Box 307
VONDA, Saskatchewan
SOK 4NO
306-258-2233

TO THE OWNER:

Congratulations on the purchase of your new LAURIER SPRAYER KIT.

Constructed of the finest quality materials, your LAURIER SPRAYER KIT is engineered and designed to do normal spraying operations effectively and efficiently, and to provide you with years of dependable service.

Be sure to read the instructions in this manual for adjusting and operating your LAURIER SPRAYER KIT. A few moments to acquaint yourself with the LAURIER SPRAYER KIT and its maintenace requirements will save you precious time in the field and protect your machinery investment. Should you in time, need replacement parts. please consult the parts list in this manual and contact your LAURIER DEALER.

HIGH LINE MFG. INC.

It is the policy of HIGH LINE MFG. INC. to improve its products whenever it is possible and practical. We reserve the right to make changes or add improvements, at any time, without incurring any obligation to make such changes on machines previously sold.

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Set-Up Instructions

NOTE: LEFT AND RIGHT DETERMINED FROM REAR OF MACHINE. TO SIMPLIFY SET-UP, UNIT MAY BE ASSEMBLED IN WORKING POSITION.

STEP 1:
MOUNT TANK AND SADDLE TO A-FRAME USING FOUR 1/2" x 3" x 7" U-BOLTS. FOR 15 FT. AND 20 FT. A-FRAME WITH 500 GALLON TANK USE FIG. 1, REMEMBERING TO PLACE TANK LID TO FRONT OF MACHINE. 20 FT. A-FRAME WITH 833 GALLON TANK USE FIG. 2. DO NOT TIGHTEN U-BOLTS.

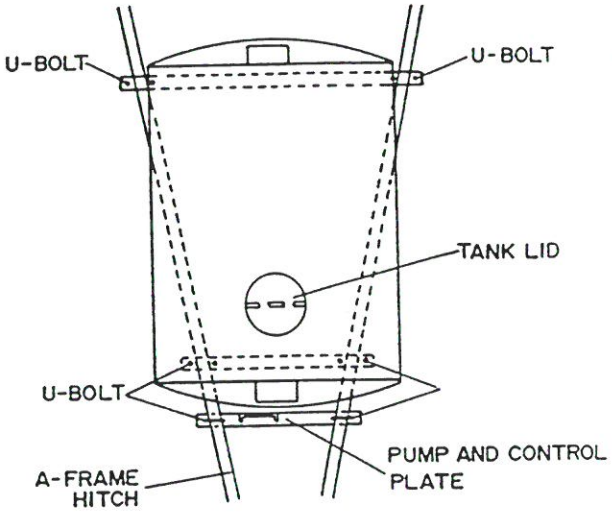

Fig. 1

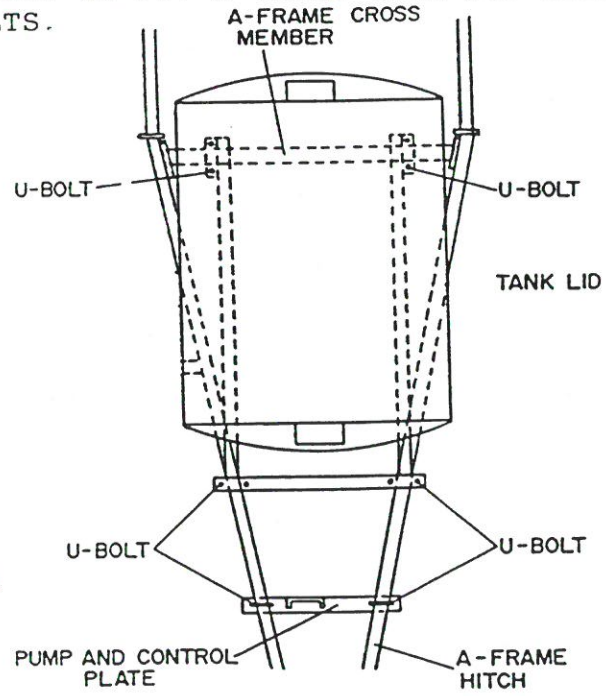

Fig. 2

STEP 2:
MOUNT PUMP AND PUMP GUARD UNDER A-FRAME AND PLACE PUMP GUARD ON TOP OF FRAME, WITH 1/2" x 3" x 7" U-BOLTS, BOLT PARTS AS SHOWN IN FIG. 3.
NOTE: ON 20 FT. A-FRAME, PUMP MUST BE UNBOLTED SO HYDRAULIC LINES CAN BE SLIPPED BETWEEN PUMP AND CONTROL PLATE. REBOLT PUMP. DO NOT TIGHTEN U-BOLTS.

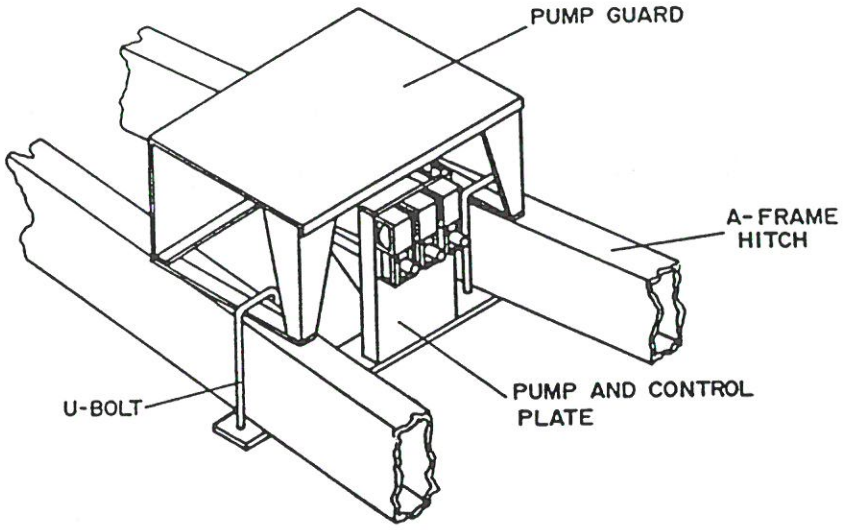

Fig. 3

STEP 3:

THE FOUR NOZZLES FOR HARROW BAR OR HARROW PACKER BAR WITH 11 FT. CENTRE TUBE. MOUNT CENTRE BOOM TO CENTRE BOOM SUPPORT WITH 3/8" x 1 3/4" BOLT AND CLAMP. BOLT CENTRE BOOM SUPPORT TO BRACKETS WELDED ON SADDLES ALSO WITH 3/8" x 1 3/4" BOLTS.

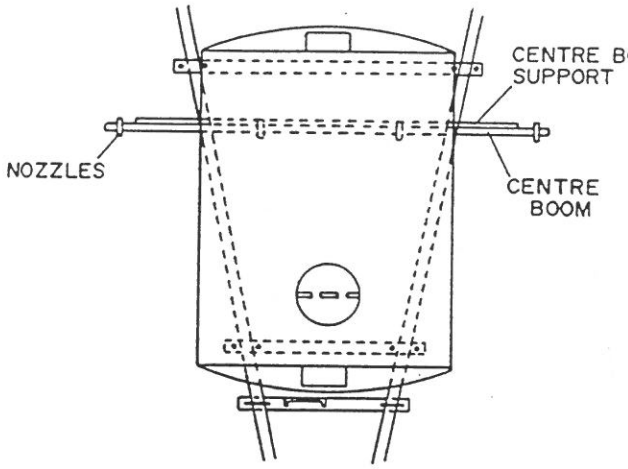

Fig. 4

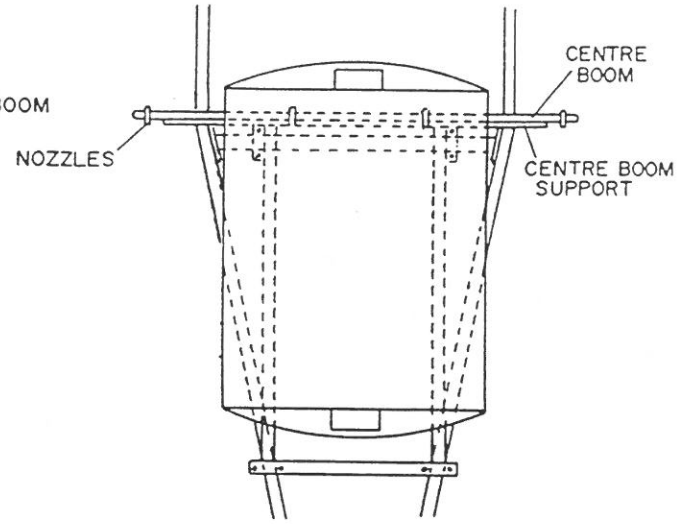

Fig. 5

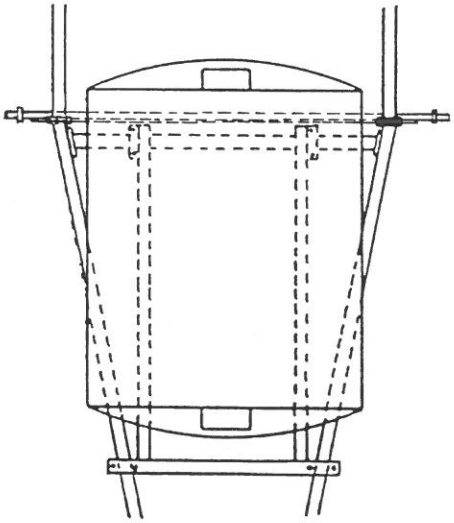

Fig. 6

NOTE: HARROW BAR WITH 15 FT. OR 20 FT. A-FRAME WITH 500 GALLON TANK SEE FIG. 4. HARROW BAR WITH 20 FT. A-FRAME AND A 833 GALLON TANK SEE FIG. 5.

STEP 4:
INSTALL 3/4" AGITATOR ASSEMBLY TO THE INSIDE BOTTOM OF THE TANK., ALSO INSTALL 2" ANTI-VORTEX TO THE INSIDE BOTTOM OF TANK. REFER TO FIGS. 7 & 8. AGITATOR SHOULD BE POINTED AWAY FROM ANTI-VORTEX AS VIEW FROM TOP OF TANK FIG. 9 SHOWS. NOTE: LEFT HAND THREAD ON THESE FITTINGS.

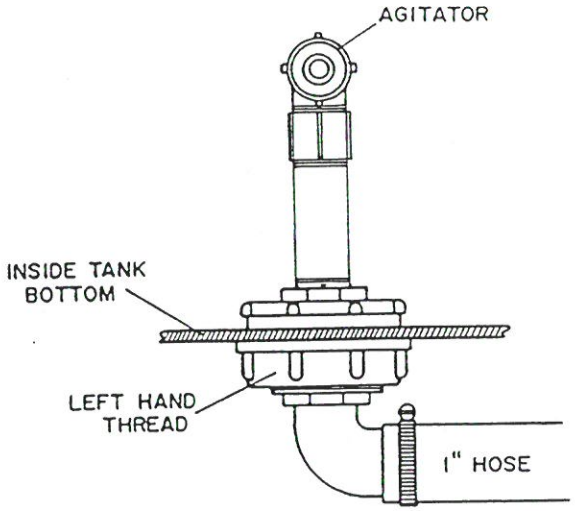

Fig. 7

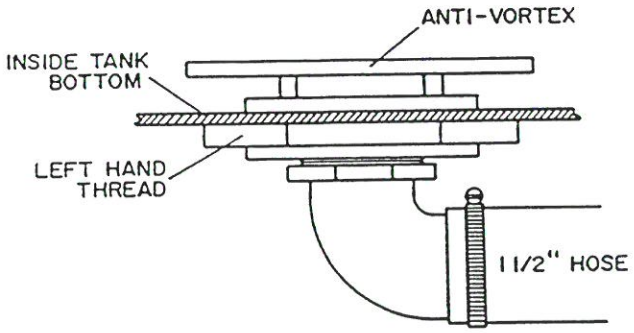

Fig. 8

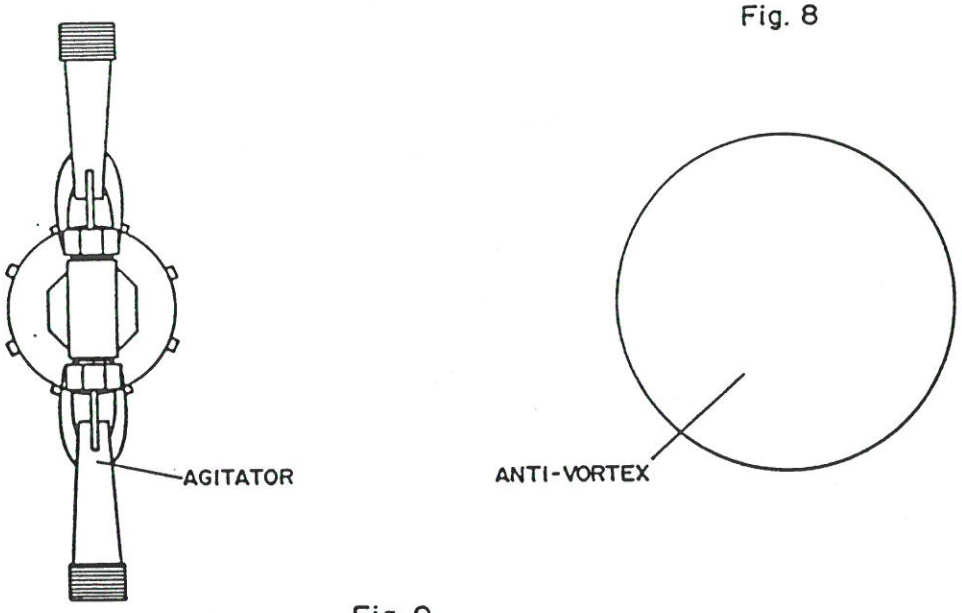

Fig. 9

STEP 5:
SCREW IN 3/4" x 90° ELBOW IN AGITATOR ASSEMBLY AND ALSO SCREW IN 1 1/2" x 90° ELBOW INTO ANTI-VORTEX ASSEMBLY. SECURE WITH SILICONE OR TAPE. BARB ENDS SHOULD BE FACING FRONT OF MACHINE. CONNECT 1" HOSE TO AGITATOR ASSEMBLY PLUS INSTALL 1 1/2" HOSE TO ANTI-VORTEX. REFER TO FIGS. 7 & 8. WHILE UNDER TANK CONNECT 1" HOSE TO CENTRE BOOM. SECURE ALL ABOVE HOSES WITH HOSE CLAMPS. NOTE: FOR ABOVE LENGTHS FOR HOSES TURN TO HOSE LENGTH CHART ON PAGE . FIND RIGHT TANK AND MACHINE AND LENGTHS ARE THEN GIVEN.

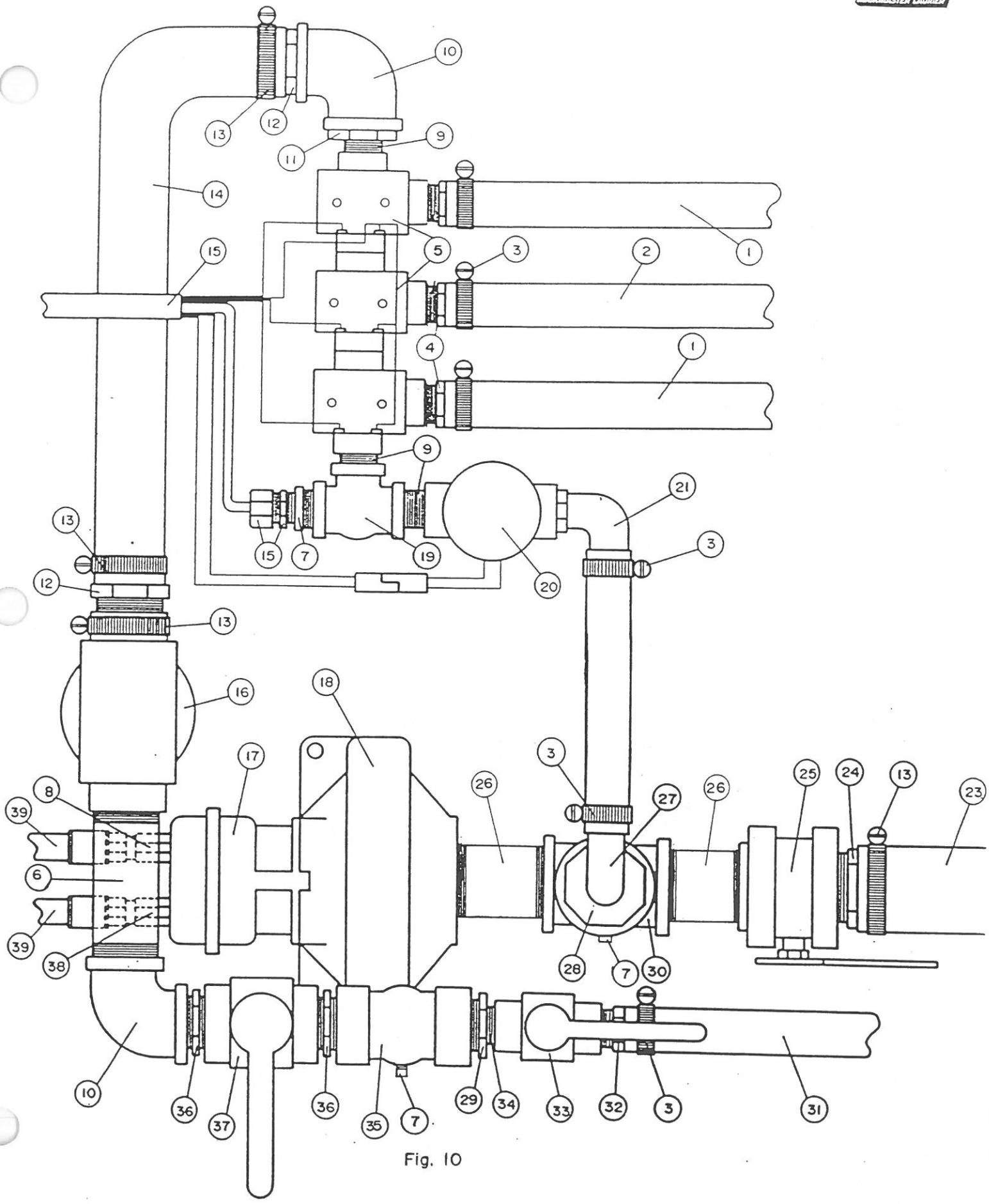
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Fig. 10

STEP 6:
CONNECT 1 1/2" HOSE COMING FROM ANTI-VORTEX TO THE 1 1/2" BALL VALVE GOING TO THE PUMP. CONNECT THE 1" HOSE COMING FROM THE AGITATOR TO THE 1" BALL VALVE WHICH LEADS TO THE FILTER. SECURE THE HOSES WITH HOSE CLAMPS. REFER TO FIG.10.

STEP 7:
SECURE 1" HOSE FROM CENTRE BOOM TO THE CENTRE SOLENOID VALVE. INSTALL 1" HOSE FOR RIGHT HAND BOOM TO THE OUTSIDE SOLENOID VALVE. ALSO INSTALL 1" HOSE FOR LEFT HAND BOOM TO THE INSIDE SOLENOID VALVE. ALL SOLENOID VALVES ARE MOUNTED TO THE PUMP AND CONTROL PLATE. REFER TO FIG.10. SECURE ABOVE HOSES WITH HOSE CLAMPS. FOR RIGHT HOSE LENGTHS TURN TO HOSE LENGTH CHART PAGE 21. FIND RIGHT TANK AND MACHINE AND LENGTHS ARE GIVEN.

STEP 8:
INSTALL NOZZLE ASSEMBLIES IN RIGHT HAND SPRAYER BOOM. THIS IS DONE BEFORE RIGHT HAND SPRAYER BOOM IS MOUNTED TO THE RIGHT HAND WING TUBE.

STEP 9:
MOUNT WING TUBE CLAMPS TO WING TUBE USING 3/8" x 5 1/4" x 6 1/6" U-BOLTS THESE CLAMPS ARE MOUNTED APPROXIMATELY AT 48" SPACING. MOUNT SPRAYER BOOM TO WING TUBES CLAMPS USING 3/8" x 1" BOLT AND SPRAYER BOOM CLAMP.
NOTE: POSITION FIRST SPRAUER NOZZLE ON CENTRE BOOM AS SHOWN IN FIG.10. REPEAT STEPS 8 & 9 FOR LEFT HAND BOOM. DO NOT TIGHTEN 3/8" x 1" BOLTS.

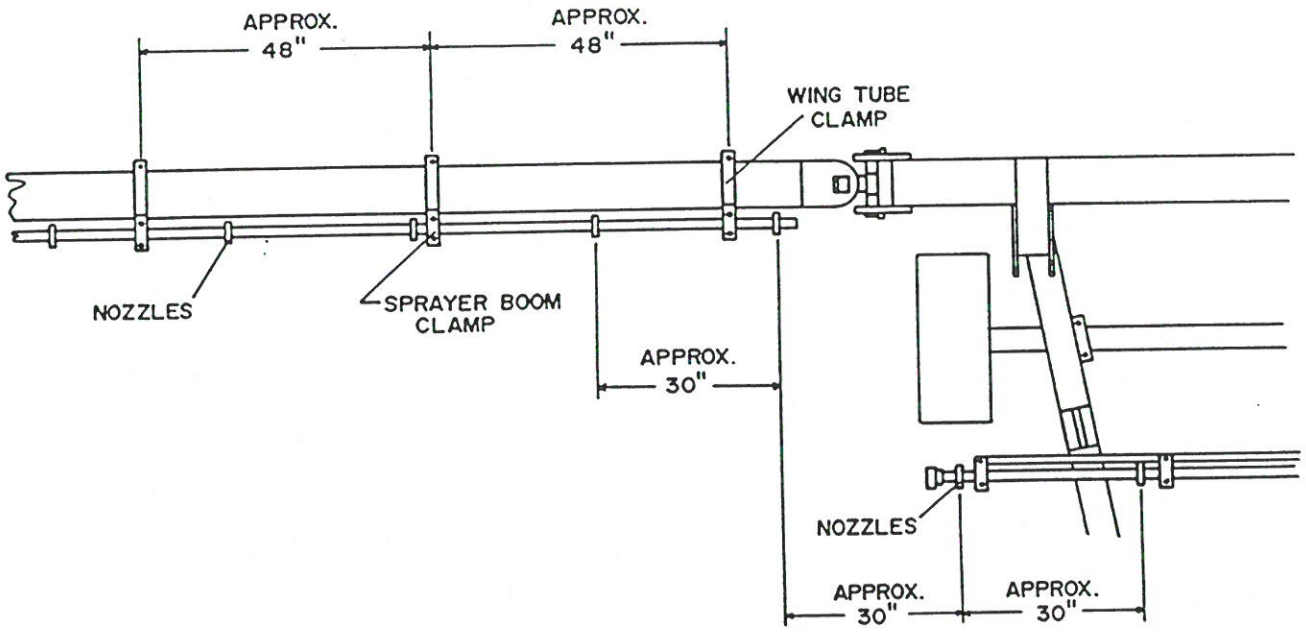


Fig. 11

STEP 10:
HARROW PACKER BAR BOOM ASSEMBLY - connect HPB boom brackets approximately 48" apart with 7/16" x 1 1/4" bolts. There is a hose that goes around the transport wheel as shown below.

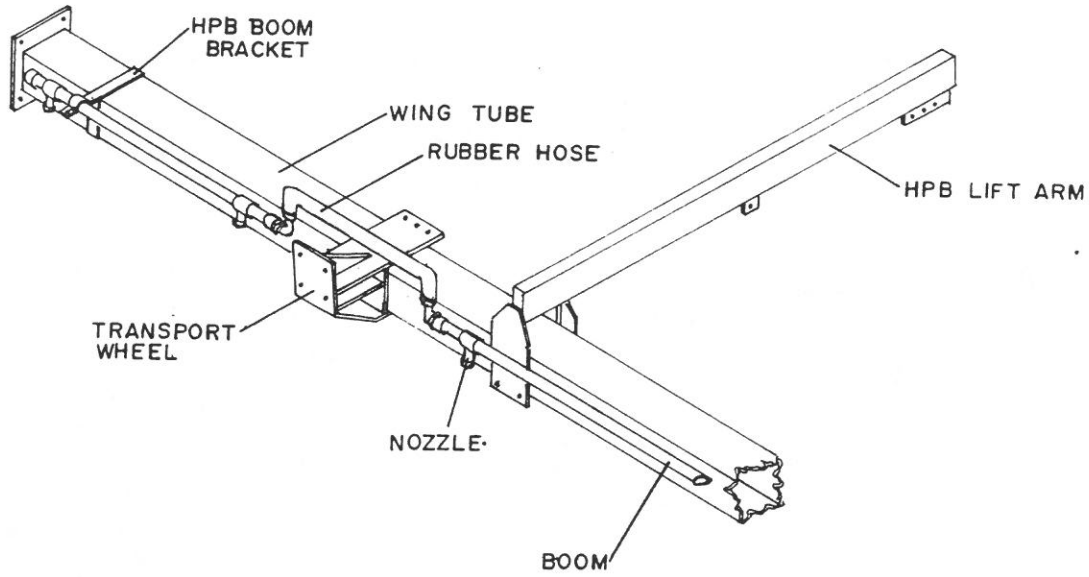


Fig. 12

STEP 11:
BEFORE TIGHTENING RIGHT, LEFT AND CENTRE SPRAYER BOOMS ROTATE SPRAYER BOOM SO AS TO PALCE SPRAYER NOZZLES AT AN APPROXIMATELY 5° FRONT ANGLE AS SHOWN IN FIG. 13. THEN TIGHTEN SPRAYER BOOMS IN PLACE FOR HARROW BAR AND PACKER BAR.

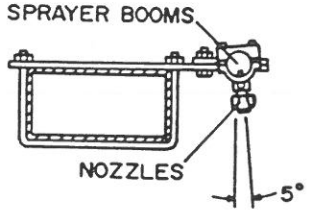


Fig. 13

STEP 12:
CONNECT RIGHT HAND BOOM HOSE FROM OUTSIDE SOLENOID VALVE TO RIGHT HAND BOOM. ALSO CONNECT LEFT HAND BOOM HOSE FROM INSIDE SOLENOID VALVE TO LEFT HAND BOOM. SECURE HOSE TO RIGHT AND LEFT HAND BOOMS WITH HOSE CLAMPS. SECURE 1" HOSE IN PLACE ALONG A-FRAME BY USING THE STRAPS. NOTE: FOR 15 FT. A-FRAME FOLLOW FIG.14 FOR HOSE AND TIE STRAPS PLACEMENT. FOR 20FT. A-FRAME WITH EITHER A 500 GALLON TANK OR 833 GALLON TANK FOLLOW FIG.15 FOR HOSE AND TIE STRAP PLACEMENT.

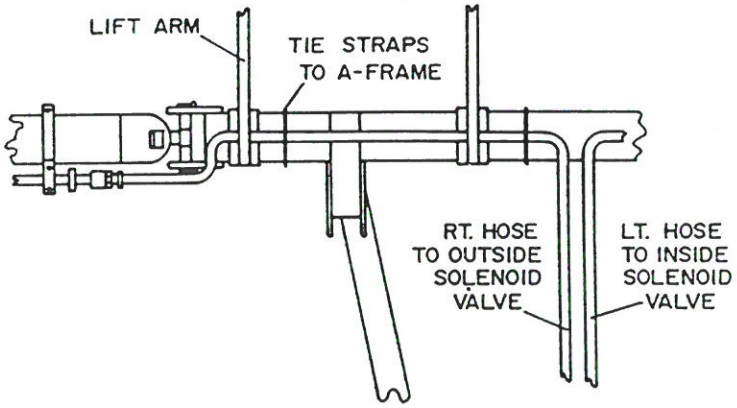


Fig. 14

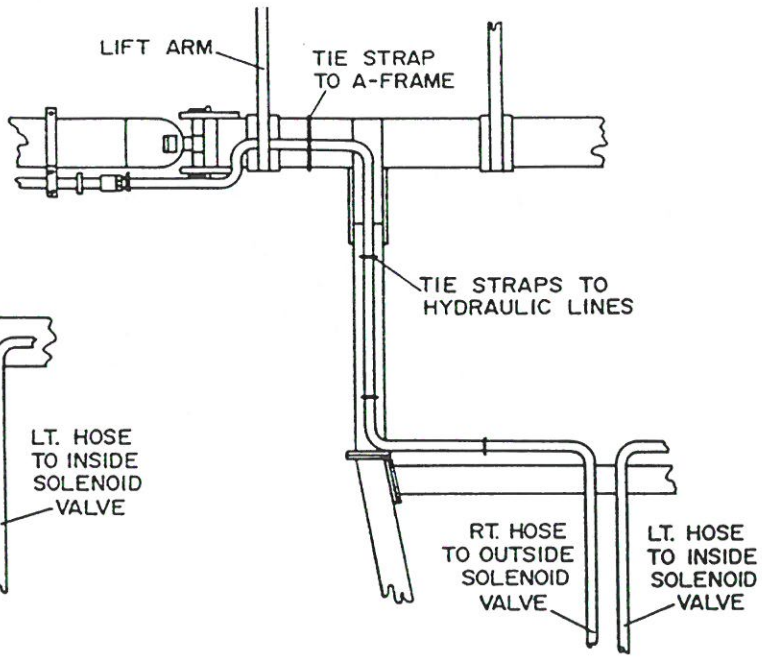


Fig. 15

STEP 13:
CONNECT HYDRAULIC HOSES FROM TRACTOR TO THE HYDRAULIC MOTOR REFERRING TO PUMP AND CONTROL UNIT DIAGRAM FIG.10. NOTE: THE TRACTOR RESERVOIR MAY REQUIRE ADDITIONAL OIL.

STEP 14:
TIGHTEN ALL U-BOLTS USED ON SADDLE TANK AND ALSO TIGHTEN ALL U-BOLTS USED ON PUMP AND CONTROL PLATE. THEREBY SECURING TANK AND CONTROL PLATE IN PLACE.

STEP 15:
INSTALL SPRAYER CONTROL MONITOR TO TRACTOR GROUND MONITOR BY USING WHITE WIRE, RED WIRE IS FOR POWER PREFERRABLY CONNECTED TO FUSES. JOIN SPRAYER CONTROL MONITOR HARNESS TO HARNESS COMING FROM SOLENOIDS ON PUMP AND CONTROL PLATE. LONGER HARNESS IS AVAILABLE IF NEEDED. SEE FIG.16.

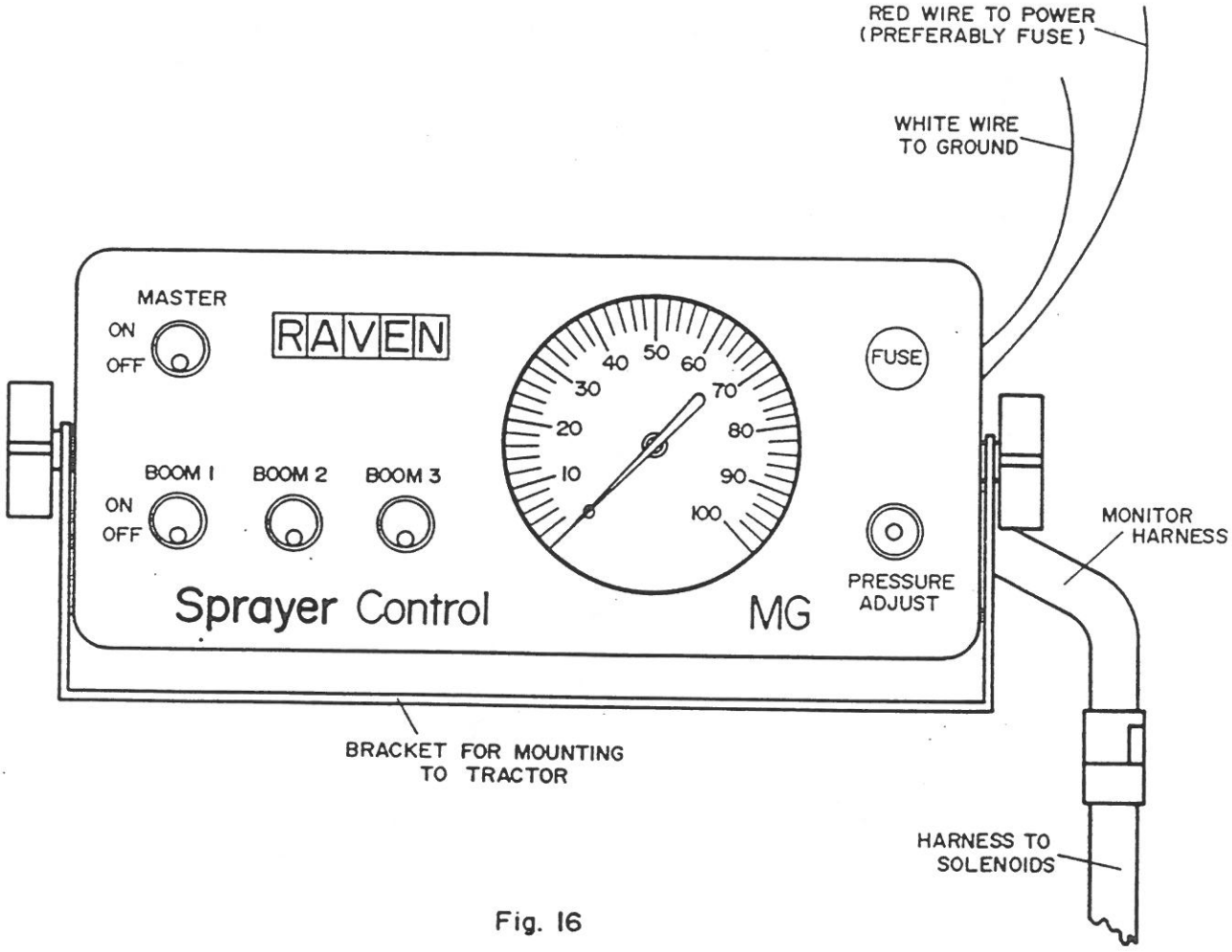


Fig. 16

STEP 16:
SPLIT WING HARROW BAR SPRAY KIT ASSEMBLY - Attach front centre and rear booms approximately 48" apart with boom bracket and 3/8" x 6" x 5 1/4" U-bolt. Between the booms, a rubber hose is attached.

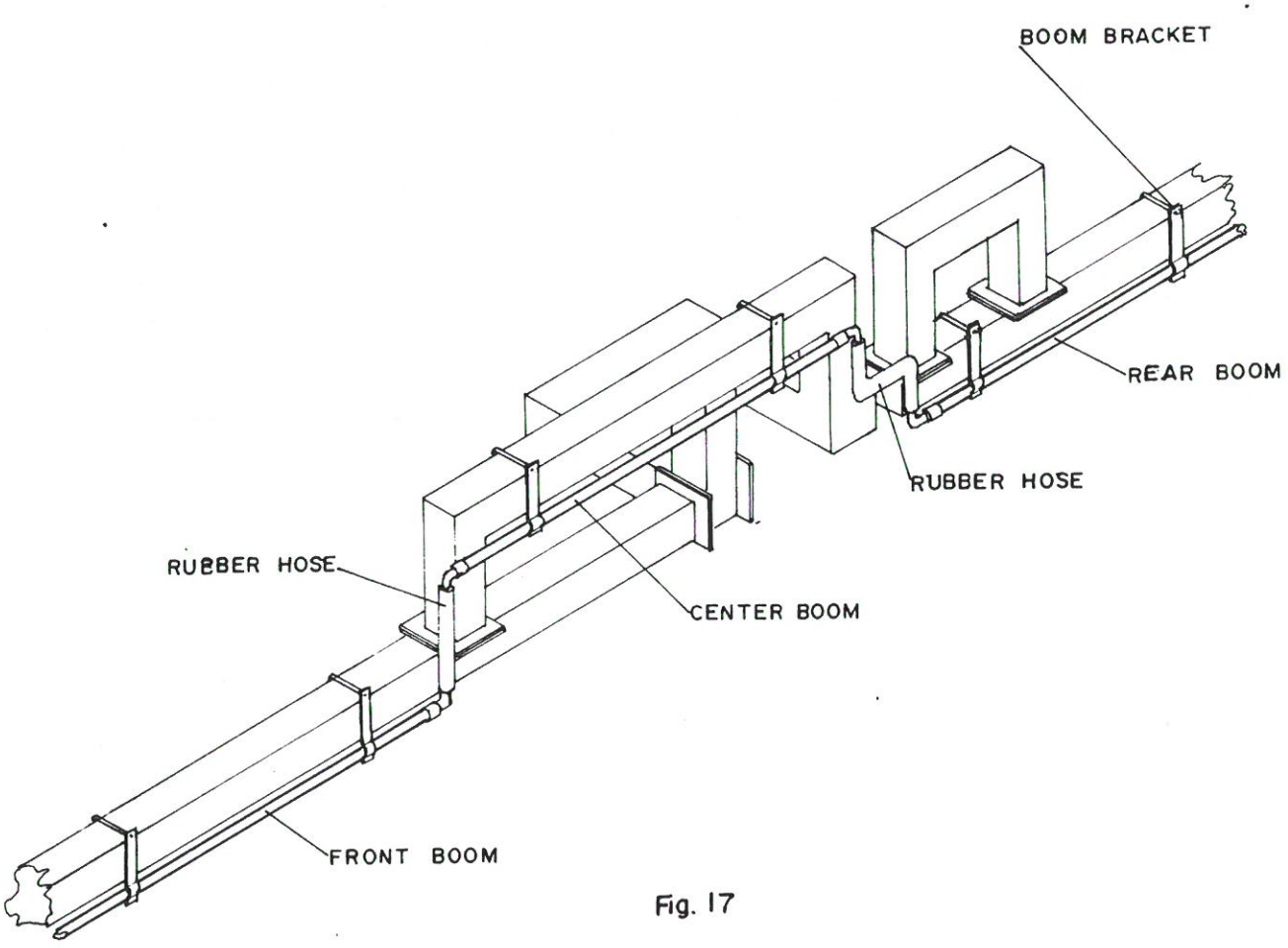


Fig. 17

Operating Instructions

NOTE: BEFORE USING UNIT, REMOVE ALL END CAPS ON PVC BOOM. THEN FLUSH COMPLETE SYSTEM WITH CLEAN WATER.

ENSURE THAT THE HYDRAULIC MOTOR AND PUMP COMPLEMENT YOUR TRACTOR UNIT. FAILURE TO DO SO WILL RESULT IN DAMAGE TO THE TRACTOR HYDRAULIC SYSTEM. THE PUMP UNIT, AND/OR BOTH. REFER TO THE "HYDRAULIC MOTOR DRIVEN HYPRO CENTRIFUGAL PUMP SELECTION GUIDE" SEE PAGE 12 TO ENSURE OF THE PROPER CHOICE.

THIS SPRAYER UNIT IS EQUIPPED WITH A CENTRIFUGAL PUMP WHICH HAS DIFFERENT OPERATING CHARACTERISTICS FROM POSITIVE DISPLACEMENT PUMPS. THIS PUMP DOES NOT PUMP A FIXED AMOUNT OF FLUID WHICH MUST GO TO THE BOOMS OR THROUGH A PASS. THIS PUMP CAN BE THROTTLED TO PROVIDE JUST ENOUGH FLOW FOR THE BOOMS. THE REGULATOR VALVE IS USED TO FINE TUNE THE SYSTEM.

HOW TO PUT SPRAYER IN OPERATING POSITION. FOR REFERENCE TO VALVE INSTRUCTIONS SEE FIG. 10 ON OPPOSITE PAGE.

A. FILL TANK WITH ABOUT 150 GALLONS OF WATER

B. ENSURE THAT THE 1 1/2" BALL VALVE IS IN OPEN POSITION (VALVES ARE OPEN WHEN HANDLES ARE RUNNING IN THE SAME DIRECTION AS PIPES). THIS ALLOWS WATER TO ENTER INTO PUMP.

C. OPEN 1" BALL VALVE BY PUTTING HANDLE IN SAME DIRECTION AS PIPES. THIS ALLOWS WATER TO GO TO THE AGITATOR IN THE TANK.

D. CLOSE THE THROTTLE VALVE, THIS IS DONE BY PLACING HANDLE IN OPPOSITE DIRECTION OF PIPES.

E. PLACE CONTROL PANEL MASTER SWITCH TO "ON" POSITION. ALSO ENGAGE BOOM #1, #2 and #3 TO "ON" POSITION. HOLD THE PRESSURE ADJUST SWITCH TO INCREASE POSITION. HOLD THE PRESSURE ADJUST SWITCH TO INCREASE POSITION. HOLD THE PRESSURE ADJUST SWITCH TO INCREASE POSITION FOR 5 SECONDS TO ALLOW REGULATOR VALVE TO CLOSE. (IF INCREASE POSITION IS NOT SHOWN ON THE UNIT, HOLD IT "UP" FOR THAT SAME AMOUNT OF TIME).

F. ENGAGE HYDRAULIC PUMP DRIVE. THIS IS DONE BY BRINGING TRACTOR TO OPERATING SPEED (RPM).

G. OPEN THE THROTTLE VALVE SLOWLY AND WATCH THE PRESSURE INCREASE ON THE GAUGE. ONCE THE PRESSURE REACHES THE DESIRED POSITION, TURN TO SPRAYER NPZZLE CHART ON PAGE 20.. STANDARD NOZZLE IS 11003LP, FIND DESIRED POSITION PRESSURE BY LOOKING AT MACHINE OPERATING SPEED. OPEN THE THROTTLE VALVE A LITTLE MORE IF MORE PRESSURE IS NEEDED.

H. SHUT OFF BOOM #1 AND WATCH AS PRESSURE INCREASES, TO ADJUST THE PRESSURE, USE THE PRESSURE ADJUST SWITH (IN "DOWN" POSITION) TO LOWER THE PRESSURE TO THE DESIRED LEVEL. IF THE PRESSURE CANNOT BE LOWERED SUFFICIENTLY, IT MAY BE NECESSARY TO CLOSE THE THROTTLE VALVE SLIGHTLY.

I. THE UNIT IS NOW READY FOR FIELD OPERATION. THE THROTTLE VALVE CAN BE LEFT AT THIS SETTING.

HOW TO DRAIN SPRAYER SYSTEM

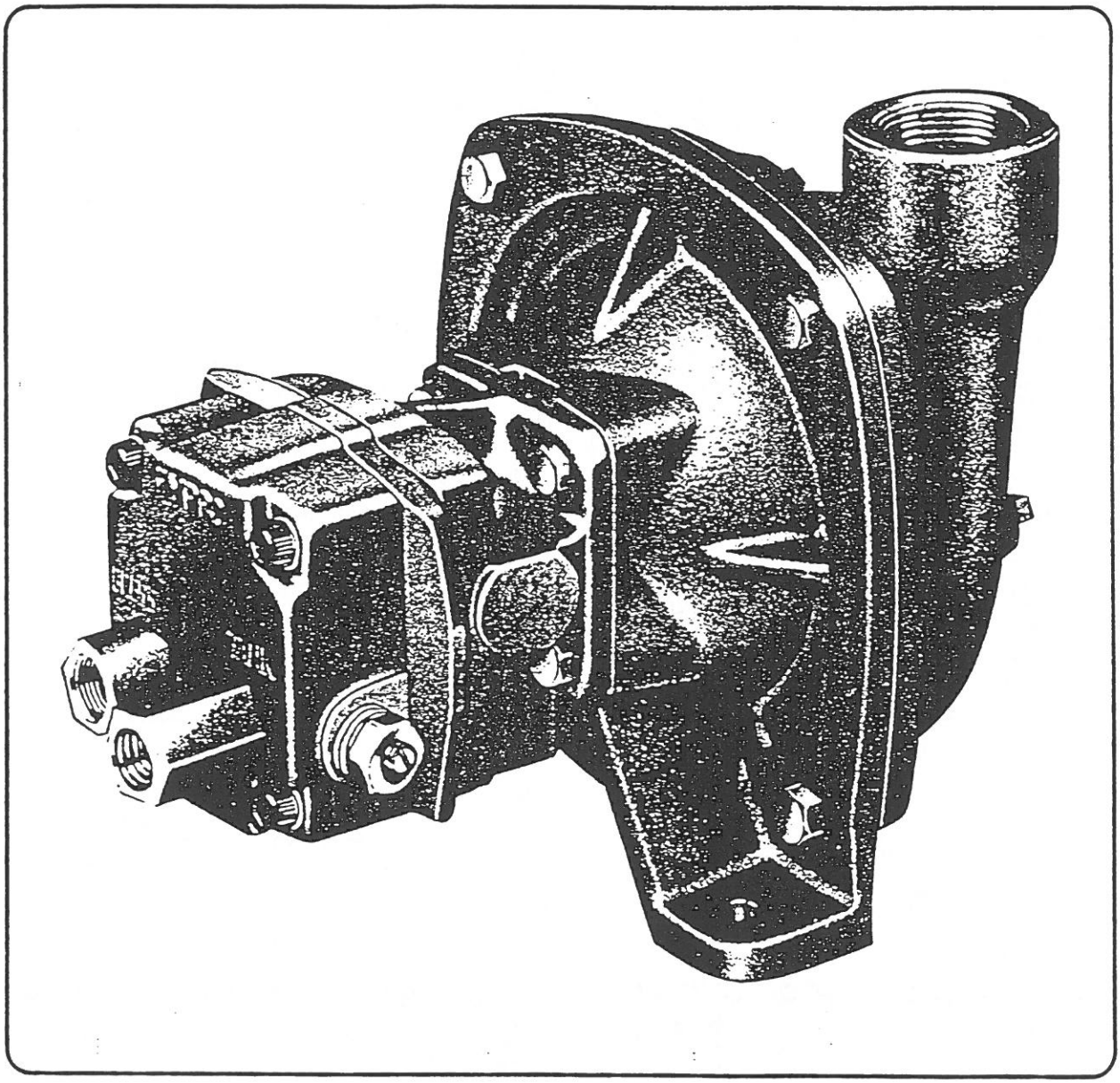
A. REMOVE PLUG OUT OF BOTTOM OF CROSS. THIS PLUG SHOULD BE REMOVED UNTIL SPRAYER IS NEEDED AGAIN. ·

B. DRAIN WATER OUT OF CENTRIFUGAL PUMP BY REMOVING DRAIN PLUG ON BOTTOM OF PUMP. THIS PLUG CAN BE REPLACED WHEN FINISHED DRAINING.

