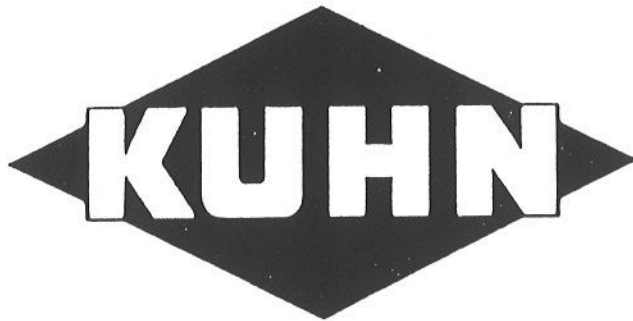


OPERATORS MANUAL

FERTILISER SPREADER



AERO

AGT



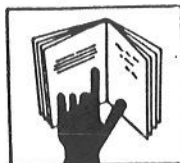
**PLEASE READ CAREFULLY
BEFORE USING THE MACHINE**

**KUHN FARM MACHINERY (U.K.) LTD.
STAFFORD PARK 7, TELFORD, SALOP TF3 3BQ
Telephone: Telford (STD 0952) 290991
Telefax: (0952) 290091**

AERO-GT-b-11.96-GB

Dear customer!

We are confident that your Kuhn 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, reliable, precision machine.



It is very important that you read and thoroughly understand these instructions 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 the efficient and safe operation, maintenance and care of your machine.

PLEASE NOTE: Any damage resulting from operator errors and/or misuse is excluded from our guarantee.

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 numbers on the type plate fixed to the frame of the machine.

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

TECHNICAL IMPROVEMENTS

We are committed to a policy of constant improvement of all KUHN 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

KUHN

Farm Machinery (U.K.) Limited

NOTE: MACHINE DELIVERY

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.



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 these 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 - be it the purchaser himself, a member of his family, an employee or bystander - must strictly obey the following main safety rules. Other safety instructions are to be found on the decals which are placed on 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 operating 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. Please check all nuts, bolt and other fixings, load-bearing ropes, load-bearing connectors and all locking devices for tightness.
4. Before using the machine, operators must familiarise themselves with all parts of the equipment and the function of all controls and adjustments. Finding out during operation may be too late!
5. Before using the spreader for the first time check that the tractor/spreader combination is roadworthy and in a safe operating condition.
6. Before filling the spreader with fertiliser, switch off tractor engine and remove key.
7. Before adjusting, lubricating, cleaning or carrying out any other work on the machine, switch off the PTO drive, switch off hydraulic system, switch off the tractor engine and remove the key. Wait until all moving parts have come to a complete stop.
8. Keep hands feet and clothing well away from moving parts. Do not put your hands inside the hopper. It contains a rotating auger! Do not wear loose clothing!



Do not put your hands inside the fertiliser hopper. It contains a rotating auger!

9. Keep the hopper free of any foreign matter.
10. Before starting and operating the machine, ensure that no person is present in the danger area around the fertiliser spreader. Make sure you have a good view all round! (Watch out for children!)
11. Only start the fertiliser spreader when all safety devices and guards have been properly fitted (filling screens, metering chamber covers, PTO guards etc..).

ATTENTION !!



FERTILISER IS THROWN FROM THE OUTLETS AT HIGH SPEED AND CAN BE DANGEROUS

MAKE SURE THAT ALL PERSONS LEAVE THE SPREADING ZONE BEFORE STARTING THE SPREADER.



12. Never leave the fertiliser spreader running unattended.
13. It is illegal to carry passengers when transporting or using the fertiliser spreader.
14. When checking, adjusting or repairing the machine, always ensure that the spreader cannot be started up by mistake.
15. Before taking the fertiliser spreader onto public roads, ensure that the spreader conforms to Road Traffic regulations (check with the authorities what protective equipment, lights and warning signs are required).
Do not exceed 25 km/hr (17 mph)
16. Powered external components (e.g. hydraulic rams) can cause serious crushing and cutting injuries
17. 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!
18. Make sure that the weight of the spreader does not make the tractor unstable. In many cases it will be necessary to add suitable weights to the front of the tractor so that tractor/spreader stability, steering and braking is not affected by the weight of the fully laden spreader. Make sure that the tractor maximum axle weights and gross weight are not exceeded.
19. **The maximum payload of the AGT fertiliser spreader is 1800kg.**
20. We recommend that you arrange for your dealer to check the condition of your spreader at the end of every season. He will pay special attention to all fixing components, load bearing ropes, hydraulic equipment, metering mechanism, manifolds and deflecting plates.

21. In the event of a mechanical, hydraulic or electrical breakdown during operation, switch off the spreader immediately. Stop tractor engine and remove the key before checking and repairing damage.
22. Repair all defects on the PTO shaft or its guards prior to using the fertiliser spreader.
23. The spreader should only be set down onto its parking stand when the hopper is empty. (Check that spreader is stable and will not move when unhitched.)
24. Never use spreader without the hopper grids fitted. Before removing grids:
 - switch off hydraulic system!
 - switch off PTO!
 - switch off tractor engine!
 - remove key!
25. Before transporting the spreader make sure that the boom sections have been mechanically locked in the transport position.
26. We recommend that ear defenders are worn when operating a tractor without an enclosed cab, or with cab windows open. The noise level from the spreader fan is 95 to 96db(A) during spreading.



27. Before operating hydraulic boom section controls and hydraulic level compensator make sure that there are no bystanders within range!
28. Never remove fertiliser deposits from the hopper by hand. Always use suitable tools and make sure that PTO shaft and hydraulic equipment are switched off. Push the fertiliser residues towards the metering shafts.
29. Watch out for traffic and bystanders when manoeuvring with booms extended!
30. Inappropriate selection and use of fertilisers can lead to serious injury and damage to humans, animals, plant-life and the environment. Therefore select the correct type of fertiliser for your task. Treat all fertiliser with care and carefully observe manufacturer's instructions.
31. Always select an appropriate tractor speed for the terrain concerned. When travelling across hills and valleys and across sloping ground, avoid sudden turns. When manoeuvring tight turns, switch off tractor differential lock. Never change gear or drive in neutral when going downhill.
32. Be careful, when using single-axle trailed machines, of possible instability due to shifting or offset loads. Be particularly careful when unhitching the implement and whilst it is disconnected from the tractor. Provide adequate supports.
33. The height of the drawbar should be adjusted by a qualified service centre.
34. The AERO AGT must only be used with tractors which are designed to accommodate the drawbar load of this trailed implement on a hitch arrangement which will not make the tractor unstable.

IMPORTANT POINTS TO CHECK ON THE HYDRAULIC SYSTEM

1. The hydraulic system operates at high pressures.
2. When connecting the hoses to the tractor hydraulic system, make sure that the hydraulic pressure, in both the tractor and spreader circuits, has been relieved.
3. Make sure that hydraulic connectors for the various functions are marked on both male and female fittings in such a way that incorrect connection is impossible! Wrong connection may lead to the opposite function to that intended.
4. When searching for hydraulic leaks use suitable protection (safety goggles, gloves, etc.), because pressurised hydraulic fluid can penetrate skin and cause serious injury. In the event, get medical help immediately as there is a serious risk of infection!
5. Before working on any hydraulic equipment, lower all raised components, relieve the system pressure and switch off the engine. Remove key!
6. Prior to making any hydraulic connections, carefully clean all connectors. When unhitching the spreader, place connectors in the holders provided.
7. Check all hydraulic hoses regularly; At least twice per year examine the surface of all hoses for mechanical defects, (eg. cuts and abrasions, crushed sections, kinks, tears, leaks). Replace all damaged lines immediately.

Undamaged hoses should not be used longer than five years. Replacement hoses must comply with manufacturer's specifications.

PROPER USE

AERO AGT pneumatic fertiliser spreaders are designed to spread dry prilled or granular fertiliser, seeds and similar material.

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

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

Your pneumatic AERO AGT fertiliser 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 generally recognised safety, technological, work-related and road traffic legislation must be observed.

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

WARNING AND INFORMATION DECALS ON THE AERO AGT FERTILISER SPREADER

- @ Decals on the machine are designed and positioned to increase the safety of all persons working with the machine.
- @ Please instruct anyone who works with the machine to obey all the warning and instruction information on these decals.
- @ Replacement decals are available through your dealer. Damaged or missing decals should be replaced in their original location immediately.
- @ All warning decals must be kept clean and readable at all times.

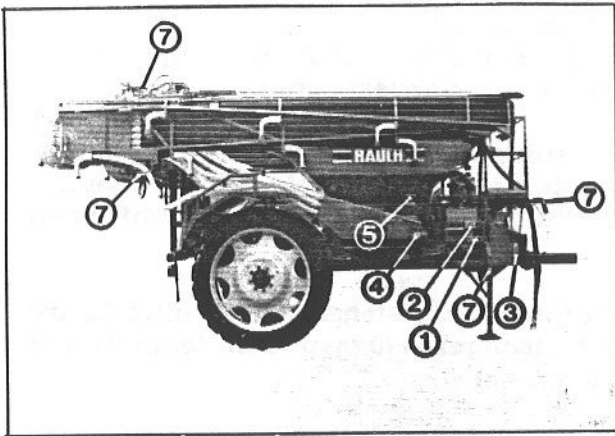


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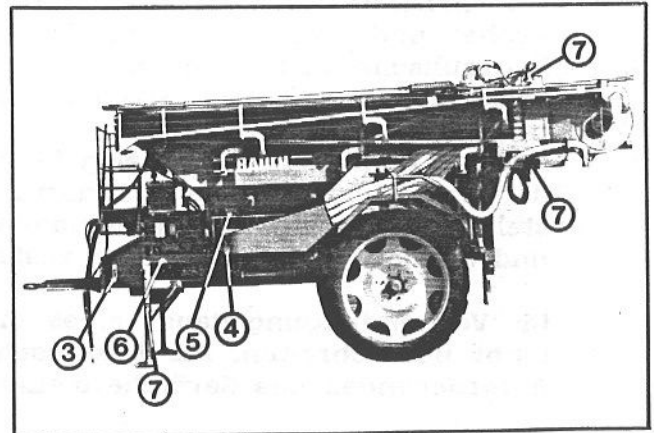


