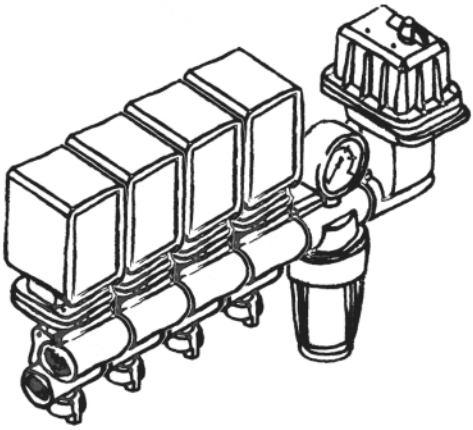
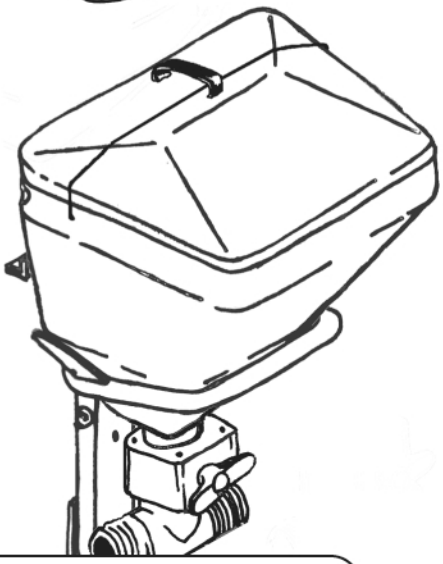
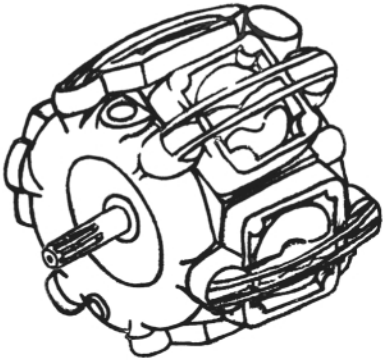
HARDI® SPRAYERS







TR300/500/800/1000

TRAILER SPRAYER

Operator's Manual

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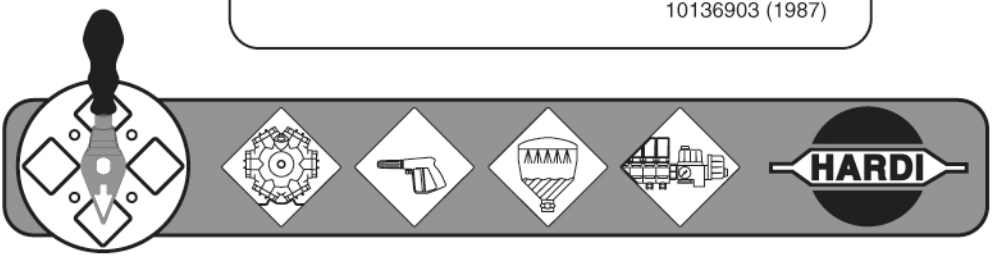

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TR300/500/800/1000
TRAILER SPRAYER
OPERATORS MANUALS

1987 EDITION

HI101369

Dear Owner:

Thank you sincerely for purchasing one of our products and welcome to the ever-increasing family of HARDI sprayer owners.

Our sprayers are rapidly becoming a familiar sight on North American farms. We believe that this results from growers becoming increasingly conscious of chemical input costs and the vital need for cost effective chemical application equipment.

Please take the time to thoroughly read the Operator's Manual before using your sprayer. You will find many helpful hints as well as important safety and calibration information.

Some of the features on your HARDI sprayer were suggested by growers. There is no substitute for "on-farm" experience and we invite your comments and suggestions.

Please address your correspondence to the Service Manager at one of these branches:

HARDI® NORTH AMERICA INC.

1500 West 76th St.
Davenport, Iowa 52806
Phone: (563) 386-1730
Fax: (563) 386-1710

8550 W. Roosevelt Avenue
Visalia, California 93291
Phone: (559) 651-4016
Fax: (559) 651-4160

290 Sovereign Rd.
London, Ontario N6M 1B3
Phone: (519) 659-2771
Fax: (519) 659-2821

WARNING

ALWAYS READ OPERATORS MANUAL BEFORE USING EQUIPMENT

DO NOT REMOVE ANY SAFETY DEVICES OR SHIELDS. NEVER SERVICE, CLEAN OR REPAIR A MACHINE WHILE IT IS OPERATING.

ALWAYS WATCH FOR THIS SYMBOL TO POINT OUT IMPORTANT SAFETY PRECAUTIONS.

IT MEANS ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

1. SAFETY INFORMATION

All agricultural chemicals should be handled with care.

We urge you to wear protective clothing such as rubber gloves, goggles, coveralls and respirator. All protective clothing should be kept in excellent condition and cleaned regularly or discarded.

Keep a generous sized container of clean water on or near the sprayer for rinsing hands or face and cleaning nozzles.

Always read the label on the chemical container carefully before use.

Extreme care should be taken in measuring chemicals. Powders should be used in suitable sized packages or accurately weighed. Liquids should be poured into a suitable graduated container.

Empty chemical containers should be rinsed thoroughly. The rinse water should be added to the sprayer tank and the empty container disposed of in accordance with local regulations or bylaws.

To clean spray nozzles, use a soft brush such as a tooth-brush. Never attempt to clean by placing nozzle on the lips and blowing.

Know the telephone number of your nearest poison control center. Keep a list of all chemicals in use.

Always keep children away from your spraying.

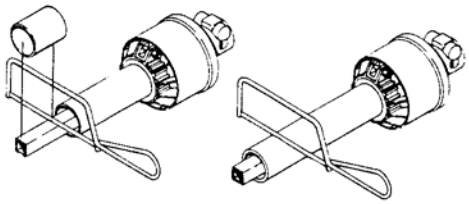
Attach sprayer tongue to tractor drawbar with correct size drawbar pin and install safety pin.

Attach PTO shaft to tractor.

Ensure that all guards and covers are in place.

Attach PTO safety chains to sprayer tongue and tractor drawbars (A).

CAREFULLY CHECK THAT PTO SHAFT IS OF CORRECT LENGTH AND WILL NOT BOTTOM OUT WHEN TURNING OR GOING THROUGH GULLIES. FAILURE TO DO SO WILL DAMAGE PTO SHAFT AND MAY BREAK PUMP BASE.



If PTO shaft is too long, cut equal amounts off both halves to shorten to correct length.

Ensure that control post is adjusted so that controls are conveniently located but do not strike tractor when turning or driving across low ground.

2. OPERATION AND ADJUSTMENT - Calibration

WHY MUST WE CALIBRATE A SPRAYER?

A nozzle selection chart will tell us approximately what application rate we should expect, but variations due to nozzle wear, errors in pressure adjustment and tractor speedometer error can result in a large error in application rate.

HOW DO WE CALIBRATE A SPRAYER?

In some areas of North America, special calibration bottles are available. They generally recommend that the operator drive at his spraying speed and note the length of time required to travel a specific distance. The operator then catches the liquid from one nozzle at spraying pressure for the length of time noted. The bottle then gives a direct reading of application rate. Slight adjustments are then made by varying pressure.

Following are some tips to remember when using the calibration bottle method:

1. Follow the instructions on the calibration bottle carefully.

2. Check the output of each nozzle by running the sprayer at spraying pressure and collecting the liquid from each nozzle for the same length of time. Nozzle output should not vary more than +/- 5%.

3. When determining the length of time required to drive the recommended distance, drive in actual field conditions with a half full sprayer, repeat the test several times, each time avoiding the tracks from the previous test. Take the average of the times recorded.

If calibration bottles are not available in your area, there is a second, very simple method -

1. Fill the sprayer tank approximately half full of water.

2. Set up two stakes, 204 feet apart in actual field conditions.

3. Driving at spraying speed, note the length of time required to drive 204 feet. Repeat several times, each time avoiding the tracks from the previous trip. Take the average of the times recorded.

4. Collect the liquid from a nozzle for the length of time determined in step 3. The number of US fluid ounces will exactly indicate your application rate.

e.g. 20 fluid ounces = 20 US gallons per acre

The above method is based on water with nozzles set at 20". If your nozzle spacing is other than 20", use this easy formula:

$$\frac{\text{GPA (as measured in step 4)}}{\text{Nozzle spacing (on your boom)}} \times 20$$

Example:

$$\frac{\text{Measured GPA (30)}}{\text{Nozzle spacing (40")}} \times 20 = 15 \text{ GPA}$$

When using a carrier other than water, such as fluid fertilizer, repeat step 4 using your carrier material.

Calibration of the sprayer should be completed at the beginning of the season and repeated after every 2 to 3 full days of spraying

For conversion to Imperial gallons per acre, multiply US GPA X .833

For conversion to litres per hectare, multiply US GPA X .934

For conversion to litres per acre, multiply US GPA X 3.87

Formula for tractor speed $\frac{\text{Distance}}{\text{Time}} \times 0.682 = \text{MPH}$

Correct selection of nozzle and calibration of the sprayer are critically important in achieving maximum accuracy and cost effective use of farm chemicals.

In the past, confusing information and complex methods have made many operators reluctant to attempt what can be a simple task.

Your HARDI sprayer has been supplied with 110 degree flat spray tips that will apply approximately 20 US GPA at 30 PSI and 5 MPH. The 110 degree flat spray nozzle was chosen rather than the traditional 80 degree nozzle for two reasons. It may be used at a lower minimum height, reducing the risk of wind drift and its greater overlap permits more variation in boom height. Normal boom height setting with 110 degree nozzles is 20" above target.

Should you wish a different application rate or different type of nozzle, HARDI manufactures a nozzle for virtually every need.

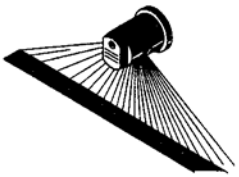
ALWAYS CONSULT YOUR CHEMICAL SUPPLIER FOR RECOMMENDED CHEMICAL MIXTURE AND APPLICATION RATE.

The following two pages describe what types of spray nozzles are suitable for different types of application. It is important to use the correct type of nozzle.

FLAT SPRAY NOZZLES in 65, 80 & 110 deg. spray angles. For herbicides, insecticides & fertilizer applications. For pressures of 14-140 PSI & volume of .08-2.15 GPM. O-ring 330013 should always be used with pressures in excess of 100 PSI. 50, 80 & 100 mesh screens are normally used.

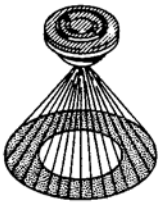
4665-65 deg.
2080-80 deg.
4110-110 deg.

330013-O-ring



FLOOD NOZZLES set at 40" spacing. Designed for high volume application. For volume of .16-14.0 GPM. See boom manual for 45 & 90 deg. elbows to provide alternate flood nozzle positioning.

4598



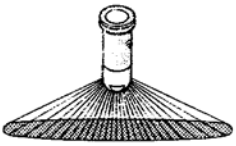
HOLLOW CONE NOZZLES for high pressure & high volume insecticide application in row crops. For pressures 42-350 PSI and volume of .03-2.87 GPM. 1553 nozzles are ALWAYS used with swirl plates shown below EXCEPT when used as solid stream nozzles. O-ring330013 should always be used with pressures over 100 PSI. Actual swirl plate selection will affect droplet size which in turn affects application rate. 50, 80 or 100 mesh screens are normally used with these nozzles.

1553

Must add swirl to produce hollow cone pattern

HOLLOW CONE CERAMIC NOZZLES for high pressure & high volume fungicide & insecticide application. For pressures of 14-350 PSI & volume of .06-2.50 GPM. 1999 nozzles are always used with either grey, black or blue swirl plates & O-ring 330013.

1999

	SWIRL PLATE used in conjunction with cone nozzle to create desired spray pattern. These swirls work in either 1553 or 1999 series cone nozzles. Grey, blue or black swirls are used to create hollow cone effect. White & red swirls are used to create full cone effect.	Grey, Blue, Black, White, Red
	LARGE DROPLET HOLLOW CONE NOZZLE for use where drifting must be kept to a minimum for volume of .11-2.20 GPM. These nozzles must always be fitted with 1553 nozzles & grey swirl plates. 50, 80 or 100 mesh screens are normally used with these nozzles.	371077
	LARGE DROPLET FLAT SPRAY TIP in 150 deg. spray angle. Always used in conjunction with 1553 cone nozzle where drifting must be kept to a minimum for volume of .8 GPM. 50, 80, or 100 mesh screens are normally used with these nozzles.	710102
	SOLID STREAM NOZZLE for high volume liquid fertilizer application. For volume of .08-8.11 GPM. In this application, the 1553 nozzle is always used with 330013 O-ring and either 50, 80 or 100 mesh screens.	1553 LESS SWIRL

2. OPERATION AND ADJUSTMENT - Selecting the Correct Nozzle

TO USE THE FOLLOWING NOZZLE CHARTS:

1. You must know your desired forward speed (example 5 MPH).

2. You must know the pressure (PSI) you want to use (example 30 PSI).

3. You must know your desired application rate (example 20 gallons per acre).

KNOWING THESE THREE FACTS, PROCEED AS FOLLOWS:

1. Locate correct speed column (example 5 MPH).

2. Run your finger down the 5 MPH column until you come to a number which is as close as possible to 20 GPA and is also opposite 30 PSI (in this example).

3. In this particular example, note that at 5 MPH, you can apply 20.8 US GPA at 30 PSI. Consequently, for this application, you would select a 4110-20 nozzle.

4. This exercise will bring you very close to your desired application rate.

HOWEVER, FOR FINAL PRESSURE SETTING, YOU MUST CALIBRATE YOUR SPRAYER.

HARDI 110 DEGREE FLAT SPRAY NOZZLE

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	4 MPH	5 MPH	6 MPH	7 MPH	8 MPH
	20	0.08	5.9	4.8	4.0	3.4	3.0
4110-10	30	0.10	7.4	5.9	5.0	4.2	3.7
	40	0.12	8.9	7.1	5.9	5.1	4.5
370657	50	0.13	9.7	7.7	6.4	5.5	4.8
	60	0.14	10.4	8.3	6.9	5.9	5.2
	20	0.13	9.7	7.7	6.4	5.5	4.8
4110-12	30	0.16	11.9	9.5	7.9	6.8	5.9
	40	0.18	13.4	10.7	8.9	7.6	6.7
370661	50	0.21	15.6	12.5	10.4	8.9	7.8
	60	0.23	17.1	13.7	11.4	9.8	8.5
	20	0.16	11.9	9.5	7.9	6.8	5.9
4110-14	30	0.20	14.9	11.9	9.9	8.5	7.4
	40	0.23	17.1	13.7	11.4	9.8	8.5
370672	50	0.26	19.3	15.4	12.9	11.0	9.7
	60	0.28	20.8	16.6	13.9	11.9	10.4
	20	0.20	14.9	11.9	9.9	8.5	7.4
4110-16	30	0.24	17.8	14.3	11.9	10.2	8.9
	40	0.28	20.8	16.6	13.9	11.9	10.4
370683	50	0.31	23.0	18.4	15.3	13.2	11.5
	60	0.34	25.2	20.2	16.8	14.4	12.6
	20	0.24	17.8	14.3	11.9	10.2	8.9
4110-18	30	0.29	21.5	17.2	14.4	12.3	10.8
	40	0.34	25.2	20.2	16.8	14.4	12.6
370685	50	0.38	28.2	22.6	18.8	16.1	14.1
	60	0.40	29.9	23.9	19.9	17.1	14.9
	20	0.29	21.5	17.2	14.4	12.3	10.8
4110-20	30	0.35	26.0	20.8	17.3	14.9	13.0
	40	0.41	30.4	24.4	20.3	17.4	15.2
370394	50	0.45	33.4	26.7	22.3	19.1	16.7
	60	0.50	37.1	29.7	24.8	21.2	18.6

HARDI 110 DEGREE FLAT SPRAY NOZZLE (Contd.)

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	4 MPH	5 MPH	6 MPH	7 MPH	8 MPH
	20	0.38	28.2	22.6	18.8	16.1	14.1
4110-24	30	0.46	34.2	27.3	22.8	19.5	17.1
	40	0.53	39.4	31.5	26.2	22.5	19.7
370705	50	0.60	44.6	35.6	29.7	25.5	22.3
	60	0.65	48.3	38.6	32.3	27.6	24.1
	20	0.53	39.4	31.5	26.2	22.5	19.7
4110-30	30	0.65	48.3	38.6	32.2	27.6	24.1
	40	0.76	56.4	45.1	37.6	32.2	28.2
370716	50	0.84	62.4	49.9	41.6	35.6	31.2
	60	0.92	68.3	54.6	45.5	39.0	34.2
	20	0.73	54.2	43.4	36.1	31.0	27.1
4110-36	30	0.90	66.8	53.5	44.6	38.2	33.4
	40	1.04	77.2	61.8	51.5	44.1	38.6
370727	50	1.16	86.1	68.9	57.4	49.2	43.1
	60	1.27	94.3	75.4	62.9	53.9	47.1
	20	0.93	69.1	55.2	46.0	39.5	34.5
4110-44	30	1.14	84.6	67.7	56.4	48.4	42.3
	40	1.32	98.0	78.4	65.3	56.0	49.0
370731	50	1.47	109.1	87.3	72.8	62.4	54.6
	60	1.61	119.5	95.6	79.7	68.3	59.8

HARDI 80 DEGREE FLAT SPRAY NOZZLE

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	4 MPH	5 MPH	6 MPH	7 MPH	8 MPH
	20	0.08	5.9	4.8	4.0	3.4	3.0
2080-10	30	0.10	7.4	5.9	5.0	4.2	3.7
	40	0.12	8.9	7.1	5.9	5.1	4.5
370565	50	0.13	9.7	7.7	6.4	5.5	4.8
	60	0.14	10.4	8.3	6.9	5.9	5.2
	20	0.12	8.9	7.1	5.9	5.1	4.5
2080-12	30	0.14	10.4	8.3	6.9	5.9	5.2
	40	0.17	12.6	10.1	8.4	7.2	6.3
370576	50	0.18	13.4	10.7	8.9	7.6	6.7
	60	0.20	14.9	11.9	9.9	8.5	7.4
	20	0.15	11.1	8.9	7.4	6.4	5.6
2080-14	30	0.18	13.4	10.7	8.9	7.6	6.7
	40	0.21	15.6	12.5	10.4	8.9	7.8
370587	50	0.24	17.8	14.3	11.9	10.2	8.9
	60	0.26	19.3	15.4	12.9	11.0	9.7
	20	0.23	17.1	13.7	11.4	9.8	8.5
2080-16	30	0.28	20.8	16.6	13.9	11.9	10.4
	40	0.32	23.8	19.0	15.8	13.6	11.9
370591	50	0.36	26.7	21.4	17.8	15.3	13.4
	60	0.39	29.0	23.2	19.3	16.5	14.5
	20	0.27	20.0	16.0	13.4	11.5	10.0
2080-20	30	0.33	24.5	19.6	16.3	14.0	12.3
	40	0.38	28.2	22.6	18.8	16.1	14.1
370602	50	0.42	31.2	24.9	20.8	17.8	15.6
	60	0.46	34.2	27.3	22.8	19.5	17.1
	20	0.39	29.0	23.2	19.3	16.5	14.5
2080-24	30	0.48	35.6	28.5	23.8	20.4	17.8
	40	0.56	33.3	27.7	23.8	20.8	16.6
370613	50	0.62	46.0	36.8	30.7	26.3	23.0
	60	0.68	50.5	40.4	33.7	28.9	25.2

HARDI 80 DEGREE FLAT SPRAY NOZZLE (Contd.)

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	4 MPH	5 MPH	6 MPH	7 MPH	8 MPH
	20	0.53	39.4	31.5	26.2	22.5	19.7
2080-30	30	0.65	48.3	38.6	32.2	27.6	24.1
	40	0.75	55.7	44.6	37.1	31.8	27.8
370624	50	0.83	61.6	49.3	41.1	35.2	30.8
	60	0.91	67.6	54.1	45.0	38.6	33.8
	20	0.70	52.0	41.6	34.7	29.7	26.0
2080-36	30	0.86	63.9	51.1	42.6	36.5	31.9
	40	1.00	74.3	59.4	49.5	42.4	37.1
370635	50	1.11	82.4	65.9	54.9	47.1	41.2
	60	1.22	90.6	72.5	60.4	51.8	45.3
	20	1.24	92.1	73.7	61.4	52.6	46.0
2080-50	30	1.52	112.9	90.3	75.2	64.5	56.4
	40	1.75	129.9	104.0	86.5	74.3	65.0
370646	50	1.96	145.5	116.4	97.0	83.2	72.8
	60	2.15	159.6	127.7	106.4	91.2	79.8

HARDI FLOOD SPRAY NOZZLE

US GPA at 40" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	4 MPH	5 MPH	6 MPH	7 MPH	8 MPH	9 MPH	10 MPH
	15	0.16	5.9	4.8	3.9	3.4	3.0	2.6	2.4
4598-10	20	0.18	6.7	5.3	4.5	3.8	3.3	3.0	2.7
370742	30	0.22	8.2	6.5	5.4	4.7	4.1	3.6	3.3
	40	0.26	9.7	7.7	6.4	5.5	4.8	4.3	3.9
	15	0.23	8.5	6.8	5.7	4.9	4.3	3.8	3.4
4598-12	20	0.26	9.7	7.7	6.4	5.5	4.8	4.3	3.9
370753	30	0.32	11.9	9.5	8.0	6.8	6.0	5.3	4.8
	40	0.38	14.1	11.3	9.4	8.1	7.1	6.3	5.6
	15	0.30	11.1	8.0	7.4	6.4	5.6	5.0	4.5
4598-14	20	0.34	12.6	10.1	8.4	7.2	6.3	5.6	5.0
370764	30	0.43	16.0	12.8	10.6	9.1	8.0	7.1	6.4
	40	0.48	17.8	14.3	11.9	10.2	8.9	7.9	7.1
	15	0.44	16.3	13.1	10.9	9.3	8.2	7.3	6.5
4598-16	20	0.50	18.6	14.9	12.4	1.7	9.3	8.3	7.4
370775	30	0.63	23.4	18.7	15.6	13.4	11.7	10.4	9.4
	40	0.72	27.1	21.7	18.1	15.5	13.6	12.0	10.8
	15	0.54	20.0	16.0	13.4	11.5	10.0	8.9	8.0
4598-18	20	0.63	23.4	18.7	15.6	13.4	11.7	10.4	9.4
370786	30	0.77	28.6	22.9	19.1	16.3	14.3	12.7	11.4
	40	0.88	32.7	26.1	21.8	18.7	16.3	14.5	13.1
	15	0.69	25.6	20.5	17.1	14.6	12.8	11.4	10.2
4598-20	20	0.80	29.7	23.8	19.8	17.0	14.9	13.2	11.9
370797	30	1.00	37.1	29.7	24.8	21.2	18.6	16.5	14.9
	40	1.15	42.7	34.2	28.5	24.4	21.3	19.0	17.1
	15	1.20	45.0	36.0	30.0	25.0	22.0	20.0	18.0
	20	1.40	53.0	42.0	35.0	30.0	26.0	23.0	21.0
TK10	30	1.70	64.0	51.0	43.0	36.0	32.0	28.0	26.0
	40	2.00	74.0	59.0	50.0	42.0	37.0	33.0	30.0
	15	1.80	67.0	53.0	45.0	38.0	33.0	30.0	27.0
	20	2.10	79.0	63.0	53.0	45.0	39.0	35.0	32.0
TK15	30	2.60	96.0	77.0	64.0	55.0	48.0	43.0	39.0
	40	3.00	111.0	89.0	74.0	64.0	56.0	50.0	45.0

HARDI CONE NOZZLE 1553 FITTED WITH GREY SWIRLPLATE (370134)

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	3 MPH	5 MPH	6 MPH	7 MPH	8 MPH	10 MPH
	45	0.13	12.8	7.7	6.4	5.5	4.8	3.8
1553-08	70	0.17	16.8	10.1	8.4	7.2	6.3	5.1
370016	150	0.23	22.8	13.7	11.4	9.8	8.5	6.9
	220	0.29	36.6	22.0	18.3	15.7	13.7	11.0
	45	0.17	16.8	10.1	8.4	7.2	6.3	5.0
1553-10	70	0.22	21.8	13.1	10.9	9.3	8.2	6.6
370027	150	0.31	30.7	18.4	15.4	13.2	11.5	9.2
	220	0.37	36.6	22.0	18.3	15.7	13.7	11.0
	45	0.22	21.8	13.1	10.9	9.3	8.1	6.5
1553-12	70	0.28	27.7	16.6	13.9	11.9	10.4	8.3
370031	150	0.40	39.6	23.8	19.8	17.0	14.9	11.9
	220	0.49	48.5	29.1	24.3	20.8	18.2	14.6
	45	0.27	26.7	16.0	13.3	11.4	10.0	8.0
1553-14	70	0.35	34.7	20.8	17.4	14.9	13.0	10.4
370042	150	0.50	49.5	29.7	24.8	21.2	18.6	14.9
	220	0.62	61.4	36.8	30.7	26.3	23.0	18.4
	45	0.33	32.7	19.6	16.3	14.0	12.3	9.8
1553-16	70	0.43	42.6	25.5	21.3	18.2	16.0	12.8
370053	150	0.61	60.4	36.2	30.2	25.9	22.6	18.1
	220	0.75	74.3	44.6	37.2	31.8	27.8	22.3
	45	0.38	37.6	22.6	18.8	16.1	14.1	11.3
1553-18	70	0.49	48.5	29.1	24.3	20.8	18.2	14.6
370064	150	0.69	68.3	41.0	34.2	29.3	25.6	20.5
	220	0.84	83.2	49.9	41.6	35.6	31.1	25.0
	45	0.43	42.6	25.6	21.3	18.3	16.0	12.8
1553-20	70	0.56	55.4	33.3	27.7	23.8	20.8	16.7
370075	150	0.79	78.2	47.0	39.1	33.5	29.3	23.5
	220	0.97	96.0	57.6	48.0	41.2	36.0	28.8

HARDI CONE NOZZLE 1553 FITTED WITH GREY SWIRLPLATE (370134) (Contd.

