

**Volume 2  
Parts and Specifications  
Model 14126 Crane**

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04-06-94

# Introduction - Read Carefully!

This volume deals with information applicable to your particular crane. For operating, maintenance and repair instructions, refer to Volume 1, OPERATION, MAINTENANCE AND REPAIR. Volume 1 contains the following information:

**SECTION 1. OPERATION**

**SECTION 2. MAINTENANCE**

**SECTION 3. REPAIR**

**SECTION 4. INSPECTION & TEST  
REPORT**

**SECTION 5. INSTALLATION -  
CHASSIS PREPARATION**

**SECTION 6. APPENDIX**

We recommend that Volume 2, PARTS AND SPECIFICATIONS be kept in a safe place in the office.

This manual is provided to assist you with ordering parts for your IMT truck-mounted articulating crane. It also contains additional instructions regarding your particular installation.

It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible.

Warranty of this unit will be void on any part of the unit subjected to misuse due to overloading, abuse, lack of maintenance and unauthorized modifications. No warranty - verbal, written or implied - other than the official, published IMT new machinery and equipment warranty will be valid with this unit.

In addition, it is also the user's responsibility to be aware of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this unit. Listed below is a publication that the user should thoroughly read and understand.

**ANSI/ASME B30.22-1984**

**ARTICULATING BOOM CRANES**

The American Society of Mechanical  
Engineers

United Engineering Center

345 East 47th Street

New York, NY 10017

Three means are used throughout this manual to gain the attention of personnel. They are NOTE's, CAUTION's and WARNING's and are defined as follows:

**NOTE**

A NOTE is used to either convey additional information or to provide further emphasis for a previous point.

**CAUTION**

A CAUTION is used when there is the very strong possibility of damage to the equipment or premature equipment failure.

**WARNING**

A WARNING is used when there is the potential for personal injury or death.

Treat this equipment with respect and service it regularly. These two things can add up to a safer working environment.

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# SECTION 1. Specifications

## 1-1. GENERAL

CRANE RATING	141,000 ft-lbs	19.49 ton-meters
REACH - from centerline of rotation	26'-0"	7.92m
HYDRAULIC EXTENSION	60"	152cm
*LIFTING HEIGHT	37'-1"	11.30m
CRANE WEIGHT - with chair platform	9300 lbs	4218 kg
OUTRIGGER SPAN	15'-0"	4.57m
*STORAGE HEIGHT	13'-5"	4.09m
BASE MOUNTING SPACE REQUIRED	42"	106.7cm
OPTIMUM PUMP CAPACITY -		
tandem pump (each section)	16 U.S. Gallons/min.	60.6 liters/min.
OIL RESERVOIR (recommended)	40 U.S. Gallons	151.4 liters
DESIGN FACTORS - pins and hydraulics	4/1	4/1

\* Based on 41" (104.1cm) truck frame height.

## 1-2. LIFTING CAPACITY (from centerline of rotation)

26'-0" (10.24m)	5,400 lbs	2449 kg
21'-0" (6.40m)	6,700 lbs	3039 kg
10'-0" (3.05m)	14,100 lbs	6369 kg

## 1-3. PERFORMANCE CHARACTERISTICS

ROTATION - 450° (7.85 Rad.)	37 seconds
INNER BOOM ELEVATION - -25° to +71° (-.44 Rad. to +1.24 Rad.)	28 seconds
OUTER BOOM ARTICULATION - 161° (2.81 Rad.)	30 seconds
EXTENSION BOOM - 60" (152.4cm)	13 seconds
OUTRIGGER EXTENSION - 29-1/4" (74.3cm)	32 seconds

## 1-4. CYLINDERS

	BORE	STROKE
INNER BOOM CYLINDER	8" (20.3cm)	34" (86.4cm)
OUTER BOOM CYLINDER	7" (17.8cm)	48" (121.9cm)
EXTENSION BOOM CYLINDER	4" (10.2cm)	60" (152.4cm)
OUTRIGGER CYLINDER	6-1/2" (16.5cm)	29-1/4" (74.3cm)

## 1-5. CYLINDER HOLDING VALVES

The holding sides of all cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic component failure. In addition, the outer, extension and outrigger cylinders feature double holding valves. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

## 1-6. ROTATION SYSTEM

Turntable bearing powered with a high-torque hydraulic motor through a ring-and-pinion type spur gear train. A fail-safe, spring-loaded brake is supplied between the drive gear and the motor providing rotational and parking brake action. Total gear reduction is 68.3 to 1.

## 1-7. POWER SOURCE

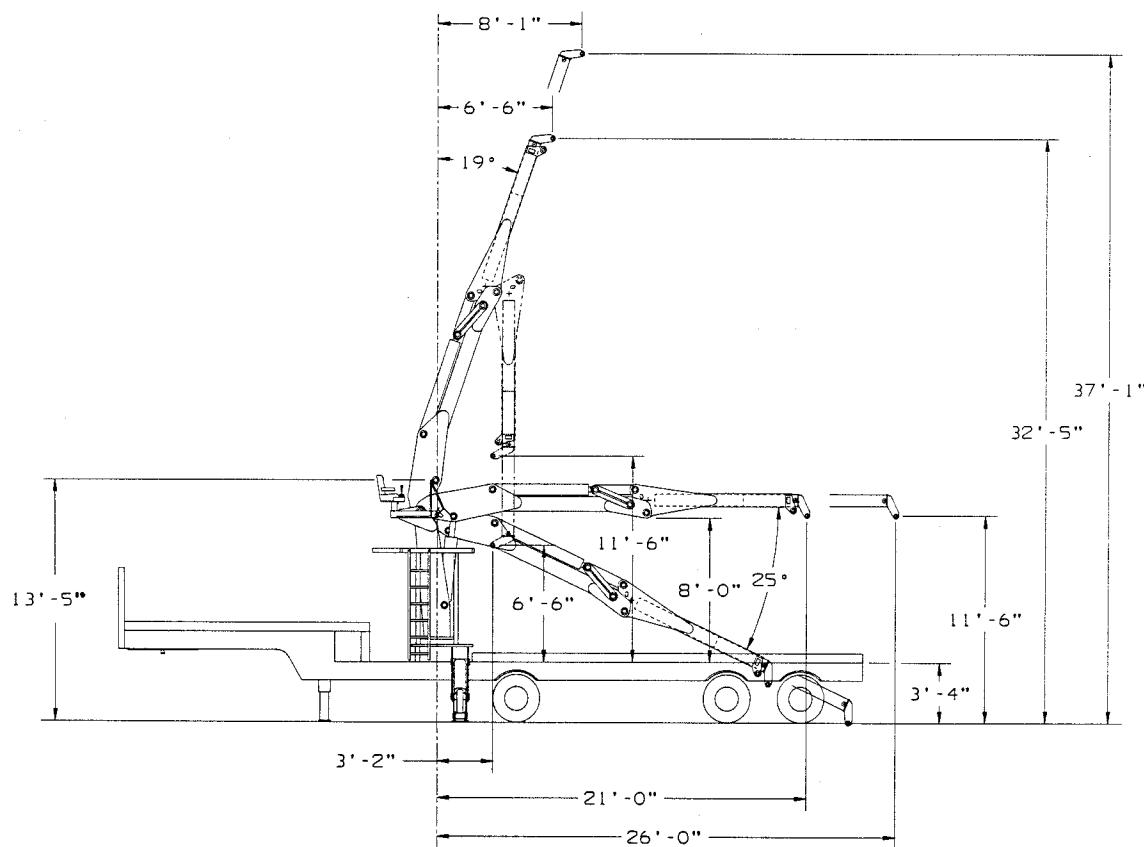
Minimum power required is 55 horsepower.

## **1-8. HYDRAULIC SYSTEM**

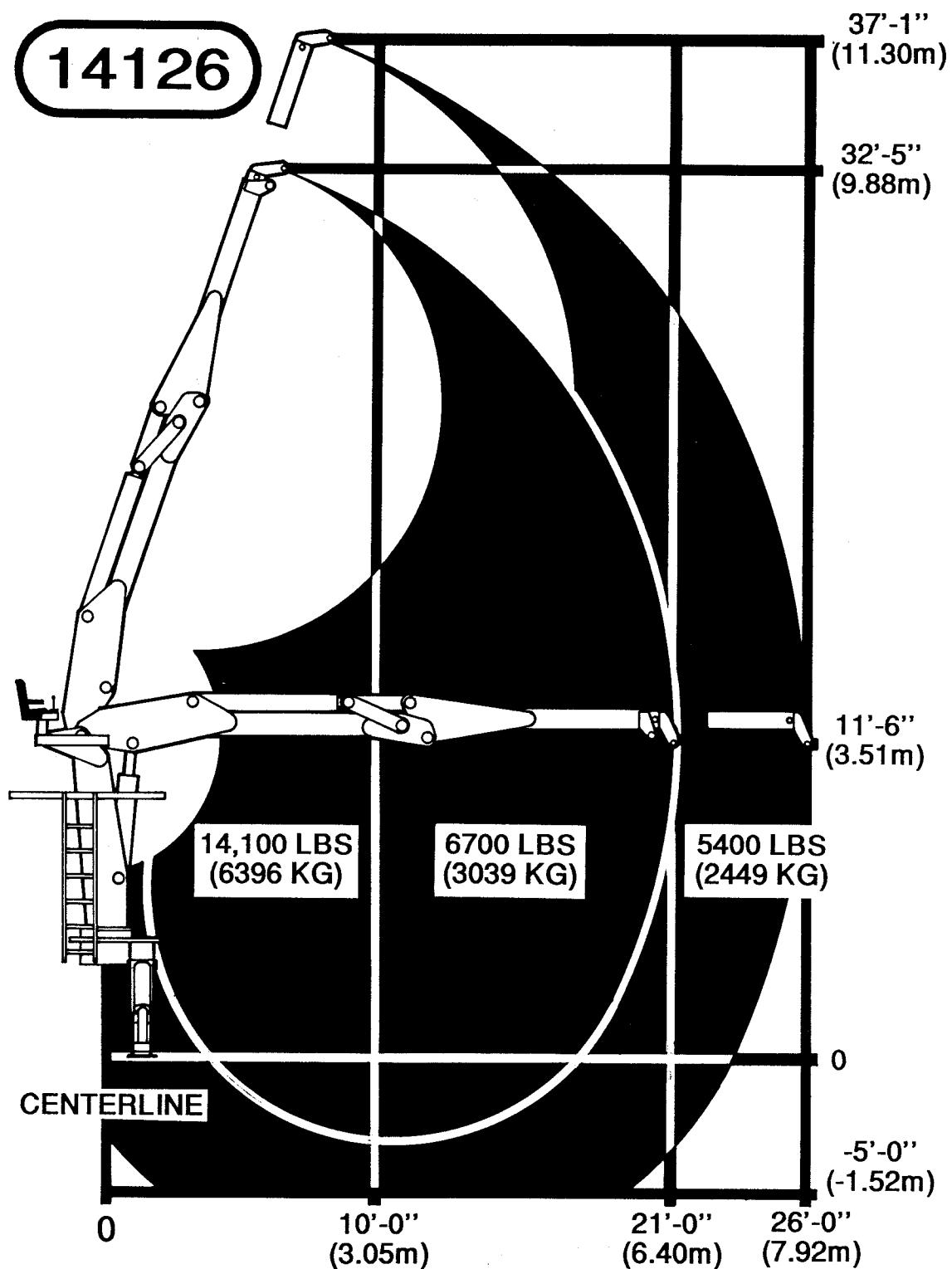
Open-centered, full-pressure system with tandem pump requiring 16 U.S. GPM (60.6 liters/min.) optimum oil flow at 2500 PSI (175.7 kg/cm<sup>2</sup>). Control valve consists of two four-spool, stack-type valve banks. All crane (excluding outriggers) and boom-tip functions are manipulated by either joy sticks or foot throttles via a pilot source of oil from the base of the crane - are of the push-pull type, connected directly to the valve bank. System includes hydraulic oil reservoir, suction and return line filters and control valve banks.

## **1-9. CAPACITY ALERT**

A pressure sensor mounted on the inner boom cylinders and connected hydraulically to the down side of the inner boom, the lift side of the outer boom and extend side of the extension boom provides a capacity alert system. If the operator tries to lift a load in excess of crane capacity, the inner boom lift and lower, the outer boom lift and the extension out functions will not operate. To relieve the condition, the outer boom can be lowered or the extension boom retracted.



**Figure A-1. Geometric Configuration  
Model 14126 Crane**



**Figure A-2. Capacity Chart  
Model 14126 Crane**

## Section 2. CRANE DESCRIPTION

### 2-1. GENERAL

The Model 14126 Crane is designed primarily for use as a cable reel handling crane. This section describes the major assemblies on this crane and Figure B-1 illustrates their location.

### 2-2. BASE

The base provides the means for mounting the crane on the chassis. It incorporates a  $450^\circ$  (7.85 Rad.) rotation mechanism and the outriggers. The outriggers are powered by double acting hydraulic cylinders to provide stabilization during crane operation - maximum span is  $15'-0"$  (4.57m). A platform with a ladder and an operator's chair provides an operator's station near the mast to inner boom hinge which permits excellent visibility of the work area.

### 2-3. MAST

The mast provides the necessary elevation for crane operation as well as a hinge point for the inner boom.

### 2-4. INNER BOOM

The inner boom will swing through a full  $96^\circ$  (1.68 Rad.) from  $-25^\circ$  to  $+71^\circ$  (-.44 Rad. to +1.24 Rad.). It is raised and lowered through the use of a, double-acting hydraulic cylinder.

### 2-5. OUTER BOOM

The outer boom is articulated through  $161^\circ$  (2.81 Rad.). It is raised and lowered through the use of a double-acting hydraulic cylinder mounted above the inner and outer boom hinge point. The outer boom also provides storage for the extension boom in the retracted position.

### 2-6. EXTENSION BOOM

The one stage hydraulic extension boom increases the operating range from  $21'-0"$  (6.40m) to  $26'-0"$  (7.92m).

### 2-7. CONTROLS

There are two "joy stick" control handles mounted at the operator's station: one provides for inner boom elevation and crane rotation and the other for outer boom articulation and fork rotation. In addition, foot-pedal controls provide the means for operating the extension boom and fork tilt. These controls manipulate the crane via a pilot pressure source of oil from the main valvebank. Outrigger controls are of the push/pull type with the handles connected directly to the valvebank.

### 2-8. HYDRAULICS

The crane hydraulics consist of double-braided hoses, return hoses, filters, control valvebank and all necessary hydraulic fittings.

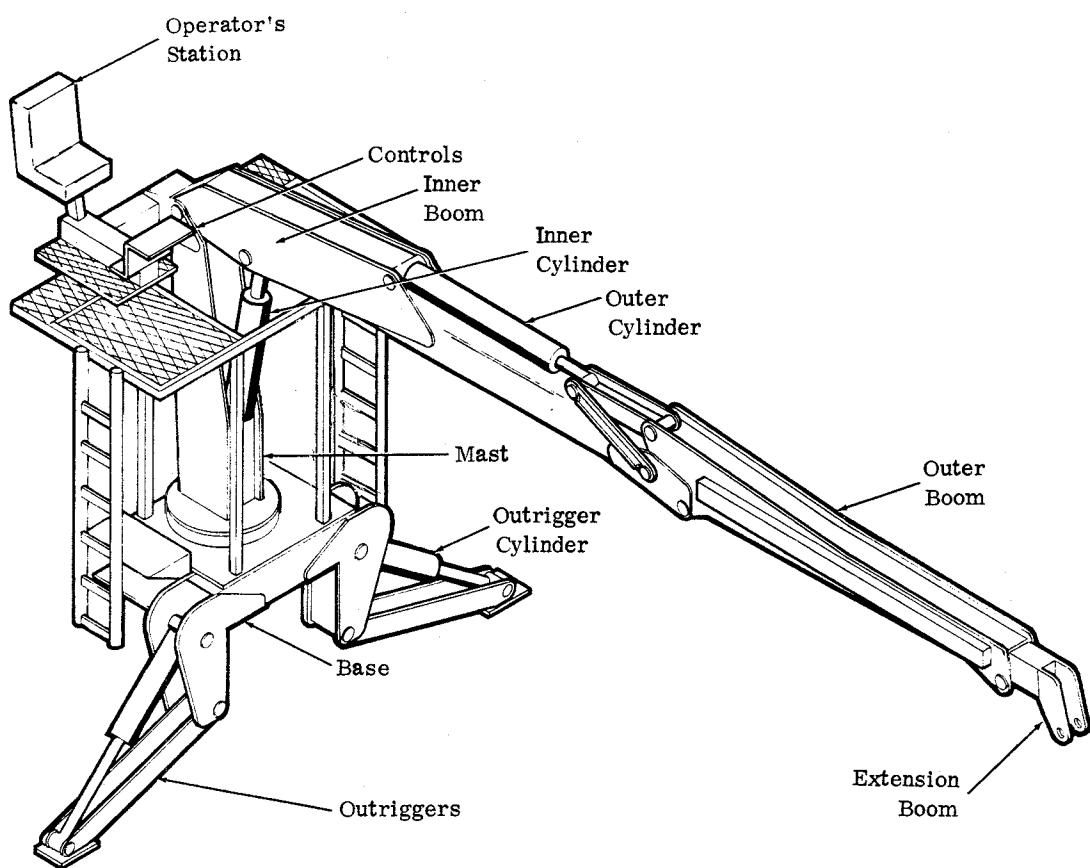


Figure B-1. 14126 Crane Group

## Section 3. INSTALLATION

### 3-1. GENERAL

This section contains specific instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make sure the chassis is ready to receive the crane (refer to VOLUME 1, Installation).

### 3-2. CRANE MOUNTING

1. See SPECIFICATIONS in Section 1 for crane weight. Using an overhead hoist and fabric slings of adequate capacity, lift the crane about a foot to see if the crane is adequately balanced. If not, lower hoist and adjust slings. Re-check balance and re-position crane until mounting surface is level.
2. Install the truck frame support so that the tie-down studs pass through the supports (Figure C-1). Cut the support to the inside dimensions of the truck frame. Allow about 1/16" extra. Grind the end of the support to fit inside the frame channel. Use a hammer to drive it into position if necessary.
3. Position one bar on top of each frame rail where crane will be located, allowing sufficient clearance between the cab and crane base, at least 5" (12.7cm). Position the crane on the chassis per the applicable installation drawing, centering the mounting slots over the truck frame rails. While holding crane with hoist, start mounting hardware per Figure C-1. Note position of support weldments on truck frame. Hand tighten nuts. Observe underside of crane base. No clearance between base and frame bars is allowed. Grind bar on frame rails to eliminate clearance.
4. Torque the 1 1/4"-7 UNC Grade 5 mounting hardware to 840 ft-lbs (116 kg-m). When torquing the mounting hardware the following precautions must be followed:
  - A. Never use lock washers.
  - B. Hardened washers must be used, and under the turning element, whether the turning element is the nut or the head of the bolt.
  - C. Torque values specified are with residual oils or without special lubricants applied to the threads. If special lubricants are used, such as Never-Seize compound graphite and oil, molybdenum disulphite colloidal copper or white lead, reduce torque values 10%. Torque values for threaded fasteners are not affected with the use of Loctite.

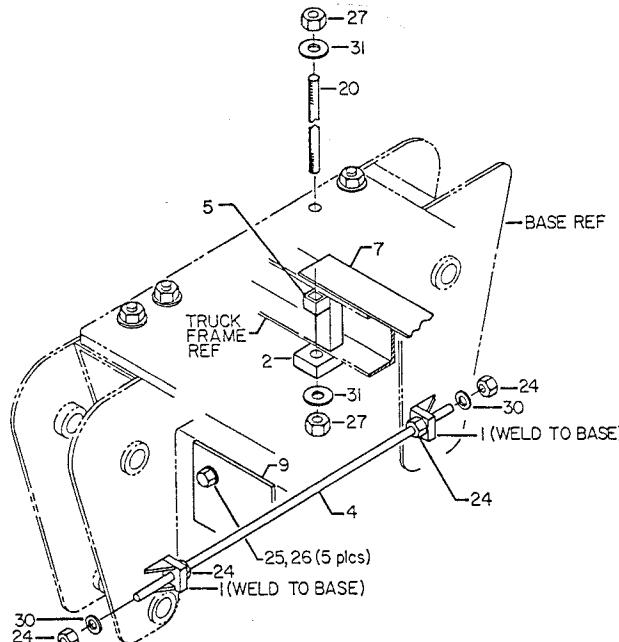
D. Do not use rusty fasteners, the rust will alter torque values significantly.

### CAUTION

Do not attempt to apply the same torque to the tie rod and self-locking nuts as shown in the Torque Data Chart. Do not exceed 840 ft. lbs. (116 kg-m). Exceeding this torque value could damage either the chassis or crane base.

Power wrenching is not recommended until the lead thread of the nut insert is engaged by hand turning.

4. Install the tie-plate (Figure C-1) on the truck chassis. Drill four holes using the plate as a template and install the bolts and lock nuts. Torque the bolts to 200 ft-lbs (28 kg-m). Weld the tie-plate to the crane base with 3/8" continuous fillet weld.
5. Weld the tension bar blocks to the crane base with a 3/8" continuous fillet weld. Install the tension bar with nuts and washers as shown. Tighten the outside nuts first to about 200 ft-lbs (28 kg-m) to preload the tension bar. Then tighten the inner nuts to 466 ft-lbs (65 kg-m).
6. Touch up paint on crane and chassis as necessary.



