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# LE / TE / TR

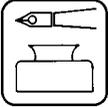
## Instructions book

### 674961-GB-93/3



We congratulate you for choosing a HARDI mistblower. The reliability and efficiency of this product depend on your care. In order to obtain the maximum benefits from this product, we ask you to **read and pay attention** to this instruction book. It contains essential information for the efficient use and long life of this quality product.

As the instruction book covers all LE, TE and TR models, please pay attention to the paragraphs dealing with precisely your model. This book is to be read in conjunction with the Mistblowing Technique book.



## Description

The Hardi LE liftmounted mistblowers along with TE and TR trailed mistblowers are designed for small to medium orchards. They feature piston or diaphragm pumps, easy to use operating units and axial or centrifugal blower units with gearbox.

The power is transferred from the tractor via the transmission shaft to the pump and blower unit.

The pumps are of a robust design for agricultural usage. The simple mechanical design allows for easy maintenance.

The operating unit consists of pressure regulator, main on/off valve, pressure gauge and distribution levers.

The frame allows for easy access to the pump. Wheel axle and drawbar position on trailed mistblowers can be altered to change track width and ground clearance.

The tank design is compact and has no sharp edges for easy cleaning. A suction filter incorporating a shut-off valve and coupling for a filling device is located at the bottom of the tank. Hydraulic venturi nozzles in the tank maintain a homogeneous mixture of the spray liquid.

The LE and TE axial fan blower units have a patented six or eight-bladed fan with centrifugal clutch. The clutch ensures a smooth engagement and disengagement of the fan. This minimizes stress on the sprayer and tractor. Furthermore the blade angle can easily be varied from 30° up to 45° to suit various orchard tasks and match tractor power output. A set of colour-coded ceramic nozzles are located in the blower slot. Each nozzle assembly can be turned off so that only the nozzles pointing towards the foliage are utilized.

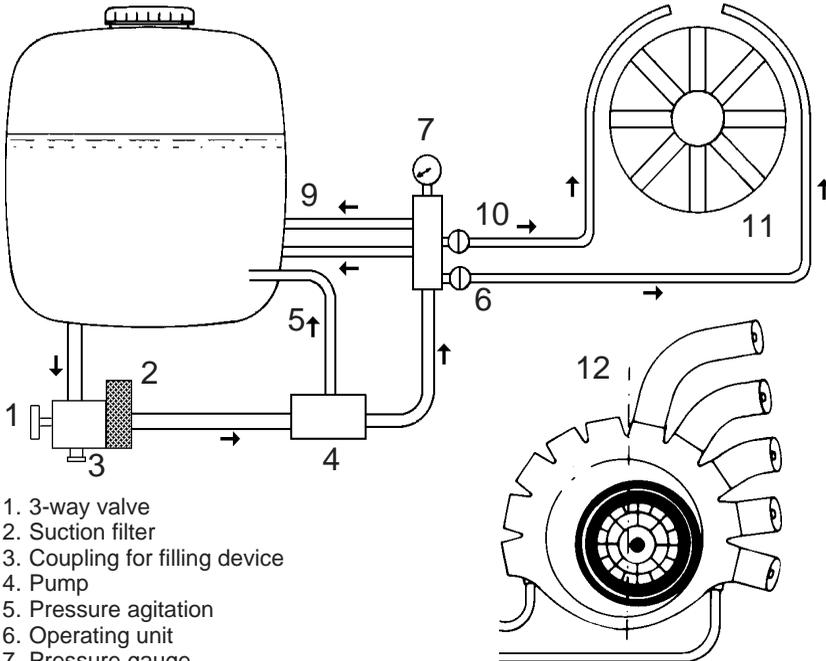
The LE/TE/TR- MINI and MAXI models have a centrifugal fan with coupling. The blower unit has 10 equally sized spouts fitted to air hoses each giving a uniform conical air flow. In each hose spout, there is a colour-coded ceramic nozzle with non-drip valve. Here the liquid is metered and atomized into the air stream. The spray can be directed to the target area.

The gear box has a neutral position so the fan can be disconnected. This facilitates agitation under transport or usage of spray guns.

A 2-speed gear box with neutral position is standard on the TE sprayers.

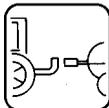
An identification plate fitted on the frame is to indicate model, year of production and serial number and country of origin.

## Operating diagram



1. 3-way valve
2. Suction filter
3. Coupling for filling device
4. Pump
5. Pressure agitation
6. Operating unit
7. Pressure gauge
8. Pressure regulation bypass
9. Pressure equalization return (BK & EC)
10. Distribution valves
11. Blower unit with distribution pipes for LE/TE
12. Blower unit with distribution pipes for LE/TE/TR-MINI and MAXI





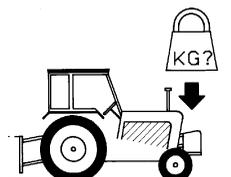
## Connecting the sprayer

### LE

The liftmounted sprayers have category I and II pivots. Two attachment points are possible.



**WARNING:** Note the weight of the sprayer. See section on Technical specifications.



Generally it is recommended to:

1. Mount the sprayer as close as possible to the tractor.
2. Add ballast to front of tractor.
3. Increase tyre pressure (see tractor instruction book).
4. Travel at slower speeds when driving with a full tank.  
(The tractor will have decreased braking efficiency.)
5. Be careful when filling/lifting the sprayer the first time.

### TE and TR

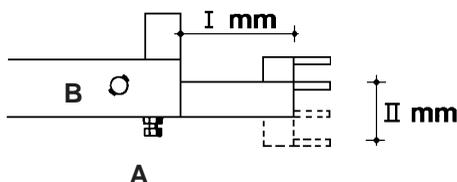
The following adjustments must only be carried out when the sprayer is secured to prevent falling or rolling.

#### Drawbar

The trailed sprayers have a forked drawbar designed for attachment to the cross boom mounted in the tractor liftarms.

The drawbar length can be regulated by loosening the lock-nut and bolt **A** under the drawbar and removing the pin **B**. Note the height of the fork can also be adjusted by rotating the drawbar.

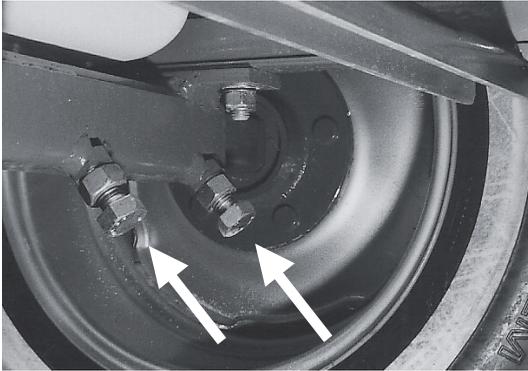
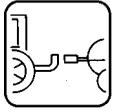
TE litre	I mm min - max	II mm
600	430 - 830	160
1000	500 - 700	180
1500	530 - 730	200
2000	530 - 730	200



After the drawbar is connected, the jack is placed in the holders above the drawbar.

## Track width

The track width can be varied. The nuts and bolts under the axle are loosened and thereafter the hub axle can be drawn out or pushed in until required track width is obtained.



TE	min.max.	
	600	900
1000	1080	1400
1500	1200	1550
2000	1200	1550

## Ground clearance and weight distribution

The ground clearance can be altered on some models by rotating the hub axles 180°. See Fig. 1.

Weight transfer to the drawbar can be increased by rotating the hub axle 90° to the back.

Remember to adjust drawbar height so the frame is roughly parallel to the ground. See Fig. 2.

The wheel mud scraper may also need readjustment.

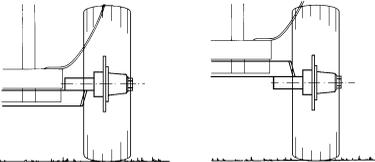


Fig. 1.