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	3 MPH	5 MPH	6 MPH	7 MPH	8 MPH	10 MPH
	45	0.46	45.6	27.4	22.8	19.5	17.1	13.7
1553-22	70	0.60	59.4	35.6	29.7	25.5	22.3	17.8
370086	150	0.84	83.2	49.9	41.6	35.6	31.2	25.0
	220	1.03	102.0	61.2	51.0	43.7	38.2	30.6
	45	0.52	51.5	30.9	25.7	22.0	19.3	15.4
1553-24	70	0.67	66.3	39.8	33.2	28.4	24.9	19.9
370097	150	0.94	93.1	55.8	46.6	39.9	34.9	27.9
	220	1.16	114.5	68.9	57.3	49.2	43.0	34.5
	45	0.61	60.4	36.2	30.1	25.8	22.6	18.1
1553-30	70	0.78	77.2	46.3	38.6	33.1	29.0	23.2
370101	150	1.11	109.9	65.9	55.0	47.1	41.2	33.0
	220	1.36	134.6	80.8	67.3	57.7	50.5	40.4
	45	0.69	68.3	41.0	34.2	29.3	25.6	20.5
1553-35	70	0.90	89.1	53.5	44.6	38.2	33.4	26.8
370112	150	1.27	125.7	75.4	62.9	53.9	47.1	37.7
	220	1.55	153.5	92.1	76.8	65.8	57.5	46.1
	45	0.76	75.2	45.1	37.6	32.2	28.2	22.6
1553-40	70	0.98	97.0	58.2	48.5	41.6	36.4	29.1
370123	150	1.39	137.6	82.6	68.8	59.0	51.6	41.3
	220	1.70	168.2	101.0	84.2	72.1	63.1	50.5

HARDI CONE NOZZLE 1553 FITTED WITH BLUE SWIRLPLATE (370156)

US GPA at 20" Nozzle Spacing - Based on Water

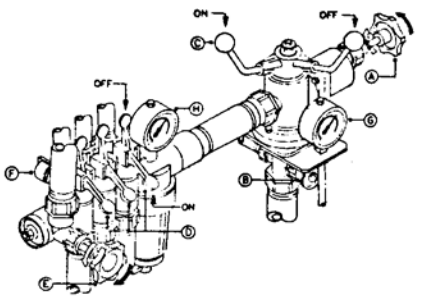
NOZZLE	PSI	GPM	3 MPH	5 MPH	6 MPH	7 MPH	8 MPH	10 MPH
	45	0.06	5.9	3.5	2.9	2.5	2.2	1.8
1553-08	70	0.08	7.9	4.8	4.0	3.4	3.0	2.4
370016	150	0.12	11.9	7.1	5.9	5.1	4.5	3.6
	220	0.14	13.9	8.3	6.9	5.9	5.2	4.2
	45	0.08	7.9	4.7	3.9	3.3	2.9	2.3
1553-10	70	0.10	9.9	5.8	4.9	4.2	3.7	3.0
370027	150	0.15	14.9	8.9	7.4	6.4	5.6	4.5
	220	0.18	17.8	10.7	8.9	7.6	6.7	5.4
	45	0.10	9.9	6.0	5.0	4.3	3.8	3.0
1553-12	70	0.13	12.9	7.7	6.4	5.5	4.8	3.9
370031	150	0.18	17.8	10.7	8.9	7.6	6.7	5.4
	220	0.22	21.9	13.1	10.9	9.3	8.2	6.5
	45	0.12	11.9	7.1	5.9	5.1	4.5	3.6
1553-14	70	0.15	14,9	8.9	7.4	6.4	5.6	4.5
370042	150	0.21	20.8	12.5	10.4	8.9	7.8	6.2
	220	0.26	26.7	15.4	12.9	11.0	9.7	7.7
	45	0.14	13.9	8.3	6.9	5.9	5.2	4.2
1553-16	70	0.18	17.8	10.7	8.9	7.6	6.7	5.4
370053	150	0.26	26.7	15.4	12.9	11.0	9.7	7.7
	220	0.32	31.7	19.0	15.8	13.6	11.9	9.5
	45	0.16	15.9	9.5	7.9	6.8	6.0	4.8
1553-18	70	0.20	19.8	11.9	9.9	8.5	7.4	5.9
370064	150	0.29	28.7	17.2	14.3	12.3	10.8	8.6
	220	0.35	34.7	20.8	17.3	14.9	13.0	10.4
	45	0.18	17.8	10.7	8.9	7.6	6.7	5.4
1553-20	70	0.22	21.9	13.0	10.9	9.3	8.2	6.5
370075	150	0.32	31.7	19.0	15.8	13.6	11.9	9.5
	220	0.39	38.6	23.1	19.3	16.5	14.5	11.6

HARDI CONE NOZZLE 1553 FITTED WITH BLUE SWIRLPLATE (370156) (Contd)

US GPA at 20" Nozzle Spacing - Based on Water

NOZZLE	PSI	GPM	3 MPH	5 MPH	6 MPH	7 MPH	8 MPH	10 MPH
	45	0.19	18.8	11.3	9.4	8.1	7.1	5.7
1553-22	70	0.24	23.8	14.2	11.9	10.2	8.9	7.1
370086	150	0.33	32.7	19.6	16.3	14.0	12.2	9.8
	220	0.41	40.6	24.4	20.3	17.4	15.2	12.2
	45	0.20	19.8	11.9	9.9	8.5	7.4	5.9
1553-24	70	0.25	24.8	14.9	12.4	10.6	9.3	7.4
370097	150	0.36	35.6	21.4	17.8	15.3	13.4	10.7
	220	0.44	43.6	26.1	21.8	18.7	16.3	13.1
	45	0.24	23.8	14.3	11.9	10.2	8.9	7.1
1553-30	70	0.30	29.7	17.8	14.8	12.7	11.1	8.9
370101	150	0.42	41.6	24.9	20.8	17.8	15.6	12.5
	220	0.52	51.5	30.9	25.7	22.1	19.3	15.4
	45	0.26	25.8	15.5	12.9	11.0	9.6	7.7
1553-35	70	0.33	32.7	19.6	16.3	14.0	12.2	9.8
370112	150	0.47	46.5	27.9	23.3	19.9	17.5	14.0
	220	0.58	57.4	34.5	28.7	24.6	21.5	17.2
	45	0.28	27.7	16.6	13.8	11.8	10.3	8.2
1553-40	70	0.35	34.7	20.8	17.3	14.9	13.0	10.4
370123	150	0.50	49.5	29.7	24.8	21.2	18.6	14.9
	220	0.61	60.4	36.2	30.2	25.9	22.7	18.1

2. OPERATION AND ADJUSTMENT -
Manually Operated Boom Control Adjustment



a) Pressure Relief Valve
b) Agitator Flow Control
c) Main ON/OFF Control
d) Individual Boom Section Valves
e) Hardi-Matic Controls
f) Constant Pressure Flow Control
g) Boom Pressure Gauge
h) Manual Control Pressure Gauge

IMPORTANT - Use clean water only when adjusting control. All references to right and left are with the operator FACING the control.

1. Start engine and bring PTO up to 540 or 1000 RPM depending on pump model. (Sprayers equipped with diaphragm pumps can, in most cases, be run at 400 - 500 PTO RPM.)

2. Turn red knob (a) clockwise until fully closed.

3. Turn small red knob (b) to half open position. (Sprayers equipped with self cleaning filters do not have knob (b). The agitation control lever is located at the bottom of the self cleaning filter and should always be fully open).

4. Push lever (c) to left (ON) in line with control.

5. Place levers (d) in horizontal (ON) position.

6. Adjust red knob (e) to desired pressure reading on gauge (g), then take note of the pressure reading on gauge (h). All further adjustments to the control will be made to the pressure shown at this time on gauge (h). (Some variation in pressure between gauges (g) and (h) is normal. When spraying in the field, gauge (g) should be used. Gauge (h) is provided for more convenient set-up of the sprayer controls).

2. OPERATION AND ADJUSTMENT - Manually Operated Boom Control Adjustment

7. Place left hand lever (d) in vertical (OFF) position.

8. Adjust red knob (f) in or out to return pressure to original setting on gauge (h) as noted in step 6.

9. Repeat for other levers (d) using red knob (f) on the backs of those particular levers.

10. Return levers (d) one at a time to the horizontal (ON) position, checking that the pressure setting on gauge (h) remains unchanged. If a change occurs, return to step 5 and begin again.

    Red knobs (e) will not require re-adjustment if overall spraying pressure is changed. They will require re-adjustment if nozzle size is changed.

When spraying in the field, you will observe a pressure variation if your ground speed changes. This is normal and an indication that the Hardi-Matic flow proportioner is varying the liquid flow to the boom so that your application will remain virtually unchanged.

The Hardi-Matic system will compensate for speed changed due to changes in engine RPM only. It will NOT adjust for speed changes due to gear change. If two or more gears are being used, the sprayer must be calibrated in each of these gears.

2. OPERATION AND ADJUSTMENT - EC Electric Boom Control Adjustment

The electric control box is a 12 volt system protected with a 6 amp fuse inside the box itself. Brown wire is + (positive); blue wire is - (negative).

The switches below the boom control the individual sections of the boom. The switch above the diagram of the boom shuts the entire boom on or off.

The switch above the gauge lowers the pressure. The switch below the gauge raises the pressure.

There is a remote pressure gauge which picks up boom pressure.

This gauge can be mounted anywhere in the cab in a suitable location.

PROCEDURE
To adjust the constant pressure (water only).

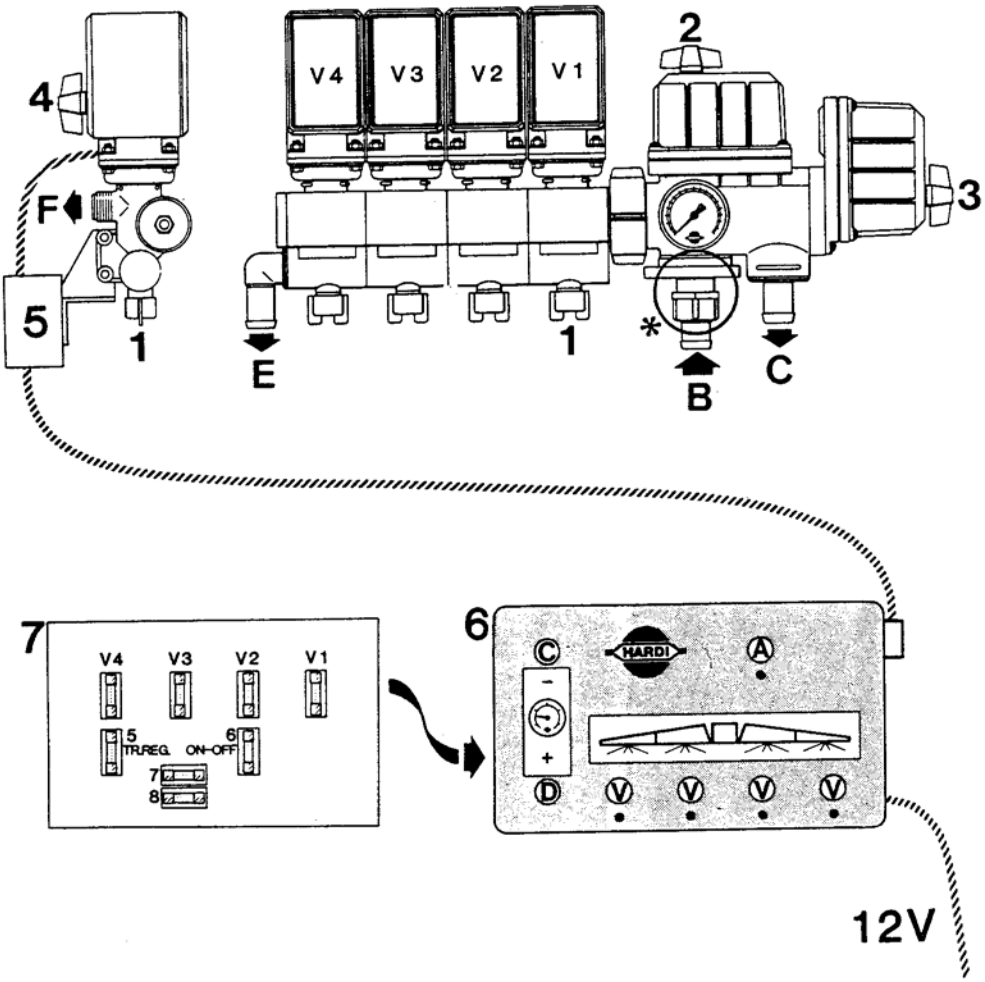
1. Start tractor and engage PTO to operating speed.
2. Bring sprayer to operating pressure.
3. Shut off right hand section of the boom. Adjust red knob (1) either in or out to bring pressure back to operating pressure. Leave boom section turned off.
4. Repeat this procedure with the other sections of the boom.

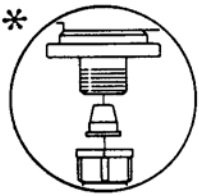
A self cleaning filter is standard equipment with the EC electric control system. The self cleaning filter has a spring controlled pressure safety valve. This valve protects the entire system from damage due to pressures of over 175 psi.

1) Constant pressure adjustment
2) Main On/Off for boom
3) Pressure regulator
4) Individual boom control motor
5) Junction box
6) Control box
7) Inside fuse panel

a) Boom On/Off switch
b) 1" pressure hose from self cleaning filter
c) 1" return to tank
d) Pressure switch
e) Constant pressure return to tank
f) To boom sections

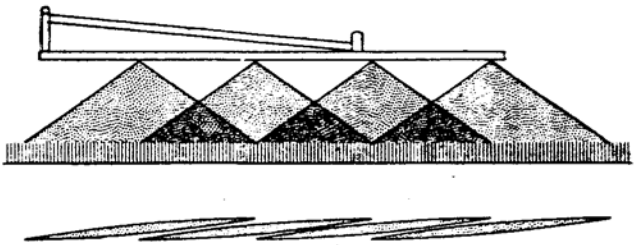
EC CONTROL



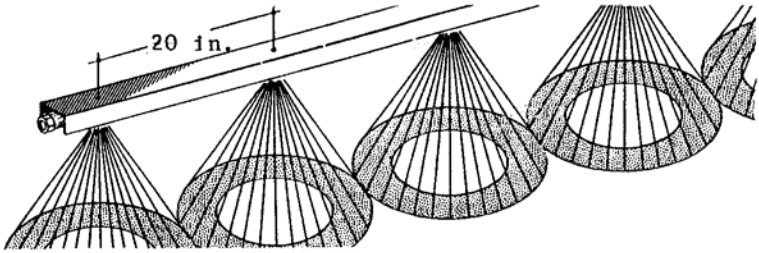


PUMPE PUMP		B mm	FARVE	COLOUR	
600	333314	5,2	BLÅ	BLUE	
1200	333325	7,3	RØD	RED	
1301	333336	8,7	HVID	WHITE	
361 HT	333347	9,8	ORANGE	ORANGE	
361	333351	10,9	SORT	BLACK	
320 HT	333362	6	GRØN	GREEN	
460					145305

Correct boom height is important to ensure even spray distribution. While flat spray nozzles may be used at a boom height above target of 20" (110 degrees) and 18" (80 degrees), the best distribution occurs when the boom height is adjusted to the overlap shown below using 110 degree nozzles.



Cone spray nozzle patterns should not overlap. The spray patterns should just meet at the target surface. Height will be about 22" - see illustration.



ADDING CHEMICAL TO THE TANK

1. Fill the tank approximately 2/3 full of water.
2. Start tractor, engage pump and activate agitation.
3. Add the correct measure of chemical.
4. Top off tank with water while still continuing agitation.
5. If two or more chemicals are to be mixed in the sprayer tank, consult with your chemical supplier to ensure that chemicals are compatible and in what order they should be added to the sprayer tank.

Powders should be pre-mixed with water before adding to the sprayer tank.

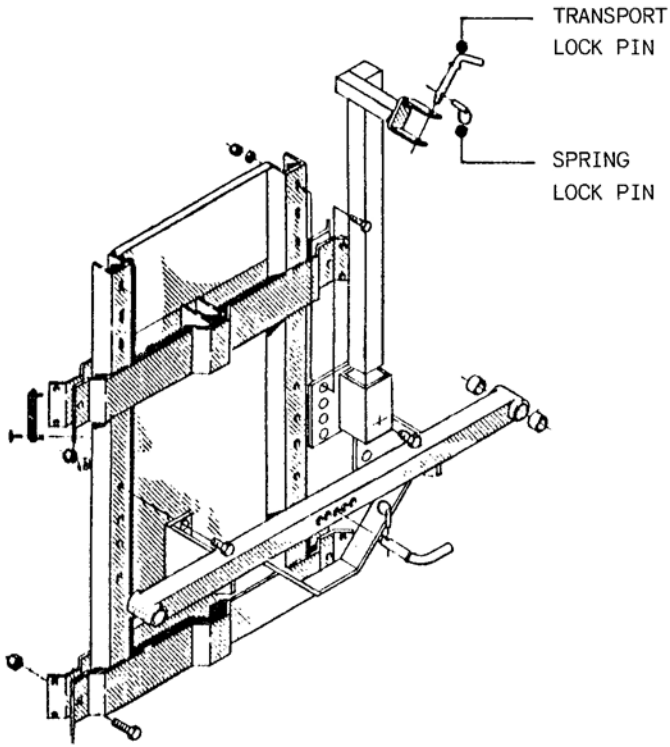
WEAR PROTECTIVE CLOTHING WHEN HANDLING AGRICULTURAL CHEMICALS.

Remove transport lock pins and swing boom around into operating position. Lift outer boom section up and over to horizontal position. CAREFULLY CHECK THAT FEED HOSES DO NOT INTERFERE WITH SPRAY PATTERN.

Re-install transport lock pins in original location so that they don't get lost.

Make absolutely sure boom transport securing pin is installed COMPLETE with spring lock pin BEFORE transporting the sprayer between operations.

Before spraying, carefully check that spray boom is set at correct height over target.



2. OPERATION AND ADJUSTMENT - Hydraulic Folding Boom Operation (62' and 82' Models Only)

This is a 12 volt system. Brown wire + (positive); blue wire - (negative). There is no fuse in the system.

Each individual control is activated by an electromagnet opening a port. This allows flow of oil and energizing of cylinders. The system requires two steps to operation.

Turn on the function you require and operate the remote lever. More than one function at a time can be used. However, care should be taken to become completely familiar with the boom. The diagrams on the control box indicate what boom function is occurring.

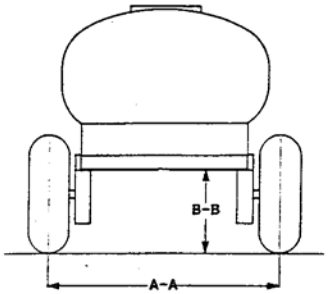
There are seven hydraulic cylinders, all manufactured by Hardi, and serviceable with seal kits available.

On the wing lift cylinder, there is a by-pass hose. This hose and its fittings are to protect the boom when folding into transport. They prevent too much down pressure which can result in damage to the mast.

2. OPERATION AND ADJUSTMENT - Axle Adjustments

WHEEL TRACK AND CLEARANCE ADJUSTMENTS

Track width is measured from center to center on the tires (A-A). Clearance is measured from ground level to the bottom of the frame (B-B).

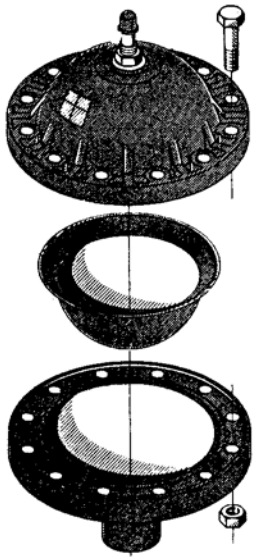


	TR300SA	TR500SA	TR500TA	TR800TA	TR1000TA
A-A	55"-85"	60"-82"	60"-85"	60"-96"	60"-100"
B-B	25"-30"	27"-32"	26"-32"	27"-33"	28"-34"

2. OPERATION AND ADJUSTMENT - Pulsation Damper Adjustment

The pulsation damper located on top of 600, 1200 and 1301 diaphragm pumps should be pressurized with air from a hand operated tire pump according to the following chart.

OPERATING SPRAYER PRESSURE (PSI)	REQUIRED PULSATION DAMPER PRESSURE (PSI)
20-40	0-14
40-210	14-42
210-350	42-56



FILTERS

All filters and screens should be cleaned daily or more often if pressure variation is observed. Filters to be cleaned include:

1. Suction filter (under step or at top front of tank)
2. Control filter (below gauge)
3. Nozzle filter (inside nozzle cap)
4. Self cleaning filter (if fitted)

Filters should be cleaned by rinsing in clean water. A soft brush can be used if necessary. Never use a sharp object to clean the filters.

