RAUCH

INSTRUCTION MANUAL

Please read carefully before using the machine.

Keep for future reference.

This instruction manual/assembly instruction is to be considered as part of the machine. Suppliers of new and second-hand machines are required to document in writing that the instruction manual/assembly instruction was delivered with the machine and handed over to the customer.

RFZ 7

Original instructions

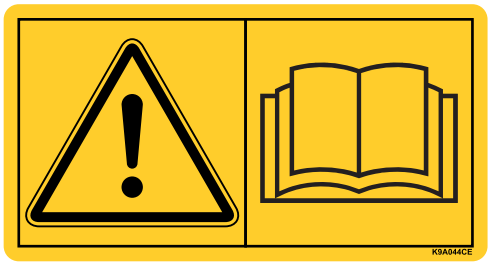
5902722-a-en-0818

Preface

Dear customer,

By purchasing this row fertiliser RFZ 7, you have shown confidence in our product. Thank you! We want to justify this confidence. You have purchased a powerful and reliable machine.

However, in case unexpected problems arise: Our customer service team are always there for you.



Please read this operator's manual carefully before commissioning the row fertiliser and follow the advice given.

This operator's manual gives detailed instructions on the operation of the machine, as well as valuable information on assembly, maintenance, and care.

This manual may also describe equipment that is not included in your machine.

Please note that damage caused by incorrect operation or improper use is not covered by warranty claims.

NOTE

Please enter the type and serial number as well as the year of construction of your machine here.

You can find this information on the nameplate and/or the frame.

Please always state this information when ordering spare parts or accessories, and in case of complaints.

Type	Serial number	Manufacturing year

Technical improvements

We are continuously improving our products. Therefore, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. This constitutes no obligation to make such improvements or changes on machines that have already been sold.

We will be pleased to answer any other questions that you might have.

Yours sincerely

RAUCH

Landmaschinenfabrik GmbH

1 Intended use

The row fertiliser RFZ 7 may only be used in accordance with the information given in this operator’s manual.

The row fertiliser RFZ 7 has been constructed in accordance with its intended use.

The row fertiliser may only be used for the application of dry, granular and crystalline fertilisers and slug pellets.

Any use beyond these specifications is considered as contrary to the intended use. The manufacturer shall not assume any liability for any damages resulting in this respect. The risk is solely carried by the operator.

The intended use also comprises the compliance with the operating, maintenance and repair conditions prescribed by the manufacturer. For replacement purposes, only original spare parts by the manufacturer may be used.

The row fertiliser may only be used, maintained and repaired by people who are familiar with the characteristics of the machine and who are aware of the risks.

The instructions regarding the operation, service and safe handling of the machine as described in this operator's manual and declared by the manufacturer in the form of warning signs and symbols on the machine must be strictly followed during operation.

Moreover, the relevant accident prevention regulations and the other generally recognised safety, occupational health, and road traffic regulations must be strictly observed when using the machine.

Unauthorised modifications to the row fertiliser are not permitted. Such modifications exclude any liability of the manufacturer for any resulting damages.

In the following chapters, the row fertiliser is referred to as "**special equipment**".

Foreseeable misuse

The manufacturer provides warnings and signs on the row fertiliser relating to foreseeable misuse. These warnings and warning symbols must always be observed. This way, application of the row fertiliser against the intentions of the operator’s manual is prevented.

2 User instructions

2.1 About this operator’s manual

This operator’s manual is an **integral part** of the machine.

The operator’s manual contains important information for a **safe**, **appropriate** and economic **use** and **maintenance** of the machine. Adherence to this operator’s manual helps to **avoid risks**, to reduce repair costs and downtime, and to increase the machine's reliability and service life.

The complete documentation, comprising this operator’s manual and any other documents provided, must be kept in an easily accessible location close to where the machine is used (e.g. in the tractor).

If the machine is sold, the operator’s manual must also be passed to the new owner.

The operator’s manual is intended for the operator of the machine and anyone involved in operating and maintaining it. It must be read, understood, and applied by all persons entrusted with the following work on the machine:

- Operation,
- Maintenance and cleaning,
- Repairing faults.

In particular, the following is to be observed:

- The chapter on safety,
- The warning instructions in the text of the individual chapters.

The **operator’s manual does not replace** your **own responsibility** as the operator and operating personnel of the control unit.

2.2 Structure of the operator’s manual

The operator's manual is divided into six key areas in terms of content:

- User instructions
- Safety instructions
- Machine data
- Instructions on the operation of the machine,
  - Transportation
  - Commissioning
  - Spreading operation
- Instructions on detecting and rectifying faults
- Maintenance and repair instructions

2.3 Notes on text descriptions

2.3.1 Instructions and procedures

Steps that the operator must carry out are shown as a numbered list.

1. Instruction for action step 1
2. Instruction for action step 2

Instructions involving only one step are not numbered. The same applies for action steps that do not have a specific sequence.

A bullet is placed in front of these instructions:

- Handling instruction

2.3.2 Listings

Listings without a specific sequence are shown with bullet points (level 1) and dashes (level 2):

- Property A
  - Point A
  - Point B
- Property B

2.3.3 References

References to other text passages in the document are indicated with section number, headline text and page number:

- **Example**: See also Chapter 3: Safety, page 5.

References to other documents are indicated as note or instruction without exact chapter or page number:

- **Example**: Please also observe the instructions contained in the manual for the universal drive shaft.

3 Safety

3.1 General Information

The chapter **Safety** contains basic warning notes as well as working and traffic safety instructions for the usage of the installed machine.

The adherence to the instructions in this chapter is a prerequisite for the safe handling and trouble-free operation of the machine.

There are additional warnings in the other chapters of this operator's manual, which must also be observed. The warning instructions are given before the text for the relevant actions.

Warning notes on the supplier components can be found in the respective supplier documentation. These warning instructions must also be observed.

3.2 Significance of warnings

The warning instructions in this manual have been structured according to the degree of danger and the probability of their occurrence.

Danger signs and symbols inform the user about other construction-related and unavoidable residual risks that may be encountered when operating the machine. The warning notes used are structured as follows:

	Signal word
Symbol	Explanation

Example

⚠ DANGER

Risk to life if warning is not observed

Description of the danger and possible consequences.

Ignoring these warnings will result in very serious or even fatal injury.

▶ Measures to prevent the danger.

Warning severity level

The degree of danger is indicated by the signal word. The levels are classified as follows:

⚠ DANGER

Type and source of danger

This warning warns of a danger posing an immediate threat to the health and life of persons.

Ignoring these warnings will result in very serious or even fatal injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ WARNING

Type and source of danger

This warning warns of a possible dangerous situation for the health of persons.

Ignoring these warnings will result in very serious injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ CAUTION

Type and source of danger

This warning warns of a potentially dangerous situation for personal health or of material and environmental damage.

Ignoring this warning can result in injuries and damage to the product or the general area.

- ▶ Always observe the measures described to prevent this danger.

NOTICE

General information containing application tips and particularly useful information, but which constitutes neither warnings nor hazards.

3.3 General information on the safety of the machine

NOTICE

You may use the RFZ 7 row fertiliser **ONLY** with the MDS fertiliser spreader. The row fertiliser is available as special equipment of a machine.

- The chapter Safety in the operator's manual of your machine is to be respected at all times.

3.4 Information on operational safety

To avoid dangerous situations, only use the machine in a reliable condition.

3.4.1 Lifting and moving the machine

The machine is delivered ex works standing on a pallet.

- Only lift the machine at the pallet using a suitable pallet truck or forklift. Take the total weight into consideration.
- Never lift or move the machine at the hopper or at other, non-marked anchor points.

3.4.2 Parking the machine

- Park the machine on level, solid ground.
- Only park the machine in a lying position. Otherwise, there is a danger that the machine will be unstable and fall. This can lead to personal injury and property damage.
- If the machine is to be parked for a long time, carry out a thorough cleaning of the machine and detach any protruding elements such as hose brackets, struts or hoses.

3.4.3 Checks before start-up

Check the operating safety of the machine before the first and every subsequent start-up.

- Are all fasteners and load-bearing connections tight and in proper condition?
- Is the protective grid screwed tightly to the screw tube? Is it fastened tightly to the edge of the hopper?
- Are all locks firmly closed?
- Is the hazard zone of the machine clear of persons?

3.4.4 Hazard zone

Ejected spreading material may lead to severe injury (e. g. to eyes).

When persons are present between the tractor and the machine, there is a great hazard caused by the tractor rolling away or by machine movements which may have fatal consequences.

The following figure shows the hazard zones of the machine.

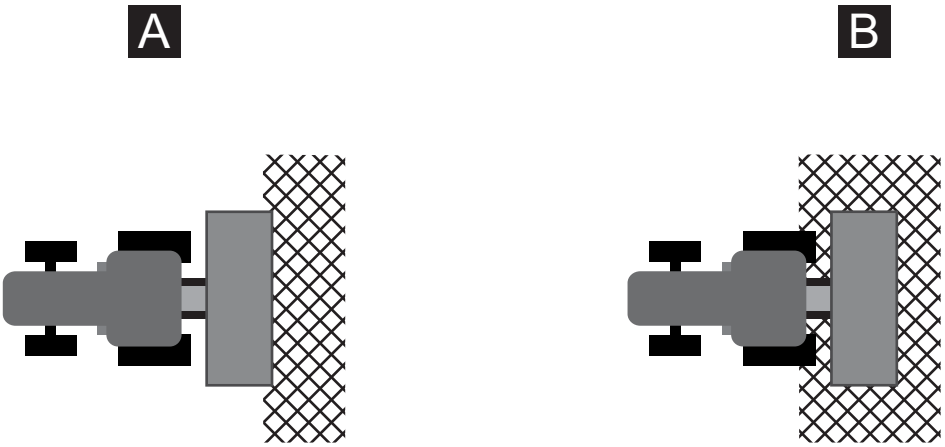


Figure 3.1: Hazard zones of row spreading devices

[A] Hazard zone in spreading operation
[B] Hazard zone when assembling the row fertiliser

- For this reason, ensure that nobody is present in the spreading range [A] of the machine.
- Immediately stop the machine and the tractor if persons are present in the hazard zone of the machine.
- If you need to operate the hydraulic lift, ensure that nobody is present in the hazard zone.

3.4.5 Operation

- If the machine malfunctions, stop the machine immediately and secure it. Have the fault repaired immediately by appropriately instructed and authorised personnel.
- Only operate the machine with the protective grid in the hopper. The protective grid must not be removed during operation.
- Rotating machine components may cause serious injury. For this reason, ensure that you avoid any contact between body parts or clothes and rotating components.
- Before setting the application rate, completely close the metering slide.
- Do not deposit any parts (such as screws, nuts) in the hopper.
- Ejected spreading material may lead to severe injury (e. g. to eyes). For this reason, ensure that nobody is present in the spreading range of the machine.
- When driving with the fitted machine combination (fertiliser spreader + row fertiliser), observe the overall height of the machine.
- Be aware above all of trees and electric cables.

- Never climb onto the machine or the tractor when it is situated beneath high-voltage electrical power lines.

3.5 Maintenance and service

Maintenance and service involve additional hazards that do not occur during operation of the machine.

- Any maintenance and service work is to be conducted with increased alertness at all times. Work very carefully and with awareness of danger.

3.6 Safety in traffic

When driving on public streets and roads, the tractor with the attached machine must comply with the road traffic regulations of the respective country. The owner and driver are responsible for compliance with these regulations.

3.6.1 Checks before driving

The pre-departure check is an important contribution to road safety. Before every trip, check compliance with the operating conditions, traffic safety, and the regulations of the country of use.

- Is the permissible total weight complied with? Note the permitted axle load, the permitted braking load, and the permitted tyre load capacity.
- Check the tyre pressures and the function of the tractor brake system.
- Is the machine attached appropriately?
- Could spreading material be lost while driving?
  - Check the filling level of the spreading material in the hopper.
  - The metering slide must be closed.

