

Chev/GMC

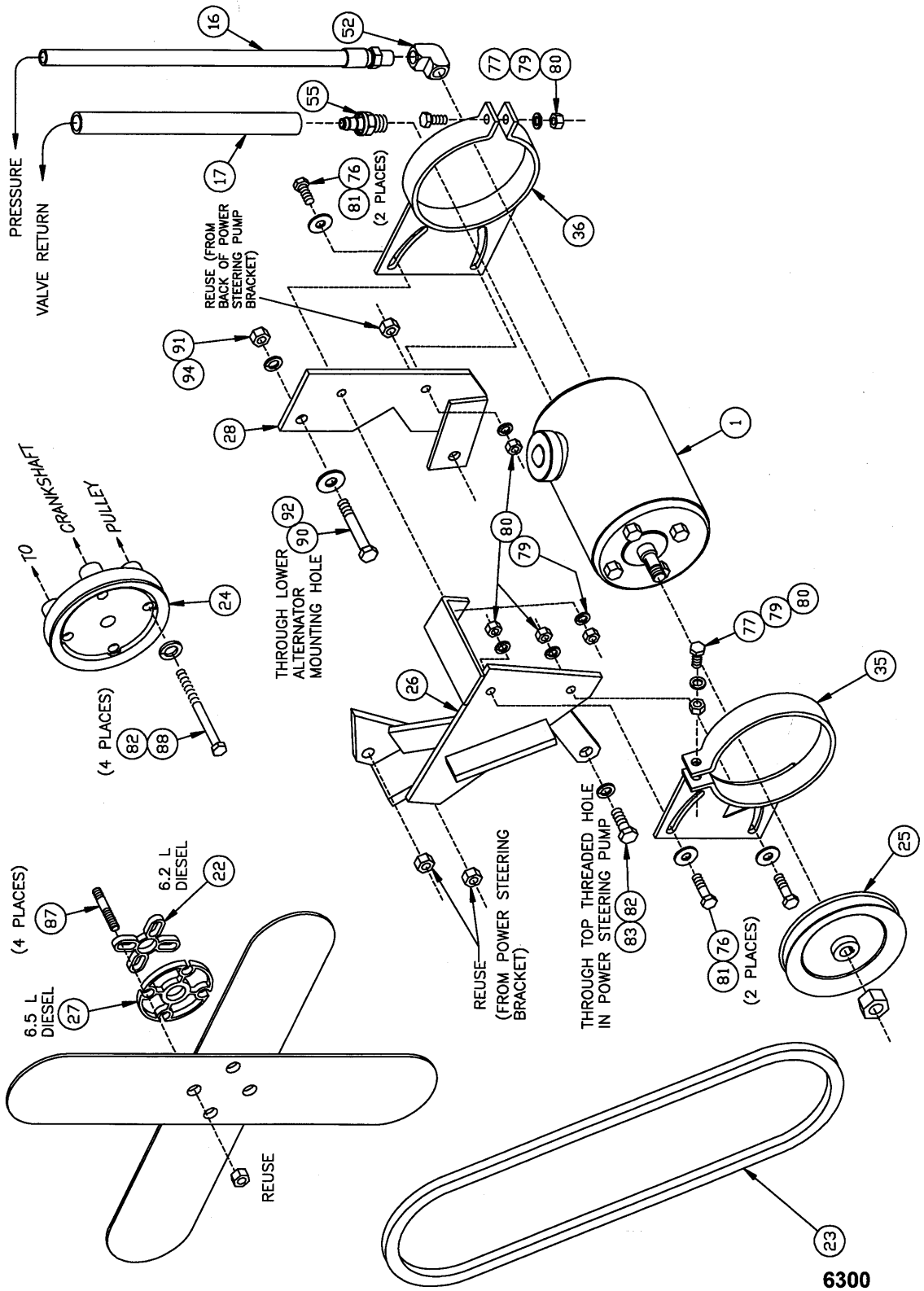
6.2L Diesel w-w/o AC, w/o ABS

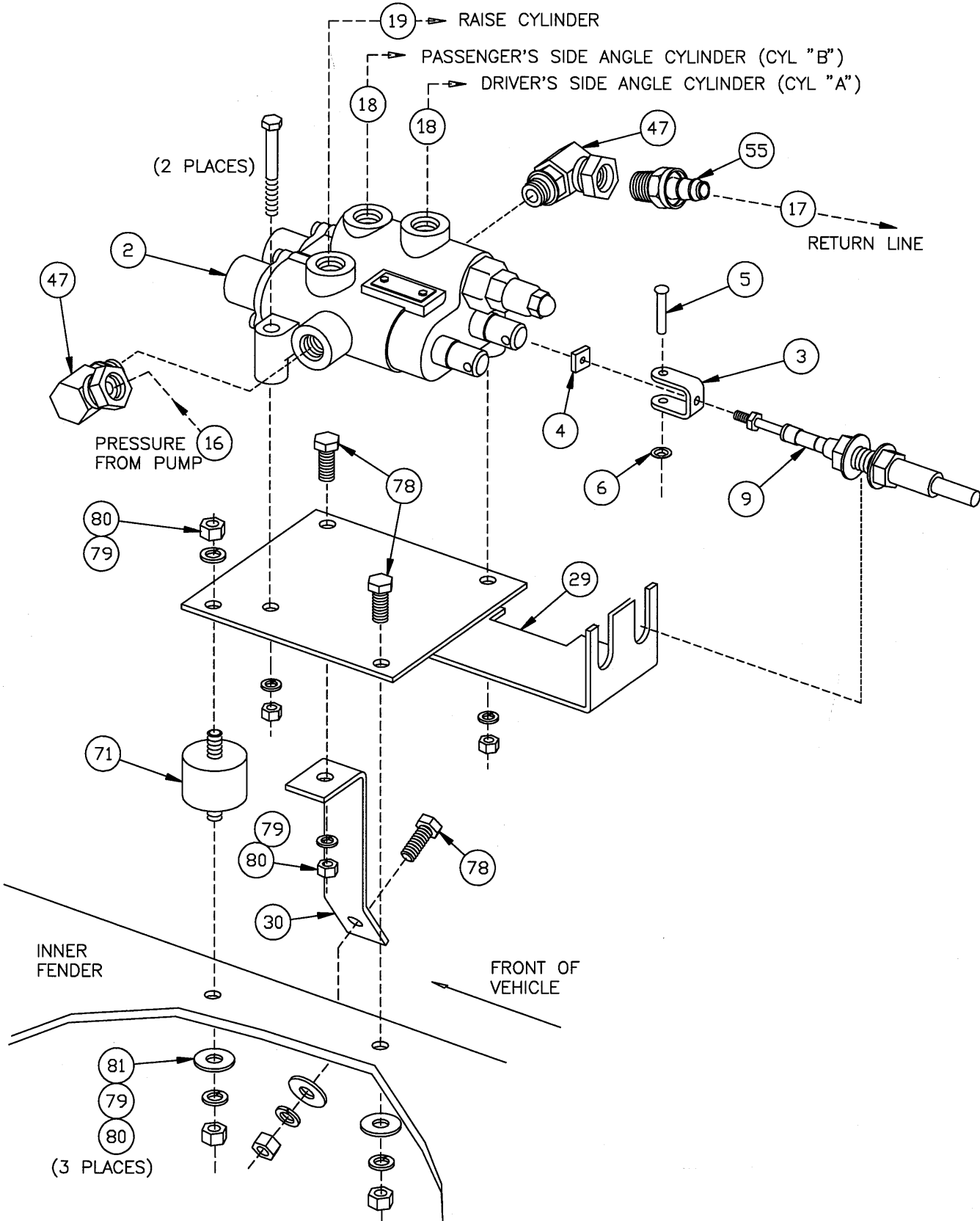
6.5L Turbo Diesel w-w/o AC, w/o ABS

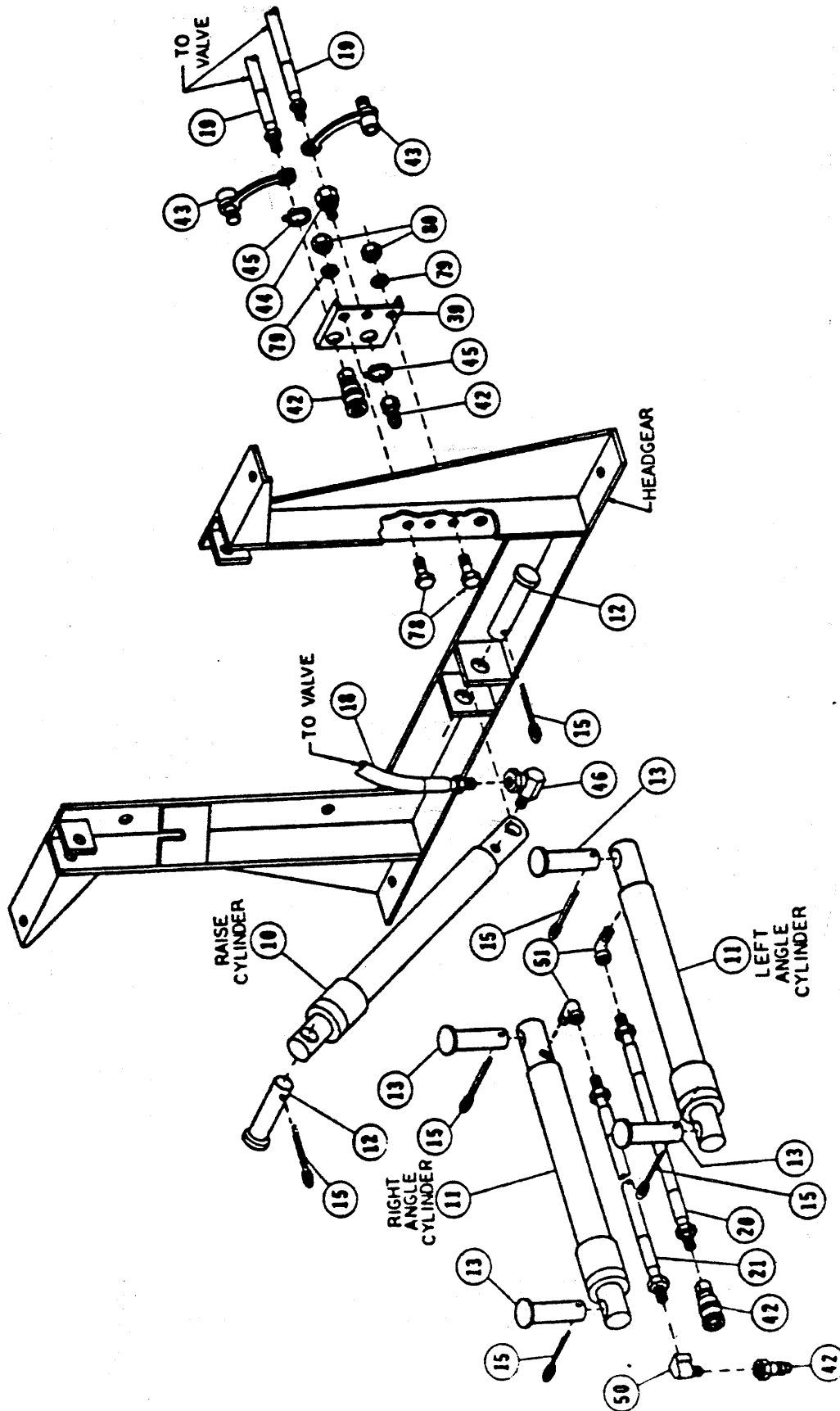
HPS4589E

1988-1993

1992-1994










Hydraulics Parts List

Ref #	Qty	In Kit	Part #	Description	Ref #	Qty	In Kit	Part #	Description
# A4468-40 4589 * Part of 7208 Bolt Bag					# A4468-40 4589 * Part of 7208 Bolt Bag				
1	1		A2311	Pump tank assembly	60				
2	1		A4466	Control Valve Assembly	61				
3	2		4483	Clevis - VM	62				
4	2		4494	10-32 Square Nut - VM	65				
5	2		4491	Clevis Pin - 3/16" x 1	66				
6	2		4493	3/16" Push Nut Zp	67				
7	1		8764	Filter Kit	68				
8		1	4419	SLC Head - Belt Drive	69				
9		2	A4488	40" SLC Cable	70				
10	1		A318	1-1/2" x 10" Cylinder Assembly	71	1		*5529	Shock Mount
11	2		A3660	1-1/2" x 12" Cylinder Assembly	72	1		5704	Caution Label - Cab
12	2		6814	Clevis Pin - 1 x 3-5/16	73	2		3042	Grommet - Rubber, Split
13	4		6816	Anchor Pin - 1 x 4	74	1		4477	Grommet - Split Hose
14					75	3	3	*3666	Hose Tie, nylon 3/16 x 8