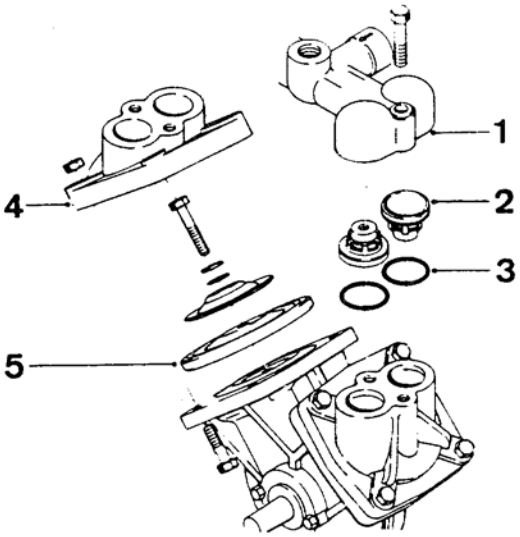
Self cleaning filters should be flushed daily by removing the filter cap located at the bottom of the filter housing and allowing the pump to flush clean water through the filter.

PUMP

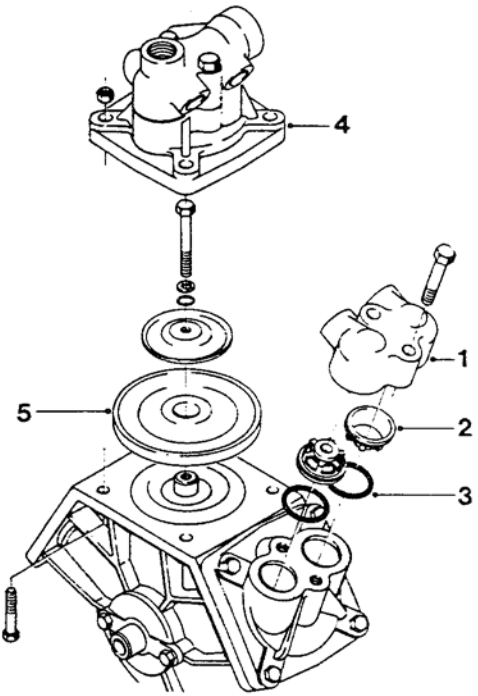
1. Remove valve chamber (1).
2. Note position of valves (2) for correct re-assembly.
3. Remove diaphragm cover (4).
4. Remove diaphragm (5).
5. If liquid has entered crankcase, wash out thoroughly with solvent and repack bearings with a good quality lithium grease.
6. Re-assemble in reverse order. Always replace O-rings (3).
7. On 1301 pump, take special note of the positioning of the connecting rods. If removing them, they MUST be re-assembled in the same way. If not, improper pump operation will occur.
8. Diaphragm bolt torque is 150 ft. lbs.

Pump overhaul kits are available from your HARDI dealer.

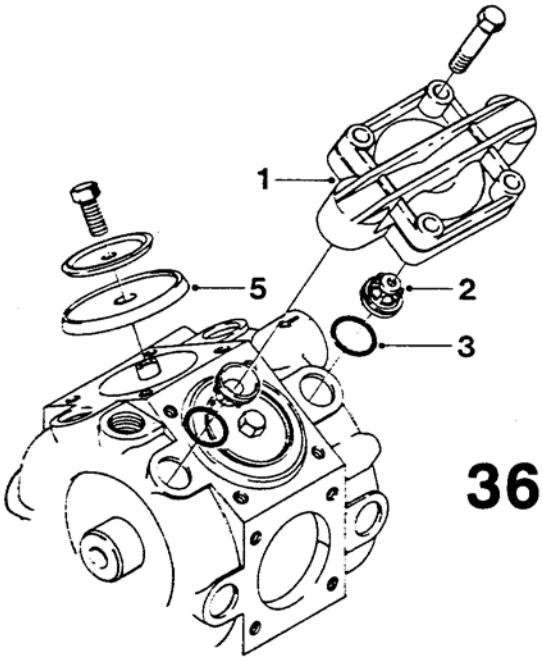
600 pump - 750153
1200 pump - 750164
1301 pump - 750175



1200



1301



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TANK

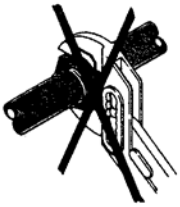
The sprayer tank should be emptied and flushed at the end of EVERY day of spraying.

When changing from one chemical to another, it is important to thoroughly clean the sprayer tank and hoses. After rinsing the sprayer with clean water, fill the tank 1/4 to 1/3 full with a 1% solution of household ammonia and water. Re-circulate the ammonia solution throughout the sprayer and spray some through the boom. Let stand overnight if possible. Drain the sprayer and rinse thoroughly with clean water again, spraying some through the boom.

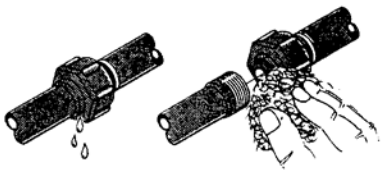
It is difficult to completely remove all chemical traces, especially from the inside of hoses. Sometimes a chemical may pick up traces of a previous material when first sprayed through the boom lines. Consult your chemical supplier for any special washing instructions.

Be sure that all spray residue is drained where it cannot create a health hazard.

HOSES



NEVER USE A WRENCH TO TIGHTEN LEAKING HOSE CONNECTIONS OF THE TYPE SHOWN HERE.



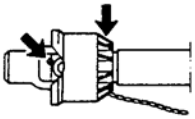
Instead, disconnect coupling and wash off.

Lightly oil coupling and O-ring.

Reconnect and tighten by hand.

LUBRICATION CHART

After every 12 hours of operation, grease the following with a good quality lithium grease:



PTO SHAFT YOKE BEARINGS AND SHIELD
Be careful not to overgrease and ruin bearing seals.

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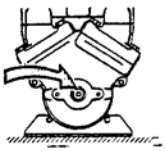
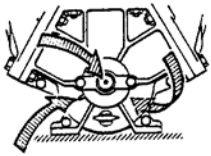
600 & 1200

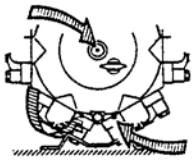


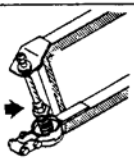
1301



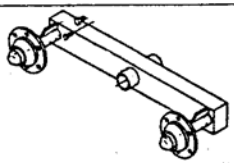
PUMPS
Grease once every 100 hours. Again, be careful not to overgrease. Note that on 361 and 460 pumps, one of the grease fittings is on the end of pump PTO stub shaft and can only be reached by removing the PTO shaft from the pump stub shaft.

361-361HT-460

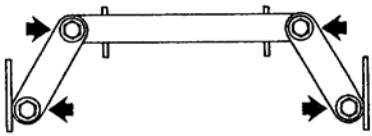




BOOM BREAKAWAY CASTING
Grease daily.

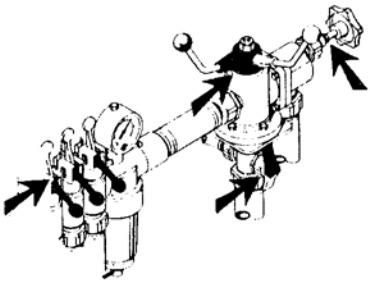


TANDEM AXLE PIVOT BUSHING
Grease daily.



MB TRAPEZE
Grease daily.

ONCE ANNUALLY - Repack wheel bearings



ONCE WEEKLY, oil all levers and knobs on control assembly and ....

1. Thoroughly clean sprayer system.

2. Wash off outside of sprayer.

3. Lubricate sprayer.

4. Carefully inspect sprayer for any damaged components or worn hoses.

5. Apply touch-up paint where necessary.

6. Drain as much water as possible from sprayer. Pour in a mixture of ethylene glycol base anti-freeze and water at the ratio for the desired temperature protection. (Volume of anti-freeze should be about 1% of tank volume.) Run the sprayer and circulate the anti-freeze. Briefly turn on the boom until anti-freeze begins to spray through the nozzles. Shut off sprayer leaving anti-freeze in the pump, controls and boom lines.

Never use oil, diesel fuel or alcohol based anti-freeze in a sprayer.

7. Remove nozzles and screens. Clean and store in a safe, dry location.

8. Turn pressure regulator valve counter-clockwise until all spring tension is released. Turn boom section valves OFF.

9. Store sprayer in safe, dry location, away from children and animals. Protect from direct sunlight.

10. Remove pressure gauges and store upright in a warm dry location.

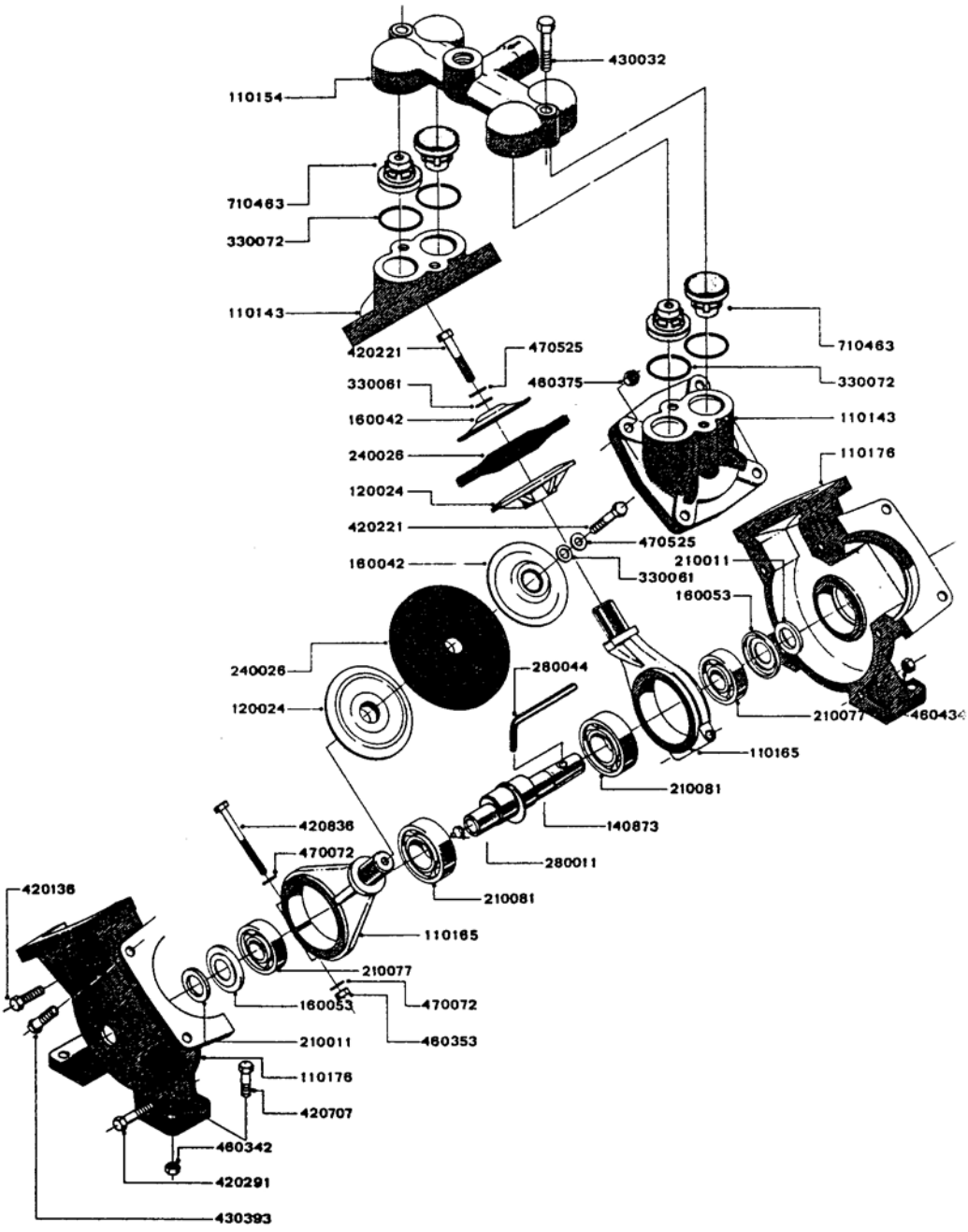
5. TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REPAIR
No spray when spray is turned on	- Air leaks	- Check top draw suction hose for loose clamps, etc.
	- Air in system	- Remove hose between pump & control - fill with water to prime.
	- Suction or nozzle filter plugged	- Clean filters.
	- Tank outlet plugged	- Clear outlet
	- Faulty pump system	- See pump repair, page 23.
Pressure dropping	- Filter beginning to plug	- Clean filters.
	- Nozzles wearing out	- Replace nozzles.
	- Dirty water supply	- Use clean water. - Ensure there is a screen on suction hose of filling pump.
	- Tank is airtight	- Clean tank vent.
	- Faulty pump	- See pump repair, page 23.

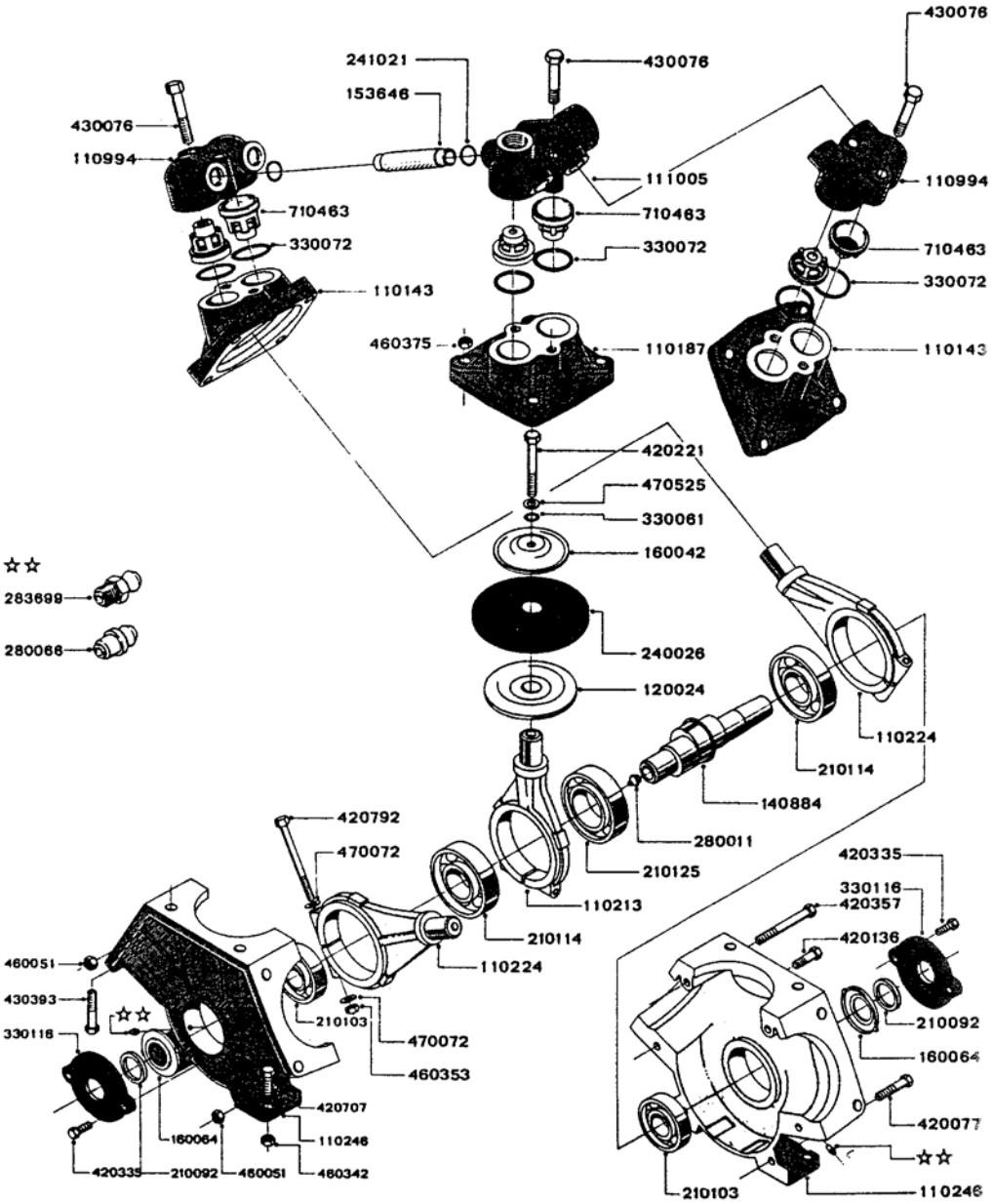
PROBLEM	PROBABLE CAUSE	REPAIR
Less output from some nozzles	- Nozzle filters starting to plug	- Clean filters.
	- Mismatched nozzles	- Check nozzle numbers.
	- Nozzles worn	- Check output from each nozzle. Replace if worn.
Less spray from one boom than others	- Manual control lever not fully open	- Open lever fully.
	- Hose kinked or pinched	- Straighten hose.
Nozzles at end of boom have low output	- Inadequate pump size	- Fit larger pump.
	- Nozzle size too large	- Fit smaller nozzles.
Poor agitation	- Agitator valve off	- Ensure valve fully on.
	- Inadequate pump size	- Fit larger pump.
	- Nozzle size too large	- Fit smaller nozzles.
	- Agitator nozzles plugged	- Clear nozzles.
Pressure gradually increasing	- Nozzle filters plugging	- Clean filters

PROBLEM	PROBABLE CAUSE	REPAIR
Spray angle too narrow	- Pressure too low	- Increase pressure and recalibrate.
	- Boom too low	- See boom height, page 19.
	- Nozzle partially plugged	- Clear nozzles
Too much wind drift	- Pressure too high	- Decrease pressure and recalibrate.
	- Boom too high	- See boom height, page 19
Excessive vibration in hoses	- Pulsation damper not pressurized	- See pulsation damper, page 21
	- Valve installed incorrectly	- See pump repair, page 23
	- Valve leaking	- See pump repair, page 23
Liquid leaks from bottom of pump	- Damaged diaphragm	- STOP immediately and replace diaphragm. See pump repair, page 23
Hydraulic boom wings dropping	- Check valve leaking	- Replace check valve.
	- Leaky cylinder	- Change cylinder O-rings.
	- Electro magnet defective	- See hydraulic booms.

