



**Volume 2
Parts and Specifications
Model 10025 Crane**

IOWA MOLD TOOLING CO., INC.

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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 you IMT truck-mounted articulating crane. It also contains additional instructions regarding you 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
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	100,000 ft-lbs (13.83 ton-meters)
Reach (from centerline of rotation)	25'-2" (7.67m)
Hydraulic Extension	60" (152.4cm)
* Lifting Height	37'-2" (11.33m)
Crane Weight without chair and platform	6950 lbs (3152 kg)
Crane Weight with chair and platform	7400 lbs (3356 kg)
Outrigger Span	15'-0" (4.57m)
*Crane Storage Height	12'-11" (3.94m)
** Mounting Space Required	33" (83.8cm)
Optimum Pump Capacity - tandem pump (each section)	12 U.S. GPM (45.4 liters/min)
Oil Reservoir Capacity	26 U.S. gallons (98.4 liters)
***Vertical Center of Gravity from bottom of crane	48" (121.9cm)
***Horizontal Center of Gravity from centerline of rotation	58" (147.3cm)
Design Factor (Pins and Hydraulics)	4/1

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

** Allow an additional 3" (7.6cm) between the truck cab and crane base for swing clearance.

*** Based on crane with chair and platform in stored position, extension boom retracted with fork and rotator installed - fork, rotator and link weigh approximately 770 lbs (350 kg).

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

*15'-0" (4.57m)	6700 lbs (3039 kg)
20'-2" (6.15m)	5000 lbs (2268 kg)
25'-2" (7.67m)	4000 lbs (1814 kg)

* Hook applications only - inner and outer boom will be "knuckled" to meet this lifting radii from centerline of rotation.

1-3. PERFORMANCE CHARACTERISTICS

Rotation: 450° (7.85 rad.)	30 seconds
Inner Boom Elevation: -5° to +80° (-0.09 rad. to +1.40 rad.)	20 seconds
Outer Boom Articulation: 174° (2.96 rad.)	25 seconds
Extension Boom: 60" (152.4cm)	10 seconds
Outrigger Extension: 29-1/4" (74.3cm)	36 seconds

* All times are theoretical and based on an optimum pump capacity of 12 GPM (45.4 liters/min).

1-4. CYLINDERS

	Bore	Stroke
Inner Boom Cylinder	4-1/2" (11.4cm)	28-1/4" (74.8cm)
Outer Boom Cylinder	6" (15.2cm)	40-5/8" (103.2cm)
Extension Boom Cylinder	3" (7.6cm)	60" (152.4cm)
Outrigger Cylinders	6" (15.2cm)	29-1/4" (79.3cm)

1-5. POWER SOURCE

Integral-mounted tandem hydraulic pump and PTO application. Other standard power sources may be utilized. Minimum power required is 42 horsepower.

1-6. 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 counter-balance 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.

1-7. ROTATION SYSTEM

Turntable bearing powered by 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 hydraulic motor providing rotational and parking brake action. Total gear reduction is 56.7 to 1.

1-8. HYDRAULIC SYSTEM

Open-centered, full-pressure system with tandem pump requiring 12 U.S. GPM (45.4 liters/minute) optimum oil flow at 2500 psi (172.4 bar). Control valve consists of two four-spool, stack type valvebanks. All crane (excluding outriggers) and wallboard functions are manipulated by either joy sticks or foot throttles via a pilot source of oil from the valve banks. Outrigger controls - located at the base of the crane - are of the push/pull type, connected directly to the valvebank. System includes hydraulic oil reservoir, suction-filter, return-filter and control valvebank.

A pressure sensor mounted on the inner-boom cylinder 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 the 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.

1-9. MINIMUM CHASSIS SPECIFICATIONS

Body Style	Conventional Cab	Conventional Cab
Wheelbase	230"	(584.2cm)
Cab-to-axle	172"	(436.9cm)
Frame Section Modulus	26 in ³	(426 cc)
RBM	1,560,000 in-lbs	(17,973 kg-m)
Front Axle Rating	12,000 lbs	(5443 kg)
*Rear Axle Rating	*23,000 lbs	*(10,433 kg)

* If building supply materials are to be transported, it may be necessary to use a 34,000 lb (15,442 kg) tandem rear axle.

In addition to these specifications, heavy-duty electrical and cooling systems are required. It is recommended that the vehicle be equipped with an electric engine tachometer, auxiliary brake lock and power steering. If a diesel engine is utilized, a variable speed governor shall be required.

Iowa Mold Tooling Co., Inc. reserves the right to change specifications and design without notice.

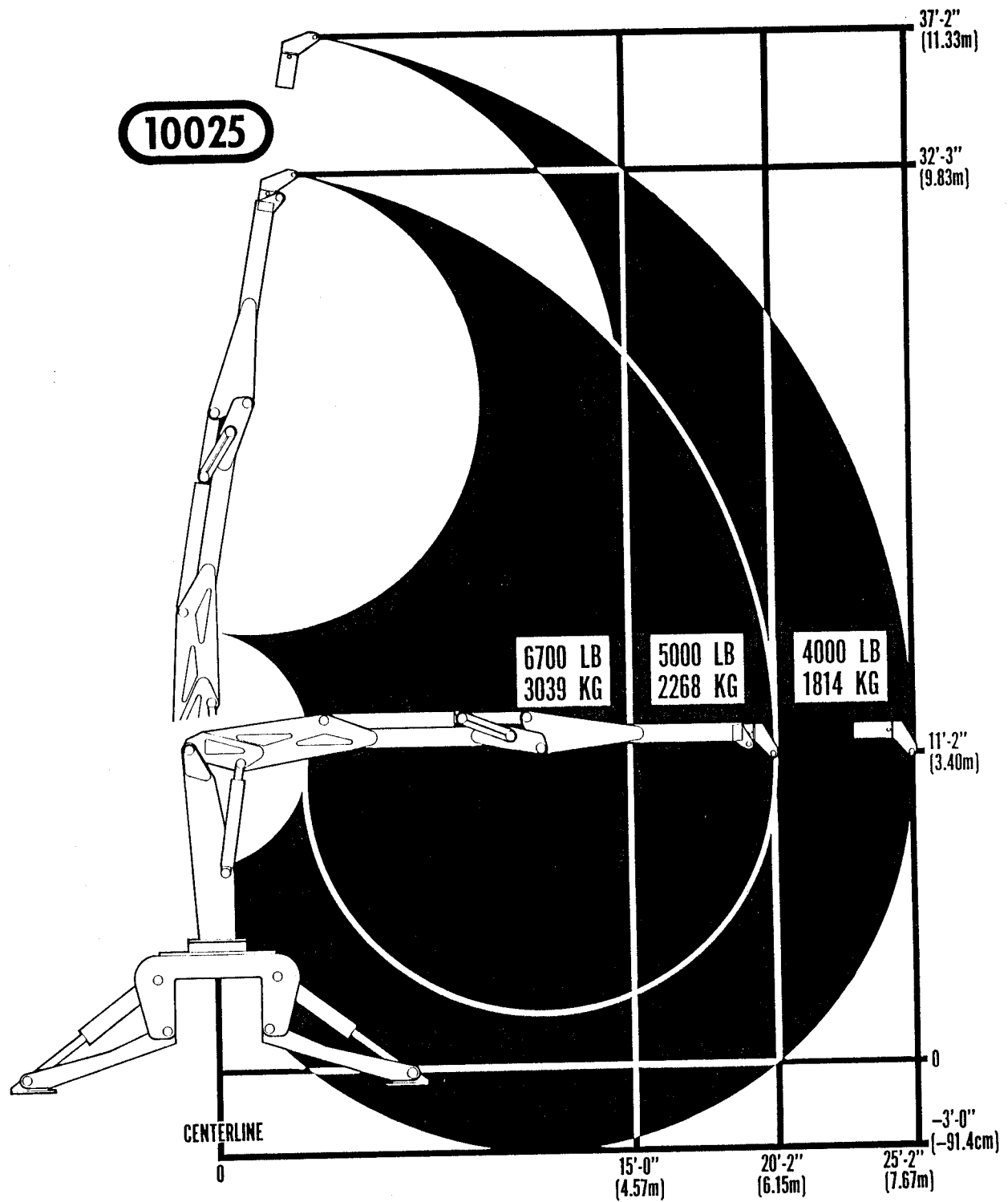


Figure A-1. CAPACITY CHART

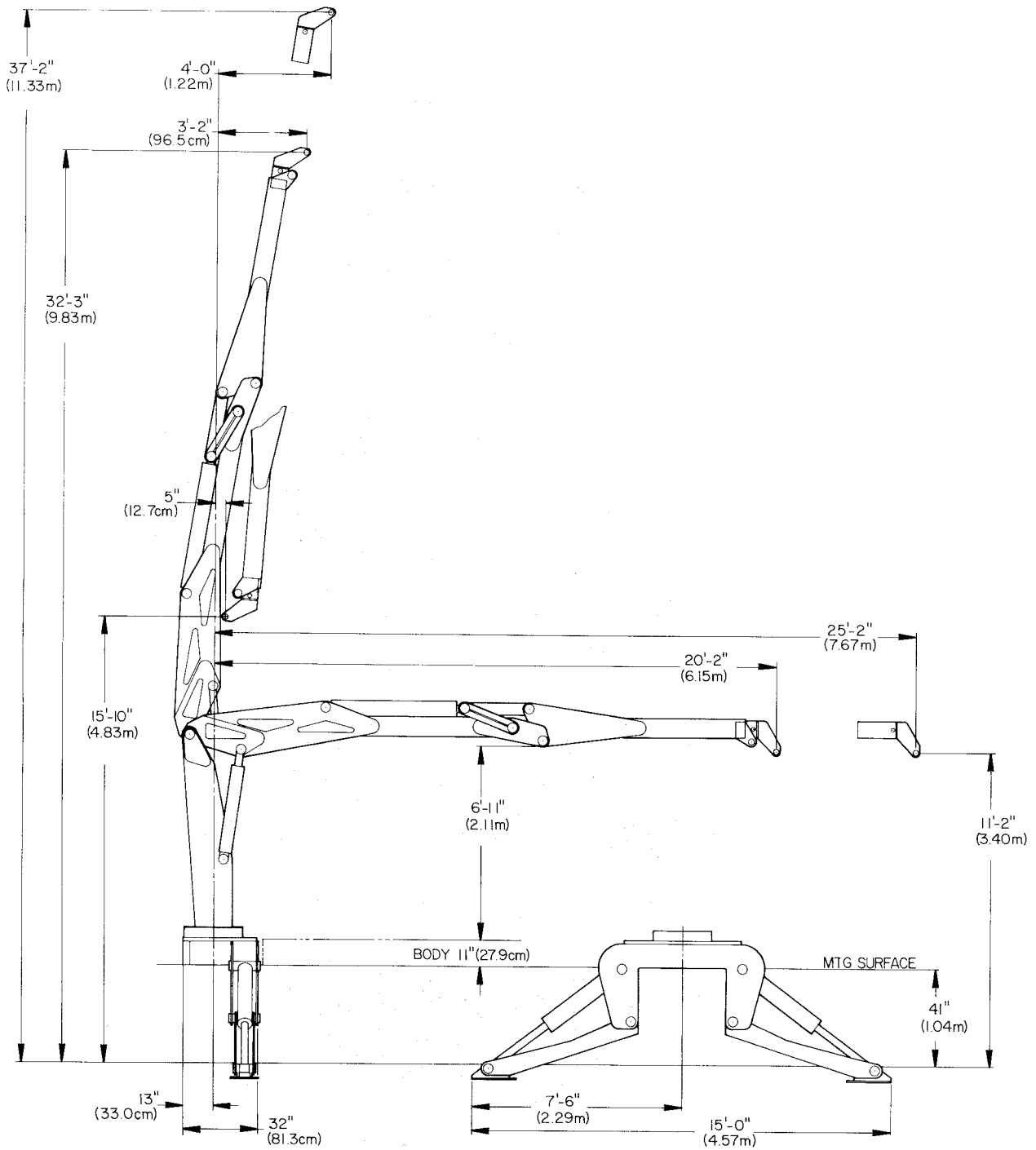


Figure A-2. GEOMETRIC CONFIGURATION

Section 2. CRANE DESCRIPTION

2-1. GENERAL

The 10025 Crane is designed primarily for use as a wallboard-handling. This section describes the major assemblies used on the crane and Figure B-1 illustrates their location.

2-2. BASE

The base provides a platform for mounting the crane to a truck. It incorporates the 450° (7.85 Rad.) rotation mechanism and outriggers. The outriggers are powered through double-acting hydraulic cylinders, and provide stabilization during crane operation. Maximum outrigger span is $15'-0"$ (4.57m). A platform with 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 85° (1.49 Rad.) from -5° to $+80^{\circ}$ (-0.09 to $+1.40 \text{ Rad.}$). It is raised and lowered through the use of a twin, double-acting hydraulic cylinder.

2-5. OUTER BOOM

The outer boom is articulated through 174° (2.96 Rad.). The boom is raised and lowered through the use of a double-acting hydraulic cylinder mounted above the inner boom and outer boom hinge point. It also provides storage for the extension boom in the retracted position.

2-6. EXTENSION BOOM

The single-stage extension boom increases the operating range of the crane from $20'-2"$ (6.15m) to $25'-2"$ (7.67m).

2-7. CONTROLS

There are two "joy-stick" control handles and a foot pedal control mounted at the operator's station. All crane functions (except outriggers) and wallboard fork functions are manipulated by either the joy-stick or foot pedals via a pilot pressure source of oil from the main valvebank. Outrigger controls, located at the base of the crane, are of the push/pull type with the handles connected directly to the valvebank.

2-8. HYDRAULICS

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

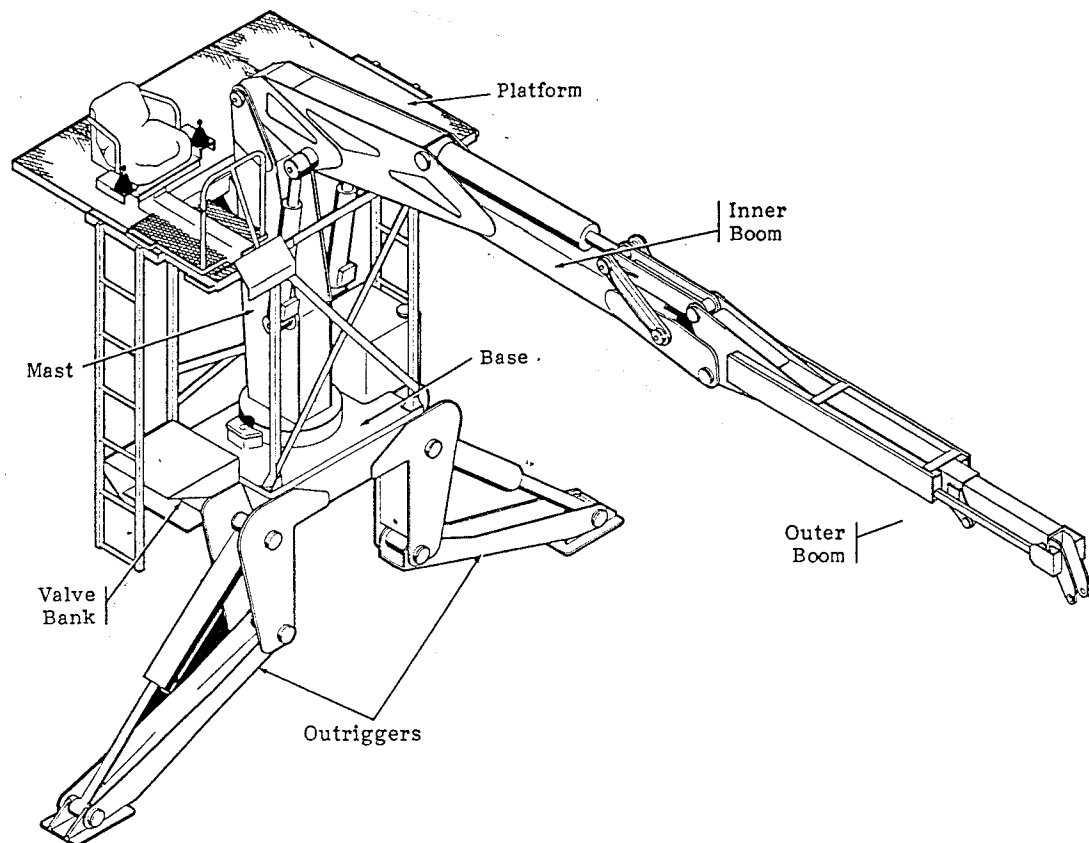


Figure B-1. 10025 CRANE GROUP

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 3" (7.6cm). 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 collodial copper or white lead, reduce torque values 10%. Torque values for threaded fasteners are not affected with the use of Loctite.

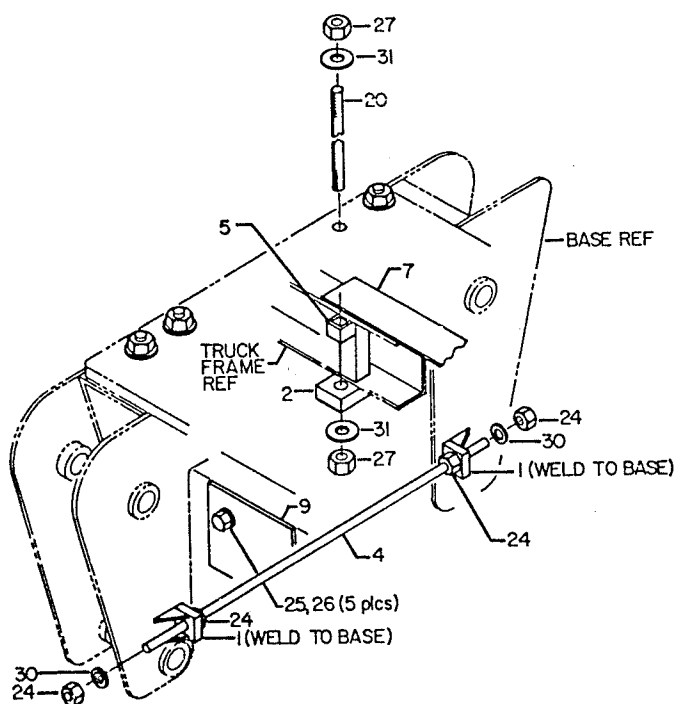
D. Do not use rusty fasteners, the rust will alter torque values significantly.