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1.	TIE-BAR BLOCK	20.	TIE-DOWN ROD
2.	CLAMP BLOCK	24.	NUT
4.	TENSION BAR	25.	CAP SCR
5.	FRAME SUPPORT	27.	LOCK NUT
7.	SPACER	30.	LOCK WASHER
9.	PLATE	31.	HARD WASHER

Figure C-1. CRANE INSTALLATION

### 3-3. HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.:

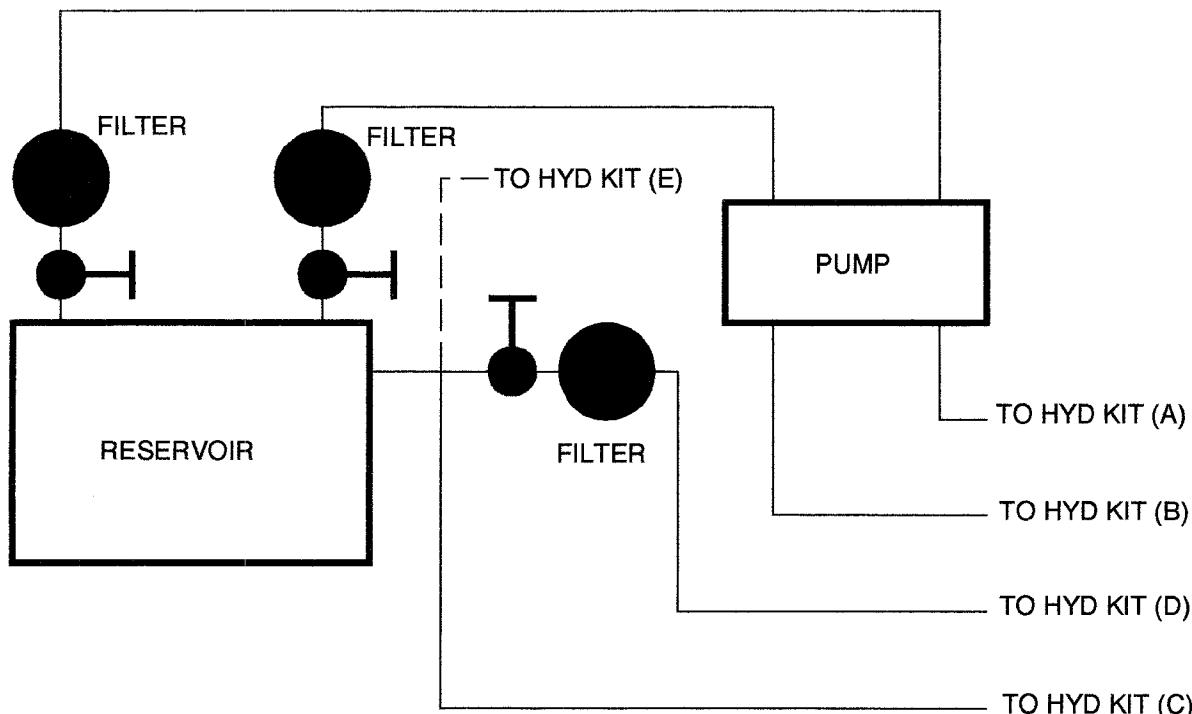
1. Plumb the suction-line filters as shown in Figure C-2. See Figure D-15 of Section 4 for a complete, standard hydraulic installation diagram and parts reference.
2. Install the 1-1/4" suction hose between the suction-line filters and the pump inlets. Tighten the hose clamps.
3. Install the 3/4" pressure hose between the pump outlets and the inlet ports on the valvebanks.
4. Install the return line between the reservoir return-line filters and valvebank (if applicable).
5. Fill the hydraulic oil reservoir.

6. Open the gate valves at the suction-line filter.

#### CAUTION

Failure to open the gate valve will result in a dry running pump which may damage the pump.

7. Open the return gate valve.
8. Start the vehicle engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauges on the suction-line filters (should read 8" or less of mercury). If the vacuum reading is too high, check to make certain that the gate valves are open. If the gate valves are open, check for a collapsed or restricted suction line.
9. Check for leaks and repair if necessary.



**Figure C-2. Hydraulic Installation**

## Section 4. PARTS LIST

### 4-1. GENERAL

This section contains the exploded parts drawings with the accompanying parts list for the assemblies used on this crane. These drawings are intended to be used in conjunction with the instructions found in the REPAIR section in Volume 1. For optional equipment, refer to the appropriate service manual.

#### WARNING

**DO NOT ATTEMPT TO REPAIR ANY COMPONENT WITHOUT READING THE INFORMATION CONTAINED IN THE REPAIR SECTION IN VOLUME 1. PAY PARTICULAR ATTENTION TO THE WARNING'S, CAUTION'S AND NOTE'S CONTAINED IN THAT SECTION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE EQUIPMENT, AN INJURY OR DEATH.**

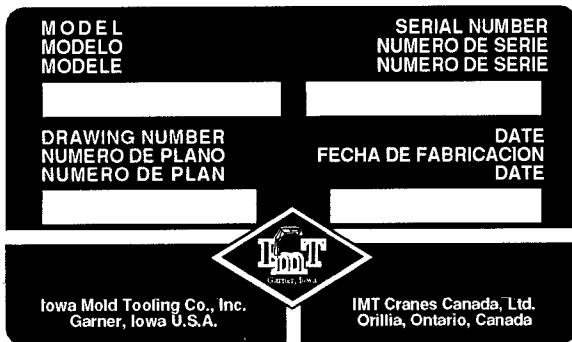
### 4-2. CRANE IDENTIFICATION

Every crane has an identification placard (Figure D-1) attached to the mast in a prominent location. When ordering parts, communicating warranty information or referring to the unit in correspondence, always include the assigned serial number and model number. All inquiries should be directed to:

Iowa Mold Tooling Co., Inc.  
Box 189, Garner, IA 50438-0189  
Telephone: 515-923-3711  
Product Support Fax: 515-923-3674

or

IMT Cranes Canada, Ltd.  
385 West Street South  
Orillia, Ontario, L3V 5H2, Canada  
Telephone: 705-325-7458  
Fax: 705-325-7625



### 4-3. CYLINDER IDENTIFICATION

To ensure proper replacement parts are received, it is necessary to specify a complete number/letter sequence for any part requested. Cylinder part numbers must be checked by specifying the stamped identification on the cylinder case (Figure D-2) or on the cylinder's port block. You must use the part number stamped on the cylinder when ordering parts.

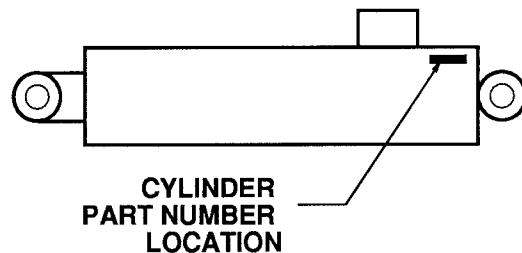


Figure D-1. SERIAL NUMBER PLACARD

Figure D-2. CYLINDER PART NUMBER LOCATION

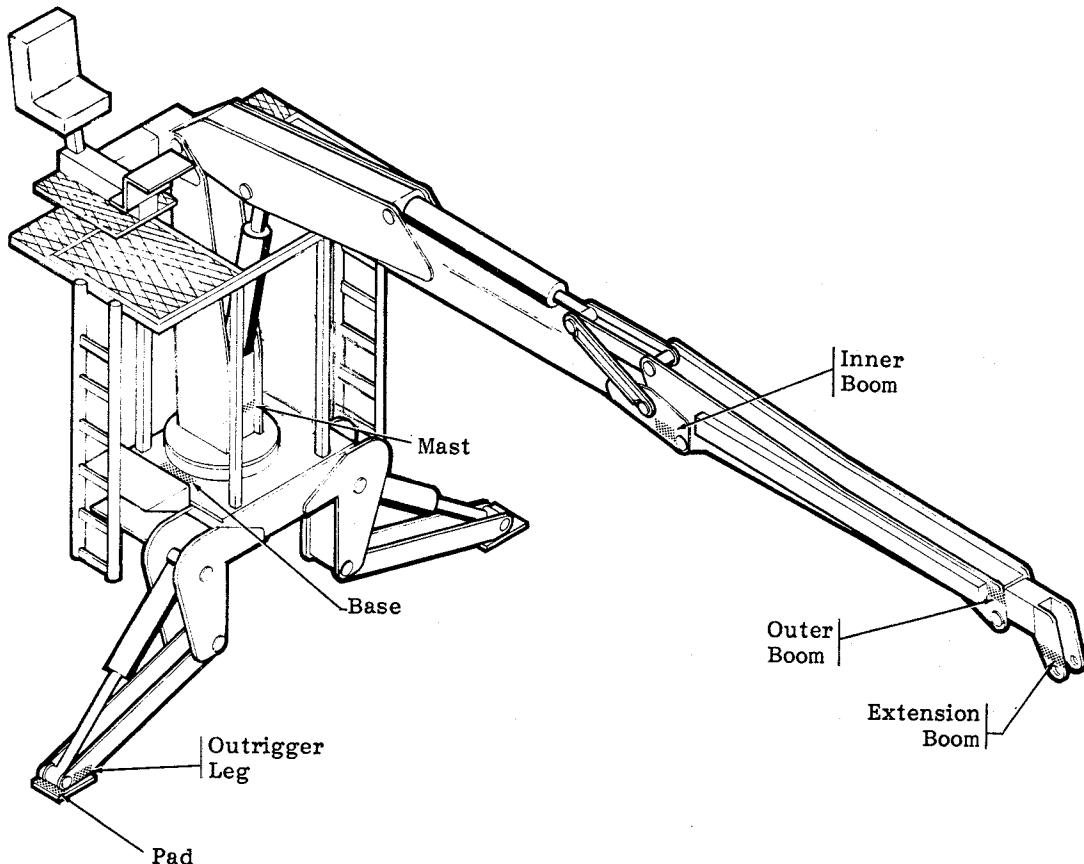
#### 4-4. WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and outrigger weldments - bear a stamped part number. Any time a major weldment is replaced, you must specify the complete part number stamped on the weldment. The location of the part numbers are shown in Figure D-3.

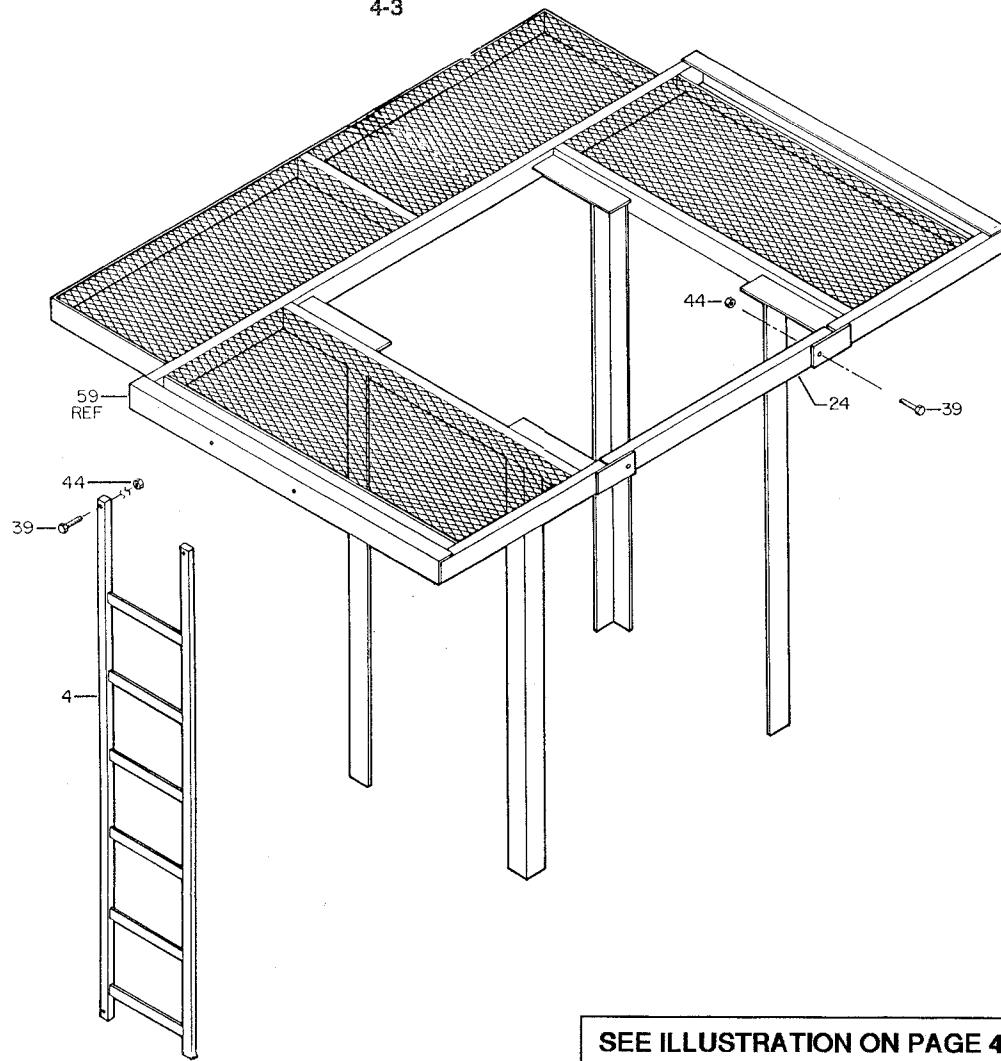
#### 4-5. ORDERING REPAIR PARTS

When ordering replacement parts:

1. Give the model number of the unit.
2. Give the serial number of the unit.
3. Specify the complete part number. When ordering cylinder parts or one of the major weldments, always give the stamped part number.
4. Give a complete description of the part.
5. Specify the quantity required.



**Figure D-3. Weldment Part Number Locations**

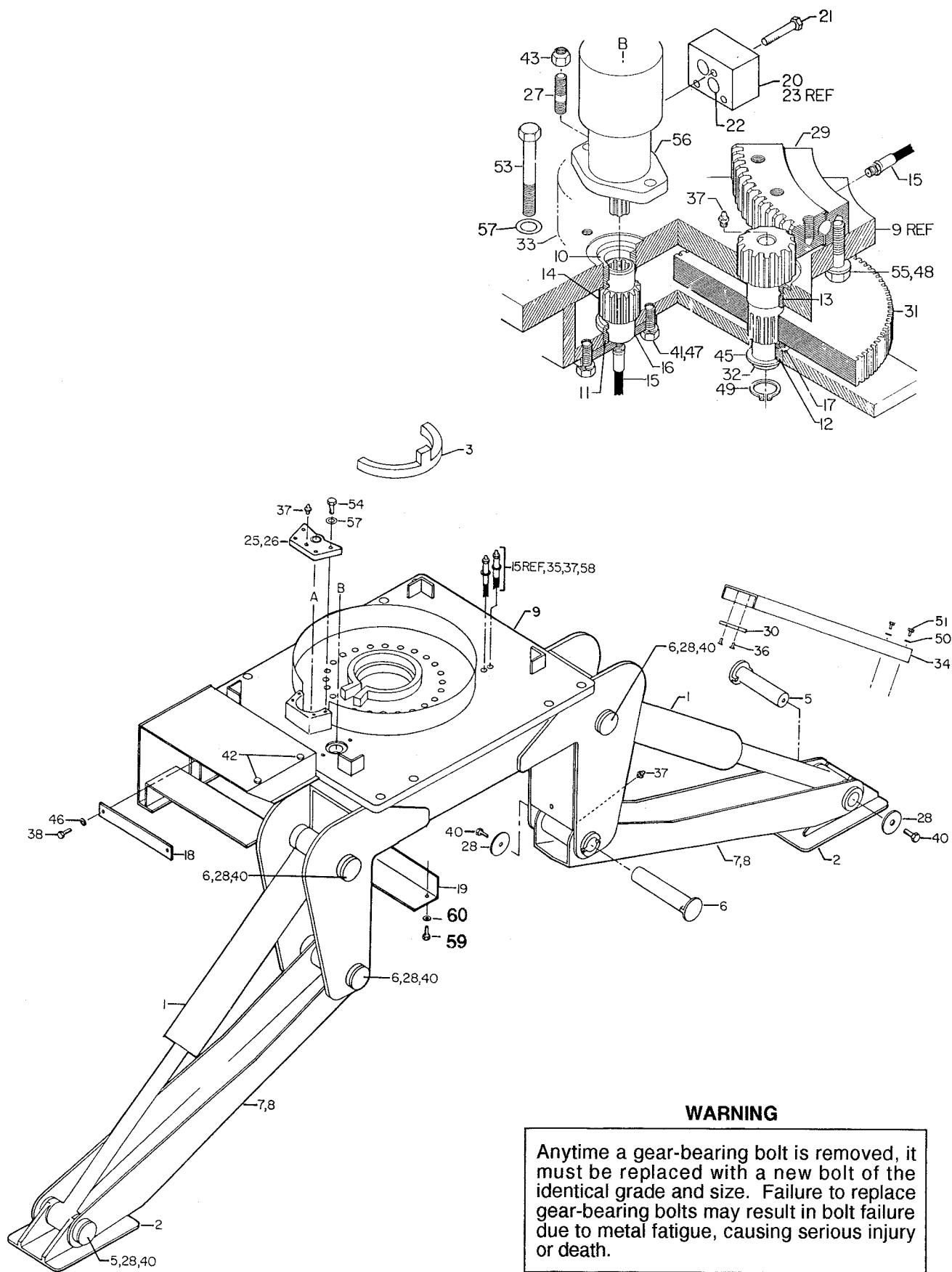


**SEE ILLUSTRATION ON PAGE 4-4**

ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	3C323911	OUTRIGGER CYLINDER	2	30.	60030176	WEAR PAD	2
2.	52701412	OUTRIGGER PAD	2	31.	71056072	INTERMEDIATE GEAR	1
3.	71143520	SLIDE	1	32.	71056073	PINION GEAR	1
4.	52706848	LADDER	2	33.	71056374	BRAKE	1
5.	52703694	PIN	2	34.	52706739	CYLINDER GUARD	2
6.	52703695	PIN	4	35.	72053301	COUPLING 1/8NPT	2
7.	52703775	OUTRIGGER LEG (INCL:8)	2	36.	72060836	CAP SCR 1/4-20 X 3/4 FLH SOC	4
8.	7BF81225	BUSHING (PART OF 7)	8REF	37.	72053508	ZERK 1/8NPT	6
9.	52709714	BASE (INCL:10-14,59)	1	38.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	2
10.	60020120	BUSHING (PART OF 9)	1REF	39.	72060052	CAP SCR 3/8-16 X 2-1/2 HH GR5	10
11.	60020121	BUSHING (PART OF 9)	1REF	40.	72060147	CAP SCR 5/8-11 X 1 HH GR5	6
12.	60020122	BUSHING (PART OF 9)	1REF	41.	72060092	CAP SCR 1/2-13 X 1-1/4 HH GR5	2
13.	60020124	BUSHING (PART OF 9)	1REF	42.	72060857	SCREW 5/16-18 X 5/8 HH SLFTP	2
14.	71056074	DRIVE GEAR (PART OF 9)	1REF	43.	72062080	NUT 1/2-13 LOCK	2
15.	53000713	GREASE EXTENSION 38"	2	44.	72062103	NUT 3/8-16 LOCK	10
16.	60010844	GREASE PLATE	1	45.	72063039	MACH BUSHING 2 X 10GA	1
17.	60020123	THRUST WASHER	1	46.	72063049	WASHER 1/4 LOCK	2
18.	60103728	ACCESS COVER	1	47.	72063053	WASHER 1/2 LOCK	2
19.	60103729	GEAR GUARD	1	48.	72063115	WASHER 7/8 FLAT HARD GR8	23
20.	70731795	VALVE BLOCK (INCL:22,23)	1	49.	72066095	RETAINING RING 2" EXT	1
21.	72060757	CAP SCR 3/8-16 X 2-1/2 SH	3	50.	72063051	WASHER 3/8 LOCK	4
22.	7Q072017	O-RING (PART OF 20)	2REF	51.	72060044	CAP SCR 3/8-16 X 3/4 HH GR5	6
23.	73054538	CARTRIDGE VALVE (PART OF 20)	2REF	53.	72601037	CAP SCR 9/16-12 X 4-1/2 HH GR8	2
24.	60104283	REMOVABLE TUBE	1	54.	72601144	CAP SCR 9/16-12 X 2 HH GR8	4
25.	60105964	PINION SUPPORT (INCL:26)	1REF	55.	72601472	CAP SCR 7/8-9 X 4-1/2 HH GR8	23
26.	70034295	BEARING (PART OF 25)	1REF	56.	73051478	MOTOR	1
27.	60106032	STUD 1/2-13 X 2	2	57.	72063117	WASHER 9/16 FLAT HARD GR8	6
28.	60106332	PIN RETAINER PLATE	6	58.	72063004	WASHER 7/16 WRT	2
29.	70055167	TURNTABLE-BEARING	1	59.	72060023	CAP SCR 5/16-18 X 3/4 HH GR5	2
				60.	72063050	WASHER 5/16 LOCK	2

**Figure D-4. Base and Outrigger Assembly (Part Number 41709706)**

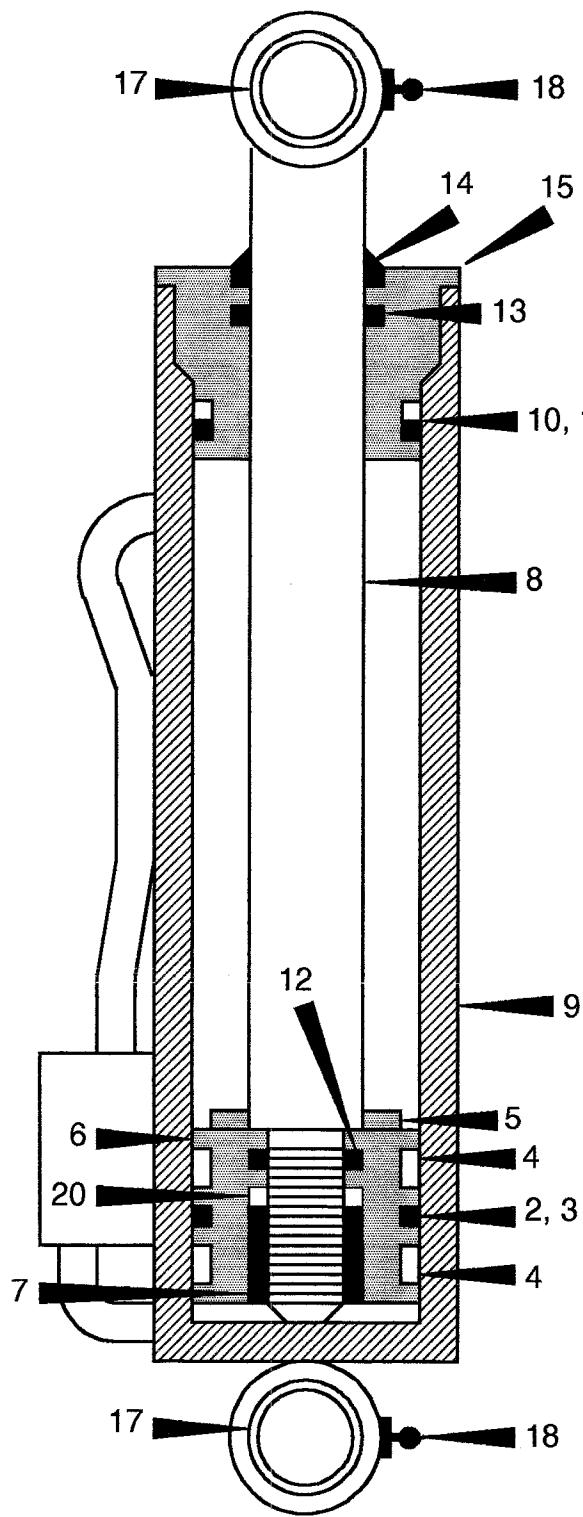
**SEE PARTS LIST ON PAGE 4-3**



**WARNING**

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue, causing serious injury or death.

