Operating Manual

FIEDLER®

Roller / Combined spreader
FWS 200(XL) / 200(XL)K

These operating instructions must always be kept in the vehicle!

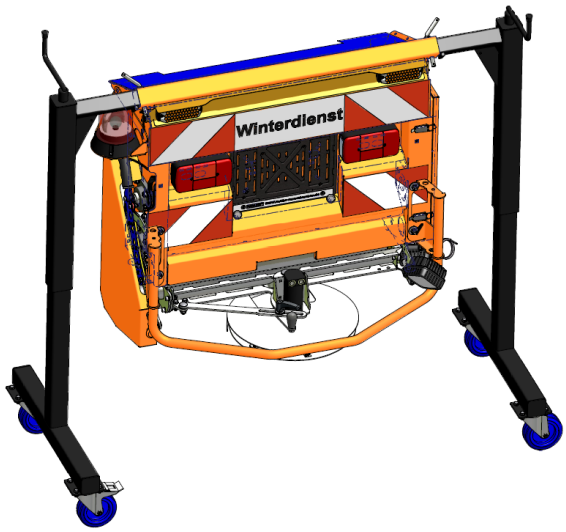
Operating Manual

FIEDLER®
Roller / Combined spreader
FWS 200(XL) / 200(XL)K

Dear Customer,

with the choice of this **FIEDLER®**- Product you have chosen a professional device, which ensures the highest quality and reliability. For the trust placed in us, we would like to take this opportunity.

We ask you, **read the following instructions carefully before operating**, so you can enjoy all the benefits of our products.



Machine No.: .....
date of issue: 12/03/2015
version: 2.1

CE

Declaration of Conformity

according to the Machinery Directive 2006/42 / EC of 17 May 2006, Annex II 1A

Manufacturer:

FIEDLER Maschinenbau und Technikvertrieb GmbH
Dresdner Straße 76c
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Person responsible for the technical documentation:

State approved Technician
Maik Winkler
FIEDLER Maschinenbau und Technikvertrieb GmbH
Dresdner Straße 76c
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Description of the machine:

Product designation:	FWS 200 / FWS 200K
Function:	Spreading free flowing gravel, sand, salt, etc., on roads and / or pavements.
Date of manufacture:	……

We hereby declare that the aforementioned machine, its design and construction, as well as the version marketed by us, meet all the relevant provisions of the Machinery Directive 2006/42/EC.

If the machine is modified without our authorization, this declaration will become invalid.

The above-mentioned machine meets the requirements of the following directives:

- Machines Directive 2006/42/EC

The following harmonized standards have been used:

- DIN EN ISO 12100: 2010 Safety of Machinery – General Principles for Design, Risk Assessment and Risk Reduction
- DIN EN 60204-1 Safety of Machinery - Electrical Equipment of Machinery, Part 1: General Requirements
- DIN EN ISO 13849 Safety of Machines – Safety-Related Parts of Control Units
- DIN EN ISO 13021: 2009 Machines for Winter Service - Safety Requirements

Schmoelln-Putzkau, October 18, 2011

Dipl.-Ing. Frank Fiedler
managing Director

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1 General instructions

1.1 Imprint

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1.2 Editorial notes:

1.2.1 Info

These operating instructions are intended to help you understand the handling and the technical details of your product to use as intended as well as operate and maintain it safely.

They describe all models, standard and optional equipment of your product, available at the time of the editorial deadline of this manual.

There may be country-specific deviations.

Please note that your model does not necessarily feature all the functions described. This is also applicable to the safety systems and functions. As a result, there may be deviations in the description or the illustrations.
For example, controls or ports may be found in different places or, depending on the equipment level, they may be not available. Please note that no legal claims can incur in this respect.

The scope of the function and the list of special equipment have been given in the original purchase agreement documents of your product. In case of any queries related to equipping and operation, you can contact any authorised **FIEDLER®** dealer.

For the equipment of the carrier vehicle the according documents issued by the vehicle manufacturer should be consulted or requested.

This manual is a statutory part of the purchased product and must be kept in the vehicle and handed over at the sale.

Reproduction of this document, even if partial, requires an explicit approval from **FIEDLER®**. This also applies to electronic recording and any translation into another language.

1.2.2 Information types

The documentation is organised as follows:

- General instructions
- Safety
- Technical Specifications
- Operation
- Maintenance and Inspection
- Faults and Troubleshooting
- Wiring Diagrams

General instructions

This chapter contains procedures and instructions for use of your product documentation.

Safety

Here you will find important information on the safe use of the product.
Compliance with these safety instructions is essential to ensure proper operation and prevent damage to man and machine. However, they do not guarantee accident-free work, but apply only as a guide.

Technical Specifications

The Technical Specifications contain all the necessary dimensions, parameters, and, if necessary, installation guidelines for the respective carrier vehicle, which are required for operation.

Operation

Product operation is divided into several chapters and contains all the information that will allow smooth installation, transport and operation.

Maintenance and Inspection

Documents relating to maintenance and inspection provide information on how and at what intervals your product shall be serviced in order to ensure smooth operation.

Faults and Troubleshooting

This chapter contains possible errors and faults during operation and describes solution options.

Wiring Diagrams

Here you will find diagrams of the electric and hydraulic system, which are required for operation and connection.

1.3 Abbreviation

Abbreviation	Explanation
dB	Decibels
mm	Millimetre
cm	Centimetre
m	Metre
g	Gram
kg	Kilogram
t	Ton
L	Litre
V	Volt
A	Ampere
Nm	Newton-metre
min	Minute
min.	minimum
max.	maximum
WZP	Parking device
SWS	Quick-change system
AWZ	Working tool
TW	Transport vehicle.
AP	Operating position
or	and/or
if necessary	if appropriate
i.a.	and the like
approx.	approximately
following the	according to
Fig.	Figure
Tab.	Table
Section	Chapter
[►43]	(see page 43)
SKS	Hex bolt
ZS	Cylinder head screw with hexagonal socket

Table 1: Abbreviations

2 Safety

2.1 General Safety Instructions

The product described in this manual is manufactured using state of the art technologies, following the installation guidelines of the vehicle manufacturer and the recognised safety regulations.

Nevertheless, incorrect operation or misuse may be dangerous:

- for the health and life of the operator and/or a third party;
- for the machine or other material objects of the operator;
- for proper operation of the machine.

Before use, read the following safety information completely to avoid damage to the product or injury to yourself and others.

During operation, this manual should always be kept in the cab of the vehicle.

2.2 Obligations of the operator

The operator is obliged to only allow people to operate the machine or device, who:

- are at least 18 years of age;
- hold an appropriate driving licence and are familiar with the operation of the vehicle;
- have been professionally trained in handling both the vehicle and the machine/device;
- are familiar with the basic occupational health, safety and accident prevention provisions, as well as the accident prevention regulations of the Professional Trade Association;
- have read and understood these instructions and confirmed so by signing on the last page.

The safety-conscious work of the staff should be checked regularly.

2.3 Approved operators and the operator's workplace

The machine/device may only be operated, maintained and repaired by persons, who:

- are at least 18 years of age;
- hold an appropriate driving licence and are familiar with
- the operation of the vehicle;
- and have been professionally trained in its handling.

