



Volume 2  
Parts and Specifications  
**Model 5000 CRANE**

**IOWA MOLD TOOLING CO., INC.**

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MANUAL PART NUMBER 99900270

# Introduction - Read Carefully!

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

- SECTION 1. OPERATION
- SECTION 2. MAINTENANCE
- SECTION 3. REPAIR
- SECTION 4. INSPECTION & TEST REPORT
- SECTION 5. INSTALLATION - CHASSIS PREPARATION
- SECTION 6. APPENDIX

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

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

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

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

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

ANSI/ASME B30.22-1987  
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

Reach (from centerline of rotation)	9'-0" (2.74m)
Extension	40" (1.02m)
*Lifting Height	17'-2" (5.23m)
*Crane Storage Height	9'-10" (3.0m)
Crane Weight (including crane well)	1125 lbs (510.3 kg)
Mounting Space Required for crane base	44" x 30" (111.8cm x 76.2cm)
Optimum Pump Capacity	1-1/2 U.S. GPM (5.7 liters/min)
Oil Reservoir Capacity	3 U.S. gallons (11.4 liters)
Design Factor (based on rated capacities)	
Structural Materials	3/1
Critical Areas - Pins and Hydraulics	4/1

\* Based on truck bed height of 36" (91.4cm).

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

5'-8" (1.73m)	5000 lbs (2268 kg)
9'-0" (2.74m)	3100 lbs (1406 kg)

## 1-3. PERFORMANCE CHARACTERISTICS

Rotation: 270° (4.71 Rad.)	15 seconds
Optional Rotation System: 360° (6.28 Rad.)	20 seconds
Lower Boom Elevation: -90° to +53° (-1.57 Rad. to +0.92 Rad.)	90 seconds
Extension Boom: 40" (101.6cm)	22 seconds

\* Times are based on a 1-1/2 GPM (5.7 liters/minute) optimum oil flow.

## 1-4. CYLINDERS

	Bore	Stroke
Lower Boom Cylinder	4-1/2" (11.4cm)	33" (83.8cm)
Extension Boom Cylinder	2" (5.1cm)	40" (101.6cm)
270° Rotation	3" (7.6cm)	15" (38.1cm)
360° Rotation (optional)	3" (7.6cm)	19" (48.3cm)

## 1-5. POWER SOURCE

Power is supplied to the electric motor by a solenoid connected to the 12 VDC truck battery. The chassis must be equipped with a 4000 watt Delco Freedom battery (or equivalent) connected in parallel to the chassis' standard heavy-duty battery. The chassis must also be equipped with a heavy-duty alternator (63 amp for GM vehicles and 60 amp for Ford vehicles).

## 1-6. ROTATION SYSTEM

Rack and pinion method of rotation powered by two single acting hydraulic cylinders.

## 1-7. ELECTRO-HYDRAULIC SYSTEM

Open-centered, full-pressure system that requires 1-1/2 GPM (5.7 liters/minute) optimum oil flow at 1500 PSI (103.4 bar). Three spool valvebank operated by remote control with a 15' (4.57m) cable, includes hydraulic oil reservoir, suction line strainer, hydraulic pump and control valve. System release pressure is set at 2200 PSI (151.7 bar).

## 1-8. MINIMUM CHASSIS SPECIFICATIONS

Body Style	Conventional Cab	Conventional Cab
Wheelbase	137" to 161"	(348cm to 409cm)
Cab-to-axle	60" to 80"	(152cm to 203cm)
* Frame Section Modulus	9.44 in <sup>3</sup>	(154.5cc)
* RBM	340,000 in-lbs	(3911 kg-m)
Front Axle Rating	3850 lbs	(1746 kg)
Rear Axle Rating	7400 lbs	(3356 kg)
Transmission	4-speed	4-speed

In addition to these specifications, a heavy-duty battery and alternator are required. It is recommended that the vehicle have power steering and dual rear wheels.

*IMT reserves the right to change specifications without notice.*

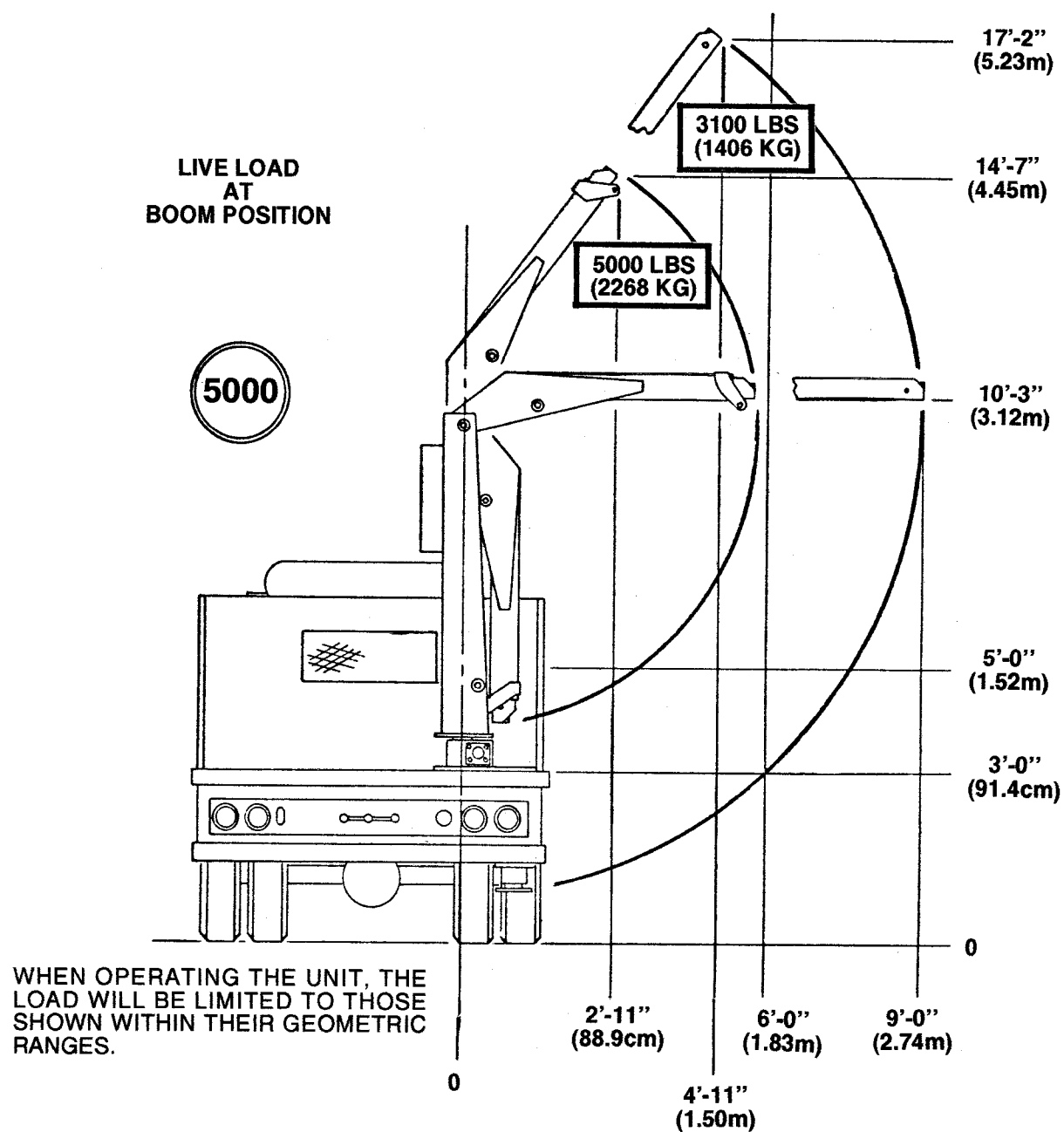


Figure A-1. CAPACITY CHART

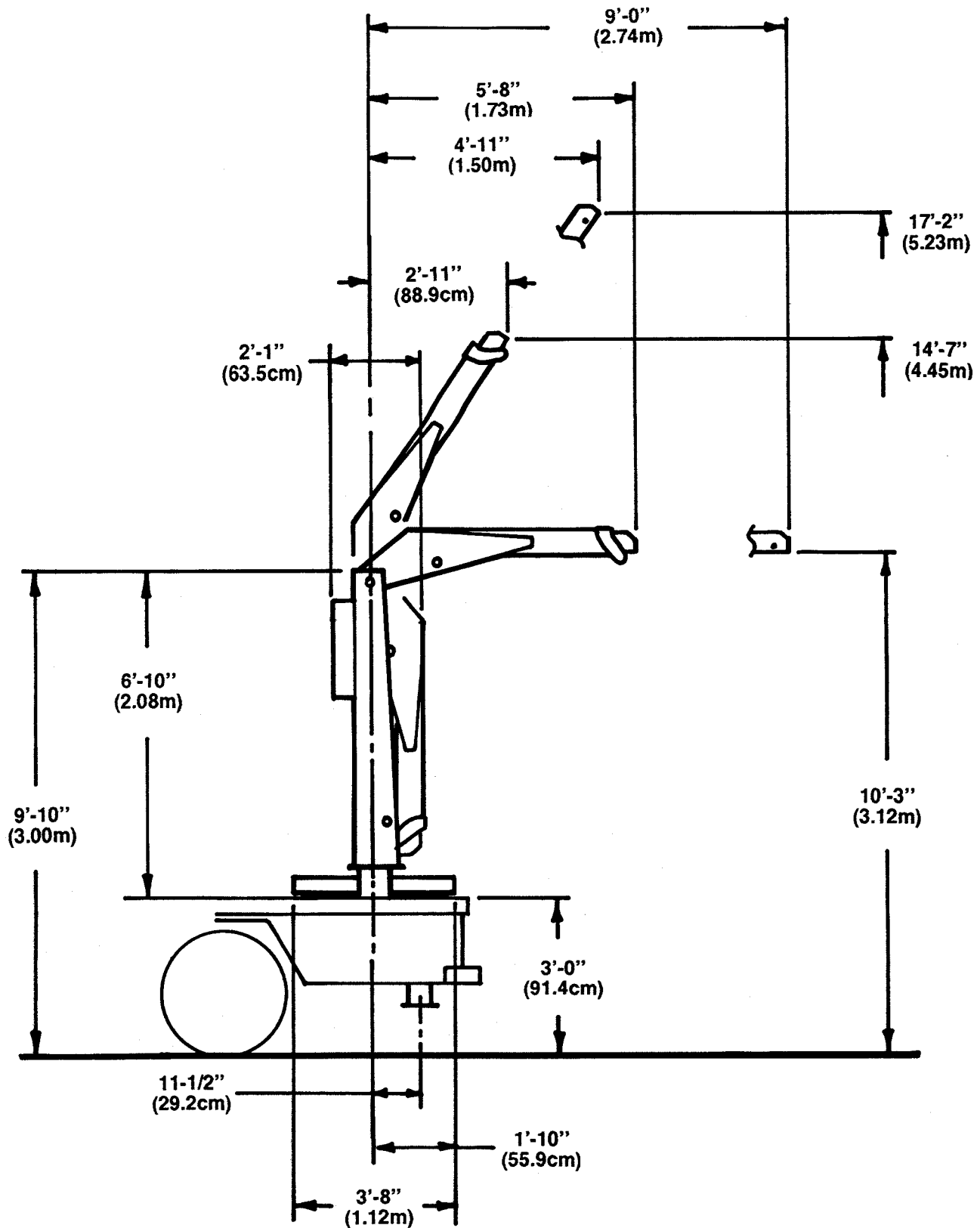


Figure A-2. GEOMETRIC CONFIGURATION



## Section 2. CRANE DESCRIPTION

### 2-1. GENERAL

The Model 5000 Crane is designed primarily as a tire service crane. This section describes the major assemblies available with this crane. Figure B-1 illustrates the locations of the assemblies.

### 2-2. BASE

The base provides a platform for mounting the crane to the truck body. It incorporates a 270° (4.71 Rad.) rack and pinion rotation mechanism. A 360° (6.28 Rad.) rotation system is available as an option.

### 2-3. MAST

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

### 2-4. LOWER BOOM

The lower boom will swing through 143° (2.49 Rad.) from -90° to +53° (1.57 Rad. to +0.92 Rad.). It is raised and lowered through the use of a single, double-acting hydraulic cylinder. The boom also stores the extension boom in its retracted position.

### 2-5. EXTENSION BOOM

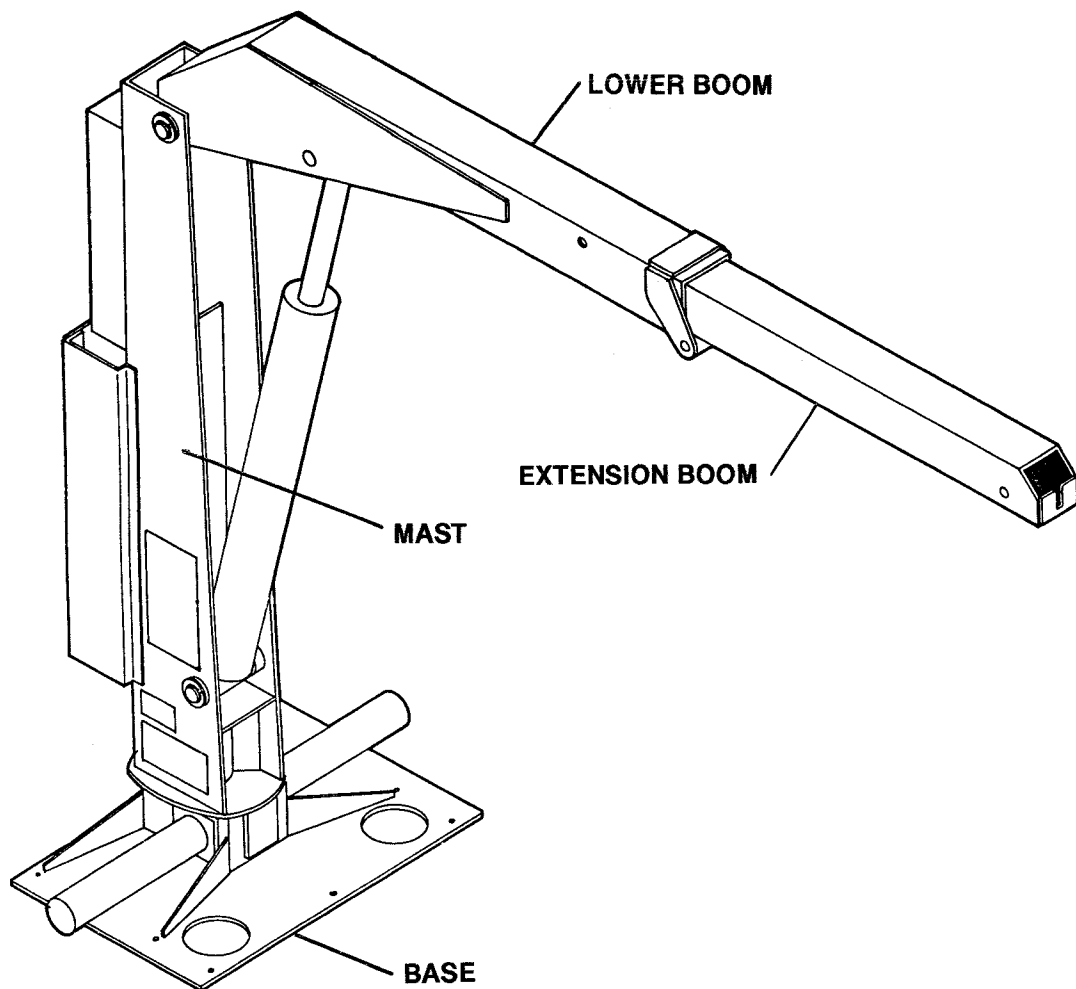
The crane is equipped with a hydraulically operated extension boom. The boom increases the operating range of the crane from 5'-8" (1.73m) to 9'-0" (2.74m). The extension boom is powered by a double-acting hydraulic cylinder mounted inside the boom.

