
Manual Part Number 99903592

2820 Parts & Specifications

Revised: August 6, 2021



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WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov

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Revisions

DATE	LOCATION	DESCRIPTION
20040820	New 2004 radio remote.	ECN 9524 - ADDED NEW RADIO REMOTE OPTION.
20040930	41718360	ECN 9513 - UPDATE TO 41718360 BOOM ASSEMBLY.
20050128	95718000	ECN 9612 - CORRECTED DECAL QUANTITIES, ADDED 70395324
20050613	91714443	ECN 9718 - NEW HOSE ROUTING, MOVED ANTI-TWO-BLOCK
	41718359	ECN 9774 - REMOVED THREAD LOCK FROM ROTATOR BEARING BOLTS; ECN 9681 - HARDWARE KIT
	41718361	ECN 9780 - REPLACED 3/4" COLLAR WITH 11/16" ON 41718361
	99903629 (90718831)	ECN 9762 - NEW CONTROL KIT FOR 2820 RADIO REMOTE
20050913	99903727	ECN 9877 - 99903727 REPLACED DECAL KIT 95718000
	System Specifications	Upgraded minimum chassis specs to 5600 lb - front axle; and 11,000 lb - rear axle.
20060111	41718359, 91718323, 91718330	ECN 9942 - Change motor from 73051919 to 73511070; remove case drain from hyd kits.
20060214	41718360	Correction to 41718360 BOM, drawing part numbers.
20060712	41718359	ECN 10176 - Change item #21 from 72060046 to 72060048.
20060717	41718359, 51717905, 99903727	ECN 10188 - Move counterbalance valve from the cylinder to the mast assembly for correct assembly location. ECN 10200 - Update decal placement drawing 99903727 to include 70392982.
20071016		ADDED CRANE ORIENTATION DRAWING, CABLE NOTES TO 51713182.
20080605	41718359	ECN 10737 - Added item #45 to 41718359 mast assembly.
	70733399, 73733931	Removed pressure setting information on valvebanks.
20080930	41718359, 91718323, 91718330	ECN 10820 - Motor 73511069 was 73511034; 73051919 was 73511070.
20090514	GEOMETRIC CONFIGURATION, CONTROL KITS	Updated crane profile.
20091209	41718359	ECN 11150 - Changed mounting bolt to 72060004.
20100816	41718359	ECN 11291 - #40 hydraulic motor should be 73511041.
20111011	91718323	ECN 11568 - Tethered hydraulic kit update.
20120404	51717905, 51717895	ECN 11581, 11615 - Cylinder drawing updates. Prop. remote potentiometer settings.
20140627	99903629	ECN 12237 - Updated drawing, items 6 & 7 rotated.
	91714443	ECN 12237 - Added base and mast note.
	41718359	
	41718361	
20160112	41718359	CN 269-BASE AND MASE ASSEMBLY
20160509	41718359	CH382-FIXED TYPOS AND LABELING ERRORS
20160610	41718360	ECN12027-P/N 52718005 obsolete, replaced with 52725232
20160913	51717895	Changed part number 51717893 to 52717893 in BOM per Curt K in Tech Support.
20170313	41718360	CN310-1: Updated cord reel information
20180618		ADDED GVWR OF 18,000 LB. REMOVED FRONT AND REAR AXLE WEIGHTS. ADDED PROP65 WARNING LABEL.

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20180827	44771689	CN844
20190503	41718359	CN649
20210408	41718360	Cn1111-5
20210510	51744237	CN1011

CHAPTER 1

Introduction

This volume deals with information applicable to your particular crane. For operating, maintenance and repair instructions, refer to Telescopic Crane Volume 1: OPERATION, MAINTENANCE AND REPAIR. (IMT part number 99903514.)

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. This crane was designed and built to meet the standards of ANSI/ASME B30.5, Mobile & Locomotive Cranes. Contact the American Society of Mechanical Engineers (www.asme.org) for more information.

Throughout the manual, NOTES, CAUTIONs and WARNINGs are used to draw the attention of personnel. They 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.

equipment with respect and service it regularly.

For a safe work environment, treat this

CHAPTER 2

Specifications

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2820 General Specifications

CRANE RATING *	28,000 ft-lb (3.9 ton-meters)
REACH (from centerline of rotation)	20'-6" (6.2 m)
HYDRAULIC EXTENSIONS (2)	60" (152 cm) 48" (122 cm)
MANUAL EXTENSION	none
LIFTING HEIGHT (from base of crane)	22'-2" (6.8 m)
CRANE WEIGHT	1400 lb (635 kg)
STORAGE HEIGHT (crane only)	31" (79.0 cm)
MOUNTING SPACE REQUIRED (crane base)	20" x 21" (50.8 cm x 53.3 cm)
OPTIMUM PUMP CAPACITY (PTO Driven)	6 U.S. GPM (22.7 l/min)
SYSTEM OPERATING PRESSURE	3000 psi (207 bar)
LOWER BOOM CYLINDER	3.5" bore; 21-5/8" stroke (8.9 cm bore; 54.9 cm stroke)
EXTENSION CYLINDER	2.5" bore; 108" stroke (6.35 cm bore; 274.3 cm stroke)
HORIZONTAL CENTER OF GRAVITY (from centerline of rotation)	37" (94.0 cm)
VERTICAL CENTER OF GRAVITY (from bottom of crane base)	18" (45.7 cm)
TIE-DOWN BOLT PATTERN (on center)	14-3/4" x 14-3/4" (37.5 cm x 37.5 cm)
ROTATIONAL TORQUE	9000 ft-lb (1.2 ton-m)
DESIGN FACTORS - pins and hydraulics	4/1

* Crane rating (ft-lb) is the rated load (lb) multiplied by the respective distance (ft) from centerline of rotation with all extensions retracted and lower boom in horizontal position.

2820 Performance Characteristics

	SPECIFICATION	PTO
ROTATION	400° (7.0 rad)	58 seconds
LOWER BOOM ELEVATION	-0° to +72° (0 to +1.3 rad)	12 seconds up 15 seconds down
EXTENSION CYLINDER (2)	60" / 48" (152.4 cm / 121.9 cm)	18 seconds out 17 seconds in
WINCH	single part line	27 ft/min (8.2 m/min)
WINCH	two part line	13.5 ft/min (4.1 m/min)

2820 System Specifications

POWER SOURCE

PTO DRIVEN - Integral mounted hydraulic pump and PTO application. Other standard power sources may be used. Minimum power required is 15 horsepower based on 6 GPM (22.7 liters/min) at 3,000 PSI (207 bar).

CYLINDER HOLDING VALVES

The base ends (extend sides) of the lower boom and extension cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The extend side of the lower boom cylinder is equipped with a 10 gpm counterbalance valve.

The counter balance valve serves several functions. First, it is a holding valve. Secondly, it is designed to control the speed at which the lowering function operates, and allows that motion to be metered under load. Finally, it prevents the loss of an excess amount of oil in the event of a hose failure. Only the oil in the hose, at the time of the failure, will be lost.

ROTATION SYSTEM

Turntable bearing with external worm gear powered with a high-torque hydraulic motor through a self-locking worm. Total gear reduction is 85 to 1.

HYDRAULIC SYSTEM (PTO DRIVEN)

Open-centered, full-pressure system that requires 6 gpm optimum oil flow at 3000 psi. Four-spool, stack-type, electric, remote control valve with 30-foot control cable. System includes control valve and return-line filter.

EXCESSIVE LOAD LIMIT SYSTEM (ELLS)

A pressure switch which is mounted on the extend side of the lower boom cylinder and connected electrically to the lift side of the winch, the extend side of the extension boom, and the down side of the lower boom provides the capacity alert system. If the operator attempts to lift a load exceeding the rated capacity of the crane, the winch lift, extension out and lower boom down functions will not operate. To relieve the situation, the the operator may set the load down (winch down) or retract the extension boom (extension in).

WINCH

The winch is powered by a hydraulic motor through a 31:1 ratio worm-gear drive with a mechanical brake. Line speed is 27 ft/min (8.2m/min) at optimum oil flow for 1-part line and 13.5 ft/min (4.1 m/min) for 2-part line. The maximum single-line capacity of the winch is 2,500 lb. The winch is equipped with 85 ft (26 m) of 5/16 (0.8 cm) 6 X 25 FW PRF RRL IWRC IPS wire rope. A nylon sheave is located at the tip of the extension boom. The ratio of winch drum and sheave pitch diameter to wire rope diameter is 18:1 or larger. An anti-two block device is included to prevent the lower block or hook assembly from coming in contact with the boom sheave assembly.

MINIMUM CHASSIS SPECIFICATIONS	
CHASSIS STYLE	Conventional Cab
WHEELBASE	137" - 161" (348 cm - 409 cm)
CAB-TO-AXLE	60" - 84" (152 cm - 213 cm)
RESISTANCE TO BENDING MOMENT	420,000 in-lb (47,454 N-m)
FRAME SECTION MODULUS	8.4 in ³ (138 cm ³)
FRAME YIELD STRENGTH	50,000 psi (3,447 bar)
GVWR	18,000 (8165)

Chassis specifications revised 20180618.

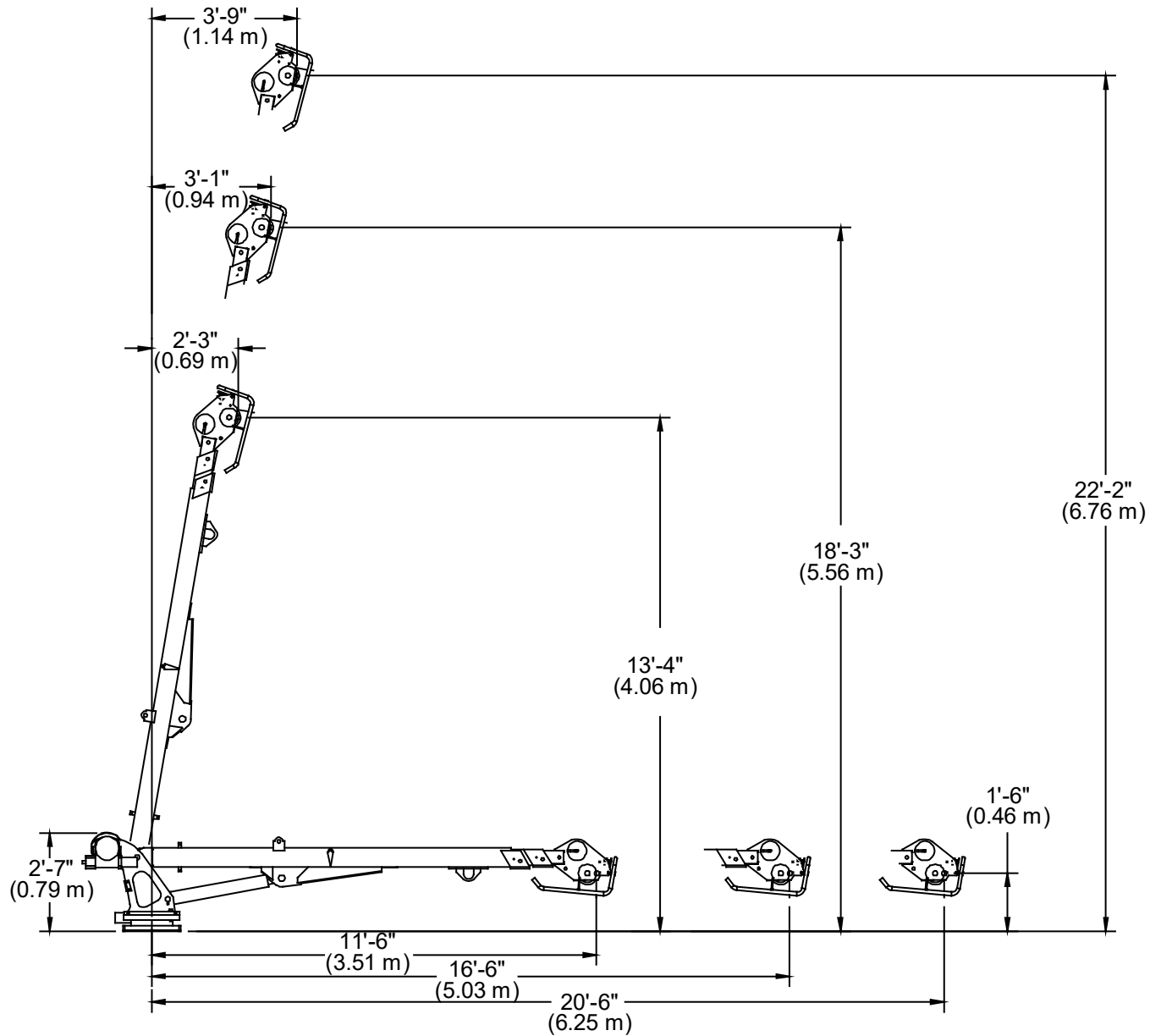
NOTES:

- 1 GVWR means Gross Vehicle Weight Rating. GVWR is dependent on all vehicle components including 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 more information.
- 3 Weight distribution calculations are required to determine final axle loading.

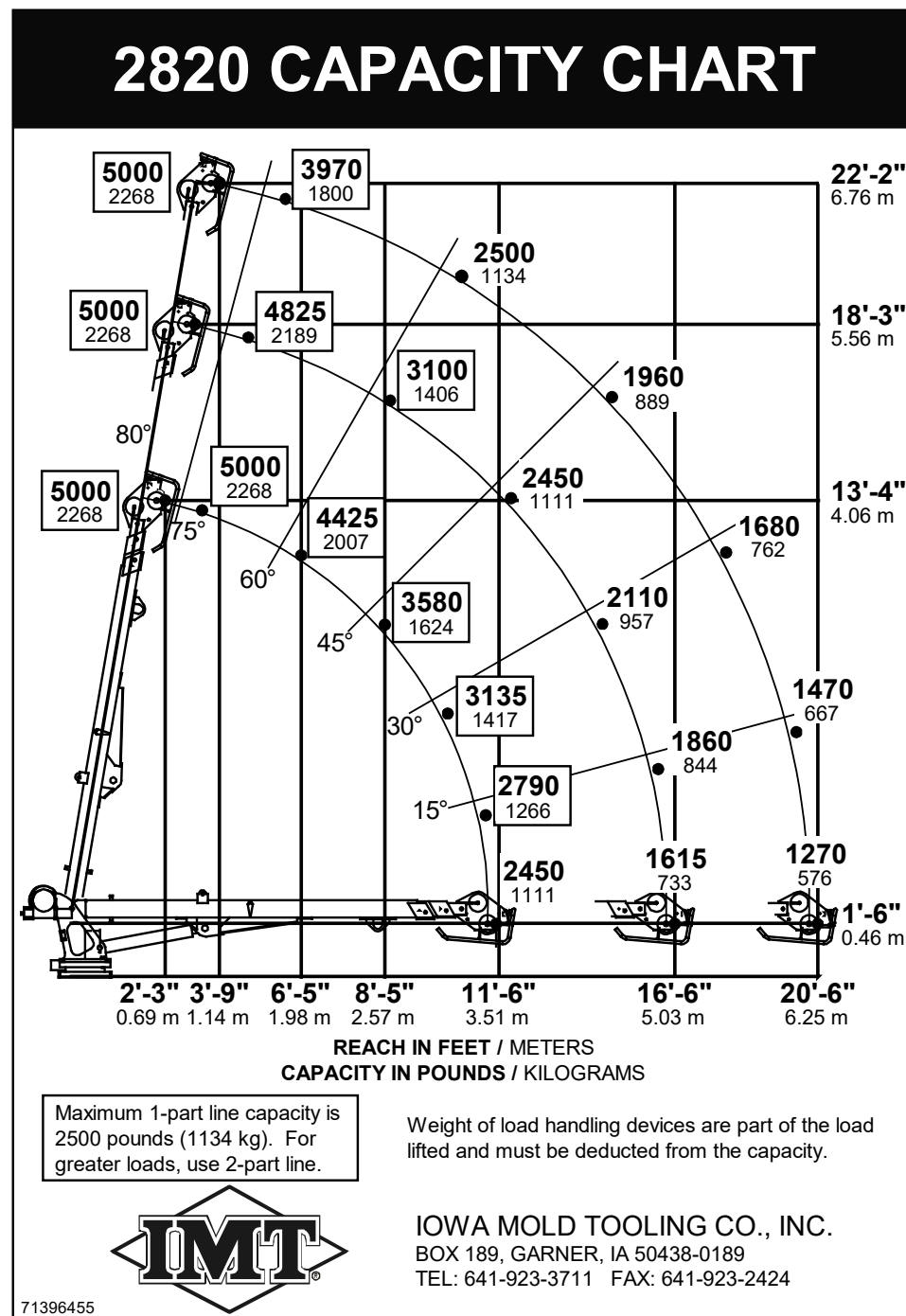
All chassis, crane and body combinations must be stability-tested to ensure stability per ANSI B30.5

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2820 Geometric Configuration



2820 Capacity Chart



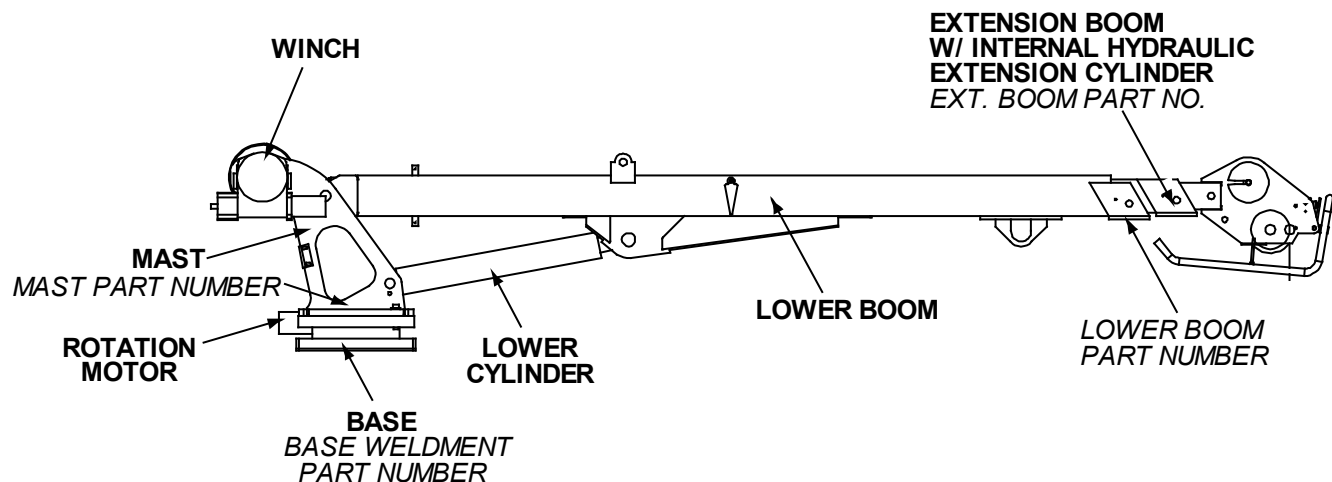
CHAPTER 3

Crane Reference

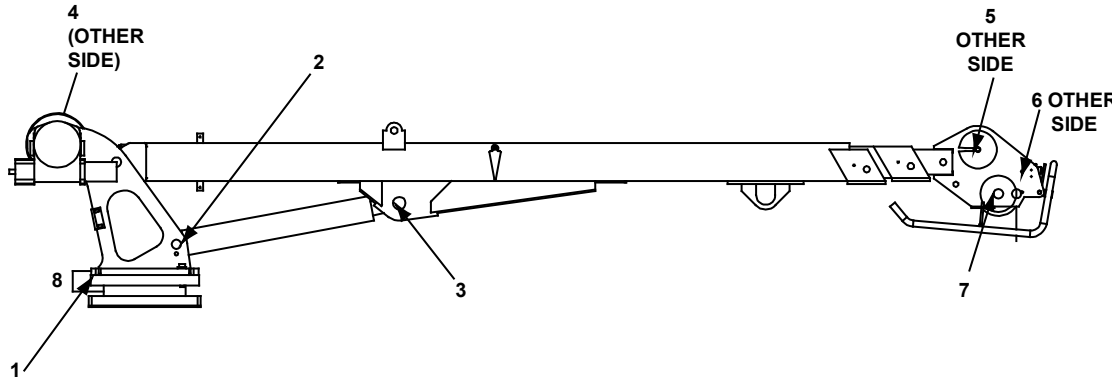
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Major Assemblies, Part Number Locations



Grease Zerk Locations



LOCATION	LUBRICANT	APPLICATION METHOD	FREQUENCY
Base - Turntable Bearing Grease Zerks	Extreme Pressure Lithium grease such as: Shell Alvania 2EP, Shell Retinax A, Mobilgrease XHP 462, Cenex ML 365®, Xtreme True-Flo EP2 Lithium grease or equivalent	Apply with hand or pneumatic pressure grease gun	Weekly
Snatch Block Pin			
Worm Bearings Grease Zerks (*Rotate crane while greasing)			
Lower Sheave			
Upper Sheave			
Gear Teeth	GearMate® Super Heavy or equivalent	Brush	Weekly
Worm Gear	GearMate® Super Heavy or equivalent	Apply with hand or pneumatic pressure grease gun	

**Weekly, remove cover and lubricate with
IMT recommended
open-gear compound while rotating crane.
IMT part number: 89086247**

Recommended Spare Parts List

Recommended Spare Parts for one-year for the 2820 Crane:

NOTE: 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.

Base Assembly		
73051919	Hydraulic Motor	1
70034473	Bushing	2
Lower Boom		
60030331	Wear Pad	1
60122985	Side Wear Pads	2
Lower Cylinder		
51744127	Seal Kit	1
77041561	Pressure Switch	1
73540035	C'Bal Valve	1
Extension Boom Assembly		
60030330	Wear Pad	2
60030328	Wear Pad	2
60122985	Side Wear Pad	2
60030136	Sheave	1
70146464	Tube Assembly, Cylinder	2
Extension Cylinder		
73054999	C'Bal Valve	1
51744128	Seal Kit	1
Winch/Cable/Hook Kit		
73511041	Hydraulic Motor	1
70580229	Wire Rope ASM- GALV .31(6X19)X65ft XIPS	1
51713168	Cord Reel	1
77041459	Limit Switch	1
60030136	Sheave	1
71073920	Hook	1
60030327	Spacer-Hook	2
Installation Kit		
73052092	Filter Element	2
Winch		
76393174	O-Ring	1
76393173	Oil Seal	1
70055202	Ball Bearing	2
70733294	Brake Kit	1

76393171	Gasket	2
Valve Bank Parts		
70145626	Coil	1
70145625	Relief Valve	1
70145624	Solenoid Valve	1
Valve Bank Handle Assembly		
51713182	Tethered Control Handle	1

Crane Installation

GENERAL

This section contains instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make sure that the chassis is ready to receive the crane (see the Installation Section of the IMT Telescopic Crane Operation & Safety Manual, 99903514).

Reinforce the chassis frame, as necessary, and install the PTO and pump.

Each installation may vary in components used. It is important to use hoses of proper length, pumps of correct size, and PTO's of adequate speed. Study the applicable installation kit in the parts section before attempting any installation.

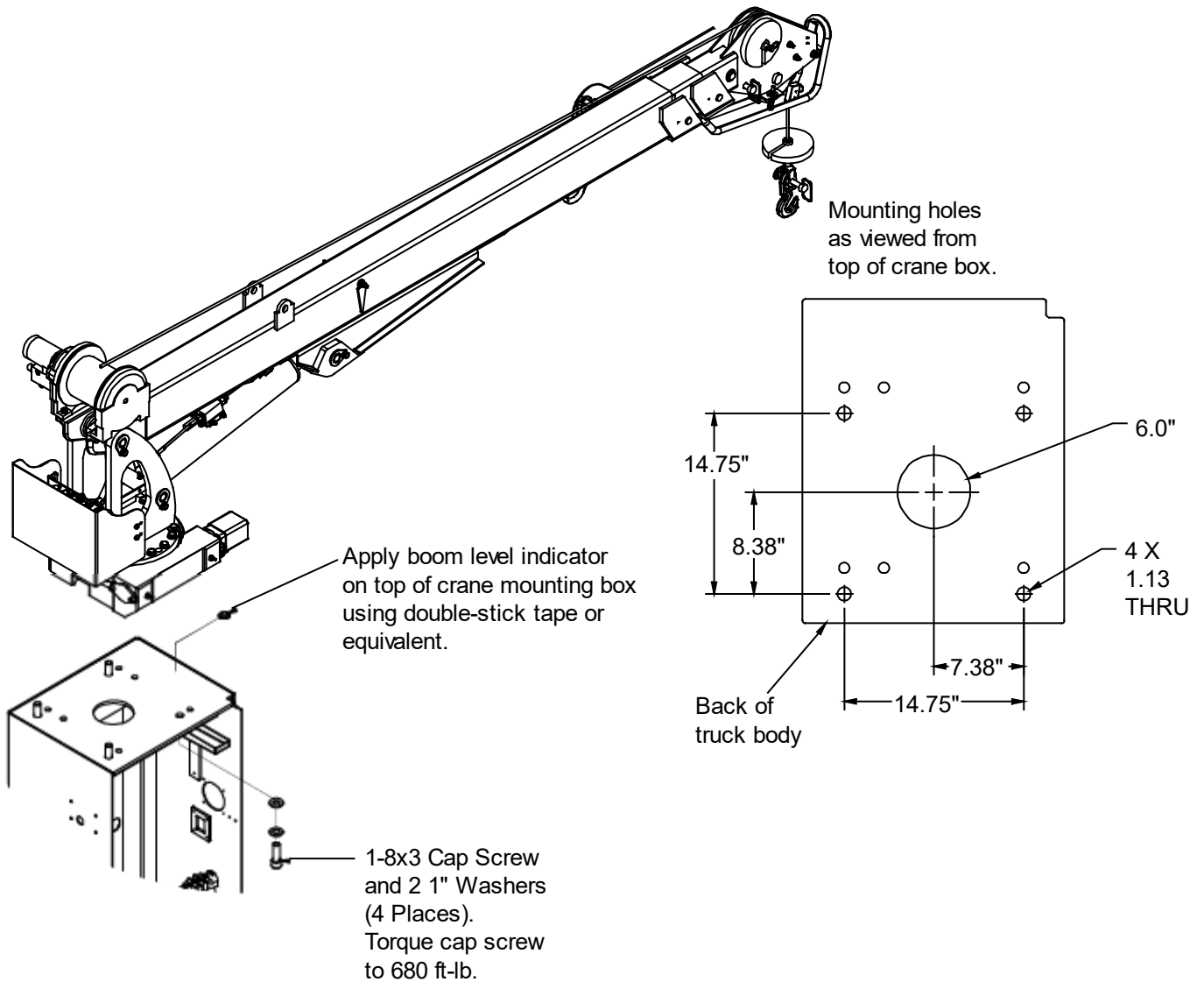
CRANE INSTALLATION

In addition to meeting **Minimum Chassis Specifications** (see "2820 System Specifications" on page 10), there must be sufficient room for mounting the crane and the platform must be strong enough to support the crane and rated load. Install the 2820 crane only on an IMT designed and approved truck body. The body must be designed to sustain the forces imposed by the crane when lifting the full rated load. In addition, an IMT designed body is designed to take full advantage of the standard reservoir placement. This reservoir is installed in the cargo area of the body. Before attempting to install the crane, the body must be installed.