3.6.2 Using the machine for transport

The handling, tilting, steering, and braking performance of the tractor is affected by the attached machine. For example, the high load will reduce the weight on the tractor's front axle and affect its steering.

- Be aware of the changed driving behaviour.
- When driving, always ensure that there is sufficient visibility. If vision is restricted (e.g. when reversing), another person is required to direct the driver.
- Ensure that the side parts have been folded correctly and are secured via the locking bolts.
- Observe the permissible maximum speed.
- Avoid sudden turns when driving uphill or downhill or across a slope. By repositioning the gravity centre, there is a risk of toppling over. Special care is to be taken when driving on uneven, soft ground (e. g. when entering fields, at kerbs) as well.
- Set the lower link on the three-point linkage so it is rigid to prevent the machine from rocking.
- Passengers are prohibited on the machine during transport and operation.
- Be aware of the overall height of the machine when driving on roads. Be especially aware of trees, electric cables and bridge heights before driving under them.

4 Technical data

4.1 Manufacturer

RAUCH Landmaschinenfabrik GmbH
Landstraße 14
D-76547 Sinzheim
Phone: +49 (0) 7221 / 985-0
Fax: +49 (0) 7221 / 985-200

Service Centre, Technical Customer Service
RAUCH Landmaschinenfabrik GmbH
Postfach 1162
D-76545 Sinzheim
Phone: +49 (0) 7221 / 985-250
Fax: +49 (0) 7221 / 985-203

4.2 Description of the special equipment

Use the special equipment RFZ 7 in accordance with chapter “Intended use“ on page 1.

4.2.1 Assembly overview

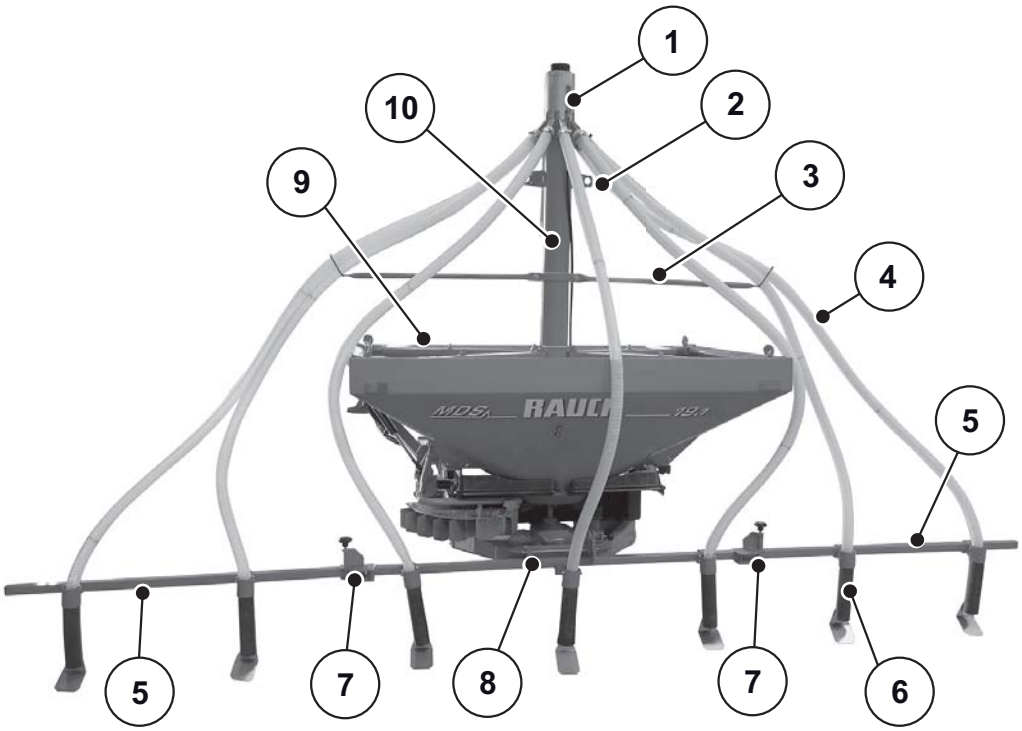


Figure 4.1: Assembly overview

[1] Pipe plug/slide
[2] Attachment points
[3] Hose bracket
[4] Hose
[5] Support frame side part
[6] Outlet pipes with baffle plates
[7] Lock
[8] Support frame central part
[9] Adjustable struts
[10] Pipe with auger

4.3 Overview of supported MDS fertiliser spreaders

You can attach the special equipment RFZ 7 to the following fertiliser spreaders with/without extension.

Basic machine	• MDS 11.1 • MDS 12.1 • MDS 17.1 • MDS 19.1
Extension	• M 430 • M 433

4.4 Technical data of basic equipment

Dimensions:

Height of screw tube (Ground to pipe plug cap)	approx. 206 cm
Width to hose brackets	212 cm
Overall width of central and side parts (unfolded)	478.5 cm
Overall width of central and side parts (folded)	207.5 cm
Working width	approx. 500 cm
Mass flow[1] max.	63.8 kg/min

1. Max. mass flow depending on fertiliser type

Weights and loads:

Data	RFZ 7
Empty weight	107 kg

5 Mounting

5.1 Accepting the special equipment

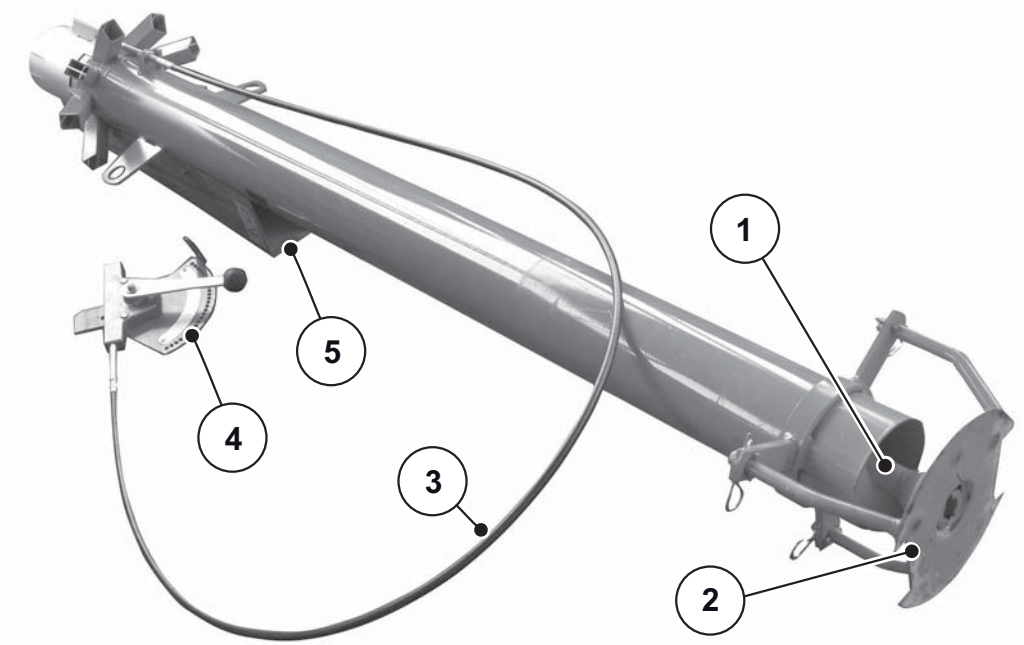
When accepting the special equipment, please check the completeness of the scope of delivery.

Check for any transport damage or missing construction parts. Have any transport damage confirmed by the forwarding agent.

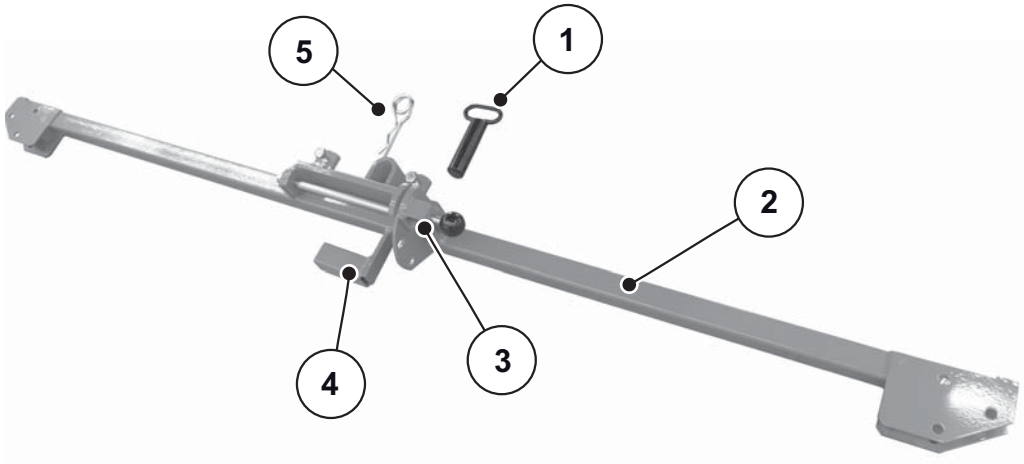
In case of doubt, please contact your dealer or the factory directly.

The standard equipment includes:

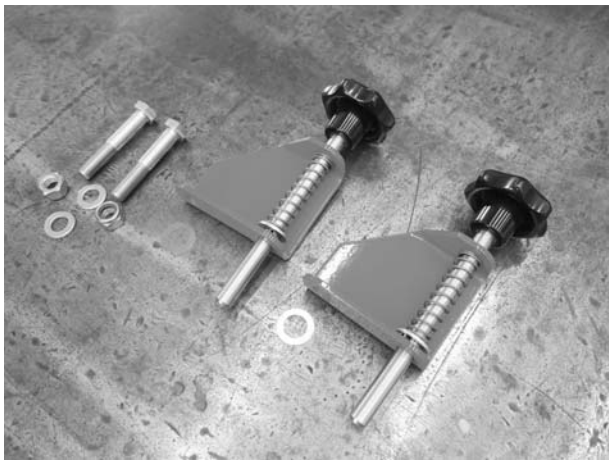
- 1 Operator's manual



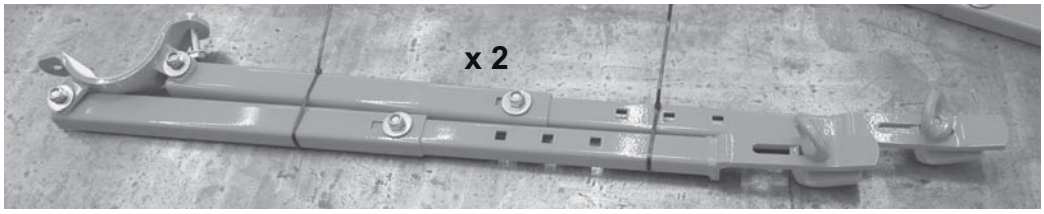
- 1 row fertiliser consisting of auger [1], push-pull cable [3], base [2], metering slide actuator [4] and overflow [5]