C. REMOVE AND DRAIN FILTER. CHECK TO SEE IF FILTER SHOULD BE REPLACED BEFORE PUTTING FILTER BACK IN PLACE.

D. REMOVE CAPS FROM RIGHT, LEFT AND CENTRE BOOM TO ALLOW FOR DRAINING. THESE CAPS SHOULD BE LEFT OFF UNTIL SPRAYER IS NEEDED AGAIN.

Hypro Hydraulic Motor Driven Centrifugal Pump Selection Guide For Tractor Hydraulic Systems



Hypro®
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On open center systems, installation of hydraulic motor driven centrifugal pumps may result in insufficient hydraulic pressures to operate other hydraulic equipment requiring higher hydraulic pressures, such as cylinders. If that occurs, it may be necessary to temporarily stop your hydraulic driven pump to restore the hydraulic system pressure to its normal operating pressure range.

On open center systems, as the engine speed changes, so does the hydraulic pump flow. For that reason, adjustments made on the hydraulic driven pump should be made with tractor engine speed as close as possible to what it will be operating at in the field. The hydraulic flow on some open center hydraulic systems also decreases when power steering is in use; consequently, so does centrifugal pump flow.

The tractor hydraulic system data contained in these tables should be used only as a guide. For assurance that any continuous duty equipment, such as hydraulic driven centrifugal pumps, will not overheat your hydraulic system, or for more detailed information, consult your tractor manufacturer.

IMPORTANT: Any closed center hydraulic system marked with L.S. is load sensing. All other closed center systems not marked are pressure sensing.

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL			
				HM1	HM2	HM3	HM4
Agricultural Tractors with 2 Wheel Drive							
ALLIS CHALMERS							
ONE SIXTY	OPEN	2300	6.7		X		
ONE SEVENTY-G	OPEN	2000	10	X			(2)
ONE SEVENTY-D	OPEN	2000	10	X			(2)
175 CROP HUSTLER	OPEN	2000	11	X			
175-G	OPEN	2400	11	X			
175-D	OPEN	2400	11	X			
180-G	OPEN	2000	10	X			(2)
180-D	OPEN	2000	10	X			(2)
185	OPEN	2000	10	X			
185 AFTER 1972	OPEN	2000	11	X			(2)
185-D	OPEN	2400	11	X			
190-D	OPEN	2000	12.75	X			
190-GXT	OPEN	2000	12.75	X			
190-DXT	OPEN	2000	12.75	X			
200-D	OPEN	2400	13.2	X			
210	OPEN	2000	18	(1)		X	
210 AFTER 1972	OPEN	2400	18	(1)		X	
220	OPEN	2000	18	(1)		X	
220 AFTER 1972	OPEN	2400	18	(1)		X	
5020	OPEN	1900	5.4		X		
5030	OPEN	1900	5.4		X		
5040	OPEN	2133	5.75		X		
5040 AFTER 1978	OPEN	2133	6.23		X		
5045	OPEN	2770	6.25		X		
5050	OPEN	2133	6.23		X		
5050 AFTER 1978	OPEN	2133	6.47		X		
6040	OPEN	2300	7				X
6060	OPEN	2300	10	X			(2)
6070	OPEN	2300	10	X			
6080	OPEN	2300	10	X			(2)
6140	OPEN	2000	10	X			
7000	OPEN	2400	5.88		X		
7010-PD	CLOSED (LS)	2500	17				X
7010-PS	CLOSED (LS)	2500	17				X
7020	CLOSED (LS)	2500	17				X
7020-PS	CLOSED (LS)	2500	17				X
7030	CLOSED (LS)	2500	17				X
7040	CLOSED (LS)	2500	17				X
7040-PS	CLOSED (LS)	2500	17				X
7045	CLOSED (LS)	2500	17				X
7045-PS	CLOSED (LS)	2500	17				X
7050	CLOSED (LS)	2500	17				X
7060	CLOSED (LS)	2500	17				X
7060-PS	CLOSED (LS)	2500	17				X
7080	CLOSED (LS)	2500	18				X
8010	CLOSED (LS)	2500	17				X
8030	CLOSED (LS)	2500	17				X
8050	CLOSED (LS)	2500	17				X
8070	CLOSED (LS)	2500	17				X

(1) For spraying pressures in excess of 60 p.s.i. use HM1.
If directional valve lever kicks out, do not tie lever in operating position. Use next size larger hydraulic motor (HM3), or adjust directional valve detents.
If other implements are to be used, use smaller hydraulic motor, HM1.
(2) For spraying pressures in excess of 80 p.s.i., use HM4.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

CASE/DAVID BROWN							
780	OPEN	2000	7.3		X		
880	OPEN	2000	7.3		X		
885	OPEN	2500 (1)	7.3		X		
990	OPEN	2500 (1)	7.3		X		
995	OPEN	2500 (1)	7.3		X		
1200	OPEN	2000	6.9 (2)		X		
1210	OPEN	2500 (1)	6.9 (2)		X		
1212	OPEN	2500 (1)	6.9 (2)		X		
1410	OPEN	2500	7.3 (2)		X		
1410 AFTER 1977	OPEN	2500	15.5	X			
1412	OPEN	2500	7.3 (2)		X		
3800	OPEN	2000	7.3		X		
4600	OPEN	2000	7.3		X		

(1) All 1972 model tractors & earlier have a maximum pressure of 2000 p.s.i.
(2) Maximum flow capability is 15.5 GPM on some models equipped with larger hydraulic pump. On these models the centrifugal pump recommendation is the HM1.

Agricultural Tractors with 2 Wheel Drive (continued)

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
J.I. CASE							
470	OPEN	1550	8.6	X	(2)		
570	OPEN	1550	9.3	X			
770	OPEN	1550	14-16 (1)	X			
870	OPEN	1550	14-16 (1)	X			
970	OPEN	1900	14-16 (1)	X			
1070	OPEN	2100	14-16 (1)	X			
1090	OPEN	2250	14-16	X			
1170	OPEN	2250	14-16	X			
1175	OPEN	2250	14-16	X			
1190	OPEN	2200	7.25				X
1194	OPEN	2200	7.25				X
1270	OPEN	2200	20	(3)		X	
1270 AFTER 1973	OPEN	2050	20	(3)		X	
1290	OPEN	2200	7.25				X
1294	OPEN	2200	7.25				X
1370	OPEN	2200	20	(3)		X	
1370 AFTER 1973	OPEN	2050	20	(3)		X	
1390	OPEN	2200	15.2	X			
1394	OPEN	2200	15.2	X			
1490	OPEN	2200	15.2	X			
1494	OPEN	2200	15.2	X			
1570	OPEN	2200	20	(3)		X	
1594	OPEN	2200	20.1			X	
1690	OPEN	2200	20.1			X	
1896	CLOSED (LS)	2250	22				X
2090	CLOSED (LS)	2250	22				X
2094	CLOSED (LS)	2250	23				X
2096	CLOSED (LS)	2250	22				X
2290	CLOSED (LS)	2250	22				X
2294	CLOSED (LS)	2250	23				X
2390	CLOSED (LS)	2250	24				X
2394	CLOSED (LS)	2250	27				X
2590	CLOSED (LS)	2250	24				X
2590 AFTER 1979	CLOSED (LS)	2250	23				X
2594	CLOSED (LS)	2250	27				X
3294	CLOSED (LS)	2250	23				X
3394	CLOSED	2250	17				X
3594	CLOSED	2250	17				X

(1) In 1971 model tractors and earlier the maximum flow is 14 GPM.
(2) For spraying pressures in excess of 60 p.s.i. use series HM2
(3) If other implements are to be used use smaller hydraulic motor. HM1
(4) For spraying pressures in excess of 80 p.s.i. use HM4
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

JOHN DEERE							
650	OPEN	1800	4.5		X		(3)
750	OPEN	2000	5.8		X		(3)
820	OPEN	2100	6.5		X		(3)
830	OPEN	2100	6.5		X		(3)
850	OPEN	2100	5.0		X		(3)
850 AFTER 1979	OPEN	2100	6.5		X		(3)
950	OPEN	2100	5.0		X		(3)
950 AFTER 1979	OPEN	2100	6.5		X		(3)
1020	CLOSED	2250	6.5		X		(3)
1020 AFTER 1979	CLOSED	2250	12		X		(3)
1050	OPEN	2100	5.0		X		(3)
1050 AFTER 1979	OPEN	2100	6.5		X		(3)
1250	OPEN	2100	6.5		X		(3)
1450	OPEN	2100	6.5		X		(3)
1650	OPEN	2100	6.5		X		(3)
1520	CLOSED	2250	6.5		X		(3)
1520	CLOSED	2250	12				X
1530	CLOSED	2250	6.5		X		(3)
1530	CLOSED	2250	12				X
2020	CLOSED	2250	6.5		X		(3)
2020	CLOSED	2250	12				X
2030	CLOSED	2250	12				X
2030	CLOSED	2250	14				X
2040 (1)	OPEN	2100	6.5		X		(3)
2040(2)	CLOSED	2250	12				X
2150	CLOSED	2350	13.5				X
2155	CLOSED	2320	22				X
2240	CLOSED	2250	12				X
2255	CLOSED	2350	13.5				X
2350	CLOSED	2350	13.5				X
2355	CLOSED	2320	22				X
2440	CLOSED	2250	12				X
2440	CLOSED	2250	14				X
2520	CLOSED	2250	14				X
2550	CLOSED	2250	13.5				X
2555	CLOSED	2320	22				X
2630	CLOSED	2250	12				X
2630	CLOSED	2250	14				X
2640	CLOSED	2250	12				X
2640	CLOSED	2250	14				X
2750	CLOSED	2350	19				X
2755	CLOSED	2320	22				X
2840	CLOSED	2250	14				X
2940	CLOSED	2250	14				X
2950	CLOSED	2350	19				X
2955	CLOSED	2320	22				X
3020	CLOSED	2250	14				X
3150	CLOSED	2250	14				X
3155	CLOSED	2320	22				X

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(JOHN DEERE-continued)	**Agricultural Tractors with 2 Wheel Drive (continued)**						
4000	CLOSED	2250	18				X
4020	CLOSED	2250	18				X
4030	CLOSED	2250	14				X
4040	CLOSED	2250	18				X
4050	CLOSED	2350	25.5				X
4230	CLOSED	2350	18				X
4240	CLOSED	2250	18				X
4250	CLOSED	2350	25.5				X
4320	CLOSED	2250	18				X
4430	CLOSED	2250	18				X
4440	CLOSED	2250	18				X
4450	CLOSED	2350	25.5				X
4620	CLOSED	2250	18				X
4630	CLOSED	2250	18				X
4640	CLOSED	2250	18				X
4650	CLOSED	2350	24				X
4840	CLOSED	2250	18				X
4850	CLOSED	2350	24				X
5020	CLOSED	2250	18				X
6030	CLOSED	2250	18				X

(1) Tractor serial numbers through 266749.
(2) Tractor serial numbers beginning with 266750.
(3) HM4 unit interchangeable with HM2.

DEUTZ							
D3006	OPEN	2490	7.2 (2)				
D4006	OPEN	2490	6.4 (2)				
D4506	OPEN	2485	7.3 (2)				
D4507	OPEN	2500	8.7	X			
D5206	OPEN	2572	7.2 (2)				
D5207	OPEN	2500	9.0	X			
D5506	OPEN	2490	Unknown (2)				
D6006	OPEN	2490	Unknown (2)				
D6007 AFTER 1974	OPEN	2840	Unknown (2)				
D6206	OPEN	2485	7.5 (2)				
D6507	OPEN	2500	9.7	X			
D6507C	OPEN	2500	9.7	X			
D6806	OPEN	2940	9.2 (2)				
D7007	OPEN	2500	10.6	X			
D7206	OPEN	2939	Unknown (2)				
D7807	OPEN	2500	11	X			
D7807C	OPEN	2500	11	X			
D8006	OPEN	2485	8.6 (2)				
D8006 AFTER 1977	OPEN	2485	9.5 (2)				
D9006	OPEN	2490	Unknown (2)				
D10006	OPEN	2485	8.6 (2)				
D10006 AFTER 1977	OPEN	2485	10.5 (2)				
D13006	OPEN	2485	10.8 (2)				
D13006 AFTER 1978	OPEN	2485	11.5 (2)				
DX4.70	OPEN	2500	12.4	X			
DX6.30	OPEN	2500	15.3	X			
DX6.50	OPEN	2500	14.8	X			
DX7.10	OPEN	2500	18.2			X	
DX90	OPEN	2485	14.7	X			
DX110	OPEN	2485	14.7	X			
DX140	OPEN	2485	18.2	(1)		X	
DX160	OPEN	2485	18.2	(1)		X	

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor, HM1.
(2) These tractors have many optional hydraulic pumps available. Consult your tractor manual or dealer to determine flow available at remote outlet in your tractor.
Flows 8 GPM or less use HM2.
Flows 8 GPM to 17 GPM use HM1.
Flows 17 GPM and over use HM3.
For spraying pressures over 70 p.s.i. the HM1 requires a minimum of 11 GPM. HM3 requires a minimum of 20 GPM.
Optional auxiliary hydraulic reservoir is recommended to prevent overheating.

FORD							
1000	OPEN	1400	4.2		X (1)		
1100	OPEN	1850	2.9		N.R.		
1110	OPEN	1850	4.1		X (1)		
1210	OPEN	1850	4.3		X (1)		
1300	OPEN	2133	4.3		X (1)		
1310	OPEN	2100	6.3				X
1500	OPEN	2133	4.0		X (1)		
1510	OPEN	2100	6.6				X
1600	OPEN	1400	4.2		X (1)		
1700	OPEN	2133	5.3		X		
1710	OPEN	2100	7.8				X
1900	OPEN	2133	5.9		X		
1910	OPEN	2100	8.6	X			(2)
2000	OPEN	2500	4		X (1)		
2600	OPEN	2100	8.5	X			(2)
2610	OPEN (3)	2000	8.5 (3)	X			(2)
2910	OPEN	2500	7.7				X
3000	OPEN	2500	5		X		

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(FORD-continued)	Agricultural Tractors with 2 Wheel Drive (continued)						
3600	OPEN	2100	8.5	X			(2)
3610	OPEN (3)	2000	8.5 (3)	X			(2)
3910	OPEN	2500	7.7				X
4000	OPEN	2500	5		X		
4100	OPEN	2100	8.5	X			(2)
4110	OPEN (3)	2000	8.5 (3)	X			(2)
4600	OPEN	2100	8.5	X			(2)
4600-SU	OPEN	2100	8.5	X			(2)
4610	OPEN (3)	2000	8.5 (3)	X			(2)
5000	OPEN	2500	6		X		
5600	OPEN	2100	9.7	X			(2)
5610	CLOSED	2000	9.7 (4)				X
6600	OPEN	2100	9.7	X			(2)
6610	CLOSED	2000	9.7 (4)				X
6700	OPEN	2100	9.7	X			(2)
6710	CLOSED	2000	9.7 (4)				X
7000	OPEN	2500	6		X		
7600	OPEN	2100	9.7	X			(2)
7610	CLOSED	2000	9.7 (4)				X
7700	OPEN	2100	9.7	X			(2)
7710	CLOSED	2000	9.7 (4)				X
8000	OPEN	2500	12	X			
8600	OPEN	2500	12	X			
8700	OPEN	2200	15.5	X			
9000	OPEN	2500	16	X			
9600	OPEN	2500	16	X			
9700	OPEN	2200	15.5	X			
TW-5	OPEN	2500	16	X			
TW-10	OPEN	2200	16.2	X			
TW-15	OPEN	2500	15.3	X			
TW-20	OPEN	2200	15.5	X			
TW-25	OPEN	2500	15.3	X			
TW-30	OPEN	2200	15.5	X			
TW-30 AFTER 1979	OPEN	2200	20			X	
TW-35	OPEN	2500	20			X	

(1) Maximum centrifugal pump volume 20 GPM at 40 p.s.i. on these systems.
(2) For spraying pressures in excess of 50 p.s.i. use smaller hydraulic motor, HM4.
(3) Optional 13.6 GPM pump package available (closed center)
(4) Optional 17.5 GPM pump package available (closed center)

INTERNATIONAL HARVESTER							
140	OPEN	1200	5		(6)		
284	OPEN	1750	6		X		
354	OPEN	2400	6		X		
364	OPEN	2400	6		X		
364 AFTER 1977	OPEN	2400	9	X			(1)
384	OPEN	2400	9	X			(1)
454	OPEN	2300	9	X			(1)
464	OPEN	2300	9	X			(1)
464 (1975)	OPEN	2500	9	X			(1)
464 AFTER 1975	OPEN	2500	10.5	X			
484	OPEN	2500	10.5	X			
544	OPEN	1600	15 (2)	X			(3)
574	OPEN	2500	9	X			(1)
574 AFTER 1975	OPEN	2500	9.5	X			(1)
584	OPEN	2500	9.5	X			(1)
656	OPEN	2000	15 (2)	X			(3)
664	OPEN	1600	16 (2)	X			(3)
666	OPEN	1600	15 (2)	X			(3)
674	OPEN	2500	9	X			(1)
674 AFTER 1975	OPEN	2500	10.5	X			
684	OPEN	2500	10.5	X			
686	OPEN	1550	15 (2)	X			
HYDRO-70	OPEN	1350	15 (2)	X			(3)
756	OPEN	1550	12 (4)	X		(5)	
766	OPEN	2000	12	X			
766 AFTER 1975	OPEN	2000	13	X			
784	OPEN	2500	10.5	X			
HYDRO-84	OPEN	2500	10.5	X			
HYDRO-86	OPEN	1550	15 (2)	X			(3)
HYDRO-86 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
826 HYDROSTATIC	OPEN	1550	12	X			
826 GEAR DRIVE	OPEN	2000	12	X			
856	OPEN	2000	12	X			
* 886	OPEN	2250	12	X			
886 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
966	OPEN	2000	12	X			
966 AFTER 1975	OPEN	2000	13	X			
HYDRO-100	OPEN	2000	13	X			
* 986	OPEN	2250	12	X			
* 986 AFTER 1978	OPEN	2250	13	X			
986 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
* HYDRO-186	OPEN	2250	12	X			

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(IH-continued)	**Agricultural Tractors with 2 Wheel Drive (continued)**						
HYDRO-186 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1026	OPEN	2000	12	X			
1066	OPEN	2000	12	X			
* 1086	OPEN	2450	13	X			
* 1086 AFTER 1977	OPEN	2450	12	X			
1086 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1456	OPEN	2000	12	X			
1466	OPEN	2250	12	X			
* 1486	OPEN	2450	13	X			
* 1486 AFTER 1977	OPEN	2450	12.3	X			
1486 AFTER NOV. 1980	CLOSED (LS)	2650	18				X
1566	OPEN	2250	13	X			
1568	OPEN	2250	13	X			
* 1586	OPEN	2450	13	X			
* 1586 AFTER 1977	OPEN	2450	12.3	X			
1586 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
3088	OPEN	2250	15	X			
3288	OPEN	2250	15	X			
3388	CLOSED (LS)	2650	18				X
3488	CLOSED (LS)	2600	18.6				X
3588	CLOSED (LS)	2650	18				X
3688	CLOSED (LS)	2600	18.6				X
5088	CLOSED (LS)	2600	25				X
5288	CLOSED (LS)	2600	25				X
5488	CLOSED (LS)	2600	25				X

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor, HM4.
(2) 15-16 GPM for tractors without 3 point hitch. 8.5 GPM for tractors with three point hitch.
(3) For tractors with three point hitch where spraying pressures in excess of 50 p.s.i. use HM4.
(4) Optional 17 GPM hydraulic pump available for this system.
(5) For tractors with optional 17 GPM hydraulic pump use HM3 where spraying pressures up to 60 p.s.i. are sufficient.
(6) Maximum centrifugal pump volume 30 GPM at 40 p.s.i. on this system.
*For tractors built prior to November 1980. International Harvester Service Bulletin S-3436 dated 31 March 1977 advises that continuous hydraulic demand on the remote outlet valves, such as that created by hydraulic motors, can cause damage to the tractor hydraulic system. In gear driven tractors (86 Series, 2 wheel drive), the MCV pump charge circuit would not be receiving its normal flow and in Hydrostatic drive tractors, the oil cooler circuit would not be receiving its normal flow.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

MASSEY-FERGUSON							
MF130-D	OPEN	2000	4		X (5)		
MF135-G	CLOSED	3000	4 (6)		X (5)		
MF135-D	CLOSED	3000	4 (6)		X (5)		
MF150-G	CLOSED	3000	4 (6)		X (5)		
MF150-D	CLOSED	3000	4 (6)		X (5)		
MF165-G	CLOSED (3)	3000	4 (1)		X(5)		
MF165-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF165-D	CLOSED (3)	3000	4 (1)		X (5)		
MF165-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF175-G	CLOSED (3)	3000	4 (1)		X (5)		
MF175-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF175-D	CLOSED (3)	3000	4 (1)		X (5)		
MF175-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF180-G	CLOSED (3)	3000	4 (1)		X (5)		
MF180-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF180-D	CLOSED (3)	3000	4 (1)		X (5)		
MF180-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF205	OPEN	1700	5 (6)		X		
MF210	OPEN	1700	5.4 (6)		X		
MF220	OPEN	1700	5.4 (6)		X		
MF230-D	CLOSED	3000	4 (6)		X (5)		
MF230-G	CLOSED	3000	4 (6)		X (5)		
MF235-D	CLOSED (3)	3000	4.5 (2)		X (5)		
MF235-E	CLOSED (3)	3000	4.5 (2)		X (5)		
MF235-G	CLOSED (3)	3000	4.5 (2)		X (5)		
MF245-D	CLOSED (3)	3000	4.5 (2)		X (5)		
MF245-G	CLOSED (3)	3000	4.5 (2)		X (5)		
MF254	OPEN	2400	9.2	X			
MF255-D	CLOSED (3)	3000	4 (2)		X (5)		
MF255-G	CLOSED (3)	3000	4 (2)		X (5)		
MF265-D	CLOSED (3)	3000	4 (2)		X (5)		
MF270	OPEN	2400	9.5	X			
MF274	OPEN	2400	9.4	X			
MF275-D	CLOSED (3)	3000	4 (2)		X (5)		
MF285	CLOSED (3)	3100	7 (2)		X		
MF290	OPEN	2400	9.5	X			
MF294	OPEN	2400	9.5	X			
MF298	OPEN	2400	9.5	X			
MF670	OPEN	2400	9.5	X			
MF690	OPEN	2400	9.5	X			
MF698	OPEN	2400	9.5	X			
MF699	OPEN	2400	9.5	X			
MF1080-D	CLOSED (3)	3100	7 (1)		X		
MF1085	CLOSED (3)	3100	7 (2)		X		
MF1100-D	CLOSED	2100	20 (4)				X
MF1105	CLOSED	2100	20 (4)				X
MF1130-D	CLOSED	2100	20 (4)				X
MF1135	CLOSED	2100	20 (4)				X

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL			
				HM1	HM2	HM3	HM4
(MASSEY FERGUSON-continued) **Agricultural Tractors with 2 Wheel Drive (continued)**							
MF1150-D	CLOSED	2100	20 (4)				X
MF1155	CLOSED	2100	20 (4)				X
MF2675	OPEN	2250	14			X	
MF2700	OPEN	2250	14			X	
MF2705	OPEN	2250	14	X			
MF2745	OPEN	2250	14	X			
MF2775	OPEN	2250	14	X			
MF2800	OPEN	2250	14	X			
MF2805	OPEN	2250	14	X			
MF3505	OPEN	2400	13	X			
MF3525	OPEN	2400	13	X			
MF3545	OPEN	2400	13	X			

(1) Optional auxiliary pump available 8 GPM 2600 p.s.i. open center use HM4
(2) Optional auxiliary pump available 10 GPM 2600 p.s.i. open center use HM1
(3) Tractors with optional auxiliary system - open center.
(4) 5-20 GPM with flow control.
(5) Maximum centrifugal pump volume 20 GPM at 40 p.s.i. on these hydraulic systems.
(6) Remote flow available through an accessory switch valve that diverts lift system flow to remote outlets—open center.
On all Massey Ferguson hydraulic systems. Consult tractor dealer for special plumbing instructions.
Watch hydraulic temperature closely when using continuous duty equipment such as hydraulic motors, to prevent overheating hydraulic system.

MINNEAPOLIS-MOLINE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
* JET STAR THREE	OPEN	1550	14	X			
* U302	OPEN	1700	15	X			
* M670 SUPER	OPEN	2000	20			X	
* G350	OPEN	2100	5.75		X		
* G450	OPEN	2133	5.75		X		
* G550	OPEN	2050	Unknown				
* G750	OPEN	2050	Unknown				
* G850	CLOSED	2200	18		X		
* G940	CLOSED	2000	18		X		
* G950	CLOSED	2000	18		X		
* G1050	CLOSED	2000	18		X		
* G1350	CLOSED	2000	18		X		

* For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.

OLIVER — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
* 550	OPEN	1700	Unknown				
* 1255	OPEN	1700	4.5		X		
* 1265	OPEN	2130	5.75		X		
* 1355	OPEN	2200	5.75		X		
* 1365	OPEN	2130	5.75		X		
* 1555	OPEN	2050	11	X			(1)
* 1655	OPEN	2050	11	X			(1)
* 1755	CLOSED	2200	18		X		
* 1855	CLOSED	2200	18		X		
* 1955	CLOSED	2200	18		X		
* 2050-2150	OPEN	2050	11	X			(1)
* 2155	CLOSED	2000	18		X		

*For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.
(1) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently so is centrifugal pump output.

WHITE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
* 700	OPEN	3400	5.5		X		(1)
* 1355	OPEN	3400	5.5		X		(1)
* 1365	OPEN	3400	5.5		X		(1)
* 2-30	OPEN	2130	5.4		X		
* 2-35	OPEN	2130	5		X		
* 2-45	OPEN	2275	8.5				X
* 2-50	OPEN	2130	5.5		X		
2-55	OPEN	2400	11.9	X			
* 2-60	OPEN	2130	5.5		X		
* 2-62	OPEN	2275	8.5				X
2-65	OPEN	2400	11.9	X			
* 2-70	OPEN	2130	5.5		X		
* 2-70 ROW CROP	OPEN	2050	11 (4)	X			(1)
2-75	OPEN	3000	12	X			
* 2-85	CLOSED	2250	18 (2)				X
2-88	CLOSED	2250	21				X
* 2-105	CLOSED	2250	18 (2)				X
2-110	CLOSED	2250	21				X
* 2-135	CLOSED	2300	20 (2)				X
* 2-150	CLOSED	2250	20				X
* 2-155	CLOSED	2300	20 (2)				X
* 2-180	CLOSED	2300	20 (3)				X

*For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.
(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM4.
(2) After 1979 availability at remote increased to 21 GPM.
(3) Do not exceed 6 GPM continual draw at remote outlet or 80 p.s.i. dead head pressure on pump.
(4) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently so is centrifugal pump output.

Agricultural Tractors with Front Wheel Drive Option

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
ALLIS CHALMERS							
220	OPEN	2000	18	(1)		X	
5020	OPEN	1900	5.4		X		
5050	OPEN	2200	6.23		X		
5050 AFTER 1978	OPEN	2200	6.47		X		
6060	OPEN	2300	10	X			(2)
6080	OPEN	2300	10	X			(2)
CASE-DAVID BROWN							
995	OPEN	Unknown	7.3				X
1210	OPEN	Unknown	6.8 (1)				X
J.I. CASE							
1410	OPEN	2500	15.5	X			
2090	CLOSED (LS)	2250	22	(1)		X	
2290	CLOSED (LS)	2250	22	(1)		X	
JOHN DEERE							
950	OPEN	2100	5.8		X		
1050	OPEN	2100	5.8		X		
2040	CLOSED	2250	12				X
2240	CLOSED	2250	12				X
2940	CLOSED	2300	18				X
3020	CLOSED	2000	14				X
4020	CLOSED	2000	14				X
4040	CLOSED	2000	20				X
4040 AFTER 1976	CLOSED	2200	20 (1)				X
4230	CLOSED	2250	18				X
4240	CLOSED	2200	20 (1)				X
4320	CLOSED	2000	14				X
4430	CLOSED	2000	18				X
4430 AFTER 1976	CLOSED	2250	18				X
4440	CLOSED	2200	20 (1)				X
4620	CLOSED	2000	15				X
4630	CLOSED	2000	18				X
4630 AFTER 1976	CLOSED	2250	18				X
4640	CLOSED	2200	20 (1)				X
DEUTZ							
D4006-A	OPEN	2490	Unknown (2)				
D4506-A	OPEN	2572	Unknown (2)				
D5206-A	OPEN	2572	Unknown (2)				
D6006-A	OPEN	2490	Unknown (2)				
D6206-A	OPEN	2572	7.5 (2)				
D6806-A	OPEN	2939	9.2 (2)				
D7206-A	OPEN	2939	Unknown (2)				
D8006-A	OPEN	2572	8.6 (2)				
D8006-A AFTER 1977	OPEN	2572	9.5 (2)				
D9006-A	OPEN	2490	9.5 (2)				
D10006-A	OPEN	2572	8.6 (2)				
D10006-A AFTER 1977	OPEN	2572	9.5 (2)				
D13006-A	OPEN	2490	11.5 (2)				
D13006-A AFTER 1977	OPEN	2490	9.5 (2)				
DX90-A	OPEN	Unknown	14.7	X			
DX110-A	OPEN	Unknown	14.7	X			
DX140-A	OPEN	Unknown	18.2	(1)		X	
DX160-A	OPEN	Unknown	18.2	(1)		X	
INTERNATIONAL HARVESTER							
HYDRO-100	OPEN	2000	13	X			
600DT	OPEN	2150	5.8		X		
756	OPEN	1550	12 (1)	X		(2)	

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor HM1.
If directional valve lever kicks out do not tie lever in operating position. Use next size larger hydraulic motor (HM3), or adjust directional valve detents.
(2) For spraying pressures in excess of 80 p.s.i. use smaller hydraulic motor HM4.

(1) For use on hydraulic system with optional hydraulic pump with 15.5 GPM availability use larger hydraulic motor HM1.

(1) If other implements are to be used requiring more than 4 GPM oil, use smaller hydraulic motor HM1.

(1) 17 GPM after 1979.
Rated gallonage not available at rated pressure at remote outlets on all closed center systems.
Do not use metering orifices on any John Deere closed center hydraulic systems. Use Tortoise-Hare control to regulate flow if available.

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor HM1.
(2) These tractors have many optional hydraulic pumps available. Consult your tractor manual or dealer to determine flow available at remote outlet in your tractor.
Flows 6 GPM or less use HM2
Flows 6-8 GPM use HM4
Flows 8 GPM to 17 GPM use HM1
Flows 17 GPM and over use HM3
For spraying pressures over 70 p.s.i. the HM1 requires a minimum of 11 GPM and the HM3 a minimum of 20 GPM.
Optional auxiliary hydraulic reservoir is recommended to prevent overheating.

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(IH-continued) **Agricultural Tractors with Front Wheel Drive Option (continued)**							
826	OPEN	2000	12	X			
826 HYDRO DRIVE	OPEN	1550	12	X			
856	OPEN	2000	12	X			
* 886	OPEN	2250	13	X			
886 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
966	OPEN	2000	12	X			
* 986	OPEN	2250	12	X			
* 986 AFTER 1979	OPEN	2250	13	X			
986 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
* HYDRO-186	OPEN	2250	12	X			
1026	OPEN	2000	12	X			
1066	OPEN	2000	12	X			
* 1086	OPEN	2450	13	X			
1086 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1466	OPEN	2000	12	X			
* 1486	OPEN	2450	13	X			
1486 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
* 1586	OPEN	2450	13	X			

(1) Optional 17 GPM hydraulic pump available for this system.
(2) For tractors with optional 17 GPM hydraulic pump use HM3 where spraying pressures up to 60 p.s.i. are sufficient.
* For tractors built prior to Nov., 1980, International Harvester Service Bulletin S-3436 dated 31 March 1977 advises that continuous hydraulic demand on the remote outlet valves, such as that created by hydraulic motors, can cause damage to the tractor hydraulic system. In gear driven tractors (86 Series, 2 wheel drive), the MCV pump charge circuit would not be receiving its normal flow and in Hydrostatic drive tractors, the oil cooler circuit would not be receiving its normal flow.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

MASSEY FERGUSON							
MF205-4	OPEN	1700	5.0 (1)		X		
MF210-4	OPEN	1700	5.4 (1)		X		
MF220-4	OPEN	1700	5.4 (1)		X		
MF184-4	OPEN	2417	7.4				X

(1) Remote flow available through an accessory switch valve that diverts lift system flow to remote outlets—Open Center.
On all Massey Ferguson hydraulic systems—consult tractor dealer for special plumbing instructions.
Watch hydraulic temperature closely when using continuous duty equipment such as hydraulic motors, to prevent overheating hydraulic system.

MINNEAPOLIS-MOLINE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
* G350	OPEN	2133	5.75		X		
* G450	OPEN	2133	5.75		X		

* For recommendations on use of auxiliary remote valves for continuous use, consult dealer.

OLIVER — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
1255-1265	OPEN	2133	5.75		X		
1355-1365	OPEN	2133	5.75		X		
1655	OPEN	2050	11 (1)	X			
* 1755	CLOSED	2200	18		X		
* 1855	CLOSED	2200	18		X		
* 1955	CLOSED	2200	18		X		
2050-2150	OPEN	2050	11 (1)	X			

(1) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently centrifugal pump output is decreased.
* For recommendations on use of auxiliary remote valves for continuous use, consult dealer.

WHITE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
700	OPEN	3400	5.5		X		
2-30	OPEN	2130	5.4		X		
2-45	OPEN	2275	8.5				X
2-50	OPEN	2130	6.2		X		
2-60	OPEN	2130	5.8		X		
2-62	OPEN	2275	8.5				X
2-70	OPEN	2050	14.6 (1)	X			
* 2-85	CLOSED	2250	20		X		
* 2-105	CLOSED	2250	20		X		
2-135	CLOSED	2300	20		X		
2-155	CLOSED	2300	20		X		
2-180	CLOSED	2300	22 (2)		X		

(1) After 1979 power steering model 17.1 GPM gallonage will drop when power steering is being used, consequently centrifugal pump output will decrease.
(2) Do not exceed 6 GPM continual draw from remote outlet or 80 p.s.i. dead head pressure on pump.
* For recommendations on use of auxiliary remote valves for continuous operation, consult dealer.

Agricultural Tractors with 4 Wheel Drive

ALLIS CHALMERS							
440	OPEN	2000	20			X	
7580	CLOSED (LS)	2500	18				X
8550	CLOSED (LS)	2500	18				X
4W220	CLOSED (LS)	2500	23				X
4W305	CLOSED (LS)	2500	21				X
4W306	CLOSED (LS)	2500	23				X
J.I. CASE							
1470	OPEN	2000	16	X			
2470	OPEN	2050	17	(1)		X	
2670	OPEN	2050	17	(1)		X	
2870	OPEN	2050	22			X	
4490	CLOSED (LS)	2250	24				X
4494	CLOSED (LS)	2250	24				X
4690	CLOSED (LS)	2250	24				X
4694	CLOSED (LS)	2250	24				X
4890	CLOSED (LS)	2250	24				X
4894	CLOSED (LS)	2250	24				X
4994	CLOSED (LS)	2650	28				X
9110	CLOSED	2500	27				X
9130	CLOSED	2500	27				X
9150	CLOSED	2500	27				X
9170	CLOSED	2500	30				X
9180	CLOSED	2500	30				X
9190	OPEN	2250	25	X			

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM1.

Agricultural Tractors with 4 Wheel Drive (continued)

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
JOHN DEERE							
7020	CLOSED	2000	15				X
7020 AFTER 1971	CLOSED	2000	14				X
7020 AFTER 1973	CLOSED	2250	18				X
7520	CLOSED	2000	14				X
7520 AFTER 1973	CLOSED	2250	18				X
8430	CLOSED	2250	18 (1)				X
8440	CLOSED	2250	18 (1)				X
8450	CLOSED	2350	28.5				X
8640	CLOSED	2250	18 (1)				X
8650	CLOSED	2350	28.5				X
8850	CLOSED	2350	30				X
INTERNATIONAL HARVESTER							
4166	OPEN	2000	17	(1)		X	
4186	OPEN	2000	18	(1)		X	
4366	OPEN	2000	22			X	
4386	OPEN	2000	16	X			
4568	OPEN	1800	16	X			
4586	OPEN	2000	17.5 (2)	(1)		X	
4786	OPEN	2000	17.5 (2)	(1)		X	
6388	CLOSED (LS)	2600	18.6	X			
6588	CLOSED (LS)	2600	18.6	X			
6788	CLOSED (LS)	2600	18.6	X			
MASSEY FERGUSON							
* MF1500-D	OPEN	2400	20			X	
* MF1505	OPEN	2400	20			X	
* MF1800-D	OPEN	2400	20			X	
* MF1805	OPEN	2400	20			X	
* MF4840	OPEN	2500	20 (1)			X	
* MF4880	OPEN	2500	20 (1)			X	
* MF4900	OPEN	2250	20 (1)			X	
MINNEAPOLIS-MOLINE							
* A4T1400	CLOSED	2000	20				X
* A4T1600	CLOSED	2000	20				X
OLIVER							
* 2655	CLOSED	2000	20				X
STEIGER							
* SUPER WILDCAT	OPEN	2000	24			X	
* WILDCAT RC210	OPEN	2250	20			X	
* WILDCAT ST210	OPEN	2250	20			X	
* BEARCAT	OPEN	2000	22			X	
* BEARCAT ST220	OPEN	2250	20			X	
* BEARCAT PT225	OPEN	2250	20			X	
BEARCAT IV CM225	OPEN	2250	20			X	
BEARCAT IV KM225	OPEN	2250	20			X	
* COUGAR	OPEN	2000	22			X	
* COUGAR ST250	OPEN	2250	20			X	
* COUGAR ST251	OPEN	2250	20			X	
* COUGAR ST270	OPEN	2250	20			X	
* COUGAR PT270	OPEN	2000	20			X	
COUGAR IV CM250	OPEN	2250	20			X	
COUGAR IV CM280	OPEN	2250	20			X	
COUGAR IV KM280	OPEN	2250	20			X	
COUGAR IV CS280	OPEN	2250	20			X	
COUGAR IV KS280	OPEN	2250	20			X	
* PANTHER PTA297	OPEN	2250	20			X	
* PANTHER ST310	OPEN	2250	20			X	
* PANTHER ST320	OPEN	2250	20			X	
* PANTHER ST325	OPEN	2250	20			X	
* PANTHER III PTA325(1)	OPEN	2250	20			X	
PANTHER IV CM325	OPEN	2250	20			X	

(1) Rated gallonage not available at rated pressure at remote outlets on closed center systems. Do not use metering orifices on any closed center hydraulic systems. Use Tortoise-Hare control to regulate flow if available.

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM1.
(2) Repair pump can be 21 GPM. Consult dealer to confirm auxiliary pump hydraulic flow. Use HM3 hydraulic motor if flow is 21 GPM.

(1) 2.5-20 GPM with flow control. Consult dealer for preferred method of operation for continuous duty equipment such as hydraulic motor. Watch hydraulic temperature closely when using continuous duty equipment, such as hydraulic motor, to prevent overheating hydraulic system.
* Auxiliary cooler is required on all 4 wheel drive Massey Ferguson tractors.

* For use with continuous duty equipment, such as hydraulic motor, auxiliary coolers are required.

* For use with continuous duty equipment, such as hydraulic motor, auxiliary coolers are required.

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(STEIGER-continued)	Agricultural Tractors with 4 Wheel Drive (continued)						
PANTHER IV KM325	OPEN	2250	20			X	
PANTHER IV CM360	OPEN	2250	20			X	
PANTHER IV KM360	OPEN	2250	20			X	
* PANTHER ST350	OPEN	2250	20			X	
* PANTHER PT350	OPEN	2250	20			X	
PANTHER CP1325	CLOSED (LS)	2500	25				X
PANTHER KP1325	CLOSED (LS)	2500	25				X
PANTHER CP1360	CLOSED (LS)	2500	25				X
PANTHER KP1360	CLOSED (LS)	2500	25				X
PANTHER CP1400	CLOSED (LS)	2500	25				X
PANTHER KP1400	CLOSED (LS)	2500	25				X
* TIGER	OPEN	2000	25			X	
* TIGER ST450	OPEN	2250	25			X	
TIGER IV KP525	OPEN	2250	25			X	
* PTA251 (1)	OPEN	2250	20			X	
* PTA270 (1)	OPEN	2250	20			X	
* ST280 (1)	OPEN	2250	20			X	
* PTA280 (1)	OPEN	2250	20			X	
* PTA310 (1)	OPEN	2250	20			X	
PUMA 1000	CLOSED	2500	27				X
WILDCAT 1000	CLOSED	2500	27				X
COUGAR 1000	CLOSED	2500	27				X
PANTHER 1000	CLOSED	2500	27				X
LION 1000	CLOSED	2500	27				X

* Steiger does not recommend use of continuous duty equipment without flow divider or auxiliary cooler. Coolers are available for older model tractors.
(1) Series III tractors available with flow divider kit. Standard output 9 GPM - HM4. Optional output 18 GPM - HM3.

VERSATILE							
* 118	OPEN	1700	12.5	X			
118 AFTER 1971	OPEN	2000	16.5	X			
125	OPEN	1750	12.5	X			
145	OPEN	1750	12.5	X			
145 AFTER 1971	OPEN	2000	16.5	X			
150	OPEN	2500	14	X			
150 AFTER 1976	OPEN	2500	15	X			
150 SERIES II	OPEN	2250	15	X			
256	CLOSED	2800	27.6				X
276	CLOSED	2800	27.6				X
300	OPEN	2000	16	X			
500	OPEN	2300	24			X	
555	OPEN	2400	23.2			X	
700	OPEN	2000	24			X	
700 SERIES II	OPEN	2300	25			X	
750 SERIES II	OPEN	2300	23.5			X	
756	CLOSED	2400	25				X
800	OPEN	2000	20			X	
800 SERIES II	OPEN	2300	23.5			X	
825 SERIES II	OPEN	2300	23.5			X	
835	OPEN	2300	23.5 (1)			X	
836	CLOSED	2400	25				X
850	OPEN	2000	20			X	
850 SERIES II	OPEN	2300	23.5			X	
855	OPEN	2300	23.5 (1)			X	
856	CLOSED	2400	25				X
875	OPEN	2300	23.5 (1)			X	
876	CLOSED	2400	25				X
895	OPEN	2400	23.6 (1)			X	
900	OPEN	2000	26			X	
900 SERIES II	OPEN	2300	25			X	
905	OPEN	2300	23.5			X	
935	OPEN	2300	25 (1)			X	
936	CLOSED	2400	24				X
945	OPEN	2250	23.6			X	
950	OPEN	2300	25 (1)			X	
950 SERIES II	OPEN	2300	25			X	
955	OPEN	2250	23.6			X	
956	CLOSED	2400	24				X
975	OPEN	2250	23.6			X	
976	CLOSED	2400	24				X
1150	CLOSED (LS)	2500	27				X
1156	CLOSED	2500	27				X

(1) On 1975 model tractors and newer, when power steering is being used there will be a drop in hydraulic GPM, consequently centrifugal pump flow will decrease. Consult your Versatile Farm Equipment dealer for special plumbing instructions.