**Figure D-4. Base and Outrigger Assembly (Part Number 41709706)**



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	4REF
2.	7Q072257	O-RING (PART OF 21)	1REF
3.	7T66P065	PISTON SEAL (PART OF 21)	1REF
4.	7T65I065	PISTON RING (PART OF 21)	2REF
5.	6A025035	WAFER LOCK (PART OF 21)	1REF
6.	6IX65200	PISTON	1
7.	72062144	NUT - 2" BUTTRESS	1
8.	4G323910	ROD ASM (INCL:17 & 18)	1
9.	4C263513	CASE ASM (INCL:1,17,18)	1
10.	7Q072361	O-RING (PART OF 21)	1REF
11.	7Q10P361	BACK-UP RING (PART OF 21)	1REF
12.	7Q072227	O-RING (PART OF 21)	1REF
13.	7R546035	ROD SEAL (PART OF 21)	1REF
14.	7R14P035	ROD WIPER (PART OF 21)	1REF
15.	6H065035	HEAD	1
16.	73054304	VALVE 10GPM	2
17.	7BF81225	BUSHING (PART OF 8 & 9)	7REF
18.	72053507	ZERK (PART OF 8 & 9)	4REF
20.	72063016	WASHER	1
21.	9X262832	SEAL KIT (INCL:2-5,10-14)	1

**NOTE**

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

BORE	6.50"
STROKE	29.25"
CTR-CTR CL	42.12"
ROD DIA	3.50"
PIN DIA	2.50"

**Figure D-5. Outrigger Cylinder (Part Number 3C323911)**

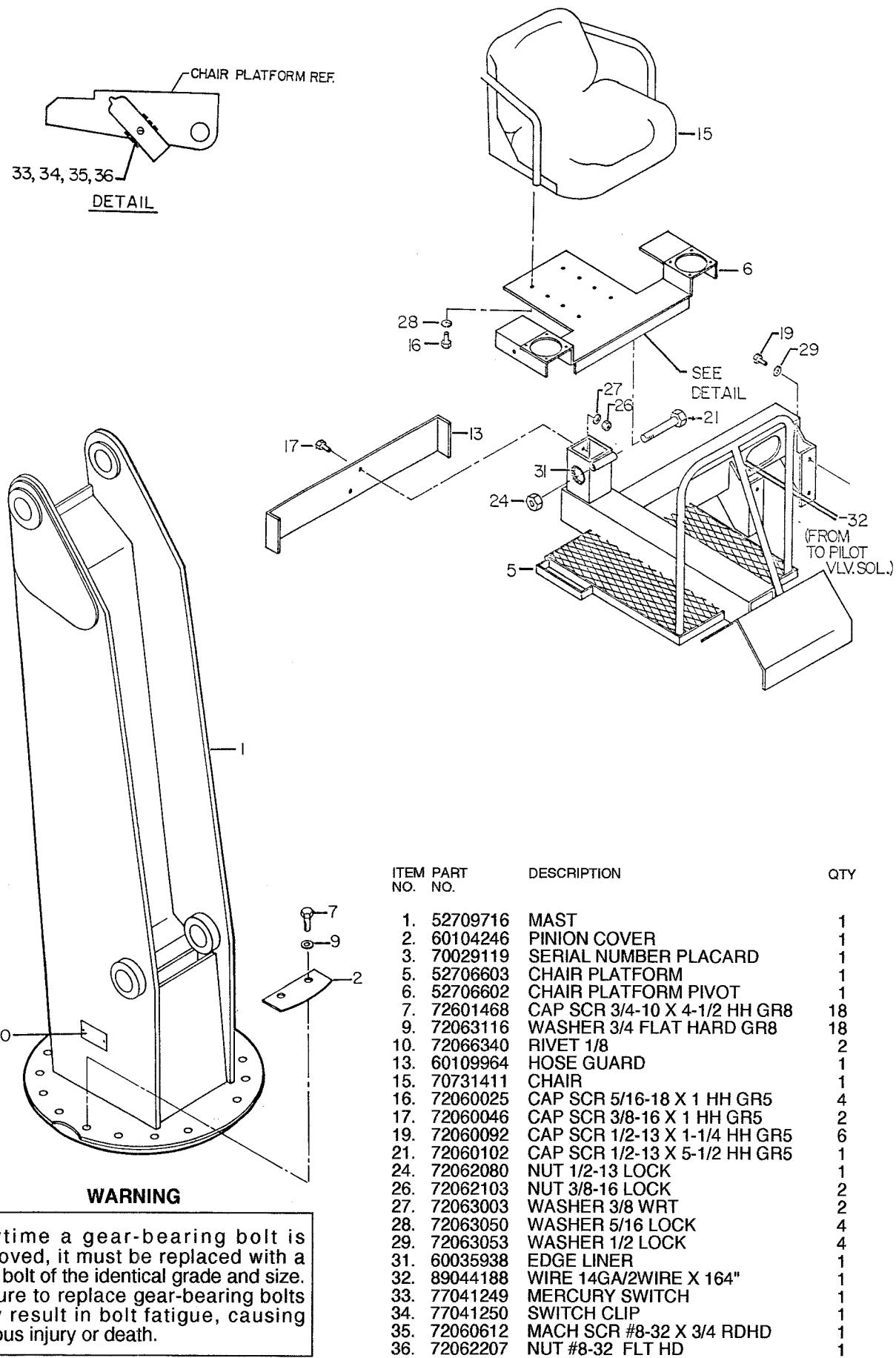
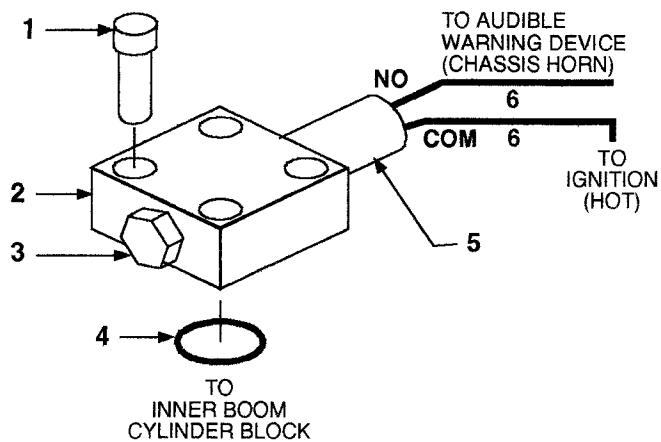


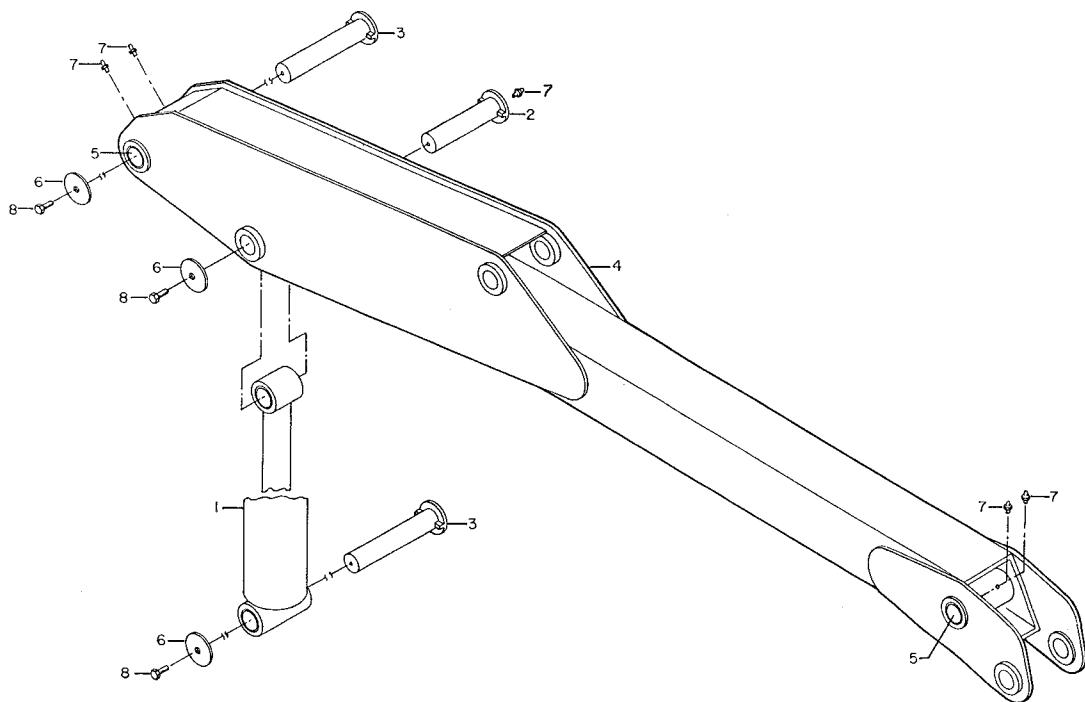
Figure D-6. Mast Assembly (Part Number 41709707)

**NOTE**

This capacity alert system consists of a pressure switch mounted on the lift side of the inner boom lift cylinder which senses hydraulic pressure. It is to be connected electrically (by the customer) to an audible warning device such as the truck chassis horn, using 14-gauge wire.

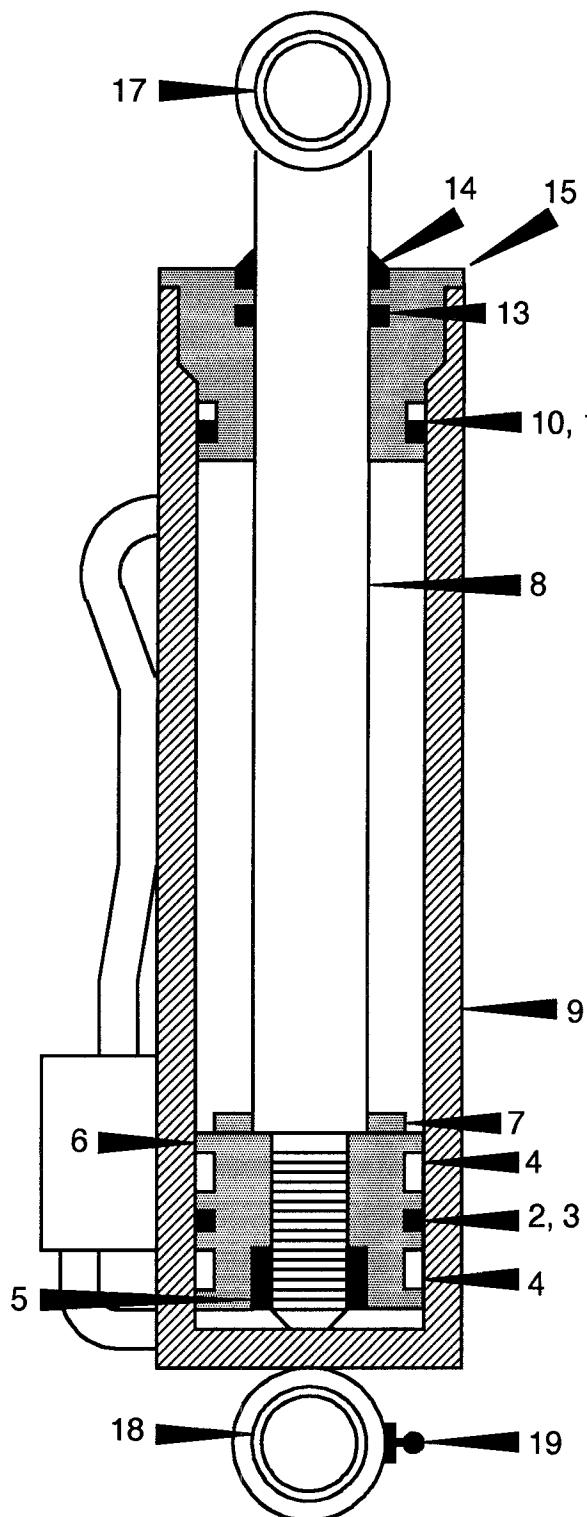
ITEM	PART NO.	DESCRIPTION	QTY
1.	72060731	CAP SCR 5/16-18X3/4 SH	4
2.	60025221	MANIFOLD	1
3.	72532140	PLUG 9/16-18 STR THD HH	1
4.	7Q072015	O-RING	1
5.	77041283	PRESSURE SWITCH	1
6.	89044188	WIRE-14GA (Customer Supplied)	1
7.	99900118	INSTALLATION DWG	REF

**Figure D-6A. CAPACITY ALERT KIT - AUDIBLE (31705698)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	3D216821	INNER CYLINDER	1
2.	52704419	PIN	1
3.	52704420	PIN	2
4.	52709749	INNER BOOM (INCL: 5)	1
5.	60020192	BUSHING (PART OF 4)	6REF
6.	60106681	PIN RETAINER PLATE	3
7.	72053508	ZERK 1/8NPT	5
8.	72060181	CAP SCR 3/4-10 X 1 HH GR5	3

**Figure D-7. INNER BOOM ASSEMBLY (41709708)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	3REF
2.	7Q072263	O-RING (PART OF 21)	1REF
3.	7T66P080	PISTON SEAL (PART OF 21)	1REF
4.	7T65I080	PISTON RING (PART OF 21)	2REF
5.	7T61N243	LOCK RING SEAL (PART OF 21)	1REF
6.	6I080243	PISTON	1
7.	6A025040	WAFER LOCK (PART OF 21)	1REF
8.	4G216820	ROD ASM (INCL:17)	1
9.	4D216821	CASE ASM (INCL:1,18,19)	1
10.	7Q072443	O-RING (PART OF 21)	1REF
11.	7Q10P443	BACK-UP RING (PART OF 21)	1REF
13.	7R546040	ROD SEAL (PART OF 21)	1REF
14.	7R14P040	ROD WIPER (PART OF 21)	1REF
15.	6HX80040	HEAD	1
16.	73054242	VALVE 25GPM	1
17.	60020189	BUSHING (PART OF 8 )	2REF
18.	60020190	BUSHING (PART OF 9)	3REF
19.	72053507	ZERK (PART OF 9)	2REF
21.	9C323239	SEAL KIT (INCL:2-5,7,10,11,13,14)	1

#### NOTE

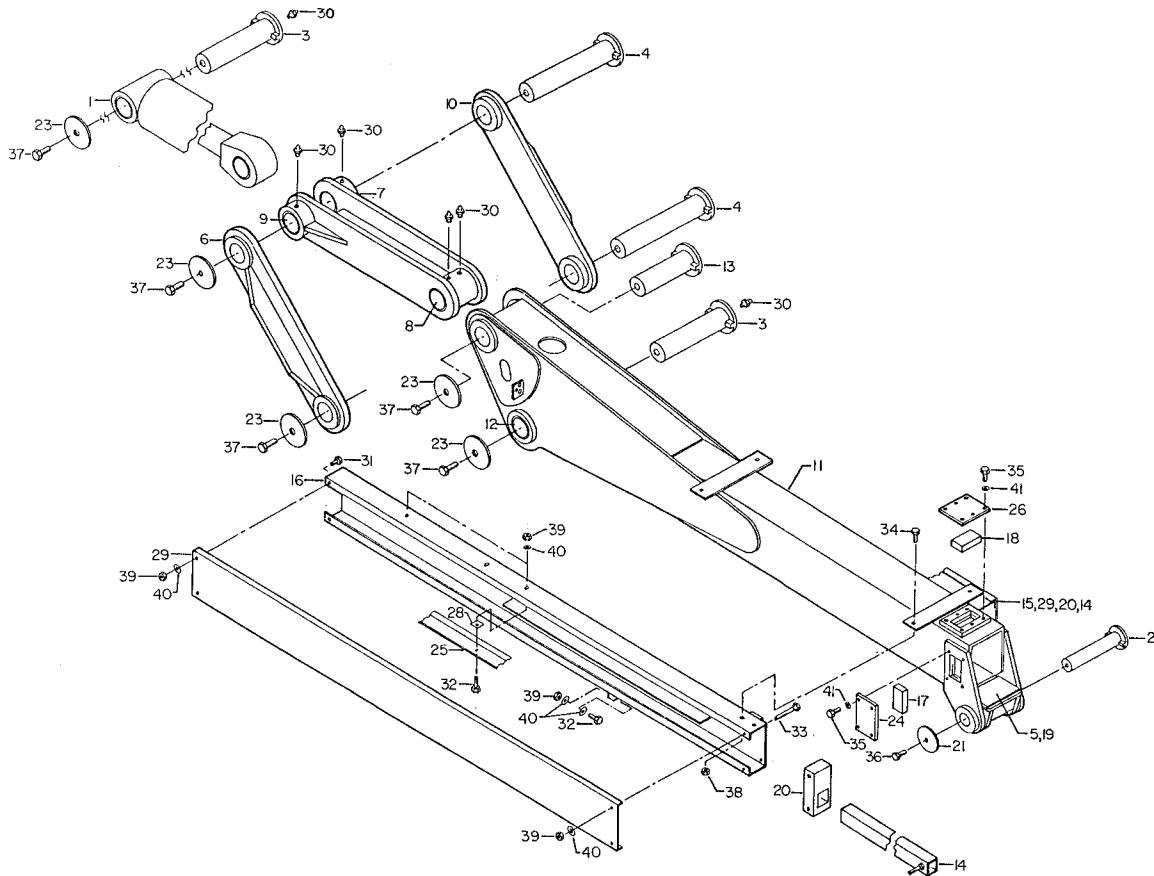
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

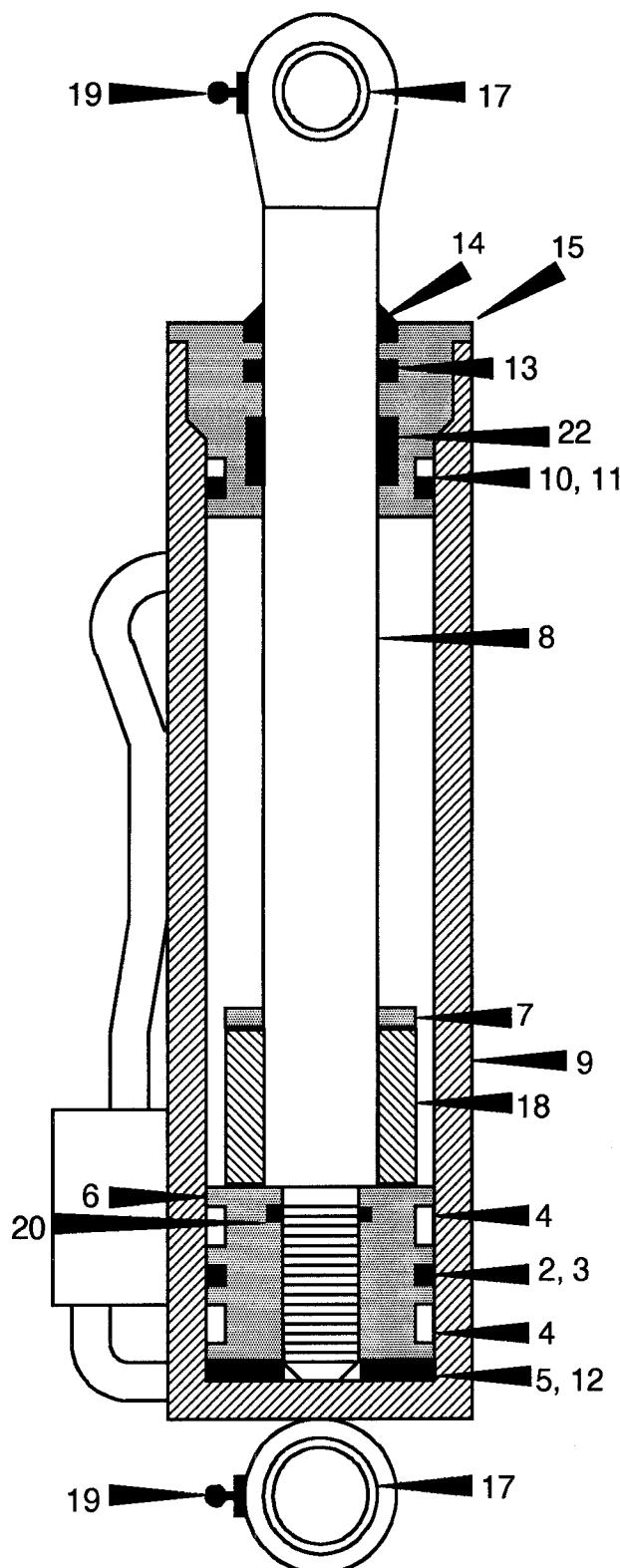
BORE	8.00"
STROKE	34.00"
CTR-CTR CL	50.00"
ROD DIA	4.00"
PIN DIA	3.00"

Figure D-8. INNER CYLINDER (3D216821)



ITEM PART NO.	DESCRIPTION	QTY	ITEM PART NO.	DESCRIPTION	QTY
1. 3C220830	OUTER CYLINDER	1	21. 60106331	PIN RETAINER PLATE	1
2. 52703714	PIN	1	23. 60106681	PIN RETAINER PLATE	5
3. 52704419	PIN	2	24. 60107438	RETAINER PLATE	2
4. 52704420	PIN	2	25. 60113990	HOSE CLAMP	2
5. 52704524	TRUNNION	1	26. 60107818	MOUNTING BLOCK	1
6. 52704854	OUTER LINK	1	28. 60107759	GUARD PLATE	6
7. 52704855	INNER LINK (INCL: 8,9)	1	29. 60113989	GUARD COVER	2
8. 60020193	BUSHING (PART OF 7)	3REF	30. 72053508	ZERK 1/8NPT	6
9. 60020204	BUSHING (PART OF 7)	2REF	31. 72060023	CAP SCR 5/16-18 X 3/4 HH GR5	4
10. 52704856	OUTER LINK	1	32. 72060027	CAP SCR 5/16-18 X 1-1/2 HH GR5	8
11. 52709765	OUTER BOOM (INCL: 12)	1	33. 72601530	CARR BOLT 5/16-18 X 3-3/4 GR2	4
12. 60020195	BUSHING (PART OF 11)	2REF	34. 72060047	CAP SCR 3/8-16 X 1-1/4 HH GR5	6
13. 52704860	PIN	1	35. 72060092	CAP SCR 1/2-13 X 1-1/4 HH GR5	14
14. 52709768	TROMBONE TUBE	2	36. 72060147	CAP SCR 5/8-11 X 1 HH GR5	1
15. 52709769	TROMBONE GUARD	2	37. 72060181	CAP SCR 3/4-10 X 1 HH GR5	5
17. 60030006	WEAR PAD	2	38. 72062103	NUT 3/8-16 LOCK	6
18. 60030015	WEAR PAD	1	39. 72062109	NUT 5/16-18 LOCK	16
19. 60030078	WEAR PAD	1	40. 72063002	WASHER 5/16 WRT	18
20. 60030017	TROMBONE GUIDE	2	41. 72063053	WASHER 1/2 LOCK	14
			42. 89039658	WEATHERSTRIP 3/16 X 6"	4

Figure D-9. Outer Boom Assembly (Part Number 41709709)



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	2REF
2.	7Q072259	O-RING (PART OF 21)	1REF
3.	7T66P070	PISTON SEAL (PART OF 21)	1REF
4.	7T65I070	PISTON RING (PART OF 21)	2REF
5.	72063016	WASHER	1
6.	6IX70200	PISTON	1
7.	6A025035	WAFER LOCK (PART OF 21)	1REF
8.	4G220830	ROD ASM (INCL:19)	1
9.	4C220830	CASE ASM (INCL:1,17,19)	1
10.	7Q072363	O-RING (PART OF 21)	1REF
11.	7Q10P363	BACK-UP RING (PART OF 21)	1REF
12.	72062144	NUT	1
13.	7R546035	ROD SEAL (PART OF 21)	1REF
14.	7R14P035	ROD WIPER (PART OF 21)	1REF
15.	6HX70035	HEAD	1
16.	73054242	VALVE 25GPM	2
17.	60020193	BUSHING (PART OF 8 & 9)	6REF
18.	6C300035	STOP TUBE	1
19.	72053507	ZERK (PART OF 8 & 9 )	3REF
20.	7Q072227	O-RING (PART OF 21)	1REF
21.	9X282832	SEAL KIT (INCL:2-4,7,10,11,13,14)	1
22.	7T2N2X37	WEAR RING (PART OF 21)	1REF

