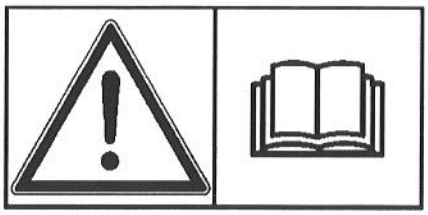
RAUCH

Operators manual

AXERA-H



IRL

Please read carefully
before using the machine.
Store carefully for future use.

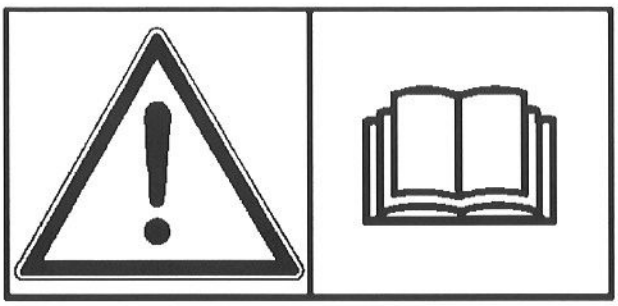
This Operators manual should be considered as part of the machine.
Suppliers of new and second-hand machines are obliged to indicate in writing that the Operators Manual is delivered with the machine.

AXERA-H-a-02.99-IRL

Foreword

Dear customer,

We are confident that your AXERA-H Fertilizer Spreader with its many outstanding features, will justify the trust which, by your purchase, you have shown in the machine. We have made every effort to provide you with a high performance, accurate and reliable machine.



It is very important that you read and thoroughly understand this Operators Manual, taking careful note of the Safety Information, BEFORE operating the machine. This manual provides a comprehensive guide to the machine controls and all the information necessary for efficient and safe operation, maintenance and care of your machine.

PLEASE NOTE: Warranty claims which arise from damage due to operator errors and misuse, cannot be accepted.

Note: We recommend that you make a note of the machine type, serial number and construction year in the spaces below. You will find this information on the serial number plate fixed to the frame of the machine.
Always quote this information when ordering spare parts, optional equipment and accessories, or when making any claims under warranty.

Model: **Serial No.:** **Construction year:**

Technical Improvements

We are committed to a policy of constant improvement on all our products. We therefore reserve the right to carry out, without prior notice, any improvements or changes which we feel will benefit our products, without any obligation on our part to carry out such improvements or changes to machines which have already been sold.

If you have any questions about these, or any of our products, please do not hesitate to contact us.

With kind regards

RAUCH
Landmaschinenfabrik GmbH

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When the symbol "Attention" appears in the manual it means that the safety of the operator, assistant, bystander, or the normal operation of the machine, could be in danger. It is essential that all safety instructions are observed. It is vitally important to make sure that all users have the opportunity to read and thoroughly understand these instructions.

Correct use

The AXERA H fertilizer spreader is designed to spread dry, prilled and granular fertilizer as well as seeds. Any other use is inappropriate and any defects arising therefrom will invalidate the manufacturer's warranty; any risk associated therewith is borne entirely by the user. Correct use also entails the full compliance with all operating, maintenance and repair instructions issued by the manufacturer.
The spreader should only be used, maintained and repaired by persons who are familiar with the machine and who have received instructions with regard to potential dangers.
All current appropriate accident prevention requirements and all other general recognised safety, technological work-related and road traffic legislation must be observed.
Any warranty claims against the manufacturer for damage resulting from unauthorized alterations to the machine will be ruled invalid

Driving on public roads

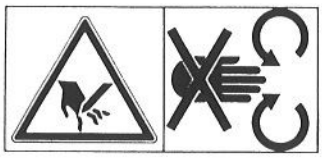
When driving on public roads and paths, ensure that the tractor/spreader combination complies with all relevant road traffic regulations. (Overall permissible weight, overall permissible axle weight, lighting warning signs, guarding, etc.)

Attention: Pay attention to correct front axle weight!

⚠ Accident prevention and safety issues

Most accidents happen because someone ignores the most elementary safety rules during operation, maintenance or transport. It is vital that all persons coming in contact with the machine - the purchaser himself/herself, a member of his/her family, an employee, a bystander - strictly obeys the following main safety rules. Other safety instructions are to be found on the decals placed in various prominent positions on the machine.

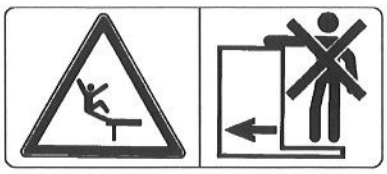
- Observe all safety notes contained in this Operators Manual and all current statutory safety and accident prevention regulations!
- Before every operation, check nuts and bolts and other fixings for tightness, especially those of the spreading discs and spreading vanes. If necessary, tighten to recommended torque settings.
- Before using the machine, operators must familiarize themselves with all parts of the equipment and the function of all controls and adjustments. Finding out during operation may be too late.
- Before every operation, ensure that the tractor spreader combination complies with all relevant road traffic, as well as health and safety regulations.
- When filling the hopper, lower the spreader to the ground and switch off the tractor engine. Remove ignition key before leaving the tractor cab. Make sure shutter controls are closed.
- Before adjusting or undertaking other work such as cleaning, lubricating or carrying out operations on the spreader, disengage the PTO, switch off the tractor engine, wait until all moving parts have come to a stop and remove the ignition key. During control or repair work, make sure no one can switch on the unit by mistake.



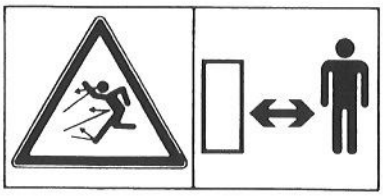
DANGER = Power driven parts !
Never put hands, feet or clothing anywhere near moving parts. Never reach into the hopper - moving parts ! Always avoid wearing loose clothing or clothing with loose parts that are liable to come into contact with moving parts.

- Keep the hopper free of any foreign bodies.
- Before starting the spreader, make sure that nobody is within the danger area around the machine. Make sure you have a good view all round and keep a special watch out for children!
- When outside the area of work the hydraulic valve must be disengaged.

- Only start up the spreader when all safety devices and guards have been properly fitted.
- Never leave the spreader running unattended.



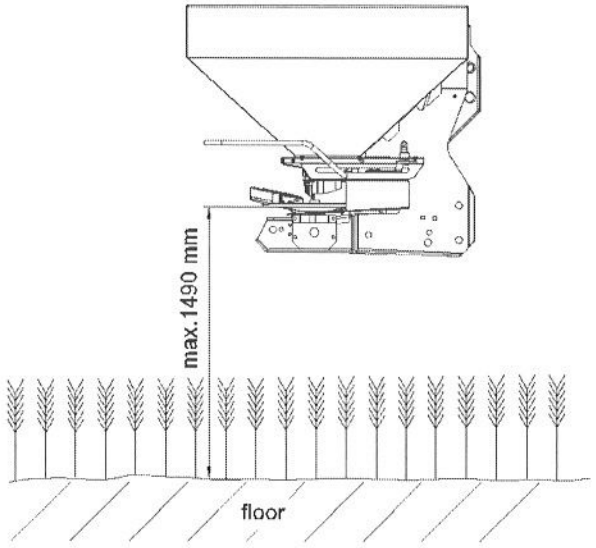
It is illegal and dangerous to carry passengers when using or transporting the spreader.



Attention: ! Danger from revolving discs and fast moving spreading material. **Make sure no one is within the spreading zone** around the spreader **before engaging the spreading discs!**

- Before leaving the tractor seat, lower the spreader on to the ground, switch the tractor off and remove the ignition key.
- Parking the fertilizer spreader **without** being attached to the tractor : only with an **empty** hopper and on firm, level ground.
- Never allow anyone to enter the space between tractor and spreader without first making sure that the tractor is prevented from moving by means of a parking brake and/or wheel chocks.
- It is absolutely forbidden to remain between tractor and fertilizer spreader during operation
- Before attaching or removing the spreader from the tractor 3-point linkage, make sure that the control valve is positioned so that inadvertent lowering or raising of the linkage is impossible.
- It is recommended that the condition of the spreader is checked by a recognised dealer at the end of every season. Especially disc vanes and fixings.
- In the event of a failure during operation, switch off the spreader immediately. Stop engine and remove the ignition key before checking and repairing the damage.
- Ill advised choice or use of fertilizer or other spreading material can cause serious damage to people, animals, plants and the environment. Choose the correct material for your application. Handle with car and carefully follow the manufacturer's instructions.

As protection against unforeseen Interference to the disc, the max. fitting height (distance from hopper floor to disc) is **1490 mm** ! (See diagramm).



Essential safety instructions for the hydraulic system

- Hydraulic circuits contain oil under high pressure.
- Mark all hydraulic connections between tractor and implement at both coupling sockets and plugs in order to avoid incorrect connection.
- Follow correct connecting instructions of hydraulic cylinder and motors. Interchanged hoses could cause the opposite effect to that expected.
- When connecting the hoses to the tractor, ensure that the hydraulic pressure in both tractor and spreader has been relieved.
- Use suitable protection when locating leaks (safety goggles, gloves, etc.) in order to avoid injury. Hydraulic fluid escaping under high pressure can penetrate the skin and cause serious injuries! In case of injury, immediately consult a doctor, as there is serious risk of infection.
- Before working on the hydraulic system, lower the fertilizer spreader on to the ground, relieve the system pressure, switch off the engine and remove the ignition key.
- Prior to coupling or uncoupling fittings, carefully clean all hydraulic connections.
- Regularly check all hydraulic hoses, at least every six months, for mechanical defects (e.g. cuts, abrasions, crushed sections, kinks, tears, leaks, etc.) and immediately replace any defects.
- The useful life of an undamaged hose should be limited to six years, including a possible maximum two-year stocking period.
- Even when carefully stored and correctly used, hoses and hose connections undergo natural aging. Therefore, their stocking and operational periods should not be exceeded.
- Replacement hoses must meet the technical specifications quoted by the spreader manufacturer.

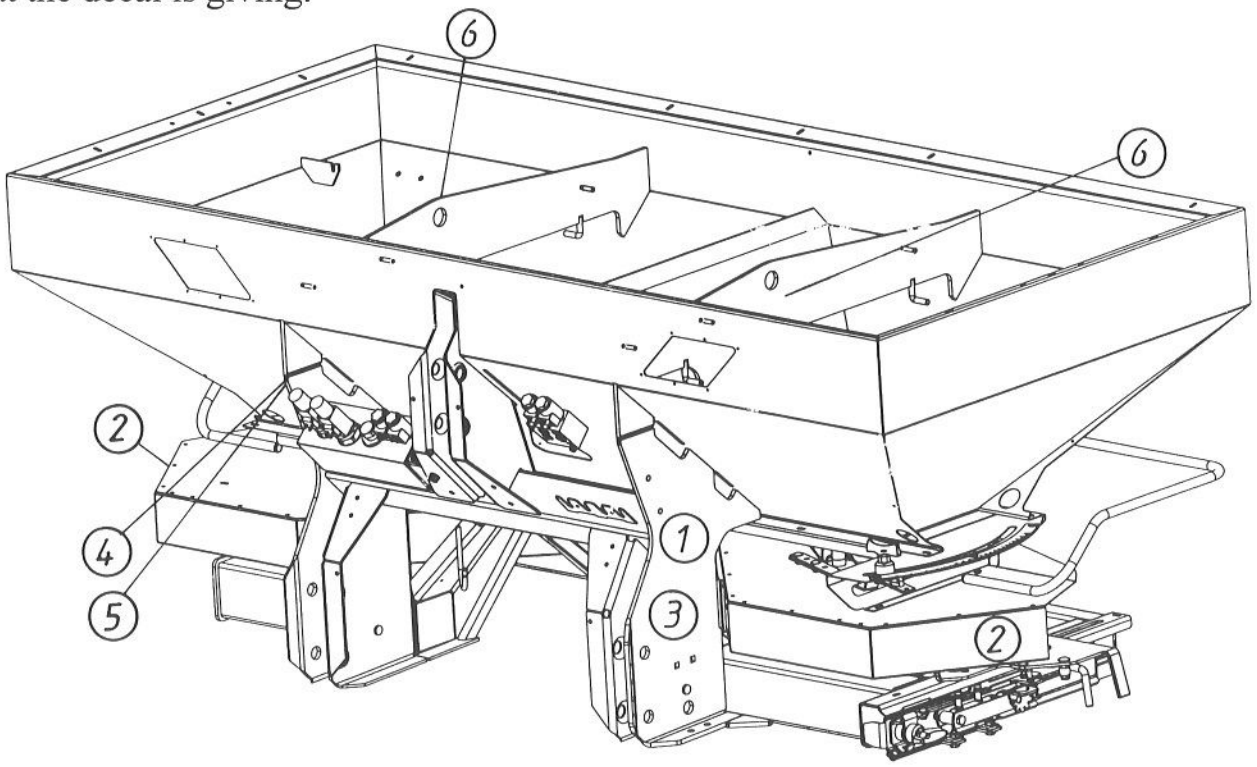
Warning and instruction decals

Warning and instruction decals give important information to operate the fertilizer spreader without danger.

- Replace any decals that are missing or illegible.
- Further decals are available from the spare parts department of your dealer or direct from the factory.
- Before placing new decals on the fertilizer spreader, remove all dust, dirt and grease and thoroughly dry the area where the decal is placed.
- Correct decals must be placed on any replacements fitted to the machine during maintenance or repair work.

Warning and instruction decals on the fertilizer spreader

The fertilizer spreader carries the following warning and instruction decals which give important information for your safety and the safety of others. They also contain information on correct operation. The text by each diagram explains the message that the decal is giving.