### 2-6. CONTROLS

This crane is operated remotely with a 3-function remote control unit on a 15' (4.57 m) remote control cable.

### 2-7. HYDRAULICS

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



**Figure B-1. 5000 CRANE GROUP**

## Section 3. INSTALLATION

### 3-1. GENERAL INSTALLATION

#### NOTE

These instructions apply only to IMT metal and fiberglass bodies.

1. Inspect the carrier vehicle for compliance with the **MINIMUM CHASSIS SPECIFICATIONS** listed in Section 1-SPECIFICATIONS.
2. Locate the center point of the mast approximately 17" from the side wall of the body and a minimum of 22" from the rear edge of the body.
3. Cut an 8-1/2" diameter hole centered on the point located in step 2.

#### CAUTION

Before cutting the hole, make certain it will not interfere with the body frame members. Do not cut any frame members when cutting the hole.

The fiberglass body deck consists of fiberglass impregnated expanded metal. Use a metal cutting blade in the saw.

4. Position the crane base on the hole and drill the 10 mounting holes, using the base as a template.

#### NOTE

The "diamond plate" deck on the fiberglass body appears to be metal. It is, in fact, fiberglass and will be damaged by attempting to weld the crane support to the deck. Use the crane support as a template and drill the ten mounting holes.

5. Use a lifting device capable of lifting the weight of the crane, 1125 lbs (510 kg). Install 10 bolts through the top of the crane base, through the deck and install the washers and nuts. Install the cranewell plate from underneath, welding securely to the body crossmembers. Note that the plate must span two deck channels.
6. Weld the 2 support tubes to the truck frame and the crane support tube. Weld outrigger tube to chassis and front of crane support tube. Weld angle from bottom support plate to outrigger tube.

#### NOTE

If optional outrigger support tube is not ordered, use a 4" x 2" x 1/4" wall tube (customer supplied). All welding must be done by an AWS qualified welder.

7. Spray paint all unpainted surfaces.
8. Feed the battery cable up through the support tube and base and connect it to the power unit solenoid. Connect the other end to the underhood solenoid which is connected to the positive (+) side of the battery. See control kit drawings in Section 4 for specific wiring.

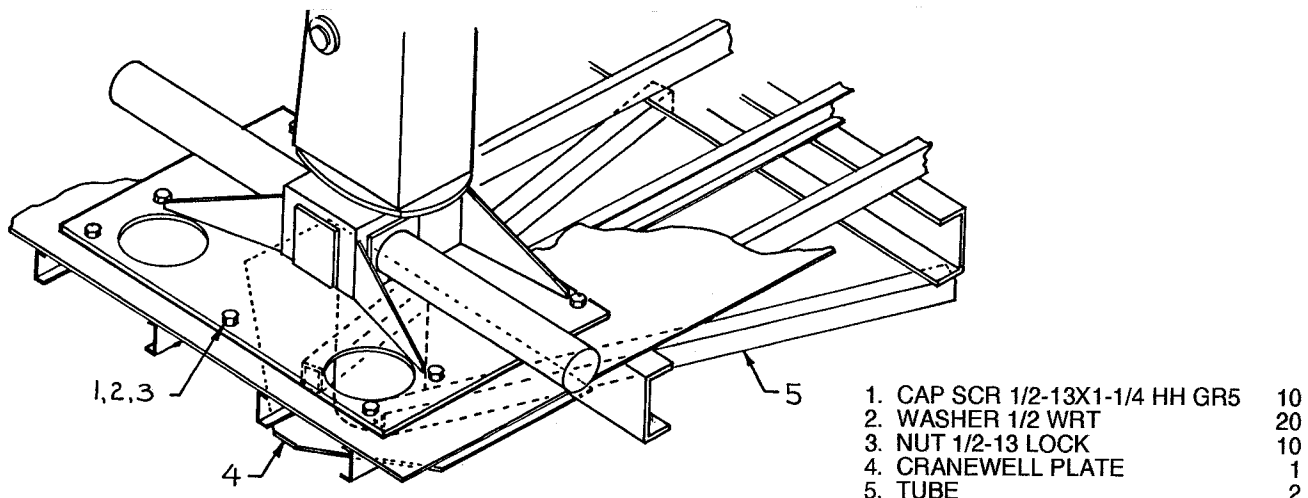


Figure C-1. MOUNTING CONFIGURATION



## 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.

#### 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 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 or one of the booms in a prominent location. 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 Co., Inc.  
Box 189, Garner, IA 50438-0189  
Telephone: 515-923-3711  
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 insure proper replacement parts are received, it is necessary to specify a complete number/letter sequence for any parts request. Part numbers may be 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

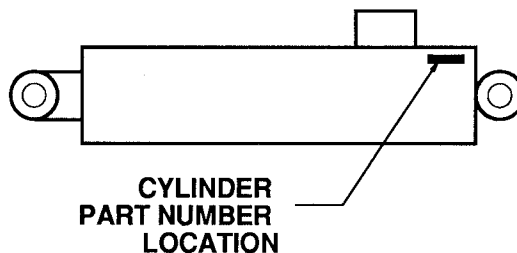


Figure D-1. SERIAL NUMBER PLACARD

Figure D-2. CYLINDER PART NUMBER LOCATION

#### 4-4. WELDMENT IDENTIFICATION

Each of the major weldments bear a stamped part number. Any time a major weldment is placed, you must specify the complete part number as stamped on the weldment. The locations of the part number 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.

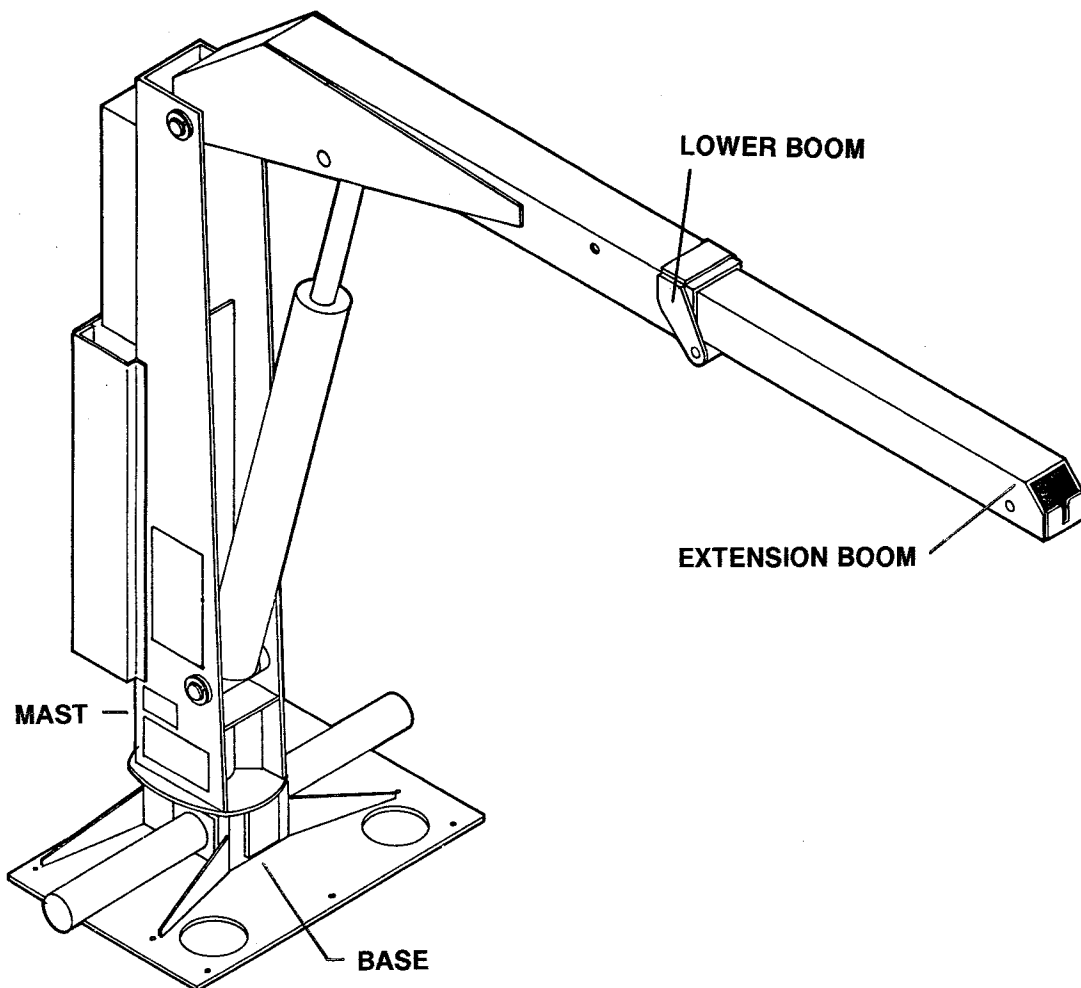
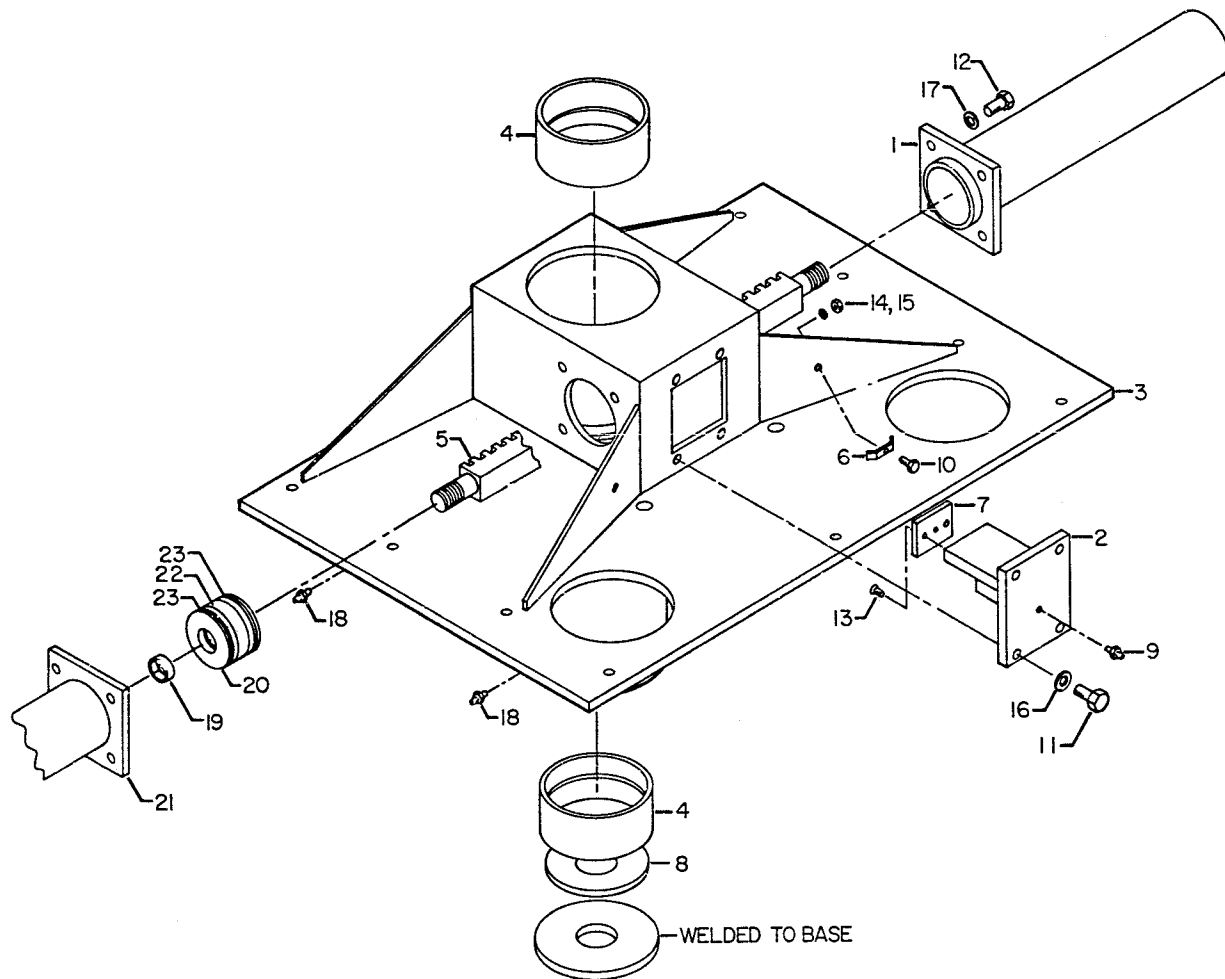
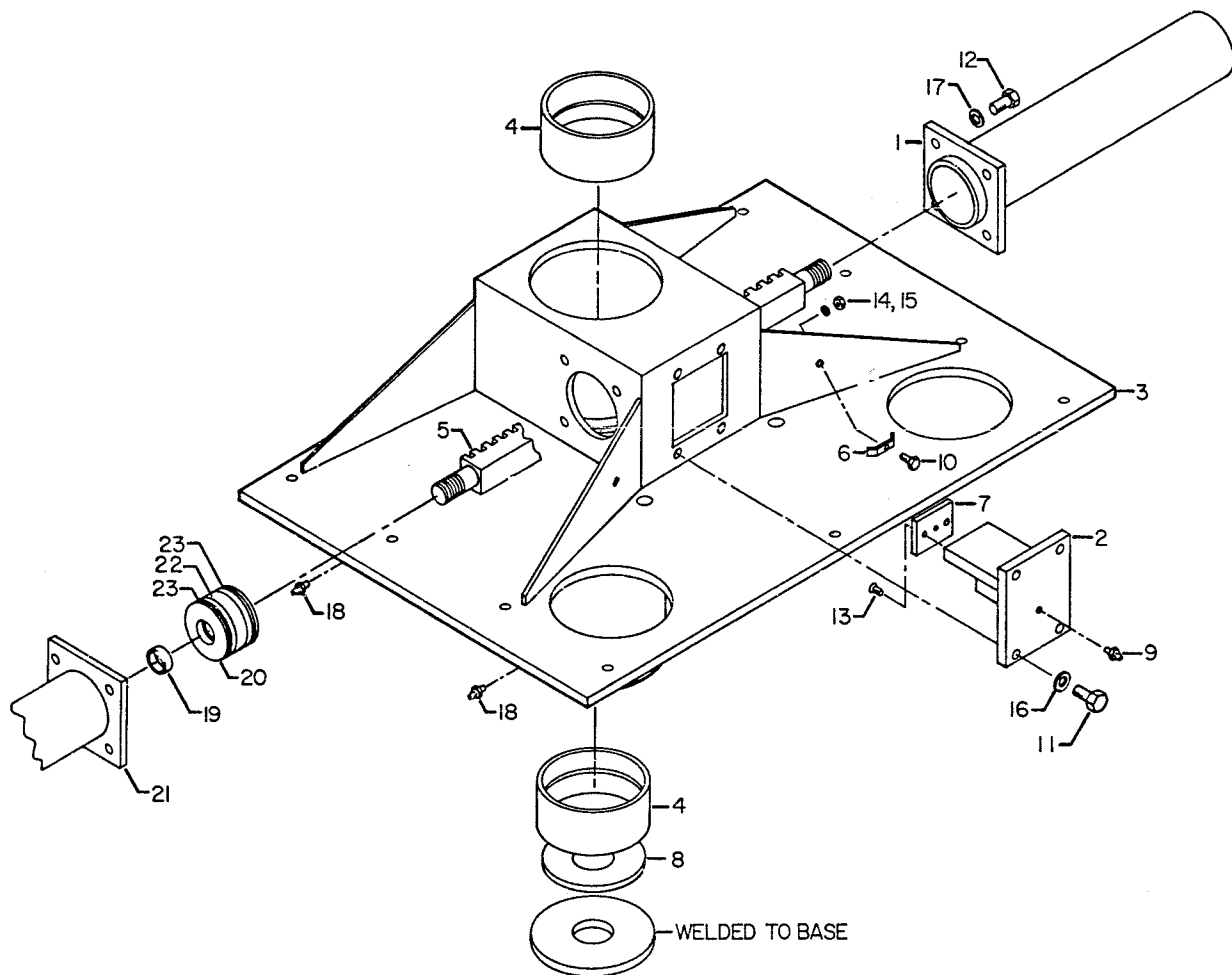


