

Instruction Manual

AMAZONE

Front tank

FS 03 Avant Special



27c033

MG 883
DB 2026 GB 05.03
Printed in Germany



Before starting to work, please carefully read and adhere to this operation manual and safety advice.



The AMAZONE Front tank FS 03 Avant Special is yet another product from the large range of farm machinery produced by

AMAZONEN-Werke, H. Dreyer GmbH & Co. KG

In order to ensure that you obtain trouble-free operation we recommend that you carefully read and observe the information within this instruction manual and strictly adhere to the advice given therein.

Please ensure that this instruction manual is made available to any operator before he or she starts to operate the machine.

Hints for this instruction manual

Keep this instruction manual so that it is always to hand. Also in the event of sale, you can pass on the instruction manual to the next owner.

At the time of printing all data and information are correct.

However, AMAZONE always endeavours to introduce improvements, we therefore reserve the right to make changes to and or alter the specification of our products without liability.

Symbols in this instruction manual

In this instruction manual warning and precautionary hints are given by the use of symbols as described in the following.

General danger symbol



The safety advice in this instruction manual which may lead to a danger of persons when not being observed, are identified with the general danger symbol (Danger symbol according to DIN 4844-W9) .

Attention symbol



The attention advice in this operation manual which may cause danger for the machine and it's function when not being adhere to, are identified with the attention symbol.

Hint symbol



Hints regarding machine's specific functions, which have to be adhered to for a faultless function of the machine are identified with the hint symbol.

1.	Details about the machine	7
1.1	Range of application	7
1.2	Manufacturer	7
1.3	Conformity declaration	7
1.4	Details when making enquiries and ordering	7
1.5	Details about noise level	7
1.6	Designated use of the machine	8
1.7	Type plate	8
1.8	Technical data	9
1.9	On receipt of the machine	10
1.10	Loading	10
1.11	Hydraulic connections	11
2.	Safety	13
2.1	Dangers when not adhering to the safety advice	13
2.2	Qualification of operator	13
2.3	Symbols in this instruction manual	13
2.3.1	General danger symbol	13
2.3.2	Attention symbol	13
2.3.3	Hint symbol	13
2.4	Warning pictographs and hint symbols	14
2.5	Safety conscious operation	17
2.6	Safety advice for the operator	17
2.6.1	General safety and accident prevention advice	18
2.6.2	General safety and accident prevention advice regarding the implement mounted to the tractor's three-point linkage	19
2.6.3	General safety and accident prevention advice regarding the operation of seed drills	19
2.6.4	General safety and accident prevention advice when retrofitting electric and electronic devices and/or components	19
2.6.5	General safety and accident prevention advice regarding the PTO shaft operation	20
2.6.6	General safety and accident prevention advice for maintenance, repair and cleaning	20
2.6.7	General safety and accident prevention advice regarding the hydraulic system	21
2.6.8	Determining the total weight, the axle load and the tyre carrying capacity as well as the required minimum ballast weights on a combination tractor / mounted implement	22
2.6.9	Rear mounted implement or front – rear mount combinations:	23
2.6.10	Front mounted implement	23
3.	Coupling the front tank to the tractor front hydraulics	25
3.1	Transport rollers	29
4.	Blower fan with hydraulic drive	31
4.1	Blower fan speeds	31
4.2	Rev. speed monitoring	32
4.3	Circuit diagram Blower fan with hydraulic drive	33
4.3.1	Explanations for the circuit diagram Blower fan with hydraulic drive	34
5.	Filling and emptying the front tank and monitoring the seed level	35
5.1	Filling the front tank	35
5.2	Electr. seed level indicator AMFÜME	36
5.3	Emptying the front tank	37
6.	Setting the metering unit to a particular seed	39
6.1	Switching the metering wheels on and off	40
6.2	Sowing with both main metering wheels	40
6.3	Sowing with the fine seed wheel	41
6.4	Shear off safety	42
7.	Determining the gearbox setting for the desired seed rate	43
7.1	Calibration test	45
7.2	Determining the gearbox setting with the aid of the disc rule	47
7.3	Seed rate deviations between the setting and sowing	48

8.	Setting the seed rate with the aid of AMADOS	49
8.1	Preparing the calibration test	49
8.2	Calibration test	51
8.3	Changing the seed rate during sowing operation	52
8.4	Seed rate deviations between the setting and the sowing.....	52
9.	Transport on public roads.....	53
10.	Maintenance and care.....	55
10.1	Checking the oil level in the vario gearbox.....	55
10.2	Cleaning the implement.....	55
10.3	Roller chain drive of agitator shaft.....	56
10.4	Roller chain drive of star wheel.....	56
10.5	Hydraulic hoses.....	57
10.5.1	Checking when starting and during operation.....	57
10.5.2	Exchange intervals	57
10.5.3	Marking.....	57
10.5.4	When working on the hydraulic.....	57
10.5.5	Mounting of hose fittings with O-ring seals and clamping.....	58

1. Details about the machine

1.1 Range of application

The AMAZONE Front tank FS 03 Avant Special in combination with a soil tillage implement with

- pack top seed rail is suited for containing within it's hopper seeds which are then metered out for sowing. The machine is designed for the application of all commercially available arable seeds.

1.2 Manufacturer

**AMAZONEN-Werke
H. Dreyer GmbH & Co. KG**

P. O. Box 51, D-49202 Hasbergen-Gaste/Germany

1.3 Conformity declaration

The implement combination fulfils the requirements of the EC-guide line Machine 89/392/EC and the corresponding additional guide lines.

1.4 Details when making enquiries and ordering

When ordering special options and spare parts, please always indicate the type and serial number (pls. see type plate) of your machine.

All components of your machine have carefully been matched in order to provide you with high safety standards. Original AMAZONE spare parts and options have been especially designed for your machine and have been checked.

Please be aware, that any technical deviation from the original state of your machine may affect its safety. This does not only apply to unsuited spare parts but also for options which do not have our approval.



For your own safety we therefore recommend that you use only original AMAZONE spare parts and original AMAZONE options.

In cases where spare parts, and / or options have been fitted, which have not been approved by AMAZONE as well as any other arbitrary technical changes made to the machine, no liability will be accepted by AMAZONE for consequential losses or resulting damage.

1.5 Details about noise level

The tractor operator seat related emission value (sound pressure level) is 74 dB (A), measured when operating with closed tractor cab at the ear of the tractor operator.

Measuring implement: OPTAC SLM 5.

The value of the sound pressure level mainly depends on the vehicle used.

1.6 Designated use of the machine

The AMAZONE Front tank FS 03 Avant Special is exclusively designed for the usual transport of seed, metering and application of all commercially available seeds in agriculture.

Any use beyond that mentioned above is no longer considered as designated use. The manufacturer does not accept any responsibility for damage resulting from non-compliance and therefore the operator himself carries the full risk.

Under "designated use" also the manufacturer's prescribed operation, maintenance and repair conditions must be adhered to as well as the exclusive use of original AMAZONE spare parts.

Claims regarding damage not having occurred on the machine itself would be rejected. Arbitrary changes on the machine may cause damage and rule out the responsibility of the manufacturer for such damage.



Any damage resulting from arbitrary changes on the machine rule out the responsibility of the manufacturer for resulting damage.



Before any use and also during operation check your machine for the proper function.

1.7 Type plate

You will find the type plate (Fig. 1) on the implement frame next to the retainer for the coupling frame. The type plate is of documentary value and must not be changed or disguised.

Insert here the machine type and serial number of your machine.

AMAZONE Front tank FS 03 Avant Special

Serial No.:



Fig. 1



Fig. 2

1.8 Technical data	AMAZONE Front tank FS 03 Avant Special (Fig. 2) for seed rails up to 4,0 m working width
Net weight with empty seed tank	380 kg
Permissible total weight incl. seed	1080 kg
Capacity without / with extension (option)	750 l / 1000 l
Filling height from stair step (option) without / with (option)	1,07 m / 1,24 m
Total height (Front tank parked on transport rollers [option]) up to upper edge of the swivelable cover without / with extension (option)	1,71 m / 1,88 m
Lifting power requirement	approx. 1800 kg
Transport width	2,20 m
Equipment Front tank with hydraulic blower fan drive, metering unit with star wheel drive for application seed rates of 2 up to 400 kg/ha, infinitely variable vario gearbox. swivelable cover, collision guard in front of the metering unit, collecting tray for the calibration, traffic safety kit.	
Special option Stair step, hopper extension and electr. monitoring and control units AMALOG/AMADOS.	

During operation the seed is transported in the front tank.

Each AMAZONE Front tank FS 03 Avant Special is provided with one metering unit suited for pack top seed rails AS up to 4,0 m working width.

The star wheel drives the metering unit.

Pick up the front tank with the coupling frame fixed on to the front hydraulics of the tractor and secure.

Usually an AMAZONE soil tillage implement with roller mounted to the rear of the tractor is used for field bed preparation.

For seed application this combination can be equipped with an AMAZONE pack top seed rail AS, at random available with WS(Suffolk) coulters or RoTeC (roll disc) coulters.

The seed rails can be attached to all AMAZONE rollers. The soil tillage implement is not burdened by the weight of the seed rail and can give way to stones in upward direction without any problem.

In the distributor head the seed which is delivered from the seed tank to the seed drill is evenly distributed to all coulters.

1.9 On receipt of the machine

Only the immediate claim will lead to compensation.

When receiving the machine check that no damage has been caused in transit and all parts are present.

1.10 Loading

For loading the AMAZONE Front tank FS 03 Avant Special use the 3 chains as illustrated in Fig. 3 to hang the machine up into a crane hook.



Do not stand underneath a lifted implement (unsecured load).



Fig. 3

1.11 Hydraulic connections

Install the hydraulic connections in accordance with the hydraulic circuit (Fig. 4). In the following, please find the hydraulic circuit description and the permissible hydraulic oils.

Hydraulic ram on tractor control spool valve Q1:

H = Tractor front hydraulics

I = Star wheel lift

Hydraulic ram on tractor control spool valve Q2:

J = Blower fan hydraulic motor
N_{max.} = 4000 1/min.

Valves:

Q1 = Tractor control spool valve
illustrated in position "operation"

Q2 = Valve for hydraulic blower fan drive
with "priority" (approx. 30 l/min.)

S = DBV-valve with hydraulic free wheel

T = Free return flow (minimum DN16).

Only required

if no tractor control spool valve is available any
more:

R = 3/2-way valve

Permissible hydraulic oils

HD-SAE 20W-20 according to MIL-L-2104 C or API-
CD

and

STOU SAE 15W-30 according to MIL-L-2105 or API
GL4.

