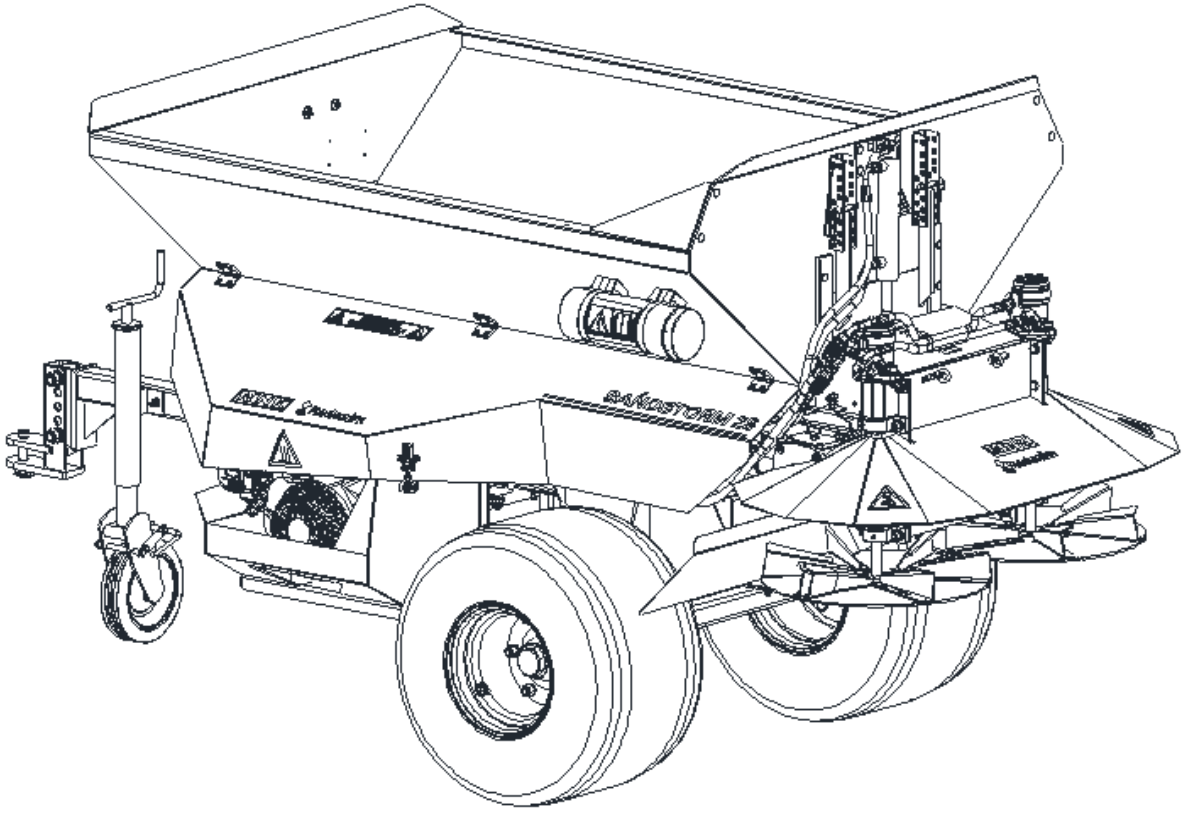
Operating Instructions

RINK - Disc Spreader

Model SANDSTORM28

Applies to: A133.080.007 RINK - Sandstorm 28



Translation of the original user manual

RINK Spezialmaschinen GmbH, 88279 Amtzell/Germany
Phone +49 (0) 7520 95690 Telefax +49 (0) 7520 956940
www.rink-spezial.de info@rink-spezial.de

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1 EC Declaration of Conformity

EC Declaration of Conformity

in the sense of the Machinery Directive 2006/42/EC, Annex II 1. A

Original

The sole responsibility for issuing this declaration of conformity lies with the manufacturer

Rink Spezialmaschinen GmbH

Alfons-Stübe-Weg 4

88279 Amtzell / Germany

Person established within the Community authorised to compile the relevant technical file

Benedict Klein

Rink Spezialmaschinen GmbH

Alfons-Stübe-Weg 4

88279 Amtzell / Germany

Description and identification of the machine

Product / Article	Disc Spreader
Commercial name	Disc spreader
Model	SANDSTORM 28
Function	Even spreading of loose spreading materials such as sand, gravel, granulate or similar.

It is expressly declared that the machine complies with all relevant provisions of the following EC directives and regulations:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery and amending Directive 95/16/EC (recast) (1) Published in L 157/24, 09.06.2006

Reference of the harmonised standards applied in accordance with Article 7 2:

EN ISO 12100:2010-11	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 4413:2010	Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)

Amtzell / Germany		
Place	Signature Benedict Klein Managing Director	Signature Alexandra Mosmann Managing Director

2 Safety

2.1 Warnings

2.1.1 Presentation of the warnings

The warning can be extended by a hazard-specific safety sign, e.g. a prohibition of access.



Signal word (e.g. WARNING)

Description of the hazard and the resulting consequences

▶ Measures to avoid the hazard or to reduce the risk

2.1.2 Classification of warnings

Warnings are classified using different signal words:

WARNING

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, death or serious injury may result.

CAUTION

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, minor or moderate injuries may result.

ATTENTION

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, property damage may result.

NOTICE

Contains additional information.

2.2 Safety instructions

The disc spreader was built on the basis of applicable guidelines, laws and standards and corresponds to the state of the art. Possible residual risks may nevertheless cause danger to life and limb of the user or third parties or damage to the disc spreader. To avoid any residual risks, the following safety regulations and warnings in these operating instructions apply:

- Before starting work, make sure that there are no persons or animals in the working and spreading area of the disc spreader.
- Keep a safety distance of 5 to 10 m.
- Carefully read and observe the operating instructions before using the disc spreader.
- Comply with safety regulations, hazard warnings, handling instructions and existing national regulations.
- Observe warning signs attached to the disc spreader.
- Only operate the disc spreader when it is in technically perfect condition.
- Only use the disc spreader for its intended purpose.
- Comply with the connection conditions specified in the technical data.
- Report all faults and damage immediately and have them repaired.
- Only allow work on the disc spreader to be carried out by persons who are instructed, trained and qualified to do so.
- Wear personal protective equipment when servicing the disc spreader. The personal protective equipment consists of:
  - Protective gloves
  - Tight fitting work clothes
  - Protective goggles (only for adjustment work and for troubleshooting during ongoing spreading operation)
- Only operate the disc spreader when all covers are in place. Do not remove or modify any cladding parts or warning signs.
- Keep safety and warning notices on the disc spreader complete and in legible condition.

2.3 Safety distance

The specified safety distance refers to the danger from rotating parts and ejected foreign bodies.

WARNING

Fast moving spreading materials

Spreading materials moving at fast speed can injure eyes and skin.

The required safety distances depend on the spreading material, its spreading width and the setting of the vanes.

- ▶ Before using the disc spreader, ensure that the safety distance is sufficiently large.
- ▶ Wear safety goggles and protective clothing for adjustment work during spreading operation.

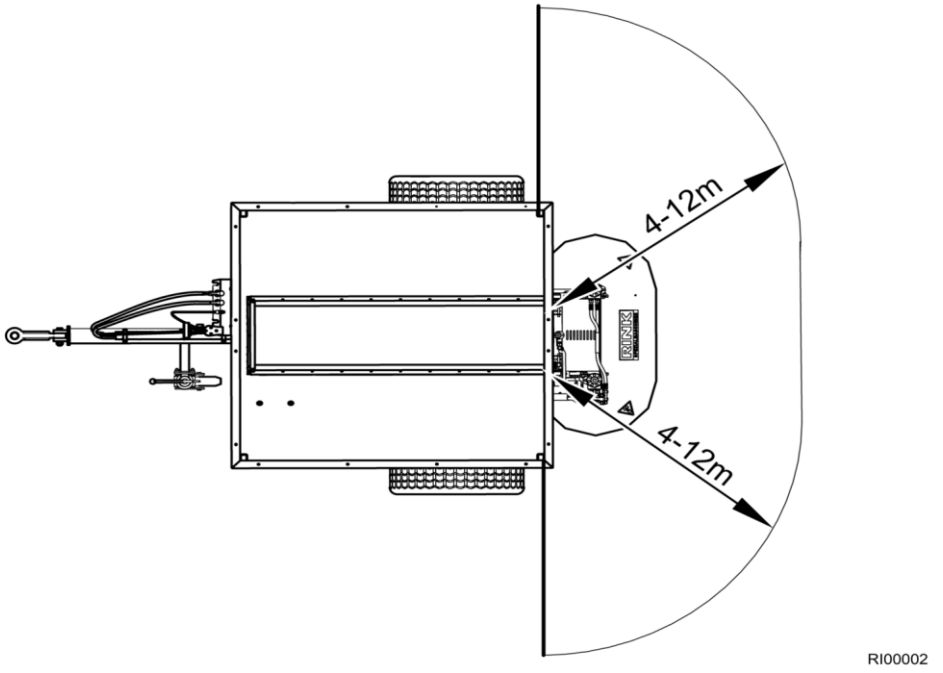


Fig. 1 Safety distance during operation

2.4 Intended use

The RINK Disc Spreader SANDSTORM28 hereinafter referred to as the disc spreader, may only be used for the uniform spreading of fine-grained, loose spreading materials such as sand, gravel or similar.

The disc spreader is hitched and connected to a towing vehicle.

For intended use, the following conditions and requirements must be met:

- When loading the disc spreader, do not exceed the permissible drawbar load of the towing vehicle, refer to section 4.2.
- Only operate the disc spreader when it is in technically perfect condition.
- Operate disc spreader only within specific limits, refer to section 4.2.
- Observe the maintenance cycles specified in the maintenance schedule, refer to section 6.2.
- Follow safety instructions and, above all, keep the safety distance when operating the disc spreader, refer to section 2.2 and section 2.3.

The disc spreader may only be used in accordance with its intended use. Failure to observe the intended use may result in the loss of the warranty.

The user is solely responsible for all personal injury and damage to property resulting from non-compliance with the intended use.

2.5 Abnormal use

Any use other than the intended use or any use beyond this is considered abnormal use.

- Carrying persons is prohibited.
- It is prohibited to enter the loading bridge during spreading operation.
- Modifying the disc spreader (attachments and conversions) without the manufacturer's permission is prohibited. If a significant change is made to the disc spreader, operation must be stopped. In order to continue operation, the conformity assessment process according to the Machinery Directive 2006/42/EC must be carried out again.

2.6 Information and safety signs

The following information and safety signs are attached to the disc spreader:

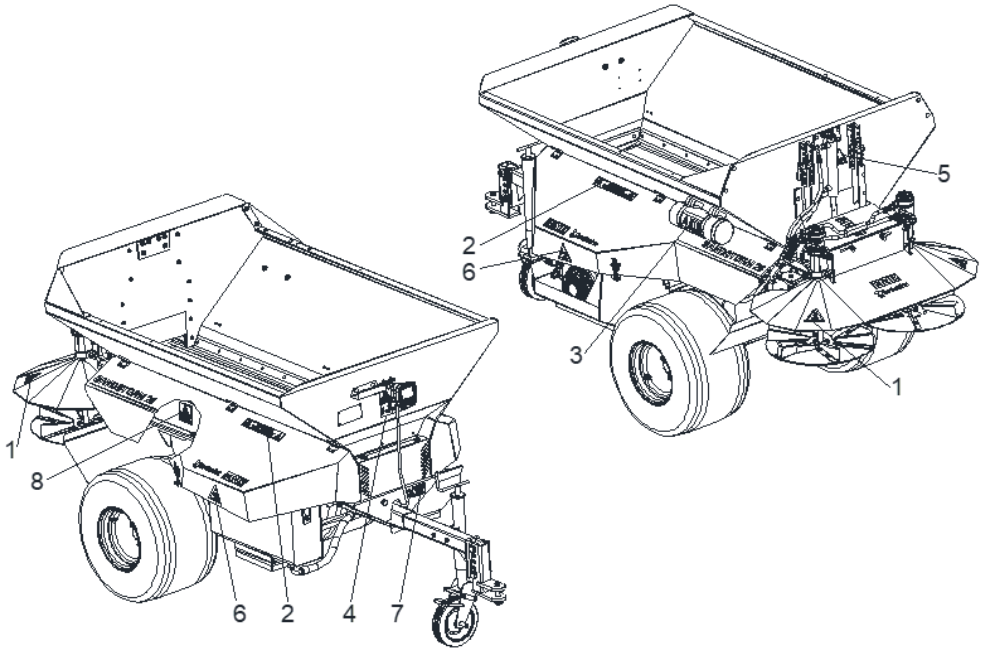
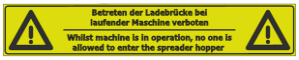


Fig. 2 Information and safety signs

Item	Information/safety sign	Description
1		Warning of rotating rotary discs and serious hand injuries if reaching into the rotation area
2		Prohibition to enter the loading bridge when the machine is running
3		Warning of dangerous situations. Read the operating instructions
4		Warning against spreading materials flung away. Keep the safety distance Switch off the machine before maintenance work and secure it against being switched on again. Read the operating instructions
5		Warning for Hand injuries
6		Warning of hot surface
7		Battery
8		Request to retighten the wheel nuts after the first load run

3 Assembly instructions

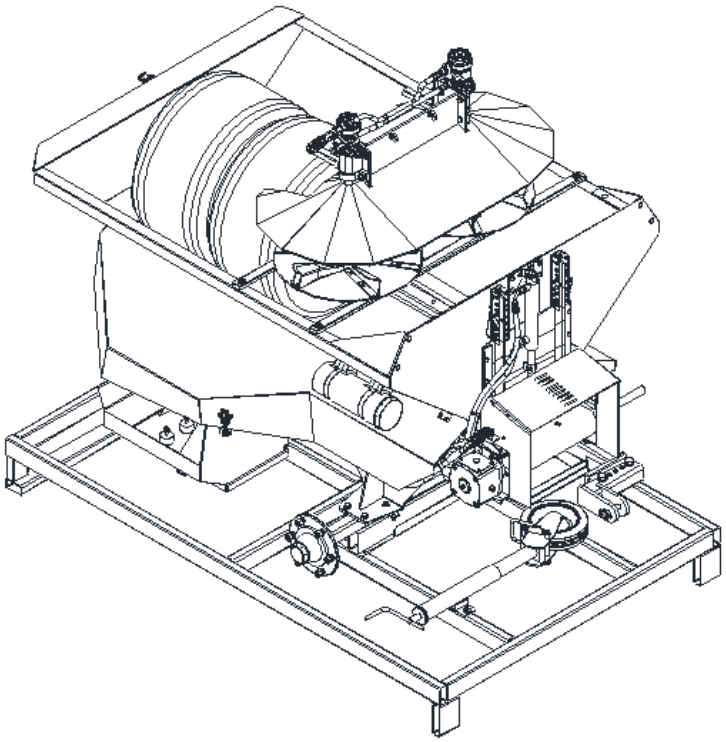


Fig. 3 Disc spreader on transport frame

3.1 Remove wheels and spreader unit

- Remove the wheels (25 kg / 55 lb per wheel) (Fig. 4/1) from the hopper using a forklift or crane with suitable lifting equipment and place them in a safe location.
- On the spreader unit (Fig. 4/2) (85 kg / 187 lb), loosen the fastening screws (Fig. 4/A) on both sides. Lift the spreader unit from the hopper at the designated fixing points (Fig. 4/B) using a forklift or crane with suitable lifting equipment and place it in a safe location.
- Remove the transport tubes by loosening the fasteners on both sides (Fig. 4/C) and dispose of them in accordance with local regulations.
- Remove the drawbar (Fig. 4/3) by loosening the fasteners (Fig. 4/D) and place it in a safe location.
- Remove the jockey wheel (Fig. 4/4) by loosening the fastener (Fig. 4/E) and place it in a safe location.
- Remove the box containing the accessories and assembly hardware from the hopper.