15	6		90601	1/4" x 1-1/2" Cotter Pin	76	4		*90048	5/16 x 1-1/4 (NC) Gr. 5 Cap Screw
16		1	2707	26" Hp Hose, 1/4P to 3/8P	77	1	1	*90054	5/16 x 1-1/2 (NC) Gr. 5 Cap Screw
17		1	4471	26" Lp Hose	78	4	1	*90042	5/16 x 1 (NC) Gr. 5 Cap Screw
18		2	1664	54" Hp Hose, 9/16 O-R to 1/4P	79	6	7	*90360	5/16 Sp Lk Washer
19		1	1665	60" Hp Hose, 9/16 O-R to 1/4P	80	7	6	*90332	5/16 (NC) Nut
20		1	376	32" Hp Hose, 1/4P to 1/4P	81	4	4	90313	5/16 Flat Washer
21		1	4424	36" Hp Hose, 1/4P to 1/4P	82		5	*90429	M10 Lock Washer
22		1	*6007	1/4" Fan Spacer (6.2L Diesel)	83		1	*90631	M10 x 1.5 x 20 Gr. 10.9 Cap Scrw
23		1	1118	Fan Belt, 56"	84	1		90614	1/4 x 1-1/4 (NC) Gr.5 Cap Screw
24		1	6589	Drive Sheave	85	1		90359	1/4 Sp Lk Washer
25		1	3696	Pump Sheave	86	1		90330	1/4 (NC) Nut
26		1	7206	Pump Bracket	87		4	*5939	M8 x 1.25 x 50 Stud Gr. 10.9
27		1	*8244	1/4" Fan Spacer (6.5L Turbo Dsl)	88		4	*90579	M10 x 1.5 x 90 Gr.10.9 Nyl CS
28		1	7203	Rear Pump Bracket	89				
29		1	5594	Valve Plate	90		1	*90580	3/8 x 5-1/2 (NC) Gr. 8 Cap Screw
