
Manual Part # 99901222

2020 Parts & Specifications

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Revisions

DATE	LOCATION	DESCRIPTION
20050913		MANUAL RELEASED IN NEW FORMAT
20051010	CYLINDERS	CYLINDER CHANGE - 71411799 REPLACED 3B185010, 71411800 REPLACED 3B200010. BOOM ASSEMBLIES UPDATED WITH NEW CYLINDERS.
20060920	DECAL KITS	ADDED 70392982 TO DECAL KITS
20070410	41715074	ECN 10380 - CHANGED LOWER BOOM CYL FROM 71411800 TO 3B200010; ECN 10406 - SERIAL TAG PLACARD TACKED RATHER THAN RIVETED.
20070410	LOWER BOOM, EXTENSION, POWER OUT CYLINDERS	ECN 10380 - 71411800 REPL BY 3B200010; 71411799 REPL. BY 3B185010; 71411797 REPL. BY 3B142860.
20071026	51713182, 3B205010, 77441101.	51713182 - Added cable replacement part notes; 3B205010 - Added locking pin 60125699; expanded 77441101 electrical schematic.
20080422	41704555	ECN 10736 - Changed item #17 on 41704555 base assembly drawing.
20080806	41714444	ECN 10737 - Added shim.
20090408	70057663	Updated gear reducer drawing.
20110602	41714486, 99905213, 91715631	ECN 11458 - Manual boom stop; ECN 11440 - Hose kit change.
20110718	41714486, 99905213	ECN 11458-1 - Revisions to manual extension boom stop kits.
20111028	91715660	ECN 11588 - Update to hyd kit.
20120402	3B200010, 3B185010	ECN 11499, 11581 - Cylinder drawing changes. Added 51723182 prop. remote adjustment instructions.
20130606	41714487	ECN 11975 – Image and BOM update.
20130530	41714444	ECN 11994 - Snatch block changed.
20130531	41715074	ECN 11995 - Trunnion and wear pad changed.
20140627	99903629	ECN 12237 – Updated drawing, items 6 & 7 rotated
	91714439 91714441 91714443	ECN 12237 – Added base & mast Note #3
20141006	41704555	ECN 12264 – Molub-Alloy 882 was Molub-Alloy 936
	51725231 99903725 99903726	ECN 12276 – Add spacers to hook kit assembly
20160629	99903725 99903726	ECN12276-REVISED SNATCH BLOCK DECALS
20161117	51725231	Corrected BOM items.
20170310	41714444	CN310-1, Updated cord reel.
20170418	51725231	ADDED SNATCHBLOCK DRAWING AND BOM....EFF: 10-5-2015
20180205	70057663	Removed from manual....was not associated with 2020 cranes, only 1015.

CHAPTER 1

Introduction

This volume includes specifications, installation information, and spare parts drawings applicable to your particular crane. For operating, maintenance and repair instructions, see Telescopic Crane Volume 1: OPERATION, MAINTENANCE AND REPAIR. (IMT part number 99903514.)

It is your responsibility to operate and maintain this unit in a manner that will result in the safest working conditions possible. You must be aware of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this IMT crane. The 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 on ANSI/ASME B30.5.

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

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.

For a safe work environment, treat this equipment with respect and service it regularly.

CHAPTER 2

Specifications

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General Specifications

	15-foot Crane	20-foot Crane
CRANE RATING	20,000 ft-lb (2.77 ton-meters)	20,000 ft-lb (2.77 ton-meters)
REACH (from centerline of rotation)	15'-0" (4.57 m)	20'-0" (6.10 m)
HYDRAULIC EXTENSION	60" (152.4 cm)	60" (152.4 cm)
MANUAL EXTENSION	None	60" (152.4 cm)
LIFTING HEIGHT (from base of crane)	16'-2" (5.11 m)	20'-11" (6.38 m)
CRANE WEIGHT	830 lb (376 kg)	920 lb (417 kg)
STORAGE HEIGHT (crane only)	28" (71.1 cm)	28" (71.1 cm)
MOUNTING SPACE REQUIRED (crane base)	17 x 17-3/4" (43.1 x 45.1 cm)	17 x 17-3/4" (43.1 x 45.1 cm)
TIE-DOWN BOLT PATTERN	14-3/4 x 14-3/4" (37.5 x 37.5 cm)	14-3/4 x 14-3/4" (37.5 x 37.5 cm)
HORIZONTAL CENTER OF GRAVITY (from centerline of rotation)	29" (73.7 cm)	31" (78.7 cm)
VERTICAL CENTER OF GRAVITY (from bottom of crane base)	16" (40.6 cm)	17" (43.2 cm)
OPTIMUM PUMP CAPACITY (PTO)	5 GPM (18.9 liters/min.)	5 GPM (18.9 liters/min.)
*OPTIMUM PUMP CAPACITY (electric two-stage)	1.5 & 3.5 GPM (5.7 & 13.2 liters/min)	1.5 & 3.5 GPM (5.7 & 13.2 liters/min)
OIL RESERVOIR CAPACITY (electric two-stage)	5 gallons (18.9 liters)	5 gallons (18.9 liters)
DESIGN FACTORS - pins and hydraulics	4/1	4/1

* The two-stage pump delivers 1.5 GPM (5.7 liters/min) at low speed, and 3.5 GPM (11.4 liters/min) at high speed. Normally, when operating under load, the pump will be operated as a single-stage pump. The pump will be operated as a two-stage pump to save time during set up.

Performance Characteristics

	SPECIFICATION	** PTO	***POWER UNIT
ROTATION	400°	37 seconds	54 seconds
LOWER BOOM ELEVATION	0° to +72°	10 seconds	15 seconds
EXTENSION BOOM	60" (152.4 cm)	11 seconds	15 seconds
WINCH	Single part line	25 ft/min (7.6 m/min)	12 ft/min (3.7 m/min)
WINCH	Two part line	12 ft/min (3.7 m/min)	6 ft/min (1.8 m/min)

** All times are based on 5 GPM (18.9 liters/min) PTO delivery rate.

*** All times are based on 3.5 GPM (13.2 liters/min) pump delivery rate.

2020 CYLINDERS	BORE	STROKE
LOWER BOOM CYLINDER	3-1/2" (8.9 cm)	18" (45.7 cm)
EXTENSION BOOM CYLINDER	2" (5.1 cm)	60" (152.4 cm)

POWER SOURCE

Integral mounted hydraulic pump and PTO application. Other standard power sources may be used. Minimum power required is 8 horsepower based on 5 GPM (18.9 liters/min) at 2,350 PSI (162 bar).

ELECTRIC MOTOR

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

ROTATION SYSTEM

Turntable bearing with external worm gear powered with a high-torque hydraulic motor through a self-locking worm.

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 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.

EXCESSIVE LOAD LIMIT SYSTEM (ELLS)

Overloading of the crane is limited by the ELLS. This is done by disarming the crane functions which make possible the application of greater than allowable stress to the crane structure and components. Functions controlled by the ELLS are winch up, extension out and lower boom down. To relieve the situation, 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 38:1 ratio worm-gear drive which also functions as a brake. Line speed is 25 ft/min (7.6 m/min) at optimum oil flow of 5 GPM (18.0 liters/min) for 1-part line and 12 ft/min (3.8 m/min) for 2-part line. The maximum single-line capacity of the winch is 2500 lb (1134 kg). The winch is equipped with 65 feet (19.81 m) of 5/16" (0.79 cm) 6 x 25 FW PRF RRL IWRC IPS wire rope. A nylon sheave riding on a lubricated needle bearing 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. An anti-two block device is included to prevent the lower block or hook assembly from coming in contact with the boom sheave assembly.

HYDRAULIC SYSTEM (PTO DRIVEN)

Open-centered, full-pressure system that requires 5 GPM (18.9 liters/min) optimum oil flow at 2300 PSI (159 bar). The control valvebank is a 4-spool, stack-type, electric remote-control valve with 30' (9.14 m) control cable. The system includes separate oil reservoir, suction-line strainer, control valve, and return-line filter.

ELECTRO-HYDRAULIC SYSTEM (2-SPEED / AUTO-SHIFT)

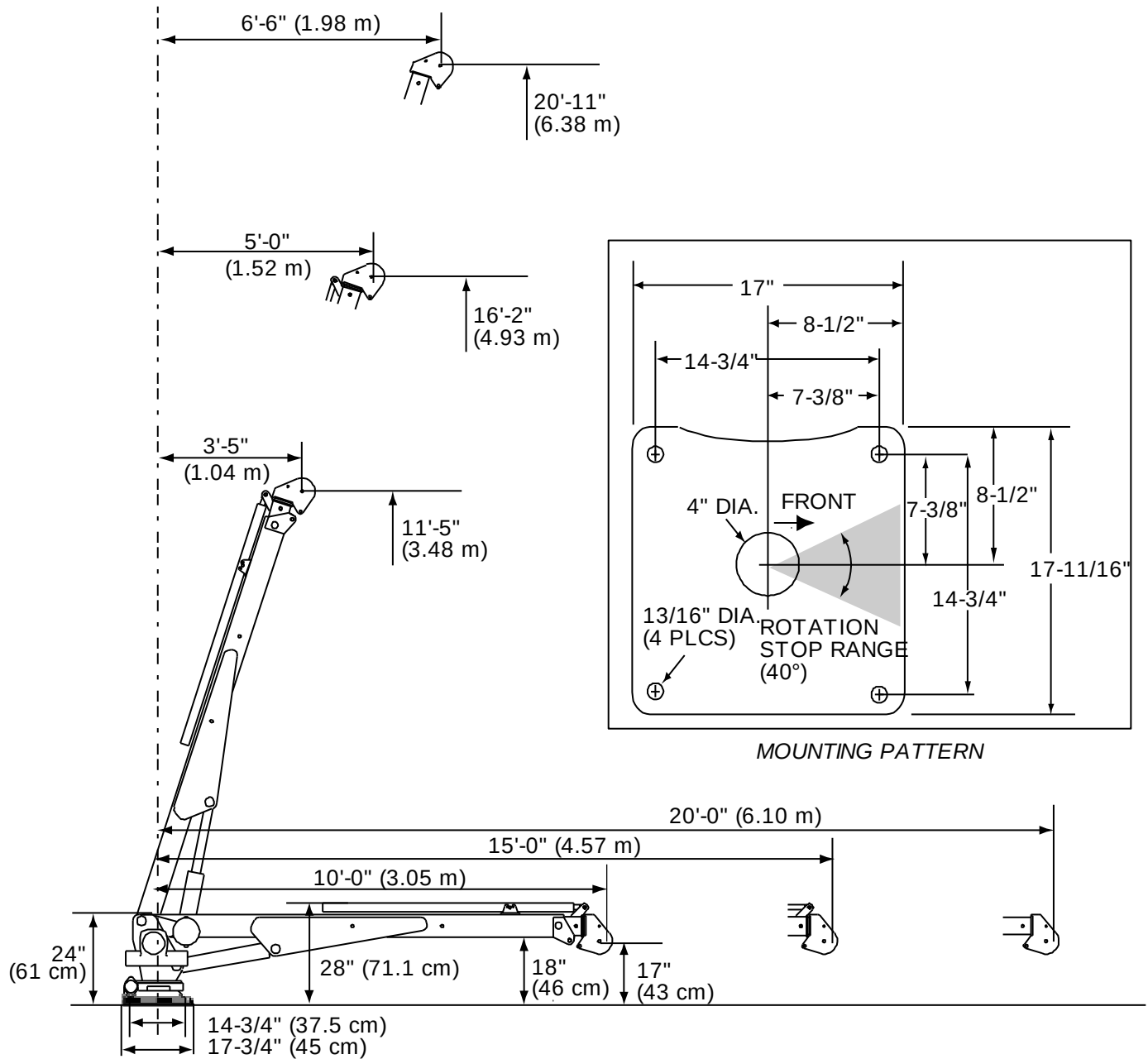
Open-centered, full-pressure system that features a 2-stage hydraulic pump, with the first stage delivering 1.5 GPM (5.7 liter/min) and the second stage delivering 3.5 GPM (13.2 liters/min) at 2300 PSI (159 bar). The operation of the circuit automatically shifts from high to low speed when the crane reaches a certain pressure or load level. The control valvebank is a 4-spool, stack type, 12VDC valve system. The system includes a 5 gallon (18.9 liter) hydraulic reservoir, 10-micron spin-on-type return filter, a hydraulic pump driven by an enclosed, fan-cooled 12VDC motor and all necessary hoses and fittings.

MINIMUM CHASSIS SPECIFICATIONS

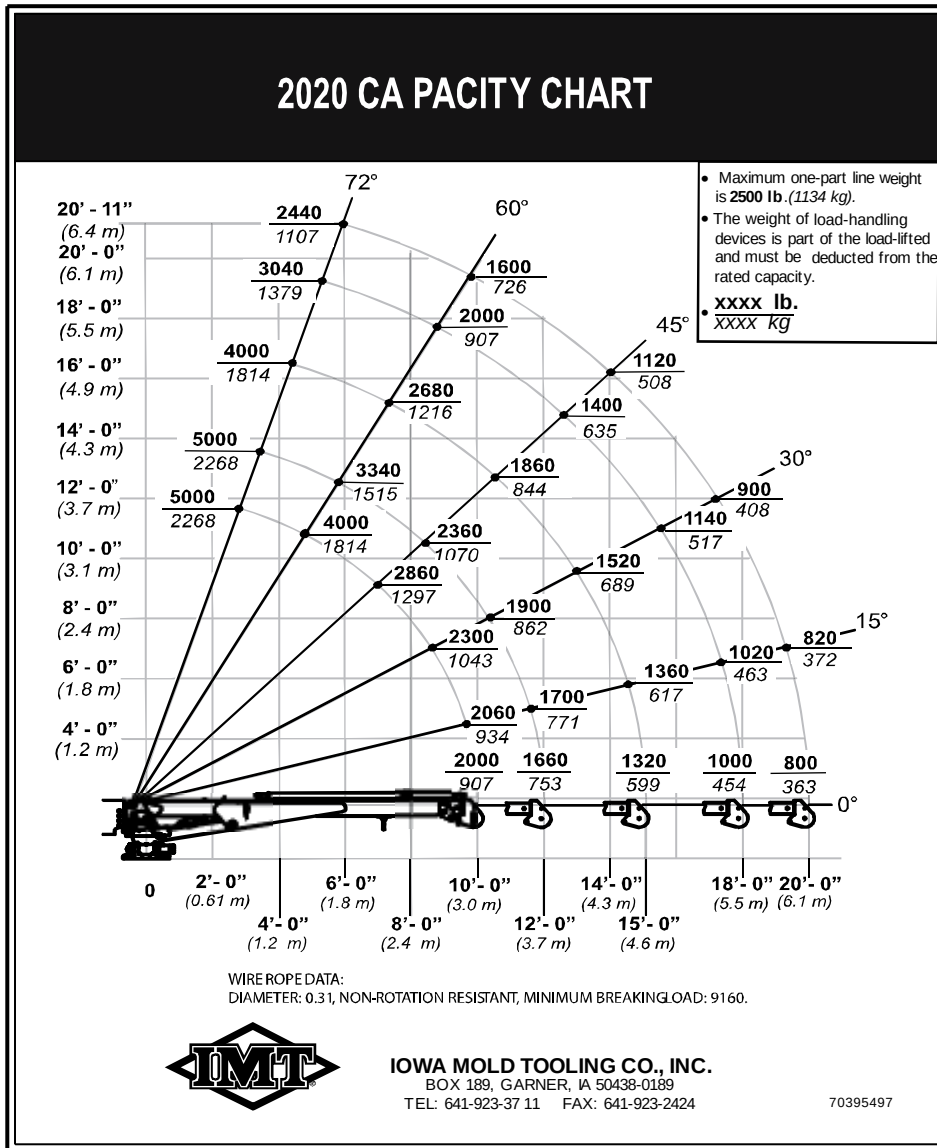
BODY STYLE	Conventional Cab
FRAME SECTION MODULUS	8.0 cubic inches (131.12 cc)
*RBM	290,000 in-lb (3342 kg-meter)
FRONT AXLE RATING (minimum)	5600 lb (2540 kg)
REAR AXLE RATING	11,000 lb (4985 kg)

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

2020 Geometric Configuration



2020 Capacity Chart



CHAPTER 3

Crane Reference

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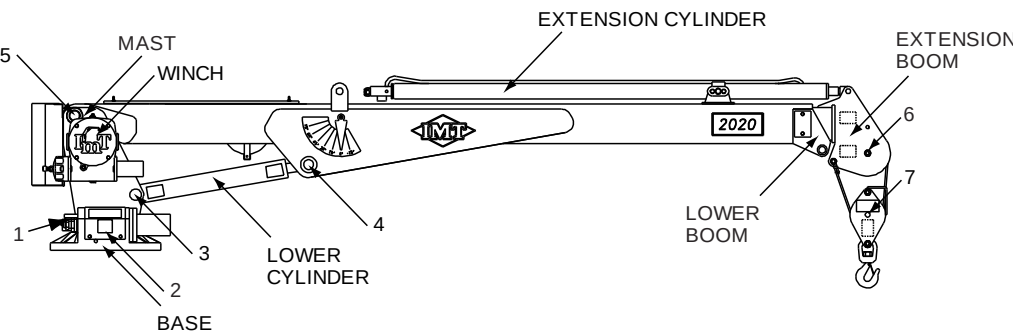
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Crane Assemblies & Grease Zerks



NOTE: Descriptions indicate major crane assemblies, and numbers indicate grease zerk locations.

ITEM	LOCATION	LUBRICANT REQUIREMENT	FREQUENCY
1	Worm Gear	Shell Alvania 2EP or Shell Retinax "A"	Weekly
2	Turntable Bearing Grease Extension (Rotate crane while greasing.)		
3	Lower Cylinder Base		
4	Lower Cylinder Rod		
5	Mast / Lower Boom Hinge Pin		
6	Sheave Pin		
7	Snatch Block Pin		
NOTE: All application points must be greased weekly under normal workloads and moderate weather conditions. Under severe operating conditions, lubricate more frequently. See the IMT Hydraulic Crane Operation Manual, 99904449, for more information.			