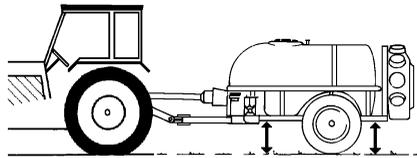
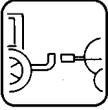
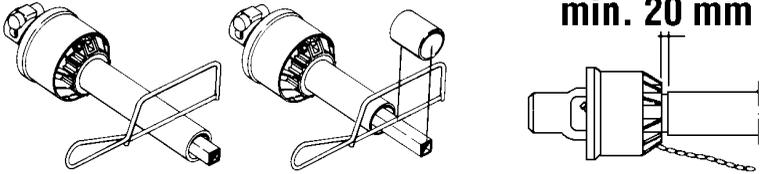


Fig. 2.



## Transmission shaft

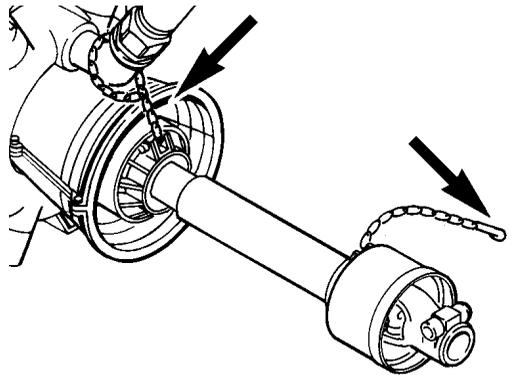
When connecting the sprayer to the tractor, the length of the transmission shaft should be checked, and if necessary shortened. There should be at least 10 mm free play between the male and female parts when the shaft is horizontal on the liftmounted models and on the trailed models 220 mm. When connected, check the trailed models by turning sharply. Do this with caution. Again there should be at least 20 mm between male and female parts when the shaft is at its minimum length.



min. 20 mm

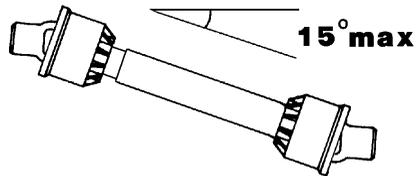


It is important for the personal safety of the operator that the transmission shaft is intact. The protection guards must cover the whole shaft. This includes the universal cross covers at each end of the shaft. The chains are connected so that the protection guards do not rotate with the shaft.



To ensure long life of the universal joints:

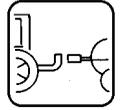
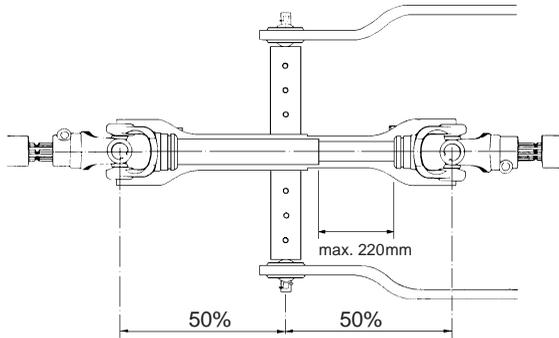
Avoid working at angles greater than 15°.



15° max

For trailed sprayers:

- adjust the drawbar so the connection point is midway along the transmission shaft.
- disengage P.T.O. if turning at angles greater than 35°.
- use an articulated drawbar and transmission shaft with CV joint for narrow rowed plantations.

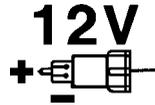


### Rear lights (if fitted)

Connect plug for rear lights to tractors 7-poled socket and check that rear lights, stop lights and turning indicators function properly.

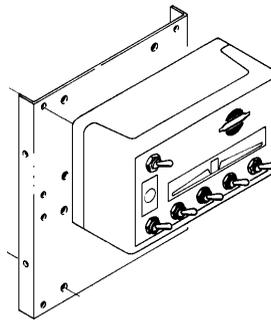
### EC control box (if fitted)

Power requirement is 12 V DC. Note polarity! Brown pos. (+), Blue neg. (-).



The control box is fitted in the tractor cabin at a convenient place. The wires must have a cross-sectional area of at least 1.0 mm<sup>2</sup> to ensure sufficient power supply.

Use the HARDI Electric distribution box (No. 817925) if the tractor has a doubtful power supply.



### Roadworthiness

When driving on public roads and other areas where the highway code applies, or areas where there are special rules and regulations for marking and lights on implements, you should observe these and equip implements accordingly.

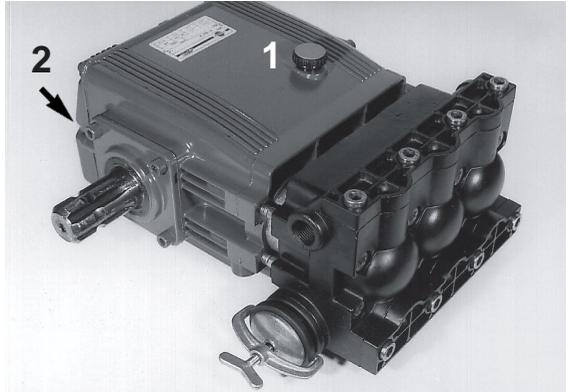
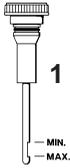




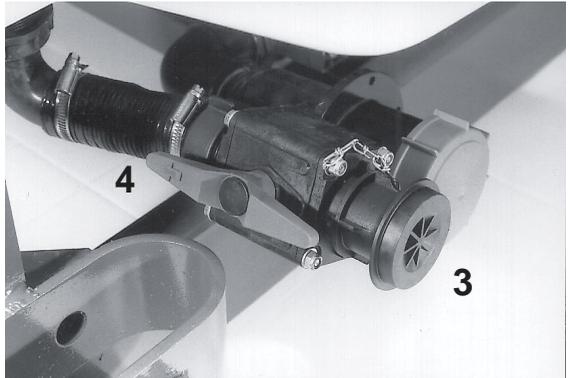
## Operating instructions

### Before starting

- Check oil level of pump. Level must be between minimum and maximum mark on dipstick 1. P3XA pump also has an external oil level indicator 2.



- Check that suction filter 3 is clean.
- Check that arrow on the 3-way valve 4 is set correctly.
- Do not run piston pump dry for more than 60 seconds.



### Running-in of piston pump

Piston pumps need to be run in. To prolong the life of the pump, do not operate the pump at maximum pressure for the first 40 hours.

Pump	0 - 40 h	40 h +
P3XA	40 bar	55 bar
P3N	45 bar	60 bar

Do NOT operate pump over 540 r/min.

## Adjustment of controls

Please see section dealing with your operating unit. Initial adjustment and calibration is done with clean water. See also Mistblowing Technique book.

### M/2 operating unit

1. Push handle **1** to spray position **a**.

2. The two handles **2** are set at position **a** (spraying position).

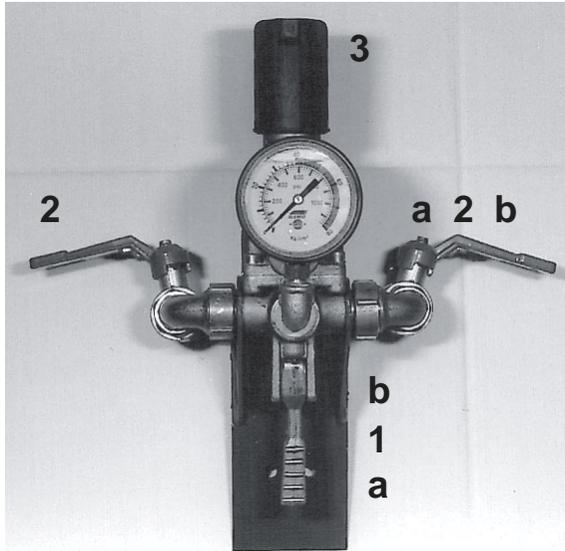
3. Put the tractor in neutral and set the P.T.O. revolutions to 540 r/min.  
(If maximum blower output is not necessary the revolutions may be set at less than 540 P.T.O. r/min).

To ensure long bearing life, the tractor P.T.O. must NOT exceed 540 r/min.

4. From a given forward speed in a gear and the nozzles chosen, the desired pressure on the pressure gauge is regulated by means of the pressure adjustment handle **3**.