Figure D-3. Weldment Part Number Locations



ITEM	PART NO.	DESCRIPTION	QTY
1.	3X057513	CYLINDER (INCL: 19-23)	2
2.	52070516	RACK SUPPORT	1
3.	52070860	BASE (INCL: 4 & 8)	1
4.	60020042	BUSHING (PART OF 3)	2REF
5.	52701237	RACK ASM	1
6.	60010118	HOSE CLAMP	1
7.	60020020	WEAR PAD	1
8.	60020095	THRUST WASHER (PART OF 3)	1REF
9.	72053506	ZERK 3/16 PRESS FIT	1
10.	72060050	CAP SCR 3/8-16X2 HH GR5	1
11.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	4
12.	72060148	CAP SCR 5/8-11X1-1/4 HH GR5	8
13.	72060836	CAP SCR 1/4-20X3/4 FLHDSOC	2
14.	72062002	NUT 3/8-16 HEX	1
15.	72063051	WASHER 3/8 LOCK	1
16.	72063053	WASHER 1/2 LOCK	4
17.	72063055	WASHER 5/8 LOCK	8
18.	72053507	ZERK 1/4-28	2
19.	7T61N106	LOCK RING SEAL (PART OF 1)	2REF
20.	6I057510	PISTON (PART OF 1)	2REF
21.	4B057511	CASE ASM (PART OF 1)	2REF
22.	7T2N6030	WEAR RING (PART OF 1)	2REF
23.	7R246025	PISTON SEAL (PART OF 1)	4REF
24.	9X057513	SEAL KIT (INCL:19,22,23)	1REF

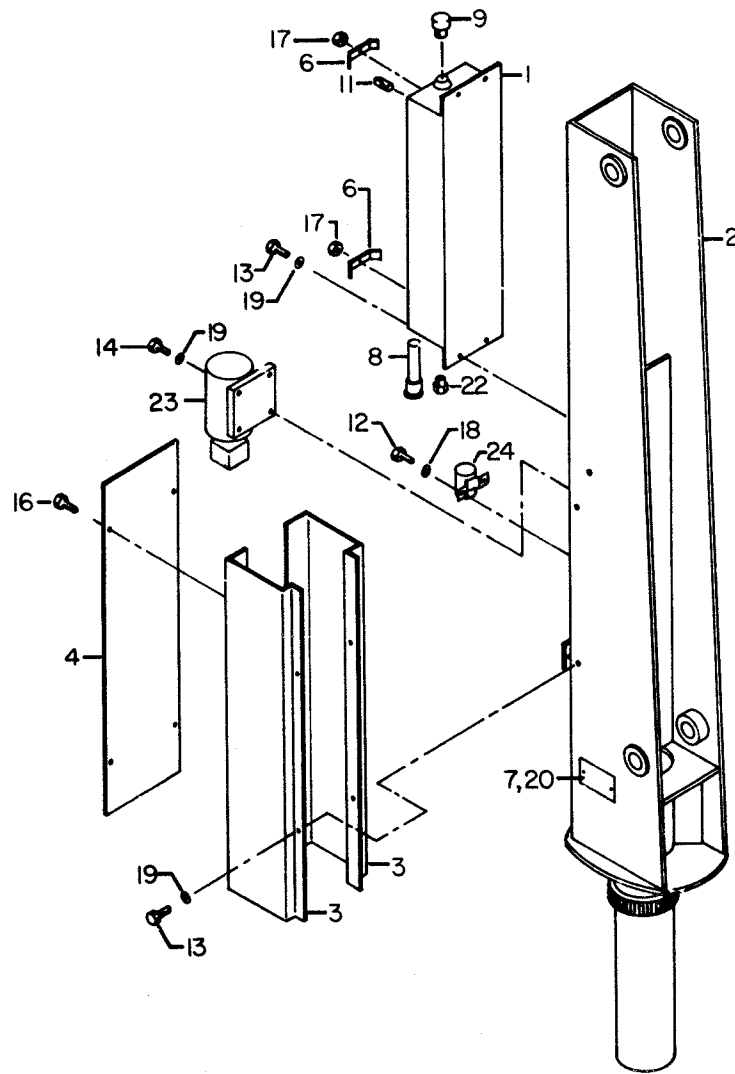
Figure D-4. BASE ASSEMBLY - 250° ROTATION (41070309)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3X332610	CYLINDER (INCL: 19-23)	2
2.	52070516	RACK SUPPORT	1
3.	52070860	BASE (INCL: 4 & 8)	1
4.	60020042	BUSHING (PART OF 3)	2REF
5.	52701473	RACK ASM	1
6.	60010118	HOSE CLAMP	1
7.	60020020	WEAR PAD	1
8.	60020095	THRUST WASHER (PART OF 3)	1REF
9.	72053506	ZERK 3/16 PRESS FIT	1
10.	72060050	CAP SCR 3/8-16X2 HH GR5	1
11.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	4
12.	72060148	CAP SCR 5/8-11X1-1/4 HH GR5	8
13.	72060836	CAP SCR 1/4-20X3/4 FLHDSOC	2
14.	72062002	NUT 3/8-16 HEX	1
15.	72063051	WASHER 3/8 LOCK	1
16.	72063053	WASHER 1/2 LOCK	4
17.	72063055	WASHER 5/8 LOCK	8
18.	72053507	ZERK 1/4-28	2
19.	7T61N106	LOCK RING SEAL (PART OF 1)	2REF
20.	6I057510	PISTON (PART OF 1)	2REF
21.	4B332610	CASE ASM (PART OF 1)	2REF
22.	7T2N6030	WEAR RING (PART OF 1)	2REF
23.	7R246025	PISTON SEAL (PART OF 1)	4REF
24.	9X057513	SEAL KIT (INCL:19,22,23)	1REF

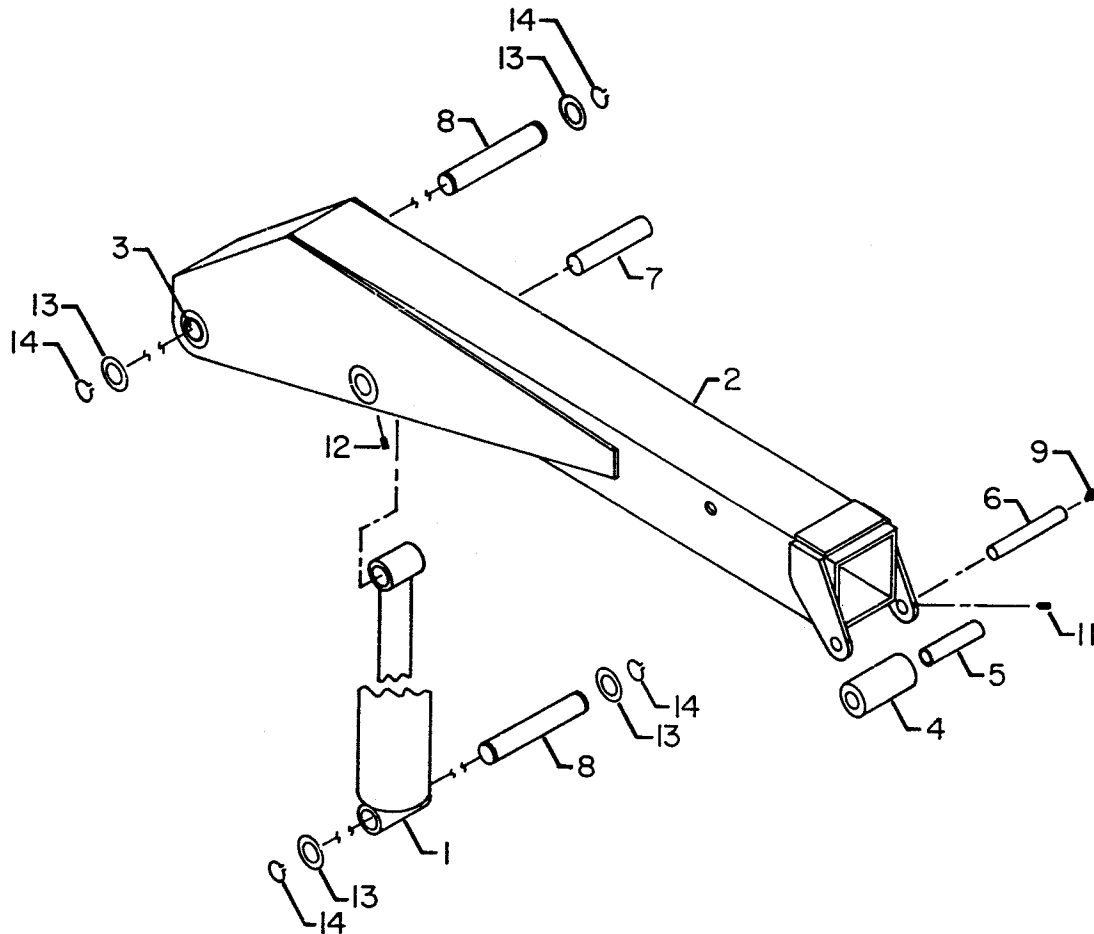
Figure D-5. BASE ASSEMBLY - 360° ROTATION (41704131)





ITEM	PART NO.	DESCRIPTION	QTY
1.	52070580	RESERVOIR	1
2.	52701278	MAST	1
3.	60106335	SHROUD SIDE PLATE	2
4.	60106342	SHROUD BACK PLATE	1
6.	60107648	HOSE CLAMP	2
7.	70029119	SERIAL NUMBER PLACARD	1
8.	70142779	SUCTION STRAINER	1
9.	70143495	BREATHER CAP	1
11.	72053412	PIPE PLUG 1/4 SQHD	1
12.	72060000	CAP SCR 1/4-20X1/2 HH GR5	2
13.	72060023	CAP SCR 5/16-18X3/4 HH GR5	8
14.	72060023	CAP SCR 5/16-18X3/4 HH GR5	4
16.	72060833	SCR 5/16-18X3/4 HH SLFTPG	4
17.	72062104	NUT 1/4-20 LOCK	2
18.	72063049	WASHER 1/4 LOCK	2
19.	72063050	WASHER 5/16 LOCK	12
20.	72661216	GRIPNAIL 1/8	2
22.	72053246	PIPE PLUG 3/8 SQHD	1
23.	73051399	POWER UNIT	1
24.	77041237	SOLENOID 12VDC 150A	1

**Figure D-6. MAST ASSEMBLY (41701280)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	3C006610	LOWER CYLINDER	1
2.	52070317	LOWER BOOM (INCL: 3)	1
3.	7BF81215	BUSHING (PART OF 2)	2REF
4.	60101047	ROLLER (INCL:5)	1
5.	60020043	BUSHING (PART OF 4)	1REF
6.	60101049	PIN	1
7.	60101050	PIN	1
8.	60101051	PIN	2
9.	72053508	ZERK 1/8NPT	1
11.	72060838	SET SCR 1/4-20X3/4 SH	2
12.	72060985	SET SCR 3/8-16X1/2 SH	2
13.	72063037	MACH BUSHING 1-1/2X10GA NR	4
14.	72066132	RETAINING RING 1-1/2 EXT HD	4

