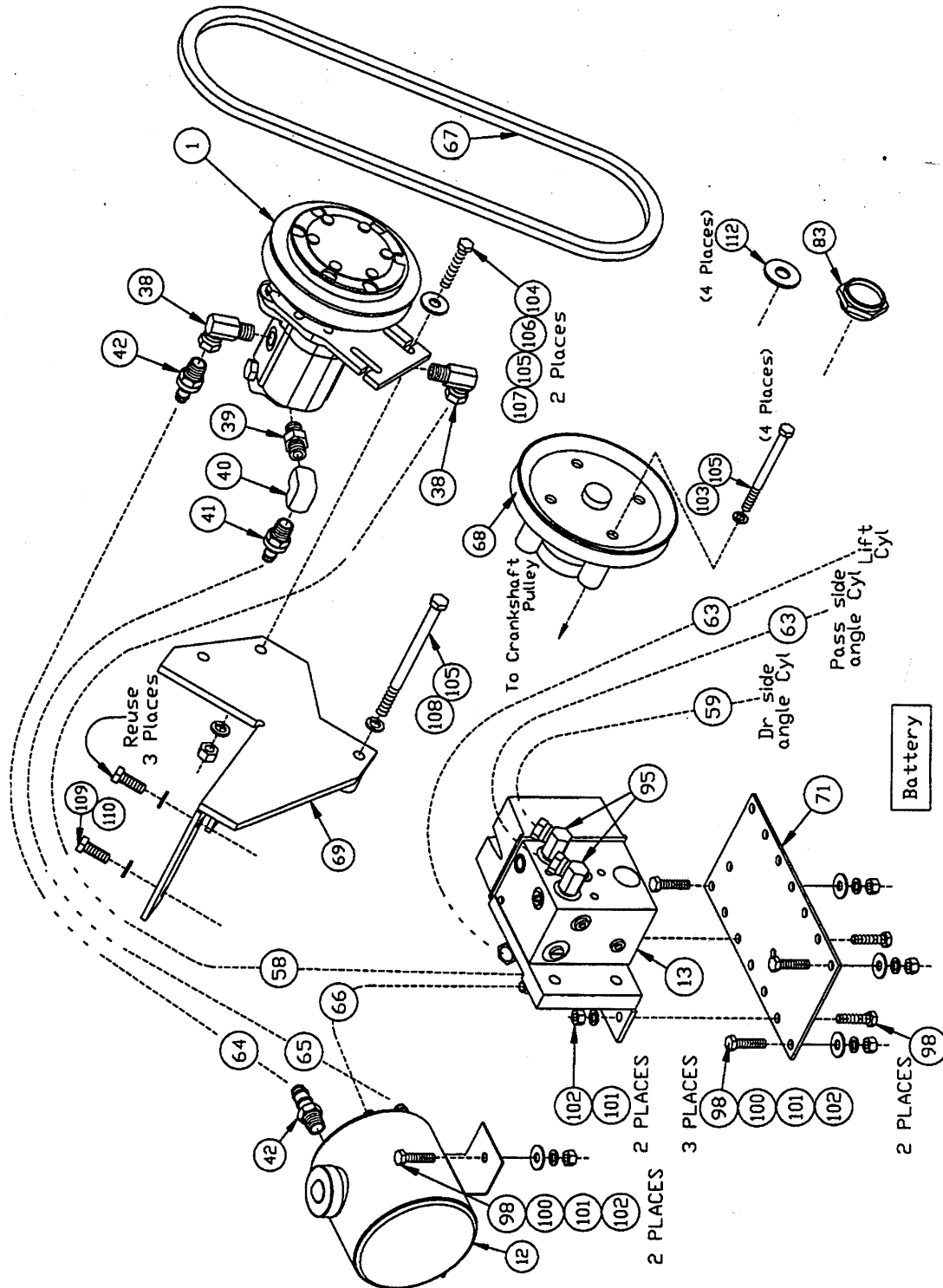
