

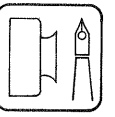
Pulsation damper

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# BL US Instruction book

674623-US-83/2



**DESCRIPTION**

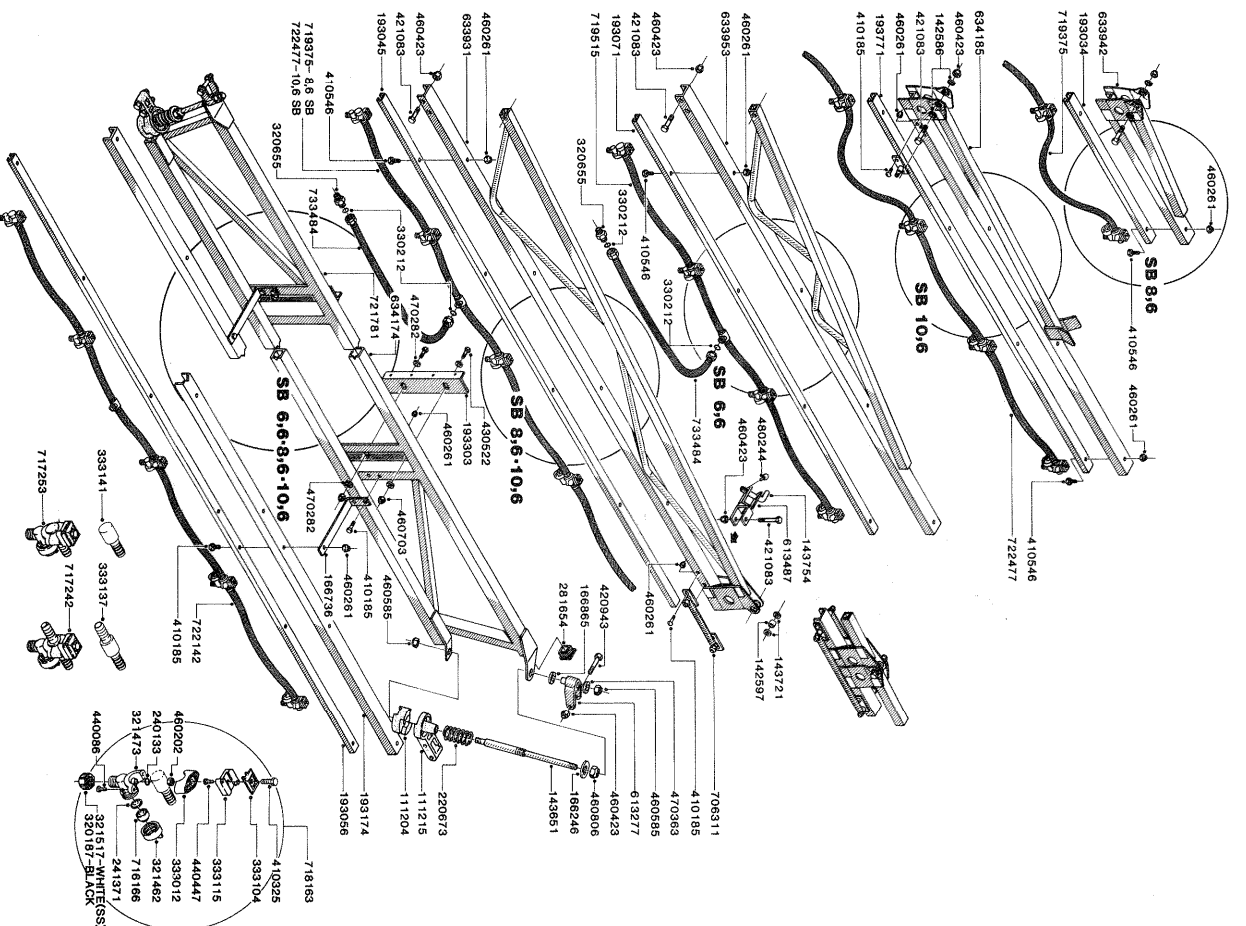
HARDI BL models M 53 and M 80 consists of a pump, with a pulsation damper, tank with frame, operating unit, spray boom.

The construction of the HARDI diaphragm pump is simple, with easily accessible diaphragms and valves. The construction ensures that the spray does not get in contact with the vital parts of the pump.

The tank is made of highly impact-proof and chemical resistant polyethylene and has an appropriate design with no sharp edges. This means easy cleaning.

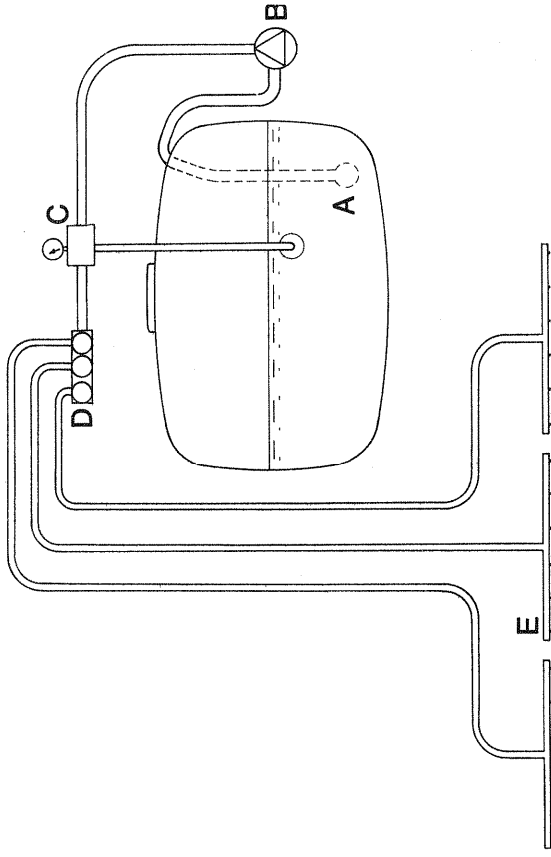
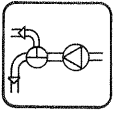
The M 70 operating unit consists of on/off function, pressure regulating valve, pressure gauge and distribution valves for barring of spray boom by section.

The spray boom is mounted on the tank frame, and it is equipped with spring loaded claw clutches in the boom joints, which are released in case of collision by which damage is avoided.

