

the  
snowplow  
professionals

**Electric  
Hydraulic Pak**

**OWNER'S MANUAL**

FISHER ENGINEERING • PO BOX 529 • ROCKLAND, MAINE 04841

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The Fisher Electric Hydraulic Pak (EHP) is the ideal alternative to belt driven hydraulics.

This manual has been prepared to acquaint you with the operation and maintenance of your new FISHER snowplow and to provide safety information. We urge you to read this manual carefully and to follow its recommendations. This will help ensure profitable and trouble-free operation of your snowplow. Keep this manual accessible as a handy reference in case a minor service problem arises.

When service is necessary, your local FISHER Dealer, Service center, or Distributor knows you plow best and is interested in your complete satisfaction. Return your snowplow there for maintenance service or any other assistance you may require.

Your FISHER Electric Hydraulic Pak (EHP) is serialized. For your information and protection, it is wise to record this serial number and keep it in a safe place.



**S**AFETY NOTE: Whenever you see this symbol, it notes a SAFETY WARNING. For your own protection and safety these warnings must be followed. Failure to do so could result in serious bodily injury to yourself or others.

FISHER offers a one year limited warranty for all snowplows and accessories. See separately printed page for this important information. FISHER does not warranty non-Fisher Service Parts or Accessories or the damage caused by the use of these unauthor-

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The procedures and illustrations in this guide are based on latest production information available at time of publication. Fisher Engineering reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

## SAFETY GUIDELINES

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TO PREVENT ACCIDENTS THAT COULD RESULT IN SERIOUS INJURY AND/OR DAMAGE TO YOUR VEHICLE OR EQUIPMENT, CAREFULLY FOLLOW THESE SAFETY RULES AND TEST PROCEDURES.

### GENERAL

Be sure to disconnect the plow prior to performing any tests or making adjustments. Scratching, denting or marring machined surfaces can make parts unserviceable. Cleanliness is essential when servicing the unit.

### SAFETY EQUIPMENT

#### Fire Extinguisher

Never work on your vehicle without having a suitable fire extinguisher handy. A 5-lb. or larger CO<sub>2</sub> or dry chemical unit specified for gasoline/chemical/electrical fires is recommended.

### SAFETY GOGGLES

We recommend wearing safety goggles when working on your vehicle to protect your eyes from battery acid, gasoline, and dust and dirt flying off moving engine parts.

### LOOSE CLOTHING AND LONG HAIR

Be very careful not to get your hands, hair, or clothing near any moving parts such as fan blades, belts, and pulleys. Never wear neckties or loose clothing when working on your vehicle.

### JEWELRY

Never wear wrist watches, rings, or other jewelry when working on your vehicle. You'll avoid the possibility of catching on moving parts or causing an electrical short circuit which could shock or burn you.

**NOTE:** Manufacturer assumes no liability for accidents or damages notwithstanding the fact that suggestions have been followed.

### VENTILATION

The carbon monoxide in exhaust gas is highly toxic. To avoid asphyxiation, always operate vehicle in a well ventilated area. If vehicle is in an enclosed area, exhaust should be routed directly to the outside via leakproof exhaust hose.

### SETTING THE BRAKE

Make sure that your vehicle is in park or neutral and that the parking brake is firmly set.

### HOT SURFACES

Avoid contact with hot surfaces such as the engine, radiator, and hoses.

### SMOKING AND OPEN FLAMES

Never smoke while working on your vehicle. Gasoline vapor is highly flammable, and the gas formed in a charging battery is explosive.

### BATTERY

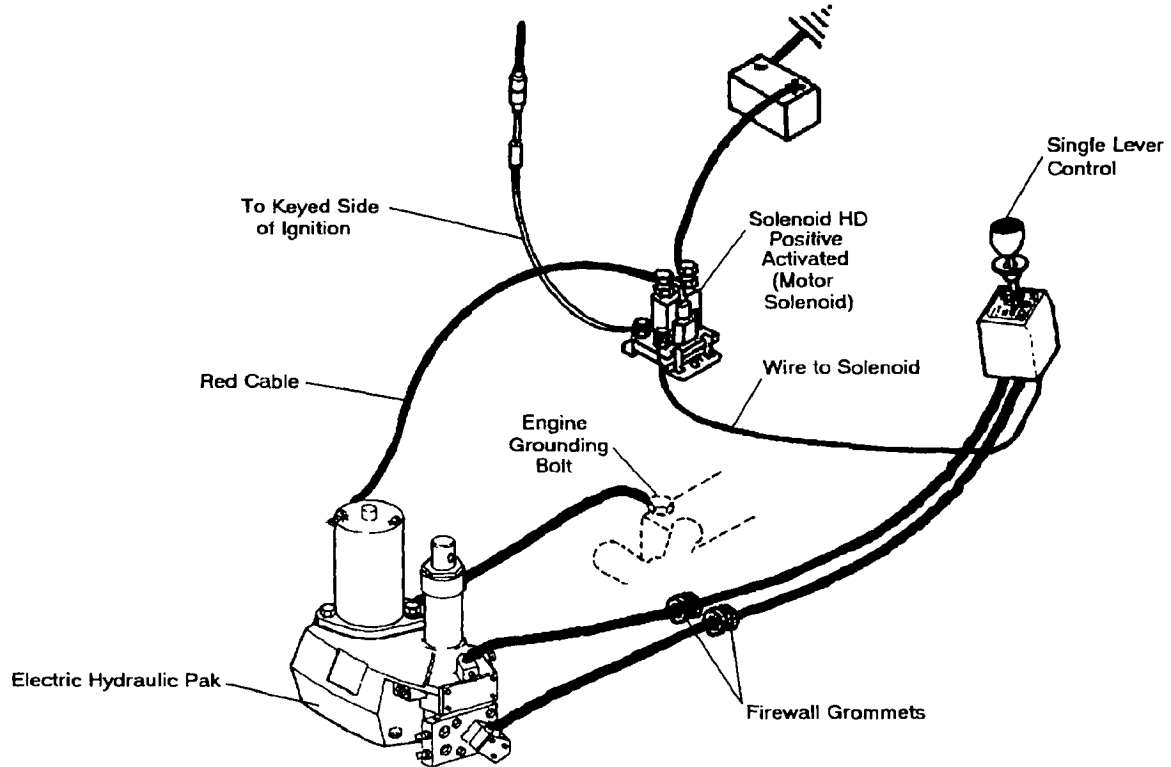
Do not lay tools or equipment on the battery. Accidentally grounding the "POS +" battery terminal can shock or burn you and damage wiring, the battery or your tools and testers. Battery-acid can burn holes in your clothing and burn your skin or eyes. Disconnect the cable from the negative battery terminal before replacing the motor, motor solenoid, or Solenoid Control.



