

OWNER'S MANUAL



3P-110, 150, & 200

8 ROLLER PUMP

**HAMILTON #20,
HYPRO BOOM EXT,
#20 BOOMJET**

6 or 8 ROW DELUXE BOOM

3P-110, 150, & 200

OWNER'S MANUAL

Congratulations on purchasing your new three point hitch field sprayer. This manual is designed to aid you in operating your new sprayer. Also enclosed is a parts breakdown and/or calibration chart for the following: roller pump, pressure regulator, StreamJet spray gun, Hamilton nozzle, Hypro Boom Extender nozzles & the 6 or 8 row deluxe boom.

WARRANTY

All Field Sprayers are under warranty by **Bell Equipment LLC**, for a one year period from the date of purchase. This warranty only applies to defects in workmanship or manufactures defects in their components. This warranty does not cover any misuse, abuse, or parts that may freeze & break. Owners are responsible for these issues. Parts proven defective within the one-year period will be replaced at no charge.

Bell Equipment LLC, must be notified immediately of any defects or parts broken due to shipping on the sprayer. After the one-year period all warranty is void. No product will be accepted for return without authorization. All returned goods must be packaged securely and shipped with transportation charges prepaid.

For further information regarding parts or warranty, contact:

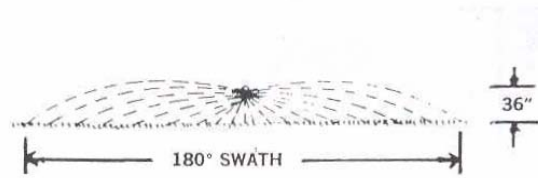
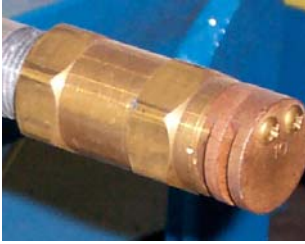
Operation & Instructions of New Sprayer

First, back your tractor up to the sprayer and let the lift arms all the way down. Your new sprayer from **Bell Equipment LLC**, is quick hitch compatible so you connect using your quick hitch. If you are not using a quick hitch you will need to insert the lift pins into the lift arms of the tractor & secure with lock pins. Second, hook up the top link on the tractor to the top hole of the frame. Next, connect the pump to the PTO shaft on your tractor by pulling the orange coupler back while sliding it onto the PTO shaft until the balls lock into the grooves on the shaft. After pump is secure take the chain & wrap it around the drawbar of the tractor using the snap link to snap the chain together to keep pump from twisting hoses when PTO is engaged. Next, fill the tank at least half full of plain water with no chemicals. Screw the pressure regulator (PRV34, brass T handle) part of the way out & make sure agitation valve (BBV14) is at least half of the way open. This ensures that you do not overpressure the gauge & break it. Also, make sure the valve under the tank is open (handle should be turned going w/ the line).

You are now ready to try out your sprayer. Engage PTO lever & pull throttle to the 540RPM mark on the RPM gauge. Turn boom valve on & adjust to the desired operating pressure. Adjust pressure with the pressure regulator (brass T handle) & not the agitation valve because you need to keep agitation constant.

CALIBRATING YOUR SPRAYER

HAMILTON NOZZLE 654201



CALIBRATING YOUR SPRAYER

To determine pressure & GPA with a boomless nozzle use this calibration for it is different than a boom calibration:

$$\text{GPA} = \frac{495 \times \text{GPM}}{\text{MPH} \times \text{Swath in feet}}$$

