Volume 2
Parts and Specifications
Model 4817 Crane

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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 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
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 (4817)

1-1. GENERAL

Crane Rating	48,000 ft.-lbs.	6.65 ton-meters
Reach - from centerline of rotation	17'-5"	5.31 m
Hydraulic Extension	48"	121.9 cm
* Lifting Height	26'-4"	8.03 m
* Storage Height	10'-0"	3.05 m
Outrigger Span	7'-9"	2.36 m
Crane Weight	3150 lbs.	1429 kg.
Optimum Pump Capacity	9 U.S.Gal/min.	34.1 liters/minute
Oil Reservoir Capacity	17 U.S. Gallons	64.4 liters
** Mounting Space Required	28"	71.1 cm
Vertical Center of Gravity - from bottom of crane base (stored position)	21"	53.3 cm
Horizontal Center of Gravity - from centerline of rotation (stored position)	1"	2.5 cm
Design Factors - pins and hydraulics	4/1	4/1

* Based on 36" (91.4 cm) truck frame height.
** Add approximately 3" (7.62 cm) for truck cab clearance.

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

6'-0" (1.83 m)	8000 lbs.	3629 kg.
10'-0" (3.05 m)	4800 lbs.	2177 kg.
13'-5" (4.09 m)	3600 lbs.	1633 kg.
17'-5" (5.31 m)	2700 lbs.	1225 kg.

1-3. PERFORMANCE CHARACTERISTICS

Rotation - 370° (6.46 Rad.)	30 seconds
Inner Boom Elevation - -52° to +71° (-0.91 Rad. to +1.24 Rad.)	20 seconds
Outer Boom Articulation - 139° (2.43 Rad.)	21 seconds
Extension Boom - 48" (121.9 cm)	7 seconds
Outrigger Extension - 21" (53.3 cm)	6 seconds

1-4. POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 15 horsepower.

1-5. CYLINDER HOLDING VALVES

The holding sides of all cylinders are equipped with integral-mounted holding and/or counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The outrigger cylinders have positive, pilot-operated holding valves that open only upon command.

The inner, outer and extension cylinder have pilot operated, integral-mounted counter-balance valves. The inner and outer cylinders have the counter-balance valve on the extend side only. The extension cylinder features double counter-balance valves on both the extend and retract sides. 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 (total gear reduction is 51.8 to 1).

1-7. HYDRAULIC SYSTEM

Open-centered, full-pressure system that requires 9 GPM (34.1 liter/min.) optimum oil flow at 2,500 PSI (175.7 kg/cm^2). Eight-spool, stack-type control valve, six of which are used for the standard crane and the remaining two are plugged but easily adaptable for additional optional features. Dual operational handles for six functions are located at both sides of crane for convenient operation. System includes hydraulic oil reservoir, suction and return-line filters, pump, 8-section control valve and all hoses and fittings.

1-8. CYLINDERS

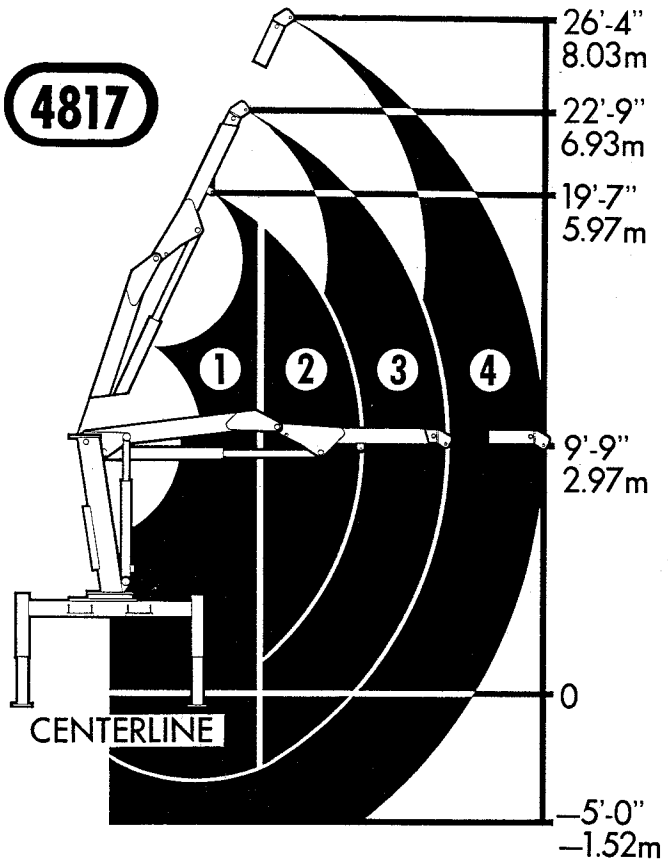
	BORE	STROKE
Inner Boom Cylinder	3 1/2" (8.9 cm)	35" (88.9 cm)
Outer Boom Cylinder	4 1/2"(11.4 cm)	44 3/8" (112.7 cm)
Extension Boom Cylinder	2 1/2" (6.4 cm)	48" (121.9 cm)
Outrigger Cylinder	2 1/2" (6.4 cm)	21" (53.3 cm)

1-9. MINIMUM CHASSIS SPECIFICATIONS

	CONVENTIONAL CAB	TILT CAB
Wheel Base	165" - 174" (419.1 cm - 445.5 cm)	135" (342.9 cm)
Cab-to-Axle	102" (259.1 cm)	108" (274.3 cm)
Frame Section Modulus	14.5 in.^{3} (237.6 cm^3)	14.5 in.^{3} (237.6 cm^3)
R B M	720,000 in-lbs (8298 kg-m)	720,000 in-lbs (8298 kg-m)
Front Axle Rating	7,000 lbs (3180 kg)	7,000 lbs (3180 kg)
Rear Axle Rating	14,000 lbs (6360 kg)	14,000 lbs (6360 kg)
Transmission	4-speed	4-speed

In addition to these specifications, heavy-duty electrical and cooling systems and dual rear wheels are required. It is recommended that the vehicle be equipped with an electric engine tachometer, auxiliary brake lock, power steering and a 5-speed transmission in lieu of a 4-speed transmission.

IMT reserves the right to change specifications and design without notice. These specifications supersede any specifications prior to April 10, 1990.



Working loads will be limited to those shown. Deduct the weight of load-handling devices.

La capacidad de carga debe limitarse a las cantidades indicados. Deduzca de la capacidad de carga el peso del mecanismo de levantamiento de la carga, incluyendo todos los aparatos utilizados. indicadas.

Ne pas depasser le poids de la charge de travail indique. Pour calculer le poids de la charge pratique, deduire du poids de la charge de travail, le poids des auxiliaires.

RANGE	REACH	CAPACITY	RANGE	REACH	CAPACITY
1	6'-0"	8,000 LBS.	3	13'-5"	3,600 LBS.
	1.83m	3,629 KG.		4.09m	1,633 KG.
2	10'-0"	4,800 LBS.	4	17'-5"	2,700 LBS.
	3.05m	2,177 KG.		5.31m	1,225 KG.

Figure A-1. Capacity Chart

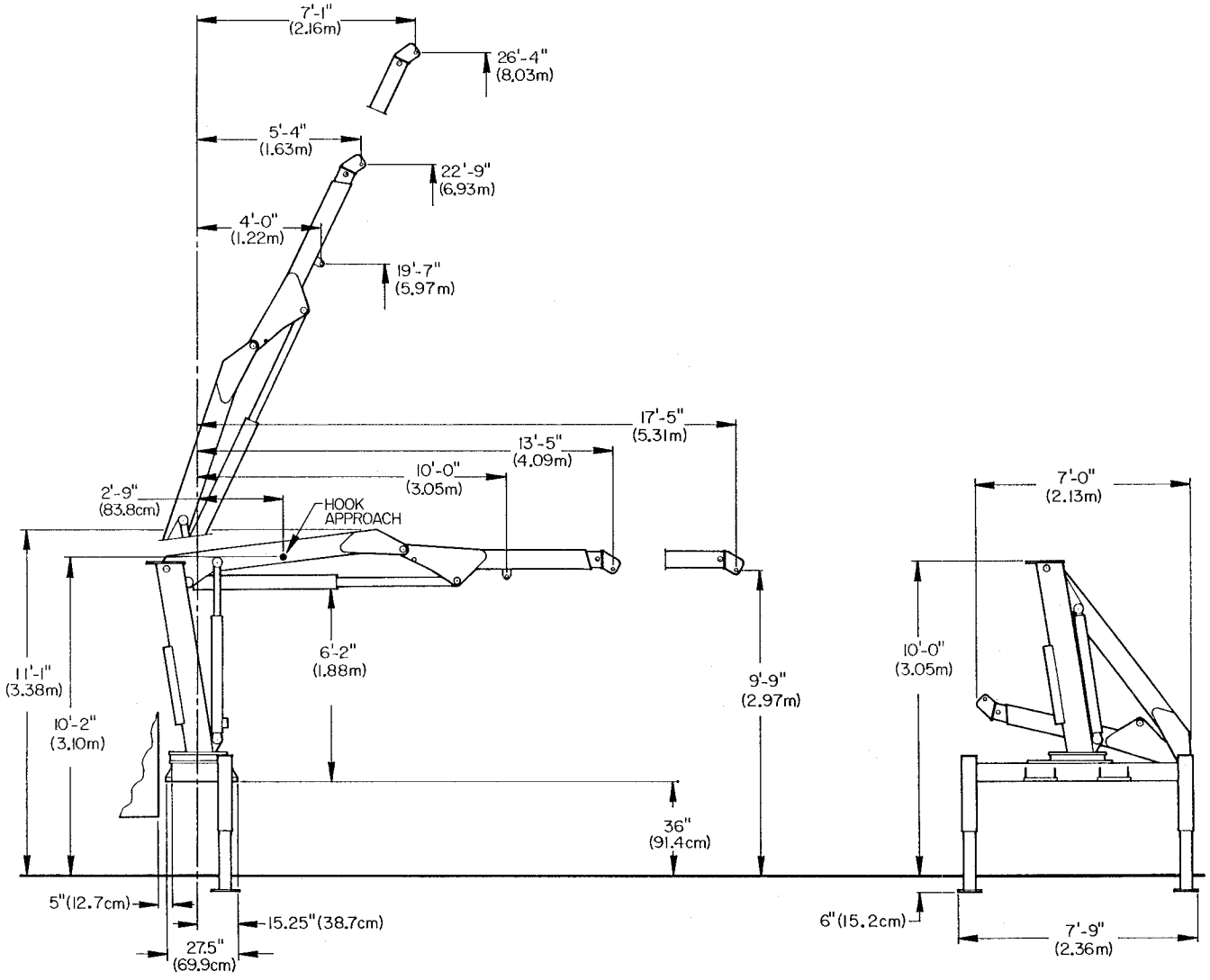


Figure A-2. Geometric Configuration

Section 2. CRANE DESCRIPTION

2-1. GENERAL

This section describes the major assemblies that are available with the IMT 4817 Crane. Figure B-1 illustrates the locations of the assemblies.

2-2. BASE

The base provides the means for mounting the crane to the truck chassis. It incorporates the 370 degrees (6.46 Rad.) rotation mechanism.

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 123 degrees (2.15 Rad.) from -52 degrees to +71 degrees (0.91 to +1.24 Rad.). It is raised and lowered through the use of twin double-acting hydraulic cylinders.

2-5. OUTER BOOM

The outer boom will swing through a full 139 degrees (2.43 Rad.). It is raised and lowered through the use of a double-acting hydraulic cylinder.

2-6. EXTENSION BOOM

The extension boom will increase the operating range of the crane from 13'-5" (4.09 m) to 17'-5" (5.31 m). The extension boom is operated with a double acting hydraulic cylinder which extends the reach an additional 48" (121.9 cm).

2-7. CONTROLS

The crane may be operated from either side of the base. The standard crane uses an eight section valve bank with two sections plugged for use with optional equipment.

2-8. HYDRAULIC

The crane hydraulic system consists of double-braided pressure and return hoses, hydraulic filters, control valve bank and all necessary hydraulic fittings.

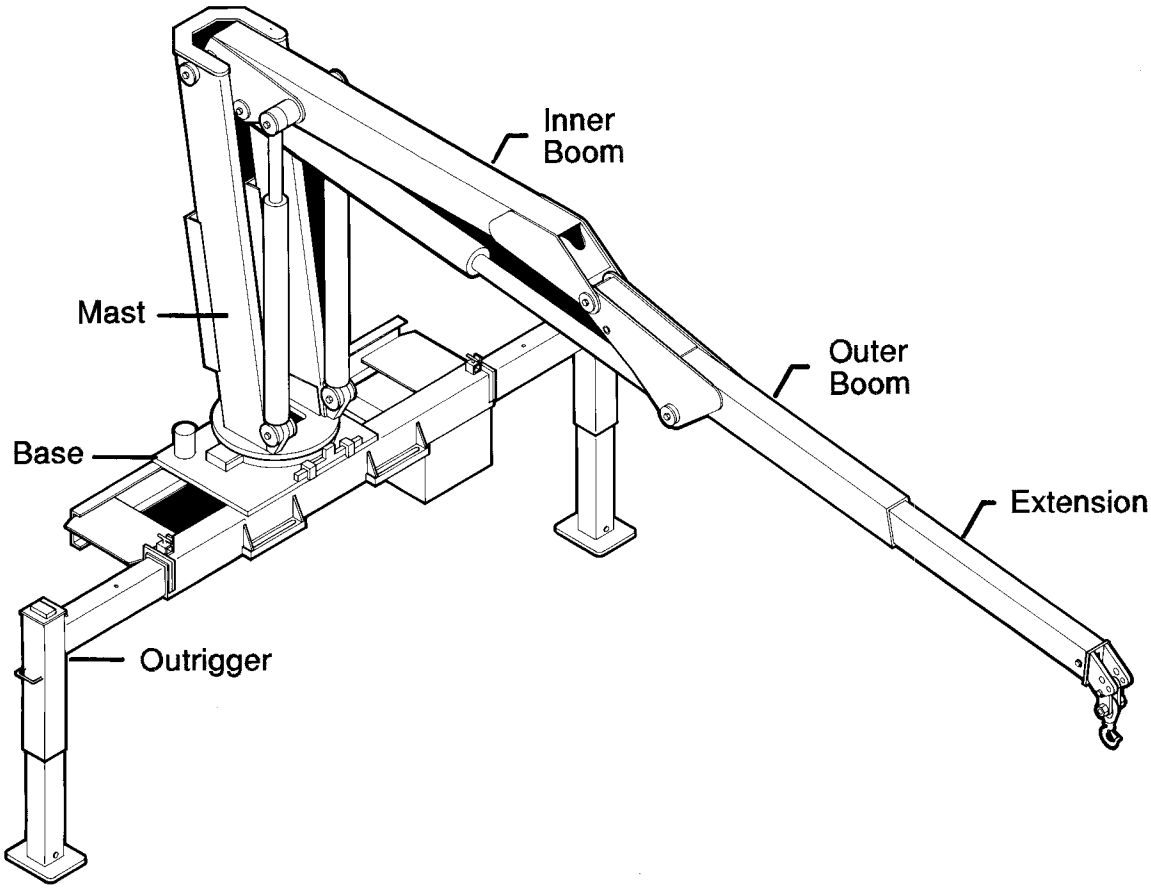


Figure B-1. 4817 Crane Group

Section 3. INSTALLATION

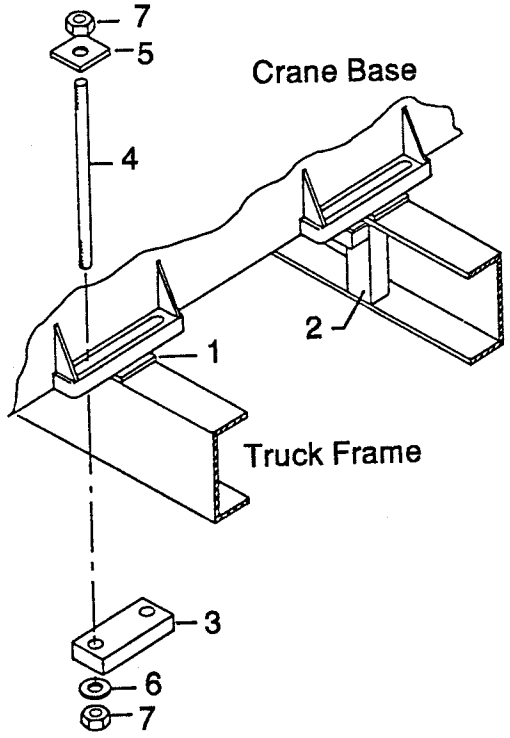
3-1. GENERAL

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.



ITEM	DESCRIPTION	QTY
1.	SPACER	2
2.	FRAME SUPPORT	4
3.	CLAMP PLATE	4
4.	TIE DOWN STUD	8
5.	SQUARE WASHER	8
6.	WASHER	8
7.	LOCK NUT	16

Figure C-1. CRANE INSTALLATION

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"-8 UNC Grade 5 mounting hardware to 442 ft-lbs (62 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.

   E. Touch-up paint around mounting anchor plates.

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 442 ft. lbs. (62 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.

