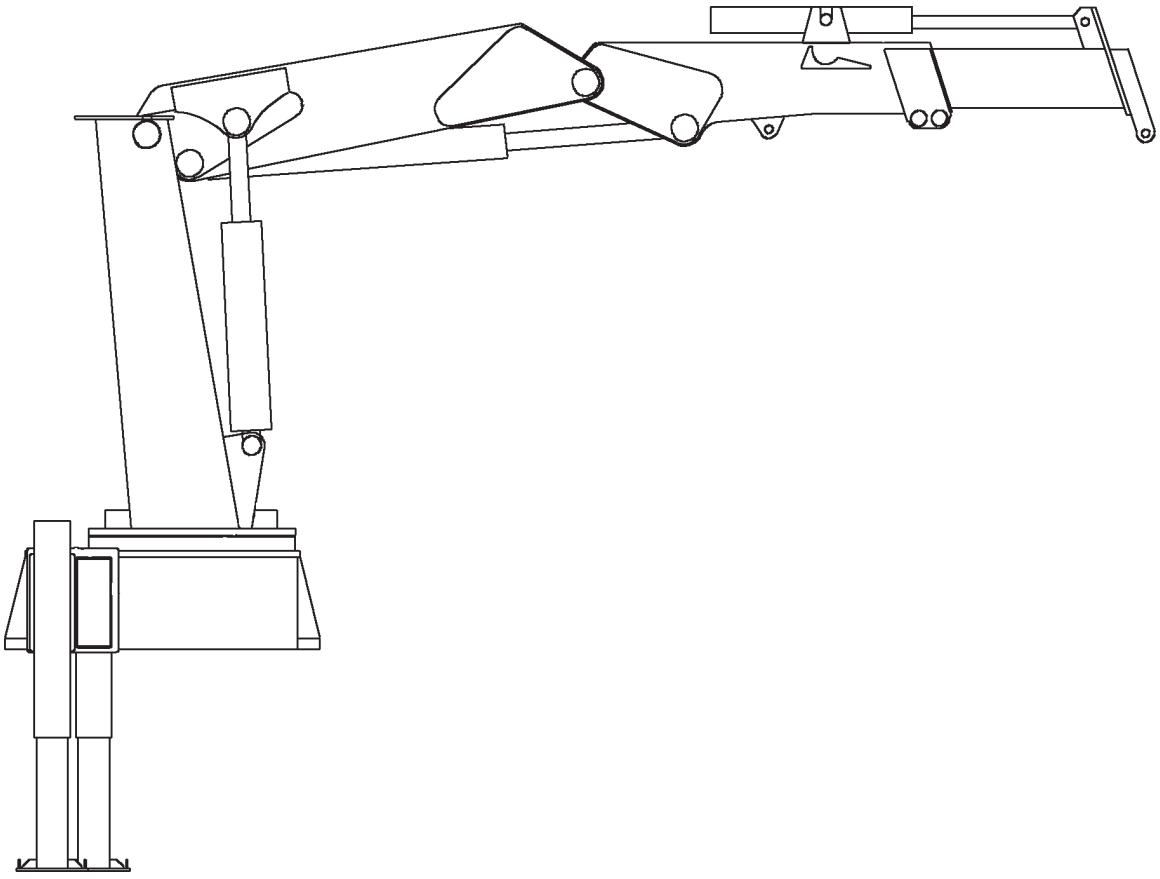
00032018:99900319: 20111223

Model 32018 Crane

Volume 2 - PARTS AND SPECIFICATIONS

Section 1 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

MANUAL PART NUMBER 99900319

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

00032018:99900319: --------

REVISIONS LIST

DATE	LOCATION	DESCRIPTION OF CHANGE
-	-	-
20011210	3-24	ECN 8837 - NEW FLOOD LIGHT KIT
20040520	3-24	ECN 9459 - REPLACED FLOOD LIGHT KIT 31717218 WITH 51709314
20040823	3-30	ECN 9520 - REPLACED 72053379 WITH 72534398 IN 99901239 INST ALL. DWG.
20061020	1-1,3-3	UPDATED OWNERSHIP STATEMENT, SERIAL TAG LOCATIONS.
20111223	THROUGHOUT	ECN 11628 - UPDATED STABILIZER WORDING, ADDED CRANE LEVEL, STAB. DEPLOY DECALS

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. Listed below is a publication that the user should thoroughly read and understand.

ANSI/ASME B30.22
ARTICULATING BOOM CRANES
The American Society of Mechanical Engineers
United Engineering Center
345 East 47th Street
New York, NY 10017

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

NOTE

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

CAUTION

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

WARNING

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

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

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

NOTES

SECTION 1. 32018 CRANE SPECIFICATIONS

NOTES

32018 CRANE SPECIFICATIONS

GENERAL SPECIFICATIONS

	1H
***CRANE RATING (ANSI B30.22)**	320,000 ft-lbs (44.24 ton-meters)
***MAXIMUM CRANE RATING**	320,000 ft-lbs (44.24 ton-meters)
HORIZONTAL REACH from centerline of rotation	18'-0'' (5.49m)
HYDRAULIC EXTENSION	36'' (91.4cm)
VERTICAL REACH from mounting surface	24'-10'' (7.57m)
VERTICAL REACH from ground / 43'' frame ht.	28'-5'' (8.66m)
CRANE WEIGHT installed	18,850 lbs (8550 kg)
STABILIZER SPAN - base mounted	18'-0'' (5.49m)
STABILIZER SPAN - AUXILIARY(required)	14'-0'' (4.27m)
STABILIZER PADS	16'' x 16'' (40.6cm x 40.6cm)
STABILIZER PADS-AUXILIARY	14'' x 14'' (35.6cm x 35.6cm)
CRANE STORAGE HEIGHT WITH TIREHAND 15 from mounting surface	9'-5'' (2.87m)
CRANE STORAGE HEIGHT WITH TIREHAND 15 from ground/43'' frame ht.	13'-0'' (3.96m)
MOUNTING SPACE REQUIRED	70'' (1.78m)
ROTATIONAL TORQUE	28,000 ft-lbs (3.87 ton-meters)
OPTIMUM PUMP CAPACITY	20 U.S. GPM (75.63 liters/minute)
SYSTEM OPERATING PRESSURE	2500 PSI (172.4 bar)
OIL RESERVOIR CAPACITY	60 U.S. Gallons (228 liters)
HOOK APPROACH - HORIZONTAL from centerline of rotation	4'-8'' (1.42m)
HOOK APPROACH - VERTICAL	8'-8'' (2.64m)

* Maximum Crane Rating (ft-lbs) is defined as that rated load (lbs) which when multiplied by its respective distance (ft) from centerline of rotation gives the greatest ft-lb value.

ANSI B30.22 Crane Rating (ft-lbs) = With all extensions retracted and inner plus outer boom in a horizontal position, rated load (lbs) X respective distance (ft) from centerline of rotation = nominal ft-lb value.

PERFORMANCE CHARACTERISTICS

ROTATION (See Paragraph 1-5.):	230° (4.01 rad.)	35 seconds
INNER BOOM ELEVATION:	-30° to +70°(-0.52 to +1.22rad.)	20 seconds
OUTER BOOM ARTICULATION:	125° (2.18 rad.)	22 seconds
EXTENSION BOOM:	36'' (31.4cm)	12 seconds
POWER-OUT STABILIZER:	60'' (152.4cm)	9 seconds
POWER-DOWN STABILIZER:	26'' (66.0cm)	14 seconds
AUX POWER-OUT STABILIZER:	42'' (106.7cm)	3 seconds
AUX POWER-DOWN STABILIZER:	15-1/2'' (39.4cm)	3 seconds

POWER SOURCE

Hydraulic piston pump and PTO application. Other standard power sources of the closed-center, variable displacement and load sensing type may be utilized. Minimum horsepower required is 35 H.P.

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CYLINDER HOLDING VALVES

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

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 limited to 230° (4.01 Rad.) to restrict lifting over the front of the chassis. Rotation either direction from centerline of rear chassis is 115° (2.01 Rad.). Rotation of the crane is accomplished through a turntable bearing, powered by two high torque hydraulic disc-valve motors through two planetary gear boxes. A fail-safe, spring-loaded brake is an integral part of each planetary gear box which provides rotational and parking brake action. Total gear reduction is 99:1.

HYDRAULIC SYSTEM

The hydraulic system is a closed center, load sensing, standby-pressure system providing 20 GPM (75.63 liters/minute) optimum oil flow at 2500 PSI (172.4 bar). Stack type control valve with dual operational control handles located at both sides of the crane for all lift, telescope and swing functions is standard. Single control lever for each stabilizer function, located on the same side as the stabilizer, is standard. System includes hydraulic oil reservoir, suction and return line filters, closed center, load sensing control valve and a variable displacement radial piston pump.

SELECTED WEIGHTS OF ANCILLARY EQUIPMENT

AUXILIARY STABILIZERS	1770 lbs (803 kg)
18' SUB-FRAME	1800 lbs (816 kg)
PUMP & PTO	140 lbs (64 kg)
MOUNTING HARDWARE	520 lbs (236 kg)
OIL RESERVOIR	190 lbs (86 kg)
OIL (60 gallons)	420 lbs (191 kg)

MINIMUM CHASSIS SPECIFICATIONS FOR STANDARD 32018 CRANE WITH TH15B

CRANE MOUNT	Behind Cab Mount Only
CRANE WORKING AREA	230° (4.01 rad)
CHASSIS STYLE	Conventional Cab
FRONT AXLE RATING (GAWR)	20000 lbs (9070 kg)
REAR AXLE RATING (GAWR)	40000 lbs Tandem Axle (18,145 kg)
WHEELBASE	236'' (599cm)
CAB-TO-AXLE	156'' (396cm)
FRAME HEIGHT FROM GROUND	43'' Maximum (109cm)
RBM	5,060,000 in-lbs (5,831,650 kg-cm)
FRAME SECTION MODULUS	46 cubic inches (754 cc)
FRAME YIELD STRENGTH	110,000 PSI (7734 kg/cm^2)

To maintain vehicle stability, it will be necessary to provide auxiliary stabilizers which have, at a minimum, 14'-0''(427cm) span. A subframe/torsion box must be used to tie the auxiliary stabilizers to the crane. For each application contact IMT for a weight distribution and stability analysis.

NOTE

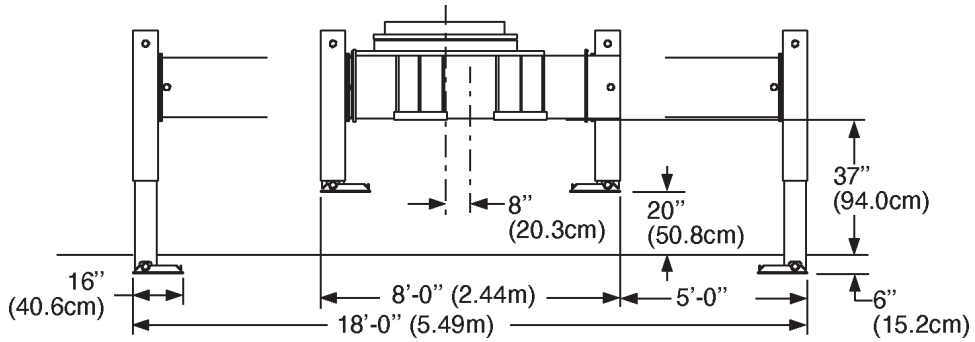
FOR EACH APPLICATION CONTACT IMT FOR A WEIGHT DISTRIBUTION AND STABILITY ANALYSIS.

NOTES:

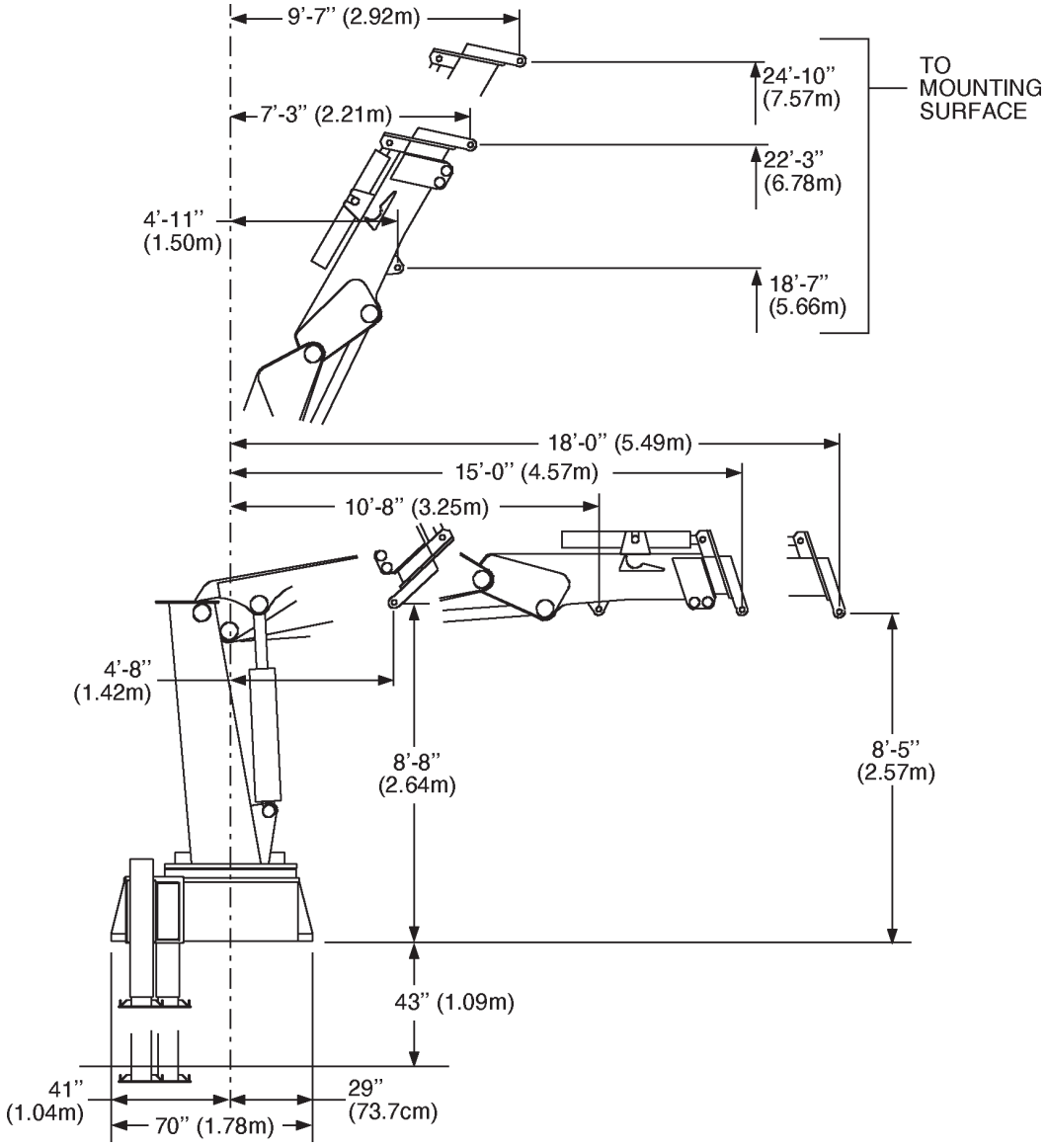
1. GAWR means Gross Axle Weight Rating and is dependent on all components of the vehicle such as axles, tires, wheels, springs, brakes, steering and frame strength meeting the manufacturer's recommendations. Always specify GAWR when purchasing a truck.
2. Minimum axle requirements may increase with use of diesel engines, longer wheelbase or service bodies. Contact the factory for further information.
3. Weight distribution calculations are required to determine final axle loading.
4. All chassis and crane combinations must be stability tested to ensure stability per ANSI B30.22

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

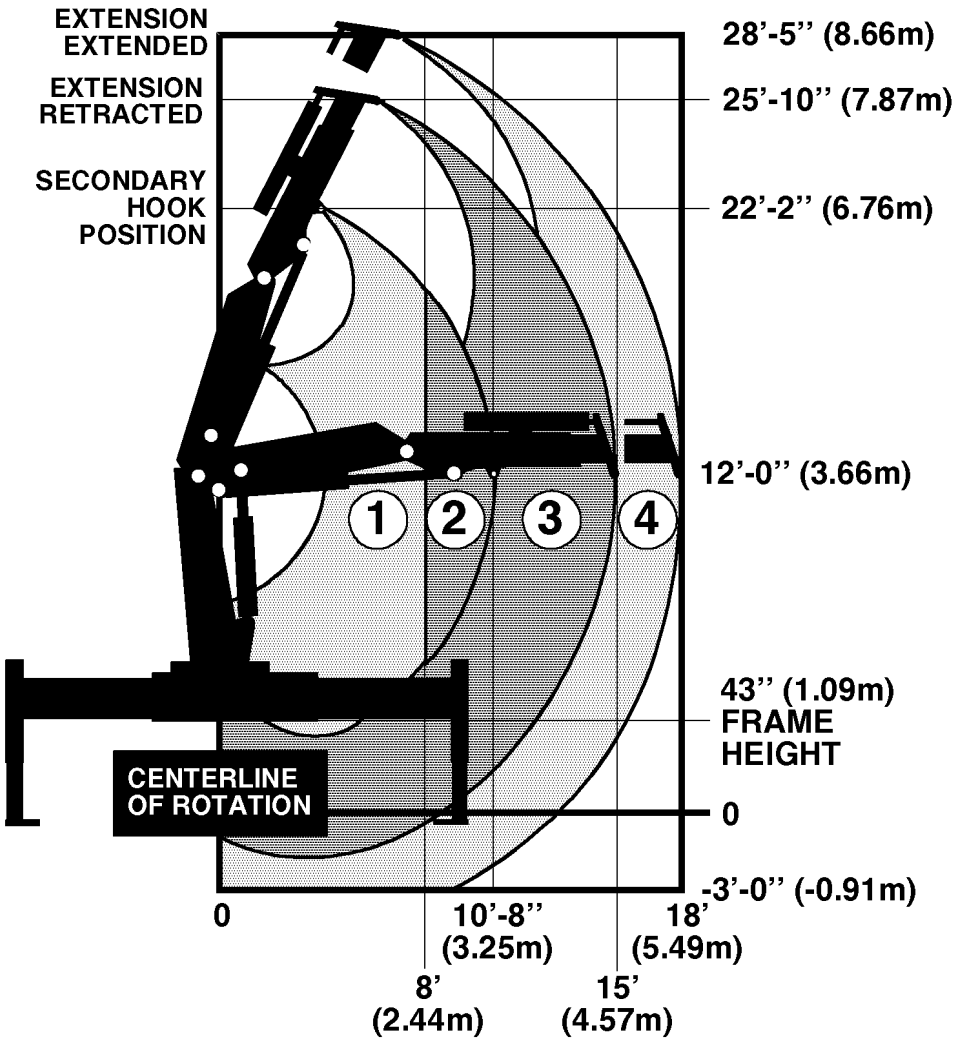
STANDARD STABILIZER DIMENSIONS



GEOMETRIC CONFIGURATION



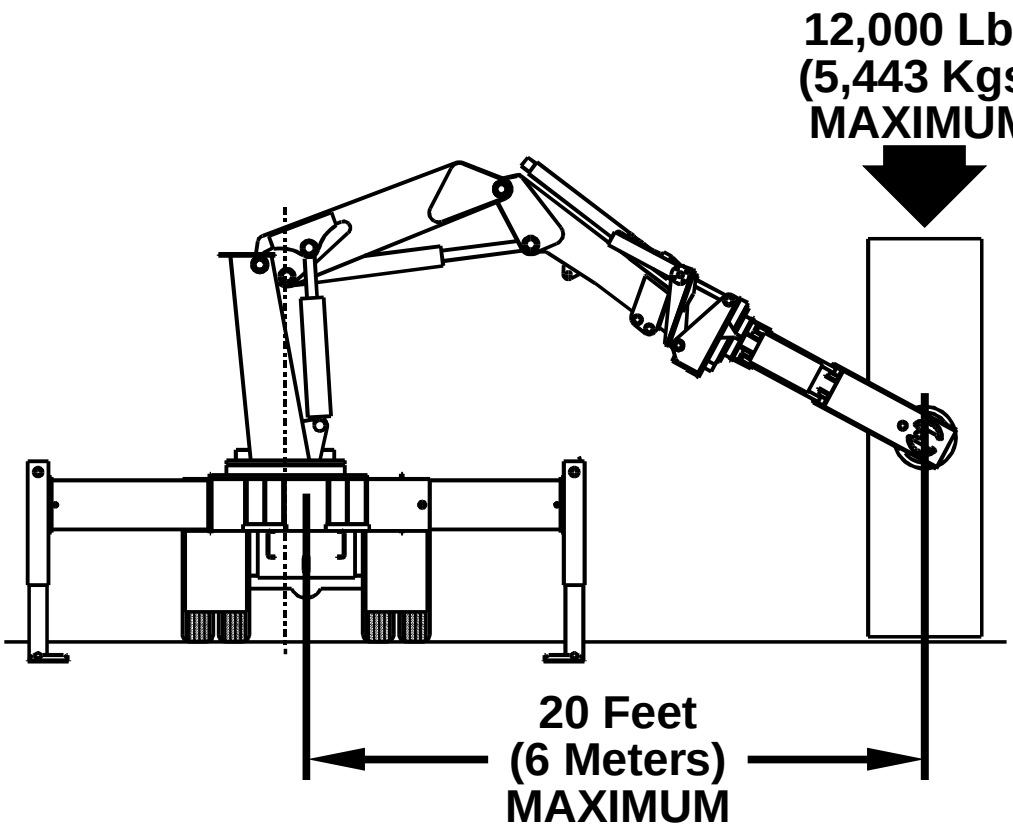
CAPACITY CHART



RANGE	REACH (FT/IN)	CAPACITY (POUNDS)	REACH (METERS)	CAPACITY (KILOGRAMS)
1	8'-0''	40,000 LB	2.44m	18,144 KG
2	10'-8''	30,000 LB	3.25m	13,608 KG
3	15'-0''	21,000 LB	4.57m	9,526 KG
4	18'-0''	17,500 LB	5.49m	7,938 KG

- 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.

