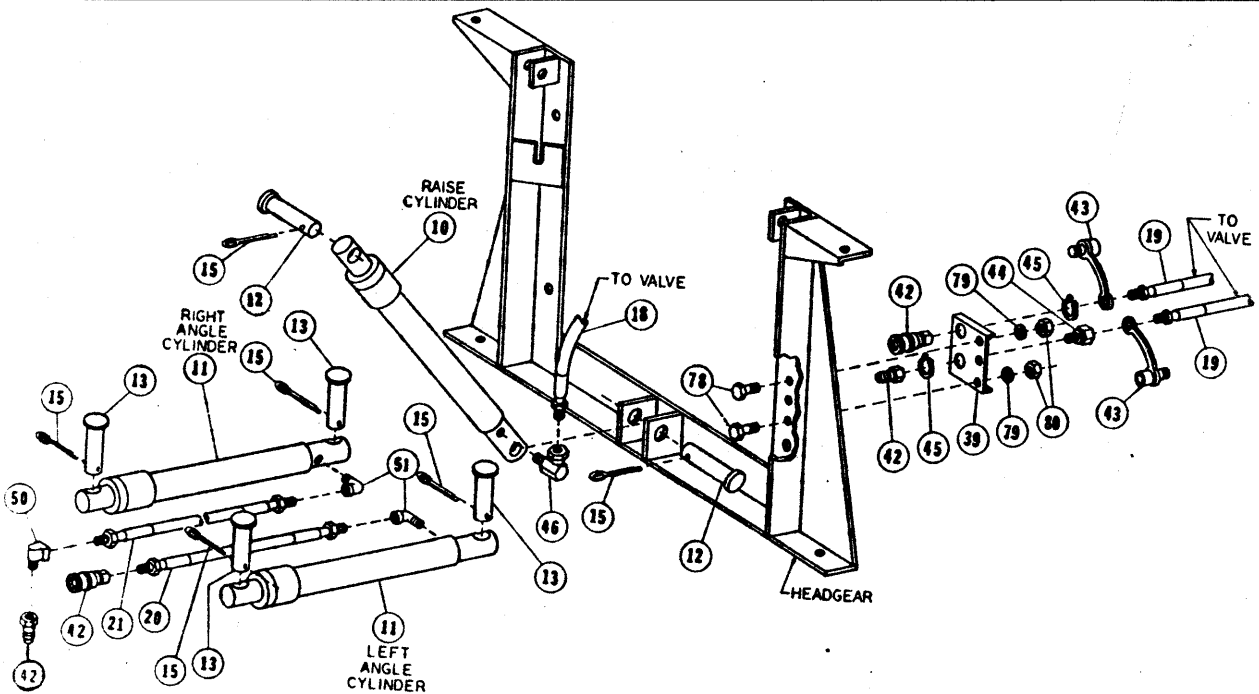
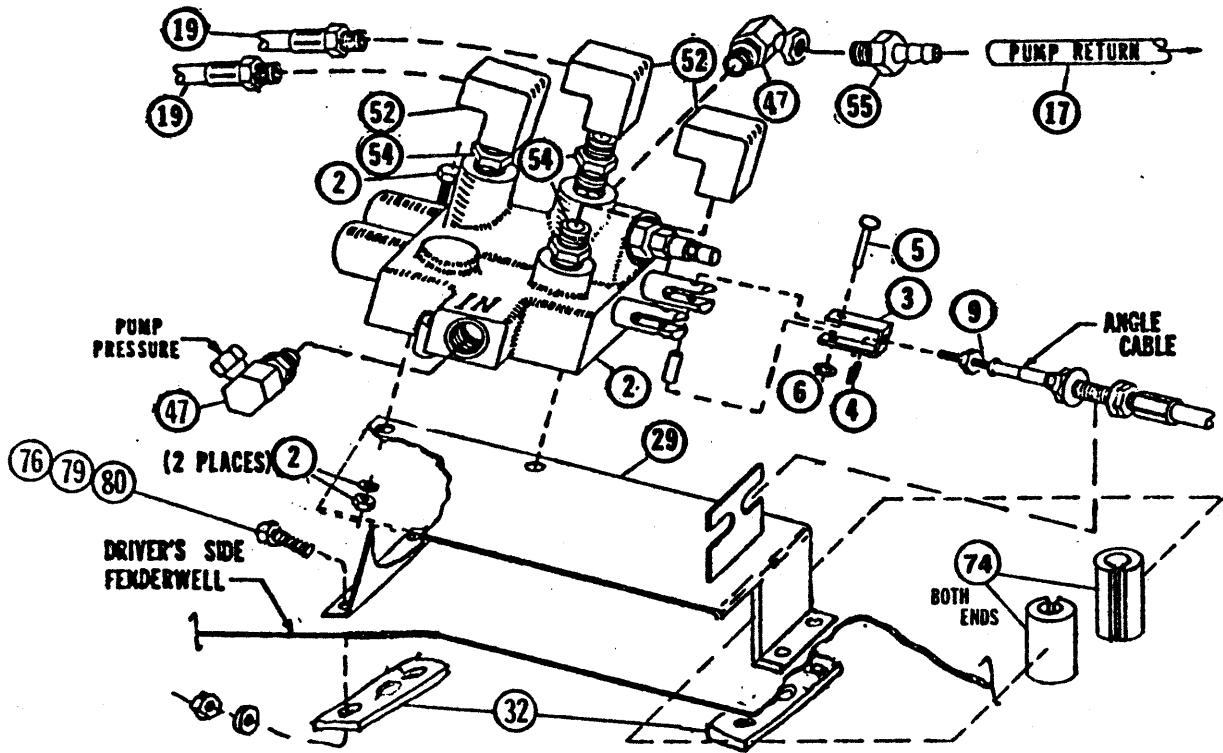