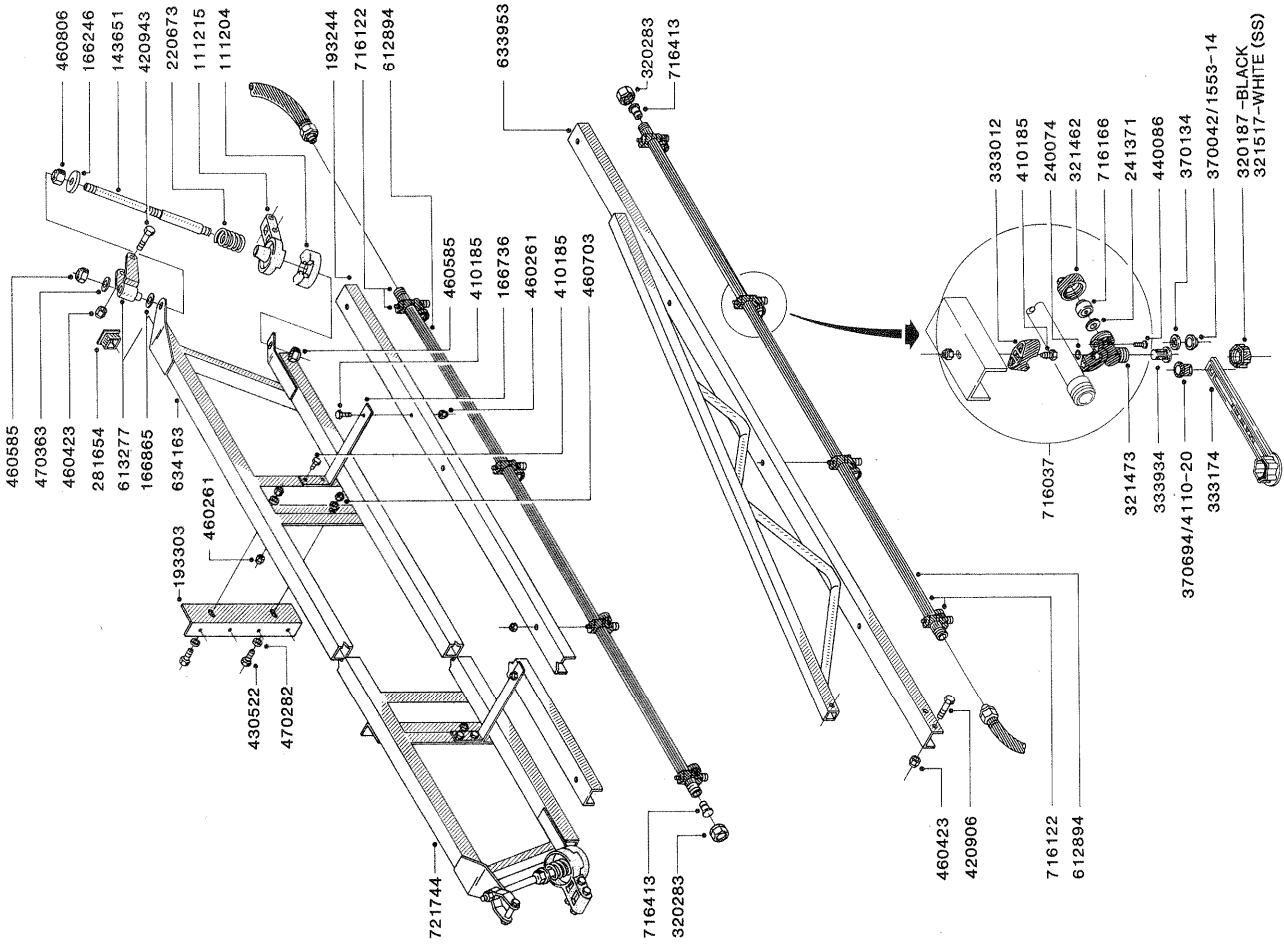


21,28 and 35 feed boom with adjustable nozzles distance

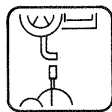
OPERATION DIAGRAM



- A. Suction strainer
- B. Pump
- C. Mounting with Pressure Gauge
- D. Distribution valve
- E. Spray boom



20 feed boom with fixed nozzles distance



### CONNECTING THE SPRAYER

The sprayer is constructed for three-point suspension and equipped with 22 mm link pins (cat. I).

### OPERATING INSTRUCTIONS

#### Operation of boom:

Unfolding and folding up of the spray boom is done with a easy jerk, which releases the spring loaded claw clutch in the boom joint.

Use clean water when adjusting and calibrating the control unit, and the distributing valves.

Choose GPA, the type and size of nozzles. The travelling speed of the tractor and the working pressure to be applied will then appear from the table.

#### Spraying is recommended at

30 PSI when flat nozzles are used.  
70 PSI when cone nozzles are used.

This ensures the most correct distribution of the spray liquid.

Higher working pressure means smaller drops and thus risk of wind drift.

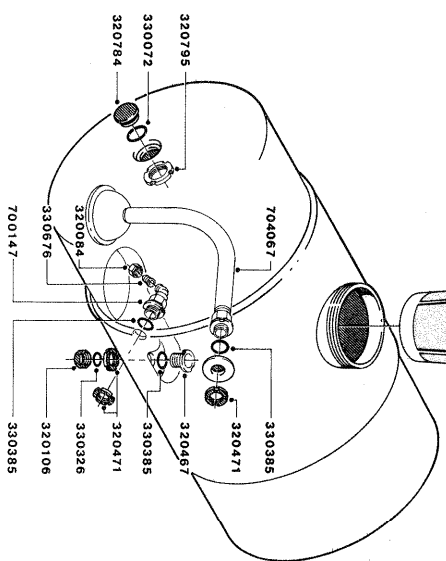
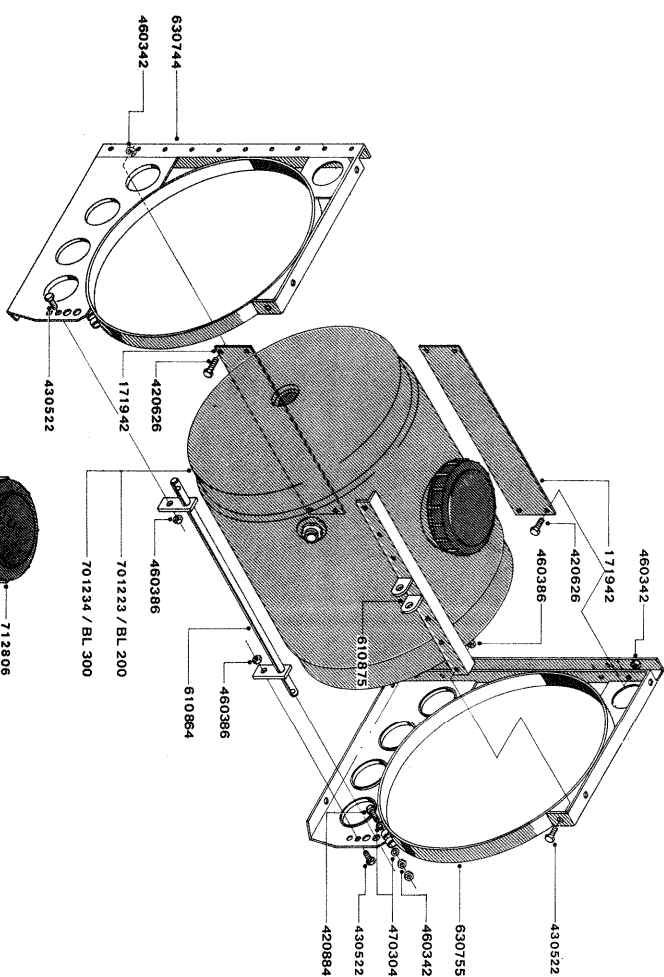
#### Adjustment of the air pressure in the pulsation damper:

The pressure is factory set 28 PSI which covers the use of pressures from 40 to 210 PSI.