To install the crane:

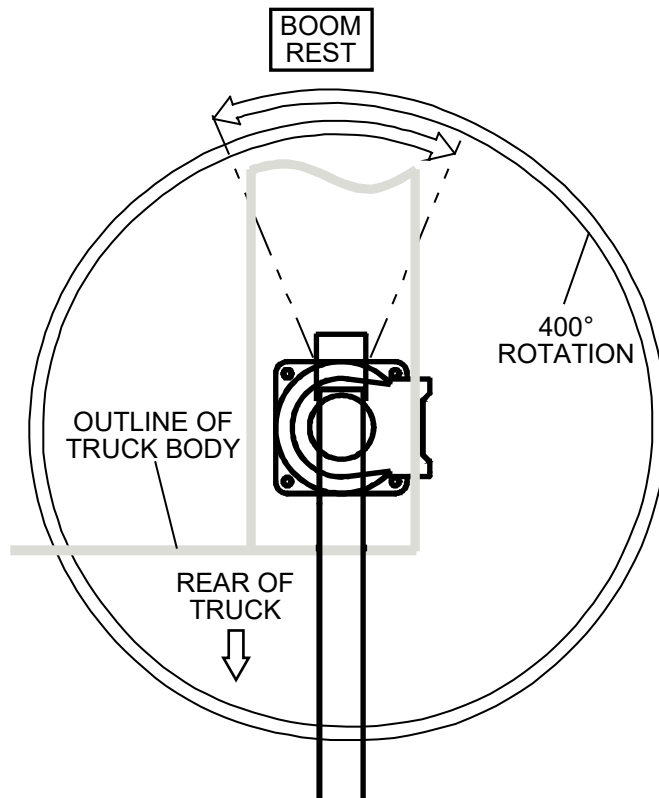
- 1 Use a lifting device capable of lifting the weight of the crane, 1,400 lbs (635 kg). Attach fabric slings to the crane lower boom, centered approximately 18 inches from the mast hinge. Make certain the crane is well balanced on the slings by slowly lifting approximately 6" off the ground. Lift the crane, apply a bead of waterproof compound, such as silicon based caulk, to the bottom of the base. Move the chassis under the crane and lower the crane into the desired position.

- 2 Install the 1-8x3" mounting cap screws and 1" washers to secure the crane base to the truck body (see figure). Torque the cap screws to 680 ft-lbs (94 kg-m).



Telescopic Crane Orientation

When an IMT telescopic crane is not factory-installed on a body, the crane is packed with the boom oriented as it is built on a test stand to facilitate handling. Install the crane on the body with boom pointing backward. Once the crane is bolted down, it can be rotated 180° (3.14 radians) to the boom rest.



Crane Control

IMT's telescopic cranes are controlled by radio or tethered remote controls. The 2820 crane includes a tethered remote control with a radio remote control option. For complete details on operating your 2820 telescopic crane, refer to the IMT Telescopic Crane Operation & Safety Manual (part number 99903514).

CHAPTER 4

Parts


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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 maintenance and repair manuals for this crane family. 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. 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

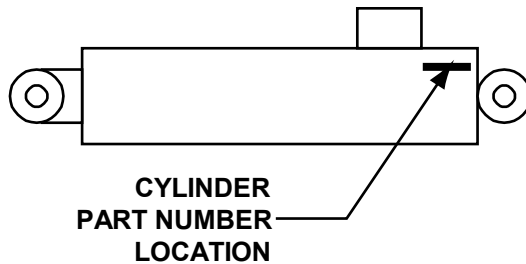
Every IMT crane has an identification placard (see figure). This placard is attached to the inner boom, mast, or crane base. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model numbers. Address all inquiries to your authorized IMT distributor or 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	
70023119	

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 the Crane Reference Section.

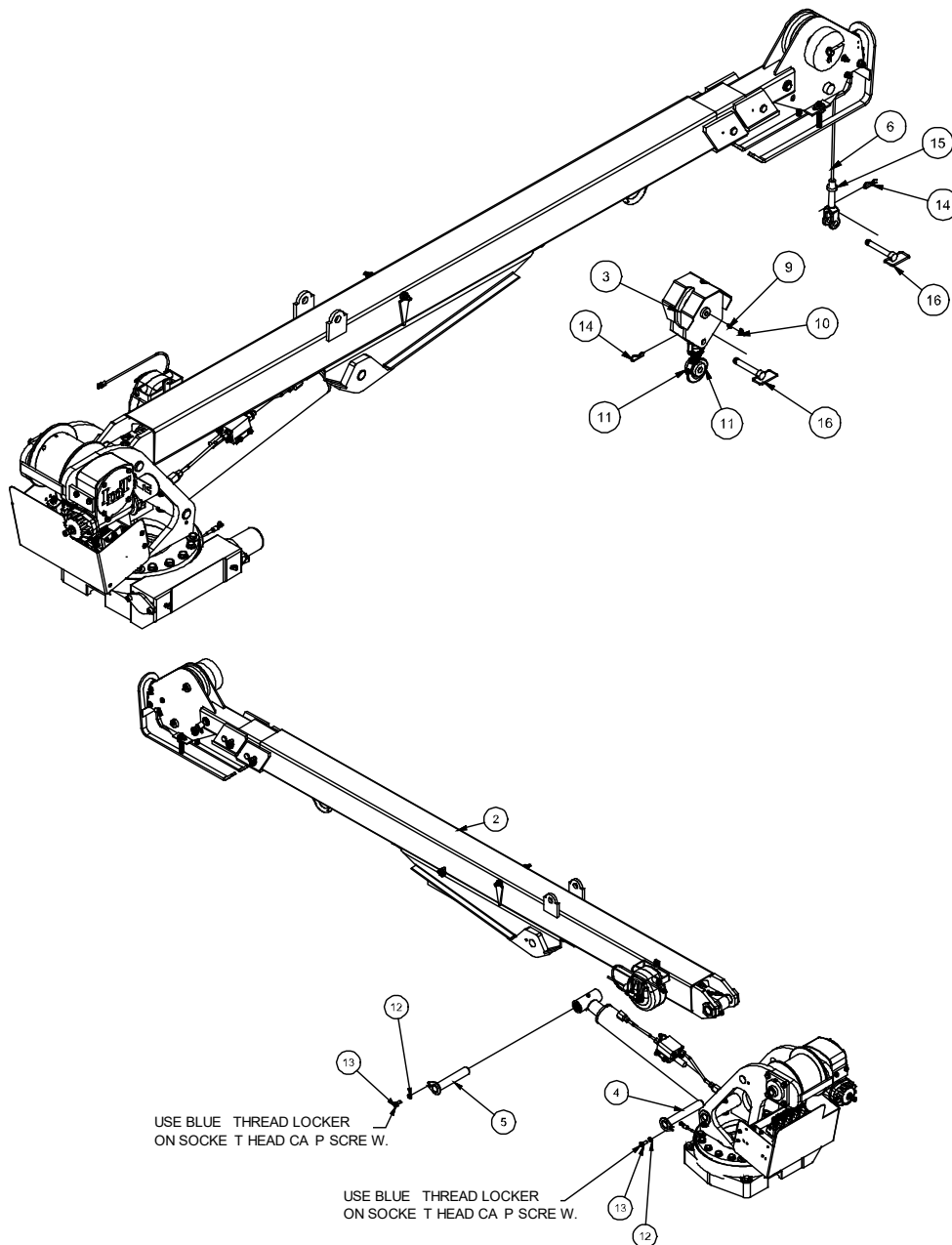
ORDERING REPAIR PARTS

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.

Base and Mast Assemblies

Crane Assembly (41718361)

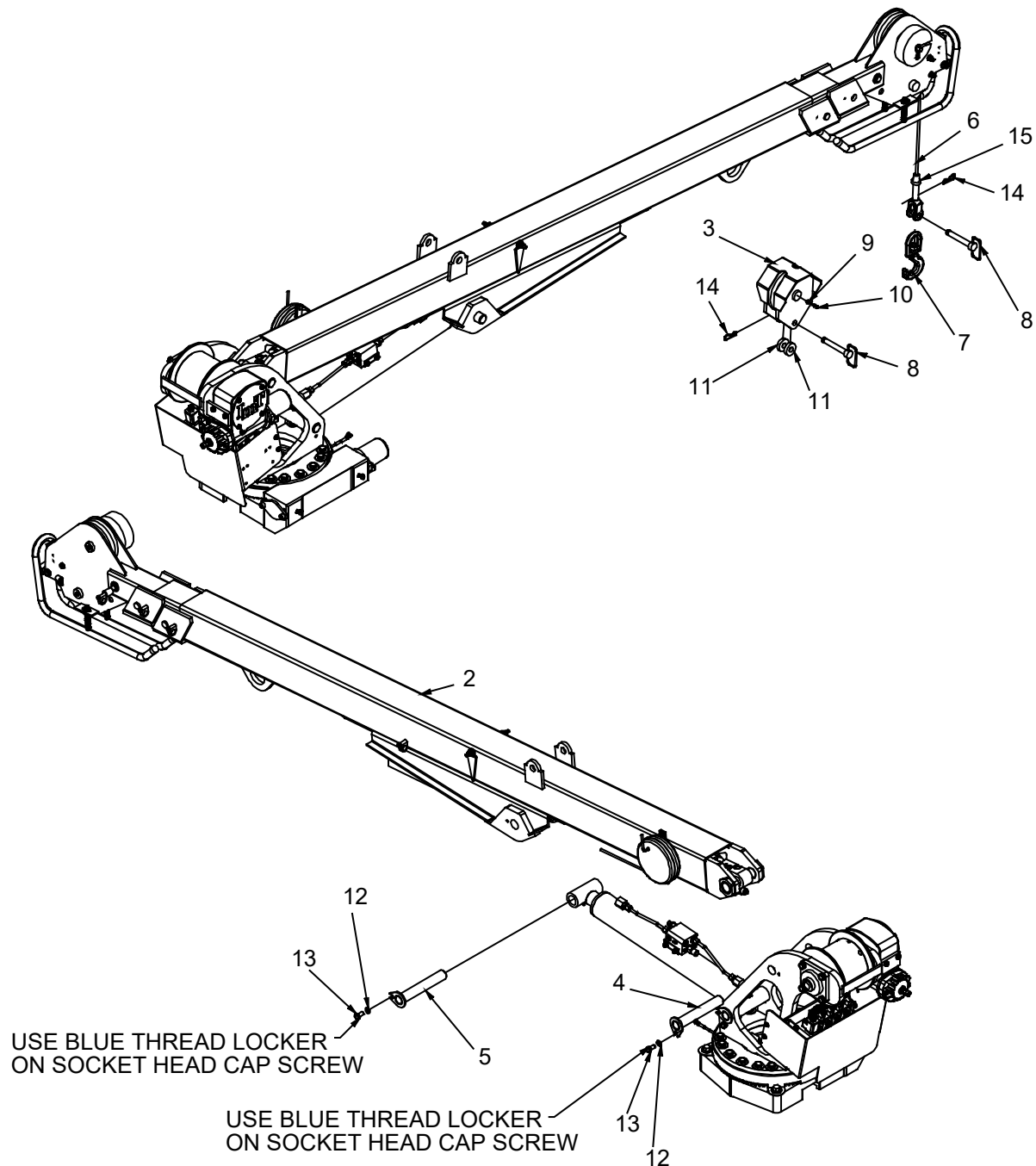


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PART NO.	ITEM NO.	DESCRIPTION	QTY.
1.	41718359	DWG-2820 MAST ASY	1
2.	41718360	DWG-2820 BOOM ASY	1
3.	52717885	WLDMT- SNATCH BLOCK	1
4.	52714976	PIN-TYPE II 1.50X 9.43 (9.18)	1
5.	52715266	PIN-TYPE II 1.50 X 8.31 (8.06)	1
6.	70580229	WIRE ROPE ASM-GALV.31(6X19)X85ft XIPS	1
9.	72053508	ZERK-NPT .12	1
10.	70034382	CAP-GREASE PRO20 GC-RED	1
11.	60030327	SPACER- SNATCH BLOCK	2
12.	72063053	WASHER .50 LOCK	2
13.	72060091	CAP SCR .50-13X 1.00 HH GR5 Z	2
14.	72066145	HAIR PIN .19 ZINC	2
15.	70149793	COLLAR-SHAFT 2 PIECE 11/16 IN	1
16.	70144209	PIN- .75X 4.50 LG WS80-WS100	2
17.	70735100	HOOK-SWVL BBRG 3TON W/LATCH	1
REV. F CN1066			

Base and Mast Assemblies

Crane Assembly (41718361)



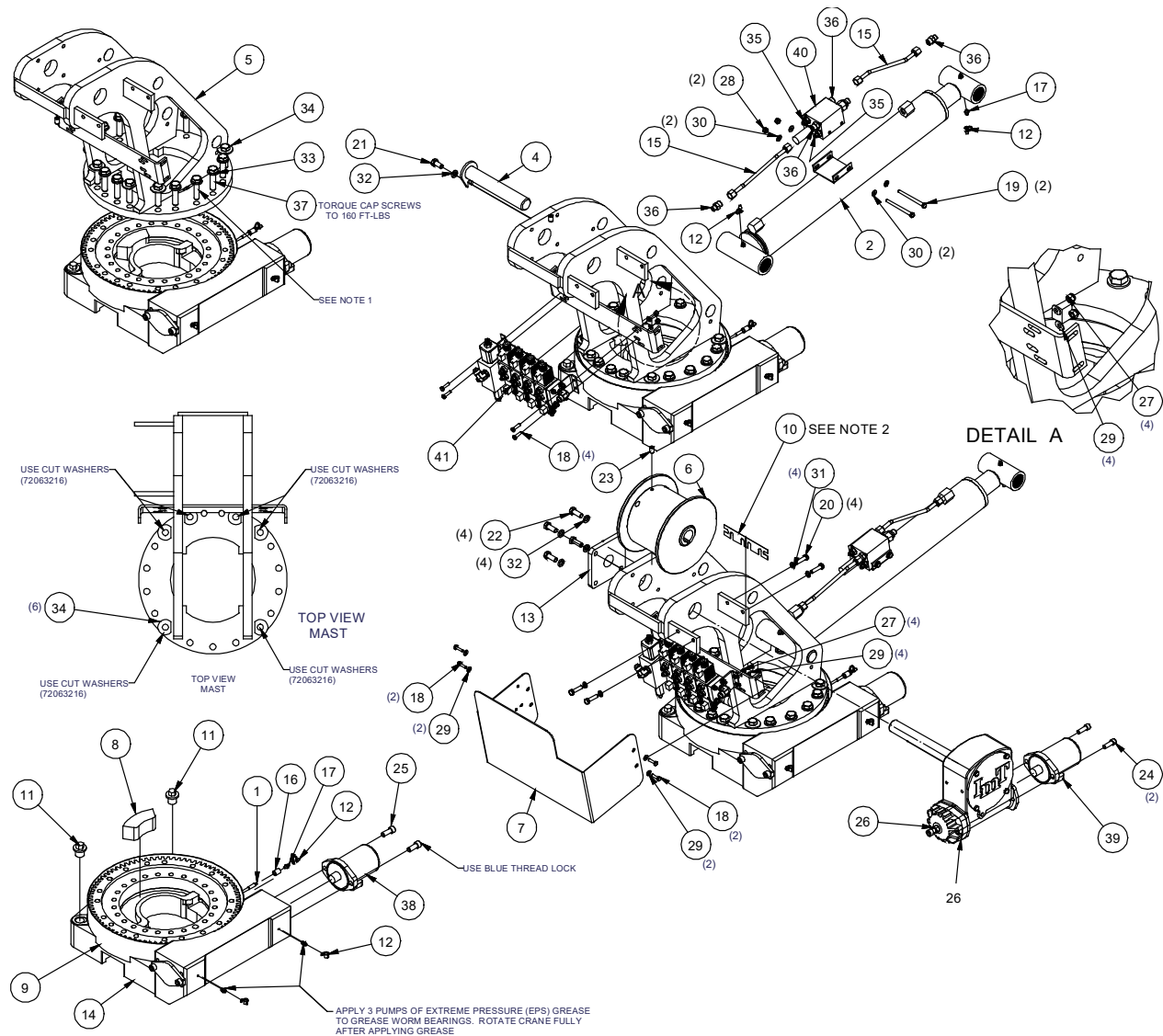
NOTES:

- 1 BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

41718361 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	41718359	MAST ASSEMBLY DRAWING	1
2.	41718360	BOOM ASSEMBLY DRAWING	1
3.	52717885	SNATCH BLOCK WELDMENT	1
4.	52714976	PIN	1
5.	52715266	PIN	1
6.	70580170	WIRE ROPE ASM	1
7.	71073920	SWIVEL HOOK W/LATCH	1
8.	70144209	PIN	2
9.	72053508	GREASE ZERK NPT 1/8	1
10.	70034382	CAP, GREASE ZERK	1
11.	60030327	SPACER	2
12.	72063053	WASHER 1/2 LOCK	2
13.	72060091	CAP SCREW 1/2-13X1 HHGR5Z	2
14.	72066145	HAIR PIN .19 ZINC	2
15.	70149793	COLLAR- SHAFT, 11/16" (WAS 70145201)	1

REV. B 20050608

Mast Assembly (41718359)



BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

NOTE:

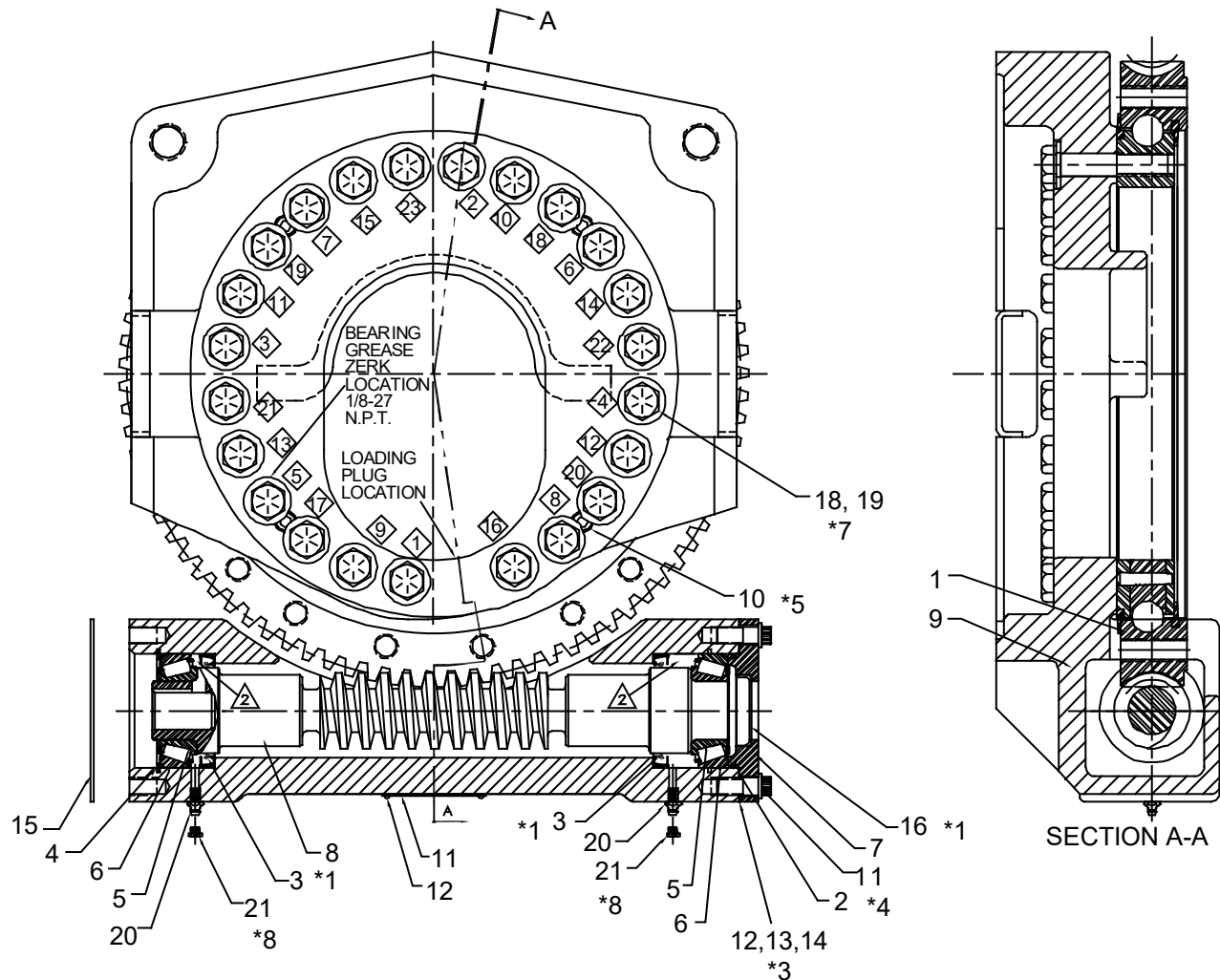
- DO NOT USE THREAD LOCK ON ROTATOR BEARING BOLTS.
- USE SHIM AS REQUIRED. CUT IN TWO FOR SINGLE THICKNESS, OR BEND FOR DOUBLE THICKNESS.
- APPLY 3 PUMPS OF EXTREME PRESSURE (EPS) GREASE TO GREASE WORM BEARINGS. ROTATE CRANE FULLY AFTER APPLYING GREASE.
- USE BLUE THREAD LOCK.
- TORQUE CAP SCREWS TO 160 FT-LBS.
- USE CUT WASHERS (72063216).

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	51395121	HOSE-AA .13X 13.50 OAL(2- 2)	1
2	51717905	CYL-3.5/2.2 21.62S 34.63CC C	1
3	51718387	KIT-HRDW 2820 MAST ASY	1
4	52714976	PIN-TYPE II 1.50X 9.43 (9.18)	1
5	52714977	MAST WLDMT-3816 09/98	1
6	52718340	DRUM-WINCH WLDMT 2820	1
7	60119128	COVER-VB 3016 FAUVER	1
8	60120138	SLIDE-ROTATION STOP 3816	1
9	60128849	GEAR GUARD 6025 SII	1
10	60132917	SHIM-WINCH DRIVE (.035)	A/R
11	70029595	THREADED PLUG 1.00-8 (3816)	2
12	70034382	CAP-GREASE PRO20 GC-RED	5
13	70055403	BEARING-FLANGE 1.50 ID 1/2 BOLT HOLES	1
14	71056543	GEAR ROTATOR 5020 170-00012-1	1
15	70145864	TUBE ASM-LOWER BOOM CYL	2
16	72053301	COUPLING-GLV .12 SCH 40	1
17	72053508	ZERK-NPT .12 (PART OF #3 HRDW KIT)	2
18	72060004	CAP SCR .25-20X 1.00 HH GR5 Z (PART OF #3 HRDW KIT)	8
19	72060037	CAP SCR .31-18X 4.00 HH GR5 Z	2
20	72060048	CAP SCR .38-16X 1.50 HH GR5 Z	4
21	72060091	CAP SCR .50-13X 1.00 HH GR5 (PART OF #3 HRDW KIT)	1
22	72060092	CAP SCR .50-13X 1.25 HH GR5 Z (PART OF #3 HRDW KIT)	4
23	72060596	SET SCR .50-13X .75 SH PLAIN (PART OF #3 HRDW KIT)	1
24	72060774	CAP SCR .44-14X 1.25 SH PLAIN (PART OF #3 HRDW KIT)	2
25	72060794	CAP SCR .50-13X 1.25 SH PLAIN (PART OF # 3 HRDW KIT)	2
26	72062004	NUT .50-13 HEX	1
27	72062104	NUT .25-20 HEX NYLOCK (PART OF #3 HRDW KIT)	8
28	72062109	NUT .31-18 HEX NYLOCK	2
29	72063001	WASHER .25 FLAT (PART OF #3 HRDW KIT)	12
30	72063002	WASHER .31 FLAT	4
31	72063051	WASHER .38 LOCK (PART OF #3 HRDW KIT)	4
32	72063053	WASHER .50 LOCK (PART OF #3 HRDW KIT)	5
33	72063119	WASHER .62 FLAT ASTM F436 (PART OF #3 HRDW KIT)	13
34	72063216	WASHER .62 N FLAT-CUT 3816	6
35	72532353	ADPTR-M STR/M JIC 6 4	2
36	72533186	ADPTR-M FACE/M STR 6 6	4
37	72601482	CAP SCR .62-11X 2.50 HH GR5ZC(PART OF #3 HRDW KIT)	19
38	73051919	MOTOR-HYD (101-2638-009)	1
39	73511041	MOTOR-HYD C158-1635-001 EATON	1
40	73540035	VALVE-CBAL 1.75:1 NV	1

Oshkosh Corporation Classification - Restricted

ITEM NO.	PART NO.	DESCRIPTION	QTY.
41	73733931	VALVE BANK-4 SEC 1014A/2020 RAD	1
42	91718330	HYD KIT-2820 RADIO RMT	1
REV. U CN649			

Gear Rotator (71056543) (Primary)



NOTES (*)

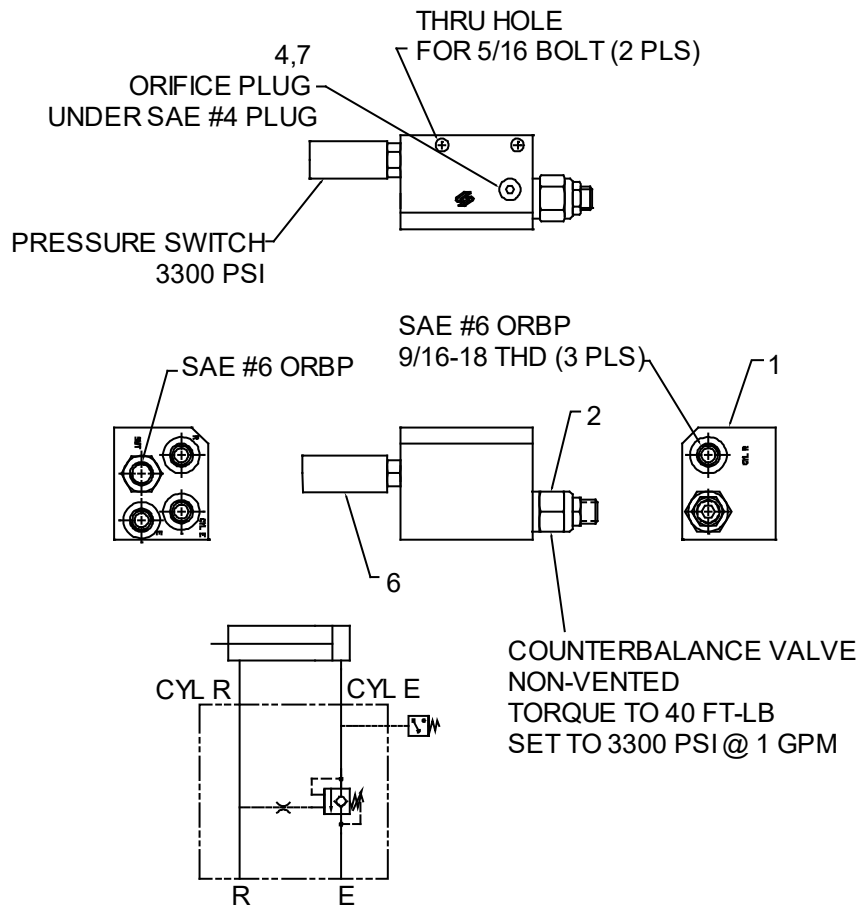
- 7 INSTALL SEALS #3 AND #16 WITH LOCTITE PLASTIC GASKET ON O.D. LUBRICATE SEAL SURFACE BEFORE ASSEMBLY.
- 8 PACK CAVITIES WITH EPO GREASE
- 9 SHIM TO OBTAIN 0.000 / 0.004 END PLAY ON WORM SHAFT.
- 10 LUBRICATE O-RING #2 WITH WORM GEAR OIL BEFORE INSTALLING.
- 11 INSTALL BOLTS #10 WITH LOCTITE #242.
- 12 SET BACKLASH BETWEEN WORM AND ROTATION BEARING 0.005 - 0.012.
- 13 TIGHTEN 5/8-11 UNC GRADE 8 MOUNTING BOLTS AS FOLLOWS: TIGHTEN PROGRESSIVELY AND AT 180° INTERVALS. FIRST INTERVAL AT 70 FT-LB. SECOND INTERVAL AT 140 FT-LB. THIRD INTERVAL AT 210 FT-LB. TIGHTEN BOLTS IN ORDER SHOWN IN DIAMONDS (<◇>). DO NOT USE LOCTITE ON MOUNTING BOLTS.
- 14 ITEM #20 SHIPS LOOSE. INSTALL ITEM #21 FOR SHIPPING.