EXAMPLE: $\frac{495(\text{constant}) \times 4.2\text{gpm}=2079}{4\text{mph} \times 50'\text{swath}=200}$

$$\frac{2079}{200} = 10.395 \text{ GPA}$$

Refer to Chart

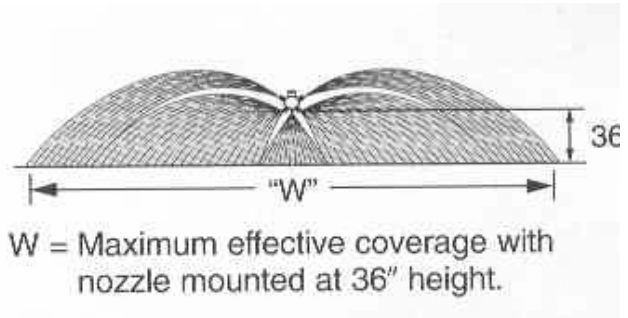
OPERATING DATA OF 180* NOZZLES

SPRAYERS ARE SUPPLIED w/ #20






Orifice Number	PSI	GPM		Swath 180*	GALLON PER ACRE				
		180*	180*		3 MPH	4 MPH	5 MPH	8 MPH	10 MPH
#5	30	1.7	44'	6.4	4.8	3.8	2.4	1.9	
	40	2.0	46'	7.2	5.4	4.3	2.7	2.2	
	50	2.2	48'	7.6	5.7	4.5	2.9	2.3	
	60	2.4	50'	7.9	5.9	4.8	3.0	2.4	
#10	30	3.7	50'	12.2	9.2	7.3	4.6	3.7	
	40	4.2	50'	13.9	10.4	8.3	5.2	4.2	
	50	4.6	52'	14.6	10.9	8.8	5.5	4.4	
	60	5.0	52'	15.8	11.9	9.5	5.9	4.8	
#20	30	5.1	54'	15.6	11.6	9.3	5.8	4.7	
	40	5.9	54'	18.0	13.5	10.8	6.8	5.4	
	50	6.7	56'	19.7	14.8	11.8	7.4	5.9	
	60	7.1	58'	20.2	15.1	12.1	7.6	6.1	

- GPM** = Gallons Per Minute
- GPA** = Gallons Per Acre
- MPH** = Miles Per Hour
- PSI** = Pressure Per Square Inch

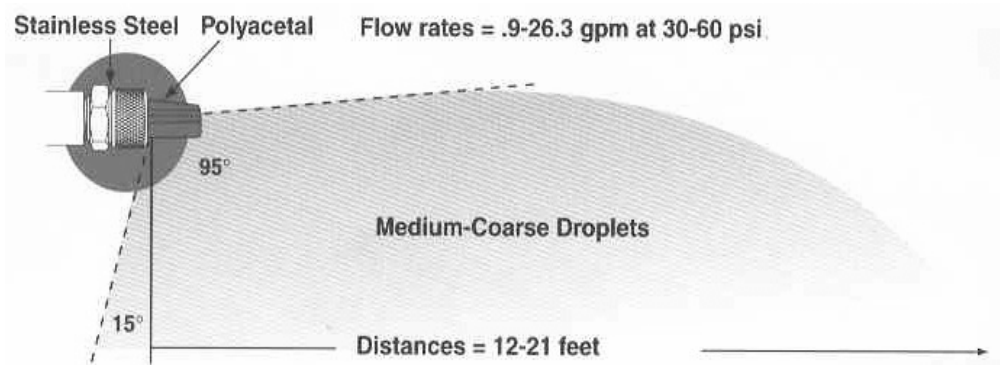
SPRAYING SYSTEMS 5880 BOOMJET NOZZLE



***NOTE: BOOMJET SPRAYERS ARE STANDARD w/ #20 NOZZLES & a HYPRO 8 ROLLER PUMP.**

	 (2)	 (2)	 (1)	 PSI	GPM	"W" (FEET)	GPA				
							4 MPH	5 MPH	7.5 MPH	10 MPH	15 MPH
5880-3/4- 2TOC10	OC10	H1/4U- 0508HE	H1/4VVL- 11004 W/ 50 MESH STRAINER	20	2.83	39.5	8.9	7.1	4.7	3.5	2.4
				30	3.46	40	10.7	8.6	5.7	4.3	2.9
				40	4.00	40.5	12.2	9.8	6.5	4.9	3.3
5880-3/4- 2TOC20	OC20	H1/4U- 0520HE	H1/4VVL-9506 W/ 50 MESH STRAINER	20	6.08	47	16	12.8	8.5	6.4	4.3
				30	7.45	50	18.4	14.8	9.8	7.4	4.9
				40	8.60	52	20	16.4	10.9	8.2	5.5