MAXIMUM LIFT CAPABILITY
Model 32018 Crane with TH15B



- **Load shown is based on Crane and Tirehand structural or hydraulic capability.**
- **To assure proper stability, lift must not exceed 20 feet (6 meters) from centerline of chassis to centerline of load**
- **Working loads will be limited to those shown.**
- **Deduct the weight of any load handling devices other than Tirehand.**

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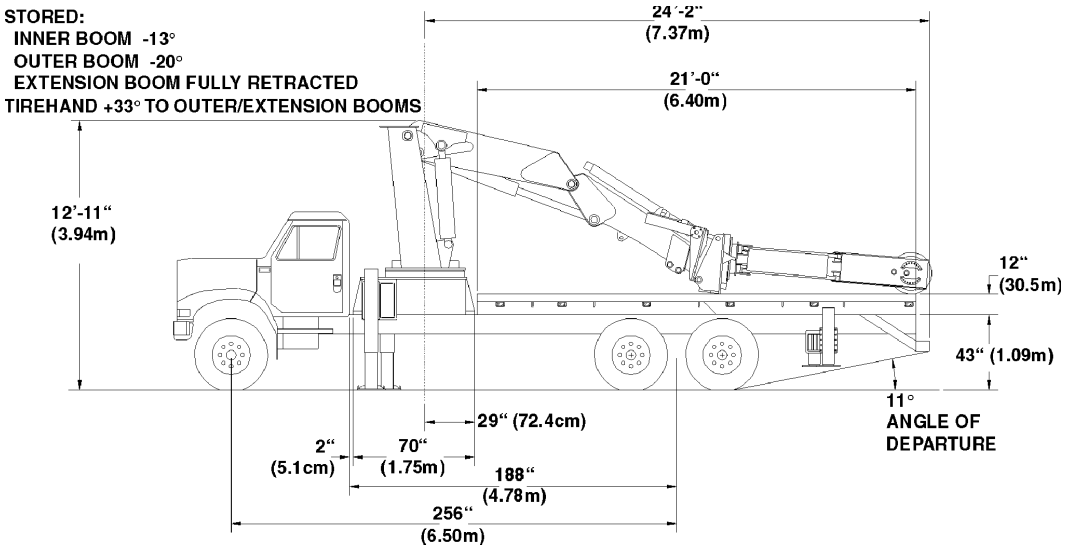
IMT MODEL 32018 W/TH15B-STORED POSITION

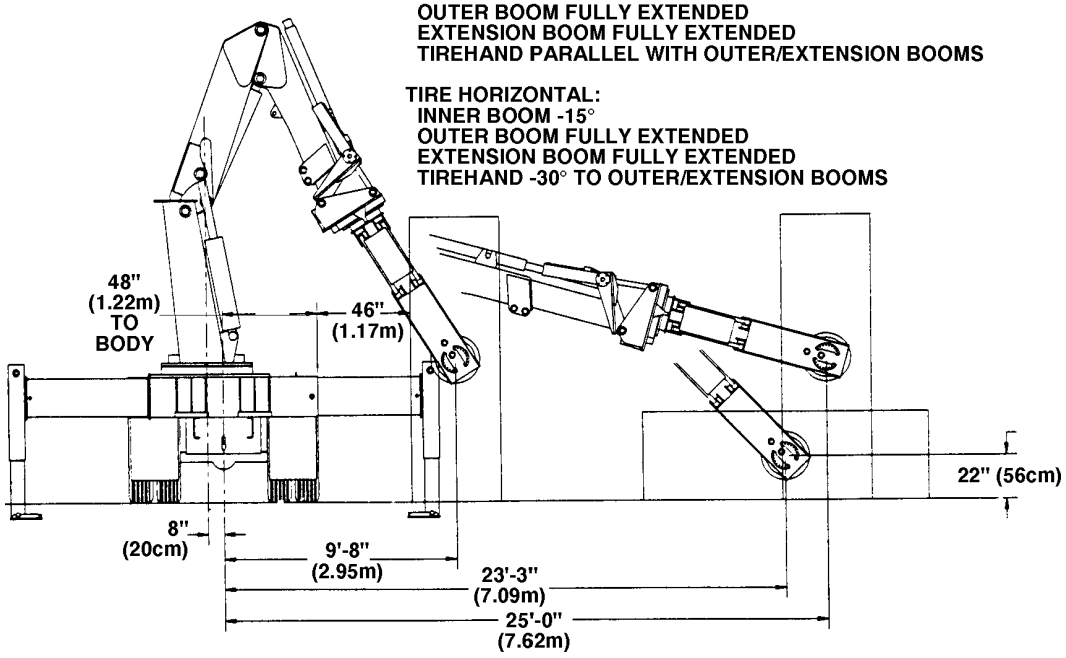


IMT MODEL 32018 W/TH15B-SURFACE MOVEMENT

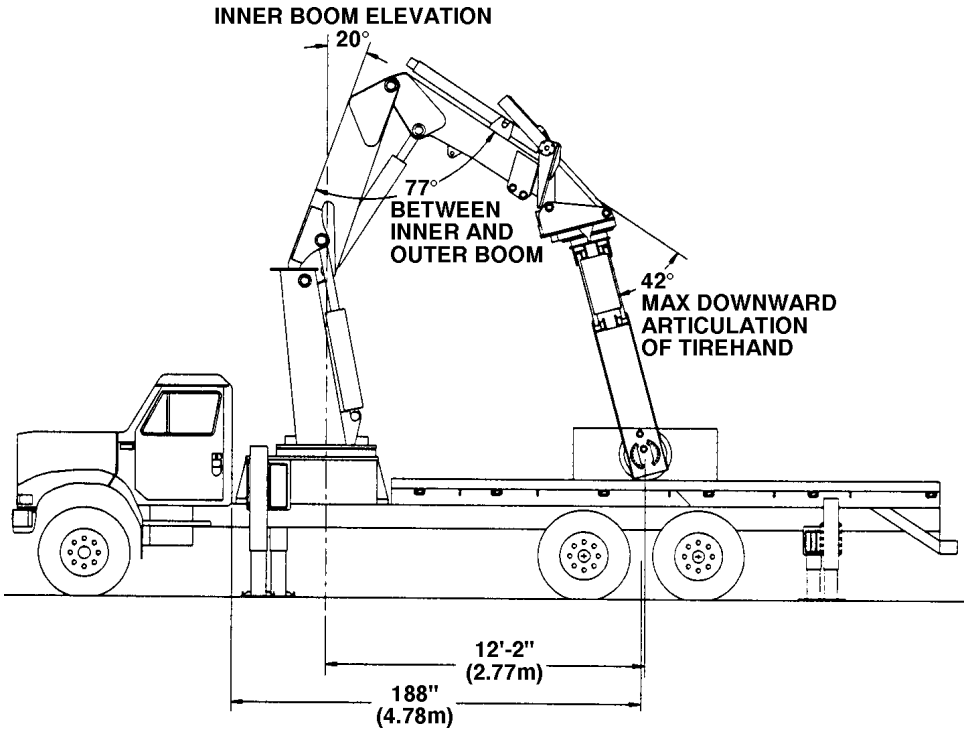
IN:
INNER BOOM +70° (MAX)
OUTER BOOM -137° (MAX)
EXTENSION BOOM RETRACTED
TIREHAND +9° TO OUTER/EXTENSION BOOMS

OUT:
INNER BOOM -15°
OUTER BOOM FULLY EXTENDED
EXTENSION BOOM FULLY EXTENDED
TIREHAND PARALLEL WITH OUTER/EXTENSION BOOMS

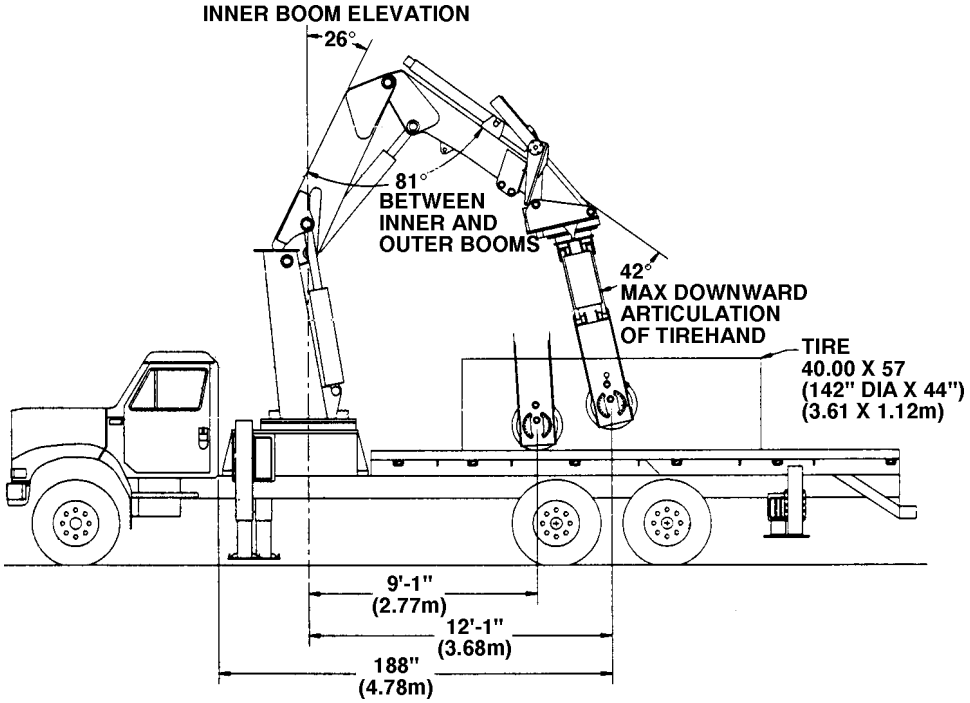
TIRE HORIZONTAL:
INNER BOOM -15°
OUTER BOOM FULLY EXTENDED
EXTENSION BOOM FULLY EXTENDED
TIREHAND -30° TO OUTER/EXTENSION BOOMS



IMT MODEL 32018 W/TH15B-INWARD MOVEMENT



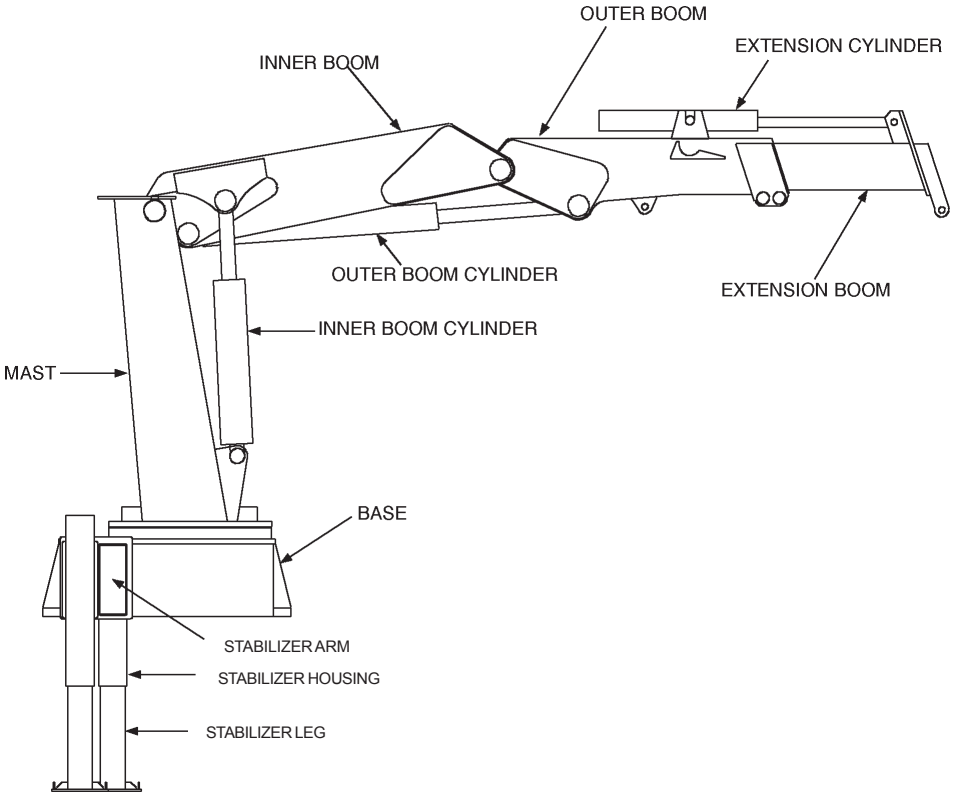
IMT MODEL 32018 W/TH15B-INWARD MOVEMENT (40.00X57 TIRE)



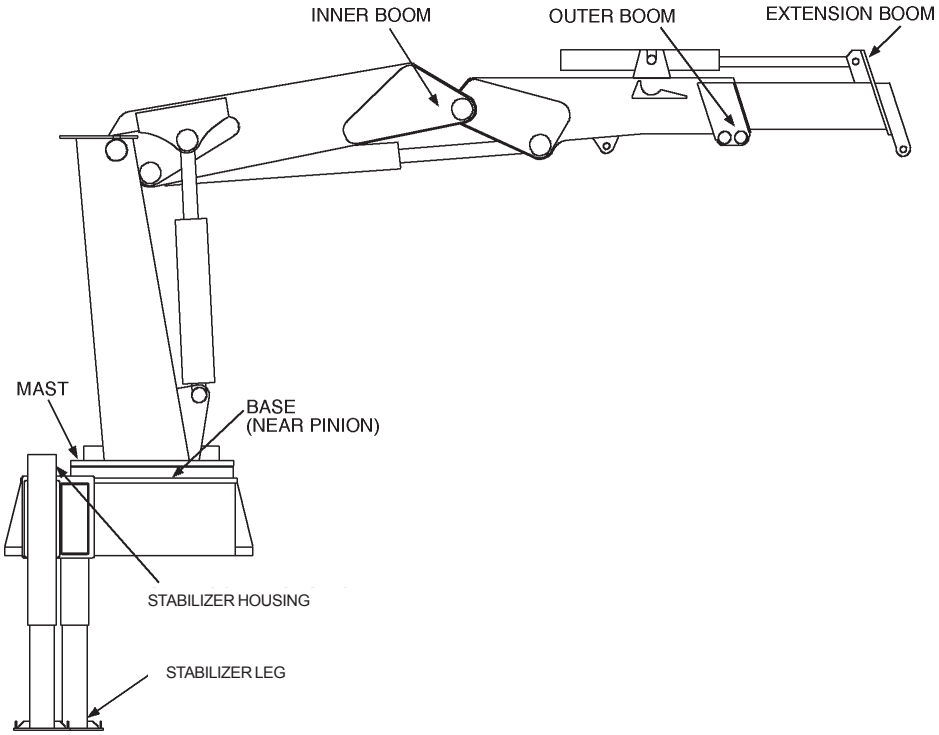
SECTION 2. 32018 CRANE REFERENCE

NOTES

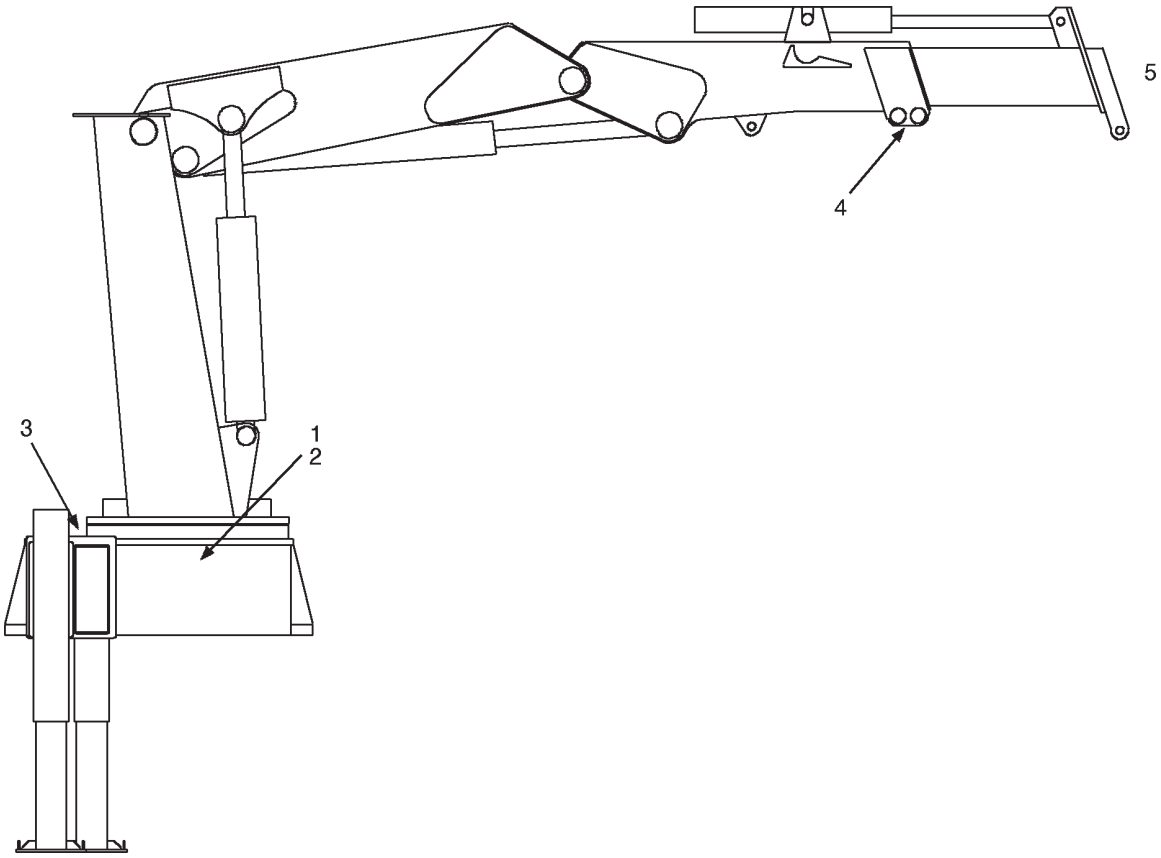
MAJOR CRANE ASSEMBLIES



WELDMENT PART NUMBER LOCATIONS



GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	TURNTABLE/BEARING GREASE EXTENSION *ROTATE CRANE WHILE GREASING	SHELL ALVANIA 2EP OR SHELL RETINAX “A”	WEEKLY
2.	DRIVE GEAR GREASE EXTENSION		
3.	LATCH PIN		
4.	OUTER BOOM TRUNNION		
5.	SEE TIREHAND 15B LUBE REQUIREMENTS		

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
32018 CRANE
FOR MANUAL: 99900319

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a yearIt 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
41706211.01.19961106	**BASE AND STABILIZER ASSEMBLY**						
	20	71056373	TURNTABLE BEARING	1	W		
	21	70057696	ROTATION GEAR BOX	2	W		
	37	72063116	WASHER 3/4 FLAT HARD	36	W		
	41	72601468	CAP SCR 3/4-10X4-1/2 HH GR8	36	W		
	43	7BF81225	BUSHING	2	W		
	44	73051473	HYDRAULIC MOTOR	2	C		
	48	7Q072017	O-RING	4	W		
	49	73054538	VALVE	4	C		
31706397.01.19910415	**AUXILIARY OURIGGER ASSEMBLY**						
	7	60030067	WEAR PAD	2	W		
	8	60030085	WEAR PAD	2	W		
3B144860.01.19940831	**POWER OUT STABILIZER CYLINDER**						
	5	73054004	VALVE	2	C		
	8	9B101214	SEAL KIT	2	W		
3C145860.01.19961106	**POWER DOWN STABILIZER CYLINDER**						
	1	9C202029	SEAL KIT	2	W		
	18	73054304	VALVE 10GPM	4	C		
	20	7BF81520	BUSHING	4	W		
3B148860.01.19940913	**POWER OUT AUXILIARY STABILIZER CYLINDER**						
	5	73054004	VALVE	2	C		
	8	9B101214	SEAL KIT	2	W		
3B020860.01.19940804	**POWER DOWN AUXILIARY STABILIZER CYLINDER**						
	4	73054304	VALVE 10GPM	4	C		
	7	9C161623	SEAL KIT	2	W		
	18	7BF81215	BUSHING	4	W		
41707101.01.19970708	**MAST ASSEMBLY**						
	2	70034275	BEARING	2	W		
	3	72063116	WASHER	36	W		
	4	72601466	CAP SCR	36	W		
41707102.01.19980129	**INNER BOOM ASSEMBLY**						
	11	70034274	BEARING	4	W		
	14	7Q072015	O-RING	1	W		
	17	77041283	PRESSURE SWITCH	1	W		
3D115870.01.19910415	**INNER CYLINDER**						
	2	70034279	BEARING	4	W		
	4	70034279	BEARING	4	W		
	9	73054242	VALVE	2	W		
	10	9X323239	SEAL KIT	2	W		
41707103.01.19980129	**OUTER BOOM ASSEMBLY**						
	4	70034274	BEARING	4	W		
	10	60030160	WEAR PAD	2	W		
	11	60030164	WEAR PAD	8	W		
	13	60109341	WEAR PAD	3	W		
3C112870.01.19910415	**OUTER CYLINDER**						
	2	70034279	BEARING	4	W		
	4	70034279	BEARING	4	W		
	8	73054242	VALVE	2	W		
	9	9C283235	SEAL KIT	2	W		
41707104.01.19910415	**EXTENSION BOOM ASSEMBLY**						
	5	60030072	WEAR PAD	4	W		
	6	60030158	WEAR PAD	2	W		
	11	70731776	SWIVEL HOOK W/LATCH 15-TON	1	W		
3C110870.01.19910415	**EXTENSION CYLINDER**						
	6	73054242	VALVE	2	W		
	7	9C222029	SEAL KIT	1	W		
93707105.01.19960523	**INSTALLATION KIT**						
	REF	73052014	ELEMENT-25MIC SPIN	12	W		
	REF	70048149	ELEMENT-100MESH	6	W		

NOTES

INSTALLATION

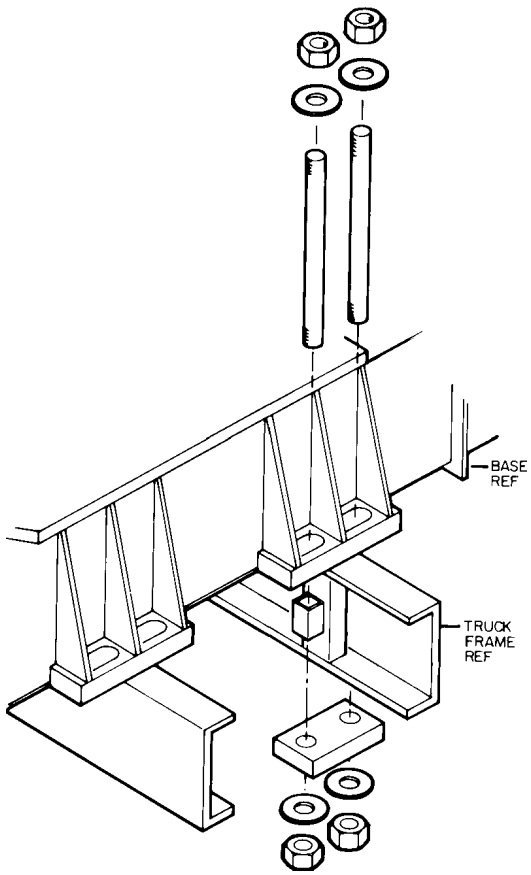
GENERAL

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

Components used in each installation may vary. It is important to use hoses of proper length, pumps of correct size, and PTO's of adequate speed ratio and power rating.