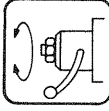
If working below 40 PSI, some reduction of pressure may be necessary.



PSI	PSI	PSI
20-40	0-14	
40-210	14-40	
210-360	40-60	



Tank with frame M53 and M80

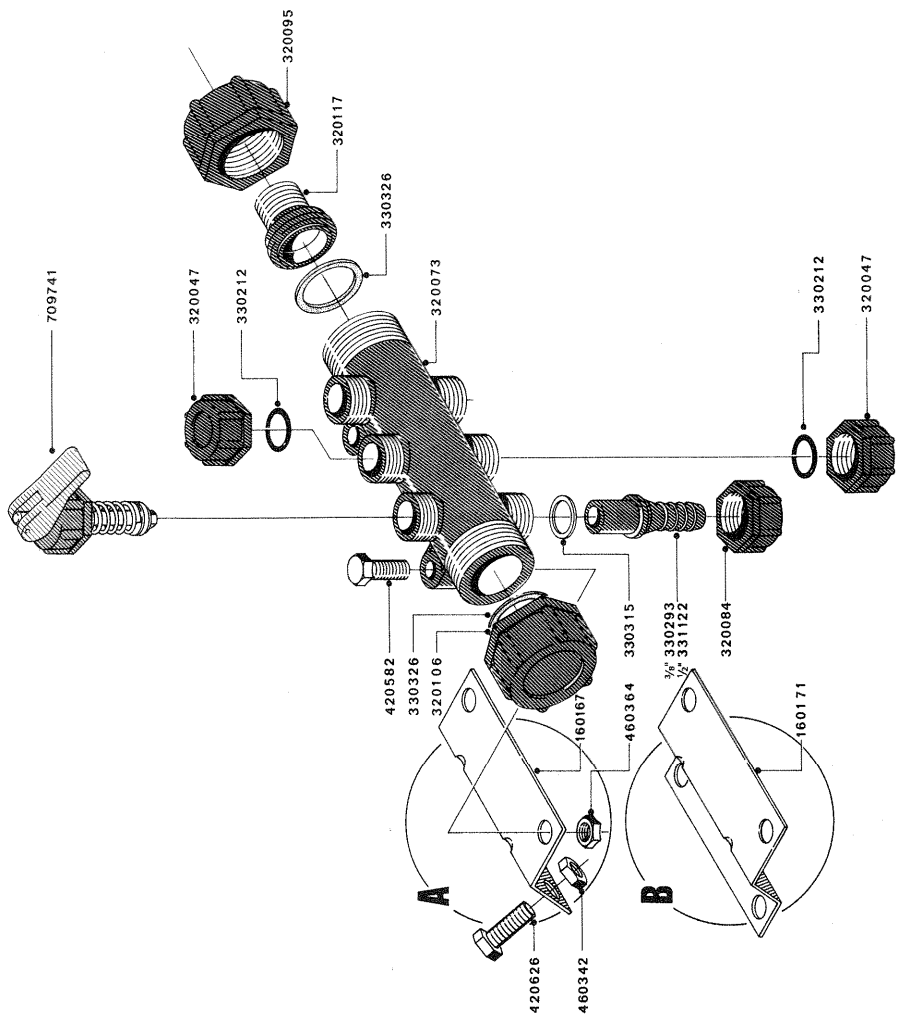


Adjustment of M 70 controls:

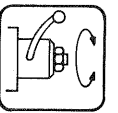


1. Turn operating handle to position 1, spraying position.
2. All hand levers on the distribution valve are put in position 3 (spraying position).
3. The pressure regulating valve is adjusted until the wanted pressure is shown on the pressure gauge.
4. Operating the control unit whilst driving: In order to close the entire spray boom twist the operation handle to position 2. This takes the pressure off the pump. The whole of the pump's capacity will then return to the tank through the return system.

In order to close part of the boom turn handle for the part or parts to be closed in position 4.



Distribution valve



**NB!** When closing that part of the boom, an increase of pressure happens, it is therefore necessary to regulate again to carry out the spray work correctly.

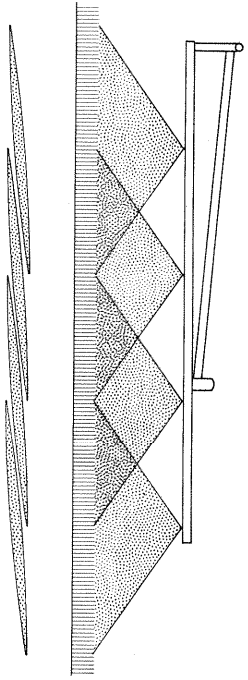
THE HEIGHT OF THE BOOM

To ensure the most even application of the spray liquid onto the target it is important to adjust the boom height accurately.

Using flat fan nozzles.

Height of nozzle above ground or crop should be approx. 20 "