⚠ WARNING

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

71056543 PARTS LIST				
ITEM	PART #	DESCRIPTION	DETAILS	QUANTITY
1.	70056527	ROTATION BEARING		1
2.	70395074	O-RING		1
3.	70395076	SEAL		2
4.	70145786	SNAP RING		1
5.	70055271	BEARING-CONE		2
6.	70055281	BEARING-CUP		2
7.	70145501	BEARING RETAINER		1
8.	70056550	WORM		1
9.	70145787	HOUSING		1
10.	72601734	CAP SCREW	3/8-16X1-1/4 SH	4
11.	72601733	CAP SCREW	1/2-13X1-1/4 FERRY	4
12.	73145506	SHIM	.005" THICK	2
13.	73145505	SHIM	.015" THICK	2
14.	73145504	SHIM	.030" THICK	2
15.	76395075	GASKET		1
16.	72533604	PLUG		1
17.	72661504	PIN	3/8X1	2
18.	72601751	CAP SCREW	5/8-11X2-3/4 HHGR8	23
19.	72063219	WASHER	5/8 FLAT HARD	23
20.	72533605	ZERK		2
21.	72533439	VENT PLUG		2

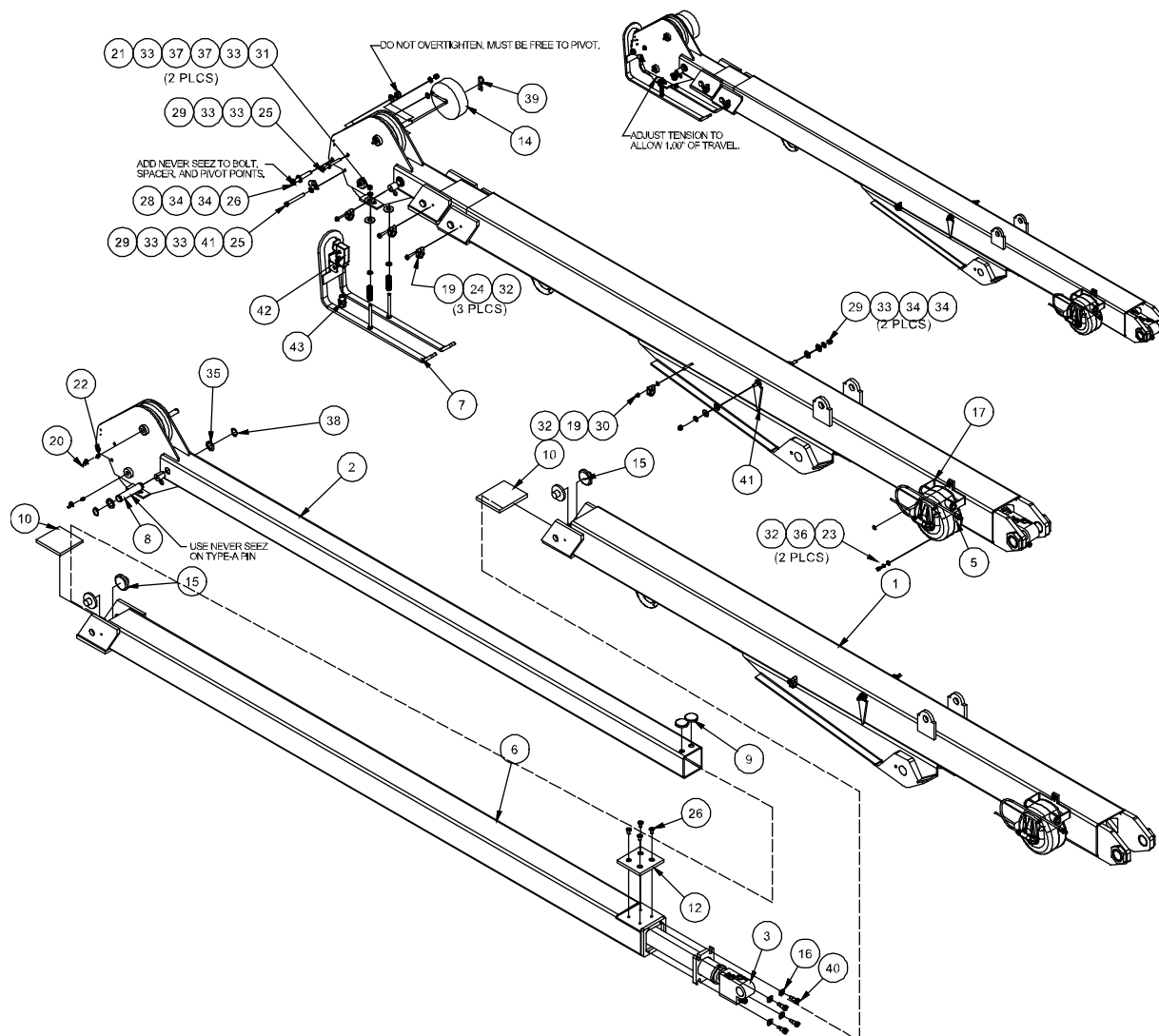
Valve, Counterbalance (73540035)



73540035 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	73540051	VALVE, C-BAL	1
2.	73540052	VALVE, C-BAL	1
4.	70145750	ORIFICE	1
6.	77041561	PRESSURE SWITCH	1
7.	72533477	PLUG, STR HOL HEX STL 7/16 THD	2

Boom Assemblies & Cylinders (41718360)

Effective 2-24-2021

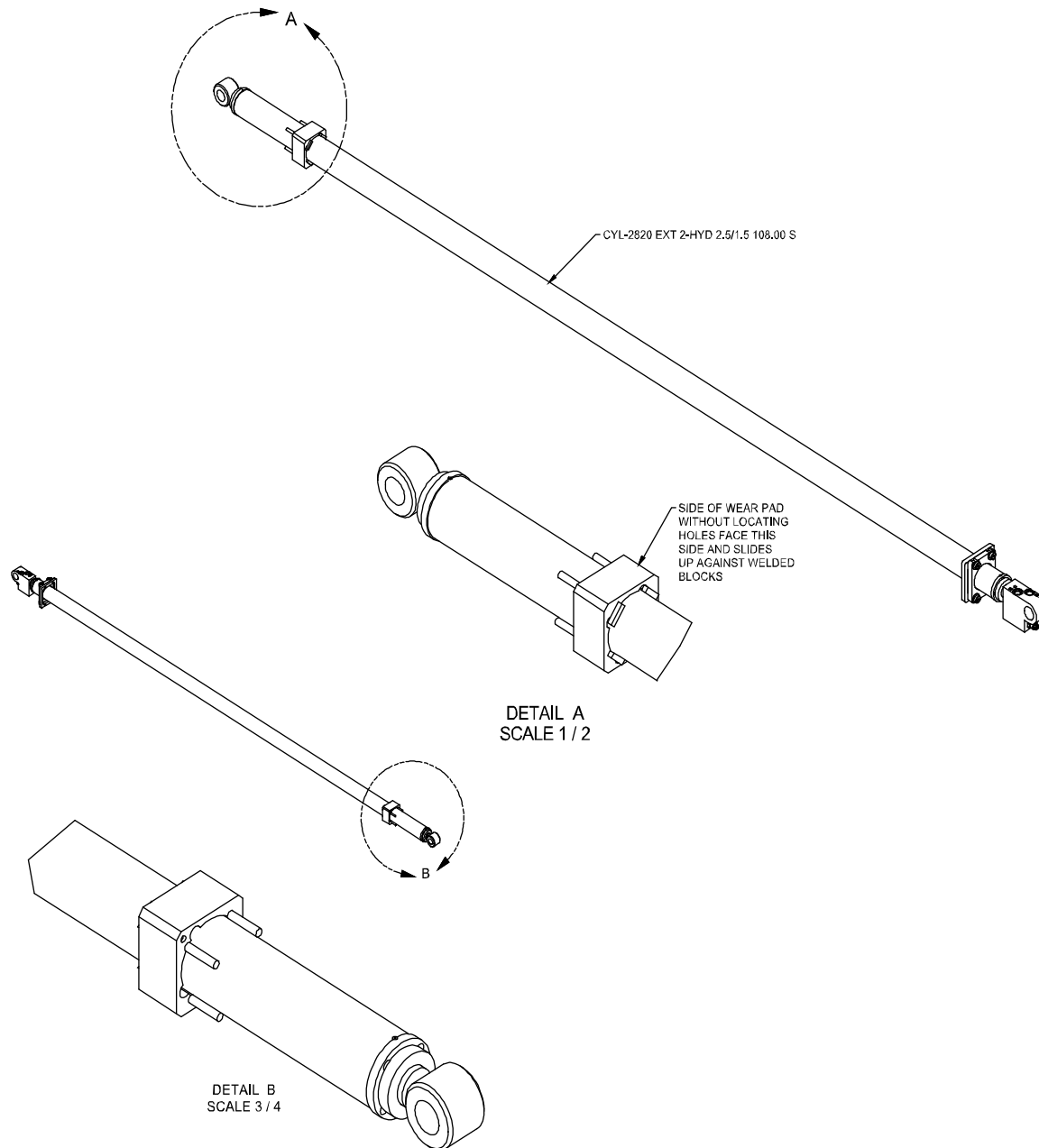


41718360 COMPLETE PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.	KIT NO.
1.	51717874	WLDNT-LOWER BOOM	1	
2.	51717875	WLDMT-2ND EXT BOOM 2820	1	
3.	51717895	CYL-2820 EXT 2-HYD 2.5/1.5 108.00 S	1	
4.	51718383	KIT-HRDW 2820 BOOM ASY	1	
5.	51727064	CORD REEL ASM - 4.17' - W/PACKARD CONNECTOR	1	
6.	52717865	WLDMT-1ST STAGE EXT 2820	1	
7.	52725232	WLDMT-ATB TRIP MECHANISM 2820	1	
8.	60010470	PIN-TYPE A 1.00X 4.88 (4.31)	1	

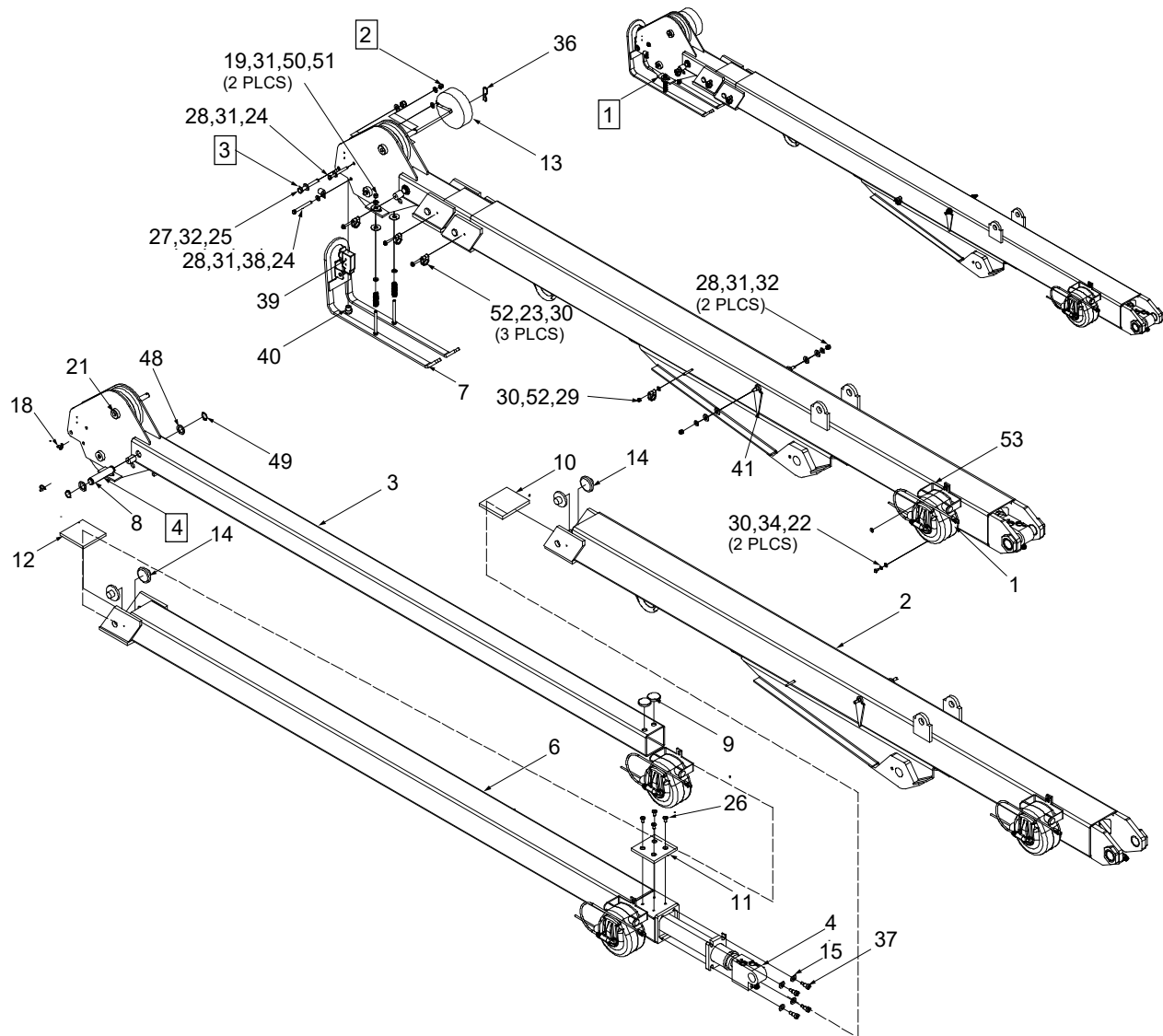
41718360 COMPLETE PARTS LIST				
ITEM NO.	PART NO.	DESCRIPTION	QTY.	KIT NO.
9.	60030328	WEAR PAD-RND 0.31X 1.94X .74X .25	2	
10.	60030330	WEAR PAD-RC 0.50 X 4.88 X 5.00	1	
11.	60030331	WEAR PAD-RC 0.50 X 4.938 X 5.88	1	
12.	60030333	WEAR PAD-RC 0.44 X 4.88 X 5.00 W/HOLES	1	4
13.	60105544	PLATE-ANGLE PLASTIC	2	
14.	60119011	DOWN HAUL WEIGHT-EZ HAULER	1	
15.	60122985	WEAR PAD-RND 0.44X 2.50X 1.00X .75	4	
16.	60126157	WASHER-.50 N FLAT CUT	4	
17.	60144951	BRKT- CORD REEL MNT	1	
18.	70030332	WEAR PAD-BLOCK 2.00 X 3.50 X 3.50	1	
19.	70034381	SUPPORT-GP STAUFF LN-4190-PA	4	
20.	70034382	CAP-GREASE PRO20 GC-RED	2	
21.	70146096	SPRING 0.62 X 2.50 X 14 GA.	2	4
22.	72053508	ZERK-NPT .12	2	4
23.	72060000	CAP SCR .25-20X .50 HH GR5 Z	2	4
24.	72060007	CAP SCR .25-20X 1.75 HH GR5 Z	3	4
25.	72060055	CAP SCR .38-16X 3.50 HH GR5 Z	2	4
26.	72060098	CAP SCR .50-13X 3.50 HH GR5 Z	1	4
27.	72060972	CAP SCR .38-16X .75 FLH BRS	4	4
28.	72062080	NUT .50-13 HEX NYLOCK	1	4
29.	72062103	NUT .38-16 HEX NYLOCK	4	4
30.	72062104	NUT .25-20 HEX NYLOCK	1	4
31.	72062179	NUT .38-16 HEX CENTER LOCKING	2	
32.	72063001	WASHER .25 FLAT	6	4
33.	72063003	WASHER .38 FLAT	10	4
34.	72063005	WASHER .50 FLAT	6	4
35.	72063034	MACHY BUSHING 1.00X10 GA NR	2	4
36.	72063049	WASHER .25 LOCK	2	4
37.	72063117	WASHER .56 FLAT ASTM F436	4	4
38.	72066125	RETAINING RING-EXT 1.00 HD	2	4
39.	72066145	HAIR PIN .19 ZINC	1	4
40.	72601777	BOLT-SHLDR .50X .63	4	
41.	72661312	CLAMP- .50 LOOP CUSHIONED	1	
42.	77041459	SWITCH-LIMIT	1	
43.	77044468	CONNECTOR- .50 STR RLF .12-.25	1	
REV. J CN1111-5				

41718360-1



Boom Assemblies & Cylinders (41718360)

Effective from 1-20-2020

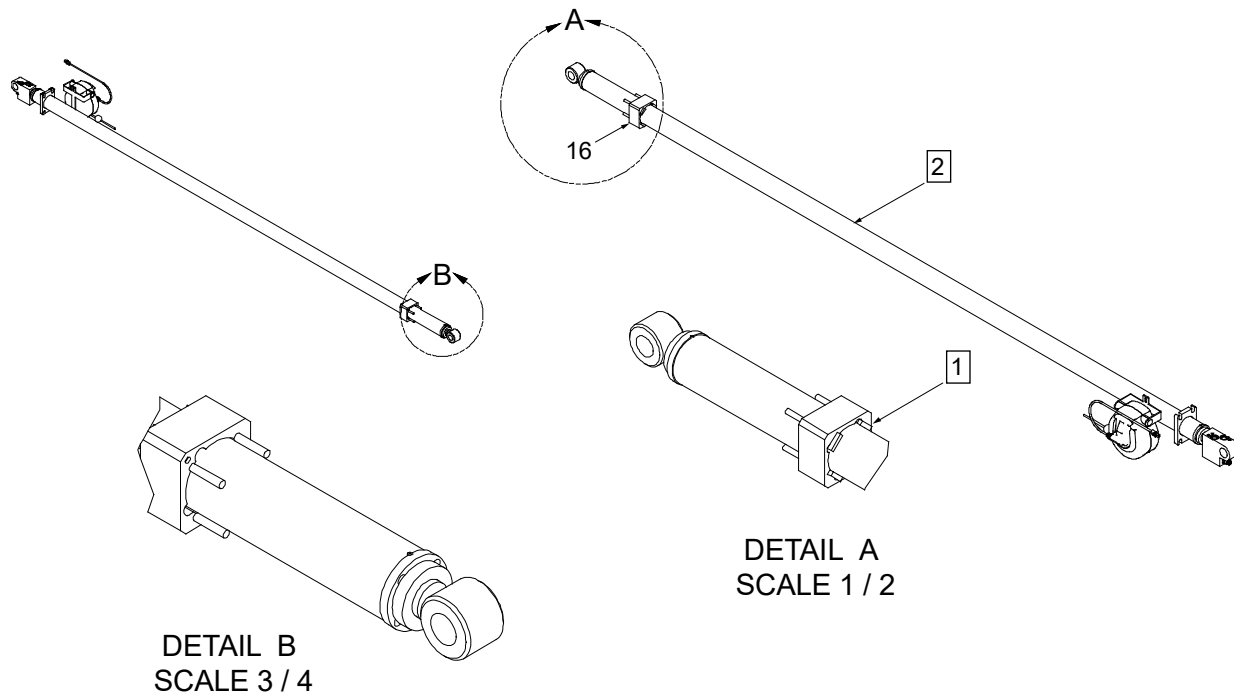


NOTES:

1. ADJUST TENSION TO ALLOW 1.00" OF TRAVEL.
2. DO NOT OVERTIGHTEN, MUST BE FREE TO PIVOT.
3. ADD NEVER SEEZ TO BOLT, SPACER, AND PIVOT POINTS.
4. USE NEVER SEEZ ON TYPE – A PIN.

41718360 Parts List Effective: 2-9-17			
Item	Part No.	Description	Qty.
1	51727064	CORD REEL ASM - 4.17' - W/PACKARD CONNECTOR	1
2	51717874	WLDNT-LOWER BOOM	1
3	51717875	MACHINING-2ND EXT BOOM 2820	1
4	51717895	CYL-2820 EXT 2-HYD 2.5/1.5 108.00 S	1
6	52717865	WLDMT-1ST STAGE EXT 2820	1
7	52725232	WLDMT-ATB TRIP MECHANISM 3820	1
8	60010470	PIN-TYPE A 1.00X 4.88 (4.31)	1
9	60030328	WEAR PAD-RND 0.31X 1.94X .74X .25	2
10	60030331	WEAR PAD-RC 0.50 X 5.00 X 5.88	1
11	60030333	WEAR PAD-RC 0.44 X 4.88 X 5.00 W/HOLES	1
12	60030330	WEAR PAD-RC 0.50 X 4.88 X 5.00	1
13	60119011	DOWN HAUL WEIGHT-EZ HAULER	1
14	60122985	WEAR PAD-RND 0.44X 2.50X 1.00X .75	4
15	60126157	WASHER-.50 N FLAT CUT (PART OF #5)	4
18	70034382	CAP- GREASE ZERK	2
19	70146096	SPRING 0.62 X 2.50 X 14 GA. (PART OF #5)	2
21	72053508	ZERK-NPT .12 (PART OF #5)	2
22	72060000	CAP SCR .25-20X .50 HH GR5 Z (PART OF #5)	2
23	72060007	CAP SCR .25-20X 1.75 HH GR5 Z (PART OF #5)	3
24	72060055	CAP SCR .38-16X 3.50 HH GR5 Z (PART OF #5)	2
25	72060098	CAP SCR .50-13X 3.50 HH GR5 Z (PART OF #5)	1
26	72060972	CAP SCR .38-16X .75 FLH BRS (PART OF #5)	4
27	72062080	NUT .50-13 HEX NYLOCK (PART OF #5)	1
28	72062103	NUT .38-16 HEX NYLOCK (PART OF # 5)	4
29	72062104	NUT .25-20 HEX NYLOCK (PART OF #5)	1
30	72063001	WASHER .25 FLAT (PART OF #5)	6
31	72063003	WASHER .38 FLAT (PART OF #5)	10
32	72063005	WASHER .50 FLAT (PART OF #5)	6
34	72063049	WASHER .25 LOCK (PART OF #5)	2
36	72066145	HAIR PIN .19 ZINC (PART OF #5)	1
37	72601777	BOLT-SHLDR .50X .63 (PART OF #5)	4
38	72661312	CLAMP- .50 LOOP CUSHIONED (PART OF #5)	1
39	77041459	SWITCH-LIMIT	1
40	77044468	CONNECTOR- .50 STR RLF .12-.25	1
41	60105544	PLATE-ANGLE PLASTIC	2
48	72063034	MACHY BUSHING 1.00X10 GA NR	2
49	72066125	RETAINING RING-EXT 1.00 HD	2
50	72063117	WASHER .56 FLAT ASTM F436	4

41718360 Parts List Effective: 2-9-17			
Item	Part No.	Description	Qty.
51	72062179	NUT .38-16 HEX CENTER LOCKING	2
52	70034381	SUPPORT-GP STAUFF LN-4190-PA	4
53	60144951	BRKT- CORD REEL MNT	1
REV. K CN1111-1			

41718360-2**NOTES:**

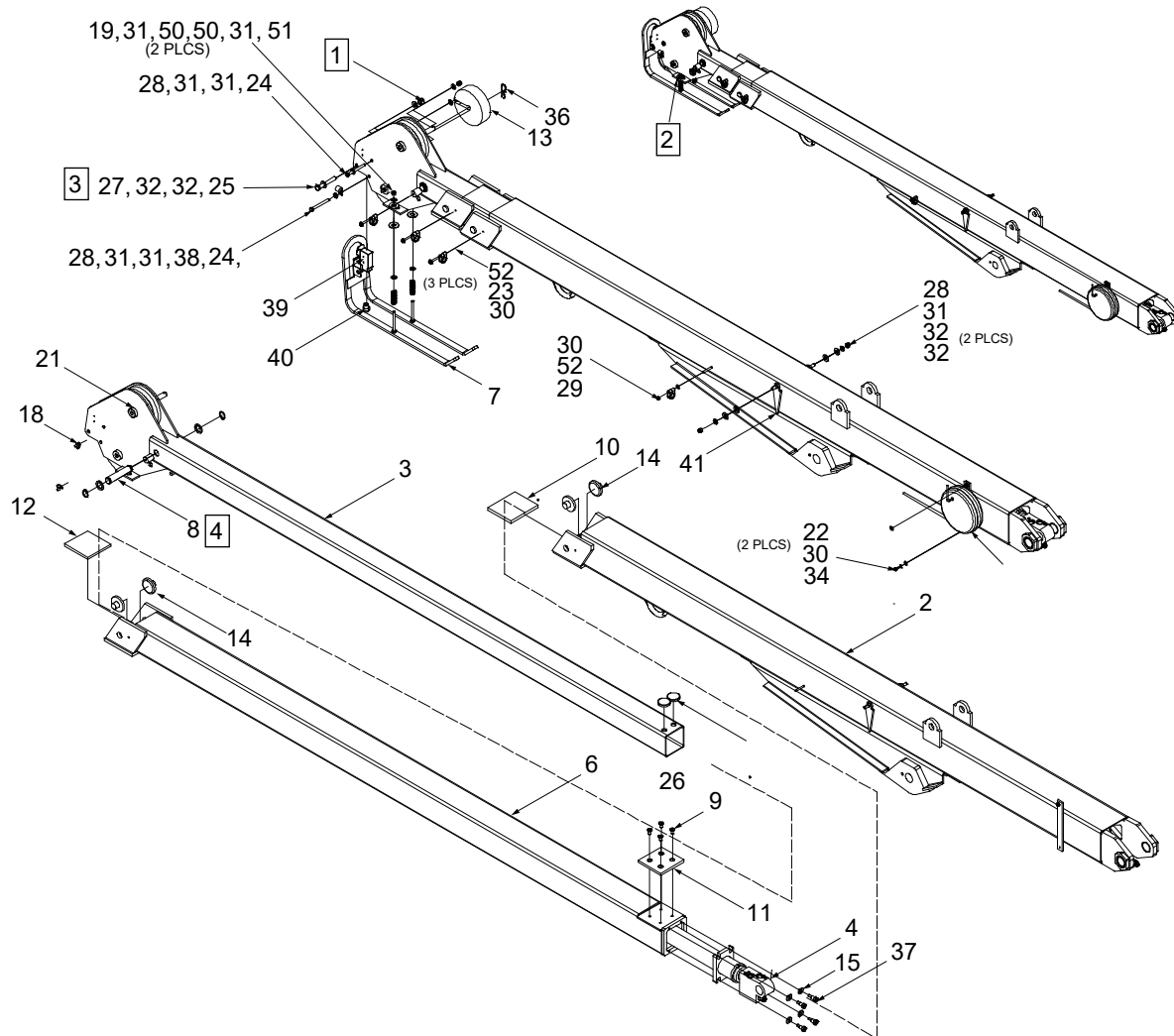
1. SIDE OF WEAR PAD WITHOUT LOCATING HOLES, FACES THIS SIDE AND SLIDES UP AGAINST WELDED BLOCKS.
2. CLY - 2820 EXT 2 - HYD 2.5 / 1.5 108.00 S.