WARNING

- ▶ Use only approved lifting equipment and lifting slings.
- ▶ **Transport weight ≥ 780 kg / 1720 lb (machine weight 680 kg / 1499 lb + transport frame 100 kg / 220.5 lb)**
- ▶ Secure the load against tipping and slipping.
- ▶ Keep all personnel clear of the danger zone.
- ▶ Never stand or walk beneath a suspended load.

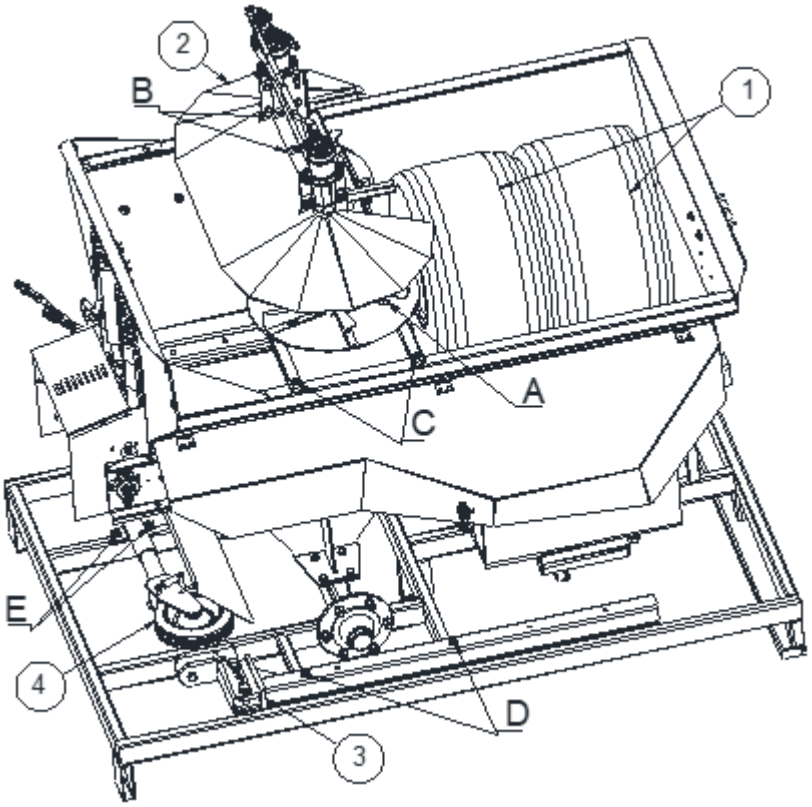


Fig. 4 Remove wheels and spreader unit

3.2 Removal from the transport frame

- Remove the retaining brackets (Fig. 5/F) and dispose of them in accordance with local regulations. Remove the tie-down strap from the drawbar.
- Lift the disc spreader (Fig. 5/5) from the rear using forklift forks (Fig. 5/G) with a length of 1800 mm (71 inch).
- If forklift forks (Fig. 5/G) with a length of 1800 mm (71 inch) are not available, additionally lift the disc spreader (Fig. 5/5) from the front using forks with a width of 1000 mm (39 inch) (Fig. 6/View Y).

The load weight is ≥ 580 kg / 1279 lb and must be lifted accordingly.

The machine may only be lifted using a suitable forklift truck.

WARNING

- ▶ Use only approved lifting equipment and lifting slings.
- ▶ Secure the load against tipping and slipping.
- ▶ Keep all personnel clear of the danger zone.
- ▶ Never stand or walk beneath a suspended load.

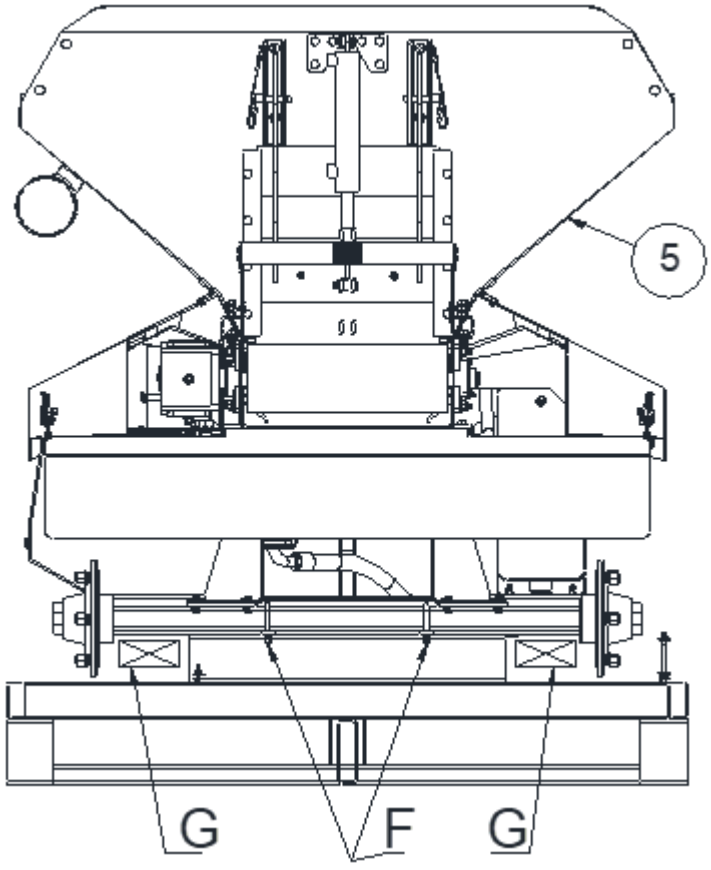


Fig. 5 Removal from the transport frame

3.3 Place machine on assembly stands

After lifting, place the disc spreader (Fig. 6/5) securely on suitable assembly stands (Fig. 6/H) for wheel installation.

Position the assembly stands as shown in (Fig. 6/H).

Requirements for the assembly stands:

- Total load capacity ≥ 680 kg / 1499 lb.
- Stable and level positioning on a load-bearing surface.

WARNING

- ▶ The machine must rest securely and without stress on the assembly stands.
- ▶ **Never** stand or walk beneath a suspended load.

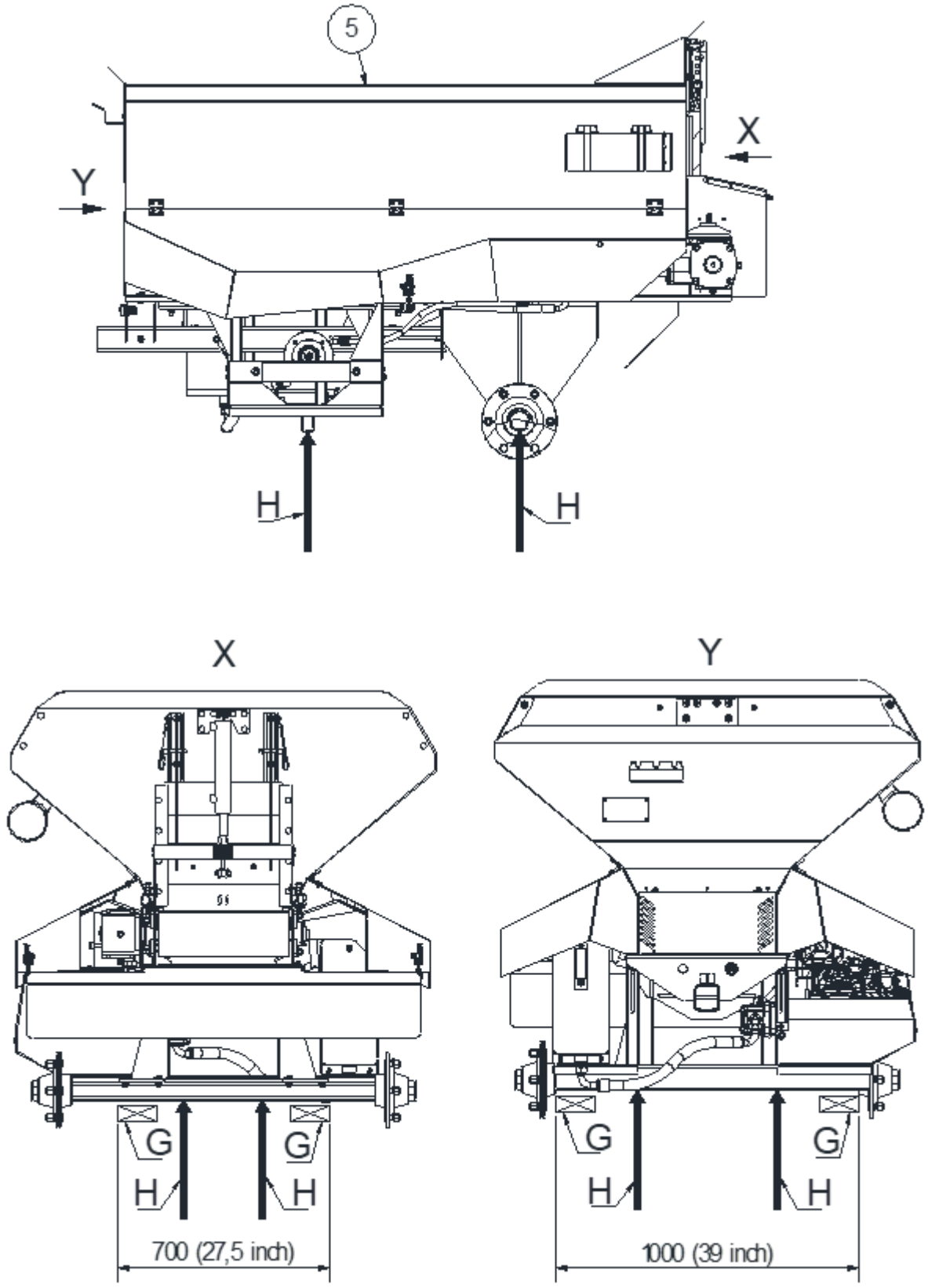


Fig. 6 Place machine on assembly stands

3.4 Wheel installation

Install the wheels (Fig. 7/1) on both sides of the axle using the wheel nuts (Fig. 7/6).
Specified torque: 290 Nm.

- Install the wheel nuts hand-tight.
- Then tighten the wheel nuts in a criss-cross pattern using a torque wrench.

Specified tightening torque: 320 Nm for the wheel nuts.

ATTENTION

▶ After a short period of operation (e.g. transport or test run), re-tightening of the wheel nuts is recommended.

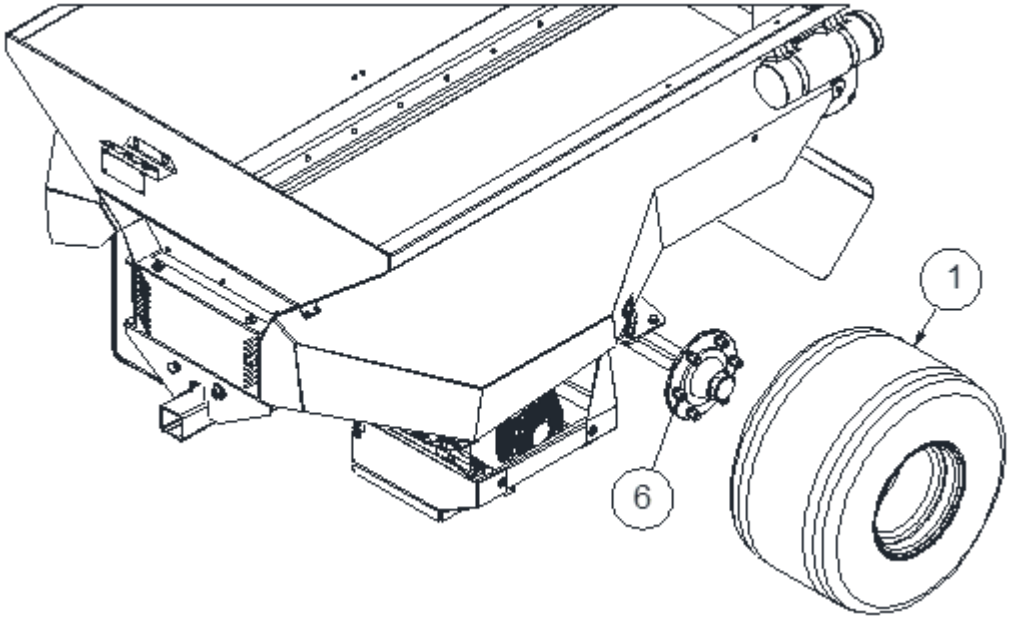


Fig. 7 Wheel installation

3.5 Install drawbar and jockey wheel

Insert the drawbar (Fig. 8/3) into the drawbar tube of the SANDSTORM 28.

Secure the drawbar (Fig. 8/3) and the jockey wheel (Fig. 8/4) using the supplied assembly hardware:

- Bolt M10x100 (Fig. 8/J) (2x),
- Washer 10 (Fig. 8/K) (4x),
- Lock nut M10 (Fig. 8/L) (2x)

NOTICE

▶ Check for free movement.

▶ Ensure that the jockey wheel can be properly locked in position.

Technical note:

- Recommended tightening torque: 48 Nm.

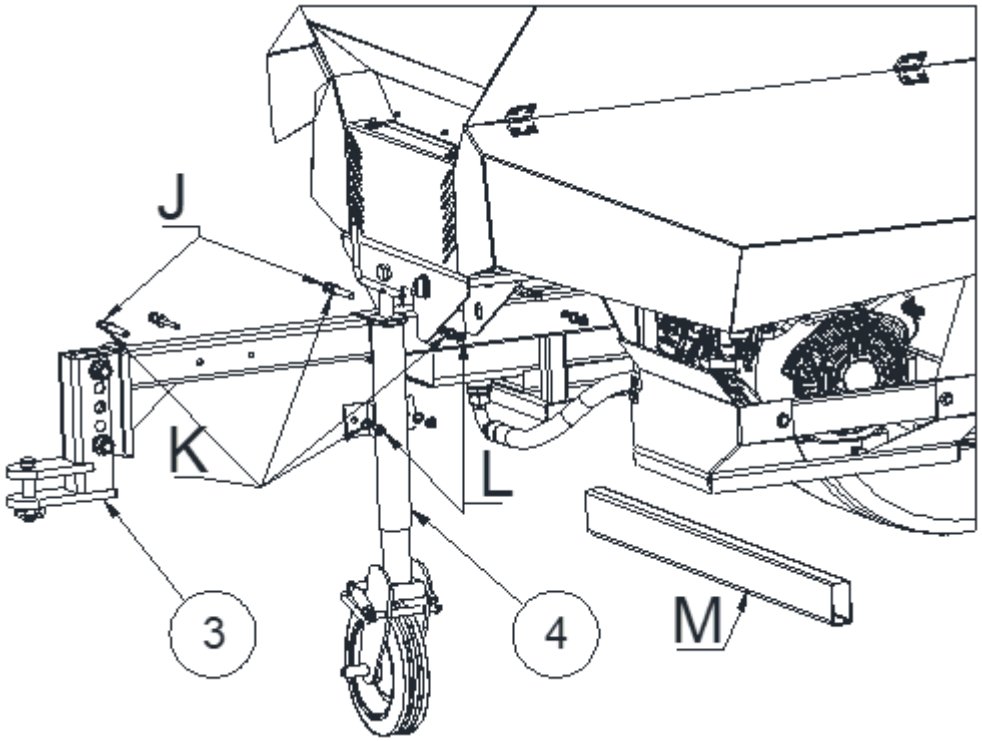


Fig. 8 Install drawbar and jockey wheel

3.6 Lift machine

After installing the drawbar and jockey wheel, lift the disc spreader from the rear using forklift forks (Fig. 6/G) and remove it from the assembly stands (Fig. 6/H) (Fig. 6/View X).

