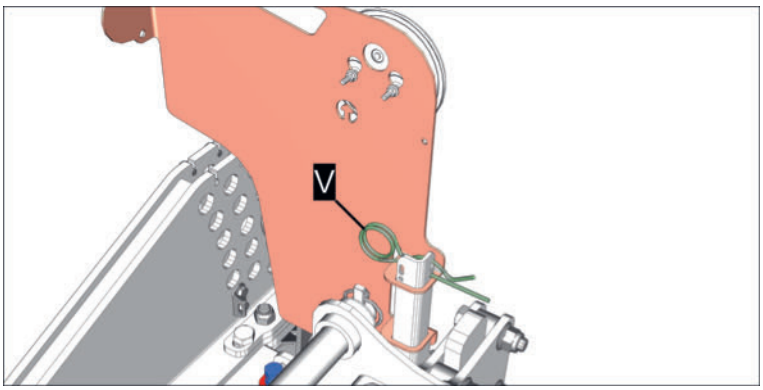
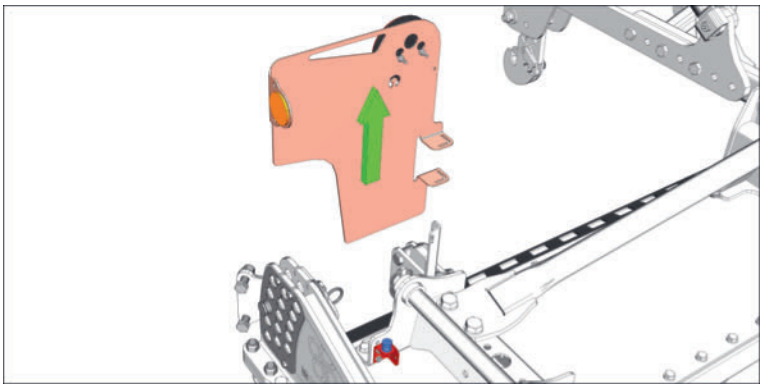


Fig.: Example of right rear lighting support (“Standard” lighting).

► Remove the linch pin (V) and store it.



► Pull the lighting support upward and remove it.



► Attach the lighting support to the seed drill in reverse order.

TIP

Attach the right lighting support of the soil cultivation machine to the right side of the seed drill, secure with linch pin and connect the bayonet connector.

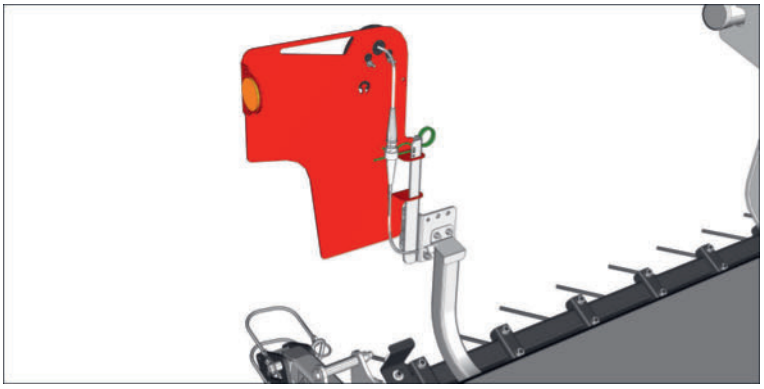


Fig.: Example of VITASEM attachment situation

► Perform the same process on the opposite lighting support.

► Perform a test run of the lighting.

▷ If the lighting works as prescribed, no further action is necessary.

▷ If the lighting does not work as prescribed, carry out troubleshooting for the lighting or replace bulb / light. See "Lighting" on page 159.See "Checking / replacing lighting bulbs" on page 149.

Coupling

NOTICE

Collisions with other road users!

When driving with machines whose components are not secured in road transport position, collisions with other road users may occur.

► Before driving on traffic areas, bring all machine components into road transport position and secure them as prescribed.

DANGER

Pulling in or severing of body parts!

► Secure the PTO drive against unintentional activation.

WARNING

Risk of crushing for the entire body!

Residing in the danger zone of the tractor and machine is prohibited as long as the combination is not secured against rolling away and unintentional commissioning.

1 Direct bystanders out of the danger zone around the tractor and machine.

2 Ensure that bystanders do not enter the danger zone.

3 Only park the machine on a level, stable surface.

4 Apply the parking brake.

5 Switch off the tractor engine, remove and store the ignition key.

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

WARNING

Risk of crushing for the entire body when operating the power lift!

► Direct people out of the danger zone around the power lift.

► Do not step between the tractor and the machine when operating the power lift via external keys.

Coupling the machine / machine combination to the tractor

NOTICE

Damage to machine components during coupling!

► Ensure free accessibility.

► Always place hoses, cables and chains outside the coupling area.

CAUTION

Risk of crushing!

► Direct people out of the danger zone as long as the tractor or hydraulic functions are in motion.

► Direct people out of the danger zone as long as the tractor is not secured against rolling away.

CAUTION

Crushing and being rolled over!

► Before entering the danger zone of the machine, make sure that the machine or tractor cannot be operated unexpectedly by another person.

Prerequisites

- Three-point attachment Cat. II or Cat. III.
- Tractor ballasting completely attached.
- Machine / machine combination parked on a level and stable surface in working position and secured.

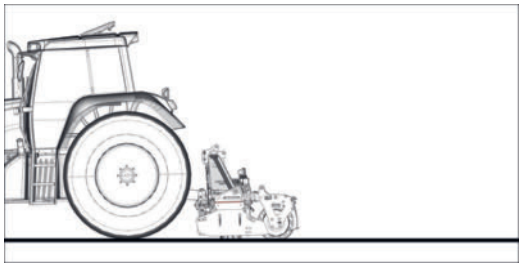


Fig.: Solo machine in working position

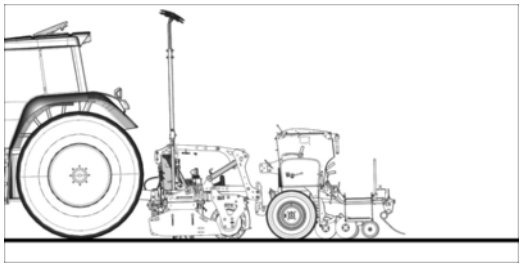


Fig.: Machine combination in working position

- All transport locks properly activated / attached.

- Top link and lower linkage balls attached at the coupling points and locking pins secured the linch pins.

Attachment of the soil cultivation machine

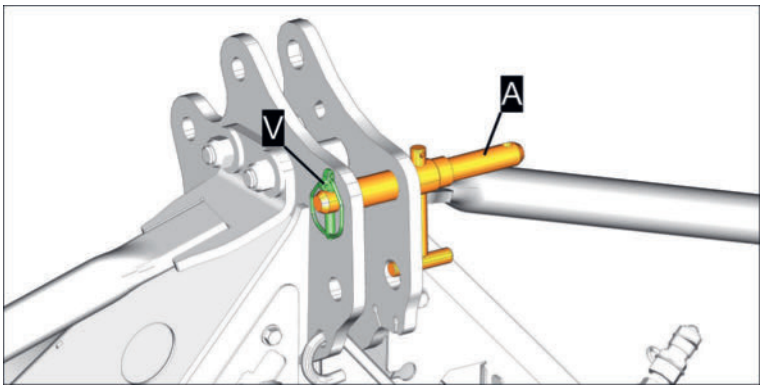
The soil cultivation machine can be attached to a tractor as a solo machine, or can be attached together with suitable seed drills as a machine combination.

TIP

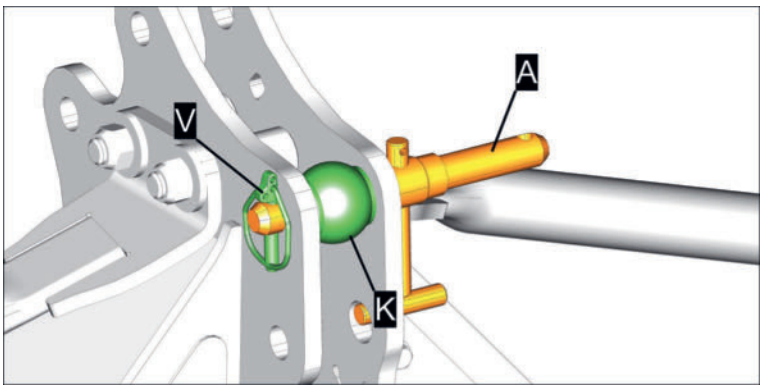
Attachment to the tractor as a solo machine is described below. Procedures for attachment to a tractor, which pertain to a possibly attached seed drill (such as hydraulic connections, etc.) are to be taken from the operating instructions of the seed drill.

Implementation

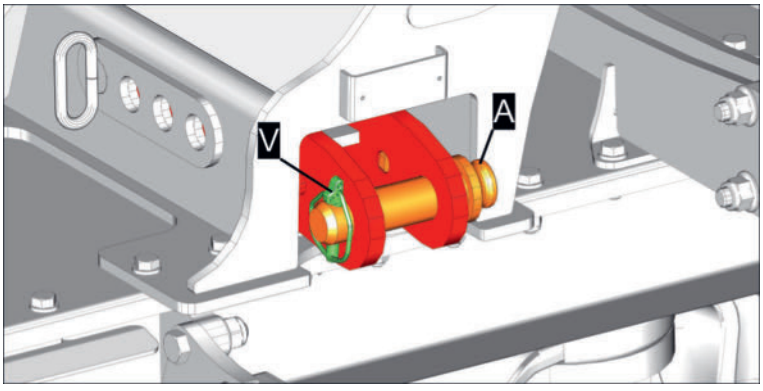
► Remove the linch pin (V) and locking pin (A) for the top link.



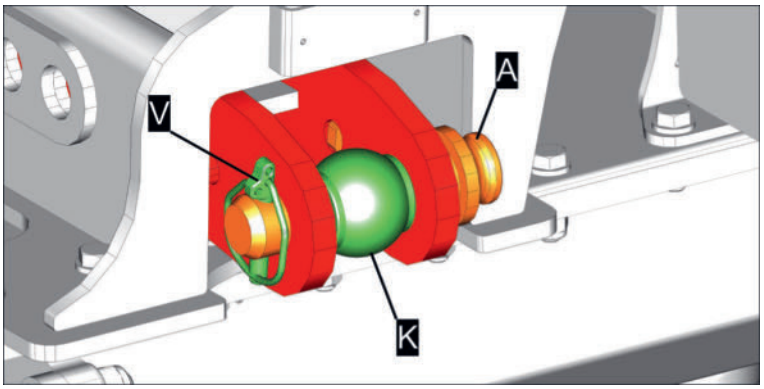
► Attach the top link ball (K) according to the attachment category (CAT II / CAT III) and secure locking pin (A) with linch pin (V) as shown.



► Remove the linch pin (V) and locking pin (A) on the lower linkage on both sides.

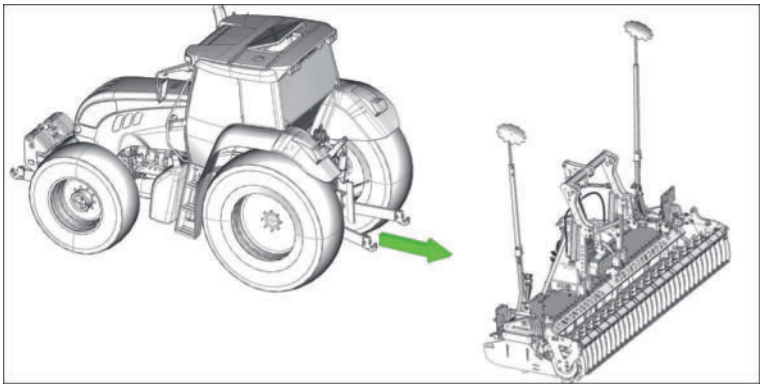


► Attach the lower linkage balls according to the attachment category (CAT II / CAT III) on both sides of the machine to the lower linkage brackets and secure the locking pin (A) with linch pin (V) as shown.



▷ Make sure that the lower linkage brackets of the machine are set correctly for attachment to the existing tractor. See "Lower link rockers setting" on page 59.

► Drive the tractor up to just in front of the machine.



▷ Set the lower linkage on the tractor to the width and height of the attachment.

▷ Fix the tractor lower linkage so that the machine cannot swing out sideways.

► Drive the tractor up to the machine, and hook and secure the tractor lower linkage to the lower linkage balls.

⚠ CAUTION

Risk of crushing!

► When attaching / removing the machine, do not reach into the crushing danger zone.