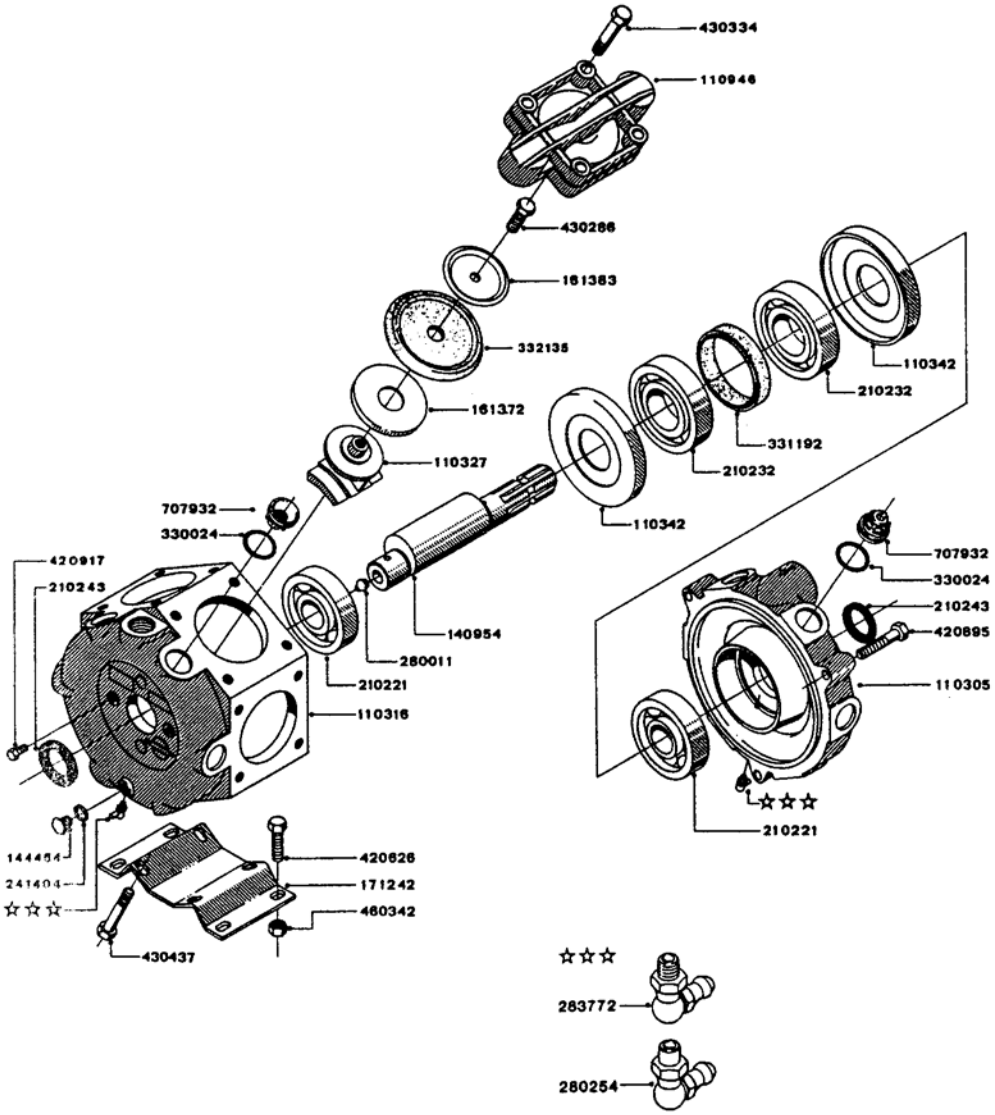
1200 PUMP ASSEMBLY



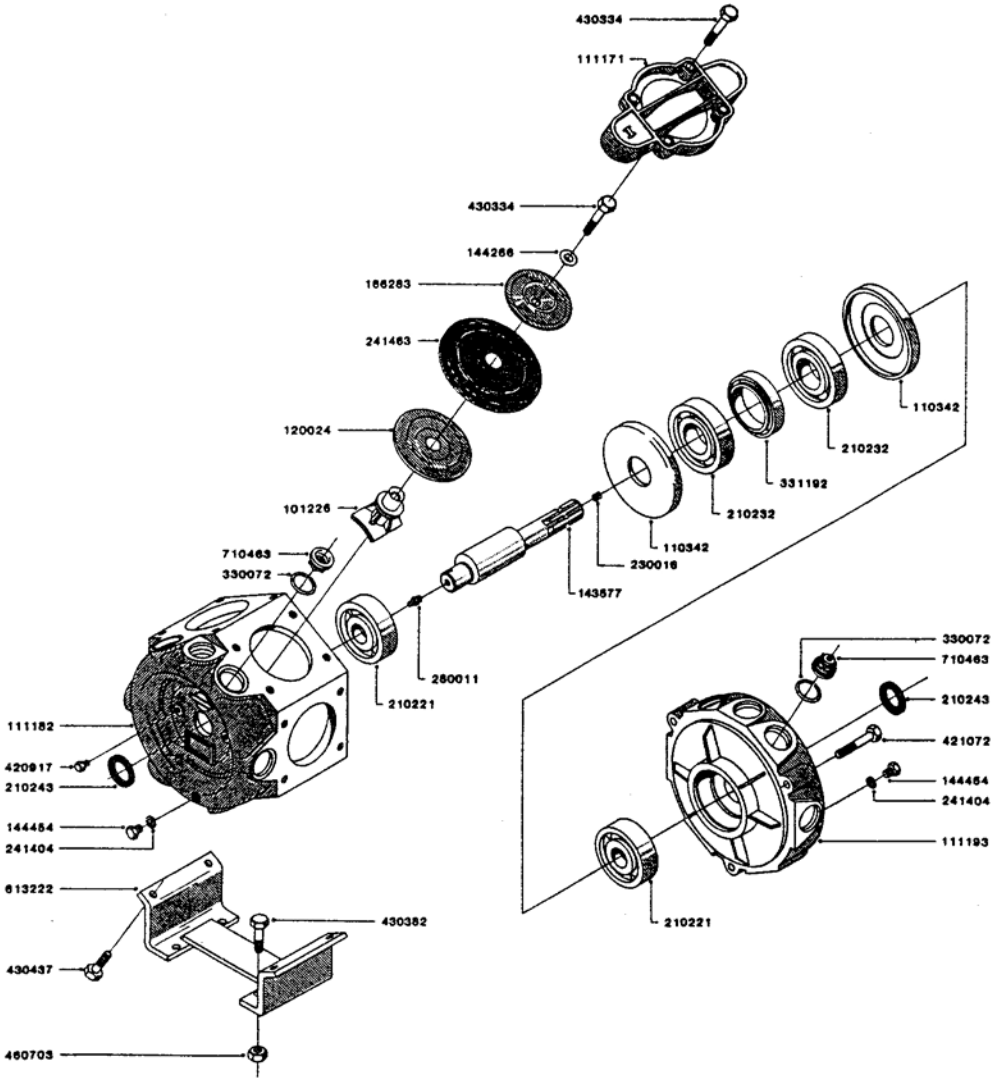
1301 PUMP ASSEMBLY



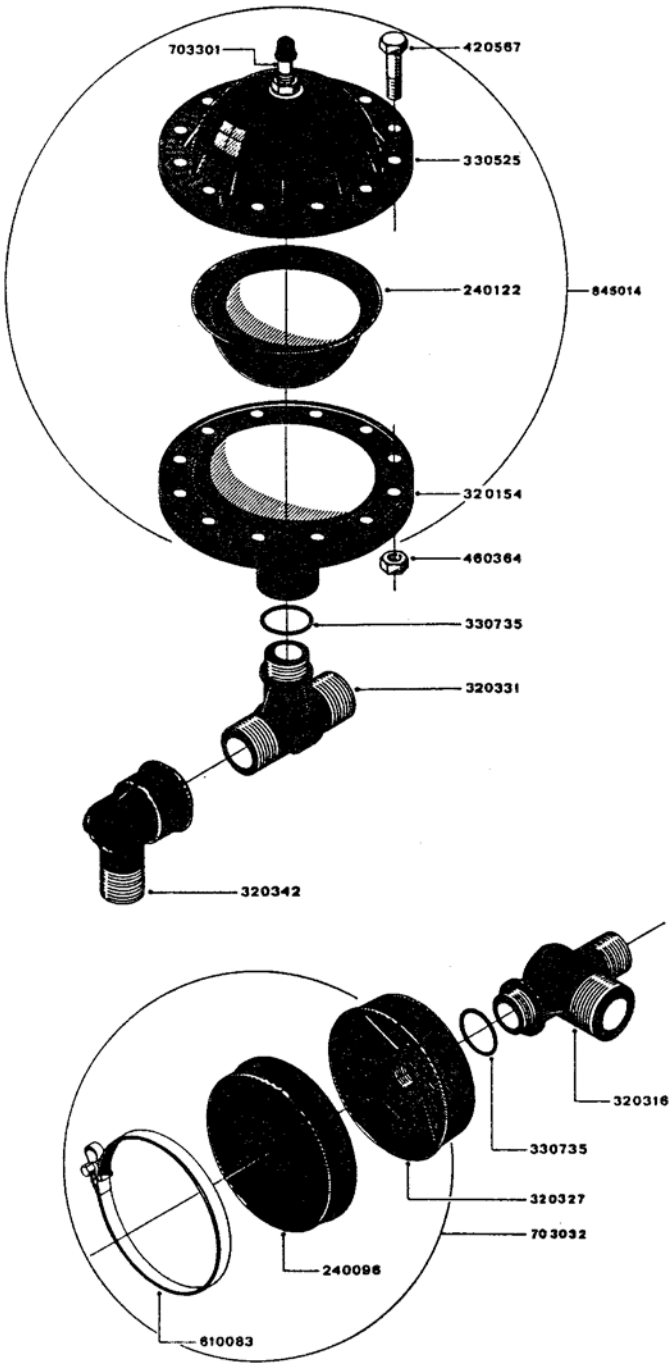
361 PUMP ASSEMBLY



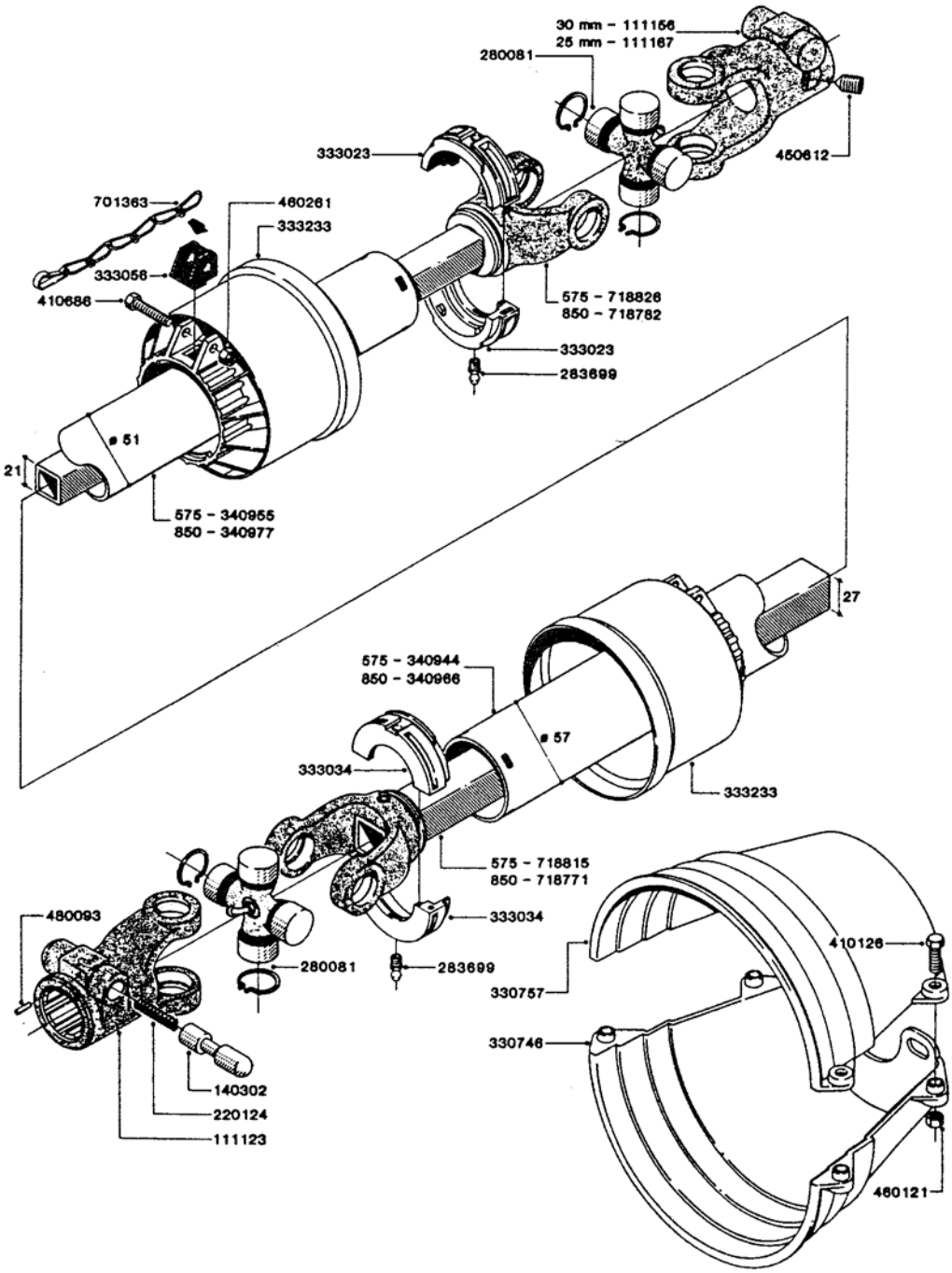
460 PUMP ASSEMBLY



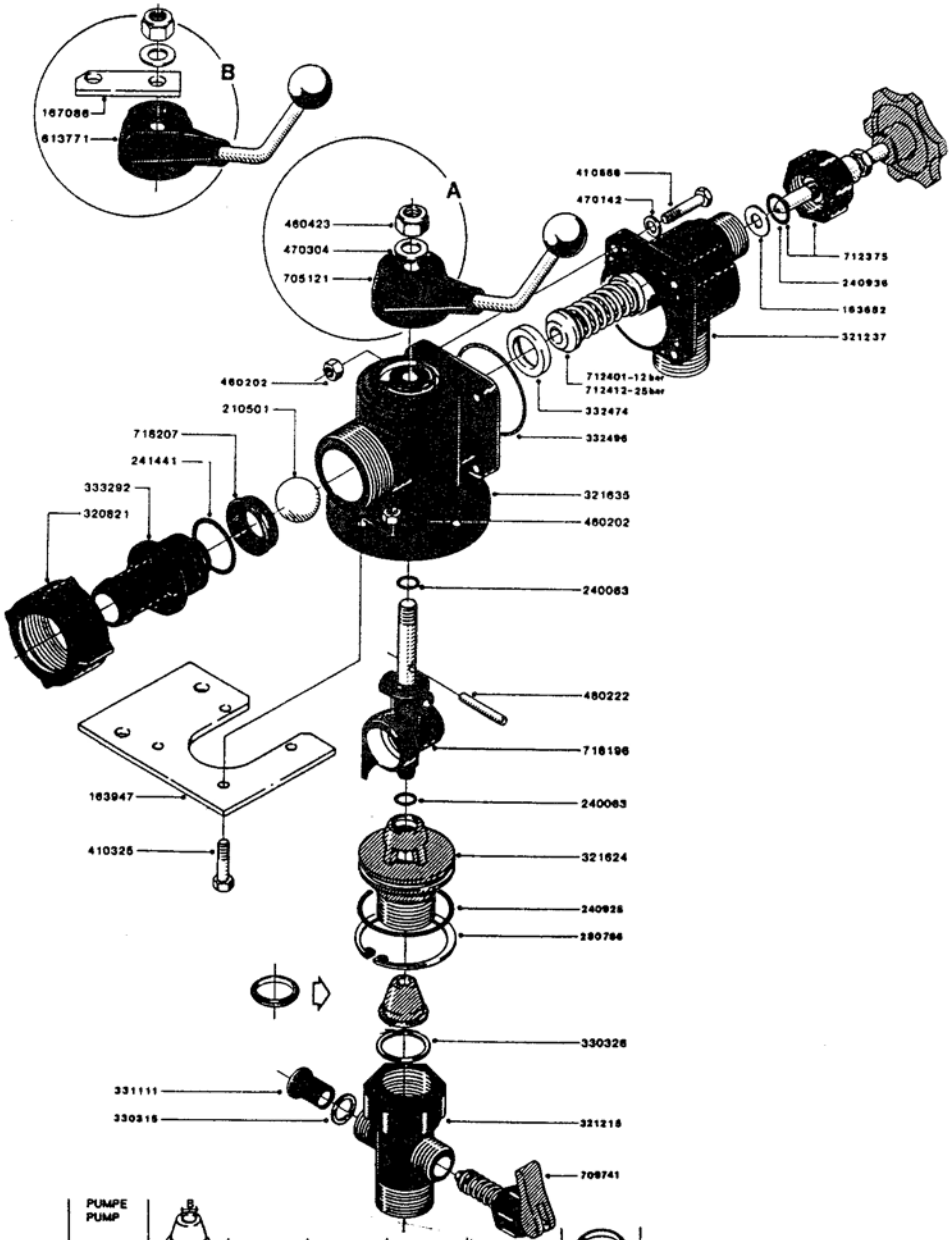
PULSATION DAMPER ASSEMBLY
(PRESSURE AND SUCTION)



PTO SHAFT ASSEMBLY

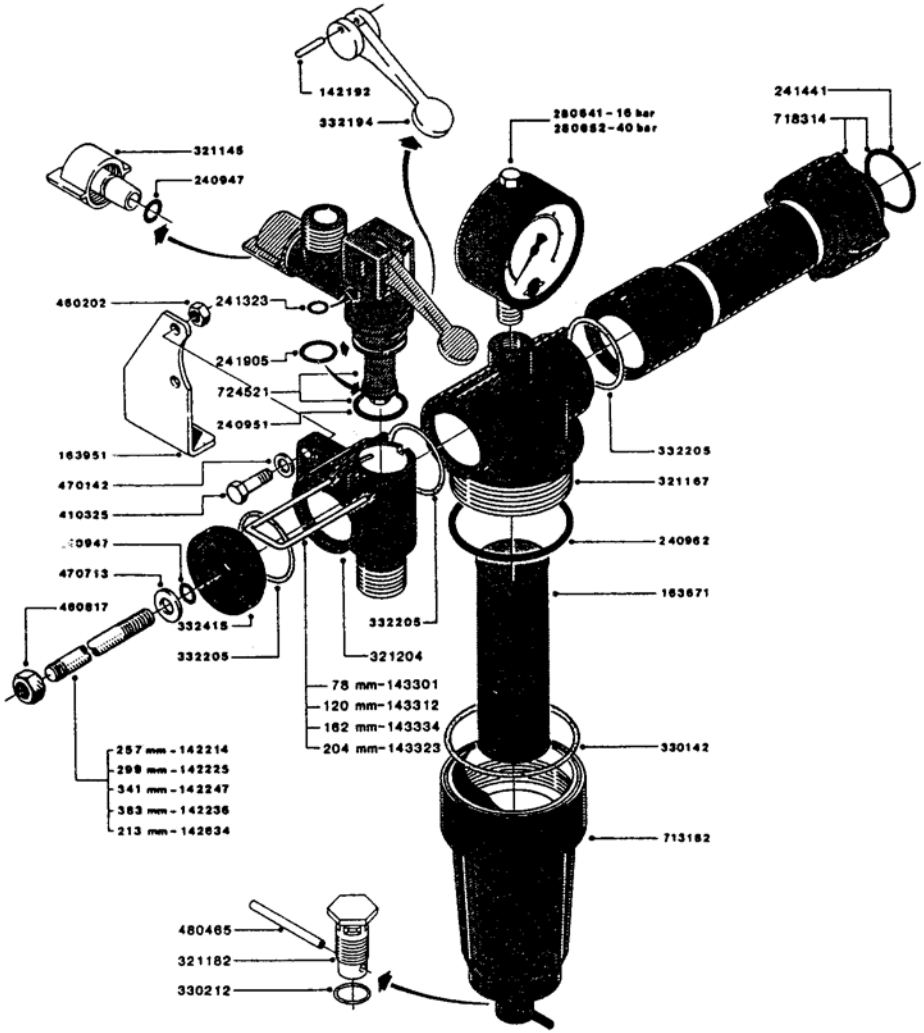


BK 180 CONTROL ASSEMBLY

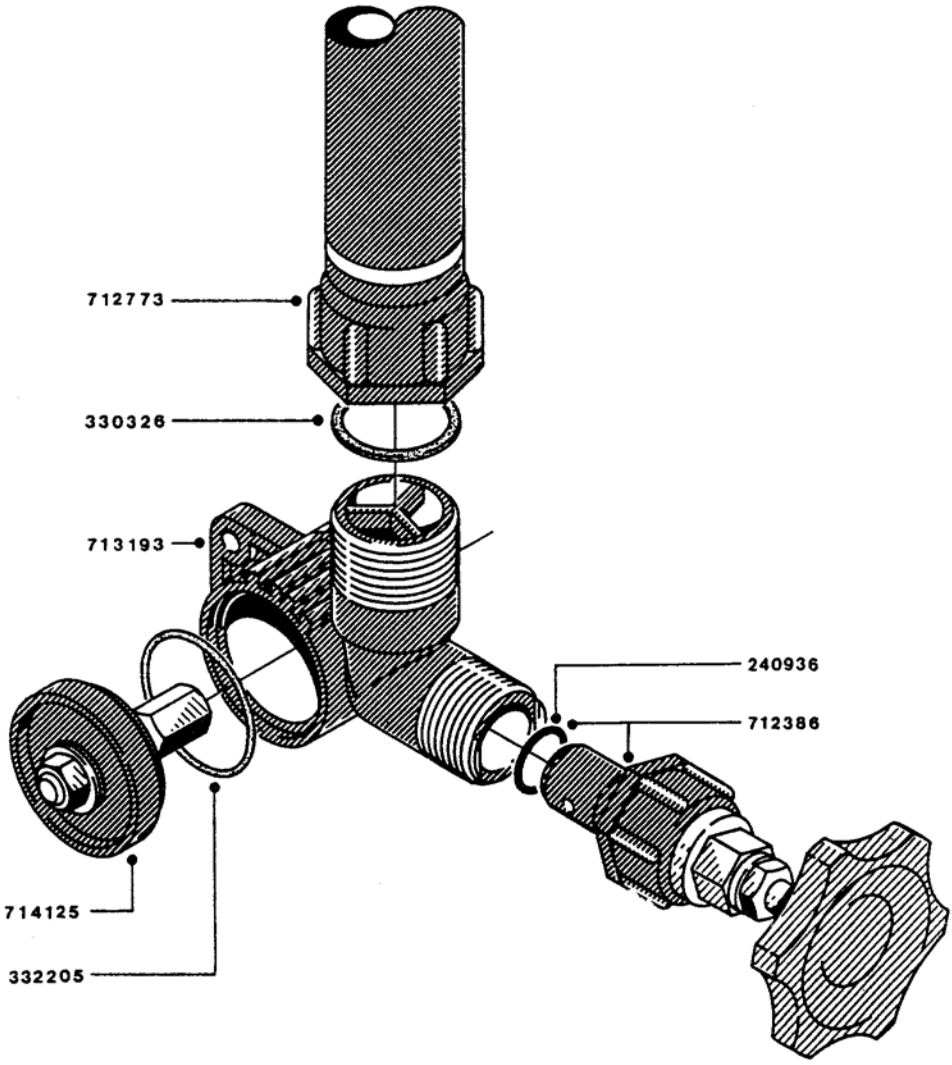


PUMPE PUMP	B	B mm	FARVE	COLOUR		
600	333314	5.2	BLÅ	BLUE		
1200	333325	7.3	RØD	RED		
1301	333336	8.7	HVID	WHITE		
361 HT	333347	9.8	ORANGE	ORANGE		
361	333351	10.5	SORT	BLACK		
320 HT	333362	8	GRØN	GREEN		
460						145305

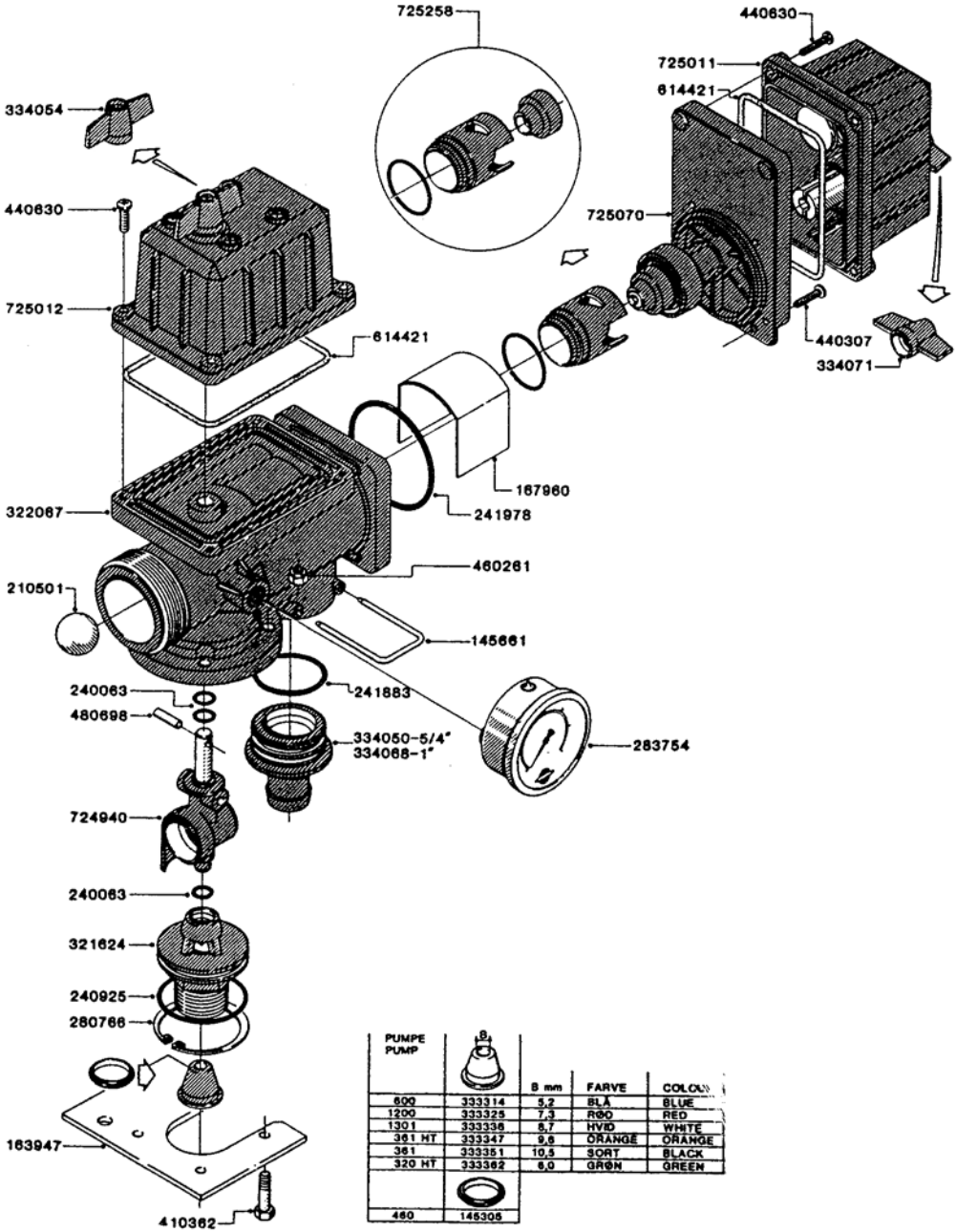
DISTRIBUTION VALVE & PRESSURE FILTER ASSEMBLY
with CONSTANT PRESSURE DEVICE



HARDIMATIC CONTROL ASSEMBLY (FOR BK180)

