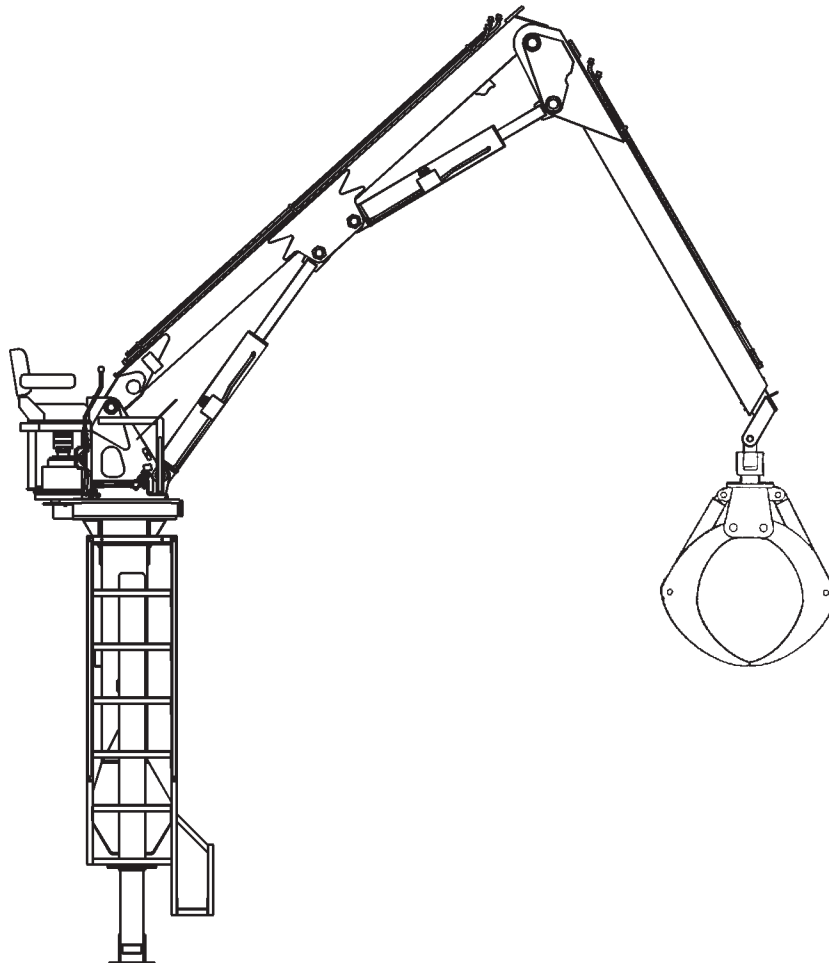




Model 8000L ***Material Handling Crane***

Volume 2 - PARTS AND SPECIFICATIONS

Section 1	CRANE SPECIFICATIONS
Section 2	CRANE REFERENCE
Section 3	REPLACEMENT PARTS
Section 4	GENERAL REFERENCE



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

TEL: 641-923-3711

TECHNICAL SUPPORT FAX: 641-923-2424

MANUAL PART NUMBER 99901217

Iowa Mold Tooling Co., Inc. is an Oshkosh Corporation company.

REVISIONS LIST

DATE	LOCATION	DESCRIPTION OF CHANGE
-	-	-
20010406	3-6,8	LOOM ID INCREASED FROM 1/2 TO 5/8"
20010629	3-6,8	#4 52716829 WAS 52710062
20051018	3-24	ECN 9921 - HOSE ROUTING CHANGE TO 91715018
20061020	1-1, 3-3	NEW OWNERSHIP STATEMENT; UPDATED SERIAL TAG LOCATION INFO.
	3-6	ECN 10287 - UPDATE TO 41714943
20120104	THROUGHOUT	ECN 11628 - UPDATED STABILIZER WORDING, ADDED LEVEL, STAB DECAL

INTRODUCTION

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

We recommend that this volume be kept in a safe place in the office.

This manual is provided to assist you with ordering parts for your IMT 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. 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.

**Read and familiarize yourself with the
IMT OPERATOR'S CRANE SAFETY MANUAL
before operating or performing any maintenance
on your crane.**

SECTION 1. SPECIFICATIONS 8000L MATERIAL HANDLING CRANE

PERFORMANCE CHARACTERISTICS	3
POWER SOURCE	3
SPECIFICATIONS	3
CYLINDER HOLDING VALVES	4
ROTATION SYSTEM	4
HYDRAULIC SYSTEM	4
OPERATOR'S STATION	4
MINIMUM CHASSIS SPECIFICATIONS	4
RECOMMENDED CHASSIS SPECIFICATIONS	4
GEOMETRIC CONFIGURATION - 8000L / 25' BOOM	5
GEOMETRIC CONFIGURATION - 8000L / 21' BOOM	6
STABILIZER DIMENSIONS	7
CAPACITY CHART-8000L CRANE	8

SPECIFICATIONS

8000L MATERIAL HANDLING CRANE

GENERAL

	<u>25' BOOM</u>		<u>21' BOOM</u>	
CRANE RATING	80,000 ft-lbs	(11.06 ton-m)	80,000 ft-lbs	(11.06 ton-m)
HORIZONTAL REACH (from centerline of rotation)	25'-0"	(7.62m)	21'-0"	(6.40m)
* LIFTING HEIGHT (from mounting surface)	33'-8"	(10.26m)	29'-10"	(9.09m)
CRANE WEIGHT (less grapple)	6350 lbs	(2880 kg)	6030 lbs	(2735 kg)
** STABILIZER SPAN AT GROUND LEVEL	9'-4"	(2.84m)	9'-4"	(2.84m)
MAXIMUM	10'-6"	(3.20m)	10'-6"	(3.20m)
STABILIZER PADS	12" X 21"	(30.5x53.3cm)	12" X 21"	(30.5x53.3cm)
** CRANE STORAGE HEIGHT	13'-3"	(4.04m)	13'-3"	(4.04m)
MOUNTING SPACE REQUIRED	28"	(71.1cm)	28"	(71.1cm)
OPTIMUM PUMP CAPACITY (tandem)	15/25 gpm	(56.8/94.6 lpm)	15/25 gpm	(56.8/94.6 lpm)
SYSTEM OPERATING PRESSURE	3000 psi	(207 bar)	3000 psi	(207 bar)
OIL RESERVOIR CAPACITY	49 Gallons	(185 liters)	49 Gallons	(185 liters)
ROTATIONAL TORQUE	16,000 ft-lbs	(2.21 ton-m)	16,000 ft-lbs	(2.21 ton-m)
HORIZ. HOOK APPROACH (from centerline of rotation)	4'-0"	(1.22m)	3'-9"	(1.14m)
* VERT. HOOK APPROACH (from mounting surface)	11'-2"	(3.40m)	12'-2"	(3.71m)

* Add frame height of 40" (1.02m) for dimension from ground level.

** Using 40" (1.02m) frame height.

PERFORMANCE CHARACTERISTICS

The hydraulic system is designed to allow simultaneous, full speed operation of the inner and outer cylinders **and** crane rotation. Simultaneous operation of other functions alone or with these three functions depends on the operator's ability to "feather" the controls.

Optimum pump flows are 15 GPM (56.8 lpm) to the inner valve bank and 25 GPM (94.6 lpm) to the outer/swing valve bank. At these flows, the inner and outer cylinders will both extend in 15 seconds and crane rotation will be 3 RPM.

POWER SOURCE

Integral-mounted tandem hydraulic pump and PTO application. Other standard power sources may be utilized for non-truck mounted applications.

CYLINDER HOLDING VALVES

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

The inner, outer and extension boom cylinders have pilot operated counter-balance valves. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing, powered by a high torque hydraulic motor through a heavy-duty gear box equipped with a heat treated pinion. The pinion runs on the external gear teeth of the turntable bearing to accomplish the rotation function. Limited 650° rotation is standard. Consult factory for 360° continuous rotation. A spring applied, hydraulic release rotation brake provides positive stopping and starting of the rotation process.

HYDRAULIC SYSTEM

The hydraulic system is a combination of open center and pressure compensated systems. There are two, 4-section control valves. One is open center and the other is a closed center, pressure compensated valve featuring an unloader system to allow the use of a tandem, fixed displacement pump. System pressure is 3000 PSI (207 bar) and requires a tandem pump rated at 3000 PSI (207 bar) and developing 15/25 GPM (56.8/94.6 lpm) flows. The two control valves are located at the top (mast-mounted) control station and feature integral, manual "joystick" handles. The system includes a hydraulic oil reservoir with suction line strainer and air breather, return line filters, two 4-section control valves and all hoses and plumbing.

OPERATOR'S STATION

Crane controls are located on a rotating platform attached to the side of the mast of the standard unit. This platform is accessible from both sides of the crane by the standard dual ladders.

MINIMUM CHASSIS SPECIFICATIONS

BODY STYLE	Conventional Cab	Conventional Cab
WHEELBASE	213"	541cm
CAB-TO-AXLE	144"	366cm
FRAME SECTION MODULUS	22 cubic inches	360cc
RBM	1,100,000 in-lbs	12,674 kg-m
FRONT AXLE RATING	9000 lbs	4083 kg
REAR AXLE RATING	18000 lbs	8165 kg
TRANSMISSION	5-speed manual	5-speed manual

RECOMMENDED CHASSIS SPECIFICATIONS

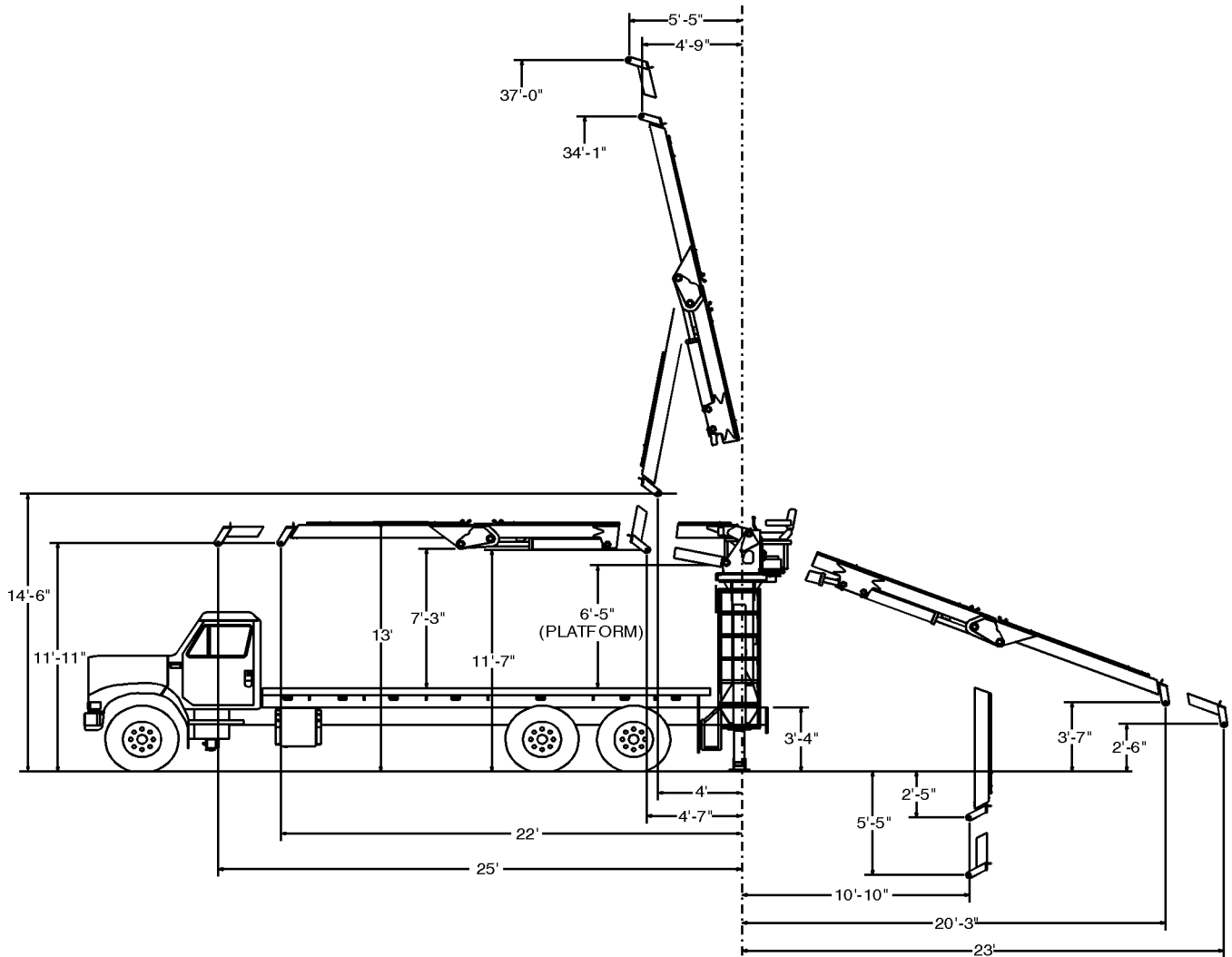
BODY STYLE	Conventional Cab	Conventional Cab
WHEELBASE	234"	595cm
CAB-TO-AXLE	156"	396cm
FRAME SECTION MODULUS	22 cubic inches	360cc
RBM	1,100,000 in-lbs	12,674 kg-m
FRONT AXLE RATING	12000 lbs	5443 kg
REAR AXLE RATING	20000 lbs	9072 kg
TRANSMISSION	5-speed manual	5-speed manual

NOTE: The addition of counter-weight/sub-frame/auxiliary stabilizers to the chassis may be required to achieve and maintain full 360° stability for certain applications.

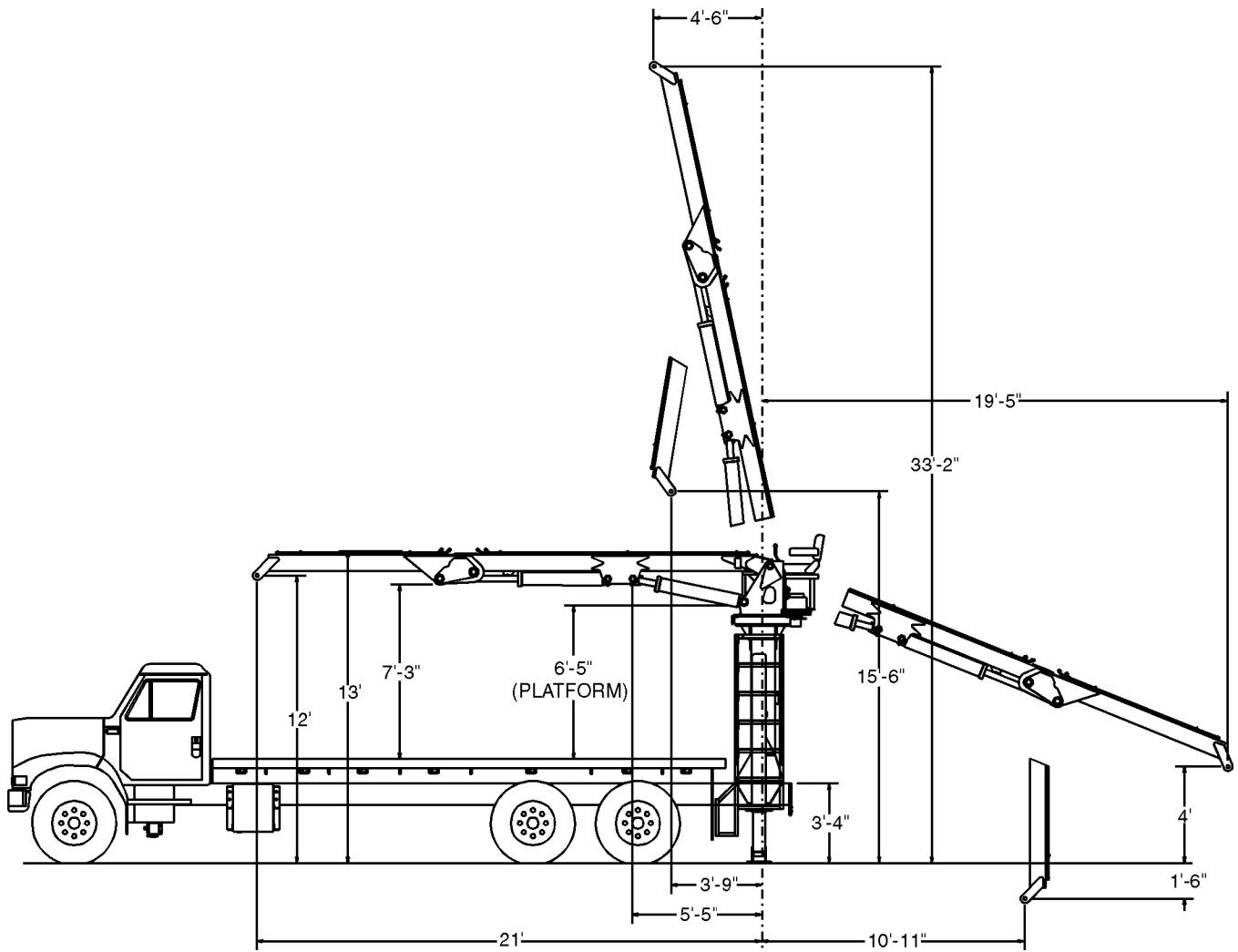
In addition to these specifications, heavy-duty electrical and cooling systems and dual rear wheels are required. It is recommended that the vehicle be equipped with an electric engine tachometer, auxiliary brake lock, and power steering.

IMT reserves the right to change specifications and design without notice.

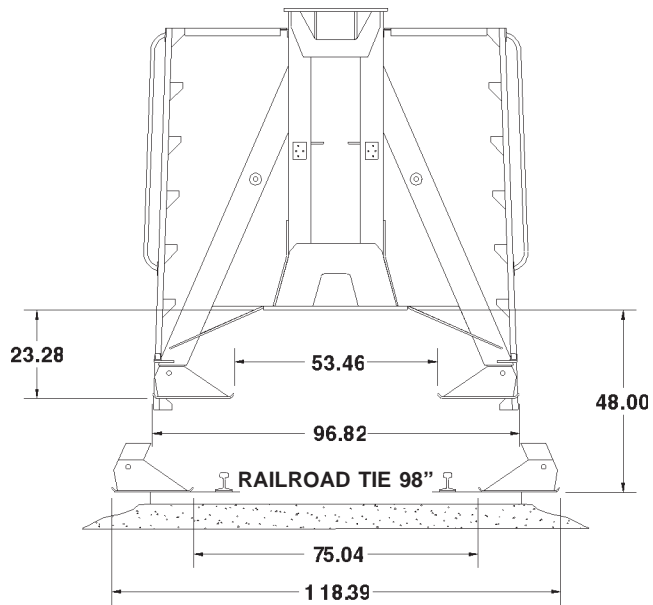
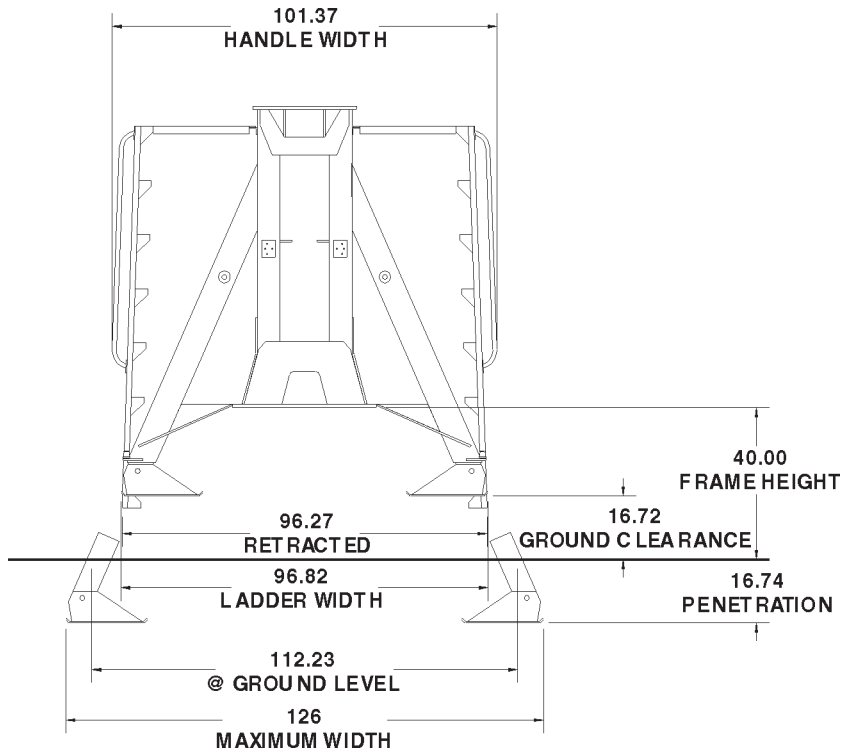
GEOMETRIC CONFIGURATION - 8000L / 25' BOOM



GEOMETRIC CONFIGURATION - 8000L / 21' BOOM



STABILIZER DIMENSIONS



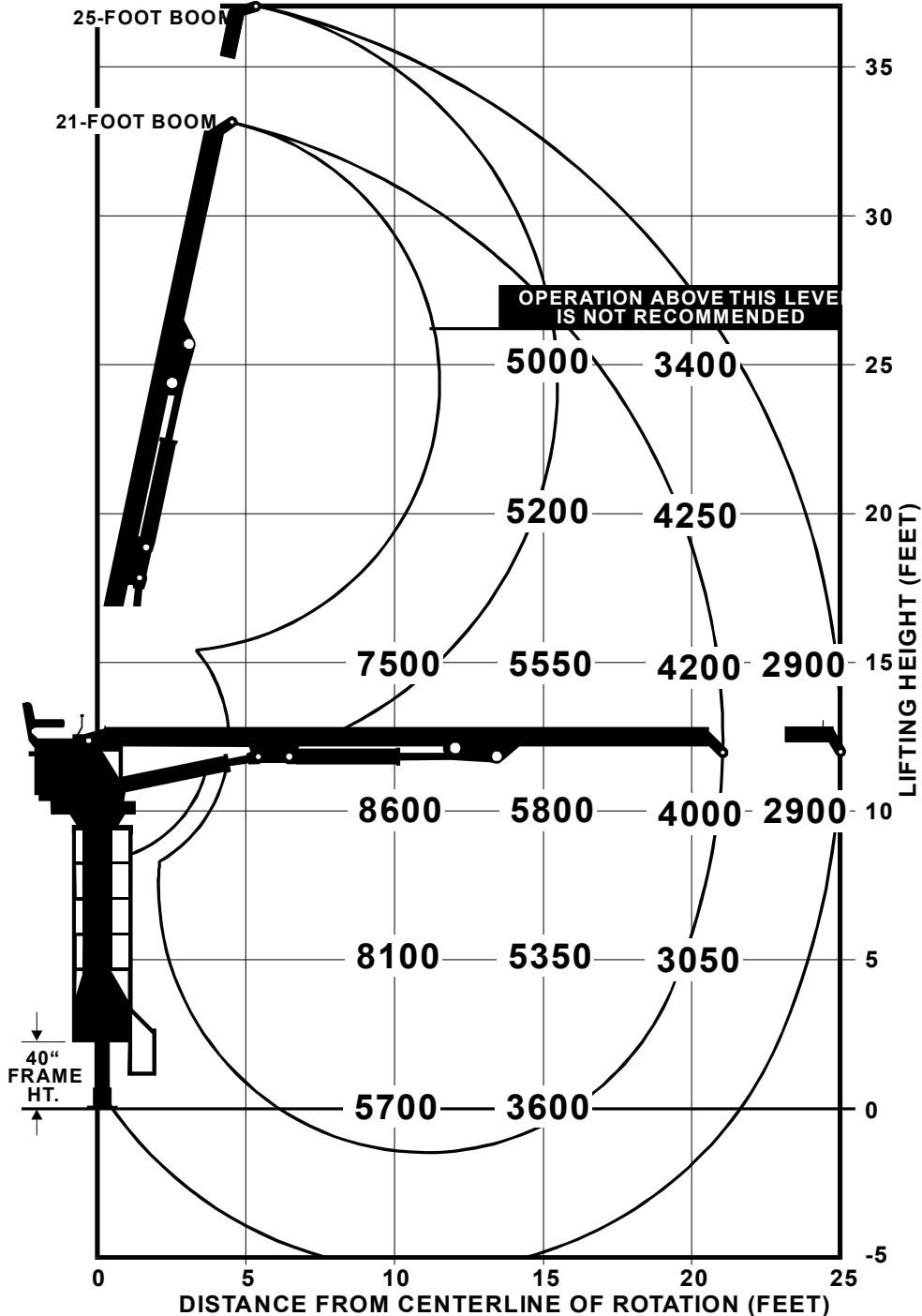
CAPACITY CHART-8000L CRANE

IOWA MOLD TOOLING CO., INC. • BOX 189 • GARNER • IA • 50438 641-923-3711



Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.