41718360 Complete Parts List Effective: 2-9-17			
Item	Part No.	Description	Qty.
1	51727064	CORD REEL ASM - 4.17' - W/PACKARD CONNECTOR	1
2	51717874	WLDNT-LOWER BOOM	1
3	51717875	MACHINING-2ND EXT BOOM 2820	1
4	51717895	CYL-2820 EXT 2-HYD 2.5/1.5 108.00 S	1
5	51718383	KIT-HRDW 2820 BOOM ASY	1
6	52717865	WLDMT-1ST STAGE EXT 2820	1
7	52725232	WLDMT-ATB TRIP MECHANISM 3820	1
8	60010470	PIN-TYPE A 1.00X 4.88 (4.31)	1
9	60030328	WEAR PAD-RND 0.31X 1.94X .74X .25	2
10	60030331	WEAR PAD-RC 0.50 X 5.00 X 5.88	1
11	60030333	WEAR PAD-RC 0.44 X 4.88 X 5.00 W/HOLES	1

41718360 Complete Parts List Effective: 2-9-17			
Item	Part No.	Description	Qty.
12	60030330	WEAR PAD-RC 0.50 X 4.88 X 5.00	1
13	60119011	DOWN HAUL WEIGHT-EZ HAULER	1
14	60122985	WEAR PAD-RND 0.44X 2.50X 1.00X .75	4
15	60126157	WASHER-.50 N FLAT CUT (PART OF #5)	4
16	70030332	WEAR PAD-BLOCK 2.00 X 3.50 X 3.50	1
18	70034382	CAP- GREASE ZERK	2
19	70146096	SPRING 0.62 X 2.50 X 14 GA. (PART OF #5)	2
21	72053508	ZERK-NPT .12 (PART OF #5)	2
22	72060000	CAP SCR .25-20X .50 HH GR5 Z (PART OF #5)	2
23	72060007	CAP SCR .25-20X 1.75 HH GR5 Z (PART OF #5)	3
24	72060055	CAP SCR .38-16X 3.50 HH GR5 Z (PART OF #5)	2
25	72060098	CAP SCR .50-13X 3.50 HH GR5 Z (PART OF #5)	1
26	72060972	CAP SCR .38-16X .75 FLH BRS (PART OF #5)	4
27	72062080	NUT .50-13 HEX NYLOCK (PART OF #5)	1
28	72062103	NUT .38-16 HEX NYLOCK (PART OF #5)	4
29	72062104	NUT .25-20 HEX NYLOCK (PART OF #5)	1
30	72063001	WASHER .25 FLAT (PART OF #5)	6
31	72063003	WASHER .38 FLAT (PART OF #5)	10
32	72063005	WASHER .50 FLAT (PART OF #5)	6
34	72063049	WASHER .25 LOCK (PART OF #5)	2
36	72066145	HAIR PIN .19 ZINC (PART OF #5)	1
37	72601777	BOLT-SHLDR .50X .63 (PART OF #5)	4
38	72661312	CLAMP- .50 LOOP CUSHIONED (PART OF #5)	1
39	77041459	SWITCH-LIMIT	1
40	77044468	CONNECTOR- .50 STR RLF .12-.25	1
41	60105544	PLATE-ANGLE PLASTIC	2
48	72063034	MACHY BUSHING 1.00X10 GA NR	2
49	72066125	RETAINING RING-EXT 1.00 HD	2
50	72063117	WASHER .56 FLAT ASTM F436	4
51	72062179	NUT .38-16 HEX CENTER LOCKING	2
52	70034381	SUPPORT-GP STAUFF LN-4190-PA	4
53	60144951	BRKT- CORD REEL MNT	1
REV. H 20170313			

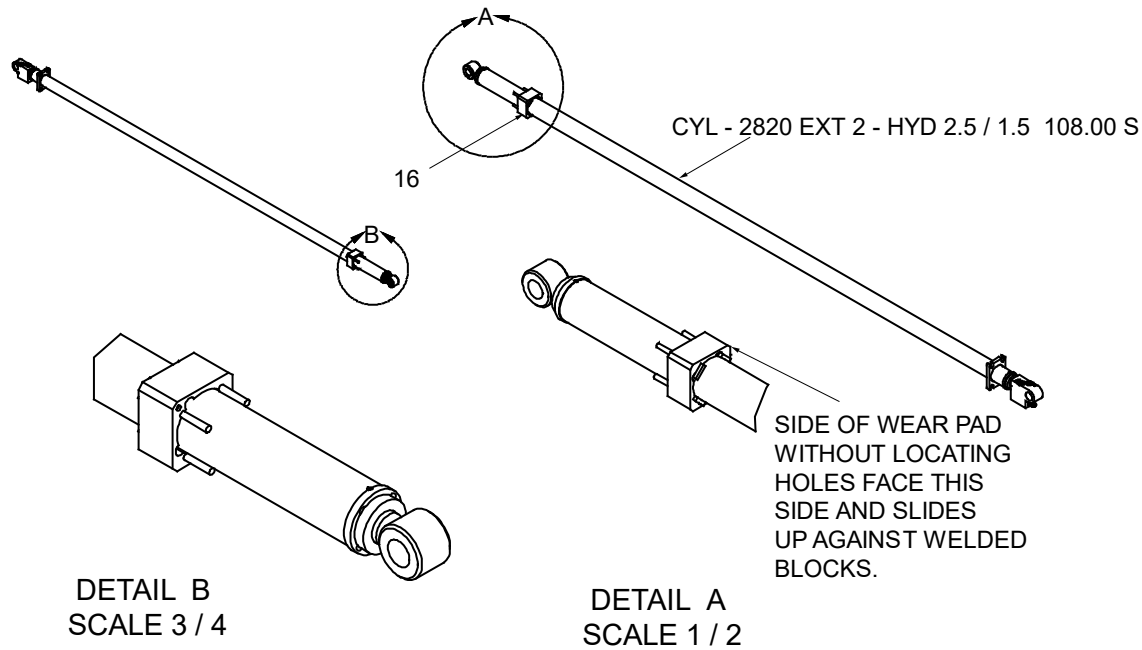
Boom Assemblies & Cylinders (41718360)

Effective 07-16-13 Thru 2-8-2017



NOTES:

1. DO NOT OVERTIGHTEN, MUST BE FREE TO PIVOT.
2. ADJUST TENSION TO ALLOW 1.00" IF TRAVEL.
3. ADD NEVER SEEZ TO BOLT, SPACER, AND PIVOT POINTS.
4. USE NEVER SEEZ ON TYPE-A PIN.

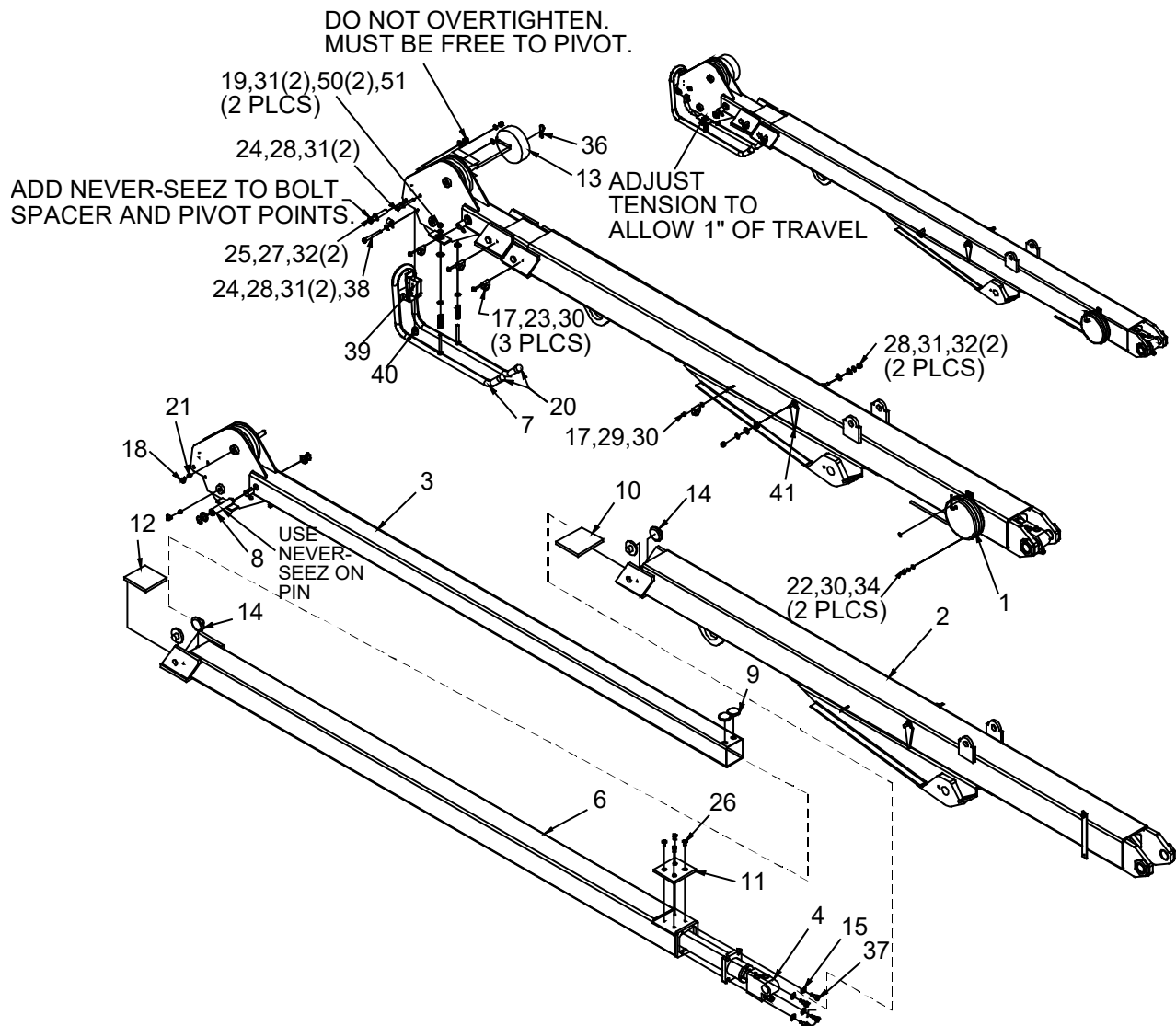
41718360-2**41718360 COMPLETE PARTS LIST EFFECTIVE: 7-16-13 Thru 2-9-2017**

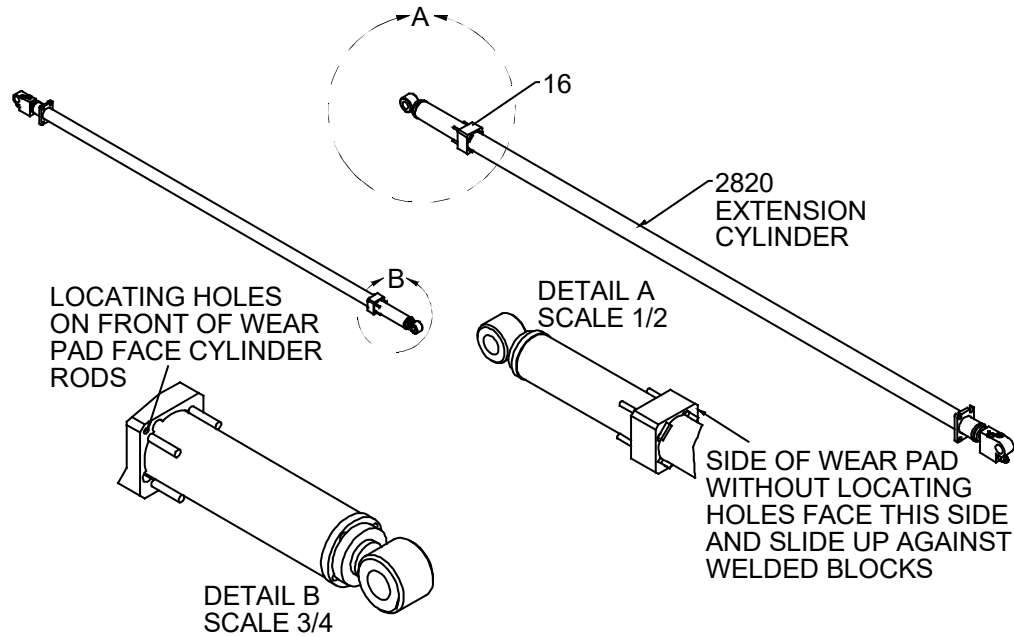
ITEM	PART NO.	DESCRIPTION	QTY
1	51713168	CORD REEL ASM-W/PACKARD CONN	1
2	51717874	WLDNT-LOWER BOOM	1
3	51717875	MACHINING-2ND EXT BOOM 2820	1
4	51717895	CYL-2820 EXT 2-HYD 2.5/1.5 108.00 S	1
5	51718383	KIT-HRDW 2820 BOOM ASY	1
6	52717865	WLDMT-1ST STAGE EXT 2820	1
7	52725232	WLDMT-ATB TRIP MECHANISM 3820	1
8	60010470	PIN-TYPE A 1.00X 4.88 (4.31)	1
9	60030328	WEAR PAD-RND 0.31X 1.94X .74X .25	2
10	60030331	WEAR PAD-RC 0.50 X 5.00 X 5.88	1
11	60030333	WEAR PAD-RC 0.44 X 4.88 X 5.00 W/HOLES	1
12	60030330	WEAR PAD-RC 0.50 X 4.88 X 5.00	1
13	60119011	DOWN HAUL WEIGHT-EZ HAULER	1
14	60122985	WEAR PAD-RND 0.44X 2.50X 1.00X .75	4
15	60126157	WASHER-.50 N FLAT CUT (PART OF #5)	4
16	70030332	WEAR PAD-BLOCK 2.00 X 3.50 X 3.50	1
18	70034382	CAP- GREASE ZERK	2
19	70146096	SPRING 0.62 X 2.50 X 14 GA. (PART OF #5)	2
21	72053508	ZERK-NPT .12 (PART OF #5)	2

41718360 COMPLETE PARTS LIST EFFECTIVE: 7-16-13 Thru 2-9-2017			
ITEM	PART NO.	DESCRIPTION	QTY
22	72060000	CAP SCR .25-20X .50 HH GR5 Z (PART OF #5)	2
23	72060007	CAP SCR .25-20X 1.75 HH GR5 Z (PART OF #5)	3
24	72060055	CAP SCR .38-16X 3.50 HH GR5 Z (PART OF #5)	2
25	72060098	CAP SCR .50-13X 3.50 HH GR5 Z (PART OF #5)	1
26	72060972	CAP SCR .38-16X .75 FLH BRS (PART OF #5)	4
27	72062080	NUT .50-13 HEX NYLOCK (PART OF #5)	1
28	72062103	NUT .38-16 HEX NYLOCK (PART OF # 5)	4
29	72062104	NUT .25-20 HEX NYLOCK (PART OF #5)	1
30	72063001	WASHER .25 FLAT (PART OF #5)	6
31	72063003	WASHER .38 FLAT (PART OF #5)	10
32	72063005	WASHER .50 FLAT (PART OF #5)	6
34	72063049	WASHER .25 LOCK (PART OF #5)	2
36	72066145	HAIR PIN .19 ZINC (PART OF #5)	1
37	72601777	BOLT-SHLDR .50X .63 (PART OF #5)	4
38	72661312	CLAMP- .50 LOOP CUSHIONED (PART OF #5)	1
39	77041459	SWITCH-LIMIT	1
40	77044468	CONNECTOR- .50 STR RLF .12-.25	1
41	60105544	PLATE-ANGLE PLASTIC	2
48	72063034	MACHY BUSHING 1.00X10 GA NR	2
49	72066125	RETAINING RING-EXT 1.00 HD	2
50	72063117	WASHER .56 FLAT ASTM F436	4
51	72062179	NUT .38-16 HEX CENTER LOCKING	2
52	70034381	SUPPORT-GP STAUFF LN-4190-PA	4
REV. F 20160610			

Boom Assemblies & Cylinders

Boom Assembly (41718360)

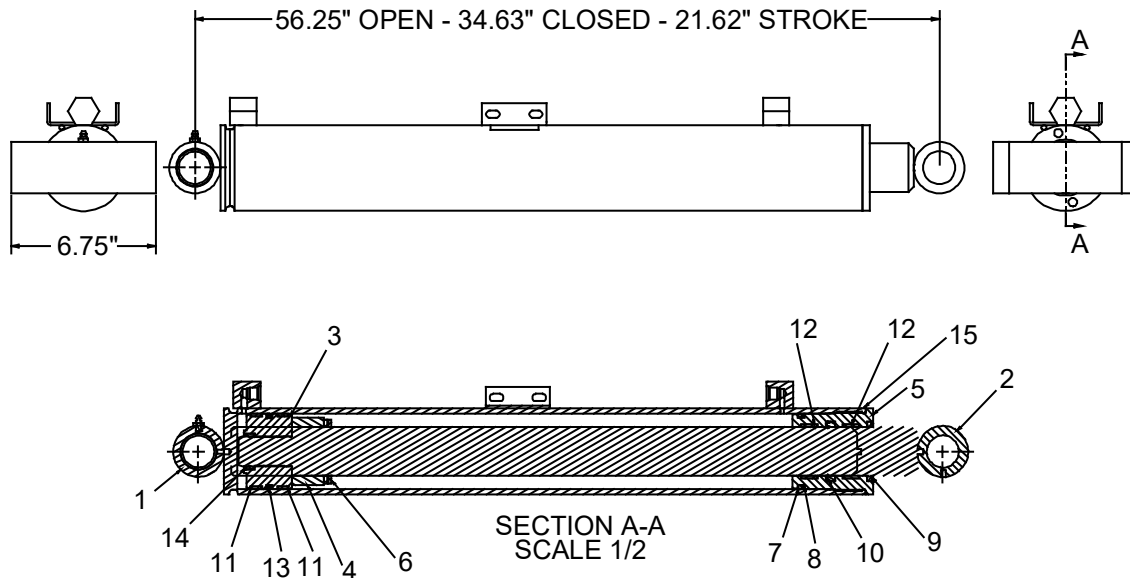


Boom Assembly (41718360) (on page 45)

41718360 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51713168	CORD REEL ASM	1
2.	51717874	WELDMENT-LOWER BOOM	1
3.	51717875	MACHINING-2ND EXT BOOM	1
4.	51717895	CYLINDER	1
5.	51718383	HARDWARE KIT-2820 BOOM ASY (INCL 19-38)	1
6.	52717865	WELDMENT-1ST STAGE EXT	1
7.	52718005	TUBE WELDMENT- ANTI TWO BLOCK	1
8.	60010470	PIN	1
9.	60030328	WEAR PAD-RND 1.94 DIA 0.740 SHNKG0.25	2
10.	60030331	WEAR PAD-RC 0.50 X 5.00 X 5.88	1
11.	60030333	WEAR PAD-RC 0.44 X 4.88 X 5.00	1
12.	60030330	WEAR PAD-RC 0.50 X 4.88 X 5.00	1
13.	60119011	DOWN HAUL WEIGHT	1
14.	60122985	WEAR PAD-RND	4
15.	60126157	WASHER-.50 N FLAT CUT	4
16.	70030332	WEAR PAD-BLOCK 2.00 X 3.50 X 3.50	1
17.	70034381	SUPPORT-GP STAUFF LN-4190-PA	4
18.	70034382	CAP- GREASE ZERK	2
19.	70146096	SPRING 0.62 X 2.50 X 14 GA.	2
20.	70396121	CAP-PLSTC	2
21.	72053508	ZERK-NPT .12	2
22.	72060000	CAP SCR .25-20X .50 HH GR5 Z	2
23.	72060007	CAP SCR .25-20X 1.75 HH GR5 Z	3
24.	72060055	CAP SCR .38-16X 3.50 HH GR5 Z	2
25.	72060098	CAP SCR .50-13X 3.50 HH GR5 Z	1
26.	72060972	CAP SCR .38-16X .75 FLH BRS	4

41718360 PARTS LIST			
27.	72062080	NUT .50-13 HEX NYLOCK	1
28.	72062103	NUT .38-16 HEX NYLOCK (WAS 6)	4
29.	72062104	NUT .25-20 HEX NYLOCK	1
30.	72063001	WASHER .25 FLAT	6
31.	72063003	WASHER .38 FLAT	10
32.	72063005	WASHER .50 FLAT (WAS 10)	6
34.	72063049	WASHER .25 LOCK	2
36.	72066145	HAIR PIN .19 ZINC	1
37.	72601777	BOLT-SHLDR .50X .63	4
38.	72661312	CLAMP- .50 LOOP CUSHIONED	1
39.	77041459	SWITCH-LIMIT	1
40.	77044468	CONNECTOR	1
41.	60105544	PLATE-ANGLE PLASTIC	2
48.	72063034	MACHY BUSHING 1.00 X 10 GA NR	2
49.	72066125	RETAINING RING-EXT 1.00 HD	2
50.	72063117	WASHER .56 FLAT ASMT F436	4
51.	72062179	NUT .38-16 HEX CENTER LOCKING	2
REV E 20111010			

Lower Boom Cylinder (51717905)



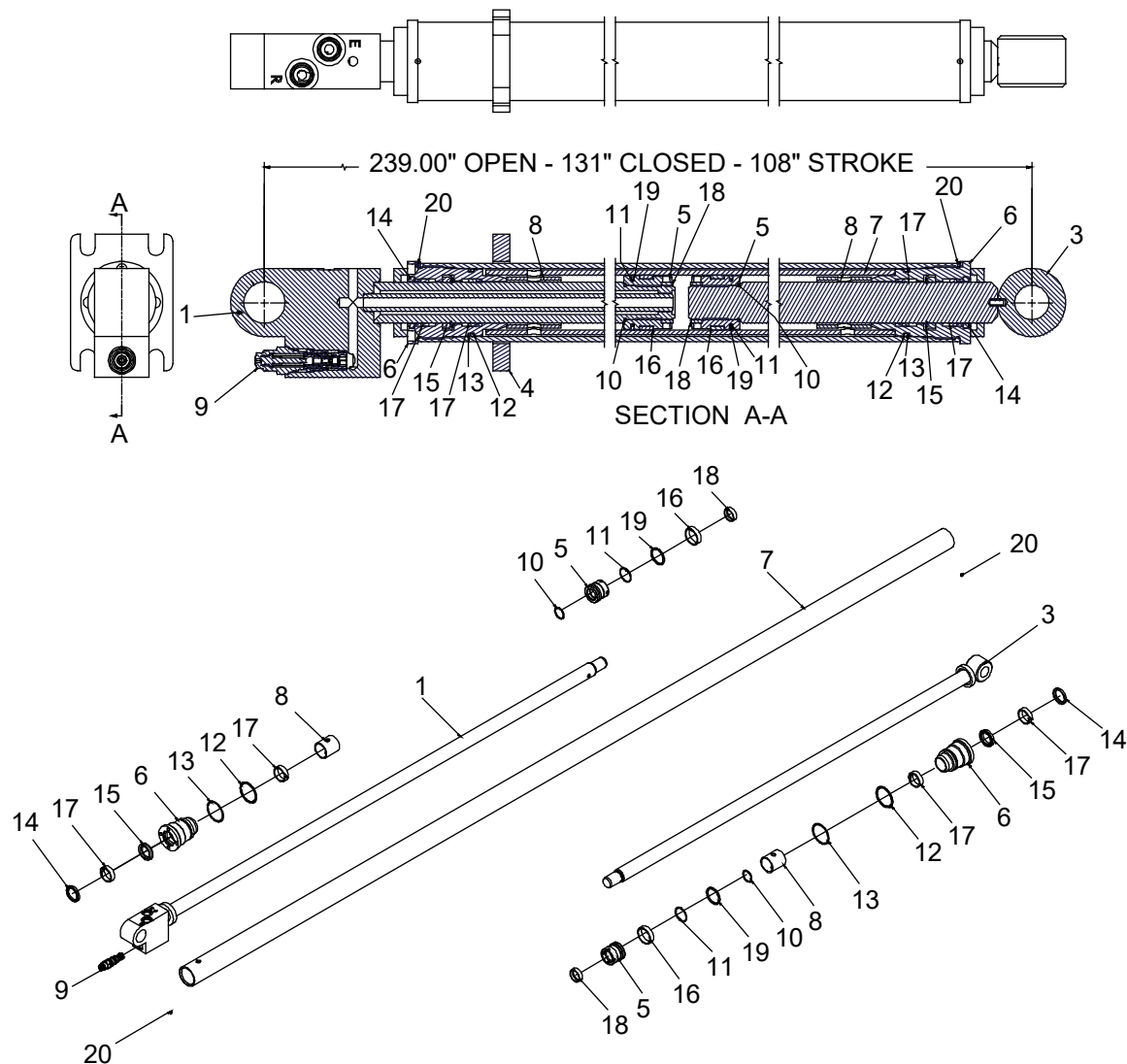
NOTES:

- 1 REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.
- 2 APPLY REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO THREADS ON CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.
- 3 APPLY "LUBRIPLATE" NO. 630-2 MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT, TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.
- 4 FOR LOCKING PIN (ITEM #15), DRILL #15 HOLE 0.188" DEEP. PRESS IN PIN # 60125699.
- 5 ITEM #6, STOP TUBE, REPLACES 6A025022 WAFER LOCK. USE STOP TUBE INSTEAD OF WAFER LOCK WHEN RESEALING CYLINDER.
- 6 TORQUE PISTON TO 710-740 FT-LB; HEAD TO 350 FT-LB; CAP SCREW TO 16 FT-LB.