**Figure D-7. LOWER BOOM ASSEMBLY (41070312)**

**DIMENSIONS**

BORE	4.52
STROKE	33.00
C-C CLOSED	43.00
ROD DIA	2.25
PIN DIA	1.50

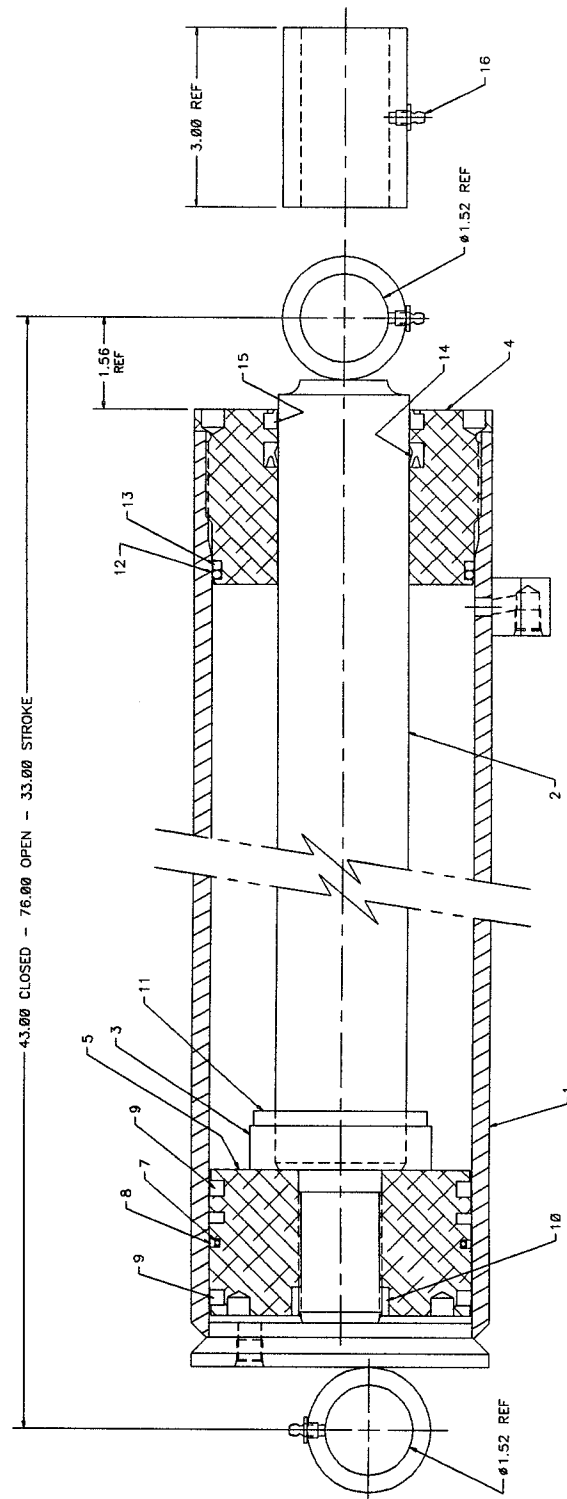
**NOTE**

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

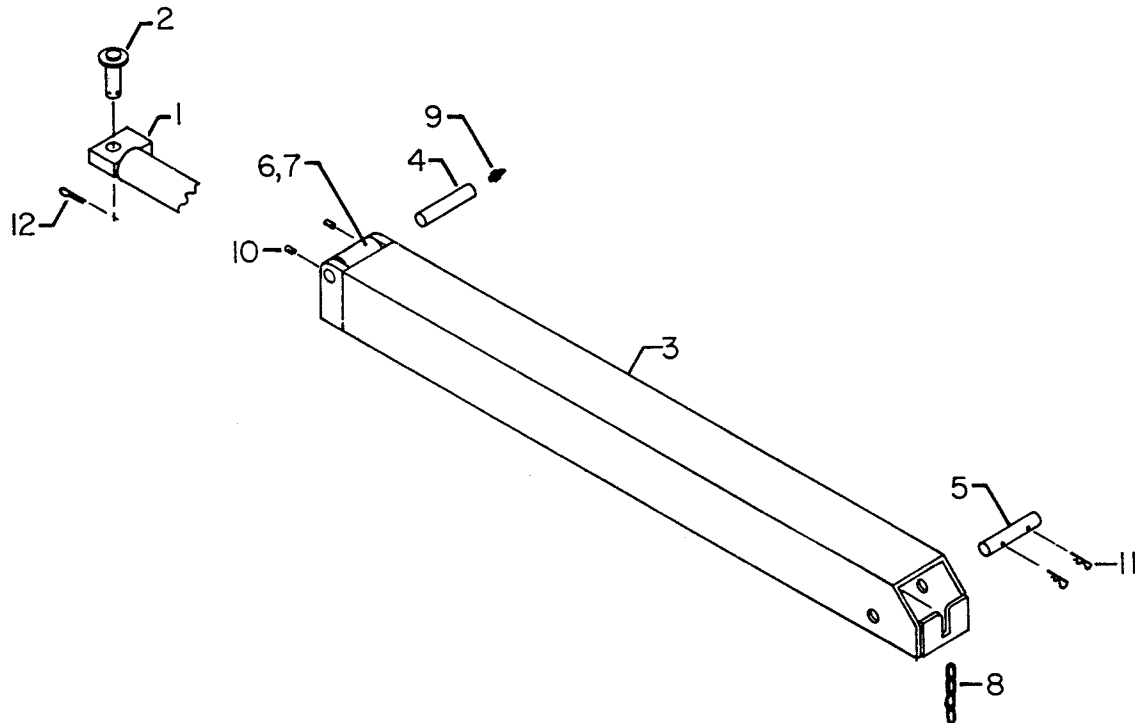
APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

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

ITEM	PART NO.	DESCRIPTION	QTY
1.	4C006610	CASE ASM (INCL: 15)	1
2.	4G006610	ROD ASM	1
3.	6C075022	STOP TUBE .75	1
4.	6H045022	HEAD	1
5.	6I045143	PISTON	1
6.	9C181823	SEAL KIT (INCL:7-15)	1
7.	7Q072155	O-RING (PART OF 6)	1REF
8.	7T66P045	PISTON SEAL (PART OF 6)	2REF
10.	7T61N143	LOCK RING (PART OF 6)	1REF
11.	6A025022	WAFFER LOCK (PART OF 6)	1REF
12.	7Q072345	O-RING (PART OF 6)	1REF
13.	7Q10P346	BACKUP RING (PART OF 6)	1REF
14.	7R546022	U-CUP (PART OF 6)	1REF
15.	7R14P022	ROD WIPER (PART OF 6)	1REF
16.	72053507	ZERK 1/4-28 (PART OF 1 & 2)	3REF



**Figure D-8. LOWER BOOM CYLINDER (3C006610)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	3B059511	EXT CYLINDER	1
2.	52070319	PIN	1
3.	52701284	EXTENSION BOOM	1
4.	60101045	PIN	1
5.	60101046	PIN	1
6.	60101048	ROLLER (INCL: 7)	1
7.	60020044	BUSHING (PART OF 6)	1REF
8.	70058066	CHAIN ASM	1
9.	72053508	ZERK 1/8NPT	1
10.	72060832	SET SCR 5/16-18X3/4 SH	2
11.	72066144	HAIR PIN .16	2
12.	72066181	COTTER PIN 1/8 X 2	1

**Figure D-9. EXTENSION BOOM ASSEMBLY (41070313)**

**DIMENSIONS**

BORE	2.01
STROKE	40.00
C-C CLOSED	55.75
ROD DIA	1.25
PIN DIA	1.00

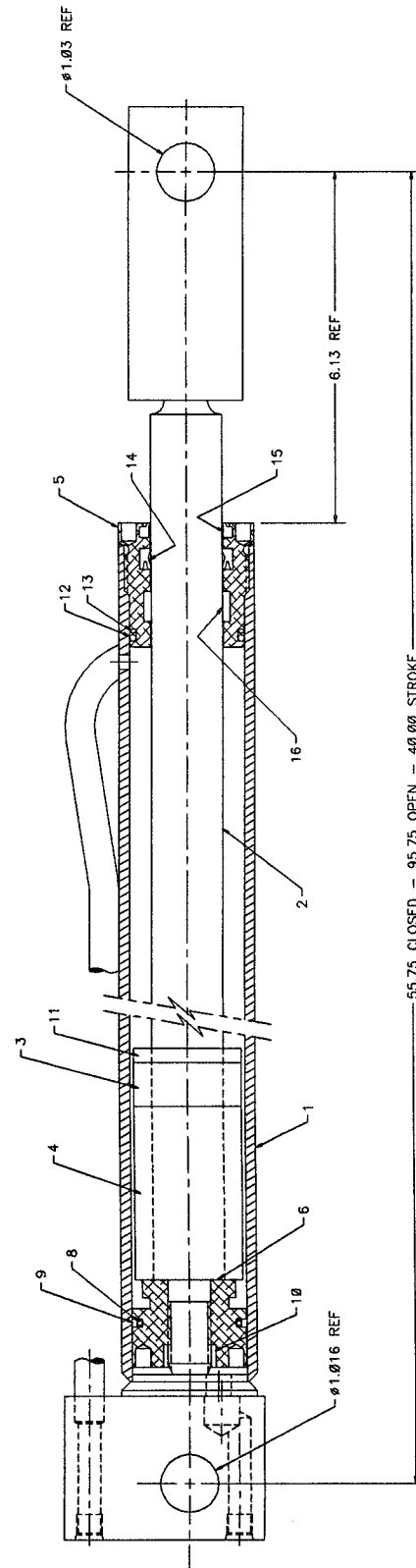
**NOTE**

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

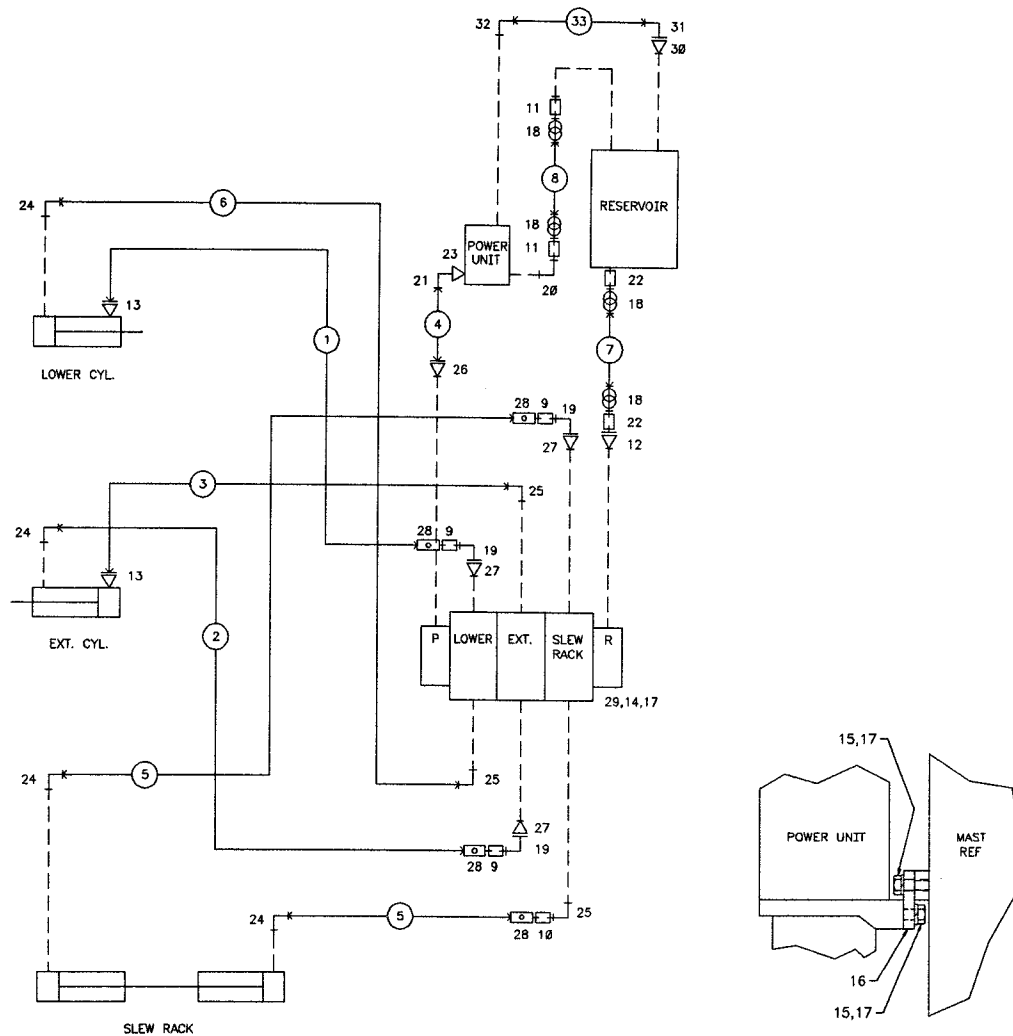
APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

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

ITEM	PART NO.	DESCRIPTION	QTY
1.	4B059511	CASE ASM	1
2.	4G059510	ROD ASM	1
3.	6C075012	STOP TUBE .75	1
4.	6C300012	STOP TUBE 3"	1
5.	6H020012	HEAD	1
6.	6I020075	PISTON	1
7.	9B081012	SEAL KIT (INCL:8-16)	1
8.	7Q072129	O-RING (PART OF 7)	1REF
9.	7T66P020	PISTON SEAL (PART OF 7)	1REF
10.	7T61N075	LOCK RING (PART OF 7)	1REF
11.	6A025012	WAFER LOCK (PART OF 7)	1REF
12.	7Q072224	O-RING (PART OF 7)	1REF
13.	7Q10P224	BACKUP RING (PART OF 7)	1REF
14.	7R546012	U-CUP (PART OF 7)	1REF
15.	7R14P012	ROD WIPER (PART OF 7)	1REF
16.	7T2N8012	WEAR RING (PART OF 7)	1REF