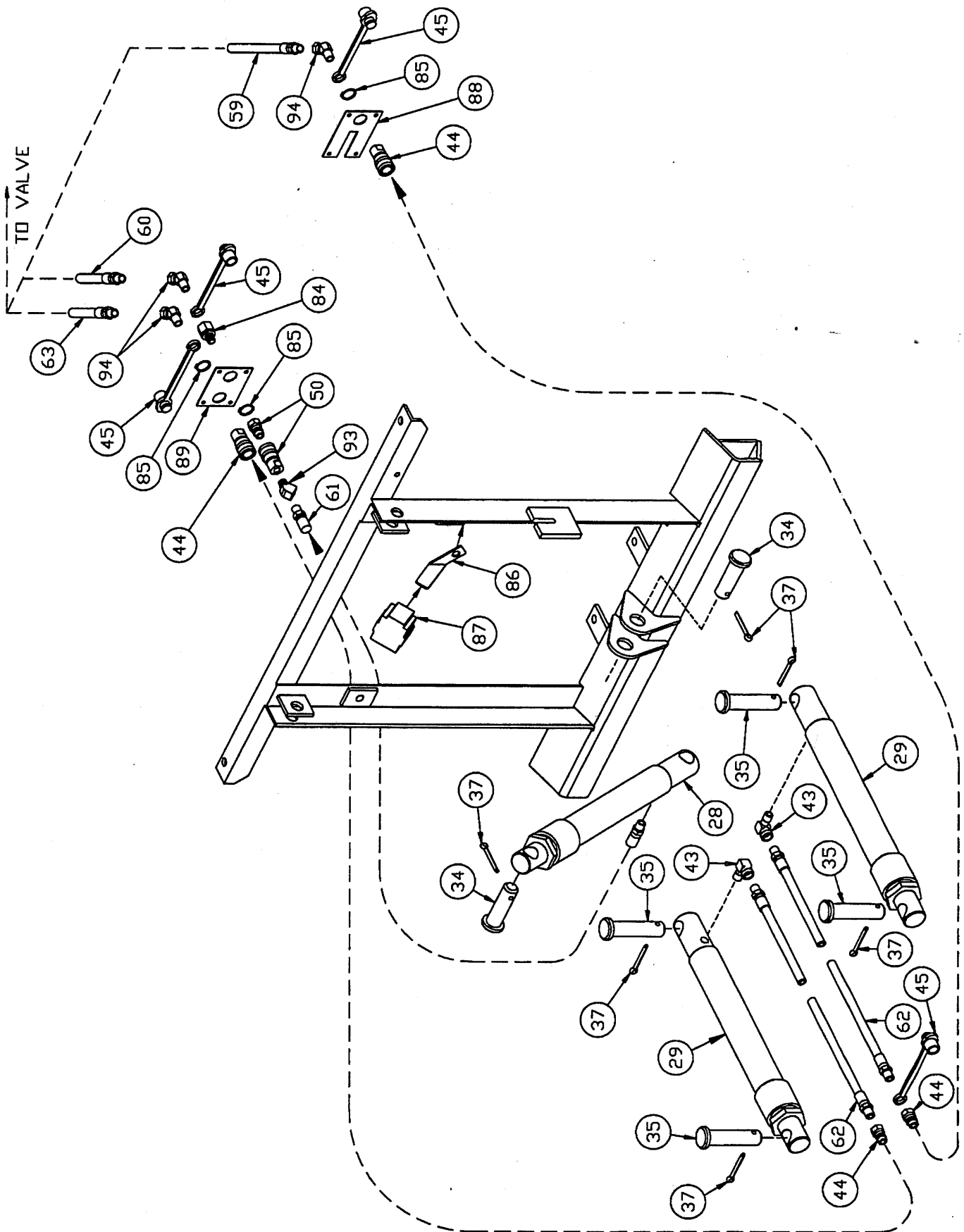


