

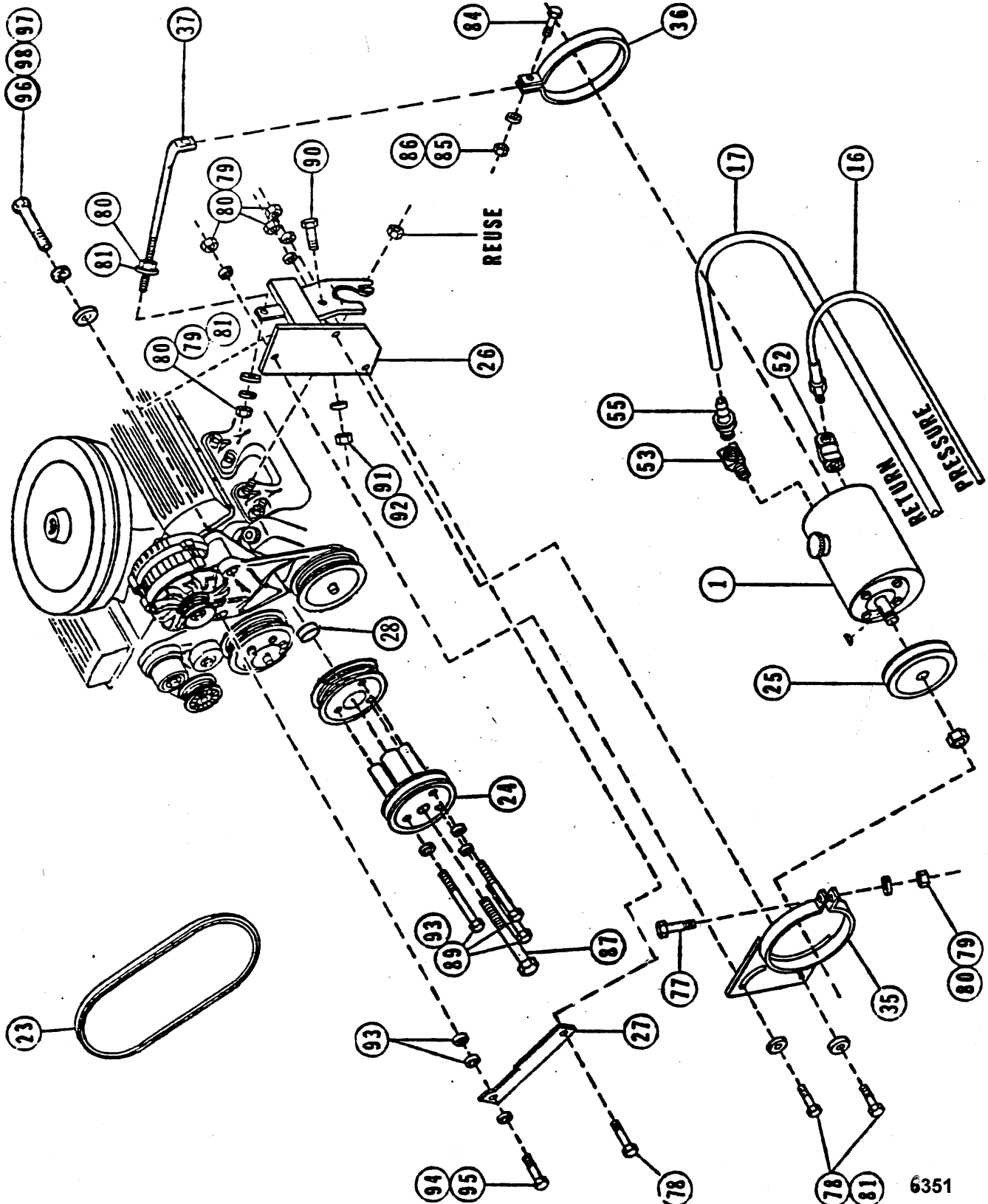
CHEV/GMC
V8 5.0 & 5.7L
w-w/o AC, w/o ABS
w/o Dual Batteries