51717905 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	52717906	CASE ASSEMBLY	1
2.	4G245980	ROD ASSEMBLY	1
3.	60124587	PISTON	1
4.	6C150022	STOP TUBE	1
5.	6HD35022	HEAD	1
6.	60138275	STOP TUBE (WAS 6A025022)	1
7.	7Q072338	O RING	1
8.	7Q10P338	BACKUP RING	1
9.	7R14P022	ROD WIPER	1
10.	7R746022	U-CUP	1
11.	7T2N4035	WEAR RING-PISTON	2
12.	7T2NX625	WEAR RING-ROD	2
13.	7T66P350	PISTON SEAL-DYNAMIC	1
14.	7T61N143	LOCK RING	1

51717905 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
15.	60125699	PIN-LOCKING TUBE	1
16.	51744127	SEAL KIT (INCL 6-15)	1
REV C 20120404			

Extension Cylinder (51717895)



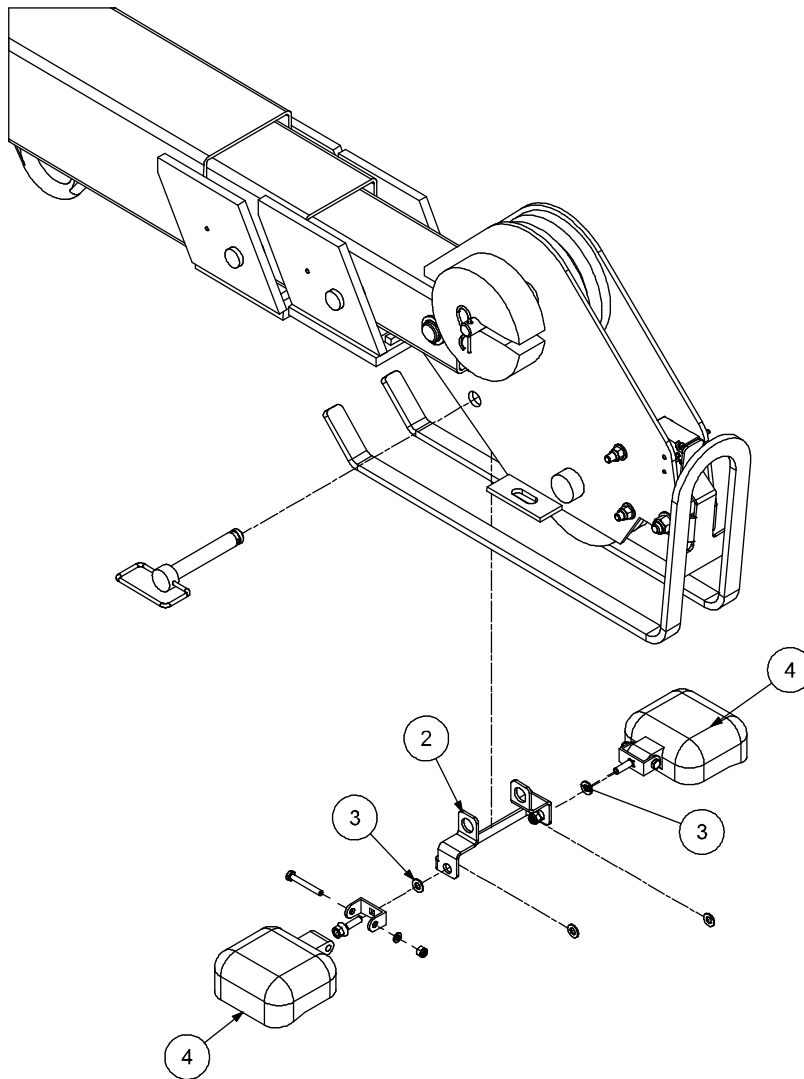
NOTES:

- 1 REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.
- 2 APPLY REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO THREADS ON CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.

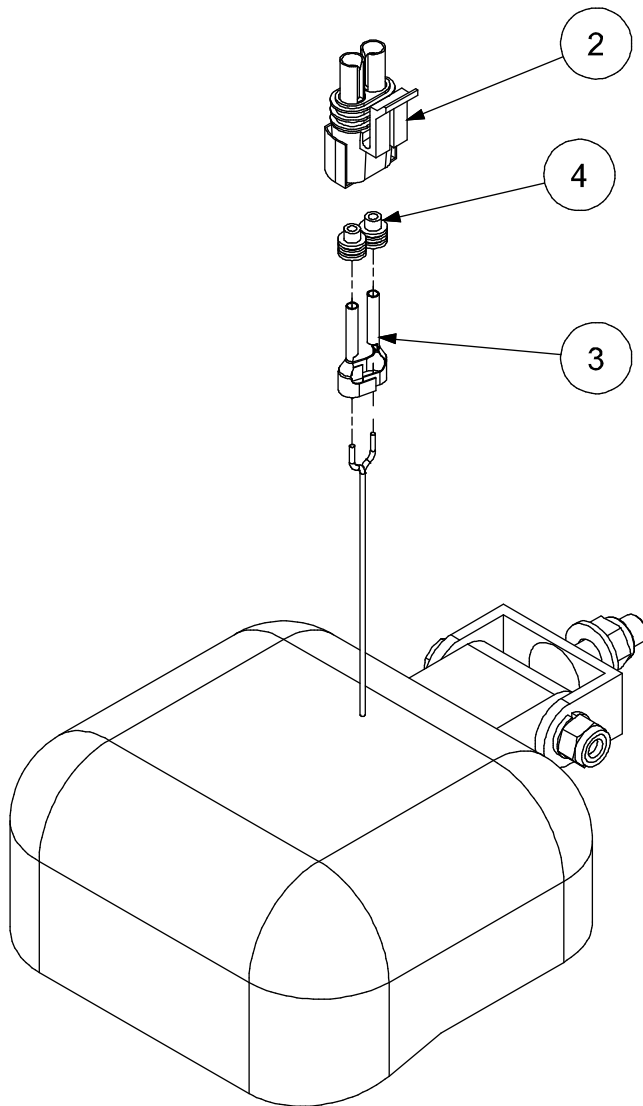
- 3 APPLY "LUBRIPLATE" NO. 630-2 MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT, TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.
- 4 FOR LOCKING PIN (ITEM #20), DRILL #15 HOLE 0.188" DEEP. PRESS IN PIN # 60125699.
- 5 TORQUE PISTON TO 500-530 FT-LB; HEAD TO 250 FT-LB; CARTRIDGE TO 30-35 FT-LB.

51717895 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	52717893	ROD	1
2.	51744128	SEAL KIT	1
3.	52717892	ROD ASSEMBLY	1
4.	52717894	CASE WELDMENT	1
5.	60124842	PISTON	2
6.	60124843	HEAD	2
7.	60124847	CASE-INNER	1
8.	60124854	STROKE STOP	2
9.	73054999	C'BAL VALVE	1
10.	7Q072026	O-RING (PART OF #2)	2
11.	7Q072129	O-RING (PART OF #2)	2
12.	7Q072228	O-RING (PART OF #2)	2
13.	7Q10P228	BACK-UP RING (PART OF #2)	2
14.	7R14P015	ROD WIPER (PART OF #2)	2
15.	7R546015	U-CUP (PART OF #2)	2
16.	7T2N4020	WEAR RING-PISTON (PART OF #2)	2
17.	7T2NX417	WEAR RING (PART OF #2)	4
18.	7T61N125	LOCK RING (PART OF #2)	2
19.	7T66P020	PISTON SEAL (PART OF #2)	2
20.	60125699	PIN-LOCKING TUBE (PART OF #2)	2
REV F 20120404			

LED Boom Tip Light (99906233)

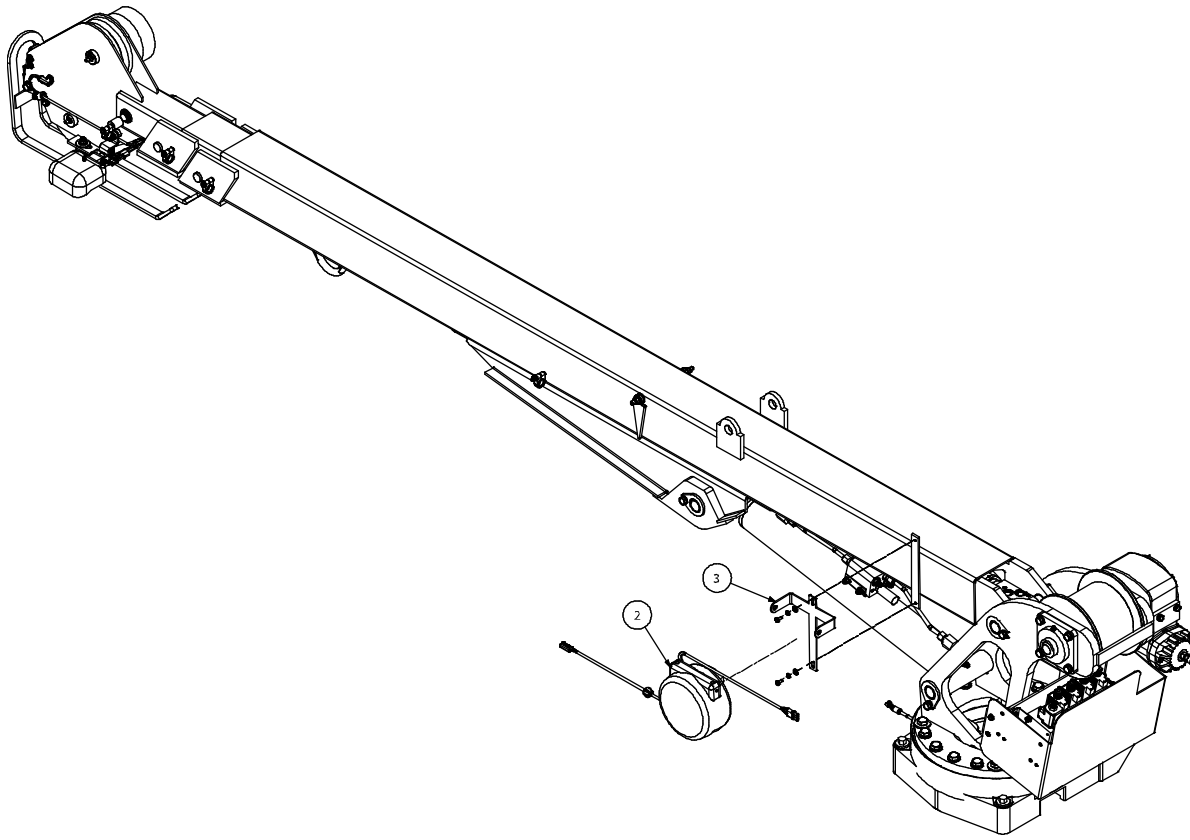


Item No.	Part No.	Description	Kit No.	Qty.
1.	51727278	ELECT KIT-BOOM FLOOD LIGHTS 2820		1
2.	60145330	BRACKET-LIGHT 2820	1	1
3.	72063002	WASHER .31 FLAT	1	2
4.	77040581	FLOODLIGHT-LED 12-36VDC	1	2
REV. D 20200701				

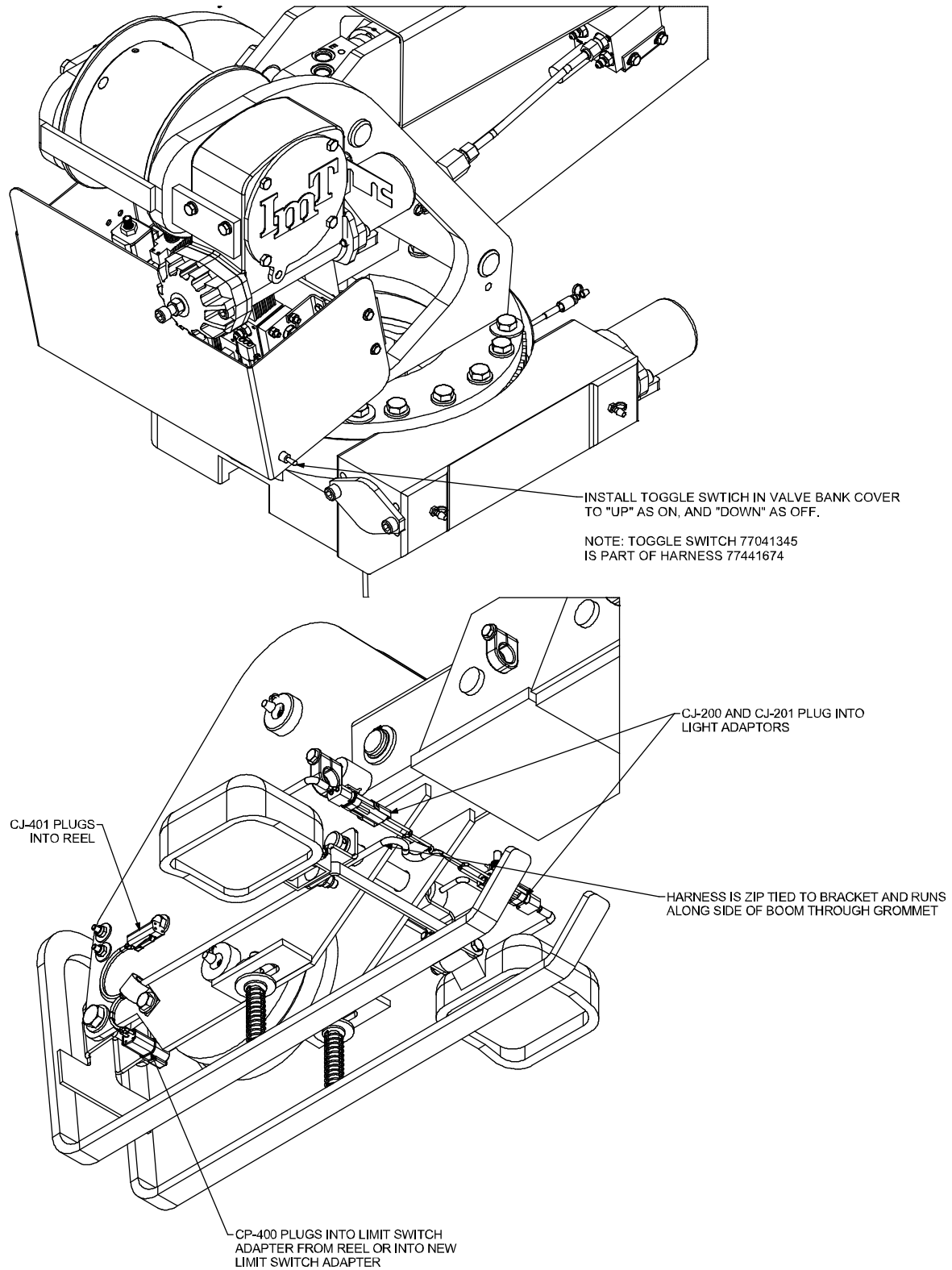


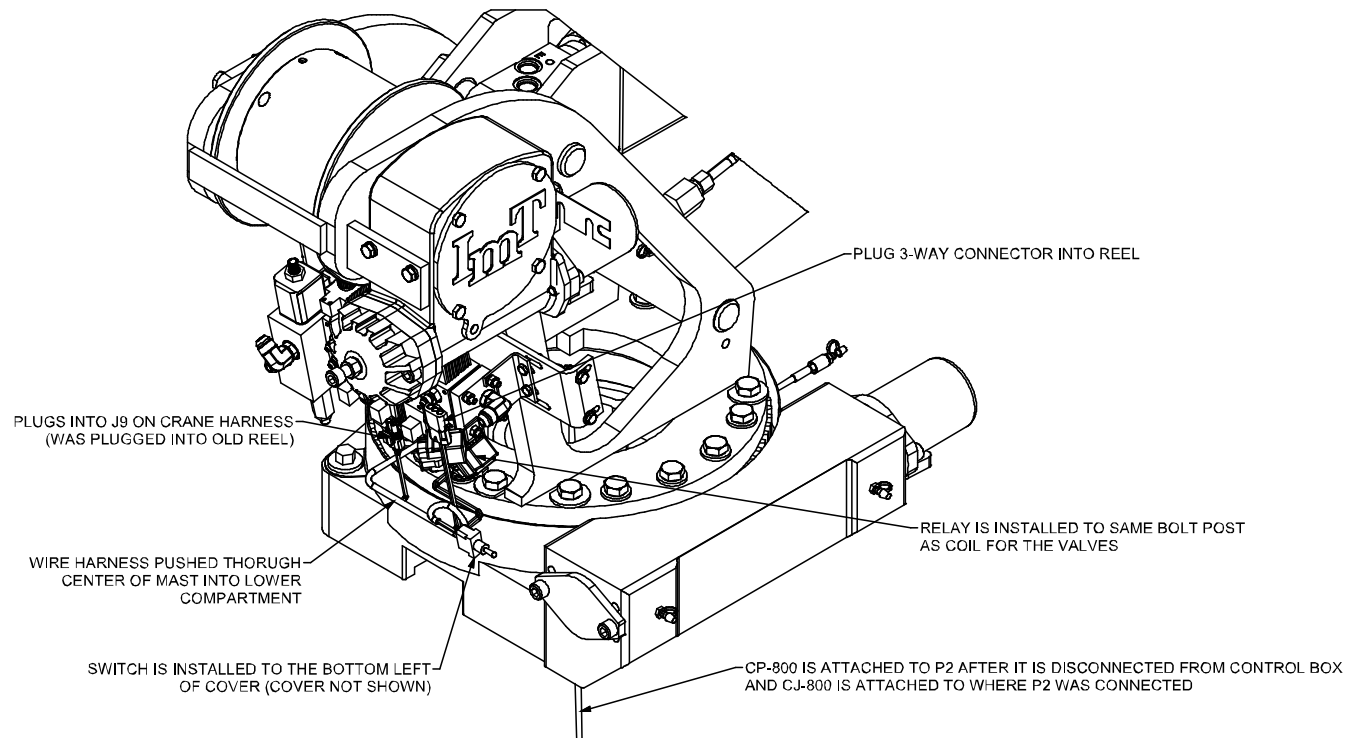
Item No.	Part No.	Description	Kit No.	Qty.
1.	51727278	ELECT KIT-BOOM FLOOD LIGHTS 2820		1
2.	77044574	CONN-PKRD WEATHERPACK 2 CAV FEMALE/TOWER	1	1
3.	77045888	TERM-PKRD WEATHERPACK 14-16GA FEMALE	1	2
4.	77044927	CABLE SEAL-PKRD WP/MP 14 GA GREY	1	2

REV. D 20200701

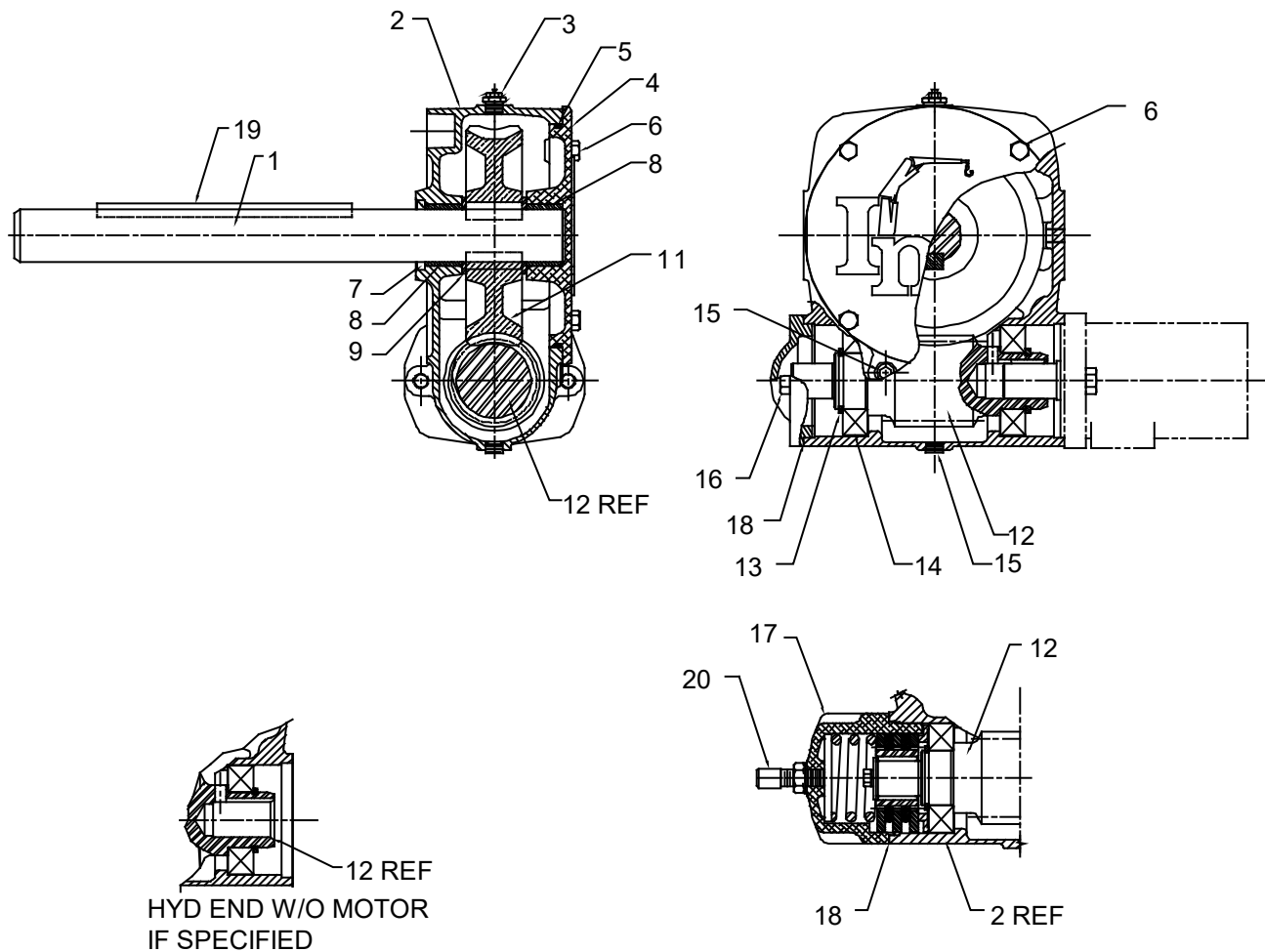


Item No.	Part No.	Description	Kit No.	Qty.
1.	51727278	ELECT KIT-BOOM FLOOD LIGHTS 2820		1
2.	51727416	CORD REEL ASM 4.75' W/PACKARD CONN 3-WIR	1	1
3.	60145335	BRKT- CORD REEL MNT	1	2
REV. D 20200701				





Winch, Worm, 2820 & 5020 (70570501)



WINCH SPECIFICATIONS

GEAR RATIO	31:1
OUTPUT TORQUE	19,800 IN-LB
MAXIMUM INPUT TORQUE	1,161 IN-LB
MAXIMUM INPUT SPEED	400 RPM
INSTALLED WEIGHT	41 LB
LUBRICATION	EP140 (1 U.S. PINT)

70570501 PARTS LIST

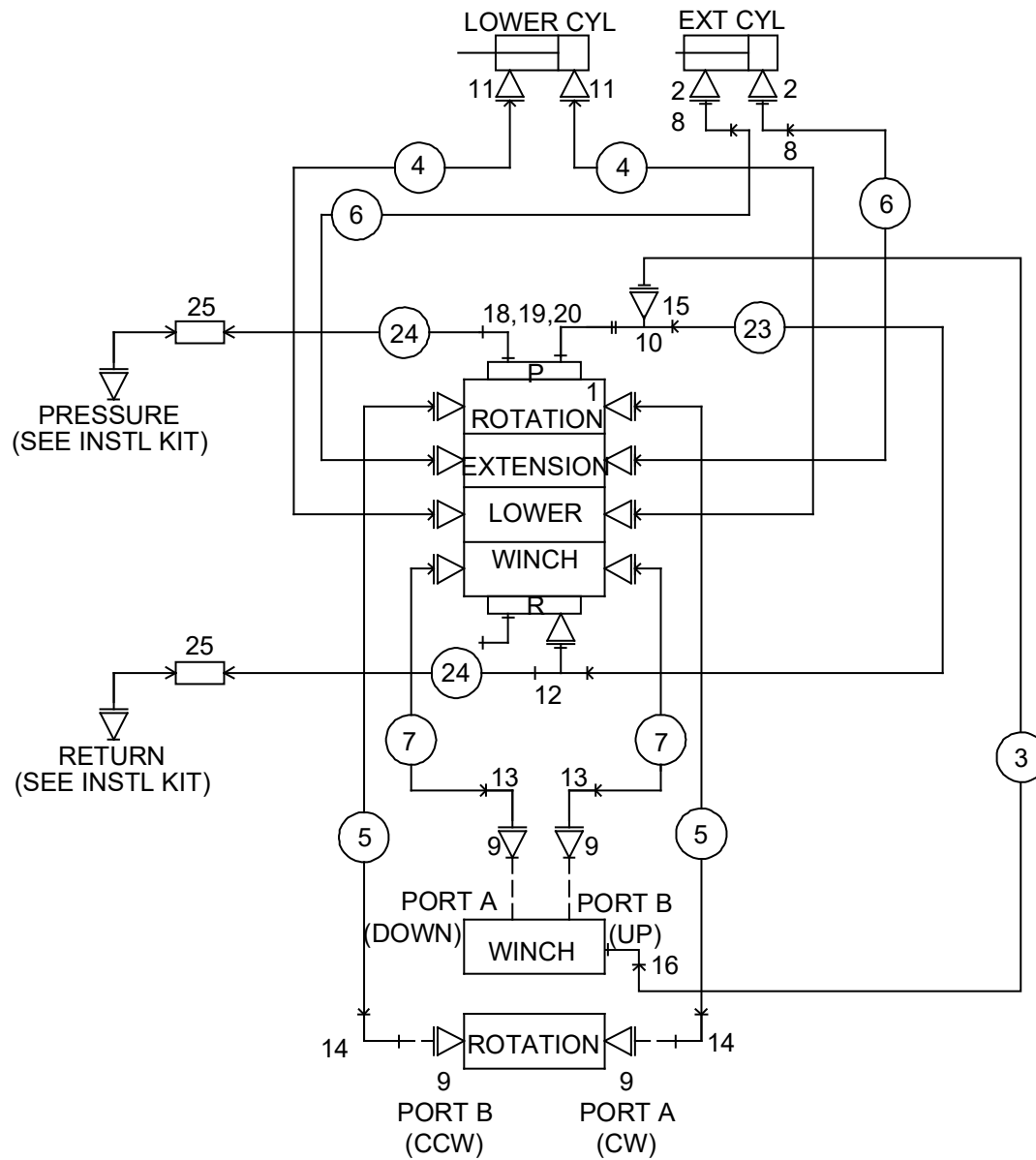
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70143673	SHAFT	1
2.	70143672	HOUSING	1
3.	70048142	BREATHER	1
4.	70145277	COVER, WINCH	1
5.	76393174	O-RING	1
6.	72601568	CAP SCR	4
7.	76393173	SEAL	1
8.	70143670	BUSHING	2
9.	70143669	WASHER	2

70570501 PARTS LIST			
10.	70143668	KEY	2
11.	70056542	GEAR	1
12.	70056541	WORM	1
13.	72661348	RETAINING RING	2
14.	70055202	BEARING	2
15.	70143865	PIPE PLUG	2
16.	72601567	CAP SCR	2
17.	70733294	BRAKE KIT	1
18.	76393171	GASKET	2
19.	70143658	KEY	1
20.	70034440	PLASTIC CAP	1