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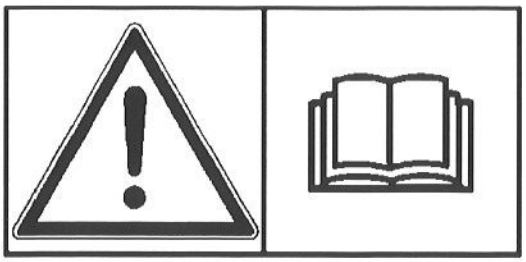
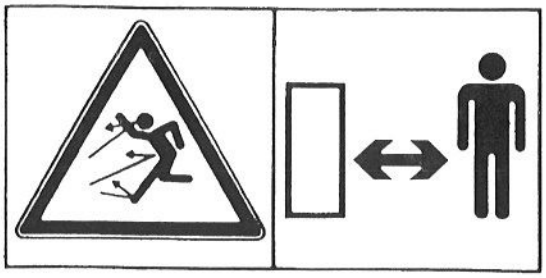


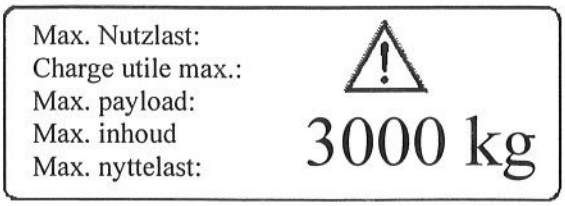
Before starting the machine, read the Operators Manual and safety instructions carefully.

②



Danger from revolving discs and fast moving spreading material. Make sure no one is within the spreading zone before switching on the PTO drive/spreading discs !

③



Maximum payload.

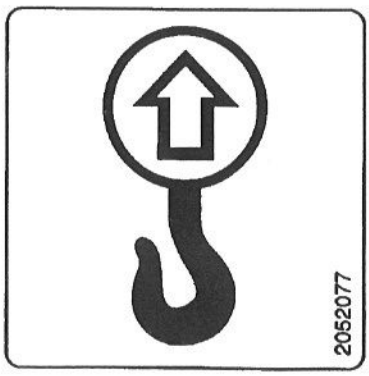
④

Machine No.

(Stamped on frame)

⑤

⑥



(Hooking point when loading e.g. with a crane.)

1. Machine specifications

Manufacturer
RAUCH Landmaschinenfabrik GmbH
Landstraße 14 Postfach 1162
D-76547 Sinzheim **D-76545 Sinzheim**
Tel: ++49 7221 / 985-0 Fax: ++49 7221 / 985-200
Service Centre **Tel: ++49 7221 / 985-250 Fax: ++49 7221 / 985-203**

1.1 Technical specifications AXERA H range

The agitator, disc motors, open/close shutter slides, as well as output point position adjustments on the AXERA H fertilizer spreader are hydraulically controlled. These hydraulic components are operated by the C1 control unit.

Technical Specifications		**AXERA H**
Capacity	approx. l	1100
Payload	max. kg	3000
Filling height	approx. cm	99
Filling width	approx. cm	240
Total width	approx. cm	250
Weight	approx. kg	430
Working width	m	12 - 36 m depending on fertilizer type and vanes
Noise level	70 db (A) (Depending on fertilizer type and application rate)	

1.2 Taking delivery of the fertilizer spreader

When the fertilizer spreader is delivered, please check that it is complete.

The following items are included as standard equipment:

- ☑ Calibration kit (slide rule calculator)
- ☑ C1 control unit
- ☑ Top and bottom 3-point linkage pins
- ☑ Set of spreading discs (according to choice)
- ☑ PTO shaft (including PTO instruction book)

Also carefully check all ordered optional equipment.

Attention : Check all nuts and bolts and other fixings for tightness, especially those of the spreading discs and spreading vanes.
Right-hand disc (R) and left-hand disc (L) must be correctly mounted on their respective sides when viewing the machine in direction of travel.
Discs and vanes are indicated with (R) or (L).

Claims can only be accepted if notified at time of delivery. Ask the haulier to acknowledge any transport damage. In case of doubt, contact your dealer or the factory direct.

2. Preparation of the fertilizer spreader

Take special care when attaching/detaching the fertilizer spreader to/from the tractor.

2.1 Attaching to the tractor

The fertilizer spreader AXERA H can be attached to Cat.II tractor linkages. Attachment to Cat.III tractor linkages is only possible using Cat.II geometry and placing reduction sleeves over upper and lower linkage pins. A second lower link connection is provided as standard and allows a higher attachment height to the tractor of approx. 140mm. The upper and lower pins must be secured in place with the linchpins attached to the spreader.

For correct horizontal spreading of fertilizer, the fertilizer spreader must be attached as per dimensions given in the spreading charts.

Pay attention that the spreader is mounted at right angles to the direction of travel, is perfectly horizontal and that the 3-point frame is correctly restrained from sideways movement to avoid the unit swinging from side to side during operation.

Important: If the lower link pins are in the upper connection point then the top link pin must also be placed in its upper connection point, to avoid poor load distribution between upper and lower links.

2.2 Parking the fertilizer spreader

The spreader can be parked on the frame, support rollers or parking stand (support rollers & parking stand are optional equipment).

When parking the spreader pay attention to the following :

- When operating the external tractor 3-point lift control lever, do not stand between the tractor and the spreader.
- Before uncoupling the spreader from the tractor make sure that all weight from the upper and lower linkage coupling points is relieved.
- Only park the spreader when the hopper is empty and on a firm level surface.
- After disconnecting hydraulic hoses from the tractor, place them in the holders provided on the spreader.

2.3 Hydraulic drive attachment

The AXERA H fertilizer spreader agitator and discs are powered by a hydraulic motor using the tractor hydraulic system. The tractor hydraulic system should not exceed a pressure of more than 200 bar and be equipped with a 25 µm filtration system. If a filter unit of between 20 µm ≥ 75 is not available, a filter kit can be obtained from RAUCH. The tractor hydraulic system should deliver at least 45 l/min at 140 bar.

Make sure oil filters are in good order and functioning correctly. Respect the maximum filter replacement period, even better, **change more frequently**. After disconnecting the fertilizer spreader from the tractor, place the hydraulic hoses in the holders provided on the spreader. Only connect clean hose connections together. To correctly power the spreader, the tractor must be equipped with a double acting control valve (lockable) and a **free oil return**.

Note: The control valve of the tractor must be fully opened and locked. Due to pressure peaks, some valves tend to partially close, which leads to unintended oil delivery reduction and overheating.

For pressure free oil return, a complete connector screw is supplied. The connection muff must be mounted nearest to the tractor.

Note: We must specifically stress that the special connector screw **must** be used on the oil return to assure a pressure free tank connection. Make sure the connector screw connection is completely screwed home each time the system is connected up.

After disconnecting the fertilizer spreader from the tractor, the dust caps should be refitted on to the hydraulic connections and, to avoid dirt contamination, the hydraulic hoses must be placed in the holders provided on the spreader.

Important: Before every operation, check to ensure that both "open/close" shutter slides fully open and close.

2.4 C1 electronic control unit attachment

General

The C1 electronic control unit regulates the disc speed, monitors the rpm , adjusts the output point position when the unit is changed to the boundary spreading mode and operates the open/close shutter slide. The C1 control has the capability of altering the individual speed of left- and right-hand discs should it be necessary, for example, when boundary spreading. The C1 can operate the open/close shutter slides individually.

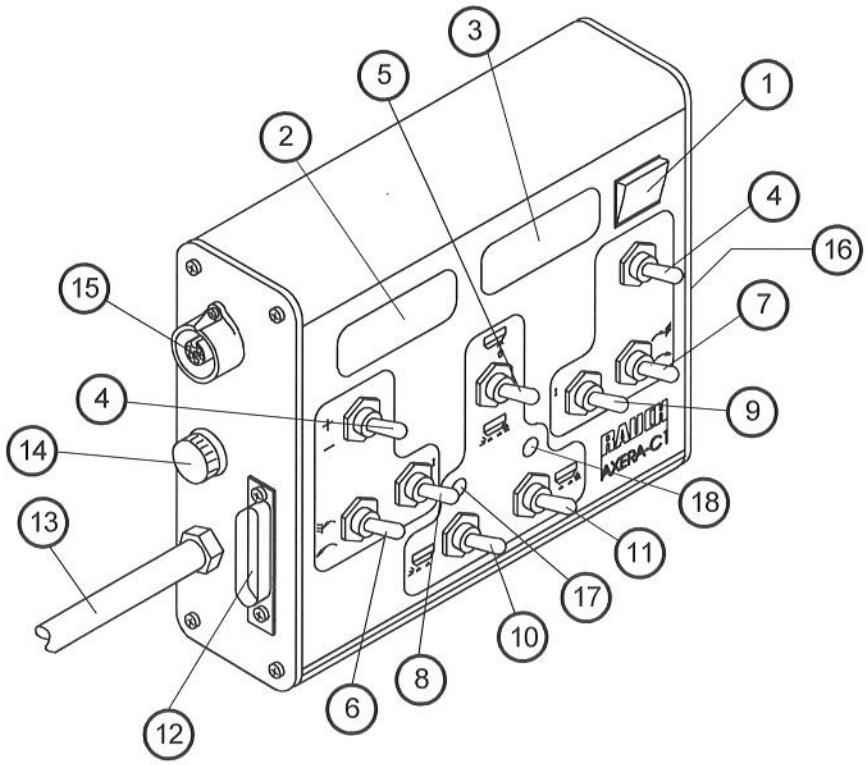
Current supply to the C1 electronic control unit requires a 3-pole socket DIN 9680 on the tractor. Power supply must be 12 volt and the system protected by a 20 amp fuse.

The C1 electronic control unit kit consists of :

- a control box complete with holder for in-cab attachment.
- a cable with 12-pole plug connection.

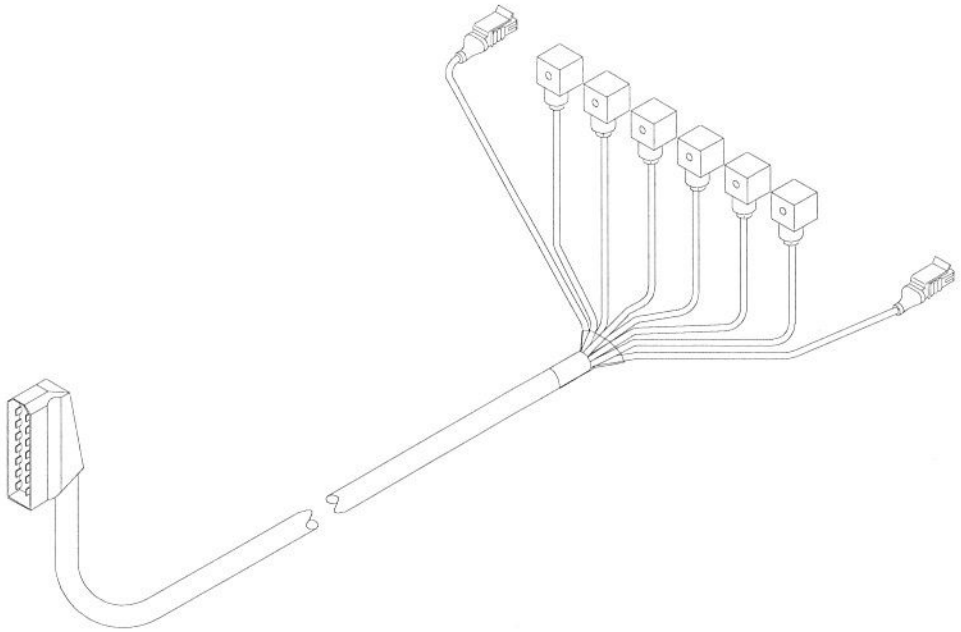
1. C1 control unit plug DIN 9680 (wiring plan)

Pin 15/30	brown & yellow/green	+ 12 volt
Pin 31	blue	earth
Pin 82	not used	



- Connect the power supply cable 13 to the corresponding 3-pole socket on the tractor. If a 3-pole socket is not available, then connect directly to the tractor battery using a 2 x 2.5 mm² cable.
- Connect the implement cable to the connecting socket 16.
- Connect the Quantron L, as well as the forward speed indicator, to their corresponding sockets, 12 and 15. (Only for spreaders fitted with optional extra Quantron L.)

2. C1 Control unit implement cable (wiring plan)



Implement cable	Cable colour	Sensor plug Disc plug		Function
		Colour	PIN	
b0	blue	white	2	Impluse sensor (left disc)
b1	red/blue	yellow	1	Partial width (left)
b2	brown/green	grey	2	Proportional valve (left)
b3	grey/brown	brown	1	Boundary (left)
b4	white/yellow	white	3	Impulse sensor (left disc)
b5	not used			
b6	not used			
b7	not used			
b8	brown & green & white	yellow green red	2 1 2	Partial width (left) Proportional valve (right) Partial width (right)
b9	pink & red	blue white	1 1	Impulse sensor (right disc) Impulse sensor (left disc)
a0	yellow/brown	blue	2	Impulse sensor (right disc)
a1	grey/pink	red	1	Partial width (right)
a2	white/green	green	2	Proportional valve (right)
a3	black	black	1	Boundary (right)
a4	grey	blue	3	Impulse sensor (right disc)
a5	not used			
a6	not used			
a7	not used			
a8	not used			
a9	white/grey & violet & yellow	brown black grey	2 2 1	Boundary (left) Boundary (right) Proportional valve (left)

2.5 Fitting and removing the spreading discs

Depending on the fertilizer type and working width, different spreading discs can be used. Spreading disc type is listed in the spreading charts. To simplify changing the spreading discs it is recommended to slide the movable gearbox to the rear and lock in place (see Photo 1). Using a screwdriver or ∅ 8 mm round bar, loosen the synthetic disc hub nuts (Photo 1, No. 1) and remove spreading discs.

Only fit and remove spreading discs when the PTO and tractor engine are switched off and the ignition key has been removed.
Spreading discs are fast moving parts, therefore carry out any work with great care and attention.
Replace any defective synthetic disc hub nuts (threads, splits, fractures) immediately.