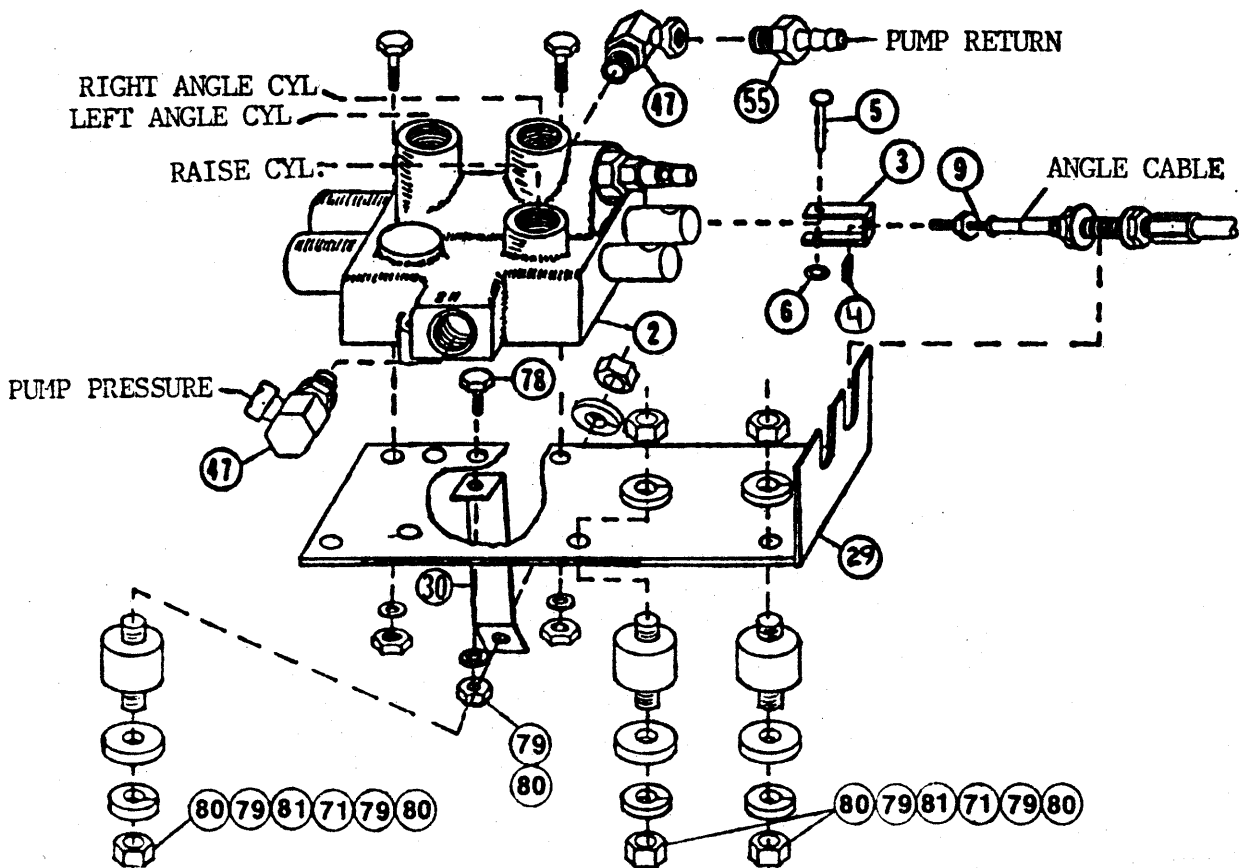