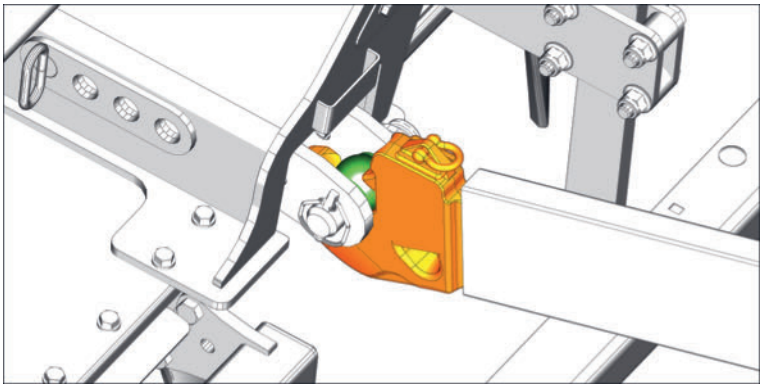


Fig.: Example of right lower linkage bracket

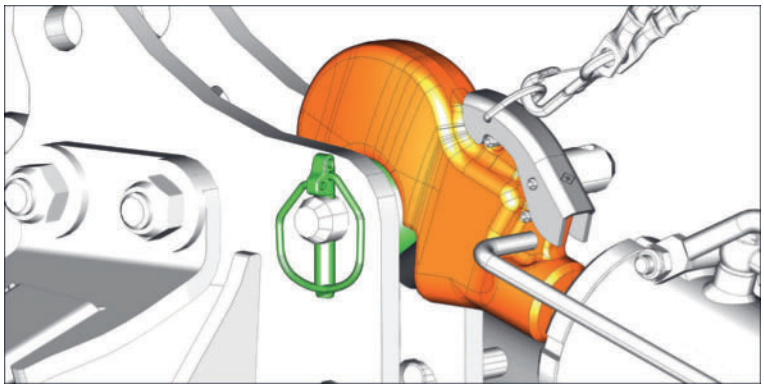
► Hook and secure the top link to the tractor. See operating instructions for the tractor.

⚠ CAUTION

Risk of crushing!

► When attaching / removing the machine, do not reach into the crushing danger zone.

▷ Hook and secure the top link to the machine.
Make sure that the top link points slightly upward.



► Couple the cardan shaft as prescribed in the operating instructions of the cardan shaft manufacturer.

► Attach the cardan shaft holder (G) in working position as shown.

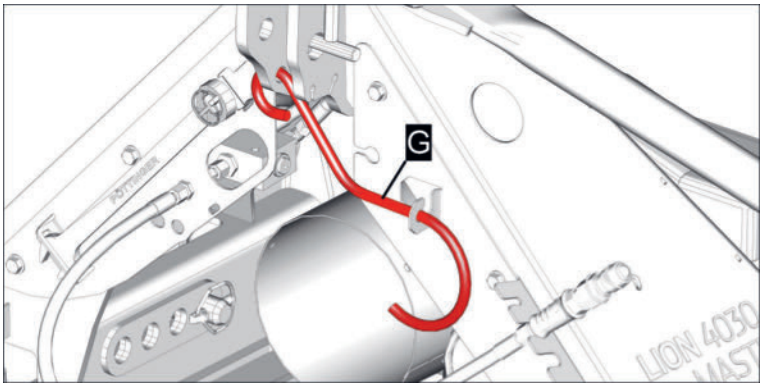


Fig.: Cardan shaft holder in working position.

It may then be necessary to connect the hydraulic system, the cardan shaft and electrical system of the seed drill to the tractor / soil cultivation machine. See operating instructions for the seed drill.

Connecting the hydraulic hoses to the tractor

WARNING

Hydraulic oil escaping under high pressure can penetrate the skin and cause serious infections!

- ► The hydraulic system must be pressureless on both the tractor and machine sides.
- ► Hydraulic hoses coupled to the machine must easily yield to all movements between the machine and the tractor and may not stretch, kink or chafe.
- ► In case of injury, consult a physician immediately.

WARNING

Crushing and severing of body parts during hydraulic system function reversal!

- ► Hydraulic connections are color-coded and must be correctly assigned when plugged in.

ENVIRONMENT

Collect and dispose of lubricants and lubricant mixtures properly.

Implementation

1 Select a single-acting control valve for each function, and set the control valve to neutral.
   - Tramline marker (option)
   - Hydrolift (option)

2 Select a double-acting control valve for each function, and set the control valve to float position.
   - Hydraulic upper link (option).
   - Hydraulic working depth adjustment (option)

3 Connect a hydraulic hose for each function.
   1 Remove the plug of the pressure line (marking “P”, protective cap “red”) from the hose cabinet.
   2 Open the protective caps on the plug and socket of the selected control valve.
   3 Clean the plug and socket with a lint-free cloth.
   4 Press the plug into the socket until the socket locks noticeably.

TIP

Couple the hydraulic connections of any attached seed drill to the tractor: see operating instructions for the seed drill!

Connecting the cables to the tractor

Implementation

1 Remove the cables from the hose holder.

2 Remove the protective caps.

3 Connect a cable for each function to the tractor.

Coupling the cardan shaft

Make sure that the cardan shaft has been adapted to the tractor before commissioning.

CAUTION

Flung out cardan shaft fragments!

If the cardan shaft has not been adapted to the tractor, the cardan shaft may be destroyed during operation.

► Have the cardan shaft adapted to the respective tractor by an authorized service dealer before commissioning.

► When changing the tractor, the suitability of the cardan shaft must be checked again and the cardan shaft readapted if necessary.

NOTICE

Cardan shaft parts flying off!

Improper attachment of the cardan shaft can cause serious damage to the tractor, machine and the cardan shaft itself.

► Before attaching the cardan shaft, observe the operating instructions of the cardan shaft manufacturer included with the cardan shaft.

Implementation

► Attach the cardan shaft, according to the specifications in the operating instructions of the cardan shaft manufacturer, (with the side of the overload clutch if present) to the PTO stub of the input gearbox of the machine and let it engage completely.

  ▷ Depending on the cardan shaft design, attach and tighten the clamping screw.

  ▷ Make sure that the connection of the gear PTO stub to the cardan shaft is tight.

► Attach the guard supporting chain (depending on the cardan shaft design) at a suitable point (near the coupling point), taking into account the maximum swivel angle of the cardan shaft.

  ▷ The guard supporting chain may not wrap around the guard, therefore cut the chain to length taking into account the maximum possible swivel angle.

► Attach the cardan shaft to the tractor with the other side and let it engage completely.

  ▷ Bring the cardan shaft holder (if present) into its park position.

  ▷ Depending on the cardan shaft design, attach and tighten the clamping screw.

  ▷ Make sure that the gear PTO stub connection to the cardan shaft is tight.

► Attach the guard supporting chain (depending on the cardan shaft design) at a suitable point (near the coupling point), taking into account the maximum swivel angle of the cardan shaft.

NOTICE

Damage to protective elements!

Overlong guard supporting chains can wrap around the cardan shaft during operation and damage protective elements.

► Do not fasten the guard supporting chain to the protective cap of the gear.

► Cut the guard supporting chain to length, taking into account the maximum possible swivel angle if necessary.

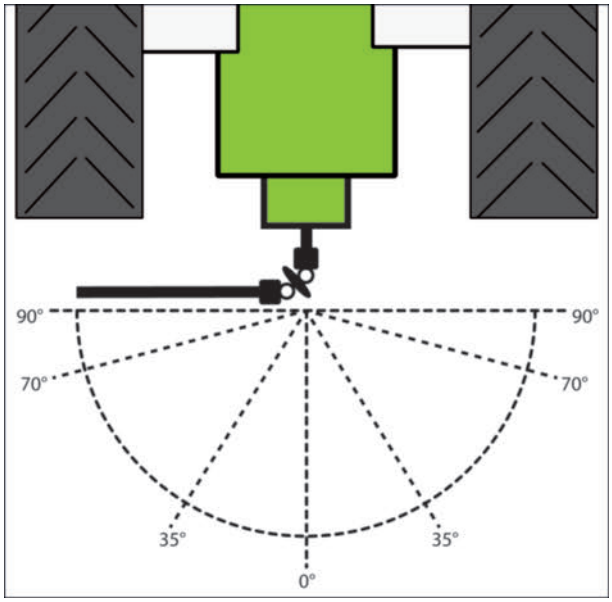
Cardan shaft application limits

During use, the permissible PTO shaft speed and the permissible maximum angulation per joint design may not be exceeded.

When the PTO shaft is at a standstill, the permissible maximum angulation per joint design may also not be exceeded!

Maximum permissible angulation per joint design

Joint design	Maximum angulation during operation	Maximum angulation at a standstill
Wide angle joint	70°	70°
Standard joint	35°	90°



Starting work

⚠ WARNING

Risk of injury!

- ► Before starting work, check the machine traffic safety and operational safety. Only put the machine into operation when all protective devices are properly attached and functioning.
- ► Before starting work, couple the machine correctly and completely to the tractor.
- ► Before driving the machine, make sure that no one is in the danger zone in front of and behind the machine. If necessary, have a second person who is outside the danger zone instruct you.
- ► Direct people out of the danger zone.
- ► Driving behavior is significantly influenced by ballast weights and by the size of towed/attached machines. Avoid fast or sudden cornering, especially when driving uphill and downhill and transverse to the slope, due to the risk of tipping.
- ► Before leaving the tractor, pull the parking brake, switch off the engine and put away the ignition key. If necessary, use wheel chocks.

⚠ WARNING

Damage to health due to noise!

The effect of noise on the body can lead to various types of damage, e.g. hearing loss, tinnitus, etc.

- ► At noise levels above 80 dB(A), the use of hearing protection is strongly recommended.
- ► At noise levels above 85 dB(A), the use of hearing protection is mandatory.
- ► To further reduce the noise level, close the tractor cab.

⚠ WARNING

Flung material (e.g. stones, chunks of soil...) can hit and injure people!

- ► Particular caution is required in stony fields and near roads and trails.
- ► Bring the protective covers into the operating position.
- ► Keep your distance when the engine is running!

  No people may reside in the danger zone during the work. Direct people out of the danger zone.

  No people may accompany the machine during the work.
- ► Switch off the PTO shaft and wait for the drive to come to a standstill before lifting the machine.

NOTICE

Damage when driving over obstacles!

► Drive with anticipation.

► If possible, remove known obstacles before starting work.

ENVIRONMENT

Avoid unnecessary turning operations. Before starting work, consider how to best work the surface.

Transport journey

Transport journeys are journeys on public traffic areas to and from the job site. The height, width and weight may not exceed the legally permissible values of the country in which the machine is operated. The lighting must be functional and clean during the transport journey and must be perpendicular to the roadway.

CAUTION

Danger due to unsecured swiveling machine components!

If machine components are not secured as prescribed before starting the transport journey, they can swivel out unexpectedly.

► Secure all components of the machine that can be secured as prescribed.

NOTICE

Damage to the machine due to unsecured machine components!

If machine components are not secured as prescribed before starting the transport journey, they can swivel out unexpectedly.

► Secure all swiveling components of the machine as prescribed.

Prerequisite

- Machine / machine combination completely attached to a suitable tractor and secured. See "Coupling the machine / machine combination to the tractor" on page 117.
- Ballasting completely attached to the tractor. See "Tractor ballasting" on page 55.
- PTO shaft switched off.
- All folding components of the machine / machine combination folded into road transport position.
- All transport locks activated. See "Transport locks" on page 40.
- Coarse dirt removed from the machine / machine combination and all attachments.
- Traffic safety equipment in faultless condition and fully functional. See "Repositioning the lighting supports" on page 114.See "Traffic safety equipment" on page 34.

Implementation

1 Check lateral pendulum area of the tractor lower linkage. If necessary, correct so that the machine cannot swing in raised condition.

2 Lift the attached seed drill into road transport position via Hydrolift or hydraulic top link and activate the transport locks.

3 Lift the machine / machine combination into road transport position.

4 Switch on the lighting.

5 Carry out transport journey.

Usage

⚠ DANGER

Crushing, pulling in or severing of body parts!

When approaching moving machine parts, clothing, hair and body parts can be caught in such a way that escape is not possible without sustaining serious to fatal injuries.

► Do not enter the danger zone of the machine as long as machine parts can move there.

► Check safety devices for completeness and operational readiness before commissioning.

► Before commissioning and during operation, direct all people away from the danger zone around the machine.

⚠ CAUTION

Risk of injury due to foreign objects flying off at high speed!

If the machine is operated without a trailer, foreign objects such as stones (especially in the rear area of the machine) can be ejected at high speed and over long distances.

► Do not operate the machine without a trailer.

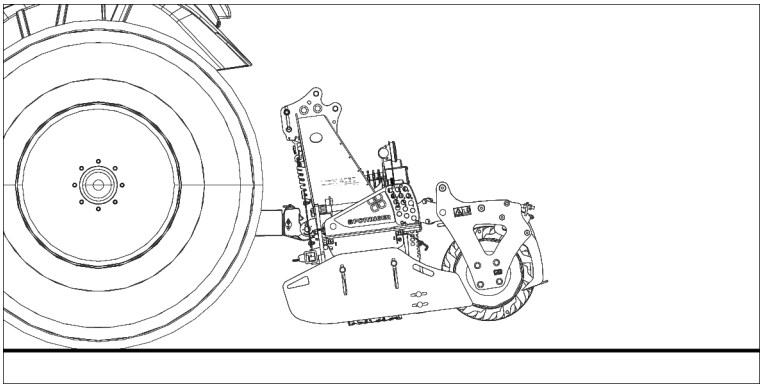
Performing the soil cultivation

Prerequisite

- Machine / machine combination completely attached to a suitable tractor and secured.
- Tractor lower linkage set so that the machine can move laterally in the working position without colliding with tractor parts.
- Ballasting completely attached to the tractor.
- Transport locks removed. See "Transport locks" on page 40.
- All steps for the operation of any attached seed drill performed if necessary. See operating instructions for the seed drill.
- Side plates swung into working position.