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

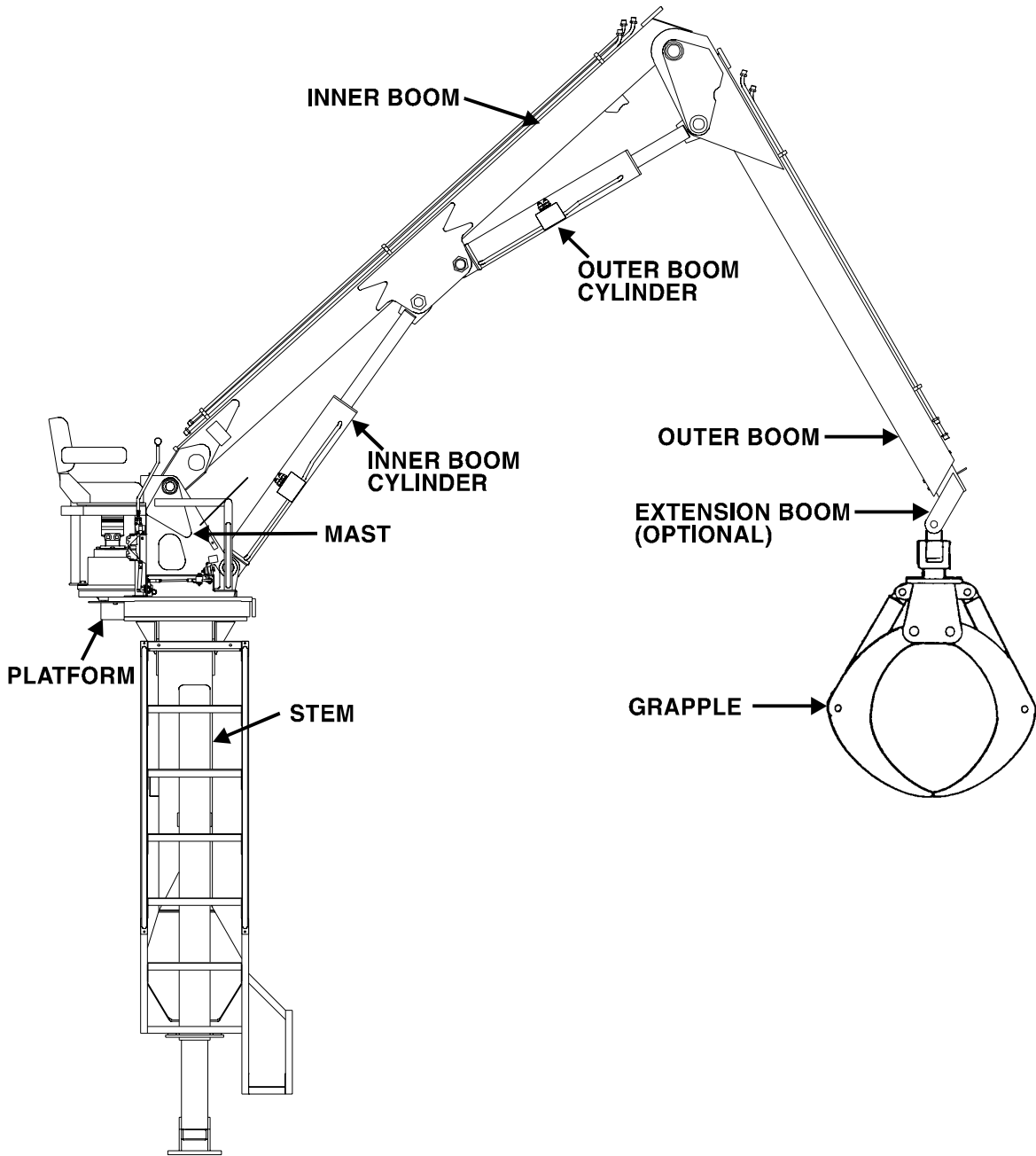


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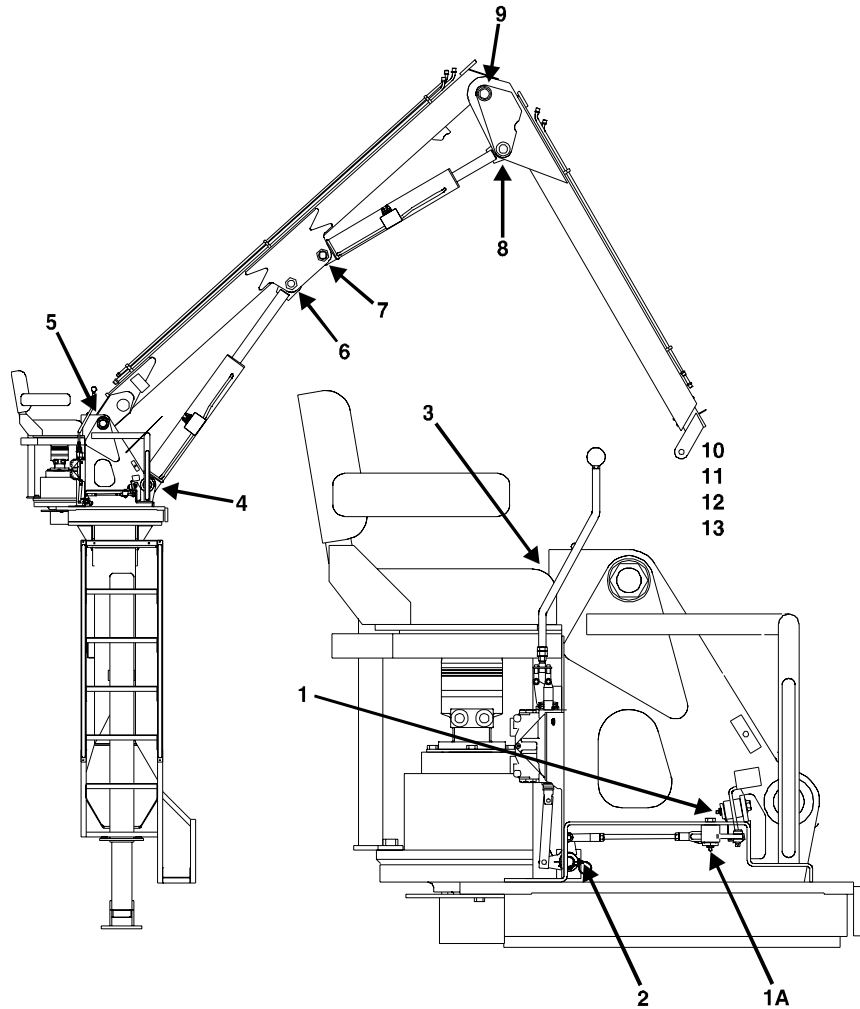
SECTION 2. REFERENCE 8000L MATERIAL HANDLING CRANE

MAJOR CRANE ASSEMBLIES	3
GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS.....	4
RECOMMENDED SPARE PARTS LIST	5
JOYSTICK CONTROLS	7
PRECAUTIONS	8

MAJOR CRANE ASSEMBLIES



GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	FOOT PEDAL	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
1A.	LINKAGE		
2.	BELLCRANK		
3.	TURNTABLE/BEARING GREASE EXTENSION *ROTATE CRANE WHILE GREASING		
4.	INNER CYLINDER BASE		
5.	MAST/INNER BOOM HINGE PIN		
6.	INNER CYLINDER ROD		
7.	OUTER CYLINDER BASE		
8.	OUTER CYLINDER ROD		
9.	INNER BOOM/OUTER BOOM HINGE PIN		
10.	GRAPPLE SWIVEL		
11.	GRAPPLE CYLINDER ROD & BASE		
12.	GRAPPLE HEAD		
13.	GRAPPLE JAW HINGES		

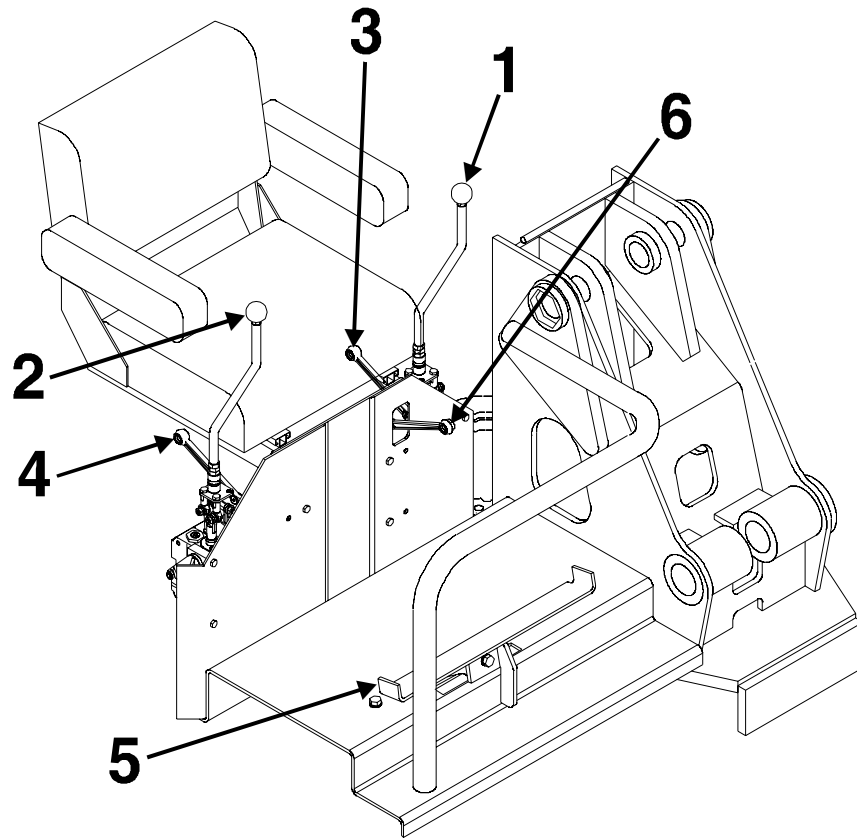
NOTE: All application points must be greased weekly under normal work loads and moderate weather conditions. Under severe operating conditions, lubrication should be performed more frequently. See Volume 1; Operation, Maintenance and Repair for additional lubrication requirements.

RECOMMENDED SPARE PARTS LIST**1 YEAR SUPPLY****8000L CRANE****FOR MANUAL: 99901217**

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 the minimal down-time waiting for parts. There may be parts failures not covered by this list. Parts not listed are considered as not being Critical or Normal Wear items during the first year of operations and you need to contact the distributor or manufacturer for availability.

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
3B025920.01.19980710			STABILIZER CYLINDER				
	5	9B025920	SEAL KIT	2	W		
41714943.01.19980710			MAST ASM-650° ROTATION				
	1	71056440	GEAR BEARING	1	W		
41714943.02.19980710			MAST ASM-650° ROTATION				
	3	73051473	MOTOR	1	W		
	5	70731795	C'BAL VALVE	1	C		
	6	71056439	PINION GEAR	1	W		
41714948.01.19980710			MAST ASM-CONTINUOUS ROTATION				
	1	71056440	GEAR BEARING	1	W		
41714948.02.19980710			MAST ASM-CONTINUOUS ROTATION				
	3	73051473	MOTOR	1	W		
	5	70731795	C'BAL VALVE	1	C		
	6	71056439	PINION GEAR	1	W		
3C152980.01.19980710			INNER BOOM CYLINDER				
	3	70143838	BALL BUSHING	2	W		
	7	9C222432	SEAL KIT	2	W		
	18	73054902	C'BAL VALVE	1	C		
41714947.01.19980710			OUTER & EXTENSION BOOM ASSEMBLY				
	12	60030219	SLIDE BUSHING	1	W		
	16	60030220	SLIDE BUSHING	1	W		
3C092950.01.19980710			OUTER BOOM CYLINDER				
	3	70143838	BALL BUSHING	2	W		
	7	9C222432	SEAL KIT	2	W		
	18	73054902	C'BAL VALVE	1	C		
3B275960.01.19980710			EXTENSION BOOM CYLINDER				
	6	9C156920	SEAL KIT	1	W		
	17	73054242	C'BAL VALVE 25GPM	2	C		
91714949.01.19980710			HYDRAULIC KIT-7 FUNCTION-21'-650° ROTATION				
	4	73054783	VELOCITY FUSE	2	W		
	6	73054795	CHECK VALVE	2	W		
91714968.01.19980710			HYDRAULIC KIT-8 FUNCTION-25'-650° ROTATION				
	4	73054783	VELOCITY FUSE	2	W		
	6	73054795	CHECK VALVE	2	W		
91715018.01.19980710			HYDRAULIC KIT-7 FUNCTION-21'-CONTINUOUS ROTATION				
	4	73054783	VELOCITY FUSE	2	W		
	6	73054795	CHECK VALVE	2	W		
91714983.01.19980710			HYDRAULIC KIT-8 FUNCTION-25'-CONTINUOUS ROTATION				
	4	73054783	VELOCITY FUSE	2	W		
	6	73054795	CHECK VALVE	2	W		
93712607.01.19980710			INSTALLATION KIT - FRONT MOUNT				
	5	70732791	SCREEN 100 MESH	1	W		
	7	73052014	RETURN FILTER ELEMENT	4	P		

JOYSTICK CONTROLS



CAUTION

BEFORE OPERATING THE CRANE, THE OPERATOR MUST FAMILIARIZE HIMSELF WITH ALL CONTROLS.

1. **LEFT JOY-STICK** PULL BACK TO RAISE INNER BOOM
PUSH FORWARD TO LOWER INNER BOOM
PUSH LEFT TO OPEN GRAPPLE
PUSH RIGHT TO CLOSE GRAPPLE
2. **RIGHT JOY-STICK** PULL BACK TO RAISE OUTER BOOM
PUSH FORWARD TO LOWER OUTER BOOM
PUSH LEFT TO ROTATE GRAPPLE COUNTERCLOCKWISE
PUSH RIGHT TO ROTATE GRAPPLE CLOCKWISE
3. **LEFT LEVER** PUSH DOWN TO LOWER LEFT GH56 @N9R
PULL UP TO RAISE LEFT GH56 @N9R
4. **RIGHT LEVER** PUSH DOWN TO LOWER RIGHT GH56 @N9R
PULL UP TO RAISE RIGHT GH56 @N9R
5. **FOOT PEDAL** PUSH DOWN WITH LEFT FOOT TO SWING LEFT
PUSH DOWN WITH RIGHT FOOT TO SWING RIGHT
6. **RIGHT FWD LEVER** PUSH FORWARD TO EXTEND EXTENSION BOOM (OPTIONAL)
PULL BACK TO RETRACT EXTENSION BOOM (OPTIONAL)

PRECAUTIONS

OPERATION PRECAUTIONS

1. Read and Understand the IMT Crane Safety Manual.
2. Beware of overhead electrical lines.
3. Apply truck brakes and block the wheels when operating.
4. Extend both stabilizers. Use wood blocking on slippery surfaces. Soft or unstable footing can pose hazards. The crane should be operated on as level a plane as possible.
5. Operate the crane slowly at first, especially when swinging the booms. Plan each movement in advance, allowing time to slow down the swing before reversing direction. Use a "feathering" or "inching" technique to give a smooth working cycle. This is accomplished by moving the controls slowly into a partial open position. As the operator becomes more experienced he can move the controls into the full open position. Avoid quick, jerking movements.
6. Always lift your load so you have maximum stability by knuckling in simultaneously while lifting up.
7. During operations, periodically check stabilizers for adequate crane stability.
8. Do not pick up more material than the grapple attachment rating recommends.
9. Never allow riders on the crane.
10. Never allow people to be under or near the load or raised boom.
11. Never move the truck while the operator is on the crane.
12. Never leave a "live" load unattended. Always disengage the PTO.
13. Always lower the grapple to the ground or truck bed before leaving the operator's platform during and after loading.
14. Always fully retract the stabilizers before moving.

MAINTENANCE PRECAUTIONS

WARNING

Be alert to unusual sounds and vibrations. The cyclic nature of the loading on the mounting bolts of the rotation bearing gives rise to the possibility of their working loose or to inelastic deformation of the threads and other stressed surfaces. Bolts should be checked periodically. Retighten to 266-294 ft-lbs (maximum) torque on the 3/4-10 grade 8 socket head cap screws.

1. **HYDRAULIC SYSTEM** - The most important factor in the operation and maintenance of the hydraulic system is cleanliness. This begins with flushing of the hydraulic system whenever a considerable amount of maintenance work has been performed that might introduce dirt, metal chips or any other foreign material into the system.

When maintenance is performed on any hydraulic component, the parts should be cleaned thoroughly and lubricated with clean hydraulic oil before assembly. This is done to clean off any dirt which might be sticking to the part and also to provide a layer of lubricant to avoid metal to metal contact when the equipment is placed into operation.

2. **WELDING** - When performing electric welding on the crane, attach the ground to the assembly being welded. If the welding arc is grounded through any of the bearings which connect the assemblies, the bearings are likely to become damaged as a result of arcing.

3. **GEAR REDUCTION BOX** - Oil should be changed after the first 50 hours of use and at 500 hour intervals thereafter. Unit requires 4.5 pints of EP 80/90 gear oil. Output shaft bearings have grease fittings which should be greased sparingly every 50 hours of operation.

4. **GENERAL** - It is recommended that all mechanical parts and hydraulic components be checked regularly to avoid the possibility of injury or downtime as a result of loose bolts and pins, damaged hydraulic lines, or partial failure of any part.

SECTION 3. REPLACEMENT PARTS

8000L MATERIAL HANDLING CRANE

PARTS INFORMATION	3
STEM ASM (41713739)	4
STABILIZER CYLINDER (3B025920)	5
MAST ASM-650° ROT'N (41714943-1)	6
MAST ASM-650° ROT'N (41714943-2)	7
MAST ASM-CONT ROT'N (41714948-1)	8
MAST ASM-CONT ROT'N (41714948-2)	9
ROTATION BRAKE (71056465)	10
INNER BOOM ASM-21' (41714946)	11
INNER BOOM ASM-25' (41714944)	12
INNER BOOM CYLINDER (3C152980)	13
OUTER BOOM ASM-21' (41714945)	14
OUTER BOOM ASM-20' (41714749)	14
OUTER & EXT BOOM ASM-25' (41714947)	15
OUTER BOOM CYLINDER (3C092950)	16
EXTENSION BOOM CYLINDER (3B275960)	17
CONTROL KIT-8F 25' (41714950)	18
VALVEBANK ASM 5-SECT RH (51714970)	19
VALVEBANK ASM 4-SECT LH 21' (51714971)	20
VALVEBANK ASM 4-SECT LH 25' (51714972)	21
HYDRAULIC KIT-7F-21' 650° ROT'N (91714949)	22
HYDRAULIC KIT-8F-25' 650° ROT'N (91714968)	23
HYDRAULIC KIT-7F-21' CONT ROT'N (91715018)	24
HYDRAULIC KIT-8F-25' CONT ROT'N (91714983)	25
INSTALLATION KIT-FRONT MNT (93712607)	26
DECAL KIT-21' (95714990)	27
DECAL KIT-25' (95714991)	28
GRAPPLE MTG KIT-NON DAMPENED-S&L (51711384)	29
GRAPPLE MTG KIT-DAMPENED-S&L (51712053)	30
2 GRAPPLE MTG KIT- NON DAMPENED-S&L (51712163)	31

PARTS INFORMATION

GENERAL

This section contains the exploded parts drawings and accompanying parts lists 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 STATEMENTS MARKED WARNING, CAUTION, OR NOTE IN THAT SECTION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE EQUIPMENT, PERSONAL INJURY, OR DEATH.

CRANE IDENTIFICATION

Every IMT crane has an identification placard (see figure) attached to the inner boom, mast, or crane base. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model numbers. All inquiries should be addressed to:

Iowa Mold Tooling Co., Inc.
Box 189, Garner, IA 50438-0189
Telephone: 641-923-3711
Technical Support Fax: 641-923-2424

IOWA MOLD TOOLING CO., INC. BOX 189, GARNER, IA 50438-0189	
MODEL NUMBER	
SERIAL NUMBER	
MFG DATE	
70029119	

SERIAL NUMBER PLACARD

CYLINDER IDENTIFICATION

To insure proper replacement parts are received, it is necessary to specify the complete number/letter sequence for any part requested. Part numbers may be cross checked by comparing the stamped identification on the cylinder case (See figure below) against the information contained in the service manual. You must include the part number stamped on the cylinder case when ordering parts.

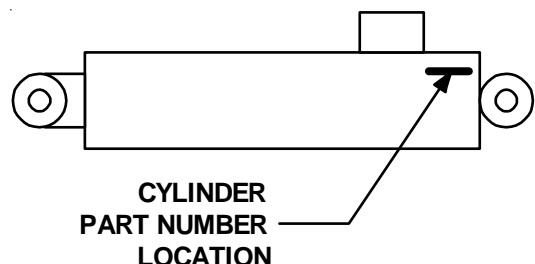
WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and stabilizer 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.

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.