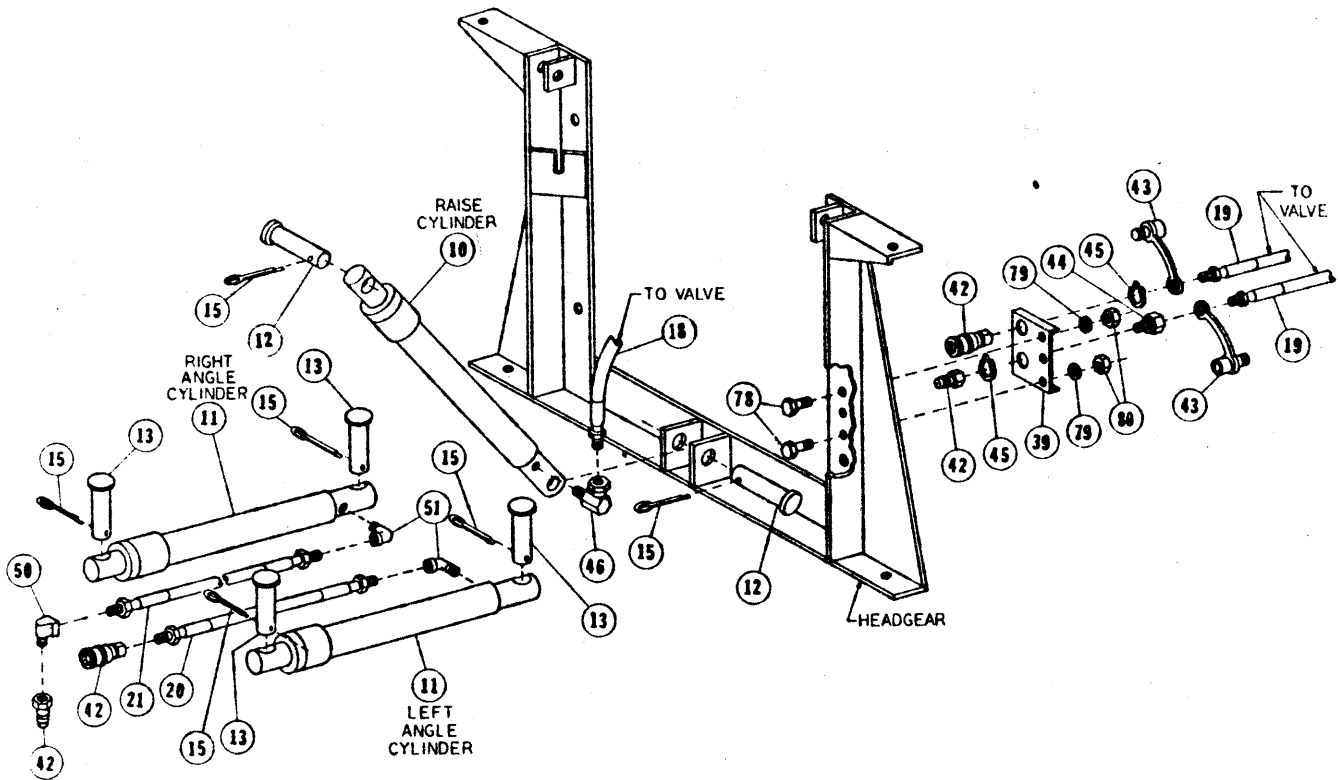
1990 -1994