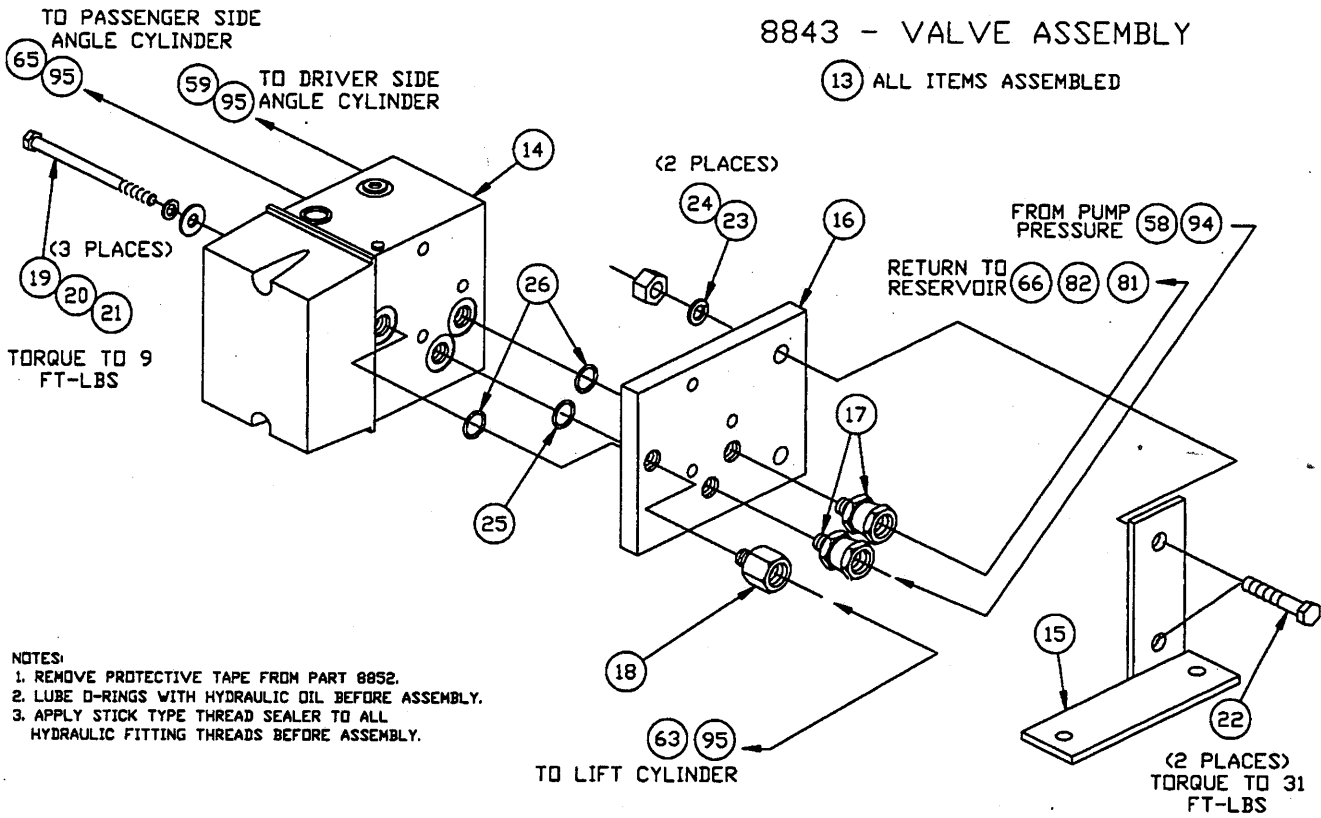
Ford  
V8 7.3L Diesel 1992 1/2-94  
w-w/o AC  
w-w/o Turbo