### Operating the unit whilst spraying

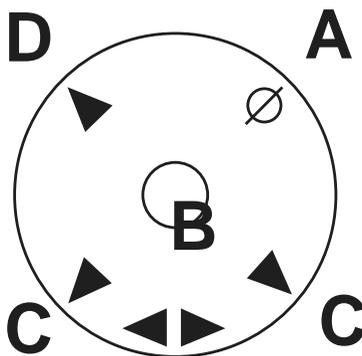
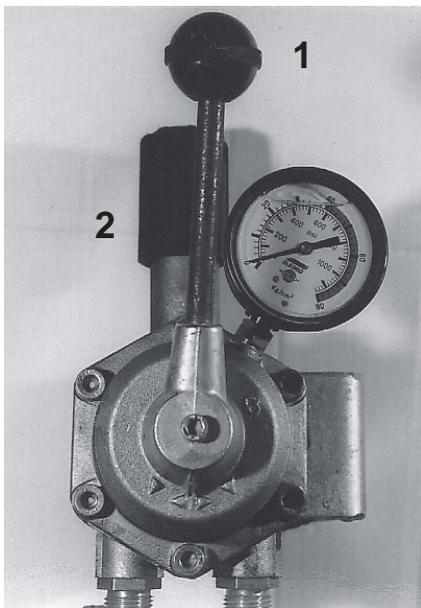
To close off nozzles on both sides of the blower, set handles **1** and **2** to position **b**. If you only want to close off nozzles on one side only, turn handle **2** to position **b** on the side you want to close off.





S/2

## S/2 operating unit



1. Turn handle **1** to neutral position **a**. This permits pressure adjustment before spraying.

2. Put the tractor in neutral and set the P.T.O. revolutions to 540 r/min. (If maximum blower output is not necessary the revolutions may be set at less than 540 P.T.O. r/min).

To ensure long bearing life, the tractor P.T.O. must NOT exceed 540 r/min.

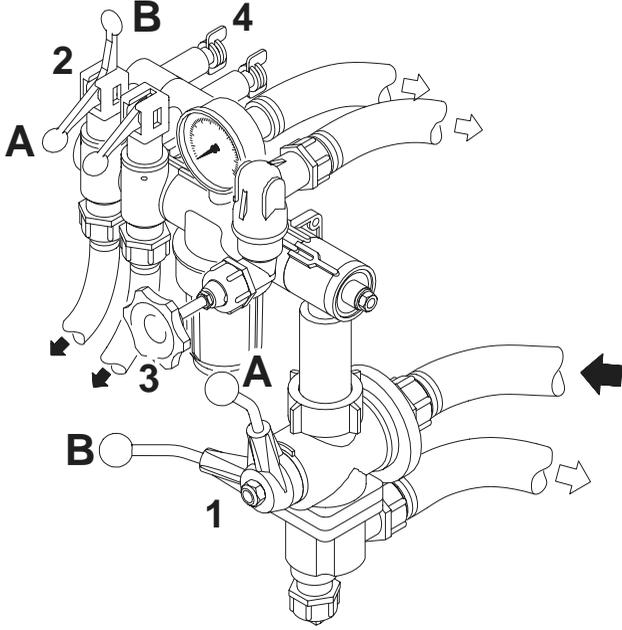
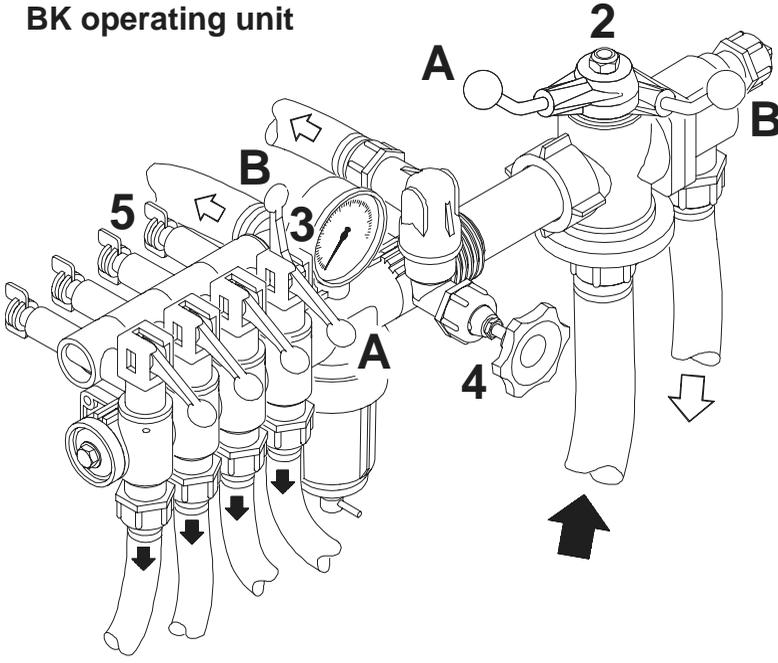
3. From a given forward speed in a gear and the nozzles chosen, the desired pressure on the pressure gauge is regulated by means of the pressure adjustment handle **2**.

NOTE: Fine adjustment may be necessary when nozzles are turned on.

### Operating the unit whilst spraying

To open nozzles on both sides of the blower, turn handle **1** to position **b**. If you only want to open nozzles on one side, turn handle **1** to position **c** on the side you want to open. To close nozzles on both sides turn handle **1** to position **d**.

# BK operating unit





1. Turn main on/off handle **2** to spraying position **A**.
2. Set all hand levers **3** on the distribution valve to spraying position **A**.
3. Turn the pressure regulation valve **4** anti-clockwise to minimum pressure setting.
4. Put the tractor in neutral and set the P.T.O. revolutions to 540 r/min. (If maximum blower output is not necessary the revolutions may be set at less than 540 P.T.O. r/min).  
To ensure long bearing life, the tractor P.T.O. must NOT exceed 540 r/min.
5. Turn the pressure regulation valve **4** clockwise so that the pressure gauge indicates the recommended pressure.

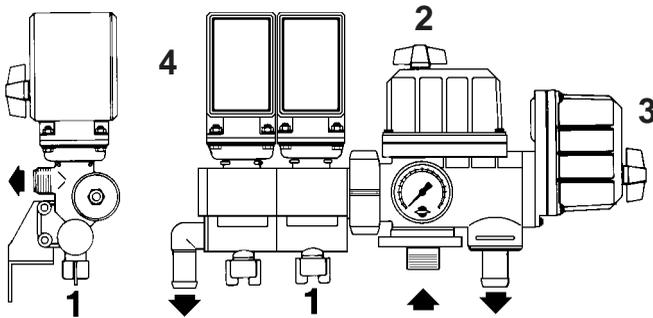
#### **Adjustment of pressure equalization valves**

6. Note the pressure and place the first lever **3** on the distribution valve in position **B** (off position).
7. Turn the corresponding adjusting screw **5** until the pressure gauge again shows the same pressure.
9. Adjust the other section of the distribution valve in the same way.  
NOTE: Hereafter adjustment of pressure equalization will only be needed if you change to nozzles of other capacities.

#### **Operating the unit whilst spraying**

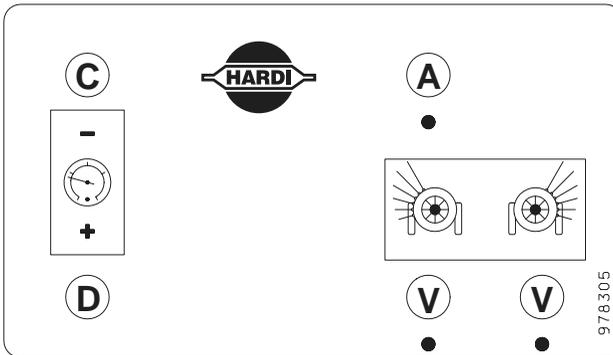
To stop the entire liquid flow to the blower, turn the handle **2** to position **B**. This takes the pressure from the pump. The liquid will then return to the tank via the return system. In order to close half of the blower, move lever **3** of the distribution valve to position **B** (off position) for the section or sections to be closed. The pressure equalization device ensures that the pressure does not rise in the section which remains open.

