P.O. BOX 85
LAURIER, MANITOBA
R0J 1A0
204-447-2245

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 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.

LAURIER MANUFACTURING LIMITED

It is the policy if LAURIER MANUFACTURING LIMITED 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 ½" 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.

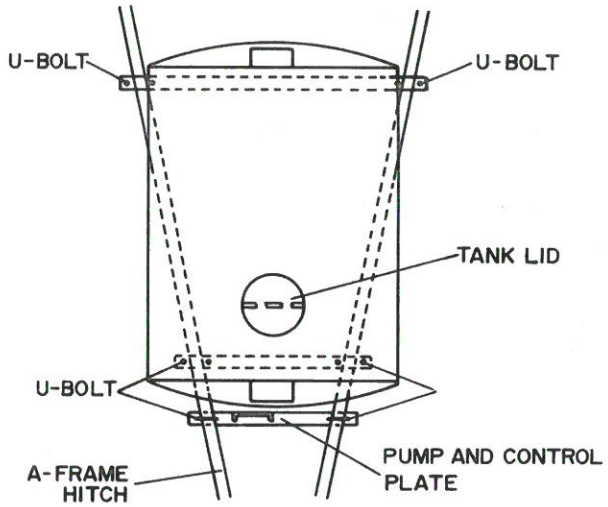


Fig. I

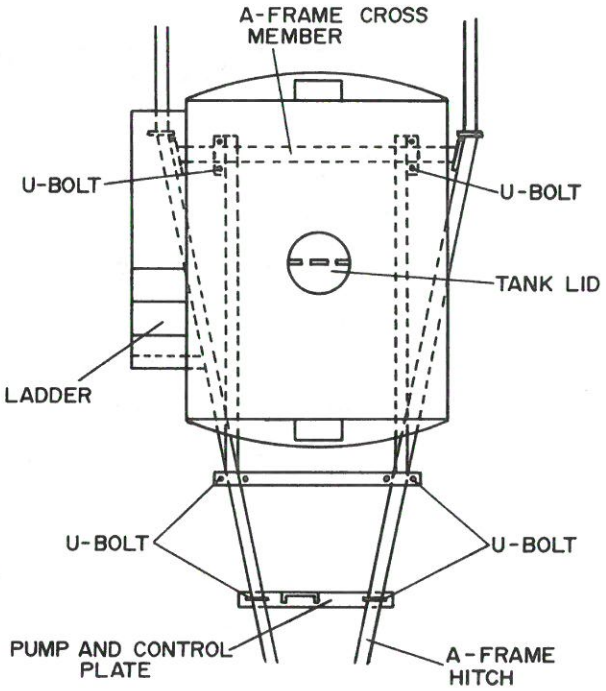


Fig. 2

STEP 2: MOUNT PUMP AND PUMP GUARD UNDER A-FRAME AND PLACE PUMP GUARD ON TOP OF FRAME. WITH ½" 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.

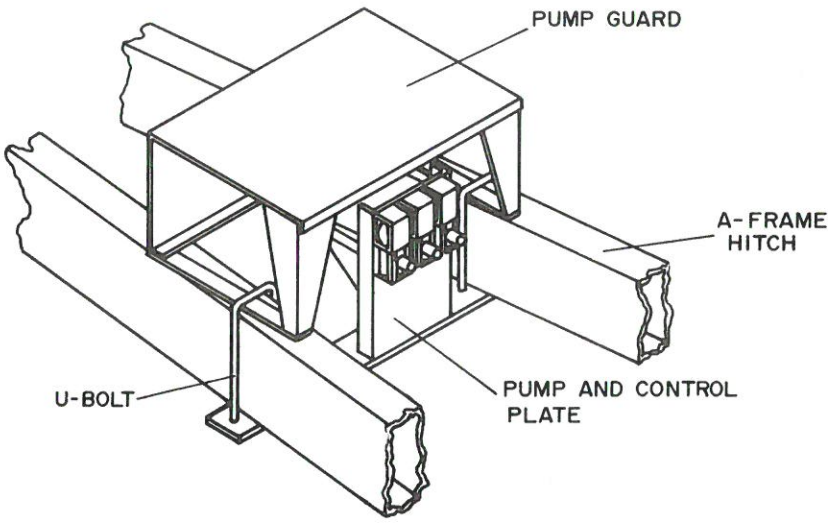


Fig. 3

STEP 3: MOUNT NOZZLES ON CENTRE BOOM. 6 NOZZLES FOR HARROW BAR WITH 14 FT. CENTRE TUBE AND 4 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.

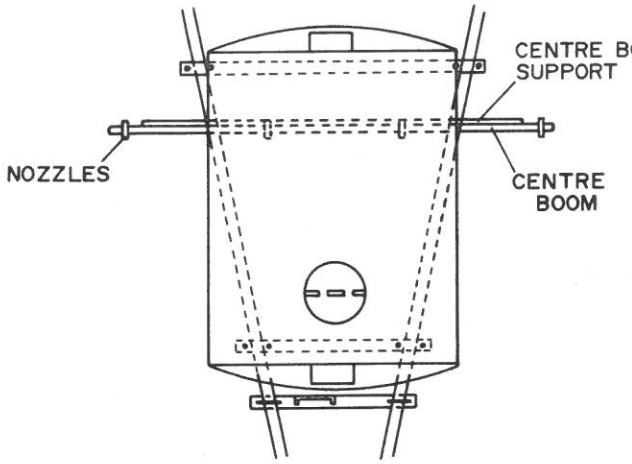


Fig. 4

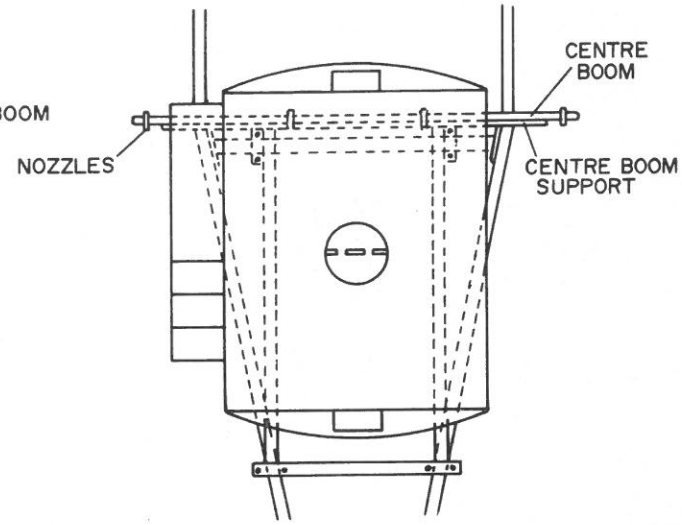


Fig. 5

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. HARROW PACKER BAR WITH 20 FT. A-FRAME AND 833 GALLON TANK. SEE FIG. 6.

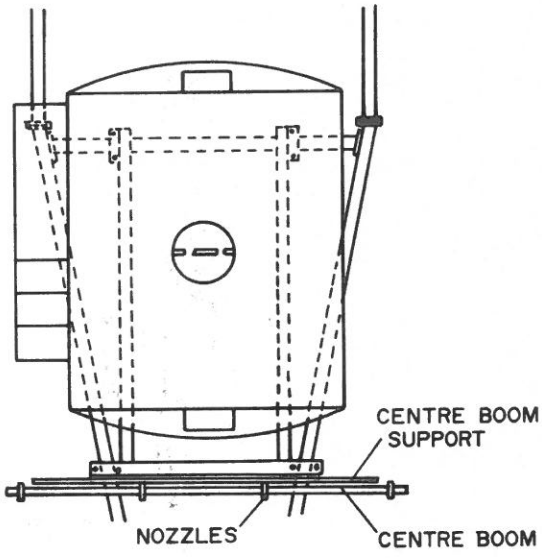


Fig. 6

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.

STEP 5: SCREW IN ¾" x 90° ELBOW IN AGITATOR ASSEMBLY AND ALSO SCREW IN 1½" 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 1½" 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 21. FIND RIGHT TANK AND MACHINE AND LENGTHS ARE THEN GIVEN.

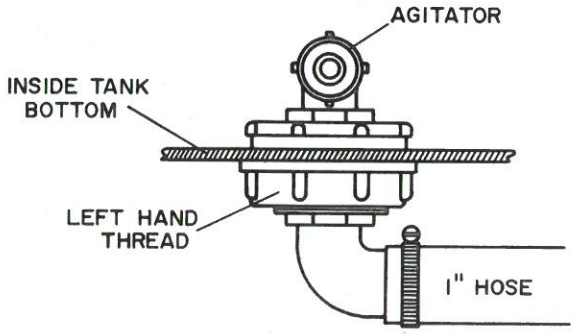


Fig. 7

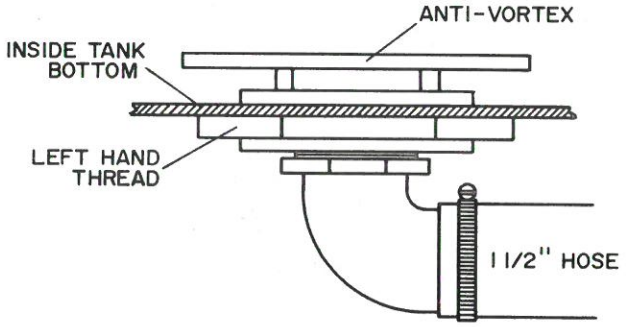


Fig. 8

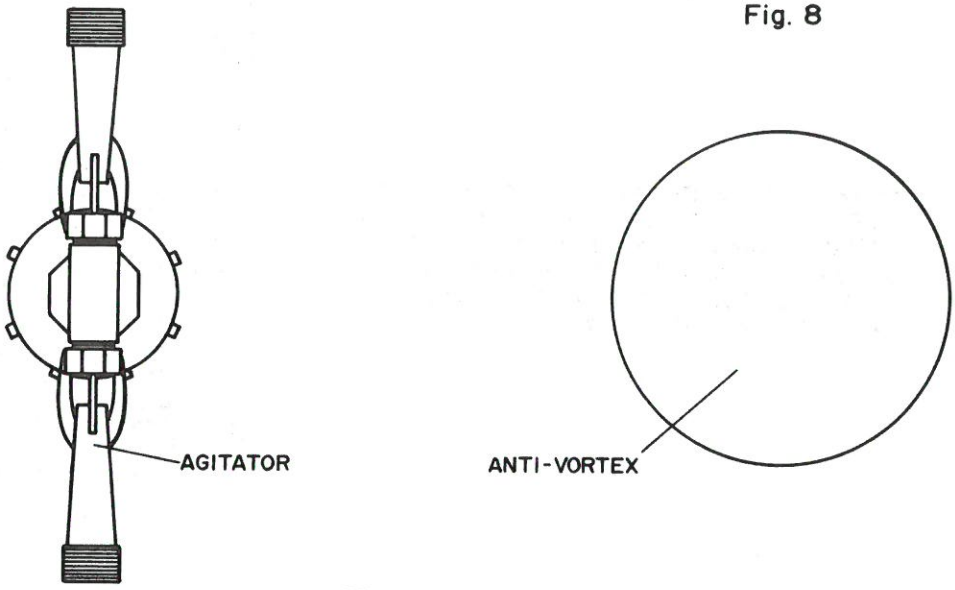


Fig. 9

STEP 6: CONNECT 1½" HOSE COMING FROM ANTI-VORTEX TO THE 1½" 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.

