

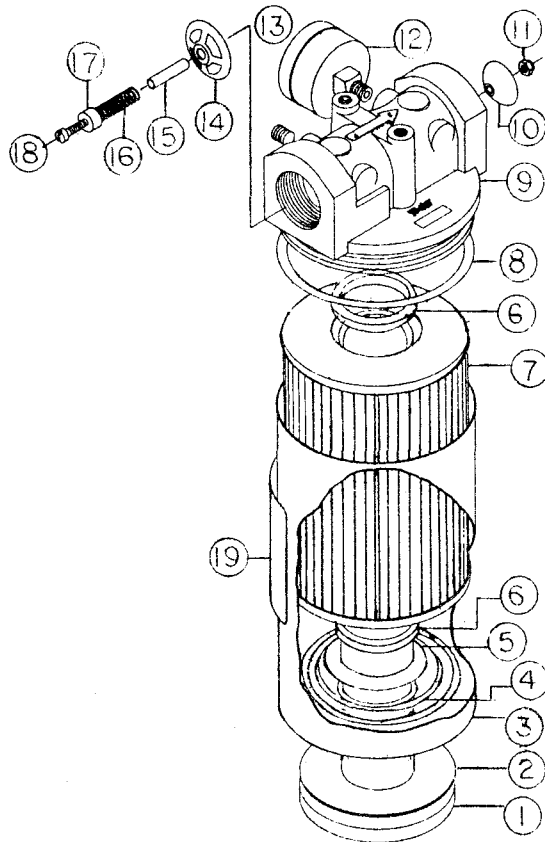


FIG.II-31

FILTER
PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	1	FILTER, hydraulic.....	65000
1	1	POST, center.....	59001
(2) 2	1	SEAL GASKET, center post.....	59016
3	1	HOUSING, filter.....	59003
4	1	SPRING, conical.....	59004
5	2	WASHER, back-up.....	59005
(3) (2) 6	2	GASKET.....	59006
(3) (2) 7	1	ELEMENT.....	59007
(2) 8	1	SEAL, housing, O-ring.....	65343
9	1	CASTING, head.....	59022
(1) 10	1	VALVE, by-pass.....	(59014)
(1) 11	1	LOCKNUT, by-pass.....	(59019)
12	1	INDICATOR, vacuum.....	59010
13	1	PLUG, pipe, 1/8" NPTF.....	59021
(1) 14	1	GUIDE, by-pass.....	(59013)
(1) 15	1	SPACER, valve, by-pass.....	(59011)
(1) 16	1	SPRING, by-pass.....	(59012)
(1) 17	1	CAP, stem, by-pass.....	(59015)
(1) 18	1	SCREW, H.D., by-pass filter.....	(59018)
19	1	DECAL, instruction.....	59020

NOTE: Numbers in () indicate superceded numbers. Serviced only in appropriate kits.

(1) Included in Relief Kit #52021

(2) Included in Filter Element & Seal Kit #52019

(3)

Change Notice No. 1
 Effective: 11/24/75

SUCTION, PRESSURE AND RETURN CIRCUIT

SINGLE PUMP

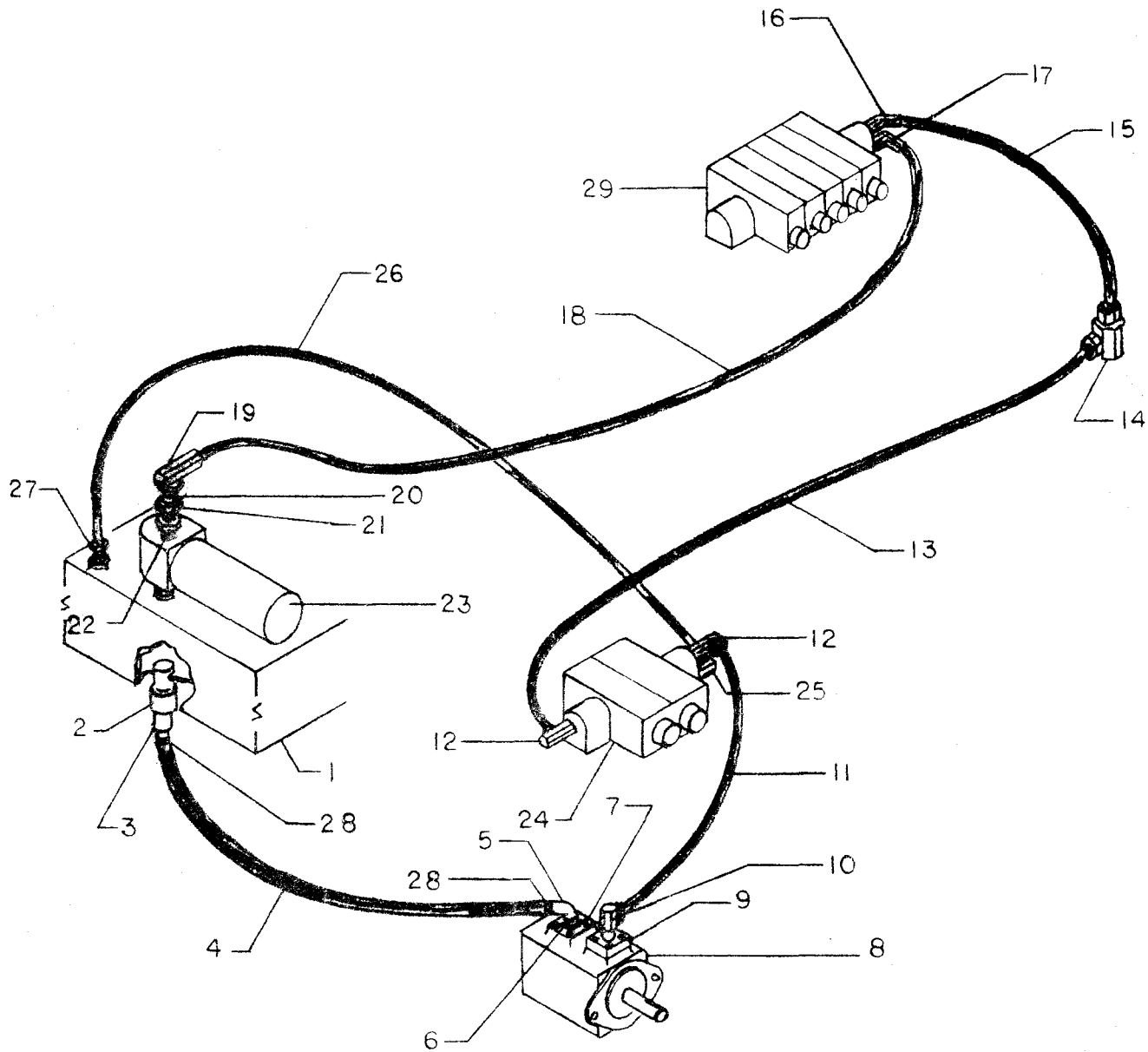


FIG.II-32

Effective: 1/1/75
Supercedes Page Dated: 3/15/74

MODEL 40
SUCTION, PRESSURE AND RETURN CIRCUIT
SINGLE PUMP (MID-MOUNT)
PARTS LIST

ITEM NO.	QTY.	DESCRIPTION	PART NUMBER
	1	RESERVOIR.....	642109
	1	NIPPLE, pipe, 2 1/2"	21076
	1	NIPPLE, king, 2 1/2"	67666
(1)	1	HOSE, suction, 2 1/2"	-
	1	HOSE, 2 1/2"	94009
	1	ELBOW, 90°, 2 1/2"F-1 1/2"F.....	22172
	1	NIPPLE, close, 1 1/2"	19816
	1	ADAPTER, flange, 1 1/2"	67024
	1	PUMP, single, vickers	60603
		PUMP, single, commercial.....	60617
	1	ADAPTER, flange, 1"	67202
	1	ADAPTER, 90° union, 1"M-3/4"F.....	66066
(1)(2)	1	HOSE, assembly 3/4"-2W	-
	2	ADAPTER, 90°, 3/4"M-3/4"F	66063
(2)		HOSE, assembly, 3/4"-2W	70413
	1	SWIVEL, 90° barco, 3/4"	66659
(2)	1	HOSE, assembly, 3/4"-2W	70484
	1	ADAPTER, 45°, 1"M-3/4"F	66110
	1	ADAPTER, 45°, 1"M-1"F	66111
(3)	1	HOSE, assembly, 1"-2W.....	70583
	1	SWIVEL, 90° barco, 1"F-1"F.....	66662
	1	ADAPTER, straight, 1"m-1"M	66620
	1	ELBOW, 90° street, 1"	21922
	1	BUSHING, pipe, 1 1/4",-1"F	22215
	1	FILTER, assembly.....	65000
	1	VALVE, stabilizer control.....	58563
	1	ADAPTER, 90°, 3/4"M-1/2"F	66062
(4)	1	HOSE, assembly, 1/2"-2W.....	70223
	1	SWIVEL, straight, 1/2"Mx1/2"F.....	66008
	2	CLAMP, hose.....	69510
	1	VALVE, main control.....	58564

- (1) Hose lengths vary with pump location.
- (2) Hose assembly consists of the following:
- 1 HOSE, 3/4"-2W 94003
- 2 FITTING, male hose, 3/4" 65964
- (3) Hose assembly consists of the following:
- 1 HOSE, 1"-2W 94012
- 2 FITTING, male hose, 1" 65966
- (4) Hose assembly consists of the following:
- 1 HOSE, 1/2"-2W 94002
- 2 FITTING, male hose, 1/2" 65962