Implementation

1 Lower the machine / machine combination to ground level.



- ▷ Lower any attached seed drill using the hydraulic top link / Hydrolift into working position.
- ▷ Perform all work steps required for the operation of any attached seed drill (e.g. switch on control system, switch on blower, etc.)

2 Switch on the PTO shaft and bring it up to the specified speed. See sticker on the input gearbox.

3 Start up slowly with the tractor and lower the rotary harrow to the set working depth (trailer rests on the ground).

- ▷ Set the soil cultivation machine horizontally to the ground or tilted slightly forward using the top link.
- ▷ Check the inclination of any attached seed drill and adjust if necessary. See operating instructions for the seed drill.

4 Accelerate the tractor to operating speed and perform the soil cultivation / seeding work.

5 After driving a short distance, lift the rotary harrow to the headland position and stop the tractor to check the work result.

- ▷ Switch off PTO shaft.
- ▷ Switch off the running functions of any attached seed drill.
- ▷ Turn off the tractor engine, remove and store the ignition key, apply the parking brake and secure the tractor against rolling away using wheel chocks.

6 Check the work result.

- ▷ If the work result is not as desired, change the settings of the machine according to the work result.
  - ▷ If necessary, adjust the setting of the side plates to the working depth. See "Side plate settings" on page 64.
  - ▷ If necessary, adjust the leveling effect via the setting of the impact rail. See "Impact rail working depth setting" on page 67.
  - ▷ If necessary, adjust the working depth via the setting of the trailer. See "Setting the working depth manually" on page 62.See "Setting the working depth hydraulically" on page 63.
  - ▷ If necessary, adjust the setting of the track markers. See "Setting the track marker (option)" on page 80.
  - ▷ If necessary, adjust the setting of the seed drill. See operating instructions for the seed drill.

7 Put the tractor back into operation.

8 Perform all work steps required for the operation of any attached seed drill (e.g. switch on control system, switch on blower, etc.)

9 Lower the machine/machine combination to ground level.

10 Switch on the PTO shaft and bring it up to the specified speed.

11 Start up slowly with the tractor and lower the rotary harrow to the set working depth (trailer rests on the ground).

12 Accelerate the tractor to operating speed and continue the soil cultivation / seeding operation.

13 To check the work result again after driving a short distance, lift the rotary harrow to the headland position and stop the tractor.

- ▷ Switch off PTO shaft.
- ▷ Switch off the running functions of any attached seed drill.
- ▷ Turn off the tractor engine, remove and store the ignition key, apply the parking brake and secure the tractor against rolling away using wheel chocks.

14 Check the work result again.

- ▷ If the work result does **not** meet the needs, repeat the process from point 6.
- ▷ If the work result meets the needs, continue with the following steps.

15 Put the tractor back into operation.

16 Perform all work steps required for the operation of any attached seed drill (e.g. switch on control system, switch on blower, etc.)

17 Lower the machine / machine combination to ground level.

18 Switch on the PTO shaft and bring it up to the specified speed.

19 Start up slowly with the tractor and lower the rotary harrow to the set working depth (trailer rests on the ground).

20 Accelerate the tractor to operating speed and continue the soil cultivation / seeding operation.

Performing the turning process

► Reduce the tractor speed and stop.

► Switch off PTO drive.

TIP

If the soil cultivation machine is only lifted until the tines have been completely lifted out of the ground, the PTO shaft can remain switched on under certain circumstances.

If vibrations or noises occur at the cardan shaft in raised condition, the PTO shaft should generally be switched off before turning maneuvers.

► Lift the machine / machine combination into headland position using the rear power lift.

► Execute the turning process.

► Perform all work steps required for the operation of any attached seed drill (e.g. switch on control system, switch on blower, etc.)

► Lower the machine / machine combination to ground level.

► Switch on the PTO shaft and bring it up to the specified speed.

- ► Start up slowly with the tractor and lower the rotary harrow to the set working depth (trailer rests on the ground).
- ► Accelerate the tractor to operating speed and continue the soil cultivation / seeding operation.

Disconnection

DANGER

Danger of tipping due to incorrect operation of support devices!

If support devices, such as support legs / parking supports, are not used or not secured, the machine can tip over.

- ► Only park the machine on a level, stable surface.
- ► Use support legs or parking supports when parking the machine.
- ► Secure support legs or parking supports as prescribed.

DANGER

Pulling in or severing of body parts!

- ► Secure the PTO drive against unintentional activation.

WARNING

Risk of crushing for the entire body when operating the power lift!

- ► Direct people out of the danger zone around the power lift.
- ► Do not step between the tractor and the machine when operating the power lift via external keys.

WARNING

Risk of crushing for the entire body!

Residing in the danger zone of the tractor and machine is prohibited as long as the combination is not secured against rolling away and unintentional commissioning.

1. Direct bystanders out of the danger zone around the tractor and machine.
2. Ensure that bystanders do not enter the danger zone.
3. Only park the machine on a level, stable surface.
4. Apply the parking brake.
5. Switch off the tractor engine, remove and store the ignition key.
6. Insert wheel chocks on the tractor and on the machine.

WARNING

Falling due to slipping / tripping!

Entering the parked machine can lead to significant injuries.

- ► Do not enter the parked machine.
- ► Take appropriate measures to prevent children from entering the machine.

Disconnecting the cables

Implementation

► Disconnect the cables on the tractor and machine / machine combination for each function.

- Lighting plug of the machine / machine combination.
- Other plugs (e.g. cable for control system / power supply) for the assembled seed drill.

► Attach covering caps.

► Roll up the cable and place it in the toolbox if possible, otherwise place it on the hose holder.

Disconnecting the hydraulic hoses

WARNING

Hydraulic oil escaping under high pressure!

Hydraulic oil escaping under high pressure can penetrate the skin and cause serious infections.

► Depressurize the hydraulic system before connecting or disconnecting the hydraulic hoses.

► Before disconnecting the hydraulic hoses or maintenance or repair work, depressurize the hydraulic system.

► In case of injury, consult a physician immediately.

ENVIRONMENT

Collect and dispose of lubricants and lubricant mixtures properly.

Prerequisite

- Hydraulic system depressurized, otherwise the plug connections may not be able to be unplugged.
- Tractor and machine are parked on a level and stable surface and secured against rolling away.
- Cardan shaft disconnected from the tractor and placed in the cardan shaft holder.
- During work on the machine, tractor engine switched off, parking brake applied, ignition key removed and stored.

Implementation

► Set the control element of the tractor control valve for the following functions to “neutral or float position”.

- Tractor control valve of the track marker (option) of the soil cultivation machine.
- Tractor control valve of the hydraulic working depth adjustment of the soil cultivation machine.

- Tractor control valve of the Hydrolift (option).
- Tractor control valve of the hydraulic top link (option) for the seed drill.
- Tractor control valve of the hydraulic seed drill functions. See operating instructions for the seed drill.
- Tractor control valve of the hydraulic top link (option) of the soil cultivation machine.

► Disconnect the hydraulic hose for the respective function.

► Clean the plug and socket of hydraulic oil residues with a clean and lint-free cloth.

ENVIRONMENT

Do not allow oil residues to enter the environment, but dispose of them properly.

► Attach protective caps to the plug and socket.

► Place the hydraulic hoses on the hose holder (rolled up if necessary) of the soil cultivation machine or the seed drill.

Machine / machine combination removal

The soil cultivation machine can be attached to a tractor as a solo machine, or can be attached together with suitable seed drills as a machine combination.

Prerequisites

- Transport locks properly and completely attached.
- Tractor and machine / machine combination parked in working position as shown below and secured against rolling away.

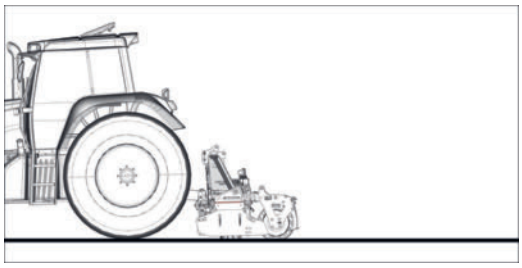


Fig.: Solo machine (here without track marker)

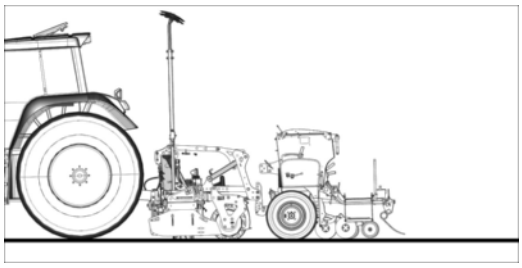
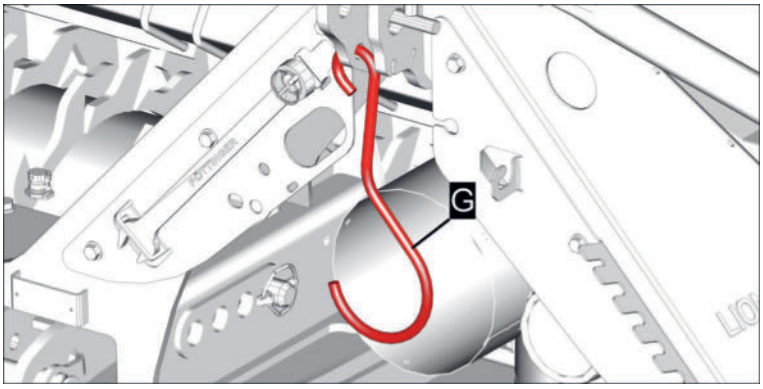


Fig.: Machine combination LION with VITASEM on Hydrolift

- Hydraulic hoses disconnected.
- Electrical connections disconnected.
- Cardan shaft disconnected from the tractor, pushed together and placed in the cardan shaft holder (G).



Preparation

- Level, stable and weather-protected parking place.
- Preserving agent for bare machine parts (such as piston rods of hydraulic cylinders) if the machine is to be parked for a longer period of time.

Removing the machine / machine combination

Implementation

► Lower the soil cultivation machine to the ground using the rear power lift and place it horizontally on the tines and the trailer, if not already done.

▷ Perform all necessary steps to park the seed drill in working position as described in the operating instructions for the seed drill, and lower the seed drill into working position to the stop.

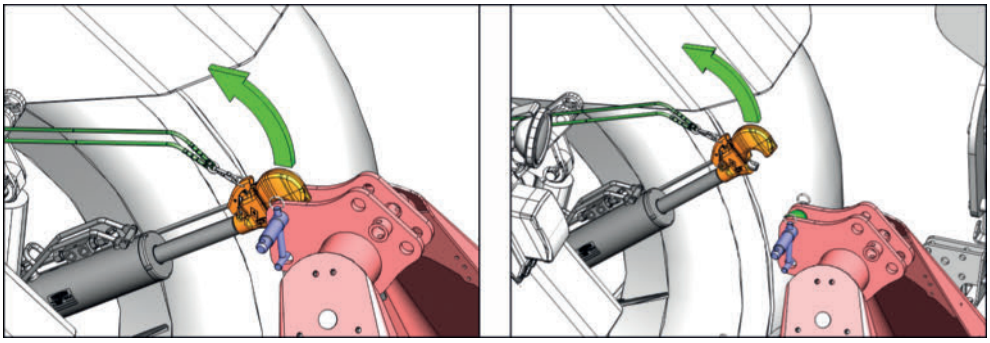
► Turn off the tractor, remove and store the ignition key, apply the parking brake and secure the tractor against rolling away.

⚠ CAUTION

Risk of crushing!

► When attaching / removing the machine, do not reach into the crushing danger zone.

► Relieve the top link and disconnect it.



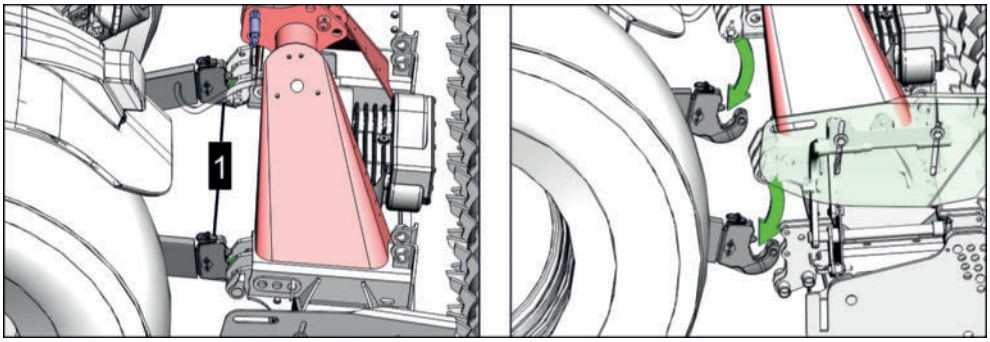
Symbolic illustration

► Relieve the lower linkage (1), disconnect it and lower it using the rear power lift.