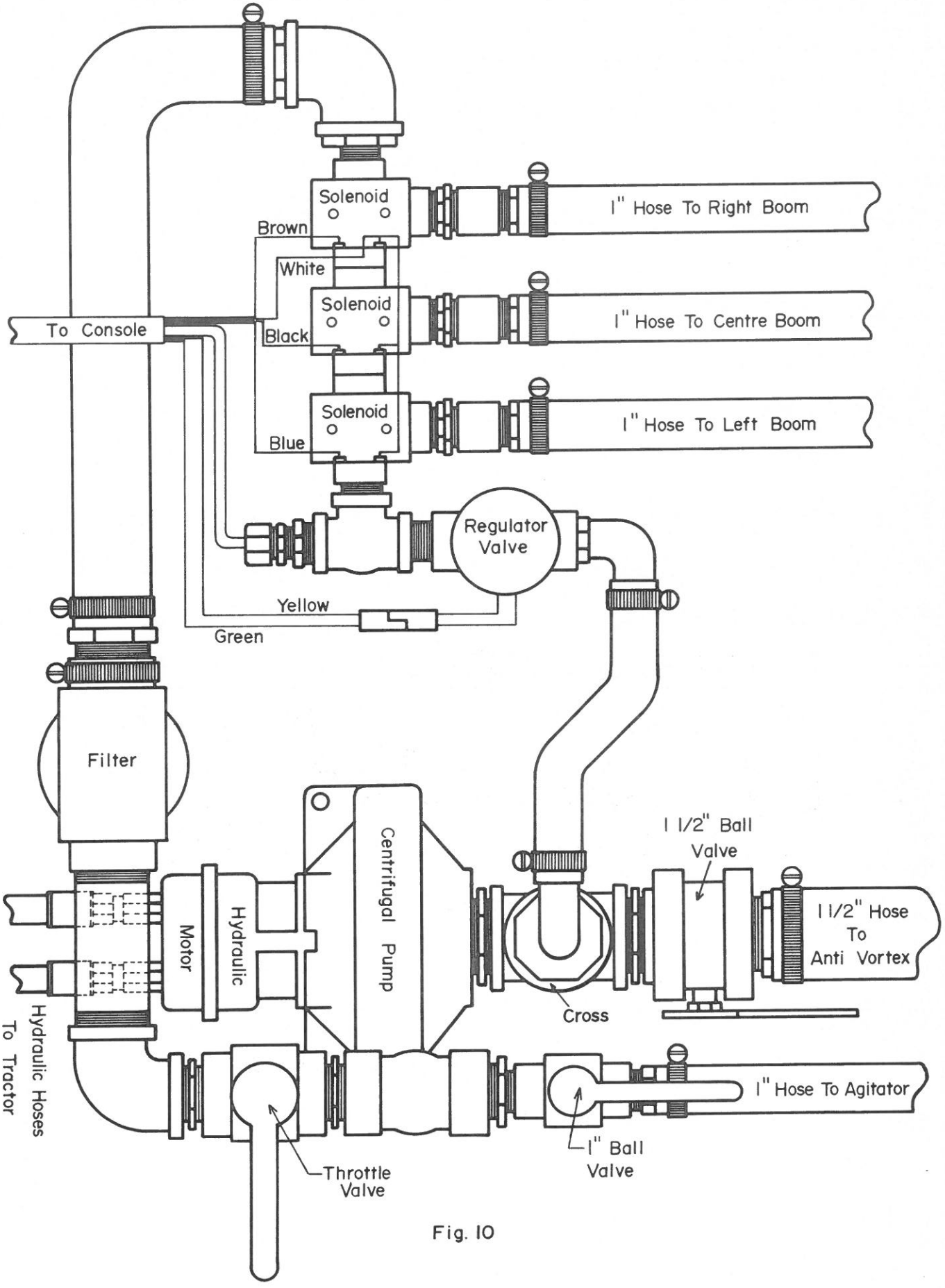

Solenoid
Solenoid
Solenoid
Brown
White
Black
Blue
To Console
1" Hose To Right Boom
1" Hose To Centre Boom
1" Hose To Left Boom
Regulator Valve
Yellow
Green
Filter
Motor
Hydraulic
Centrifugal Pump
1 1/2" Ball Valve
1 1/2" Hose To Anti Vortex
Cross
1" Hose To Agitator
1" Ball Valve
Throttle Valve
Hydraulic Hoses To Tractor

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 5¼" x 6-1/16" 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 SPRAYER 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.

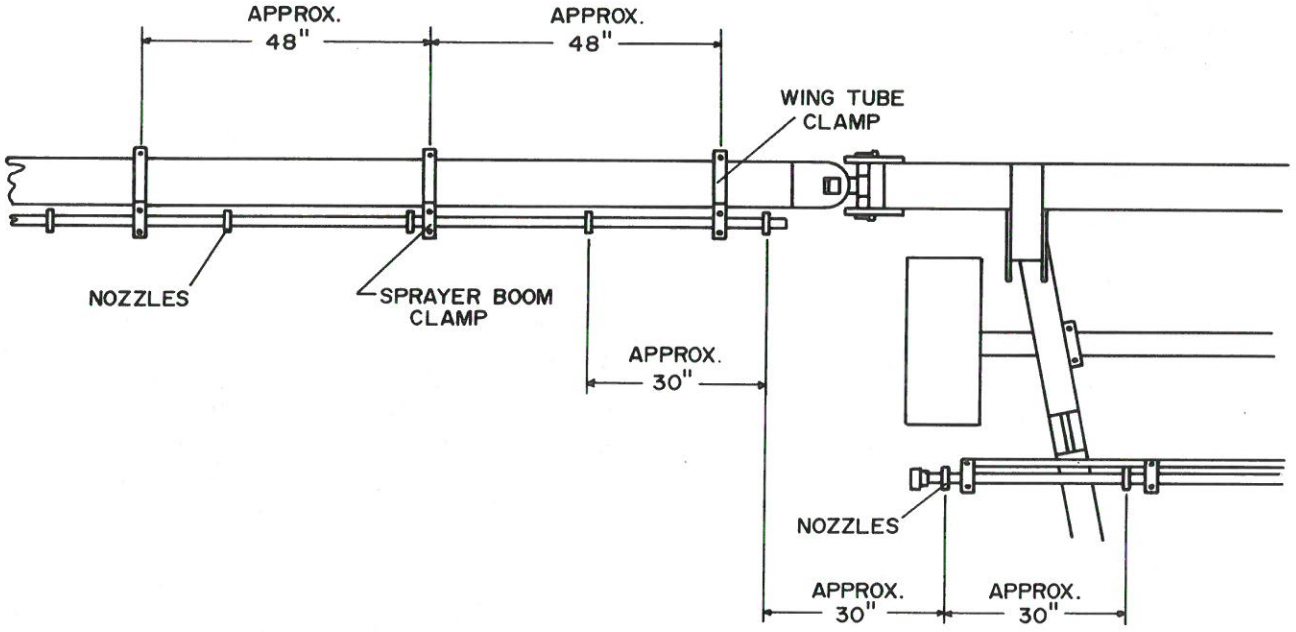


Fig. 11

STEP 10: FOR SPLIT WING BOLT SPLIT WING NOZZLE BRACKET TO WING TUBE USING MIDDLE BOLT ON FRAME. CONNECT NOZZLE TO SPLIT WING NOZZLE BRACKET. INSTALL ½" HOSE x 36" TO TOP HOLE ON TEE AND TO 90° ELBOW ON NOZZLE ON SPLIT WING NOZZLE BRACKET. SECURE HOSE IN PLACE WITH HOSE CLAMPS. SECURE 1" HOSE x 60" IN OTHER END OF TEE. GOING ALONG MIDDLE OF SPLIT WING JOINER SECURE 1" HOSE WITH TIE STRAPS. SECURE OTHER END OF 1" HOSE TO 90° ELBOW ON BACK WING BOOM. SECURE HOSE ALSO WITH HOSE CLAMPS. REFER TO FIG. 12.

NOTE: MEASURE DISTANCE BETWEEN NOZZLES ON FRONT WING BOOM THEN PLACE NOZZLE ON SPLIT WING NOZZLE BRACKET THIS DISTANCE FROM LAST NOZZLE ON FRONT WING BOOM. POSITION FIRST NOZZLE ON BOOM ON BACK WING SAME DISTANCE FROM NOZZLE ON SPLIT WING NOZZLE BRACKET.

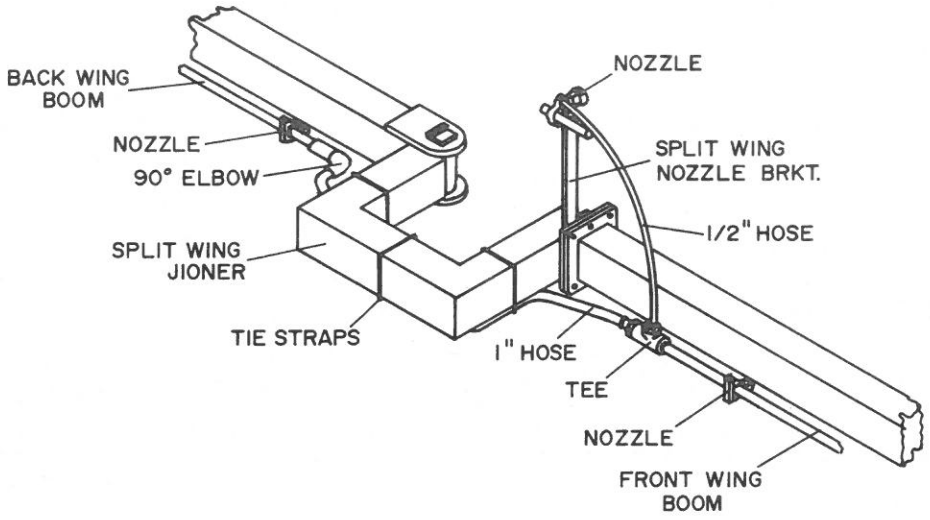


Fig. 12

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

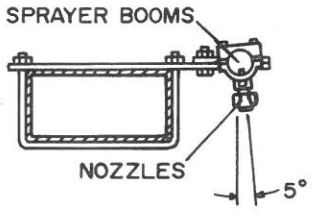


Fig. 13

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 A 20 FT. A-FRAME WITH EITHER A 500 GALLON OR 833 GALLON TANK FOLLOW FIG. 15 FOR HOSE AND TIE STRAP PLACEMENT.

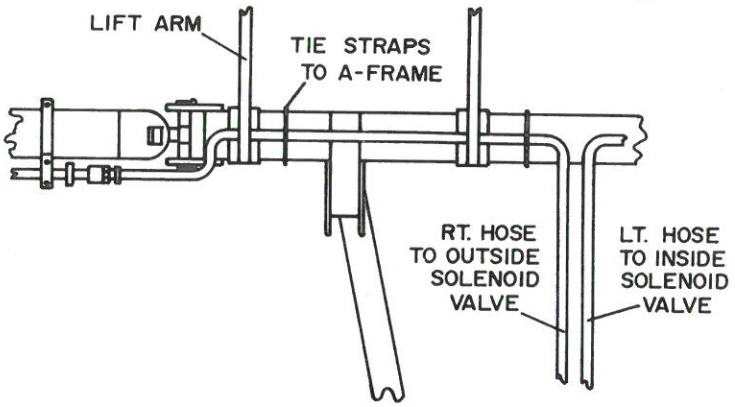


Fig. 14

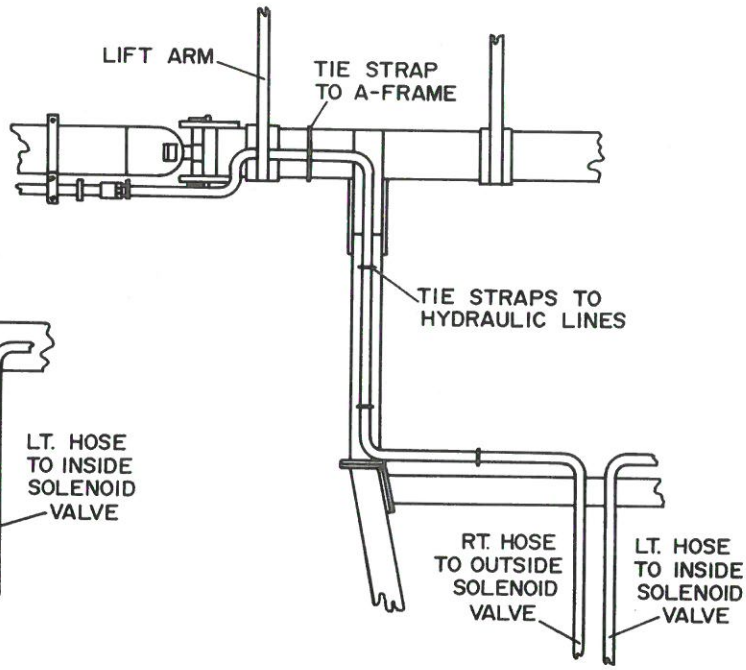


Fig. 15

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.