**W**ARNING: Protect top of battery. Sparks from testing operations could cause battery gases to explode causing severe eye or body burns, or other personal injury.

# ELECTRIC HYDRAULIC PAK ASSEMBLY DIAGRAM

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## THEORY OF OPERATION

The Electric Hydraulic Pak Performs four functions:

RAISE the snowplow

LOWER the snowplow

ANGLE snowplow RIGHT

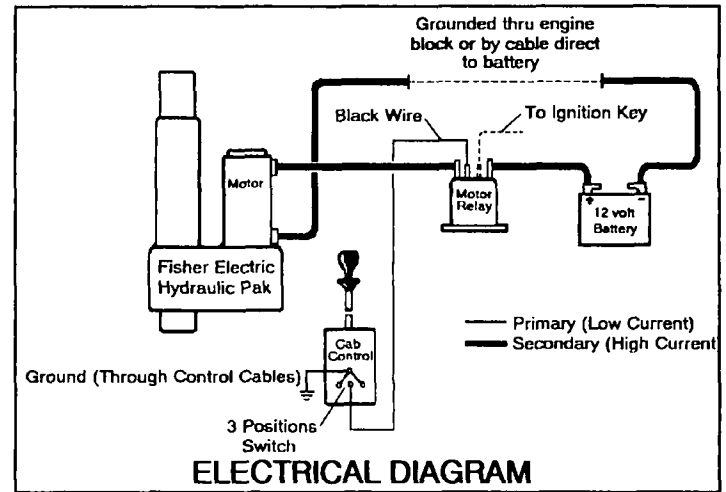
ANGLE snowplow LEFT

Operation of any function except lowering the plow requires that the vehicle ignition (key) switch be in the run position or the accessory position. Three functions, RAISE, ANGLE RIGHT, ANGLE LEFT, requires the operation of the 4 1/2" Motor to drive the hydraulic pump and the shifting of manual valves. The fourth function, LOWERING, requires only the shifting of a manual valve.

### ELECTRICAL OPERATION OF MOTOR

To run the 4 1/2" Motor, the motor relay must be activated to allow a large current flow from the battery to the 4 1/2" Motor. When the Cable Control is moved to the RAISE, LEFT, or RIGHT position, a switch inside the control is closed to cause electrical current to flow thru the primary coil of the motor relay, thru the ground and back to the battery. The current flow thru the motor relay coil

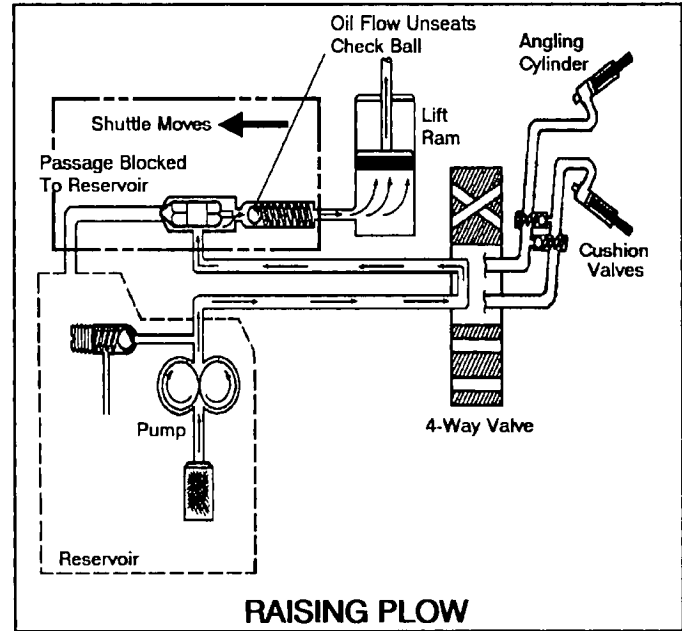
causes a magnetic field which will close the motor relay secondary contacts. These contacts connect heavy cables between the 4 1/2 Motor and the battery. The cables carry a large current flow which enables the motor to run.



## THEORY OF OPERATION

### RAISING PLOW

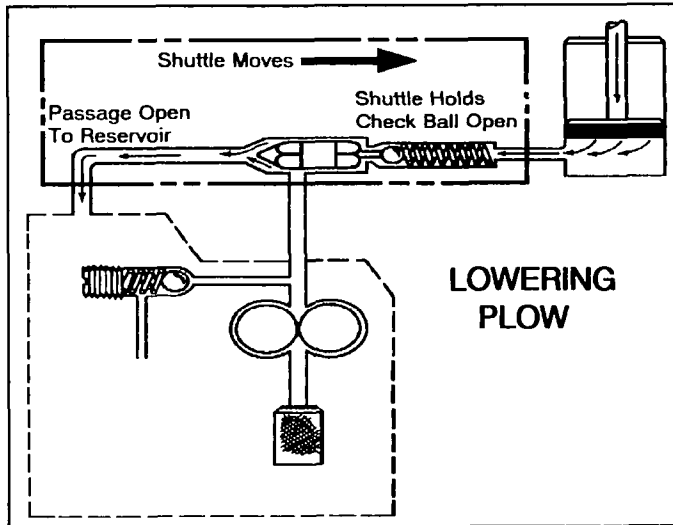
The shuttle is moved into the lift valve. This closes the passage-way to the reservoir and directs flow from the pump outlet to the lift ram. Oil passes through the 4-way valve and into the 3-way valve, flows around the shuttle stem and pushes the check valve ball off its seat. Oil then enters the lift ram to push the plunger (and snowplow) up.



## THEORY OF OPERATION

### LOWERING PLOW

The shuttle is moved away from the lift valve and pushed against the check valve ball. This opens a passageway from the lift ram to the reservoir. Weight of the snowplow collapses the ram, forcing oil past the open check valve and shuttle, back to the reservoir. Note the the pump does not operate when the plow is being lowered.



