

# RAUCH

## OPERATORS MANUAL

# ADS

## 401 - 501 - 601

Irl



bab 452 317

**PLEASE READ CAREFULLY  
BEFORE USING THE MACHINE!**

ADS-a-07.95-Irl

**CORK MACHINE LTD.**  
**MACHINERY IMPORTERS AND DISTRIBUTORS**  
Carrigrohane Road · Cork · Ireland  
Phone: 021/543801 · Fax: 021/541861

Dear Customer,	3
Accident prevention and safety issues	4
Proper usage	6
Transporting RAUCH fertiliser spreaders on public roads	7
Warning and reference decals on the fertiliser spreader	8

<b>1. MACHINE DATA</b>	<b>10</b>
1.1 Technical data: ADS-series	10
1.2 Delivery of the fertiliser spreader	10
1.3 Assembly of the machine	10
<b>2. OPERATION</b>	<b>11</b>
2.1 Attaching to the tractor	11
2.2 Fitting PTO drive shaft	11
2.3 Connecting up the hydraulic remote control	14
<b>3. ADJUSTING THE SPREADER</b>	<b>15</b>
3.1 The calibration charts	15
3.2 Setting the application rate	16
3.3 Adjustment of the spreading discs	16
3.3.1 Operating principles	16
3.3.2 Setting up	17
3.3.4 Vane adjustment for fertiliser not listed in the chart	20
<b>4. ONE SIDED SPREADING</b>	<b>21</b>
4.1 Spreading with GHM/GHME Spread Limiter	21
<b>5. CALIBRATION CHECK</b>	<b>21</b>
5.1 Calculating the application rate	22
5.2 Carrying out the calibration check	23
<b>6. REMOVING FERTILISER RESIDUES</b>	<b>23</b>
<b>7. CLEANING</b>	<b>24</b>
<b>8. SERVICING</b>	<b>24</b>
8.1 Lubrication	24
<b>9. CHECKING SHUTTER ADJUSTMENT</b>	<b>25</b>
9.1 Initial adjustment	26
<b>10. CHANGING OF THE VANES</b>	<b>26</b>
<b>11. VALUABLE TIPS FOR PRECISION SPREADING</b>	<b>27</b>
<b>12. FAULT DIAGNOSIS (TROUBLE SHOOTING)</b>	<b>28</b>
<b>13. OPERATORS MANUALS AND ASSEMBLY INSTRUCTIONS FOR OPTIONAL EQUIPMENTS</b>	<b>29</b>
<b>14. WARRANTY CONDITIONS</b>	<b>34</b>

Dear Customer,

We are confident that your Fertiliser 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 these instructions, taking careful note of the Safety information, **BEFORE** starting 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:** Guarantee claims, which arise from damage due to operator errors and misuse, cannot be accepted.

**TYPE:**

**MACHINE NO.**

We recommend that you make a note of the machine type and serial number of your Fertiliser Spreader in the space above. You will find both pieces of information on the type plate fixed to the frame of machine.

Always quote this information when ordering spare parts, optional equipment and accessories or making any claims under the guarantee.

#### 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 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



**ATTENTION!**  
**WHEN THIS SYMBOL APPEARS IN THE MANUAL, IT MEANS THAT THE SAFETY OF THE OPERATOR, ASSISTANTS, BYSTANDERS, OR THE NORMAL OPERATION OF THE MACHINE COULD BE IN DANGER. IT IS ESSENTIAL THAT YOU STRICTLY OBSERVE ALL SAFETY INSTRUCTIONS. IT IS VITALLY IMPORTANT THAT YOU MAKE SURE THAT ALL USERS HAVE THE OPPORTUNITY TO READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.**

## ACCIDENT PREVENTION AND SAFETY ISSUES

Most accidents connected with machines happen because someone ignores the most elementary safety rules during operation, maintenance or transport operations. It is vital that every person who comes into contact with this machine - the purchaser himself, a member of his family, an employee, a bystander - must strictly obey the following main safety rules. Other safety instructions are to be found on the decals which are placed in various prominent parts of the machine. Only persons who are completely familiar with the machine, and who have been instructed in the dangers associated with it, should be allowed to maintain or repair the machine.

1. Please observe the safety notes contained in these operation instructions, and all current statutory safety and accident-prevention regulations!
2. Warning and instruction decals provide essential information concerning safe operation - observe them for your own safety!
3. Each day, before operating the machine, inspect all nuts and bolts and other fixings, especially the spreader discs and vanes. All screw connections must be inspected on a regular basis and tightened where necessary.
4. Before using the machine, operators must familiarise themselves with all parts of the equipment and function operation may be too late!
5. Before using the spreader, check that the tractor / spreader combination is road-worthy and in a safe operating condition.
6. Before filling the spreader, before adjusting, lubricating, cleaning or carrying out any operations on the machine, switch off the hydraulic system and PTO, switch off the tractor engine and wait until all moving parts have come to a complete stop. Remove the key!



**KEEP HANDS, FEET AND CLOTHING WELL AWAY FROM MOVING PARTS. DO NOT PUT YOUR HANDS INTO THE HOPPER OR TOUCH THE SPINNING DISCS. MOVING PARTS! DO NOT WEAR LOOSE CLOTHING.**

8. Do not place or store any foreign objects in the hopper.
9. Only start up the fertiliser spreader when all safety devices and guards have been properly fitted (filling screens, metering-chamber covers, PTO guards, etc.)



**ATTENTION!**  
**THE IMMEDIATE AREA AROUND A WORKING FERTILISER SPREADER IS A DANGEROUS PLACE! FERTILISER IS THROWN FROM THE OUTLETS AT HIGH SPEED AND CAN BE DANGEROUS! MAKE SURE THAT THERE IS NOBODY IN THE SPREADING ZONE BEFORE SWITCHING ON THE SPREADER.**

10. Never leave the fertiliser spreader running unattended.
11. It is illegal to carry passengers when transporting or using the fertiliser spreader.
12. When checking, adjusting or repairing the machine, always make sure that the spreader cannot be switched on by mistake.
13. Before leaving the tractor and spreader unattended, lower the spreader to the ground, switch off engine and remove key. If equipped with hydraulic remote control, close the hydraulic valves.
14. 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 parking brake and/or wheel chocks!
15. Attach the spreader to the tractor only as per these instruction, and only using the proper mounting pins.
16. Before attaching or detaching the spreader to the tractor linkage, position lift-linkage control levers such that accidental lifting/lowering is impossible.
17. It is absolutely essential that the 3-point linkage attachments on the tractor exactly match those on the spreader. If not, they must be changed.
18. The 3-point linkage area - between tractor and implement - creates a danger zone which can cut and crush.
19. When operating the lift controls, do not stand between tractor and spreader!
20. Adjust the lift linkage side-chains/stabilisers so that there is a little or no sideways movement when the spreader is in the transport position.
21. When travelling on the road make sure that the lift lever is locked in the raised position.
22. **The maximum load capacity for the ADS-spreaders is 800 kg.**
23. In the event of a mechanical or hydraulic failure during operation, switch off the spreader immediately. Stop tractor engine and remove the key before checking and repairing damage.