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 filter as shown in Figure C-2.
2. Install the 1-1/4" ID 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 valve 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's engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauge on the suction-line filters (should read 8" mercury or less). If the vacuum reading is too high, check to make certain that the gate valves are opened completely. If the valve is fully opened, check for a collapsed or restricted suction line.
9. Cycle all hydraulic functions. Check for leaks, and refill the reservoir if necessary.

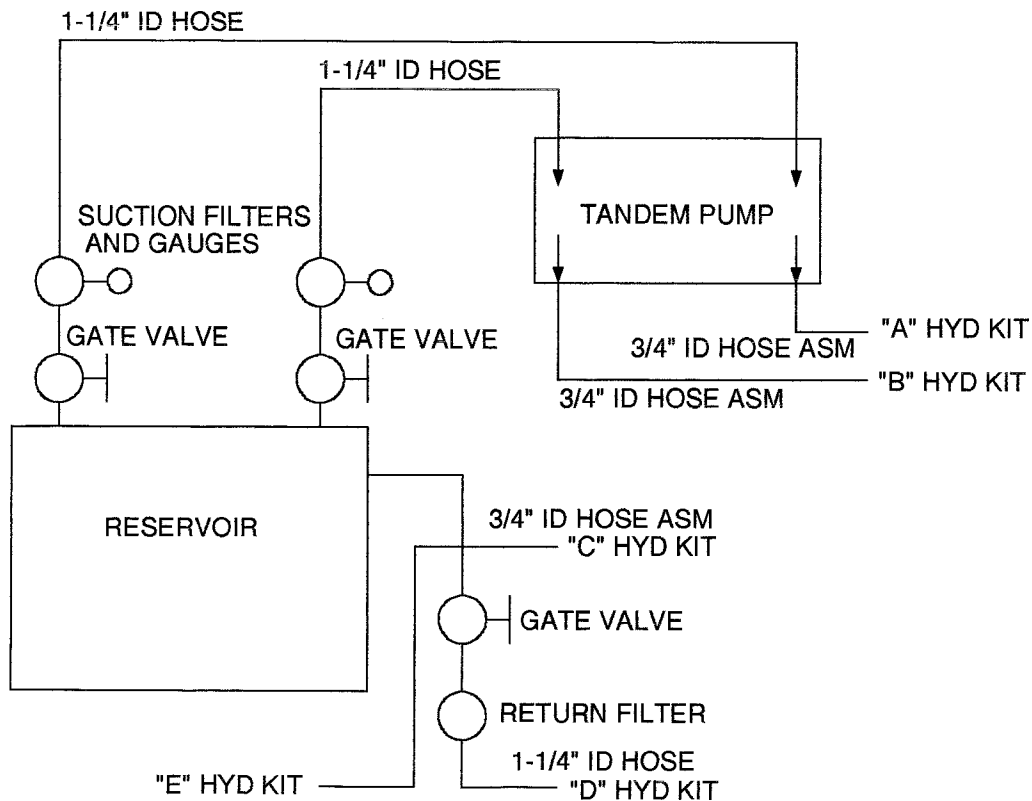


Figure C-2. HYDRAULIC INSTALLATION

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 such as winches and remote controls, 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, INJURY OR DEATH.

4-2. CRANE IDENTIFICATION

Every crane has an identification placard (Figure D-1) attached to the mast. When ordering parts, communicating warranty information or referring to the unit in correspondence, always include the assigned serial and model numbers.

All inquiries should be addressed to:

Iowa Mold Tooling Company, Inc.
Box 189, Garner, Iowa 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 request. Part numbers may be cross checked by comparing the stamped identification of the cylinder case (Figure D-2) against the information contained in this manual. You must use the part number stamped on the cylinder case when ordering parts.

MODEL MODELO MODELE	SERIAL NUMBER NUMERO DE SERIE NUMERO DE SERIE
DRAWING NUMBER NUMERO DE PLANO NUMERO DE PLAN	FECHA DE FABRICACION DATE DATE
	
Iowa Mold Tooling Co., Inc. Garner, Iowa U.S.A.	IMT Cranes Canada, Ltd. Orillia, Ontario, Canada

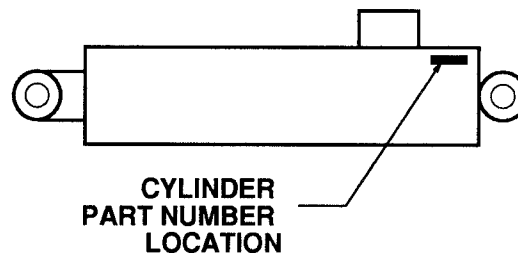


Figure D-1. SERIAL NUMBER PLACARD

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 leg weldments bear a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations 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 main weldments, always give the stamped part number.
4. Give a complete description of the part.
5. Specify the quantity required.

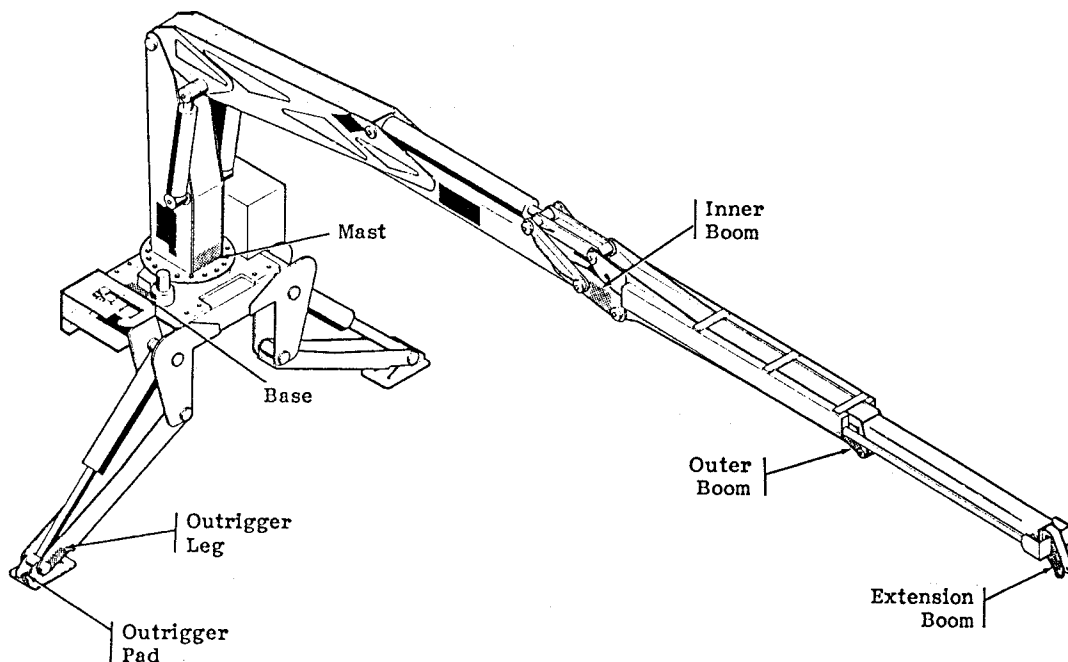


Figure D-3. WELDMENT PART NUMBER LOCATION

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.

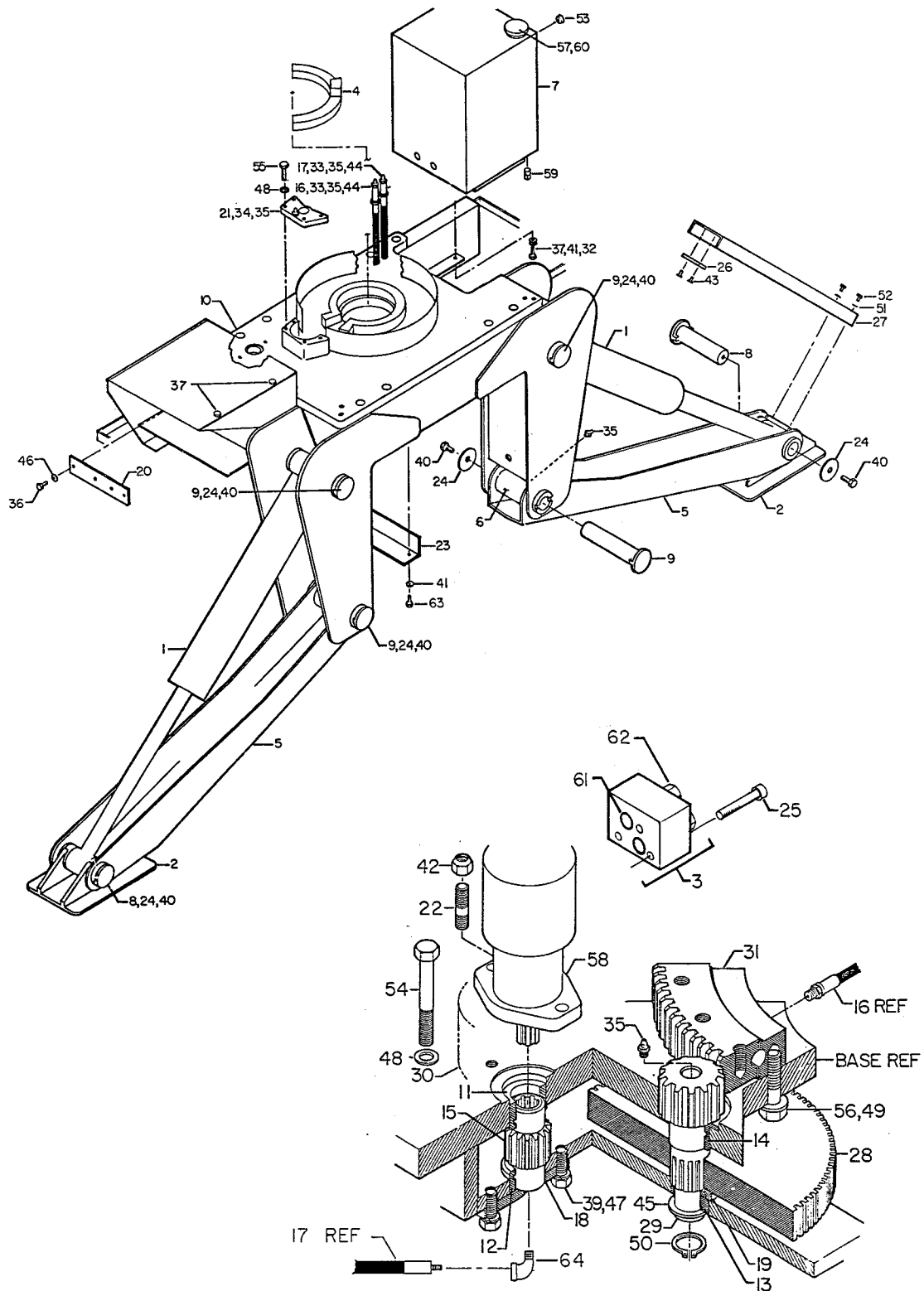
NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before reassembly.

SEE PAGE 4-4 FOR DRAWING

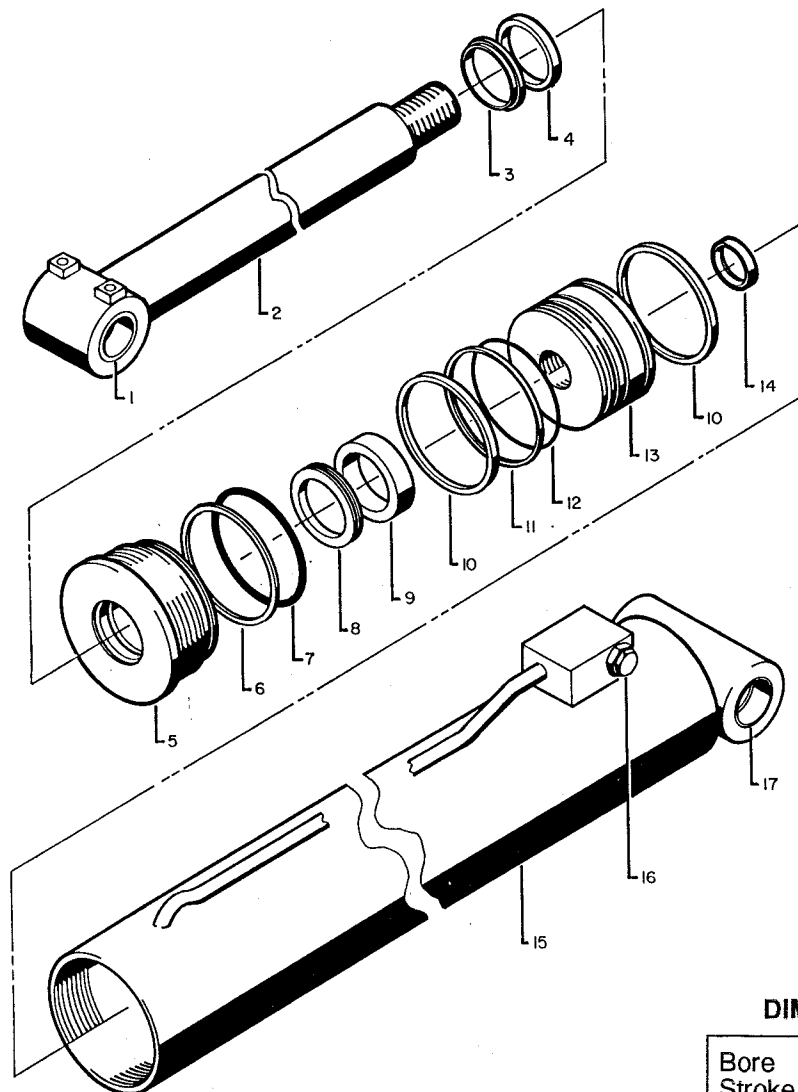
ITEM	PART	DESCRIPTION	QTY	ITEM	PART	DESCRIPTION	QTY
1.	3C283801	OUTRIGGER CYLINDER	2	32.	72063002	WASHER 5/16 WRT	6
2.	52701412	OUTRIGGER PAD	2	33.	72053301	COUPLING 1/8NPT	2
3.	70731795	VALVEPAC (INCL:61,62)	1	34.	70034295	BEARING (PART OF 21)	1REF
4.	52707194	SLIDE	1	35.	72053508	ZERK 1/8NPT	6
5.	52703540	OUTRIGGER LEG (INCL:6)	2	36.	72060004	CAP SCR 1/4-20X1 HH GR5	2
6.	7BF81225	BUSHING (PART OF 5)	8REF	37.	72060833	SCR 5/16-18X3/4 HH SLFTP	8
7.	52703541	RESERVOIR	1	39.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2
8.	52703694	PIN	2	40.	72060147	CAP SCR 5/8-11X1 HH GR5	6
9.	52703695	PIN	4	41.	72063050	WASHER 5/16 LOCK	8
10.	52707775	BASE (INCL:11-15)	1	42.	72062080	NUT 1/2-13 LOCK	2
11.	60020120	BUSHING (PART OF 10)	1REF	43.	72060836	CAP SCR 1/4-20X3/4 FLHSOC	4
12.	60020121	BUSHING (PART OF 10)	1REF	44.	72063003	WASHER 3/8 WRT	2
13.	60020122	BUSHING (PART OF 10)	1REF	45.	72063039	MACH BUSHING 2 X 10GA	1
14.	60020124	BUSHING (PART OF 10)	1REF	46.	72063049	WASHER 1/4 LOCK	2
15.	71056074	DRIVE GEAR (PART OF 10)	1REF	47.	72063053	WASHER 1/2 LOCK	2
16.	53000711	GREASE EXT 23"	1	48.	72063117	WASHER 9/16 FLAT GR8	6
17.	53000713	GREASE EXT 38"	1	49.	72063115	WASHER 7/8 FLAT GR8	23
18.	60010844	GREASE PLATE	1	50.	72066095	RETAINING RING 2" EXT STD	1
19.	60020123	THRUST WASHER	1	51.	72063051	WASHER 3/8 LOCK	4
20.	60103367	COVER	1	52.	72060044	CAP SCR 3/8-16X3/4 HH GR5	4
21.	60105964	PINION SUPPORT (INCL:34)	1	53.	72532261	SIGHT GAUGE 3/4NPT	1
22.	60106032	STUD 1/2-13X2	2	54.	72601037	CAP SCR 9/16-12X4-1/2 HH GR8	2
23.	60106193	GEAR GUARD	1	55.	72601144	CAP SCR 9/16-12X2 HH GR8	4
24.	60106332	PIN RETAINER	6	56.	72601148	CAP SCR 7/8-9X3 HH GR8	23
25.	72060757	CAP SCR 3/8-16X2-1/2 SH	3	57.	73014671	FILL CAP	1
26.	60030176	WEAR PAD	2	58.	73051478	MOTOR	1
27.	52706739	CYLINDER GUARD	2	59.	73052001	PLUG 3/4NPT SQHD MAGNETIC	1
28.	71056072	INTERMEDIATE GEAR	1	60.	73141276	FILL NECK SCREEN	1
29.	71056073	PINION GEAR	1	61.	7Q072017	O-RING (PART OF 3)	2REF
30.	71056374	HYDRAULIC BRAKE	1	62.	73054538	CB VALVE (PART OF 3)	2REF
31.	71056273	TURNTABLE BEARING	1	63.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2
				64.	72053281	STREET ELBOW	1

Figure D-4. BASE AND OUTRIGGER ASSEMBLY (41707777)



SEE PAGE 4-3 FOR PARTS LIST

Figure D-4A. BASE AND OUTRIGGER ASSEMBLY (41707777)



DIMENSIONS

Bore	6"
Stroke	29-1/4"
C-C Closed	42-1/8"
Rod diameter	3"
Pin diameter	2-1/2"

NOTE

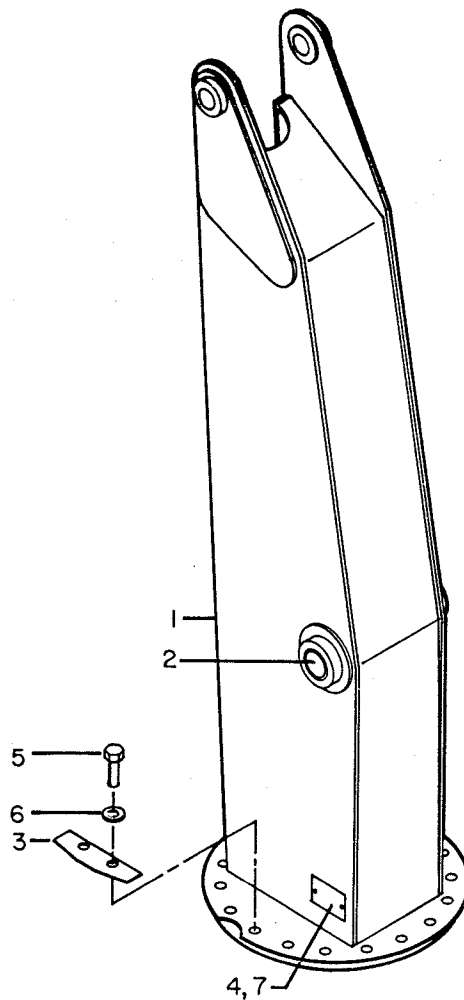
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

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.