### RIGHT OR LEFT PLOW ANGLING BY 4-WAY VALVE

**RIGHT (Fig. A)** The rotor is rotated 45° clockwise so the recessed pockets provide passages between the pump supply and left angling cylinder and between right angling cylinder and reservoir port. Oil from the pump flows through 4-way valve and enters the left angling cylinder. As the plow angles, the right angling cylinder collapses, pushing oil through the 4-way valve and past the shuttle in the 3-way valve to the reservoir.

**LEFT (Fig. B)** The rotor is rotated counterclockwise reversing the connections of angling cylinders, pump supply, and reservoir port.

### CROSSOVER RELIEF VALVES

While plowing, oil is trapped in the extended angling cylinders. When the blade meets an object, pressure rises in one extended angling cylinder. As pressure in the ram exceeds a preset value (either 2,500 or 4,000 psi), the crossover relief valve unseats allowing oil to flow to the collapsed cylinder. The blade angles in the opposite direction preventing damage to the hydraulic system, plow and vehicle.

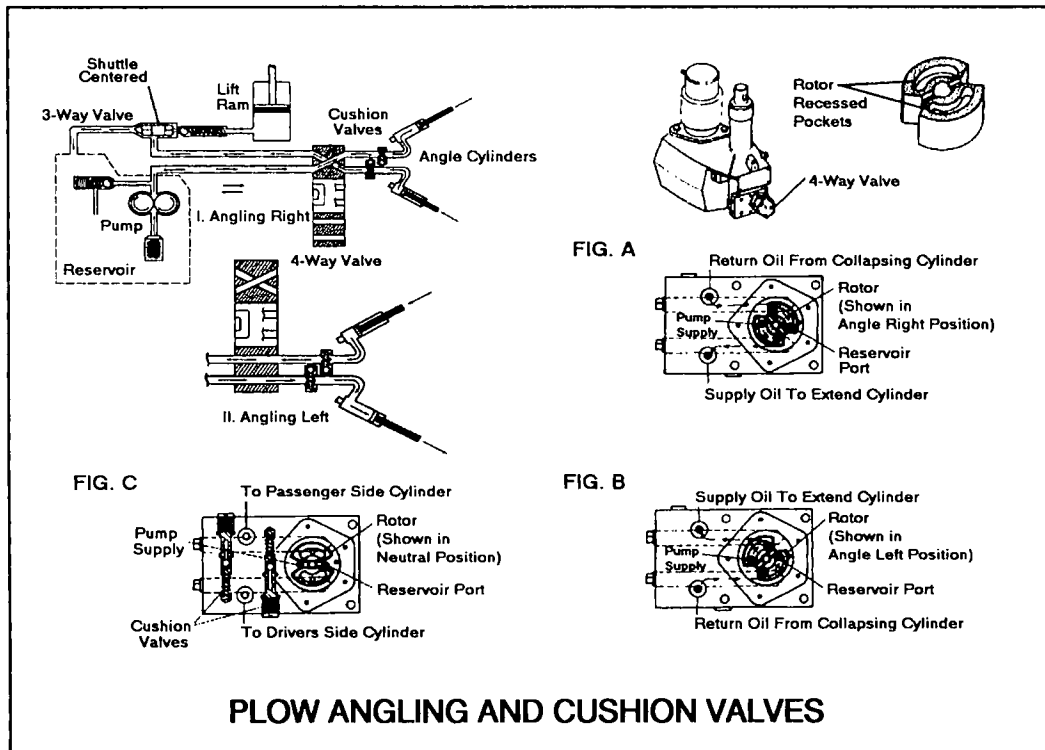


# THEORY OF OPERATION

(Continued from page 6)

Two different styles of crossover relief valves have been used on Fisher EHP kits. They can be identified by valve block thickness. Early cartridge style blocks are 2" thick while later cushion style blocks are 1" thick.

Figure C illustrates the internal construction of cushion style valves. Cartridge style valves are not shown.



**FLOW ANGLING AND CUSHION VALVES**

## TROUBLESHOOTING GUIDE

CAB CONTROL POSITION	PROBLEM DESCRIPTION	DEFINE PROBLEMS AND FOLLOW STEPS BELOW					
Angle	Blade will not angle or angles too slow. Time : 1-1/2" dia. cylinders-- 4 seconds 2" dia. cylinders -- 8 seconds	Check if motor runs, if not, see C Electrical Diagnosis page 10-11.	Check oil level. pages 14-15	Verify 4-way valve lever travel. see E	Adjust lift valve out. See F1.	Check Quick Couplers & Angling Cylinder Packing nuts. See pg 9	Remove Pump. Clean filter screen.
Raise	Blade will not raise or raises too slow. Time: 1-1/2" x 6" lift ram -- 2 seconds 1-1/2" x 10" lift ram -- 3 seconds 2" x 6" lift ram -- 4 seconds			Verify 3-way valve lever travel. see D	Adjust lift valve in. See F1.	Check lift ram packing nut. See pg 9	
Neutral	Blade will not remain angled while plowing.	Adjust cushion valves. See B.					<b>FURTHER TROUBLESHOOTING REQUIRES THE USE OF TEST EQUIPMENT.</b>  <b>RETURN UNIT TO FISHER DEALER OR FACTORY.</b>
Neutral	Motor continues to run in neutral.	Disconnect cab control wire from relay	If motor runs, relay is shorted. Replace relay. If motor stops, short is in primary (cab control) circuit. Isolate and repair.				
Angle	Blade raises while angling.	Adjust lift valve (out). See F1.					
Neutral	Blade lowers in neutral.	Verify 3-way valve lever travel. See D.	Adjust check valve (out). See F2.		Remove check valve. Inspect O-Ring & seat.		
Lower	Blade lowers too fast.		Adjust check valve (in). See F.		Check lift ram packing nut.		
Lower	Blade will not lower or lowers too slowly.						