2020 Recommended Spare Parts List

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a year. It is intended to provide the user with a stock of parts sufficient to keep the unit operating with 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 (C) or Normal Wear (W) items during the first year of operations and you need to contact the distributor or manufacturer for availability.

PART #	DESCRIPTION	QUANTITY	CODE
BASE ASSEMBLY (41704555)			
60030116	THRUST BEARING	2	W
70055147	BEARING	1	W
70055148	BEARING	1	W
70046307	WORM GEAR	1	W
89086228	MOLUB	2	P
WINCH / CABLE / HOOK KIT (41714444)			
70055142	BEARING	1	W
77041291	SWITCH	1	W
CABLE & HOOK KIT (31704560) (effective through 05/30/13)			
71073920	HOOK, 3-TON	1	W
71073921	HOOK, 2-TON	1	W
70580119	WIRE ROPE ASSEMBLY, 5/16" X 65'	1	W
CABLE & HOOK KIT (51725231) (effective from 05/30/13)			
71073920	HOOK, SWIVEL	1	W
70580119	WIRE ROPE ASSEMBLY, 5/16" X 65'	1	W
CORD REEL ASSEMBLY (51713168)			
70732193	CORD REEL	1	W
LOWER BOOM ASSEMBLY (41715074)			
60030007	WEAR PAD	1	W
60030083	WEAR PAD (effective through 05/31/13)	1	W
60030496	WEAR PAD	1	W
LOWER BOOM CYLINDER (3B200010)			
6H035017	HEAD	1	W
6I035125	PISTON	1	W
9D141420	SEAL KIT	1	W
73540057	COUNTERBALANCE VALVE	1	C
EXTENSION BOOM ASSEMBLY, 15' (41714487)			
60030081	WEAR PAD	1	W
60030082	SHEAVE WITH BEARING	1	W
EXTENSION BOOM ASSEMBLY, 20' (41714486)			
60030081	WEAR PAD	1	W
60030082	SHEAVE WITH BEARING	1	W

EXTENSION BOOM CYLINDER (3B185010)			
6HD20012	HEAD	1	W
6ID20075	PISTON	1	W
9B081012	SEAL KIT	1	W
73054304	C'BALANCE VALVE 10GPM	1	C
HYDRAULIC POWER UNIT (73051957)			
73540046	RELIEF CARTRIDGE	1	W
73540048	KICK DOWN CARTRIDGE	1	W
77041570	STARTER COIL	1	W
VALVEBANK-PROP'L REMOTE CONTROL (70733399)			
70145626	COIL	1	C
70145625	RELIEF VALVE	1	C
70145624	SOLENOID VALVE	4	C
VALVEBANK - POWER UNIT (70733398)			
70145625	RELIEF VALVE	1	C
70145624	SOLENOID VALVE	1	C
VALVEBANK - NON PROPORTIONAL (70733400)			
70145625	RELIEF VALVE	1	C
70145624	SOLENOID VALVE	1	C
REMOTE HANDLE ASSEMBLY-POWER UNIT (51714604)			
77040372	TOGGLE SWITCH SPDT	4	W
77040373	TOGGLE SWITCH SPST	1	W
77040374	TOGGLE SWITCH SPDT	4	W
77041407	DIODE BOARD	1	W
REMOTE HANDLE ASSEMBLY - PTO (ON/OFF) (51713384)			
77040371	TOGGLE SWITCH SPST	2	W
77040372	TOGGLE SWITCH SPDT	4	W
77040373	TOGGLE SWITCH SPST	1	W
77040374	TOGGLE SWITCH SPDT	1	W

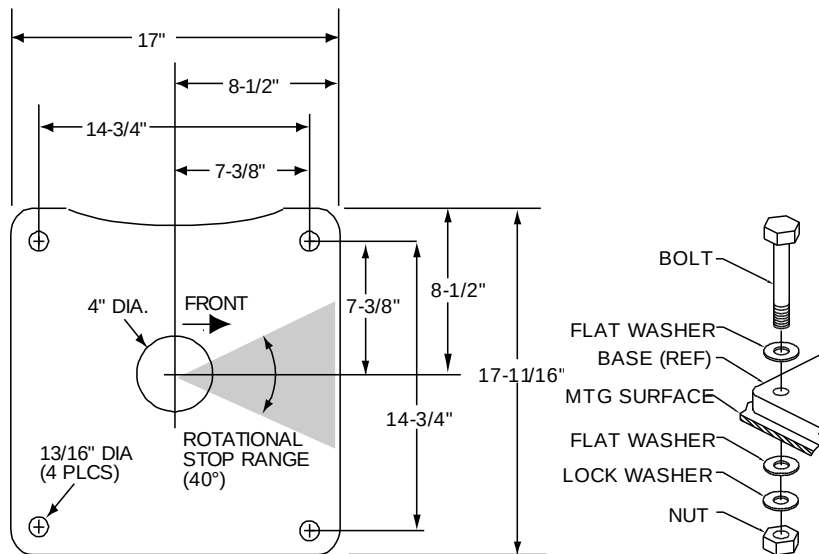
Crane Installation

This section is intended to serve as a guide in the installation of the IMT 2020 crane. Since each installation is unique, certain components may need to be modified. In the case of the IMT 2020 crane, the power unit's battery cable must be cut to the proper length.

The installation instructions are designed for use with an IMT body installed on a vehicle which meets the minimum chassis specifications as defined in the 2020 Performance Characteristics. If this crane is being installed on a body other than an IMT Mechanics Body, check with IMT to determine the suitability of that body.

⚠ WARNING

Avoid death or serious injury! Do not use this crane on a body which cannot handle the loads imposed on it by the crane.



CRANE INSTALLATION

The crane requires a mounting space of at least 17-7/16" wide by 17" long. If necessary, the truck body can be reinforced to give sufficient strength to support the crane in its operating condition. Locate and drill the four 13/16" holes (see figure). Use a pilot drill first and then the 13/16" drill. Cut the 4" diameter hole with a saw after starting with a drill. Deburr all holes. Lift the crane into position on the body. Use a lifting device capable of supporting the crane, which weighs 830 pounds (376 kg) or 920 pounds (417 kg), dependent upon the model.

Install the bolts, lockwashers, flat washers and nuts to secure the crane to the chassis (see figure). Torque the bolts to 200 ft-lb. (27.66 kg-m).

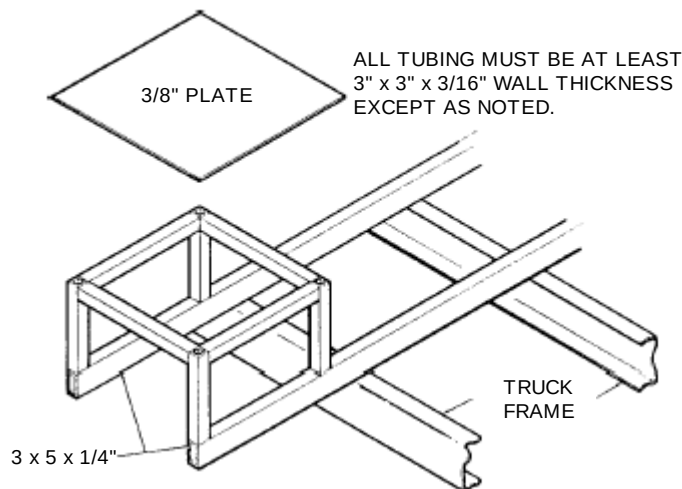
NOTE

In addition to these specifications, a heavy-duty batter and alternator are required. IMT recommends that the vehicle have power steering and dual rear wheels.

IMT recommends adherence to the upper limit of these specifications for best system performance.

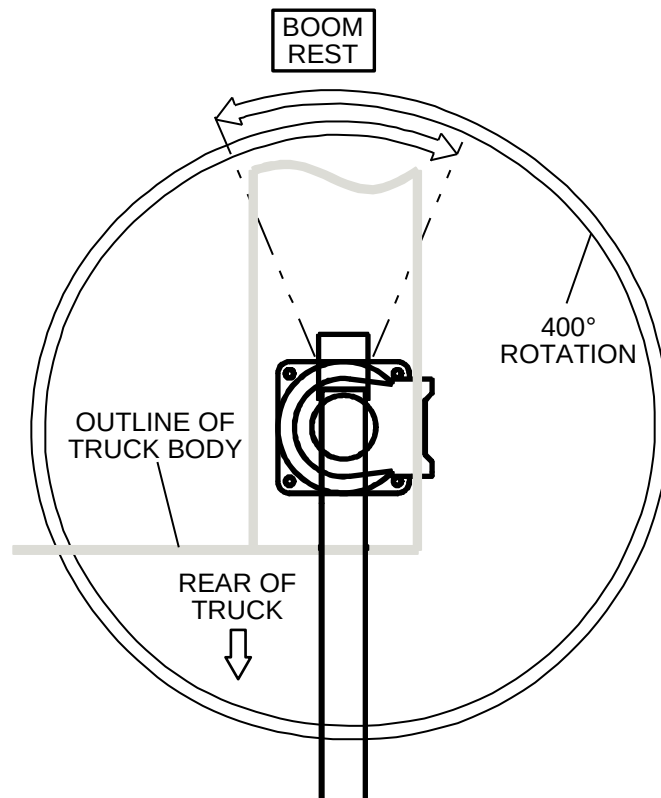
BODY REINFORCEMENT

If, after talking with the factory, it has been determined that the body will not support the crane with the full, rated load, the body can be reinforced as shown below. Use 1/4" fillet welds and an AWS qualified welder.

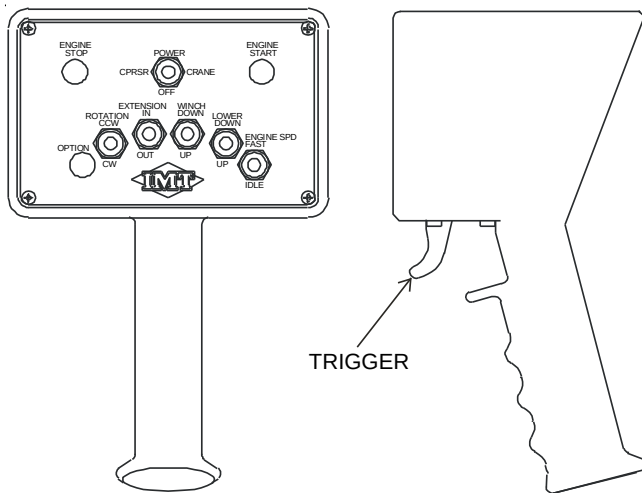


Telescopic Crane Orientation

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.



Electric Remote Handle Operating Instructions



- 1 Turn on the power via the on/off switch of the tethered remote handle.
- 2 Pull back on the trigger until the power unit begins to run.
- 3 Select the required function on the crane handle to move the crane as desired, making sure not to release tension on the trigger assembly.
- 4 When done with the function, continue to hold the trigger assembly in until all immediate movements of the crane have been completed.
- 5 If no further work with the crane is needed, or if all immediate movements of the crane have been completed, then release the trigger assembly to return the power unit back to a rested state.
- 6 Turn off power to the handset.

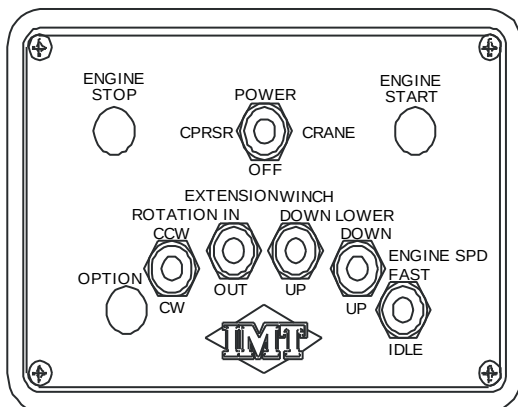
NOTE

Excessive or rapid “On/Off” cycling of the trigger assembly should be avoided, particularly if a function is engaged. This will cause premature aging or extensive damage to the power unit components.

Remote Engine Speed Control (From Crane)

Engine speed can be controlled from the remote control handle. When the engine speed switch is activated, voltage is applied at terminal 10 of relay "E". The coil of relay "E" is energized and current is allowed to flow to the signal input of the speed control currently installed. The speed of the engine will remain higher as long as the engine speed switch in the remote control handle is allowed to remain in the same position. If this switch is returned to its original position, the engine speed control coil will be de-energized through relay "E".

Compressor operation will begin when the "Compressor-OFF-Crane" switch on the handset is toggled to the "Compressor" position. At that time, the power from the handset will provide power to the pressure switch on the compressor. When the pressure switch signals a need for more air pressure, the switch will trip and provide a signal to terminal 5 of the relay board. Relay "C" energizes the coil in the relay, connecting terminal 4 to terminal "C" of the relay which is "HOT" from relay "B". Reference Figure 6 showing circuits energized (in bold) when engine speed is increased by the compressor. This will provide a "HOT" signal at terminal 4 which then provides a 12-volt signal to input of the speed control currently installed.



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

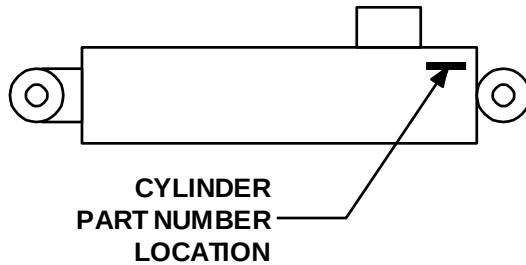
Every IMT crane has an identification placard (see figure). This placard is attached to the inner boom, mast, or crane base. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model numbers. Address all inquiries to 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	
70029119	

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.

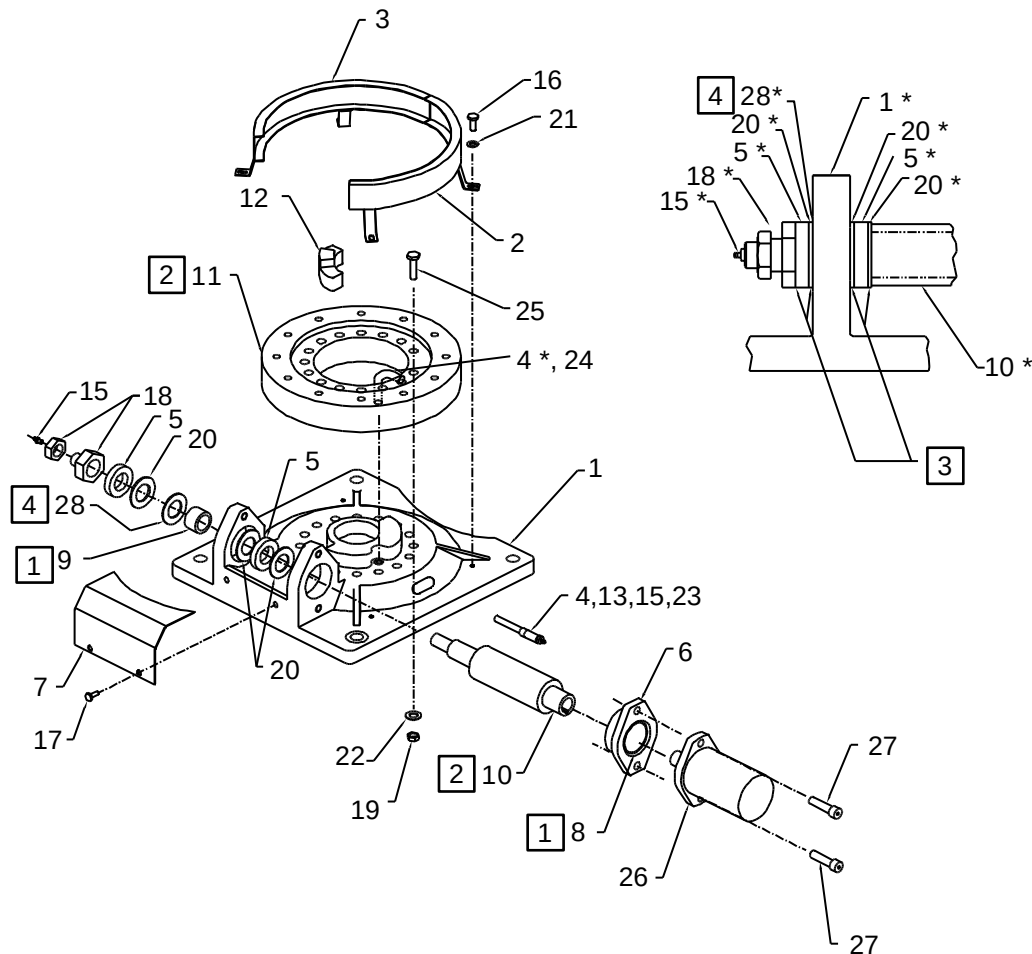
ORDERING REPAIR PARTS

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 & Mast Assemblies

Base Assembly (41704555)



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.

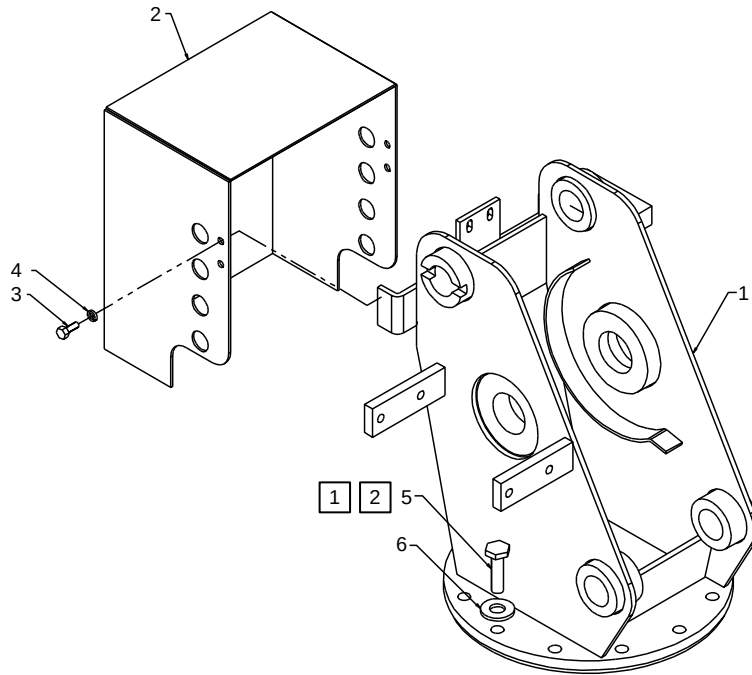
NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):

- 1 PACK BEARINGS WITH GREASE AT ASSEMBLY AND AFTER REPAIR.
- 2 APPLY MOLUB-ALLOY 882 HEAVY TO TURNTABLE BEARING AND WORM TEETH AT ASSEMBLY AND AFTER REPAIR.