## EC operating unit



1. Adjust screw for pressure equalization
2. On/off valve
3. Pressure control valve
4. Distribution valve

## EC control box



- A. Operating switch for on-off valve
- V. Operating switch for distribution valves
- C. Pressure regulation switch (to lower)
- D. Pressure regulation switch (to raise)

1. On-off switch **A** is activated against green.
2. The distribution valves switches **V** are activated against green.





3. Pressure regulation switch **C** is activated until knob **3**, stops rotating (minimum pressure).

4. Put the tractor in neutral and set the P.T.O. revolutions to 540 r/min. (If maximum blower output is not necessary the revolutions may be set at less than 540 P.T.O. r/min).

To ensure long bearing life, the tractor P.T.O. must NOT exceed 540 r/min.

5. Pressure regulation switch **D** is activated until the recommended pressure is shown on the pressure gauge.

### **Adjustment of pressure equalization valves**

6. Close the first distribution valve switch **V**.

7. Turn the adjusting screw **1** until the pressure gauge again shows the same pressure.

8. Adjust the other section in the same manner.

NOTE: Hereafter adjustment of pressure equalization will only be needed if you change to nozzles of other capacities.

### **Operating the unit whilst spraying**

In order to close the blower, switch on-off **A** to off position. This returns the pump output to the tank through the return system.

In order to close one section of the blower, switch the relevant distribution valve **V** to off position. The pressure equalization ensures that the pressure does not rise in the section which remains open.

In case of power failure it is still possible to activate all functions of the operating unit. To operate manually, first disconnect the multiplug and then turn the relevant knob.

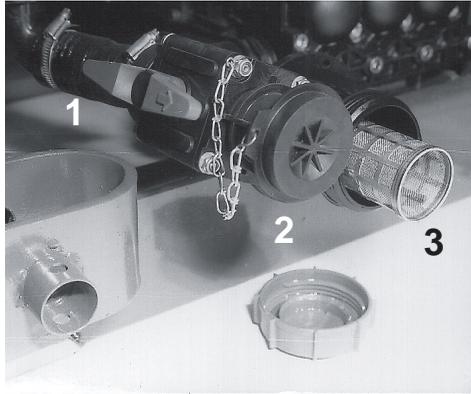
When the sprayer is put aside, the control box and the multiplug must be protected against moisture and dirt. A plastic bag may be used to protect the multiplug.

## Draining the tank

For trailed sprayers a small drain plug is located at the bottom of the tank. Check drain cap is fitted before filling tank.

To drain the tank:

1. Turn handle **1** so arrow points towards coupling **2**.
2. Remove cap and filter **3**.
3. Turn handle **1** to drain tank.

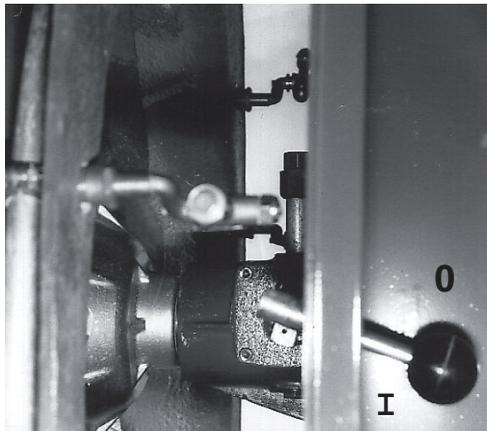


## Engaging and disengaging the fan

Spraying with guns or agitation under transport only needs the operation of the pump and it is therefore practical to disengage the fan.

### LE and TE

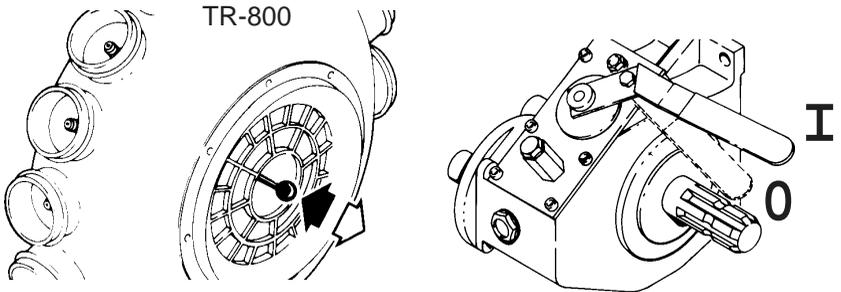
The gear box is located at the rear of the tank. The handle is set at position **0** to disengage the fan and position **I** or **II** (depending on model) to engage the fan.





### LE/TR - MINI and MAXI

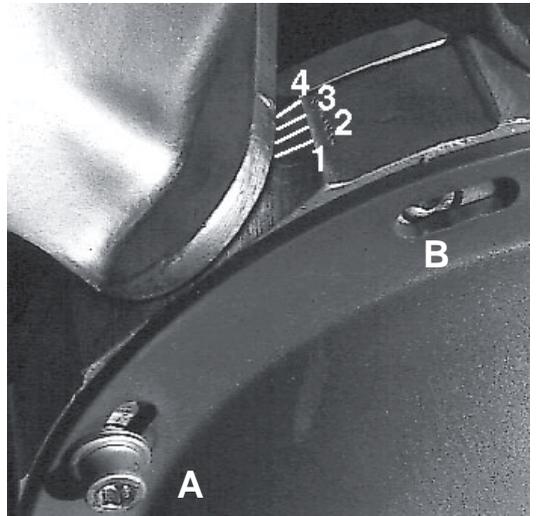
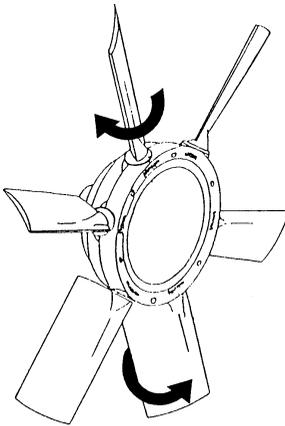
**IMPORTANT: BOTH PUMP AND FAN WHEEL MUST BE STATIONARY WHEN ENGAGING /DISENGAGING FAN.**



### LE and TE blower adjustment

The angle of the fan blades can be varied from 30° to 45°.

The four settings 1, 2, 3, and 4 correspond to 30°, 35°, 40° and 45° respectively.



The air volume/air speed can be increased by increasing the angle of the blades. The power consumption of the fan can be reduced by decreasing the angle of the blades. This permits the sprayer to be matched to the spray task and to the tractor.

See section on Technical specifications for power consumption.



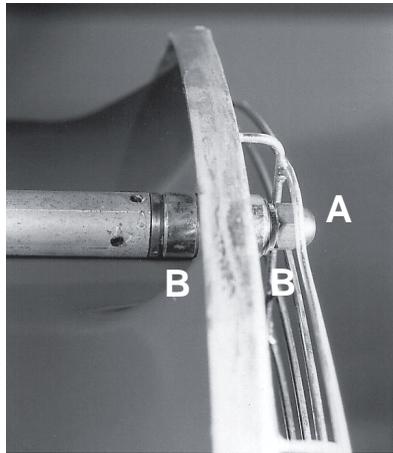
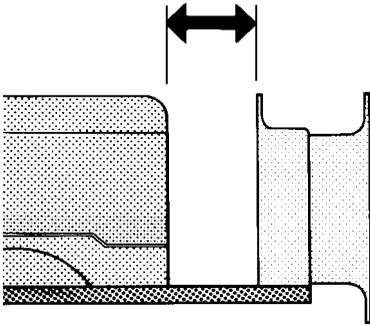
## Fan adjustment

1. Utilize the tool kit and remove the large guard at rear of blower.
2. Loosen the Allen screws **A** holding the red cover. Remember to only loosen.
3. Loosen the Allen screws **B** in the slots. **A** 13 mm spanner may be necessary to hold the nut at the back of the fan.
4. Using both hands on opposite blades, turn blades to desired position (from 1 to 4). All blades should turn together.
5. Check all blades are at same position. Tighten Allen screws **A** and **B** and replace guard.