All people who work with the machine/device must:

- have read and understood this operating manual;
- respect the basic occupational health, safety and accident prevention provisions, as well as the accident prevention regulations of the Professional Trade Association;

2.4 Explanation of the symbols and instructions

NOTICE

Shows user tips and useful information

Ignoring this instruction may lead to disruptions to the machine and/or in the surroundings.

CAUTION
Shows a possible hazardous situation
Failure to follow this instruction may lead to mild injuries and/or damage to the machine

WARNING
Shows a possible hazardous situation
Ignoring this instruction may lead to serious injury or death

2.5 Intended use

The roller / combined spreader is intended for spreading bulk gravel, sand, salt, etc., on roads and/or pavements.

It may only be attached to and operated by a carrier vehicle approved by the FIEDLER® company.

The device may only be operated, maintained and repaired by people acquainted with the above provisions, who have been made aware of any possible hazards.

Any use exceeding these limits is considered improper.

The manufacturer is not responsible for damage resulting from the aforementioned improper use, and the risk is carried entirely by the user.

Considering the instructions in this operating manual and the execution of the inspection and maintenance work are part of the intended use.

2.6 Safety notes on the spreader

Before starting up read the operating instructions and safety information!

Before performing maintenance works or repairs turn off the engine and remove the ignition key!

Danger from spinning parts when the engine is running

-

Maintain a safe distance!

Risk of injury from moving parts!

-

It is prohibited to remove the safety equipment during operation!

Risk of crushing from moving parts!

-

Caution when using the jack stands

2.7 Safety devices

The machine/mounted device is equipped with safety devices.

Before each use, assure their appropriate installation and functioning.

The safety devices should only be removed when the vehicle is stationary and protected against restarting.

For details on the protective devices, see Section Operation or Section Maintenance / Repair.

2.8 Safety measures during operation

WARNING

Prior to installation of the roller / combined spreader, additional headlights and a rotating flashing light shall be mounted on the cab roof of the carrier vehicle at a specialist workshop.

The carrier vehicle must be equipped with a “WINTER SERVICE” sign.

WARNING

Changed driving and steering characteristics of the vehicle!

The vehicle speed must be adapted to the given conditions.

WARNING

The space between the bulkhead and front drop-side must always be full to the brim with spreading material and must be filled first!

This serves as a counterweight to lower the flatbed again after filling when a spreader is attached.

WARNING

Risk of injury from flying grit!

During operation, no people or animals are allowed within 5m around the roller / combined spreader.

While working on public roads, the lighting of the vehicle and an all-round / flash beacon must be turned on.

The roller / combined spreader must be equipped with a “WINTER SERVICE” sign to warn the following traffic.

The numberplate of the carrier vehicle must be repeated on the attached device (§10 of the Vehicle Registration Regulations, Item 9).

WARNING

Danger of accident from tipper on public roads!

Topping up the grit container by tipping is prohibited on public roads - leave the lane to fill!

WARNING

Risk of the vehicle tipping over during filling!

By overfilling the grit container and/or hit back of the tipper the vehicle can tip over!

Never fill and tilt on steep slopes.

- In addition to these operating instructions, the general and local regulations for preventing accidents and for environmental protection, as well as the regulations for accident prevention of the Professional Trade Association must be kept to hand and followed!
- The carrier vehicle manufacturer’s operating instructions must be observed!
- The machine/working device must be checked before each use for any visible damage and the correct functioning of its safety devices.
- Unauthorised modifications to the machine/working device and its safety equipment are prohibited and will preclude the manufacturer's liability!
- Bypassing and otherwise making the safety equipment ineffective is not permitted.
- All general safety instructions and warnings on the machine/working device must be kept in a legible condition.
- When the machine/working tool is mounted, this operating manual must always be kept in the cab of the vehicle.

2.9 Hazards from hydraulic power

WARNING

Risk of infection!

Hydraulic oil can cause skin rashes and other health problems.

Consult a doctor immediately in such cases!

WARNING

Risk of injury from spurting hydraulic oil

The hydraulics may only be connected when the vehicle is switched off and there is no pressure in the hydraulic system.

NOTICE

Possible environmental contamination

Do not spill any hydraulic oil

Take measures to collect any hydraulic oil that may have been spilled

The handling and disposal of hydraulic oils are subject to legal provisions.

- Only people with special expertise and experience in hydraulics are allowed to handle hydraulic equipment.
- All hydraulic hoses must be annually inspected by a competent person and replaced with original spare parts as required.

2.10 Machine noise

The constant noise level of the machine is below 70dB.

Depending on the local conditions, there could be a higher noise level, causing problems in hearing. In this case, staff should be provided adequate protective equipment and/or secured by protective measures.

2.11 In case of emergency

In case of an emergency, stop the carrier vehicle and turn off the engine.