ITEM	PART NO.	DESCRIPTION	QTY
1.	7BF81225	BUSHING (PART OF 2)	4REF
2.	4G283800	ROD ASM (INCL: 1)	1
3.	7R14P030	ROD WIPER (PART OF 20)	1REF
4.	7R546030	ROD SEAL (PART OF 20)	1REF
5.	6H060030	HEAD	1
6.	7Q10P358	BACK-UP RING (PART OF 20)	1REF
7.	7Q072358	O-RING (PART OF 20)	1REF
8.	6A025030	WAFER LOCK (PART OF 20)	1REF
9.	6C075030	STOP TUBE	1
10.	7T651060	PISTON RING (PART OF 20)	2REF
11.	7T66P060	PISTON SEAL (PART OF 20)	1REF
12.	7Q072253	O-RING (PART OF 20)	1REF
13.	6I060200	PISTON	1
14.	7T61N200	LOCK RING SEAL (PART OF 20)	1REF
15.	4C283801	CASE (INCL: 17-19)	1
16.	73054304	VALVE	2
17.	7BF81225	BUSHING (PART OF 15)	3REF
18.	72053507	ZERK 1/4-28 (PART OF 2 & 15)	4REF
19.	7PNPXT02	PLUG 1/8NPT (PART OF 15)	4REF
20.	9C242432	SEAL KIT (INCL: 3,4,6-8,10-12,14)	1

Figure D-5. OUTRIGGER CYLINDER (3C283801)

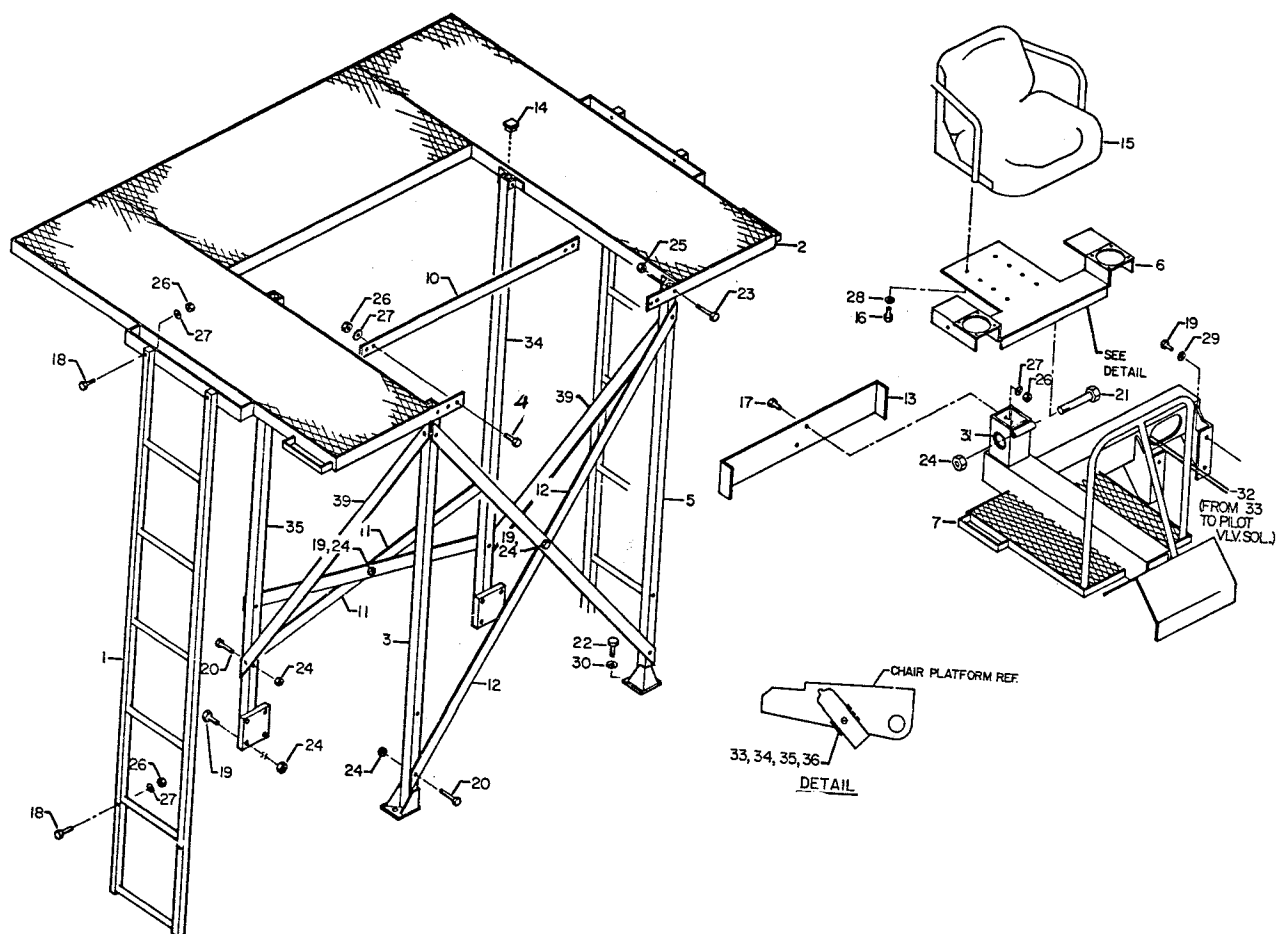


WARNING

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.

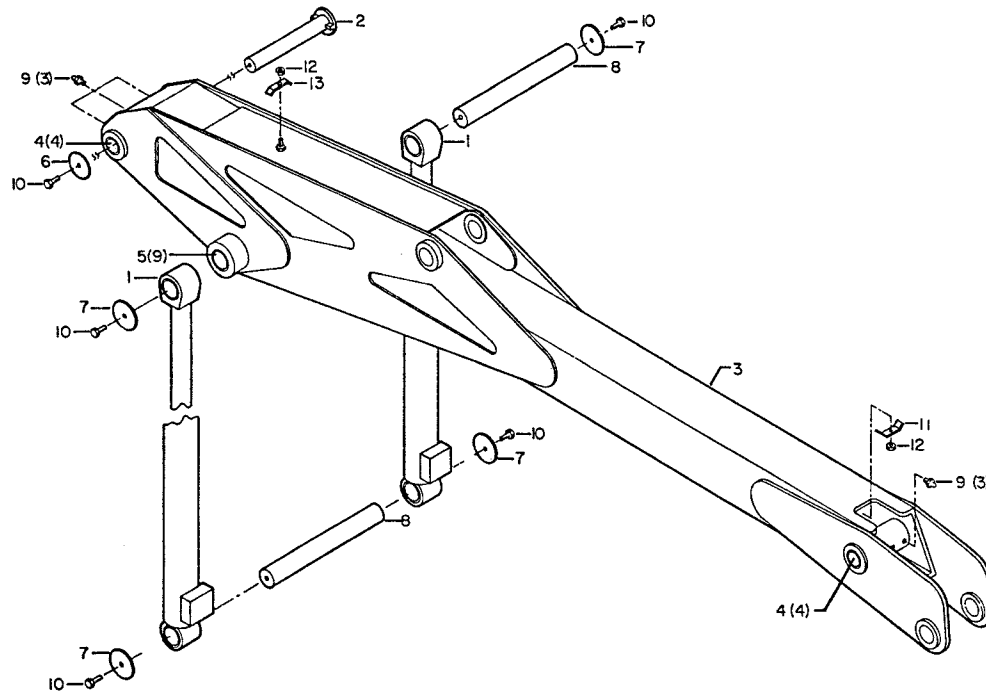
ITEM	PART NO.	DESCRIPTION	QTY
1.	52707767	MAST (INCL: 2)	1
2.	7BF81225	BUSHING (PART OF 1)	9REF
3.	60104247	PINION COVER	1
4.	70029119	SERIAL NUMBER PLACARD	1
5.	72060209	CAP SCR 3/4-10X2-3/4 HH GR8	18
6.	72063116	WASHER 3/4 FLAT HARD	18
7.	72066340	POP RIVET 1/8	2

Figure D-6. MAST ASSEMBLY (41707778)



ITEM PART NO.	DESCRIPTION	QTY	ITEM PART NO.	DESCRIPTION	QTY
1. 52706597	LADDER	2	22. 72060148	CAP SCR 5/8-11X1-3/4 HH GR5	4
2. 52706598	PLATFORM	1	23. 72060154	CAP SCR 5/8-11X3 HH GR5	4
3. 52706599	LEG	1	24. 72062080	NUT 1/2-13 LOCK	23
4. 72060047	CAP SCR 3/8-16X1-1/4 HHGR5	2	25. 72062091	NUT 5/8-11 LOCK	4
5. 52706601	LEG	1	26. 72062103	NUT 3/8-16 LOCK	12
6. 52706602	CHAIR PLATFORM PIVOT	1	27. 72063003	WASHER 3/8 WRT	12
7. 52706603	CHAIR PLATFORM	1	28. 72063050	WASHER 5/16 LOCK	4
10. 60109936	ACCESS BAR (PART OF 2)	1 REF	29. 72063053	WASHER 1/2 LOCK	4
11. 60109940	CROSS BRACE	2	30. 72063055	WASHER 5/8 LOCK	4
12. 60109941	CROSS BRACE	2	31. 60035938	EDGE LINER	2
13. 60109964	HOSE GUARD	1	32. 89044188	WIRE 14GA 2WIRE	13'-8"
14. 70392310	PLUG 1-1/2 SQ	4	33. 77041249	MERCURY SWITCH	1
15. 70731411	CHAIR	1	34. 52707768	LEG CS	1
16. 72060025	CAP SCR 5/16-18X1 HH GR5	4	35. 52707769	LEG SS	1
17. 72060046	CAP SCR 3/8-16X1 HH GR5	6	36. 77041250	SWITCH CLIP	1
18. 72060052	CAP SCR 3/8-16X2-1/2 HH GR5	8	37. 72601366	MACH SCR #8-32X1/2 FLTHD	1
19. 72060092	CAP SCR 1/2-13X1-1/4 HH GR5	14	38. 72062207	NUT #8-32 LOCK	1
20. 72060096	CAP SCR 1/2-13X2-1/2 HH GR5	12	39. 60113835	CROSS BRACE	2

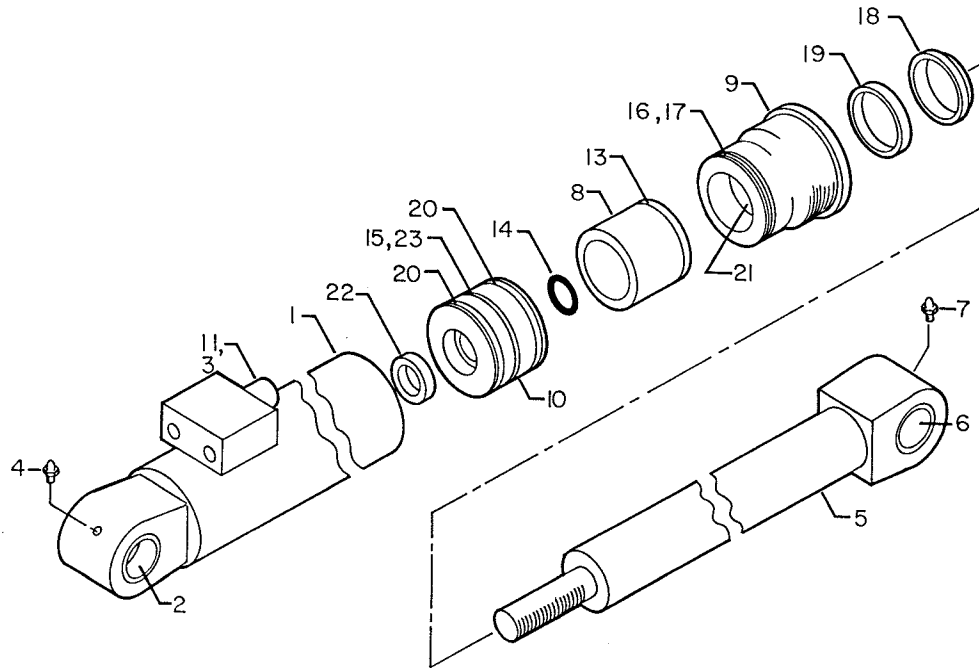
Figure D-7. CHAIR PLATFORM ASSEMBLY (41707779)

**NOTE**

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before reassembly.

ITEM	PART NO.	DESCRIPTION	QTY
1.	3C357870	INNER CYLINDER	2
2.	52703715	PIN	1
3.	52707402	INNER BOOM (INCL: 4 & 5)	1
4.	7BF82020	BUSHING (PART OF 3)	8REF
5.	7BF81225	BUSHING (PART OF 3)	9REF
6.	60106331	PIN RETAINER PLATE 3-1/2"	1
7.	60106332	PIN RETAINER PLATE 4"	4
8.	60111041	PIN	2
9.	72053508	ZERK 1/8NPT	6
10.	72060147	CAP SCR 5/8-11X1 HH GR5	5
11.	60010118	HOSE CLAMP	1
12.	72062103	NUT 3/8-16 LOCK	2
13.	60107648	HOSE CLAMP	1

Figure D-8. INNER BOOM ASSEMBLY (41707780)

**DIMENSIONS**

BORE	4.50"
STROKE	28.25"
C-C CLSD	45.50"
ROD DIA	3.00"
PIN DIA	2.50"

NOTE

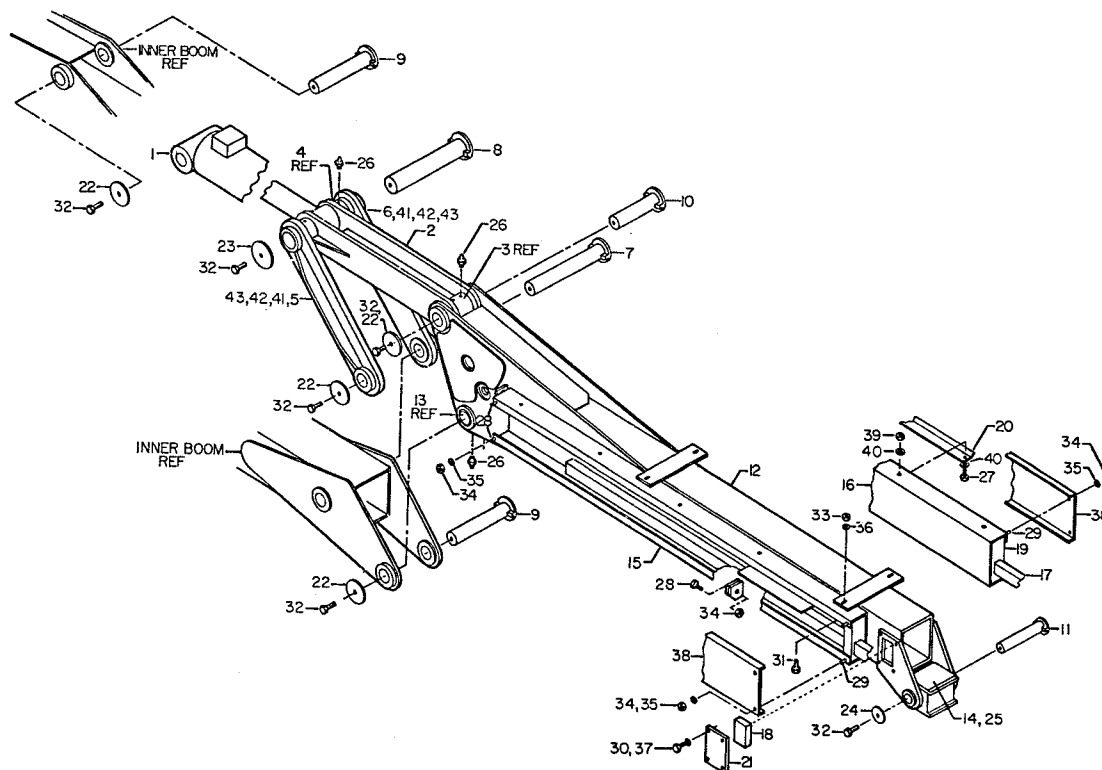
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

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.