## GENERAL INFORMATION

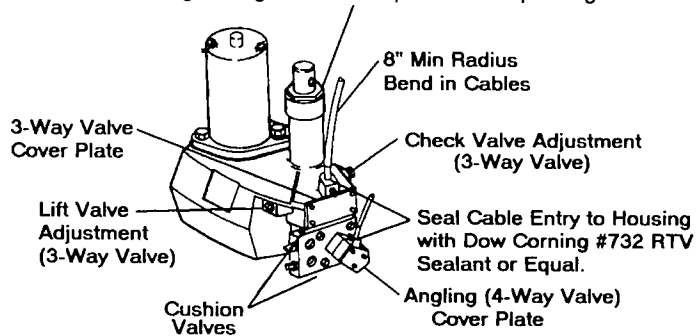
Most service can be performed with the hydraulic unit left on the vehicle. This should be done whenever possible because it permits evaluation of the entire system (vehicle electrical system, cables, cab Control, etc.) as well as saving considerable time.

Be sure to disconnect the negative battery terminal before replacing the motor, motor relay or cab control.



**WARNING:** DO NOT stand between the vehicle and blade or directly in front of blade when it is being raised, lowered or angled. Clearance between vehicle and blade decreases as blade is operated. Serious bodily injury can result from blade striking a body or dropping on feet or hands.

**PACKING NUT ADJUSTMENT** - If leaking, tighten packing nut NOT MORE THAN 1/4 TURN AFTER YOU FEEL PACKING NUT CONTACT PACKINGS. Over-tightening affects ram operation and packing life.

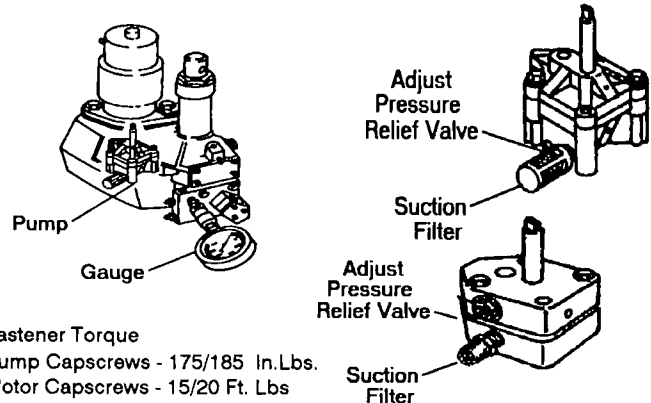


**NOTE:** Manufacturer assumes no liability for accidents or damages notwithstanding the fact that suggestions have been followed.

### **A** PUMP PRESSURE TEST POOR CONDITION OF BATTERY OR MOTOR WILL CAUSE INVALID TEST RESULTS.

1. Disconnect lift chain and hoses to angling cylinders.
2. Install 2000 PSI minimum gauge into female coupler on Valve Manifold.
3. Move cab Control to angle "LEFT" and read gauge.
4. If pressure is 1450-1850 PSI, pump pressure is "OK".

If pressure is low, remove pump, clean or replace filter and adjust pressure relief valve. (1/4 turn equals approximately 225 PSI.)



## GENERAL INFORMATION

### B CUSHION VALVE ADJUSTMENT

Whenever stems are removed, apply anti-seize compound or grease to threads of stem before assembly.

#### DISASSEMBLY & INSPECTION

1. Remove cushion valve stem. Use a magnet to remove ball, spring spacer and spring. Inspect parts.
2. Replace O-rings or complete assembly if damaged.
3. If OK, place ball on wooden block, hold stem seat on ball and lightly strike stem with hammer.

**NOTE:** Stem can be bent by not striking squarely.

4. Reassemble components and adjust per directions.

#### ADJUSTMENT

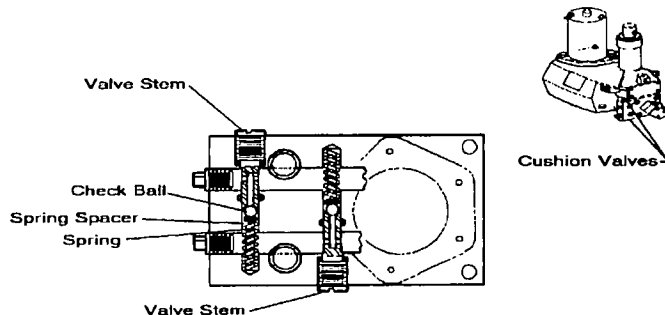
Applies to 1" black cushion style valves. 2" black cartridge style crossover relief valves are serviced by replacement only.

1. Tighten cushion valve stem as much as possible (until spring is fully compressed).
2. Back off valve stem (rotate counterclockwise) 1-1/4 turns. This adjustment will cause the cushion valve to open at approximately 3,500 psi.

CYLINDER STROKE		CROSSOVER RELIEF PRESSURE	NUMBER OF TURNS
LIFT	ANGLE		
10"	12°	4,000	1
6"	16°	2,500	1-3/4
6"	10°	2,500	1-3/4



**W**ARNING: Protect top of battery. Sparks from testing operations could cause battery gases to explode causing severe eye or body burns, or other personal injury.



### C ELECTRICAL DIAGNOSIS

Condition -- EHP motor does not run with cab control in "raise" or "angle" positions and ignition key is on. (Battery has sufficient charge to start engine.)

1. Check in-line fuse, all electrical cables and connections. Clean and tighten as required.

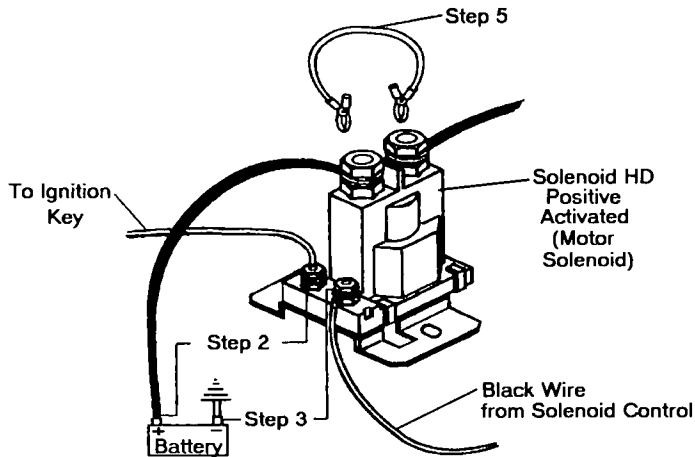
#### SEE WARNING ON PAGE 9 BEFORE PROCEEDING.

