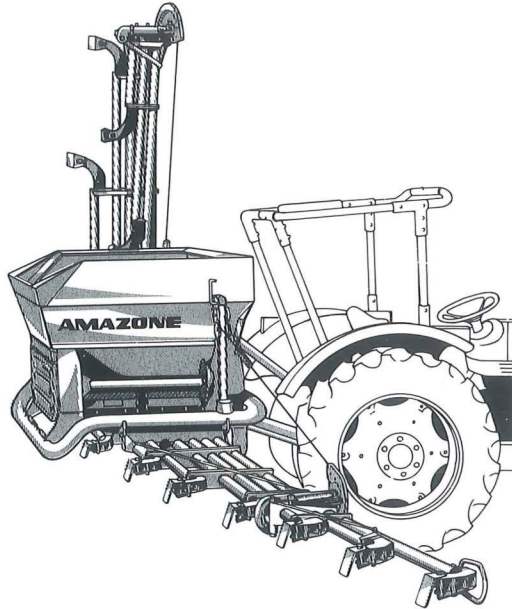


Pneumatic Fertilizer Spreader

AMAZONE

JET 1203/1503 F

Instruction Manual



To ensure that you will get the best possible results from your "AMAZONE" we would ask you to read and observe these instructions carefully. You will of course appreciate that we will not be able to accept claims under guarantee if any damage is caused due to incorrect operation.

AMAZONEN-WERKE **H.DREYER**
GmbH & Co. KG



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Factories for: Fertilizer-spreaders, -storage halls, -handling systems. Seed drills. Soil cultivation machines. Field sprayers. Potato-graders, -sorters.

Please enter the serial number of your pneumatic broadcaster here. You will find number stamped on the right front side of the main frame.

Please always quote the serial number when ordering spareparts or making enquiries.

Machine serial no.

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1 Specification of the machine

1.1 Manufacturer

AMAZONEN-WERKE, H. Dreyer GmbH & Co. KG,
P. O. Box 51, D-4507 Hasbergen-Gaste, West Germany

1.2 Type of pneumatic spreaders

order-No.

AMAZONE JET 1203 F	286 001
AMAZONE JET 1503 F	207 001

1.3 Boom sizes

10 m working width	18 410
12 m working width	18 510
15 m working width	18 610
16 m working width	18 710
18 m working width	18 810

1.4 Technical data

Length	1.34 m
Filling height	0.90 – 1.05 m

Fat working width	10 m	12 m	15 m	16 m	18 m
number of jets	16	16	30	32	32
jet spacing	0.625 m	0.75 m	0.50 m	0.50 m	0.56 m
hydr.boom folding	option	option	stand.	stand.	stand.
Transport. width	2.50 m	2.50 m	2.90 m	2.90 m	2.90 m
Total height	2.59 m	3.03 m	3.04 m	3.04 m	3.22 m
Weight of booms	126 kg	140 kg	233 kg	238 kg	272 kg
Spreadrate at 8 k.p.h. in kg/ha	30–750	30–750	30–930	30–930	30–930

Type of pneumatic spreader	JET 1203 F	JET 1503 F
Net weight of base machine	363 kg	282 kg
Hopper capacity	1200 l	1500 l
Metering system	forced feed metering system (toothed wheels)	
Checking of spread rate	Possibility for calibrating	
Adjustable spread fan	for normal spread and top dressing	
Spread rate setting	by a freewheel with stepless variable stroke	

We reserve the right for any technical changes without notice.

1.5 Application range

The pneumatic spreaders **AMAZONE JET 1203** and **JET 1503** are suitable for spreading granular fertilizers, microgranules, seeds and material of similar consistency.

1.6 Description of the machine's function

The material for spreading is metered from the hopper into the injector sluices by forced feed toothed wheel rollers, which are driven by a freewheel with stepless variable stroke. The p.t.o.-driven blower fan provides a stream of air which transports the spreading material from the injector sluices through the pipes to the distributing jets at the booms. Deflector plates spread the material fan-like to the ground, whereby the spreading fans overlap one another 2 – 4 fold to ensure an optimum lateral distribution.

2 Hints upon receiving the machine

2.1 Receiving

On receipt check the spreader for damage and missing parts. Claims must be made to the carrier immediately if compensation is to be obtained. Please ensure also that all parts listed in the consignment note have been received.