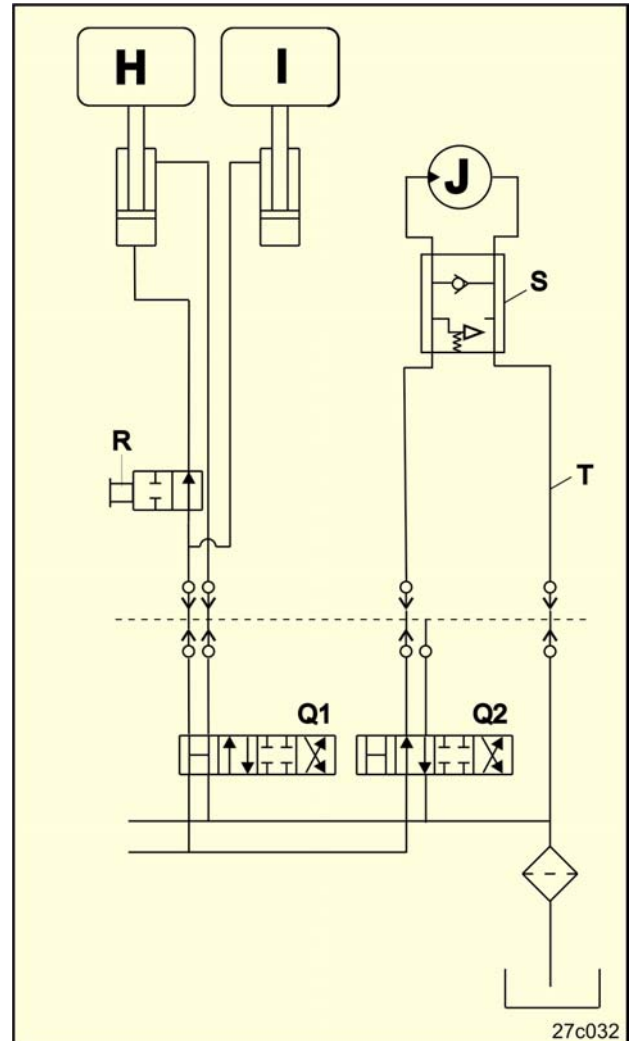


Fig. 4



Before commencing work on the hydraulic system relieve the tractor hydraulic system from pressure.



**The operational pressure must not exceed 200 bar .
You will find a relevant hint (Fig. 5) on
your machine.**

max. 200 bar

955912

Fig. 5



2. Safety

To ensure trouble free operation we recommend that you carefully read this instruction manual and to strictly adhere to the advice given therein.

Please ensure that this instruction manual has been read by the operator before he starts to operate the machine.

In this instruction manual you will find many hints which will provide you with a trouble-free operation.

These descriptions have been supplemented by many illustrations in order to explain all functions and to give you hints for safety and operation under varying operation conditions.

Please observe and adhere strictly to all safety advice.

2.1 Dangers when not adhering to the safety advice

Not adhering to the safety advice

- may result in endangering persons, also the environment and on the machine itself.
- may result in the loss of any claim for damage.

Not paying attention to the safety advice may cause the following risks:

- Failure of important functions of the machine.
- Failure of prescribed measures for maintenance and repair.
- Danger for persons by mechanical or chemical affects.
- Danger to persons or to the environment by leaking hydraulic oil.

2.2 Qualification of operator

The implement may only be operated, maintained and repaired by persons, who are acquainted with it and have been informed of the relevant dangers.

2.3 Symbols in this instruction manual

In this instruction manual many warning, attention and hints are identified by symbols. The explanation for these symbols please find in the following:

2.3.1 General danger symbol



The safety advice in this operation manual which may lead to a danger of persons when not being observed, are identified with the general danger symbol (danger symbol according to DIN 4844-W9) .

2.3.2 Attention symbol



The attention advice in this operation manual which may cause dangers for the machine and its function when not being adhered to, are identified with the attention symbol.

2.3.3 Hint symbol



Hints regarding machine's specific functions, which have to be adhered to for a faultless function of the machine are identified with the hint symbol.

2.4 Warning pictographs and hint symbols

The warning pictographs (Fig. 6) indicate dangerous points on the machine. Observing these pictographs means safety to all persons using this machine.

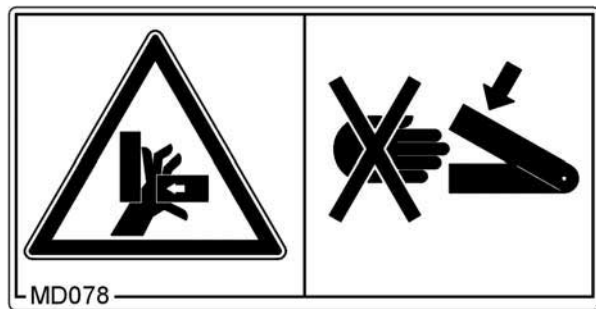


Fig. 6

The hint symbols (Fig. 7) mark machine's specific points which have to be observed to ensure correct function of the machine.

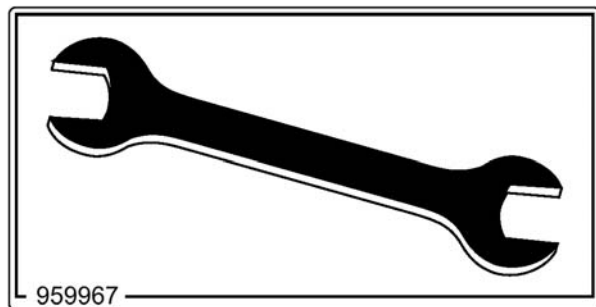


Fig. 7

The machine's fixing points for the warning pictographs and hint signs are illustrated in (Fig. 8) and

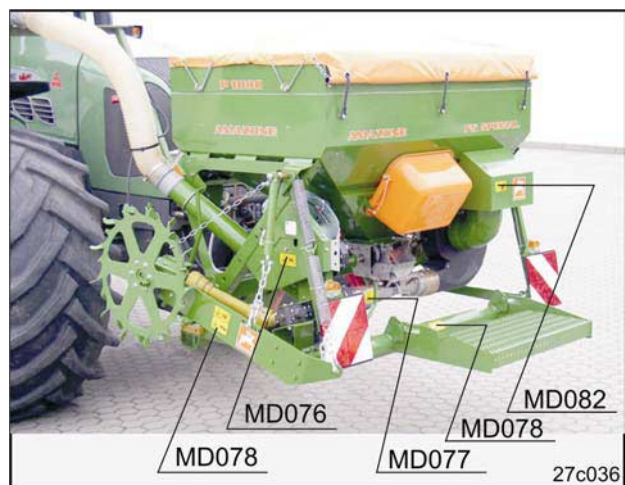


Fig. 8

(Fig. 9). Please refer to the following pages for relevant explanations. Please make these explanations also available for other users.

Please always keep all warning pictographs and hint signs clean and in readable condition. Please ask for replacement of damaged or missing warning signs from your dealer and attach them in the relevant place.

(Picture No. = Order No.).



Fig. 9

Explanation for MD095

Before starting operation read and observe the instruction manual and safety advice.

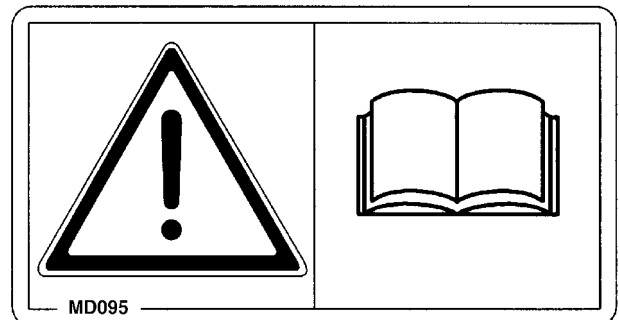


Fig. 10

Explanation for MD076

Before starting to operate the machine ensure that all guards are properly fitted.

Never remove guards when the motor is running.

Before removing the guards switch off the PTO shaft, stop the engine and remove the ignition key.

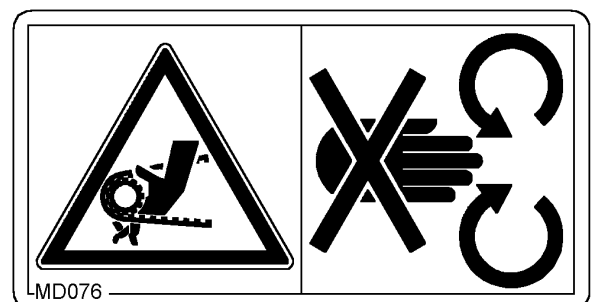


Fig. 11

Explanation for MD077

Danger of bruising while machine is running.

Keep sufficient clearance from the implement when it is started or running.

Advise persons to leave the danger area, as long as parts may still be moving.

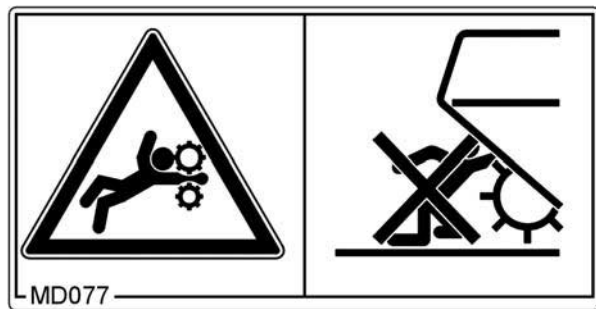


Fig. 12

Explanation for MD078

Never reach into the zone. There is danger of bruising as long as parts are still moving.

Advise persons to leave the danger zone.

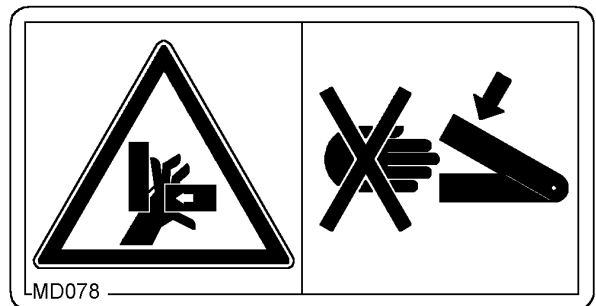


Fig. 13

Explanation for MD082

Sitting or standing on the implement during operation or during road transport is prohibited.

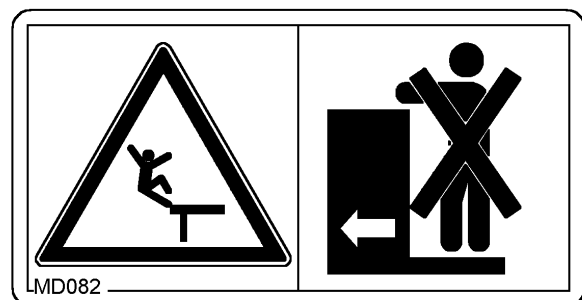


Fig. 14

Explanation for MD097

When coupling the implement to the tractor no persons may stay between tractor and machine.

Do not stay between tractor and implement while actuating the three point linkage outside the tractor cab.

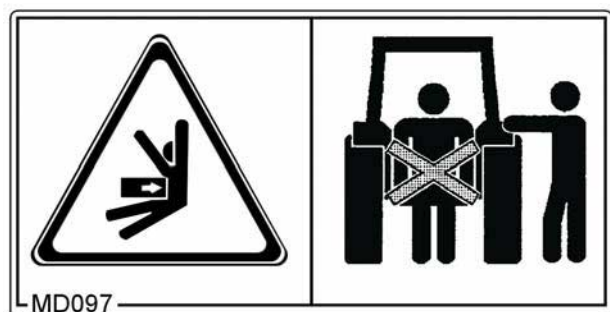
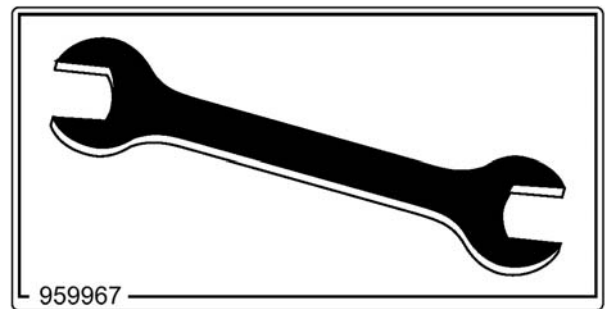


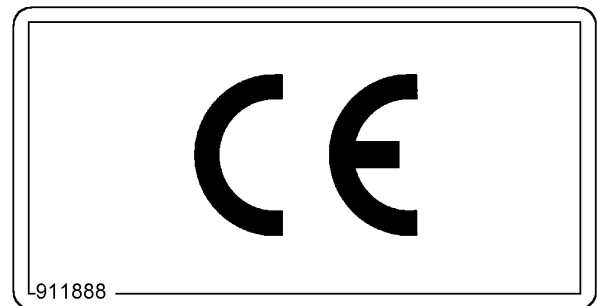
Fig. 15

Explanation for 959967

Retighten bolts frequently and after some hours of operation.