WHITE							
4-150	CLOSED	2250	18		X		
4-175	CLOSED	2250	20		X		
4-180	CLOSED	2250	18		X		
4-210	CLOSED	2250	20		X		
4-225	CLOSED	2250	25				X
4-270	CLOSED	2250	27				X

Hose Length Chart

Harrow Bar

15 FT. A-FRAME WITH 500 GALLON TANK

11 FT. CENTRE TUBE - 1" Hose x 180" Right and Left Hose Boom
AGITATOR - 1" Hose x 42"
ANTI-VORTEX - 1 1/2" Hose x 32"
CENTRE BOOM - 1" Hose x 52"

20 FT. A-FRAME WITH 500 GALLON TANK

11 FT. CENTRE TUBE - 1" Hose x 216" Right and Left Hose Boom
AGITATOR - 1" Hose x 42"
ANTI-VORTEX - 1 1/2" Hose x 32"
CENTRE BOOM - 1" Hose x 52"

20 FT. A-FRAME WITH 833 GALLON TANK

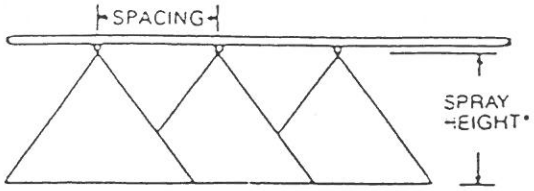
11 FT. CENTRE TUBE - 1" Hose x 216" Right and Left Hose Boom
AGITATOR - 1" Hose x 84"
ANTI-VORTEX - 1 1/2" Hose x 66"
CENTRE BOOM - 1" Hose x 108"

Harrow Packer Bar

20 FT. A-FRAME WITH 833 GALLON TANK

11 FT. CENTRE TUBE - 1" Hose x 216" Right and Left Hose Boom
AGITATOR - 1" x 62"
ANTI-VORTEX - 1 1/2" x 41"
CENTRE BOOM - 1" x 96"

Nozzle Sprayer Chart



*Adjust spray height in the field to overlap approximately 30% of each edge of pattern.

SUGGESTED MINIMUM SPRAY HEIGHT	
SPRAY ANGLE	SPRAY HEIGHT 20" SPACING
80°	17-19"
110°	10-12"

HOW TO ORDER:
SPECIFY TIP NO.
Examples:
XR 8002VS—Stainless Steel with VisiFlo color coding

XR 8002VH—Hardened Stainless Steel with VisiFlo color coding

TIP COLOR	TIP NO. (Strainer Screen Size) 80° SERIES	TIP NO. (Strainer Screen Size) 110° SERIES	Liquid Pressure in PSI	Capacity 1 Nozzle in GPM	Capacity 1 Nozzle in oz/min.	GALLONS PER ACRE 20" SPACING 5 MPH	6 MPH	7 MPH	8 MPH	GALLONS PER ACRE 30" SPACING 5 MPH	6 MPH	7 MPH	8 MPH
Orange	XR8001 (100 Mesh)	XR11001 (100 Mesh)	15	.06	8	3.6	3.0	2.6	2.3	2.4	2.0	1.7	1.5
			20	.07	9	4.2	3.5	3.0	2.6	2.8	2.3	2.0	1.8
			30	.09	11	5.1	4.3	3.7	3.2	3.4	2.9	2.5	2.1
			40	.10	13	5.9	5.0	4.2	3.7	4.0	3.3	2.8	2.5
			60	.12	15	7.3	6.1	5.2	4.6	4.9	4.0	3.5	3.0
Green	XR80015 (100 Mesh)	XR110015 (100 Mesh)	15	.09	12	5.5	4.5	3.9	3.4	3.6	3.0	2.6	2.3
			20	.11	14	6.3	5.3	4.5	3.9	4.2	3.5	3.0	2.6
			30	.13	17	7.7	6.4	5.5	4.8	5.1	4.3	3.7	3.2
			40	.15	19	8.9	7.4	6.4	5.6	5.9	5.0	4.2	3.7
			60	.18	23	10.9	9.1	7.8	6.8	7.3	6.1	5.2	4.6
Yellow	XR8002 (50 Mesh)	XR11002 (50 Mesh)	15	.12	15	7.3	6.1	5.2	4.5	4.8	4.0	3.5	3.0
			20	.14	18	8.4	7.0	6.0	5.3	5.6	4.7	4.0	3.5
			30	.17	22	10.3	8.6	7.4	6.4	6.9	5.7	4.9	4.3
			40	.20	26	11.9	9.9	8.5	7.4	7.9	6.6	5.7	5.0
			60	.25	32	14.6	12.1	10.4	9.1	9.7	8.1	6.9	6.1
Blue	XR8003 (50 Mesh)	XR11003 (50 Mesh)	15	.18	23	10.9	9.1	7.8	6.8	7.3	6.1	5.2	4.5
			20	.21	27	12.6	10.5	9.0	7.9	8.4	7.0	6.0	5.3
			30	.26	33	15.4	12.9	11.0	9.7	10.3	8.6	7.4	6.4
			40	.30	38	17.8	14.9	12.7	11.1	11.9	9.9	8.5	7.4
			60	.37	47	22	18.2	15.6	13.6	14.6	12.1	10.4	9.1
Red	XR8004 (50 Mesh)	XR11004 (50 Mesh)	15	.24	31	14.5	12.1	10.4	9.1	9.7	8.1	6.9	6.1
			20	.28	36	16.8	14.0	12.0	10.5	11.2	9.3	8.0	7.0
			30	.35	45	21	17.2	14.7	12.9	13.7	11.4	9.8	8.6
			40	.40	51	24	19.8	17.0	14.9	15.8	13.2	11.3	9.9
			60	.49	63	29	24	21	18.2	19.4	16.2	13.9	12.1
Brown	XR8005 (50 Mesh)	XR11005 (50 Mesh)	15	.31	40	18.2	15.2	13.0	11.4	12.1	10.1	8.7	7.6
			20	.35	45	21	17.5	15.0	13.1	14.0	11.7	10.0	8.8
			30	.43	55	26	21	18.4	16.1	17.2	14.3	12.3	10.7
			40	.50	64	30	25	21	18.6	19.8	16.5	14.1	12.4
			60	.61	78	36	30	26	23	24	20	17.3	15.2
Gray	XR8006 (50 Mesh)	XR11006 (50 Mesh)	15	.37	47	22	18.2	15.6	13.6	14.5	12.1	10.4	9.1
			20	.42	54	25	21	18.0	15.8	16.8	14.0	12.0	10.5
			30	.52	67	31	26	22	19.3	21	17.2	14.7	12.9
			40	.60	77	36	30	25	22	24	19.8	17.0	14.9
			60	.74	95	44	36	31	27	29	24	21	18.2
White	XR8008 (50 Mesh)	XR11008 (50 Mesh)	15	.49	63	29	24	21	18.2	19.4	16.2	13.9	12.1
			20	.57	73	34	28	24	21	22	18.7	16.0	14.0
			30	.69	88	41	34	29	26	27	23	19.6	17.2
			40	.80	102	48	40	34	30	32	26	23	19.8
			60	.98	125	58	49	42	36	39	32	28	24

NOTE: ALL MEASUREMENT ARE IN U.S. TO CONVERT MULTIPLY BY .83

Notes

Boom Length Chart

Harrow Bar

CENTRE BOOM	PART NO.
11 Ft. CENTRE BOOM - 8'2" BOOM	50010
WING TUBE BOOM	
50 Ft. - 18'2" BOOM	50017
60 Ft. - 23'2" BOOM	50022
70 Ft. - 28'2" BOOM	50024
80 Ft. - 33'2" BOOM	50027

Harrow Packer Bar

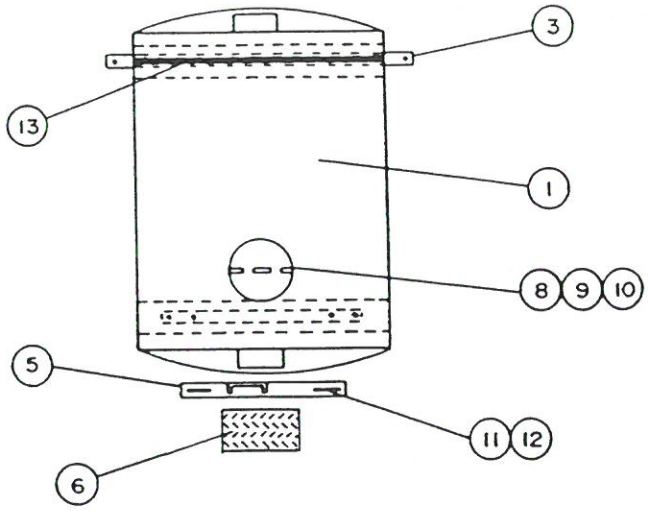
CENTRE BOOM	
11 Ft. CENTRE BOOM - 11'3" BOOM	50060
WING TUBE BOOM	
50 Ft. - 16'5" BOOM	50061
60 Ft. - 21'8" BOOM	50062
70 Ft. - 24'7" BOOM	50063
80 Ft. - 32'4" BOOM	50064

Split Wing Harrow Bar

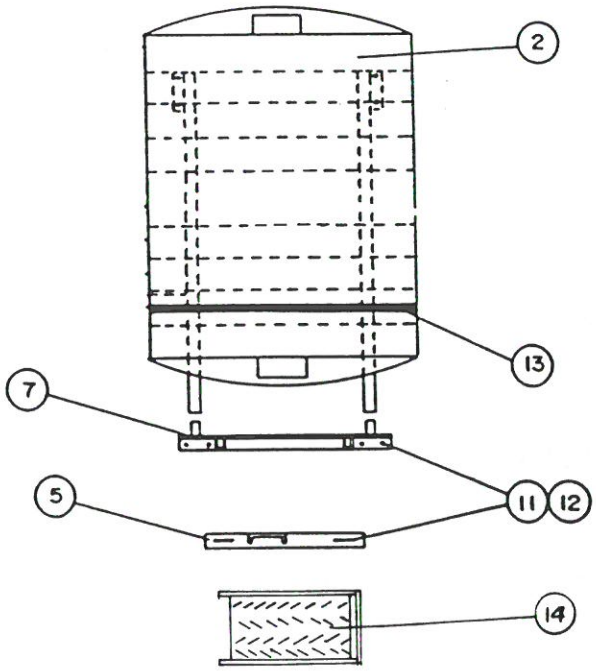
CENTRE BOOM	PART NO.
11 Ft. CENTRE BOOM - 8'2" BOOM	50010
WING TUBE BOOM	
80 Ft. - 33'0" BOOM	50066
90 Ft. - 38'0" BOOM	50067
100 Ft. - 43'0" BOOM	50068

Tank and Saddle

500 GALLON TANK

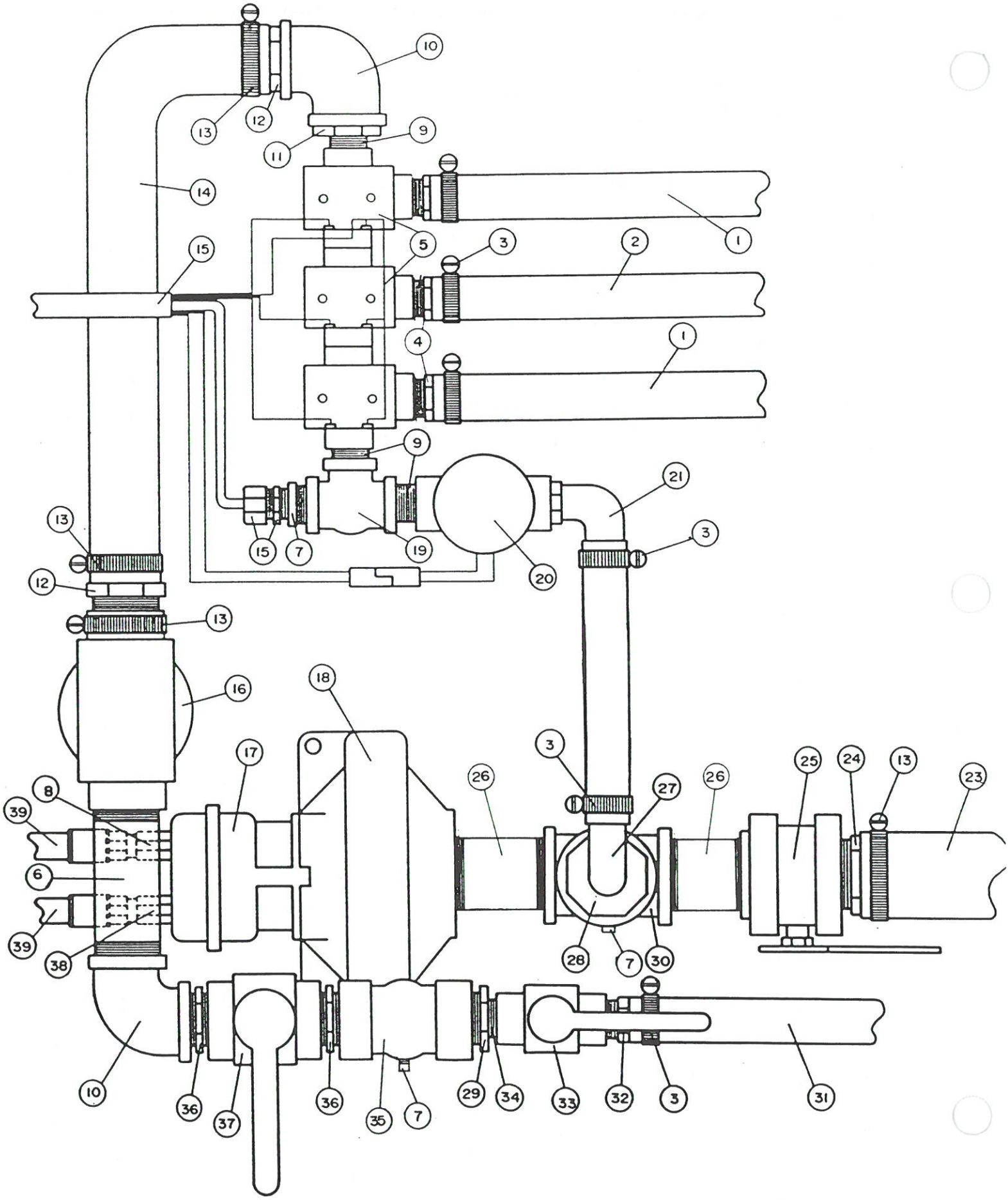


833 GALLON TANK



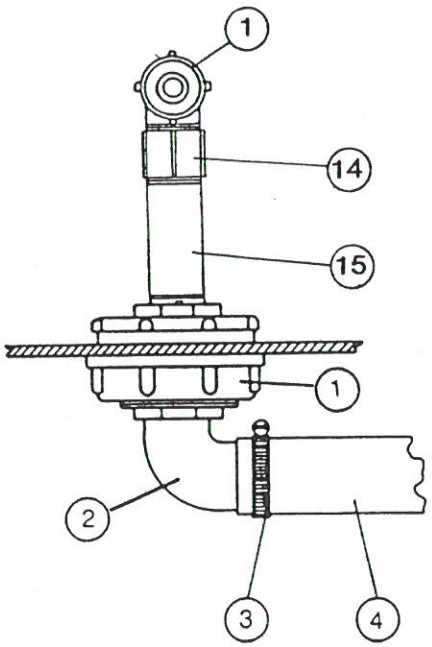
ITEM	PART NUMBER	DESCRIPTION	Nº
1	93000	500 Gallon Tank	1
2	93001	833 Gallon Tank	1
3	50001	500 Gallon Saddle	1
4	50002	833 Gallon Saddle	1
5	50003	Pump and Control Plate	1
6	50004	Pump Guard	1
7	50005	Saddle Support 20 Ft. A-Frame (Harrow Bar)	1
	50055	Saddle Support 20 Ft. A-Frame (Harrow Packer Bar)	1
8	93002	Tank Lid	1
9	93003	Tank Lid Strainer	1
10	93004	Centre Cover	1
11	UB0848112	U-Bolt 1/2" x 3" x 7" (Harrow Bar)	6
	UB0850146	U-Bolt 1/2" x 3 1/8" x 9"(HarrowPackerBar)	6
12	LN5C08P	Locknut 1/2"	12
13	93005	Tank Webbing Support Kit (Complete)	2
14	50057	Sprayer Kit Guard & Step Support (HB)	1
	50054	Sprayer Kit Guard & Step Support (HPB)	1

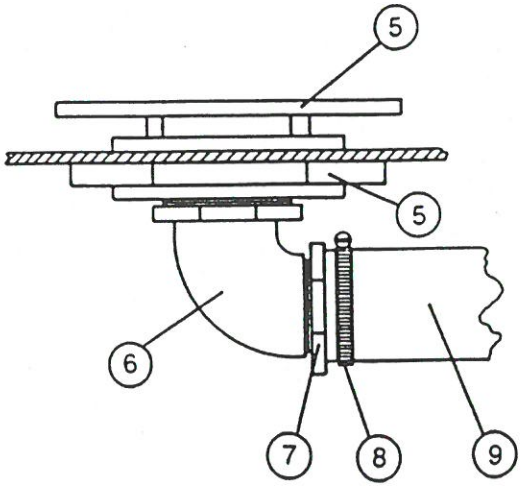
Pump and Control

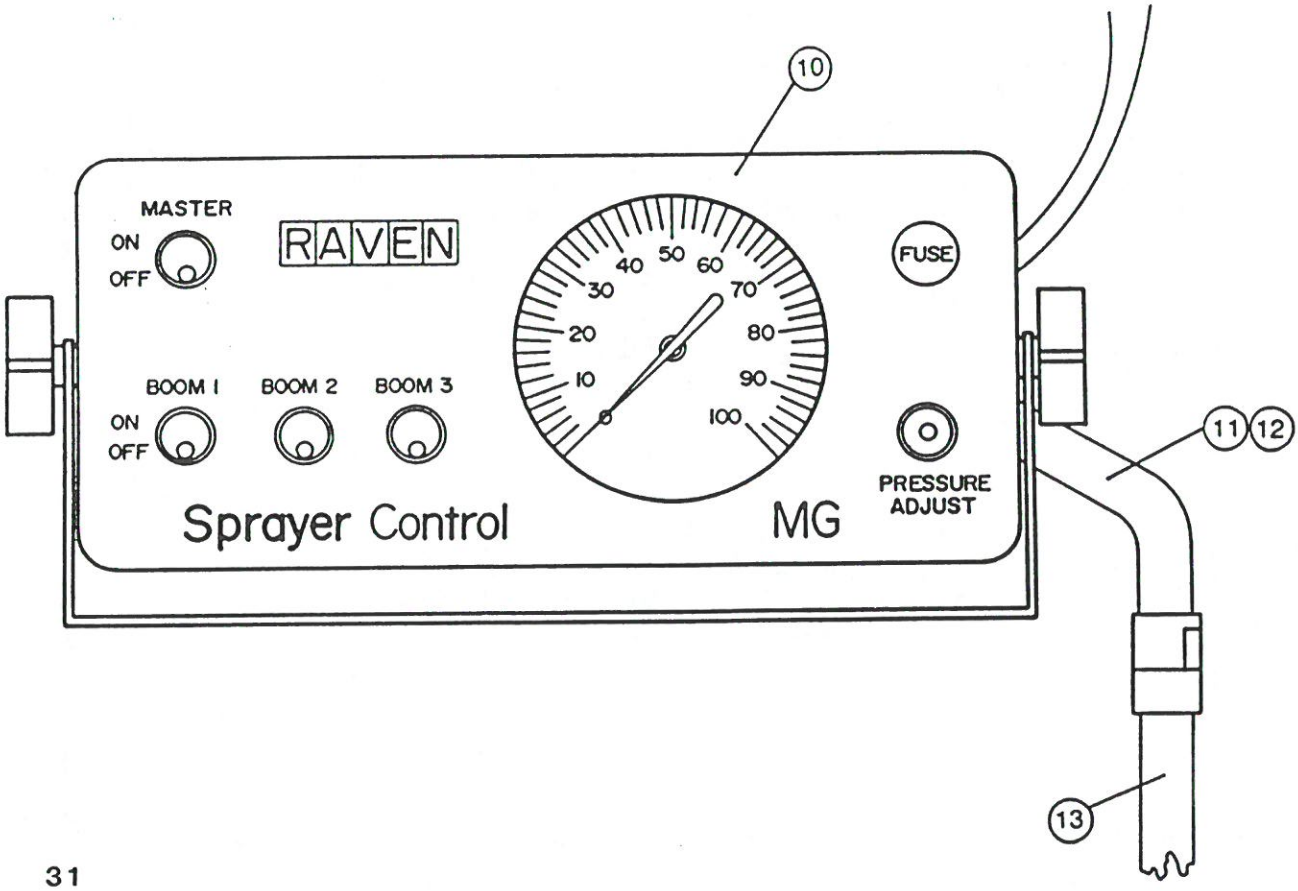


ITEM	PART NUMBER	DESCRIPTION	№
1	50037	1" Hose x 180" Right & Left Boom	2
	50038	1" Hose x 216" Right & Left Boom	2
	50039	1" Hose x 252" Right & Left Boom	2
2	50040	1" Hose x 52" Centre Boom	1
	50041	1" Hose x 108" Centre Boom	1
3	93029	1" Gear Clamp	6
4	93085	1" Hose Barb, 1/2" MPT	3
5	93031	Solenoids	3
6	93062	Nipple 1 1/4" MPT x 4"	1
7	93095	1/2" Nylon Plug	3
8	93063	Metering Orifice	1
9	93035	Nipple 3/4" MPT	3
10	93036	90° Elbow 1 1/4" FPT	2
11	93037	Reducer Bushing 1 1/4" MPT, 3/4" FPT	1
12	93038	1 1/4" Hose Barb, 1 1/4" MPT	2
13	93039	1 1/2" Gear Clamp	4
14	50042	1 1/4" Hose x 15" Filter	1
15	93040	Solenoid Harness c/w Nut & Nipple	1
16	93041	Filter	1
17	93042	Hydraulic Motor c/w Pump 9303C-HM1	1
	93043	Hydraulic Motor c/w Pump 9303C-HM2	1
	93044	Hydraulic Motor c/w Pump 9303C-HM3	1
18	93045	Centrifugal Pump	1
19	93046	Tee 3/4" FPT	1
20	93047	Regulator Valve	1
21	93048	90° Elbow 3/4" MPT, 1" Hose Barb	1
22	50043	1" Hose x 3 1/2" Regulator Valve	1
23	50044	1 1/2" Hose x 32" Anti-Vortex	1
	50045	1 1/2" Hose x 66" Anti-Vortex	1
	50046	1 1/2" Hose x 87" Anti-Vortex	1
24	93049	1 1/2" Hose Barb, 1 1/2" Hose Barb	1
25	93050	1 1/2" Ball Valve (Anti-Vortex)	1
26	93051	Nipple 1 1/2" MPT	2
27	93052	90° Elbow 1 1/4" MPT, 1" Hose Barb	1
28	93053	Reducer Bushing 1 1/2" MPT, 1 1/4" FPT	1
29	93054	Reducer Bushing 1 1/4" MPT, 1" FPT	1
30	93096	1 1/2" Tee c/w Two 1/2" Side Ports	1
31	50047	1" Hose x 42" Agitator	1
	50048	1" Hose x 84" Agitator	1
	50049	1" Hose x 101" Agitator	1
32	93012	1" Hose Barb, 1" MPT	1
33	93056	1" Hose Valve	1
34	93057	Nipple 1 1/4" MPT	3
35	93058	Tee 1 1/4" FPT	1
36	93059	Nipple 1 1/4" MPT	3
37	93060	1 1/4" Ball Valve (Throttle)	1
38	93061	Hyd. Motor Port Adaptor c/w Check Valve	1
39	90218	1 1/2" Hose 1/2" M-1/2" M x 96"	2

Agitator, Anti-Vortex and Sprayer Control

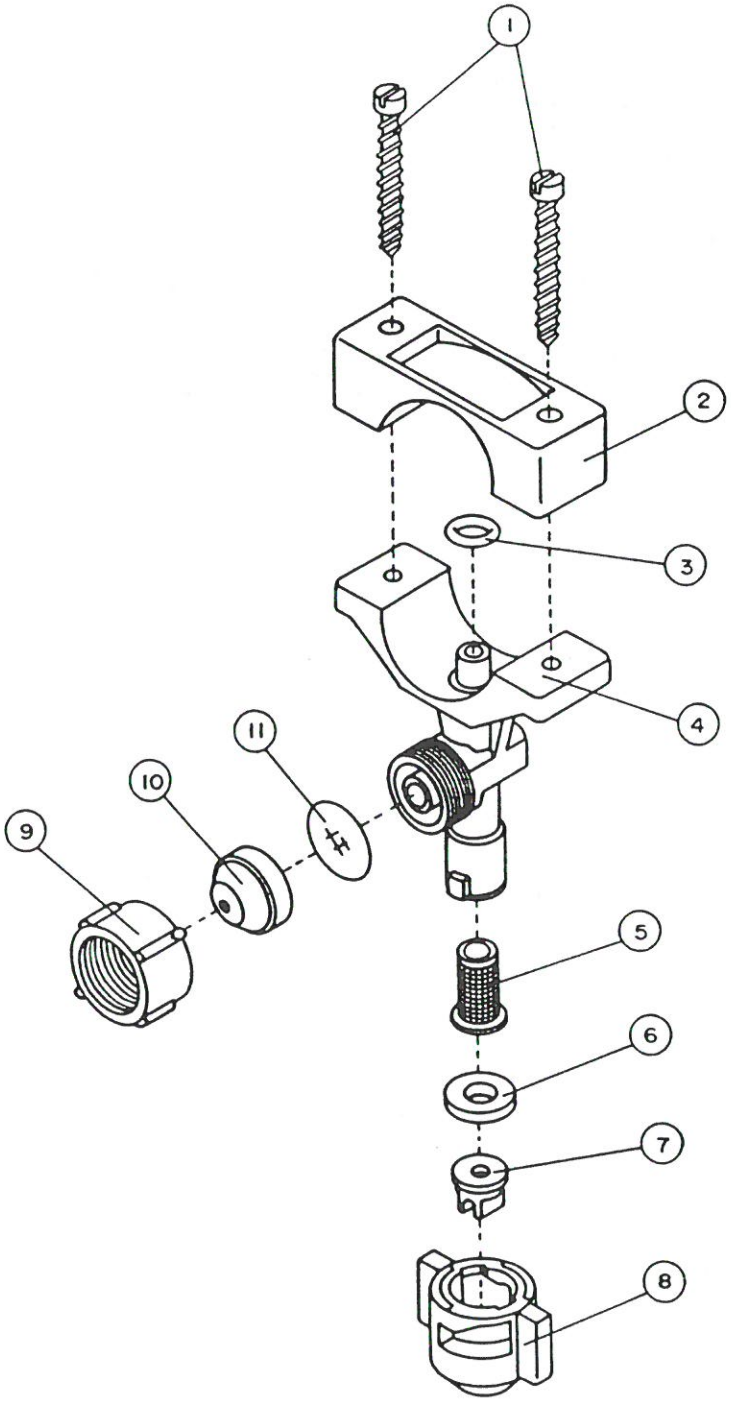






ITEM	PART NUMBER	DESCRIPTION	Nº
1	93064	Agitator	1
2	93052	90° Elbow 1" MPT, 1" Hose Barb	1
3	93029	1" Gear Clamp HS16	1
4	50047	1" Hose x 44" Agitator	1
	50048	1" Hose x 84" Agitator	1
	50049	1" Hose x 101" Agitator	1
5	93065	Anti-Vortex	1
6	93066	90° Elbow 1 1/2" MPT, 1 1/2" FPT	1
7	93049	1 1/2" Hose Barb, 1 1/2" MPT	1
8	93039	1 1/2" Gear Clamp HS24	1
9	50044	1 1/2" Hose x 16" Anti-Vortex	1
	50045	1 1/2" Hose x 66" Anti-Vortex	1
	50046	1 1/2" Hose x 87" Anti-Vortex	1
10	93067	Sprayer Control Monitor	1
11	93068	Sprayer Control Monitor Harness	1
12	93069	Sprayer Control Monitor Harness Extension	1
13	93040	Solenoid Harness	1
14	93072	Coupler 3/4" MPT	1
15	93071	Nipple 3/4" MPT x 6"	1

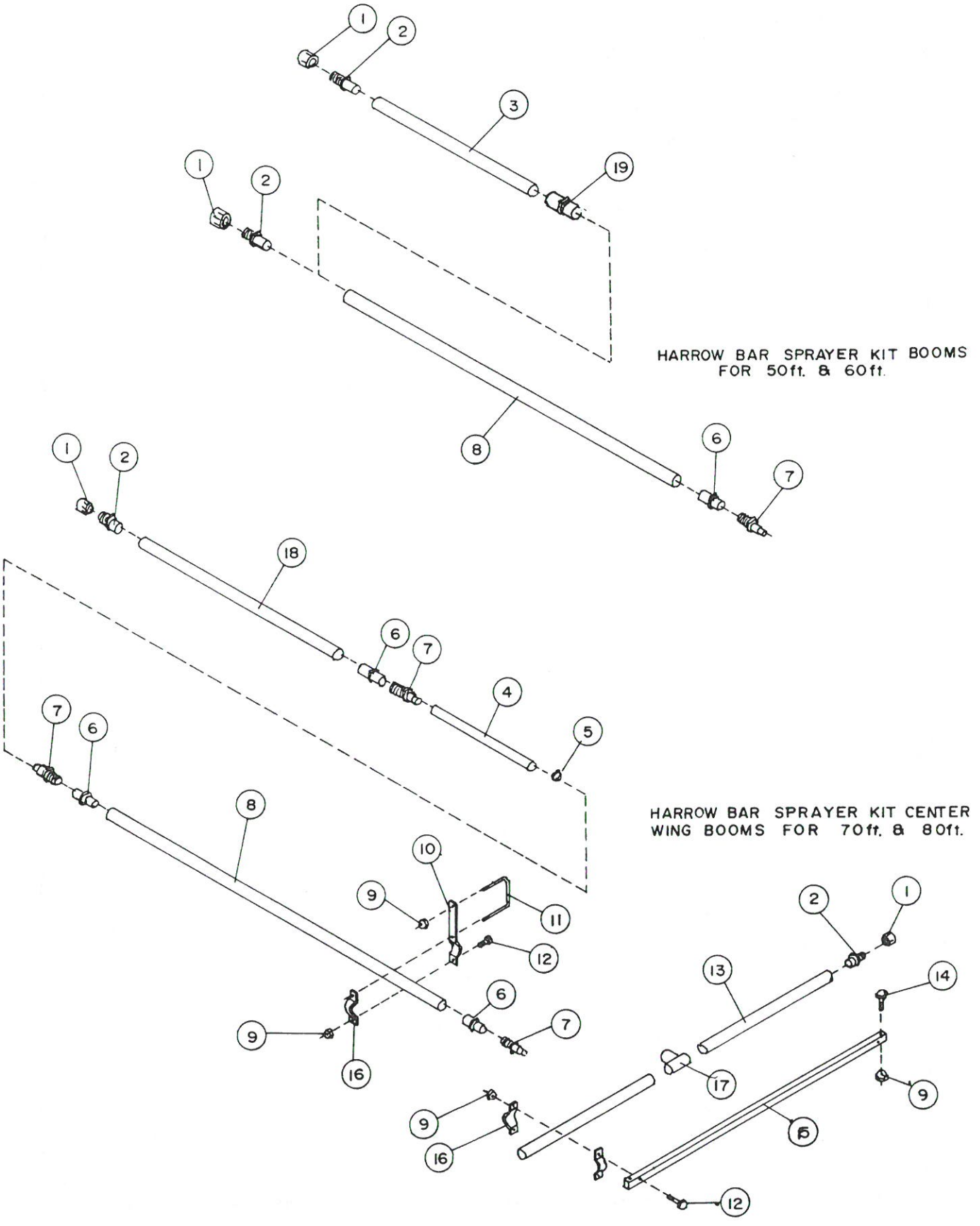
Nozzles



ITEM	PART NUMBER	DESCRIPTION	№
1	93015	Screws	2
2	93016	Upper Clamp	1
3	93017	O-Ring	1
4	93018	Main Body	1
5	93019	Teejet Strainer	1
6	93020	Seat Washer	1
7	93021	Spray Tip (11003LP)	1
8	93022	Cap (Yellow) (Other Color Caps Available)	1
9	93023	Retainer	1
10	93024	End Cap	1
11	93025	Diaphragm	1
		*As Required	

Boom Assembly

(FOR HARROW BAR)

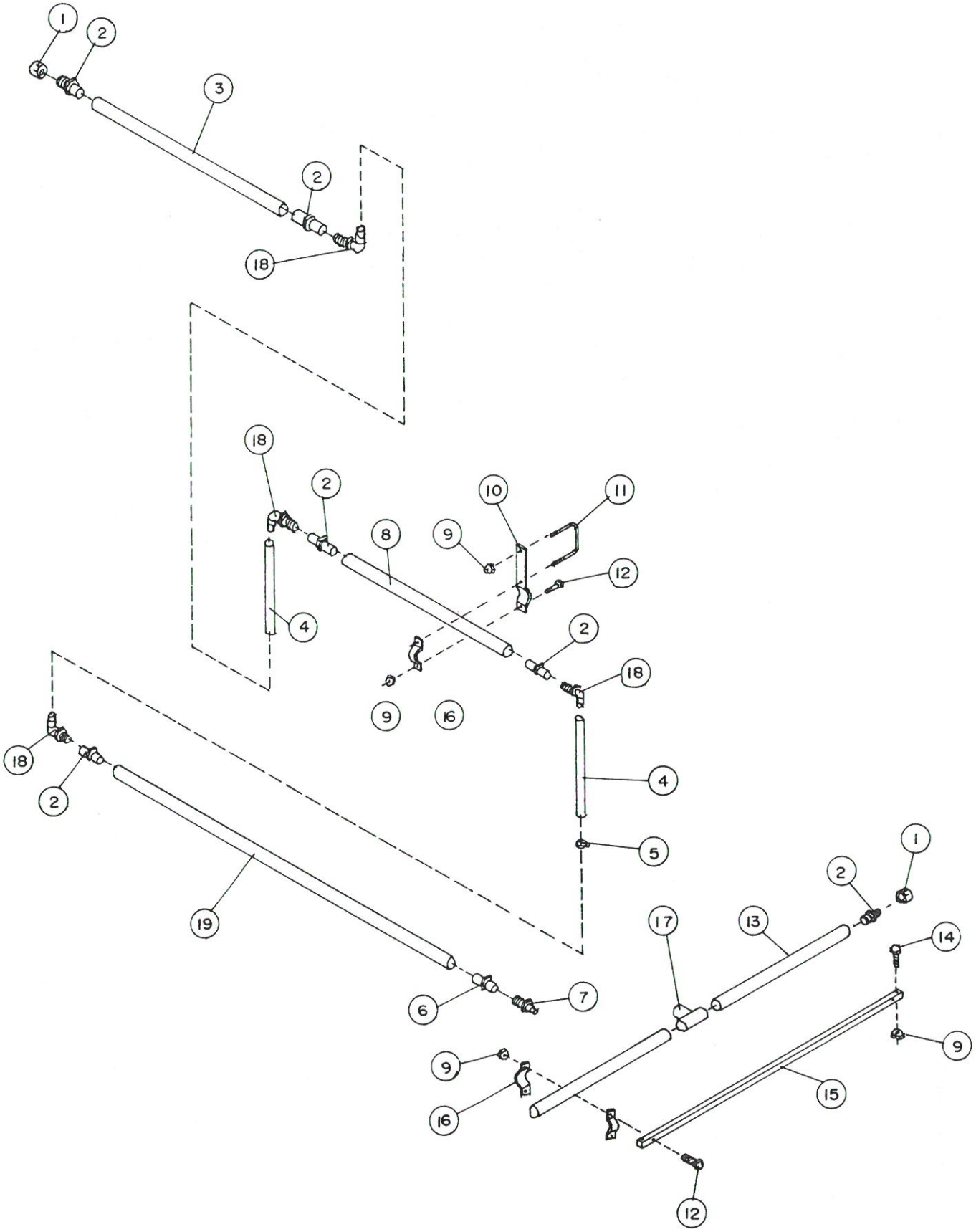


ITEM	PART NUMBER	DESCRIPTION	Nº
1	93006	1" PVC Cap 1" FPT	*
2	93007	1" PVC Adaptor 1" MPT, 1" SOC	*
3		Rear Wing Boom Extention (See Page 26)	*
4	93074	Rubber Hose x 19"	*
5	93029	1" Gear Clamp	*
6	93011	1" PVC Adaptor 1" FPT. 1" SOC	*
7	93012	1" Hose Barb 1" MPT	*
8		Regular Size Wing Boom (See Page 26)	*
9	LN5C06P	Locknut 3/8"	*
10	50050	Wing Tube Clamp	*
11	UB069684	U-Bolt 3/8" x 6" x 5 1/4"	*
12	B5C0616P	Bolt 3/8" x 1"	*
13		Centre Boom (See Page 26)	*
14	B5C0628P	Bolt 3/8" x 1 3/4"	*
15	50012	Centre Boom Support	*
16	50013	Boom Clamp	*
17	93013	1" PVC Tee	*
18		Rear Wing Boom (See Page 26)	*
19	93073	1" PVC Adaptor 1" SOC	*

*As Required

Boom Assembly

(FOR SPLIT WING HARROW BAR)

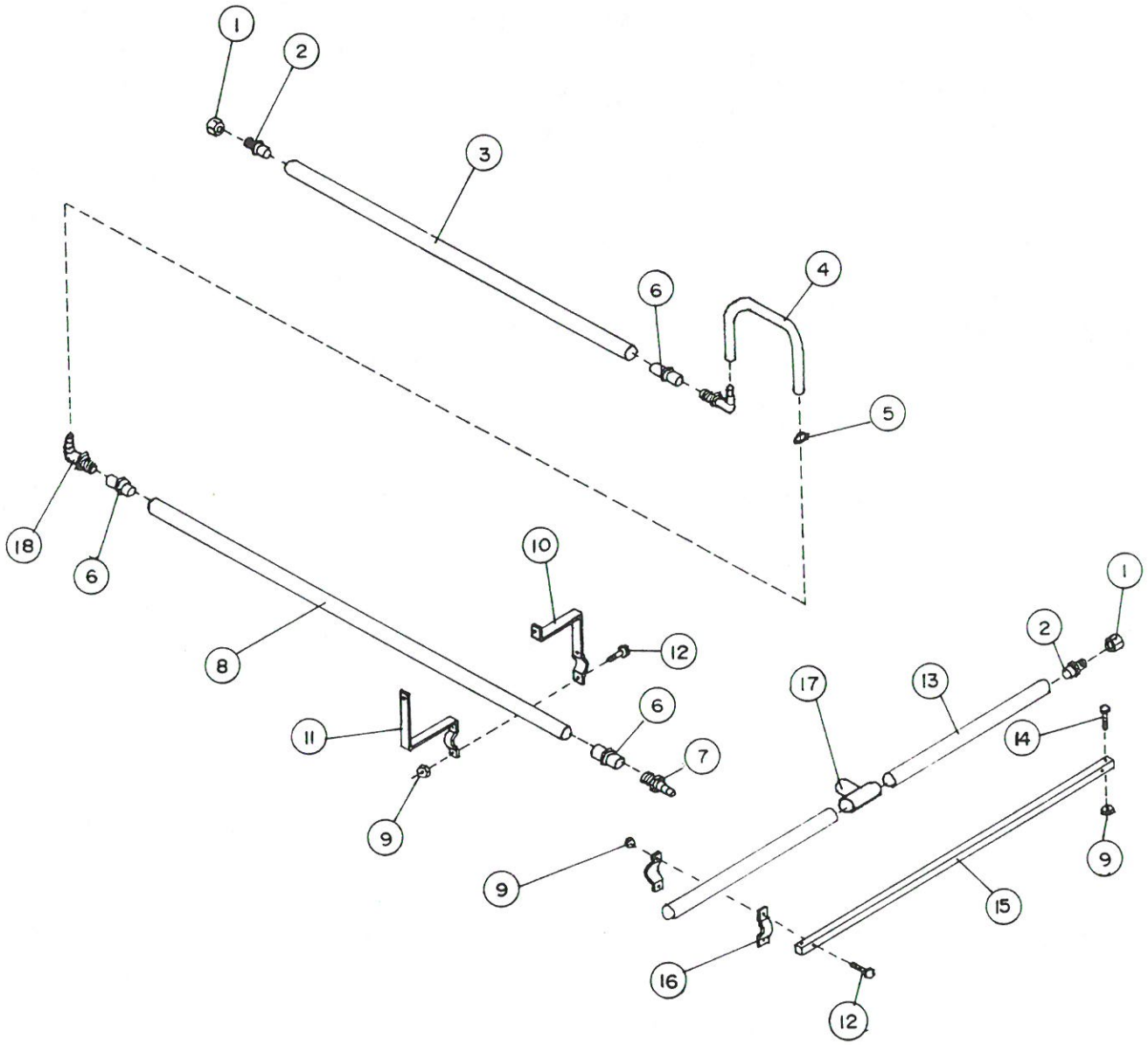


ITEM	PART NUMBER	DESCRIPTION	Nº
1	93006	1" PVC Cap 1" FPT	4
2	93007	1" PVC Adaptor 1" MPT, 1" SOC	4
3		Rear Split Wing Boom (See page 26)	*
4	93074	Rubber Hose x 19"	4
5	93029	1" Gear Clamp	8
6	93011	1" PVC Adaptor 1" FPT, 1" SOC	10
7	93012	1" PVC Hose Barb 1" MPT	4
8		Centre Split Wing Boom (See Page 26)	*
9	LN5C06P	Locknut 3/8"	*
10	50050	Wing Tube Clamp	*
11	UB069684	U-Bolt 3/8" x 6" x 5 1/4"	*
12	B5C0616P	Bolt 3/8" x 1"	*
13		Centre Boom (See Page 26)	*
14	B5C0628P	Bolt 3/8" x 1 3/4"	*
15	50012	Centre Boom Support	1
16	50013	Boom Clamp	*
17	93013	1" PVC Tee	1
18	93079	1" PVC Elbow Hose Barb 1" MPT	8
19		Front Split Wing Boom (See Page 26)	*

*As Required

Boom Assembly

(FOR HARROW PACKER BAR)



ITEM	PART NUMBER	DESCRIPTION	Nº
1	93006	1" PVC Cap 1" FPT	4
2	93007	1" PVC Adaptor 1" MPT, 1" SOC	4
3		Rear HPB Wing Boom (See Page 26)	*
4	50059	Rubber Hose 1" x 30"	2
5	93029	1" Gear Clamp	4
6	93011	1" PVC Adaptor 1" FPT, 1" SOC	6
7	93012	1" PVC Hose Barb 1" MPT	2
8		Front HPB Wing Boom (See Page 26)	*
9	LN5C06P	Locknut 3/8"	*
10	50058	Front PVC Boom Clamp for HPB	*
11	50057	Back PVC Boom Clamp for HPB	*
12	B5C0616P	Bolt 3/8" x 1"	*
13		Centre Boom for HPB (See Page 26)	1
14	B5C0628P	Bolt 3/8" x 1 3/4"	*
15	50065	Centre Boom Support for HPB	1
16	50013	Boom Clamp	*
17	93013	1" PVC Tee	1
18	93079	1" PVC Elbow Hose Barb 1" MPT	4
		*As Required	