3-3. HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.:

1. Install the hydraulic reservoir on the crane base.

2. Plumb the suction-line filter as shown in Figure C-2.

3. Install the 1-1/4" suction hose between the suction-line filter and the pump inlet. Tighten the hose clamps.

4. Install the 1/2" pressure hoses between the pump outlet and the inlet port on the valve bank.

5. Install the return filter and gate valve on the reservoir. Install the hose between the valve bank and return filter.

6. Fill the hydraulic reservoir to the "FULL" mark.

7. Open the gate valve at the suction-line filter.

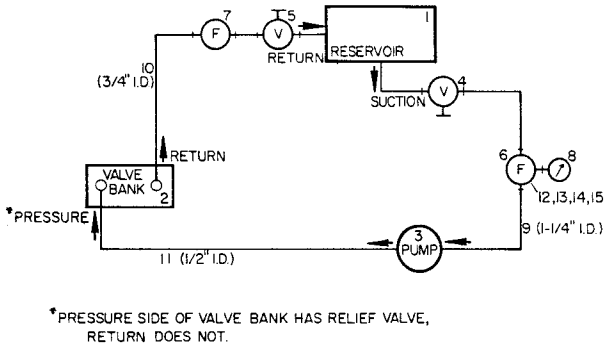
CAUTION

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

8. Open the return gate valve.

9. 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 filter (it should read 8" mercury or less). If the vacuum reading is too high, check to make certain that the gate valve is opened completely. If the valve is fully opened, check for a collapsed or restricted suction line.

10. Cycle all hydraulic functions. Check for leaks, and refill the reservoir if necessary.



*PRESSURE SIDE OF VALVE BANK HAS RELIEF VALVE, RETURN DOES NOT.

Item No.	Description	Qty
1.	Oil Reservoir	1
2.	Valve Bank	1
3.	Pump	1
4.	Gate Valve	1
5.	Ball Valve	1
6.	Suction Filter	1
7.	Return Filter	1
8.	Vacuum Gauge	1
9.	Suction Hose	1
10.	Return Hose	1
11.	Pressure Hose	1
12.	Oil Filter Bracket	1
13.	Screw	4
14.	Nut	2

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, AN INJURY OR EVEN 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.

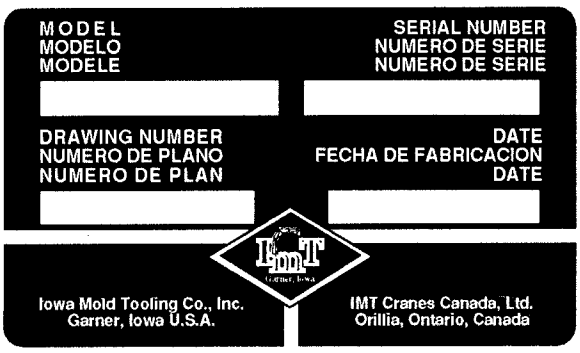


Figure D-1. SERIAL NUMBER PLACARD

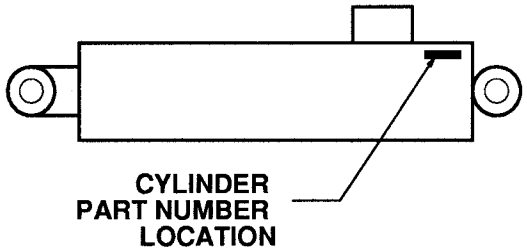


Figure D-2. CYLINDER PART NUMBER LOCATION

4-4. WELDMENT INDENTIFICATION

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 as stamped on the weldment. The locations of the part numbers are shown in Figure D-4.

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.

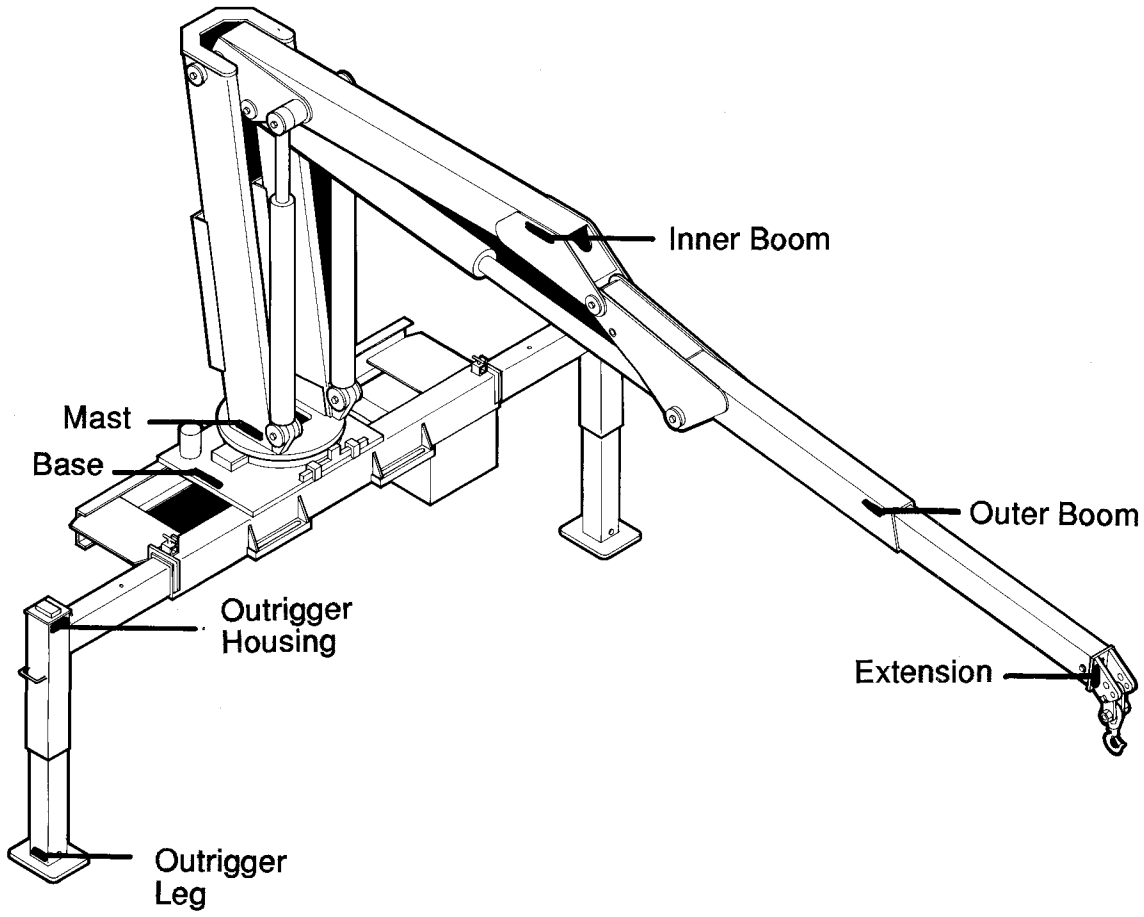
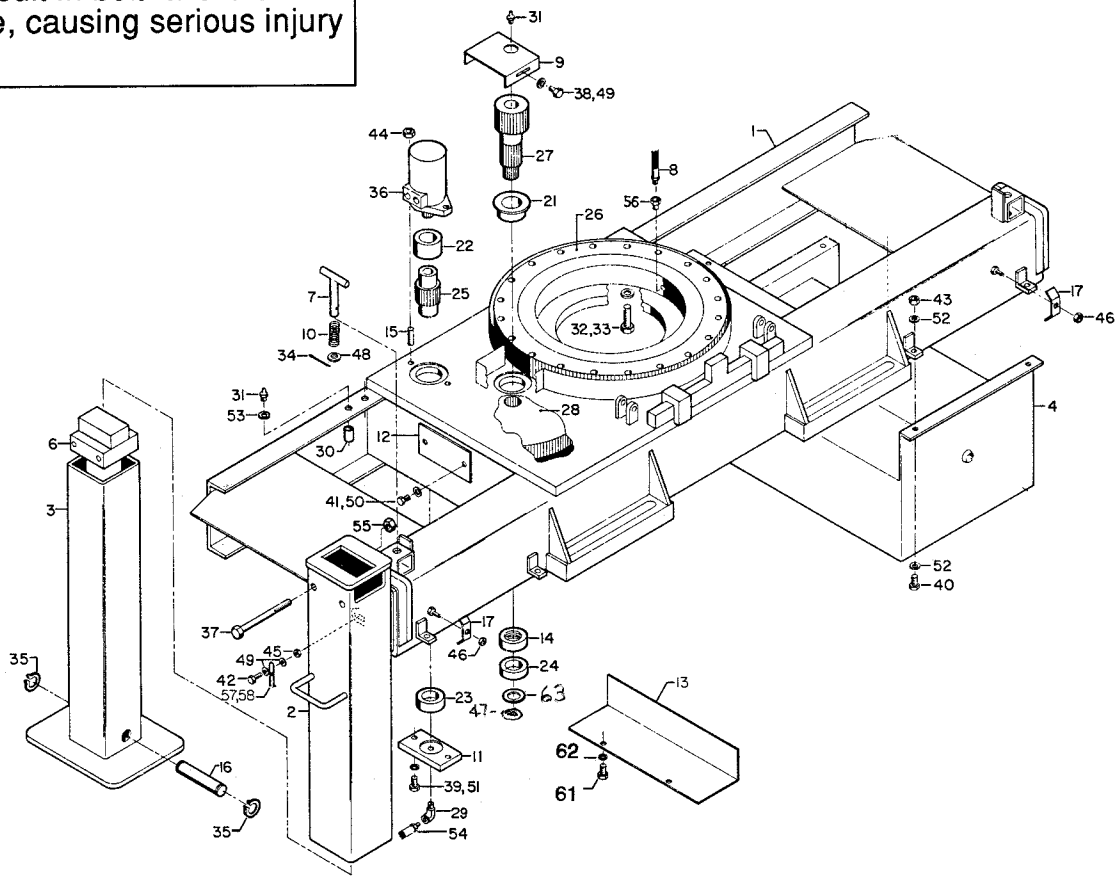


Figure D-3. Weldment Part Number Location

WARNING

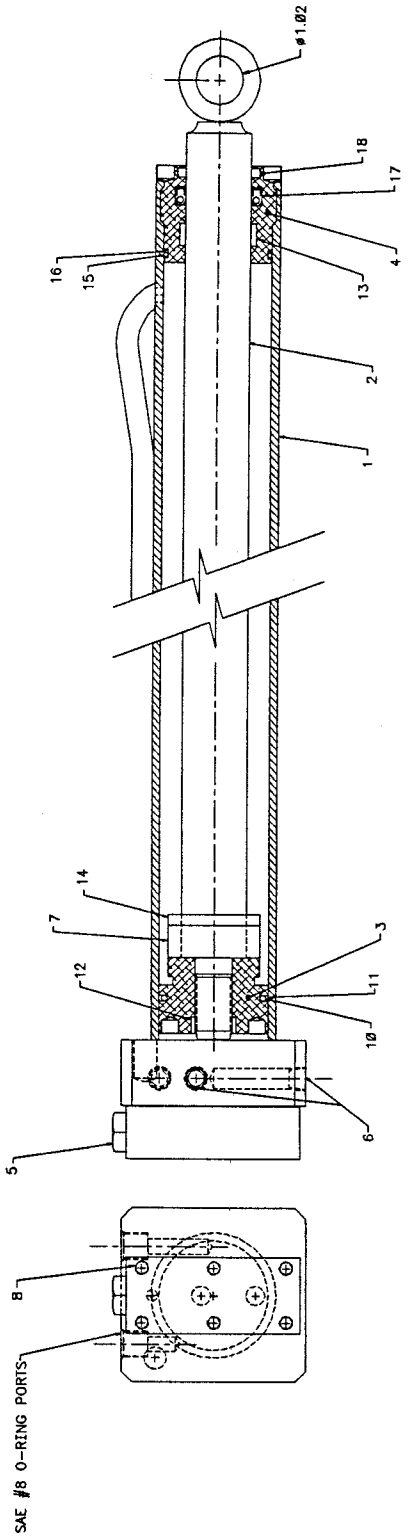
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue, causing serious injury or death.



ITEM	PART NO.	DESCRIPTION	QTY
1.	52704391	BASE (INCL:21-25)	1
2.	52704387	OUTRIGGER HOUSING	2
3.	52704388	OUTRIGGER LEG	2
4.	70732573	RESERVOIR ASM	2
6.	3B166820	POWER DOWN CYLINDER	2
7.	52070138	T-PIN	2
8.	53000717	GREASE EXTENSION	1
9.	60010235	PINION COVER	1
10.	60010351	SPRING	2
11.	60010844	GREASE PLATE	1
12.	60102767	COVER	1
13.	60102769	GUARD	1
14.	60104694	SPACER	1
15.	60106032	STUD 1/2-13X2	2
16.	60106968	PIN	2
17.	60107648	HOSE CLAMP	2
21.	60020114	BUSHING (PART OF 1)	1REF
22.	60020115	BUSHING (PART OF 1)	1REF
23.	60020116	BUSHING (PART OF 1)	1REF
24.	60020154	BUSHING (PART OF 1)	1REF
25.	71056011	DRIVE GEAR (PART OF 1)	1REF
26.	71056001	GEAR BEARING	1
27.	71056010	PINION GEAR	1
28.	71056012	INTERMEDIATE GEAR	1
29.	72053281	STREET ELBOW 1/8NPT 90°	1
30.	72053301	COUPLING 1/8NPT	2
31.	72053508	ZERK 1/8NPT	3
32.	72060151	CAP SCR 5/8-11X2 HH GR8	20

ITEM	PART NO.	DESCRIPTION	QTY
33.	72063119	WASHER 5/8 FLAT HARD	20
34.	72066185	COTTER PIN 5/32X1	2
35.	72066125	RETAINER RING 1	4
36.	73051384	HYDRAULIC MOTOR	1
37.	72060102	CAP SCR 1/2-13X5-1/2 HH GR5	4
38.	72060833	CAP SCR 5/16-18X3/4 HH GR5	2
39.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2
40.	72060046	CAP SCR 3/8-16X1 HH GR5	4
41.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
42.	72060028	CAP SCR 5/16-18X1-3/4 HH GR5	2
43.	72062103	NUT 3/8-16 LOCK	4
44.	72062080	NUT 1/2 -13 LOCK	2
45.	72062109	NUT 5/16-18 LOCK	2
46.	72062103	NUT 3/8-16 LOCK	2
47.	72066084	RETAINING RING 1-1/4"	1
48.	72063027	MACH BUSHING 5/8	2
49.	72063002	WASHER 5/16 WRT	6
50.	72063049	WASHER 1/4 LOCK	2
51.	72063053	WASHER 1/2 LOCK	2
52.	72063003	WASHER 3/8 WRT	10
53.	72063003	WASHER 3/8 WRT	2
54.	53000714	GREASE EXTENSION	1
55.	72062107	NUT 1/2-13 CTR LOCK	4
56.	72531826	REDUCER BUSHING 1/4-1/2NPT	1
57.	60108883	CHAIN	2
58.	70058060	COLD SHUT LINK	2
61.	72060023	CAP SCR 5/16-18 X 3/4 HH GR5	2
62.	72063050	WASHER 5/16 WRT	2
63.	72063035	MACH BUSHING 1-1/4 X 10GA	1

Figure D-4. BASE AND OUTRIGGER (41704349)



NOTE

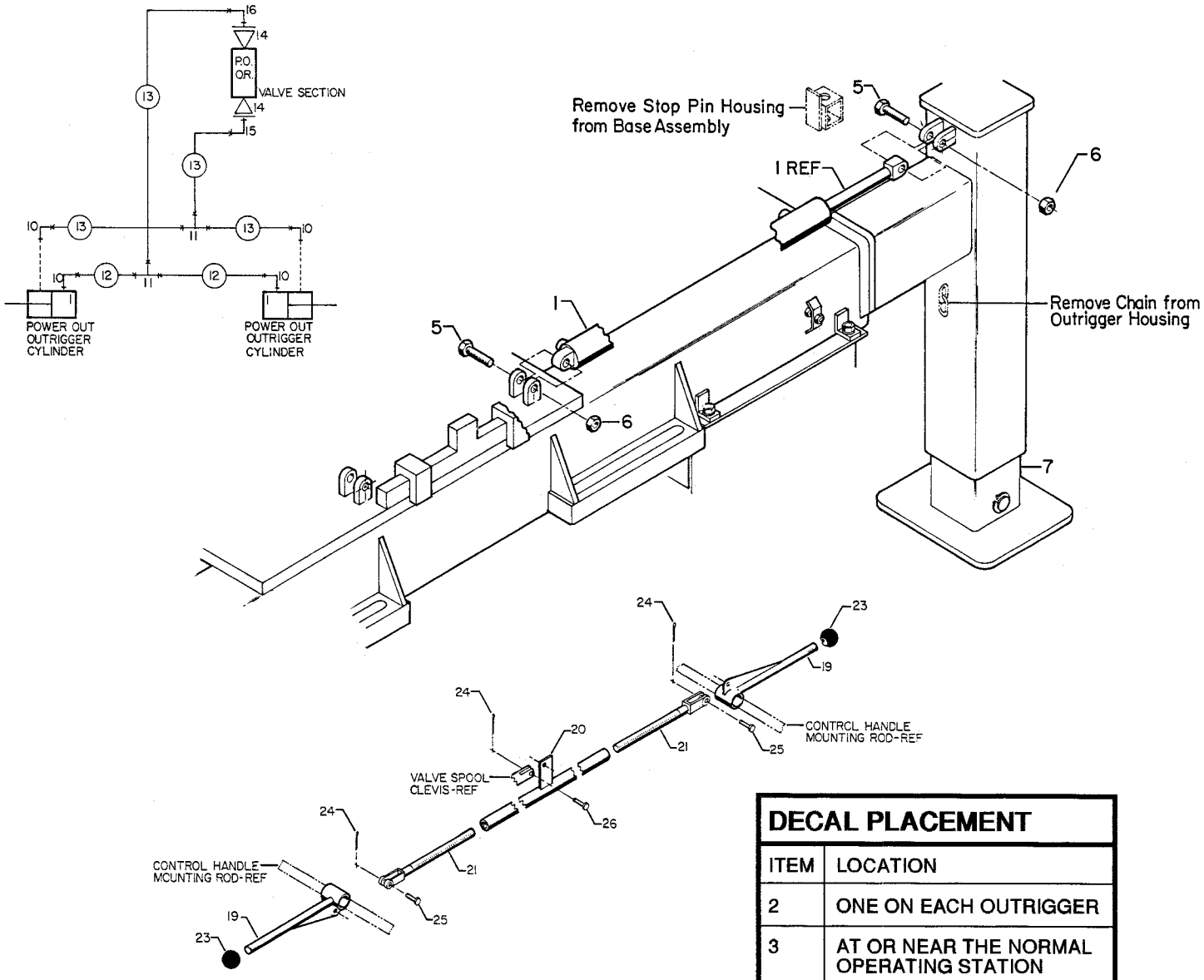
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