HYPRO BOOM X TENDER TIPS



Recommended Spray Height is 48"

***NOTE: YELLOW TIP-XT024 IS USED.**

BROADCAST & TURF Applications				Application Rate (GPA) Miles Per Hour										
Thread	XT Model	PSI	GPM	4	5	6	7	8	10	12	14	16	18	20
1/4" MNPT	XT010	30	0.9	8.9	7.1	6.0	5.1	4.5	3.6	3.0	2.6	2.2	2.0	1.8
		40	1.0	10.3	8.3	6.9	5.9	5.2	4.1	3.4	2.9	2.6	2.3	2.1
		50	1.1	11.5	9.2	7.7	6.6	5.8	4.6	3.8	3.3	2.9	2.6	2.3
		60	1.2	12.6	10.1	8.4	7.2	6.3	5.1	4.2	3.6	3.2	2.8	2.5
1/4" MNPT	XT020	30	1.7	12.6	10.1	8.4	7.2	6.3	5.0	4.2	3.6	3.2	2.8	2.5
		40	2.0	14.6	11.6	9.7	8.3	7.3	5.8	4.9	4.2	3.6	3.2	2.9
		50	2.2	16.3	13.0	10.9	9.3	8.1	6.5	5.4	4.7	4.1	3.6	3.3
		60	2.4	17.8	14.3	11.9	10.2	8.9	7.1	5.9	5.1	4.5	4.0	3.6
1/4" MNPT	XT024	30	2.1	14.3	11.4	9.5	8.2	7.1	5.7	4.8	4.1	3.6	3.2	2.9
		40	2.4	16.5	13.2	11.0	9.4	8.3	6.6	5.5	4.7	4.1	3.7	3.3
		50	2.7	18	14.8	12.3	10.5	9.2	7.4	6.1	5.3	4.6	4.1	3.7
		60	2.9	20	16.2	13.5	11.5	10.1	8.1	6.7	5.8	5.1	4.5	4.0
3/8" MNPT	XT043	30	3.7	23	18.4	15.4	13.2	11.5	9.2	7.7	6.6	5.8	5.1	4.6
		40	4.3	27	21.3	17.7	15.2	13.3	10.6	8.9	7.6	6.7	5.9	5.3
		50	4.8	30	23.8	19.8	17.0	14.9	11.9	9.9	8.5	7.4	6.6	5.9
		60	5.3	33	26.1	21.7	18.6	16.3	13.0	10.9	9.3	8.1	7.2	6.5

TEEJET SPRAY TIP CALIBRATION

BA6R & BA8R

All standard booms come w/ 8003VP poly tips.

Formula:
$$\frac{\text{GPA} \times \text{MPH} \times \text{Nozzle Spacing}}{5940}$$

Example:
$$\frac{20\text{gpa} \times 4\text{mph} \times 20''}{5940} = \frac{1600}{5940} = .27\text{gpm}$$

Take the GPM that you figured & look down the GPM chart to figure what pressure you need to run at that desired speed.