CAUTION

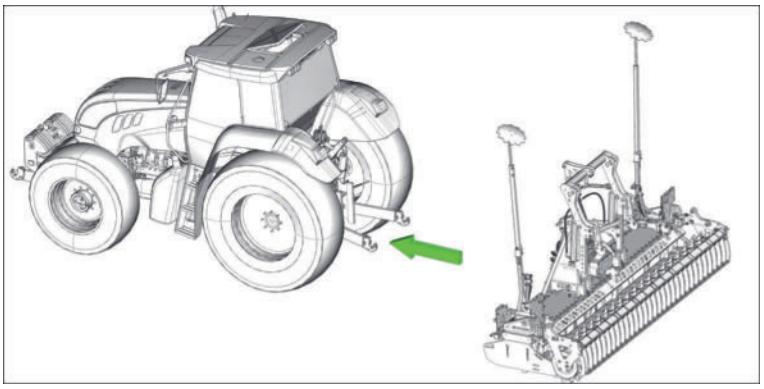
Risk of crushing!

► When attaching / removing the machine, do not reach into the crushing danger zone.



Symbolic illustration

► Drive the tractor away from the soil cultivation machine.



▷ Remove the lower linkage and top link balls if necessary.

Decommissioning the machine at the end of the season

NOTICE

Damage due to unfavorable storage conditions!

► Park the machine cleaned, protected from weather, dry and not near artificial fertilizer or stables.

► Provide bare machine parts, such as hydraulic cylinder piston rods or the like, with rust protection.

► Disconnect the cardan shafts from the machine, push them together completely lengthwise, and store them horizontally in a dry place, protected from the weather.

⚠ WARNING

Falling due to slipping / tripping!

Entering the parked machine can lead to significant injuries.

► Do not enter the parked machine.

► Take appropriate measures to prevent children from entering the machine.

DANGER

Catching, pulling in and severing of limbs, as well as crushing and rolling over of entire body!

When working on the machine, the danger zone in which machine components can move and the danger zone of the tractor must be entered.

- ► Before all work on the machine, switch off the tractor engine, switch off the PTO shaft, apply the parking brake, remove and store the ignition key.
- ► Wait for all machine components to come to a standstill before entering the danger zone of the tractor / the machine.
- ► When working under the machine or when the machine is raised, place trestles underneath to prevent unintentional lowering of the machine / machine components!

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 the machine cannot be set in motion unintentionally or by third parties.
- ► Make sure that the tractor cannot be set in motion unintentionally or by third parties.

WARNING

Failure to wear personal protective equipment!

- ► Use personal protective equipment (work clothes, work shoes, gloves, safety goggles) when handling the machine.

NOTICE

Damage to the drive train!

When the PTO brake is active on the tractor, tension can occur in the drive train, which can lead to damage to the machine components involved.

- ► Switch off the PTO brake of the tractor before folding processes!

Maintaining operational readiness

Regular care and maintenance is a basic requirement for ensuring that your machine remains functional and safe to operate.

⚠ WARNING

Risk of injury when working on the machine!

- ► Use personal protective equipment such as safety goggles, gloves, etc.
- ► Park the machine on level, firm ground and secure it against rolling away.
- ► Turn off the tractor engine, apply the parking brake, remove and store the ignition key.
- ► Secure the work area so that this area cannot be entered by bystanders / unauthorized personnel.
- ► Perform all work only when the drive is at a standstill.
- ► Close the shut-off valve on all hydraulic lines before working in the danger zone or on hydraulically controlled machine parts.
- ► Disconnect all electrical plug connections between the tractor and machine before working on electrically driven machine parts.
- ► Use suitable support elements to prevent unintentional lowering / swiveling of hydraulically controlled machine parts.
- ► After completing the work, check loosened screw connections for tight fit and safety / protective devices for correct function.

General notes

Retighten all screws after the first operating hours!

Spare parts

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

We would like to point out 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 specified characteristics of your machine. The manufacturer is not liable for any damage caused by the use of non-original parts and accessories.

Unauthorized modifications to the machine, as well as the use of parts and attachments that are not part of the machine ex works, rule out any liability by the manufacturer.

Control terminals

Before winter storage of the machine, disconnect the control terminals and store them in a frost-proof, dry place, protected from direct sunlight. Fully charge battery-operated terminals before winter storage, and then check the battery status regularly to avoid destruction of the battery through deep discharge.

Cardan shaft maintenance

For the maintenance of cardan shafts, the instructions in this manual always apply.

If there are no specific instructions in this manual, the instructions in the supplied manual from the respective cardan shaft manufacturer apply.

In dusty conditions or severe angulation of the cardan shaft, adjust or halve the lubrication intervals.

Fig.: Sticker on the cardan shaft

Cardan shaft assembly / disassembly

The assembly of cardan shafts on machines may require special procedures to ensure that the machine is not damaged during commissioning. For the assembly/disassembly of cardan shafts, e.g. during assembly after maintenance work, the instructions in this manual always apply.

If there are no specific instructions for assembly or disassembly in this manual, the instructions in the supplied manual from the respective cardan shaft manufacturer apply.

Repair welding

Before any welding work on the tractor while the machine is attached, the plug connections on the job computer of the machine must be disconnected. Before welding work directly on the machine, the plug connections on the job computer must also be disconnected.

Battery charging and jump start operations

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 must be started by means of jump starting with the machine attached, all electrical plug connections to the machine must be disconnected beforehand.

Cardan shaft

TIP

The lubrication intervals of the cardan shaft must be adjusted or halved in dusty conditions and severe operational angulation.

TIP

For complete instructions on cleaning and maintenance of the existing cardan shaft, the operating instructions of the cardan shaft manufacturer included with the cardan shaft must be observed!

Winter operation

If the cardan shaft is operated in winter, the protective tubes must be greased with universal grease, operating fluid code (IV) according to operating fluid specifications, to prevent the protective tubes from freezing. See page 157.

Implementation

► Pull the cardan shaft without integrated protective tube lubrication apart to the maximum possible length and lubricate the inner protective tube lightly with universal grease.

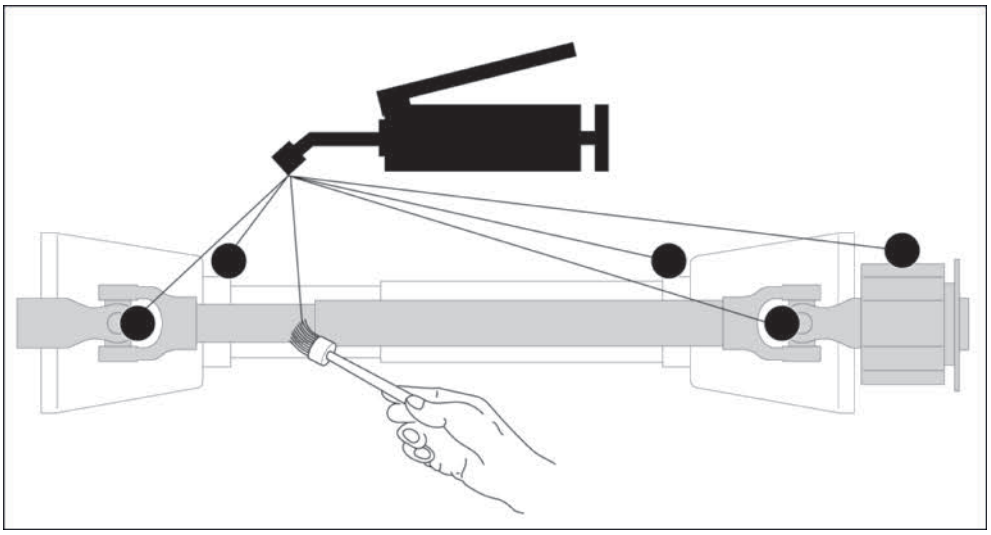
▷ Push the cardan shaft back together.

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

Cleaning and lubricating the cardan shaft

Implementation

► If the cardan shaft is brand new and after a longer standstill, clean it before initial commissioning and lubricate it with universal grease, operating fluid code (IV), until grease escapes at the bearing points. See "Operating fluid specification" on page 157.



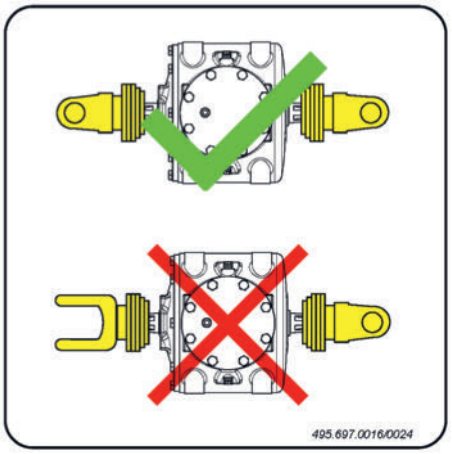
Symbolic illustration of the possible lubricating points

▷ Dispose of escaping lubricant properly.

► Then lubricate the cardan shaft regularly according to the manufacturer's instructions / lubrication schedule.

Attaching the cardan shafts

When attaching cardan shafts to the input / distribution gearbox of foldable machines, ensure that they are always aligned symmetrically, as shown below, to prevent damage due to tension in the drive train.



NOTICE

Damage to the drive train!

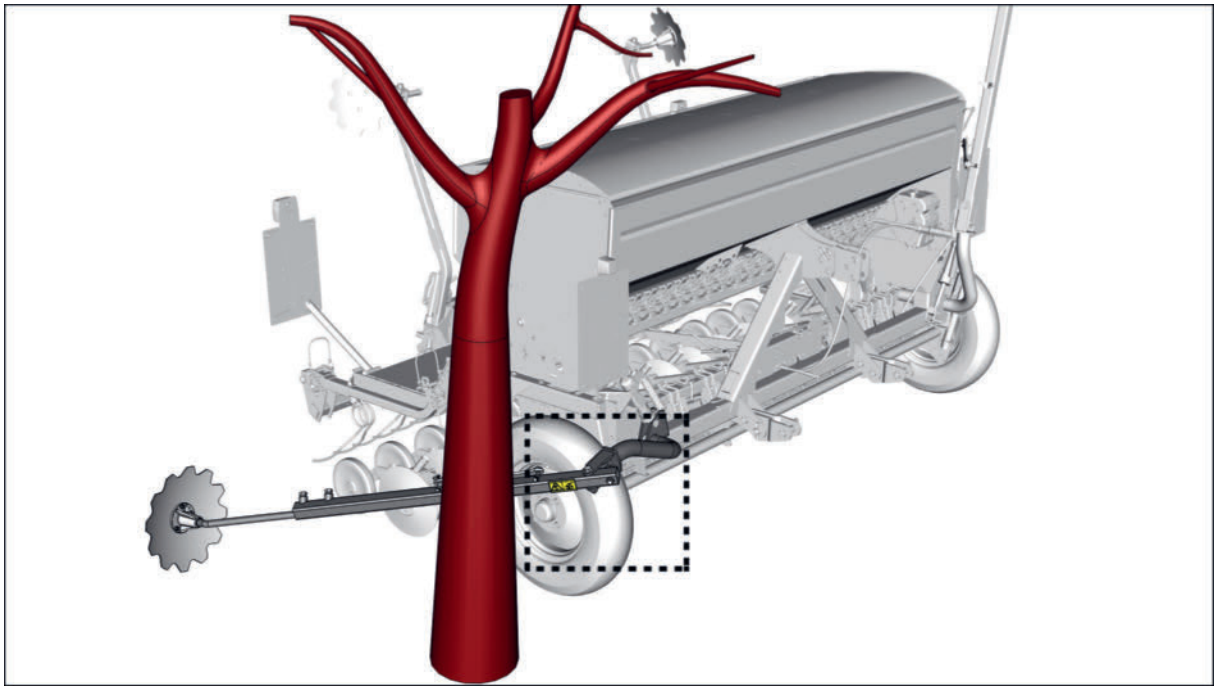
If the drive shafts are not attached symmetrically on the gearbox, tension can occur in the drive train, which can lead to damage to the machine components involved.

► Always connect the cardan shafts to the input gearbox so they are aligned with each other.

The activities described below are performed after the inspection and evaluation of the condition of certain machine areas / machine parts.

Track marker collision protection

The track markers are equipped with a breakaway bolt to protect them from damage. The screw must be replaced when the collision protection is triggered.



Symbolic illustration of right track marker

Replacing the breakaway bolt

2 spare breakaway bolts are installed on each track marker boom.