Machine weight: 680 kg / 1499 lb.

WARNING

- ▶ Lift the machine evenly and avoid tilting.
- ▶ Do not allow personnel within the danger zone.
- ▶ Use only approved lifting equipment and lifting slings.
- ▶ Secure the load against tipping and slipping.
- ▶ Never stand or walk beneath a suspended load.

Remove the transport tube (Fig. 8/M) by releasing the tie-down strap and dispose of it in accordance with local regulations.

3.7 Set machine down

Carefully lower the machine onto its wheels and jockey wheel.

Technical note:

- Park the machine on a level, load-bearing surface.
- Check the machine for stability.
- If necessary, secure the machine against rolling.

WARNING

- ▶ Before commissioning the machine, perform a visual inspection of all installed components.
- ▶ During commissioning, check all hydraulic connections again for leaks by means of a visual inspection.

3.8 Install spreader unit

Using suitable lifting equipment, lift the spreader unit at the designated fixing points (Fig. 9/B) and, using a forklift or crane, insert it into the spreader mounting (Fig. 9/N) until it is fully seated against the hopper stop.

Tighten the existing bolts (Fig. 9/O) on both sides and secure them with the existing nuts (Fig. 9/P).

Technical note:

- Recommended tightening torque: 85 Nm.

Install the vanes (Fig. 9/7) using the supplied assembly hardware:

- Bolt M8x20 (Fig. 9/Q) (2x),
- Lock nut M8 (Fig. 9/R) (2x)

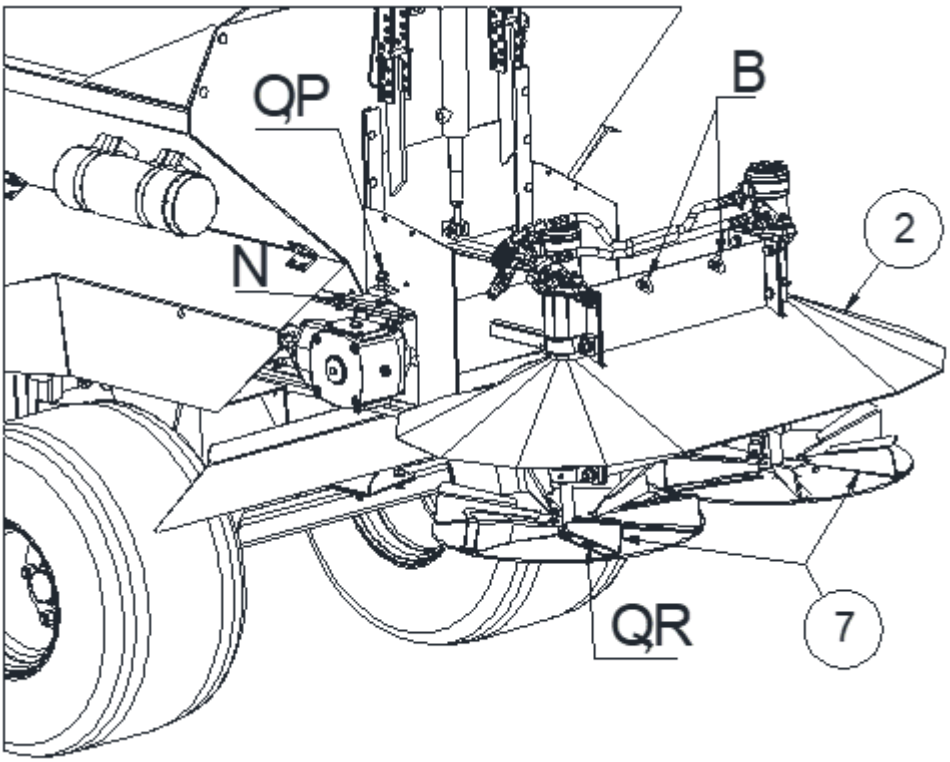


Fig. 9 Install spreader unit

3.9 Display installation

Connect the VisionX Display (Fig. 10/8) from the supplied accessories to the connector cable and mount it to the display bracket.

Install the battery isolator switch knob (Fig. 10/9) supplied with the accessories.

ATTENTION

- ▶ Ensure that the battery isolator switch is in the OFF position. Failure to do so may result in battery discharge.
- ▶ Insert the ignition switch key into the ignition switch (Fig. 10/10).

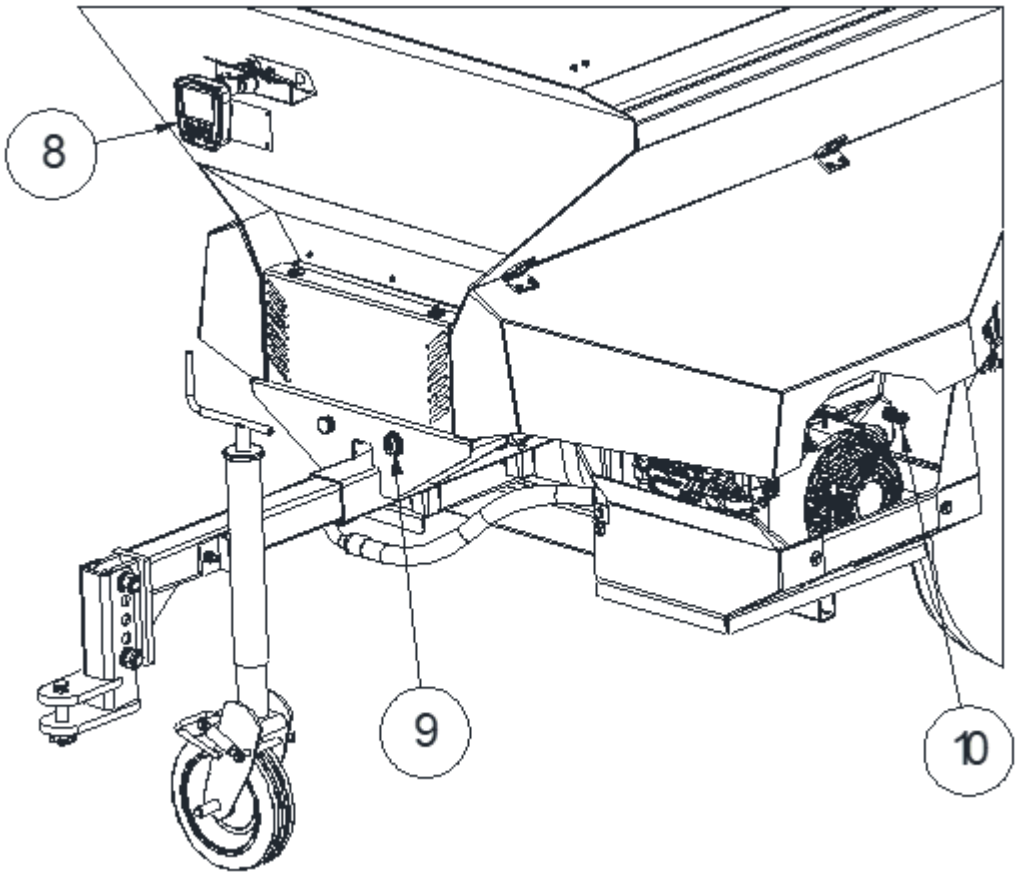


Fig. 10 Display installation

3.10 Accessories

The following accessories are required for machine operation and only need to be plugged in or inserted as described in the operating instructions.

- 11301 – 1x – Complete VisionX Display (Fig. 10/8)
- 11630 – 1x – Rotary knob for battery disconnect switch (Fig. 10/9)
- 10228 – 2x – Ignition switch key (Fig. 10/10)

3.11 Mounting hardware

The following mounting hardware is supplied in a separate bag and is required for machine assembly. Please refer to the assembly instructions for the correct installation procedure.

- 10600 – 4x – Hexagon bolt M10x100 (Fig. 8/J)
- 10370 – 2x – Round head bolt M8x20 (Fig. 9/Q)
- 10196 – 8x – Washer 10 (Fig. 8/K)
- 11216 – 4x – Lock nut M10 (Fig. 8/L)
- 10759 – 2x – Lock nut M8 (Fig. 9/R)

4 Description

NOTICE

The designations right, left, front and rear apply to all parts and assemblies **viewed** in the direction of travel**.**

The disc spreader is pulled by a suitable towing vehicle, e.g. tractor, over the ground to be spread.

Depending on the requirements, different suitable spreading materials can be filled into the hopper of the disc spreader. The hopper is closed all around except for the spreader gate opening and is open at the bottom.

A conveyor belt under the hopper conveys the spreading material to the spreader unit. In the spreader unit, the spreading material is distributed onto two spreader discs with vanes. Due to the fast rotation of the spreader discs, the spreading material can be spread up to 12 m over the ground.

The hydraulic motors of the spreader discs and the conveyor belt are connected to the internal oil supply. An electro-hydraulic control unit controls the hydraulic components.

4.1 Structure

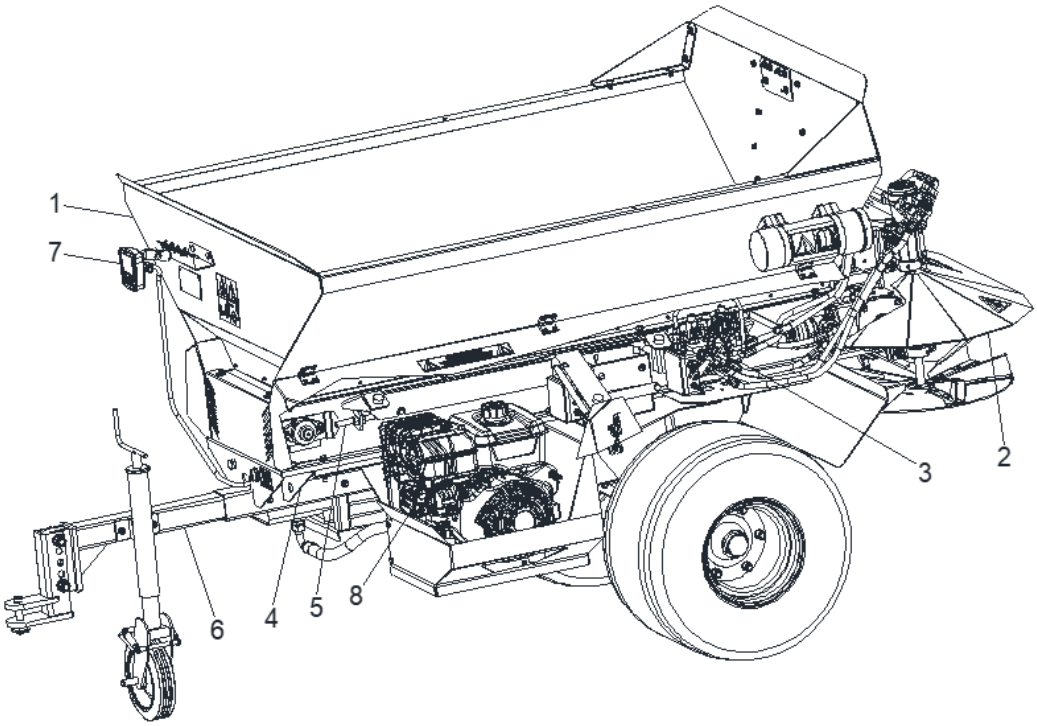


Fig. 11 Components

The disc spreader essentially consists of the following components:

- Hopper, complete (Fig. 11/1)
- Spreader unit, complete (Fig. 11/2)
- Electro-hydraulic control unit (Fig. 11/3)
- Chassis, complete (Fig. 11/4)
- Conveyor unit, complete (Fig. 11/5)
- Drawbar (Fig. 11/6)
- VisionX Display operating device / PotiPro Compact operating device (Fig. 11/7)
- Internal oil supply unit (Fig. 11/8)

4.1.1 Hopper, complete

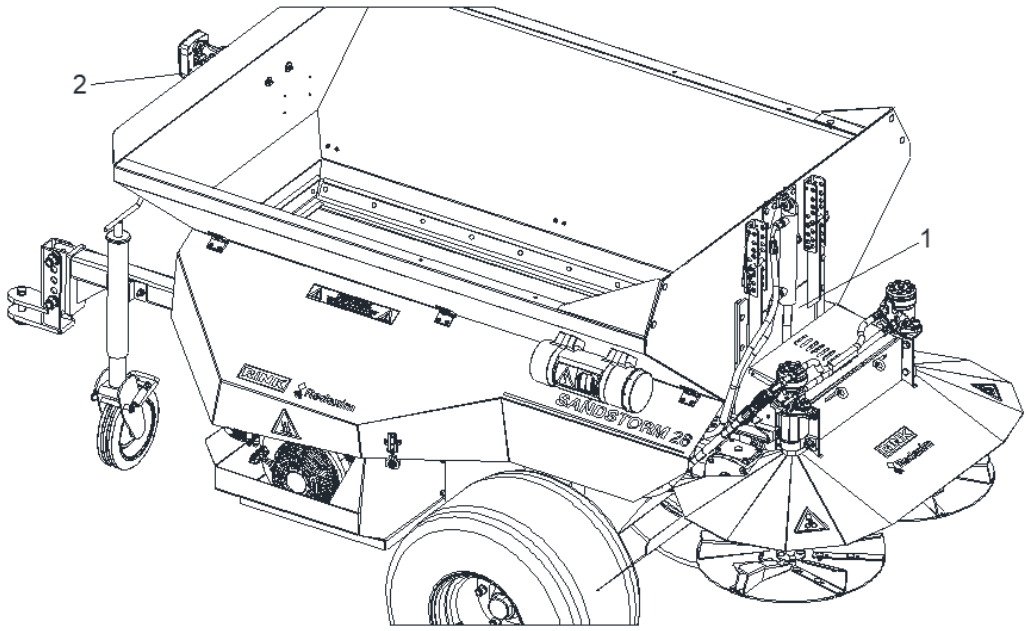


Fig. 12 Hopper, complete

The hopper for the spreading materials consists of a stable steel construction. The hopper is fixed with bolts to the conveyor unit. At the front there is a holder for the operating device (Fig. 12/2). When the disc spreader is not hitched, the operating device is attached to the holder.

The spreader gate opening (Fig. 12/1) is built into the rear wall of the hopper. The spreader gate opening is opened and closed by a hydraulically operated shutter. When the spreading operation is switched on, the hydraulic cylinder retracts, pulling the shutter upwards to the mechanical end stop. The spreader gate opening is open.

When the spreading operation is switched off, the hydraulic cylinder extends and pushes the shutter down. The spreader gate opening is closed.

4.1.2 Spreader unit, complete

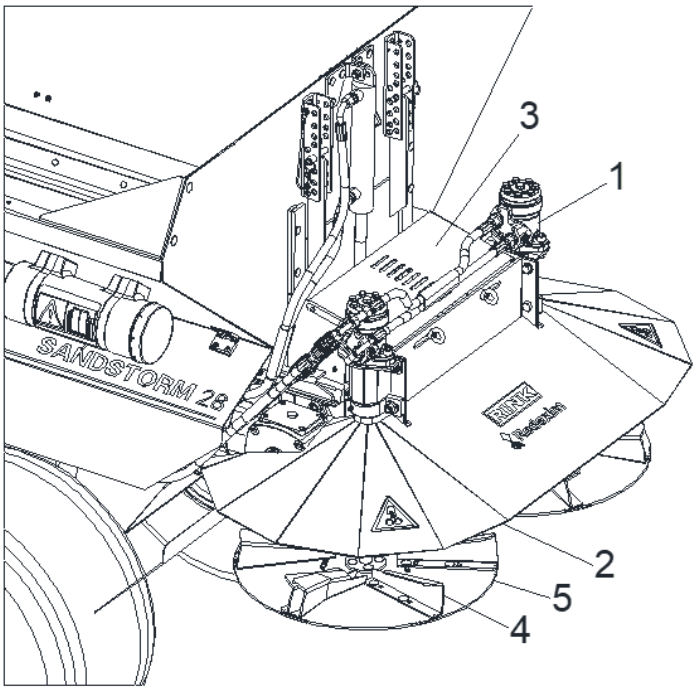


Fig. 13 Spreader unit, complete

The spreader unit consists of the spreader chute (Fig. 13/3), two spreader discs (Fig. 13/5) with adjustable vanes (Fig. 13/4), two infinitely variable hydraulic motors (Fig. 13/1) and a protective cover (Fig. 13/2) over the spreader discs.