7536B  
Belt Drive Hydraulics  
Electric Clutch  
Solenoid Valve  
Remote Reservoir

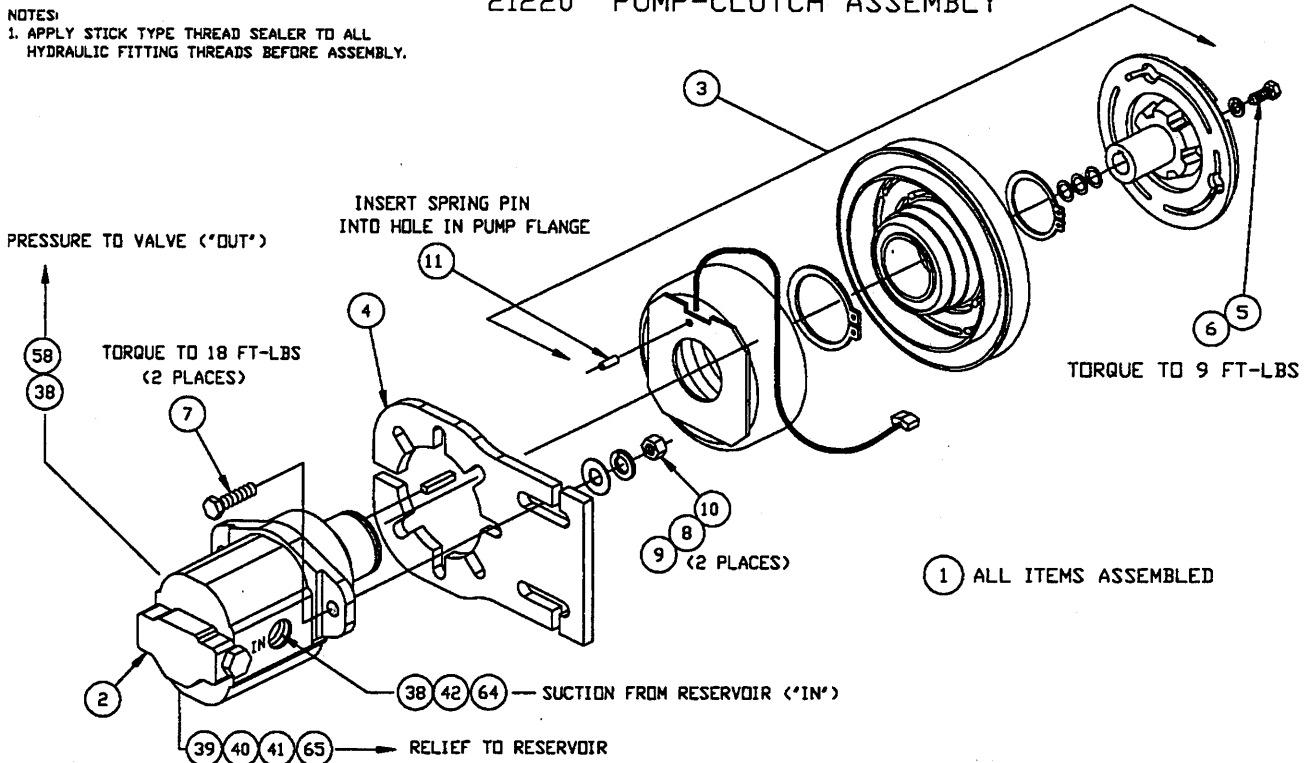




8843 - VALVE ASSEMBLY



21220 PUMP-CLUTCH ASSEMBLY



**Parts List**  
**8840-40B Electric Clutch Common Hydraulic Kit**

Assy	Comp	Qty	Part #	Description
1		1	21220	Pump-Clutch Assembly
	2	1	21221	Pump Assembly
	3	1	21222	Electric Clutch
	4	1	21219	Pump Plate
	5	1	90461	1/4 x 3/4 (NC) Gr. 5 Cap Screw
	6	1	90359	1/4 Lock Washer
	7	2	90048	5/16 x 1-1/4 (NC) Gr. 5 Cap Screw
	8	2	90360	5/16 Lock Washer
	9	2	90313	5/16 Plain Washer
	10	2	90332	5/16 Hex Nut (NC)
	11	1	90707	5/32 x 1/2 Spring Pin
12		1	8389	Oil Reservoir
13		1	8843	Valve Assembly--Elec Clutch/Sol
	14	1	7921	Valve Manifold Assy Sol - 4000
	15	1	8851	Valve Bracket
	16	1	8852	Mounting Plate - Valve
	17	2	8849	1/8 Nptm to 1/4 Nptf Swivel Adapter
	18	1	8848	1/8 Nptm to 1/4 Nptf Reducing Adapt
	19	3	90696	1/4 x 3-1/2 (NC) Gr. 5 Cap Screw
	20	3	90359	1/4 Lock Washer
	21	3	90311	1/4 Plain Washer
	22	2	90111	3/8 x 1-1/2 (NC) Gr. 5 Cap Screw
	23	2	90361	3/8 Lock Washer
	24	2	90334	3/8 (NC) Nut
	25	1	3719	O-Ring - 013
	26	2	5827	O-Ring - 012
27		1	7714	Dash Bracket Bag (not shown)
28		1	20116	10" Lift Cylinder Assy - XL
29		2	20117	12" Angle Cylinder Assy - XL
30		1	8764	Filter Kit (not shown)
31		1	20040	Control Harness--clutch & sol valve
32		1	8292	Solenoid Control
33		1	21295	Bolt Bag for 8840-40B
	34	2	6814	Clevis Pin - 1 OD x 3-5/16
	35	4	6816	Anchor Pin - 1 OD x 4
	36	1	21296	Bolt Bag - Part of 21295
	37	6	90601	1/4 x 1-1/2 Cotter Pin
	38	2	21270	3/4-16 O-ring to 3/8 Npt swivel elbow
	39	1	5804	1/4" Hex Male Pipe Nipple
	40	1	2318	1/4 Npt x 90° Union Elbow
	41	1	8850	Quill - 1/4 Nptf to 3/8 ID Hose
	42	2	8391	Quill - 3/8 Nptm to 1/2 ID Hose
	43	2	2780	1/4 Npt x 90 degree Street Elbow
	44	3	A1587	Hose Disconnect Assembly
	45	4	1588	Dust Plug - Closure/Male
	46	1	3042	Grommet - Rubber, Split (not shown)
	47	1	4477	Grommet - Split Hose (not shown)
	48	1	8329K	Dielectric Grease Tube (not shown)
	49	1	4302	3M 560 in-line Connector
	50	1	4303	Female Connector (not shown)
	51	1	5048	Male Connector (not shown)