ITEM	PART NO.	DESCRIPTION	QTY
1.	4B357870	CASE ASM (INCL: 2-4)	1
2.	7BF81225	BUSHING (PART OF 1)	2REF
3.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
4.	72053507	ZERK 1/4-28 (PART OF 1)	1REF
5.	4G357870	ROD ASM (INCL: 6 & 7)	1
6.	7BF81225	BUSHING (PART OF 5)	2REF
7.	72053507	ZERK 1/4-28 (PART OF 5)	1REF
8.	6C300030	STOP TUBE	1
9.	6HX45300	HEAD	1
10.	6I045144	PISTON	1
11.	73054242	VALVE	1
12.	9B182423	SEAL KIT (INCL: 13-23)	1
13.	6A025030	WAFFER LOCK (PART OF 12)	1REF
14.	7Q072127	O-RING (PART OF 12)	1REF
15.	7Q072155	O-RING (PART OF 12)	1REF
16.	7Q072346	O-RING (PART OF 12)	1REF
17.	7Q10P346	BACK-UP RING (PART OF 12)	1REF
18.	7R14P030	ROD WIPER (PART OF 12)	1REF
19.	7R546030	U-CUP SEAL (PART OF 12)	1REF
20.	7T2N4045	WEAR RING-PISTON (PART OF 12)	2REF
21.	7T2N8032	WEAR RING-ROD (PART OF 12)	1REF
22.	7T61N143	LOCK RING (PART OF 12)	1REF
23.	7T66P045	PISTON SEAL (PART OF 12)	1REF

Figure D-9. INNER CYLINDER (3C357870)

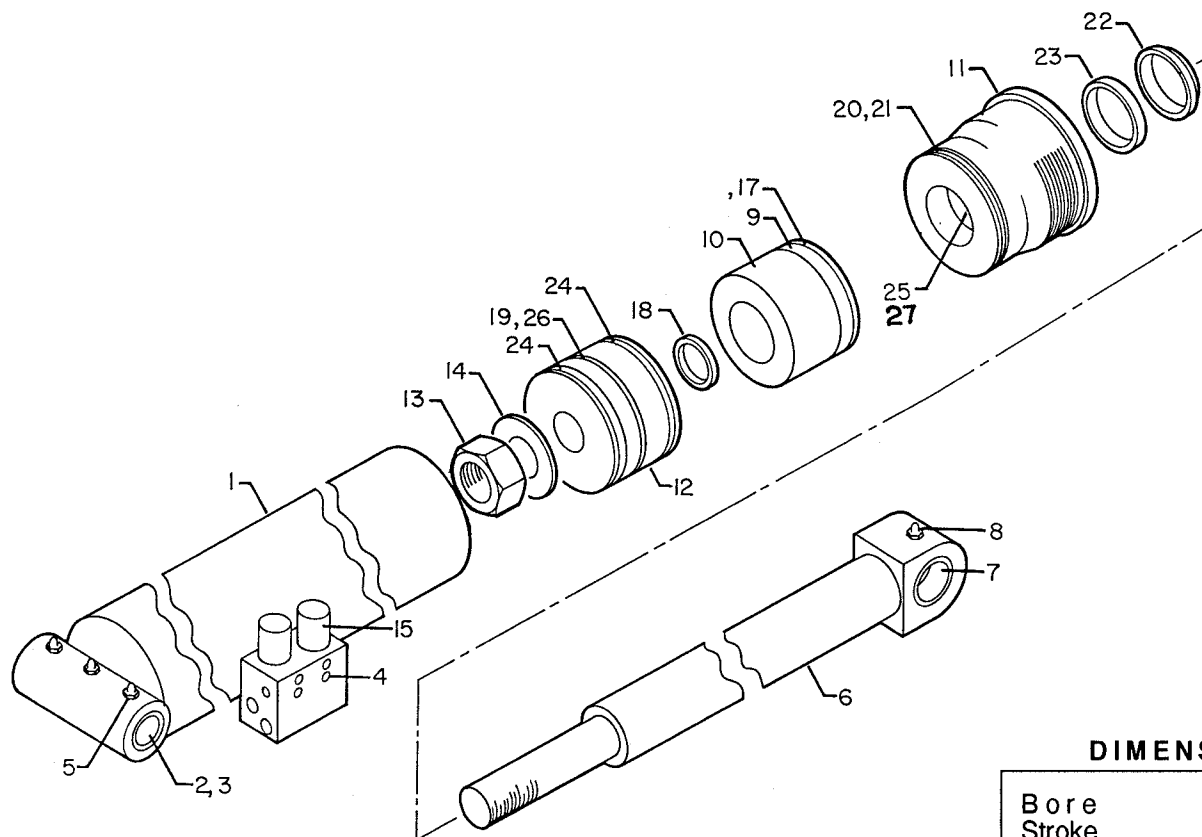


NOTE

Anytime the pin retainer plate bolts (item 8) have been removed, apply Loctite 262 to the threads before re-assembly.

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	3C364870	OUTER CYLINDER	1	23.	60106332	PIN RETAINER 4"	1
2.	52702756	LINK (INCL: 3 & 4)	1	24.	60106333	PIN RETAINER 2-1/2"	1
3.	7BF81020	BUSHING (PART OF 2)	4REF	25.	60108947	WEAR PAD	1
4.	7BF81025	BUSHING (PART OF 2)	4REF	26.	72053508	ZERK 1/8NPT	6
5.	52702757	LINK RH (INCL: 41-43)	1	27.	72060006	CAP SCR 1/4-20X1-1/2 HH GR5	8
6.	52702758	LINK LH (INCL: 41-43)	1	28.	72060025	CAP SCR 5/16-18X1 HH GR5	6
7.	52703744	PIN	1	29.	72060036	CAP SCR 5/16-18X3-3/4 HH GR5	4
8.	52703745	PIN	1	30.	72060044	CAP SCR 3/8-16X3/4 HH GR5	8
9.	52703747	PIN	2	31.	72060047	CAP SCR 3/8-16X1-1/4 HH GR5	4
10.	52703748	PIN	1	32.	72060147	CAP SCR 5/8-11X1 HH GR5	6
11.	52703765	PIN	1	33.	72062103	NUT 3/8-16 LOCK	4
12.	52705914	OUTER BOOM (INCL: 13)	1	34.	72062109	NUT 5/16-18 LOCK	10
13.	7BF81520	BUSHING (PART OF 12)	4REF	35.	72063002	WASHER 5/16 WRT	8
14.	52707962	TRUNNION	1	36.	72063003	WASHER 3/8 WRT	4
15.	52705917	GUARD RH	1	37.	72063051	WASHER 3/8 LOCK	8
16.	52705918	GUARD LH	1	38.	60108956	COVER	2
17.	52705919	TROMBONE TUBE	2	39.	72062104	NUT 1/4-20 LOCK	8
18.	60030015	WEAR PAD	2	40.	72063001	WASHER 1/4 WRT	16
19.	60030017	GUIDE	2	41.	7BF81520	BUSHING (PART OF 5 & 6)	2REF
20.	60110182	HOSE GUARD	2	42.	7BF81025	BUSHING (PART OF 5 & 6)	2REF
21.	60104191	RETAINER PLATE	2	43.	7BF81225	BUSHING (PART OF 5 & 6)	2REF
22.	60106331	PIN RETAINER 3-1/2"	4				

Figure D-10. OUTER BOOM ASSEMBLY (41707781)

**DIMENSIONS**

Bore	6"
Stroke	40-5/8"
C-C Closed	59-7/8"
Rod Diameter	3"
Pin Diameter	2"

NOTE

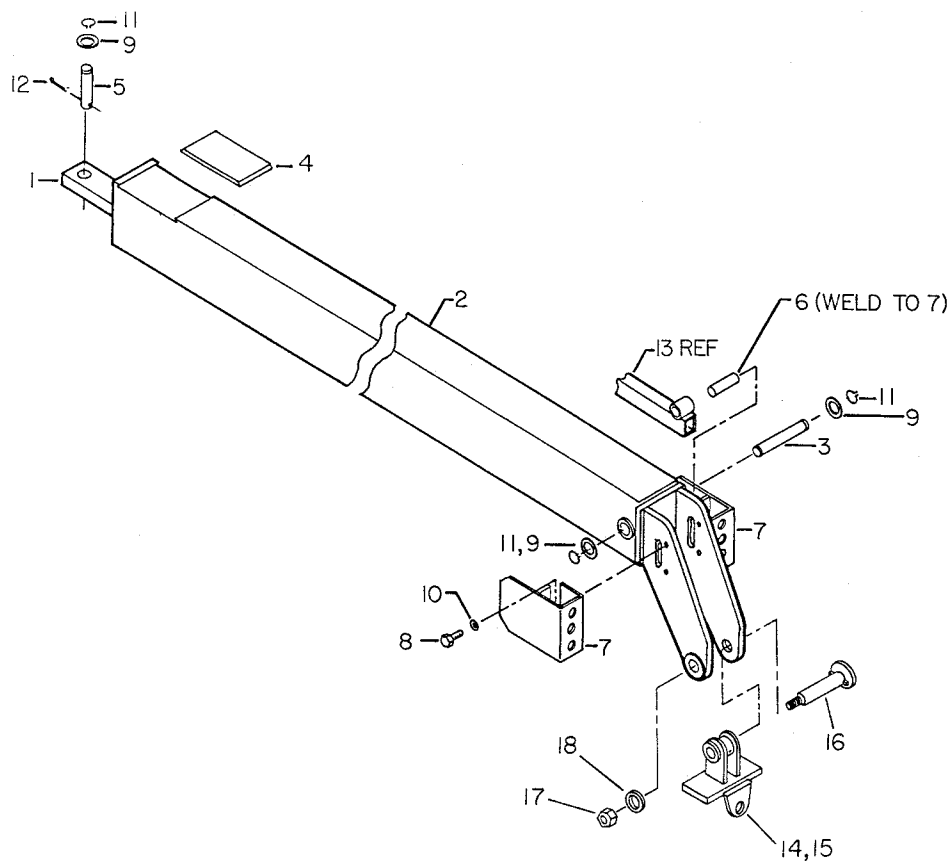
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

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.

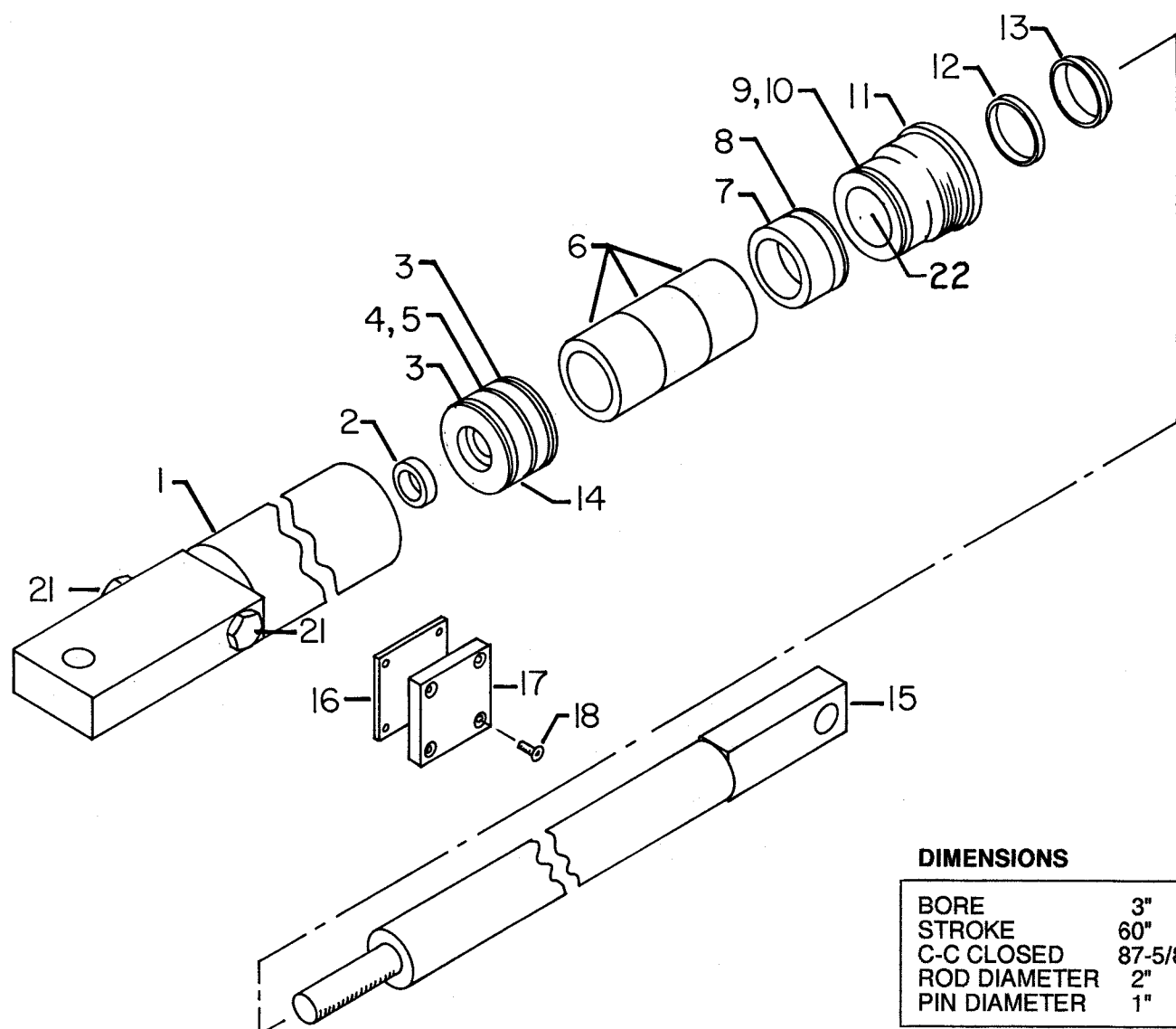
ITEM	PART NO.	DESCRIPTION	QTY
1.	4C364870	CASE ASM (INCL: 2-5)	1
2.	7BF81220	BUSHING (PART OF 1)	2REF
3.	7BF82020	BUSHING (PART OF 1)	2REF
4.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	8REF
5.	72053507	ZERK 1/4-28 (PART OF 1)	3REF
6.	4G364870	ROD ASM (INCL: 7 & 8)	1
7.	7BF81225	BUSHING (PART OF 6)	2REF
8.	72053507	ZERK 1/4-28 (PART OF 6)	1REF
9.	6C075030	STOP TUBE	1
10.	6C300030	STOP TUBE	1
11.	6H060030	HEAD	1
12.	6IX60020	PISTON	1
13.	72062144	NUT 2-12 HEX BUTTRESS	1
14.	72063016	WASHER 2 WRT	1
15.	73054242	VALVE	2
16.	9B242432	SEAL KIT (INCL: 17-26)	1
17.	6A025030	WAFFER LOCK (PART OF 16)	1REF
18.	7Q072227	O-RING (PART OF 16)	1REF
19.	7Q072253	O-RING (PART OF 16)	1REF
20.	7Q072358	O-RING (PART OF 16)	1REF
21.	7Q10P358	BACK-UP RING (PART OF 16)	1REF
22.	7R14P030	ROD WIPER (PART OF 16)	1REF
23.	7R546030	U-CUP SEAL (PART OF 16)	1REF
24.	7T2N4060	WEAR RING-PISTON (PART OF 16)	2REF
25.	7T2N8032	WEAR RING-ROD (PART OF 16)	1REF
26.	7T66P060	PISTON SEAL (PART OF 16)	1REF
27.	7T2N4032	WEAR RING (PART OF 16)	1REF

Figure D-11. OUTER CYLINDER (3C364870)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3B322850	EXTENSION CYLINDER	1
2.	52707771	EXTENSION BOOM	1
3.	60010469	PIN	1
4.	60030118	WEAR PAD	1
5.	60101905	PIN	1
6.	60109992	ROD	2
7.	52707785	GUARD	2
8.	72060044	CAP SCR 3/8-16X3/4 HH GR5	4
9.	72063034	MACH BUSHING 1 X 10GA NR	3
10.	72063051	WASHER 3/8 LOCK	4
11.	72066125	RETAINING RING 1" HD EXT	3
12.	72066197	COTTER PIN	1
13.		TROMBONE TUBE	REF
14.	51709475	SWIVEL LINK (INCL:18)	1
15.	70055207	BUSHING (PART OF 17)	2REF
16.	52706610	PIN	1
17.	72062141	NUT 1-8 LOCK	1
18.	72063066	WASHER 1 HIGH STRENGTH	1

Figure D-12. EXTENSION BOOM ASSEMBLY (41707782)



DIMENSIONS

BORE	3"
STROKE	60"
C-C CLOSED	87-5/8"
ROD DIAMETER	2"
PIN DIAMETER	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.

