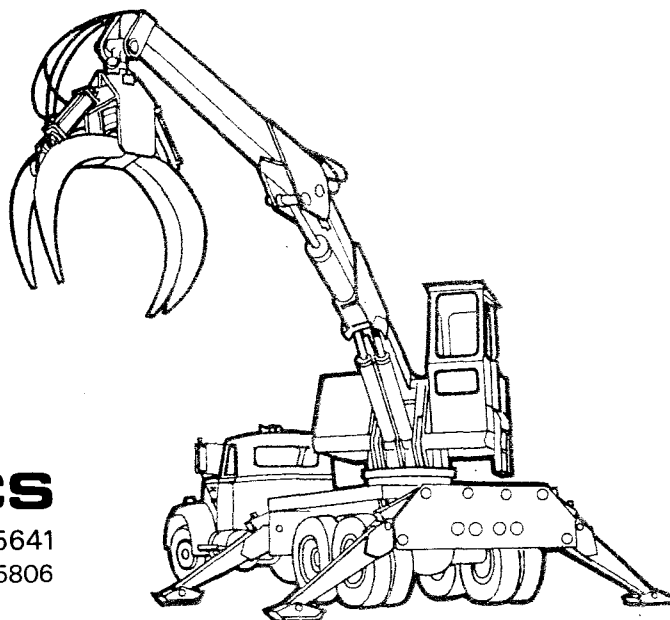


Owner's Manual

MODEL NO. 4000 TRT

SERIAL NO. 9208



**BARKO
HYDRAULICS**

Office: Superior, Wisconsin Phone: (715) 392-5641
Mailing address: P.O. Box 6227 Duluth, Minnesota 55806

"the loader with everything built in but the operator"

PRINTED IN U.S.A.

GENERAL INFORMATION SHEET

I. GENERAL :

- a. MODEL 4000
- b. SERIAL NUMBER 9208
- c. TYPE OF MOUNT TRT
- d. TYPE OF SWING GEAR AND RACK
- e. GRAPPLE TYPE 1/4 CD BP

II. HYDRAULICS :

A. PUMPS

- a. MAIN
- b. SWING (IF ANY)

B. CYLINDERS

- a. MAIN LIFT 5 X 24 X 2-1/2
- b. SECONDARY 5 X 24 X 2-1/2
- c. STABILIZERS
- d. GRAPPLE 3-1/2 X 10
- e. LIVE HEEL
- f. OTHER

C. MOTORS :

- a. GRAPPLE: C/L
- b. SWING (IF ANY) 5-300 GEAR AND RACK
- c. OTHER _____

D. SYSTEM OPERATING PRESSURE _____

E. RESERVOIR CAPACITY _____

F. COLLECTORS (IF ANY) _____

III. POWER SOURCE :

a. ☐ DIESEL
TYPE _____

b. ☐ ELECTRIC
TYPE _____

IV. REMARKS :

INTRODUCTION

Thank you for your purchase of the Barko Hydraulic loader, the loader that is constructed of the best quality materials and workmanship. Utilizing proper care and maintenance, the Barko Hydraulic loader will give you many years of service.

This new owner's manual contains a complete parts breakdown of the entire machine and is divided into sections for your convenience in locating any specific part you may be looking for.

It has been carefully organized to provide you, our customer or distributor, with a thorough knowledge of those various components of the machine, giving you the first-hand information needed to better know your machine.

ORDERING INSTRUCTIONS - PARTS

All parts for your BARKO HYDRAULIC LOADER may be ordered from your nearest authorized distributor or from the factory, if your area is served directly by the factory. This includes all hydraulic parts for valves, cylinders, pumps, motors, hose and fittings, in addition to the mechanical and structural parts of the loader.

When ordering parts, please specify the following information:

1. PART NUMBER - Specify Barko part number as given in your Owner's manual.. Do not take numbers from castings, etc.
2. QUANTITY - of each part ordered.
3. NAME OF PART - Use proper description or title given in the Owner's Manual.
4. RIGHT OR LEFT HAND - if applicable, right or left hand is your right or left when operating the loader from the normal operators seat position behind the boom.
5. MODEL & SERIAL NUMBERS - IMPORTANT!!! Model & Serial numbers are found on the title page of the Owner's Manual and on the identification plate attached to the loader frame.
6. SHIPPING INSTRUCTIONS - Specify definite shipping instructions such as Bus, Air Frt., Air Express, Parcel Post or Truck. When no instructions are given, parts will be shipped Best Way i. e., shipping method will be determined by shipping cost, nature of the part and urgency of the repair.
7. RETURN ADDRESS - When ordering parts, always include a return address where part should be sent.
8. RETURN PARTS - New parts returned by distributor or customer to the factory will have a 10% handling charge subtracted from the amount of the part unless parts were sent by mistake from the factory.
9. SHORTAGE - On all parts shipments & packing kits, if any parts are missing (other than parts marked Backordered) call the factory immediately.
10. WARRANTY - Warranty parts must be returned by prepaid freight or by Barko truck.

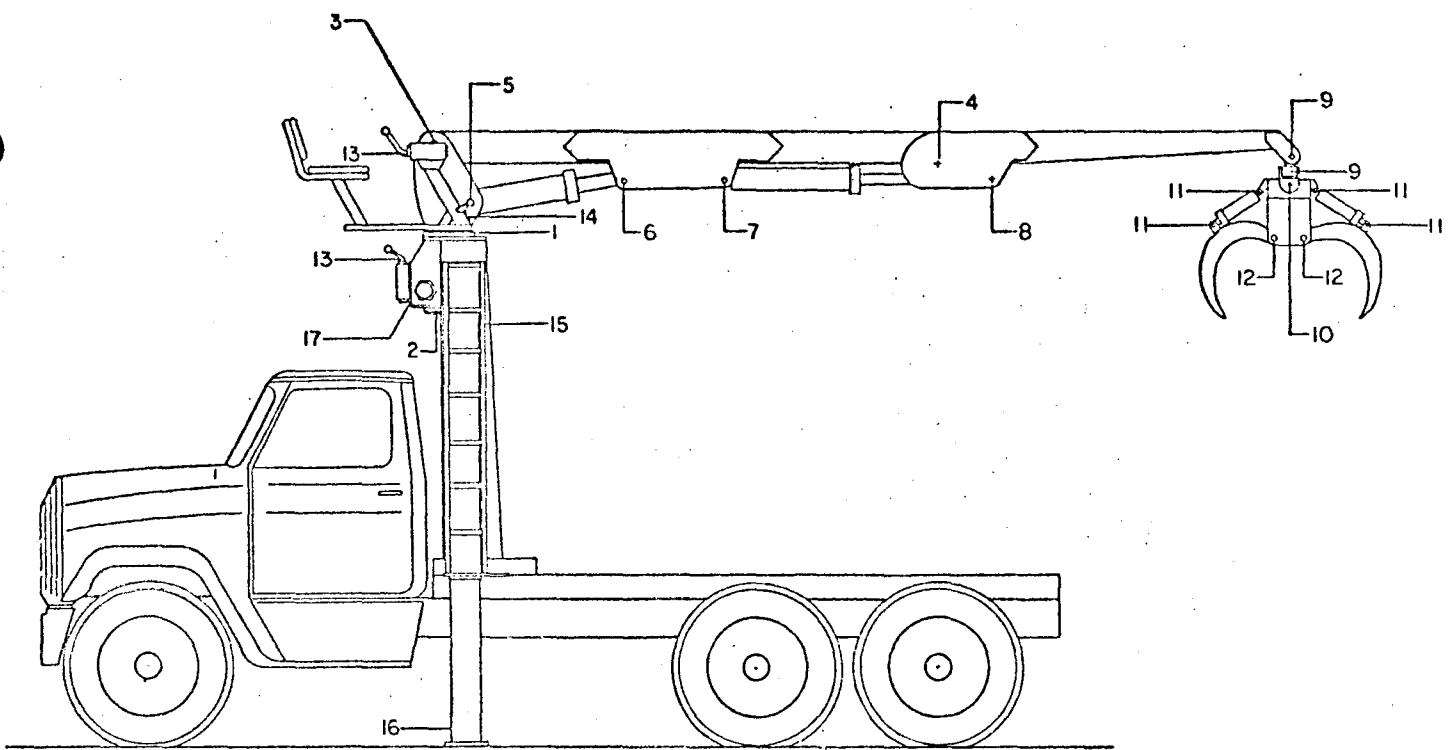
TABLE OF CONTENTS

ITEM

INTRODUCTION

1. ORDERING INSTRUCTIONS - PARTS
2. LUBRICATION CHART
3. TYPICAL PTO MOUNTING DIAGRAM
4. GENERAL ASSEMBLY
5. TOOL LIST
6. MOUNTING DIAGRAM - REAR MOUNT
7. GENERAL MOUNTING PROCEDURES - MID MOUNT
8. WARRANTY

SECTION I - STRUCTURAL COMPONENTS
A - OPTIONS (IF APPLICABLE)
SECTION II - HYDRAULIC COMPONENTS
A - OPTIONS (IF APPLICABLE)
SECTION III- SERVICE INFORMATION

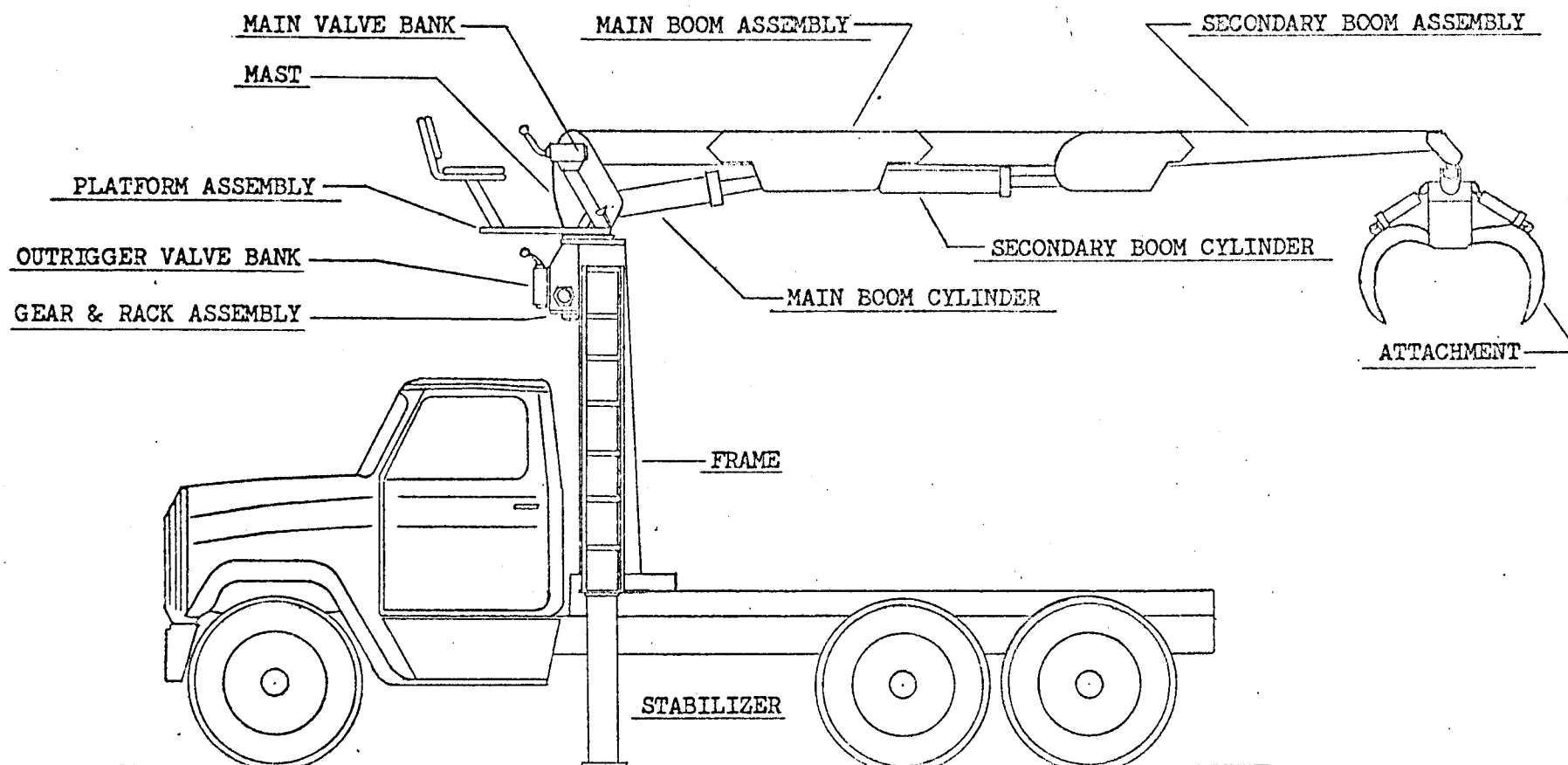


LUBRICATION CHART

MODELS 40-140 GEAR & RACK

ITEM NO	LUBRICATION POINTS	TYPE OF LUBRICANT	INTERVAL
1	Top Bearing Retainer (Head)	Items 1-12 use a Multi-Purpose Grease. Apply with Pressure Gun until Grease is visable at ends of Bushings.	40 Hrs., or once weekly.
2	Lower Bearing Retainer (Head)		"
3	Main Boom Pivot		15 Hrs. or twice weekly (minimum)
4	Jib Knuckle Pivot		"
5&6	Main Lift Cylinder		"
7&8	Jib Cylinder		"
9	Grapple Hanger		8 Hrs. or each day
10	Grapple Head		"
11	Grapple Cylinder		"
12	Grapple Arms		"
13	Valve Handle Linkage	SAE #30 Oil	24 Hrs., or twice weekly.
14	Swing Pedal & Linkage	"	"
15&16	Stabilizer Cylinder	Multi-Purpose Grease	8 Hrs., or once a day (minimum)
17	Gear & Rack	"	"

GENERAL ASSEMBLY (Models 40-60-80)



FOLLOWING, IS A LIST OF WRENCHES THAT CAN BE PURCHASED
FROM BARKO. FOR USE ON YOUR BARKO LOADER.

<u>PART NUMBER</u>	<u>TOOL</u>
27000	FOR USE WHEN REPLACING SPOOL SEALS IN 25P VALVES
042200	WRENCH - 1 1/2" BOLT
042201	WRENCH - 2" BOLT
042202	WRENCH - 2 1/2" BOLT
042203	WRENCH - 3 1/2" BOLT

TYPICAL P.T.O. MOUNTING

INSTALLATION DIAGRAM

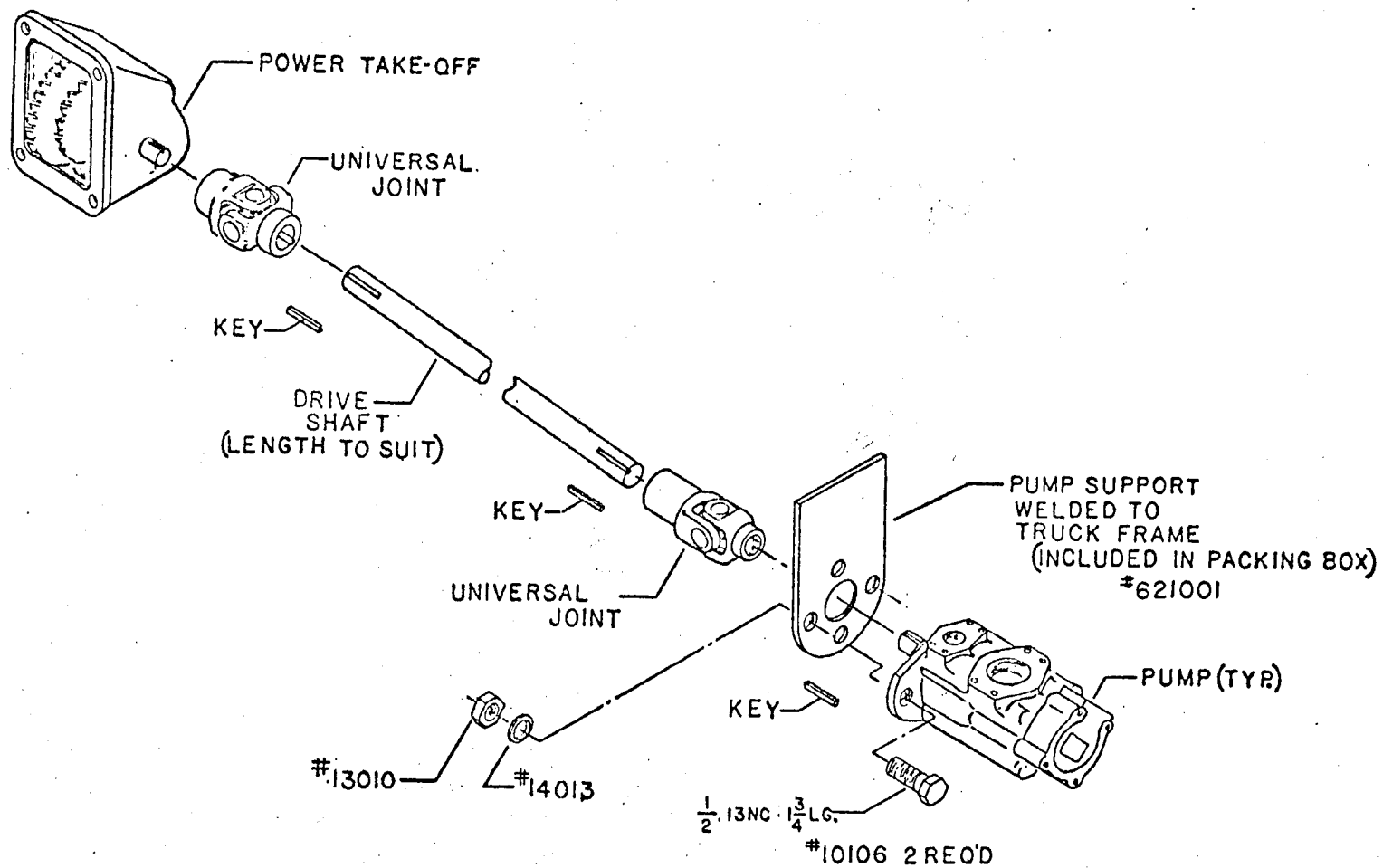
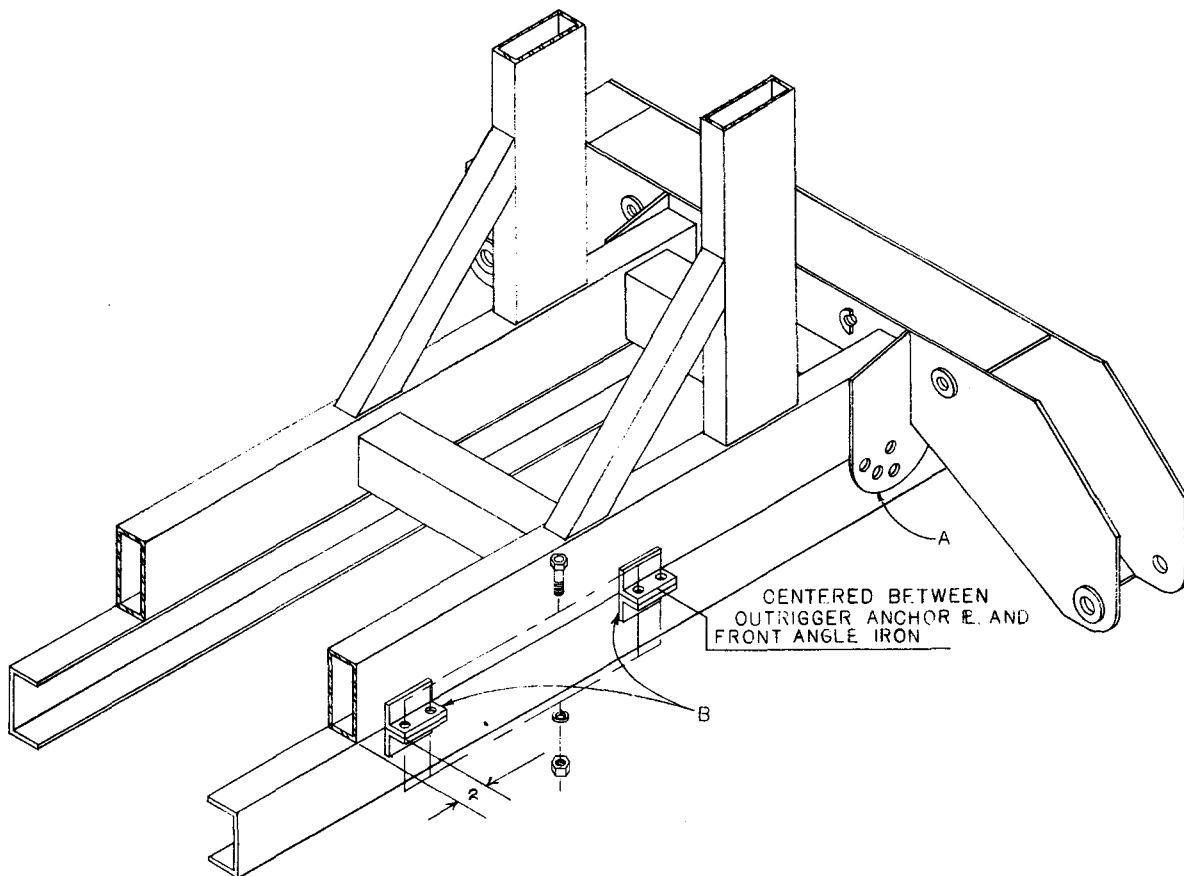


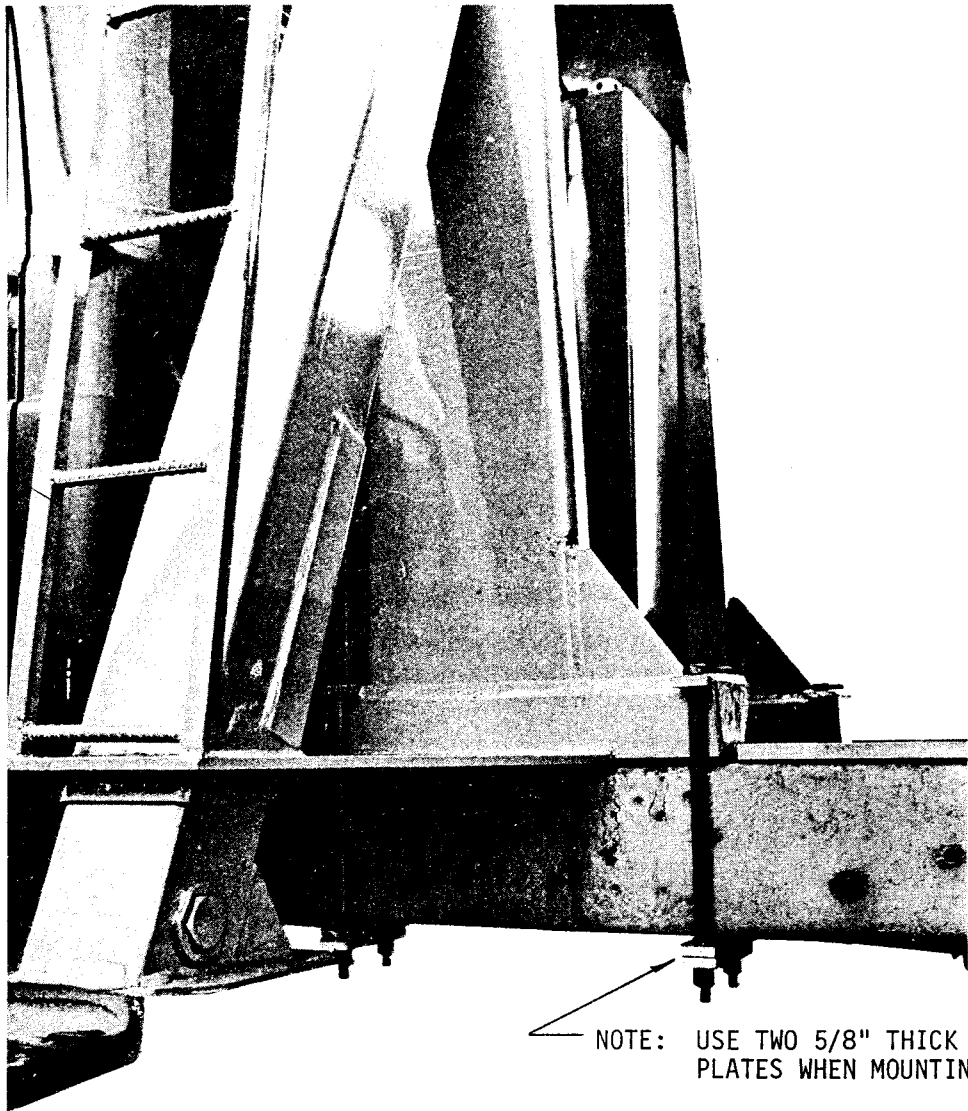
FIG. 1. REAR-MOUNT INSTALLATION
OF MODELS 40 - 120



Use frame stiffener plate, "A" as a template when drilling holes for anchor bolts in the truck frame. Use 8, 1" diameter bolts, (4 each side) with lock washers and nuts.

See illustration for location of angle irons, "B" utilizing eight 3/4 - 16 UNF - 2" long bolts (Part No. 11079) with lock washers (Part No. 14016) and nuts (Part No. 13113). 6 Sets of mounting angles (Part No. 131655) is sent with machine.