24. Any damage to the PTO drive-shaft should be repaired before using the machine.

25. Inappropriate choice or useage of fertilisers can cause serious harm to persons, animals, plant-life and the environment in general. Choose the correct fertiliser for your needs. Treat it with care. Obey all the instructions and recommendations given by the fertiliser manufacturer.

### PROPER USEAGE

The ADS-range of Fertiliser Spreaders is suitable for the distribution of dry, granular, prilled or crystalline fertiliser and seeds.

Any other use is inappropriate. Any defects arising therefrom will invalidated the manufacturers guarantee; any risk associated therewith is borne entirely by the user.

"Proper use" also entails the full compliance with all operating, maintenance and repair instructions issued by the manufacturer.

Your Fertiliser Spreader should only be used, maintained and repaired by persons who are familiar with the machine and who have received instruction with regard to potential dangers.

All current, appropriate, accident prevention requirements, and all other generally recognised safety, technological, work-related and road traffic legislation must be observed.

Any guarantee claims, against the manufacturer, for damage resulting from unauthorised alterations to the machine, will be ruled invalid.

### TRANSPORTING RAUCH FERTILISER SPREADERS ON PUBLIC ROADS

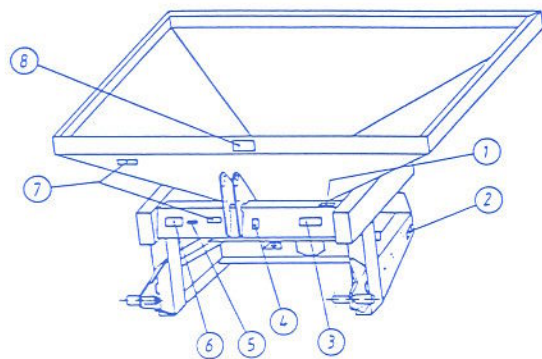
When driving on public roads and paths, ensure that the tractor/spreader combination complies with all relevant road traffic regulations (overall permissible weight, overall permissible axle weight, lighting, warning signs etc.

*Watch for weight transfer from the front axle!*

Even with the fertiliser spreader fully loaded, the steering, braking and stability of the tractor/spreader combination must not be affected. The steered axle is sufficiently weighted when the load carried by the axle amounts to at least 20 % of the unladen weight of the vehicle. Never exceed the permissible axle weight or the permissible overall weight of the tractor unit.

Driving characteristics, steering and braking are affected by mounted or towed fertiliser spreaders and other loads.

## WARNING AND REFERENCE DECALS ON THE FERTILISER SPREADER



Before using the machine please read carefully and observe the operators manual and all safety notes.



The immediate area around a working fertiliser is a dangerous place as fertiliser is thrown from the outlets at high speed. Make sure that there is nobody in the spreading zone before switching on the spreader.



Maximum payload



Rpm of PTO

5

Serial-No.

stamped into the frame

7

### ← ACHTUNG! IMPORTANT/E! LET OP!

Die Seriennummern des Rahmens und des Behälters müssen identisch sein!  
 Chassis must only be fitted with hopper having corresponding serial number!  
 Les numéros de chassis et de trémie doivent être identiques!  
 Het serienummer op het frame en op de trechter moeten beslist gelijk zijn!  
 Il numero del telaio e quello della tramoggia devono essere uguali!

WS-I-0293-1

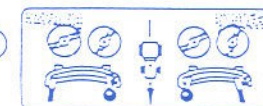
Please note serial number on frame and type plate

6



Type plate

8



Spreading to one side only

## 1. MACHINE DATA

### 1.1 TECHNICAL DATA: ADS-SERIES

		ADS 401	ADS 501	ADS 601
Hopper capacity	appr. l	380	500	600
Load capacity	max. kg	800	800	800
Filling height	appr. cm	92	92	97
Filling width	appr. cm	90	130	130
Overall width	appr. cm	100	140	140
Weight	appr. kg	160	165	175
Working width	appr. m	10-12 m depending on fertiliser type		
Sound level	dB(A)	70 depending on fertiliser type and spreading quantity		

### 1.2 DELIVERY OF THE FERTILISER SPREADER

When the fertiliser spreader arrives please check that it is complete. The following parts comprise standard equipment:

- Operator's manual
- Calibration chart
- Agitator finger
- Top link pin
- Discs set *M-0*
- PTO drive shaft (complete with its operators manual)



**IF YOU ORDERED OPTIONAL EQUIPMENT, CHECK DELIVERY IS COMPLETE. CHECK THAT ALL COMPONENTS ARE PROPERLY SEATED - ESPECIALLY DISCS AND VANES.**

Please check your machine thoroughly for any transport damage or missing parts. Claims can only be accepted if we are notified at the time of delivery. Please ask the haulier to acknowledge any transport damage. In case of doubt, contact your dealer or the factory direct.

### 1.3 ASSEMBLY OF THE MACHINE

(does not apply if machine supplied fully assembled)

In order to economise on shipping volumes the hopper is shipped separately from the rest of the machine. Each frame and each hopper are marked on their right-hand-side with a serial number. These numbers must be identical.

Close shutters with the control lever and locate hopper gently onto the four threaded bolts on the frame. Grease the locknuts to prevent corrosion and tighten them down. Grease inside of agitator and locate agitator finger in its working position and secure by turning it.

## 2. OPERATION

### 2.1 ATTACHING TO THE TRACTOR

The fertiliser spreader is designed to be mounted onto the tractor via Category I or II 3-point linkage. In order to obtain an even distribution of fertiliser, the spreader must be mounted as specified in the calibration charts.

The upper linkage bolt has to be secured by means of the safety pin on the frame.

Adjust the 3-point-linkage such that the spreader is horizontal when viewed from the rear, in the direction of travel. Adjust the tractor linkage check-chains/stabiliser so that the spreader cannot sway from side to side during operation.

### 2.2 FITTING PTO DRIVE-SHAFT



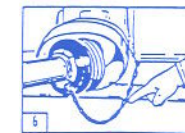
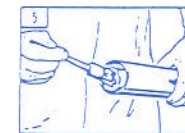
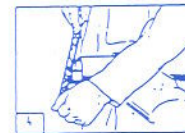
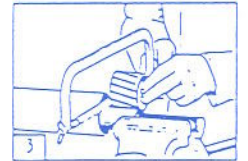
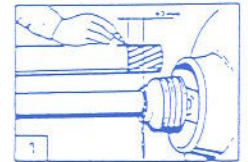
**Only use PTO drive-shaft have been approved by the manufacturer.**

When first attaching the spreader to the tractor, the length of the shaft must be matched to your tractor. If the shaft tubes are too long, the drive shaft and the spreader will be damaged when the spreader is raised.