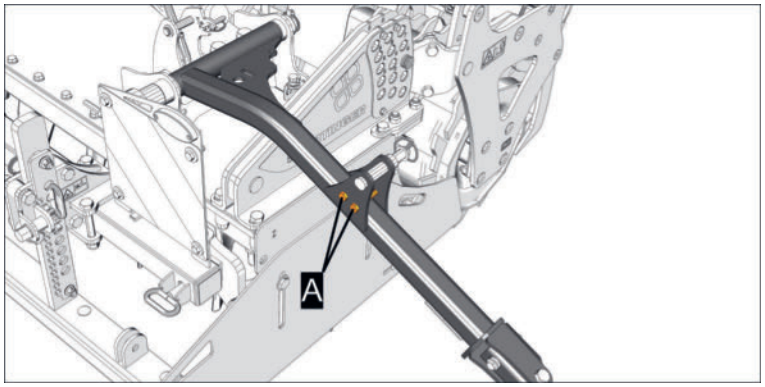
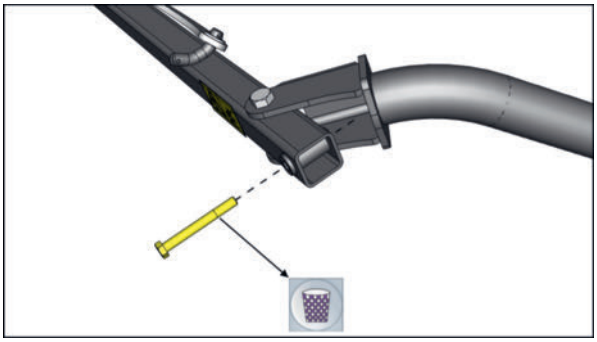


Fig.: Example of LION left boom

Implementation

► Remove any remains of the cracked screw.



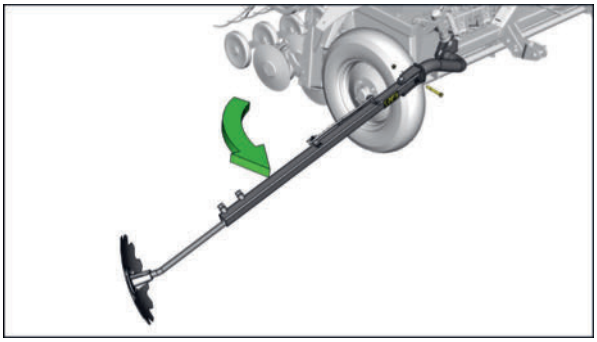
► Press the track marker forward.

NOTICE

Risk of property damage

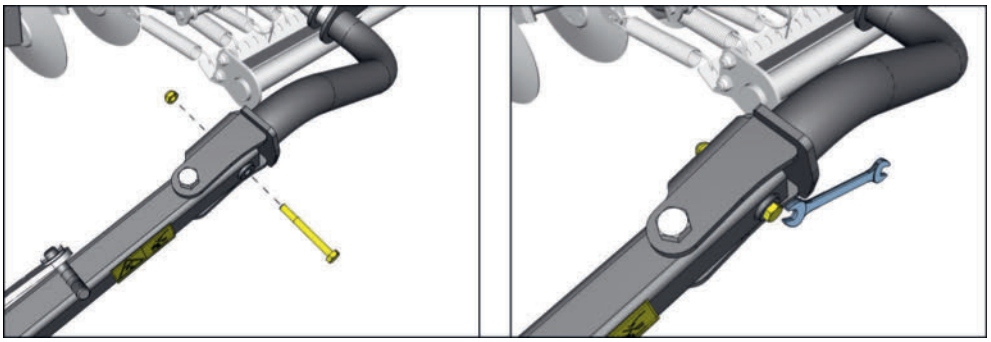
If unsuitable screws without a predetermined breaking point are installed, damage to the track markers may occur if the collision protection is activated again.

► Use only PÖTTINGER original spare parts.

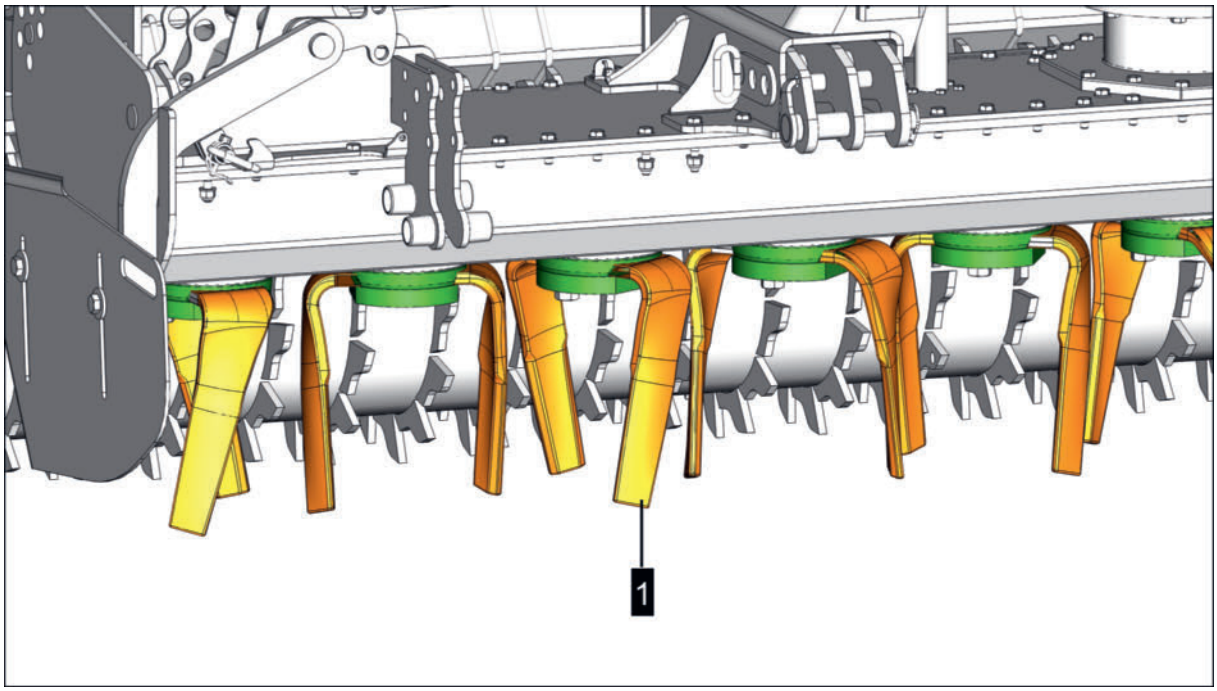


Symbolic illustration

► Attach new screw, nut and tighten them. Also see spare parts list.



Replacing the tines



1 = Tines

- If damaged
- When the wear limit is reached

Replacing tines with standard plate (series)

DANGER

Danger of catching and pulling in of a person's garments or long hair.

► Any attached seed drills removed from the soil cultivation machine.

► Soil cultivation machine attached to a suitable tractor.

► Soil cultivation machine raised slightly, parked on a level and stable surface, and secured against unintentional lowering with suitable supports.

► Tractor engine turned off, ignition key removed and stored.

Preparation

- Medium-strength threadlocker (e.g Loctite 243)

Implementation

► Remove the screws, take off the plate and mark the installation position of the plate.

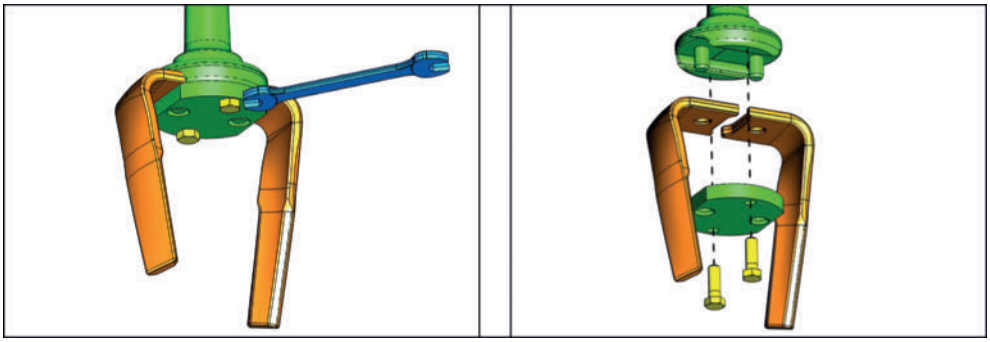
WARNING

Falling of machine parts!

Tines could fall down during disassembly of the plate.

► Release the plate gradually.

► Make sure that both tines are released at the same time as the plate and can be removed together with the screws or bolts.



► Clean the tine carrier, plate and holder area (around the hole) of the tines.

► Apply threadlocker to the threads of the screw (use new screws if necessary - see spare parts list).

► Attach the tines and plate, take into account the installation position of the plate (as removed).

► Reinsert the screws and tighten with 258.15 lbf-ft of torque.

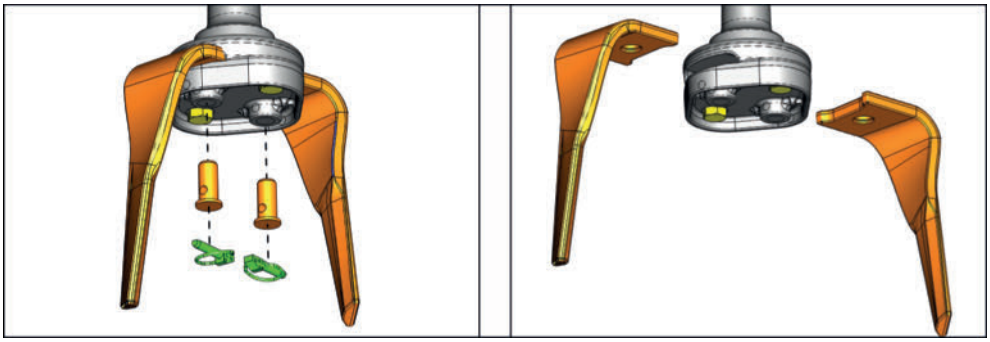
Replacing tines with quick-release plate (option)

Prerequisite

- Any attached seed drills removed from the soil cultivation machine.
- Soil cultivation machine attached to a suitable tractor.
- Soil cultivation machine raised slightly, parked on a level and stable surface, and secured against unintentional lowering with suitable supports.
- Tractor engine turned off, ignition key removed and stored.

Implementation

► Remove the linch pin and bolt, then pull the tines out to the side.



► Clean the tine carrier gaps if necessary (brush out, blow out).

► Reassemble the tines in reverse order and secure them with the linch pin.

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

Before each season

Bar lubrication

TIP

The bar contains fluid grease (specification DIN51825 KP2K-20).

During regular operation, it is not necessary to replace the fluid grease filling during the service life of the machine.

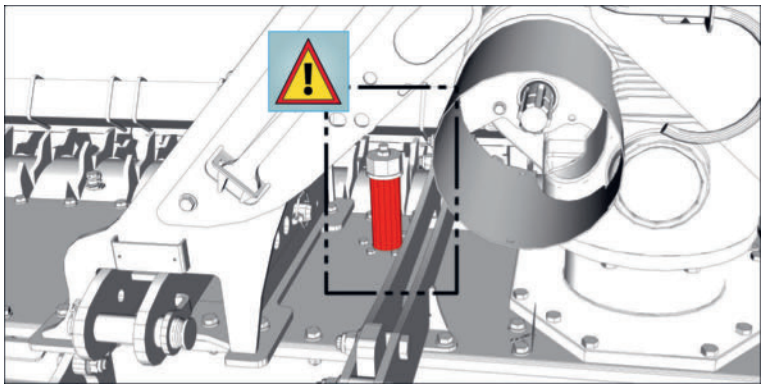


Fig.: Fluid grease filler neck

Checking the fluid grease fill level

TIP

If there is no obvious loss of grease on the bar, it is sufficient to check the fill level 1x per season.

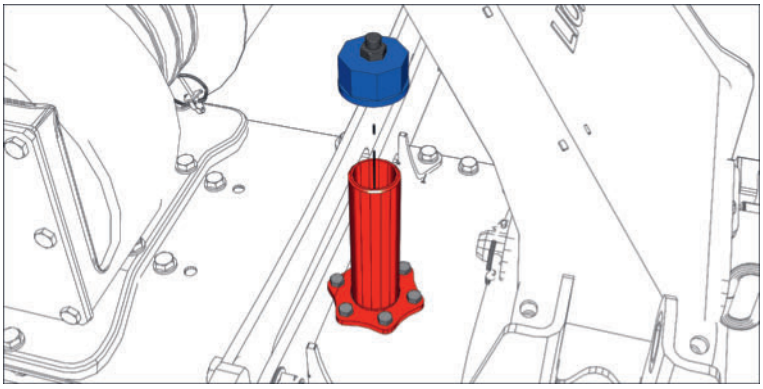
Check the fill level when the machine is at operating temperature.

Prerequisite

- Machine parked on a level and stable surface in working position.
- The filler neck and the area around the filler neck cleaned to prevent foreign objects from entering the bar gear.
- Allow significantly heated parts of the machine, such as the input gearbox, to cool down before touching them.
- Use personal protective equipment (such as gloves, safety goggles and protective clothing).

Implementation

► Open the filler neck and check the fill level of the grease filling.