3 Putting into operation

3.1 General notes

The AMAZONE pneumatic spreaders type JET 1203 F and 1503 F may only be used for the purpose they are designed for. Otherwise no claims for warranty are accepted for damage to the machine.

This means that the implement should be used only for the purpose it is designed for and its use is bound to adhering to the manufacturer's operating instructions, setting charts and maintenance instructions including the exclusive use of original spare parts.

The AMAZONE pneumatic spreader JET 1203 F and 1503 F may only be used, serviced and repaired by persons, who have received proper instructions and warnings about possible dangers.

All applicable accident preventing advice as well as the further generally accepted technical and operating, safety and medical rules and traffic laws must be observed (please consult the Health and Safety Office if in doubt).

3.2 Attaching to the tractor

The machine is attached to the category II three point linkage system of the tractor in the usual manner. Under normal conditions the three point mounting pins of the machine should be mounted in the upper position, for late top dressing in the lower position.

In the operating position the machine should be set parallel with the ground by adjustment of the top link. **In working position the distance between the lower part of the machine and the ground or the top of the crop should be about 700 mm.** If this mounting height cannot be achieved for top dressing, the deflector plates at the outlets should be mounted facing upwards (compare para. 4.5).

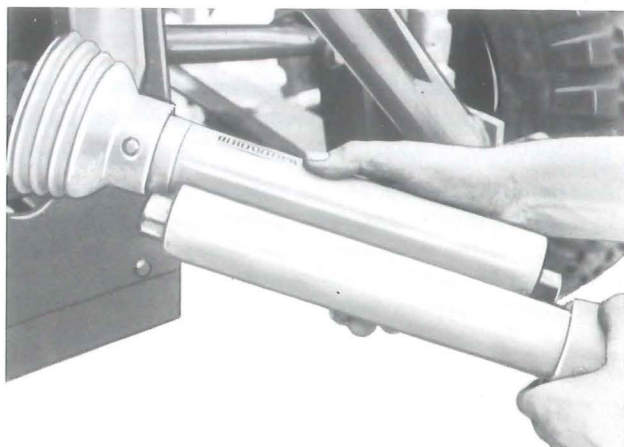


Fig. 1

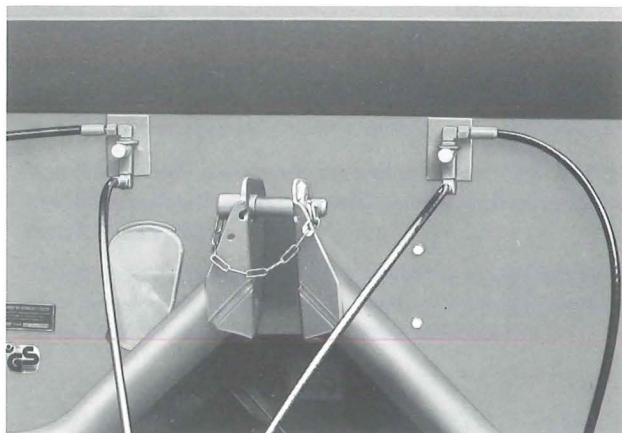


Fig. 2

3.3 Universal joint shaft (very important)

When attaching the machine for the first time to the threepoint linkage of the tractor do not attach the p.t.o.-shaft to the tractor. Instead pull the front half of the p.t.o.-shaft out first, attach it to the splined p.t.o.-shaft of the tractor, lift the machine into working position and check the overlap of the p.t.o.-shaft by holding both free ends side by side and simultaneously lower the hydraulic to the floor. A minimum overlap of 60 mm ($2\frac{1}{2}$ "") should be maintained in all lifting positions of the machine. On the other hand the inner and outer tube must under no circumstances touch the universal joint on the end of the tubes (Fig. 1). If the p.t.o.-shaft-halves are too long they have to be shortened by the same amount on either side including the protective tubes). Apply grease to the inner shaft!

3.4 Fitting of the boom halves

The fitting of the boom halves should be done according to the separately supplied fitting instructions. For the first operation of the hydraulically actuated booms the throttle valves (Fig. 2) should be set in such a way that the boom halves slowly fold up or down. Before it is possible to turn the setting screw at the throttle valve it is necessary to loosen the threaded pin with Allen key head (safety provision).