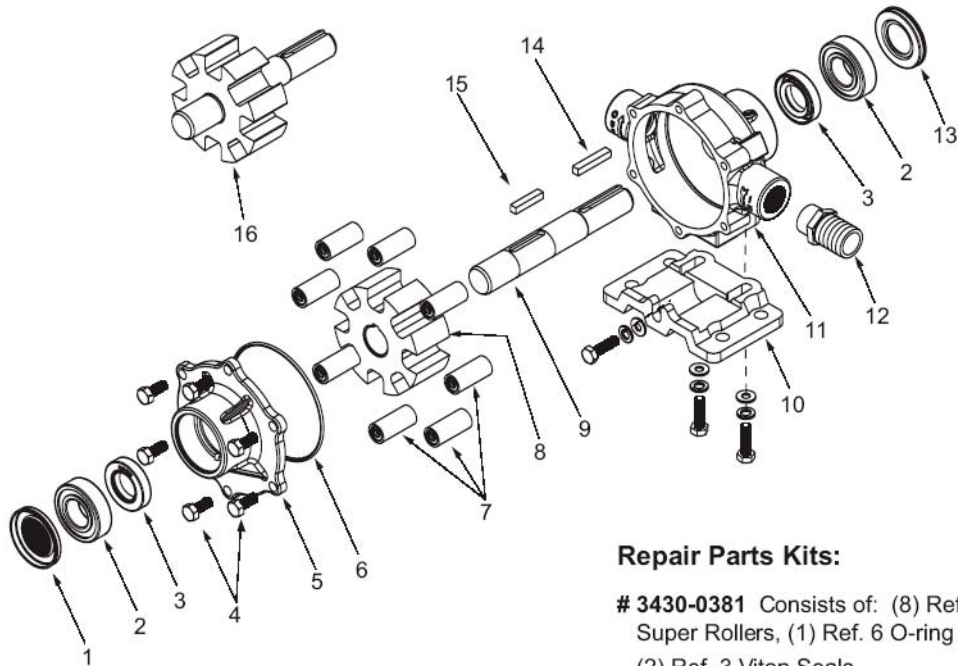
***NOTE:** If spraying liquid nitrogen you will need to multiply the conversion factor w/ the gpa, mph, & nozzle spacing.

Conversion Factor: 28% Nitrogen - 10.65 lbs. per gal. - 1.13
 32% Nitrogen - 11.00 lbs. per gal. - 1.15

Ex.
$$\frac{20\text{gpa} \times 4\text{mph} \times 20'' \times 1.13}{5940} = \frac{1808}{5940} = .31\text{gpm}$$