Parts Index

PART #	PAGE	ITEM	DESCRIPTION
50001	28	3	500 Gallon Saddle
50002	28	4	833 Gallon Saddle
50003	28	5	Pump & Control Plate
50004	28	6	Pump Guard
50005	28	7	Saddle Support 20 Ft. A-Frame
50010	26		11 Ft. Centre Boom
50012	36	15	Centre Boom Support
50012	38	15	Centre Boom Support
50013	36	16	Boom Clamp
50013	38	16	Boom Clamp
50013	40	16	Boom Clamp
50017	26		50 Ft. - 18'2" Boom
50022	26		60 Ft. - 23'2" Boom
50024	26		70 Ft. - 28'2" Boom
50027	26		80 Ft. - 33'2" Boom
50037	30	1	1" Hose x 180" Right & Left Boom
50038	30	1	1" Hose x 216" Right & Left Boom
50039	30	1	1" Hose x 252" Right & Left Boom
50040	30	2	1" Hose x 52" Centre Boom
50041	30	2	1" Hose x 108" Centre Boom
50042	30	14	1½" Hose x 15" Filter
50043	30	22	1" Hose x 3½" Regulator Valve
50044	30	23	1½" Hose x 32" Anti-Vortex
50044	32	9	1½" Hose x 32" Anti-Vortex
50045	30	23	1½" Hose x 66" Anti-Vortex
50045	32	9	1½" Hose x 66" Anti-Vortex
50046	30	23	1½" Hose x 87" Anti-Vortex
50046	32	9	1½" Hose x 87" Anti-Vortex
50047	30	31	1" Hose x 42" Agitator
50047	32	4	1" Hose x 42" Agitator
50048	30	31	1" Hose x 84" Agitator
50048	32	4	1" Hose x 84" Agitator
50049	30	31	1" Hose x 101" Agitator
50049	32	4	1" Hose x 101" Agitator
50050	36	10	Wing Tube Clamp
50050	38	10	Wing Tube Clamp
50054	28	14	SK Guard & Step Support
50055	28	7	Saddle Support 20 Ft. A-Frame
50057	28	14	SK Guard & Step Support (HB)
50057	40	11	Back PVC Boom Clamp for HPB
50058	40	10	Front PVC Boom Clamp for HPB
50059	40	4	Rubber Hose 1" x 30"
50060	26		11 Ft. Centre Boom (HPB)
50061	26		50 Ft. - 16'5" Boom
50062	26		60 Ft. - 21'8" Boom
50063	26		70 Ft. - 24'7" Boom
50064	26		80 Ft. - 32'4" Boom
50065	40	15	Centre Boom Support for HPB
50066	26		80 Ft. - 33'0" Boom
50067	26		90 Ft. - 38'0" Boom
50068	26		100 Ft. - 43'0" Boom
90218	30	39	1½" Hose ½" M - ½" M x 96"
93000	28	1	500 Gallon Tank
93001	28	2	833 Gallon Tank
93002	28	8	Tank Lid
93003	28	9	Tank Lid Strainer
93004	28	10	Centre Cover
93005	28	13	Tank Webbing Support Kit
93006	36	1	1" PVC Cap 1" FPT
93006	38	1	1" PVC Cap 1" FPT
93006	40	1	1" PVC Cap 1" FPT
93007	36	2	1" PVC Adaptor 1" MPT, 1" SOC
93007	38	2	1" PVC Adaptor 1" MPT, 1" SOC
93007	40	2	1" PVC Adaptor 1" MPT, 1" SOC
93011	36	6	1" PVC Adaptor 1" FPT, 1" SOC
93011	38	6	1" PVC Adaptor 1" FPT, 1" SOC
93011	40	6	1" PVC Adaptor 1" FPT, 1" SOC
93012	30	32	1" PVC Hose Barb, 1" MPT
93012	36	7	1" PVC Hose Barb, 1" MPT
93012	38	7	1" PVC Hose Barb, 1" MPT
93012	40	7	1" PVC Hose Barb, 1" MPT
93013	36	17	1" PVC Tee
93013	38	17	1" PVC Tee
93013	40	17	1" PVC Tee
93015	34	1	Screws
93016	34	2	Upper Clamp
93017	34	3	O-Ring

PART #	PAGE	ITEM	DESCRIPTION
93018	34	4	Main Body
93019	34	5	TeeJet Strainer
93020	34	6	Seat Washer
93021	34	7	Sprayer Tip (11003LP)
93022	34	8	Cap (Yellow) (Other colors avail)
93023	34	9	Retainer
93024	34	10	End Cap
93025	34	11	Diaphragm
93029	30	3	1" Gear Clamp HS16
93029	32	3	1" Gear Clamp HS16
93029	36	5	1" Gear Clamp HS16
93029	38	5	1" Gear Clamp HS16
93029	40	5	1" Gear Clamp HS16
93031	30	5	Solenoids
93035	30	9	Nipple 3/4" MPT
93036	30	10	90° Elbow 1 1/4" FPT
93037	30	11	Reducer Bushing 1¼" MPT, 3/4" FPT
93038	30	12	1¼" Hose Barb, 1¼" MPT
93039	30	13	1½" Gear Clamp HS24
93039	32	8	1½" Gear Clamp HS24
93040	30	15	Solenoid Harness c/w Nut & Nipple
93040	32	13	Solenoid Harness c/w Nut & Nipple
93041	30	16	Filter
93042	30	17	Hyd. Motor c/w Pump 9303C-HM1
93043	30	17	Hyd. Motor c/w Pump 9303C-HM2
93044	30	17	Hyd. Motor c/w Pump 9303C-HM3
93045	30	18	Centrifugal Pump
93046	30	19	Tee 3/4" FPT
93047	30	20	Regulator Valve
93048	30	21	90° Elbow 3/4" MPT 1" Hose Barb
93049	30	24	1½" Hose Barb, 1½" MPT
93049	32	7	1½" Hose Barb, 1½" MPT
93050	30	25	1½" Ball Valve (Anti-Vortex)
93051	30	26	Nipple 1½" MPT
93052	30	27	90°Elbow 3/4" MPT, 1" Hose Barb
93052	32	2	90° Elbow 3/4" MPT, 1" Hose Barb
93053	30	28	Reducer Bushing 1½" MPT, 1¼" FPT
93054	30	29	Reducer Bushing 1¼" MPT, 1"
93056	30	33	1" Hose Valve
93057	30	34	Nipple 1¼" MPT
93058	30	35	Tee 1¼" FPT
93059	30	36	Nipple 1¼" MPT
93060	30	37	1¼" Ball Valve (Throttle)
93061	30	38	Hyd. Motor Port Adaptor c/w Valve
93062	30	6	Nipple 1½" MPT x 4"
93063	30	8	Metering Orifice
93064	32	1	Agitator
93065	32	5	Anti-Vortex
93066	32	6	90° Elbow 1½" MPT, 1½" FPT
93067	32	10	Sprayer Control Monitor
93068	32	11	Sprayer Control Harness Monitor
93069	32	12	Sprayer Control Harness Monitor Ext.
93071	32	15	Nipple 3/4" MPT x 6"
93072	32	14	Coupler 3/4" MPT
93073	36	19	1" PVC Adaptor 1" SOC
93074	36	4	Rubber Hose x 19"
93074	38	4	Rubber Hose x 19"
93079	38	18	1" PVC Elbow Hose Barb 1" MPT
93079	40	18	1" PVC Elbow Hose Barb 1" MPT
93085	30	4	1" Hose Barb 1/2" MPT
93095	30	7	1/2" Nylon Plug
93096	30	30	1½" Tee c/w Two ½" Side Ports
B5C0616P	36	12	Bolt 3/8" x 1"
B5C0616P	38	12	Bolt 3/8" x 1"
B5C0616P	40	12	Bolt 3/8" x 1"
B5C0628P	36	14	Bolt 3/8" x 1 3/4"
B5C0628P	38	14	Bolt 3/8" x 1 3/4"
B5C0628P	40	14	Bolt 3/8" x 1 3/4"
LN5C06P	36	9	Locknut 3/8"
LN5C06P	38	9	Locknut 3/8"
LN5C06P	40	14	Locknut 3/8"
LN5C08P	28	12	Locknut 1/2"
UB069684	36	11	U-bolt 3/8" x 6" x 5 1/4"
UB069684	38	11	U-bolt 3/8" x 6" x 5 1/4"
UB0848112	28	11	U-bolt 1/2" x 3" x 7" (HB)
UB0850146	28	11	U-bolt 1/2" x 3" x 9" (HPB)

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TO THE OWNER:

Congratulations on the purchase of your new LAURIER FIELD SPRAYER.

Constructed of the finest quality materials, your LAURIER FIELD SPRAYER is engineered and designed to do normal spraying operations effectively and efficiently, and to provide you with years of dependable service.

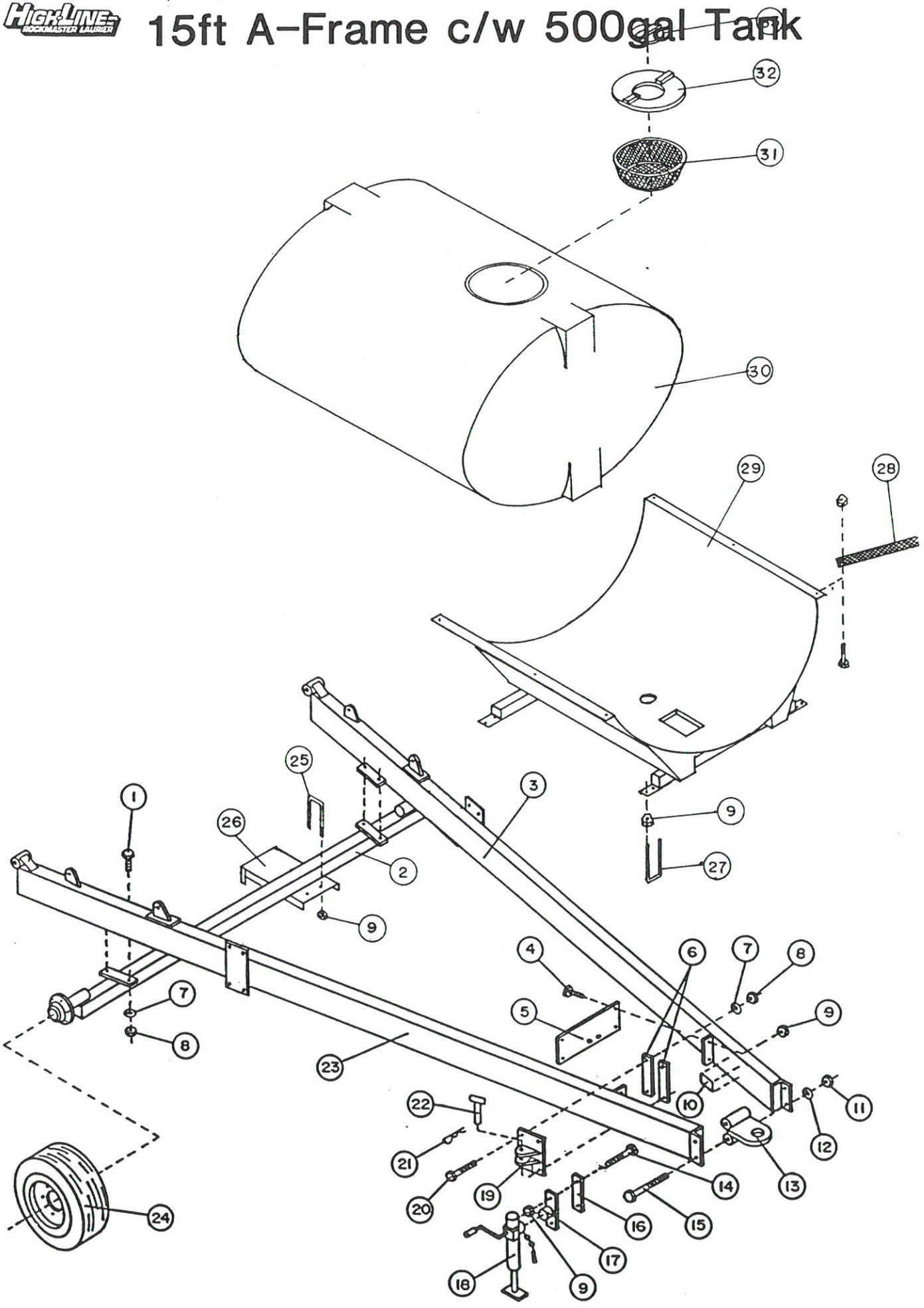
Be sure to read the instructions in this manual for adjusting and operating your LAURIER FIELD SPRAYER. A few moments to acquaint yourself with the LAURIER FIELD SPRAYER and its maintenance requirements will save you precious time in the field and protect your machinery investment. Should you in time, need replacement parts, please consult the parts list in this manual and contact your LAURIER dealer.

HIGH LINE MFG. INC.

It is the policy of HIGH LINE MFG. INC. to improve its products whenever it is possible and practical. We reserve the right to make changes or add improvements, at any time, without incurring any obligation to make such changes on machines previously sold.

Table Of Contest

15ft A-Frame c/w 500gal Tank



15ft A-Frame c/w 500gal Tank

NOTE: LEFT & RIGHT ARE DETERMINED WHEN FACING REAR OF THE MACHINE.
DO NOT TIGHTEN BOLTS UNTIL ALL PARTS ARE IN PLACE.

A. Install wheels to axle frame #2 and secure with wheel bolts.

B. Bolt axle frame to left and right hitch (#3,#23) with 5/8" x 2" Bolts.

C. Bolt cross plate #5 to left and right with 1/2" x 1 1/2" bolts #4.

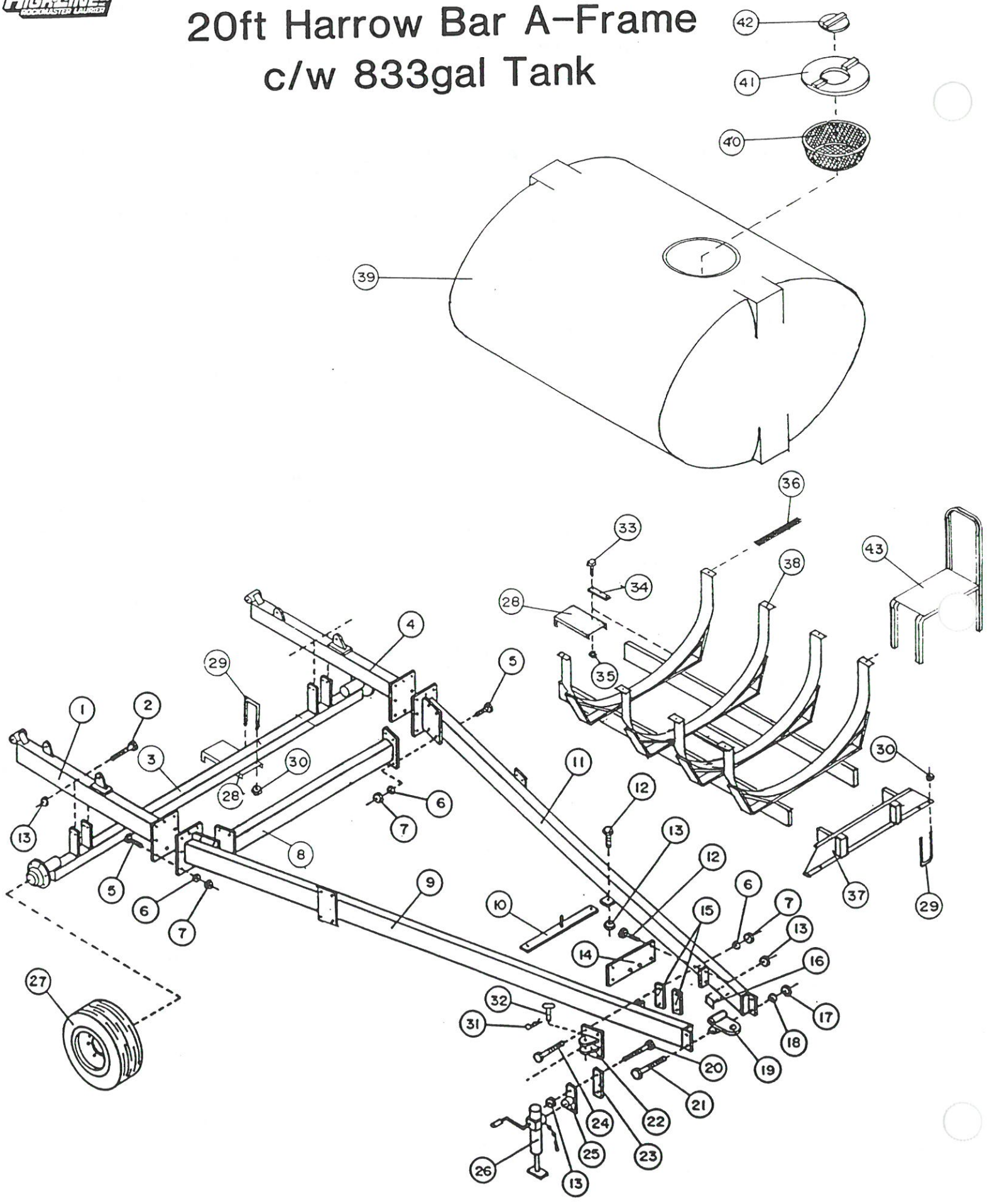
D. Install bolts on draw hitch #13 to left and right hitch using 1" x 7 1/2" bolts #15.

E. Sidewing jack #18 is optional.

F. Mount tank #30 and saddle #29 to A-Frame using four (4) 1/2" x 3" x 7" u-bolts, for 15 ft. only, 500 gal. tank.

G. Tank webbing support kit is to tie down tank to the saddle #28.

20ft Harrow Bar A-Frame c/w 833gal Tank



20ft Harrow Bar A-Frame c/w 833gal Tank

NOTE: LEFT & RIGHT ARE DETERMINED WHEN FACING REAR OF MACHINE.
DO NOT TIGHTEN BOLTS UNTIL ALL PARTS ARE IN PLACE.

A. Install wheels to axle frame #3 and secure with wheel bolts.

B. Bolt axle frame to left and right hitch tube (#1,#4), 23" from pivot hinge on hitch tube to centre of wheel axle, bolt axle with 1/2" x 4 1/2" bolts.

C. Bolt left and right hitch (#9,#11) to left and right hitch tube using 5/8" x 1 3/4" bolts #5.

D. Bolt cross member #8 to left and right hitches 5/8" x 1 3/4" bolt #5.

E. Bolt cross angle #10 and cross plate #14 to left and right hitch using 1/2" x 1 1/2" bolts, #12.

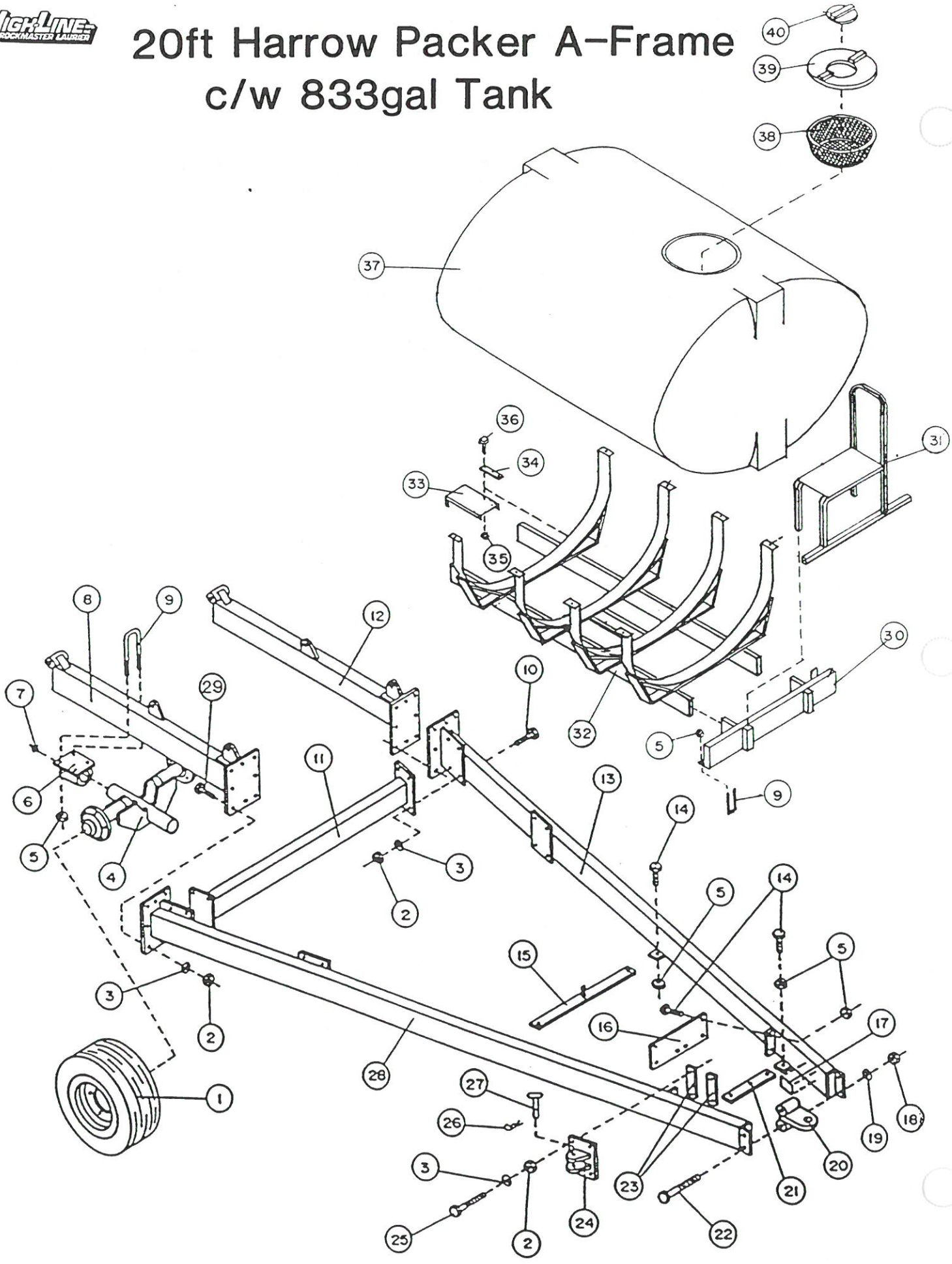
F. Install bolts on draw hitch #19 to left and right hitch using 1/2" x 7 1/2" bolts #21.

G. Side jack #26 is optional.

H. Mount tank #39 and dsddle #38 to A-Frame using four (4) 1/2" x 3" x 7" u-bolts #29 for 20 ft. A-Frame. Remember to place tank lid in front of machine. Do not tighten U-Bolt.

I. Tank webbing support kit is to tie down the tank to the saddle #36.

20ft Harrow Packer A-Frame c/w 833gal Tank



20ft Harrow Packer A-Frame c/w 833gal Tank

20 Ft. HARROW PACKER BAR A-FRAME c/w 833 Gal. TANK

NOTE: LEFT AND RIGHT DETERMINED WHEN FACING REAR OF MACHINE.
DO NOT TIGHTEN BOLTS UNTIL ALL PARTS ARE IN PLACE.

A. Bolt left and right hitches (#13,#18) to right and left hitch tube (#8,#12) with 5/8" x 1 3/4" bolts.

B. Bolt cross members (#11) to left and right hitches with 5/8" x 1 3/4" bolts.

C. Bolt cross angle (#15) and tension spring plate (#21) to left and right hitches with 1/2" x 1 1/2" bolts.

D. Bolt on items (#16,23,24,25,26 & 27) only if no Auto Fold is used, otherwise follow auto fold directions.

E. Install bolt on draw hitch (#20) to left and right hitches with 1" x 7 1/2" bolts.

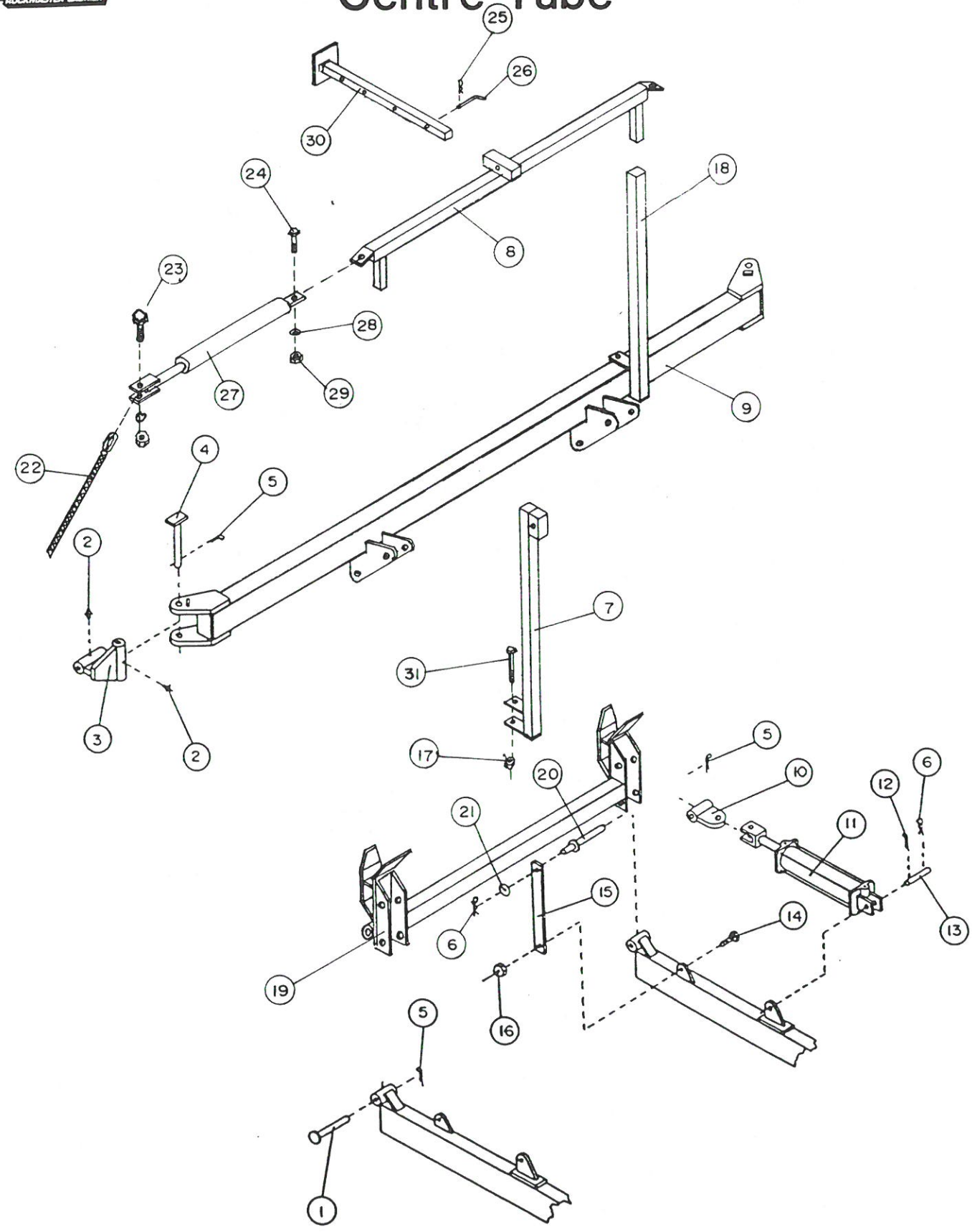
F. Install Wheels to oscillating axles (#4). Secure wheels with wheel bolts.

G. Bolt oscillating axle to left and right hitch tubes, 23" from pivot hinge on hitch tubes to centre of wheel axle with 1/2" U-bolts (#9) and oscillating axle pockets (#6).

H. Mount tank (#37) and saddle (#32) to A-Frame using four 1/2" x 3" x 7" U-bolt (#9) for 20 ft. Remember to place tank lid to front of machine. Do not tighten U-bolts.

I. Tank webbing support kit is to tie-down the tank to the saddle.

Centre Tube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Centre Tube

A. Secure quick attachment #19 to A-Frame using pins #1.

B. Tighten all bolts on hitch.

C. Attach the centre tube #9 to the quick attach with pins #1. Secure cylinder swivel bracket #10 to centre tube using pins #20.

D. Position cylinder #11 rod end to swivel bracket using pins #13.

E. Place cylinder lock #19 in place and secure with 3/4" x 2" Gr. 8 bolts. Tighten to allow lock plate to move freely.

F. Place left and right knuckles #3, grease nipples in up position and secure in place with pins #28, 1 1/4" x 8 3/4" to centre tube.

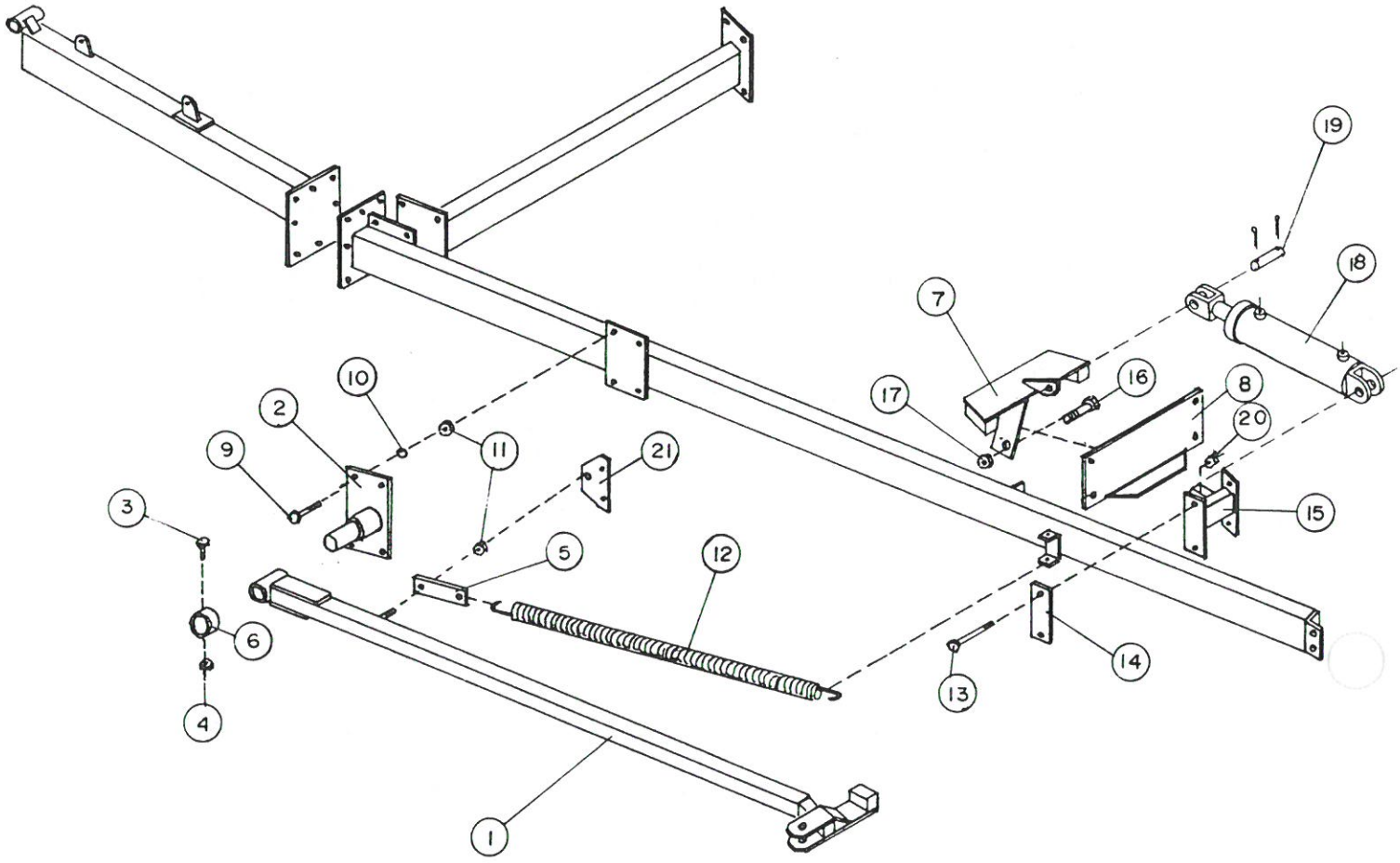
G. Attach right and left support arm (#7,#18) to centre tube #9 rear. Support #8 slides on the end of support arm.

H. Stabilizer jack #30 is secured with a pin #10.

I. Quick attachment #19 is attached to the A-Frame and centre tube #9 with pins #15.

K. Secure cable tensioner #27 to rear support #8 with 3/4" x 2" bolt #24. The other end attaches to cable #22 with 3/4" x 3" bolt #23.

Two Peice Auto Fold



Two Peice Auto Fold

NOTE: DO NOT TIGHTEN BOLTS UNTIL ALL PARTS ARE IN PLACE.

A. Bolt autofold A-Frame bracket right #2 to the 15 ft. or 20 ft. A-Frame as shown. Autofold right arm #1 on collar and bolt shaft collar #6 with 1/4" x 2 1/4" bolt. Do the same for left side.

B. Install cylinder bracket #15 complete with backing plate #14 and 1/2" x 4 1/2" bolt #13.

C. Bolt cross plate #8 to A-Frame.

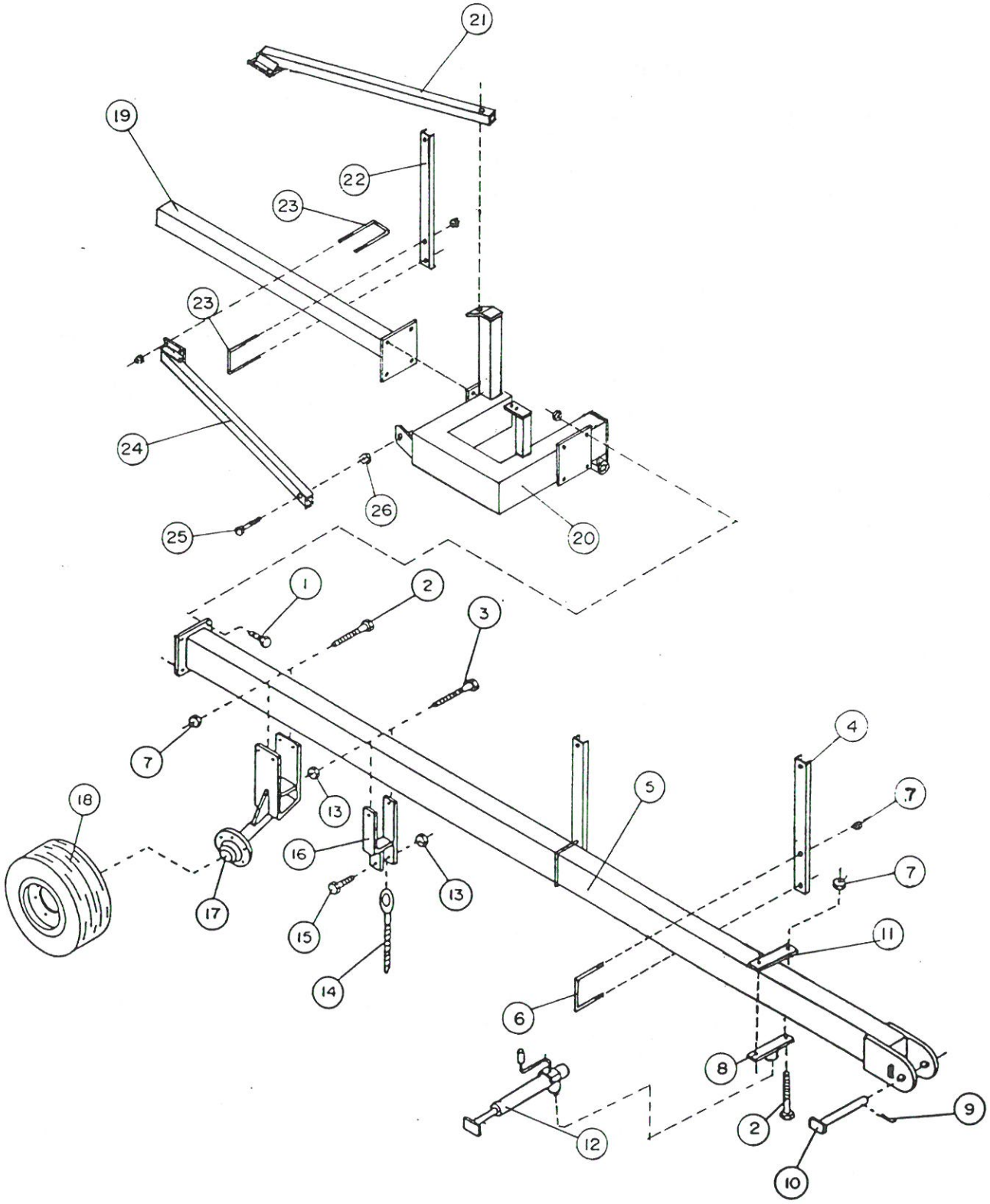
D. Bolt #7 front lock to cross plate #8.

E. Attach 2" x 48" spring #12 to autofold arm #1 and A-Frame.

F. Attach 2" x 8" cylinder #2 to frontlock #7 and cylinder lug bracket #15.

G. Split wing 90 ft. and 100 ft. , the double spring is needed to lock autofold #21.

Wing Tube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Wing Tube

A. Secure wing tube #15 to centre tube knuckle with knuckle pins #10, (1 1/4" x 7 1/4"). Place wing tube pin stop facing outwards.

B. Loosely bolt transport wheel #17 to wing tube using 1/2" x 6" bolts, #2.

C. Bolt and install wheels #18.

D. Bolt standard jack #12 on to wing tube with 1/2" x 6" bolt #2.

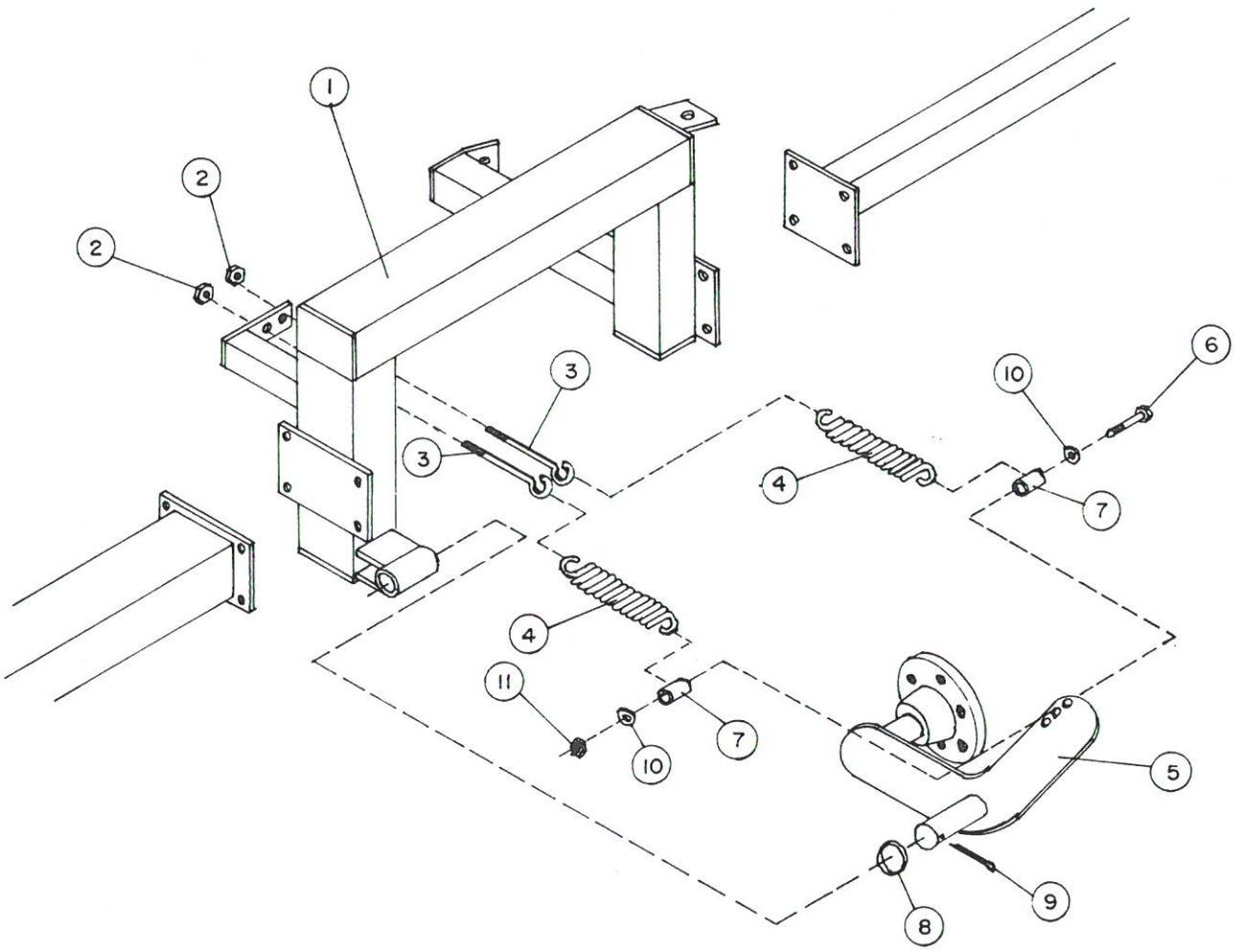
E. Loosely bolt cable bracket #16 to wing tube using 3/4" x 6 1/2" bolt #3. Place cable bracket in front of transport wheels.

F. Secure boom wheel #20 to wing tube #5. Do not tighten bolts until the apparatus is all together.

G. Bolt boom extention arm #19 to the end of the boom wheel. For longer sprayer unit, attach boom extention braces #21 and #24.

H. Sprayer arms #4 are u-bolted #6 to wing tube #5. Different arms are needed for the boom extention #19. Attach sprayer arm #22 to boom extention with U-bolt #23.

Boom Wheel



Boom Wheel

A. Secure boom wheel #1 to wing tube. Do not tighten bolts until the apparatus is all together.

B. Attach eye bolts #3 to spring #4 and attach them to boom wheel.

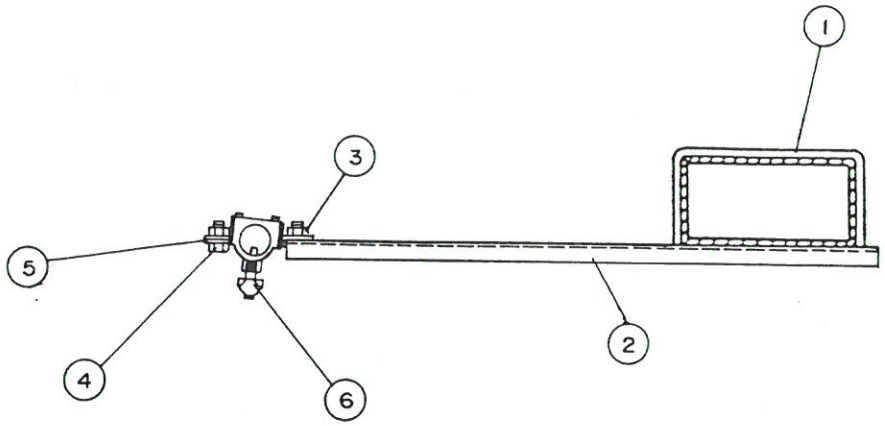
C. Secure bolt #6 with special collar #7 for the springs.