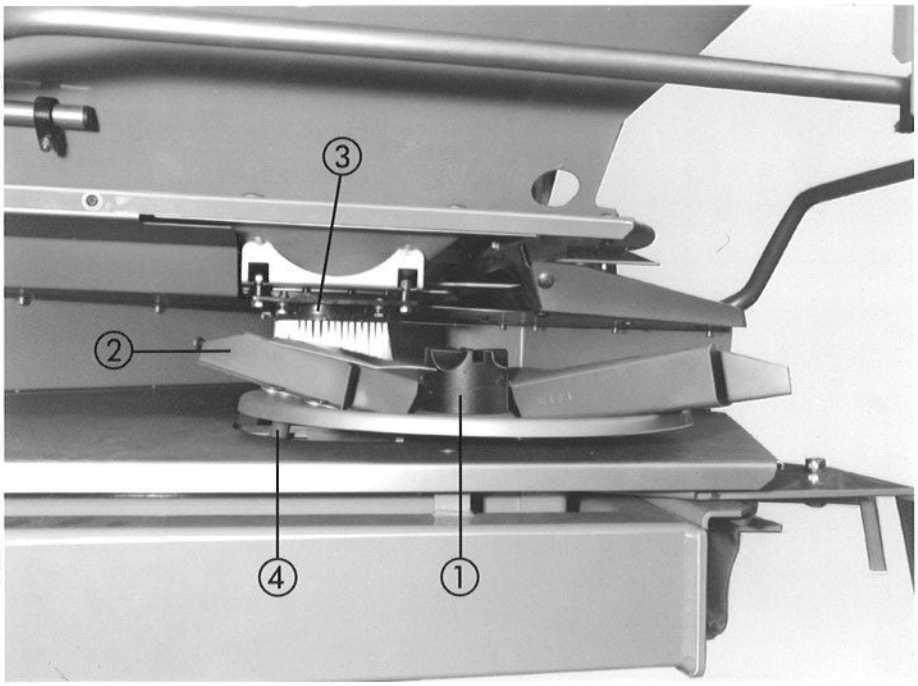


Photo 1

Note: When fitting the spreading discs on to the disc hub, make sure not to invert the right-hand spreading disc (R) with the left-hand spreading disc (L)!
The right-hand disc (R) and left-hand disc (L) must be placed carefully over their corresponding drive hubs when viewing in the direction of travel.
Centre the spreading disc on to the disc hub, making sure it is lying correctly.
Discs and vanes are indicated with (R) or (L).

- Make sure the synthetic disc hub nuts are correctly fitted (not cross-threaded) (Photo 2; No.1).
- Tighten the synthetic disc hub nuts (Photo 2; No.1) by hand.
- **Slide back the hydraulic motor console into its pre-determined spreading position.**
- Turn the spreading discs by hand to make sure discs and vanes (Photo 2; No.2) turn freely without fouling either metering output tract (Photo 2; No.3) or induction sensor (Photo 2; No.4).

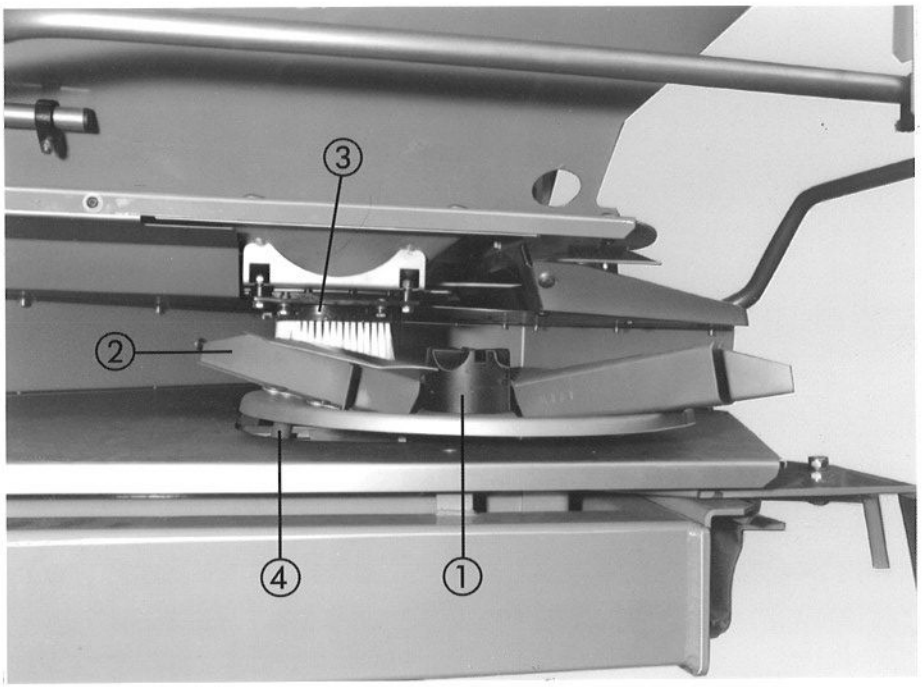


Photo 2

Important: After the first hour of operation, check that the synthetic disc hub nuts (Photo 2; No.1) are firmly seated. On spreaders equipped with **D2 discs,** the protection guards (Photo 2a, No.1) must be mounted 50mm outwardly offset, on both spreading sides.

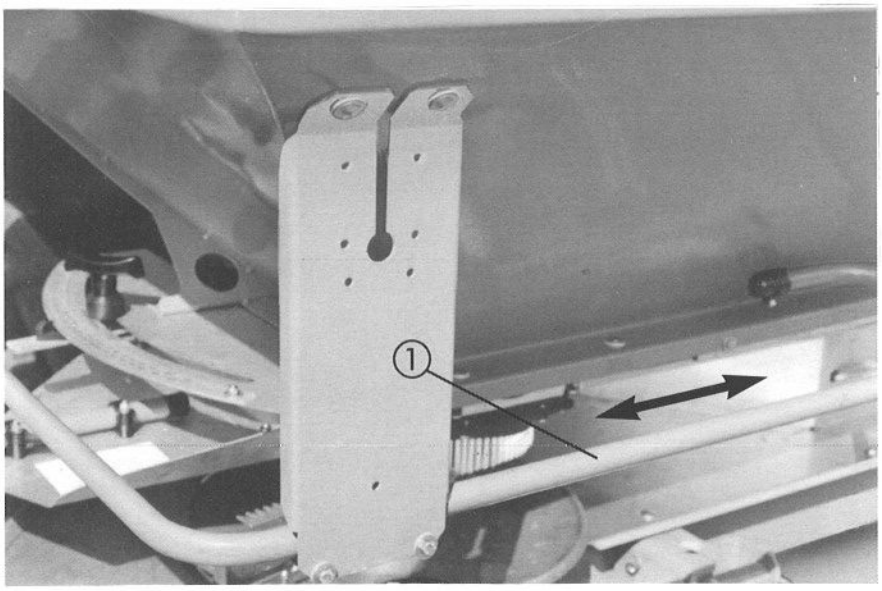
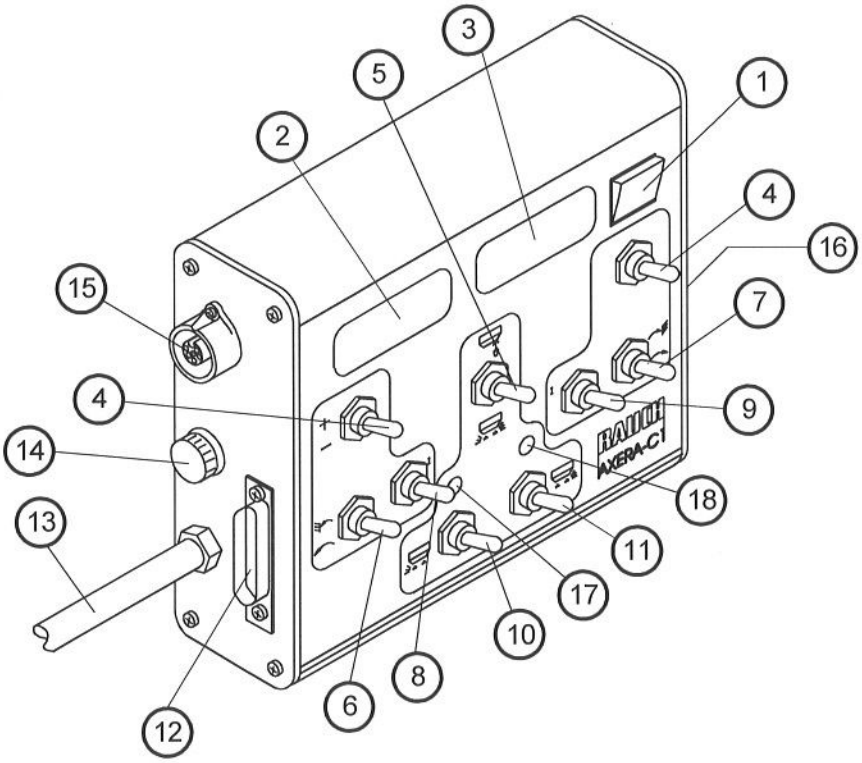


Photo 2a

2.6 Checking/adjusting the tractor hydraulic system

When working with the spreader raised on the hydraulic linkage, make sure that it safely rests on support blocks. **(Accident danger!)**
Make sure that all fasteners, especially those of the spreading discs and disc vanes, are securely locked and seated.

- Couple the fertilizer spreader to the tractor.
- Disengage the hydraulic system by placing the control valve in its neutral position.
- Securely connect the hydraulic hoses P/R/FR in their relative positions.
- Mount the C1 control unit to the tractor.



- Place main switch 1 in "O", off position.
- Connect the power supply cable 13 to the corresponding 3-pole socket on the tractor.
- Connect the implement cable to the connecting socket 16.
- Place operation mode switch 5 into its lower position.
- Place spreading mode switches 6 and 7 into their lower positions for normal spreading.
- The proportional control valve protection caps (see Photo 2b, No.1) on the hydraulic control console must be removed and the hand wheel valves completely opened (turn hand wheel valves towards the left until they reach their stops).
- Main switch 1 in "on" position.
- Engage hydraulic system.

The agitator and spreading discs will immediately start to revolve.
Danger of injury !

- Bring the tractor engine to operational speed.
- Both spreading disc speed indicators must show at least 1300 revs/min.
- **With tractors equipped with constant flow pumps**, reduce tractor engine revs until the speed of the right spreading disc starts to fall.
- **With tractors equipped with adjustable flow pumps**, select the desired tractor engine speed and reduce oil flow on the tractor valve until the speed of the right spreading disc starts to fall.
- At this speed and valve position**, oil supply is adequate**.
- Now bring the operation mode switch 5 into its upper position, disengage the hydraulic system and completely close both proportional control valves (turn towards the right until reaching stop). When these tractor adjustments are achieved, the correct disc speed in revs/min., as given in the spreading charts, can be set using the C1 control unit.
- A reduction valve is necessary on tractors using constant pressure hydraulic systems (i.e. John Deere, Case, Ford). Contact your tractor dealer or the RAUCH service department.

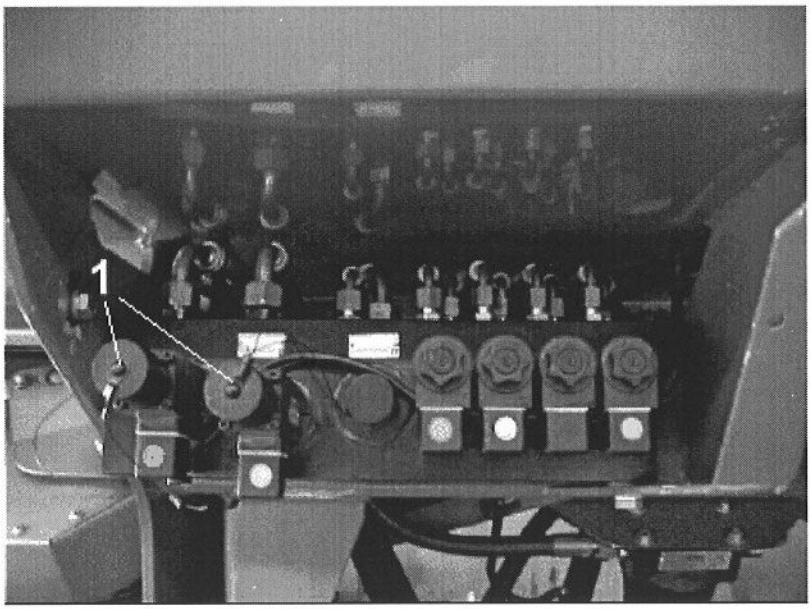


Photo 2b

3. Adjusting the spreader

3.1 Spreading charts

Values provided in the spreading charts are derived from practical tests in the manufacturer's purpose built fertilizer spreader research centre. Settings are obtained using fertilizer in perfect condition from each respective manufacturer.

Note: The mounting height is always measured from the **top of the crop** to the lower edge of the frame.

Mount the fertilizer spreader on to the tractor in accordance with the instructions and measurements given in the spreading charts.

We would particularly emphasize that physical characteristics of fertilizers can vary, even within the same type and brand, due to differences in size of granules, density, surface texture, specific weight and quality of granules, etc.

These variations can influence spreading characteristics quite markedly, which results in differences in the fertilizer application rates as well as changes in spread patterns predicted in the spreading charts, therefore, making it necessary to recalibrate the fertilizer spreader.

The data provided in the spreading charts can only be used as a guideline. To ensure greater accuracy, the unit should be recalibrated for application rate and spread pattern every time fertilizer is changed, even when using different bags of the same fertilizer.

We suggest the use of only quality fertilizer from well-known suppliers, preferably those fertilizers listed in the spreading charts. If you need to use fertilizers not listed, please contact us.

Note: Spreading of Urea: This highly concentrated nitrogen fertilizer has a wide variation of quality and particle sizes, due to the great number of importers handling this product. It is therefore essential to recalibrate the unit every time this fertilizer is used. Also note that Urea is very susceptible to wind variations.

Pay special attention when setting the spreader. Even a very small error in setting can result in a large change in spreading pattern.
We must stress that no liability can be accepted for consequential losses or damages due to spreading errors.

Before adjusting, lubricating, cleaning or carrying out any operation on the machine, disengage PTO drive, switch off the tractor engine, wait until all moving parts have come to a stop and remove the ignition key before leaving the tractor.

3.2 Setting the application rate

There are two shutter slides per hopper outlet. The open/close shutter slides (Photo 3, No.5) only move hydraulically to a fully opened or a fully closed position.