Effective: 1/1/75
 Supersedes Page Dated: 3/15/74

SUCTION, PRESSURE AND RETURN CIRCUIT

TANDEM PUMP

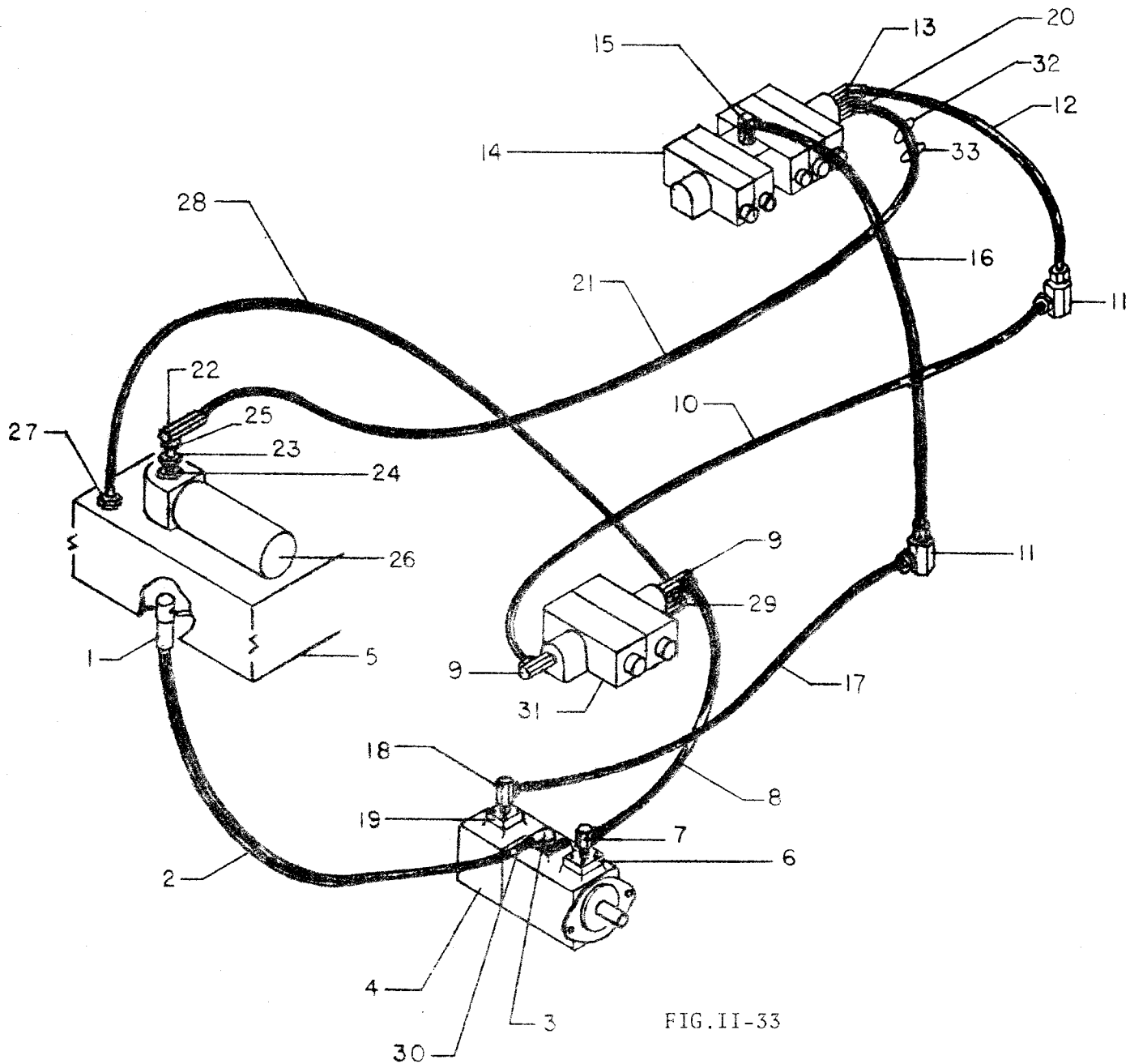


FIG. II-33

Effective: 1/1/75
 Supercedes Page Dated: 3/15/74

SUCTION, PRESSURE AND RETURN CIRCUIT

Effective: 1/1/75

TANDEM PUMP

Supersedes Page Dated: 3/15/74

PARTS LIST

			PUMP TYPES	
ITEM NO.	QTY.	DESCRIPTION	VICKERS	COMMERCIAL
(1)	1	NIPPLE, king.....	67666	67664
	2	HOSE, suction.....	94009	94011
	3	HOSE STEM, 90° beaded.....	67550	67546
	1	FLANGE, split	67606	67604
	4	PUMP, tandem.....	60601	60618
The following items are for the Mid-Mount and Rear-Mount:			MID-MOUNT	REAR-MOUNT
(1)(2)	5	RESERVOIR.....	642109	642107
	6	ADAPTER, flange, 1".....	67202	67202
	7	ADAPTER, 90° union, 1"M-3/4"F	66066	66066
	8	HOSE, assembly, 3/4"-2W.....	-	-
	9	ADAPTER, 90°, 3/4"M-3/4"F	66063	66063
(2)	10	HOSE, assembly, 3/4"-2W	70413	70427
(2)	11	SWIVEL, 90° barco, 3/4"	66659	66659
	12	HOSE, assembly, 3/4"-2W (model 60)..	70484	70437
	13	HOSE, assembly, 3/4"-2W (model 80)..	70484	70438
	14	ADAPTER, 45°, 1"M-3/4"F.....	66110	66110
	15	VALVE, main control.....	58556	58556
	16	ADAPTER, 90°, 1"M-3/4"F	66066	66066
(2)	17	HOSE, assembly, 3/4"-2W.....	70480	70454
(1)(2)	18	HOSE, assembly, 3/4"-2W	-	-
	19	ADAPTER, 90°, 3/4"M-3/4"F.....	66063	66063
	20	ADAPTER, flange, 3/4"	67201	67201
(3)	21	ADAPTER, 45°, 1"M-1"F	66111	66111
	22	HOSE, assembly, 1"-2W (model 60)....	70539	70541
	23	HOSE, assembly, 1"-2W (model 80)....	70539	70544
	24	SWIVEL, 90° barco, 1"F-1"F	66662	66662
(3)	25	SWIVEL, straight, 1"M-1"M.....	66620	-
	26	HOSE, assembly, 1"-2W.....	-	70582
	27	BUSHING, pipe, 1 1/4"M-1"F.....	22215	22215
	28	ELBOW, 90° street, 1"	21922	21922
(4)	29	FILTER, assembly	65000	65000
	30	SWIVEL, straight, 1/2"M-1/2"F	66008	66008
	31	HOSE, assembly, 1/2"-2W.....	70223	70227
	32	ADAPTER, 90°, 3/4"M-1/2"F	66062	66062
	33	CLAMP, hose	69510	69510
		VALVE, stabilizer control	58563	58563
The following items are used on the stationary platform:				
(4)	10	HOSE, assembly, 3/4"-2W	70418	
	13	ADAPTER, 90°, 1"M-3/4"F	66066	
	20	BUSHING, pipe, 1"M-3/4"F.....	22210	
	21	HOSE, low pressure, 3/4" x 48"	71330	
	23	CLAMP, hose (order separately)	69503	
	24	ELBOW, 45° street, 3/4".....	21904	
	25	BUSHING, pipe, 1 1/4"M-3/4"F	22215	
	28	NIPPLE, king, 3/4"	67661	
	32	HOSE, assembly, 1/2"-2W	70225	
	33	ELBOW, 45° street, 3/4"	21904	
		NIPPLE, king, 3/4"	67661	

(1) Length varies with pump location

(2) Hose assembly consists of the following:

1 HOSE, 3/4"-2W..... 94003

2 FITTING, male hose, 3/4"..... 65964

(3) Hose assembly consists of the following:

1 HOSE, 1"-2W..... 94012

2 FITTING, male hose, 1"

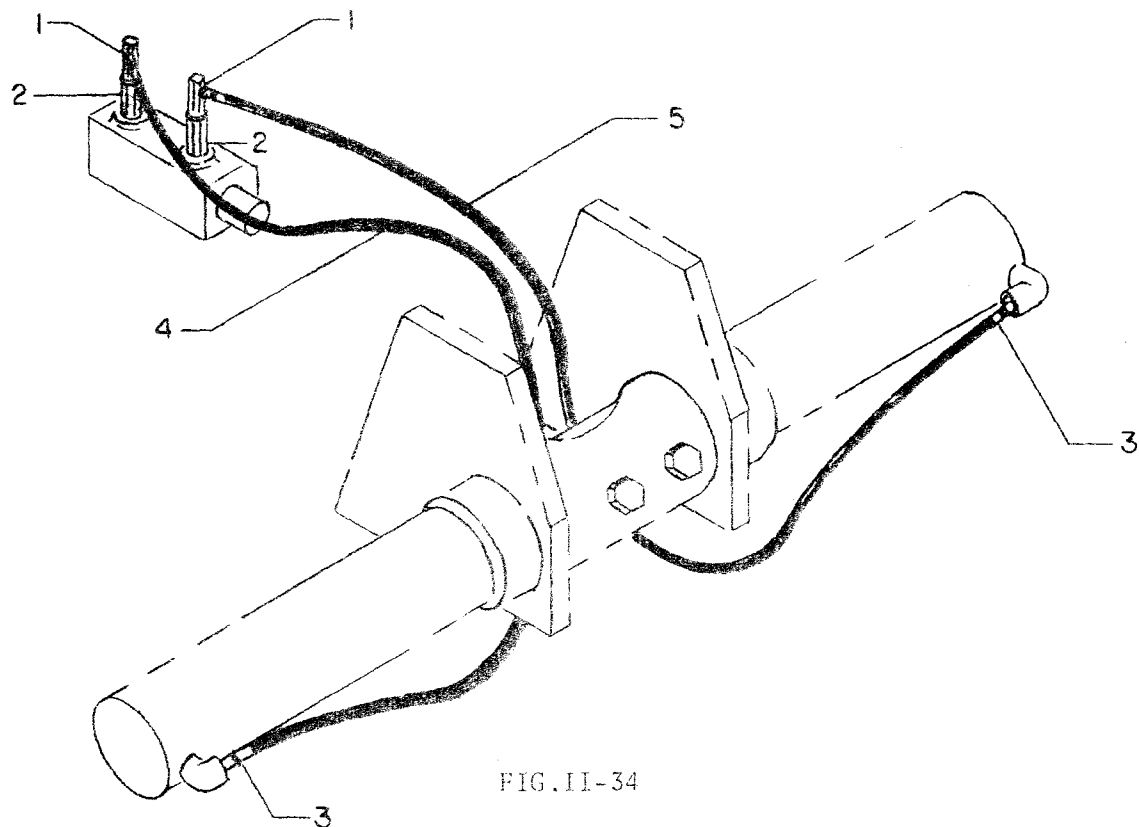


FIG. II-34

MODEL 40-60-80

MID-MOUNT GEAR & RACK CIRCUIT

PARTS LIST

ITEM NO.		QTY.	DESCRIPTION	PART NUMBER
	1	2	ADAPTER, 90°, 1/2"M-1/2"F.....	66059
	2	2	THROTTLE, line, 1/2".....	66675
	3	2	SWIVEL, barco, 1/2".....	66667
(1)	4	1	HOSE, assembly, 1/2"-2W x 102".....	70278
(1)	5	1	HOSE, assembly, 1/2"-2W x 102".....	70278
			The following items are used on the Stationary Platform Application:	
	3	2	SWIVEL, straight, 1/2"M-1/2"F.....	66008
(1)	4	1	HOSE, assembly, 1/2"-2W x 52".....	70232
(1)	5	1	HOSE, assembly, 1/2"-2W x 80".....	70244

- (1) Hose assemblies consist of the following:
- | | |
|--|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" (2 per hose)..... | 65962 |

Effective: 1/1/75
 Supercedes Page Dated: 3/15/74

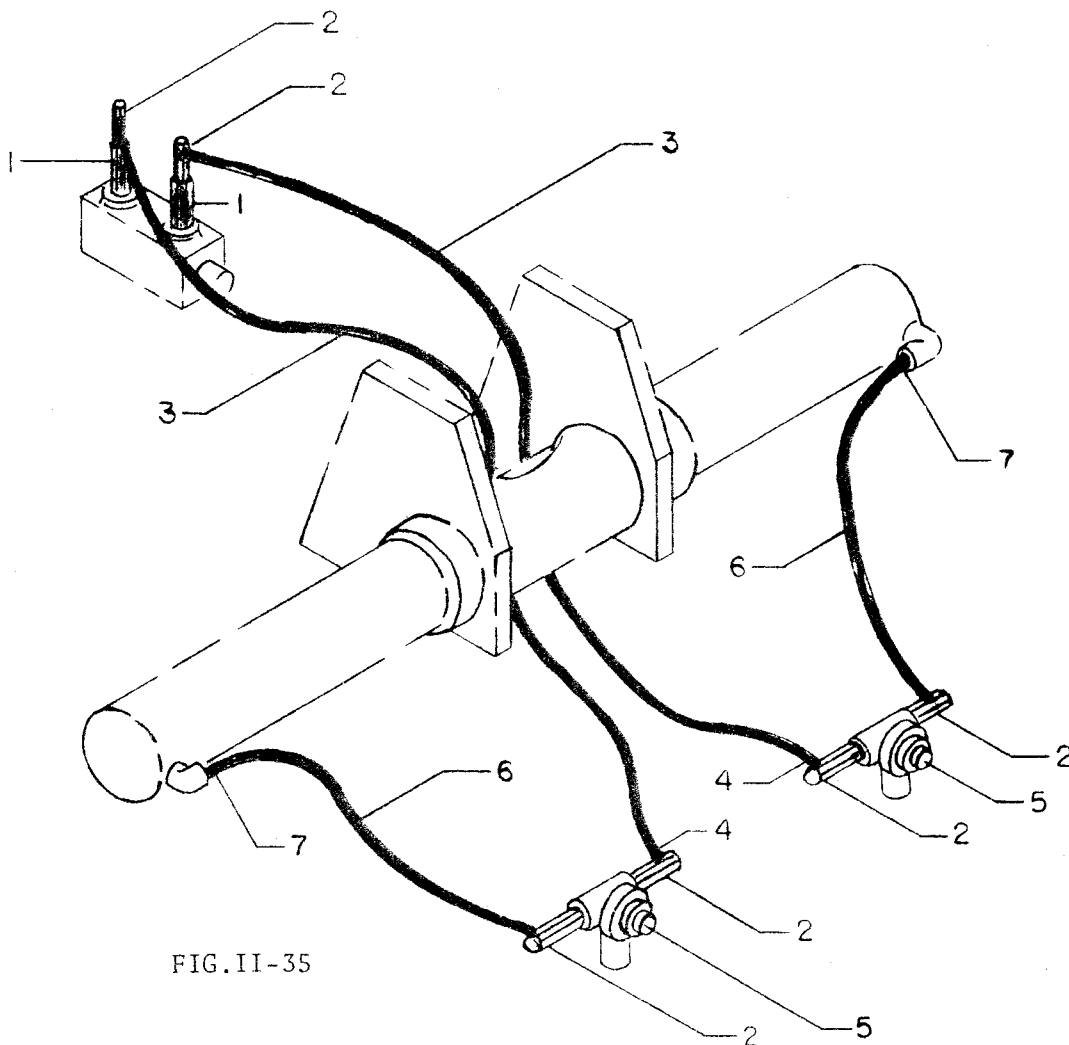


FIG. II-35

MODEL 40-60-80

REAR-MOUNT GEAR AND RACK CIRCUIT

PARTS LIST

ITEM NO	QTY.	DESCRIPTION	PART NUMBER
(1)	2	THROTTLE, line, 1/2".....	66675
	6	ADAPTER, union, 90°, 1/2" M-1/2"F.....	66059
	2	HOSE, assembly, 1/2"-2W x 102".....	70278
	2	SWIVEL, barco, 1/2".....	66667
	2	VALVE, relief.....	63026
(1)	2	HOSE, assembly, 1/2"-2W x 42".....	70227
	2	ADAPTER, straight, 1/2"M-1/2"F.....	66008