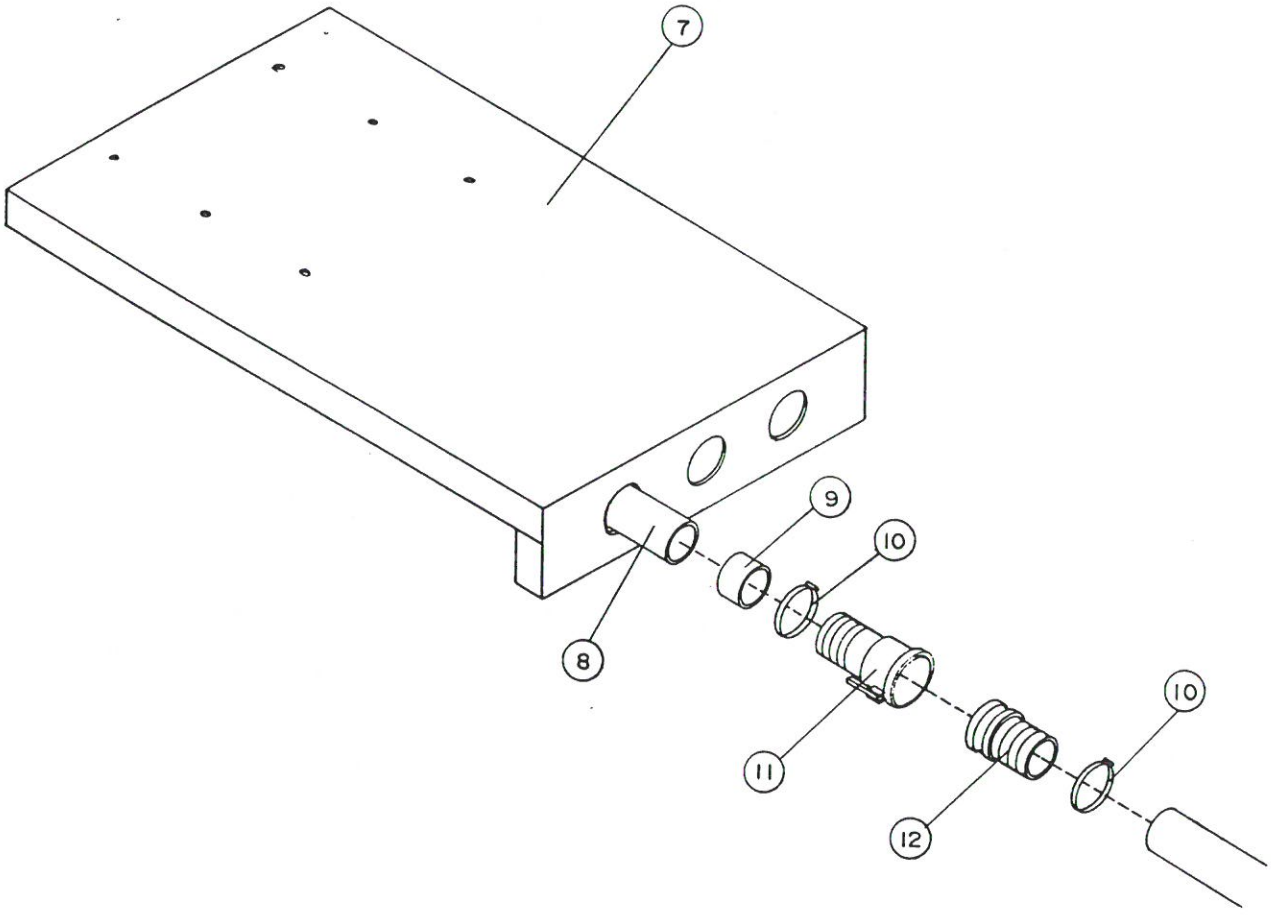
D. Install wheel.

E. Bolt boom extention arm to the end of the boom wheel.

F. Tighten all bolts.

Boom Bracket & Quick Coupler



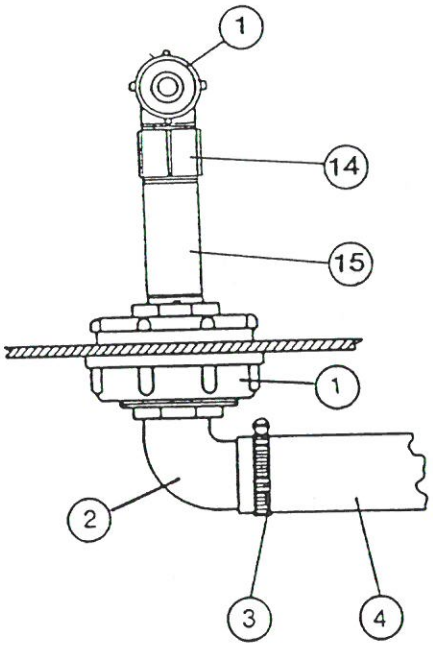


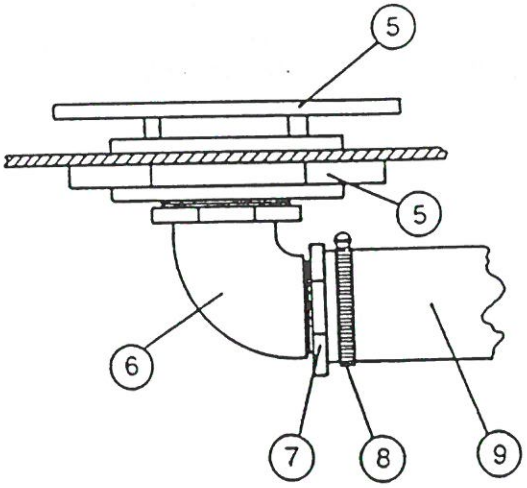
Boom Bracket & Quick Coupler

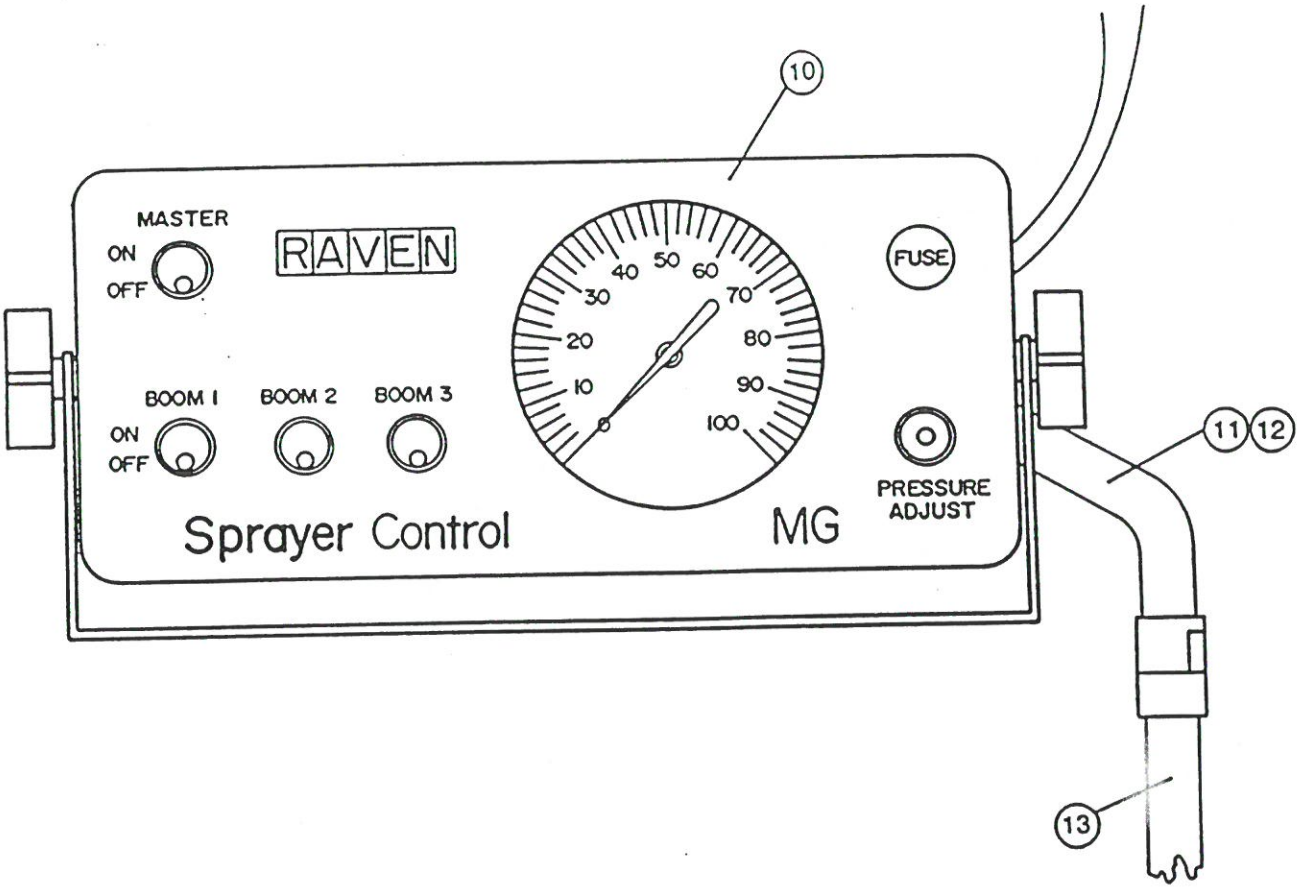
A. Attach boom clamp #5 to sprayer arm #2. Put PVC boom in and bolt #4. Install all nozzles in predrilled PVC pipe.

B. Attach plate to A-Frame as shown on 15 ft. and 20 ft. A-Frame. Cut hoses going to left boom, right boom and centre boom. Attach quick coupler female end #11 to hose from tank with c-clamp #10 and quick coupler male #12 to hose from the booms.

Agitator, Anti-Vortex & Control Monitor







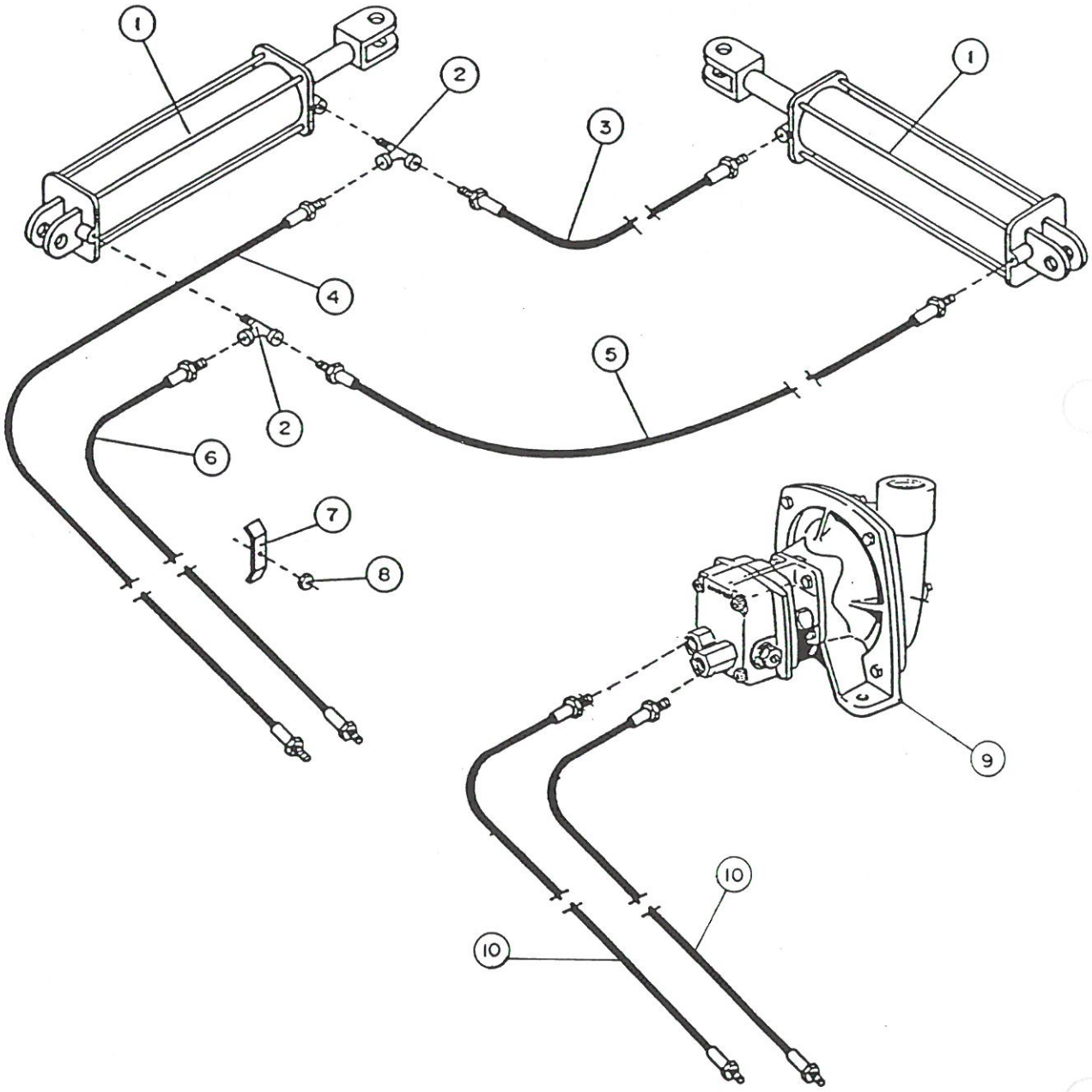
Agitator, Anti-Vortex & Control Monitor

A. Install 3/4" agitator #1 assembly to the inside bottom of tank. Also install 2" anti-vortex #5 to the inside bottom of tank. Screw in 3/4" x 90° elbow #2 in agitator assembly and also screw in 1 1/2" x 90" elbow #6 into anti-vortex assembly. Secure with silicone or tape. Barb ends should be facing front of machine. Connect 1" hose #4 to agitator assembly plus install 1 1/2" hose #9 to anti-vortex. While under tank connect 1" hose to centre boom. Secure all hoses with hose clamps (#9,#3).

   NOTE: For above lengths for hoses, turn to hose length chart on page .

B. Install sprayer control monitor to tractor ground monitor by using white wire. Red wire is for power preferably connected to fuses. Join sprayer control monitor harness to harness coming from solenoids on pumps and control plate. Longer harness is available if needed.

15ft A-Frame Hydraulic



15ft A-Frame Hydraulic

A. Install cylinders #1, port holes inwards, rod end to swivel bracket.

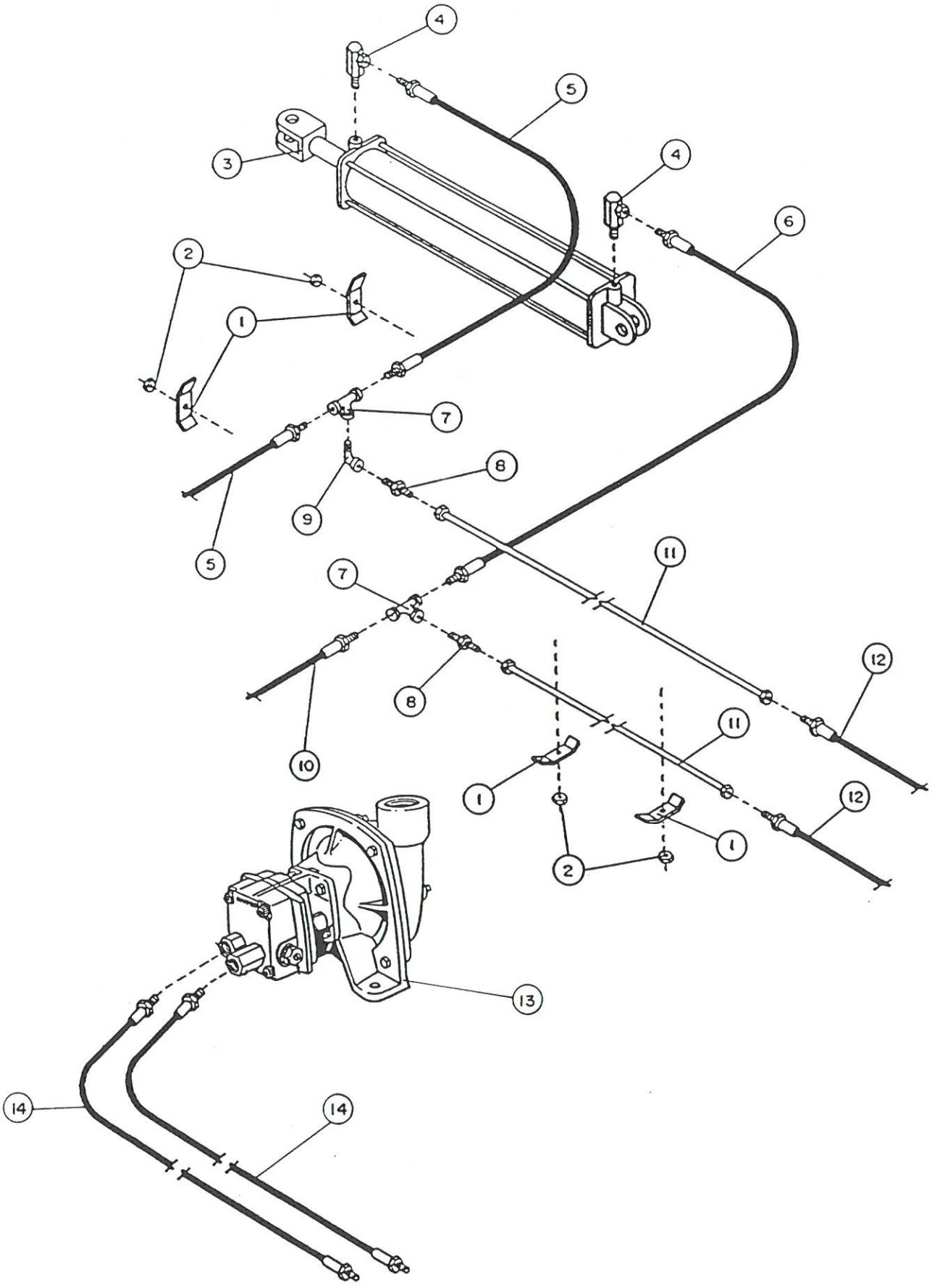
B. Install street tees #2 on right hand cylinder only.

C. Install hoses as shown, checking parts list for correct lengths.

D. Secure hoses to A-Frame hitch with hose clamps.

E. Install hoses #10 to hydraulic motor c/w pump.

20ft A-Frame Hydraulic



20ft A-Frame Hydraulic

A. Install cylinder #3, port holes upward, rod ends to swivel brackets.

B. Install 90° swivel elbows #4 on cylinders.

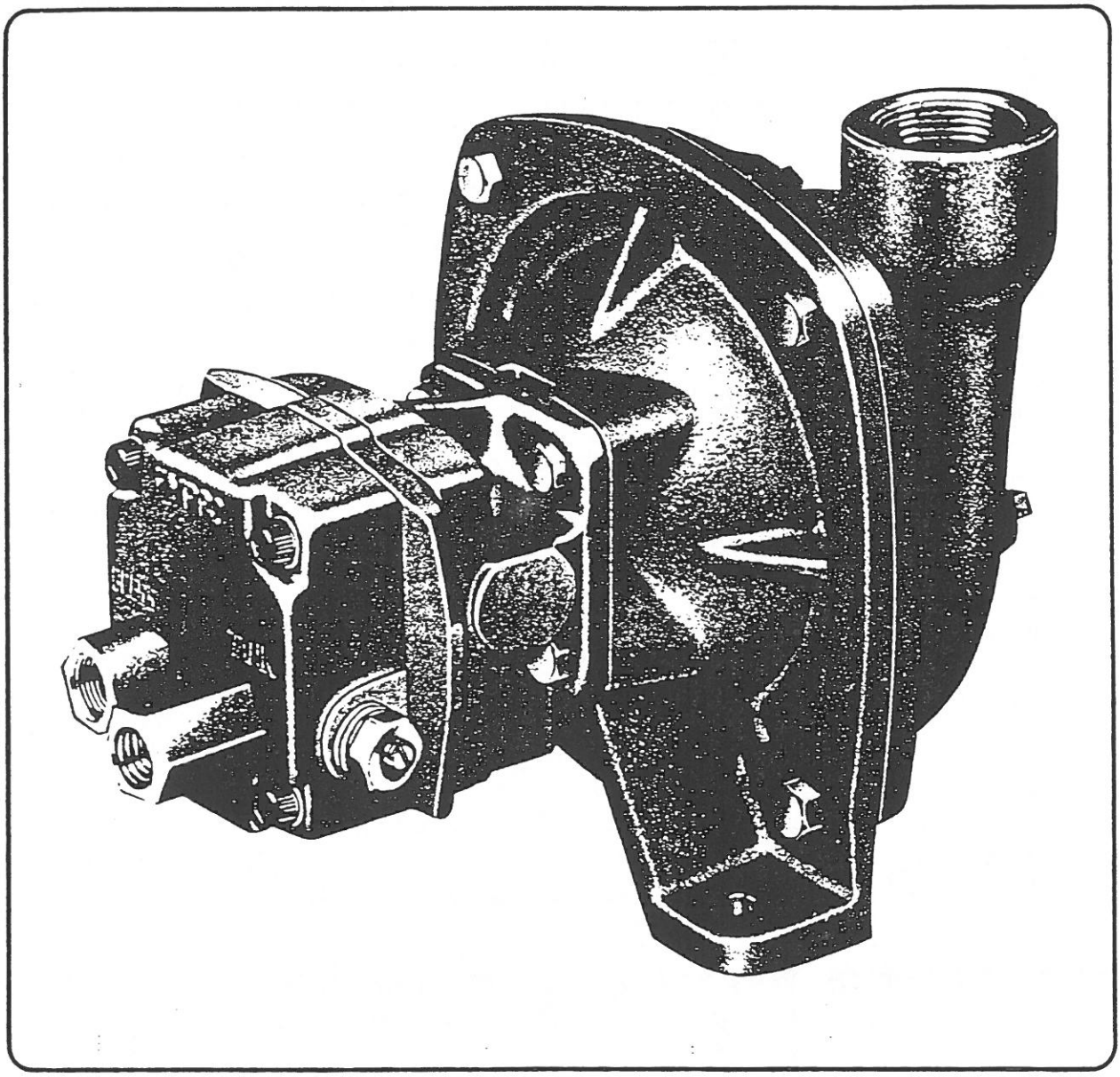
C. Install street elbows #9, tees #7, unions #8, to 1/2" hydraulic lines #11. Then install hydraulic lines to underside of A-Frame, but on top of pump plate, securing with hose clamps and passing through plates.

D. Install hoses as shown checking parts list for right length.

E. Install hoses #14 to hydraulic motor c/w pump.

Notes

Hypro Hydraulic Motor Driven Centrifugal Pump Selection Guide For Tractor Hydraulic Systems



Hypro®
A DIVISION OF LEAR SIEGLER, INC.
375 Fifth Ave NW, St. Paul, MN 55112•(612) 633-9300

On open center systems, installation of hydraulic motor driven centrifugal pumps may result in insufficient hydraulic pressures to operate other hydraulic equipment requiring higher hydraulic pressures, such as cylinders. If that occurs, it may be necessary to temporarily stop your hydraulic driven pump to restore the hydraulic system pressure to its normal operating pressure range.

On open center systems, as the engine speed changes, so does the hydraulic pump flow. For that reason, adjustments made on the hydraulic driven pump should be made with tractor engine speed as close as possible to what it will be operating at in the field. The hydraulic flow on some open center hydraulic systems also decreases when power steering is in use; consequently, so does centrifugal pump flow.

The tractor hydraulic system data contained in these tables should be used only as a guide. For assurance that any continuous duty equipment, such as hydraulic driven centrifugal pumps, will not overheat your hydraulic system, or for more detailed information, consult your tractor manufacturer.

IMPORTANT: Any closed center hydraulic system marked with L.S. is load sensing. All other closed center systems not marked are pressure sensing.

Agricultural Tractors with 2 Wheel Drive

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL			
				HM1	HM2	HM3	HM4
ALLIS CHALMERS							
ONE SIXTY	OPEN	2300	6.7		X		
ONE SEVENTY-G	OPEN	2000	10	X			(2)
ONE SEVENTY-D	OPEN	2000	10	X			(2)
175 CROP HUSTLER	OPEN	2000	11	X			
175-G	OPEN	2400	11	X			
175-D	OPEN	2400	11	X			
180-G	OPEN	2000	10	X			(2)
180-D	OPEN	2000	10	X			(2)
185	OPEN	2000	10	X			
185 AFTER 1972	OPEN	2000	11	X			(2)
185-D	OPEN	2400	11	X			
190-D	OPEN	2000	12.75	X			
190-GXT	OPEN	2000	12.75	X			
190-DXT	OPEN	2000	12.75	X			
200-D	OPEN	2400	13.2	X			
210	OPEN	2000	18	(1)		X	
210 AFTER 1972	OPEN	2400	18	(1)		X	
220	OPEN	2000	18	(1)		X	
220 AFTER 1972	OPEN	2400	18	(1)		X	
5020	OPEN	1900	5.4		X		
5030	OPEN	1900	5.4		X		
5040	OPEN	2133	5.75		X		
5040 AFTER 1978	OPEN	2133	6.23		X		
5045	OPEN	2770	6.25		X		
5050	OPEN	2133	6.23		X		
5050 AFTER 1978	OPEN	2133	6.47		X		
6040	OPEN	2300	7				X
6060	OPEN	2300	10	X			(2)
6070	OPEN	2300	10	X			
6080	OPEN	2300	10	X			(2)
6140	OPEN	2000	10	X			
7000	OPEN	2400	5.88		X		
7010-PD	CLOSED (LS)	2500	17				X
7010-PS	CLOSED (LS)	2500	17				X
7020	CLOSED (LS)	2500	17				X
7020-PS	CLOSED (LS)	2500	17				X
7030	CLOSED (LS)	2500	17				X
7040	CLOSED (LS)	2500	17				X
7040-PS	CLOSED (LS)	2500	17				X
7045	CLOSED (LS)	2500	17				X
7045-PS	CLOSED (LS)	2500	17				X
7050	CLOSED (LS)	2500	17				X
7060	CLOSED (LS)	2500	17				X
7060-PS	CLOSED (LS)	2500	17				X
7080	CLOSED (LS)	2500	18				X
8010	CLOSED (LS)	2500	17				X
8030	CLOSED (LS)	2500	17				X
8050	CLOSED (LS)	2500	17				X
8070	CLOSED (LS)	2500	17				X

(1) For spraying pressures in excess of 60 p.s.i. use HM1.
If directional valve lever kicks out, do not tie lever in operating position. Use next size larger hydraulic motor (HM3), or adjust directional valve detents.
If other implements are to be used, use smaller hydraulic motor, HM1.
(2) For spraying pressures in excess of 80 p.s.i., use HM4.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

CASE/DAVID BROWN							
780	OPEN	2000	7.3		X		
880	OPEN	2000	7.3		X		
885	OPEN	2500 (1)	7.3		X		
990	OPEN	2500 (1)	7.3		X		
995	OPEN	2500 (1)	7.3		X		
1200	OPEN	2000	6.9 (2)		X		
1210	OPEN	2500 (1)	6.9 (2)		X		
1212	OPEN	2500 (1)	6.9 (2)		X		
1410	OPEN	2500	7.3 (2)		X		
1410 AFTER 1977	OPEN	2500	15.5	X			
1412	OPEN	2500	7.3 (2)		X		
3800	OPEN	2000	7.3		X		
4600	OPEN	2000	7.3		X		

(1) All 1972 model tractors & earlier have a maximum pressure of 2000 p.s.i.
(2) Maximum flow capability is 15.5 GPM on some models equipped with larger hydraulic pump. On these models the centrifugal pump recommendation is the HM1.

Agricultural Tractors with 2 Wheel Drive (continued)

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL			
				HM1	HM2	HM3	HM4
J.I. CASE							
470	OPEN	1550	8.6	X	(2)		
570	OPEN	1550	9.3	X			
770	OPEN	1550	14-16 (1)	X			
870	OPEN	1550	14-16 (1)	X			
970	OPEN	1900	14-16 (1)	X			
1070	OPEN	2100	14-16 (1)	X			
1090	OPEN	2250	14-16	X			
1170	OPEN	2250	14-16	X			
1175	OPEN	2250	14-16	X			
1190	OPEN	2200	7.25				X
1194	OPEN	2200	7.25				X
1270	OPEN	2200	20	(3)		X	
1270 AFTER 1973	OPEN	2050	20	(3)		X	
1290	OPEN	2200	7.25				X
1294	OPEN	2200	7.25				X
1370	OPEN	2200	20	(3)		X	
1370 AFTER 1973	OPEN	2050	20	(3)		X	
1390	OPEN	2200	15.2	X			
1394	OPEN	2200	15.2	X			
1490	OPEN	2200	15.2	X			
1494	OPEN	2200	15.2	X			
1570	OPEN	2200	20	(3)		X	
1594	OPEN	2200	20.1			X	
1690	OPEN	2200	20.1			X	
1896	CLOSED (LS)	2250	22				X
2090	CLOSED (LS)	2250	22				X
2094	CLOSED (LS)	2250	23				X
2096	CLOSED (LS)	2250	22				X
2290	CLOSED (LS)	2250	22				X
2294	CLOSED (LS)	2250	23				X
2390	CLOSED (LS)	2250	24				X
2394	CLOSED (LS)	2250	27				X
2590	CLOSED (LS)	2250	24				X
2590 AFTER 1979	CLOSED (LS)	2250	23				X
2594	CLOSED (LS)	2250	27				X
3294	CLOSED (LS)	2250	23				X
3394	CLOSED	2250	17				X
3594	CLOSED	2250	17				X
JOHN DEERE							
650	OPEN	1800	4.5		X		(3)
750	OPEN	2000	5.8		X		(3)
820	OPEN	2100	6.5		X		(3)
830	OPEN	2100	6.5		X		(3)
850	OPEN	2100	5.0		X		(3)
850 AFTER 1979	OPEN	2100	6.5		X		(3)
950	OPEN	2100	5.0		X		(3)
950 AFTER 1979	OPEN	2100	6.5		X		(3)
1020	CLOSED	2250	6.5		X		(3)
1020 AFTER 1979	CLOSED	2250	12		X		(3)
1050	OPEN	2100	5.0		X		(3)
1050 AFTER 1979	OPEN	2100	6.5		X		(3)
1250	OPEN	2100	6.5		X		(3)
1450	OPEN	2100	6.5		X		(3)
1650	OPEN	2100	6.5		X		(3)
1520	CLOSED	2250	6.5		X		(3)
1520	CLOSED	2250	12				X
1530	CLOSED	2250	6.5		X		(3)
1530	CLOSED	2250	12				X
2020	CLOSED	2250	6.5		X		(3)
2020	CLOSED	2250	12				X
2030	CLOSED	2250	12				X
2030	CLOSED	2250	14				X
2040 (1)	OPEN	2100	6.5		X		(3)
2040(2)	CLOSED	2250	12				X
2150	CLOSED	2350	13.5				X
2155	CLOSED	2320	22				X
2240	CLOSED	2250	12				X
2255	CLOSED	2350	13.5				X
2350	CLOSED	2350	13.5				X
2355	CLOSED	2320	22				X
2440	CLOSED	2250	12				X
2440	CLOSED	2250	14				X
2520	CLOSED	2250	14				X
2550	CLOSED	2250	13.5				X
2555	CLOSED	2320	22				X
2630	CLOSED	2250	12				X
2630	CLOSED	2250	14				X
2640	CLOSED	2250	12				X
2640	CLOSED	2250	14				X
2750	CLOSED	2350	19				X
2755	CLOSED	2320	22				X
2840	CLOSED	2250	14				X
2940	CLOSED	2250	14				X
2950	CLOSED	2350	19				X
2955	CLOSED	2320	22				X
3020	CLOSED	2250	14				X
3150	CLOSED	2250	14				X
3155	CLOSED	2320	22				X

(1) In 1971 model tractors and earlier the maximum flow is 14 GPM.
(2) For spraying pressures in excess of 60 p.s.i. use series HM2
(3) If other implements are to be used use smaller hydraulic motor. HM1
(4) For spraying pressures in excess of 80 p.s.i. use HM4.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(JOHN DEERE-continued)	**Agricultural Tractors with 2 Wheel Drive (continued)**						
4000	CLOSED	2250	18				X
4020	CLOSED	2250	18				X
4030	CLOSED	2250	14				X
4040	CLOSED	2250	18				X
4050	CLOSED	2350	25.5				X
4230	CLOSED	2350	18				X
4240	CLOSED	2250	18				X
4250	CLOSED	2350	25.5				X
4320	CLOSED	2250	18				X
4430	CLOSED	2250	18				X
4440	CLOSED	2250	18				X
4450	CLOSED	2350	25.5				X
4620	CLOSED	2250	18				X
4630	CLOSED	2250	18				X
4640	CLOSED	2250	18				X
4650	CLOSED	2350	24				X
4840	CLOSED	2250	18				X
4850	CLOSED	2350	24				X
5020	CLOSED	2250	18				X
6030	CLOSED	2250	18				X

(1) Tractor serial numbers through 266749.
(2) Tractor serial numbers beginning with 266750.
(3) HM4 unit interchangeable with HM2.

DEUTZ							
D3006	OPEN	2490	7.2 (2)				
D4006	OPEN	2490	6.4 (2)				
D4506	OPEN	2485	7.3 (2)				
D4507	OPEN	2500	8.7	X			
D5206	OPEN	2572	7.2 (2)				
D5207	OPEN	2500	9.0	X			
D5506	OPEN	2490	Unknown (2)				
D6006	OPEN	2490	Unknown (2)				
D6007 AFTER 1974	OPEN	2840	Unknown (2)				
D6206	OPEN	2485	7.5 (2)				
D6507	OPEN	2500	9.7	X			
D6507C	OPEN	2500	9.7	X			
D6806	OPEN	2940	9.2 (2)				
D7007	OPEN	2500	10.6	X			
D7206	OPEN	2939	Unknown (2)				
D7807	OPEN	2500	11	X			
D7807C	OPEN	2500	11	X			
D8006	OPEN	2485	8.6 (2)				
D8006 AFTER 1977	OPEN	2485	9.5 (2)				
D9006	OPEN	2490	Unknown (2)				
D10006	OPEN	2485	8.6 (2)				
D10006 AFTER 1977	OPEN	2485	10.5 (2)				
D13006	OPEN	2485	10.8 (2)				
D13006 AFTER 1978	OPEN	2485	11.5 (2)				
DX4.70	OPEN	2500	12.4	X			
DX6.30	OPEN	2500	15.3	X			
DX6.50	OPEN	2500	14.8	X			
DX7.10	OPEN	2500	18.2			X	
DX90	OPEN	2485	14.7	X			
DX110	OPEN	2485	14.7	X			
DX140	OPEN	2485	18.2	(1)		X	
DX160	OPEN	2485	18.2	(1)		X	

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor, HM1.
(2) These tractors have many optional hydraulic pumps available. Consult your tractor manual or dealer to determine flow available at remote outlet in your tractor.
Flows 8 GPM or less use HM2.
Flows 8 GPM to 17 GPM use HM1.
Flows 17 GPM and over use HM3.
For spraying pressures over 70 p.s.i. the HM1 requires a minimum of 11 GPM. HM3 requires a minimum of 20 GPM.
Optional auxiliary hydraulic reservoir is recommended to prevent overheating.

FORD							
1000	OPEN	1400	4.2		X (1)		
1100	OPEN	1850	2.9		N.R.		
1110	OPEN	1850	4.1		X (1)		
1210	OPEN	1850	4.3		X (1)		
1300	OPEN	2133	4.3		X (1)		
1310	OPEN	2100	6.3				X
1500	OPEN	2133	4.0		X (1)		
1510	OPEN	2100	6.6				X
1600	OPEN	1400	4.2		X (1)		
1700	OPEN	2133	5.3		X		
1710	OPEN	2100	7.8				X
1900	OPEN	2133	5.9		X		
1910	OPEN	2100	8.6	X			(2)
2000	OPEN	2500	4		X (1)		
2600	OPEN	2100	8.5	X			(2)
2610	OPEN (3)	2000	8.5 (3)	X			(2)
2910	OPEN	2500	7.7				X
3000	OPEN	2500	5		X		

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(FORD-continued)	**Agricultural Tractors with 2 Wheel Drive (continued)**						
3600	OPEN	2100	8.5	X			(2)
3610	OPEN (3)	2000	8.5 (3)	X			(2)
3910	OPEN	2500	7.7				X
4000	OPEN	2500	5		X		
4100	OPEN	2100	8.5	X			(2)
4110	OPEN (3)	2000	8.5 (3)	X			(2)
4600	OPEN	2100	8.5	X			(2)
4600-SU	OPEN	2100	8.5	X			(2)
4610	OPEN (3)	2000	8.5 (3)	X			(2)
5000	OPEN	2500	6		X		
5600	OPEN	2100	9.7	X			(2)
5610	CLOSED	2000	9.7 (4)				X
6600	OPEN	2100	9.7	X			(2)
6610	CLOSED	2000	9.7 (4)				X
6700	OPEN	2100	9.7	X			(2)
6710	CLOSED	2000	9.7 (4)				X
7000	OPEN	2500	6		X		
7600	OPEN	2100	9.7	X			(2)
7610	CLOSED	2000	9.7 (4)				X
7700	OPEN	2100	9.7	X			(2)
7710	CLOSED	2000	9.7 (4)				X
8000	OPEN	2500	12	X			
8600	OPEN	2500	12	X			
8700	OPEN	2200	15.5	X			
9000	OPEN	2500	16	X			
9600	OPEN	2500	16	X			
9700	OPEN	2200	15.5	X			
TW-5	OPEN	2500	16	X			
TW-10	OPEN	2200	16.2	X			
TW-15	OPEN	2500	15.3	X			
TW-20	OPEN	2200	15.5	X			
TW-25	OPEN	2500	15.3	X			
TW-30	OPEN	2200	15.5	X			
TW-30 AFTER 1979	OPEN	2200	20			X	
TW-35	OPEN	2500	20			X	

(1) Maximum centrifugal pump volume 20 GPM at 40 p.s.i. on these systems.
(2) For spraying pressures in excess of 50 p.s.i. use smaller hydraulic motor, HM4.
(3) Optional 13.6 GPM pump package available (closed center)
(4) Optional 17.5 GPM pump package available (closed center)

INTERNATIONAL HARVESTER							
140	OPEN	1200	5		(6)		
284	OPEN	1750	6		X		
354	OPEN	2400	6		X		
364	OPEN	2400	6		X		
364 AFTER 1977	OPEN	2400	9	X			(1)
384	OPEN	2400	9	X			(1)
454	OPEN	2300	9	X			(1)
464	OPEN	2300	9	X			(1)
464 (1975)	OPEN	2500	9	X			(1)
464 AFTER 1975	OPEN	2500	10.5	X			
484	OPEN	2500	10.5	X			
544	OPEN	1600	15 (2)	X			(3)
574	OPEN	2500	9	X			(1)
574 AFTER 1975	OPEN	2500	9.5	X			(1)
584	OPEN	2500	9.5	X			(1)
656	OPEN	2000	15 (2)	X			(3)
664	OPEN	1600	16 (2)	X			(3)
666	OPEN	1600	15 (2)	X			(3)
674	OPEN	2500	9	X			(1)
674 AFTER 1975	OPEN	2500	10.5	X			
684	OPEN	2500	10.5	X			
686	OPEN	1550	15 (2)	X			
HYDRO-70	OPEN	1350	15 (2)	X			(3)
756	OPEN	1550	12 (4)	X		(5)	
766	OPEN	2000	12	X			
766 AFTER 1975	OPEN	2000	13	X			
784	OPEN	2500	10.5	X			
HYDRO-84	OPEN	2500	10.5	X			
HYDRO-86	OPEN	1550	15 (2)	X			(3)
HYDRO-86 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
826 HYDROSTATIC	OPEN	1550	12	X			
826 GEAR DRIVE	OPEN	2000	12	X			
856	OPEN	2000	12	X			
• 886	OPEN	2250	12	X			
886 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
966	OPEN	2000	12	X			
966 AFTER 1975	OPEN	2000	13	X			
HYDRO-100	OPEN	2000	13	X			
• 986	OPEN	2250	12	X			
• 986 AFTER 1978	OPEN	2250	13	X			
986 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
• HYDRO-186	OPEN	2250	12	X			

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(IH-continued)	**Agricultural Tractors with 2 Wheel Drive (continued)**						
HYDRO-186 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1026	OPEN	2000	12	X			
1066	OPEN	2000	12	X			
* 1086	OPEN	2450	13	X			
* 1086 AFTER 1977	OPEN	2450	12	X			
1086 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1456	OPEN	2000	12	X			
1466	OPEN	2250	12	X			
* 1486	OPEN	2450	13	X			
* 1486 AFTER 1977	OPEN	2450	12.3	X			
1486 AFTER NOV. 1980	CLOSED (LS)	2650	18				X
1566	OPEN	2250	13	X			
1568	OPEN	2250	13	X			
* 1586	OPEN	2450	13	X			
* 1586 AFTER 1977	OPEN	2450	12.3	X			
1586 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
3088	OPEN	2250	15	X			
3288	OPEN	2250	15	X			
3388	CLOSED (LS)	2650	18				X
3488	CLOSED (LS)	2600	18.6				X
3588	CLOSED (LS)	2650	18				X
3688	CLOSED (LS)	2600	18.6				X
5088	CLOSED (LS)	2600	25				X
5288	CLOSED (LS)	2600	25				X
5488	CLOSED (LS)	2600	25				X

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor, HM4.
(2) 15-16 GPM for tractors without 3 point hitch. 8.5 GPM for tractors with three point hitch.
(3) For tractors with three point hitch where spraying pressures in excess of 50 p.s.i. use HM4.
(4) Optional 17 GPM hydraulic pump available for this system.
(5) For tractors with optional 17 GPM hydraulic pump use HM3 where spraying pressures up to 60 p.s.i. are sufficient.
(6) Maximum centrifugal pump volume 30 GPM at 40 p.s.i. on this system.
*For tractors built prior to November 1980. International Harvester Service Bulletin S-3436 dated 31 March 1977 advises that continuous hydraulic demand on the remote outlet valves, such as that created by hydraulic motors, can cause damage to the tractor hydraulic system. In gear driven tractors (86 Series, 2 wheel drive). the MCV pump charge circuit would not be receiving its normal flow and in Hydrostatic drive tractors, the oil cooler circuit would not be receiving its normal flow.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

MASSEY-FERGUSON							
MF130-D	OPEN	2000	4		X (5)		
MF135-G	CLOSED	3000	4 (6)		X (5)		
MF135-D	CLOSED	3000	4 (6)		X (5)		
MF150-G	CLOSED	3000	4 (6)		X (5)		
MF150-D	CLOSED	3000	4 (6)		X (5)		
MF165-G	CLOSED (3)	3000	4 (1)		X(5)		
MF165-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF165-D	CLOSED (3)	3000	4 (1)		X (5)		
MF165-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF175-G	CLOSED (3)	3000	4 (1)		X (5)		
MF175-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF175-D	CLOSED (3)	3000	4 (1)		X (5)		
MF175-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF180-G	CLOSED (3)	3000	4 (1)		X (5)		
MF180-G AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF180-D	CLOSED (3)	3000	4 (1)		X (5)		
MF180-D AFTER 1972	CLOSED (3)	3000	4 (2)		X (5)		
MF205	OPEN	1700	5 (6)		X		
MF210	OPEN	1700	5.4 (6)		X		
MF220	OPEN	1700	5.4 (6)		X		
MF230-D	CLOSED	3000	4 (6)		X (5)		
MF230-G	CLOSED	3000	4 (6)		X (5)		
MF235-D	CLOSED (3)	3000	4.5 (2)		X (5)		
MF235-E	CLOSED (3)	3000	4.5 (2)		X (5)		
MF235-G	CLOSED (3)	3000	4.5 (2)		X (5)		
MF245-D	CLOSED (3)	3000	4.5 (2)		X (5)		
MF245-G	CLOSED (3)	3000	4.5 (2)		X (5)		
MF254	OPEN	2400	9.2	X			
MF255-D	CLOSED (3)	3000	4 (2)		X (5)		
MF255-G	CLOSED (3)	3000	4 (2)		X (5)		
MF265-D	CLOSED (3)	3000	4 (2)		X (5)		
MF270	OPEN	2400	9.5	X			
MF274	OPEN	2400	9.4	X			
MF275-D	CLOSED (3)	3000	4 (2)		X (5)		
MF285	CLOSED (3)	3100	7 (2)		X		
MF290	OPEN	2400	9.5	X			
MF294	OPEN	2400	9.5	X			
MF298	OPEN	2400	9.5	X			
MF670	OPEN	2400	9.5	X			
MF690	OPEN	2400	9.5	X			
MF698	OPEN	2400	9.5	X			
MF699	OPEN	2400	9.5	X			
MF1080-D	CLOSED (3)	3100	7 (1)		X		
MF1085	CLOSED (3)	3100	7 (2)		X		
MF1100-D	CLOSED	2100	20 (4)				X
MF1105	CLOSED	2100	20 (4)				X
MF1130-D	CLOSED	2100	20 (4)				X
MF1135	CLOSED	2100	20 (4)				X

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL			
				HM1	HM2	HM3	HM4
(MASSEY FERGUSON-continued) **Agricultural Tractors with 2 Wheel Drive (continued)**							
MF1150-D	CLOSED	2100	20 (4)				X
MF1155	CLOSED	2100	20 (4)				X
MF2675	OPEN	2250	14			X	
MF2700	OPEN	2250	14			X	
MF2705	OPEN	2250	14	X			
MF2745	OPEN	2250	14	X			
MF2775	OPEN	2250	14	X			
MF2800	OPEN	2250	14	X			
MF2805	OPEN	2250	14	X			
MF3505	OPEN	2400	13	X			
MF3525	OPEN	2400	13	X			
MF3545	OPEN	2400	13	X			

(1) Optional auxiliary pump available 8 GPM 2600 p.s.i. open center use HM4
(2) Optional auxiliary pump available 10 GPM 2600 p.s.i. open center use HM1
(3) Tractors with optional auxiliary system - open center.
(4) 5-20 GPM with flow control.
(5) Maximum centrifugal pump volume 20 GPM at 40 p.s.i. on these hydraulic systems.
(6) Remote flow available through an accessory switch valve that diverts lift system flow to remote outlets—open center.
On all Massey Ferguson hydraulic systems. Consult tractor dealer for special plumbing instructions.
Watch hydraulic temperature closely when using continuous duty equipment such as hydraulic motors, to prevent overheating hydraulic system.