The spreader chute (Fig. 13/3) is closed at the top by a cover which can be removed by unscrewing bolts. The rotation speed of the spreader discs is infinitely variable via the speed of the hydraulic motors (Fig. 13/1).

The spreader discs are switched on automatically after the spreading operation is switched on.

4.1.3 Electro-hydraulic control unit

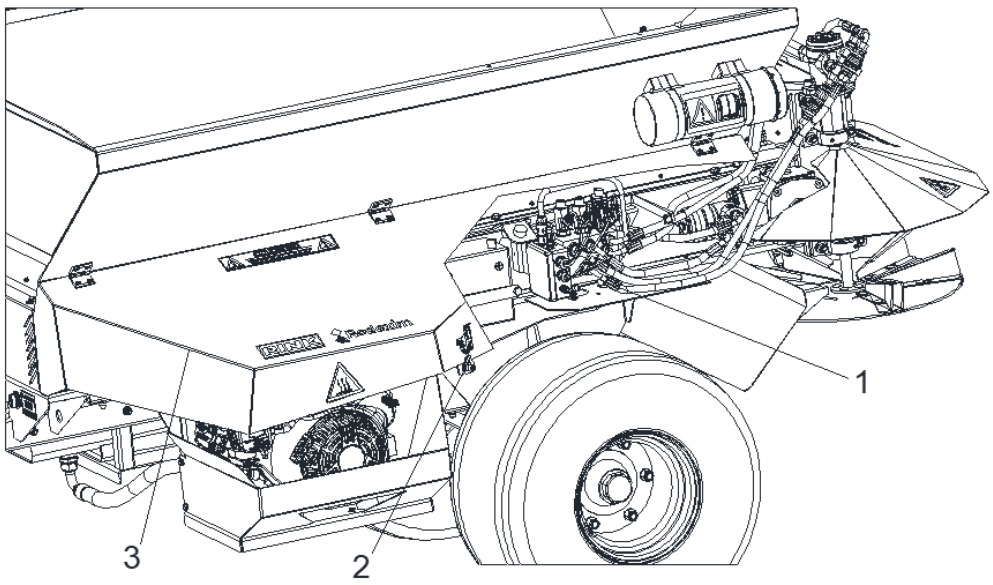


Fig. 14 Electro-hydraulic control unit

The electro-hydraulic control unit (Fig. 14/1) is installed on the left side of the conveyor unit underneath a protective cover. The cover (Fig. 14/3) is secured with a toggle latch (Fig. 14/2). The maximum pressure has been set at the factory.

NOTICE

The set pressure must not be changed.

4.1.4 Chassis, complete

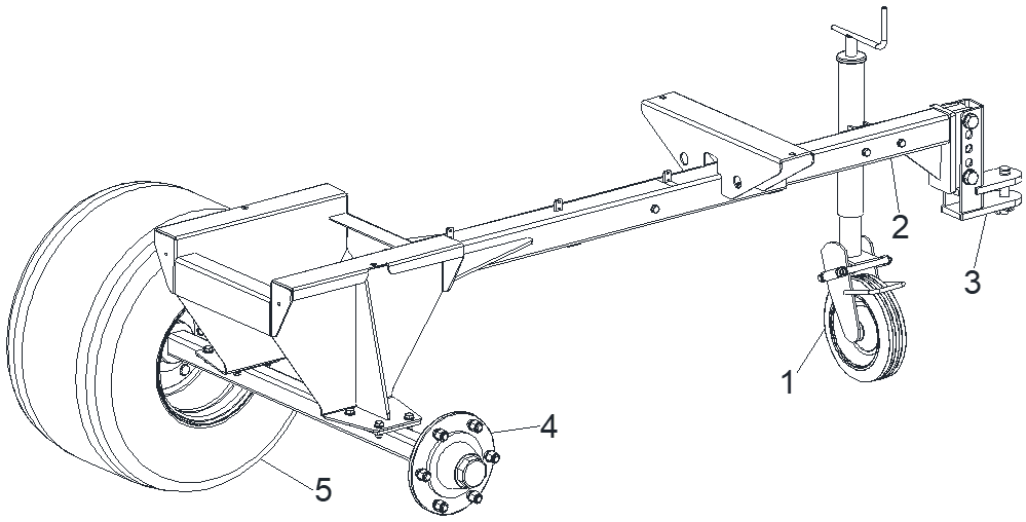


Fig. 15 Chassis complete

The chassis consists of a profile steel frame to which one running axle (Fig. 15/4) with the tyres (Fig. 15/5) is attached. The drawbar (Fig. 15/2) with the bottom hitch (Fig. 15/3) is inserted into the profile steel frame. The jockey wheel (Fig. 15/1) with adjustment spindle is bolted to the outside left of the profile steel frame.

4.1.5 Conveyor unit, complete

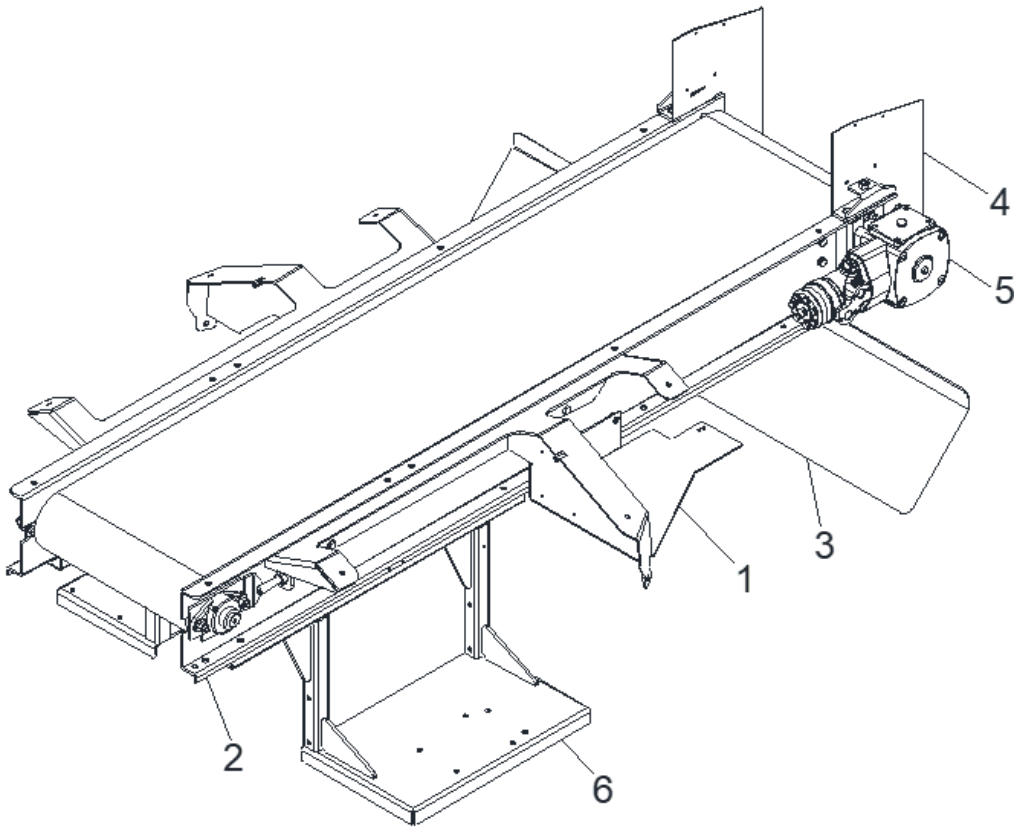


Fig. 16 Conveyor unit, complete

The conveyor unit consists of a conveyor belt with infinitely variable hydraulic motor (Fig. 16/5), the right and left mounting brackets for the protective cover (Fig. 16/1), the protective plate (Fig. 16/3), the side walls of the spreader chute (Fig. 16/4), and the mounting points for the internal hydraulic oil supply unit (Fig. 16/6). The mounting brackets for the protective cover (Fig. 16/1) and the mounting points for the internal hydraulic oil supply unit (Fig. 16/6) are bolted to the conveyor unit (Fig. 16/2) on both sides.

The conveyor unit is bolted to the chassis.

4.1.6 Internal oil supply unit

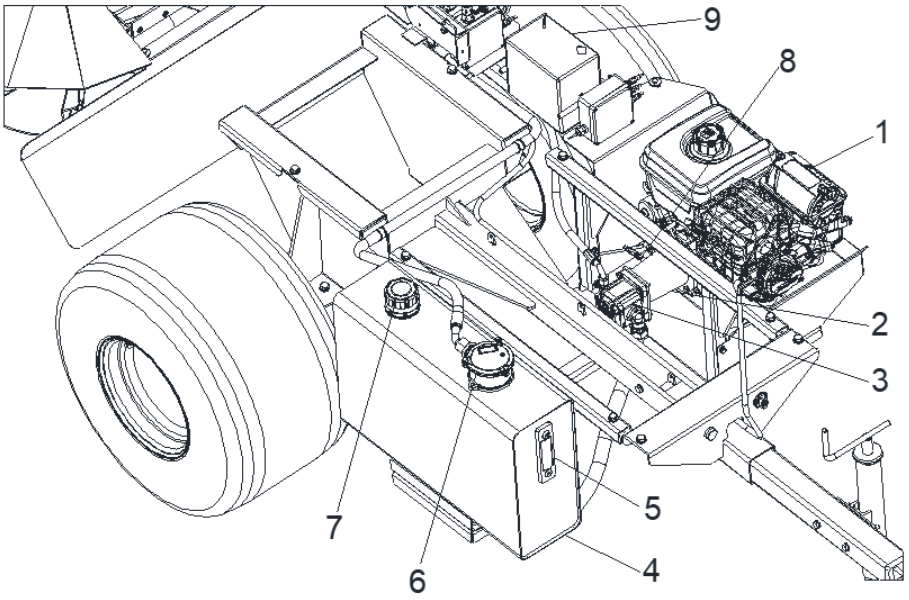


Fig. 17 Internal oil supply unit

The internal oil supply unit consists of a petrol engine (Fig. 17/1) with coupling (Fig. 17/2) and pump (Fig. 17/3), a hydraulic oil tank (Fig. 17/4) with sight glass for oil level and temperature indication (Fig. 17/5), a return filter (Fig. 17/6) and filling and venting filter (Fig. 17/7), a sensor (Fig. 17/8) for the engine (installed from serial number 1026136 onwards), as well as a battery (Fig. 17/9) for starting the engine and the control system.

- The pump driven by the engine supplies the machine with the required hydraulic power.
- The engine speed can be adjusted using the throttle lever.
- The oil temperature, see sight glass (Fig. 17/5), should be approx. 25°C when starting work; if necessary, warm up the hydraulic system.

ATTENTION

Hydraulic system may become damaged.

▶ Before starting work, check the oil level in the hydraulic tank (Fig. 17/5).
An insufficient oil quantity can lead to damage or destruction of the hydraulic pump.

ATTENTION

Please read the enclosed engine manufacturer's operating instructions. It is important that the operator familiarizes themselves with the regulations and instructions contained therein.

4.1.7 Nameplate

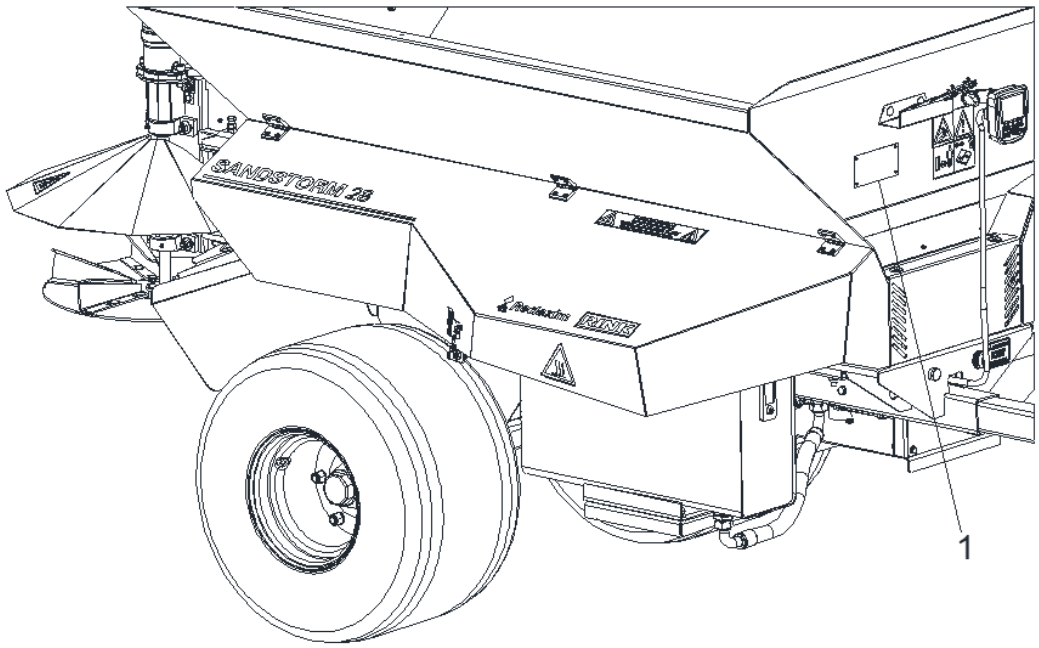


Fig. 18 Nameplate

The nameplate (Fig. 18/1) is attached to the right front of the hopper.

4.2 Technical data

General

Dimensions (length x width x height): ..3270 x 1500 x 1660 mm (128.7” x 59.1” x 65.4”)
Loading quantity:.....0.8 m³ (28.3 ft³)
Permissible maximum speed:.....25 km/h (15.5 mph)
Tractor power:.....20 kW (27 HP)
Inner Diameter of Downward cranked hitch (bottom hitch) .....22 mm (0.87”)

Weights

Permissible total weight: ..... 2.5 t (5512 lbs)
Permissible axle load: ..... 2.0 t (4409 lbs)
Permissible drawbar load: ..... 0.5 t (1103 lbs)
Unladen weight: .....680 kg (1500 lbs)

Spreader data

Spread width (infinitely variable):.....up to 12 m (472”)
Spreading thickness: ..... 0.3 to 20 mm (0.01” to 0.79”)
Tyre type: .....4 x 26.5x14.00
Tyre pressure:..... max. 1.8 bar (26.1 psi)

5 Operation



WARNING

Serious injury caused by sharp-edged spreader discs rotating at high speed with vanes

Hands can be very seriously injured.

- ▶ Always wait until the spreader discs have come to a complete stop.
- ▶ Never reach into the working area of the spreader discs.



CAUTION

Noise emission of the disc spreader in combination with the noise emission of the towing vehicle may exceed the limit value of 85 dB(A).

Noise emission of more than 85 dB(A) can permanently damage hearing.

- ▶ If the total noise emission exceeds the limit of 85 dB(A), wear hearing protection.
- ▶ If the total noise emission is 80 to 85 dB(A), hearing protection must be provided.