Peculiar Hydraulics
Belt Drive

HPS4599
Rev C

HPS4599 peculiar Hydraulic Kit for GM K series V8 engines is not compatible with dual batteries and HD radiator. Except by supplement with unfurnished parts. (See Page 6).





Hydraulics Parts List

Ref #	Qty	In Kit	Part #	Description	Ref #	Qty	In Kit	Part #	Description
* Part of 7346 Bolt Bag					* Part of 7346 Bolt Bag				
1	1		A2311	Pump tank assembly	50	1		* 765	1/4 Npt x 90 Deg Street Elbow
2	1		A4466	Control Valve Assembly	51	2		2780	1/4 Npt x 90 Deg Street Elbow Frgd
3	2		4483	Clevis - VM	52	1		* 2318	1/4 Npt x 90 Deg Union Elbow
4	2		4494	10-32 Square Nut - VM	53	1		*3979	3/8 NPT x 90 Deg Street Elbow
5	2		4491	Clevis Pin - 3/16" x 1	54				
6	2		4493	3/16" Push Nut Zp	55	2		1658	Quill - 3/8 Nptm to 3/8 ID Hose
7	1		8764	Filter Kit	56				
8		1	4419	SLC Head - Belt Drive	57				
9		2	6027	45" Control Cable, SLC	58				
10	1		A318	1-1/2" x 10" Cylinder Assembly	59				
11	2		A3660	1-1/2" x 12" Cylinder Assembly	60				
12	2		6814	Clevis Pin - 1 x 3-5/16	61				
13	4		6816	Anchor Pin - 1 x 4	62				
14					63				
15	6		90601	1/4" x 1-1/2" Cotter Pin	64				
16		1	4934	18" HP Hose - 1/4P - 3/8P	65				
17		1	4471	3/8" Hose 26" Lp	66				
18		1	1665	60" HP Hose, 9/16 O-ring to 1/4P	67				
19		2	1664	54" HP Hose, 9/16 O-ring to 1/4P	68				
20		1	376	32" HP Hose, 1/4P to 1/4P	69				
21		1	4424	36" HP Hose, 1/4P to 1/4P	70				
22					71				
23		1	1949	61" V-Belt	72			3	*5529 Shock Mount
24		1	20056	Drive Sheave **	73			1	5704 Caution Label - Cab
25		1	3696	Pump Sheave	74			2	3042 Grommet - Rubber, Split
26		1	7417	Pump Bracket	75			1	4477 Grommet - Split Hose
27		1	7009	Pump Bracket Brace	76			3	*3666 Hose Tie, nylon 3/16 x 8
28		1	*20057	Drive Sheave Bushing .750 **	77			1	90054 5/16 x 1-1/2 (NC) Gr. 5 Cap Screw
29		1	5329	Valve Plate	78			4	*90042 5/16 x 1 (NC) Gr. 5 Cap Screw
30		1	5975	Valve Plate Brace	79			6	8 * 90360 5/16 Sp Lk Washer
31					80			7	*90332 5/16 (NC) Nut
32					81			4	*90313 5/16 Plain Washer
33					82				
34					83				
35		1	4921	Saddle Bracket	84			1	90614 1/4 x 1-1/4 (NC) Gr. 5 Cap Screw
36		1	2036	Rear Tank Strap	85			1	90359 1/4 Sp Lk Washer
37		1	2116	Universal Brace Rod	86			1	90330 1/4 (NC) Nut
38					87			1	*90202 7/16 x 5-1/4 (NF) Gr. 5 Cap Screw
39		1	4467	Disconnect Mounting Plate	88			1	*90317 7/16 Plain Washer ZP
40					89			3	*90154 3/8" x 4" (NF) Gr. 5 Cap Screw
41					90			1	*90103 3/8" x 1 (NC) Cap Screw
42	2		A1587	Hose Disconnect Assembly	91			1	*90361 3/8 SP LK Washer
43	2		1588	Dust Plug - Closure/Male	92			1	*90334 3/8" (NC) Nut
44		1	* 4486	Adapter - Bulkhead 1/4" Npt	93			5	* 4268 5/8" Spacer Washer
45		2	* 4485	Snap Ring - 7/8" External Bowed	94			1	*90605 M8 x 1.25 x 35 Gr. 8.8 Cap Screw
46	1		319	1/4" x 90 Swivel Adapter	95			1	*90428 M8 Lock Washer
47	2		2315	9/16-18 w/O-Ring x 3/8 F Pi Swivel	96			1	*90399 M10 x 1.50 x 100 Gr. 10.9 CS
48					97			1	*90420 M10 Flat Washer
49					98			1	*90429 M10 Lock Washer