**Fig. 16****Explanation for 911888**

The CE-sign indicates that the machine fulfils the requirements of the EC guide line Machine 89/392/EC and the corresponding additional guide lines.

**Fig. 17****2.5 Safety conscious operation**

In addition to the safety advice in this operation manual the national, and general operational safety and accident preventive descriptions of the authorised trade association of your country are binding

When travelling on public roads observe the traffic regulations in force in your country.

2.6 Safety advice for the operator

Basic principle:
Always check traffic and operational safety before putting the implement into any operation.



2.6.1 General safety and accident prevention advice

- Adhere to the general rules of health- and safety precautions as well as to the hints in this instruction manual.
- The warning- and hint signs fixed to the machine give important hints for the safe operation of the machine. Adhering to them serves your safety.
- When making use of public roads adhere to the applicable traffic rules.
- Become acquainted with all devices and controlling elements as well as their function before commencing work. Doing this during operation would be too late.
- The clothing of the operator should fit tight. Avoid wearing loose clothing.
- To avoid risk of fire keep the machine clean.
- Before beginning to drive check your surroundings (children). Ensure sufficient visibility.
- Sitting or standing on the implement during operation or during transport is prohibited.
- Mount the implement correctly and secure them only to the proper mounting devices.
- Special care should be taken when the implement is coupled to or from the tractor.
- When mounting or dismounting bring parking supports into their correct position (standing stability).
- Always attach weights correctly to the mounting points provided.
- Observe the permissible axle loads, total weights and transport dimensions.
- Do not exceed maximum transport dimensions of the traffic department of your country.
- Check and fit equipment for road transport, e. g. traffic lights, warning plates and road safety guards.
- The release ropes for quick couplings must be hanging freely without any possibility of being actuated and releasing the quick couplings by themselves.
- Never leave the tractor seat during driving.
- The machines stability, steering and braking are affected by mounted implements, trailers and ballast weights. Therefore, take account of these effects and allow for changes to the steering and to stopping distances when braking.
- When lifting the implement the front axle load of the tractor is reduced by differing amounts depending on the size of the tractor. Always check that the necessary front axle load of the tractor (20 % of the tractor's net weight) is maintained. (Please also adhere to the instruction manual of the tractor manufacturer.)
- When driving into corners and/or bends watch out for the projection to the sides and the gyrating mass of the implement.
- Operate the implement only when all guards are fixed in position.
- Do not stay within the operational range of rotating and swivelling parts of the implement. Advise persons to leave the operational range of rotating rotors.
- Filling the seed box may only be carried out with the tractor engine stopped, a removed ignition key and the parking brake applied.
- Do not stay within the operational range of rotating and swivelling parts of the implement.
- Hydraulically folding parts may only be actuated when there is nobody standing within the moving range.
- On all hydraulically actuated pivoting parts there exists danger of injury by bruising and trapping.
- Before leaving the tractor lower the implement to the ground. Actuate the parking brakes, stop the engine and remove the ignition key.
- Nobody should stand between tractor and implement unless the tractor is secured against rolling away by engaging the parking brake and/or by the use of wheel chocks with engine switched off and ignition key removed.
- Lock track markers in transport position.

2.6.2 General safety and accident prevention advice regarding the implement mounted to the tractor's three-point linkage

- Before mounting- and dismounting implements to the three-point-linkage bring all control levers into a position so that unintentional lifting or lowering is impossible.
- When fitting the implement to the three-point linkage the mounting categories on the tractor and the implement must coincide or must be matched.
- Within the range of the three-point linkage there is a danger of bruising and shearing.

- When actuating the control levers for the three-point linkage never stand between tractor and implement.
- With the implement in transport position always take care for sufficient lateral locking of the tractor's three-point linkage.
- When driving on public roads with lifted implement the control lever has to be locked against unintended lowering.
- Mount and dismount implements as prescribed. Check braking systems for function. Pay attention to the manufacturers advice.
- Working implements should only be transported by vehicles that are designed for this task.

2.6.3 General safety and accident prevention advice regarding the operation of seed drills

- During calibration be aware of the danger created by rotating and oscillating implement parts.
- Use platforms only for filling. Standing on them during transport or operation is prohibited.

- Before road transport remove the carriers and marker discs of the pre-emergence marker.
- When filling the seed box observe the hints of the implement manufacturer.
- Lock markers in transport position.
- Do not place any parts into the seed box.
- Observe the permissible filling quantity.

2.6.4 General safety and accident prevention advice when retrofitting electric and electronic devices and/or components

The implement can be fitted with electronic components the function of which creates electro-magnetic transmittance during normal use. This may affect other implements. Such transmittance effects may cause danger for other people, when the following safety advice is not adhered to.

When retrofitting electric devices and/or components to the implement with connection to the on-board power supply, the user has to check for himself whether the installation may failure of the vehicle's electronic components or on other associated components.

Special attention has to be paid in order to ensure that the retrofitted electric and/or electronic parts correspond to the EMV-guide line 89/336/EC in its valid edition and that the CE-sign is displayed.

2.6.5 General safety and accident prevention advice regarding the PTO shaft operation

- Only use PTO shafts prescribed by the manufacturer.
- A protective tube and guard cone for the PTO shaft and protection for the power take-off shaft must be applied and maintained in proper condition.
- Apply coverings specified for transport and work positions of PTO shaft.
- Mount and dismount the PTO shaft only when the power take-off shaft and the engine are switched off and the ignition key has been removed.
- Always ensure that the PTO shaft has been correctly assembled and secured.
- Prevent the PTO shaft guard from rotating by suspending chains.
- Before engaging the PTO shaft ensure that the chosen PTO speed of the tractor corresponds to the allowable implement input speed.
- When using the ground speed related PTO shaft note that the speed is related to the forward speed and that the sense of rotation reverses when backing up.
- Before switching on the PTO shaft make sure that no-one is standing near the hazardous area of the unit.
- Never switch on the PTO shaft when the engine is switched off.
- When operating the PTO shaft make sure that no one is standing near the rotating PTO shaft or power take off shaft.
- Always switch off the PTO shaft when it is in an adverse position or not needed.
- Attention: After switching off the PTO shaft the mounted implement may still continue to run by it's dynamic masses. During this period never come too close to the implement. Begin work only after the implement has come to a full standstill.
- Clean and grease the PTO shaft and the PTO driven implement only after the PTO shaft and engine have been stopped and the ignition key has been removed.
- Deposit removed PTO shaft on the provided carrier.
- After removal of the PTO shaft replace protective cap over the tractor's PTO. Never remove implement and tractor PTO shaft guards.
- Remedy of damages is to be undertaken immediately before starting to operate with the implement.

2.6.6 General safety and accident prevention advice for maintenance, repair and cleaning

- Repair, maintenance- and cleaning operations as well as the correction and remedy of a function or fault should in principal be conducted with the engine and drive to the implement stopped. Remove ignition key.
- Check nuts and bolts regularly for tightness and retighten if necessary.
- When doing maintenance work on a raised implement make sure that it is secured by proper supports.
- When exchanging parts with cutting edges use appropriate tools and wear gloves.
- Dispose of oil, grease and filters in the appropriate environmentally approved manner.
- Before doing any repair work on the electric disconnect power supply.
- Before conducting electric welding operations on tractor or on the mounted implement, remove cable from generator and battery.
- Any spare parts fitted, as a minimum requirement, must meet with the implement manufacturers' fixed technical standards. This is, for example, ensured by using original AMAZONE spare parts.

2.6.7 General safety and accident prevention advice regarding the hydraulic system

- The hydraulic system is under high pressure.
- When connecting hydraulic rams and motors the described connection of the hydraulic hoses has to be followed.
- When connecting the hydraulic hoses to the tractor's hydraulics take care that the hydraulics are pressure less on the tractor as well as on the implement side.
- At hydraulic function connections between tractor and implement, the sockets and plugs should be colour coded in order to avoid incorrect operation. When mixing up connections, there is a danger of reverse function, e. g. lifting instead of lowering. Danger of accident.
- Regularly check hydraulic hoses and exchange them in cases of damage or ageing. The replacement hoses have to correspond to the technical demands of the implement manufacturer.
- When searching for leaks appropriate aids should be used due to danger of injury.
- Liquids (hydraulic oil) under high pressure may penetrate the skin and cause severe injuries.
- In case of injuries immediately consult a doctor. Danger of infection.
- Before starting to do any repair work on the hydraulic system, lower implement to the ground, switch off the engine, relieve the hydraulic system from pressure and switch off the engine.
- Before operating the implement for the first time and then at least once a year the hydraulic hoses should be checked for their operational safe condition by a skilled person. In case of damage and ageing replace the hydraulic hoses. The exchange hoses must correspond to the requirements of the implement manufacturer.
- The period of use of any hose circuit should not exceed six years including a storage period of two years in maximum. Even when stored and used properly, hoses and hose circuits age. Therefore, their longevity and period of use is limited. Deviations from the above may be accepted depending on the experience made and the danger potential. For hoses and hose circuits made of thermoplastics other guide lines may prevail.

2.6.8 Determining the total weight, the axle load and the tyre carrying capacity as well as the required minimum ballast weights on a combination tractor / mounted implement



The mounting of implements to the front- and rear three point arms may not result in an exceeding of the permissible total weight, axle loads and tyre carrying capacity of the tractor. The front axle of the tractor must always be loaded with at least 20 % of the tractor's net weight.

Before purchasing an implement ensure that these pre-conditions are fulfilled by carrying out the following calculations or by weighing the tractor-implement-combination.

For the calculation the following data are required (please also see Fig. 18):

T_L [kg]	Net weight of the tractor	❶
T_V [kg]	Front axle load of empty tractor	❶
T_H [kg]	Rear axle load of empty tractor	❶
G_H [kg]	Total weight of rear mounted implement / rear ballast	❷
G_V [kg]	Total weight front mounted implement / Front ballast	❷
a [m]	Spacing between point of gravity front mounted implement / front ballast and centre of front axle	❷ ❸
b [m]	Wheel base of tractor	❶ ❸
c [m]	Spacing between centre of rear axle and centre of lower link ball	❶ ❸
d [m]	Spacing between centre lower link ball and point of gravity rear mounted implement / rear ballast	❷

- ❶ Please refer to the instruction manual for the tractor
- ❷ Please refer to the price list and / or to the instruction manual for the implement
- ❸ Dimensions

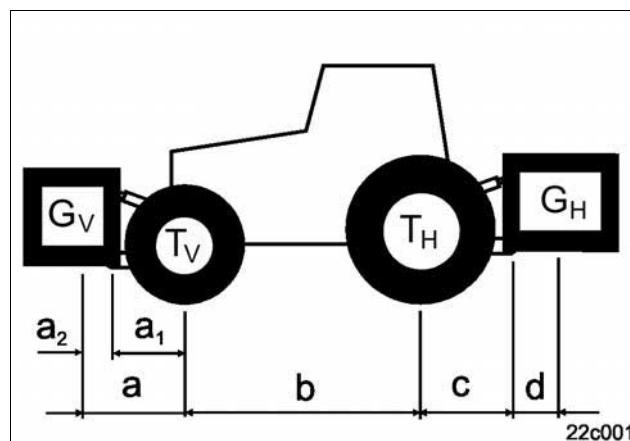


Fig. 18

2.6.9 Rear mounted implement or front – rear mount combinations:

Calculation of the minimum ballast front $G_{V \min}$

$$G_{V \min} = \frac{G_H \cdot (c + d) - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

Enter into the table (Fig. 19) the minimum ballast required for the tractor front.