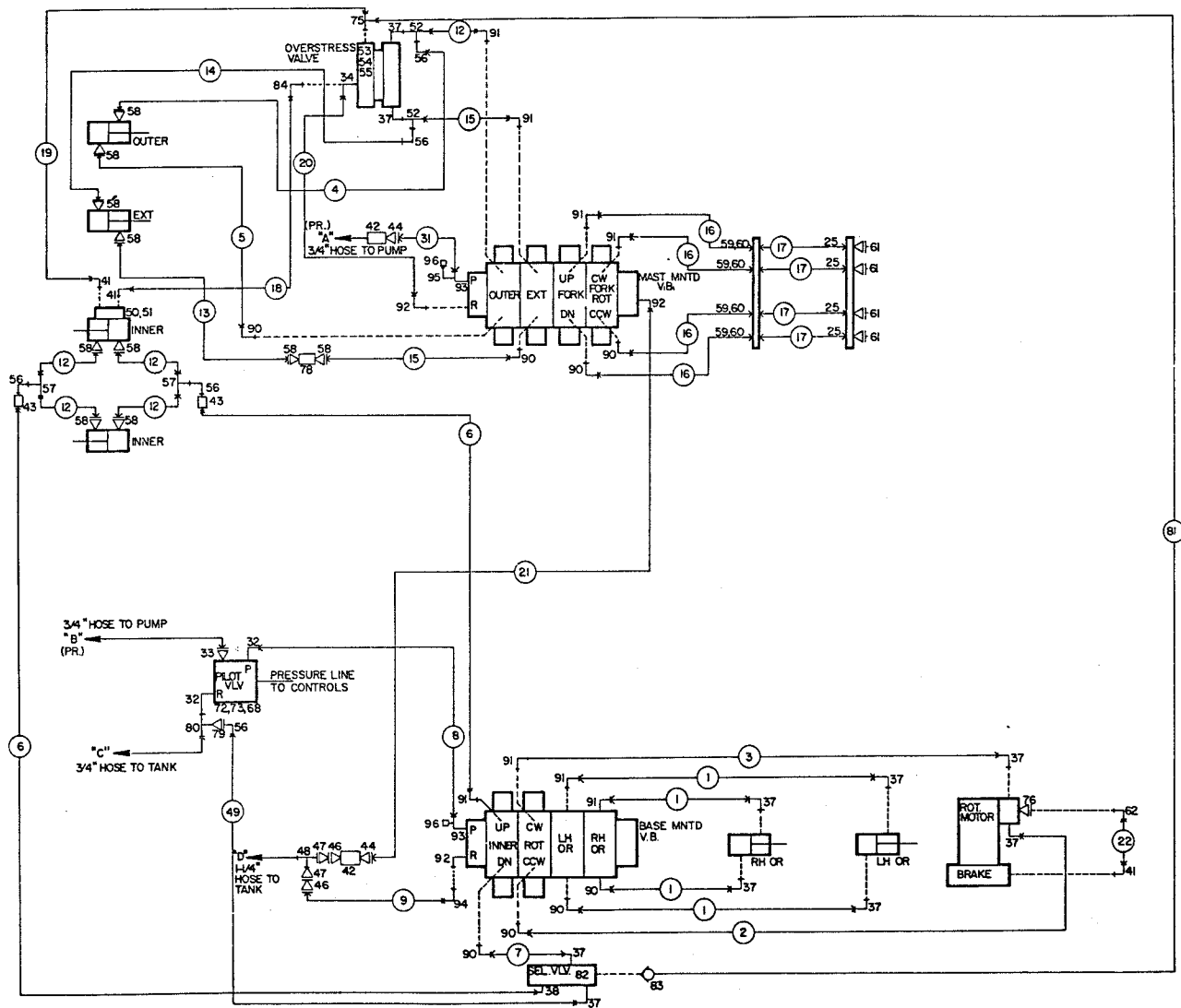
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B322850	CASE ASM	1
2.	7T61N106	LOCK RING SEAL (PART OF 20)	1REF
3.	7Q072145	O-RING (PART OF 20)	1REF
4.	7T66P030	PISTON SEAL (PART OF 20)	1REF
5.	7T65I030	PISTON RING (PART OF 20)	2REF
6.	6C300020	STOP TUBE	3
7.	6C150020	STOP TUBE	1
8.	6A025020	WAFER LOCK (PART OF 20)	1REF
9.	7Q072334	O-RING (PART OF 20)	1REF
10.	7Q10P334	BACK-UP RING (PART OF 20)	1REF
11.	6H030020	HEAD	1
12.	7R546020	ROD SEAL (PART OF 20)	1REF
13.	7R14P020	ROD WIPER (PART OF 20)	1REF
14.	6I030106	PISTON	1
15.	4G322850	ROD ASM	1
16.	60106350	SPACER	2
17.	60030004	WEAR PAD	2
18.	72060836	CAP SCR 1/4-20X3/4 FLHDSOC	8
19.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	2REF
20.	9C121617	SEAL KIT (INCL:2-5,8-10,12,13,22)	1
21.	73054304	VALVE 10GPM	2
22.	7T2N4022	WEAR RING-ROD(PART OF 20)	1REF

Figure D-13. EXTENSION CYLINDER (3B322850)

SEE PAGE 4-15 & 4-16 FOR DRAWING

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	51706528	HOSE ASM 1/2 X 80	4	51.	72060734	CAP SCR 5/16-18X1-1/2 SH	4
2.	51706519	HOSE ASM 3/8 X 24	1	52.	72532657	TEE 3/4JIC SWVL NUT RUN	2
3.	51707970	HOSE ASM 3/8 X 22	1	53.	73054424	OVERSTRSS VALVE	1
4.	51707973	HOSE ASM 1/2 X 157	1	54.	72060049	CAP SCR 3/8-16X1-3/4 HH GR5	2
5.	51707974	HOSE ASM 1/2 X 161	1	55.	72062103	NUT 3/8-16 LOCK	2
6.	51706892	HOSE ASM 1/2 X 66	2	56.	72532658	ELBOW 3/4MJIC 3/4FJIC SWVL	5
7.	51706525	HOSE ASM 1/2 X 26	1	57.	72531205	TEE 3/4MJIC	2
8.	51706533	HOSE ASM 3/4 X 17	1	58.	72532358	ADAPTER 3/4MSTR 3/4MJIC	10
9.	51706535	HOSE ASM 3/4 X 33	1	59.	72532672	UNION 3/4JIC BULKHD	4
12.	51706891	HOSE ASM 1/2 X 24	5	60.	72531708	NUT 3/4JIC BULKHD	4
13.	51707976	HOSE ASM 1/2 X 224	1	61.	72532665	ADAPTER 7/16MJIC 3/4FJIC	4
14.	51707975	HOSE ASM 1/2 X 238	1	62.	72532690	ELBOW 7/16MJIC 7/16FJIC	7
15.	51706890	HOSE ASM 1/2 X 21	2	63.	72532768	TEE 7/16MJIC	4
16.	51707972	HOSE ASM 3/8 X 246	4	65.	70731800	FOOT PEDAL CONTROL	2
17.	51707971	HOSE ASM 3/8 X 216	4	66.	72060025	CAP SCR 5/16-18X1 HH GR5	8
18.	51705733	HOSE ASM 1/4 X 24	1	67.	70731801	JOYSTICK CONTROL	2
19.	51703659	HOSE ASM 1/4 X 22	1	68.	72062109	NUT 5/16-18 LOCK	10
20.	51706624	HOSE ASM 3/4 X 28	1	69.	72060004	CAP SCR 1/4-20X1 HH GR5	8
21.	51706537	HOSE ASM 3/4 X 45	1	70.	72063001	WASHER 1/4 WRT	8
22.	51705641	HOSE ASM 1/4 X 6	1	71.	72063049	WASHER 1/4 LOCK	8
23.	51706628	HOSE ASM 1/4 X 132	2	72.	73054542	PILOT VALVE	1
24.	51704588	HOSE ASM 1/4 X 174	2	73.	72060029	CAP SCR 5/16-18X2 HH GR5	2
25.	72532986	ELBOW 3/4MJIC BULKHD 90°	4	75.	72532981	TEE 7/16JIC SWVL NUT RUN	3
26.	51706627	HOSE ASM 1/4 X 120	4	76.	72532351	ADAPTER 7/16MSTR 7/16MJIC	1
27.	51706626	HOSE ASM 1/4 X 108	2	77.	72532985	ELBOW MSTR MJIC 45°	12
28.	51706896	HOSE ASM 1/4 X 162	2	78.	73054426	RELIEF VALVE - ADJ	1
29.	51705320	HOSE ASM 1/4 X 52	2	79.	72532972	ADAPTER 3/4MJIC 1-1/16FJIC	1
30.	51705893	HOSE ASM 1/4 X 46	4	80.	72532950	TEE SWVL NUT RUN	1
31.	51706632	HOSE ASM 3/4 X 47	1	81.	51706893	HOSE ASM 1/4 X 90	1
32.	72053767	ELBOW 1-1/16MSTR 1-1/16MJIC 90°	2	82.	73054462	SELECTOR VALVE	1
33.	72532366	ADAPTER 1-1/16MSTR 1-1/16MJIC	1	83.	73054549	CHECK VALVE	1
34.	60107995	ELBOW - MODIFIED	1	84.	72531412	ELBOW 1/4MPT 7/16MJIC	1
36.	72532699	ELBOW 9/16MSTR 7/16MJIC 90°	5	85.	51706895	HOSE ASM 1/4 X 136	2
37.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	10	86.	51706894	HOSE ASM 1/4 X 3	4
38.	72532666	ELBOW 3/4MSTR 3/4MJIC 90° XLG	1	87.		ELBOW (PART OF VB)	9REF
41.	72053758	ELBOW 7/16MSTR 7/16MJIC 90°	3	88.		ELBOW (PART OF VB)	3REF
42.	72532973	ADAPTER 1-1/16FJICPR SWVL	2	89.		ADAPTER (PART OF VB)	3REF
43.	72532980	ADAPTER 3/4FJIC PR SWVL	2	90.		ELBOW (PART OF VB)	8REF
44.	72532855	ADAPTER 1-1/16MJIC 1-1/16MJIC	2	91.		ELBOW (PART OF VB)	4REF
46.	72053676	ADAPTER 3/4MPT 1-1/16MJIC	2	92.		ELBOW (PART OF VB)	2REF
47.	72531836	REDUCER BUSHING 1-1/4 3/4NPT	2	93.		ELBOW (PART OF VB)	2REF
48.	7253615	TEE 1-1/4NPT	1	94.		ELBOW (PART OF VB)	1REF
49.	51706463	HOSE ASM 1/2 X 18	1	95.		STREET ELBOW (PART OF VB)	1REF
50.	73054425	SENSOR VALVE	1	96.		DISC. NIPPLE (PART OF VB)	2REF
				99.	72532353	ADAPTER #6MSTR #4MJIC	4

Figure D-14. HYDRAULIC KIT - CHAIR MOUNT (91707784)

**Figure D-14A. HYDRAULIC KIT - CHAIR MOUNT (91707784)**

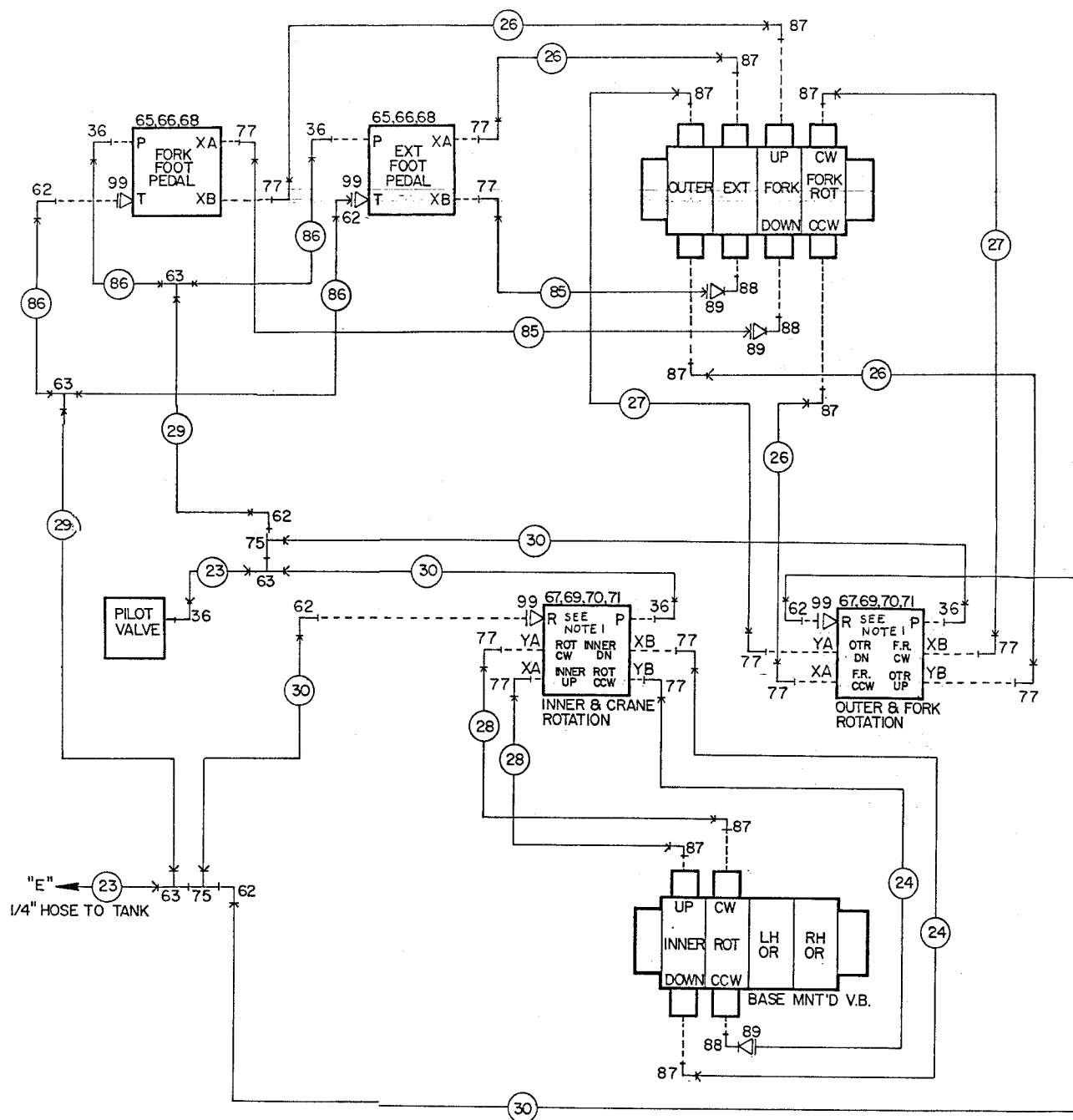
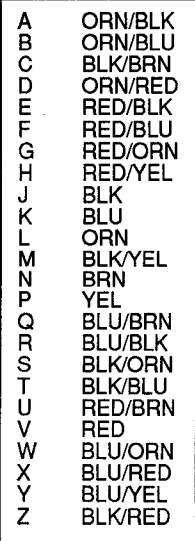
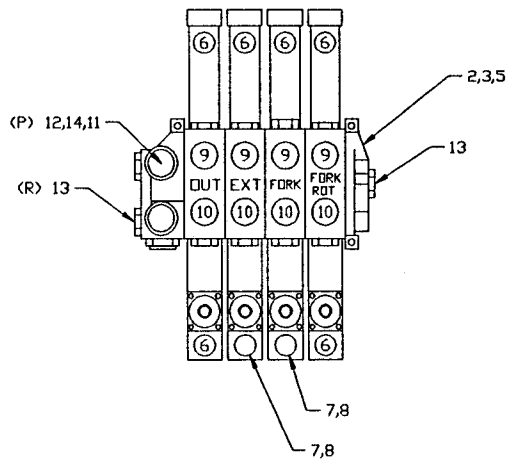


Figure D-14B. HYDRAULIC KIT - CHAIR MOUNT (91707784)



ITEM	PART NO.	DESCRIPTION	QTY
25.	72060047	CAP SCR 3/8-16X1-1/4 HH GR5	2
26.	72063003	WASHER 3/8 WRT	10
27.	60113288	MTG BRACKET	2
28.	77041251	RELAY	2
29.	77041237	SOLENOID 12V 150A	1
30.	51704784	CABLE ASM #1WIRE X 6	1
31.	70393260	DECAL-FIBEROPTIC CTRL BOX	1
32.	70393258	DECAL-FIBEROPTIC RC HANDLE	1
33.	60103535	SWITCH BRACKET	1
34.	77041345	TOGGLE SWITCH ST	1
35.	77041408	IN-LINE FUSE 1AMP	1
36.	72062104	NUT 1/4-20 LOCK	8
37.	70393259	SHOCK MOUNT	4
38.	89044274	WIRE 14GA BLK X 125	1
39.	89044038	WIRE 10GA BLK X 10	1
40.	89044038	WIRE 10GA BLK X 36	1
41.	89044274	WIRE 14GA BLK X 150	1
42.	77040051	TERMINAL #8 STUD SPRGSPD	6
43.	77041056	FUSE 20AMP IN-LINE	1
44.	77041454	DIODE	12
45.	89044400	WIRE 16GA RED X 2	12
46.	89044398	WIRE 16GA BLK X 2	12
47.	83034392	PIPE 1/8EXP HEAT SHRINK X 3	12

Figure D-15. CONTROL KIT-PROPORTIONAL/FIBEROPTIC REMOTE CONTROLS (90709152)



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

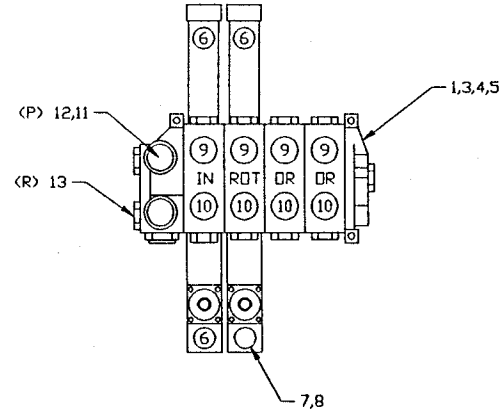
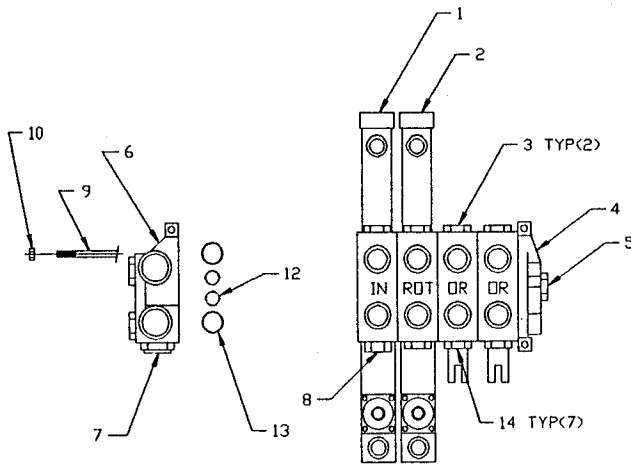
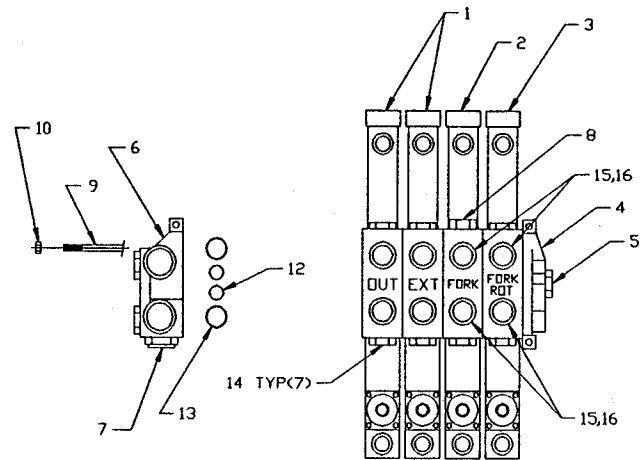