CRANE MOUNTING

1. In addition to meeting Minimum Chassis Specifications in Section 1, there must be sufficient room for mounting the crane and the platform must be strong enough to support the crane and rated load. SeeSPECIFICATIONS in Section 1 for crane weight. Using an overhead hoist and fabric slings of adequate capacity, lift the crane about a foot to see if the crane is adequately balanced. If not, lower hoist and adjust slings. Re-check balance and re-position crane until mounting surface is level.



CRANE INSTALLATION

2. Install the truck frame support so that the tie-down studs pass through the supports (Figure below). Cut the support to the inside dimensions of the truck frame. Allow about 1/16" extra. Grind the end of the support to fit inside the frame channel. Use a hammer to drive it into position if necessary.

3. Allow sufficient clearance between the cab, or other obstructions, and crane base. Position the crane on the chassis per the applicable installation drawing, centering the mounting slots over the truck frame rails. While holding crane with hoist, start mounting hardware per Figure below. Note position of support weldments on truck frame. Hand tighten nuts. Observe underside of crane base. No clearance between base and frame is allowed.

4. Torque the 2"-4 1/2 mounting hardware to 1125 ft-lbs (156 kg-m). When torquing the mounting hardware the following precautions must be followed:

A. Never use lock washers.

B. Hardened washers must be used, andunder the turning element, whether the turning element is the nut or the head of the bolt.

C. Torque values specified are with residual oils or without special lubricants applied to the threads. If special lubricants are used, such as Never-Seize compound graphite and oil, molybdenum disulphite collodial copper or white lead, reduce torque values 10%. Torque values for threaded fasteners are not affected with the use of Loctite.

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

E. Touch-up paint around mounting anchor plates.

CAUTION

Do not attempt to apply the same torque to the tie rod and self-locking nuts as shown in the Torque Data Chart. Do not exceed 1125 ft. lbs. (156 kg-m). Exceeding this torque value could damage either the chassis or crane base.

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

HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.(See the Installation Kit drawing in Section 3 for specific routings and fittings):

1. Plumb the suction line filter as shown in the Installation Kit drawing in Section 3.

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

3. Install the pressure hose between the pump outlet and the inlet port on the valvebank. Install the sensor hose between the sensor on the hydraulic pump and the sensor line on the valvebank.

4. Fill the hydraulic oil reservoir to the “FULL” mark.

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

CAUTION

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

6. Open the return gate valve.

7. Start the vehicle’s engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauge on the suction-line filter (it should read 8" mercury or less). If the vacuum reading is too high, check to make certain that the gate valve is opened completely. If the valve is fully opened, check for a collapsed or restricted suction line.

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

SECTION 3. REPLACEMENT PARTS 32018 CRANE

NOTES

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
Product Support Fax: 641-923-2424

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.

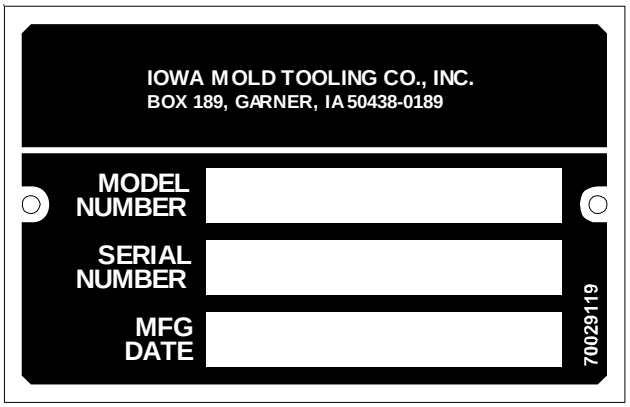
WELDMENT IDENTIFICATION

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. The locations of the part numbers are shown in Section 2.

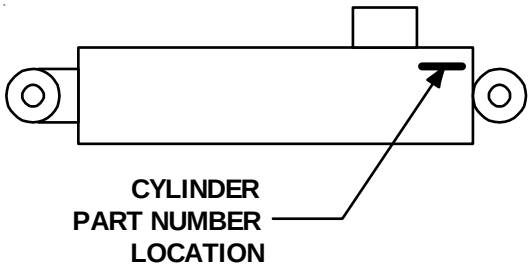
ORDERING REPAIR PARTS

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.



SERIAL NUMBER PLACARD



CYLINDER PART NUMBER LOCATION

BASE & STABILIZER ASM (41706211)

1.	3B144860	POWER-OUT CYLINDER	2
2.	3C145860	POWER-DOWN CYLINDER	2
3.	51706327	ROTATION LATCH (INCL:43)	1
4.	52706309	STABILIZER ARM	2
5.	52706313	STABILIZER LEG/PAD	2
6.	52706314	STABILIZER TUBE COVER	2
7.	52706315	STABILIZER HOUSING	2
8.	52706325	PIN	1
9.	52706330	BASE	1
10.	60101720	PIN	2
11.	60104239	LATCH FOLLOWER	1
12.	60104241	DETENT HOUSING	1
13.	60109500	PIN	2
14.	60109501	PIN	2
15.	60109502	PIN	2
16.	60109538	PINION COVER	2
17.	60109553	CONTROL HANDLE COVER-SS	1
18.	52706436	VB COVER W/LIP	1
19.	7Y016724	SPRING	1
20.	71056373	TURNTABLE BEARING	1
21.	70057696	ROTATION GEAR BOX	2REF
22.	72053508	ZERK 1/8NPT	3
23.	72060002	CAP SCR 1/4-20X3/4 HH GR5	16
24.	72060091	CAP SCR 1/2-13X1 HH GR5	1
25.	72060095	CAP SCR 1/2-13X2 HH GR5	4
26.	72060812	CAP SCR 5/8-11X1-1/2 SH	28
27.	72060833	SCR 5/16-18X3/4 HH SLFTPG	14
28.	72060920	CAP SCR 1/2-13X3-1/4 HHGR5	8
29.	51710622	GEARBOX ASM (INCL:21,44)	2
30.	72063001	WASHER 1/4 WRT	16
31.	72063002	WASHER 5/16 WRT	14
32.	72063034	MACH BUSHING 1 X 10GA NR	8
33.	72063049	WASHER 1/4 LOCK	16
34.	72063053	WASHER 1/2 LOCK	5
35.	72063055	WASHER 5/8 LOCK	28
36.	72063039	MACH BUSHING 2 X 10GA NR	8
37.	72063116	WASHER 3/4 FLAT HARD	36
38.	72066125	RETAINING RING 1" EXT HD	8
39.	72066136	RETAINING RING 2" EXT HD	8
40.	72066444	BALL 9/16	1
41.	72601468	CAP SCR 3/4-10X4-1/2HHGR8	36
42.	60109518	COVER	2
43.	7BF81225	BUSHING (PART OF 3)	2REF
44.	73051473	HYDRAULIC MOTOR	2REF
45.	72062107	NUT 1/2-13 CTR LOCK	8
46.	70731795	VALVE BLOCK (INCL:48 & 49)	2
47.	72060757	CAP SCR 3/8-16X2-1/2 SH	6
48.	7Q072017	O-RING (PART OF 46)	4REF
49.	73054538	VALVE (PART OF 46)	4REF
50.	70142935	BALL(PART OF 46-NOT SHOWN)	2REF
51.	70142934	SEAL(PART OF 46-NOT SHOWN)	2REF
52.	70142933	PLUG(PART OF 46-NOTSHOWN)	2REF
53.	70143099	BODY(PART OF 46-NOTSHOWN)	2REF
54.	60107648	HOSE CLAMP	6
55.	72062103	NUT 3/8-16 LOCK	7
56.	53000717	GREASE EXTENSION 32"	2
57.	60114210	HOSE CLAMP MTG BAR	1
58.	72053438	COUPLER 1/8NPT	2
59.	72060048	CAP SCR 3/8-16X1-1/2 HHGR5	3

WARNING

ANYTIME A GEAR-BEARING BOLT IS REMOVED, ITMUST BE REPLACED WITH A NEW BOLT OF THE IDENTICAL GRADE AND SIZE. F AILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJUR Y OR DEATH.

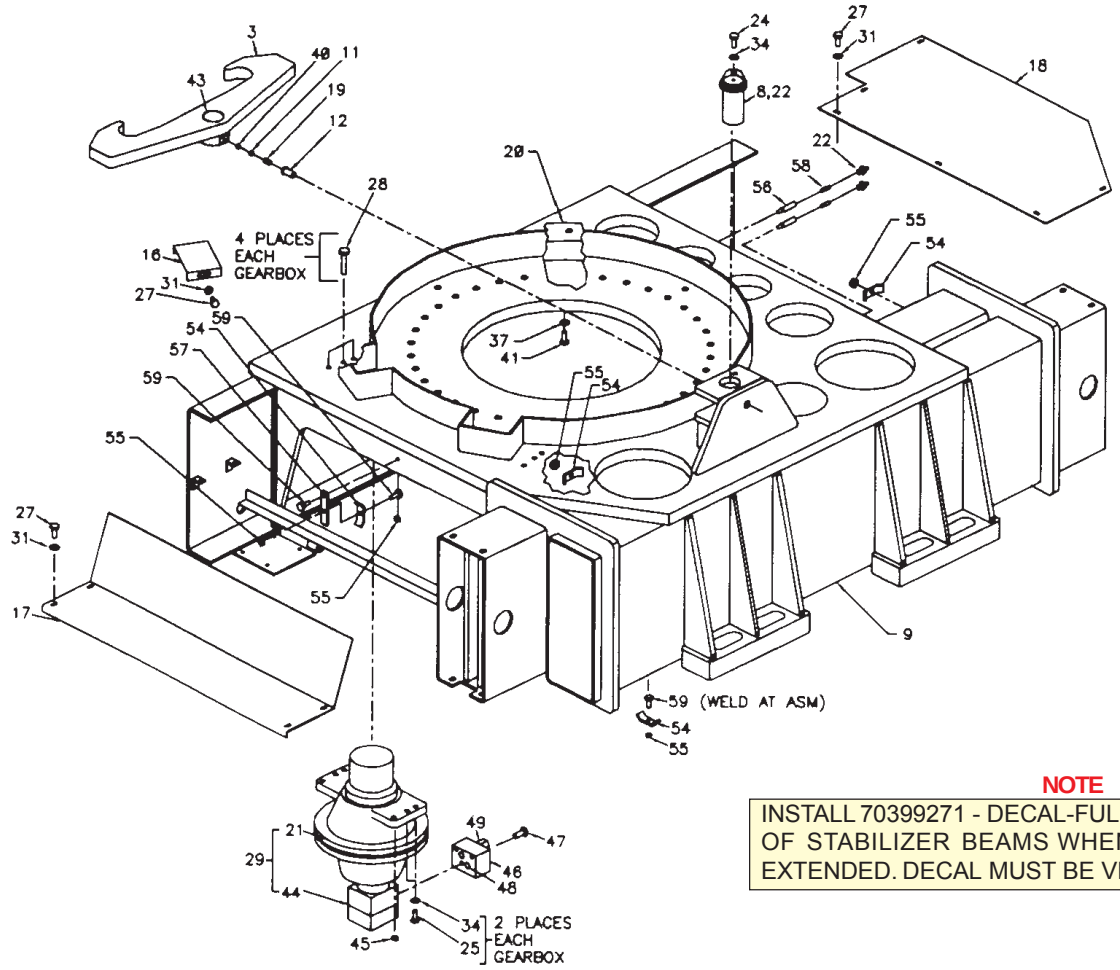
NOTES

MOTOR (44) AND GEARBOX (21) COME ASSEMBLED. CHECK THE OIL LEVEL. IF NECESSARY, ADD 80-90 WT OIL AS NEEDED.

TURNTABLE BEARING BACKLASH:0.010"-0.017" (0.254-0.432MM)

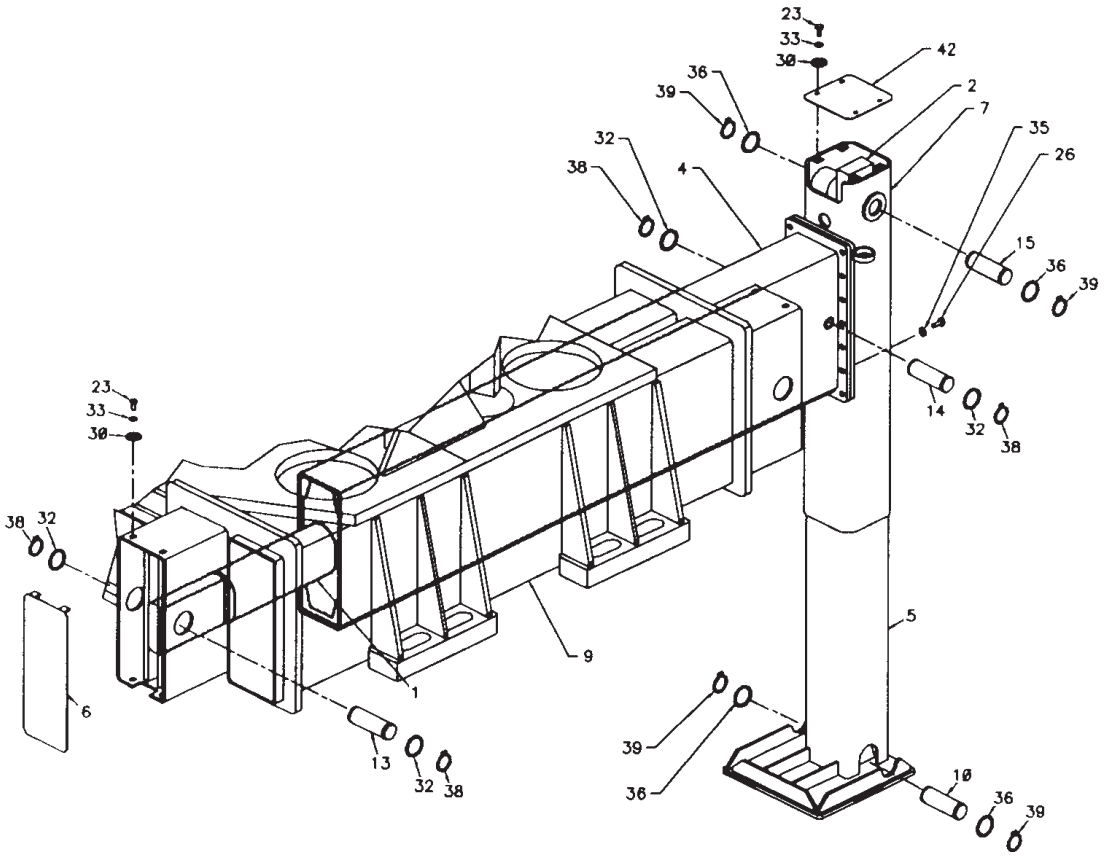
SEE FOLLOWING PAGE FOR DRAWING

BASE & STABILIZER ASM (41706211-2)



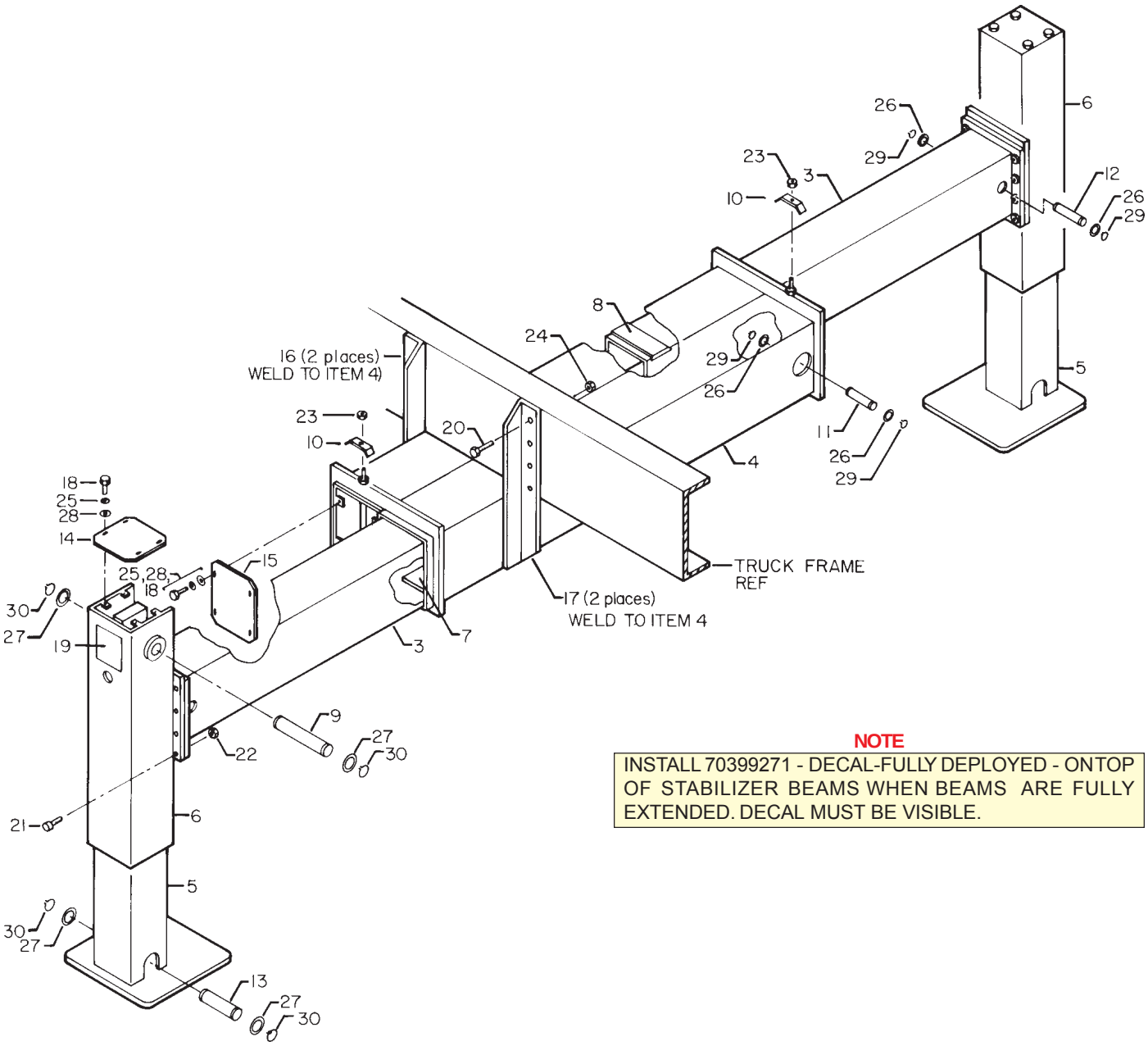
NOTE

INSTALL 70399271 - DECAL-FULLY DEPLOYED - ONTOP OF STABILIZER BEAMS WHEN BEAMS ARE FULLY EXTENDED. DECAL MUST BE VISIBLE.



AUX STABILIZER ASM (31706397)

1.	3B020860	POWER-DOWN CYLINDER	2
2.	3B148860	POWER-OUT CYLINDER	2
3.	52706375	ARM	2
4.	52706385	ARM HOUSING	1
5.	52706388	LEG	2
6.	52706396	HOUSING	2
7.	60030067	WEAR PAD	2
8.	60030085	WEAR PAD	2
9.	60105321	PIN	2
10.	60107648	HOSE CLAMP	2
11.	60109500	PIN	2
12.	60109501	PIN	2
13.	60109593	PIN	2
14.	60109594	STABILIZER HSG COVER	2
15.	60109595	ARM HSG COVER	2
16.	60109606	REAR MTG ANGLE	2
17.	60109687	FRONT MTG ANGLE	2
18.	72060002	CAP SCR 1/4-20X3/4 HH GR5	16
19.	70392864	DECAL-DANGER OR STD CLR	2
20.	72060186	CAP SCR 3/4-10X2-1/2 HHGR5	16
21.	72060816	CAP SCR 5/8-11X2-1/2 SH	16
22.	72062091	NUT 5/8-11 LOCK	16
23.	72062103	NUT 3/8-16 LOCK	2
24.	72062114	NUT 3/4-10 LOCK	16
25.	72063001	WASHER 1/4 WRT	16
26.	72063034	MACH BUSH 1 X 10GA NR	8
27.	72063037	MACH BUSH 1-1/5X10GANR	8
28.	72063049	WASHER 1/4 LOCK	16
29.	72066125	RETAINING RING 1" EXT HD	8
30.	72066132	RETAINING RING 1-1/2 EXT HD	8
32.	70399271	DECAL-STABILIZER DEPLOY	2



NOTE

INSTALL 70399271 - DECAL-FULLY DEPLOYED - ONTOP OF STABILIZER BEAMS WHEN BEAMS ARE FULLY EXTENDED. DECAL MUST BE VISIBLE.