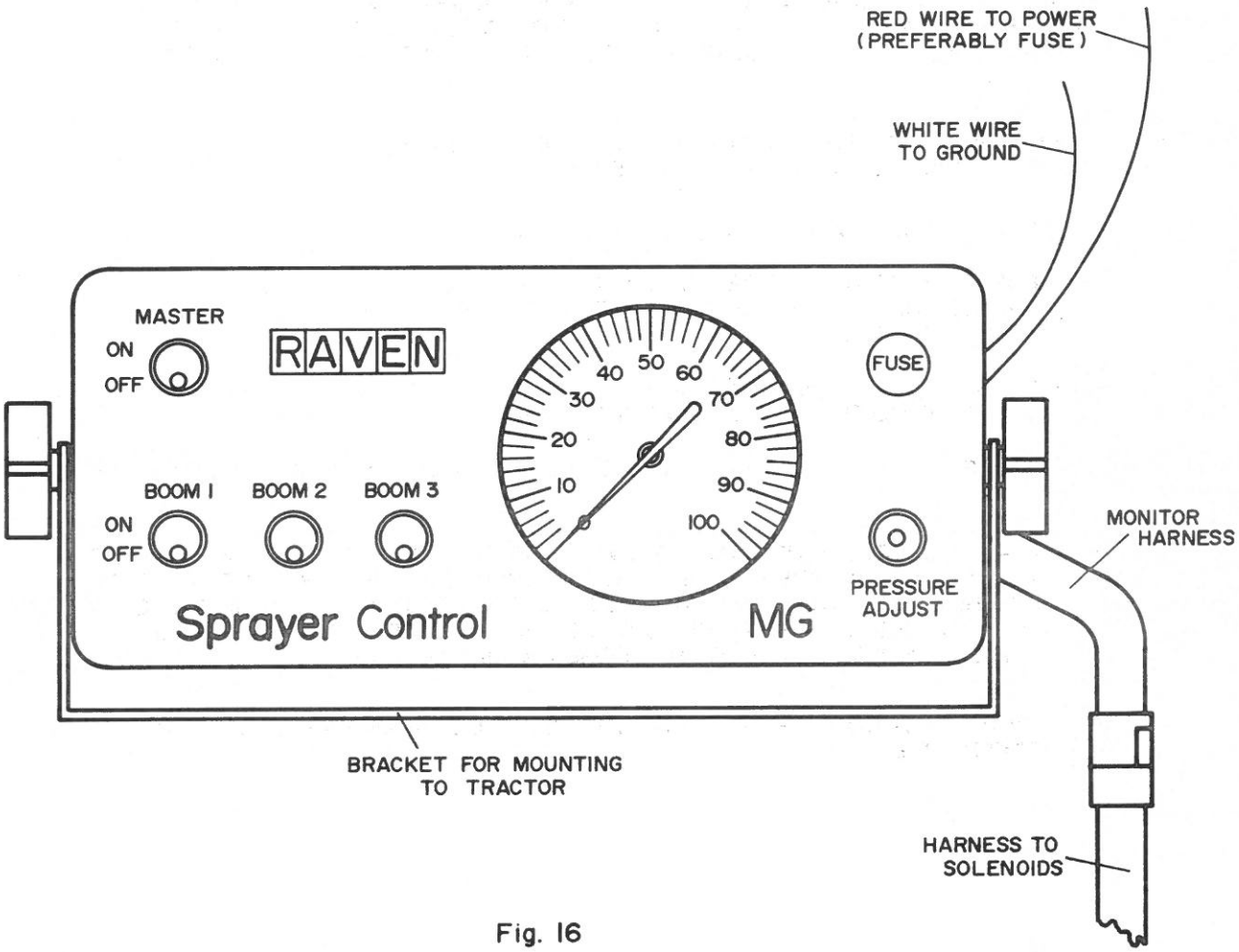


Fig. 16

OPERATING INSTRUCTIONS

STEP 1: 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.

STEP 2: 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.

STEP 3: 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 1½" 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 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).

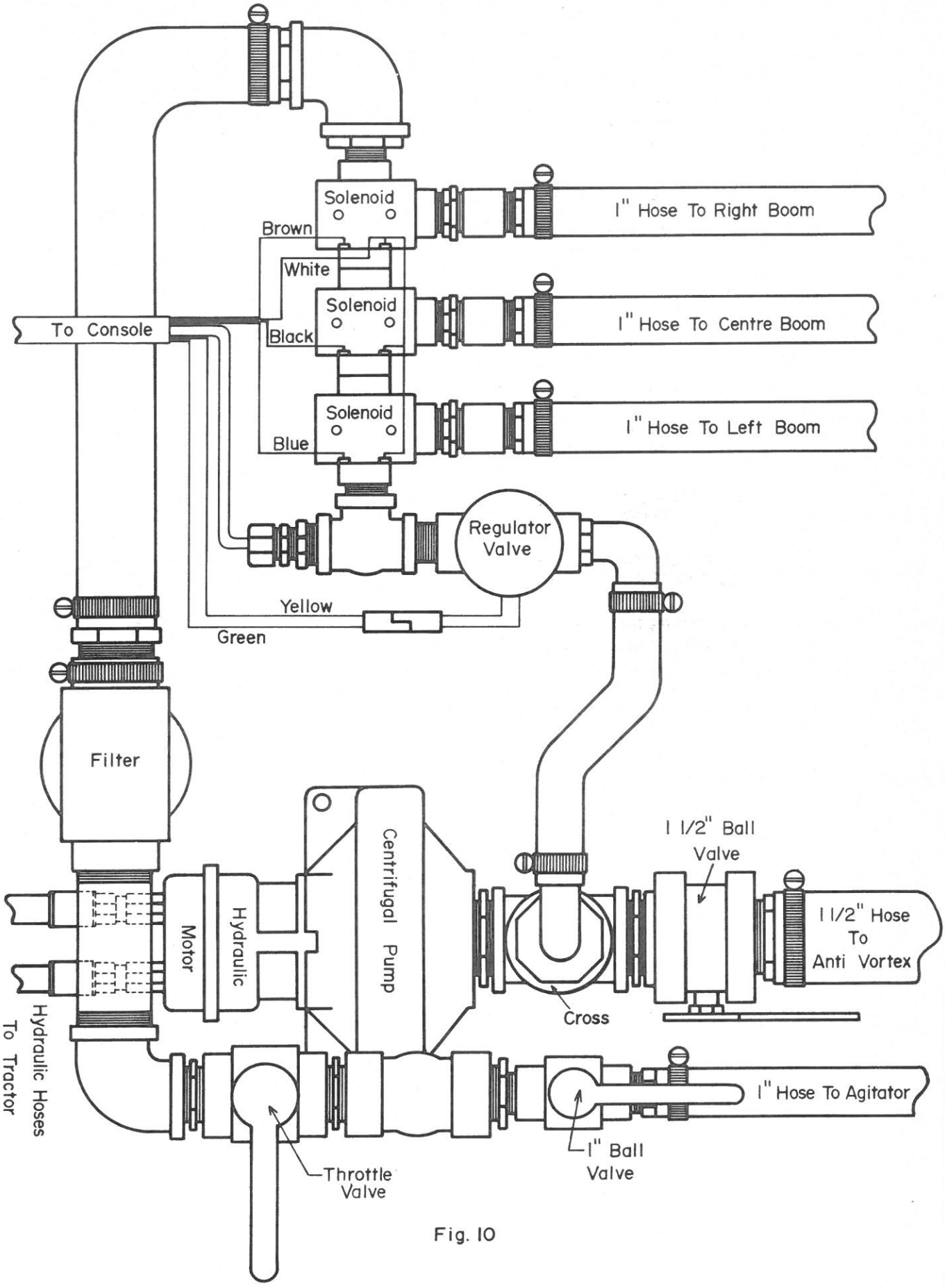

Solenoid
Solenoid
Solenoid
1" Hose To Right Boom
1" Hose To Centre Boom
1" Hose To Left Boom
Brown
White
Black
Blue
To Console
Regulator Valve
Yellow
Green
Filter
Centrifugal Pump
Motor
Hydraulic
1 1/2" Ball Valve
1 1/2" Hose To Anti Vortex
Cross
Hydraulic Hoses To Tractor
1" Hose To Agitator
1" Ball Valve
Throttle Valve

Fig. 10

G. 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 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 SWITCH (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 VALUE CAN BE LEFT AT THIS SETTING.

STEP 4: HOW TO DRAIN SPRAYER SYSTEM

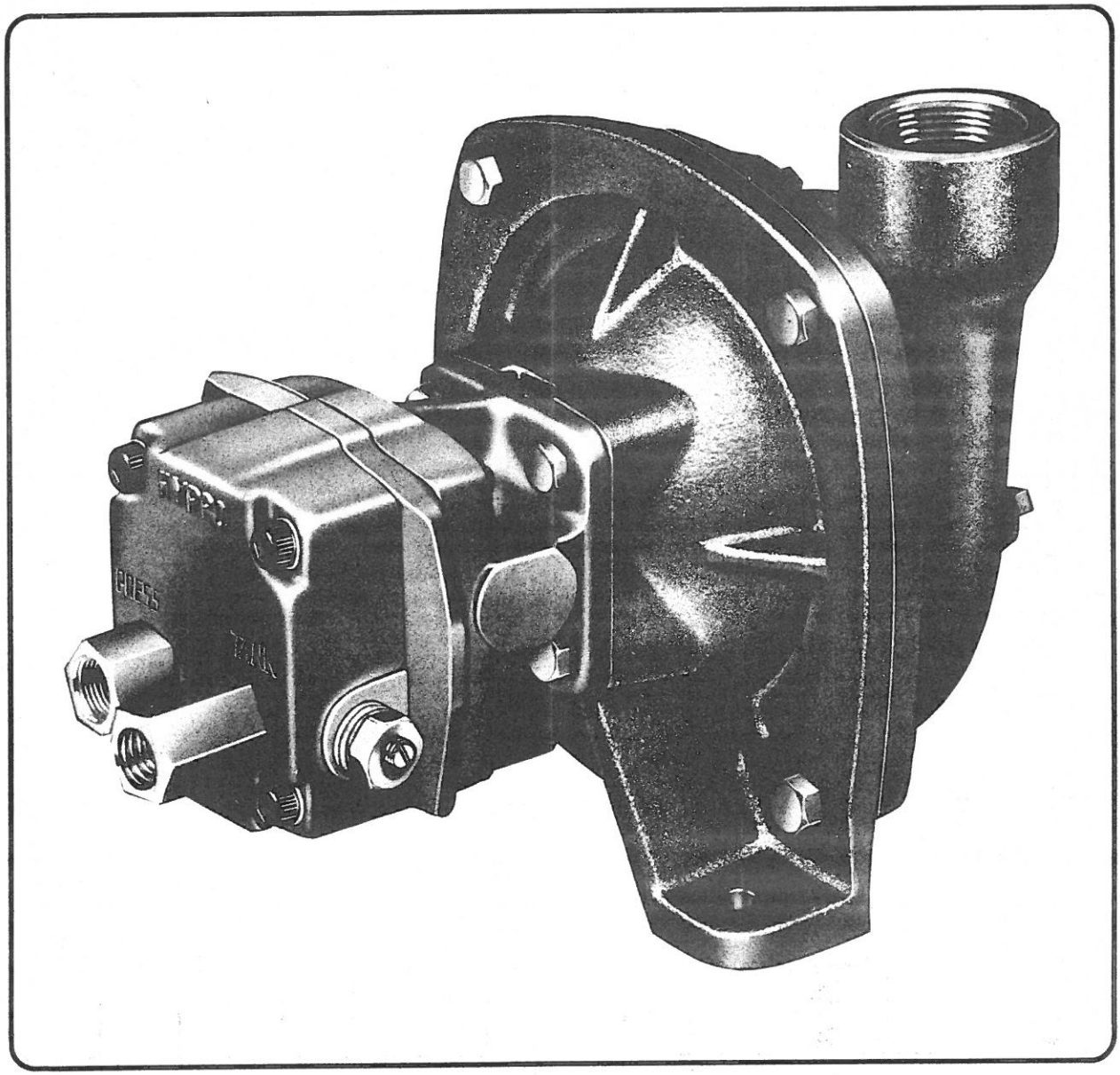
A. REMOVE PLUG OUT OF BOTTOM OF CROSS. THIS PLUG SHOULD BE REMOVED UNTIL SPRAYER IS NEEDED AGAIN.