FIG. 2. MID MOUNT INSTALLATION OF MODELS 40;60;80
TELESCOPIC & STANDARD CONFIGURATIONS



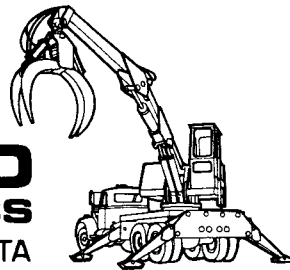
GENERAL MOUNTING PROCEDURE

BARKO

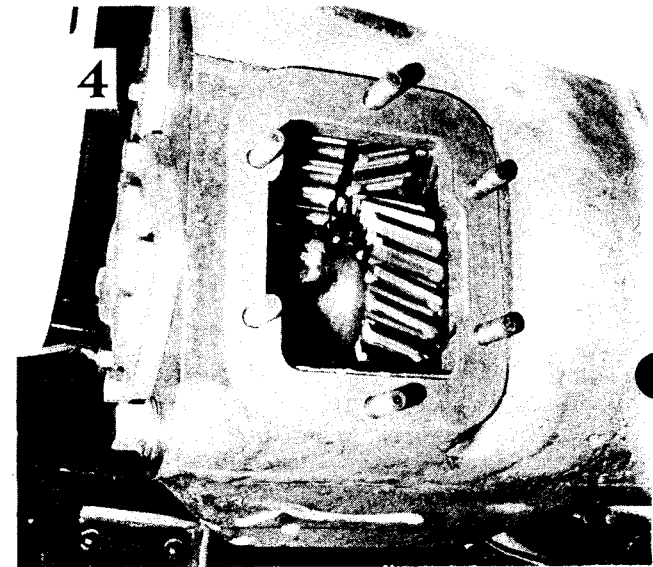
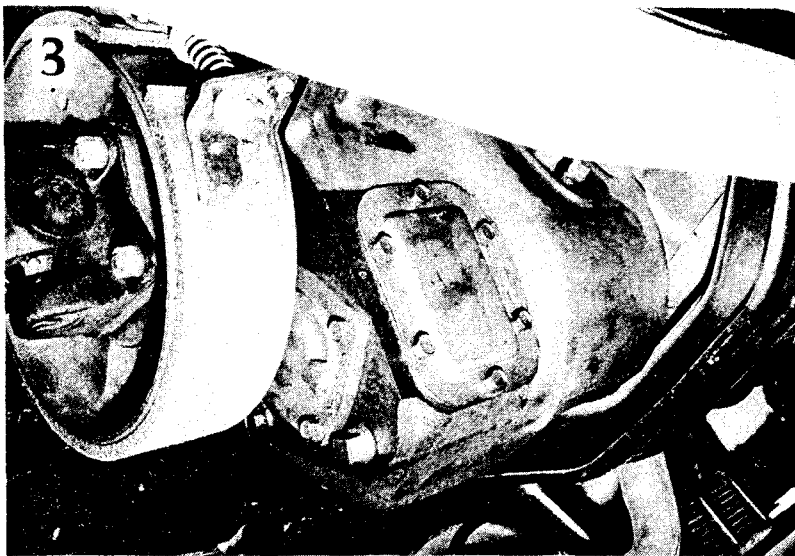
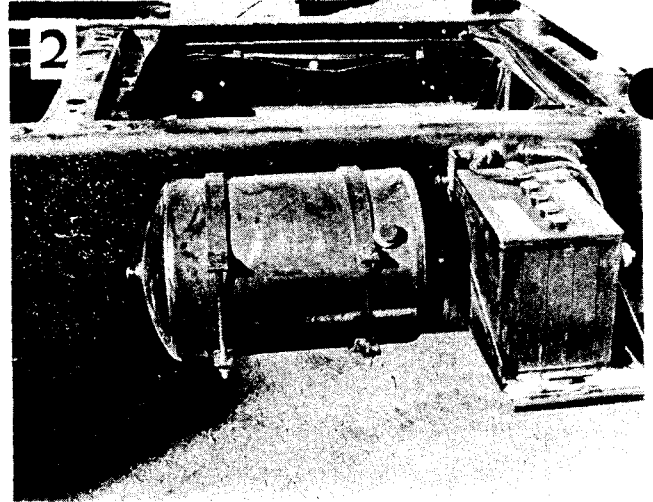
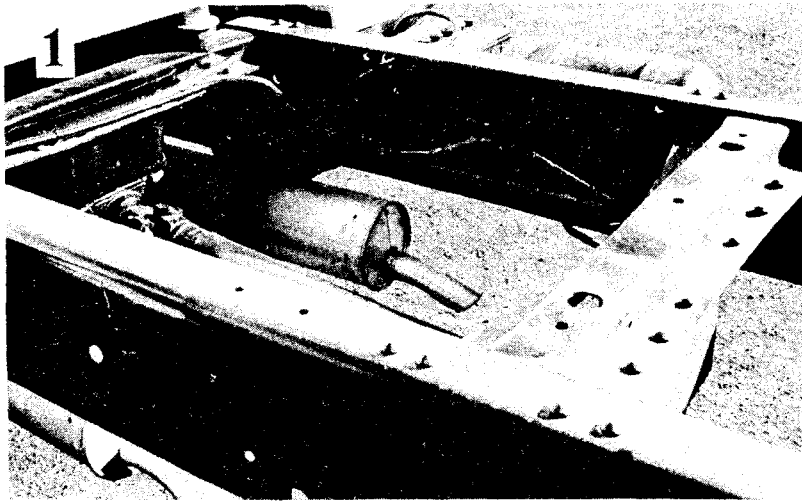
MID-MOUNT LOADERS



BARKO
HYDRAULICS
DULUTH, MINNESOTA

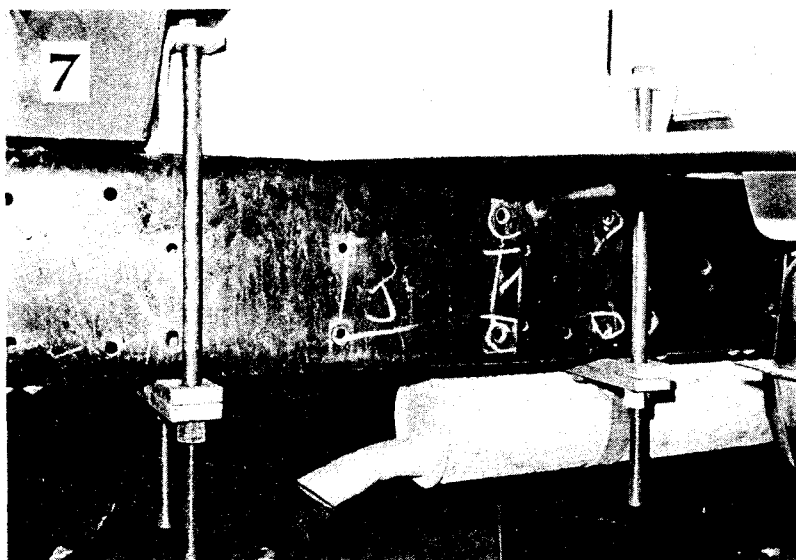
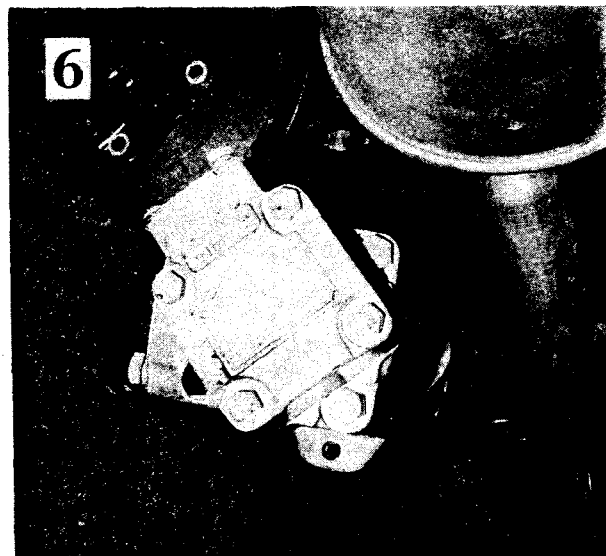
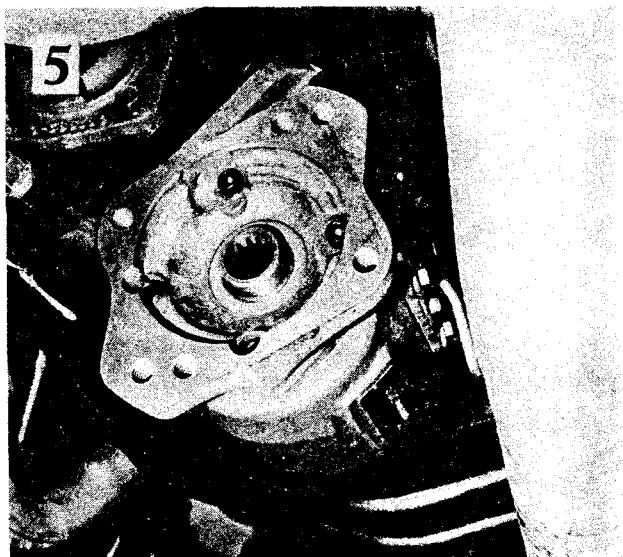


"the loader with everything built in but the operator"

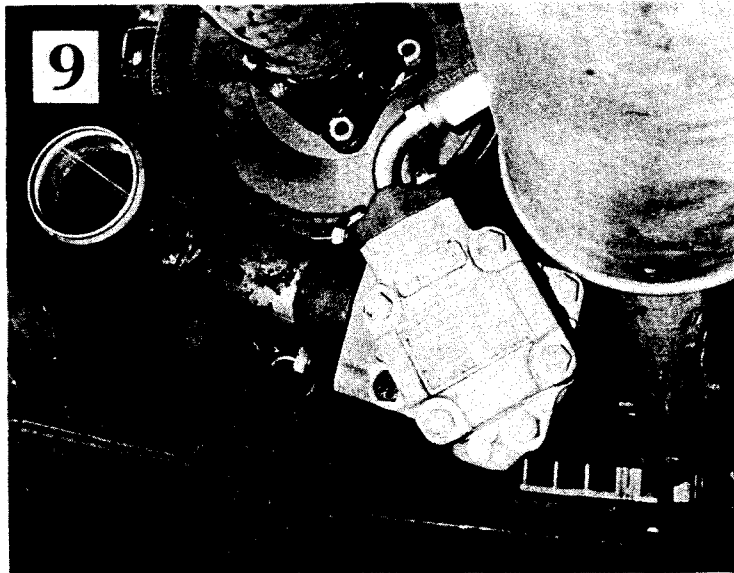
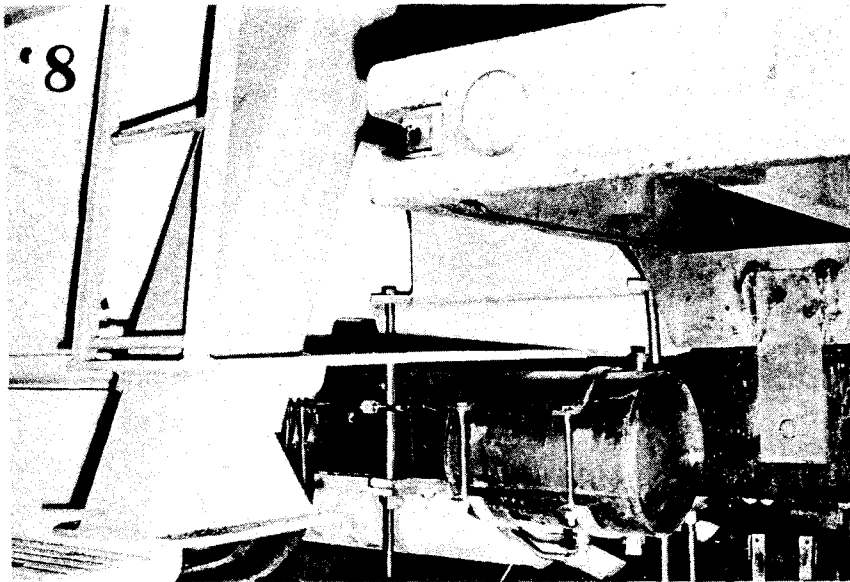


GENERAL INSTRUCTION FOR MOUNTING MID-MOUNT BARKO LOADERS

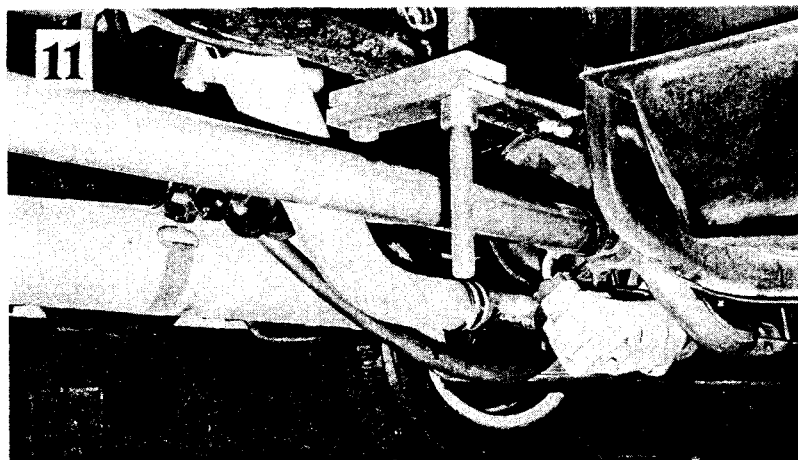
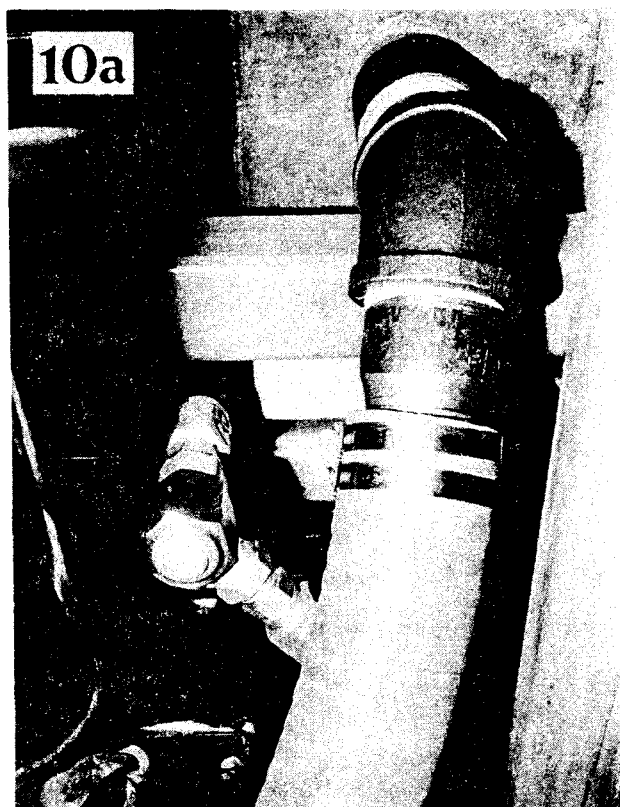
1. Remove or slide truck platform back to provide a minimum of 28" of unobstructed frame area.
2. To facilitate mounting, remove all accessories that are frame mounted within the 28" area that the loader is to occupy on the frame, such as fuel tanks and mounting brackets, air or vacuum tanks, batteries and battery boxes, etc.
3. Select a power take off compatible with the transmission in the truck to secure a hydraulic pump operating speed of 1400-1800 RPM.
4. Install the appropriate PTO mounting studs in the transmission case using caution to be sure the studs are installed to the correct depth.



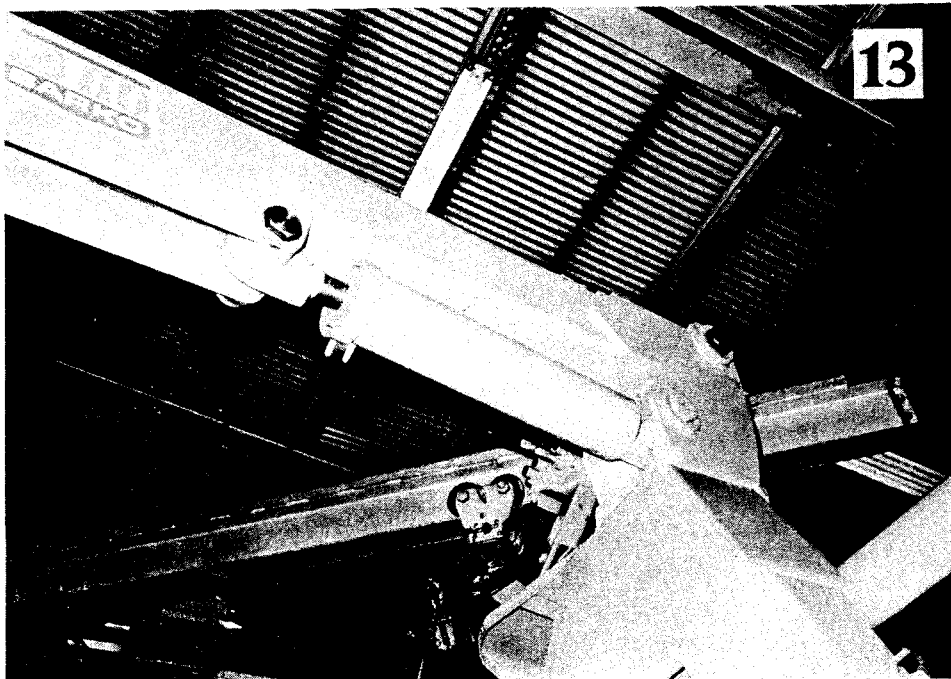
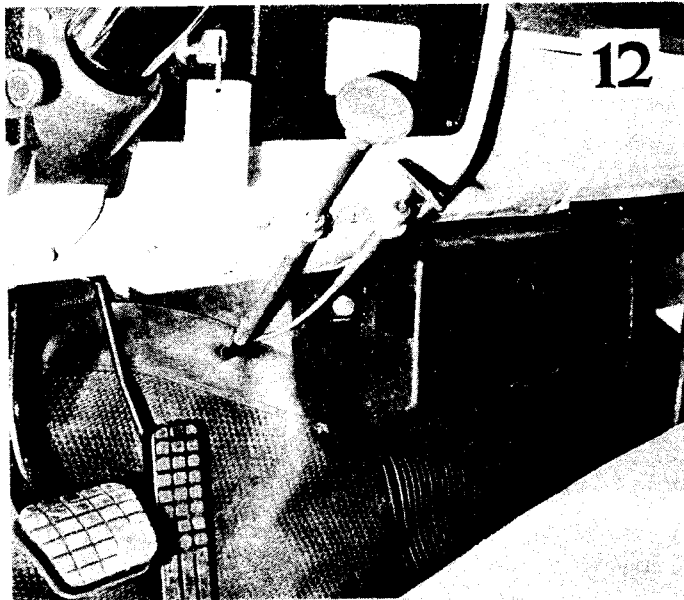
5. Install the previously selected PTO on the transmission using the proper amount of gaskets to assure the proper gear tooth contact between the transmission drive and PTO driven gear. Refill transmission W/lubricant.
6. Mount the hydraulic pump to the PTO (Vickers pump direct mounted to PTO shown, other combinations similar.)
7. Using suitable lifting equipment, the loader can now be placed on the truck frame with the diagonal support gussets on the lower loader frame toward the truck load area. (i.e. truck bed). Install all hold down bolts and nuts utilizing two plates under the truck frame and tighten the nuts to approximately 100 ft. lbs. of torque - alternately loosen each set of mounting bolts and install a spacer between the frame flanges to prevent bending the lower flange when the loader mounting bolts are tightened. Tighten all mount bolts. (Note: In the accompanying photos some mount bolts are installed with the heads up and some with the heads down. This is done to provide clearance around various truck components. The way these bolts are installed is optional.)



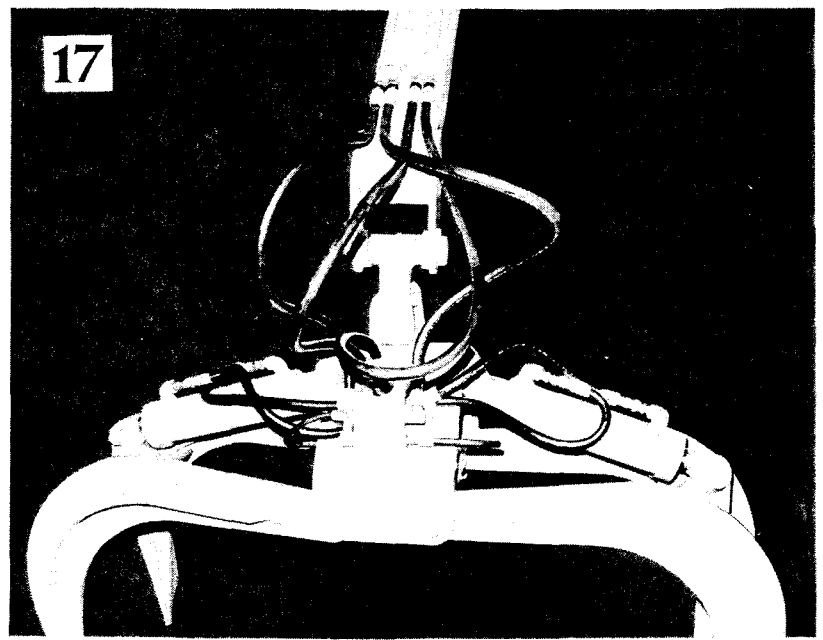
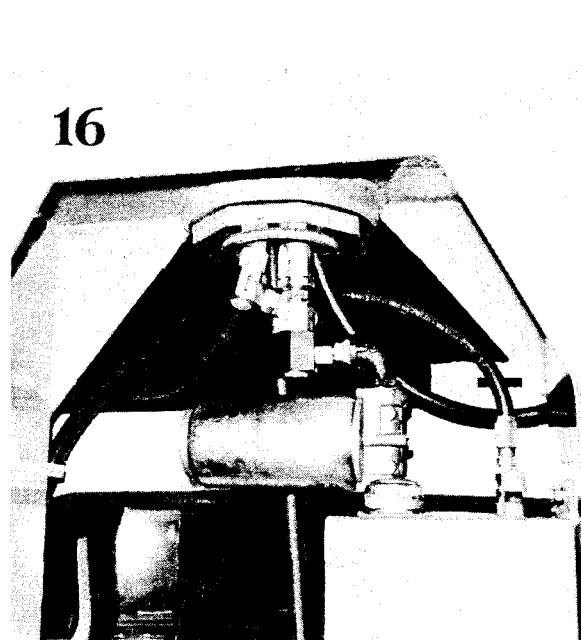
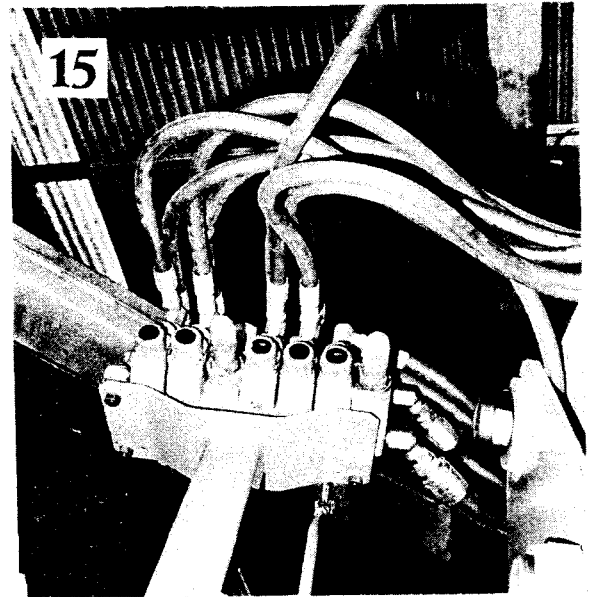
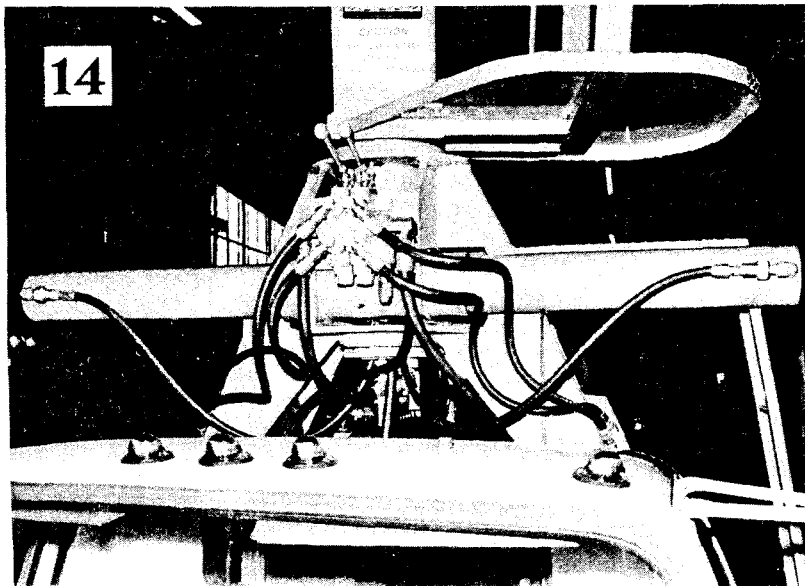
8. The truck bed can now be moved to within 1" of the loader frame and be secured. All items that were previously removed, tanks, battery's, etc., should now be reinstalled making modifications as necessary for re-mounting. Do NOT weld to truck frame. If dual fuel tanks are used, it must be remembered that the tops of both tanks must be at equal elevations.
9. The hydraulic piping and hoses can now be installed between the pump and the loader. Under normal circumstances the small (rear) cartridge on vane style pumps is connected to the mid-inlet for tandem pump and valve installations.



10. Connect the pump suction hose between the hydraulic tank (10a) and pump suction fitting (10b). There is a possibility that exhaust pipes, mufflers, air, vacuum, or fuel lines, miscellaneous linkage, etc. may have to be relocated or rerouted to clear hydraulic system or loader components.
11. Any of these modifications should be made if there is any possibility of interference between the components or if the exhaust system is close enough to the hydraulic pump or lines that it can transmit heat to the hydraulic components.



12. Mount, route and connect the P.T.O. control, and if so desired, an engine throttle control. Be sure that the PTO fully engages and disengages and the throttle does not allow the engine to run at excessive speed.
13. Assemble the boom to the head being sure that all bearings are properly installed and the body fit bolts used to connect the head and boom are of the correct length to properly tighten the boom bearings.



14 & 15. Complete the connection of all hydraulic hoses.

16. Fill the hydraulic reservoir with a good grade of H.D. hydraulic oil containing anti-wear and anti-foam properties with a viscosity of approximately 217 S.U.S. @ 100° F.

17. Complete the hydraulic system by attaching the grapple to the boom tip and connect the grapple open-close and rotate hoses to their respective boom tubes.

18. Start the engine and engage the P.T.O. - with the engine at idle, release the clutch to start the P.T.O. in motion and listen for any abnormal sounds such as gear noise, pump cavitation, or excessive power drain. If no problem exists allow the engine to idle, raise and lower the main boom to its extremes. Then raise the main boom to approximately a 45° angle and cycle the jib boom to its extremes. Next, operate the stabilizer cylinders through their strokes and return the stabilizers to ground level. Disengage the power take off and refill the hydraulic oil tank to its full mark. Reengage the P.T.O. and with the boom elevated high enough to clear all obstructions, fully cycle the swing system slowly to its extremes. Fully open and close the grapple and rotate the grapple in both directions to expell all air from the lines. Recheck the hydraulic system oil level. Make sure all bolts and nuts, including mounting bolts and body fit bolts, are properly tightened. Pick up a weight of approximately 800-1000 lbs. and function all operations to check all relief valves and the general machine operation.

Barko Strong-Arm Hydraulic Loader

WARRANTY

We warrant the BARKO LOADER, to the original purchaser-user only, to be free from defects in factory workmanship and/or material under recommended use, and service for a period of three (3) months from the date of delivery thereof to the original purchaser-user. Under this warranty we will repair and/or replace, f.o.b. Duluth, Minnesota, any part of the BARKO LOADER acknowledged by us to be defective which is returned to us through an authorized distributor, transportation charges prepaid, within the warranty period.

This warranty applies only if the BARKO LOADER containing the defective part is mounted at the factory or by an authorized distributor. Transferring the BARKO LOADER from one vehicle to another voids this warranty unless the transfer is performed at the factory or by an authorized distributor.