**Parts List**  
**7536B Electric Clutch Peculiar Hydraulic Kit**

Ref #				
Assy	Comp	Qty	Part #	Description
58		1	4440	78" HP Hose, 1/4P To 3/8P
59		1	5192	60" HP Hose, 1/4P To 1/4P
60		1	375	42" HP Hose, 1/4P To 1/4P
61		1	3074	22" HP Hose, 1/4P To 1/4P
62		2	4424	36" HP Hose, 1/4P To 1/4P
63		1	376	32" HP Hose, 1/4P To 1/4P
64		1	21461	1/2" LP Hose - 70"
65		1	2515	3/8" LP Hose - 72"
66		1	1681	3/8" LP Hose - 24"
67		1	20486	3VX-630 IND Gr. Belt
68		1	9097	Drive Sheave
69		1	9100	Pump Bracket
70		1	20077	Brace - AC Hose
71		1	8871	Valve Plate
78		1	4477	Grommet - split hose
80		1	20005	Bolt Bag for 7536 (not shown)
	81	1	765	1/4 Npt x 90 degree Street Elbow
	82	1	8850	Quill - 1/4 Nptf to 3/8 Hose
	83	1	9096	Fan Extender Adapter
	84	1	4486	Bulkhead Adapter
	85	3	4485	7/8" Snap Ring
	86	1	8741	Bracket - Cable Boot
	87	1	8284	Cable Boot
	88	1	8599	QD/Electric Plate (long)
	89	1	8600	2 QD Plate (long)
	91	8	8324	Tie Wrap - 3/16 x 14 (not shown)
	92	10	3666	Tie Wrap - 3/16 x 8 (not shown)
	93	1	8476	1/4 x 45 Deg. Street Elbow
	94	3	8127	1/4 x 45 degree Street Swivel
	95	3	319	1/4 Npt x 90 degree Swivel Adapter Union
	98	9	90042	5/16 x 1 (NC) Gr. 5 Cap Screw
	99	1	90054	5/16 x 1-1/2 (NC) Gr. 5 Cap Screw
	100	6	90313	5/16 Flat Washer
	101	9	90360	5/16 Lock Washer
	102	9	90332	5/16 (NC) Nut
	103	4	90996	3/8 x 3-1/2 (NC) Gr. 8 Cap Screw
	104	2	90106	3/8 x 1-1/4 (NC) Gr. 5 Cap Screw
	105	7	90361	3/8 Lock Washer
	106	2	90315	3/8 Flat Washer
	107	2	90334	3/8 (NC) Nut
	108	1	90997	3/8" x 7" (NC) Gr. 5 Cap Screw
	109	1	90378	M8 x 1. 25 x 25 Gr. 8 Cap Screw
	110	1	90428	M8 Lock Washer
	112	4	4268	5/8" Spacer Washer

**Note: The 20850 Fish-Stik™/Clutch Relay Kit is required for installations that will use the 9400 Fish-Stik Push Button Hand-Held Control.**

### 1. Cylinder and Cylinder Hose Assembly

- A. Attach female half of disconnect assembly (44) and a 1/4" Npt 45 degree street elbow (93) to 22" HP hose (61). Using bench vise to hold lift cylinder (28), remove closure from port and screw the other end of the hose directly into this port. Place lift cylinder with hose pointing toward passenger side into ears on lift arm and upper gear. Secure with clevis pins (34) and cotter pins (37).
- B. Attach a male half of disconnect assembly (44) to one end of a 36" HP hose (45). Place a dust cover (51) and a male half of disconnect assembly (44) on the end of the other 36" HP hose (62).
- C. Using bench vise to hold angle cylinders (29), remove closures from ports. Screw brass forged street ells (43) 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 side cylinder uses the 36" HP hose with the dust cover and male disconnect half. The passenger side cylinder 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 A-frame. Secure cylinders with anchor pins (35) and cotter pins (37) at each end.

### 2. Drive Sheave Installation

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

- A. Remove fan and serpentine belt. Remove and discard fasteners from crank shaft pulley. Do not remove spacers on both sides of vehicle sheave. **Note: Take sandpaper or emery cloth and clean out center of crank shaft. Blow out with air.**
- B. Install drive sheave (68). Make sure hub on end of drive sheave goes straight into crank shaft, and all four spacers are tight against the vehicle sheave. Attach with four 3/8 x 3-1/2 cap screws (NC) Gr. 8 (103) and lock washers (105). Use Lock-tite on bolt threads before installing. Snug up all cap screws before tightening and torque to 46 ft. -lb.

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

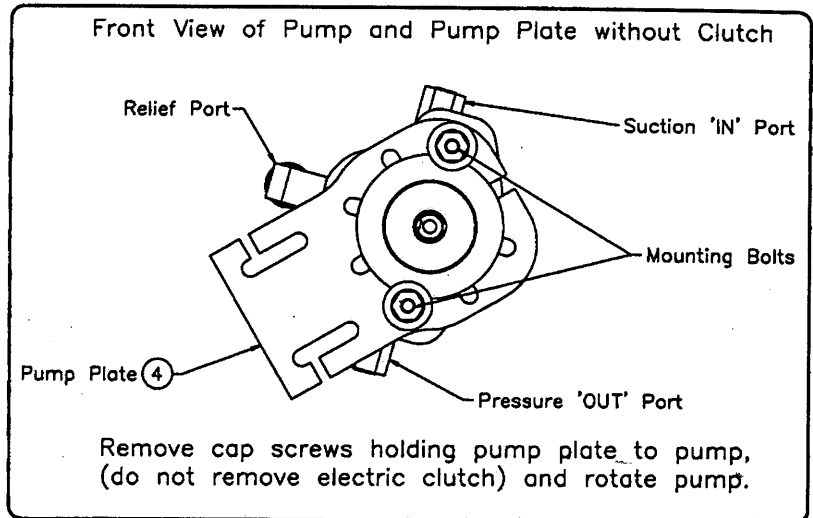
DIAMETER- THREADS PER INCH	NC FASTENER TORQUE (FT-LB)		
	GRADE G2	G5	G8
1/4 - 20	6	9	13
5/16 - 18	11	18	28
3/8 - 16	19	31	46
7/16 - 14	30	50	75
1/2 - 13	45	75	115
9/16 - 12	66	110	165
5/8 - 11	93	150	225
3/4 - 10	150	250	370
7/8 - 9	150	378	591
1 - 8	220	583	893