3.5 Hydraulic boom lifting

The machines with 15 m, 16 m and 18 m booms are supplied with hydraulic boom lifting. For the other boom widths it is available as special option. The boom halves can be conveniently raised and lowered by two extra single acting control valves. The raising and lowering speed may be set according to the oil's viscosity. For road transport the boom halves must be fixed and secured in the transport position.

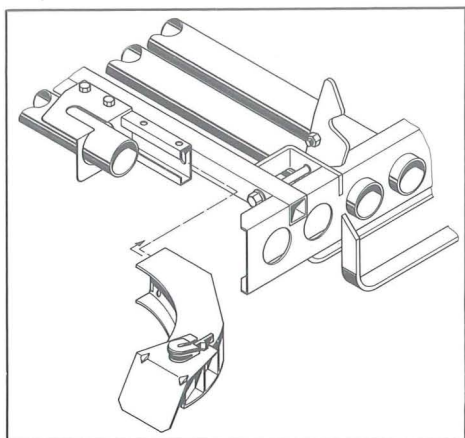


Fig.3



Fig.4

3.6 Completing and fitting of the injector sluice

First assemble the unfitted outlets in the shown manner (Fig. 3). Then insert the injector frame from below into the main chassis (Fig. 4.1). For this the injector sluice frame should rest on the studs in front of the air channel. Then raise the rear, pull the grip (Fig. 4/2) and hang in. Check the proper seating of the injector frame because a possible loss of air would have negative effect on the spread pattern.

3.7 Installing of metering units

Hang the metering unit by its tube onto the hooks provided hooks on the machine above the injector sluices. Then swing the metering unit towards the machine centre until it is held by the catches. The metering units can only be locked in position if the dog clutches on the drive side are disengaged. If the metering units are equipped with a boom section control the left and right hand metering units should not be mixed up. To ensure a correct fitting make sure that the square dog clutch of the metering unit shaft always faces the clutch/drive side. 9.

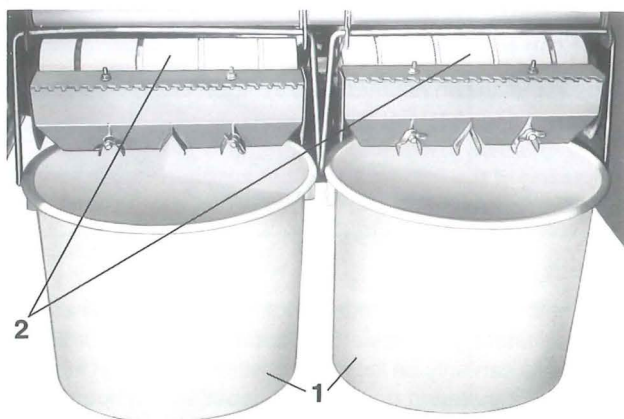


Fig.5

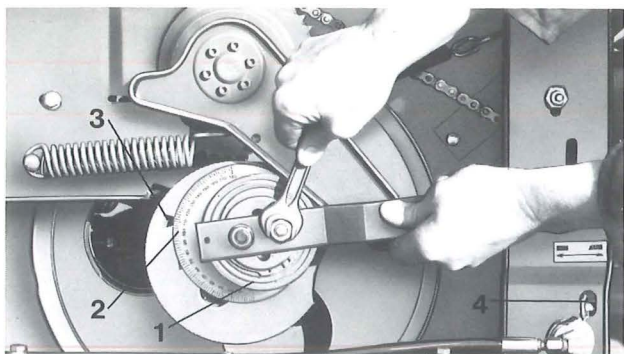


Fig.6

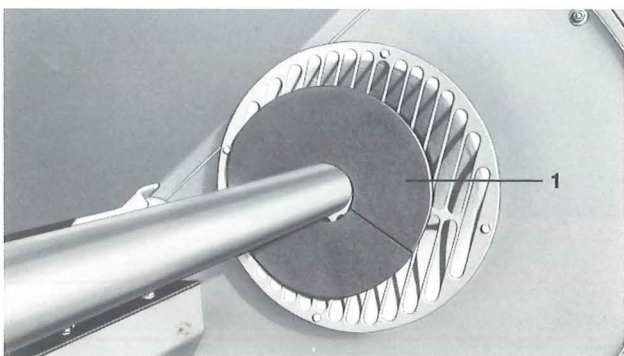


Fig.7

4 Practical operation in the field

4.1 Filling of the spreader

The spreader may only be filled if it is mounted to the tractor, otherwise it may tip over. The permissible payload is 1600 kg. The favourable filling height of 1.05 m at the rear allows filling by a tipping trailer, bulk container or front-end loader. Please consider the maximum allowable lifting capacity or the front axle weight decrease of the tractor!