3 Technical Specifications

3.1 Dimensions and weights

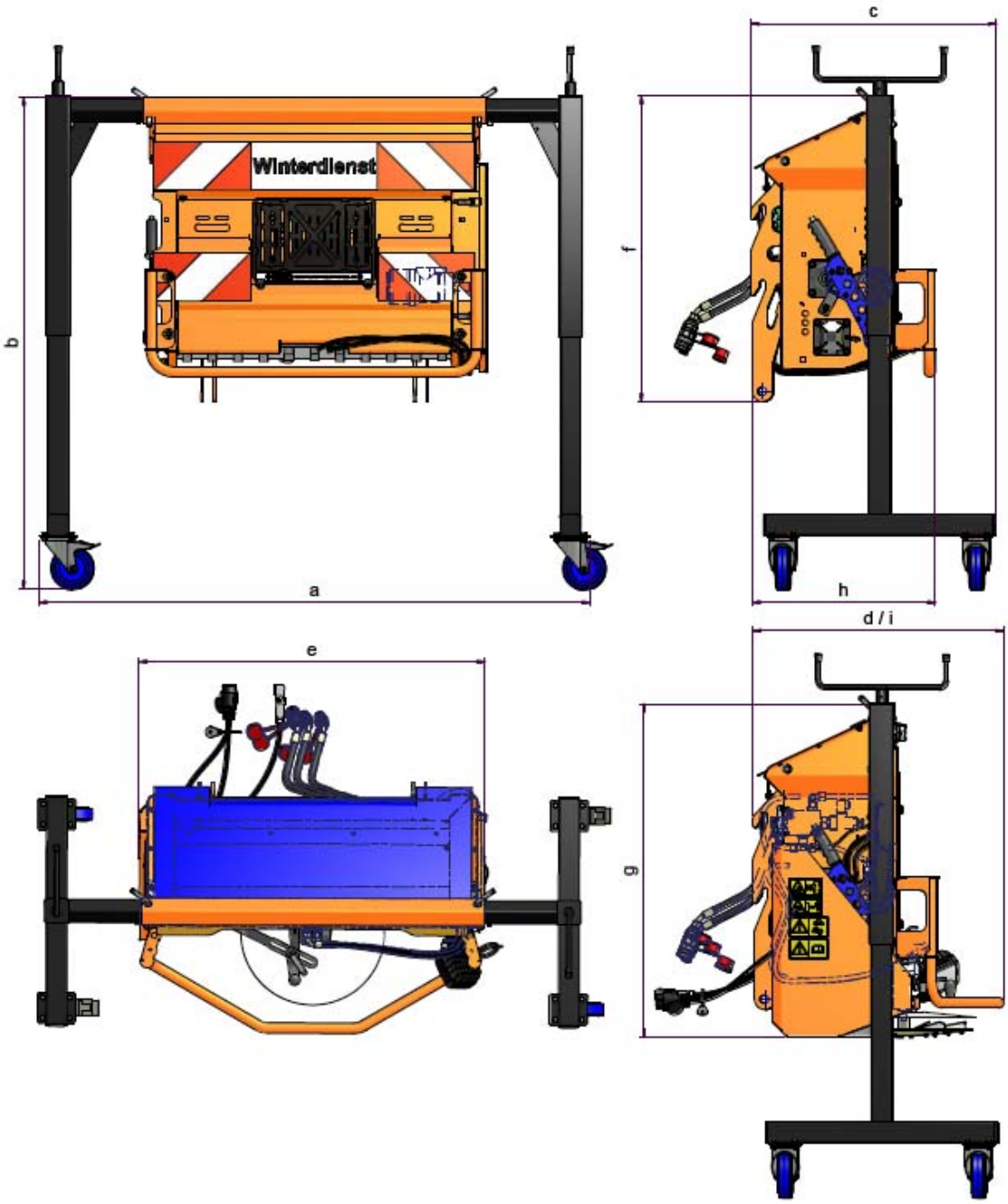

Illustration 1: Dimensions

Dimension / Value	FWS 200 / 200K	FWS 200 XL / FWS 200 XLK
a (Transport width)	1600mm	1730mm
b (Transport height)	1200 – 1700mm	
c (Transport depth)	460mm	
d (Transport depth K)	660mm	
e (Total width)	1000mm	1130mm
f (Total height)	800mm	
g (Total height K)	985mm	
h (Total depth)	430mm	
i (Total depth K)	660mm	
Weight (without spreading material)	approx. 125kg / 169kg	approx. 130kg / 174kg
Volume (without tipper contents)	approx. 120 litres	approx. 135 litres
required oil quantity	40l/min at 180 bars	
Spreading width	1.10m	1.25m
Spreading volume	adjustable via the throttle valve on the spreader or, optionally, via digital control	
Spreading width (K)	approx. 1 – 6m, depending on spreading material	
Spreading volume (K)	approx. 5 – 150g adjustable via the throttle valve on the spreader or, optionally, via digital control	

Table 2: Dimensions / Weights / Technical specifications

3.2 Basic equipment:

- 2 x jack stands
- Manual setting of the spreading width and volume

3.3 optional equipment

- Bull bar
- Cover tarp / Cover tarp + bows
- Visual spreading pattern monitoring
- Rear view camera
- Filling level sensor
- Remote control with various control options

3.4 Carrier vehicle minimum equipment

- Hydraulic system of at least 40 l/min at 180 bars
- Power supply 12V / 15A and speed signal
- Rotating flashing light (according to Road Traffic Licensing Regulations)
- 7- or 13-pin socket

4 Assembly

WARNING

Risk of injury from the spreader in use! Risk of crushing in the stirring shaft area!

Maintenance and installation works must be carried out when the machine is stationary and the hydraulic system is not under pressure.

WARNING

Risk of injury from the spreader rolling away!

Only carry out the installation on level ground.

During the installation, the crank support locking pins must remain in place.

WARNING

Prior to installation of the roller / combined spreader, additional headlights and a rotating flashing light shall be mounted on the cab roof of the carrier vehicle at a specialist workshop.

The carrier vehicle must be equipped with a “WINTER SERVICE” sign.

NOTICE

Ensure the carrier vehicle is equipped as required!

See also “Technical Specifications [18]”!

4.1 Installation

1. Park the vehicle and the roller / combined spreader on level ground and secure against rolling.
   → the spreader is in this case mounted on the jack stands
2. Lift the roller / combined spreader to the required working height using crank supports.
3. if necessary, mount the retaining bolts for the mounting bracket on top and bottom at rear of the vehicle.
4. Connect the hydraulics – see “Hydraulics [22]”
5. Connect the power – see “Electrical system [23]”
6. Approach the spreader to the vehicle
   → position the mounting bracket over the retaining bolts – lower by using crank supports
   →or Insert the attachment tabs corresponding to the longitudinal frame members
7. Install safety pins
8. Remove the crank supports, lock them together and secure against tipping.

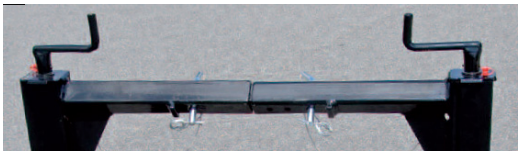

Illustration 2: Crank support

9. Fit the duplicate numberplate onto the mounting provided.

Illustration 3: Duplicate numberplate mounting

10. Fit the cover; lay the tarp on the grit container and attach its rubber bands onto the fastening hooks provided.
11. Alternatively, fit the tarp and bows as shown in the drawing.

4.2 Dismantling

WARNING

Risk of injury from crashing attached/mounted device!

It is essential to empty the corresponding work device at standstill before attaching/ mounting as the load capacity of the jack stands is adapted to its tare weight only.

1. Park the vehicle on level ground, turn off the ignition and secure against rolling.
2. Remove the tarp and bows if present.
3. Insert and secure the crank supports.
4. Remove safety pins.
5. Lift the spreader by using crank supports so that the mounting bracket is released from the retaining bolts.
6. Move the spreader slightly away from the vehicle.
7. Disconnect the electrical system and the hydraulics.
8. Drive the vehicle away carefully.
9. If stored outside, cover the spreader with a waterproof cover.

5 Hydraulics

CAUTION

Destruction of the hydraulic hoses by pinching or rubbing against structural parts!

When connecting the hydraulic hoses, make sure their installation is free from kinks and abrasions.

NOTICE

Delicate coupling of hydraulic clutches!

These may be under pressure.

Before connecting the hydraulic clutches the vehicle side connections must be relieved. If necessary, read the vehicle manufacturer’s operating instructions.

Connect the clutches of pressure and return lines according to their size and color coding on the back of the vehicle

For details, refer to the manual of the vehicle manufacturer.

6 Electrical system

CAUTION

Destruction of electric cables by pinching or rubbing against the structural parts!

When connecting the cables, make sure their installation is kink and abrasion free.

Depending on the type of controls, the electrical system shall be connected as follows – depending on the equipment of the spreader, not all lines shall necessarily be provided.

1. Options - manual control
   – 7-pin socket for vehicle rear lighting
2. Option - Remote control
   – Connect the 7-pin vehicle socket for rear lighting.
   – Plug the 7-pin spreader control Amphenol connector in the carrier vehicle socket.
   – Plug the 7-pin flashlight /working light Amphenol connector in the rear of the vehicle.
   – Connect the 3-pin control unit power supply connector in the driver cab.
   – Plug the 7-pin control panel Amphenol connector in the driver cab.

7 Operation

7.1 Operating option

7.1.1 Roller / Combined spreader - manual operation

If the roller / combined spreader has no power control, the setting of spreading width and volume is done by using manual valves.

These are found under the service flap located on the spreader's right side (in the direction of travel).