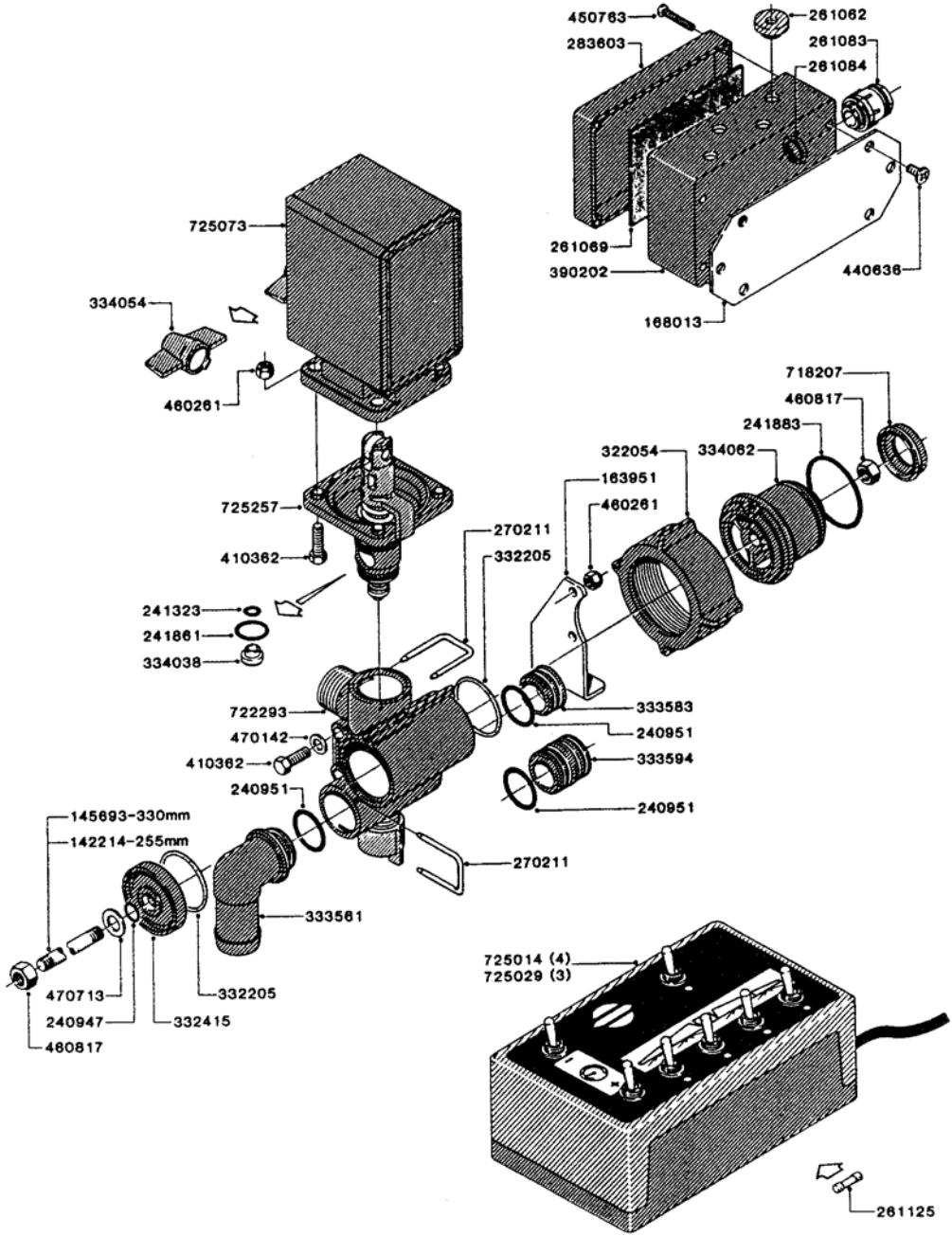


EC OPERATING UNIT ASSEMBLY

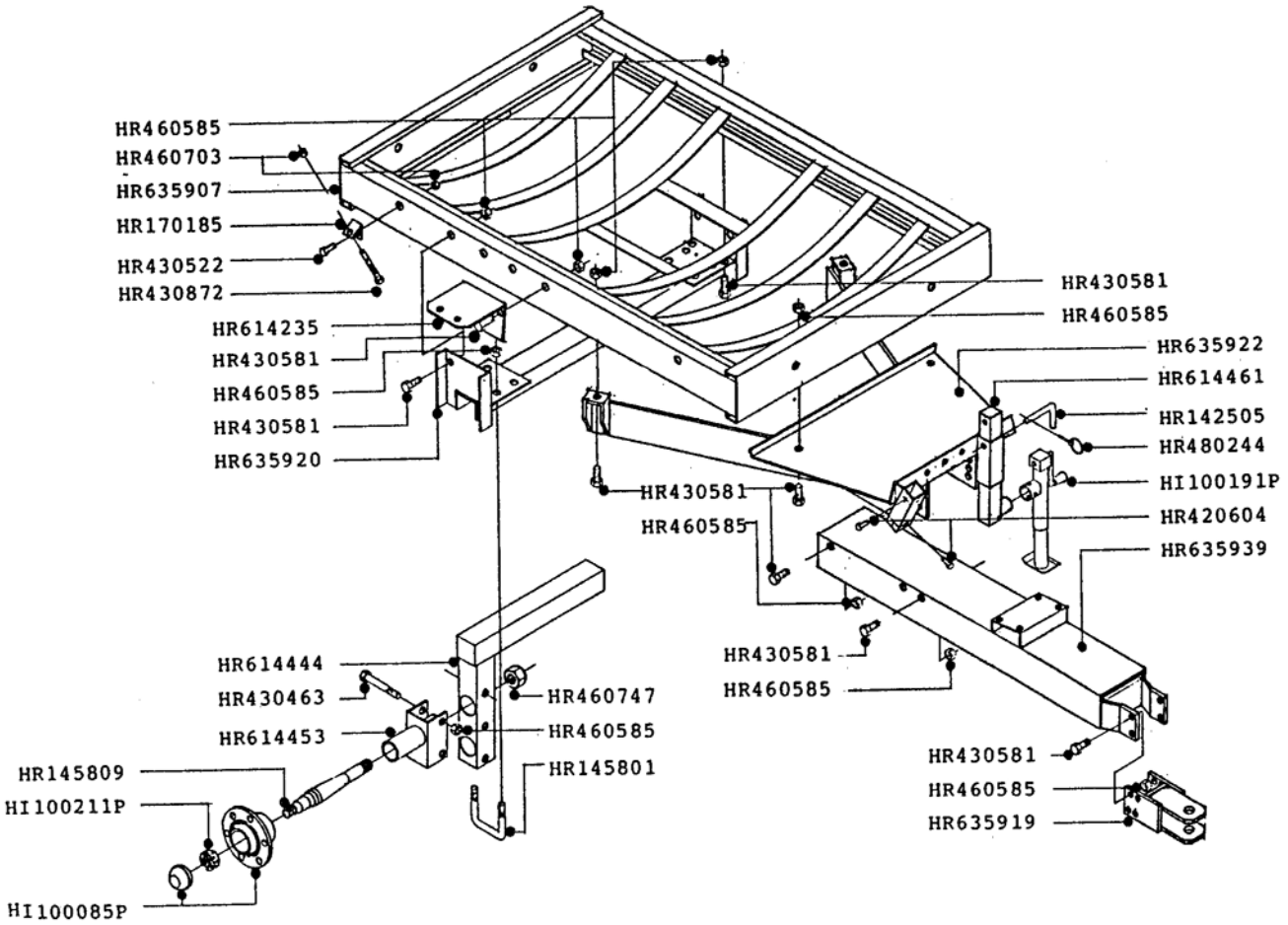


PUMPE PUMP		B mm	FARVE	COLOUR
600	333314	5,2	BLÅ	BLUE
1200	333325	7,3	RØD	RED
1301	333336	8,7	HVID	WHITE
361 HT	333347	9,6	ORANGE	ORANGE
361	333351	10,5	SORT	BLACK
320 HT	333362	6,0	GRØN	GREEN
460	145305			

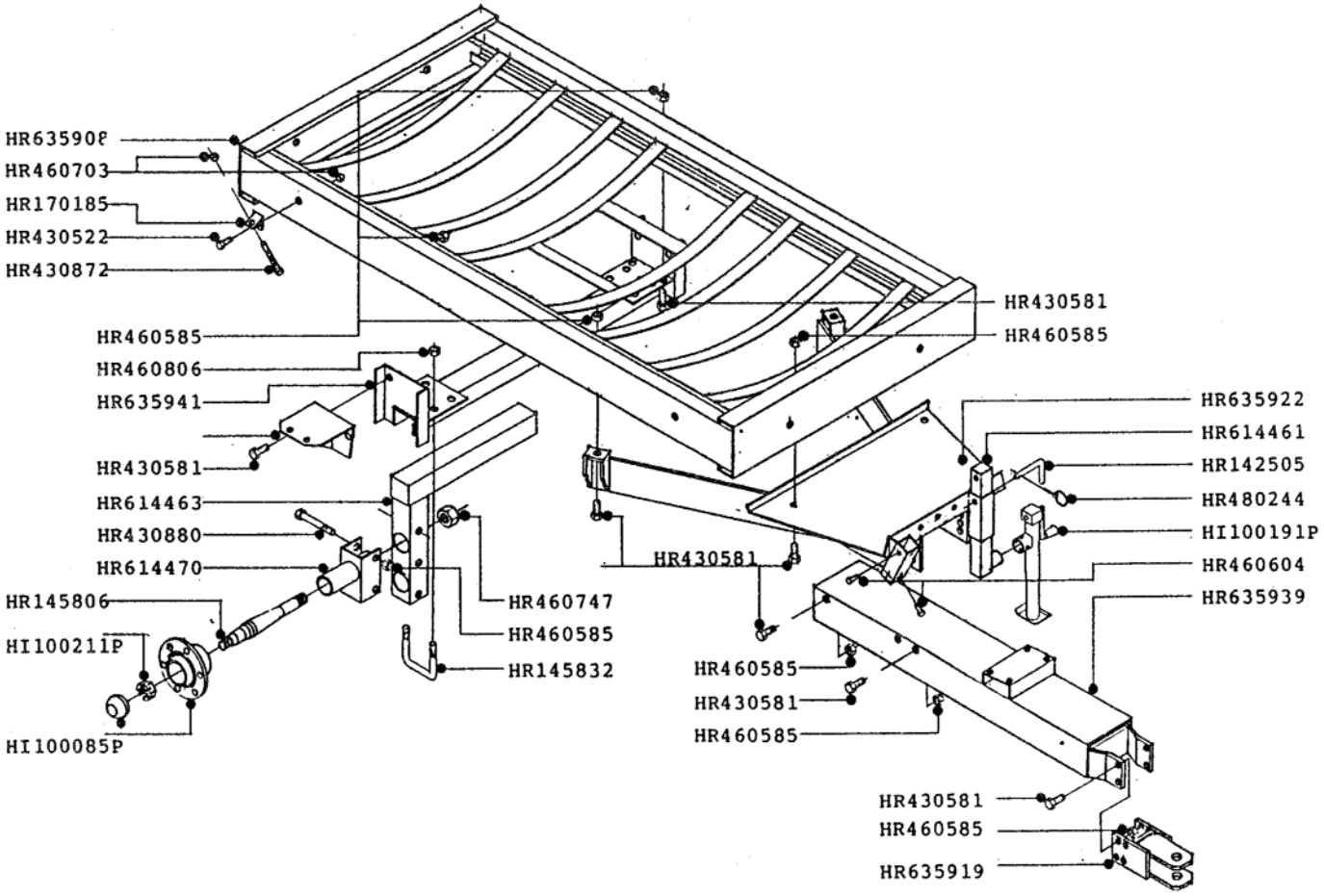
EC DISTRIBUTION VALVE ASSEMBLY (W/CONTROL BOX)



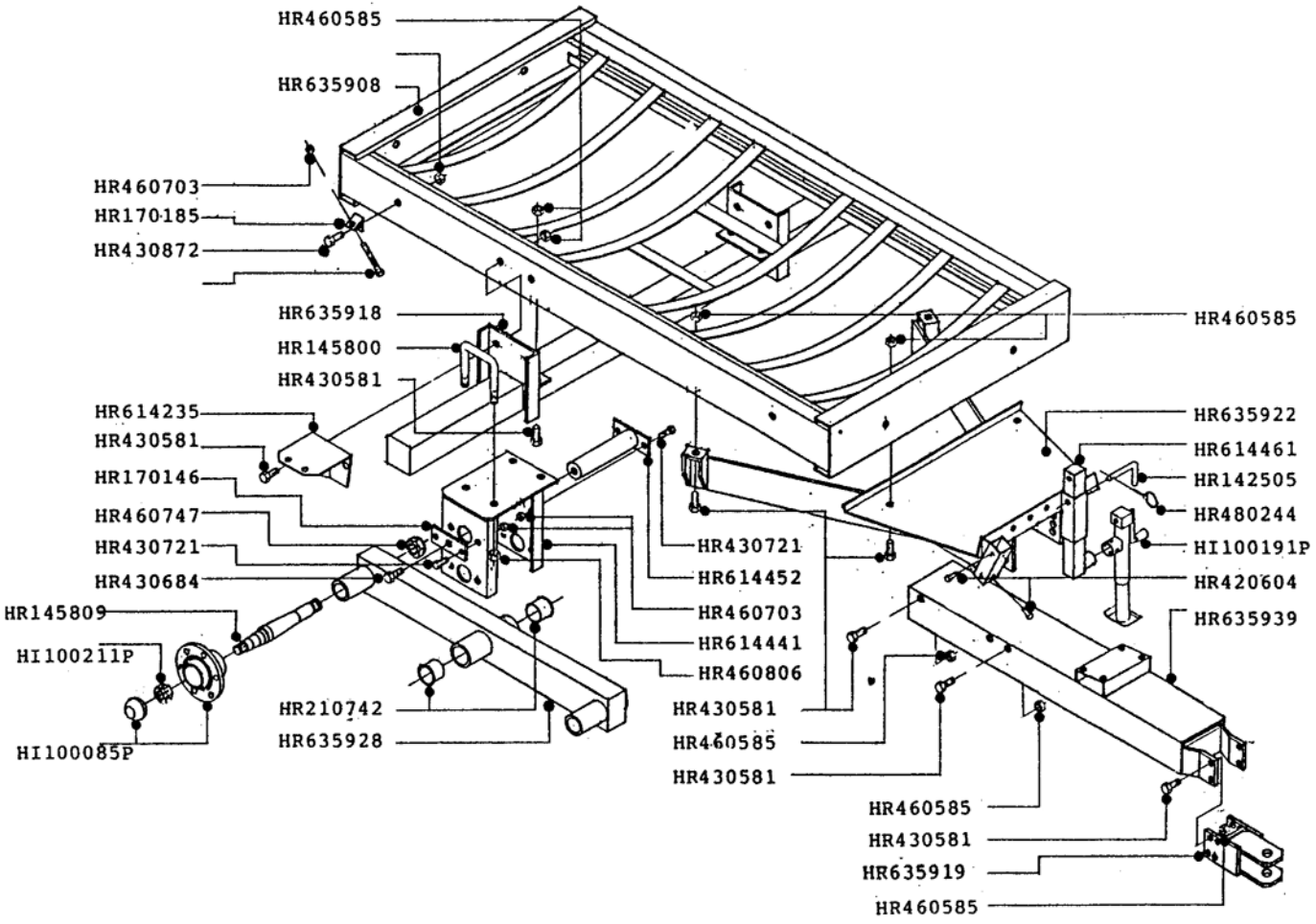
300 GALLON FRAME ASSEMBLY

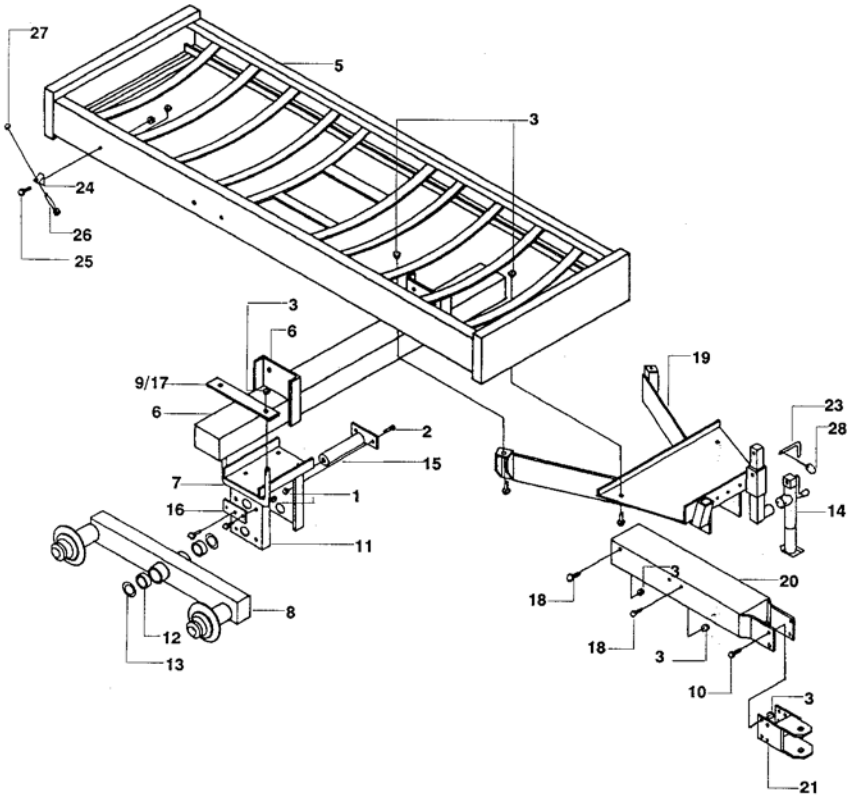


500 GALLON SINGLE AXLE FRAME ASSEMBLY



500 GALLON TANDEM AXLE FRAME ASSEMBLY

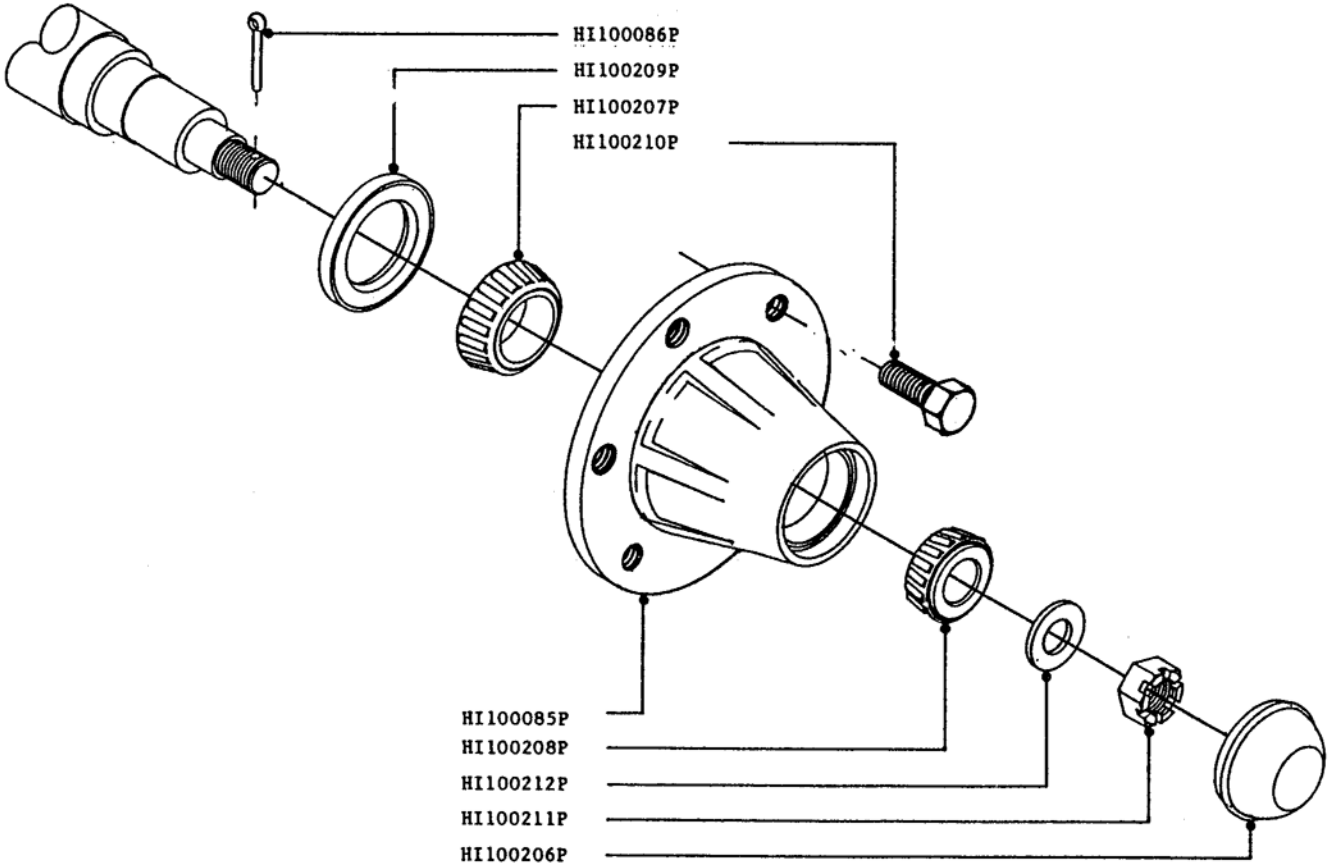




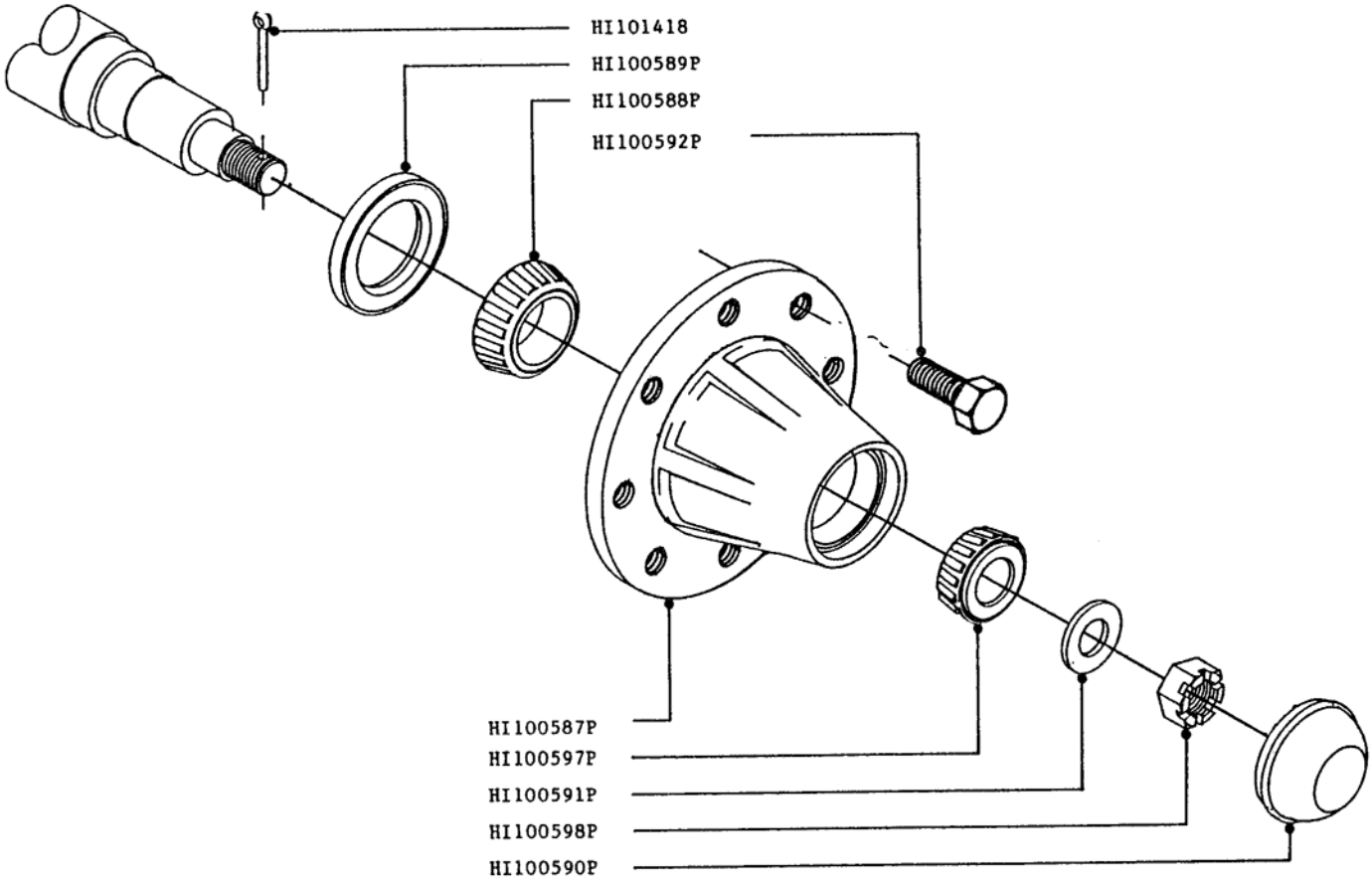
1/08/89	TR 800/1000 TA	D5

ORDER #	KEY CODE	DESCRIPTION
1	100025P	NUT HEX NC 1/2
2	100045P	BOLT HEX 1/2 NC GR.Z 01.50"
3	100197P	NUT HEX NC 3/4
4	100223P	BOLT HEX 5/8 NC GR.2 01.00"
5	100546A	TR1000 FRAME ASSEMBLY
6	100553W	AXLE W/M TR1000
7	100554W	UPRIGHT W/M TR1000
8	100557A	TANDEM BEAM & HUB ASSEMBLY
9	100558M	U-BOLT PLATE
10	100568P	BOLT HEX 5/8 NC GR.5 01.50"
11	100572P	U-BOLT 3/4 NCX8-7/8 W X 8 - 1/4X11/2
12	100586P	GARLOCK 40 DU 40 TR800/1000
13	100602P	MACH. BUSH 2-9/16 X 3-1/2 X 1/8
14	100619P	ADJ. JACK C/W PIN/CHAIN 5000 LB
15	100714W	PIN W/M TR1000
16	100717M	BRACKET PIN W/M
17	101063	U-BAR 1000 GAL.
18	102333	BAG OF FITTINGS FOR 460 PUMP KIT
19	102336	A-FRAME AND STEP
20	102337	TONGUE 800/1000
21	102338	HITCH 800/1000
22	102385	SUPPORT BRACE 1/8 X 1 X 12"
23	142505	LOCK PAWL 016 X 65
24	170185	ANGLE HINGE FOR CLAMP
25	430522	M12 X 25 MACHINE SCREW GALV.
26	430872	CAP SCREW M12 X 100 ELZ.
27	460703	M12 SELF LOCK NUT MFC 840
28	480244	SPRING PIN 4.5 MIN GALV.
29	614461	JACK STAND ATTACHMENT

