

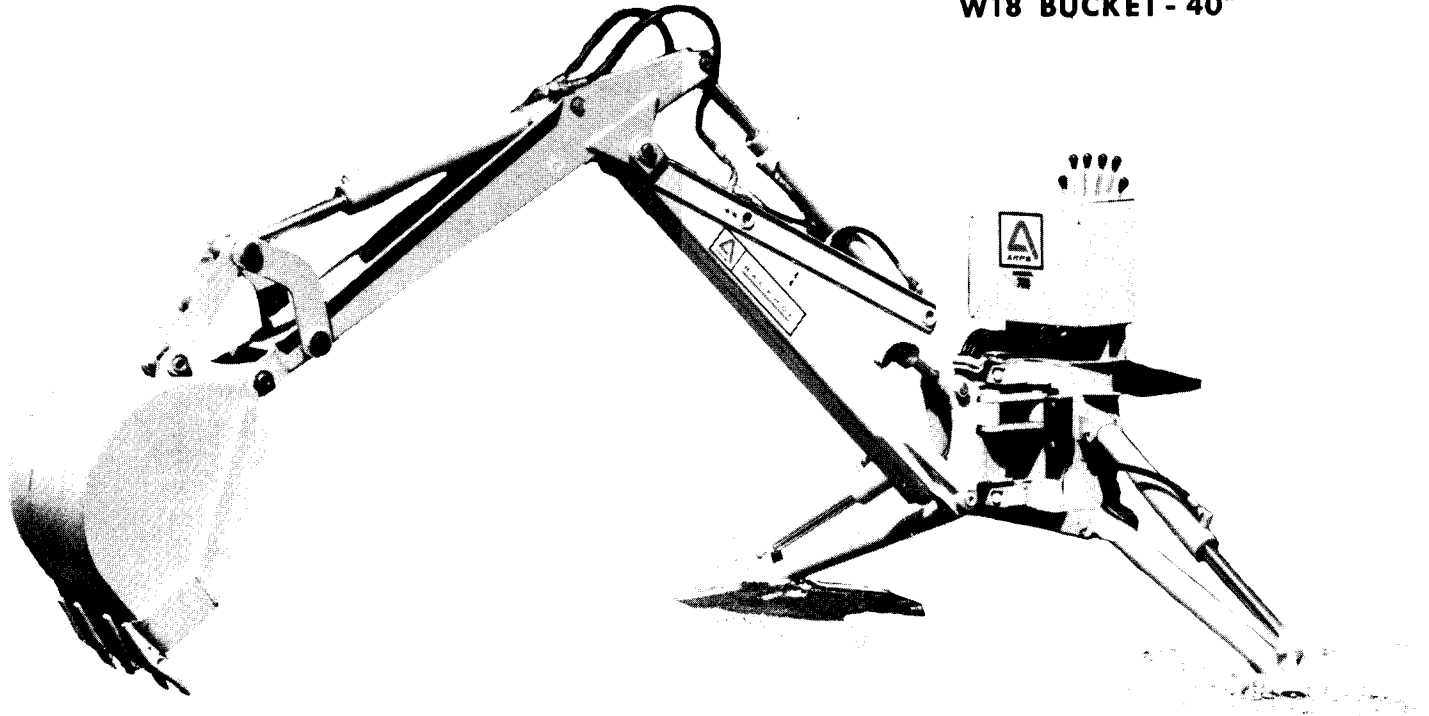


# ARPS

## 708 BACKHOE

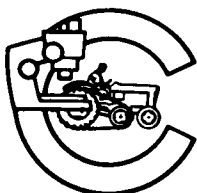
THIS MANUAL INCLUDES:

- W03 BASIC BACKHOE
- W14 BUCKET - 12"
- W15 BUCKET - 18"
- W16 BUCKET - 36"
- W18 BUCKET - 40"



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## ARPS CORPORATION

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# BACKHOE OPERATION

This section will cover the operation, lubrication, preventive maintenance, and trouble shooting for the Backhoe.

## BEFORE OPERATING:

Position the seat so it faces to the rear and thoroughly familiarize yourself with all the controls. The ARPS Backhoe has six control levers. These controls are located on the control tower directly ahead of the operator, see Fig 1. Following is a list of the controls with the function of each, reading from left to right:

**STABILIZER** (lever at each end of group of six):

The left and right hand stabilizer levers control the raising and lowering of the stabilizers. Push levers forward, the stabilizers lower. Pull the lever back and the stabilizers raise.

**CROWD:** The crowd lever controls the movement of the dipperstick. Push lever forward, the dipperstick moves out, away from the operator. Pull lever back, the dipperstick moves in toward the operator.

**LIFT:** The lift lever controls the movement of the boom. Push the lever forward, the boom moves down and away from the operator. Pull the lever back, the boom moves up and toward the operator.

**ACTUATE** (Bucket):

The actuating lever controls the extending and curling of the bucket. Push lever forward, the bucket extends. Pull lever back, the bucket curls.

**SWING:** The swing lever controls the swing of the boom to the left and right. Push lever forward, the boom swings to the left. Pull the lever back, the boom swings to the right.

**STABILIZER:** See explanation with top Stabilizer lever.

In general, a movement of a control lever away from the operator moves the controlled member away from the operator and conversely, movement of a control lever toward the operator moves the controlled member toward the operator.

## TO OPERATE THE BACKHOE:

Lower the stabilizers until the rear of the tractor is totally supported by them. On a side hill or uneven ground, the hoe can be leveled with the stabilizers.

Learning to operate the Backhoe is quite simple. Lever operating guides are mounted on top of the valve cover in view of the operator, see Fig 1. The engine speed and the size of the hydraulic system will determine the speed of the cylinder operation. Therefore set the engine throttle to about one third to start and gradually increase it as you become more proficient. Operate all of the control levers a little at a time. Operate the swing to not more than 45 degrees each way for the first few times, then gradually increase the angle. To prevent damage to the swing unit, do not

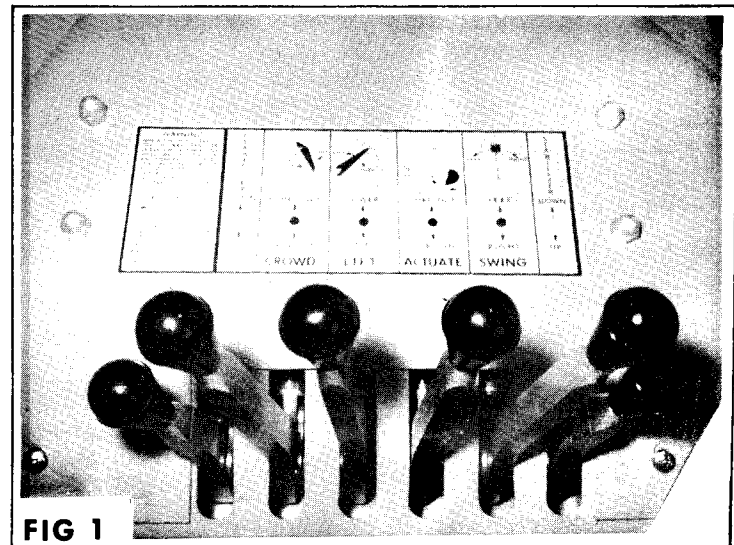


FIG 1

## TO OPERATE THE BACKHOE: continued

jockey the control lever by releasing and reactivating it to obtain a greater arc when reaching the end of the swing. Release the swing lever about 10 or 15 degrees short of full swing. A cushion valve will take over and bring the swing to a controlled stop short of reaching the end of the swing travel. Experience will tell you just when to release the lever. Smooth, light handling of the controls will result in the most efficient machine operation.

Best results are obtained by digging near the center of the swing so that the material can be dumped on either side.

As the operator becomes more familiar with the operation of the digger, it becomes common practice to operate two controls at one time. For example; with the bucket extended and the dipperstick extended, the lift control and crowd control can be operated together to bring the bucket toward the operator with down pressure on it. As the dipperstick approaches the operator, the crowd and bucket controls can be operated to close the bucket and trap the material. At the end of the stroke, the lift and crowd controls are operated to move the load up and away from the operator to save time in clearing the excavation. This dual operation of controls will hasten and simplify the digging operation. Normally, the two or more movements will not be equal or even simultaneous, but as the pressure within the cylinders change and the resistance on an operating member of the hoe lessens, it will begin to move. It is the balancing of the force of one member against the other.