2.6.10 Front mounted implement

Calculation minimum ballast rear $G_{H \min}$

$$G_{H \min} = \frac{G_V \cdot a - T_H \cdot b + x \cdot T_L \cdot b}{b + c + d}$$

Enter into the table (Fig. 19) the minimum ballast required at the rear of the tractor. Take "x" from the indications of the tractor manufacturer. If no data available, insert for "x" = 0,45.

Calculation of the actual front axle load $T_{V \text{tat}}$

If the necessary minimum ballast front ($G_{V \min}$) is not achieved with the front mounted implement (G_V) increase the weight of the front mounted implement up to the weight of the minimum ballast front.

$$T_{V \text{tat}} = \frac{G_V \cdot (a + b) + T_V \cdot b - G_H \cdot (c + d)}{b}$$

Enter into the table (Fig. 19) the calculated actual front axle load and the permissible front axle load indicated in the instruction manual for the tractor.

Calculation of the actual total weight G_{tat}

If the minimum rear ballast ($G_{H \min}$) is not achieved with the rear mounted implement (G_H), increase the weight of the rear mounted implement up to the rear minimum ballast.

$$G_{\text{tat}} = G_V + T_L + G_H$$

Enter into the table (Fig. 19) the calculated actual total weight and the permissible total weight indicated in the instruction manual for the tractor.



Calculation of the actual rear axle load $T_{H\,tat}$

$$T_{H\,tat} = G_{tat} - T_{V\,tat}$$

Enter into the table (Fig. 19) the calculated actual rear axle load and the permissible rear axle load indicated in the instruction manual for the tractor.

Calculation of the tyre load capacity

Enter into the table (Fig. 19) double the value (two tyres) of the permissible tyre load capacity (please refer e.g. to the files of the tyre manufacturer).



The minimum ballast must be attached to the tractor by means of a mounted implement or a ballast weight.

The calculated values should be smaller than / equal ($\leq$) the permissible values.

TABLE	Actual value according to calculation	permissible value according to instruction manual	Double permissible tyre load capacity (two tyres)
Minimum ballast Front / rear	/ kg	---	---
Total weight	kg	kg	---
Front axle load	kg	kg	kg
Rear axle load	kg	kg	kg

Fig. 19

3. Coupling the front tank to the tractor front hydraulics

Couple the front tank in the usual manner by means of a mounting frame (Fig. 20) on to the tractor front hydraulics.

The mounting frame which you can purchase from your dealer or importer should be suited for loads up to 1700 kg at a centre of gravity distance of 0,7 m.

Attach the mounting frame to the tractor front hydraulics according to the instructions of the manufacturer.

Align the coupling frame by using the tractor upper link.

Drive up with your tractor to the front tank parked on level ground (Fig. 20).



Fig. 20



When coupling the front tank to the tractor observe the safety advice according to the "General safety and accident prevention advice for implement mounted to the tractor's three point hydraulics".



Park the front tank on transport rollers (option) only on a level ground to prevent it from rolling away.

If necessary secure the transport rollers using chocks.

Lift the front tank with the coupling frame (Fig. 21),



Fig. 21

slacken the M8 flat head bolts (Fig. 22/2) and push the setting block (Fig. 22/1) up to the securing pin (Fig. 22/3). Retighten M8 flat head bolts firmly.

The setting block can be adjusted with the aid of the hex. bolt (Fig. 22/4).

Secure the securing pin (Fig. 22/3) using a lynch pin (Fig. 22/5) to prevent an unintended uncoupling.

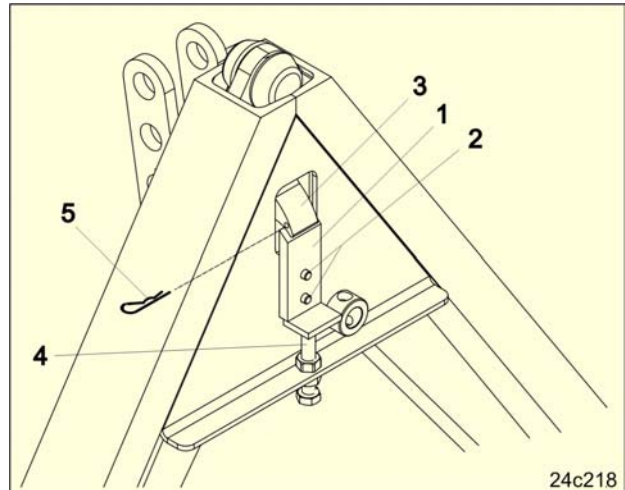


Fig. 22



For all fitting operations, please observe the earlier mentioned safety advice .

Connect the hydraulic couplings of the front tank with the tractor as described under "Hydraulic connections". For this, proceed as follows:

- connect the hydraulic coupling (Fig. 23/1) of the star wheel lifting device to a single acting control spool valve,
- the hydraulic coupling (Fig. 23/2) of the blower fan motor to a control spool valve with "priority" (approx. 30 l/min.),
- the hydraulic coupling (Fig. 23/3) for the return flow from the blower fan hydraulic motor to a valve with free return flow (minimum DN 16).

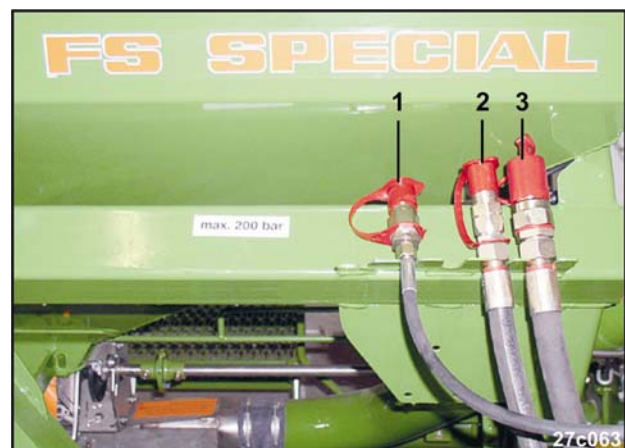


Fig. 23

Install seed guide tubes and electric cables only after the rear combination has been fixed to the tractor.

The seed is delivered from the front tank (Fig. 24/1) via the seed guide tube (Fig. 24/2) to the distributor (Fig. 24/3).



Fig. 24

Affix the seed guide tube to the tractor with at least one bracket in the front (Fig. 25/1) and

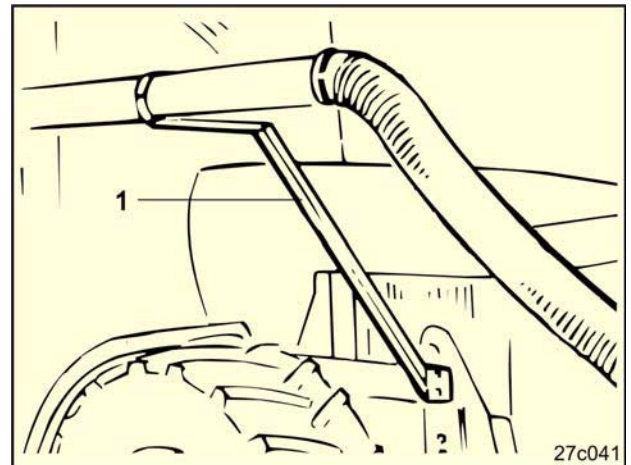


Fig. 25

one bracket at the rear (Fig. 26/1).

Make these brackets suitable for your tractor type and fix them on the tractor.

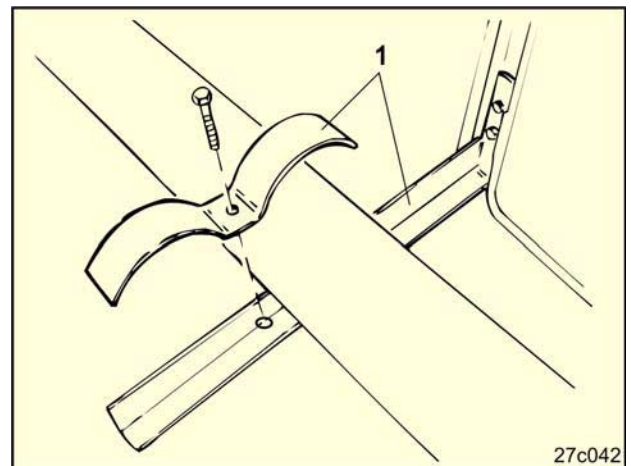


Fig. 26



When installing the seed guide tube between front seed tank and distributor take care for short distances.



Route the seed guide tubes in such a way that they will not be damaged during operation.

Insert the seed guide tubes into one another and secure by using quick couplings (Fig. 27) .

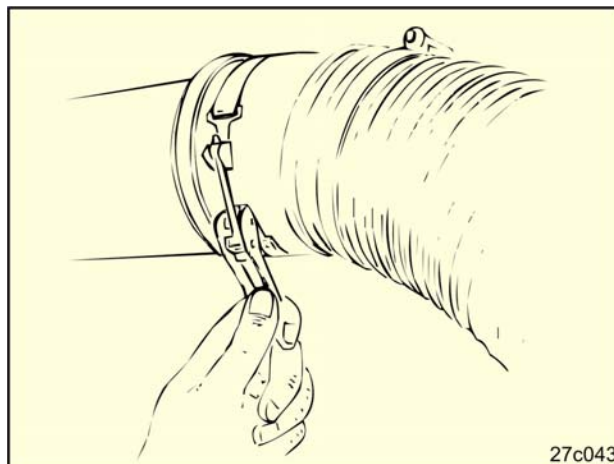


Fig. 27

Install and affix to the tractor both the seed guide tube (Fig. 24/2) and the set of cables (Fig. 29/1).

Connect the set of cables (Fig. 28/1) with the plug (Fig. 28/2) of the front tank.

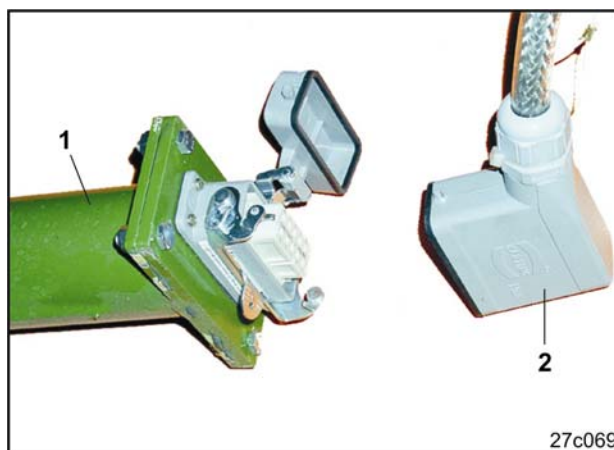


Fig. 28

Connect the set of cables (Fig. 29/1) at the rear of the tractor as follows.

Connect the earth cable (Fig. 29/2) to the negative pole of the battery.

Insert plugs (Fig. 29/3) for indicator and lighting of the front tank into the tractor socket.

Connect plug of the seed rail lighting with the plug (Fig. 29/4) .

Insert the plug (Fig. 29/5) of the AMADOS/AMALOG-sensors into the seed rail distributor.