Try to obtain the largest possible overlap. The overlap on the extended shaft should not be less than half of the overlap in its shortest position.

**Please read carefully and observe the operators manual of PTO drive shaft!**

1. When offering up the shaft to obtain the correct length hold both halves together in their shortest operating position and mark. (Fig. 1)
2. Shorten inner and outer guard tube by equal amounts. (Fig. 2).
3. Shorten inner and outer profile tube by equal amounts (Fig. 3).
4. Chamfer off ends and remove burs and swarf (Fig. 4).
5. Grease profiled tubes (Fig. 5).
6. Fit PTO shaft and connect securing chains on the free end (Fig. 6). Make sure the shaft is free to move! Never use securing chain to hang up the drive-shaft.
7. No other alterations to the PTO drive shaft and guarding are allowed.



8. The shaft guards must always be properly fitted to the shaft, and the tractor PTO guards must be fitted and in perfect condition.



**DURING WORK THE ANGLE OF THE STANDARD PTO SHAFT MUST NOT BE EXCEED 25°. IF OPERATIONS REQUIRE WORKING ANGLES EXCEEDING THIS (E.G. LATE TOP DRESSING) USE A SPECIAL SHAFT WITH WIDE-ANGLE JOINTS. IF NECESSARY MODIFICATIONS AND BASIC ADJUSTMENTS ARE NOT CARRIED OUT THERE IS A DANGER FROM PREMATURE WEAR.**

9. Pay special attention to the overlap of the PTO shaft sections when in transport and working positions!
10. Before fitting/removing the drive shaft, always switch off the tractor PTO, switch off the tractor engine and remove the ignition key!
11. Always fit the shaft the correct way round! The end of the PTO shaft marked with the tractor symbol fits onto the tractor.
12. To prevent the PTO guard from turning, connect up the safety chains!
13. Before switching on the PTO drive, make sure that the correct tractor speed is selected to match the implement.
14. Before switching on the PTO drive, make sure that all bystanders are standing clear!
15. Never turn on the PTO without the tractor engine running!
16. Never let anyone get close to any rotating shaft!
17. Prior to cleaning, lubricating, or adjusting any PTO driven implement or PTO shaft, always switch off PTO drive, switch off engine and remove ignition key!
18. When detaching drive shaft from the tractor PTO, place in the holder provided!
19. After detaching the drive-shaft make sure you refit the cover on the tractor PTO shaft.

**ENGAGE PTO DRIVE AT LOW TRACTOR ENGINE SPEED ONLY!**

## 2.3 CONNECTING UP THE HYDRAULIC REMOTE CONTROL

Optional equipment, single or double acting (Special option)

### FHK A

This hydraulic remote control unit operates using a single-acting spool valve. Moving the spool valve to pressure position will close the shutters. With the spool valve in float position a spring inside the ram cylinder moves the shutter as far as a pre-positioned stop on the rate adjuster quadrant.

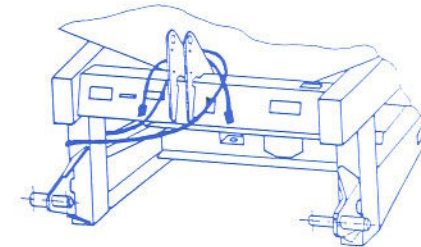
**Oil pressure closes - spring pressure opens**

One sided spreading is carried out by first disconnecting the shutter levers. However, it is only possible to spread to the left-hand-side. For manual operation, first disconnect the ram.

Sometimes, with older tractors, oil may leak through the control valve and it is possible that the shutters may creep open during filling or transport operations. For this reason the single action hydraulic remote control units include a stop-valve which should be closed before travelling longer distances to prevent the shutters from opening.

When the spreader is off the tractor, the shutters should be left open in order to release the pressure on the springs. For trouble-free operation of the hydraulic remote control mechanism make sure that the shutters, levers and joints are kept properly greased and operate freely. However, should the ram be unable to open the shutters completely, remove the leaf spring on the operating lever to which the hydraulic ram is attached.

**THE HYDRAULIC HOSES CAN BE STORED BETWEEN THE TOP-LINK BRACKET AND THE HOPPER.**



## FHD A

This hydraulic remote control unit operates with a double acting spool valve. The system uses oil pressure to both open and close the shutters.

One sided spreading is carried out by first disconnecting the shutter levers. However, it is only possible to spread to the left-hand-side. For manual operation, first disconnect the ram.

For trouble-free operation of the hydraulic remote control mechanism make sure that the shutters, levers and joints are kept properly greased and operate freely. However, should the ram be unable to open the shutters completely, remove the leaf spring on the operating lever to which the hydraulic ram is attached.

**THE REMOTE CONTROL MECHANISM CAN CAUSE CUTTING AND BRUISING INJURIES.**

**REGULARLY CHECK ALL HYDRAULIC HOSES - AT LEAST EVERY 6 MONTHS, FOR MECHANICAL DEFECTS (E.G. CUTS AND ABRASIONS, CRUSHED SECTIONS, KINKS, TEARS, LEAKS ETC.) AND IMMEDIATELY REPLACE ANY DEFECTIVE LINES.**

**THE USEFUL LIFE OF AN UNDAMAGED HOSE SHOULD BE LIMITED TO 4 YEARS. REPLACEMENT HOSES MUST MEET THE TECHNICAL SPECIFICATION QUOTED BY THE SPREADER MANUFACTURER!**

**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 A SERIOUS RISK OF INFECTION.**



## 3. ADJUSTING THE SPREADER

### 3.1 THE CALIBRATION CHARTS

The values provided in the calibration chart are derived from practical tests in our Research Centre. The spreader settings were achieved with fertiliser in perfect condition from each respective manufacturer.



**MOUNT THE FERTILISER SPREADER ONTO THE TRACTOR ACCORDING TO INSTRUCTIONS GIVEN IN THE CALIBRATION CHART.**

We would particularly like to emphasise the fact that physical characteristics of fertilisers can vary - even within the same type and brand - due to differences in quality of granules, density, size of particles, texture of particles etc.

This means that for a given application rate requirement and for a precise spread pattern, the spreader may need a different setting to that indicated in the calibration chart.

The calibration charts can only be regarded as a guide, even though they have been arrived at through exhaustive testing. Even so, they are always more accurate than random adjustment and calibration.

In order to keep these differences to a minimum we recommend that you use quality fertilisers from well known suppliers - or those fertilisers listed in our calibration chart. Should you not find a certain type of fertiliser there, please let us know.

#### Spreading Urea:

This highly concentrated nitrogenous fertiliser is available in widely variable quality and granulations. Imported Urea may require different spreader settings. Some Urea can be very susceptible to wind effects.