This warranty shall not apply to any part which has been damaged in any accident, or by fire, flood, or any act of God, or abused or misused, or which has been repaired or altered by anyone other than the factory or an authorized distributor. Nor shall this warranty apply to any BARKO LOADER on which the serial number has been altered or removed.

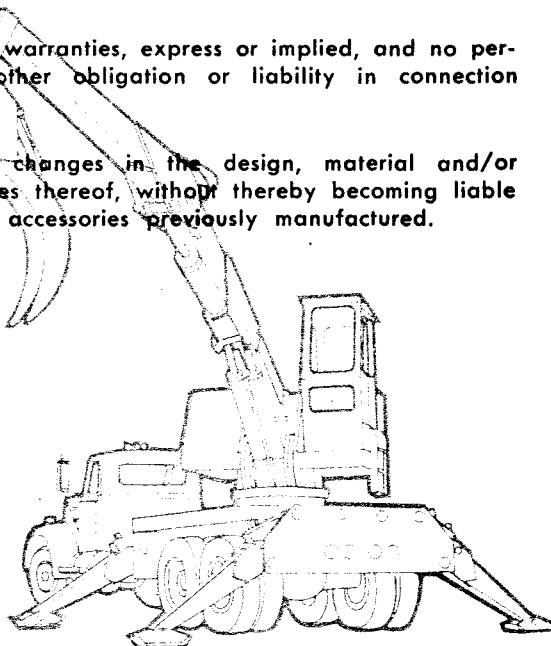
This warranty is in lieu of all other factory warranties, express or implied, and no person is authorized to assume for us any other obligation or liability in connection with BARKO LOADERS manufactured by us.

We reserve the right at any time to make changes in the design, material and/or specification of BARKO LOADERS or accessories thereof, without thereby becoming liable to make similar changes in such equipment or accessories previously manufactured.



**BARKO
HYDRAULICS**

P.O. BOX 6227 / DULUTH, MINNESOTA 55806



SECTION I

MODELS 40-60-80

STRUCTURAL COMPONENTS

DESCRIPTION	PAGE NUMBER (S)
A. FRAMES, HEAD, STABILIZERS	
-Mid-Mount 10' Fold-A-Way Stabilizers.....	2, 3
-Mid-Mount Telescopic Stabilizers.....	4, 5
-Rear-Mount Fold-A-Way Stabilizers.....	6, 7
B. PLATFORMS, SEATS	
-Rotating Platform Options.....	8
-Stationary Platform Options.....	9
C. RESERVOIRS, HYDRAULIC	
-35Gallon Capacity.....	10
-42 Gallon Capacity.....	11
D. BOOM ASSEMBLY.....	12, 13
E. ATTACHMENTS	
-Log & Pulp Grapples (Bypass Type).....	14, 15
-Log & Pulp Grapples (Butt Type).....	16, 17
-Log Grapple (Bypass).....	18, 19

Change Notice No. 1
Effective: 5/21/76

MID MOUNT 10' FOLD-A-WAY STABILIZER

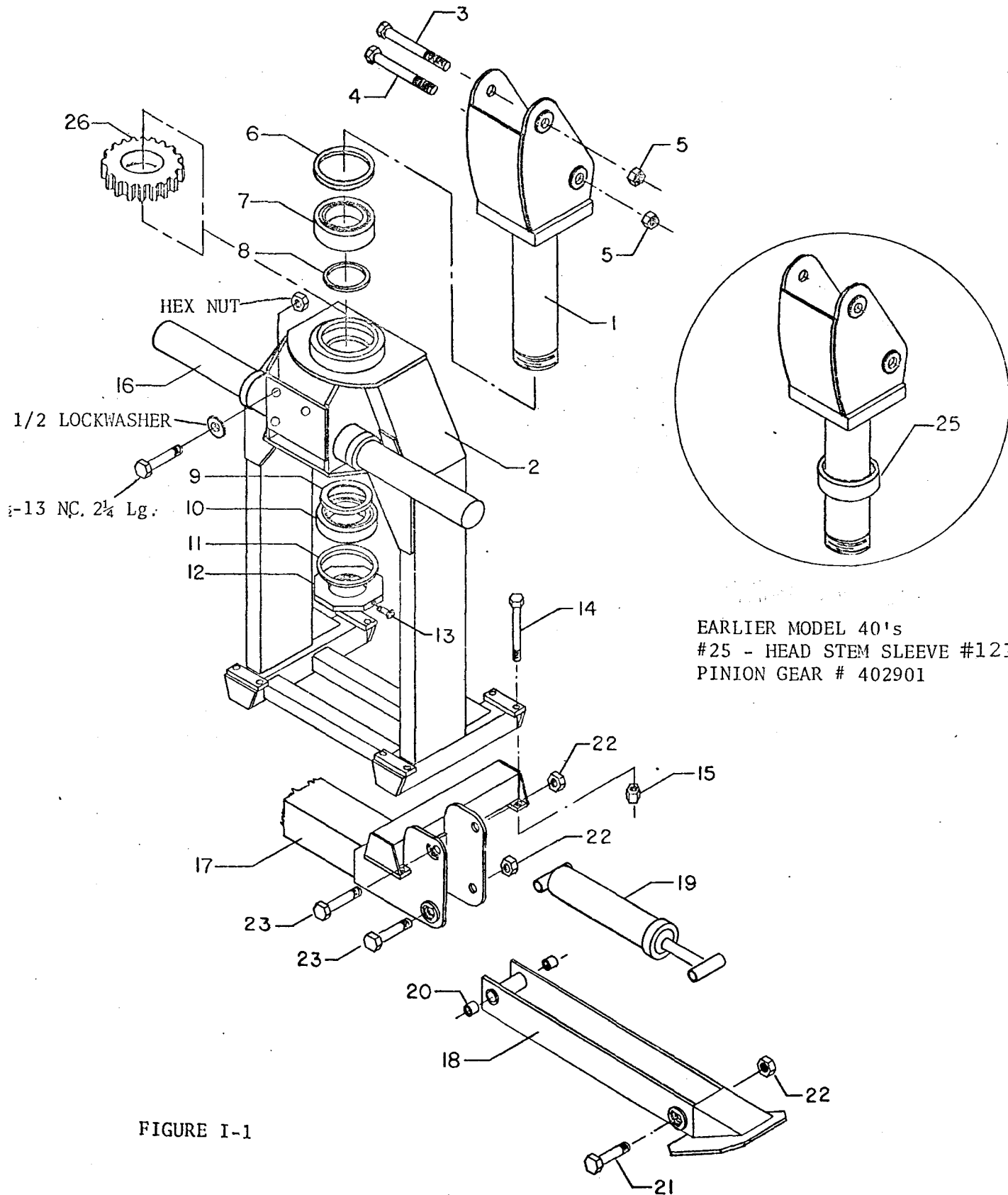


FIGURE I-1

EARLIER MODEL 40's
 #25 - HEAD STEM SLEEVE #121614
 PINION GEAR # 402901

Change Notice No. 2
 Supercedes page dated: 9/23/75
 Effective: 5/21/76

PARTS LIST

ITEM NO	QTY	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(3) 1	1	HEAD, weldment.....	122102	122115	122118
2	1	FRAME, weldment.....	133111	133119	133120
(3) 3	1	BOLT, body fit.....	482205	482272	482272
(3) 4	1	BOLT, body fit.....	482205	482304	482304
5	2	NUT, hex, nylock.....	13413	13417	13417
(1) 6	1	SEAL, dust.....	(44534)	(44538)	(44538)
7	1	BEARING, tapered roller.....	41079	41090	41090
	1	cone.....	41726	41730	41730
	1	cup.....	41727	41731	41731
(1) 8	1	SEAL, o-ring.....	(65437)	(65368)	(65368)
(1) 9	1	SEAL, o-ring.....	(65437)	(65437)	(65437)
10	1	BEARING, tapered roller.....	41079	41079	41079
	1	cone.....	41726	41726	41726
	1	cup.....	41727	41727	41727
(1) 11	1	SEAL, dust.....	(44534)	(44534)	(44534)
12	1	NUT, hex, stem.....	481707	481707	481707
13	1	BOLT, 3/8-UNC x 5/8" long.....	10051	10051	10051
14	8	BOLT, anchor, 3/4" x 21" long.....	14409	14409	14409
15	8	NUT, hex.....	13511	13511	13511
(2) 16	1	GEAR & RACK, assy. 300 ⁰ 5".....	674207	674207	674207
	1	GEAR & RACK, assy. 400 ⁰ 5".....	674208	674208	674208
		For breakdown on Gear & Rack see Page 30.			
17	1	HOUSING, stabilizer.....	173102	173103	173103
18	2	LEG, stabilizer.....	173201	173201	173201
19	2	CYLINDER, stabilizer 5 x 17.....	812404	812404	812404
		For breakdown on cylinder see page 26, Fig. II-5.			
20	4	BUSHING, bronze.....	42020	42020	42020
21	2	BOLT, body fit.....	482201	482201	482201
22	6	NUT, hex, 1 1/2".....	13413	13413	13413
23	4	BOLT, body fit, 1 1/2" x 10" long.....	482285	482285	482285
24	2	GREASE-FITTING not shown.....	17300	17300	17300
25	1	SLEEVE, head stem (see Fig. I -1)...	-	-	-
26	1	GEAR, pinion.....	402904	402901	402901

NOTES:

THOSE PART NUMBERS IN BRACKETS () HAVE BEEN SUPERCEDED, CHECK ACCOMPANYING FOOT NOTE IN 1st COLUMN.

- (1) Serviced in Head Stem Seal Kit..... 65499 65289 65289
- (2) The following item pertains to earlier model machines with 4 1/2" Gear & Rack Barrels:
- | | | | | | |
|----|---|--|--------|--------|--------|
| 16 | 1 | GEAR & RACK, assembly 300 ⁰ | 674201 | 674201 | 674201 |
| | 1 | GEAR & RACK, assembly 400 ⁰ | 674200 | 674200 | 674200 |
- (3) REFERENCE MODEL 60/80 ONLY
The following items pertain to earlier model machines with 1 1/2" Bolts.
- | | | | | | |
|---|---|------------------------------------|---|--------|--------|
| 1 | 1 | HEAD, weldment..... | - | - | - |
| 3 | 1 | BOLT, body fit, 1 1/2" x 13"..... | - | 482200 | 482200 |
| 4 | 1 | BOLTS, body fit, 1 1/2" x 13"..... | - | 482200 | 482200 |
- (4) Reference Model 40 with rotating platform only:
The following items pertain to machines dating after April 26, 1975.
- | | | | | | |
|---|---|------------------------------|--------|--|--|
| 1 | 1 | FRAME, weldment..... | 133200 | | |
| 2 | 1 | HEAD, weldment..... | 122122 | | |
| 7 | 1 | BEARING, tapered roller..... | 41090 | | |
| | | cone..... | 41730 | | |
| | | cup..... | 41731 | | |
- Head Stem Seal Kit used..... 65289

Change Notice No. 1
Effective: 9/23/75
Supersedes page dated 1/1/75

MID MOUNT TELESCOPIC STABILIZER

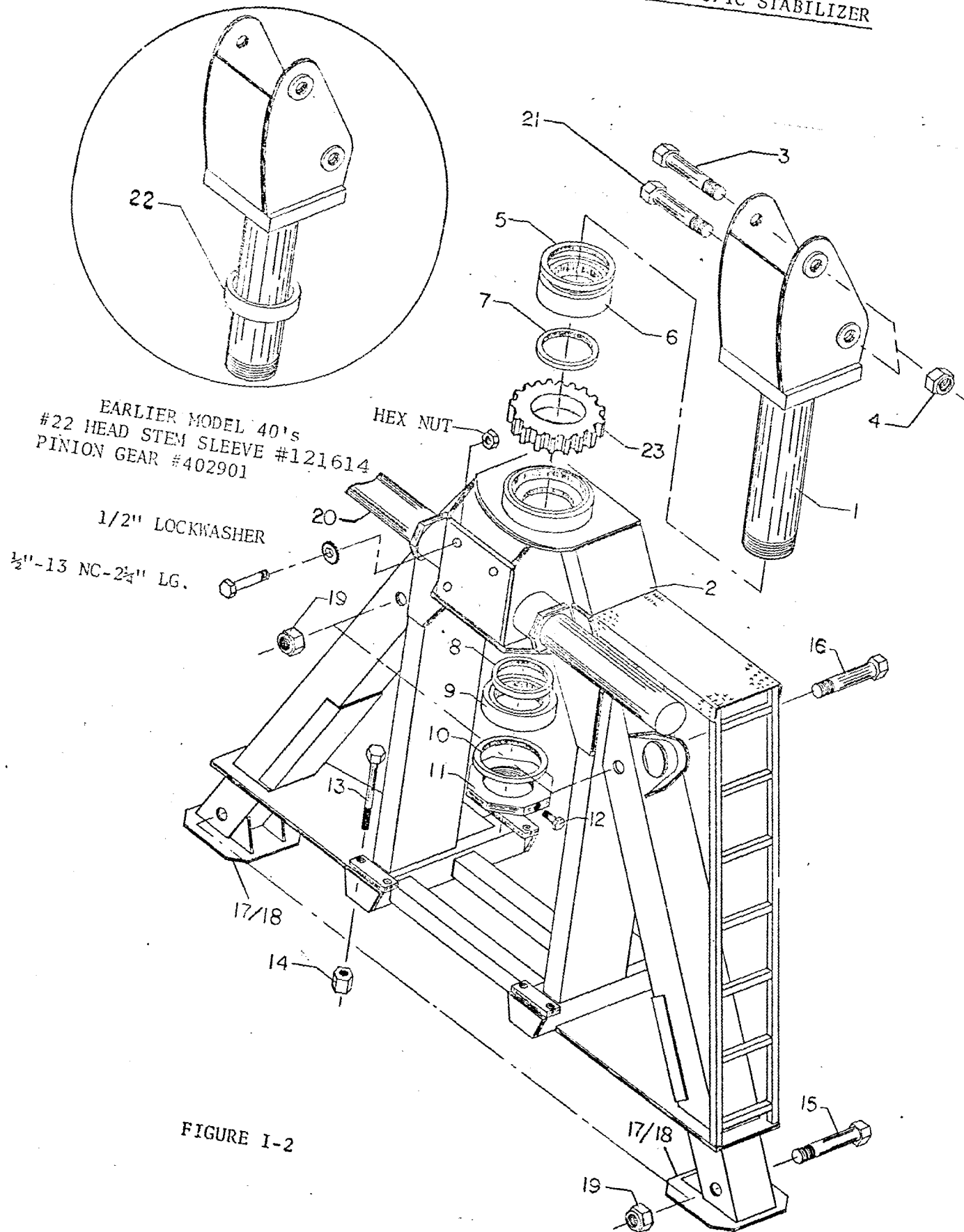


FIGURE I-2

MODELS 40-60-80 MID-MOUNT TELESCOPIC STABILIZERS

PARTS LIST

ITEM NO	QTY	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(3) 1	1	HEAD, weldment.....	122102	122115	122118
2	1	FRAME, weldment.....	132126	132115	132160
(3) 3	1	BOLT, body fit.....	482205	482272	482272
4	2	NUT, hex, nylock.....	13413	13417	13417
(1) 5	1	SEAL, dust.....	(44534)	(44538)	(44538)
6	1	BEARING, tapered roller.....	41079	41090	41090
	1	cone.....	41726	41730	41730
	1	cup.....	41727	41731	41731
(1) 7	1	SEAL, o-ring.....	(65437)	(65368)	(65368)
(1) 8	1	SEAL, o-ring.....	(65437)	(65437)	(65437)
9	1	BEARING, tapered roller.....	41079	41079	41079
	1	cone.....	41726	41726	41726
	1	cup.....	41727	41727	41727
(1) 10	1	SEAL, dust.....	(44534)	(44534)	(44534)
11	1	NUT, hex, stem.....	481707	481707	481707
12	1	SCREW, cap, 3/8-UNC-5/8" Long..	10056	10056	10056
13	8	BOLT, anchor, 3/4" x 21" long..	14409	14409	14409
14	8	NUT, hex.....	13511	13511	13511
15	2	BOLT, body fit, 1 1/2" x 7" long..	482204	482204	482204
16	2	BOLT, body fit, 1 1/2" x 8" long..	482202	482202	482202
17	2	LEG, stabilizer, Inner.....	171204	171204	171204
18	1	CYLINDER, stabilizer, 3 1/2 x 43 lh	812010	812010	812010
	1	CYLINDER, stabilizer, 3 1/2 x 43 rh	812004	812004	812004
		For breakdown on cylinder see page 26, Fig. II-6			
19	4	NUT, hex.....	13413	13413	13413
(2) 20	1	GEAR & RACK, assembly 300°, 5".....	674207	674207	674207
	1	GEAR & RACK, assembly 400°, 5".....	674208	674208	674208
		For breakdown on Gear & Rack Unit see page 30.			
(3) 21	1	BOLT, body fit.....	482205	482304	482304
22	1	SLEEVE, head stem(see Fig. I-2)	-	-	-
23	1	GEAR, pinion.....	402904	402901	402901

NOTES:

THOSE PART NUMBERS IN BRACKETS () HAVE BEEN SUPERCEDED, CHECK ACCOMPANYING FOOT NOTE IN 1st COLUMN.

(1) Serviced in Head Stem Seal Kit.. 65499 65289 65289

(2) The following item pertains to those earlier machines with 4 1/2" Gear & Rack Barrels:

20	1	GEAR & RACK, assembly, 300°.....	674201	674201	674201
	1	GEAR & RACK, assembly, 400°.....	674200	674200	674200

(3) REFERENCE MODELS 60/80 ONLY.

The following items pertain to those earlier machines with 1 1/2" bolts.

1	1	HEAD, weldment.....	-		
3	1	BOLT, body fit, 1 1/2" x 13"....	-	482200	482200
23	1	BOLT, body fit, 1 1/2" x 13"....	-	482200	482200

(4) Reference Model 40 with rotating platform only:
The following items pertain to machines dating after April 26, 1975.

1	1	FRAME, weldment.....	135201		
2	1	HEAD, weldment.....	122122		
6	1	BEARING, tapered roller.....	41090		
		cone.....	41730		
		cup.....	41731		
		Head Stem Seal Kit used.....	65289		

Change Notice No. 1
Effective : 9/23/75
Supercedes page dated: 1/1/75

REAR-MOUNT FOLD-A-WAY STABILIZERS

HEAD & FRAME ASSEMBLY

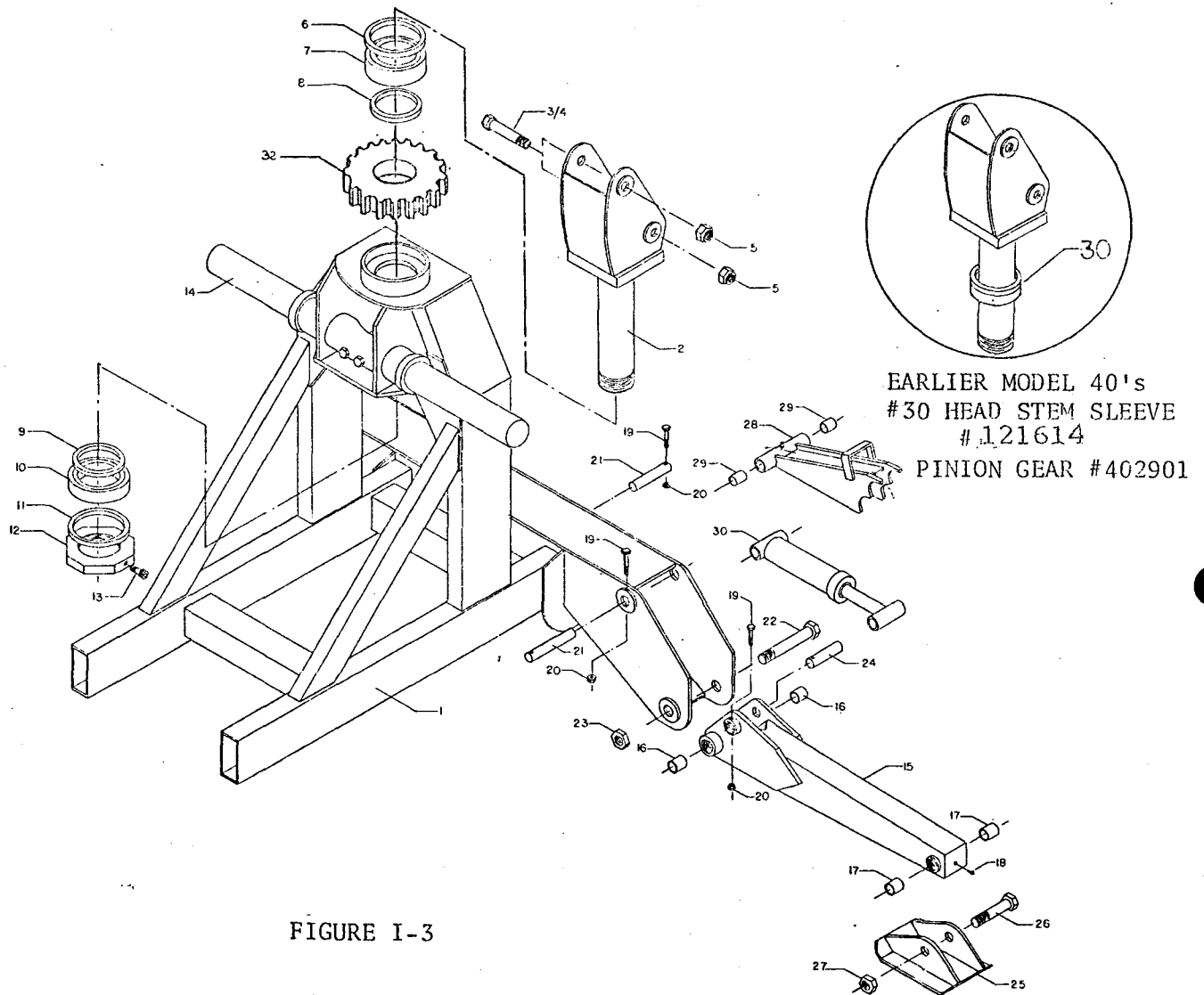


FIGURE I-3

Change Notice No. 2
Effective: 5/21/76
Supercedes page dated: 9/23/75

HEAD & FRAME ASSEMBLY PARTS LIST

ITEM NO	QTY	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
(1)	1	FRAME, assembly, 60".....	133156	133154	133155
	1	FRAME, assembly, 48".....	133133	133132	133131
2	1	HEAD, weldment.....	122102	122115	122118
3	1	BOLT, body fit.....	482205	482272	472272
4	1	BOLT, body fit.....	482205	482304	482304
5	2	NUT, hex, nylock.....	13413	13417	13417
6	1	SEAL, dust.....	(44534)	(44538)	(44538)
7	1	BEARING, tapered roller.....	41079	41090	41090
	1	cone.....	41726	41730	41730
	1	cup.....	41727	41731	41731
(1)	8	SEAL, o-ring.....	(65437)	(65368)	(65368)
(1)	9	SEAL, o-ring.....	(65437)	(65437)	(65437)
10	1	BEARING, tapered roller.....	41079	41079	41079
	1	cone.....	41726	41726	41726
	1	cup.....	41727	41727	41727
(1)	11	SEAL, dust.....	(44534)	(44534)	(44534)
12	1	NUT, hex.....	481707	481707	481707
13	1	BOLT, 3/8-UNC 5/8 long.....	10051	10051	10051
(2)	14	GEAR & RACK, assembly, 300°.....	674207	674207	674207
	1	GEAR & RACK, assembly, 400°.....	674208	674208	674208
		For breakdown on Gear & Rack Unit see Page 30.			
15	2	LEG, outrigger, weldment.....	173203	173203	173203
16	4	BUSHING, 2 per leg.....	42032	42032	42032
17	4	BUSHING, 2 per leg.....	42020	42020	42020
18	2	FITTING, grease.....	17300	17300	17300
19	6	BOLT, 3/8-16 UNC x 3 1/2 long....	10664	10664	10664
20	6	NUT, hex, 3/8.....	13008	13008	13008
21	4	PIN, 2" x 13 1/2 long.....	171651	171651	171651
22	2	BOLT, 2-UNC x 13 1/2 long.....	482272	482272	482272
23	2	NUT, hex, nylock, 2".....	13417	13417	13417
24	2	PIN, 2 x 9 1/2 long.....	171659	171659	171659
25	2	PAD, outrigger.....	172300	172300	172300
26	2	BOLT, 1 1/2-UNC x 8 3/4 long....	482202	482202	482202
27	2	NUT, hex, nylock, 1 1/2.....	13413	13413	13413
28	2	LOCKS, manual, (optional).....	172209	172209	172209
29	4	BUSHINGS, 9 per lock.....	42032	42032	42032
30	1	CYLINDER, stabilizer, 5 x 17 lh..	812418	812418	812418
	1	CYLINDER, stabilizer, 5 x 17 rh..	812405	812405	812405
		For breakdown on cylinder see Page 26, Fig. II-5.			
31	1	SLEEVE, head, stem (see Fig. I-3)	-	-	-
32	1	GEAR, pinion	402904	402901	402901

NOTES:

THOSE PART NUMBERS IN BRACKETS () HAVE BEEN SUPERCEDED, CHECK ACCOMPANYING FOOT NOTE IN 1st COLUMN.

- (1) Serviced in Head Stem Seal Kit...- 65499 65289 65289
- (2) The following item pertains to earlier model machines with 4 1/2" Gear & Rack Barrels:
- | | | | | | |
|----|---|----------------------------------|--------|--------|--------|
| 14 | 1 | GEAR & RACK, assembly 300°..... | 674201 | 674201 | 674201 |
| | 1 | GEAR & RACK, assembly, 400°..... | 674200 | 674200 | 674200 |

(3) REFERENCE MODEL 60/80 ONLY

The following items pertain to earlier model machines with 1 1/2" Bolts.

- | | | | | | |
|---|---|------------------------------------|---|--------|--------|
| 1 | 1 | HEAD, weldment..... | - | | |
| 3 | 1 | BOLT, body fit, 1 1/2" x 13"..... | - | 482200 | 482200 |
| 4 | 1 | BOLTS, body fit, 1 1/2" x 13"..... | - | 482200 | 482200 |

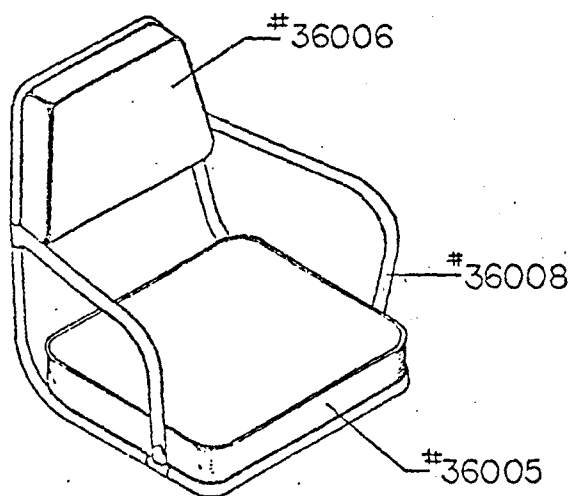
(4) Reference Model 40 with rotating platform only: The following items pertain to machines dating after April 26, 1975.