6295






## HYDRAULICS PARTS LIST

HPS4592 REV B  
A4468

REF#	QTY IN KIT A4468-40 HPS4592	PART#	DESCRIPTION * PART OF 6914 BOLT BAG
1	1	A2311	PUMP TANK ASSEMBLY
2	1	A4466	CONTROL VALVE ASSEMBLY
3	2	4483	CLEVIS
4	2	4494	10-32 SQUARE NUT
5	2	4491	CLEVIS PIN - 3/16 X 1
6	2	4493	3/16 PUSH NUT
7	1	8764	FILTER KIT (AT END OS INSTRUCT.)
8		4419	SINGLE LEVER CONTROL HEAD
9		4949	30" CONTROL CABLE, SLC
10	1	A318	10" LIFT CYLINDER ASSEMBLY
11	2	A3660	12" ANGLE CYLINDER ASSEMBLY
12	2	6814	CLEVIS PIN - 1 X 3-5/16
13	4	6816	ANCHOR PIN - 1 X 4
14			
15	6	90601	1/4 X 1-1/2 COTTER PIN
16		2502	42" H.P. HOSE, 3/8P TO 1/4P
17		1687	42" L.P. HOSE
18		5192	60" H.P. HOSE, 1/4P TO 1/4P
19		5193	54" H.P. HOSE, 1/4P TO 1/4P
20		376	32" H.P. HOSE, 1/4P TO 1/4P
21		4424	36" H.P. HOSE, 1/4P TO 1/4P
22		* 6527	FAN SPACER
23		1723	FAN BELT, 41"
24		5625	DRIVE SHEAVE
25		7909	PUMP SHEAVE
26		6525	PUMP BRACKET
27		6526	PUMP BRACKET BRACE
28		7093	E.E.C. BRACKET
29		5178	VALVE PLATE
30			
31			
32		6031	BACKING PLATE
33		* 6018	BOLTING BAR
34			
35		4921	SADDLE BRACKET
36	1	2036	REAR TANK STRAP
37	1	2116	UNIVERSAL BRACE ROD
38		* 2115	UNIVERSAL BRACE TAB
39		4467	DISCONNECT MOUNTING PLATE
40			
41			
42	2	A1587	DISCONNECT ASSEMBLY
43	2	1588	DUST PLUG
44		* 4486	BULKHEAD ADAPTER
45		* 4485	7/8" SNAP RING
46	1	319	1/4" X 90 SWIVEL ADAPTER
47	2	2315	9/16 O.R. TO 3/8P X 90 SWL.ADPT.
48			
49			