4.2 Setting of the spread rate with fertilizer and micro granules

The desired spread rates can be read off the setting chart for fertilizer and micro granules which may be found inside the machines rear cover. Thus, the column should be considered which relates to the desired tractor speed and to the material to be spread. The relative position of the adjustable eccentric-cam (Fig. 6/1) towards the scale may be taken from the same setting chart and will be set after having loosened the off-centre nut (not self-locking nut) of the eccentric-cam (roller bearing, Fig. 6/1) by swivelling the eccentric-cam with the fixed scale by means of the setting lever provided as shown in Fig. 6 until the arrow (Fig. 6/3) oppose the desired figure on the scale between 0 – 180 (Fig. 6/2).

For spreading grass seeds, micro granules exchange the normal fertilizer metering unit (Fig. 5/2) for a special metering unit for grass seeds, micro granules etc. (options).

4.3 Calibrating the required spread rate with the calibration buckets

First find from the calibration table the desired type of material to be spread, the desired forward speed, the application rate and set the machine according to para 4.2. The calibration test is carried out on the **left** side of the machine (seen in driving direction). For this purpose the right metering unit must be disengaged by operating first both hydraulic rams from the tractor whereby both of the metering units become disengaged. In that position the spring-lever (Fig. 6/4) of the right hydraulic ram must be set in position „AUS“ (OFF).

The left injector sluice clutch (Fig. 4/1) has to be disengaged as shown in Fig. 4 and pulled downwards and to the side. Afterwards hang calibration buckets (Fig. 5/1) as shown in Fig. 5 and place the rubber throttle disc (diam. 210 mm) on the air-intake of the blower according to Fig. 7/1).

Before starting with the calibrating the metering housings are to be primed with fertilizer by briefly engaging the p.t.o.-shaft. Thereafter the calibration buckets must be emptied completely.

The machine is then to be run at a p.t.o. speed of 540 R.P.M. at the desired forward speed (k.p.h.) across the metering distance, which represents the equivalent of 1/40 hectare:

- for 10 m working width use as metering distance 50 m
- for 12 m working width use as metering distance 42 m
- for 15 m working width use as metering distance 33 m
- for 16 m working width use as metering distance 31 m
- for 18 m working width use as metering distance 27.7 m

(For machines with the optional reduction gear for 1.000 R.P.M.-p.t.o. drive the necessary p.t.o. speed for testing is 1.000 R.P.M.)

The spreading material collected in the calibration buckets (Fig. 5/1) should then be weighed and the weight **be multiplied by 40** to determine the effective spread rate per hectare.

After the calibration test put the injector sluice back into place and remove the rubber throttle disc from the blower. For broadcasting on the field, **both** the forced feed metering units are to be engaged, thus unlock the righthand dog-clutch according to Fig. 6/4.

Calibration example:

Desired spread rate:	306 kgs/ha of NPK-compound fertilizer
Desired speed:	8 km/h
Working width:	12 m
Eccentric scale position:	46
Collected quantity:	7.3 kgs
Actual spread rate:	$40 \times 7.3 = 292$ kgs/ha

By this setting – using a forward speed of 8 km/h (k.p.h.) – the spread rate of 292 kgs/ha would be obtained.

If the obtained rates need to be corrected, the above calibration test should be redone, after a corresponding readjustment of the eccentric cam (Fig. 6/1) position.

Special hints for broadcasting of micro granules

For broadcasting fine-grain materials such as micro granules close the intake of the blower with the supplied rubber throttle disc (210 mm diam., Fig. 7/1) during operation.