CAUTION

Sharp-edged shutter and rotating conveyor belt

If the protective cover over the spreader unit has been removed, e.g. for adjustment work, hands may be injured.

- ▶ Switch off the disc spreader. Only then carry out work in the area of the shutter and the conveyor belt.

CAUTION

Please read the enclosed engine manufacturer's operating instructions. It is important that the operator familiarizes themselves with the regulations and instructions contained therein.

5.1 Before each ride

- Visually inspect the disc spreader for damage. If damage is visible: repair the damage or contact Rink Spezialmaschinen GmbH.
- Check tyre pressure. If the tyre pressure is visibly too low: fill the tyres with compressed air, refer to section 4.2.
- Check if the conveyor belt is running in the centre. If the conveyor belt brushes against the side wall of the conveyor unit: adjust the conveyor belt, refer to section 6.3.1.

5.2 Hitching up and unhitching the disc spreader

ATTENTION

Hydraulic hoses and electrical cables can be damaged.

- ▶ Lay the hydraulic hoses and electrical cables without kinks.
- ▶ Make sure that the hydraulic hoses and electrical cables do not touch the ground or the towing vehicle.

WARNING

Crushing hazard when hitching and unhitching

Persons between the towing vehicle and the disc spreader can be crushed and seriously injured.

- ▶ Make sure that no persons are between the towing vehicle and the disc spreader when manoeuvring.
- ▶ Secure the towing vehicle against rolling away (apply the parking brake, switch off the engine) before hitching or unhitching.

Requirements

- The trailer hitch of the towing vehicle is suitable for the drawbar eye of the drawbar.

5.2.1 Hitching up the disc spreader

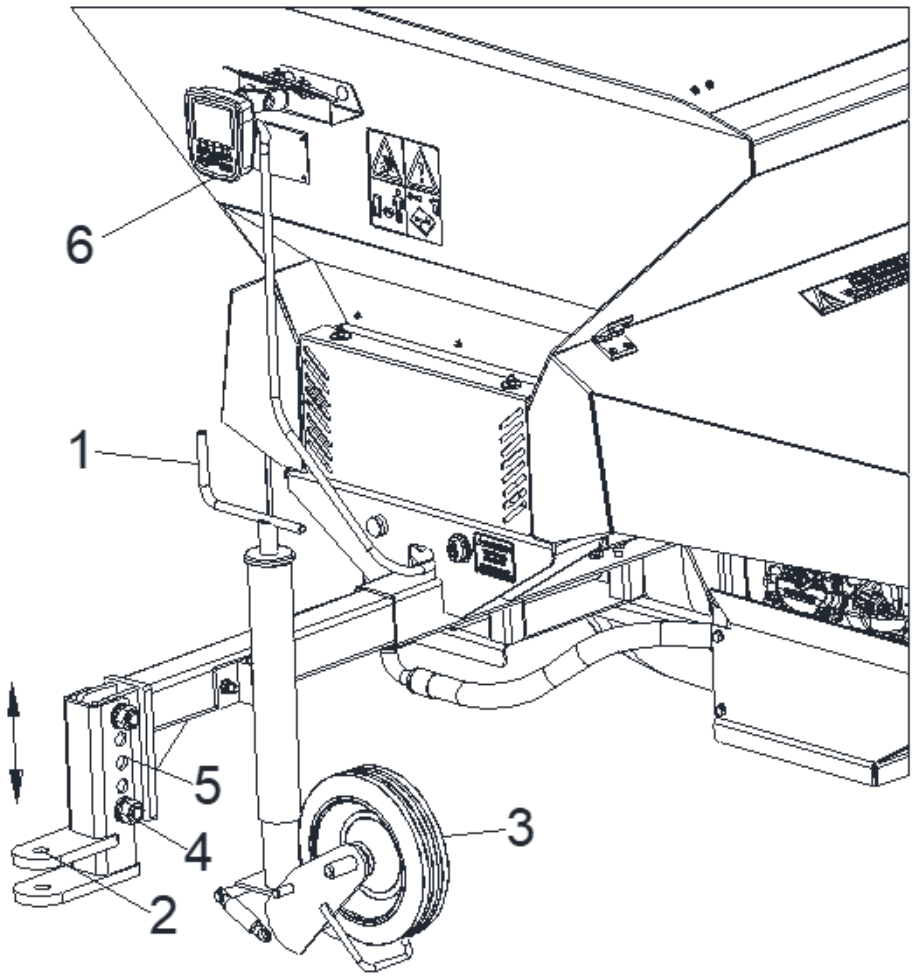


Fig. 19 Connections

1. Drive the towing vehicle to the front of the drawbar of the disc spreader.
2. If the trailer hitch and the drawbar (Fig. 19/2) are not at the same height the drawbar can be adjusted in height using the bolted connections (Fig. 19/4) and the offset holes (Fig. 19/5).
3. Drive the towing vehicle up to the disc spreader until the drawbar is located under the trailer hitch.
4. Attach the drawbar (Fig. 19/2) to the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.
5. Set the jockey wheel (Fig. 19/3) to the uppermost position. To do this, raise the jockey wheel axle completely with the crank (Fig. 19/1).
6. After attaching the machine to the towing vehicle, the operating device (Fig. 19/6) can be taken into the towing vehicle.

5.2.2 Unhitching the disc spreader

WARNING

Disc spreader rolling away

An unhitched disc spreader can roll away and cause serious injuries.

- ▶ Only unhitch the disc spreader on level, load-bearing ground.
- ▶ Secure the disc spreader against rolling away, e.g. with wheel chocks.

1. Switch off the engine using the operating device (Fig. 19/6), refer to section 5.5.2 “Stopping the engine”.
2. Secure the operating device (Fig. 19/6) in the designated holder.
3. Set the jockey wheel (Fig. 19/3) to the lowest position. To do this, lower the jockey wheel axle completely with the crank (Fig. 19/1).
4. Disconnect the drawbar (Fig. 19/2) from the towing vehicle's trailer coupling, see the operating instructions of the towing vehicle.
5. Set the battery disconnect switch (Fig. 29/2) to OFF. The indicator light (green) is no longer illuminated.

ATTENTION

If the battery disconnect switch is not switched off, the battery may become discharged**!**

5.3 Operating device

The disc spreader is operated via the operating device VisionX Display (Fig. 19/6), which is connected to the disc spreader via a cable.

5.3.1 VisionX Display operating device

When the disc spreader is not hitched to a towing vehicle, the operating device is attached to a holder at the front of the hopper. The operating device can be secured in the towing vehicle using the RAM-Mounts mounting system. The disc spreader can then be operated from the towing vehicle.

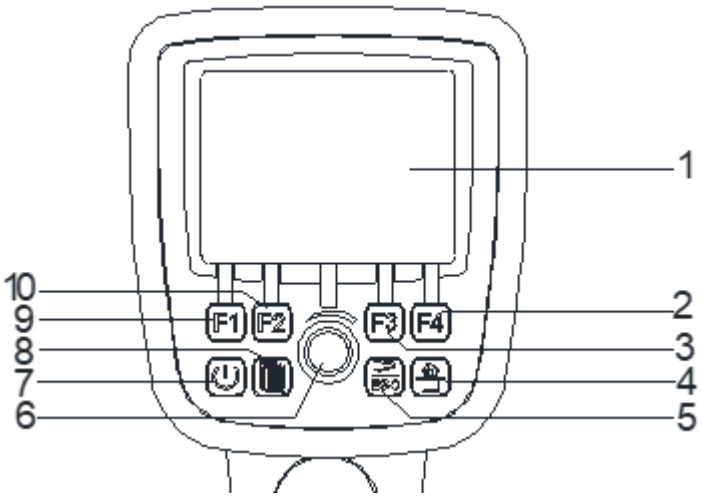
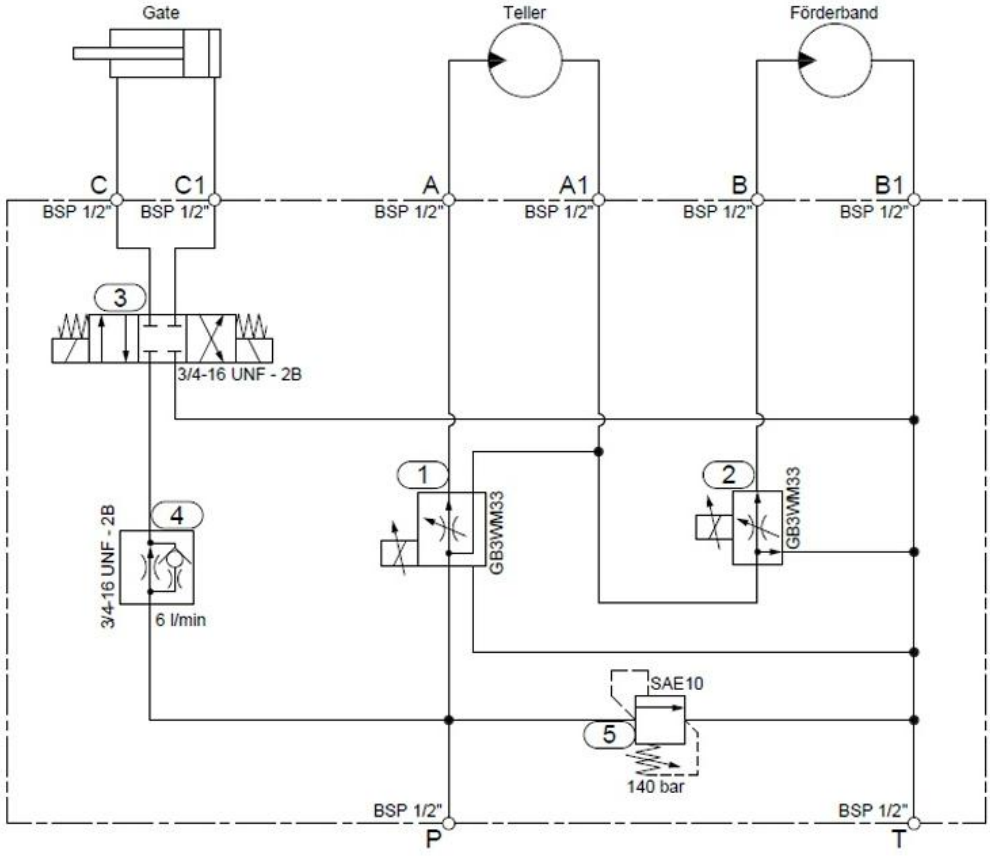


Fig. 20 VisionX Display operating device

Item	Operating element	Function
1	Display	Display current control menu
2	F4 button	Engine (switching the engine on and off, refer to section 5.5.2 “Starting the engine” and “Stopping the engine”)
3	F3 button	Set transport speed of conveyor unit
4	Home button	Switch to start menu
5	ESC button	Exit current control menu
6	Rotary control	Increase or reduce the selected value, navigate the control menu, confirm the set value by pressing the rotary control
7	On/Off button	Switch operating device on/off
8	Menu button	Go to the "Settings" control menu (settings are set by the manufacturer)
9	F1 button	Switch on / switch off spreader disc
10	F2 button	Set the speed of the spreader discs

Hydraulic plan



Volumenstrom Qmax	40 l/min
Druck pmax	140 bar
Betriebsspannung	12V DC
Steckerausführung	Deutsch DT04-2P
Temperaturbereich	-20°C...+80°C

Fig. 21 Hydraulic plan

5.4 Filling spreading material

NOTICE

- When loading the disc spreader do not exceed the permissible axle load and the permissible total weight, refer to section 4.2.
- Observe the ground bearing capacity of the terrain.

1. Make sure that the disc spreader is switched off. In the switched-off condition, the shutter in the hopper is closed.
2. Fill the hopper with spreading material by suitable means of transport, e.g. a shovel loader.

5.5 Spreading the material

Operation with VisionX Display

NOTICE

If necessary, set the spread rate by adjusting transport speed, rotation speed of spreader discs, and spreader gate opening, refer to the following sections. This may be necessary if, for example, the type of spreading material is changed.

5.5.1 Programming the Spreading Modes

Start menu

1. Set the battery disconnect switch (Fig. 29/2) to ON. The indicator light lights up green.
2. Press the On/Off button (Fig. 22/2). The VisionX Display operating device is switched on.
3. Press the rotary control (Fig. 22/1) to switch to the required submenus.

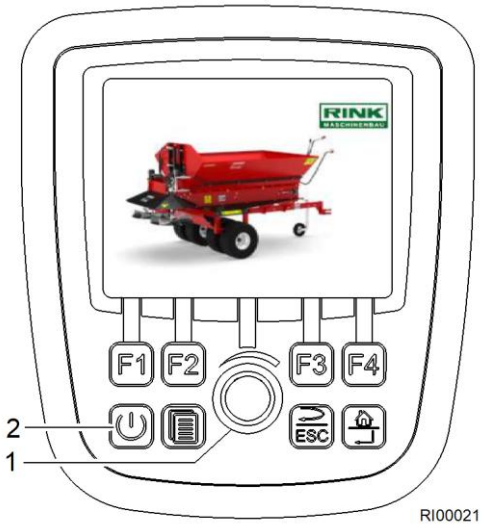


Fig. 22 Start menu

Select spreader mode

1. Turn the rotary control (Fig. 23/1) to select the desired spreader mode.
2. Press the rotary control. The spreader mode is selected.
3. If you want to adjust the spreader mode, press the F1 button (Fig. 23/2).
4. If you want to change the name of the spreader mode, press the F2 button (Fig. 23/3).

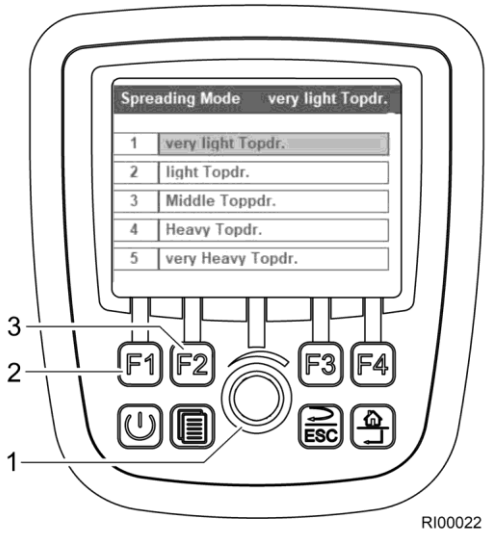


Fig. 23 Spreader mode

Set speed of spreader discs

1. Turn the rotary control (Fig. 24/2) and set the desired disc speed.
2. Press the rotary control. The disc speed is saved.
3. Press the F4 button (Fig. 24/1). The next menu is called up.
4. Press the F1 button (Fig. 24/3). The previous control menu is called up.

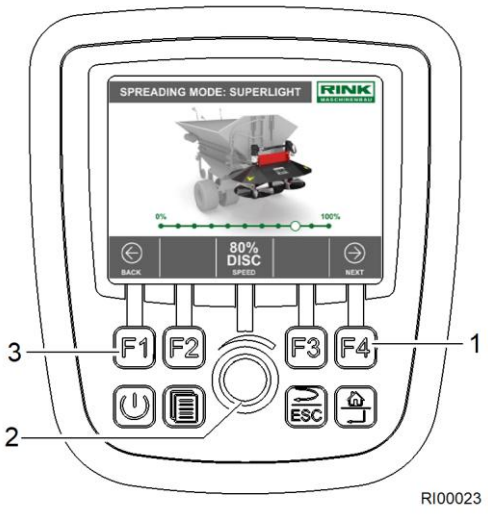


Fig. 24 Set disc speed

Set transport speed

1. Turn the rotary control (Fig. 25/2) and set the desired transport speed for the conveyor unit.
2. Press the rotary control. The transport speed is saved.
3. Press the F4 button (Fig. 25/1). The next menu is called up.
4. Press the F1 button (Fig. 25/3). The previous control menu is called up.