REF#	QTY IN KIT A4468-40 HPS4592		PART#	DESCRIPTION * PART OF 6914 BOLT BAG
50		1	* 765	1/4" BRASS BAR STREET ELL
51	2		2780	1/4" BRASS BAR STREET ELL (FORGED)
52		4	* 2318	1/4" BRASS BAR ELL (F/F)
53				
54		3	* 3058	9/16" O.R. TO 1/4" ST. ADAPTER
55	2		1658	QUILL
56				
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70				
71				
72		1	5704	SAFETY DECAL
73	1	2	3042	GROMMET
74	1	2	4477	SPLIT HOSE GROMMET
75	3		3666	TIE WRAPS 3/16 X 8
76		5	*90048	5/16 X 1-1/4 (NC) GR.5 CAPSCREW
77	1		90054	5/16 X 1-1/2 (NC) GR.5 CAPSCREW
78	4		90442	5/16 X 1 (NC) GR.5 CAPSCREW
79	6	8	*90360	5/16 LOCKWASHER
80	7	8	*90332	5/16 (NC) NUT
81	4		90313	5/16 FLATWASHER
82		4	* 5743	5/16 STUD
83		4	*90461	1/4 X 3/4 (NC) GR.5 CAPSCREW
84	1		90614	1/4 X 1-1/4 (NC) GR.5 CAPSCREW
85	1	4	*90359	1/4 LOCKWASHER
86	1	4	*90330	1/4 (NC) NUT
87				
88		1	*90612	1/4 X 1 (NC) GR.5 CAPSCREW
89		1	*90106	3/8 X 1-1/4 (NC) GR. 5 CAPSCREW
90		1	*90619	3/8 X 2-1/2 (NC) GR. 5 CAPSCREW
91		2	*90361	3/8 LOCKWASHER
92		1	*90334	3/8 (NC) NUT
93		1	*90315	3/8 FLATWASHER
94				
95				
96				
97				
98				

DIAMETER- THREADS PER INCH	GRADE		
			
	G2	G3	G8
1/4 - 20	6	9	13
5/16 - 18	11	18	28
3/8 - 16	19	31	46
7/16 - 14	30	50	75
1/2 - 13	45	75	115
9/16 - 12	66	110	165
5/8 - 11	93	150	225
9/16 - 12	150	250	370
7/8 - 9	150	378	591
1 - 8	220	583	893

**1. CYLINDER AND CYLINDER HOSE ASSEMBLY**

**A.** USING BENCH VISE TO HOLD LIFT CYLINDER (10), REMOVE CLOSURE FROM PORT. SCREW 90 DEGREE SWIVEL ADAPTOR (46) INTO PORT. PLACE LIFT CYLINDER WITH INSTALLED ADAPTOR BETWEEN EARS ON UNDERSIDE OF LIFT ARM AND LOWER HEADGEAR EARS. ATTACH CYLINDER TO EARS USING CLEVIS PINS (12) AND COTTER PINS (15).

**B.** USING BENCH VISE TO HOLD 32" H.P. HOSE (20), INSTALL FEMALE HALF OF HOSE DISCONNECT ASSEMBLY (42) DIRECTLY TO HOSE. THEN, HOLDING 36" H.P. HOSE (21), INSTALL BRASS BAR STREET ELL (50) AND MALE HALF OF HOSE DISCONNECT ASSEMBLY (42) ON THE SAME HOSE END.

**C.** USING BENCH VISE TO HOLD ANGLE CYLINDERS (11), REMOVE CLOSURES FROM PORTS. SCREW BRASS FORGED STREET ELLS (51) INTO PORTS. ELLS SHOULD BE PARALLEL WITH CYLINDER AND POINTED TOWARD LIVE END. INSTALL 32" H.P. HOSE WITH FEMALE DISCONNECT HALF TO DRIVER SIDE ANGLE CYLINDER STREET ELL. INSTALL OTHER H.P. HOSE WITH MALE DISCONNECT HALF TO PASSENGER SIDE ANGLE CYLINDER STREET ELL. INSTALL ANGLE CYLINDERS TO "A" FRAME ON THEIR RESPECTIVE SIDES SO THAT ELLS ARE BETWEEN CYLINDERS AND "A" FRAME. SECURE CYLINDERS WITH ANCHOR PINS (13) AT PORT END AND RAM END. SECURE ANCHOR PINS WITH COTTER PINS (15).