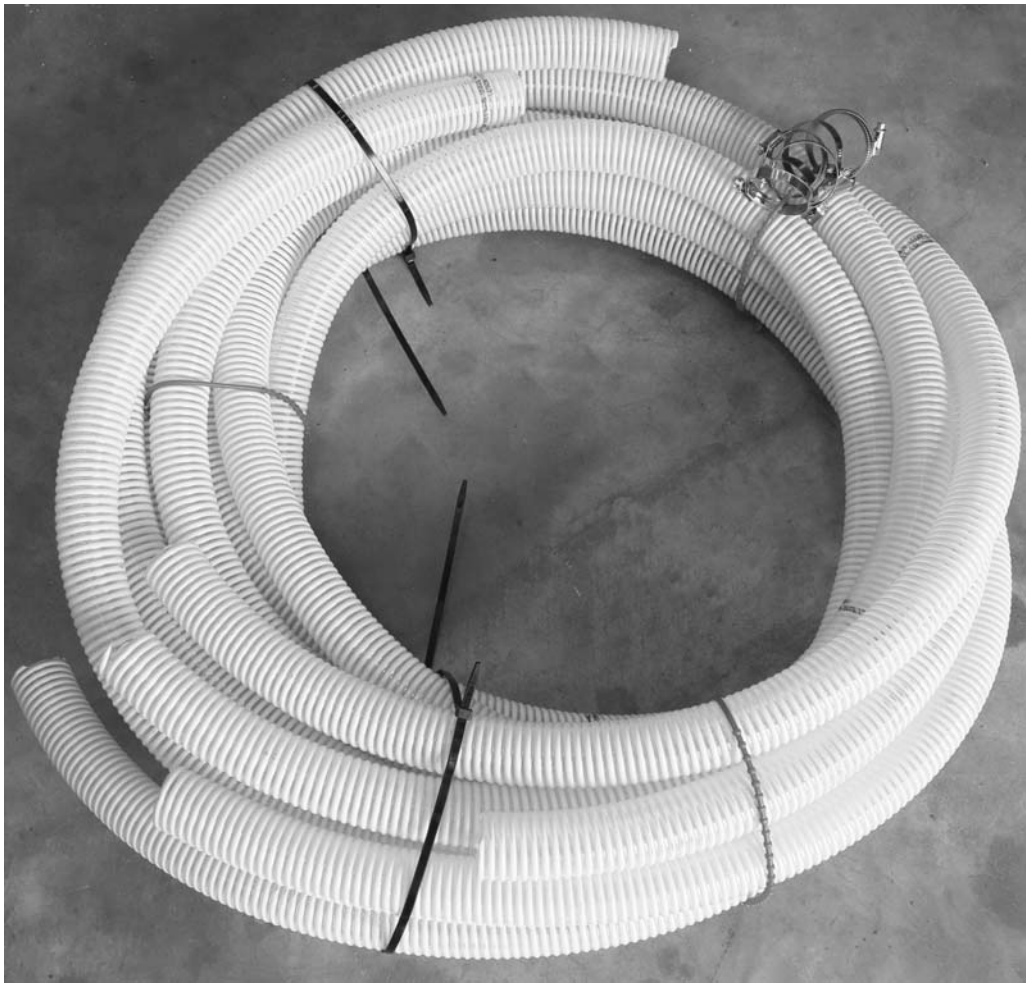
- 1 support frame central part [2] consisting of connection piece [4], position locking [3], bolts [1] and clip connector [5]
- 2 support frame side parts



- 2 locking mechanisms



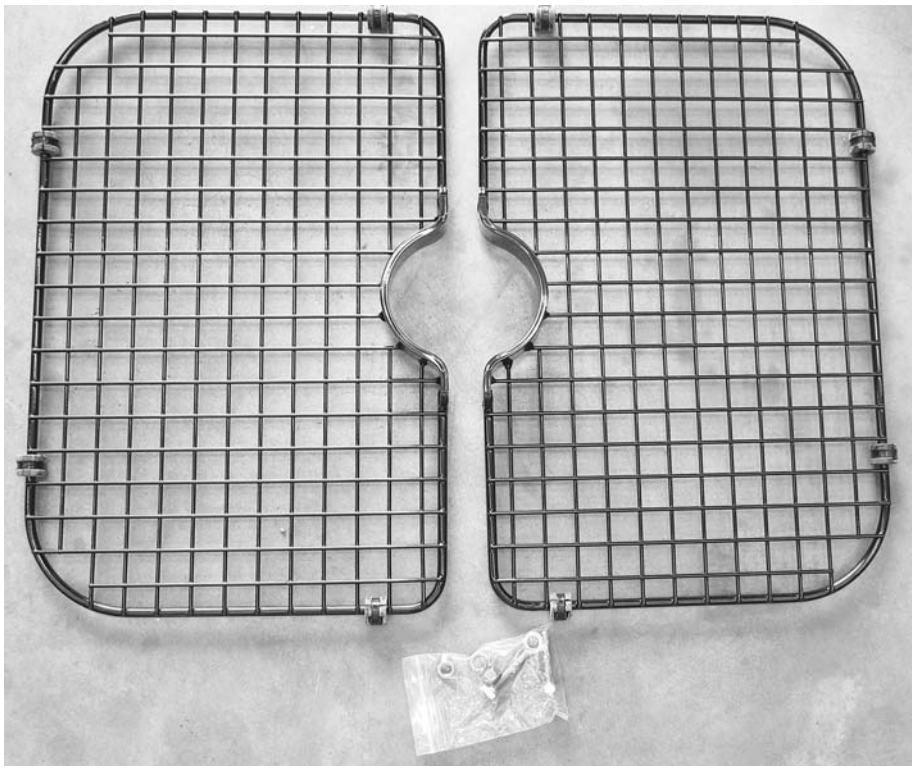
- 4 adjustable struts



- Hoses (7 pieces) with clamps

- Outlet pipe with baffle plate (7 pieces)

- 2 hose brackets



- 2 protective grid halves

5.2 Preparation of the components

- 2-man assembly preferred.
- Observe the order of assembly steps listed in the next sections.

5.2.1 Sorting the hoses

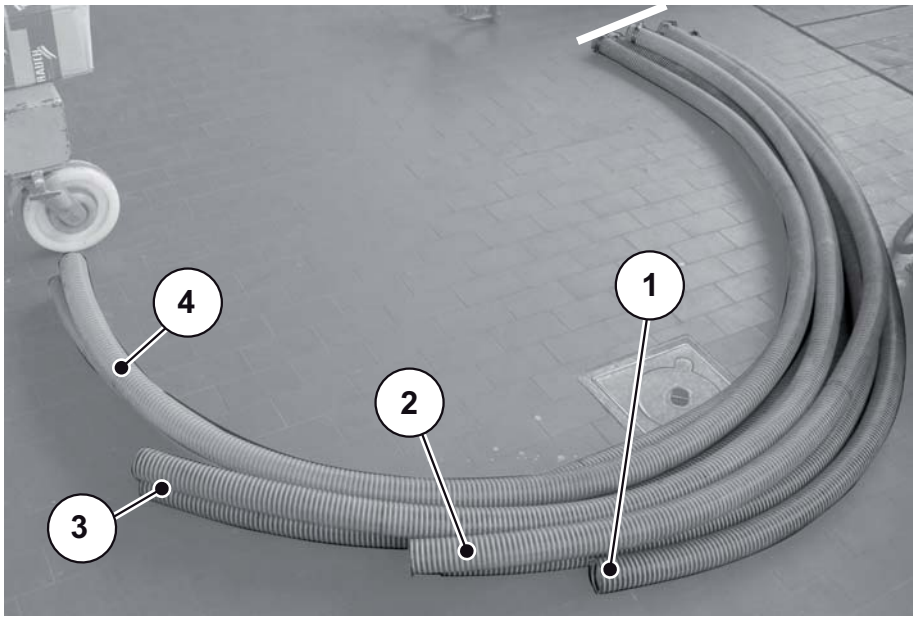


Figure 5.1: Hoses of different lengths

[1] 1 hose, length 2450 mm
[2] 2 hoses, length 2600 mm
[3] 2 hoses, length 2950 mm
[4] 2 hoses, length 3350 mm

- Remove the hoses from the packaging and sort them in such a way that the different lengths can be distinguished without difficulty.

5.2.2 Preparing the hopper

Requirements

- Set the MDS fertiliser spreader higher. This makes it easier to assemble the lower part of the special equipment.
  - For this, fit the MDS fertiliser spreader to the tractor or
  - place the MDS fertiliser spreader on pallets
- Minimum distance (free space) to the ground: 1 metre

Removing the protective grid of the MDS fertiliser spreader

The protective grid is fastened to the hopper with bracket clamps.

The 4 bracket clamps are fastened to the exterior side of the hopper with screws.

1. Remove the bracket clamp screws (4x).

Figure 5.2: Loosen the screws

2. Remove the protective grid from the hopper and put this somewhere safe.
3. **Fasten the bracket clamps again (4x).**

Figure 5.3: Remove the protective grid

5.2.3 Removing the agitator

1. Turn the agitator head [1] clockwise.
   ▷ The agitator head is loose.
2. Remove the agitator head [1] and put this somewhere safe.

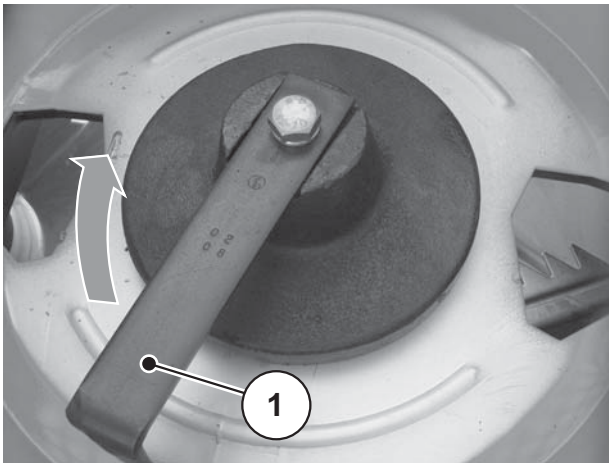


Figure 5.4: Remove the agitator

5.3 Assembling the special equipment

5.3.1 Positioning the special equipment

1. Lay the special equipment on the ground.

   The assembly sit on the overflow [1].

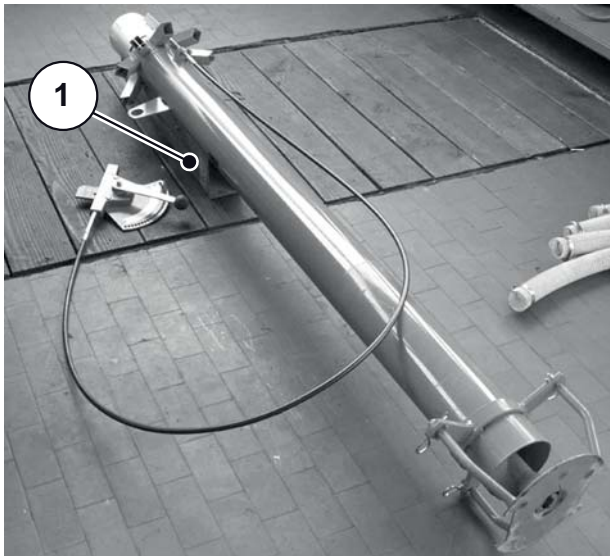


Figure 5.5: Position the special equipment

5.3.2 Fastening the hoses

- First, install the longest hoses onto the outermost profiles on the left and right.
- Carry on with hose pairs until you reach the centre.
- Install the shortest hose in the centre.

1. Attach the hoses [1] with the hose clamps [2] to the special equipment.
2. Push the hoses upwards as far as possible on the profiles.

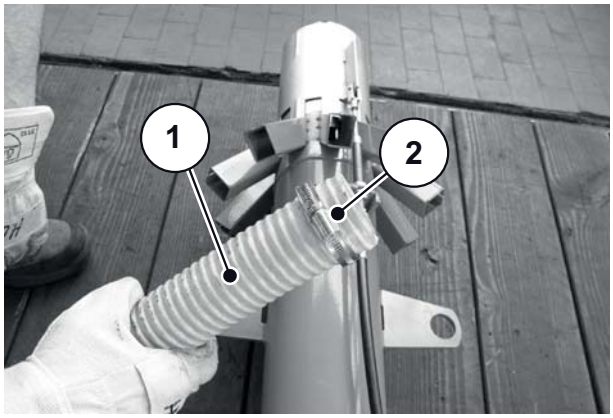


Figure 5.6: Attach the hoses

3. Fasten the hose clamps tightly onto the profiles.

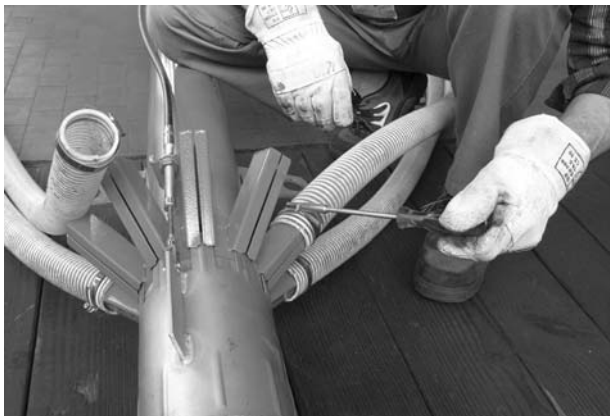


Figure 5.7: Tighten the hose clamps

5.3.3 Fastening the hose bracket

1. Measure the distance from the upper edge of the slide to the **hose bracket**.
   - Approx. 950 mm for all models
2. Mark the measured position with a pen.