FASTENER TORQUE (FT-LB)			
DIAMETER - THREADS PER INCH	GRADE		
1/4 - 20	G2	G5	G8
5/16 - 18	6	9	13
3/8 - 16	11	18	28
7/16 - 14	19	31	46
1/2 - 13	30	50	75
9/16 - 12	45	75	115
5/8 - 11	66	110	165
9/16 - 12	93	150	225
7/8 - 9	150	250	370
1 - 8	220	378	591
		220	583
			893

** Order PN#20058 Drive Sheave w/Bushing for Service

1. Cylinder & Cylinder Hose Assembly

- A. Using bench vise to hold lift cylinder (10), remove closure from port. Screw 90 degree 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 a 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 cylinder 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 & Control Cables

Note: Dash bracket, hardware, drilling guide and mounting instructions will be found in peculiar attachments box.

- A. Drill three 5/8" holes in the firewall for the control cables and wiring harness using drilling guide as a reference only. **Be sure both sides of the firewall are clear of obstructions before drilling.** Drill 1/2" hole in underside of dash as shown in dash illustration.
- B. Install the dash bracket as per dash bracket instructions.
- C. Loosen the "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 top of the driver side fender well. Attach control head to dash bracket as per dash bracket instructions. Install rubber grommets (73) around cables where they pass through the fire wall.

3. Valve & Valve Plate

- A. Using a bench vise to hold control valve assembly (2), remove closures from valve ports. Screw the 90 degree swivel adapter unions (47) into the "in" and "out" ports. Screw quill (55) into installed adapter in the "out" port.

Note: Valve fittings are installed as described to insure proper installation. First indication of incorrect installation is failure to 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 located in the valve bag. Install a rubber shock mount (71) into the center and rearmost holes on the driver's side of the valve plate. Fasten each 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 clevis (3) to cables using square nuts (4). Slip cable clevises over spools. Install clevis pin (5) through clevis and spool and secure with push nut (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 fender well so that valve is near level and cables run in as smooth a path as possible (be sure swivel adapter does not rub up against windshield water bottle). Using the two previously installed shock mounts as guides, mark and drill two 11/32" holes through the fender well. Fasten each shock mount to the fender well with one 5/16 flat washer (81), lock washer (79) and nut (80). Attach 90 degree 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). Attach a rubber shock mount (71) to hole in other end of brace with a 5/16 lock washer (79) and nut (80). Using the shock mount as a guide, drill another 11/32" hole through the fender well and fasten shock mount to the fender well with a 5/16 flat washer (81), lock washer (79) and nut (80).

- D. With valve plate fastened to inner fender, re-adjust 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 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

Caution: Before inserting bushing, check center of crankshaft for rust or any foreign material and remove.

- A. Remove serpentine belt. Remove and discard the three cap screws holding vehicle crank pulley to vibration damper. Remove and discard cap screw and flat washer holding vibration damper to crankshaft, if vehicle is so equipped. Check vehicle crank pulley and remove any burrs around the holes that the cap screws were removed from.
- B. Install drive sheave bushing (28) into center of crank shaft, reinstall vehicle sheave. Place the drive sheave (24) center hub through the vehicle sheave and bushing. Place a 7/16 x 5-1/4 (NF) Gr. 5 cap screw (87) and flat washer (88) in center of sheave, plus three 3/8 x 4 (NF) Gr. 5 cap screws (89) with spacer washers (93) through sheave spacers. **Tighten 7/16 x 5-1/4 cap screw (torque to 50 ft-lbs) before tightening the three 3/8 x 4 cap screws torque to 31 ft-lbs.**

5. Pump and Pump Bracket

Caution: Pump tank fill must be vertical to engine.