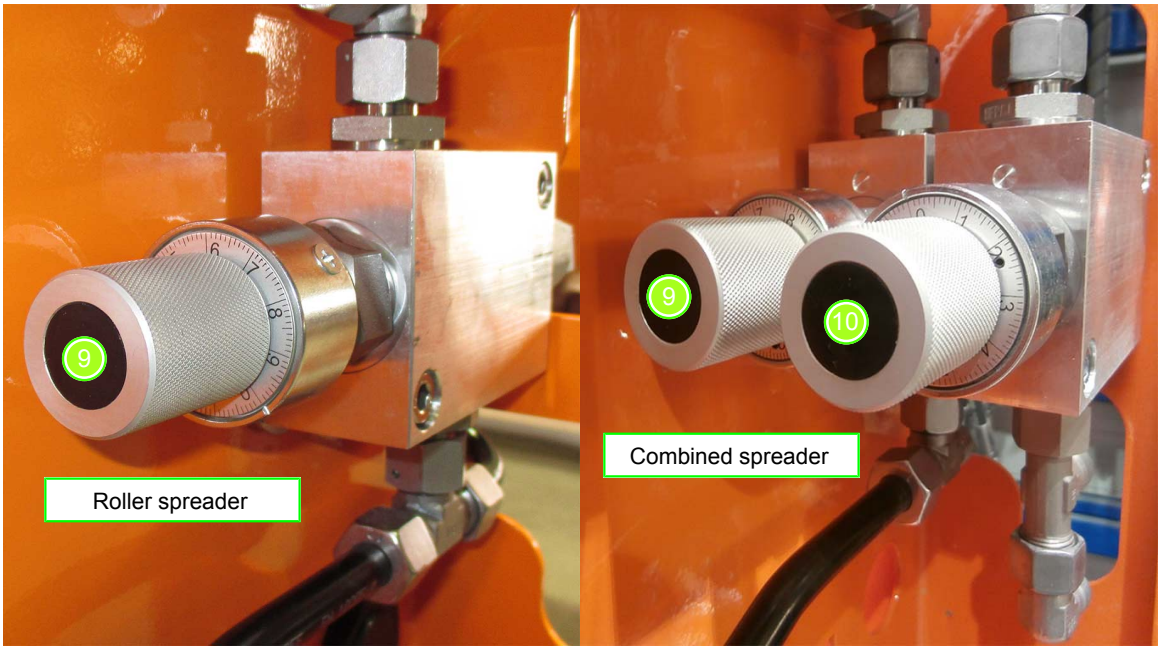

Illustration 4: Manually operated valves - roller / combined

Item	Allocation	Function
9	Manually operated valve - roller	Volume flow / spreading volume setting
10	Manually operated valve - disc	Volume flow - spreading width setting

Adjustment

- Turn clockwise → decrease the spreading volume / width
- Turn anti-clockwise → increase the spreading volume / width

Roller spreader - in addition:

Despite the manual setting of hydraulic valves, switching between roller and plate spreader is done via control panel from the driver cab.

NOTICE

Setting the “Disc” manual valve according to the operation mode

During the "Disc Spreader" operation mode, the manual valve **(10)** must be turned-on (anti-clockwise)!

During the "Disc Spreader" operating mode and following the switching, the manual valve **(10)** must be turned-off (clockwise)!

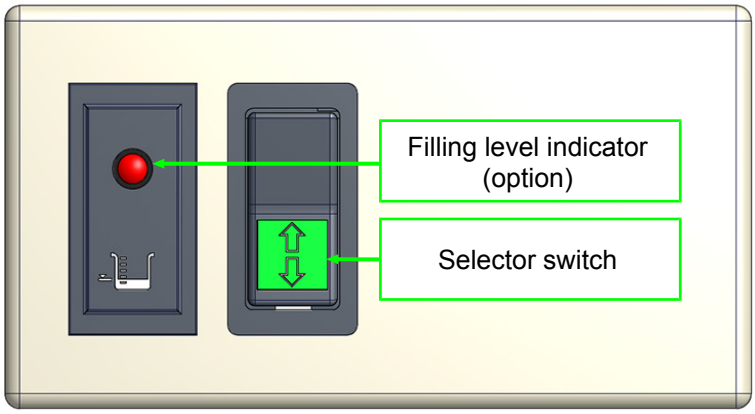

Illustration 5: Remote control - combined manual control

7.1.2 Remote control - roller spreader

Digital setting of spreading volume in 10 steps from driver cab – control panel allows control of rolling speed depending on driving speed.

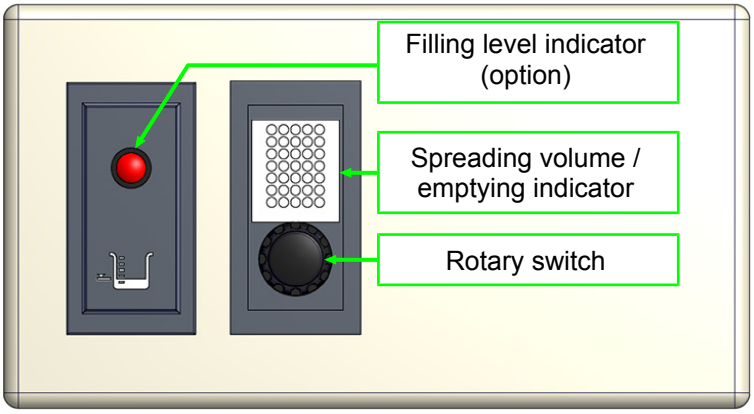

Illustration 6: Roller remote control - electrical operation

Operation

- Vehicle hydraulics must be turned on!
- Press and hold the rotary switch to turn on / off.
- Turn to adjust the setting within the range **“0 – 9”** and at the same time to set the spreading volume.
- Turn beyond **“9”** to **"< / >"** for emptying.
- Once the container is empty, this is shown by **"?"** and an audio signal; turn the rotary switch to quit.

7.1.3 Remote control - combined spreader

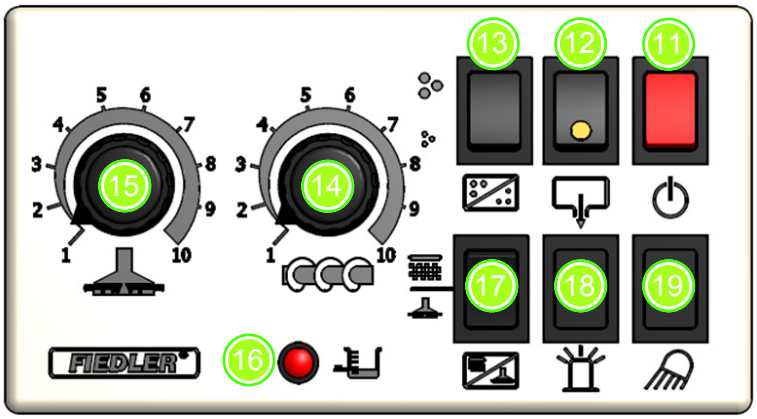

Illustration 7: Remote control - combined spreader

Item	Assignment	Function
11	Main hydraulics switch	Spreader on/off
12	Emptying	Emptying on/off
13	Spreading material selector	Sand / salt
14	Spreading volume potentiometer	Spreading volume setting
15	Spreading width potentiometer	Spreading width
16	Filling level indicator	On = empty / Off = full
17	Function selector	Switching between roller / disc spreader
18	Rotating flashing light	not assigned with operation on HAKO CM
19	Work light	

Table 3: Remote control assignment - combined spreader

7.2 Filling

CAUTION

Damage to the machine through wet grit!

