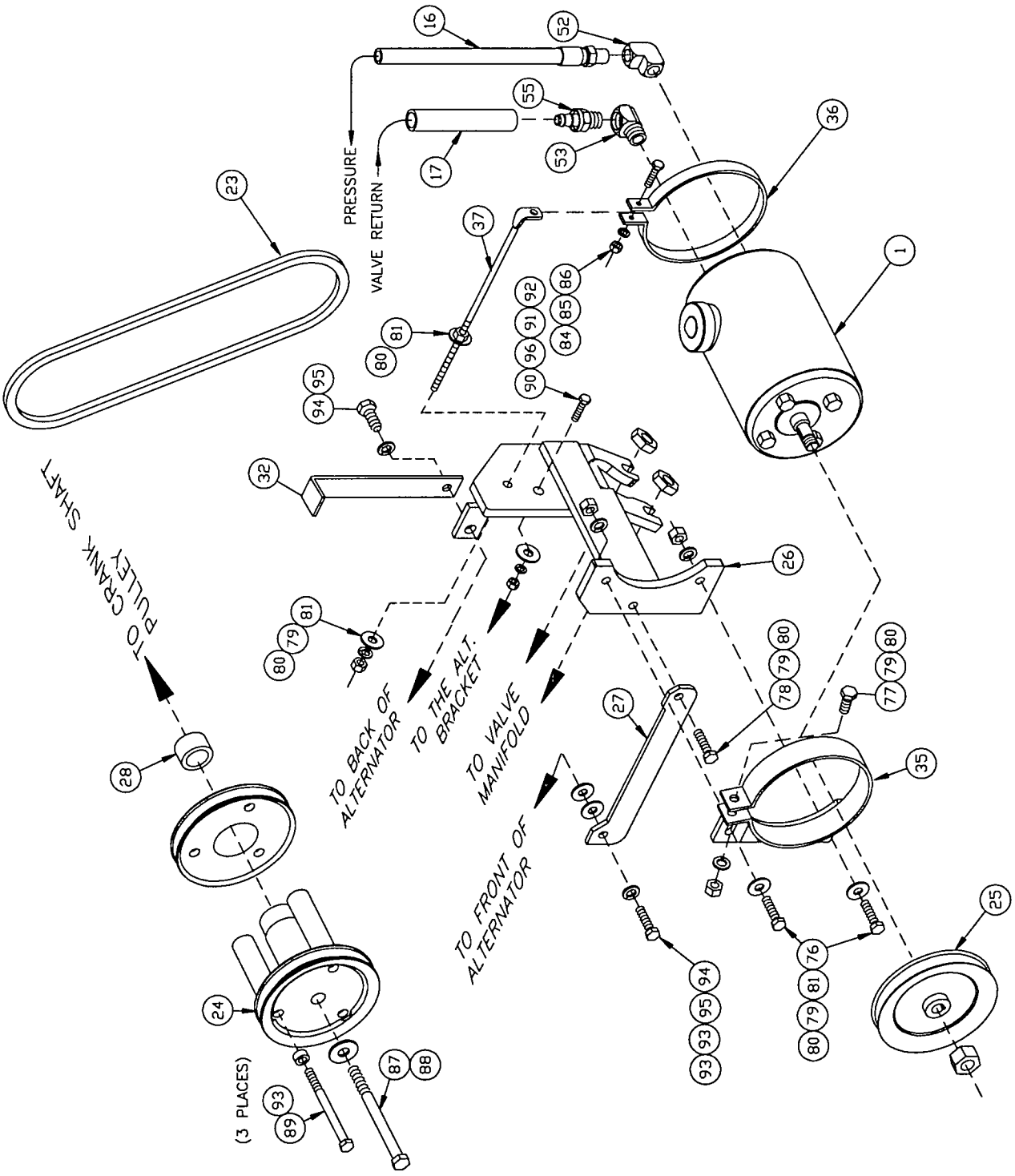