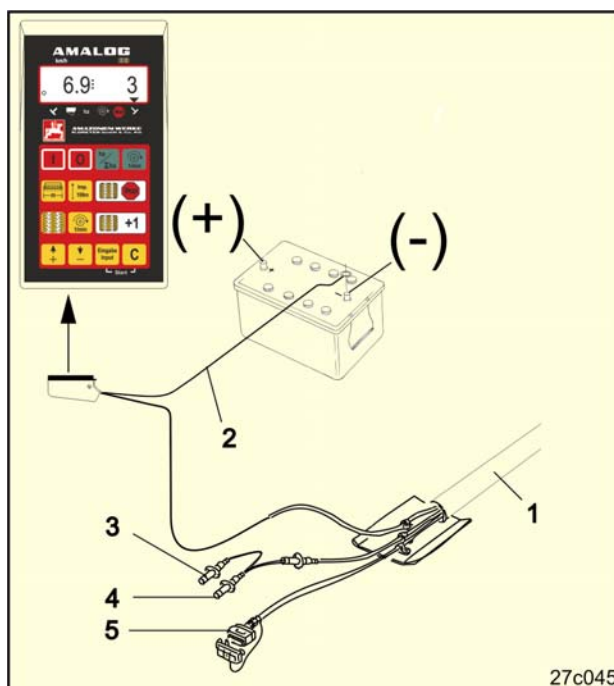


Fig. 29

3.1 Transport rollers

Before starting to operate remove the 4 transport rollers (option, Fig. 30/1) for manoeuvring the uncoupled front tank. For this briefly lift the front tank with the aid of the tractor hydraulics and pull the transport rollers out of the frame in downward direction.

Immediately before uncoupling the front tank re-insert the transport rollers on the front tank by using pins (Fig. 30/2) and secure using clip pins (Fig. 30/3) .



Fig. 30

4. Blower fan with hydraulic drive

The air flow for the seed delivery from the injector sluice to the coulters is provided by the blower fan. (Fig. 31).

The blower fan is driven by a hydrostatic motor (Fig. 31/1) which is connected to the tractors hydraulics according to the circuit diagram (Fig. 37) .



Fig. 31



Please observe the safety advice according to the " General safety and accident prevention advice regarding the hydraulic system ".

4.1 Blower fan speeds

Please find the required blower fan speed in table (Fig. 32). The speed depends on:

- 1 Working width of the seed rail
- 2 Blower fan speed for fine seed (rape)
- 3 Blower fan speed for legumes (grain)



Do not exceed the maximum blower fan speed of 4000 R.P.M..

960489


max. 4000







AD-P		
FRS / FPS		
Avant / Xact		
Cirrus		
3,0 m	2800	3500
4,0 m	3000	3800
4,5 m	3000	3800
6,0 / 8,0 / 9,0 m	3200	3900

1

2

3

Set the blower fan speed on the pressure relief valve (Fig. 33 or Fig. 37/3) or on the current regulating valve on the tractor (see below).

For setting the blower fan speed on the pressure relief valve

- remove the dust cap (Fig. 33/1)
- slacken the counter nut
- set the speed on the valve with a screw driver as follows
Turn to the right hand side
= speed is increased
Turn to the left hand side
= speed is reduced
- After setting, secure the valve with counter nut and
- cover with dust cap (Fig. 33/1).

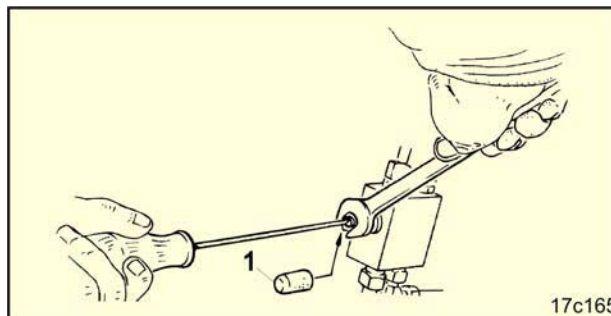


Fig. 33

On tractors with controllable hydraulic pump (Fig. 37/5) the necessary oil volume should be set at the current regulating valve of the tractor and the pressure relief valve (Fig. 37/3) in such a way that the oil volume is as little as possible. Larger oil volumes than necessary are led back into the oil tank by the pressure relief valve and result in unnecessary heating up of the hydraulic oil.

The blower fan speed is changing until the hydraulic oil has reached its operational temperature. At the first use the blower fan speed should be corrected until the operational temperature of the hydraulic oil has been reached. If the blower fan is used after a prolonged period of standstill, the reset blower speed will only be reached after the hydraulic oil has reached the operational temperature.

4.2 Rev. speed monitoring

The blower fan speed can be monitored by the electr. controlling and governing system AMALOG or AMADOS.

Set the required rev. speed as described in para. "Rev. monitoring of the blower fan" in the AMALOG/AMADOS instruction manual.

The blower fan is equipped with a speed sensor (Fig. 34/1).

By pressing key  the current speed is shown in the display.



Fig. 34

If the desired rev. speed which has been set according to table (Fig. 32) deviates by more than 10 % an audible alarm sounds and the black triangle (Fig. 35) above the speed figure symbol flicks on the display.



Fig. 35



The alarm for deviation is released only when AMALOG/AMADOS receive impulses from the distance sensor (Fig. 36/1), e.g. when the machine is operating.

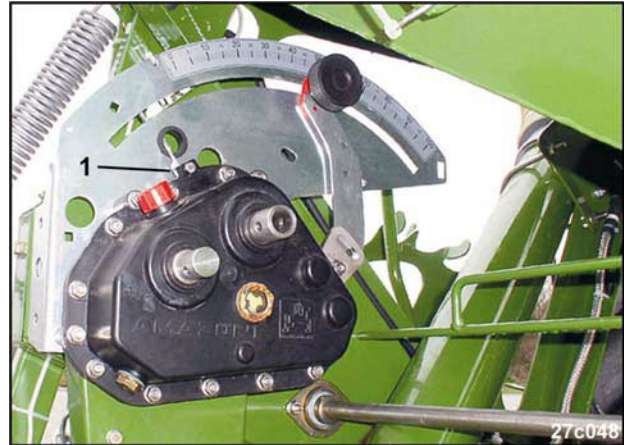


Fig. 36

4.3 Circuit diagram Blower fan with hydraulic drive

Fig. 37, No.	Description
1	Blower fan hydrostatic motor $N_{\max.} = 4000$ R.P.M.
2	DBV-valve with hydraulic free wheel
3	adjustable pressure relief valve
4	check valve
5	tractor hydraulic pump - required capacity minimum 40 l/min. at 150 bar.
6	free return flow - tube nominal width min. $\varnothing 16$ mm - use couplings with sufficiently large diameter - the back pressure in the return flow must not exceed 10 bar.
7	Filter
8	single or double acting control spool valve
9	hydraulic oil tank
10	plug coupling
11	plug coupling "large"

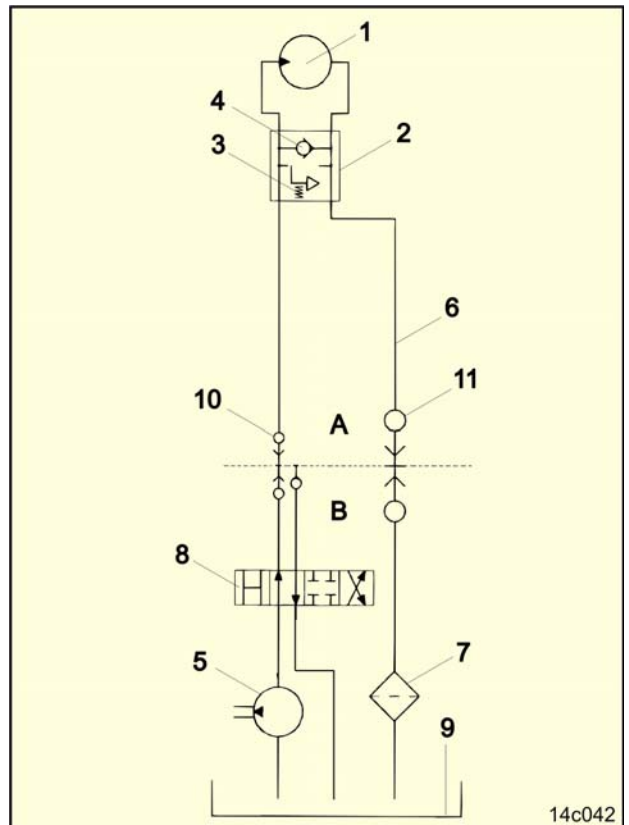


Fig. 37



Do not create other connections than shown in the circuit diagram **(Fig. 37)**.



4.3.1 Explanations for the circuit diagram Blower fan with hydraulic drive

On the pressure side the blower fan hydrostatic motor (Fig. 37/1) may be connected to either a single or to a double acting control spool valve (Fig. 37/8).

In order not to damage the hydrostatic motor, the oil pressure in the return flow (Fig. 37/6) 10 bar must not exceed 10 bar. Therefore, never connect the return flow to the control spool valve (Fig. 37/8) but to a non-pressurised return flow with a large plug coupling (Fig. 37/11).

Should it become necessary to install a new return flow tubing, use only tubes DN16, e.g. Ø20 x 2,0 mm and short return flow ways.

The hydraulic oil must be guided through an oil filter (Fig. 37/7) at any place of choice.

The return flow hydraulic oil must never be guided through control spool valves as the oil pressure would then exceed the maximum pressure of 10 bar.

The check valve (Fig. 37/4) allows the blower fan to run after as soon as the control spool valve (Fig. 37/8) has been shut off.

Ensure that the hydraulic oil does not get too hot. If large amounts of oil are fed into small oil tanks the hydraulic oil will heat up. The capacity of the oil tank (Fig. 37/9) should at least have the double of the oil delivery amount. If the oil gets too hot, the installation of an oil cooler on the tractor by a professional workshop is necessary.

Particles of dirt may damage the blower fan hydrostatic motor (Fig. 37/1) and the pressure relief valve (Fig. 37/3). For this reason, always keep clean the coupling parts when connecting the blower fan hydrostatic motor to the tractor's hydraulic to avoid the hydraulic oil becoming dirty.

Should it be necessary to drive besides the blower fan hydrostatic motor yet another hydrostatic motor, both motors should be switched parallel. When switching both motors in line the maximum permissible oil pressure of 10 bar will be always exceeded behind the first motor.

If the blower fan hydrostatic motor has to be connected to different tractors, make sure that the type of oil in the hydraulic circuits is compatible. Impermissible mixing of various hydraulic oils may lead to defects on hydraulic components.

5. Filling and emptying the front tank and monitoring the seed level

5.1 Filling the front tank

The front tank is rain proof covered with the folding cover canvass (Fig. 38). The folding cover canvass is secured with elastic strips and a circumferential elastic band.



Fig. 38

The front tank can be filled from a shovel loader or big bags.

The front tank is easily accessible from the loading platform (Fig. 39).



Fig. 39



Refill the front tank early enough.

The front tank should never be completely emptied. The seed level inside the front tank can be monitored with the electr. seed level indicator AMFÜME (please refer to para. 5.2).

5.2 Electr. seed level indicator AMFÜME

The capacitive sensor (Fig. 40/1) on AMALOG/AMADOS monitored the seed level in the front tank.

Refill the front tank early enough. Never empty the front tank completely to avoid deviations of the seed rate..

For setting the residual amount in the front tank slacken two clip pins (Fig. 40/2) remove the screen and



Fig. 40

move the sensor according to the desired residual amount in the direction of the arrow . Firmly re-tighten the earlier slackened thumb bolt (Fig. 41/1).

By adjusting the bolt (Fig. 41/2) with the aid of the provided screw driver the sensor can be tuned according to the different seeds.