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.	4B166820	CASE (INCL:6)	1
2.	4G166820	ROD	1
3.	6I025087	PISTON	1
4.	6H025015	HEAD	1
5.	73054004	VALVE	1
6.	7PNPXT02	PIPE PLUG 1/8 (PART OF 1)	3REF
7.	6C075015	STOP TUBE	1
8.	72060708	CAP SCR 1/4-20 X 1-1/4 SH	6
9.	9B101214	SEAL KIT (INCL:10-18)	1
10.	7Q072137	O-RING (PART OF 9)	1REF
11.	7T66P025	PISTON SEAL (PART OF 9)	1REF
12.	7T61N087	LOCK RING SEAL (PART OF 9)	1REF
13.	7T2N8015	WEAR RING (PART OF 9)	1REF
14.	6A025015	WAFER LOCK (PART OF 9)	1REF
15.	7Q072228	O-RING (PART OF 9)	1REF
16.	7Q10P228	BACK-UP RING (PART OF 9)	1REF
17.	7R546015	ROD SEAL (PART OF 9)	1REF
18.	7R14P015	ROD WIPER (PART OF 9)	1REF

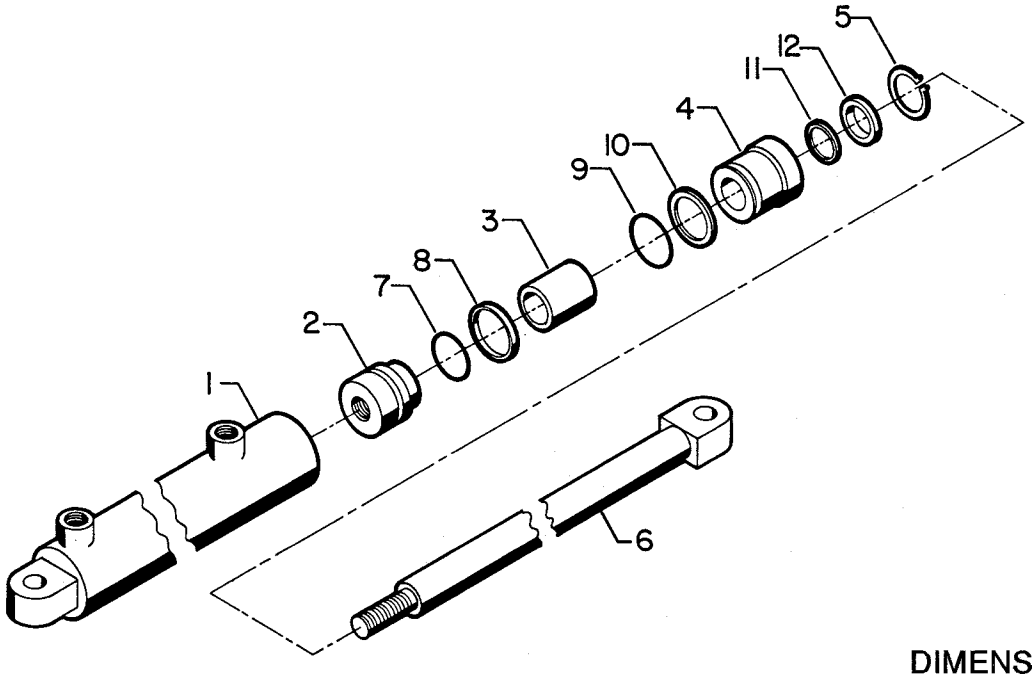
Figure D-5. OUTRIGGER CYLINDER (3B166820)



DECAL PLACEMENT	
ITEM	LOCATION
2	ONE ON EACH OUTRIGGER
3	AT OR NEAR THE NORMAL OPERATING STATION
22	AT POWER OUT CONTROLS

Item No.	Part No.	Description	Qty
1.	3B115830	Cylinder, Power-out	2
2.	70392864	Decal, Danger stand clear	2
3.	70392867	Decal, Danger outrg moving	1
5.	72060928	Cap screw; 1/2 x 2 1/4	4
6.	72062080	Nut, Lock, 1/2	4
7.	52704388	Leg, Outrigger	Ref.
10.	72053758	Adapter, 90 deg., 7/16 str. thd. (m) x 7/16 JIC (m)	4
11.	72532768	Tee, 7/16 JIC (m)	2
12.	51704620	Hose, 1/4 ID x 20	2
13.	51705970	Hose, 1/4 ID x 33	4
14.	72532707	Adapter, 7/16 JIC (m) x 9/16 JIC (f)	2
15.	72532700	Adapter, 9/16 str. thd. (m) x 9/16 JIC (m), 90 deg.	1
16.	72053760	Adapter, 9/16 str.thd.(m) x 9/16 JIC (m), 90 deg.	1
19.	70029451	Handle, Control	2
20.	52704744	Rod, Control, Female	1
21.	52704745	Rod, Control, Male	2
22.	71382277	Decal, Ctrl outrg	1
23.	72039096	Knob, Control	2
24.	72066168	Pin, Cotter	3
25.	72066338	Pin, Clevis	2
26.	72661169	Pin, Clevis	1

Figure D-6. Power-Out Outrigger (Part Number 31704357)

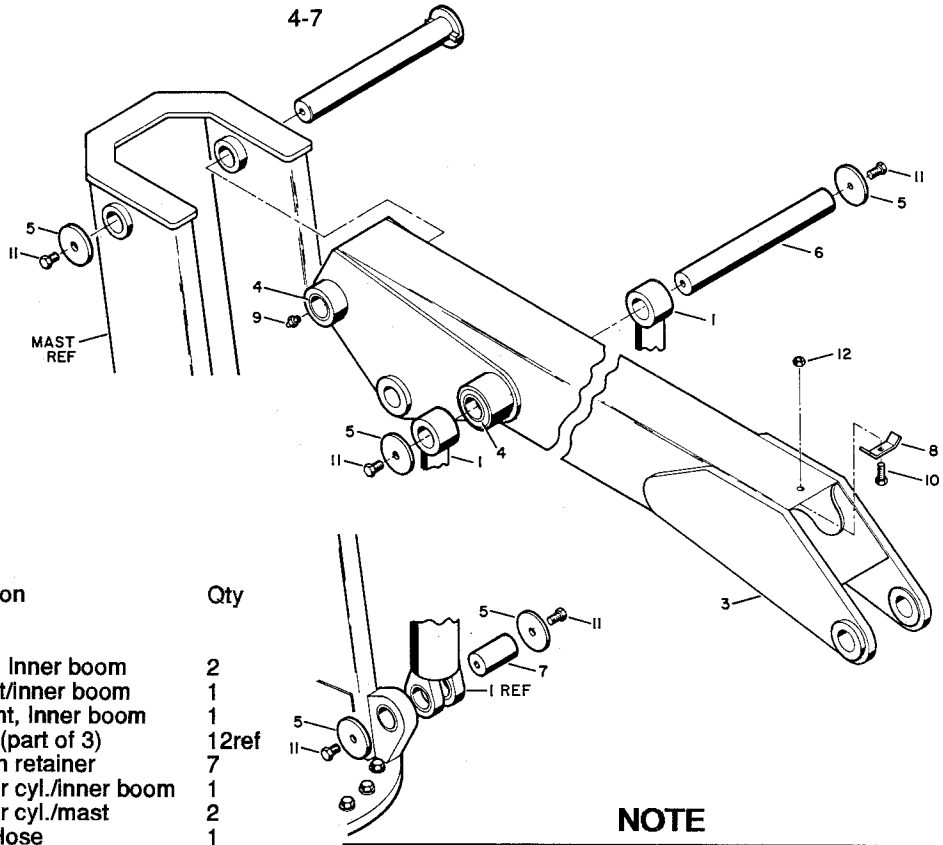


DIMENSIONS

Bore	1 1/4
Stroke	24
Rod Diameter	3/4
Pin Diameter	1/2
C-C Closed	30 7/16

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	4B115830	Case, Cylinder	1	8.	7T66P012	Seal, Piston	1*
2.	6I012050	Piston	1	9.	7Q072214	O-ring	1*
3.	6C125007	Tube, Stop	1	10.	7Q10P214	O-Ring, Back-up	1*
4.	6H012007	Head	1	11.	7R66P075	Seal	1*
5.	72066029	Ring, Retaining	1	12.	7R13P007	Wiper, Rod	1*
6.	4G115830	Rod	1				
7.	7Q072021	O-ring	1*	* Part of seal kit (Part number 9B050608)			

Figure D-7. Power-Out Outrigger Cylinder (Part Number 3B115830)

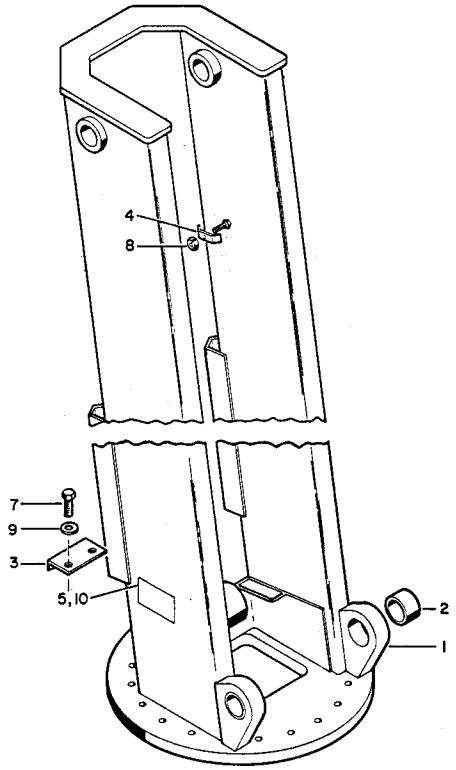


Item No.	Part No.	Description	Qty
1.	3B110820	Cylinder, Inner boom	2
2.	52704342	Pin, Mast/inner boom	1
3.	52704347	Weldment, Inner boom	1
4.	7BF81220	Bushing (part of 3)	12ref
5.	60106331	Plate, Pin retainer	7
6.	60107303	Pin, Inner cyl./inner boom	1
7.	60107305	Pin, Inner cyl./mast	2
8.	60010118	Clamp, Hose	1
9.	72053508	Zerk, 1/8 npt	1
10.	72060049	Cap screw, 3/8 x 1 3/4	1
11.	72060147	Cap screw, 5/8 x 1	7
12.	72062103	Nut, Lock, 3/8	1

NOTE

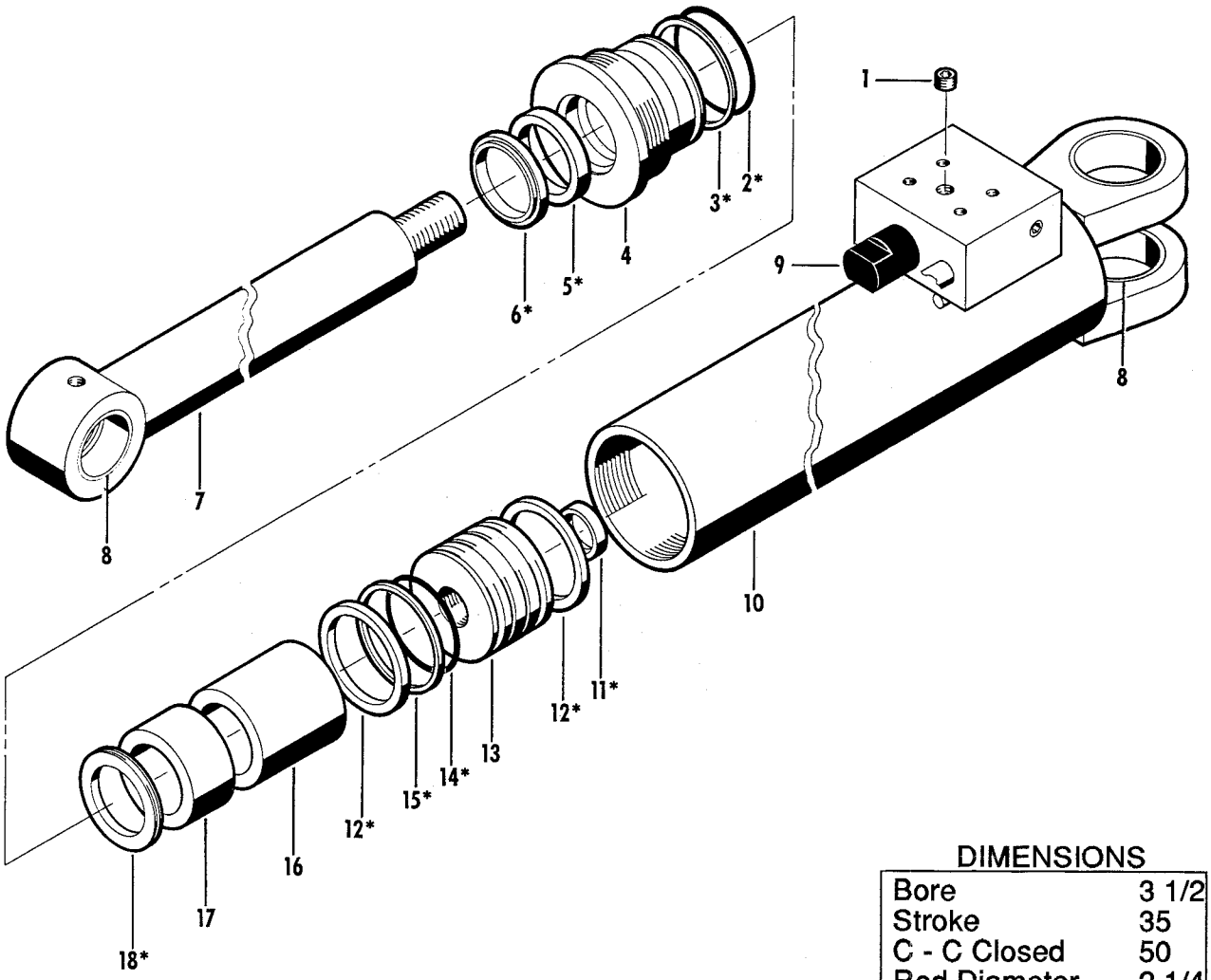
ANYTIME THE PIN RETAINER PLATE BOLTS (ITEM 11) HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE REASSEMBLY.