Please set the machine with great care. Even apparently minor mistakes in the adjustments can result in a substantial deterioration of the spread pattern. We would like to stress most emphatically that we cannot be held liable for losses due to over or under-application.

Before attempting to adjust the spreader, or any other work - such as greasing or cleaning - disengage PTO, switch off engine and remove tractor key.

Wait for all components to come to a complete stop before starting work on the machine.

**We would like to stress emphatically that we cannot be held liable for losses due to over or under-application.**

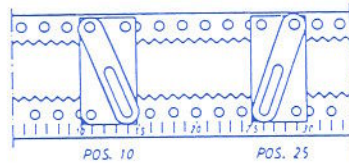


### 3.2 SETTING THE APPLICATION RATE

The required application rate is set initially using the calibration charts and the operation is simple and safe.

The calibration chart gives a setting number corresponding to the required application rate at a range of forward speeds. Fix the stop on the flow rate quadrant at the setting number given for your chosen application rate and forward speed (the grey edge on one of the 58 positions).

Moving the stop by one hole changes the setting by 1 number only. This is done by changing the angle of the stop as shown below.



When moving forward, with the PTO turning at its recommended rpm, open both shutters simultaneously to begin spreading.

**IF THE MACHINE IS FITTED WITH SINGLE ACTING HYDRAULIC REMOTE CONTROL, SET STOP AT ONE NOTCH LESS THAN GIVEN IN THE CHART.**

### 3.3 ADJUSTMENT OF THE SPREADING DISCS

#### 3.3.1 OPERATING PRINCIPLES

The vanes on the M-0 spreading discs are adjustable to accommodate a range of spreading practices, working widths and fertiliser types.

- Spreading practices:**
- Normal spreading
  - Boundary spreading, either to the left or right during normal spreading activities
  - Late season top dressing
  - Boundary spreading, either to the left or right during late top dressing

**Working widths:** 10 and 12 m

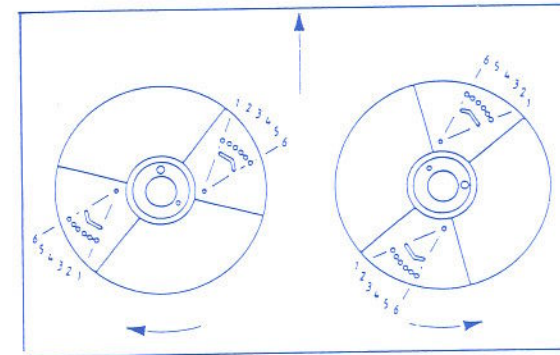
**Fertiliser types:** See calibration charts

On each disc there are two similar vanes. LEFT: 2 left hand vanes - RIGHT: 2 right hand vanes.

Each vane can be angled backwards or forwards (1-6)

**RETARD:** (moving AGAINST the rotation of the disc) means moving toward **SMALLER** numbers

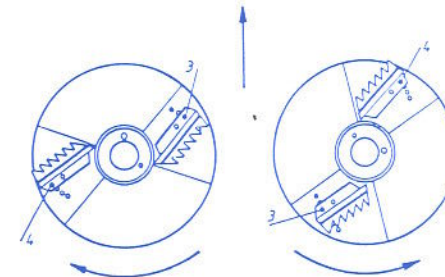
**ADVANCE:** (moving WITH the rotation of the disc) means moving toward **HIGHER** numbers



#### 3.3.2 SETTING UP

From the calibration chart read off the vane positions for the intended fertiliser type and working width. e.g. 4 - 3 10 m

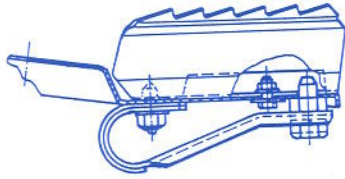
On each disc, one vane must be set in position 4 and the other in position 3.



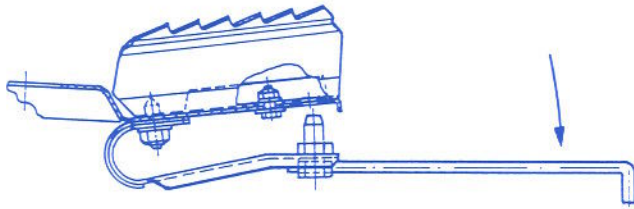
**NOTE:** Above is only an example. Refer to calibration charts.



**ATTENTION:** THE SETTING OF EACH VANE ON THE SAME DISC IS DIFFERENT - BUT THE SETTINGS ON THE RIGHT-HAND DISC ARE THE SAME AS THOSE ON THE LEFT-HAND DISC (THE EXCEPTION IS WHEN SETTING FOR BOUNDARY SPREADING).



On the left hand side of the spreader is a round rod. Push this into the opening for the dowel pins under the disc and press down. The dowel pin pulls out. Now angle the vane to the correct numbered position (moving backwards).



**ON THE RIGHT HAND DISC THE NUMBERS (1-6) INCREASE FROM LEFT TO RIGHT.  
ON THE LEFT HAND DISC THE NUMBERS (1-6) INCREASE FROM RIGHT TO LEFT.**

The position numbers are marked on the underside of the disc.



**AFTER ADJUSTING THE VANES, MAKE SURE THAT EACH DOWEL IS FULLY HOME. IT MAY BE NECESSARY TO USE THE ROD TO PUSH THE DOWEL BACK INTO ITS SEAT.  
THE ROD HAS TO BE SECURED ON THE FRAME AFTER ADJUSTING THE VANES AND BEFORE SWITCHING ON THE P.T.O. --> DANGER OF INJURY!**

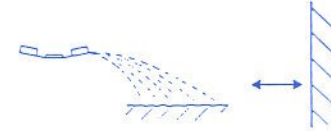
### 3.3.3 VANE ADJUSTMENT ACCORDING TO THE CALIBRATION CHART

Choose one fertiliser table (e.g. NITRAM ICI, 34.5 % N) and one working width (e.g. 10 m). The calibration chart differentiates between the following different fertiliser spreading jobs.

Normal spreading



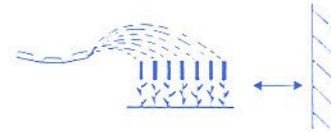
Normal spreading on boundaries:



Late top dressing:



Late top dressing on boundaries:



Normal spreading:



Depending on working width (eg 10 m) the attachment height of the spreader is given as the working height (eg 50/50 m).

On the left hand disc, place one vane in position 4 and the other vane in position 3.

On the right hand disc, place one vane in position 4 and the other in position 3. For normal spreading the positions on left and right discs are **ALWAYS IDENTICAL**.

Normal spreading on boundaries



These vane adjustment instructions only apply to the side of the spreader nearest to the field boundary. **On the field side the vanes must remain in their normal setting.** For boundary spreading, the vane positions on right and left discs are **ALWAYS DIFFERENT**.