► The fill level should be approx. between the center of the gears (MIN) and the upper edge (MAX) of the gears.

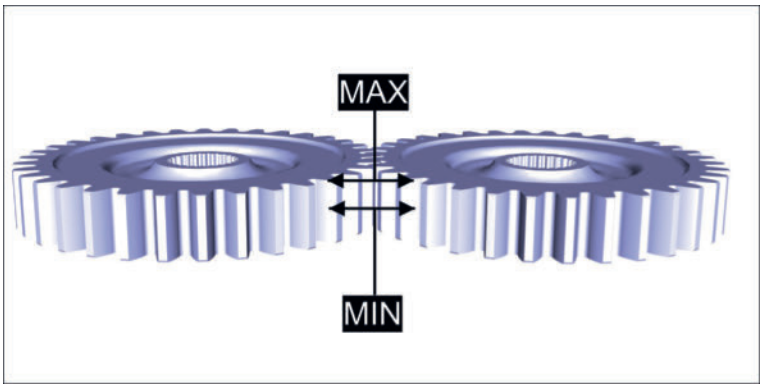


Fig.: Minimum and maximum fill level

▷ If the grease filling no longer reaches the upper edge of the gears, heat the fresh fluid grease slightly to improve the flow characteristics and fill up gradually until the fill level is at the upper edge of the gears.

NOTICE

Overheating of grease!

If the fluid grease is overheated, its lubricating properties may be impaired.

► Do not heat fluid grease above +95 °F.

WARNING

Risk of burns due to hot grease!

► Do not heat fluid grease above +95 °F.

► Close the filler neck and tighten the cap.

Checking the cardan shaft cam clutch

The cam clutch of the cardan shaft should be checked (depressed) once a year. Checking is especially important if it never responds during normal operation.

NOTICE

Overload in the drive train!

If the cam clutch never releases during operation, the release torque may increase significantly by itself or the cam clutch may seize.

► Have the cardan shaft depressed annually by a service dealer!

A tolerance of ±10% from the release torque is permissible.

If the limit value is exceeded or fallen below, the cardan shaft must be replaced.

TIP

For complete instructions on cleaning and maintenance of the existing cardan shaft, the operating instructions of the cardan shaft manufacturer included with the cardan shaft must be observed!

Daily maintenance

Daily maintenance must be performed at the start of each workday, before using the machine.

Checking the hydraulic system

WARNING

Infections due to escaping hydraulic oil!

Hydraulic oil escaping under high pressure can penetrate the skin, enter body orifices and cause serious infections!

► Depressurize the hydraulic system before performing maintenance work.

► Wear personal protective equipment, such as safety goggles and gloves, during all work on the hydraulic system.

► Before each commissioning, check the hydraulic system for wear and damage.

► Only search for leaks using suitable aids (e.g. special spray for locating leaks). Have defects immediately rectified at a specialist workshop.

► Do not seal leaks with your hand or other body parts.

► In case of injuries relating to hydraulic oil, consult a physician immediately.

Checking for damage and leaks

NOTICE

Breakage of old hydraulic hoses

► Hydraulic hoses that are older than 6 years must be replaced. Only use replacement hoses of the same specification. See spare parts list.

Prerequisite

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

Implementation

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

TIP

Possible damage on hydraulic hoses

- Kinks
- Blistering
- Porous or cracked hose surface
- Chafing and exposed fabric on the coating

▷ In case of leaks at the screw connection, retighten the respective screw connection if possible. If the leak cannot be eliminated, the respective hydraulic component must be replaced immediately.

▷ Before all maintenance and repair work on the hydraulic system, the hydraulic system must be depressurized.

To do this, move the tractor control unit back and forth several times between lifting and lowering with the hydraulic pressure supply switched off.

Checking / replacing lighting bulbs

Defective lights or bulbs must be replaced before driving on public traffic areas (except work lights).

TIP

Maintenance of LED lights

Bulbs cannot be replaced for LED lights!

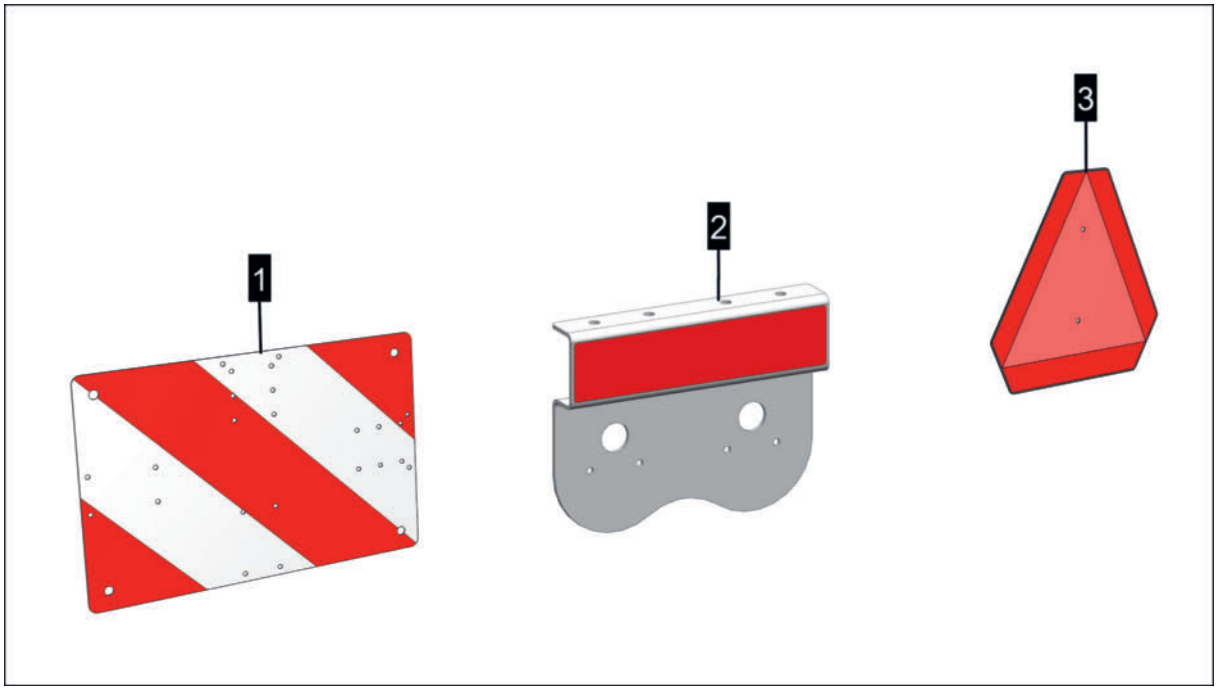
Replace LED light in case of defect.

Checking / replacing warning signs, warning triangles, warning foils

TIP

Warning signs, warning triangles, and warning foils consist of a slide (different materials) and a layer of light-reflecting material applied to it.

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



Symbolic illustration

1 = Warning sign

2 = Warning foils (red and yellow)

3 = Warning triangle (SMVI emblem)

CAUTION

Risk of accident due to poorly visible warning devices.

- ► Clean dirty warning signs, warning triangles, and warning foils before driving on public traffic areas with the machine.
- ► Replace damaged warning signs, warning triangles, and warning foils before driving on public traffic areas with the machine.

Implementation

- ► Check warning signs, warning triangles, and warning foils for cleanliness.
  - ▷ Completely remove any contamination with an acid-free and alcohol-free cleaner, a soft cloth or sponge and, if possible, a little warm water.
- ► Check warning signs, warning triangles, and warning foils for damage.
  - ▷ Replace warning signs, warning triangles, and warning foils damaged by weather or mechanical influences immediately (see spare parts list).

TIP

When replacing warning signs, the assembly direction of the warning sign stripes must be observed!

First after 50 hours, then every 100 hours

Input gearbox oil change

WARNING

Risk of burns due to hot gear oil or due to the hot gear housing!

The gear housing and gear oil can be hot due to the operation of the machine.

► Let gear cool down.

► Use oil-proof gloves and safety goggles.

TIP

Cold gear oil is more viscous than warm gear oil.

It is best to change the oil immediately after operation, as long as the gear oil is still relatively fluid.

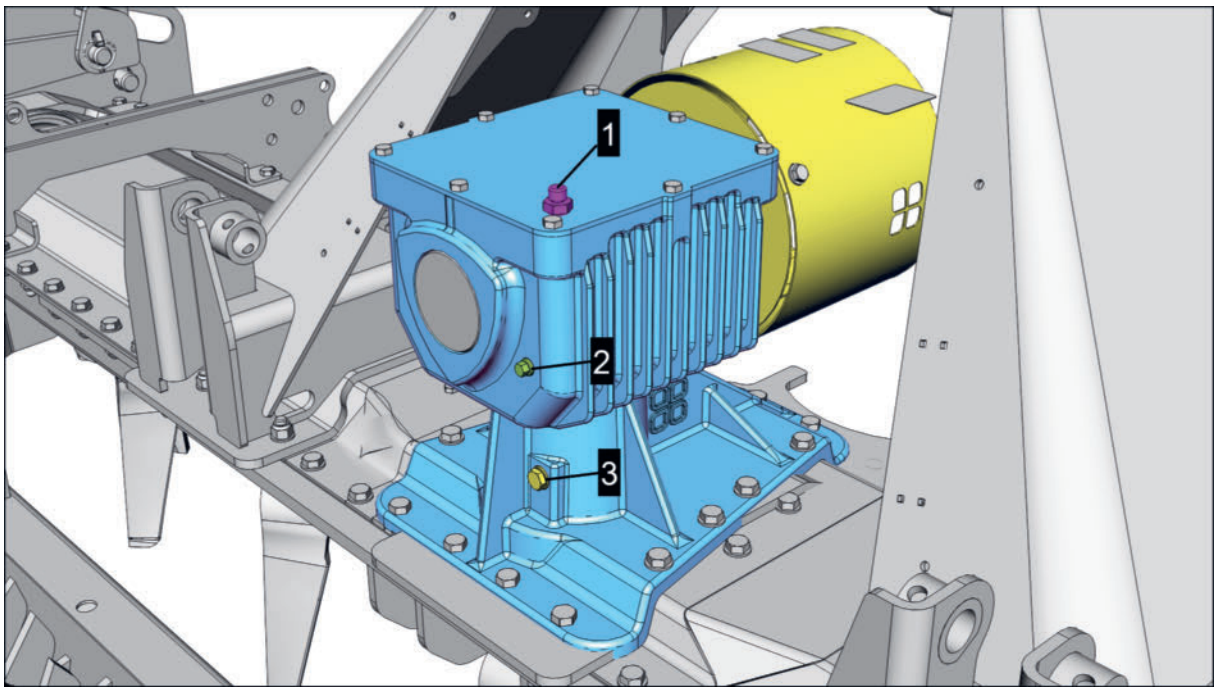
Prerequisite

- Any attached seed drill removed.
- Machine parked on a level, stable surface.
- The areas around the fill level plugs and filler plugs to be opened are cleaned to prevent dirt from entering the gear.

Preparation

- Used oil drain pan with at least 0.53 gal capacity.
- Oil filling funnel
- Paper towels or the like.
- Fresh gear oil according to operating fluid list / lubrication schedule.
- New sealing ring for the oil drain plug / fill level plug / filler plug (see spare parts list).

Input gearbox without drive shaft



CLASSIC input gearbox without drive shaft

1 = Oil filler plug

2 = Oil level plug

3 = Oil drain plug

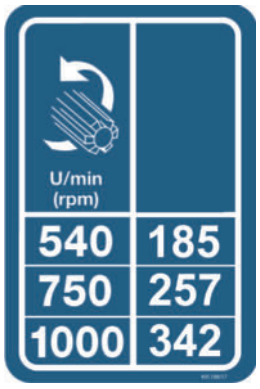
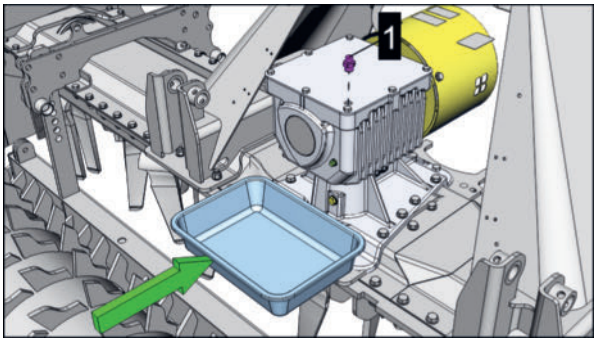


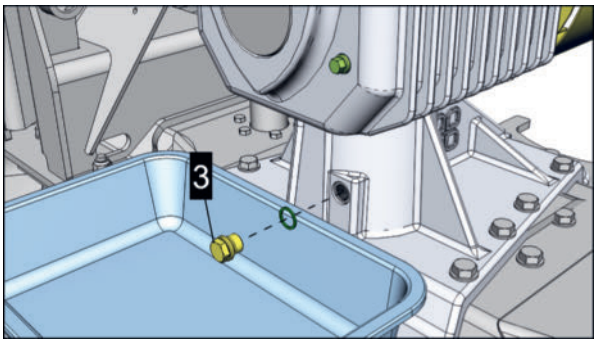
Fig.: The speed sticker on the gear housing shows the ratio of the PTO shaft speed (left column) to the rotor speed (right column).