Figure D-8. Inner Boom (Part Number 41704351)



Item No.	Part No.	Description	Qty
1.	52704348	Mast weldment	1
2.	7BF81520	Bushing (part of 1)	2 ref
3.	60104539	Cover, Pinion gear	1
4.	60010118	Clamp, Hose	2
5.	70029119	Placard, Serial no.	1
6.			
7.	72060151	Cap screw, 5/8 x 2 gr8	18
8.	72062103	Nut, Lock, 3/8	2
9.	72063119	Washer, Hardened, 5/8	18
10.	72066340	Rivet, 1/8	2

Figure D-9. Mast (Part Number 41704350)

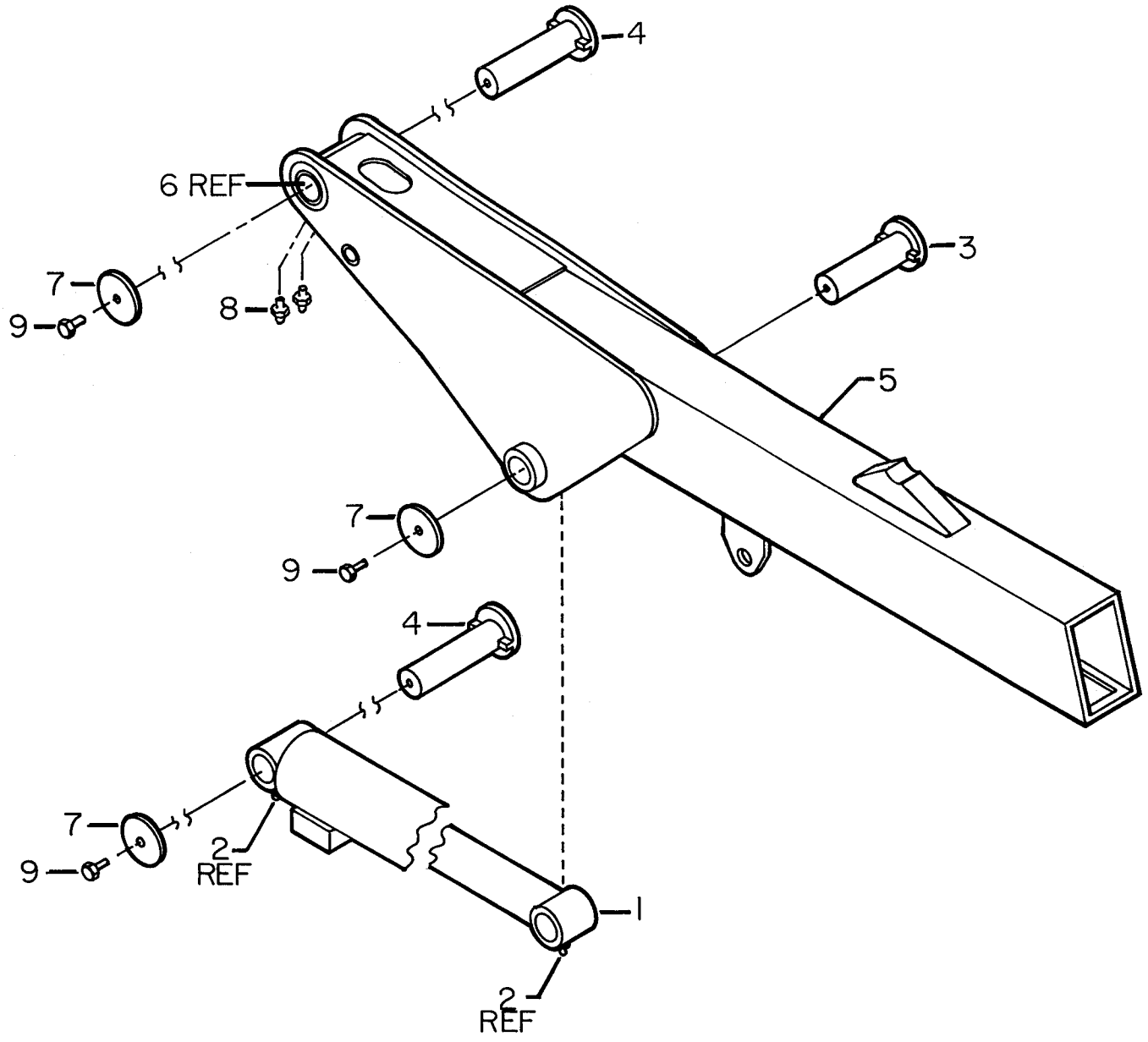


DIMENSIONS

Bore	3 1/2
Stroke	35
C - C Closed	50
Rod Diameter	2 1/4
Pin Diameter	2

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	7PNPXT02	Plug, 1/8 npt	3	11.	7T61N125	Seal, Lock ring	1 *
2.	7Q072338	O-ring	1 *	12.	7T65I035	Ring, Piston	2 *
3.	7Q10P338	Ring, Back-up	1 *	13.	6I035125	Piston	1
4.	6H035022	Head	1	14.	7Q072151	O-ring	1 *
5.	7R546022	Seal, Rod	1 *	15.	7T66P035	Seal, Piston	1 *
6.	7R14P022	Wiper, Rod	1 *	16.	6C075022	Tube, Stop	1
7.	4G110820	Rod	1	17.	6C300022	Tube, Stop	1
8.	7BF81020	Bushing (part of 7 & 10)	4 ref	18.	6A025022	Ring, Wafer lock	1 *
9.	73054242	Valve, Counter balance	1				
10.	4B110820	Case	1	* Part of seal kit (Part number 9C141820)			

Figure D-10. Inner Cylinder (Part Number 3B110820)

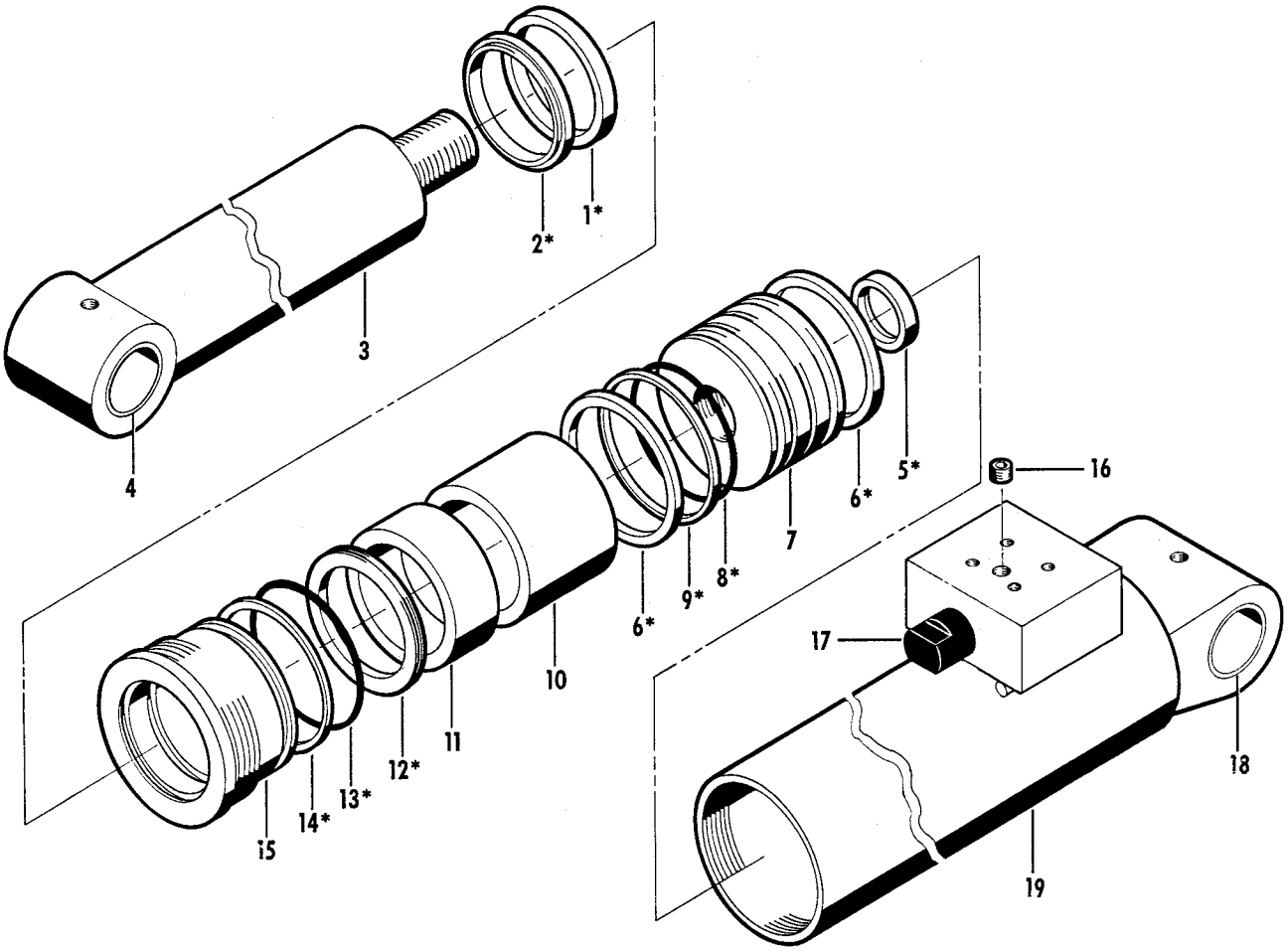


Item No.	Part No.	Description	Qty
1.	3C132820	Cylinder, Outer	1
2.	72053507	Zerk, 1/4-28 (part of 1)	2 ref
3.	52704340	Pin	1
4.	52704341	Pin	2
5.	52708394	Outer Boom	1
6.	7BF81220	Bushing (part of 5)	4 ref
7.	60106331	Plate, Pin retainer	3
8.	72053508	Zerk, 1/8 npt	2
9.	72060147	Cap screw, 5/8 x 1	3

NOTE

ANYTIME THE PIN RETAINER PLATE BOLTS (ITEM 9) HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE REASSEMBLY.

Figure D-11. Outer Boom (Part Number 41708395)



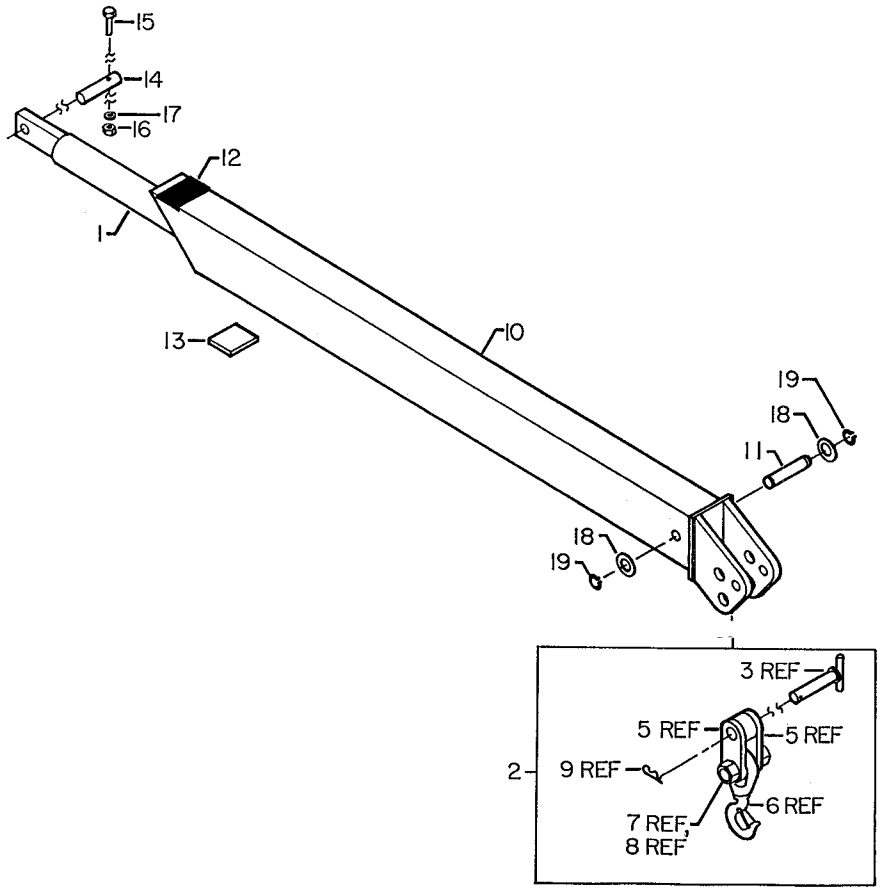
DIMENSIONS

Bore	4 1/2
Stroke	44 3/8
C-C Closed	60
Rod Diameter	3
Pin Diameter	2

Item No.	Part No.	Description	Qty
1.	7R546030	Seal, Rod	1*
2.	7R14P030	Wiper, Rod	1*
3.	4G132820	Rod	1
4.	7BF81220	Bushing (part of 3)	2 ref
5.	7T61N143	Seal, Lock ring	1*
6.	7T65i045	Ring, Piston	2*
7.	6l045143	Piston	1
8.	7Q072155	O-ring	1*
9.	7T66P045	Seal, Piston	1*
10.	6C300030	Tube, stop	1
11.	6C150030	Tube, Stop	1
12.	6A025030	Ring, Wafer lock	1*
13.	7Q072345	O-ring	1*
14.	7Q10P346	Ring, Back-up	1*
15.	6H045030	Head	1
16.	7PNPXT02	Plug, 1/8 npt (part of 19)	3 ref
17.	73054242	Valve, Counter balance	1
18.	7BF81520	Bushing(part of 19)	2 ref
19.	4C132820	Case, Cylinder	1

*Part of seal kit (Part Number 9C182423)

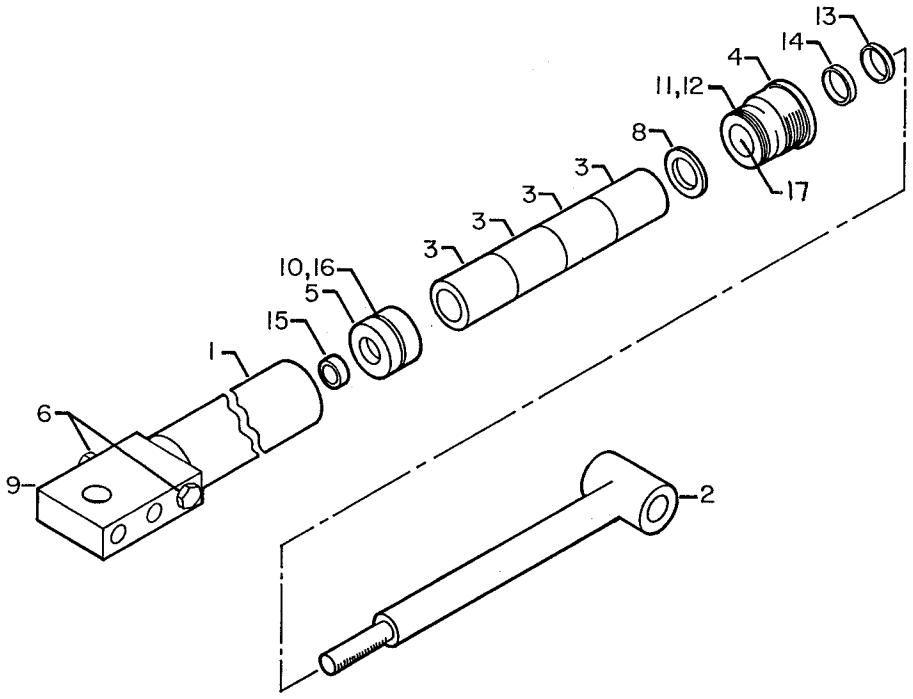
Figure D-12. Outer Cylinder (Part Number 3C132820)



ITEM	PART	DESCRIPTION	QTY
1.	3B077880	CYLINDER	1
2.	51706199	HOOK ASM (INCL:3-9)	1
3.	52070151	PIN (PART OF 2)	1REF
4.	60108857	SPACER (PART OF 2)	1REF
5.	60107324	LINK (PART OF 2)	2REF
6.	71073035	SWIVEL HOOK (PART OF 2)	1REF
7.	72601666	CAP SCR 1 1/4-7X4 (PART OF 2)	1REF
8.	72062073	NUT 1 1/4-7 LOCK (PART OF 2)	1REF
9.	72066145	HAIR PIN .19 (PART OF 2)	1REF
10.	52708393	EXTENSION BOOM	1

ITEM	PART	DESCRIPTION	QTY
11.	60010470	PIN	1
12.	60030064	WEAR PAD	1
13.	60030067	WEAR PAD	1
14.	60111956	PIN	1
15.	72060008	CAP SCR 1/4 X 2 HH GR5	1
16.	72062104	NUT 1/4-20 LOCK	1
17.	72063001	WASHER 1/4 LOCK	1
18.	72063034	MACH BUSHING 1X10GA	2
19.	72066125	RETAINING RING 1" HD	2

Figure D-13. 4817 EXTENSION BOOM (41708396)



DIMENSIONS

Bore	2 1/2"
Stroke	48"
C-C Closed	71-1/2"
Rod Diameter	1-1/2"
Pin Diameter	1"

NOTE

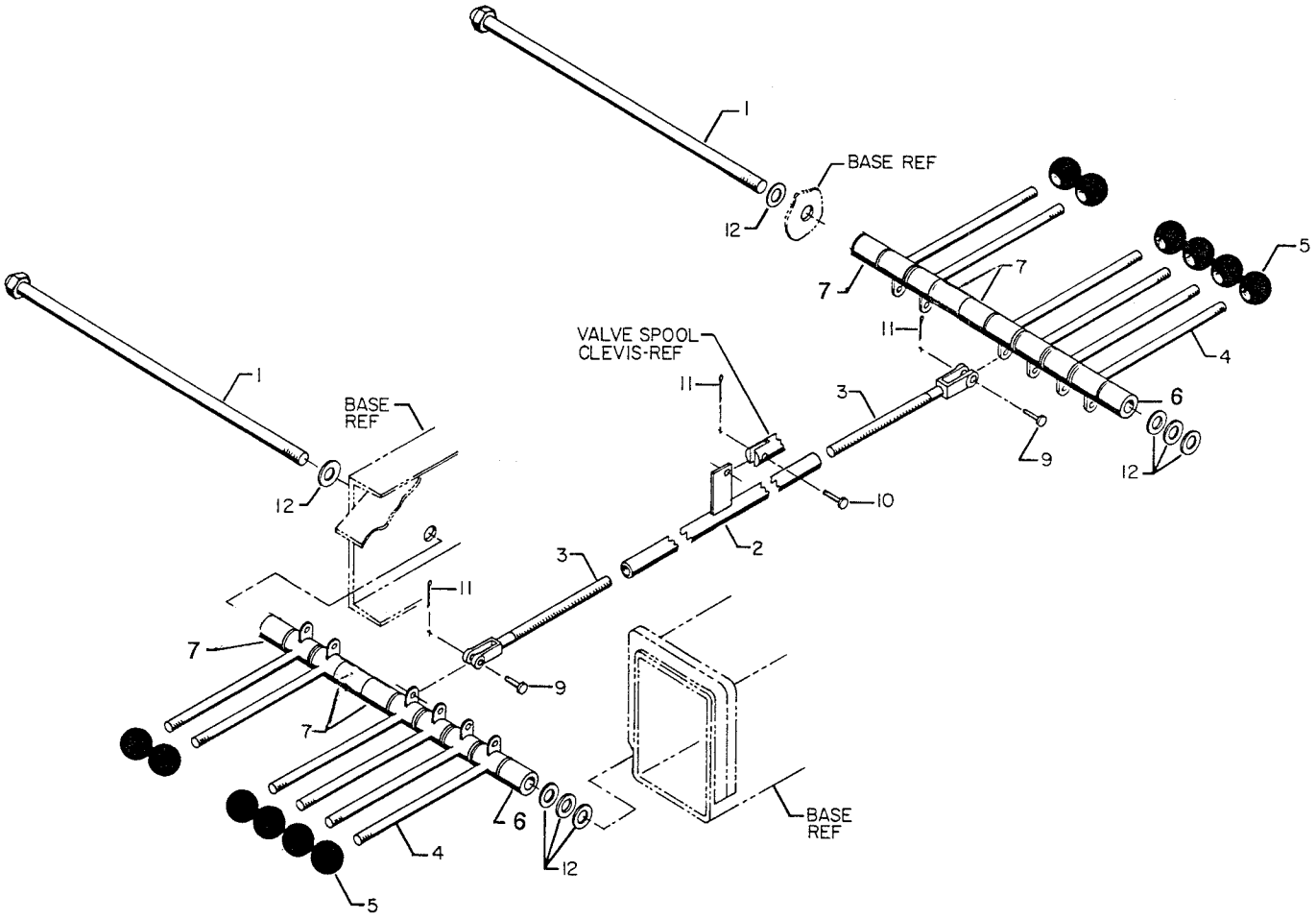
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

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.