MINNEAPOLIS-MOLINE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.

* JET STAR THREE	OPEN	1550	14	X			
* U302	OPEN	1700	15	X			
* M670 SUPER	OPEN	2000	20			X	
* G350	OPEN	2100	5.75		X		
* G450	OPEN	2133	5.75		X		
* G550	OPEN	2050	Unknown				
* G750	OPEN	2050	Unknown				
* G850	CLOSED	2200	18		X		
* G940	CLOSED	2000	18		X		
* G950	CLOSED	2000	18		X		
* G1050	CLOSED	2000	18		X		
* G1350	CLOSED	2000	18		X		

* For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.

OLIVER — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.

* 550	OPEN	1700	Unknown				
* 1255	OPEN	1700	4.5		X		
* 1265	OPEN	2130	5.75		X		
* 1355	OPEN	2200	5.75		X		
* 1365	OPEN	2130	5.75		X		
* 1555	OPEN	2050	11	X			(1)
* 1655	OPEN	2050	11	X			(1)
* 1755	CLOSED	2200	18		X		
* 1855	CLOSED	2200	18		X		
* 1955	CLOSED	2200	18		X		
* 2050-2150	OPEN	2050	11	X			(1)
* 2155	CLOSED	2000	18		X		

*For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.
(1) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently so is centrifugal pump output.

WHITE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.

* 700	OPEN	3400	5.5		X		(1)
* 1355	OPEN	3400	5.5		X		(1)
* 1365	OPEN	3400	5.5		X		(1)
* 2-30	OPEN	2130	5.4		X		
* 2-35	OPEN	2130	5		X		
* 2-45	OPEN	2275	8.5				X
* 2-50	OPEN	2130	5.5		X		
2-55	OPEN	2400	11.9	X			
* 2-60	OPEN	2130	5.5		X		
* 2-62	OPEN	2275	8.5				X
2-65	OPEN	2400	11.9	X			
* 2-70	OPEN	2130	5.5		X		
* 2-70 ROW CROP	OPEN	2050	11 (4)	X			(1)
2-75	OPEN	3000	12	X			
* 2-85	CLOSED	2250	18 (2)				X
2-88	CLOSED	2250	21				X
* 2-105	CLOSED	2250	18 (2)				X
2-110	CLOSED	2250	21				X
* 2-135	CLOSED	2300	20 (2)				X
* 2-150	CLOSED	2250	20				X
* 2-155	CLOSED	2300	20 (2)				X
* 2-180	CLOSED	2300	20 (3)				X

*For use with continuous duty equipment such as hydraulic motors, auxiliary coolers are required.
(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM4.
(2) After 1979 availability at remote increased to 21 GPM.
(3) Do not exceed 6 GPM continual draw at remote outlet or 80 p.s.i. dead head pressure on pump.
(4) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently so is centrifugal pump output.

Agricultural Tractors with Front Wheel Drive Option

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
ALLIS CHALMERS							
220	OPEN	2000	18	(1)		X	
5020	OPEN	1900	5.4		X		
5050	OPEN	2200	6.23		X		
5050 AFTER 1978	OPEN	2200	6.47		X		
6060	OPEN	2300	10	X			(2)
6080	OPEN	2300	10	X			(2)
CASE-DAVID BROWN							
995	OPEN	Unknown	7.3				X
1210	OPEN	Unknown	6.8 (1)				X
J.I. CASE							
1410	OPEN	2500	15.5	X			
2090	CLOSED (LS)	2250	22	(1)		X	
2290	CLOSED (LS)	2250	22	(1)		X	
JOHN DEERE							
950	OPEN	2100	5.8		X		
1050	OPEN	2100	5.8		X		
2040	CLOSED	2250	12				X
2240	CLOSED	2250	12				X
2940	CLOSED	2300	18				X
3020	CLOSED	2000	14				X
4020	CLOSED	2000	14				X
4040	CLOSED	2000	20				X
4040 AFTER 1976	CLOSED	2200	20 (1)				X
4230	CLOSED	2250	18				X
4240	CLOSED	2200	20 (1)				X
4320	CLOSED	2000	14				X
4430	CLOSED	2000	18				X
4430 AFTER 1976	CLOSED	2250	18				X
4440	CLOSED	2200	20 (1)				X
4620	CLOSED	2000	15				X
4630	CLOSED	2000	18				X
4630 AFTER 1976	CLOSED	2250	18				X
4640	CLOSED	2200	20 (1)				X
DEUTZ							
D4006-A	OPEN	2490	Unknown (2)				
D4506-A	OPEN	2572	Unknown (2)				
D5206-A	OPEN	2572	Unknown (2)				
D6006-A	OPEN	2490	Unknown (2)				
D6206-A	OPEN	2572	7.5 (2)				
D6806-A	OPEN	2939	9.2 (2)				
D7206-A	OPEN	2939	Unknown (2)				
D8006-A	OPEN	2572	8.6 (2)				
D8006-A AFTER 1977	OPEN	2572	9.5 (2)				
D9006-A	OPEN	2490	9.5 (2)				
D10006-A	OPEN	2572	8.6 (2)				
D10006-A AFTER 1977	OPEN	2572	9.5 (2)				
D13006-A	OPEN	2490	11.5 (2)				
D13006-A AFTER 1977	OPEN	2490	9.5 (2)				
DX90-A	OPEN	Unknown	14.7	X			
DX110-A	OPEN	Unknown	14.7	X			
DX140-A	OPEN	Unknown	18.2	(1)		X	
DX160-A	OPEN	Unknown	18.2	(1)		X	
INTERNATIONAL HARVESTER							
HYDRO-100	OPEN	2000	13	X			
600DT	OPEN	2150	5.8		X		
756	OPEN	1550	12 (1)	X		(2)	

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor HM1.
If directional valve lever kicks out do not tie lever in operating position. Use next size larger hydraulic motor (HM3), or adjust directional valve detents.

(2) For spraying pressures in excess of 80 p.s.i. use smaller hydraulic motor HM4.

(1) For use on hydraulic system with optional hydraulic pump with 15.5 GPM availability use larger hydraulic motor HM1.

(1) If other implements are to be used requiring more than 4 GPM oil, use smaller hydraulic motor HM1.

(1) 17 GPM after 1979.
Rated gallonage not available at rated pressure at remote outlets on all closed center systems.
Do not use metering orifices on any John Deere closed center hydraulic systems. Use Tortoise-Hare control to regulate flow if available.

(1) For spraying pressures in excess of 70 p.s.i. use smaller hydraulic motor HM1.

(2) These tractors have many optional hydraulic pumps available. Consult your tractor manual or dealer to determine flow available at remote outlet in your tractor.
Flows 6 GPM or less use HM2
Flows 6-8 GPM use HM4
Flows 8 GPM to 17 GPM use HM1
Flows 17 GPM and over use HM3
For spraying pressures over 70 p.s.i. the HM1 requires a minimum of 11 GPM and the HM3 a minimum of 20 GPM.
Optional auxiliary hydraulic reservoir is recommended to prevent overheating.

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(IH-continued)	**Agricultural Tractors with Front Wheel Drive Option (continued)**						
826	OPEN	2000	12	X			
826 HYDRO DRIVE	OPEN	1550	12	X			
856	OPEN	2000	12	X			
* 886	OPEN	2250	13	X			
886 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
966	OPEN	2000	12	X			
* 986	OPEN	2250	12	X			
* 986 AFTER 1979	OPEN	2250	13	X			
986 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
* HYDRO-186	OPEN	2250	12	X			
1026	OPEN	2000	12	X			
1066	OPEN	2000	12	X			
* 1086	OPEN	2450	13	X			
1086 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
1466	OPEN	2000	12	X			
* 1486	OPEN	2450	13	X			
1486 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
* 1586	OPEN	2450	13	X			

(1) Optional 17 GPM hydraulic pump available for this system.
(2) For tractors with optional 17 GPM hydraulic pump use HM3 where spraying pressures up to 60 p.s.i. are sufficient.
* For tractors built prior to Nov., 1980, International Harvester Service Bulletin S-3436 dated 31 March 1977 advises that continuous hydraulic demand on the remote outlet valves, such as that created by hydraulic motors, can cause damage to the tractor hydraulic system. In gear driven tractors (86 Series, 2 wheel drive), the MCV pump charge circuit would not be receiving its normal flow and in Hydrostatic drive tractors, the oil cooler circuit would not be receiving its normal flow.
(LS) Load Sensing Hydraulic System. On all closed center load sensing hydraulic systems, run hydraulic motor on priority circuit.

MASSEY FERGUSON							
MF205-4	OPEN	1700	5.0 (1)		X		
MF210-4	OPEN	1700	5.4 (1)		X		
MF220-4	OPEN	1700	5.4 (1)		X		
MF184-4	OPEN	2417	7.4				X

(1) Remote flow available through an accessory switch valve that diverts lift system flow to remote outlets—Open Center.
On all Massey Ferguson hydraulic systems—consult tractor dealer for special plumbing instructions.
Watch hydraulic temperature closely when using continuous duty equipment such as hydraulic motors, to prevent overheating hydraulic system.

MINNEAPOLIS-MOLINE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
* G350	OPEN	2133	5.75		X		
* G450	OPEN	2133	5.75		X		

* For recommendations on use of auxiliary remote valves for continuous use, consult dealer.

OLIVER — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
1255-1265	OPEN	2133	5.75		X		
1355-1365	OPEN	2133	5.75		X		
1655	OPEN	2050	11 (1)	X			
* 1755	CLOSED	2200	18		X		
* 1855	CLOSED	2200	18		X		
* 1955	CLOSED	2200	18		X		
2050-2150	OPEN	2050	11 (1)	X			

(1) When power steering is being used gallonage is decreased to approximately 8 GPM, consequently centrifugal pump output is decreased.
* For recommendations on use of auxiliary remote valves for continuous use, consult dealer.

WHITE — All Moline, Oliver & White tractors require auxiliary coolers for continuous duty equipment, such as hydraulic motors.							
700	OPEN	3400	5.5		X		
2-30	OPEN	2130	5.4		X		
2-45	OPEN	2275	8.5				X
2-50	OPEN	2130	6.2		X		
2-60.	OPEN	2130	5.8		X		
2-62	OPEN	2275	8.5				X
2-70	OPEN	2050	14.6 (1)	X			
* 2-85	CLOSED	2250	20		X		
* 2-105	CLOSED	2250	20		X		
2-135	CLOSED	2300	20		X		
2-155	CLOSED	2300	20		X		
2-180	CLOSED	2300	22 (2)		X		

(1) After 1979 power steering model 17.1 GPM gallonage will drop when power steering is being used, consequently centrifugal pump output will decrease.
(2) Do not exceed 6 GPM continual draw from remote outlet or 80 p.s.i. dead head pressure on pump.
* For recommendations on use of auxiliary remote valves for continuous operation, consult dealer.

Agricultural Tractors with 4 Wheel Drive

ALLIS CHALMERS							
440	OPEN	2000	20			X	
7580	CLOSED (LS)	2500	18				X
8550	CLOSED (LS)	2500	18				X
4W220	CLOSED (LS)	2500	23				X
4W305	CLOSED (LS)	2500	21				X
4W306	CLOSED (LS)	2500	23				X
J.I. CASE							
1470	OPEN	2000	16	X			
2470	OPEN	2050	17	(1)		X	
2670	OPEN	2050	17	(1)		X	
2870	OPEN	2050	22			X	
4490	CLOSED (LS)	2250	24				X
4494	CLOSED (LS)	2250	24				X
4690	CLOSED (LS)	2250	24				X
4694	CLOSED (LS)	2250	24				X
4890	CLOSED (LS)	2250	24				X
4894	CLOSED (LS)	2250	24				X
4994	CLOSED (LS)	2650	28				X
9110	CLOSED	2500	27				X
9130	CLOSED	2500	27				X
9150	CLOSED	2500	27				X
9170	CLOSED	2500	30				X
9180	CLOSED	2500	30				X
9190	OPEN	2250	25	X			

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM1.

Agricultural Tractors with 4 Wheel Drive (continued)

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
JOHN DEERE							
7020	CLOSED	2000	15				X
7020 AFTER 1971	CLOSED	2000	14				X
7020 AFTER 1973	CLOSED	2250	18				X
7520	CLOSED	2000	14				X
7520 AFTER 1973	CLOSED	2250	18				X
8430	CLOSED	2250	18 (1)				X
8440	CLOSED	2250	18 (1)				X
8450	CLOSED	2350	28.5				X
8640	CLOSED	2250	18 (1)				X
8650	CLOSED	2350	28.5				X
8850	CLOSED	2350	30				X
INTERNATIONAL HARVESTER							
4166	OPEN	2000	17	(1)		X	
4186	OPEN	2000	18	(1)		X	
4366	OPEN	2000	22			X	
4386	OPEN	2000	16	X			
4568	OPEN	1800	16	X			
4586	OPEN	2000	17.5 (2)	(1)		X	
4786	OPEN	2000	17.5 (2)	(1)		X	
6388	CLOSED (LS)	2600	18.6	X			
6588	CLOSED (LS)	2600	18.6	X			
6788	CLOSED (LS)	2600	18.6	X			
MASSEY FERGUSON							
* MF1500-D	OPEN	2400	20			X	
* MF1505	OPEN	2400	20			X	
* MF1800-D	OPEN	2400	20			X	
* MF1805	OPEN	2400	20			X	
* MF4840	OPEN	2500	20 (1)			X	
* MF4880	OPEN	2500	20 (1)			X	
* MF4900	OPEN	2250	20 (1)			X	
MINNEAPOLIS-MOLINE							
* A4T1400	CLOSED	2000	20				X
* A4T1600	CLOSED	2000	20				X
OLIVER							
* 2655	CLOSED	2000	20				X
STEIGER							
* SUPER WILDCAT	OPEN	2000	24			X	
* WILDCAT RC210	OPEN	2250	20			X	
* WILDCAT ST210	OPEN	2250	20			X	
* BEARCAT	OPEN	2000	22			X	
* BEARCAT ST220	OPEN	2250	20			X	
* BEARCAT PT225	OPEN	2250	20			X	
BEARCAT IV CM225	OPEN	2250	20			X	
BEARCAT IV KM225	OPEN	2250	20			X	
* COUGAR	OPEN	2000	22			X	
* COUGAR ST250	OPEN	2250	20			X	
* COUGAR ST251	OPEN	2250	20			X	
* COUGAR ST270	OPEN	2250	20			X	
* COUGAR PT270	OPEN	2000	20			X	
COUGAR IV CM250	OPEN	2250	20			X	
COUGAR IV CM280	OPEN	2250	20			X	
COUGAR IV KM280	OPEN	2250	20			X	
COUGAR IV CS280	OPEN	2250	20			X	
COUGAR IV KS280	OPEN	2250	20			X	
* PANTHER PTA297	OPEN	2250	20			X	
* PANTHER ST310	OPEN	2250	20			X	
* PANTHER ST320	OPEN	2250	20			X	
* PANTHER ST325	OPEN	2250	20			X	
* PANTHER III PTA325(1)	OPEN	2250	20			X	
PANTHER IV CM325	OPEN	2250	20			X	

(1) Rated gallonage not available at rated pressure at remote outlets on closed center systems. Do not use metering orifices on any closed center hydraulic systems. Use Tortoise-Hare control to regulate flow if available.

(1) For spraying pressures in excess of 60 p.s.i. use smaller hydraulic motor HM1.
(2) Repair pump can be 21 GPM. Consult dealer to confirm auxiliary pump hydraulic flow. Use HM3 hydraulic motor if flow is 21 GPM.

(1) 2.5-20 GPM with flow control. Consult dealer for preferred method of operation for continuous duty equipment such as hydraulic motor. Watch hydraulic temperature closely when using continuous duty equipment, such as hydraulic motor, to prevent overheating hydraulic system.
* Auxiliary cooler is required on all 4 wheel drive Massey Ferguson tractors.

* For use with continuous duty equipment, such as hydraulic motor, auxiliary coolers are required.

* For use with continuous duty equipment, such as hydraulic motor, auxiliary coolers are required.

Manufacturer and Model	Open or Closed Center Type	Maximum Pressure Remote Outlets	Maximum Flow Remote Outlets US GPM.	HYPRO PUMP MODEL HM1	HM2	HM3	HM4
(STEIGER-continued)	Agricultural Tractors with 4 Wheel Drive (continued)						
PANTHER IV KM325	OPEN	2250	20			X	
PANTHER IV CM360	OPEN	2250	20			X	
PANTHER IV KM360	OPEN	2250	20			X	
* PANTHER ST350	OPEN	2250	20			X	
* PANTHER PT350	OPEN	2250	20			X	
PANTHER CP1325	CLOSED (LS)	2500	25				X
PANTHER KP1325	CLOSED (LS)	2500	25				X
PANTHER CP1360	CLOSED (LS)	2500	25				X
PANTHER KP1360	CLOSED (LS)	2500	25				X
PANTHER CP1400	CLOSED (LS)	2500	25				X
PANTHER KP1400	CLOSED (LS)	2500	25				X
* TIGER	OPEN	2000	25			X	
* TIGER ST450	OPEN	2250	25			X	
TIGER IV KP525	OPEN	2250	25			X	
* PTA251 (1)	OPEN	2250	20			X	
* PTA270 (1)	OPEN	2250	20			X	
* ST280 (1)	OPEN	2250	20			X	
* PTA280 (1)	OPEN	2250	20			X	
* PTA310 (1)	OPEN	2250	20			X	
PUMA 1000	CLOSED	2500	27				X
WILDCAT 1000	CLOSED	2500	27				X
COUGAR 1000	CLOSED	2500	27				X
PANTHER 1000	CLOSED	2500	27				X
LION 1000	CLOSED	2500	27				X

* Steiger does not recommend use of continuous duty equipment without flow divider or auxiliary cooler. Coolers are available for older model tractors.
(1) Series III tractors available with flow divider kit. Standard output 9 GPM - HM4. Optional output 18 GPM - HM3.

VERSATILE

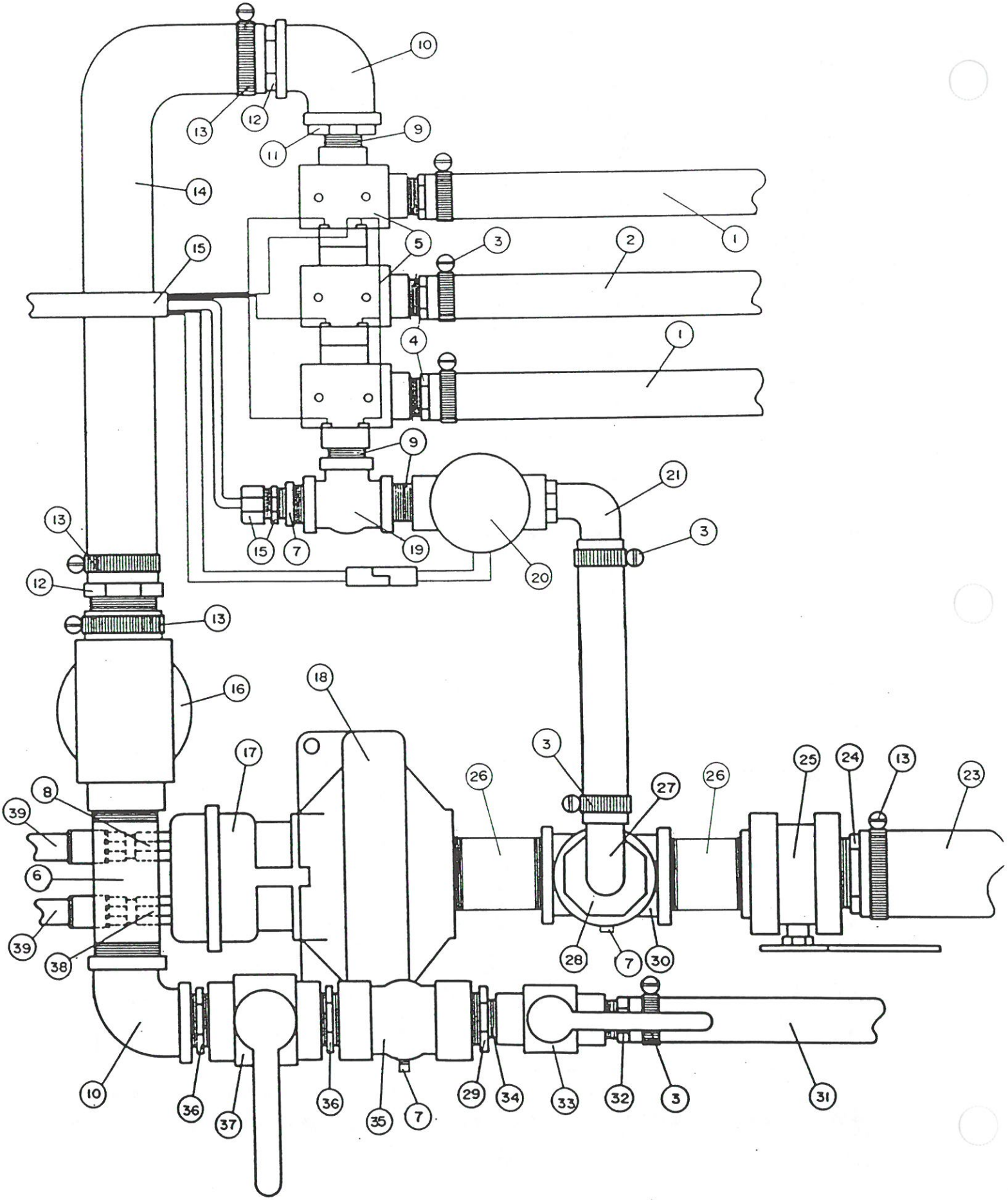
* 118	OPEN	1700	12.5	X			
118 AFTER 1971	OPEN	2000	16.5	X			
125	OPEN	1750	12.5	X			
145	OPEN	1750	12.5	X			
145 AFTER 1971	OPEN	2000	16.5	X			
150	OPEN	2500	14	X			
150 AFTER 1976	OPEN	2500	15	X			
150 SERIES II	OPEN	2250	15	X			
256	CLOSED	2800	27.6				X
276	CLOSED	2800	27.6				X
300	OPEN	2000	16	X			
500	OPEN	2300	24			X	
555	OPEN	2400	23.2			X	
700	OPEN	2000	24			X	
700 SERIES II	OPEN	2300	25			X	
750 SERIES II	OPEN	2300	23.5			X	
756	CLOSED	2400	25				X
800	OPEN	2000	20			X	
800 SERIES II	OPEN	2300	23.5			X	
825 SERIES II	OPEN	2300	23.5			X	
835	OPEN	2300	23.5 (1)			X	
836	CLOSED	2400	25				X
850	OPEN	2000	20			X	
850 SERIES II	OPEN	2300	23.5			X	
855	OPEN	2300	23.5 (1)			X	
856	CLOSED	2400	25				X
875	OPEN	2300	23.5 (1)			X	
876	CLOSED	2400	25				X
895	OPEN	2400	23.6 (1)			X	
900	OPEN	2000	26			X	
900 SERIES II	OPEN	2300	25			X	
905	OPEN	2300	23.5			X	
935	OPEN	2300	25 (1)			X	
936	CLOSED	2400	24				X
945	OPEN	2250	23.6			X	
950	OPEN	2300	25 (1)			X	
950 SERIES II	OPEN	2300	25			X	
955	OPEN	2250	23.6			X	
956	CLOSED	2400	24				X
975	OPEN	2250	23.6			X	
976	CLOSED	2400	24				X
1150	CLOSED (LS)	2500	27				X
1156	CLOSED	2500	27				X

(1) On 1975 model tractors and newer, when power steering is being used there will be a drop in hydraulic GPM, consequently centrifugal pump flow will decrease. Consult your Versatile Farm Equipment dealer for special plumbing instructions.

WHITE

4-150	CLOSED	2250	18		X		
4-175	CLOSED	2250	20		X		
4-180	CLOSED	2250	18		X		
4-210	CLOSED	2250	20		X		
4-225	CLOSED	2250	25				X
4-270	CLOSED	2250	27				X

Pump and Control



Operating Instructions

Ensure that the hydraulic motor and pump complement your tractor unit. Failure to do so will result in damage to the tractor hydraulic system, the pump unit and/or both. Refer to the "Hydraulic Motor Driven Hypro Centrifugal Pump Selection Guide". See Page 27, to ensure of the proper choice.

This sprayer unit is equipped with a centrifugal pump which has different operating characteristics from positive displacement pumps. This pump does not pump a fixed amount of fluid which must go to the booms or through a pass.This pump can be throttled to provide just enough flow for the booms. The regulator valve is used to fine tune the system.

How to put sprayer in operating position? For reference to valve instructions see Page 37, on opposite page.

1. Fill tank with about 150 gallons of water.

2. Ensure that the 1 1/2" ball valve is in open position (valves are open when handles are running in the same direction as pipes.) This allows water to enter into pump.

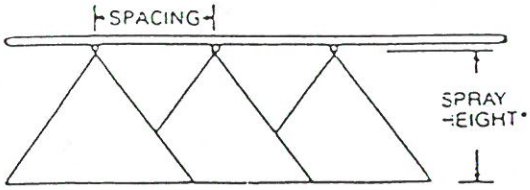
3. Open 1" ball valve by putting handle in same direction as pipe. This allows water to go to the agitator in the tank.

4. Close the throttle valve. This is done by placing handle in opposite direction of pipes.

5. Place control panel master switch to "ON" position. Also engage boom #1,#2 and #3 to "ON" position. Hold the pressure adjust switch to increase position for 5 seconds to allow regulator valve to close. (If increase position is not shown on the unit, hold it for that same amount of time).

6. Engage hydraulic pump drive. This is done by bringing tractor to operating speed (RPM).

Nozzle Sprayer Chart



*Adjust spray height in the field to overlap approximately 30% of each edge of pattern.

SUGGESTED MINIMUM SPRAY HEIGHT	
SPRAY ANGLE	SPRAY HEIGHT 20" SPACING
80°	17-19"
110°	10-12"

HOW TO ORDER:
SPECIFY TIP NO.
Examples:
XR 8002VS—Stainless Steel with VisiFlo color coding

XR 8002VH—Hardened Stainless Steel with VisiFlo color coding

TIP COLOR	TIP NO. (Strainer Screen Size) 80° SERIES	TIP NO. (Strainer Screen Size) 110° SERIES	Liquid Pressure in PSI	Capacity 1 Nozzle in GPM	Capacity 1 Nozzle in oz./min.	GALLONS PER ACRE 20" SPACING 5 MPH	6 MPH	7 MPH	8 MPH	GALLONS PER ACRE 30" SPACING 5 MPH	6 MPH	7 MPH	8 MPH
Orange	XR8001 (100 Mesh)	XR11001 (100 Mesh)	15	.06	8	3.6	3.0	2.6	2.3	2.4	2.0	1.7	1.5
			20	.07	9	4.2	3.5	3.0	2.6	2.8	2.3	2.0	1.8
			30	.09	11	5.1	4.3	3.7	3.2	3.4	2.9	2.5	2.1
			40	.10	13	5.9	5.0	4.2	3.7	4.0	3.3	2.8	2.5
			60	.12	15	7.3	6.1	5.2	4.6	4.9	4.0	3.5	3.0
Green	XR80015 (100 Mesh)	XR110015 (100 Mesh)	15	.09	12	5.5	4.5	3.9	3.4	3.6	3.0	2.6	2.3
			20	.11	14	6.3	5.3	4.5	3.9	4.2	3.5	3.0	2.6
			30	.13	17	7.7	6.4	5.5	4.8	5.1	4.3	3.7	3.2
			40	.15	19	8.9	7.4	6.4	5.6	5.9	5.0	4.2	3.7
			60	.18	23	10.9	9.1	7.8	6.8	7.3	6.1	5.2	4.6
Yellow	XR8002 (50 Mesh)	XR11002 (50 Mesh)	15	.12	15	7.3	6.1	5.2	4.5	4.8	4.0	3.5	3.0
			20	.14	18	8.4	7.0	6.0	5.3	5.6	4.7	4.0	3.5
			30	.17	22	10.3	8.6	7.4	6.4	6.9	5.7	4.9	4.3
			40	.20	26	11.9	9.9	8.5	7.4	7.9	6.6	5.7	5.0
			60	.25	32	14.6	12.1	10.4	9.1	9.7	8.1	6.9	6.1
Blue	XR8003 (50 Mesh)	XR11003 (50 Mesh)	15	.18	23	10.9	9.1	7.8	6.8	7.3	6.1	5.2	4.5
			20	.21	27	12.6	10.5	9.0	7.9	8.4	7.0	6.0	5.3
			30	.26	33	15.4	12.9	11.0	9.7	10.3	8.6	7.4	6.4
			40	.30	38	17.8	14.9	12.7	11.1	11.9	9.9	8.5	7.4
			60	.37	47	22	18.2	15.6	13.6	14.6	12.1	10.4	9.1
Red	XR8004 (50 Mesh)	XR11004 (50 Mesh)	15	.24	31	14.5	12.1	10.4	9.1	9.7	8.1	6.9	6.1
			20	.28	36	16.8	14.0	12.0	10.5	11.2	9.3	8.0	7.0
			30	.35	45	21	17.2	14.7	12.9	13.7	11.4	9.8	8.6
			40	.40	51	24	19.8	17.0	14.9	15.8	13.2	11.3	9.9
			60	.49	63	29	24	21	18.2	19.4	16.2	13.9	12.1
Brown	XR8005 (50 Mesh)	XR11005 (50 Mesh)	15	.31	40	18.2	15.2	13.0	11.4	12.1	10.1	8.7	7.6
			20	.35	45	21	17.5	15.0	13.1	14.0	11.7	10.0	8.8
			30	.43	55	26	21	18.4	16.1	17.2	14.3	12.3	10.7
			40	.50	64	30	25	21	18.6	19.8	16.5	14.1	12.4
			60	.61	78	36	30	26	23	24	20	17.3	15.2
Gray	XR8006 (50 Mesh)	XR11006 (50 Mesh)	15	.37	47	22	18.2	15.6	13.6	14.5	12.1	10.4	9.1
			20	.42	54	25	21	18.0	15.8	16.8	14.0	12.0	10.5
			30	.52	67	31	26	22	19.3	21	17.2	14.7	12.9
			40	.60	77	36	30	25	22	24	19.8	17.0	14.9
			60	.74	95	44	36	31	27	29	24	21	18.2
White	XR8008 (50 Mesh)	XR11008 (50 Mesh)	15	.49	63	29	24	21	18.2	19.4	16.2	13.9	12.1
			20	.57	73	34	28	24	21	22	18.7	16.0	14.0
			30	.69	88	41	34	29	26	27	23	19.6	17.2
			40	.80	102	48	40	34	30	32	26	23	19.8
			60	.98	125	58	49	42	36	39	32	28	24

NOTE: ALL MEASUREMENT ARE IN U.S. TO CONVERT MULTIPLY BY .83

7. Open the throttle valve slowly and watch the pressure increase on the gauge. Once the pressure reaches the desired position, turn to sprayer nozzle chart on Page 35. Standard nozzle is 11003LP. Find desired position pressure by looking at machine operating speed. Open the throttle valve a little more if more pressure is needed.

8. Shut off boom #1 and watch as pressure increases. To adjust the pressure, use the pressure adjust switch in "Down" position. Lower the pressure to the desired level. If the pressure cannot be lowered sufficiently, it may be necessary to close the throttle valve slightly.

9. The unit is ready for field operation. The throttle valve can be left at this setting.

How to drain Sprayer System?

1. Remove plug out of bottom of cross. This plug should be removed until sprayer is needed again.

2. Drain water out of centrifugal pump by removing drain plug on bottom of pump. This plug can be replaced when finished draining.

3. Remove caps from right, left and centre booms to allow draining. These caps should be left off until sprayer is needed again.

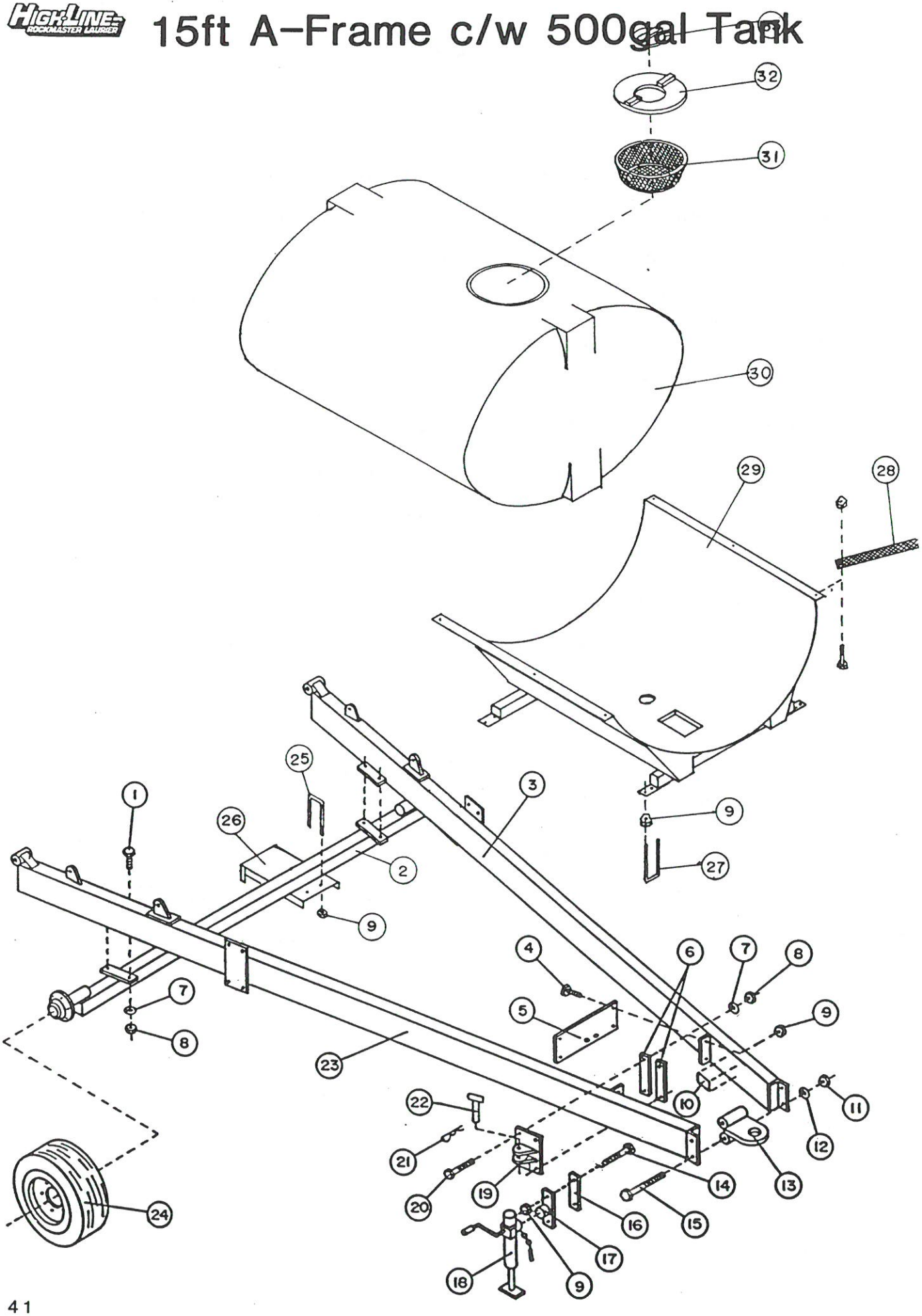
NOTE: DRAIN ALL WATER OUT OF SYSTEM FOR WINTER MONTHS.

BOOM LENGTH CHART

	PART NO.
Centre Boom for Field Sprayer	
11 Ft. Centre Boom	55030
Wing Tube Boom for Field Sprayer	
60 Ft. - 24'3" Boom	55031
70 Ft. - 29'3" Boom	55032
80 Ft. - 34'3" Boom	55033
90 Ft. - 39'3" Boom	55034
92 Ft. - 40'11" Boom	55035
96 Ft. - 42'7" Boom	55036
100 Ft. - 43'3" Boom	55037

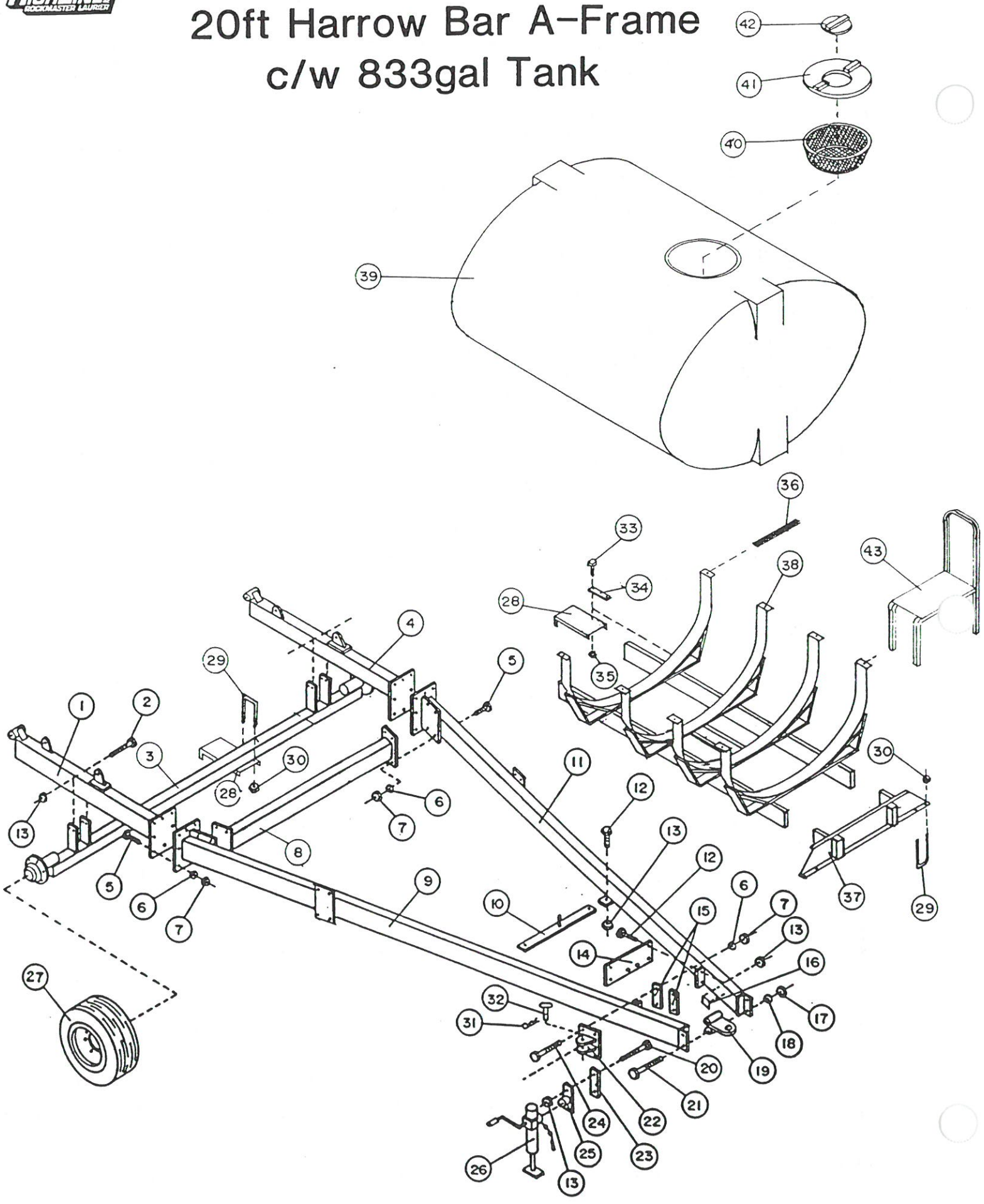
Parts Catalogue

15ft A-Frame c/w 500gal Tank



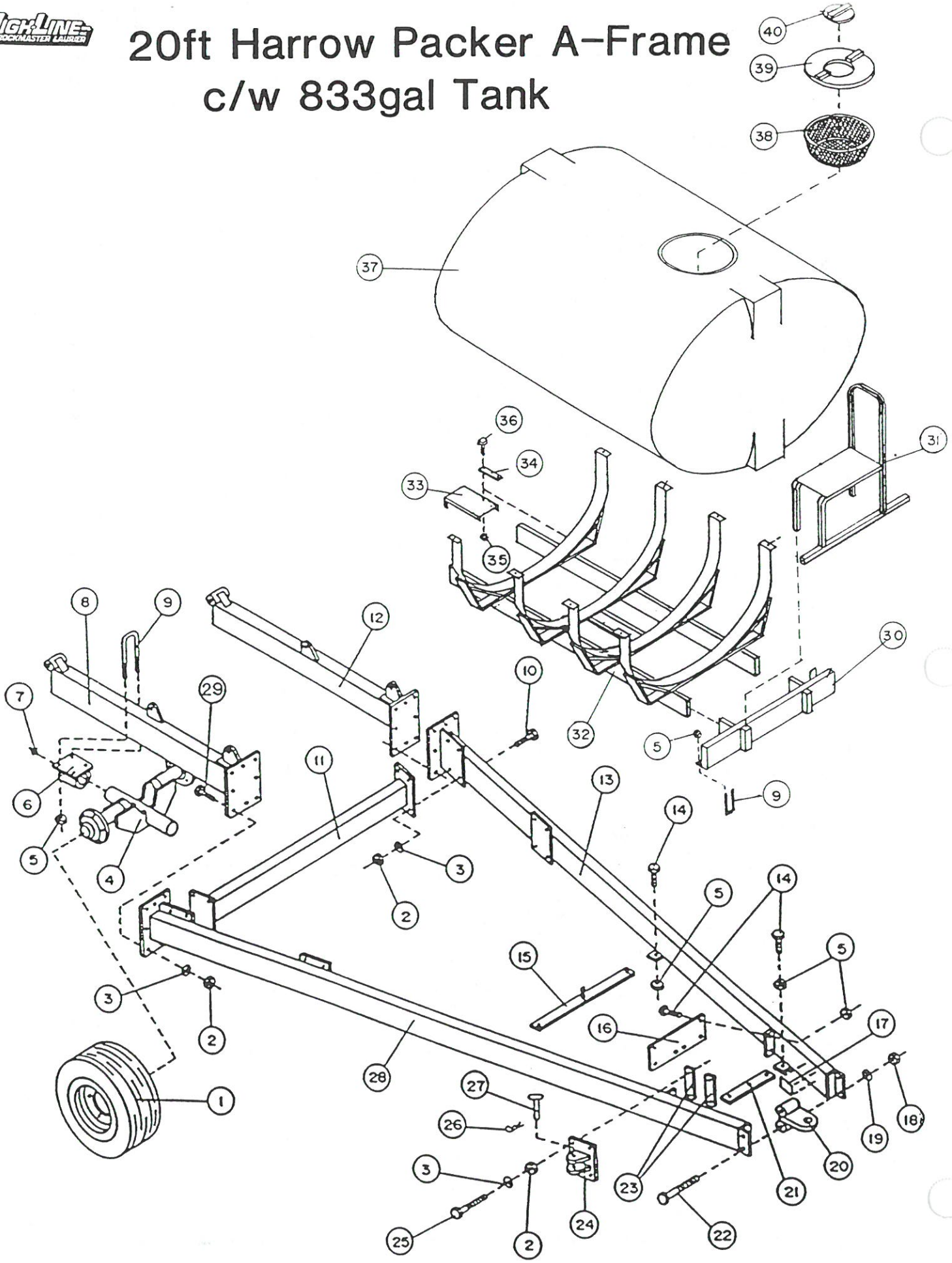
ITEM	PART NUMBER	DESCRIPTION	Nº
1	B5C1032P	Bolt 5/8" x 2"	4
2	20001	15' A-Frame Axle	1
3	20002	15' Left A-Frame Hitch	1
4	B5C0824P	Bolt 1/2" x 1 1/2"	4
5	20004	Cross Plate Standard	1
	20112	Cross Plate Split Auto Fold	1
6	20005	Cable Bracket PLates	4
7	W10P	Lockwasher 5/8"	12
8	N5C10P	Nut 5/8"	12
9	LN5C08P	Locknut 1/2"	4
10	92003	Serial Number Plate	1
11	N5C16P	Nut 1"	2
12	W16P	Lockwasher 1"	2
13	10022	Bolt on Draw Hitch	1
14	B5C0896P	Bolt 1/2" x 6" (optional)	2
15	B5C16120P	Bolt 1" x 7 1/2"	2
16	20045	Backing Plate (optional)	1
17	20046	Jack Plate c/w Stub (optional)	1
18	92002	Sidewind Jack	1
19	20006	Bolt on Cable Bracket	2
20	B5C1080P	Bolt 5/8" x 5"	8
21	HP52	Hair Pin Clip 3 1/4"	2
22	10060	Cable Bracket Pin	2
23	20003	15' Right A-Frame Hitch	1
24	91025	9.5L x 6 ply c/w 6" Wheel Rim	*
	91026	9.5L x 6 ply c/w 8" Wheel Rim	*
	91027	11L x 6 ply c/w 8" Wheel Rim	*
25	UB075060	U-Bolt 7/16" x 3 1/8" x 3 3/4"	2
26	50052	Quick Attach Coupler Plate	1
27	UB0848112	U-Bolt 1/2" x 3" x 7"	4
28	93005	Tank Webbing Support Kit	1
29	50001	500 Gallon Tank Saddle	1
30	93000	500 Gallon Tank	1
31	93003	Tank Lid Strainer	1
32	93002	Tank Lid	1
33	93004	Centre Cover	1
		*As Required	