## Slot width

After the fan blade position and P.T.O. revolutions have been established, the slot width is set. The following table states the optimum width settings in respect to fan blade position.

To adjust the slot width:



1. Undo the nuts **A** and remove the protection screen.
2. Relocate the spacers **B** so the slot has the desired opening.
3. Replace the screen and nuts **A**.

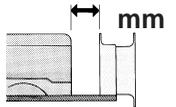
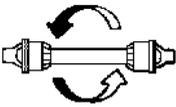
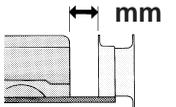
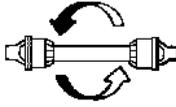


Slot width can also be set to match the various stages of seasonal growth in the orchard.

If spraying the orchard when in bloom, set the slot width wider than recommended on the table. This will lower the velocity of the air.

If treating the orchard when the foliage is very dense, set the slot width narrower than recommended. This raises the air velocity and increases penetration into the tree.

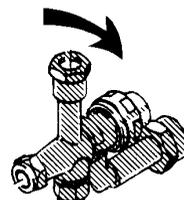
### Slot width recommendation

	4	3	2	1
	<b>540 r/min</b>			
<b>F820</b>	<b>160</b>	<b>145</b>	<b>130</b>	<b>120</b>
<b>F750</b>	<b>150</b>	<b>140</b>	<b>125</b>	<b>115</b>
<b>F650</b>	<b>135</b>	<b>120</b>	<b>105</b>	<b>105</b>
	<b>450 r/min</b>			
<b>F820</b>	<b>160</b>	<b>145</b>	<b>130</b>	<b>120</b>
<b>F750</b>	<b>150</b>	<b>140</b>	<b>125</b>	<b>115</b>
<b>F650</b>	<b>135</b>	<b>120</b>	<b>105</b>	<b>105</b>

### Nozzle ON/OFF

Individual nozzles can be turned off if the target is not in the spray direction of the nozzle.

To turn nozzle off, rotate 90°.

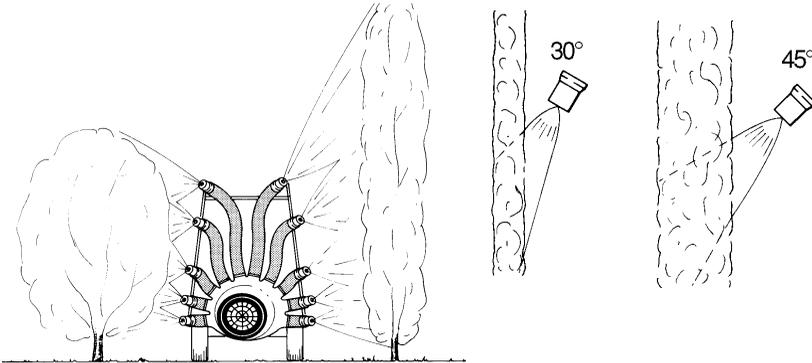
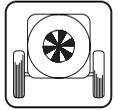


## LE/TE/TR - MINI and MAXI

Hoses and spouts can be adjusted up and down as well as forwards and backwards so to direct the spray to the target area. Settings can be recorded for future reference.

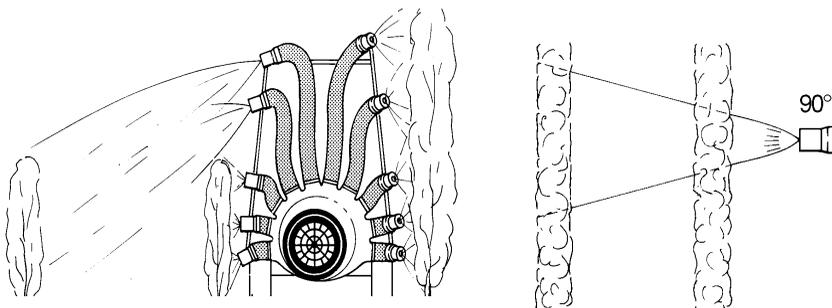
Nozzles can be removed and the outlet blanked off with a 3/8" cap if not required.

**For narrow rows** - Angle spouts backwards thereby allowing the spray to cover a larger area.



**For bushes in rows** - It may be possible to spray several rows at the same time.

**For grapevines** - If it is difficult to penetrate the vine, angle 2 spouts forwards and 3 backwards on each side.



**Calibration** - see Mistblowing Technique book.



## Standard calibration

A standard set of nozzles is supplied with the sprayer. Other nozzles and combination of nozzles can be used so the output and drop size suits the intended spray task.

Standard Spraying examples and Nozzle set tables are given in the Mistblowing Technique book. It will also assist you in finding other nozzle sets best suited to that task.

The blank work sheet can be used to record the specific spray task so you can refer back to it in the future.





## Maintenance

In order to derive full benefit from the sprayer for many years to come, these few but simple points should be noted.

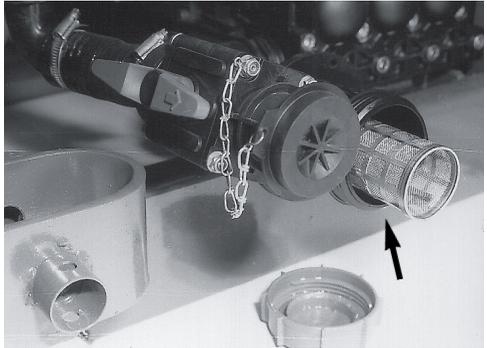


### Filters

Clean filters ensure:

- Sprayer components such as valves, diaphragms and operating unit are not hindered or damaged during operation.
- Nozzle blockages do not occur whilst spraying.
- Long life of pump. A blocked suction filter will result in pump cavitation.

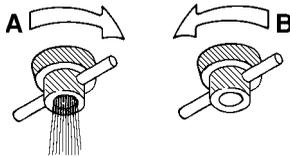
The main filter protecting sprayer components is the suction filter. Check it daily when spraying. Ensure the O-ring on filter housing is in good condition and lubricated.



### BK operating unit pressure filter

The operating unit has an in-built pressure filter. It is not necessary to dismantle the filter to clean it. When cleaning the sprayer (clean water circulating in the tank), open the drain valve to flush the filter:

- To open:    **A**  
 To close:    **B**



### V-belt tension

Correct belt tension is important for efficient power transfer. Under tensioned belts will slip and overheat reducing belt life whilst over tensioned belts will reduce belt and bearing life.

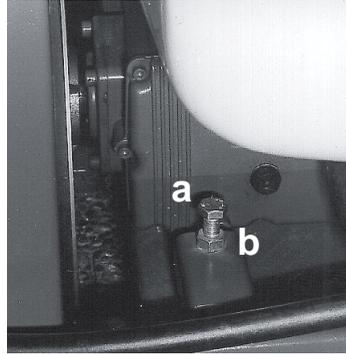
Check the V-belts regularly within the first 24 working hours as they need to be run in. Tighten if necessary. Thereafter check every 40 hours.

A visual check can be done by running the transmission for a few minutes and then noting the “bow” of the V-belts on the slack side. A faint “bow” should be noted.

## Adjustment of V-belts

### Pump

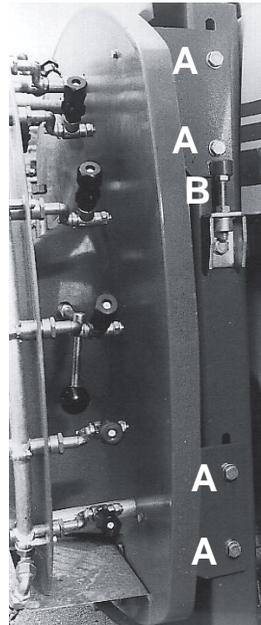
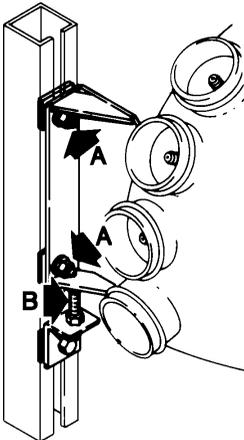
The pump drive V-belts are tensioned by loosening the counter nut **a** and adjusting bolt **b** at the foot of the pump.