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



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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 HYDRUALIC 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)
6080	OPEN	2300	10	X			(2)
7000	OPEN	2400	5.88		X		
7010-PD	CLOSED (LS)	2500	17		X		(2)
7010-PS	CLOSED (LS)	2500	17		X		(2)
7020	CLOSED (LS)	2500	17		X		(2)
7020-PS	CLOSED (LS)	2500	17		X		(2)
7030	CLOSED (LS)	2500	17		X		(2)
7040	CLOSED (LS)	2500	17		X		(2)
7040-PS	CLOSED (LS)	2500	17		X		(2)
7045	CLOSED (LS)	2500	17		X		(2)
7045-PS	CLOSED (LS)	2500	17		X		(2)
7050	CLOSED (LS)	2500	17		X		(2)
7060	CLOSED (LS)	2500	17		X		(2)
7060-PS	CLOSED (LS)	2500	17		X		(2)
7080	CLOSED (LS)	2500	18		X		(2)

(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.

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			
1270	OPEN	2200	20	(3)		X	
1270 AFTER 1973	OPEN	2050	20	(3)		X	
1370	OPEN	2200	20	(3)		X	
1370 AFTER 1973	OPEN	2050	20	(3)		X	
1570	OPEN	2200	20	(3)		X	
2090	CLOSED (LS)	2250	22		X		(4)
2290	CLOSED (LS)	2250	22		X		(4)
2390	CLOSED (LS)	2250	24		X		(4)
2590	CLOSED (LS)	2250	24		X		(4)

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-continued)							
2590 AFTER 1979	CLOSED (LS)	2250	23		X		(4)

(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		
750	OPEN	2000	5.8		X		
820	OPEN	1800	6.6		X		
830	OPEN	2000	6.5		X		
850	OPEN	2000	6.2		X		
850 AFTER 1979	OPEN	2100	6.2		X		
950	OPEN	2000	5.8		X		
950 AFTER 1979	OPEN	2400	5.8		X		
1020-RU	CLOSED	2000	6.5		X		
1020-HU	CLOSED	2000	6.5		X		
1020-LU	CLOSED	2000	6.5		X		
1050	OPEN	2100	5.8		X		
1520	CLOSED	2000	6.5		X		
1530	CLOSED	2000	12				X
1530 AFTER 1974	CLOSED	2250	13.5				X
2020	CLOSED	2000	6.5		X		
2030	CLOSED	2000	12				X
2030 AFTER 1972	CLOSED	2000	13.5				X
2040(1)	OPEN	2100	6.5		X		
2040(2)	CLOSED	1825	12				X
2040 AFTER 1977	CLOSED	2250	12				X
2240	CLOSED	2250	12				X
2440	CLOSED	2250	12-18				X
2520	CLOSED	2000	13				X
2630	CLOSED	2000	12				X
2630 AFTER 1974	CLOSED	2250	13.5				X
2640	CLOSED	2250	12-18				X
2840	CLOSED	2250	18				X
2940	CLOSED	2300	18				X
3020	CLOSED	2000	14				X
4000	CLOSED	2000	14				X
4020	CLOSED	2000	14				X
4030	CLOSED	2000	18				X
4030 AFTER 1974	CLOSED	2250	18				X
4040	CLOSED	2200	20				X
4040 AFTER 1979	CLOSED	2200	17				X
4230	CLOSED	2000	18				X
4230 AFTER 1974	CLOSED	2250	18				X
4240	CLOSED	2200	20				X
4240 AFTER 1979	CLOSED	2200	17				X
4320	CLOSED	2000	14				X
4430	CLOSED	2000	18				X
4430 AFTER 1974	CLOSED	2250	18				X
4440	CLOSED	2200	20				X
4440 AFTER 1979	CLOSED	2200	17				X
4620	CLOSED	2000	15				X
4630	CLOSED	2000	18				X
4630 AFTER 1974	CLOSED	2250	18				X
4640	CLOSED	2200	20				X
4640 AFTER 1979	CLOSED	2200	12				X
4840	CLOSED	2200	20				X
4840 AFTER 1979	CLOSED	2200	17				X
5020	CLOSED	2000	15				X
6030	CLOSED	2000	18				X
6030 1975	CLOSED	2000	15				X
6030 AFTER 1975	CLOSED	2250	15				X

(1) TRACTOR SERIAL NUMBERS THROUGH 266749.
(2) TRACTOR SERIAL NUMBERS BEGINNING WITH 266750.
DO NOT USE METERING ORIFICES ON ANY JOHN DEERE CLOSED CENTER HYDRAULIC SYSTEMS. USE TORTOISE HARE CONTROL TO REGULATE FLOW IF AVAILABLE.

DEUTZ							
D3006	OPEN	2490	7.2(2)				
D4006	OPEN	2490	6.4(2)				
D4506	OPEN	2485	7.3(2)				
D5206	OPEN	2572	7.2(2)				
D5506	OPEN	2490	Unknown(2)				
D6006	OPEN	2490	Unknown(2)				
D6006 AFTER 1974	OPEN	2840	Unknown(2)				
D6206	OPEN	2485	7.5(2)				
D6806	OPEN	2940	9.2(2)				
D7206	OPEN	2939	Unknown(2)				
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)				
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.		
1300	OPEN	2133	4.3		X(1)		
1500	OPEN	2133	4.0		X(1)		

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)**						
1600	OPEN	1400	4.2		X(1)		
1700	OPEN	2133	5.3		X		
1900	OPEN	2133	5.9		X		
2000	OPEN	2500	4		X(1)		
2600	OPEN	2100	8.5	X			(2)
2610	OPEN(3)	2000	8.5(3)	X			(2)
3000	OPEN	2500	5		X		
3600	OPEN	2100	8.5	X			(2)
3610	OPEN(3)	2000	8.5(3)	X			(2)
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-10	OPEN	2200	16.2	X			
TW-20	OPEN	2200	15.5	X			
TW-30	OPEN	2200	15.5	X			
TW-30 AFTER 1979	OPEN	2200	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			
826GEAR 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			
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			

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
(IH-continued)							
1586 AFTER NOV., 1980	CLOSED (LS)	2650	18				X
3388	CLOSED (LS)	2650	18				X
3588	CLOSED (LS)	2650	18				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)		
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)		
MF275-D	CLOSED (3)	3000	4(2)		X(5)		
MF285	CLOSED (3)	3100	7(2)		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		
MF1150-D	CLOSED	2100	20(4)		X		
MF1155	CLOSED	2100	20(4)		X		
MF-2675	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			

(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.

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 (continued)							
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		
* 2-60	OPEN	2130	5.5		X		
* 2-62	OPEN	2275	8.5				X
* 2-70	OPEN	2130	5.5		X		
* 2-70 ROW CROP	OPEN	2050	11(4)	X			(1)
* 2-85	CLOSED	2250	18(2)		X		
* 2-105	CLOSED	2250	18(2)		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

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)

(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.

CASE-DAVID BROWN							
995	OPEN	Unknown	7.3				X
1210	OPEN	Unknown	6.8(1)				X

(1) FOR USE ON HYDRAULIC SYSTEM WITH OPTIONAL HYDRAULIC PUMP WITH 15.5 GPM AVAILABILITY USE LARGER HYDRAULIC MOTOR HM1.

J.I. CASE							
1410	OPEN	2500	15.5	X			
2090	CLOSED (LS)	2250	22	(1)		X	
2290	CLOSED (LS)	2250	22	(1)		X	

(1) IF OTHER IMPLEMENTS ARE TO BE USED REQUIRING MORE THAN 4 GPM OIL, USE SMALLER HYDRAULIC MOTOR HM1.

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

(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.

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	

(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.

INTERNATIONAL HARVESTER							
HYDRO-100	OPEN	2000	13	X			
600DT	OPEN	2150	5.8		X		
756	OPEN	1550	12(1)	X		(2)	

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			X
886 AFTER NOV., 1980	CLOSED (LS)	2650	18				
966	OPEN	2000	12	X			
* 986	OPEN	2250	12	X			
* 986 AFTER 1979	OPEN	2250	13	X			X
986 AFTER NOV., 1980	CLOSED (LS)	2650	18				
* HYDRO-186	OPEN	2250	12	X			
1026	OPEN	2000	12	X			
1066	OPEN	2000	12	X			
* 1086	OPEN	2450	13	X			X
1086 AFTER NOV., 1980	CLOSED (LS)	2650	18				
1466	OPEN	2000	12	X			
* 1486	OPEN	2450	13	X			X
1486 AFTER NOV., 1980	CLOSED (LS)	2650	18				
* 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

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
4690	CLOSED (LS)	2250	24				X
4890	CLOSED (LS)	2250	24				X

(1) FOR SPRAYING PRESSURES IN EXCESS OF 60 P.S.I. USE SMALLER HYDRAULIC MOTOR HM1.

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
8640	CLOSED	2250	18(1)				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.

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	

(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.

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
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	

(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.

MINNEAPOLIS-MOLINE							
* A4T1400	CLOSED	2000	20				X
* A4T1600	CLOSED	2000	20				X

* FOR USE WITH CONTINUOUS DUTY EQUIPMENT, SUCH AS HYDRAULIC MOTOR, AUXILIARY COOLERS ARE REQUIRED.

OLIVER							
* 2655	CLOSED	2000	20				X

* FOR USE WITH CONTINUOUS DUTY EQUIPMENT, SUCH AS HYDRAULIC MOTOR, AUXILIARY COOLERS ARE REQUIRED.