#### NOTE

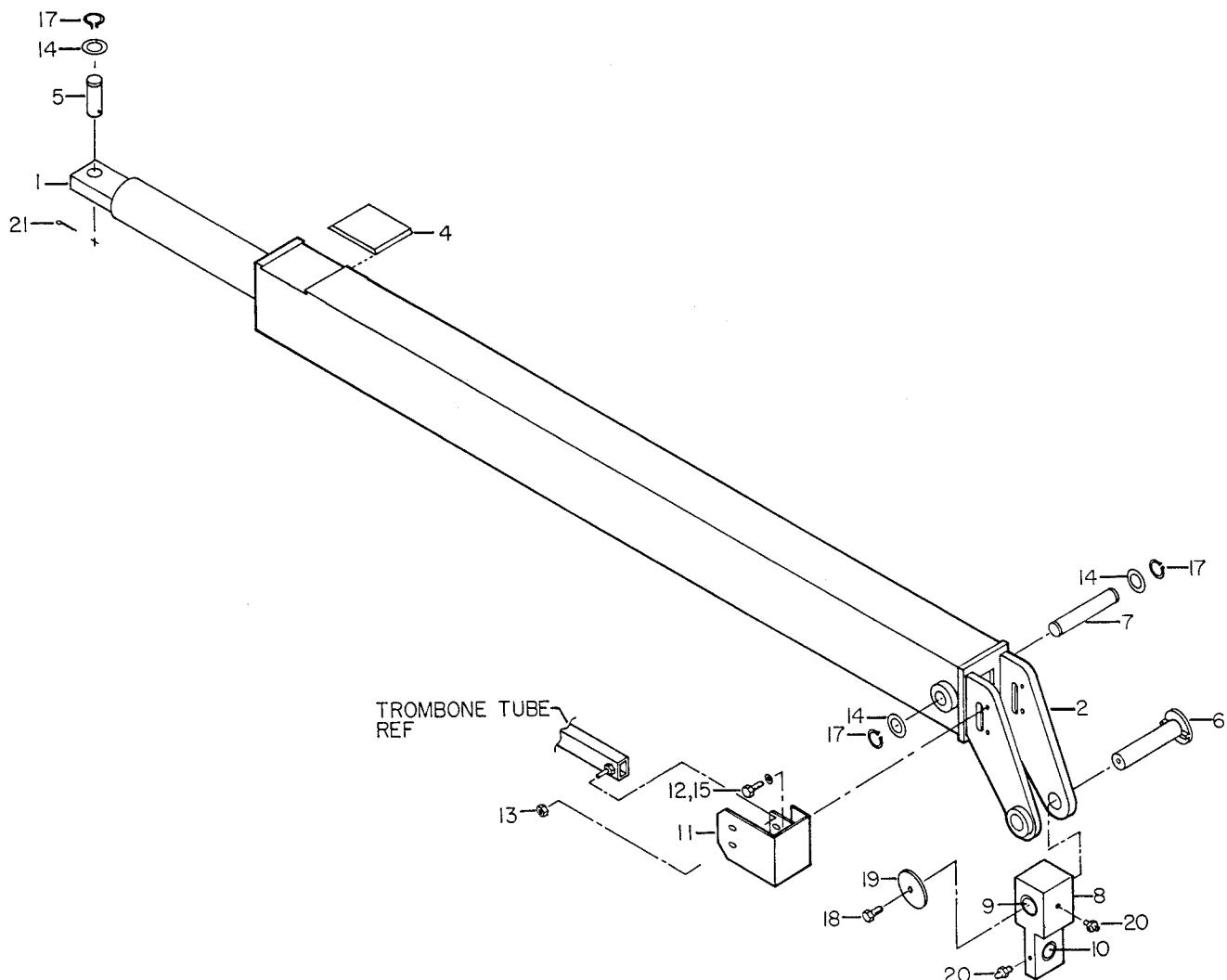
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

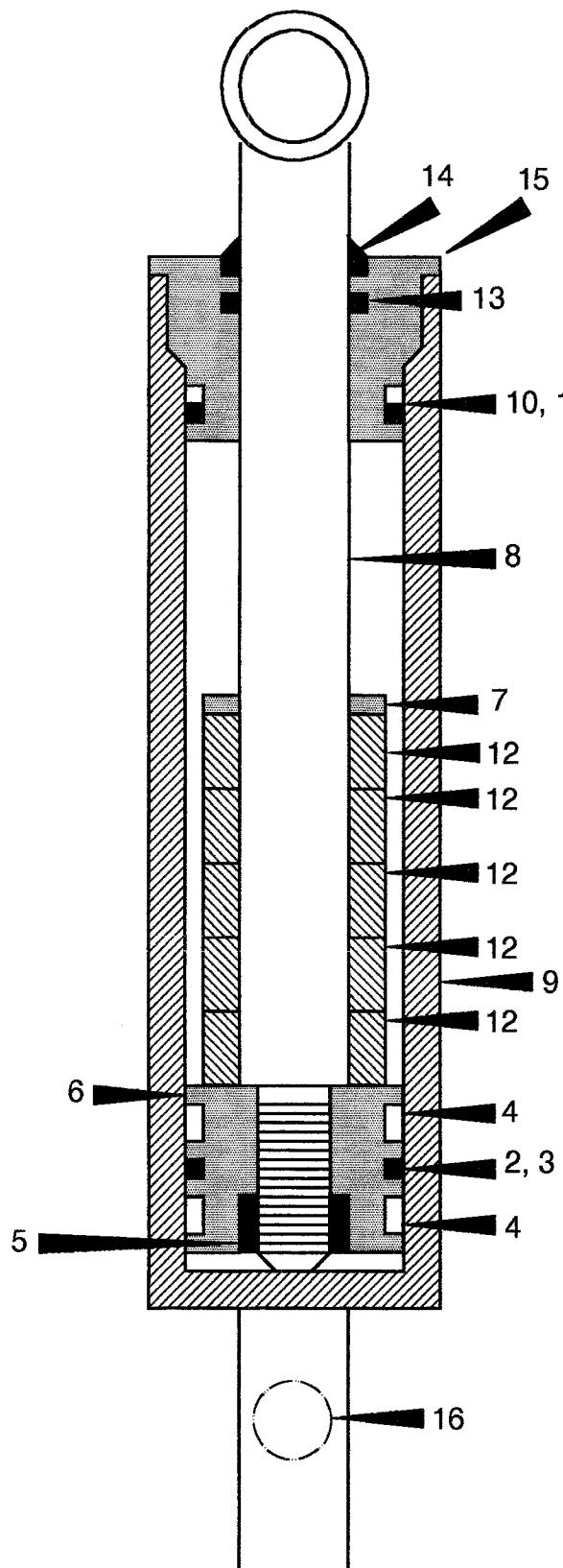
BORE	7.00"
STROKE	48.00"
CTR-CTR CL	70.00"
ROD DIA	3.50"
PIN DIA	3.00"

Figure D-10. OUTER CYLINDER (3C220830)



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	3B229830	EXTENSION CYLINDER	1
2.	52704857	EXTENSION BOOM	1
4.	60030077	WEAR PAD	1
5.	60102096	PIN	1
6.	52709756	PIN	1
7.	60105321	PIN	1
8.	60105607	LINK (INCL: 9,10)	1
9.	60020170	BUSHING (PART OF 8)	2REF
10.	60020171	BUSHING (PART OF 8)	2REF
11.	52709757	END GUARD	2
12.	72060044	CAP SCR 3/8-16 X 3/4 HH GR5	4
13.	72062080	NUT 1/2-13 LOCK	2
14.	72063037	MACH BUSHING 1-1/2 X 10GA	3
15.	72063051	WASHER 3/8 LOCK	4
17.	72066132	RETAINING RING 1-1/2 EXT	3
18.	72060147	CAP SCR 5/8-11 X 1 HH GR5	1
19.	60109337	PIN RETAINING PLATE	1
20.	72053508	ZERK 1/8NPT	2
21.	72066195	COTTER PIN 3/16 X 2	1

Figure D-11. Extension Boom Assembly (Part Number 41709710)



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	2REF
2.	7Q072153	O-RING (PART OF 21)	1REF
3.	7T66P040	PISTON SEAL (PART OF 21)	1REF
4.	7T65I040	PISTON RING (PART OF 21)	2REF
5.	7T61N143	LOCK RING SEAL (PART OF 21)	1REF
6.	6I040143	PISTON	1
7.	6A025025	WAFER LOCK (PART OF 21)	1REF
8.	4G229830	ROD ASM	1
9.	4B229830	CASE ASM (INCL:1)	1
10.	7Q072342	O-RING (PART OF 21)	1REF
11.	7Q10P342	BACK-UP RING (PART OF 21)	1REF
12.	6C300025	STOP TUBE	5
13.	7R546025	ROD SEAL (PART OF 21)	1REF
14.	7R14P025	ROD WIPER (PART OF 21)	1REF
15.	6H040025	HEAD	1
16.	73054304	VALVE 10GPM	1
21.	9C162023	SEAL KIT (INCL:2-5,7,10,11,13,14)	1

BORE	4.00"
STROKE	60.00"
CTR-CTR CL	100.00"
ROD DIA	2.50"
PIN DIA	1.50"

**NOTE**

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

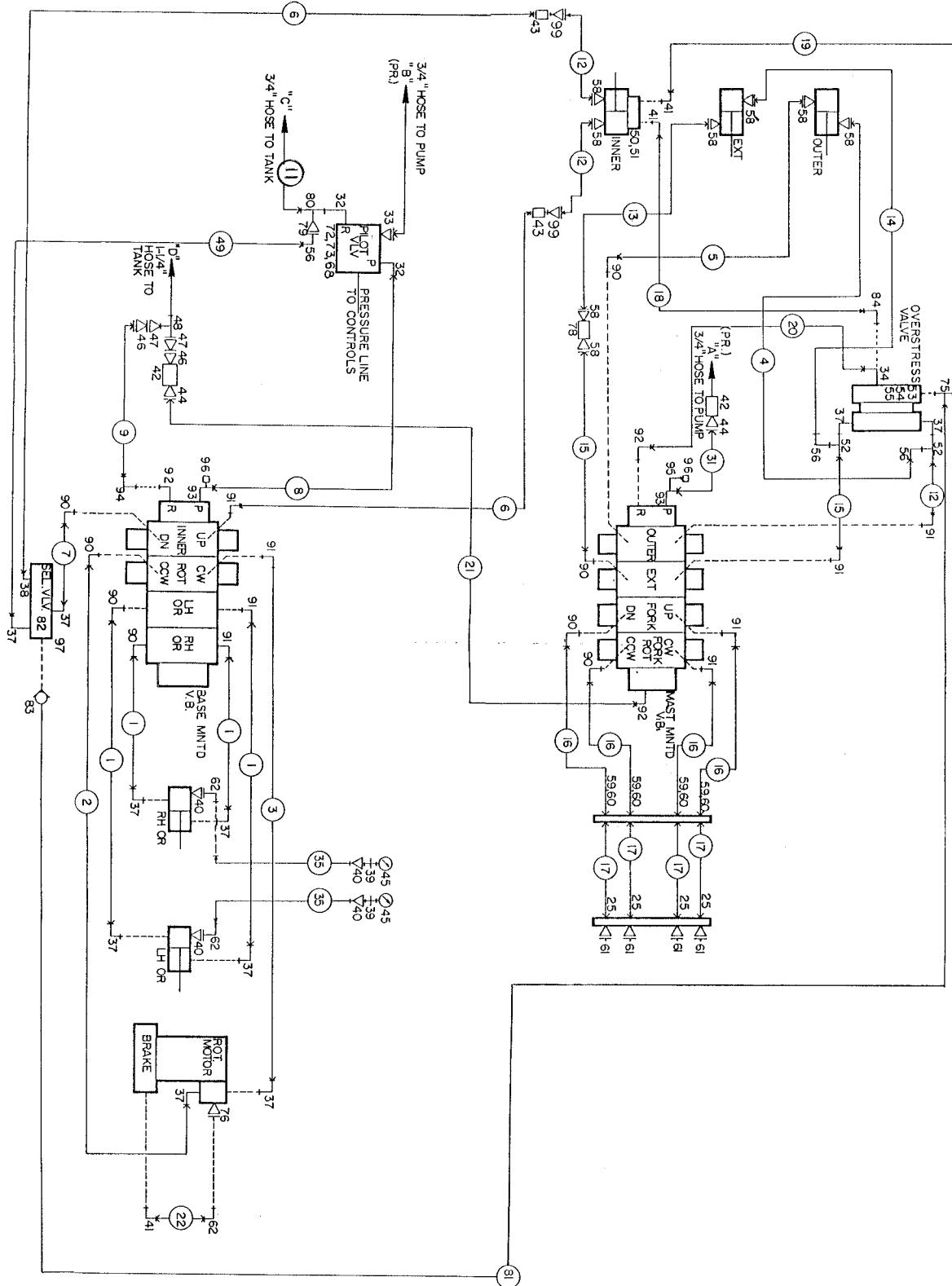
**Figure D-12. Extension Cylinder (Part Number 3B229830)**

**SEE ILLUSTRATIONS ON PAGES 4-14 AND 4-15**

ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1. 51706528		HOSE ASM 1/2 X 80	4	52. 72532657		TEE 3/4JIC SWVL NUT RUN	2
2. 51706519		HOSE ASM 3/8 X 24	1	53. 73054424		OVERSTRESS VALVE	1
3. 51706889		HOSE ASM 3/8 X 20	1	54. 72060050		CAP SCR 3/8-16 X 2 HH GR5	2
4. 51709964		HOSE ASM 1/2 X 149	1	55. 72062103		NUT 3/8-16 LOCK	2
5. 51709965		HOSE ASM 1/2 X 153	1	56. 72532658		ELBOW 3/4MJIC X 3/4FJIC SWVL	3
6. 51706892		HOSE ASM 1/2 X 66	2	58. 72532358		ADAPTER 3/4MSTR X 3/4MJIC	8
7. 51706525		HOSE ASM 1/2 X 26	1	59. 72532672		BULKHEAD UNION 3/4JIC	4
8. 51706533		HOSE ASM 3/4 X 17	1	60. 72531708		BULKHEAD NUT 3/4JIC	4
9. 51706535		HOSE ASM 3/4 X 33	1	61. 72532665		ADAPTER 7/16MJIC X 3/4FJIC	4
11. 51706552		HOSE ASM 3/4 X 80	1	62. 72532690		ELBOW 7/16MJIC X 7/16FJIC SWVL	5
12. 51706891		HOSE ASM 1/2 X 24	3	63. 72532768		TEE 7/16MJIC	4
13. 51709966		HOSE ASM 1/2 X 236	1	65. 70731800		FOOT PEDAL CONTROL	2
14. 51709968		HOSE ASM 1/2 X 254	1	66. 72060023		CAP SCR 5/16-18 X 3/4 HH GR5	8
15. 51706890		HOSE ASM 1/2 X 21	2	67. 70731801		JOYSTICK CONTROL	2
16. 51709967		HOSE ASM 3/8 X 250	4	68. 72062109		NUT 5/16-18 LOCK	10
17. 51706520		HOSE ASM 3/8 X 234	4	69. 72060002		CAP SCR 1/4-20 X 3/4 HH GR5	8
18. 51705733		HOSE ASM 1/4 X 24	1	70. 72063001		WASHER 1/4 WRT	8
19. 51703659		HOSE ASM 1/4 X 22	1	71. 72063049		WASHER 1/4 LOCK	8
20. 51706624		HOSE ASM 3/4 X 28	1	72. 73054542		PILOT VALVE	1
21. 51706537		HOSE ASM 3/4 X 45	1	73. 72060029		CAP SCR 5/16-18 X 2 HH GR5	2
22. 51703876		HOSE ASM 1/4 X 8-1/2	1	75. 72532981		TEE 7/16JIC SWVL NUT RUN	3
23. 51709653		HOSE ASM 1/4 X 130	2	76. 72532351		ADAPTER 7/16MSTR X 7/16MJIC	1
24. 51704588		HOSE ASM 1/4 X 175	2	77. 72532985		ELBOW 9/16MSTR X 7/16MJIC 45°	12
25. 72532986		ELBOW 3/4MJIC X 3/4MJIC 90°	4	78. 73054426		ADJ RELIEF VALVE	1
26. 51706627		HOSE ASM 1/4 X 120	2	79. 72532972		ADAPTER 3/4MJIC X 1-1/16FJIC	1
27. 51709651		HOSE ASM 1/4 X 103	2	80. 72532950		TEE 1-1/16JIC SWVL NUT RUN	1
28. 51709654		HOSE ASM 1/4 X 160	2	81. 51706893		HOSE ASM 1/4 X 90	1
29. 51705202		HOSE ASM 1/4 X 49	2	82. 73054462		SELECTOR VALVE	1
30. 51709650		HOSE ASM 1/4 X 43	4	83. 73054549		CHECK VALVE	1
31. 51706632		HOSE ASM 3/4 X 47	1	84. 72531412		ELBOW 1/4MPT X 7/16MJIC	1
32. 72053767		ELBOW 1-1/16MSTR X 1-1/16MJIC 90°	2	85. 51706628		HOSE ASM 1/4 X 132	2
33. 72532366		ADAPTER 1-1/16MSTR X 1-1/16MJIC	1	86. 51706894		HOSE ASM 1/4 X 3	4
34. 60107995		ELBOW - MODIFIED	1	87. 72532699		ELBOW 9/16MSTR X 7/16MJIC 90° (PART OF VB)	9REF
35. 51708886		HOSE ASM 1/4 X 286	2	88. 72532700		ELBOW 9/16MSTR X 9/16MJIC 90° XLG (PART OF VB)	3REF
36. 72532699		ELBOW 9/16MSTR X 7/16MJIC 90°	5	89. 72532707		ADAPTER 7/16MJIC X 9/16MJIC (PART OF VB)	3REF
37. 72053763		ELBOW 3/4MSTR X 3/4MJIC 90°	10	90. 72532666		ELBOW 3/4MSTR X 3/4MJIC 90° XLG (PART OF VB)	8REF
38. 72532666		ELBOW 3/4MSTR X 3/4MJIC 90° XLG	1	91. 72053763		ELBOW 3/4MSTR X 3/4MJIC 90° (PART OF VB)	8REF
39. 72053468		COUPLING 1/8NPT	2	92. 72053767		ELBOW 1-1/16MSTR 1-1/16MJIC 90° (PART OF VB)	3REF
40. 72053663		ADAPTER 1/8MPT X 7/16MJIC	4	93. 60114669		ELBOW - MODIFIED (PART OF VB)	2REF
41. 72053758		ELBOW 7/16MSTR X 7/16MJIC 90°	3	94. 72532696		ELBOW 1-1/16MJIC X 1-1/16FJIC SWVL (PART OF VB)	1REF
42. 72532973		ADAPTER 1-1/16FJIC IN-LINE PR SWVL	2	95. 72531131		STRT ELBOW 1/4 X 90° (PART OF VB)	1REF
43. 72532980		ADAPTER 3/4FJIC IN-LINE PR SWVL	2	96. 72532987		DISCONNECT NIPPLE 1/4 (PART OF VB)	2REF
44. 72532855		ADAPTER 1-1/16MJIC X 1-1/16MJIC	2	97. 72060028		CAP SCR 5/16-18 X 1-3/4 HH GR5	2
45. 73054435		PRESSURE GAUGE	2	98. 51709652		HOSE ASM 1/4 X 117	2
46. 72053676		ADAPTER 3/4MPT X 1-1/16MJIC	2	99. 72532739		ADAPTER 3/4MJIC X 3/4MJIC	2
47. 72531836		REDUCER BUSHING 1-1/4 X 3/4	2	100. 72532353		ADAPTER #6MSTR #4MJIC	4
48. 72053615		TEE 1-1/4NPT	1				
49. 51706463		HOSE ASM 1/2 X 18	1				
50. 73054425		SENSOR VALVE	1				
51. 72060734		CAP SCR 5/16-18 X 1-1/2 SH	4				

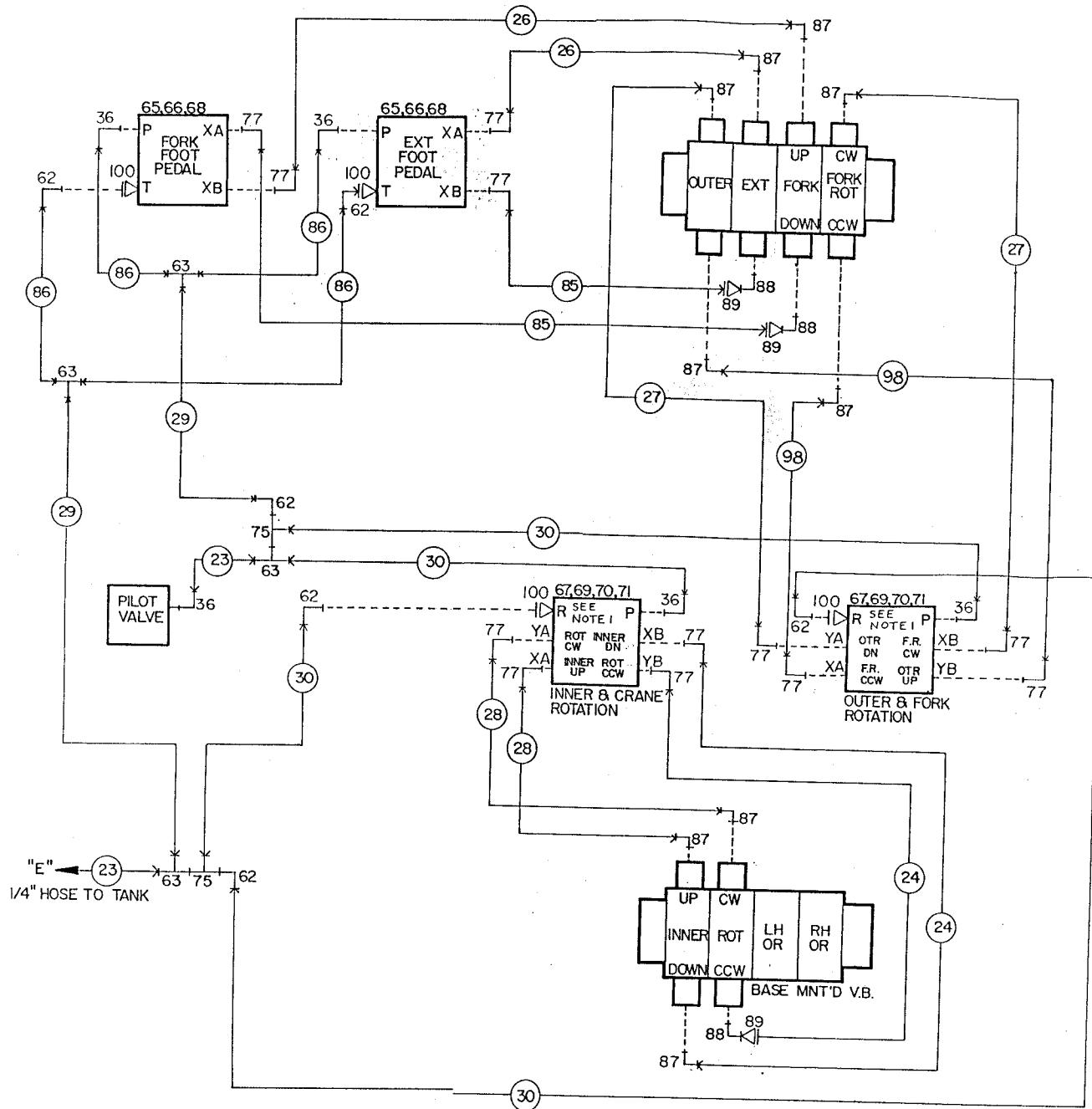
Figure D-13. HYDRAULIC KIT (91709713)