### Late top dressing



The spreader working height is measured above the height of the crop.

**For example 0/6:** Point A = distance 0 cm above the height of the crop, point B = distance 6 cm above the height of the crop. That means the back of spreader is higher than in front.

Adjust the vanes as per the calibration chart, eg. NITRAM ICI 34.5 % N - 10 m.

On the left hand disc, place one vane in position 4 and the other vane in position 3.

On the right hand disc, place one vane in position 4 and the other in position 3. For normal top dressing the positions on left and right discs are **ALWAYS IDENTICAL**.

### Late top dressing on boundaries



These vane adjustment instructions **ONLY** apply to the side of the spreader nearest to the field boundary. On the field side the vanes must remain in their late top-dressing setting.

For boundary spreading, the vane positions on right and left discs are **ALWAYS DIFFERENT**.

### 3.3.4 VANE ADJUSTMENT FOR FERTILISER NOT LISTED IN THE CHART

You can adjust the spread pattern for types of fertiliser not listed in the calibration chart with a testing kit (optional equipment).

Choose a similar fertiliser from the calibration chart and position the vane according to the settings given in the chart.

If the spread pattern immediately behind the tractor shows too much fertiliser, the vane on both discs must be moved to a higher position (eg 3 ⇒ 4).

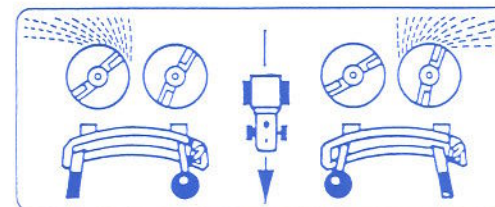
If the spread pattern in the overlap zone shows too much fertiliser one vane on both discs must be moved to a lower position (3 ⇒ 2).

**ADVANCING:** Advancing (moving to higher numbers) reduces the quantity of fertiliser immediately behind the tractor and increases it in the overlap zones.

**RETARDING:** Retarding (moving towards lower numbers) increases the fertiliser spread behind the tractor and reduces the quantity in the overlap zones.

## 4. ONE SIDED SPREADING

For spreading either to the left or the right, uncouple the shutter levers by pulling the round knob, and move the relevant side to the stop.

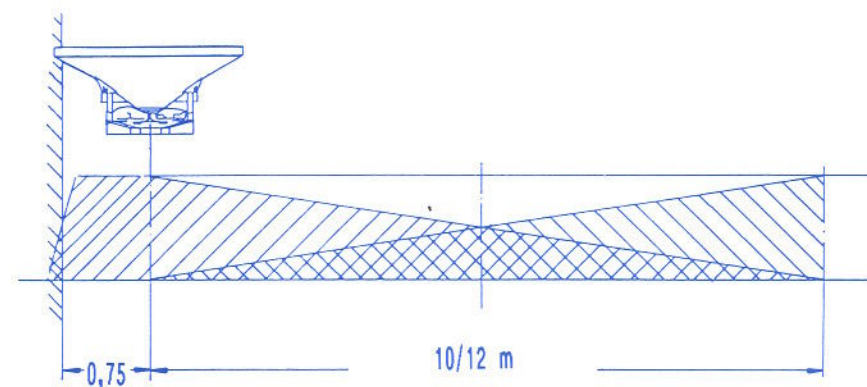


1. Moving ROUND lever: Right hand side (looking forwards) spreading
2. Moving RECTANGULAR lever: Left hand side (looking forwards) spreading

### 4.1 SPREADING WITH GHM/GHME SPREAD LIMITER (1 SHUTTER OPEN)

This limits the spread width (optional to the right or left) from approx. 75 cm the centre of the tractor to outer field edge.

*For normal spreading to both sides, swing the boundary plate rearward and secure.*



## 5. CALIBRATION CHECK

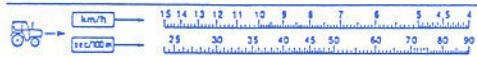
### 5.1 CALCULATING THE APPLICATION RATE

In order to ensure accurate application rates we recommend that a new static calibration check is carried out each time a new type or new batch of fertiliser is used. The calibration check is carried out with PTO switched on, hydraulic on and the tractor and implement standing still.

#### Calculation of exact tractor speed:

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

#### Tractor speed



$$\text{Forward Speed} = \frac{360}{\text{time in seconds for 100 m}} \quad \text{Example: } \frac{360}{36} = 10 \text{ km/hr}$$

#### Calculating required fertiliser flow per minute:

The calibration check is carried out on one outlet only. However the calculation is for **both** outlets. Therefore divide calculated quantity by 2.

$$\frac{\text{Speed (km/hr)} \times \text{working width (m)} \times \text{application rate (kg/ha)}}{600} = \text{kg/min}$$

$$\text{Example: } \frac{8 \text{ km/h} \times 10 \text{ m} \times 300 \text{ kg/ha}}{600} = 40 \text{ kg/min}$$

Therefore from **ONE** outlet the flow should be **20 kg/min**. In order to establish the correct shutter setting, several runs may be necessary. (Use the calibration table settings as a guide line.

For some application rates and forward speeds, flow rates are already given on the calibration chart.

Alternatively these calculations can also be carried out using the calibration calculator.

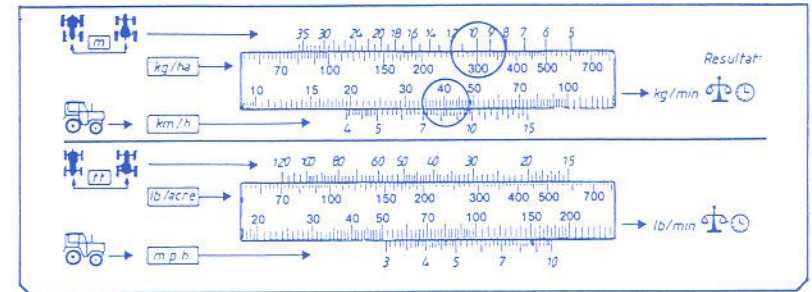
For instance, set the 300 kg/ha against the 10 m working width and read against the 8 km/hr value. You will find that it indicates a flow rate of 40 kg/min for **both** outlets.

### 5.2. CARRYING OUT THE CALIBRATION CHECK

Close the shutters manually or, alternatively with the remote control facility, disengage PTO, stop engine and fill the hopper with fertiliser. Remove both discs. Although the test will be done on the left hand side only, as a safety measure we recommend removing both discs because of the danger of injury from the spinning disc.

To remove the discs, take the rod from its bracket on the side of the frame and use it to operate the black quick-release mechanism on the disc retainers.

Remove both discs from their respective hubs and fit the chute (optional equipment) under the left hand outlet.



Set the flow rate stop to the scale value given in the calibration chart. Start engine and engage the PTO. Disengage control levers on 701 model. Open the left hand shutter manually, or via remote control, for the exact time chosen for the test run.