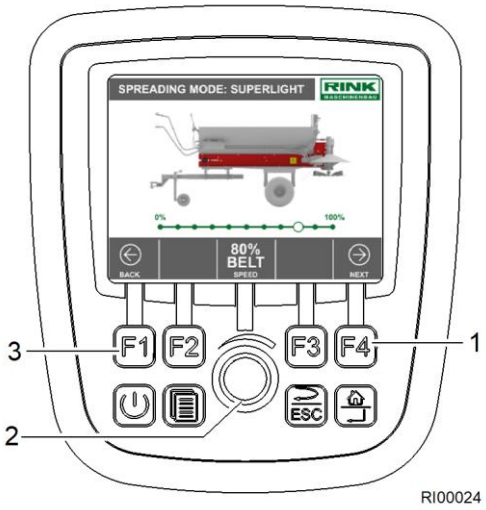


Fig. 25 Set transport speed

Set driving speed

1. Turn the rotary control (Fig. 26/3) and set the desired driving speed for spreading operation.
2. Press the rotary control. The driving speed is saved.
3. If you want to switch between km/h and miles/h units, press the F3 button (Fig. 26/2). The unit is changed.
4. Press the F4 button (Fig. 26/1). The next menu is called up.
5. Press the F1 button (Fig. 26/4). The previous control menu is called up.

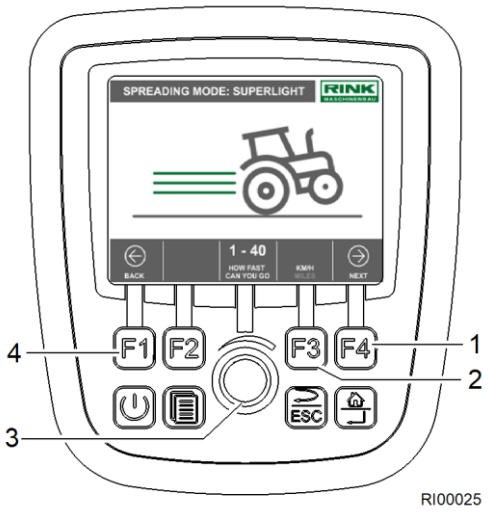


Fig. 26 Set driving speed

NOTICE

In this control menu, you can only save the desired driving speed at which you want to drive. This serves as a reference value and does not change the actual speed of the towing vehicle.

Set spreader gate opening

1. Turn the rotary control (Fig. 27/2) and set the desired spreader gate opening for spreading operation.
2. Press the rotary control. The spreader gate opening is saved.
3. Press the F4 button (Fig. 27/1). The control menu for spreading operation is called up.
4. Press the F1 button (Fig. 27/3). The previous control menu is called up.

NOTICE

In this control menu, the desired shutter opening can only be saved. The position of the shutter end stops must be adjusted manually, refer to section 5.5.3.

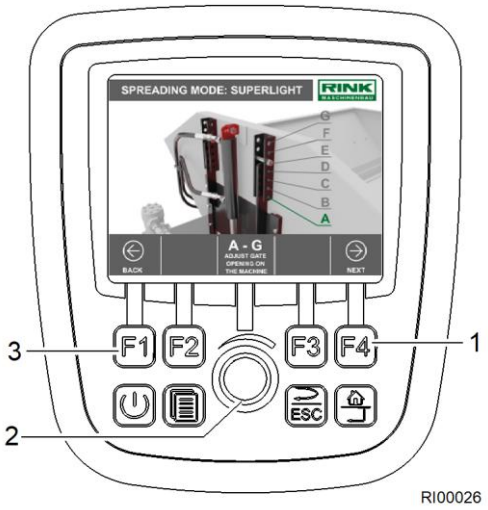


Fig. 27 Set spreader gate opening

NOTICE

Once all the steps described above have been completed, programming of the selected spreading mode is complete.

Additional spreading modes can then be programmed, or spreading operation can be started (refer to section 5.5.2 “Carry out spreading operation”).

Machine data

1. When the menu button (Fig. 28/2) is pressed, the control menu Menu opens.
2. Select the desired menu item to be set by turning the rotary control (Fig. 28/1).
3. Press the rotary control. The desired menu item is selected.

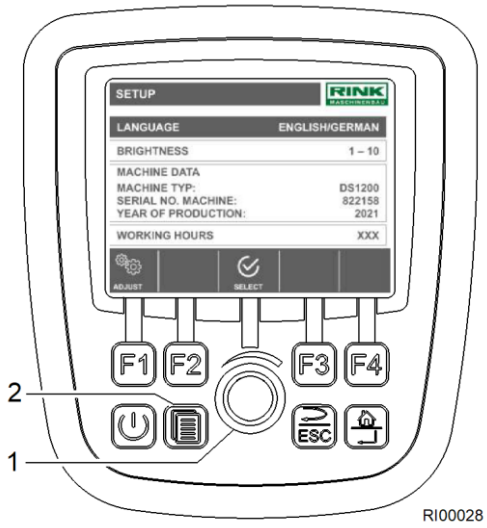


Fig. 28 Menu

NOTICE

These settings are configured at the factory before the machine is delivered.

5.5.2 Carry out spreading operation

NOTICE

Before starting the engine, every operator must read and fully understand the enclosed operating instructions of the engine manufacturer.

WARNING

Fire and explosion hazard from petrol

Petrol is highly flammable and explosive. Fuel vapours can ignite and cause serious burns or death.

- ▶ Only refuel with the engine switched off and cooled down.
- ▶ No smoking, open flames or sparks when refuelling.
- ▶ Only refuel outdoors or in well-ventilated areas.
- ▶ Do not overfill the petrol tank; wipe up spilled petrol immediately.

WARNING

Poisoning hazard from exhaust gases

Inhaling exhaust gases can cause unconsciousness or death.

- ▶ Never run the engine in enclosed or poorly ventilated rooms.
- ▶ Do not inhale exhaust gases.

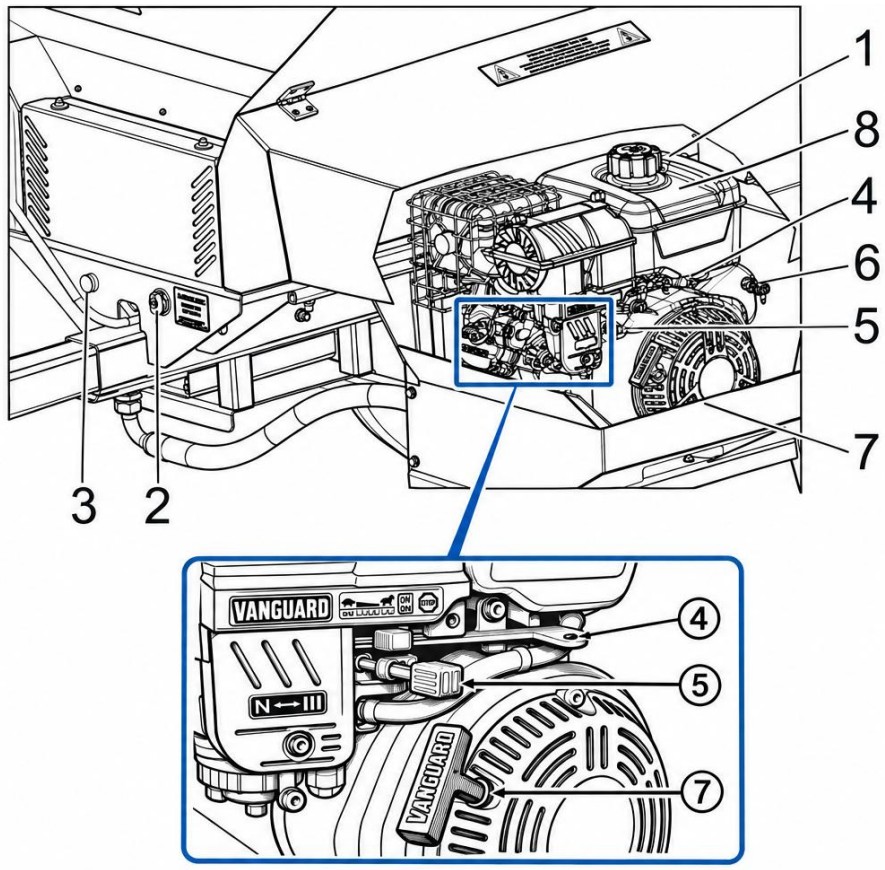


Fig. 29 Engine

1. Fill the petrol tank (Fig. 29/1) with petrol (for the octane rating requirement, refer to the operating instructions of the engine manufacturer).
2. Set the battery disconnect switch (Fig. 29/2) of the engine (Fig. 29/8) to ON. The indicator light (Fig. 29/3) lights up green.
3. Set the throttle lever (Fig. 29/4) to the FAST position.
4. Switch on the display using the ON/OFF button (Fig. 30/6), or the display starts automatically after the engine has started and the electrical voltage has built up (if the display does not switch on due to insufficient battery voltage, start the engine manually using the starter rope, see below).
5. Press the rotary control (Fig. 30/3) to open the menu for selecting the spreader mode. Select the spreader mode by turning the rotary control and confirm by pressing the rotary control (Fig. 30/3).

   The position of the shutter limits and the driving speed are displayed in the control menu Spreading.
6. Press the F4 button (Fig. 30/1) to start the engine. The engine symbol (Fig. 30/1) lights up green.

   If the display does not switch on due to insufficient battery voltage, start the engine manually using the starter rope (Fig. 29/7). The display switches on automatically after a few seconds.

   When cold-starting the engine, operate the choke control (Fig. 29/5) and then operate the key switch (Fig. 29/6) to start the engine.

NOTICE

After the engine has warmed up, immediately return the choke control (Fig. 29/5) to its initial position.

When the engine is at operating temperature, it is not necessary to operate the choke control (Fig. 29/5) to restart the engine**.**

WARNING

Rotating spreader discs

Rotating spreader discs with sharp-edged vanes and ejected spreading material can cause the most serious injuries, including the loss of limbs.

- ▶ Never stay in the area of the spreader discs while they are running.
- ▶ Never bring hands, feet or objects close to the running spreader discs.
- ▶ Wear tight-fitting clothing and tie back long hair.
- ▶ Before working on the spreader discs, switch them off and wait until they have come to a complete stop.

7. Press the F1 button (Fig. 30/4). The spreader discs start to rotate (the indicator light is lit green).
8. When the F2 button (Fig. 30/5) is pressed, the disc speed can be set via the rotary control (Fig. 30/3).
9. When the rotary control is pressed, the shutter opens and the conveyor belt starts running (indicator light changes to green).

   The conveyor belt cannot be started before the spreader discs have been activated.
10. When the F3 button (Fig. 30/2) is pressed, the transport speed can be set via the rotary control.

NOTICE

Changes to the disc speed and conveyor belt speed during spreading operation are applied to and saved in the selected spreader mode.

11. Check spread rate and spread width.
12. If necessary, correct the spread rate, refer to section 5.5 and section 5.5.5.
13. Drive the towing vehicle over the ground to be covered.
14. Stopping the engine

    Option 1:

    Before stopping the engine, the conveyor belt and the spreader discs must first be switched off.

    - Switch off the conveyor belt using the rotary control (Fig. 30/3).
    - Switch off the spreader discs using the F1 button (Fig. 30/4).
    - Then stop the engine using the F4 button (Fig. 30/1).

    Option 2: Manual engine stop

    Slide the throttle lever switch on the engine to the right to OFF.

    Finally, the display can be switched off using the ON/OFF button (Fig. 30/6) or the battery disconnect switch (Fig. 29/2).

NOTICE

If the machine is to be left standing for a longer period, always switch off the battery disconnect switch (LED light (Fig. 29/3) goes out). Otherwise the battery will be discharged by the stand-by current of the display.

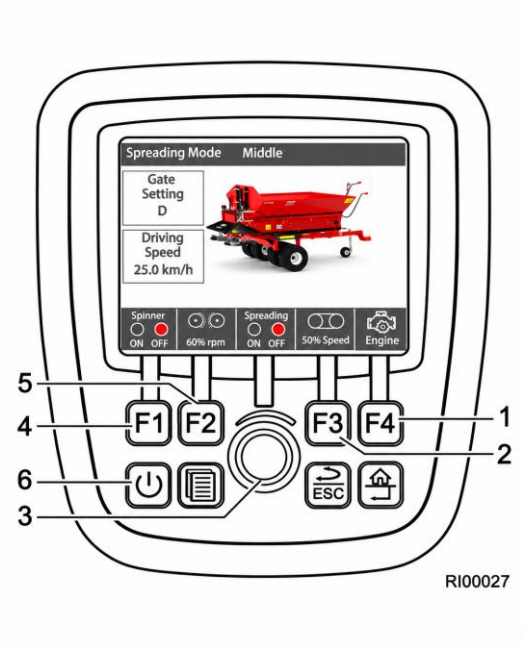


Fig. 30 Carry out spreading operation

5.5.3 Adjusting the shutter position

When the disc spreader is switched on, the hydraulic cylinder of the shutter device retracts and the shutter (Fig. 31/2) opens the spreader gate opening in the rear wall of the hopper. How far the shutter opens depends on the plug-in position of the two socket pins (Fig. 31/1).

1. Make sure that the disc spreader is switched off.
2. Pull out both socket pins (Fig. 31/1).
3. Determine the required shutter position (A-M) using the spreader chart.
4. Push both socket pins (Fig. 31/1) completely into the corresponding holes.

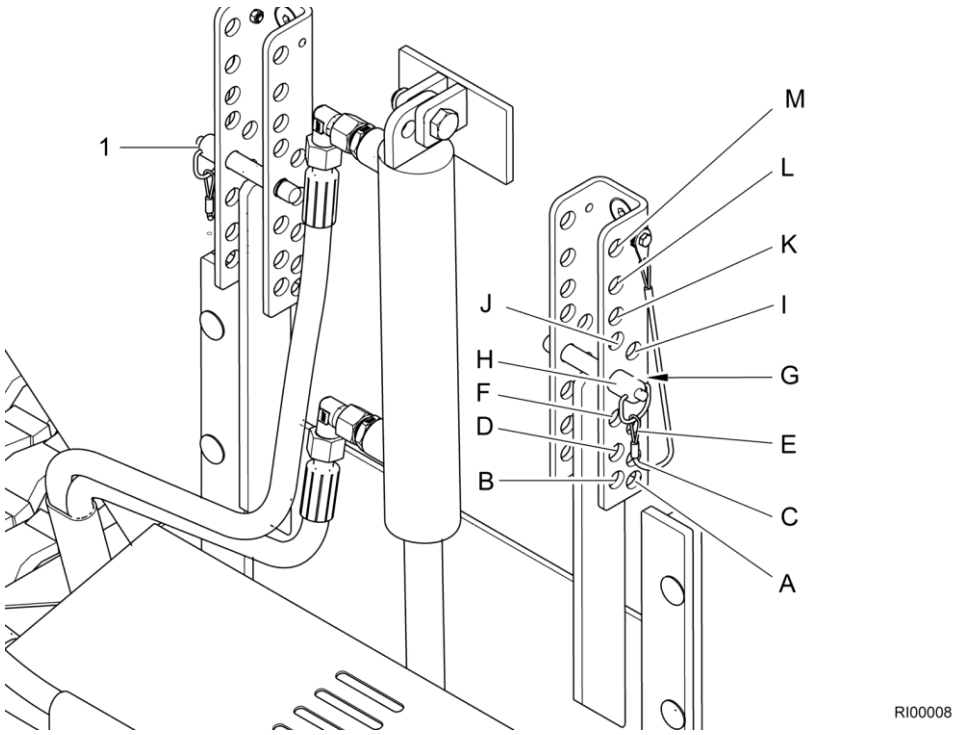


Fig. 31 Shutter device in the hopper

5.5.4 Adjusting the vanes



WARNING

Serious injury caused by sharp-edged spreader discs rotating at high speed with vanes

Hands can be very seriously injured.