Implementation

► Unscrew the oil filler plug (1) with oil dipstick, wipe it off and place an oil pan under the oil drain plug.



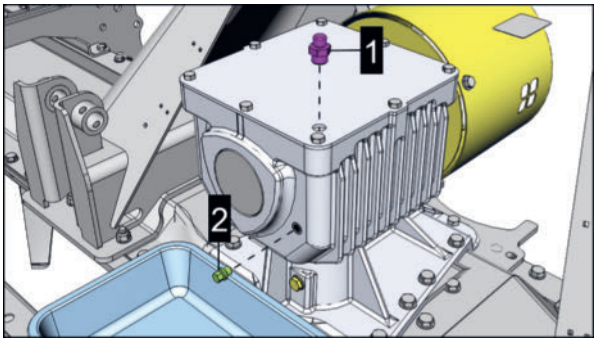
► Unscrew the oil drain plug.



► Drain oil completely.

► Reattach the oil drain plug (3) with new sealing ring and tighten it.

► Remove the oil level plug (2).



► Fill gear oil gradually until oil escapes from the opening of the oil level plug.

▷ Reattach the oil level plug and tighten it.

► Reattach the oil filler plug and tighten it.

► Dispose of used oil and paper towels contaminated with oil properly.

After each season (winter storage)

Machines that are parked without appropriate rust protection may be damaged when they are commissioned again at the start of the season. Therefore, the machine is to be parked so it is protected from weather and from dust deposits (especially due to artificial fertilizer and seed treatment), and not near stables.

NOTICE

Rust damage to bare machine parts without rust protection!

If bare machine parts are not preserved, they may be damaged by rusting when the machine is put into operation again after a longer standstill (e.g. after winter storage).

► Clean bare hydraulic cylinder piston rods before winter storage of the machine and preserve them with universal grease.

► Clean shaft stubs on gears and profiles of cardan shafts before winter storage of the machine and preserve them with universal grease.

► Lubricate all lubricating points according to the maintenance instructions before winter storage.

Cleaning / preserving the machine

Prerequisite

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

Preparation

- High pressure cleaner
- Preservative oil

Implementation

1 Clean thoroughly with a high pressure cleaner.

CAUTION

Eye injuries due to using high pressure cleaners!

► Use safety goggles during cleaning activities with high pressure cleaners or compressed air.

NOTICE

Machine components can be damaged by high pressure cleaners.

► Water temperature maximum +176 °F

► Do not use round jet nozzles, dirt blasters or power cleaner nozzles.

► Keep a minimum distance of approx. 11.81 inch between the high pressure nozzle and the surface.

► Always keep the water jet moving during the cleaning process.

► Do not point the water jet at electrical or hydraulic components, bearings, intake openings, cardan shafts, stickers and tires.

2 Allow the machine to dry completely after wet cleaning.

3 Touch up any existing paint damage.

4 Coat / spray bare machine parts with preservative oil.

5 Check warning signs for completeness and replace if necessary.

Every 6 years

Replacing the hydraulic hoses

WARNING

Hydraulic oil escaping under high pressure!

Hydraulic oil escaping under high pressure can penetrate the skin and cause serious infections.

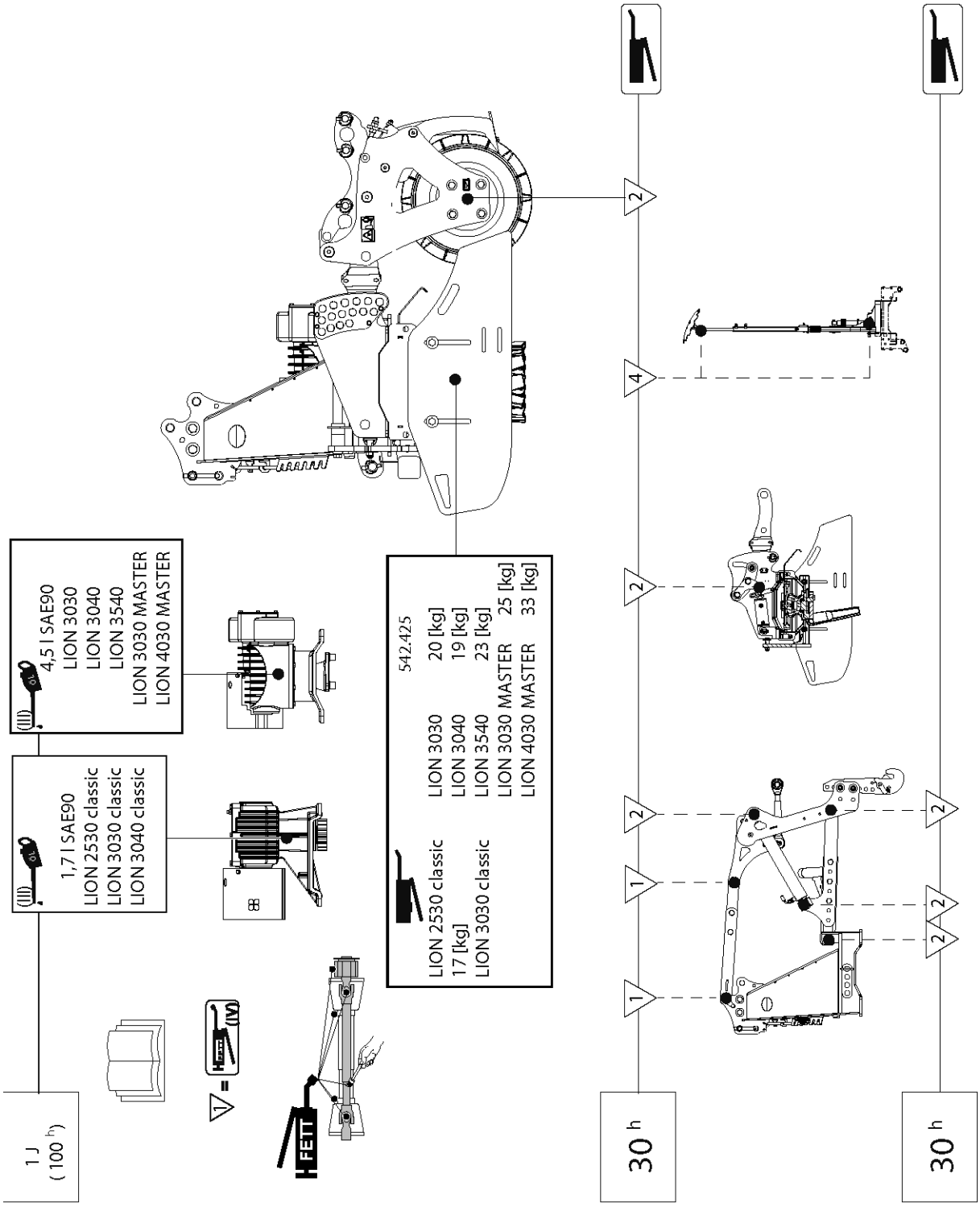
- ► Depressurize the hydraulic system before connecting or disconnecting the hydraulic hoses.
- ► Before disconnecting the hydraulic hoses or maintenance or repair work, depressurize the hydraulic system.
- ► In case of injury, consult a physician immediately.

Hydraulic hoses that are older than 6 years must be replaced. Only use replacement hoses of the same specification, and adopt the attachment points and attachment method of the “old” hoses, or transfer them to the new hoses. Also see spare parts list.

Lubrication schedule

Lubrication schedule symbol explanation

Symbol	Explanation
	Grease
	Oil
	Number and position of grease nipples
Roman numerals in parentheses e.g. (III), (IV), etc.	For operating fluids, see section “Operating fluid specification”; for fill quantities, see section “Operating fluids and fill quantities”
	Observe the instructions of the manufacturer
X h	Lubricate every “X” operating hours
_____	solid connecting lines - standard part
- - - -	dashed connecting lines - optional part


1 J
(100 h)
1,7 l SAE90
LION 2530 classic
LION 3030 classic
LION 3040 classic
4,5 l SAE90
LION 3030
LION 3040
LION 3540
LION 3030 MASTER
LION 4030 MASTER
542.425
LION 2530 classic 17 [kg]
LION 3030 20 [kg]
LION 3040 19 [kg]
LION 3540 23 [kg]
LION 3030 MASTER 25 [kg]
LION 4030 MASTER 33 [kg]
FETT
30 h
30 h

Operating fluid specification

TIP

Minimum quality standards prescribed by PÖTTINGER Landtechnik G.m.b.H. for operating fluids when used on PÖTTINGER machines.

NOTICE

Risk of property damage!

► If operating fluids with lower quality standards than those prescribed are used, the machine may be damaged.

Operating fluid code according to lubrication schedule	Name	Specification
I	Hydraulic oil	HLP 46 DIN 51524 part 2
II	Engine 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	Gear fluid grease	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	Organic lubricating oil	SAE 15W-40
XI	Gear fluid grease	DIN 51 825:KP2k-20
XII	Gear oil	SAE 90 or SAE 85W - 90 according to API GL -5
XIII	Gear oil	ISO VG 320 according to ISO 12925-1:2024

Operating fluids and fill quantities

Where	Operating fluid code according to lubrication schedule	Name	Specification	LION 3040 CLASSIC / 8782
Lubricating points (also with grease nipples)	(IV)	Lithium universal grease	NLGI 12	as needed

Where	Operating fluid code according to lubrication schedule	Name	Specification	LION 3040 CLASSIC / 8782
Bar	(XI)	Fluid grease	Li grease DIN 51825 KP2K-20	41.89 lbs
Classic gear	(III)	Gear oil	SAE 90 or SAE 85W - 140 according to API-GL 4 or API-GL 5	0.45 gal

Lighting

Lighting completely without function

Causes and remedies

► Fuse defective.

▷ Replace with fuse of the same specification.

► Contact fault of the cable is present.

▷ Switch lighting off and back on.

▷ Check all cable plugs for correct connection.

▷ Cable defective. Replace or have repaired by a service dealer.

Lighting partially without function

► Bulb defective.

▷ Replace with bulb of the same specification.

▷ For LED lighting, bulbs may not be replaceable (e.g. side marker lights). In this case, have the light fixture replaced by a service dealer.

► Contact fault of the cable is present.

▷ Switch lighting off and back on.

▷ Check all cable plugs for correct connection.

▷ Cable defective. Replace or have repaired by a service dealer.

► Fuse defective.

▷ Replace with fuse of the same specification.

► Relay defective. Have replaced by a service dealer.

Blockages

The machine can be blocked by large pieces of rock or wood. The blockage is usually noticed when the overload protection of the cardan shaft responds and does not re-engage (even if the PTO speed is reduced). In this case, the PTO drive must be switched off immediately and the blockage removed.

Eliminating blockages

Implementation

1 Stop the tractor and switch off the PTO shaft.

2 Actuate the rear power lift and lift the machine / machine combination into headland position.

▷ If the blockage cannot be eliminated by lifting to the headland position, continue with the next step.

3 Move the tractor and machine /machine combination to a level / stable surface.

4 Park the machine / machine combination on suitable supports using the rear power lift.

CAUTION

Risk of crushing for the entire body!

Unexpectedly moving machines / machine components can cause serious injuries.

► Place suitable supports on the rear power lift before working on the lifted machine / machine combination.

▷ Switch off the tractor engine, switch off the PTO drive, apply the parking brake, remove and store the ignition key.

▷ Secure the tractor and machine / machine combination against rolling away.

5 Eliminate the blockage and visually inspect the machine for any visible damage.

▷ Remove the wheel support.

6 Put the machine / machine combination back into operation: Carry out the process in reverse order.

▷ Monitor the “behavior” of the machine acoustically and visually for unusual noises, vibrations, leaks, smoke formation or the like.

▷ If unusual noises, vibrations, leaks, smoke formation or the like occur, stop the machine immediately, and check / have checked that all machine components are functioning correctly.

▷ If **no** unusual noises, vibrations, leaks, smoke formation or the like occur, the field work can be continued.

TIP

For information relating to the function of the overload protection of cardan shafts, see the following sections.

Cardan shaft cam clutch function

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

The switched off clutch automatically switches back on when the PTO shaft speed drops to approximately 200 rpm without the cardan shaft coming to a standstill.