1. Place the hose bracket [1] on the position marked accordingly.
   ▷ The retaining bar [2] of the hose bracket is facing upwards.

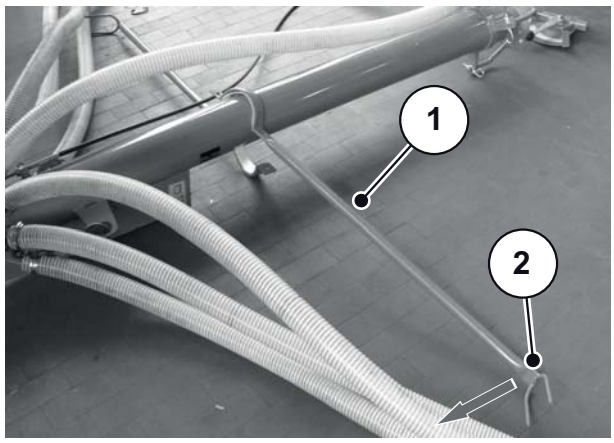


Figure 5.8: Attach hose bracket

2. Screw together the hose bracket with flat washers [1] and hex cap screws [2].

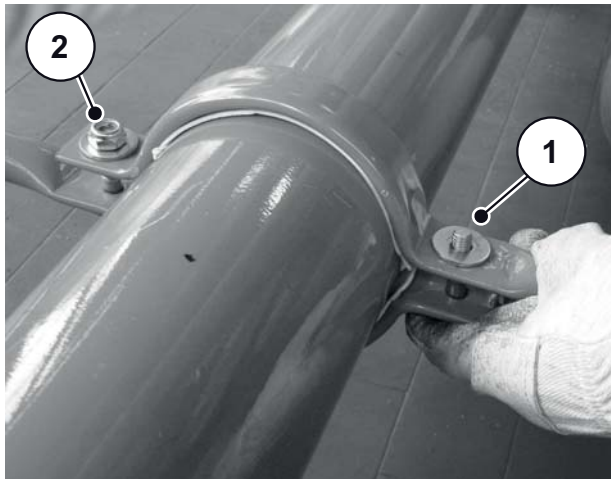


Figure 5.9: Fasten the hose bracket

5.3.4 Placing the components in the hopper

1. Attach the lifting gear [2] to the intended attachment points [1].

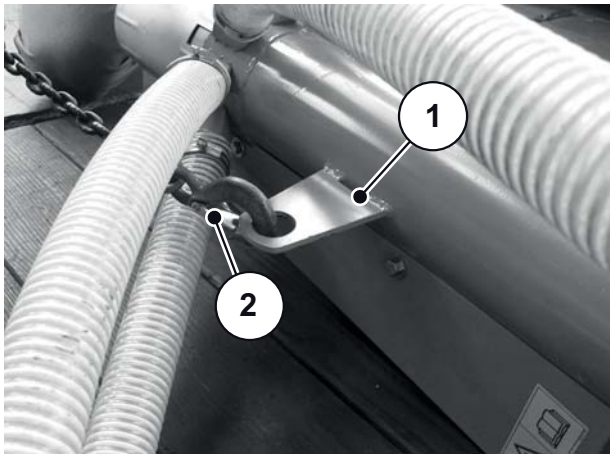


Figure 5.10: Lifting gear at attachment points

NOTICE

Attach the chain between the two hoses above. This prevents the pressure of the chain on the hoses when the components are being assembled.

2. Lift the components slowly and place them vertically.
3. Observe the correct installation direction:

   The overflow faces **forwards**. See figure 5.5.

1. Carefully lower the components into the hopper.
2. Place the base [1] into the gear shaft [2].

   The base must latch securely.

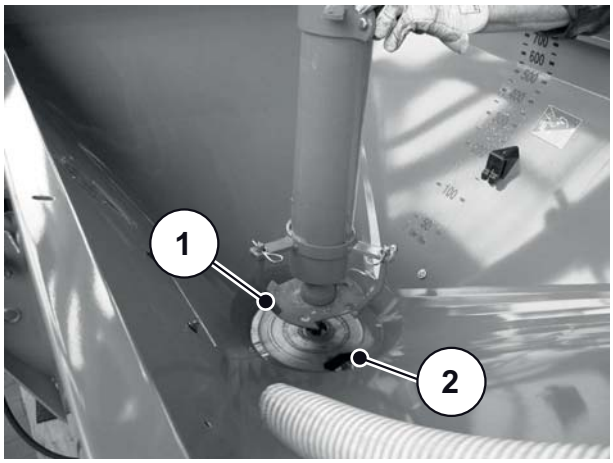


Figure 5.11: Lower the assembly into the hopper

3. Align the base correctly. The metering slides must remain visible.

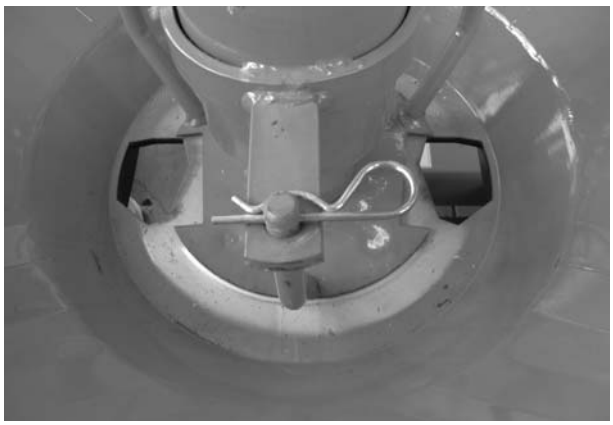


Figure 5.12: Align base

NOTICE

Under no circumstances cover the metering slides of the hopper. Otherwise, you cannot carry out the later emptying of residual material and cleaning work.

5.3.5 Attaching protective grid

1. Place the protective grid [1] in the hopper.
2. Screw together and secure the half shells [2] around the screw tube.

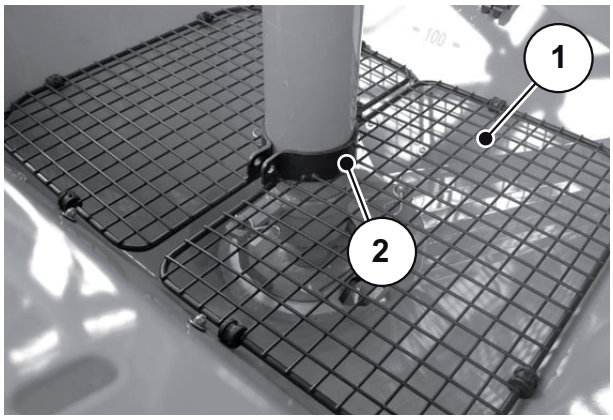


Figure 5.13: Protective grid in hopper

5.3.6 Mounting the adjustable struts

1. Measure the position of the half shells of the struts from the hopper base of the fertiliser spreader.
   - MDS 11.1: approx. 650 mm
   - MDS 12.1: approx. 770 mm
   - MDS 17.1: approx. 657 mm
   - MDS 19.1: approx. 735 mm
2. Mark the measured position with a pen.
3. Place the half shells of the adjustable struts [3] at the tube and screw together.

   First, pull the half shells finger-tight only.

4. Clamp the holding bracket [2] to one corner of the hopper at the edge.
5. Tighten the ring nut [1] with the adjustment lever of the fertiliser spreader.

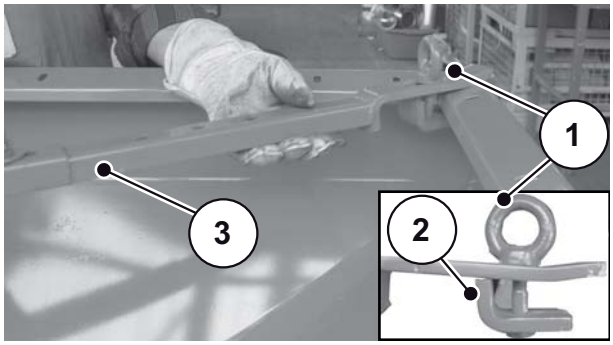


Figure 5.14: Fasten the strut to the hopper edge

6. Carry on in this way for all 4 struts.
7. Fasten all struts in the centre to the half shells.

8. Where appropriate, adjust the lengths of the strut in the middle.
9. Tighten the round-head screw.

Figure 5.15: Fasten the centre part of the strut.

⚠ CAUTION

Hazard due to unstable device!

The stability of the special equipment in the hopper is **only** guaranteed by the struts. If the screws are not correctly tightened, there is a danger that the special equipment will tip.

This can lead to physical injuries or property damage.

▶ After assembling or adjusting the **four struts**, tighten all screws at the half shells and in the centre.

10. Remove the lifting gear from the screw tube.

11. Place the hoses into the hopper in such a way that they are not in the way of further assembly work.

5.4 Attaching the support frame to the fertiliser spreader

5.4.1 Attaching the central part of the support frame

Requirement

- The fertiliser spreader is placed on even ground.
- Horizontal position of the fertiliser spreader

1. Prepare the central part of the support frame [1], the plug [2] and the clip connector [3].

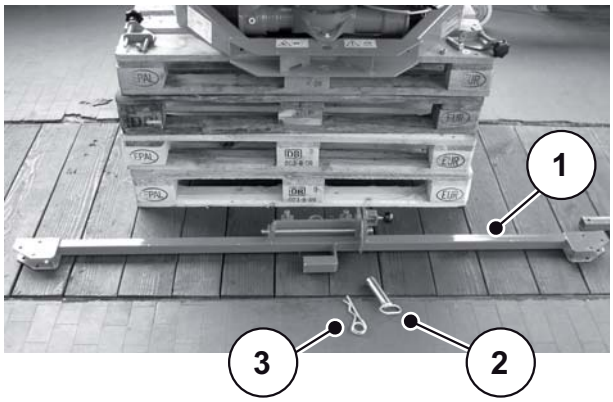


Figure 5.16: Central part and components

2. Attach the support frame central part to the spreader in the middle.

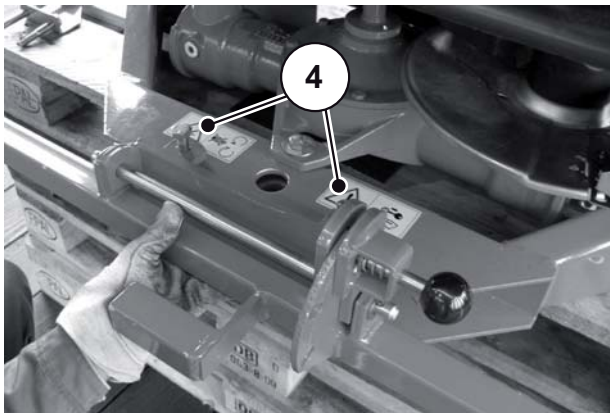


Figure 5.17: Attach the central part

3. Insert the plug [2] into the middle opening of the central part.
4. Secure the plug [2] at the lower end with the clip connector [3].