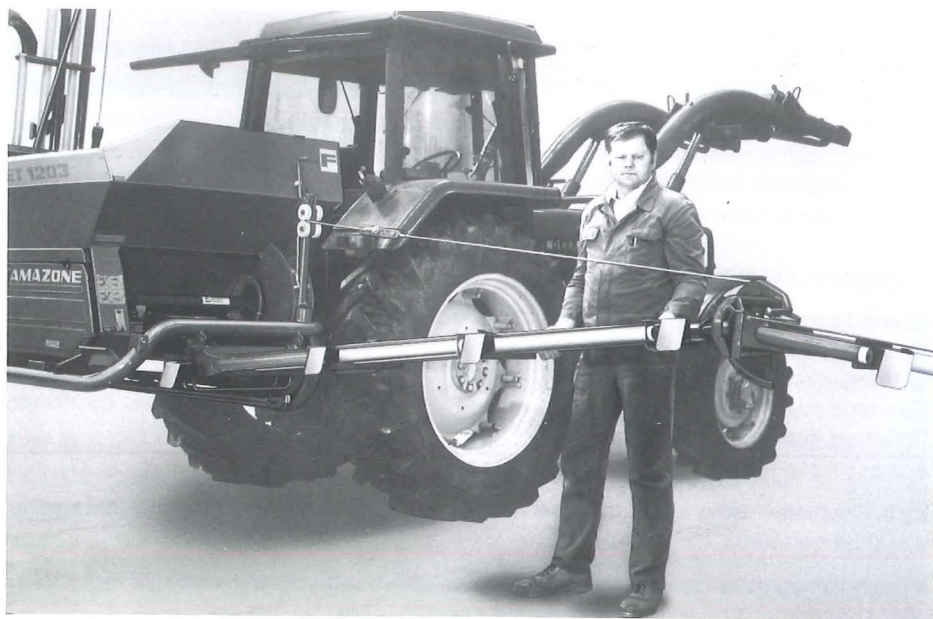


Fig.8

4.4 Folding of booms

Disconnect the road safety boom pins and then fold down the boom either by hand or hydraulically. To do this with the hydraulic boom folding unit use either a control valve on the tractor or the solenoid control chest on the machine (if available). **Please ensure that the boom halves are completely lowered down.** During the spreading operation the booms equipped with hydraulic boom lift can easily be angled with a solenoid control valve to avoid ground contact. If the outer boom ends hit firm obstacles they give way to the rear and upwards and after the obstacle has been passed, return into the original position.

Attention:

It is prohibited to stay in the swiveling area of the hydraulic booms! Keep others away too!

For booms which are folded up or down by hand it is recommended to lift the boom in the place as shown in Fig. 8. In this position, the boom can be lifted or lowered safely with a relative small power.

When transporting the booms in the lifted position, they must always be secured with the mechanical safety device!



Fig. 9



Fig. 10

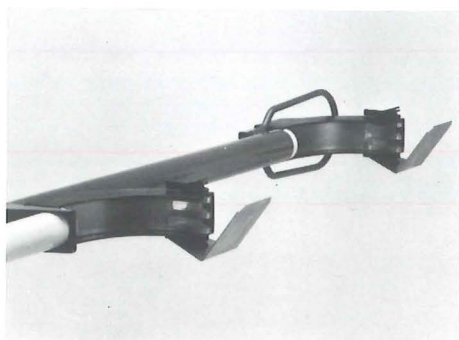


Fig. 11

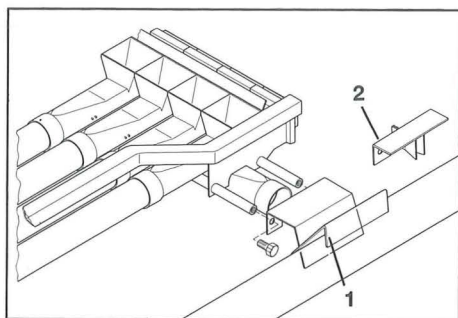


Fig. 12

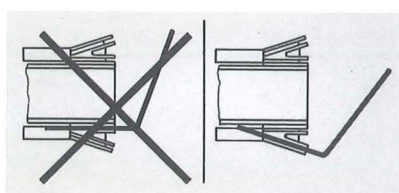
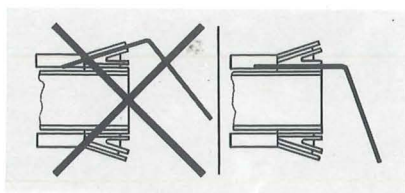


Fig. 13

4.5 Normal spreading and top dressing

Normal spreading:

The machine is mounted parallel to the ground, the spacing between the boom and the ground or crop is 700 mm.

All deflectors on the boom and those integrated into the main chassis are pointing downwards; this way the spread fan is hardly affected by wind (Fig. 9, 10/1, 10/2).

Top dressing:

The machine is mounted parallel to the ground and lifted slightly above the top of the ears.

All deflector plates on the boom are pointing upwards (Fig. 11).