- | | | | | | |
|---|---|------------------------------|--------|--|--|
| 1 | 1 | FRAME, weldment, 60"..... | 133198 | | |
| | 1 | FRAME, weldment, 48"..... | 133199 | | |
| 2 | 1 | HEAD, weldment..... | 122122 | | |
| 7 | 1 | BEARING, tapered roller..... | 41090 | | |
| | | cone..... | 41730 | | |
| | | cup..... | 41731 | | |
| | | Head Stem Seal Kit used..... | 65289 | | |

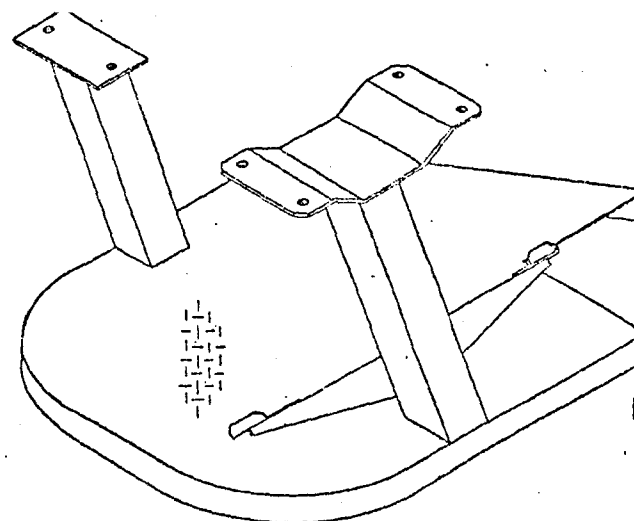
Change Notice No. 1

Effective: 9/23/75

Supersedes page dated: 1/1/75

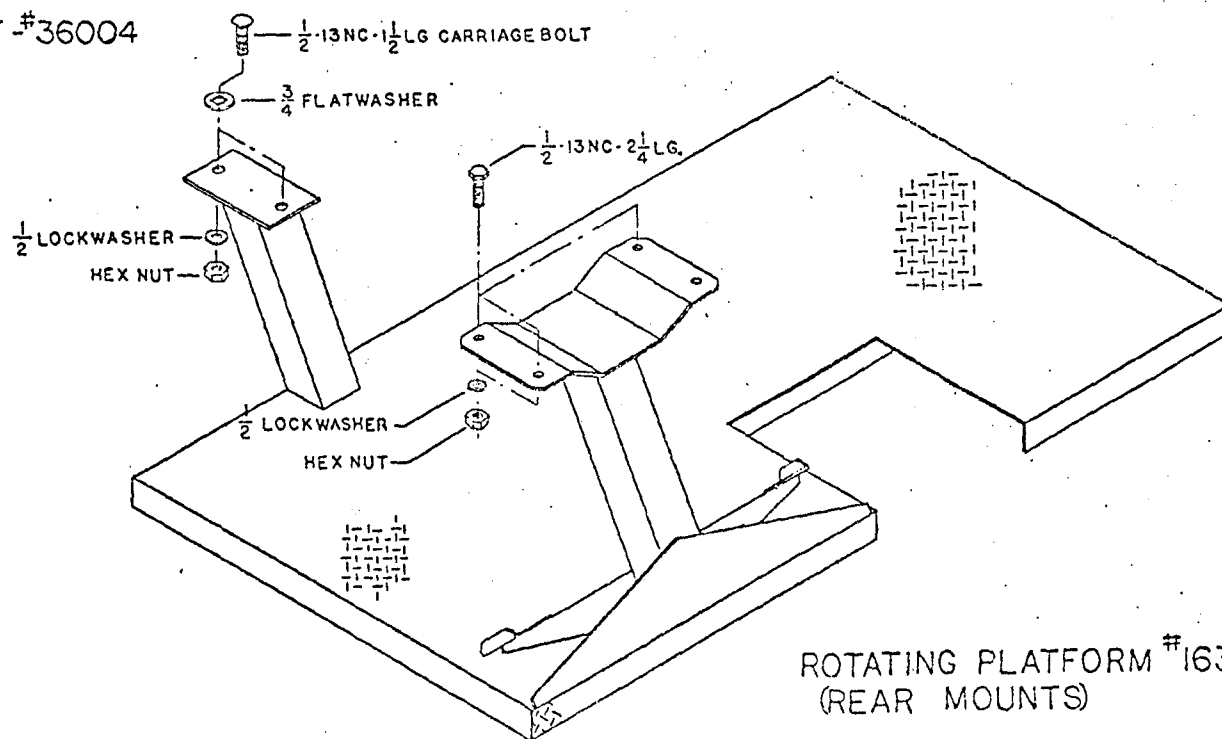


COMPLETE SEAT #36004



ROTATING PLATFORM
#163005
(MID MOUNTS)

FIGURE I-4



ROTATING PLATFORM #163006
(REAR MOUNTS)

FIGURE I-5

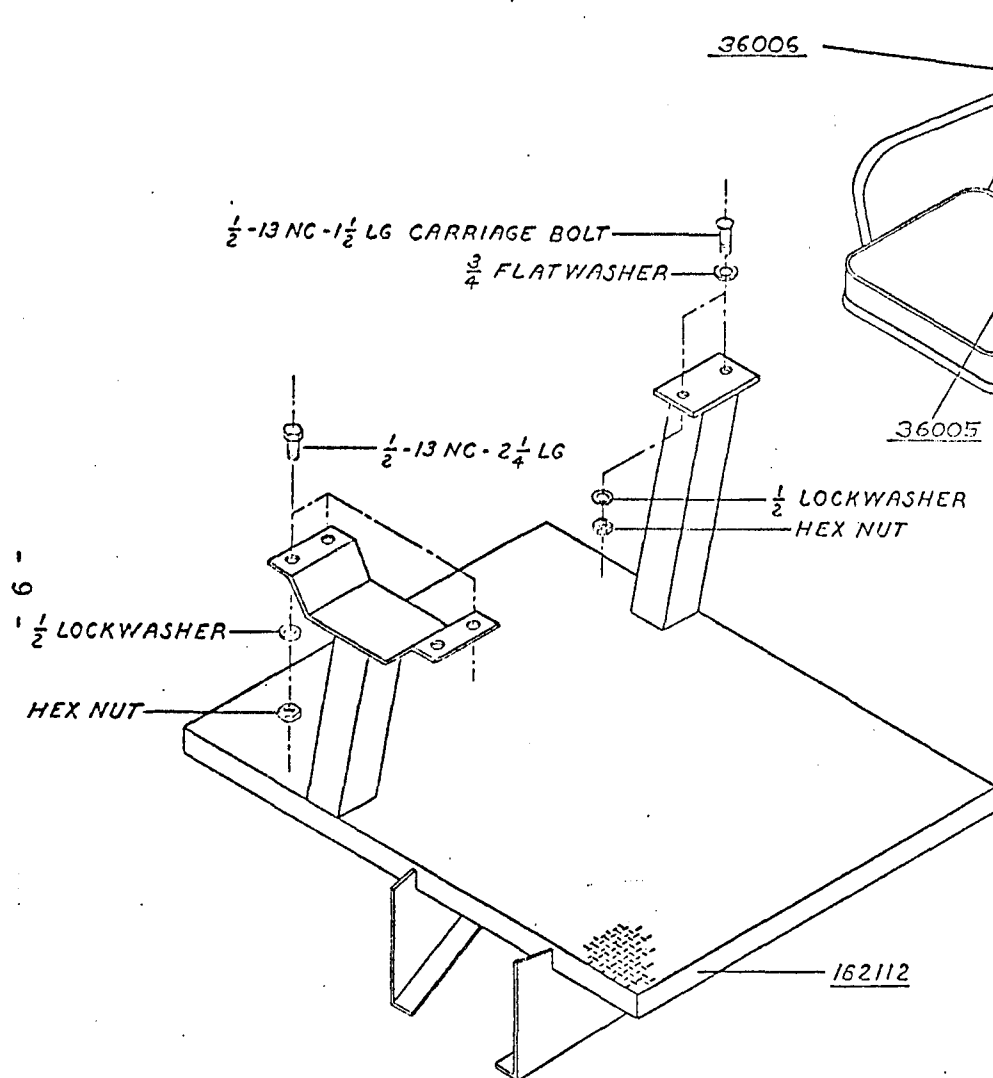


FIGURE I-6

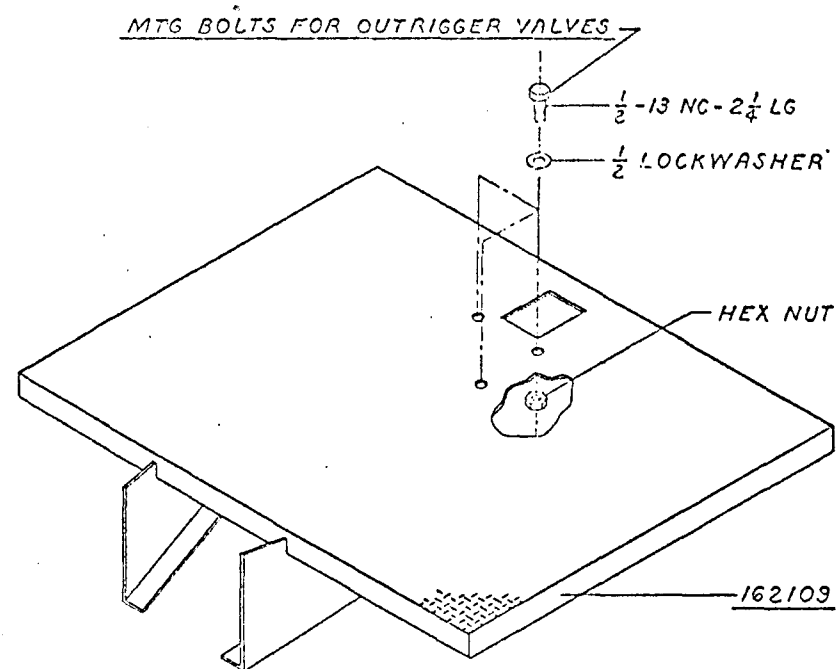
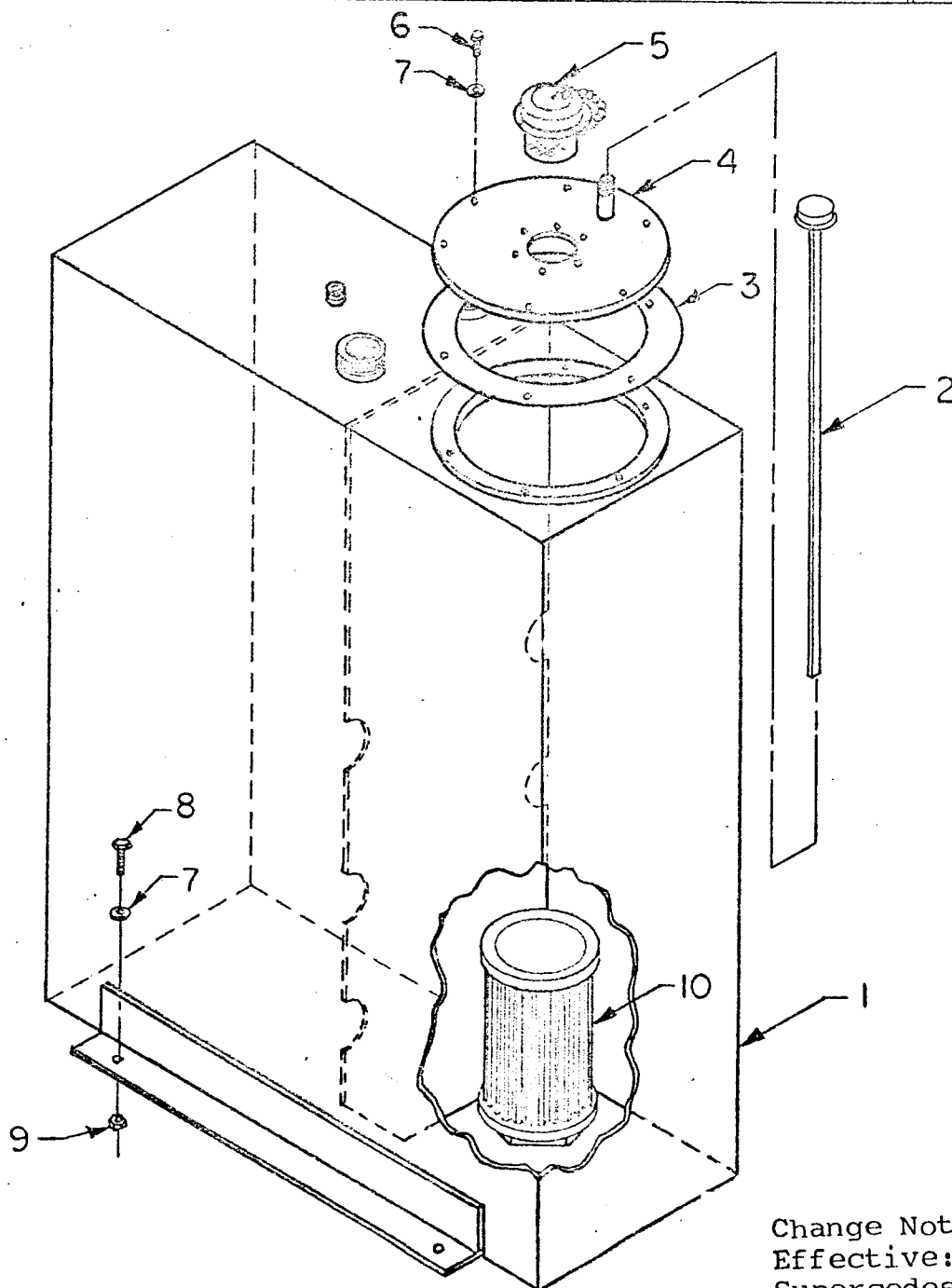


FIGURE I-7

SECONDARY PLATFORM
(USED ON REAR MOUNT APPLICATIONS)

MODEL 40-60-80
35 GALLON RESERVOIR
PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NO
1	1	RESERVOIR, complete.....	643130
2	1	DIPSTICK.....	641106
3	1	SEAL, gasket.....	651302
4	1	COVER, access.....	641241
5	1	FILLER, strainer.....	39500
6	6	CAPSCREW, 3/8" - 16 UNC x 5/8".....	10052
7	10	LOCKWASHER, 3/8".....	14011
8	4	BOLT, 3/8" UNC x 1 1/4".....	10055
9	2	NUT, hex 3/8".....	13008
10	1	STRAINER.....	59100



Change Notice No. 1
Effective: 5/21/76
Supersedes page dated: 1/1/76

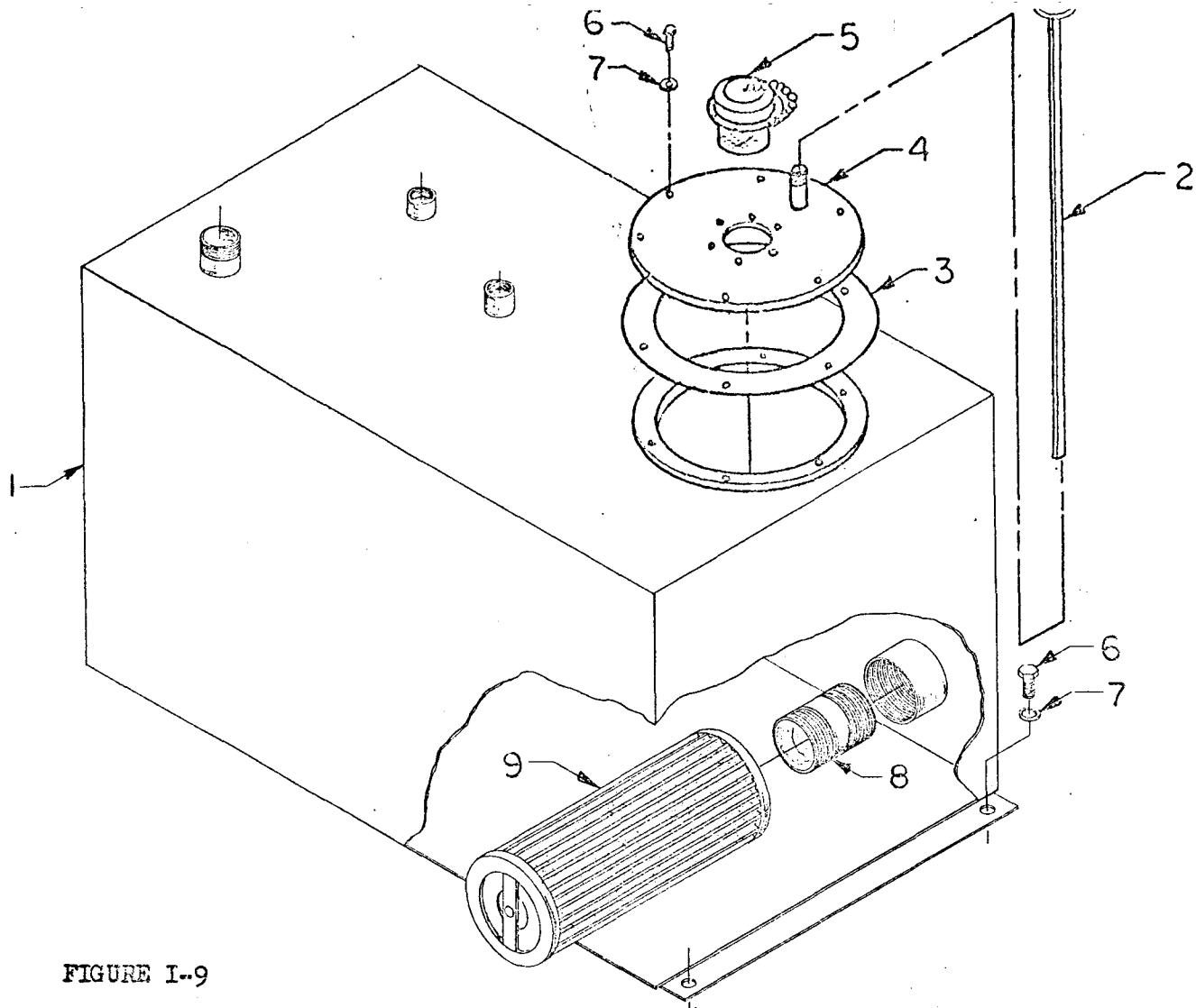


FIGURE I-9

HYDRAULIC RESERVOIR

42 GALLON

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NO.
1	1	RESERVOIR, assembly.....	642107
2	1	DIPSTICK.....	641101
3	1	GASKET.....	651302
4	1	COVER, access.....	641243
5	1	CAP, filler.....	39500
6	6	BOLT, 3/8" - UNC x $\frac{3}{4}$ lg.....	10052
7	10	LOCKWASHER, 3/8".....	14011
(1) 8	1	NIPPLE, 2½" NPT x 3" long.....	19848
9	1	STRAINER.....	65019

(1) On all new tanks item #9 is deleted.

Change Notice No. 1
Effective: 5/21/76
Supercedes page dated: 1/1/75

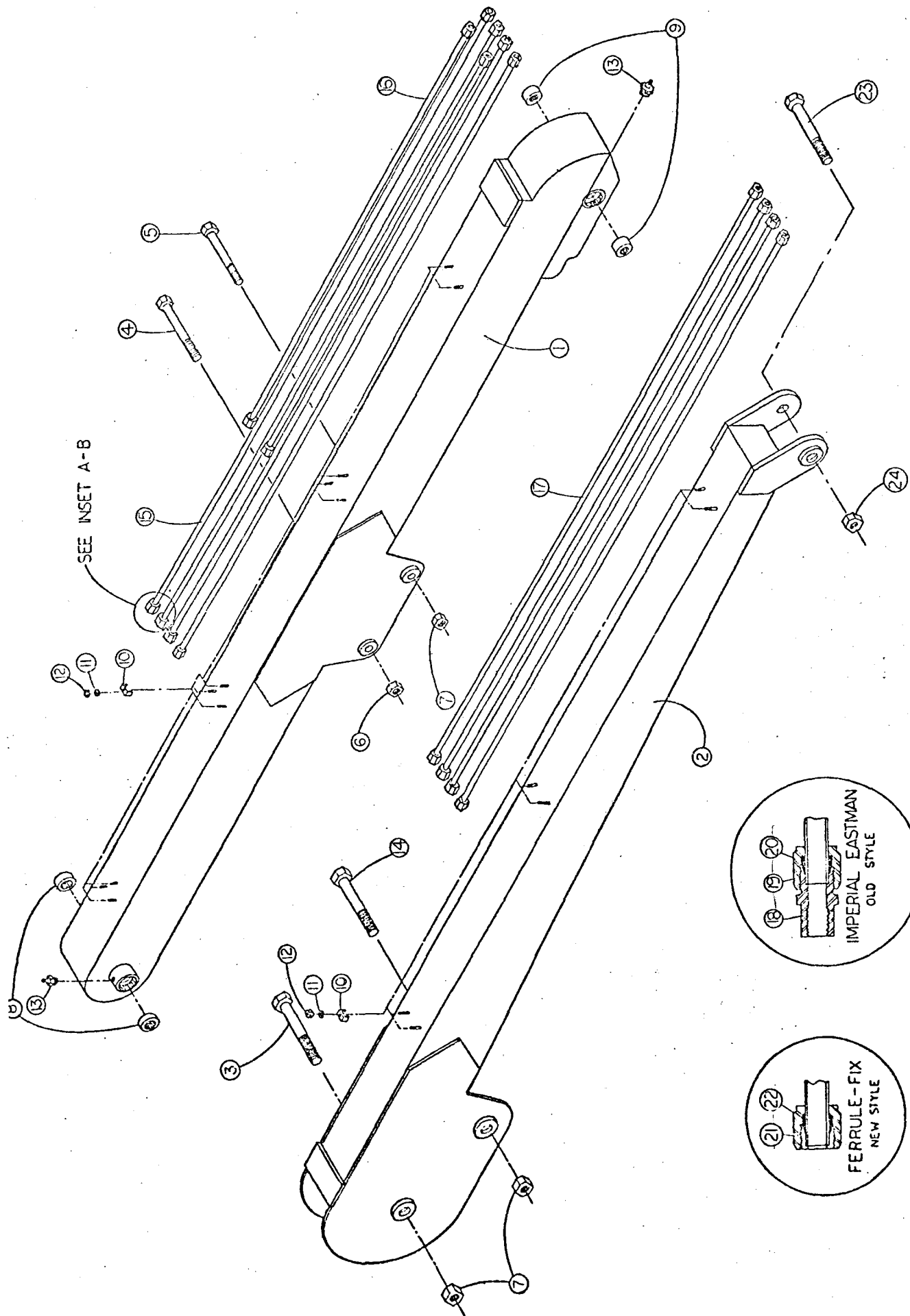


FIG. I -10

Effective: 1/1/75

**MAIN BOOM & SECONDARY BOOM
MODELS 40-60-80**

PARTS LIST

ITEM NO.	QTY.	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
1	1	MAIN BOOM, weldment	103202	103203	103207
2	1	SECONDARY BOOM, weldment	113206	113208	113211
3	1	BOLT, body-fit	482262	482321	482248
4	1	BOLT, body-fit	482201	482294	482294
5	1	BOLT, body-fit	482201	482201	482294
6	4	NUT, hex, nylock	13413	13417	13417
7	4	Nut, hex, nylock	13413	13417	13417
8	2	BEARING, tapered roller	41015	41034	41034
		cone	41714	41718	41718
		cup	41715	41719	41719
9	2	BEARING, tapered roller	41015	41034	41034
		cone	41714	41718	41718
		cup	41715	41719	41719
10	17	CLAMP, pipe	491000	491000	491000
11	17	WASHER, 3/8 lock	14011	14011	14011
12	17	NUT, 3/8-16 UNC hex	13008	13008	13008
13	2	GREASE FITTING, straight	17300	17300	17300
14	1	BOLT, body-fit	482201	482293	482294
15	4	TUBING, hydraulic			
		5/8" x 86"	93482	-	-
		5/8" x 96"	-	93448	-
		5/8" x 106"	-	-	93484
16	2	TUBING, hydraulic			
		5/8" x 50"	93431	-	-
		5/8" x 64"	-	93438	-
		5/8" x 74"	-	-	93485
17	4	TUBING, hydraulic			
		5/8" x 62"	93437	-	-
		5/8" x 74"	-	93485	-
		5/8" x 86"	-	-	93482
INSET (B)	20	FITTING, female connector (3/4 tube to 1/2 hose)	66741	66741	66741
INSET (A)	20	NUT, ferrule, (2 per tube)	66332	66332	66332
INSET (A)	20	RING ferrule, (2 per tube)	66324	66324	66324
23	1	BOLT, body-fit	482201	482201	482201
24	1	NUT, hex, nylock	13413	13413	13413
		Boom extensions available:			
1	1	MAIN BOOM, weldment (1' extension)	103210	103211	103213
	1	MAIN BOOM, weldment (2' extension)	-	103212	103214
2	1	SECONDARY BOOM, weldment (1' extension)	113207	113209	113212
	1	SECONDARY BOOM, weldment (2' extension)	-	113210	113213

The following list of items applies to the old
style Boom & Secondary Boom Assemblies (4 1/2" wide):

ITEM NO.	QTY.	DESCRIPTION	MODEL 40	MODEL 60	MODEL 80
3	1	BOLT, body-fit	482201	482201	482201
4	1	BOLT, body-fit	482203	482203	482203
5	1	BOLT, body-fit	482203	482203	482203
6	1	NUT, hex, nylock	13413	13413	13413
7	3	NUT, hex, nylock	13413	13413	13413
23	1	BOLT, body-fit	482207	482207	482207
24	1	NUT, hex, nylock	13413	13413	13413

INSET B

NOTE #1 - Used in conjunction with those
loaders using 3/4" Hydraulic Boom Tubing
(2 per tube)

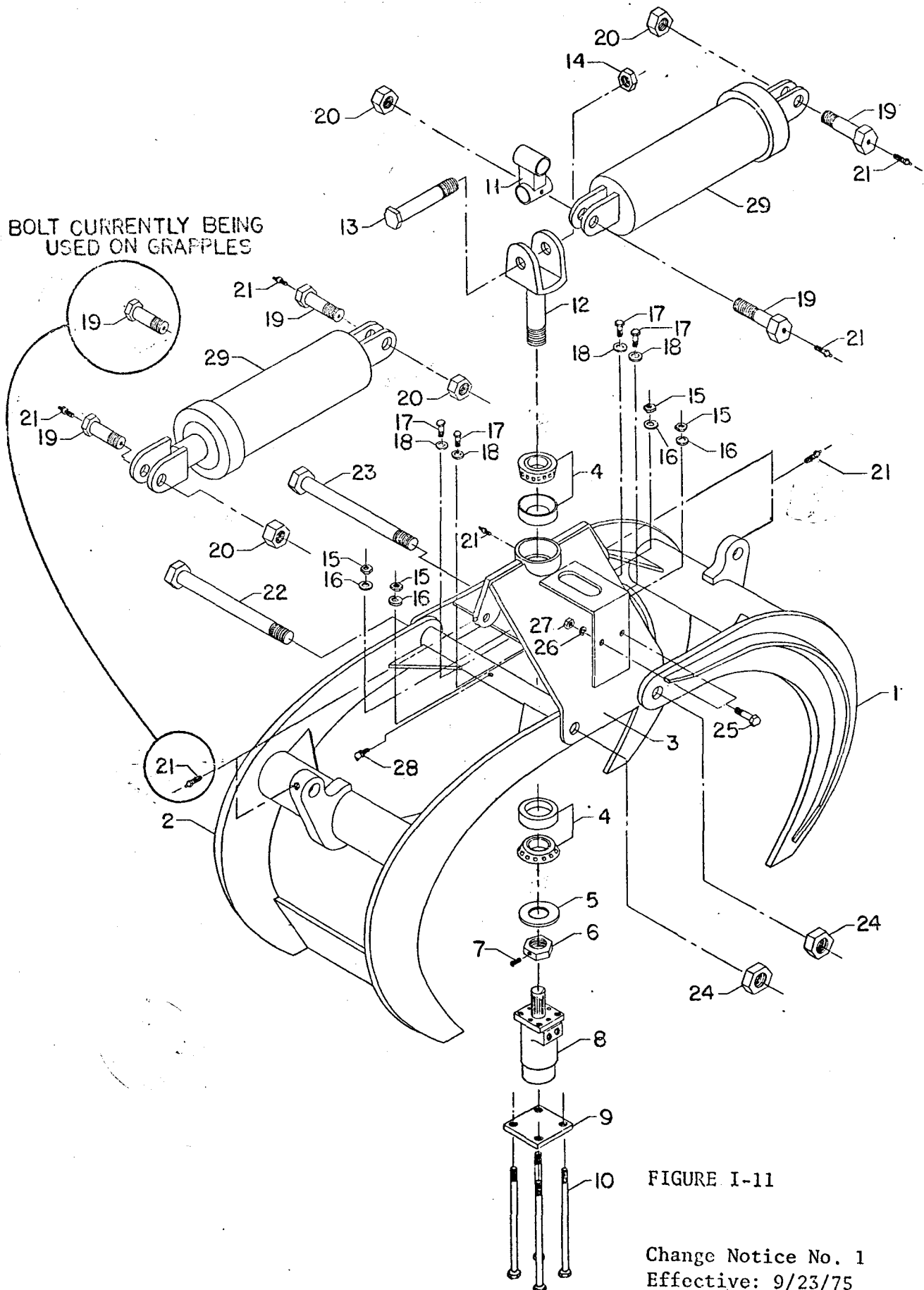
INSET A

Current production loaders with
5/8" hydraulic tubing.