(1) Items 3 and 6 consists of the following:

HOSE, 1/2"-2W.....	94002
FITTING, male hose, 1/2".....	65962

Effective: 1/1/75
Supercedes Page Dated: 3/15/74

MODEL 40-60-80

GRAPPLE OPEN AND CLOSE CIRCUIT

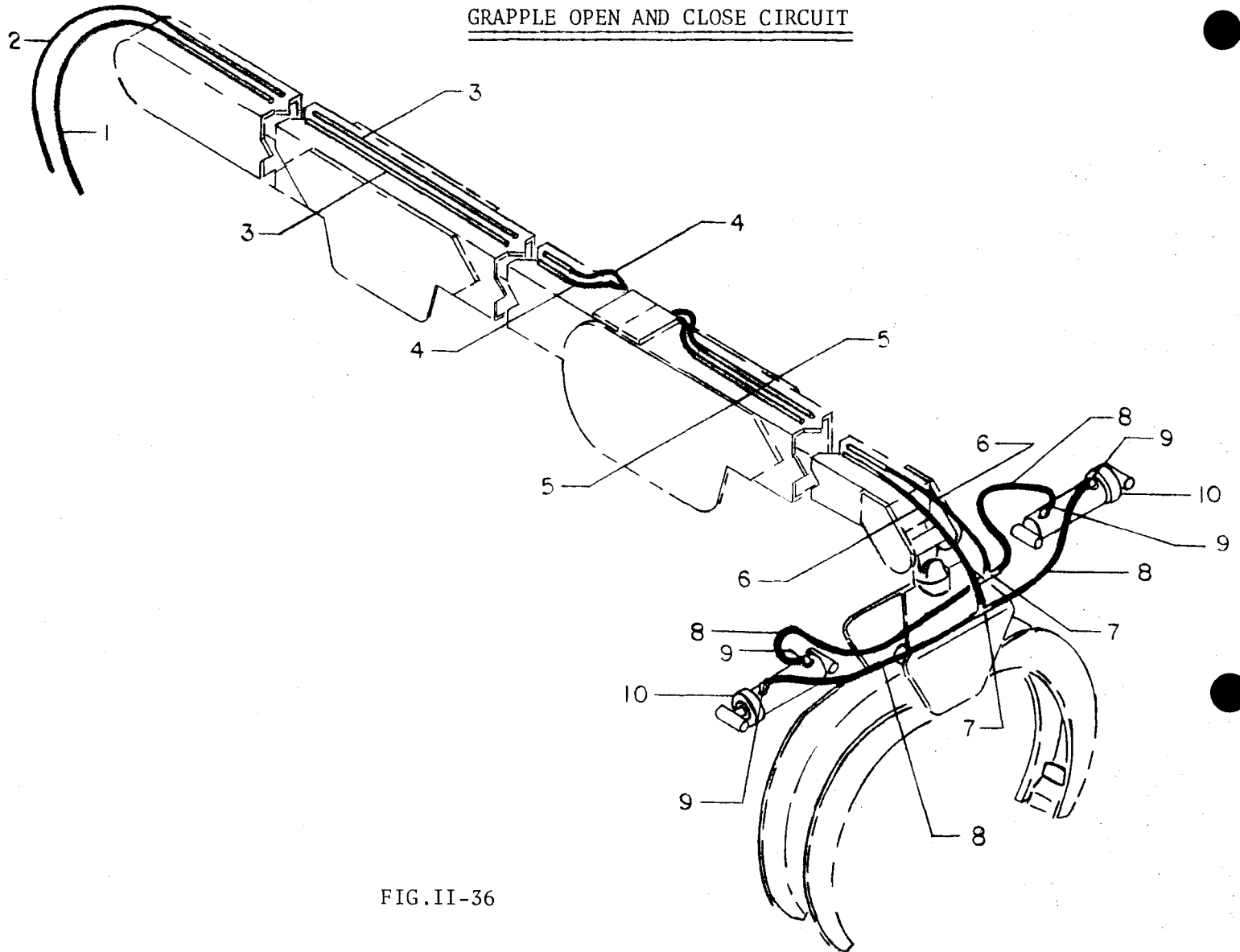


FIG. II-36

Effective: 1/1/75

MODEL 40-60-80
GRAPPLE OPEN AND CLOSE CIRCUIT
PARTS LIST

ITEM NO.	QTY.	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(1) 1	1	HOSE, assembly, 1/2"-2W x 42".....	70227	70227	70227
(1) 2	1	HOSE, assembly, 1/2"-2W x 42".....	70227	70227	70227
(3) 3	1	TUBE, assembly.....	93482	93448	93484
(2) 4	2	HOSE, assembly, 1/2" -2W x 48"	70230	70230	70230
(3) 5	2	TUBE, assembly.....	93437	93485	93482
(1) 6	2	HOSE, assembly, 1/2"-2W x 52"	71600	71600	71600
7	2	ADAPTER, tee, 1/2"-1/2"-1/2"	66218	66218	66218
(1) 8	4	HOSE, assembly, 1/2"-2W x 24"	70212	70212	70212
9	4	ADAPTER, straight, 1/2"M-1/2"F	66008	66008	66008
10	2	CYLINDER, 3 1/2" x 8"	812001	812001	812001
	2	CYLINDER, 3 1/2" x 10"	812002	812002	812002
		The following fittings are located on the control valve section (not shown)			
	1	ADAPTER, 90°, 1/2"M-1/2"F	66059	66059	66059
	2	ADAPTER, straight, 1/2"M-1/2"F	66008	66008	66008
		The following items are used on the Stationary Platform Application:			
(1) 1	1	HOSE, assembly, 1/2"-2W x 60"	70236	70236	70236
(1) 2	1	HOSE, assembly, 1/2"-2W x 58".....	70235	70235	70235

- (1) Items 1,2,6,8, consists of the following:
- | | |
|--|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" (1 per hose)..... | 65962 |
| SOCKET, hose, 1/2" (1 per hose) | 66339 |
| NIPPLE, ferrule-fix (1 per hose)..... | 66316 |
- (2) Item 4 consists of the following:
- | | |
|--------------------------------|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" | 65962 |
- (3) Items 3 and 5 are tube lengths for the standard boom. Boom extensions require longer hydraulic boom tubing.

Change Notice No. 1
 Supersedes Page Dated: 1/1/75
 Effective: 11/24/75

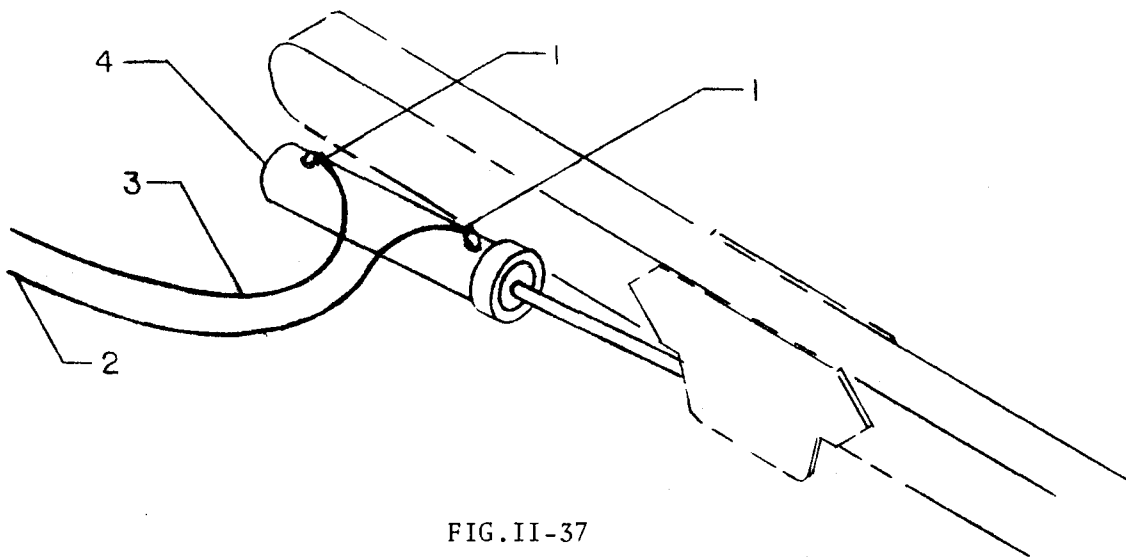


FIG.II-37

MODEL 40-60-80

MAIN LIFT HYDRAULIC CIRCUIT

PARTS LIST

ITEM NO		QTY.	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(1)	1	2	ADAPTER, straight, 1/2"M-1/2:F.....	66008	66008	66008
	2	1	HOSE, assembly, 1/2"-2W x 66".....	70239	70239	70239
(1)	3	1	HOSE, assembly, 1/2"-2W x 76".....	70243	70243	70243
	4	1	CYLINDER, main.....-.....	812406	812421	812414
			The following items are located on the control valve section (not shown)			
		1	ADAPTER, 90°, 1/2"M-1/2"F.....	66059	66059	66059
		2	ADAPTER, straight, 1/2"M-1/2"F.....	66008	66008	66008
			The following items are used on the Stationary Platform Application.			
(1)	2	1	HOSE, assembly, 1/2"-2W x 84".....	70245	70245	70245
(1)	3	1	HOSE, assembly, 1/2"-2W x 88".....	70246	70246	70246

- (1) Items 2 and 3 consists of the following:
- | | |
|---|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" (2 per hose).... | 65962 |

Effective: 1/1/75
 Supercedes Page Dated: 3/15/74

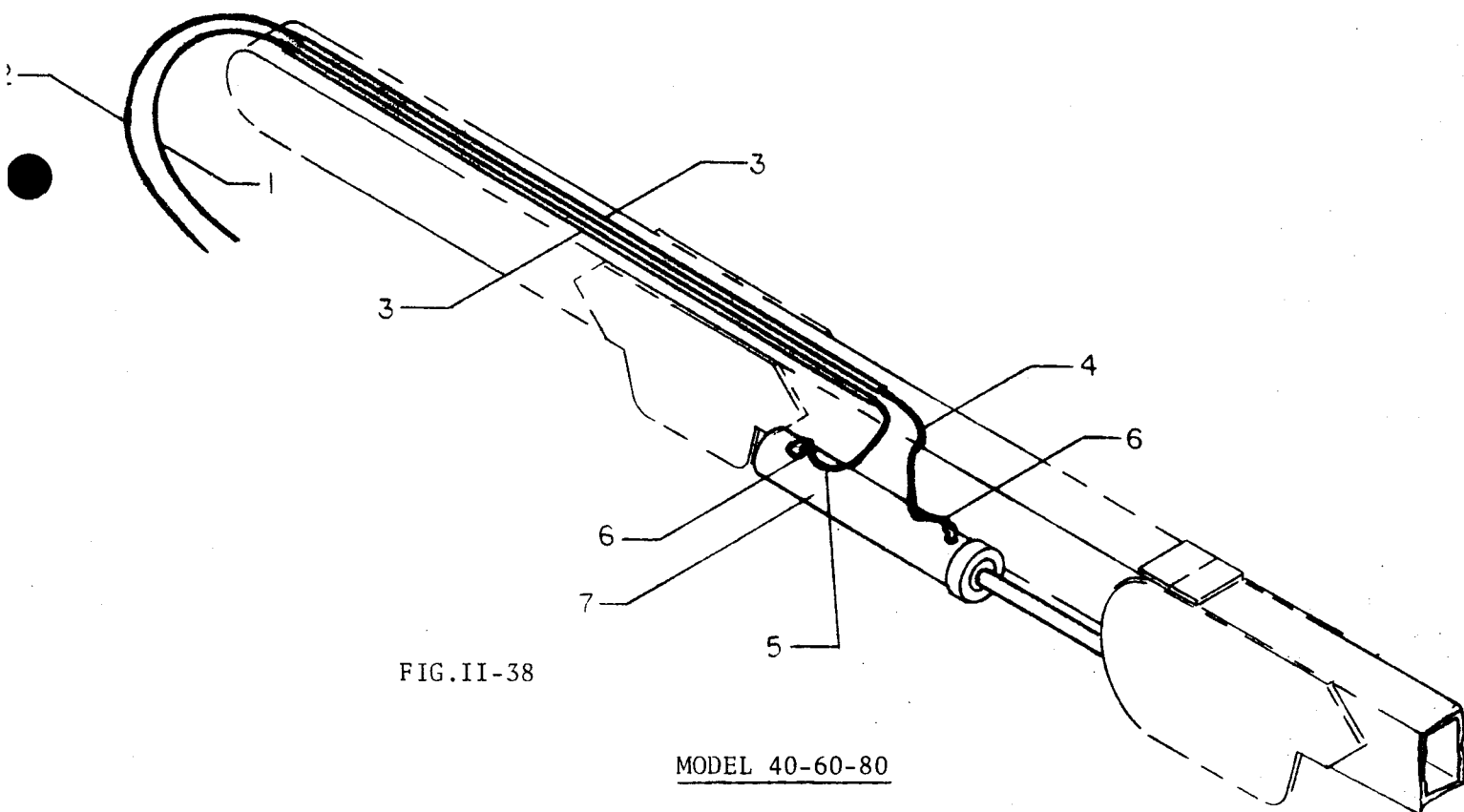


FIG. II-38

MODEL 40-60-80

SECONDARY ROOM CIRCUIT

PARTS LIST

ITEM NO	QTY	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(1)	1	1			
(1)	2	1			
	3	2			
(1)	4	1			
(1)	5	1			
	6	2			
	7	1			
		The following fittings are located on the control valve section (not shown)			
		1			
		2			
		The following items are used on the Stationary Platform Application:			
(1)	1	1			
(1)	2	1			