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	
* 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	
* 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 ST350	OPEN	2250	20			X	
* PANTHER PT350	OPEN	2250	20			X	
* TIGER	OPEN	2000	25			X	
* TIGER ST450	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	

* 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			
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	
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	
850	OPEN	2000	20			X	
850 SERIES II	OPEN	2300	23.5			X	
855	OPEN	2300	23.5(1)			X	
875	OPEN	2300	23.5(1)			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	
950	OPEN	2300	25(1)			X	
950 SERIES II	OPEN	2300	25			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		

NOZZLE SPRAY CHART

TIP NO. CHECK VALVE NO.	LIQ. PRESS IN P.S.I.	SPRAY ANGLE	CAPACITY I-NOZZLE IN IMP. G. P.M.	IMPERIAL GALLONS PER ACRE – WATER (30" NOZZLE SPACING)								
				4 MPH	5 MPH	6 MPH	7 MPH	8 MPH	10 MPH	12 MPH	14 MPH	16 MPH
110015LP (4193A-5-50) (50 MESH)	15	105°	.10	5.0	4.0	3.3	2.9	2.5	2.0	1.7	1.4	1.3
	20	113°	.12	6.0	4.8	4.0	3.4	3.0	2.4	2.0	1.7	1.5
	30	119°	.16	7.8	6.2	5.2	4.5	3.9	3.1	2.6	2.2	2.0
	35	122°	.17	8.6	6.9	5.7	4.9	4.3	3.5	2.9	2.5	2.2
	40	124°	.19	9.4	7.5	6.3	5.4	4.7	3.8	3.1	2.7	2.4
11002LP (4193A-5-50) (50 MESH)	15	104°	.14	6.7	5.3	4.5	3.8	3.3	2.7	2.2	1.9	1.7
	20	112°	.16	8.0	6.4	5.4	4.6	4.0	3.2	2.7	2.3	2.0
	30	117°	.21	10.4	8.3	6.9	6.0	5.2	4.2	3.5	3.0	2.6
	35	119°	.23	11.5	9.2	7.7	6.6	5.7	4.6	3.8	3.3	2.9
	40	121°	.25	12.5	10.0	8.3	7.2	6.3	5.0	4.2	3.6	3.1
11003LP (4193A-5-50) (50 MESH)	15	104°	.20	10.1	8.1	6.7	5.8	5.1	4.0	3.4	2.9	2.4
	20	109°	.25	12.1	9.7	8.1	6.9	6.1	4.8	4.0	3.5	3.0
	30	115°	.32	15.6	12.7	10.4	8.9	7.8	6.2	5.2	4.5	3.9
	35	117°	.35	17.2	13.7	11.5	9.8	8.6	6.9	5.7	4.9	4.3
	40	119°	.38	18.7	14.9	12.4	10.7	9.3	7.5	6.2	5.3	4.7
11004LP (4193A-5-50) (50 MESH)	15	104°	.27	13.3	10.7	8.9	7.6	6.7	5.3	4.5	3.8	3.3
	20	109°	.32	15.9	12.7	10.6	9.1	7.6	6.7	5.3	4.5	4.0
	30	114°	.41	20	16.2	13.5	11.6	10.1	8.1	6.8	5.8	5.1
	35	116°	.45	22	17.8	14.9	12.7	11.1	8.9	7.4	6.4	5.6
	40	118°	.49	24	19.3	16.1	13.8	12.1	9.7	8.1	6.9	6.0
11005LP (4193A-5-50) (50 MESH)	15	103°	.34	16.8	13.4	11.2	9.6	8.4	6.7	5.6	4.8	4.2
	20	108°	.40	19.8	15.8	13.2	11.3	9.9	7.9	6.6	5.6	4.9
	30	114°	.50	25	19.9	16.6	14.2	12.5	10.0	8.3	7.1	6.2
	35	116°	.55	27	22	18.1	15.6	13.6	10.9	9.1	7.8	6.8
	40	118°	.59	29	23	19.6	16.8	14.7	11.8	9.8	8.4	7.3
11006LP (11750-5)	15	105°	.40	19.7	15.7	13.1	11.2	9.8	7.9	6.6	5.6	4.9
	20	110°	.47	23	18.9	15.6	13.4	11.7	9.3	7.8	6.7	5.8
	30	115°	.60	30	24	19.9	17.0	14.9	11.9	9.9	8.5	7.5
	35	118°	.66	33	26	22	18.7	16.4	13.1	10.9	9.3	8.2
	40	120°	.72	35	28	24	20	17.7	14.2	11.8	10.1	8.9
11008LP (11750-5)	15	104°	.52	26	21	17.2	14.7	12.9	10.3	8.6	7.4	6.4
	20	109°	.62	31	25	20	17.5	15.3	12.3	10.2	8.8	7.7
	30	115°	.79	39	31	26	22	19.5	15.6	13.0	11.2	9.8
	35	118°	.87	43	34	29	25	21	17.2	14.3	12.3	10.7
	40	119°	.94	46	37	31	27	23	18.6	15.3	13.3	11.6
11010LP (11750-5)	15	104°	.64	32	25	21	18.1	15.8	12.7	10.6	9.0	7.9
	20	109°	.76	38	30	25	22	18.8	15.1	12.6	10.6	9.4
	30	115°	.97	48	38	32	27	24	19.2	16.0	13.7	12.0
	35	118°	1.1	53	42	35	30	26	21	17.6	15.1	13.2
	40	119°	1.2	57	46	38	33	29	23	19.0	16.3	14.3
11015LP (11750-5)	15	104°	.92	45	36	30	26	23	18.2	15.2	13.0	11.4
	20	109°	1.1	54	43	36	31	27	22	18.0	15.4	13.5
	30	115°	1.4	69	55	46	39	34	28	23	19.7	17.2
	35	117°	1.5	76	61	50	43	38	30	25	22	18.9
	40	118°	1.7	82	66	55	47	41	33	27	23	20
11020LP (11750-5)	15	104°	1.2	57	46	38	33	29	23	19.1	16.4	14.4
	20	109°	1.4	68	55	45	39	34	27	23	19.5	17.1
	30	115°	1.8	87	70	58	50	44	35	29	25	22
	35	117°	1.9	96	76	64	55	48	38	32	27	24
	40	118°	2.1	103	83	69	59	52	41	34	30	26
CAPACITIES ARE BASED ON WATER AT TEMPERATURE OF 70° F.												

NOTE: 11006LP AND LARGER SIZE TIPS REQUIRE 17563 (RED) CAP.

HOSE LENGTH CHART

HARROW BAR

15 FT. A-FRAME WITH 500 GALLON TANK

11 FT. CENTRE TUBE – 1" HOSE x 180" RIGHT & LEFT HOSE BOOM
14 FT. CENTRE TUBE – 1" HOSE x 216" RIGHT & LEFT HOSE BOOM
AGITATOR – 1" HOSE x 44"
ANTI-VORTEX – 1½" HOSE x 16"
CENTRE BOOM – 1" HOSE x 52"

20 FT. A-FRAME WITH 500 GALLON TANK

11 FT. CENTRE TUBE – 1" HOSE x 216" RIGHT & LEFT HOSE BOOM
14 FT. CENTRE TUBE – 1" HOSE x 252" RIGHT & LEFT HOSE BOOM
AGITATOR – 1" HOSE x 44"
ANTI-VORTEX – 1½" HOSE x 16"
CENTRE BOOM – 1" HOSE x 52"

20 FT. A-FRAME WITH 833 GALLON TANK

11 FT. CENTRE TUBE – 1" HOSE x 216" RIGHT & LEFT HOSE BOOM
14 FT. CENTRE TUBE – 1" HOSE x 252" RIGHT & LEFT HOSE BOOM
AGITATOR – 1" HOSE x 84"
ANTI-VORTEX – 1½" 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 252" RIGHT & LEFT HOSE BOOM
AGITATOR – 1" HOSE x 101"
ANTI-VORTEX – 1½" HOSE x 87"
CENTRE BOOM – 1" HOSE x 52"

BOOM LENGTH CHART

HARROW BAR

	PART NO.
11 FT. CENTRE BOOM – 8'2" BOOM	50010
14 FT. CENTRE BOOM – 13'2" BOOM	50011

REGULAR WING BOOM

	PART NO.
11 FT. CENTRE – 33 FT. – 9'6" BOOM	50014
11 FT. CENTRE – 39 FT. – 11'9" BOOM	50015
11 FT. CENTRE – 44 FT. – 14'6" BOOM	50016
11 FT. CENTRE – 50 FT. – 18'0" BOOM	50017
11 FT. CENTRE – 53 FT. – 18'8" BOOM	50018
11 FT. CENTRE – 55 FT. – 19'10" BOOM	50019
14 FT. CENTRE – 56 FT. – 17'9" BOOM	50020
11 FT. CENTRE – 57 FT. – 21'7" BOOM	50021
11 FT. CENTRE – 60 FT. – 23'1" BOOM	50022
11 FT. CENTRE – 61 FT. – 23'1" BOOM	50022
11 FT. CENTRE – 66 FT. – 25'7" BOOM	50023
11 FT. CENTRE – 67 FT. – 25'7" BOOM	50023
11 FT. CENTRE – 70 FT. – 28'1" BOOM	50024
14 FT. CENTRE – 70 FT. – 24'8" BOOM	50025
11 FT. CENTRE – 77 FT. – 30'8" BOOM	50026
11 FT. CENTRE – 80 FT. – 33'0" BOOM	50027
11 FT. CENTRE – 81 FT. – 33'0" BOOM	50027
14 FT. CENTRE – 84 FT. – 32'3" BOOM	50028

SPLIT WING BOOM

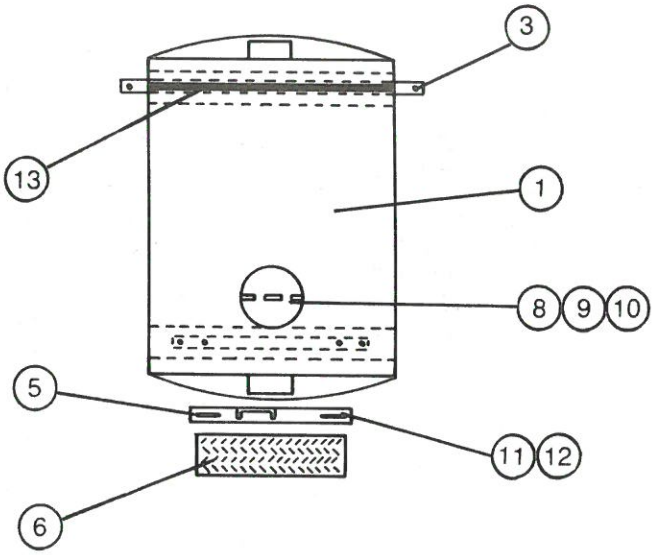
	PART NO
14 FT. CENTRE – 22'11" WING – 20'2" BOOM	50029
11 FT. CENTRE – 22'11" WING – 21'3" BOOM	50030
11 FT. CENTRE – 18'3" WING – 17'10" BOOM	50031
11 FT. CENTRE – 17'5" WING – 16'0" BOOM	50051
14 FT. CENTRE – 16'2" WING – 13'7" BOOM	50032
11 FT. CENTRE – 16'2" WING – 14'4" BOOM	50033
14 FT. CENTRE – 15'10" WING – 15'3" BOOM	50034
11 FT. CENTRE – 15'10" WING – 15'3" BOOM	50034
11 FT. CENTRE – 12'9" WING – 12'1" BOOM	50035
14 FT. CENTRE – 8'10" WING – 8'1" BOOM	50036