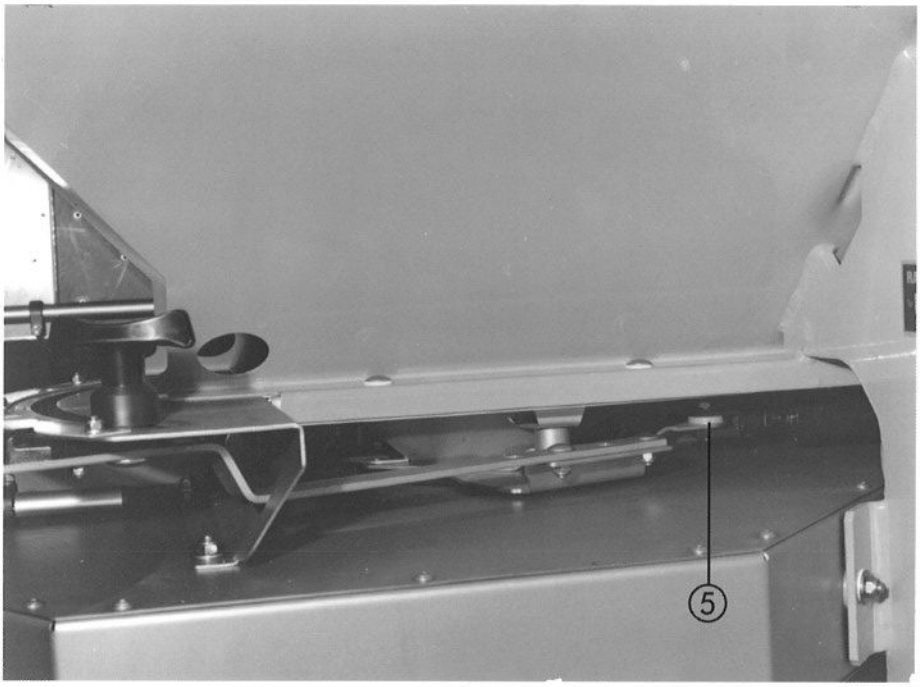


Photo 3

The hand operated metering slides (Photo 4, No.6) control the application rate with the aid of a fine graded flow rate quandrant (Photo 4, No.7) and indicator (Photo 4, No.8). When the application rate is selected in accordance with the spreading charts/calibration test, position the metering slides (Photo 4, No.6) in the same place on both sides by firmly locking the handlock nut (Photo 4, No.9) in place.

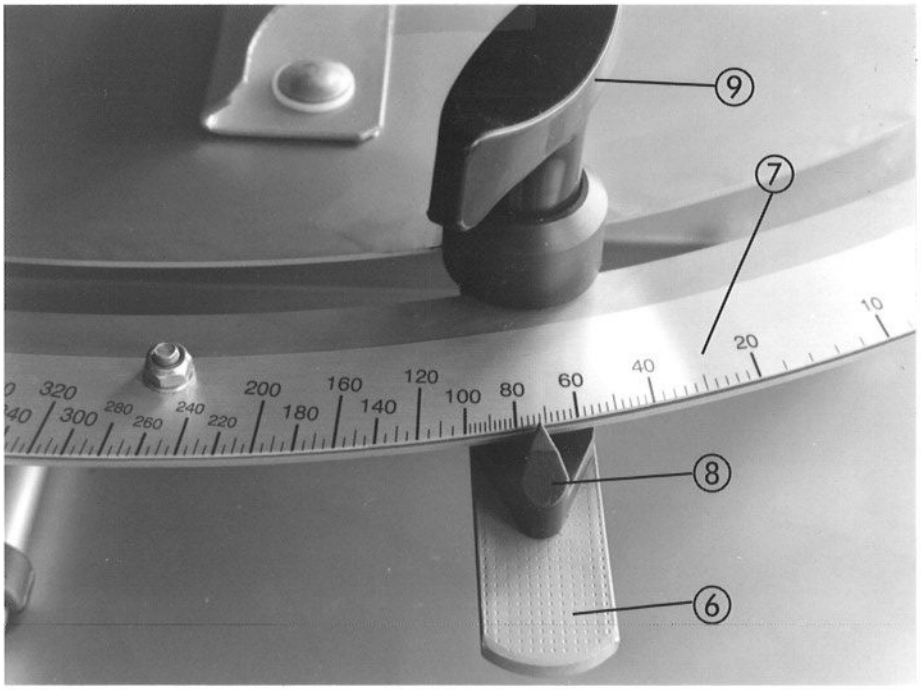


Photo 4

3.3 Adjusting the fertilizer output point

The point at which the fertilizer drops on to the discs, **the output point,** is adjusted by using the scales (Photo 5, No.10) on both sides of the spreader and the handlock nuts (Photo 5, No.9). Photo 5 shows the output point adjusted to position 7. Altering the output point determines the working width and allows adaptability to various fertilizers. Adjusting in the direction of **smaller** numbers causes early ejection of fertilizer, thereby directing more material directly behind the spreader, producing a corresponding spread pattern for **smaller working widths**. Adjusting in the direction of **bigger** numbers causes later ejection of fertilizer, thereby directing material outwards into the overlap zones, producing a corresponding spread pattern for **larger working widths**.

- Release the serated screw (Photo 5; No. 1) until the ratchet (Photo 5; No.2) disengages from its rack.
- Position the slide (Photo 5; No.3) on to the desired output point position according to the spreading charts.
- Lock the slide into place (Photo 5; No.3) using the serrated screw (Photo 5; No.1) and ratchet (Photo 5; No.2).

Important: In a new condition, the surface of the throwing vanes is not totally smooth. For this reason it is recommended that during the first hopper load the output point is moved an extra 0.5 towards the **smaller numbers** (e.g. from OP8 to 0P7.5). After the first load has been used up in both hoppers, the output point should be readjusted back to the position indicated in the spreading charts, or that obtained during calibration checks.

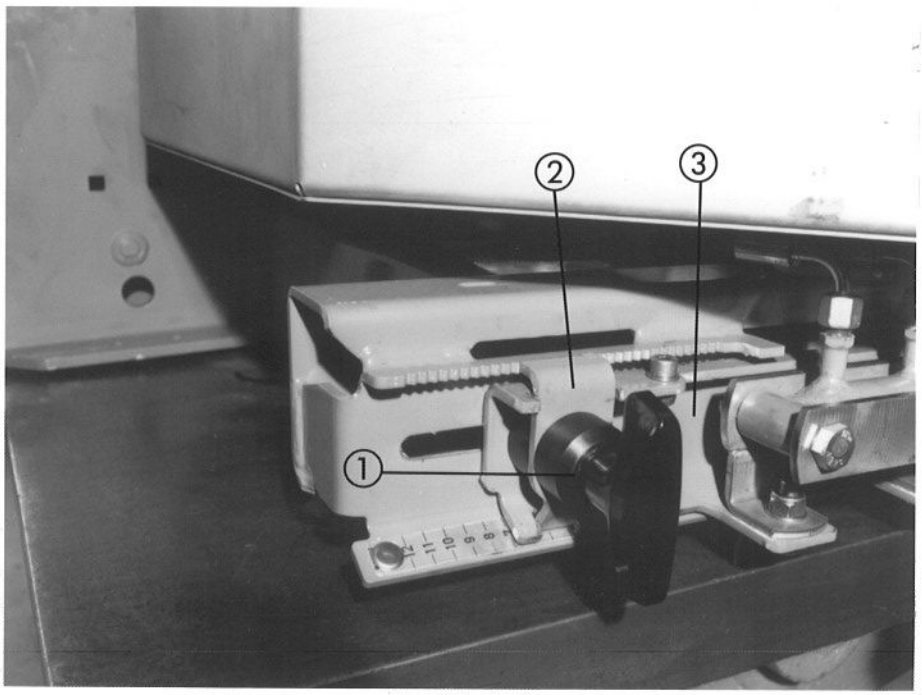


Photo 5

3.3.1 Hydraulically adjusting output point for boundary spreading

With the aid of the hydraulic adjusting output point positioning system a second pre-determined output point can be selected on-the-move from the tractor. Pre-positioning is carried out as follows:

- Determine the cam disc position (Photo 6; No. 4) from the spreading charts and adjust both spreader sides accordingly. Photo 6 shows the cam shaft in position C.

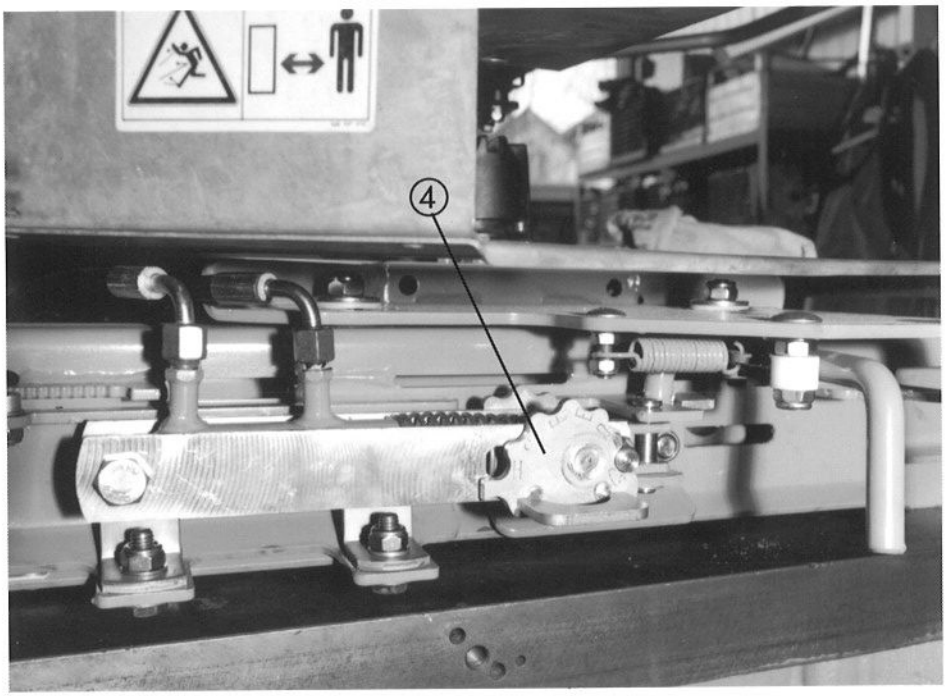
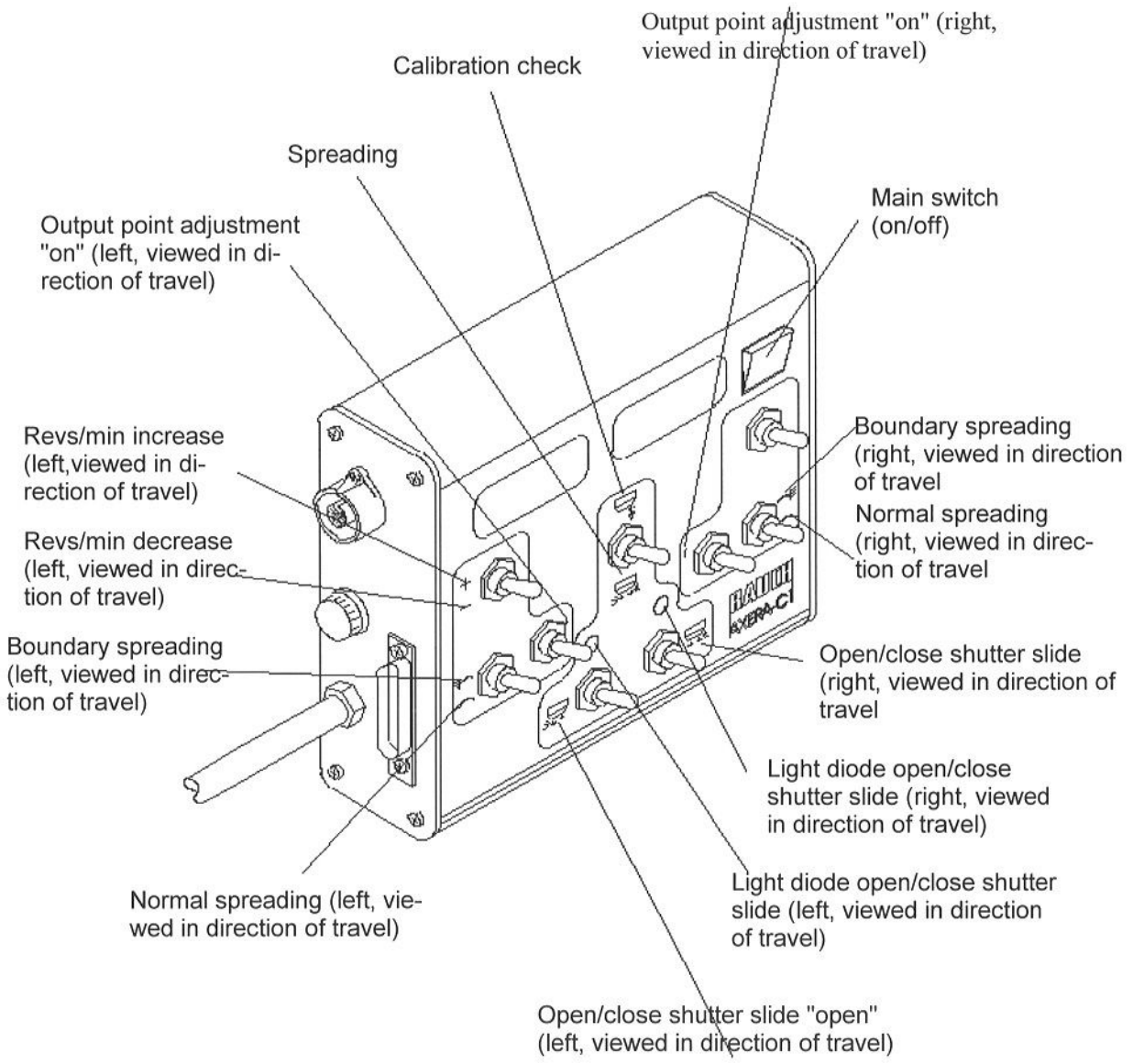