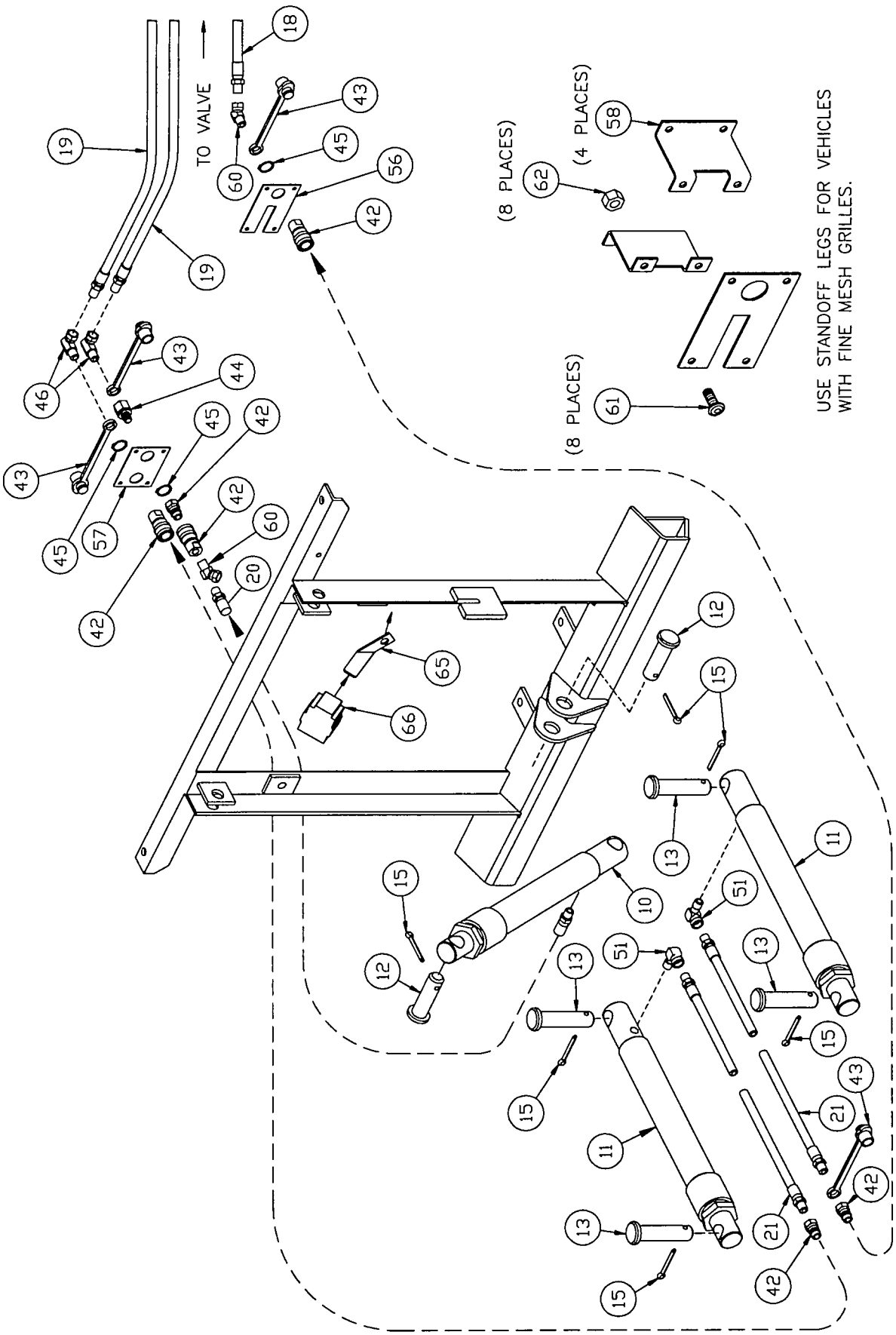
Minute Mount SYSTEM