NOTE: Actuating the bucket is the key to powerful digging. Actuation of the crowd and bucket simultaneously will insure full buckets and prevent lost motion and time.

### OPERATIONAL HINTS:

1. When dirt begins to pile too high, utilize crowd and bucket cylinder to move dirt away from the hole.
2. On extreme swing, care should be taken not to overbalance the tractor.
3. WARNING - Use caution when digging far to either side and in close to the tractor. Bucket will contact the stabilizers and could cause serious damage.
4. CAUTION - The purpose of the cushion valve on your digger is to absorb the shock of swing when the control valve plunger is returned to neutral. This valve will not function if you permit swinging to the end of the stroke. Therefore do not hold the control lever open; release it approximately 10 degrees before arc limit. The inertia of a loaded bucket will carry through to the arc limit and cushion the stop. Proper use of the cushioning valve will insure the life of your digger.
5. Upon completion of the day's digging; INSPECT, TIGHTEN, AND LUBRICATE THOROUGHLY.

## **PREVENTIVE MAINTENANCE & LUBRICATION**

### CHECK - TIGHTEN -- GREASE - DAILY

Continued trouble-free operation of your machine depends upon a sound program of preventive maintenance. STOP TROUBLE BEFORE IT STARTS.

A suggested program is outlined as follows:

#### DAILY

- A. Check and tighten all mounting bolts.
- B. Check all pins for loss of cotter pins and washers or retaining rings.

## PREVENTIVE MAINTENANCE & LUBRICATION: continued

- C. Check cylinders for packing leaks.
- D. Check oil level. Add oil when necessary. Use only the recommended oil.
- E. Grease all fittings. Use chassis lube grease, applying generously to force dirt laden grease from the bearings. If grease fails to go through at any point, determine the cause and correct the condition at once. Thorough lubrication is very important to the life of your machine.
- F. Check all hoses and tube lines. Hydraulic hoses are the life line of any hydraulic operated equipment. It is very important that these lines be kept in good condition and all connections tight. One of the chief causes of hydraulic hose failure is twisting. When replacing any hose, be certain that it has no twists.

**IMPORTANT:** Never disconnect a hose or tube that is under pressure. If in doubt, move the appropriate operating levers back and forth several times, pump not running.

### FREQUENTLY

Check the oil strainer located inside of the reservoir frequently on self-contained hydraulic systems. Failure to do this could result in serious damage to the hydraulic pump. Clean strainer at least every 50 hours of operation.

### 200 HOURS

Change oil every 200 hours, or more often if necessary. If the prime mover supplies the hydraulic power, service according to it's instruction manual.

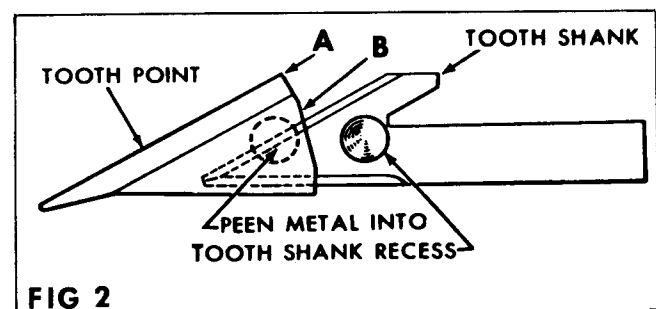
### IMPORTANT DON'TS

- A. Don't set the relief valve higher than the recommended pressure of 2000 PSI in the Backhoe circuit.  
  
Excessive pressure will damage the hydraulic system as well as the mechanical parts of the machine. Use a pressure gauge when setting the relief valve. Do not attempt to guess at a pressure setting.
- B. Don't permit dirt to enter hydraulic system. Use care while adding oil. If hoses are disconnected, use pipe caps on open ends, use pipe plugs on all open fittings.
- C. Don't use other than recommended oil.
- D. Don't operate machine with insufficient oil
- E. Don't neglect your preventive maintenance program.

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## **BUCKET TOOTH POINTS**

The points on the bucket teeth shanks can be replaced when they become worn or broken. Tooth points can be removed from the welded tooth shanks by hammering at location "A", Fig 2, of the tooth point or by driving a chisel at point "B", Fig 2, just between the tooth point box section and the tooth shank. Install new points and anchor them to the tooth by peening at the location shown.



# HYDRAULIC TROUBLE SHOOTING

The trouble shooting material presented in this section is offered as a guide to diagnosing probable causes and remedies for general operational problems. Match your problem with the typical problem examples given, and note the numbers given in the possible cause column. These numbers correspond with the possible cause and correction paragraphs that follow.

NOTE: When using the following chart, and it is decided that overhaul of components or pressure adjustments are necessary to correct malfunctioning, it is recommended that your dealer make these repairs as necessary, as he is equipped to do this work.

PROBLEM	POSSIBLE CAUSE
<p>A. Machine fails to.....1, 2, 5, 8 operate when initially started.</p> <p>B. Machine loses power.....1, 7, 9, 11, after operating 18, 22 satisfactorily initially.</p> <p>C. Loss of power in.....15 lift or crowd cyl- inder, but other cylinders func- tion properly.</p> <p>D. Loss of power in.....9, 10, 13, 15, any one cylinder 18, 19, 20, 21 including lift and crowd.</p> <p>E. Loss of power or.....9, 10, 13, 15, loss of cushioning 16, 18, 19, action in swing cyl- 20, 21 inders, but other cylinders function properly.</p> <p>F. Maximum swing action....20, 23 cannot be obtained.</p> <p>G. Slow operation.....1, 4, 5, 6, 7, of machine (lack 11 of power) all cylinders.</p> <p>H. Spongy or jerking.....1, 3, 4, 5, 7 action of cylinders and/or noisy operations.</p> <p>I. Lift, crowd or bucket...14 cylinders drop under load when control spools are shifted from neutral.</p>	<p>J. Load drops or.....9, 13, 14, 18, settles. 21</p> <p>K. Leaky cylinders.....18, 19, 20, 21</p> <p>L. Leaky valve.....9, 12, 24</p> <p>M. Sticky valve plunger....12</p> <hr/> <p style="text-align: center;"><u>POSSIBLE CAUSE &amp; CORRECTION</u></p> <p>1. Low oil level in reservoir. Correction: Fill reservoir to proper level.</p> <p>2. No oil supply to machine. Correction: Oil is not being diverted from the prime mover hydraulic system. Be sure that the proper controls are actuated on the prime mover.</p> <p>3. Air in system. Correction: Bleed all circuits of air by operating machine at maximum oil flow and thru full movements.</p> <p>4. Oil viscosity too heavy, or oil is not at operating temperature. Correction: Use recommended hydraulic fluid. Run machine until oil reaches operating temperature.</p> <p>5. Pump not running. Correction: Check pump drive to be sure it is engaged.</p> <p>6. Insufficient pumping. Correction: Advance engine throttle.</p>

# HYDRAULIC TROUBLE SHOOTING

## POSSIBLE CAUSE & CORRECTION: continued

7. Dirty strainer on pump intake - noisy pump.  
Correction: Remove strainer screen reservoir and clean, filter fluid before returning to reservoir. Pump may be damaged as a result of insufficient oil intake.
8. Improper hose connections.  
Correction: This is extremely dangerous. The valve outlet port for the return line to the reservoir is on the same end of the valve block as the relief valve adjusting assembly is found. This is contrary to normal valve construction practice. Improper hook-up will burst some part of the hydraulic system.
9. Loose oil line connections, leaks in lines, or broken lines.  
Correction: Tighten all hose connections and replace any damaged O-rings at leaking O-ring fittings. Check and replace any damaged hoses and lines.
10. Restriction in oil lines.  
Correction: Check and replace any damaged hoses and lines. Check for pinched hoses.
11. Relief valve setting in Backhoe control valve too low or defective.  
Correction: Relief valve pressure will have to be checked and corrections made. Backhoe system pressure is 2000 PSI. Relief valve may need cleaning and overhauling, see item 25 at the end.
12. Paint on valve spool, sticking valve spool, or scored valve spool.  
Correction: Clean valve spool. Binding is usually caused from an overtightened plug, mounting bolt, or fitting in valve body. If a plug or fitting in valve body is leaking do not overtighten in an effort to stop leak. This will distort body casting and cause spools to bind. Instead, the plug or fitting should be removed from valve body and be reconnected, using a new O-ring. Do not apply excessive pressure on mounting bolts. Never force spool if binding occurs, see item 25 at end.
12. continued:  
fitting in valve body is leaking do not overtighten in an effort to stop leak. This will distort body casting and cause spools to bind. Instead, the plug or fitting should be removed from valve body and be reconnected, using a new O-ring. Do not apply excessive pressure on mounting bolts. Never force spool if binding occurs, see item 25 at end.
13. Worn control valve.  
Correction: Replace the control valve.
14. Check valve in the control valve not holding.  
Correction: See item 25 at the end.
15. Overload relief valves in the control valve stuck open or malfunctioning.  
Correction: See item 25 at the end.
16. Cross-over reliefs or counter-balance section of swing circuit in control valve is leaking or malfunctioning. Raise the machine on one side by fully extending the left or the right stabilizer cylinder. Raise the bucket clear of the ground with boom and dipperstick in transport position. If the boom swings toward the low side of the machine, oil is bypassing the cross-over relief valve or the counter-balance checks.  
Correction: See item 25 at the end.
17. Regenerative flow check is stuck or malfunctioning in control valve. Cylinder voids and lost motion is experienced.  
Correction: See item 25 at the end.
18. Oil is bypassing cylinder piston, scored piston, worn piston packing, or defective piston assembly.  
Correction: Replace or rebuild the cylinder; replace damaged parts.

