

## Parts List

Ref#	Qty	Part #	Description	Ref#	Qty	Part #	Description
	A4468	7517			A4468	7517	
	-40				-40		
1	1	A2311	Pump tank assembly	52	1	*2318	1/4 Npt x 90° Union Elbow
2	1	A4466-40	Control Valve Assembly	53	1	*8476	1/4 Npt x 45° Street Elbow
3	2	4483	Clevis - VM	54	3	*20316	9/16 O-ring to 1/4 NPT 90° Elbow
4	2	4494	10-32 Square Nut - VM	55	2	1658	Quill - 3/8" Nptm to 3/8" ID Hose
5	2	4491	Clevis Pin - 3/16" x 1	56	1	*8688	QD/Electric Plate -Short
6	2	4493	3/16" Push Nut Zp	57	1	*8686	2 QD Plate- Short
7	1	8764	Filter Kit	58	4	*8687	Standoff Leg
8	1	4419	SLC Head - Belt Drive	59	4	*8324	Hose Tie
9	2	6027	45" SLC Cable	60	1	*8127	1/4 x 45° Swivel
10	1	20116	1-1/2" x 10" Cylinder Assy - XL	61	8	*90687	1/4"x1/2" (NC) Button Head Scrw Socket Swivel
11	2	20117	1-1/2" x 12" Cylinder Assy - XL	62	8	*90350	1/4 (NC) Lock Nut
12	2	6814	Clevis Pin - 1" x 3-5/16"	65	1	*8741	Bracket - Cable Boot
13	4	6816	Anchor Pin - 1" x 4"	66	1	*8284	Cable Boot
15	6	90601	1/4" x 1-1/2" Cotter Pin	67	1	*8992	3" Fitting Protector
16	1	21214	26" Hose--Hp 1/4P-3/8P Flat Crimp	71	3	*5529	Shock Mount
17	1	4471	Hose - 26" Lp	72	1	5704	Caution Label - Cab
18	2	8632	Hose - 78" Hp, 1/4P to 1/4P	73	2	3042	Grommet - Rubber, Split
19	1	375	Hose - 42" Hp, 1/4P to 1/4P	74	1	4477	Grommet - Split Hose
20	1	3074	Hose - 22" Hp 1/4P - 1/4P	75	3	2	*3666 Hose Tie, nylon 3/16 x 8
21	2	4424	Hose - 36" Hp 1/4P - 1/4P	76	1	*90048	5/16"x 1-1/4" (NC) Gr. 5 Cap Scrw
22	1	*3675	Fan Spacer	77	1	90054	5/16"x 1-1/2" (NC) Gr. 5 Cap Scrw
23	1	707	58" Fan Belt	78	4	90042	5/16" x 1" (NC) Gr. 5 Cap Screw
24	1	6559	Drive Sheave	79	6	5	*90360 5/16" Sp Lk Washer
25	1	3696	Pump Sheave	80	7	5	*90332 5/16" (NC) Nut
26	1	6562	Pump Bracket	81	4	3	*90313 5/16" Flat Washer
27	1	6561	Pump Bracket Brace	84	1	90614	1/4" x 1-1/4" (NC) Gr. 5 Cap Screw
29	1	5329	Valve Plate	85	1	90359	1/4" Sp Lk Washer
30	1	5975	Valve Plate Brace	86	1	90330	1/4" (NC) Nut
35	1	5467	Saddle Bracket	88	1	*90103	3/8" x 1" (NC) Cap Screw
36	1	2036	Rear Tank Strap	89	1	*90361	3/8" Lock Washer
37	1	2116	Universal Brace Rod	90	1	*90379	M8 x 1.25 x 30 Gr. 8.8 Cap Screw
38	1	*2115	Universal Brace Tab	91	4	*5939	M8 x 1.25 x 50 Stud Gr. 10.9
42	3	21096	Hose Disconnect Assembly	92	5	*90428	M8 Lock Washer
43	2	2	*1588 Dust Plug - Closure/Male	93	3	*4268	5/8" Spacer Washer
44	1	*4486	Adapter - Bulkhead 1/4" Npt	94	1	*90397	M10 x 1.5 x 90 Gr. 8.8 Cap Screw
45	3	*4485	Snap Ring - 7/8" Extrl Bowed	95	1	*90429	M10 Lock Washer
46	1	319	1/4" x 90° Swivel Adapter	97	3	*90621	3/8" x 6" (NC) Gr. 8 Cap Screw
47	2	2315	9/16 w/O-Ring x 3/8 F Pi Swivel	98	3	*90643	3/8" x 6" (NF) Gr. 8 Cap Screw
51	2	2780	1/4 Npt x 90° Street Elbow Frgd				