PSI	GPM	GPA 20"												
		4 MPH	5 MPH	6 MPH	7 MPH	8 MPH	9 MPH	10 MPH	12 MPH	14 MPH	16 MPH	18 MPH	20 MPH	
TP8001	15	0.061	4.5	3.6	3.0	2.6	2.3	2.0	1.8	1.5	1.3	1.1	1.0	0.91
	20	0.071	5.3	4.2	3.5	3.0	2.6	2.3	2.1	1.8	1.5	1.3	1.2	1.1
	30	0.087	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.2	1.8	1.6	1.4	1.3
	40	0.10	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.5	2.1	1.9	1.7	1.5
	50	0.11	8.2	6.5	5.4	4.7	4.1	3.6	3.3	2.7	2.3	2.0	1.8	1.6
	60	0.12	8.9	7.1	5.9	5.1	4.5	4.0	3.6	3.0	3.5	2.2	2.0	1.8
	75	0.14	10.4	8.3	6.9	5.9	5.2	4.6	4.2	3.5	3.0	2.6	2.3	2.1
90	0.15	11.1	8.9	7.4	6.4	5.6	5.0	4.5	3.7	3.2	2.8	2.5	2.2	
TP80015	15	0.09	6.7	5.3	4.5	3.8	3.3	3.0	2.7	2.2	1.9	1.7	1.5	1.3
	20	0.11	8.2	6.5	5.4	4.7	4.1	3.6	3.3	2.7	2.3	2.0	1.8	1.6
	30	0.13	9.7	7.7	6.4	5.5	4.8	4.3	3.9	3.2	2.8	2.4	2.1	1.9
	40	0.15	11.1	8.9	7.4	6.4	5.6	5.0	4.5	3.7	3.2	2.8	2.5	2.2
	50	0.17	12.6	10.1	8.4	7.2	6.3	5.6	5.0	4.2	3.6	3.2	2.8	2.5
	60	0.18	13.4	10.7	8.9	7.6	6.7	5.9	5.3	4.5	3.8	3.3	3.0	2.7
	75	0.21	15.6	12.5	10.4	8.9	7.8	6.9	6.2	5.2	4.5	3.9	3.5	3.1
90	0.23	17.1	13.7	11.4	9.8	8.5	7.6	6.8	5.7	4.9	4.3	3.8	3.4	
TP8002	15	0.12	8.9	7.1	5.9	5.1	4.5	4.0	3.6	3.0	2.5	2.2	2.0	1.8
	20	0.14	10.4	8.3	6.9	5.9	5.2	4.6	4.2	3.5	3.0	2.6	2.3	2.1
	30	0.17	12.6	10.1	8.4	7.2	6.3	5.6	5.0	4.2	3.6	3.2	2.8	2.5
	40	0.20	14.9	11.9	9.9	8.5	7.4	6.6	5.9	5.0	4.2	3.7	3.3	3.0
	50	0.22	16.3	13.1	10.9	9.3	8.2	7.3	6.5	5.4	4.7	4.1	3.6	3.3
	60	0.24	17.8	14.3	11.9	10.2	8.9	7.9	7.1	5.9	5.1	4.5	4.0	3.6
	75	0.27	20	16.0	13.4	11.5	10.0	8.9	8.0	6.7	5.7	5.0	4.5	4.0
90	0.30	22	17.8	14.9	12.7	11.1	9.9	8.9	7.4	6.4	5.6	5.0	4.5	
TP8003	15	0.18	13.4	10.7	8.9	7.6	6.7	5.9	5.3	4.5	3.8	3.3	3.0	2.7
	20	0.21	15.6	12.5	10.4	8.9	7.8	6.9	6.2	5.2	4.5	3.9	3.5	3.1
	30	0.26	19.3	15.4	12.9	11.0	9.7	8.6	7.7	6.4	5.5	4.8	4.3	3.9
	40	0.30	22	17.8	14.9	12.7	11.1	9.9	8.9	7.4	6.4	5.6	5.0	4.5
	50	0.34	25	20	16.8	14.4	12.6	11.2	10.1	8.4	7.2	6.3	5.6	5.0
	60	0.37	27	22	18.3	15.7	13.7	12.2	11.0	9.2	7.8	6.9	6.1	5.5
	75	0.41	30	24	20	17.4	15.2	13.5	12.2	10.1	8.7	7.6	6.8	6.1
90	0.45	33	27	22	19.1	16.7	14.9	13.4	11.1	9.5	8.4	7.4	6.7	
TP8004	15	0.24	17.8	14.3	11.9	10.2	8.9	7.9	7.1	5.9	5.1	4.5	4.0	3.6
	20	0.28	21	16.6	13.9	11.9	10.4	9.2	8.3	6.9	5.9	5.2	4.6	4.2
	30	0.35	26	21	17.3	14.9	13.0	11.6	10.4	8.7	7.4	6.5	5.8	5.2
	40	0.40	30	24	19.8	17.0	14.9	13.2	11.9	9.9	8.5	7.4	6.6	5.9
	50	0.45	33	27	22	19.1	16.7	14.9	13.4	11.1	9.5	8.4	7.4	6.7
	60	0.49	36	29	24	21	18.2	16.2	14.6	12.1	10.4	9.1	8.1	7.3
	75	0.55	41	33	27	23	20	18.2	16.3	13.6	11.7	10.2	9.1	8.2
90	0.60	45	36	30	25	22	19.8	17.8	14.9	12.7	11.1	9.9	8.9	

HYPRO 7560C, 7560N, & 7560XL



Note: When ordering parts, give quantity, part number, description and complete model number. Reference numbers are used ONLY to identify parts in the drawing and NOT to be used as order numbers.