PWR OUT STABILIZER CYLINDER (3B144860)

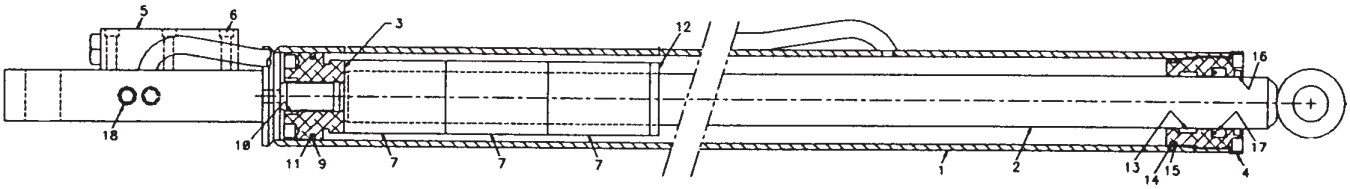
1.	4B144860	CASE ASM (INCL: 18)	1
2.	4G144860	ROD ASM	1
3.	6I025087	PISTON	1
4.	6H025015	HEAD	1
5.	73054004	VALVE	1
6.	72060708	SCREW 1/4-20X1-1/4 SH	6
7.	6C300015	STOP TUBE	3
8.	9B101214	SEAL KIT (INCL:9-17)	1
9.	7T66P025	PISTON SEAL (PART OF 8)	1REF
10.	7T61N087	LOCK-RING SEAL (PART OF 8)	1REF
11.	7Q072137	O-RING (PART 0F 17)	1REF
12.	6A025015	WAFER LOCK (PART OF 8)	1REF
13.	7T2N8015	WEAR RING (PART OF 8)	1REF
14.	7Q072228	O-RING (PART OF 8)	1REF
15.	7Q10P228	BACK-UP RING (PART OF 8)	1REF
16.	7R14P015	ROD WIPER (PART OF 8)	1REF
17.	7R546015	ROD SEAL (PART OF 8)	1REF
18.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	2REF

NOTE

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

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

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



PWR DN STABILIZER CYLINDER (3C145860)

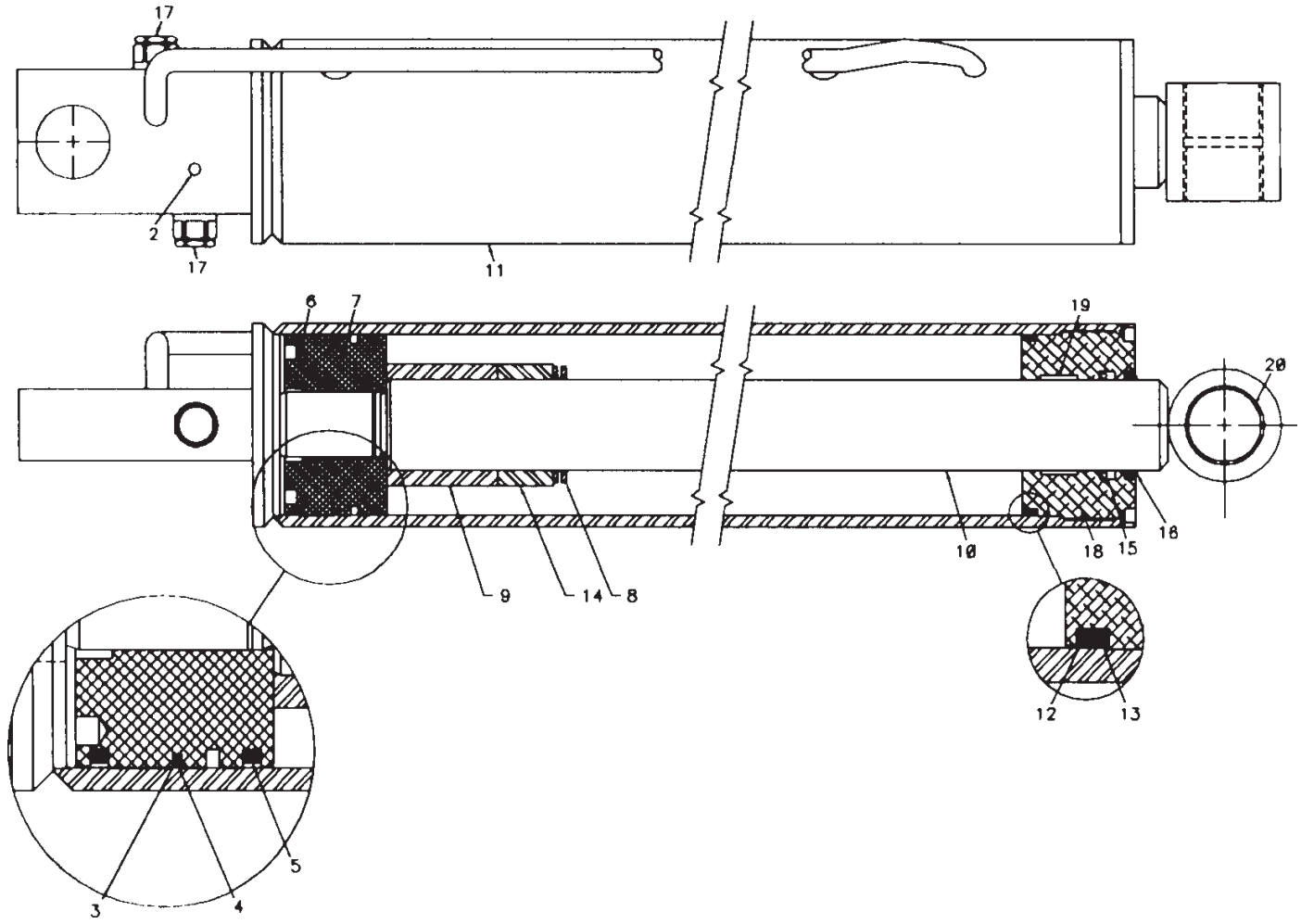
1.	9C202029	SEAL KIT (INCL:3-6,8,12,13,15,16,19)	1
2.	7PNPXT02	PLUG 1/8NPT (PART OF 11)	2REF
3.	7Q072157	O-RING (PART OF 1)	1REF
4.	7T66P050	PISTON SEAL (PART OF 1)	1REF
5.	7T65I050	PISTON RING (PART OF 1)	2REF
6.	7T61N181	LOCK-RING SEAL (PART OF 1)	1REF
7.	6I050181	PISTON	1
8.	6A025025	WAFER LOCK (PART OF 1)	1REF
9.	6C300025	STOP TUBE	1
10.	4G145860	ROD ASM (INCL: 20)	1
11.	4C145860	CASE ASM (INCL: 2)	1
12.	7Q072350	O-RING (PART OF 1)	1REF
13.	7Q10P350	BACK-UP RING (PART OF 1)	1REF
14.	6C150025	STOP TUBE	1
15.	7R546025	ROD SEAL (PART OF 1)	1REF
16.	7R14P025	ROD WIPER (PART OF 1)	1REF
17.	73054304	VALVE 10GPM	2
18.	6H050025	HEAD	1
19.	7T2N8027	WEAR RING (PART OF 1)	1REF
20.	7BF81520	BUSHING (PART OF 10)	2REF

NOTE

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

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

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



PWR OUT AUX STABILIZER CYLINDER (3B148860)

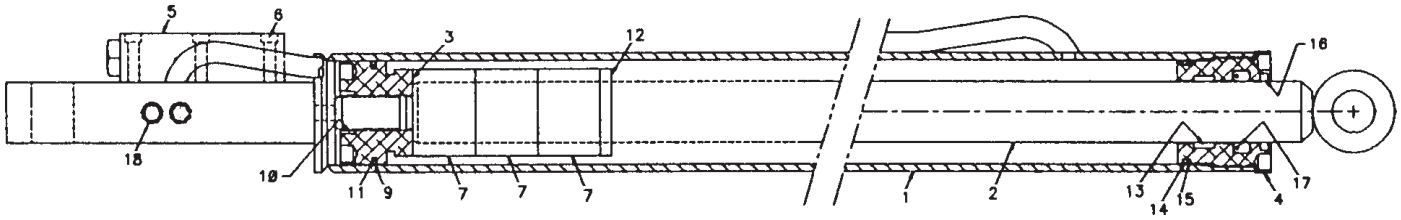
1.	4B148860	CASE ASM (INCL:18)	1
2.	4G148860	ROD ASM	1
3.	6I0025087	PISTON	1
4.	6H025015	HEAD	1
5.	73054004	VALVE	1
6.	72060708	CAP SCR 1/4-20X1-1/4 SH	6
7.	6C150015	STOP TUBE	3
8.	9B101214	SEAL KIT (INCL:9-17)	1
9.	7T66P025	PISTON SEAL (PART OF 8)	1REF
10.	7T61N087	LOCK RING SEAL (PART OF 8)	1REF
11.	7Q072137	O-RING (PART OF 8)	1REF
12.	6A025015	WAFER LOCK (PART OF 8)	1REF
13.	7T2N8015	WEAR RING (PART OF 8)	1REF
14.	7Q072228	O-RING (PART OF 8)	1REF
15.	7Q10P228	BACK-UP RING (PART OF 8)	1REF
16.	7R14P015	ROD WIPER (PART OF 8)	1REF
17.	7R546015	ROD SEAL (PART OF 8)	1REF
18.	7PNPXT02	PIPE PLUG (PART OF 1)	2REF

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 HEA VY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



PWR DN AUX STABILIZER CYLINDER (3B020860)

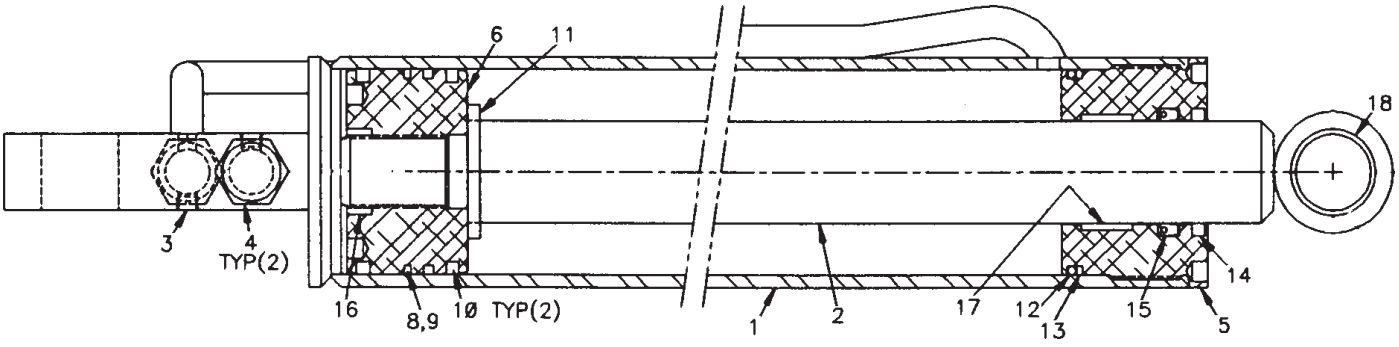
1.	4B020860	CASE ASM (INCL:3)	1
2.	4G020860	ROD ASM (INCL:17)	1
3.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 1)	2REF
4.	73054304	C'BALANCE VALVE 10GPM	2
5.	6H040020	HEAD	1
6.	6I040143	PISTON	1
7.	9C161623	SEAL KIT (INCL:8-16)	1
8.	7Q072153	O-RING (PART OF 7)	1REF
9.	7T66P040	PISTON SEAL (PART OF 7)	1REF
10.	7T65I040	PISTON RING (PART OF 7)	2REF
11.	6A025020	WAFER LOCK (PART OF 7)	1REF
12.	7Q072342	O-RING (PART OF 7)	1REF
13.	7Q10P342	BACKUP RING (PART OF 7)	1REF
14.	7R14P020	ROD WIPER (PART OF 7)	1REF
15.	7R546020	U-CUP SEAL (PART OF 7)	1REF
16.	7T61N143	LOCK RING (PART OF 7)	1REF
17.	7T2N8022	ROD WEAR RING (PART OF 7)	1REF
18.	7BF81215	BUSHING (PART OF 2)	2REF

NOTE

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

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

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

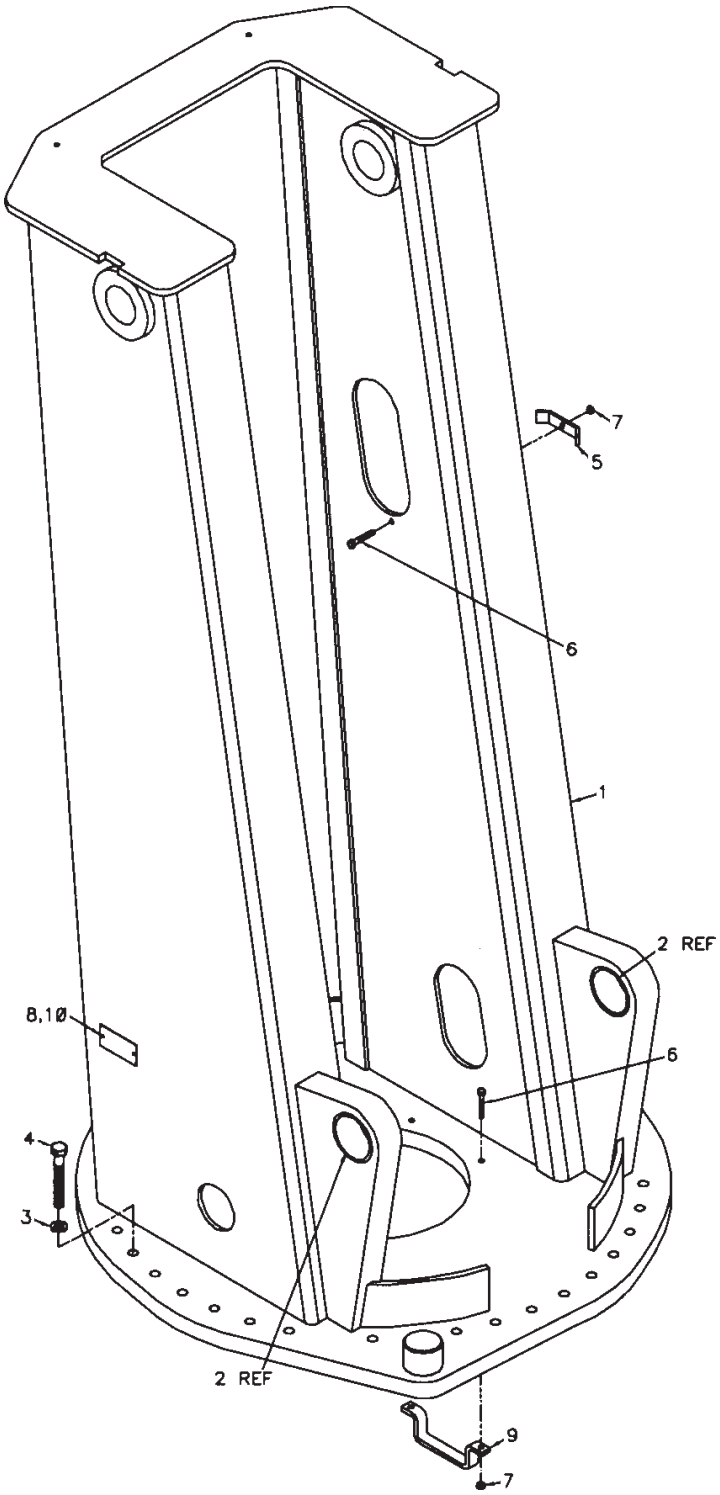


MAST ASM (41707101)

1.	51707094	MAST (INCL: 2)	1
2.	70034275	BEARING (PART OF 1)	2REF
3.	72063116	WASHER 3/4 FLAT HARD GR8	36
4.	72601466	CAP SCR 3/4-10X5 HHGR8	36
5.	60010118	HOSE CLAMP	2
6.	72060051	CAP SCR 3/8-16X2-1/4 HHGR5	4
7.	72062103	NUT 3/8-16 LOCK	4
8.	70029119	SERIAL NUMBER PLACARD	1
9.	60114209	HOSE HOLDER	2
10.	72066340	POP RIVET 1/8X3/8GRIP	2

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.

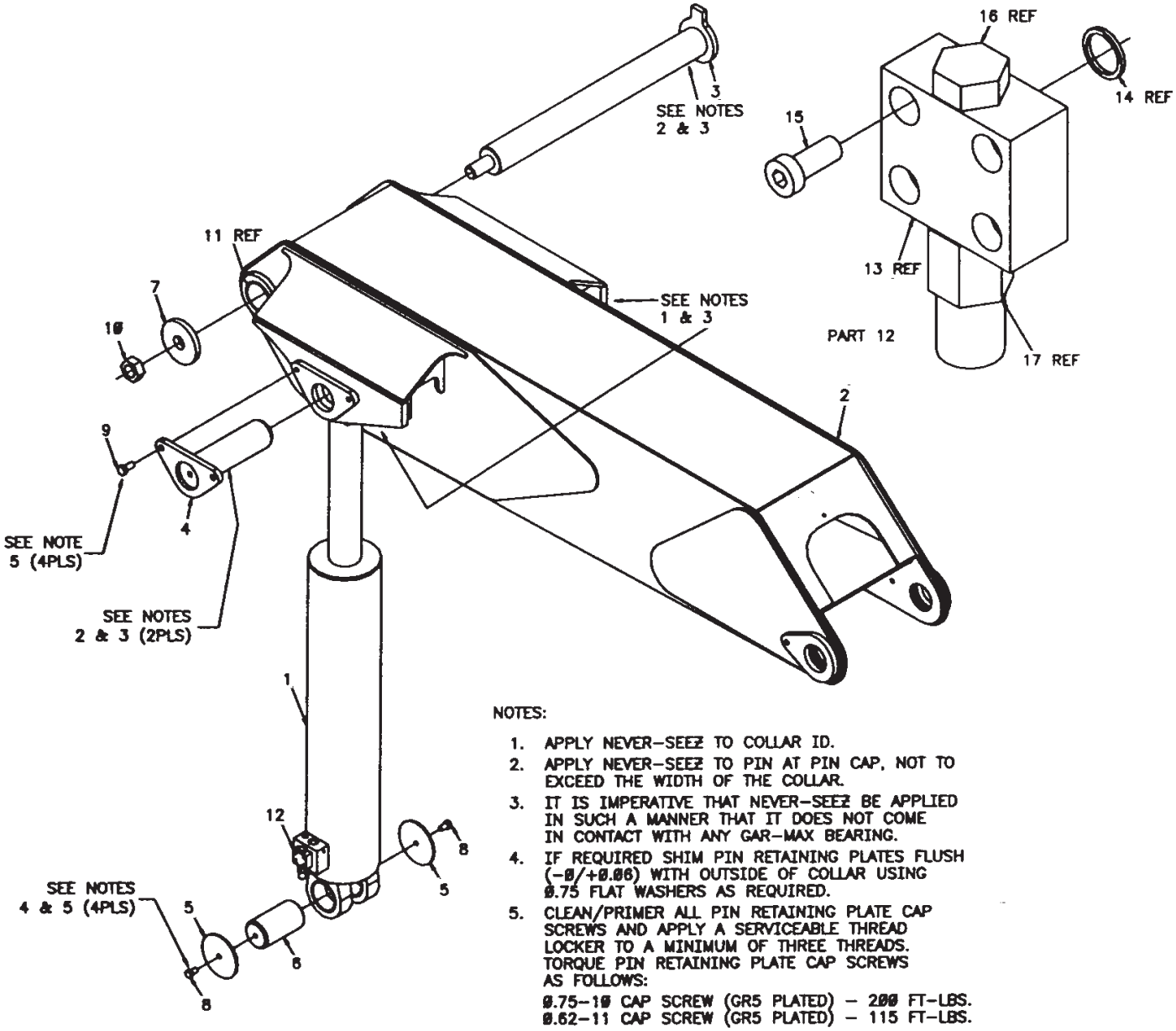


INNER BOOM ASM (41707102)

1.	3D115870	INNER CYLINDER	2
2.	51706296	INNER BOOM (INCL: 11)	1
3.	52706294	PIN	1
4.	52706295	PIN	2
5.	60109452	PIN RETAINER	4
6.	60109456	PIN	2
7.	60109472	PIN RETAINER PLATE	1
8.	72060147	CAP SCR 5/8-11X1 HHGR5	4
9.	72060183	CAP SCR 3/4-10X1-1/2 HHGR5	4
10.	72062135	NUT 1-3/4-5 SLOTTED	1
11.	70034274	BEARING (PART OF 2)	4REF
12.	31705698	ELECTRIC CAPACITY ALERT (INCL: 13-18)	1
13.	60025221	MANIFOLD (PART OF 12)	1REF
14.	7Q072015	O-RING (PART OF 12)	1REF
15.	72060731	CAP SCR 5/16-18X3/4 SH (PART OF 12)	4REF
16.	72532140	PLUG #6MSTR (PART OF 12)	1REF
17.	77041283	PRESSURE SWITCH (PART OF 12)	1REF
18.	99900118	CAPACITY ALERT INSTALLATION DWG (PART OF 12)	1REF

NOTE

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



NOTES:

1. APPLY NEVER-SEEZ TO COLLAR ID.
2. APPLY NEVER-SEEZ TO PIN AT PIN CAP, NOT TO EXCEED THE WIDTH OF THE COLLAR.
3. IT IS IMPERATIVE THAT NEVER-SEEZ BE APPLIED IN SUCH A MANNER THAT IT DOES NOT COME IN CONTACT WITH ANY GAR-MAX BEARING.
4. IF REQUIRED SHIM PIN RETAINING PLATES FLUSH (-0/+0.06) WITH OUTSIDE OF COLLAR USING 0.75 FLAT WASHERS AS REQUIRED.
5. CLEAN/PRIMER ALL PIN RETAINING PLATE CAP SCREWS AND APPLY A SERVICEABLE THREAD LOCKER TO A MINIMUM OF THREE THREADS. TORQUE PIN RETAINING PLATE CAP SCREWS AS FOLLOWS:

   0.75-10 CAP SCREW (GR5 PLATED) - 200 FT-LBS.
   0.62-11 CAP SCREW (GR5 PLATED) - 115 FT-LBS.