CYLINDER PART NUMBER LOCATION

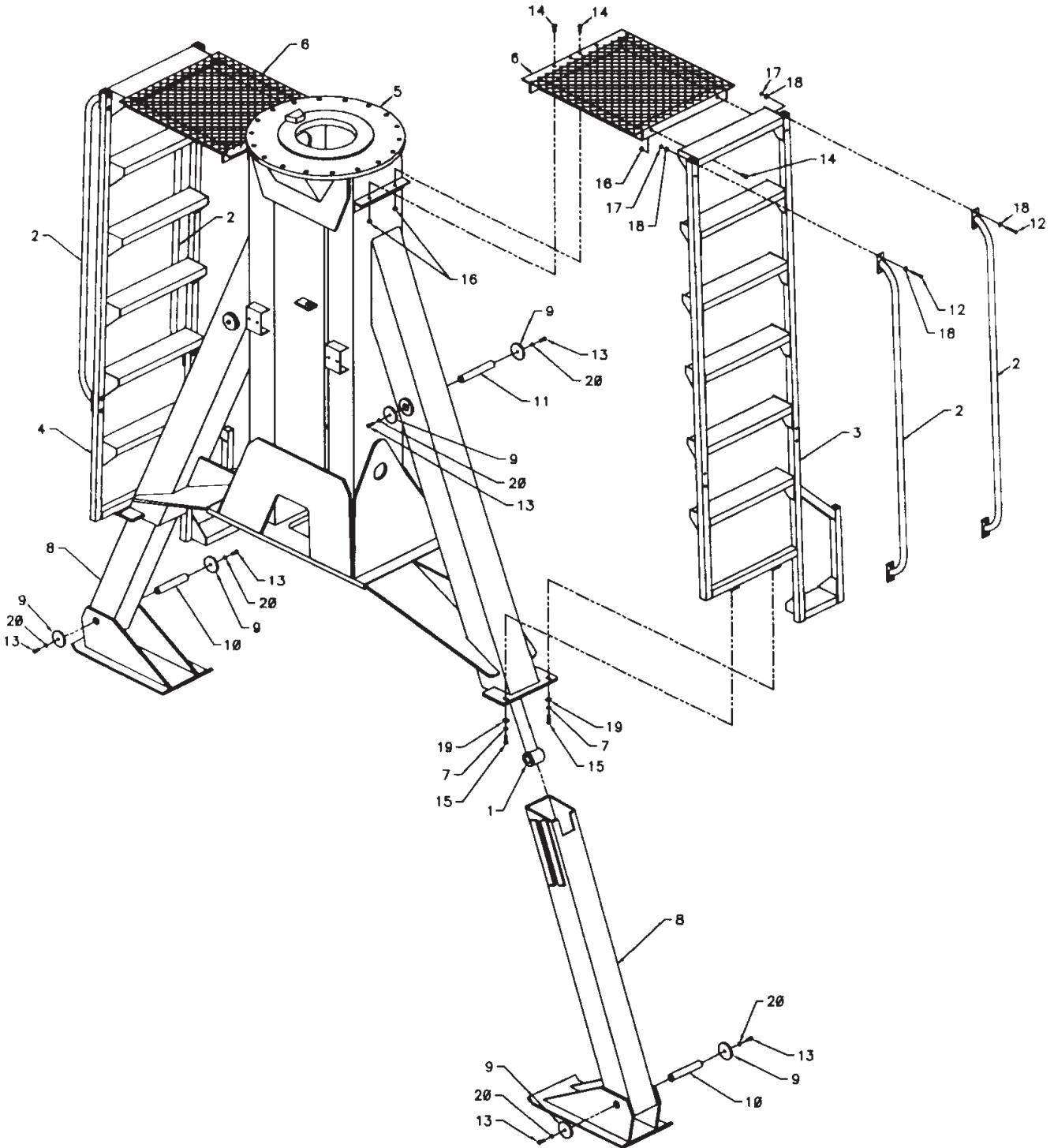
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STEM ASM (41713739)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B025920	CYLINDER-STABILIZER	2
2.	52711874	HANDLE	4
3.	52712256	LADDER-CURBSIDE	1
4.	52712255	LADDER-STREETSIDE	1
5.	52712257	STEM	1
6.	52712134	PLATFORM	2
7.	72063051	WASHER 3/8 LOCK	4
8.	52712794	STABILIZER LEG	2
9.	60117954	PIN RETAINER 3"	8

3-4

10.	60118622	PIN	2
11.	60117956	PIN	2
12.	72060009	CAP SCR 1/4-20X2-1/4 HHGR5	16
13.	72060025	CAP SCR 5/16-18X1 HHGR5	8
14.	72060046	CAP SCR 3/8-16X1 HHGR5	8
15.	72060047	CAP SCR 3/8-16X1-1/4 HHGR5	4
16.	72062103	NUT 3/8-16 LOCK	8
17.	72062104	NUT 1/4-20 LOCK	16
18.	72063001	WASHER 1/4 WRT	32
19.	72063003	WASHER 3/8 WRT	4
20.	72063050	WASHER 5/16 LOCK	8



STABILIZER CYLINDER (3B025920)

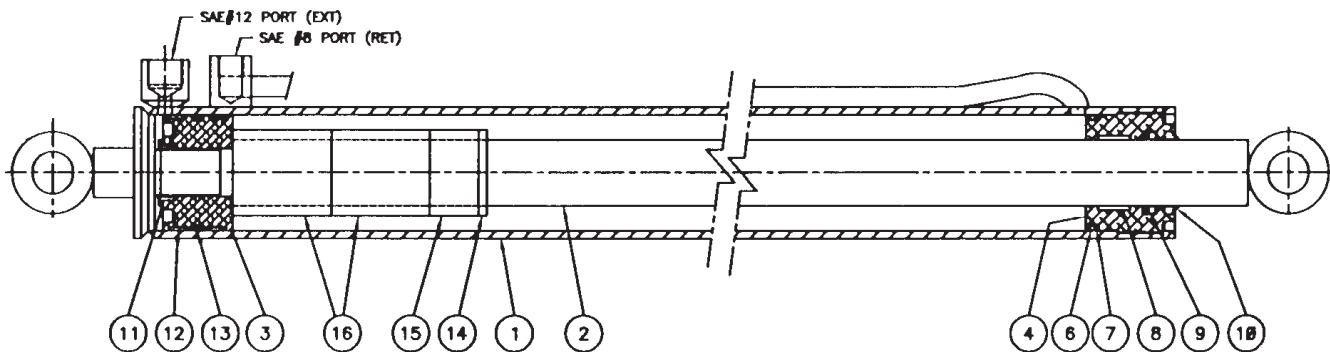
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B025920	CASE ASM	1
2.	4G025920	ROD ASM	1
3.	6I352144	PISTON	1
4.	6H035020	HEAD	1
5.	9B025920	SEAL KIT (INCL:6-14)	1
6.	7Q072338	O-RING (PART OF 5)	1REF
7.	7Q10P338	BACKUP RING (PART OF 5)	1REF
8.	7T2N8022	WEAR RING (PART OF 5)	1REF
9.	7R546020	U-CUP SEAL (PART OF 5)	1REF
10.	7R14P020	ROD WIPER (PART OF 5)	1REF
11.	7T61N143	LOCK RING (PART OF 5)	1REF
12.	7T2N4035	WEAR RING-PISTON(PART OF 5)	2REF
13.	7T66P350	PISTON SEAL (PART OF 5)	1REF
14.	6A025020	WAFER LOCK (PART OF 5)	1REF
15.	6C150020	STOP TUBE 1-1/2"	1
16.	6C300020	STOP TUBE 3"	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, HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS AND ROD THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD THREADS. DO NOT APPLY "NEVER-SEEZ" TO ANY SEALS.



MAST ASM-650° ROT'N (41714943-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	71056440	GEAR BEARING	1
2.	72601630	CAP SCR 3/4-10X3-1/2 SH	41
3.	72060091	CAP SCR 1/2-13x1 HHGR5	2
4.	52716829	GEAR GUARD	1
5.	60114481	PIPE	4
6.	60114480	RING	1
7.	72060096	CAP SCR 1/2-13X2-1/2 HHGR5	4
8.	60120732	ROLLER	1
9.	52714941	MAST	1
10.	72053508	ZERK 1/8NPT	1
11.	72053589	STREET ELBOW 1/8NPT 90°	1
12.	53000710	GREASE EXT 29"	1
13.	72053301	COUPLING 1/8NPT	1
14.	89044330	LOOM	2FT
15.	70067005	ADHESIVE	AR
16.	60120142	HOSE CLAMP	1
17.	72060050	CAP SCR 3/8-16X2 HHGR5	2
18.	72063003	WASHER 3/8 WRT	4
19.	72063051	WASHER 3/8 LOCK	2
20.	60106743	SPACER	1
21.	72060094	CAP SCR 1/2-13X1-3/4 HHGR5	1
22.	72063005	WASHER 1/2 WRT	1
23.	60106744	HOSE CLAMP	1
24.	52713826	BRACKET	1
25.	60120143	HOSE CLAMP	1
26.	72063053	WASHER 1/2 LOCK	1

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.

CAUTION

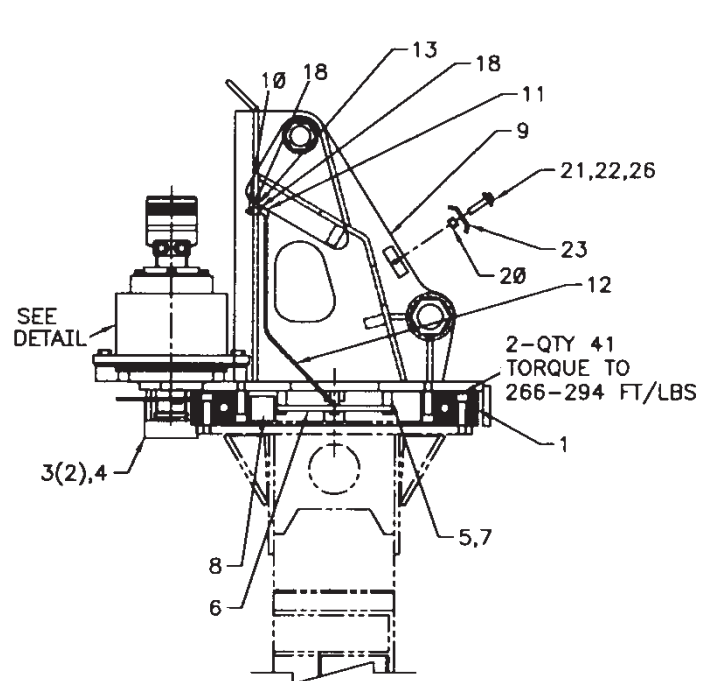
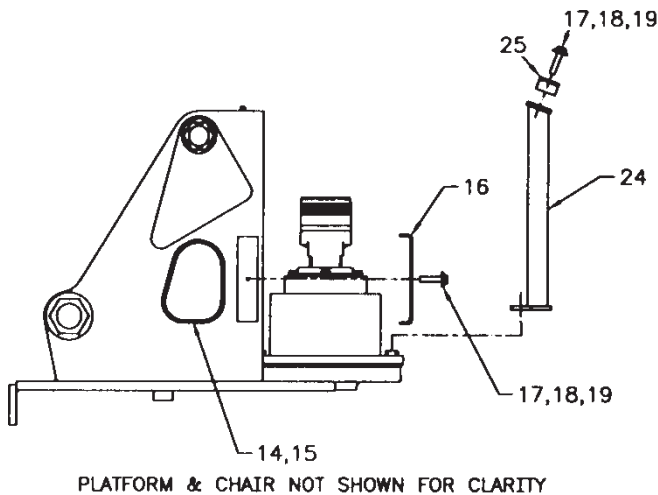
REFER TO THE TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE INSTRUCTIONS IN THE REFERENCE SECTION PRIOR TO TIGHTENING TURNTABLE GEAR FASTENERS.

NOTE

INSTALL GEAR BEARING WITH A MINIMUM GEAR BACKLASH OF .020-.030" (.508 - .762mm). MEASURED BETWEEN SWING PINION AND GEAR BEARING TEETH WITH YELLOW PAINT.

NOTE

APPLY MOBILTAC 375NC LUBRICANT (OR EQUIVALENT) TO THE EXTERNAL TEETH OF THE TURNTABLE BEARING AND PINION GEAR.



MAST ASM-650° ROT'N (41714943-2)

ITEM	PART NO.	DESCRIPTION	QTY
1.	72060186	CAP SCR 3/4-10X2-1/2 HHGR5	10
2.	70056495	GEAR BOX	1
3.	73056549	HYD MOTOR	1
4.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	2
5.	70731795	VALVEPACK	1
6.	71056439	PINION GEAR	1
7.	60114482	PINION GEAR CAP	1
8.	72060356	CAP SCR 1/2-20X1-1/4 HHGR5	2
9.	72063053	WASHER 1/2 LOCK	4
10.	72062080	NUT 1/2-13 LOCK	2
11.	71056465	HYD BRAKE	1
12.	76391497	GASKET-BRAKE/CRANE BASE	1
13.	76393533	GASKET-BRAKE	1
14.	60106032	STUD 1/2-13X2	2
15.	7Q072017	O-RING	2REF
16.	73054538	C'BAL VALVE	2REF
17.	72060757	CAP SCR 3/8-16X2-1/2 SH	4

NOTE 1

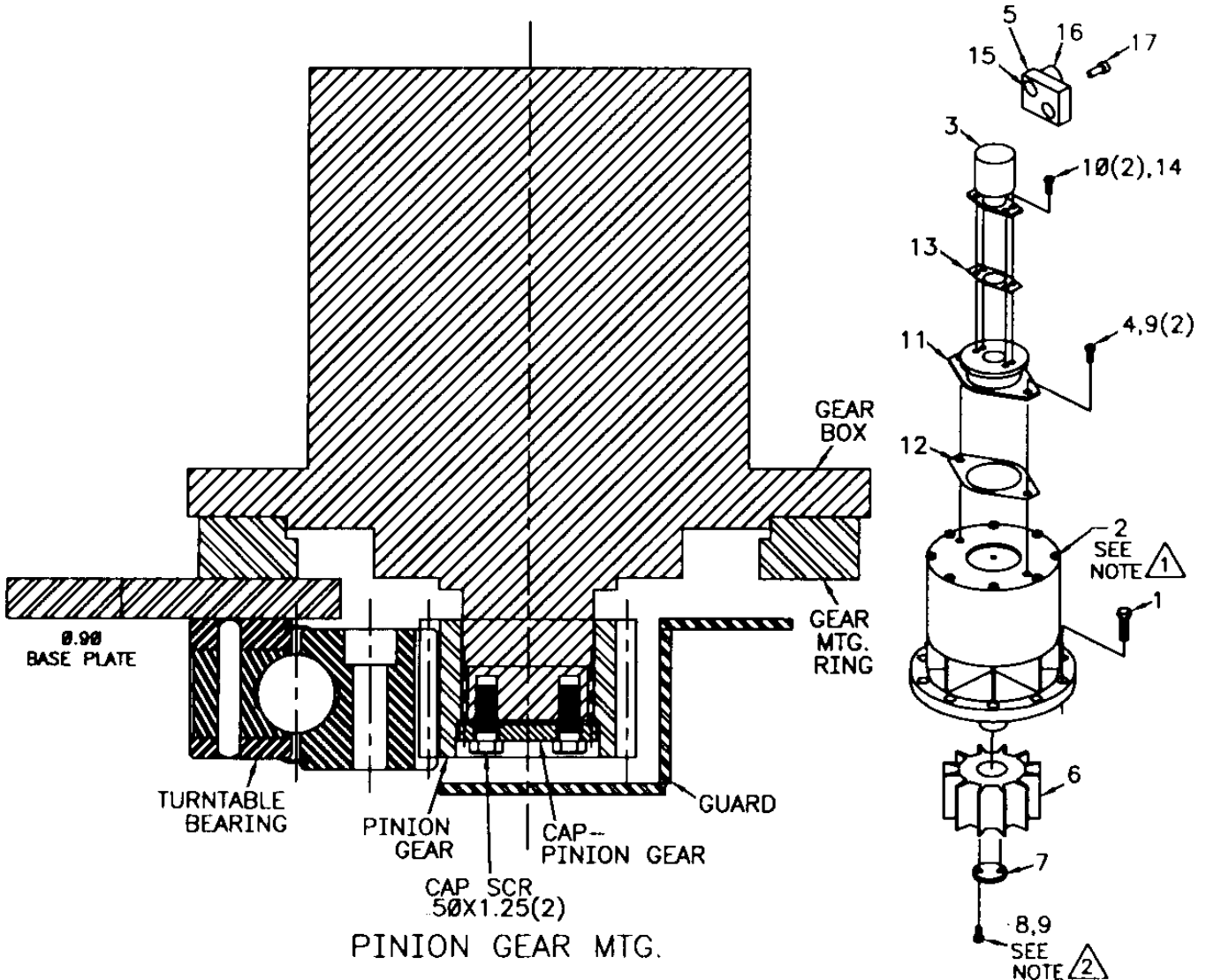
FILL WITH 4.25 PINTS (2 LITERS) OF 80/90 EP GREASE. SHOULD BE FILLED TO WITHIN 1-3/8" (35mm) FROM TOP FILL PLUG.

NOTE 2

USE A CLEANER/PRIMER ON THREADS. APPLY A SERVICEABLE THREAD LOCKER. TORQUE CAP SCREWS TO 75 FT-LBS (10.37 KG-M).

NOTE 3

APPLY MOBILTAC 375NC LUBRICANT (OR EQUIVALENT) TO THE EXTERNAL TEETH OF THE TURNTABLE BEARING AND PINION GEAR.



MAST ASM-CONT ROT'N (41714948-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	71056440	GEAR BEARING	1
2.	72601630	CAP SCR 3/4-10X3-1/2 SH	41
3.	72060091	CAP SCR 1/2-13x1 HHGR5	2
4.	52716829	GEAR GUARD	1
5.	72063053	WASHER 1/2 LOCK	3
6.	60104062	SLEEVE	2
7.	52711046	ROTATION BRAKE	1
8.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	2
9.	72060031	CAP SCR 5/16-18X2-1/2 HHGR5	2
10.	52714941	MAST	1
11.	72053508	ZERK 1/8NPT	1
12.	72053589	STREET ELBOW 1/8NPT 90°	1
13.	53000710	GREASE EXT 29"	1
14.	72063050	WASHER 5/16 LOCK	2
15.	72053301	COUPLING 1/8NPT	1
16.	72063002	WASHER 5/16 WRT	2
17.	89044330	LOOM	2FT
18.	70067005	ADHESIVE	AR
19.	60120142	HOSE CLAMP	1
20.	72060050	CAP SCR 3/8-16X2 HHGR5	2
21.	72063003	WASHER 3/8 WRT	4
22.	72063051	WASHER 3/8 LOCK	2
23.	60106743	SPACER	1
24.	72060094	CAP SCR 1/2-13X1-3/4 HHGR5	1
25.	72063005	WASHER 1/2 WRT	1
26.	60106744	HOSE CLAMP	1
27.	52713826	BRACKET	1
28.	60120143	HOSE CLAMP	1

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.

CAUTION

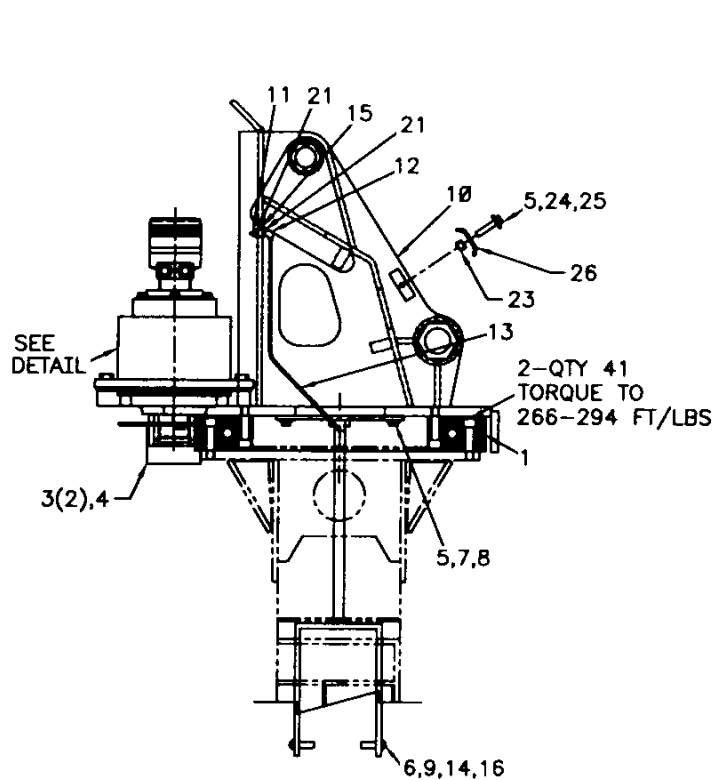
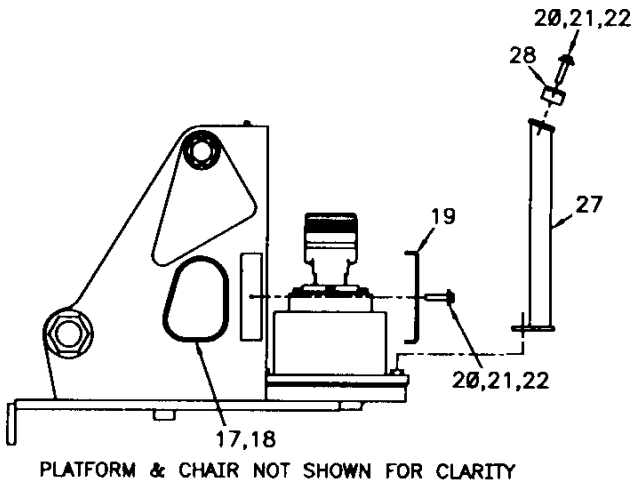
REFER TO THE TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE INSTRUCTIONS IN THE REFERENCE SECTION PRIOR TO TIGHTENING TURNTABLE GEAR FASTENERS.

NOTE

INSTALL GEAR BEARING WITH A MINIMUM GEAR BACKLASH OF .020-.030" (.508 - .762mm). MEASURED BETWEEN SWING PINION AND GEAR BEARING TEETH WITH YELLOW PAINT.

NOTE

APPLY MOBILTAC 375NC LUBRICANT (OR EQUIVALENT) TO THE EXTERNAL TEETH OF THE TURNTABLE BEARING AND PINION GEAR.