Figure D-16. VALVE BANK ASSEMBLY (51706605)



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

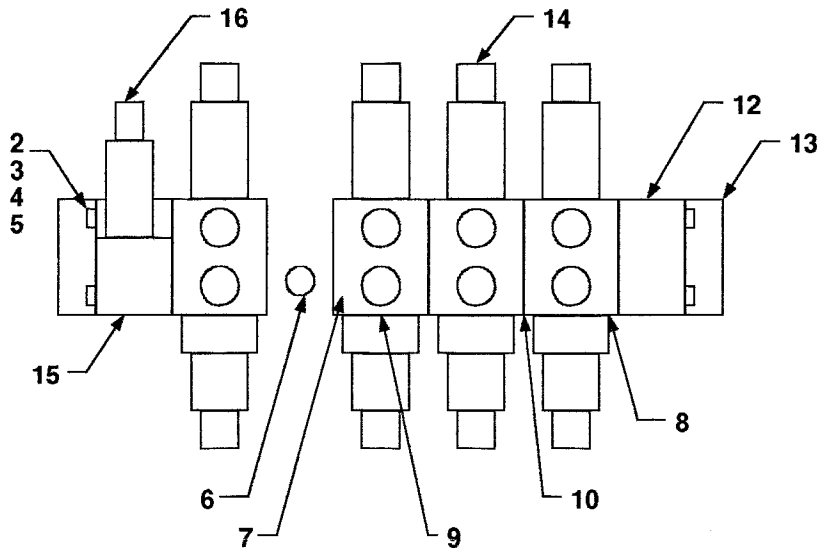
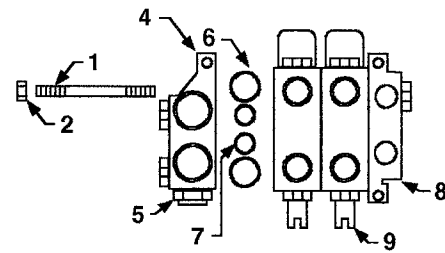
Figure D-16A. VALVE BANK (70731810)



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-16B. VALVE BANK (70731811)

ITEM	PART	DESCRIPTION	QTY
1.	51709217	VB 2-SECT PWR BEYOND	1
2.	72062037	NUT	6REF
3.	73014629	STUD	3REF
4.	73731424	END CAP LH	1REF
5.	73054643	MAIN RELIEF 2300PSI	1REF
6.	7Q072021	O-RING LG	6REF
7.	7Q072019	O-RING SM	6REF
8.	70143598	END CAP RH	1REF
9.	73054432	TANDEM VALVE SECTION	2REF



ITEM	PART	DESCRIPTION	QTY A	QTY B
1.	73054694	VB 2-SECTION	1	
	73732150	VB 4-SECTION		1
2.	94732171	TIE-ROD ASM	1	
	94732143	TIE-ROD ASM		1
3.	70143620	TIE ROD	4	
	70143596	TIE ROD		4
4.	72062036	NUT	8	8
5.	72063050	LOCKWASHER	8	8
6.	76393090	O-RING	4	10
7.	70732158	STACK KIT	1	1
8.	73054690	VALVE SECTION W/COIL	1	4
9.	73054692	RELIEF 1000PSI	1	
	73054693	RELIEF 1800PSI		1
10.	70143595	O-RING PLATE	3	5
11.	73054698	VALVE SECTION W/COIL	1	
12.	70143619	OUTLET BLOCK	1	1
13.	70143597	MOUNTING FOOT	2	2
14.	77041385	COIL 10V	4	8
15.	94732170	INLET BLOCK ASM		1
16.	73054623	RELIEF 2500PSI		1
	72053763	ELBOW (NOT SHOWN)	8	8
	72532666	ELBOW XLG (NOT SHOWN)	8	8

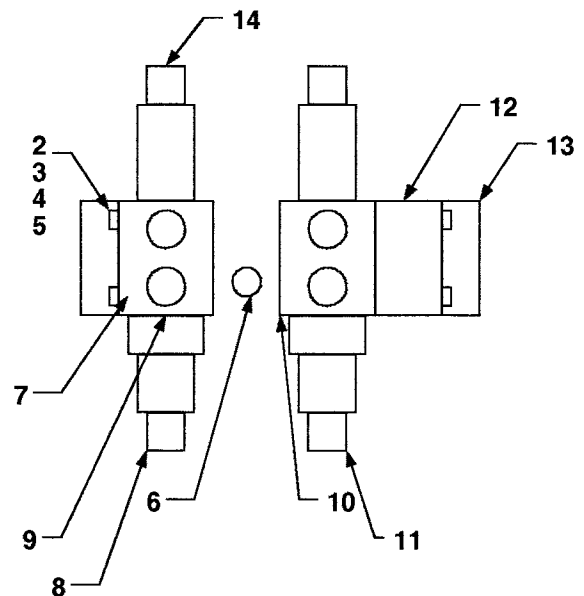
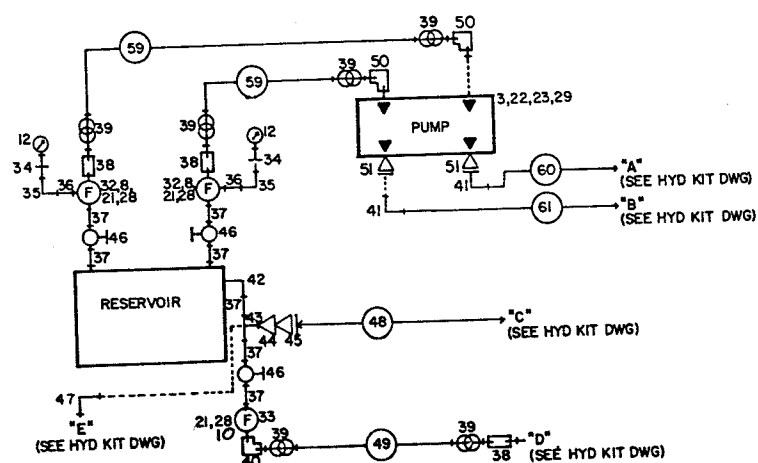
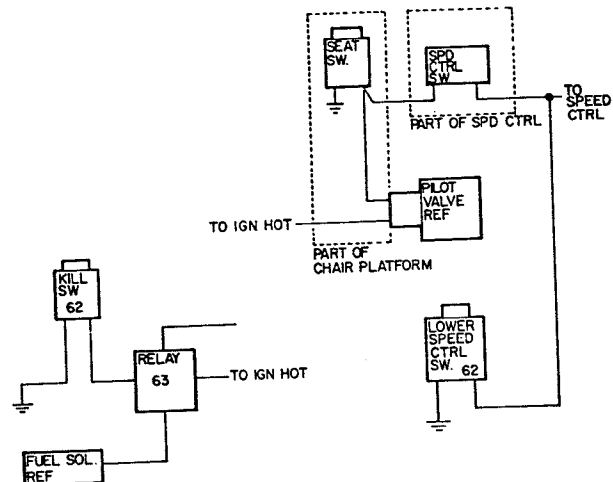
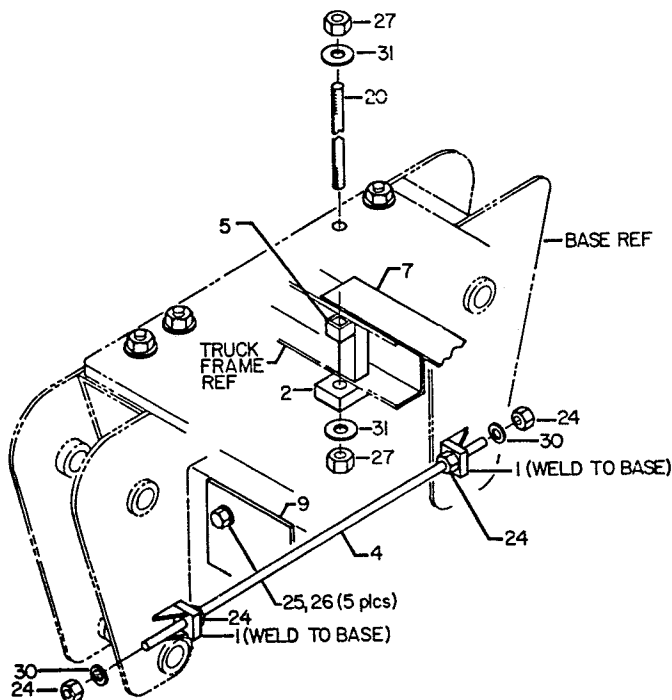


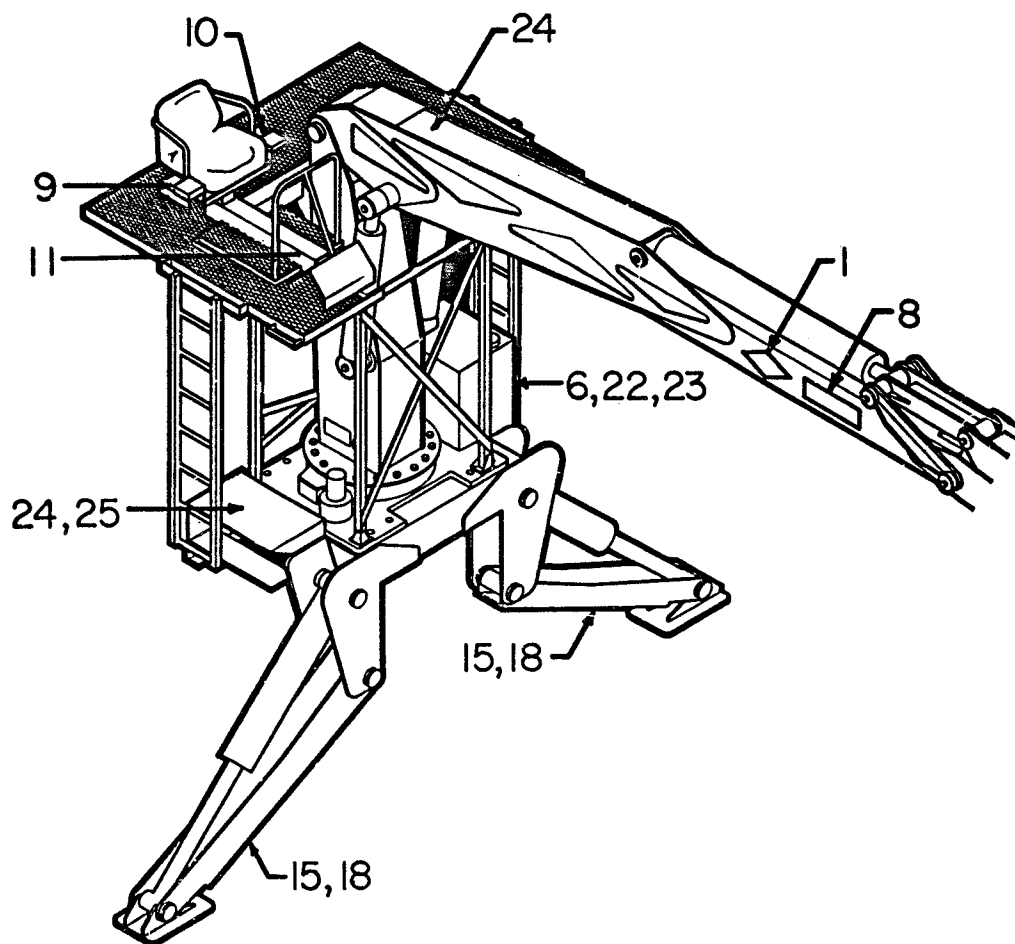
Figure D-17. VALVE BANK ASSEMBLY - FIBER-OPTIC REMOTE CONTROL(51709219)



ITEM	PART NO.	DESCRIPTION	QTY
1.	52702539	TIE BAR BLOCK	2
2.	60010665	CLAMP PLATE	4
3.	60103041	TANDEM PUMP SUPPORT	1
4.	60103204	TENSION BAR	1
5.	52706660	SUPPORT	4
7.	60103563	BAR	2
8.	60103870	OIL FILTER BRACKET	2
9.	60105107	PLATE	2
10.	60112266	OIL FILTER BRACKET	1
12.	70048031	VACUUM GAUGE	2REF
20.	71014847	TIE-DOWN STUD 1-1/4X28-1/2	8
21.	72060025	CAP SCR 5/16-18X1 HH GR5	6
22.	72060046	CAP SCR 3/8-16X1 HH GR5	2
23.	72062002	NUT 3/8-16 HEX	2
24.	72062009	NUT 1-8 HEX	4
25.	72060183	CAP SCR 3/4-10X1-1/2 HH GR5	10
26.	72062114	NUT 3/4-10 LOCK	10
27.	72062142	NUT 1-1/4 - 7 LOCK	16
28.	72063050	WASHER 5/16 LOCK	6
29.	72063051	WASHER 3/8 LOCK	2
30.	72063058	WASHER 1 LOCK	2
31.	72063067	WASHER 1-1/4 HI-STRENGTH	16
32.	73052012	SUCTION FILTER	2
33.	73052040	RETURN FILTER	1
34.	72053468	COUPLING 1/8NPT	2

ITEM	PART NO.	DESCRIPTION	QTY
35.	72053281	STREET ELBOW 1/8NPT X 90°	2
36.	72053002	PIPE NIPPLE 1/8NPT X 2	2
37.	72053211	PIPE NIPPLE 1-1/4 X CLOSE	7
38.	72531550	BARB NIPPLE 1-1/4NPT 1-1/4HOSE	3
39.	72066516	HOSE CLAMP 1-1/4	6
40.	72532346	BARB NIPPLE 1-1/4NPT 1-1/4HOSE 90°	1
41.	72053767	ELBOW 1-1/16MSTR 1-1/16MJIC 90°	2
42.	72053287	STREET ELBOW 1-1/4NPT 90°	1
43.	60107571	TEE 1-1/4NPT 1/8NPT	1
44.	72531836	REDUCER BUSHING 1-1/4 3/4NPT	1
45.	72053676	ADAPTER 3/4MPT 1-1/16MJIC	1
46.	73054130	GATE VALVE	3
47.	72531412	ELBOW 1/4MPT 7/16MJIC 90°	1
48.	51706552	HOSE ASM 3/4 X 80	1
49.	60035936	HOSE 1-1/4 X 42	1
50.	72532710	BEAD NIPPLE 1-5/8 1-1/16 90°	2
51.	72532949	ADAPTER 1-5/8MSTR 1-1/16FSTR	2
59.	60035950	HOSE 1-1/4 X 60	2
60.	51706629	HOSE ASM 3/4 X 63	1
61.	51706630	HOSE ASM 3/4 X 138	1
62.	77041013	MAIN SWITCH "KILL"	2
63.	77041251	RELAY	1

Figure D-18. INSTALLATION KIT - WITH CHAIR (93707783)



ITEM	PART	DESCRIPTION	QTY
1.	70029252	PLACARD - IMT DIAMOND	2
2.	70391612	DECAL-GREASE WEEKLY LEFT	5
3.	70391613	DECAL-GREASE WEEKLY RIGHT	5
4.	70392108	DECAL-SUCTION LINE	2
5.	70392109	DECAL-RETURN LINE	1
6.	70392213	DECAL-CAUTION WASH/WAX	1
7.	70392524	DECAL-ROTATE CRANE/GREASE	1
8.	70392763	DECAL-10025 IDENT	2
9.	70392578	DECAL-RH JOYSTICK CTRL	1
10.	70392579	DECAL-LH JOYSTICK CTRL	1
11.	70392580	DECAL-PEDAL CTRL	1
12.	70392813	DECAL DANGER ELECTRO	2
13.	70392814	DECAL-DANGER OPER TRAINING	2
14.	70392815	DECAL-DANGER OPERATION	2
15.	70392864	DECAL-DANGER OR STD CLR	2
16.	70392890	DECAL-DANGER STOW/UNFOLD	2
17.	70392866	DECAL-DANGER OPER COND	2
18.	70392867	DECAL-DANGER OR 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.	71392764	CAPACITY PLACARD	2
25.	76391511	DECAL-WB STABILIZER	1

DECAL PLACEMENT	
ITEM NO.	LOCATION
12,13,14,17,19,20,16	ONE AT CHAIR CONTROLS. ONE AT STREETSIDE CONTROLS.
15,18	ONE ON EACH OUTRIGGER
21	ONE ON EACH SIDE OF CARRIER VEHICLE
7	AT THE TURNABLE GREASE ZERK
2,3	AT ALL GREASE ZERKS
5	ON THE RESERVOIR, AT THE RETURN LINE
4	ON THE RESERVOIR, AT THE SUCTION LINE

Figure D-19. DECAL KIT (95708775)