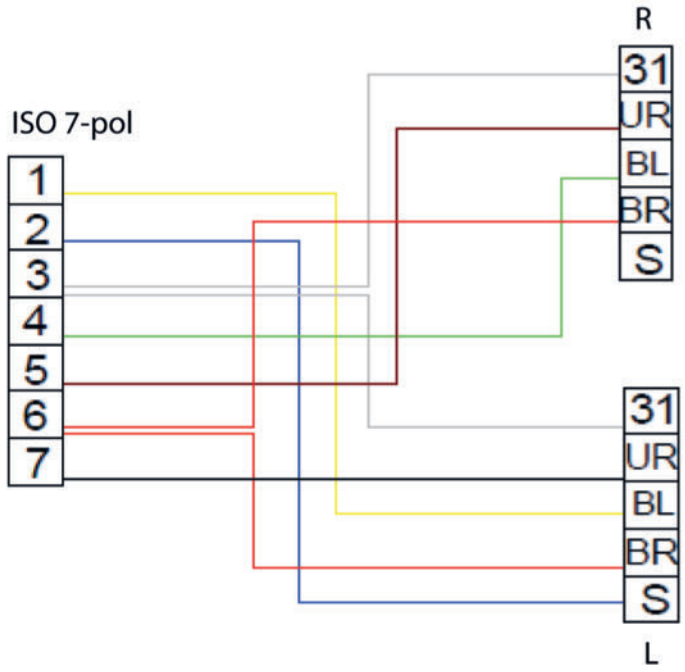
TIP

Frequent reaction of the cam clutch reduces the service life due to increased wear.

In general, do not allow the cam clutch to spin for more than 10 s.

Electrical system

Lighting plug pin assignment



Tractor connector plug ISO 7-pole

R = Right bayonet connector 5-pole green

L = Left bayonet connector 5-pole yellow

Legend

No.	Des.	Color	Function
1	BL	yellow	Left turn signal
2	S	-	-
3	31	white	Ground
4	BL	green	Right turn signal
5	UR	brown	Right parking light
6	BR	red	Brake light
7	UR	black	Left parking light

USA / CANADA English warning signs

The positions and meanings of all warning signs used are shown below.

TIP

Warning signs (pictograms) indicate residual hazards and how to avoid them.

Damaged or lost warning signs must be replaced.

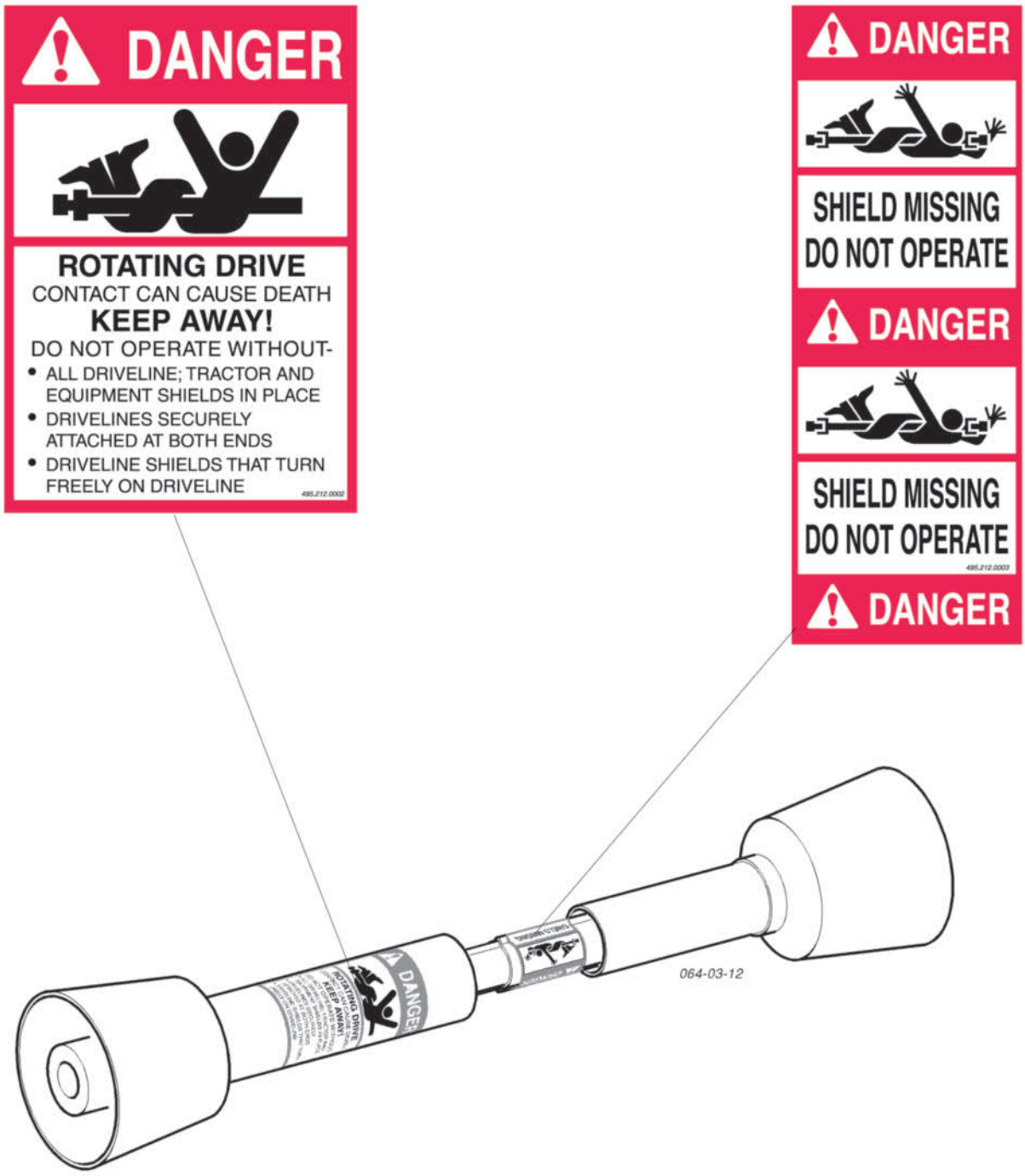
If machine parts with affixed warning signs are replaced, the corresponding warning signs must be affixed to the newly installed parts.

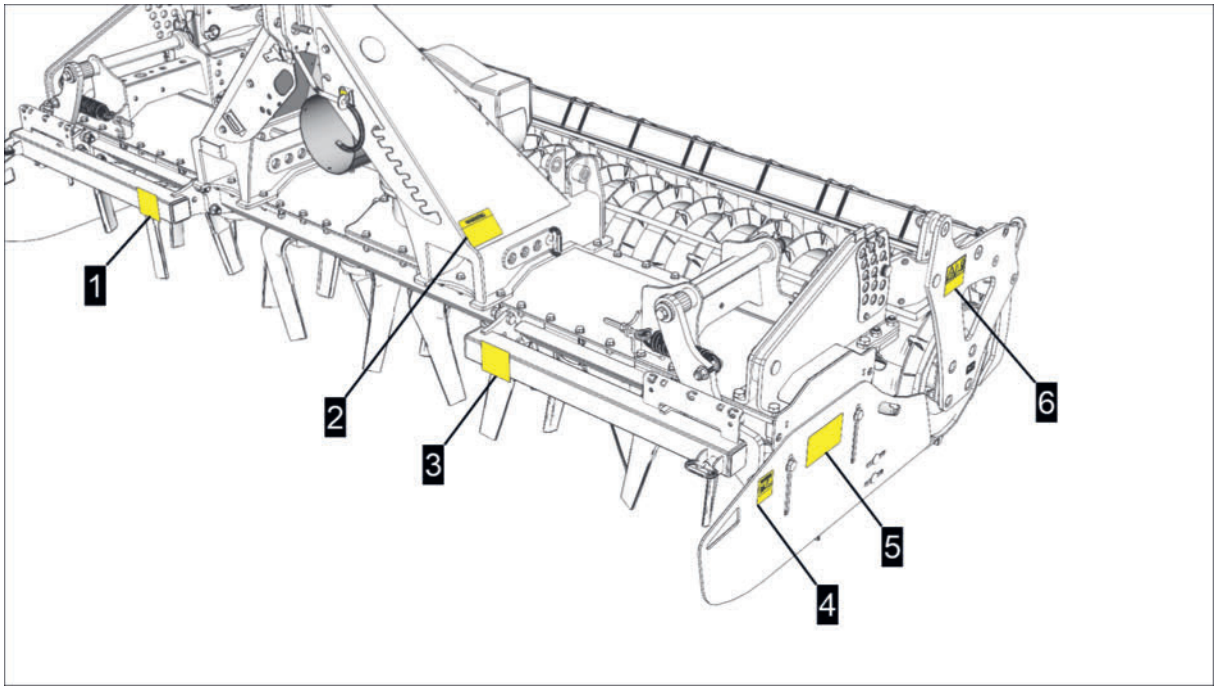
TIP

USA / CANADA

For machines operated in the USA / CANADA, a conversion kit with warning signs (for adaptation to locally applicable regulations) is available from PÖTTINGER either in English or French! See also “Supplement to the USA / CANADA operating instructions”.

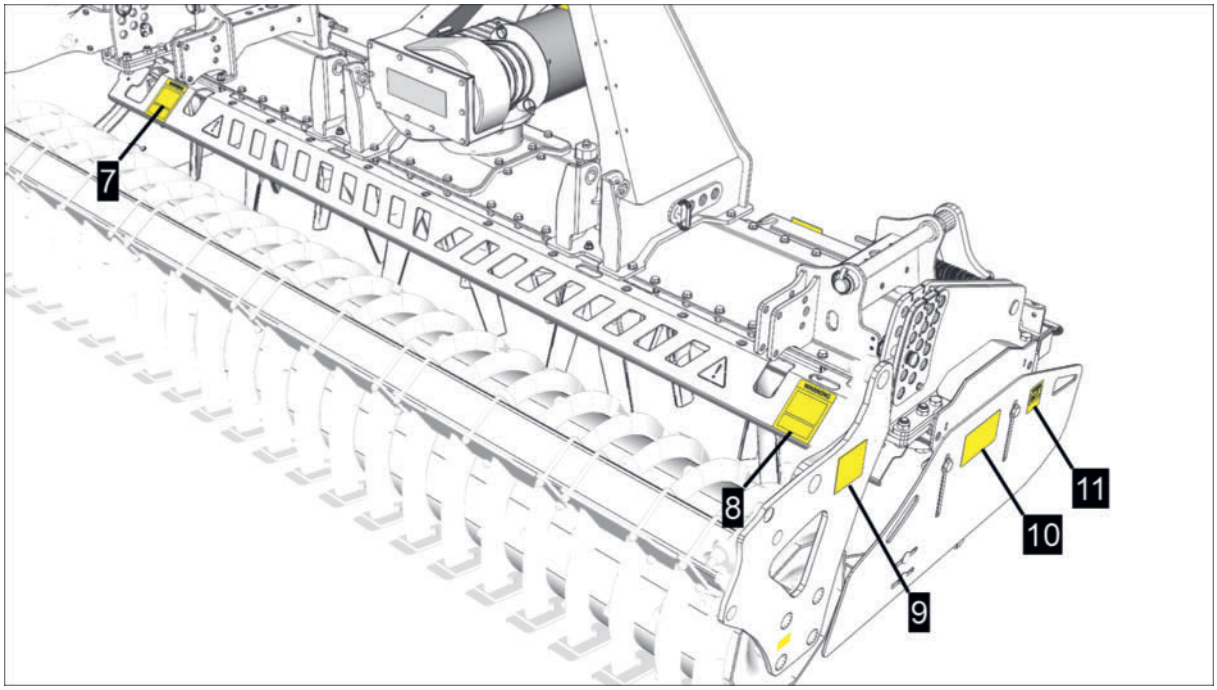
USA CANADA cardan shaft warning signs





Pos.	Warning signs	Pos.	Warning signs
1		2	
3		4	

Pos.	Warning signs	Pos.	Warning signs
5		6	



Pos.	Warning signs	Pos.	Warning signs
7		8	
9		10	
11			

Safely towing loads

The braking distance increases with the speed and weight of the towed loads, as well as on slopes. Towed, braked or unbraked loads that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the device and its load. Adhere to these recommended maximum speeds on the road or local speed limits, which could be lower. Also reduce the speed in the event of poor road conditions or bad weather.

- If the towed device does not have brakes, do not drive faster than 19.88 mph and do not pull loads that exceed 1.5 times the tractor weight.
- If the towed device has a brake system with a control line and an auxiliary line, do not drive faster than 24.85 mph and do not pull loads that exceed 4.5 times the tractor weight.
- If the towed device only has a brake system with a control line, do not drive faster than 24.85 mph and do not pull loads that exceed 1.5 times the tractor weight.

If you do not know which braking system the device has, refer to the manual, or ask the owner or your dealer. As long as you are not sure about the type of the braking system, the towed load may not exceed 1.5 times the weight of the tractor.

Make sure that the load does not exceed the recommended weight ratio. Add ballast up to the maximum recommended for the tractor, reduce the load, or get a heavier towing vehicle. The tractor must be heavy and powerful enough and have sufficient braking power for the load being towed. Be especially careful when towing loads with unfavorable ground conditions, when turning and on slopes.

PÖTTINGER Service-Partner

A well-developed network of service dealers is available to you worldwide. This physical proximity guarantees a fast supply of spare parts and enables optimal product delivery and setting of the machine by expert personnel.

Our services:

- Competence through regular training for expert personnel.
- Order ORIGINAL INSIDE spare parts online 24 hours a day.
- Long-term availability of spare parts.
- And much more ....

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