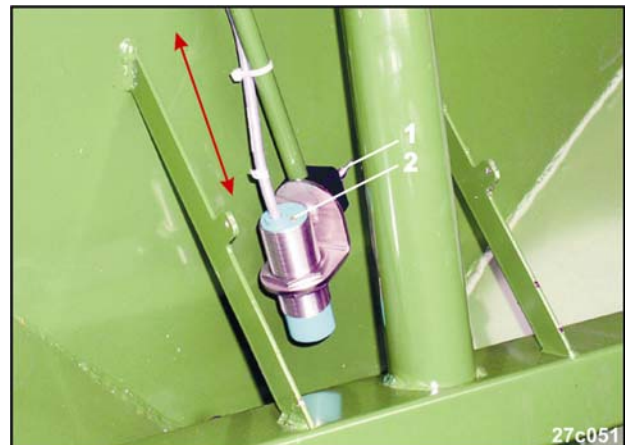


Fig. 41

If the sensor does not dip into the residual amount any more an audible alarm sounds and the black triangle above the tank symbol flicks on the display (Fig. 42).



Fig. 42

5.3 Emptying the front tank

For emptying the front tank place collecting trays (Fig. 43) underneath the metering units.

Open the injector sluice flap (Fig. 43/1) until the collecting tray is filled. Empty the collecting tray and repeat this procedure as long as no seed will flow from the outlet into the calibration tray.



Fig. 43

For emptying the front tank from residual seed push the lever (Fig. 44/1) downwards and lock. By actuating the lever an additional outlet behind the metering unit is opened.

For emptying the metering wheels drive the metering wheels repeatedly by using the calibration crank as described for the calibration test..

Deposit the calibration crank in its transport retainer and let the blower fan briefly run to remove any residue of seed.

Close the outlet openings.



Fig. 44



Hints for seed emptying:

It is of great importance that the seed box and the seed metering wheels are cleaned after having finished operation.

If the seed metering wheels are not emptied completely, even there seed residue swells and germinates. A blockage of the seed metering wheels would be the result causing damage to drive or gearbox.

6. Setting the metering unit to a particular seed

Every metering unit is provided with

- a white coloured main seed wheel (Fig. 45/1)
- an orange coloured main seed wheel (Fig. 45/2)
- a red/black coloured fine seed wheel (Fig. 45/3).



The required metering wheel(s) may be taken from the table (Fig. 46).

When the table indicates "main seed wheels" (see table Fig. 46) always sow with both main seed wheels at the same time.

For seeds which have not been mentioned in the table (Fig. 46) please refer to a seed with similar grain size when choosing the seed wheel.

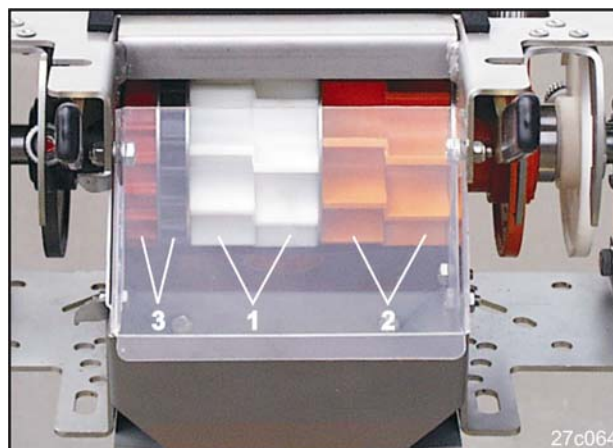


Fig. 45

Seed	Seed metering wheels		Seed	Seed metering wheels	
Rye	Main seed wheels	Fine seed wheel	Millet	Main seed wheels	Fine seed wheel
Triticale	Main seed wheels	Fine seed wheel	Lupine	Main seed wheels	-
Barley	Main seed wheels	Fine seed wheel	Lucerne	Main seed wheels	Fine seed wheel
Wheat	Main seed wheels	Fine seed wheel		Fine seed wheel	-
Dinkel	Main seed wheels	Fine seed wheel	Oil linseed (dressed moist)	Main seed wheels	Fine seed wheel
Oats	Main seed wheels	Fine seed wheel		Fine seed wheel	-
Rape	Fine seed wheel	-	Red clover	Fine seed wheel	-
Mustard	Fine seed wheel	-	Soya	Main seed wheels	-
Oil radish	Main seed wheels	Fine seed wheel	Sun flower	Main seed wheels	-
	Fine seed wheel	-	Vetches	Main seed wheels	-
Phacelia	Main seed wheels	Fine seed wheel			
	Fine seed wheel	-			
Late turnip	Fine seed wheel	-			
Grass	Main seed wheels	Fine seed wheel			
Beans	Main seed wheels	-			
Peas	Main seed wheels	-			
Flax (dressed)	Main seed wheels	Fine seed wheel			

Fig. 46

6.1 Switching the metering wheels on and off

In the position **"metering wheel on"** ("Särad ein") the knurled bolt (Fig. 47/1) is driven in till the stop.

In the position **"metering wheel off"** ("Särad aus") the knurled bolt (Fig. 47/2) is driven out till the stop (Fig. 47/3). Ensure that the stop is not touched.

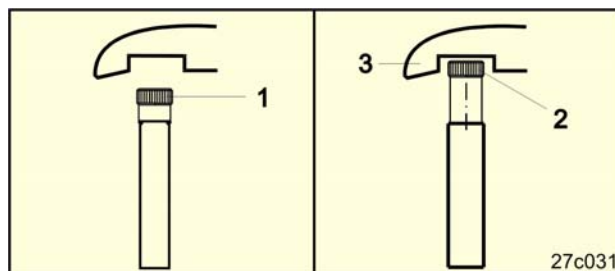


Fig. 47



Drive the knurled bolts either in position **"metering wheel on"** ("Särad ein") or **"metering wheel off"** ("Särad aus").



Never tighten knurled bolts too firmly or drive them too tightly to the stop (Fig. 47/3).

6.2 Sowing with both main metering wheels

For sowing with both metering wheels (Fig. 48/1)

- turn hand wheel (Fig. 50/1) until the knurled bolts (Fig. 50/2) can be seen.

- drive in knurled bolts (Fig. 48/2) of the main seed wheels
- drive out knurled bolt (Fig. 48/3) of the fine seed wheel.

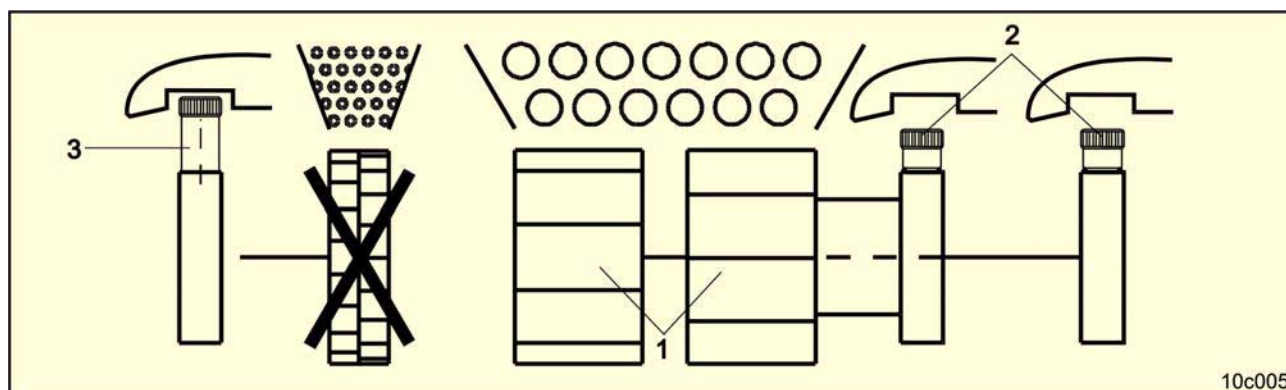


Fig. 48

6.3 Sowing with the fine seed wheel

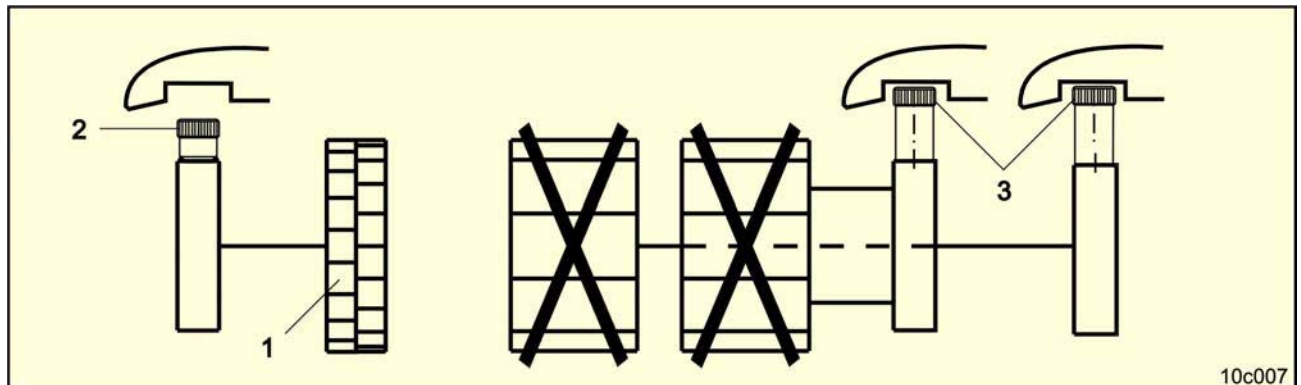


Fig. 49

For sowing with the fine seed wheel (Fig. 49/1)

- turn hand wheel (Fig. 50/1) until the knurled bolts (Fig. 50/2) can be seen
- Drive in knurled bolt (Fig. 49/2) of the fine seed wheel
- drive out knurled bolts (Fig. 49/3) of both main seed wheels.



Fig. 50

6.4 Shear off safety

In order to avoid damage on driving components in case of blockage of the seed wheels, the connection of drive and metering unit is protected by a shear off safety bolt.

In case of blockage of the seed wheels the plastic bolt (Fig. 51/1) shears off and the power supply to the metering unit is interrupted. After removal of the blockage and replacement of the shear off bolt, the machine is ready for operation again. You will find 4 replacement shear off bolts (Fig. 51/2) in the retainer above the hand wheel.



Fig. 51



For a faultless function only use a plastic shear off bolt M8 (Order No. 917420) .

In case of a standstill of the metering wheels during operation a warning is given on the AMADOS display. The warning is released by a sensor which monitors the movement of the metering wheels (Fig. 52/1).

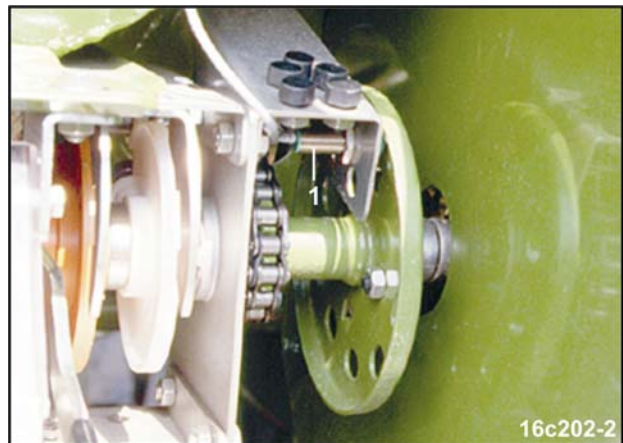


Fig. 52

7. Determining the gearbox setting for the desired seed rate

Set the metering unit according to the para. "Setting the metering unit to a particular seed".

Fill the seed box with seed to at least 1/4 of its capacity.

Set the desired seed rate on the gearbox (Fig. 53) .

By the gearbox setting lever the speed of the metering wheels and thus the seed rate can be infinitely variably set. The higher the figure of the pointer (Fig. 53/1) has been chosen on the scale (Fig. 53/2) the higher the seed rate will get.



If your machine is equipped with the AMADOS-seed rate remote control, please choose the desired gearbox setting according to para. "Setting the seed rate with AMADOS".



Fig. 53



After every gearbox setting a calibration test should be conducted to confirm that at the later sowing the desired seed rate will be obtained.