- ▶ Always wait until the spreader discs have come to a complete stop.
- ▶ Never reach into the working area of the spreader discs.
- ▶ Wear protective gloves when working on the spreader disc.

If the spreading material is unevenly distributed, the vanes must be adjusted. An uneven spread pattern is recognisable by a concentration of material in the inner or outer area of the spread width.

The material concentration is in the outer area of the spread width:

1. Loosen the bolted connections (Fig. 32/1) in the slotted holes of every second vane (Fig. 32/2). To do this, loosen the nuts of the bolted connections underneath the spreader discs.
2. Swivel every second vane (Fig. 32/2) in direction "X".
3. Tighten the bolted connections (Fig. 32/1) again. To do this, tighten the nuts of the bolted connections underneath the spreader discs.

The material concentration is in the inner area of the spread width:

1. Loosen the bolted connections (Fig. 32/1) in the slotted holes of every second vane (Fig. 32/2). To do this, loosen the nuts of the bolted connections underneath the spreader discs.
2. Swivel every second vane (Fig. 32/2) in direction "Y".
3. Tighten the bolted connections (Fig. 32/1) again. To do this, tighten the nuts of the bolted connections underneath the spreader discs.

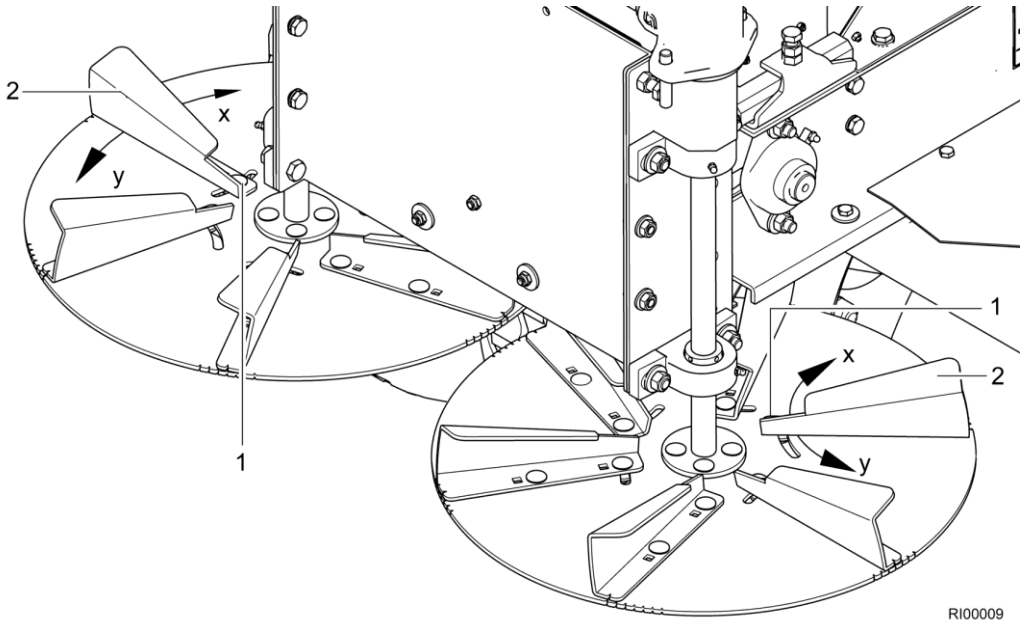


Fig. 32 Adjusting the vanes

5.5.5 Spreader chart

The spreader chart contains guide values for the setting parameters. Depending on the spreading material and the driving speed of the towing vehicle, the results may deviate from the spreader chart and must then be determined by trials.

Spread rate	Spreader disc	Conveyor belt	Shutter level	Spread width
	Operating device	Operating device	Shutter position	
Thin	8-10	8-10	A - B	12 m
Medium	6-7	8-10	C - E	8 m
Thick	4	8-10	F - M	4 m

6 Maintenance and care

Maintain disc spreader according to lubrication and maintenance schedule.

6.1 Lubrication schedule

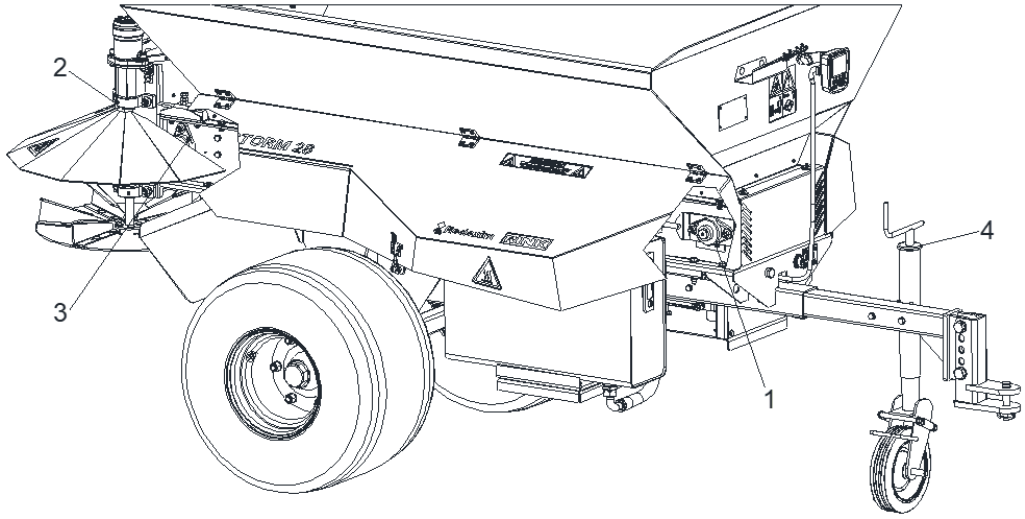


Fig. 33 Lubrication points

Bearings without grease nipples are maintenance-free.

Item	Lubrication point	Qty.	Lubricant	Operating hours	Comment
1	Bearings, deflection roller of transport unit	2	Multi-purpose grease (e.g. Lubcon Turmogrease LI802 EP)	25 h	On both sides
2	Bearings, spreader discs	4			
3	Bearings, drive roller of transport unit	2			
4	Jockey wheel	1			-

6.2 Maintenance schedule

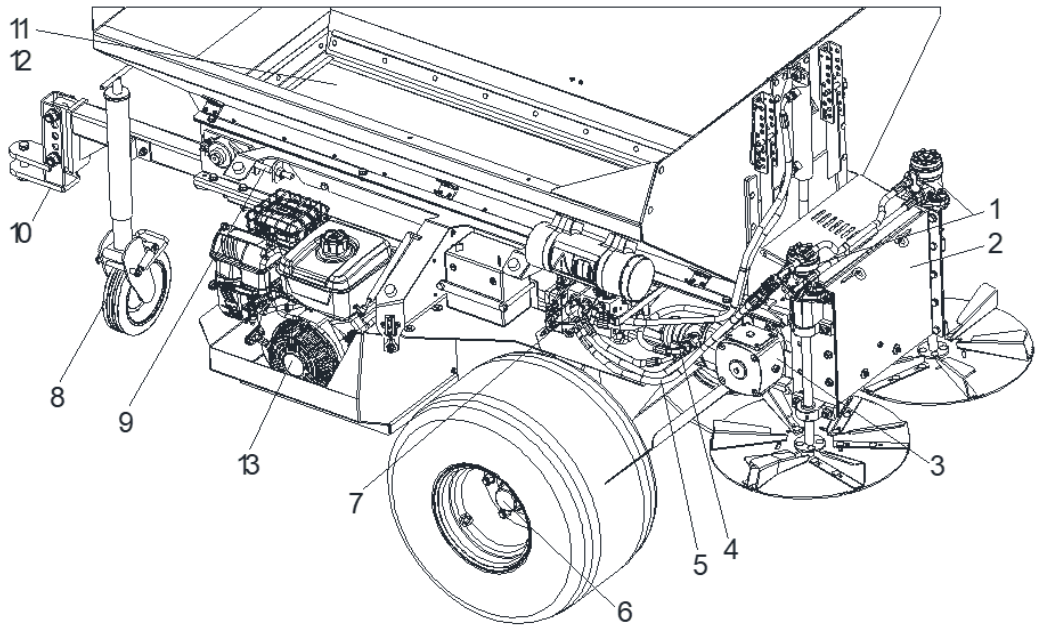


Fig. 34 Maintenance points

(shown without protective covers over spreader unit and control block)

Item	Maintenance point	Qty.	Maintenance task	Interval	Comment
1	Hydraulic motors, spreader discs	2	Replace if necessary, check correct fit	-	It must not be possible to pull the motors off, but they should be sufficiently movable and not rigidly fitted
2	Spreader unit	1	Check shutter, spreader discs and vanes for wear	50 h	Have replaced if necessary
3	Conveyor belt gearbox	1	Carry out an oil change	100 h	
4	Hydraulic motor, conveyor unit	1	Replace	-	If defective or leaking
5	Hydraulic hoses and hydraulic fittings	All	Check for leaks and integrity	100 h	Hydraulic hoses must be movable
	Hydraulic hoses	All	Replace	6 years	DGUV 113-020

Item	Maintenance point	Qty.	Maintenance task	Interval	Comment
6	Wheel axle	2	Check wheel play, check wheel nut for tight fit, check tyre pressure	100 h	Wheel play is not permissible
7	Electro-hydraulic control unit	2	Check for leaks and integrity	100 h	
8	Jockey wheel	1	Check condition	100 h	
9	Tensioning device of conveyor belt	2	Retension	When slipping	Refer to section 6.3.1
10	Hitch	1	Check for wear	100 h	
11	Conveyor belt	1	Check for wear and running in the centre	100 h	Replace if necessary
12	Side wall rubber, front wall rubber	2	Check for wear	100 h	Replace if necessary
13	Engine	1	See the enclosed operating and maintenance instructions provided by the engine manufacturer.		

6.3 Maintenance work

WARNING

Unexpected restart of the disc spreader

Unexpectedly restarting, sharp-edged components can cause the most serious injuries.

- ▶ Switch off the disc spreader prior to maintenance work and secure it against being switched on again.



CAUTION

Sharp-edged parts

Parts that have become sharp-edged due to material removal can injure hands.

- ▶ Wear protective gloves during maintenance work.

WARNING

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

- ▶ Switch off the engine and depressurise the hydraulic system before working on the hydraulic system.
- ▶ Never check for leaks with your hands.
- ▶ If hydraulic oil has penetrated the skin, seek medical attention immediately.
- ▶ Replace damaged hydraulic hoses immediately.

CAUTION

Hot surfaces

The engine, exhaust silencer, hydraulic components and hydraulic oil can become very hot during operation. Touching them can cause burns.

- ▶ Allow the engine and hydraulic system to cool down before starting maintenance work.
- ▶ Wear protective gloves.

WARNING

Explosive gases and battery acid

Batteries can emit explosive gases. Battery acid is corrosive and can cause serious injuries to eyes and skin.

- ▶ Keep sparks, open flames and cigarettes away from the battery.
- ▶ Set the battery disconnect switch to OFF before working on the electrical system.
- ▶ Wear protective goggles and protective gloves when working on the battery.



WARNING

Please read the enclosed engine manufacturer’s operating and maintenance instructions.

6.3.1 Tensioning the conveyor belt

If the conveyor belt slips, it must be retensioned with the tensioning device.

ATTENTION

If the conveyor belt is tensioned too much or unevenly, the service life of the conveyor belt will be shortened.

- ▶ Tension the tensioning device on both sides of the conveyor belt at the same time.
- ▶ Do not tension the tensioning device too much.

1. Loosen the counter nut (Fig. 35/2) on both sides of the conveyor belt.
2. Turn the nut (Fig. 35/1) clockwise half a turn at a time (evenly on the right and left side of the conveyor belt).
3. Repeat step 2 until the conveyor belt is tensioned again.
4. Tighten the counter nut (Fig. 35/2).

ATTENTION

The conveyor belt must not touch the side of the belt frame, otherwise it will be damaged.

5. Operate the conveyor belt without spreading material and check if the conveyor belt is running in the centre.
6. If the conveyor belt is not running in the centre, readjust the conveyor belt, refer to section 6.3.3.

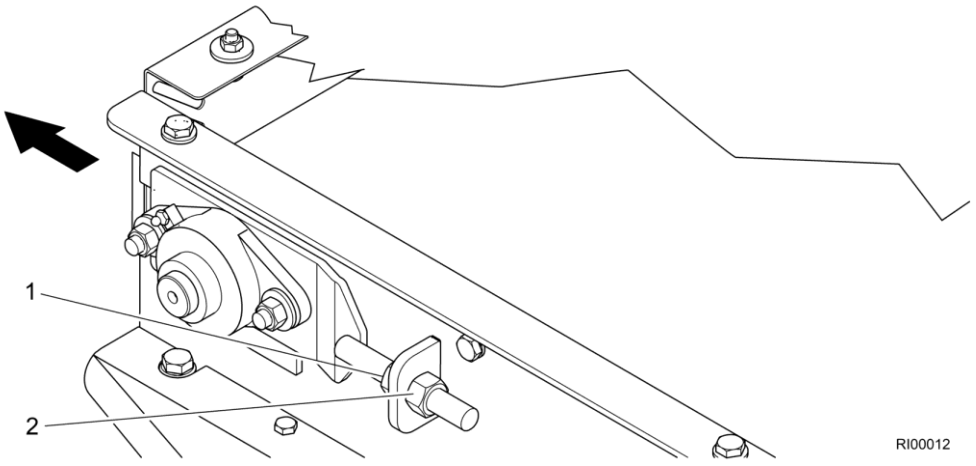


Fig. 35 Tensioning the conveyor belt

6.3.2 Removing and installing the conveyor belt (when empty)

CAUTION

Pressurised hydraulic connections

When the hydraulic connections of the disc spreader are disconnected, pressurised hydraulic oil may escape and enter body orifices.

WARNING

Risk of injury from raised hopper!

Lifting and securing the hopper involves a risk of serious injury.

- ▶ Use only suitable lifting equipment with sufficient load capacity.
- ▶ Secure the hopper against falling before releasing the fasteners.
- ▶ Do not enter or remain beneath suspended loads.

1. Ensure that the engine (Fig. 29/8) is switched off and the battery disconnect switch (Fig. 29/2) is set to **OFF**.
2. Disconnect the gas struts (Fig. 36/2) from the right and left protective covers (Fig. 36/1) and remove both protective covers.
3. Remove the right-hand mounting bracket for the protective cover (Fig. 36/3).
4. Remove the spreader unit (Fig. 36/4). To do this, loosen the bolts (Fig. 36/5) on both sides and carefully pull the spreader unit out towards the rear with the assistance of a second person or suitable lifting equipment.
5. Remove the spreader disc protective plate (Fig. 36/6).
6. Remove the hydraulic oil tank (Fig. 36/7) together with its mounting bracket (Fig. 36/8) from the right-hand side of the conveyor unit.
7. Remove the rubber cover (Fig. 36/9) from the right-hand side.
8. Release the tension of the conveyor belt (Fig. 36/13) by loosening the nuts (Fig. 36/14) on both sides.
9. Remove the bolted connections (Fig. 36/15) between the hopper and the conveyor unit on the right-hand side.
10. Attach the hopper (Fig. 36/15) to suitable lifting equipment and secure it against falling.
11. Remove the locking collars of both bearings (Fig. 36/10) on the right-hand side of the conveyor unit.
12. Remove the bolted connection (Fig. 36/11) between the chassis and the conveyor unit on the right-hand side.
13. Carefully pull the right-hand side panel (Fig. 36/12) together with the attached bearings (Fig. 36/10) off the conveyor belt guide rollers.
14. Remove the conveyor belt (Fig. 36/13) from the guide rollers.
15. Reassembly is carried out in reverse order.