20ft Harrow Bar A-Frame c/w 833gal Tank



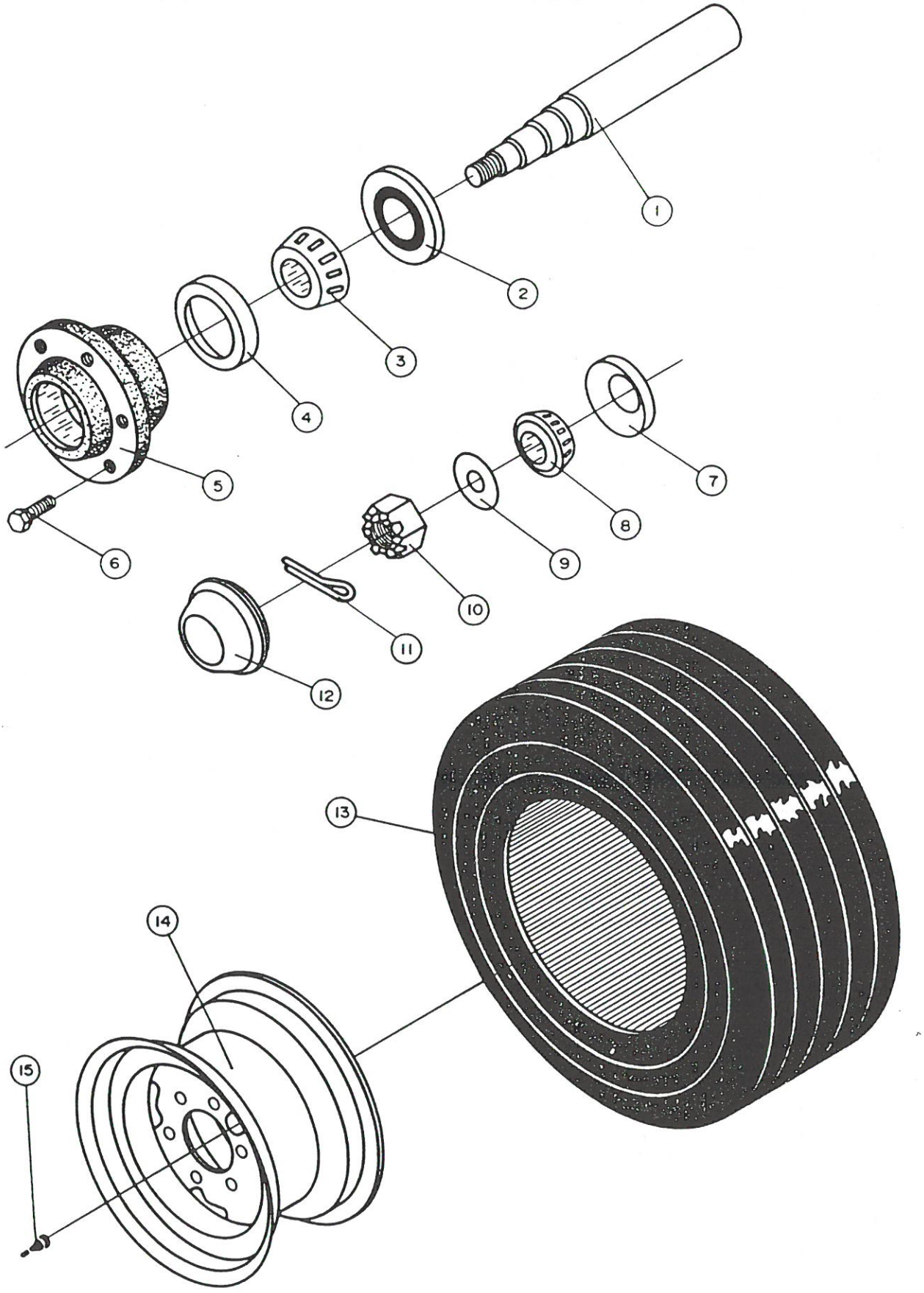
ITEM	PART NUMBER	DESCRIPTION	Nº
1	20010	20' Right A-Frame Hitch Tube	1
2	B5C0872P	Bolt 1/2" x 4 1/2"	4
3	20008	20' A-Frame Axle	1
4	20009	20' Left A-Frame Hitch Tube	1
5	B5C1028P	Bolt 5/8" x 1 3/4"	20
6	W10P	Lockwasher 5/8"	28
7	N5C10P	Nut 5/8"	28
8	20011	A-Frame Cross Member	1
9	20013	20' Left A-Frame Hitch	1
10	20014	A-Frame Cross Angle	1
11	20012	20' Left A-Frame Hitch	1
12	B5C0824P	Bolt 1/2" x 1 1/2"	6
13	LN5C08P	Locknut 1/2"	14
14	20004	Cross Plate Standard	1
	20112	Cross Plate Split Auto Fold	1
15	20005	Cable Bracket Plate	2
16	92003	Serial Number Plate	1
17	N5C16P	Nut 1"	2
18	W16P	Lockwasher 1"	2
19	10022	Bolt on Draw Hitch	1
20	B5C0896P	Bolt 1/2" x 6" (optional)	2
21	B5C16120P	Bolt 1" x 7 1/2"	2
22	20006	Bolt on Cable Bracket	2
23	20045	Backing Plate (optional)	1
24	B5C1080P	Bolt 5/8" x 5"	8
25	20046	Jack Bracket c/w Stub (optional)	1
26	92002	Sidewind Jack (optional)	2
27	91025	9.5L x 6 ply c/w 6" Wheel Rim	*
	91026	9.5L x 6 ply c/w 8" Wheel Rim	*
	91027	11L x 8 ply c/w 8" Wheel Rim	*
28	50052	Quick Attach Coupler Plate	1
29	UB5C0848112	U-bolt 1/2" x 3 1/8" x 3 3/4"	2
30	LN5C08P	Locknut 1/2"	4
31	HP52	Hair Pin Clip 3 1/4"	2
32	10060	Cable Bracket Pin	2
33	B5C0748P	7/16" x 3" bolt	4
34	55043	Hose Connector Bracket Plate	2
35	LN5C07P	Locknut 7/16"	4
36	93005	Tank Webbing Support Kit	1
37	50006	Saddle Support 20 ft. A-Frame	1
38	50002	833 Gallon Tank Saddle	1
39	93001	833 Gallon Tank	1
40	93003	Tank Lid Strainer	1
41	93002	Tank Lid	1
42	93004	Centre Cover	1
43	50057	Step Support for Tank	1
		*As Required	

20ft Harrow Packer A-Frame c/w 833gal Tank



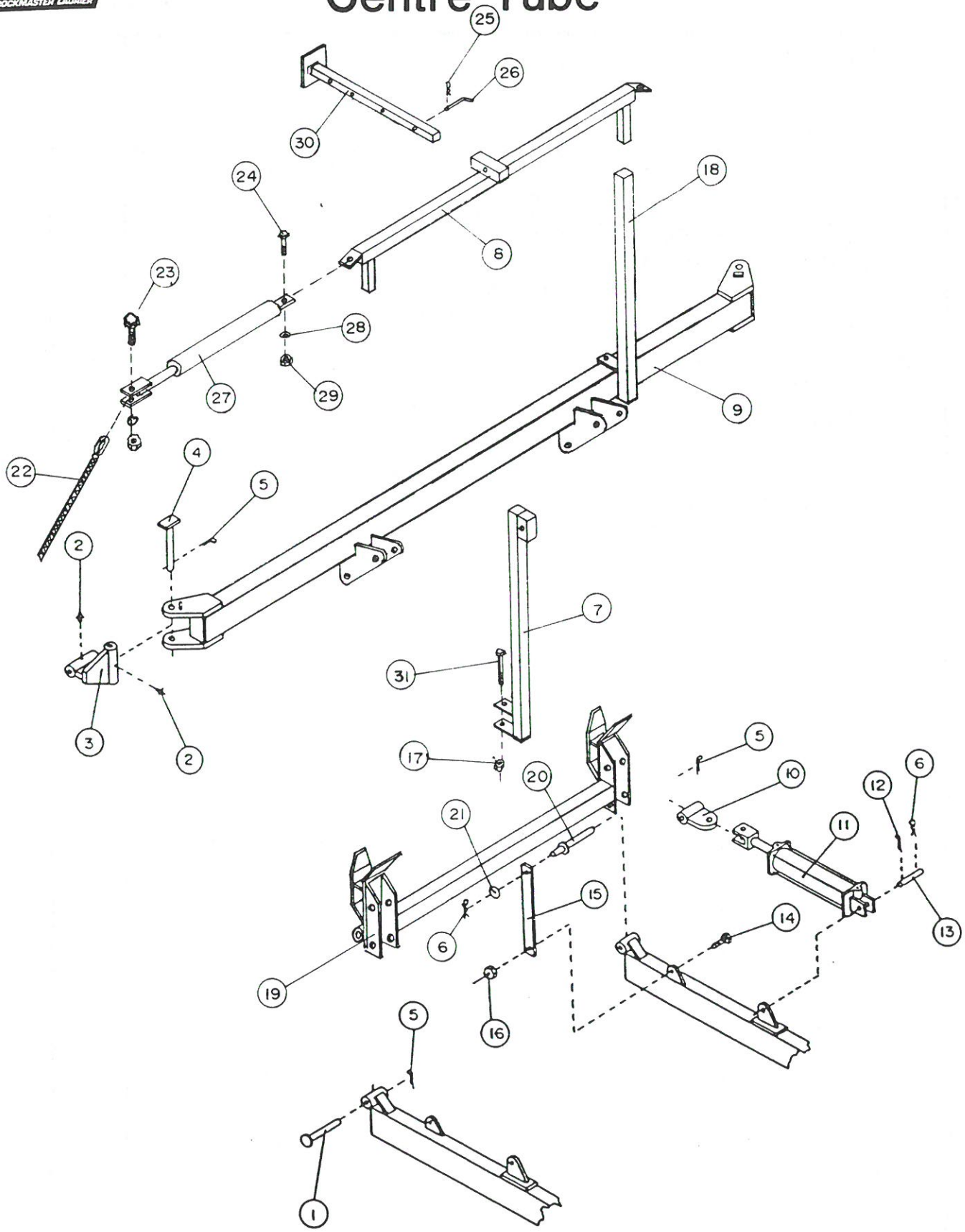
ITEM	PART NUMBER	DESCRIPTION	Nº
1	91027	11L x 6 ply c/w 8" Wheel Rim	4
2	N5C10P	Nut 5/8"	32
3	W10P	Lockwasher 5/8"	32
4	10017	Oscillating Axle c/w 611 Hub	2
5	LN5C08P	Locknut 1/2"	24
6	10016	Oscillating Axle Pocket	4
7	91700	Grease Nipple 1/8" NPT Straight	4
8	10089	Right A-Frame Hitch Tube	1
9	UB0850146	U-bolt 1/2" x 3 1/8" x 9 1/8"	8
10	B5C1028P	Bolt 5/8" x 1 3/4"	8
11	10092	Cross Member	1
12	10088	Left A-Frame Hitch Rear	1
13	10090	Left A-Frame Hitch	1
14	B5C0824P	Bolt 1/2" x 1 1/2"	8
15	10093	Cross Angle	1
16	10123	Cross Plate (no auto fold)	1
17	92003	Serial Number Plate	1
18	N5C16P	Nut 1"	2
19	W16P	Lockwasher 1"	2
20	10022	Bolt on Draw Hitch	1
21	10143	Tension Spring Plate	1
22	B5C16120P	Bolt 1" x 7 1/2"	2
23	10069	Cable Bracket Plates (no auto fold)	4
24	10070	Bolt on Cable Bracket (no auto fold)	2
25	B5C1080P	Bolt 5/8" x 5" (no auto fold)	8
26	HP52	Hair Pin Clip 3 1/4" (no auto fold)	2
27	10060	Cable Bracket Pin (no auto fold)	2
28	10091	Right A-Frame Hitch	1
29	B8C1028P	Bolt 5/8" x 1 3/4" Grade 8	16
30	50055	HPB 833 Gal. Tank Front Cross Member	1
31	50054	HPB Guard & Step Support for Tank	1
32	50002	833 Gallon Tank Saddle	1
33	50052	Quick Attach Coupler Plate	1
34	55043	Hose Connector Bracket Plate	2
35	LN5C07P	Locknut 7/16"	4
36	B5C0748P	7/16" x 3" Bolt	4
37	93001	833 Gallon Tank	1
38	93003	Tank Lid Strainer	1
39	93002	Tank Lid	1
40	93004	Centre Cover	1

611 Hub & Spindle



ITEM	PART NUMBER	DESCRIPTION	Nº
1	91250	611 Spindle Main Axle & End Wheel 2" x 10"	1
	91252	611 Spindle Trans. Wheel 2" x 14"	1
	91253	611 Spindle Trans. Wheel Parallel 2" x 19"	1
2	91090	611 Seal	1
3	91170	611 Inner Cone LM29749	1
4	91150	611 Inner Race LM29710	1
5	91070	611 Hub	1
6	91060	Wheel Bolt 1/2"	6
7	91130	611 Outer Race LM67010	1
8	91110	611 Outer Cone LM67048	1
9	91190	611 1" Washer	1
10	91210	611 1" Castlelated Nut	1
11	CPO340	Cotter Pin 3/16" x 1 1/2"	1
12	91230	611 Dustcap	1
13	91000	9.5L x 6 ply Tire	1
	91001	11L x 6 ply Tire (optional)	1
14	91050	15" x 8" x 6" Wheel Rim (optional)	1
	91051	15" x 6" x 6" Wheel Rim	1
15	92005	Valve Stem	1

Centre Tube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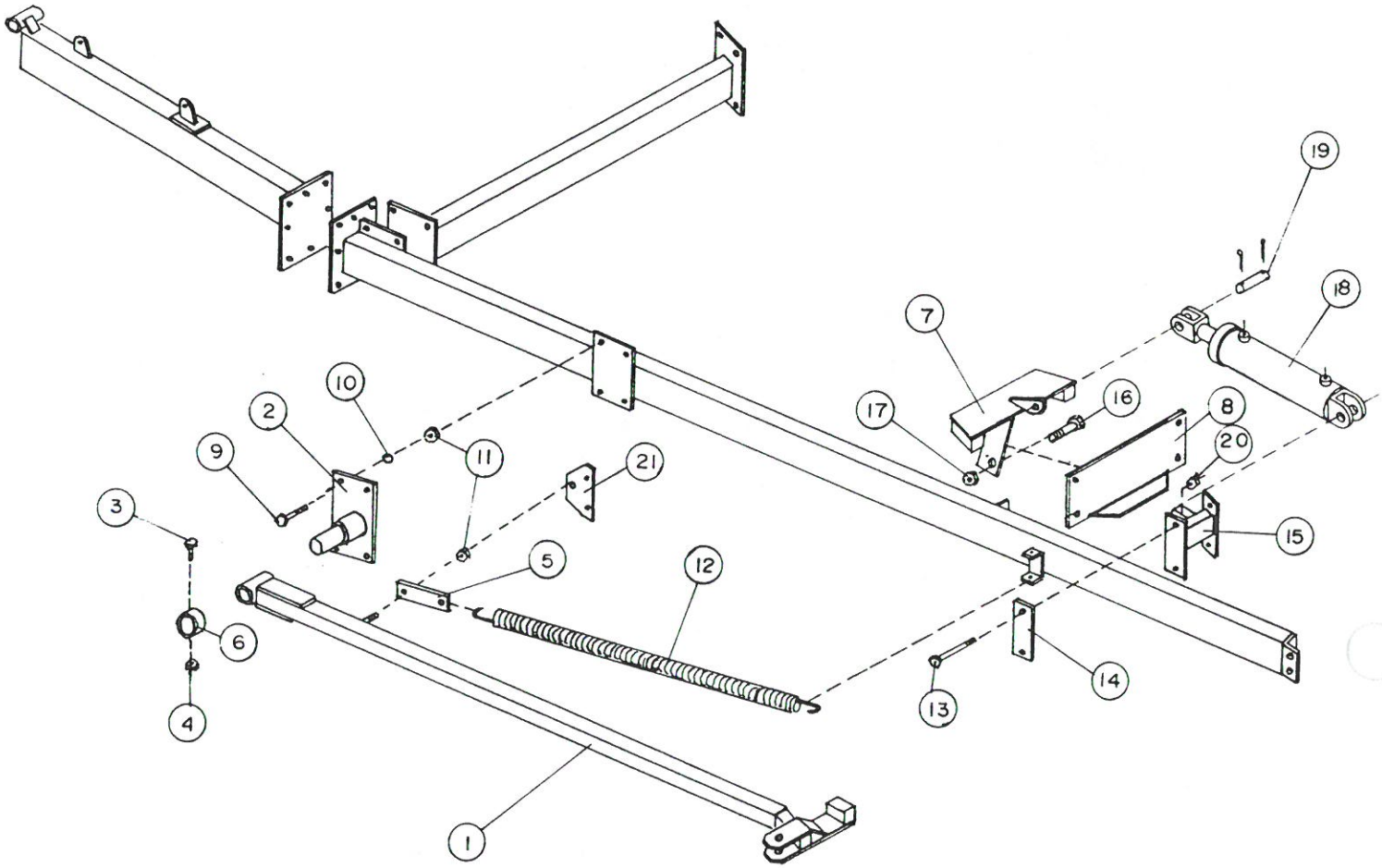
ITEM	PART NUMBER	DESCRIPTION	Nº
1	10015	Pin Hitch 1 1/4" x 7 1/2"	2
2	91700	Grease Nipple 1/8" Straight	4
3	55018	Right Knuckle	1
	55019	Left Knuckle	1
4	20020	Pin Knuckle 1 1/4" x 8 3/4"	2
5	CPO440	Cotter Pin 1/4" x 2 1/2"	2
6	HP52	Hair Pin Clip 3 1/4"	6
7	55007	Left Sprayer Support Arm	1
8	55005	Sprayer Rear Support	1
9	55049	Sprayer Centre Tube	1
10	20084	Cylinder Swivel	2
11	90103	Cylinder 3 1/2" x 16"	8
12	CPO324	Cotter Pin 3/16" x 1 1/2"	4
13	91603	Cylinder Pin 1" x 3 3/4"	4
14	B8C1232P	Bolt 3/4" x 2" Gr.8	2
15	20024	Cylinder Lock	2
16	LN5C12P	Locknut 3/4"	2
17	LN5C08P	Locknut 1/2"	2
18	55006	Right Sprayer Support Arm	1
19	55008	Quick Attachment H.B.	1
20	20023	Pin Cylinder Lock 1" x 7"	2
21	FW16P	Flatwasher 1"	2
22	91826	23'4" Cable 60 ft. & 70 ft.	*
	91827	28'4" Cable 80 ft. & 90 ft.	*
	91807	31' Cable 100 ft.	*
23	B5C1248P	Bolt 3/4" x 3"	2
24	B5C1232P	Bolt 3/4" x 2"	2
25	HP24	Hair Pin Clip 1 1/2"	2
26	20049	Pin Jack	1
27	55020	Sprayer Cable Tension	2
28	W12P	Lockwasher 3/4"	4
29	LN5C12P	Locknut 3/4"	4
30	55013	Adjustable Jack	1
31	B5C08120P	Bolt 1/2" x 7 1/2"	2

*As Required

Two Peice Auto Fold

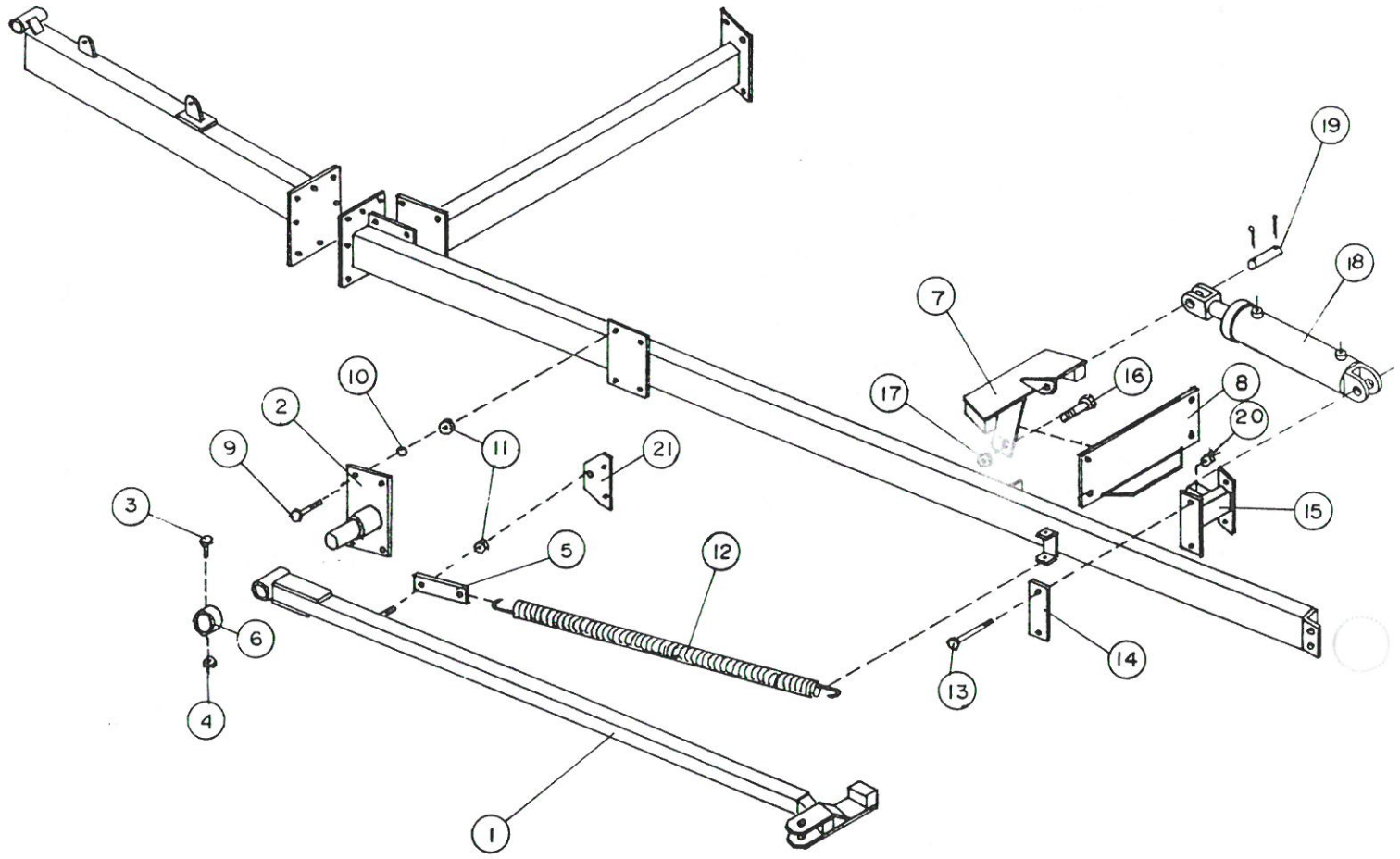
(Harrow Bar)



ITEM	PART NUMBER	DESCRIPTION	Nº
1	20124	Right Arm Auto Fold	1
	20123	Left Arm Auto Fold	1
2	20106	Auto Fold A-Frame Bracket Right	1
	20105	Auto Fold A-Frame Bracket Left	1
3	B5C0428P	Bolt 1/4" x 1 3/4"	2
4	LN5C04P	Locknut 1/4"	2
5	20108	Backing Plate	2
6	20110	Shaft Collar	2
7	30042	HP & PB Auto Fold Locking Bracket	1
8	20125	Cross Plate	1
9	B5C1028P	Bolt 5/8" x 1 3/4"	8
10	W10P	Lockwasher 5/8"	8
11	N5C10P	Nut 5/8"	8
12	91400	Auto Fold Spring	*
13	B5C0872P	1/2" x 4 1/2" Bolt	4
14	20045	H.B. Jack Backing Plate	2
15	30043	HB & PB Auto Fold Hyd. Cylinder Lug	1
16	B5C1232P	Bolt 3/4" x 2"	1
17	N5C12P	Nut 3/4"	1
18	90104	2" x 8" Cylinder	1
19	91603	Pin Cylinder 1" x 3 3/4"	2
20	LN5C08P	Locknut 1/2"	4
21	20215	Auto Fold Split Wing Spring Bracket	2
		*As Required	

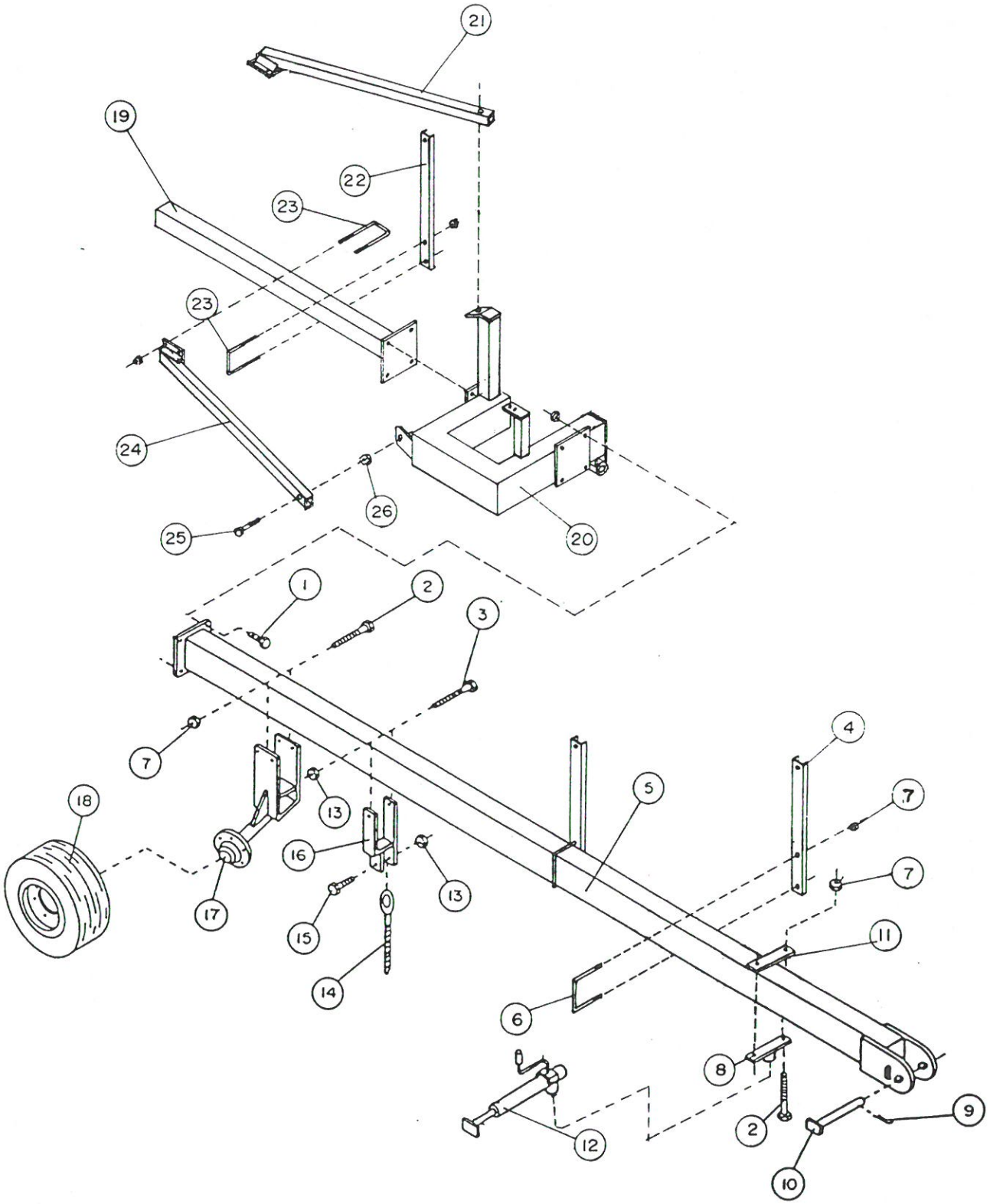
Two Peice Auto Fold

(Harrow Packer Bar)



ITEM	PART NUMBER	DESCRIPTION	Nº
1	20124	Auto Fold Right Arm	1
	20123	Auto Fold Left Arm	1
2	10158	Auto Fold HPB A-Frame Bracket Right	1
	10157	Auto Fold HPB A-Frame Bracket Left	1
3	B5C0428P	Bolt 1/4" x 1 3/4"	2
4	LN5C04P	Locknut 1/4"	2
5	20108	Backing Plate	2
6	20110	Shaft Collar	2
7	20156	HPB Auto Fold Lock	1
8	10142	HPB Auto Fold Cross Plate	1
9	B5C1028P	Bolt 5/8" x 1 3/4"	12
10	W10P	Lockwasher 5/8"	8
11	N5C10P	Nuts 5/8"	8
12	91400	Auto Fold Spring	2
13	B5C0872P	Bolt 1/2" x 4 1/2"	4
14	10155	Auto Fold Cylinder Backing Plate	2
15	10159	Hydraulic Cylinder Plate (HPB)	1
16	B5C1232P	Bolt 3/4" x 2"	1
17	N5C12P	Nut 3/4"	1
18	90104	2" x 8" Cylinder	1
19	91603	Pin Cylinder 1" x 3 3/4"	2
20	LN5C08P	Locknut 1/2"	4

Wing Tube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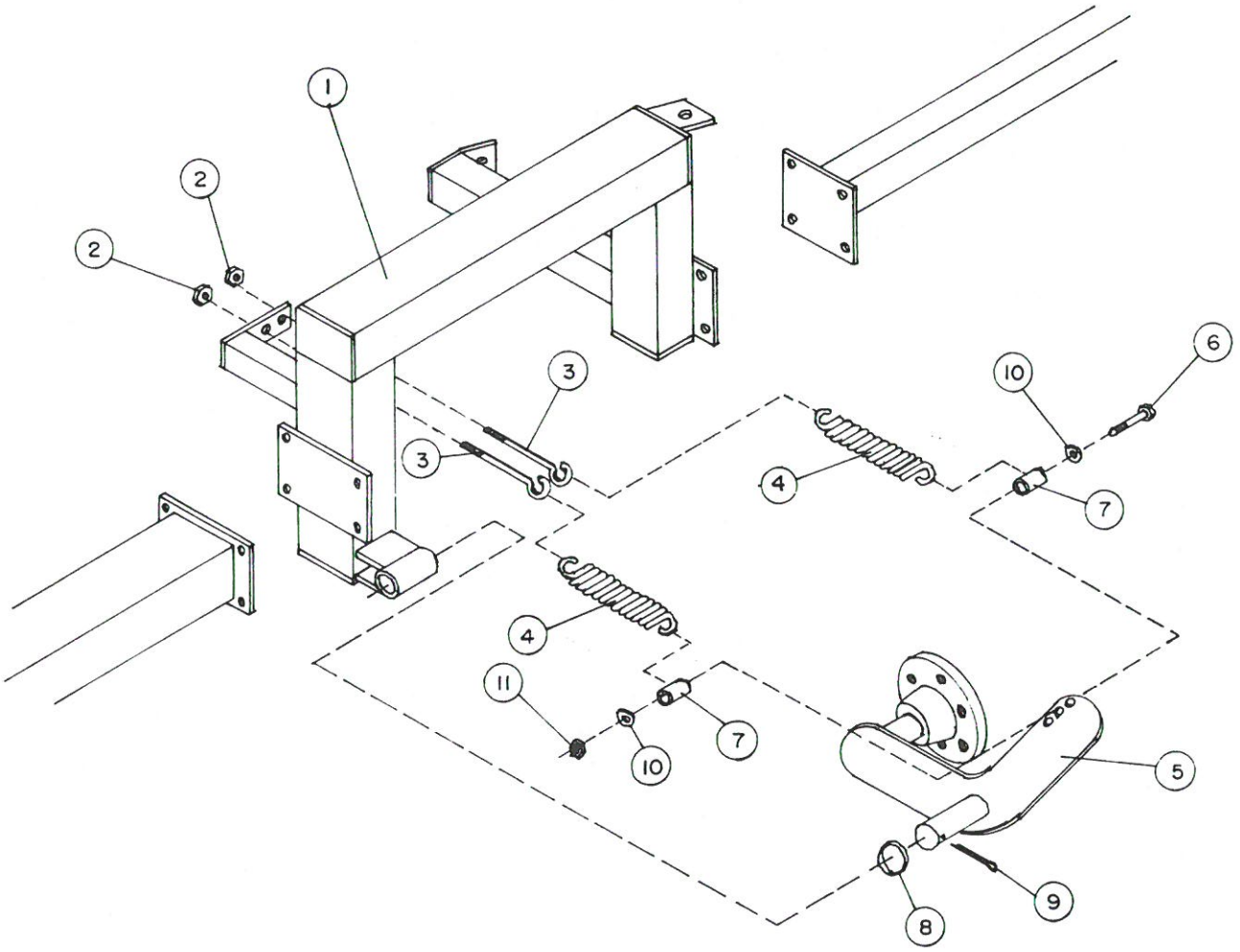
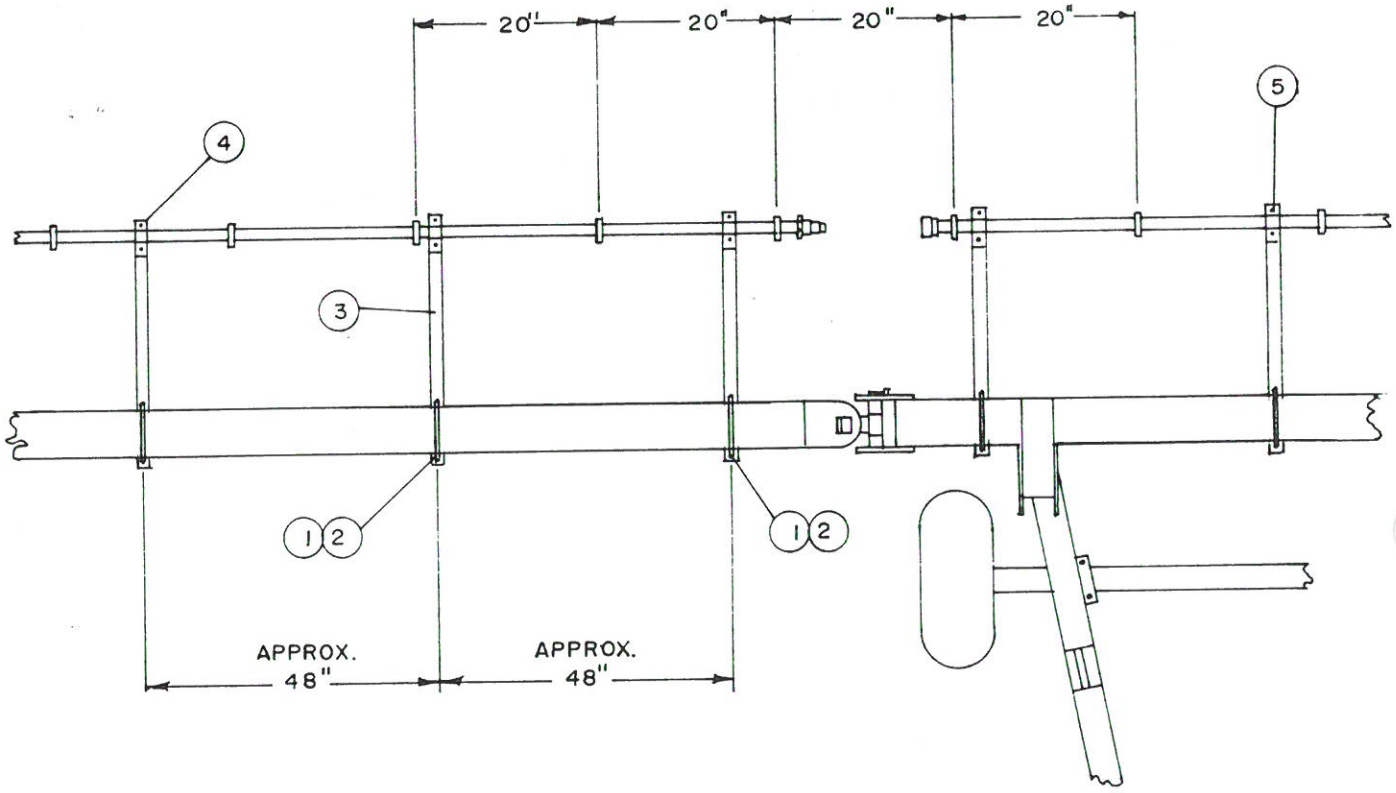
ITEM	PART NUMBER	DESCRIPTION	Nº
1	B5C0824P	Bolt 1/2" x 1 1/2"	8
2	B5C0896P	Bolt 1/2" x 6"	4
3	B5C12104P	Bolt 3/4" x 6 1/2"	2
4	55021	Sprayer Long Boom	*
5	55009	18' 2 1/2" Wing Tube for 60 ft.	2
	55010	23' 2 1/2" Wing Tube for 70 ft.	2
	55011	28' 2 1/2" Wing Tube for 80 ft.	2
	55012	30' 2 1/2" Wing Tube for 92 ft. or 96 ft.	2
6	UBO69684P	U-Bolt 3/8" x 6" x 5 1/4"	*
7	LN5C08P	Locknut 1/2"	*
8	20046	Jack Plate c/w Stub (optional)	2
9	CPO440	Cotter Pin 1 /4" x 2 1/2"	2
10	20051	Pin Knuckle 1 1/4" x 7 1/4"	2
11	20045	Backing Plate	2
12	92022	Stabilizer Jack (optional)	2
13	LN5C08P	Locknut 1/2"	*
14	91826	23' 4" Cable 50 ft. & 60 ft.	2
	91827	28' 4" Cable 80 ft. & 90 ft.	2
	91807	31' Cable 100 ft.	2
15	B5C1232P	Bolt 3/4" x 2"	2
16	55048	Spray Kit Cable Bracket	4
17	55041	Field Sprayer Left Transport Wheel	1
	55042	Field Sprayer Right Transport Wheel	1
18	91025	9.5L x 6 ply c/w 6" Wheel Rim	*
	91026	9.5L x 6 ply c/w 8" Wheel Rim	*
	91027	11L x 6 ply c/w 8" Wheel Rim	*
19	55014	4'6" Wing Tube Extention for 80 ft.	2
	55028	6'6" Wing Tube Extention for 90 ft.	2
	55015	8'6" Wing Tube Extention for ft.	2
	55016	10'6" Wing Tube Extention for ft.	2
	50029	12'6" Wing Tube Extention for ft.	2
20	55003	Right Boom Wheel Extention	1
	55004	Left Boom Wheel Extention	1
21	55045	Sprayer Short Boom Extention Brace	2
22	55025	Sprayer Short Boom Arm	*
23	UB064856P	U-Bolt 3/4" x 3" x 3 12/"	*
24	55026	Sprayer Short Boom Extention Brace	2
25	B5C0744P	Bolt 7/8" x 2 3/4"	4
26	LN05C07P	Locknut 7/16"	4
		*As Required	

Boom Wheel



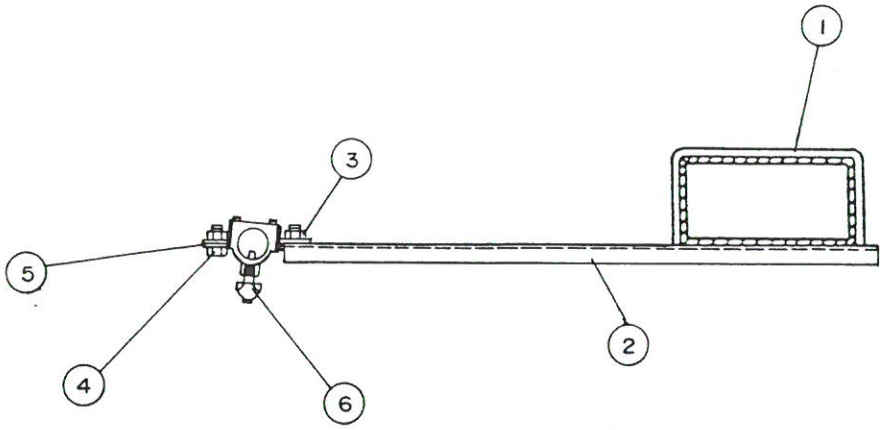
ITEM	PART NUMBER	DESCRIPTION	Nº
1	55003	Right Boom Wheel	1
	55004	Left Boom Wheel	1
2	LN5C07P	Locknut 7/16"	4
3	EBO788P	Eye Bolt 7/16" x 5 1/2"	4
	FW07P	Flatwasher 7/16"	4
4	91406	Mulcher Tension Spring	4
5	55023	Right Floating Wheel Axle	1
	55024	Left Floating Wheel Axle	1
6	B5C0856P	Bolt 1/2" x 3 1/2"	2
7	55026	Spacer (pipe)	4
8	55027	Machine Washer	6
9	CP0440	Cotter Pin 1/4" x 2 1/2"	2
10	FW08P	Flatwasher 1/2"	4
11	N5C08P	Nut 1/2"	2