- C. Remove fan from aluminum clutch. Place a 5/8" x 1/8" spacer washer (112) between clutch and fan blade for each mounting bolt; four in total. Place Lock-tite on water pump shaft and install fan extender adapter (83). Tighten. Place Lock-tite on adapter threads and install fan. Tighten. Do not reinstall serpentine belt at this time.

### 3. Pump - Clutch Assembly and Pump Bracket

- A. Install hydraulic fittings onto pump/clutch assembly (1). Looking down on the pump/clutch assembly with the suction 'in' port up and using the pump shaft as a 12:00 reference, position both the pressure port and suction port 90° swivel fittings (38) to 6:00. Lock the fittings in their proper orientation with the jam nuts. Attach a 1/2" quill (42) into the suction fitting. Install the 1/4" pipe nipple (39) into the relief port on the end plate of the pump. Screw the 1/4" brass elbow (40) onto the nipple and aim it away from the back of the pump.

- B. Rotate the pump/clutch assembly (1) in the pump plate (4) as shown in the illustration. **Vehicles with air conditioning:** Due to the clutch pulley/AC hose interference, install the AC hose brace (70) on back of the pump. Remove and discard the top cap screw fastening the pump to the pump plate. Place a split hose (78) over the air conditioner hose. Install hose brace (70) by placing the brace on the back of the pump and install with 5/16 x 1-1/2 cap screw (99) and 5/16 flat washer (100) and previously removed flat washer, lock washer and nut. Do not tighten at this time.



- C. Remove bolt between belt tensioner and power steering pulley. Discard bolt. Remove and save fasteners from power steering pump or the bracket with the idler pulley in place of air conditioner. Hold up air conditioner and place pump bracket (69) under air conditioner or pulley bracket and reinstall fasteners. Do not tighten any fasteners at this time. Install a 3/8 x 7 cap screw (NC) Gr. 5 (108) with lock washer (105) through hole in pump bracket with pipe spacer. On the vehicles without air conditioner, on the fourth hole of the idler pulley bracket not used, use a 8 mm x 1.25 x 25 cap screw Gr. 8.8 (109) and lock washer (110). Tighten all fasteners and reinstall serpentine belt.
- D. Remove plastic air filter intake until pump assembly is installed; then reinstall after the clutch and pump have been installed.
- E. Place pump plate portion of pump/clutch assembly (1) against pump bracket and install two 3/8 x 1-1/4 cap screws (104) with flat washers (106) through slots of plate and holes in pump bracket. Secure with two 3/8" lock washers (105) and nuts (107). Place 63" V-belt (67) over drive sheave and pump/clutch sheave. Tighten belt and then fasteners making sure clutch sheave is at least 1/2" away from battery box. **Vehicles with air conditioning:** Turn AC hose brace (70) under hose and tighten bolt. Tie hose to brace with two tie wraps (92). This will keep hose off from pulley. Brake hydro boost return hose may have to be removed, cut off and realigned to keep from rubbing pump assembly.
- F. Install a 3/8" x 72" LP hose (65) on to the quill on the pump relief. Install a 1/2 x 70" LP hose (64) on to the 1/2" quill on the suction port. Route these hoses through the large plastic clamps on front of fire wall to passenger-side fender. **Make sure the hoses are not crimped, rubbing sharp objects or against hot areas.** These hoses are long enough to allow plenty of radius on the hoses. Install 78" HP hose (58) to swivel adapter on bottom of the pump facing fire wall. Route this hose the same as LP hoses.