INNER CYLINDER (3D115870)

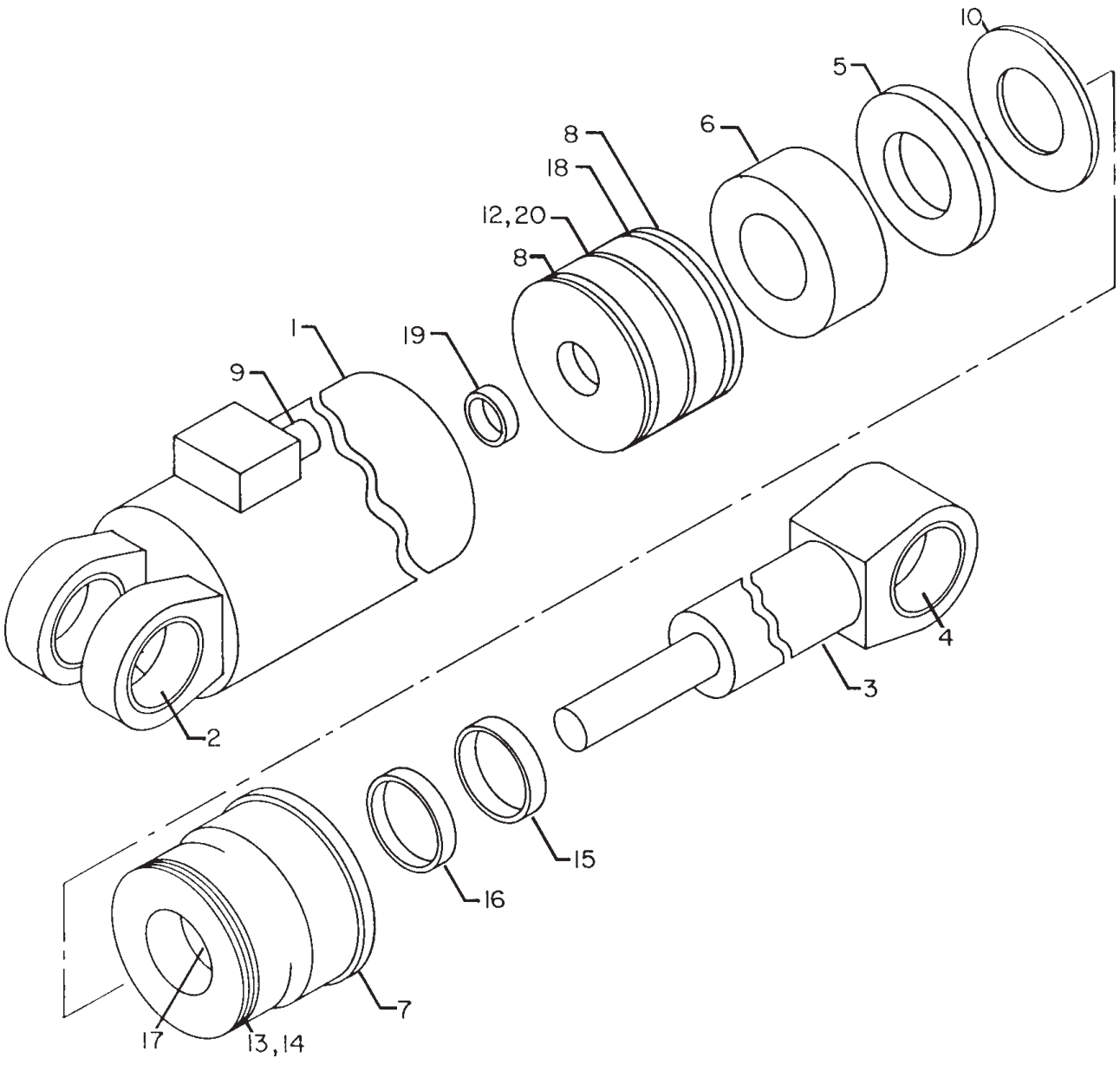
1.	4D115870	CASE ASM (INCL: 2,21)	1
2.	70034279	BEARING (PART OF 1)	2REF
3.	4G115870	ROD ASM (INCL: 4)	1
4.	70034279	BEARING (PART OF 3)	2REF
5.	6C075040	STOP TUBE	1
6.	6C300040	STOP TUBE	1
7.	6HX80040	HEAD	1
8.	6IX80243	PISTON	1
9.	73054242	VALVE	1
10.	9X323239	SEAL KIT (INCL: 11-20)	1
11.	6A025040	WAFER LOCK (PART OF 10)	1REF
12.	7Q072263	O-RING (PART OF 10)	1REF
13.	7Q072443	O-RING (PART OF 10)	1REF
14.	7Q10P443	BACK-UP RING (PART OF 10)	1REF
15.	7R14P040	ROD WIPER (PART OF 10)	1REF
16.	7R546040	ROD SEAL (PART OF 10)	1REF
17.	7T2N2X42	WEAR RING (PART OF 10)	1REF
18.	7T2N4080	WEAR RING (PART OF 10)	2REF
19.	7T61N243	LOCK RING (PART OF 10)	1REF
20.	7T66P080	PISTON SEAL (PART OF 10)	1REF
21.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF

NOTE

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

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

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

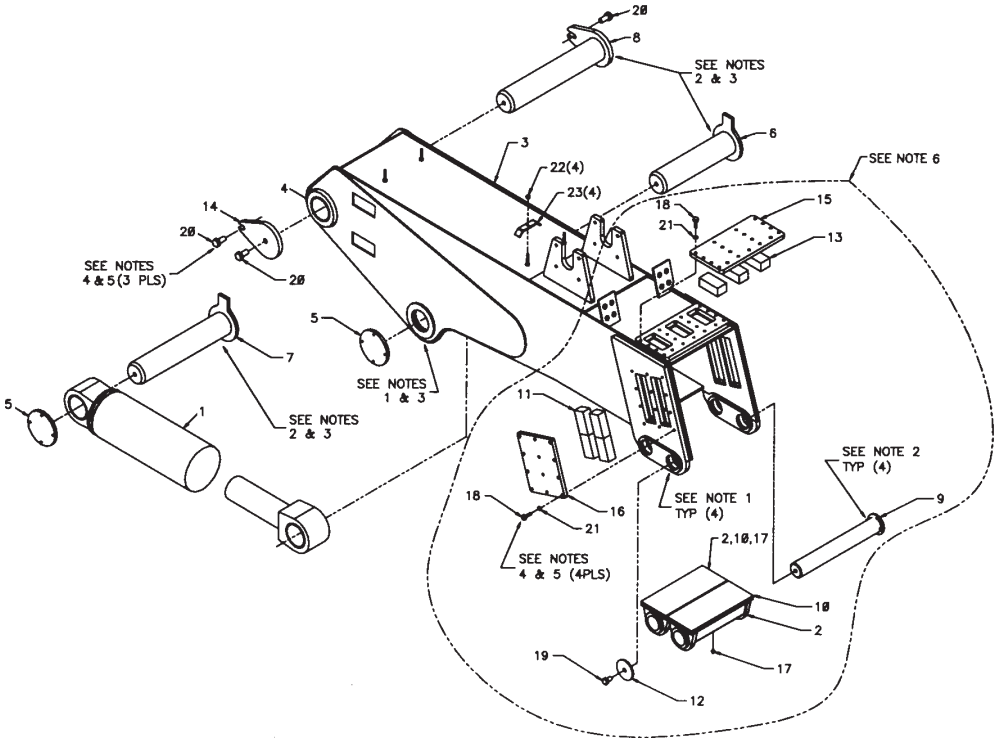


OUTER BOOM ASM (41707103)

1.	3C112870	OUTER CYLINDER	2
2.	51706269	TRUNNION	2
3.	51707099	OUTER BOOM (INCL: 4)	1
4.	70034274	BEARING (PART OF 3)	4REF
5.	52706274	PIN RETAINER	2
6.	52706275	PIN	1
7.	52714241	PIN	1
		(FROM CRANE SERIAL NO. 32018981001)	
	52706276	PIN	1
		(TO SERIAL NO. 32018981001)	
8.	52706277	PIN	1
9.	52714264	PIN	2
10.	60030160	WEAR PAD	2
11.	60030164	WEAR PAD	8
12.	60106331	PIN RETAINER	2
13.	60109341	WEAR PAD	3
14.	60109422	PIN RETAINER CAP	1
15.	60110492	TOP RETAINER PLATE	1
16.	60110493	SIDE RETAINER PLATE	2
17.	72053508	ZERK 1/8NPT	2
18.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	43
19.	72060147	CAP SCR 5/8-11X1 HHGR5	2
20.	72060183	CAP SCR 3/4-10X1-1/2 HHGR5	3
21.	72063053	WASHER 1/2 LOCK	43
22.	72062103	NUT 3/8-16 HEX NYLOC	4
23.	60010118	CLAMP-HOSE	4

NOTE

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



NOTES:
1. APPLY NEVER-SEEZ TO COLLAR ID.
2. APPLY NEVER-SEEZ TO PIN AT PIN CAP, NOT TO EXCEED THE WIDTH OF THE COLLAR.
3. IT IS IMPERATIVE THAT NEVER-SEEZ BE APPLIED IN SUCH A MANNER THAT IT DOES NOT COME IN CONTACT WITH ANY GAR-MAX BEARING.
4. IF REQUIRED SHIM PIN RETAINING PLATES FLUSH (-0/+0.06) WITH OUTSIDE OF COLLAR USING 0.75 FLAT WASHERS AS REQUIRED.
5. CLEAN/PRIMER ALL PIN RETAINING PLATE CAP SCREWS AND APPLY A SERVICEABLE THREAD LOCKER TO A MINIMUM OF THREE THREADS. TORQUE PIN RETAINING PLATE CAP SCREWS AS FOLLOWS:
   0.75-10 CAP SCREW (GR5 PLATED) - 200 FT-LBS.
   0.62-11 CAP SCREW (GR5 PLATED) - 115 FT-LBS.
6. WEAR PADS TO BE ASSEMBLED AFTER EXTENSION BOOM IS INSERTED INTO OUTER BOOM.

OUTER CYLINDER (3C112870)

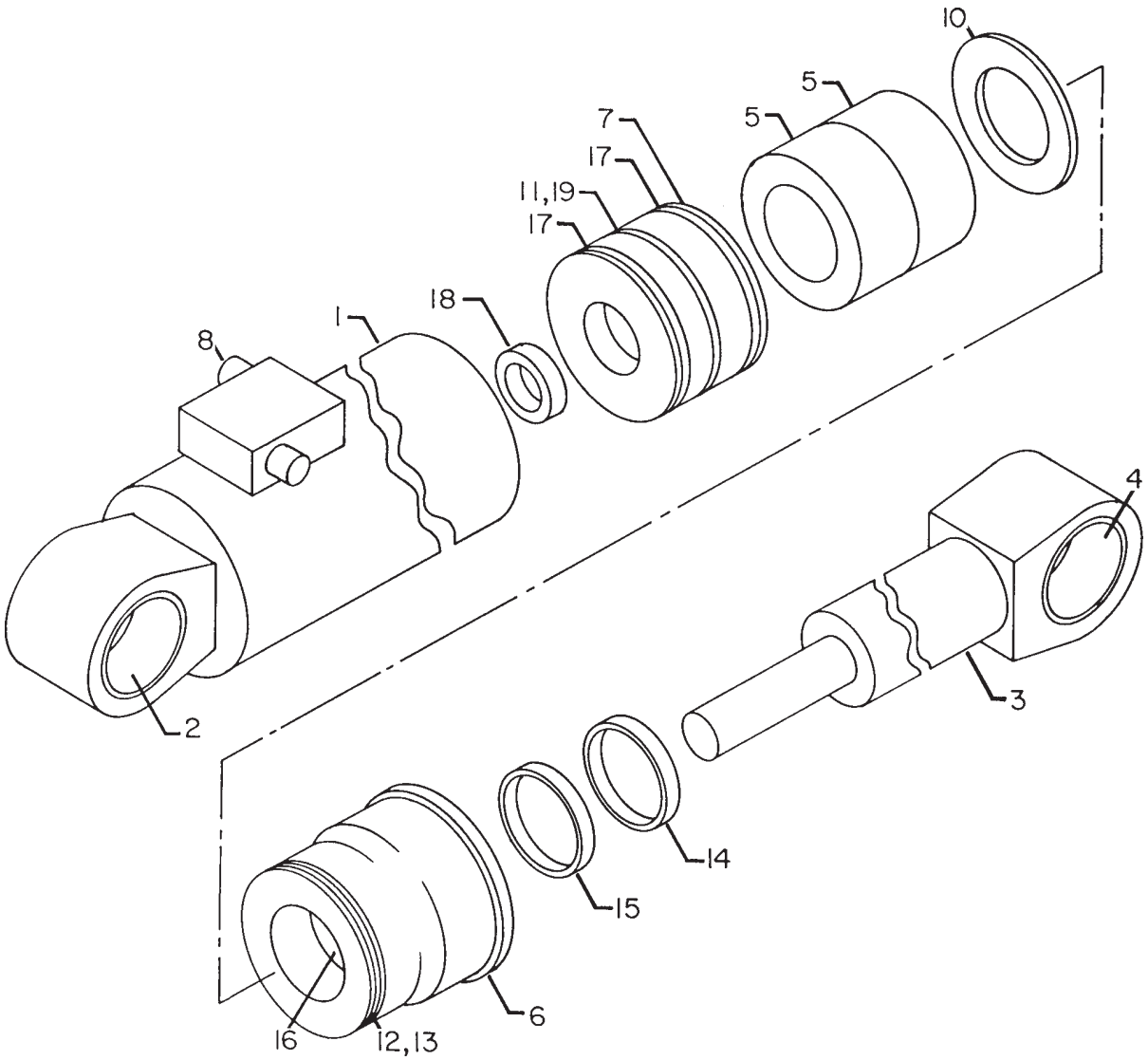
1.	4C112870	CASE ASM (INCL: 2,20)	1
2.	70034279	BEARING (PART OF 1)	2REF
3.	4G112870	ROD ASM (INCL: 4)	1
4.	70034279	BEARING (PART OF 3)	2REF
5.	6C300040	STOP TUBE	2
6.	6HX70040	HEAD	1
7.	6IX70218	PISTON	1
8.	73054242	VALVE	2
9.	9C283235	SEAL KIT (INCL: 10-19)	1
10.	6A025040	WAFER LOCK (PART OF 9)	1REF
11.	7Q072259	O-RING (PART OF 9)	1REF
12.	7Q072363	O-RING (PART OF 9)	1REF
13.	7Q10P363	BACK-UP RING (PART OF 9)	1REF
14.	7R14P040	ROD WIPER (PART OF 9)	1REF
15.	7R546040	ROD SEAL (PART OF 9)	1REF
16.	7T2N2X42	WEAR RING (PART OF 9)	1REF
17.	7T2N4070	WEAR RING (PART OF 9)	2REF
18.	7T61N218	LOCK RING (PART OF 9)	1REF
19.	7T66P070	PISTON SEAL (PART OF 9)	1REF
20.	7PNPX02	PLUG 1/8NPT (PART OF 1)	2REF

NOTE

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

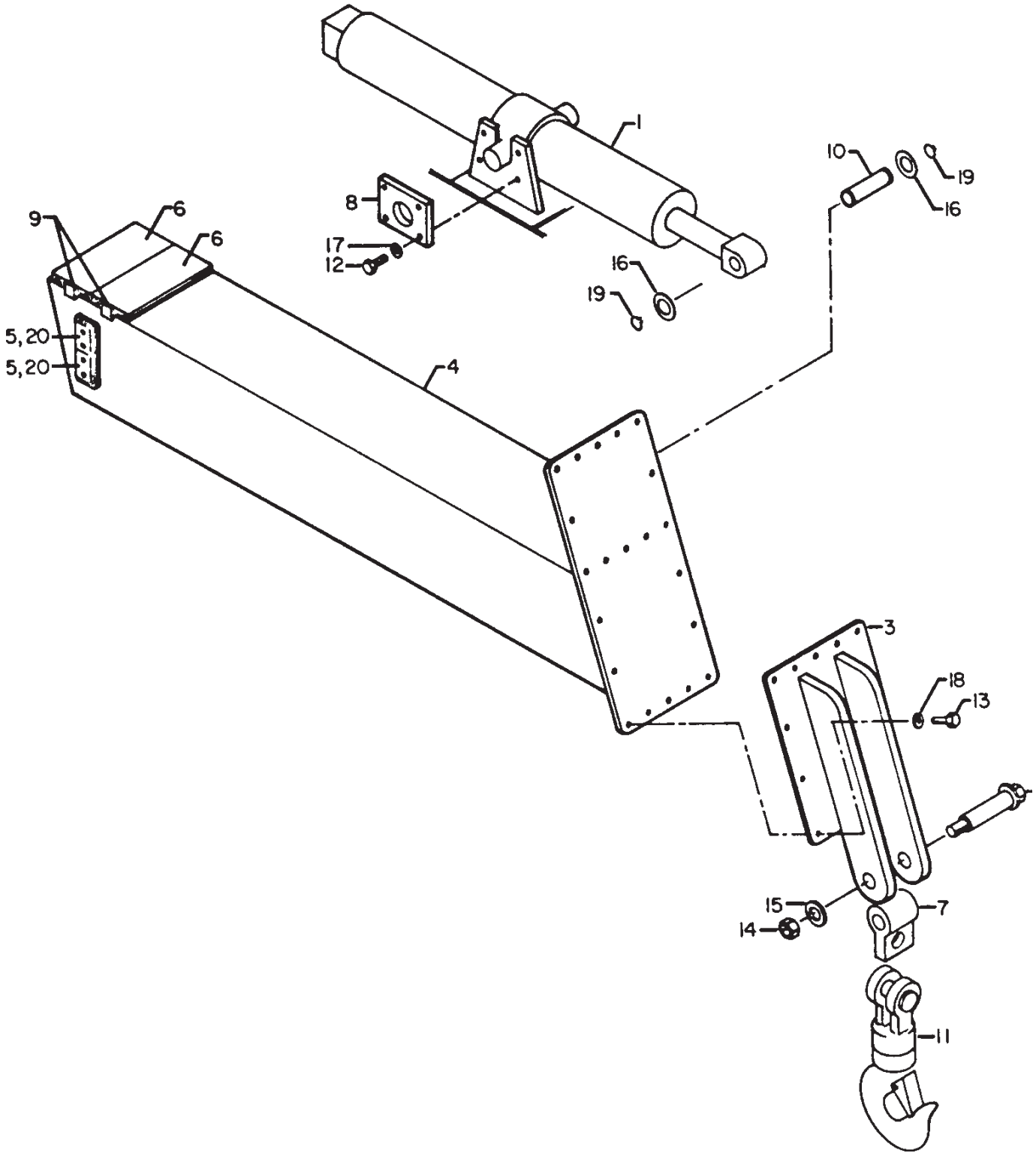
APPLY “LUBRIPLATE #630-2” MEDIUM HEA VY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



EXTENSION BOOM ASM (41707104)

1.	3C110870	EXTENSION CYLINDER	1
2.	52706221	PIN	1
3.	52707110	EAR	1
4.	52707113	EXTENSION BOOM	1
5.	60030072	WEAR PAD	4
6.	60030158	WEAR PAD	2
7.	60109323	SWIVEL LINK	1
8.	60109424	CYLINDER LOCK PLATE	2
9.	60109709	PLATE	4
10.	60110514	PIN	1
11.	70731776	SWIVEL HOOK W/LATCH 15T	1
12.	72060149	CAP SCR 5/8-11X1-1/2 HHGR8	8
13.	72601485	CAP SCR 3/4-10X1-1/5 HHGR8	12
14.	72062142	NUT 1-1/4-7 STL INSERT GR5	1
15.	72063012	WASHER 1-1/4 WRT	1
16.	72063039	MACHBUSHING 2 X 10GA NR	2
17.	72063055	WASHER 5/8 LOCK	8
18.	72063116	WASHER 3/4 FLAT HARD	12
19.	72066136	RETAINING RING 2" EXT HD	2
20.	72601026	CAP SCR 3/8-16X1/2 FLHSOC	8



EXTENSION CYLINDER (3C110870)

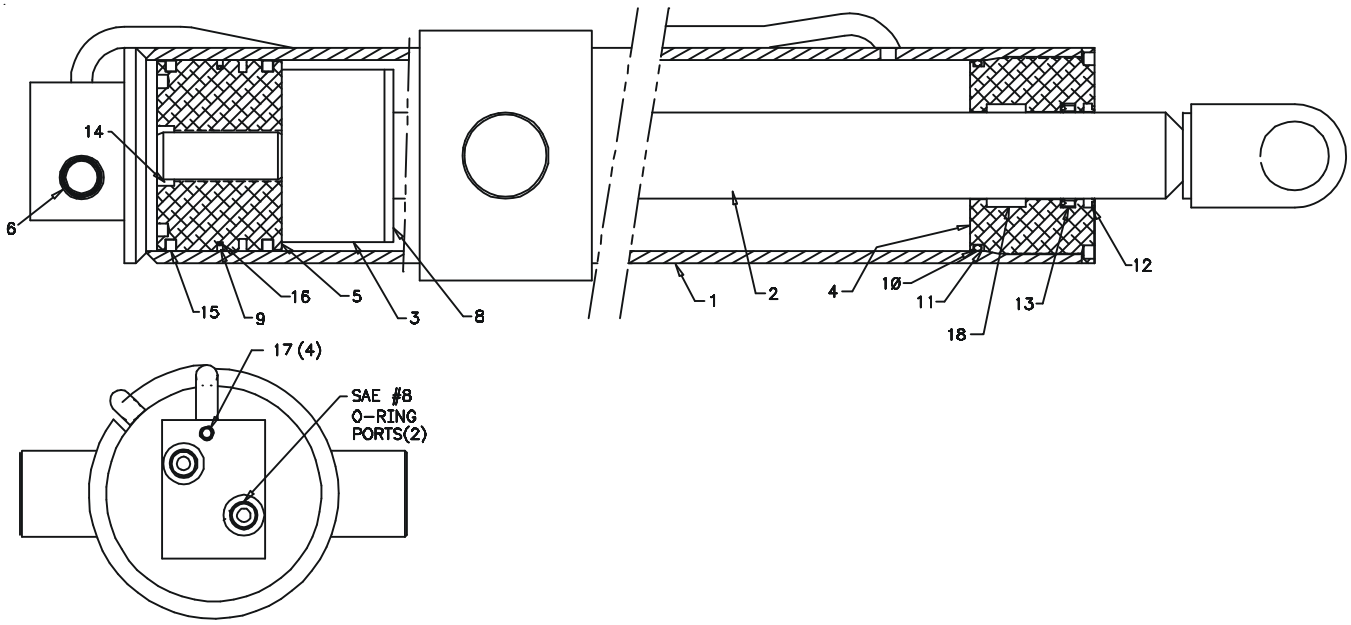
1.	4C110870	CASE ASM (INCL: 17)	1
2.	4G110870	ROD ASM	1
3.	6C300025	STOP TUBE	1
4.	6H055025	HEAD	1
5.	6I055181	PISTON	1
6.	73054242	VALVE 25GPM	1
7.	9C222029	SEAL KIT (INCL: 8-16,18)	1
8.	6A025025	WAFER LOCK (PART OF 7)	1REF
9.	7Q072159	O-RING (PART OF 7)	1REF
10.	7Q072354	O-RING (PART OF 7)	1REF
11.	7Q10P354	BACK-UP RING (PART OF 7)	1REF
12.	7R14P025	ROD WIPER (PART OF 7)	1REF
13.	7R546025	U-CUP SEAL (PART OF 7)	1REF
14.	7T61N181	LOCK RING (PART OF 7)	1REF
15.	7T65I055	PISTON RING (PART OF 7)	2REF
16.	7T66P055	PISTON SEAL (PART OF 7)	1REF
17.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	4REF
18.	7T2N8027	WEAR RING (PART OF 7)	1REF