# HYDRAULIC TROUBLE SHOOTING

## POSSIBLE CAUSE & CORRECTION: continued

19. Scored piston rods and worn rod guides in cylinder.  
Correction: Replace or rebuild the cylinder; replace damaged parts.
20. Bent piston rod in cylinder.  
Correction: Replace or rebuild the cylinder; replace damaged parts.
21. Worn or damaged rod seals on cylinder; external leaks.  
Correction: Repack cylinder. Rebuild cylinder if necessary, replacing damaged parts.
22. Diverter valve on prime mover leaking externally or bypassing oil internally through valve to reservoir.  
Correction: Diverter valve may need rebuilding or replacing.
23. Something jamming the swing linkage.  
Correction: Remove interference.
24. Damaged or worn spool seals.  
Correction: Replace spool end seals. See item 25, next.
25. Problems involving the control valve proper:

This valve is a precision device and is not intended for any extensive field tampering even by the most qualified persons. Since field replacement parts are limited to centering springs, spool end seals, retaining rings, spool caps, and seal O-ring retaining washers, there is little additional that can be accomplished on it. Anything beyond the replacement of these parts, the opening of check cavities to examine for trapped dirt, or the resetting of the main relief valve with the use of a good pressure gauge, should be referred back to the factory and an exchange valve obtained. The malfunctioning valve is then returned to its manufacturer for service.

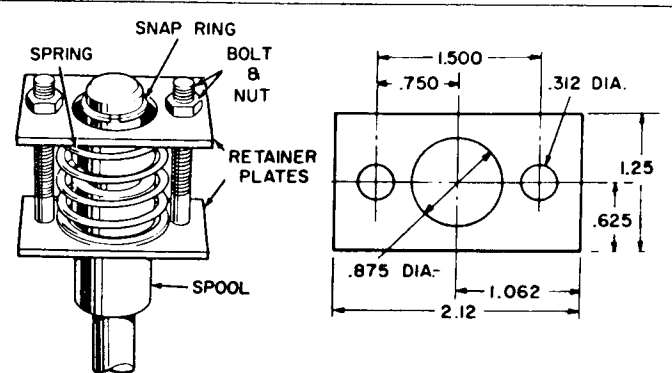
Dirt and shreds of packing material are the most usual causes of valve malfunction. Be sure that the reservoir oil supply is kept clean and that

25. continued:

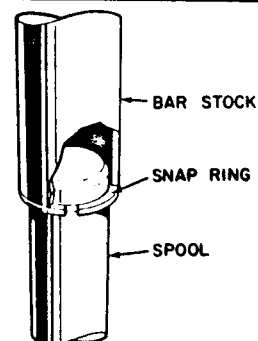
only factory supplied packings are used in any cylinder repair. Be sure everything is kept clean and free of dirt during the oil line removal and replacement and during any cylinder work. The following page will illustrate various portions of the valve with helpful suggestions.

THE INCLUSION OF THIS INFORMATION AND ITS USE DOES NOT IMPLY THAT THE WARRANTY REMAINS EFFECTIVE ON THE VALVE IF IT IS TAMPERED WITH DURING ITS WARRANTY PERIOD. However, careful use after warranty by qualified persons (persons having extensive valve service training and experience) can correct many minor problems that may develop.

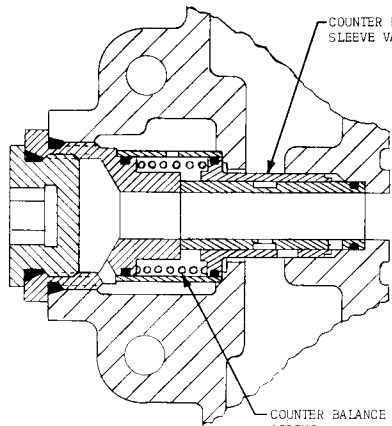
BE SURE TO HEED ALL CAUTION AND WARNING NOTES OR ELSE THE VALVE WILL HAVE TO BE RETURNED TO THE FACTORY AND THEN TO ITS MANUFACTURER FOR RECONDITIONING NEEDLESSLY.