**Figure D-10. EXTENSION CYLINDER (3B059511)**



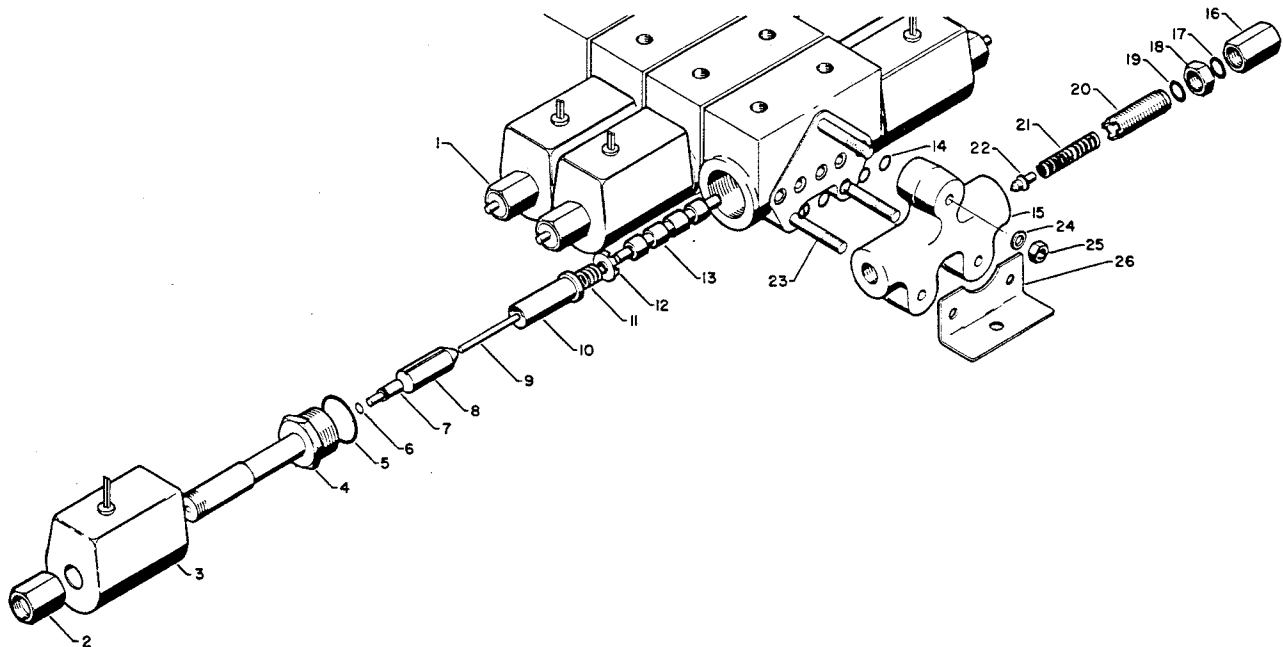
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	51703221	HOSE ASM 1/4X51	1	18.	72066938	HOSE CLAMP 3/4	4
2.	51703223	HOSE ASM 1/4X75	1	19.	72531131	STREET ELBOW 1/4NPT 90°	3
3.	51703224	HOSE ASM 1/4X64	1	20.	72531133	STREET ELBOW 1/2NPT 90°	1
4.	51703592	HOSE ASM 1/4X10	1	21.	72531412	ELBOW 1/4MPT #4MJIC 90°	1
5.	51704121	HOSE ASM 1/4X22	2	22.	72531543	BARB NIPPLE 3/8MPT 1/2HOSE	2
6.	51704122	HOSE ASM 1/4X5	1	23.	72532138	REDUCER BUSHING 3/8-1/4NPT	1
7.	60035269	HOSE 1/2 100R2X20	1	24.	72532149	ELBOW #4MSTR 1/4FPT SWVL	4
8.	60035814	HOSE 1/2 100R2X9	1	25.	72532150	ELBOW #6MSTR 1/4FPT SWVL	3
9.	72053015	PIPE NIPPLE 1/4X2	3	26.	72532353	ADAPTER #6MSTR #4MJIC	1
10.	72053016	PIPE NIPPLE 1/4X2-1/2	1	27.	72053787	ADAPTER #6MSTR 1/4FPT SWVL	3
11.	72053457	BARB NIPPLE 1/2MPT 1/2	2	28.	73054034	COLORFLOW VALVE	4
12.	72053788	ADAPTER #6MSTR 3/8FPT	1	29.	73073039	VALVEBANK	1
13.	72053786	ADAPTER #4MSTR 1/4FPT SWVL	2	30.	72053499	ADAPTER 1/4MPT #4MJIC	1
14.	72060042	CAP SCR 3/8-16X1/2 HHGR5	2	31.	72532690	ELBOW #4MJIC #4FJIC SWVL	1
15.	72060046	CAP SCR 3/8-16X1 HHGR5	4	32.	72053758	ELBOW #4MSTR #4MJIC 90°	1
16.	60108160	PWR UNIT MTG BAR	1	33.	51704626	HOSE ASM 1/4X40 FF	1
17.	72063051	WASHER 3/8 LOCK	6				

**Figure D-11. HYDRAULIC KIT- 3 SECTION (91704119)**

NO DRAWING AVAILABLE AT THIS TIME.

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	51701212	HOSE ASM 3/8X300	1	21.	72053788	ADAPTER #6MSTR 3/8FPT SWVL	1
2.	51703221	HOSE ASM 1/4X51	1	22.	72060023	CAP SCR 5/16-18X3/4 HH GR5	4
3.	51703223	HOSE ASM 1/4X75	3	23.	72060044	CAP SCR 3/8-16X3/4 HH GR5	2
4.	51703224	HOSE ASM 1/4X64	1	24.	72060052	CAP SCR 3/8-16X2-1/2 HH GR5	2
5.	51703226	HOSE ASM 1/4X14-1/4	1	25.	72063050	WASHER 5/16 LOCK	4
6.	51703592	HOSE ASM 1/4X10	1	26.	72063051	WASHER 3/8 LOCK	4
7.	51704121	HOSE ASM 1/4X22	2	27.	72066061	HOSE CLAMP SAE#6	2
8.	51704122	HOSE ASM 1/4X5	1	28.	72066938	HOSE CLAMP 3/4	4
9.	60025026	VALVE BODY - HYDRA JACK	1	29.	72531099	ELBOW 1/4 90°	10
10.	60035269	HOSE 1/2 100R2X20	1	30.	72531131	STREET ELBOW 1/4 90°	11
11.	60035565	HOSE 1/4 1BRX65	1	31.	72531412	ELBOW 1/4MPT #4MJIC 90°	1
12.	60035814	HOSE 1/2 100R2X9	1	32.	72531543	BARB NIPPLE 3/8MPT 1/2	2
13.	72053015	PIPE NIPPLE 1/4X2	1	33.	72531829	REDUCER BUSHING 1/2 3/8	1
14.	72053016	PIPE NIPPLE 1/4X2-1/2	1	34.	72532138	REDUCER BUSHING 3/8 1/4	4
15.	72053421	PIPE PLUG 1/8 SQHD	1	35.	72532293	DUST PLUG-COUPLER 1/4	1
16.	72053457	BARB NIPPLE 1/2MPT 1/2	2	36.	72532299	DUST PLUG-NIPPLE 1/4	1
17.	72053459	BARB NIPPLE 1/4MPT 1/4	2	37.	72532353	ADAPTER #6MSTR #4MJIC	1
18.	72053517	ADAPTER 1/4MPT 1/4MPT	2	38.	73054011	NEEDLE VALVE	2
19.	72053520	QUICK DISCONNECT 3/8FPT	1	39.	73054034	COLORFLOW VALVE	2
20.	72053640	ADAPTER 1/4MPT 1/4FPT SWVL	1	40.	73073039	VALVEBANK 3-SECT	1

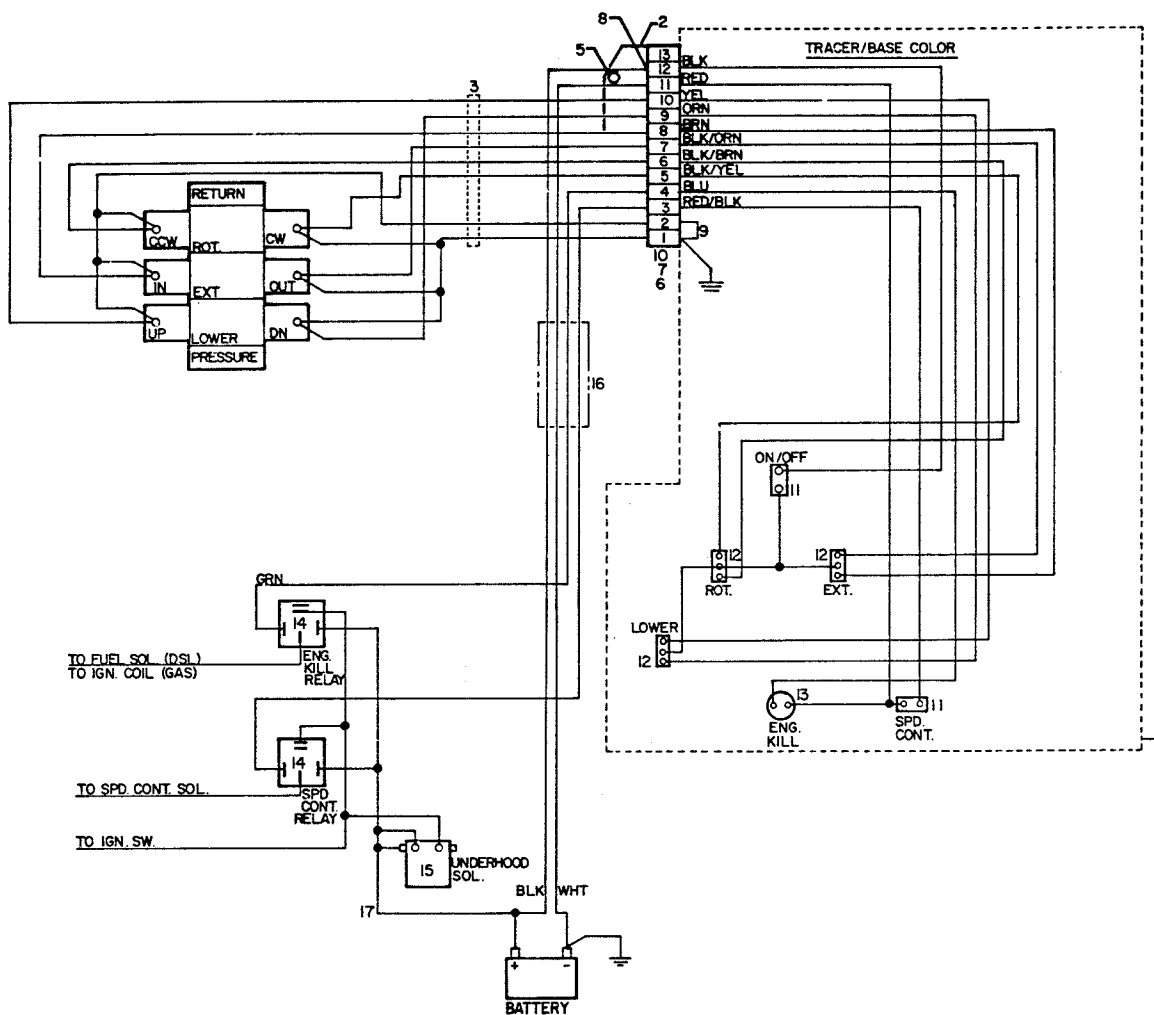
Figure D-12. HYDRAULIC KIT WITH HYDRA-JACK (91704120)



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	73054077	VALVE SECTION 12VDC	3	16.	*	RELIEF VALVE ADJ CAP	REF
2.	73014950	NUT	2**	17.	*	O-RING	REF
3.	77040028	COIL 12VDC	2**	18.	*	JAM NUT	REF
4.	73014958	TUBE	2**	19.	*	O-RING	REF
5.	7Q072113	O-RING	2**	20.	*	ADJ ROD	REF
6.	7Q072008	O-RING	2**	21.	*	SPRING	REF
7.	73014957	BUTTON	2**	22.	*	NEEDLE	REF
8.	73014956	PLUNGER	2**	23.	73014960	STUD	3
9.	73014954	PIN	2**	24.	72063002	WASHER 5/16 WRT	6
10.	73014955	PLUG	2**	25.	72062001	NUT 5/16-18	6
11.	73014953	SPRING	2**	26.	73014959	BRACKET	2
12.	73014952	SPRING RETAINER	2**				
13.	51014951	SPOOL & BODY	1**				
14.	7Q072012	O-RING	5**	*		Not available separately - order item 15.	
15.	73014948	INLET (INCL: 1-6)	1	**		Quantity per valve section.	