- 3 THRUST BEARINGS MUST BE LUBRICATED AT ASSEMBLY, USING SLIP PLATE, LUBRI-PLATE, OR OTHER LUBRICANTS CONTAINING GRAPHITE OR MSO2.
- 4 SHIM AS REQUIRED IF NEEDED.
- 5 ITEMS MARKED WITH * ARE REFERENCE ONLY.

41704555 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51704551	BASE	1
2.	52713750	TURNTABLE GUARD-LEFT HAND	1
3.	52713751	TURNTABLE GUARD-RIGHT HAND	1
4.	60030086	TUBING	1
5.	60030116	THRUST BEARING	2
6.	60107543	SUPPORT PLATE	1
7.	60107617	COVER	1
8.	70055147	BEARING	1
9.	70055148	BEARING	1
10.	70056307	WORM GEAR	1
11.	71056308	TURNTABLE-BEARING	1
12.	71142535	SLIDE	1
13.	72053301	COUPLING 1/8NPT	1
15.	72053508	ZERK 1/8NPT	2
16.	72060000	CAP SCREW 1/4-20X1/2 HHGR5	4
17.	72060023	CAP SCREW 5/16-18X3/4 HHGR5Z (WAS 72060833)	2
18.	72062251	NUT 7/8-9 LOCK 2-PC GR8	1
19.	72062162	NUT 9/16-12 HEX GR8	15
20.	72063161	WASHER 1-1/8	3
21.	72063049	WASHER 1/4 LOCK	4
22.	72063117	WASHER 9/16 FLAT GR8	15
22.	72531731	ADAPTER 18MPT 1/4TUBE	1
24.	72531746	ADAPTER 1/8MPT 1/4TUBE 90°	1
25.	72601313	CAP SCREW 9/16-12X3-1/2 HHGR8	15
26.	73051482	HYDRAULIC MOTOR	1
27.	72060796	CAP SCREW 1/2-13X2 PLAIN (WAS 72601486)	2
28.	60121433	SHIM 2.25X1.81X16GA	REF
29.	51719377	HARDWRE KIT, 2020	1REF
29.	51719380	HARDWARE KIT, EZ HAULER	1REF
REV. L 20080422			

Mast Assembly (41714277)



⚠ 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.

NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):

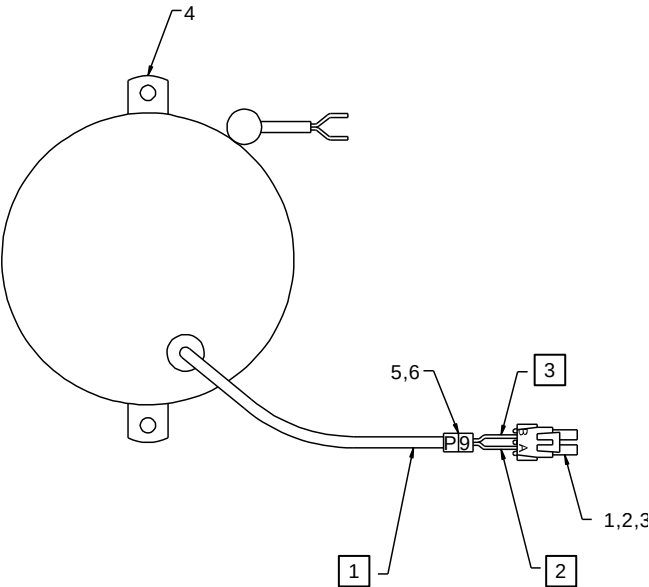
- 1 DO NOT USE THREAD LOCK ON #5 CAP SCREWS.
- 2 TORQUE TO 115 FT-LB (156 N-m).

41714277 PARTS LIST

ITEM	PART #	DESCRIPTION	KIT #	QUANTITY
1	52714230	MAST		1
2	60120189	COVER		1
3	72060003	CAP SCREW 1/4-20 X 0.88 HHGR5	#7	4
4	72063049	WASHER 1/4 LOCK	#7	4
5	72601144	CAP SCREW 9/16-12X2 HHGR8	#7	12
6	72063117	WASHER 9/16 HARD FLAT	#7	12
7	51719377	KIT-HRDW 2020 BASE AND MAST		1

REV. 20050607

Cord Reel Assembly (51713168)



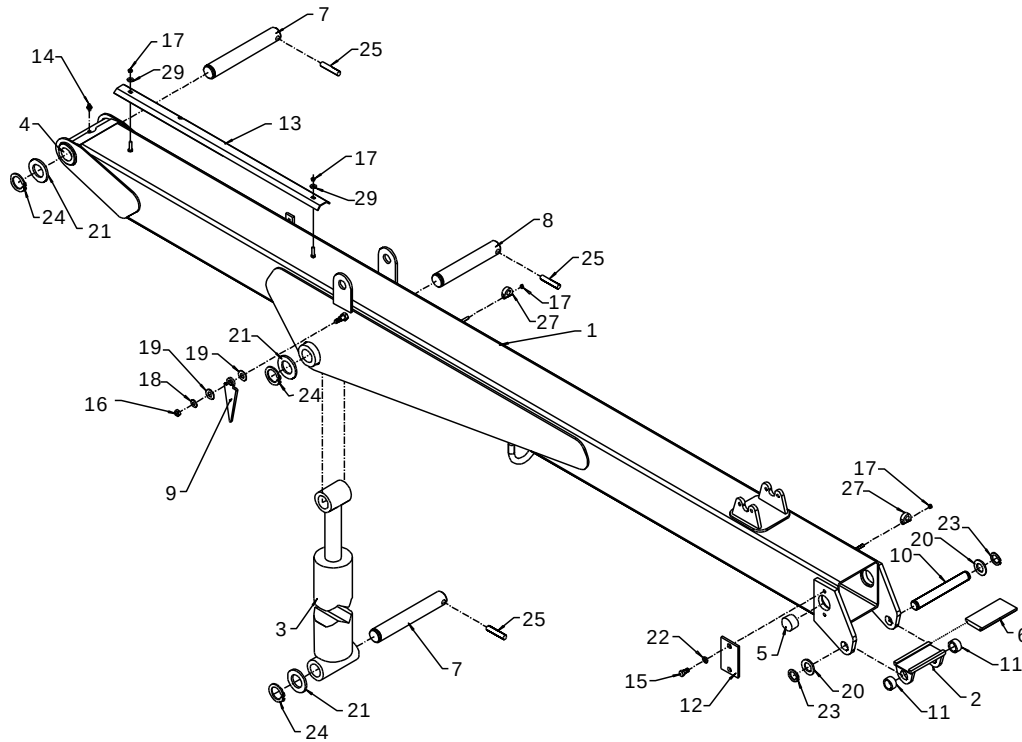
NOTES (SEE REFERENCE NUMBER IN BOX):

- 1 CUT TO LENGTH.
- 2 WHITE
- 3 BLACK

51713168 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	77044574	TOWER CONNECTOR	1
2.	77044550	PIN 18-20GA	2
3.	70394069	CABLE SEAL	2
4.	70732193	CORD REEL	1
5.	77041493	WIRE MARKER	1
6.	77041491	WIRE MARKER	1

Boom Assemblies & Cylinders

Lower Boom Assembly (41715074)

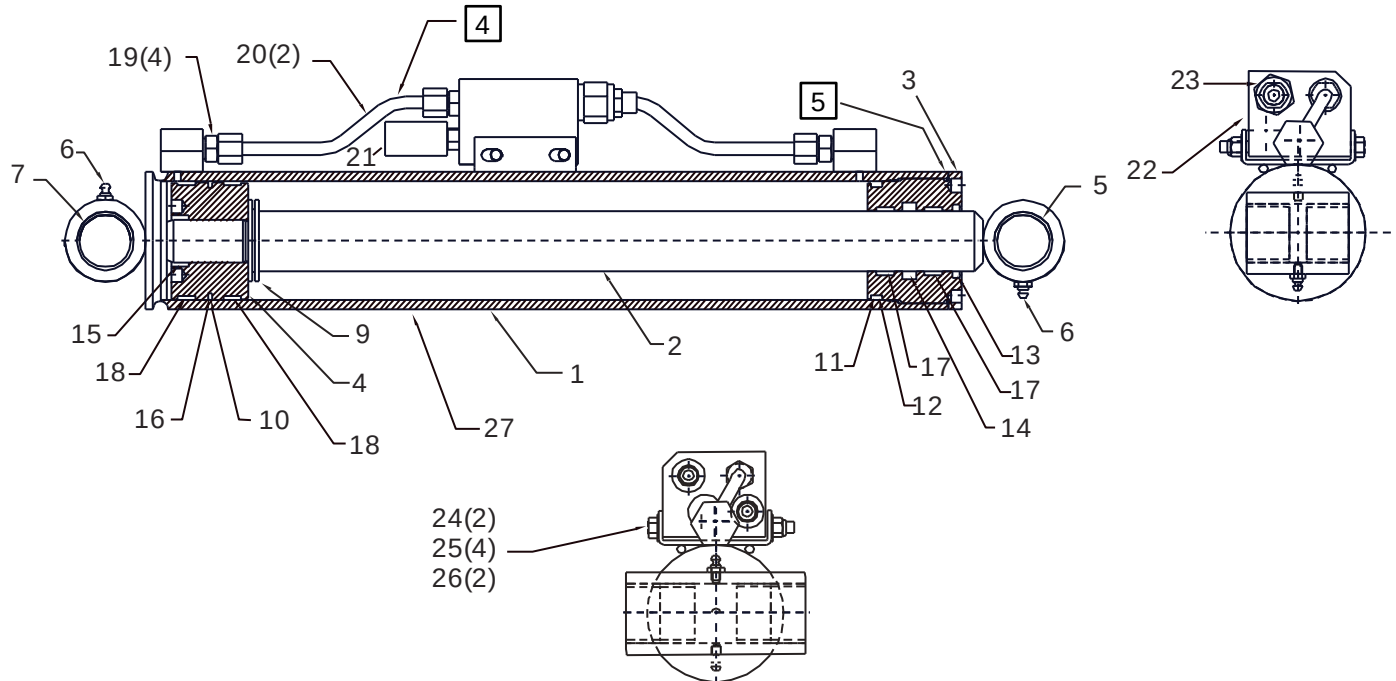


41715074 PARTS LIST

ITEM	PART #	DESCRIPTION	KIT #	QTY
1.	52713010	LOWER BOOM (INCL:4)		1
2.	52704549	TRUNNION (effective through 05/31/13)		1
	52725235	TRUNNION (effective from 05/31/13)		1
3.	3B200010	LOWER CYLINDER (WAS 71411800 FROM 9-05 THROUGH 4-10-07)		1
4.	7BF81215	BUSHING (PART OF 1)		4REF
5.	60030007	WEAR PAD		2
6.	60030083	WEAR PAD (effective through 05/31/13)		1
	60030496	WEAR PAD (effective from 05/31/13)		1
7.	60102376	PIN		2
8.	60102388	PIN		1
9.	60105544	INDICATOR		2
10.	60105749	PIN		1
11.	60107538	SPACER		2
12.	60107550	LOCK PLATE		2
13.	60107595	HOSE GUARD		1
14.	72053508	ZERK 1/8NPT	#30	1

41715074 PARTS LIST				
ITEM	PART #	DESCRIPTION	KIT #	QTY
15.	72060044	CAP SCR 3/8-16X3/4 HHGR5	#30	4
16.	72062103	NUT 3/8-16 LOCK	#30	2
17.	72062104	NUT 1/4-20 LOCK	#30	4
18.	72063003	WASHER 3/8 WRT	#30	2
19.	72063005	WASHER 1/2 WRT	#30	4
20.	72063034	MACHINERY BUSHING 1X10GA NR	#30	2
21.	72063037	MACHINERY BUSHING 1-1/2X10GA NR		3
22.	72063051	WASHER 3/8 LOCK	#30	4
23.	72066125	RETAINING RING 1 EXT HD	#30	2
24.	72066132	RETAINING RING 1-1/2 EXT HD		3
25.	72661157	GROOVE PIN 1/2X2-1/2		3
26.	72661638	TACK (WAS 72066340)		2
27.	70034381	SUPPORT		2
28.	70029119	SERIAL NUMBER PLACARD		1
29.	72063001	WASHER 1/4 WRT	#30	2
30.	51719378	HARDWARE KIT, 2020 BOOMS (INCL 14-19,22,23,29)		REF
REV J 20070410				

Lower Boom Cylinder (3B200010) (Thru 9-05, Eff. 4-07)



NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):

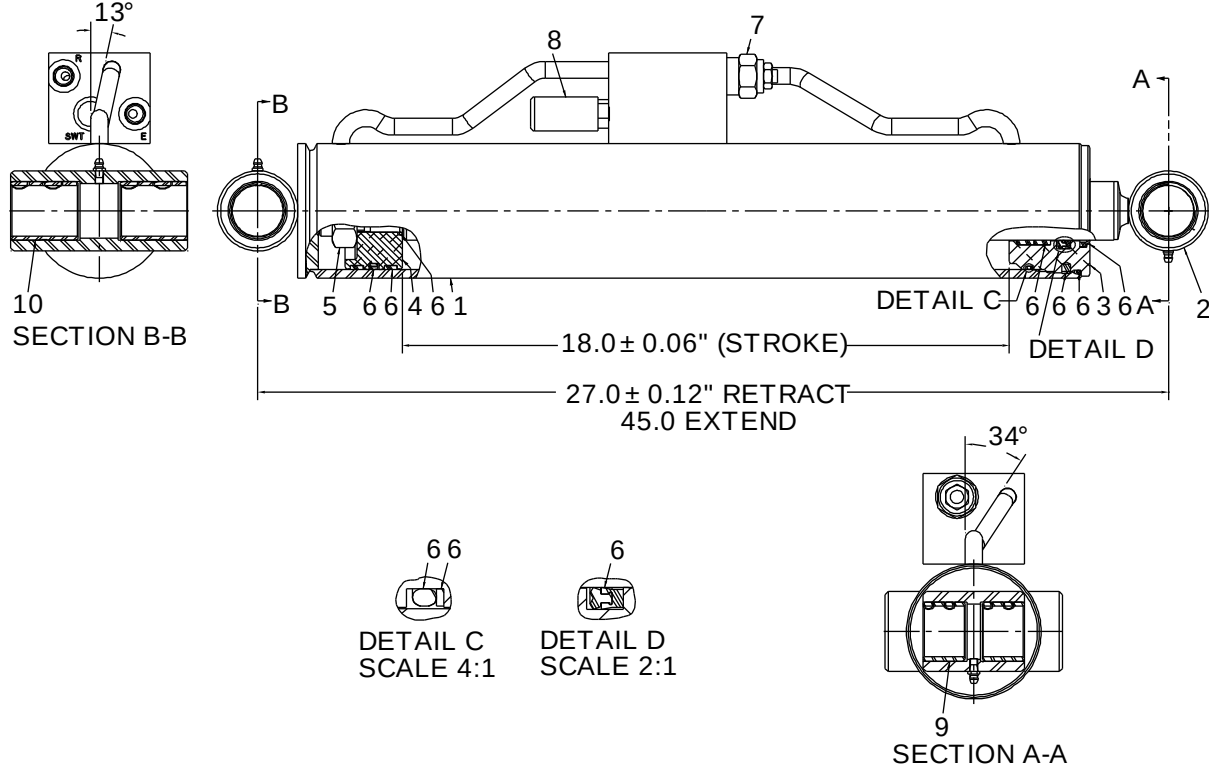
- 1 REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.
- 2 APPLY REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO THREADS ON CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.
- 3 APPLY "LUBRIPLATE" NO. 630-2 MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT, TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.
- 4 SHORT END TOWARD BLOCK.
- 5 DRILL #15 HOLE 0.188" DEEP. PRESS IN PIN # 60125699.
- 6 ITEM #9, STOP TUBE, REPLACES 6A025017 WAFER LOCK. USE STOP TUBE INSTEAD OF WAFER LOCK WHEN RESEALING CYLINDER.
- 7 TORQUE PISTON TO 500-530 FT-LB; HEAD TO 400 FT-LB; CARTRIDGE TO 30-35 FT-LB.

3B200010 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	4B200010	CASE ASM	1REF
2.	4G144820	ROD	1REF
3.	6HD35017	HEAD	1REF
4.	6ID35125	PISTON	1REF
5.	7BF81215	BUSHING (PART OF 2)	2REF
6.	72053507	ZERK 1/4-28 (PART OF 1&2)	2REF
7.	7BF81015	BUSHING (PART OF 1)	4REF
8.	9D141420	SEAL KIT	1REF
9.	60138273	STOP TUBE (WAS 6A025017) (PART OF 8)	1REF

3B200010 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
10.	7Q072151	O-RING (PART OF 8)	1REF
11.	7Q072338	O-RING (PART OF 8)	1REF
12.	7Q10P338	O-RING (PART OF 8)	1REF
13.	7R14P017	ROD WIPER (PART OF 8)	1REF
14.	7R546017	U-CUP LOADED (PART OF 8)	1REF
15.	7T61N125	LOCK RING-NYLON (PART OF 8)	1REF
16.	7T66P035	PISTON SEAL (PART OF 8)	1REF
17.	7T2NX420	WEAR RING-ROD (PART OF 8)	2REF
18.	7T2N4035	WEAR RING-PISTON (PART OF 8)	2REF
19.	72533186	ADAPTER #6 M FACE #6 M STR	4
20.	70145753	TUBE ASM	2
21.	77041552	PRESSURE SWITCH (PART OF 22)	1REF
22.	73540057	COUNTERBALANCE VALVE (INCL 21,23)	1
23.	73540052	COUNTERBALANCE (PART OF 22)	1REF
24.	72060037	CAP SCREW 5/16-18X4	2
25.	72063002	WASHER 5/16FLAT	4
26.	72062109	NUT 5/16-18 HEX NYLOC	2
27.	3B200010A	CYLINDER	1
28.	60125699	LOCKING PIN	1REF
REV C 20120402			

Lower Boom Cylinder (71411800) (Eff. 10-05 through 3-07)



NOTES:

- 1 TO REDUCE DOWNTIME, REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED.