Change Notice No. 3
Effective: 7/6 /76
Supersedes page dated:

5/21/76

LOG AND PULP GRAPPLE (BYPASS)
 TYPES: 1/5, 1/4, 1/3, 1/2 CORD



LOG & PULP GRAPPLE (BYPASS)
TYPES: 1/5, 1/4, 1/3, 1/2 CORD
PARTS LIST

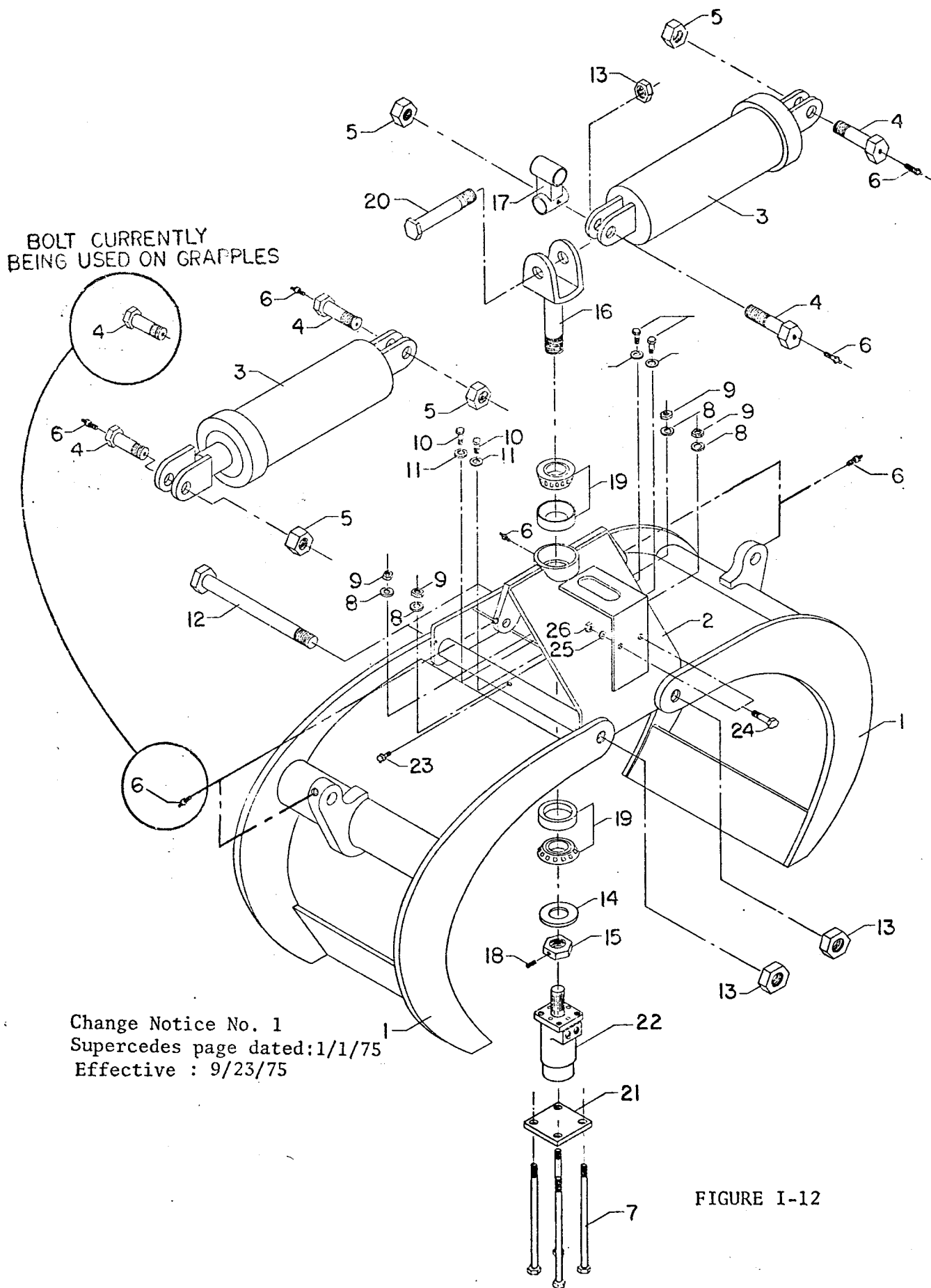
ITEM NO	QTY	DESCRIPTION	1/5 CORD	1/4 CORD	1/3 CORD	1/2 CORD
-	-	GRAPPLE, assembly.....	154001	154002	154003	154004
1	1	OUTER ARM, weldment.....	153136	151147	153132	153130
2	1	INNER ARM, weldment.....	153135	151146	153131	153129
3	1	HEAD, weldment.....	153113	153113	153113	153113
4	2	BEARING, tapered roller.....	41034	41034	41034	41034
		cone.....	41718	41718	41718	41718
		cup.....	41719	41719	41719	41719
5	1	FLATWASHER.....	14096	14096	14096	14096
6	1	NUT, hex.....	481711	481711	481711	481711
7	1	SET SCREW, 3/8-16 lg socket hd.....	12620	12620	12620	12620
8	1	MOTOR.....	60000	60000	60000	60000
		For breakdown on motor see page 38, Fig. II-13				
9	1	PLATE, back-up.....	151502	151502	151502	151502
10	4	BOLT, 1/2-13 UNC x 8".....	10721	10721	10721	10721
11	1	HANGER, weldment.....	152118	152118	152118	152118
	4	BUSHING, bronze.....	42020	42020	42020	42020
	2	FITTING, straight grease.....	17300	17300	17300	17300
12	1	YOKE, weldment.....	151141	151141	151141	151141
13	1	BOLT, body fit, 1-1/2" x 7 long....	482204	482204	482204	482204
14	1	NUT, 1-1/2" nylon lock.....	13413	13413	13413	13413
15	4	NUT, 1/2-13 UNC hex.....	13010	13010	13010	13010
16	4	LOCKWASHER, 1/2".....	14013	14013	14013	14013
17	4	BOLTS-3/8-16 UNC x 1" long.....	10654	10654	10654	10654
18	4	LOCKWASHER, 3/8".....	14011	14011	14011	14011
(i) 19	4	BOLT, body fit, 1" x 3-1/2" long...	481130	481130	481130	481130
20	2	NUT, 1" nylon lock.....	13409	13409	13409	13409
(i) 21	5	FITTING, straight grease.....	17300	17300	17300	17300
22	1	BOLT, body fit, 1-1/2" x 19-1/2" long.	482250	482250	482250	482250
23	1	BOLT, body fit, 1-1/2 x 21" long....	482314	482314	482314	482314
24	2	NUT, 1-1/2" nylon lock.....	13413	13413	13413	13413
25	2	BOLT, 5/16-18 UNC 2-1/4" long.....	10636	10636	10636	10636
26	2	LOCKWASHER, 5/16.....	14010	14010	14010	14010
27	2	NUT, 5/16 hex.....	13007	13007	13007	13007
28	2	FITTING, 90° grease.....	17304	17304	17304	17304
29	2	CYLINDER, 3-1/2" x 8".....	812001	-	-	-
	2	CYLINDER, 3-1/2" x 10".....	-	812002	812002	812002
		For breakdown on cylinder see page 28, Fig. II-7				

(1) The following items are bolts currently being used on grapples

19	4	BOLT, 1" x 3-1/2".....	14426
21	4	FITTING, straight grease.....	17300

Change Notice No. 2
Effective: 5/21/76
Supersedes page dated: 9/23/75

LOG AND PULP GRAPPLE (BUTT)
TYPE: 1/5, 1/4, 1/3, 1/2 CORD



LOG AND PULP GRAPPLE (BUTT)

TYPE: 1/5, 1/4, 1/3, 1/2 CORD

PARTS LIST

ITEM NO	QTY	DESCRIPTION	1/5 CORD	1/4 CORD	1/3 CORD	1/2 CORD
-	-	GRAPPLE, assembly.....	154019	154020	154021	154022
1	2	ARM, weldment.....	153118	153117	153116	153115
2	1	HEAD, weldment.....	152106	152106	152106	152106
3	2	CYLINDER, 3-1/2" x 8".....	812001	-	-	-
	2	CYLINDER, 3-1/2" x 10".....	-	812002	812002	812002
		For breakdown on cylinder see page 28, Fig. II-7				
(1) 4	4	BOLT, 1" x 3-1/2" long.....	481130	481130	481130	481130
5	2	NUTS, 1" nylock.....	13409	13409	13409	13409
(1) 6	2	FITTING, straight grease.....	17300	17300	17300	17300
7	4	BOLT, 1/2"-13 UNC x 8" long....	10721	10721	10721	10721
8	4	LOCKWASHER, 1/2".....	14013	14013	14013	14013
9	4	NUT, hex, 1/2".....	13010	13010	13010	13010
10	4	BOLT, 3/8"-16 UNC x 1" long.....	10654	10654	10654	10654
11	4	LOCKWASHER, 3/8".....	14011	14011	14011	14011
12	2	BOLT, 1-1/2" x 21" long.....	482314	482314	482314	482314
13	2	NUT, 1-1/2" nylon lock.....	13413	13413	13413	13413
14	1	FLATWASHER, 2".....	14096	14096	14096	14096
15	1	NUT, 2" hex.....	481711	481711	481711	481711
16	1	YOKE, weldment.....	511141	151141	151141	151141
17	1	HANGER, weldment.....	152118	152118	152118	152118
	4	BUSHINGS, bronze.....	42020	42020	42020	42020
	2	FITTINGS, straight grease.....	17300	17300	17300	17300
18	1	CAP SCREW, 3/8"-16 UNC x 3/4" long socket...	12620	12620	12620	12620
19	2	BEARING, taper roller.....	41034	41034	41034	41034
		cone.....	41718	41718	41718	41718
		cup.....	41719	41719	41719	41719
20	1	BOLT, 1-1/2"-12 UNC x 7" long..	482204	482204	482204	482204
21	1	PLATE, back-up.....	151502	151502	151502	151502
22	1	MOTOR.....	60000	60000	60000	60000
		For breakdown on motor see page 38, Fig. II-13				
23	2	FITTING, 90° grease.....	173014	173014	173014	173014
24	2	BOLT, 5/16"-18 UNC x 2-1/4" lg.	10636	10636	10636	10636
25	2	LOCKWASHER, 5/16".....	14010	14010	14010	14010
26	2	NUT, 5/16" hex.....	13007	13007	13007	13007

(1) The following items are bolts currently being used on grapples.

4	4	BOLT, 1" x 3-1/2" long.....	14426
6	4	FITTING, straight grease.....	17300

Change Notice No. 2
Effective: 5/21/76
Supercedes page dated: 9/23/75

LOG GRAPPLE (BYPASS)
TYPES: 25", 33", 42"

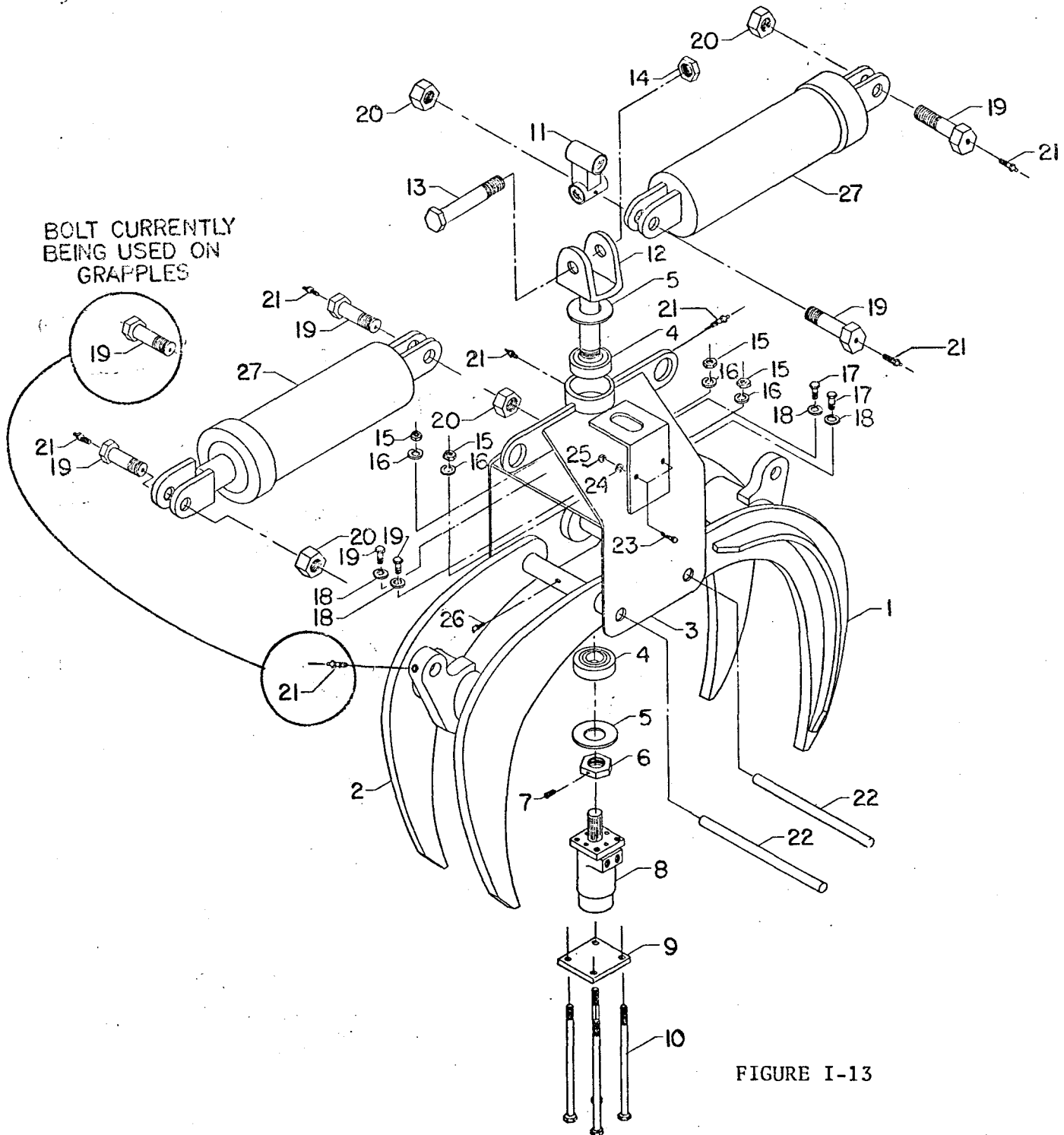


FIGURE I-13

LOG GRAPPLE (BYPASS)

TYPES: 25" , 33" , 42"

PARTS LIST

ITEM NO	QTY	DESCRIPTION	25"	33"	42"
-	-	GRAPPLE, assembly.....	153007	154013	154014
1	1	OUTER ARM, weldment.....	152127	152151	152157
2	1	INNER ARM, weldment.....	152161	152152	152156
3	1	HEAD, weldment.....	153114	153114	153114
4	2	BEARING, tapered roller.....	41034	41034	41034
		cone.....	41718	41718	41718
		cup.....	41719	41719	41719
5	2	FLATWASHER.....	14096	14096	14096
6	1	NUT, hex.....	481711	481711	481711
7	1	SET SCREW, 3/8-16" UNC x 3/4" sp. hd.....	12002	12002	12002
8	1	MOTOR.....	60000	60000	60000
		For breakdown on motor see page 38, Fig. II-13			
9	1	PLATE, back-up.....	151502	151502	151502
10	4	BOLT, 1/2-13 UNC - 8" Hex hd.....	10721	10721	10721
11	1	HANGER, weldment.....	152118	152118	152118
	4	BUSHING, bronze.....	42020	42020	42020
	2	FITTINGS, grease.....	17300	17300	17300
12	1	YOKE, weldment.....	151141	151141	151141
13	1	BOLT, body fit, 1-1/2" NF-7-1/2" long...	482204	482204	482204
14	1	NUT, hex (nylock) 1-1/2".....	13413	13413	13413
15	4	NUT, 1/2-13" UNC hex.....	13010	13010	13010
16	4	LOCKWASHER, 1/2".....	14013	14013	14013
17	4	BOLT, 3/8-16" UNC - 1" hex hd.....	10654	10654	10654
18	4	LOCKWASHER, 3/8.....	14011	14011	14011
19	4	BOLT, body fit, 1" x 3-1/2" NC, gr.8....	481130	481130	481130
20	4	NUT, 1"-8 UNC hex (nylock).....	13409	13409	13409
(1) 21	5	GREASE FITTING, 1/8" straight.....	17300	17300	17300
22	2	PIN, grapple arm, 1-15/16" x 13-1/8" lg.	151503	151503	151503
23	2	BOLT, 5/16-18" UNC-2-1/2" hex hd.....	10636	10636	10636
24	2	LOCKWASHER, 5/16".....	14010	14010	14010
25	2	NUT, 5/16-18" UNC - 2-1/2" hex hd.....	13007	13007	13007
26	2	FITTING, 90° grease.....	17304	17304	17304
27	2	CYLINDER, 3-1/2" x 8".....	812001	-	-
	2	CYLINDER, 3-1/2" x 10".....	-	812002	812002
		For breakdown on cylinder see page 28 Fig. II-7			
28	2	BUSHING, steel.....	42005	42005	42005

(1) The following items are bolts currently being used on grapples.

19	4	BOLT, 1" x 3-1/2".....	14426	14426	14426
21	4	FITTING, straight grease.....	17300	17300	17300

Change Notice No. 2

Effective: 5/21/76

Supersedes page dated: 9/23/75

SECTION II
MODELS 40 - 60 - 80
HYDRAULIC COMPONENTS

DESCRIPTION	PAGE NUMBER(S)
MAIN BOOM CYLINDER.....	22, 23
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VALVE SECTION (SWING).....	42
VALVE SECTION (GRAPPLE OPEN/CLOSE).....	43
VALVE SECTION (MAIN LIFT).....	44
VALVE SECTION (MID-INLET).....	45
VALVE SECTION (JIB or SECONDARY).....	46
VALVE SECTION (GRAPPLE ROTATE).....	47
VALVE BANK ARRANGEMENT (STABILIZERS).....	48
VALVE SECTION (RIGHT STABILIZER).....	49
VALVE SECTION (LEFT STABILIZER).....	50
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HANDLE, BRACKET, RETAINER ASSY.FOR VALVES..	52
CUSHION VALVE (GRAPPLE).....	53
RELIEF VALVE.....	54
FILTER.....	55
SUCTION,PRESSURE,RETURN LINE CIRCUIT, (SINGLE PUMP).....	56, 57
SUCTION,PRESSURE,RETURN LINE CIRCUIT, (TANDEM PUMP).....	58, 59
GEAR & RACK CIRCUIT (MID-MOUNT).....	60
GEAR & RACK CIRCUIT (REAR-MOUNT).....	61
GRAPPLE OPEN/CLOSE CIRCUIT.....	62, 63
MAIN LIFT CIRCUIT.....	64
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GRAPPLE ROTATE CIRCUIT.....	66, 67
STABILIZER CIRCUIT (MID-MOUNT FOLD-A-WAY)..	68
STABILIZER CIRCUIT (MID-MOUNT TELESCOPIC)..	69
STABILIZER CIRCUIT (REAR MOUNT).....	70
GENERAL SCHEMATICS (SINGLE PUMP).....	71
GENERAL SCHEMATICS (TANDEM PUMP).....	72