MAST ASM-CONT ROT'N (41714948-2)

ITEM	PART NO.	DESCRIPTION	QTY
1.	72060186	CAP SCR 3/4-10X2-1/2 HHGR5	10
2.	70056495	GEAR BOX	1
3.	73056549	HYD MOTOR	1
4.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	2
5.	70731795	VALVEPACK	1
6.	71056439	PINION GEAR	1
7.	60114482	PINION GEAR CAP	1
8.	72060356	CAP SCR 1/2-20X1-1/4 HHGR5	2
9.	72063053	WASHER 1/2 LOCK	4
10.	72062080	NUT 1/2-13 LOCK	2
11.	71056465	HYD BRAKE	1
12.	76391497	GASKET-BRAKE/CRANE BASE	1
13.	76393533	GASKET-BRAKE	1
14.	60106032	STUD 1/2-13X2	2
15.	7Q072017	O-RING	2REF
16.	73054538	C'BAL VALVE	2REF
17.	72060757	CAP SCR 3/8-16X2-1/2 SH	4

NOTE 1

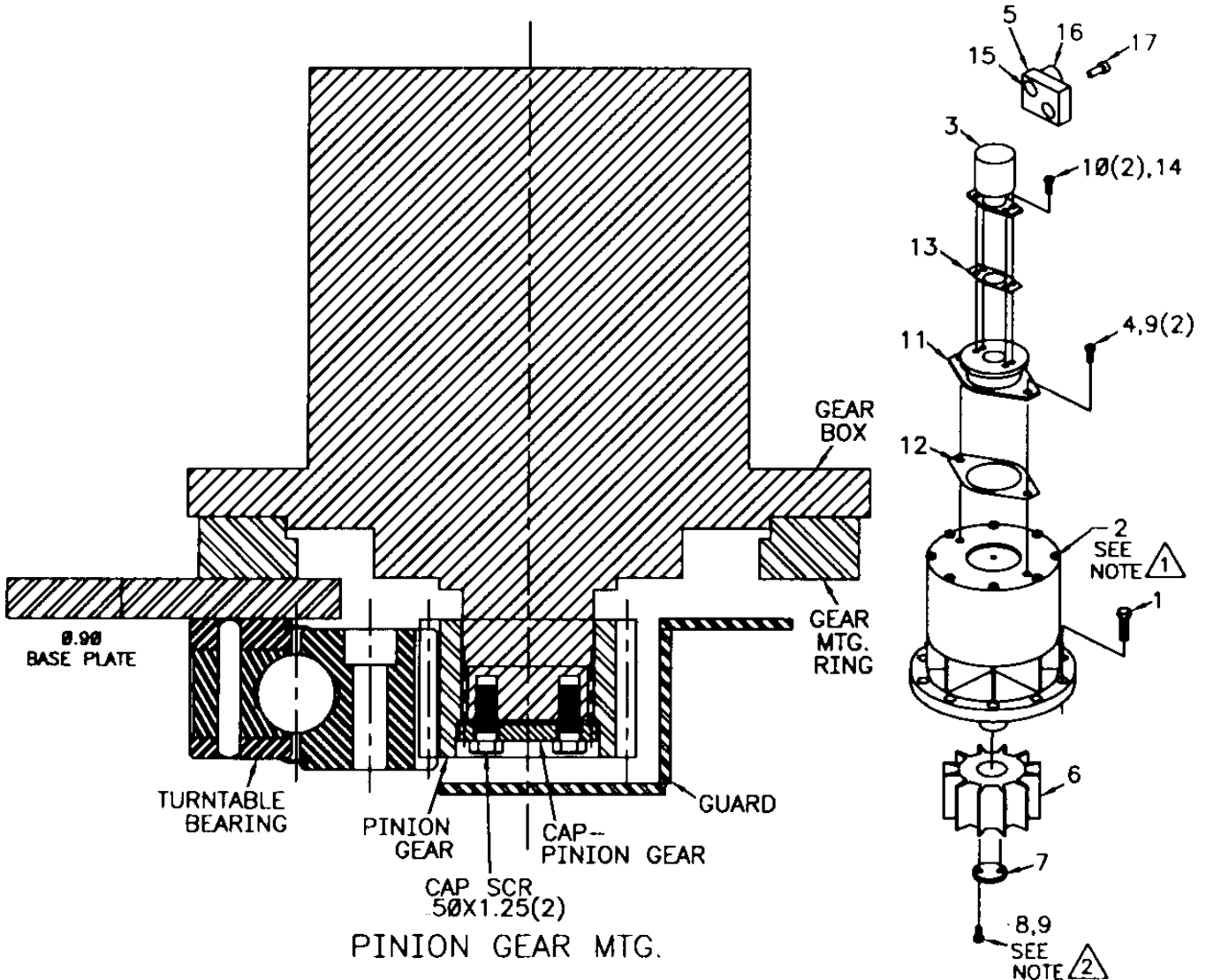
FILL WITH 4.25 PINTS (2 LITERS) OF 80/90 EP GREASE. SHOULD BE FILLED TO WITHIN 1-3/8" (35mm) FROM TOP FILL PLUG.

NOTE 2

USE A CLEANER/PRIMER ON THREADS. APPLY A SERVICEABLE THREAD LOCKER. TORQUE CAP SCREWS TO 75 FT-LBS (10.37 KG-M).

NOTE 3

APPLY MOBILTAC 375NC LUBRICANT (OR EQUIVALENT) TO THE EXTERNAL TEETH OF THE TURNTABLE BEARING AND PINION GEAR.



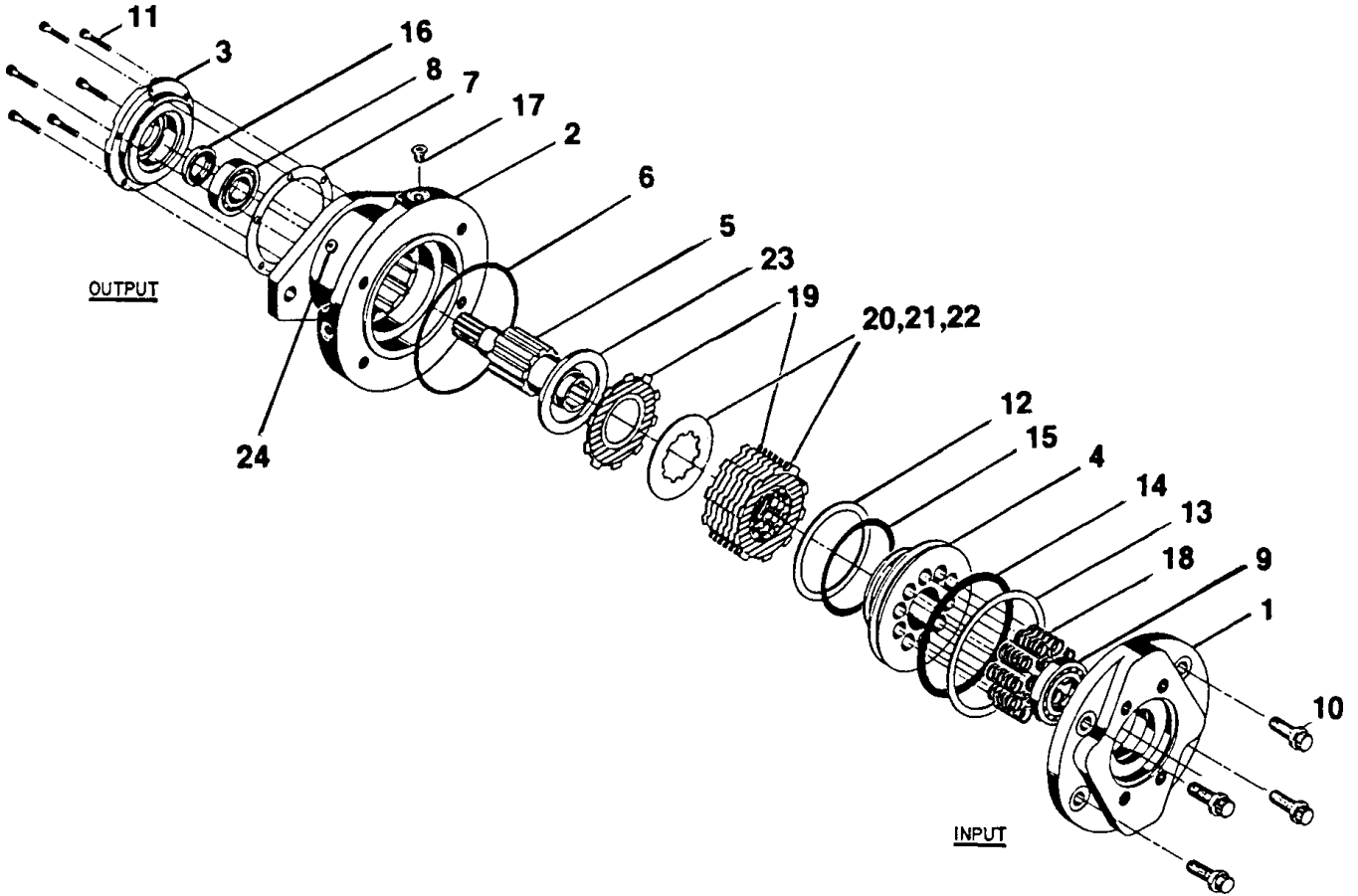
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3-10

ROTATION BRAKE (71056465)

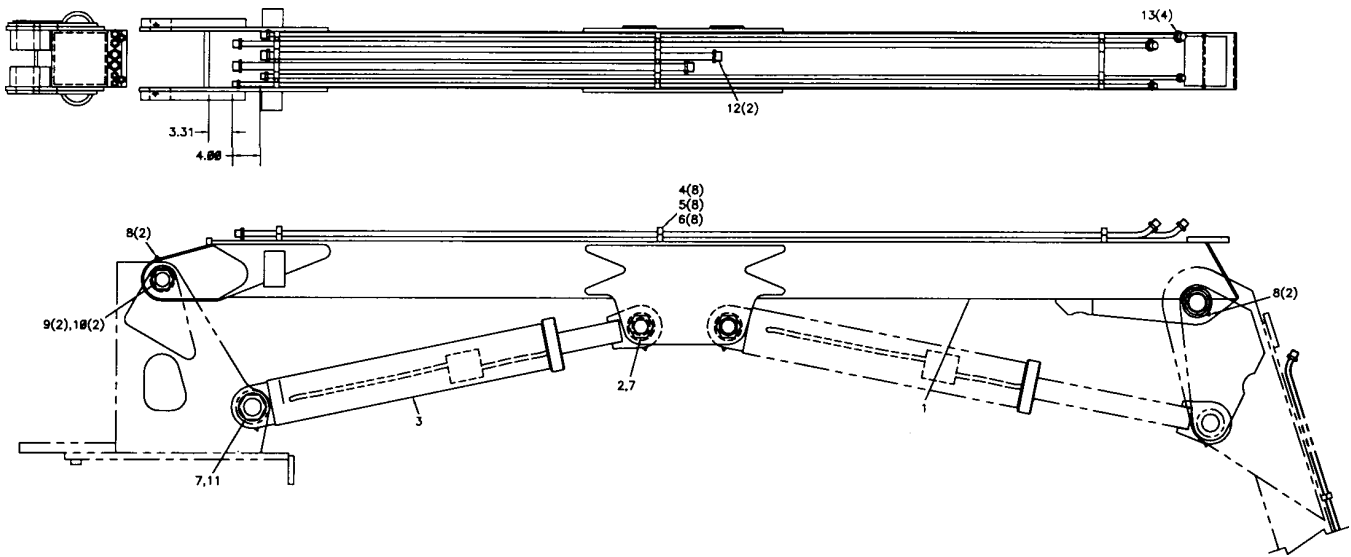
ITEM	PART NO.	DESCRIPTION	QTY
1.	70144103	COVER	1
2.	70144113	CASE	1
3.	70144114	BASE	1
4.	70144115	PISTON	1
5.	70144116	SHAFT	1
6.	76393541	GASKET	1
7.	76393540	BASE GASKET	1
8.	70055234	BEARING	1
9.	70055235	BEARING	1
10.	72601660	CAP SCR 12POINT 1/2-13X1	4
11.	72601659	CAP SCR #10-24X3/4 SH	6

12.	76393535	BACKUP RING	1
13.	76393536	BACKUP RING	1
14.	76393537	O-RING	1
15.	76393538	O-RING	1
16.	76393539	SEAL	1
17.	72533261	HEX PLUG	1
18.	70144117	SPRING	10
19.	70144118	FRICITION DISC	8
20.	70144111	SEPARATOR PLATE	7
21.	76393534	O-RING	1
22.	76393533	GASKET	1
23.	70144112	SPACER-NOT USED	
24.	M72053240	PLUG	4



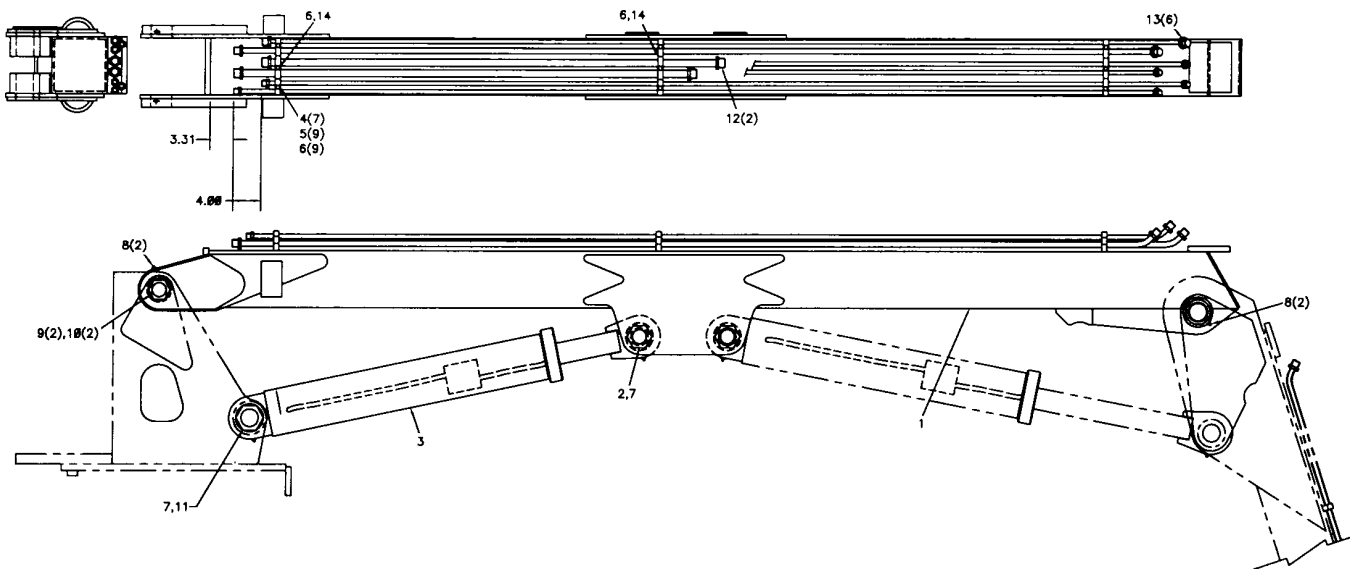
INNER BOOM ASM-21' (41714946)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52713846	INNER BOOM	1
2.	52710034	PIN	1
3.	3C152980	INNER CYLINDER	1
4.	72060029	CAP SCR 5/16-18X2 HHGR5	8
5.	70143829	COVER PLATE	8
6.	70034432	TUBE CLAMP 2-HOLE	8
7.	72062250	NUT 2-12 LOCK	2
8.	72053508	ZERK 1/8NPT	4
9.	52710471	PIN	2
10.	72062241	NUT 1-1/5 LOCK	2
11.	52710035	PIN	1
12.	70145464	HYD TUBE ASM 1/2X66	2
13.	70145465	HYD TUBE ASM 1/2X131	4



INNER BOOM ASM-25' (41714944)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52713846	INNER BOOM	1
2.	52710034	PIN	1
3.	3C152980	INNER CYLINDER	1
4.	72060029	CAP SCR 5/16-18X2 HHGR5	7
5.	70143829	COVER PLATE	9
6.	70034432	TUBE CLAMP 2-HOLE	11
7.	72062250	NUT 2-12 LOCK	2
8.	72053508	ZERK 1/8NPT	4
9.	52710471	PIN	2
10.	72062241	NUT 1-1/5 LOCK	2
11.	52710035	PIN	1
12.	70145464	HYD TUBE ASM 1/2X66	2
13.	70145465	HYD TUBE ASM 1/2X131	6
14.	72060034	CAP SCR 5/16-18X3-1/4 HHGR5	2



INNER BOOM CYLINDER (3C152980)

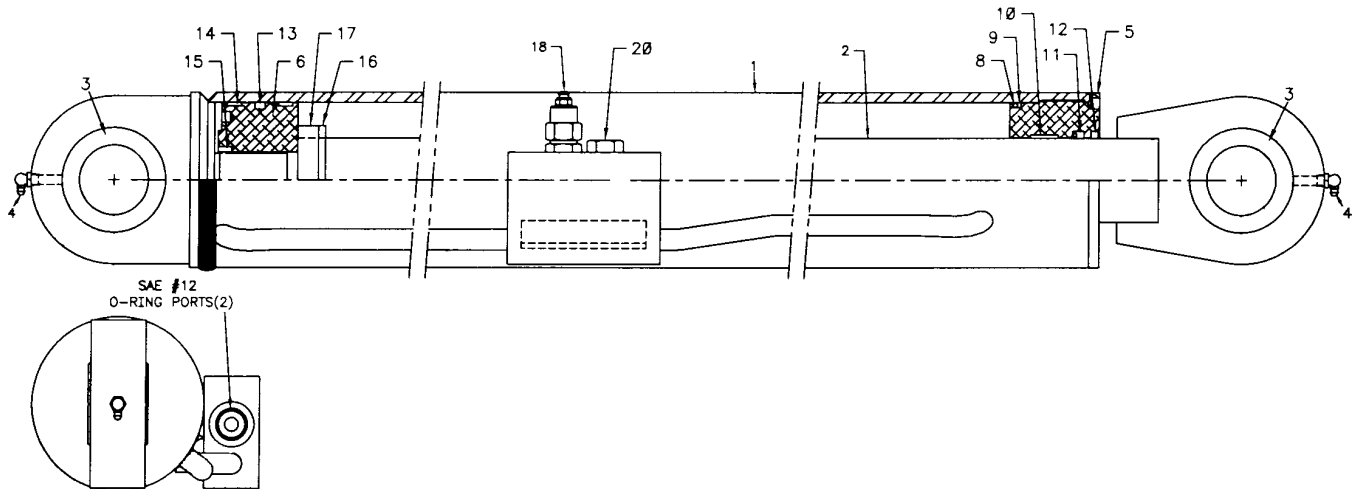
ITEM	PART NO.	DESCRIPTION	QTY
1.	4C092950	CASE ASM (INCL:3,4)	1
2.	4G102930	ROD ASM (INCL:3,4)	1
3.	70143838	BALL BUSHING (PART OF 1&2)	2REF
4.	72053561	ZERK 1/8NPT90°(PART OF 1&2)	2REF
5.	6HX05530	HEAD	1
6.	6IX05520	PISTON	1
7.	9C222432	SEAL KIT(INCL:8-16)	1
8.	7Q072354	O-RING (PART OF 7)	1REF
9.	7Q10P354	BACKUP RING (PART OF 1)	1REF
10.	7T2N9032	WEAR RING (PART OF 7)	1REF
11.	7R546030	U-CUP SEAL (PART OF 7)	1REF
12.	7R14P030	ROD WIPER (PART OF 7)	1REF
13.	7T66P550	PISTON SEAL (PART OF 7)	1REF
14.	7T2N4055	WEAR RING (PART OF 7)	2REF
15.	7T61N200	LOCK RING (PART OF 7)	1REF
16.	6A025030	WAFER LOCK (PART OF 7)	1REF
17.	6C075030	STOP TUBE	1
18.	73054902	C'BAL VALVE	1
19.	72532522	PLUG	2
20.	73054926	C'BAL VALVE PLUG	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, HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS AND ROD THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD THREADS. DO NOT APPLY "NEVER-SEEZ" TO ANY SEALS.



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3-14

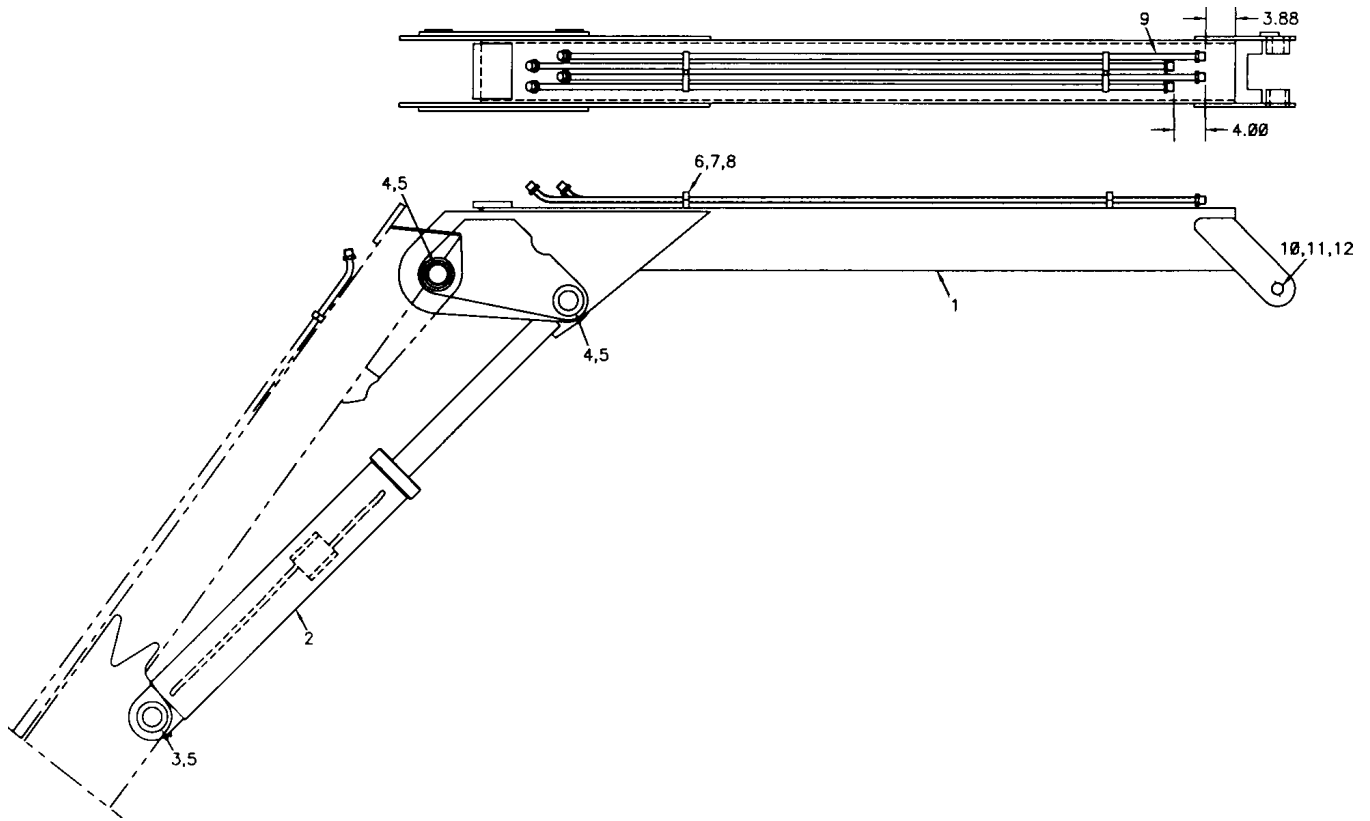
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OUTER BOOM ASM-21' (41714945)

OUTER BOOM ASM-20' (41714749)

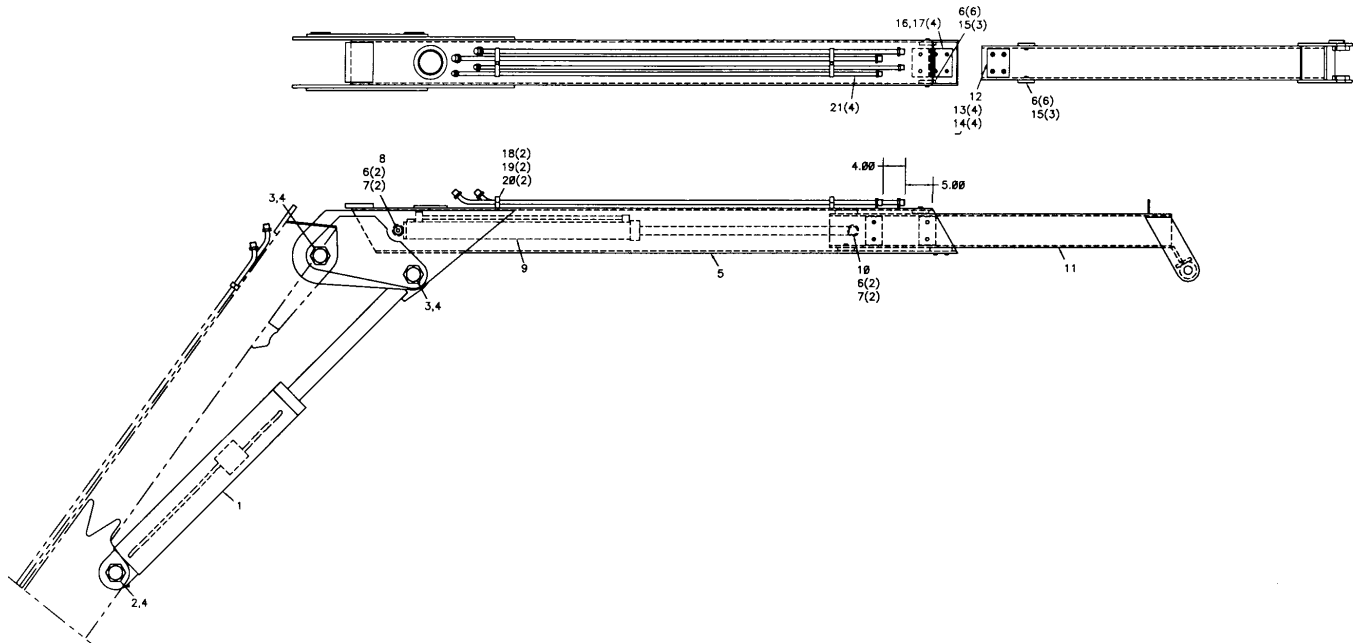
ITEM	PART NO.	DESCRIPTION	QTY
1.	52713983	OUTER BOOM 21'	1
2.	3C092950	OUTER CYLINDER	1
3.	52710034	PIN	1
4.	52710045	PIN	2
5.	72062250	NUT 2-12 JAM	3
6.	72060029	CAP SCR 5/16-18X2 HHGR5	4
7.	70143829	COVER PLATE	4
8.	70034432	TUBE CLAMP	4
9.	70145537	HYD TUBE ASM 1/2X64	4
10.	52710206	PIN	1
11.	60114437	LOAD SLEEVE	1
12.	72062255	NUT 1 1/2-12 JAM	1