**2. CONTROL HEAD AND CONTROL CABLES**

**NOTE:** DASH BRACKET, HARDWARE, DRILLING GUIDE AND MOUNTING INSTRUCTIONS WILL BE FOUND IN PECULIAR ATTACHING BOX.

**A.** DRILL THREE 5/8" HOLES IN FIREWALL FOR CONTROL CABLES AND WIRING HARNESS USING DRILLING GUIDE AS A REFERENCE ONLY. BE SURE BOTH SIDES OF FIREWALL ARE CLEAR OF OBSTRUCTIONS BEFORE DRILLING. DRILL 1/2" HOLE IN UNDERSIDE OF DASH AS SHOWN IN DASH ILLUSTRATION.

**B.** INSTALL DASH BRACKET AS PER DASH BRACKET INSTRUCTIONS.

**C.** LOOSEN JAM NUTS ON CONTROL HEAD END OF CABLES (9) AND INSTALL INTO SLOTS IN CONTROL HEAD (8). (RAISE CABLE CENTERS IN BEGINNING OF LOWER SLOT). SNAP CABLE ENDS ONTO BALL STUDS AND TIGHTEN JAM NUTS TO SECURE CABLES TO CONTROL HEAD. REMOVE THE NUTS AND WASHERS FROM THE VALVE END OF THE CABLES. ROUTE THE CABLES OUT THROUGH THE FIREWALL UP TO THE TOP OF THE DRIVER SIDE FENDERWELL. ATTACH CONTROL HEAD TO DASH BRACKET AS PER DASH BRACKET INSTRUCTIONS. INSTALL RUBBER GROMMETS (73) AROUND CABLES WHERE THEY PASS THROUGH FIREWALL.

**3. VALVE AND VALVE PLATE**

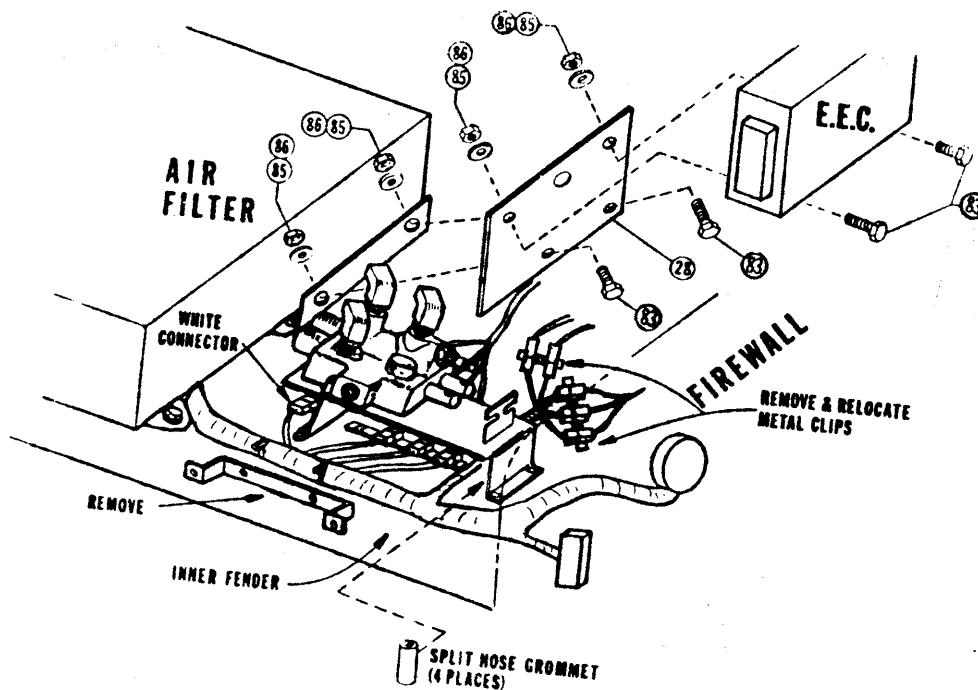
**A.** HOLD CONTROL VALVE ASSEMBLY (2) IN BENCH VISE & REMOVE CLOSURES FROM VALVE PORTS. SCREW 90 DEGREE SWIVEL ADAPTOR UNIONS (47) INTO "IN" & "OUT" PORTS. SCREW QUILL (55) INTO INSTALLED ADAPTOR IN "OUT" PORT.