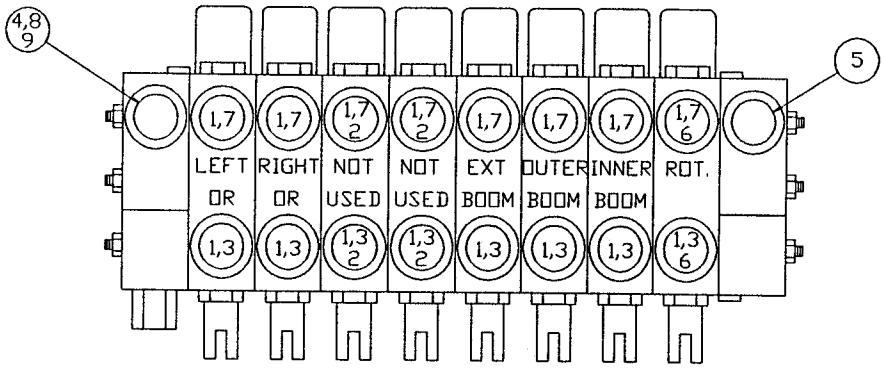
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B077880	CASE ASM (INCL:9)	1
2.	4G077880	ROD ASM	1
3.	6C300015	STOP TUBE	4
4.	6H025015	HEAD	1
5.	6I025087	PISTON	1
6.	73054304	VALVE	2
7.	9B101214	SEAL KIT (INCL:8, 10-17)	1
8.	6A025015	WAFER LOCK RING (PART OF 7)	1 REF
9.	7PNPXT02	PIPE PLUG (PART OF 1)	4 REF
10.	7Q072137	O RING (PART OF 7)	1 REF
11.	7Q072228	O RING (PART OF 7)	1 REF
12.	7Q10P228	BACK UP RING (PART OF 7)	1 REF
13.	7R14P015	ROD WIPER (PART OF 7)	1 REF
14.	7R546015	ROD SEAL (PART OF 7)	1 REF
15.	7T61N087	LOCK RING (PART OF 7)	1 REF
16.	7T66P025	PISTON SEAL (PART OF 7)	1 REF
17.	7T2N8015	WEAR RING (PART OF 7)	1REF

Figure D-14. EXTENSION CYLINDER (3B077880)



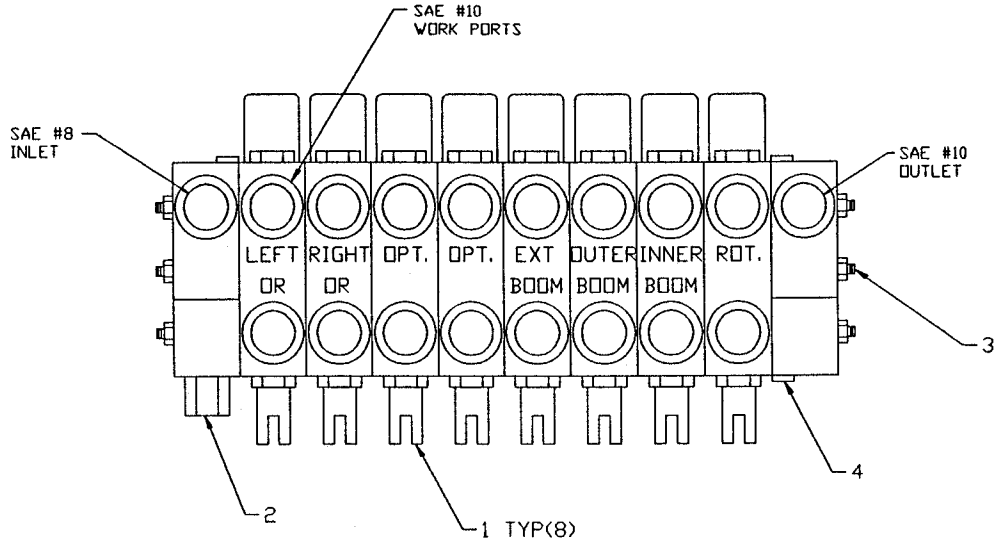
ITEM	PART	DESCRIPTION	QTY
1.	52704397	ROD-CTRL HANDLE MTG	2
2.	52704744	CONTROL ROD-F	6
3.	52704745	CONTROL ROD-M	12
4.	70029451	CONTROL HANDLE	12
5.	71039096	KNOB	12
6.	60030068	SPACER 1-3/8	2
7.	60030069	SPACER 1-3/4	6
9.	72066338	CLEVIS PIN 5/16X1	12
10.	72661169	CLEVIS PIN 5/16X3/4	6
11.	72066168	COTTER PIN 3/32X3/4	18
12.	72063119	WASHER 5/8 WRT	8

Figure D-15. CONTROL KIT (90704417)



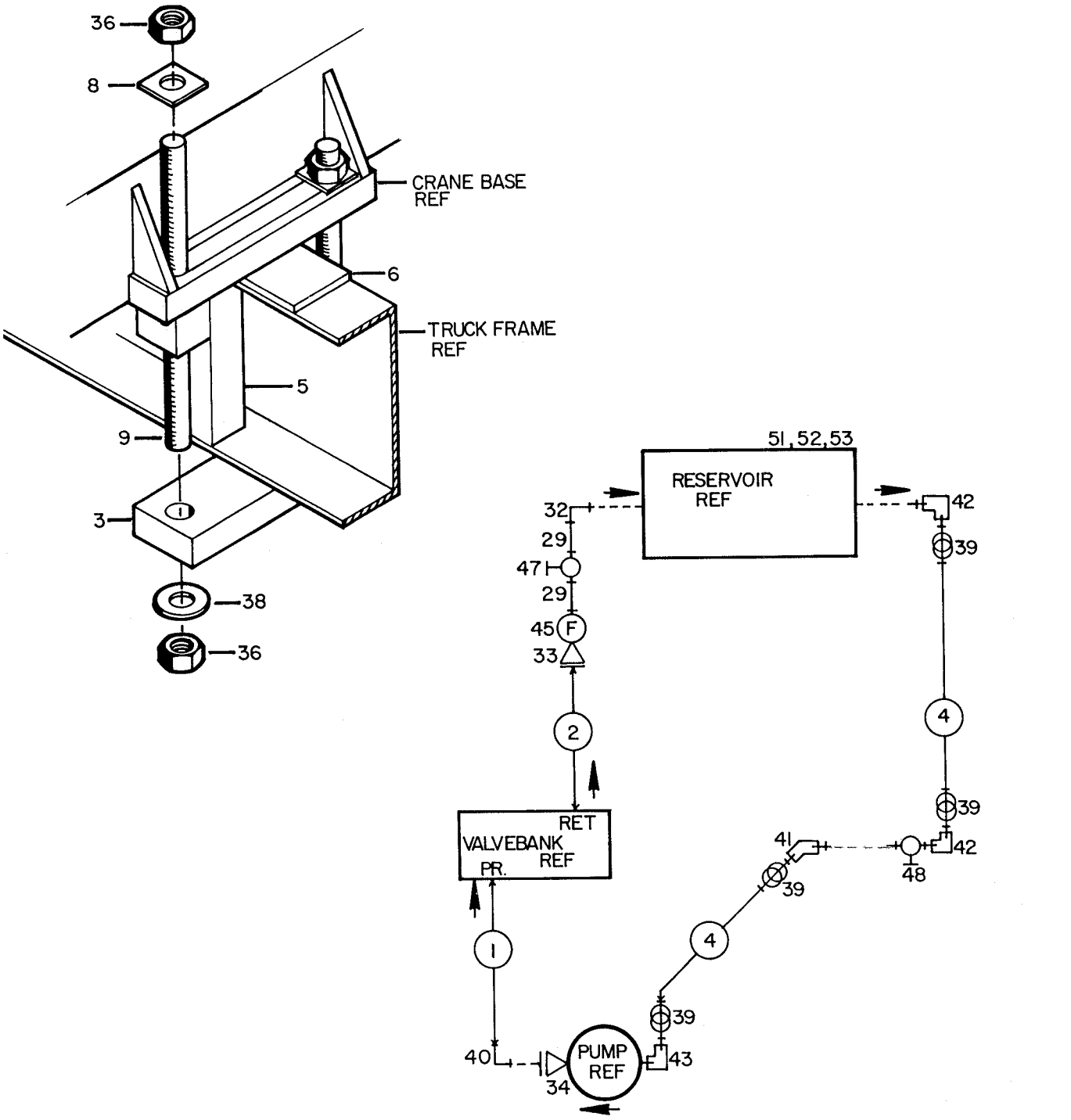
ITEM	PART NO.	DESCRIPTION	QTY
1.	72532722	ADAPTER 7/8MSTR 9/16FSTR	16
2.	72532738	CAP 9/16JIC STL	4
3.	72053760	ELBOW 9/16MSTR 9/16MJIC 90°	8
4.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	1
5.	72053766	ELBOW 7/8MSTR 1-1/16MJIC 90°	1
6.	72532707	ADAPTER 7/16MJIC 9/16FJIC	2
7.	72532700	ELBOW 9/16MSTR 9/16MJIC XLG	8
8.	72532657	TEE 3/4 SWIVEL NUT	1
9.	72532675	CAP 3/4JIC STL	1
10.	70731499	VALVEBANK 8-SECTION	1

Figure D-16. VALVEBANK ASSEMBLY-8 SECTION MANUAL (51710944)



ITEM	PART NO.	DESCRIPTION	QTY
1.	73054490	TANDEM VALVE SECTION	8
2.	73054488	END CAP LH	1
3.	94731681	TIE ROD KIT	1
4.	73731576	END CAP RH	1
5.	7Q072018	O-RING (NOT SHOWN)	18
6.	7Q072021	O-RING (NOT SHOWN)	18

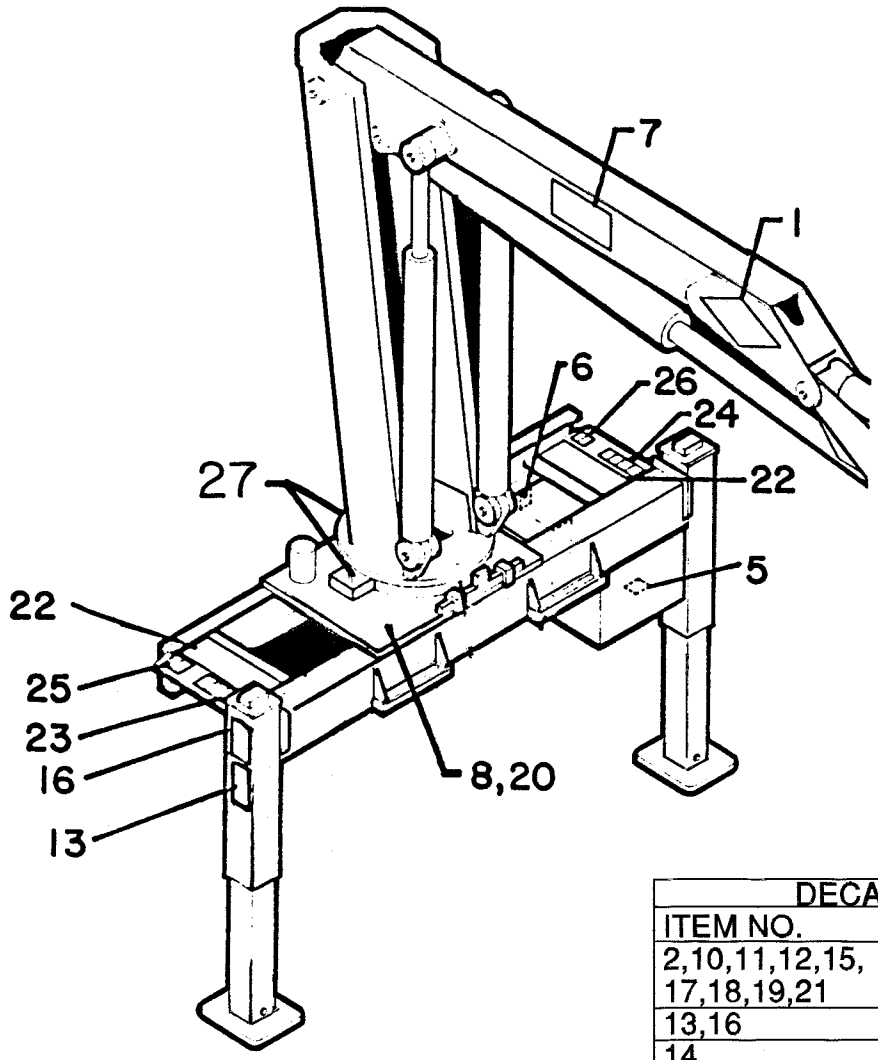
Figure D-16A. VALVE BANK (70731499)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51703939	HOSE ASM 1/2X96	1
2.	51704572	HOSE ASM 3/4X60	1
3.	60010354	CLAMP PLATE	4
4.	60035829	HOSE 1-1/4X48	2
5.	52706660	SUPPORT	4
6.	60103563	SPACER	2
8.	60107478	WASHER1" SQ	8
9.	60107829	TIE-DOWN STUD 1X18	8
29.	72053141	NIPPLE 3/4NPT X CLOSE	2
32.	72053556	STREET ELBOW 3/4MPT 90°	1
33.	72053676	ADAPTER 3/4MPT 1-1/16MJIC	1
34.	72532963	ADAPTER 1-5/16MSTR 3/4FSTR	1

ITEM	PART NO.	DESCRIPTION	QTY
36.	72062141	NUT 1" LOCK	16
38.	72063066	WASHER 1"	8
39.	72066516	HOSE CLAMP 1-1/4	4
40.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	1
41.	72531196	BARB NIPPLE 1-1/4 45°	1
42.	72532346	BARB NIPPLE 1-1/4 90°	2
43.	72532708	BARB NIPPLE 1-5/16 1-1/4 90°	1
45.	73052000	RETURN FILTER	1
47.	73054129	BALL VALVE 3/4NPT	1
48.	73054130	GATE VALVE 1-1/4NPT	1
51.	72060026	CAP SCR 5/16-18X1-1/4 HH GR5	4REF
52.	72062002	WASHER 5/16 WRT	8REF
53.	72062109	NUT 5/16-18 LOCK	4REF