**ATTENTION: ROTATING HUBS!!!**

Weigh the fertiliser released, (remember to allow for the weight of the container). If necessary, adjust the rate stop and repeat the test until you obtain the correct weight. Disengage PTO, stop engine. Refit the discs. Because the disc fixing holes are different sizes it is only possible to fit the left disc to the left and the right disc to the right. Place the black quick-fit retainers on top of the discs. Rotate carefully to start the threads. Do not cross-thread. Do not overtighten. Tighten shortly with the round rod!!!



**DEFECTIVE DISC RETAINER NUTS MUST BE REPLACED IMMEDIATELY. THE DISCS ROTATE AT HIGH SPEED.**

### 6. REMOVING FERTILISER RESIDUES

In order to prolong the life of your spreader we recommend that the hopper is emptied immediately after finishing the job. Remove hopper residues as per the instructions given under section "Calibration check". The last of the fertiliser can be swept out with a small broom.

## 7. CLEANING

In order to prolong the life of your spreader we recommend frequent washing with a low-powered jet of water.

Make sure that the fertiliser outlet spouts are cleaned from beneath in order to remove any caked residues.

Lubricated components must only be cleaned at locations equipped with an oil separator in the drainage system.

When cleaning using a pressure washer, never direct the water directly onto electrical equipment, hydraulic components or slide bearings.

We recommend that, after cleaning, you treat the spreader with a corrosion inhibitor. (Only use biodegradable products).

## 8. SERVICING

If maintenance work is planned on a raised implement always secure with suitable supports.

All spare parts must meet the technical requirements set by the equipment manufacturer: This can only be ensured by using original spare parts.

Some spreading material, such as Thomas potash and Kieserit, gives rise to faster wear rates.



**WHEN CHANGING VANES, IT IS ESSENTIAL FOR SAFETY REASONS, THAT YOU FIT THE LOCKNUTS AND SCREWS SUPPLIED WITH THEM.**

Screw fixings must be checked regularly for correct seating and tightened where necessary. This applies especially to the fixings of hopper to mainframe.

The gearbox is permanently lubricated and, under normal working conditions, does not require frequent maintenance. The gearbox is filled with oil in the factory and topping up is not necessary. It may be prudent to change the oil every 2-3 years, especially if cleaned frequently with a pressure-washer, or if the spreader is used extensively with excessively dusty products.

The gearbox drain plug doubles as the filler plug. (Capacity - 2 litres Ersolan 460 Wintershall Gear Oil). The drain plug does not indicate the correct oil level.

### 8.1 LUBRICATION

After cleaning, grease/oil all lubricating points:

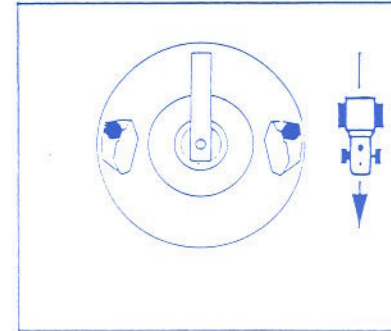
- PTO Drive-Shaft (as per Walterscheid manual)
- Agitator shaft and agitator cover. When the agitator cover cannot be removed (corrosion), remove the hexagon screw and spray in rust solvent.

## 9. CHECKING SHUTTER ADJUSTMENT

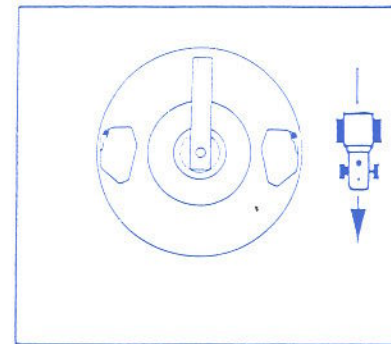
At the start of each season, or even mid-way through the season, the shutters must be checked for uniform aperture.

Set the shutter to position 24.

Remove the upper link pin (25 mm dia) and insert it from above into the shutter opening. the maximum clearance should be 1-2 mm.



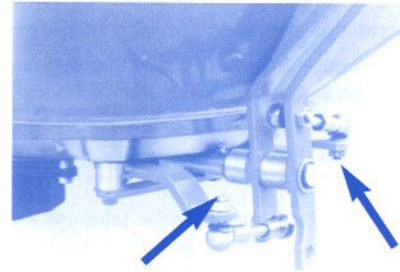
Prior to spreading very low application rates (seeds, slug pellets) we recommend that the apertures are accurately checked. Use the round rod (8 mm). For this exercise set the shutter into position 9. The round rod should have a maximum clearance of 1 mm.



## 9.1 INITIAL ADJUSTMENT

It is extremely important that each shutter opens the same amount - more so than whether it is position 23, 24 or 25 which gives the correct size opening.

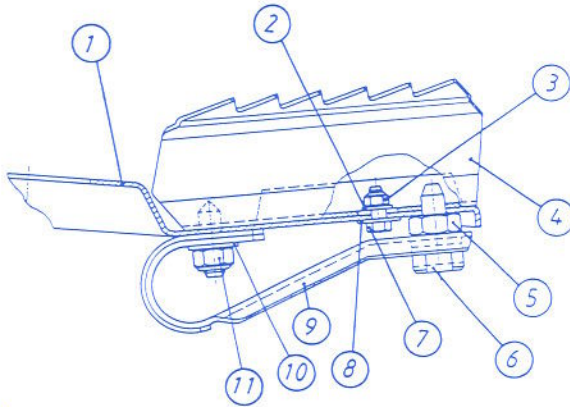
The knuckle joints can be loosened on one side and giving one turn will shorten or lengthen by 1 mm.



**ATTENTION:**  
**ADJUSTMENT OF SHUTTER**  
**OPENING AND SHUTTER CAN**  
**CAUSE CUTTING AND BRUISING**  
**INJURIES.**

## 10. CHANGING OF THE VANES

Fig. 1



1. Remove disc.
2. Use the round rod to move dowel pin (item 6) from its seating.
3. Remove bolt (M5x16) (item 7)
4. Reengage dowel pin into its seating.
5. Using a flat spanner, unscrew the M8 locking nut (item 11). Remove washer (item 10), leaf spring and the vane guide.
6. Install the new vane guide making sure that vane guide marked BR is mounted on right disc and vane guide marked BL is mounted on the left disc.
7. Position leaf spring and engage the dowel pin into a seating of the disc, then install washer dia. 16x8,4 and nut M8.
8. Reengage dowel pin to its seating
9. Tighten M8 nut (item 11) so that the dowel pin is firmly located inside its housing but the leaf spring can still be pivoted into the different seatings of the disc. Tighten the nut so that about 1 mm of thread is visible above the locknut.

## 11. VALUABLE TIPS FOR PRECISION SPREADING

With the state of the art technology and quality construction of RAUCH Fertiliser Spreaders, together with extensive and continuous testing in the Fertiliser Spreader Research Centre at our factory, we have created the conditions for a perfect and even spread pattern.