- (1) Items 1,2,4 and 5 consist of the following:
- HOSE, 1/2"-2W..... 94002
- FITTINGS, male hose, 1/2" (1 per hose) 65962
- SOCKET, hose, 1/2" (1 per hose)..... 66339
- NIPPLE, ferrule-fix (1 per hose)... 66316

Effective: 1/1/75

Supersedes Page Dated: 3/15/74

MODEL 40-60-80

GRAPPLE ROTATE CIRCUIT

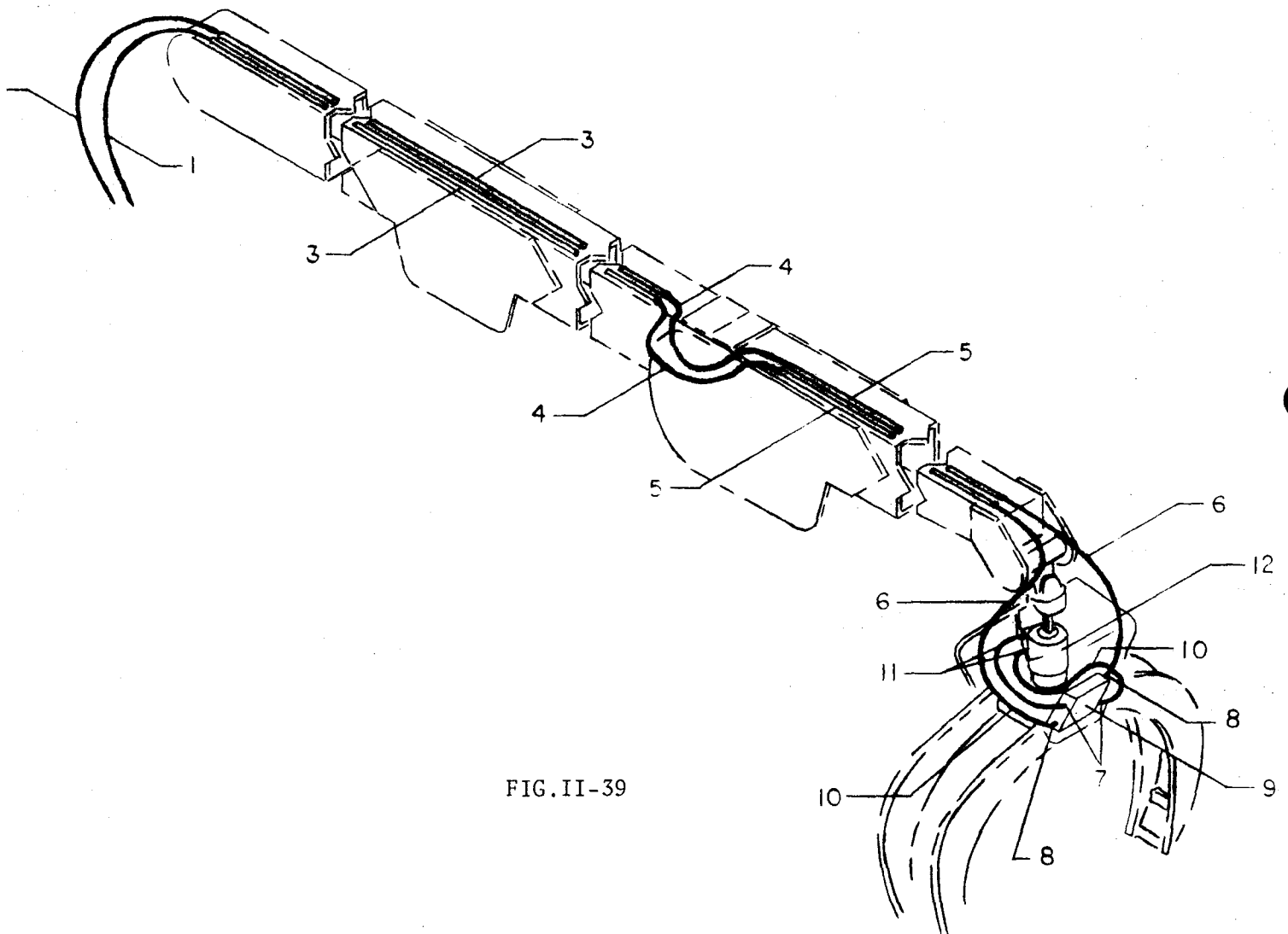


FIG.II-39

Effective: 1/1/75

MODEL 40-60-80

GRAPPLE ROTATE CIRCUIT
PARTS LIST

ITEM NO	QTY	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(1)	1	1 HOSE, assembly, $\frac{1}{2}$ "-2W x 42".....	70227	70227	70227
(1)	2	1 HOSE, assembly, $\frac{1}{2}$ "-2W x 42".....	70227	70227	70227
(4)	3	1 TUBE, assembly.....	93482	93448	93484
(2)	4	2 HOSE, assembly, $\frac{1}{2}$ "-2W x 48".....	70230	70230	70230
(4)	5	2 TUBE, assembly.....	93437	93485	93482
(1)	6	2 HOSE, assembly, $\frac{1}{2}$ "-2W x 52".....	71600	71600	71600
	7	2 BUSHING, reducer, $\frac{1}{2}$ "M- $\frac{1}{4}$ "F.....	22204	22204	22204
	8	2 ADAPTER, 90°, $\frac{1}{2}$ "M- $\frac{1}{2}$ "F.....	66059	66059	66059
	9	1 VALVE, cushion.....	63014	63014	63014
(3)	10	2 HOSE, assembly, $\frac{1}{4}$ "-2W x 17".....	70005	70005	70005
	11	2 ADAPTER, 90°, $\frac{1}{2}$ "M- $\frac{1}{4}$ "F.....	66057	66057	66057
	12	1 MOTOR, orbit.....	60000	60000	60000
		The following fittings are located on the Control Valve Section:			
	1	ADAPTER, 90°, $\frac{1}{2}$ "M- $\frac{1}{2}$ "F.....	66059	66059	66059
	2	ADAPTER, straight, $\frac{1}{2}$ "M- $\frac{1}{2}$ "F.....	66008	66008	66008
		The following items are used on the Stationary Platform Application:			
(1)	2	1 HOSE, assembly, $\frac{1}{2}$ "-2W x 60".....	70236	70236	70236
(1)	3	1 HOSE, assembly, $\frac{1}{2}$ "-2W x 58".....	70235	70235	70235

- (1) Items 1, 2 and 6 consist of the following:
- HOSE, $\frac{1}{2}$ "-2W..... 94002
- FITTING, male hose, $\frac{1}{2}$ " (1 per hose)..... 65962
- SOCKET, hose, $\frac{1}{2}$ " (1 per hose)..... 66339
- NIPPLE, ferrule-fix (1 per hose), $\frac{1}{2}$ "-.... 66316
- (2) Item 4 consists of the following:
- HOSE, $\frac{1}{2}$ "-2W..... 94002
- SOCKET, hose, $\frac{1}{2}$ " (2 per hose)..... 66339
- NIPPLE, ferrule-fix, $\frac{1}{2}$ " (2 per hose)..... 66316
- (3) Item 10 consists of the following:
- HOSE, $\frac{1}{2}$ "-2W..... 94000
- FITTING, male hose, $\frac{1}{4}$ " (2 per hose)..... 65958
- (4) Items 3 and 5 are tube lengths for standard boom. Boom extensions require longer hydraulic boom tubing.

Change Notice No. 1
Supersedes Page Dated: 1/1/75
Effective: 11/24/75

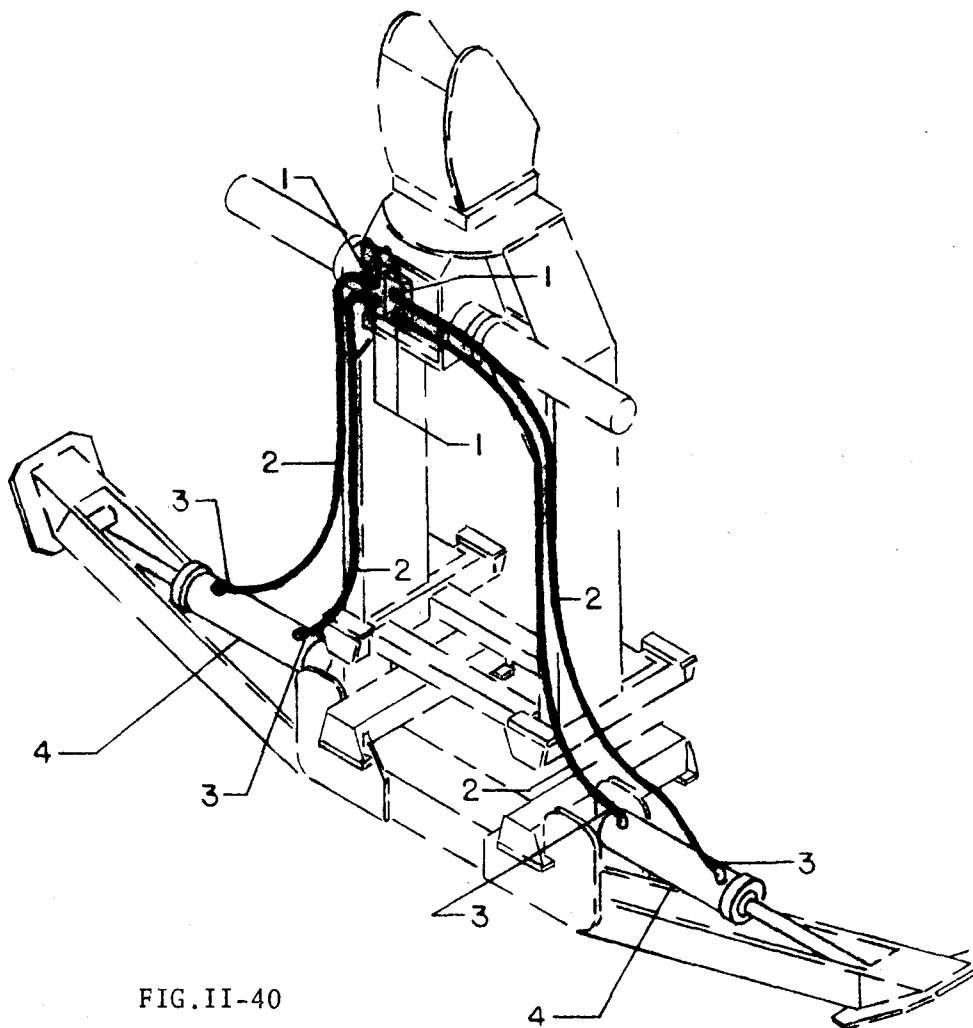


FIG.II-40

MODEL 40-60-80

MID MOUNT STATILIZER CIRCUIT

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PAGE NUMBER
(1)	1	4 ADAPTER, 90°, 1/2"M-1/2"F.....	66059
	2	4 HOSE, assembly, 1/2"-2W x 120".....	70254
	3	4 ADAPTER, straight, 1/2"M-1/2"F.....	66008
	4	2 CYLINDER, stabilizer, 5" x 17".....	812404

- (1) Item 2 consists of the following:
- | | |
|--|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" (2 per hose)..... | 65962 |