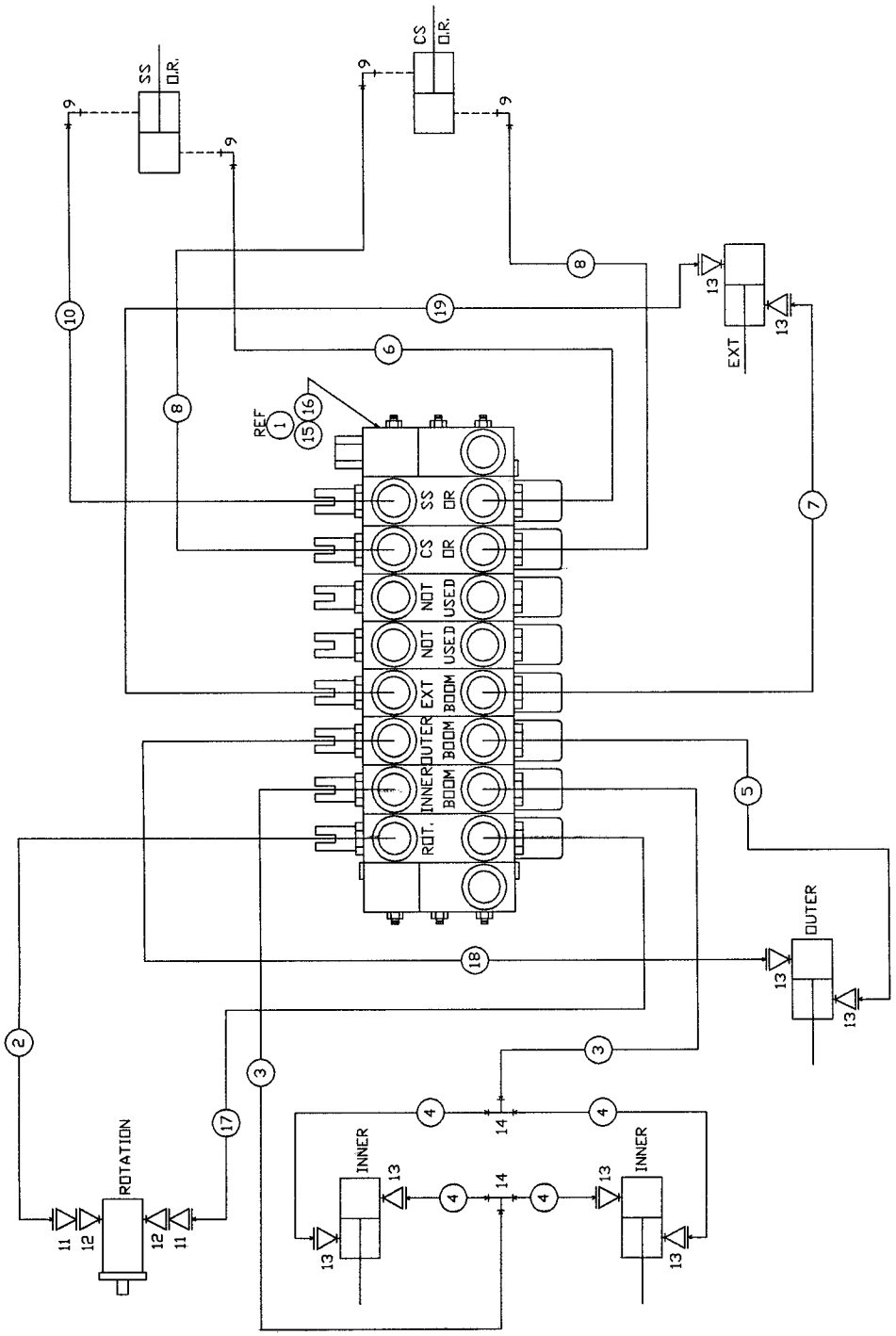
Figure D-17. INSTALLATION KIT (93708397)



DECAL PLACEMENT	
ITEM NO.	LOCATION
2,10,11,12,15, 17,18,19,21	At or near the normal operating stations.
13,16	One on each outrigger.
14	One on each side of the carrier vehicle.
9	At the turntable grease zerk.
3,4	At all grease zerks.
6	On the reservoir, at the return line.
5	On the reservoir, at the suction line.

Item No.	Part No.	Description	Qty
1.	70029251	Placard, IMT Diamond	1
2.	70391583	Decal, Setup/stow instruction	2
3.	70391612	Decal, Grease weekly, Lt.	6
4.	70391613	Decal, Grease weekly, Rt.	6
5.	70392108	Decal, Suction line	1
6.	70392109	Decal, Return line	1
7.	70392878	Decal, 4817 identification	2
8.	70392213	Decal, Caution wash/wax	1
9.	70392524	Decal, Rotate crane/grease	1
10.	70392813	Decal, Danger electrocution	2
11.	70392814	Decal, Danger operator	2
12.	70392815	Decal, Danger operation	2
13.	70392864	Decal, Danger outrgr. std. clr.	2
14.	70392865	Decal, Danger electrocution	4
15.	70392866	Decal, Danger oper. cond.	2
16.	70392867	Decal, Danger outrgr. move	2
17.	70392888	Decal, Danger oper. restrict.	2
18.	70392890	Decal, Danger stow/unfold	2
19.	70392891	Decal, Danger driveline	2
20.	70392982	Decal, Contact IMT	1
21.	71039134	Decal, Caution oil level	2
22.	71392879	Placard, Capacity, 4817	2
23.	71392255	Decal, 4825 control, Rt.	1
24.	71392256	Decal, 4825 control, Lt.	1
25.	71392257	Decal, Outrgr., Pwr, dn., Rt.	1
26.	71392258	Decal, Outrgr., Pwr. dn., Lt.	1
27.	71392365	Decal, Alignment crane rot.	1

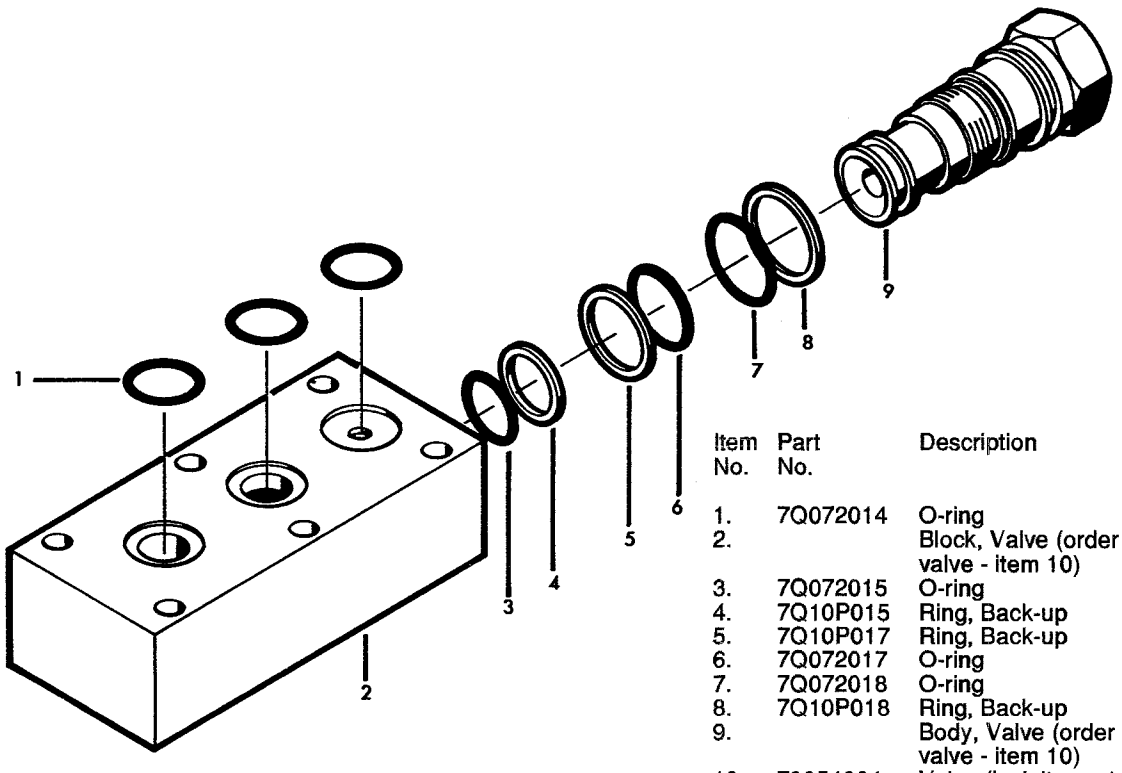
Figure D-18. Decal Kit (Part Number 95708509)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51710944	VALVEBANK ASM	1REF
2.	51705893	HOSE ASM 1/4X46 FF	1
3.	51704579	HOSE ASM 3/8X30 FF	2
4.	51704580	HOSE ASM 3/8X23 FF	4
5.	51704581	HOSE ASM 3/8X108 FF	1
6.	51705892	HOSE ASM 3/8X102 FF	1
7.	51704582	HOSE ASM 3/8X209 FF	2
8.	51704807	HOSE ASM 3/8X80 FF	2
9.	72532700	ELBOW 9/16MSTR 9/16MJIC XLG	4
10.	51705895	HOSE ASM 3/8X96 FF	1

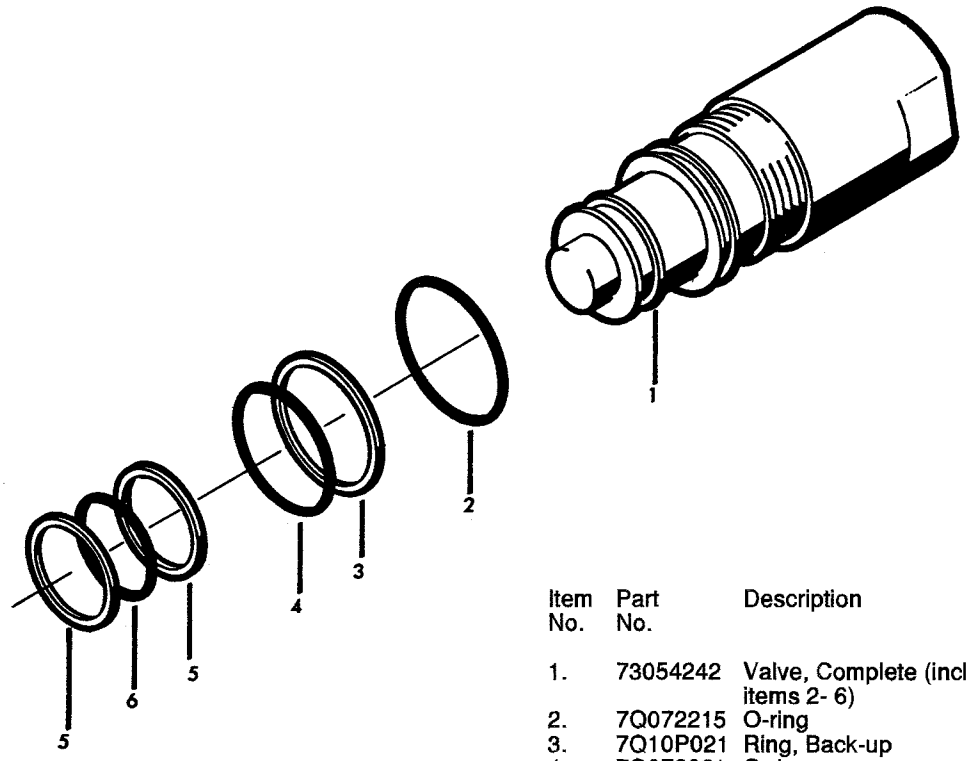
ITEM	PART NO.	DESCRIPTION	QTY
11.	72532353	ADAPTER 9/16MSTR 7/16MJIC	2
12.	72532722	ADAPTER 7/8MSTR 9/16FSTR	2
13.	72532358	ADAPTER 3/4MSTR 3/4MJIC	8
14.	72531205	TEE 3/4-16MJIC 1/2TUBE	2
15.	72062103	NUT 3/8-16 LOCK	3
16.	72060048	CAP SCR 3/8-16X1-1/2 HHGR5	3
17.	51705894	HOSE ASM 1/4X48 FF	1
18.	51705891	HOSE ASM 3/8X102 FF	1
19.	51704583	HOSE ASM 1/2X209 FF	1

Figure D-19. HYDRAULIC KIT (90708398)



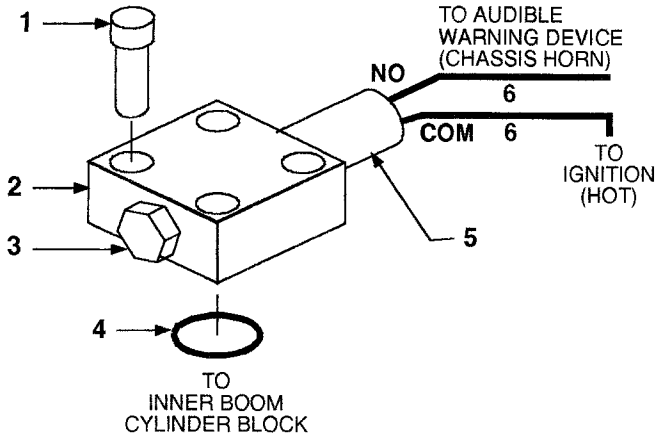
Item No.	Part No.	Description	Qty
1.	7Q072014	O-ring	3
2.		Block, Valve (order complete valve - item 10)	1
3.	7Q072015	O-ring	1
4.	7Q10P015	Ring, Back-up	1
5.	7Q10P017	Ring, Back-up	1
6.	7Q072017	O-ring	1
7.	7Q072018	O-ring	1
8.	7Q10P018	Ring, Back-up	1
9.		Body, Valve (order complete valve - item 10)	1
10.	73054004	Valve (incl. items 1- 9)	1

Figure D-20. Locking /Holding Valve (Part Number 73054004)



Item No.	Part No.	Description	Qty
1.	73054242	Valve, Complete (includes items 2- 6)	1
2.	7Q072215	O-ring	1
3.	7Q10P021	Ring, Back-up	1
4.	7Q072021	O-ring	1
5.	7Q072020	O-ring	1
6.	7Q10P020	Ring, Back-up	2

Figure D-21. 25-GPM Counter-Balance /Holding Valve (Part Number 73054242)

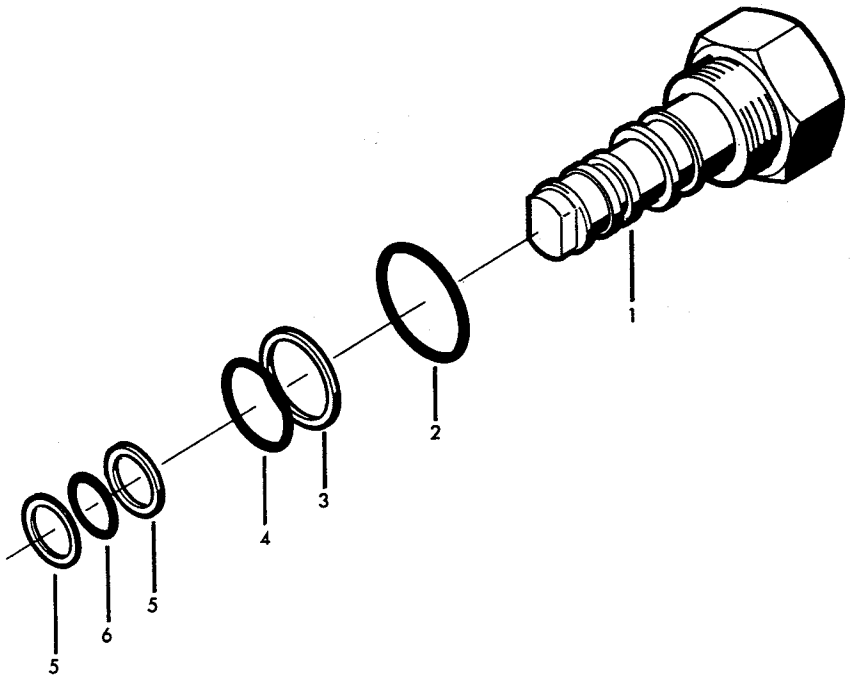


NOTE

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.