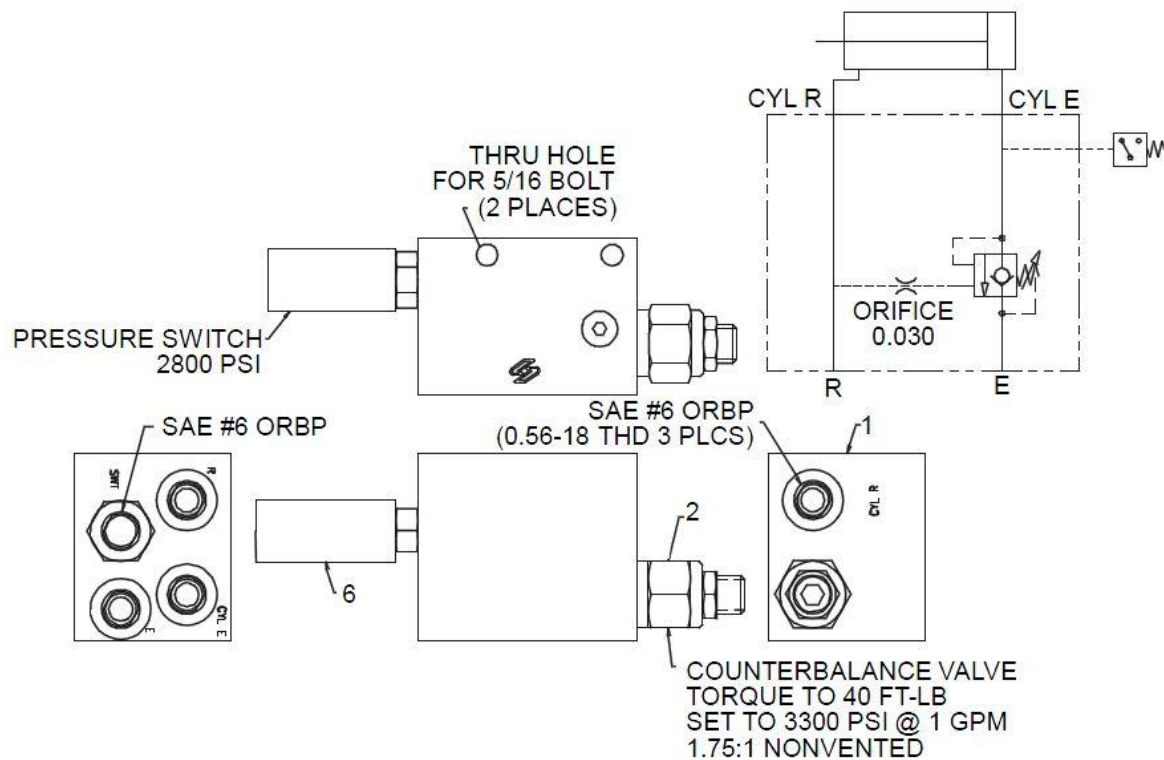
71411800 CYLINDER DATA	
EXTENDED	9.62 IN ³ , 0.75 GAL
RETRACTED	7.22 IN ³ , 0.56 GAL
CASE	3.50 BORE X Ø4.00
ROD	Ø1.750
DRY WEIGHT	46.3 LB
TEST PRESSURE	3000 PSI
OPERATING PRESSURE	2500 PSI
PORTS	SAE #6 O-RING BOSS (9/16-16 UNF-2B)
CYLINDER TUBE BURST PRESSURE	11,280 PSI
TORQUES	USING THREADLOCK COMPOUND, TORQUE LOCKNUT (#5) TO 500-550 LB. USE LOCKTITE 271 OR EQUIVALENT.
	TORQUE HEAD GLAND (#3) TO 250-300 FT-LB.
	TORQUE COUNTERBALANCE VALVE (#7) TO 40-45 FT-LB.
	TORQUE PRESSURE SWITCH (#8) TO 17-20 FT-LB.

71411800 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	71411943	CASE WELDMENT	1
2.	71411944	ROD WELDMENT	1
3.	71411945	HEAD GLAND	1
4.	71411946	PISTON	1
5.	REF	LOCKNUT, 1-14 UNS	1

71411800 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
6.	94396796	SEAL KIT	1
7.	73540052	COUNTERBALANCE VALVE	1
8.	77041552	PRESSURE SWITCH	1
9.	71411947	BUSHING	2
10.	71411948	BUSHING	2

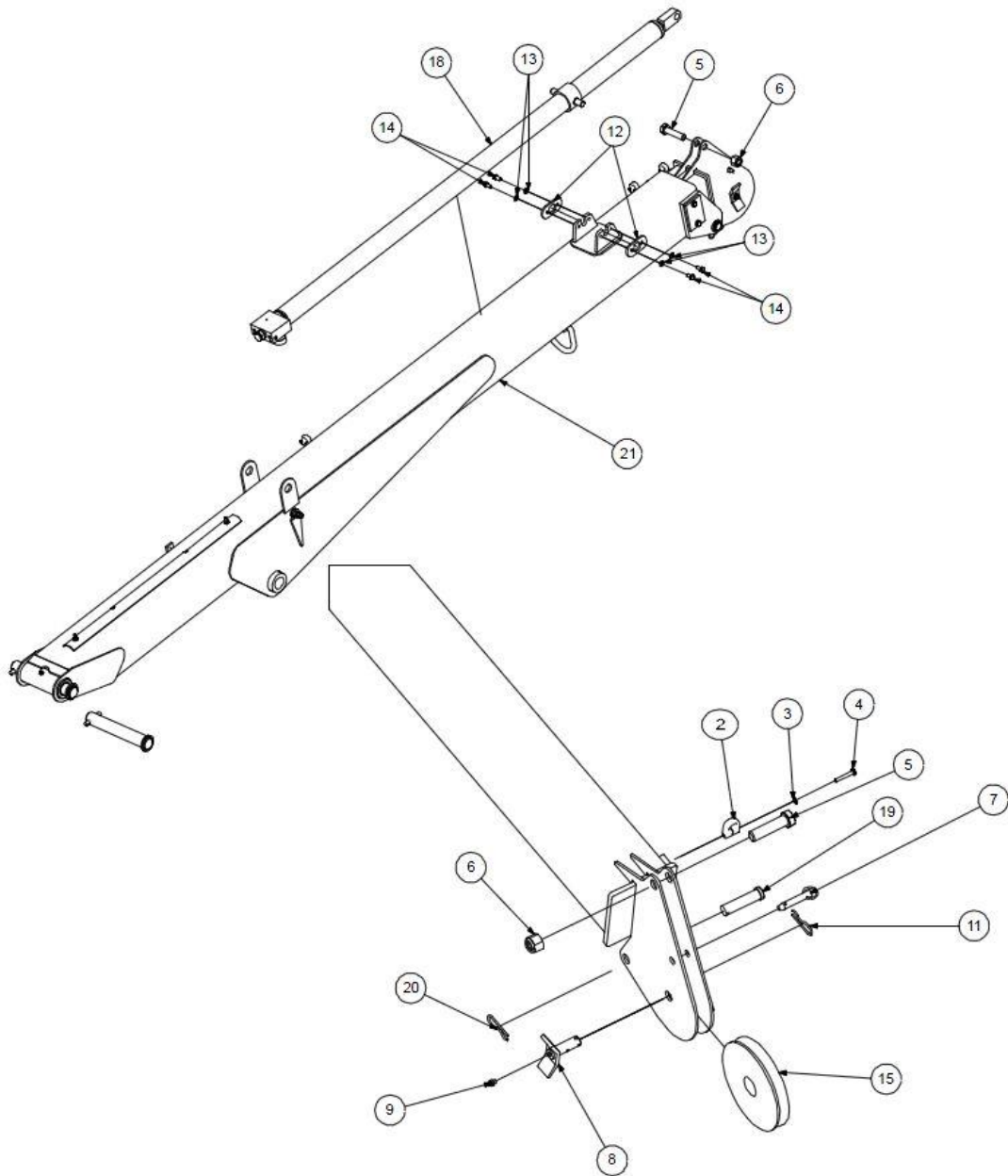
NEW 20051007

Counterbalance Valve Assembly (73540057)



73540057 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	73540149	COUNTERBALANCE VALVE	1
2.	73540052	COUNTERBALANCE VALVE	1
6.	77041552	PRESSURE SWITCH	1
7.	72533477	PLUG 7/16STR HOLHEX	2

Extension Boom Assembly, 15-foot (41714487)



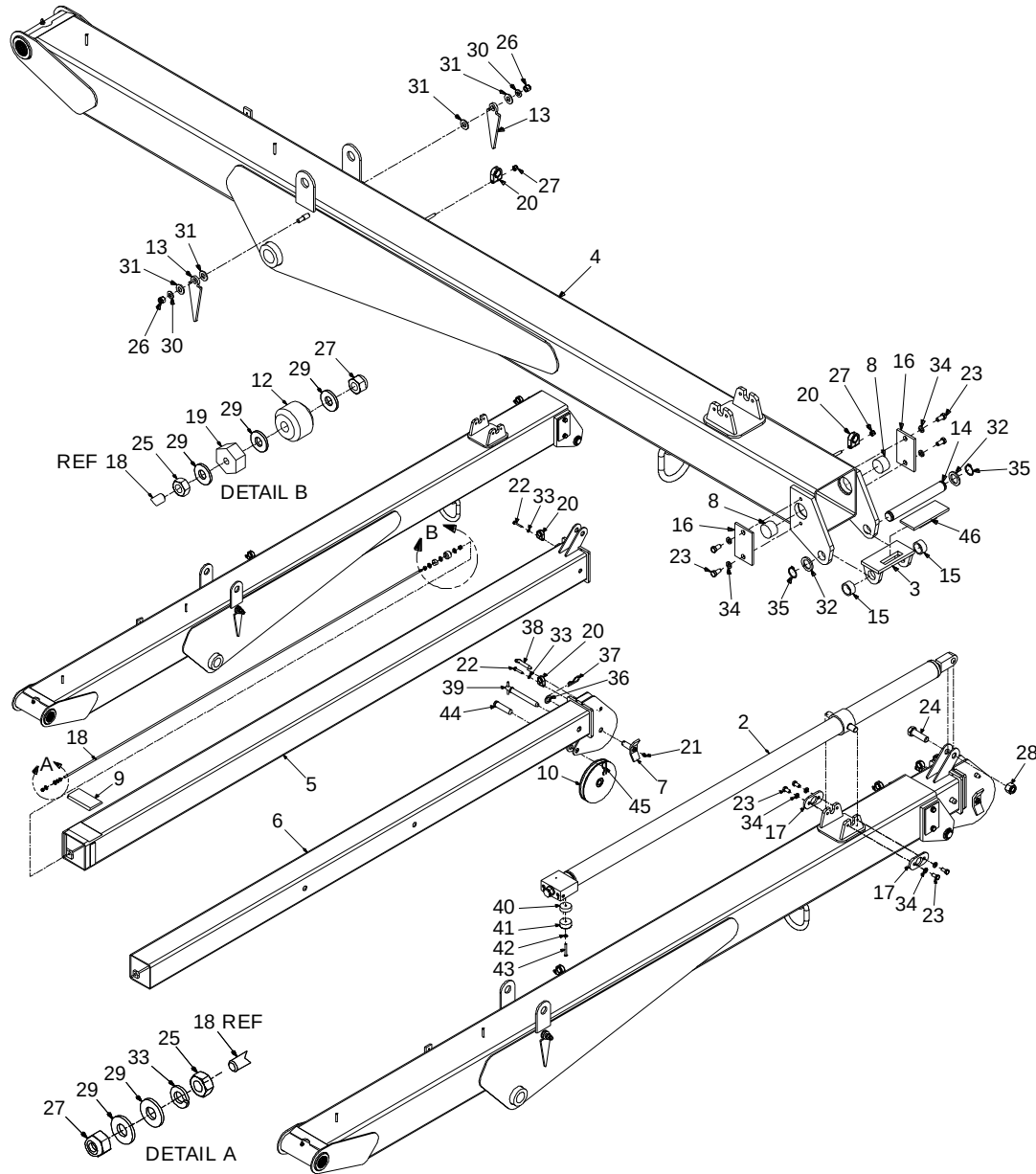
NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):

- 1 MAIN BOOM (REF)
- 2 INSTALL CORD GUIDE (70034381) WITH GUIDE HOLE UP.

41714487 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	52704554	BOOM-EXT WELDMNT 2015	1
2.	70034381	SUPPORT-GP STAUFF LN-4190-PA	1

41714487 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
3.	72063049	WASHER .25 LOCK	1
4.	72060006	CAP SCR .25-20X 1.5 HH GR5 Z	1
5.	72060187	CAP SCR .75-10X 3.00 HH GR5 Z	1
6.	72062114	NUT .75-10 HEX NULOCK	1
7.	71731462	PIN-QUICK RLSE .50D/1.5 CRIT	1
8.	52704255	PIN-TYPE T .75X 1.88	1
9.	72053508	ZERK-NPT .12	1
10.	72063030	MACHY BUSHING .75X10 GA NR	1
11.	72066145	HAIR PIN .19 ZINC	1
12.	60107922	LOCK PLATE-EXT CYL 2115	2
13.	72063051	WASHER .38 LOCK	4
14.	72060044	CAP SCR .38-16X .75 HH GR5 Z	4
15.	60030082	SHEAVE-7.00 NYLON W/BEARING	1
16.	-		
17.	60030081	WEAR PAD-BV NYL .38X2.88X 5.00	1
18.	3B310970	CYL-2.0/1.2 60.00S 20.00CC C	1
19.	72661712	CLEVIS PIN .75 X 3.00	1
20.	72066144	HAIR PIN .16 ZINC	1
REV D 20130430			

Extension Boom Assembly, 20-foot (41714486)



NOTES (SEE REFERENCE NUMBER IN BOX):

- 1 CORD GUIDE (70034381) SHOULD BE INSTALLED WITH GUIDE HOLE UP.
- 2 ITEM # 24(70394443)- LOCATE AT OR NEAR MNL BOOM EXT RETENTION MECHANISM.

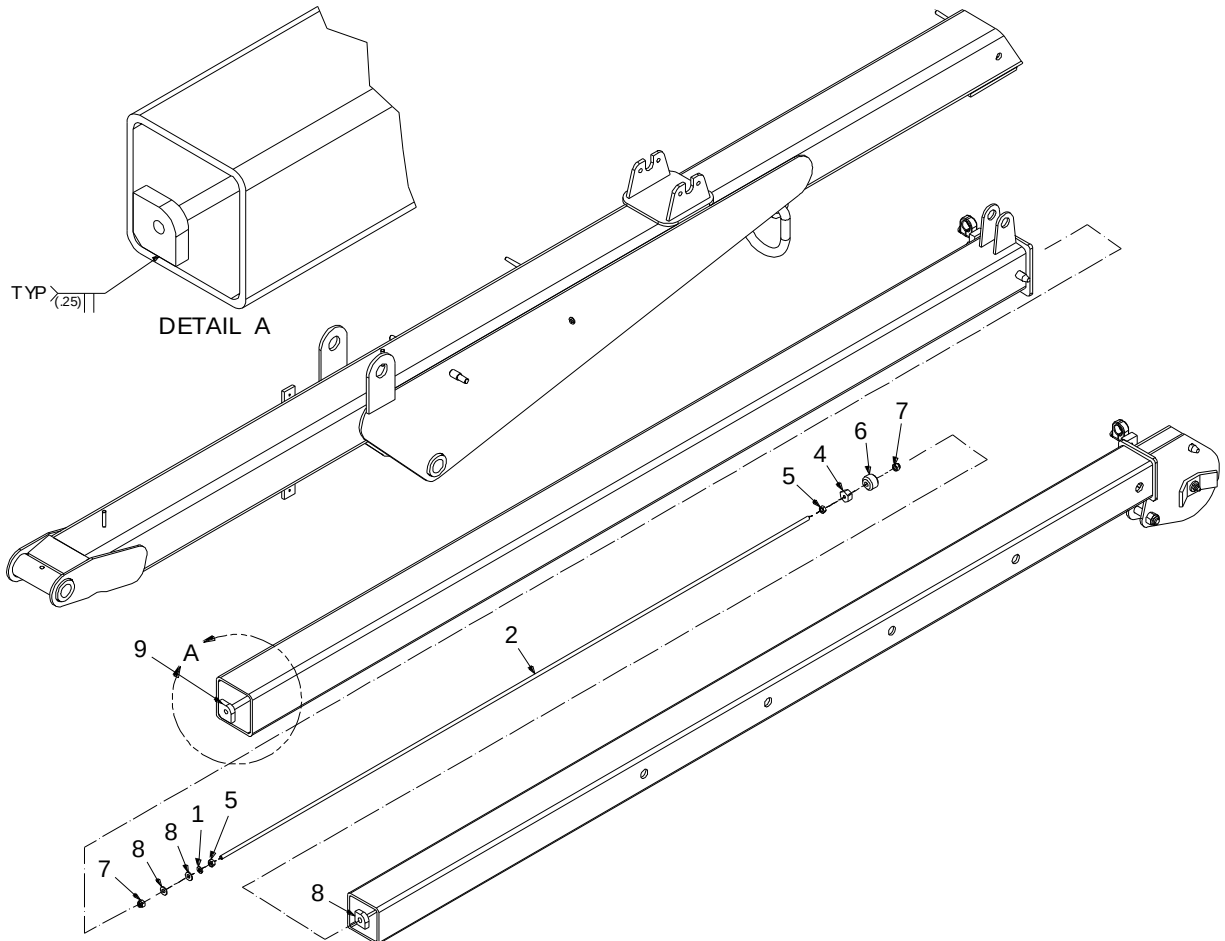
41714486 PARTS LIST

ITEM	PART #	DESCRIPTION	KIT #	QTY
1.	51719378	KIT-HRDW 2020 BOOMS		1
2.	3B185010	CYL-2.0 1.2 60.00S 20.00CC C (WAS 71411799 FROM 9-05 THRU 4-07)		1
3.	52704549	TRUNNION-WELDMENT (effective through 05/31/13)		1