ITEM	PART NO.	DESCRIPTION	QTY
1.	52714748	OUTER BOOM 20'	1
2.	3C092950	OUTER CYLINDER	1
3.	52710034	PIN	1
4.	52710045	PIN	2
5.	72062250	NUT 2-12 JAM	3
6.	72060029	CAP SCR 5/16-18X2 HHGR5	4
7.	70143829	COVER PLATE	4
8.	70034432	TUBE CLAMP	4
9.	70145462	HYD TUBE ASM 1/2X52	4
10.	52710206	PIN	1
11.	60114437	LOAD SLEEVE	1
12.	72062255	NUT 1 1/2-12 JAM	1



OUTER & EXT BOOM ASM-25'
(41714947)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3C092950	OUTER CYLINDER	1
2.	52710034	PIN	1
3.	52710045	PIN	2
4.	72062250	NUT 2-12 LOCK	3
5.	52713845	END BOOM	1
6.	72060044	CAP SCR 3/8-16X3/4 HH GR5	16
7.	60114453	WASHER	4
8.	60114454	PIN	1
9.	3B275960	EXTENSION CYLINDER	1
10.	60114456	PIN	1
11.	52710053	EXTENSION BOOM	1
12.	60030219	SLIDE BUSHING	1
13.	72601611	MACH SCR 3/8-16X1-1/2	4
14.	72062103	NUT 3/8-16 LOCK	4
15.	60114459	SLIDE SPACER	6
16.	60030220	SLIDE BUSHING	1
17.	72060045	CAP SCR 3/8-16X7/8 HHGR5	4
18.	70034432	TUBE CLAMP 2-HOLE	4
19.	70143829	COVER PLATE	4
20.	72060029	CAP SCR 5/16-18X2 HHGR5	4
21.	70145463	HYD TUBE ASM 1/2X76	4



OUTER BOOM CYLINDER (3C092950)

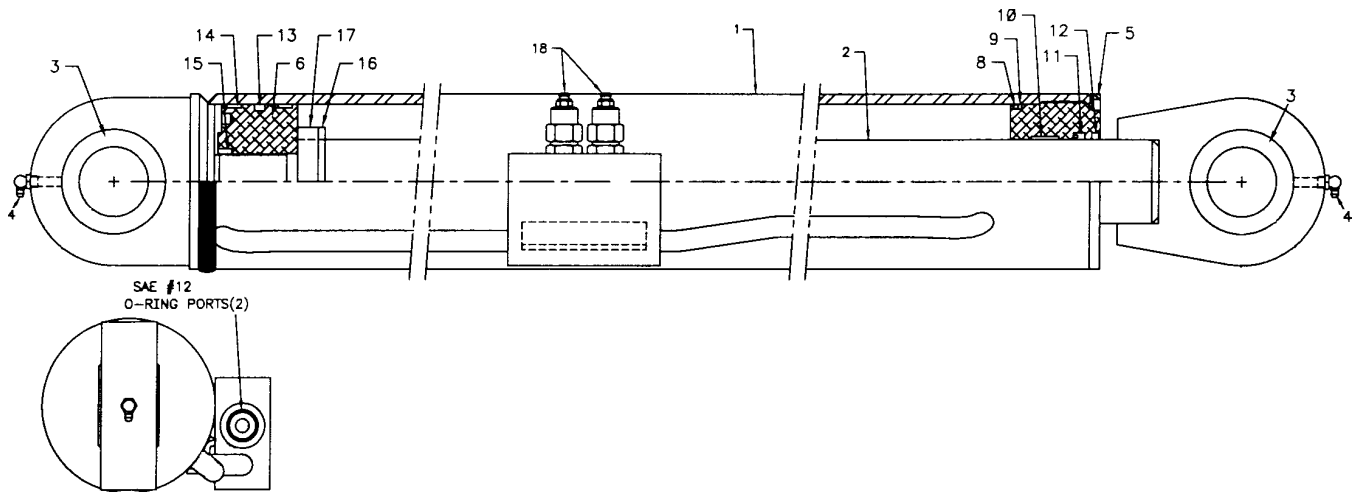
ITEM PART NO.	DESCRIPTION	QTY
1. 4C092950	CASE ASM	1
2. 4G102930	ROD ASM	1
3. 70143838	BALL BUSHING(PART OF 1&2)	2REF
4. 72053561	ZERK 1/8NPT90°(PART OF 1&2)	2REF
5. 6HX06530	HEAD	1
6. 6IX05520	PISTON	1
7. 9C222432	SEAL KIT (INCL:8-16)	1
8. 7Q072354	O-RING (PART OF 7)	1REF
9. 7Q10P354	BACKUP RING (PART OF 7)	1REF
10. 7T2N8032	WEAR RING (PART OF 7)	1REF
11. 7R546030	U-CUP SEAL (PART OF 7)	1REF
12. 7R14P030	ROD WIPER (PART OF 7)	1REF
13. 7T66P550	PISTON SEAL (PART OF 7)	1REF
14. 7T2N4055	WEAR RING (PART OF 7)	2REF
15. 7T61N200	LOCK RING (PART OF 7)	1REF
16. 6A025030	WAFFER LOCK (PART OF 7)	1REF
17. 6C075030	STOP TUBE	1
18. 73054902	C'BAL VALVE	2
19. 72532522	PLUG	2

NOTE

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

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT, TO ALL PISTON AND HEAD GLANDS, HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS AND ROD THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD THREADS. DO NOT APPLY "NEVER-SEEZ" TO ANY SEALS.



**EXTENSION BOOM CYLINDER
(3B275960)**

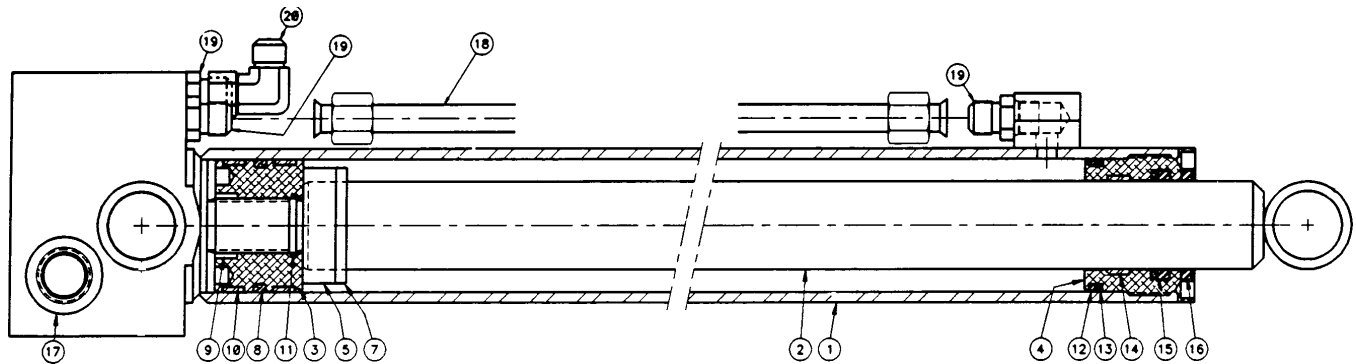
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B275960	CASE ASM	1
2.	4G339910	ROD ASM	1
3.	6I302125	PISTON	1
4.	6H030020	HEAD	1
5.	6C075020	STOP TUBE 3/4	1
6.	9C156920	SEAL KIT (INCL:7-16)	1
7.	6A025020	WAFFER LOCK (PART OF 6)	1REF
8.	7T66P300	PISTON SEAL (PART OF 6)	1REF
9.	7T61N125	LOCK RING (PART OF 6)	1REF
10.	7T2N4030	WEAR RING-1" (PART OF 6)	2REF
11.	7Q072124	O-RING (PART OF 6)	1REF
12.	7Q072334	O-RING (PART OF 6)	1REF
13.	7Q10P334	BACKUP RING (PART OF 6)	1REF
14.	7T2N4022	WEAR RING (PART OF 6)	1REF
15.	7R546020	U-CUP (PART OF 6)	1REF
16.	7R14P020	ROD WIPER (PART OF 6)	1REF
17.	73054242	C'BAL VALVE 25GPM	2

NOTE

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

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT, TO ALL PISTON AND HEAD GLANDS, HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS AND ROD THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD THREADS. DO NOT APPLY "NEVER-SEEZ" TO ANY SEALS.

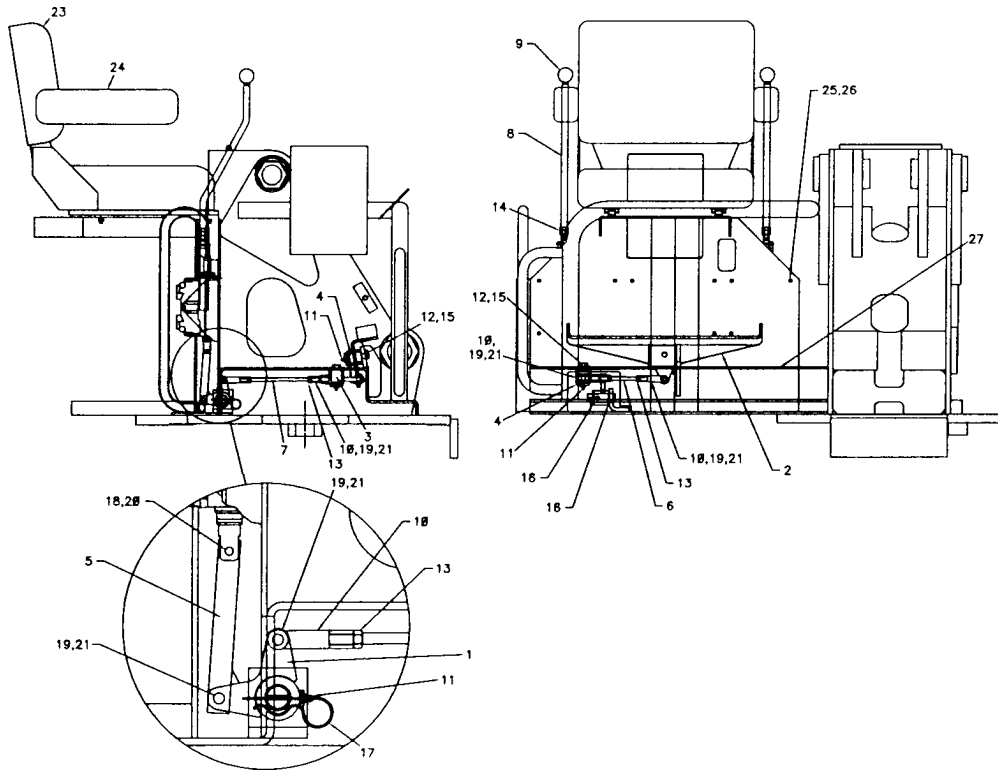


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3-18

CONTROL KIT-8F 25' (41714950)

ITEM	PART NO.	DESCRIPTION	QTY			
1.	52711738	BELL CRANK	1	13.	72062037	NUT 3/8-24 HEX 4
2.	52712667	PEDAL	1	14.	72062080	NUT 1/2-13 LOCK 2
3.	52712668	BELL CRANK TOE/TOE/SWG	1	15.	72063053	WASHER 1/2 LOCK 2
4.	60114543	PIN	2	16.	72063034	MACH BUSHING 1X10GA NR 2
5.	60118454	YOKE	1	17.	72066143	HAIR PIN 1/8 1
6.	60118544	STUD 3/8-24X4-7/8	1	18.	72066336	COTTER PIN-SPCL SHORT 1
7.	60118545	STUD 3/8-24X8-1/8	1	19.	72066168	COTTER PIN 3/32X3/4 5
8.	70144898	CONTROL HANDLE	2	20.	72661277	CLEVIS PIN 1/4X1 1
9.	71393327	KNOB	2	21.	72661432	CLEVIS PIN 3/8X1-1/4 5
10.	71580054	CLEVIS 3/8-24	4	23.	70732851	CHAIR 1
11.	72053508	ZERK 1/8NPT	3	24.	70732852	ARM REST SET 1
12.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	2	25.	72062109	NUT 5/16-18 LOCK 6
				26.	72060032	CAP SCR 5/16-18X2-3/4 HHGR5 6
				27.	89039999	TREAD 12" 3FT

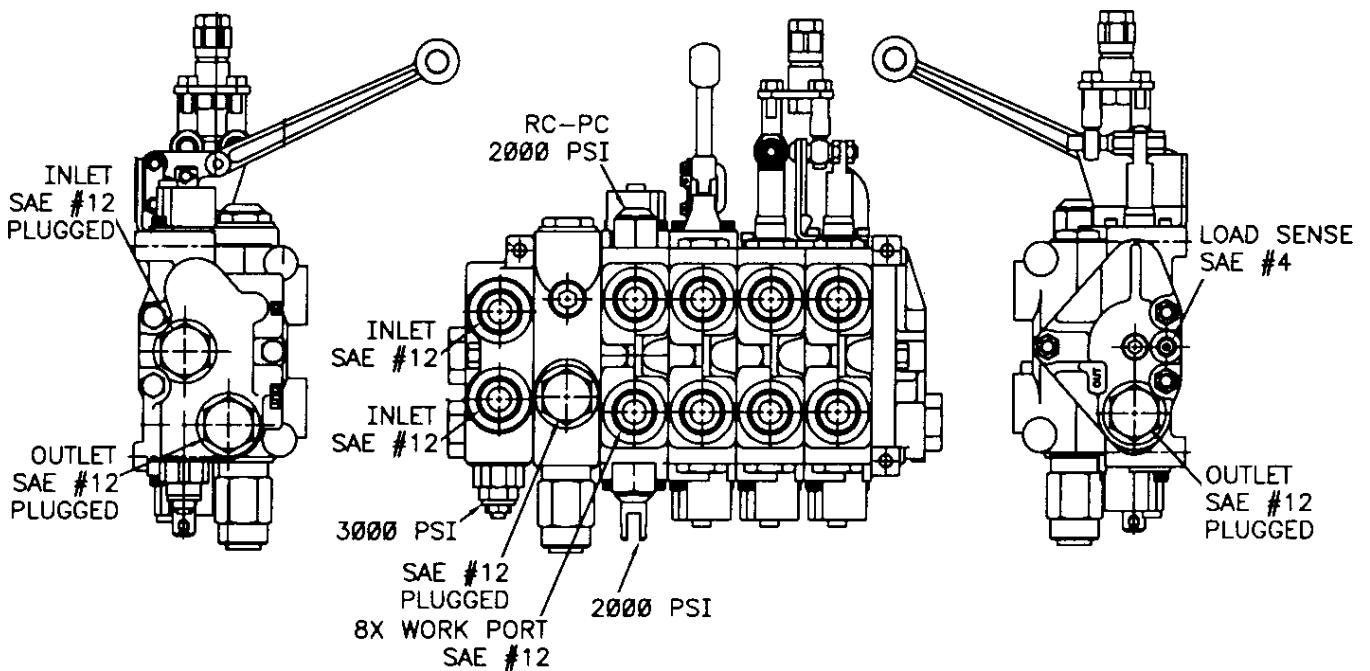
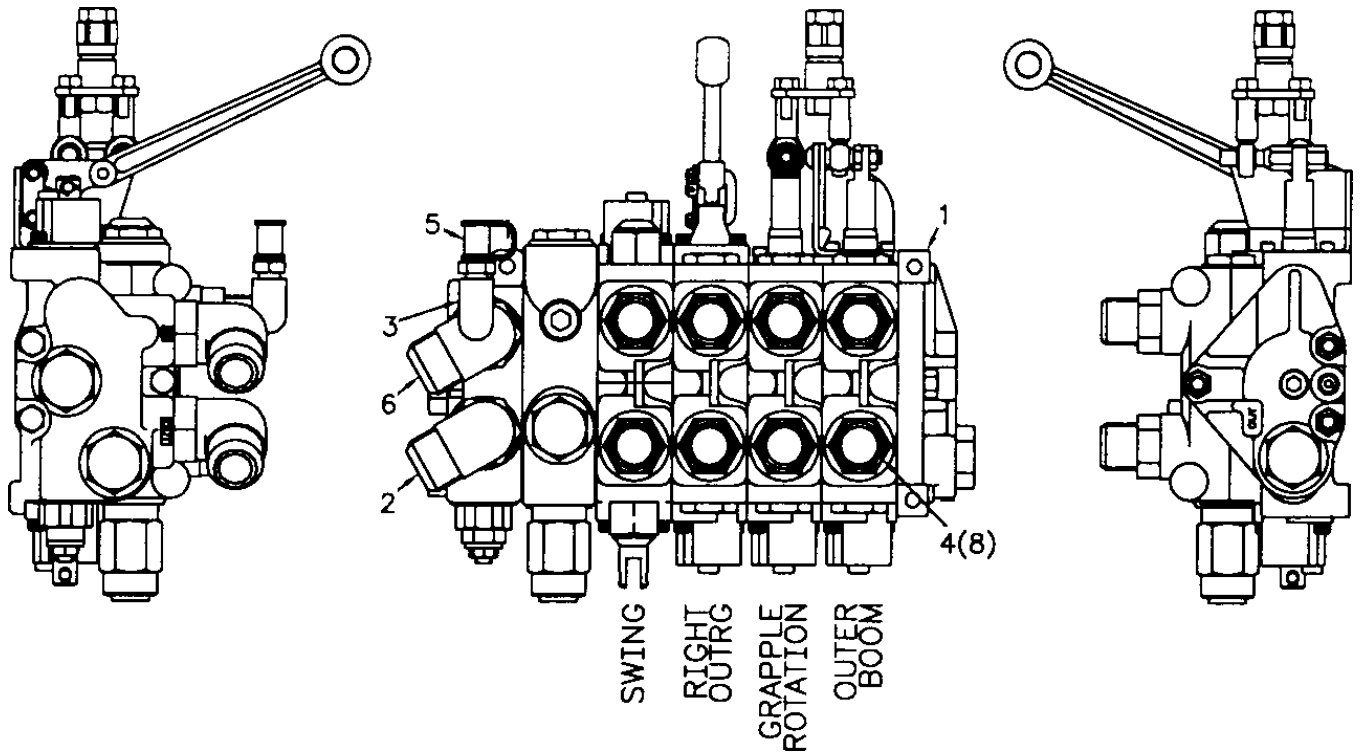


**VALVEBANK ASM 5-SECT RH
(51714970)**

NOTE

PLASTIC CAPS ON EXPOSED FITTING ENDS ARE TO REMAIN ON THE FITTINGS UNTIL THE VALVEBANK IS INSTALLED.

ITEM	PART NO.	DESCRIPTION	QTY
1.	70733316	VALVEBANK	1
2.	72053767	ELBOW #12MSTR #12MJIC 90°	1
3.	72531131	STREET ELBOW 1/4NPT 90°	1
4.	72532360	ADAPTER #12MSTR #8MJIC	8
5.	72532987	DISCONNECT NIPPLE 1/4NPT	1
6.	60107995	ELBOW-PR GAUGE MOD	1

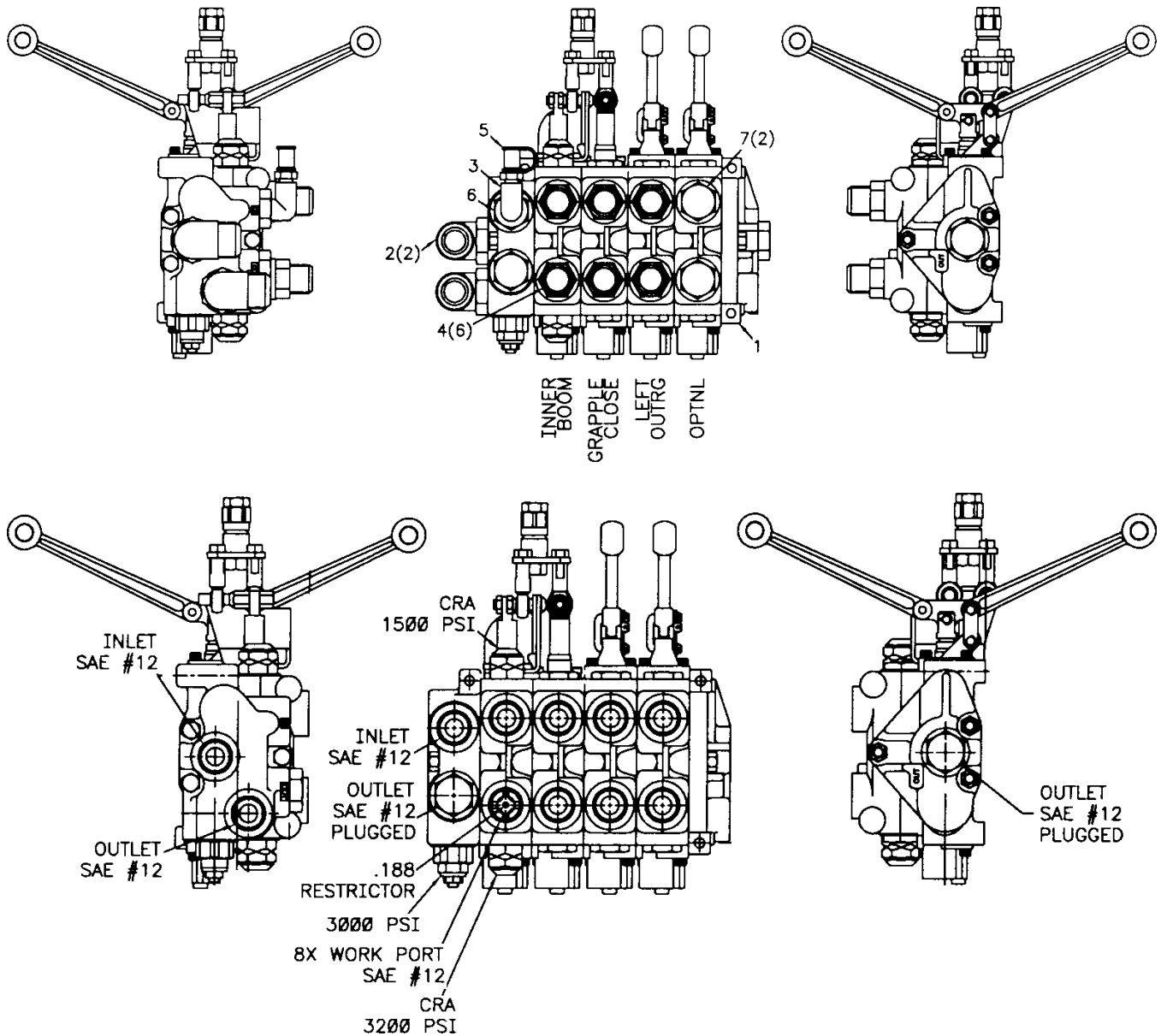


**VALVEBANK ASM 4-SECT LH 21'
(51714971)**

NOTE

PLASTIC CAPS ON EXPOSED FITTING ENDS ARE TO REMAIN ON THE FITTINGS UNTIL THE VALVEBANK IS INSTALLED.