NOTE

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

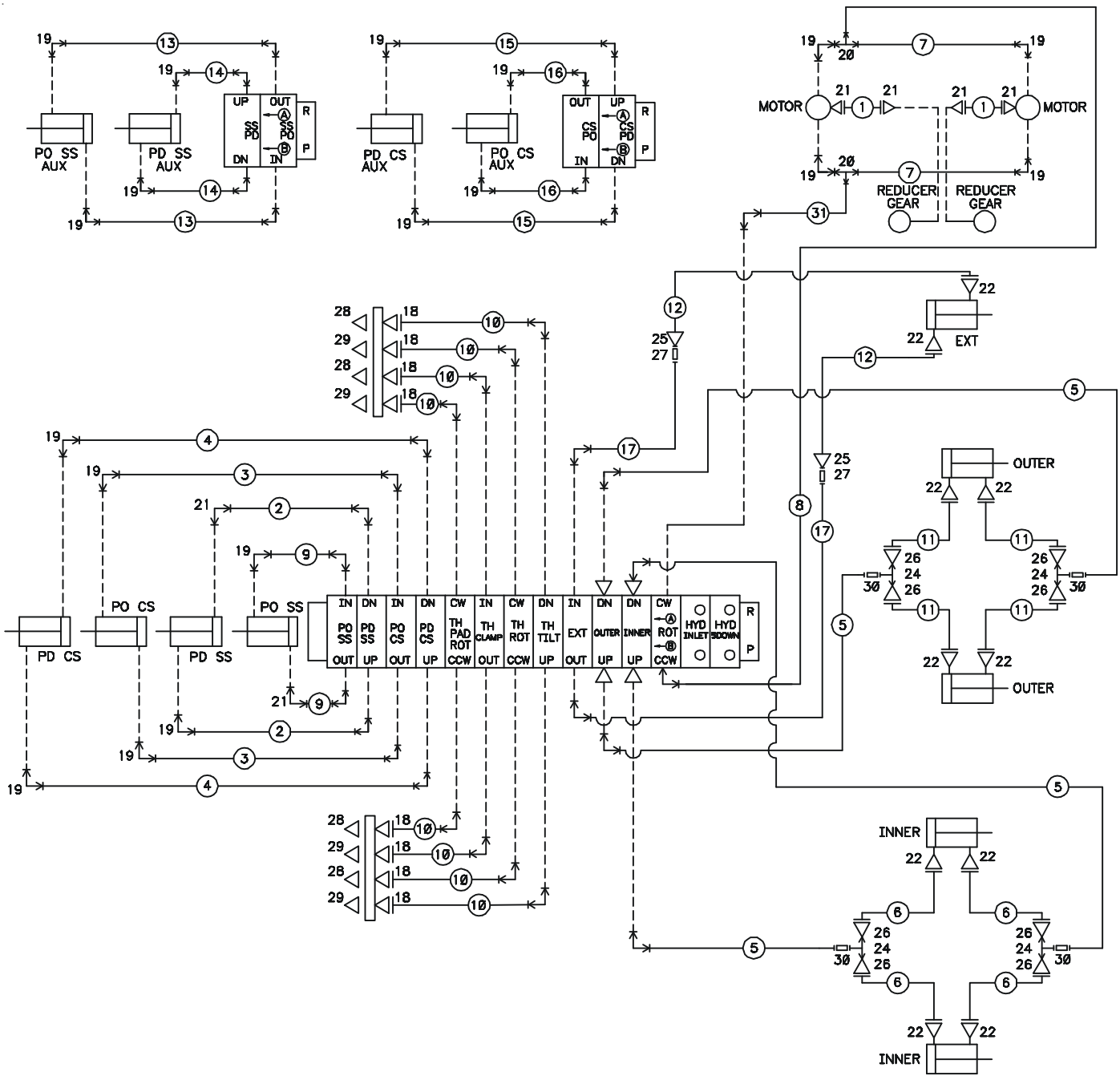
APPLY “LUBRIPLATE #630-2” MEDIUM HEA VY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE “NEVER-SEEZ” OR EQUIV ALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER. KEEP AWAY FROM ALL SEALS.



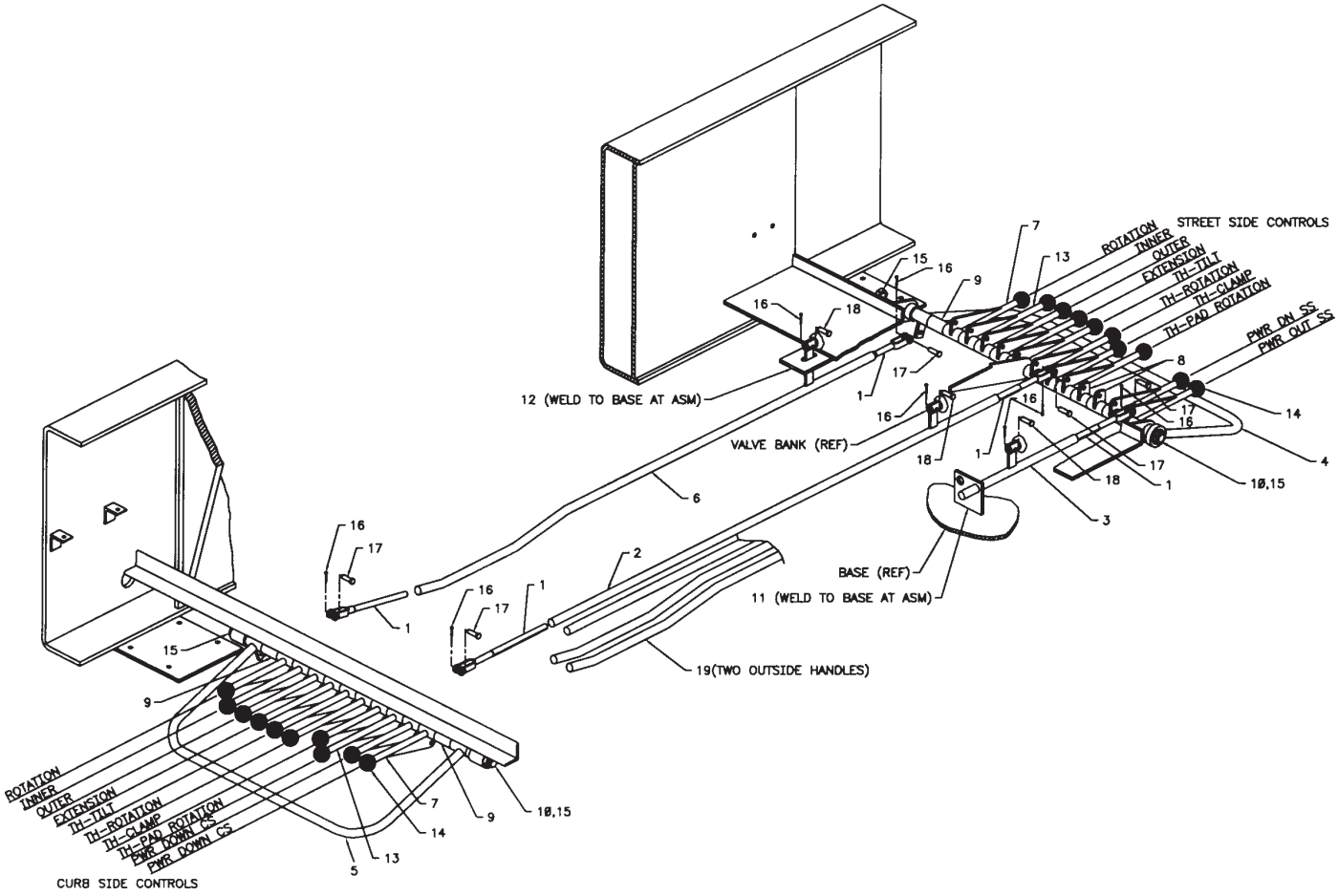
HYDRAULIC KIT (91707107)

1.	51705884	HOSE ASM 1/4X9 FF	2
2.	51713476	HOSE ASM 1/2X130 FF	2
3.	51708576	HOSE ASM 1/2X60 FF	2
4.	51713207	HOSE ASM 1/2X160 FF	2
5.	51706446	HOSE ASM 3/4X35 FF	4
6.	51706448	HOSE ASM 1/2X45 FF	4
7.	51715882	HOSE ASM 1/2X23 JZ	2
8.	51715881	HOSE ASM 1/2X66 FF	1
9.	51708473	HOSE ASM 1/2X90 FF	2
10.	51707806	HOSE ASM 3/8X305 FF	8
11.	51707807	HOSE ASM 1/2X105 FF	4
12.	51707845	HOSE ASM 1/2X249 FF	2
13.	51707823	HOSE ASM 3/8X90 FF	2
14.	51707824	HOSE ASM 3/8X83 FF	2
15.	51707825	HOSE ASM 3/8X84 FF	2
16.	51707826	HOSE ASM 3/8X86 FF	2
17.	51707827	HOSE ASM 1/2X31 FF	2
18.	72053670	ADAPTER 3/8MPT #8MJIC	8
19.	72053763	ELBOW #8MSTR #8MJIC 90°	18
20.	72532657	TEE 3/4JIC SWVLNUTRUN	2
21.	72532351	ADAPTER #4MSTR #4MJIC	4
22.	72532358	ADAPTER #8MSTR #8MJIC	10
23.	72532666	ELBOW #8MSTR#8MJIC90°XL	2
24.	72532695	TEE #12MJIC 3/4 TUBE	4
25.	72532739	ADPTR #8MJIC #8MJIC	2
26.	72532972	ADPTR #8MJIC #12FJIC	8
27.	72532980	ADPTR #8JIC IN-LINE PR SWVL	2
28.	72533101	DISC. COUPLER 3/8FPT	4
29.	72533102	DISC. NIPPLE 3/8FPT	4
30.	72532973	ADPTR #12JIC IN-LINE SWVL	4
31.	51713319	HOSE ASM 1/2X64 FJ	1



CONTROL KIT (90707106)

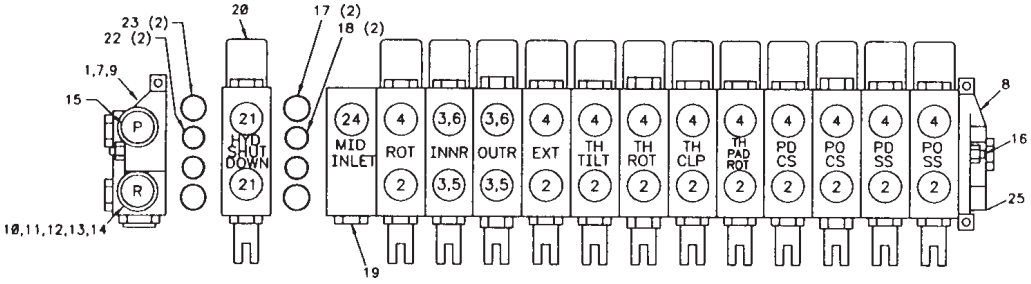
1.	52704745	CONTROL ROD - M	24
2.	52706316	CONTROL ROD - F	8
3.	52706434	CONTROL ROD - F SHORT	2
4.	52713016	HANDLE-EMERG STOP SS	1
5.	52713017	HANDLE-EMERG STOP CS	1
6.	52714935	CONTROL ROD-EMERG STOP	1
7.	60025254	CONTROL HANDLE 6-1/2"	8
8.	60025467	CONTROL HANDLE - CUT	2
9.	60030069	SPACER 1-3/4	3
10.	60109530	CONTROL HANDLE ROD	2
11.	60110523	CTRL ROD SUPPORT PLATE	1
12.	60119045	PLATE	1
13.	70029451	CONTROL HANDLE 8-1/2"	12
14.	71039096	KNOB	20
15.	72062091	NUT 5/8-11 LOCK	4
16.	72066160	COTTER PIN .09 X 3/4	35
17.	72066338	CLEVIS PIN 5/16 X 1	22
18.	72661169	CLEVIS PIN 5/16 X 3/4	13
19.	52714934	CONTROL ROD-F	2



VALVE BANK ASM (51707140) (INCL: 51707117 & 51707118)

VB ASM-12 SECT V20LS (51707118)

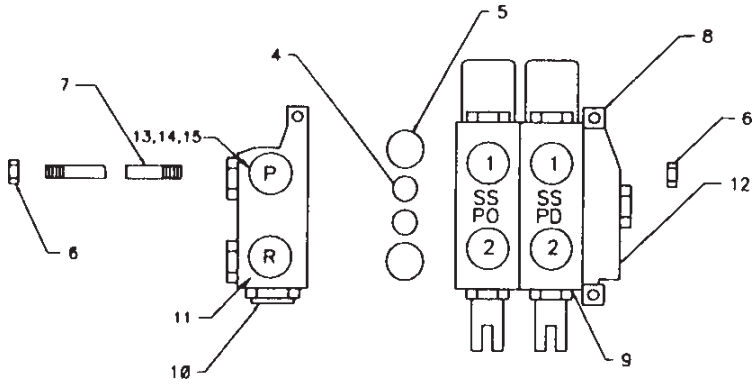
1.		PRESSURE PLUG	1REF
2.	72053763	ELBOW #8MSTR #8MJIC 90°	10
3.	72532365	ADAPTER #10MSTR #12MJIC	4
4.	72532666	ELBOW#8MSTR#8MJIC90°XLG	10
5.	72532696	ELBOW#12MJIC#12FJIC90°SW	2
6.	72532969	ELBOW#12MJIC#12FJIC90°SW	2
7.	73054435	PRESSURE GAUGE	1
8.	73731855	VB - 12 SECTION	1
9.	72053631	ELBOW #4MSTR 1/4FPT SWVL	1
10.	72053747	ADAPTER #12MSTR 3/4FPT	1
11.	72053556	STREET ELBOW 3/4NPT 90°	1
12.	72053558	ADAPTER #8MPT #8MPT	1
13.	72053489	REDUCER COUPLING 1 1/4-3/4	1
14.	72531196	BARB NIPPLE 1-1/4MPT1-1/4 45°	1
15.	72053767	ELBOW #12MSTR #12MJIC 90°	1
16.	60119058	TIE ROD 3/8-16X27-1/2	3
17.	7Q072021	O-RING	2
18.	7Q072019	O-RING	2
19.	73054469	MID INLET	1
20.	73054923	VLV SECT 4-WAY 3-POS W/DET	1
21.	72532142	PLUG 7/8STR HH	2
22.	7Q072117	O-RING	2
23.	7Q072119	O-RING	2
24.	72532136	PLUG 1-1/16STR HH	1
25.	72053758	ELBOW #4MSTR #4MJIC 90°	1

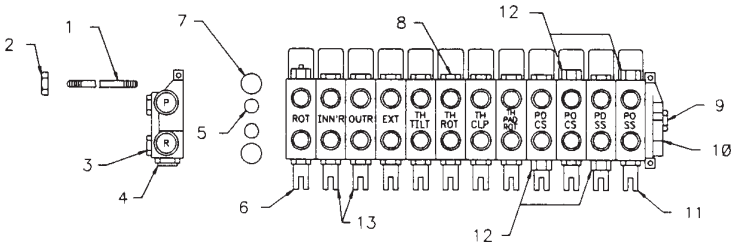


VB ASM-2 SECT V20LS (51707117)

1.	72053763	ELBOW #8MSTR#8MJIC 90°	2
2.	72532666	ELBOW #8MSTR#8MJIC 90°XLG	2
3.	73731792	VB - 2 SECTION (INCL: 4-10)	1
4.	7Q072019	O-RING (PART OF 3)	6REF
5.	7Q072021	O-RING (PART OF 3)	6REF
6.	72062037	NUT 3/8-24 HEX (PART OF 3)	6REF
7.	73014629	STUD 3/8 X 6-1/2 (PART OF 3)	3REF
8.	73054560	END COVER - RH (PART OF 3)	1REF
9.	73054561	VALVE SECTION (PART OF 3)	2REF
10.	73054567	END COVER - LH(PART OF 3)	1REF
11.	72053767	ELBOW #12MSTR #12MJIC 90°	1
12.	72053758	ELBOW #4MSTR #4MJIC 90°	1
13.	60107995	ELBOW-PRESS GAUGE MOD	1
14.	72532659	PLUG 1/4NPT HH	1
15.	72532972	ADAPTER #8MJIC #12FJIC	1

NOTE: TWO 51707117 VB ASSEMBLIES ARE USED. ONE STREETSIDE AND ONE CURBSIDE.



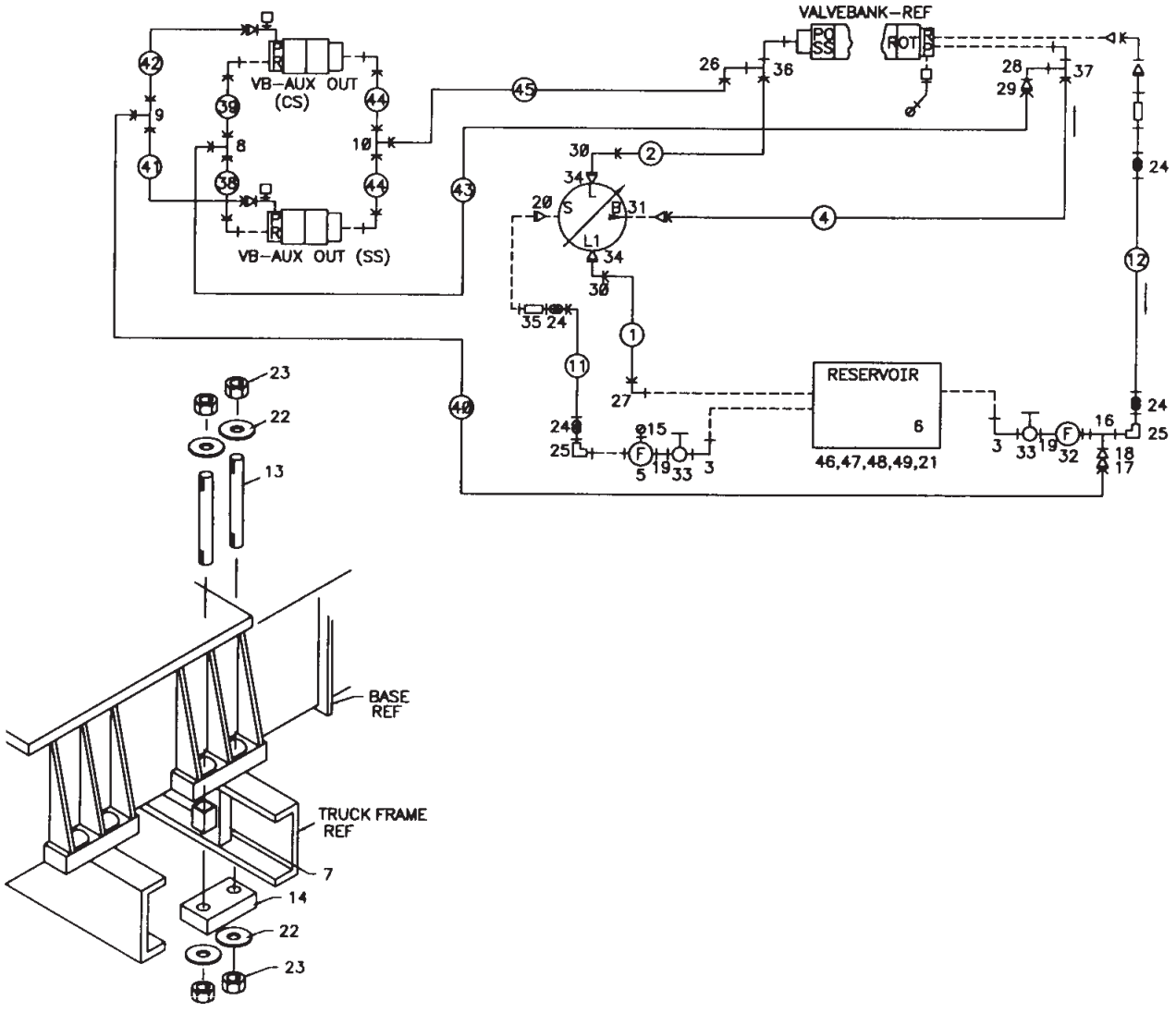


VALVEBANK (73731855)

1.	73143117	STUD 3/8-24X24	3
2.	72062037	NUT 3/8-24 HEX	6
3.	73054567	END CAP-LH	1
4.	73054537	MAIN RELIEF 2500PSI	1
5.	7Q072019	O-RING	26
6.	73054562	TANDEM VALVE SECT	1
7.	7Q072021	O-RING	26
8.	73054010	LOAD CHECK VALVE	19
9.	73073022	CONVERSION PLUG	1
10.	73054560	END CAP-RH	1
11.	73054561	TANDEM VALVE SECT	9
12.	73054430	PORT RELIEF 1000PSI	4
13.	73054563	TANDEM VALVE SECT	2

INSTALLATION KIT-SHIPOUT (93714980)

1.	51711561	HOSE ASM 1/4 X 72	1
2.	51711559	HOSE ASM 1/4 X 52	1
3.	72053287	ELBOW 1-1/4X90°	2
4.	51706442	HOSE ASM 3/4 X 50	1
5.	73052012	SUCTION FILTER 100MESH	1
6.	51706368	RESERVOIR 60-GAL	1
7.	52706374	TUBE-TRUCK FRAME SUPPORT	4
8.	72532695	TEE-MALE JIC 3/4 TUBE	1
9.	72531205	TEE-MALE JIC 1/2 TUBE	1
10.	72532768	TEE-MALE JIC 1/4 TUBE	1
11.	60035598	HOSE 1-1/4X72	1
12.	60035679	HOSE 1-1/4X96	1
13.	60109531	STUD 2X26	8
14.	60109532	CLAMP PLATE	4
15.	70048031	VACUUM GAUGE	1
16.	72053615	TEE-STL 1-1/4	1
17.	72053677	ADPTR 1MPT #12MJIC	1
18.	72053377	REDUCER BUSH-1-1/4-1	1
19.	72053211	NIPPLE-PIPE BLK 1-1/4XCLOSE	2
20.	72532854	ADPTR #24MSTR 1FPT	1
21.	72062080	NUT 1/2-13 HEX NYLOC	6
22.	72063168	WASHER 2.00 FLAT	16
23.	72062198	NUT 2-4-1/2	16
24.	72066516	HOSE CLAMP 1-1/4 2BOLT	4
25.	72532346	BARB NIPPLE 1-1/4 1-1/4 90°	2
26.	72532690	ELBOW #4MJIC #4FJIC SW	1
27.	72531412	ELBOW 1/4MPT #4MJIC 90°	1
28.	72532696	ELBOW #12MJIC#12FJIC SW	1
29.	72532972	ADPTR #8MJIC#12FJIC	1
30.	72532699	ELBOW #6MSTR #4MJIC 90°	2
31.	72532367	ADPTR #16MSTR #12MJIC	1
32.	73052040	FILTER-HYD	1
33.	73054130	VALVE-GATE 1-1/4 BRASS	2
34.	72532722	ADPTR #10MSTR #6FSTR	2
35.	72532833	NIPPLE 1.00MPT 1.25HOSE	1
36.	72532981	TEE-SWVL .44JIC	1
37.	72532950	TEE-SWVL 1.06JIC	1
38.	51706445	HOSE ASM-TYPE FF 3/4X30F	1
39.	51706632	HOSE ASM-TYPE FF 3/4X47F	1
40.	51707830	HOSE ASM-TYPE FF 3/4X217F	1
41.	51707827	HOSE ASM-TYPE FF 1/2X31F	1
42.	51707828	HOSE ASM-TYPE FF 1/2X46F	1
43.	51707829	HOSE ASM-TYPE FF 1/2X173F	1
44.	51711557	HOSE ASM-TYPE FF 1/4X33	2
45.	51711566	HOSE ASM-TYPE FF 1/4X201	1
46.	72063005	WASHER 1/2W FLAT	6
47.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	6
48.	60112281	PLATE	2
49.	60112282	TUBE-OIL TANK MTG	2