**SEE PARTS LIST ON PAGE 4-13.**

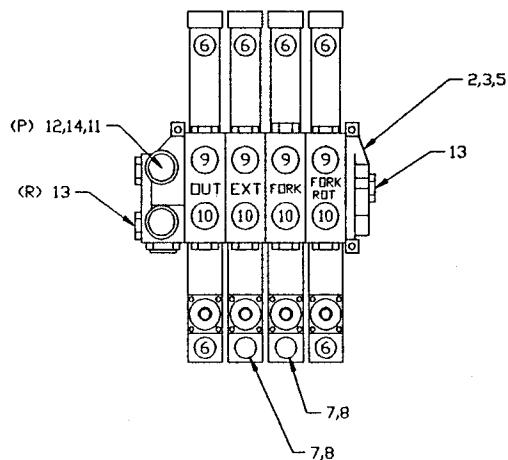


**Figure D-13. Hydraulic Kit (Part Number 91709713)**

**SEE PARTS LIST ON PAGE 4-13.**



**Figure D-13. HYDRAULIC KIT (91709713)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	70731810	VALVEBANK 4-SECT (BASE)	1
2.	70731811	VALVEBANK 4-SECT (MAST)	1
3.	72060032	CAP SCR 5/16-18X2-3/4 HHGR5	6
4.	72062109	NUT 5/16-18 LOCK	3
5.	72063002	WASHER 5/16 WRT	6
6.	72532699	ELBOW 9/16MSTR 7/16MJIC 90°	9
7.	72532700	ELBOW 9/16MSTR 9/16MJIC XLG	3
8.	72532707	ADAPTER 7/16MJIC 9/16FJIC	3
9.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	8
10.	72532666	ELBOW 3/4MSTR 3/4MJIC XLG	8
11.	60107995	ELBOW-PR GAUGE MOD	2
12.	72532987	DISCONNECT NIPPLE 1/4	2
13.	72053767	ELBOW 1-1/16MSTR 1-1/16MJIC 90°	3
14.	72531131	STREET ELBOW 1/4NPT 90°	1

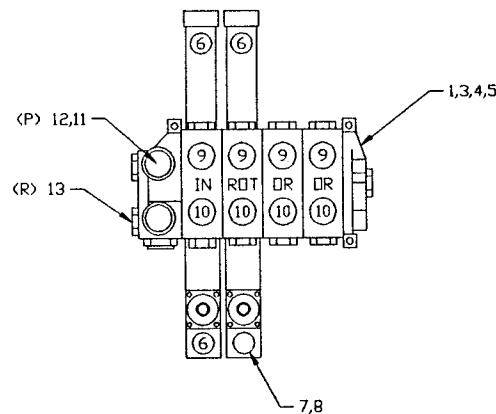
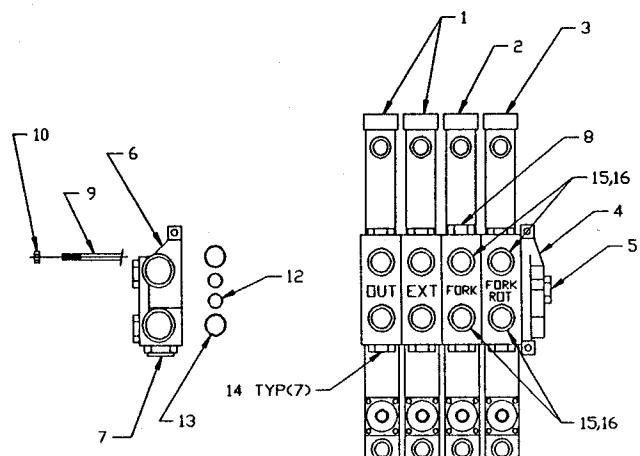
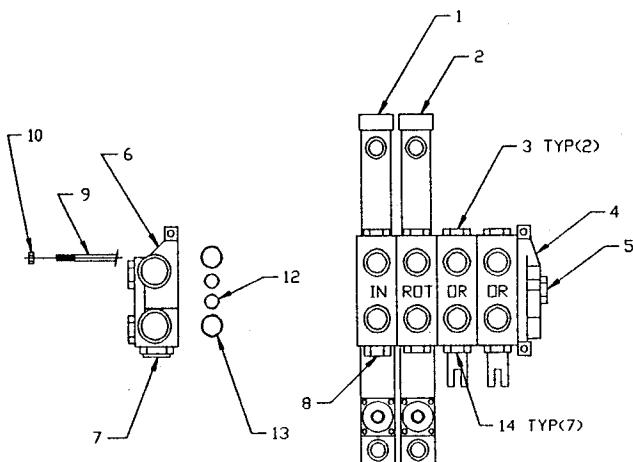


Figure D-14. VALVE BANK ASSEMBLY (51706605)

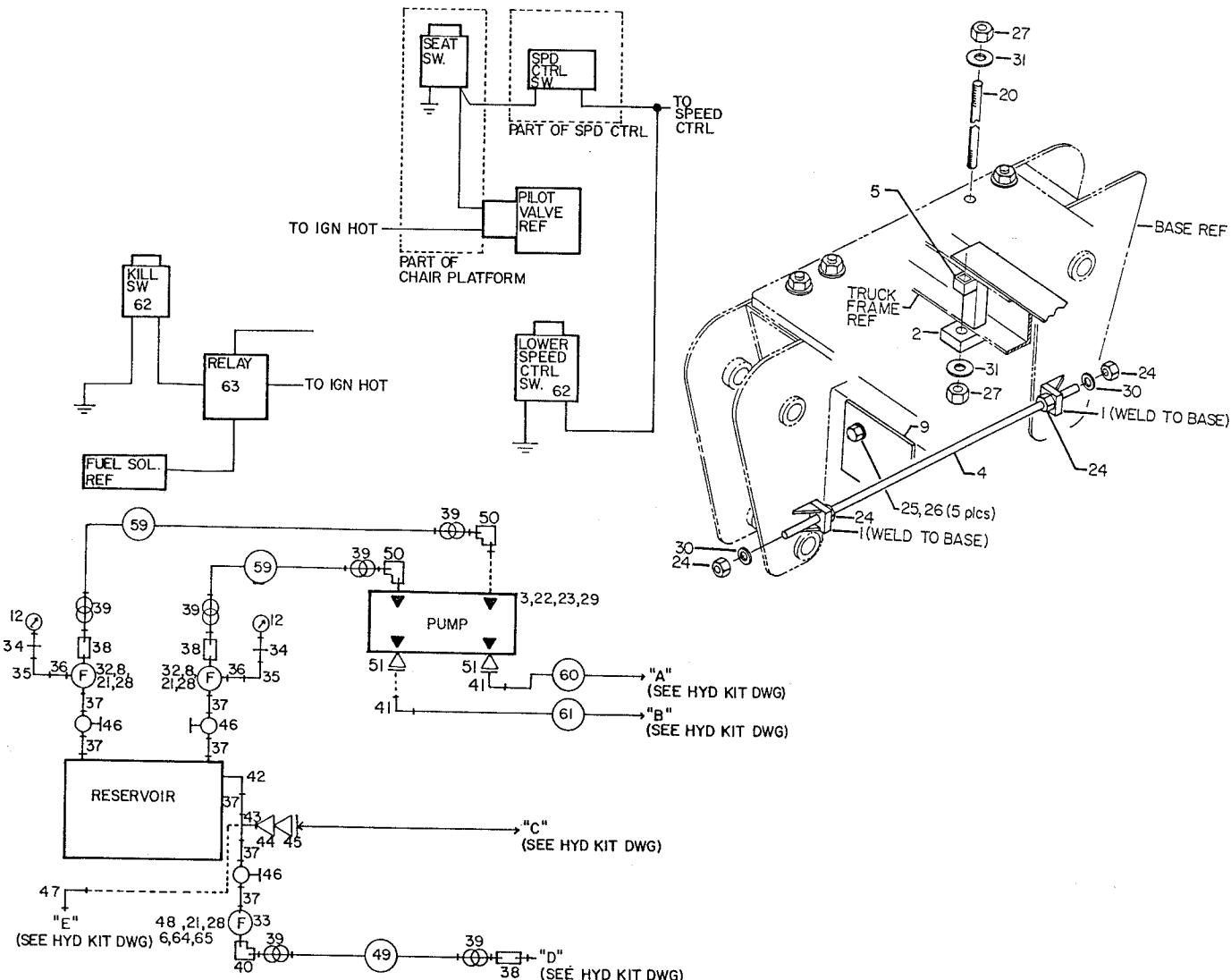


ITEM	PART NO.	DESCRIPTION	QTY
1.	73054595	VALVE SECT HRH 1000PSI	1
2.	73054596	VALVE SECT HRH FREE FLOW	1
3.	73054597	VALVE SECT CVHA	2
4.	73054442	END COVER RH	1
5.	73073022	CONVERSION PLUG	1
6.	73731424	END COVER LH	1
7.	73054590	RELIEF VALVE 2100PSI	1
8.	73054592	CHECK 1000PSI	1
9.	73014630	STUD 3/8X10	3
10.	72062037	NUT 3/8-24 HEX	6
11.	51393494	O-RING KIT	REF
12.	7Q072117	O-RING	10
13.	7Q072119	O-RING	10
14.	73054010	LOAD CHECK PLUG	7

Figure D-14A. VALVE BANK (70731810)

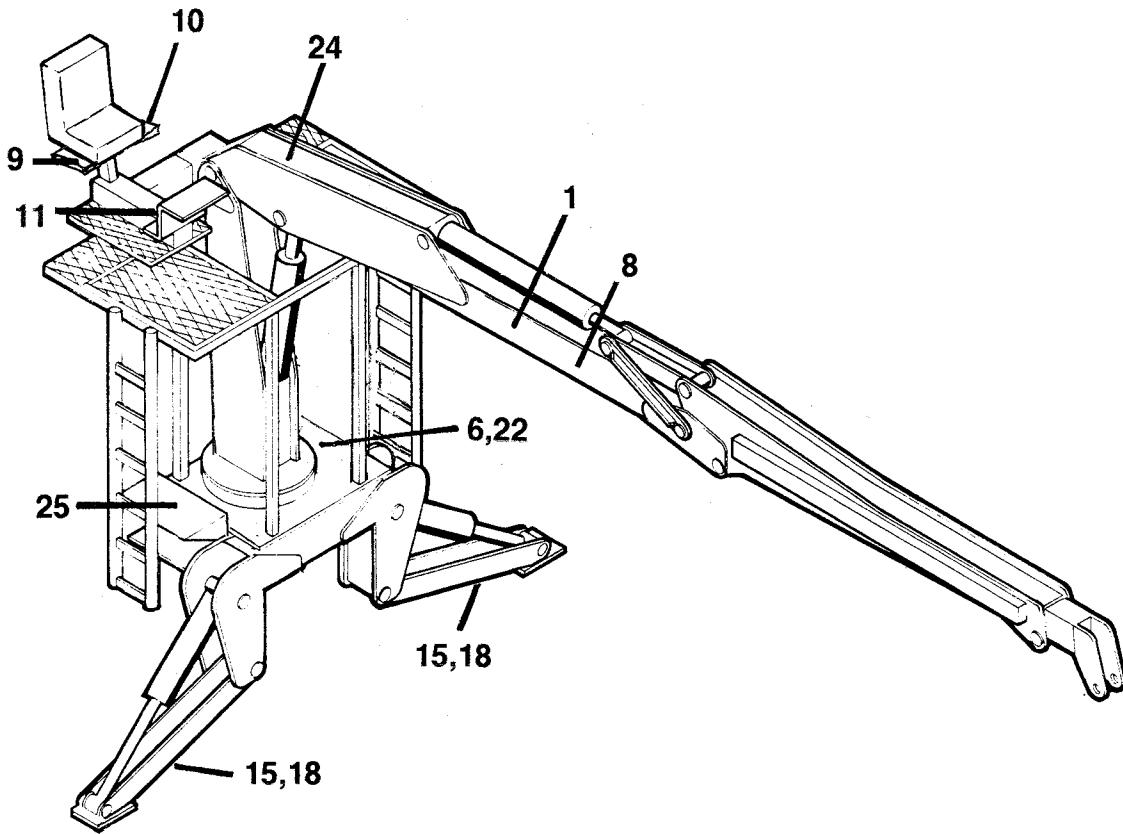
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054598	VALVE SECT HRH	2
2.	73054599	VALVE SECT HRH 1800PSI	1
3.	73054600	VALVE SECT HRH .062 ORIFICE	1
4.	73054442	END COVER RH	1
5.	73073022	CONVERSION PLUG	1
6.	73731424	END COVER LH	1
7.	73054591	RELIEF VALVE 2600PSI	1
8.	73054356	CHECK 1800PSI	1
9.	73014630	STUD 3/8X10	3
10.	72062037	NUT 3/8-24 HEX	6
11.	51393494	O-RING KIT	REF
12.	7Q072117	O-RING	10
13.	7Q072119	O-RING	10
14.	73054010	LOAD CHECK PLUG	7
15.	70143140	ORIFICE PLATE	4
16.	70142403	SPRING	4

Figure D-14B. VALVE BANK (70731811)



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	52702539	TIE BAR	2	36.	72053002	PIPE NIPPLE 1/8NPT X 2	2
2.	60114049	CLAMP PLATE	4	37.	72053211	PIPE NIPPLE 1-1/4 X CLOSE	7
3.	60103041	TANDEM PUMP SUPPORT	1	38.	72531550	BARB NIPPLE 1-1/4 X 1-1/4	3
4.	60114044	TENSION BAR	1	39.	72066516	HOSE CLAMP 1-1/4	6
5.	52709798	SUPPORT	4	40.	72532346	BARB NIPPLE 1-1/4 X 1-1/4 90°	1
6.	72063049	WASHER 1/4 LOCK	4	41.	72053767	ELBOW 1-1/16MSTR X 1-1/16MJIC 90°	
8.	60103870	OIL FILTER BRACKET	2	42.	72053287	STRT ELBOW 1-1/4 X 90°	2
9.	60105107	PLATE	2	43.	60107571	TEE - MODIFIED	1
12.	70048031	VACUUM GAUGE	2	44.	72531836	REDUCER BUSHING 1-1/4 X 3/4NPT	1
20.	60114048	TIE DOWN STUD 1-1/4 X 44	8	45.	72053676	ADAPTER 3/4MPT X 1-1/16MJIC	1
21.	72060025	CAP SCR 5/16-18 X 1 HH GR5	6	46.	73054130	GATE VALVE 1-1/4	3
22.	72060046	CAP SCR 3/8-16 X 1 HH GR5	2	47.	72531412	ELBOW 1/4MPT X 7/16MJIC 90°	1
23.	72062002	NUT 3/8-16 HEX	2	48.	60112266	OIL FILTER BRACKET	1
24.	72062009	NUT 1-8 HEX	4	49.	60035936	HOSE 1-1/4 100R4 X 42	1
25.	72060183	CAP SCR 3/4-10 X 1-1/2 HH GR5	10	50.	72532710	BEAD NIPPLE 1-5/8STR X 1-1/4BARB 90°	2
26.	72062114	NUT 3/4-10 LOCK	10	51.	72532949	ADAPTER 1-5/8MSTR X 1-1/16FSTR	2
27.	72062142	NUT 1-1/4-7 LOCK	16	59.	60035950	HOSE 1-1/4 X 60	2
28.	72063050	WASHER 5/16 LOCK	6	60.	51706629	HOSE ASM 3/4 X 63	1
29.	72063051	WASHER 3/8 LOCK	2	61.	51706630	HOSE ASM 3/4 X 138	1
30.	72063058	WASHER 1 LOCK	2	62.	77041013	SWITCH	2
31.	72063067	WASHER 1-1/4 HI STRENGTH	16	63.	77041251	RELAY	1
32.	73052012	SUCTION FILTER	2	64.	72063001	WASHER 1/4 WRT	1
33.	73052040	RETURN FILTER	1	65.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	1
34.	72053301	COUPLING 1/8NPT BLK	2				
35.	72053281	STRT ELBOW 1/8NPT X 90°	2				

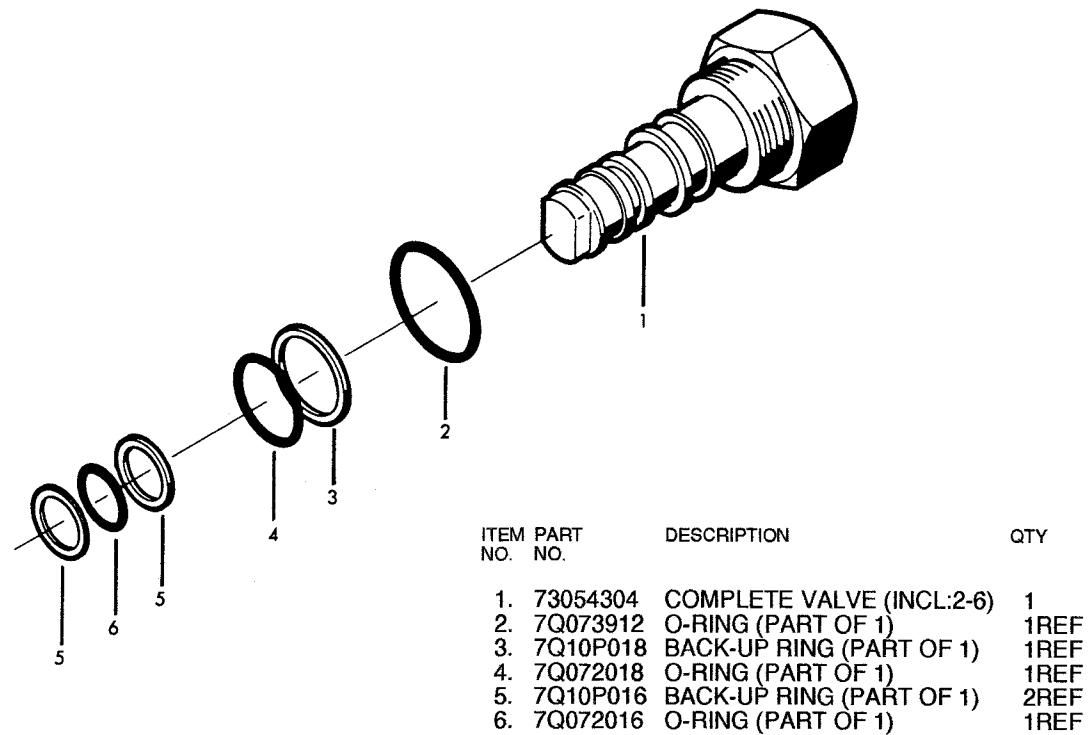
Figure D-15. INSTALLATION KIT (93709711)



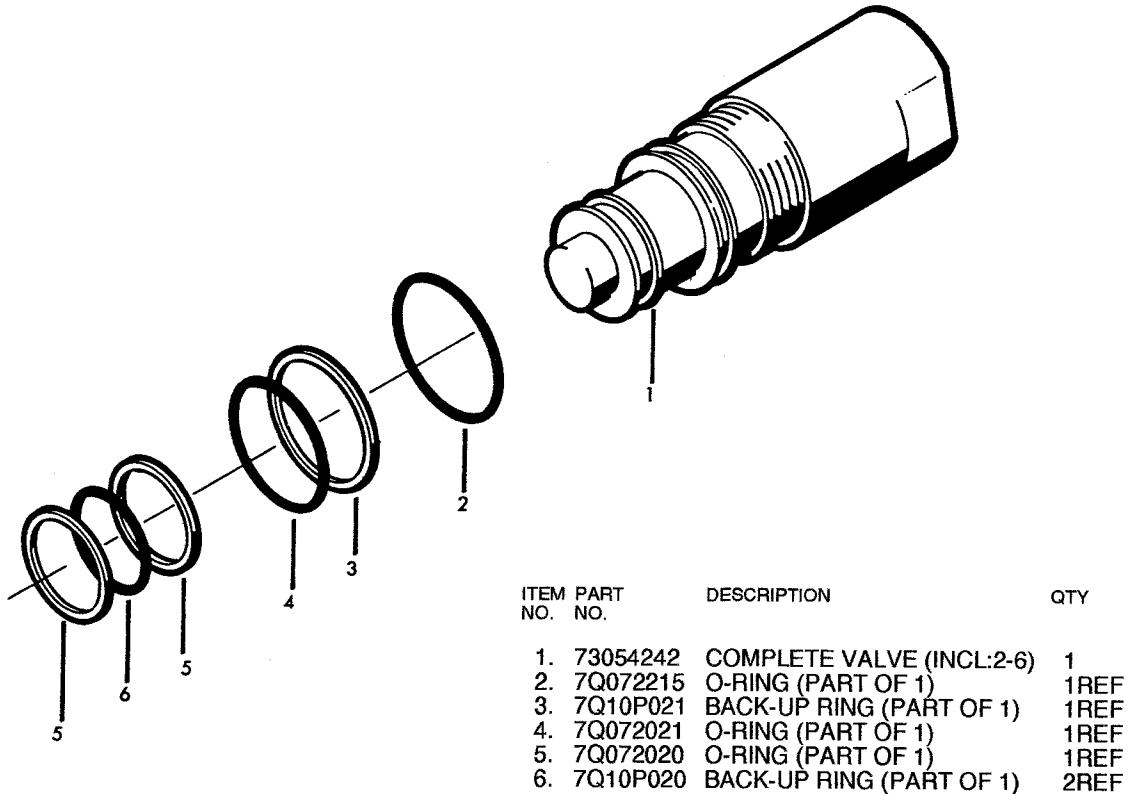
DECAL PLACEMENT	
ITEM NO.	LOCATION
12,13,14,19,20, 17,23	ONE AT CHAIR CONTROLS. ONE AT STREET SIDE CONTROLS.
15,18	ONE ON EACH OUTRIGGER.
21	ONE ON EACH SIDE OF CARRIER VEHICLE.
7	AT TURNTABLE GREASE ZERK.
2,3	AT ALL GREASE ZERKS.
5	ON RESERVOIR AT RETURN LINE.
4	ON RESERVOIR AT SUCTION LINE.

ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	70029252	PLACARD - IMT DIAMOND	2
2.	70391612	DECAL - GREASE WKLY LEFT	5
3.	70391613	DECAL - GREASE WKLY LEFT	5
4.	70392108	DECAL - SUCTION LINE	2
5.	70392109	DECAL - RETURN LINE	1
6.	70392213	DECAL CAUTION WASH/WAX	1
7.	70392524	DECAL ROTATE/GREASE	1
8.	70393274	DECAL - 14126 IDENT	2
9.	70392578	DECAL - CONTROL RH JOYSTICK	1
10.	70392579	DECAL - CONTROL LH JOYSTICK	1
11.	70392580	DECAL - CONTROL PEDAL	1
12.	70392813	DECAL - DANGER ELECTRO	2
13.	70392814	DECAL - DANGER OPER TRAINING	2
14.	70392815	DECAL - DANGER OPERATION	2
15.	70392864	DECAL - DANGER OUTRG STD CLR	2
17.	70392866	DECAL - DANGER OPER COND	2
18.	70392867	DECAL - DANGER OUTRG MOVING	2
19.	70392888	DECAL - DANGER OPER RESTRICT	2
20.	70392891	DECAL - DANGER DRIVELINE	2
21.	70392865	DECAL - DANGER ELECTRO LG	4
22.	70392982	DECAL - CONTACT IMT	1
23.	71039134	DECAL - CAUTION OIL LEVEL	2
24.	71393275	PLACARD - CAPACITY	1
25.	76391511	DECAL - WB STABILIZER	1

Figure D-16. Decal Kit (Part Number 95709799)



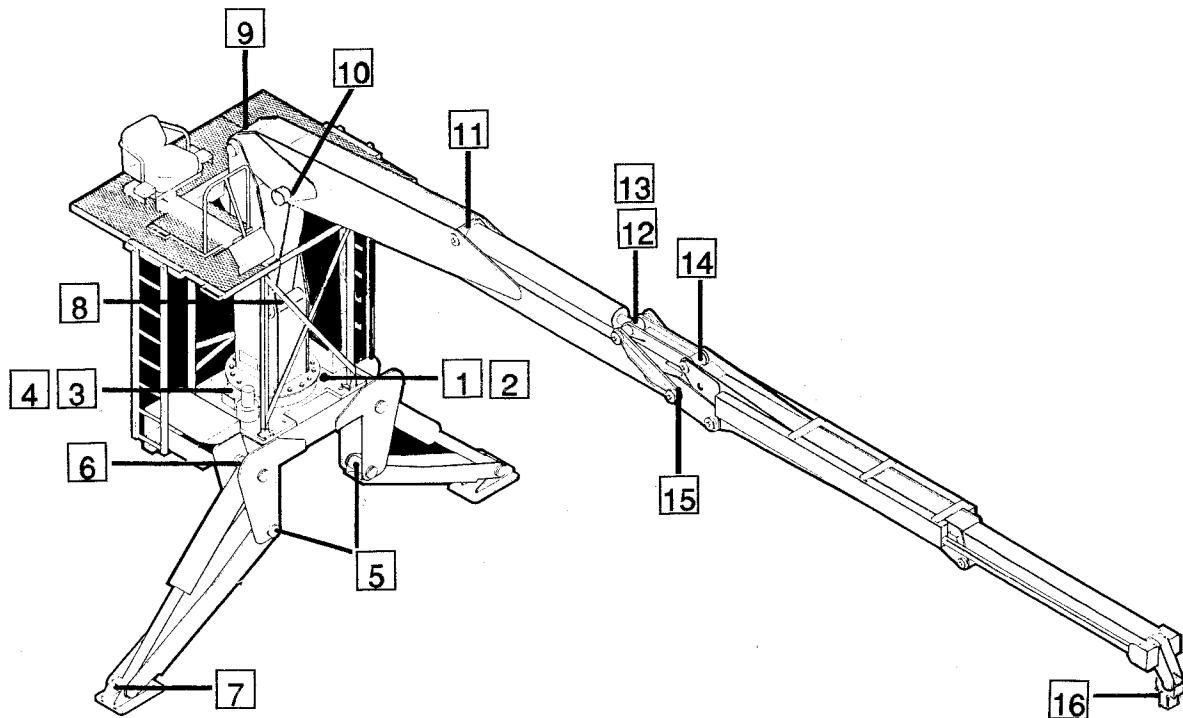
**Figure D-17. 10-GPM Counter-Balance Valve (Part Number 73054304)**



**Figure D-18. 25-GPM Counter-Balance Valve (Part Number 73054242)**



## SECTION 5. Reference



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	DRIVE GEAR GREASE EXTENSION		
2.	TURNTABLE/BEARING GREASE EXTENSION		
	*ROTATE CRANE WHILE GREASING		
3.	PINION GEAR		
4.	PINION COVER		
5.	OUTRIGGER LEG/BASE HINGE PIN		
6.	OUTRIGGER CYLINDER BASE		
7.	OUTRIGGER CYLINDER ROD		
8.	INNER CYLINDER BASE		
9.	MAST/INNER BOOM HINGE PIN		
10.	INNER BOOM/INNER CYLINDER HINGE PIN		
11.	INNER BOOM/OUTER CYLINDER BASE HINGE PIN		
12.	OUTER CYLINDER ROD		
13.	INNER LINK/OUTER CYLINDER HINGE PIN		
14.	INNER LINK/OUTER BOOM HINGE PIN		
15.	OUTER LINK/OUTER BOOM HINGE PIN		
16.	LINK	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY

NOTE: All application points must be greased weekly under normal work loads and moderate weather conditions. Under severe operating conditions, lubrication should be performed more frequently. See Volume 1; Operation, Maintenance and Repair for additional lubrication requirements.

**Figure E-1. Grease Zerk Locations and Lubricant Requirements**

# TORQUE DATA CHART

## FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		PLAIN (LB FT)	PLATED (LB FT)	PLAIN (LB FT)	PLATED (LB FT)
5/16-24	0.3125	19	14	27	20
3/8-24	0.3750	35	26	49	35
7/16-20	0.4375	55	41	78	58
1/2-20	0.5000	90	64	120	90
9/16-18	0.5625	120	90	170	130
5/8-18	0.6250	170	130	240	180
3/4-16	0.7500	300	225	420	315
7/8-11	0.8750	445	325	670	500
1-12	1.0000	645	485	995	745
1 1/8-12	1.1250	890	670	1445	1085
1 1/4-12	1.2500	1240	930	2010	1510
1-3/8-12	1.3750	1675	1255	2710	2035
1 1/2-12	1.5000	2195	1645	3560	2670

## COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		PLAIN (LB FT)	PLATED (LB FT)	PLAIN (LB FT)	PLATED (LB FT)
5/16-18	0.3125	17	13	25	18
3/8-16	0.3750	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5000	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.6250	150	115	220	160
3/4-10	0.7500	265	200	375	280
7/8-9	0.8750	395	295	605	455
1-8	1.0000	590	445	910	680
1 1/8-7	1.1250	795	595	1290	965
1 1/4-7	1.2500	1120	840	1815	1360
1-3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

When using the torque data in the charts above, the following rules should be observed.

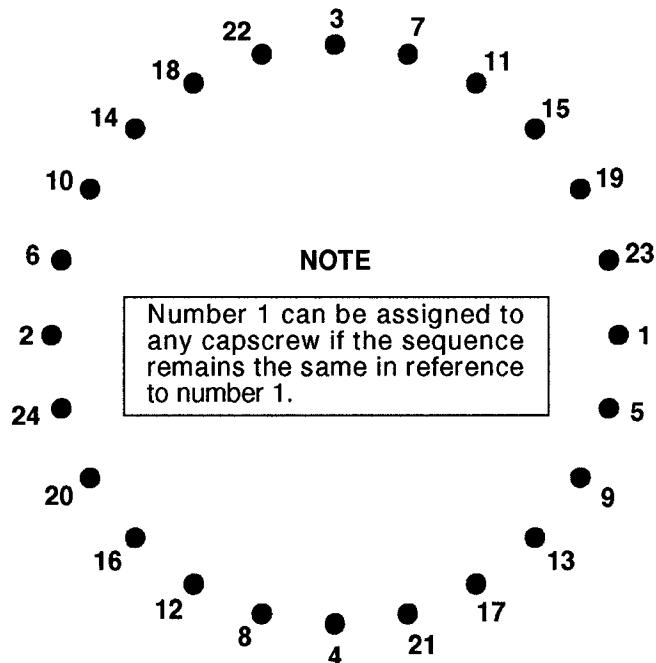
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

### WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH.

**Figure E-2. TORQUE DATA CHART**

Refer to the diagram below for proper tightening/torqueing sequence of the turntable bearing to the crane base and crane mast. The total quantity of cap screws varies dependent on crane model.



#### TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of capscrew used.
2. Follow the tightening sequence shown in the diagram. Note that the quantity of capscrews may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.
3. Torque all capscrews to approximately 40% of the specified torque value, by following the sequence. (EXAMPLE: .40 x 265 FT-LBS = 106 FT-LBS)
4. Repeat Step 3, but torqueing all capscrews to 75% of the specified torque value. Continue to follow the tightening sequence. (EXAMPLE: .75 x 265 FT-LBS = 199 FT-LBS)
5. Using the proper sequence, torque all capscrews to the listed torque value as determined from the Torque Data Chart.

**Figure E-3. TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE**

Before a bearing is removed from a crane for inspection, one of the following conditions should be evident:

1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during crane rotation.
4. Rough crane rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

If none of the above conditions exists, the bearing is functioning properly and need not be replaced. But, if one or more of the above conditions exists, inspection may be required. Limits are measured in "TILT" which is dependent on the internal clearances of the bearing. TILT is the most practical determination of a bearings internal clearance once mounted on a crane.

Periodic readings indicating a steady increase in TILT may be an indicator of bearing wear. Note that a bearing found to have no raceway cracks or other structural irregularities should be reassembled and returned to service.

## TEST PROCEDURE

### STEP 1.

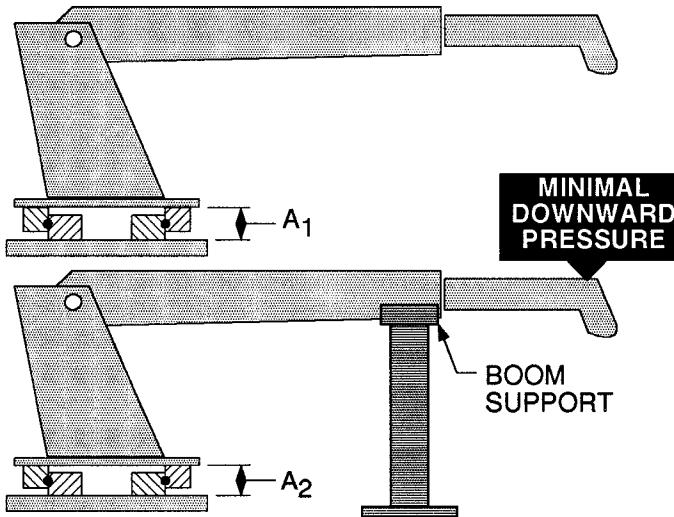
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing ( $A_1$ ), using a dial indicator for accuracy.

### STEP 2.

Reverse the load by applying minimal downward pressure on the boom while the boom is in the boom support or on a solid surface. Again measure  $A_2$ .

### STEP 3.

Subtract  $A_1$  from  $A_2$  to determine tilt and compare the result with the accompanying chart.



**COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION**

NOTE THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED.  IF THERE IS REASON TO SUSPECT AN EXCESS OF BEARING WEAR AND THE MEASURED TILT DIMENSION EXCEEDS THE DIMENSION LISTED, REMOVE THE BEARING FOR INSPECTION.	IMT CRANE OR TIREHAND MODEL	814 1007 1014 2010 215 2015 2109 2815 3016 315A 320H 3515 3617 3625 421 425 5016 TH7 BODY ROT'N TH1449A BODY ROT'N TH15A CLAMP TH1836A CLAMP TH2551 CLAMP TH2557 CLAMP TH2557A CLAMP	4817 4825 516 525 5826 6014 6425 725 7020 7025 8025 8031 TH10 BODY ROT'N TH12 BODY ROT'N	32018 32030 HAWK-H1150 HAWK-H1150TL HAWK-H4961	9616 9825 9831 10020 10025 1216 1325 1331 13031 13034 13426 14018 14048 14126 15033 1725 18026 20017 HAWK-H1200 TH1836 BODY ROT'N TH1836A BODY ROT'N TH2551 BODY ROT'N TH2557 BODY ROT'N TH2557A BODY ROT'N
BALL DIA. (REF)	.875" (22mm)	1.00" (25mm)	1.18" - 1.25" (30 - 32mm)	1.75" (44mm)	
TILT DIM. ( $A_1 - A_2$ )	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)	

**Figure E-4. TURNTABLE BEARING INSPECTION FOR REPLACEMENT**

## Spare Parts List

### 1 - Year Supply

This spare parts list does not suggest that the parts listed can be expected to fail in the course of a year. It is intended to provide the user with a representative inventory of spare parts in order to minimize down time due to not having replacement parts. It is only a suggested parts list and is not complete.

PAGE	ITEM	PART NO.	DESCRIPTION	QTY
4-3.	8	7BF81225	BUSHING	8
4-3.	10	60020120	BUSHING	1
4-3.	11	60020121	BUSHING	1
4-3.	12	60020122	BUSHING	1
4-3.	13	60020124	BUSHING	1
4-3.	14	71056074	DRIVE GEAR	1
4-3.	17	60020123	THRUST WASHER	1
4-3.	23	73054538	CARTRIDGE VALVE	2
4-3.	26	70034295	BEARING	1
4-3.	29.	70055167	TURNTABLE-BEARING	1
4-3.	30	60030176	WEAR PAD	2
4-3.	31	71056072	INTERMEDIATE GEAR	1
4-3.	32	71056073	PINION GEAR	1
4-3.	48	72063115	WASHER 7/8 FLAT HARD GR8	23
4-3.	55	72601472	CAP SCREW 7/8-9 X 4-1/2 HH GR8	23
4-3.	56	73051478	MOTOR	1
4-5.	16	73054304	VALVE - 10GPM	4
4-5.	17	7BF81225	BUSHING	14
4-5.	21	9X262832	SEAL KIT - OUTRIGGER CYLINDER	2
4-6.	7	72601468	CAP SCREW 3/4-10 X 4-1/2 HH GR8	18
4-6.	9	72063116	WASHER 3/4 FLAT HARD GR8	18
4-6.	33	77041249	MERCURY SWITCH	1
4-7.	5	60020192	BUSHING	6
4-8.	16	73054242	VALVE - 25GPM	1
4-8.	17	60020189	BUSHING	2
4-8.	18	60020190	BUSHING	3
4-8.	21	9C323239	SEAL KIT - INNER CYLINDER	1
4-9.	8	60020193	BUSHING	3
4-9.	9	60020204	BUSHING	2
4-9.	12	60020195	BUSHING	2
4-9.	17	60030006	WEAR PAD	2
4-9.	18	60030015	WEAR PAD	1
4-9.	19.	60030078	WEAR PAD	1
4-10.	16	73054242	VALVE - 25GPM	2
4-10.	17	60020193	BUSHING	6
4-10.	21	9X282832	SEAL KIT - OUTER CYLINDER	1
4-11.	4	60030077	WEAR PAD	1
4-11.	9	60020170	BUSHING	2
4-11.	10	60020171	BUSHING	2
4-12.	16	73054304	VALVE - 10GPM	1
4-12.	21	9C162023	SEAL KIT - EXTENSION CYLINDER	1
4-13.	50	73054425	SENSOR VALVE	1
4-13.	53	73054424	OVERSTRESS VALVE	1
4-13.	65	70731800	FOOT PEDAL CONTROL	2
4-13.	67	70731801	JOYSTICK CONTROL	2
4-13.	72	73054542	PILOT VALVE	1
4-13.	82	73054462	SELECTOR VALVE	1
4-13.	83	73054549	CHECK VALVE	1
4-16.	12	73054591	MAIN RELIEF	1
4-16.	13	73054595	VALVE SECTION	1
4-16.	18	73054590	MAIN RELIEF 2100PSI	1
4-16.	19	73054592	PORT RELIEF 1000PSI	1
4-16.	20	73054597	VALVE SECTION	1
4-16.	21	73054356	RELIEF 1800PSI	1
4-17.	62	77041013	SWITCH	2
4-17.	63	77041251	RELAY	1
REF		70048149	SUCTION FILTER ELEMENT	4
REF		73052006	RETURN FILTER ELEMENT	2



The information within this manual has been compiled and checked but errors do occur. To provide our customers with a method of communicating those errors we have provided the Manual Change Request form below. In addition to error reporting, you are encouraged to suggest changes or additions to the manual which would be of benefit to you. We cannot guarantee that these additions will be made but we do promise to consider them. When completing the form, please write or print clearly. Submit a copy of the completed form to the address listed below.

## MANUAL CHANGE REQUEST

DATE	PRODUCT MANUAL	14126 Crane	MANUAL PART NO.	99900393-10/90
SUBMITTED BY				
COMPANY				
ADDRESS				
CITY, STATE, ZIP				
TELEPHONE				

ERROR FOUND

LOCATION OF ERROR (page no.): \_\_\_\_\_

DESCRIPTION OF ERROR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

REASON FOR ADDITION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

MAIL TO: IOWA MOLD TOOLING Co., Inc.  
Box 189,  
Garner IA 50438  
ATTN: Technical Publications

# MANUFACTURER'S LIMITED WARRANTY

**WARRANTY COVERAGE** - Products manufactured by Iowa Mold Tooling Co., Inc. (IMT) are warranted to be free from defects in material and workmanship, under proper use, application and maintenance in accordance with IMT's written recommendations, instructions and specifications as follows:

1. Ninety (90) days; labor on IMT workmanship from the date of delivery to the end user.
2. One (1) year; original IMT parts from the date of delivery to the end user.

IMT's obligation under this warranty is limited to, and the sole remedy for any such defect shall be the repair or replacement (at IMT's option) of unaltered parts returned to IMT, freight prepaid, provided such defect occurs within the above stated warranty period and is reported within fourteen (14) days of its occurrence.

**IMPLIED WARRANTY EXCLUDED** - This is the only authorized IMT warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness for any particular purpose or of any other obligations on the part of IMT.

**ITEMS EXCLUDED** - The manufacturer gives no warranty on any components or parts purchased by the manufacturer, and such components as are covered only by the warranties of their respective manufacturers.

**WARRANTY CLAIMS** - Warranty claims must be submitted and shall be processed in accordance with IMT's established warranty claim procedure.

**WARRANTY SERVICE** - Warranty service will be performed by any IMT distributor authorized to sell new IMT products of the type involved or by any IMT Service Center authorized to service the type of product involved or by IMT in the event of direct sales made by IMT. At the time of requesting warranty service, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any premium for overtime labor requested by the purchaser, any charge for making service calls and for transporting the equipment to the place where warranty work is performed.

**WARRANTY VOIDED** - All obligations of IMT under this warranty shall be terminated:(1) if service other than normal maintenance or normal replacement of service items is performed by someone other than an authorized IMT dealer, (2) if product is modified or altered in ways not approved by IMT.

**PURCHASER'S RESPONSIBILITY** - This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper protection in storage, or improper use. The purchaser has the obligation of performing the care and maintenance duties discussed in IMT's written recommendations, instructions and specifications. Any damage which results because of purchaser's failure to perform such duties shall not be covered by this warranty. The cost of normal maintenance and normal replacement of service items such as filters, belts, etc. shall be paid by the purchaser.

**CONSEQUENTIAL DAMAGES** - The only remedies the purchaser has in connection with the breach or performance of any warranty on IMT products are those set forth above. In no event will the dealer, IMT or any company affiliated with IMT, be liable for business interruptions, loss of sales and/or profits, rental or substitute equipment, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

**REPRESENTATIONS EXCLUDED** - IMT products are subject to no expressed, implied or statutory warranty other than herein set forth, and no agent, representative or distributor of the manufacturer has any authority to alter the terms of this warranty in any way whatsoever or to make any representations or promises, express or implied, as to the quality or performance of IMT products other than those set forth above.

**CHANGE IN DESIGN** - IMT reserves the right to make changes in design or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

Effective January, 1984

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BOX 189, GARNER, IA 50438-0189  
TEL: 515-923-3711  
PRODUCT SUPPORT FAX: 515-923-3674

## Section 3. INSTALLATION

### 3-1. GENERAL

This section contains specific instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make certain the chassis is ready to receive the crane (refer to Section 5, Installation - Chassis Preparation in Volume 1).

### 3-2. CRANE INSTALLATION

To install the crane on the chassis:

1. Use a lifting device capable of lifting the weight of the crane - 9300 lbs (4218 kg) - with platform and chair. Attach the lifting device to the lift bracket welded to the top of the inner boom. Lift the crane, move the chassis into position under the crane and lower the crane into position on the chassis. If mounted on a chassis behind its cab, allow sufficient room between the crane and cab - at least 5" (12.7cm). Check for front-to-rear alignment.
2. Install the truck frame support so that the tie-down bars pass through the support (Figure C-1). Cut the support to the inside dimension of the truck frame. Allow about 1/16" extra. Grind the end of the support to fit tight inside the frame channel. Use a hammer to drive it into position if necessary.
3. Install the tie rods, clamp plates, lock nuts and hardened washers to secure the crane base to the chassis (Figure C-1). Power wrench the nuts tight.

ITEM NO.	DESCRIPTION
----------	-------------

1. OUTRIGGER TIE-BAR BLOCK
2. CLAMPING BLOCK
4. TENSION BAR
5. FRAME FLANGE SUPPORT
7. FRAME FLANGE SPACER PLATE
20. TIE-DOWN ROD
24. NUT
25. BOLT
26. NUT
27. NUT
30. WASHER
31. WASHER

### WARNING

**DO NOT** attempt to apply the same torque to the tie rod and self-locking nuts as shown in the Torque Data Chart. **DO NOT** exceed 200 ft-lbs (28 kg-m). Exceeding this torque value could damage either the chassis or the crane base.

Power wrenching is not recommended until the lead thread of the nut insert is engaged by hand turning.

4. Install the tie plate (Figure C-1) on the truck chassis. Drill four holes using the plate as a template and install the bolts and lock nuts. Torque the bolts to 200 ft-lbs (28 kg-m). Weld the tie plate to the crane base with a 3/8" continuous fillet weld.
5. Weld the tension bar blocks to the crane base with a 3/8" continuous fillet weld. Install the tension bar (Figure C-1) with nuts and washers as shown. Tighten the outside nuts first to about 200 ft-lbs (28 kg-m) to preload the tension bar. Then tighten the inner nuts to 466 ft-lbs (65 kg-m).
6. Touch up the paint on the crane and chassis as necessary.