41714486 PARTS LIST				
ITEM	PART #	DESCRIPTION	KIT #	QTY
3.	52725235	TRUNNION-WLDMT 2020 MAIN (effective from 05/31/13)		1
4.	52713010	BOOM-MAIN WLDMT 2015 W D-RING		1
5.	52706488	BOOM-EXT WLDMT 2015-20 1ST STG		1
6.	52706490	BOOM-EXT WLDMT 2015-20 2ND STG		1
7.	52704255	PIN-TYPE T .75X 1.88		1
8.	60030007	WEAR PAD-RD UHMW 1.50X .94		2
9.	60030081	WEAR PAD-BV NYL .38X2.88X 5.00		1
10.	60030082	SHEAVE- 7.00 NYLON W BEARING		1
12.	60030389	WEAR PAD-RND UHMW BOOM STOP		1
13.	60105544	PLATE-ANGLE PLASTIC		2
14.	60105749	PIN-TYPE A 1.00X 7.88 (7.31)		1
15.	60107538	PIPE-1.00 SCH40 X .62		2
16.	60107550	LOCK PLATE-MAIN BOOM 2015		2
17.	60107922	LOCK PLATE-EXT CYL 2115		2
18.	60133849	ROD- 0.25X 78		1
19.	60133850	NUT-0.25X .38 CUSTOM		1
20.	70034381	SUPPORT-GP STAUFF LN-4190-PA		4
21.	72053508	ZERK-NPT .12	#1	2
22.	72060006	CAP SCR .25-20X 1.50 HH GR5 Z	#1	2
23.	72060044	CAP SCR .38-16X .75 HH GR5 Z	#1	8
24.	72060186	CAP SCR .75-10X 2.50 HH GR5 Z	#1	1
25.	72062000	NUT .25-20 HEX	#1	2
26.	72062103	NUT .38-16 HEX NYLOCK	#1	2
27.	72062104	NUT .25-20 HEX NYLOCK	#1	4
28.	72062114	NUT .75-10 HEX NYLOCK (EFF. 6-20-2013)	#1	1
29.	72063001	WASHER .25 FLAT	#1	2
30.	72063003	WASHER .38 FLAT	#1	2
31.	72063005	WASHER .50 FLAT	#1	4
32.	72063034	MACHY BUSHING 1.00X10 GA NR	#1	2
33.	72063049	WASHER .25 LOCK	#1	3
34.	72063051	WASHER .38 LOCK	#1	8
35.	72066125	RETAINING RING-EXT 1.00 HD	#1	2
36.	72063030	MACHY BUSHING .75X10 GA NR		1
37.	72066145	HAIR PIN .19 ZINC		1
38.	71731462	PIN-QUICK RLSE .50D 1.5 CRIT		1
39.	71731799	PIN-T QUICK RLSE .62D 5.0 CRIT		1
40.	60120895	SPACER-UHMW 1.50 DIA X 0.50 LG	REF #2	1
41.	70392190	BUMPER-RUBBER ADVANCE 8076	REF #2	1
42.	72063000	WASHER-FLAT .19 W ANSI B27.2 Z	REF #2	1
43.	72060639	SCR-MACH 10-24X 1.25 RDH	REF #2	1
44.	72661712	CLEVIS PIN .75 X 3.00 (EFF. 6-20-2013)	#1	1
45.	72066144	HAIR PIN .16 ZINC	#1	1
46	60030496	WEAR PAD - EXT CYL 2020 (EFF. 8-19-2013)		1
REV M 20130819				

Rev K with boom stop effective S/N 2020111048.

Installation - Manual Extension Boom Stop (99905213)

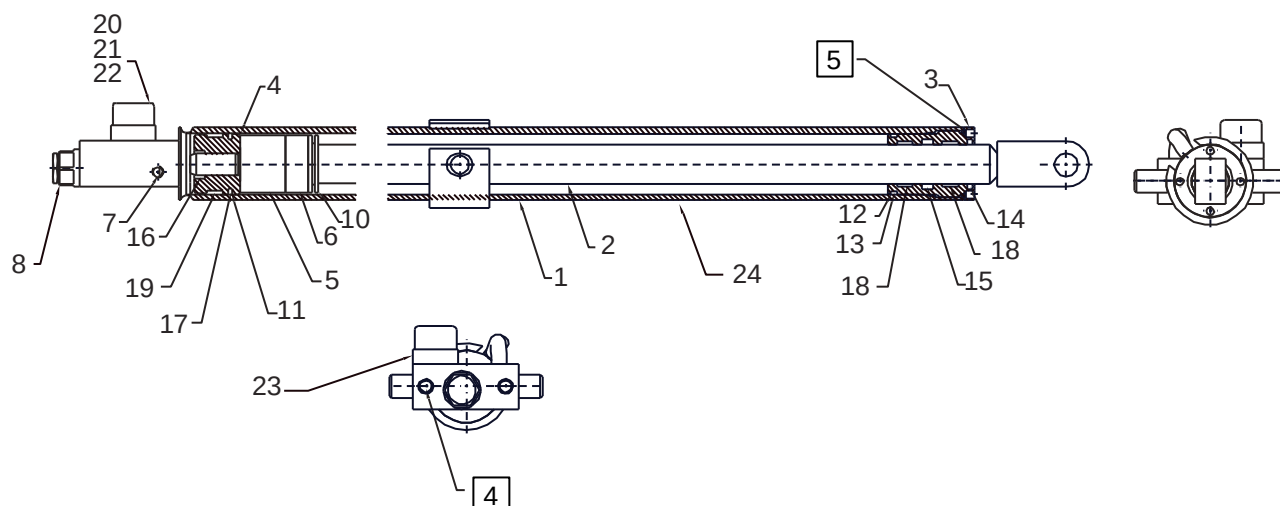


99905213 PARTS LIST

ITEM	PART #	DESCRIPTION	DETAILS	QUANTITY
1.	72063049	WASHER	.25 LOCK	1
2.	60137706	ROD	.25 DIA X 57.00 LG 1/4-20 X 2.00	1
4.	60133850	NUT	0.25X .38 CUSTOM	1
5.	72062000	NUT	.25-20 HEX	2
6.	60030389	WEAR PAD-RND UHMW BOOM STOP		1
7.	72062104	NUT	.25-20 HEX NYLOCK	2
8.	72063001	WASHER	.25 FLAT	2
9.	60133847	STOP PLATE	1.25 X 1.25 X .38	1
10.	60133848	STOP PLATE	1.00 X 1.00 X .38	1
11.	72063001	.25" FLATWASHER		3

REV A 20110718

Extension Cylinder (3B185010) (Thru. 9-05, Eff. 5-07)



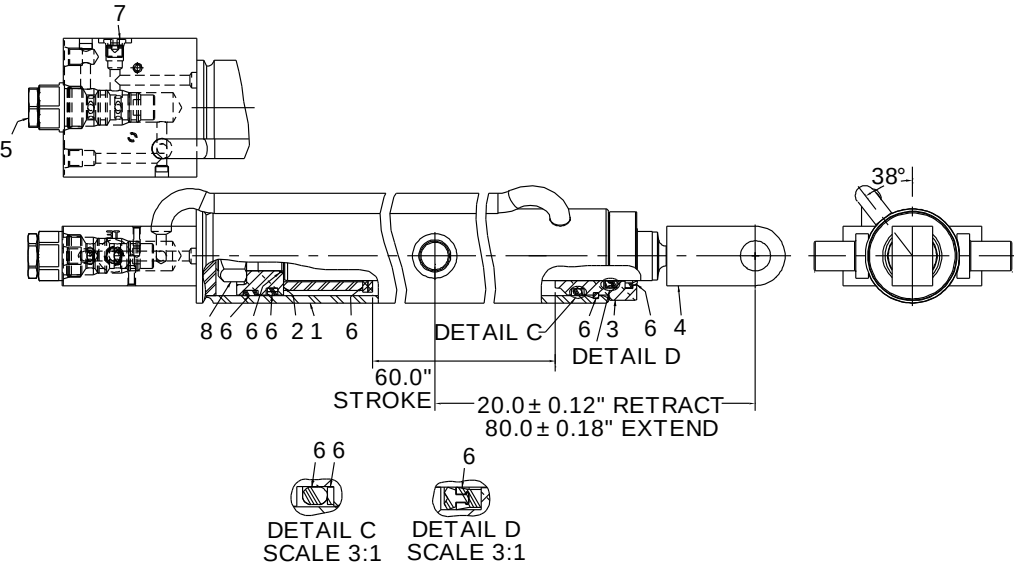
NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):

- 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 #4 SAE O-RING PORTS
- 5 DRILL #15 HOLE 0.188" DEEP. PRESS IN PIN # 60125699.
- 6 ITEM #10, STOP TUBE, REPLACES 6A025012 WAFER LOCK. USE STOP TUBE INSTEAD OF WAFER LOCK WHEN RESEALING CYLINDER.
- 7 TORQUE PISTON TO 100-130 FT-LB; HEAD TO 200 FT-LB; CARTRIDGE TO 30-35 FT-LB

3B185010 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	4B185010	CASE ASSEMBLY (INCL:3)	1REF
2.	4G138820	ROD	1
3.	6HD20012	HEAD (PART OF 24)	1REF
4.	6ID20075	PISTON (PART OF 24)	1REF
5.	6C150012	STOP TUBE (PART OF 24)	1REF
6.	6C075012	STOP TUBE (PART OF 24)	1REF
7.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
8.	73054304	COUNTERBALANCE VALVE 10GPM	1
9.	9D081012	SEAL KIT (PART OF 24)	1REF
10.	60138271	STOP TUBE (WAS 6A025012) (PART OF 9)	1REF
11.	7Q072129	O-RING (PART OF 9)	1REF
12.	7Q072224	O-RING (PART OF 9)	1REF

3B185010 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
13.	7Q10P224	O-RING (PART OF 9)	1REF
14.	7R14P012	ROD WIPER (PART OF 9)	1REF
15.	7R546012	U-CUP LOADED (PART OF 9)	1REF
16.	7T61N075	LOCK RING (PART OF 9)	1REF
17.	7T66P020	PISTON SEAL (PART OF 9)	1REF
18.	7T2NX415	WEAR RING-ROD (PART OF 9)	2REF
19.	7T2N4020	WEAR RING-PISTON (PART OF 9)	1REF
20.	70392190	BUMPER	1
21.	72060639	MACHINERY SCREW #10-24X1-1/4 RDHD	1
22.	72063000	WASHER .19 FLAT	1
23.	60120895	SPACER	1
24.	3B185010A	CYLINDER (INCL 1-6, 8,9)	1
25.	60125699	PIN-LOCKING TUBE	1REF
REV D 20120402			

Extension Cylinder (71411799) (Eff. 10-05 through 4-07)

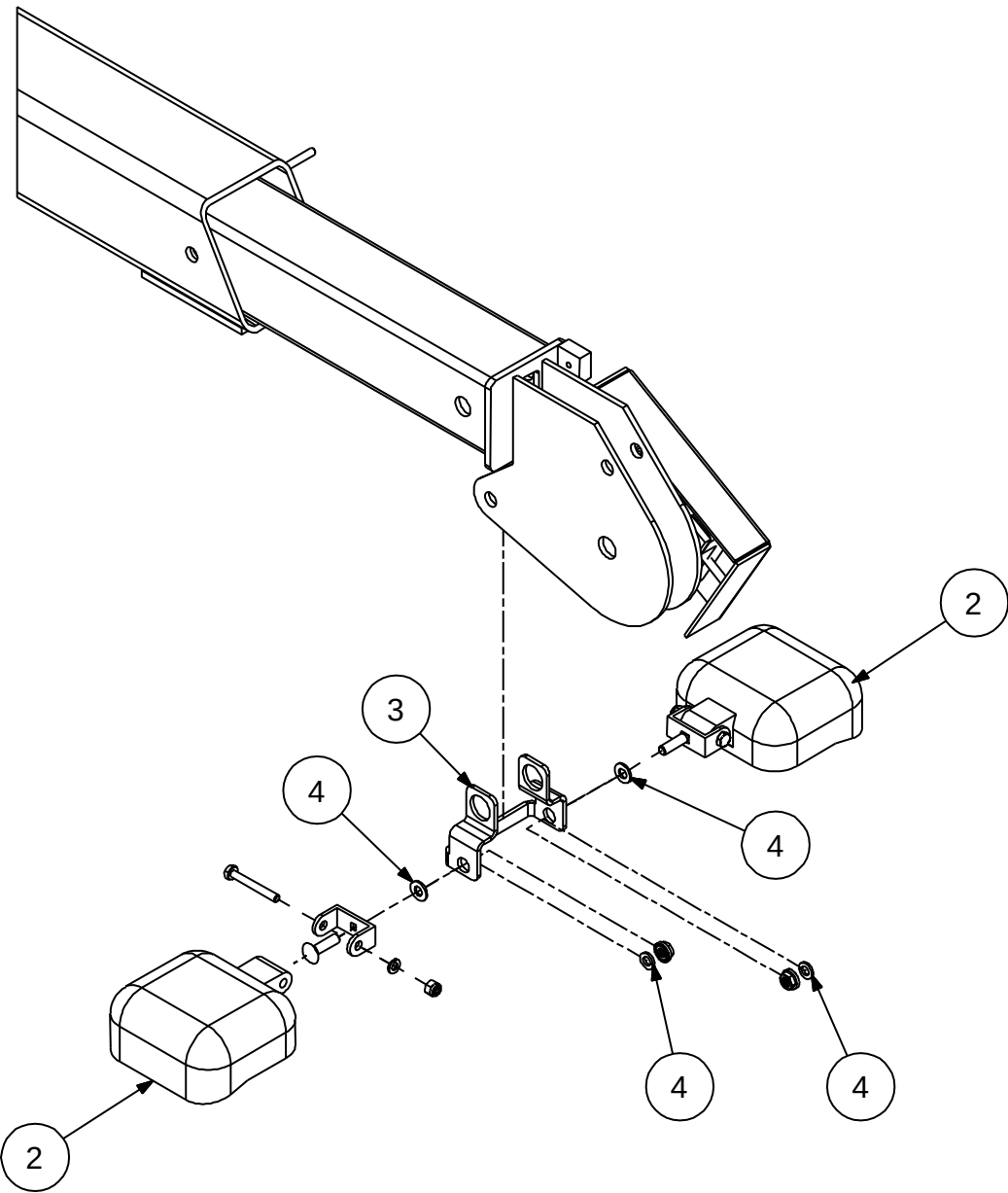


- NOTES:**
- 1 TO REDUCE DOWNTIME, REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED.

71411799 CYLINDER DATA	
EXTENDED	3.17 IN ² , 0.82 GAL
RETRACTED	1.95 IN ² , 0.50 GAL
CASE	2.00 BORE X ø2.375
ROD	ø1.25
DRY WEIGHT	54.3 LB
TEST PRESSURE	3500 PSI
OPERATING PRESSURE	3000 PSI
PORTS	SAE #4 O-RING BOSS (7/16-20 UNF-2B)
CYLINDER TUBE BURST PRESSURE	14,270 PSI
TORQUES	USING THREADLOCK COMPOUND, TORQUE LOCKNUT (#8) TO 100-110 FT-LB. USE LOCKTITE GRADE 271 OR EQUIVALENT.
	TORQUE COUNTERBALANCE VALVE (#5) TO 30-35 FT-LB.
	USING THREADLOCK COMPOUND, TORQUE O-RING BOSS PLUG (#7) TO 10-12 FT-LB. USE LOCKTITE GRADE 243 OR EQUIVALENT.