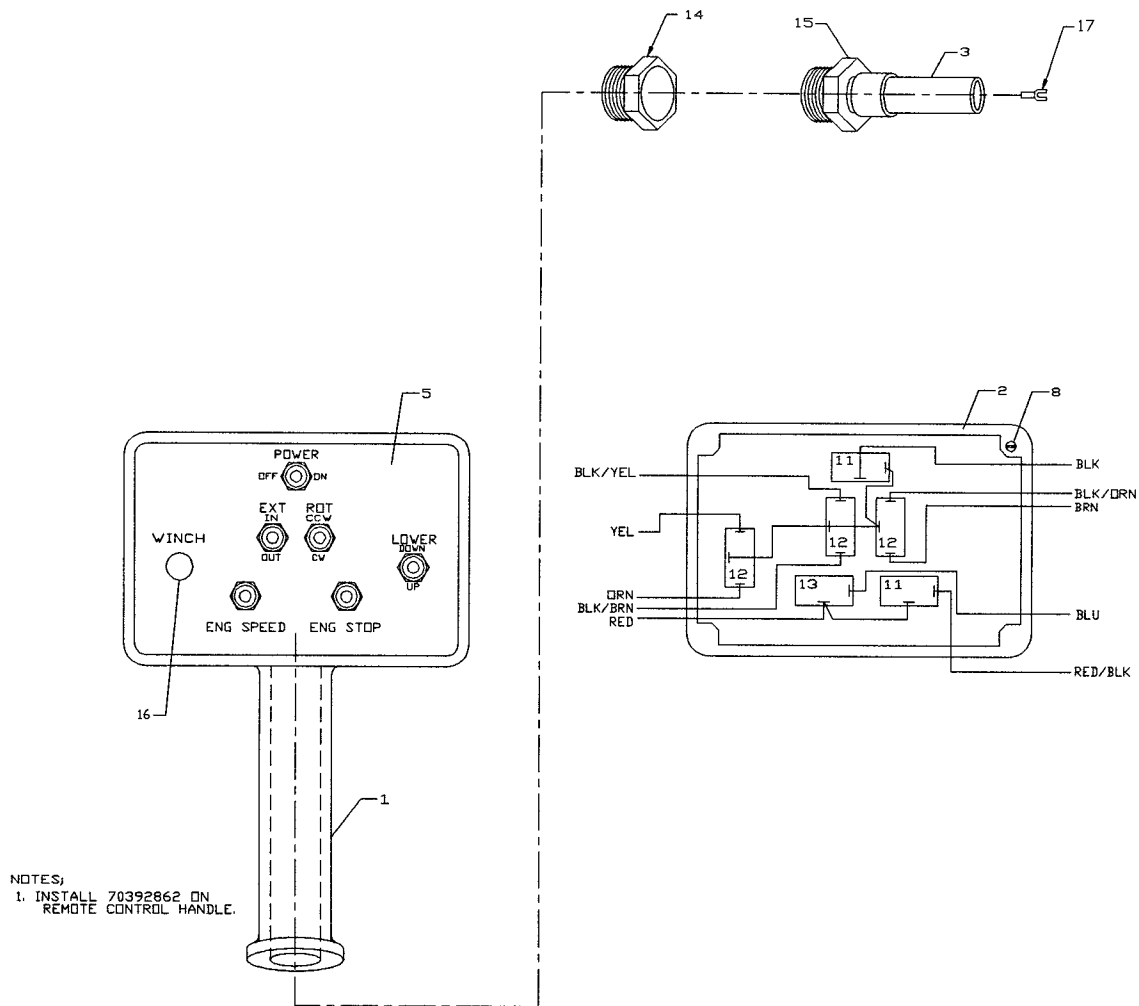
Figure D-13. VALVEBANK 3-SPOOL (73073039)





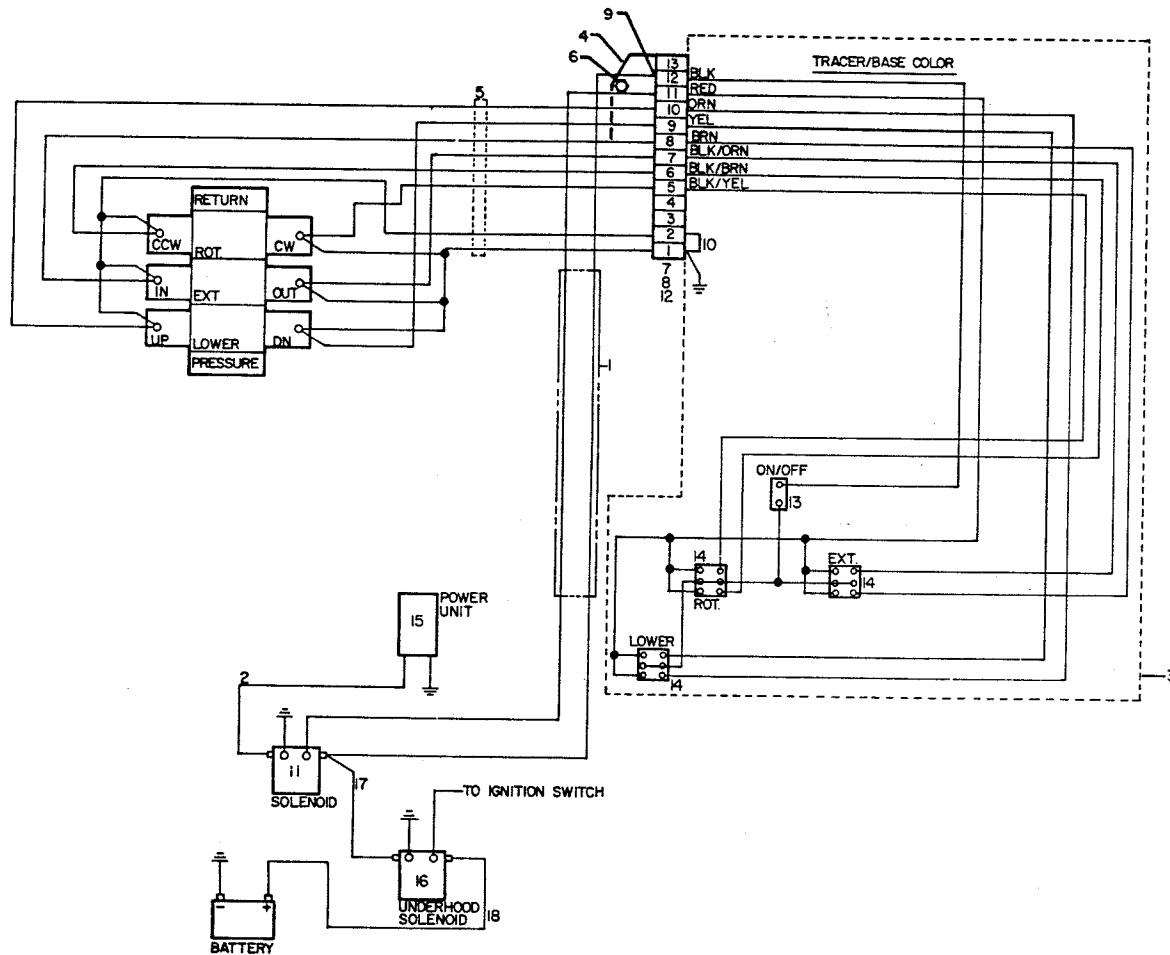
ITEM	PART NO.	DESCRIPTION	QTY
1.	51705939	HANDLE & CABLE ASM	1
2.	60105825	TERM STRIP MTG PLT	1
3.	7034060	TIE	4
5.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
6.	72061009	SHT MTL SCR #6X3/4 PH	2
7.	72066525	CLAMP	1
8.	77040051	TERMINAL #8 SPRSPD 18-14GA	9
9.	77040130	JUMPER	1
10.	77044309	TERMINAL STRIP 13 CONTACT	1
11.		TOGGLE SWITCH ST	2REF
12.		TOGGLE SWITCH DT	3REF
13.		PUSH BUTTON SWITCH	1REF
14.		RELAY	2REF
15.		SOLENOID 12V	1REF
16.		CABLE ASM 16GA/4WIRE X 300	1REF
17.		CABLE ASM #1WIRE X 6	1REF

Figure D-14. CONTROL KIT - REMOTE - PTO (90705938)



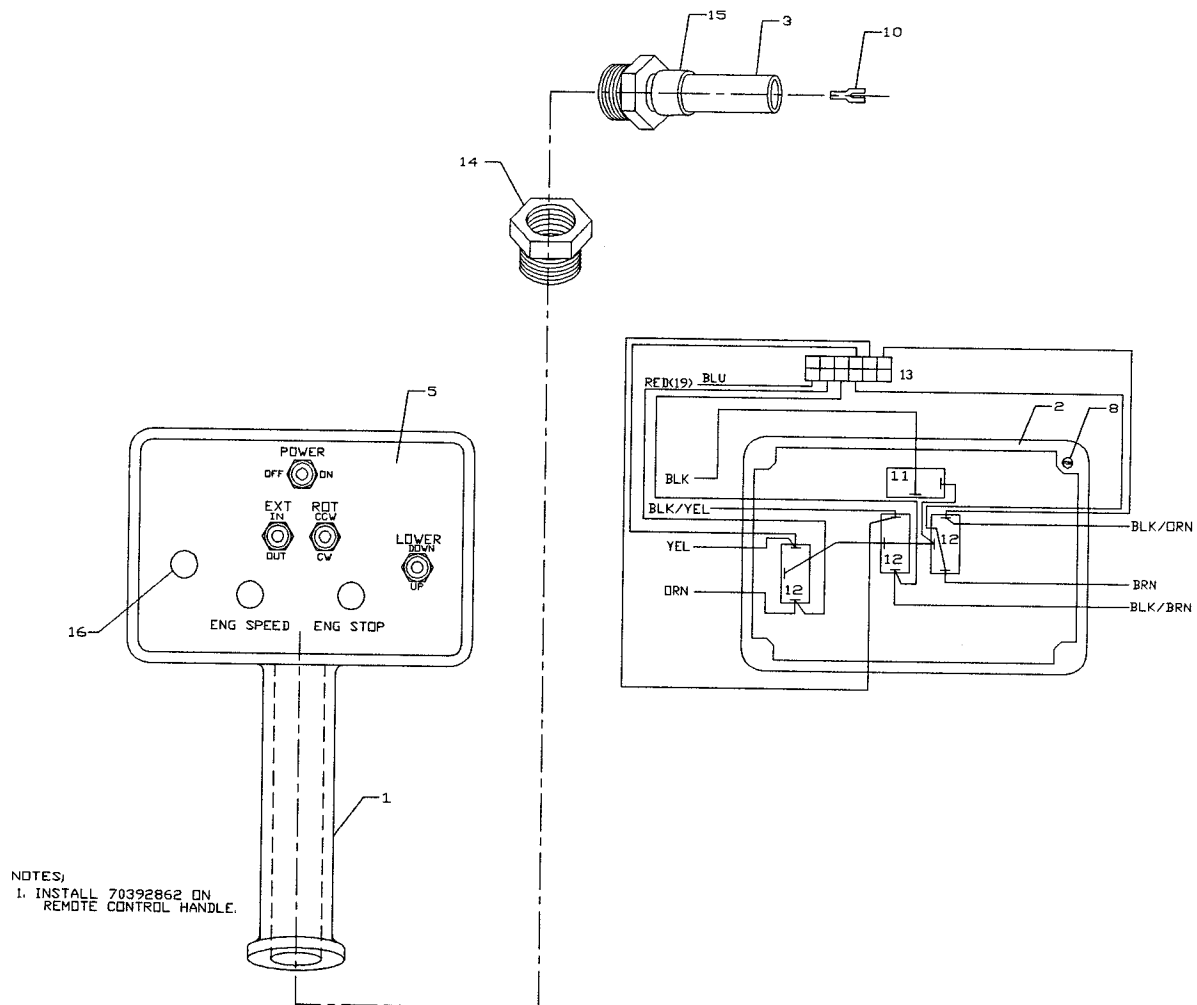
ITEM	PART NO.	DESCRIPTION	QTY
1.	60111140	REMOTE HANDLE ASM	1
2.	70034306	BACK	1
3.	89044136	CABLE 18GA/12WIRE X 300	1
4.	89044214	WIRE 18GA GRN	1.62'
5.	70393261	DECAL-REMOTE CONTROL	1
6.	70392862	DECAL-DANGER RC ELECTRO	1
7.	70029119	SERIAL NO. PLACARD	1
8.	72061009	SHT MTL SCR #6X3/4 PH	4
9.	72066340	RIVET 1/8	2
10.	77040186	TERMINAL 1/4 FSLPON 16-14GA	15
11.	77041345	TOGGLE SWITCH ST	2
12.	77041346	TOGGLE SWITCH DT	3
13.	77041347	TOGGLE SWITCH-MOMENTARY	1
14.	72531833	REDUCER BUSHING 3/4 1/2NPT	1
15.	77044096	CABLE GRIP	1
16.	70392785	PLUG 1/2	1
17.	77040051	TERMINAL #8 SPRSPD 16-14GA	12

**Figure D-15. REMOTE HANDLE ASSEMBLY 3-FUNCTION (51705939)**



ITEM	PART NO.	DESCRIPTION	QTY
1.	51705206	CABLE ASM 14GA/2WIRE X 24	1
2.	51705208	CABLE ASM #1WIRE X 9	1
3.	51705329	HANDLE & CABLE ASM	1
4.	60105825	TERM BLOCK MTG PLATE	1
5.	70034060	TIE	4
6.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
7.	72061009	SHT MTL SCR #6X3/4 PH	2
8.	72066525	HOSE CLAMP	1
9.	77040051	TERMINAL #8 SPRSPD 16-14GA	9
10.	77040130	JUMPER	1
11.	77041237	SOLENOID 12V 150A	1
12.	77044309	TERMINAL STRIP	1
13.		TOGGLE SWITCH ST	1 REF
14.		TOGGLE SWITCH DT	3 REF
15.		POWER UNIT	1 REF
16.		SOLENOID 12V	1 REF
17.		CABLE ASM #1WIRE X 240	1 REF
18.		CABLE ASM #1WIRE X 6	1 REF