**NOTE:** VALVE FITTINGS ARE INSTALLED AS DESCRIBED TO INSURE PROPER INSTALLATION. FIRST INDICATION OF INCORRECT INSTALLATION IS FAILURE OF PLOW TO LIFT ALTHOUGH PLOW WILL ANGLE.

INSTALL THREE 9/16 O-RING TO 1/4" PIPE ADAPTORS (54) IN LIFT AND ANGLE PORTS. INSTALL ONE 1/4" BRASS BAR ELL (52) TO EACH ADAPTOR. WHEN TIGHT, ELLS SHOULD POINT AWAY FROM CABLE END OF VALVE.

**B. 1988 VEHICLES:** LOCATE AND REMOVE E.E.C. TEST WIRING AND LARGER BOX BESIDE IT FROM BRACKET BEHIND AIR CLEANER. THESE PARTS WILL BE REATTACHED LATER.

**1989 VEHICLES:** FIND THE LARGE WIRING HARNESS LOCATED ON THE DRIVER'S SIDE INNER FENDER AFT OF THE AIR CLEANER. UNFASTEN HARNESS FROM SUPPORT BRACKET AND REMOVE BRACKET. REMOVE E.E.C. (ELECTRONIC ENGINE CONTROL) BAR FROM BRACKET. REAM EXISTING HOLES ON BRACKET (28) TO 9/32". INSTALL E.E.C. BRACKET (28) TO BACK OF ORIGINAL BRACKET MAKING SURE THAT THE TOP THREE HOLES ARE LOCATED TOWARD THE DRIVERS SIDE FENDERWELL. FASTEN BRACKET WITH TWO 1/4 X 3/4 CAPSCREWS (83), LOCKWASHERS (85), AND NUTS (86). ATTACH E.E.C. BAR TO TOP HOLES OF E.E.C. BRACKET USING TWO 1/4 X 3/4 CAPSCREWS(83), LOCKWASHERS(85), AND NUTS(86). REMOVE FORWARD MOST WHITE WIRE CONNECTOR FROM ROW OF CONNECTORS ATTACHED TO METAL CLIPS. THIS CONNECTOR SHOULD BE PLACED FORWARD OF VALVE PLATE WHEN INSTALLED. DISCONNECT THE TWO AFT ELECTRICAL CONNECTOR MOUNTING STRIPS FROM INNER FENDER NEAR FIREWALL. THE CLIPS WILL BE REPOSITIONED AND/OR REATTACHED LATER. SEE ILLUSTRATION BELOW.



C. MOUNT VALVE TO VALVE PLATE (29) USING TWO 1/4 X 1-1/4 CAPSCREWS, LOCKWASHERS AND NUTS FROM VALVE BAG. CONNECT CONTROL CABLES TO VALVE PLATE BEFORE FASTENING VALVE PLATE TO VEHICLE. BEGIN BY REINSTALLING JAM NUTS AND WASHERS ON CABLES. PLACE CONTROL CABLES IN RESPECTIVE SLOTS OF VALVE PLATE BULKHEAD WITH ONE NUT AND ONE WASHER ON EACH SIDE OF BULKHEAD. CENTER CABLES IN SLOTS SO THAT THEY ARE EXACTLY IN LINE WITH VALVE SPOOL CENTERS. ATTACH CABLE CLEVIS (3) TO CABLES USING SQUARE NUTS (4). SLIP CABLE CLEVIS OVER SPOOLS. INSTALL CLEVIS PIN (5) THROUGH CLEVIS AND SPOOL AND SECURE WITH PUSHNUT (6) ON CLEVIS PIN. TEMPORARILY ADJUST CABLES SO THAT CONTROL LEVER IS SOMEWHERE NEAR CENTERED IN CONTROL HEAD.