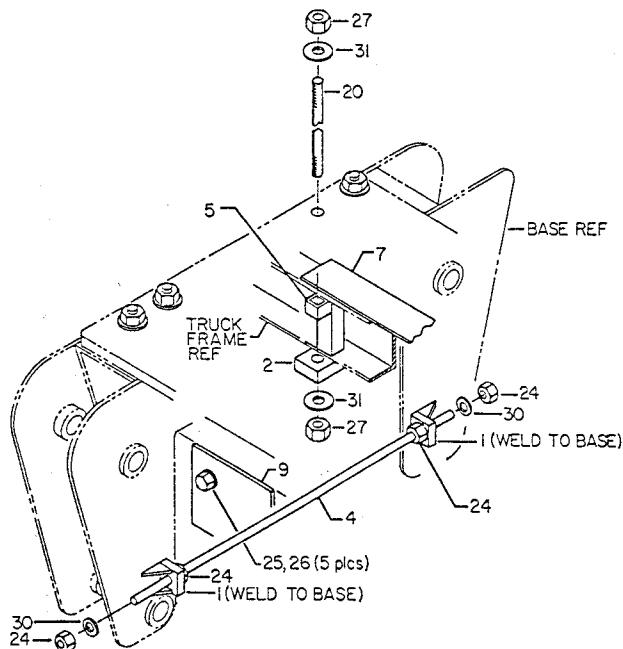
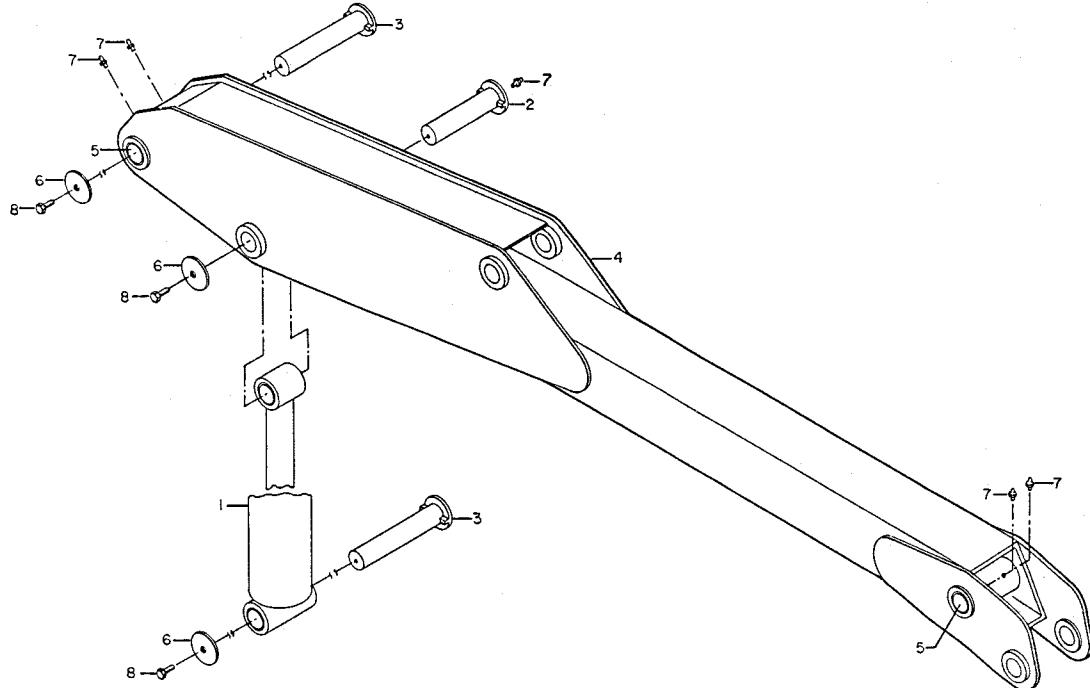
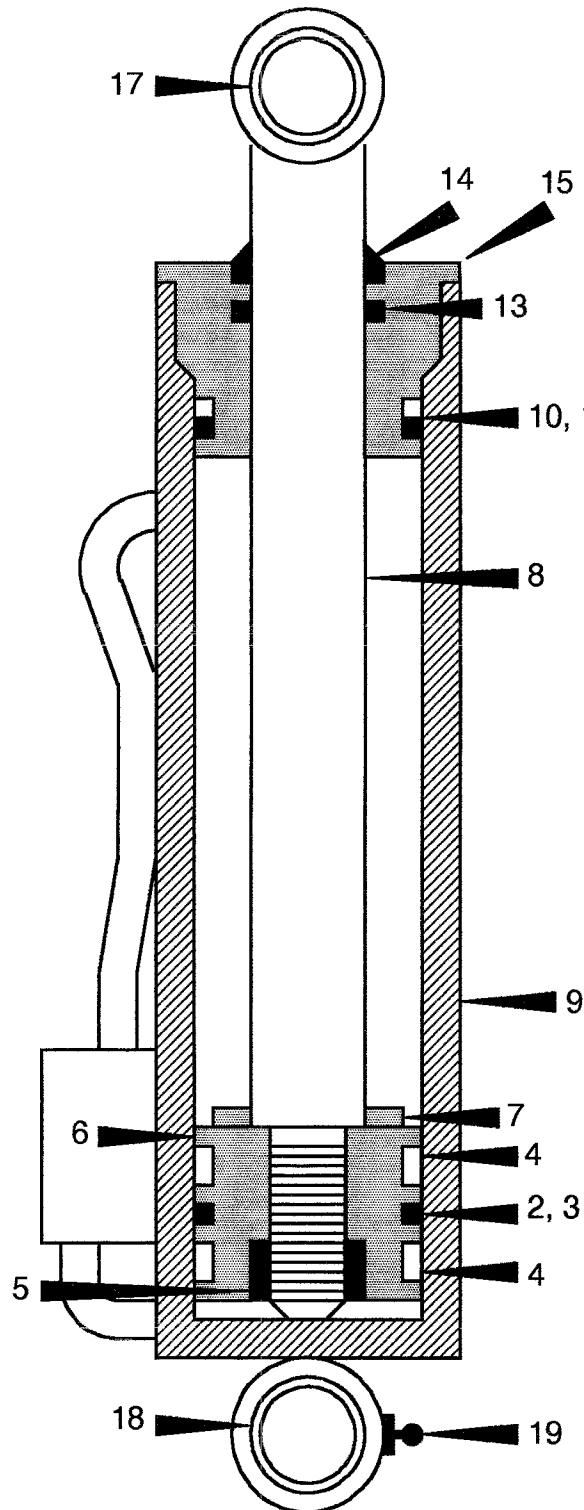


Figure C-1. Crane Installation



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	3D216821	INNER CYLINDER	1
2.	52704419	PIN	1
3.	52704420	PIN	2
4.	52709749	INNER BOOM (INCL: 5)	1
5.	60020192	BUSHING (PART OF 4)	6REF
6.	60106681	PIN RETAINER PLATE	3
7.	72053508	ZERK 1/8NPT	5
8.	72060181	CAP SCR 3/4-10 X 1 HH GR5	3

Figure D-7. Inner Boom Assembly (Part Number 41709708)



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	3REF
2.	7Q072263	O-RING (PART OF 21)	1REF
3.	7T66P080	PISTON SEAL (PART OF 21)	1REF
4.	7T65I080	PISTON RING (PART OF 21)	2REF
5.	7T61N243	LOCK RING SEAL (PART OF 21)	1REF
6.	6I080243	PISTON	1
7.	6A025040	WAFER LOCK (PART OF 21)	1REF
8.	4G216820	ROD ASM (INCL:17)	1
9.	4D216821	CASE ASM (INCL:1,18,19)	1
10.	7Q072443	O-RING (PART OF 21)	1REF
11.	7Q10P443	BACK-UP RING (PART OF 21)	1REF
13.	7R546040	ROD SEAL (PART OF 21)	1REF
14.	7R14P040	ROD WIPER (PART OF 21)	1REF
15.	6H080040	HEAD	1
16.	73054242	VALVE 25GPM	1
17.	60020189	BUSHING (PART OF 8 )	2REF
18.	60020190	BUSHING (PART OF 9)	3REF
19.	72053507	ZERK (PART OF 9)	2REF
21.	9C323239	SEAL KIT (INCL:2-5,7,10,11,13,14)	1

**NOTE**

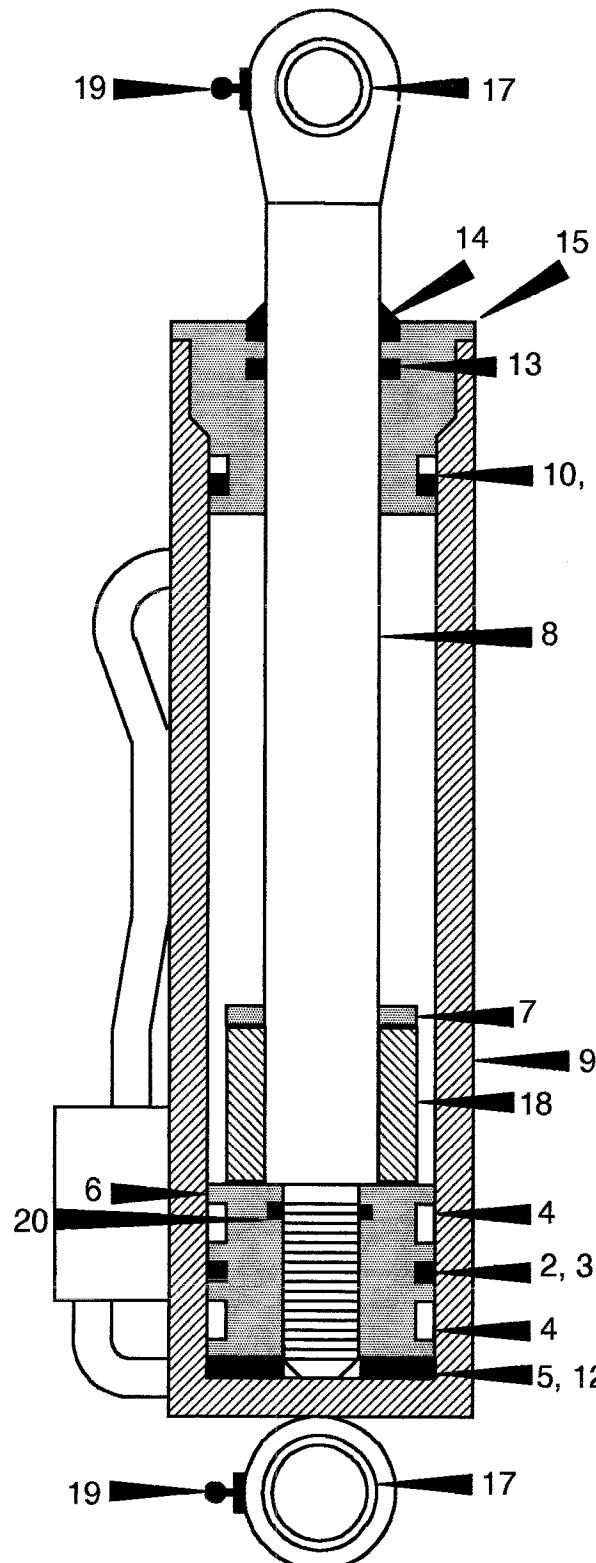
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

BORE	8.00"
STROKE	34.00"
CTR-CTR CL	50.00"
ROD DIA	4.00"
PIN DIA	3.00"

**Figure D-8. Inner Cylinder (Part Number 3D216821)**



ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 9)	2REF
2.	7Q072259	O-RING (PART OF 21)	1REF
3.	7T66P070	PISTON SEAL (PART OF 21)	1REF
4.	7T65I070	PISTON RING (PART OF 21)	2REF
5.	72063016	WASHER	1
6.	6IX70200	PISTON	1
7.	6A025035	WAFER LOCK (PART OF 21)	1REF
8.	4G220830	ROD ASM (INCL:19)	1
9.	4C220830	CASE ASM (INCL:1,17,19)	1
10.	7Q072363	O-RING (PART OF 21)	1REF
11.	7Q10P363	BACK-UP RING (PART OF 21)	1REF
12.	72062144	NUT	1
13.	7R546035	ROD SEAL (PART OF 21)	1REF
14.	7R14P035	ROD WIPER (PART OF 21)	1REF
15.	6H070035	HEAD	1
16.	73054242	VALVE 25GPM	2
17.	60020193	BUSHING (PART OF 8 & 9)	6REF
18.	6C300035	STOP TUBE	1
19.	72053507	ZERK (PART OF 8 & 9)	3REF
20.	7Q072227	O-RING (PART OF 21)	1REF
21.	9X282832	SEAL KIT (INCL:2-4,7,10,11,13,14)	1

**NOTE**

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

BORE	7.00"
STROKE	48.00"
CTR-CTR CL	70.00"
ROD DIA	3.50"
PIN DIA	3.00"

**Figure D-10. Outer Cylinder (Part Number 3C220830)**

**SEE ILLUSTRATIONS ON PAGES 4-14 AND 4-15**

ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	51706528	HOSE ASM 1/2 X 80	4	52.	72532657	TEE 3/4JIC SWVL NUT RUN	2
2.	51706519	HOSE ASM 3/8 X 24	1	53.	73054424	OVERSTRESS VALVE	1
3.	51706889	HOSE ASM 3/8 X 20	1	54.	72060050	CAP SCR 3/8-16 X 2 HH GR5	2
4.	51709964	HOSE ASM 1/2 X 149	1	55.	72062103	NUT 3/8-16 LOCK	2
5.	51709965	HOSE ASM 1/2 X 153	1	56.	72532658	ELBOW 3/4MJIC X 3/4FJIC SWVL	3
6.	51706892	HOSE ASM 1/2 X 66	2	58.	72532358	ADAPTER 3/4MSTR X 3/4MJIC	8
7.	51706525	HOSE ASM 1/2 X 26	1	59.	72532672	BULKHEAD UNION 3/4JIC	4
8.	51706533	HOSE ASM 3/4 X 17	1	60.	72531708	BULKHEAD NUT 3/4JIC	4
9.	51706535	HOSE ASM 3/4 X 33	1	61.	72532665	ADAPTER 7/16MJIC X 3/4FJIC	4
11.	51706552	HOSE ASM 3/4 X 80	1	62.	72532690	ELBOW 7/16MJIC X 7/16FJIC SWVL	5
12.	51706891	HOSE ASM 1/2 X 24	3	63.	72532768	TEE 7/16MJIC	4
13.	51709966	HOSE ASM 1/2 X 236	1	65.	70731800	FOOT PEDAL CONTROL	2
14.	51709968	HOSE ASM 1/2 X 254	1	66.	72060023	CAP SCR 5/16-18 X 3/4 HH GR5	8
15.	51706890	HOSE ASM 1/2 X 21	2	67.	70731801	JOYSTICK CONTROL	2
16.	51709967	HOSE ASM 3/8 X 250	4	68.	72062109	NUT 5/16-18 LOCK	10
17.	51706520	HOSE ASM 3/8 X 234	4	69.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	8
18.	51705733	HOSE ASM 1/4 X 24	1	70.	72063001	WASHER 1/4 WRT	8
19.	51703659	HOSE ASM 1/4 X 22	1	71.	72063049	WASHER 1/4 LOCK	8
20.	51706624	HOSE ASM 3/4 X 28	1	72.	73054542	PILOT VALVE	1
21.	51706537	HOSE ASM 3/4 X 45	1	73.	72060029	CAP SCR 5/16-18 X 2 HH GR5	2
22.	51703876	HOSE ASM 1/4 X 8-1/2	1	75.	72532981	TEE 7/16JIC SWVL NUT RUN	3
23.	51709653	HOSE ASM 1/4 X 130	2	76.	72532351	ADAPTER 7/16MSTR X 7/16MJIC	1
24.	51704588	HOSE ASM 1/4 X 175	2	77.	72532985	ELBOW 9/16MSTR X 7/16MJIC 45°	20
25.	72532986	ELBOW 3/4MJIC X 3/4MJIC 90°	4	78.	73054426	ADJ RELIEF VALVE	1
26.	51706627	HOSE ASM 1/4 X 120	2	79.	72532972	ADAPTER 3/4MJIC X 1-1/16FJIC	1
27.	51709651	HOSE ASM 1/4 X 103	2	80.	72532950	TEE 1-1/16JIC SWVL NUT RUN	1
28.	51709654	HOSE ASM 1/4 X 160	2	81.	51706893	HOSE ASM 1/4 X 90	1
29.	51705202	HOSE ASM 1/4 X 49	2	82.	73054462	SELECTOR VALVE	1
30.	51709650	HOSE ASM 1/4 X 43	4	83.	73054549	CHECK VALVE	1
31.	51706632	HOSE ASM 3/4 X 47	1	84.	72531412	ELBOW 1/4MPT X 7/16MJIC	1
32.	72053767	ELBOW 1-1/16MSTR X 1-1/16MJIC 90°	2	85.	51706628	HOSE ASM 1/4 X 132	2
33.	72532366	ADAPTER 1-1/16MSTR X 1-1/16MJIC	1	86.	51706894	HOSE ASM 1/4 X 3	4
34.	60107995	ELBOW - MODIFIED	1	87.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90° (PART OF VB)	9REF
35.	51708886	HOSE ASM 1/4 X 286	2	88.	72532700	ELBOW 9/16MSTR X 9/16MJIC 90° XLG (PART OF VB)	3REF
36.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90°	1	89.	72532707	ADAPTER 7/16MJIC X 9/16MJIC (PART OF VB)	3REF
37.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90°	10	90.	72532666	ELBOW 3/4MSTR X 3/4MJIC 90° XLG (PART OF VB)	8REF
38.	72532666	ELBOW 3/4MSTR X 3/4MJIC 90° XLG	1	91.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90° (PART OF VB)	8REF
39.	72053468	COUPLING 1/8NPT	2	92.	72053767	ELBOW 1-1/16MSTR X 1-1/16MJIC 90° (PART OF VB)	3REF
40.	72053663	ADAPTER 1/8MPT X 7/16MJIC	4	93.	60107995	ELBOW - MODIFIED (PART OF VB)	2REF
41.	72053758	ELBOW 7/16MSTR X 7/16MJIC 90°	3	94.	72532696	ELBOW 1-1/16MJIC X 1-1/16FJIC SWVL (PART OF VB)	1REF
42.	72532973	ADAPTER 1-1/16FJIC IN-LINE PR SWVL	2	95.	72531131	STRT ELBOW 1/4 X 90° (PART OF VB)	1REF
43.	72532980	ADAPTER 3/4FJIC IN-LINE PR SWVL	2	96.	72532987	DISCONNECT NIPPLE 1/4 (PART OF VB)	2REF
44.	72532855	ADAPTER 1-1/16MJIC X 1-1/16MJIC	2	97.	72060028	CAP SCR 5/16-18 X 1-3/4 HH GR5	2
45.	73054435	PRESSURE GAUGE	2	98.	51709652	HOSE ASM 1/4 X 117	2
46.	72053676	ADAPTER 3/4MPT X 1-1/16MJIC	2	99.	72532739	ADAPTER 3/4MJIC X 3/4MJIC	2
47.	72531836	REDUCER BUSHING 1-1/4 X 3/4	2				
48.	72053615	TEE 1-1/4NPT	1				
49.	51706463	HOSE ASM 1/2 X 18	1				
50.	73054425	SENSOR VALVE	1				
51.	72060734	CAP SCR 5/16-18 X 1-1/2 SH	4				

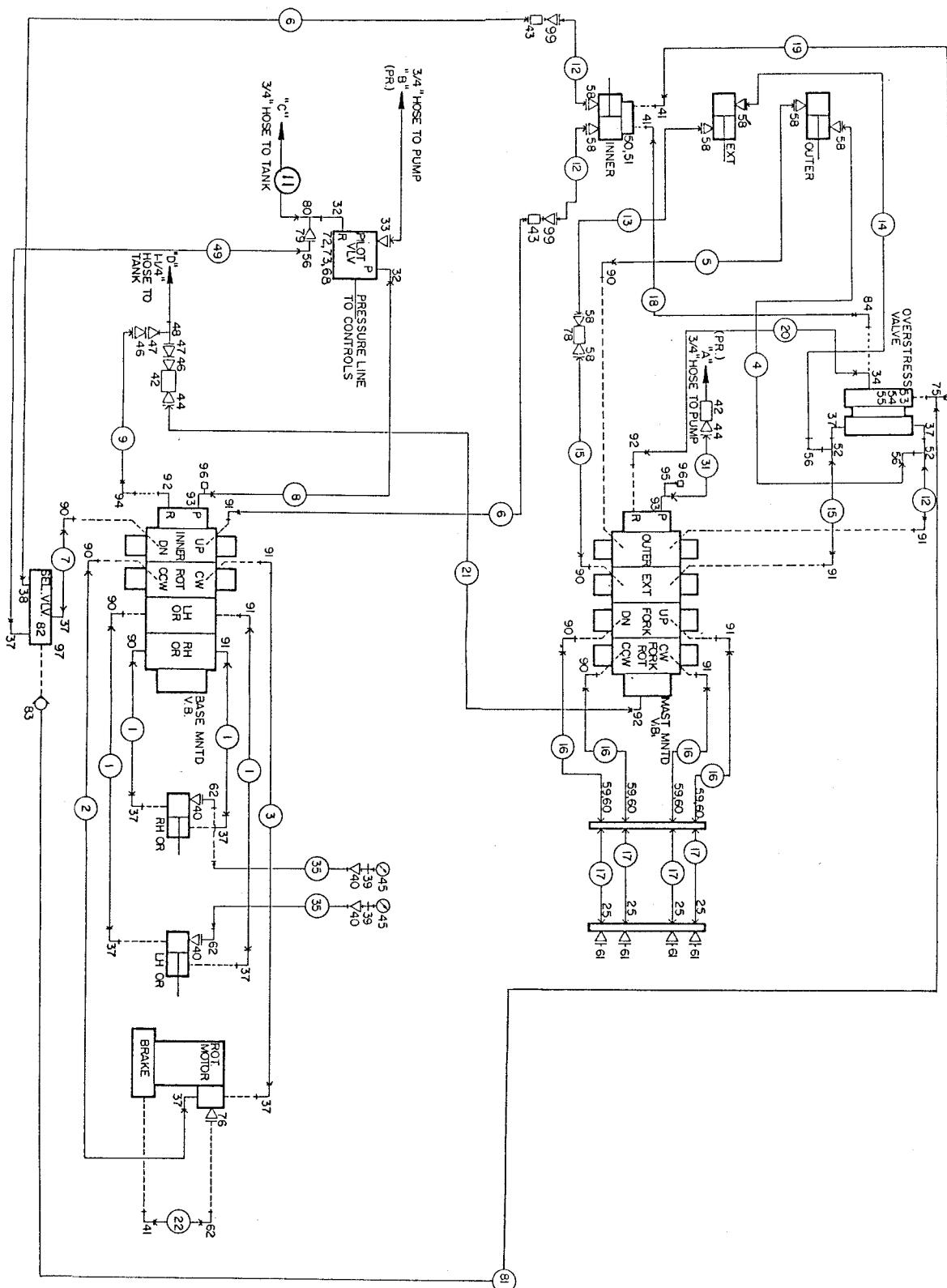
**Figure D-13. Hydraulic Kit (Part Number 91709713)**