Photo 6

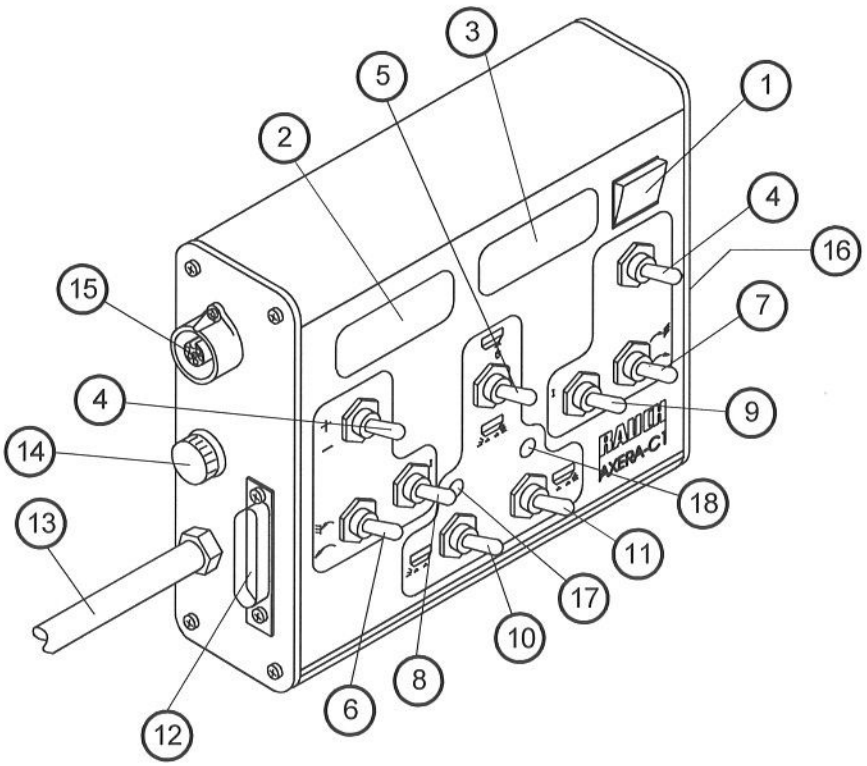
3.4. Function explanation of the C1 electronic remote control



3.5 Spreading - normal spreading - boundary spreading

When working with the spreader raised on the tractor hydraulic linkage, make sure that it safely rests on support blocks **(Accident danger !)**

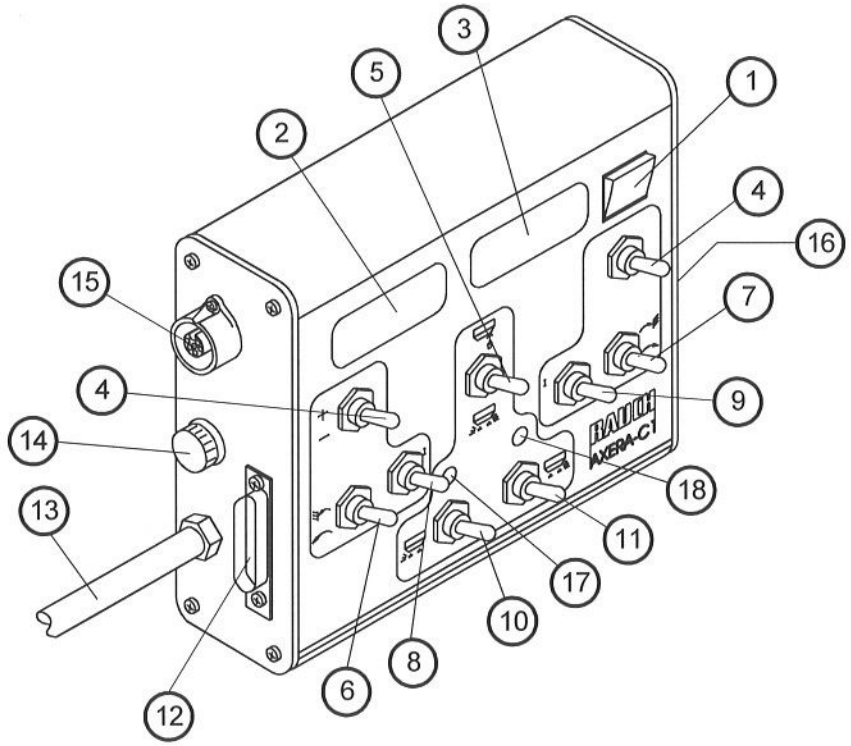
- Couple the fertilizer spreader to the tractor.
- Disengage the hydraulic system by placing the control valve in its neutral position.
- Securely connect the hydraulic hoses P/R/FR in their relative positions.
- Mount the C1 control unit to the tractor.
- Place the main switch 1 in the "O", off position.
- **Place the operation mode switch 5 into its upper position**.
- Connect the power supply cable 13 to the corresponding 3-pole socket on the tractor. If a 3-pole socket is not available then connect directly to the tractor battery using a 2x2.5mm² cable.
- Connect the implement cable to the connecting socket 16.
- Connect the Quantron L, as well as the forward speed indicator, to their corresponding sockets 12 and 15 (only for spreaders fitted with optional extra Quantron L).



- Place the spreading mode switches 6 **and** 7 into their lower positions for normal spreading.
- Place the output point adjustment switches 8 **and** 9 into their lower positions for normal spreading.
- Place the open/close shutter slide switches 10 **and** 11 into their upper positions (light diodes 17 **and** 18 will glow red) and engage the hydraulic system.

The open/close shutter slides will close and the agitator immediately start to revolve. **Danger of injury** !

- For safety reasons, the hydraulic system must be disengaged by placing the hydraulic control valve into its neutral position, as soon as the open/close shutter slides are closed.
- Obtain the correct setting data from the spreading charts for the fertilizer that is being spread.
- Adjust the application rate using the metering slide (0-720) as well as adjust the output point (0-12), according to the adjustment data in the spreading charts.
- Adjust output point for boundary spreading in accordance with spreading charts (C-H).



- Fill the hopper with fertilizer.
- Engage hydraulic system to begin spreading.

The agitator will immediately begin to revolve. **Danger of injury** !

- Switch on main switch 1
- **Place the operation mode switch 5 into its lower position.**
- The spreading discs begin to turn. The display panels will show the mean spreading speed last used by each disc in normal spreading.
- The mean spreading speed of both discs for normal spreading can now be adjusted using one of the switches 4.
- After a short period the discs will achieve this pre-selected speed.
- Place switches 6 **and** 7 in their upper position to adjust the boundary spreading speed.
- The spreading discs will revolve at the mean boundary spreading speed last used.

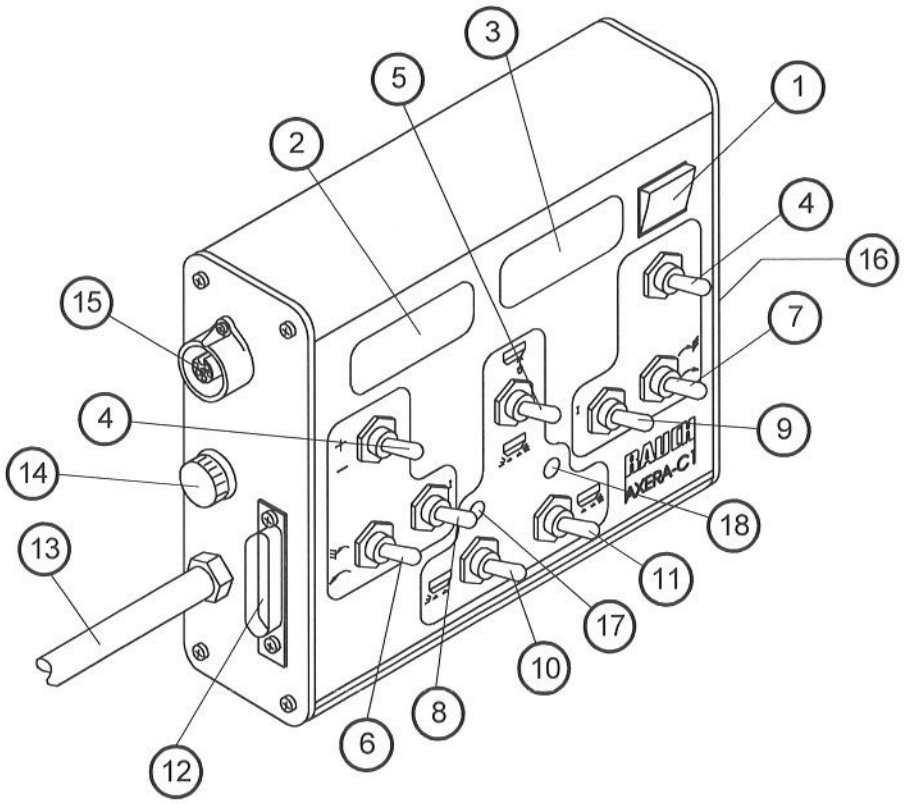
Note: If any unprogrammed changes in disc speeds are noticed, the following causes are possible :
- The tractor hydraulic system has not yet achieved its full operating temperature.
- Discs are not loaded, disc speed will stabilize when spreading fertilizer.

- The mean boundary spreading speed for both right- and left-hand sides can be adjusted using both switches 4.
- After a short period the spreading discs will achieve this pre-selected speed.
- The fertilizer spreader is now pre-set for both normal spreading and boundary spreading operations.

Switch positions :

Normal spreading	**Boundary spreading left**	**Boundary spreading right**
Switches 6, 7, 8 and 9 in their lower position	Switches 6 & 8 in upper pos. Switches 7 & 9 in lower pos.	Switches 7 & 9 in upper pos. Switches 6 & 8 in lower pos.

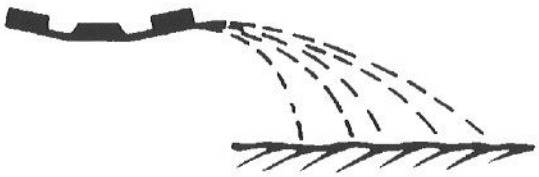
- To spread, the open/close shutter switches 10 **and** 11 must be placed in their lower positions, to open the shutters (light diodes 17 **and** 18 will glow green when shutters are open).
- To stop the spreading discs, place the operation mode switch 5 into its upper position.
- Switch off main switch 1.
- Disengage hydraulic system by placing the control valve in its neutral position.



3.6 Adjustment as per spreading charts (normal spreading/ boundary spreading during normal dressing)

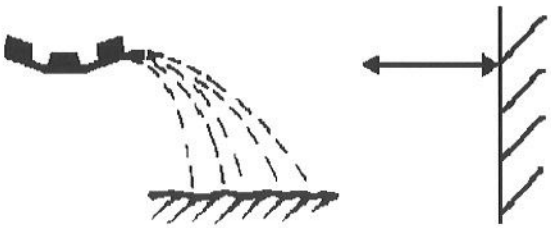
Output point, mounting height and disc speed must be adjusted as per the spreading charts according to the fertilizer used, desired working widths and the type of spreading operation to be adopted. It is advisable to pre-prepare the unit in its boundary spreading mode at the same time as setting-up the normal spreading mode to allow the C1 control unit to change from normal spreading to boundary spreading mode at any time. (See section 3.3.1 hydraulically adjusting output point for boundary spreading.)

Normal spreading



Example.: from spreading charts
Chosen fertilizer type : e.g. NPK EG-Ware
Desired application rate: 511 kg/ha
Desired working width: 20 m
Desired forward speed.: 10 km/h
The spreader must be adjusted to the following settings:
Disc type: D4 H VXR
PTO speed: 800 rpm
Mounting height: 50/50 [cm] measured from top of standing crop.
Output point: 6.5 (left and right)
Metering slide position: 300

Boundary spreading during normal spreading

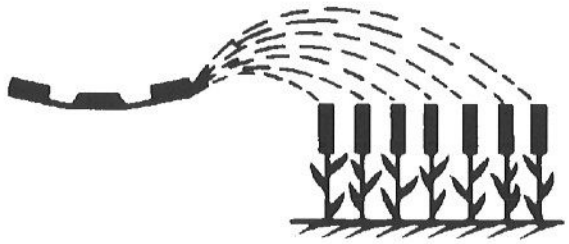


Example: From spreading charts
Chosen fertilizer type : e.g NPK EG-Ware
Desired application rate: 511 kg/ha
Desired working width: 20 m
Desired Forward speed.: 10 km/h
The spreader must be adjusted to the following settings:
Disc type: D4 H VXR
Disc speed on the boundary spreading side: 400 rpm
Disc speed on the opposite side: 800 rpm
Mounting height: 50/50 [cm] measured from top of standing crop.
Output point: 8.5 (left and right).
Cam disc position: = E
Metering slide position: 300

3.7 Adjustment as per spreading charts (late top dressing / boundary spreading during late top dressing)

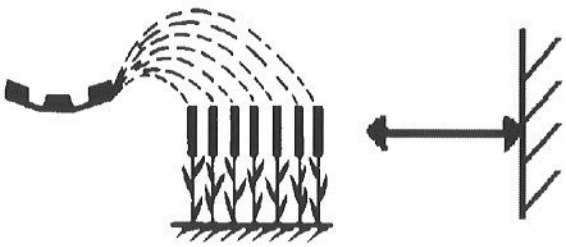
It is advisable to pre-prepare the unit in its **"boundary spreading during late top dressing mode"** at the same time as setting up the **"late top dressing mode",** to allow the C1 remote control to change from **"late top dressing"** to **"boundary spreading during late top dressing mode"** at any time (see section 3.3.1 hydraulically adjusting output point for boundary spreading).