SEE FOLLOWING PAGE FOR DRAWING

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	51706463	HOSE ASM 1/2X18 #8F #8F (PART OF 27)	2REF	44.	72532358	ADAPTER #8MSTR #8MJIC	16
2.	51706892	HOSE ASM 1/2X66 #8F #8F (PART OF 27)	2REF	45.	72053767	ELBOW #12MSTR #12MJIC 90°	4
3.	51706891	HOSE ASM 1/2X24 #8F #8F (PART OF 27)	5REF	46.	72532696	ELBOW #12MJIC #12FJIC SWVL	3
4.	51706621	HOSE ASM 1/2X28 #8F #8F (PART OF 27)	1REF	47.	72053763	ELBOW #8MSTR #8MJIC 90°	7
5.	51706618	HOSE ASM 1/2X196 #8F #8F (PART OF 27)	1REF	48.	72532987	DISC NIPPLE 1/4	2
6.	51706631	HOSE ASM 1/2X200 #8F #8F (PART OF 27)	1REF	49.	72532671	TEE 3/4 SWVL NUT BRANCH	1
8.	51706620	HOSE ASM 1/2X290 #8F #8F (PART OF 27)	1REF	50.	73054426	RELIEF VALVE - ADJ	1
9.	51706532	HOSE ASM 1/2X304 #8F #8F (PART OF 27)	1REF	51.	72531205	TEE #8MJIC	3
10.	51706690	HOSE ASM 1/2X21 #8F #8F (PART OF 27)	2REF	52.	72532980	ADAPTER #8FJIC PR SW INLINE	3
11.	51706528	HOSE ASM 1/2X80 #8F #8F (PART OF 27)	4REF	53.	72532351	ADAPTER #4MSTR #4MJIC 90°	1
12.	51706519	HOSE ASM 3/8X24 #8F #8F (PART OF 27)	1REF	54.	72532690	ELBOW #4MJIC #4FJIC SWVL	1
13.	51706889	HOSE ASM 3/8X20 #8F #8F (PART OF 27)	1REF	55.	72053758	ELBOW #4MSTR #4FJIC 90°	1
14.	51706521	HOSE ASM 3/8X300 #8F #8F (PART OF 27)	4REF	56.	72532672	BULKHD UNION #8	8
15.	51706520	HOSE ASM 3/8X234 #8F #8F (PART OF 27)	4REF	57.	72531708	BULKHD NUT #8	8
16.	51706535	HOSE ASM 3/4X33 #12F#12F(PART OF 27)	2REF	58.	72532986	BULKHD ELBOW #8MJIC #8MJIC 90°	4
17.	51709158	HOSE ASM 3/4X25 #12F#12F(PART OF 27)	1REF	64.	72053676	ADAPTER 3/4MPT #12MJIC	3
18.	51706537	HOSE ASM 3/4X45 #12F#12F(PART OF 27)	1REF	65.	72531836	REDUCER BUSHING 1-1/4 3/4	3
19.	51706533	HOSE ASM 3/4X17 #12F#12F(PART OF 27)	1REF	66.	72053615	TEE 1-1/4NPT	2
20.	51711554	HOSE ASM 1/4X8.5 #4F #4F (PART OF 27)	1REF	67.	72531550	BARB NIPPLE 1-1/4MPT 1-1/4HOSE	1
21.	51709159	HOSE ASM 3/4X52 #12F#12F(PART OF 27)	1REF	68.	72066516	HOSE CLAMP 1-1/4 2-BOLT	2
23.	51709156	HOSE ASM 1/2X55 #8F #8F (PART OF 27)	1REF	69.	72532973	ADAPTER #12FJIC PR SW INLINE	2
24.	51709155	HOSE ASM 1/2X44 #8F #8F (PART OF 27)	2REF	70.	72532855	ADAPTER #12MJIC #12MJIC	2
26.	89039482	HOSE 1-1/4 100R4 X 44	1	71.	72532346	BARB NIPPLE 1-1/4NPT 90°	1
27.	51709154	HOSE KIT (INCL:1-25)	1	72.	73052040	RETURN FILTER 25MICRON	1
28.	72053763	ELBOW #8MSTR #8MJIC 90° (PART OF VB)	8REF	73.	60112266	OIL FILTER BRACKET	1
29.	72532666	ELBOW #8MSTR#8MJICXLG(PART OF VB)	8REF	74.	72060025	CAP SCR 5/16-18X1 HHGR5	6
30.	73054641	VALVE-PROP NRIORITY FLOW 35GPM	2	75.	72063050	WASHER 5/16 LOCK	4
31.	72060054	CAP SCR 3/8-16X3 HHGR5	4	76.	72060002	CAP SCR 1/4-20X3/4 HHGR5	1
32.	60105459	SLEEVE	4	77.	72063001	WASHER 1/4 WRT	1
33.	72063003	WASHER 3/8 FLAT WIDE	4	78.	72063049	WASHER 1/4 LOCK	1
34.	72062103	NUT 3/8-16 LOCK	2	79.	72053211	PIPE NIPPLE 1-1/4 X CLOSE	3
35.	72532992	ADAPTER #4MSTR #6FSTR	2	80.	73054130	GATE VALVE 1-1/4NPT	1
36.	72053762	ELBOW #6MSTR #8MJIC 90°	2	81.	72053287	STREET ELBOW 1-1/4NPT 90°	1
37.	72532658	ELBOW #8MJIC #8FJIC SWVL	10	82.	60113265	MTG PLATE	1
38.	72532948	ADAPTER #16MSTR #12FSTR	3	83.	60106139	SLEEVE	2
39.	60114669	ELBOW-PRESSURE GAUGE MODIFIED	2	84.	72060027	CAP SCR 5/16-18X1-1/2 HHGR5	2
40.	72532366	ADAPTER #12MSTR #12MJIC	3	85.	72062109	NUT 5/16-18 LOCK	7
41.	72532950	TEE #12JIC SWVL NUT RUN	1	86.	72060046	CAP SCR 3/8-16X1 HHGR5	2
42.	72532972	ADAPTER #8MJIC #12FJIC	3	87.	72062103	NUT 3/8-16 LOCK	2
43.	72532963	ADAPTER #16MSTR #8FSTR	2	88.	72060053	CAP SCR 5/16-18X2-3/4 HHGR5	3

Figure D-20. HYDRAULIC KIT - PROPORTIONAL FIBER-OPTIC REMOTE CONTROL (91709153)

SEE PREVIOUS PAGE FOR PARTS LIST

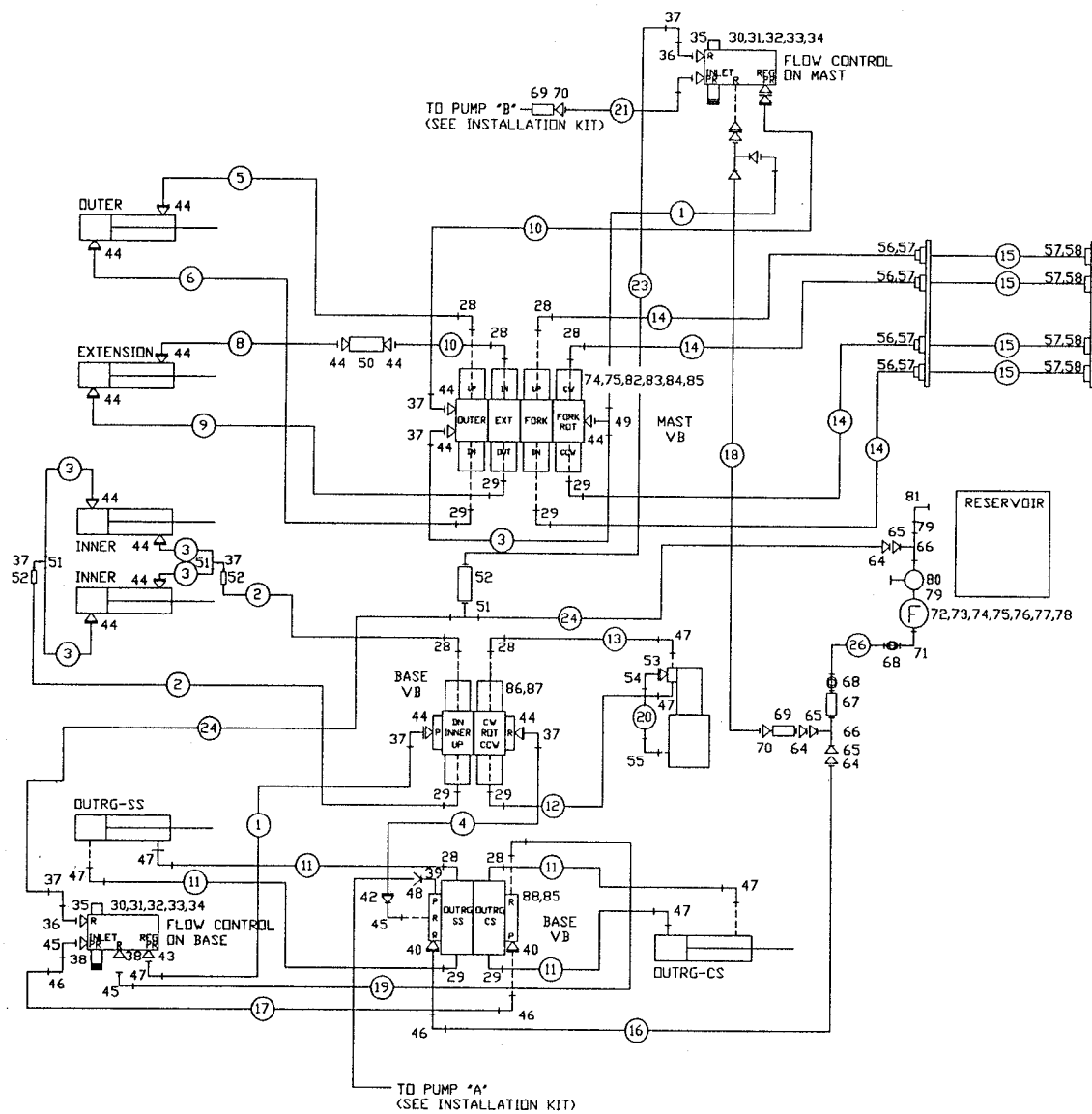
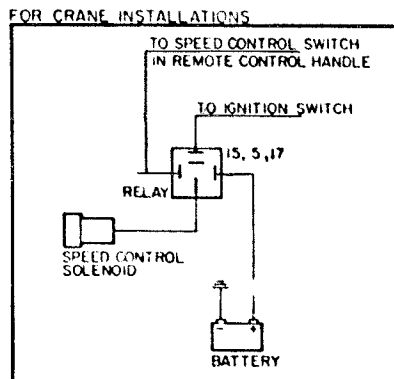
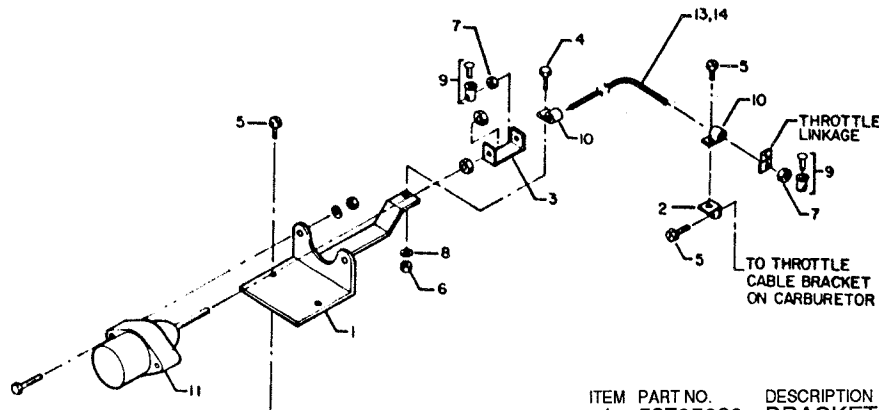
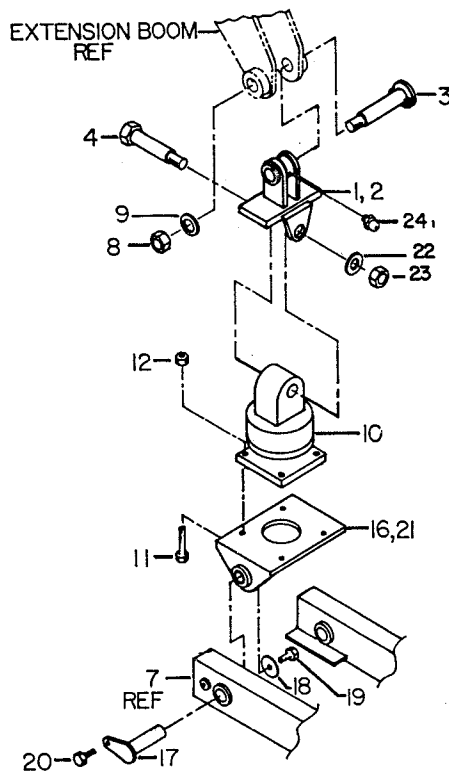


Figure D-20A. HYDRAULIC KIT - PROPORTIONAL FIBER-OPTIC REMOTE CONTROL (91709153)



ITEM	PART NO.	DESCRIPTION	QTY
1.	52705080	BRACKET	1
2.	60106760	LINKAGE BRACKET	1
3.	60108086	PLUNGER BRACKET	1
4.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	5
5.	72061004	SCREW #14 X 3/4 SHT METAL	5
6.	72062000	NUT 1/4-20 HEX	5
7.	72062093	NUT #8-32 HEX	2
8.	72063049	WASHER 1/4 LOCK	5
9.	72066377	CABLE STOP	2
10.	72066523	CLAMP	2
11.	73054654	SOLENOID VALVE 12V	1
13.	89058892	CASING	3.5'
14.	89058934	CABLE	4'
15.	77041251	RELAY	1
16.	89044233	WIRE - 14GGA BRN	20'
17.	77040186	TERMINAL	4
18.	60103535	SWITCH BRACKET (NOT SHOWN)	2
19.	77041345	TOGGLE SWITCH (NOT SHOWN)	2

Figure D-21. OPTION - SYNCHRO START THROTTLE CONTROL (31705270)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51709475	SWIVEL LINK (INCL: 2)	1REF
2.	70055207	BUSHING (PART OF 1)	2REF
3.	52706610	PIN	1REF
4.	70143730	ROTATOR PIN (PART OF 5)	1
5.	51709479	SWVL LINK REPLACEMENT KIT (INCL: 4, 22-24)	1
7.		FORK	REF
8.	72062141	NUT 1-8 LOCK STL INSERT	1REF
9.	72063066	WASHER 1" HI STRENGTH	1REF
10.	70731554	ROTATOR	1
11.	72060932	CAP SCR 5/8-11X3-1/4 HHGR5	4
12.	72062091	NUT 5/8-11 LOCK	4
13.	51703772	HOSE ASM 1/4 X 26	4
14.	72533011	ADAPTER 7/16MJIC M18X1.5	6
15.	72532690	ELBOW 7/16MJIC 7/17FJIC SW	6
16.	51706711	SWIVEL MTG PLATE (INCL: 21)	1
17.	52706713	PIN	2
18.	60105874	PIN RETAINER 2"	2
19.	72060147	CAP SCR 5/8-11X1 HH GR5	2
20.	72060044	CAP SCR 3/8-16X3/4 HH GR5	2
21.	70055168	BUSHING (PART OF 16)	2REF
22.	72063182	WASHER - FLAT (PART OF 5)	1
23.	72062234	NUT - LOCK (PART OF 5)	1
24.	72053508	ZERK 1/8NPT (PART OF 5)	1

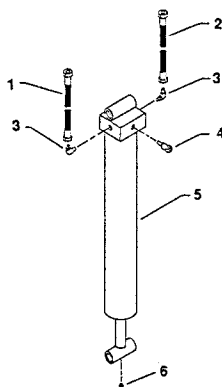
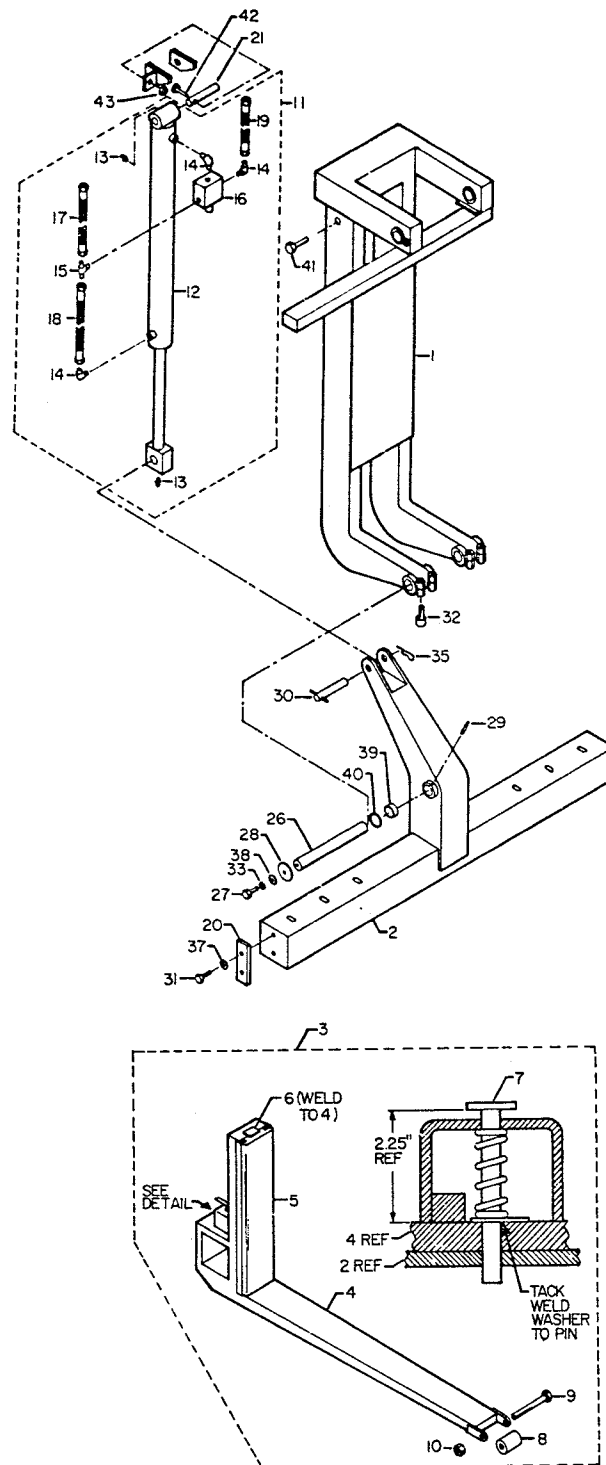
ITEMS 1-2, 8 & 9 ARE PART OF EXTENSION BOOM ASM.