The deflectors in the outer chassis area (Fig. 10/1) left and right hand are removed. Beneath the machine (Fig. 10/2) the deflectors are removed on the 15 m-, 16 m- and 18 m-booms (compare also Fig 12/1). If the machine is equipped with a 10 m- or 12 m-boom the deflectors below the chassis (Fig. 10/2) are exchanged for the deflectors shown in Fig. 12/2.

Turning the deflectors on the booms is done without tools. To do this the plastic catch on the deflector plate mounting is bent sideways and the deflector plate is pulled off. The reversed deflector plate must then be slid into the correct slot (Fig. 13) until the plastic grips.

4.6 Hints for special care!

The pneumatic spreaders JET 03 are suitable for spreading of granular fertilizers, grass seeds, micro granules or similar products.

When spreading grass seeds the standard fertilizer metering units should be exchanged for the special grass seed or micro granule metering rollers (option).

When spreading fertilizers of a low bulk density such as Urea and prilled Calcium Nitrate the supplied restriction disc \varnothing 210 mm (Fig. 7/1) should be used during the spreading operation.

With some spreading materials such as Kieserite, Excello-granular and Magnesium Sulphate, increased wear on the delivery tubes and on the end outlets should be taken into account.

Preconditions for fitting hydraulically actuated special options without using the solenoid control chest (standard)







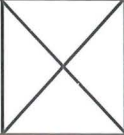

		1203 F 10/12 m	1503 F 10/12 m	1203 F 15/16/18 m	1503 F 15/16/18 m
switching metering units together by tractor hydraulics half side boom sections: manual	boom folding: manual	1	1		
	boom folding: manual 4-part boom sections: manual	1	1		
	boom folding: hydraulic	3 x 1 2 x 1 + two-way valve			
	boom folding: hydraulic 4-part boom sections: manual	3 x 1 2 x 1 + two-way valve			
half side boom sections: hydraulic	boom folding: manual	2 x 1 1 x 1 + two-way valve			
	boom folding: hydraulic	4 x 1 2 x 1 as double function 2 x 1 + 2 two-way valves			
4-part boom sections: hydraulic	boom folding: manual	4 x 1 2 x 1 + 2 two-way valves solenoid control chest recommended			
	boom folding: hydraulic	solenoid control chest recommended			

Fig. 14

5 Special optional equipment

5.1 Hydraulic half side control of metering unit (Order No. 191 100)

The right and left hand metering units can be individually controlled from the tractor provided that there are two single acting hydraulic valves on the tractor or a two-way control valve is fitted to the machine (part No. 145600).

5.2 Two-way control valve (Order No. 145600)

If the tractor has only one single acting hydraulic valve, individual control of the metering unit clutches from the tractor is possible by using the two-way valve (Fig. 15).

5.3 Hydraulic boom lifting (Order No. 190100)

The machines with 15 m-, 16 m- and 18 m-booms are supplied as standard with hydraulic boom lift. For machines with 10 m- and 12 m-booms it is available as special option (Fig. 15).

The boom halves can be conveniently raised and lowered by two single acting control valves. With the aid of two separate single acting control valves or two solenoid control chests the boom can easily be folded up or down. The raising and lowering speed may be set according to the oil's viscosity by an adjustable throttle valve.

5.4 Hydraulic double control (Order No. 167100)

The hydraulic double control is available for such tractors which are equipped with two single acting spool valves or for tractors with only one single acting spool valve plus one two way control valve (Fig. 14). It consists of a hose with joints connecting the two hydraulic rams on either side of the machine of the hydraulic halfside boom "on/off" control and of the hydraulic boom lifting to one hydraulic circuit coming off each one of the single acting spool valves on the tractor or of the two way control valve. This way the lefthand and the righthand **functions may independently be controlled** from the tractor seat whereby always the "on/off" control acts before the boom lifting/lowering.

If only turning at the headland is required actuate the spool valve briefly so that the metering unit is either operating or stopped. Tilting the booms **during operation**, for example, to prevent ground contact by the boom ends, **is not possible** with the hydraulic double control.