Repair Parts Kits:

3430-0381 Consists of: (8) Ref. 7 Super Rollers, (1) Ref. 6 O-ring and (2) Ref. 3 Viton Seals

3430-0167 Consists of: (8) Ref 7 Polypropylene Rollers, (1) Ref. 6 Oring, and (2) Ref. 3 Viton Seals

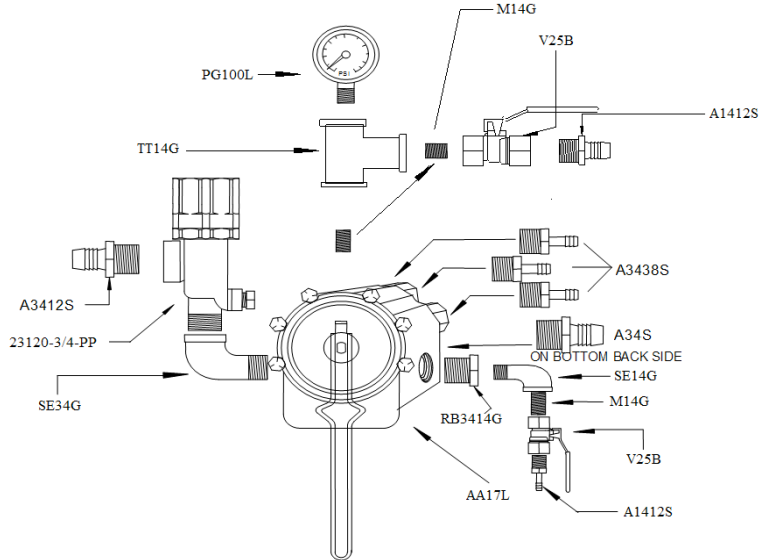
3430-0622 Consists of: (1) Ref. 8 Phenolic rotor, (1) Ref. 9 Shaft, and (1) Ref. 15 Key

Ref. No.	Qty. Req'd.	Part No.	Description
1	1	2300-0020	Bearing Cover
2	2	2008-0001	Sealed Ball Bearing
3	2	2112-0003	Viton Seal (Standard)
3	2	2112-0001	Buna-N Seal (Optional)
4	6	2210-0004	Bolts
5	1	0204-7500C	Endplate (Cast-Iron) with seal
5	1	0204-7500N	Endplate (NI-Resist) with seal
5	1	0204-7500X	Endplate (SilverCast) with seal
6	1	1720-0014	Oring Gasket for Endplate
7	8	1005-0004	SuperRoller (Standard)
7	8	1002-0004	Polypropylene Roller (Optional)
7	8	1052-0004	Buna-N Roller (Optional)
7	8	1055-0004	Teflon Roller (Optional)