**FIG 3 SNAP RING REMOVAL TOOL**

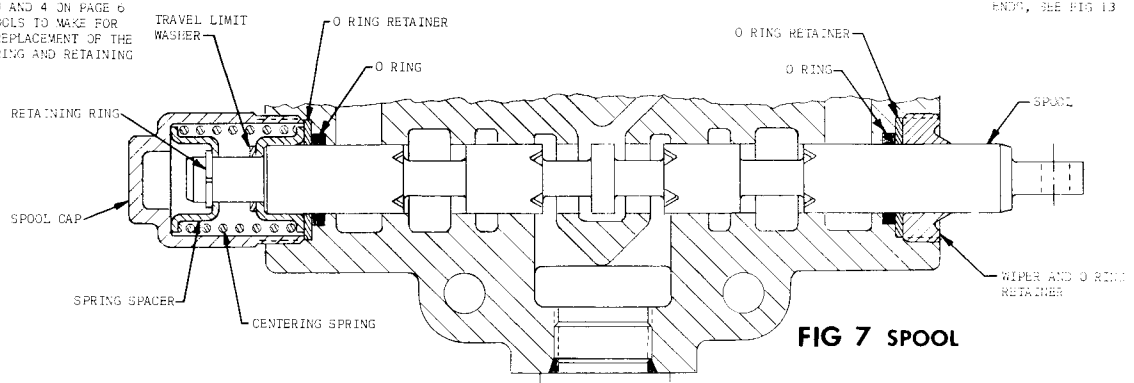


**FIG 4 SNAP RING INSTALLING TOOL**

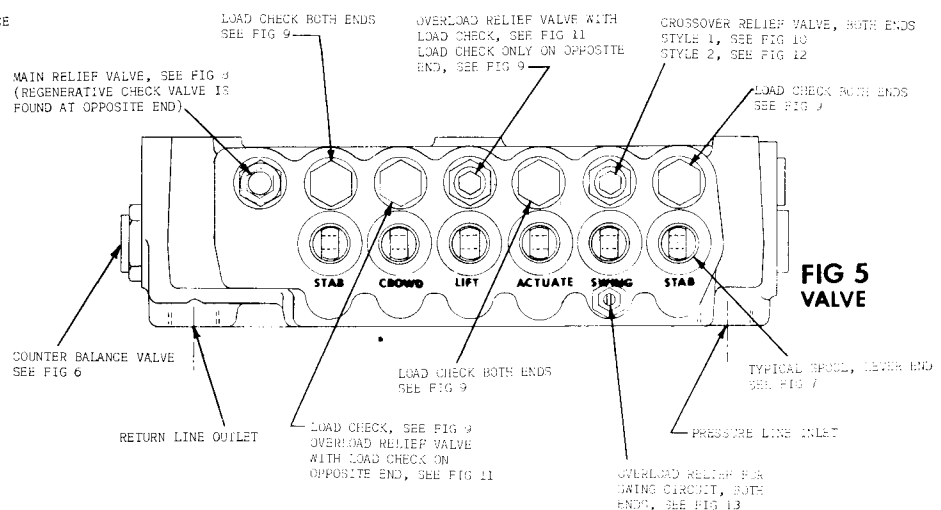


**FIG 6 COUNTER-BALANCE VALVE**

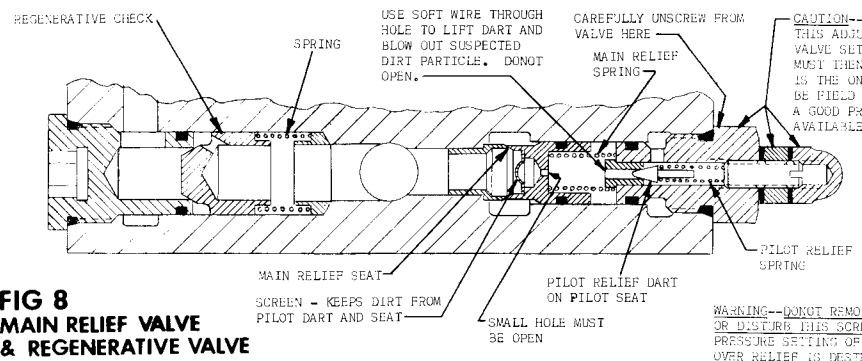
SEE FIGURES 3 AND 4 ON PAGE 6 FOR PROPER TOOLS TO MAKE FOR REMOVAL AND REPLACEMENT OF THE CENTERING SPRING AND RETAINING RING.



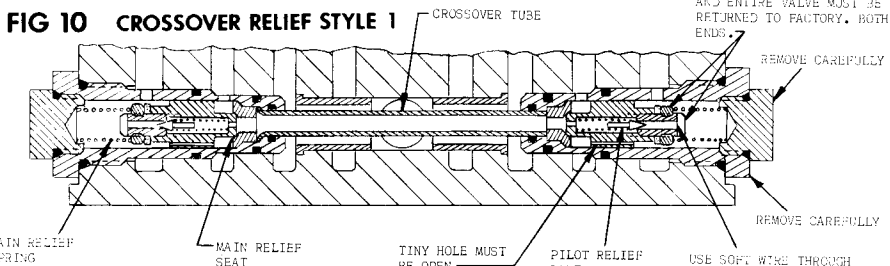
**FIG 7 SPOOL**



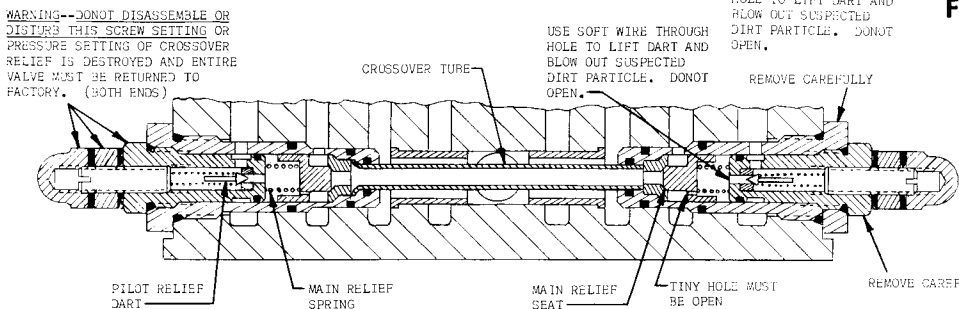
**FIG 5 VALVE**



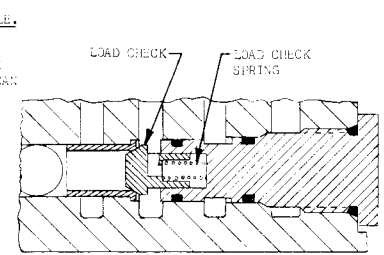
**FIG 8 MAIN RELIEF VALVE & REGENERATIVE VALVE**



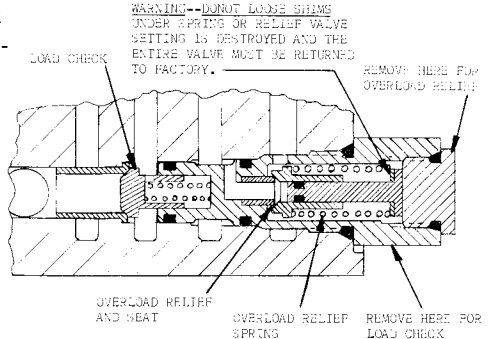
**FIG 10 CROSSOVER RELIEF STYLE 1**



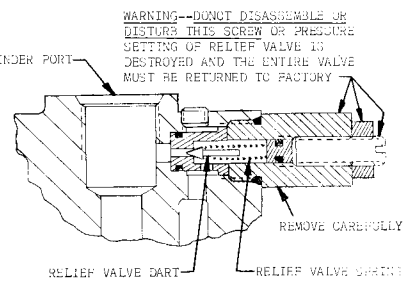
**FIG 12 CROSSOVER RELIEF STYLE 2**



**FIG 9 LOAD CHECK**



**FIG 11 OVERLOAD RELIEF & LOAD CHECK**



**FIG 13 OVERLOAD RELIEF**



# REPAIR PARTS SECTION

Identify the part on the drawing pertaining to its assembly, find its number and look it up in the parts list on the page indicated. When ordering parts, give the part number, the full name of the part and the quantity of parts wanted. Give all the information found on the Backhoe name plate.