D. **NOTE:** BEFORE INSTALLING VALVE PLATE, CUT TWO PIECES OF 3/8" SPLIT HOSE GROMMET (74) IN HALF AND INSTALL ON ALL FOUR EDGES OF VALVE PLATE TO PROTECT VEHICLE WIRING FROM CHAFFING. CAUTION! USE EXTREME CARE IN DRILLING ALL HOLES. MAKE SURE NO WIRING OR ASSEMBLIES ARE DAMAGED.

ALIGN VALVE PLATE ON PLASTIC INNER FENDER SO THAT CABLES RUN IN AS STRAIGHT AND SMOOTH A PATH AS POSSIBLE. USING THE MOUNTING HOLES IN THE VALVE PLATE AS GUIDES, DRILL (4) 11/32" HOLES THROUGH INNER FENDER. FASTEN VALVE PLATE TO INNER FENDER WITH (4) 5/16 X 1-1/4 CAPSCREWS (76), (2) BACKING PLATES (32), LOCKWASHERS (79) AND NUTS (80).

E. **1988 VEHICLES:** ENLARGE HOLE IN E.E.C. BRACKET TO 9/32" DIAMETER AND FASTEN TO LARGER BOX WITH A 1/4 X 1 CAPSCREW (88), LOCKWASHER (85), AND NUT (86). RELOCATE THIS ASSEMBLY TO INNER HOLE IN BRACKET THAT THEY WERE ORIGINALLY ATTACHED TO AND REFASTEN WITH PREVIOUSLY REMOVED SHEET METAL SCREW.

**1989 VEHICLES:** POSITION PREVIOUSLY REMOVED ELECTRICAL CONNECTOR MOUNTING STRIPS TO PREVENT ANY POSSIBLE CHAFFING AND REATTACH TO EXISTING FENDER HOLES OR DRILL NEW 9/32" HOLES AS NECESSARY.

**CAUTION: VALVE SPOOLS MUST BE FREE AND SELF CENTERING WHEN CABLES AND CONTROL HEAD ARE ATTACHED. FAILURE TO CENTER SPOOLS WILL RESTRICT FLUID FLOW THROUGH VALVE. THIS MAY CAUSE HYDRAULIC FLUID TO OVERHEAT RESULTING IN PUMP DAMAGE AND/OR HYDRAULIC HOSE FAILURE. HOSE FAILURES CAN CAUSE ENGINE FIRES.**

WHEN ADJUSTED, THE CONTROL LEVER MUST BE IN THE NEUTRAL POSITION TO ALLOW ENOUGH SPOOL TRAVEL EACH WAY FOR PROPER VALVE ACTUATION.

#### 4. DRIVE SHEAVE INSTALLATION

A. REMOVE FAN FROM WATER PUMP AND DISCARD CAPSCREWS. INSTALL THE FINE THREAD END OF FOUR 5/16 X 1-3/4 STUDS (82) INTO WATER PUMP FLANGE. STUDS SHOULD BE FLUSH WITH BACK OF FLANGE. INSTALL DRIVE SHEAVE (24), FAN SPACER (22) AND FAN ON OVER NEW STUDS AND FASTEN WITH LOCKWASHERS (79) AND NUTS (80) TORQUED TO 18 FT. LBS.

**NOTE:** TO PREVENT POTENTIAL FAN WOBBLE, THIS BOLTED JOINT MUST BE DRAWN UP TIGHT. ROTATE FAN TO CHECK FOR WOBBLE DURING INSTALLATION. BE SURE TO TORQUE FASTENERS TO 18 FOOT POUNDS.

## 5. PUMP TANK AND PUMP BRACKET

**A.** REMOVE FRONT FASTENER FROM THERMOSTAT HOUSING. PLACE STRAIGHT END OF PUMP BRACKET BRACE (27) OVER HOLE AND REINSTALL FASTENER. DO NOT TIGHTEN ANY FASTENERS UNTIL PUMP BRACKET IS FULLY INSTALLED. POSITION LOWER END OF PUMP BRACKET (26) (END OF BRACKET WITHOUT PIPE SPACER) BEHIND THE LOWER END OF ADJUSTING SLOT IN ALTERNATOR BRACKET. INSERT ONE 3/8 X 1-1/4 GR.5 CAPSCREW (89) AND FLATWASHER (93) THROUGH ALTERNATOR BRACKET AND PUMP BRACKET. FASTEN WITH A 3/8 LOCKWASHER (91) AND NUT (92). POSITION PIPE SPACER ON OPPOSITE END OF PUMP BRACKET OVER OPEN HOLE ON TOP OF WATER PUMP. FASTEN WITH A 3/8 X 2-1/2 GR.5 CAPSCREW (90) AND LOCKWASHER (91). TIGHTEN ALL FASTENERS.