- A. Remove and save both nuts from front exhaust manifold port. Remove and discard the two cap screws attaching alternator to alternator support bracket. Place both slots onto manifold studs and attach with previously removed nuts. **Do not fully tighten any fasteners until all fasteners and pump bracket brace are installed.** Align slotted tab on pump bracket with outboard hole in alternator and attach to threaded hole in alternator support bracket with one M10 x 1.5 x 100 Gr. 10.9 cap screw (96), M10 lock washer (98), and M10 flat washer (97). Fasten pump bracket brace (27) to remaining hole in alternator bracket and alternator with one M8 x 1.25 x 35 Gr. 8.8 cap screw (94), M8 lock washer (95), and two spacer washers (93) between brace and alternator. NOTE: Cropped out portion of pump bracket with one 5/16 x 1 Gr. 5 (NC) cap screw (78), lock washer (79) and (NC) nut (80). Tighten all pump bracket fasteners. Using remaining hole in bent portion of pump bracket as a guide, drill a 13/32" hole through alternator bracket and fasten brackets together with a 3/8 x 1 (NC) Gr. 5 cap screw (90), lock washer (91) and (NC) nut (92).
- B. Holding pump tank (1) in bench vise, screw 1/4" brass bar elbow (52) onto pressure port and 3/8" brass bar street ell (53) with quill (55) into return port. These fittings should point slightly outward (approximately 10 o'clock) while looking at rear of pump tank. Install pump sheave (25) onto pump shaft using lock nut and key supplied with pump. Remove pump with pump. Remove pump from vise and install saddle bracket (35) on 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 and pump to pump bracket using two 5/16 x 1 cap screws (78), flat washers (81), lock washers (79) and nuts (80).
- C. Reinstall serpentine belt. Install 61" 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.

Caution: Position power steering hoses so there is at least 1-1/2" clearance from the pump "V" belt.

Install rear tank strap (36) on over rear of pump. Install one 5/16 nut (80) and 5/16 flat washer (81) onto universal brace rod (37). Install bent end of brace rod between ears of tank strap while inserting other end through hole in remaining tab on pump bracket. Cut universal brace rod to proper length. Fasten brace rod to ears of tank strap with a 1/4 x 1-1/4 cap screw (84), lock washer (85) and nut (86). Fasten other end of brace rod to tab with a 5/16 flat washer (81), 5/16 lock washer (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 18" HP hose (16) to 1/4" brass bar elbow on pump tank and push 26" LP hose (17) onto quill on pump tank. Route these hoses to the control valve. Cut 26" hose to proper length.

Caution: Keep hoses away from hot or moving engine components. Failure to do so may cause hose to burst resulting in a possible fire.

Push LP hose onto quill and screw HP hose into 90 degree swivel adapter. Install 9/16 O-ring end of 60" HP hose (18) to lift cylinder port of valve (Spool #1). Install 9/16 O-ring end of two 54" hoses (19) to angle ports of valve (Spool #2). Drill a 1-7/8" hole through the middle of radiator web on driver's side, approximately 9-1/2" below top of radiator. Cut a 3" wide section out of the grill in line location where the disconnected bracket will be located. 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 adapter on lift cylinder.

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

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 the 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" right angle hose (spool #2, Cly. B) to back of female disconnect installed in top hole of disconnect bracket. Connect 54" left angle hose (Spool #2, Cly. 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 the dash beside the 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.

Chev/GMC V8 - 5.7 and V8 5.0L w-w/o AC with large radiator and dual battery use the following unfurnished parts:

QTY	PART #	DESCRIPTION
1	1665	60" HP Hose, 9/16 O.R. to 1/4 P
1	1685	60" HP Hose, 9/16 O.R. to 1/4 P
1	8011	Nylon mounting Tie Wrap
1	90659	#12 x 3/4 Phillip pan head sheet metal screw

1. Take plastic canister and relocate lower on fender. This may require bracket to be trimmed when lowered.
2. Drill one 1-7/8" hole as per illustration below. Use two 60" HP hoses in angle ports on valve and 72" HP hose on raise port. Route hoses in front of windshield container to inner fender wall using nylon mounting tie wrap with #12 x 3/4 phillip pan head sheet metal screw and tie to inner fender beside battery. Keeping hoses from chafing around battery, place 6" rubber grommet around 1-7/8" drilled hole. Route hoses through hole and grill. **Do not route hoses on engine side of battery. This may cause pump pulley to chaff hoses.**