Late top dressing



Example.:
Choose fertilizer type :
Desired working width: 16 m
Desired application rate: 310 kg/ha
Desired forward speed.: 10 km/h
The spreader must be adjusted to the following settings:
Disc type: D4 H VXR
Disc speed: 800 rpm
Mounting height: 0/6 [cm] measured from top of standing crop.
Output point: 6.5 (left and right)
Metering slide position: 120

Boundary spreading during late top dressing

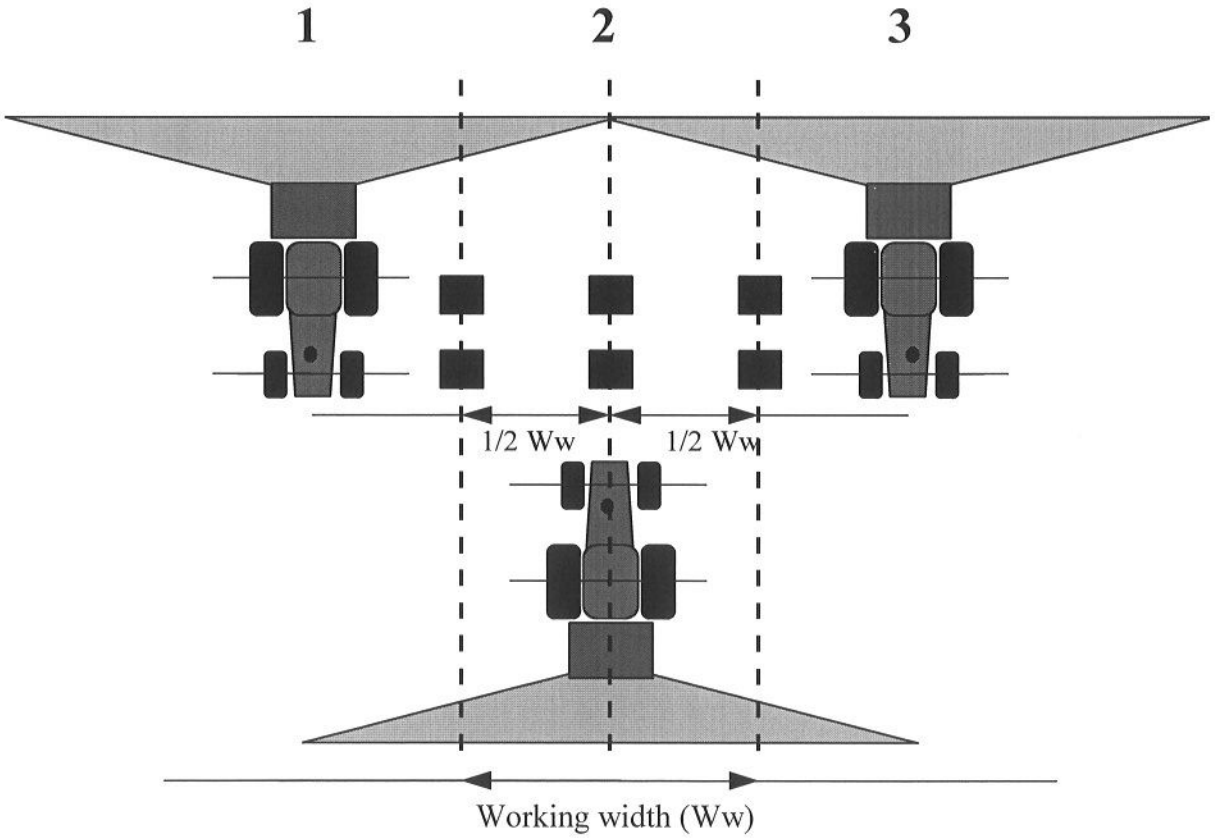


Example:
Choose fertilizer type :
Desired application rate: 310 kg/ha
Desired working width: 16m
Desired forward speed.: 10 km/h
The spreader must be adjusted to the following settings:
Disc type: D4 H VXR
Disc speed on the boundary spreading side: 300 rpm
Disc speed on the opposite side: 800 rpm
Mounting height: 50/50 [cm] measured from top of standing crop.
Output point: 6.5 (left and right).
Cam disc position: = C
Metering slide position: 120

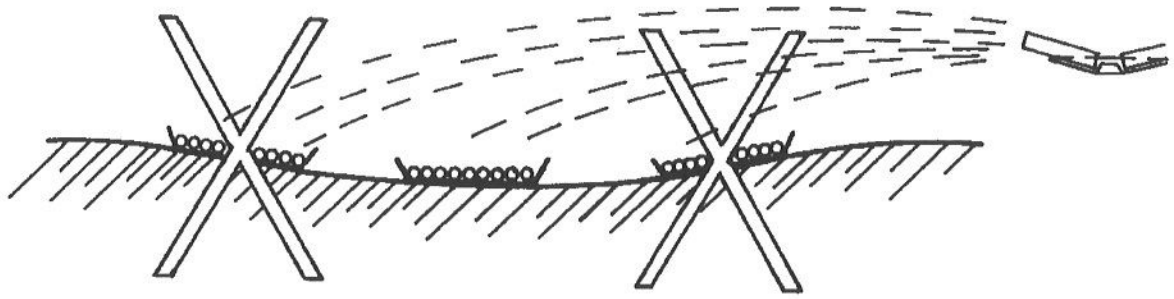
3.8 Setting disc vanes for fertilizers not listed in spreading charts

A practical test kit, supplied as an optional extra, offers a simple and quick method of checking the spread patterns. By using this kit it is possible to obtain settings for fertilizers not listed in the spreading charts.

- Choose a fertilizer from the spreading charts that has the nearest characteristics to the one that needs to be used and adjust the spreader to these settings.
- Test on a dry calm day so that weather conditions do not influence the results.
- A test area should be chosen which is horizontal in both directions and is large enough to achieve 3 tramlines over a length of 60 to 70 m.
- Carry out the test, either on freshly mown grass or in a field with low vegetation (max. 10cm), and make sure that the 3 tramlines run parallel to each other. When carrying out a test without pre-set tramlines the tracks must be measured using a tape measure and marked with suitable post markers.
- The three tracks must not contain any notable bumps or hollows as these could cause a shift in the spread pattern.
- Place two collecting containers one behind the other (1m apart) as per the following sketch. One pair in each overlap zone and one pair in the centre of the middle tramline.



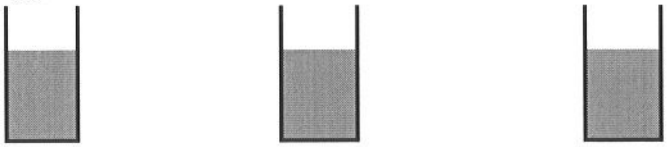
- Make sure individual containers are level. Containers set at an angle can lead to measuring errors.



- Set the spreader at the same height on the left- and right-hand side in accordance with the information in the spreading charts, paying attention that the mounting height is taken from the top edge of the collecting containers.
- Before testing, check the functioning and condition of the spreading elements (discs, vanes, metering slides).
- Carry out a calibration check (see under "calibration check"). Adjust the left- and right-hand metering slides according to results obtained, and lock in place. Undertake test using this given aperture setting.
  If it is felt that the fertilizer collected in the trays is not enough for a clear analysis merely travel over the trays twice. Do not change metering slide aperture setting.
- Select only a tractor speed between 3 and 4 km/h so as to keep tractor and spreader as steady as possible. Keep the metering slides to the same setting. It is irrelevant to the test that the actual application rate is higher, as this is only a result of the slower tractor speed for test purposes. Keep speed of tractor constant throughout the test.
- Spread along the tramlines one to three, one after the other. Open the open/close shutter slides approx. 10m before reaching the collection containers and close approx. 30m after passing them. If collected volume is insufficient, repeat all three passes.
- Pool the contents of each pair of containers and pour into the respective measuring tubes i.e. left-hand pair in left-hand tube, middle pair in middle tube, right-hand pair in right-hand tube. The evenness of spread pattern can now be judged from the level in each tube.

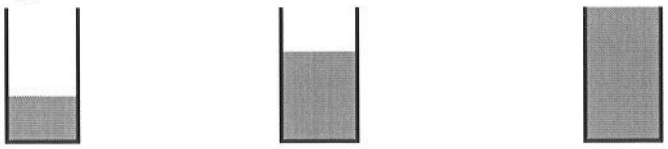
Following results are possible:

A



Same quantity in all three tubes
(allowed tolerance ±1 mark)
The spread pattern is acceptable.

B

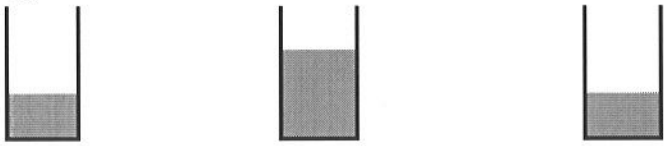


Lop-sided spread pattern.
Unacceptable.

C

Too much fertilizer in the overlap zone.
Unacceptable.

D



Too little fertilizer in the overlap zone.
Unacceptable.

Hints for correcting the spread pattern

If results are obtained as shown in **example B**, check that both right- and left-hand metering slides open exactly equally. Check that the output points on each disc are set exactly equally. Check that the spreader is set exactly horizontally. Check that the tramline widths are equally spaced and parallel, even a slight error with one tramline being closer to another will cause a poor result. Has there been a cross wind during the test run ?

If the results are obtained as shown in **example C**, an earlier output point should be selected so that the fertilizer in the overlap zone is reduced.
(**Example :** adjust from OP 5 to OP 4).

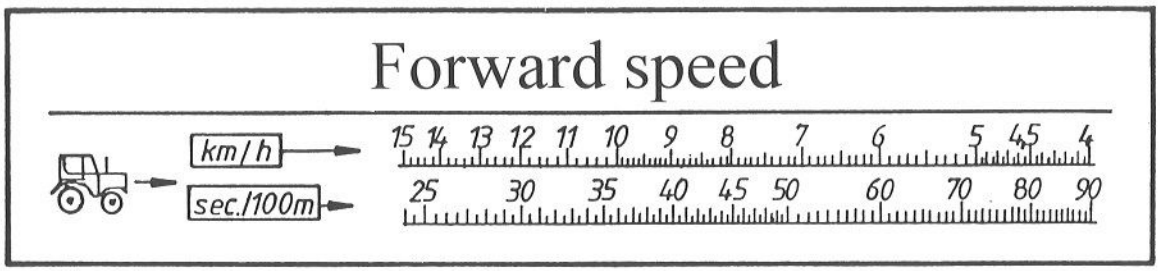
If results are obtained as shown in **example D**, a later output point should be selected so that fertilizer in the overlap zone is increased.
(**Example.:** Adjust from OP 8 to OP 9).

4. Calibration check

4.1 Calculating the mean application rate

To ensure accurate application rates we recommend that a new calibration check is carried out each time a new type or different batch of fertilizer is used. Calibration must be done when the machine is stationary with the PTO revolving at 540 rpm, or according to spreading charts, depending on fertilizer, or when driving over a test length.

Calculation of precise tractor forward speed:
For more precise measurement of tractor forward speed to that given by the tractor meter, drive a measured 100m on a field with the hopper half full and measure the time taken.



Tractor speeds outside the scale can be calculated using the following formular :

$$\text{Tractor speed} = \frac{360}{\text{measured time for 100m}} \quad \text{e.g.} \quad \frac{360}{36 \text{ secs}} = 10 \text{ km/h}$$

Determination of the required mean output per minute:
The calibration check is only carried out with one shutter outlet. However, the fertilizer quantity required is calculated for both shutter outlets i.e. total working width, therefore the calculated quantity should be halved for calibration purposes.

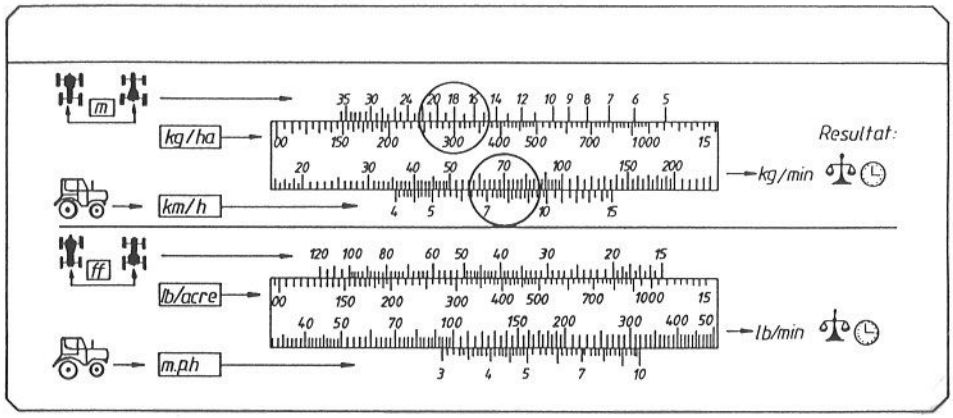
$$\frac{\text{Tractor speed (km/h) x working width (m) x application rate (kg/ha)}}{600} = \text{kg/min}$$

Example: $\frac{8 \text{ km/h} \times 18 \text{ m} \times 300 \text{ kg/ha}}{600} = 72 \text{ kg/min}$

Therefore, **36kg** of fertilizer must flow through one **shutter outlet in 60 secs**. In order to determine the correct metering slide setting, several attempts may be required. (Use values provided in the spreading charts as a guideline).

Calculation using the calibration slide rule

Position the 300kg/ha figure below the 18m figure on the working width scale and then read off the value for kg/min above 8km/h on the speed scale; 72kg/min will be the required mean fertilizer quantity for both shutter outlets.



Output figures for a selection of application rates and tractor speeds are already provided in the spreading charts.