2. Attach 16 ga. or heavier jumper wire from positive post of battery to motor relay's small terminal with wire from fuse. Operate cab control in raise and both angle positions. If motor runs, problem is in power supply to relay. Recheck in-line fuse and wires. If motor does not run...

## GENERAL INFORMATION

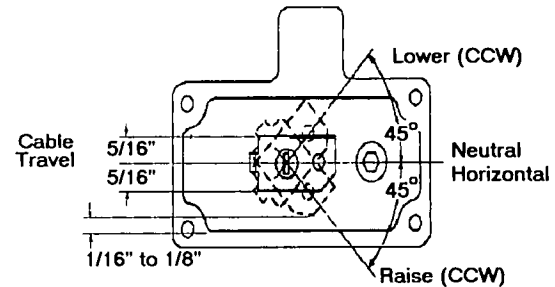
### C ELECTRICAL DIAGNOSIS

3. Turn Ignition key ON. Use above jumper wire to ground solenoid small terminal with black wire from cab control. If motor runs, problem is in cab control. Check for broken wire, loose connection or bent contact in cab control. Check if cab control is grounded through push-pull cables. If motor does not run...
4. Use heavy jumper cables to by-pass the secondary (large) terminals of the solenoid. If motor runs, the solenoid is defective. If motor does not run...
5. Disconnect battery ground cable. Remove motor and check pump shaft. If tight, repair/replace pump. If loose, motor is defective.



### D 3-WAY VALVE LEVER TRAVEL

1. Disconnect angling hoses and lift chain.
2. Remove 3-way (lift valve) cover plate.
3. Activate cab control in all directions and observe valve lever travel and positions.
4. Lock the cab control in center position with the locking spool. Valve lever should be in the neutral position as shown.



### POSSIBLE CAUSE OF INADEQUATE TRAVEL OR INCORRECT VALVE LEVER POSITIONS.

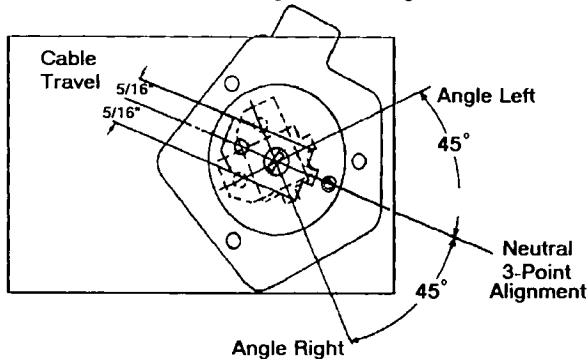
1. Dirt, or ice buildup in enclosure.
2. Cables disconnected in valve enclosure or in cab control.
3. Binding, kinked or broken cable. (8" minimum radius)
4. Set-screw not in groove in cable.
5. Cable out of adjustment or insufficient ring/rotor clearance
6. Lift valve too far in. See F1.

NOTE: Seal cable entries into housing . See pg 9.

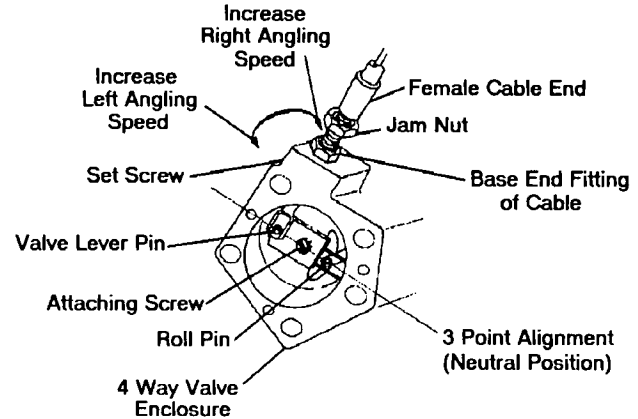
## GENERAL INFORMATION

### E 4-WAY (ANGLE) VALVE LEVER TRAVEL & ADJUSTMENT

1. Disconnect hydraulic hoses and lift chain.
2. Remove 4-way (5 sided) cover.
3. Move cab control between angle "RIGHT" and "LEFT". Observe lever movement especially for EQUAL TRAVEL IN EACH DIRECTION. If unequal, adjust cable per right diagram, this page.
4. When travel is equal in both directions, lock cab control in neutral. 4-way lever may be in line or slightly down from the indicated 3 Point Alignment in diagram.



**4-WAY VALVE LEVER**



### 4-WAY CABLE ADJUSTMENT

POSSIBLE CAUSE OF INADEQUATE TRAVEL OR INCORRECT VALVE LEVER POSITIONS.

1. Dirt, or ice buildup in enclosure..
2. Cables disconnected in valve enclosure or in cab control.
3. Binding, kinked or broken cable. (8" minimum radius)
4. Set-screw not in groove in cable.
5. Cable out of adjustment or insufficient ring/rotor clearance

NOTE: Seal cable entries into housing - see pg 9.

## GENERAL INFORMATION

### F3-WAY (RAISE-LOWER) VALVE ADJUSTMENT SENSITIVE ADJUSTMENT - MAX. 1/8 TURN AT A TIME

Make adjustments with blade on ground and control in neutral. Stand back after adjustment to avoid being pinched by blade while checking operation.

### F1 LIFT VALVE ADJUSTMENT

From initial adjustment below, using 1/8 turn increments, turn OUT (counter-clockwise) lift valve until "RAISE" does NOT function properly. Turn lift valve IN in 1/8 turn increments until unit is able to lift plow. Turning valve in more than 1/4 turn beyond lifting point may slow angling speed.

### F2 CHECK VALVE ADJUSTMENT

Hold check valve (hex socket wrench) while loosening or tightening locknut. To prevent O-ring from "blowing out", loosen locknut 1/4 turn maximum. Tighten locknut maximum 1ft. lb.

If plow will not lower or lowers too slowly, turn check valve IN (CW).

If plow lowers too fast, turn check valve OUT (CCW).