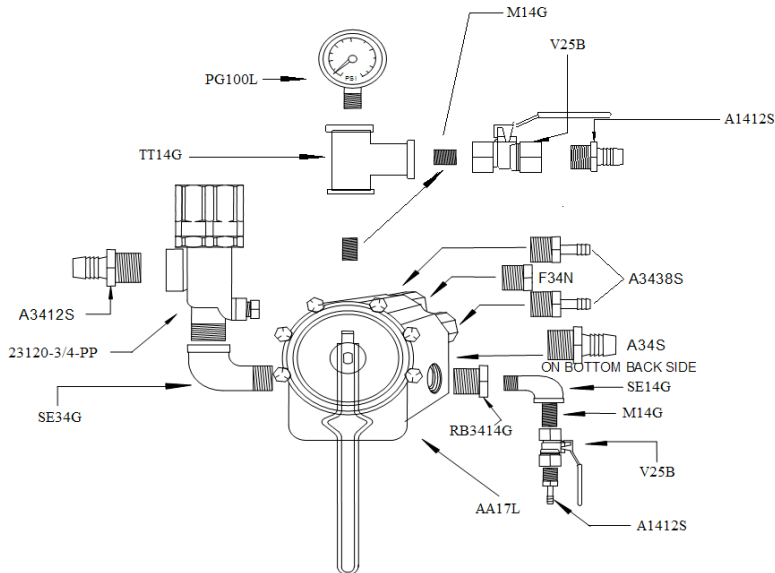
Ref. No.	Qty. Req'd.	Part No.	Description
8	1	0403-7500P	Phenolic (Standard)
9	1	0510-7500	Shaft (416 Stainless)
10	1 kit	3420-0003	Base Kit - Includes: (1) Base, (3) Bolts and (3) Washers
11	1	0104-7500C	Body (Cast Iron) with seal
11	1	0104-7500N	Body (Ni-Resist) with seal
11	1	0104-7500X	Body (SilverCast) with seal
12	1	2404-0052	1" Hose Barb
13	1	2300-0022	Shaft Bearing Cover
14	1	1610-0005	Key
15	1	1610-0059	Key (Stainless Steel)
16	1	N/A	Metal rotor assembly. Use kit 3430-0622 (Phenolic rotor)