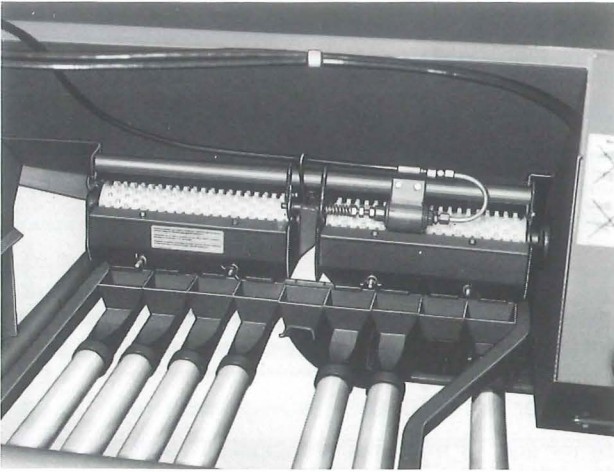


Fig. 15

Connection conditions for fitting hydraulically actuated special options with using a control chest.

		1203 F 10/12 m	1503 F 10/12 m	1203 F 15/16/18 m	1503 F 15/16/18 m
switching metering units together by tractor hydraulics half side boom sections: manual	boom folding: manual	no control chest necessary			
	boom folding: manual 4-part boom sections: manual				
	boom folding: hydraulic	3	3	3	3
	boom folding: hydraulic 4-part boom sections: manual	3	3	3	3
half side boom sections: hydraulic	boom folding: manual	2	2		
	boom folding: hydraulic	4	4	4	4
4-part boom sections: hydraulic	boom folding: manual	4	4		
	boom folding: hydraulic	6	6	6	6

Fig. 16

5.5 Hydraulic boom section spread control (Fig. 15)

These special options offer the possibility to reduce or to increase the working width from the tractor's seat on wedge shaped fields. By four hydraulically operated clutches the the working width can be reduced from the outside to the tractor centre width in steps depending on the total boom width as follows:

JET 1203/1503 F – 18 m: working widths of 4.5; 9; 13.5 and 18 m are possible.

JET 1203/1503 F – 16 m: working widths of 4; 8; 12 and 16 m are possible.

JET 1203/1503 F – 15 m: working widths of 4; 7.5; 8; 11.5 and 15 m are possible.

JET 1203/1503 F – 12 m: working widths of 3; 6; 9 and 12 m are possible.

JET 1203/1503 F – 10 m: working widths of 2.5; 5; 7.5 and 10 m are possible.

5.6 Preconditions for fitting hydraulically actuated special options when using the solenoid control chest

When using the solenoid control chest irrespective of the number of solenoid valves a double actuated control valve and a free flow return should be provided. The number of solenoid control valves necessary for the desired hydraulic execution may be taken from table according to Fig.16.

5.7 Metering unit for grass seeds or for micro granule chemicals

There are individual metering units available for grass seeds or for micro granules and pellets to replace the standard metering unit. The procedure for exchanging the metering units is mentioned in the para's 3.7 and 6.1.

5.8 Universal joint shaft with free clutch

This is recommended for tractors which are equipped with hydraulically engaged p.t.o.-shaft. If you are not certain which system is used at your tractor, please ask your tractor dealer.