MODEL 40 MAIN BOOM CYLINDER

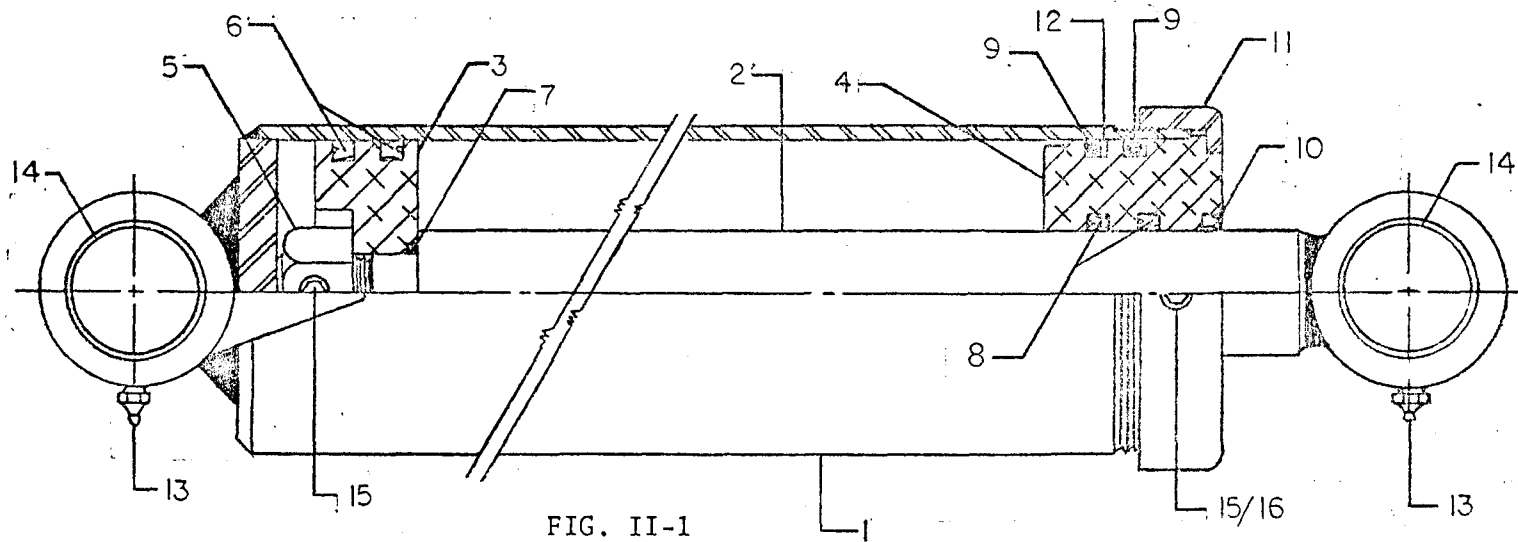


FIG. II-1

MODEL 60-80 MAIN BOOM CYLINDER

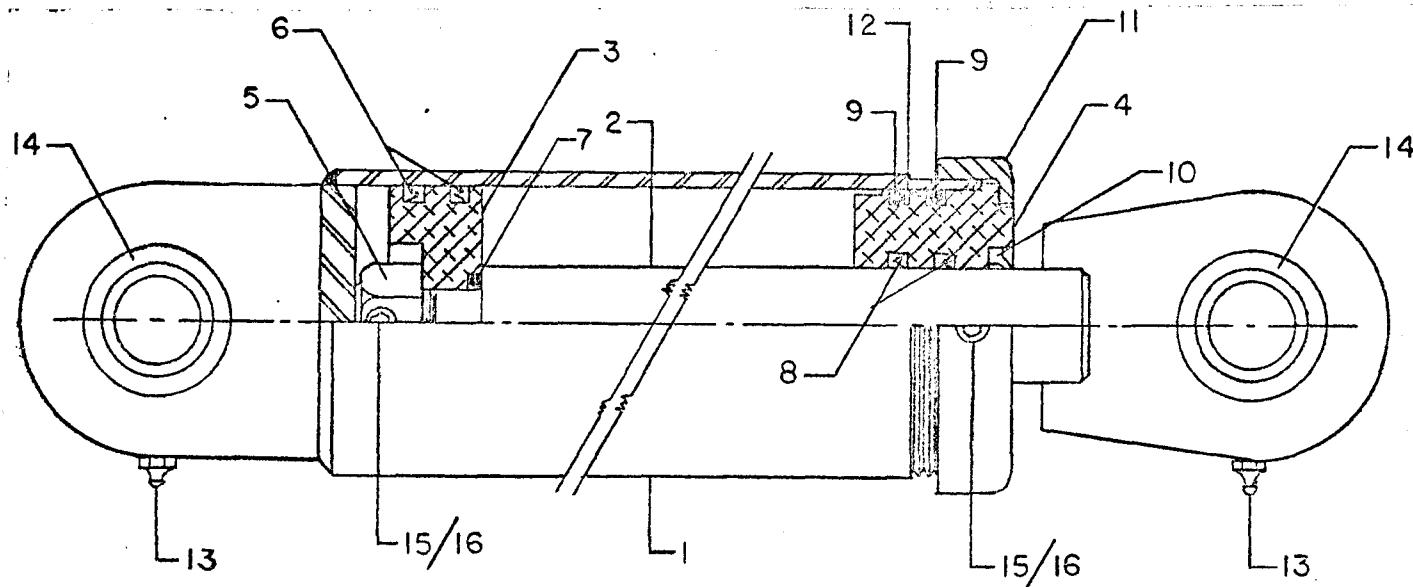


FIG. II-2

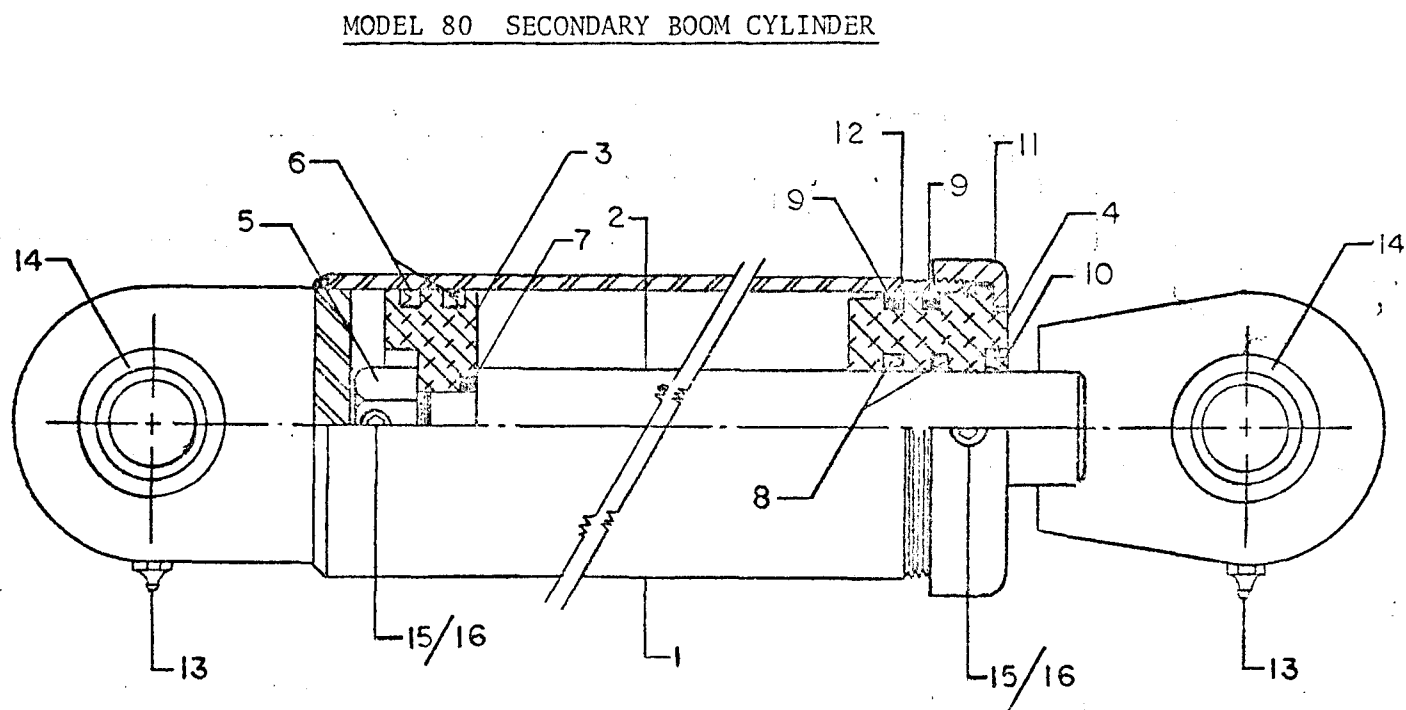
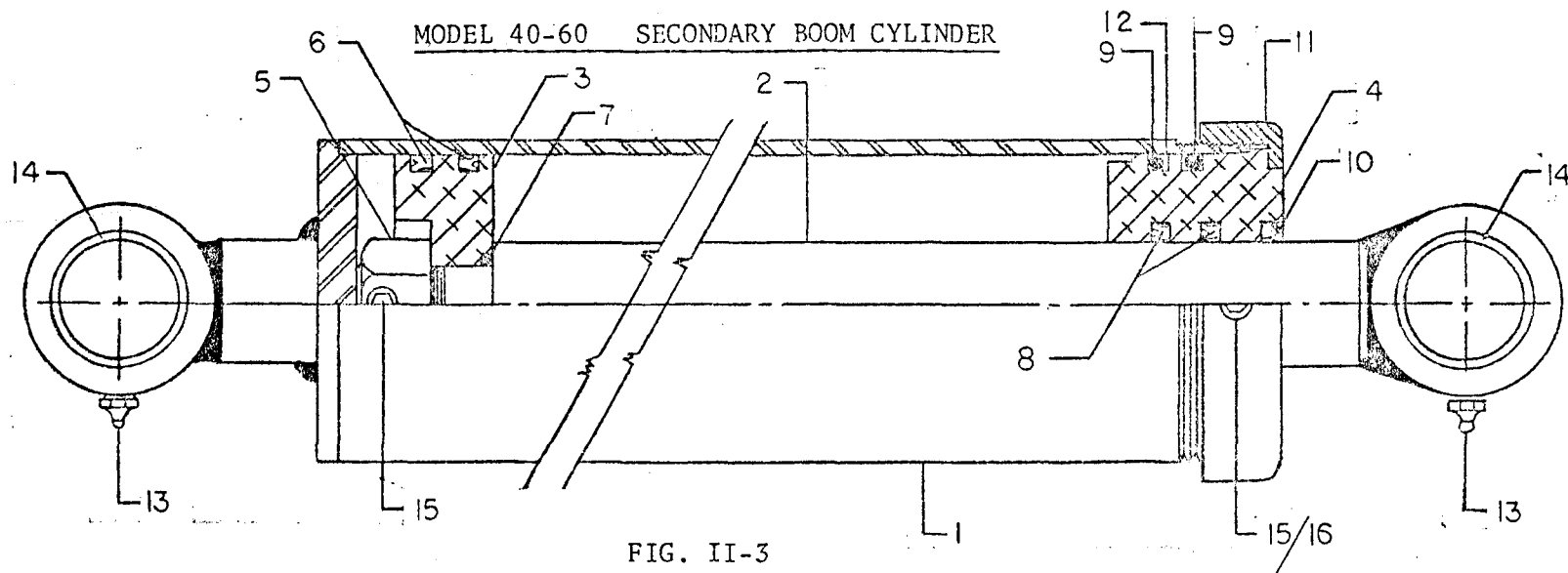
MODEL 40-60-80
MAIN BOOM CYLINDER
PARTS LIST

ITEM NO	QTY	DESCRIPTION	40 (5x24)	60 (6x24)	80 (6x36)
-	1	CYLINDER, assembly.....	812406 (672173)	812421 (672166)	812414 (672165)
1	1	BUTT & TUBE, weldment.....	832015 (672915)	832033 (672975)	832023 (672974)
2	1	ROD, weldment(2½" dia. rod).....	842012 (-)	842015 (671375)	842018 (671370)
3	1	PISTON (1½" dia. stub).....	852002 (682338)	852003 (682329)	852003 (682329)
4	1	GLAND.....	852303 (682334)	852304 (682325)	852304 (682325)
5	1	NUT, hex.....	13019	13019	13019
(1)(3)	6	SEAL, piston.....	(55032)	(55044)	(55044)
(1)(3)	7	O-RING.....	(65318)	(65318)	(65318)
(2)(3)	8	SEAL, rod.....	(55288)	(55288)	(55288)
(2)(3)	9	O-RING.....	(65347)	(65355)	(65355)
(2)(3)	10	SEAL, wiper.....	(56902)	(56902)	(56902)
11	1	CAP, gland.....	852801 (682252)	852802 (682250)	852802 (682250)
(2)(3)	12	WASHER, back-up.....	(65647)	(65655)	(65655)
13	2	FITTING, grease.....	17300	17300	17300
14	2	BUSHING, bronze.....	42020	-	-
	2	BUSHING, ball.....	-	41515	41515
15	2	SCREW, set.....	12616	12616	12616
(3)	16	PLUG, teflon.....	(50000)	(50000)	(50000)

NOTE: Numbers in brackets () indicate superceded part numbers.

(1)	Piston Seal Kit.....	65484	65489	65489
(2)	Gland Seal Kit.....	65488	65490	65490
(3)	Seal Kit.....	65586	65524	65524

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MODEL 40-60-80

SECONDARY BOOM CYLINDER

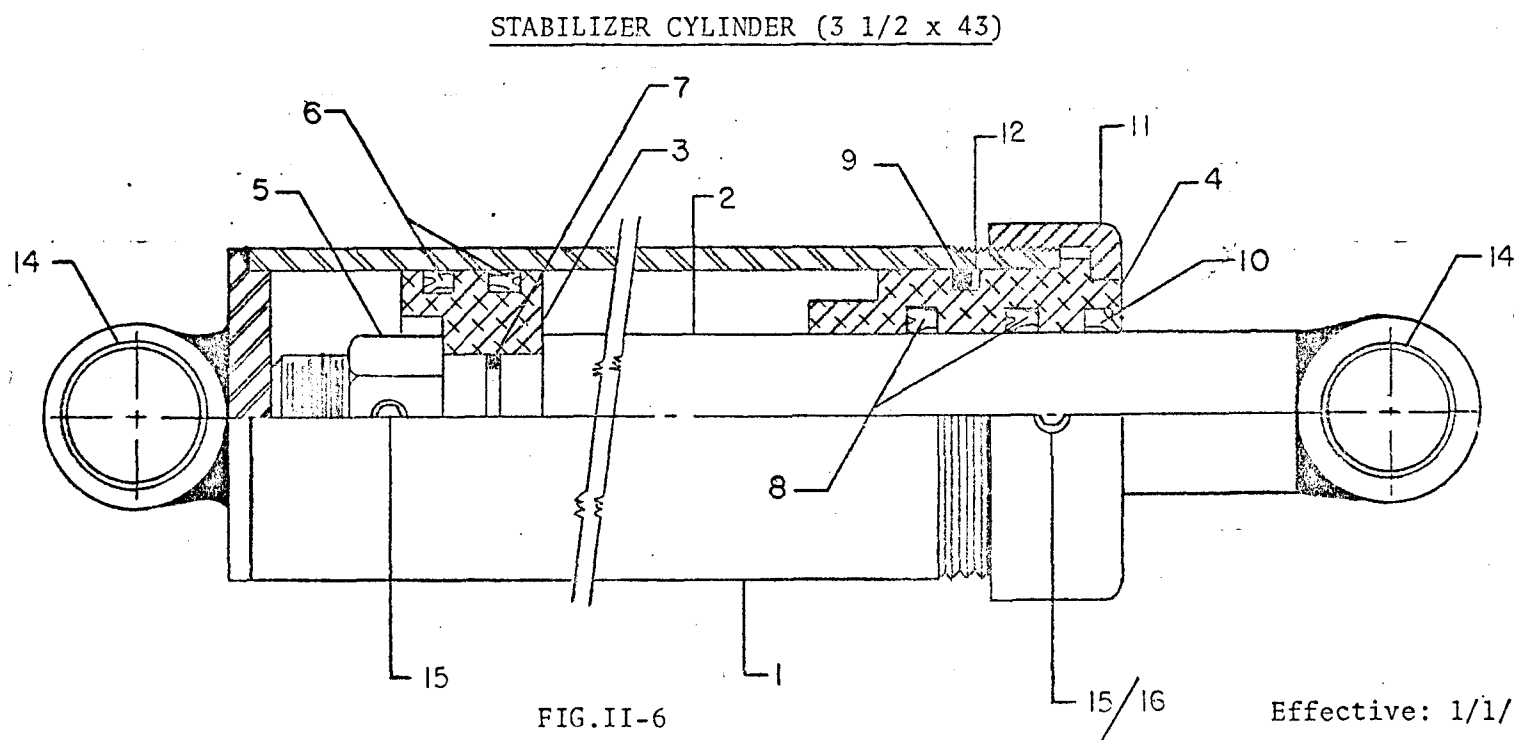
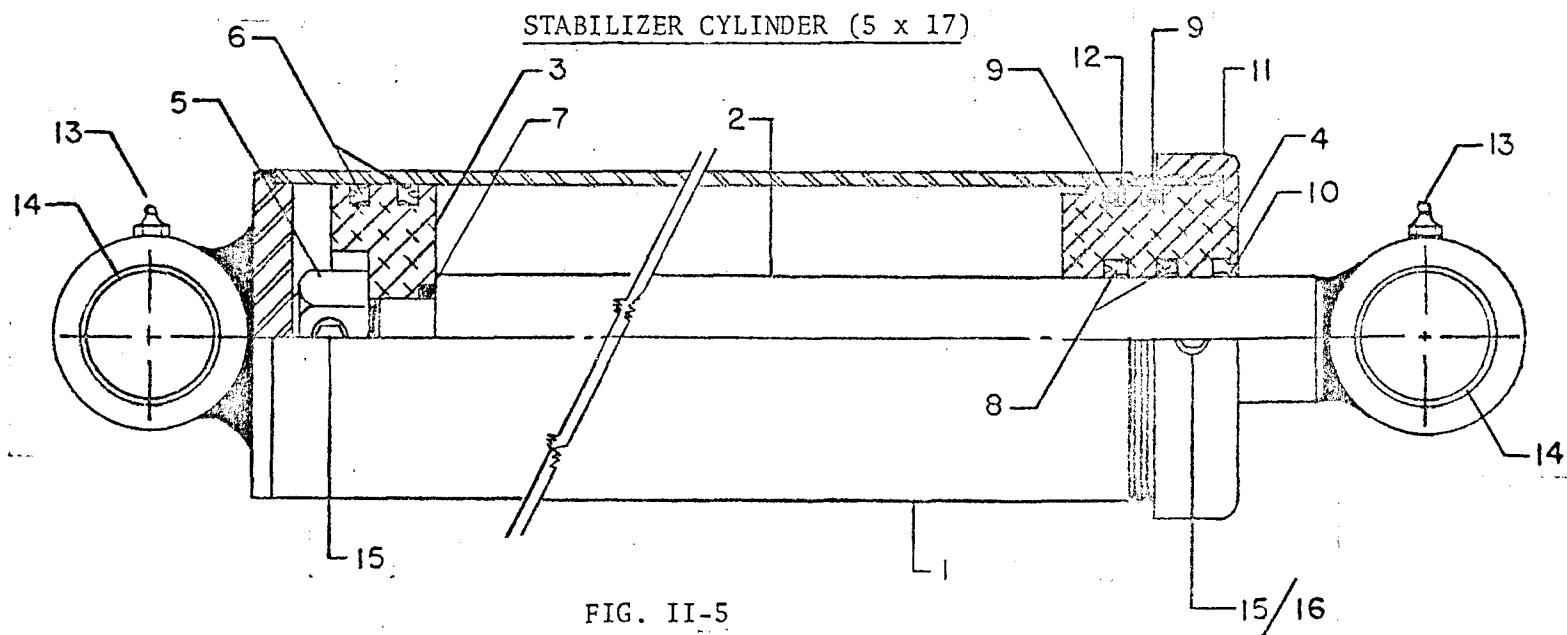
PARTS LIST

ITEM NO.	QTY	DESCRIPTION	40 (5 x 24)	60 (5 x 24)	80 (6 x 24)
-	1	CYLINDER, assembly.....	812407 (672172)	812407 (672172)	812421 (672166)
1	1	BUTT & TUBE, weldment.....	832016 (671367)	832016 (671367)	832033 (672975)
2	1	ROD, weldment (2½" dia rod).....	842012 (-)	842012 (-)	842015 (671375)
3	1	PISTON (1½" dia stub).....	852002 (682338)	852002 (682338)	852003 (682329)
4	1	GLAND.....	852303 (682334)	852303 (682334)	852304 (682325)
5	1	NUT, hex.....	13019	13019	13019
(1)(3)6	2	SEAL, piston.....	(55032)	(55032)	(55044)
(1)(3)7	1	O-RING.....	(65318)	(65318)	(65318)
(2)(3)8	2	SEAL, rod.....	(55288)	(55288)	(55288)
(2)(3)9	2	O-RING.....	(65347)	(65347)	(65355)
(2)(3)10	1	SEAL, wiper.....	(56902)	(56902)	(56902)
11		CAP, gland.....	852801 (682252)	852801 (682252)	852802 (682250)
(2)(3)12	2	WASHER, back-up.....	(65647)	(65647)	(65655)
13	2	FITTING, grease.....	17300	17300	17300
14	4	BUSHING, bronze.....	42020	42020	-
	2	BUSHING, ball.....	-	-	41515
15	2	SCREW, set.....	12616	12616	12616
(3)16	1	PLUG, teflon.....	(50000)	(50000)	(50000)

NOTE: Numbers in brackets () indicate superceded part numbers.

(1)	Piston Seal Kit.....	65484	65484	65489
(2)	Gland Seal Kit.....	65488	65488	65490
(3)	Seal Kit.....	65586	65586	65524

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Effective: 1/1/75

MODEL 40-60-80
STABILIZER CYLINDER
PARTS LIST

ITEM NO.		QTY.	DESCRIPTION	3½ x 43 (2" ROD)		5 x 17 (2½" ROD)	
(1) (3)	-	1	CYLINDER, right.....	812004	(672002)	812405	(672169)
		1	CYLINDER, left.....	812010	(672002)	812418	(672169)
		1	CYLINDER, mid-mount.....	-		812404	(672149)
	1	1	BUTT & TUBE, weldment, right.....	832004	(672950)	832014	(672995)
		1	BUTT & TUBE, weldment, left.....	832028	(672950)	832030	(672995)
		1	BUTT & TUBE, weldment, mid-mount.....	-		832013	
	2	1	ROD, weldment, mid-mount.....	842002	(671346)	842010	
		1	ROD, weldment, rear-mount.....	-		842011	(671371)
	3	1	PISTON.....	852000	(682303)	852002	(682338)
	4	1	GLAND.....	852301		852303	(682334)
	5	1	NUT, hex.....	13019		13019	
	6	2	SEAL, piston.....		(55171)		(55032)
	7	1	O-RING.....		(65314)		(65318)
	8	2	SEAL, rod.....		(55275)		(55288)
	9	2	O-RING.....		(65333)		(-)
		2	O-RING.....	-			(65347)
(2) (3)	10	2	SEAL, wiper.....		(56900)		(56902)
	11	1	CAP, gland.....	852800	(682254)	852801	(682252)
(2) (3)	12	2	WASHER, back-up.....		(65633)		(65647)
	13	2	FITTING, grease.....	-		17300	
	14	4	BUSHING, mid-mount.....	42020		42020	
			BUSHING, rear-mount.....	-		42032	
	15	2	SCREW, set.....	12616		12616	
(3)	16	1	PLUG, teflon.....		(50000)		(50000)

NOTE: Numbers in brackets () indicate superceded part number.

(1)	Piston Seal Kit.....	65482	65484
(2)	Gland Seal Kit.....	65483	65488
(3)	Seal Kit.....	65533	65586

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GRAPPLE CYLINDER

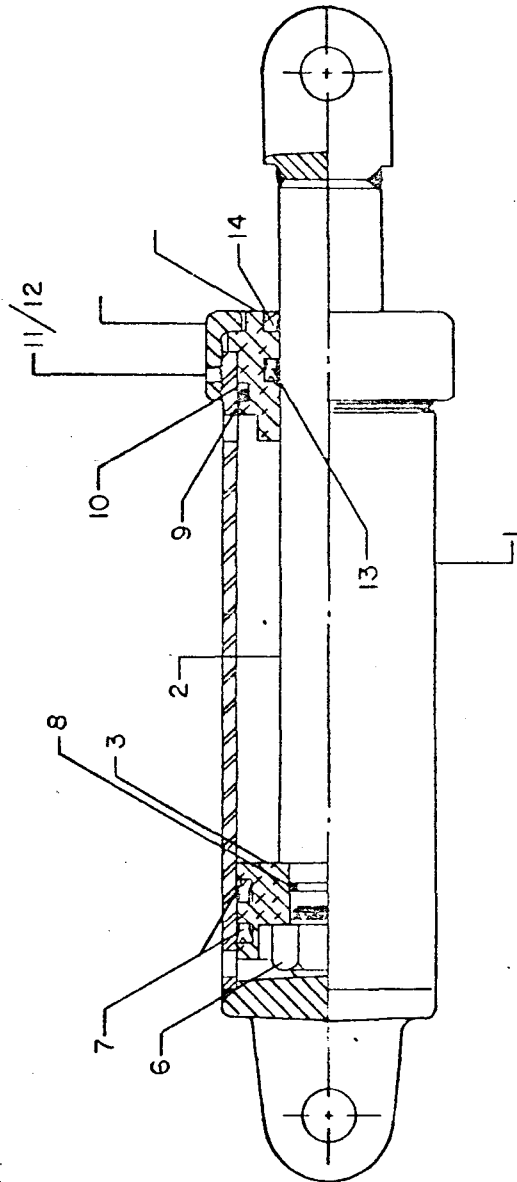


FIGURE II-7

Effective: 1/1/75

MODEL 40-60-80
GRAPPLE CYLINDER

PARTS LIST

ITEM NO.		QTY.	DESCRIPTION	3 1/2 x 8		3 1/2 x 10	
	-	1	CYLINDER, assembly.....	812001	(672003	812002	(672004)
	1	1	BUTT & TUBE, weldment.....	832001	(672951)	832002	(672952)
	2	1	ROD, weldment (2" dia. rod)	842001	(671347)	842001	(671347)
	3	1	PISTON (1½" dia. stub).....	852000	(682303)	852000	(682303)
	4	1	GLAND.....	852300	(682322)	852300	(682322)
	5	1	CAP, gland.....	852800	(682254)	852800	(682254)
	6	1	NUT, jam, nylon lock.....	481709		481709	
(1) (3)	7	2	SEAL, symmetrical.....		(55171)		(55171)
(1) (3)	8	1	O-RING.....		(65314)		(65314)
(2) (3)	9	1	O-RING.....		(65333)		(65333)
(2) (3)	10	2	WASHER, back-up.....		(65633)		(65633)
	11	1	SCREW, set.....	12616		12616	
(3)	12	1	PLUG, teflon.....		(50000)		(50000)
(2) (3)	13	1	SEAL, rod.....		(55275)		(55275)
(2) (3)	14	1	SEAL, wiper.....		(56900)		(56900)

NOTE: Numbers in brackets () indicate superceded part numbers.

(1)	Piston Seal Kit.....	65482
(2)	Gland Seal Kit.....	65483
(3)	Seal Kit.....	65533

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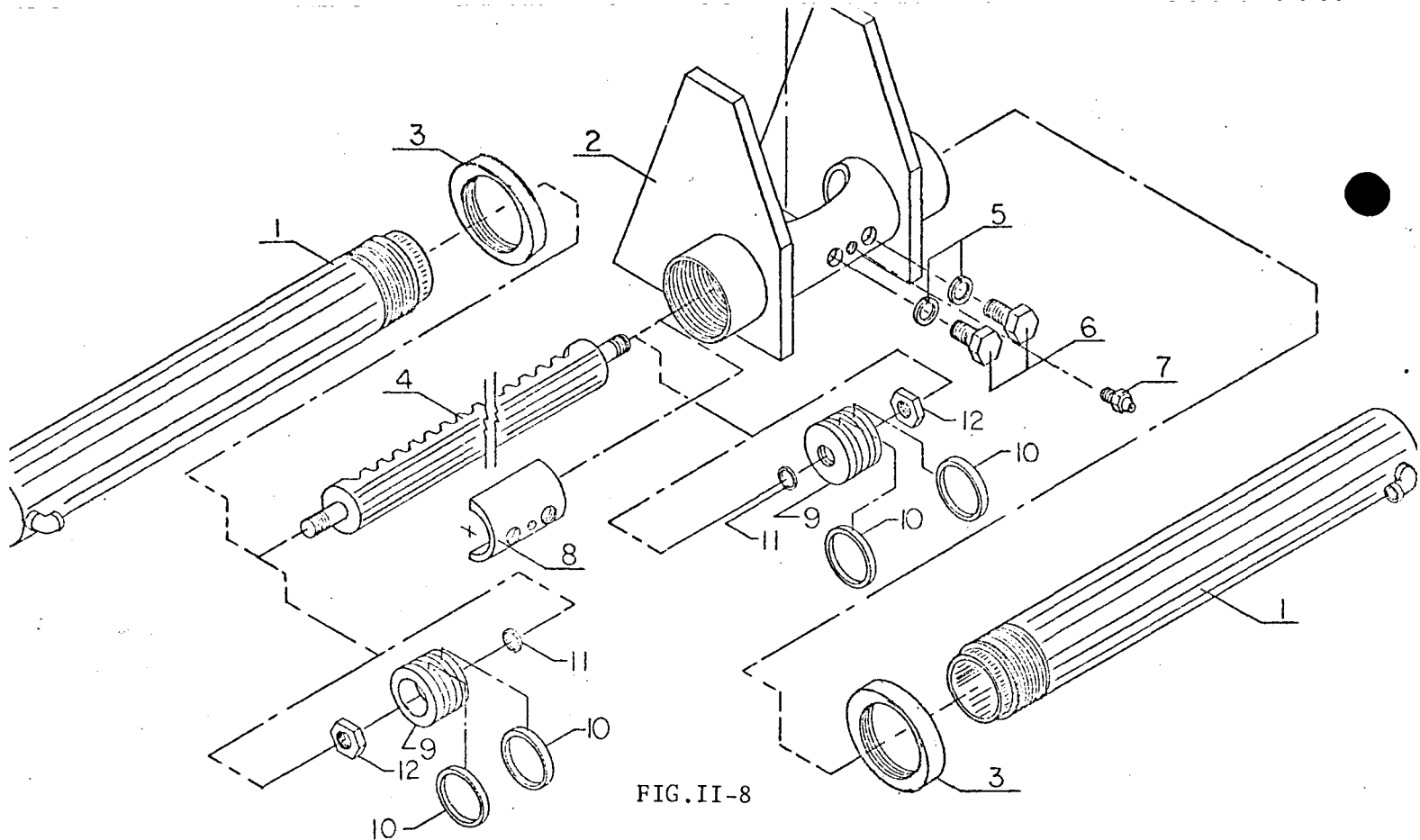