**B.** HOLDING PUMP TANK (1) IN BENCH VISE, SCREW 1/4" BRASS BAR ELL (52) ONTO PRESSURE PORT OF PUMP AND SCREW QUILL (55) INTO RETURN PORT OF PUMP. INSTALL PUMP SHEAVE (25) ONTO PUMP SHAFT USING LOCK NUT SUPPLIED WITH PUMP. WHEN INSTALLING LOCKNUT MAKE SURE THAT THE LOCKNUT TIGHTENS AGAINST THE PUMP SHEAVE, AND NOT AGAINST THE PUMP SHAFT SHOULDER. AN OPTIONAL 1/2 PLAIN WASHER (101) SHOULD BE INSTALLED ONLY IF THE LOCKNUT TIGHTENS AGAINST THE PUMP SHAFT SHOULDER AND NOT THE SHEAVE.

**CAUTION: TO AVOID DAMAGE TO PUMP SHAFT, MAKE SURE THAT THE 1/2 FLATWASHER FITS ON OVER THE SHAFT SHOULDER BEFORE TIGHTENING LOCKNUT.**

REMOVE PUMP FROM VISE & INSTALL SADDLE BRACKET (35) ON FRONT OF PUMP. SECURE WITH A 5/16 X 1 -1/2 GR. 5 CAPSCREW (77), LOCKWASHER (79) & NUT (80). ATTACH SADDLE BRACKET & PUMP TO PUMP BRACKET USING A 5/16 X 1-1/4 GR.5 CAPSCREW (76) WITH FLATWASHER (81) THROUGH DRIVER'S SIDE HOLE IN SADDLE BRACKET, PUMP BRACKET & THROUGH PUMP BRACKET BRACE. FASTEN WITH A LOCKWASHER (79) & NUT (80). INSTALL A 5/16 X 1 CAPSCREW (78) WITH FLATWASHER (81) THROUGH THE OTHER SIDE & FASTEN WITH LOCKWASHER (79) & NUT (80). PLACE BOLTING BAR (33) BEHIND ENGINE LIFT BRACKET WITH STUD PROJECTING THROUGH HOLE. INSTALL UNIVERSAL BRACE TAB (38) ON OVER STUD AND FASTEN WITH A 5/16 LOCKWASHER (79) AND NUT (80).

**C.** INSTALL 41" V-BELT (23) ON OVER INSTALLED DRIVE AND PUMP SHEAVES. ALIGN SHEAVES AND TIGHTEN 1-1/2" SADDLE BRACKET FASTENER. ADJUST FOR PROPER TENSION BY PIVOTING SADDLE BRACKET ON TOP BOLT. INSTALL REAR TANK STRAP (36) ON OVER REAR OF PUMP TANK. INSTALL ONE 5/16 NUT (80) AND FLATWASHER (81) ONTO UNIVERSAL BRACE ROD (37) AND INSERT BRACE ROD THROUGH PREVIOUSLY INSTALLED UNIVERSAL BRACE TAB. INSTALL BRACE ROD TO TANK STRAP WITH ONE 1/4 X 1-1/4 CAP-SCREW (84), LOCKWASHER (85) AND NUT (86). FASTEN OTHER END OF BRACE ROD TO BRACE TAB WITH A 5/16 FLATWASHER (81), 5/16 LOCKWASHER (79) AND NUT (80). USE BRACE ROD TO ADJUST ALIGNMENT OF DRIVE AND PUMP SHEAVES. CHECK BELT FOR PROPER TENSION. TIGHTEN POWER STEERING AND ALTERNATOR BELTS.