#### 4. Valve Assembly and Valve Plate

- A. Place valve assembly (13) on valve plate (71) as shown on front page illustration. Place two 5/16 x 1 cap screws (NC) Gr. 5 (98) up through bottom of valve plate and secure with two 5/16" lock washers (101) and nuts (102). Tighten.
- B. Place two 1/4 x 90 degree swivels (95) in angle ports of valve and tighten at 1 o'clock position. These may have to be turned slightly when connecting hoses. On the other side, install a 1/4 x 45 degree swivel (94) to the pump pressure port at 7 o'clock position. For the return to reservoir position fitting attach a 1/4 Npt x 90 degree street elbow (81) and 3/8 quill (82). Tighten at 12 o'clock position. On the lift cylinder port install a 1/4 x 90 degree swivel (95) at 1 o'clock position.

**Caution: Position valve plate to prevent contact with vehicle battery cables. Allow a minimum of 1" clearance between hydraulic components and vehicle wiring.**

- C. Place valve plate on fender approximately 2-1/2" from battery box with angle ports facing battery and 4-3/4" from alternator. Using the end holes on the valve plate braces as a guide, drill three 11/32" holes; two on the fender end and one on the firewall inner corner. Attach with three 5/16 x 1 cap screw (NC) Gr. 5 (98) and secure with three 5/16 flat washers (100), lock washers (101) and nuts (102). Tighten.

### 5. Oil Reservoir Installation

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

- A. Place oil reservoir (12) with quills facing engine and leg next to valve plate. Using the legs as a guide, drill two 11/32" holes in fender. Attach with two 5/16 x 1 cap screw (NC) Gr. 5 (98) and secure with two 5/16 flat washers (100), lock washers (101) and nuts (102). Install a 1/2" quill (47) into threaded hole in reservoir.
- B. The low pressure hoses may be cut off if they are too long to make good routing. Install the relief LP hose from the pump on the lower 3/8 quill on tank, and the 1/2 return LP hose from pump to the 1/2 quill on oil reservoir. Tie hoses together from pump to oil reservoir and valve with tie wraps (92).

### 6. Solenoid Control and Harness Installation

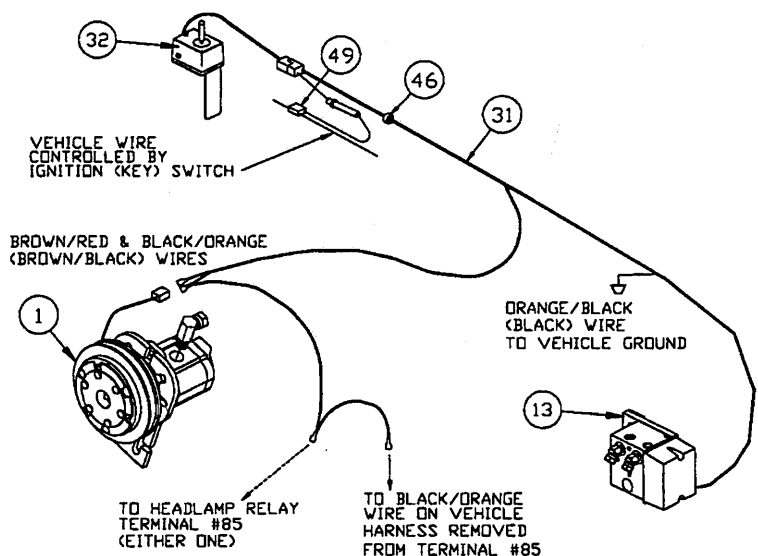
**Note: Use dielectric grease (48) to prevent corrosion on all under hood electrical connections. Fill receptacles and lightly coat ring terminals and blades before assembly.**

- A. Check both sides of the fire wall for wires and hot or moving engine parts. Then, on the driver side, drill a 5/8" hole in the fire wall for the control harness (31).

- B. Install the solenoid control (32) and dash bracket as per the instructions found in the Dash Bracket Bag (27) located in the common hydraulic bolt bag.

- C. Remove negative battery cable from battery. **Warning! Disconnect battery before installing, removing or replacing electrical components.**

- D. Insert control harness (31) through hole drilled in fire wall. Attach connector to plug on solenoid control. Connect the red wire from the fuse holder to a circuit which is on only when the ignition key is on. Use in-line connector (49). Route the main portion of harness (white, green, blue and black wires) to the valve. Place a grommet (46) around control harness where it passes through fire wall. Remove plastic cover from valve and install solenoid wires according to instructions inside cover. With the harness strain relief in place inside the cover, install the cover. Attach orange/black (black) wire with ring terminal exiting loom near valve to a good vehicle ground. Route portion of harness with brown/red and black/orange wires with female spade terminals to electric clutch.





**Note: Install the 20850 Fish-Stik™/Clutch Relay Kit at this time, if necessary.**

Attach female spade terminals to clutch plug (brown/red to black with white stripe and black/orange to black). Fasten other black/orange wire with female spade connector to head lamp relay and male spade connector to black/orange ground wire from vehicle harness (see Diagram 1). **Note: The relay & vehicle harness are found in peculiar light kit.**

- E. Install plow headlamps as per the light kit instructions. Stretch the rectangular opening of the plug cover strap (from light kit) over grille connector ends of the long battery cable (from hydraulics box) and vehicle harness (from light kit). Place the plug cover over the mold on the harness.