This calibration test should also be re-checked

- when changing to another seed wheel, e.g. from the main seed wheels to the fine seed wheel.
- before sowing a new supply of seed (reason: deviations in grain size, grain shape, bulk density and seed dressings).

Place collecting tray underneath the metering unit and open the injector sluice. (Fig. 54/1) .



Fig. 54

The collecting tray is held in a retainer and secured with a clip pin (Fig. 55/1).



Fig. 55

Slacken the star knob (Fig. 56/1) of the gearbox setting lever.

Move the pointer of the gearbox setting lever to one of the following gearbox settings:

For sowing by both main metering wheels:
gearbox setting "50"

For sowing with the fine seed metering wheel:
gearbox setting "15".

Tighten star knob (Fig. 56/1).

In the past usually the values for the first gearbox setting were indicated in a sowing table. However, these values heavily differ depending on grain properties and especially depending on dressing agents and dressing procedures that the use of a sowing table has not got any advantage. The correct gearbox setting can be determined quickly by using the calculating disc rule, described in para. 7.2.



Fig. 56

7.1 Calibration test

Take the calibration crank (Fig. 57) in your hand.
The calibration crank is located in a retainer next to the vario gearbox.



Fig. 57

With the calibration crank turn the star wheel in clockwise direction (Fig. 58), until all metering housings of the seed metering wheel(s) have been filled with seed and a uniform flow of seed runs into the calibration tray (Fig. 54). Empty the contents of the calibration tray into the front tank.



Fig. 58

Turn the crank in clockwise direction in times taken from table (Fig. 59).

The number of crank turns depends on the working width of the seed rail.

The number of crank turns refers to an area of 1/40 ha (250m²) or 1/10ha (1000m²).

Take the necessary number of crank turns from table (Fig. 59) . The number of crank turns depends on:

1 = Working width of the seed rail

2 = Crank turns on the star wheel for 1/40 ha

3 = Crank turns on the star wheel for 1/10 ha.

Usually the crank turns for 1/40 ha are used. At extremely small seed rates, e.g. for rape, we recommend that you take the crank turns for 1/10 ha.

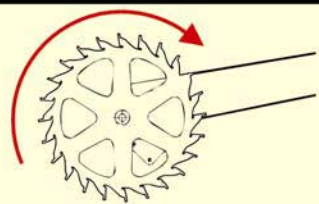
 		
959026	1/40 ha	1/10 ha
3,0 m	38,5	154,0
4,0 m	29,0	117,0
4,5 m	26,0	104,0
6,0 m	19,5	78,0
1	2	3

Fig. 59

Weigh the seed collected in the collecting tray under consideration of the weight of the bucket (Fig. 60) and multiply either by

- factor "40" (for 1/40 ha) or
- factor "10" (for 1/10 ha).

Calibration for 1/40 ha:

seed rate [kg/ha] =
collected seed [kg/ha] x 40

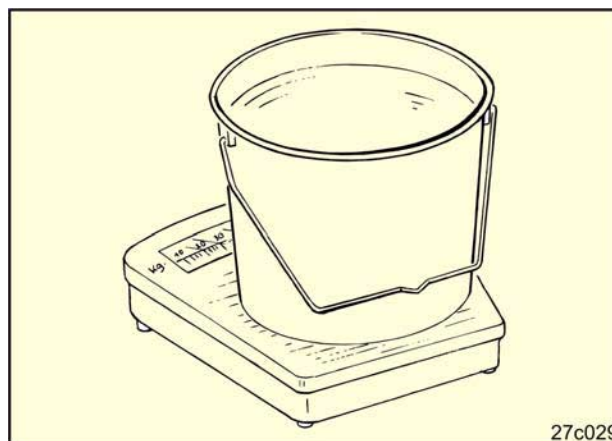
Calibration for 1/10 ha:

seed rate [kg/ha] =
collected seed [kg/ha] x 10

Example:

Calibrating for 1/40 ha
collected seed 3,2 kg.

Seed rate [kg/ha]	=
3,2 [kg] x 40 [1/ha]	= 128 [kg/ha]



27c029

Fig. 60



The desired seed rate usually is not obtained after the first calibration test. However, with the aid of the disc rule according to para. 7.2 it is possible to determine the correct gearbox setting by using the gearbox setting figure of the first calibration test at the calculated seed rate.

After having determined the correct gearbox setting

- place the calibration crank back into the retainer
- fix calibration tray to the bracket and secure with a clip pin
- shut off injector sluice flap.

7.2 Determining the gearbox setting with the aid of the disc rule

The desired seed rate usually is not obtained after the first calibration test. However, with the aid of the disc rule it is possible to determine the correct gearbox setting by using the values of the first calibration test.

The gearbox setting figures and the seed rate determined with the first calibration test are required.

The disc rule consists of three scales: One outer white scale (Fig. 61/1) for all seed rates above 30 kg/ha and an inner white scale (Fig. 61/2) for all seed rates below 30 kg/ha. On the central, coloured scale (Fig. 61/3) the gearbox settings from 1 to 100 are printed.

Example:

Wanted is a seed rate of 125 kg/ha.

- At the first setting, the gearbox setting lever is brought to the "gearbox setting position 25" (it is possible to choose also any other gearbox setting figure). In this case a seed rate of 175 kg/ha has been calculated.
- Align the seed rate 175 kg/ha (Fig. 61/A) and the "gearbox setting position 25" (Fig. 61/B) on the disc rule.
- Now read off the disc rule the gearbox setting figure for the desired seed rate of 125 kg/ha (Fig. 61/C). In our example that is the "gearbox setting position 17.8" (Fig. 61/D).
- Recheck the desired seed rate with a calibration test according to para. 7.2

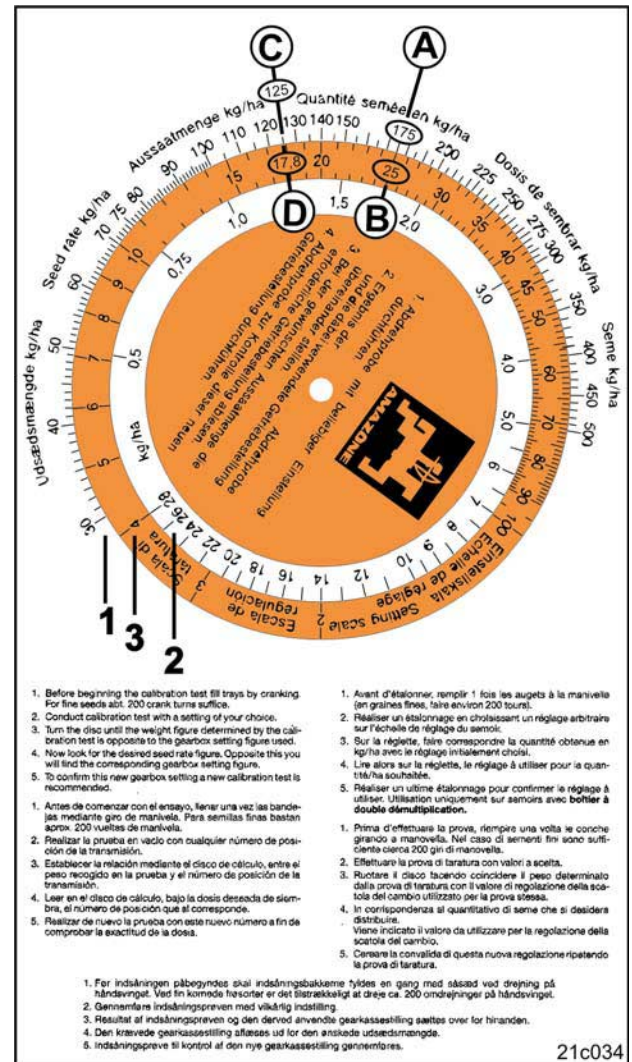


Fig. 61



7.3 Seed rate deviations between the setting and sowing

To avoid deviations between the setting of the seed and the later sowing and to achieve a uniform distribution of the seed to all coulters, please note the following hints:

When sowing dressed seeds

the distributor head should be regularly checked and cleaned.

When sowing moist dressed seeds

the seed should "age" at least for one week (better two weeks) after moist dressing and sowing, to avoid deviations between the calibration test and the seed rate.

In case of wheel slip

the drive wheel for the metering units turns on very light and loose soil less as at a same distance on very firm cloddy soils. In case of high wheel slip-page the number of crank turns for determining the gearbox setting should newly be determined.

For this one measures on the field an area of 250 m². This corresponds to a machine with:

3,00 m working width	=	83,3m travelled distance
4,00 m working width	=	62,5m travelled distance
4,50 m working width	=	55,5m travelled distance
6,00 m working width	=	41,7m travelled distance

The number of crank turns is then counted when travelling the measured travelled distance. With this number of crank turns then the gearbox setting should be determined according to para. 7.1.

8. Setting the seed rate with the aid of AMADOS

With the aid of the gearbox setting lever (Fig. 62/1) the speed of the seed metering wheels and thus the seed rate is set.

For setting the seed rate, the setting motor (Fig. 62/2), which actuates the gearbox setting lever is governed by AMADOS. The seed rate set and the scale figure can be read off the AMADOS-display.

Before starting the sowing operation set the seed rate on the stopped machine as follows:

- Enter the desired seed rate via the AMADOS-key board (you will find a detailed description in the AMADOS instruction manual).
- Carry out the calibration test (you will find the detailed description in the AMADOS instruction manual).

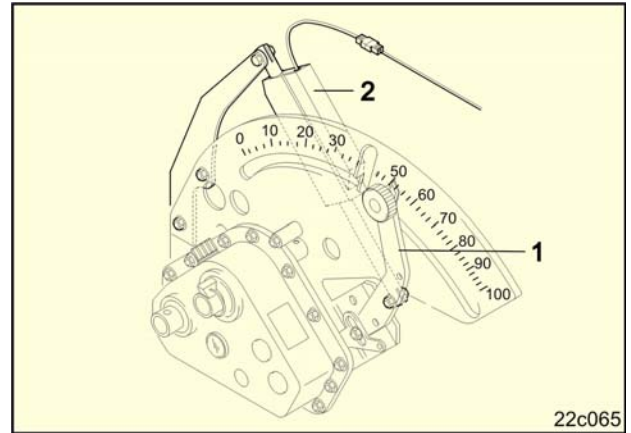


Fig. 62

8.1 Preparing the calibration test

Set the metering unit according to para. "Setting the metering unit to a particular seed".

Fill the seed tank with seed at least to 1/4 of its capacity.

Place a calibration tray below the metering unit and open the injector sluice flap (Fig. 63/1).



Fig. 63

The calibration tray is held in a retainer and secured with a clip pin (Fig. 64/1) .



Fig. 64

Take the calibration crank (Fig. 65). The calibration crank is located in a retainer next to the vario gear-box.



Fig. 65

With the calibration crank turn the star wheel in clockwise direction (Fig. 66), until all metering wheel housings of the seed metering wheel(s) have been filled with seed and a uniform flow of seed runs into the calibration tray (Fig. 63). Empty the content of the calibration tray into the front tank.



Fig. 66

8.2 Calibration test

Please find the detailed description for the calibration test procedure in the AMADOS instruction manual.

For carrying out the calibration test with the Front tank FS 03 Avant Special the entering of the impulse figure is required:

Impulse figure: 1691 Imp./100 m

The indicated impulse figure is a mean value. In case of wheel slip the drive wheel for the metering units turns on very light and loose soil less as at a same distance on very firm cloddy soils. In case of high wheel slippage the impulse figure for AMADOS should newly be determined by driving a 100 m test distance and the calibration figure should newly be calculated according to formula (Fig. 68) .