**Figure D-16. CONTROL KIT - REMOTE - ELECTRIC (90705937)**



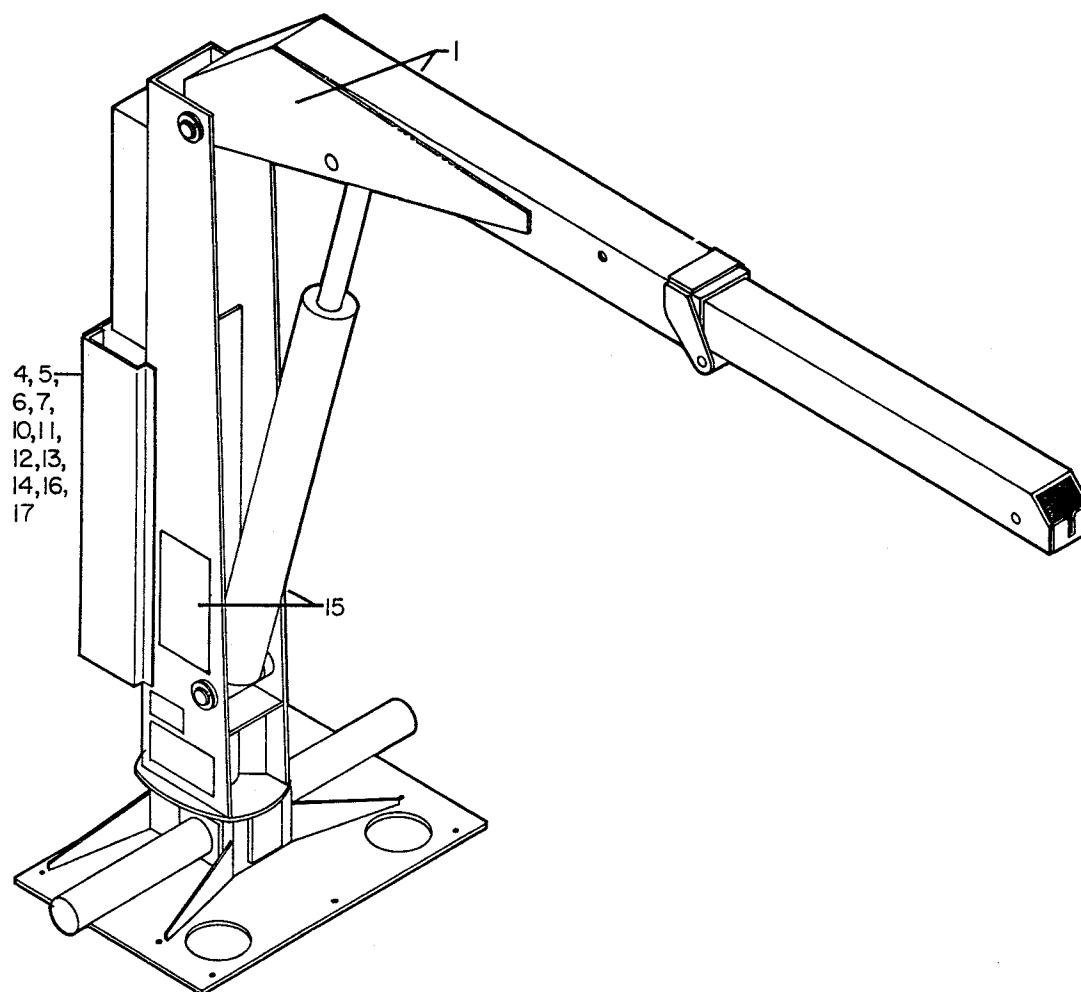
ITEM	PART NO.	DESCRIPTION	QTY
1.	60111140	REMOTE HANDLE ASM	1
2.	70034306	BACK	1
3.	89044136	CABLE 18GA/12WIRE X 300	1
4.	89044214	WIRE 18GA GRN	1.00'
5.	70393261	DECAL-REMOTE CONTROL	1
6.	70392862	DECAL-DANGER RC ELECTRO	1
7.	70029119	SERIAL NO. PLACARD	1
8.	72061009	SHT MTL SCR #6X3/4 PH	4
9.	72066340	RIVET 1/8	2
10.	77040051	TERMINAL #8 SPGSPD 16-14GA	12
11.	77041345	TOGGLE SWITCH ST	1
12.	77041346	TOGGLE SWITCH DT	3
13.	77041407	DIODE BOARD	1
14.	72531833	REDUCER BUSHING 3/4 1/2NPT	1
15.	77044096	CABLE GRIP	1
16.	70392785	PLUG 1/2	3
17.	77040186	TERMINAL 1/4 FSLPON 16-14GA	11
18.	77040047	TERMINAL 1/4 MSLPON 16-14GA	1

**Figure D-17. REMOTE HANDLE ASSEMBLY 3-FUNCTION (51705329)**

DRAWING NOT AVAILABLE AT THIS TIME.

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	51703436	HOSE ASM 1/2X264	1	18.	72060833	SCR 5/16-18X3/4 HH SLFTPG	1
2.	52070760	RESERVOIR 10 GALLON	1	19.	72062080	NUT 1/2-13 LOCK	10
3.	60011596	CRANEWELL PLATE	1	20.	72063005	WASHER 1/2 WRT	20
4.	60035821	HOSE 3/4 100R4 X 372	1	21.	72063050	WASHER 5/16 LOCK	1
5.	60102672	TUBE	2	22.	72066000	HOSE CLAMP SAE#12	8
6.	60103870	OIL FILTER BRACKET	2	23.	72531547	BARB NIPPLE 1/2MPT 3/4	1
7.	72053180	REDUCER BUSHING 1-1/4 X 3/4	1	24.	72531549	BARB NIPPLE 1MPT 1	2
8.	72053185	PIPE NIPPLE 1 X CLOSE	1	25.	72532261	SIGHT GAUGE 3/4	1
9.	72053376	REDUCER BUSHING 1 X 3/4	3	26.	73014671	FILL CAP	1
10.	72053377	REDUCER BUSHING 1-1/4 X 1	1	27.	73052000	RETURN FILTER (INCL: 28)	1
11.	72053415	PIPE PLUG 3/4 SQHD	1	28.	73052006	RETURN FILTER ELEMENT	REF
12.	72053458	BARB NIPPLE 3/4MPT 3/4	5	29.	73052012	SUCTION FILTER (INCL:30-32)	1
13.	72053508	ZERK 1/8NPT	3	30.	70048031	VACUUM GAUGE	REF
14.	72053556	STREET ELBOW 3/4 90°	3	31.	70048149	ELEMENT 100-MESH	REF
15.	72053746	ADAPTER #12MSTR 1/2FPT	1	32.	73052014	ELEMENT 25-MICRON	REF
16.	72053751	ADAPTER #16MSTR 1FPT	1	33.	73054001	GATE VALVE 1NPT	1
17.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	10	34.	73141276	FILL NECK SCREEN	1

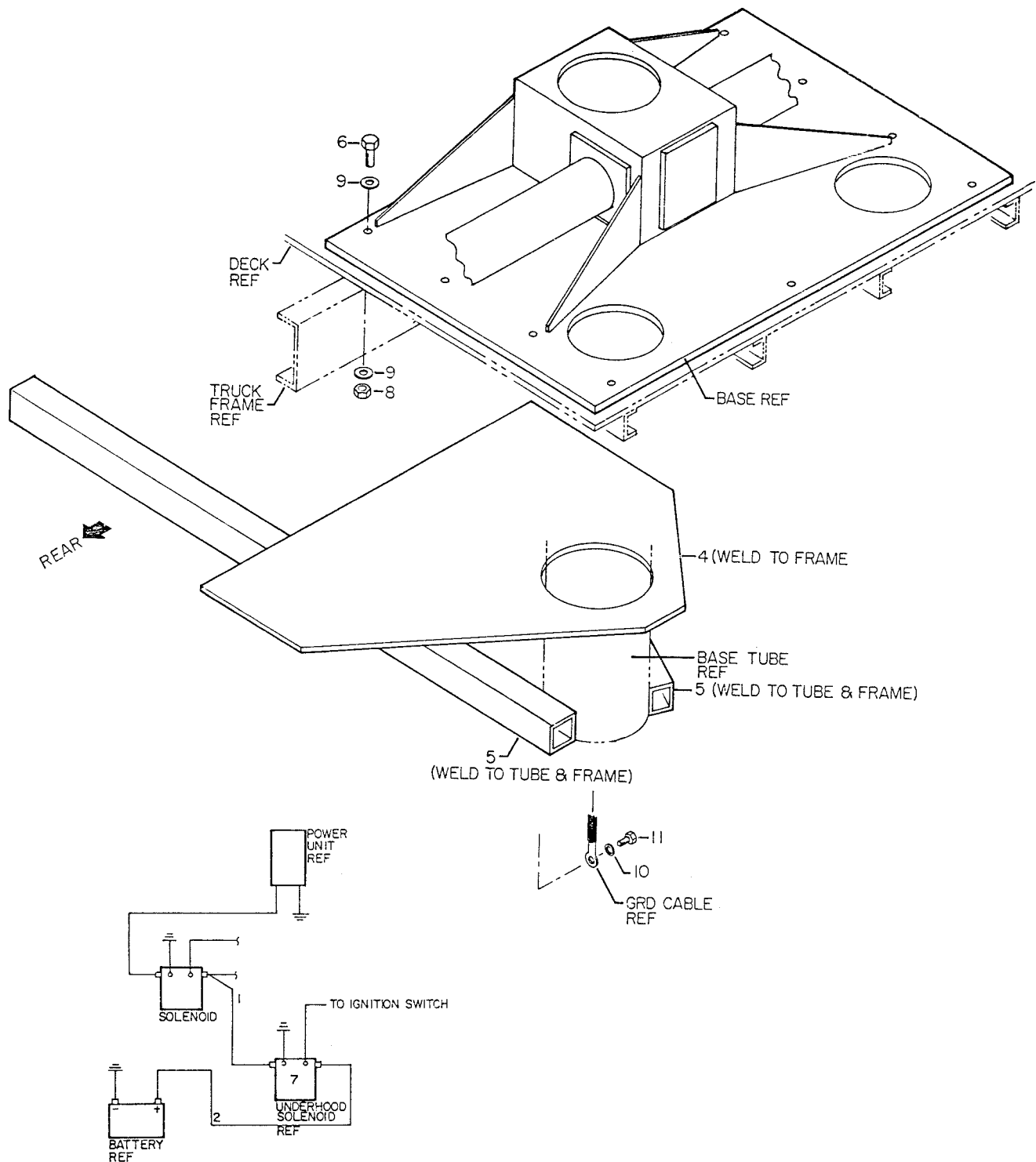
Figure D-18. INSTALLATION KIT - PTO (93705940)



ITEM	PART NO.	DESCRIPTION	QTY
1.	70391456	IMT DIAMOND	2
2.	70391612	DECAL-GREASE WKLY LH	3
3.	70391613	DECAL-GREASE WKLY RH	3
4.	70392213	DECAL-CAUTION WASH/WAX	1
5.	70392813	DECAL-DANGER ELECTRO	1
6.	70392814	DECAL-DANGER OPER TRAINING	1
7.	70392815	DECAL-DANGER OPERATION	1
8.	70392864	DECAL-DANGER OR STD CLR	1
9.	70392865	DECAL-DANGER ELEC HZD LG	4
10.	70392866	DECAL-DANGER OPER COND	1
11.	70392888	DECAL-DANGER OPER RESTRICT	1
12.	70392889	DECAL-DANGER RC ELECTRO LG	1
13.	70392890	DECAL-DANGER STOW/UNFOLD	1
14.	70392982	DECAL-CONTACT IMT	1
15.	71029129	CAPACITY PLACARD 5000	2
16.	71039134	DECAL-CAUTION OIL LEVEL	1
17.	70392891	DECAL-DANGER DRIVELINE	1

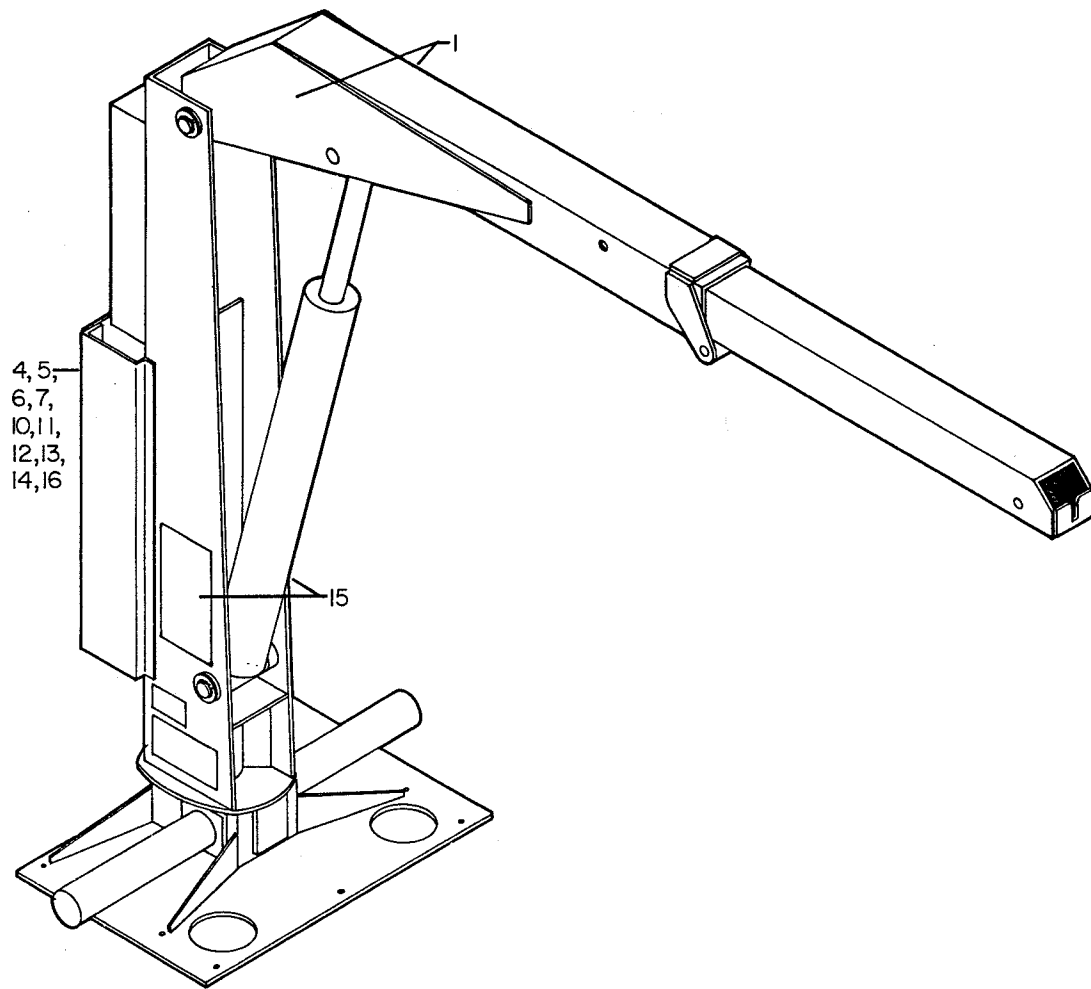
DECAL PLACEMENT	
ITEM NO.	LOCATION
9	ONE ON EACH SIDE OF CARRIER VEHICLE
2, 3	AT ALL GREASE ZERKS
8	NEAR OUTRIGGER

Figure D-19. DECAL KIT - PTO (95708905)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51701516	CABLE ASM #1WIRE X 240	1
2.	51704784	CABLE ASM #1WIRE X 6	1
3.	60011596	CRANEWELL PLATE	1
4.	60102672	TUBE	2
5.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	10
6.	72060833	SCR 5/16-18X3/4 HH SLFTPG	1
7.	72062080	NUT 1/2-13 LOCK	10
8.	72063005	WASHER 1/2 WRT	20
9.	72063050	WASHER 5/16 LOCK	1
10.	77041237	SOLENOID 12V 150AMP	1