Effective: 1/1/75
 Supersedes Page Dated: 3/15/74

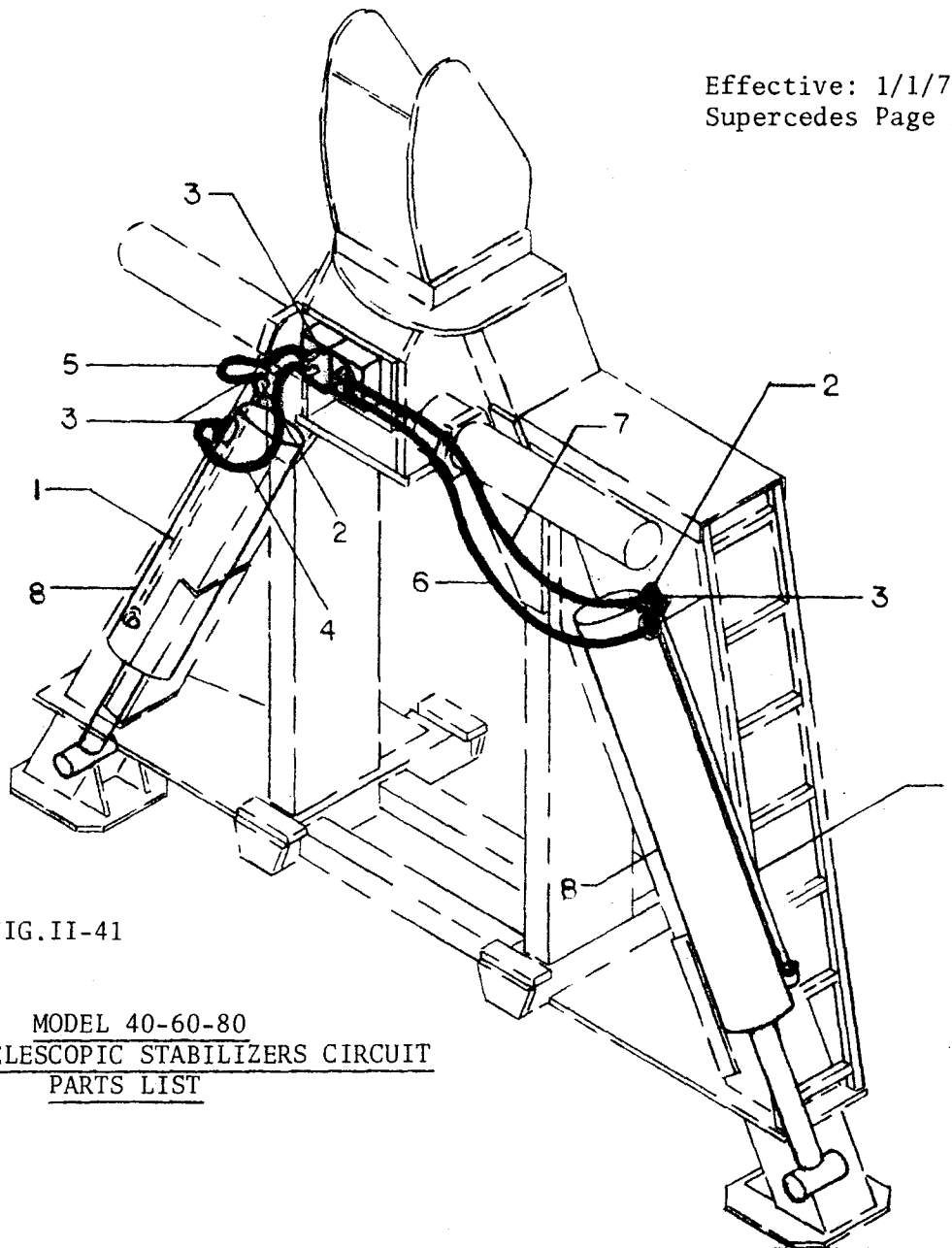


FIG. II-41

MODEL 40-60-80
 MID-MOUNT TELESCOPIC STABILIZERS CIRCUIT
PARTS LIST

ITEM NO		QTY	DESCRIPTION	PART NUMBER
(1) (1)	1	2	PIPE, 3/8" x 47 1/2" long.....	20102
	2	2	PIPE, elbow, 3/8"F-1/2" F.....	21853
	3	8	ADAPTER, 90°, 1/2"M-1/2"F.....	66059
	4	1	HOSE, assembly, 1/2"-2W x 42".....	70227
	5	3	HOSE, assembly, 1/2"-2W x 42".....	70227
	6	1	CYLINDER, 3 1/2" x 43", right.....	812004
		1	CYLINDER, 3 1/2" x 43", left.....	812010
The following items are used on the Stationary Platform Application:				
(1)	4	1	HOSE, assembly, 1/2"-2W x 50".....	70231
(1)	5	3	HOSE, assembly, 1/2"-2W x 52".....	80232

(1) Item 4 and 5 consists of the following:
 HOSE, 1/2"-2W..... 94002
 FITTING, male hose, 1/2" (2 per hose).... 65962

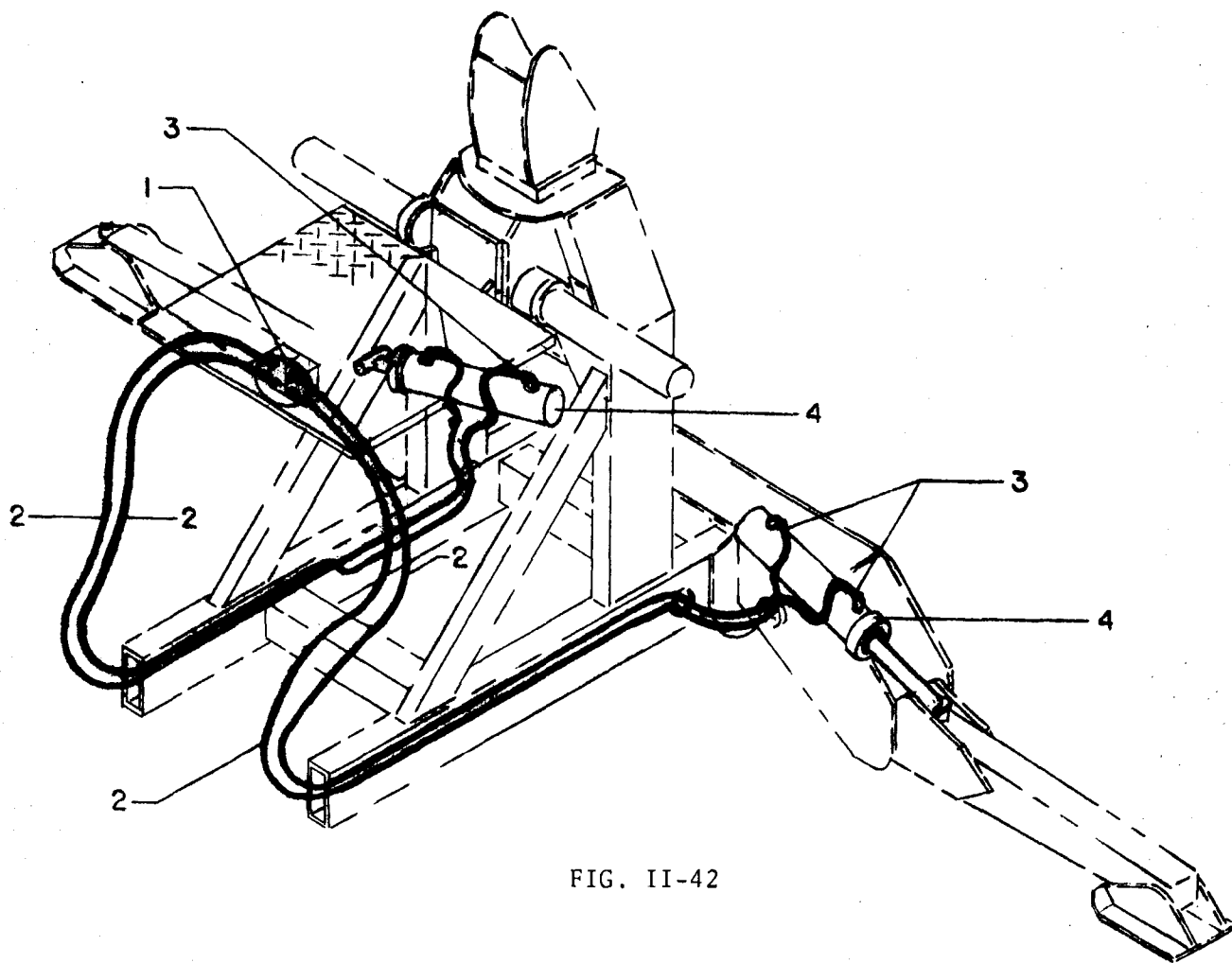


FIG. II-42

MODEL 40 60-80

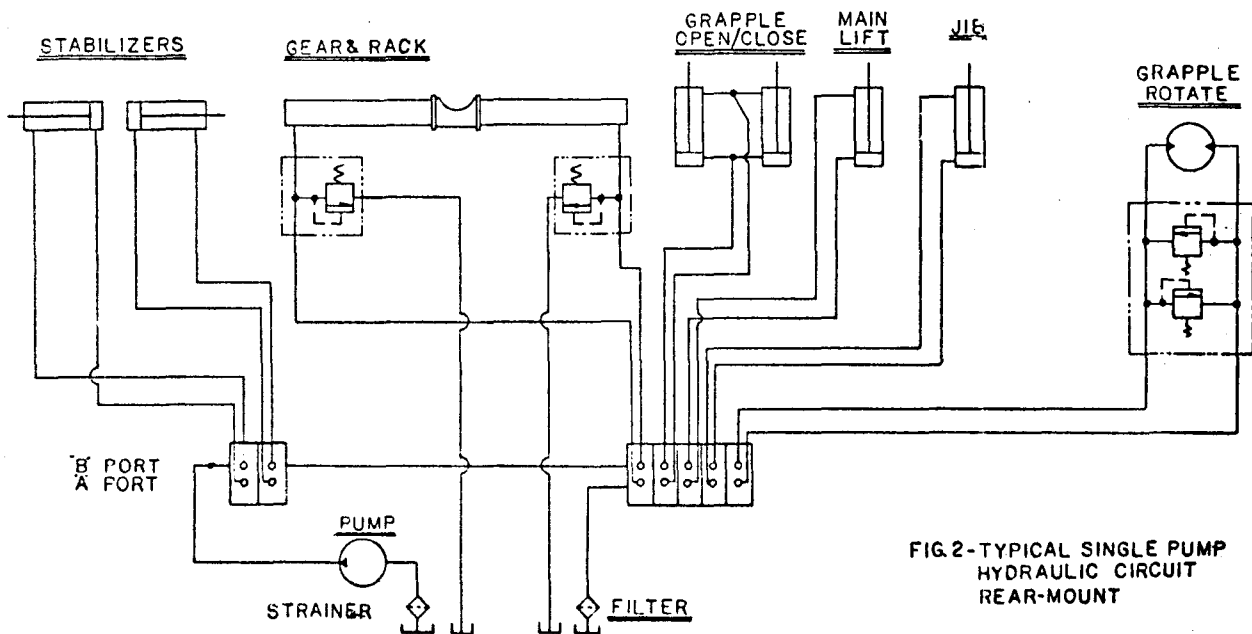
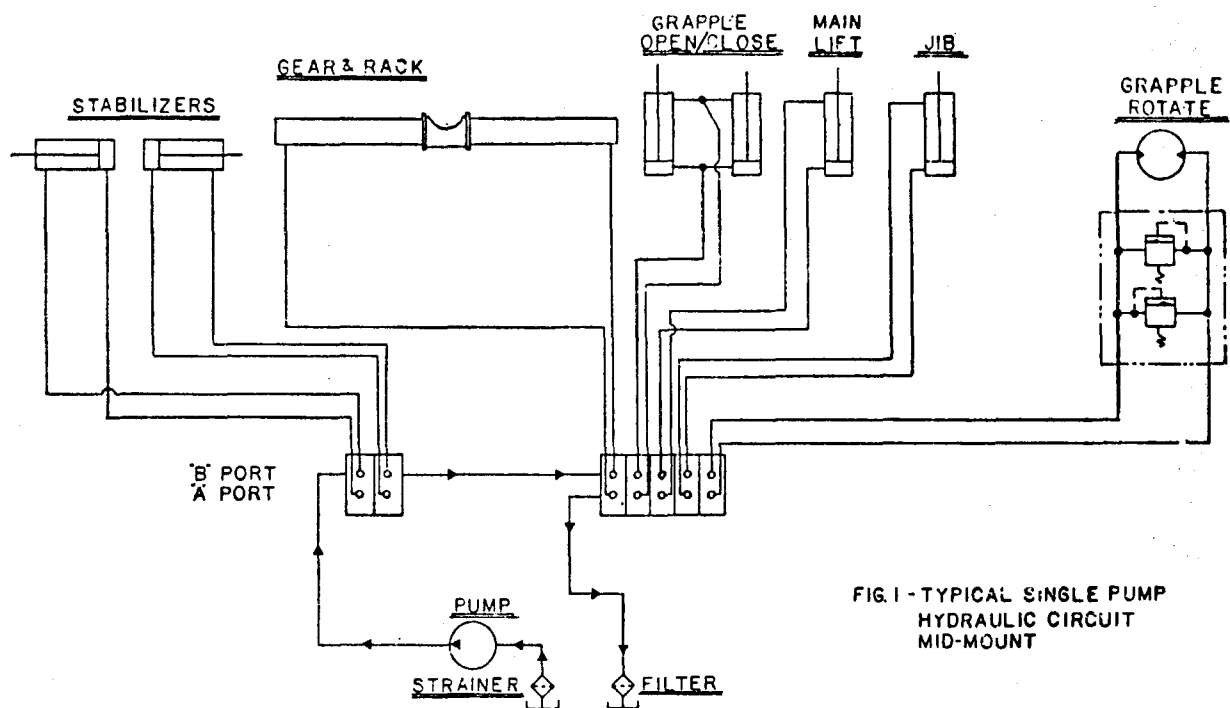
REAR MOUNT STABILIZER CIRCUIT