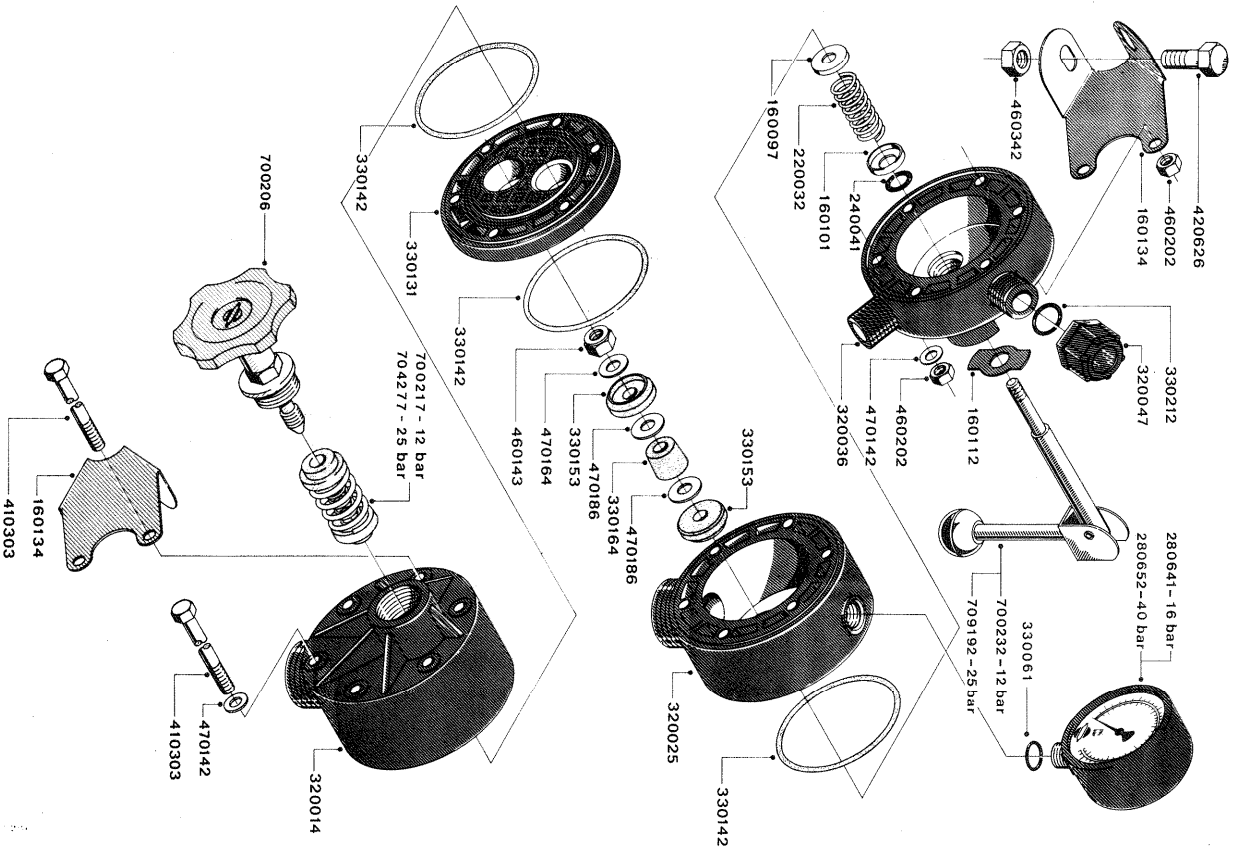
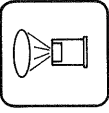
The spray pattern should be as illustrated.



DETERMINING THE SIZE OF NOZZLES

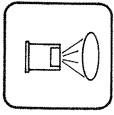
If you change the standard nozzles it is of important that the pump has the sufficient capacity to supply the new nozzles.

Your HARDI dealer can supply you with application sheets for special nozzle types.

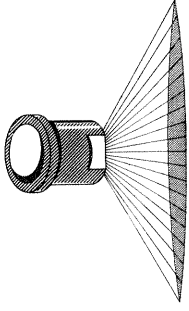


Operating unit M70

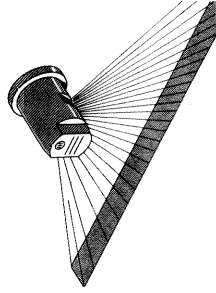
NOZZLE TYPES



1. The flat nozzle gives an elliptical spray pattern. The special orifice of this nozzle makes it sensitive to impurities in the spray. The use of the cleanest possible water and keeping the nozzles clean is therefore recommended. Flat spray nozzles can be used for all purposes but are especially suitable for the application of herbicides (weed killers).

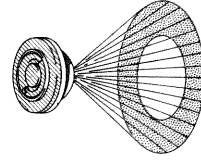


2. The flood jet nozzles give a flat fan-shaped spraying picture with a wide spray angle even at a low pressure.



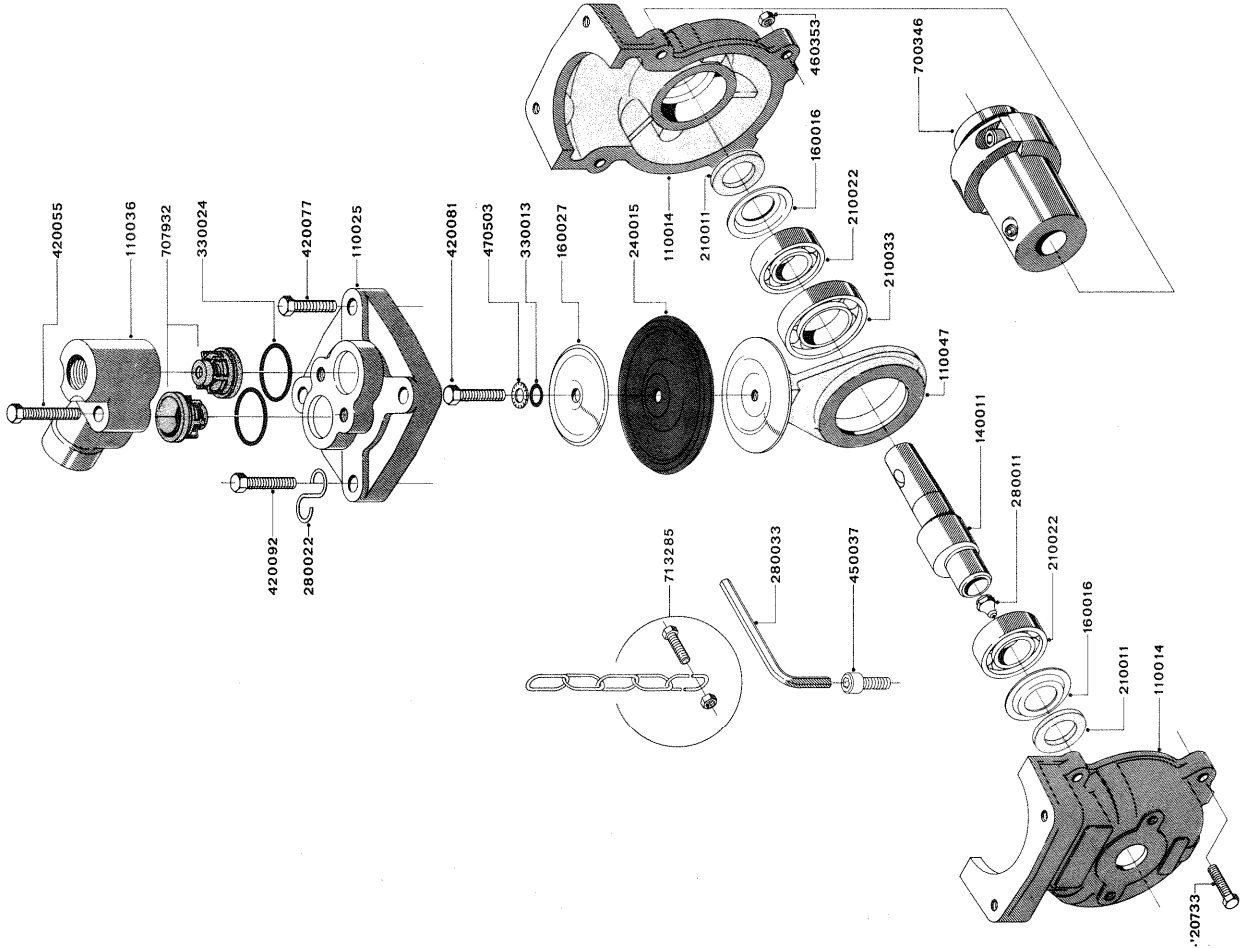
Flood jet nozzles can be used for all spraying purposes, and are especially good for incorporating with herbicides and application of liquid fertilizers.