HARROW PACKER BAR

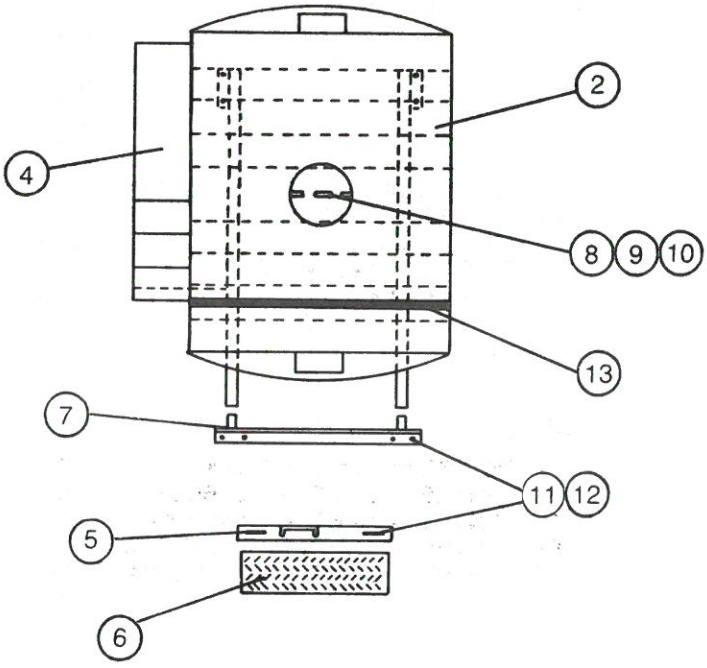
	PART NO.
11 FT. CENTRE BOOM – 8'2" BOOM	50010
11 FT. CENTRE – 33 FT. – 9'6" BOOM	50014
11 FT. CENTRE – 44 FT. – 14'6" BOOM	50016
11 FT. CENTRE – 55 FT. – 19'10" BOOM	50019
11 FT. CENTRE – 66 FT. – 25'7" BOOM	50023

TANK AND SADDLE

500 GALLON TANK

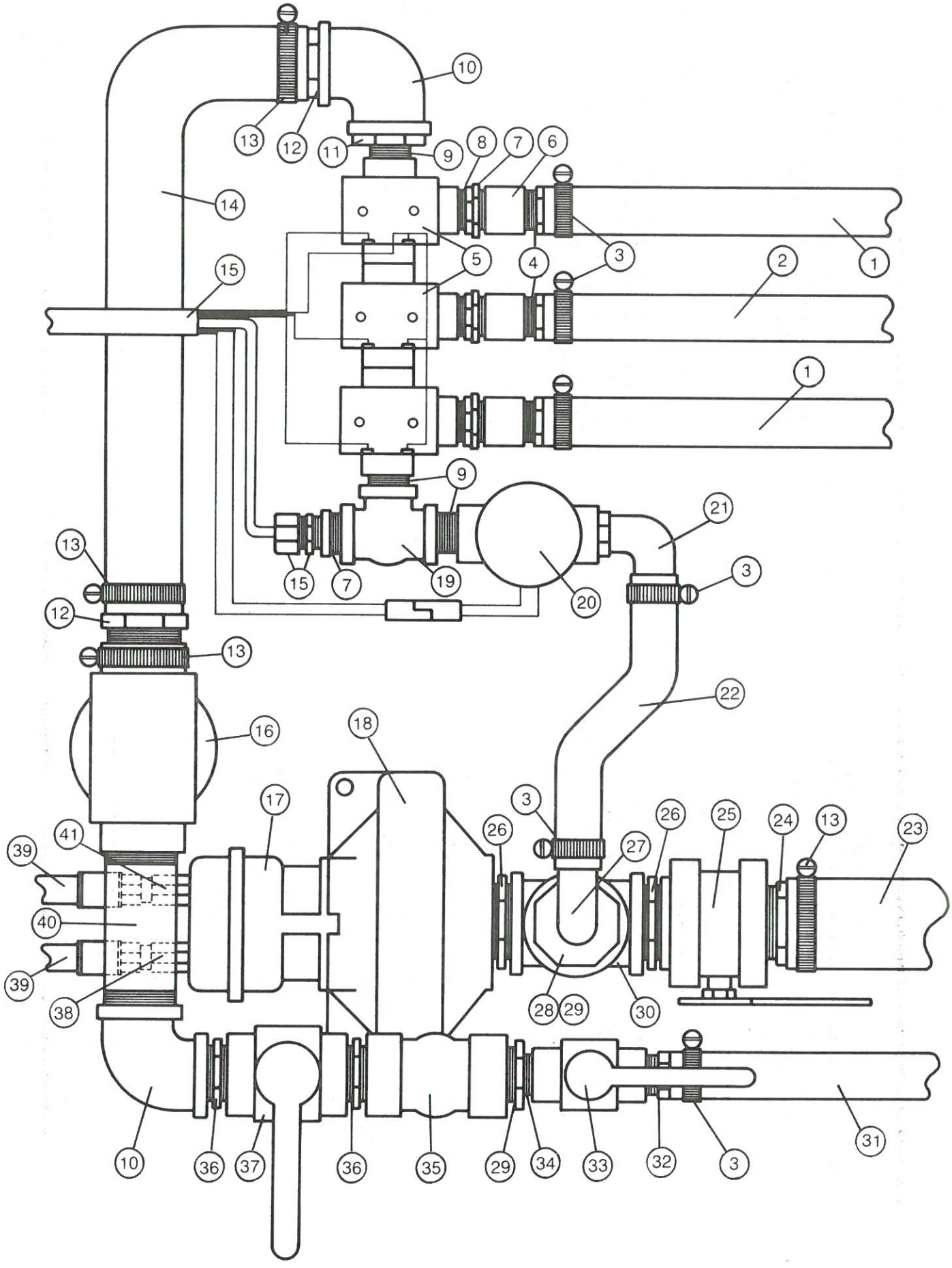


833 GALLON TANK



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
	50006	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 ½" x 3" x 7" (HARROW BAR)	6
	UB0850146	U-BOLT ½" x 3⅛" x 9" (HARROW PACKER BAR)	6
12	LN5C08P	LOCKNUT ½"	12
13	93005	TANK WEBBING SUPPORT KIT (COMPLETE)	2