FIG. II-8

GEAR AND RACK
300° and 400° SWING, 5" and 4 1/2" BARREL
PARTS LIST

ITEM NO	QTY	DESCRIPTION	5" BARREL		4 1/2" BARREL	
			300°	400°	300°	400°
-	1	GEAR & RACK, assembly.....	674207	674208	674201	674200
1	2	BUTT & TUBE, weldment.....	672971	672800	672953	672921
2	1	HOUSING, center.....	402104	402104	402100	402100
3	2	CLAMP.....	481728	481728	481705	481705
4	1	GEAR, rack.....	402905	402900	402905	402900
5	2	LOCKWASHER, 3/4".....	14016	14016	14016	14016
6	2	BOLT, brass, 3/4".....	14400	14400	14400	14400
7	1	FITTING, straight grease, 1/8"...	17300	17300	17300	17300
8	1	GUIDE, rack gear.....	491406	491406	401406	491406
9	2	PISTON.....	682342	682342	682304	682304
(1) 10	4	SEAL, piston.....	(56855)	(56855)	(55185)	(55185)
					(55027)	(55027)
(1) 11	2	O-RING.....	(65314)	(65314)	(65314)	(65314)
12	2	NUT, nylon jam.....	13411	13411	13411	13411

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

(1) SEAL KIT, 5"..... 65588
4 1/2"..... 65532

Change Notice No. 1
Effective: 5/21/76
Supercedes Page Dated: 1/1/75

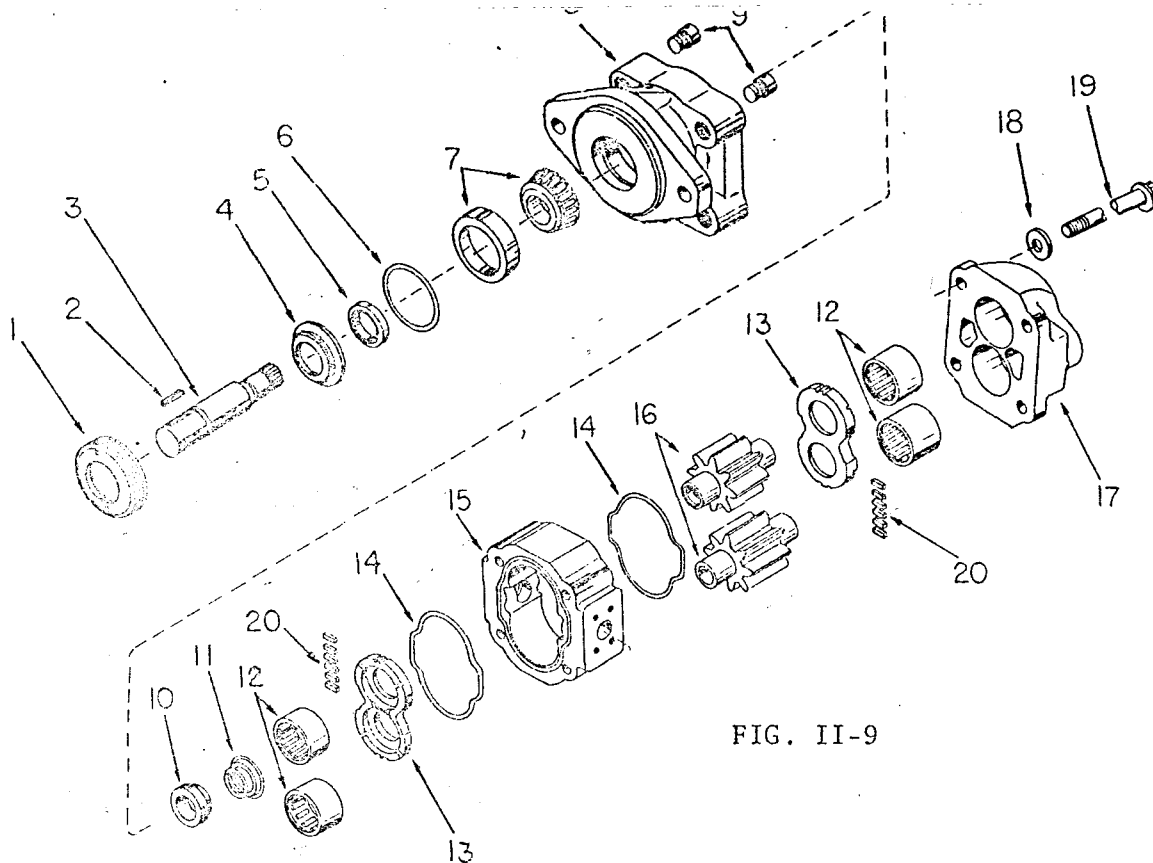


FIG. II-9

COMMERCIAL SINGLE PUMP (25 GALLON)

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	PUMP, 25 GPM.....	60617
1	1	RING, retainer.....	60673
2	1	KEY.....	60679
	1	SHAFT, splined (optional).....	60677
3	1	SHAFT, keyed (standard)....	60676
4	1	SEAL, retainer.....	60674
(1) 5	1	SEAL, double lip.....	(60627)
(1) 6	1	O-RING.....	(60628)
7	1	BEARING, assembly.....	60675
8	1	END COVER, shaft.....	60680
(1) 9	1	CHECK, assembly.....	(60681)
(1) 10	1	BUSHING, bronze shaft.....	(60636)
11	1	SPRING, conical.....	60637
12	4	BEARING.....	60682
13	2	PLATES, thrust.....	60678
14	2	GASKET, o-ring.....	60662
15	1	HOUSING, gear.....	60663
16	2	GEARS, matched.....	60664
17	1	END COVER, port.....	60653
18	4	WASHERS.....	60654
19	4	FASTENERS.....	60665
20	2	SEALS, pocket.....	(65581)

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

(1) Included in Seal Kit #65580.

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COMMERCIAL TANDEM PUMP (20/20)

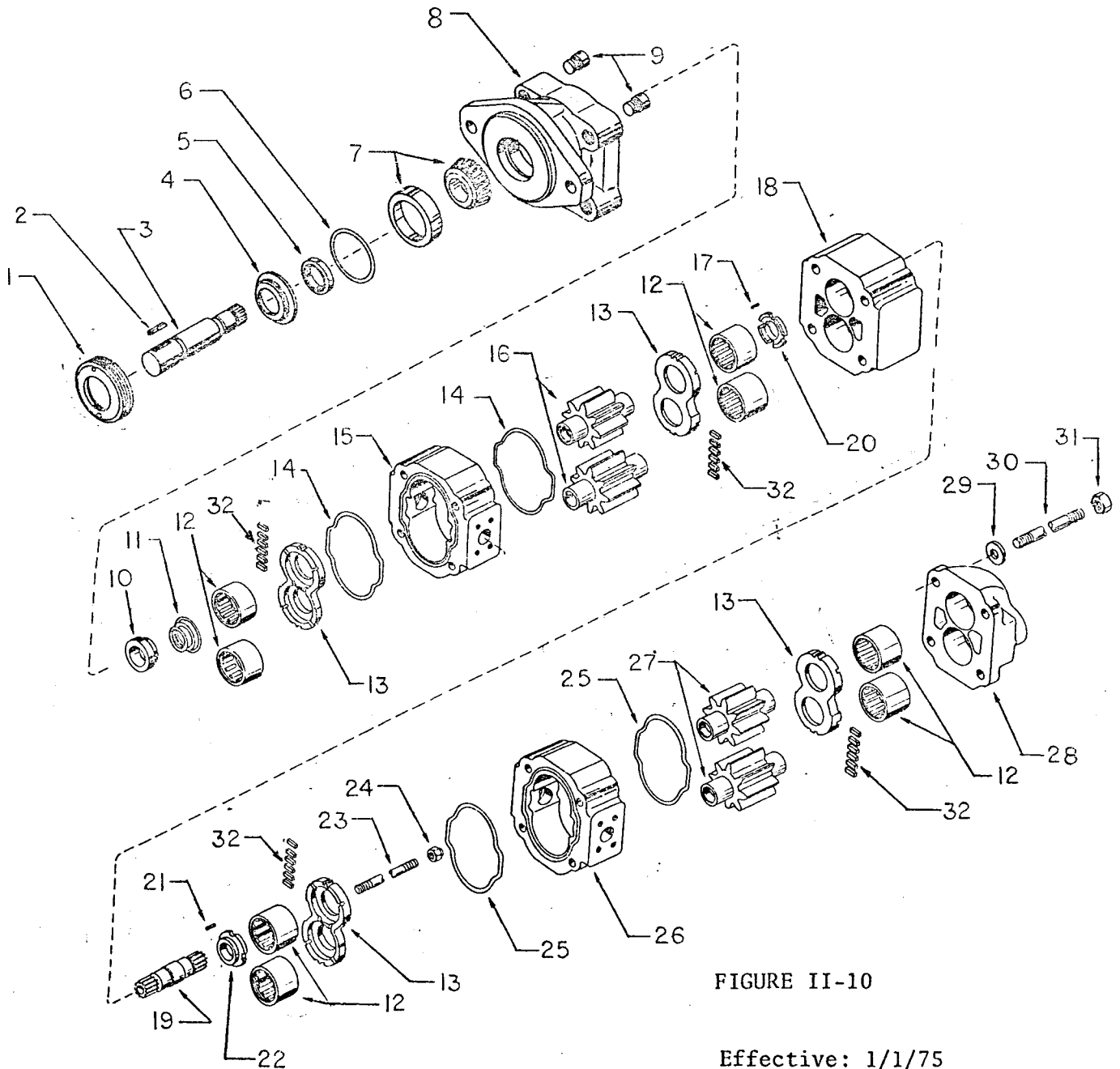


FIGURE II-10

Effective: 1/1/75

COMMERCIAL TANDEM PUMP

TYPE: 1½ GEARS

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NO
-	-	PUMP, assembly (splined).....	60527
-	-	PUMP, assembly (keyed).....	60552
1	1	RING, retainer.....	60673
2	1	KEY.....	60679
	1	SHAFT, splined (optional).....	60677
3	1	SHAFT, keyed (standard).....	60676
4	1	SEAL, retainer.....	60674
(1) 5	1	SEAL, double lip.....	(60627)
(1) 6	1	O-RING.....	(60628)
7	1	BEARING.....	60675
8	1	END COVER, shaft.....	60680
9	1	CHECK ASSEMBLY.....	60681
(1) 10	1	BUSHING, bronze shaft.....	(60636)
(1) 11	1	SPRING, conical.....	(60637)
12	8	BEARING, roller.....	60682
13	4	PLATE, thrust.....	60678
(1) 14	2	GASKET, o-ring.....	(60641)
15	1	HOUSING, gear.....	60642
16	2	GEARS, matched, 1½".....	60685
17	1	PIN, roll.....	60646
18	1	CARRIER, bearing.....	60647
19	1	SHAFT, connecting.....	60648
(1) 20	1	BUSHING, shaft.....	(60645)
21	1	PIN, roll.....	60646
(1) 22	1	BUSHING, shaft.....	(60645)
23	1	STUD.....	60649
24	1	NUT, lock.....	60650
(1) 25	2	GASKET, o-ring.....	(60641)
26	1	HOUSING, gear.....	60642
27	2	GEARS, matched, 1½".....	60685
28	1	END COVER, port.....	60653
29	4	WASHER.....	60654
30	4	STUD.....	60669
31	4	NUT.....	60657
(1) 32	4	SEALS, pocket.....	(60640)

(1) The following items are included in Seal Kit #65581

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VICKERS SINGLE PUMP

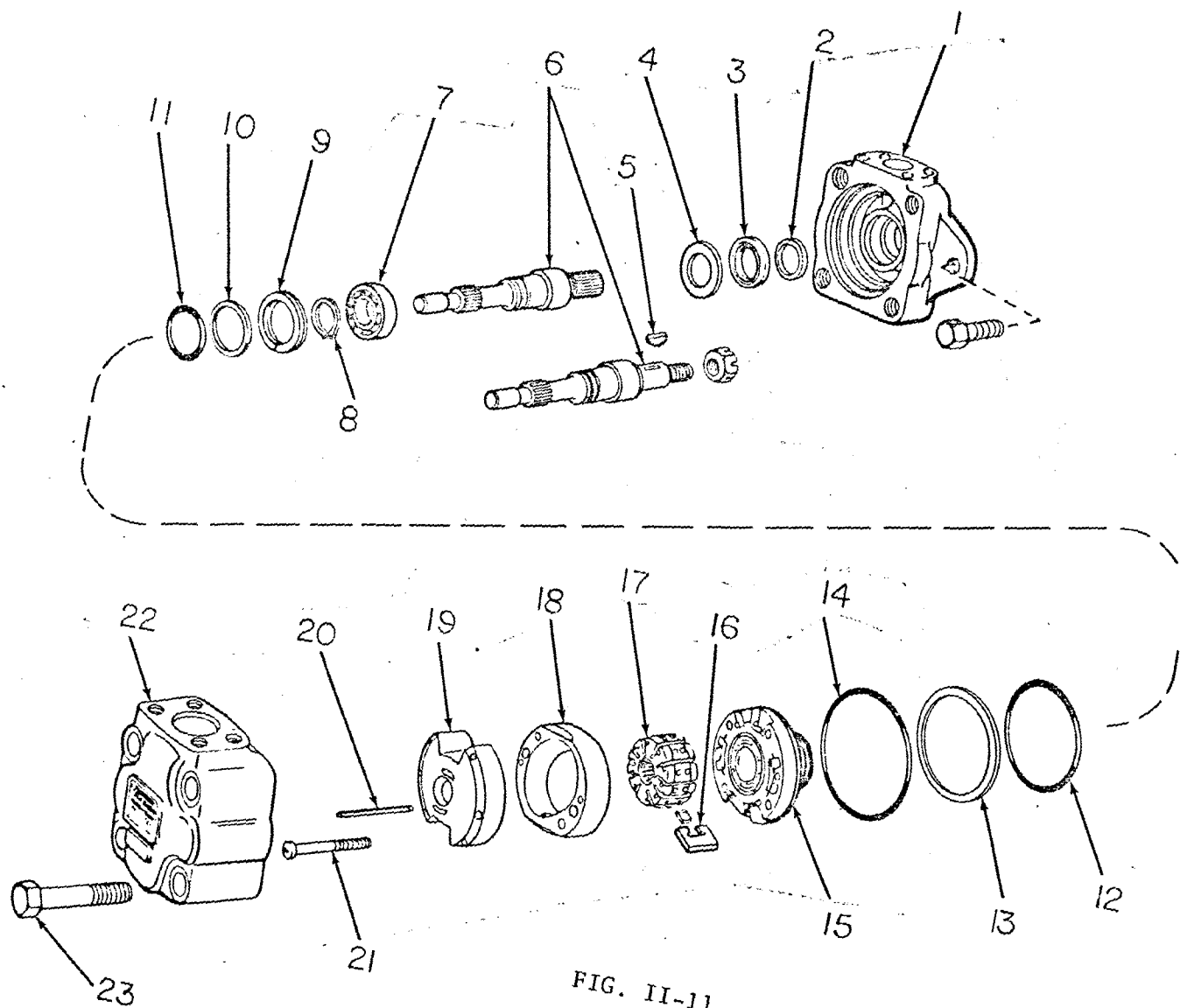


FIG. II-11

Effective: 1/1/75

VICKERS SINGLE PUMP

SERIES 25V (21 GPM)

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	Complete Pump Assembly R.H.....	60603
-	-	Complete Pump Assembly, L. H.....	60602
1	1	Body.....	59571
(1) 2	1	Wiper seal.....	(44512)
(1) 3	1	Seal.....	(59569)
4	1	Washer.....	59568
5	1	Key.....	59566
6	1	Shaft (Keyed).....	59567
	1	Shaft (Splined).....	59584
7	1	Bearing.....	59565
8	1	Snap Ring.....	59564
9	1	Lock Ring.....	59563
The following Items 10-21 Below are Serviced only in Cartridge Kit, Part No. 65251:			
(1) 10	1	Back-up Ring.....	(59562)
(1) 11	1	O-Ring.....	(65414)
(1) 12	1	O-Ring.....	(65417)
(1) 13	1	Back-up Ring.....	(59559)
(1) 14	1	O-Ring.....	(65418)
15	1	Pressure Plate.....	(-)
16	1	Vane Assembly.....	(59556)
17	1	Rotor.....	(-)
18	1	Ring.....	(-)
19	1	Wear Plate, Sub-Assembly.....	(-)
20	2	Pin.....	(59551)
21	2	Screw.....	(-)
22	1	Cover.....	59575
23	4	Bolt.....	59574

NOTES: PART NUMBERS IN BRACKETS () ARE SUPERCEDED NUMBERS AND ARE SERVICED ONLY IN APPROPRIATE KITS.

(1) Seal Kit..... 65507

Effective: 1/1/75

Supercedes Page Dated: 3/15/74

VICKERS TANDEM PUMP

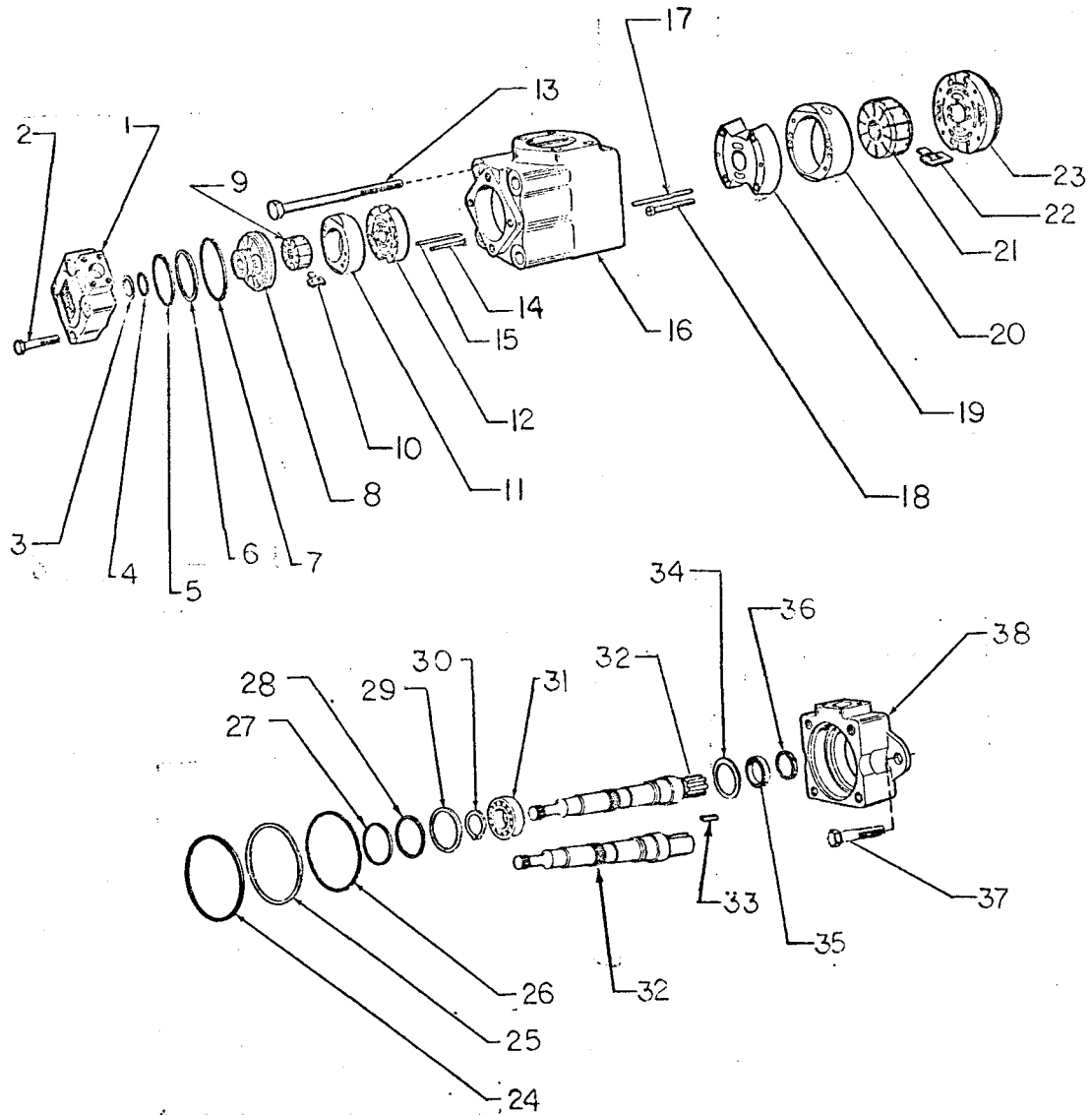


FIGURE II-12

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

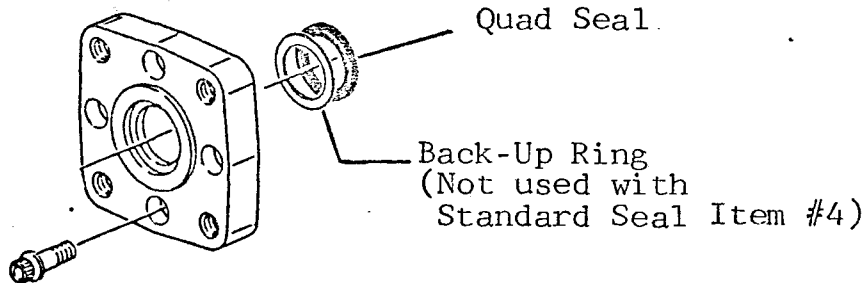
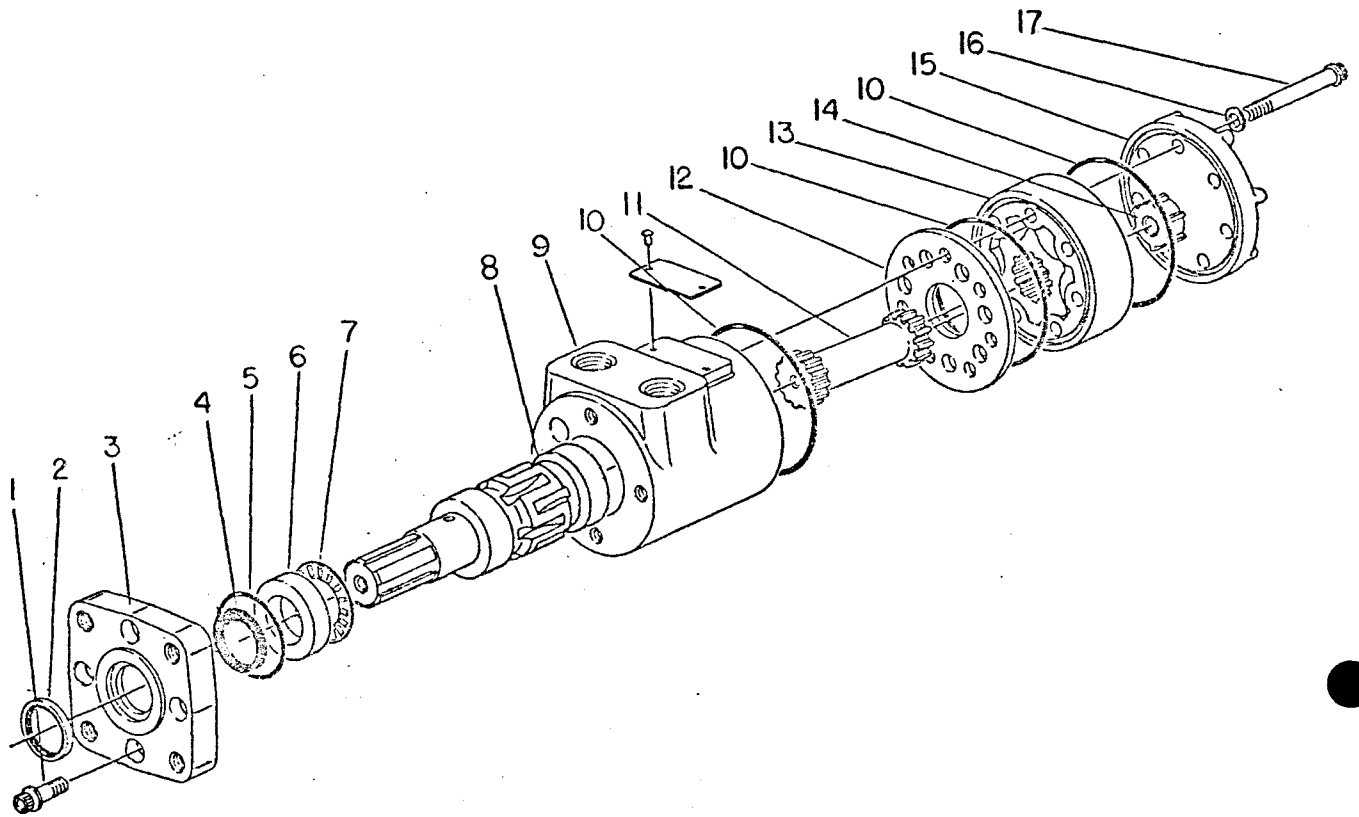
VICKERS TANDEM PUMP
 SERIES 252V (21/14 GPM)
 PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	PUMP, assembly, R.H.....	60601
-	-	PUMP, assembly, L.H.....	60600
1	1	COVER.....	59500
2	4	BOLT.....	59506
The following Items 3-14 below are serviced only in Cartridge Kit, Part No. 65257:			
(1)	3	RING, back-up.....	(59510)
(1)	4	O-RING.....	(65318)
(1)	5	O-RING.....	(65413)
(1)	6	RING, back-up.....	(59511)
(1)	7	O-RING.....	(65413)
	8	PLATE, pressure.....	(59512)
	9	ROTOR.....	(59503)
	10	KIT, vane.....	(59513)
	11	RING.....	(59514)
	12	PLATE, wear.....	(59515)
	13	PIN.....	(59516)
	14	SCREW.....	(59517)
	15	BOLT.....	59504
	16	HOUSING.....	59505
The following Items 17-28 below are serviced only in Cartridge Kit, Part No. 65251:			
	17	PIN.....	(59518)
	18	SCREW.....	(59519)
	19	PLATE.....	(59524)
	20	RING.....	(59525)
	21	ROTOR.....	(59521)
	22	KIT, vane.....	(59526)
	23	PLATE, pressure.....	(59522)
(1)	24	O-RING.....	(65417)
(1)	25	RING, back-up.....	(59523)
(1)	26	O-RING.....	(65414)
(1)	27	O-RING.....	(65401)
(1)	28	RING, back-up.....	(59527)
	29	RING, lock.....	59536
	30	RING, snap.....	59528
	31	BEARING.....	59529
	32	SHAFT, splined.....	59531
		SHAFT, keyed.....	59530
	33	KEY.....	59532
	34	WASHER.....	50537
(1)	35	SEAL.....	(44206)
(1)	36	WIPER.....	(44512)
	37	BOLT.....	59539
	38	BODY.....	59534

NOTES: PART NUMBERS IN BRACKETS () ARE SUPERCEDED NUMBERS AND ARE SERVICED ONLY IN APPROPRIATE KITS.

(1) Seal Kit..... 65506

GRAPPLE ORBIT MOTOR



Alternate Seal Furnished on Some Models due To Unavailability of Standard High Pressure Seal Item #4. For Replacement Purposes Always Order Item #4.