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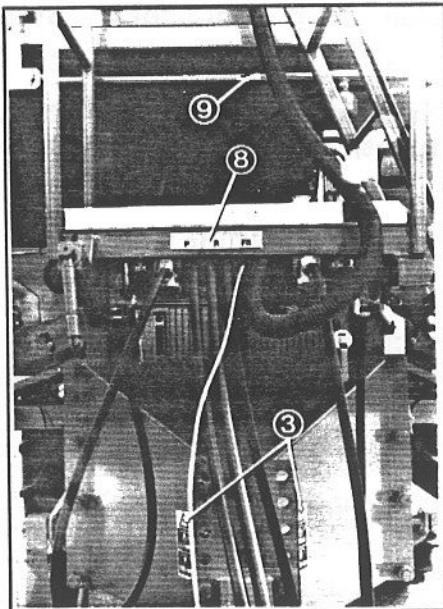


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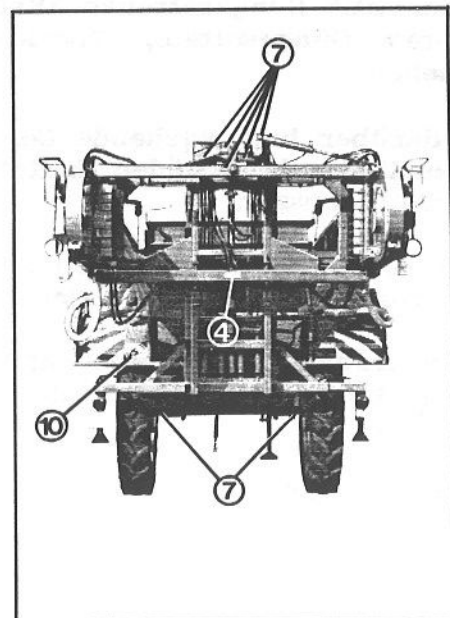


Bild 4

1

RAUCH Landmaschinenfabrik GmbH
D-7373 Sinsheim

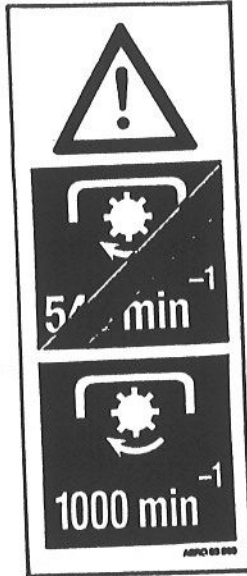
Typ Nr.
Baujahr

2

Verwenden Sie zum Nachfüllen bitte nur nachfolgend aufgeführte ATF Dexron II - Produkte:
Please use for refilling only hereunder mentioned ATF Dexron II - products:
Pour le remplissage n'employez que les produits ATF Dexron II ci-dessous énumérés:

**Wintershall ATF Dexron
Mobil ATF 220 · Shell ATF Dexron II
BP Autran DX II**

3



4



Vorsicht!
Aufenthalt
im Schwenkbereich
verboten.

5



Vor dem Einschalten Nahbereich kontrollieren (Kinder!).

Auf ausreichende Sicht achten!

Während der Arbeit niemals mit den Händen, Füßen, Kleidern oder Gegenständen in den Bereich der drehenden Teile gelangen.

A-D-0780-10

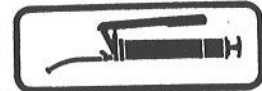
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Vor Inbetriebnahme die Bedienungsanleitung und Sicherheits-hinweise lesen und beachten!

TM - D - 0780 - 1

7



8

POSITION DER HYDRAULIKSCHLÄUCHE		
Druck	Rücklauf	Freier Rücklauf
P	R	FR

9



10



1. MACHINE SPECIFICATION

1.1 TECHNICAL DATA

AERO AGT	2918	2920	2921	2924
Working width m	18	20	21	24
Transport width m	2,95			
Overall width m	7,0			
Overall height m	3,4			
Filling height m	2,9			
Application rate	max. 250 ha urea up to 8 km/h			
Capacity ltrs.	2900			
Kerbside weight kg	3300	3400	3400	3450
Payload kg	3700	3600	3600	3550
Permissible total weight kg	7000			
Track width m	1800, on request 2000			
Drawbar load	1515			
Tyres/pressure	12,4 - 46 - 3,5 bar			
Height adjustment Drawbar mm	905 - 1385			
Height adjustment Hitch linkage mm	550 - 780			
<u>Torque settings:</u>				
Wheel nuts Nm	max. 350			
Add-on console Nm	max. 600			
Tow bar Nm	max. 600			
Part width control	all 3 m	all 3,33 m	all 3,5 m	all 4 m
Braking system	Dual circuit pneumatic brakes			

1.2 TAKING DELIVERY OF YOUR SPREADER

When taking delivery of your spreader check that the consignment is complete. The following are part of a standard machine:

- 1 Operator's manual AERO AGT
- 1 Operator's manual Quantron 4-6
- 1 Spare parts list AERO AGT
- 1 PTO Drive shaft (incl. operator's manual for drive shaft)
- 1 Metering-chamber cover
- 1 Quantron 4-6 Electronic Control console with installation kit
- 2 Hopper grids

Please also check all optional equipment ordered.

Check that manifolds and outlet deflectors are complete and tightly fastened.

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 NOTES ON SPREADING SPECIAL FERTILISERS

This precision spreader is particularly suited to the precise application of highly concentrated nitrogen fertilisers at low to medium rates. High application rates, as used when spreading straights, Lime, P-K fertilisers etc., will inevitably increase wear and tear on the machine.

Quicklime

During spreading and cleaning out, do not allow the quicklime to come into contact with water, since the resulting high temperatures could melt the plastic in the feed rollers.



Kieserite + Potash

The very rough and hard surface of Kieserite fertiliser causes high wear on injectors, plastic pipes and manifold.

2. COMMISSIONING

2.1 HITCHING AND UNHITCHING

CAUTION! Hitching-up and unhitching trailed machines to a tractor can be dangerous. Only hitch fertiliser spreader onto the proper coupling point. Observe permissible total weight. When reversing towards the implement prior to hitching up, keep bystanders away from the area between tractor and fertiliser spreader.

Prevent your spreader moving unintentionally by engaging the parking brakes or chocking the wheels.

Do not use tractor independent brakes during transport operations.

The AERO AGT connects to the tractor hitch. The height of the drawbar must be set by a competent service centre to ensure that the fertiliser spreader is as level as possible.

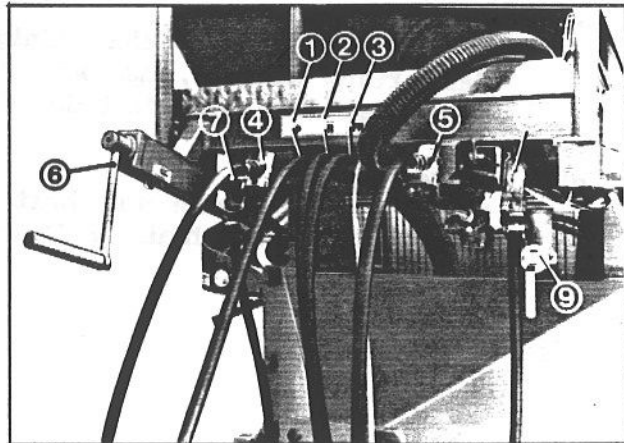
After the spreader has been coupled up initially, connect the brake line and the lighting system, then disengage the parking brake on the spreader.

The following equipment is required on the tractor to provide the hydraulic drive for the metering mechanism:

- 1 double acting valve and
- 1 free reservoir return line.

Fig. 5:

- 1 Pressure line P
- 2 Return line R
- 3 Free-flow tank return line FR
- 4 Filter - supply line
- 5 Filter - control line
- 6 Parking brake crank-handle
- 7 Supply line coupling (red)
- 8 Control line coupling (yellow)
- 9 Servo control



Before taking the implement into traffic place both support stands in their transport position.

Unhitch in reverse order.

2.2 FITTING THE PTO SHAFT

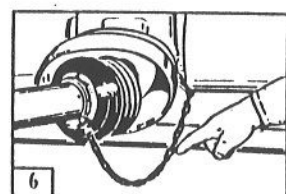
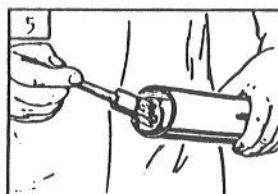
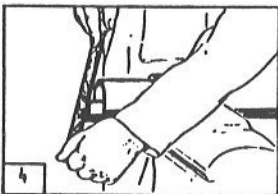
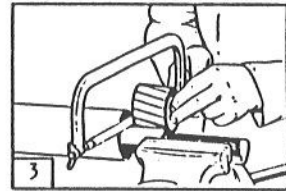
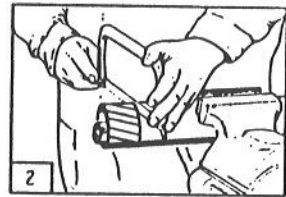
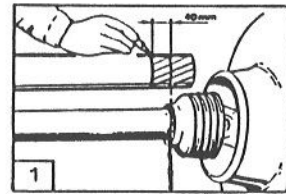
Only use PTO shafts approved by the manufacturer.

The AERO AGT is equipped with a wide angle PTO shaft. This shaft is designed for specific loads and implements. It must not be replaced with any other type.

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

Seek to provide maximum overlap on the shaft halves. When at working length the PTO shaft should only extend by half the slide overlap when shaft is fully compressed.

1. To adjust, move tractor/spreader so that shaft is in its shortest working position, hold shaft sections next to each other and mark (see Fig. 1).
2. If necessary, shorten inner and outer shafts by the same amount on both halves. (Fig. 3).
3. Shorten inner and outer guard by the same length (Fig. 2)
4. Chamfer edges and carefully remove all burrs and swarf (Fig. 4).
5. Grease inside of outer shaft (Fig. 5).
6. Fit PTO Shaft and connect securing chains on the free end (Fig. 6). Make sure the shaft is free to move! Do not use securing chain to support PTO shaft!
7. No other alterations of PTO shaft or drive guard 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!
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 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 PTO 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. Before starting the PTO make sure no-one is close to the rotating components!



17. Prior to cleaning, lubricating, adjusting any PTO driven implement or the PTO shaft, always switch off PTO drive, switch off engine and remove key!
18. When decoupling the 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 HYDRAULIC FAN DRIVE

The fan is powered by its own hydraulic system. This system consists of a three-stage pump, hydraulic motors, reservoir with filter unit and oil cooler.

The pump gearbox is designed for 1000 rpm PTO speed. If the tractor is fitted with the 1 3/8" dia, 6 spline PTO only, then a suitable converter must be fitted during the PTO installation.

The fan drive components become hot during work - danger of injury!

The pump gearbox is despatched with 0.4l of SAE 140 gear oil.

Check the oil level in the gearbox daily.

The level is correct if the oil reaches the lower edge of the filler hole.