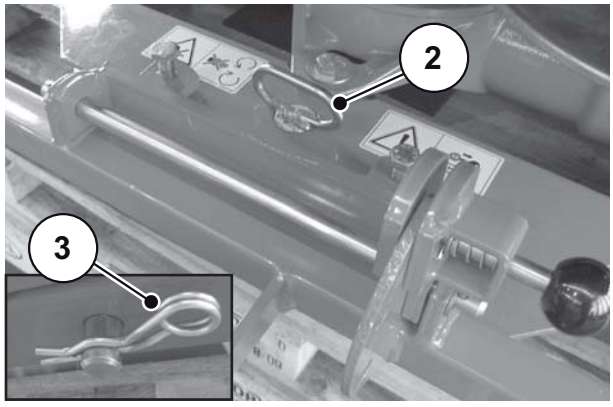


Figure 5.18: Secure the central part with the plug

5. Tighten the hex cap screw [4] at the central section with a suitable tool.
6. Measure the distance of the ends of the central part at the left and right.
   ▷ The distance to the ground must be equal.

5.4.2 Installing the side parts

1. Apply sufficient lubricant to the holes [1] of the central part.
2. Place one adjusting washer [2] on each from above.

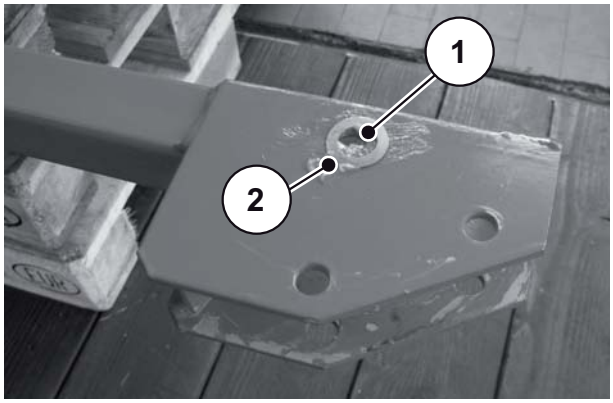


Figure 5.19: Place adjusting washer

3. Prepare both side parts of the support frame. The side with the holes should face the central part.
4. Insert the side parts into the ends of the central part.

   The holes on the side parts must be under the holes of the central part.

1. Place the free holes of the lock mechanism [1] onto the holes of the central part.
2. Insert the hex cap screws through the holes.
3. Tighten with nuts.

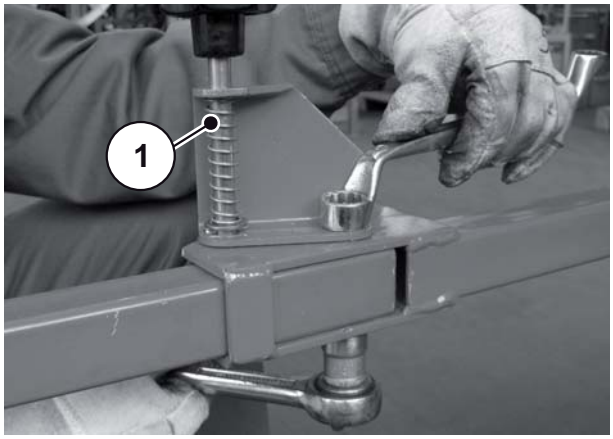
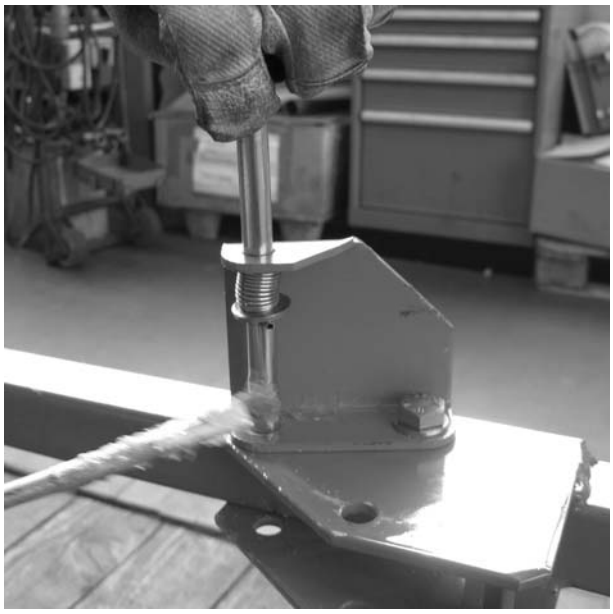


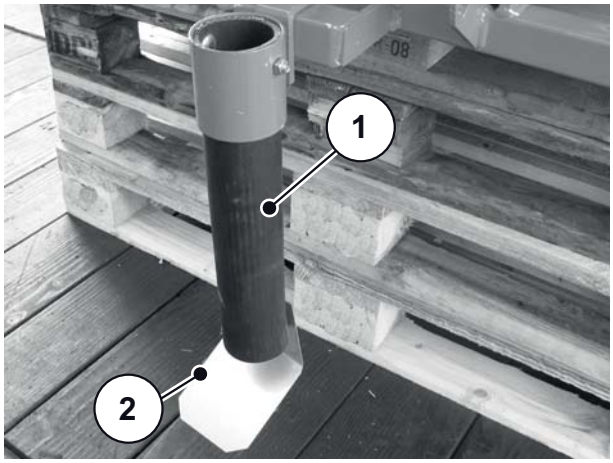
Figure 5.20: Lock mechanism between side and central part



1. Lubricate the bolts and compression springs of the lock mechanisms.
2. Lubricate all latch positions of the bolts and the running surfaces which the side parts move along.

Figure 5.21: Lubricate the lock mechanism

5.4.3 Assembling outlet pipes



1. Loosen the ring nut on the outlet pipe [1].
2. Place the outlet pipe onto the profile of the central part.
3. Tighten the ring nut.

Figure 5.22: Assemble the central outlet pipe

1. Mark positions on the outlet pipes depending on the distance of the tracks from one another.

Figure 5.23: Mark positions

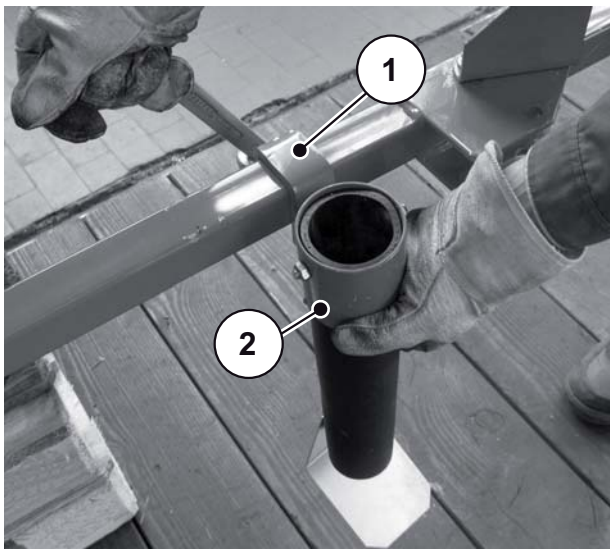


Figure 5.24: Assemble outlet pipes

2. Assemble the remaining outlet pipes [2].

   For this, remove the U-bolt [1] from the outlet pipe and attach it to the marked position.

Inserting hoses into the outlet pipes

3. Insert hoses into the outlet pipes:

   Insert the central and shortest hose into the centre outlet pipe.

   Insert the other hoses from the middle outwards into the outlet pipes, according to their length.

   Attach the longest hoses to the outermost pipes.

4. Check that the hoses cannot fall out.

   ▷ The hoses have been inserted deeply into the outlet pipes.

▷ **The assembly is complete.**

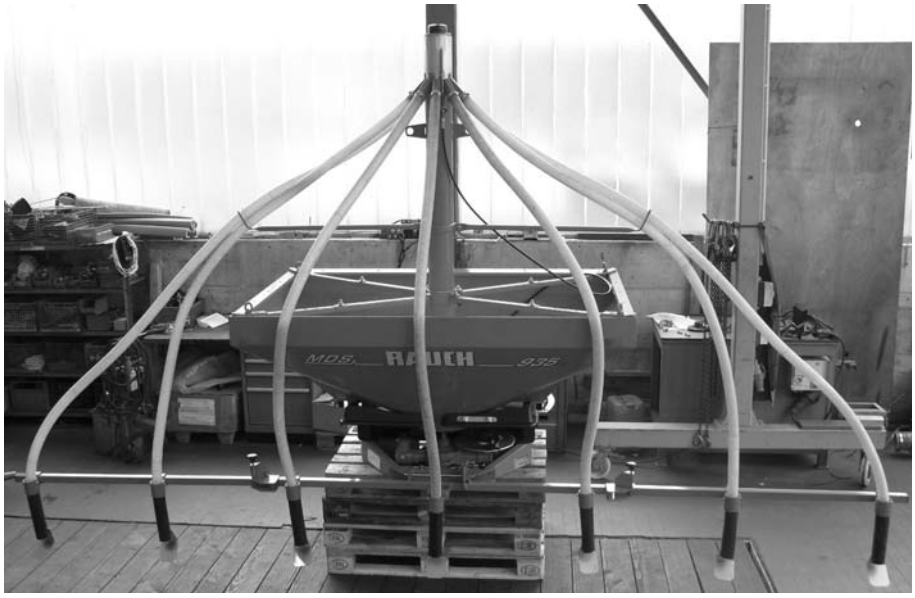


Figure 5.25: Row fertiliser mounted on an MDS fertiliser spreader

5.4.4 Adjusting special equipment for a few rows

If you wish to spread **in fewer than 7 rows**, you need to adjust the special equipment.

1. Detach unnecessary outlet pipes and store them somewhere safe.
2. Readjust the outlet pipes on the side and central part in accordance with the new row distance.

   Shorten the hoses if required.
3. Place the unused hoses in the hopper.

   Shorten the hoses if required: the fertiliser can flow unblocked into the hopper and does not cause any blockage at the screw tube.

5.4.5 Assembling the metering slide actuator

1. Attach and assemble the metering slide actuator to the tractor cabin via the rear windscreen of the tractor.

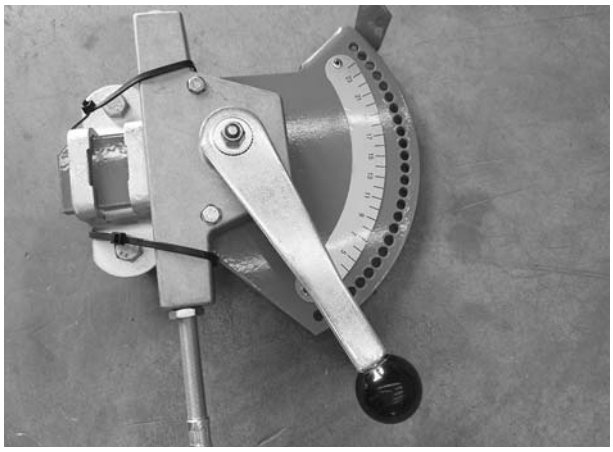


Figure 5.26: Metering slide actuator

6 Machine settings

⚠ DANGER

Danger of injury from running engine

Working on the machine while the engine is running may result in serious injuries caused by mechanical components and escaping fertiliser.

- ▶ Switch the tractor motor off.
- ▶ Remove the ignition key.
- ▶ Ensure that nobody is present in the hazard zone.

The following points should be noted before changing the machine settings and during operation:

- Close the metering slides of the fertiliser spreader in order to prevent inadvertent outlet of fertiliser from the hopper.
- Disassemble the spreading discs of the fertiliser spreader.
  - Observe the operator's manual of your fertiliser spreader for the proper disassembly of the spreading discs.

⚠ WARNING

Risk of crushing and shearing at the metering slide actuator!

Setting the metering slide actuator manually may involve certain hazards.

The slide at the top end of the screw tube is moved by adjusting the lever at the metering slide actuator. If the push-pull cable catches or the slide tilts, the slide can jerk and move unexpectedly. This may cause injury to fingers or cut fingers off and/or result in injury to the operator.

- ▶ Only activate the lever (opening/closing) from a safe distance.
- ▶ Always open the adjusting lever to the stopper before carrying out adjustment work.
- ▶ In the event of catching, always release the push-pull cable first and then carefully remove it from the slide. Then remove the cause of the catching.

6.1 Setting the application rate

You set the application rate via the stopper lever at the adjusting segment of the metering slide actuator.