30		1	5975	Valve Plate Brace	91		1	*90334	3/8 Nut (NC)
31					92		2	*90315	3/8 Flat Washer
35		1	5467	Saddle Bracket	93				
36		1	7207	Rear Saddle Bracket	94		1	*90361	3/8" Sp Lk Washer
39		1	4467	Disconnect Mounting Plate	95				
42	2		A1587	Hose Disconnect Assembly	96				
43	2		1588	Dust Plug - Closure/Male	97				
44		1	*4486	Adapter - Bulkhead 1/4" Npt	98				
45		2	*4485	Snap Ring - 7/8" external					
46	1		319	1/4" x 90 Swivel Adapter					
47	2		2315	9/16-18 w/O-ring x 3/8 swivel					
48									
49									
50		1	*765	1/4" Brass Bar Street Ell					
51	2		2780	1/4 Npt x 90° Street Elbow					
52		1	*2318	1/4" 90 Degree Elbow					
53									
54									
55	2		1658	Quill - 3/8 Nptm to 3/8 ID hose					
56									
57									
58									
59									

DIAMETER- THREADS PER INCH	GRADE		
			
	G2	G5	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° swivel adapter (46) into port. Place lift cylinder with installed adapter 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" HP hose (20), install female half of hose disconnect assembly (42) directly to hose. Then, holding 36" HP 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 and screw brass forged street ells (51) into ports so that ells are parallel with cylinders and point toward live end. Install 32" HP hose with female disconnect half to driver's side angle cylinder street ell. Install other HP hose with male disconnect half to passenger side angle cylinder street ells. 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 the peculiar attachments box.

- A. Drill three 5/8" holes in firewall for control cables and wiring harness using drilling guide for 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. Using bench vise to hold control valve assembly (2) remove closures from valve ports. Screw 90° swivel adapter unions (47) into "in" and "out" ports. Screw quill (55) into installed adapter in "out" port.

Note: Valve fittings are installed as described to insure proper operation. First indication of incorrect installation is failure of plow to lift although plow will angle.