PARTS LIST

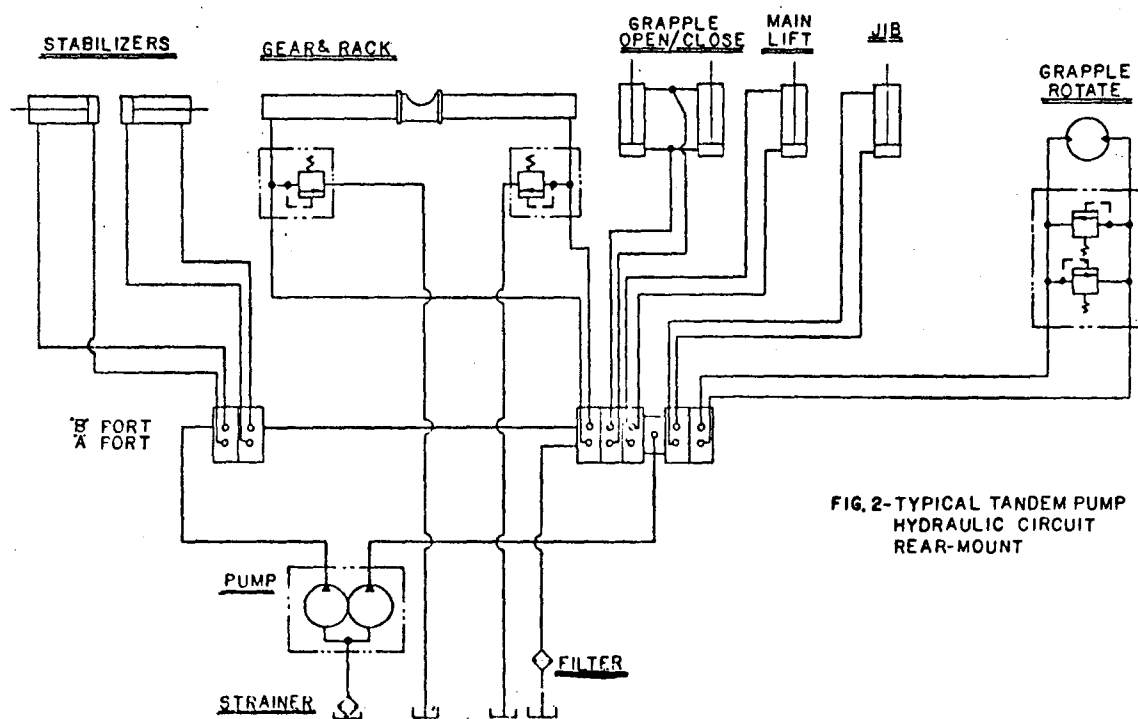
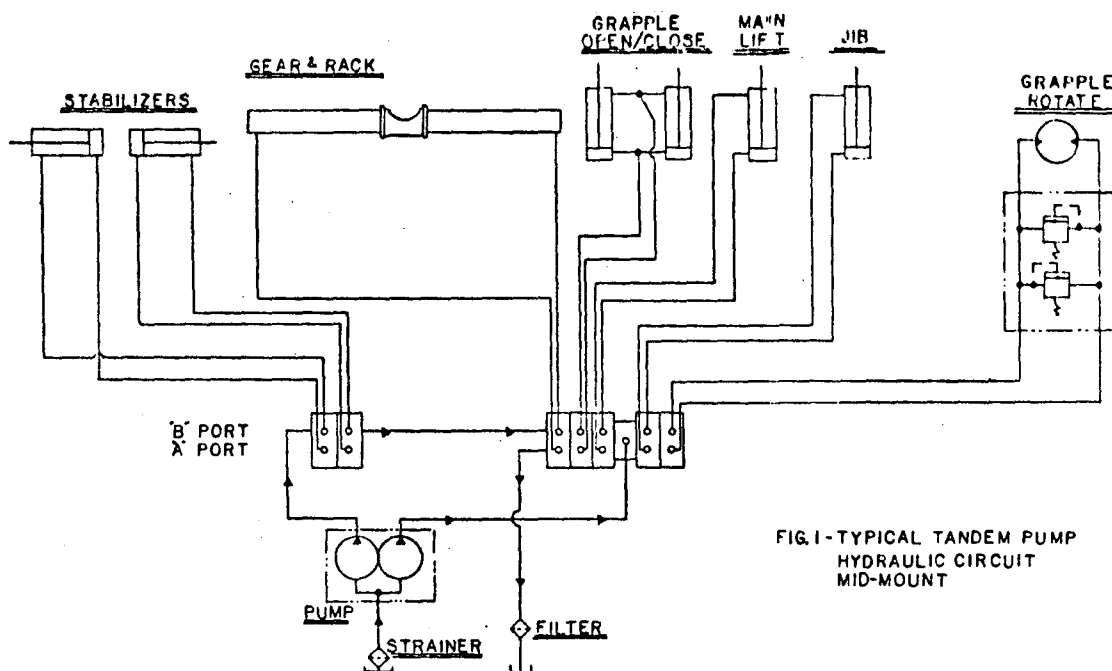
ITEM NO		QTY	DESCRIPTIION	PART NUMBER
(1)	1	4	ADAPTER, 90 ⁰ , 1/2" M-1/2" F.....	66059
	2	4	HOSE, assembly, 1/2"-2W x 156".....	70262
	3	4	ADAPTER, straight, 1/2" M-1/2" F.....	66008
	4	1	CYLINDER, 5" x 17", right.....	812405
		1	CYLINDER, 5" x 17", left.....	812418

- (1) Item 2 consists of the following:
- | | |
|--|-------|
| HOSE, 1/2"-2W..... | 94002 |
| FITTING, male hose, 1/2" (2 per hose)..... | 65962 |

Effective: 1/1/75
 Supersedes Page Dated: 3/15/74



Effective: 1/1/75



Effective: 1/1/75

BARKO MODEL 40-60-80 LOADERS

SECTION III - SERVICE INFORMATION

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HYDRAULIC HINTS

INSTRUCTIONS FOR REPLACING SPOOL SEALS IN 25P CONTROL VALVE

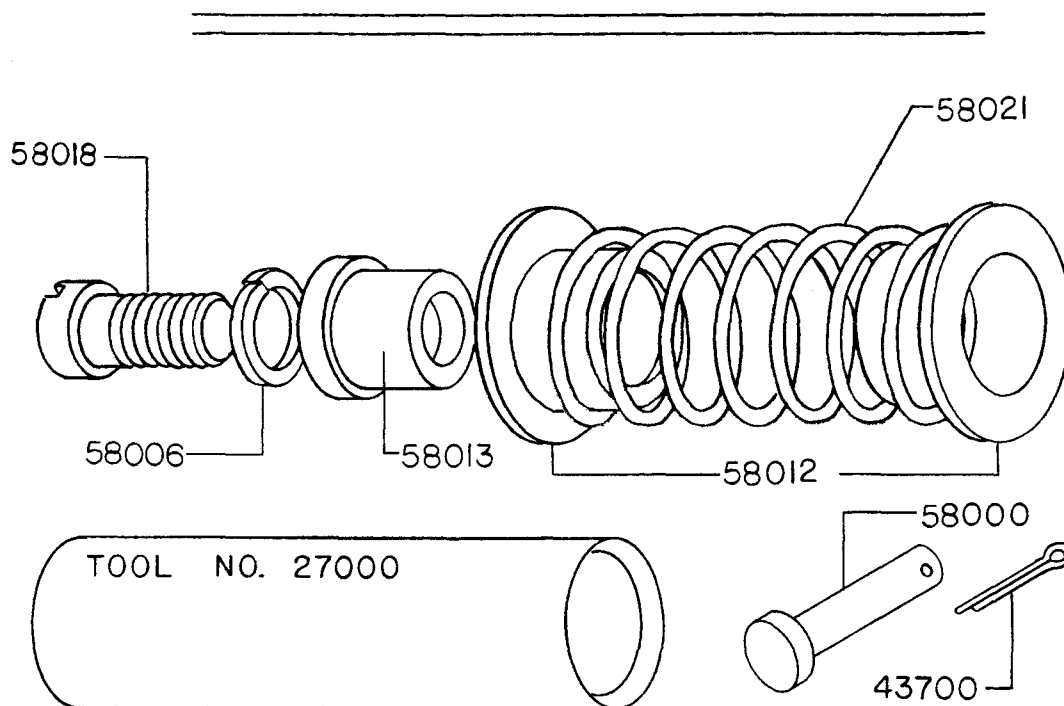
REQUIREMENT: One Special #27000 Tool.

NOTE: For the purpose of these instructions, we shall consider the control handle side of the valve as the front end, and the opposite end as the back end.

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1. At the back of the valve, remove the #58014 die cast Bonnet Assy. This assembly is fastened to the valve housing by four (4) #58027 Bonnet Screws with four (4) #58002 Lockwashers.
 2. Remove #58018 Spool Assembly Screw, #58013 Spool Collar, #58006 Spool Assembly Lockwasher, #58012 Stop Collar, and #58021 Centering Spring. Be sure to observe the order in which these parts are removed to insure proper reinstallation.
 3. Disconnect handle from spool by removing #58000 Handle Pin. Let handle swing free of spool.
 4. Pull spool towards front end of valve just far enough to expose the back seal in housing.
 5. Remove back seal (#58017).
 6. Push spool in opposite direction (towards back end) until **front** seal is fully exposed.
 7. Remove front seal (#58017) from housing
 8. BE SURE THAT BODY SEAL GROOVES ARE THOROUGHLY AND CAREFULLY CLEANED.
 9. Insert new #58017 Seal in front groove, being very careful that the open end (end with wiping edges) of the seal is placed towards the center of the valve body. It will be very helpful to pinch one side of the seal, causing the seal to bend into a shape slightly smaller than the seal groove in the valve. When the seal has been properly placed in seal groove, straighten the seal by running a smooth rod around the exposed surface of the seal until you have it well seated. To check this, run your finger around the exposed edge of the seal. You should have a smooth perfect ridge with no kinks.
 10. Apply a small amount of grease or heavy oil on the #58017 Seal to prevent it from tearing during assembly.

(Continued)

11. Insert the internal-chamfered end of the #27000 Special Tool into the spool bore of the valve housing from the front side of the valve and through the new seal. Push spool forward until the spool and tool make contact. Push spool further forward against tool until rear seal groove is completely exposed, but no further.
12. Install new #58017 Seal in back groove and apply grease or heavy oil. Insert #27000 Special Tool (internal-chamfered end first) carefully into back bore through seal until it makes contact with spool. From front side, push spool back approximately 3/4".
13. Reinstall complete handle assembly, installing the #58000 Handle Pin and #43700 Cotter Pin.
14. Reinstall the complete spring assembly on back of spool. Be sure the #58018 Spool Assembly Screw is securely tightened. (20Ft. Lbs. Troque)
15. Reinstall #58014 Bonnet Assembly.



BARKO HYDRAULICS, INC.