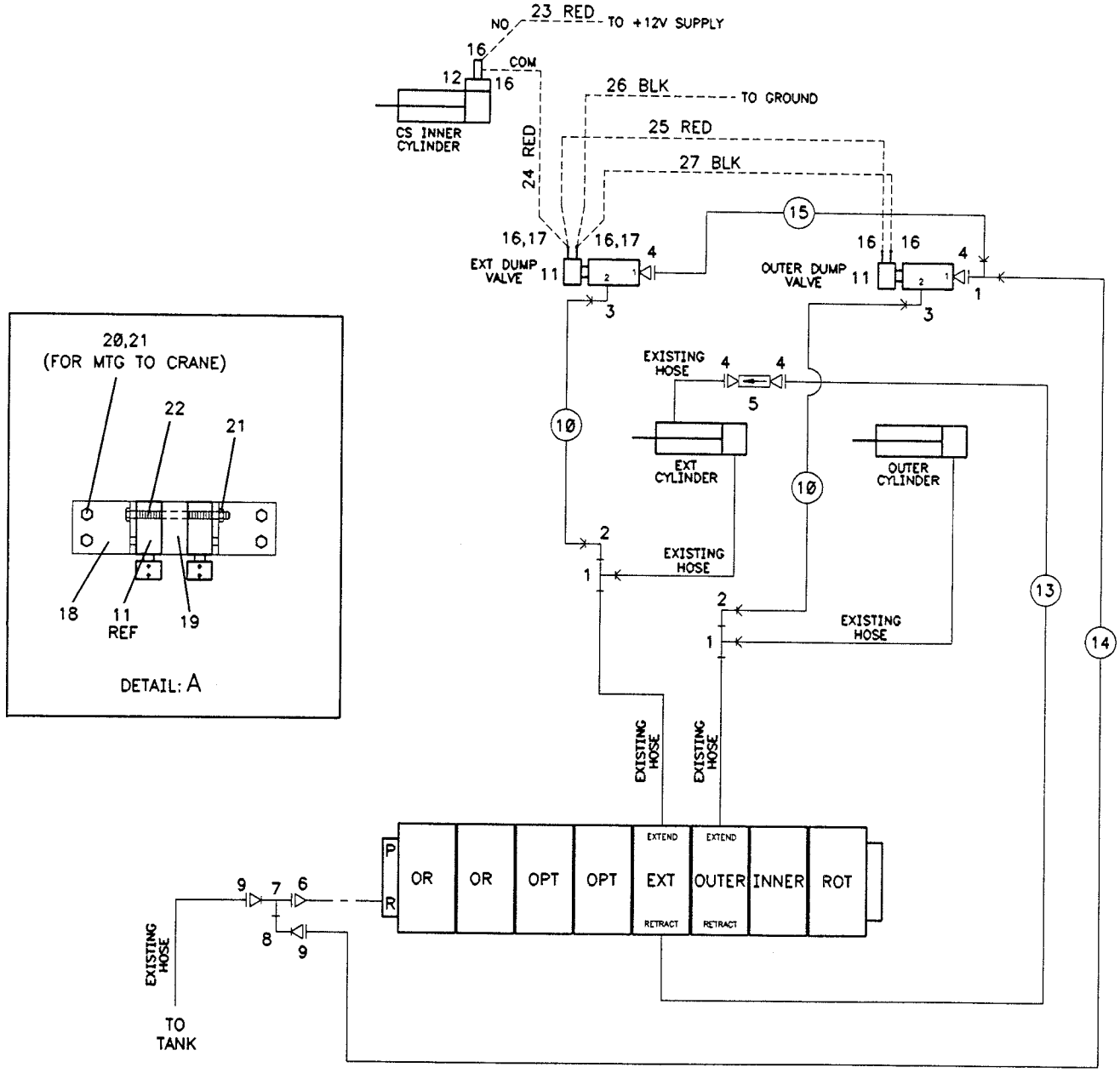
ITEM	PART NO.	DESCRIPTION	QTY
1.	72060731	CAP SCR 5/16-18X3/4 SH	4
2.	60025221	MANIFOLD	1
3.	72532140	PLUG 9/16-18 STR THD HH	1
4.	7Q072015	O-RING	1
5.	77041283	PRESSURE SWITCH	1
6.	89044188	WIRE-14GA (Customer Supplied)	REF
7.	99900118	INSTALLATION DWG	1

Figure D-21A. CAPACITY ALERT KIT - AUDIBLE (31705698)



ITEM	PART NO.	DESCRIPTION	QTY
1.	73054304	VALVE, COMPLETE (INCL. ITEMS 2 THRU 6)	1
2.	7Q073912	O-RING	1
3.	7Q10P018	RING, BACK-UP	1
4.	7Q072018	O-RING	1
5.	7Q10P015	RING, BACK-UP	2
6.	7Q072016	O-RING	1

Figure D-22. 10-GPM COUNTER-BALANCE/ HOLDING VALVE (73054304)



ITEM	PART NO.	DESCRIPTION	QTY
1.	72532657	TEE 3/4JIC SWVL NUT RUN	3
2.	72532658	ELBOW #8MJIC #8FJIC	2
3.	72053763	ELBOW #8MSTR #8MJIC 90°	2
4.	72532358	ADAPTER #8MSTR #8MJIC	4
5.	73054426	RELIEF VALVE - ADJ	1
6.	72053676	ADAPTER 3/4MPT #12MJIC	1
7.	72532950	TEE 1-1/16JIC SWVL NUT RUN	1
8.	72532696	ELBOW #12MJIC #12FJIC SWVL	1
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51703863	HOSE ASM 3/8X14 FF	2
11.	73054576	SOLENOID VALVE	2
12.	31705698	KIT-CAPACITY ALERT (ELECT)	1
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51704914	HOSE ASM 3/8X60 FF	1
15.	51703701	HOSE ASM 3/8X10 FF	1
16.	77040186	TERM-FSLPON 1/4TAB 16-14GA	6
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	2
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	1
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	6
22.	72060017	CAP SCR 1/4-20X4-1/2 HH GR5	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	1
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	1

NOTES:

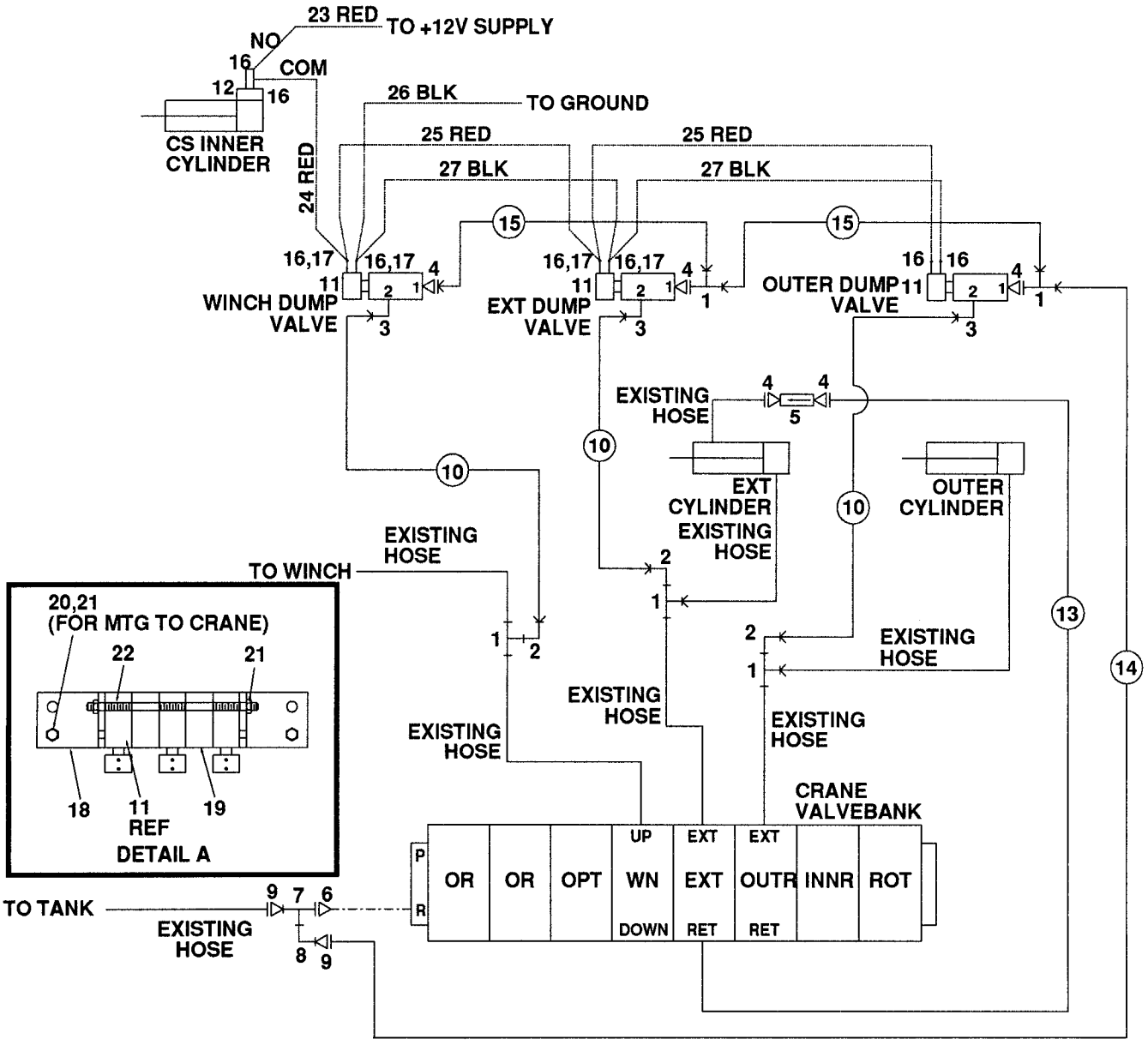
1. FUNCTION OF SYSTEM IS SUCH THAT WHEN THE INNER CYLINDERS ARE OVERLOADED, THE PRESSURE SWITCH WILL ACTIVATE THE SOLENOID DUMP VALVE(S); THUS DUMPING OIL TO "TANK" INSTEAD OF THE OUTER CYLINDER "EXTEND", EXTENSION CYLINDER "EXTEND", OR WINCH "UP" FUNCTIONS WHICH WILL NOT ALLOW PRESSURE TO BUILD FOR THESE FUNCTIONS. THIS SYSTEM IS BASED ON THE FACT THAT THE OILL WILL TAKE THE PATH OF LEAST RESISTANCE.

2. THE FUNCTIONS THAT ARE SHUT DOWN, IF OVERLOADED, ARE THE FOLLOWING:
   A. OUTER BOOM "EXTEND"
   B. EXTENSION CYLINDER "EXTEND"

3. INSTALL A RELIEF (PART NO. 73054426, 700PSI) IN LINE OF THE RETRACT SIDE OF THE EXTENSION CYLINDER TO CREATE BACK PRESSURE SO EXTENSION CYLINDER WILL NOT EXTEND WHEN THE DUMP SYSTEM IS ACTIVATED.

4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A).

Figure D-23. OPTION-HYDRAULIC OVERLOAD KIT 2-FUNCTION (51710922)



ITEM	PART NO.	DESCRIPTION	QTY
1.	72532657	TEE 3/4JIC SWVL NUT RUN	5
2.	72532658	ELBOW #8MJIC #8FJIC	3
3.	72053763	ELBOW #8MSTR #8MJIC 90°	3
4.	72532358	ADAPTER #8MSTR #8MJIC	5
5.	73054426	RELIEF VALVE - ADJ	1
6.	72053676	ADAPTER 3/4MPT #12MJIC	1
7.	72532950	TEE 1-1/16JIC SWVL NUT RUN	1
8.	72532696	ELBOW #12MJIC #12FJIC SWVL	1
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51703863	HOSE ASM 3/8X14 FF	3
11.	73054576	SOLENOID VALVE	3
12.	31705698	KIT-CAPACITY ALERT (ELECT)	1
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51704914	HOSE ASM 3/8X60 FF	1
15.	51703701	HOSE ASM 3/8X10 FF	2
16.	77040186	TERM-FSLPON 1/4TAB 16-14GA	6
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	4
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	2
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	8
22.	60117338	THREADED ROD 1/4-20X6-1/2	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	2
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	2

NOTES:

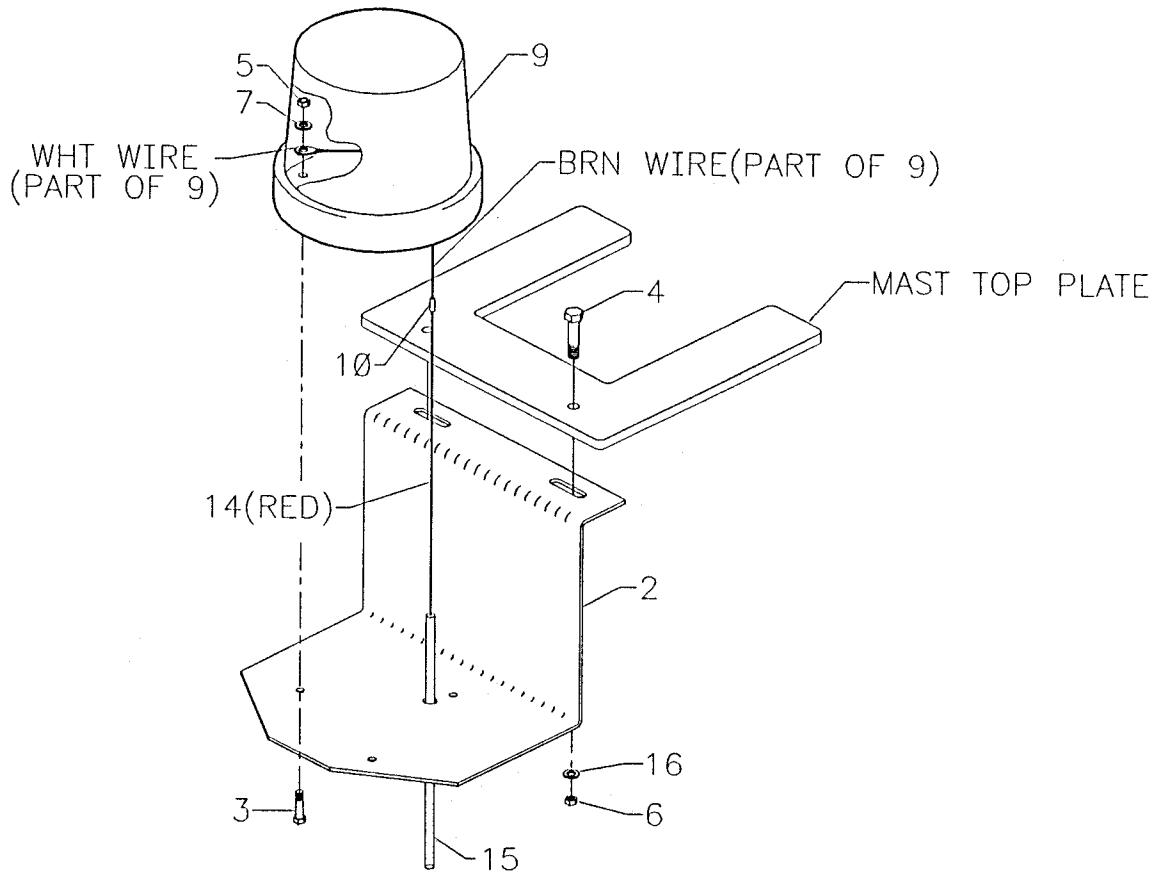
1. FUNCTION OF SYSTEM IS SUCH THAT WHEN THE INNER CYLINDERS ARE OVERLOADED, THE PRESSURE SWITCH, MOUNTED ON THE INNER CYLINDER, WILL ACTIVATE THE SOLENOID DUMP VALVE(S); THUS DUMPING OIL TO "TANK" INSTEAD OF THE OUTER CYLINDER "EXTEND", EXTENSION CYLINDER "EXTEND", OR WINCH "UP" FUNCTIONS WHICH WILL NOT ALLOW PRESSURE TO BUILD FOR THESE FUNCTIONS. THIS SYSTEM IS BASED ON THE FACT THAT THE OIL WILL TAKE THE PATH OF LEAST RESISTANCE.

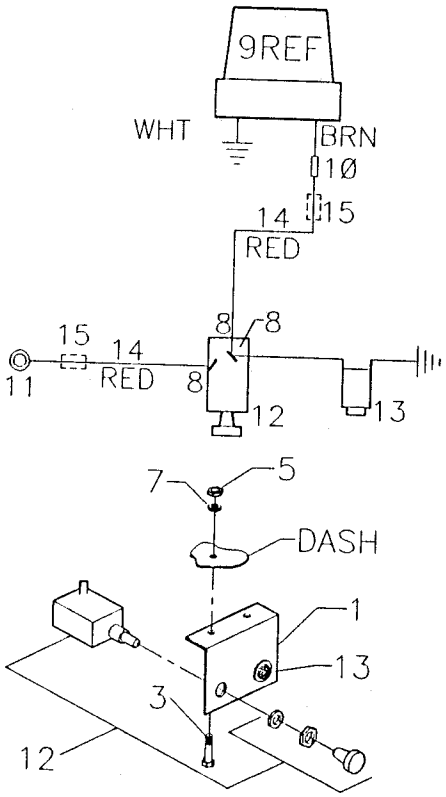
2. THE FUNCTIONS THAT ARE SHUT DOWN, IF OVERLOADED, ARE THE FOLLOWING:
   A. OUTER BOOM "EXTEND"
   B. EXTENSION CYLINDER "EXTEND"
   C. WINCH "UP"

3. INSTALL A RELIEF (PART NO. 73054426, 700PSI) IN LINE OF THE RETRACT SIDE OF THE EXTENSION CYLINDER TO CREATE BACK PRESSURE SO EXTENSION CYLINDER WILL NOT EXTEND WHEN THE DUMP SYSTEM IS ACTIVATED.

4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A).