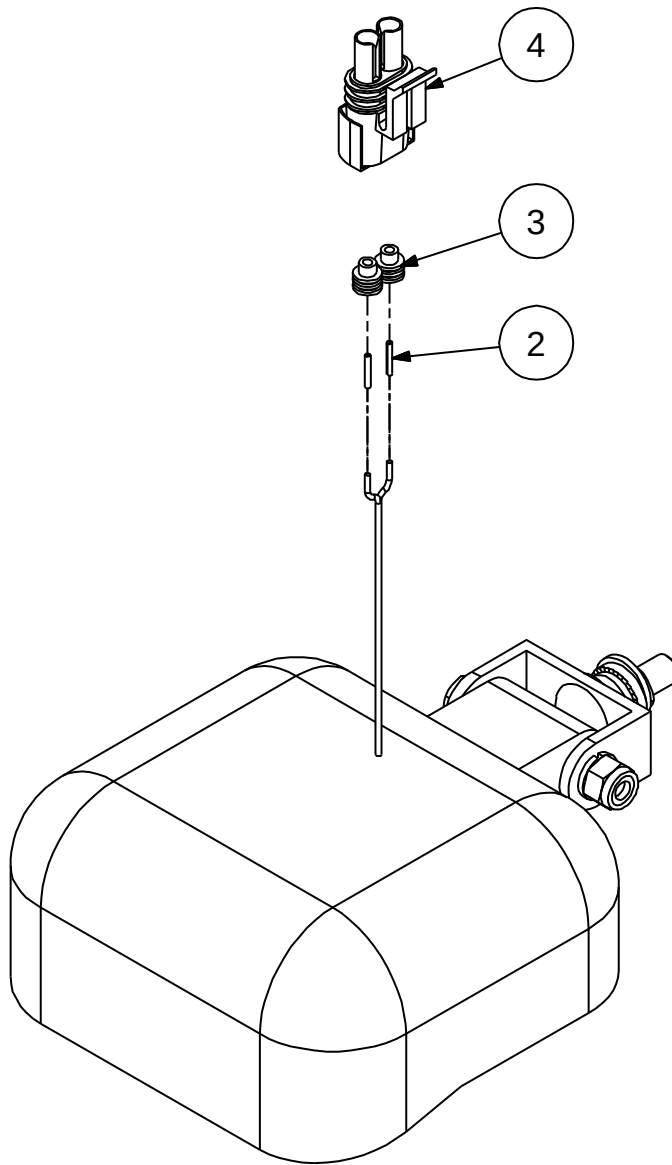
71411799 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	71411941	CASE WELDMENT	1
2.	71411928	PISTON	1
3.	71411927	HEAD GLAND	1
4.	71411942	ROD WELDMENT	1
5.	73054304	COUNTERBALANCE VALVE	1
6.	94396792	SEAL KIT	1
7.	REF	PLUG, #4 STEEL HEX HOL	1
8.	REF	LOCKNUT, 3/4-16 UNF	1

Boom Light Kit (99906232)

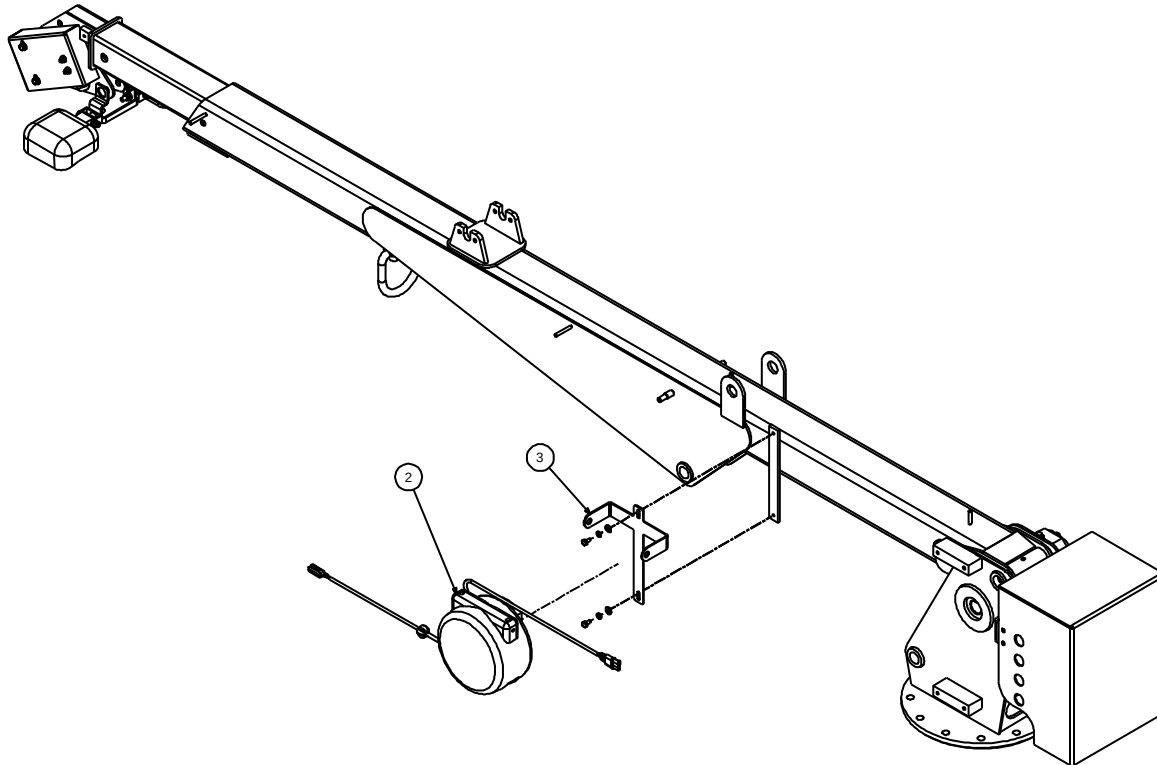


ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1	51727277	ELECT KIT-BOOM FLOOD LIGHTS 1015-2020		1
2	77040581	FLOODLIGHT-LED 12-36VDC	1	2

ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
3	60145151	BRACKET-LIGHT 1015-2020	1	1
4	72063002	WASHER .31 FLAT	1	4
REV. B				
Effective 1-1-2018				

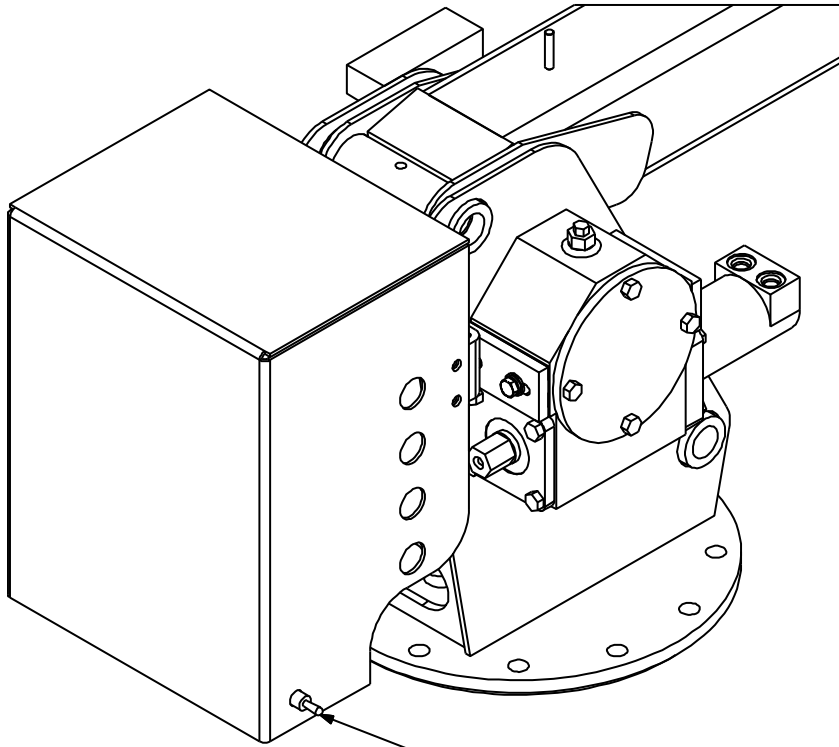
99906232-1

ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	51727277	ELECT KIT-BOOM FLOOD LIGHTS 1015-2020		1
2.	77045888	TERM-PKRD WEATHERPACK 14-16GA FEMALE	1	2
3.	77044927	CABLE SEAL-PKRD WP/MP 14 GA GREY	1	2
4.	77044574	CONN-PKRD WEATHERPACK 2 CAV FEMALE/TOWER	1	1
REV. B				
Effective 1-1-2018				

99906232-2

ITEM NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	51727277	ELECT KIT-BOOM FLOOD LIGHTS 1015-2020		1
2.	51727416	CORD REEL ASM 4.75' W/PACKARD CONN 3-WIR	1	1
3.	60145335	BRKT- CORD REEL MNT	1	1
REV. B				
Effective 1-1-2018				

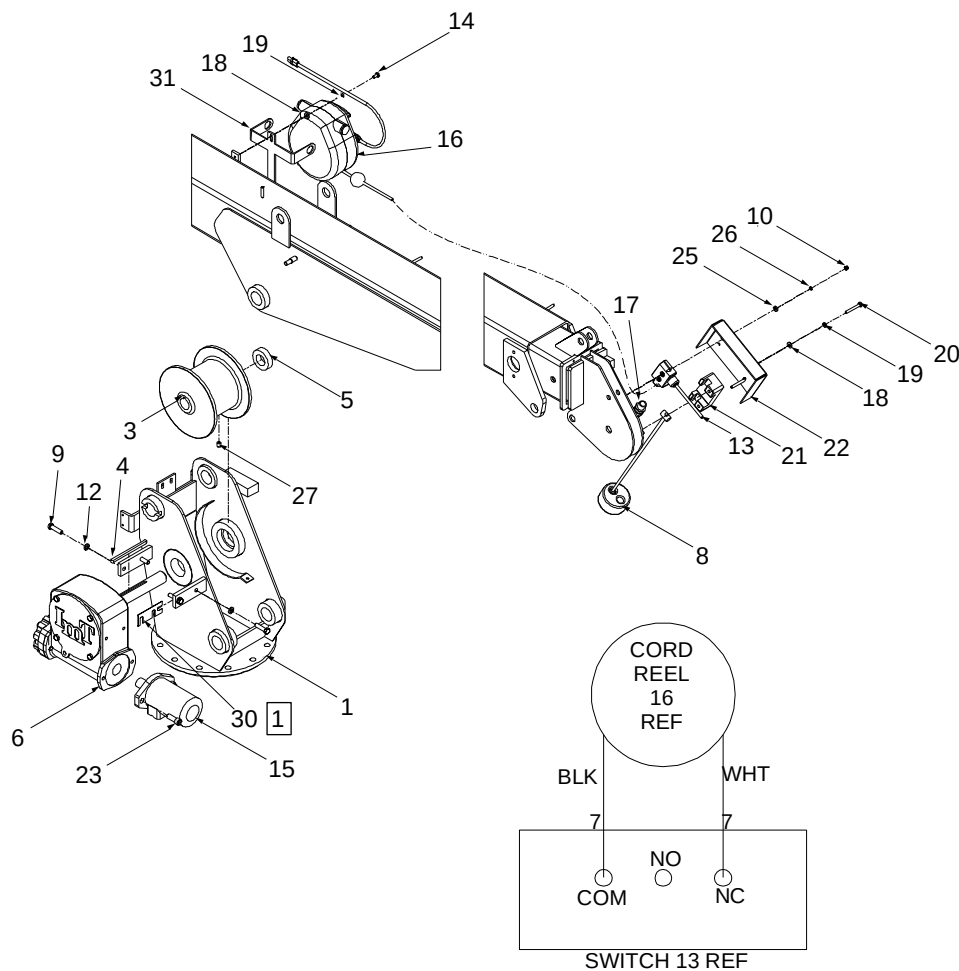
99906232-3



INSTALL TOGGLE SWITCH IN VALVE BANK COVER
TO "UP" AS ON, AND "DOWN" AS OFF.

NOTE: TOGGLE SWITCH 77041345
IS PART OF HARNESS 77441674.

Winch/Cable/Hook Kit (41714444) Effective: 2-9-2017



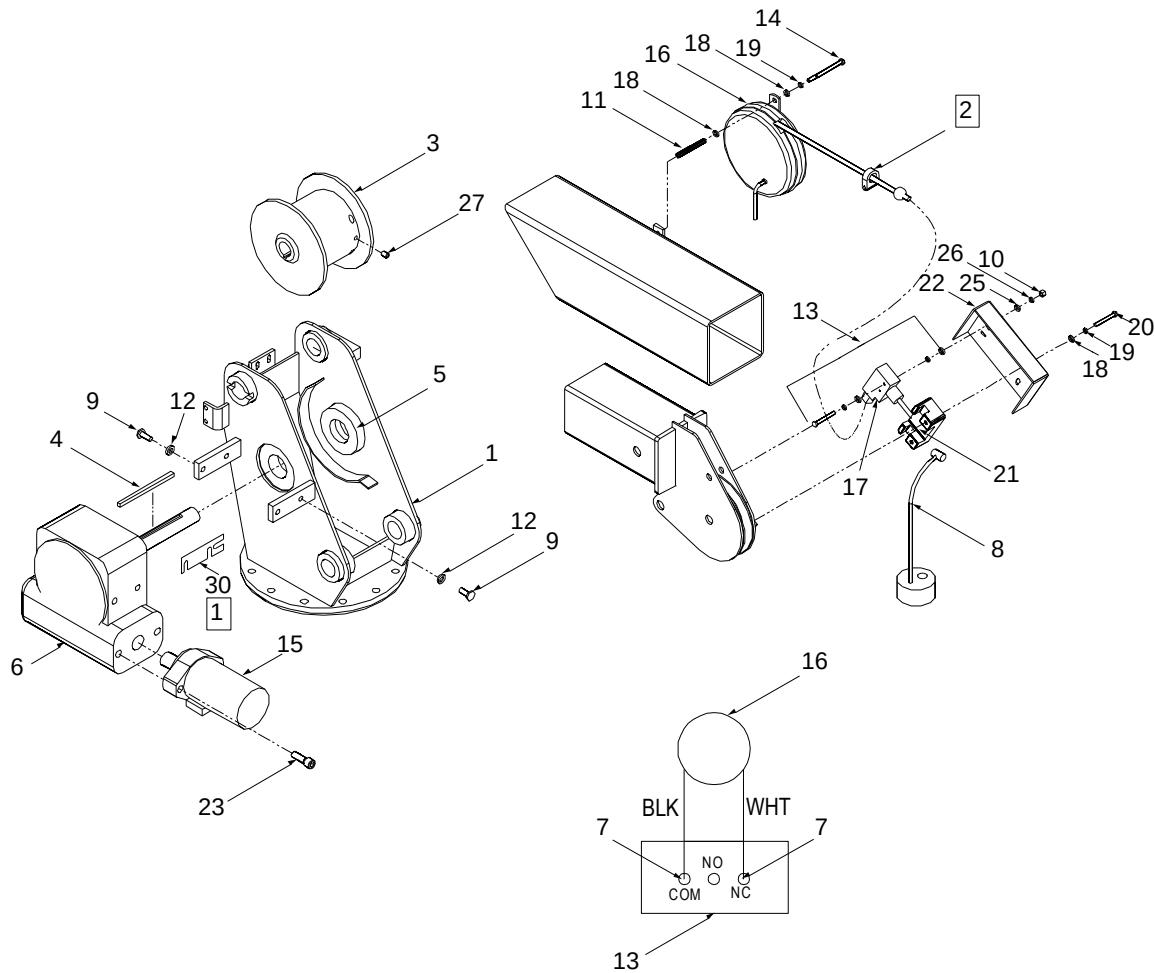
Notes:

1. Use shim as required. Cut in two pieces for single, or fold over for double thickness.

41714444 Parts List			
Item	Part No.	Description	Qty
01	52714230	MAST-WLDMT 2015 FAUVER	REF
02	51725231	SNATCH BLOCK AND CABLE KIT - 2020 (NOT SHOWN)	1
03	60025211	DRUM-WINCH 2015	1
04	70143944	KEY-WINCH TUL03 40903 (PART OF 08)	1 REF
05	70055142	BEARING-STA35 BRB1654DC	1
06	71057987	WINCH-2015 TUL03 80439	1
07	77040051	TERM-SPRSPADE 1 8STUD 16-14	2
08	52709413	CABLE-WLDMT ANTI-2 BLOCK 3016	1
09	72060048	CAP SCR .38-16X 1.50 HH GR5 Z (PART OF #28)	4 REF

41714444 Parts List			
Item	Part No.	Description	Qty
10	72062207	NUT 8-32 HEX NYLOCK (PART OF #29)	2 REF
12	72063051	WASHER .38 LOCK (PART OF #28)	4 REF
13	77041291	SWITCH-LIMIT	1
14	72060000	CAP SCR .25-20X .50 HH GR5 Z (PART OF #29)	2 REF
15	73051690	MOTOR-HYD C101-1033-009	1
16	51727064	CORD REEL ASM - 4.17' - W/PACKARD CONNECTOR	1
17	77044468	CONNECTOR- .50 STR RLF .12-.25 (PART OF #29)	1 REF
18	72063001	WASHER .25 FLAT (PART OF #29)	4 REF
19	72063049	WASHER .25 LOCK (PART OF #29)	4 REF
20	72060008	CAP SCR .25-20X 2.00 HH GR5 Z (PART OF #29)	2 REF
21	60113594	MTG BLOCK-COVER ANTI-2BLK 5016	1
22	60127876	COVER-ANTI 2 BLOCK MICRO SWITCH LEFT	1
23	72060774	CAP SCR .44-14X 1.25 SH PLAIN (PART OF #28)	2 REF
25	72063098	WASHER .16 W FLAT ANSI B27.2Z (PART OF #29)	2 REF
26	72063047	WASHER #10 LOCK (PART OF #29)	2 REF
27	72060579	SET SCR .38-16X .50 SOC PLAI	1
28	51719377	KIT-HRDW 2020 BASE AND MAST (INCL: 9, 12 & 23)	REF
29	51719378	KIT-HRDW 2020 BOOMS (INCL: 10, 14, 17-20, 25 & 26)	REF
30	60132917	SHIM-WINCH DRIVE (.035)	A/R
31	60144951	BRKT- CORD REEL MNT	1
REV. H 20170310			

Winch/Cable/Hook Kit (41714444) (Effective thru: 2-8-17)



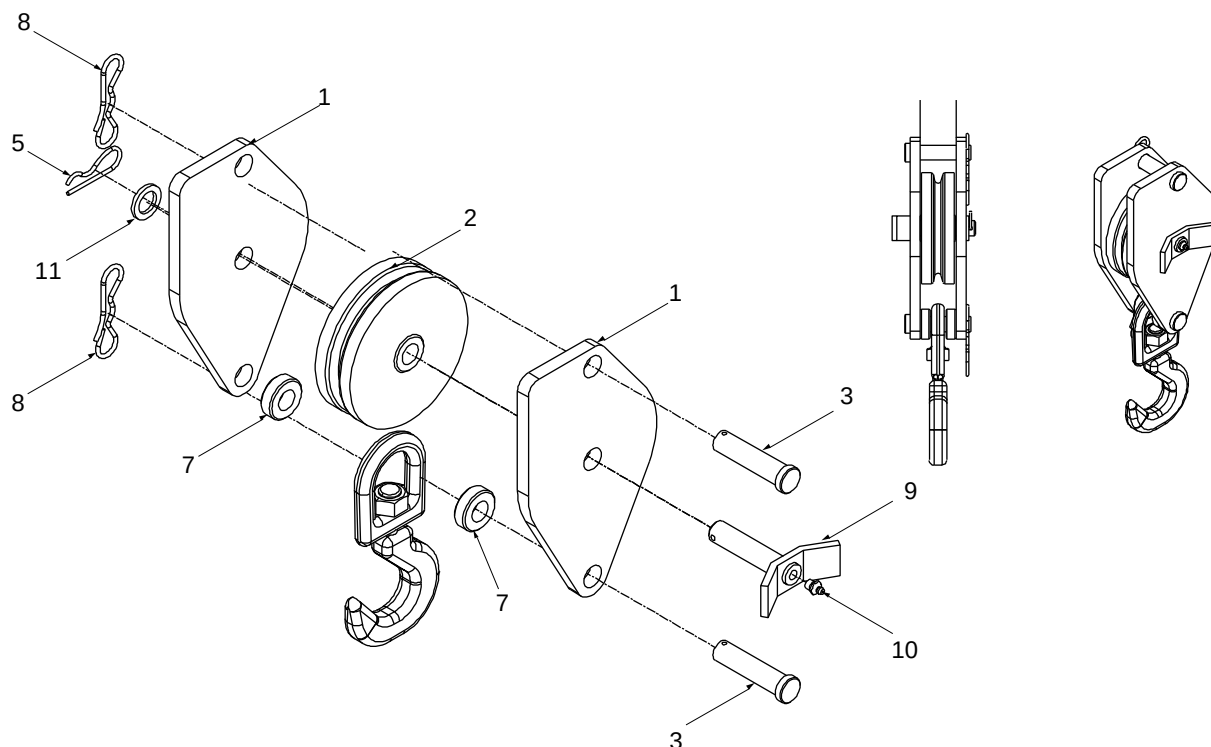
NOTE:

- 1 USE SHIM AS REQUIRED. CUT IN TWO PIECES FOR SINGLE, OR BEND FOR DOUBLE THICKNESS.
- 2 ROTATE CABLE THROUGH GUIDES ON CRANE BOOMS.