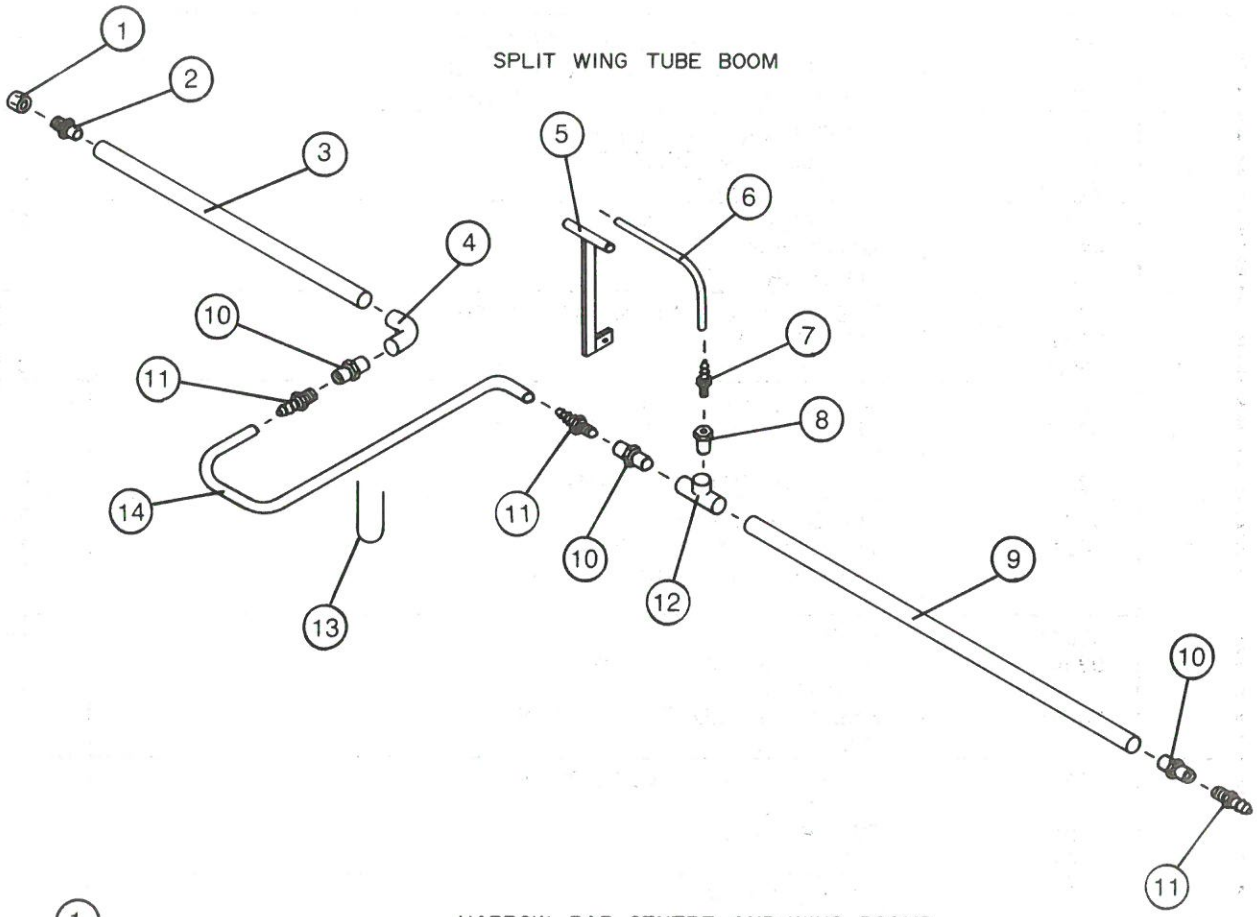
PUMP AND CONTROLS



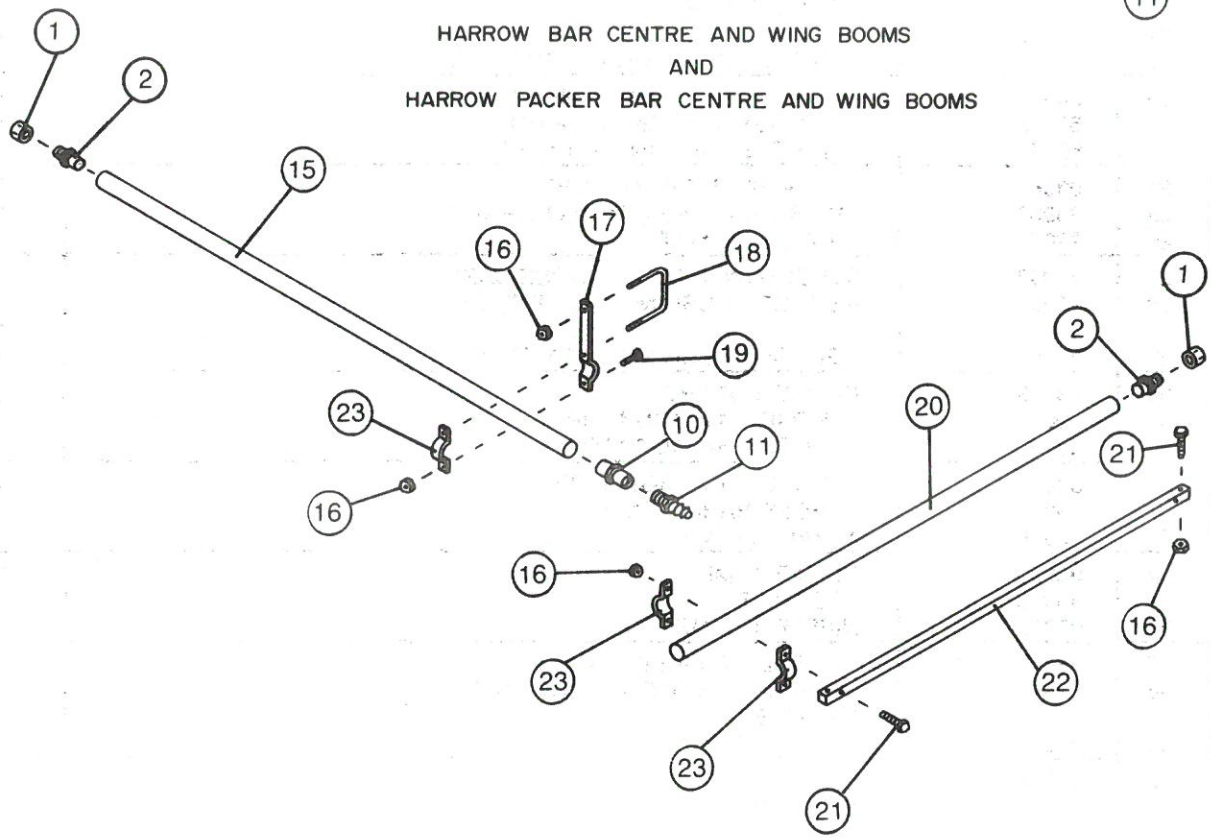
ITEM	PART NUMBER	DESCRIPTION	Nº
1	50037	1" HOSE x 180" RIGHT & LEFT BOOM	2
	50038	1" HOSE x 216" RIGHT & LEFT BOOM	2
	50039	1" HOSE x 252" RIGHT & LEFT BOOM	2
2	50040	1" HOSE x 52" CENTRE BOOM	1
	50041	1" HOSE x 108" CENTRE BOOM	1
3	93029	1" GEAR CLAMP	6
4	93030	1" HOSE BARB, ¾" MPT	3
5	93031	SOLENOIDS	3
6	93032	COUPLER ¾" FPT	3
7	93033	REDUCED BUSHING ¾" MPT, ½" FPT	4
8	93034	NIPPLE ½" MPT	3
9	93035	NIPPLE ¾" MPT	3
10	93036	90° ELBOW 1¼" FPT	2
11	93037	REDUCER BUSHING 1¼" MPT, ¾" FPT	1
12	93038	1¼" HOSE BARB, 1¼" MPT	2
13	93039	1½" GEAR CLAMP	4
14	50042	1¼" HOSE x 14" 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	HYDRAULC MOTOR C/W PUMP 9303C-HM3	1
18	93045	CENTRIFUGAL PUMP	1
19	93046	TEE ¾" FPT	1
20	93047	REGULATOR VALVE	1
21	93048	90° ELBOW ¾" MPT, 1" HOSE BARB	1
22	50043	1" HOSE x 3½" REGULATOR VALVE	1
23	50044	1½" HOSE x 16" ANTI-VORTEX	1
	50045	1½" HOSE x 66" ANTI-VORTEX	1
	50046	1½" HOSE x 87" ANTI-VORTEX	1
24	93049	1½" HOSE BARB, 1½" MPT	1
25	93050	1½" BALL VALVE (ANTI-VORTEX)	1
26	93051	NIPPLE 1½" MPT	2
27	93052	90° ELBOW 1" MPT, 1" HOSE BARB	1
28	93053	REDUCER BUSHING 1½" MPT, 1¼" FPT	1
29	93054	REDUCER BUSHING 1¼" MPT, 1" FPT	2
30	93055	CROSS 1½" FPT	1
31	50047	1" HOSE x 44" 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" BALL VALVE	1
34	93057	NIPPLE 1" MPT	2
35	93058	TEE 1¼" FPT	1
36	93059	NIPPLE 1¼" MPT	2
37	93060	1¼" BALL VALVE (THROTTLE)	1
38	93061	HYDRAULIC MOTOR PORT ADAPTOR C/W CHECK VALVE	1
39	90218	1½" HOSE ½" M - ½" M x 96"	2
40	93062	NIPPLE 1¼" MPT x 3"	1
41	93063	METERING ORIFICE	1

CENTRE & WING BOOMS

SPLIT WING TUBE BOOM



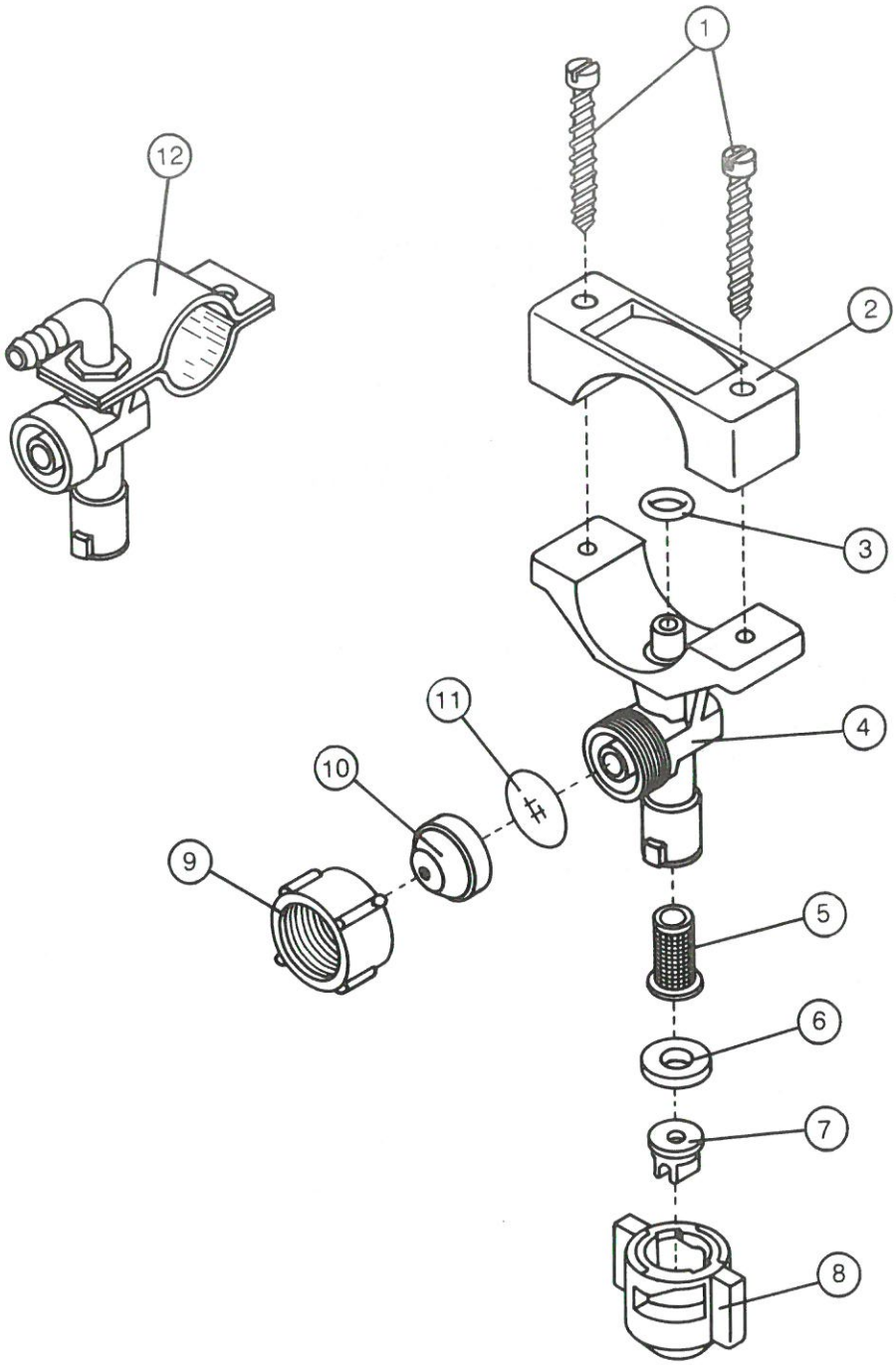
HARROW BAR CENTRE AND WING BOOMS
AND
HARROW PACKER BAR CENTRE AND WING BOOMS



ITEM	PART NUMBER	DESCRIPTION	Nº
1	93006	1" PVC CAP 1" FPT	*
2	93007	1" PVC ADAPTOR 1" MPT, 1" SOC	*
3		BACK SPLIT WING BOOM (SEE PAGE 22) (18'3" WING, 15'10" WING, 12'9" WING & 8'10" WING)	*
4	93008	90° ELBOW 1" PVC	2
5	50007	SPLIT WING NOZZLE BRACKET	2
6	50008	½" HOSE x 36"	2
7	93009	½" HOSE BARB, ½" MPT	2
8	93010	REDUCER BUSHING ½" FPT, 1" SOC	2
9		FRONT SPLIT WING BOOM (SEE PAGE 22) (22'11" WING, 17'5" WING, & 16'2" WING)	*
10	93011	1" PVC ADAPTOR 1" FPT, 1" SOC	*
11	93012	1" HOSE BARB, 1" MPT	*
12	93013	1" PVC TEE	2
13	93014	TIE STRAPS	*
14	50009	1" HOSE x 60"	2
15		REGULAR SIZE BOOM (SEE PAGE 22)	*
16	LN5C06P	LOCK NUT ⅜"	*
17	50050	WING TUBE CLAMP	*
18	UB069684	U-BOLT ⅜" x 6" x 5¼"	*
19	B5C0616P	BOLT ⅜" x 1"	*
20	50010	8'2" CENTRE BOOM 15 FT. A-FRAME	1
	50011	13'2" CENTRE BOOM 20 FT. A-FRAME	1
21	B5C0628P	BOLT ⅜" x 1¾"	*
22	50012	CENTRE BOOM SUPPORT	1
23	50013	BOOM CLAMP	*