When parked outside or transported, use a cover to protect the spreading material container from moisture!

Road salt must not be stored in the spreading material containers for a long period of time. Empty the spreading material container after each use.

NOTICE

Spreading results depend largely on the quality of the spreading material!

The spreading width, output and lateral distribution may vary from the manufacturer's specifications, as these have been determined under optimal conditions.

- Spreader is filled by tilting the tipper backwards.
- A complete vehicle filling consists of up to three units - it is the first in the spreader itself and one or two on the tipper.
- If the platform is divided, the separation must after the second filling of the Tipper be taken

- Tilt cylinder should not be fully extended in order to allow the spreading material to slide slowly into the spreader.

Spreading material:

- must be completely dry;
- must not contain stones larger than 2cm (hazard of flying stones);
- must be flowing;
- its grain size should be between 4 and 10mm, the fine particles (less than 2mm) should be screened out, especially when using sand.

Should the required spreading material quality not be ensured, bridging and clogging may occur as a result.

Possible spreading material:

- Gravel, salt - ejection shaft fitted with 18 (small) cams
- Sand, sand-salt mixtures; ejection shaft fitted with 9 (large) cams

For more information on ejection cam fittings see “Ejection cams”.

7.3 Combined unit

- A basic setting of the spreading direction from disc can be done manually on the combined unit.
  - For this purpose, open the locking lever - bring disc in position - and relock
- Electrical switching between roller and disc spreader is done from driver's cab via the external control panel or remote control.

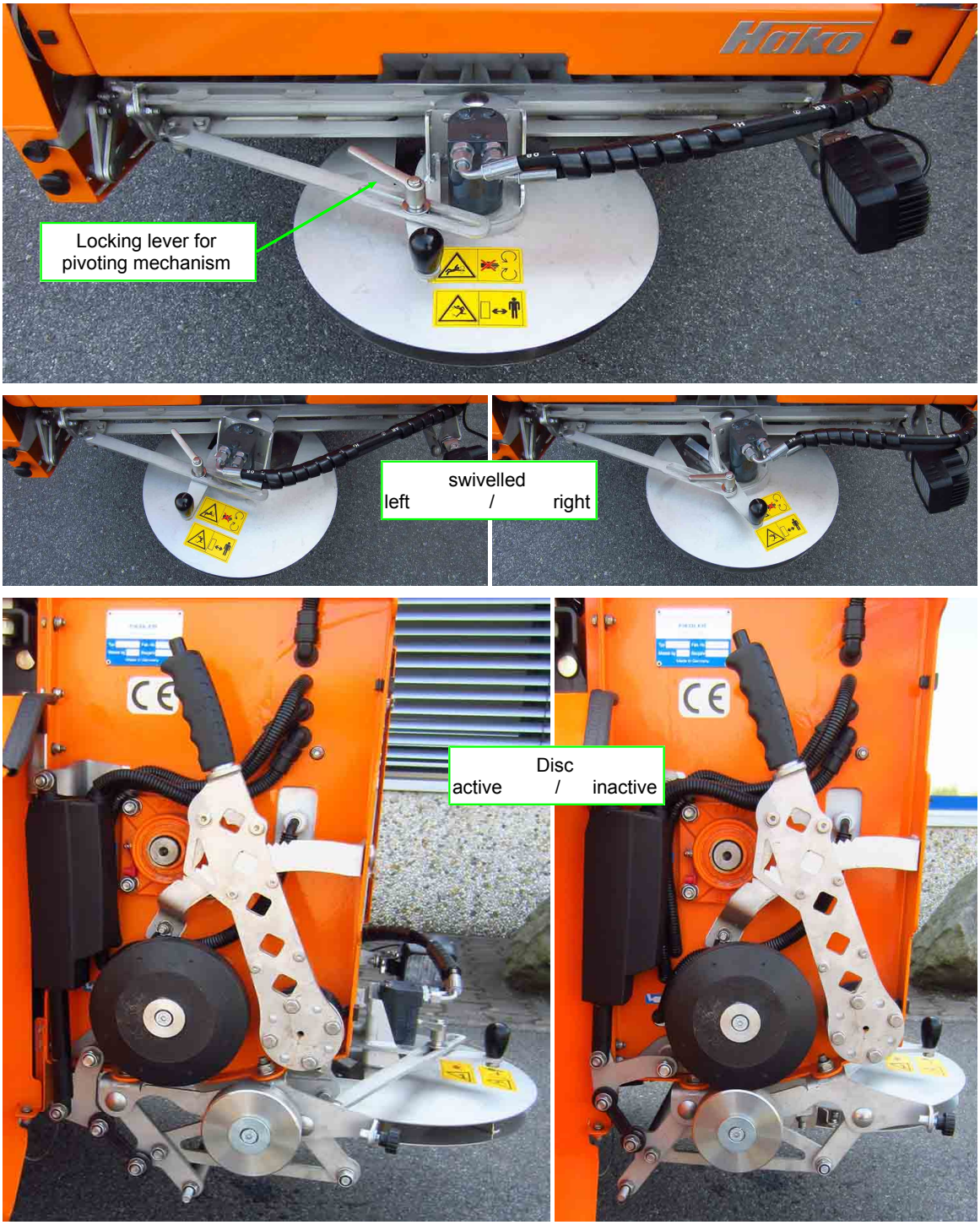

Illustration 8: Combined unit

8 Maintenance and decommissioning

8.1 Maintenance

WARNING

Serious injury risk from moving parts

All protective equipment on the roller / combined spreader may only be removed for maintenance or cleaning work if the following measures are followed.
→ Carrier vehicle ignition turned off
→ Carrier vehicle hydraulic unit turned off
→ Hydraulic and electrical lines disconnected

WARNING

Serious injury risk from rotating parts

Protective grille of grit container is secured with 4 screws.
These may only be removed at a standstill with hydraulic lines disconnected

WARNING

Risk of infection!

Hydraulic oil can cause skin rashes and other health problems.

Consult a doctor immediately in such cases!

WARNING

Serious injury risk from pressure-loaded hydraulic hoses

Even when there is no pressure in the system, hydraulic hoses can be under pressure!

Release the pressure on the hydraulic hoses by opening them carefully.

Take precautions to clean up any spilled hydraulic oil.

NOTICE

Use and dispose of lubricants carefully!

NOTICE

Possible environmental contamination

Do not spill any hydraulic oil

Take measures to collect any hydraulic oil that may have been spilled

The handling and disposal of hydraulic oils are subject to legal provisions.

NOTICE

The steps outlined in this section should be regarded as a minimum to keep the machine/working device in good working condition.

Depending on the work load, the operator must decide on additional maintenance works.

8.1.1 Working steps prior each use

NOTICE

Use and dispose of lubricants carefully!