- F. Reconnect negative battery cable to battery terminal.

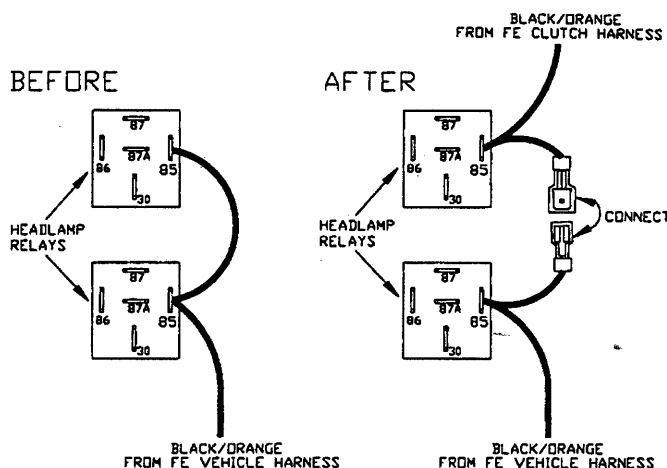


Diagram 1

## 7. Hydraulic Hose Installation

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

**Note: Do not shorten LP hoses. Bends in all hoses must have sufficient radius to prevent crimping. A crimped hose may cause overheating of the hydraulic system, hose failure, and possible engine fire.**

- A. Install 66" HP hose (58) from pump into 45 degree swivel pump pressure port on fire wall side of valve. Install the 24" LP hose (66) to the 3/8 quill on back of the oil reservoir and loop over to the 3/8 quill on the valve.
- B. Place a 3/8" split hose grommet (47) along hole on passenger side of radiator bulkhead forward of battery. Install a 60" HP hose (59) to 90 degree swivel on valve (noted as driver-side angle cylinder on valve illustration). Attach a 32" HP hose (63) to other 90 degree swivel on valve (noted as passenger-side angle cylinder). Attach a 42" HP hose (60) to other side of valve (noted as lift cylinder on illustration). Pass hoses out through the core support by the radiator, low and about 14" off center on the driver side (where split grommet was placed).

**Caution: Maintain a minimum of 1" clearance between hydraulic components and vehicle wiring.**

Attach a female quick disconnect half (44) to the QD/electric grille plate (88) with a snap ring (85). Put a dust plug (45) on the end of a 45 degree swivel fitting (94) and attach it to the disconnect. Pass the 60" HP hose behind grille to disconnect and attach it to the 45 degree swivel. Route the headlamp connector, with dust cover, from previously installed light kit harness, through the radiator core support. Slide connector into the slot provided in the QD/electric grille plate. The grille plate should be oriented with the head lamp connector to the inside of the vehicle. Attach grille plate to grille with four long tie wraps (91). Slide the electrical plug, on the vehicle harness, into slot in grille with four long tie wraps (91).

- C. Pass the 42" and 32" HP hoses low and about 14" off center of the grille on the passenger side. Attach a bulkhead adapter (84) to one hole of the two Q. D. grille plate (89) with a 7/8" snap ring (85). Attach a male quick disconnect half (44) to the adapter. Secure a female quick disconnect half (44) to the other hole in the grille plate with a 7/8"

grille plate. Attach 42" raise hose to the swivel with the male disconnect half on the inboard side of the grille plate. Attach 32" angle hose to the swivel with the disconnect half on the outboard side of the plate. Slide the plate back to the grille and attach it with four long tie wraps (91). Place a 3/8" split hose grommet (47) on hoses rubbing stiffener edge of radiator bulkhead. Attach with two tie wraps (92).

- D. Install cable boot bracket (86) on driver-side headgear brace, between brace and fasteners. Insert cable boot (87) on over bracket.
- E. Install in-line oil filter kit (30) according to instructions found in the common hydraulics kit.

## 8. Operations

- A. Check all fittings and fasteners for tightness. Secure hoses with nylon tie wraps (92).
- B. Attach hose disconnects, push lift arm all the way down, and fill reservoir with FISHER® High Performance Hydraulic Fluid (recommended for superior cold-weather performance) or Type "A" automatic transmission fluid. Start engine, lift and angle blade several times.  
**Raise front end of vehicle until plow is clear of ground with lift cylinder fully retracted. Check reservoir oil level Angle blade (with lift cylinder retracted) to remove air from system. Recheck 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 turn off the engine and then turn the key to the "on" position (the red LED light will be lit). Move the control to the four plowing positions. Activate lower/float before removing or installing the plow.