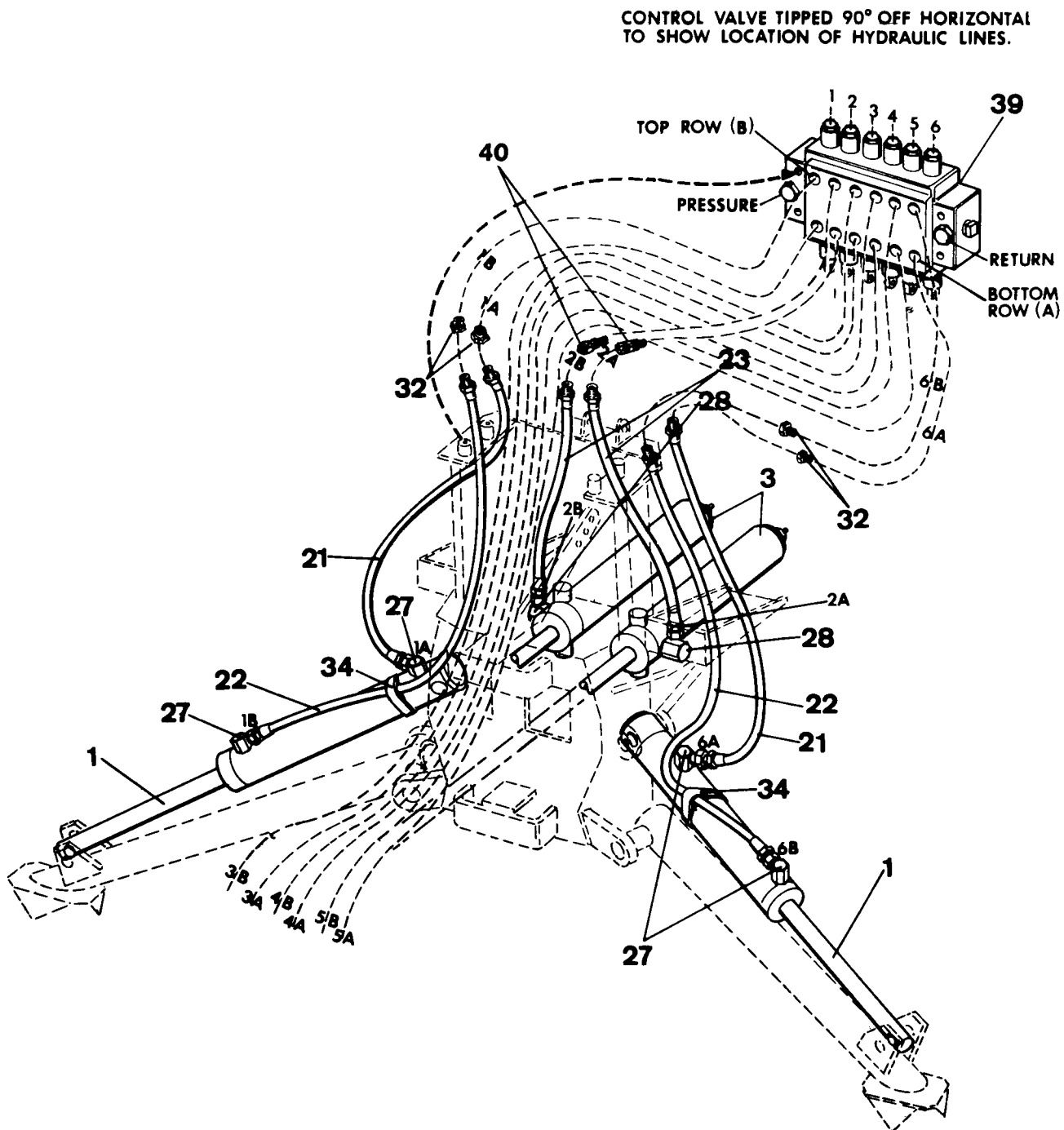


FIG 14 PART LIST PAGE 10

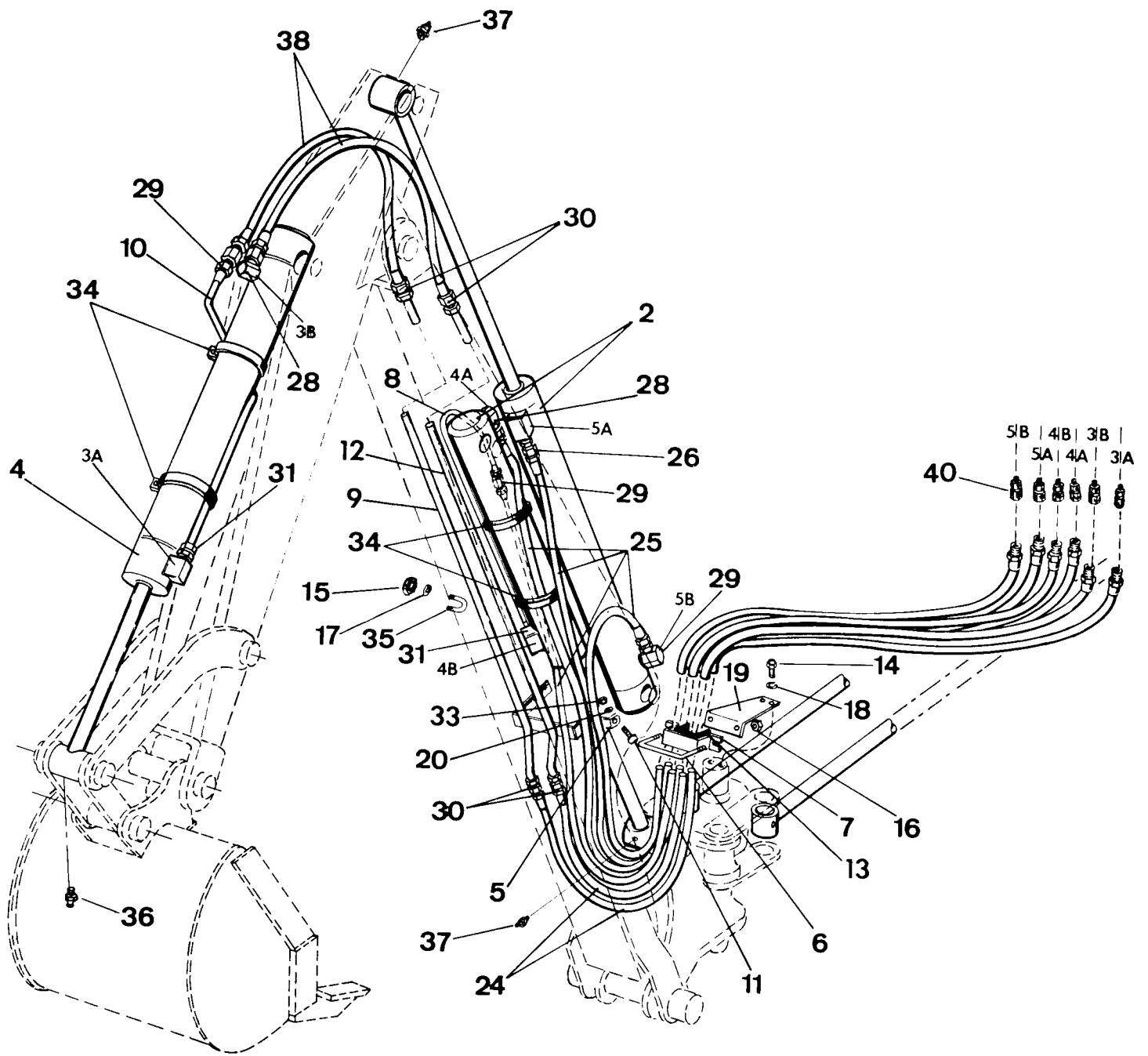


FIG 15 PARTS LIST PAGE 10

## PARTS LIST FOR PAGES 8 & 9

Index	Description	Part No.	Index	Description	Part No.
1	Hydraulic Cylinder Assembly.....	010	39	Valve (also shown on page 11,	
2	Hydraulic Cylinder Assembly.....	021		part number 61).....	10429
3	Hydraulic Cylinder Assembly.....	022	40	Adapter Union, 7/8-14 M x	
4	Hydraulic Cylinder Assembly.....	023		1/2 NPT F.....	11120
5	Hose Clip Weldment.....	850355			
6	Hose U-Bolt.....	850134			
7	Hose Strap.....	850136			
8	Tube Line, 1/2 OD.....	850364			
9	Tube Line, RH, 5/8 OD.....	850362			
10	Tube Line, 1/2 OD.....	850384			
11	Carriage Bolt, 5/16 NC x 1".....	6577			
12	Tube Line, LH, 5/8 OD.....	850363			
13	Belting.....	850366			
14	Bolt, 3/8 NC x 3/4 Hex.....	6829			
15	Nut, 1/4 NC Hex.....	7401			
16	Nut, Lock, 5/16 NC, 2-way.....	7433			
17	Lockwasher, 1/4.....	8061			
18	Lockwasher, 3/8.....	8079			
19	Hose Pivot Plate.....	850123			
20	Washer, 5/16 Std Flat.....	8151			
21	Hydraulic Hose, 3/8 ID x				
	3/8 NPT M x 32" Long.....	10914			
22	Hydraulic Hose, 3/8 ID x				
	3/8 NPT M x 48" Long.....	10925			
23	Hydraulic Hose, 3/8 ID x				
	1/2 NPT M x 25" Long.....	10975			
24	Hydraulic Hose, 3/8 ID x				
	1/2 NPT M x 7/8-14 M x 56".....	11016			
25	Hydraulic Hose, 3/8 ID x				
	1/2 NPT M x 82" Long.....	11013			
26	Adapter Union, 3/4-16 M x				
	1/2 NPT F.....	11119			
27	Adapter Union, 3/8 NPT M x				
	3/8 NPT F.....	11127			
28	Adapter Union, 3/4-16 M x				
	1/2 NPT F.....	11144			
29	Tube Connector, 1/2 Tube				
	x 1/2 NPT F.....	11221			
30	Tube Connector, 5/8 Tube				
	x 1/2 NPT F.....	11222			
31	Tube Connector, 1/2 Tube				
	x 3/4-16 M.....	11196			
32	Pipe Adapter, 7/8-14 M x				
	3/8 NPT F.....	11218			
33	Nut, 5/16 NC Hex.....	7431			
34	Hose Clamp.....	14157			
35	U-Bolt, 1/4 NC.....	13593			
36	Grease Fitting.....	14525			
37	Grease Fitting.....	14500			
38	Hydraulic Hose, 3/8 ID x				
	1/2 NPT M x 33" Long.....	10981			