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INSTRUCTIONS FOR REPLACING, ADDING OR REMOVING CENTER SECTION ASSEMBLIES IN THE 25P STACK VALVE

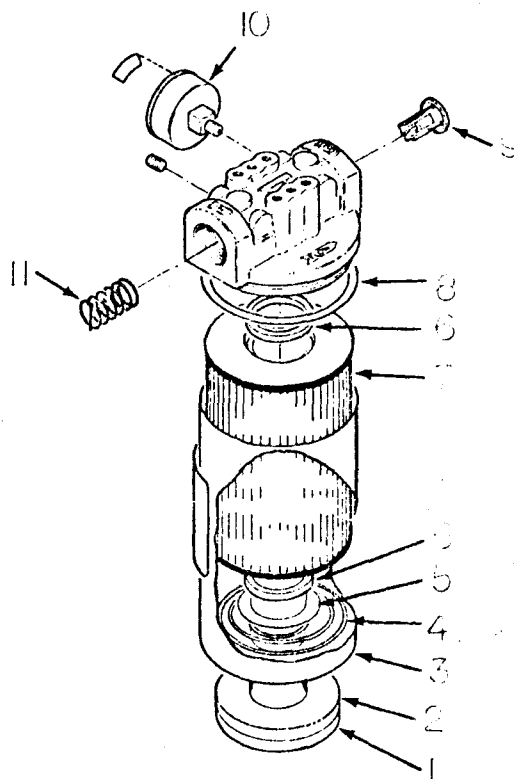
NOTE: For the purpose of these instructions, we shall consider the section containing the main relief valve the left side of the valve.

1. If the valve is to be reassembled in the same order, it is suggested that before disassembling, each section be marked numerically so that they may be returned to the same sequence when reassembled.
2. If valve has been removed from equipment, it is advisable to mount valve vertically in a vise to facilitate disassembly and assembly.
3. On the right end of the valve there may be a power beyond sleeve, conversion plug or closed center plug installed. These must be removed before the valve can be disassembled.
4. Remove the four assembly stud nuts or bolts from right end section.
5. Next, valve sections may be disassembled by sliding the sections along the assembly studs.
6. Thoroughly clean the o-ring counterbores and the ground surface of each section. Place new o-ring seals, two Part #65301 and one (1) Part #65303 in proper counterbores. For better sealing, it is suggested that all o-rings used in the counterbores be replaced with new parts.
7. Replace the sections on assembly studs with the o-ring counterbores facing right end of valve. Use care in replacing sections so the section o-rings are not dislodged from the counterbores.
8. When all sections are assembled on assembly studs, tighten the assembly stud nuts or bolts evenly to 20 ft. lbs. torque, NO MORE, NO LESS, otherwise spools may bind or stick.



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RETURN LINE FILTERS

PARTS LIST

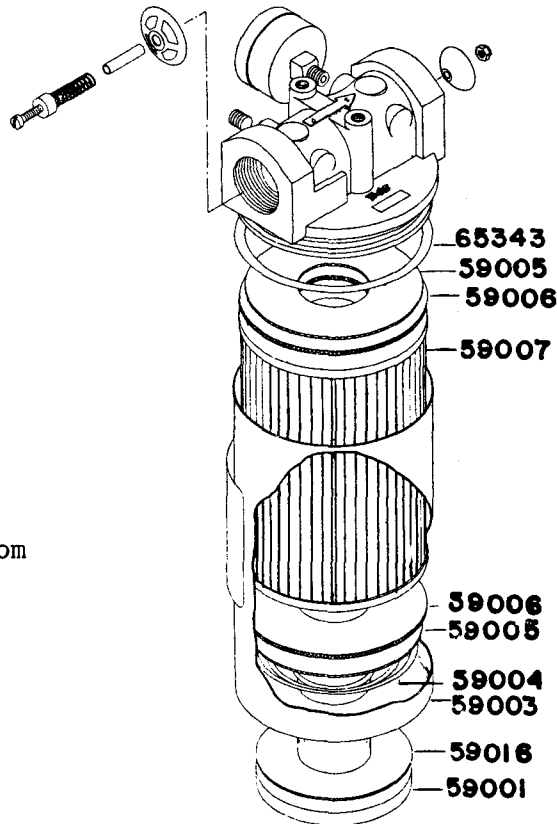
ITEM	QTY.	DESCRIPTION	PART NO.
0	1	ASSEMBLY, complete 3 PSI shielded suction--- 10 micron	65040
0	1	ASSEMBLY, complete no relief shielded----- 10 micron	65041
0	1	ASSEMBLY, complete 15 PSI return 33 micron--	65042
1	1	POST, center-----	59001
2	1	GASKET, center post-----	See Filter Kits
3	1	HOUSING, filter-----	59003
4	1	SPRING, conical-----	59004
5	1	WASHER, back-up-----	59005
6	2	SEAL, filter element-----	See Filter Kits
7	1	ELEMENT, filter-----	See Filter Kits
8	1	O RING, housing seal-----	See Filter Kits
9	1	POPPET, relief valve-----	See Relief Ass'y
10		INDICATOR, compound-----	59009
		INDICATOR, 30" vacuum-----	59010
11		SPRING, relief valve-----	See Relief Ass'y
<u>FILTER KITS</u>			
		33 MICRON - RETURN LINE WITH SEALS-----	52019
		10 MICRON - RETURN LINE WITH SEALS-----	52020
		33 MICRON - SHIELD SUCTION WITH SEALS-----	52085
		10 MICRON - SHIELD SUCTION WITH SEALS-----	52086
<u>RELIEF ASSEMBLY</u>			
		3 PSI SUCTION - BLUE-----	52087
		15 PSI RETURN - SILVER-----	52088

I N S T R U C T I O N S
FILTER ELEMENT REPLACEMENT

To remove the filter element, the following steps must be taken

1. Unscrew and drop #59001 Center Post (1" clearance for drop is all that is necessary to remove element container.)
2. Remove #59003 Filter Housing, #59005 Back-Up Washer, #59006 Gasket, #59007 Element, etc.
3. Clean all parts and filter housing. (CAUTION: Do NOT use solutions such as perchlorethylene or trichlorethylene to clean the Cork Gasket as these solutions will tend to cause swelling of the Gaskets which could result in malfunction of the filter when reassembled.)
4. Reassemble in the following order:
 - A. Put #59001 Post in Filter Housing. (Be sure Post has Gasket Seal, #59016, and that Gasket, Bottom of Filter Housing, and flange of Center Post are absolutely free of all oil and grease when tightening in order to prevent extrusion of Gasket.)
 - B. Insert #59004 Conical Spring, with small coil end down.
 - C. Insert #59005 - 4¼" Back-Up Washer (Bottom).
 - D. Insert #59006 Bottom Gasket.
 - E. Insert Filter Element.
 - F. Insert #59006 Top Gasket.
 - G. Insert Top #59005 Back-up Washer.
 - H. Position #59016 Filter Housing and tighten #59001 Center Post to MAXIMUM OF 20 FT. LBS. TORQUE.

CAUTION: When tightening Center Post, Hold Can From Turning, otherwise #65343 O-Ring may stretch out of shape and a leak may occur.



NOTE: Be sure Indicator reads "0" when system is not in operation

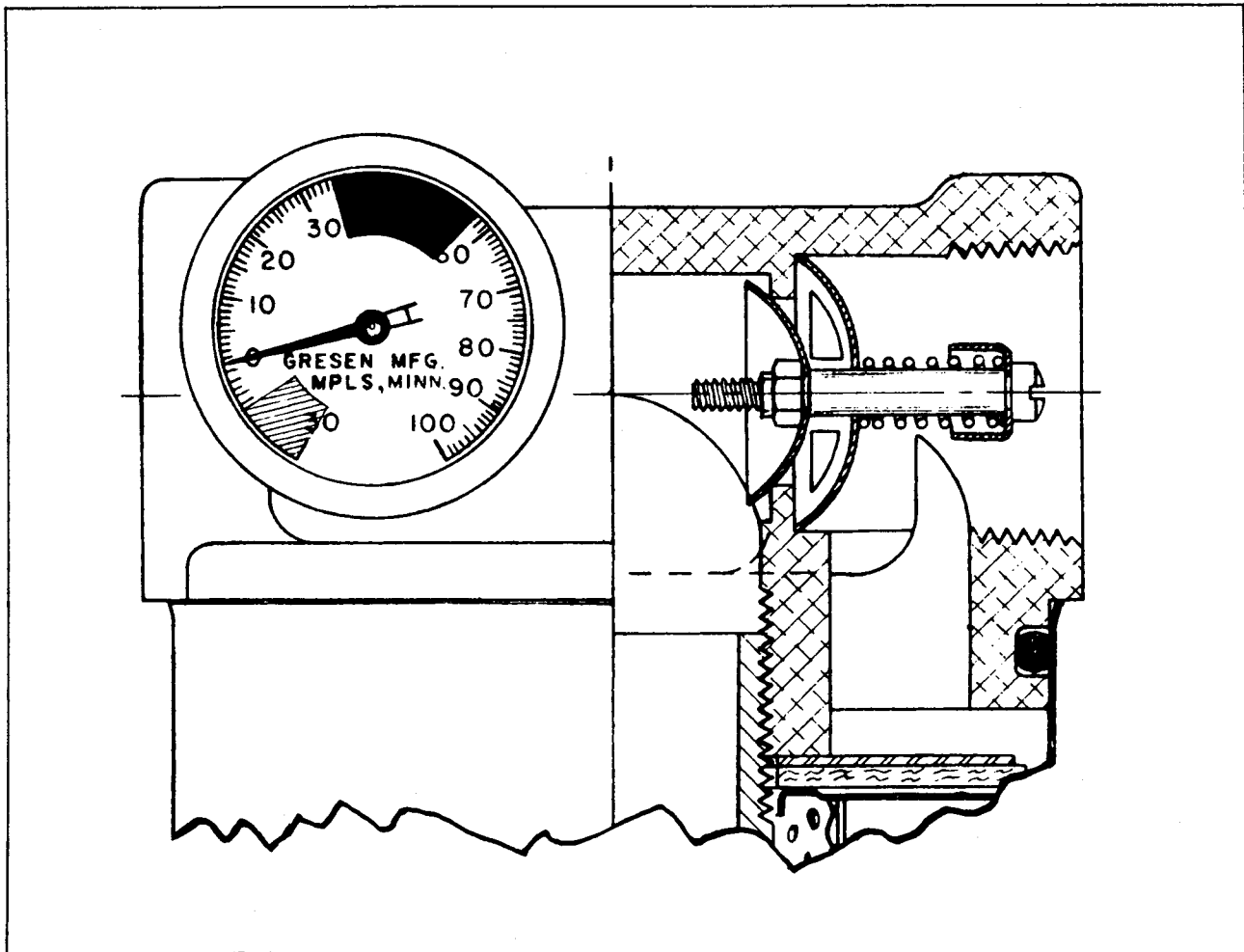
FILTER

INSTRUCTIONS TO REPLACE BY-PASS SPRING

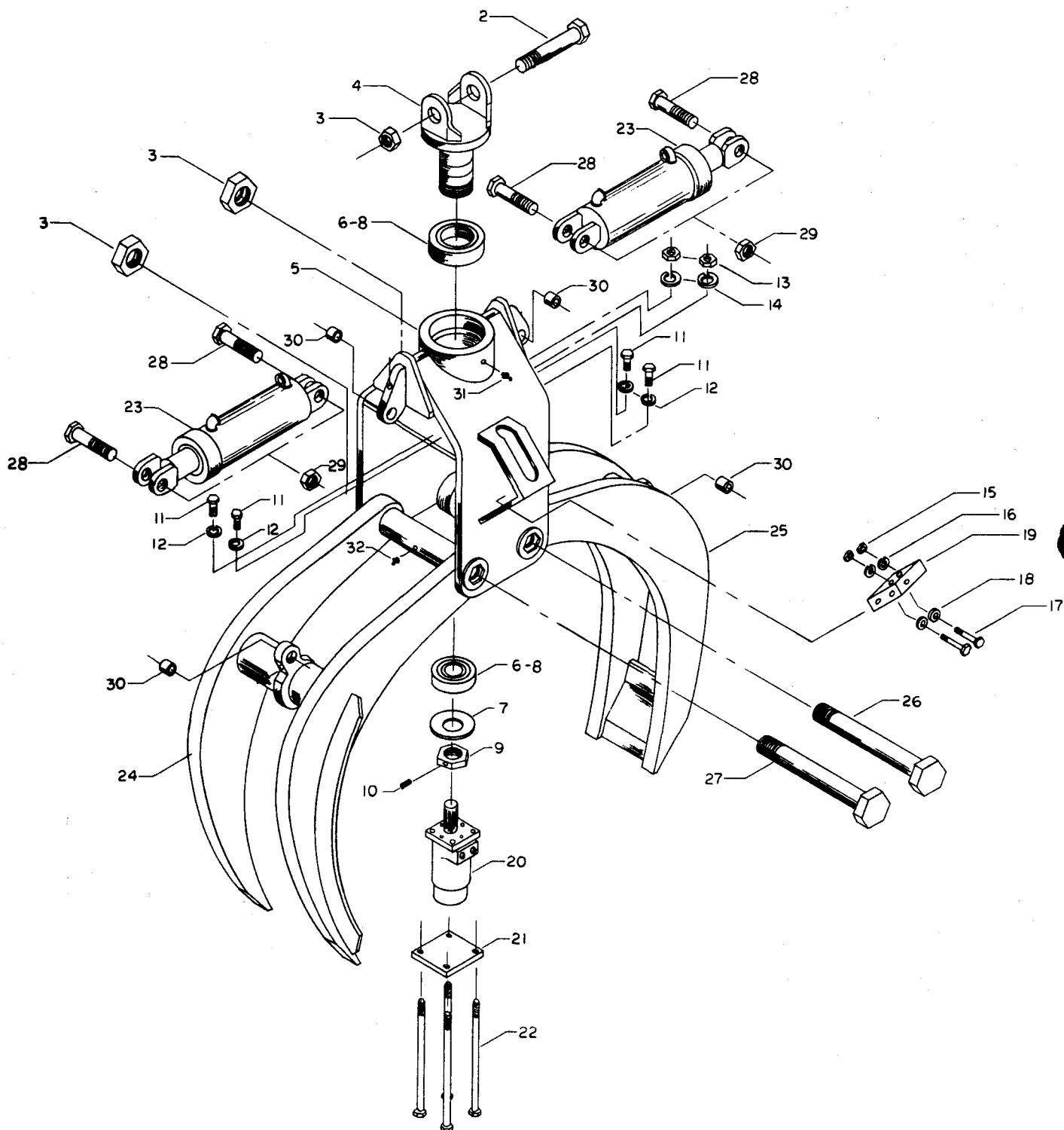
TOOLS REQUIRED: One (1) Screwdriver
One (1) Socket Wrench - #11-11/32" Hex.