Initially change the gearbox oil after the first 25 hours and then every 100 hours but at least once per year.

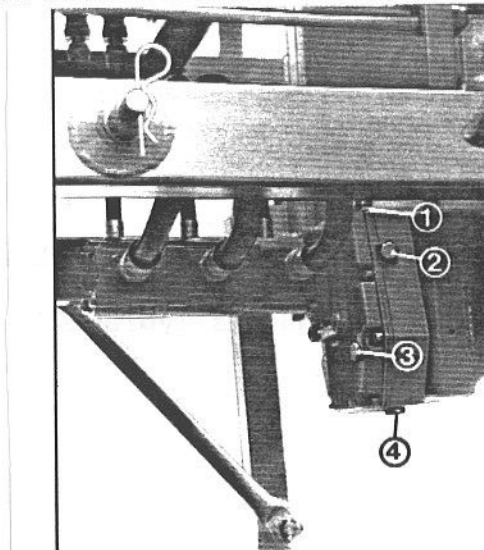


Fig. 6:
1 Breather valve
2 Filler plug
3 Control screw
4 Drain plug

The hydraulic system is filled with

Wintershall ATF Dextron - approx. 70l

The following types of oil are also suitable:

Mobil ATF 220

Shell ATF Dexron II

BP Autran DX II

Aral ATF 22

Castrol TQ Dexron II

Esso ATF Dexron

Total Dexron

Castrol TQF

BP Autron G

Texamatic 9330

Mobil ATF 210

Shell Donax TF

Esso Glide

Aral Getriebeol ATF 33

Veedol ATF F

Fina Purifimatic 33 G

Ford ATF (M2C33 F/G)

Valvomatic ATF Type FA

Total ATF 33

Never mix these oils with existing oil, ie. only carry out complete oil changes.

Check the reservoir oil level daily.

The oil level is satisfactory as long as it reaches to approx. 1 cm below the black marker (1).

Change the hydraulic oil initially after 25 hours then every 200 hours but at least once per year.

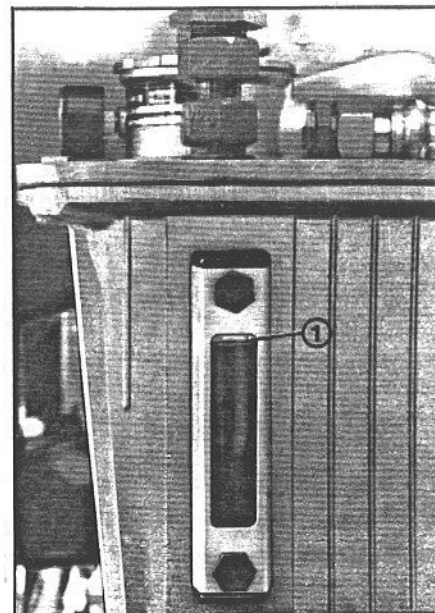


Fig. 7:
1 maximum oil level

The hydraulic oil filter is located in the cap of the oil reservoir.

This filter is equipped with an indicator which displays the level of oil contamination. The oil must be changed when the indicator stays in the red after the hydraulic oil has reached its operating temperature.

Check the contamination level daily.

Change the filter element initially after the first 25 hours then every 100 hours but at least once per year. To do this remove the filter element from the filter cap.

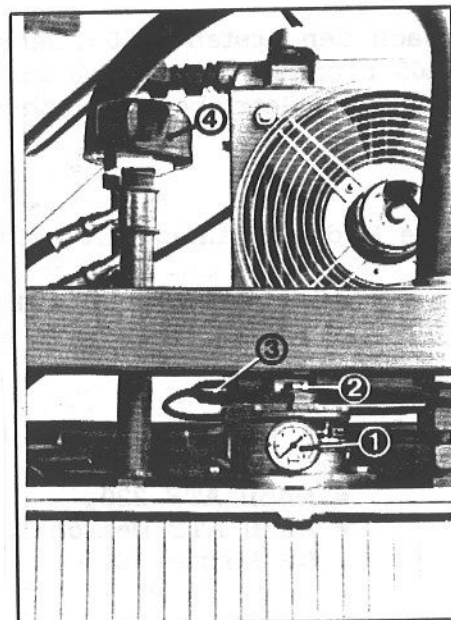


Fig. 8:
1 Contamination indicator
2 Filter cap and filler pipe
3 Thermal switch for cooling fan
4 Breather valve



Only engage PTO shaft at low engine speeds.

The fan should be warmed up for a few minutes at low PTO speed, particularly during cold weather conditions.

2.4 HYDRAULIC DRIVE TO METERING MECHANISM AND BOOM CONTROL

The boom control and fertiliser metering functions are controlled by an electro-hydraulic valve manifold.

In the event of electrical breakdown the system can be controlled manually as long as hydraulic power remains on.

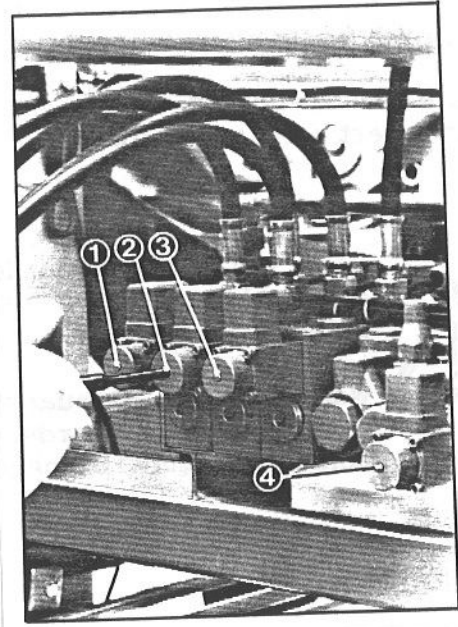


Fig. 9:

- 1 Boom section function
- 2 Level compensation
- 3 Lift mast function
- 4 Metering mechanism function

NOTES FOR TRACTORS WITH AXIAL PISTON PUMPS (eg. John-Deere, Case, Ford)

Due to the design of their hydraulic systems the oil flow rate on these tractors must be controlled on the pressure side to 35 l. On tractors without a flow rate control facility, a separate control valve must be obtained as an add-on part from the tractor manufacturer's service department.

Please contact your tractor dealer.

Route the free return line back to the reservoir.

The minimum oil flow/pressure requirement in order to obtain maximum application rates on the spreader is 35 l/min and 150 bar pressure.



During boom folding operations and spreading operations, lock the valve in the "ON" position.

Important: Never combine the Free Return line (FR) and Return line (R). This may affect the control function of the valve manifold.

2.5 LIGHTING SYSTEM

AERO AGT is equipped with a front and rear lighting system.

The rear lights are adjustable for width on their RHS mountings.



When travelling on public roads the rear lights must be adjusted to their extreme outward positions.

During spreading, move the light units inwards to prevent damage to fertiliser hoses.

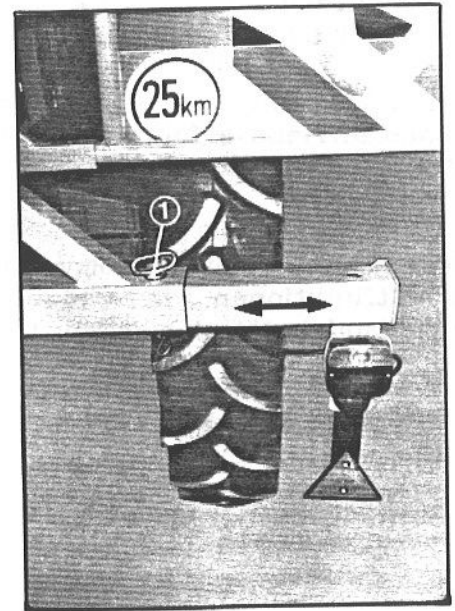


Fig. 10:
1 Locking pin

2.6 BRAKING SYSTEM

Check brake function before every journey!

The braking system should be serviced regularly by a competent workshop.

Adjustments and repairs on the braking system must only be carried out by a competent workshop or a recognised brake service centre!

AERO AGTs are equipped with a dual circuit air braking system and a manually operated parking brake.

Do not attempt to move the spreader until the air gauge in the driver's cab reads 5.0 bar

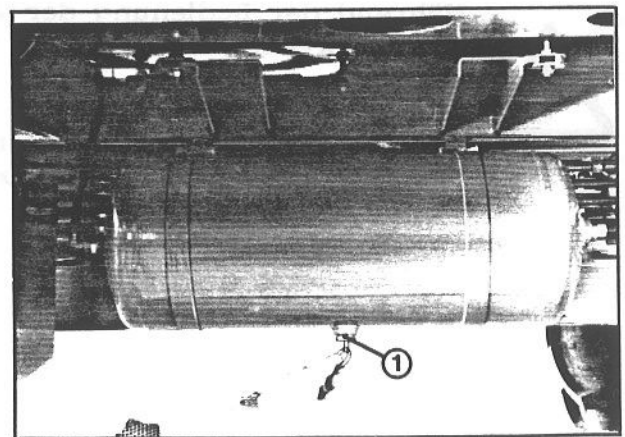
Before coupling up the AERO AGT clean all couplers to prevent ingress of dirt. After coupling up check for leaks by trying the tractor brakes.

Drain air receiver daily.



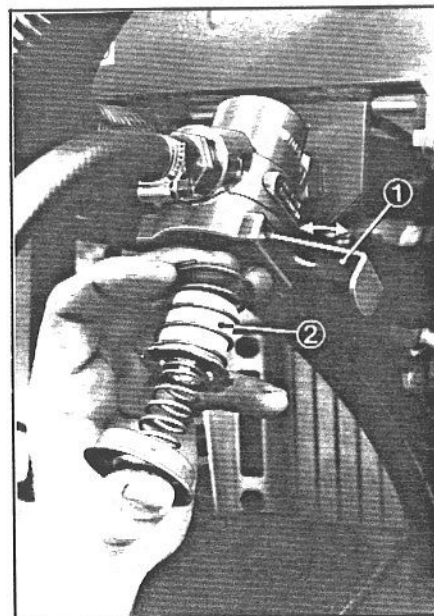
The air receiver must be fixed securely in its straps and show no sign of damage. The type plate must not be rusted to the container or be loose or missing. Replace when necessary.

Fig. 11:
1 Drain valve



Regularly remove the filter element from the line filter (every 25 hours) and clean in cleaning solvent. Dry with pressurised air and replace.