**INITIAL ADJUSTMENT (IF VALVES HAVE BEEN DISTURBED OR REMOVED)**

#### LIFT VALVE

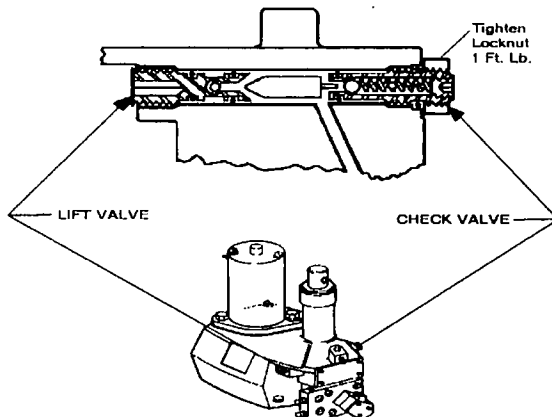
Remove cable from pin and place valve lever in neutral position (see E). Turn lift valve in until it is flush to the casting surface. Rotate lever to the RAISE position. It should stop 1/16" to 1/8" from enclosure bottom (see E). If not, turn valve in or out until this dimension is obtained. See F1 for final adjustment.

#### CHECK VALVE

Turn check valve in until threads are flush with thick locknut when nut is bottomed on housing. (Early models with thin jam nuts - turn check valve in until three (3) full threads protrude from the jam nut with jam nut bottomed on housing.) See F2 for final adjustment.



**WARNING:** DO NOT stand between the vehicle and blade or directly in front of blade when it is being raised, lowered or angled. Clearance between vehicle and blade decreases as blade is operated. Serious bodily injury can result from blade striking a body or dropping on feet or hands.



## INSPECTION AND ROUTINE SERVICE

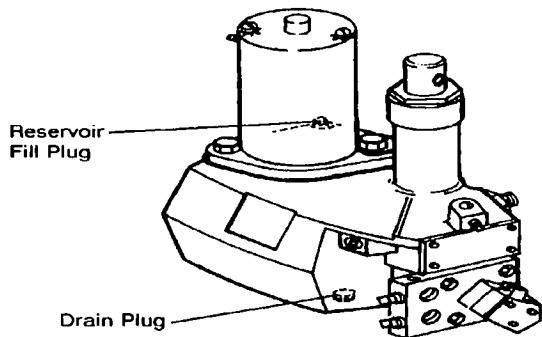
### GENERAL

Scratching, denting or marring machined surfaces can make parts unserviceable. Cleanliness is essential when servicing the unit.

The following recommendations are intended as a general guide for regular care and maintenance. Operating under adverse conditions or sustained loads requires more frequent servicing.

### CHECKLIST

1. Check oil level with unit on vehicle and ram collapsed. If low, fill to top of reservoir fill hole, located at rear of housing.



**NOTE:** Be sure to fill through reservoir fill hole. Never fill through motor/pump opening if, for instance, motor has been removed for servicing. Filling through motor/pump hole can cause overfilling and damage entire unit.

Use automatic transmission fluid. If that is not available, you may use SAE 10W nondetergent motor oil (SAE 5W in extreme cold).

Capacity of the system is summarized in the following chart. Note that the system holds less if angling cylinders and hoses have not been drained.

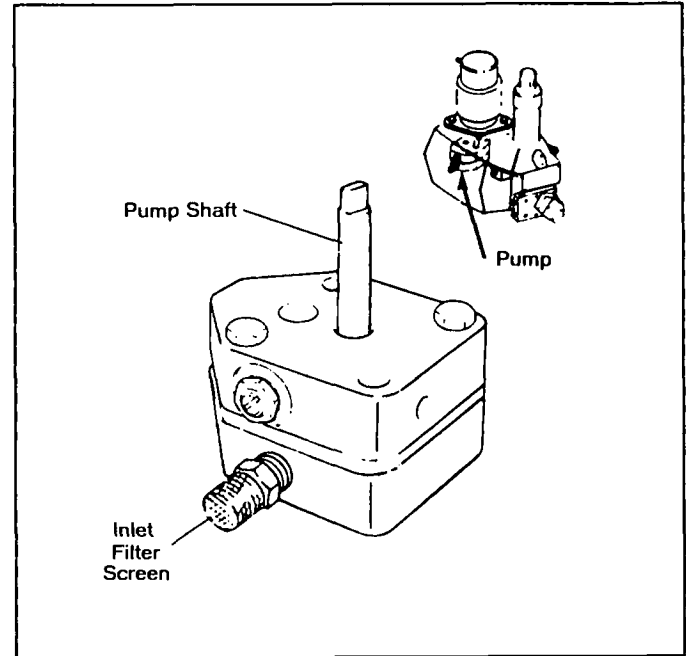
CYLINDER STROKE		CAPACITIES	
LIFT	ANGLE	EHP RESERVOIR ONLY	TOTAL (w/ Hoses & Cyl.)
6"	10"	1-1/2 QT.	2-1/8 QT.
10"	12"	1-1/2 QT.	2-1/4 QT.
6"	16"	1-1/2 QT.	2-3/4 QT.

2. Drain and flush the hydraulic reservoir at the end of each plowing season. Use the drain plug located in the bottom front of the reservoir.