### Blower unit

The blower drive V-belts are tensioned by raising or lowering the blower unit. Nuts **a** on the blower suspension are loosened, and the belt tension is adjusted by the adjusting bolts **b**.

DO NOT FORGET TO TIGHTEN ALL COUNTER NUTS (AND REPLACE GUARDS) AFTER ADJUSTMENT





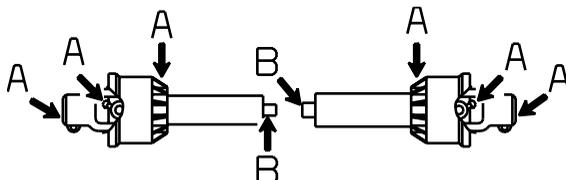
## Lubrication

Recommended lubrication is shown as follows. Use ball bearing grease (lithium grease No. 2).

NOTE: If the sprayer is cleaned with a high pressure cleaner or it has been used to spray fertilizer, we recommend lubrication of the entire machine.

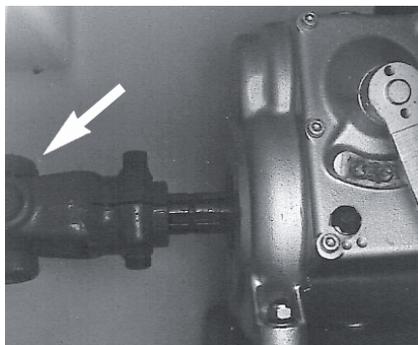
### Transmission shaft

Lubricate the universal joints and bearings with ball bearing grease **A** every 8th working hour and tubes and pins **B** every 20th working hour.



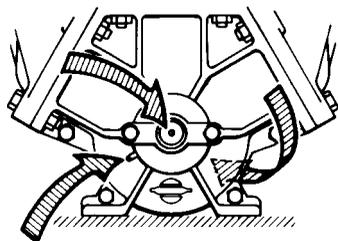
### TE and TR transmission

This includes the power transmission shaft and bearings connecting the pump and the blower unit.

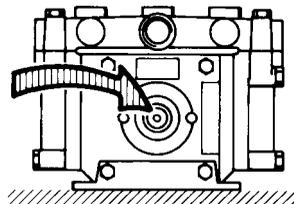


### Diaphragm pump

Grease every 40th working hour.



1302

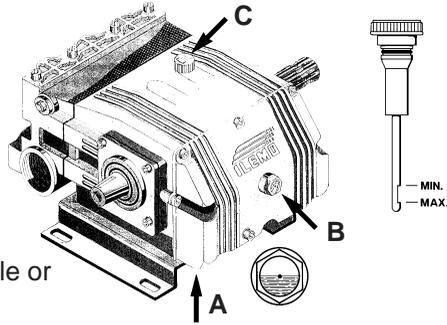


320

## Piston pump

Check oil daily when spraying.  
Level must be visible between  
the minimum and maximum  
mark of the indicator.

The pump is filled with oil from  
the factory. Change the oil after  
the first 50 hours of work. There-  
after as described in following table or  
once a year.

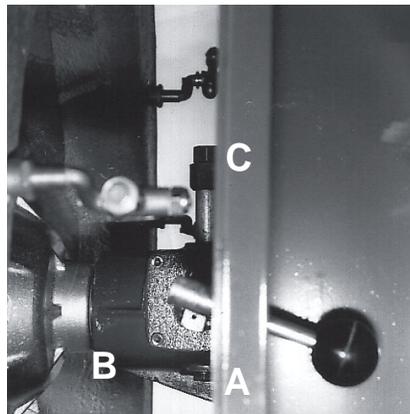
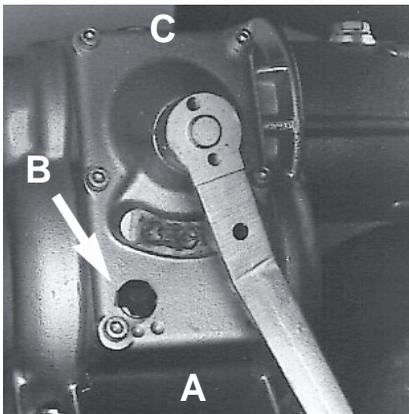
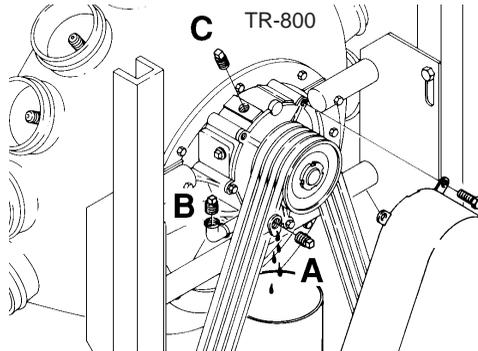
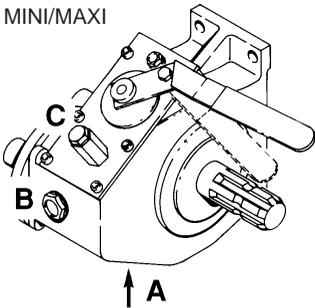


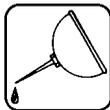
**A = Drain plug B = Level indicator C = Filling hole**

## Gear box

The gear box is filled with oil from the factory.  
Regularly check oil level.

MINI/MAXI



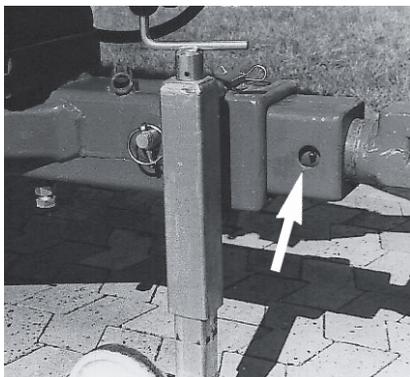


Lubrication summary	Oil cap. l	Oil type SAE	Initial change h	There after
Pump P3XA	1.5	20/40 HD	50	150
Pump P3N	2.5	20/40 HD	50	150
LE gearbox	0.3	20/40 HD	50	150
TE gearbox	1.3/1.9	20/40 HD	150	250
MINI/MAXI TR-800 gearbox	0.4	EP 90	200	400



### Drawbar

The swivel of the drawbar should be greased at least once a year.



## Changing of valves and plunger cups / diaphragms Piston pumps

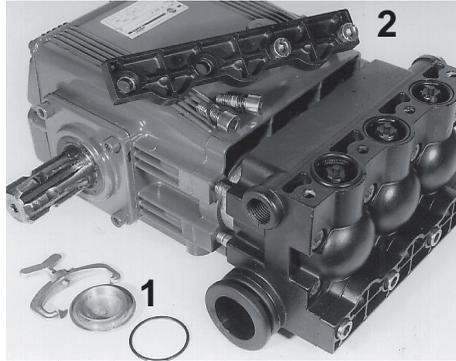
### Valves

1. Remove suction cover **1** so that the liquid is drained from the pump.
2. Remove valve chamber **2** noting orientation of valves. It is recommended to use new O-rings **3** when checking or changing the valves.

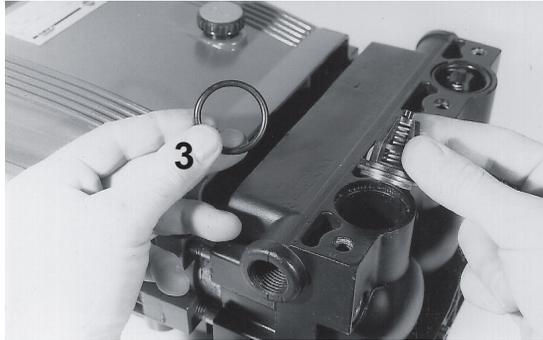
**NOTE:** For valves with ball seal, the valve seat can be rotated if it is worn.