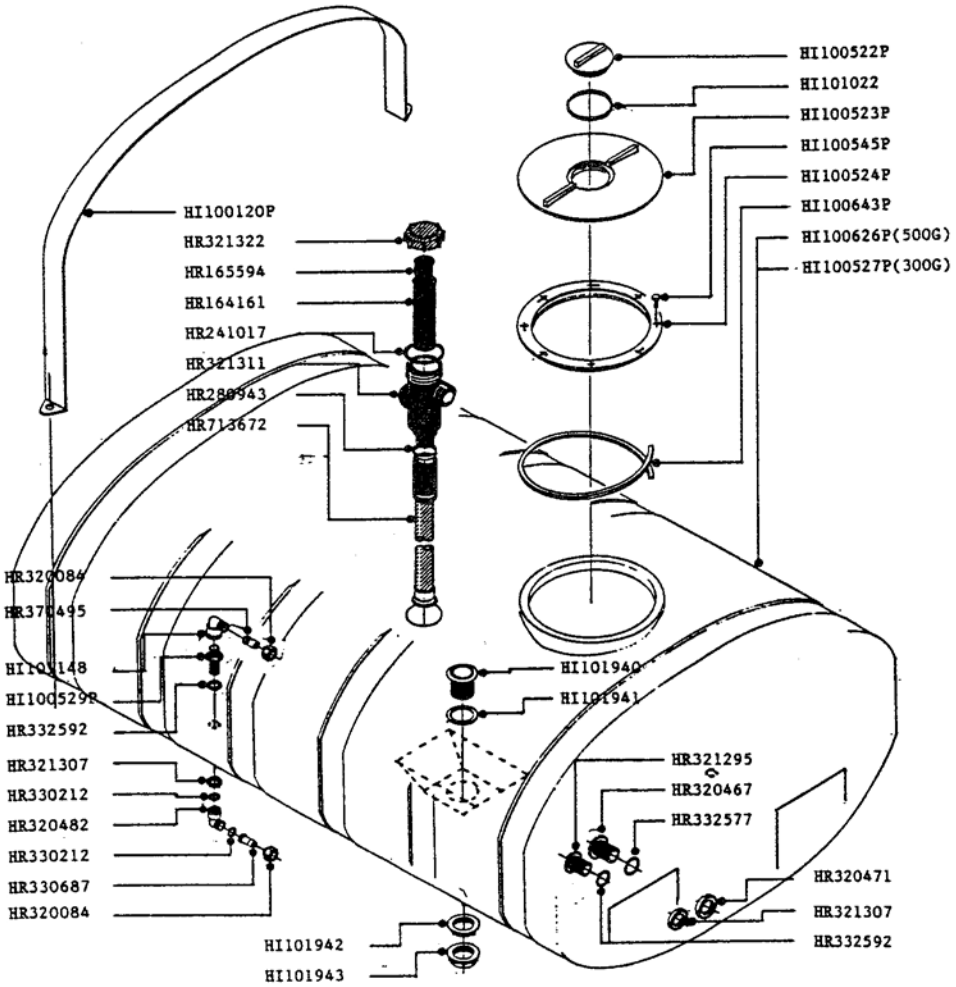
300/500/800 GALLON HUB ASSEMBLY



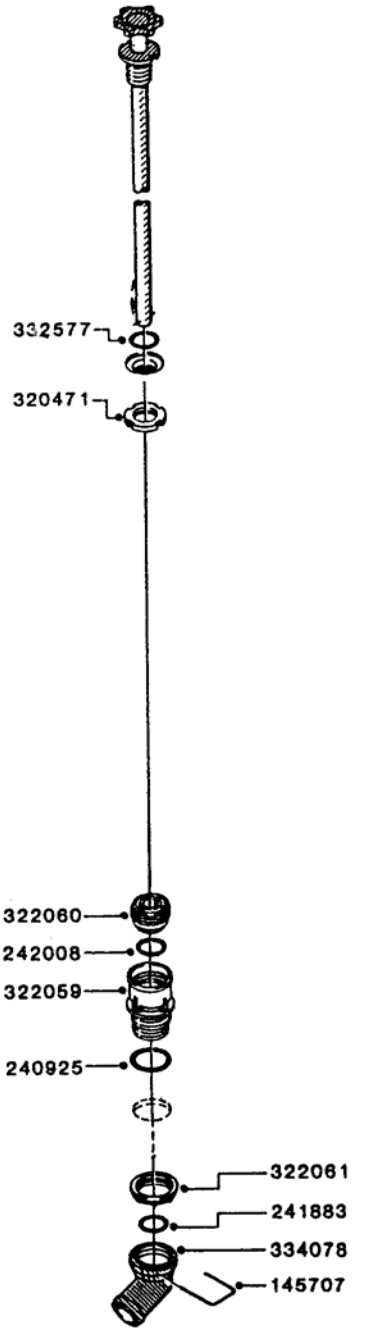
1000 GALLON HUB ASSEMBLY



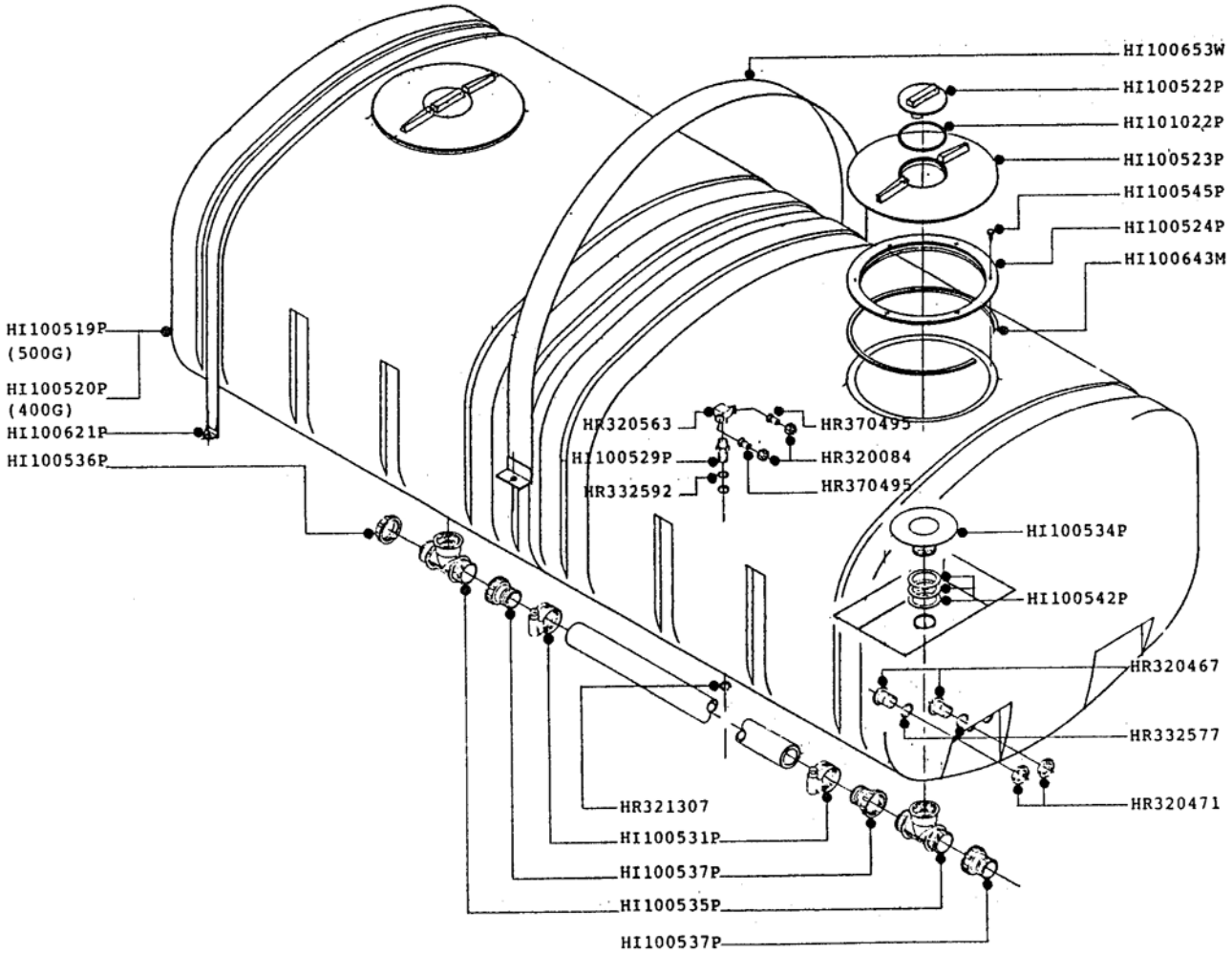
300/500 GALLON TANK ASSEMBLY



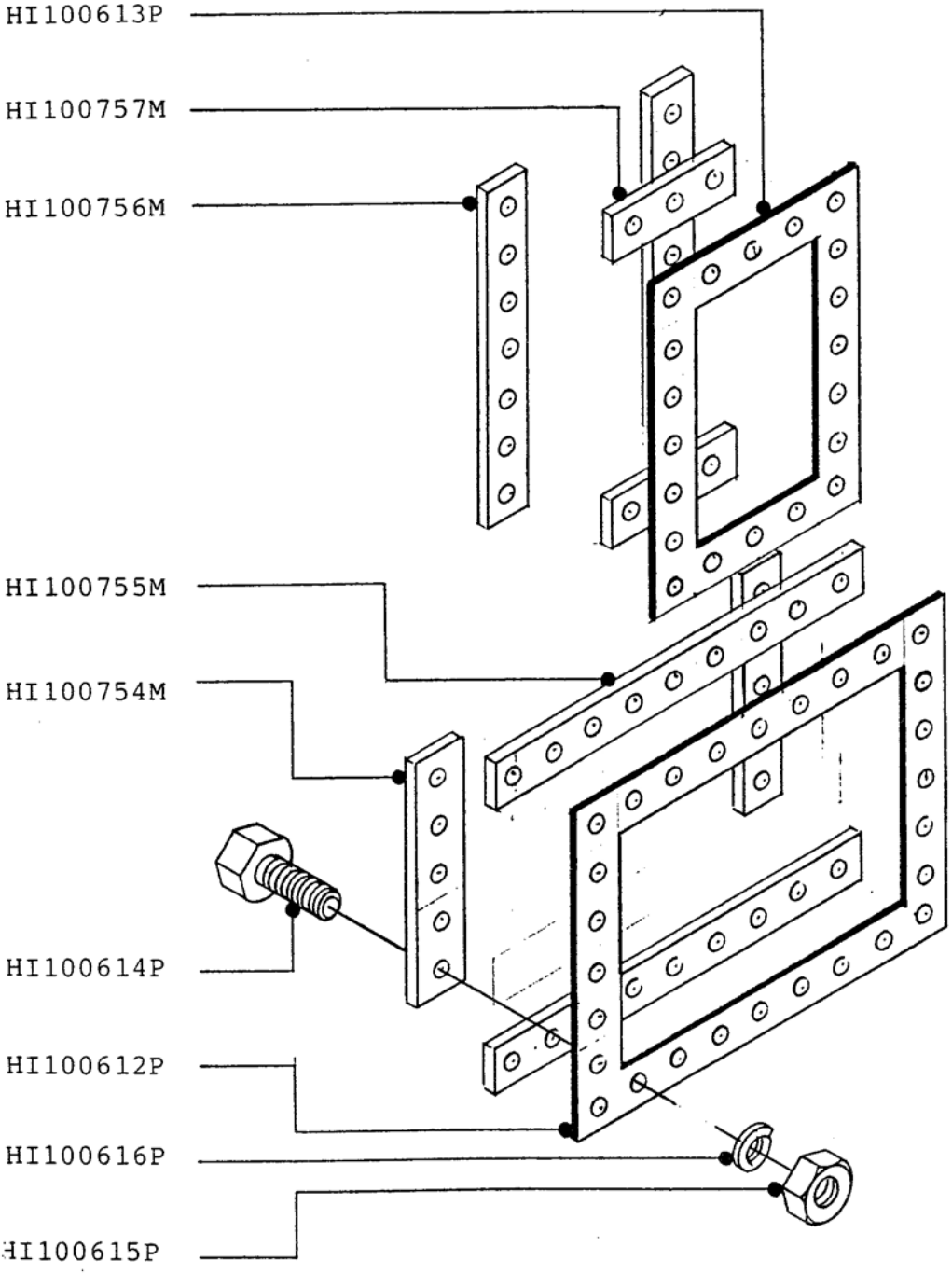
TOP OPERATED DRAIN ASSEMBLY



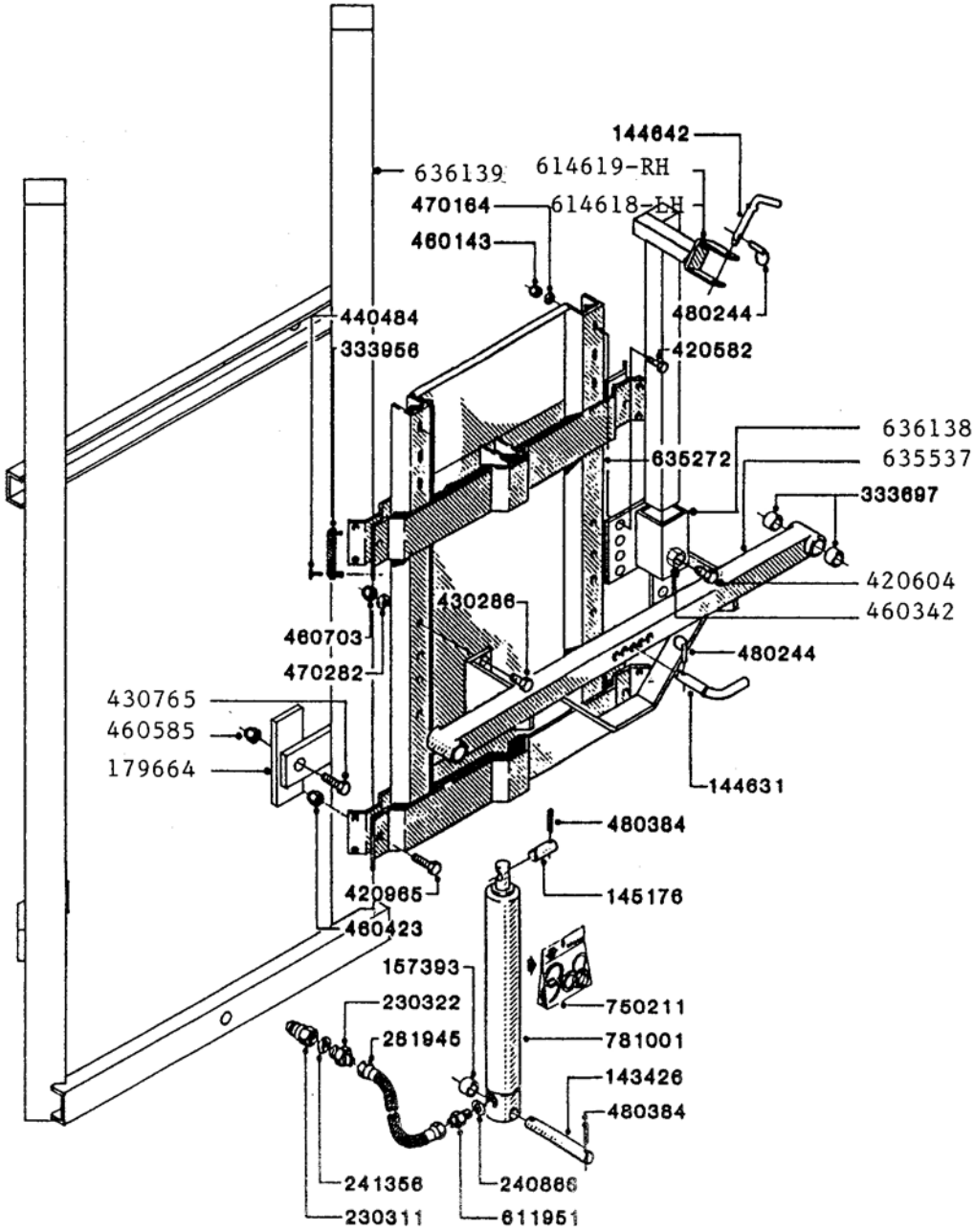
800 & 1000 GALLON TANK ASSEMBLY



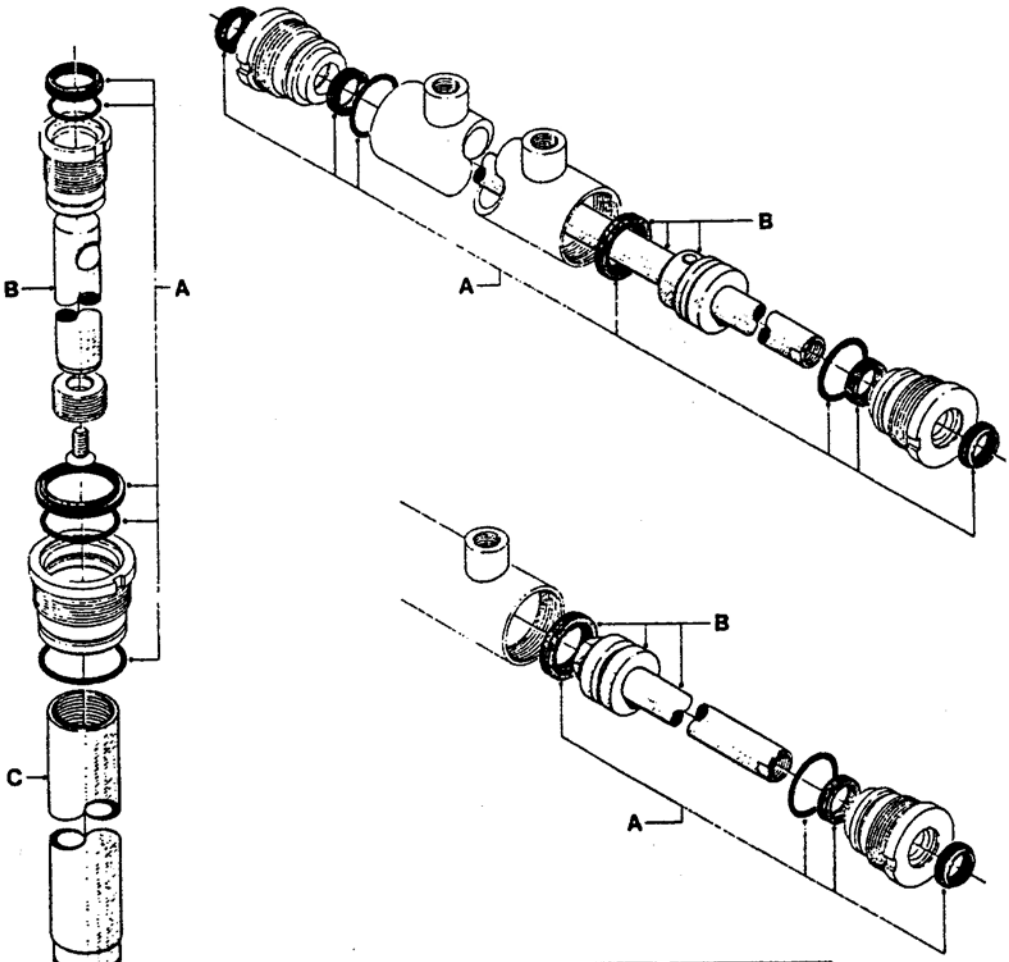
TANK BAFFLE SEAL ASSEMBLY



HYDRAULIC LIFT
'H' FRAME ASSEMBLY

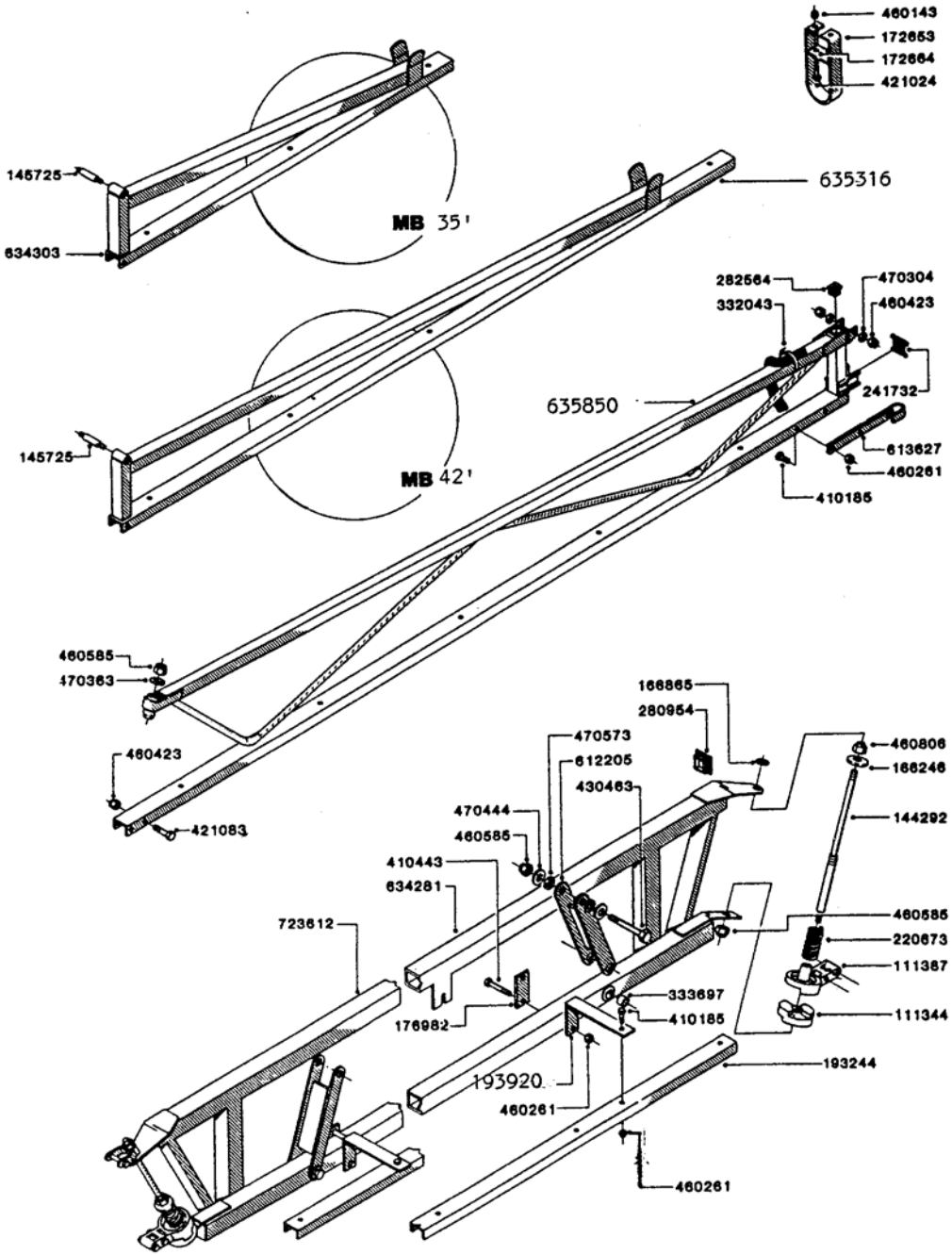


HYDRAULIC CYLINDER ASSEMBLY

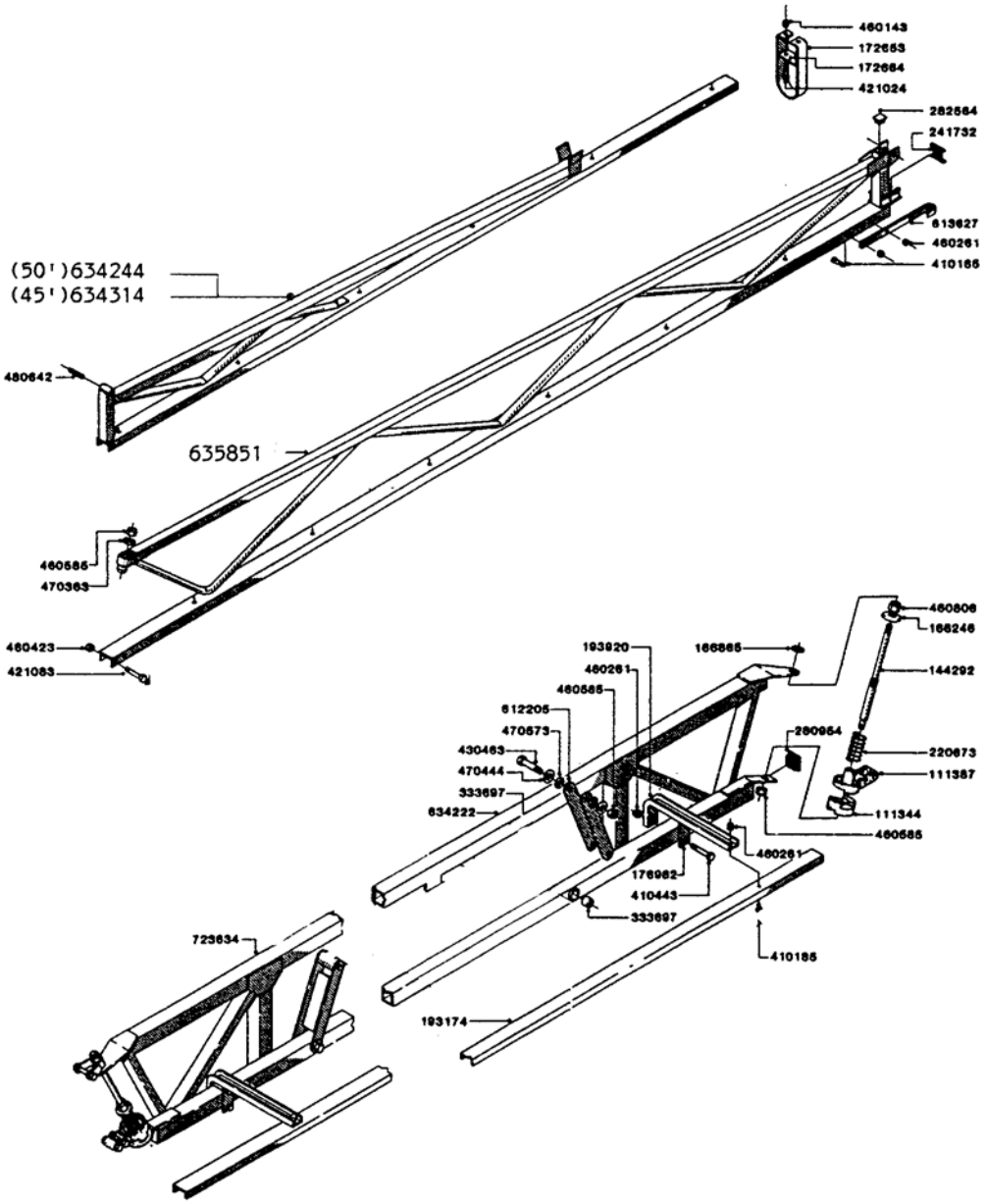


		A	B	C
	781001	750211	145962	159163
781002		750212	726137	
781003		750212	726138	
	781004	750213	145963	159164
781005		750214	726139	
	781006	750211	145964	159165
781007		750214	726139	
781008		750212	726140	
	781010	750211	145964	159165
	781011	755415	614622	614623
	781012	750238	614624	614625-e60 614626-e80
781013		750239	726141	
781014		750212	726137	

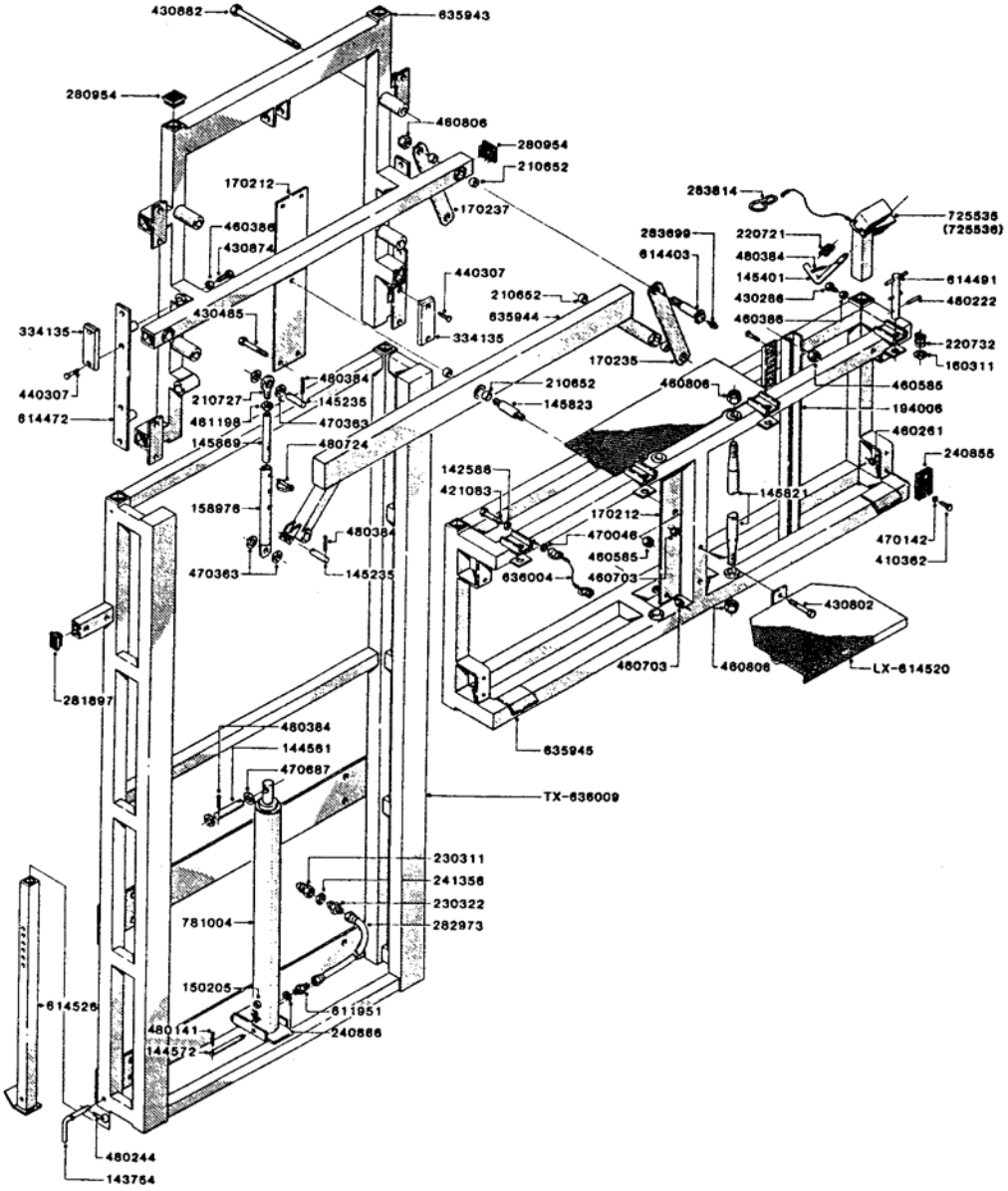
35' MB & 42' MB BOOM ASSEMBLY



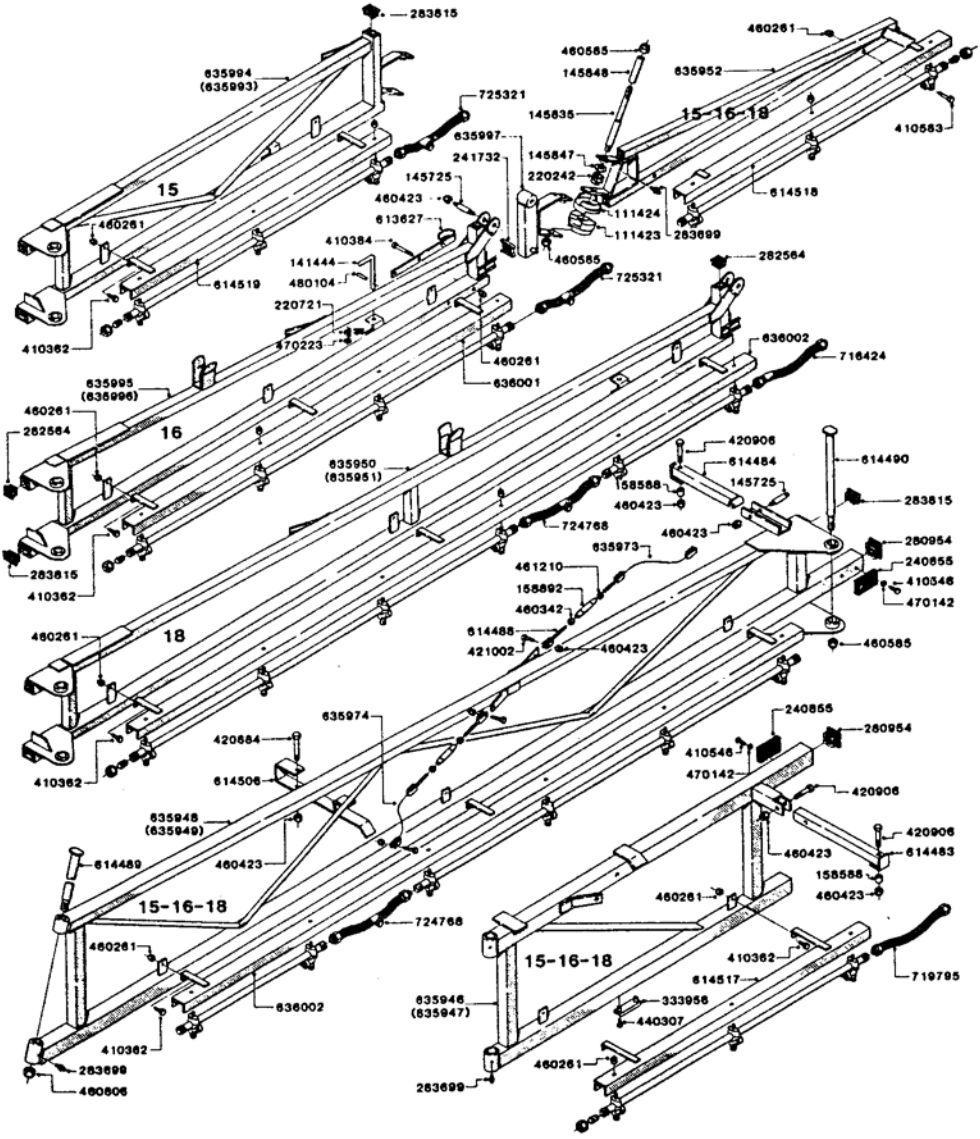
45' MB & 50' MB BOOM ASSEMBLY



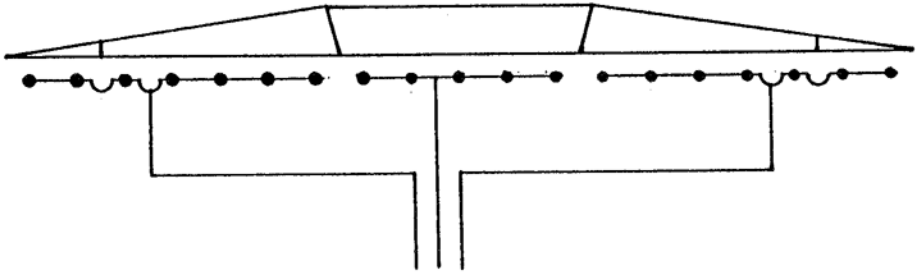
60' HB BOOM