1. The scale value [2] for the desired application rate can be found in the fertiliser chart.

   Scale value area: between 1 and 24

2. Set the stopper lever [3] at the corresponding stop hole of the adjusting segment [4] if required.

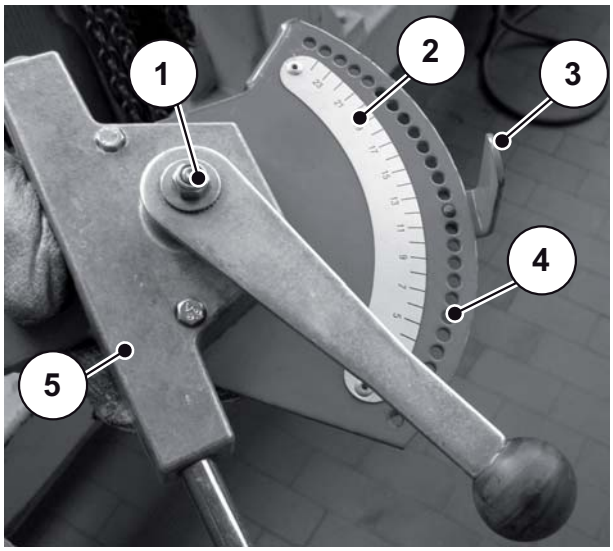


Figure 6.1: Metering slide actuator

3. Move the adjusting lever [1] until it reaches the stopper lever [3].
   ▷ The slide at the screw tube is opened via the encoder box corresponding to the position of the adjusting lever.

6.2 Using the fertiliser chart

6.2.1 Information on the fertiliser chart

The values in the fertiliser chart have been determined by the test system.

The used fertiliser materials have been purchased from the fertiliser manufacturers or from dealers. Experience shows that due to storage, transport and other reasons, your fertiliser – even with identical specifications – might exhibit a different spreading behaviour.

This means that the machine settings specified in the fertiliser charts may result in a different spreading volume and a poorer fertiliser distribution.

Therefore, observe the following instructions:

- Only use fertilisers listed in the fertiliser chart.
- Please contact us if you do not find a particular fertiliser type in the fertiliser chart.
- Observe the setting values exactly. Even a slightly incorrect setting may adversely affect the spreading pattern.

When using urea, particular attention is to be paid to the following:

- Due to a great number of fertiliser imports, urea is available in a wide variety of different qualities and grain sizes. It may therefore be required to adjust the settings of the spreader.
- Urea is more sensitive to wind and absorbs more moisture than other fertilisers.

NOTICE

The operating staff is responsible for making the correct spreader adjustments according to the fertiliser used.

The manufacturer of the machine points out expressly that they do not accept any liability for subsequent damage resulting from incorrect spreader adjustments.

6.2.2 Settings as per fertiliser chart

The operator determines the optimal spreading from the **fertiliser chart** according to the type of fertiliser, working width, rotation speed of the PTO shaft and driving speed.

NOTICE

The given working widths and spreading quantities are calculated for the average row distance of 75 cm. For larger or smaller distances, you must add a higher or lower percent to the setting.

If you wish to spread fewer than 7 rows, the spreading quantity is reduced at the same rate as the working width, meaning kg/ha remain **the same**.

- Fertiliser type: Calcium-ammonium nitrate
- Spreading width: **5.25** m
- PTO speed: n = **300** min^{-1}

		Spreading quantity (kg/ha)									
Scale value		**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
kg/min[1]		1.2	3.2	5.2	7.2	9.4	11.6	13.8	16.0	18.3	20.5
km/h	**6**	24	62	99	137	179	221	263	305	348	390
	8	18	46	75	103	134	166	197	229	261	292
	10	14	37	60	82	107	133	158	183	209	234
	12	12	31	50	69	90	110	131	153	174	195

1. Calibration test volume per minute

		Spreading quantity (kg/ha)									
Scale value		**16**	**17**	18	**19**	**20**	**21**	**22**	**23**	**24**	**-**
kg/min[1]		22.7	25.0	27.2	29.7	32.2	34.7	37.2	39.7	42.2	-
km/h	**6**	451	511	572	606	640	674	708	742	776	-
	8	338	383	429	454	480	505	531	556	582	-
	10	270	307	343	364	384	404	425	445	466	-
	12	225	256	286	303	320	337	354	371	388	-

1. Calibration test volume per minute

- Fertiliser type: **Calcium-ammonium nitrate**
- Spreading width: **5.25** m
- PTO speed: n = **540** min^{-1}

		Spreading quantity (kg/ha)									
Scale value		**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
kg/min[1]		1.9	4.9	7.8	10.8	14.4	18.0	21.6	24.8	28.0	31.2
km/h	**6**	36	93	149	206	275	343	412	473	533	594
	8	27	69	112	154	206	257	309	354	400	445
	10	22	56	90	124	165	206	247	284	320	356
	12	18	46	75	103	137	172	206	236	267	297

1. Calibration test volume per minute

		Spreading quantity (kg/ha)									
Scale value		**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**-**
kg/min[1]		34.5	37.9	41.2	43.8	46.4	49.0	51.6	54.2	56.8	-
km/h	**6**	657	721	784	834	884	934	984	1034	1084	-
	8	493	540	588	625	663	700	738	775	813	-
	10	394	432	470	500	530	560	590	620	650	-
	12	329	360	392	417	442	467	492	517	542	-

1. Calibration test volume per minute

- Fertiliser type: **Urea**
- Spreading width: **5.25** m
- PTO speed: n = **300** min^{-1}

		Spreading quantity (kg/ha)									
Scale value		**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
kg/min[1]		2.9	6.3	9.7	13.1	16.3	19.6	22.8	25.7	28.6	31.5
km/h	**6**	56	121	185	250	311	373	434	489	545	600
	8	42	90	139	188	233	279	325	367	408	450
	10	34	72	111	150	187	224	260	294	327	360
	12	28	60	93	125	156	186	217	245	272	300

1. Calibration test volume per minute

		Spreading quantity (kg/ha)									
Scale value		**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	-
kg/min[1]		33.6	35.8	37.9	38.8	39.6	40.4	41.4	42.3	43.1	-
km/h	**6**	641	681	722	738	755	771	788	804	821	-
	8	480	511	541	554	566	579	591	603	616	-
	10	384	409	433	443	453	463	473	483	493	-
	12	320	341	361	369	377	386	394	402	410	-

1. Calibration test volume per minute

- Fertiliser type: **Urea**
- Spreading width: **5.25** m
- PTO speed: n = **540** min^{-1}

		Spreading quantity (kg/ha)									
Scale value		**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
kg/min[1]		3.4	4.7	11.4	15.4	20.0	24.6	29.2	32.7	36.1	39.6
km/h	**6**	65	141	218	294	381	469	556	662	688	754
	8	49	106	163	220	286	351	417	466	516	565
	10	39	86	131	176	229	281	334	373	413	452
	12	32	71	109	147	191	234	278	311	344	377

1. Calibration test volume per minute

		Spreading quantity (kg/ha)									
Scale value		**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	24	-
kg/min[1]		43.5	47.3	51.2	53.3	55.4	57.5	59.6	61.7	63.8	-
km/h	**6**	828	901	975	1015	1056	1096	1136	1176	1216	-
	8	621	676	731	762	792	822	852	882	912	-
	10	497	541	585	609	633	657	682	706	730	-
	12	414	451	488	508	528	548	568	588	608	-

1. Calibration test volume per minute

6.3 Setting the working width

To fertilise rows of plants of differing widths, set the outlet pipes on the central and side parts of the support frame according to your requirements.

In addition, you can detach the baffle plate so that the fertiliser falls onto the soil directly under the outlet pipes.

6.3.1 Spreading with baffle plate between the rows of plants

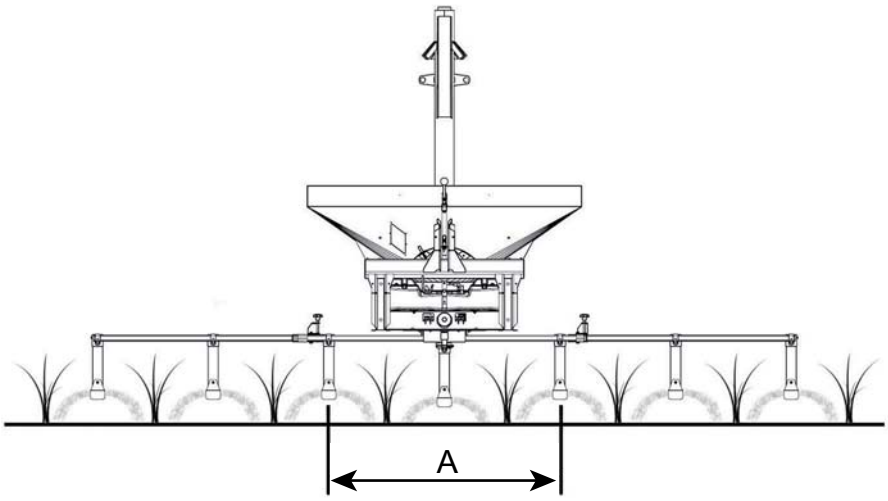


Figure 6.2: Spreading with baffle plate

A Track

The outlet pipes are fastened to the central and side parts of the support frame in such a way that they sit in the tracks between the rows of plants.

The fertiliser falls through the hoses into the outlet pipes. From there, it bumps against the baffle plate. The impact throws the fertiliser to the sides of the planting rows.

6.3.2 Spreading without baffle plate onto the rows of plants

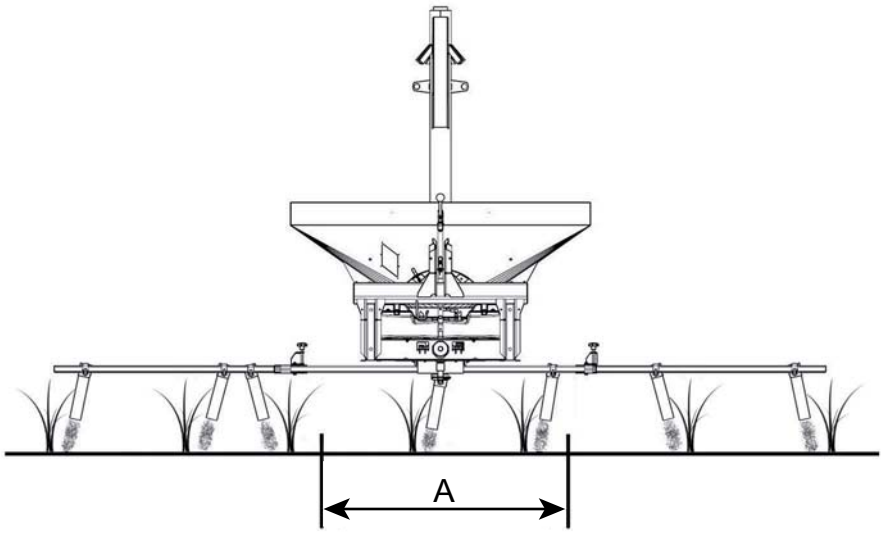


Figure 6.3: Spreading without baffle plate

A Track

1. Remove the baffle plate from the outlet pipes.
2. Loosen the outlet pipe ring nuts.
3. Swivel the outlet pipes to the left and right and tighten the ring nuts again.
   ▷ The outlet pipes are pointing directly at the rows of plants.
   ▷ The fertiliser falls directly onto the rows of plants.

7 Spreading operation

7.1 Instructions regarding the spreading operation

The intended use of the machine includes compliance with the operating, maintenance, and service conditions in accordance with the manufacturer specifications. **Spreading operation** therefore always includes **preparation** and **cleaning/maintenance**.

⚠ DANGER

Danger of injury when spreading

Contact with rotating machine components may cause injury. Body parts or objects may be caught and pulled in.

▶ **Only** spread if the protective grid is attached.

7.1.1 Preparing the machine for road transport

When unfolded, the special equipment for the spreading operation exceeds the maximum permissible width when driving on roads. Follow these instructions to fold the support frames into transport position.