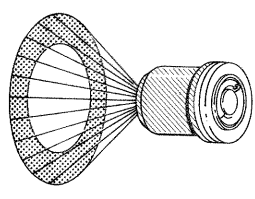
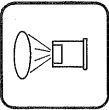
3. The cone nozzle is fitted with a swirl and gives a conical spray pattern.



The cone nozzle is mainly used for insecticides and fungicides.

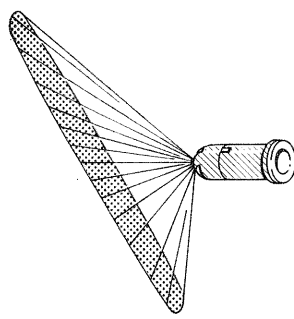
4. The large drop nozzle is fitted in conjunction with cone nozzles and gives the same spray pattern. Larger drops are produced at





unaltered pressure. This makes spraying possible in windy weather without the risk of drift. The large drops reduce the coverage and it is therefore recommended to use a little more water, for instance by travelling slower.

5. The foam nozzle is fitted together with the cone nozzle without the use of a swirl and provides the same advantages as the large drop nozzle. The spray pattern of the foam nozzle is like that of the flat spray nozzle, but with a considerably wider spray angle.



This nozzle is largely used for the application of soil herbicides where drift must not occur and for some liquid fertilizers where the large drops reduce the risk of crop scorch. A foaming agent can be used in connection with this nozzle, but it is not necessary.

Nozzles for other purposes:

Apart from the HARDI nozzles already covered, there is a wide range of special purpose nozzles available such as:

Evenspray nozzles for certain band spraying tasks. Ceramic cone nozzles where very high pressure needs to be used eg. in soft fruit crops.



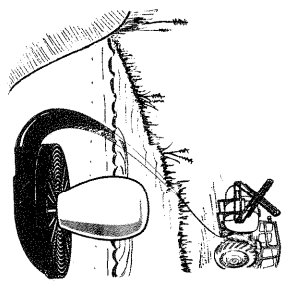
7. Reduced pressure may be caused by insufficient spring strength or worn valve on the pressure control unit and also debris may be trapped under valve head.

8. REMEMBER! The most common cause of loss of spraying pressure is air being sucked in on suction side of pump, so that is the first place to look.

EXTRA EQUIPMENT

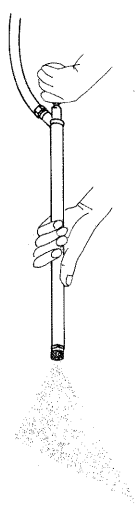
FILLING EQUIPMENT:

For filling the sprayer from streams, ponds, water tanks etc.



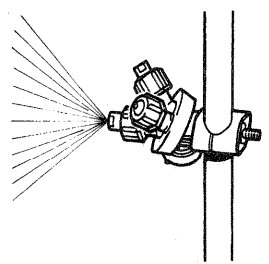
SPRAY GUNS:

For spray tasks where the spray boom cannot be used.



HARDI-TRIPLET:

Allows 3 different nozzles to be carried on each nozzle body so that the operator can change quickly and precisely to any one of the tree.



ASK YOUR HARDI DEALER TO SHOW YOU OUR EXTRA EQUIPMENT.





2. A clogged up suction filter will prevent aspiration so that the pump does not operate satisfactorily.

It is therefore important to keep all filters clean.

3. Foreign bodies stuck in the pump valves with the effect that these cannot close tightly against the valve seat will cause the pump to work unsatisfactorily.

Therefore always take care that the filters are whole so that the pump cannot suck in impurities.

4. Where pump has been serviced and reassembled incorrectly it will not pump at all if the valve springs face against the water flow on suction side.  
If the valve springs face against the water flow on the pressure side, then the cylinder head will be blown off or the pump casing will crack.

For correct positioning of valves, please see diagrams under section on "changing valves and diaphragms".

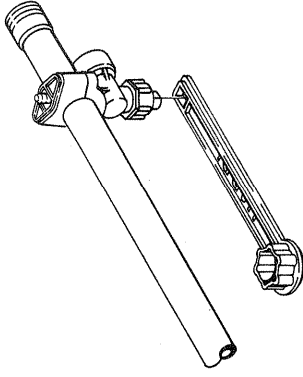
5. Insufficiently tightened bolts on cylinder heads or valve chambers will allow air to be sucked in with the result that little or no liquid will be pumped.

Make sure all cylinder heads and valve covers are correctly tightened down.

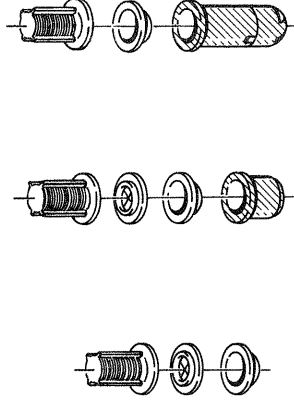
6. A worn diaphragm will reduce pump capacity but it is only necessary to replace the diaphragm when it is worn through.  
When this occurs liquid will run out of the drain hole in the base of the pump casing.

The fitting of nozzles:

Flat nozzles should be set in the correct angle (5 degrees) by using the supplied nozzle key.



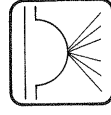
Cone nozzles, large drop nozzles and foam nozzles should be fitted as illustrated.



Please note that swirls are not used in connection with foam nozzles. The ordinary nozzle tables should therefore not be used.

#### DISTRIBUTION OF SPRAY

The following tables indicate the quantity of liquid that may be distributed with each nozzle size at various travelling speeds with a nozzle distance of 20".