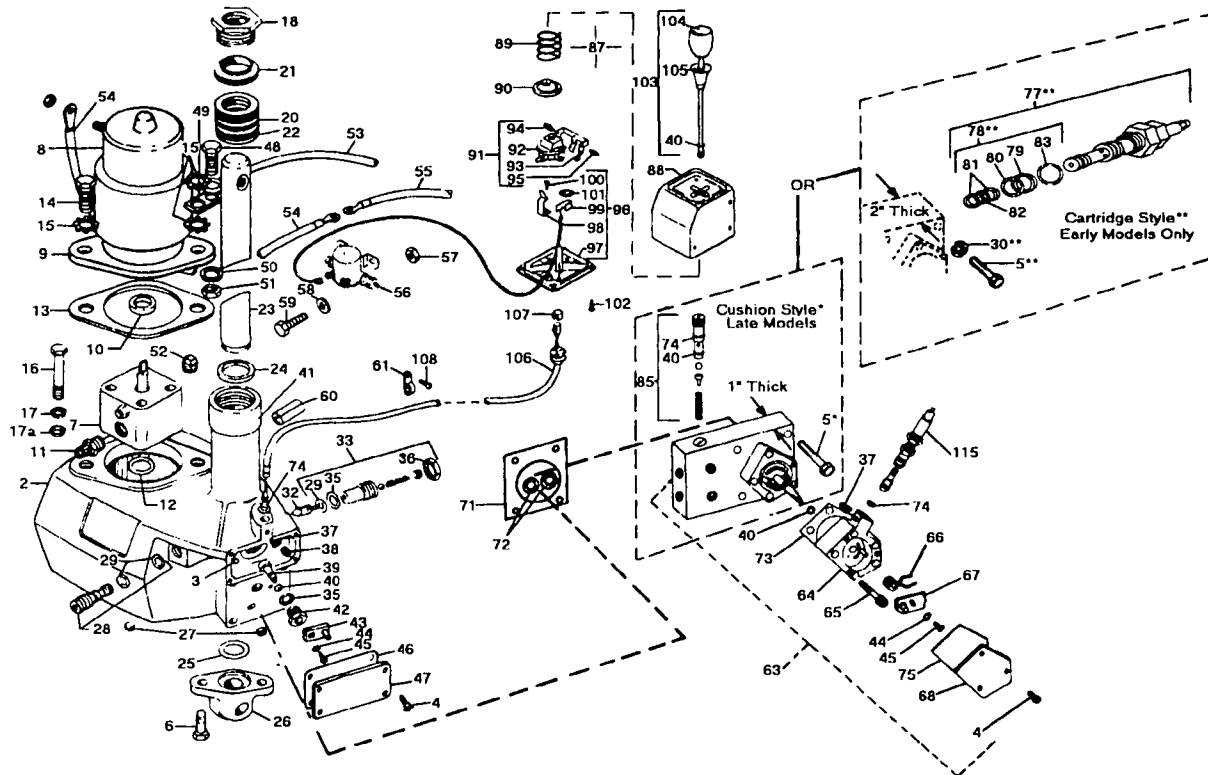


## INSPECTION AND ROUTINE SERVICE

3. If rams are leaking excessively, tighten packing nuts. Do not tighten more than 1/4 turn after you feel the nut contact the packings. If leak continues, replace packings and wiper ring in nut. Over-tightening affects cylinder operation and packing life.
4. Check 3-way and 4-way valves for excessive oil leaks. Replace O-rings if they are damaged.
5. Periodically clean and tighten all electrical connections.
6. At beginning of plowing season, inspect and test battery. Recharge or replace, if necessary. Suggested MINIMUM vehicle electrical system: 70 amp hr./550 CCA Battery, 55 amp Alternator.
7. The pump inlet filter screen should be cleaned whenever the pump is removed. If the screen is damaged, replace it.
8. During periods of inactivity, leave the EHP lift ram collapsed. This will prevent damage to the surface of the plunger. Also, coat the exposed surfaces of the angling cylinders with grease to prevent rust or corrosion.