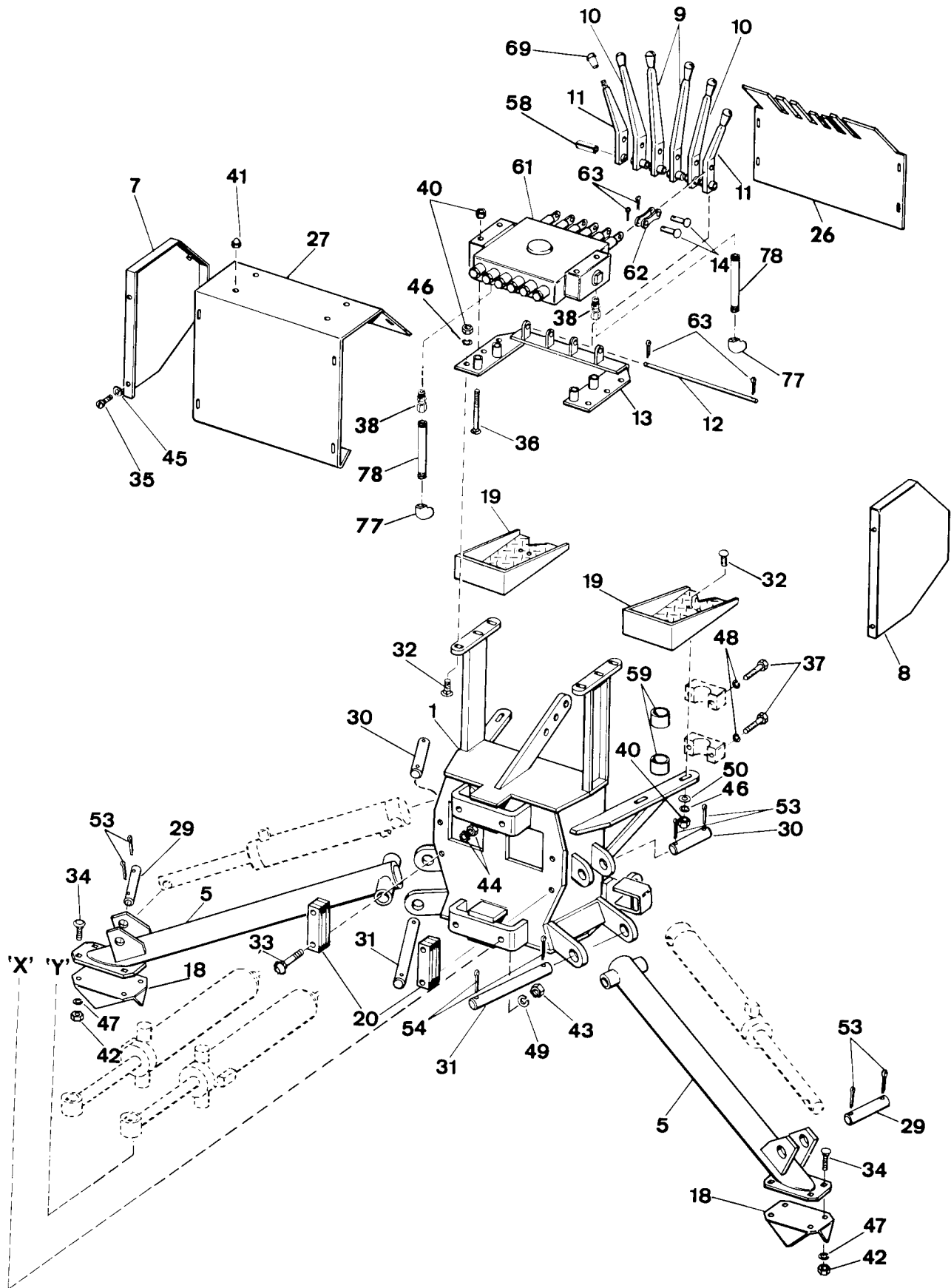


FIG 16 PARTS LIST PAGE 13

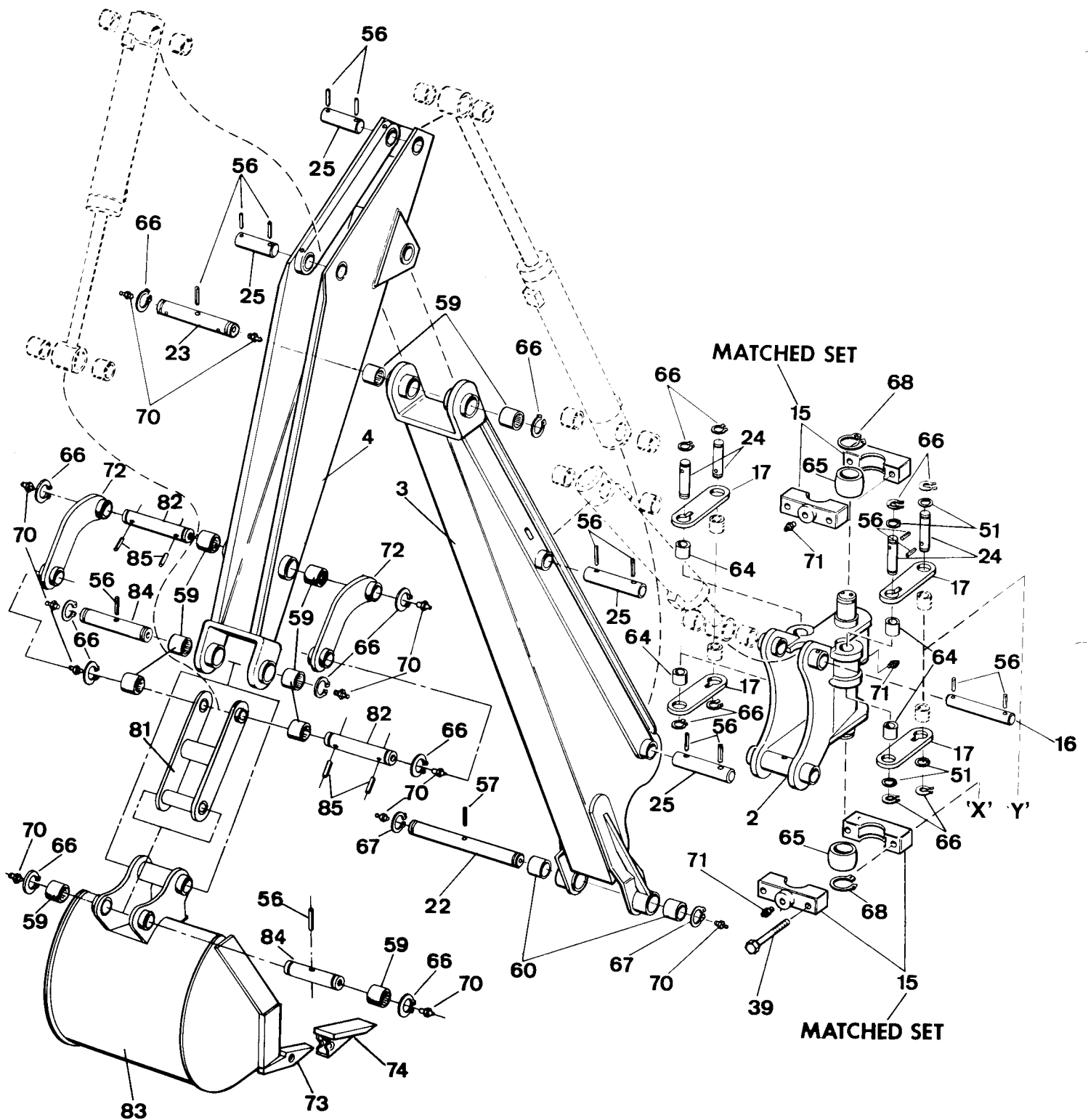
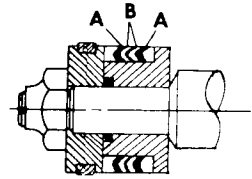
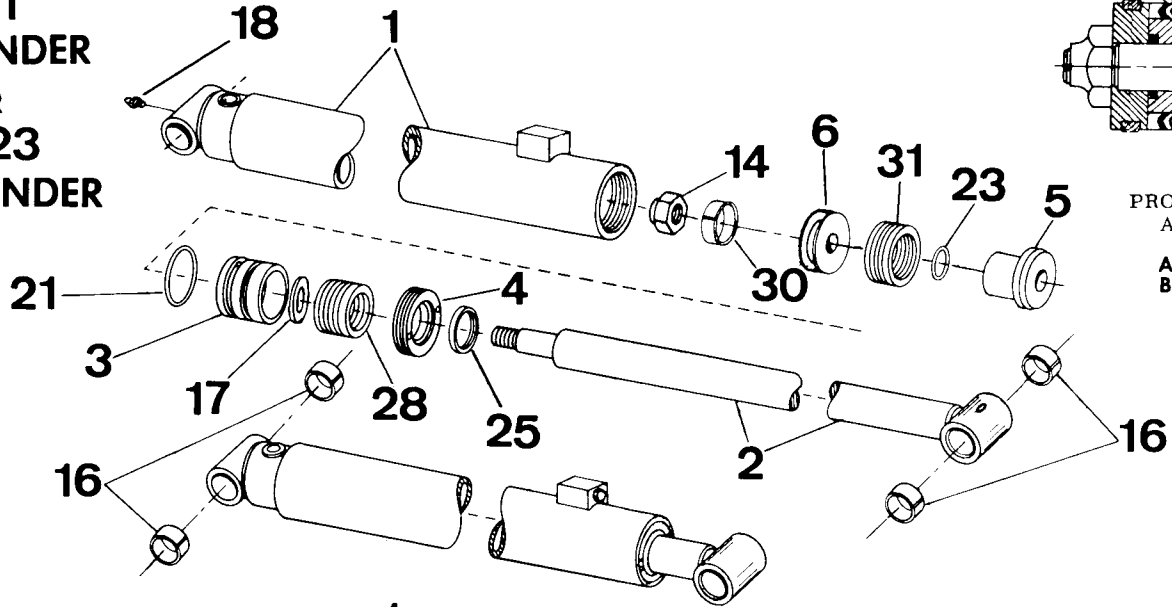