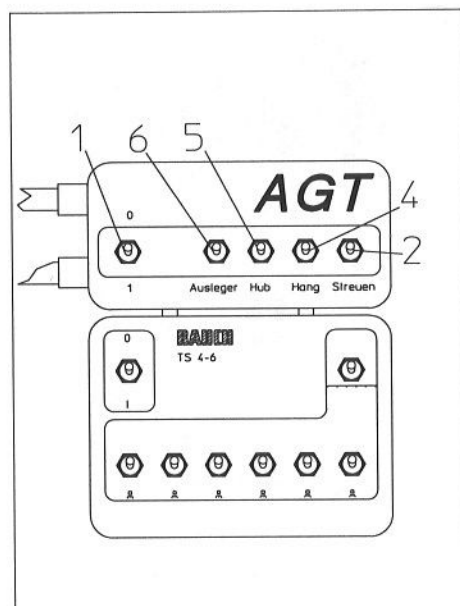
Fig. 12:
 1 Locking slide
 2 Filter element



2.7 QUANTRON AND CONTROL PANEL

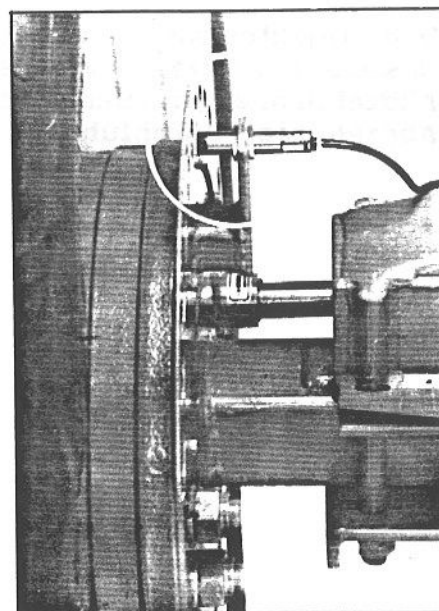
The fertiliser metering and boom-folding functions are electro-hydraulically controlled. A special operator's manual is provided with the QUANTRON 4-6 control unit.

Fig. 13:
 1 Main switch for control panel
 2 Spreading ON/OFF
 3 Temperature gauge (normal temperature: 60° - 70°C)
 4 Level compensation
 5 Lift mast control
 6 Boom section folding control
 7 Circuit Fuse 25 A



The speed sensor is mounted on the left-hand brake drum. The clearance between sensor and perforated disc must be 3-5mm. Check this clearance by slowly turning the wheel one full revolution.

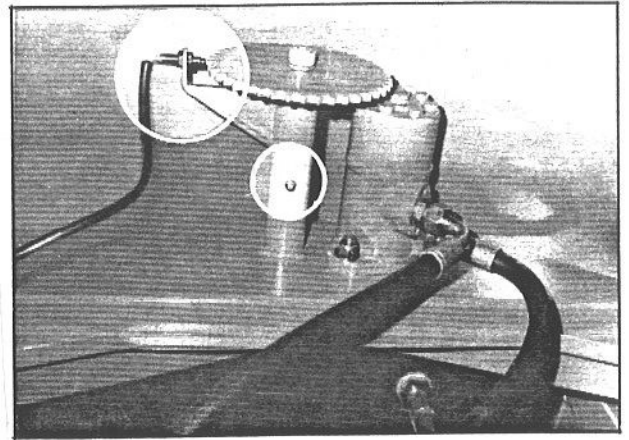
Fig. 14



The feed roller speed sensor is fitted below the hopper.

The clearance between sensor and gauge wheel must be 0.6mm.

Fig. 15

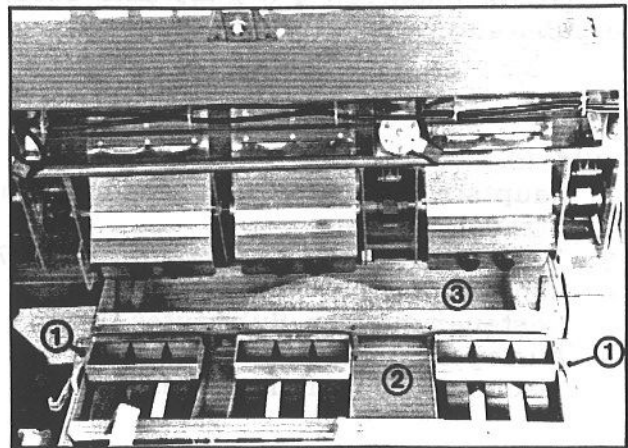


2.8 CALIBRATION

The calibration is performed on the left-hand and right-hand side of the central metering mechanism. Carry out the calibration according to instructions in the QUANTRON 4-6 operator's manual.

Do not alter the selected part-width control during calibration.

Fig. 16:
1 Locking mechanism
2 Injector support
3 Metering pan



Release and remove injector support. Slide metering chamber under metering apertures and briefly switch on feed rollers so that pan completely fills with fertiliser, then remove and empty metering chamber. Slide metering chamber under opening again and carry out calibration.

3. PRACTICAL USE

3.1 HYDRAULIC BOOM FOLDING

The following boom section functions are controlled by the control panel

- Fold/extend boom sections
- Boom height adjustment
- Manual level compensation

When extending or folding boom sections ensure that there are no bystanders in the operating area.

Make sure spreader is on level ground whilst extending or folding boom sections.

To extend the boom sections first "raise lift mast" which will release the boom locking mechanism.

Then "extend boom sections" until the springs on the reversing levers are fully stretched. Internal control valves inside the rams ensure that the boom sections extend slowly and smoothly.

With "lift mast lowered" set the boom to the required working height.

The working height (even for late top-dressing) is approx. 1m above crop height measured at the deflector plate on the innermost manifold.

Before commencing spreading on very uneven terrain, it is advisable to set the working width to prevent the boom sections touching the ground.

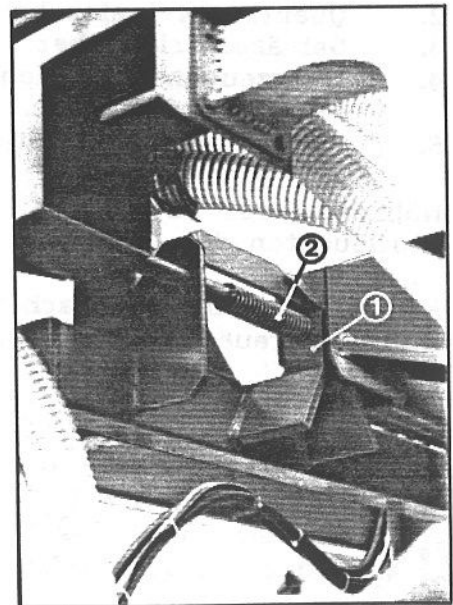
Prior to folding, use the manual compensation control to set boom sections parallel to the spreader.

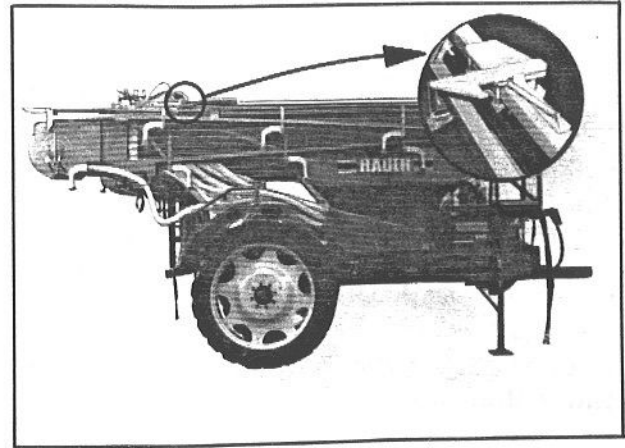
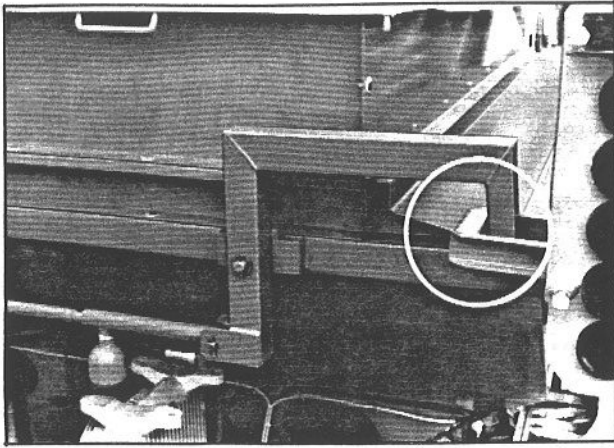
Raise booms by raising the lift mast until it reaches the tilt-lock end-stop.

Carefully move boom sections into tilt-lock position! Incorrect operation (folding when booms are not parallel) can lead to damage.

Ensure that the booms are located properly into the tilt-lock.

Fig. 17:
1 Tilt lock
2 Locking bolt





"Fold boom sections" until the inner booms are close to the hopper and the outer sections are secured by the safety hook. Finally activate the mechanical boom lock by lowering the lift mast.

Ensure that the booms are secured properly.

3.2 SPREADING

Carry out calibration of QUANTRON 4-6 in the yard.

Before commencing spreading:

1. Switch on main switch on control panel
2. Switch on QUANTRON 4-6
3. Switch on fan drive via PTO shaft
4. Ensure that the switch on the control panel is set to "spreading off".
5. Turn on and lock hydraulic valve.

During spreading check the control functions of QUANTRON 4-6 (LED display in +/-keys.)

At the end of the bout switch off spreader using QUANTRON 4-6 section feed switches or by switching the control panel master switch to "spreading off".



The life expectancy of the boom sections depends to a great extent on the way you drive your machine. On rough terrain reduce forward speed, drive slowly when in turning areas and avoid the booms touching the ground.

During gear changes do not allow the PTO speed to drop from 1000 rpm for more than a short time. Too low a PTO speed causes the air stream to lose its power - Risk of blockages-

3.3 EMPTYING AND CLEANING

The spreader should be cleaned daily.

Unlock and remove injector support.

Slide metering chamber under openings.

With QUANTRON 4-6 set to MAN-mode, set central feed roller speed and empty all roller groups one after the other using the boom section feed controls.

When the hopper is empty, unlock and release the metering unit.