A4468-40 uses 5425 Bolt Bag \* Part of 8967 Bolt Bag

## 1. Cylinder and Cylinder Hose Assembly

- A. Attach female half of disconnect (42) and a 1/4" NPT 45 degree street ell (53) to the 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 the lift cylinder with hose pointing towards passenger side into ears on lift arm and upper gear. Secure with the clevis pins (12) and cotter pins (15).
- B. Attach a male quick disconnect half (42) to one end of a 36" Hp hose (21). Place a dust cover (43) and male quick disconnect half (42) on the end of another 36" HP hose (21).
- C. Using bench vise to hold angle cylinders (11), remove closures from ports. Screw brass forged street ells (51) into ports. Ells should point forward toward live end of cylinder and slightly upward as they will be installed on the A-frame. The driver's side cylinder uses the 36" Hp hose with the dust cover and male disconnect half. The passenger's side cylinder uses the 36" hose with the male disconnect half and **no dust cover**. Install cylinders to their respective sides so that ells are between the cylinders and A-frame. Secure cylinders with anchor pins (13) and cotter pins (15) at each end.

## 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 the underside of the dash as shown in the 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 nuts and washers from the valve end of the cables. Route the cables from dash through hole in the firewall to the top of the driver's 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° elbows (54) in lift and angle ports. When tight, elbows should point toward rear of valve at approximately 5 o'clock from the cable end of the valve.
- 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 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 pins (5) through clevis and spools and secure with push nuts (6). Temporarily adjust cables so that control lever is near being centered in the control head.
- C. Locate valve plate with 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 while clearing brake control box. Be sure swivel adapter does not rub 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 the 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 valve plate brace with a 5/16 lock washer (79) and nut (80). Using the shock mount as a guide, mark and drill one 11/32" hole through the fender well. Fasten the 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 the cable clevis does not allow enough adjustment, reposition the cable at the 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 the cables and control head are attached. Failure to center spools will restrict the fluid flow through the 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 shroud and loosen serpentine belt. Remove fan, water pump pulley, and studs from the water pump shaft flange. Save the nuts, discard studs. Remove and discard the three bolts holding the crank pulley onto the crankshaft.

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

- B. Position drive sheave (24) in crank pulley and fasten to crankshaft with three 3/8 x 6 (NC) grade 8 cap screws (97) and three spacer washers (93). Alternately tighten the three cap screws to assure proper installation and torque these fasteners to 46 foot pounds.

**NOTE: On 1990-1993 vehicles use 3/8 x 6 (NF) Gr. 8 Cap Screws (98).**

- C. Install the short threaded end of four M8 x 1.25 x 50 studs (91) into the water pump shaft flange. Reinstall the water pump pulley, install the fan spacer (22), and reinstall the fan onto the studs. Fasten with previously removed nuts and four M8 lock washers (92). Tighten these fasteners to 25 ft. lbs.