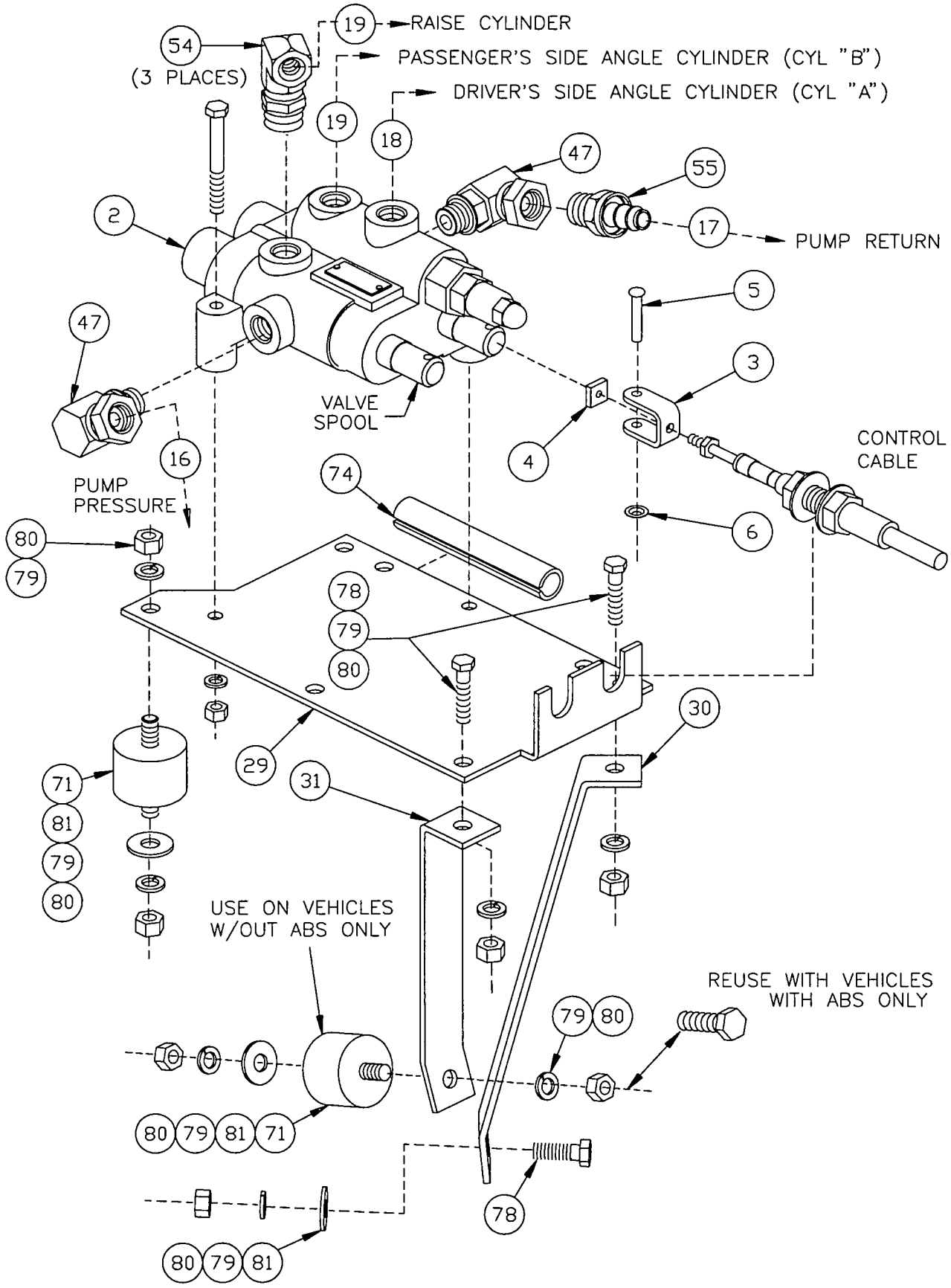
Chev/GMC
V6 4.3L
V8 5.0L & 5.7L
w-w/o AC, w-w/o ABS, w/o Dual Batteries