### 80° Flat Spray Nozzle

NOZZLE No. (GPA)	PRESSURE P.S.I.	U.S. GPM	U.S. GAL/ACRE AT MPH											
			4	5	6	7	8	10	12	14				
2080-10 (7.4)	20	.08	5.9	4.8	4.0	3.4	3.0	2.4	2.0	1.7				
	30	.10	<b>7.4</b>	5.9	5.0	4.2	3.7	3.0	2.5	2.1				
	40	.12	8.9	7.1	5.9	5.1	4.5	4.5	3.6	3.0	2.5			
2080-12 (10.4)	50	.13	9.7	7.7	6.4	5.5	4.8	3.9	3.2	2.8				
	60	.14	10.4	8.3	6.9	5.9	5.2	4.2	3.5	3.0				
	20	.12	8.9	7.1	5.9	5.1	4.5	3.6	3.0	2.5				
2080-14 (13.4)	30	.14	<b>10.4</b>	8.3	6.9	5.9	5.2	4.2	3.5	3.0				
	40	.17	12.6	10.1	8.4	7.2	6.3	5.0	4.2	3.6				
	50	.18	13.4	10.7	8.9	7.6	6.7	5.3	4.5	3.8				
2080-16 (20.8)	60	.20	14.9	11.9	9.9	8.5	7.4	5.9	5.0	4.2				
	20	.15	11.1	8.9	7.4	6.4	5.6	4.5	3.7	3.2				
	30	.18	<b>13.4</b>	10.7	8.9	7.6	6.7	5.3	4.5	3.8				
2080-20 (24.5)	40	.21	15.6	12.5	10.4	8.9	7.8	6.2	5.2	4.5				
	50	.24	17.8	14.3	11.9	10.2	8.9	7.1	5.9	5.1				
	60	.26	19.3	15.4	12.9	11.0	9.7	7.7	6.4	5.5				
2080-24 (35.6)	20	.23	17.1	13.7	11.4	9.8	8.5	6.8	5.7	4.9				
	30	.28	<b>20.8</b>	16.6	13.9	11.9	10.4	8.3	6.9	5.9				
	40	.32	23.8	19.0	15.8	13.6	11.9	9.5	7.9	6.8				
2080-30 (48.3)	50	.36	26.7	21.4	17.8	15.3	13.4	10.7	8.9	7.6				
	60	.39	29.0	23.2	19.3	16.5	14.5	11.6	9.7	8.3				
	20	.27	20.0	16.0	13.4	11.5	10.0	8.0	6.7	5.7				
2080-36 (63.9)	30	.33	<b>24.5</b>	19.6	16.3	14.0	12.3	9.8	8.2	7.0				
	40	.38	28.2	22.6	18.8	16.1	14.1	11.3	9.4	8.1				
	50	.42	31.2	24.9	20.8	17.8	15.6	12.5	10.4	8.9				
2080-50 (112.9)	60	.46	34.2	27.3	22.8	19.5	17.1	13.7	11.4	9.8				
	20	.39	29.0	23.2	19.3	16.5	14.5	11.6	9.7	8.3				
	30	.48	<b>35.6</b>	28.5	23.8	20.4	17.8	14.3	11.9	10.2				
2080-50 (112.9)	40	.56	41.6	33.3	27.7	23.8	20.8	16.6	13.9	11.9				
	50	.62	46.0	36.8	30.7	26.3	23.0	18.4	15.3	13.2				
	60	.68	50.5	40.4	33.7	28.9	25.2	20.2	16.8	14.4				
2080-30 (48.3)	20	.53	39.4	31.5	26.2	22.5	19.7	15.7	13.1	11.2				
	30	.65	<b>48.3</b>	38.6	32.2	27.6	24.1	19.3	16.1	13.8				
	40	.75	55.7	44.6	37.1	31.8	27.8	22.3	18.6	15.9				
2080-36 (63.9)	50	.83	61.6	49.3	41.1	35.2	30.8	24.7	20.5	17.6				
	60	.91	67.6	54.1	45.0	38.6	33.8	27.0	22.5	19.3				
	20	.70	52.0	41.6	34.7	29.7	26.0	20.8	17.3	14.9				
2080-36 (63.9)	30	.86	<b>63.9</b>	51.1	42.6	36.5	31.9	25.5	21.3	18.2				
	40	1.00	74.3	59.4	49.5	42.4	37.1	29.7	24.8	21.2				
	50	1.11	82.4	65.9	54.9	47.1	41.2	33.0	27.5	23.5				
2080-50 (112.9)	60	1.22	90.6	72.5	60.4	51.8	45.3	36.2	30.2	25.9				
	20	1.24	92.1	73.7	61.4	52.6	46.0	36.8	30.7	26.3				
	30	1.52	112.9	90.3	75.2	64.5	56.4	45.1	37.6	32.2				
2080-50 (112.9)	40	1.75	<b>129.9</b>	104.0	86.5	74.3	65.0	52.0	43.3	37.1				
	50	1.96	145.5	116.4	97.0	83.2	72.8	58.2	48.5	41.6				
	60	2.15	159.6	127.7	106.4	91.2	79.8	63.9	53.2	45.6				



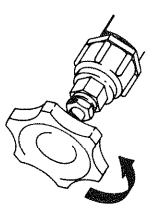
A leaky hose causes delay in the middle of spraying. Therefore check all the hoses and change if there is any doubt about the durability.

**Painting:**

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

**Operating unit**

Ensure that the pressure relief handle is turned counter clockwise to its end point. Distribution valve taps should be in closed position as this relieves the pressure on the springs. Start up problems can thus be minimized.

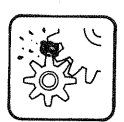


**The tank:**

Ensure that the tank is cleaned out before adding the anti freeze solution and that no chemical residue is left behind. Chemical residues can affect the life of the tank.

**OPERATIONAL PROBLEMS**

The sprayer is usually very reliable and will rarely give problems if the necessary maintenance work is carried out.



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

1. Even a minor leak on the suction side of the pump will reduce the pump's capacity or stop any suction at all.  
The reason may often be found in joints, defective hoses or lacking gaskets.  
Therefore check all joints on the suction side.



### WINTER STORAGE

When the spraying season is over you should devote some extra time to the sprayer before it is put away for the winter.

#### Frost precautions

If the sprayer is not stored in a frost-proof place you should take the following precautions: Put 2 GAL. of 33 per cent antifreeze mixture in the tank and let the pump run a few minutes so that the entire system is filled, including the spray lines.

#### Nozzles:

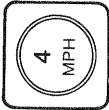
Remove all nozzles and filters from boom - clean and store in a suitable container.