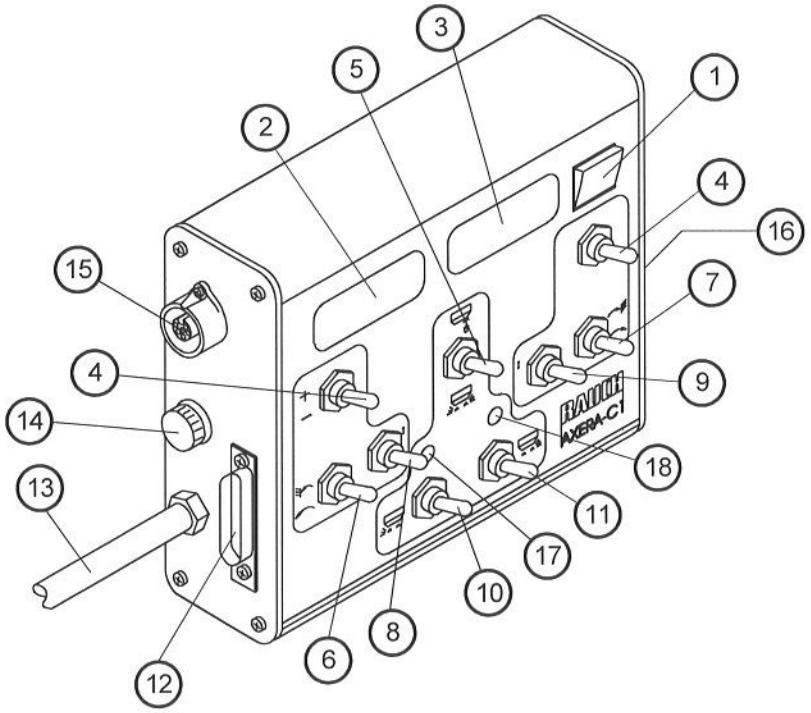
4.2 Preparing for the calibration check

When working with the fertilizer spreader in the raised position, make sure that it is safely supported on blocks under the frame. **(Accident danger.)**

4.3 Carrying out the calibration check

To correctly carry out the calibration check the spreader must be fitted to the tractor and the hydraulic system and C1 control unit must be connected. The fertilizer spreader must be filled with fertilizer.

- Place hydraulic control valve in its off (neutral) position.
- Place main switch 1 in the "O", off position.
- **Place operation mode switch 5 in the upper position.**

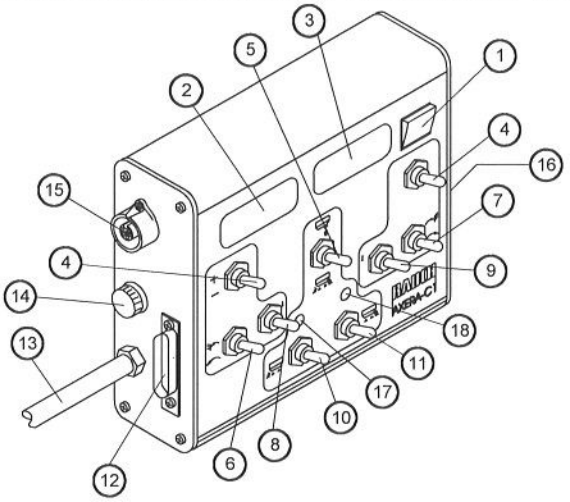


- Slide the movable hydraulic motor console rearwards.
- Obtain the corresponding setting data from the spreading charts for the fertilizer to be used.
- Adjust the application rate using the metering slide (0 - 720) on the spreader.
- Remove the spreading disc from one side and place a bucket under the shutter outlet.
- Engage tractor hydraulics with the tractor hydraulic control valve.

The agitator will immediately begin to revolve. **Danger of injury** !

- Place open/close shutter slide switch 10 **or** 11, in the lower position to open the shutter slide on the side the calibration check is being undertaken (light diode 17 **or** 18 will glow green when the shutter slide is open).

- An output of kg/min must be obtained. Preferably allow a full 60 seconds during the test but, as this may involve a greater quantity of fertilizer than the bucket will hold, a time of 20 **or** 30 seconds can be used. Remember to multiply the result according to a theoretical minute. After selected time is achieved, shut the shutter slide by placing the correct open/close shutter slide switch 10 **or** 11 into its upper position. Light diodes 17 **and** 18 will glow red when the shutter slides are closed.
- Weigh the amount collected, remember to subtract the weight of the bucket.



- If the actual weight differs from the guideline figures given in the spreading charts, alter the position of the metering slide and repeat the calibration check.

Note: The metering slide scale is laid out proportionally, which allows the metering slide to be altered to compensate any difference obtained in the application rate.

e.g.: If 10% too little fertilizer is collected when the metering slide is in position 400, select a new position of 400+10% = 440, and lock securely in place. You may need to repeat the process several times before the correct application rate is achieved. Remember, actual weight measured must be half of the application rate required as only one half of the total width is used for the calibration check.

- Place the main switch 1 in the "O", off position.
- Place the hydraulic control valve in its off (neutral) position.
- Set the other spreading side using the same metering slide position obtained, and lock securely in place.
- After completing the calibration check, refit the spreading discs.
- The right-hand disc (R) and left-hand disc (L) (viewed in the direction of travel) must be replaced carefully over their corresponding drive hubs. Make sure both discs lie correctly on their drive hubs. Discs and vanes are indicated with (R) and (L).
- Make sure the synthetic disc hub nuts are correctly fitted (not cross-threaded).
- Tighten synthetic disc hub nuts by hand.
- **Reposition the movable hydraulic motor console into its previously set spreading position (desired output point position).**
- Turn the spreading discs by hand to make sure discs and vanes turn freely without fouling either metering output tracts or sensors.

Important: After the first hour of operation, check that synthetic disc hub nuts are firmly tightened.

5. Removing unused fertilizer

To keep the spreader in good condition we recommend that all unused fertilizer is removed immediately after field operations are completed. Follow instructions under section 4.3 (carrying out calibration check) to drain hopper. Use both left- and right-hand shutter outlets. Movable hydraulic motor console should be slid rearwards on both sides. Any leftovers can be removed from inside the hopper with a brush and pan.

6. Cleaning

To keep the spreader in good condition we recommend the unit be thoroughly cleaned with a low pressure water jet immediately after field operations are completed.
To simplify cleaning the hopper sieve can be removed.
When cleaning, make sure that the shutter control and shutter flow tracts are cleaned from underneath.
Only wash in suitable areas specifically designed to collect and remove environmentally damaging elements such as oil and fertilizer, without endangering the surrounding environment.
When washing with pressure washers, never direct the jet directly into any electrical elements, on to warning decals, exposed hydraulic machine parts or exposed bearings.
After drying off the spreader we recommend that it is treated with environmentally acceptable biodegradable anti-corrosion liquid or spray. It is especially important to treat the vanes.

7. Service

Machine preparation, servicing, cleaning, as well as repairing of operational problems; should only be done when the drive is disengaged, tractor engine is switched off and the ignition key removed.
When servicing the spreader in the raised position, make sure that suitable chock supports are placed under the frame to support its height.
Only spare parts that correspond to the technical specifications specified by the implement manufacturer should be used . These specifications are only obtainable with original spare parts.
Regularly check nuts and bolts for tightness and tighten up when necessary.
Disconnect cables to tractor alternator and battery when undertaking any electric welding on the unit.
Before working on any of the electrical system cut off power supply.
Any safety devices that have been removed during machine preparation, serving, cleaning, or when reparing operational problems, should be carefully and correctly refitted.
Check the condition of hydraulic hoses and pipe lines on a regular basis. Replace if damaged. Replacement hoses must correspond to at least the minimum technical specifications specified by the manufacturer.
When using damp fertilizer, a crust can develop on the metering outlet tracts and disc vanes. Both spreading accuracy and operational safety can be negatively influenced. Regular checking and cleaning of these parts is highly recommended.

8. Checking the balance of the metering slides

Before each season and regularly during the season, the metering slides should be checked to ensure that they open simultaneously and evenly. This can be done by placing the ∅ 28 mm lower link pins in both shutter apertures (Photo 7 shows a lower link pin placed in a shutter aperture that, for better clarity, has not been installed in the hopper floor). To correctly check the slide position, both pins must be held vertically from under the floor. When the slide position is correct, the application rate indication lever must read **56**.

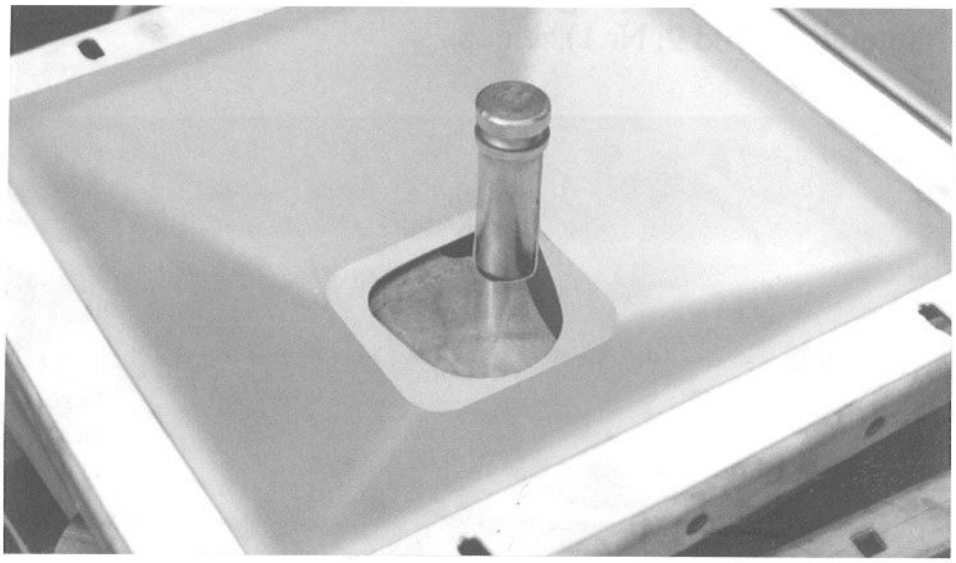


Photo 7

If the application rate indication lever does not read **56,** release the quadrant scale by unscrewing the three locking bolts (Photo 8, No.10) and slide the scale until the value **56** is achieved. Retighten the three bolts.

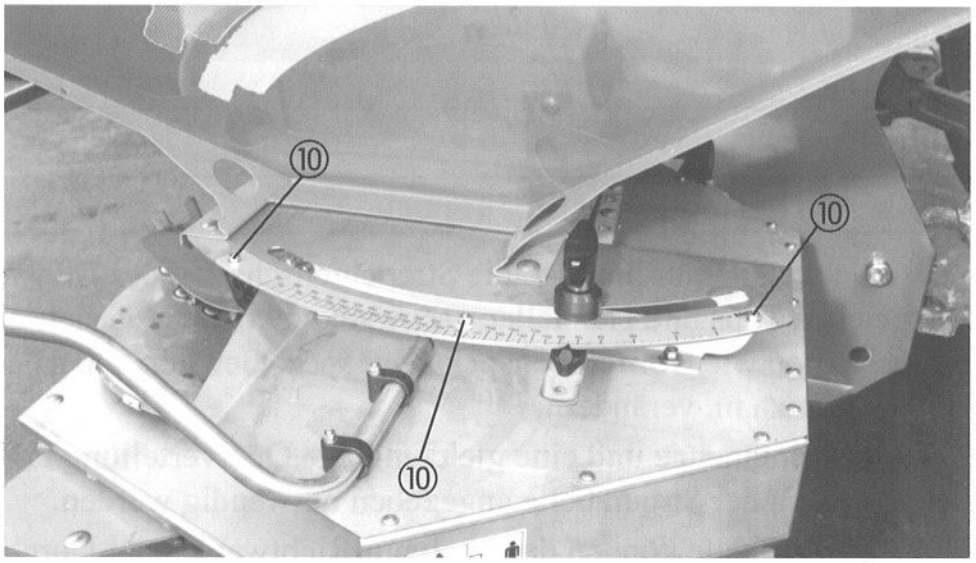


Photo 8

Attention: Metering and open/close shutter slides can cause crushing and cutting injuries if attention is not paid during all balancing operations. Never activate the hydraulic open/close shutter slide while undertaking any adjustment and balancing operations (**Injury and damage danger!**)

9. Checking the hydraulic motor position / spreading disc position

- Remove the discs.
- The distance from the top of the hub to the underside of the hopper floor (Photo 9; No.3) must be 11.8 cm.
- Replace the synthetic disc hub nut (Photo 9; No.1).
- Place the M6 x 70 bolt (Photo 9; No.2) (V) through the small hole in the hopper floor (Photo 9; No.3)
- When in output point position 7, the bolt tip must align exactly with the middle point of the synthetic disc hub nut (Photo 9; No.1).

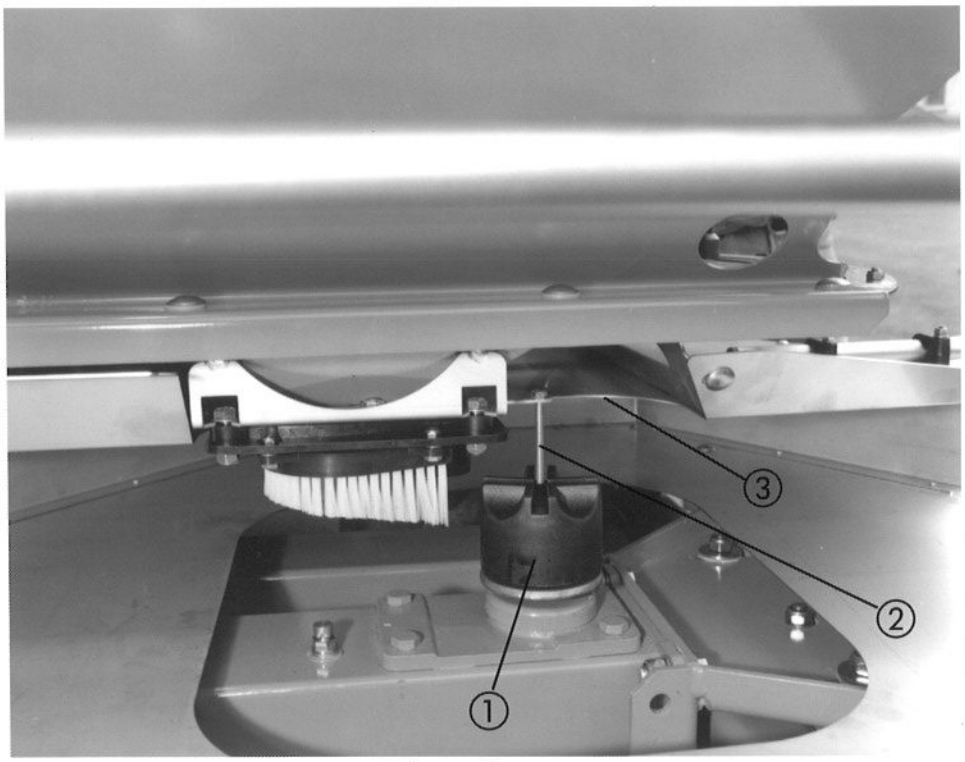


Photo 9

10. Valuable tips for precision spreading

We would particularly emphasize that physical characteristics of fertilizers can vary, even within the same type and brand, due to differences in size of granules, density, surface texture, specific weight and quality of granules, etc.
These variations can influence spreading characteristics quite markedly resulting in differences in the fertilizer application rates as well as changes in spread patterns predicted in the spreading charts.
The data provided in the spreading charts can only be used as a guideline. However, through careful continued testing these values are more accurate than settings made by rule of thumb.
We suggest the use of only quality fertilizer from well-known suppliers, preferably those fertilizers listed in the spreading charts. If you need to use fertilizers not listed, please contact us.