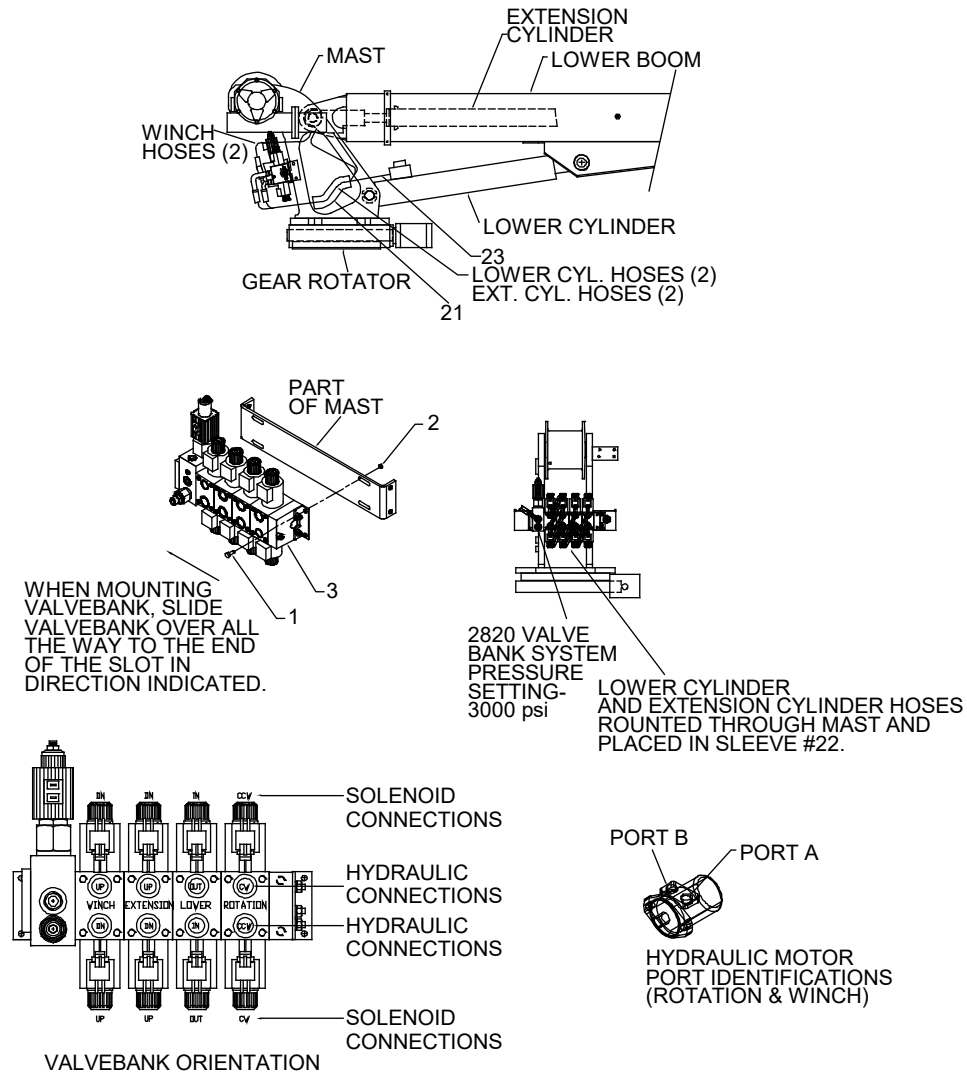
REV. B 20031104

Hydraulics

Hydraulic Kit - Tethered (91718323)



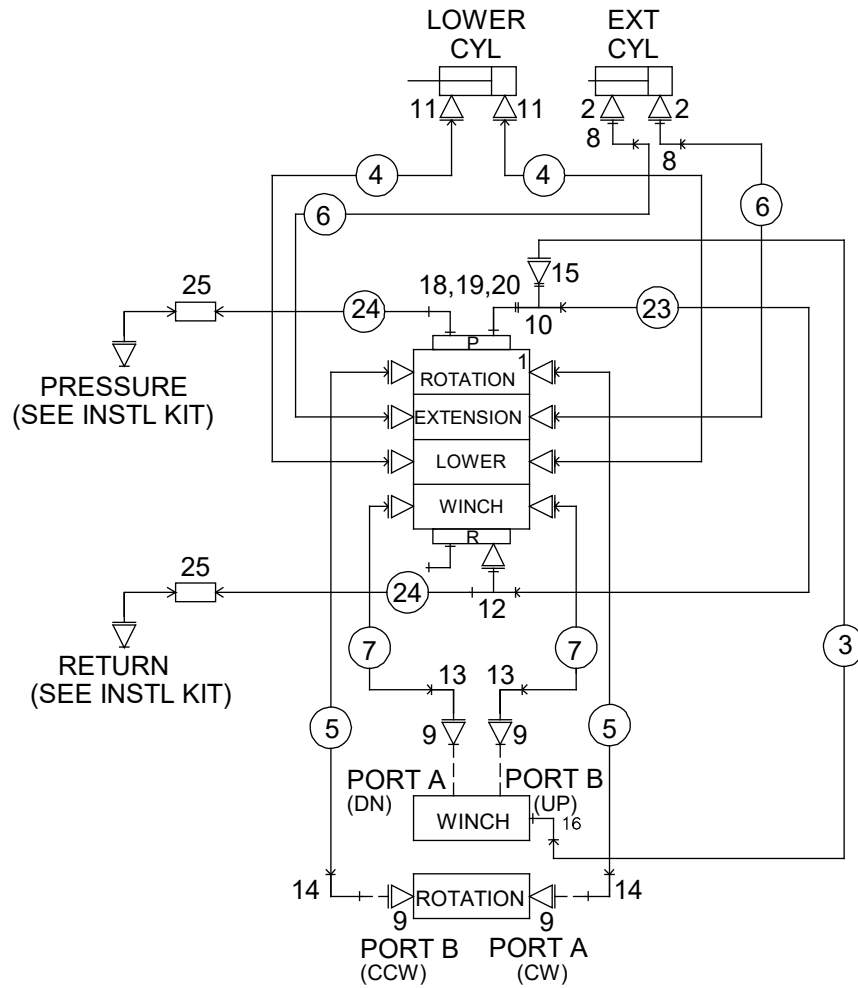
Hydraulic Kit (91718323 & 91718330)

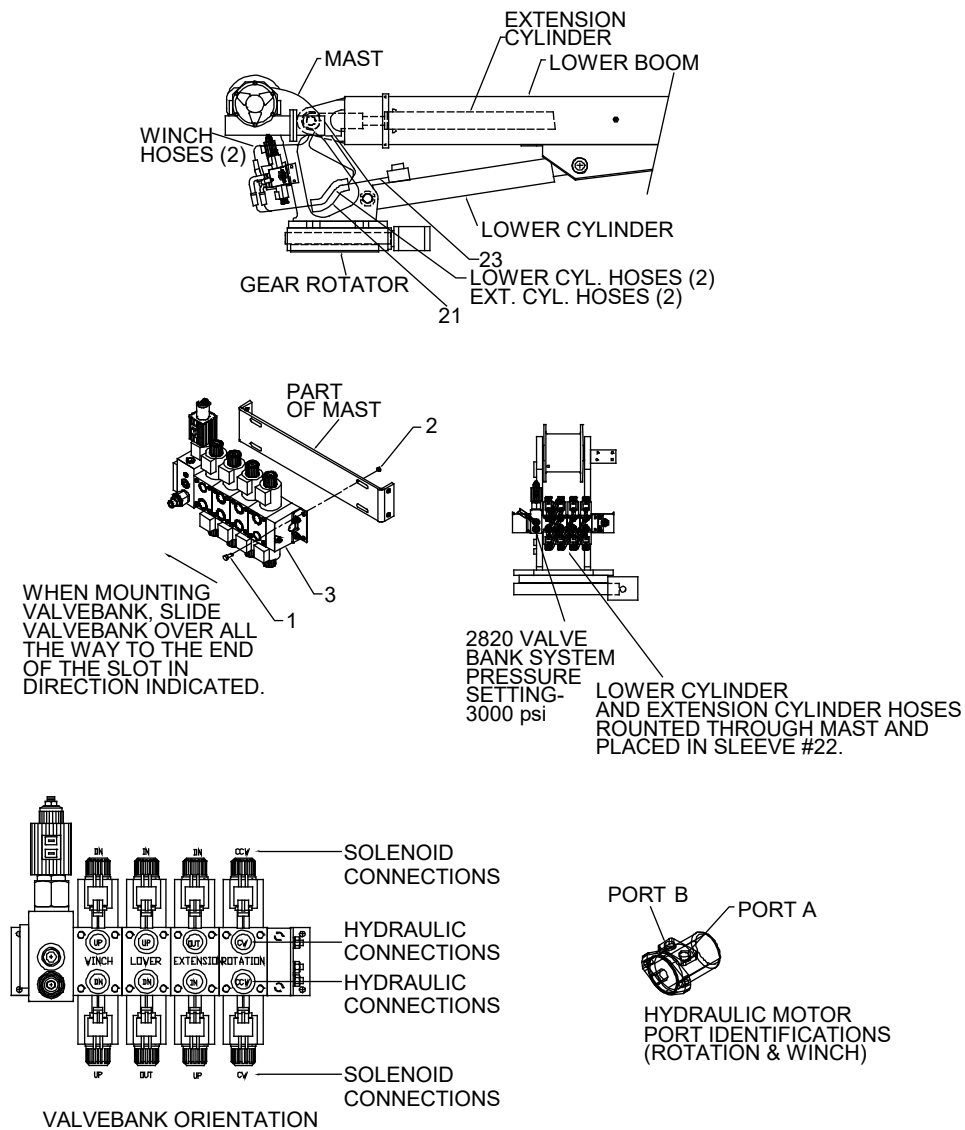


91718323 (TETHERED) PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70733399	VALVE BANK (TETHERED - USE IN 91718323)	1
2.	72532792	ADPTR #8MSTR #4MJIC	2
3.	51395929	HOSE-FJ .25 X 11.75 (4-4) 100R17	1REF
4.	51395538	HOSE-FJ 1/4X36 OAL (4-4)	2REF
5.	51394946	HOSE-FJ 1/4X45 OAL (4-4)	2REF
6.	51395611	HOSE-FJ 1/4X28 OAL (4-4)	2REF
7.	51394948	HOSE-FJ 1/4X21 OAL (4-4)	2REF
8.	72532690	ELBOW #4MJIC #4FJIC SW	2
9.	72532722	ADPTR #10MSTR #6FSTR	4
10.	72532657	TEE-SWVL NUT RUN JIC 8	1
11.	72532353	ADTPR #6MSTR #4MJIC	2
12.	72532671	TEE #8JIC SWVL NUT BRANCH	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	4

91718323 (TETHERED) PARTS LIST			
15.	72532665	ADPTR #4MJIC #8FJIC	1
16.	72053758	ELBOW-M STR/90/M JIC 4 4	1
18.	72060002	CAP SCR 1/4-20 X 3/4 HHGR5	4
19.	72063001	WASHER 1/4 FLAT	4
20.	72062104	NUT 1/4-20 NYLOC	4
21.	60350073	SLEEVE	1
22.	51718324	HOSE KIT (INCL. 4-7,23-25)	1
23.	51394951	HOSE-FJ 1/2 X 10.5 OAL (8-8)	1REF
24.	51394503	HOSE-FF 1/2X28 OAL (8-8)	2REF
25.	72533648	SWIVEL-#8 MJIC #8MJIC 90°	2REF
REV E 20111010			

Hydraulic Kit - Radio (91718330)

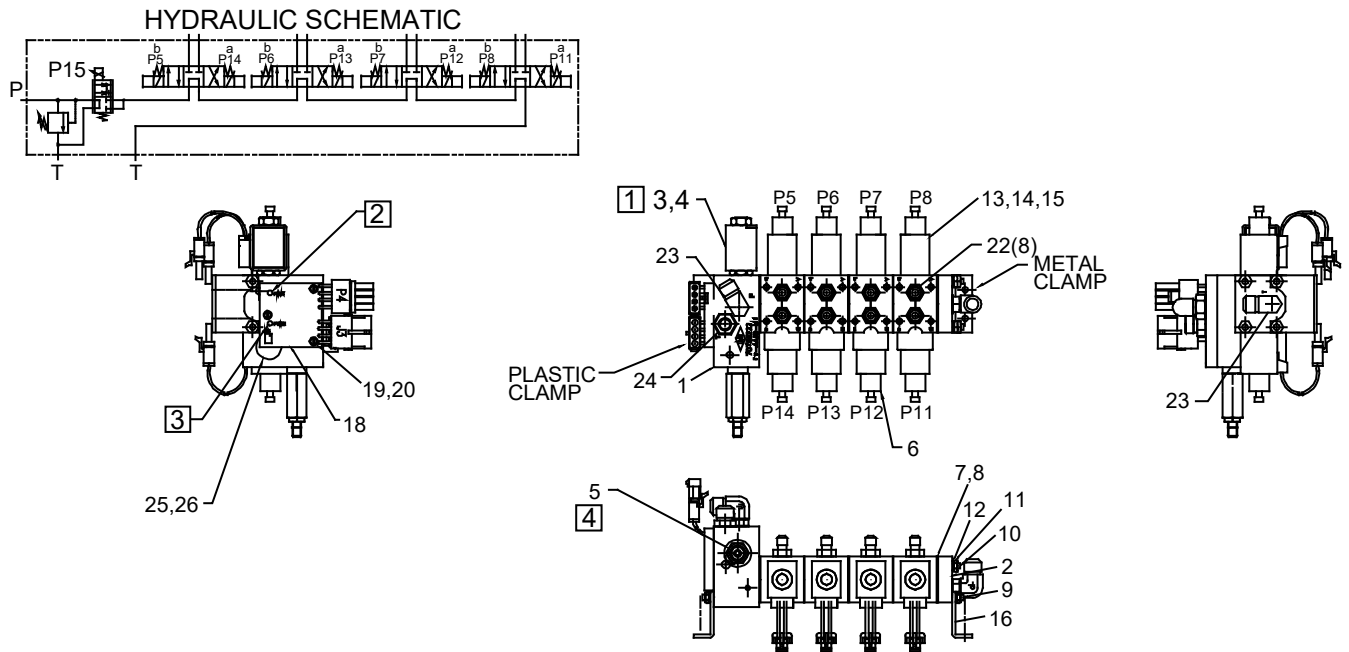


**91718330 (RADIO) PARTS LIST**

ITEM	PART #	DESCRIPTION	QUANTITY
1.	73733931	VALVE BANK (RADIO - USE IN 91718330)	1
2.	72532792	ADPTR #8MSTR #4MJIC	2
3.	51395929	HOSE-FJ .25 X 11.75 (4-4) 100R17	1REF
4.	51395538	HOSE-FJ 1/4X36 OAL (4-4)	2REF
5.	51394946	HOSE-FJ 1/4X45 OAL (4-4)	2REF
6.	51395611	HOSE-FJ 1/4X28 OAL (4-4)	2REF
7.	51394948	HOSE-FJ 1/4X21 OAL (4-4)	2REF
8.	72532690	ELBOW #4MJIC #4FJIC SW	2
9.	72532722	ADPTR #10MSTR #6FSTR	4
10.	72532657	TEE-SWVL NUT RUN JIC 8	1
11.	72532353	ADTPR #6MSTR #4MJIC	2
12.	72532671	TEE #8JIC SWVL NUT BRANCH	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	2
14.	72532985	ELBOW #6MSTR #4MJIC 45°	2
15.	72532665	ADPTR #4MJIC #8FJIC	1
16.	72533376	ADAPTER MFACE/MSTR 4 4	1

91718330 (RADIO) PARTS LIST			
18.	72060002	CAP SCR 1/4-20 X 3/4 HHGR5	4
19.	72063001	WASHER 1/4 FLAT	4
20.	72062104	NUT 1/4-20 NYLOC	4
21.	60350073	SLEEVE	1
22.	51718324	HOSE KIT (INCL. 4-7,23-25)	1
23.	51394951	HOSE-FJ 1/2 X 10.5 OAL (8-8)	1REF
24.	51394503	HOSE-FF 1/2X28 OAL (8-8)	2REF
25.	72533648	SWIVEL-#8 MJIC #8MJIC 90°	2REF
REV G 20111010			

Valvebank, Tethered Remote (70733399)



NOTES (SEE REFERENCE NUMBER IN BOX):

- 1 PROPORTIONAL PRIORITY FLOW REGULATOR. 12V DC.
- 2 PERCENT OF SIGNAL INDICATOR COLOR CHANGING LED:
 - a) RED = OFF, ZERO % TRIGGER
 - b) GREEN = FULL ON, 100% TRIGGER.
 - c) SHORTED COIL OR OTHER WILL SHOW AS RED WITH 100% TRIGGER.
- 3 POWER INDICATOR LED.
 - a) OFF - BLANK
 - b) ON - RED LIGHT
- 4 RELIEF VALVE. 2300 PSI, 5 GPM.
- 5 CONNECT P109 AND J9 TOGETHER.
- 6 ADD DUST CAP TO J16.

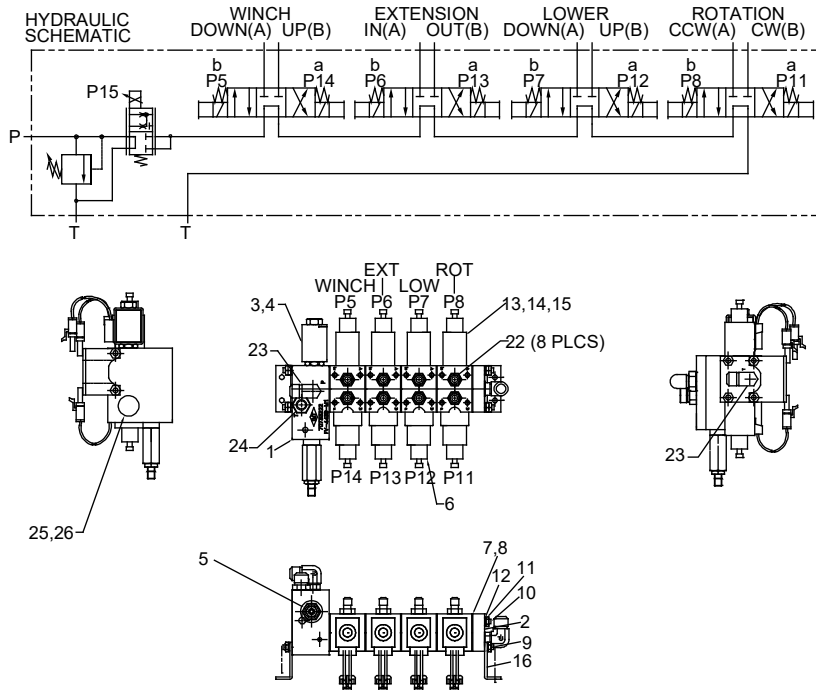
70733399 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	70145629	INLET BODY	1
2.	70145628	OUTLET BODY	1
3.	70145627	FLOW REG	1
4.	70145626	COIL	1
5.	70145625	RELIEF VALVE	1
6.	70145624	SOLENOID VALVE	4
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10

70733399 PARTS LIST			
9.	70145622	THREADED ROD GR8	2
10.	70145621	THREADED ROD GR8	2
11.	72062000	NUT 1/4-20	6
12.	72063047	WASHER 1/4 LOCK	6
13.	77044574	CONNECTOR TOWER	9
14.	77044577	CONNECTOR TERMINAL	18
15.	77044578	CABLE SEAL	18
16.	70145738	MOUNTING FOOT	2
17.	70145620	NAME TAG	1
18.	77044826	VALVE DRIVER	1
19.	72601704	MACH SCR (USE LOCTITE 242)	3
20.	72601705	WASHER #6 FLAT	3
21.	70733394	WIRING HARNESS (SEE DWG)	1
22.	72532353	ADAPTER #6MSTR #4MJIC	8
23.	72053762	ELBOW #6MSTR #8MJIC 90°	2
24.	72532357	ADAPTER #6MSTR #8MJIC	1
25.	70145884	PLUG	1
26.	70145885	ORIFICE PLUG	1

REV. C 20031027

Valvebank, Radio Remote (73733931)

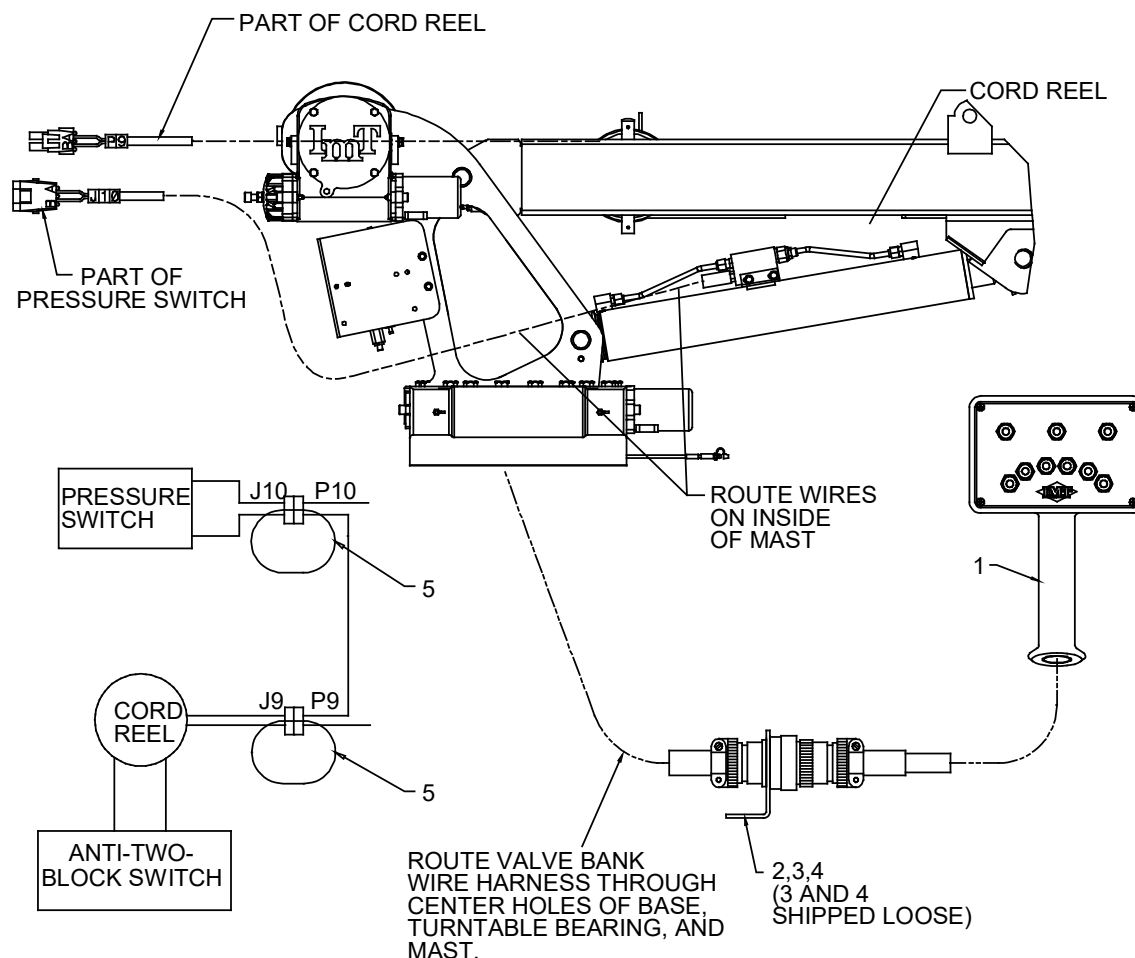


73733931 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	70145629	INLET BODY	1
2.	70145628	OUTLET BODY	1
3.	70145627	PROPORTIONAL FLOW REGULATOR	1
4.	70145626	COIL 12VDC	1
5.	70145625	RELIEF VALVE SET AT 2300PSI	1
6.	70145624	SOLENOID VALVE	4
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10
9.	70145622	ROD 1/4-20X11.5 GR8	2
10.	70145621	ROD 1/4-20X9.5 GR8	2
11.	72062000	NUT 1/4-20	6
12.	72063047	WASHER 1/4 LOCK	6
13.	77044574	CONNECTOR TOWER	9
14.	77044577	CONNECTOR TERMINAL	18
15.	77044578	CABLE SEAL	18
16.	70145738	MOUNTING FOOT	2
17.	70145620	NAME TAG	1
21.	77441101	HARNESS (NOT SHOWN)	1
22.	72532353	ADAPTER #6MSTR #4MJIC	8
23.	72053762	ELBOW #6MSTR #8MJIC 90°	2
24.	72532357	ADAPTER #6MSTR #8MJIC	1
25.	70145884	PLUG HEX SOCHD	1
26.	70145885	ORIFICE PLUG	1

Controls

Control Kit - Tethered Remote (91714443)

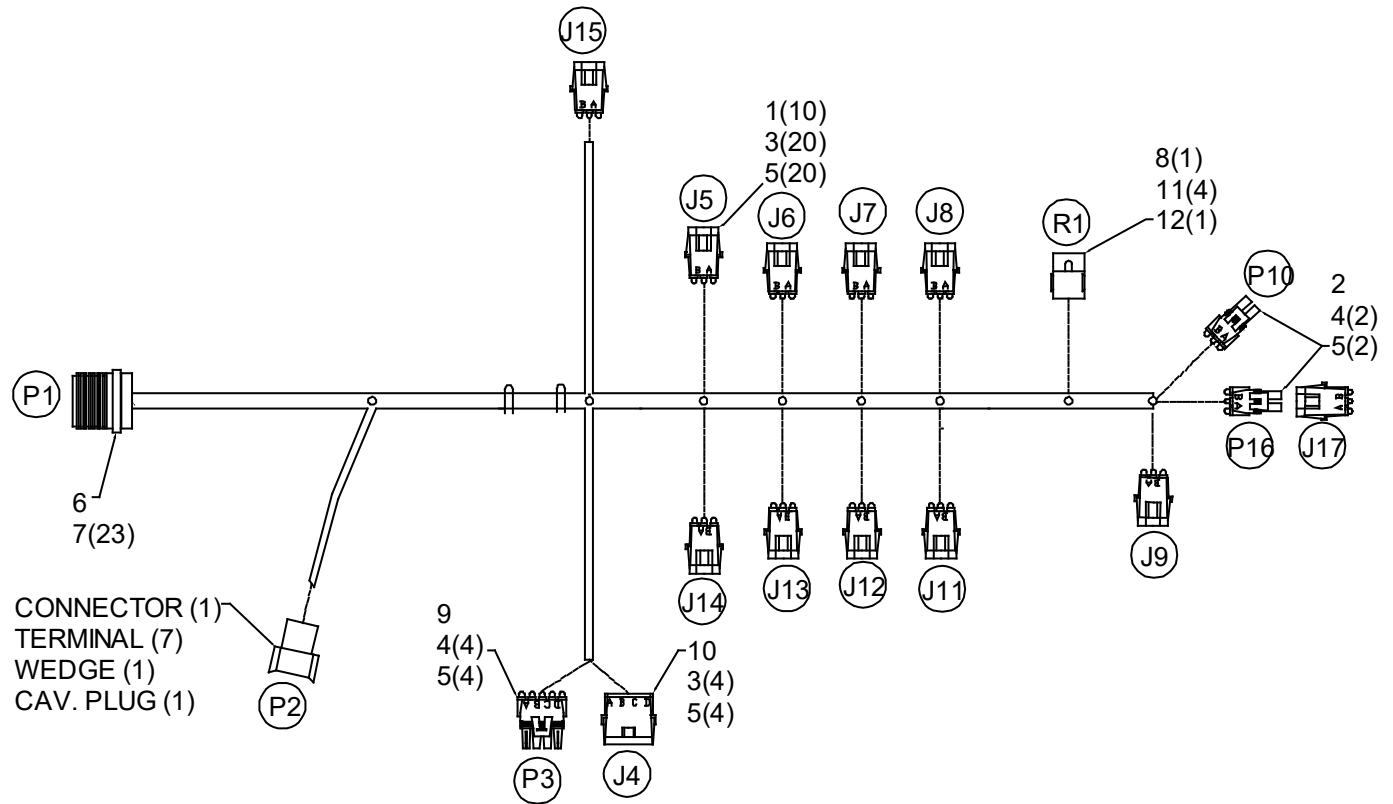


NOTES (SEE REFERENCE NUMBER IN BOX):

- 1 SHIP PARTS 14, 15 LOOSE IN BAG.
- 2 SEE DRAWING 99903263 FOR WIRE CONNECTIONS AND ELECTRICAL SCHEMATIC.
- 3 BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