- Check the hydraulic hoses, fittings and couplings for leaks and replace with original spare parts if necessary
  → see “Replacing hydraulic hoses [▷ 38]”

8.1.2 Maintenance schedule

Interval		Operating hours
D	= daily	6
M	= monthly	50
Y	= yearly	200

Working steps on the Roller / Combined spreader	D	M	Y
Check the hydraulic hoses for leaks and fasten or replace if necessary.	x		
Check the hydraulic hoses fittings for leaks and fasten or replace if necessary.	x		
Check the screw connections for tightness.		x	
Lubricate the bearings of the ejection shaft on both sides		x	
Lubricate the stirring shaft bearings on both sides.		x	
Lubricate the drive chains with an adhesive lubricant.		x	
Check the chain tension and adjust if necessary.		x	
Check safety devices and warning labels and replace if necessary.		x	
Clean roller / combined spreader thoroughly and protect with lubricants and grease.		x	
Check oil level in the vehicle according to manufacturer specifications and top up if necessary.		x	
Check the hydraulic hoses for damage.		x	
Lubricate jack stands.			x
Check condition of spring assemblies on the ejection and stirring shaft, replace if necessary.			x
Check condition of ejection cams and replace if necessary.			x
Check condition of drive rollers, replace if necessary.			x
Clean roller / combined spreader thoroughly, repair paint damage and grease.			x
Check the hydraulic unit by a competent person in accordance with Occupational Safety Regulations BGR 237.			x
Replace the hydraulic hoses every 6 years			(x)

8.1.3 Safety devices and warning labels

WARNING

Serious injury risk from moving parts

All protective equipment on the roller / combined spreader may only be removed for maintenance or cleaning work if the following measures are followed.
→ Carrier vehicle ignition turned off
→ Carrier vehicle hydraulic unit turned off
→ Hydraulic and electrical lines disconnected

Roller / Combined spreader features the following safety devices:

- Drive box cover (right in the direction of travel)
  → removable by using square key or by opening snap closures
- Combined unit-drive protective door (left in the direction of travel)
  → to open by unscrewing hex bolt spanner size 13
- Protective grille
  → secured with 4 hex bolts spanner size 13
- Spreading disc cover (located on the spreading disc)

and warning labels:

- on drive box cover
- on combined unit-drive protective door
- on spreading disc cover

These must be checked at regular intervals and, if necessary, replaced with original spare parts.

8.1.4 Removing blockages

WARNING

Risk of crushing in the grit container!

During operation, it is prohibited to grab or poke objects in the grit container.

NOTICE

Blockages caused by frozen spreading material can only be removed by thawing!

1. Hydraulic hoses must be connected to both the vehicle and the roller / combined spreader.
2. Depressurize the hydraulic system.
3. Turn off the vehicle, secure against rolling.
4. Remove the protective grille, clean the grit container and remove the blockage.
5. Reinstall the grille.

8.1.5 Replacing worn parts

NOTICE

Damaged or missing parts must be replaced immediately!

To ensure the safety of your device, use only the **FIEDLER®** original spare parts!

8.1.5.1 Conversion of cams

WARNING

A risk of serious injury from the rotating parts!

Assembly work inside the spreader may only be performed when the vehicle is stationary and the hydraulics are switched off.

WARNING

Risk of crushing in the grit container!

During operation, it is prohibited to grab or poke objects in the grit container.

1. Park the vehicle on level ground and secure against rolling.
2. Turn off the ignition and hydraulics.
3. Open the servicing flap located on the right hand side in the direction of travel and store safely.
4. With the Combined Spreader Option, dismantle the protective grille.
   → in order to do this, unscrew the 4 M8 screws (spanner size 13).

Illustration 9: Dismantle the protective grille,

5. then remove the deflector.
   → in order to do this, unscrew the 4 M10 screws (spanner size 17) and remove the deflector downwards.

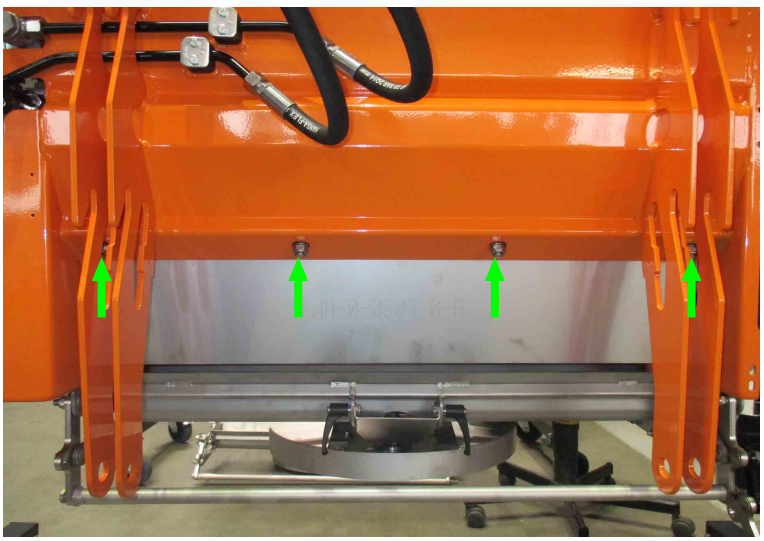

Illustration 10: Remove the deflector.

6. Start the vehicle. Switch on the hydraulics
7. by using the manually operated valve or the emergency hand valve. Hold the shaft and then let it run slowly again as far as necessary to place the first cam series in a convenient position to drill out the rivets.

– **Option – manually operated valve**
Close manual valve clockwise and then slowly open again as far as necessary to reach the desired position of the shaft.

– **Option – emergency hand valve** (electronic control)
→ Disconnect the remote control line in the cab to deactivate it.
→ Note the emergency hand valve's position (count the revolutions during closing).
Close the emergency hand valve clockwise and then slowly open it again as far as necessary to reach the desired position of the shaft.