Change Notice No. 1

Effective: 12-9-75

Supercedes Page Dated: 1-1-75

GRAPPLE ROTATE MOTORCHAR-LYNNPARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NO.
-	1	MOTOR, complete.....	60035
1	4	SCREW, cap.....	59601
(1) 2	1	SEAL.....	59975
3	1	MOUNTING, flange.....	59976
(1) 4	1	SEAL.....	--
(1) 5	1	O-RING.....	--
6	1	RACE, bearing.....	59978
7	1	BEARING, needle thrust.....	59979
8	1	SHAFT, splined.....	59980
9	1	HOUSING, 1/2" NPTF parts.....	59981
(1) 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
(1) 16	7	WASHER, seal.....	--
17	7	SCREW, cap.....	59621

(1) Included in Seal Kit #65225

Change Notice No. 1

Effective: 12-9-75

Supersedes Page Dated: 1-1-75

SYSTEM MAIN RELIEF
(1750 PSI.)

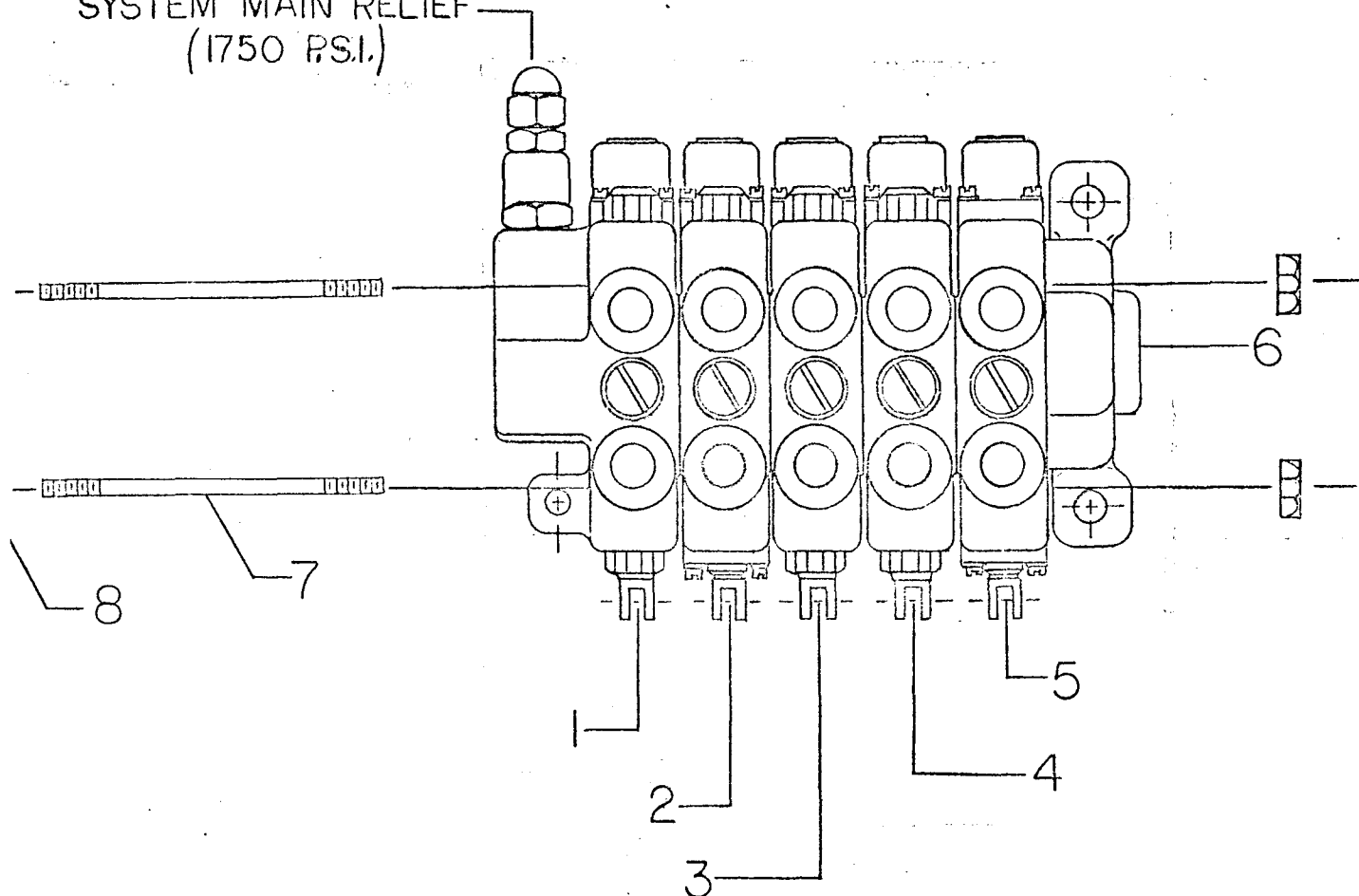
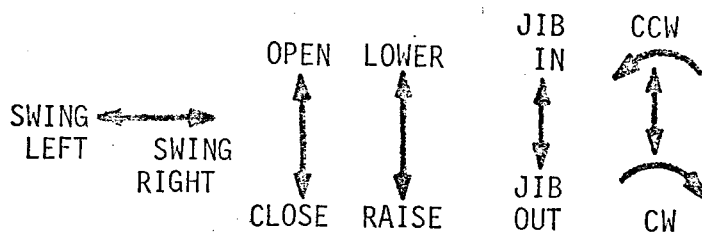


FIG. II-14



MODEL 40-60-80

VALVE BANK ARRANGEMENT (SINGLE PUMP)

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	1	VALVE, group (5 spool).....	58564
1	1	VALVE, section, swing w/inlet & outlet.....	51000
2	1	VALVE, section, grapple open & close.....	51015
3	1	VALVE, section, main lift.....	51016
4	1	VALVE, section, secondary boom.....	51002
5	1	VALVE, section, grapple rotate.....	51001
6	1	OUTLET, (end).....	51004
7	4	STUD.....	58038
8	8	NUT, stud.....	58034

NOTE: Seal kit contain those seals for one section only.
See individual valve sections on following pages.

(1750 P.S.I.)

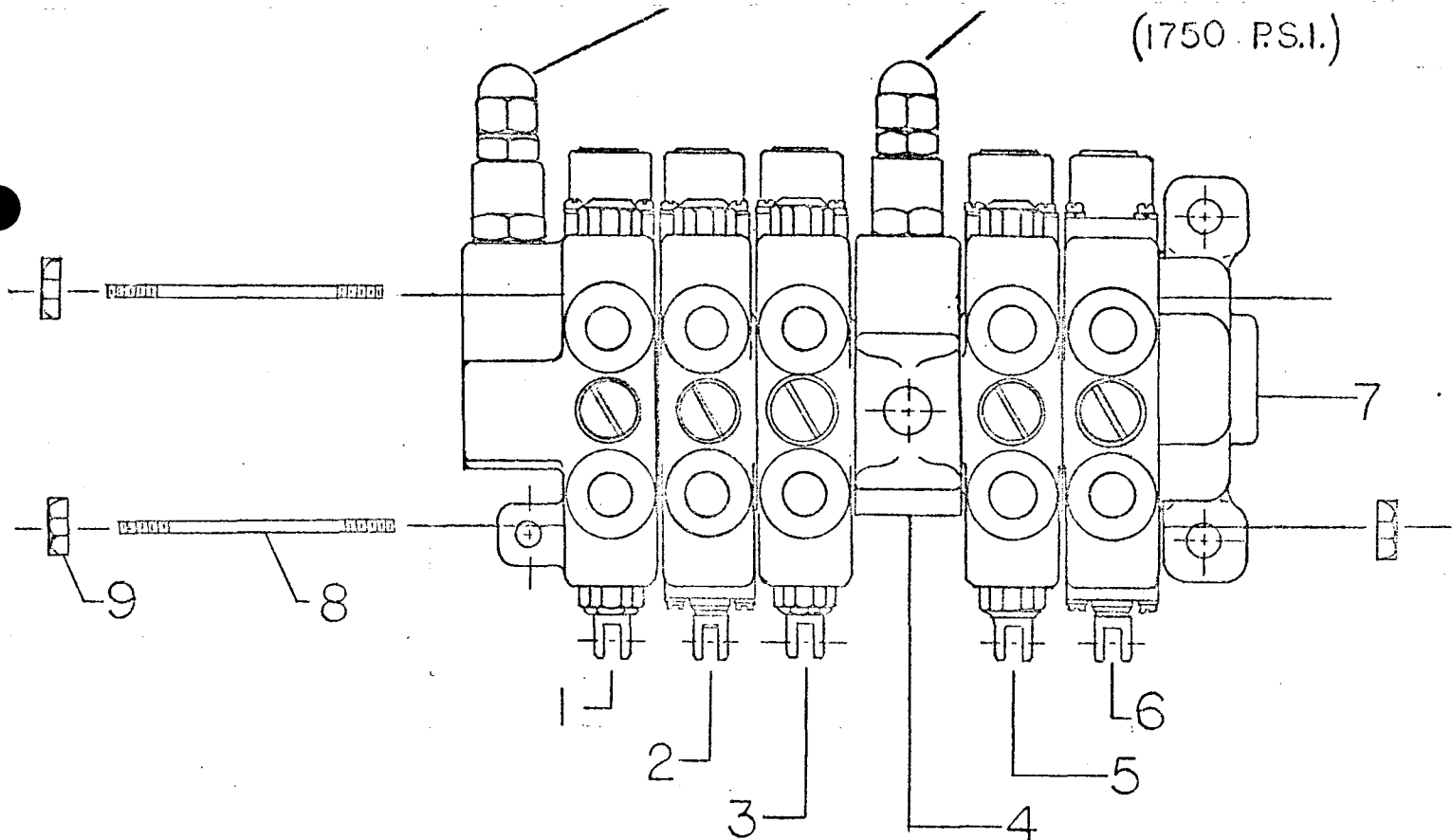
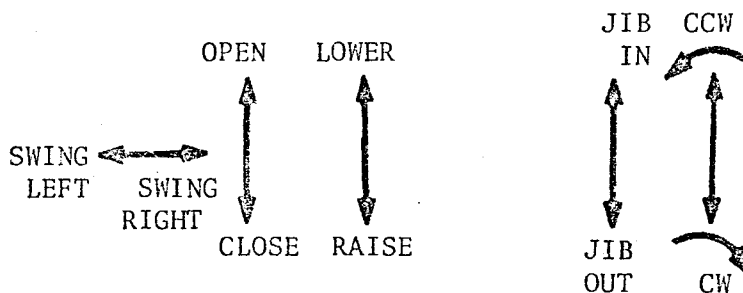


FIG.II-15



VALVE BANK ARRANGEMENT (TANDEM PUMP)

PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	1	VALVE, group (5 spool).....	58556
1	1	VALVE, swing w/inlet & outlet.....	51000
2	1	VALVE, grapple open & close.....	51015
3	1	VALVE, main lift.....	51016
4	1	VALVE, mid-inlet section.....	51003
5	1	VALVE, secondary boom.....	51002
6	1	VALVE, grapple rotate.....	51001
7	1	OUTLET, end.....	51004
8	4	STUD.....	58039
9	8	NUT, stud.....	58034

NOTE: Seal kit contains those seals for one section only.

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

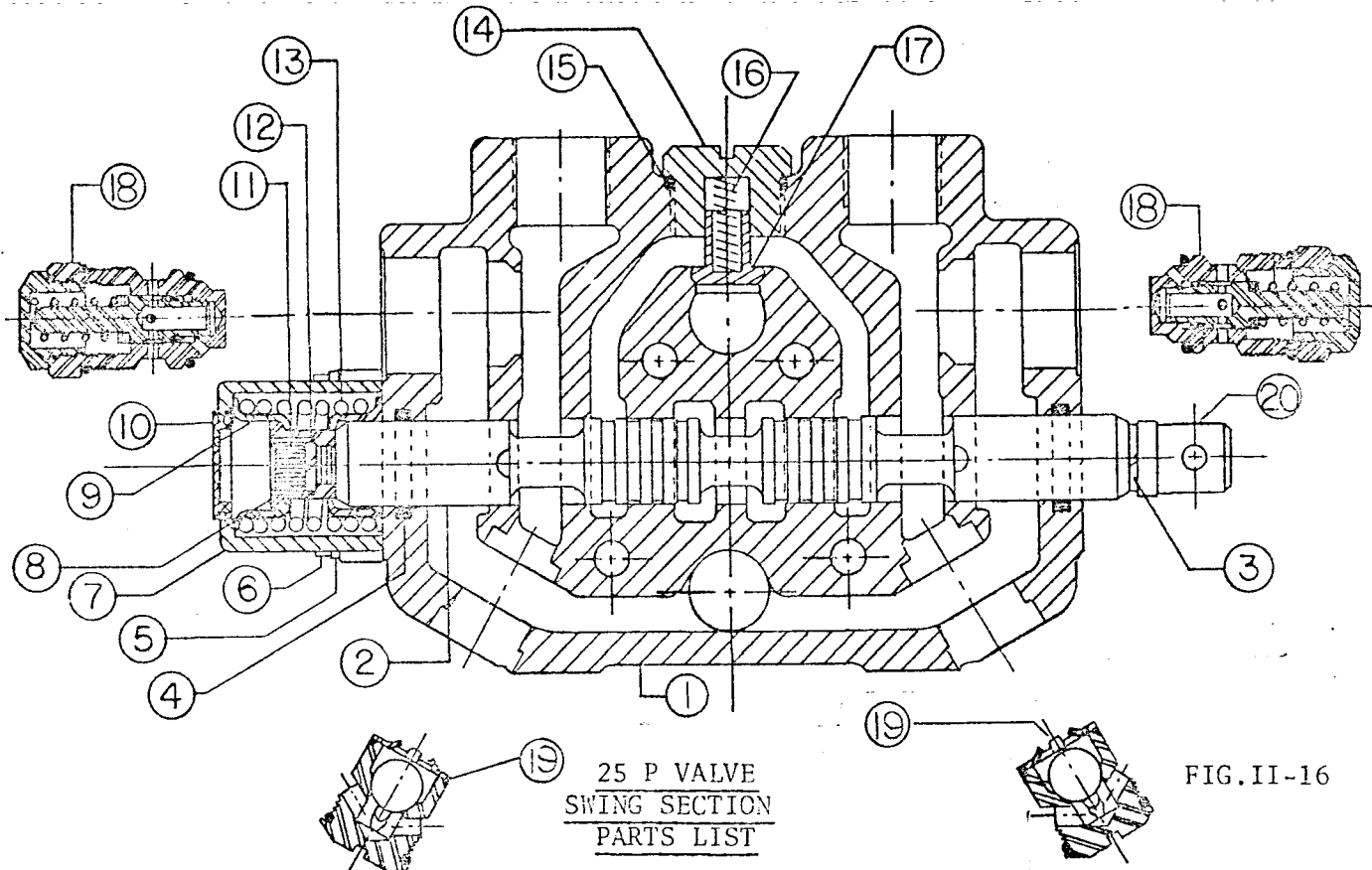


FIG. II-16

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	VALVE, assembly, less handle.....	51000
1	1	HOUSING.....	58023
2	1	SPOOL, 4-way.....	58023
3	1	LOCKWASHER, handle adapter.....	58005
(1) 4	2	SEAL, spool.....	(58017)
5	4	LOCKWASHER.....	58002
6	4	SCREW, bonnet.....	58027
(2) 7	1	BONNET.....	(58014)
(2) 8	1	COLLAR, spool.....	(58013)
(2) 9	2	COLLAR, stop.....	(58012)
(2) 10	1	DIAPHRAM, bonnet.....	(58015)
(2) 11	1	SCREW, spool assembly.....	(58018)
(2) 12	1	LOCKWASHER, spool assembly.....	(58006)
(2) 13	1	SPRING, centering.....	(58021)
(3) 14	1	PLUG, check.....	(58025)
(1) (3) 15	1	SEAL, o-ring.....	(58028)
(3) 16	1	SPRING, check.....	(58029)
(3) 17	1	POPPET, check.....	(58026)
18	2	RELIEF, assembly (pressure setting stamped on cap)	58517
	1	SEAL KIT.....	52046
19	2	ANTI-CAVITATION CHECK, lower.....	58534
	1	SEAL KIT.....	52047
20	1	ADAPTER, handle.....	58007
(1) 21	2	SEAL, section, small, (not shown).....	(58032)
(1) 22	1	SEAL, section, large, (not shown).....	(58033)

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

(1) Included in Section Seal Kit #52012

(2) Included in Bonnet Kit #52004

(3) Included in Check Plug Kit #52005

Effective: 1/1/75

Supercedes Page Dated: 3/15/74

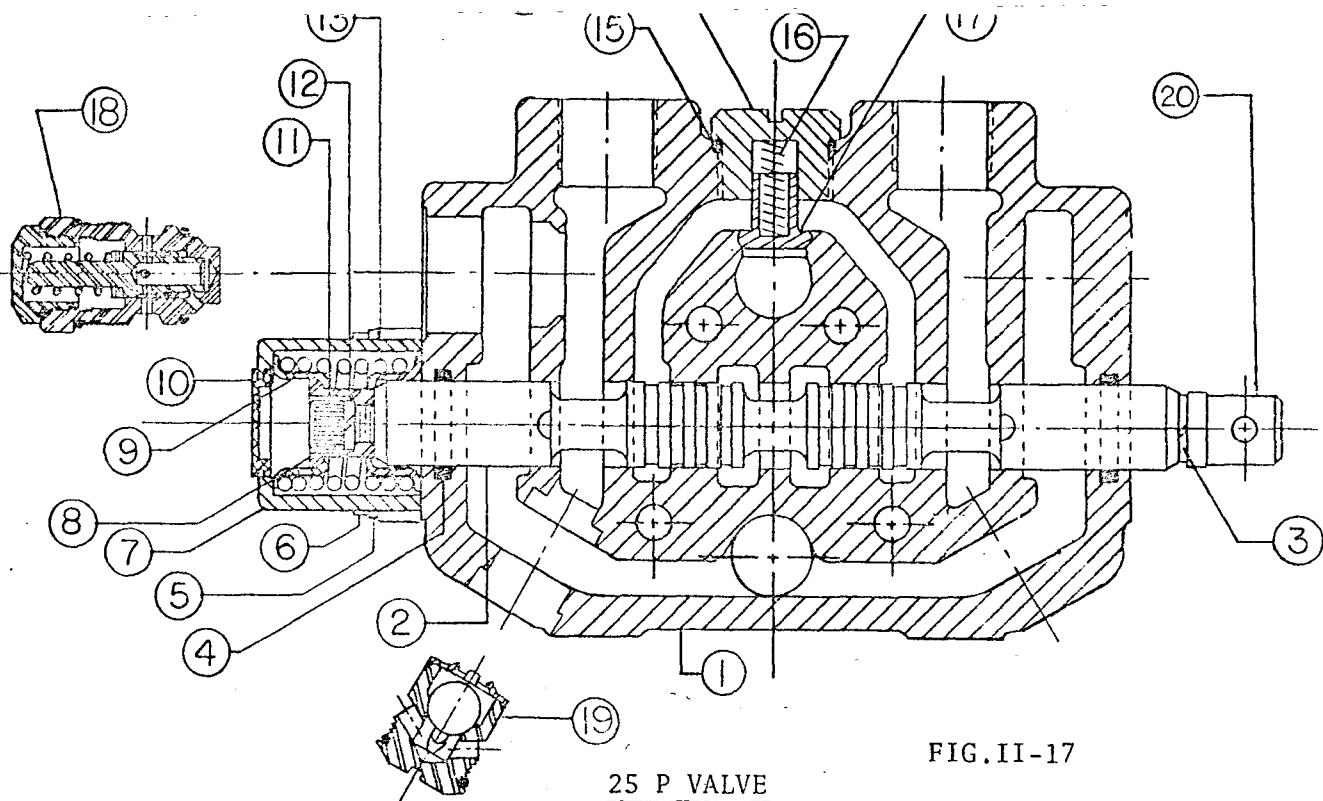


FIG.II-17

25 P VALVE
GRAPPLE OPEN/CLOSE SECTION
PARTS LIST

ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	VALVE, assembly, less handle.....	51015
1	1	HOUSING.....	(58016)
2	1	SPOOL, 4-way.....	(58016)
3	1	LOCKWASHER, handle adapter.....	58005
(1) 4	2	SEAL, spool.....	(58017)
5	4	LOCKWASHER.....	58002
6	4	SCREW, bonnet.....	58027
(2) 7	1	BONNET.....	(58014)
(2) 8	1	COLLAR, spool.....	(58013)
(2) 9	2	COLLAR, stop.....	(58012)
(2) 10	1	DIAPHRAM, bonnet.....	(58015)
(2) 11	1	SCREW, spool assembly.....	(58018)
(2) 12	1	LOCKWASHER, spool assembly.....	(58006)
(2) 13	1	SPRING, centering.....	(58021)
(3) 14	1	PLUG, check.....	(58025)
(1) (3) 15	1	SEAL, o-ring.....	(58028)
(3) 16	1	SPRING, check.....	(58029)
(3) 17	1	POPPET, check.....	(58026)
18	1	VALVE, relief, pressure stamped on cap.....	58519
		SEAL KIT, valve relief.....	
19	1	ANTI-CAVITATION CHECK, lower.....	58534
		SEAL KIT, anti-cavitation check.....	
20	1	ADAPTER, handle.....	58007
(1) 21	2	SEAL, section, small (not shown).....	(58032)
(1) 22	1	SEAL, section, large, (not shown).....	(58033)

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

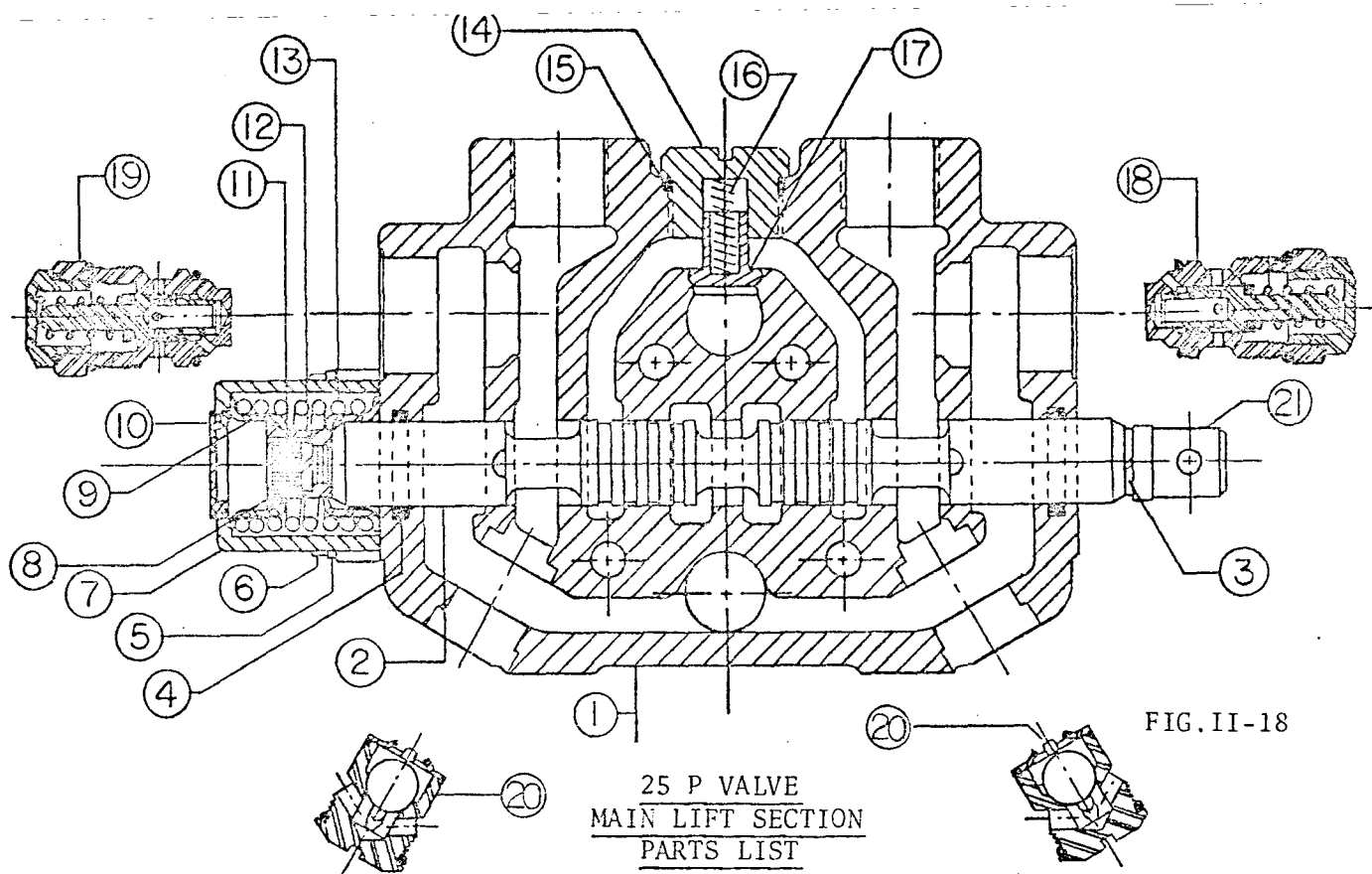
(1) Included in Seal Kit #52012

(2) Included in Bonnet Kit #52004

(3) Included in Check Plug Kit #52005

Effective: 1/1/75

Supercedes Page Dated: 3/15/74



ITEM NO	QTY	DESCRIPTION	PART NUMBER
-	-	VALVE, assembly, less handle.....	51016
1	1	HOUSING.....	(58016)
2	1	SPOOL, 4-way.....	(58016)
3	1	LOCKWASHER, handle adapter.....	58005
(1) 4	2	SEAL, spool.....	(58017)
5	4	LOCKWASHER.....	58002
6	4	SCREW, bonnet.....	58027
(2) 7	1	BONNET.....	(58014)
(2) 8	1	COLLAR, spool.....	(58013)
(2) 9	2	COLLAR, stop.....	(58012)
(2) 10	1	DIAPHRAM, bonnet.....	(58015)
(2) 11	1	SCREW, spool assembly.....	(58018)
(2) 12	1	LOCKWASHER, spool assembly.....	(58006)
(2) 13	1	SPRING, centering.....	(58021)
(3) 14	1	PLUG, check.....	(58025)
(1) (3) 15	1	SEAL, o-ring.....	(58028)
(3) 16	1	SPRING, check.....	(58029)
(3) 17	1	POPPET, check.....	(58026)
18	1	VALVE, relief, a-port, pressure setting stamped on cap.....	58516
19	1	VALVE, relief, b-port, pressure setting stamped on cap.....	58519
20	2	ANTI-CAVITATION CHECK, lower.....	58534
21	1	ADAPTER, handle.....	58007
(1) 22	2	SEAL, section, small (not shown).....	(58032)
(1) 23	1	SEAL, section, large (not shown).....	(58033)

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

(1) Included in Seal Kit #52012

(2) Included in Bonnet Kit #52004

(3) Included in Check Plug Kit #52005

Effective: 1/1/75

Supercedes Page Dated: 3/15/74