**Figure D-20. INSTALLATION KIT - ELECTRIC (93701472)**

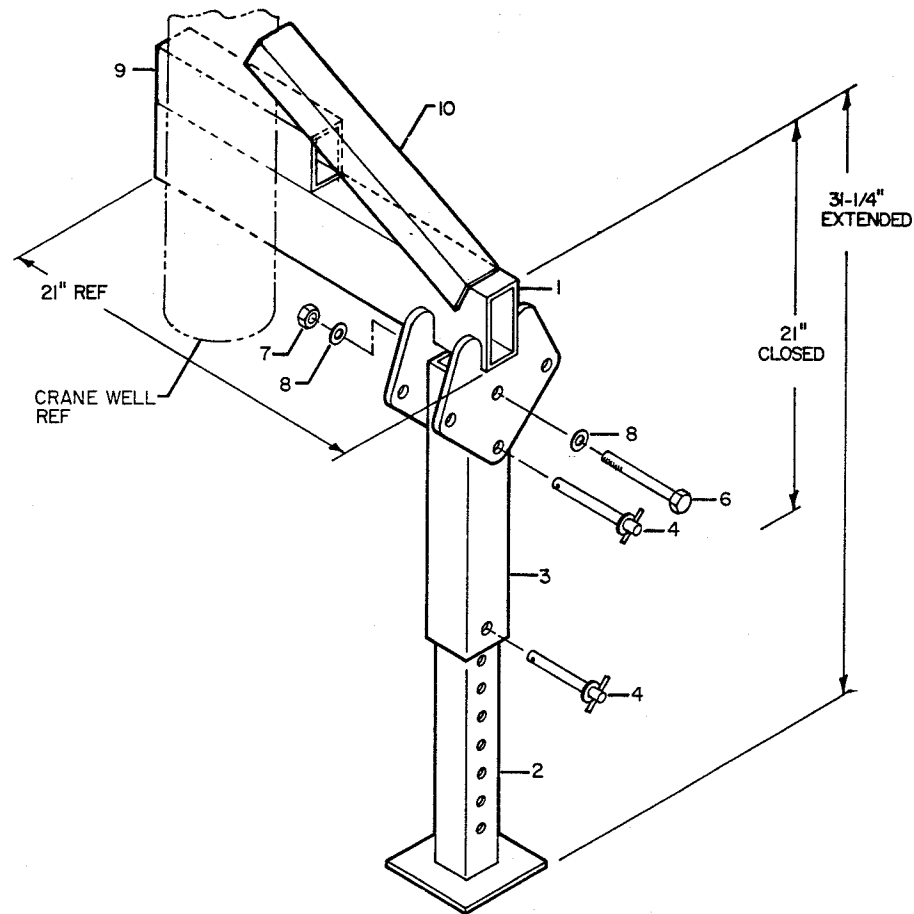


ITEM	PART NO.	DESCRIPTION	QTY
1.	70391456	IMT DIAMOND	2
2.	70391612	DECAL-GREASE WKLY LH	3
3.	70391613	DECAL-GREASE WKLY RH	3
4.	70392213	DECAL-CAUTION WASH/WAX	1
5.	70392813	DECAL-DANGER ELECTRO	1
6.	70392814	DECAL-DANGER OPER TRAINING	1
7.	70392815	DECAL-DANGER OPERATION	1
8.	70392864	DECAL-DANGER OR STD CLR	1
9.	70392865	DECAL-DANGER ELEC HZD LG	4
10.	70392866	DECAL-DANGER OPER COND	1
11.	70392888	DECAL-DANGER OPER RESTRICT	1
12.	70392889	DECAL-DANGER RC ELECTRO LG	1
13.	70392890	DECAL-DANGER STOW/UNFOLD	1
14.	70392982	DECAL-CONTACT IMT	1
15.	71029129	CAPACITY PLACARD 5000	2
16.	71039134	DECAL-CAUTION OIL LEVEL	1

DECAL PLACEMENT	
ITEM NO.	LOCATION
9	ONE ON EACH SIDE OF CARRIER VEHICLE
2, 3	AT ALL GREASE ZERKS
8	NEAR OUTRIGGER

**Figure D-21. DECAL KIT - ELECTRIC (95708906)**



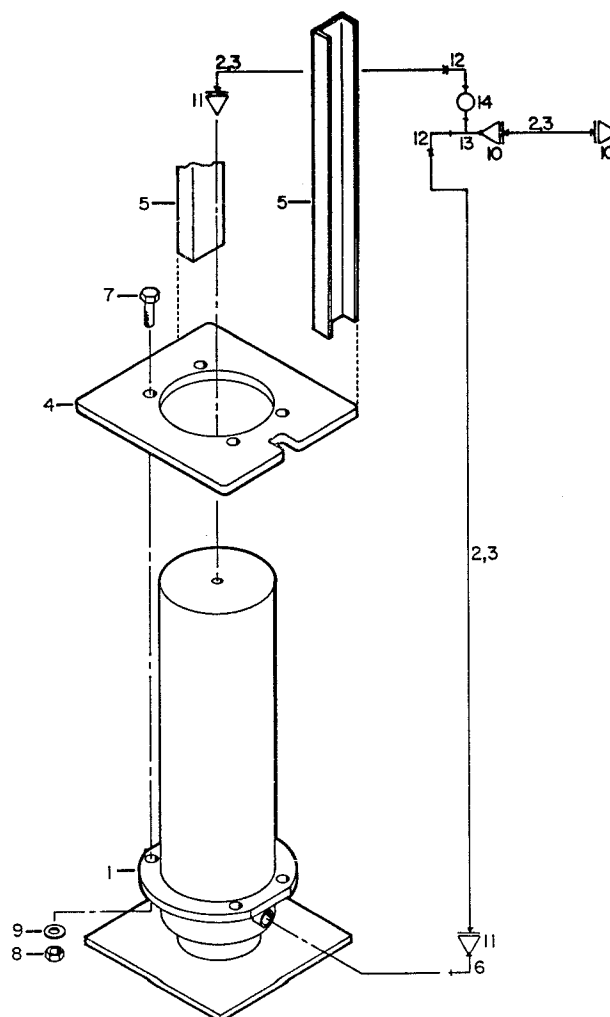


ITEM	PART NO.	DESCRIPTION	QTY
1.	52701717	SUPPORT	1
2.	52701718	LEG	1
3.	60103578	HOUSING	1
4.	71731461	QUICK RELEASE PIN	2
5.	70392864	DECAL-DANGER OR STD CL	1
6.	72060100	CAP SCR 1/2-13X4-1/2 HH GR5	1
7.	72062080	NUT 1/2-13 LOCK	1
8.	72063005	WASHER 1/2 WRT	2
9.	60107651	TUBE 3X2X3/16X14	1
10.	60108334	ANGLE 2-1/2X2X3/16X14	1

DECAL PLACEMENT	
ITEM NO.	LOCATION
5	AT OUTRIGGER - IN CLEAR VIEW OF OPERATOR

NOTE: POSITION ITEM 10 AFTER THE CRANE IS POSITIONED.

Figure D-22. OPTION - MANUAL OUTRIGGER KIT (90701596)

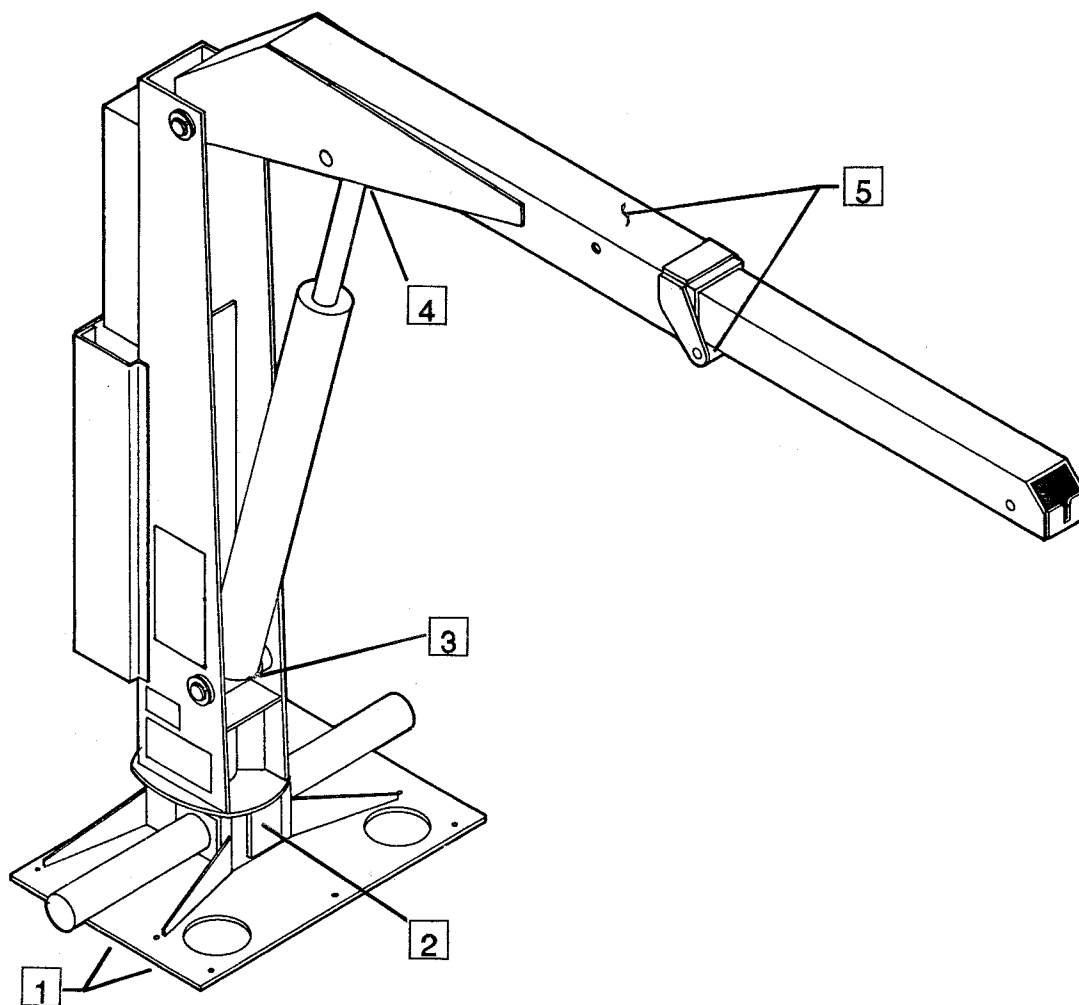


ITEM	PART NO.	DESCRIPTION	QTY
1.	3CX33671	AIR CYLINDER	1
2.	60030008	TUBING 1/4X240 (CUT AT ASM)	1
3.	60044043	LOOM .33X240 (CUT AT ASM)	1
4.	60101805	BRACE PLATE	1
5.	60101820	CHANNEL	2
6.	72053523	STREET ELBOW 1/4 90°	1
7.	72060093	CAP SCR 1/2-13X1-1/2 HH GR5	4
8.	72062080	NUT 1/2-13 LOCK	4
9.	72063005	WASHER 1/2 WRT	4
10.	72531731	ADAPTER 1/8MPT 1/4POLYFLO	2
11.	72531732	ADAPTER 1/4MPT 1/4POLYFLO	2
12.	72531746	ELBOW 1/8MPT 1/4POLYFLO 90°	2
13.	72532014	STREET TEE 1/8	1
14.	73054121	BALL VALVE 1/8	1
15.	70392864	DECAL-DANGER OUTF STD CLR	1
16.	70392867	DECAL-DANGER OUTF MOVING	1

DECAL PLACEMENT	
ITEM NO.	LOCATION
15	AT OUTFRIGGER - IN CLEAR VIEW OF PERSONNEL
16	AT OR NEAR THE NORMAL OPERATING STATION

Figure D-23. OPTION - AIR OPERATED OUTFRIGGER KIT (90701215)

## Section 5. REFERENCE



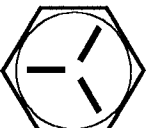

ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1. 2. 3. 4. 5.	CRANE WELL (2 ZERKS) RACK SUPPORT LOWER CYLINDER BASE LOWER CYLINDER ROD EXTENSION BOOM ROLLERS (2 ROLLERS)	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY

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

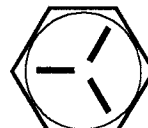

**Figure E-1. GREASE ZERK LOCATIONS AND LUBRICANT REQUIREMENTS**

# TORQUE DATA CHART

## FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		 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, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

### WARNING

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

Figure E-2. TORQUE DATA CHART

# Spare Parts List

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 those on the figure listed.

FIGURE	ITEM NO.	PART NO.	DESCRIPTION	QTY
D-4.	4	60020042	BUSHING	2
D-4.	7	60020020	WEAR PAD	1
D-4.	8	60020095	THRUST WASHER	1
D-4.	24	9X057513	SEAL KIT	1
D-5.	4	60020042	BUSHING	2
D-5.	7	60020020	WEAR PAD	1
D-5.	8	60020095	THRUST WASHER	1
D-5.	24	9X057513	SEAL KIT	1
D-6.	23	73051399	POWER UNIT	1
D-6.	24	77041237	SOLENOID 12VDC 150A	1
D-7.	3	7BF81215	BUSHING	2
D-7.	4	60101047	ROLLER	1
D-7.	5	60020043	BUSHING	1
D-8.	6	9C181823	SEAL KIT	1
D-9.	6	60101048	ROLLER	1
D-9.	7	60020044	BUSHING	1
D-10.	7	9B081012	SEAL KIT	1
D-11.	28	73054034	COLORFLOW VALVE	2
D-11.	29	73073039	VALVEBANK	1
D-15.	11	77041345	TOGGLE SWITCH ST	2
D-15.	12	77041346	TOGGLE SWITCH DT	3
D-15.	13	77041347	TOGGLE SWITCH - MOMENTARY	1
D-16.	11	77041237	SOLENOID 12V 150A	1
D-17.	11	77041345	TOGGLE SWITCH - ST	1
D-17.	12	77041346	TOGGLE SWITCH - DT	3
D-18.	28	73052006	RETURN FILTER ELEMENT	6
D-18.	31	70048149	ELEMENT 100-MESH	6
D-20.	10	77041237	SOLENOID 12V 150A	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	5000 Crane	MANUAL PART NO.	99900270-6/91
SUBMITTED BY				
COMPANY				
ADDRESS				
CITY, STATE, ZIP				
TELEPHONE				

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ERROR FOUND

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

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

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REQUEST FOR ADDITION TO MANUAL

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

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

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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.**

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