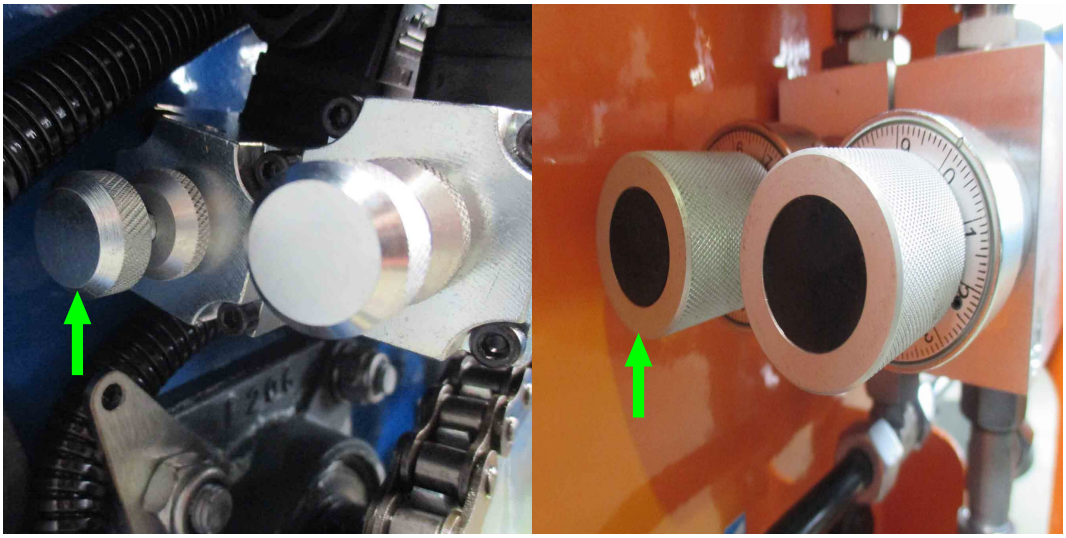

Illustration 11: Valve ejection shaft

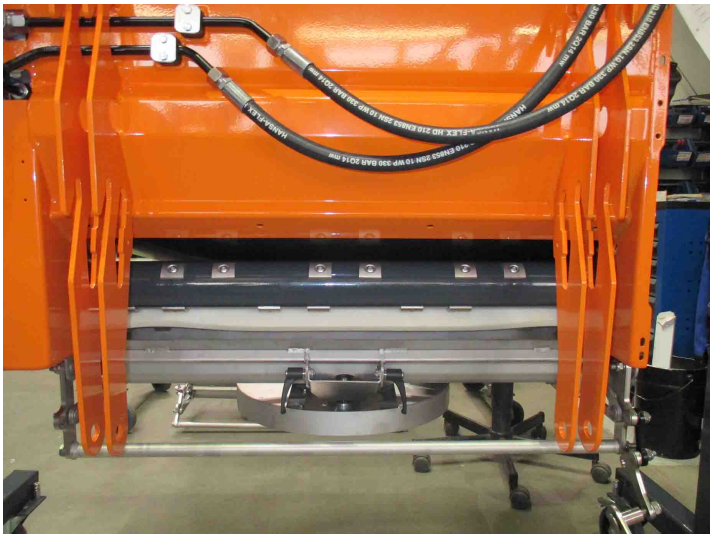

Illustration 12: Deflector removed

8. Switch on the vehicle hydraulics.
9. Pierce the centre pin of the rivets inwards by using a Ø 3mm punch.

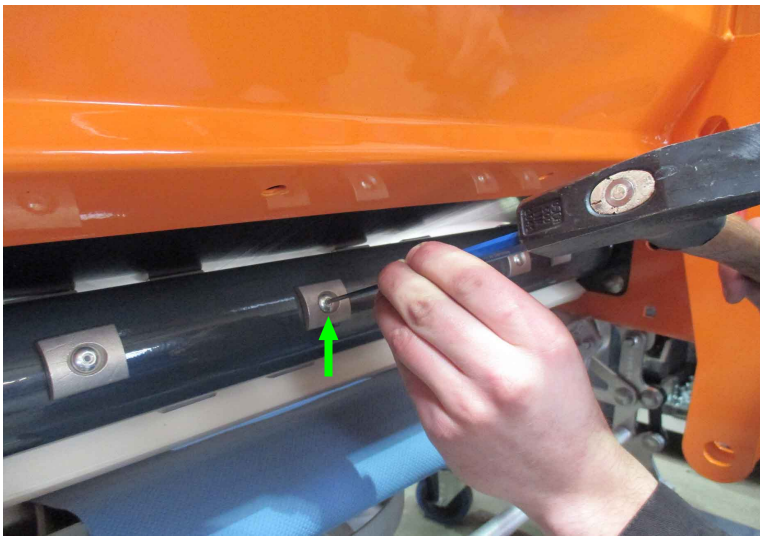

Illustration 13: Pierce the pin.

Illustration 14: Pierce the pin for drill centring.

10. Drill out the rivet heads using a sharp Ø 8mm drill.

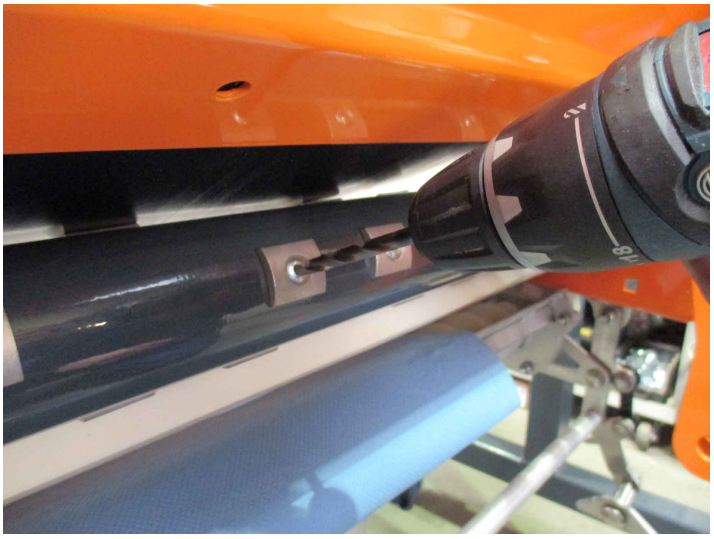

Illustration 15: Drill out the rivets.

11. Then pierce the remaining particles of the rivets inwards by using a Ø 6mm punch.

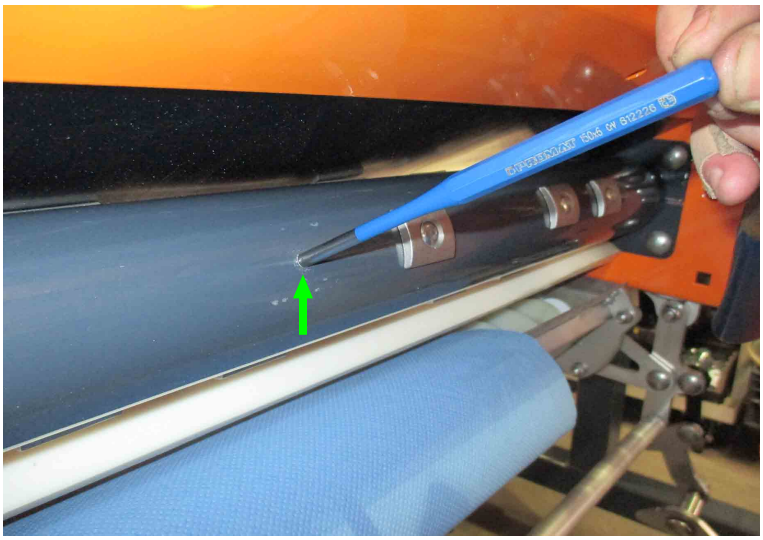

Illustration 16: Pierce the remaining fragments of the rivets.

12. Fit the new cams and use pop rivets to fix to the ejection shaft.
    - Individual cam with a dome head Ø 6.5×14.2 blind rivet (60-004-442)
    - Twin cam with dome head Ø 6.5×19.3 blind rivet (60-005-718)

Illustration 17: Rivet the new cams.