DECAL KIT (95707119-1)

5.	70391612	DECAL-GREASE WKLY LEFT	2
6.	70392868	DECAL-WARNING CR LOADLINE	4
7.	70392863	DECAL-WARNING HOIST PERS	2
8.	70029252	PLACARD - IMT DIAMOND	2
9.	70391583	DECAL - SET UP/STOW	2
10.	70391613	DECAL - GREASE WKLY RIGHT	1
11.	70392109	DECAL - RETURN LINE	1
12.	70392108	DECAL - SUCTION LINE	1
13.	70392213	DECAL - CAUTION WASH/WAX	1
14.	70392524	DECAL - ROTATE/GREASE	1
15.	70392723	DECAL - 32018 IDENT	2
16.	70392813	DECAL - DANGER ELECTRO	2
17.	70392814	DECAL - WARN OPER TRAIN'G	2
18.	70392815	DECAL - WARN OPERATION	2
19.	70392865	DECAL - DGR ELEC HZD-LG	4
20.	70392866	DECAL - WARN OPER COND	2
22.	70392888	DECAL - WARN OPER RESTRICT	2
23.	70392890	DECAL - DGR STOW/UNFOLD	2
24.	70392891	DECAL - DANGER DRIVELINE	2
25.	70392982	DECAL - CONTACT IMT	1
26.	70392864	DECAL - WARN STAB STD CLR	4
27.	71039134	DECAL - CAUTION OIL LEVEL	2
28.	71392255	DECAL - SS CONTROL	1
29.	71392256	DECAL - CS CONTROL	1
30.	71392277	DECAL - PWR OUT STAB	4
31.	71392365	DECAL - ALIGN CRANE	1
32.	71392722	CAPACITY PLACARD 32018	2
33.	71392725	DECAL - STAB CTRL SS	2
34.	71392726	DECAL - STAB CTRL CS	2
35.	70394189	DECAL-RECOMMEND HYD OIL	1
36.	70394279	PLACARD-MAX LIFT	2
37.	70395323	DECAL-ASME/ANSI B30.22	1
38.	72042097	LEVEL	2

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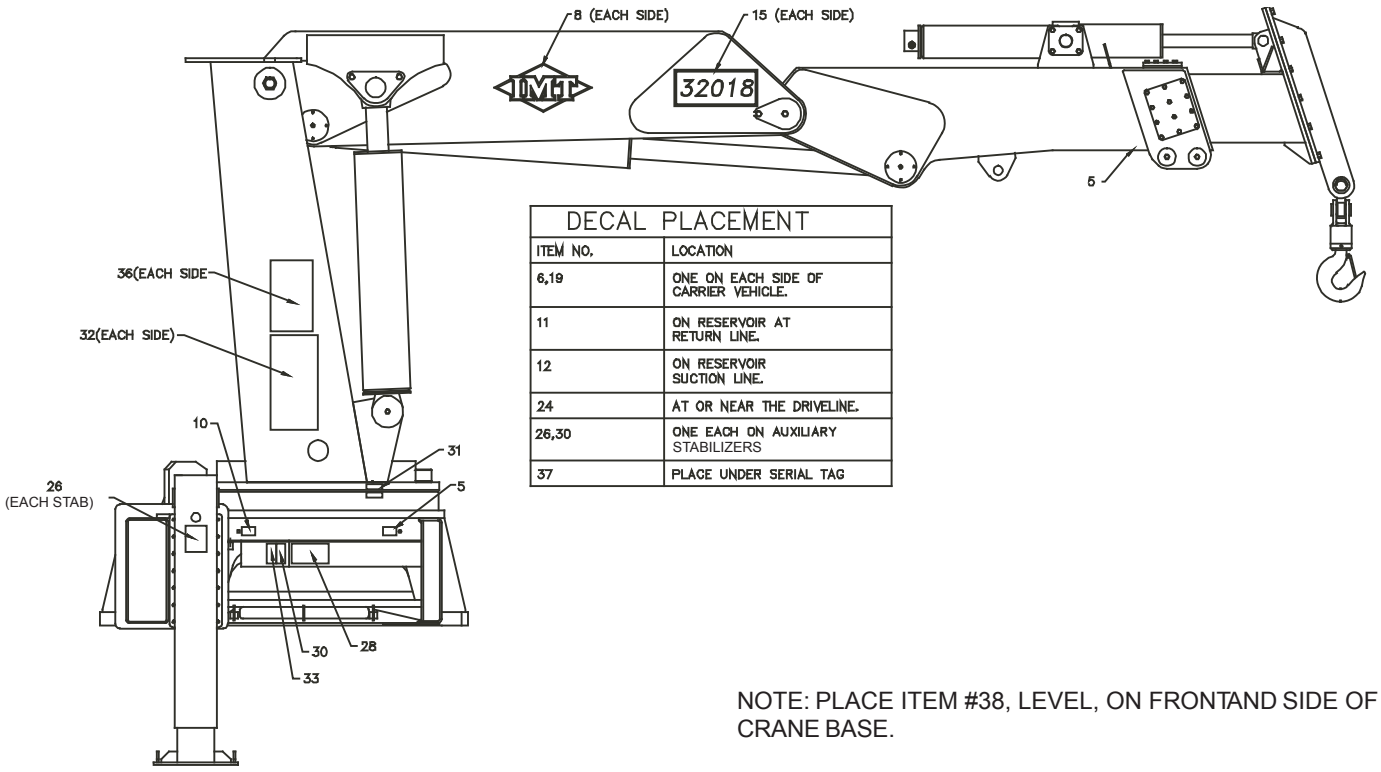
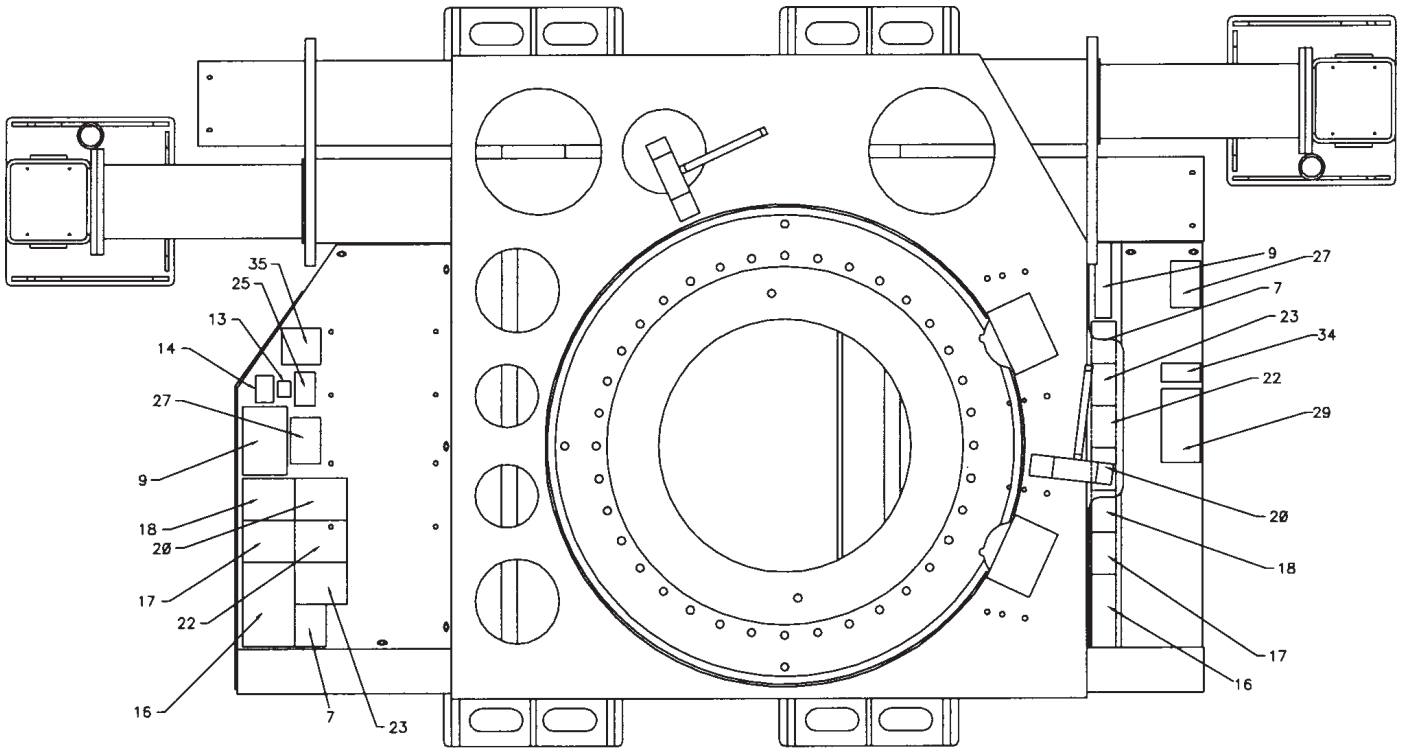


DECAL PLACEMENT	
ITEM NO.	LOCATION
6,19	ONE ON EACH SIDE OF CARRIER VEHICLE.
11	ON RESERVOIR AT RETURN LINE.
12	ON RESERVOIR SUCTION LINE.
24	AT OR NEAR THE DRIVELINE.
26,30	ONE EACH ON AUXILIARY STABILIZERS
37	PLACE UNDER SERIAL TAG

NOTE: PLACE ITEM #38, LEVEL, ON FRONTAND SIDE OF CRANE BASE.

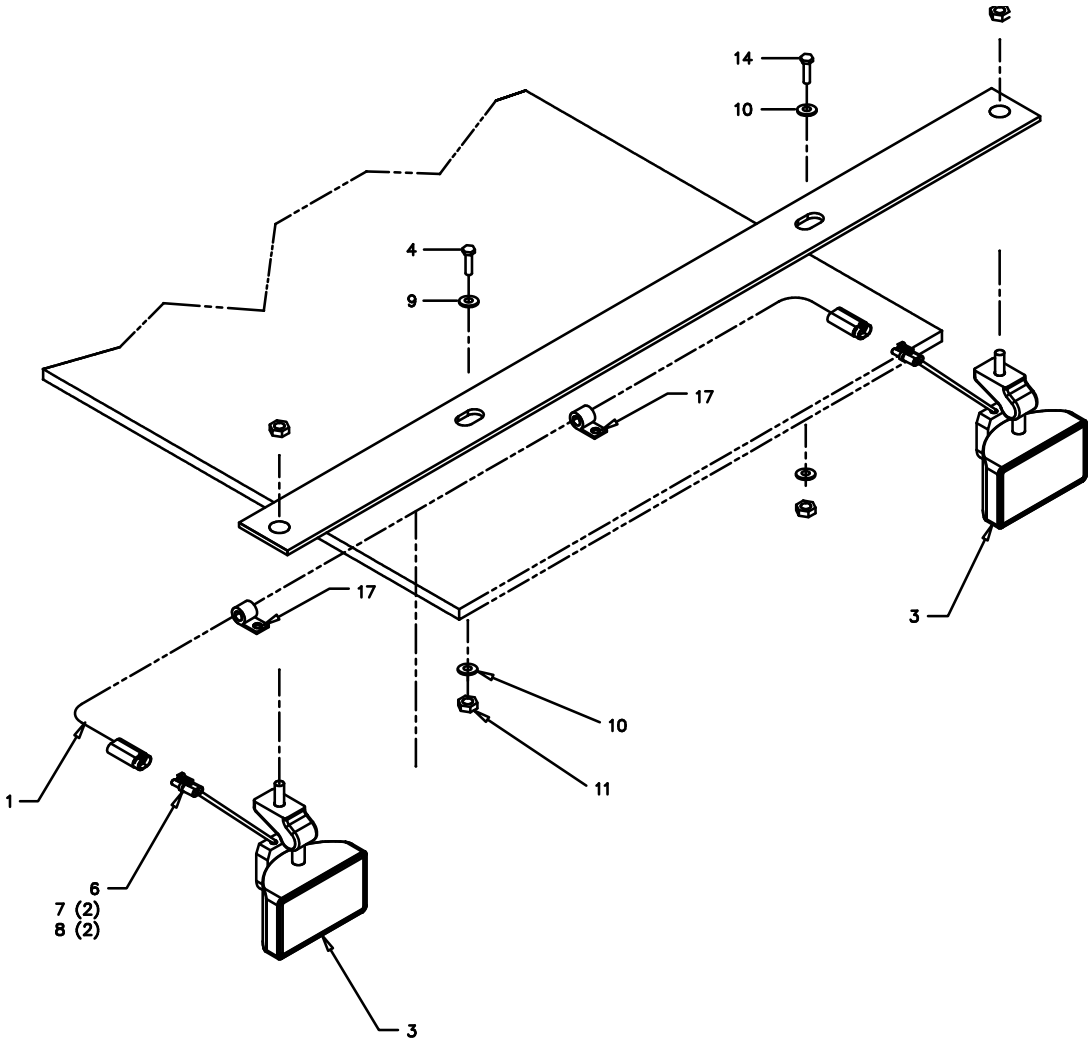
DECAL KIT (95707119-2)



FLOODLIGHT KIT (51709314)

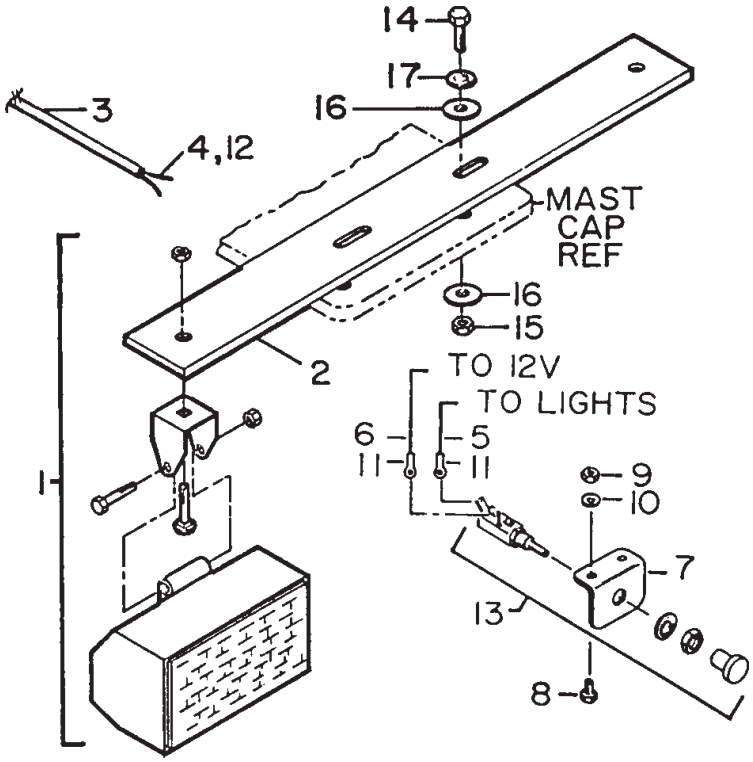
(EFFECTIVE 4-15-04)

1.	51717219	CABLE ASM	1
2.	60113427	BRACKET	1
3.	77040424	FLOODLIGHT, TOP MOUNT	2
4.	72060048	CAP SCR 3/8-16X1.5 HHGR5Z	2
5.	72056580	CLAMP-UMP 20	REF
6.	77044574	CONNECTOR	2
7.	77044550	TERMINAL 18-20 GA FEM	4
8.	70394069	SEAL CABLE CONNECTOR	4
9.	72063003	WASHER 3/8 FLAT	2
10.	72063051	WASHER 3/8 LOCK	2
11.	72062103	NUT 3/8-16 HEX	2



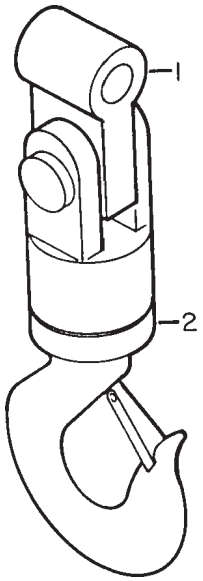
OPTION - HALOGEN FLOOD LIGHT KIT (51709315)

1.	77040193	FLOODLIGHT - 12V HALOGEN	2
2.	60113427	LIGHT BRACKET	1
3.	89044351	LOOM 5/16	16'
4.	60030049	SPIRAL WRAP 10"	2
5.	89044274	WIRE 14GA BLK X 14'	2
6.	60045056	WIRE 14GA BLK X 36"	1
7.	60103535	SWITCH BRACKET	1
8.	72060000	CAP SCR 1/4-20 X 1/2 HH GR5	2
9.	72062000	NUT 1/4-20 HEX	2
10.	72063049	WASHER 1/4 LOCK	2
11.	77040000	TERMINAL	2
12.	77040048	BUTT CONNECTOR	2
13.	77041014	PUSH-PULL SWITCH	1
14.	72060048	CAP SCR 3/8-16X1-1/2 HH GR5	2
15.	72062103	NUT 3/8-16 LOCK	2
16.	72063003	WASHER 3/8 WRT	4
17.	72063051	WASHER 3/8 LOCK	2



OPTION - AUX 20-TON HOOK KIT (51707907)

1.	60112048	SWIVEL LINK 20TON	1
2.	70731936	SWIVEL HOOK W/LATCH 20TON	1

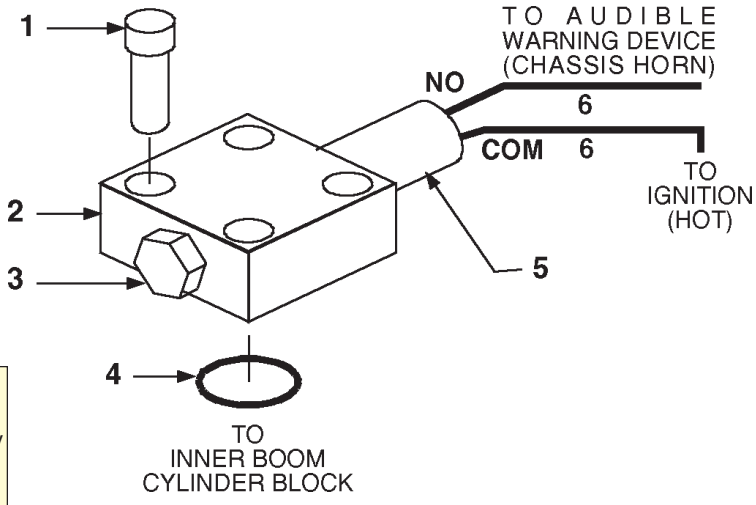


CAPACITY ALERT KIT - AUDIBLE (31705698)

1.	72060731	CAP SCR 5/16-18X3/4 SH	4
2.	60025221	MANIFOLD	1
3.	72532140	PLUG 9/16-18 STR THD HH	1
4.	7Q072015	O-RING	1
5.	77041283	PRESSURE SWITCH	1
6.	89044188	WIRE-14GA (Customer Supplied)	REF
7.	99900118	INSTALLATION DWG	1

NOTE

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



HYDRAULIC OVERLOAD KIT 3F (51710923)

1.	72532657	TEE #8JIC SWVL NUT RUN	5
2.	72532658	ELBOW #8MJIC #8FJIC	5
3.	72053763	ELBOW #8MSTR #8MJIC 90°	3
4.	72532358	ADAPTER #8MSTR #8MJIC	3
5.	73054877	RELIEF VALVE	1
6.	72532366	ADAPTER #12MSTR #12MJIC	2
7.	72532950	TEE #12JIC SWVL NUT RUN	2
8.	72532696	ELBOW #12MJIC#12FJIC SWVL	2
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51706238	HOSE ASM 3/4X6 FF	1
11.	73054576	SOLENOID VALVE	3
12.	72532360	ADAPTER #12MSTR #8MJIC	2
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51704914	HOSE ASM 3/8X60 FF	4
15.	51703701	HOSE ASM 3/8X10 FF	2
16.	77040186	TERM-FSLPON 1/4TAB16-14GA	8
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	4
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	2
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	6
22.	60117338	THREADED ROD 1/4-20X6-1/2	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	2
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	2

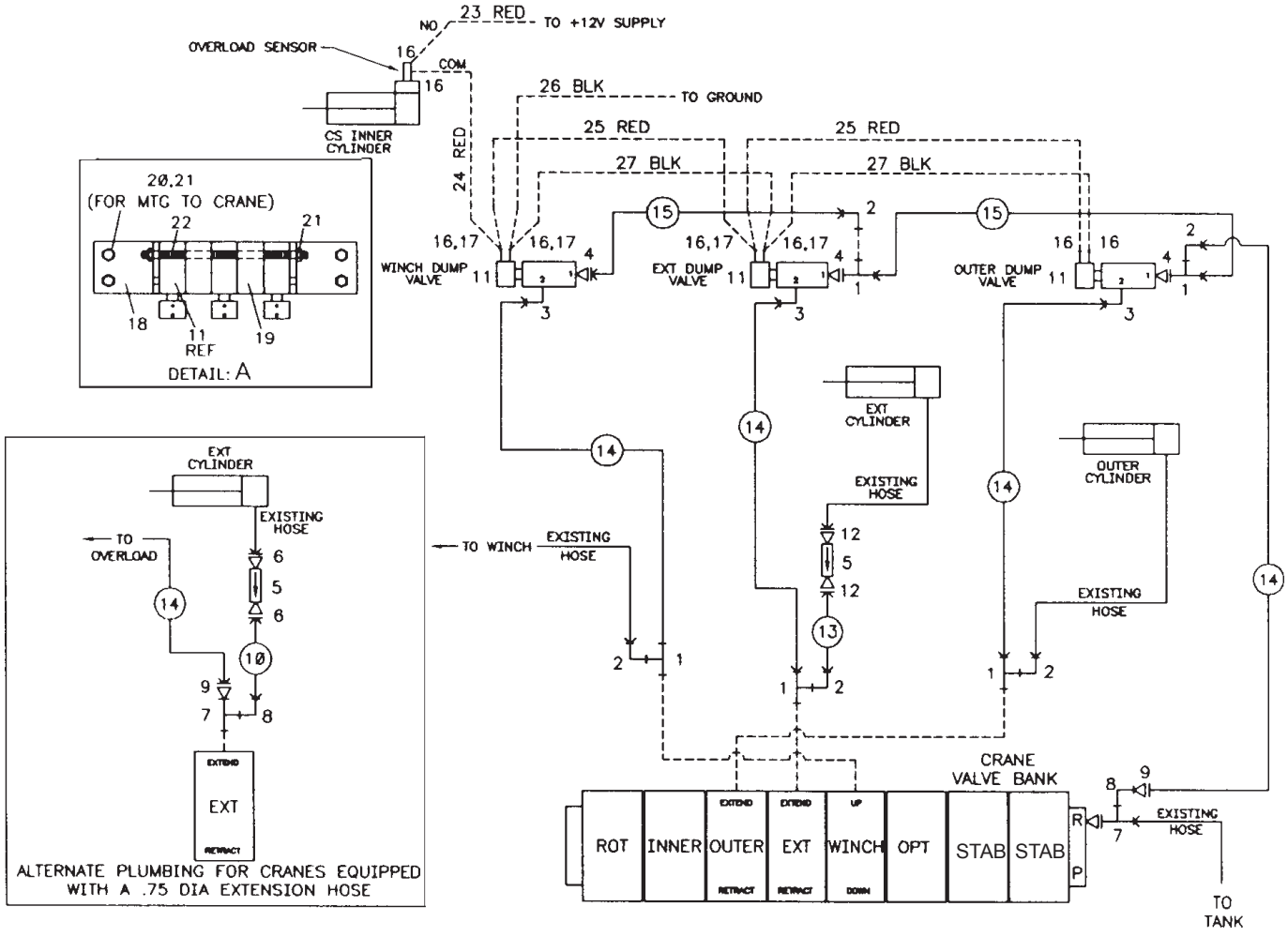
NOTES

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

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

3. INSTALL A RELIEF VALVE IN THE EXTEND LINE OF THE EXTENSION CYLINDER SO CYLINDER WILLNOT EXTEND WHEN DUMP SYSTEM IS ACTIVATED.