## SEE ILLUSTRATIONS ON PAGES 4-14 AND 4-15

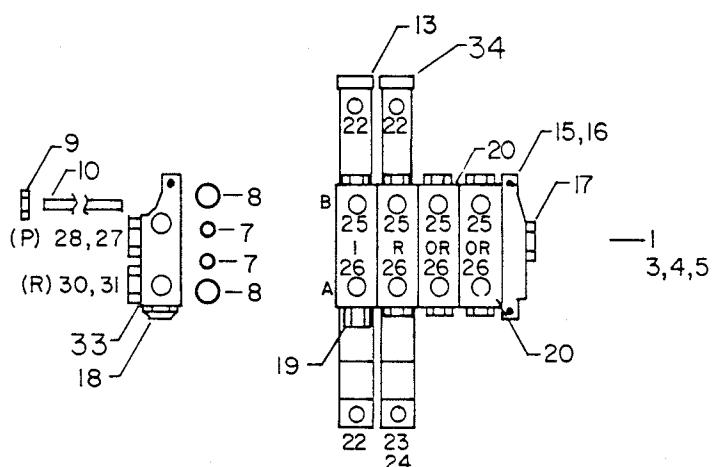
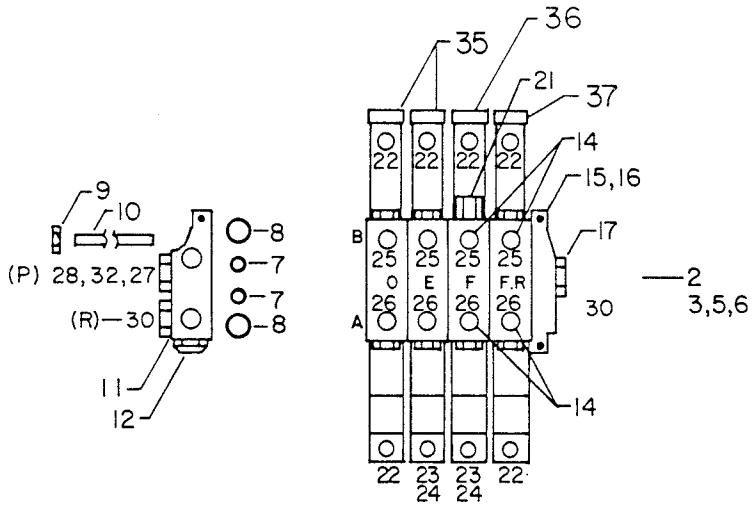
ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	51706528	HOSE ASM 1/2 X 80	4	52.	72532657	TEE 3/4JIC SWVL NUT RUN	2
2.	51706519	HOSE ASM 3/8 X 24	1	53.	73054424	OVERSTRESS VALVE	1
3.	51706889	HOSE ASM 3/8 X 20	1	54.	72060050	CAP SCR 3/8-16 X 2 HH GR5	2
4.	51709964	HOSE ASM 1/2 X 149	1	55.	72062103	NUT 3/8-16 LOCK	2
5.	51709965	HOSE ASM 1/2 X 153	1	56.	72532658	ELBOW 3/4MJIC X 3/4FJIC SWVL	3
6.	51706892	HOSE ASM 1/2 X 66	2	58.	72532358	ADAPTER 3/4MSTR X 3/4MJIC	8
7.	51706525	HOSE ASM 1/2 X 26	1	59.	72532672	BULKHEAD UNION 3/4JIC	4
8.	51706533	HOSE ASM 3/4 X 17	1	60.	72531708	BULKHEAD NUT 3/4JIC	4
9.	51706535	HOSE ASM 3/4 X 33	1	61.	72532665	ADAPTER 7/16MJIC X 3/4FJIC	4
11.	51706552	HOSE ASM 3/4 X 80	1	62.	72532690	ELBOW 7/16MJIC X 7/16FJIC SWVL	5
12.	51706891	HOSE ASM 1/2 X 24	3	63.	72532768	TEE 7/16MJIC	4
13.	51709966	HOSE ASM 1/2 X 236	1	65.	70731800	FOOT PEDAL CONTROL	2
14.	51709968	HOSE ASM 1/2 X 254	1	66.	72060023	CAP SCR 5/16-18 X 3/4 HH GR5	8
15.	51706890	HOSE ASM 1/2 X 21	2	67.	70731801	JOYSTICK CONTROL	2
16.	51709967	HOSE ASM 3/8 X 250	4	68.	72062109	NUT 5/16-18 LOCK	10
17.	51706520	HOSE ASM 3/8 X 234	4	69.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	8
18.	51705733	HOSE ASM 1/4 X 24	1	70.	72063001	WASHER 1/4 WRT	8
19.	51703659	HOSE ASM 1/4 X 22	1	71.	72063049	WASHER 1/4 LOCK	8
20.	51706624	HOSE ASM 3/4 X 28	1	72.	73054542	PILOT VALVE	1
21.	51706537	HOSE ASM 3/4 X 45	1	73.	72060029	CAP SCR 5/16-18 X 2 HH GR5	2
22.	51703876	HOSE ASM 1/4 X 8-1/2	1	75.	72532981	TEE 7/16JIC SWVL NUT RUN	3
23.	51709653	HOSE ASM 1/4 X 130	2	76.	72532351	ADAPTER 7/16MSTR X 7/16MJIC	1
24.	51704588	HOSE ASM 1/4 X 175	2	77.	72532985	ELBOW 9/16MSTR X 7/16MJIC 45°	20
25.	72532986	ELBOW 3/4MJIC X 3/4MJIC 90°	4	78.	73054426	ADJ RELIEF VALVE	1
26.	51706627	HOSE ASM 1/4 X 120	2	79.	72532972	ADAPTER 3/4MJIC X 1-1/16FJIC	1
27.	51709651	HOSE ASM 1/4 X 103	2	80.	72532950	TEE 1-1/16JIC SWVL NUT RUN	1
28.	51709654	HOSE ASM 1/4 X 160	2	81.	51706893	HOSE ASM 1/4 X 90	1
29.	51705202	HOSE ASM 1/4 X 49	2	82.	73054462	SELECTOR VALVE	1
30.	51709650	HOSE ASM 1/4 X 43	4	83.	73054549	CHECK VALVE	1
31.	51706632	HOSE ASM 3/4 X 47	1	84.	72531412	ELBOW 1/4MPT X 7/16MJIC	1
32.	72053767	ELBOW 1-1/16MSTR X 1-1/16MJIC 90°	2	85.	51706628	HOSE ASM 1/4 X 132	2
				86.	51706894	HOSE ASM 1/4 X 3	4
33.	72532366	ADAPTER 1-1/16MSTR X 1-1/16MJIC	1	87.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90° (PART OF VB)	9REF
34.	60107995	ELBOW - MODIFIED	1	88.	72532700	ELBOW 9/16MSTR X 9/16MJIC 90° XLG (PART OF VB)	3REF
35.	51708886	HOSE ASM 1/4 X 286	2	89.	72532707	ADAPTER 7/16MJIC X 9/16MJIC (PART OF VB)	3REF
36.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90°	1	90.	72532666	ELBOW 3/4MSTR X 3/4MJIC 90° XLG (PART OF VB)	8REF
37.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90°	10	91.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90° (PART OF VB)	8REF
38.	72532666	ELBOW 3/4MSTR X 3/4MJIC 90° XLG	1	92.	72053767	ELBOW 1-1/16MSTR X 1-1/16MJIC 90° (PART OF VB)	3REF
39.	72053468	COUPLING 1/8NPT	2	93.	60114669	ELBOW - MODIFIED (PART OF VB)	2REF
40.	72053663	ADAPTER 1/8MPT X 7/16MJIC	4	94.	72532696	ELBOW 1-1/16MJIC X 1-1/16FJIC SWVL (PART OF VB)	1REF
41.	72053758	ELBOW 7/16MSTR X 7/16MJIC 90°	3	95.	72531131	STRT ELBOW 1/4 X 90° (PART OF VB)	1REF
42.	72532973	ADAPTER 1-1/16FJIC IN-LINE PR SWVL	2	96.	72532987	DISCONNECT NIPPLE 1/4 (PART OF VB)	1REF
43.	72532980	ADAPTER 3/4FJIC IN-LINE PR SWVL	2	97.	72060028	CAP SCR 5/16-18 X 1-3/4 HH GR5	2
44.	72532855	ADAPTER 1-1/16MJIC X 1-1/16MJIC	2	98.	51709652	HOSE ASM 1/4 X 117	2
45.	73054435	PRESSURE GAUGE	2	99.	72532739	ADAPTER 3/4MJIC X 3/4MJIC	2
46.	72053676	ADAPTER 3/4MPT X 1-1/16MJIC	2				
47.	72531836	REDUCER BUSHING 1-1/4 X 3/4	2				
48.	72053615	TEE 1-1/4NPT	1				
49.	51706463	HOSE ASM 1/2 X 18	1				
50.	73054425	SENSOR VALVE	1				
51.	72060734	CAP SCR 5/16-18 X 1-1/2 SH	4				

Figure D-13. Hydraulic Kit (Part Number 91709713)

**SEE PARTS LIST ON PAGE 4-13.**

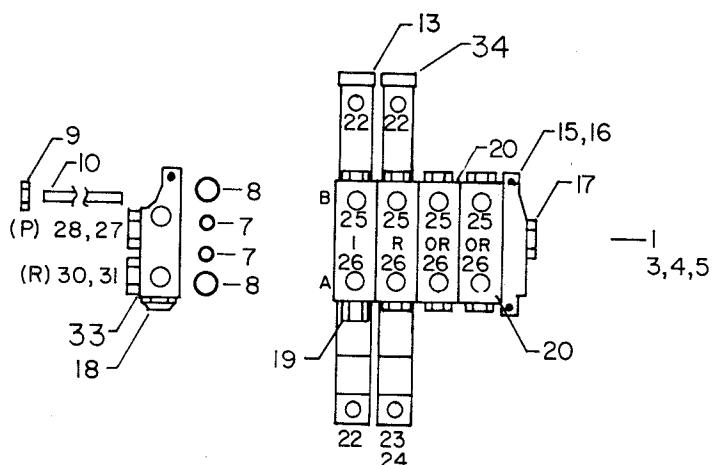
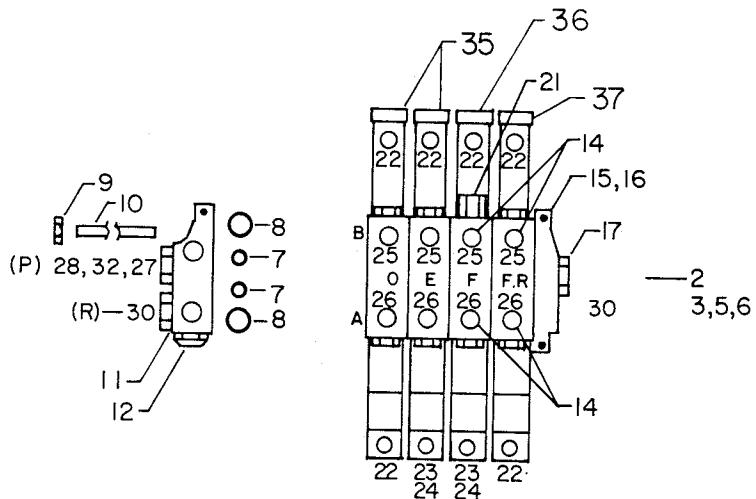


**Figure D-13. Hydraulic Kit (Part Number 91709713)**



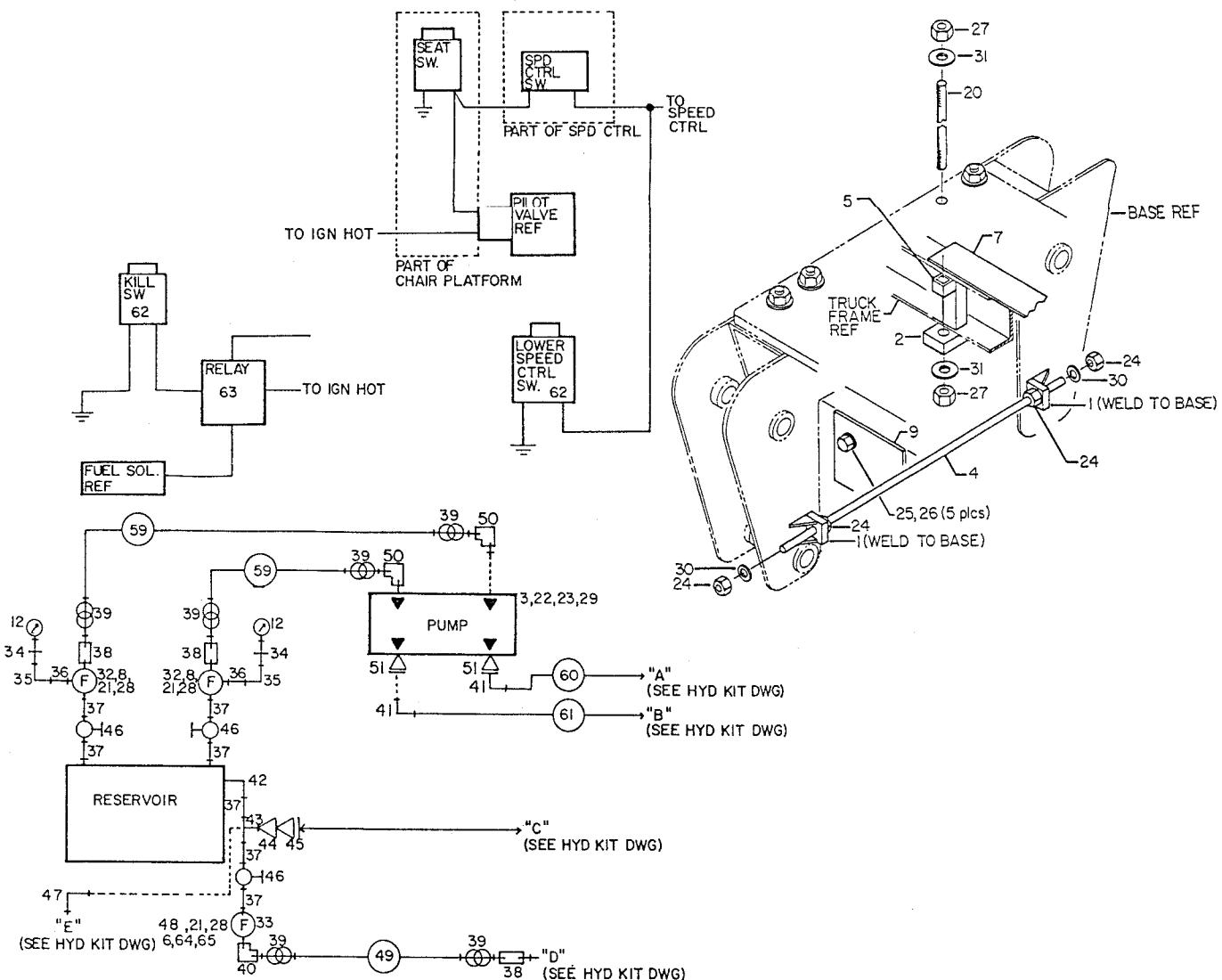
ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	70731810	VALVEBANK 4-SPOOL	1	22.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90°	9
2.	70731811	VALVEBANK 4-SPOOL	1	23.	72532700	ELBOW 9/16MSTR X 9/16MJIC XLG	3
3.	72060032	CAP SCR 5/16-18 X 2-3/4 HH GR5	6	24.	72532707	ADAPTER 7/16MJIC X 9/16FJIC	3
4.	72062109	NUT 5/16-18 LOCK	3	25.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90°	8
5.	72063002	WASHER 5/16 WRT	6	26.	72532666	ELBOW 3/4MSTR X 3/4MJIC XLG	8
6.	72063050	WASHER 5/16 LOCK	3	27.	60107995	ELBOW - MODIFIED	2
7.	7Q072019	O-RING SMALL	20 REF	28.	72532987	DISCONNECT NIPPLE 1/4	2
8.	7Q072021	O-RING LARGE	20REF	29.	72053767	ELBOW	
9.	72062037	NUT 3/8-24 HEX	12REF	30.	72053767	1-1/16MSTR X 1-1/16MJIC 90°	3
10.	73014630	STUD 3/8-24	6REF	31.	72532696	ELBOW	
11.	73054594	END CAP LH	1REF	32.	72531131	1-1/16MJIC X 1-1/16FJIC SWVL	1
12.	73054591	MAIN RELIEF 2600PSI	1REF	33.	73054593	STRT ELBOW 1/4NPT X 90°	1
13.	73054595	VALVE SECTION	1REF	34.	73054596	END CAP LH W/RELIEF VALVE	1REF
14.	70143140	RESTRICTOR .062	4REF	35.	73054598	VALVE SECTION	1REF
15.	73731241	END CAP W/PLUG RH (INCL:16,17)	2REF	36.	73054599	VALVE SECTION	2REF
16.	73054442	END CAP RH (PART OF 15)	2REF	37.	73054600	VALVE SECTION	1REF
17.	73073022	CONVERSION PLUG (PART OF 15)	2REF			VALVE SECTION	1REF
18.	73054590	MAIN RELIEF 2100PSI	1REF				
19.	73054592	PORT RELIEF 1000PSI	1REF				
20.	73054597	VALVE SECTION	2REF				
21.	73054356	RELIEF 1800PSI	1REF				

Figure D-14. Valvebank Assembly (Part Number 51706605)



ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1.	70731810	VALVEBANK 4-SPOOL	1	22.	72532699	ELBOW 9/16MSTR X 7/16MJIC 90°	9
2.	70731811	VALVEBANK 4-SPOOL	1	23.	72532700	ELBOW 9/16MSTR X 9/16MJIC XLG	3
3.	72060032	CAP SCR 5/16-18 X 2-3/4 HH GR5	6	24.	72532707	ADAPTER 7/16MJIC X 9/16FJIC	3
4.	72062109	NUT 5/16-18 LOCK	3	25.	72053763	ELBOW 3/4MSTR X 3/4MJIC 90°	8
5.	72063002	WASHER 5/16 WRT	6	26.	72532666	ELBOW 3/4MSTR X 3/4MJIC XLG	8
6.	72063050	WASHER 5/16 LOCK	3	27.	60114669	ELBOW - MODIFIED	2
7.	7Q072019	O-RING SMALL	20 REF	28.	72532987	DISCONNECT NIPPLE 1/4	2
8.	7Q072021	O-RING LARGE	20REF	30.	72053767	ELBOW	
9.	72062037	NUT 3/8-24 HEX	12REF			1-1/16MSTR X 1-1/16MJIC 90°	3
10.	73014630	STUD 3/8-24	6REF	31.	72532696	ELBOW	
11.	73054594	END CAP LH	1REF			1-1/16MJIC X 1-1/16FJIC SWVL	1
12.	73054591	MAIN RELIEF 2600PSI	1REF	32.	72531131	STRT ELBOW 1/4NPT X 90°	1REF
13.	73054595	VALVE SECTION	1REF	33.	73054593	END CAP LH W/RELIEF VALVE	1REF
14.	70143140	RESTRICTOR .062	4REF	34.	73054596	VALVE SECTION	1REF
15.	73731241	END CAP W/PLUG RH (INCL:16,17)	2REF	35.	73054598	VALVE SECTION	2REF
16.	73054442	END CAP RH (PART OF 15)	2REF	36.	73054599	VALVE SECTION	1REF
17.	73073022	CONVERSION PLUG (PART OF 15)	2REF	37.	73054600	VALVE SECTION	1REF
18.	73054590	MAIN RELIEF 2100PSI	1REF				
19.	73054592	PORT RELIEF 1000PSI	1REF				
20.	73054597	VALVE SECTION	2REF				
21.	73054356	RELIEF 1800PSI	1REF				

Figure D-14. Valvebank Assembly (Part Number 51706605)



ITEM NO.	PART NO.	DESCRIPTION	QTY	ITEM NO.	PART NO.	DESCRIPTION	QTY
1. 52702539	TIE BAR	2	35. 72053281	STRT ELBOW 1/8NPT X 90°	2		
2. 60114049	CLAMP PLATE	4	36. 72053002	PIPE NIPPLE 1/8NPT X 2	2		
3. 60103041	TANDEM PUMP SUPPORT	1	37. 72053211	PIPE NIPPLE 1-1/4 X CLOSE	7		
4. 60114044	TENSION BAR	1	38. 72531550	BARB NIPPLE 1-1/4 X 1-1/4	3		
5. 52709798	SUPPORT	4	39. 72066516	HOSE CLAMP 1-1/4	6		
6. 72063049	WASHER 1/4 LOCK	4	40. 72532346	BARB NIPPLE 1-1/4 X 1-1/4 90°	1		
7. 60103563	BAR	2	41. 72053767	ELBOW			
8. 60103870	OIL FILTER BRACKET	2	42. 72053287	1-1/16MSTR X 1-1/16MJIC 90°	2		
9. 60105107	PLATE	2	43. 60107571	STRT ELBOW 1-1/4 X 90°	1		
12. 70048031	VACUUM GAUGE	2	44. 72531836	TEE - MODIFIED	1		
15. 95709799	DECAL KIT (SEE DWG)	1	45. 72053676	REDUCER BUSHING 1-1/4 X 3/4NPT	1		
20. 60114048	TIE DOWN STUD 1-1/4 X 44	8	46. 73054130	ADAPTER 3/4MPT X 1-1/16MJIC	1		
21. 72060025	CAP SCR 5/16-18 X 1 HH GR5	6	47. 72531412	GATE VALVE 1-1/4	3		
22. 72060046	CAP SCR 3/8-16 X 1 HH GR5	2	48. 60112266	ELBOW 1/4MPT X 7/16MJIC 90°	1		
23. 72062002	NUT 3/8-16 HEX	2	49. 60035936	OIL FILTER BRACKET	1		
24. 72062009	NUT 1-8 HEX	4	50. 72532710	HOSE 1-1/4 100R4 X 42	1		
25. 72060183	CAP SCR 3/4-10 X 1-1/2 HH GR5	10	51. 72532949	BEAD NIPPLE			
26. 72062114	NUT 3/4-10 LOCK	10	52. 59. 60035950	1-5/8STR X 1-1/4BARB 90°	2		
27. 72062142	NUT 1-1/4-7 LOCK	16	53. 60. 51706629	ADAPTER 1-5/8MSTR X 1-1/16FSTR	2		
28. 72063050	WASHER 5/16 LOCK	6	54. 61. 51706630	HOSE 1-1/4 X 60	2		
29. 72063051	WASHER 3/8 LOCK	2	55. 62. 77041013	HOSE ASM 3/4 X 63	1		
30. 72063058	WASHER 1 LOCK	2	56. 63. 77041251	HOSE ASM 3/4 X 138	1		
31. 72063067	WASHER 1-1/4 HI STRENGTH	16	57. 64. 72063001	SWITCH	2		
32. 73052012	SUCTION FILTER	2	58. 65. 72060002	RELAY	1		
33. 73052040	RETURN FILTER	1	59. 66. 72063001	WASHER 1/4 WRT	1		
34. 72053468	COUPLING 1/8NPT	·2	60. 67. 72060002	CAP SCR 1/4-20 X 3/4 HH GR5	1		

Figure D-15. Installation Kit (Part Number 93709711)