1990-1995



20382


TO VALVE
(8 PLACES)
(4 PLACES)
(8 PLACES)
USE STANDOFF LEGS FOR VEHICLES WITH FINE MESH GRILLES.


19
RAISE CYLINDER
54
(3 PLACES)
PASSENGER'S SIDE ANGLE CYLINDER (CYL "B")
DRIVER'S SIDE ANGLE CYLINDER (CYL "A")
19
18
47
55
2
17
PUMP RETURN
5
47
3
VALVE
SPOOL
4
CONTROL
CABLE
16
74
PUMP
PRESSURE
80
79
6
78
79
80
30
29
31
71
81
79
80
USE ON VEHICLES
W/OUT ABS ONLY
REUSE WITH VEHICLES
WITH ABS ONLY
79
80
80
79
81
71
78
80
79
81

Hydraulics Parts List

Ref #	Qty In A4468-40	Kit 7544	Part #	Description * Part of 20380 Bolt Bag
1	1		A2311	Pump tank assembly
2	1		A4466-40	Control Valve Assembly
3	2		4483	Clevis - VM
4	2		4494	10-32 Square Nut - VM
5	2		4491	Clevis Pin - 3/16" x 1
6	2		4493	3/16" Push Nut Zp
7	1		8764	Filter Kit
8		1	4419	SLC Head - Belt Drive
9		2	A4926	78" SLC Cable
10	1		20116	1-1/2" x 10" Cylinder Assy - XL
11	2		20117	1-1/2" x 12" Cylinder Assy - XL
12	2		6814	Clevis Pin - 1 x 3-5/16
13	4		6816	Anchor Pin - 1 x 4
15	6		90601	1/4" x 1-1/2" Cotter Pin
16		1	21214	26" Hose--Hp 1/4P-3/8P Flat Crimp
17		1	5653	28" LP Hose
18		1	6066	66" Hp Hose,1/4P to 1/4P
19		2	8632	78" Hp Hose, 1/4P to 1/4P
20		1	3074	Hose - 22" Hp 1/4P - 1/4P
21		2	4424	Hose - 36" Hp 1/4P - 1/4P
23		1	358	51" V-Belt
24		1	20056	Drive Sheave **
25		1	3696	Pump Sheave
26		1	8215	Pump Bracket
27		1	7009	Pump Bracket Brace
28		1	*20057	Drive Sheave Bushing .750 **
29		1	5329	Valve Plate
30		1	20366	Valve Plate Brace, long
31		1	20367	Valve Plate Brace, short
32		1	20368	Cable Support Brace
35		1	8210	Saddle Bracket
36	1		2036	Rear Tank Strap
37	1		2116	Universal Brace Rod
42	3		21096	Hose Disconnect Assembly
43	2	2	*1588	Dust Plug - Closure/Male
44		1	*4486	Adapter - Bulkhead 1/4" Npt
45		3	*4485	Snap Ring - 7/8" External
46	1	1	*319	1/4" x 90 Swivel Adapter
47	2		2315	9/16-18 w/O-Ring x 3/8 F Pi
51	2		2780	1/4 Npt x 90 Deg Street Elbow
52		1	* 2318	1/4 Npt x 90 Deg Union Elbow
53		1	*3979	3/8" Brass Bar Street Ell
54		3	*20316	9/16 O-ring to 1/4 NPT 90° Elbow
55	2		1658	Quill - 3/8 Nptm to 3/8 ID Hose
56		1	*8688	QD/Electric Plate -Short
57		1	*8686	2 QD Plate- Short
58		4	*8687	Standoff Leg
59		4	*8324	Hose Tie
60		2	*8127	1/4 x 45 Deg Swivel
61		8	*90687	1/4" x 1/2 (NC) Button Head
62		8	*90350	1/4 (NC) Lock nut
65		1	*8741	Bracket - Cable Boot
66		1	*8284	Cable Boot
67		1	*8992	3" Fitting Protector
71		2	*5529	Shock Mount
72		1	5704	Caution Label - Cab
73	2		3042	Grommet - Rubber, Split
74	1	2	*4477	Grommet - Split Hose
75	3	5	*3666	Hose Tie, nylon 3/16 x 8
76		2	*90048	5/16 x 1-1/4 (NC) Gr. 5 Cap
77	1		90054	5/16 x 1-1/2 (NC) Gr. 5 Cap
78	4		90042	5/16 x 1 (NC) Gr. 5 Cap Screw
79	6	6	*90360	5/16 Sp Lk Washer
80	7	6	*90332	5/16 (NC) Nut
81	4	3	*90313	5/16 Flat Washer
84	1		90614	1/4 x 1-1/4 (NC) Gr. 5 Cap Screw
85	1		90359	1/4 Sp Lk Washer
86	1		90330	1/4 (NC) Nut
87		1	*90202	7/16 x 5-1/4 (NF) Gr. 5 Cap
88		1	*90317	7/16 Flat Washer
89		3	*90154	3/8" x 4" (NF) Gr. 5 Cap Screw
90		1	*90103	3/8 x 1 (NC) Cap Screw
91		1	*90361	3/8 Lock Washer
92		1	*90334	3/8 (NC) Nut
93		5	*4268	5/8" Spacer Washer
94		2	*90605	M8 x 1.25 x 35 Gr. 8.8 Cap
95		2	*90428	M8 Lock Washer
96		1	*90315	3/8 Flat Washer

NC FASTENER TORQUE (FT-LB)

DIAMETER-THREADS PER INCH	GRADE G2	GRADE G5	GRADE G8
1/4 - 20	6	9	13
5/16 - 18	11	18	25
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
3/4 - 10	150	250	370
7/8 - 9	150	378	591
1 - 8	220	583	893

NF FASTENER TORQUE (FT-LB)