CENTER SECTION ASSEMBLY



60' HB BOOM
WING ASSEMBLY



35' MB
20" FIXED NOZZLE SPACING
PLUMBING SCHEMATIC

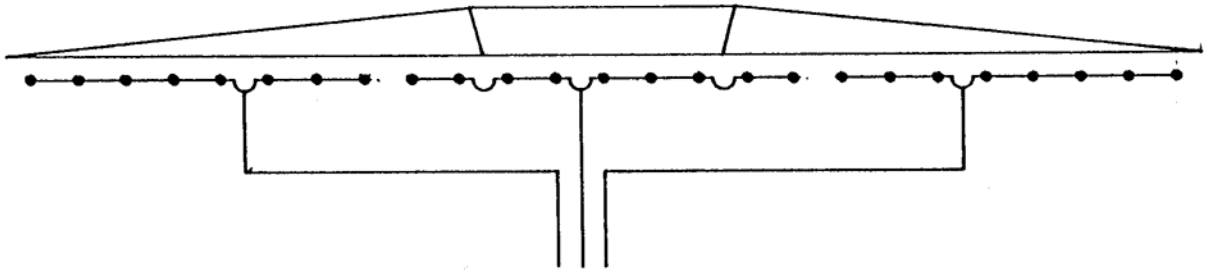


FEED

SINGLE SNAPFIT NOZZLE CARTON	- 828453
TRIPLET SNAPFIT NOZZLE CARTON	- 828454
TL FEED HOSE CARTON	- 835445
TR FEED HOSE CARTON	- 835448
(TR300/500 ELECTRIC)	- 835398

• **NOZZLE**

42' MB
20" FIXED NOZZLE SPACING
PLUMBING SCHEMATIC

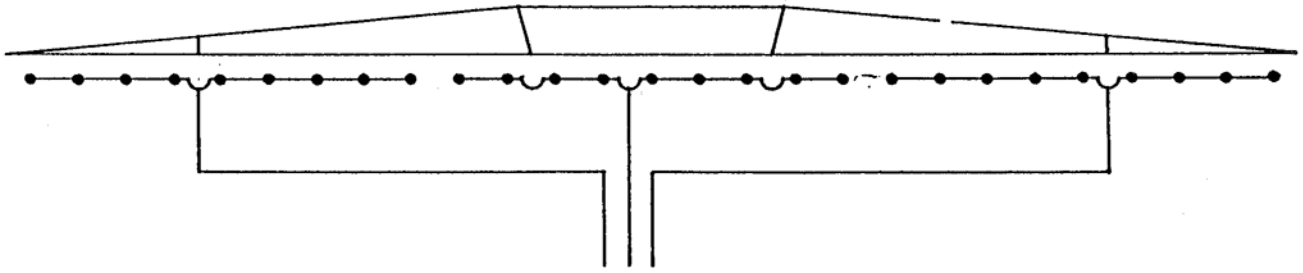


FEED

SINGLE SNAPFIT NOZZLE CARTON	- 828455
TRIPLET SNAPFIT NOZZLE CARTON	- 828456
TL FEED HOSE CARTON	- 835445
TR FEED HOSE CARTON	- 835448
(TR 300/500 ELECTRIC)	- 835398

• **NOZZLE**

45' MB
20" FIXED NOZZLE SPACING
PLUMBING SCHEMATIC

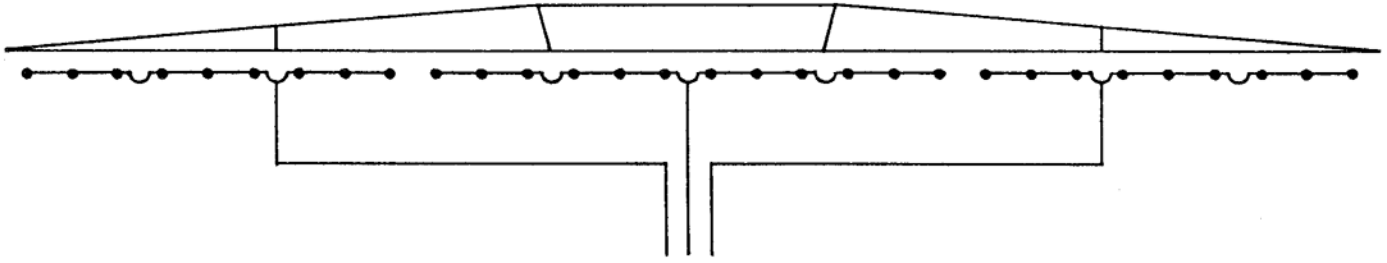


FEED

SINGLE SNAPFIT NOZZLE CARTON	- 828457
TRIPLET SNAPFIT NOZZLE CARTON	- 828458
TL FEED HOSE CARTON	- 835445
TR FEED HOSE CARTON	- 835448
(TR300/500 ELECTRIC)	- 835398

• **NOZZLE**

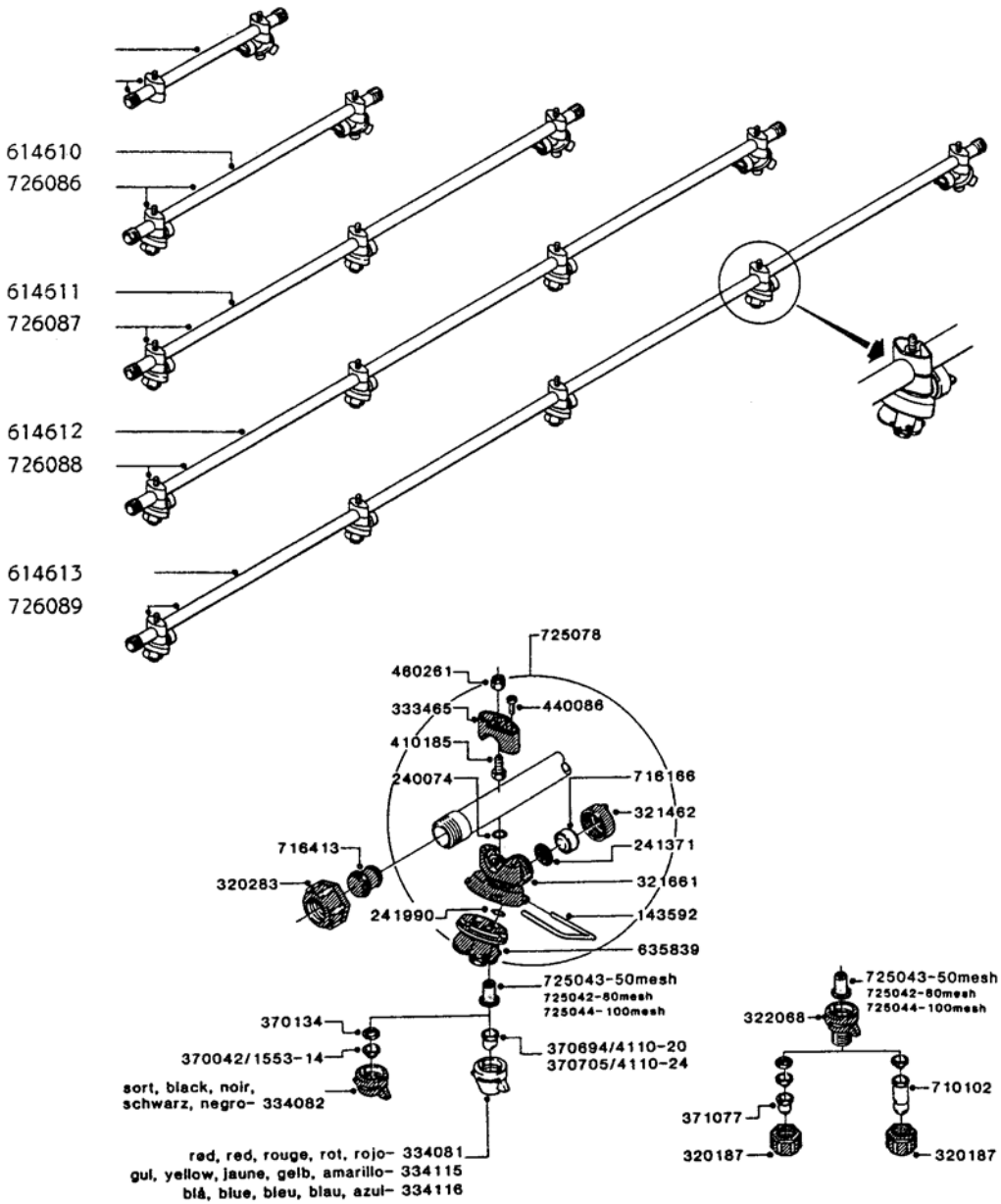
50' MB
20" FIXED NOZZLE SPACING
PLUMBING SCHEMATIC



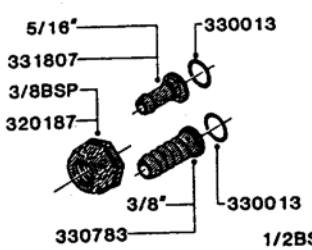
TRIPLET SNAPFIT NOZZLE CARTON - 828451
TR FEED HOSE CARTON - 835448
(TR300/500 ELECTRIC) - 835398