PRESSURE HEAD FOR 6 & 8 ROW DELUXE BOOMS

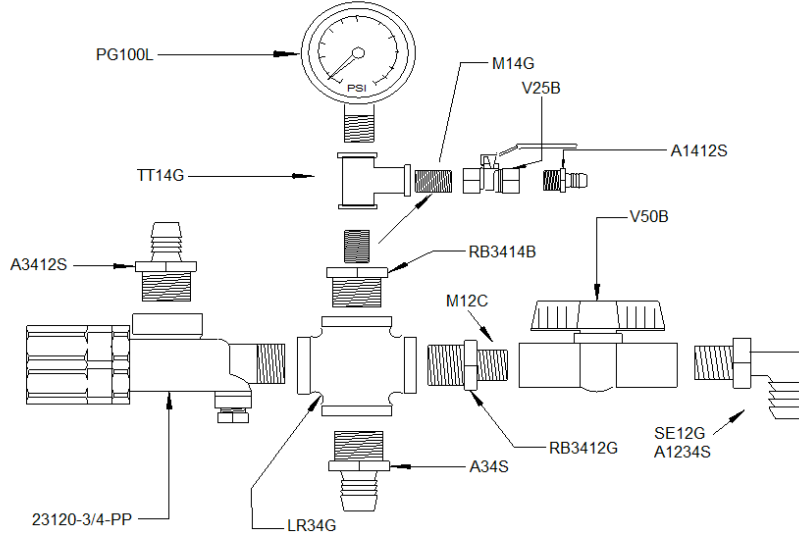
PRESSURE HEAD FOR RM 110-200 DLX



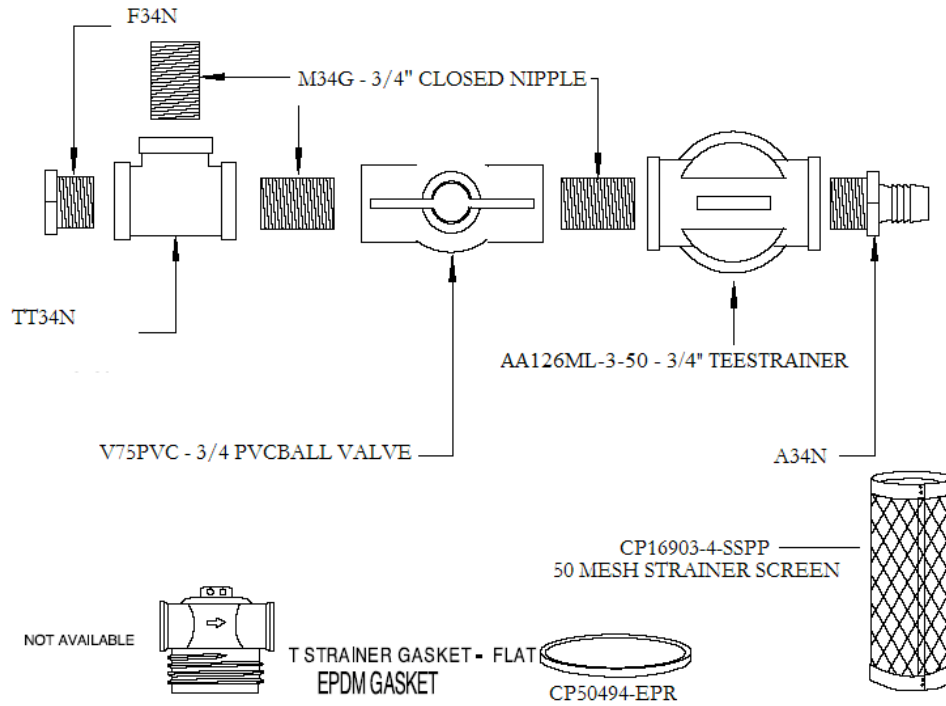
PRESSURE HEAD FOR RM 110-200 EXT



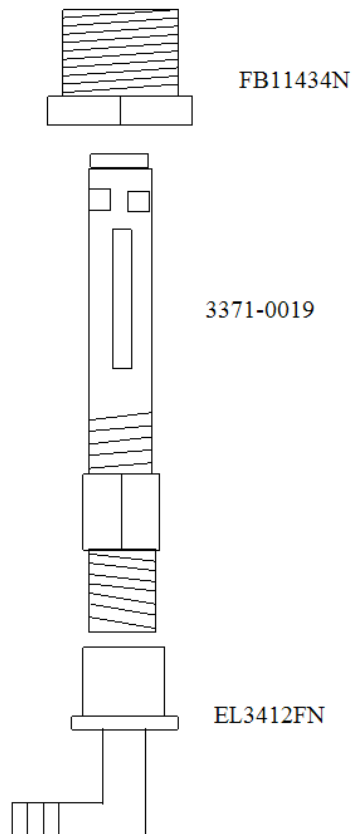
PRESSURE HEAD FOR 110, 150, & 200 BOOMJET



TANK PLUMBING



AGITATOR KIT



TROUBLE SHOOTING

PROBLEM

1. NO PRESSURE

- A. PUMP NOT PROPERLY PRIMED**
 - B. STRAINER CLOGGED**
 - C. PUMP SUCKING AIR or PUMP HAS AIR LOCK. CHECK HOSES FOR CRACKS or HOLES. MAKE SURE FITTINGS ARE TIGHT.**
 - D. SUCTION LINE COLLAPSING TOGETHER – NEED STIFFER HOSE**
 - E. WORN or LEAKING SEALS**
-

2. PUMP RUNS, BUT LOW PRESSURE

- A. SUCTION LINE & FITTINGS CLOGGED UP or HOSE KINKED**
 - B. WORN ROLLERS**
 - C. STOPPED UP STRAINER**
-

3. PUMP PRESSURE GOOD BUT LOW OUTPUT THROUGH NOZZLES

- A. NOZZLE SIZE MAY BE TOO SMALL. CHECK CALIBRATION & GALLONS PER ACRE**
 - B. INLET LINE TOO SMALL or BLOCKED OFF**
 - C. BY-PASS OPEN TOO MUCH. CLOSE VALVE SLIGHTLY**
-

4. EXCESSIVE VIBRATION or NOISE

- A. POSSIBLE LOOSE COUPLER OR DAMAGED SHAFT**
 - B. EXCESSIVE PTO or ENGINE SPEED**
 - C. ROTOR or INTERNAL PROBLEM**
-