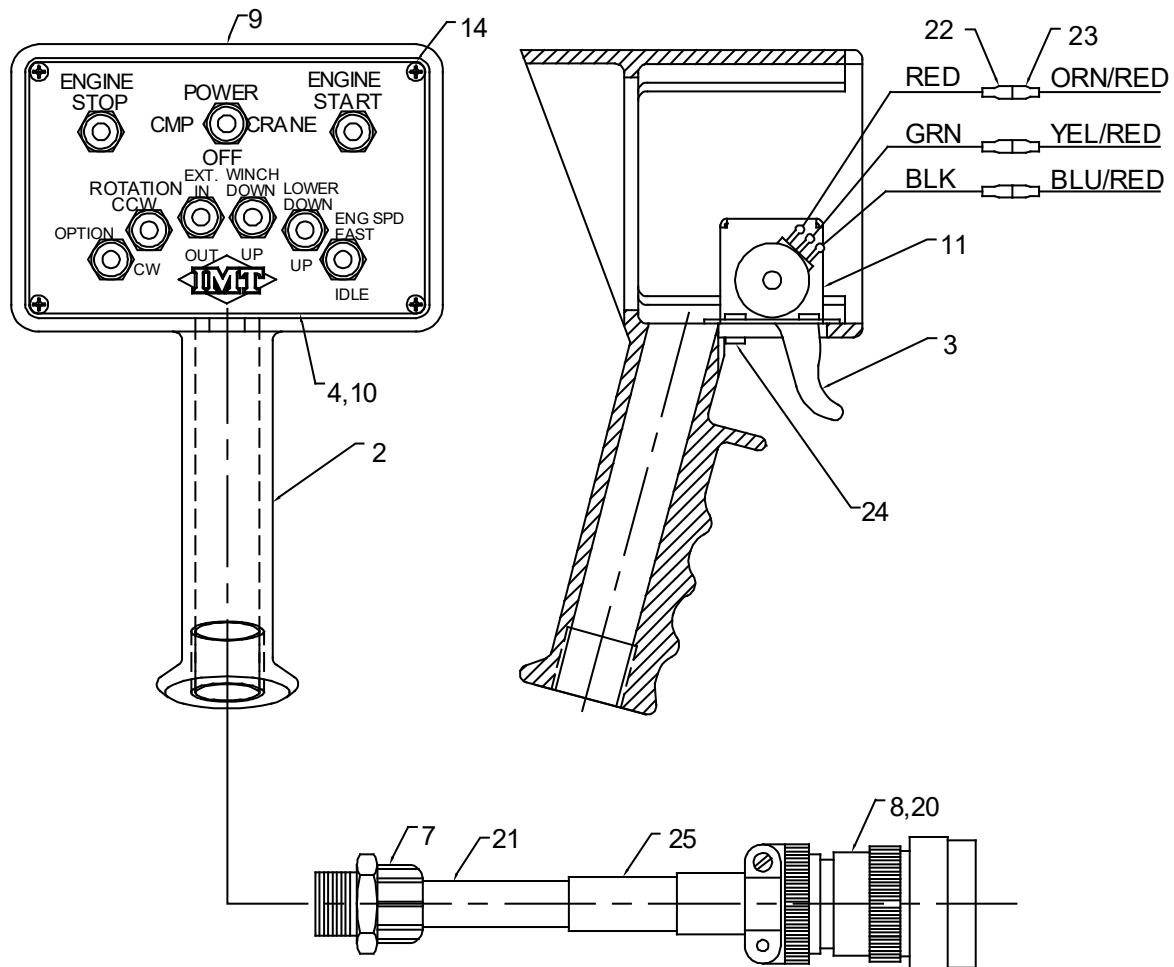
91714443 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51713182	HANDLE ASM	1
2.	60119299	BRACKET	1
3.	77044645	NUT-DEUTSCH 24 SHELL	1
4.	77044646	WASHER-LOCK DEUTSCH	1
5.	70034439	LOCK WIRE LEAD SEAL 8"	2
6.	99903263	SCHEM - ELEC PROP RC TELE	1
7.	99900339	MANUAL-PROP RMT CONTROL	1

Cable Assembly, Tethered Remote (70733394)

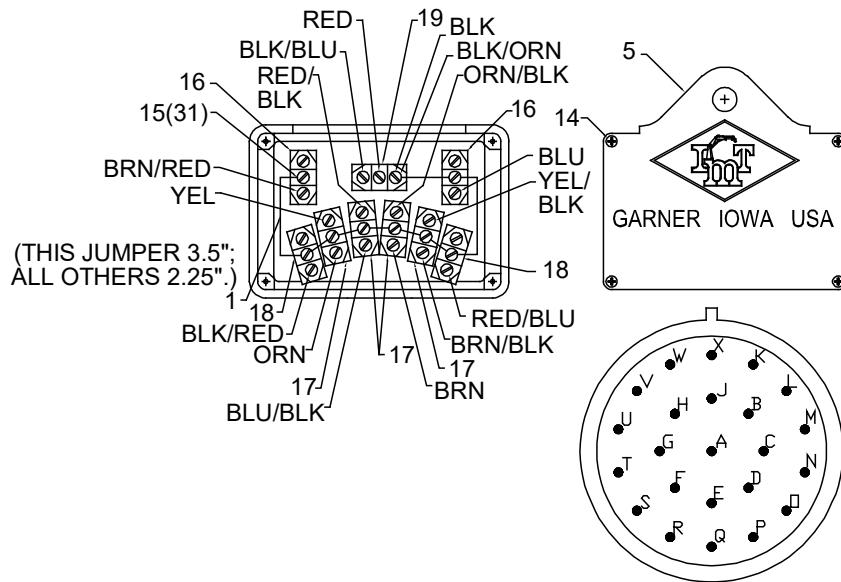


70733394 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	77044573	SHROUD CONN 2-CONTACT	10REF
2.	77044574	TOWER CONN	2REF
3.	77044576	TERMINAL-M	24REF
4.	77044577	TERMINAL-F	8REF
5.	77044578	CABLE SEAL	32REF
6.	77044620	CONN RCPT	1REF
7.	77044580	SOCKET	23REF
8.		SOCKET, RELAY	1REF
9.	77044623	TOWER CONN 4-CONTACT	1REF
10.	77044624	SHROUD CONN 4-CONTACT	1REF
11.		TERMINAL	4REF
12.		RELAY	1REF

Handle Assembly, Tethered Remote (51713182)



Handle Assembly, Tethered Remote Kit (51713182)

**Handle Assembly, Tethered Remote Kit (51713182)**

WIRE FUNCTIONS		
SOLID/STRIPE		FUNCTION
A	YEL/BLK	ROT CW
B	ORN/BLK	EXT OUT
C	BLU/BLK	WINCH DN
D	RED/BLK	WINCH UP
E	ORN/RED	-
F	BRN	EXT IN
G	BRN/RED	ENG START
H	BLU/RED	-
J	BLK/RED	ENG SPEED
K	BRN/BLK	ROT CCW
L	RED	POWER
M	BLU	ENG STOP
N	ORN	LOWER DN
O	BLK/ORN	SOL POWER
P	YEL	LOWER UP
Q	BRN/BLU	-
R	YEL/RED	-
S	BLK	CRANE
T	BLK/BLU	CPRSR
U	RED/BLU	OPTION
V	BLU/ORN	-
W	ORN/BLU	-
X	YEL/BLU	-
-	RED/ORN	-

51713182 PARTS LIST

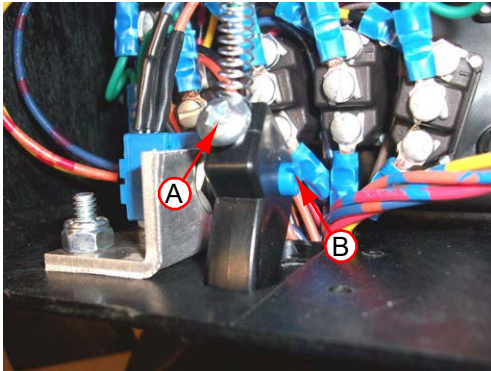
ITEM	PART #	DESCRIPTION	QUANTITY
1.	89044214	WIRE 18GA GRN	1.61 FT
2.	60119335	CONTROL HANDLE	1

Oshkosh Corporation Classification - Restricted

51713182 PARTS LIST			
3.	60111141	TRIGGER (PART OF 11)	1REF
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
7.	77044196	STRAIN RELIEF 3/4	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
11.	70394183	TRIGGER ASM (INCL 3)	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERM-SPRSPD #8 16-14GA	31
16.	77040371	TOGGLE SWITCH SPST	2
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	2
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE (NOTE: MUST ORDER 30-FEET.)	30 FT
22.	77040147	TERM-FSLPON 1/4TAB 22-18	3
23.	77040047	TERM-MSLPON 1/4TAB 16-14	3
24.	72060602	MACH SCR #6-32X3/8 RDHD	4
25.	70145495	TUBING-HEAT SHRINK	.5 FT
REV. H 20071016			

NOTE: KIT # 51717816, TETHERED CABLE - 30 FEET, INCLUDES ITEMS 8, 15 (QTY 24), 20, 21, AND 25. ORDER 51717816 TO REPLACE THE CABLE ASSEMBLY.

Tethered Proportional Remote Potentiometer Adjustment



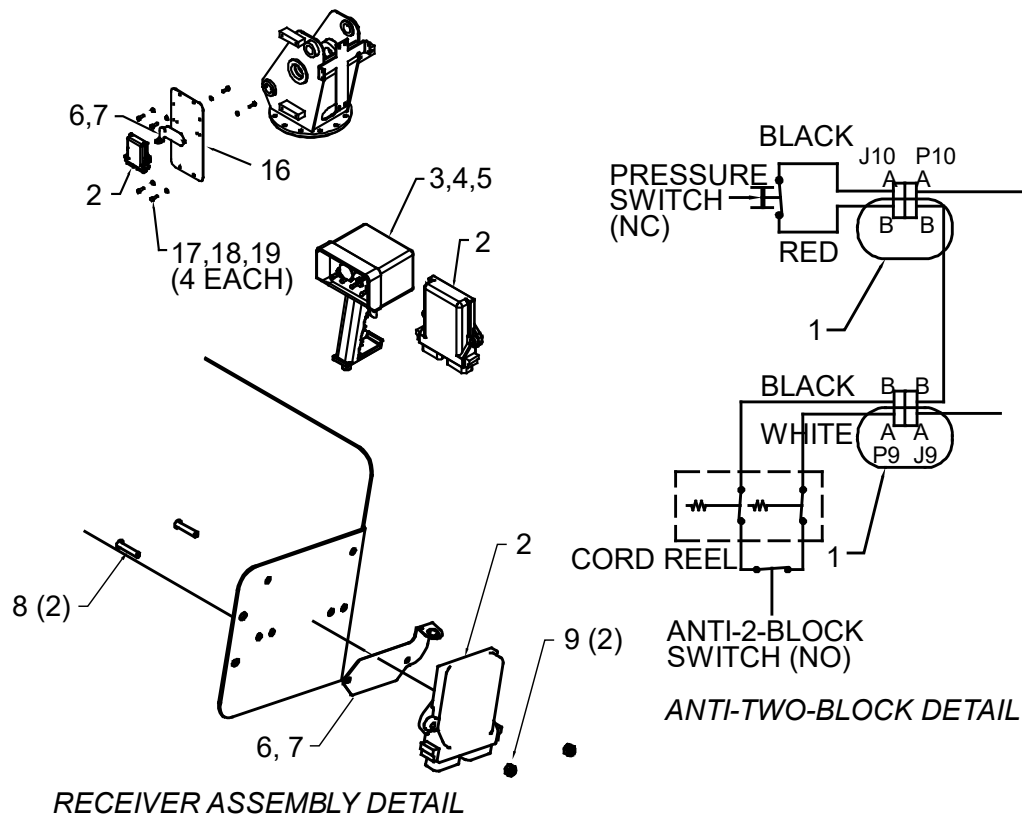
NOTE

ONLY use this procedure to set the low-end output on the remote handle assembly if crane functions operate without pulling the proportional trigger.

You may need a second operator to help with steps 4 and 5.

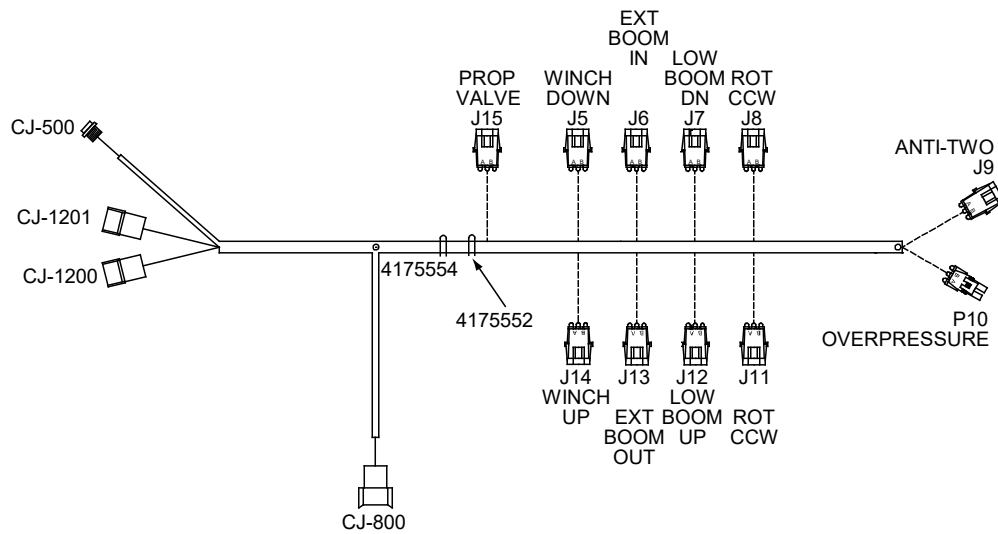
- 1 Following proper crane and stabilizer set-up, with the PTO engaged and the truck running, move the crane from the stowed position to a position off to the side of the truck. Unstow the winch cable hook and lower the winch approx (6) six feet.
- 2 Remove the back cover of the remote control handle.
- 3 Loosen screw "A" slightly. (Note: Screw style may vary).
- 4 While holding "WINCH DOWN" function, very slowly, rotate screw "B" clockwise until all movement has stopped.
- 5 Release "WINCH DOWN" function.
- 6 Tighten screw "A"
- 7 Test by operating "WINCH DOWN", "WINCH UP", "ROTATE CCW", and "ROTATE CW" without pulling the trigger. If any of these functions move, repeat steps 2 through 6.
- 8 Replace control back cover and properly stow the crane and stabilizers.

2820 Control Kit (90718831) (Ref. 99903629)

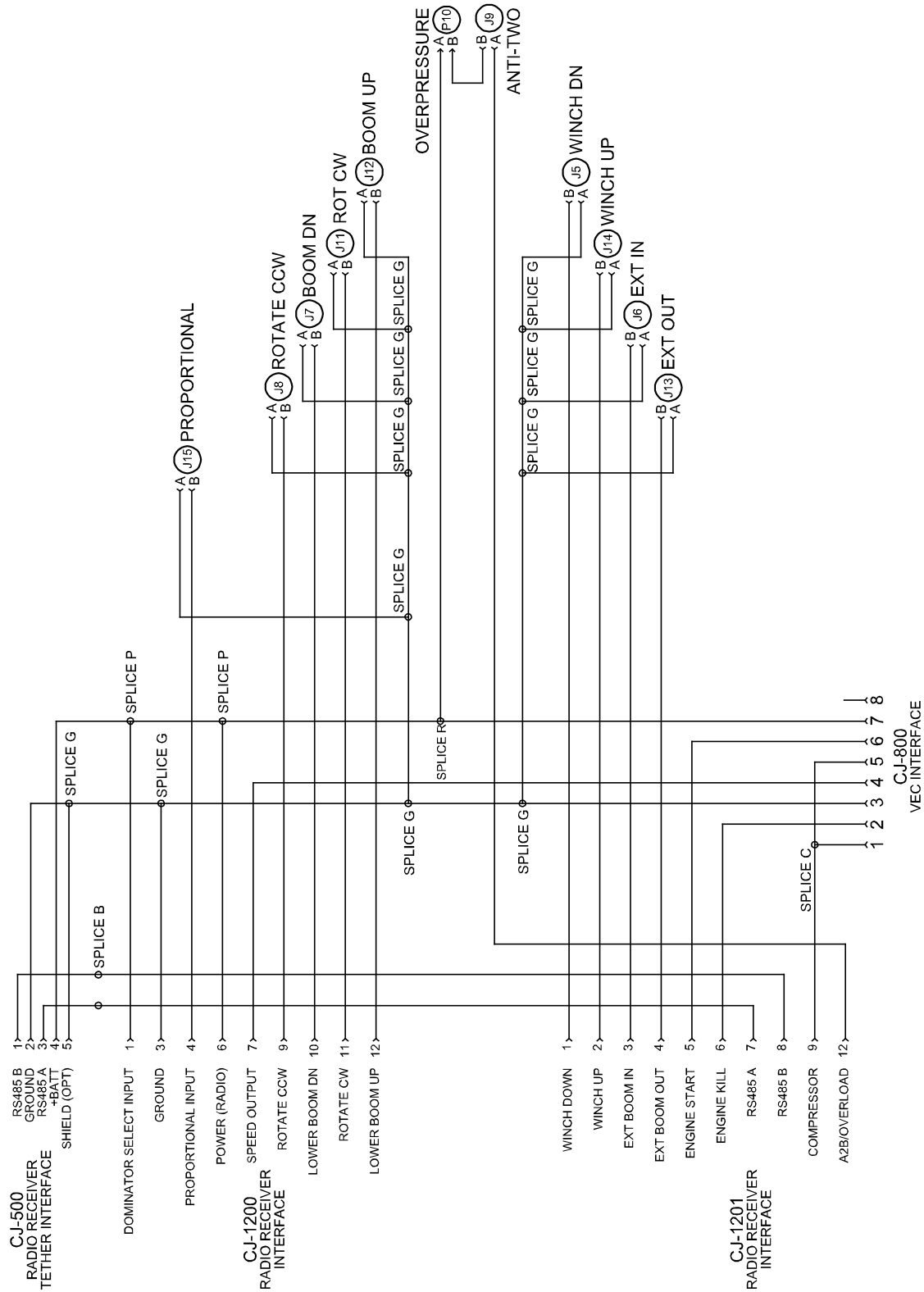


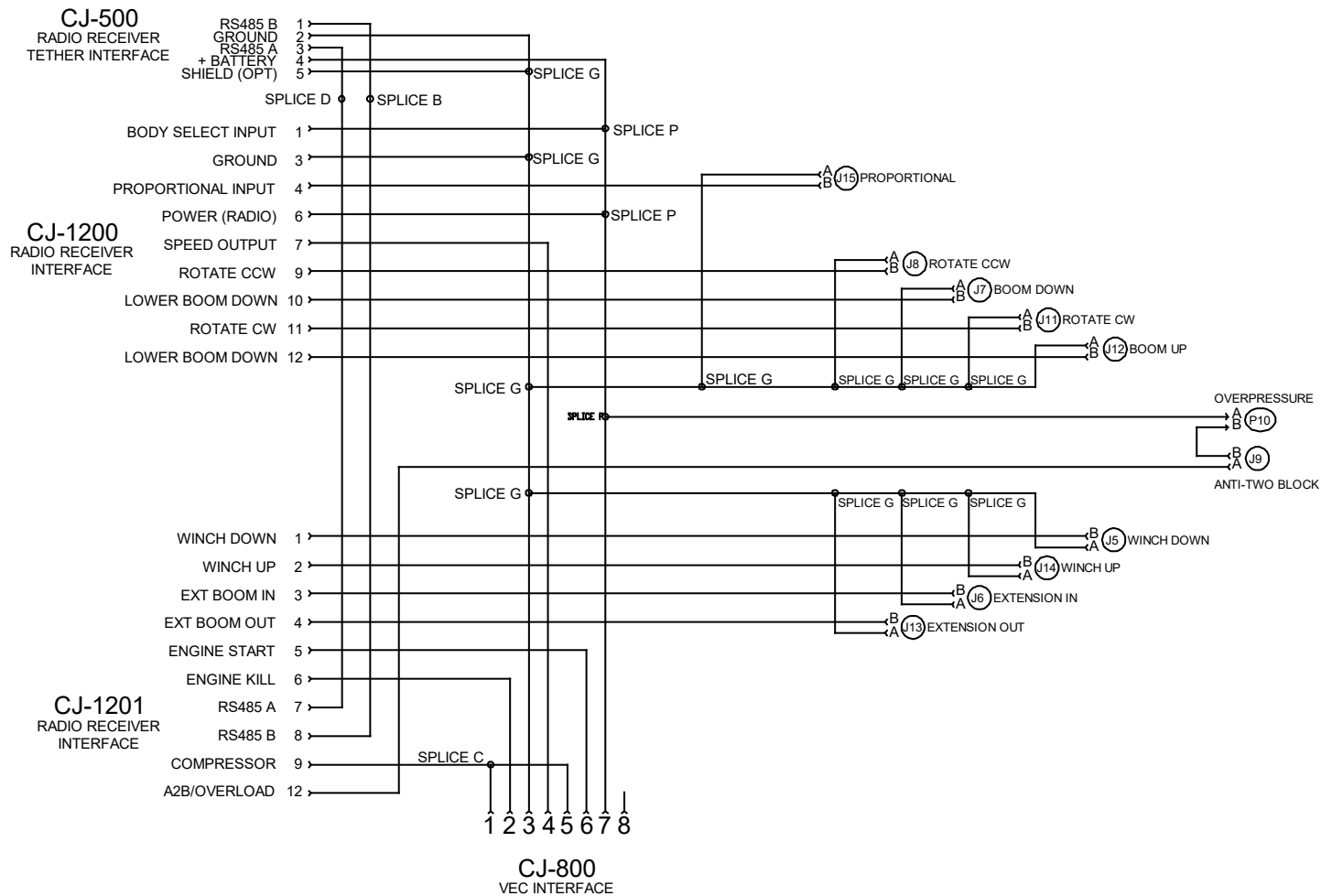
90718830 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70034439	LOCKWIRE LEAD SEAL, 8"	2
2.	70733921	RECEIVER, RADIO REMOTE	1
4.	70733883	TRANSMITTER, RADIO REMOTE	1
6.	60125959	BRACKET, TETHER CONNECTOR	1
7.	72066340	RIVET, POP, 1/8 X 3/8 GRIP	1
8.	72601846	CAP SCR-22 1/4-20X1-1/4 HH	2
9.	72062194	NUT-SS 1/4-20 NYLOC	2
10.	99903628	INSTRUCTIONS, RADIO REMOTE	1
13.	99903629	INSTALLATION DRAWING, RADIO REMOTE	1

Cable Assembly, Radio Remote (77441101)



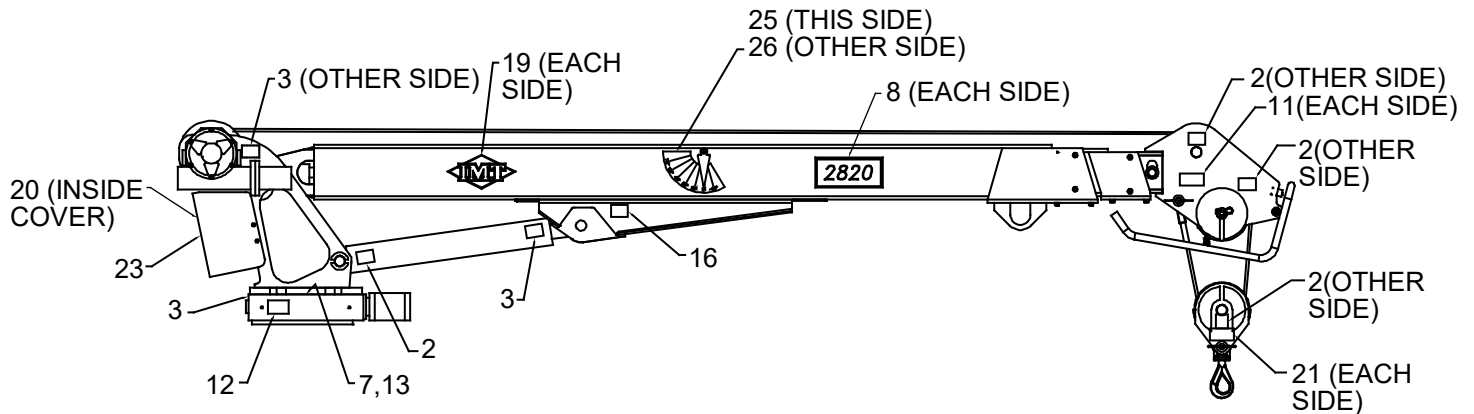
Electrical Schematic, Radio Remote (77441101)





Miscellaneous

Decal Placement, 2820 Crane (99903727)

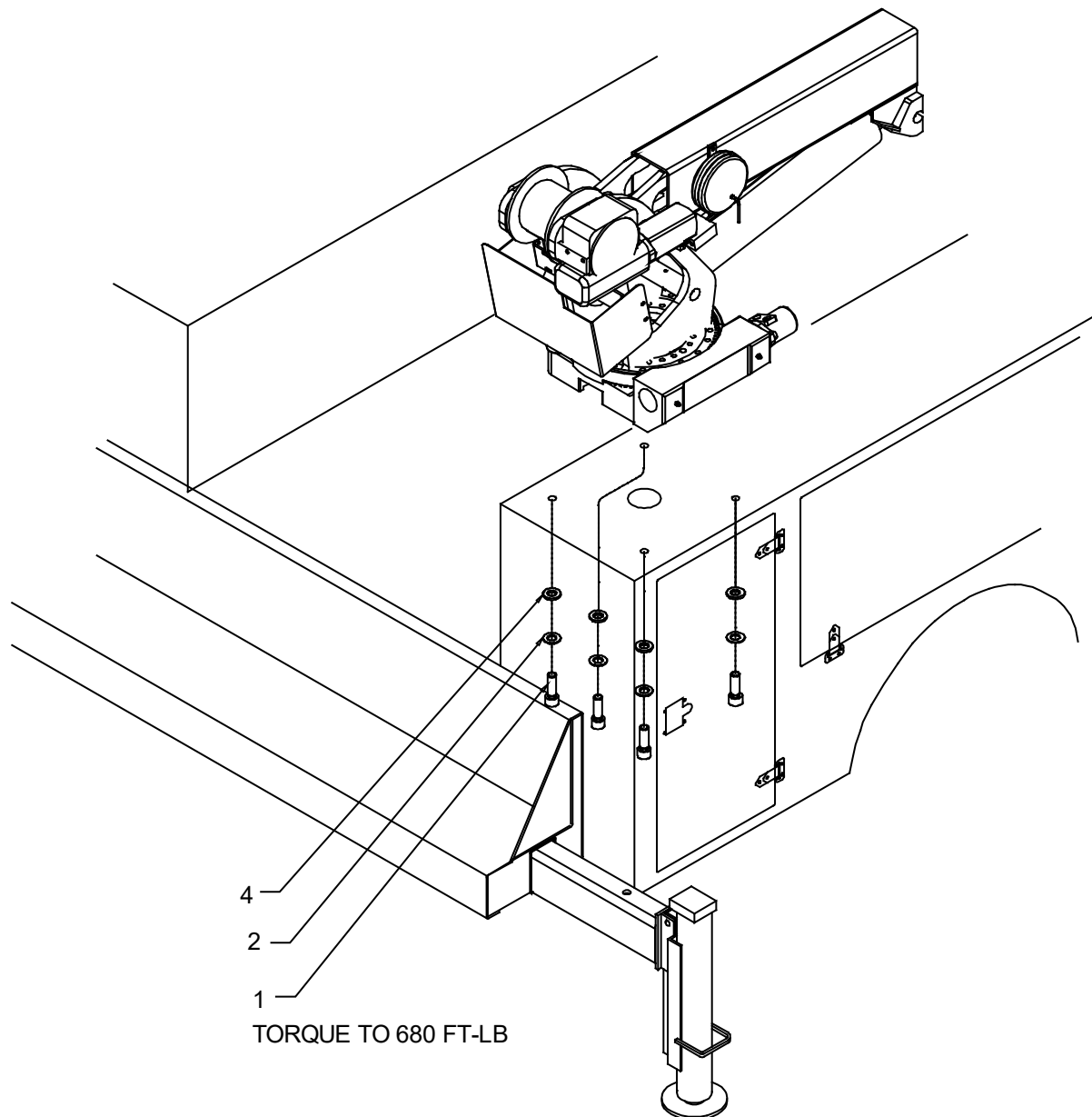


DECAL PLACEMENT	
ITEM NO.	LOCATION
6,10,23,24,27	AT OR NEAR REMOTE CONTROL STORAGE POINT.
1	ONE ON EACH STABILIZER
14	2 ON FRONT SIDEPACKS, 2 ON REAR OUTRIGGERS
15,18	ONE ON EACH SIDE OF CARRIER VEHICLE
17	AT OR NEAR HYDRAULIC RESERVOIR
22	AT OR NEAR DRIVELINE