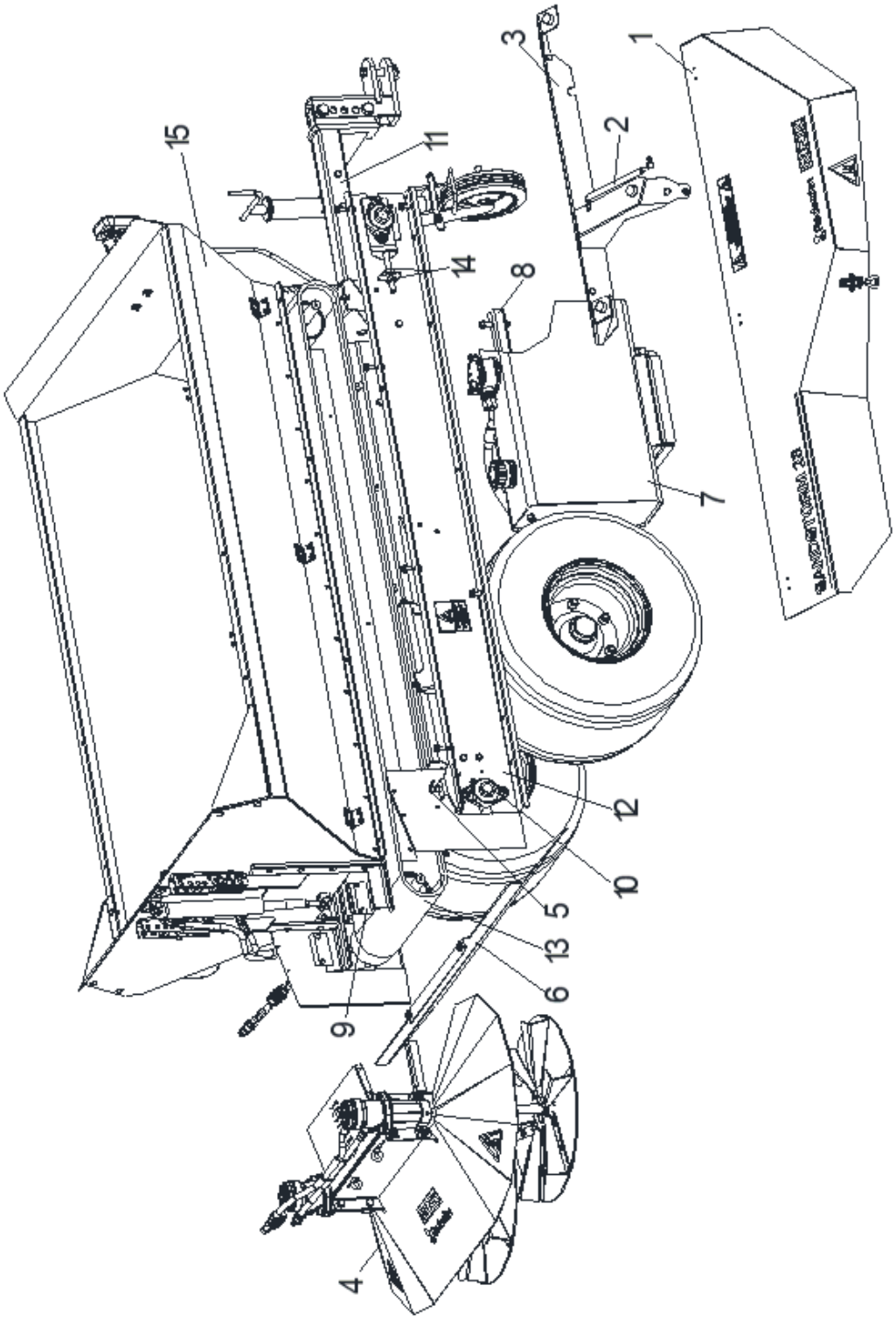


Fig. 36 Installing and removing the conveyor belt

Tensioning the newly installed conveyor belt (when empty)

1. Mark a section of 1000 mm length on the newly installed, still untensioned conveyor belt.
2. Tension the conveyor belt as described in section 6.3.1 until the marked area has stretched to 1003 mm.
3. Allow the conveyor belt to run in for approx. 30 minutes. If the conveyor belt is running in the centre, no further action is required. If the conveyor belt is running off-centre and brushing against the conveyor unit, adjust the conveyor belt, refer to section 6.3.3.

6.3.3 Readjusting the conveyor belt (when empty)

1. If the conveyor belt is running to the left, for example, and is brushing against the left side of the conveyor unit, loosen the counter nut (Fig. 37/2) on the left side of the conveyor belt.
2. Gradually turn the nut (Fig. 37/1) half a turn clockwise.
3. Tighten the counter nut (Fig. 37/2).
4. Operate the conveyor belt without spreading material and check if the conveyor belt is running in the centre.
5. Repeat step 1 to step 4 until the conveyor belt is running in the centre.

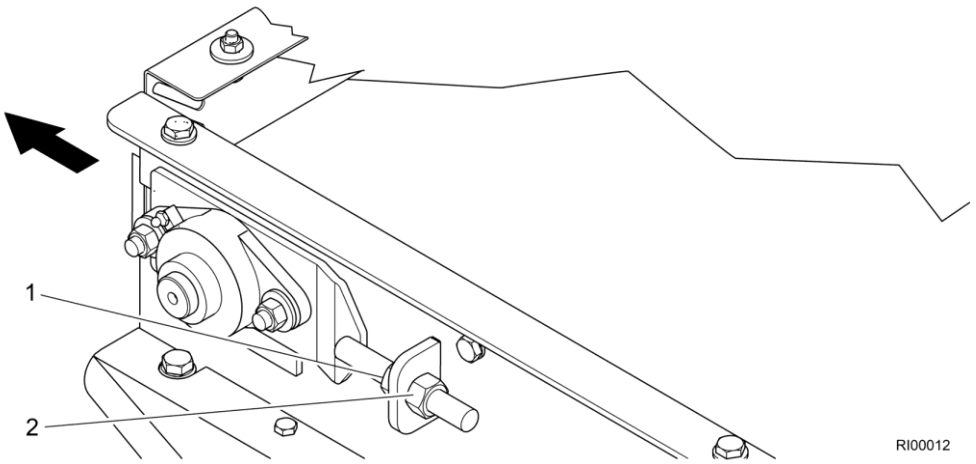


Fig. 37 Readjusting the conveyor belt

6.3.4 Internal oil supply unit

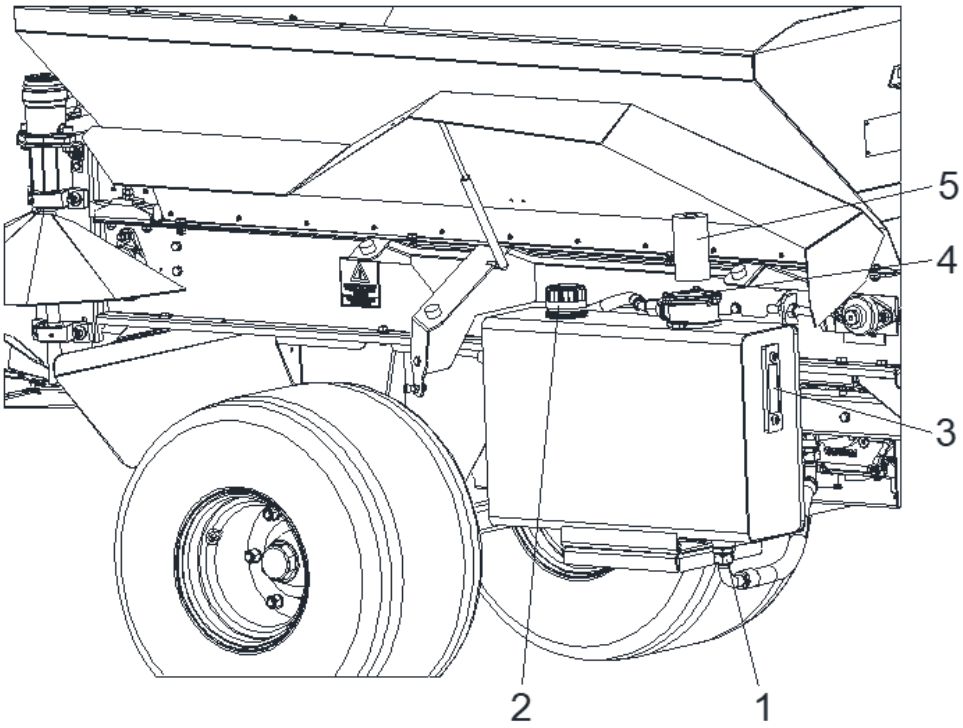


Fig. 38 Internal oil supply unit

Oil change on the hydraulic tank (as required)

1. Loosen the hose (Fig. 38/1) and drain the oil.
2. Reattach the hose (Fig. 38/1).
3. Remove the cap (Fig. 38/2) from the filler filter.
4. Fill in **Plantosyn 3268 ECO** (Fig. 38/3) up to the middle height of the sight glass.
5. Close the cap (Fig. 38/2).

Filter change on the hydraulic tank (when changing oil or as required).

1. Remove the cover (Fig. 38/4) by loosening the screws.
2. Replace filter element (Fig. 38/5) **(order number: 11712)**
3. Reassemble cover (Fig. 38/4) with screws.

ATTENTION

This is a closed hydraulic circuit. To prevent possible contamination:

▶ Replace filter element (Fig. 38/5) every 100 operating hours.

7 Storage

Store the disc spreader only in a covered and dry place.

Carry out the following measures before storage:

1. Clean the disc spreader.
2. Carry out maintenance work.
3. Oil metal parts with multifunction spray.

8 Transport

WARNING

Risk of accident due to tipping over or loss of control

Driving too fast, on slopes or on uneven ground and making sharp turns can cause the disc spreader to tip over or the towing vehicle to lose control.

- ▶ Adapt the driving speed to the ground conditions and the load; do not exceed the maximum permissible speed.
- ▶ Drive particularly carefully on slopes and uneven ground.
- ▶ Only use towing vehicles with sufficient braking power and drawbar load capacity for the total weight of the disc spreader.
- ▶ Never carry persons on the disc spreader.

For transport, the disc spreader is hitched to the towing vehicle. Transport on public roads is only permitted with road approval (TÜV) and the lighting system must be connected.

1. Hitch up the disc spreader, refer to section 5.2.1.
2. Drive to the site of operation with the disc spreader hitched up. Do not exceed the maximum permissible speed of the disc spreader, refer to section 4.2.

9 Faults, causes, remedy

If possible, remedy faults according to the fault table. If the fault cannot be remedied, contact Rink Spezialmaschinen GmbH:

Phone +49 (0) 7520 95690
Fax +49 (0) 7520 956940
E-mail: info@rink-spezial.de

Fault	Possible cause	Remedy
Gate does not open - in almost empty state	Transport speed of conveyor belt too low	Set transport speed > 6, refer to section 5.3
	Gate mechanically jammed (due to contamination)	Clean the shutter
Spread width is too narrow	Spreader discs rotating too slowly	Increase the rotation speed of the spreader discs, refer to section 5.3
Spreading material height is too thin	Not enough material in the spreader unit	Increase the spreader gate opening. To do this, enlarge the shutter opening, refer to section 5.5.3
	Spreader disc speed too high	Reduce spreader disc speed, refer to section 5.3
	Transport speed of conveyor belt too low	Increase transport speed, refer to section 5.3
Spreading material height is too thick	Too much material in the spreader unit	Reduce the spreader gate opening. To do this, reduce the shutter opening, refer to section 5.5.3
	Spreader disc speed too low	Increase the speed of the spreader discs, refer to section 5.3
	Transport speed of conveyor belt too high	Reduce transport speed, refer to section 5.3
Spread pattern uneven	Adjustment of the vanes not correct	Adjust the vanes, refer to section 5.5.4
Flow rate uneven	Transport speed of conveyor belt too low	Increase transport speed, refer to section 5.3
Conveyor belt does not start	Conveyor belt is slipping	Tension the conveyor belt, refer to section 6.3.1
	Spreader discs are not yet running	First switch on the spreader discs, then the conveyor belt/shutter refer to section 5.5.2
Spreader discs, conveyor belt or shutter not working	Is pressure present?	As soon as one function works, pressure is present; otherwise check the hydraulic pump.
	Is the electrical control signal present?	Hydraulic plan Fig. 21: check the LED indicators of the solenoid valve connectors

The enclosed operating instructions of the engine manufacturer must be read completely and observed by every operator.		
Engine does not start	Fuel tank empty	Fill the fuel tank with suitable petrol. (for the octane rating requirement, refer to the operating instructions of the engine manufacturer)
	Starter not working	Have the starter and electrical connections checked. Start the engine using the starter rope.
	Battery completely discharged	Charge the battery or start the engine manually using the starter rope (Fig. 29/7) – the battery charges as soon as the engine is running.
	Battery disconnect switch switched off	Set the battery disconnect switch to ON
Engine cannot be switched off	Conveyor belt and spreader discs are still switched on	First switch off the conveyor belt using the rotary control (Fig. 30/3) and then the spreader discs using the F1 button (Fig. 30/4). Then stop the engine using the F4 button (Fig. 30/1).
	Sensor (installed from serial number 1026136 onwards) is not detected – engine symbol (Fig. 30/1) is not lit green.	Switch off the engine by moving the throttle lever to the STOP position. ATTENTION: The engine must be switched off manually, refer to section 5.5.2 step 14, otherwise the engine may be damaged.
Battery disconnect switch on, no light signal	Battery voltage too low	The engine must be started manually, refer to section 5.5.2 step 6; the battery then charges.
	Earth cable or indicator light cable defective (negative cable from battery to battery disconnect switch and from battery disconnect switch to engine)	Replace the cable.
	LED light defective	Replace the LED light
Engine start via display, display switches off and on again. This is not a defect of the display!	Engine starting voltage too high. The battery charge level is too low to operate the display. As soon as the engine is running, the battery is charged and the display restarts.	

With sensor (from serial number 1026136) Engine symbol on the display is not lit green although the engine is running. Engine operation is not detected. ATTENTION: The engine must be switched off manually, refer to section 5.5.2 step 14, otherwise the engine may be damaged.	Sensor defective	Check the sensor. When the engine is running, the sensor indicator must light up orange. Refer to section 4.1.6
	Sensor signal is not transmitted	Check/replace the sensor, sensor cable and plug connections. Refer to section 4.1.6
Without sensor (up to serial number 1026135) Engine symbol on the display is not lit green although the engine is running. Engine operation is not detected. ATTENTION: The engine must be switched off manually, refer to section 5.5.2 step 14, otherwise the engine may be damaged.	Voltage differences between battery and alternator	Switch off the engine manually, refer to section 5.5.2 step 14. Then switch off the display and set the battery disconnect switch to OFF. Wait until the voltage has dissipated (approx. 1 minute). Finally restart, refer to section 5.5.2; repeat the starting procedure if necessary.

10 Disposal

The disc spreader is made of high-quality materials and also contains recyclable materials such as steel and rubber.

NOTICE

Dispose of these materials separately and in accordance with the legal requirements for waste disposal or recycling in force at the time of disposal at the place of use.



ATTENTION

Hydraulic oil can contaminate soil, sewage system or water.

- ▶ Dispose of hydraulic oil properly and in accordance with the applicable regulations.