Despite the careful manufacture of your spreaders, even with proper useage, we cannot completely rule out variations in output or blockages. Such circumstances can be caused by the following:

- varying consistency and flow characteristics of fertiliser or seeds (eg. variation of particle sizes, coatings, density, shape.
- lumpy, moist fertiliser
- wind-drift
- blockage or bridging (eg. foreign matter, dust, bits of bag...)
- undulating fields
- wear on components (eg. agitator, vanes, outlets)
- defects arising from external damage
- lack of cleaning or corrosion prevention
- incorrect PTO speed or tractor speed
- not carrying out calibration check
- incorrect setting of fertiliser spreader(wrong height, wrong vane setting, misreading calibration chart)
- loose 3-point linkage stabilisers or spreader not level on linkage

Therefore check your fertiliser spreader before each job and even during the job. Check that it is functioning correctly and producing the expected spreading precision.

All claims for consequential losses, not caused to the fertiliser spreader itself, are excluded from manufacturer's liability. This includes any liability for consequential losses due to spreading errors. Any unauthorised alterations to the spreader may cause consequential losses which are excluded from the liability of the supplier.

## 12. FAULT DIAGNOSIS (TROUBLE SHOOTING)

- **Uneven distribution of fertiliser**
  - Remove any fertiliser build up from discs, disc vanes and outlets.
  - Make sure vane settings are correct as per calibration chart.
- **Too much fertiliser around tractor tracks**
  - Check vanes and outlets. Replace defective parts immediately.
  - The fertiliser granules have a smoother surface than that tested for the charts (see section.3.3.4)
- **Too much fertiliser in overlap area**
  - The fertiliser granules have a rougher surface than that tested for the charts (see section 3.3.4)
  - PTO speed is higher than indicated on tachometer. Have speed checked.
- **Spreads more fertiliser on one side than the other**
  - Check shutter apertures - see section.9.1.
- **Fertiliser flow to discs is not constant**
  - Check agitator mechanism and replace if necessary.
- **Fertiliser escapes from hopper even when shutters closed.**
  - Check clearance between hopper floor and agitator. If more than 3 mm shim the funnel on the bracket accordingly.
- **Discs vibrate**
  - Check disc seats and the threads of the retaining nuts. Replace if necessary.

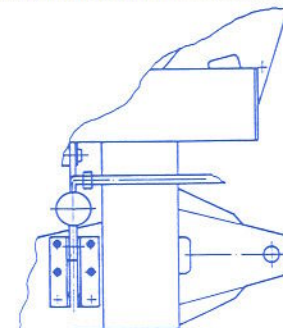
### FAULTS WITH THE HYDRAULIC SHUTTER CONTROL MECHANISM

- **Hydraulic ram does not operate**
  - Shutters are jammed or stiff. Make sure that shutters, levers and joints all move freely. See section 1.4
- **Hydraulic ram operates too slowly**
  - The oil is too thick. Drill out aperture disc to 1 mm or exchange (request from factory). In order to remove aperture disc, undo hoses where it enters the ram (front connection for double acting rams)

## 13. OPERATORS MANUAL AND ASSEMBLY INSTRUCTIONS FOR OPTIONAL EQUIPMENTS

### HYDRAULIC REMOTE CONTROL FHK A -single acting-

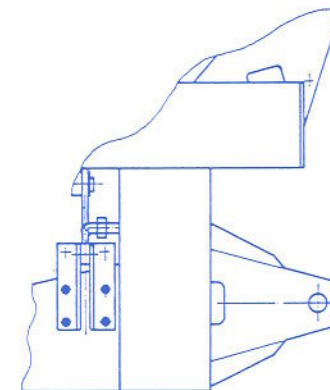
Fit the console of the ram cylinder to the right side of frame (seen in direction of travel) with the 4 nuts M 10 x 25. - Note the punch holes - Fit the cylinder pipe with clevis pin onto the console.



**BEFORE ATTACHING THE HYDRAULIC RAM TO THE RATE LEVER CHECK THE ACTUAL LENGTH OF THE HYDRAULIC RAM WITH CLOSED SHUTTERS AND FULLY EXTENDED RAM. THE LENGTH CAN BE ADJUSTED BY LOOSENING THE LOCK-NUT AND ROTATING THE FORK. IF ADJUSTED INCORRECTLY THE RATE LEVERS AND BOLTS MAY BE BEND.**

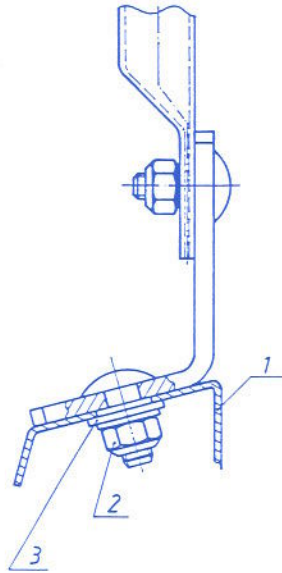
### HYDRAULIC REMOTE CONTROL FHD A -double acting-

Fit the console of the ram cylinder to the right side of frame (seen in direction of travel) with the 4 nuts M 10 x 25. - Note the punch holes - Fit the cylinder pipe with clevis pin onto the console.



## HOPPER COVER

Fit pivot frame with screw M 8 x 25. Fit a plastic washer (3) between hopper wall (1) and washer (2).



## ROW SPREADING EQUIPMENT RFZ 7 M

See separate operators manual delivered with this equipment.

## ROW SPREADING KIT FOR HOPS AND ORCHARDS

The RV2M row spreading kit is located into the upper channel in the shutter housing.

The row-spreading kit is designed to spread a band of fertiliser approximately 1 m wide onto a row on both the right and left-hand side of the spreader (row spacing of 2,5 m).

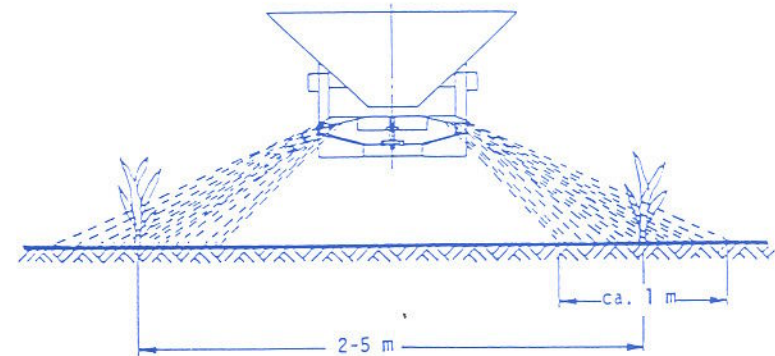
Because of the narrow spread-width we recommend that the spreading vanes are located in the 1-1 position. Fine-tune the spread pattern by using higher or lower mounting positions.