ITEM	PART NO.	DESCRIPTION	QTY
1.	70733261	VALVEBANK	1
2.	72053767	ELBOW #12MSTR #12MJIC 90°	2
3.	72531131	STREET ELBOW 1/4NPT 90°	1
4.	72532360	ADAPTER #12MSTR #8MJIC	6
5.	72532987	DISCONNECT NIPPLE 1/4NPT	1
6.	60118445	PLUG #12MSTR PR GAUGE MOD	1
7.	72532136	PLUG 1-1/16STR HH	2

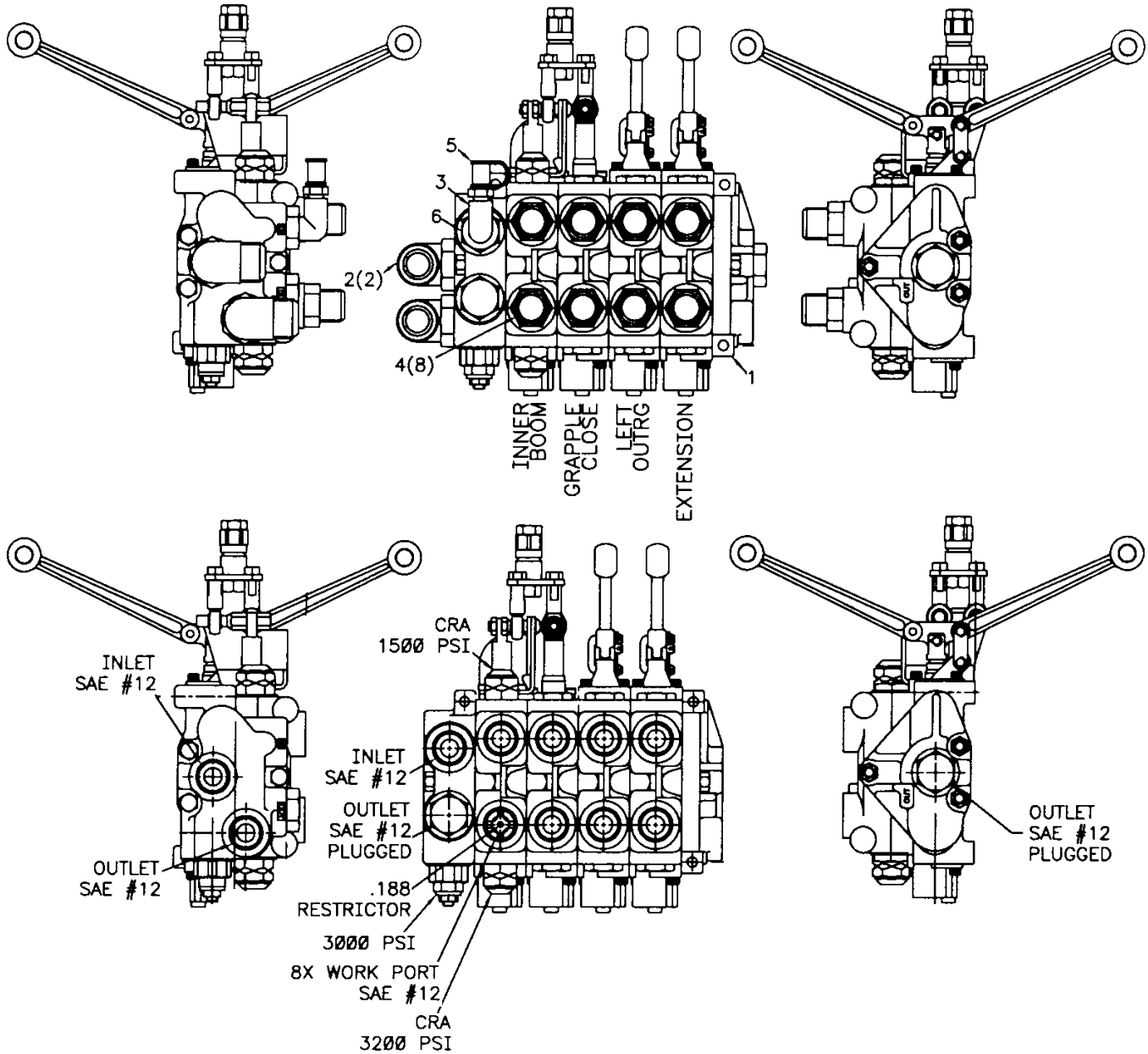


**VALVEBANK ASM 4-SECT LH 25'
(51714972)**

NOTE

PLASTIC CAPS ON EXPOSED FITTING ENDS ARE TO REMAIN ON THE FITTINGS UNTIL THE VALVEBANK IS INSTALLED.

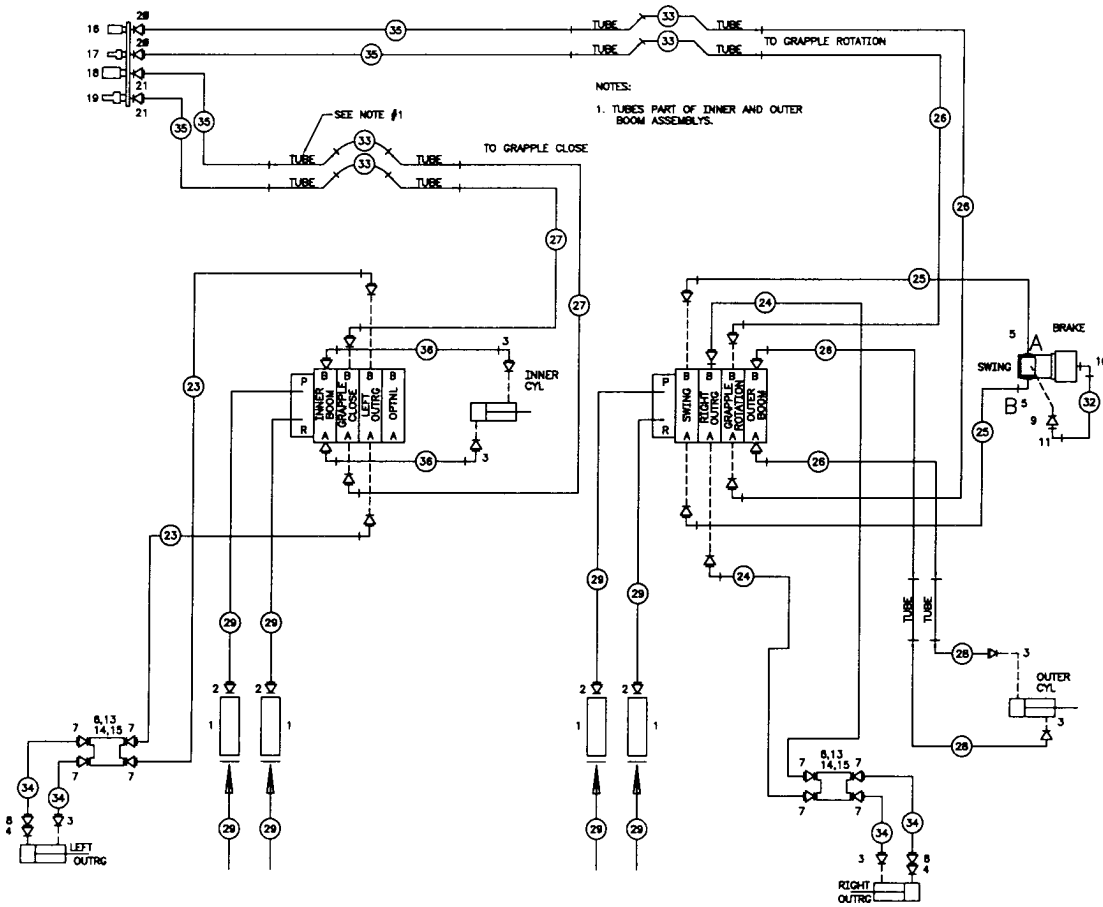
ITEM	PART NO.	DESCRIPTION	QTY
1.	70733261	VALVEBANK	1
2.	72053767	ELBOW #12MSTR #12MJIC 90°	2
3.	72531131	STREET ELBOW 1/4NPT 90°	1
4.	72532360	ADAPTER #12MSTR #8MJIC	8
5.	72532987	DISCONNECT NIPPLE 1/4NPT	1
6.	60118445	PLUG #12MSTR PR GAUGE MOD	1



**HYDRAULIC KIT-7F-21' 650° ROT'N
(91714949)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	72532973	ADAPTER-PR SW INLINE 1-1/16	4
2.	72533371	BULKHD UNION 1-1/16JIC	4
3.	72532358	ADAPTER #8MSTR #8MJIC	6
4.	73054783	VELOCITY FUSE #12MSTR #12MJIC	2
5.	72053763	ELBOW #8MSTR #8MJIC 90°	2
6.	73054795	CHECK VALVE 25GPM	2
7.	72532359	ADAPTER #10MSTR #8MJIC	8
8.	72532972	ADAPTER #8MJIC #12FJIC	2
9.	72532351	ADAPTER #4MSTR #4MJIC	1
10.	72053758	ELBOW #4MSTR #4MJIC 90°	1
11.	72532690	ELBOW #4MJIC #4FJIC SWVL	1
13.	72060031	CAP SCR 5/16-18X2-1/2 HHGRS	4
14.	72062109	NUT 5/16-18 LOCK	4
15.	72063002	WASHER 5/16 WRT	8
16.	72533101	DISCONNECT COUPLER 3/8F	1

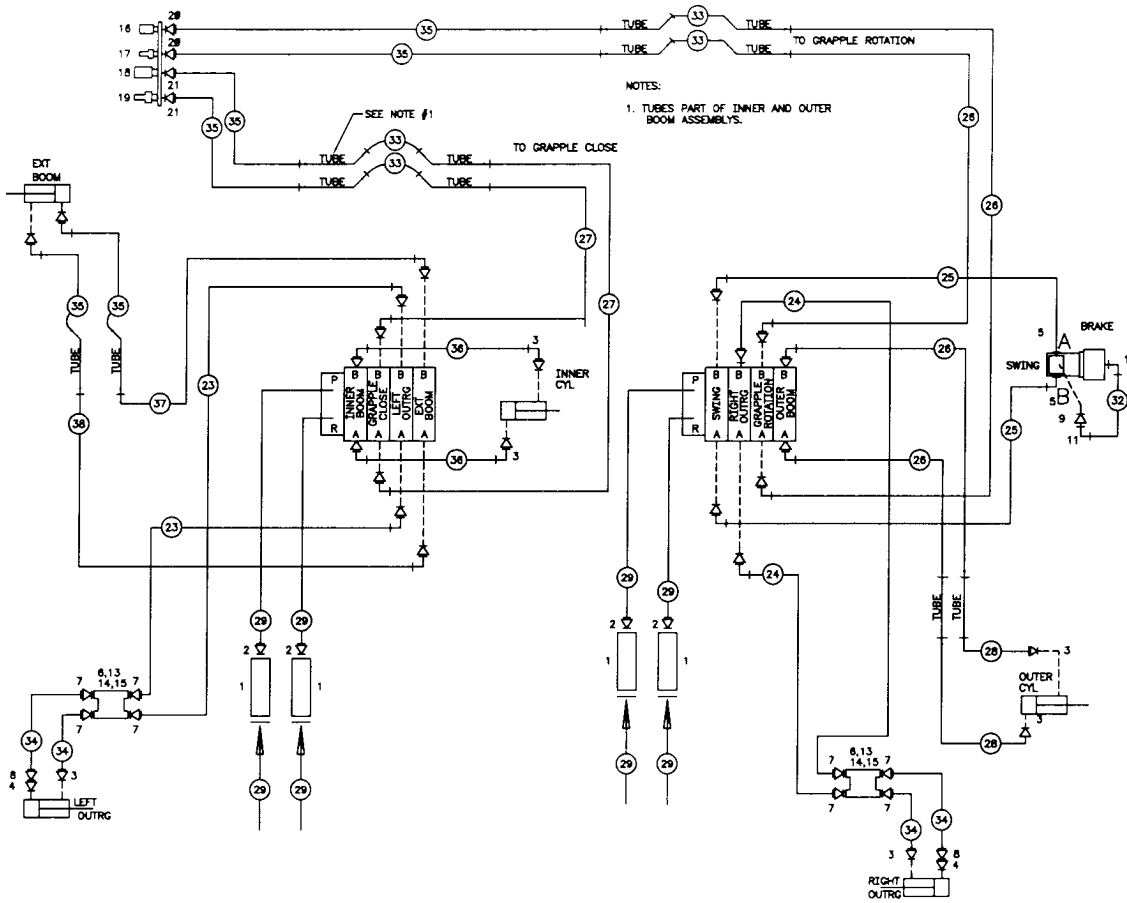
17.	72533102	DISCONNECT NIPPLE 3/8M	1
18.	72532995	DISCONNECT COUPLER 3/8FPT	1
19.	72533118	DISCONNECT NIPPLE 1/2FPT	1
20.	72053679	ADAPTER 3/4MPT #16MJIC	2
21.	72053497	ADAPTER 1/2MPT #8MJIC	2
22.	51714967	HOSE KIT (INCL:24-36)	1
23.	51395058	HOSE 1/2X97 #8F#8F	2REF
24.	51395059	HOSE 1/2X108 #8F #8F	2REF
25.	51395060	HOSE 1/2X44 #8F #8F	2REF
26.	51395061	HOSE 1/2X91 #8F #8F	4REF
27.	51395062	HOSE 1/2X77 #8F #8F	2REF
28.	51395063	HOSE 1/2X40 #8F #8F	2REF
29.	51394609	HOSE 3/4X100 #12F #12F	8REF
32.	51394347	HOSE 1/4X11-1/2 #4F #4F	1REF
33.	51394383	HOSE 1/2X45 #8F #8F	4REF
34.	51713357	HOSE 1/2X22 #8F #8J	4REF
35.	51394422	HOSE 1/2X13 #8F #8F	4REF
36.	51394528	HOSE 1/2X73 #8F #8F	2REF



**HYDRAULIC KIT-8F-25' 650° ROT'N
(91714968)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	72532973	ADAPTER-PR SW INLINE 1-1/16	4
2.	72533371	BULKHD UNION 1-1/16JIC	4
3.	72532358	ADAPTER #8MSTR #8MJIC	6
4.	73054783	VELOCITY FUSE #12MSTR #12MJIC	2
5.	72053763	ELBOW #8MSTR #8MJIC 90°	2
6.	73054795	CHECK VALVE 25GPM	2
7.	72532359	ADAPTER #10MSTR #8MJIC	8
8.	72532972	ADAPTER #8MJIC #12FJIC	2
9.	72532351	ADAPTER #4MSTR #4MJIC	1
10.	72053758	ELBOW #4MSTR #4MJIC 90°	1
11.	72532690	ELBOW #4MJIC #4FJIC SWVL	1
13.	72060031	CAP SCR 5/16-18X2-1/2 HHGRS	4
14.	72062109	NUT 5/16-18 LOCK	4
15.	72063002	WASHER 5/16 WRT	8
16.	72533101	DISCONNECT COUPLER 3/8F	1
17.	72533102	DISCONNECT NIPPLE 3/8M	1

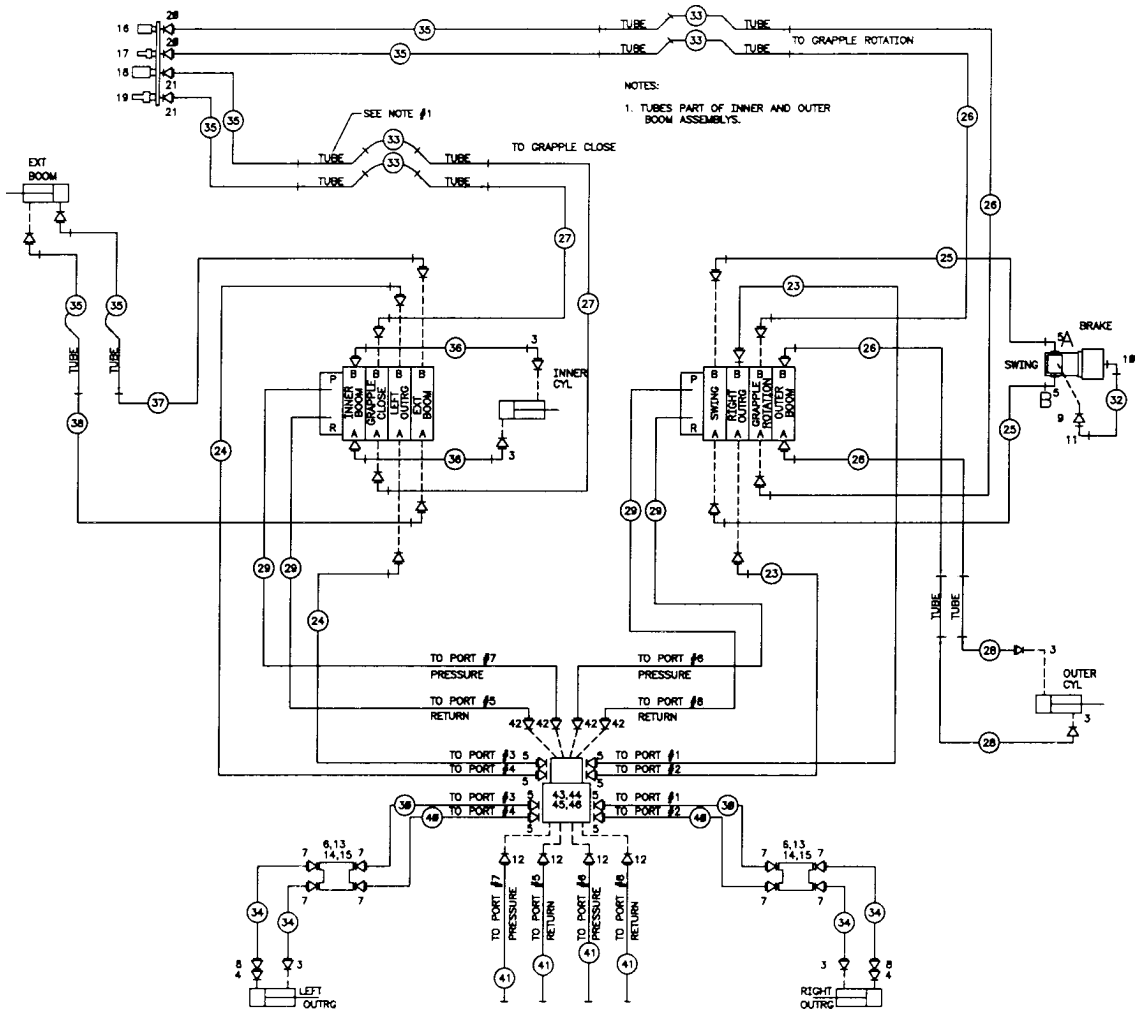
18.	72532995	DISCONNECT COUPLER 3/8FPT	1
19.	72533118	DISCONNECT NIPPLE 1/2FPT	1
20.	72053679	ADAPTER 3/4MPT #16MJIC	2
21.	72053497	ADAPTER 1/2MPT #8MJIC	2
22.	51714969	HOSE KIT (INCL:23-39)	1
23.	51395058	HOSE 1/2X97 #8F#8F	2REF
24.	51395059	HOSE 1/2X108 #8F #8F	2REF
25.	51395060	HOSE 1/2X44 #8F #8F	2REF
26.	51395061	HOSE 1/2X91 #8F #8F	4REF
27.	51395062	HOSE 1/2X77 #8F #8F	2REF
28.	51395063	HOSE 1/2X40 #8F #8F	2REF
29.	51394609	HOSE 3/4X100 #12F #12F	8REF
32.	51394347	HOSE 1/4X11-1/2 #4F #4F	1REF
33.	51394383	HOSE 1/2X45 #8F #8F	4REF
34.	51713357	HOSE 1/2X22 #8F #8J	4REF
35.	51395191	HOSE 1/2X51 #8F #8F	6REF
36.	51394528	HOSE 1/2X73 #8F #8F	2REF
37.	51394384	HOSE 1/2X85 #8F #8F	1REF
38.	51394385	HOSE 1/2X83 #8F #8F	1REF



**HYDRAULIC KIT-8F-25' CONT ROT'N
(91714983)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	72532973	ADAPTER-PR SW INLINE 1-1/16	4
2.	72533371	BULKHD UNION 1-1/16JIC	4
3.	72532358	ADAPTER #8MSTR #8MJIC	6
4.	73054783	VELOCITY FUSE #12MSTR #12MJIC	2
5.	72053763	ELBOW #8MSTR #8MJIC 90°	10
6.	73054795	CHECK VALVE 25GPM	2
7.	72532359	ADAPTER #10MSTR #8MJIC	8
8.	72532972	ADAPTER #8MJIC #12FJIC	2
9.	72532351	ADAPTER #4MSTR #4MJIC	1
10.	72053758	ELBOW #4MSTR #4MJIC 90°	1
11.	72532690	ELBOW #4MJIC #4FJIC SWVL	1
12.	72053770	ELBOW #16MSTR #16MJIC 90°	4
13.	72060031	CAP SCR 5/16-18X2-1/2 HHGR5	4
14.	72062109	NUT 5/16-18 LOCK	4
15.	72063002	WASHER 5/16 WRT	8
16.	72533101	DISCONNECT COUPLER 3/8F	1
17.	72533102	DISCONNECT NIPPLE 3/8M	1
18.	72532995	DISCONNECT COUPLER 3/8FPT	1
19.	72533118	DISCONNECT NIPPLE 1/2FPT	1
20.	72053679	ADAPTER 3/4MPT #16MJIC	2