In spite of the careful manufacture of your spreader, even with correct usage we cannot completely rule out variations in output or total output failure. Such circumstances can be caused by the following :

- Varying consistency and flow characteristics of fertilizer or seed (e.g. variations of particle sizes, coatings, density, shape, causticity).
- Lumpy moist fertilizer.
- Wind drift.
- Blockage or bridging (e.g. caused by foreign particles, bits of bag, moist fertilizer, etc).
- Undulating fields.
- Wear on components (e.g. agitator, vanes, metering outlets).
- Defects arising from external influences.
- Lack of cleaning or prevention against corrosion.
- Incorrect input speed from the PTO or incorrect tractor speed.
- Not carrying out calibration check.
- Incorrect setting of fertilizer spreader.
- 3-point linkage not adequately restrained from side-to-side movement, or spreader not exactly at 90° to direction of travel, or unit not exactly horizontal

Before each field operation, as well as during operation, check that the fertilizer spreader is functioning correctly and that the correct application rate and spread pattern is being achieved at all times.

Spreading Urea:
This highly concentrated nitrogen fertilizer has a wide variation of quality and particle sizes, due to the great number of importers handling this product. It is, therefore, essential to recalibrate the unit every time this fertilizer is used. Also note that Urea is very susceptible to wind variations.

Pay special attention when setting the spreader. Even a very small error in setting can result in a large change in spread pattern.
We must stress that no liability can be accepted for consequential losses or damages due to spreading errors.

Note: Particularly hard fertilizer material such as Thomas potash and Kiserit will increase the wear rate of the disc vanes.

11. Fault diagnosis

Uneven spread pattern

- Remove fertilizer build-up around spreading discs, disc vanes and shutter outlets.
- Output point and disc speed incorrect. Check and correct.
- Make sure open/close shutter slide is fully open.

Too much fertilizer within tractor tracks

- Check disc vanes and shutter outlets. Replace any defective parts immediately.
- Fertilizer granules have a smoother surface than those tested for the spreading charts. Check disc vane position.
- Check position of output point and disc speed setting. Correct, if necessary.

Too much fertilizer in overlapping zones

- Fertilizer granules have a rougher surface than those tested for the calibration charts.
- Check position of output point and disc spreading setting. Correct, if necessary.

Spreading application higher on one side than the other

- Check that metering slides are opening equally.
- Check that open/close shutters are functioning correctly.
- Check left- and right-hand agitators.

Fertilizer flow to spreading discs is uneven

- Check left- and right-hand agitators and replace if necessary.
- Fertilizer has formed a bridge over the shutter outlet.
- Check that open/close shutter slides are functioning correctly.

Spreading discs are "fluttering"

- Check synthetic disc hub nut is correctly tightened into position.
- Discs are not lying correctly on their hubs.

Hopper empties unevenly, even though both right- and left-hand sides have been equally used

- Check that both metering slide positions are equal.
- Check that both open/close shutter slides are operating correctly.

Shutter slide shuts but does not open. Output point poisition cannot be adjusted.

- Check that when operating the switches, the solenoid is receiving power.
- Check electrical contacts for oxidation.
- Shutter slide/movable hydraulic motor console has too much resistance. Check lever and pivot points are free and adequately lubricated.

- Return valve in the return line (R) is blocked. Briefly release the return line coupling with a 30mm spanner to reduce hydraulic pressure in the line, then retighten the coupling.
- Press the emergency operation (pressure pin) on the hydraulic valve, when the hydraulic control is engaged.

Shutter slide has too much reisistance

- Check that shutter levers and pivot points are free and adequately lubricated.

Shutter slides open by themselves

- Check the electrical connection of the magnet valves for oxidation on the contact points.

C1 control unit shows no function (neither display or light diodes are illuminated)

- Check electrical plug contact on the tractor.
- Check and, if necessary, replace the internal fuse (14) on the C1 control unit.

Discs fail to reach operating speed, or reduce speed during spreading

- Check the tractor oil delivery capacity at your tractor dealer's workshop.
- Oil flow should be at least 45 l/min at 140 bar. If not, contact your tractor dealer or the manufacturer.
- Sensor delivers false rpm speed information to the C1 control unit.
  - check the sensor distance (approx 3 to 5 mm) on both discs. Also with hydraulic drive disengaged, turn the discs by hand and make sure all 6 contacts on the underside of the discs are still in place.
- Reduce forward speed and select a smaller metering slide opening to reduce the kg/min output, thereby reducing the load on the hydraulic system.

Discs revolve unevenly

- The C1 electronic control unit indicates rpm speed variations. Check the sensor distance (approx. 3 - 5mm) on both discs by completely turning the discs by hand when the hydraulic system is disengaged. Check oil delivery capacity (approx. 45 l/min). Check that all 6 contacts under each disc are still in place

Manual setting of disc speed using the proportional control valve when electronics are inoperable

- The disc rpm speed can be manually set using the hand wheels of the proportional control valves on the hydraulic console. The following table indicates the corresponding speed in rpm of each scale marking on the proportional control valves.

Important: After using this emergency operation, the proportional control valves must be reset to the "zero" position. Zero position of the proportional control valves is achieved when the "adjusting screw with the scale" is fully unscrewed. The proportional control valves are closed.

Scale position of the proportional control valve (right / left)	Speed of right- / left-hand disc (rpm)
20	100
25	250
30	400
35	500
40	650
45	750
50	900
55	1000
60	1150
65	1250

12. Optional equipment

12.1 Hopper extension sets

The fertilizer spreader hopper capacity (basic unit 1100 litre capacity) can be increased by adding an extension set, available in various sizes.

Notes on combination of extension sets:

1. All sets designated with "B" in front of the model number can be fitted to the basic unit or on to B extensions : B 610 and B 910.
2. All sets where the model number ends in a "3" are 3-sided extension sets.
3. All sets where the model number ends in an "0" are 4-sided extension sets. Numerous 4-sided sets can be fitted on top of each other.
4. Adaptor extension set GLB 500 can be fitted to the basic unit or B extensions : B 610 and B 910. It serves as the basic set for numerous GL extension sets.

Type	Capacity	Filling height	Description
B 253	+ 250 l	+ 0 cm	3-sided
B 413	+ 400 l	+ 0 cm	3-sided
B 610	+ 600 l	+ 20 cm	4-sided
B 910	+ 900 l	+ 30 cm	4-sided
GLB 500	+ 500 l	+20 cm	4-sided
GL 403	+ 400 l	+ 0 cm	3-sided
GL 700	+ 700 l	+ 20 cm	4-sided
GL 1200	+ 1200 l	+ 30 cm	4-sided
B 610 + B 253	+ 850 l	+ 20 cm	4+3-sided
B 610 + B 413	+ 1000 l	+20 cm	4+3-sided
B 610 + B 610	+ 1200 l	+40 cm	4+4-sided
B 610 + GLB 500	+ 1100 l	+ 40 cm	4+4-sided
B 610 + GLB 500 + GL 403	+ 1500 l	+40 cm	4+4+3-sided
B 910 + B 253	+ 1150 l	+30 cm	4+3-sided
B 910 + B 413	+ 1300 l	+30 cm	4+3-sided
B 910 + B 610	+ 1500 l	+ 50 cm	4+4-sided
B 910 + B 910	+ 1800 l	+ 60 cm	4+4-sided
B 910 + GLB 500 + GL 403	+ 1800 l	+ 50 cm	4+4+3-sided
GLB 500 + GL 403	+ 900 l	+ 20 cm	4+3-sided
GLB 500 + GL 700	+ 1200 l	+ 40 cm	4+4-sided
GLB 500 + GL 1200	+1700 l	+ 50 cm	4+4-sided
GLB 500 + GL 700 + GL 403	+ 1600 l	+ 40 cm	4+4+3-sided

Fitting instructions are supplied with each extension set.

Important: Maximum AXERA H payload is **3000 kg.**

Example: the specific weight of Thomaspotash = 1.35kg/l. As the maximum payload of the AXERA H Fertilizer Spreader is 3000kg, a total capacity of 2222.22 litres of Thomaspotash should not be exceeded.

$$\text{Max. capacity} = \frac{\text{max. payload}}{\text{spez. Weight of fertilizer}} \quad \text{e.g:} \quad \frac{3000\ \text{kg}}{1{,}35\ \text{kg/l}} = \underline{2222{,}22\ \text{Litres}}$$

12.2 Hopper cover (AP 10 / APE 10)

The hopper cover can be opened from the front or the back. Depending on extension set used, a hopper cover extension (APE 10) is obligatory to fully cover the hopper. Fitting instructions are supplied with each hopper cover / hopper cover extension.

12.3 Hopper cover (AP 11)

The hopper cover can be opened from the front or back. The back section is longer to allow safer sealing with 3-sided hopper extension sets. Fitting instructions are supplied with each hopper extension.

12.4 Parking stand / support rollers

When the spreader is empty it can be easily parked using the support stand or support rollers. By using the support rollers the empty spreader can be manoeuvred without tractor help into its parking place. Support rollers and parking stand are supplied together with fitting instructions.

12.5 Lighting set **BLW 11** (c/w warning shield and reflectors for **rear** visual security)

The unit must be equipped with a light and warning set for rear visual security which conforms to the rules and traffic regulations of the country concerned. The lighting set is supplied together with fitting instructions.

12.6 Lighting set **BLW 12** (c/w warning shield and positioning lights for **frontal** visual security)

The unit must be equipped with a light and warning set for frontal visual security which conforms to the rules and traffic regulations of the country concerned. The lighting set is supplied together with fitting instructions.

12.7 Plus / Minus flow rate control (PMS 4 - N) / (PMS 5 - S)

The Plus/Minus flow rate control allows on-the-move adjustment in an infinitely variable pre-set increase or decrease in application rate. The output can be changed independently on either left- or right-hand sides. The operator control lever bracket is attached within easy reach of the operator. Fitting instructions are supplied with each Plus+/Minus flow rate control.

12.8 D2H VXR spreading discs

These discs with coated vanes have been developed for use with large granule fertilizers e.g. nitrate, for working widths of 30m.

12.9 Quantron L

The Quantron L electronic metering system controls the metering shutter openings which, in turn, dictate the application rate needed to synchronize with forward speed so that accurate application rates are achieved at all times, irrelevent of tractor speed changes. Forward speed is measured by an impulse sensor fitted to the tractor and this information is relayed to the micro-computer. Desired application rate input is directly keyed into the micro-computer in kg/ha, without the need of spreading charts. During spreading operations, actual speed in km/h, application in kg/ha, quantity of fertilizer used and working area covered, can be visualized at any given moment. Three different application rates are pre-programmable and can be selected on-the-move, as desired. Each application rate can be modified on-the-move in +/-% steps.
The Quantron L electronic metering computer can be adapted for use with precision sprayers when equipped with the necessary software.
The Quantron L is supplied with its own instruction book.

12.10 Pressure filter in the hydraulic line

To ensure an increase in the spreaders hydraulic security, a pressure filter with filtration of 25µm should be fitted to the tractor's hydraulic system. If filtration from between 20 ≥ 75µm is not available, a corresponding pressure filter can be obtained from RAUCH.

WARRANTY CONDITIONS

RAUCH Fertilizer spreaders are manufactured with the greatest of care using modern manufacturing techniques, and are subjected to numerous quality controls.

For this reason, **RAUCH** guarantees its machinery for 12 months, providing the following conditions are met:

1. The warranty period commences with the date of purchase.

2. The warranty covers all material and manufacturing defects. For bought- in items (hydraulics, electronics), our warranty is limited to the warranty of the respective manufacturer. During the warranty period, all manufacturing and machinery defects are remedied free of charge by replacement or repair of the component concerned. All other claims which go beyond those stated, such as claims for change, reduction or replacement of damaged parts which have not actually been incurred on the object of supply, are expressly excluded.
   Work under warranty is only carried out by authorised workshops, by **RAUCH** representatives or the factory.

3. The warranty excludes all consequences of normal wear and tear, corrosion or defects which have arisen from improper handling or outside influences. In cases of unauthorised repair or alterations to the original design, the warranty becomes void. The warranty also becomes void when non-original spare parts are used.
   Please study the operating instructions carefully. If in any doubt, contact your authorised agent or the factory direct.
   Warranty claims must be made to the factory no later than 30 days after any defect is discovered.
   Please include date of purchase and machine serial number on any claim.
   Repairs under warranty may only be carried out by authorised workshops after clearance from **RAUCH** or its official representative.
   The warranty period is not extended through warranty work.
   Transport damage is not a manufacturing defect and is therefore not covered by the manufacturer's warranty.

4. Claims for damages caused other than to the fertiliser seed-drill itself are excluded. This applies also to claimed liability for consequential loss due to seeding faults. Private modifications to the fertiliser spreader can lead subsequently to errors and the manufacturers exclude liability for such damages.

   If damage is caused purposely or by negligent operation by the owner or his agent or employee, and in cases where the product liability laws for faults in the object of supply to privately used articles is applicable, the responsibility exemption of the supplier does not apply. It also does not apply to the deficiency of features which have been explicitly assured, when this assurance was intended to protect the purchaser against damages which have not occurred to the object of supply itself.