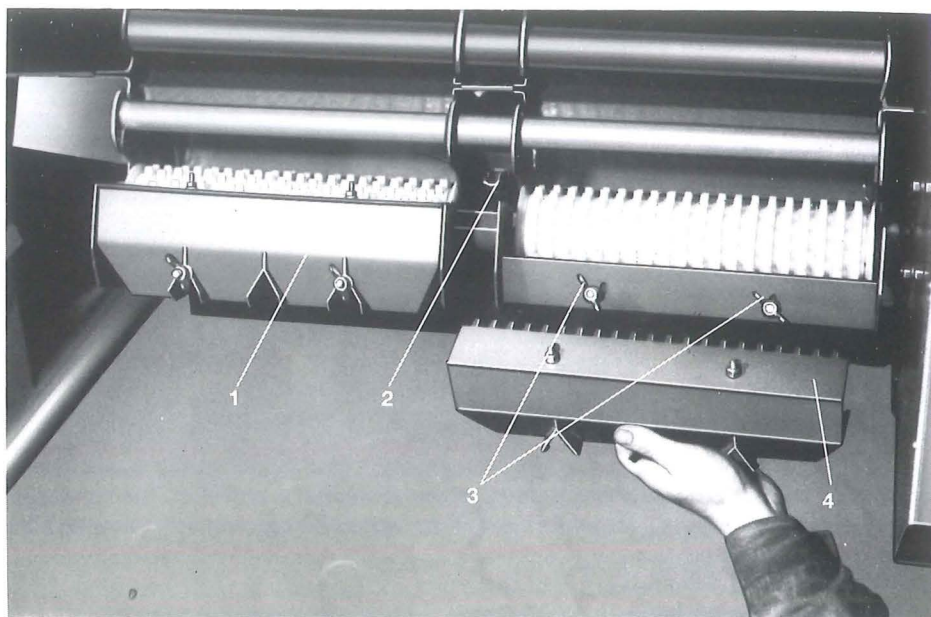


Fig. 17

5.9 Foam marker

The foam marker is needed if an accurate spread is wanted on fields which were sown without tramlines. The foam marker with compressor is connected to the electric circuit of the tractor whereas the implement without compressor is used on tractors which are provided with a compressor. More details may be taken from the instructions supplied with this option.

5.10 Position lights, tail lights, light carriers

These items can be fitted to the machine without difficulty and they are required when travelling on public roads.

5.11 Row spreading attachment (for 10 m- and 12 m-booms with manual lifting only)

Being especially designed for fertilizing crops which are planted in wider rows ("row crops"), such as potatoes, maize, vegetables etc. The row spreading attachment consists of a total of 16 big diameter flexible tube attachments two of which are directly mounted to the chassis and each boom half receives seven. The fertilizer is placed in a wide band on the ground by the side of the rows of plants so that nutrition concentration cannot occur in the root area.

Corresponding fitting and operating instructions are provided with row spreading attachment kit.

6 Care, maintenance, emptying and parking of the machine

6.1 General hints

After the first 30 hours of operation all bolts and nuts should be checked for tightness.

Cleaning the spreader should be done with water **whilst the machine is running** in a rear tilt position. Take out the injector sluices (ref. para. 3.6) and remove the metering units (Fig. 17/1) on both sides after having disengaged the dog clutches hydraulically. By pulling the trip (Fig. 17/2) the metering unit swings down and can be taken out easily. By loosening of the wing nut (Fig. 17/4) the bottom flap's upper part (Fig. 17/3) can be taken out easily for cleaning.

After removal and cleaning of the metering units and injector sluices they should be placed in such a way inside the machine that the water can drain off. They are reinserted again just prior to the next operation.

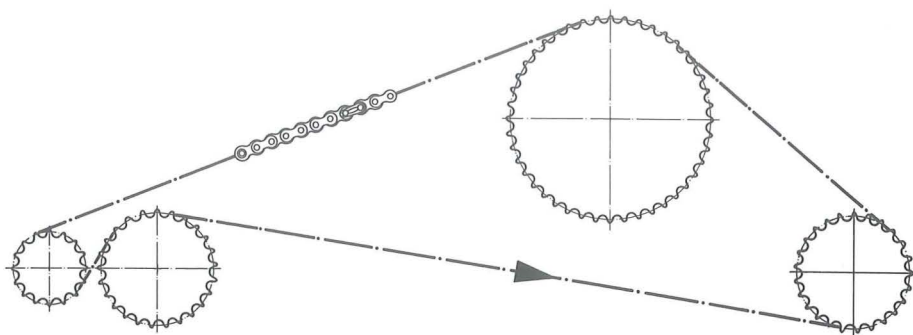


Fig. 18

6.2 Greasing plan

All bearings should be greased from time to time:

Universal joint shaft:	2 grease nipples
Blower wheel shaft:	2 grease nipples
Right dog clutch:	1 grease nipple
Left dog clutch:	1 grease nipple

Apply grease from time to time to the universal joint shaft tubes.

For maintenance of the roller chain during a longer operational pause it is recommended to wash it in Kerosine and to dip it into clean oil or heated grease. Refit the chain after cleaning off surplus lubricant according to Fig. 18. Never lubricate the chains while operating the machine.

Also apply grease to the chrome-plated piston rods of the hydraulic rams after cleaning of the machine.

6.3 Attention! Hints for assembling the blower wheel shaft

In case the repair of the blower wheel shaft becomes necessary, the assembly should follow the following points.

The bearing is firmly connected to the blower wheel shaft by the clamping sleeve nut. The necessary firm seating of this connection can only be achieved if the nut is tightened with a torque M of the following momentum:

Blower shaft diam. 35 mm: $M = 50 \text{ Nm}$

Main drive shaft diam. 30 mm: $M = 35 \text{ Nm}$