## 6. HYDRAULIC HOSE INSTALLATION

**A.** ATTACH ONE END OF 42" H.P. HOSE (16) TO 1/4" BRASS BAR ELL ON PUMP TANK & PUSH ONE END OF 42" L.P. HOSE (17) ONTO QUILL ON PUMP TANK. ROUTE THESE HOSES UNDER THE AIR INTAKE HOSES TO THE CONTROL VALVE.

**CAUTION: KEEP HOSES AWAY FROM HOT OR MOVING ENGINE COMPONENTS. FAILURE TO DO SO MAY CAUSE HOSE TO BURST RESULTING IN A POSSIBLE ENGINE FIRE.**

PUSH L.P. HOSE ONTO QUILL AND SCREW H.P. HOSE INTO 90 DEGREE SWIVEL ADAPTOR. INSTALL 60" H.P. HOSE (18) TO BRASS ELL IN LIFT CYLINDER PORT OF VALVE (SPOOL #1). INSTALL TWO 54" H.P. HOSES (19) TO BRASS ELLS IN ANGLE PORTS OF VALVE (SPOOL #2). DRILL A 1-7/8" HOLE THROUGH MIDDLE OF RADIATOR WEB ON DRIVERS SIDE APPROXIMATELY 9-1/2" BELOW TOP OF RADIATOR. (SOME VEHICLES MAY NOT REQUIRE DRILLING). INSTALL SPLIT HOSE GROMMET (74) AROUND HOLE. ROUTE 60" AND 54" HOSES OUT THROUGH THIS HOLE AND THROUGH GRILL NEAR CENTER OF VEHICLE. ATTACH 60" HOSE TO PREVIOUSLY INSTALLED 90 DEGREE SWIVEL ADAPTOR ON LIFT CYLINDER.

**INSTALL INLINE OIL FILTER AS PER FILTER KIT (7) INSTRUCTIONS AT THE END OF THIS DOCUMENT.**

## **7. DISCONNECT ASSEMBLY**

**A.** WITH DISCONNECT MOUNTING PLATE (39) HELD IN BENCH VISE, INSTALL DISCONNECT HALVES AS SHOWN IN ILLUSTRATION. BULKHEAD ADAPTOR (44) AND MALE DISCONNECT HALF (42) GO IN BOTTOM HOLE. FEMALE DISCONNECT HALF (42) GOES IN TOP HOLE. SECURE BOTH WITH 7/8" SNAP RINGS (45). ATTACH MOUNTING PLATE TO BACK OF DRIVERS SIDE HEADGEAR POST WITH TWO 5/16 X 1 CAPSCREWS (78), LOCKWASHERS (79) AND NUTS (80). INSTALL DUST PLUGS (43) OVER ENDS OF HOSES ROUTED TO FRONT OF VEHICLE IN THE PREVIOUS STEP. CONNECT 54" RIGHT ANGLE HOSE (SPOOL #2, CYL. B) TO BACK OF FEMALE DISCONNECT INSTALLED IN TOP HOLE OF DISCONNECT BRACKET. CONNECT 54" LEFT ANGLE HOSE (SPOOL #2, CYL. A) TO BOTTOM (MALE) DISCONNECT. TIGHTEN BY HOLDING HOSES & ROTATING DISCONNECT HALVES IN THE BRACKET.

## **8. OPERATIONS**

**A.** CHECK ALL FITTINGS AND FASTENERS FOR TIGHTNESS. SECURE HOSES WITH NYLON TIE WRAPS (75). PLACE SAFETY DECAL (72) ON DASH BESIDE CONTROL HEAD.

**B.** FILL RESERVOIR WITH TYPE "A" AUTOMATIC TRANSMISSION FLUID. START ENGINE, LIFT AND ANGLE BLADE.

**NOTE:** IF BLADE ANGLES OPPOSITE FROM CONTROL LEVER POSITION, REVERSE THE TWO H.P. HOSE CONNECTIONS ON THE BACK OF THE DISCONNECT BRACKET.

RAISE FRONT END OF VEHICLE UNTIL PLOW IS CLEAR OF GROUND WITH THE LIFT CYLINDER FULLY RETRACTED. CHECK RESERVOIR OIL LEVEL. ANGLE BLADE (WITH LIFT CYLINDER RETRACTED) TO REMOVE AIR FROM SYSTEM. RECHECK RESERVOIR OIL LEVEL.