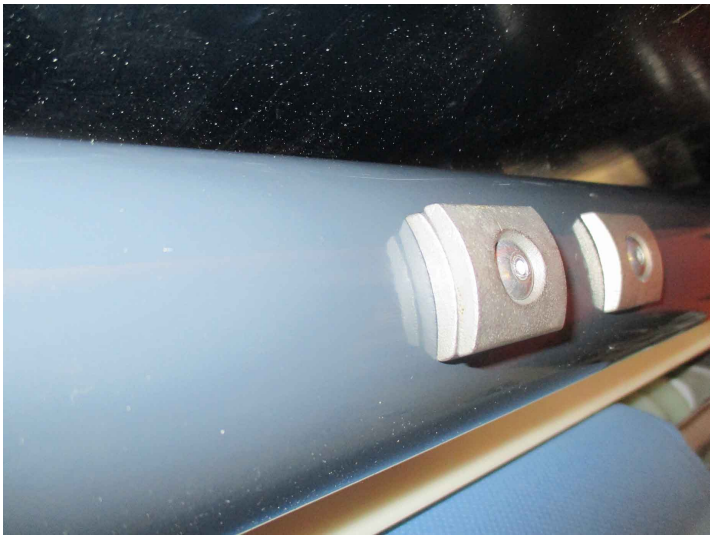

Illustration 18: Riveted double cam

13. Repeat the same procedure for the remaining cams from point 7

14. With the Combined Spreader Option, reinstall the grille.
    → use new lock nuts for that purpose.
    – 4× DIN 985 M8 VA (10-000-288)
    – 4× DIN 985 M10 VA (10-000-272)
15. With the electrically operated valves, restore the initial setting of the emergency manual control - then reconnect the remote control line and check its operation.
16. Close the access hatch.

8.1.5.2 Spring tensioner

WARNING

Risk of injury from slipping tools!

When knocking the spring packs in or out using a hammer, a hardwood block should be used to prevent slipping.

Spring tensioner may be replaced in the installed state directly on the vehicle.

1. Park the vehicle on level ground, turn off the ignition and secure against rolling.
2. Remove the spring tensioner cover - for this purpose, unscrew the two finger screws.

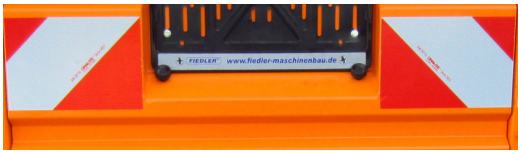

Illustration 19: Cover with finger screws

3. Knock out each spring assembly from the shaft using a hammer and a hardwood block - if necessary, remove the four screws M8 x 35 between the shaft and clamping lever.
4. Insert new spring assemblies into the shaft and turn until the screw stops; check the direction and mounting position.

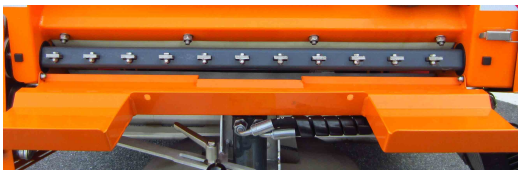

Illustration 20: Spring assemblies inside the shaft

5. If previously dismantled, re-connect release lever with shaft and make sure it is easy to move afterwards.
6. Close the lid and secure with the finger screws.

8.1.5.3 Spring assemblies on the stirring shaft

WARNING

Risk of injury from slipping tools!

When knocking the spring packs in or out using a hammer, a hardwood block should be used to prevent slipping.

Replacement of spring assemblies is done in dismantled state directly on roller / combined spreader.

1. Park the vehicle on level ground and secure against rolling.
2. Remove the roller / combined spreader from the vehicle - see”Dismantling”

3. Use a square key to open the servicing flap located on the right in the direction of travel and store safely.
4. Open chain lock located on chain between stirring shaft and ejection shaft and remove chain.
5. Remove the protective grille - for this purpose, unscrew both hex head screws spanner size 13.
6. Knock out each spring assembly from the shaft using a hammer and a hardwood block.

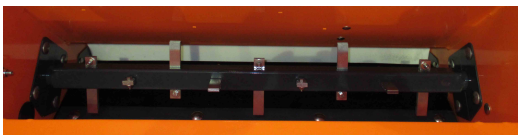

Illustration 21: Spring assemblies - stirring shaft

7. Insert new spring packs into the shaft and turn until the screw stops; check the direction and mounting position.
8. Reinstall the grille.
9. Fit the chain and close with chain lock – close servicing flap.
10. Spreader can now be reinstalled on the vehicle - see “Installation”

8.1.6 Emptying

WARNING

Risk of injury from the spreader in use! Risk of crushing in the stirring shaft area!

Maintenance and installation works must be carried out when the machine is stationary and the hydraulic system is not under pressure.

WARNING

Risk of injury from flying grit!

During emptying procedure, no people or animals are allowed within 5m around the roller / combined spreader.

8.1.6.1 Option manual adjustment

1. Park the vehicle on level ground and secure against rolling.
2. Start the vehicle.
3. Turn on the hydraulics.
4. Raise the tipper completely – see operating instructions carrier vehicle.
5. Loosen the spring adjustment locking lever to leave the lower scraper rubber (white) hang free.
6. With the combined spreader option, switch to roller spreader mode.
7. Turn hydraulic valve **(9)** completely.
8. Empty the spreader completely.
9. Lower the tipper completely.
10. Turn off the vehicle and hydraulics.
11. Lock the lever.

8.1.6.2 Option - remote control

1. Park the vehicle on level ground and secure against rolling.
2. Start the vehicle.

3. Turn on the hydraulics.
4. Raise the tipper completely – see operating instructions carrier vehicle.
5. Loosen the spring adjustment locking lever to leave the lower scraper rubber (white) hang free.
6. Control panel - roller spreader
   – Press and hold the rotatory switch to turn on the control.
   – Turn the rotary switch beyond **9** to **(< / >)** for emptying.
7. Switch on the remote control
   – panel by using **(11)** .
   – With the combined spreader option, switch to roller spreader. **(17)**
   – Turn on emptying. **(12)**
   – Spreading volume potentiometer **(14)** for the desired speed.
8. Empty the spreader completely.
9. Lower the tipper completely.
10. Switch off control panel or remote control
11. Turn off the vehicle and hydraulics - lock the lever.

8.1.7 Replacing hydraulic hoses

NOTICE

Regular replacement of hydraulic hose lines in accordance with Occupational Safety Regulations BGR 273 - Hydraulic Hoses - Rules for Safe Use

Extract from the Occupational Safety Regulations BGR 237

“The user must ensure that hose lines are replaced at suitable intervals, even if no safety-related defects in the hose line are visible.

The use of the hoses should not exceed six years, including a storage time of maximum two years. Even when adequately stored and subjected to permissible loads, hoses and hose lines are subject to natural ageing. Because their storage time and duration of use are limited. Improper storage, mechanical damage and excessive loads are the most common causes of failure.”

The ***FIEDLER***® GmbH Company prescribes changing the hydraulic lines of your machine every six years. In addition, they must be inspected annually by a competent person.

8.2 Decommissioning

8.2.1 Temporary shut-down

During a temporary shut-down (i.e. during the summer season), the roller / combined spreader should be stored as follows:

- Empty the roller / combined spreader completely (see “Emptying [▶ 37]“)
- Disconnect the hydraulic hoses.
- Dismantle and place the roller / combined spreader on even ground - see “Dismantling”
- Clean the spreader thoroughly and protect with lubricants and grease
- If stored outside, cover with a waterproof covering.

8.2.2 Decommissioning

NOTICE

Due to possible pollution, disposal should only be carried out by the manufacturer or another professional company.