## Plunger cups P3XA

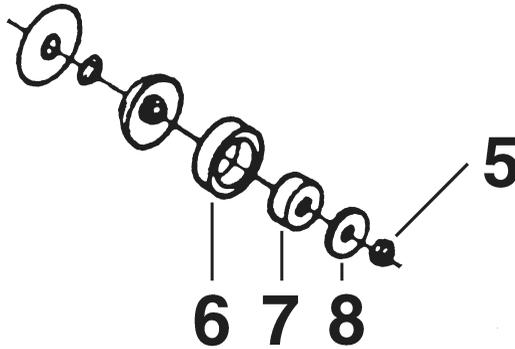
1. The valve chambers **2** must be removed first (P3N only).
2. Remove cylinder head **4**.
3. Use tube spanner to loosen the cup retainer nut **5**.
4. Cylinder can now be removed so the cups **6** can be removed.



5. At reassembly, grease cups and inside of cylinder.
6. Assemble cup retainer nut **5** and screw **7** first.
7. Assemble the other components including the cylinder and tighten screw **7** (35 Nm).

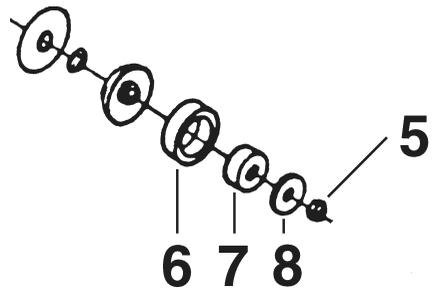
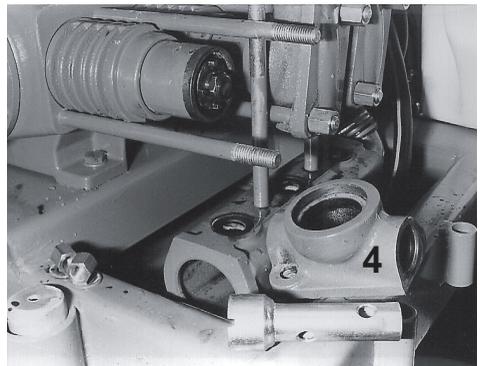
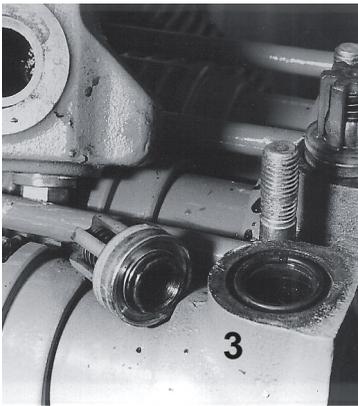
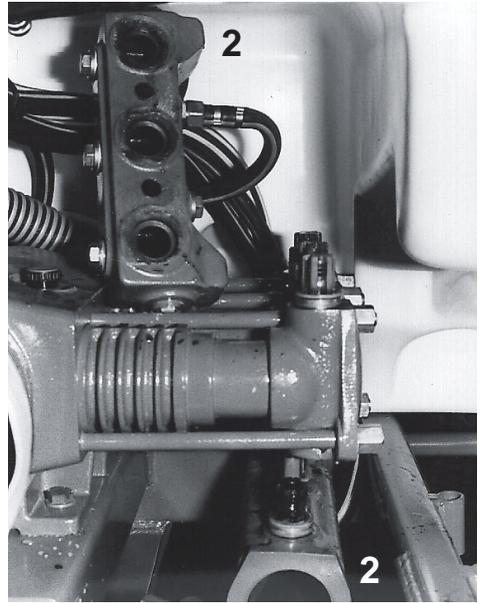
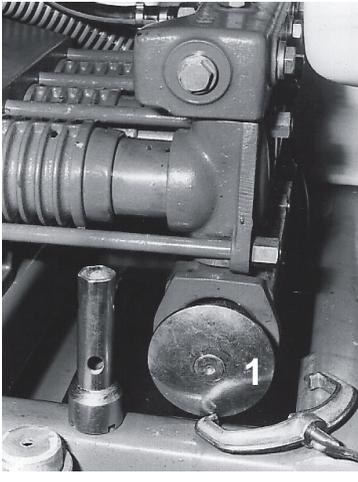


8. Now turn cup retainer nut **5** approx.  $2\frac{1}{2}$  times until firm. Do NOT tighten. If it is too tight, the cups will wear rapidly. If it is too loose, liquid will leak from the drain port of the cylinder.
9. Finish the assembly and run the pump for  $\frac{1}{2}$  hour. If liquid leaks from the drain ports, it is necessary to tighten cup retainer nut **5**. Only tighten  $\frac{1}{4}$  of a turn. This may also be necessary if the cups have dried out after off-season storage.





P3N



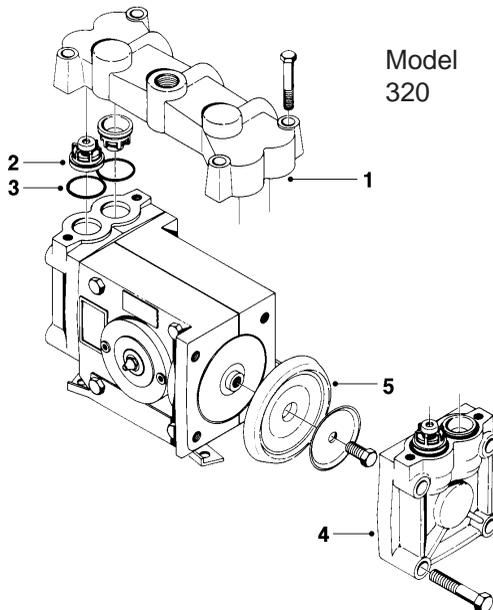
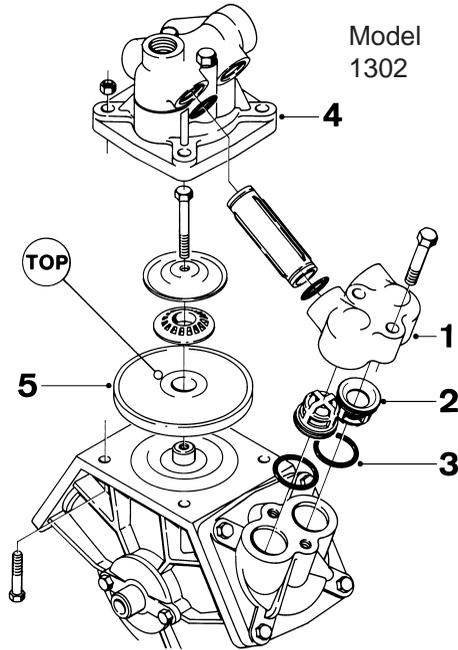
## Diaphragms pumps

### Valves

Remove valve cover (1). Before changing the valves (2) note the orientation of the valves so that they may be replaced correctly. It is recommended to use new gaskets (3) when changing or checking the valves.

### Diaphragms

Remove the diaphragm cover (4) after having dismantled the valve cover. The diaphragm (5) may then be changed. If fluids have reached the crank-case, re-grease the pump thoroughly. Check also the drain hole at the bottom of the pump is not blocked.



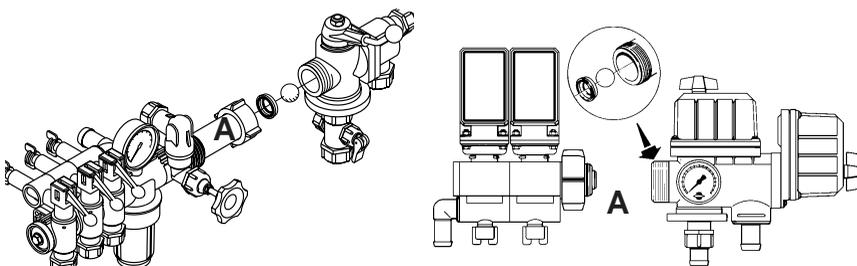


## Changing of ball seat in BK and EC operating unit

If problems with on/off valve occurs (dripping nozzles when on/off valve is closed), the ball and ball seat should be checked.