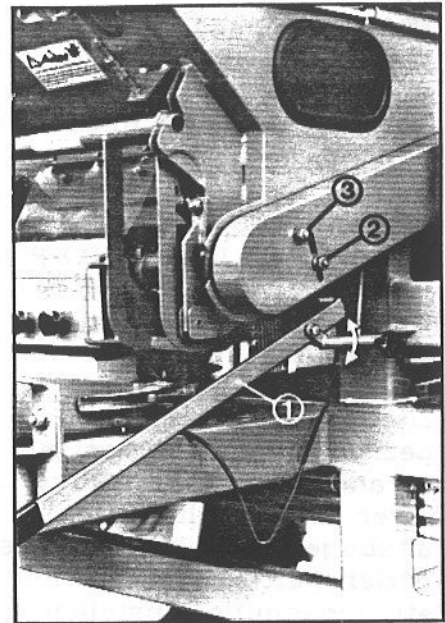


Fig. 20:

- 1 Metering units lock
- 2 Chain tensioner
- 3 Chain guard fixing

Remove all deposits from the metering pan. Also remove metering pan cover and clean PVC separators.

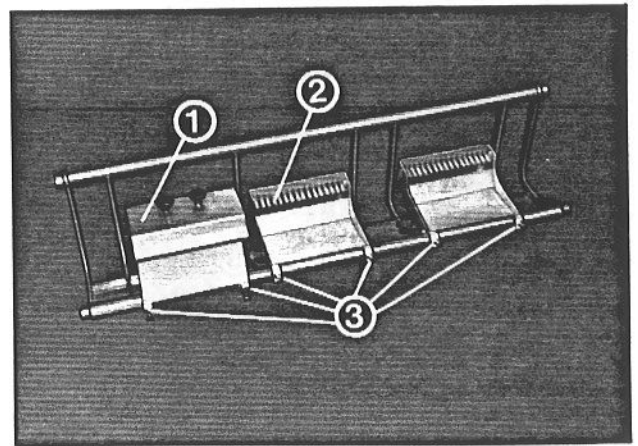


Fig. 21:

- 1 Metering pan cover
- 2 Nylon brushes
- 3 Set screws

Clean with a water hose using moderate pressure, paying particular attention to injectors and manifold.

Do not use a high pressure washer when cleaning electronic or hydraulic components.

Always keep manifold and deflectors clean. Dirty deflectors can lead to inaccurate spreading.



When cleaning the spreader after spreading quick-lime, deposits must not come into contact with water since the resulting very high temperatures which will melt the plastic feed rollers.

For drying, place metering units into the hopper.

When refitting these units make sure they are replaced in their correct position (left-hand and right-hand sides). Lock injector supports after cleaning and briefly switch on PTO. The fan will remove water from injector hoses and pipes.

After cleaning, treat the spreader with biodegradable corrosion protection.

Lubricated machines must only be washed at locations equipped with oil separators.

3.4 MICROGRANULATES, FINE SEEDS AND REDUCED WORKING WIDTHS

When spreading grass seed, slug pellets, microgranulates and similar material, which require an application rate of less than 30kg/ha, the special feed rollers must be used.

The working width can be reduced by special feed rollers. Please enquire with the factory whether the reduction you require is possible.

3.5 CHANGING THE FEED ROLLERS

Unlock and remove injector support.

Unlock and unhook metering unit.

Loosen chain tensioner, remove chain guard and drive chain.

Loosen the U-section securing the feed rollers and remove feed rollers.

Insert the special feed rollers and make sure that for all 6 support bearings (V2A) the welded U-sections are pointing upwards. The scraper sections must be located on the outside of the feed rollers.

Secure holding sections and ensure free movement of bearings. Do not overtighten.

Refit drive chains and install chain cover and chain tensioner.

Adjust chain tension (approx. 1 cm deflection).

Remove metering pan cover and insert special cleaning brushes which are supplied with the rollers. Hook and lock metering unit in place.

Lock injector supports.

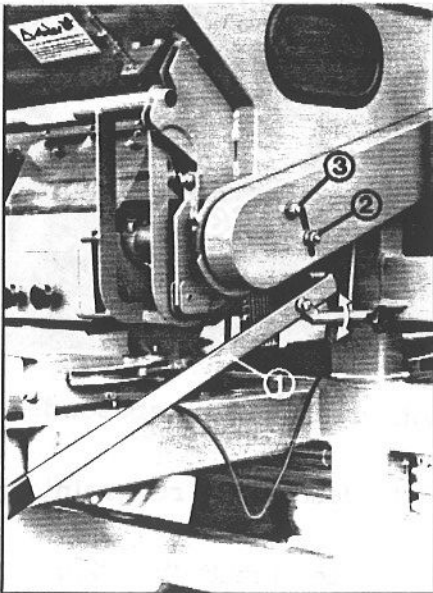


Fig. 20:
1 Metering units lock
2 Chain tensioner
3 Chain guard fixings

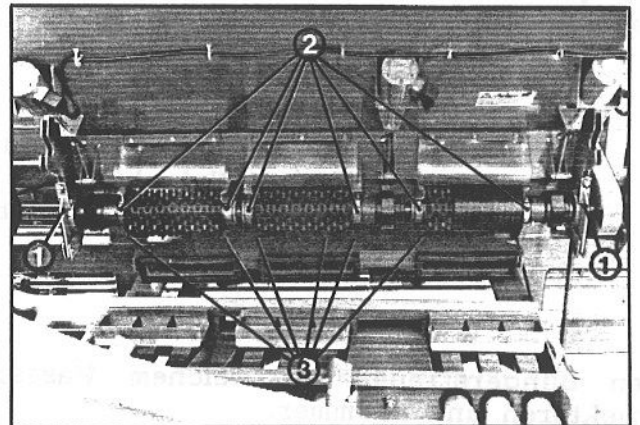


Fig. 22:
1 Fixing bracket
2 V2A - bearings
3 Scraper sections

Symbol key

o = change / x = check / # = check and clean /
 ◆ = lubricate, grease, oil / ☒ = check and tighten

	daily	after the first 25 hours	every 25 hours	every 100 hours or once per year
PTO-shaft guard	x ◆			
Gearbox (shafts) - oil level	x	o		o*
Hydraulic oil filter	x			o*
Hydraulic oil	x			
Hydraulic hoses - damage	x			
Hydraulic rams - leaks	x			
Feed roller drive: chain		◆	◆	
chain tension		x	x	
gauge wheel shaft		◆	◆	
Transfer chain to boom sections		◆	◆	
Boom sections - 4 grease nipples		◆	◆	
Swivel frame - 9 grease nipples		◆	◆	
Lift mast - 2 grease nipples		◆	◆	
Lift mast sliding rail		◆	◆	
Pivots and slide faces		◆	◆	
Tyres damage	x			
pressure	x			
Brake system drain	x			
function	x			
line filter	x	#	#	
brake shafts		x ◆		x ◆
brake linings			x	
Hubs bearing play/surfaces		☒ after the first loading travel		☒ ◆ **
wheel nuts 350 Nm		☒ after the first loading travel		☒
Lights - function	x			
Nut/bolt fixing		☒		☒
Nut/bolt fixings of drawbar 600 Nm and subframe 600 Nm		☒		☒
Manifolds/deflectors	#			
Sealing funnels on boom sections			x	
Injector gaskets on swivel frame			x	
Fertiliser hoses - wear and tear			x	
Feed rollers			x	
Injectors	#			
Gasket seals - pressure chambers			x	
Rubber stop - central fan			x	
Suction flange - fan	#			

* every 200 hours or once per year - ** every 1000 hours

4. MAINTENANCE SCHEDULE

Symbol key

o = change / x = check / # = check and clean /
 ◆ = lubricate, grease, oil / ☒ = check and tighten

	daily	after the first 25 hours	every 25 hours	every 100 hours or once per year
PTO-shaft guard	x ◆			
Gearbox (shafts) - oil level	x	o		o*
Hydraulic oil filter	x			o*
Hydraulic oil	x			
Hydraulic hoses - damage	x			
Hydraulic rams - leaks	x			
Feed roller drive: chain		◆	◆	
chain tension		x	x	
gauge wheel		◆	◆	
shaft				
Transfer chain to boom sections		◆	◆	
Boom sections - 4 grease nipples		◆	◆	
Swivel frame - 9 grease nipples		◆	◆	
Lift mast - 2 grease nipples		◆	◆	
Lift mast sliding rail		◆	◆	
Pivots and slide faces		◆	◆	
Tyres damage	x			
pressure	x			
Brake system drain	x			
function	x			
line filter	x	#	#	
brake shafts		x ◆		x ◆
brake linings			x	
Hubs bearing play/surfaces		☒ after the first loading travel		☒ ◆ **
wheel nuts 350 Nm		☒ after the first loading travel		☒
Lights - function	x			
Nut/bolt fixing		☒		☒
Nut/bolt fixings of drawbar 600 Nm and subframe 600 Nm		☒		☒
Manifolds/deflectors	#			
Sealing funnels on boom sections			x	
Injector gaskets on swivel frame			x	
Fertiliser hoses - wear and tear			x	
Feed rollers			x	
Injectors	#			
Gasket seals - pressure chambers			x	
Rubber stop - central fan			x	
Suction flange - fan	#			

* every 200 hours or once per year - ** every 1000 hours

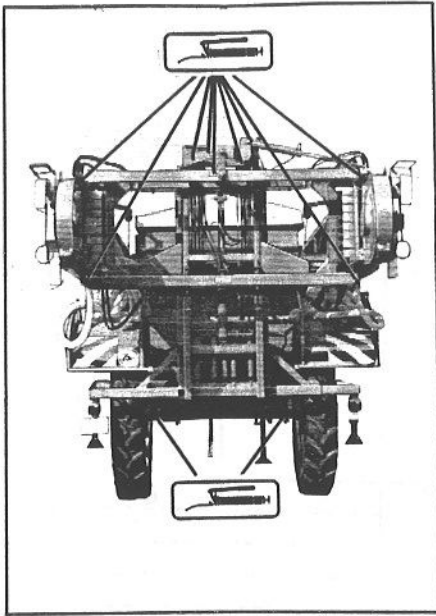


Fig. 23:

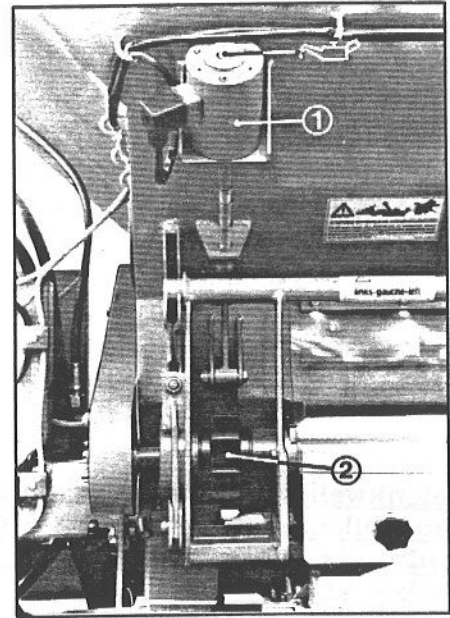


Fig. 24:

- 1 One solenoid
- 2 Spring clutch

5. GENERAL HINTS

5.1 FAULTS AND POSSIBLE CAUSES

- **Injectors overflow/pipes blocked**
 - Check for foreign matter in injectors or pipe
 - Reduce application rate by reducing tractor speed
 - Ensure PTO speed is 1000 rpm
 - Feed rollers are not reaching maximum speed (70 rpm)
 - Ensure oil flow rate of tractor is higher than 35 l/min
 - In cold weather let feed roller drive run for a few minutes with boom section feed controls switched off.