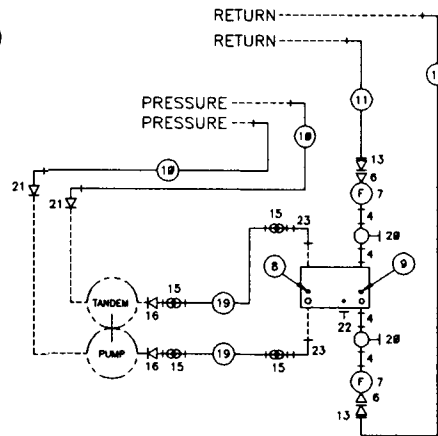
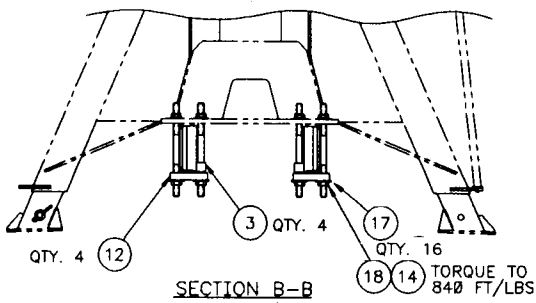
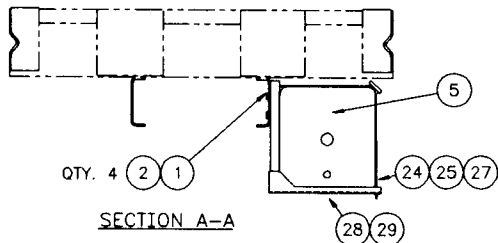
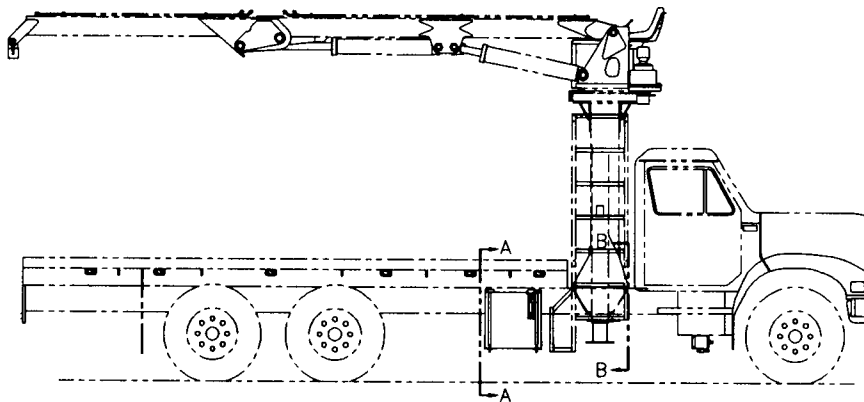
21.	72053497	ADAPTER 1/2MPT #8MJIC	2
22.	51714984	HOSE KIT (INCL:23-41)	1
23.	51395058	HOSE 1/2X97 #8F#8F	2REF
24.	51394338	HOSE 1/2X83 #8F #8F	2REF
25.	51395060	HOSE 1/2X44 #8F #8F	2REF
26.	51395061	HOSE 1/2X91 #8F #8F	4REF
27.	51395062	HOSE 1/2X77 #8F #8F	2REF
28.	51395063	HOSE 1/2X40 #8F #8F	2REF
29.	51394609	HOSE 3/4X100 #12F #12F	8REF
30.	51708697	HOSE 1/2X21 #8F#8F	2REF
32.	51394347	HOSE 1/4X11-1/2 #4F #4F	1REF
33.	51394383	HOSE 1/2X45 #8F #8F	4REF
34.	51713357	HOSE 1/2X22 #8F #8J	4REF
35.	51395191	HOSE 1/2X51 #8F #8F	6REF
36.	51394528	HOSE 1/2X73 #8F #8F	2REF
37.	51394384	HOSE 1/2X85 #8F #8F	1REF
38.	51394385	HOSE 1/2X83 #8F #8F	1REF
40.	51394382	HOSE 1/2X19 #8F #8F	2REF
41.	51394358	HOSE 3/4X65 #12F #12F	4REF
42.	72532370	ADAPTER #12MSTR #12MJIC	4
43.	72060094	CAP SCR 1/2-13X1-3/4 HHGR5	2
44.	72062080	NUT 1/2-13 LOCK	2
45.	72063005	WASHER 1/2 WRT	4
46.	70732811	MANIFOLD	1



**INSTALLATION KIT-FRONT MNT
(93712607)**

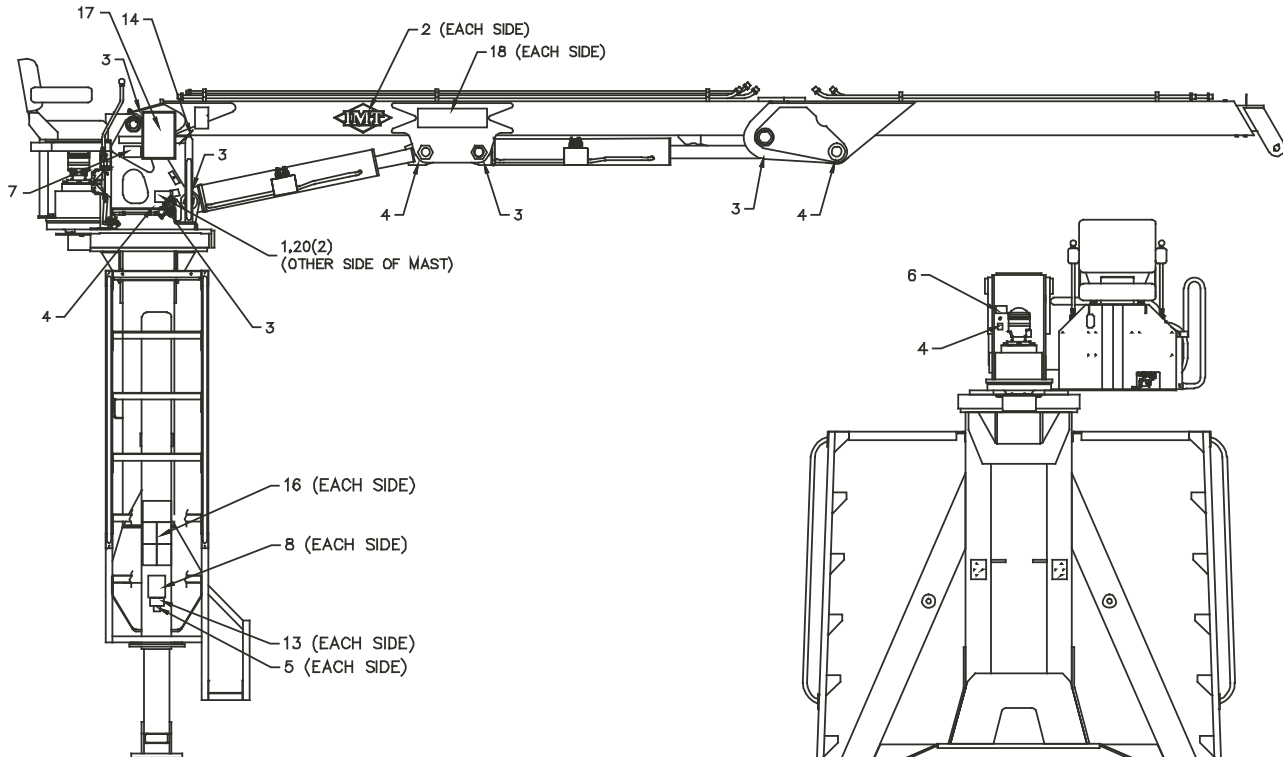
ITEM	PART NO.	DESCRIPTION	QTY
1.	72060095	CAP SCR 1/2-13X2 HHGR5	4
2.	72062080	NUT 1/2-13 LOCK	4
3.	52706660	FRAME SUPPORT	4
4.	72053215	PIPE NIPPLE 1-1/4NPT X 4	4
5.	70732928	RESERVOIR ASM	1
	70732791	SCREEN 100 MESH	REF
6.	72531837	REDUCER BUSHING 1-1/4X1	2
7.	73052091	FILTER	2
	73052014	ELEMENT 25MIC	REF
8.	70392108	DECAL-SUCTION LINE	2
9.	70392109	DECAL-RETURN LINE	2
10.	51710250	HOSE ASM 1X98 FF	2
11.	51710252	HOSE ASM 1X59 FF	2
12.	60114509	CLAMP PLATE	4

13.	72053680	ADAPTER 1MPT #16MJIC	2
14.	72062142	NUT 1 1/4-7 LOCK STL INS GR5	16
15.	72066516	HOSE CLAMP 1-1/4 2-BOLT	4
16.	72531530	BARB NIPPLE #20 STL	2
17.	72063067	WASHER 1-1/4 HI-STRENGTH	16
18.	60106690	TIE-DOWN STUD 1-1/4X20	8
19.	60035599	HOSE 1-1/4 100R4 X24"	2
20.	73054130	GATE VALVE	2
21.	72532371	ADAPTER #20MSTR #16MJIC	2
22.	72532662	PLUG 3/4NPT	1
23.	72532346	BARB NIPPLE 1-1/4 X 1-1/4NPT	2
24.	72062103	NUT 3/8-16 LOCK	4
25.	72063003	WASHER 3/8 WRT	4
27.	70145017	STRAP	2
28.	52712298	TANK BRACKET-LH	1
29.	52712297	TANK BRACKET-RH	1



DECAL KIT-21' (95714990)

1. 70029119	PLACARD-SERIAL NUMBER	1	11. 70392868	DECAL-DANGER LOADLINE	4
2. 70029251	DECAL-IMT DIAMOND	2	12. 70392891	DECAL-DANGER DRIVELINE	1
3. 70391612	DECAL-GREASE WEEKLY L	5	13. 70392982	DECAL-CONTACT IMT	2
4. 70391613	DECAL-GREASE WEEKLY R	4	14. 70395314	DECAL-JOYSTICK CONTROL	1
5. 70392213	DECAL-CAUTION WASH/WAX	2	15. 70394189	DECAL-RECOMMEND HYD OIL	1
6. 70392524	DECAL-ROTATE/GREASE	1	16. 70394764	DECAL-DANGER 5-COMBINED	2
7. 70392863	DECAL-DANGER HOIST PERS	1	17. 70395025	CAPACITY CHART	1
8. 70392864	DECAL-DANGER OR STD CLR	2	18. 70395026	DECAL-8000L IDENTIFICATION	2
9. 70392865	DECAL-DANGER ELEC HZD	4	19. 71039134	DECAL-CAUTION OIL LEVEL	2
10. 70392867	DECAL-DANGER OR MOVING	2	20. 72066340	RIVET	2
			21. 70395323	DECAL-ASME/ANSI B30.22	1



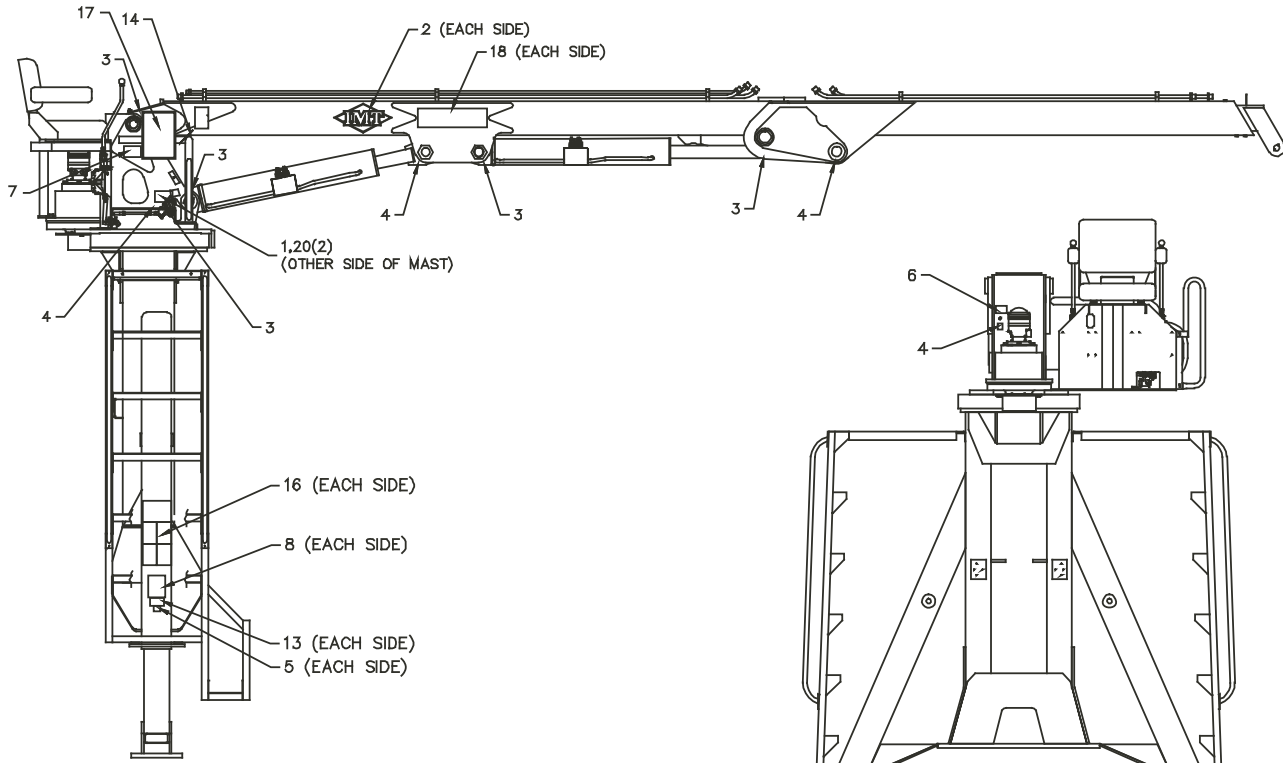
DECAL PLACEMENT	
ITEM NO.	LOCATION
9,11	ONE ON EACH SIDE OF CARRIER VEHICLE.
15,19	AT OR NEAR THE RESERVOIR.
12	AT OR NEAR THE DRIVELINE.
21	PLACE UNDER SERIAL TAG

NOTE: PLACE ITEM #22, LEVEL, ON FRONT AND SIDE OF CRANE BASE.

DECAL KIT-25' (95714991)

- 1. 70029119 PLACARD-SERIAL NUMBER 1
- 2. 70029251 DECAL-IMT DIAMOND 2
- 3. 70391612 DECAL-GREASE WEEKLY L 5
- 4. 70391613 DECAL-GREASE WEEKLY R 4
- 5. 70392213 DECAL-CAUTION WASH/WAX 2
- 6. 70392524 DECAL-ROTATE/GREASE 1
- 7. 70392863 DECAL-WARNING HOIST PERS 1
- 8. 70392864 DECAL-WARNING STAB STD CLR 2
- 9. 70392865 DECAL-DANGER ELEC HZD 4

- 11. 70392868 DECAL-WARNING LOADLINE 4
- 12. 70392891 DECAL-DANGER DRIVELINE 1
- 13. 70392982 DECAL-CONTACT IMT 2
- 14. 70395302 DECAL-JOYSTICK CONTROL 1
- 15. 70394189 DECAL-RECOMMEND HYD OIL 1
- 16. 70394764 DECAL-DANGER 5-COMBINED 2
- 17. 70395025 CAPACITY CHART 1
- 18. 70395026 DECAL-8000L IDENTIFICATION 2
- 19. 71039134 DECAL-CAUTION OIL LEVEL 2
- 20. 72066340 RIVET 2
- 21. 70395323 DECAL-ASME/ANSI B30.22 1

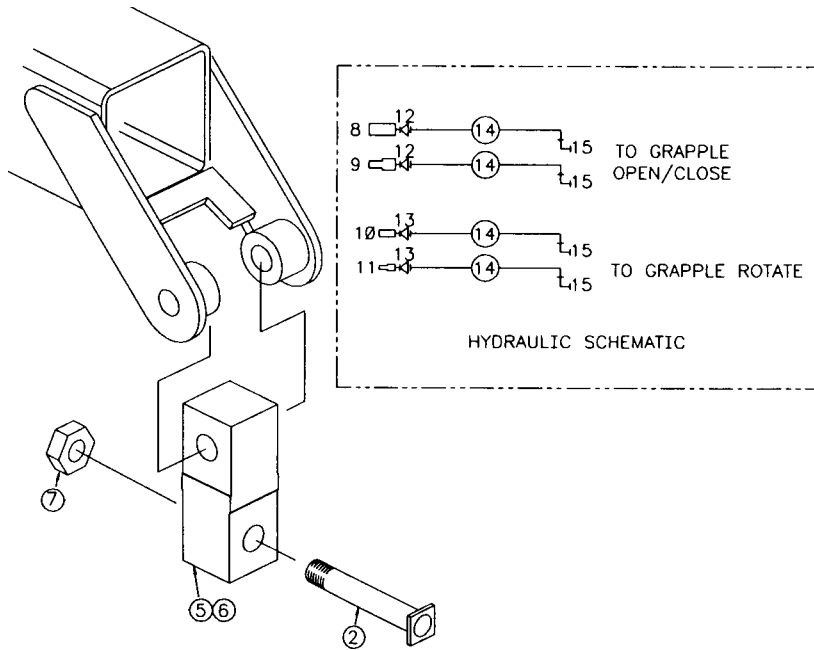


DECAL PLACEMENT	
ITEM NO.	LOCATION
9,11	ONE ON EACH SIDE OF CARRIER VEHICLE.
15,19	AT OR NEAR THE RESERVOIR.
12	AT OR NEAR THE DRIVELINE.
21	PLACE UNDER SERIAL TAG

NOTE: PLACE ITEM #22, LEVEL, ON FRONT AND SIDE OF CRANE BASE.

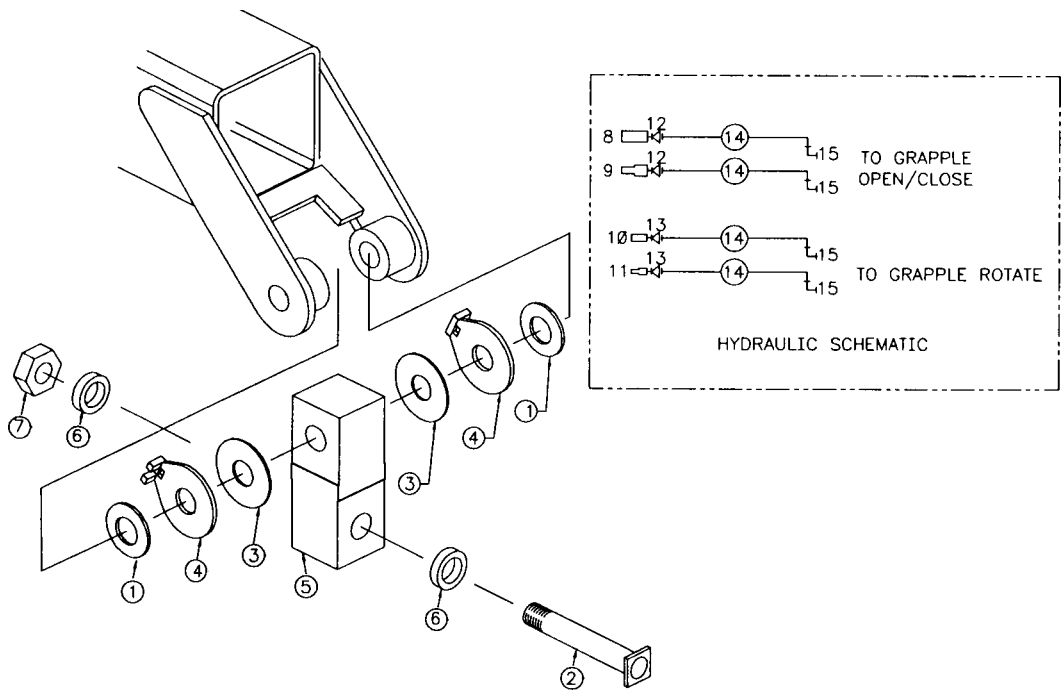
GRAPPLE MTG KIT-NON DAMPENED-S&L (51711384)

ITEM	PART NO.	DESCRIPTION	QTY
2.	52710148	PIN	1
5.	60117238	SWIVEL LINK	1
6.	72053508	ZERK 1/8NPT	2
7.	72062257	NUT 1 1/4-12 LOCK	1
8.	72532996	DISCONNECT COUPLER 1/2FPT	1
9.	72533118	DISCONNECT NIPPLE 1/2FPT	1
10.	72533101	DISCONNECT COUPLER 3/8FPT	1
11.	72533102	DISCONNECT NIPPLE 3/8FPT	1
12.	72053497	ADAPTER 1/2MPT #8MJIC	2
13.	72053670	ADAPTER 3/8MPT #8MJIC	2
14.	51710674	HOSE ASM 3/8X48 FJ	4
15.	72531420	ELBOW 3/8MPT #8MJIC 90°	4



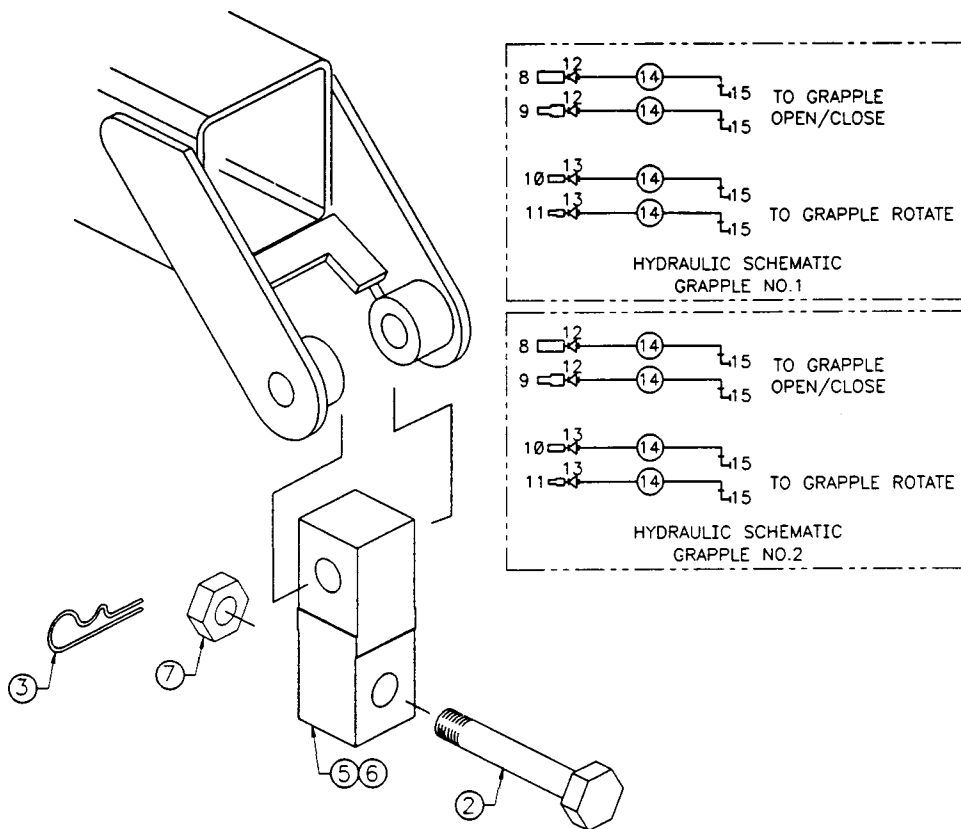
**GRAPPLE MTG KIT-DAMPENED-S&L
(51712053)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	72063187	SPRING WASHER	2
2.	52710148	PIN	1
3.	70393323	FRICITION DISC	2
4.	52712628	PRESSURE PLATE	2
5.	60117864	SWIVEL LINK	1
6.	60104634	SLEEVE	2
7.	72062257	NUT 1 1/4-12 LOCK	1
8.	72532996	DISCONNECT COUPLER 1/2FPT	1
9.	72533118	DISCONNECT NIPPLE 1/2FPT	1
10.	72533101	DISCONNECT COUPLER 3/8FPT	1
11.	72533102	DISCONNECT NIPPLE 3/8FPT	1
12.	72053497	ADAPTER 1/2MPT #8MJIC	2
13.	72053670	ADAPTER 3/8MPT #8MJIC	2
14.	51710674	HOSE ASM 3/8X48 FJ	4
15.	72531420	ELBOW 3/8MPT #8MJIC 90°	4



2 GRAPPLE MTG KIT- NON DAMPENED- S&L (51712163)

ITEM	PART NO.	DESCRIPTION	QTY
2.	60117980	BOLT 1 1/4-7X8-1/2 W/HOLE	1
3.	72066145	HAIR PIN 3/16	1
5.	60117238	SWIVEL LINK	1
6.	72053508	ZERK 1/8NPT	2
7.	72062011	NUT 1 1/4-7 HEX	1
8.	72532996	DISCONNECT COUPLER 1/2FPT	1
9.	72533118	DISCONNECT NIPPLE 1/2FPT	1
10.	72533101	DISCONNECT COUPLER 3/8FPT	1
11.	72533102	DISCONNECT NIPPLE 3/8FPT	1
12.	72053497	ADAPTER 1/2MPT #8MJIC	4
13.	72053670	ADAPTER 3/8MPT #8MJIC	4
14.	51710674	HOSE ASM 3/8X48 FJ	8
15.	72531420	ELBOW 3/8MPT #8MJIC 90°	8



SECTION 4. GENERAL REFERENCE

INSPECTION CHECKLIST	3
WIRE ROPE INSPECTION	7
HOOK INSPECTION	7
HOLDING VALVE INSPECTION	8
TWO BLOCK PREVENTION DEVICE INSPECTION	8
TORQUE DATA CHART - DOMESTIC	9
TORQUE DATA CHART - METRIC	10
TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE	11
TURNTABLE BEARING INSPECTION FOR REPLACEMENT	12

NOTICE	
The user of this form is responsible in determining that these inspections satisfy all applicable regulatory requirements	
OWNER/COMPANY	
CONTACT PERSON	
CRANE MAKE & MODEL	
CRANE SERIAL NUMBER	
UNIT I.D. NUMBER	
LOCATION OF UNIT	

<i>Inspection Checklist</i>	
CRANES	
TYPE OF INSPECTION (check one) <input type="checkbox"/> DAILY (if deficiency found) <input type="checkbox"/> QUARTERLY <input type="checkbox"/> MONTHLY <input type="checkbox"/> ANNUAL	
DATE INSPECTED	
HOUR METER READING (if applicable)	
INSPECTED BY (print)	
SIGNATURE OF INSPECTOR	

1

REV: 11-22-11

TYPE OF INSPECTION

NOTES:
 Daily and monthly inspections are to be performed by a “competent person”, who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Quarterly and annual inspections are to be performed by a “qualified person” who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

One hour of normal crane operation assumes 20 complete cycles per hour. If operation exceeds 20 cycles per hour, inspection frequency should be increased accordingly.