Application rate is calculated from the Calibration Chart making pro-rata allowances according to the actual spread width.

### Example:

Row spacing = 3 m x 2 rows = 6 m working width = double the rate at 12 m spread width. Therefore the aperture setting given in the Calibration chart must be set for half the rate.

The area not receiving fertiliser is not taken into consideration and the crop-rows receive the concentrated dose.

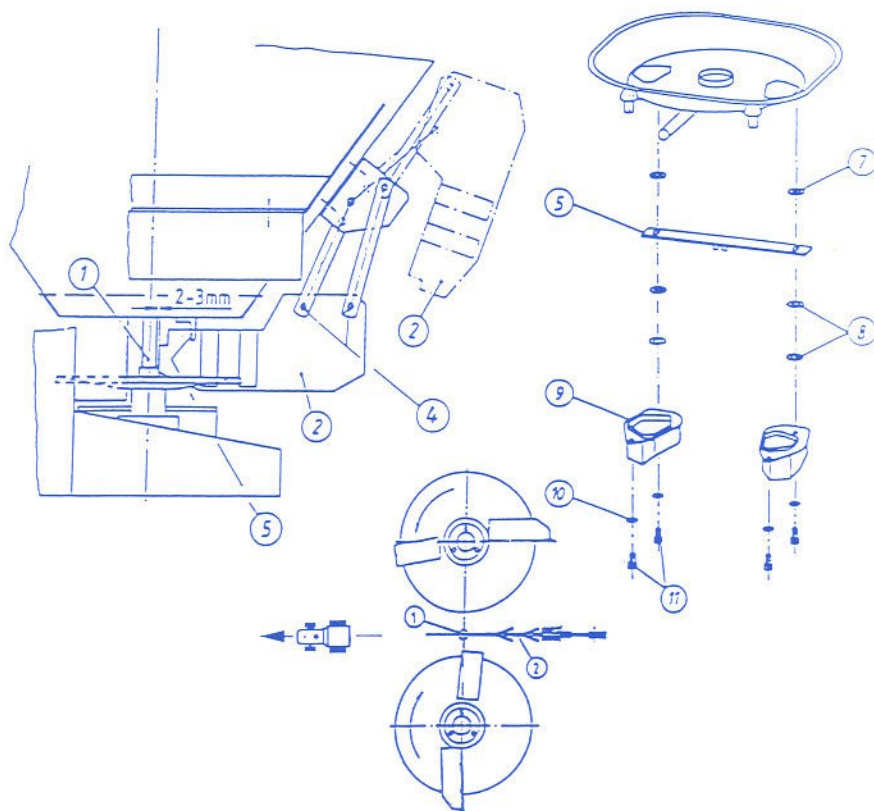




## BOUNDARY SPREAD LIMITER GHM

1. Remove the fertiliser chute bolts (Fig. 2, No. 11) Detach chutes (9).
2. Assemble the guide plate (Fig. 2-5) and the washers (7, 8) together with the chutes.
3. Drill 8.5 mm holes and bolt on the boundary spreading plate. The punch marks can be found on the inside of the hopper.
4. Swing the boundary plate (2) down between the spreading discs. Make sure that there is no sideways movement (to right or left). Pay special attention to the clearance between the plate and the fertiliser discs and check that the plate cannot foul the discs.
5. If there is excessive play, the two hex-nuts (fig. 1-4) should be tightened until the boundary plate is secured firmly between the guide levers (fig. 1-3).

For normal spreading to both sides, swing the boundary plate (2) rearward and secure.



## HOPPER SCREEN

Position screen into the hopper. Mark the holes for the fastening holes (in direction of travel). Bolt screen with screws M 6 x 20.

## LIGHTING KIT

Mark the hopper and drill 9 mm dia holes. Punch marks can be found on the inside of the hopper.

Bolt light panes onto the hopper with screws M 8 x 20. Use cable ties to fasten the cables. Make sure cables are fastened tightly.

## 14. WARRANTY CONDITIONS

RAUCH warrants in accordance with the provisions below, to each original retail purchaser of RAUCH new equipment of its own manufacture, from an authorised RAUCH dealer, that such machinery and that such equipment will be warranted for a period of one year from the date of delivery to the end user, providing the machine is used and serviced in accordance with the recommendations in the operators manual.

### **These conditions are subject to the following exceptions:**

1. Parts manufactured from wood are not in any way covered by this limited warranty.
2. Parts of the machine which are not of RAUCH manufacture (tires, belts, PTO shafts, clutches etc.) are not covered by this limited warranty but are subject to the limited warranty of the original manufacturer. Any claim falling into this category will be taken up with the manufacturer concerned.
3. This limited warranty will be withdrawn if any equipment has been used for purposes other than for which it was intended or if it has been misused, neglected or damaged by accident or let out on hire. Nor can claims be accepted if parts other than those manufactured by us have been incorporated in any of our equipment. Further, the Company shall not be responsible for damage in transit or handling by any common carrier and under no circumstances within or without the warranty period will the Company be liable for damages for loss of use, or damages resulting from delay or any consequential damage.

We cannot be held responsible for loss of earnings caused by a breakdown or for injuries either to the owner or to a third party, or can we be called upon to be responsible for labour charges other than originally agreed, incurred in the removal or replacement of components.

### **The customer will be responsible for and bear the costs of:**

1. Normal maintenance such as greasing, maintenance of oil levels, minor adjustments etc.
2. Transportation of any kind of any RAUCH product to and from the place the warranty work is performed.
3. Dealer travel time to and from the machine or to deliver and return the machine from the service workshop for repair.
4. Dealer travelling costs. Parts defined as normal wearing items are listed as follows and are not in any way covered under this Limited Warranty.

"V" belts, discs, knives, wear plates, stone guards, tires, slip clutches, pitman shafts, swath sticks, blades, tines and tine holders.

RAUCH limited warranty will not apply to any product which is altered or modified without the expressed permission of the Company and/or repaired by anyone other than Authorised Service Distributors or Authorised Service Dealers.

Limited warranty is dependent on the strict observance by the purchaser of the following provisions:

That all safety instructions in the Owners Manual shall be followed and all safety guards regularly inspected and replaced where necessary.

No warranty is given on second-hand products and none is to be implied. Persons dealing in the Company's products are in no way legal agents of the company and have no right or authority to assume any obligation on their behalf, express, implied or to bind them in any way. RAUCH reserves the right to incorporate any change in design in its products without obligation and to make such changes on units previously manufactured.

Disclaimer of further Warranty. There are no warranties, expressed or implied, except as set forth above. There is no warranty of merchantability. There are no warranties which extend beyond the description of the product contained herein. In no event shall the company be liable for indirect, special or consequential damages (such as loss of anticipated profits) in connection with the retail purchaser's use of the product.