1. Pull the lock mechanism [1] on the support frame central part.
   ▷ The lock is open.
2. Swivel the support frame central part upwards.
3. Insert the lock mechanism [1] into the lowest hole and release.

▷ **The support frame central part is folded up.**

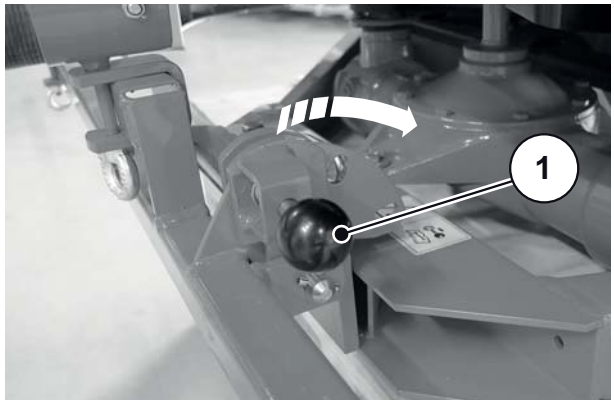


Figure 7.1: Swivel the support frame central part

4. Pull the locking mechanism of the support frame side part upwards.
5. Fold the support frame side part inwards.

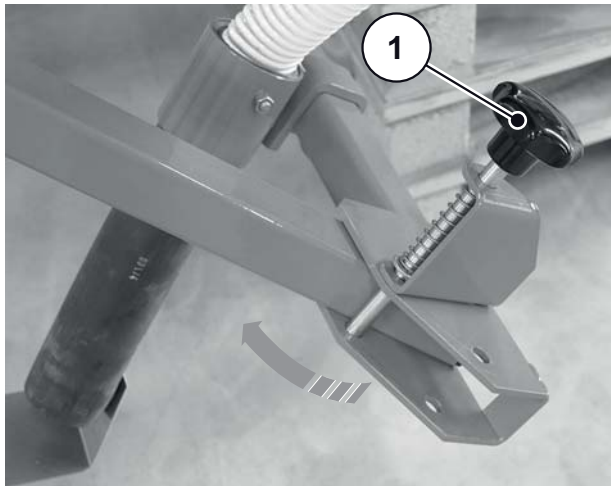


Figure 7.2: Fold closed the support frame side part.

6. Insert the lock mechanism into the hole and release.

▷ **The support frame side part is folded shut and secured.**

▷ **The row fertiliser is in transport position.**

7.1.2 Setting the special equipment into working position

1. Pull the lock mechanism of the support frame side part upwards.
2. Fold the support frame side part outwards.
3. Pull the lock mechanism on the support frame central part.
4. Swivel the support frame central part downwards.
5. Insert the lock mechanism into the highest hole and release.

▷ **The support frame central part is secured and in a horizontal position.**

▷ **The row fertiliser is in working position**

7.1.3 Starting the spreading operation

Requirement:

- You have detached the spreading discs.
- The row fertiliser is in working position.
- The hoses have been inserted deeply into the outlet pipes.

1. Attach the fertiliser spreader with row fertiliser to the tractor.

   Follow the instructions and safety instructions in the operator's manual of the MDS fertiliser spreader.
2. Mount the drive shaft to the machine and tractor.
3. Close the metering slide of the fertiliser spreader.
4. Set the stopper lever to position 0 on the metering slide actuator

   ▷ The metering slide of the row fertiliser is closed.
5. Fill with fertiliser.
6. Drive to spreading location.
7. Set the stopper lever to the determined position.

   See 6.1: Setting the application rate, page 34.

   ▷ The metering slide of the row fertiliser opens.
8. Switch on PTO shaft.

   ▷ The auger is running.

   ▷ The fertiliser flows through the hoses into the rows.
9. Begin spreading drive.
10. Finish spreading and close the slide

NOTICE

Work with a reduced RPM if the working situation permits this.

7.2 Discharging residual material

We recommend emptying the machine immediately after every use to maintain its value and to ensure a fault-free spreading operation.

1. Deactivate the drive and switch off the tractor motor.
2. For collecting the spreading material, place a foil under the machine or position a sufficiently sized hopper beneath the outlet.

⚠ WARNING

Risk of injury due to rotating machine components

Rotating machine components (universal drive shaft, hubs) may catch and pull-in body parts or objects. Contact with rotating machine components may cause bruises, abrasions and crushing injuries.

- ▶ Always stay outside the area of rotating hubs while the machine is running.
- ▶ When the drive shaft is rotating, the metering slides are to be operated from the tractor seat **at all times**.
- ▶ Ensure that nobody is present in the hazard zone of the machine.

3. Open the metering slide fully.
4. Switch on the PTO shaft and empty the hopper until no more spreading material is discharged.
5. Deactivate the PTO shaft and switch off the tractor motor. Remove the ignition key of the tractor.

NOTICE

Work with a reduced RPM. This reduces the wear to materials and keeps the mechanical strain of the fertiliser low.

8 Faults and possible causes

⚠ WARNING

Risk of injury when rectifying faults inappropriately

Delayed or incorrect repairs by unqualified personnel may result in severe personal injury as well as in damages to the machine and the environment.

- ▶ Any faults occurring must be repaired **immediately**.
- ▶ Only carry out repairs yourself if you have the appropriate **qualifications.**

Fault	Possible cause	Measure
Uneven fertiliser distribution	● Caked-on fertiliser on the screw conveyor, screw tube or hoses.	● Remove caked fertiliser
	● Metering slide does not open completely.	● Check function of opening slide.
No or too little fertiliser in a track	● Hose is not connected tightly.	● Check hose connection to the screw tube. ● Check hose connection to the outflow pipe.
	● Caked-on fertiliser in a hose.	● Remove caked fertiliser
	● Hose has a kink	● Hose length and connections must correspond to one another: 5.2.1: Sorting the hoses, page 18. and “Inserting hoses into the outlet pipes“, page 30
Machine application higher on one side than the other.	● The special equipment is not installed vertically	● Check the mounting of the screw tube in the hopper. ● Correct any inclination in one direction with the adjustable struts. 5.3.6: Mounting the adjustable struts, page 25
Fertiliser feed to the centre too much or uneven.	● Fertiliser flows out of the fertiliser spreader.	● Check whether the metering slide of the hopper is completely closed.
If the metering slide is closed, the fertiliser trickles out of the hopper.	● The distance between the base of the row fertiliser and the hopper base is too big.	● Check the distance between the row fertiliser base and the hopper base.

Fault	Possible cause	Measure
Metering slide does not open.	● Check and, if necessary, improve the smooth movement of the metering slide actuator (lever and joints). ● Remove dirt from the slide which can cause jams.	
The screw conveyor is not working.	● Check free path and free path drive.	
Blockages at the slide openings	Fertiliser clumps, damp fertiliser, miscellaneous impurities (leaves, straw, sack residues)	● Clear blockages. Proceed as follows: **1.** Park tractor, remove ignition key. **2.** Remove Push-pull cable from the slide. **3.** Remove the slide from the screw tube. **4.** Remove the overflow from the screw tube. **5.** Clean the outlet openings with a wooden pole or the adjustment lever and push through the metering opening. **6.** Remove any foreign objects in the hopper. **7.** Fasten the overflow and slide back onto the fertiliser spreader and connect the push-pull cable with the slide.

9 Maintenance and service

9.1 Safety

HINWEIS

Please also refer to the warning notes in chapter 3: Safety, page 5. Take particular note of the instructions in section 3.5: Maintenance and service, page 9.

Maintenance and service involve additional hazards that do not occur during operation of the machine.

Any maintenance and service work is to be conducted with increased alertness at all times. Work very carefully and with awareness of danger.

Observe the following instructions in particular:

- Welding and work on the electrical and hydraulic systems is to be carried out by qualified technicians only.
- There is a **risk of tipping** when working at the lifted machine. Always secure the machine using suitable supports.
- When lifting the machine using lifting gear, always use a **suitable belt**.
- There is a **risk of crushing and shearing** at power-operated components of the machine (adjustment lever, metering slide).Make sure that there is no one in close proximity to the moving parts during maintenance.
- Spare parts must at least comply with the technical standards specified by the manufacturer. This is assured only with original spare parts.
- Before starting any cleaning, maintenance, or repair work, and when troubleshooting, switch off the tractor's engine and wait until all moving parts have come to a stop.
- Repairs may **ONLY be carried out by instructed and authorised specialists.**

9.2 Wear parts and screw connections

9.2.1 Checking wear parts

Wear parts include: **Hoses**, **Baffle plates**.

- Regularly check wear parts.

Replace these parts if they show signs of wear, deformation, holes or age. Otherwise, the spreading pattern will not be correct.

The durability of wear parts depends, among other things, on the spreading material.

9.2.2 Checking screw connections

Bolted joints have been tightened to the specified torque and locked at the factory. Vibrations and shocks, in particular during the initial operating hours, can loosen bolted joints.

- With new machines, all screw connections are to be checked for their tight seat after approx. 30 operating hours.
- Check all the bolted joints regularly for tightness, and definitely before the start of the spreading season.

Some components (e.g. clamps) are mounted with self-locking nuts. When mounting these components always use **new** self-locking nuts.

9.3 Cleaning

We recommend cleaning the machine immediately after every use with a gentle water jet in order to maintain its value.

The following instructions must be observed for cleaning:

- Only clean oiled machines at washing points fitted with an oil separator.
- When cleaning with high-pressure water, never aim the jet directly at warning signs, electrical equipment, hydraulic components, and sliding bearings.
- Lubricate cleaned lubrication points again sufficiently after each cleaning.

A suitable polishing kit can be ordered from authorised dealers for use in treating rust spots.

9.4 Removing the screw conveyor

Requirement:

- Open the fertiliser spreader metering slide.
- Empty the residual quantity of the hopper. This avoids fertiliser running out onto the base.

1. Attach and secure lifting gear to both stopper points of the screw tube.

Figure 9.1: Attach the lifting gear to the screw tube

2. Loosen the four adjustable struts [3] on the hopper to retract the screw tube.
3. Remove all hoses from the outlet pipes and place them in the hopper.

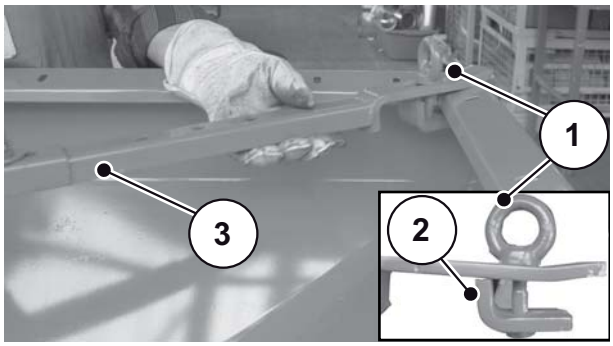


Figure 9.2: Loosen the adjustable struts.

4. Lift the row fertiliser out of the hopper with the lifting gear and place evenly on the ground.

Figure 9.3: Lowering the special equipment.