41714444 PARTS LIST			
ITEM	PART #	DESCRIPTION	QTY
1.	52714278	MAST	REF
2.	51725231	SNATCH BLOCK AND CABLE KIT - 2020 (NOT SHOWN)	1
3.	60025211	DRUM - WINCH 2015	1
4.	70142746	KEY- .31 X 5.00	1REF
5.	70055142	BEARING - STA35 BRB1654DC	1
6.	71057987	WINCH - 2015 TUL03 80439	1
7.	77040051	TERM - SPRSPADE I 8STUD 16-14	2
8.	52709413	CABLE - WLDMT ANTI-2 BLOCK 3016	1

41714444 PARTS LIST			
ITEM	PART #	DESCRIPTION	QTY
9.	72060048	CAP SCR .38 -16X 1.50 HH GR5 Z (PART OF #28)	4 REF
10.	72062207	NUT # 8-32 HEX NYLOC ZINC (PART OF #29)	2 REF
11.	60129022	TUBE-.2631D X.4060DX 2.88LG ALU	2
12.	72063051	WASHER .38 LOCK ZINC (PART OF #28)	4 REF
13.	77041291	SWITCH-LIMIT BZE6-2RN18	1
14.	72060014	CAP SCR .25-20X 3.50 HH GR5 Z	2 REF
15.	73051690	MOTOR-HYD C101-1033 NO DANFOSS	1
16.	51713168	CORD REEL ASM-W/PACKARD CONN	1
17.	77044468	CONNECTOR- .50 STR RLF .12-.25 (PART OF #29)	1 REF
18.	72063001	WASHER .25 W FLAT ANSI B27.27 (PART OF # 29)	6 REF
19.	72063049	WASHER .25 LOCK ZINC (PART OF #29)	4 REF
20.	72060008	CAP SCR .25-20X 2.00 HH GR5 Z (PART OF #29)	2 REF
21.	60113594	MTG BLOCK - COVER ANTI-2BLK 5016	1
22.	60127876	COVER-ANTI 2 BLOCK MICRO SWITCH LEFT	1
23.	72060774	CAP SCR .44-14X 1.25 SH PLAIN (PART OF #28)	2 REF
25.	72063098	WASHER .16 W FLAT ANSI B27.27 (PART OF #29)	2 REF
26.	72063047	WASHER #10 LOCK ZINC (PART OF #29)	2 REF
27.	72060579	SET SCR .38-16X .50 SOC PLAI	1
28.	51719377	KIT - HRDW 2020 BASE AND MAST (INCLUDES: 9,12,23)	REF
29.	51719378	KIT - HRDW 2020 BOOMS (INCLUDES: 10,14,17-20,25,26)	REF
30.	60132917	SHIM - WINCH DRIVE (.035)	A / R
REV E 20080806			

Cable & Hook Kit (51725231) Effective: 10-5-2015

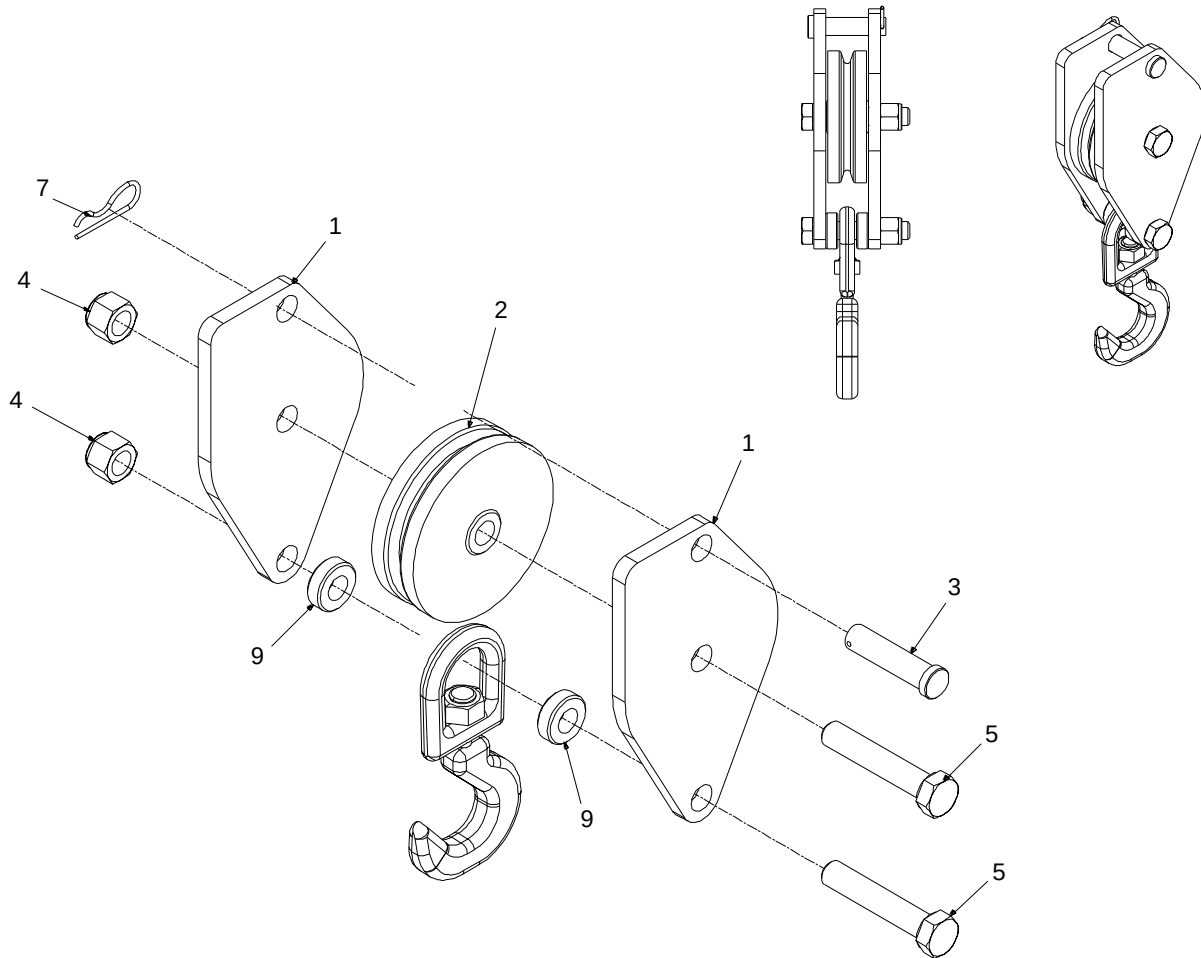


51725231 Parts List

Item No.	Part No.	Description	Qty.
1	60141150	SHEAVE PLATE - 2020	2
2	60030489	SHEAVE- 5.5 NYLATRON GSM 0.75 BORE	1
3	72661712	CLEVIS PIN .75 X 3.00	2
4	71073920	HOOK-SWVL L-322A-3T W/LATCH	1
5	72066145	HAIR PIN .19 ZINC	1
6	70580119	WIRE ROPE ASM-.31(6X19)X65ft (NOT SHOWN)	1
7	60030547	SPACER-POL .75X 1.50X .50	2
8	70734941	COTTER PIN BOWTIE .75	2
9	52704828	PIN-TYPE T .75X 3.00	1
10	72053508	ZERK-NPT .12	1
11	72063030	MACHY BUSHING .75X10 GA NR	1
12	51725471	KIT-HRDW 2020 SNATCH BLOCK	REF

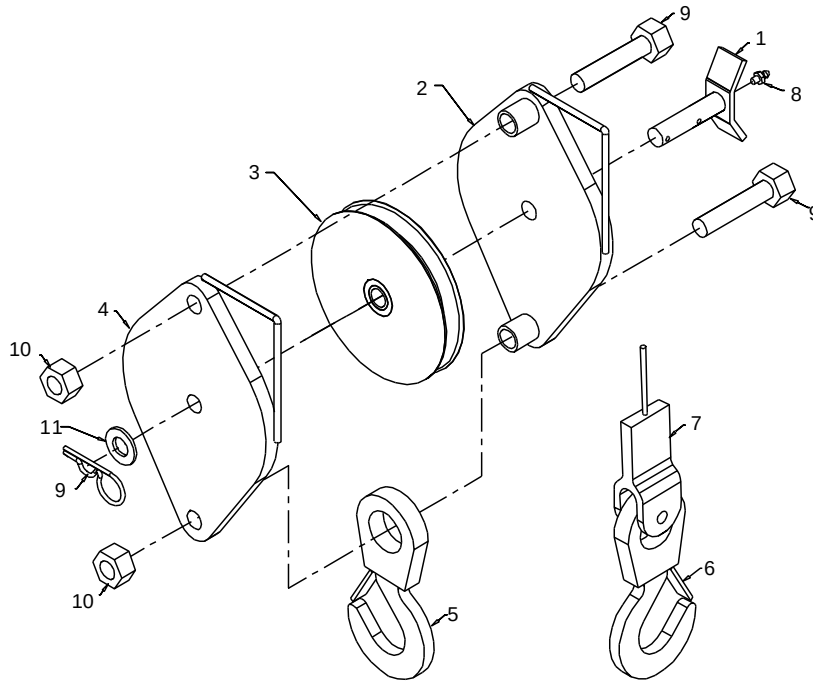
REV C 20170417

Cable & Hook Kit (51725231) (Effective From 05/30/13)



51725231 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1	60141150	SHEAVE PLATE - 2020	2
2	60030489	SHEAVE- 5.5 NYLATRON GSM 0.75 BORE	1
3	72661712	CLEVIS PIN .75 X 3.00	1
4	72062114	NUT .75-10 HEX NYLOCK	2
5	72601629	CAP SCR .75-10X 4.00 HH GR8 Z	2
6	71073920	HOOK-SWVL L-322A-3T W/LATCH	1
7	72066144	HAIR PIN .16 ZINC	1
8	70580119	WIRE ROPE ASM-.31(6X19)X65ft (NOT SHOWN)	1
9	60030547	SPACER-POL .75X 1.50X .50	2
10	51725471	KIT-HRDW 2020 SNATCH BLOCK	Ref
REV B 20140911			

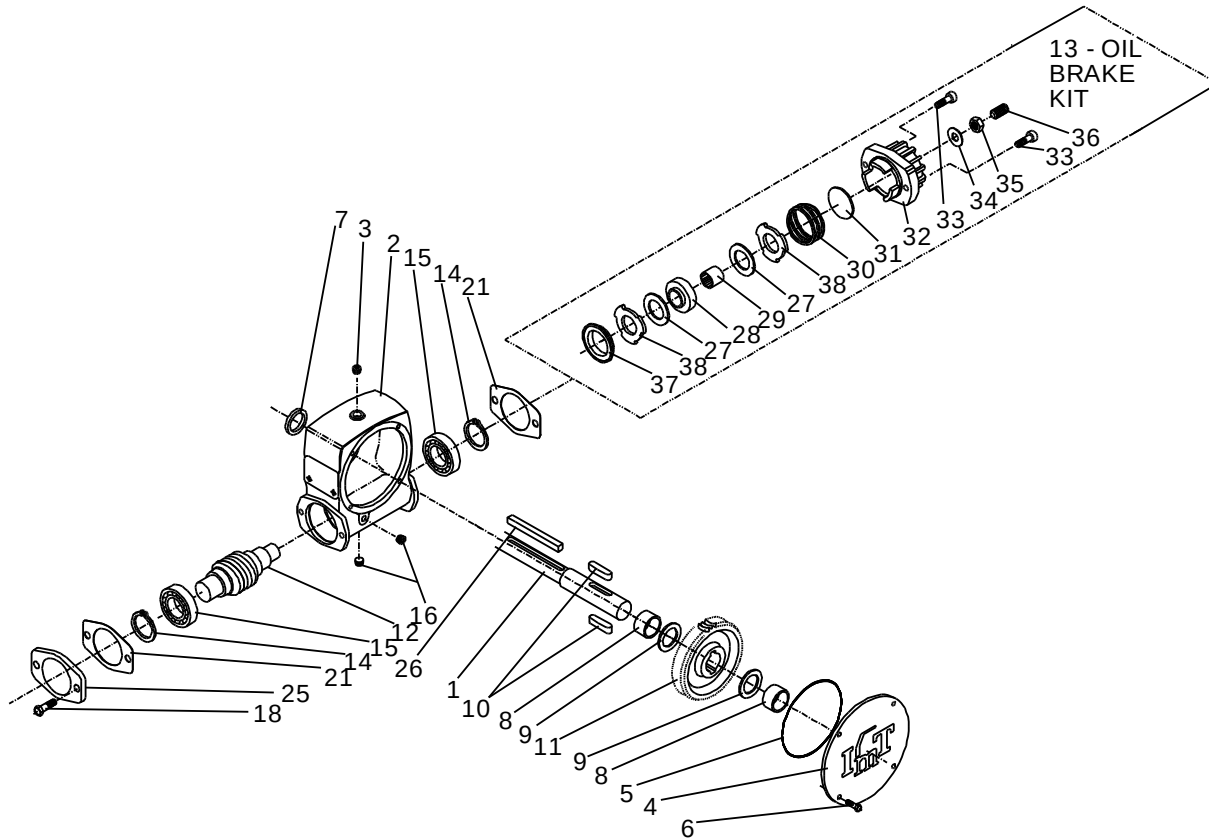
Cable & Hook Kit (31704560) (Effective Through 05/30/13)



31704560 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	52704828	PIN	1
2.	52704550	SNATCH BLOCK	1
3.	60030082	SHEAVE (INCL: BEARING)	1
4.	52709407	SIDE PLATE	1
5.	71073920	HOOK - 3 TON	1
6.	71073921	HOOK - 2 TON	1
7.	70580119	WIRE ROPE ASM 5/16X65'	1
8.	72053508	ZERK 1/8NPT	1
9.	72060188	CAP SCREW 3/4-10X3-1/2 HHGR5	2
10.	72062114	NUT 3/4-10 LOCK	2
11.	72063030	MACHINERY BUSHING 3/4X10GA	1
12.	72066145	HAIR PIN 3/16	1
13.	51719379	HARDWARE KIT (INCL 8-12)	REF
20050910			

Winch (71057987)