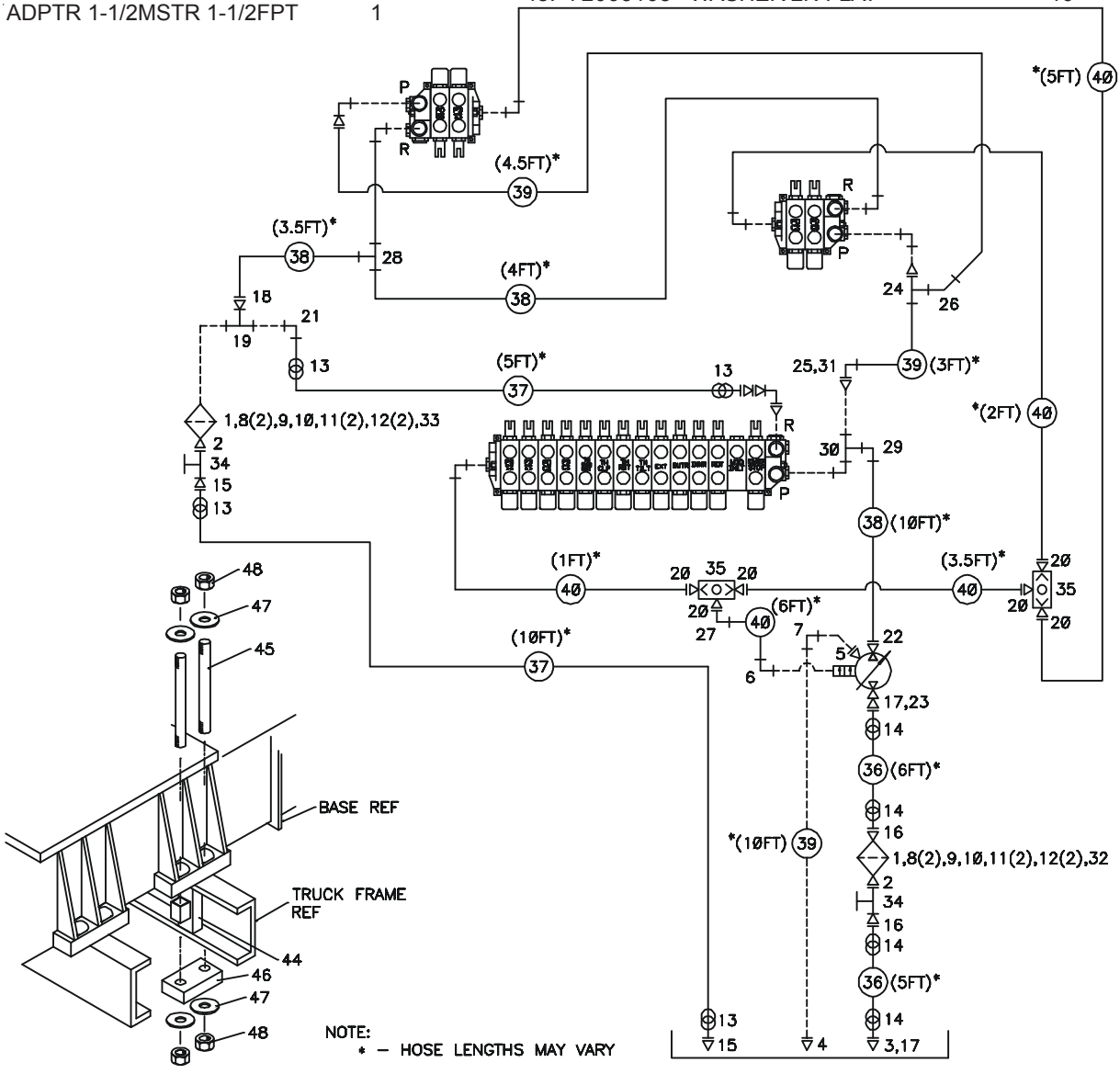
4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A).



INSTALLATION KIT-FACTORY(93715020-1)

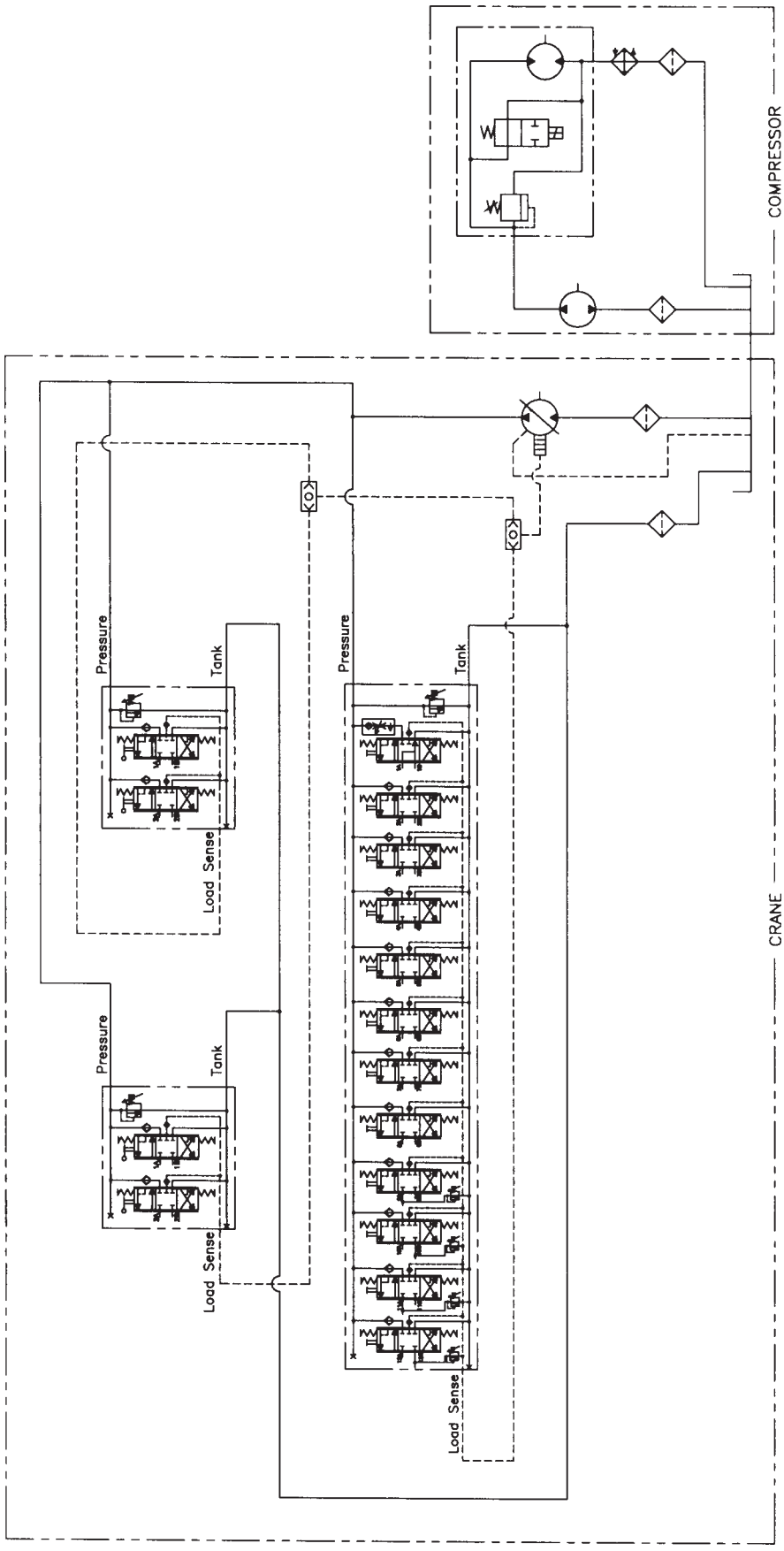
REF DWG 99901239

1.	60103870	OIL FILTER BRACKET	2
2.	72053211	NIPPLE-PIPE BLK 1-1/4XCLOSE	2
3.	72534398	REDUCER BUSH-STL (WAS 72053379)	1
4.	72053497	ADPTR 1/2MPT #8MJIC	1
5.	72053744	ADPTR #10MSTR 1/2FPT	1
6.	72053758	ELBOW #4MSTR #4MJIC 90°	1
7.	72053763	ELBOW #8JSTR #8MJIC 90°	1
8.	72060023	CAP SCR 5/16-18X3/4 HHGR5Z	4
9.	72060025	CAP SCR 5/16-18X1 HHGR5Z	2
10.	72062109	NUT 5/16-18 HEX NYLOC	2
11.	72063002	WASHER 5/16W FLAT	4
12.	72063050	WASHER 5/16 LOCK	4
13.	72066516	HOSE CLAMP 1-1/4 2BOLT	4
14.	72066517	HOSE CLAMP 1-1/2 2BOLT	4
15.	72531550	BARB NIPPLE STL 1-1/4MPT	2
16.	72531551	BARB NIPPLE STL 1-1/4MPT	2
17.	72531552	BARB NIPPLE STL 1-1/2MPT	2
18.	72531836	REDUCER BUSH-STL	1
19.	72531994	TEE-STREET STL 1-1/4	1
20.	72532353	ADPTR #6MSTR #4MJIC	6
21.	72532346	BARB NIPPLE 1-1/4 1-1/4 90°	1
22.	72532367	ADPTR #16MSTR #12MJIC	1
23.	72532560	ADPTR 1-1/2MSTR 1-1/2FPT	1
24.	72532657	TEE-SWVL 3/4JIC	1
25.	72532658	ELBOW #8MJIC #8FJIC SW	1
26.	72532670	ELBOW #8MJIC #8FJIC 45°	1
27.	72532690	ELBOW #4MJIC #4FJIC SW	1
28.	72532695	TEE-MALE JIC 3/4 TUBE	1
29.	72532696	ELBOW #12MJIC#12FJIC SW	1
30.	72532950	TEE-SWVL 1.06JIC	1
31.	72532972	ADPTR #8MJIC#12FJIC	1
32.	73052012	SUCTION FILTER 100MESH	1
33.	73052091	RETURN FILTER	1
34.	73054130	VALVE-GATE 1-1/4 BRASS	2
35.	73054785	VALVE-SHUTTLE SAE #6	2
36.	89394074	HOSE-HYD 1-1/2 100R4	*11FT
37.	89393401	HOSE-HYD 1-1/4 100R4	*15FT
38.	89392577	HOSE-HYD 3/4 100R2	*18.5FT
39.	89392576	HOSE-HYD 1/2 100R2	*17.5FT
40.	89393316	HOSE-HYD 1/4 100R2	*17.5FT
41.	72532976	HOSE FTG 3/4#12F(NOT SHOWN)	4
42.	72532975	HOSE FTG 1/2#8F(NOT SHOWN)	6
43.	72533258	HOSE FTG 1/4#4F(NOT SHOWN)	10
44.	52706374	TUBE-TRUCK FRAME SUPPORT	4
45.	60109531	STUD 2X26	8
46.	60109532	CLAMP PLATE	4
47.	72062198	NUT 2-4-1/2	16
48.	72063168	WASHER 2N FLAT	16



INSTALLATION KIT-FACTORY(93715020-2)

REF DWG 99901239



SECTION 4. GENERAL REFERENCE

NOTES

NOTICE

The user of this form is responsible in determining that these inspections satisfy all applicable regulatory requirements

Inspection Checklist

CRANES

1

REV: 11-22-11

OWNER/COMPANY	*TYPE OF INSPECTION (check one)* ☐ *DAILY (if deficiency found)* ☐ *QUARTERLY* ☐ *MONTHLY* ☐ *ANNUAL*
CONTACT PERSON	
CRANE MAKE & MODEL	*DATE INSPECTED*
CRANE SERIAL NUMBER	*HOUR METER READING (if applicable)*
UNIT I.D. NUMBER	*INSPECTED BY (print)*
LOCATION OF UNIT	*SIGNATURE OF INSPECTOR*

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.

✓ = 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.)

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS ✓, R, X, NA
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 Ctrls	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.	

Inspection Checklist — CRANES — 2

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.) **INSPECTION DESCRIPTION**	STATUS ✓, R, X, NA
D	14	Tires	Check tires (when in use) for proper inflation and condition.	
D or similar.	15	Ground conditions	Ground conditions around the equipment for proper support, including ground settling under and around 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	
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 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**	STATUS ✓, *R, X, NA*
	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		● Stabiliizer 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.	

Deficiency / Recommendation / Corrective Action Report 4

DATE	OWNER	UNIT I.D. NUMBER

GUIDELINES

A. A deficiency (**X**) may constitute a hazard. **X** must be corrected and/or faulty parts replaced before resuming operation.

B. Recommendations (**R**) should be considered for corrective actions. Corrective action for a particular recommendation depends on the facts in each situation.

C. Corrective actions (**CA**), repairs, adjustments, parts replacement, etc. are to be performed by a qualified person in accordance with all manufacturer's recommendations, specifications and requirements.

NOTE: *Deficiencies* (X) *listed must be followed by the corresponding corrective action taken* (**CA**)*.*

X = DEFICIENCY **R** = RECOMMENDATION **CA** = CORRECTIVE ACTION TAKEN

X, R, CA	ITEM #	EXPLANATION	DATE CORRECTED

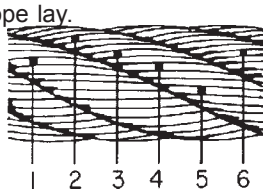
If additional space is required, reproduce this page and attach to this report.

WIRE ROPE INSPECTION

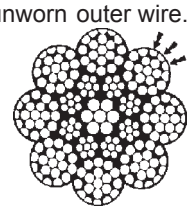
Wire rope with any of the deficiencies shown below shall be removed and replaced immediately .

A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.

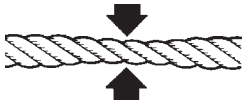
B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



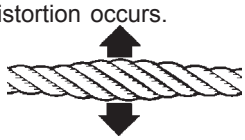
C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



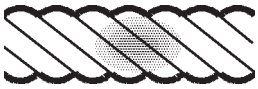
D. When there is a decrease of diameter indicating a core failure.



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.)

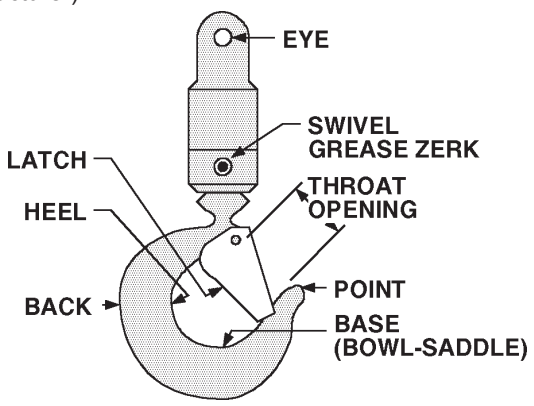
D. LATCH

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.

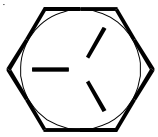
3. Start vehicle, engage PTO and slowly winch loadline up until anti-two block weight comes in contact with the hook end of the loadline cable. At the moment the weight is fully supported by the hook end, the winch up function should become non-functioning, because the two-block damage prevention switch 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.

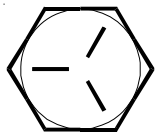
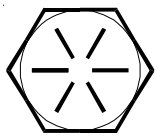
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special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

WARNING

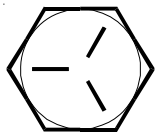
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads af ter torquing.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

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
1 3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

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

1. Bolt manufacturer's particular specifications should be consulted when provided.

2. Flat washers of equal strength must be used.

3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.

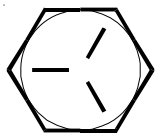
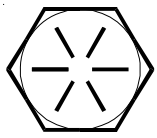
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.

WARNING

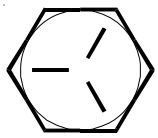
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

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.

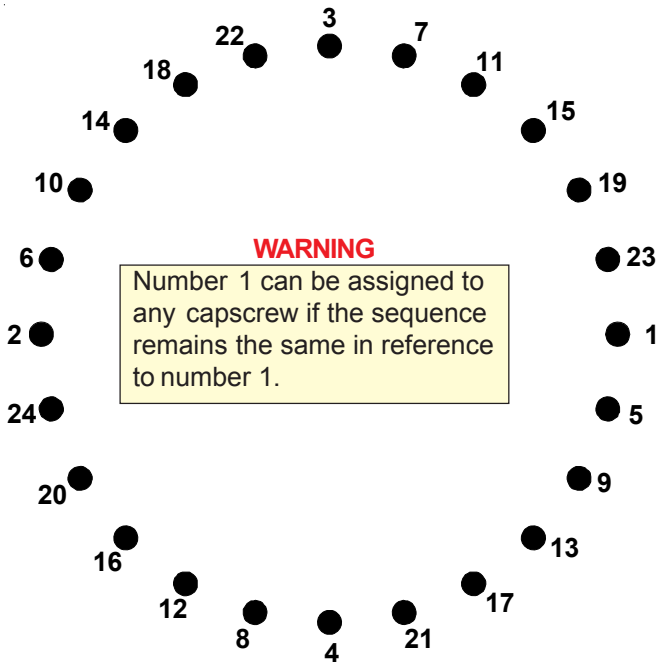
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.

WARNING

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

TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

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



TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of capscrew used.

2. Follow the tightening sequence shown in the diagram. Note that the quantity of capscrews may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.

3. Torque all capscrews to approximately 40% of the specified torque value, by following the sequence.
   (EXAMPLE: .40 x 265 FT-LBS = 106 FT-LBS)
   (EXAMPLE-METRIC: .40 x 36 KG-M = 14.4 KG-M)

4. Repeat Step 3, but torqueing all capscrews to 75% of the specified torque value. Continue to follow the tightening sequence.
   (EXAMPLE: .75 x 265 FT-LBS = 199 FT-LBS)
   (EXAMPLE-METRIC: .75 x 36 KG-M = 27 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:

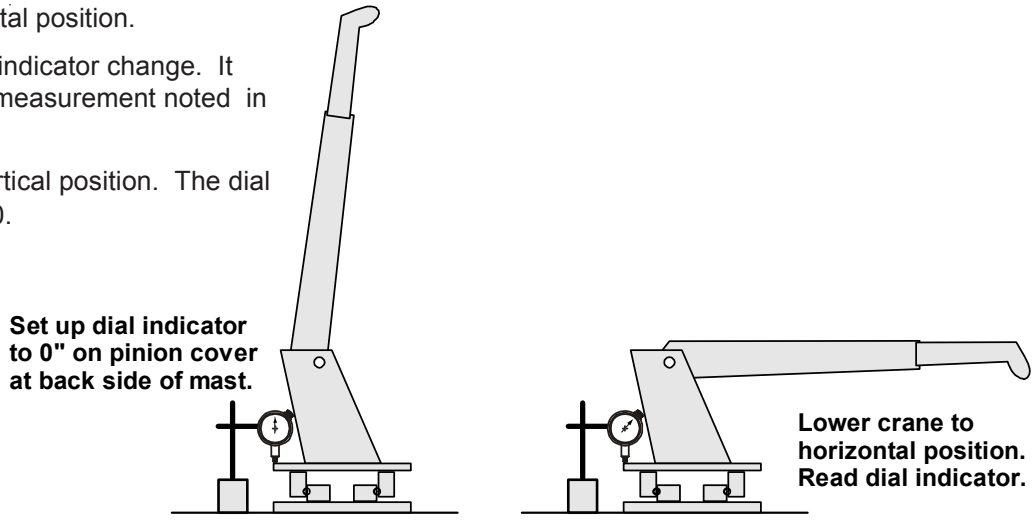
1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during crane rotation.
4. Rough crane rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

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 bearings internal clearance once mounted on a crane.

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

TEST PROCEDURE

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

NOTE	IMT CRANE, LOADER OR TIREHAND MODEL				
THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED. IF THERE IS REASON TO SUSPECT AN EXCESS OF BEARING WEAR AND THE MEASURED TILT DIMENSION EXCEEDS THE DIMENSION LISTED, REMOVE THE BEARING FOR INSPECTION.		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. (A_1-A_2)	**.060" (1.524mm)**	**.070" (1.778mm)**	**.075" (1.905mm)**	**.090" (2.286mm)**

20000710

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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