DIAMETER-THREADS PER INCH	GRADE G2	GRADE G5	GRADE G8
1/4 - 28	6	10	14
5/16 - 24	12	19	27
3/8 - 24	23	35	50
7/16 - 20	38	55	80
1/2 - 20	55	85	120
9/16 - 18	80	120	170
5/8 - 18	110	170	240
3/4 - 16	200	300	420
7/8 - 14	180	470	670
1 - 12	270	700	980

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

1. Cylinder and Cylinder Hose Assembly

A. Attach female half of disconnect (42) and a 1/4" Npt 45 degree swivel (60) to 22" Hp Hose (20). Using bench vise to hold lift cylinder (10), remove closure from port and screw the other end of the hose directly into this port. Place lift cylinder with hose pointing to passenger side into ears on lift arm and upper gear. Secure with clevis pins (12) and cotter pins (15).

B. Attach male half of quick disconnect (42) to one end of a 36" Hp hose (21). Place a dust cover (43) on the end of the other 36" Hp Hose (21) and put another male half of a disconnect (42) on this hose.

C. Using a bench vise to hold angle cylinders (11), remove closures from ports and screw brass forged street ells (51) into ports. Point forward toward live end of cylinder and slightly upward as they will be installed on the A-Frame. The driver side cylinder uses the 36" Hp hose with the dust cover and male disconnect half. The passenger side uses the 36" Hp hose with the male disconnect half and **no dust cover.** Install cylinders to their respective sides so that ells are between the cylinders and the A-frame. Secure cylinders with anchor pins (13) at both ends, with cotter pins (15) in each anchor.

2. Control Head and Control Cables

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

A. Drill two 5/8" holes in the firewall for the control cables 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 and 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. Install three 9/16" O-ring to 1/4" NPT 90° elbow (54) in lift and angle ports. When tight, elbows should point at approximately 2:00 o'clock with the spools at 12:00 o'clock.

B. Mount valve to valve plate (29) using two 1/4" x 1 3/4" cap screws, lock washers, and nuts from the valve bag. Install valve plate braces (30) and (31) to holes on valve plate as per illustration using 5/16" x 1" cap screws (78), lock washers (79), and nuts (80). Attach a rubber shock mount (71) to the valve plate as per illustration using a 5/16" lock washer (79) and a nut (80). Leave braces loose on the valve plate to allow movement. Remove and save the forward bottom bolt from the anti-lock brake system. Place the valve plate on the driver's side fender in front of the anti-lock brake system with the control cable bulkheads pointed toward the passenger side. Route control cables over brake master cylinder, over the engine and connect them to the valve plate by first reinstalling jam nuts and washers on cables. Then place control cables in respective slots of valve plate bulkhead with nut and 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. With the cable bulkheads of the valve plate pointed toward the passenger side of the vehicle, attach the shorter valve plate brace to the ABS bracket using the previously removed bolt. Cut a 6" split hose grommet (74) in half and install one of the halves onto the edge of the valve plate to protect the vacuum canister.

Mark and drill 11/32" holes in the fender for the long valve plate brace and the rubber shock mount. Fasten the long valve plate brace with a 5/16" x 1" cap screw (78), flat washer (81), lock washer (79), and nut (80). Fasten the rubber shock mount with a 5/16" flat washer (81), lock washer (79), and nut (80). The valve should be positioned at an angle such that the cables route smoothly without any sharp bends. **NOTE:** For vehicles not equipped with ABS, fasten a rubber shock mount (71) onto the bottom hole of the short valve plate brace using a 5/16" lock washer (79) and nut (80). Mark and drill an 11/32" hole in the fender and fasten shock mount using a 5/16" flat washer (81), lock washer (79), and nut (80). **Tighten all fasteners.**

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 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

> **Note: Apply a *removable* loosening prevention compound (such as "Lock-tite") to all drive sheave fasteners prior to installation.**

A. Remove serpentine belt. Remove and discard 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.

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

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 bolt on back of alternator, above valve cover. Remove and discard bolt on front of alternator to left of fan. Install pump bracket (26) by placing slots onto manifold studs and reinstall previously removed nuts. **Do not fully tighten any fasteners until all fasteners and braces are installed.** Align tab on pump bracket and the cable support brace (32) with the hole in the back of the alternator. Fasten with an M8 x 1.25 x 35 Gr. 8.8 cap screw (94) and M8 lock washer (95). Fasten pump bracket brace (27) to remaining hole in front of 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. **Cropped out portion of pump bracket brace should be positioned towards alternator cooling fins.** Attach other end of brace to middle hole in pump bracket with one 5/16" x 1" Gr. 5 (NC) cap screw (78), lock washer (79), and nut (80). Tighten all pump bracket fasteners. Using hole above manifold in pump bracket as a guide, drill a 13/32 hole through rear alternator bracket and fasten with a 3/8" x 1" cap screw (90), flat washer (96), lock washer (91), and nut (92). Tighten. Install a 6" split hose grommet (74) over the control cables where they contact the brake master cylinder and secure it with plastic wire ties (75). Install the other half of the cut split hose grommet over the control cables where they contact the cable support brace and secure it to the brace with a plastic wire tie (75).