Figure D-22. FORK MOUNTING KIT (51706613)

WALLBOARD FORK ASSEMBLIES

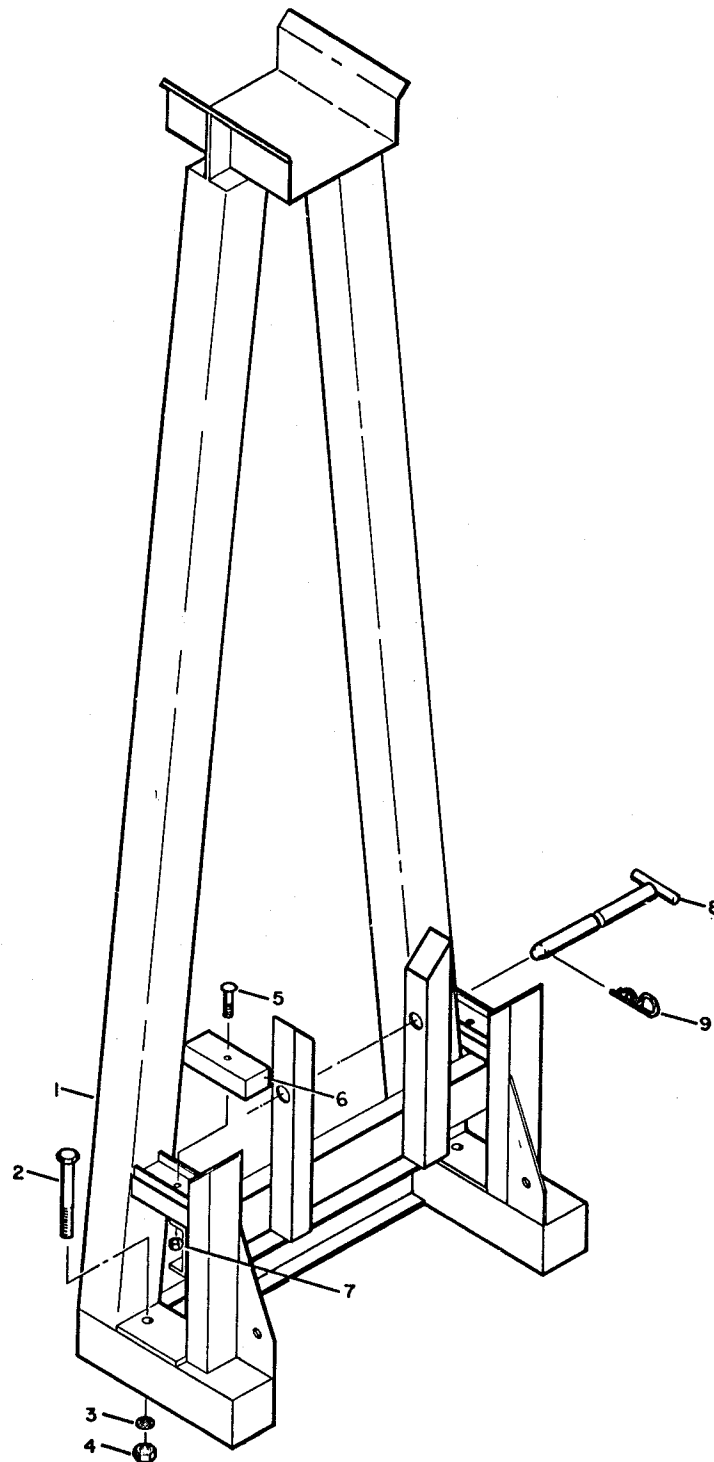
- A. 48"-60" SPREAD 71731908
 B. 48"-84" SPREAD 71731909
 C. 54"-60" SPREAD 71732796
 D. 54"-84" SPREAD 71732795

ITEM	PART NO.	DESCRIPTION	QTY
1.	70143189	LEG 'A' & 'B' 48"	1
	70144724	LEG 'C' & 'D' 54"	1
2.	70143187	BAR 'A' & 'C' 60"	1
	70143188	BAR 'B' & 'D' 84"	1
3.	70731879	TINE ASM (INCL: 4-10)	1
4.	70143186	TINE (PART OF 3)	2REF
5.	60030135	WEAR PAD (PART OF 3)	2REF
6.	60111549	PAD LOCK'G PLATE (PART OF 3)	2REF
7.	70731978	STOP PIN ASM (PART OF 3)	2REF
8.	60030012	ROLLER(PART OF 3)	2REF
9.	72060193	CAP SCR 3/4-10X6 HHGR5 (PART OF 3)	2REF
10.	72062114	NUT 3/4-10 LOCK (PART OF 3)	2REF
11.	73050120	CYLINDER ASM (INCL: 12-19)	1
12.	73050118	CYLINDER (PART OF 11)	1REF
13.	72053508	ZERK 1/8NPT (PART OF 11)	2REF
14.	72531412	ELBOW 1/4MPT 7/16MJIC 90° (PART OF 11)	3REF
15.	72533005	TEE 7/16MJIC 1/4MPT BRANCH (PART OF 11)	1REF
16.	70731859	VALVE (PART OF 11)	1REF
17.	51392676	HOSE ASM 1/4 X 16 (PART OF 11)	1REF
18.	51392675	HOSE ASM 1/4X24 (PART OF 11)	1REF
19.	51392674	HOSE ASM 1/4X15 (PART OF 11)	1REF
20.	70143179	FORK STOP	2
21.	60112223	PIN 1	
26.	70143366	PIN 1	
27.	72060047	CAP SCR 3/8-16X1-1/4 HHGR5	2
28.	70143365	PIN RETAINER PLATE	2
29.	72533016	GREASE FITTING	2
30.	70143180	"T"-PIN 1	
31.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	4
32.	72601486	CAP SCR 1/2-13X1-3/4 SH	4
33.	72063051	WASHER 3/8 LOCK	2
35.	72661255	HAIR PIN 1	
37.	72063053	WASHER 1/2 LOCK	4
38.	72063003	WASHER 3/8 WRT	2
39.	70143364	BUSHING	2
40.	76392849	O-RING 2	
41.	77060095	CAP SCR 1/2-13X2 HH GR5	1
42.	72060028	CAP SCR 5/16-18X1-3/4 HHGR5	1
43.	72062109	NUT 5/16-18 LOCK	1
45.	94392698	CYLINDER OVERHAUL KIT	REF

**CYLINDER FROM 6-1-94**

	A&B	C&D
1. 51392676 HOSE ASM 1/4X16 FF	1	
51712367 HOSE ASM 1/4X27 FF		1
2. 51392674 HOSE ASM 1/4X15 FF	1	
51712367 HOSE ASM 1/4X27 FF		1
3. 72531412 ELBOW 1/4MPT 7/16MJIC 90°	2	2
4. 73054661 VALVE (PART OF 5)	REF	REF
5. 70732929 CYLINDER ASM (INCL:4&7)	1	1
6. 72053508 ZERK 1/8NPT	1	1
7. 94393889 SEAL KIT (PART OF 5)	REF	REF

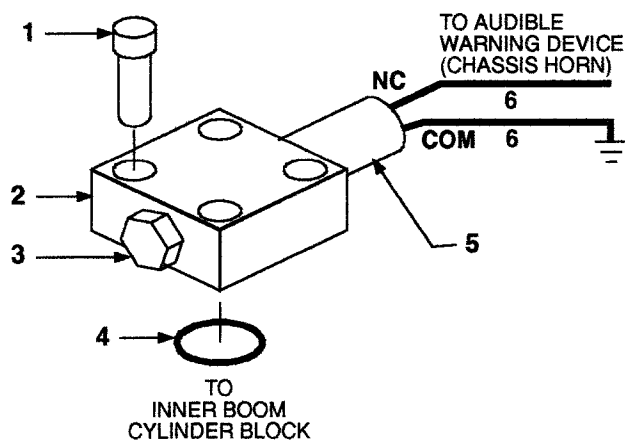
Figure D-23. WALLBOARD FORKS

**BOOM SUPPORTS KITS**

A.	48" FORK / 18'-6" OR 24'-6" BODY	51707160
B.	48" FORK / 21'-6" OR 23'-0" BODY	51706455
C.	54" FORK / 18'-6" OR 24'-6" BODY	51711323
D.	54" FORK / 21'-6" OR 23'-0" BODY	51711320

ITEM	PART	DESCRIPTION	QTY
1.	52706454	BOOM SUPPORT 'A'	1
	52706454	BOOM SUPPORT 'B'	1
	52711322	BOOM SUPPORT 'C'	1
	52711321	BOOM SUPPORT 'D'	1
2.	72060194	CAP SCR 3/4-10X6-1/2 HH GR5	4
3.	72063008	WASHER 3/4 WRT	4
4.	72062114	NUT 3/4-10 LOCK	4
5.	72060959	CARR BOLT 3/8-16X2-1/2	2
6.	60035889	PAD	2
7.	72062103	NUT 3/8-16 LOCK	2
8.	52707817	PIN	1
9.	72066144	HAIR PIN	1

Figure D-24. BOOM SUPPORT ASSEMBLIES

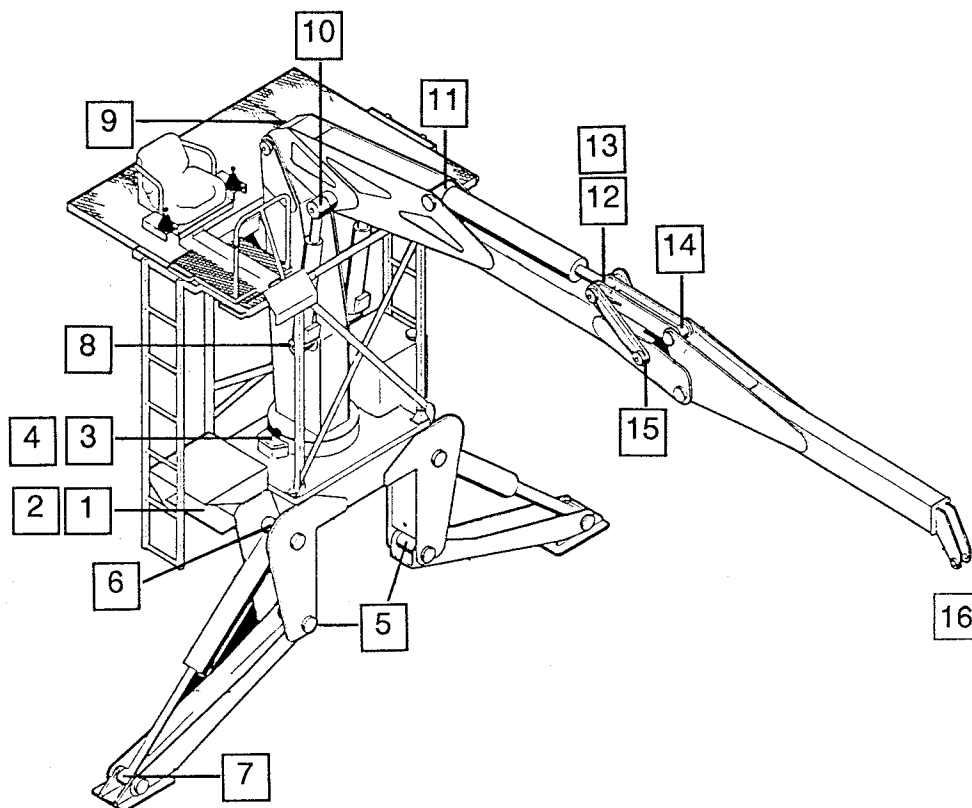
**NOTE**

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)	REF

Figure D-25. CAPACITY ALERT KIT - AUDIBLE (31705698)

SECTION 5. Reference



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	DRIVE GEAR GREASE EXTENSION	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
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 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.	WALLBOARD FORKS (NOT SHOWN)		

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			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		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			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		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.

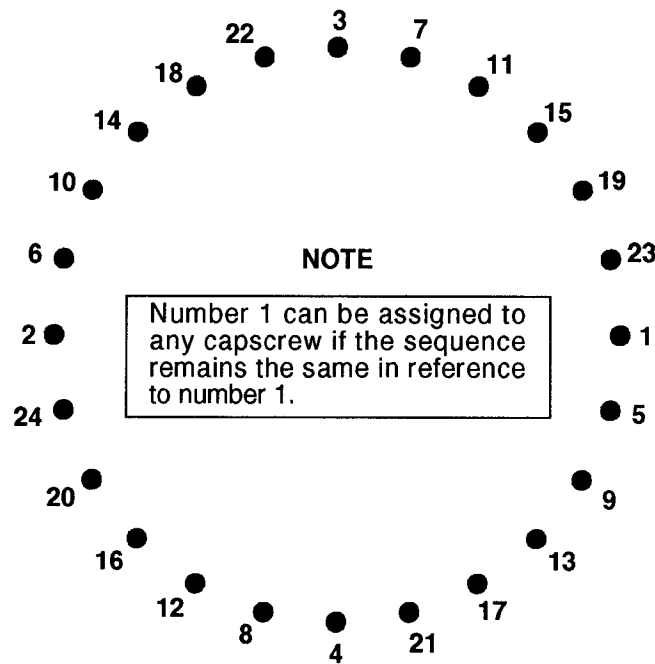
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial 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/torquing 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: $.40 \times 265 \text{ FT-LBS} = 106 \text{ FT-LBS}$)
4. Repeat Step 3, but torquing all capscrews to 75% of the specified torque value. Continue to follow the tightening sequence. (EXAMPLE: $.75 \times 265 \text{ FT-LBS} = 199 \text{ FT-LBS}$)
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 bearing's 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.

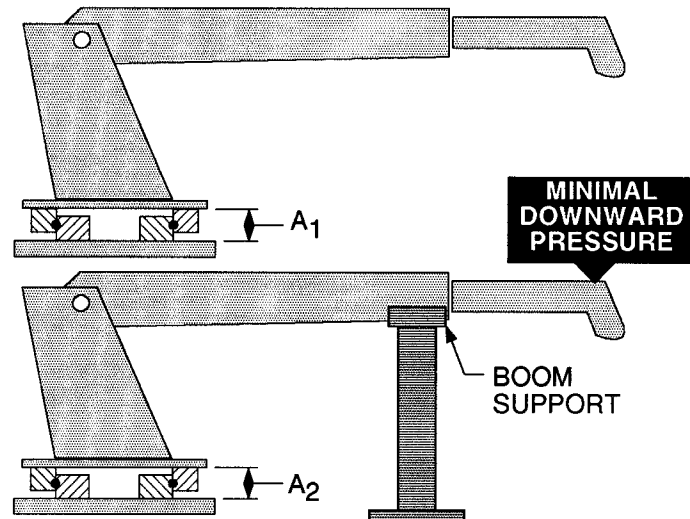
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A_1), using a dial indicator for accuracy.

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	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

(Major Assemblies Only)

1-Year Supply

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a year. It is intended to provide the user with a stock of parts sufficient to keep the unit operating with minimal down-time waiting for parts. Obviously, there may be part failures not covered by this list.

The item numbers shown on this list correspond to the item numbers on the page listed.

FIGURE	ITEM NO.	PART NO.	DESCRIPTION	QTY
D-4.	3	70731795	VALVEPAC	1
D-4.	6	7BF81225	BUSHING	8
D-4.	11	60020120	BUSHING	1
D-4.	12	60020121	BUSHING	1
D-4.	13	60020122	BUSHING	1
D-4.	14	60020124	BUSHING	1
D-4.	15	71056074	DRIVE GEAR	1
D-4.	19	60020123	THRUST WASHER	1
D-4.	26	60030176	WEAR PAD	2
D-4.	28	71056072	INTERMEDIATE GEAR	1
D-4.	29	71056073	PINION GEAR	1
D-4.	30	71056374	HYDRAULIC BRAKE	1
D-4.	31	71056273	TURNTABLE BEARING	1
D-4.	34	70034295	BEARING	1
D-4.	49	72063115	WASHER 7/8 FLAT GR8	23
D-4.	56	72601148	CAP SCR 7/8-9X3 HH GR8	23
D-4.	58	73051478	MOTOR	1
D-5.	1	7BF81225	BUSHING	8
D-5.	16	73054304	VALVE	4
D-5.	17	7BF81225	BUSHING	6
D-5.	20	9C242432	SEAL KIT	2
D-6.	2	7BF81225	BUSHING	9
D-6.	5	72060209	CAP SCR 3/4-10X2-3/4 HH GR8	18
D-6.	6	72063116	WASHER 3/4 FLAT HARD	18
D-7.	33	77041249	MERCURY SWITCH	1
D-8.	4	7BF82020	BUSHING	8
D-8.	5	7BF81225	BUSHING	9
D-9.	2	7BF81225	BUSHING	4
D-9.	6	7BF81225	BUSHING	4
D-9.	11	73054242	VALVE	2
D-9.	12	9B182423	SEAL KIT	2
D-10.	3	7BF81020	BUSHING	4
D-10.	4	7BF81025	BUSHING	4
D-10.	13	7BF81520	BUSHING	4
D-10.	18	60030015	WEAR PAD	2
D-10.	25	60108947	WEAR PAD	1
D-10.	41	7BF81520	BUSHING	2
D-10.	42	7BF81025	BUSHING	2
D-10.	43	7BF81225	BUSHING	2
D-11.	2	7BF81220	BUSHING	2
D-11.	3	7BF82020	BUSHING	2
D-11.	7	7BF81225	BUSHING	2
D-11.	15	73054242	BUSHING	2
D-11.	16	9B242432	SEAL KIT	1
D-12.	4	60030118	WEAR PAD	1
D-13.	17	60030004	WEAR PAD	2
D-13.	20	9C121617	SEAL KIT	1
D-13.	21	73054304	VALVE	2
D-14.	50	73054425	SENSOR VALVE	1
D-14.	53	73054424	OVERSTRESS VALVE	1
D-14.	67	70731801	JOYSTICK CONTROL	2
D-15.	18	77041283	PRESSURE SWITCH 2800PSI	1
D-15.	29	77041237	SOLENOID 12V 150A	1
D-15.	34	77041345	TOGGLE SWITCH ST	1
D-22.	2	70055207	BUSHING	2
D-22.	21	70055168	BUSHING	2
D-23.	45	94392698	CYLINDER OVERHAUL KIT	1
		70048149	SUCTION FILTER ELEMENT	6
		73052006	RETURN FILTER ELEMENT	6

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	10025 Crane	MANUAL PART NO.	99900259-5/91
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: _____

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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IOWA MOLD TOOLING Co., Inc.

BOX 189, GARNER, IA 50438-0189

TEL: 515-923-3711

PRODUCT SUPPORT FAX: 515-923-3674