- B. Mount valve to valve plate (29) using two 1/4 x 1-3/4 cap screws, lock washers and nuts from valve bag. Install a rubber shock mount (71) into the forward most driver's side hole. Fasten with one 5/16 lock washer (79) and nut (80). 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 clevises (3) to cables using square nuts (4). Slip cable clevises 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.
- C. Locate valve plate, with valve and cables attached, on top of driver's side inner fenderwell so that valve is near level and cables run in as smooth a path as possible (be sure swivel adapter does not rub against windshield water bottle). Using the aft driver's side hole and shock mount as a guide, mark and drill two 11/32" holes through the fenderwell. Fasten aft hole of valve plate to the fenderwell with one 5/16 x 1 cap screw (78), flat washer (81), lock washer (79) and nut (80). Fasten shock mount using one 5/16 flat washer (81) lock washer (79) and nut (80). Attach 90° bent end of valve plate brace (30) to valve plate as shown in illustration with a 5/16 x 1 cap screw (78) lock washer (79) and nut (80). Using hole in other end of brace as a guide, drill another 11/32" hole through the fenderwell and fasten with a 5/16 x 1 cap screw (78), flat washer (81), lock washer (79) and nut (80).

- D. With valve plate fastened to inner fender, readjust control cables so that control head lever is centered between both angle and raise/lower positions. If cable clevis does not allow enough adjustment, reposition cable at valve plate bulkhead. After checking to see that the valve spools are in the centered position, tighten cable clevis nuts.

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 top section of fan shroud, loosen serpentine belt from idler pulley, and remove fan. Save fasteners. Remove and discard cap screws holding vehicle crank pulley to crankshaft. Position drive sheave (24) over holes in crank pulley and fasten drive sheave and crank pulley to crankshaft using four M10 x 1.5 x 90 Gr. 10.9 Nylock cap screws (88) and four M10 lock washers (82). Torque these fasteners to 51 ft-lbs, while making sure lock washers seat properly on sheave.
- B. Remove and discard the four studs from the water pump shaft flange. Install the four longer 8MM studs (87) to the holes in the water pump shaft flange that the original studs were removed from. Replace water pump sheave onto studs and add 1/4" fan spacer (22) for 6.2L diesel or (27) for 6.5L Turbo diesel and fan. Fasten with original nuts torqued to 18 ft-lbs. **Do not reattach fan shroud until 1-7/8" hole is drilled; see Section 6 of instructions.**

5. Pump Tank and Pump Bracket

Caution: Pump tank fill must be vertical to engine.

- A. To assure adequate clearance between the top radiator hose and sheave on Fisher pump, the top radiator hose must be shortened by 1". Drain coolant below radiator hose. Remove radiator end of top radiator hose and trim 1" from end. Replace hose and refill radiator.
- B. Remove idler pulley unit. Remove two nuts from power steering bracket located behind idler pulley (save nuts). Install pump bracket (26) onto studs and fasten, but do not fully tighten, with previously removed nuts. Install one M10 x 1.5 x 20 Gr. 10.9 cap screw (83) with a M10 lock washer (82) through lower pump bracket bar into top threaded hole in front of power steering pump. Remove the lower alternator mounting bolt and replace it with a 3/8 x 5-1/2 Gr. 8 cap screw (90), flat washer (92) and 3/8" nut (NC) (91). Also remove and save the nut from the back of the power steering pump bracket. Place the rear pump bracket (28) on over the new alternator cap screw and the power steering bracket fastener. Add a 3/8 lock washer (94) to the alternator cap screw and reinstall the 3/8" nut. Reinstall the power steering bracket nut.
- C. Holding pump tank (1) in bench vise, screw 1/4" 90 ° elbow (52) onto pressure port and quill (55) into return port. Install pump sheave (25) onto pump shaft using lock nut and key supplied with pump. Remove pump from vise and install saddle bracket (35) on over front of pump. Secure with a 5/16 x 1-1/2 Gr. 5 cap screw (77), lock washer (79) and nut (80). Attach saddle bracket with pump to pump bracket using two 5/16 x 1-1/4 Gr. 5 cap screws (76), flat washers (81), lock washers (79) and nuts (80). Install the rear saddle bracket (36) on over rear of pump and secure strap with one 5/16 x 1-1/2 Gr. 5 cap screw (77) lock washer (79) and nut (80). Fasten the rear saddle bracket to the rear pump bracket with two 5/16 x 1-1/4 Gr. 5 cap screws (76), flat washers (81), lock washers (79) and nuts (80). The top saddle bracket cap screw also secures the front pump bracket arm to the rear pump bracket. Use 5/16 flat washer (81) between pump bracket arm and rear pump bracket if needed to improve fit.
- D. Tighten all fasteners except for saddle brackets. Install 56" V-belt (23) on over installed drive and pump sheaves. Align sheaves and tighten 1-1/4" saddle bracket fasteners. Adjust for proper tension by pivoting saddle brackets on top bolts and tighten. Check belt for proper tension. Fasten vehicle power steering hose clear of pump belt with tie wraps, do not fasten to vehicle brake line. Reinstall idler pulley and serpentine belt. Double check all fasteners.
- E. Reinstall fan shroud using original fasteners.