Consult Operator / Service Manual for additional inspection items, service bulletins and other information.

Before inspecting and operating crane, crane must be set up away from power lines and leveled with stabilizers deployed according to the crane manufacturer’s directions.

DAILY (D): Before each shift of operation, those items designated with a (**D**) must be inspected.

MONTHLY (M): Monthly inspections or 100 hours of normal operation (which ever comes first) includes all daily inspections plus items designated with an (**M**). This inspection must be recorded and retained for a minimum of 3 months.

QUARTERLY (Q): Every three months or 300 hours of normal operation (which ever comes first) includes all daily and monthly inspection items plus items designated with a (**Q**). This inspection must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection.

ANNUAL (A): Each year or 1200 hours of normal operation (which ever comes first) includes all items on this form which encompasses daily, monthly and quarterly inspections plus those items designated by (**A**). This inspection must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection.

FREQUENCY	ITEM	KEY	✓ =SATISFACTORY R =RECOMMENDATION (Should be considered for corrective action) NA = Not Applicable	X = Deficient (Note: If a deficiency is found, an immediate determination must be made as to whether the deficiency constitutes a safety hazard and must be corrected prior to operation.)	STATUS ✓, R, X, NA
			INSPECTION DESCRIPTION		
D	1	Labels	All load charts, safety & warning labels, & control labels are present and legible.		
D	2	Crane	Check all safety devices for proper operation.		
D	3	Controls	Control mechanisms for proper operation of all functions, leaks & cracks.		
D	4	Station	Control and operator’s station for dirt, contamination by lubricants, & foreign materials.		
D	5	Hyd System	Hydraulic system (hoses, tubes & fittings) for leakage & proper oil level.		
D	6	Hook	Presence & proper operation of hook safety latches.		
D	7	Wire Rope	Inspect for apparent deficiencies per applicable requirements and manufacturer’s specifications.		
D	8	Pins	Proper engagement of all connecting pins & pin retaining devices.		
D	9	General covers.	Overall observation of crane for damaged or missing parts, cracked welds & presence of safety		
D	10	Operation	During operation, observe crane for abnormal performance, unusual wear (loose pins, wire rope damage, etc.). If observed, discontinue use & determine cause & severity of hazard.		
D	11	Remote Ctrl	Operate remote control devices to check for proper operation.		
D	12	Electrical	Operate all lights, alarms, etc. to check for proper operation.		
D	13	Anti Two-Block or Two-Block Damage Prevention	Operate anti-two-blocking or two-block prevention devices to check for proper operation.		

<i>Inspection Checklist</i>	CRANES	2
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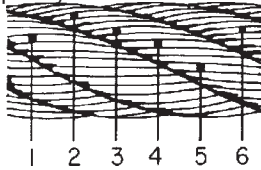
FREQUENCY	ITEM	KEY	✓ = SATISFACTORY R = RECOMMENDATION (Should be considered for corrective action) NA = Not Applicable	X = Deficient (Note: If a deficiency is found, an immediate determination must be made as to whether the deficiency constitutes a safety hazard and must be corrected prior to operation.)	STATUS
			INSPECTION DESCRIPTION	✓, R, X, NA	
D	14	Tires	Check tires (when in use) for proper inflation and condition.		
D	15	Ground or similar.	Ground conditions around the equipment for proper support, including ground settling under and around stabilizers and supporting foundations, ground water accumulation,		
D	16	Level Position	The equipment for level position within tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each move and setup.		
D	17	Operator Cab Windows	Significant cracks, breaks, or other deficiencies that would hamper the operator's view.		
D	18	Rails, rail stops, clamps, supporting surfaces.	Rails, rail stops, rail clamps and supporting surfaces when the equipment has rail traveling.		
D	19	Safety Devices	Safety devices and operational aids for proper operation.		
D	20	Electrical	Electrical apparatus for malfunctioning, signs of apparent excessive deterioration, dirt or moisture accumulation.		
D	21	Other			
D	22	Other			
M	23	Daily	All daily inspection items.		
M	24	Cylinders	Visual inspection of cylinders for leakage at rod, fittings & welds. Damage to rod & case.		
M	25	Valves	Holding valves for proper operation.		
M	26	Valves	Control valve for leaks at fittings & between sections.		
M	27	Valves	Control valve linkages for wear, smoothness of operation & tightness of fasteners. Relief valve for proper pressure settings.		
M	28	General	Bent, broken or significantly rusted/corroded parts.		
M	29	Electrical	Electrical apparatus for malfunctioning, signs of apparent excess deterioration, dirt or moisture accumulation. Electrical systems for presence of dirt, moisture and frayed wires.		
M	30	Structure	All structural members for damage.		
M	31	Welds	All welds for breaks & cracks.		
M	32	Pins	All pins for proper installation & condition.		
M	33	Hardware	All bolts, fasteners & retaining rings for tightness, wear & corrosion		
M	34	Wear Pads	Condition of wear pads.		
M	35	Pump & Motor mounting bolts.	Hydraulic pumps & motors for leakage at fittings, seals & between sections. Check tightness of mounting bolts.		
M	36	PTO	Transmission/PTO for leakage, abnormal vibration & noise, alignment & mounting bolt torque.		
M	37	Hyd Fluid	Quality of hydraulic fluid and for presence of water.		
M	38	Hyd Lines	Hoses & tubes for leakage, abrasion damage, blistering, cracking, deterioration, fitting leakage & secured properly.		
M	39	Hook	Load hook for abnormal throat distance, twist, wear & cracks.		
M	40	Wire Rope	Condition of load line.		
M	41	Manual	Presence of operator's manuals with unit.		
M	42		Other		
M	43		Other		
Q	44	Daily	All daily inspection items.		
Q	45	Monthly	All monthly inspection items.		
Q	46	Rotation Sys	Rotation bearing for proper torque of all mounting bolts.		
Q	47	Hardware	Base mounting bolts for proper torque.		
Q	48	Structure	All structural members for deformation, cracks & corrosion.		
	49		● Base		
	50		● Stabilizer beams & legs		
	51		● Mast		
	52		● Inner boom		
	53		● Outer boom		
	54		● Extension(s)		
	55		● Jib boom		
	56		● Jib extension(s)		
	57		● Other		
Q	58	Hardware	Pins, bearings, shafts, gears, rollers, & locking devices for wear, cracks, corrosion & distortion.		

Inspection Checklist			CRANES	3
FREQUENCY	ITEM	KEY	✓ = SATISFACTORY R = RECOMMENDATION (Should be considered for corrective action) NA = Not Applicable	STATUS ✓, R, X, NA
			X = Deficient (Note: If a deficiency is found, an immediate determination must be made as to whether the deficiency constitutes a safety hazard and must be corrected prior to operation.) INSPECTION DESCRIPTION	
	59		● Rotation bearing(s)	
	60		● Inner boom pivot pin(s) & retainer(s)	
	61		● Outer boom pivot pin(s) & retainer(s)	
	62		● Inner boom cylinder pin(s) & retainer(s)	
	63		● Outer boom cylinder pin(s) & retainer(s)	
	64		● Extension cylinder pin(s) & retainer(s)	
	65		● Jib boom pin(s) & retainer(s)	
	66		● Jib cylinder pin(s) & retainer(s)	
	67		● Jib extension cylinder pin(s) & retainer(s)	
	68		● Boom tip attachments	
	69		● Other	
Q	70	Hyd Lines	Hoses, fittings & tubing for proper routing, leakage, blistering, deformation & excessive abrasion.	
	71		● Pressure line(s) from pump to control valve	
	72		● Return line(s) from control valve to reservoir	
	73		● Suction line(s) from reservoir to pump	
	74		● Pressure line(s) from control valve to each function	
	75		● Load holding valve pipe(s) and hose(s)	
	76		● Other	
Q	77	Pumps & Motors	Pumps & motors for loose bolts/fasteners, leaks, noise, vibration, loss of performance, heating & excess pressure.	
	78		● Winch motor(s)	
	79		● Rotation motor(s)	
	80		● Other	
Q	81	Valves	Hydraulic valves for cracks, spool return to neutral, sticking spools, proper relief valve setting, relief valve failure.	
	82		● Main control valve	
	83		● Load holding valve(s)	
	84		● Stabilizer or auxiliary control valve(s)	
	85		● Other	
	86		● Other	
Q	87	Cylinders	Hydraulic cylinders for drifting, rod seal leakage & leakage at welds. Rods for nicks, scores & dent s. Case for damage. Case & rod ends for damage & abnormal wear .	
	88		● Stabilizer cylinder(s)	
	89		● Inner boom cylinder(s)	
	90		● Outer boom cylinder(s)	
	91		● Extension cylinder(s)	
	92		● Rotation cylinder(s)	
	93		● Jib lift cylinder(s)	
	94		● Jib extension cylinder(s)	
	95		● Other	
Q	96	Winch	Winch, sheaves & drums for damage, abnormal wear , abrasions & other irregularities.	
Q	97	Hyd Filters	Hydraulic filters for replacement per maintenance schedule.	
A	98	Daily	All daily inspection items.	
A	99	Monthly	All monthly inspection items.	
A	100	Quarterly	All quarterly inspection items.	
A	101	Hyd Sys	Hydraulic fluid change per maintenance schedule.	
A	102	Controls	Control valve calibration for correct pressures & relief valve settings	
A	103	Valves	Safety valve calibration for correct pressures & relief valve settings.	
A	104	Valves	Valves for failure to maintain correct settings.	
A	105	Rotation Sys	Rotation drive system for proper backlash clearance & abnormal wear , deformation & cracks.	
A	106	Lubrication	Gear oil change in rotation drive system per maintenance schedule.	
A	107	Hardware	Check tightness of all fasteners and bolts.	
A	108	Wear Pads	Wear pads for excessive wear .	
A	109	Loadline	Loadline for proper attachment to drum.	

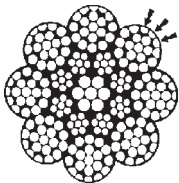
WIRE ROPE INSPECTION

Wire rope with any of the deficiencies shown below shall be removed and replaced immediately .

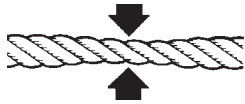
- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



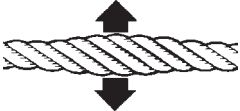
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



- D. When there is a decrease of diameter indicating a core failure.



- E. When kinking, crushing, birdcaging or other distortion occurs.



- F. When there is noticeable heat damage (discoloration) of the rope by any means.



- G. When the diameter is reduced from nominal size by 1/32" or more.



- H. If a broken wire protrudes or loops out from the core of the rope.



HOOK INSPECTION

Hooks having any of the listed deficiencies shall be removed from service unless a qualified person approves their continued use and initiates corrective action. Hooks approved for continued use shall be subjected to periodic inspection.

A. DISTORTION

Bending / Twisting

A bend or twist exceeding 10° from the plane of the unbent hook.

Increased Throat Opening

HOOK WITHOUT LATCH: An increase in throat opening exceeding 15% (Or as recommended by the manufacturer)

HOOK WITH LATCH: An increase of the dimension between a fully-opened latch and the tip section of the hook exceeding 8% (Or as recommended by the manufacturer)

B. WEAR

If wear exceeds 10% of the original sectional dimension. (Or as recommended by the manufacturer)

C. CRACKS, NICKS, GOUGES

Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally , following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued use if the reduced area is not critical.)

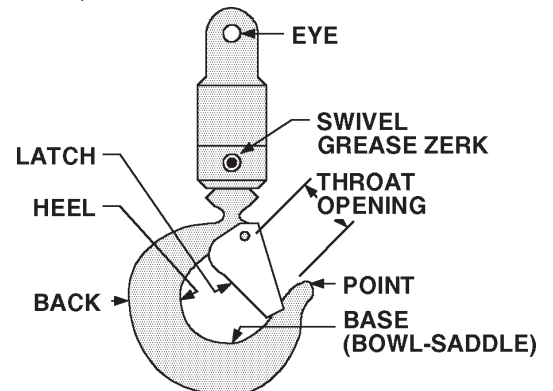
D. LATCH

Engagement, Damage & Malfunction

If a latch becomes inoperative because of wear or deformation, and is required for the service involved, it shall be replaced or repaired before the hook is put back into service. If the latch fails to fully close the throat opening, the hook shall be removed from service or "moused" until repairs are made.

E. HOOK ATTACHMENTS & SECURING MEANS

If any indication of distortion, wear, cracks, nicks or gouges are present, unless a qualified person authorizes their use. (Or as recommended by the manufacturer)



HOLDING VALVE INSPECTION

The cylinders are equipped with holding valves that prevent sudden movement of the cylinder rods in the event of a hydraulic hose or other hydraulic component failure. The valve is checked in the following manner:

1. With a full rated load, extend the cylinder in question and kill the engine.
2. Operate the control valve to retract the cylinder. If the cylinder “creeps”, replace the holding valve. If the cylinder does not “creep”, the valve is serviceable.

TWO BLOCK PREVENTION DEVICE INSPECTION

(See Vol. 1, Operation, Maintenance and Repair for a complete description)

The two block prevention system halts the “winch-up” and “extension-out” crane functions before the block contacts the sheave. The two block prevention system should be checked daily as follows:

1. Examine flexible rod and weight to insure free unrestricted mechanical operation
2. Examine cord for damage, cuts or breaks. Grasp cord and pull to check operation of cord reel. The cord should retract on reel when released.
3. Start vehicle, engage PTO and slowly winch loadline up until anti-two block weight comes in contact with the hook end of the loadline cable. At the moment the weight is fully supported by the hook end, the winch up function should become non-functioning, because the two-block damage prevention switch will stop further movement.

If operation other than as described occurs, stop immediately and investigate. Failure to do so will risk damage to the cable or the crane.

Then, extend the winch cable to relieve the two-block condition, and actuate the boom extend function slowly . Again, once the weight is fully supported by the hook end, the boom extend function should become non-functioning, because the two-block damage prevention switch will stop further movement. If operation other than described occurs, stop immediately , reverse the function, and check the system.

If the anti two block function appears to be functioning normally, winch the cable down until the sensing weight swings free.

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LBS)	PLATED (FT-LBS)	PLAIN (FT-LBS)	PLATED (FT-LBS)
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.

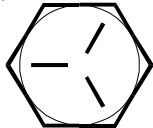

1. Bolt manufacturer’s particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special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

WARNING

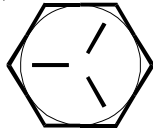

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

TORQUE DATA CHART - DOMESTIC

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (FT-LBS)	PLATED (FT-LBS)	PLAIN (FT-LBS)	PLATED (FT-LBS)
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 (FT-LBS)	PLATED (FT-LBS)	PLAIN (FT-LBS)	PLATED (FT-LBS)
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
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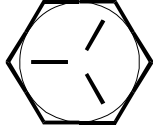

1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special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

WARNING

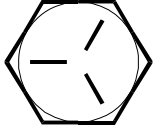

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

TORQUE DATA CHART - METRIC

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-24	0.3125	3	2	4	3
3/8-24	0.3750	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5000	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.6250	24	18	33	25
3/4-16	0.7500	41	31	58	44
7/8-11	0.8750	62	45	93	69
1-12	1.0000	89	67	138	103
1 1/8-12	1.1250	123	93	200	150
1 1/4-12	1.2500	171	129	278	209
1 3/8-12	1.3750	232	174	375	281
1 1/2-12	1.5000	304	228	492	369

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.3750	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5000	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.6250	21	16	30	22
3/4-10	0.7500	37	28	52	39
7/8-9	0.8750	55	41	84	63
1-8	1.0000	82	62	126	94
1 1/8-7	1.1250	110	82	178	133
1 1/4-7	1.2500	155	116	251	188
1 3/8-6	1.3750	203	152	329	246
1 1/2-6	1.5000	270	210	438	328

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

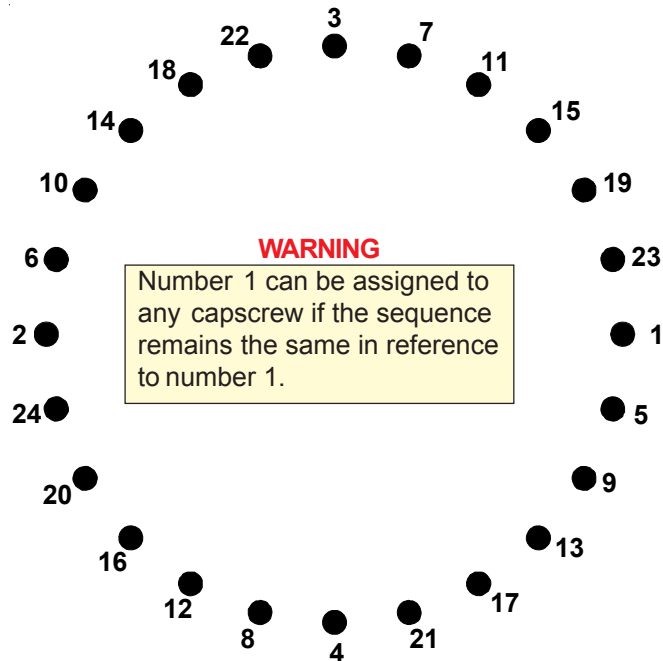
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied.
If special lubricants 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.

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.

TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

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



TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of capscrew used.
2. Follow the tightening sequence shown in the diagram. Note that the quantity of capscrews may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.
3. Torque all capscrews to approximately 40% of the specified torque value, by following the sequence.
(EXAMPLE: $.40 \times 265 \text{ FT-LBS} = 106 \text{ FT-LBS}$)
(EXAMPLE-METRIC: $.40 \times 36 \text{ KG-M} = 14.4 \text{ KG-M}$)
4. Repeat Step 3, but torquing all capscrews to 75% of the specified torque value. Continue to follow the tightening sequence.
(EXAMPLE: $.75 \times 265 \text{ FT-LBS} = 199 \text{ FT-LBS}$)
(EXAMPLE-METRIC: $.75 \times 36 \text{ KG-M} = 27 \text{ KG-M}$)
5. Using the proper sequence, torque all capscrews to the listed torque value as determined from the Torque Data Chart.

TURNTABLE BEARING INSPECTION FOR REPLACEMENT

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

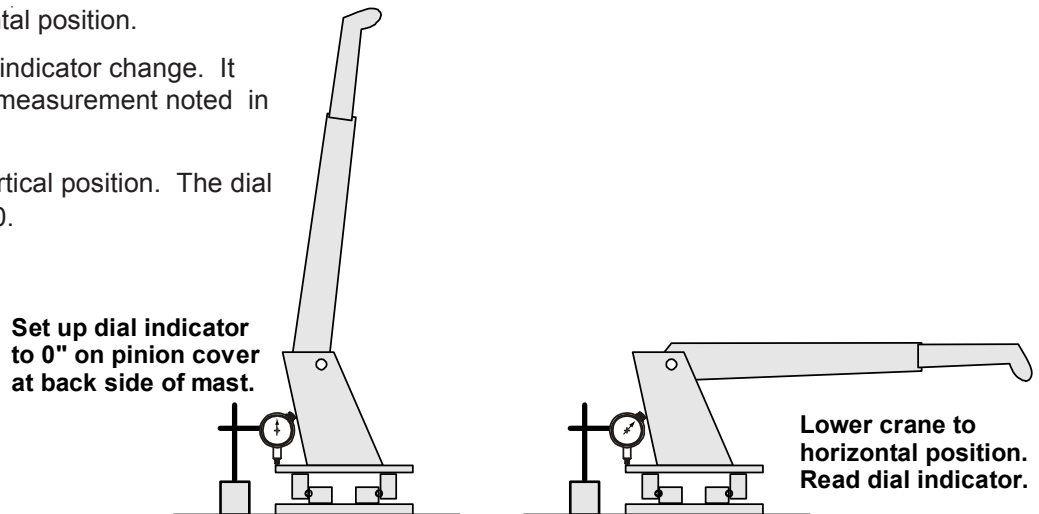
1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during crane rotation.
4. Rough crane rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

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

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

TEST PROCEDURE

1. Place crane in vertical position.
2. Set a dial indicator at 0 on the pinion cover plate at back side of mast.
3. Lower crane to the horizontal position.
4. Check and record the dial indicator change. It should not exceed the tilt measurement noted in the chart below.
5. Return the crane to the vertical position. The dial indicator should return to 0.



COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

<p>NOTE THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED.</p> <p>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.</p>		1007 1014 1014A 1015 2015/2020 2109 3000 3816/3820 3016/3020 421/425 4300 5016/5020 6016/6020 TH7 BODY ROT'N TH1449 BODY ROT'N TH15B CLAMP TH2551B CLAMP TH2557A CLAMP	5200 5200R 5217 5800 7020 7025 7200 7415 9000 TH10 BODY ROT'N TH14 BODY ROT'N	16000 32018 32027 32030 T30 T40	9800 12916 13031 13034 14000 15000 18000 20017 8000L H1200 H1200RR T50 TH2551B BODY ROT'N TH2557B 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. (A₁-A₂)	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)

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	MANUAL PART NO.
SUBMITTED BY		
COMPANY		
ADDRESS		
CITY, STATE, ZIP		
TELEPHONE		

ERROR FOUND

LOCATION OF ERROR (page no.): _____

DESCRIPTION OF ERROR: _____

ERROR FOUND

DESCRIPTION OF ADDITION: _____

REASON FOR ADDITION: _____

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