#### Hose:

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

## 110° Flat Spray Nozzle

NOZZLE No. (GPA)	PRESSURE P.S.I.	U.S. GPM	U.S. GAL./ACRE AT MPH											
			4	5	6	7	8	10	12	14				
4110-10 (7.4)	20	.08	5.9	4.8	4.0	3.4	3.0	2.4	2.0	1.7				
	30	.10	7.4	5.9	5.0	4.2	3.7	3.0	2.5	2.1				
	40	.12	8.9	7.1	5.9	5.1	4.5	3.6	3.0	2.5				
	50	.13	9.7	7.7	6.4	5.5	4.8	3.9	3.2	2.8				
60	.14	10.4	8.3	6.9	5.9	5.2	4.2	3.5	3.0					
4110-12 (11.9)	20	.13	9.7	7.7	6.4	5.5	4.8	3.9	3.2	2.8				
	30	.16	11.9	9.5	7.9	6.8	5.9	4.8	4.0	3.4				
	40	.18	13.4	10.7	8.9	7.6	6.7	5.3	4.5	3.8				
	50	.21	15.6	12.5	10.4	8.9	7.8	6.2	5.2	4.5				
60	.23	17.1	13.7	11.4	9.8	8.5	6.8	5.7	4.9					
4110-14 (14.9)	20	.16	11.9	9.5	7.9	6.8	5.9	4.8	4.0	3.4				
	30	.20	14.9	11.9	9.9	8.5	7.4	5.9	5.0	4.2				
	40	.23	17.1	13.7	11.4	9.8	8.5	6.8	5.7	4.9				
	50	.26	19.3	15.4	12.9	11.0	9.7	7.7	6.4	5.5				
60	.28	20.8	16.6	13.9	11.9	10.4	8.3	6.9	5.9					
4110-16 (17.8)	20	.20	14.9	11.9	9.9	8.5	7.4	5.9	5.0	4.2				
	30	.24	17.8	14.3	11.9	10.2	8.9	7.1	5.9	5.1				
	40	.28	20.8	16.6	13.9	11.9	10.4	8.3	6.9	5.9				
	50	.31	23.0	18.4	15.3	13.2	11.5	9.2	7.7	6.6				
60	.34	25.2	20.2	16.8	14.4	12.6	10.1	8.4	7.2					
4110-20 (26.0)	20	.29	21.5	17.2	14.4	12.3	10.8	8.6	7.2	6.2				
	30	.35	26.0	20.8	17.3	14.9	13.0	10.4	8.7	7.4				
	40	.41	30.4	24.4	20.3	17.4	15.2	12.2	10.1	8.7				
	50	.45	33.4	26.7	22.3	19.1	16.7	13.4	11.1	9.5				
60	.50	37.1	29.7	24.8	21.2	18.6	14.9	12.4	10.6					
4110-24 (34.2)	20	.38	28.2	22.6	18.8	16.1	14.1	11.3	9.4	8.4				
	30	.46	34.2	27.3	22.8	19.5	17.1	13.7	11.4	9.8				
	40	.53	39.4	31.5	26.2	22.5	19.7	15.7	13.1	11.2				
	50	.60	44.6	35.6	29.7	25.5	22.3	17.8	14.9	12.7				
60	.65	48.3	38.6	32.3	27.6	24.1	19.3	16.1	13.8					
4110-30 (48.3)	20	.53	39.4	31.5	26.2	22.5	19.7	15.7	13.1	11.2				
	30	.65	48.3	38.6	32.2	27.6	24.1	19.3	16.1	13.8				
	40	.76	56.4	45.1	37.6	32.2	28.2	22.6	18.8	16.1				
	50	.84	62.4	49.9	41.6	35.6	31.2	24.9	20.8	17.8				
60	.92	68.3	54.6	45.5	39.0	34.2	27.3	22.8	19.5					
4110-36 (66.8)	20	.73	54.2	43.4	36.1	31.0	27.1	21.7	18.1	15.5				
	30	.90	66.8	53.5	44.6	38.2	33.4	26.7	22.3	19.1				
	40	1.04	77.2	61.8	51.5	44.1	38.6	30.9	25.7	22.1				
	50	1.16	86.1	68.9	57.4	49.2	43.1	34.5	28.7	24.6				
60	1.27	94.3	75.4	62.9	53.9	47.1	37.7	31.4	26.9					
4410-44 (84.6)	20	.93	69.1	55.2	46.0	39.5	34.5	27.6	23.0	19.7				
	30	1.14	84.6	67.7	56.4	48.4	42.3	33.9	28.2	24.2				
	40	1.32	98.0	78.4	65.3	56.0	49.0	39.2	32.7	28.0				
	50	1.47	109.1	87.3	72.8	62.4	54.6	43.7	36.4	31.2				
60	1.61	119.5	95.6	79.7	68.3	59.8	47.8	39.8	34.2					





# Cone Spray Nozzle

GALLONS PER ACRE 30" ROW SPACING	
ONE NOZZLE PER ROW	TWO NOZZLES PER ROW

NOZZLE No.	PRESSURE P.S.I.	U.S. GPM	ONE NOZZLE PER ROW					TWO NOZZLES PER ROW					THREE NOZZLES PER ROW				
			3 MPH	4 MPH	5 MPH	3 MPH	4 MPH	5 MPH	3 MPH	4 MPH	5 MPH						
1553-10 WITH BLUE SWIRL	40	.07	4.6	3.5	2.8	9.2	7.0	5.6	13.8	10.5	8.3						
	60	.09	5.9	4.5	3.6	11.8	9.0	7.2	17.8	13.4	10.7						
	80	.11	7.3	5.4	4.4	14.6	10.8	8.8	21.8	16.3	13.1						
1553-12 WITH BLUE SWIRL	40	.10	6.6	5.0	4.0	13.2	10.0	8.0	19.8	15.0	12.0						
	60	.12	7.9	5.9	4.8	15.8	11.8	9.6	23.8	17.8	14.3						
	80	.14	9.2	6.9	5.5	18.4	13.8	11.0	27.7	20.8	16.6						
1553-14 WITH BLUE SWIRL	40	.11	7.3	5.4	4.4	14.6	10.8	8.8	21.8	16.3	13.1						
	60	.14	9.2	6.9	5.5	18.4	13.8	11.0	27.7	20.8	16.6						
	80	.16	10.6	7.9	6.3	21.2	15.8	12.6	31.7	23.8	19.0						
1553-14 WITH GRAY SWIRL	40	.22	14.5	10.9	8.7	29.0	21.8	17.4	43.6	32.7	26.1						
	60	.26	17.2	12.9	10.3	34.4	25.8	20.6	51.5	38.6	30.9						
	80	.32	21.1	15.8	12.7	42.2	31.6	25.4	63.4	47.5	38.0						
1553-16 WITH GRAY SWIRL	40	.32	21.1	15.8	12.7	42.2	31.6	25.4	63.4	47.5	38.0						
	60	.39	25.7	19.3	15.4	51.4	38.6	30.8	77.2	57.9	46.3						
	80	.46	30.4	22.8	18.2	60.8	45.6	36.4	91.1	68.3	54.6						
1553-18 WITH GRAY SWIRL	40	.62	40.9	30.7	24.6	81.8	61.4	49.2	123	92.1	73.7						
	60	.87	50.9	38.3	30.7	100.0	76.6	57.4	150	115	90.3						
	80	1.11	60.8	44.9	33.7	126.9	93.8	70.2	191.1	141	105						
1553-20 WITH BLACK SWIRL	40	.48	31.7	23.8	19.0	63.4	47.6	38.0	95.0	71.3	57.0						
	60	.59	38.9	29.2	23.4	77.8	58.4	46.8	117	87.6	70.1						
	80	.68	44.9	33.7	26.9	89.8	67.4	53.8	135	101	80.8						
1553-20 WITH BLACK SWIRL	40	.70	46.2	34.7	27.7	92.4	69.4	55.4	139	104	83.2						
	60	.86	56.8	42.6	34.1	113	85.1	68.2	170	128	102						
	80	1.00	66.0	49.5	39.6	132	99.0	79.2	198	148	119						
1553-40 WITH BLACK SWIRL	40	.97	64.0	48.0	38.4	128	96.0	76.8	192	144	115						
	60	1.18	77.9	58.4	46.7	156	117	93.5	234	175	140						
	80	1.37	90.4	67.8	54.3	181	136	108	271	203	163						
1553-40 WITH BLACK SWIRL	40	1.53	101	75.7	60.6	202	151	121	303	227	182						
	60	1.87	123	93	74	247	185	148	370	278	222						
	80																