FIG 17 PARTS LIST PAGE 13

## PARTS LIST FOR PAGES 11 & 12

Index	Description	Part No.	Index	Description	Part No.
1	Main Frame Weldment.....	850390	58	Roll Pin, 1/2 x 1-3/8.....	9020
2	Swing Frame Weldment.....	850035	59	Tension Bushing.....	9022
3	Boom Weldment.....	850050	60	Tension Bushing.....	9023
4	Dipperstick Weldment.....	850065	61	Valve.....	10429
5	Stabilizer Arm Weldment.....	850075	62	Side Bar - Chain.....	11406
7	Side Plate Weldment - RH.....	350090	63	Cotter Pin, 1/8 x 7/8 Alloy....	11503
8	Side Plate Weldment - LH.....	850095	64	Needle Bearing.....	12017
9	Inner Control Lever.....	850101	65	Bearing.....	12292
10	Outer Control Lever.....	850102	66	Retaining Ring, 5160-125.....	13426
11	Stabilizer Control Lever.....	850103	67	Retaining Ring, 5160-150.....	13428
12	Handle Pivot Pin.....	850104	68	Retaining Ring, 5100-200.....	13422
13	Valve Plate Weldment.....	850105	69	Ball Knob.....	14064
14	Rivet.....	780672	70	Grease Fitting.....	14505
15	Bearing Block Assembly, Matched set.....	850110	71	Grease Fitting.....	14525
16	Cylinder Pin - Long.....	850116	72	Guide Link Weldment.....	850375
17	Cylinder Link.....	850117	73	Tooth Shank.....	13616
18	Stabilizer Pad.....	850118	74	Tooth Point.....	13617
19	Foot Pad.....	850119	77	Pipe Elbow, 1/2 NPT x 90°.....	7924
20	Bumper Stop.....	850121	78	Pipe Nipple, 1/2 NPT x 8-1/2....	7915
22	Pivot Shaft Boom.....	850126	81	Bucket Link Weldment.....	850370
23	Pivot Shaft.....	850127	82	Pivot Shaft, Long.....	850381
24	Link Pin.....	850128	83	Bucket, Complete w/Tooth Point: 12" Bucket.....	W14
25	Cylinder Pin - Short.....	850129		18" Bucket.....	W15
26	Handle Cover.....	850131		36" Bucket.....	W16
27	Valve Cover.....	850132		40" Bucket.....	W18
29	Pivot Pin.....	502026	84	Pivot Shaft, Short.....	850382
30	Base Pin.....	502027	85	Roll Pin, 3/16 x 1".....	8966
31	Pivot Shaft.....	601552			
32	Carriage Bolt, 3/8 NC x 1".....	6608			
33	Carriage Bolt, 3/8 NC x 3".....	6633			
34	Carriage Bolt, 1/2 NC x 1-1/4...6664				
35	Machine Screw, 1/4 NC x 1/2.....	6733			
36	Bolt, 3/8 NC x 5-1/2 Hex.....	6906			
37	Bolt, 5/8 NC x 2-1/2 Hex.....	7150			
38	Pipe Adapter, 1-1/16-12 M x 1/2 NPT F.....	11227			
39	Bolt, 3/4 NC x 5-1/2 Hex.....	7265			
40	Nut, 3/8 NC Hex.....	7451			
41	Acorn Nut, 3/8 NC Hex.....	7468			
42	Nut, 1/2 NC Hex.....	7501			
43	Nut, 3/4 NC Hex.....	7561			
44	Jam Nut, 3/8 NC Hex.....	7653			
45	Lockwasher, 1/4 Shakeproof.....	8062			
46	Lockwasher, 3/8.....	8079			
47	Lockwasher, 1/2.....	8101			
48	Lockwasher, 5/8.....	8111			
49	Lockwasher, 3/4.....	8121			
50	Washer, 3/8 Std Flat.....	8156			
51	Mach. Bushing.....	8290			
53	Cotter Pin, 3/16 x 1-1/2.....	8584			
54	Cotter Pin, 1/4 x 1-1/2.....	8602			
56	Roll Pin, 5/15 x 1".....	9010			
57	Roll Pin, 3/8 x 3/4.....	9017			

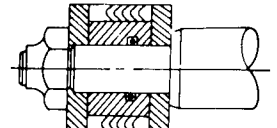
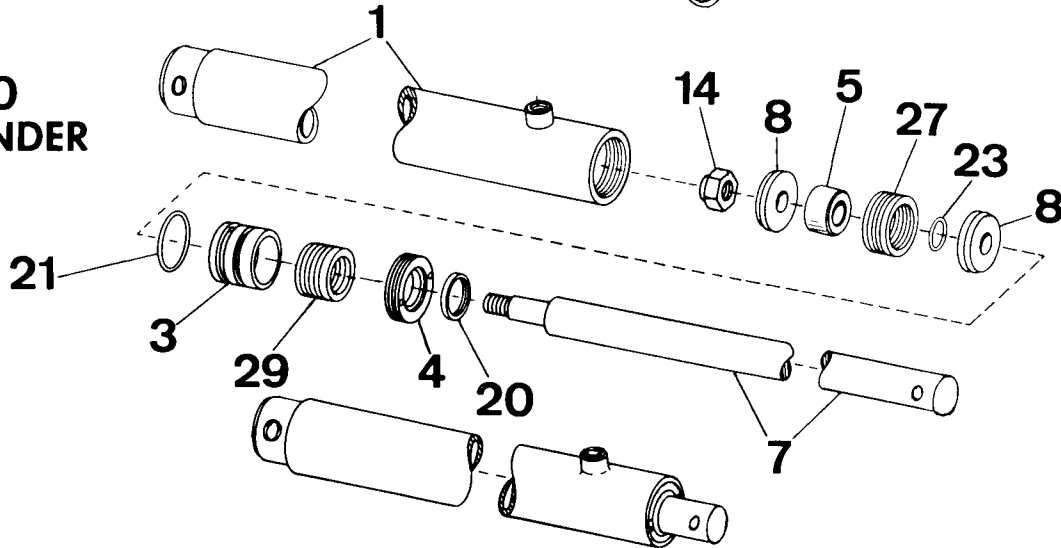
**021  
CYLINDER  
OR  
023  
CYLINDER**