6. Hydraulic Hose Installation

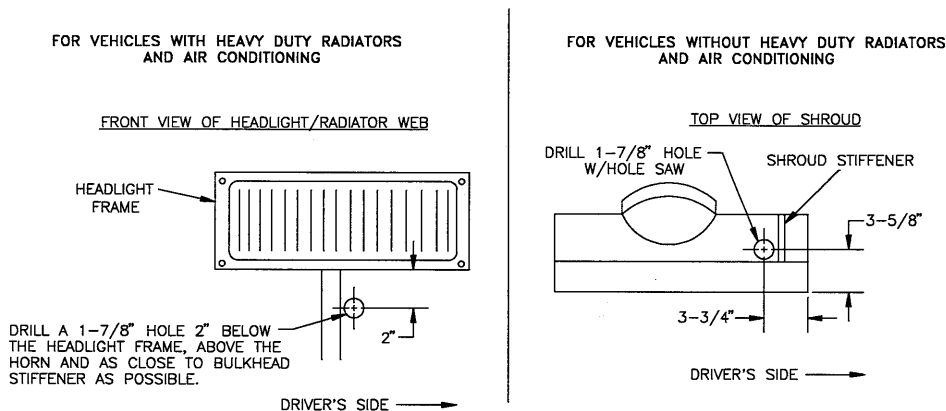
- A. Attach 26" HP hose (16) to 1/4" 90° elbow on pump tank and push 26" LP hose (17) onto quill on pump tank. Route these hoses to the control valve.

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 LP hose onto quill and screw HP hose into 90° swivel adapter. Install 9/16 O-ring end of 60" HP hose (19) to raise port of valve. Install 9/16 O-ring end of two 54" hoses (18) to angle ports of valve (Cyl "A" and Cyl "B"). Drill hose routing hole through fan shroud or core support depending on vehicle model as per illustration below. Install split hose grommet (74) around hole to protect hoses. Route 60" and 54" hoses down through this hole and out through grille near center of vehicle. Attach 60" hose to previously installed 90° swivel adapter on lift cylinder. Use three nylon tie wraps (75) to secure hoses.

- B. Install in-line oil filter as per filter kit (7) instructions located in common hydraulic kit.

HOLE DRILLING INSTRUCTIONS FOR HOSE
ROUTING TO FRONT OF VEHICLE



7. Disconnect Assembly

- A. With disconnect mounting plate (39) held in bench vise, install disconnect halves as shown in illustration. Bulkhead adapter (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 driver's side headgear post with two 5/16 x 1 cap screws (78), lock washers (79) and nuts (80). Install dust plugs (43) over ends of hoses routed to front of vehicle in the previous step. Connect 54" passenger side angle hose (Cyl "B") to back of female disconnect installed in top of disconnect bracket. Connect 54" driver's side angle hose (Cyl "A") to bottom (male) disconnect. Tighten by holding hoses and rotating the disconnect halves in the bracket.

8. Operations

- A. Check all fittings and fasteners for tightness. Secure hoses with nylon tie wraps (75). Place caution label (72) on dash beside control head.
- B. Fill reservoir with type "A" automatic transmission fluid. Start the engine, lift and angle the blade. **If the blade angles opposite from the control lever position, reverse the two Hp hose connections on valve.** Raise the front end of the vehicle until the plow is clear of the ground with the lift cylinder fully retracted. Check the reservoir oil level. Angle the blade (with the lift cylinder retracted) to remove air from the system. Recheck the reservoir oil level.

Note: The installer must inform the end user of the proper procedure for removing any residual hydraulic pressure that may be trapped in the raise or angle hoses. The plow will be much easier to install or remove if the proper procedures are followed.

Before coupling or uncoupling the hydraulic disconnects you must first turn off the ignition. Move the control to all four plowing positions and return the control to lower. You may then remove or install the plow.