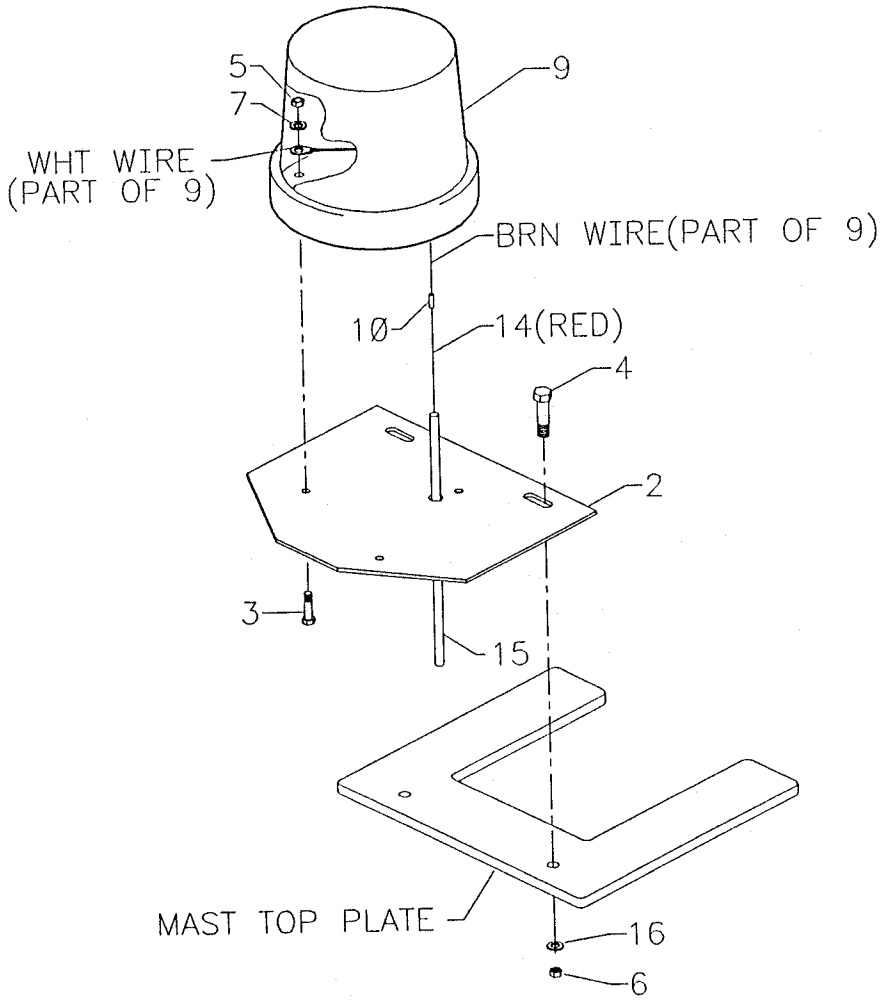
Figure D-24. OPTION-HYDRAULIC OVERLOAD KIT 3-FUNCTION (51710923)

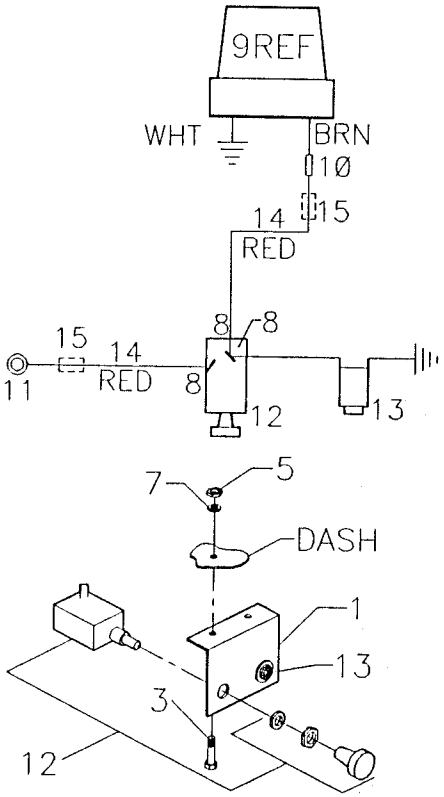




ITEM	PART NO.	DESCRIPTION	QTY
1.	60103464	DASH BRACKET	1
2.	60116337	BRACKET-LOW MOUNT	1
3.	72060004	CAP SCR 1/4-20X1 HH GR5	5
4.	72060048	CAP SCR 3/8-16X1-1/2 HH GR5	2
5.	72062000	NUT 1/4-20 HEX	5
6.	72062002	NUT 3/8-16 HEX	2
7.	72063049	WASHER 1/4 LOCK	5
8.	77040000	TERMINAL RING #10 16-14GA	3
9.	77040013	BEACON LIGHT-AMBER	1
10.	77040048	BUTT CONNECTOR 16-14GA	1
11.	77040053	TERMINAL RING 1/4 12-10GA	1
12.	77041014	SWITCH-PUSH/PULL W/FUSE	1
13.	77042001	INDICATOR LIGHT-RED	1
14.	89044001	WIRE 14GA	18FT
15.	89044056	LOOM .31 ID	18FT
16.	72063051	WASHER 3/8 LOCK	2

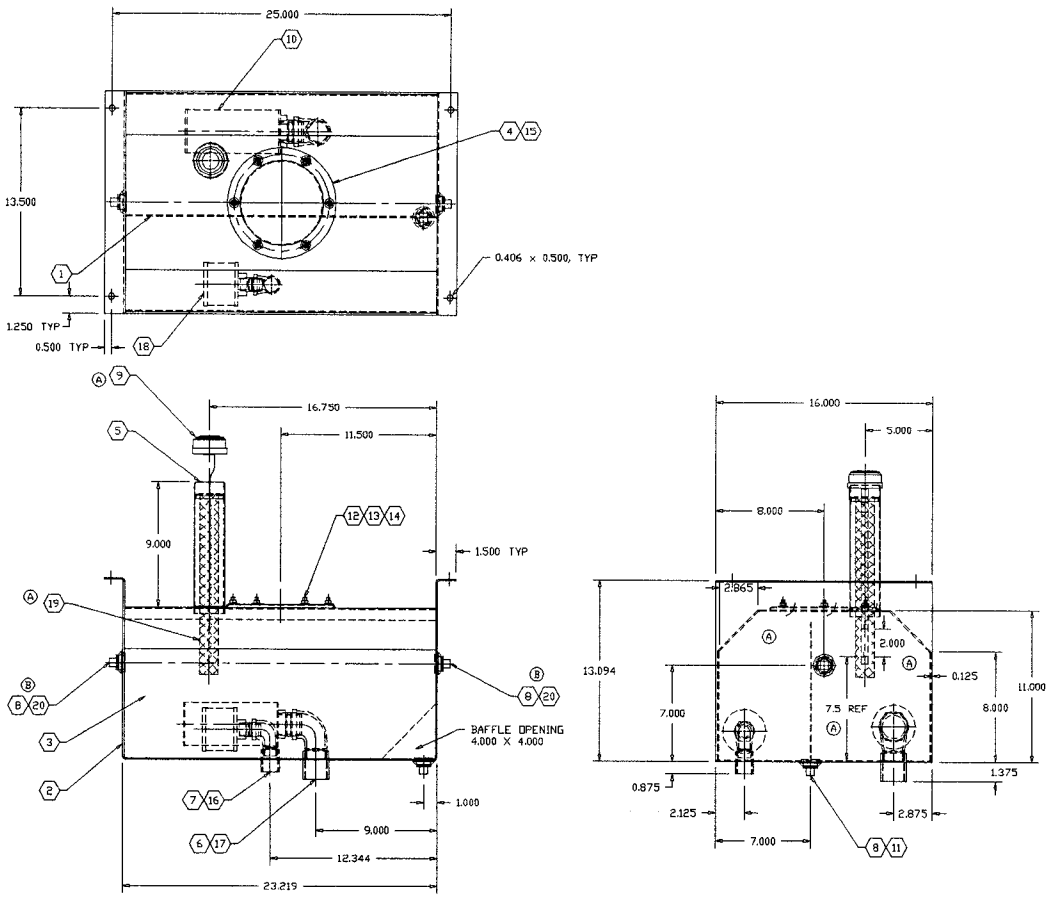
Figure D-25. BEACON LIGHT KIT-LOW MOUNT (51710948)





ITEM	PART NO.	DESCRIPTION	QTY
1.	60103464	DASH BRACKET	1
2.	60112305	BRACKET-HIGH MOUNT	1
3.	72060004	CAP SCR 1/4-20X1 HH GR5	5
4.	72060048	CAP SCR 3/8-16X1-1/2 HH GR5	2
5.	72062000	NUT 1/4-20 HEX	5
6.	72062002	NUT 3/8-16 HEX	2
7.	72063049	WASHER 1/4 LOCK	5
8.	77040000	TERMINAL RING #10 16-14GA	3
9.	77040013	BEACON LIGHT-AMBER	1
10.	77040048	BUTT CONNECTOR 16-14GA	1
11.	77040053	TERMINAL RING 1/4 12-10GA	1
12.	77041014	SWITCH-PUSH/PULL W/FUSE	1
13.	77042001	INDICATOR LIGHT-RED	1
14.	89044001	WIRE 14GA	18FT
15.	89044056	LOOM .31 ID	18FT
16.	72063051	WASHER 3/8 LOCK	2

Figure D-26. BEACON LIGHT KIT-HIGH MOUNT (51708392)

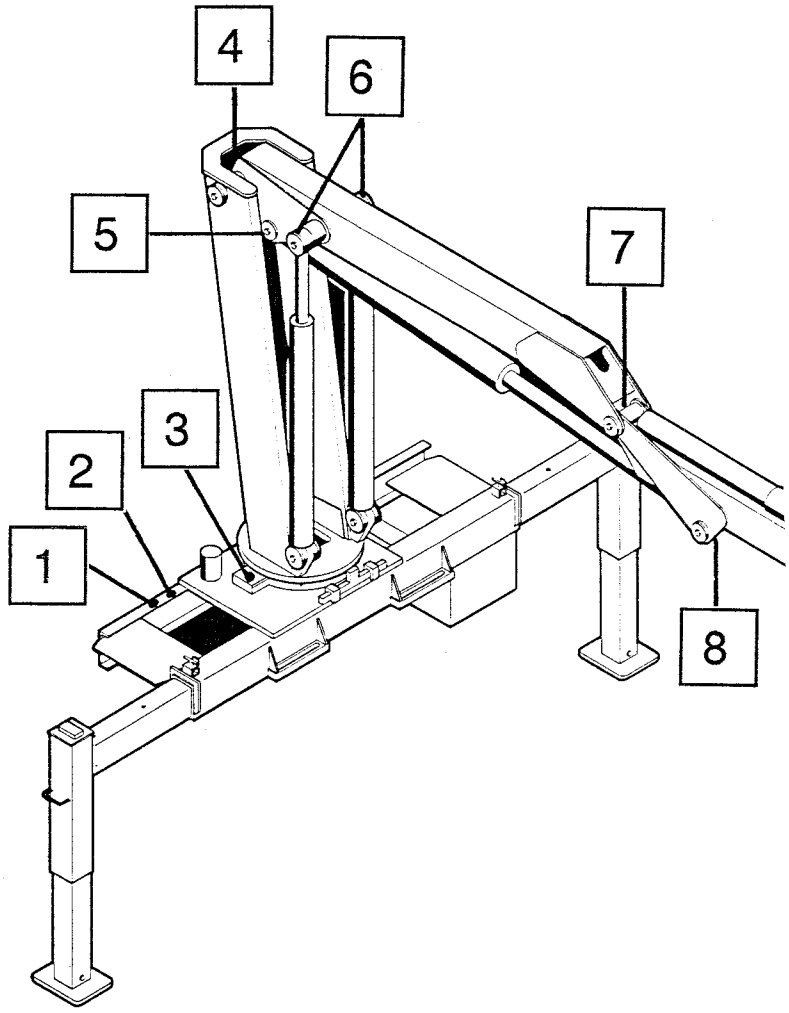


ITEM	PART NO.	DESCRIPTION	QTY
1.	*	BAFFLE	
2.	*	SHELL	
3.	*	SHELL	
4.	70144163	COVER	1
5.	*	FILLNECK ASM	
6.	*	PIPE ASM 1-1/4NPT	
7.	*	PIPE ASM	
8.	*	FLANGE	
9.	70732790	DIPSTICK ASM	1
10.	70144326	STRAINER 100MESH	1
11.	73052001	PLUG 3/4FPT SQHD MAGNETIC	1
12.	*	WELD STUD	
13.	*	NUT 1/4-28 HEX	
14.	*	WASHER 1/4 FLAT	
15.	76393565	O-RING	1
16.	*	PLASTIC CLOSURE	
17.	*	PLASTIC CLOSURE	
18.	70034410	DIFFUSER 3/4NPT	1
19.	70732793	SCREEN 100MESH	1
20.	*	PLUG 3/4FPT SQHD	

* NOT AVAILABLE SEPARATELY.

Figure D-27. RESERVOIR ASSEMBLY 15.5 GALLON (70732573)

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	SHELL	
4.	MAST/INNER BOOM HINGE PIN	ALVANIA 2EP	
5.	OUTER CYLINDER BASE	OR	
6.	INNER CYLINDER ROD	SHELL	WEEKLY
7.	INNER BOOM/OUTER BOOM HINGE PIN	RETINAX	
8.	OUTER CYLINDER ROD	"A"	

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 PLAIN (LB FT)	SAE J429 GRADE 5 PLATED (LB FT)	SAE J429 GRADE 8 PLAIN (LB FT)	SAE J429 GRADE 8 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 PLAIN (LB FT)	SAE J429 GRADE 5 PLATED (LB FT)	SAE J429 GRADE 8 PLAIN (LB FT)	SAE J429 GRADE 8 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.

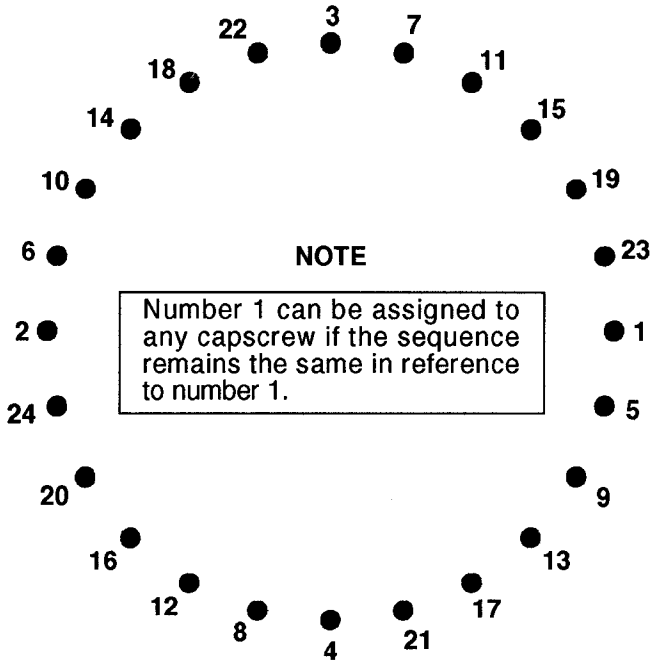
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special 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 fatique 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.

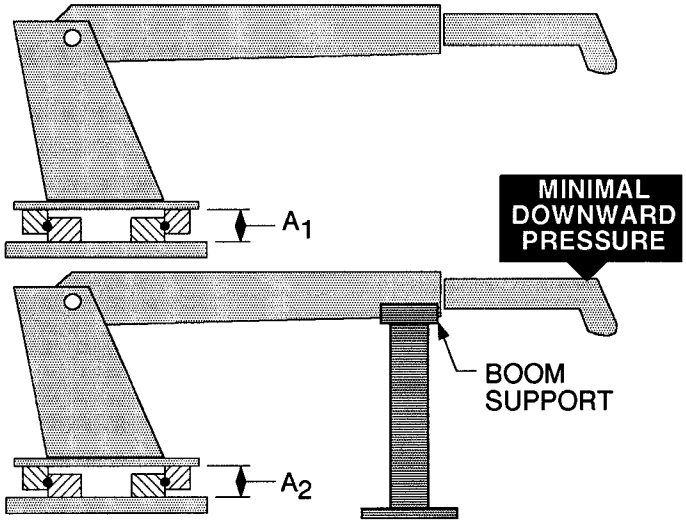
Periodic readings indicating a steady increase in TILT may be an indicator of bearing wear. Note that a bearing found to have no raceway cracks or other structural irregularities should be reassembled and returned to service.

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 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 no 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.

Page No.	Item No.	Part No.	Description	Qty
4-3.	21.	60020114	Bushing, Top pinion gear	1
4-3.	22.	60020115	Bushing, Top drive gear	1
4-3.	23.	60020116	Bushing, Bottom drive gear	1
4-3.	24.	60020154	Bushing, Bottom pinion gear	1
4-3.	25.	71056011	Gear, Drive	1
4-3.	26.	71056001	Gear-Bearing, turntable	1
4-3.	27.	71056010	Gear, Pinion	1
4-3.	28.	71056012	Gear, Intermediate	1
4-3.	36.	73051384	Motor, Hydraulic	1
4-4.	9.	9B101214	Seal Kit, Outrigger cylinder	2
4-4.	5.	73054004	Valve, Locking holding	2
4-6.	---	9B050608	Seal Kit, Power-out outrigger cylinder	2
4-7.	2.	7BF81520	Bushing, Inner cylinder/mast	2
4-7.	4.	7BF81220	Bushing, Inner boom/inner boom	6
4-8.	---	9C141820	Seal Kit, Inner cylinder	2
4-8.	8.	7BF81020	Bushing, inner cylinder	4
4-8.	9.	73054242	Valve, counter balance	1
4-9.	6.	7BF81220	Bushing, Inner boom/outer boom	4
4-10.	---	9C182423	Seal Kit, Outer cylinder	1
4-10.	4.	7BF81220	Bushing, Outer cylinder	2
4-10.	17.	73054242	Valve, Counter balance	1
4-10.	18.	7BF81520	Bushing, Outer cylinder	2
4-11.	12.	60030064	Pad, Wear	1
4-11.	13.	60030067	Pad, Wear	1
4-12.	6.	73054304	Valve, Counter balance	2
4-12.	7.	9B101214	Seal Kit, Extension cylinder	1
		73052006	Element, return filter	1
		73052014	Element, Suction filter	1

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 4817 Crane	MANUAL PART NO. 99900317-2/91
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 50438-0189
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 occurence.

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

IOWA MOLD TOOLING Co., Inc.
BOX 189, GARNER, IA 50438-0189
TEL: 515-923-3711
PRODUCT SUPPORT FAX: 515-923-3674