- **Uneven fertiliser distribution**
 - Check for blocked deflectors, manifold, pipes, hoses and injectors or build-up of fertiliser deposits
 - Check for damaged deflectors, manifolds and holders
 - Ensure clearance between metering chamber and feed roller is precisely 2mm at all points
 - Check for correct adjustment of PVC separators in the metering chamber.

- **Fan does not reach maximum speed or speed fluctuates**
 - Check that injectors support is locked properly on both sides
 - Ensure PTO speed is 1000 rpm
 - In cold weather let fan run for a few minutes at low PTO speed
 - Check oil level and oil filter
 - Check for oil leaks from connectors, pumps or motors
 - Check whether oil shows signs of foaming through air intake in the suction area.

- **Quantron 4-6 works irregularly due to feed roller speed fluctuation**
 - Ensure gauge wheel and sensor is in perfect condition and fitted correctly.
 - Ensure sensor supplies impulses
 - Check sensor to gauge wheel clearance is 0.9mm

- **Feed rollers cannot be switched off with electric boom section feed controls**
 - Check that 12V is available on the corresponding voltage input in the distributor box when boom section feed control is set to off - check cable and fixing
 - Check voltage output in the distributor box is 12V when the boom section control is switched off - change fuse
 - Check proper function of solenoid on spring clutch
 - Check proper action of toggle switch and leverage
 - Check proper function of spring clutch - outer ring is easily rotated. Spray light oil between external ring and shaft.

- **Metering shafts do not rotate after renewed start**
 - Check whether toggle switch and linkage move easily and are located properly. Check spring clutch for proper function - outer ring should rotate easily. Spray light oil between outer ring and shaft.
 - Boom sections cannot be extended/folded
 - Check whether boom section is fully UP
 - Check whether safety mechanism is completely unlocked
 - Check control valves on rams for dirt deposits

- **Lift mast will not move**
 - Check voltage on control terminals
 - Check valve for switch function

5.2 BOOM SETTING

Adjust setting if boom sections do not sit properly on the brackets when folded.

Raise boom sections completely using the lift mast.

Slowly fold booms and check whether the inside boom sections meet the brackets too high or too low. Adjust swivel bearing on moving frame accordingly.

During folding, the boom sections must fold close to the hopper. Adjust by turning the head on the hydraulic ram.

For horizontal adjustment of the boom sections, use the angle rail on the outer knuckle.

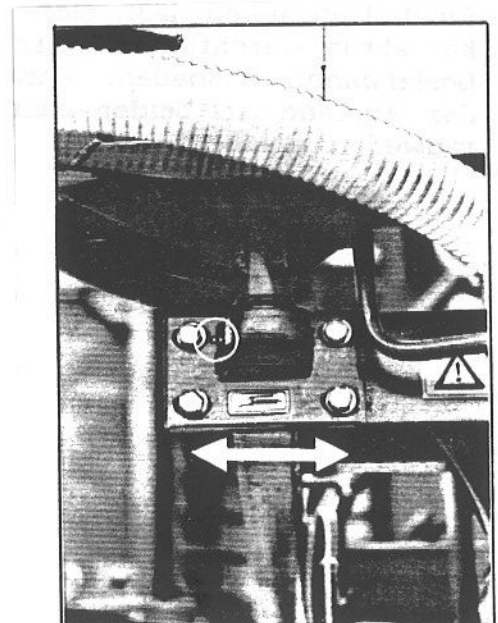


Fig. 25

If the boom sections do not form a straight line, adjust the end stops on the outer knuckle.

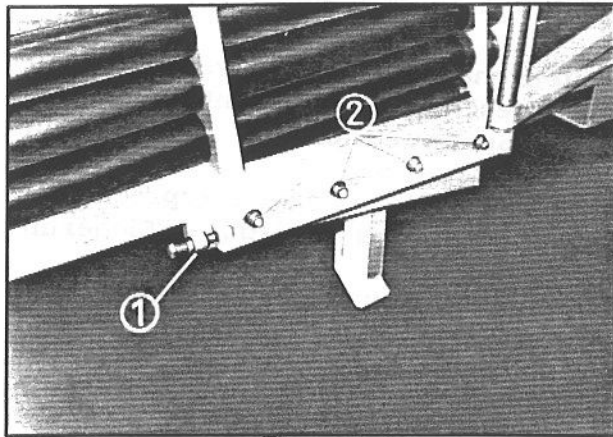


Fig. 26:
1 Adjusting bolt
2 Screws on angle rail

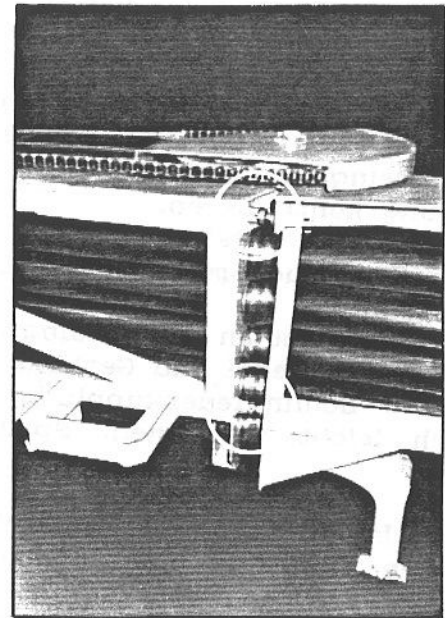
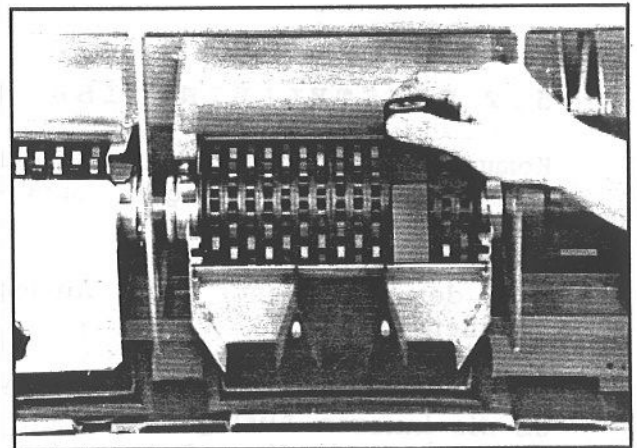


Fig. 27:

5.3 ADJUSTMENT OF METERING MECHANISM

In order to check or correct the setting of the metering mechanism, remove pan cover and cleaning brushes.

Check the clearance using a feeler gauge. The clearance between metering chamber and feed rollers must be 2mm. The necessary adjustments are made using the adjusting screws. Prior to adjustment, remove the metering chamber. Check that the clearance is the same on both sides of the roller shafts.



Do not screw the set screws too tight on the support rail to ensure that the stone protector remains effective; after adjustment lock the setting with the lock nuts.

To protect the feed rollers, the metering chamber must be able to deflect in case foreign matter gets in.

To check, push metering pan downwards with both hands. The internal springs must return the pan to its initial position.

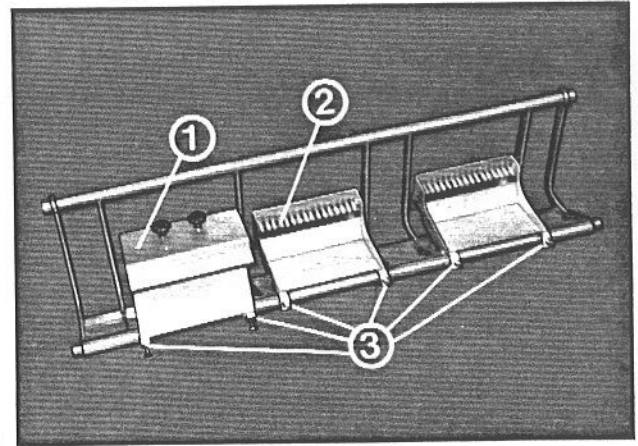


Fig. 21:

- 1 Metering chamber cover
- 2 Nylon brushes
- 3 Set screws

5.4 FUSES ON THE AERO AGT

Fuse in the power supply cable between battery and socket.

Location: Near the positive battery terminal.

Rating: 25 A

Type: Bakelite fuse inserts or automotive fuses

Number: 1 off

Fuse in the control panel above Quantron control

Location: On the left hand side inside the auxiliary panel

Rating: 25 A

Type: Automotive fuse

Number: 1 off

Fuses in Quantron distribution panel

Location: On l.h. side of machine under oil cooler

Rating: 4 A slow

Type: Glass 5mm dia. x 20mm long

Number: 8 off

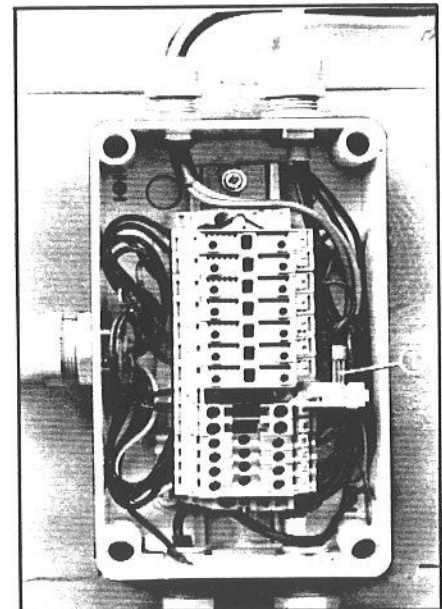


Fig. 29:

- 1 Fuse

Fuse in hydraulic valve manifold distribution panel

Location: On r.h. side behind hopper near the hydraulic valve block

Rating: 16 A slow

Type: Glass 5mm diam. x 20mm long

Number: 1 off

Wiring diagrams QUANTRON L AERO GT

Machine plug and Distribution box

Mach.- plug	Wire-colour	Distribution-box	Wire-colour	Function
1a o	white	1 o — 4 A -T — o	brown	+ 12 V Part width 1 left outside
2a o	brown	2 o — 4 A -T — o	brown	+ 12 V Part width 2 left middle
3a o	green	3 o — 4 A -T — o	brown	+ 12 V Part width 3 left center
4a o	yellow	4 o — 4 A -T — o	brown	+ 12 V Part width 4 right center
5a o	grey	5 o — 4 A -T — o	brown	+ 12 V Part width 5 right middle
6a o	pink	6 o — 4 A -T — o	brown	+ 12 V Part width 6 right outside
1b o	grey/pink	7 o — 4 A -T — o	brown	Proportional valve
2b o	red/blue	8 o — 4 A -T — o	blue	Proportional valve
4b o	brown/green	9 o — WDU — o	brown	+ 12 V Sensor feedroller
5b o	white/yellow	10 o — WDU — o	black	Impuls Sensor feedroller
3b o	white/green	11 o — WPE — o	blue	Mass Sensor feedroller
7a o	blue	12 o — WPE — o	blue	Mass Part width 1 left outside
8a o	red	13 o — WPE — o	blue & blue	Mass Part width 1 left middle Mass Part width 1 left center
9a o	black	14 o — WPE — o	blue	Mass Part width 1 right center
0a o	violett	15 o — WPE — o	blue	Mass Part width 1 right middle
6b o	brown/yell.		& blue	Mass Part width 1 right outside

4 A -T = Fuse 4 Ampere inert

WPE = yellow/green Mass clamp

WDU = Bridge clamp

Power supply TS 4-6 and TS D/B

Pin 15/30	brown & yellow/green	+ 12 Volt
Pin 31	blue	Mass
Pin 82	not connected	

Cobo plug with 3-pin (DIN 9680)

Forward speed sensor - 2009440

Pin 2	black	Impuls
Pin 6	brown	+ 12 Volt
Pin 7	blue	Mass

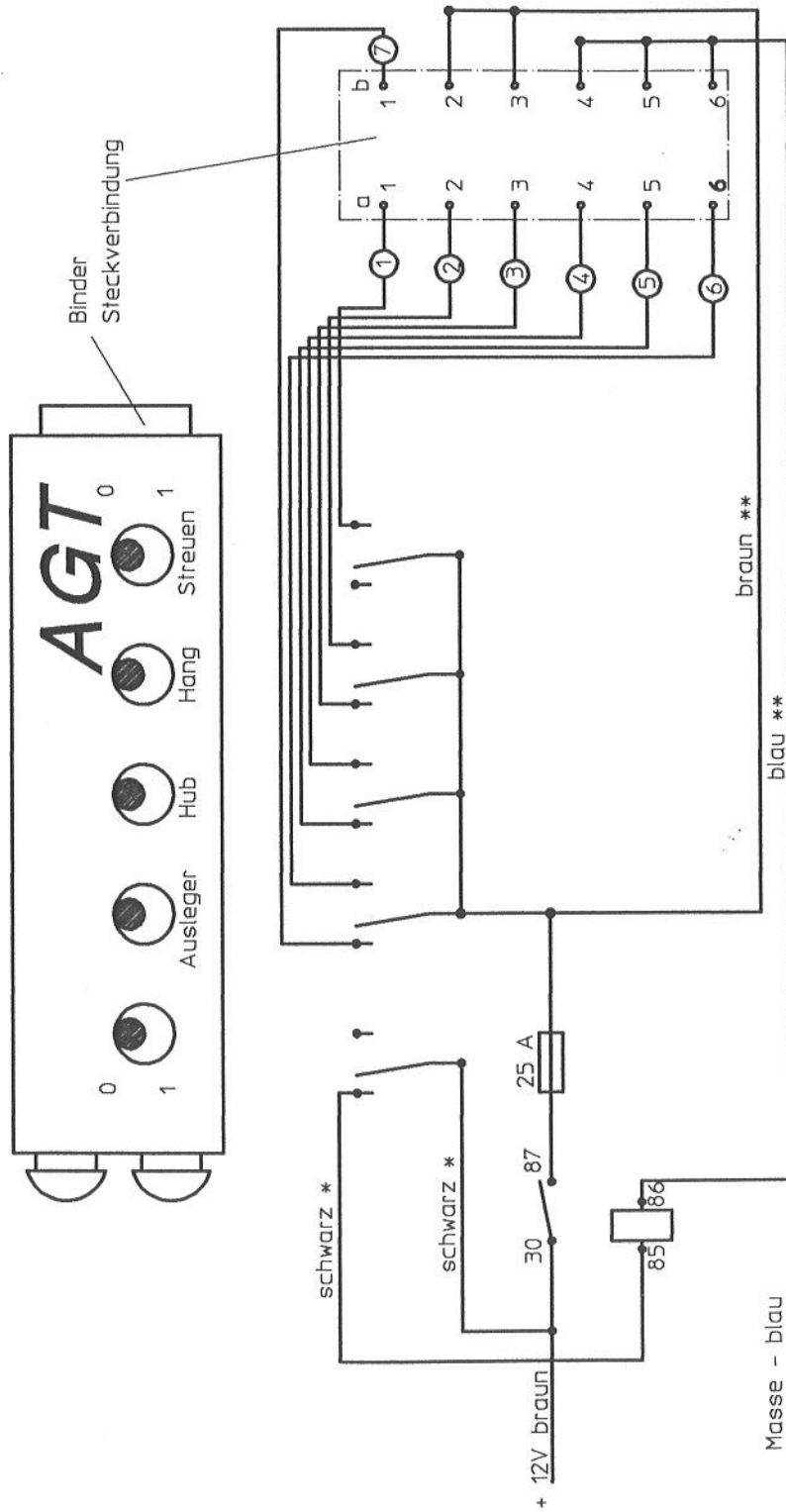
Amphenol plug with 7-pin ISO 11786
Cable with **yellow** mark (ring)
-660.2306.995-

Adaptercable for ISO 11786 Data information sockets - 2009444

Pin 1	Impuls Radar
Pin 2	Impuls Gear
Pin 7	Mass

Amphenol plug with 7-pin

AGT - Schaltkasten - Quantron L - Hydraulikblock



Wiring diagram AERO AGT Hydraulikblock

Machineplug and Distributionbox from Serial-No. 1067

Mach.-plug	Wire-colour	Distribution-box	Wire colour	Function
		SB	18 o — blue	Mass „SPREADING“
		10A	17 o —	
			16 o — brown	+ 12 V „SPREADING“
6b o —	green/yell.	o 12	15 o — 2 x blue	Mass Hillside correction
5b o —	11	o 11	14 o — brown	+ 12 V Hillside correction
4b o —	10	o 10	13 o — brown	+ 12 V Hillside correction
3b o —	9	o 9	12 o — 2 x blue	Mass Lift mast
2b o —	8	o 8	11 o — brown	+ 12 V Lift mast
1a o —	1	o 1	10 o — brown	+ 12 V Lift mast
2a o —	2	o 2	9 o — 2 x blue	Mass Main valve
3a o —	3	o 3	8 o — brown	+ 12 V Main valve
4a o —	4	o 4	7 o — brown	+ 12 V Main valve
5a o —	5	o 5	6 o — 2 x blue	Mass Boom folding
6a o —	6	o 6	5 o — brown	+ 12 V Boom folding
1b o —	7	o 7	4 o — brown	+ 12 V Boom folding
			3 o —	
			2 o — brown	+ 12 V Oil cooler
		SK 10 A	1 o — blue	Mass Oil cooler