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 approximately 1 o'clock (slightly inward) looking at rear of pump tank. 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 and pump to pump bracket using two 5/16 x 1-1/4 cap screws (76), flat washers (81), lock washers (79) and nuts (80).

C. Reinstall serpentine belt. Install 51" V-belt (23) on over installed drive and pump sheaves. (If belt will not go over pump sheave, rotate pump in saddle bracket again.) Align sheaves and tighten 1-1/2" saddle bracket fastener. Adjust for proper tension by pivoting saddle bracket on top bolt. (Make sure pump is clearing hydraulic lines going to anti-lock brake system.)

> **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 remaining hole 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 pump bracket (26) with a 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.

6. Hydraulic Hose Installation

A. Remove driver's side parking light and drill an 1 7/8" hole in the radiator core support approximately 6" below driver's side head light (grille may have to be removed to facilitate drilling operation and hose routing). Install a split hose grommet (74) around the hole.

B. Attach the 26" Hp hose (16) to 1/4" brass bar elbow on pump tank and push 28" LP hose (17) onto quill on pump tank. Route these hoses to the control valve. Cut 28" 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.**

Screw HP hose into 90 degree swivel on valve. Turn swivel so hose goes just over the top and not hitting the window washer reservoir. Route LP hose along HP hose and push onto quill on valve. Tie hoses together with tie wrap (75).

C. Attach the 66" Hp hose (18) to the CYL 'A' port of the valve. Pass it under the valve plate and out through the core support and through the grille low and about 14" off center on the driver side. Vehicles with heavy duty cooling and air conditioning will need the 3" fitting protector (67) on hoses rubbing edge of coils between radiator and grille. Place fitting protector around all three hoses and secure with tie wrap (75). Attach a female half of a QD (42) to the QD/electric grille plate (56) with a snap ring (45). Put a dust plug (43) on the end of a 45 degree swivel fitting (60) and attach it to the QD. Attach the Hp hose (18) to 45 degree swivel. Route the head lamp connector (with dust cover) from previously installed light kit vehicle harness, through radiator core support. Slide connector into the slot provided in the QD/Electric grille plate. The grille plate should be oriented with head lamp connector to the inside of vehicle. Attach grille plate to grille with two long tie wraps (59).

D. Attach one 78" Hp hose (19) to the CYL 'B' port of the valve. Attach the other 78" Hp hose (19) to the raise port of the valve. Route both of these hoses under the valve plate and out through the radiator core support and out through grille low and about 14" from center on passenger side. Attach female half of a QD (42) to one hole of the 2 QD grille plate (57) with a snap ring (45). Attach a 1/4 x 90 degree swivel (46) with a dust plug (43) to back of QD. Attach the bulkhead adapter (44) with a snap ring (45) to the other hole in the 2 QD grille plate.

> **Note: Some GMC models with a fine mesh grille may have to use two standoff legs (58) fastened with four 1/4-20 x 1/2 button head socket screws (61) and lock nuts (62) on each grille plate. Trucks using standoff legs will use grille plate/fitting configuration as described above except that the two 90 degree and one 45 degree swivel fittings will not will be used.**

Attach male half of a QD (42) to the front of bulkhead adapter. Attach 1/4 x 90 degree swivel (46) with dust plug (43) to the back of the bulkhead adapter. Attach the 78" Hp hose from the raise port of the valve to the male disconnect. Attach the 78" Hp hose from the CYL 'B' port to the female disconnect. Place the 'angle' female disconnect on grille plate towards the outside of vehicle and attach grille plate to grille with two long tie wraps (59).

E. Install cable boot bracket (65) on driver's side headgear brace, between brace and fasteners. Insert cable boot (66) on over bracket.

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

7. 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 FISHER® High Performance Hydraulic Fluid (recommended for superior cold-weather performance) or 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.