* AS REQUIRED

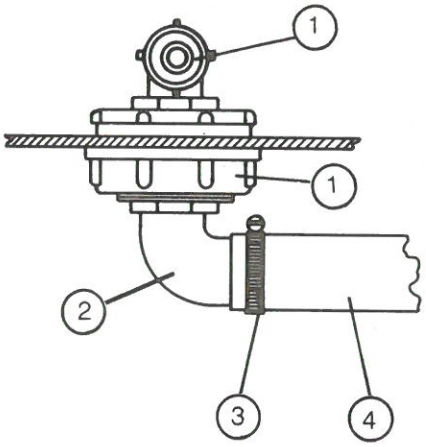
NOZZLES

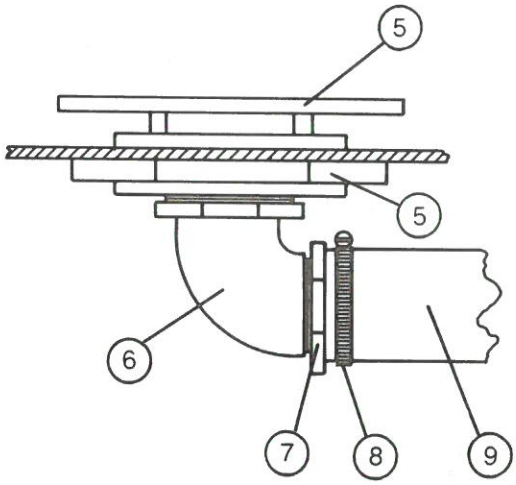


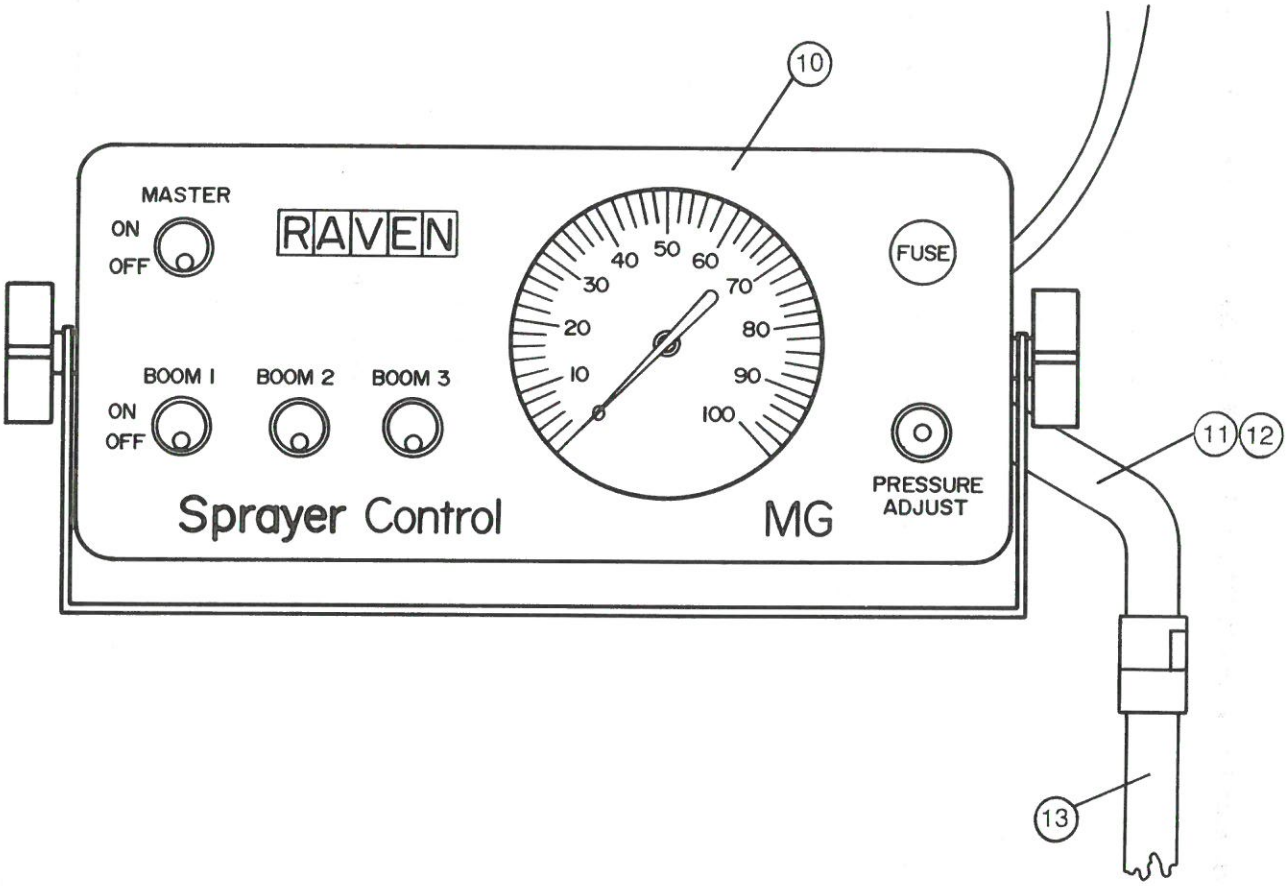
ITEM	PART NUMBER	DESCRIPTION	Nº
1	93015	SCREWS	2
2	93016	UPPER CLAMP	1
3	93017	O-RING	1
4	93018	MAIN BODY	1
5	93019	TEEJET STRAINER	1
6	93020	SEAT WASHER	1
7	93021	SPRAY TIP (11003LP)	1
8	93022	CAP (YELLOW) (OTHER COLOR CAPS AVAILABLE)	1
9	93023	RETAINER	1
10	93024	END CAP	1
11	93025	DIAPHRAGM	1
12	93026	SPLIT WING NOZZLE BODY	1
	93027	SPRAY NOZZLE COMPLETE ITEMS #1 TO 11	*
	93028	SPLIT WING NOZZLE COMPLETE ITEMS #5 TO 12	*

* AS REQUIRED

AGITATOR, ANTI-VORTEX, 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 1½" MPT, 1½" FPT	1
7	93049	1½" HOSE BARB, 1½" MPT	1
8	93039	1½" GEAR CLAMP HS24	1
9	50044	1½" HOSE x 16" ANTI-VORTEX	1
	50045	1½" HOSE x 66" ANTI-VORTEX	1
	50046	1½" 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

PARTS INDEX

PART #	PAGE	ITEM	DESCRIPTION
50001	24	3	500 Gallon Saddle
50002	24	4	833 Gallon Saddle
50003	24	5	Pump and Control Plate
50004	24	6	Pump Guard
50005	24	7	Saddle Support 15 ft. A-Frame
50006	24	7	Saddle Support 20 ft. A-Frame
50007	28	5	Split Wing Nozzle Bracket
50008	28	6	½" Hose x 36" Split Wing
50009	28	14	1" Hose x 60" Split Wing
50010	22		8'2" Spray Boom - 11 ft. Centre
50010	28	20	8'2" Spray Boom - 11 ft. Centre
50011	22		13'2" Spray Boom - 14 ft. Centre
50011	28	20	13'2" Spray Boom - 14 ft. Centre
50012	28	22	Centre Boom Support
50013	28	23	Boom Clamp
50014	22		9'6" Spray Boom for 33 ft.
50015	22		11'9" Spray Boom for 39 ft.
50016	22		14'6" Spray Boom for 44 ft.
50017	22		18'0" Spray Boom for 50 ft.
50018	22		18'8" Spray Boom for 53 ft.
50019	22		19'10" Spray Boom for 55 ft.
50020	22		17'9" Spray Boom for 56 ft.
50021	22		21'7" Spray Boom for 57 ft.
50022	22		23'1" Spray Boom for 60 & 61 ft.
50023	22		25'7" Spray Boom for 66 & 67 ft.
50024	22		28'1" Spray Boom for 70 ft.
50025	22		24'8" Spray Boom for 70 ft.
50026	22		30'8" Spray Boom for 77 ft.
50027	22		33'0" Spray Boom for 80 & 81 ft.
50028	22		32'3" Spray Boom for 84 ft.
50029	22		20'2" Spray Boom for Front Split Wing
50030	22		21'3" Spray Boom for Front Split Wing
50031	22		17'10" Spray Boom for Back Split Wing
50032	22		13'7" Spray Boom for Front Split Wing
50033	22		14'4" Spray Boom for Front Split Wing
50034	22		15'3" Spray Boom for Back Split Wing
50035	22		12'1" Spray Boom for Back Split Wing
50036	22		8'1" Spray Boom for Back Split Wing
50037	26	1	1" Hose x 180" Right & Left Boom
50038	26	1	1" Hose x 216" Right & Left Boom
50039	26	1	1" Hose x 252" Right & Left Boom
50040	26	2	1" Hose x 52" Centre Boom
50041	26	2	1" Hose x 108" Centre Boom
50042	26	14	1¼" Hose x 14" Filter
50043	26	22	1" Hose x 3½" Regulator Valve
50044	26	23	1½" Hose x 16" Anti-Vortex
50044	32	9	1½" Hose x 16" Anti-Vortex
50045	26	23	1½" Hose x 66" Anti-Vortex
50045	32	9	1½" Hose x 66" Anti-Vortex
50046	26	23	1½" Hose x 87" Anti-Vortex
50046	32	9	1½" Hose x 87" Anti-Vortex
50047	26	31	1" Hose x 44" Agitator
50047	32	4	1" Hose x 44" Agitator
50048	26	31	1" Hose x 84" Agitator
50048	32	4	1" Hose x 84" Agitator
50049	26	31	1" Hose x 101" Agitator
50049	32	4	1" Hose x 101" Agitator
50050	28	17	Wing Tube Clamp
50051	22		16'0" Spray Boom for Front Split Wing
90218	26	39	½" Hose ½" m - ½" m x 96"
93000	24	1	500 Gallon Tank
93001	24	2	833 Gallon Tank
93002	24	8	Tank Lid
93003	24	9	Tank Lid Strainer
93004	24	10	Centre Cover
93005	24	13	Tank Webbing Support Kit
93006	28	1	1" PVC Cap 1" FPT
93007	28	2	1" PVC Adaptor 1" MPT, 1" SOC
93008	28	4	90° ELBOW 1" PVC
93009	28	7	½" Hose Barb, ½" MPT
93010	28	8	Reducer Bushing ½" FPT, 1" SOC
93011	28	10	1" PVC Adaptor 1" FPT, 1" SOC
93012	26	32	1" Hose Barb, 1" MPT
93012	28	11	1" Hose Barb, 1" MPT
93013	28	12	1" PVC Tee
93014	28	13	Tie Straps
93015	30	1	Nozzle Screws
93016	30	2	Upper Clamps
93017	30	3	O-Ring
93018	30	4	Main Body
93019	30	5	Teejet Strainer
93020	30	6	Seat Washer
93021	30	7	Spray Tip (11003LP)
93022	30	8	Cap (Yellow)
93023	30	9	Retainer
93024	30	10	End Cap
93025	30	11	Diaphragm
93026	30	12	Split Wing Nozzle Body
93027	30		Spray Nozzle Complete 11003LP
93028	30		Split Wing Nozzle Complete
93029	26	3	1" Gear Clamp HS16
93029	32	3	1" Gear Clamp HS16
93030	26	4	1" Hose Barb, ¾" MPT
93031	26	5	Solenoids
93032	26	6	Coupler ¾" FPT
93033	26	7	Reducer Bushing ¾" MPT, ½" FPT
93034	26	8	Nipple ½" MPT
93035	26	9	Nipple ¾" MPT
93036	26	10	90° Elbow 1¼" FPT

PART #	PAGE	ITEM	DESCRIPTION
93037	26	11	Reducer Bushing 1¼" MPT, ¾" FPT
93038	26	12	1¼" Hose Barb, 1¼" MPT
93039	26	13	1½" Gear Clamp HS16
93039	32	8	1½" Gear Clamp HS16
93040	26	15	Solenoid Harness
93040	32	13	Solenoid Harness
93041	26	16	Filter
93042	26	17	Hydraulic Motor 9303C-HM1
93043	26	17	Hydraulic Motor 9303C-HM2
93044	26	17	Hydraulic Motor 9303C-HM3
93045	26	18	Centrifugal Pump
93046	26	19	Tee ¾" FPT
93047	26	20	Regulator Valve
93048	26	21	90° Elbow 1" Hose Barb, ¾" MPT
93049	26	24	1½" Hose Barb, 1½" MPT
93049	32	7	1½" Hose Barb, 1½" MPT
93050	26	25	1½" Ball Valve Anti-Vortex
93051	26	26	Nipple 1½" MPT
93052	26	27	90° Elbow 1" Hose Barb, 1" MPT
93052	32	2	90° Elbow 1" Hose Barb, 1" MPT
93053	26	28	Reducer Bushing 1½" MPT, 1¼" FPT
93054	26	29	Reducer Bushing 1¼" MPT, 1" FPT
93055	26	30	Cross 1½" FPT
93056	26	33	1" Ball Valve
93057	26	34	Nipple 1" MPT
93058	26	35	Tee 1¼" FPT
93059	26	36	Nipple 1¼" MPT
93060	26	37	1¼" Ball Valve (Throttle)
93061	26	38	Port Adaptor c/w Check Valve
93062	26	40	Nipple 1¼" MPT x 3"
93063	26	41	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 Monitor Harness
93069	32	12	Sprayer Control Monitor Harness Extension
B5C0616P	28	19	Bolt ⅜" x 1"
B5C0628P	28	21	Bolt ⅜" x 1¾"
LN5C06P	28	16	Locknut ⅜"
LN5C08P	24	12	Locknut ½"
UB069684	28	18	U-Bolt ⅜" x 6" x 5¼"
UB0848112	24	11	U-Bolt ½" x 3" x 7"
UB0850146	24	11	U-Bolt ½" x 3⅛" x 9"