## CHANGING VALVES AND DIAPHRAGMS

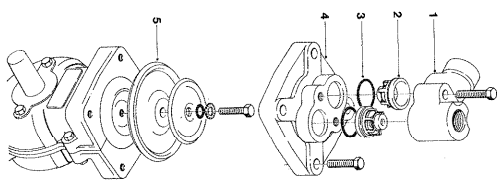
### Valves

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

### Diaphragm

Remove the diaphragm cover (4) after having dismantled the valve chamber as indicated above. The diaphragm (5) may then be changed.

If liquid has entered the pump casing below the diaphragm wash out old grease and residue with diesel oil or paraffin and thoroughly regrease the bearings.

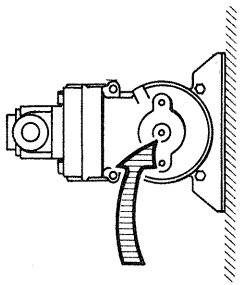




### LUBRICATION

#### Pump:

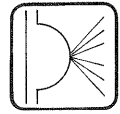
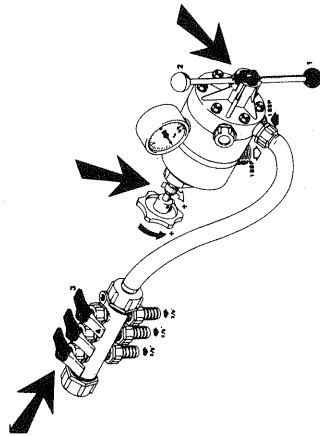
Once or twice during the season, depending on how often the sprayer is used, it is recommended to lubricate the whole of the pump with a lithium grease of consistency No. 2. This quality is used in the pump on delivery from the factory.



Lubrication points on the pump

#### Operating unit:

Regularly lubricate all moving parts on the operating unit, distributing valves.



To keep to the quantities of liquid (GPA) found in these tables it is very important to know the exact travelling speed of the tractor. Special wheels or worn tires may have the result that the speed indicated by the tractor tachometer is not correct.

#### Nozzle spacing:

If the nozzle spacing on your boom is different than 20", multiply the tabulated or calculated GPA coverages by one of the following factors.

Other Spacing	8"	10"	12"	14"	16"	18"	22"	24"	30"
Conversion Factor	2.5	2	1.67	1.43	1.25	1.11	.91	.83	.66

The EXACT quantity of liquid applied can be calculated as follows:

With the sprayer set as required, measure the output in gallons per minute per nozzle. Place this variable in the formula to find the GPA

$$\frac{5940 \times \text{GPM (per nozzle)}}{\text{MPH} \times \text{Nozzle spacing in inches}} = \text{GPA}$$

#### Example:

The nozzles have been checked for output and are producing an average of 0.28 gallon per minute, travelling speed is 4 MPH and nozzle spacing is 20".

The quantity of liquid distributed per acre will be:

$$\frac{5940 \times 0.28}{4 \times 20} = 20.8 \text{ GPA}$$

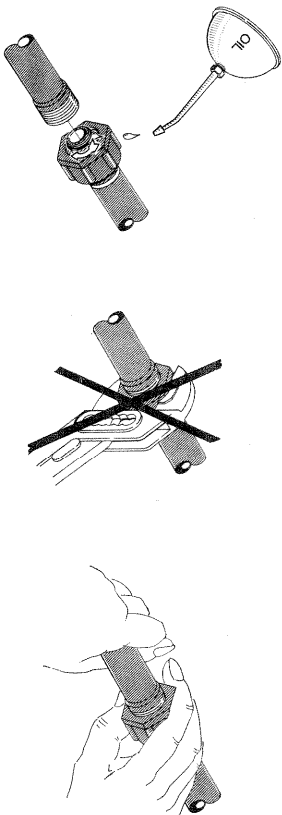
## MAINTENANCE

In order to get years of trouble free operation from the sprayer, the rules below should be adhered to.

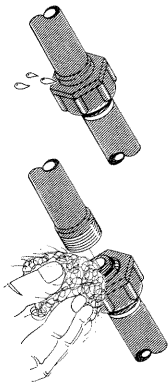
### BOOM ADJUSTMENT

If the spring resistance needs adjustment, this can be achieved by slackening or tightening the nut compressing the spring above the claw.

### FITTING OF HOSE TO SPRAY LINE



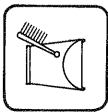
The O-shaped ring should be greased **ALL THE WAY ROUND** before fitting it to the spray line.



Where leakage occurs **DO NOT** overtighten - disassemble - clean and reassemble as above.

### CLEANING THE SPRAYER

When changing from one chemical to another, in order to wash out the first chemical add 3 lbs. of washing soda to 25 GAL. of water in the tank, start the pump and wash out the entire sprayer, including boom and nozzles - spray out and then fill with clean water - spray out again.



After use, sprayer as well as tractor should be washed down.

**NB!** Do not clean your sprayer close to where there is a risk of contaminating wells, streams ponds etc.

**AN UNCLEANED SPRAYER IS A HAZARD TO BOTH HUMANS AND LIVESTOCK.**

### Filters:

Remember that cleaning also entails the cleaning of all filters. Clean the filters thoroughly on both suction and pressure side. Renew them if necessary.

### Nozzles:

It is a good practice to renew all nozzles at least once per season as wear and tear is unavoidable.

Always keep spare nozzles in stock so as to avoid delays during the busy periods.

Check and carefully clean all nozzles with a soft brush and a detergent and water mixture.

Check that all nozzles in a set have the same number moulded on them.

Damaged nozzles dose incorrectly and should be changed immediately.