PROPER PISTON ASSEMBLY

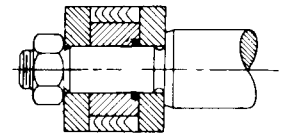
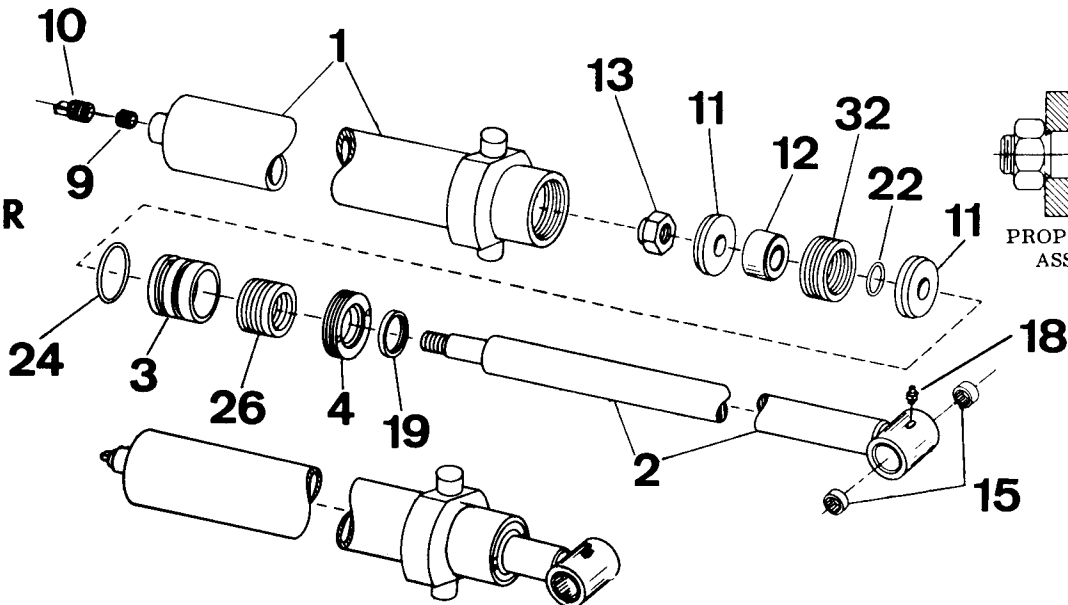
A = HARD VEE'S  
B = SOFT VEE'S

**010  
CYLINDER**



PROPER PISTON ASSEMBLY

**022  
CYLINDER**



PROPER PISTON ASSEMBLY

## HYDRAULIC CYLINDERS - PARTS LISTS

Index	Description	021	023	010	022
		2½" Dia. x 21" Stroke	2½" Dia. x 17½" Stroke	2½" Dia. x 16½" Stroke	3" Dia. x 13½" Stroke
1	Cylinder Tube Weldment.....	905185	905205	905030	906030
2	Piston Rod Weldment.....	905195	905215		906040
3	Gland, Cylinder Packing.....	905177	905177	905027	906028
4	Gland Cap.....	905178	905178	905028	906029
5	Cylinder Piston.....	905176	905176	905078	
6	Piston Washer.....	905179	905179		
7	Piston Rod.....			905026	
8	Cylinder Stop.....			905126	
9	Breather Felt.....				904201
10	Breather Plug.....				904202
11	Washer, 3" x 3/8.....				906027
12	Spacer.....				906026
13	Nut, 3/4 NF Self-Locking.....				7590
14	Nut, 7/8 NF Self-Locking.....	7610	7610	7610	
15	Needle Bearing.....				12017
16	Tension Bushing.....	9022	9022		
17	Washer, Wavy Spring Type.....	10662	10662		
18	Grease Fitting, 1/4 NF SAE.....	14505	14505		14505
19	Oil Seal, 1-1/4 OD x 1" ID.....				11569
20	Oil Seal, 1-7/8 OD x 1-1/2 ID.....			11584	
21	O-Ring, 11-142.....	11730	11730	11730	
22	O-Ring, 11-210.....				11733
23	O-Ring, 11-214.....	11739	11739	11739	
24	O-Ring, 11-232.....				11766
25	Wiper Seal, 1-5/8 OD x 1-1/4 ID....	11817	11817		
26	Packing Assembly, 1-1/2 OD x 1" ID x .824 Stack Height.....				11836
27	Packing Assembly, 2-1/2 OD x 2" ID x 1-1/4 Stack Height.....			11848	
28	Packing Assembly, 1-3/4 OD x 1-1/4 ID x 1-1/2 Stack Height.....	11851	11851		
29	Packing Assembly, 2" OD x 1-1/2 ID x .824 Stack Height.....			11857	
30	Wear Ring, 2-1/2 OD x 2-1/4 ID x 3/8 Wide.....	11861	11861		
31	Packing Assembly, 2-1/2 OD x 2" ID x 13/16 Stack Height.....	11862	11862		
32	Packing Assembly, 3" OD x 2-1/2 ID x 1-3/8 Stack Height.....				11864
	For Complete Cylinder order.....	021	023	010	022

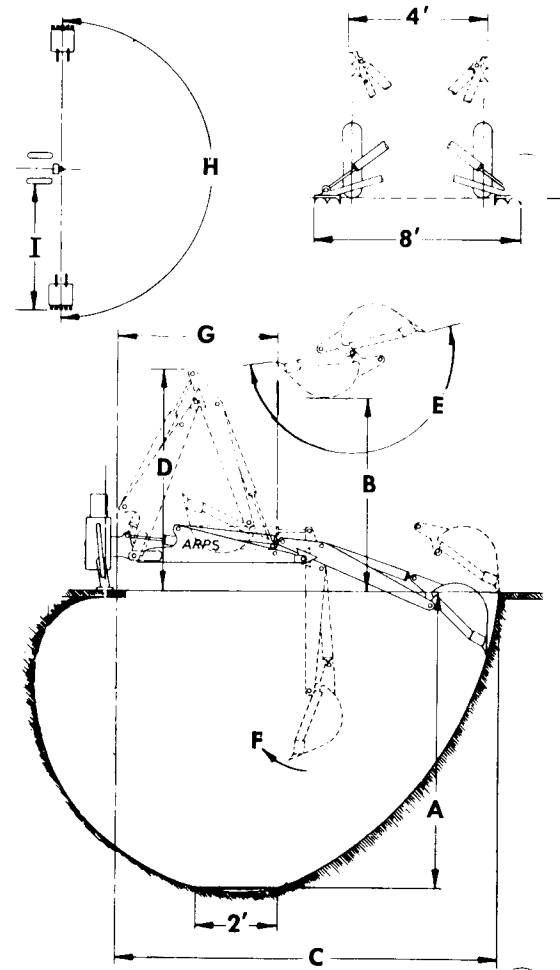


## SPECIFICATIONS

- A. Digging Depth (two foot flat bottom).....98" \*
  - B. Loading Height (over truck box).....77" \*
  - C. Maximum Reach From Swing Pivot.....10' 5" \*
  - D. Transport Height Clearance (maximum).....81" \*
  - E. Bucket Roll, Normal Digging (all buckets).....180° \*
  - F. Bucket Roll Force at Teeth (maximum).....3235 lbs \*  
     Bucket Pry-out Force, in excess of.....10,000 lbs
  - G. Transport Overhang to Rear from  
     Center Swing.....54"
  - H. Swing Arc.....180° \*
  - I. Reach to Outside of Wheel.....8' 4"
- \* Meets specification definitions of IEMC.

### BUCKET INFORMATION:

BUCKET	WIDTH	SAE STRUCK CAPACITY	HEAPED CAPACITY	WEIGHT
W14	12 in.	1.42 Cu.Ft.	2 Cu.Ft.	95 lbs.
W15	18 in.	2.23 Cu.Ft.	3 Cu.Ft.	119 lbs.
W16	36 in.	3.11 Cu.Ft.	3½ Cu.Ft.	152 lbs.
W18	40 in.	3.40 Cu.Ft.	4 Cu.Ft.	155 lbs.



## SAFETY PRECAUTIONS

Accidents involving operators of industrial equipment are generally caused by the failure of individuals to observe fundamental safety precautions. Most accidents can be avoided by following these simple safety precautions.

1. Make sure everyone is in the clear before starting the machine.
2. To prevent upsets, be careful when swinging a loaded bucket on sidehills.
3. Use extreme care when operating close to ditches, fences, or on hillsides.
4. Do not permit anyone on the tractor or backhoe except the operator.
5. Do not leave the tractor before lowering the bucket to the ground.
6. Adequately block up backhoe when it is left detached from the tractor.
7. Do not attempt to repair or tighten hoses when under pressure, or when the boom is raised, or with the tractor engine running.
8. Comply with your state and local laws governing highway safety and with regulations when moving machinery on a highway.

## WARRANTY

ARPS CORPORATION warrants each Backhoe to be free of defects in material and workmanship for a period of one year from the date of delivery to retail purchaser. Obligation under this warranty is limited to replacement or repair of parts which appear to have been defective in material or workmanship. This warranty does not obligate the manufacturer to bear the cost of labor or transportation charges related to the replacement or repair of defective parts, nor shall it apply to products upon which repairs or alterations have been made, unless authorized by the manufacturer. Warranty on any components shall be extended only as directed by the manufacturer of such components. **IMPORTANT** - be sure to read the warranty limitations on the six-spool control valve as outlined on page 6.