Example:

Working width: 4 m

actual number of
impulses when driving
a 100 m long test distance: 1726 [1/100m]

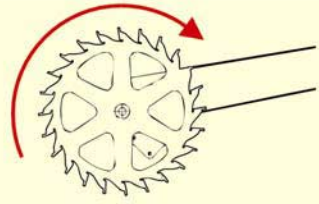
$$\text{Calibration figure [1/40ha]} = \frac{\text{Impulses [1/100m]}}{1691 [1/100m]} \times \text{crank turns (according to table Fig. 67)}$$

Fig. 68

$$\text{Calibration figure [1/40ha]} = \frac{1726 [1/100m]}{1691 [1/100m]} \times 29,0$$

$$\text{Calibration figure [1/40ha]} = 29,6$$

Carry out a new calibration test with the calculated calibration figure of 29,6 turns.

 959026 		
	1/40 ha	1/10 ha
3,0 m	38,5	154,0
4,0 m	29,0	117,0
4,5 m	26,0	104,0
6,0 m	19,5	78,0
1	2	3

1 = Working width of the seed rail
2 = Crank turns on star wheel for 1/40 ha
3 = Crank turns on star wheel for 1/10 ha

Fig. 67

After having determined the correct gearbox setting

- replace the calibration crank into ist retainer
- Affix the collecting tray on the bracket and secure with a clip pin
- Shut off injector sluice flap.

8.3 Changing the seed rate during sowing operation

The sowing operation can be changed during the sowing operation (please refer to the detailed description in the AMADOS instruction manual).

8.4 Seed rate deviations between the setting and the sowing

To avoid deviations between the calibration of the seed rate and the drilling seed rate, please note the following hints:

- In case of deviations between the determined and the actual area the calibration value should be newly determined by driving a 100 m test distance (please find the detailed description in the AMADOS instruction manual).
- When sowing dressed seed regularly check and clean the distributor head.
- When sowing moist dressed seed the seed should "age" at least one week (preferably two weeks) between seed dressing and sowing.

9. Transport on public roads

When travelling on public roads and ways the execution of tractor and machinery should correspond to the national road transport and traffic rules. The vehicle owner and operator are responsible for adhering to the legal traffic rules.

- Do not exceed the transport width of 3 m.
- The transport on public roads is only permissible with an empty front tank.
- Standing on the implement or the transport of goods on the implement is prohibited.



Fig. 69

- If the total length of the mounted combination including tractor is more than 6 m, please follow your national legal traffic rules regarding proper traffic lights, e.g. yellow rear lights and yellow flash light.



When travelling on public roads with a yellow flash light, please follow your national traffic regulations.

- The permissible tractor axle loads, the permissible total weight of the tractor and the permissible load capacity of the tractor tyres must not be exceeded. Please determine the permissible tractor axle loads, the permissible total weight of the tractor and the permissible load capacity of the tractor tyres according to para. "Determining the total weight, the axle load and the tyre carrying capacity as well as the required minimum ballast weights on a combination tractor / mounted implement". Only use towing vehicles which correspond to your national traffic regulations.
- For transport the front axle weight of the tractor must at least be 20 % of the tractor net weight. Otherwise the tractor's stability and steering will be affected. If the rear mount combination is transported without front tank, the front axle load reduction varies according to the tractor size. If necessary, use front axle weights.
- Moving behaviour, steering and braking are influenced by mounted implements, trailers and ballast weights. Therefore check sufficient steerability and braking.
- When driving round bends note the width of the machine and/or the changing centre of gravity of the implement.
- When travelling on public roads with a lifted machine lock the control levers both of the tractor front- and of the tractor rear three point hydraulics against unintended lowering.
- In the transport position of the implement ensure that the tractor three-point linkage is locked against movement to the sides.
- Before travelling on public roads check traffic lights for proper function.
- The spacing between steering wheel centre and the front edge of the front tank exceeds 3.50 m. Therefore, in case of poor visibility ask an escorting person for help.

- The front tank is equipped with limiting lights (Fig. 70/1) .
- The red/white striped warning plates (Fig. 70) on the front tank may not be removed. They should be fixed with a max. distance towards the outer edge of the machine of 10 cm and in a max. height of 150 cm above ground.
- The tractor front lights must not be hidden by the front tank..



Fig. 70

- During road transport the star wheel must be lifted and fixed to the frame with a chain (Fig. 71) on the frame.



Fig. 71

- During road transport the step (option, Fig. 72) must be folded upwards.



Fig. 72

Please adhere to these hints. They help to prevent accidents in road traffic.

10. Maintenance and care

All bolted connections of the implement should be checked after the first 10 hours of operation and tightened if necessary.

10.1 Checking the oil level in the vario gearbox

Check the oil level inside the vario gearbox at the oil gauge window (Fig. 73/1) on the machine horizontally. It is not necessary to change the gearbox oil.

For refilling oil unbolt the seal cap (Fig. 73/2).

Filling quantity: 0,9 Liter

Grades of oil: Hydraulic oil WTL 16,5 CST/500 C
or
engine oil SAE 10 W



Read and adhere to para. "General safety and accident prevention advice for maintenance, repair and cleaning".

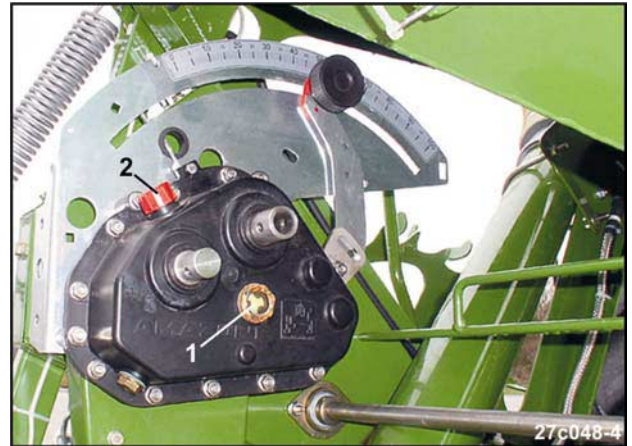


Fig. 73

10.2 Cleaning the implement

The implement can be cleaned with a jet of water or a high pressure cleaner.

For cleaning the metering unit open:

- the injector sluice flap (Fig. 74/1)
- the emptying flap and
- the translucent plastic flap (Fig. 74/3).

For opening the emptying flap behind the metering unit, press lever (Fig. 74/2) downwards and arrest.

Empty metering wheels by some turns on the calibration crank.



Fig. 74



In case you wish to use air pressure to clean the front tank, please be reminded that the dust of seed dressing is poisonous and must not be inhaled.



Empty the front tank and regularly remove seed residue from the metering unit(s).

Swollen or germinated seed residue in the metering unit may affect the seed rate or may cause blockage and damage of the seed metering wheels.

10.3 Roller chain drive of agitator shaft

After the end of the season or before longer spells of inactivity, apply oil to the roller chain drive of the agitator shaft (Fig. 75/1).

Remount the earlier removed chain guard (Fig. 75/2).

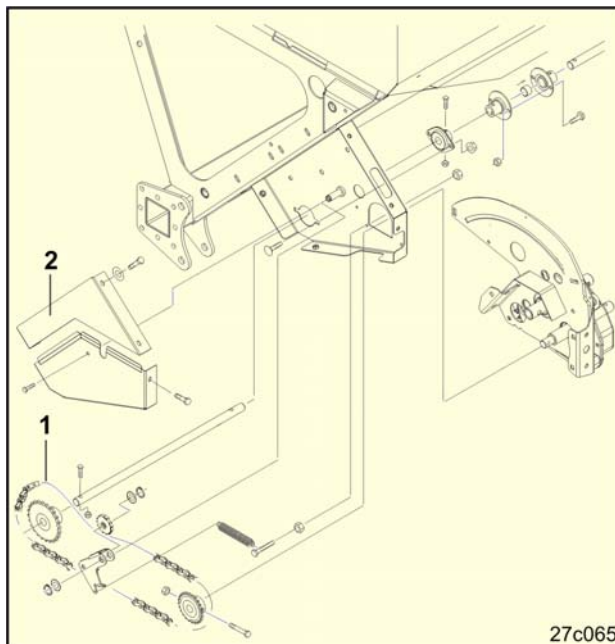


Fig. 75

10.4 Roller chain drive of star wheel

After the end of the season or before longer spells of inactivity, apply oil to the roller chain drive of the star wheel (Fig. 76/1).

Remount the earlier removed chain guard (Fig. 76/2).

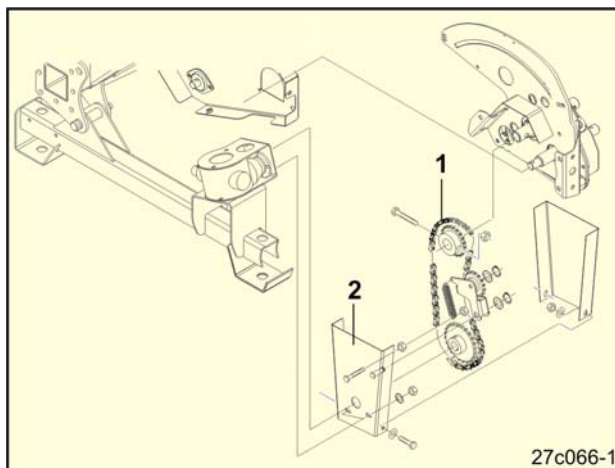


Fig. 76

10.5 Hydraulic hoses

10.5.1 Checking when starting and during operation

When starting and during operation the ordinary condition of the hoses should be checked by a skilled person.

If the hoses are found defective in any way, exchange them immediately.

The maintenance of the checking intervals should be recorded by the operator.

Checking intervals

- for the first time when putting to operation
- thereafter at least once a year.

Checking points

- Check hose casing for damage (kinks, cuts and abrasion, trapping, rubbing points)
- Check whether the hose casing is brittle
- Check hose for deformation (bubbles, buckling, squeezing, separation of layers)
- Check for leakage
- Check the appropriate fitting of the hoses
- Check the hose for firm seating in the armature
- Check connecting armature for damage and deformation
- Check for corrosion between connecting armature and hose
- Do not exceed the permissible period of use.

10.5.2 Exchange intervals

The period of use of any hydraulic hose circuit should not exceed 6 years (including a possible storing period of two years maximum).

10.5.3 Marking

Hydraulic hoses are marked as follows:

- Name of the manufacturer
- Date of production
- Maximum dynamic operational pressure.

10.5.4 When working on the hydraulic

Affix the hydraulic hoses on the fixing points given by the manufacturer, e.g.

- Always ensure that hydraulic parts and connections are clean
- Fit the hoses in such a way that their natural placement and movement are not hindered.

- During operation the hoses should not be under tension, twisted or strained by external forces.
- The permissible bending radius must be observed.
- The hoses should not be painted.



Before working on the hydraulic, read and adhere to para " General safety and accident prevention advice regarding the hydraulic system".

10.5.5 Mounting of hose fittings with O-ring seals and clamping

-

The clamping nut must be fastened by hand. Then it should be tightened by using the spanner for min. $\frac{1}{4}$ and max. $\frac{1}{2}$ turn.

A more firmly tightening of this joint would result in a bursting of the tapered bolted connections (especially on the welded journals on the hydraulic rams).



The bolted connections provided with O-rings must not be tightened as firmly as the former self cutting ring seals.



AMAZONEN-WERKE

H. DREYER GmbH & Co. KG

P. O. Box 51
D-49202 Hasbergen-Gaste
Germany

Tel.: ++49 (0) 54 05 50 1-0
Fax: ++49 (0) 54 05 50 11 93
e-mail: amazone@amazone.de
http:// www.amazone.de

D-27794 Hude



D-04249 Leipzig



F-57602 Forbach