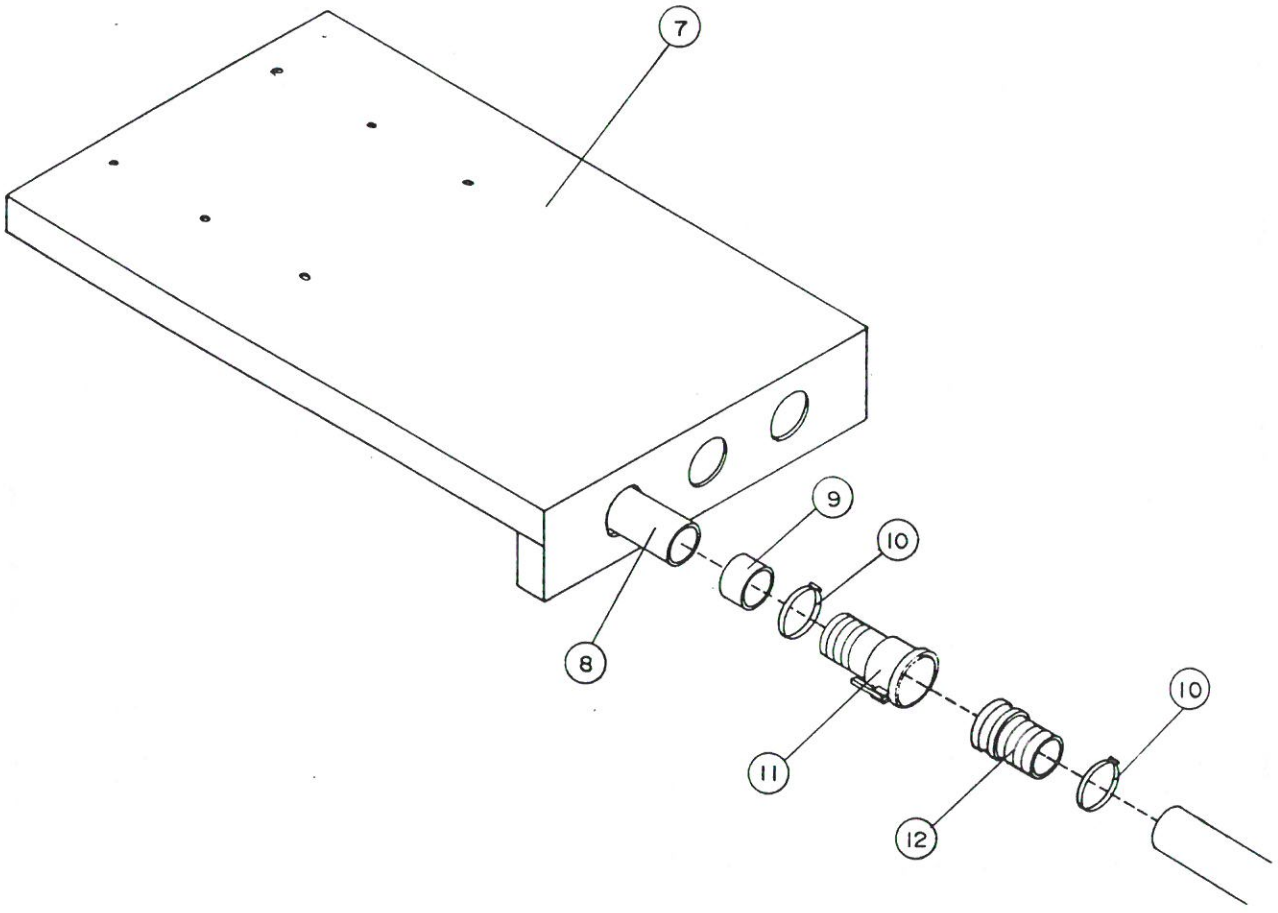
Boom Assembly



ITEM	PART NUMBER	DESCRIPTION	Nº
1	UB069684P	U-Bolt 3/8" x 6" x 5 1/4"	*
2	LN5C06P	Locknut 3/8"	*
3	55021	Sprayer Long Arm	*
4	50013	Boom Clamp	*
5	B5C0616P	Bolt 3/8" x 1"	*
		*As Required	

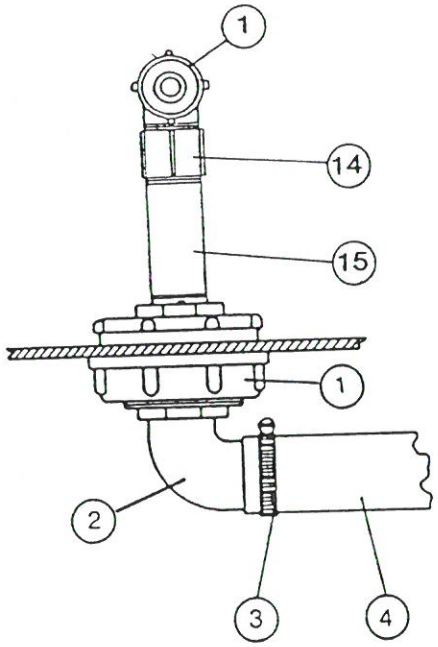
Boom Bracket & Quick Coupler

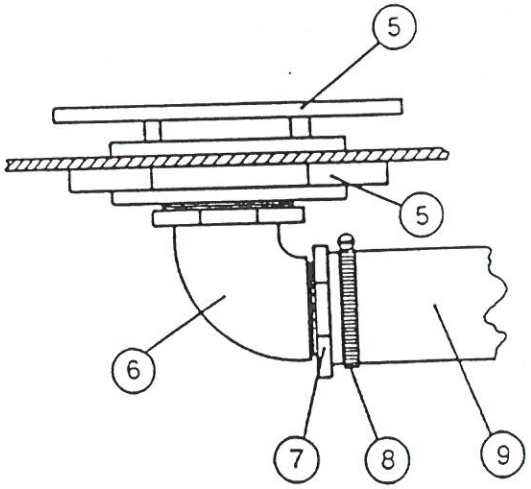


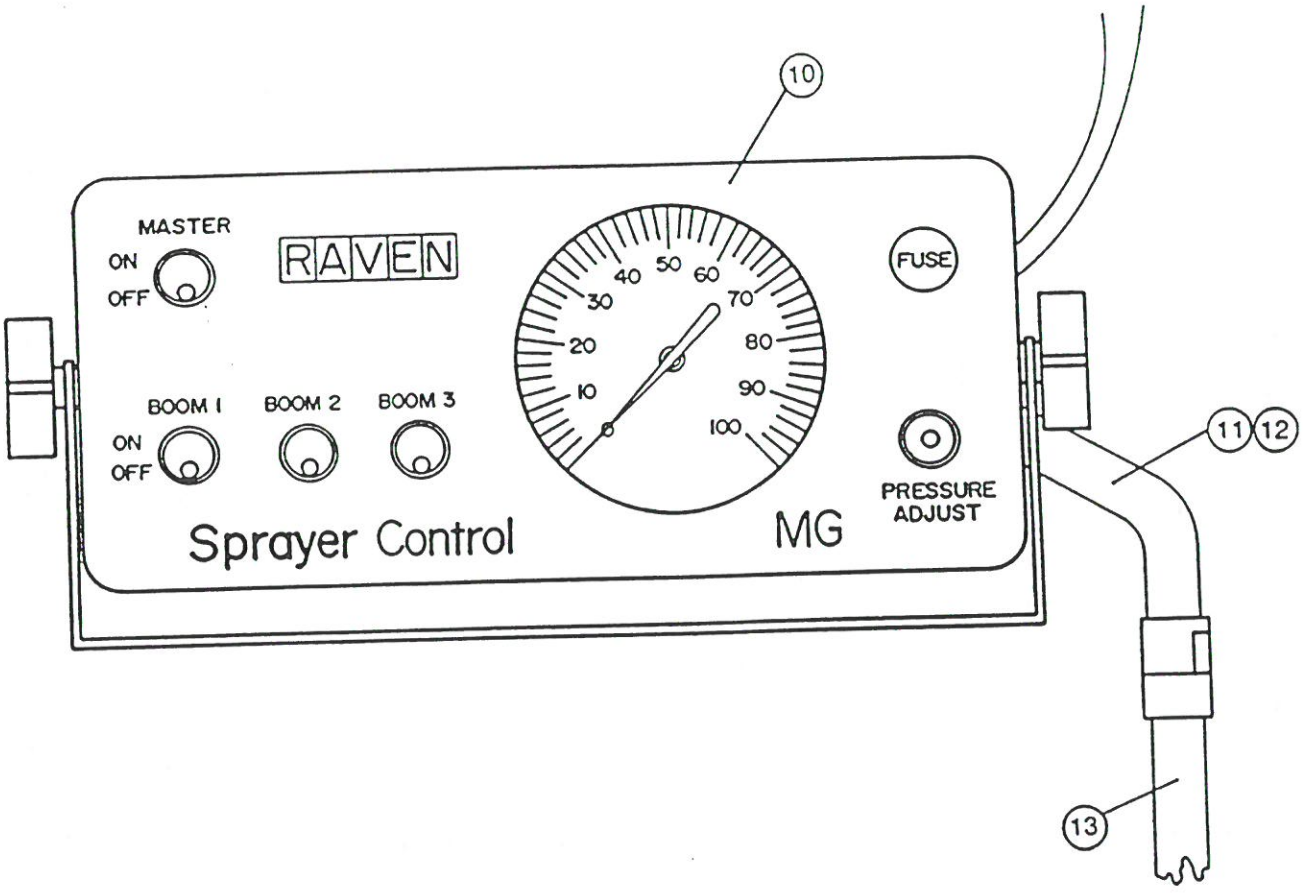


ITEM	PART NUMBER	DESCRIPTION	Nº
1	UB069684P	U-Bolt 3/8" x 6" x 5 1/4"	*
2	55021	Sprayer Long Arm	*
3	LN5C06P	Locknut 3/8"	*
4	B5C0616P	Bolt 3/8" x 1"	*
5	50013	Boom Clamp	*
6	93027	Spray Nozzle Complete Items	*
7	50052	14 gage Quick Coupler Plate	1
8	50037	1" Hose x 180" Right & Left Boom	2
9	50053	1" Hose x 1" Spacer	3
10	93029	Gear Clamp	6
11	93075	1" Quick Coupler Female	3
12	93076	1" Quick Coupler Male	3
		*As Required	

Agitator, Anti-Vortex & Control Monitor

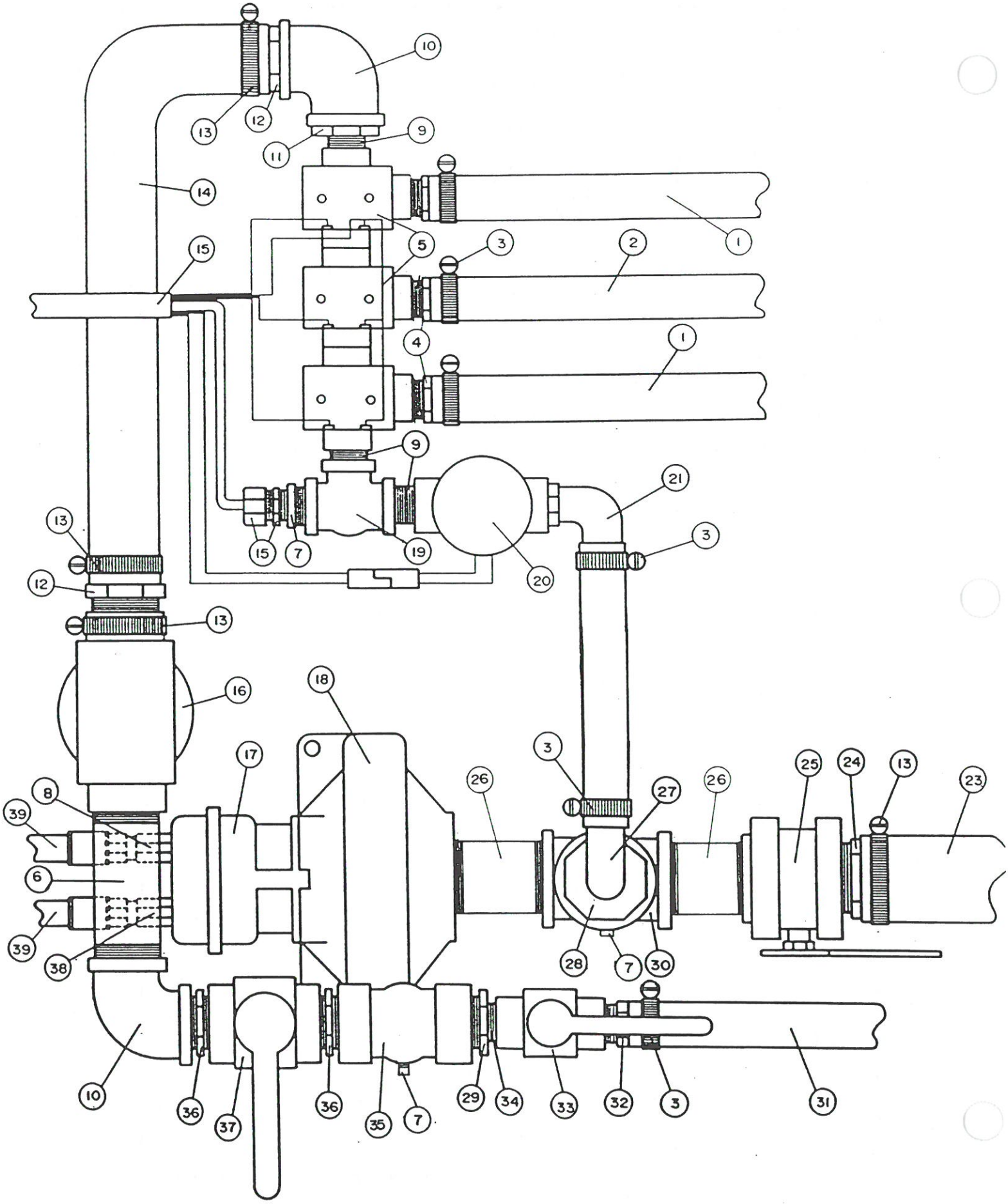






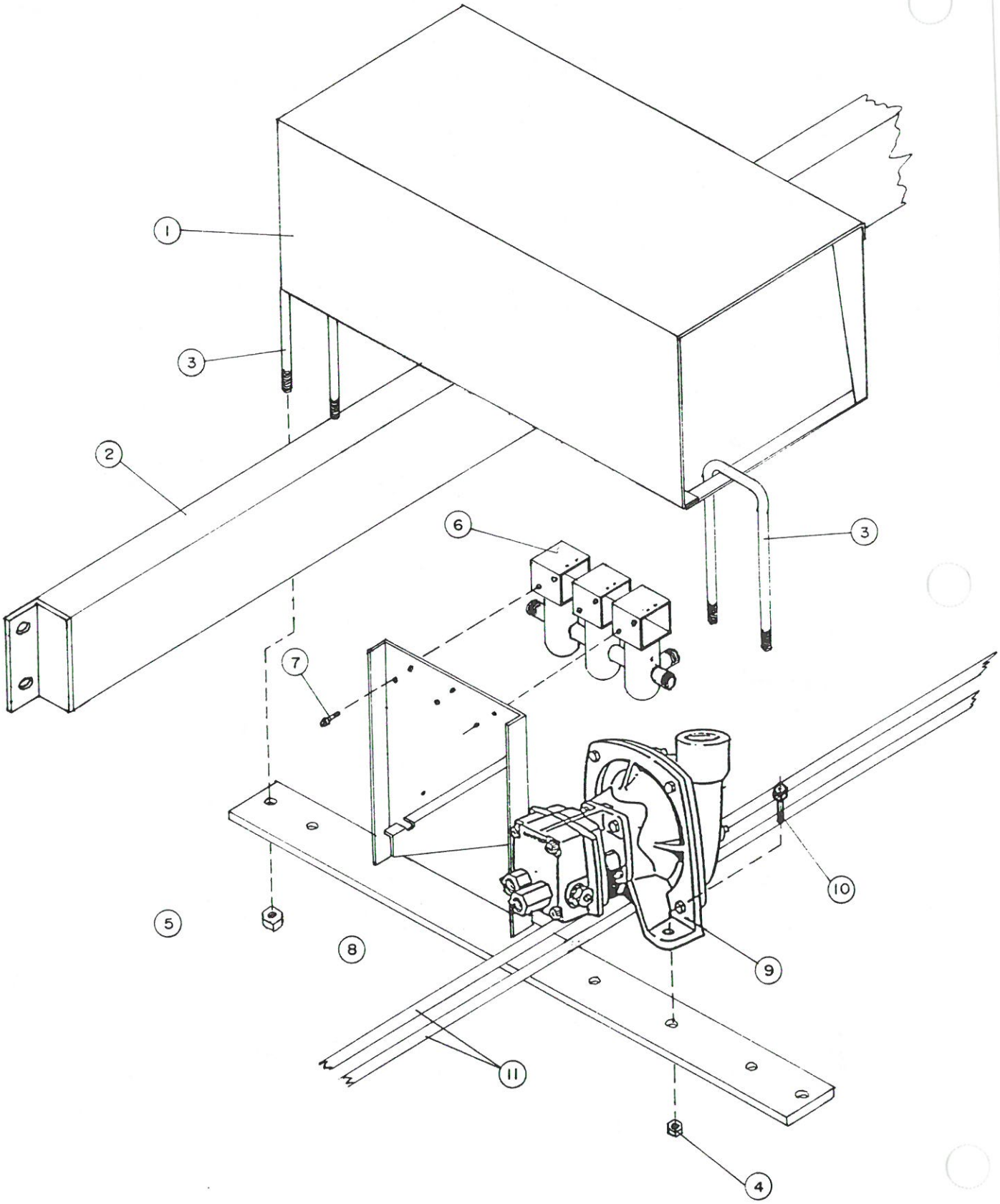
ITEM	PART NUMBER	DESCRIPTION	Nº
1	93064	Agitator	1
2	93052	90° Elbow 1" MPT, 1" Hose Barb	1
3	93029	1" Gear Clamp HS16	1
4	50047	1" Hose x 44" Agitator	1
	50048	1" Hose x 84" Agitator	1
	50049	1" Hose x 101" Agitator	1
5	93065	Anti-Vortex	1
6	93066	90° Elbow 1 1/2" MPT, 1 1/2" FPT	1
7	93049	1 1/2" Hose Barb, 1 1/2" MPT	1
8	93039	1 1/2" Gear Clamp HS24	1
9	50044	1 1/2" Hose x 16" Anti-Vortex	1
	50045	1 1/2" Hose x 66" Anti-Vortex	1
	50046	1 1/2" Hose x 87" Anti-Vortex	1
10	93067	Sprayer Control Monitor	1
11	93068	Sprayer Control Monitor Harness	1
12	93069	Sprayer Control Monitor Harness Extention	1
13	93040	Solenoid Harness	1
14	93072	Coupler 3/4" MPT	1
15	93071	Nipple 3/4" MPT x 6"	1

Pump and Control



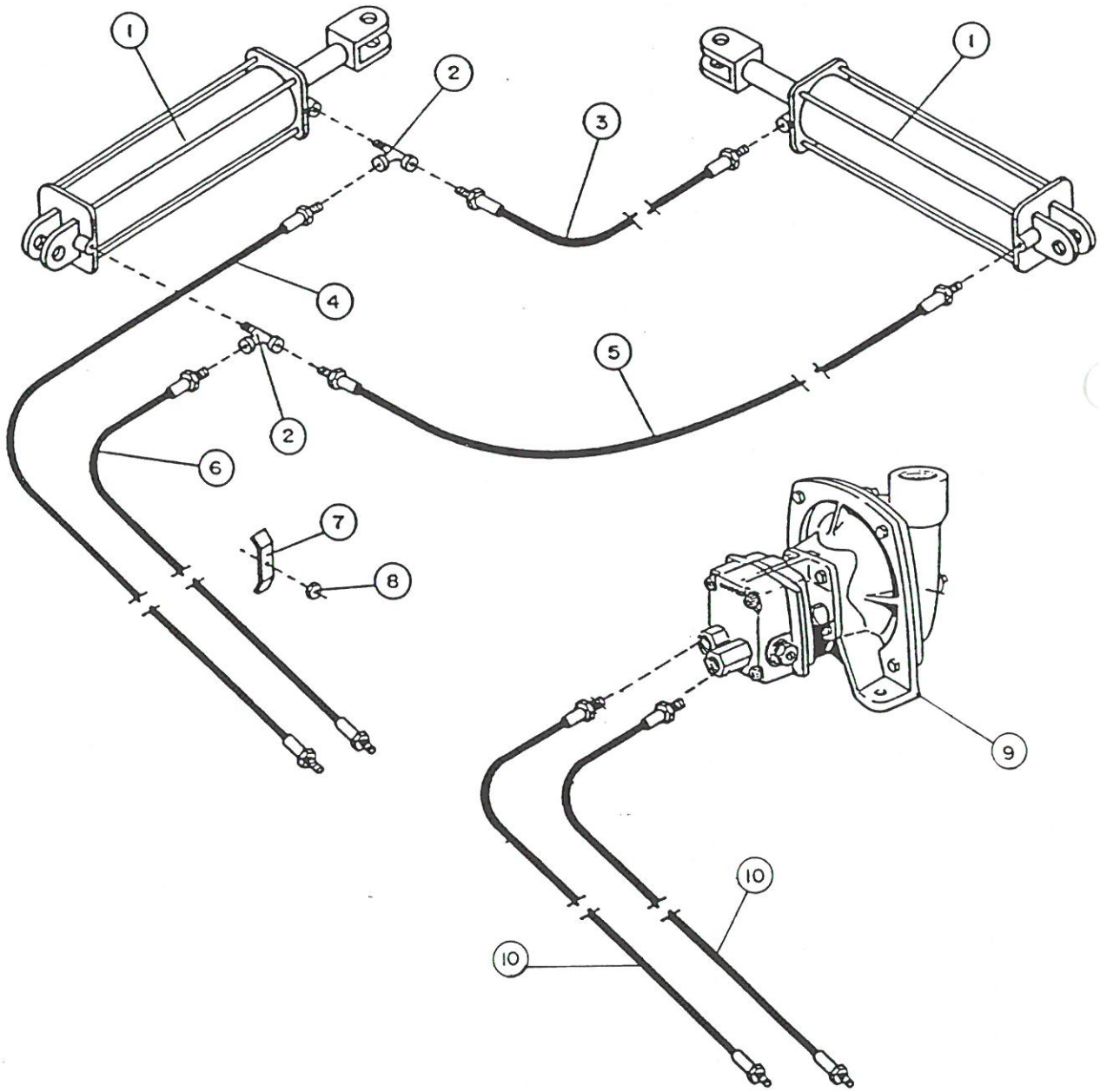
ITEM	PART NUMBER	DESCRIPTION	Nº
1	50037	1" Hose x 180" Right & Left Boom	2
	50038	1" Hose x 216" Right & Left Boom	2
	50039	1" Hose x 252" Right & Left Boom	2
2	50040	1" Hose x 52" Centre Boom	1
	50041	1" Hose x 108" Centre Boom	1
3	93029	1" Gear Clamp	6
4	93085	1" Hose Barb, 1/2" MPT	3
5	93031	Solenoids	3
6	93062	Nipple 1 1/4" MPT x 4"	1
7	93095	1/2" Nylon PLug	3
8	93063	Metering Orifice	1
9	93035	Nipple 3/4" MPT	3
10	93036	90° Elbow 1 1/4" FPT	2
11	93037	Reduscer Bushing 1 1/4" MPT, 3/4" FPT	1
12	93038	1 1/4" Hose Barb, 1 1/4" MPT	2
13	93039	1 1/2" Gear Clamp	4
14	50042	1 1/4" Hose x 15" Filter	1
15	93040	Solenoid Harness c/w Nut & Nipple	1
16	93041	Filter	1
17	93042	Hydraulic Motor c/w Pump 9303C-HM1	1
	93043	Hydraulic Motor c/w Pump 9303C-HM2	1
	93044	Hydraulic Motor c/w Pump 9303C-HM3	1
18	93045	Centrifugal Pump	1
19	93046	Tee 3/4" FPT	1
20	93047	Regulator Valve	1
21	93048	90° Elbow 3/4" MPT, 1" Hose Barb	1
22	50043	1" Hose x 3 1/2" Regulator Valve	1
23	50044	1 1/2" Hose x 32" Anti-Vortex	1
	50045	1 1/2" Hose x 66" Anti-Vortex	1
	50046	1 1/2" Hose x 87" Anti-Vortex	1
24	93049	1 1/2" Hose Barb, 1 1/2" MPT	1
25	93050	1 1/2" Ball Valve (Anti-Vortex)	1
26	93051	Nipple 1 1/2" MPT	2
27	93052	90° Elbow 1 1/4" MPT, 1" Hose BArb	1
28	93053	Reducer Bushing 1 1/2" MPT, 1 1/4" FPT	1
29	93054	Reducer Bushing 1 1/4" MPT, 1" FPT	1
30	93096	1 1/2" Tee c/w Two 1 /2" Side Ports	1
31	50047	1" Hose x 42" Agitator	1
	50048	1" Hose x 84" Agitator	
	50049	1" Hose x 101" Agitator	1
32	93012	1" Hose Barb, 1" MPT	1
33	93056	1" Hose Valve	1
34	93057	Nipple 1 1/4" MPT	1
35	93058	Tee 1 1/4" MPT	1
36	93059	Nipple 1 1/4" MPT	3
37	93060	1 1/4" Ball Valve (Throttle)	1
38	93061	Hyd. Motor Port Adaptor c/w Check Valve	1
39	90218	1 1/2" Hose 1/2" M - 1/2" M x 96"	2

Pump & Pump Guard Assembly



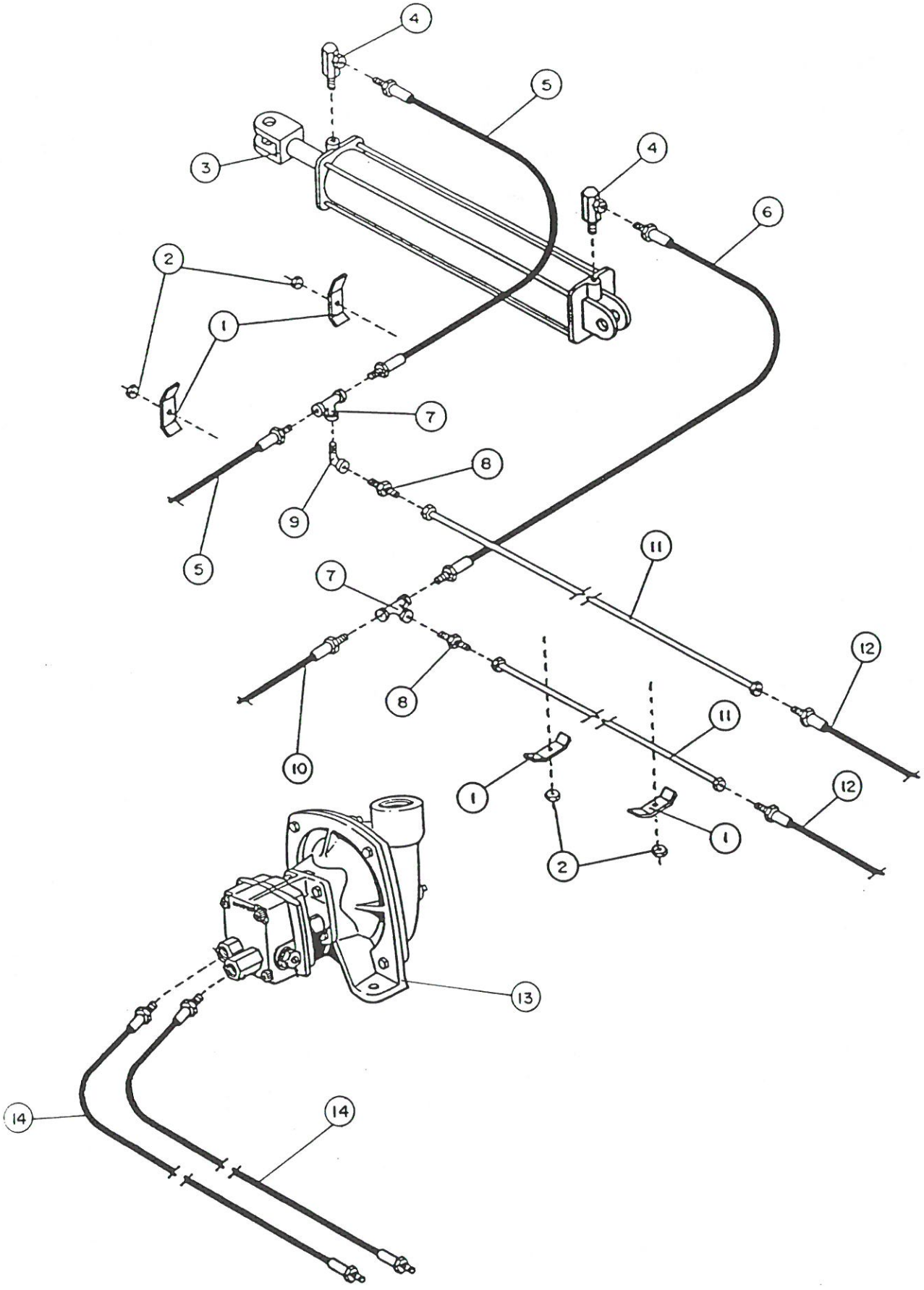
ITEM	PART NUMBER	DESCRIPTION	Nº
1	50004	Pump Guard	1
2		Right A-Frame Hitch	*
3	UB0850146	U-bolt 1/2" x 3 1/8" x 9"	1
4	LN5C06P	Locknut 3/8"	2
5	LN5C08P	Locknut 1/2"	4
6	93031	Solenoids	3
7	B5C0412P	Bolt 1/4" x 3/4"	6
8	50003	Pump and Control Plate	1
9	93042	Hydraulic Motor c/w Pump 9303C-HM1	1
	93043	Hydraulic Motor c/w Pump 9303C-HM2	1
	93044	Hydraulic Motor c/w Pump 9303C-HM3	1
10	B5C0624P	Bolt 3/8" x 1 1/2"	2
11	90400	1/2" Hyd. Line x 132"(only for 20'A-Frame)	2
		*As Required	

15ft A-Frame Hydraulic



ITEM	PART NUMBER	DESCRIPTION	Nº
1	90103	Cylinder 3 1/2" x 16"	2
2	90601	1/2" Street Tee M-F-F	2
3	90206	1/2" Hose 1/2" MB x 1/2" MC x 60"	1
4	90208	1/2" Hose 1/2" MB x 1/2" MB x 204"	1
5	90205	1/2" Hose 1/2" MB x 1/2" MC x 51"	1
6	90207	1/2" Hose 1/2" MB x 1/2" MB x 184"	1
7	10034	Hose Clamp	1
8	LN5C07P	Locknut 7/16"	1
9	93042	Hydraulic Motor c/w Pump 9303C-HM1	1
	93043	Hydraulic Motor c/w Pump 9303C-HM2	*
	93044	Hydraulic Motor c/w Pump 9303C-HM3	*
10	90218	1/2" Hose 1/2" M - 1/2" M x 96"	2
		*As Required	

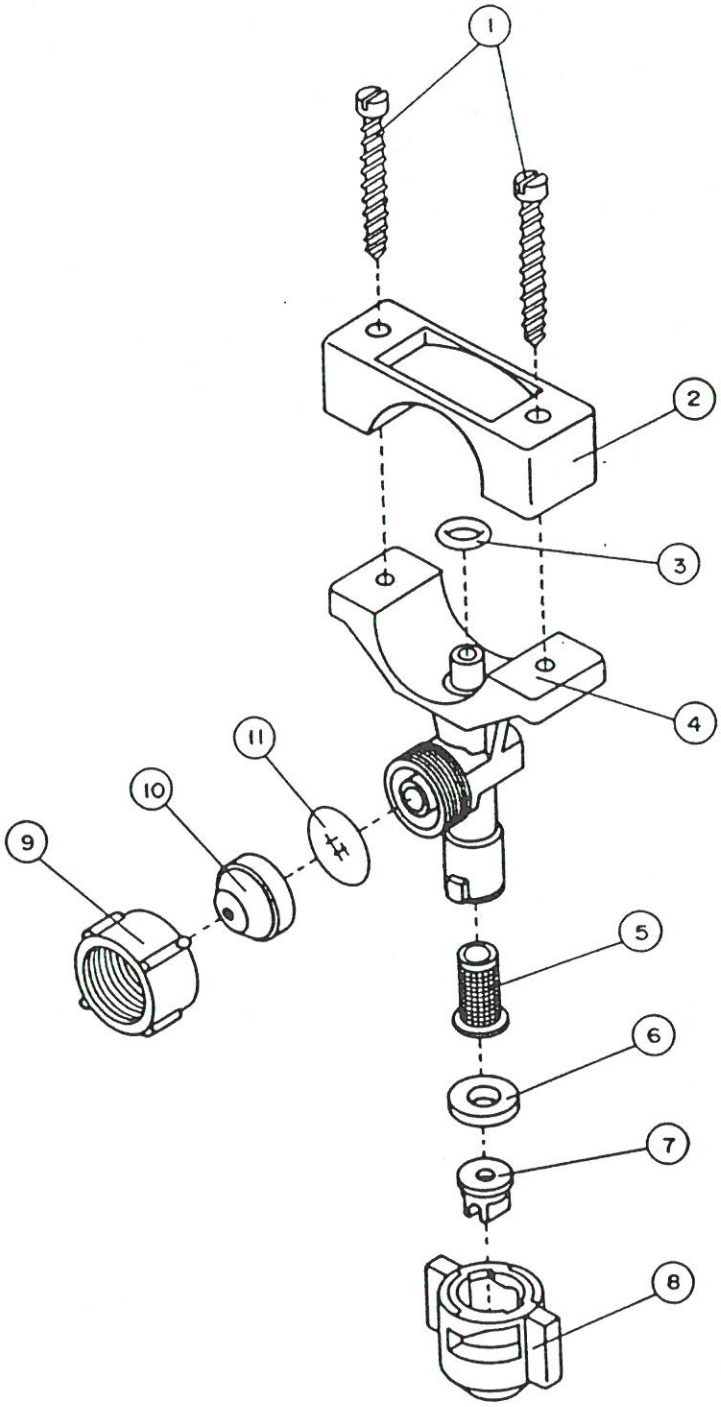
20ft A-Frame Hydraulic



ITEM	PART NUMBER	DESCRIPTION	Nº
1	10034	Hose Clamp	4
2	LN5C07P	Locknut 7/16"	4
3	90103	Cylinder 3 1/2" x 16"	2
4	90501	1/2" 90° Swivel Elbow	4
5	90217	1/2" Hose 1/2" MB x 1/2" MB x 80"	2
6	92016	1/2" Hose 1/2" MB x 1/2" MB x 60"	1
7	90600	1/2" Street Tee F-F-F	2
8	90550	1/2" Flare Adaptor	2
9	90502	1/2" 90° Street Tee	1
10	90219	1/2" Hose 1/2" MB x 1/2" MB x 58"	1
11	90400	1/2" Hydraulic Line x 132"	2
12	90202	1/2" Hose 1/2" MB x 1/2" MJ x 84"	2
13	93042	Hyd. Motor c/w Pump 9303C-HM1	1
	93043	Hyd. Motor c/w Pump 9303C-HM2	*
	93044	Hyd. Motor c/w Pump 9303C-HM3	*
14	90218	1/2" Hose 1/2" MB x 1/2" x 96"	2

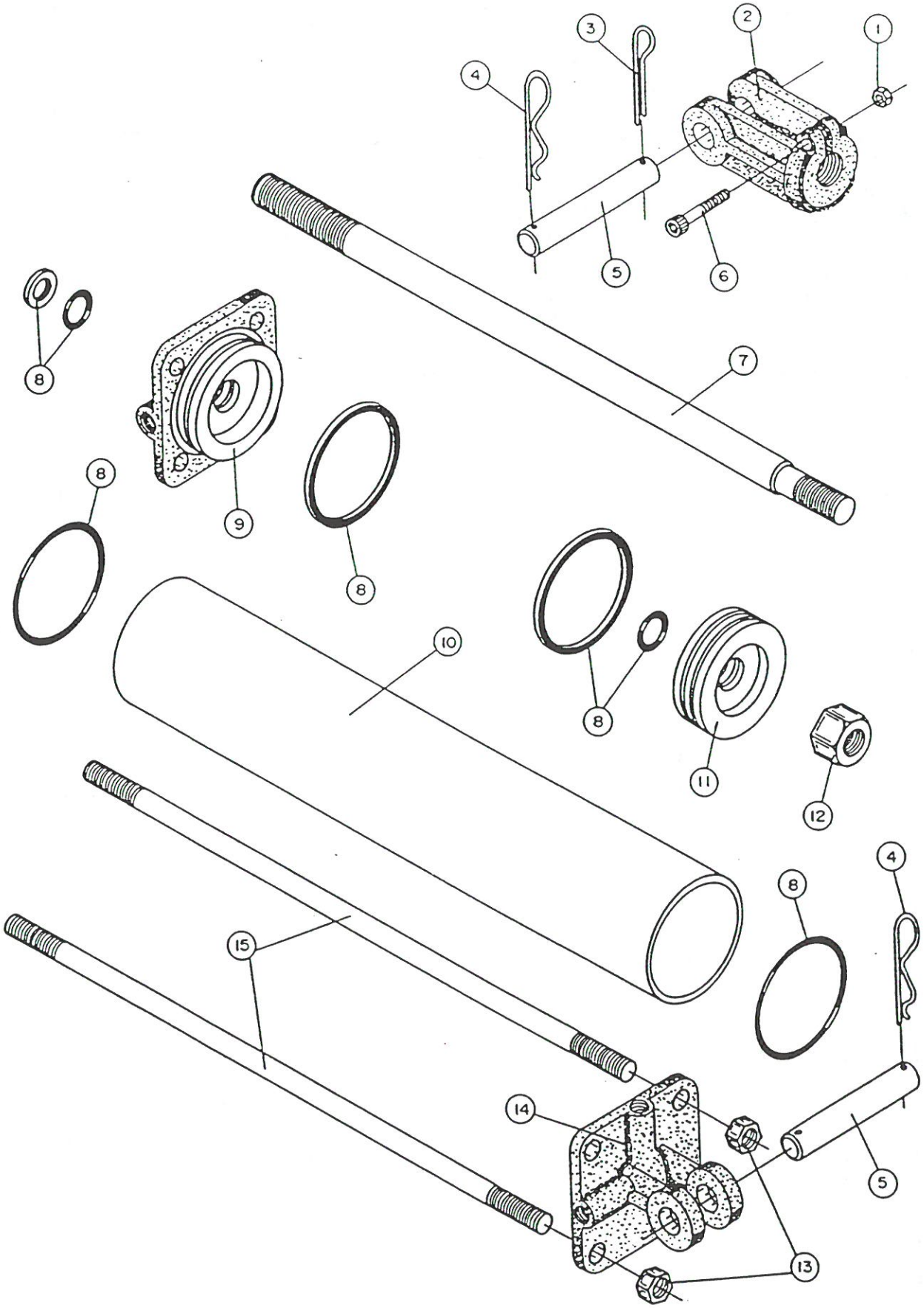
*As Required

Nozzles



ITEM	PART NUMBER	DESCRIPTION	Nº
1	93015	Screws	2
2	93016	Upper Clamp	1
3	93017	O-Ring	1
4	93018	Main Body	1
5	93019	Tee Jet Strainer	1
6	93020	Seat Washer	1
7	93021	Sprayer Tip (11003LP)	1
8	93022	Cap (yellow) Other Color Caps Available	1
9	93023	Retainer	1
10	93024	End Cap	1
11	93025	Diaphragm	1
12	93026	Split Wing Nozzle Body	1
	93027	Sprayer Nozzle Complete Items #1 - #11	*
	93028	Split Wing Nozzles Complete Items #5 - #12	*
		*As Required	

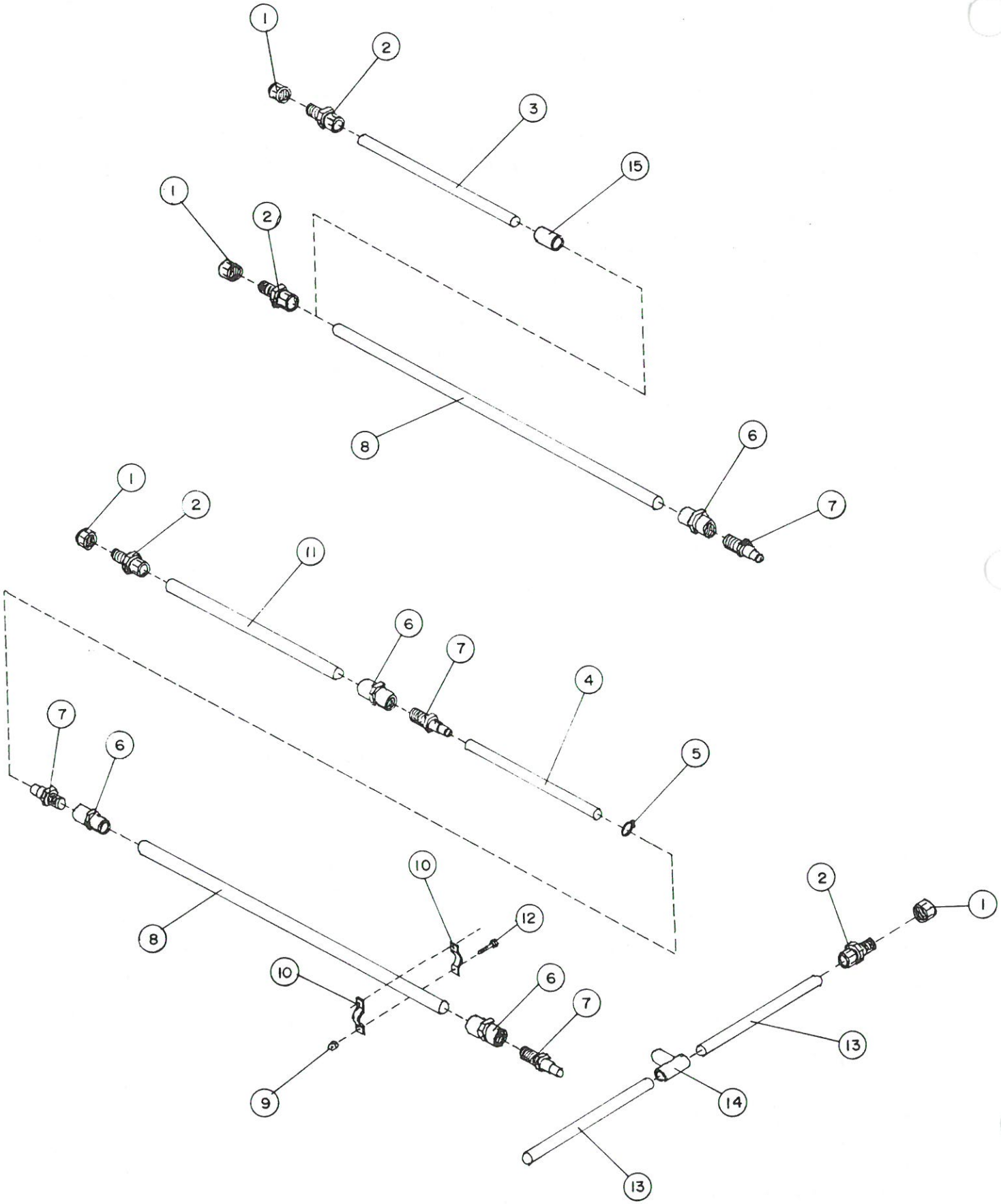
3 1/2" X16" Cylinder



ITEM	PART NUMBER	DESCRIPTION	Nº
1	N5C06P	Nut 3/8"	1
2	90620	Cylinder Clevis 3 1/2" Cylinder	1
3	CPO324	Cotter Pin 3/16" x 1 1/2"	2
4	HP52	Hair Pin Clip 3 1/4"	2
5	91603	Pin cylinder 1" x 3 3/4"	2
6	92016	Allen Head Bolt 3/8" x 2"	1
7	90640	Cylinder Shaft 3 1/2" x 16" Cylinder	1
8	90680	Seal Kit 3 1/2" Cylinder	1
9	90660	Rod End Cap 3 1/2" Cylinder	1
10	90740	Tube 3 1/2" x 16" Cylinder	1
11	90700	Piston 3 1/2" Cylinder	1
12	90720	Piston Nut 3 1/2" Cylinder	1
13	90800	Tie Rods Nuts 1/2"	8
14	90760	Anchor End Cap 3 1/2" Cylinder	1
15	90780	Tie Rods 3 1/2" x 16" Cylinder	4
	90103	Cylinder Complete 3 1/2" x 16"	*

*As Required

Centre & Wing Booms



ITEM	PART NUMBER	DESCRIPTION	Nº
1	93006	1" PVC Cap 1" FPT	*
2	93007	1" PVC Adaptor 1" MPT, 1" SOC	*
3		REar Wing Boom Extention (See Page #)	*
4	93074	Rubber Hose	*
5	93029	1" Gear Clamp	*
6	93011	1" PVC Adaptor 1" FPT, 1" SOC	*
7	93012	1" Hose Barb, 1" MPT	*
8		Regular Size Wing Boom (See Page #)	*
9	LN5C06P	Locknut 3/8"	*
10	50013	Boom Clamp	*
11		Rear Wing Boom (See Page #)	*
12	B5C0616P	Bolt 3/8" x 1"	*
13		Centre Boom (See page #)	*
14	93013	1" PVC Tee	*
15	93073	1" PVC Adaptor 1" SOC	*
		*As Required	