Remove the 2 bolts fixing the on/off-pressure valve unit to the bracket, unscrew the union nut **A** and pull the on/off-pressure valve away from the distribution valves.

Check the ball for sharp edges and scratches and check the ball seat for cracks and wear - replace if necessary.



## Checking valve cone in EC distribution valves

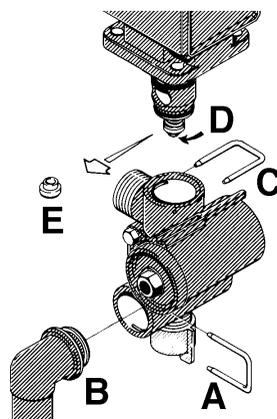
Periodically check the distribution valves for proper sealing.

Run the sprayer with clean water and open on/off and all distribution valves.

Remove the clip **A** and remove hose **B** for the constant pressure device. When the housing is drained, there should not flow liquid through the constant pressure device. If there is any leakage, the valve cone **E** must be changed.

Remove the clip **C**, and pull the EC-motor off the valve housing.

Then unscrew the screw **D** and replace the valve cone **E**. Reassemble in opposite sequence.



## Off-season storage

When the spraying season is over you should devote some extra time to the sprayer, before it is stored.

### Anti-freeze precautions

If the sprayer is not stored in a frost-proof place you should take the following precautions: Put at least 10 litres of 33% anti-freeze mixture in the tank and let the pump run a few minutes so that the entire system including spray lines are filled. Remove the glycerine filled pressure gauge and store it frost free in vertical position.

The anti-freeze solution also hinders the O-rings, plunger cups and gaskets from drying out.

### Hoses

Check that none of the hoses are pinched or have sharp bends.

A leaky hose causes annoying delays in the middle of spraying. Check all the hoses and replace if there is any doubt of their durability.

### Paint

Some chemicals are very corrosive. It is therefore advisable to remove rust, if any, and touch up the paint.

### M/2 and S/2 operating unit

Ensure the pressure regulating valve is relieved or released. This relieves the pressure on the spring and operating problems are avoided when starting up.

### Tank

Ensure that all chemical residues are removed from the tank and rest of the sprayer. See Mistblowing Technique book - Cleaning.

### Transmission shaft

Ensure the shaft fulfills its security purpose, eg. that shields and protective tubes are intact.





## Operational problems

In cases where breakdowns have occurred the same factors always seem to come into play:

- Minor leaks on the suction side of the pump will reduce the pump capacity or stop the suction completely.
- A clogged suction filter will hinder or prevent suction so that the pump does not operate satisfactorily.
- Clogged up pressure filters will result in increasing pressure at the pressure gauge but lower pressure at the nozzles.
- Foreign bodies stuck in the pump valves with the result that these cannot close tightly against the valve seat, reducing pump efficiency.
- Poorly reassembled pumps, especially valve covers will allow the pump to suck air resulting in reduced or no capacity.
- Worn plunger cups will reduce the pump capacity. It will be necessary to replace them when working pressure cannot be reached or liquid leaks from the cylinder ports.
- Reduced working pressure may also be due to insufficient spring strength or a worn valve cone on the pressure control unit.
- Loose or partially loose V-belts may result in lower revolutions per minute on the blower and overheating of the V-belts.
- Electrical components that are contaminated with dirt result in poor connections.

### Therefore **ALWAYS** check:

1. Suction, pressure and nozzle filters are clean.
2. Hoses for leaks and cracks, paying particular attention to suction hoses.
3. Gaskets and O-rings are present and in good condition.
4. Pressure gauge is in good working order. Correct dosage depends on it.
5. Operating unit functions properly. Use clean water to check.
6. Electrical components are maintained clean.

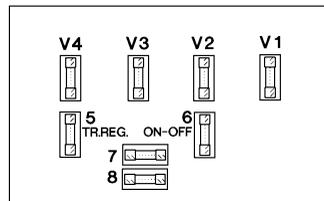
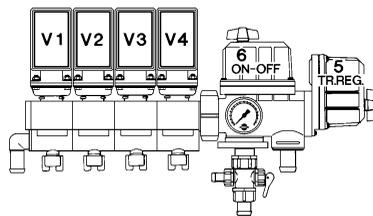
# Trouble shooting



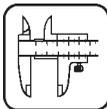
Fault	Possible cause	Control / remedy
No liquid flow from pump	Suction obstructed.	Check filters. Suction cut-off open.
	Air leak on suction.	Missing O-rings. Defect hoses.
	Valves obstructed or worn.	
No pressure	Worn control unit. Valves obstructed or worn. Worn plungers.	Check spring strength.
Fluctuating pressure	Valves obstructed or worn. Air leak on suction. Suction obstructed.	
Pump noisy	Worn bearings. Valves worn. Air leak on suction.	
Water in oil	Cylinder seals defect. Piston seals worn.	
	High air humidity.	Change oil twice as often.
Liquid leaks at cylinder seals	Worn plungers. Cylinder barrel worn.	

## Emergency operation of EC

In case of power failure it is possible to activate the unit manually. First disconnect the multiplug from the control box. The knobs can now be turned manually. The problem may be due to a blown fuse. The fuses are in the control box and are marked according to functions. (7 and 8 are spare fuses).



Fuse type T 500 mA  
HARDI no. 261125



## Technical specifications

Model	Air volume m <sup>3</sup> /h	Air speed average m/s	Pump model	Pressure max. bar	Pump capacity max. l/min	Power consump- tion kW*	Dimensions LxWxH min. mm	Weight kg	Track width min/max mm
LE265	22400	25.0	P3XA	55	70	8	1450x 890x1300	174	-
LE365	22400	25.0	P3XA	55	70	8	1450x 890x1300	177	-
LE465	22400	25.0	P3XA	55	70	8	1450x 890x1500	179	-
LE475	34500	30.0	P3XA	55	70	16	1475x1050x1500	189	-
LE565	22400	25.0	P3XA	55	70	8	1475x1270x1450	184	-
LE575	34500	30.0	P3XA	55	70	16	1475x1270x1450	194	-
LE675	34500	30.0	P3XA	55	70	16	1450x1270x1600	198	-
LE300-MINI	11000	47.0	P3XA	55	70	15	1280x1100x1750	195	-
LE400-MINI	11000	47.0	P3XA	55	70	15	1280x1100x1750	197	-
LE500-MINI	11000	47.0	P3XA	55	70	15	1280x1270x1750	202	-
LE600-MINI	11000	47.0	P3XA	55	70	15	1280x1270x1750	206	-
TR600-MINI	11000	47.0	320	25	50	15	2620x1100x1800	371	840-1100
LE500-MAXI	18000	50.0	P3XA	55	70	19	1380x1350x1950	232	-
LE600-MAXI	18000	50.0	P3XA	55	70	19	1380x1350x1950	236	-
TR600-MAXI	18000	50.0	320	25	50	18	2270x1300x1850	390	840-1100
TR800-MAXI	18000	50.0	1302	15	114	18	3230x1300x1850	480	840-1100
TE1500-MAXI	18000	50.0	P3N	60	102	20	3250x1400x2350	560	1200-1600
TE2000-MAXI	18000	50.0	P3N	60	102	20	3250x1400x2350	560	1200-1600
TE665	26100	30.0	P3XA	55	70	12	2630x1100x1060	340	1020-1290
TE1075	40000	35.0	P3N	60	102	25	2810x1320x1215	450	1080-1480
TE1082	49800	33.5	P3N	60	102	25	3100x1170x1275	535	1080-1480
TE1582	49800	33.5	P3N	60	102	25	3345x1340x1360	580	1200-1600
TE2082	49800	33.5	P3N	60	102	25	3625x1460x1360	625	1200-1600

\* At 540 P.T.O. r/min, at 20 bar for piston pumps, at 45° on fan for axial blowers, and high gear for 2 speed blowers.

## Pictorial symbols



Description



Function



Connection



Warning



Operating



Service/adjustment



Blower adjustment



Nozzles



Cleaning



Lubrication



Winter storage



Operational problems



Technical specifications



Specific for model



## Notes