#### **5. Pump Tank and Pump Bracket**

**Caution: Pump tank fill must be vertical to engine.**

- A. Remove and discard both front alternator bolts. Position pump bracket (26) in front of the alternator and fasten with an M10 x 1.5 x 90 cap screw (94) and an M10 lock washer (95) in the top hole. Fasten with an M8 x 1.25 x 30 cap screw (90), and an M8 lock washer (92) in the bottom. Remove the top and bottom fasteners from the rear brace on the alternator. Save the top fasteners and discard the bottom fasteners. Install the universal brace tab (38) to the top of the alternator brace and fasten with the previously removed nut. Fasten straight end of pump bracket brace (27) onto the lower end of the alternator brace with a 3/8 x 1 (NC) Gr. 5 cap screw (88) and a 3/8" lock washer (89). Tighten all fasteners.
- B. Holding pump tank (1) in bench vise, place a 1/4" brass bar ell (52) (pointed slightly inboard) onto the 1/4" pipe nipple of pump tank and a quill (55) in the other threaded hole in pump tank. Install the pump sheave (25) onto the pump shaft using the lock nut and key supplied with the pump. Remove pump from vise and install saddle bracket (35) on over front of pump. Secure with a 5/16" x 1-1/2" cap screw (77), lock washer (79), and nut (80). Attach the saddle bracket and 90 degree bent end of the pump bracket brace (27) to the top hole of the pump bracket using one 5/16" x 1-1/4" (NC) cap-screw (76), flat washer (81), lock washer (79), and nut (80). Fasten the saddle bracket to the pump bracket through the bottom hole with a 5/16" x 1" (NC) cap screw (78), flat washer (81), lock washer (79), and nut (80).
- C. Install a 58" V-belt (23) on over drive and pump sheaves. Using the top fastener as a pivot, align sheaves and tighten fasteners. Adjust for the proper tension. Install rear tank strap (36) on over rear of pump tank. Align universal brace rod (37) to universal brace tab. Cut shorter if required. Install one 5/16 nut (80) and flat washer (81) onto universal brace rod and insert brace rod through universal brace tab. Connect brace rod to tank strap with one 1/4 x 1-1/4 cap screw (84), lock washer (85), and nut (86). Fasten the other end of brace rod to brace tab with a 5/16" flat washer (81), 5/16" lock washer (79), and nut (80). Use the brace rod to adjust the alignment of the drive and pump sheaves. Check belt for proper tension. Fasten vehicle power steering hose clear of pump belt with tie wraps (75). Tighten serpentine belt.

**6. Hydraulic Hose Installation**

- A. Attach 26" Hp hose (16) to the 1/4" brass bar ell on pump tank and push one end of the 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 fire.**

Fasten HP hose (16) into 90 degree swivel (47) on "in" port side of valve. Push the LP hose onto the quill (55) on the valve. Install the end of the 42" angle hose (19) to the elbow on the Cyl. "A" port of the valve. Install the end of the 78" angle hose (18) to the elbow in the Cyl. "B" port of the valve. Install end of the other 78" hose (18) to the elbow in the raise port of the valve. Remove the grille and drill a 1 7/8" hole approximately 6" below the inboard side of the headlight. Install a split hose grommet (74) around the hole. Route the 78" hoses out through this hole. Reinstall the grille. Place the 42" HP hose approximately 14" off center of the grille on the driver's side out through the grille. Attach a female half of a QD to the QD/Electric Grille plate (56) with a snap ring (45). Put a dust plug (43) on the angle hose and tighten it into the QD.

**NOTE: On trucks with extra heavy duty cooling, a 1/4 NPT 45 degree swivel (60) may be used in the back of the disconnect to accommodate the re-routed hose. Slide the electrical connector (with Dust Cover) in the slot provided on the plate.**

**NOTE: Some GMC models with a fine mesh grille may have to use two stand off legs (58) fastened with four 1/4-20 x 1/2" button head socket screws (61) and lock nuts (62)**

- B. Install the 78" angle hose (18) to the angle port "A" of the valve. Pass it out through the core support and rout if out through the grille, low and about 14" off center on the passenger's side. Attach a female half of a disconnect (42) to one hole in the 2 QD Grille plate (57) with a snap ring (45). Attach a bulkhead adapter (44) with a snap ring (45) to the other hole in the plate. Attach a male half of a disconnect (42) to the bulkhead adapter.

**NOTE: For GMC's with fine mesh grilles, no further adapters are needed. The hoses may be installed directly to the back of the QD's after sliding dust plugs over the hose fittings. Install the stand off legs after the hoses are tightened.**




On trucks without standoffs, attach a 1/4" NPT 90 degree swivel (46) and dust cover to the female disconnect half which will be the outside fittings when the plate is attached to the grille. Tighten the already installed angle head to the 90 degree swivel. Install the 78" HP hose (19) to the raise port of the valve. Pass it out through the grille on the passenger side in the same opening as already installed angle hose. On trucks without grille plate standoffs, attach a 1/4" NPT 45 degree swivel (60) and dust plug (43) to the rear of the disconnect and hose connection. On grilles with standoff legs, the 45 degree fitting is not necessary. Attach each plate to the grille with two long tie wraps (59).

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

- D. Install in line oil filter as per filter kit (7) 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 the caution label (72) on the dash beside the control head.

NIP FASTENER TORQUE (FT-LB)			
DIAMETER-	GRADE		
THREADS			
PER INCH	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
3/4 - 10	150	250	370
7/8 - 9	150	378	591
1 - 8	220	583	893

- 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. **NOTE: If the blade angles opposite from the control lever position, reverse the two Hp angle hoses.** 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.