1. Remove the upper pipe plug cap [1] from the screw tube [2].

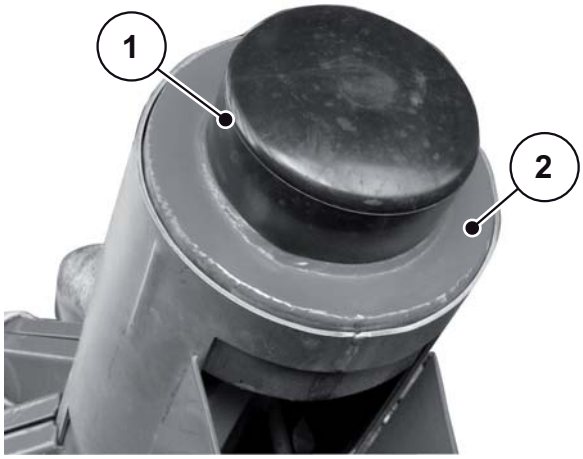


Figure 9.4: Remove the pipe plug cap

2. Remove the linchpin [1].

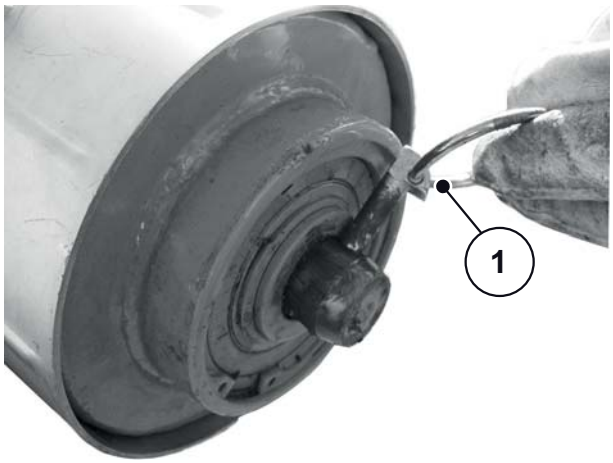


Figure 9.5: Remove the linchpin

3. Unscrew the three clip connectors [1] which secure the base to the screw tube.
4. Pull out the base [2].

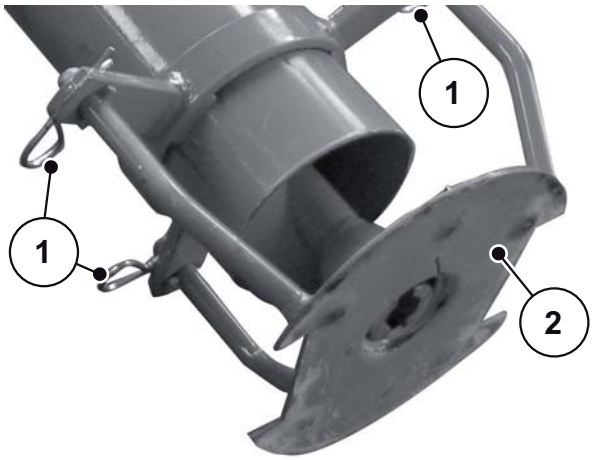


Figure 9.6: Remove base

5. Carefully pull out the screw conveyor [1] from underneath.

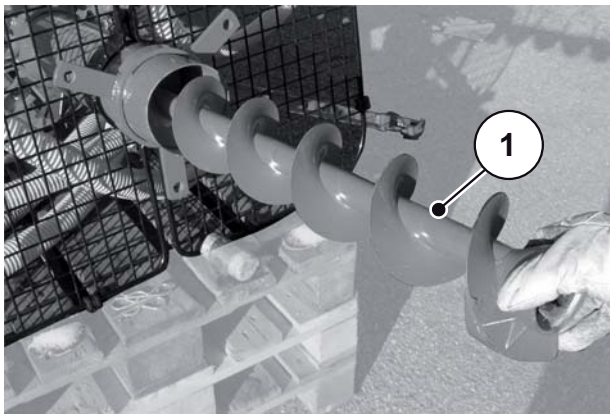


Figure 9.7: Pull out the screw conveyor

9.5 Removing the slide

1. Loosen connection of the push-pull cable to the slide.
2. Pull the slide out from the top and remove from the screw tube.

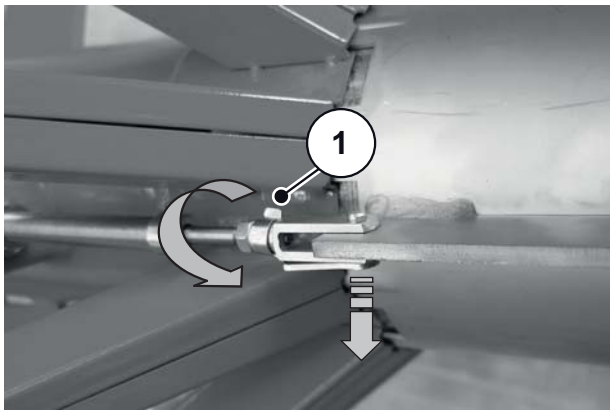


Figure 9.8: Pull out slide

9.6 Lubrication

9.6.1 Lubrication plan

Lubrication points	Lubricant	Note
Lock mechanisms between support frames and side parts	Grease	Lubricate the bolts and the running surfaces of the elements. Lubricate regularly, however at the latest when the elements lose their sliding capacity. Page 28
Inner side of slide	Grease	Also clean the slide surfaces before lubricating. Lubricate the row fertiliser each time it is assembled. Page 55
Top end of the auger (in bearing socket)	Grease	For a smooth running of the top end of the screw conveyor into the bearing socket. Carry this out each time the screw conveyor and the interior of the screw tube is cleaned. Page 54
Bottom socket of the screw conveyor	Grease	Lubricate the row fertiliser each time it is assembled and cleaned. The socket is placed on top of the transmission and requires regular lubrication. Page 55

9.6.2 Lubrication points

1. Lubricate the top end [1] of the screw conveyor [2].

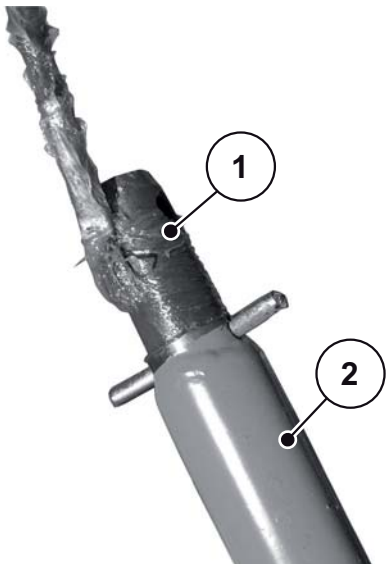


Figure 9.9: Top end of the auger

2. Lubricate the screw socket [1].

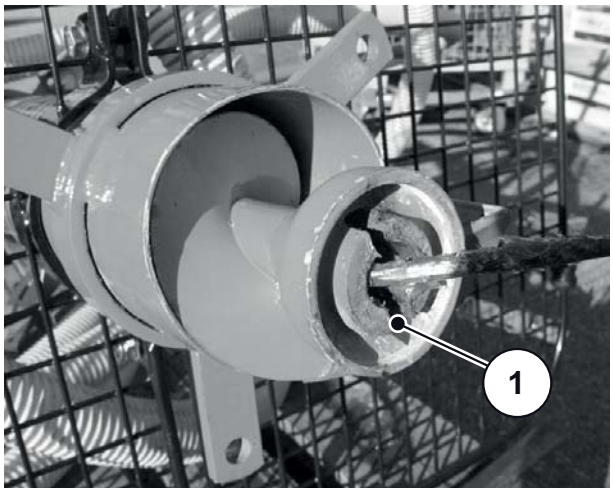


Figure 9.10: Socket of the screw conveyor

3. Lubricate the joint between the central and side parts

Figure 9.11: Support frame joint

4. Lubricate the inner side of the slide in the upper area.

Figure 9.12: Inner side of slide

5. Lubricate the inner side of the slide sprockets.

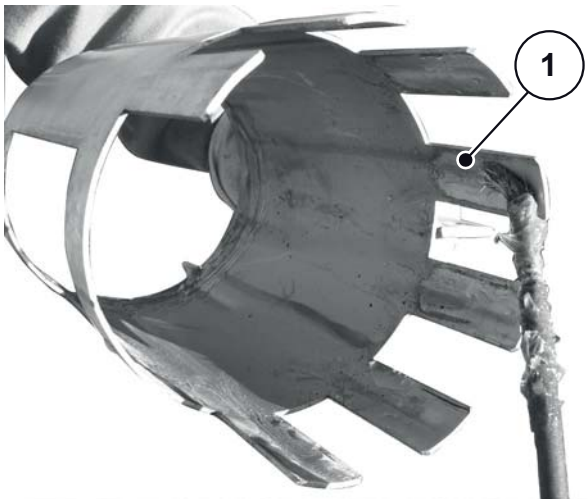


Figure 9.13: Slide sprockets

10 Disposal

10.1 Safety

⚠ WARNING

Environmental pollution due to unsuitable disposal of hydraulic and gear oil

The hydraulic and gearbox oils are not entirely biodegradable. Therefore, oil must be prevented from entering the environment in an uncontrolled manner.

- ▶ Collect/dam escaped oil with sand, earth or other absorptive material.
- ▶ Collect hydraulic and gear oil in a suitable container provided for the purpose, and dispose of it in accordance with the local statutory requirements.
- ▶ Oil must be prevented from spilling and draining into the sewers.
- ▶ The ingress of oil into the sewage system must be prevented by building dams made of sand and/or earth or by other suitable damming means.

⚠ WARNING

Environmental pollution caused by inappropriate disposal of packaging materials

Packaging material contains chemical compounds, which must be dealt with appropriately.

- ▶ Packaging material is to be disposed of at an authorized waste management company.
- ▶ Observe the national regulations.
- ▶ Packaging material may **not** be burned nor disposed of with the domestic waste processing.

⚠ WARNING

Environmental pollution caused by inappropriate disposal of components

The incorrect disposal of ingredients and materials is a threat to the environment.

- ▶ Only authorised companies may be commissioned with the disposal.

10.2 Disposal

The following points are applicable without any restriction. Stipulate suitable precautionary measures based on the national legislation and implement them.

1. All components, auxiliary and operating materials from the machine must be removed by specialist staff.

   Hereby, these components and substances must be cleanly separated into categories.

2. All waste products are then to be disposed of in accordance with local regulations and directives for recycling or special refuse categories by authorised companies.

Index

Terms/conditions of warranty

RAUCH units are manufactured with modern production methods and with the greatest care and are subject to numerous inspections.

Therefore RAUCH offers a 12-month warranty subject to the following conditions:

- The warranty begins on the date of purchase.
- The warranty covers material and manufacturing faults. Our liability for third-party products (hydraulic system, electronics) is limited to the warranty of the manufacturer of the equipment. During the warranty period, manufacturing and material faults are corrected free of charge by replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction or replacement for damages that did not occur in the object of supply are explicitly excluded. Warranty services are provided by authorised workshops, by RAUCH factory representatives or the factory.
- The following are excluded from coverage by the warranty: natural wear, dirt, corrosion and all faults caused by improper handing and external causes. The warranty is rendered void if the owner carries out repairs or modifications to the original state of the supplied product. Warranty claims are rendered void if RAUCH original spare parts were not used. Therefore, the directions in the operating manual must be observed. In all cases of doubt contact our sales representatives or the factory directly. Warranty claims must be submitted to the factory by 30 days at the latest after occurrence of the problem. The date of purchase and the serial number must be indicated. If repairs under the warranty are required, they must be carried out by the authorised workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period is not extended by work carried out under warranty. Shipping faults are not factory faults and therefore are not part of the warranty obligation of the manufacturer.
- No claims for compensation for damages that are not part of RAUCH machines themselves will be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorised modifications of RAUCH machines may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's liability exclusion will not apply in case of wilful intent or gross negligence by the owner or a senior employee, and in cases where – according to the product liability law – there is liability for personal injury or material damage to privately used objects in the event of defects in the supplied product. It will also not apply in the event that assured properties are absent, if the purpose of the assured properties was to protect the purchaser against damage that does not involve the supplied product itself.

RAUCH Streutabellen
RAUCH Fertilizer Chart
Tableaux d'épandage RAUCH
Tabele wysiewu RAUCH
RAUCH Strooitabellen
RAUCH Tabella di spargimento
RAUCH Spredetabellen
RAUCH Levitystaulukot
RAUCH Spridningstabellen
RAUCH Tablas de abonado

GET IT ON Google Play

Download on the App Store

http://www.rauch-community.de/streutabelle/

RAUCH Landmaschinenfabrik GmbH

Landstraße 14 · D-76547 Sinzheim
Victoria-Boulevard E200 · D-77836 Rheinmünster

info@rauch.de · www.rauch.de

Phone +49 (0) 7221/985-0
Fax +49 (0) 7221/985-200