1. Disassemble Filter (See Filter Element Replacement Instructions)
2. For convenience, put #59022 Head Casting in Vise. (Upside-Down)
3. With screwdriver and socket wrench, remove By-Pass valve assembly. Observe carefully position of these parts.

Reinstall new spring.



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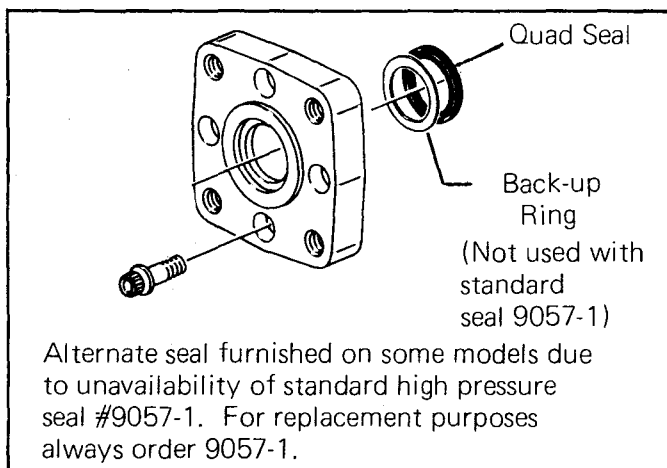
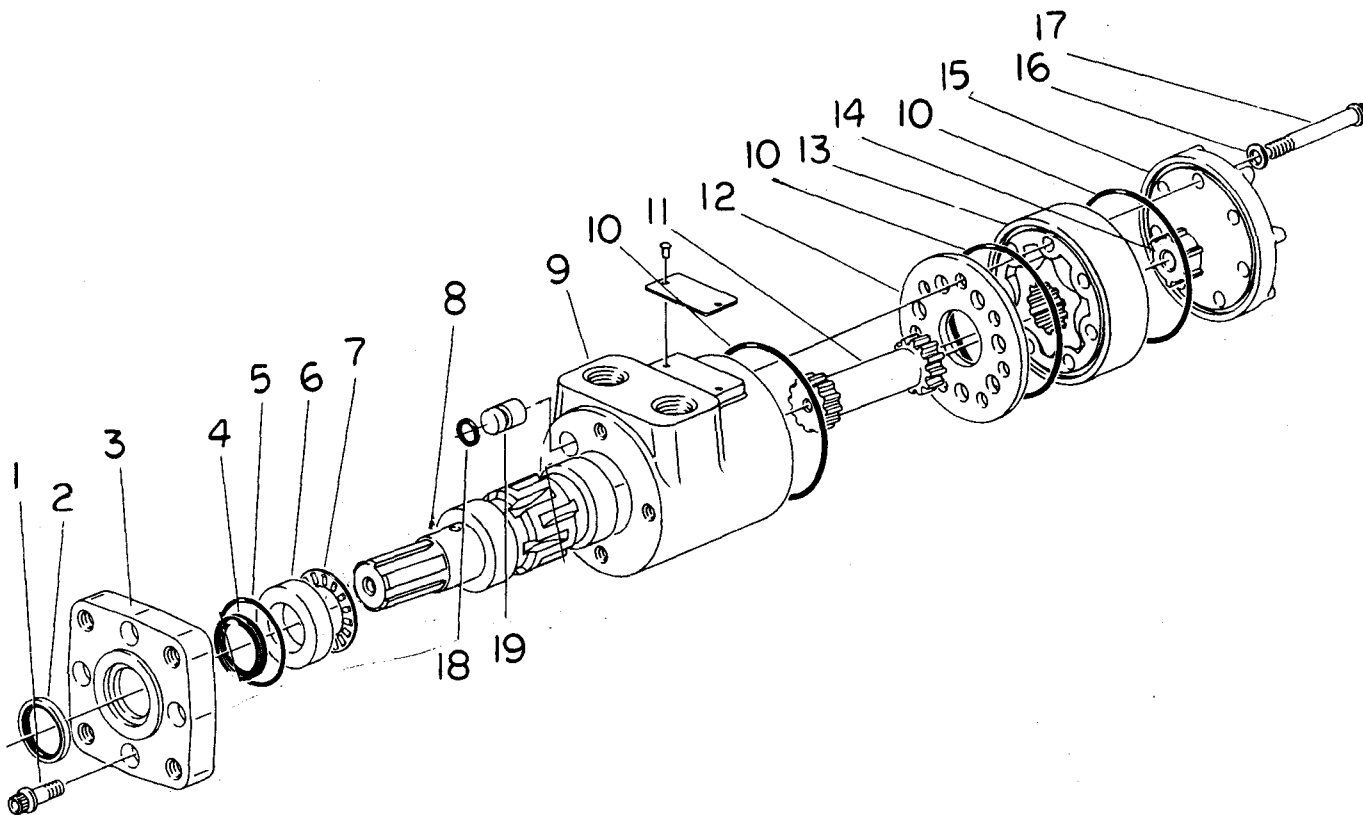
1/5 CORD BYPASS360° ROTATIONPARTS LIST

<u>ITEM</u>	<u>QTY</u>	<u>DESCRIPTION</u>	<u>PART NO</u>
-	1	ASSEMBLY, grapple 1/5 cord-----	154001
1 *	1	WELDMENT, hanger-----	
2	1	BOLT, body fit 1-1/2 X 7-5/8 long-----	482347
3	3	NUT, nylock 1-1/2 unf-----	13413
4	1	WELDMENT, yoke-----	151141
5	1	WELDMENT, head-----	152106
6	2	BEARING, tapered roller-----	41034
7	1	WASHER, flat-----	14096
8	2	SEAL, dust-----	44520
9	1	NUT, yoke 2" unf-----	481711
10	1	SCREW, cap head 3/8 - unc X 3/4 long-----	12002
11	4	BOLT, hex 3/8 - unc X 1 long-----	10654
12	4	WASHER, lock 3/8"-----	14011
13	4	NUT, hex 1/2 unc-----	13010
14	4	WASHER, lock 1/2-----	14013
15	2	NUT, hex 5/16" unc-----	13207
16	2	WASHER, lock 5/16"-----	14010
17	2	BOLT, hex 5/16 - unc X 2-1/2 long-----	10637
18	2	WASHER, flat 5/16"-----	14081
19	1	CUSHION, block-----	63010
20	1	MOTOR, hydraulic-----	60035
21	1	PLATE, back up 1/2" X 4" X 4"-----	151502
22	4	BOLT, hex 1/2 - unc X 8 long-----	10721
23	2	ASSEMBLY, cylinder 3-1/2 X 8-----	812001
24	1	WELDMENT, outer arm-----	153136
25	1	WELDMENT, inner arm-----	153135
26	1	BOLT, body fit 1-1/2" X 19" long-----	482250
27	1	BOLT, body fit 1-1/2" X 21 long-----	482314
28	4	BOLT, hex 1 X unc - 3-1/2 long-----	14426
29	4	NUT, nylock 1" unc-----	13409
30	4	BUSHING-----	42205
31	1	FITTING, grease straight 1/8"-----	17300
32	2	FITTING, grease 90° 1/8"-----	17304

* NOT SHOWN

GRAPPLE ROTATE MOTOR

(360° ROTATION)



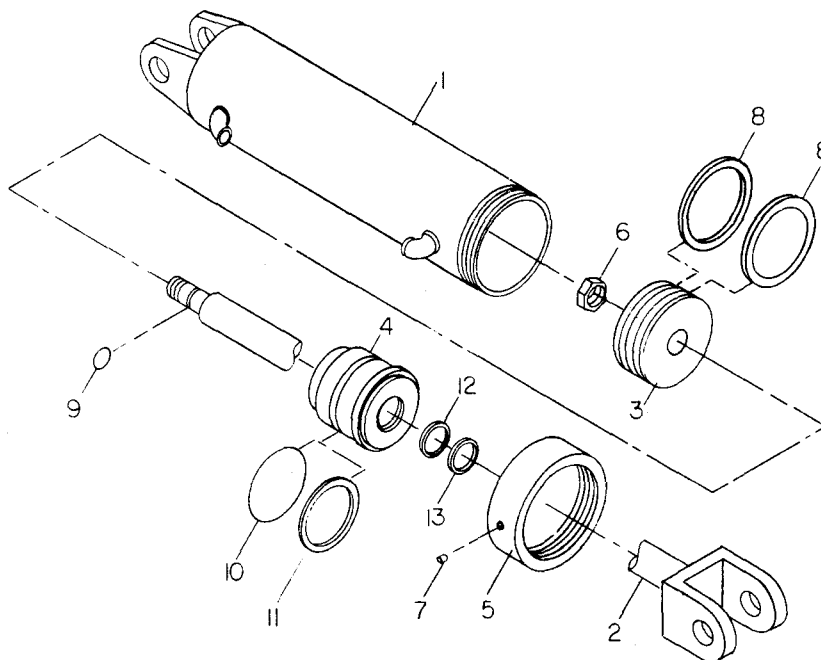
GRAPPLE ROTATE MOTOR

360° ROTATIONPARTS LIST

<u>ITEM NO.</u>	<u>QTY.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
-	1	MOTOR, complete -----	60035
1	4	SCREW, cap -----	59601
2	1	SEAL -----	--
3	1	FLANGE, mounting -----	59976
4	1	SEAL -----	--
5	1	O-RING -----	--
6	1	BEARING, race -----	59978
7	1	BEARING, needle thrust -----	59979
8	1	SHAFT, splined -----	59980
9	1	HOUSING 1/2" NPTF parts -----	59981
10	3	O RING -----	--
11	1	DRIVE -----	59616
12	1	PLATE, spacer -----	59983
13	1	GEROTOR -----	59984
14	1	SPACER -----	59985
15	1	CAP, end -----	59986
16	7	WASHER, seal -----	--
17	7	SCREW, cap -----	59621
18	1	SEAL, o-ring -----	--
19	1	PLUG, housing -----	59614

(1) INCLUDED IN SEAL KIT #65225

Effective Date 5/2/77



GRAPPLE CYLINDER
(3-1/2 X 8 WITH 2" ROD)

<u>ITEM NO.</u>		<u>QTY.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
	0	1	ASSEMBLY, complete-----	812001
	1	1	WELDMENT, butt and tube-----	832001
	2	1	WELDMENT, rod-----	842001
	3	1	PISTON-----	852000
	4	1	GLAND-----	852300
	5	1	CAP, gland-----	852812
	6	1	NUT, hex-----	13413
	7	1	SCREW, set-----	12616
(1) (3)	8	2	SEAL, piston-----	
(1) (3)	9	1	O-RING-----	
(2) (3)	10	1	O-RING-----	
(2) (3)	11	1	WASHER, back-up-----	
(2) (3)	12	1	SEAL, rod-----	
(2) (3)	13	1	SEAL, wiper-----	
<u>SEAL KITS AVAILABLE</u>				
	(1)	PISTON SEAL KIT-----	65482	
	(2)	GLAND SEAL KIT-----	65483	
	(3)	COMPLETE SEAL KIT-----	65533	