SB 10 A = Fuse 10 Ampere Relay Hydraulic block

SK 10 A = Fuse 10 Ampere Relay Oil cooler

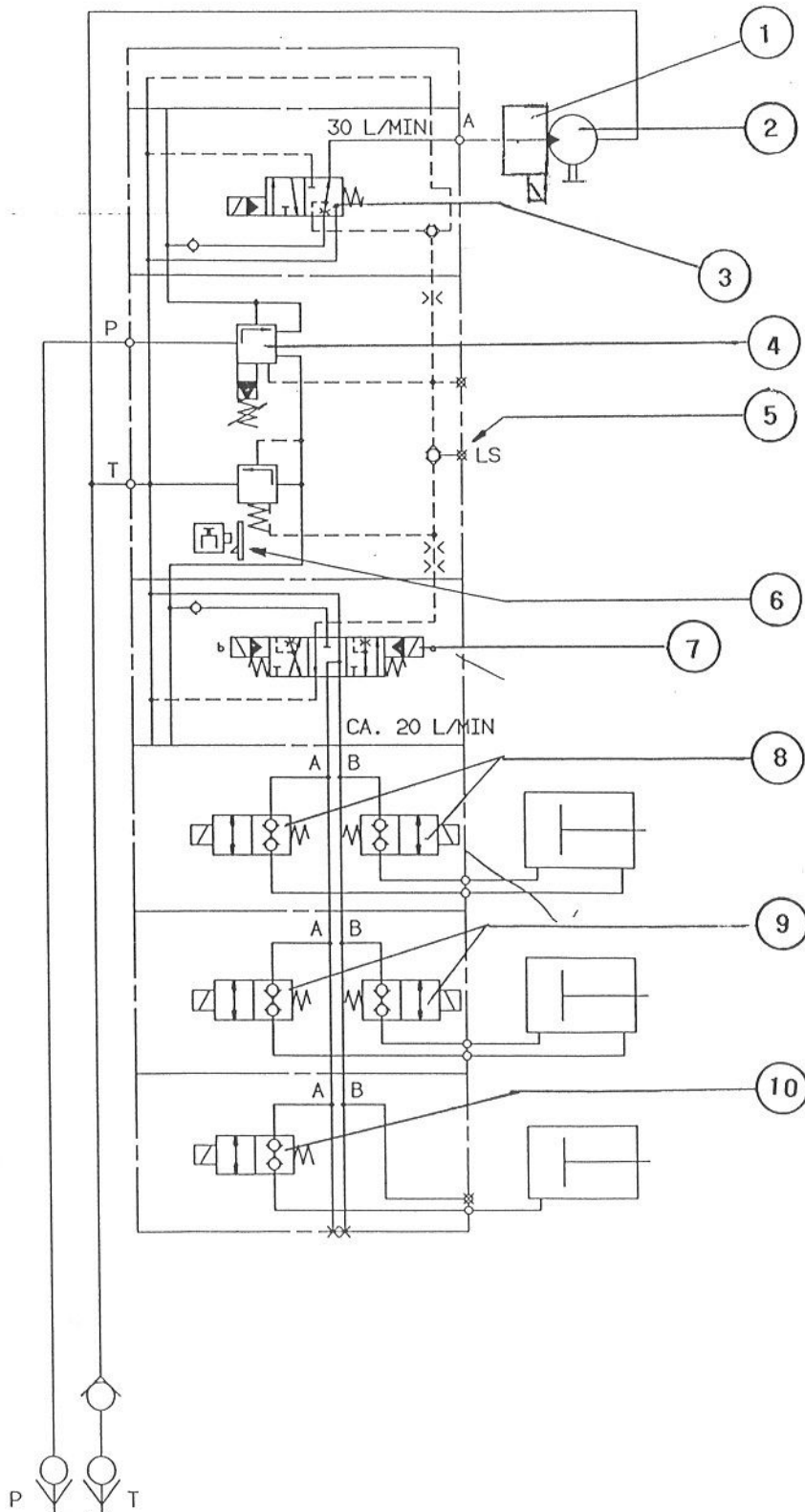
RAUCH



AERO AGT

Hydraulischer Steuerblock
ab Masch.-Nr. 1067

Hydraulic block
from machine-no. 1067 on



RAUCH



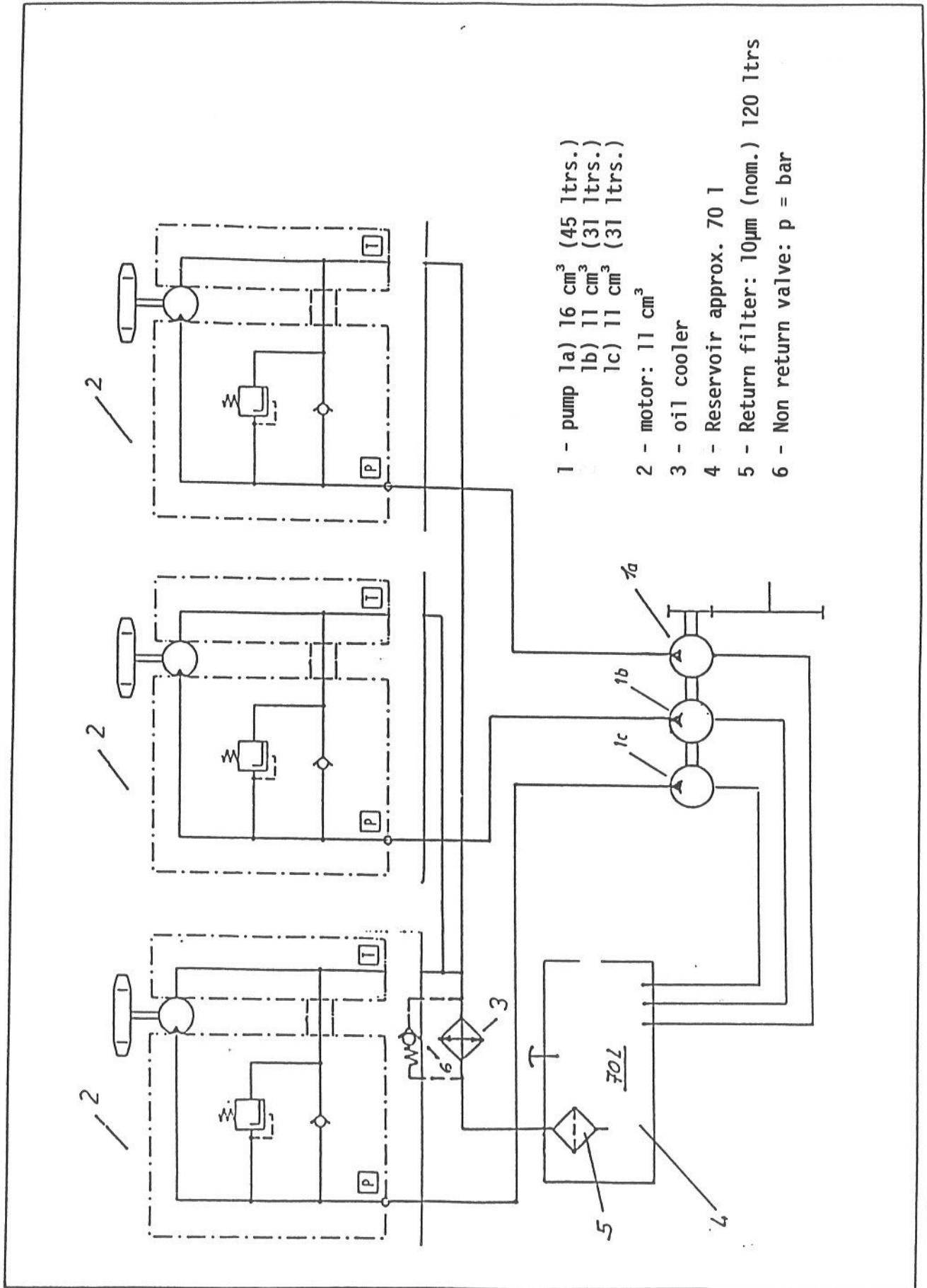
AERO AGT

Hydraulischer Steuerblock ab Masch.-Nr. 1067

Hydraulic block from machine-no. 1067 on

- | | |
|--|---|
| 1. Proportional-Ventil | 1. Proportional valve |
| 2. Ölmotor | 2. Oil motor |
| 3. Ventil "Streuen" | 3. Valve "Spreading" |
| 4. Hauptüberdruckventil | 4. Main pressure relife valve |
| 5. LS-Meldeleitung | 5. Load-sensing messenger line |
| 6. Stellschraube | 6. Adjusting screw |
| - bei John-Deere oder Traktoren mit LS-System --> Schraube bis Anschlag eingedreht | - for John-Deere or tractors with LS-system --> tight up to block |
| - bei Traktoren Konstantstrom-System --> Schraube bis zum Anschlag herausgedreht | - for tractors with constant flow system --> untight |
| 7. Hauptventil für Zylinder ein- oder ausfahren | 7. Main valve for hydraulic cylindre on entry or exit |
| 8. Hangausgleich | 8. Hillside correction |
| 9. Ausleger | 9. Boom |
| 10. Hubmast | 10. Lifting bar |

HYDRAULIC FAN DRIVE

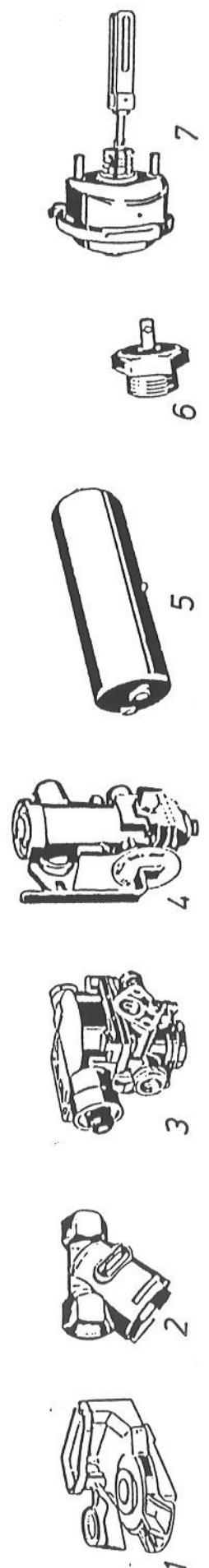
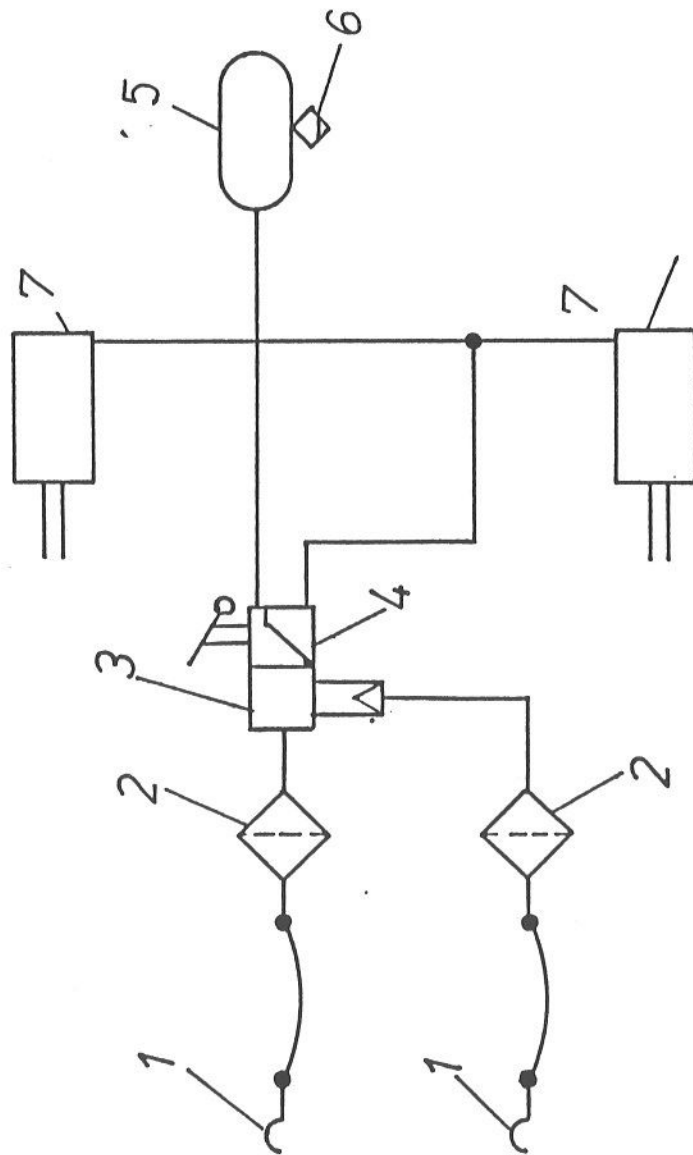


- 1 - pump 1a) 16 cm³ (45 ltrs.)
 1b) 11 cm³ (31 ltrs.)
 1c) 11 cm³ (31 ltrs.)

- 2 - motor: 11 cm³
- 3 - oil cooler
- 4 - Reservoir approx. 70 l
- 5 - Return filter: 10µm (nom.) 120 ltrs
- 6 - Non return valve: p = bar

DUAL CIRCUIT BRAKING SYSTEM

- 1 - Clutch head
- 2 - Line filter
- 3 - Trailer brake valve
- 4 - Servo
- 5 - Air receiver
- 6 - Drain valve
- 7 - Piston cylinder



WARRANTY CONDITIONS

KUHN warrants in accordance with the provisions below, to each original retail purchaser of KUHN new equipment of its own manufacture, from an authorised KUHN dealer, 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 KUHN 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 KUHN 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.

KUHN 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 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. KUHN S.A. 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.