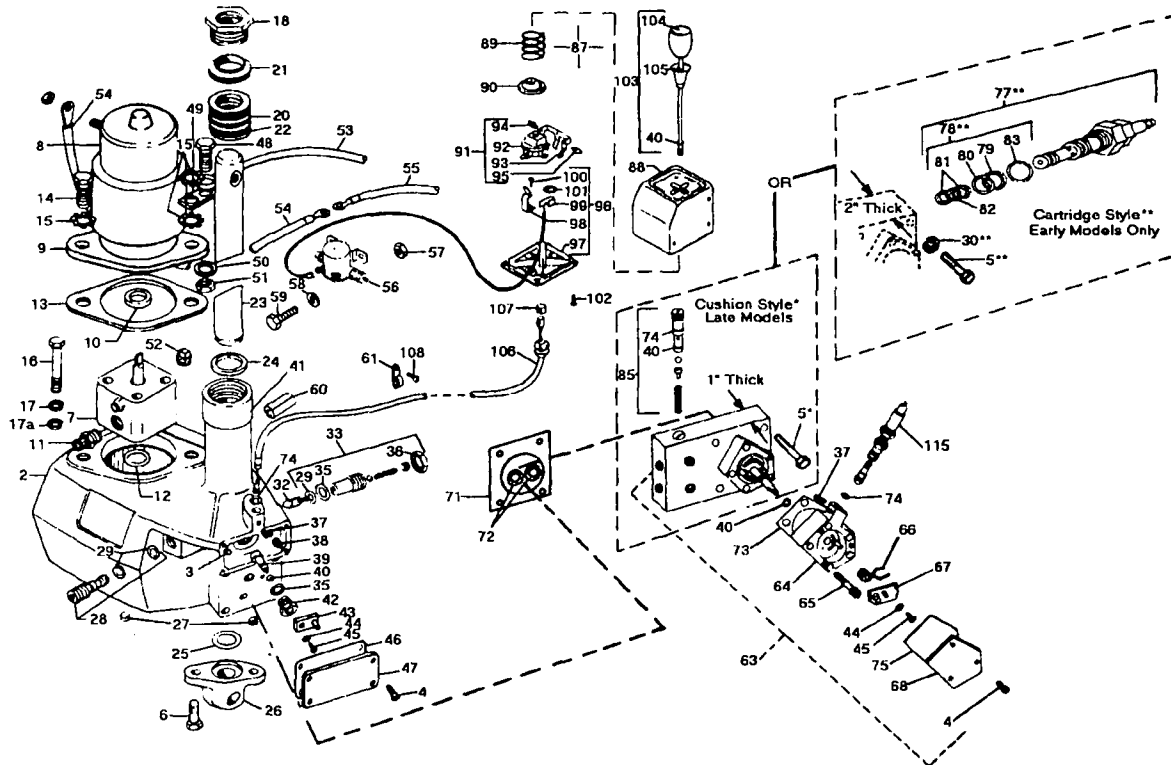
# ELECTRIC HYDRAULIC PAK DIAGRAM



# ELECTRIC HYDRAULIC PAK PARTS LIST

ITEM	PART#	DESCRIPTION	ITEM	PART#	DESCRIPTION
1	A5796	Electric Hydraulic Pak 6" (2500 psi)			
	A5808	Electric Hydraulic Pak 10" (4000 psi)			
	6972	Commercial EHP 6" (2500 psi)	20	6998	Packing Nut -- 2" Ram
2	6574	Main Housing (6")		339	Packing Set -- 1-1/2" Ram
	6575	Main Housing (10")		3623	Packing Set -- 2" Ram
	7050	Main Housing (6" Commercial)	21	341	Wiper Ring -- 1-1/2" Ram
3	7628	Expansion Plug -- 1/4"		3624	Wiper Ring -- 2" Ram
4	6063	Hex Head Tapping Screw - #10-24 x 5/8"	22	338	Special Washer -- 1-1/2" Ram
5	90035	Capscrew -- 1/4" - 20 x 2-3/4" - Grade 5**		3621	Special Washer -- 2" Ram
		Capscrew Thread Forming - 1/4"-20 x 1-3/4" *	23	5509	Plunger -- 1-1/2" x 6" Ram w/ Retainer ring
		Capscrew Thread Forming - 5/16"-18 x 1-1/4"		336	Plunger -- 1-1/2" x 10" Ram w/ Retainer ring
6		Hydraulic Pump Assembly (MTE) (1450-1800 psi)		6994	Plunger -- 2" Ram w/ Retainer ring
7	A5818	Hydraulic Pump Assembly (MTE) Die Cast (Includes	24	5764	Retainer Ring -- 1-1/2" Ram
	7049	Items 11, 12, 16, 17, 17a) (1450-1800 psi)		6997	Retainer Ring -- 2" Ram
	7052	Hydraulic Pump Assembly (MTE) (6" Commercial)	25	5823	O-Ring -- 216
		(2050-2200 psi)	26	5824	Base Lug
8	A5819	Motor Assembly -- 4"	27	6999	Base Lug (6" Commercial)
9	6577	Flange w/ Bearing & Seal	28	5826	Socket Head Pipe Plug -- 1/4"
10	6578	Oil Seal Only	29	5827	Lift Valve w/ O-Rings
11	5820	Suction Filter	30	90359	O-Ring -- 012
	7053	Suction Filter (Die Cast Pump)	32	5828	Lock Washer -- 1/4" **
12	5821	O-ring -- 115	33	A5829	Shuttle
13	5822	Gasket	35	5831	Check Valve Assy. w/ O-Rings
14	90177	Capscrew - 7/16"-14 x 1-1/2" - Grade 5	36		O-Ring -- 112
15	90651	Lock Washer - 7/16" External	37	6062	Jam Nut -- 5/8"-18
16		Capscrew - 5/16"-18 x 2-3/4"	38		Half Dog Point Set Screw -- #10-24 x 3/8"
	90073	Capscrew - 5/16"-18 x 2-1/4" -- Gr. 5 (Die Cast Pump)	39	5832	Socket Pipe Plug -- 1/8"
17	90360	Lock Washer -- 5/18"	40	5833	Camshaft
	90606	Belleville Spring Washers (Die Cast Pump)	41	7087	O-Ring -- 008
17a	90311	Flat Washer - 1/4" Std. (Die Cast Pump)		7088	Barrel 1.5 x 10 EHP
18	5763	Packing Nut -- 1-1/2" Ram	42	5836	O-ring
			43	6828	Hub Nut
			44	90597	Valve Lever
					Lock Washer #6 -- External

# ELECTRIC HYDRAULIC PAK DIAGRAM



## ELECTRIC HYDRAULIC PAK PARTS LIST

ITEM	PART#	DESCRIPTION	ITEM	PART#	DESCRIPTION
45	90598	Pan Head Machine Screw -- #6-32 x 1/4"	77	A4950-25	Crossover Relief Valve -- 2500 psi** w/O-Rings
46	5837	Cover Gasket		A4950-40	Crossover Relief Valve -- 4000 psi** w/O-Rings
47	6572	Valve Cover Plate	78	A5044	O-Ring Kit **
48	90096	Capscrew -- 3/8"-18 x 3/4"	79	3721	Backup-Up Ring -- 015
49	7620	Grounding Clip	80	3714	O-Ring -- .56 ID x .08 W
50	90361	Lock Washer -- 3/8"	81	3718	Backup-Up Ring -- 013
51	90334	Hex Nut -- 3/8"-16	82	3719	O-Ring -- .44 ID x .08 W
52	7621	Pipe Plug -- 3/8"	83	3712	O-Ring -- .755 ID x .097 W
53	5798	Grounding Cable -- 60" -- 6 Ga. (Black)	85	6529	Cushion Valve Kit -- * (includes 2 Sets) (Pressure determined by adjustment)
54	5797	Battery Cable -- 60" -- 4 Ga. (Red)	87	A5929	Single Lever Control w/90° Cables
55	5799	Battery Cable -- 22" -- 4 Ga. (Red)	88		Body w/Label
56	5794	Solenoid Switch	89	6065	Centering Spring
57	90350	Locknut -- 1/4"-20	90		Spring Retainer
58	90311	Flat Washer -- 1/4" Standard	91	6584	Platen Assembly
59	90016	Capscrew -- 1/4"-20 x 3/4"	92		Pivot Platen
60	5802	Hose Grommet	93	6064	Contact Strip
61	5801	Cable Clamp	94		Ball Stud
63	A5838-25	Angling Valve Assy. -- 6" (2500 psi)*	95		Hex Head Thread Forming Screw -- #10x3/8" Hi-Lo
	A5838-40	Angling Valve Assy. -- 10" (4000 psi)*	96	A5841	Bottom Cover Assembly
64	6579	Cable & Linkage Enclosure	98		Detent Spring
65		Socket Head Capscrew -- 1/4"-20 x 1-1/2"	99		Contact Tube Assembly
66	6576	Torsion Spring	100		Hex Head Thread Forming Screw -- #6 x 3/8" Hi-Lo
67	6829	Valve Lever	101		Retaining Ring -- 3/8"
68	6573	Enclosure Cover	102	5800	Hex Head Thread Forming Screw -- #8 x 5/8" Hi-Lo
70	5839	Angling Valve Gasket & O-Ring	103	A5842	Knob & Lever Assembly
71	6508	Manifold Gasket	104	6528	Lens Label
72		O-Ring -- 015	105	5857	Lockspool w/ Label
73	6580	Shim Spacer -- .0005" (Silver) Option	108	5931	Cable w/ Clip & O-Ring (90°)
	6581	Shim Spacer -- .00035" (Clear) Option	107	4418	Ball Stud Retainer Clip (Fits All Cables)
74	7085	O-Ring -- 010	108	5803	Tapping Screw -- #10 x 1"
75	5840	Cover Gasket	115	5930	Cable w/ Clip & O-Ring (Adjustable 90°)
				5844	Cable w/ Clip & O-Ring (Adjustable 108°)

## NOTES

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