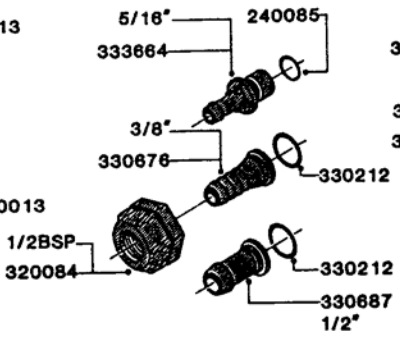
• NOZZLE

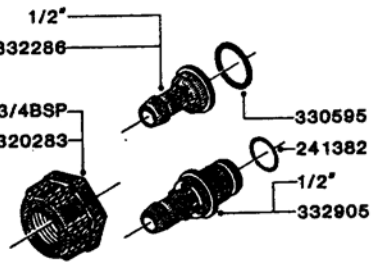
TRIPLET SNAP-FIT NOZZLE ASSEMBLY

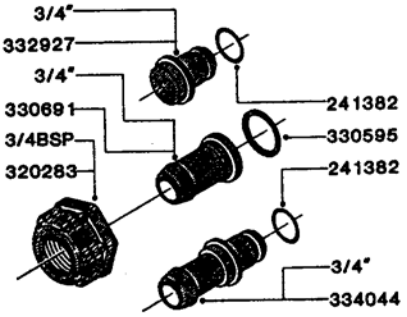


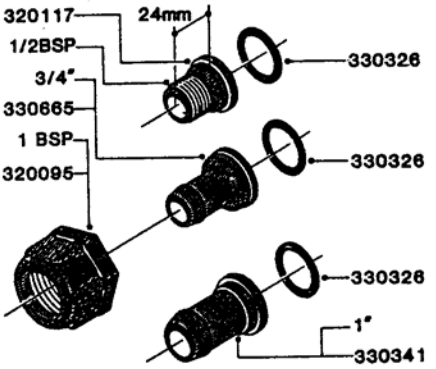
MISCELLANEOUS FITTINGS

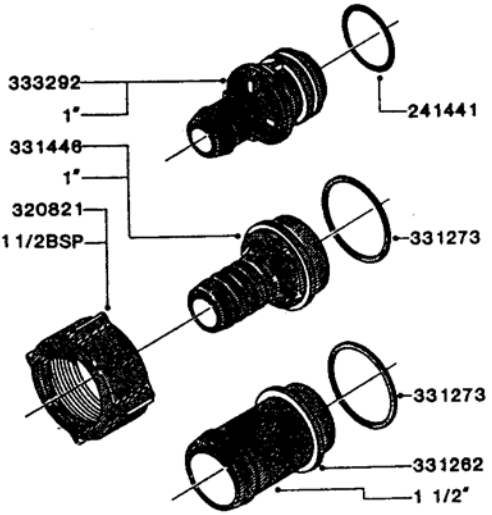


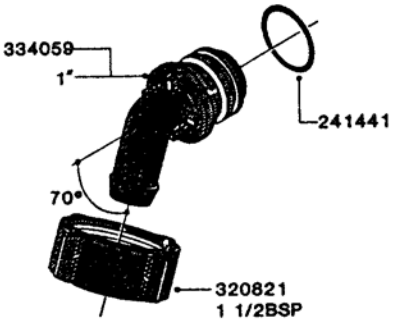




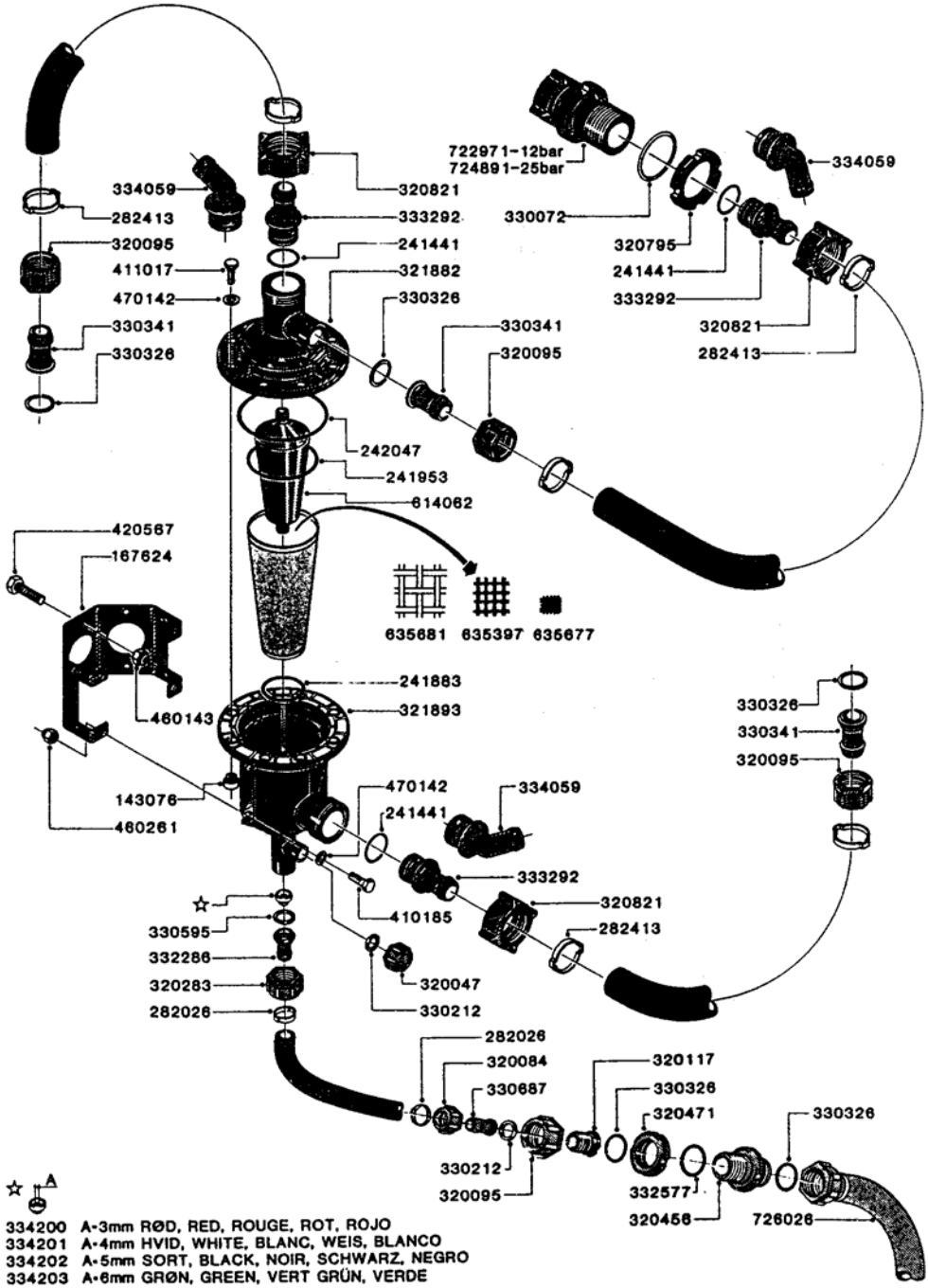




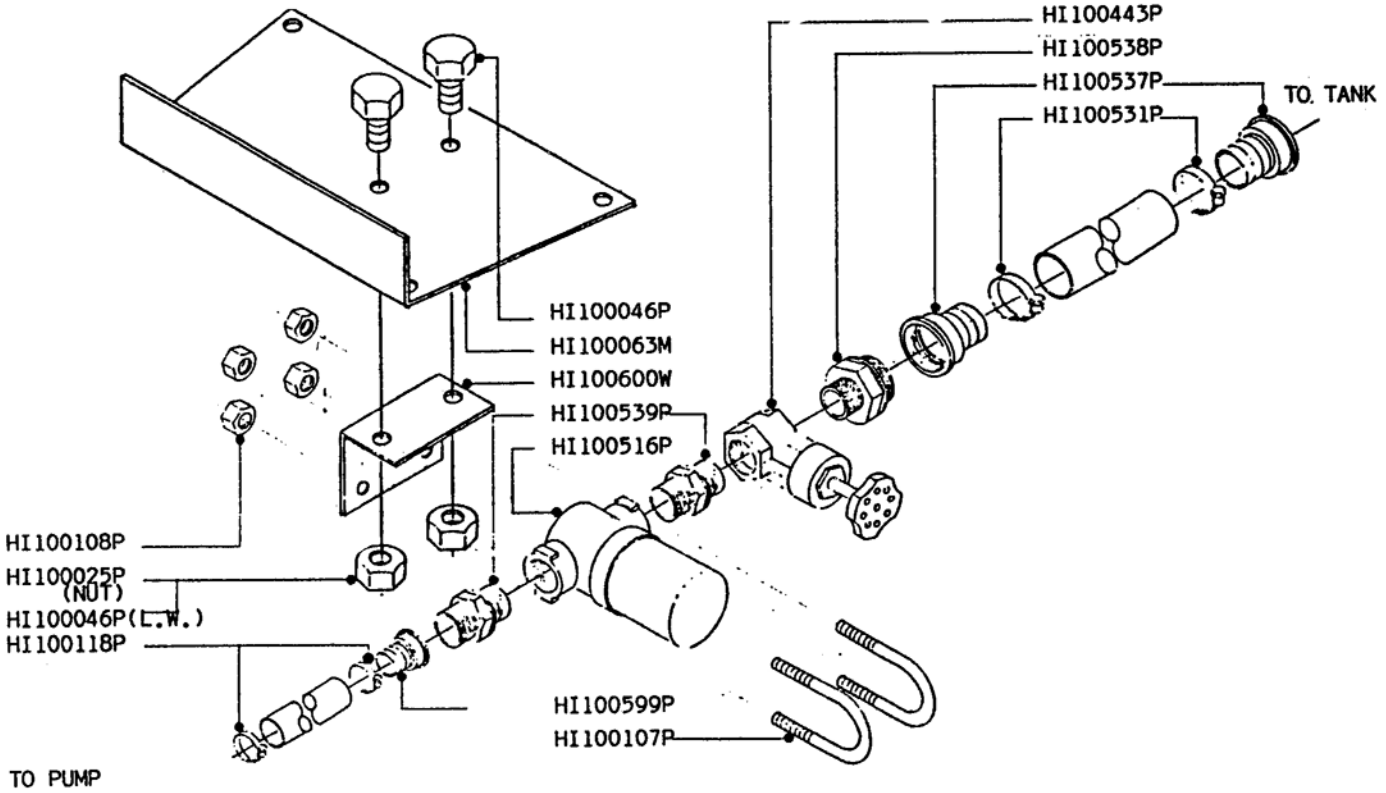




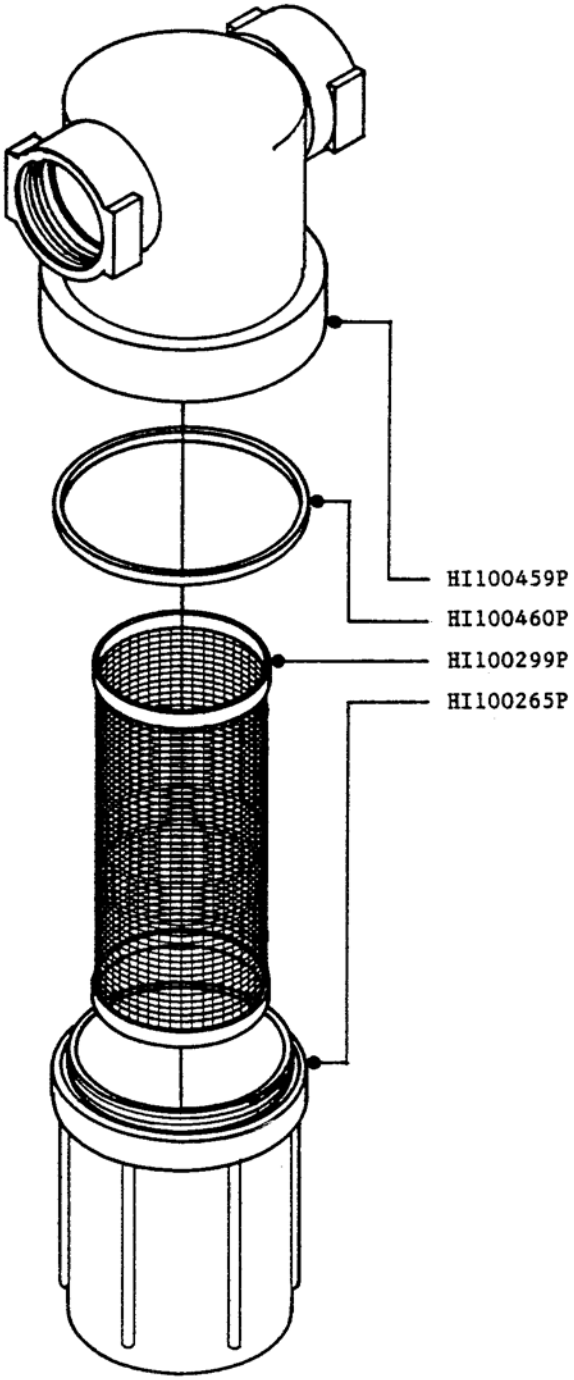
SELF CLEANING FILTER ASSEMBLY



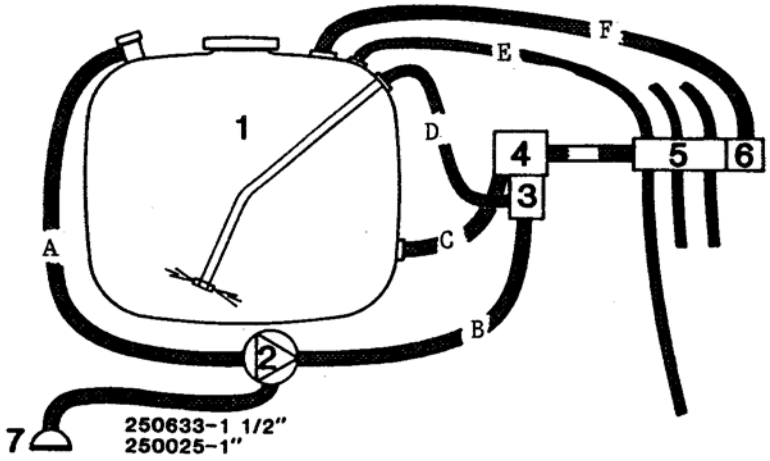
BOTTOM DRAW PUMPING SYSTEM ASSEMBLY



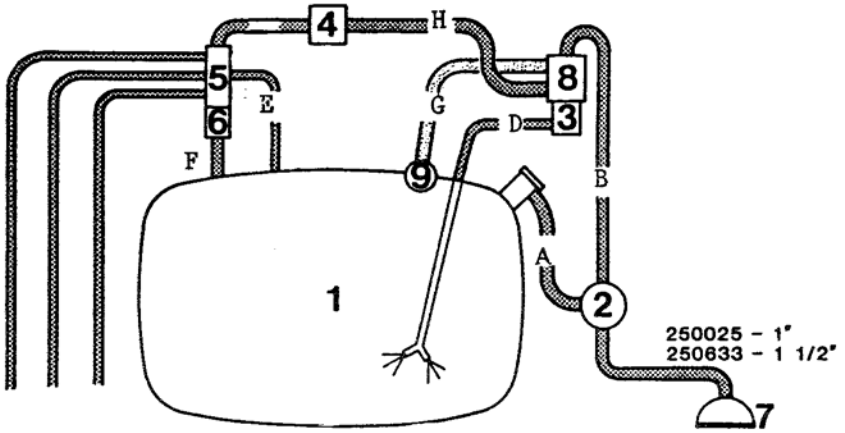
BOTTOM DRAW SUCTION FILTER ASSEMBLY



BK HM MANUAL CONTROL



1	TANK
2	PUMP
3	PRESSURE AGITATION
4	OPERATING UNIT
5	DISTRIBUTION VALVE
6	HARDI-MATIC
7	FILLING FILTER
8	SELF CLEANING FILTER
9	SAFETY VALVE



EC ELECTRIC CONTROL

MODEL	A	B	C	D
TR 300 BK	1 1/2" PVC	1" 80 BAR	1" PVC	1/2 80 BAR
TR 300 EC	"	"	————	"
TR 500 BK	"	"	1" PVC	"
TR 500 EC	"	"	————	"
TR 800	1 1/2" PVC 2" PVC	"	————	"
TR 1000	"	"	————	"

MODEL	E	F	G	H
TR 300 BK	1/2" PVC	1" PVC	————	————
TR 300 EC	1" PVC	"	1" 80 BAR	1" 80 BAR
TR 500 BK	1/2" PVC	"	————	————
TR 500 EC	1" PVC	"	1" 80 BAR	1" 80 BAR
TR 800	1" 80 BAR	1" 80 BAR	"	"
TR 1000	"	"	"	"

WARRANTY POLICY AND CONDITIONS

HARDI INC., London, Ontario, Canada (hereinafter called "HARDI", offers the following limited warranty in accordance with the provisions below to each original retail purchaser of HARDI new equipment of its own manufacture, from an authorized HARDI dealer, that such equipment is at the time of delivery to such purchaser, free from defects in material and workmanship and that such equipment will be warranted for a period of one year from the date of delivery to the end user providing the machine is used and serviced in accordance with the recommendations in the Operators Manual and is operated under normal farm conditions.

1. This limited warranty is subject to the following exceptions:
a) Parts of the machine which are not manufactured by HARDI, i.e. engines, tires, tubes, electronic controls, and other components or trade accessories, etc. are not covered by this warranty but are subject to the warranty of the original manufacturer. Any claim falling into this category will be taken up with the manufacturer concerned.

b) This warranty will be withdrawn if any equipment has been used for purposes other than for which it was intended or if it has been misused, neglected or damaged by accident, let out on hire or furnished by a rental agency. Nor can claims be accepted if parts other than those manufactured by HARDI have been incorporated in any of our equipment. Further, HARDI shall not be responsible for damage in transit or handling by any common carrier and under no circumstances within or without the warranty period will HARDI be liable for damages for loss of use, or damages resulting from delay or any consequential damage.

2. We cannot be held responsible for loss of livestock, or crops, or because of delays in harvesting, or any expense or loss incurred for labor, supplies, substitute machinery, rental for any other reason, or for injuries either to the owner or to a third party, nor can we be called upon to be responsible for labor charges, other than originally agreed, incurred in the removal or replacement of components. We cannot be held responsible for any cost associated with chemical spills and clean up due to spray or component malfunction or breakdown. It is the owner's responsibility to clean up according to chemical manufacturer's recommended procedure any equipment or part which is brought back to the dealer or Hardi Inc. for service.

3. The customer will be responsible for and bear the costs of:
a) Normal maintenance such as greasing, maintenance of oil levels, minor adjustments, etc.
b) Transportation of any HARDI product to and from where the warranty work is performed.
c) Dealer travel time to and from the machine or to deliver and return the machine from the service workshop for repair.
d) Deale travelling costs.

4. Parts defined as normal wearing items, i.e. tires and V-belts are not in any way covered under this warranty.

5. This warranty will not apply to any product which is altered or modified without the express wrriten permission of HARDI and/or repaired by anyone other than Authorized Service Distributors or Authorized Service Dealers.

6. Warranty is dependent upon the strict observance by the purchaser of the following provisions:
a) That this warranty may not be assigned or transferred to anyone.
b) That the Warranty Registration Certificate has been correctly completed by dealer and purchaser with their names and addresses, dated, signed and returned to the appropriate address as given on the Warranty Registration Certificate.
c) That all safety instructions in the operators manual shall be followed and all safety guards regularly inspected and replaced where necessary.

7. No warranty is given on second-hand products and none is to be implied.

8. Subject to the following terms, conditions and contributions, HARDI extends the warranty on polyethylene tanks (excluding fittings, lids and gaskets) to FIVE YEARS. To qualify for this extended warranty, the tank must be drained and flushed with fresh water after each day of use. HARDI's liability is limited to replacement of the tank, FOB our plant at no cost to the purchaser during the first twelve months; at 20% of the then current price during the second year; at 40% during the third year; at 60% during the fourth year; and at 80% during the fifth year. This five year extended warranty is subject, in each instance, to the tank being inspected and approved for replacement or repair by HARDI personnel before HARDI will accept any liability hereunder.

9. Subject to the following terms, conditions and contributions, HARDI extends the warranty on HARDI diaphragm pumps (excluding wearing parts such as diaphragms, valves, etc.) to FIVE YEARS. To qualify for this extended warranty, the pump must be drained and flushed with fresh water after each day of use. HARDI's liability is limited to replacement of defective parts, FOB our plant in London, Ontario, Canada at no cost to the puchaser during the first twelve months after date of purchase, at 20% of the then current retail price during the second year; at 40% during the third year; at 60% during the fourth year; and at 80% during the fifth year. This five year extended warranty is subject, in each instance, to the tank being inspected and approved for replacement or repair by HARDI personnel before HARDI will accept any liability hereunder.

10. HARDI reserves the right to incorporate any change in design in its products without obligation and to make such changes on units previously manufactured.

11. The judgement of HARDI in all cases of claims under this warranty shall be final and conclusive and the purchaser agrees to accept its decisions on all questions as to defect and to the exchange of any part or parts.

12. No employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of HARDI at its head office.

DISCLAIMER OF FURTHER WARRANTY

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, EXCEPT AS SET FORTH ABOVE. THERE IS NO WARRANTY OR MERCHANTABILITY. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE PRODUCT CONTAINED HEREIN. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES (SUCH AS LOSS OF ANTICIPATED PROFITS) IN CONNECTION WITH THE RETAIL PURCHASER'S USE OF THE PRODUCT.

HARDI FIELD SPRAYER - PRE-DELIVERY CHECKLIST

MODEL NO._____ SERIAL NO._____

DEALER NAME & ADDRESS_____

OWNER NAME & ADDRESS_____

DEALER SIGNATURE_____ OWNER SIGNATURE_____

DATE OF INSPECTION_____

[ ] Locate operators manual.

[ ] Assemble any pieces removed for shipment.

[ ] Check that tank drain, hoses and fittings are tight.

[ ] Check BK180 or EC control operates individual boom control, main on/off, pressure regulator (on EC, blue wire is -; brown wire is +).

[ ] Mount control boxes or adjust control post.

[ ] Check agitation nozzles installed

[ ] Check wheel bolts and tire pressure (trailer models).

[ ] Check that all hoses are tied up and not rubbing on any moving parts.

[ ] Check that all triplets are turned to same nozzle.

[ ] Align nozzle to 5 deg. +/- with Hardi nozzle wrench.

[ ] Check nozzles spaced correctly.

[ ] Check wheels adjusted to correct row width.

[ ] Check belt tension and alignment (1000 RPM kit).

HARDI FIELD SPRAYER - PRE-DELIVERY CHECKLIST

[ ] Check tank straps tight.

[ ] Check operation of crank and boom height adjustment.

[ ] Check self-levelling operation and lubricate trapeze arms.

[ ] Grease sides of H-frame where the nylon pads slide up and down.

[ ] Check operation of all accessories.

[ ] Fill sprayer with water and run unit at low and high pressure for approximately one-half hour.

[ ] Repair all leaks.

[ ] Check pressure in pulsation damper.

[ ] Check hydraulic fittings, leaks and operating adjustments.

[ ] Grease pump, PTO shaft, axles.

[ ] Adjust boom parallel to rear of sprayer frame with transport pin in place.

[ ] Check PTO set screw and for correct sizing.

For Product, Service or Warranty Information:
- Please contact your local HARDI® dealer.

To contact HARDI® directly:
- Please use the HARDI® Customer Service number: 1-866-770-7063
- Or send your email to: CUSTSERV@hardi-us.com

Visit us online at: www.hardi-us.com

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