99903727 PARTS LIST				
ITEM	PART #	DESCRIPTION	QUANTITY	
1.	70391598	DECAL-WARNING, STABILIZER	2	PART OF #5
2.	70391612	DECAL-GREASE WKLY LH	4	PART OF # 4
3.	70391613	DECAL-GREASE WKLY RH	3	PART OF # 4
4.	95719347	DECAL KIT (TELE-COMMON)	1	
5.	95719348	DECAL KIT (BODY-COMMON)	1	
6.	70392213	DECAL-CAUTION DON'T WASH/WAX	1	PART OF #4
7.	70392524	DECAL-ROTATE CRANE WHILE GREASING	1	PART OF #4
8.	70396454	DECAL - 2820 ID	2	PART OF #9
9.	95719351	DECAL KIT - 2820 MODEL SPECIFIC	1	
10.	70396613	DECAL-CRANE SAFETY/OPERATION	1	PART OF #5
11.	70395670	DECAL-CAUTION DOWNHAUL WT	2	PART OF #4
12.	70395090	DECAL-GREASE WORM DRIVE BRNGS	1	PART OF #4
13.	70392399	DECAL-LUBRICATE WORM	1	PART OF #4
14.	70392864	DECAL-WARNING STAND CLEAR	4	PART OF # 5
15.	70394445	DECAL-DANGER ELEC HZD LG	4	PART OF # 5
16.	70395324	DECAL-ASME/ANSI B30.5	1	PART OF #4
17.	70394189	PLACARD-MOBILOIL RESERVOIR	1	PART OF #5
18.	70392868	DECAL-WARNING CR LOADLINE	4	PART OF #5

99903727 PARTS LIST				
19.	70392887	DECAL-DIAMOND IMT 5X10	2	PART OF #9
20.	70394166	DECAL-INSTR FOR MANUAL OPERATION	1	PART OF #4
21.	71394081	DECAL-LOAD BLOCK RATING 3.0 TONS	2	PART OF # 9
22.	70392891	DECAL-DANGER DRIVELINE	1	PART OF # 5
23.	71396455	DECAL-CAPACITY PLACARD 2820	2	PART OF # 9
24.	71039134	DECAL-CAUTION OIL LEVEL	1	PART OF #5
25.	71393664	DECAL-ANGLE INDICATOR RH	1	PART OF #9
26.	71393665	DECAL-ANGLE INDICATOR LH	1	PART OF #9
27.	70392982	DECAL-SERVICE & REPAIR	1	PART OF #5

Installation Kit (93715267)



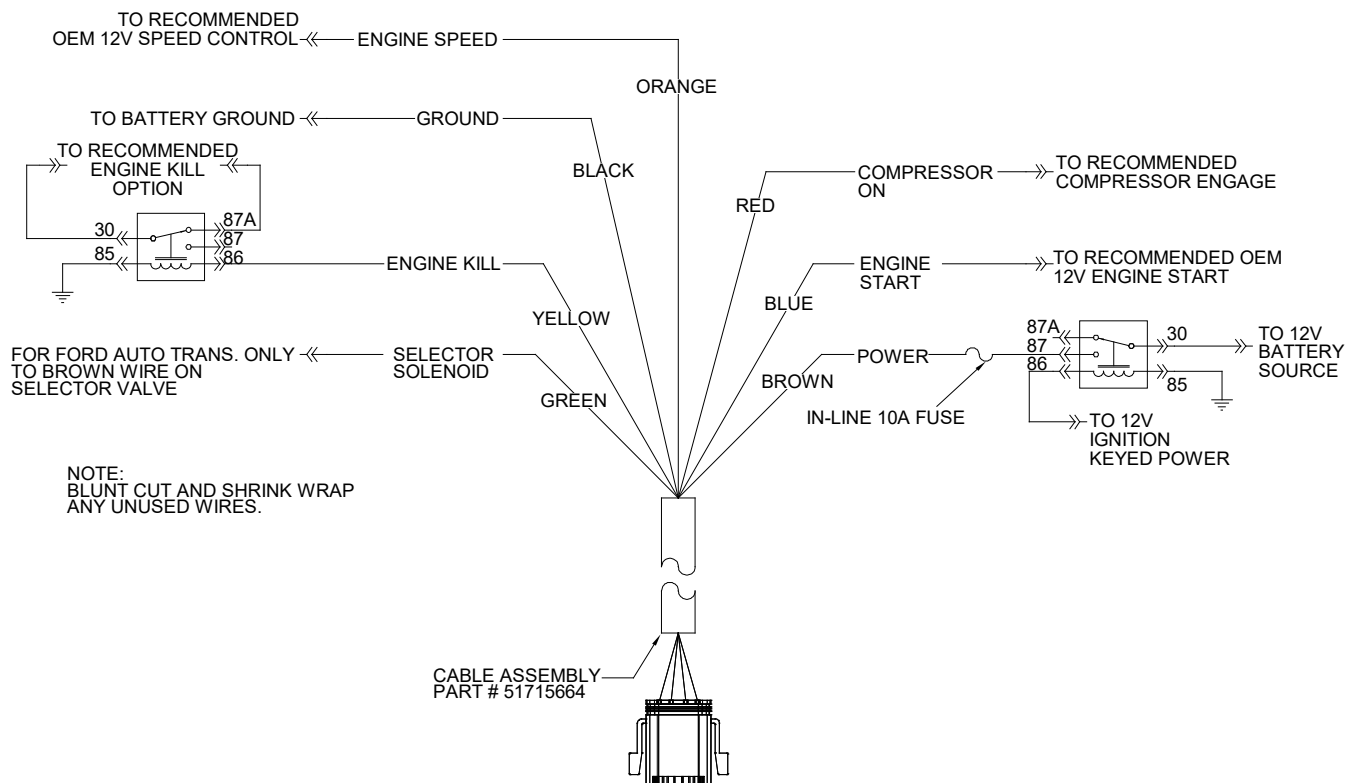
NOTES:

- 1 THE 3" BOLTS SUPPLIED ARE FOR USE ON BODIES WITH A CRANE BOX TOP PLATE THICKNESS OF 7/8-1" ONLY! ON SHIP-OUT CRANES, DETERMINE CRANE BOX TOP PLATE THICKNESS PRIOR TO MOUNTING THE CRANE. IF BOLTS OTHER THAN THE 3" SUPPLIED BOLTS ARE REQUIRED, THEY MUST BE 1"-8 GRADE 8 AND THE APPROPRIATE LENGTH.
- 2 FAILURE TO USE PROPER LENGTH BOLTS MAY CAUSE THE CAP SCREWS UNDER THE WORM HOUSING TO BOTTOM OUT BEFORE BEING TORQUED. DURING TORQUEING, CHECK TO SEE THAT BOLTS ARE TORQUED AND THAT THEY DO NOT BOTTOM OUT ON THE WORM HOUSING. SIZE CAPSCREWS TO INSURE MINIMUM 1.5" THREAD ENGAGEMENT.

93715267 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	72601748	CAP SCR 1-8X3 SHGR8	4
2.	72063066	WASHER 1 FLAT	4
3.	73052091	RETURN FILTER 10MIC (NOT SHOWN)	1
	73052092	FILTER ELEMENT 10MIC	REF
4.	60123848	WASHER, SPECIAL 1X2X	4

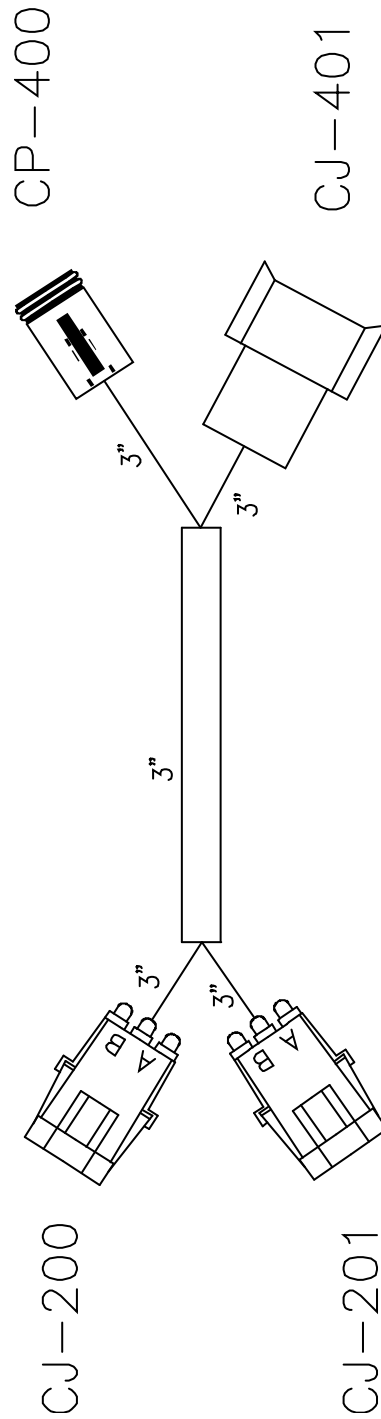
REV. E 20031027

Chassis Wiring Harness (99903340)

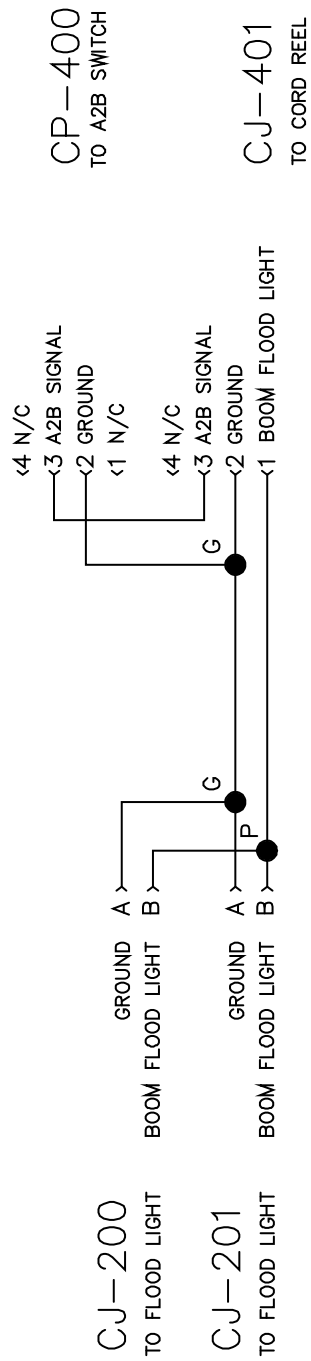


Note: Used on all ship-out IMT telescopic cranes.

Harness, Boom Tip Light Jumper (77441689)



44771689-1



CHAPTER 5

General Reference

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Inspection Checklist

NOTICE:

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

OWNER/COMPANY:	TYPE OF INSPECTION (circle one):			
CONTACT PERSON:	DAILY	MONTHLY	QUARTERLY	ANNUAL
CRANE MAKE & MODEL:	DATE INSPECTED:			
CRANE SERIAL NUMBER:	HOURMETER 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 fully extended.

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 (whichever 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 to four months or 300 hours of normal operation (whichever 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 (whichever 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.

INSPECTION CHECKLIST STATUS KEY:

S = 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 (S,R,X,NA)
D	1	Labels	All load charts, safety & warning labels, and 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 and cracks.	
D	4	Station	Control and operator's station for dirt, contamination by lubricants, and foreign material.	
D	5	Hydraulic System	Hydraulic system (hoses, tubes, fittings) for leakage and proper oil level.	
D	6	Hook	Presence and proper operation of hook safety latches.	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
D	7	Wire Rope	Inspect for apparent deficiencies per applicable requirements and manufacturer's specifications.	
D	8	Pins	Proper engagement of all connecting pins and pin retaining devices.	
D	9	General	Overall observation of crane for damaged or missing parts, cracked welds, and presence of safety covers.	
D	10	Operation	During operation, observe crane for abnormal performance, unusual wear (loose pins, wire rope damage, etc.). If observed, discontinue use and determine cause and 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-block or two-block damage prevention device to check for proper operation.	
D	14	Tires	Check tires (when in use) for proper inflation and condition.	
D	15	Ground Conditions	Check ground conditions around the equipment for proper support, watching for ground settling under and around stabilizers and supporting foundations, ground water accumulation, or similar conditions.	
D	16	Level	Check the equipment for level position within the tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each move and setup.	
D	17	Operator cab windows	Check windows for cracks, breaks, or other deficiencies which would hamper the operator's view.	
D	18	Rails, rail stops, rail clamps and supporting surfaces	Check rails, rail stops, rail clamps and supporting surfaces when the equipment has rail traveling.	
D	19	Safety devices	Check safety devices and operational aids for proper operation.	
D	20	Electrical	Check 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, and welds. Damage to rod and case.	
M	25	Valves	Holding valves for proper operation.	
M	26	Valves	Control valves for leaks at fittings and between stations.	
M	27	Valves	Control valve linkages for wear, smoothness of operation, and 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 excessive 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 and cracks.	
M	32	Pins	All pins for proper installation and condition.	

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FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
M	33	Hardware	All bolts, fasteners and retaining rings for tightness, wear and corrosion.	
M	34	Wear Pads	Presence of wear pads.	
M	35	Pump & Motor	Hydraulic pumps and motors for leakage at fittings, seals, and between sections. Check tightness of mounting bolts.	
M	36	PTO	Transmission/PTO for leakage, abnormal vibration & noise, alignment, and mounting bolt torque.	
M	37	Hyd Fluid	Quality of hydraulic fluid and presence of water.	
M	38	Hyd Lines	Hoses & tubes for leakage, abrasion damage, blistering, cracking, deterioration, fitting leakage, and secured properly.	
M	39	Hook	Load hook for abnormal throat distance, twist, wear, and cracks.	
M	40	Wire Rope	Condition of load line.	
M	41	Manual	Presence of operator's manual 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 and corrosion.	
	49		• Base	
	50		• Stabilizer beams and 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, bearing, shafts, gears, rollers, and locking devices for wear, cracks, corrosion and distortion.	
	59		• Rotation bearing(s)	
	60		• Inner boom pivot pin(s) and retainer(s)	
	61		• Outer boom pivot pin(s) and retainer(s)	
	62		• Inner boom cylinder pin(s) and retainer(s)	
	63		• Outer boom cylinder pin(s) and retainer(s)	
	64		• Extension cylinder pin(s) and retainer(s)	
	65		• Jib boom pin(s) and retainer(s)	
	66		• Jib cylinder pin(s) and retainer(s)	
	67		• Jib extension cylinder pin(s) and retainer(s)	
	68		• Boom tip attachment	
	69		• Other	
Q	70	Hyd Lines	Hoses, fittings and tubing for proper routing, leakage, blistering, deformation and 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	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
Q	77	Pumps & Motors	Pumps and 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 and leakage at welds. Rods for nicks, scores and dents. Case for damage. Case and rod ends for damage and 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 and drums for damage, abnormal wear, abrasions and 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 pressure & relief valve settings.	
A	103	Valves	Safety valve calibration for correct pressure & 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 and cracks.	
A	106	Lubrication	Gear oil change in rotation drive system per maintenance schedule.	
A	107	Hardware	Check tightness of all fasteners and bolts, using torque specifications on component drawings or torque chart.	
A	108	Wear Pads	Wear pads for excessive wear.	
A	109	Loadline	Loadline for proper attachment to drum.	

Deficiency / Recommendation / Corrective Action Report

DATE:	OWNER:	UNIT I.D. NUMBER:
<p>GUIDELINES</p> <ul style="list-style-type: none"> a A deficiency (X) may constitute a hazard. Deficiency 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. <p>NOTE: Deficiencies (X) listed must be followed by the corresponding corrective action taken (CA).</p> <p>X = DEFICIENCY R = RECOMMENDATION CA = CORRECTIVE ACTION TAKEN</p>		

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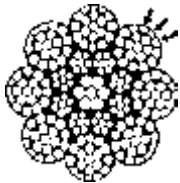
Wire Rope Inspection & Replacement

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

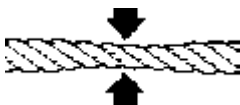
- a Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- b When there are either three broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



- c When flat spots on the outer wires appear and those outside wires are less than $\frac{2}{3}$ the thickness of the unworn outer wire.



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



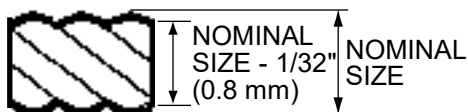
- e When kinking, crushing, birdcaging or other distortion occurs.



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



- g When the diameter is reduced from nominal size by $\frac{1}{32}$ " (0.8 mm) 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 wired closed (moused) until repairs are made.

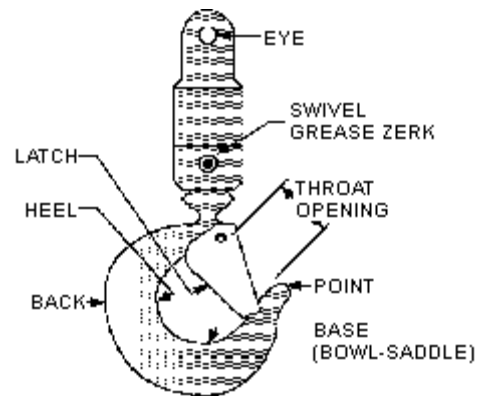
e HOOK ATTACHMENTS & SECURING MEANS

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.





Anti-Two-Block Device Inspection



(See the operation, maintenance, and repair manual for this crane for a complete description.)

The anti-two-block 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, a marked difference in winch operation should be noted. At this point, the winch up function should become very sluggish or non-functioning and have very little pull capability. Slowly increase truck engine speed while simultaneously actuating the winch up function. The winch characteristics should remain sluggish with little or no tensioning of the cable. If operation other than as described occurs, stop immediately and investigate. Failure to do so will risk damage to the cable or the crane. If all is well at this point, actuate the boom extend function slowly, and gradually increase to full actuation. Once again the function should be sluggish or non-existent with no tightening of the winch cable. If operation other than described occurs, stop immediately and reverse the function.
- 4 The final check involves actuating both the winch up and extend functions together and checking for proper operation of the anti-two-blocking circuit. Once again, start slowly and stop if it appears the cable is being tensioned.
- 5 If the anti-two-block function appears to be functioning normally, winch the cable down until the sensing weight swings free.

Thread Torque Chart (English)

FINE THREAD BOLTS (ENGLISH)					
SIZE	BOLT DIA.	GRADE 5  SAE J429 GRADE 5		GRADE 8  SAE J429 GRADE 8	
(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED
		(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)
5/16-24	0.3125	19	14	27	20
3/8-24	0.375	35	26	49	35
7/16-20	0.4375	55	41	78	58
1/2-20	0.5	90	64	120	90
9/16-18	0.5625	120	90	170	130
5/8-18	0.625	170	130	240	180
3/4-16	0.75	300	225	420	315
7/8-11	0.875	445	325	670	500
1-12	1	645	485	995	745
1 1/8-12	1.125	890	670	1445	1085
1 1/4-12	1.25	1240	930	2010	1510
1 3/8-12	1.375	1675	1255	2710	2035
1 1/2-12	1.5	2195	1645	3560	2670

COARSE THREAD BOLTS (ENGLISH)					
SIZE	BOLT DIA.	GRADE 5  SAE J429 GRADE 5		GRADE 8  SAE J429 GRADE 8	
(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED
		(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)
5/16-18	0.3125	17	13	25	18
3/8-16	0.375	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.625	150	115	220	160
3/4-10	0.75	265	200	375	280
7/8-9	0.875	395	295	605	455
1-8	1	590	445	910	680
1 1/8-7	1.125	795	595	1290	965
1 1/4-7	1.25	1120	840	1815	1360
1 3/8-6	1.375	1470	1100	2380	1780
1 1/2-6	1.5	1950	1460	3160	2370

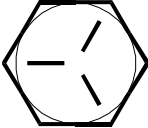

NOTES

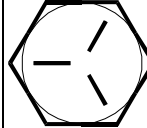
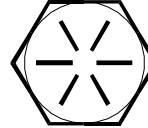
- 1 Tightening torques provided are midrange.
- 2 Consult bolt manufacturer's particular specifications, when provided.
- 3 Use flat washers of equal strength.
- 4 All torque measurements are given in foot-pounds.
- 5 Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphide, 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 torqueing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing death or serious injury.

Thread Torque Chart (Metric)

FINE THREAD TORQUE CHART (METRIC)					
TIGHTENING TORQUE					
SIZE (DIA- TPI)	BOLT DIA. (INCHES)	 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	0.375	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.625	24	18	33	25
3/4-16	0.75	41	31	58	44
7/8-11	0.875	62	45	93	69
1-12	1	89	67	138	103
1 1/8-12	1.125	123	93	200	150
1 1/4-12	1.25	171	129	278	209
1 3/8-12	1.375	232	174	375	281
1 1/2-12	1.5	304	228	492	369

COARSE THREAD TORQUE CHART (METRIC)					
TIGHTENING TORQUE					
SIZE (DIA- TPI)	BOLT DIA (INCHES)	 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	0.375	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.625	21	16	30	22
3/4-10	0.75	37	28	52	39
7/8-9	0.875	55	41	84	63
1-8	1	82	62	126	94
1 1/8-7	1.125	110	82	178	133
1 1/4-7	1.25	155	116	251	188
1 3/8-6	1.375	203	152	329	246
1 1/2-6	1.5	270	210	438	328

NOTES

- 1 Tightening torques provided are midrange.
- 2 Consult bolt manufacturer's particular specifications, when provided.
- 3 Use flat washers of equal strength.
- 4 All torque measurements are given in kilogram-meters.
- 5 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 torqueing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing death or serious injury.

- 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: $.40 \times 265 \text{ FT-LB} = 106 \text{ FT-LB}$)
(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: $.75 \times 265 \text{ FT-LB} = 199 \text{ FT-LB}$)
(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

Turntable bearings may experience wear. One of the following conditions may indicate turntable bearing wear:

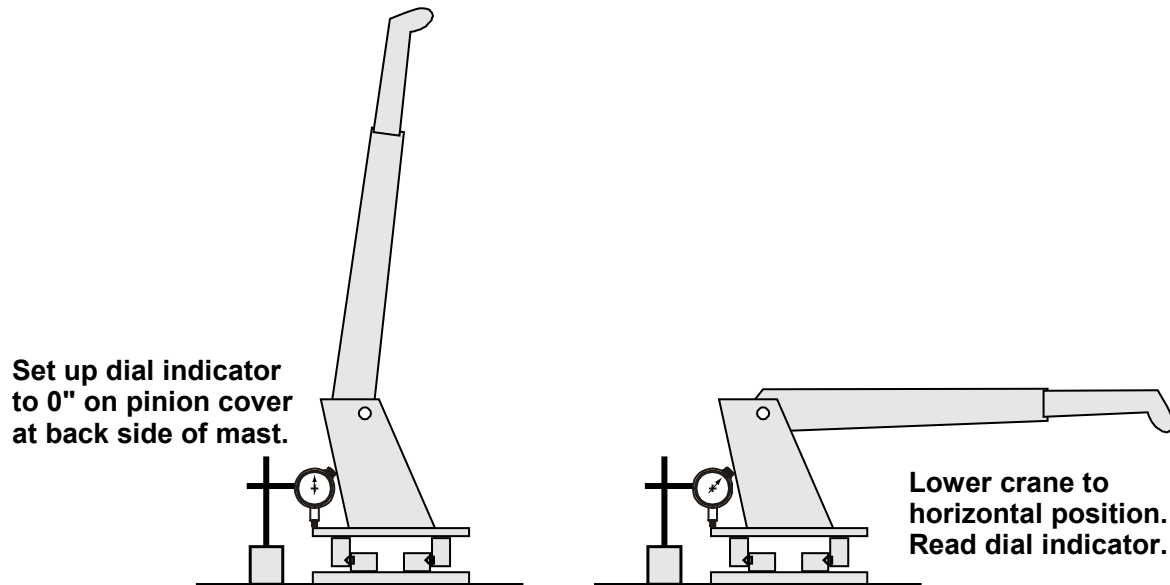
- 1 Metal particles present in the bearing lubricant.
- 2 Increased drive power required to rotate the crane.
- 3 Noise emitting from the bearing during rotation.
- 4 Rough rotation.
- 5 Uneven or excessive wear between the pinion gear and turntable gear.

If one or more of the above conditions exists, further 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. You can measure the tilt using the ***Turntable Bearing Tilt Test***. (see "Turntable Bearing Tilt Test" on page 96)

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.**

Turntable Bearing Tilt Test

- 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 – MEASURED TILT DIMENSION PER CRANE MODEL

NOTE: The tilt dimensions listed in this chart are service guidelines and do not, in themselves, require that the bearing be inspected.

If there is reason to suspect an excess of bearing wear **AND** the measured tilt dimension exceeds the dimension listed, remove the bearing for inspection.

IMT Crane, Loader or Tirehand Model	1007 1014/1014A 1015 2015/2020 2109 2820 3000 3016/3020 3203i 3816/3820 4004i 421/425 4300 5005i 5016/5020 6006i 6016/6020 6022 5525 / 6025 / 6625 EZ Hauler I, II EZ Hauler 3000 / 5500	5200 5200R 5217 5800 7020 7025 7200 7415 8025 9000	16000-I, II, III 32018 32027 32030 T30 T40	23516 14K160TH COMMANDER IV	1221R 1225R 8000L 9800 12916 13031 13034 14000 15000 18000 20017 8000L H1200 H1200RR T50
Ball Dia. (Ref)	.875" (22 mm)	1.00" (25 mm)	1.18 - 1.25" (30-32 mm)	1.5" (38 mm)	1.75" (44 mm)
Tilt Dim.	.060" (1.524 mm)	.070" (1.778 mm)	.075" (1.905 mm)	.085" (2.159 mm)	.090" (2.286 mm)