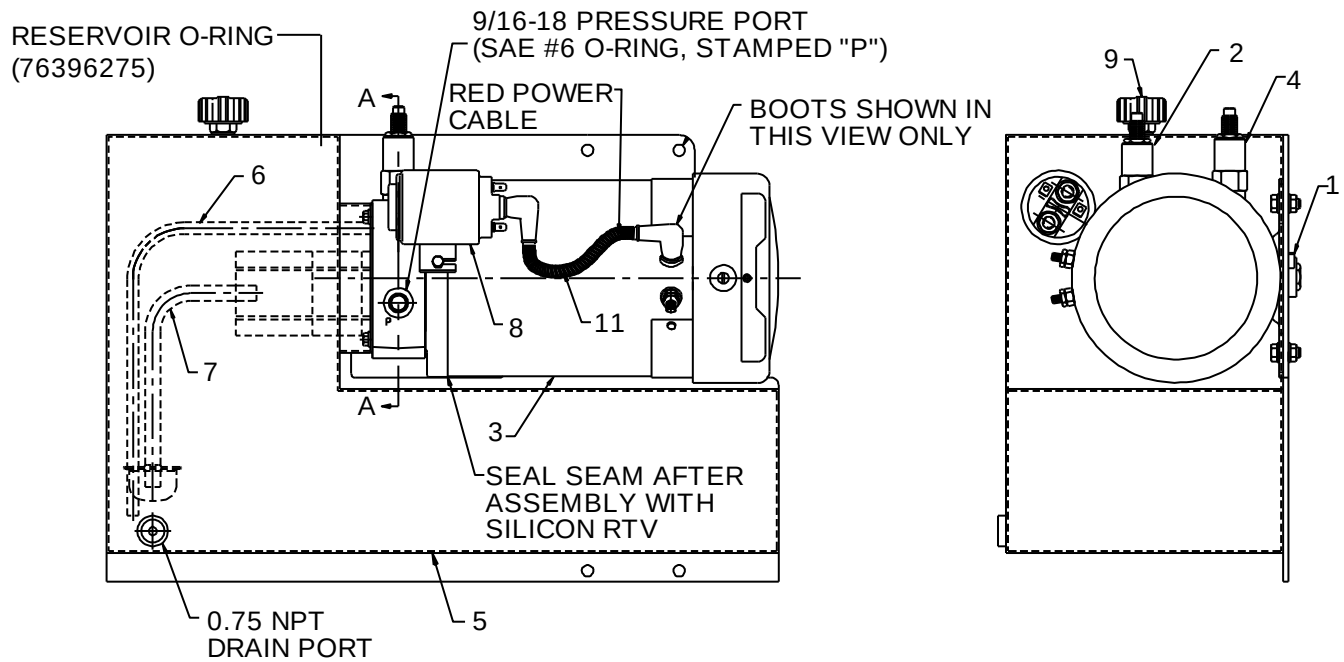


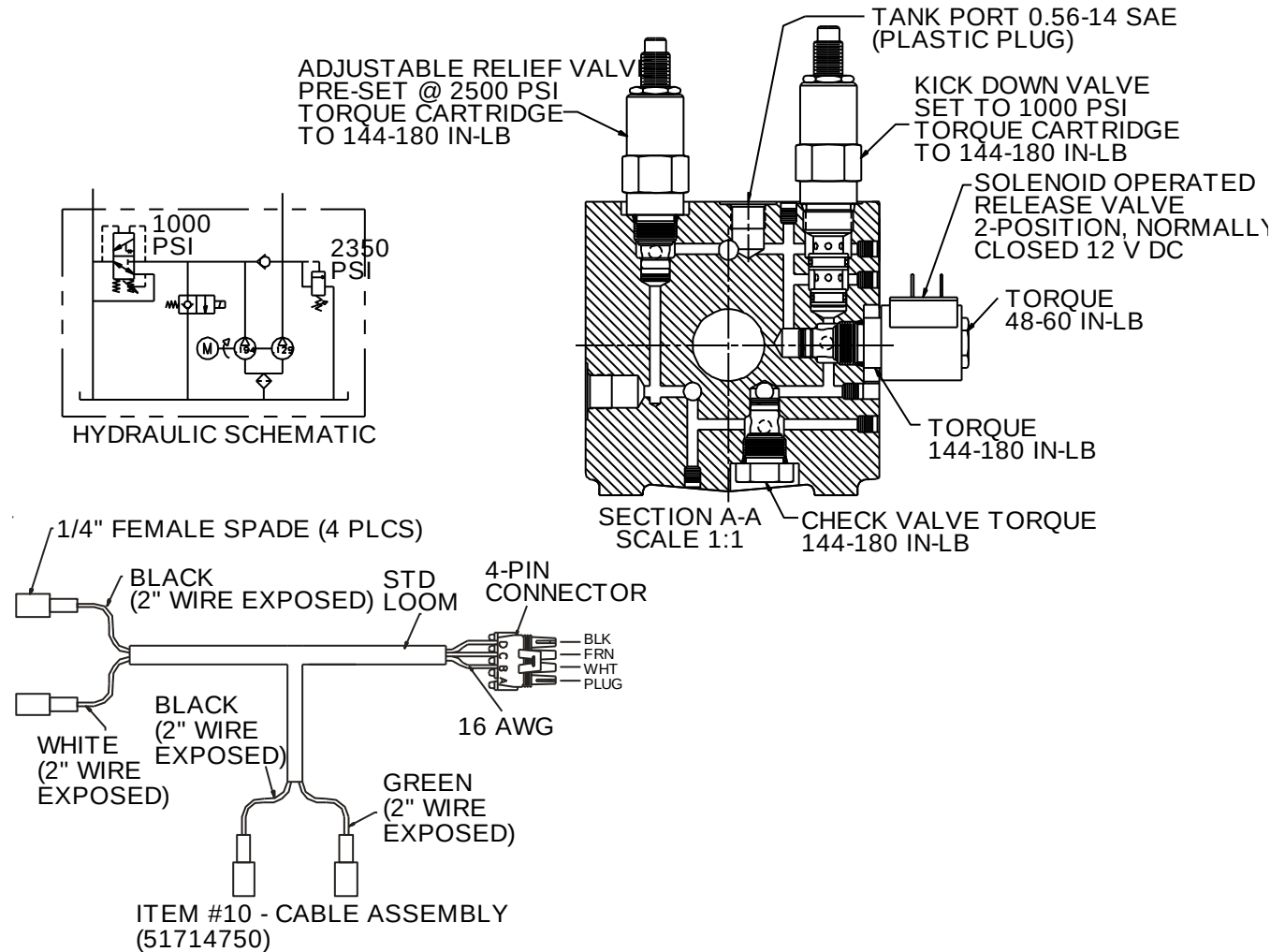
71057987 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70143943	SHAFT-OUTPUT	1
2.	70143672	HOUSING	1
3.	70048142	BUSHING & BREATHER KIT 3/8	1
4.	70145277	COVER	1
5.	76393174	O-RING	1
6.	72601568	CAP SCREW	4
7.	76393173	OIL SEAL	1
8.	70143670	BUSHING	2
9.	70143669	WASHER	2
10.	70143668	KEY	2
11.	70056428	GEAR-SR	1
12.	70056427	WORM-SR	1
13.	70732542	BRAKE KIT (INCL:27-38)	1
14.	72661348	RETAINING RING	2
15.	70055202	BALL BEARING	2
16.	70143865	PIPE PLUG	2
17.	72601567	CAP SCREW	2
21.	76393171	GASKET	2

71057987 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
25.	—	PROTECTOR (DISCARD)	1
26.	70143944	KEY	1
27.	70143664	*FRICTION DISC	2REF
28.	70143665	*BRAKE HUB	1REF
29.	70143662	*CAM CLUTCH	1REF
30.	70143661	*SPRING	1REF
31.	70143660	*THRUST WASHER	1REF
32.	70143666	*BRAKE HOUSING	1REF
33.	72601565	*CAP SCREW-SOC HD	2REF
34.	76393172	*WASHER-SEAL	1REF
35.	72601722	*LOCKNUT-SEAL	1REF
36.	72601723	*SET SCREW	1REF
37.	70143659	*BRAKE SPACER	1REF
38.	70143663	*STATOR PLATE	2REF
		* PART OF ITEM 13	

Controls & Hydraulics, Power Unit

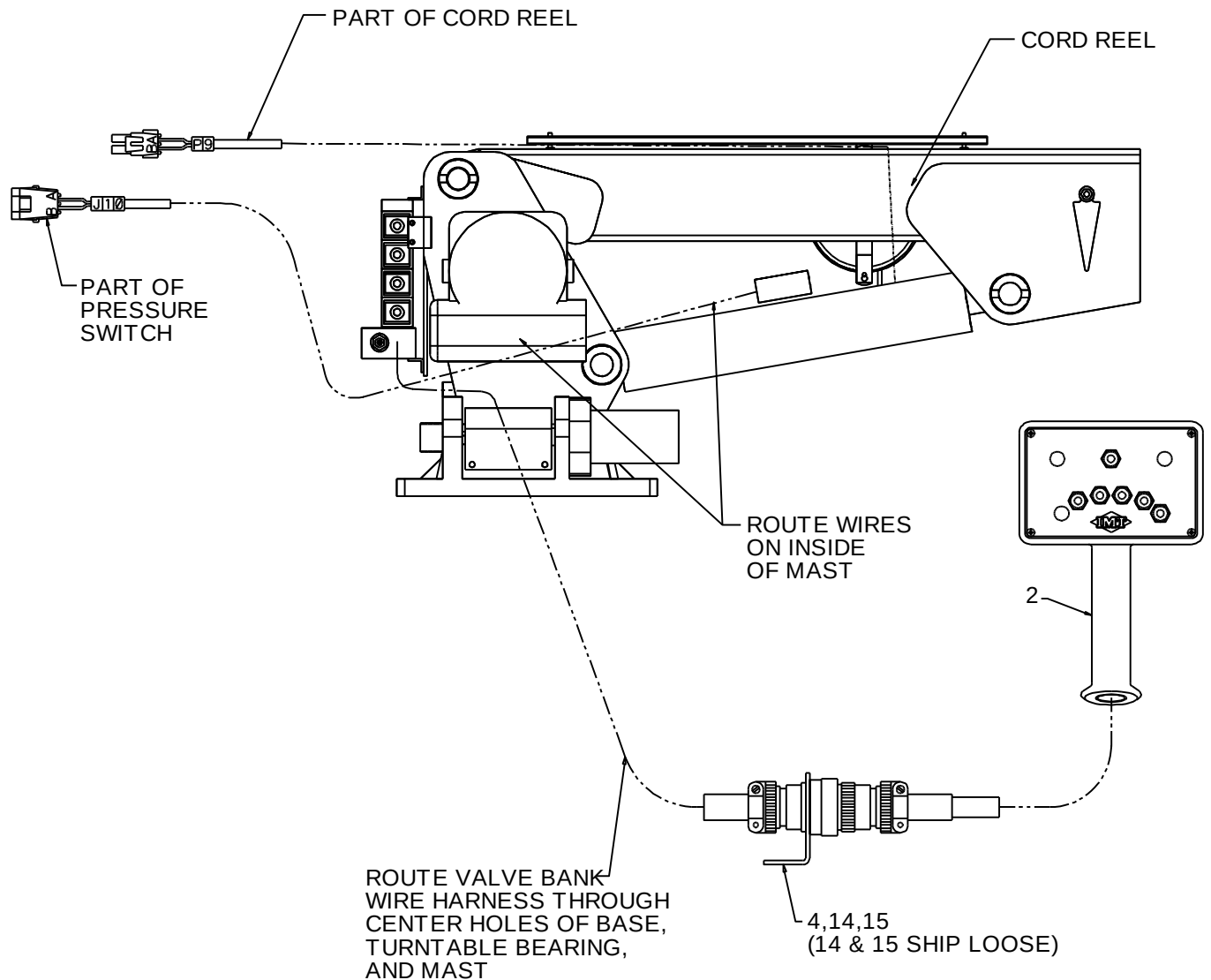
Hydraulic Power Unit - DC (73051957)



73051957 DRAWING

73051957 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	73540045	DUMP VALVE	1
2.	73540098	RELIEF CARTRIDGE	1
3.	73540047	MOTOR/VALVE/PUMP	1
4.	73540048	KICK DOWN CARTRIDGE	1
5.	70145918	RESERVOIR	1
6.	70145919	TUBE-TANK LINE	1
7.	70145920	TUBE-SUCTION	1
8.	77041570	STARTER COIL	1
9.	70048210	BREATHER	1
10.	51714750	CABLE ASM (SEE DWG)	1
11.	77044839	CABLE-STARTER COIL	1

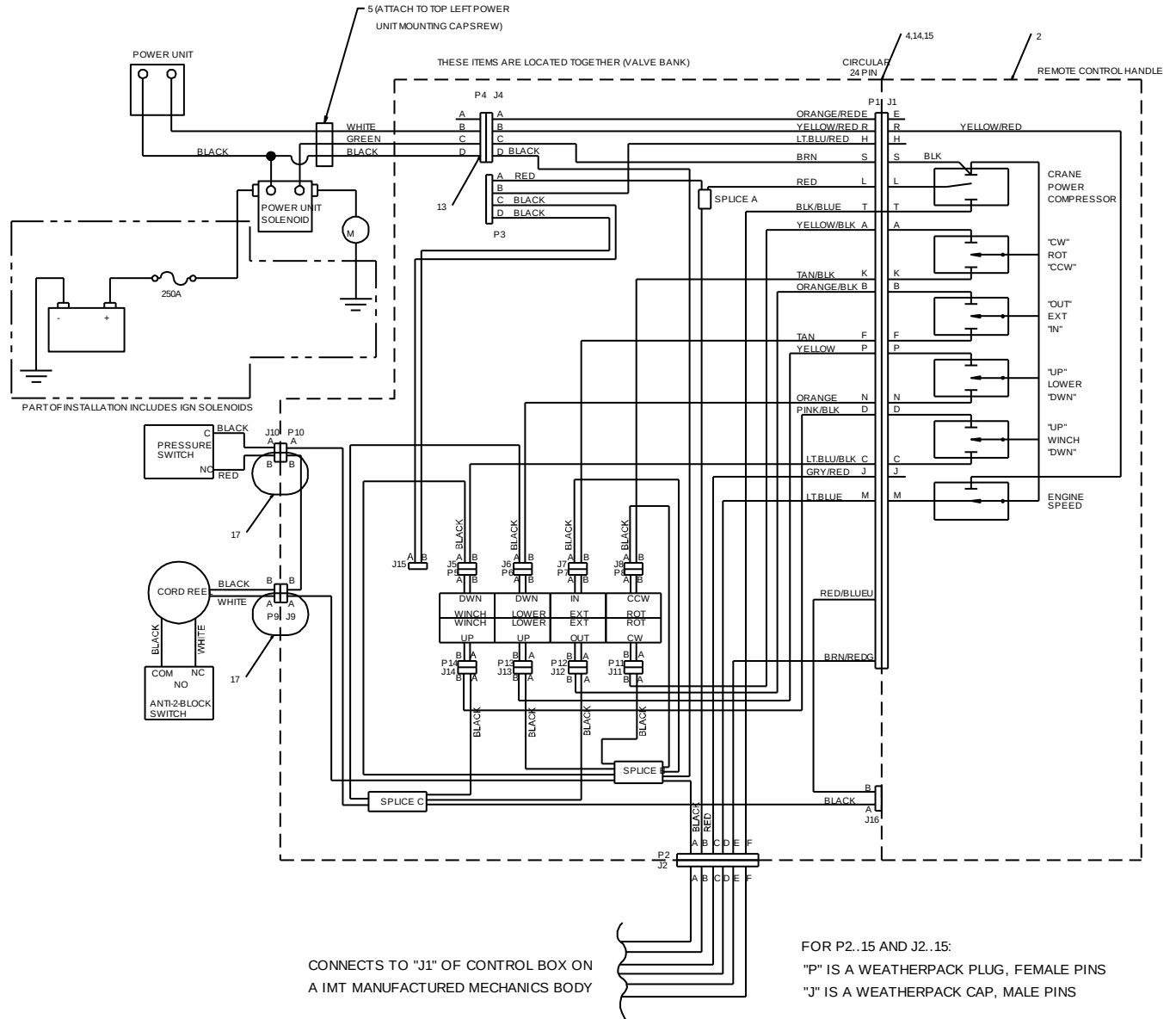
Control Kit, Power Unit (91714441)



NOTES:

- 1 SHIP PARTS 14, 15 LOOSE IN BAG.
- 2 SEE DRAWING 99901153 FOR WIRE CONNECTIONS AND ELECTRICAL SCHEMATIC.
- 3 BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

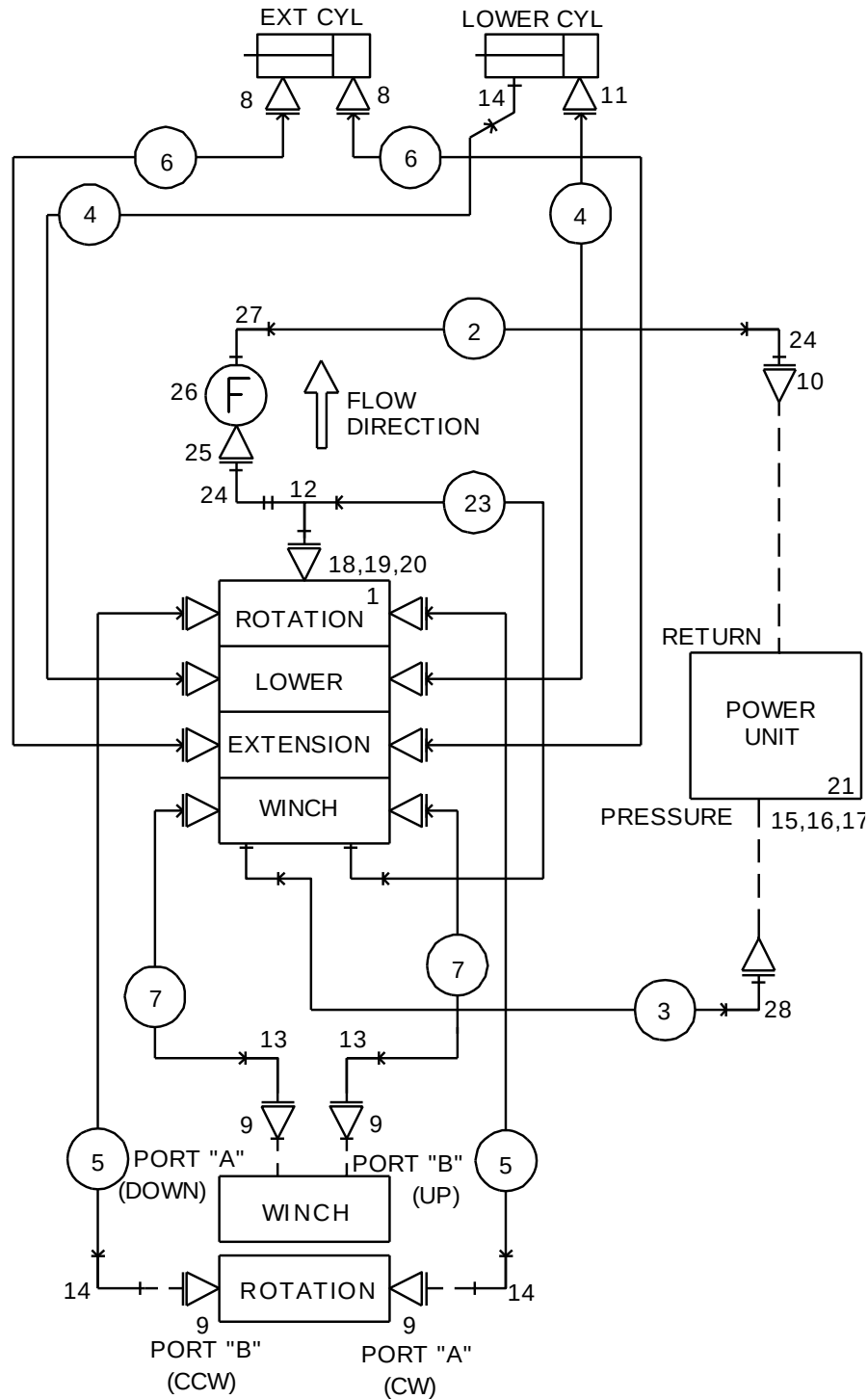
Schematic, Power Unit (99901153)



99901153 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
2.	51716404	HANDLE ASSEMBLY, RC ELECTRIC	1
4.	60119299	BRACKET, MOUNTING	1
5.	72661312	CLAMP	1
13.	51714750	CABLE ASSEMBLY	1REF
14.	77044645	NUT-DEUTSCH 24 SHELL	1
15.	77044646	WASHER-LOCK DEUTSCH	1
17.	70034439	LOCK WIRE LEAD SEAL 8"	2

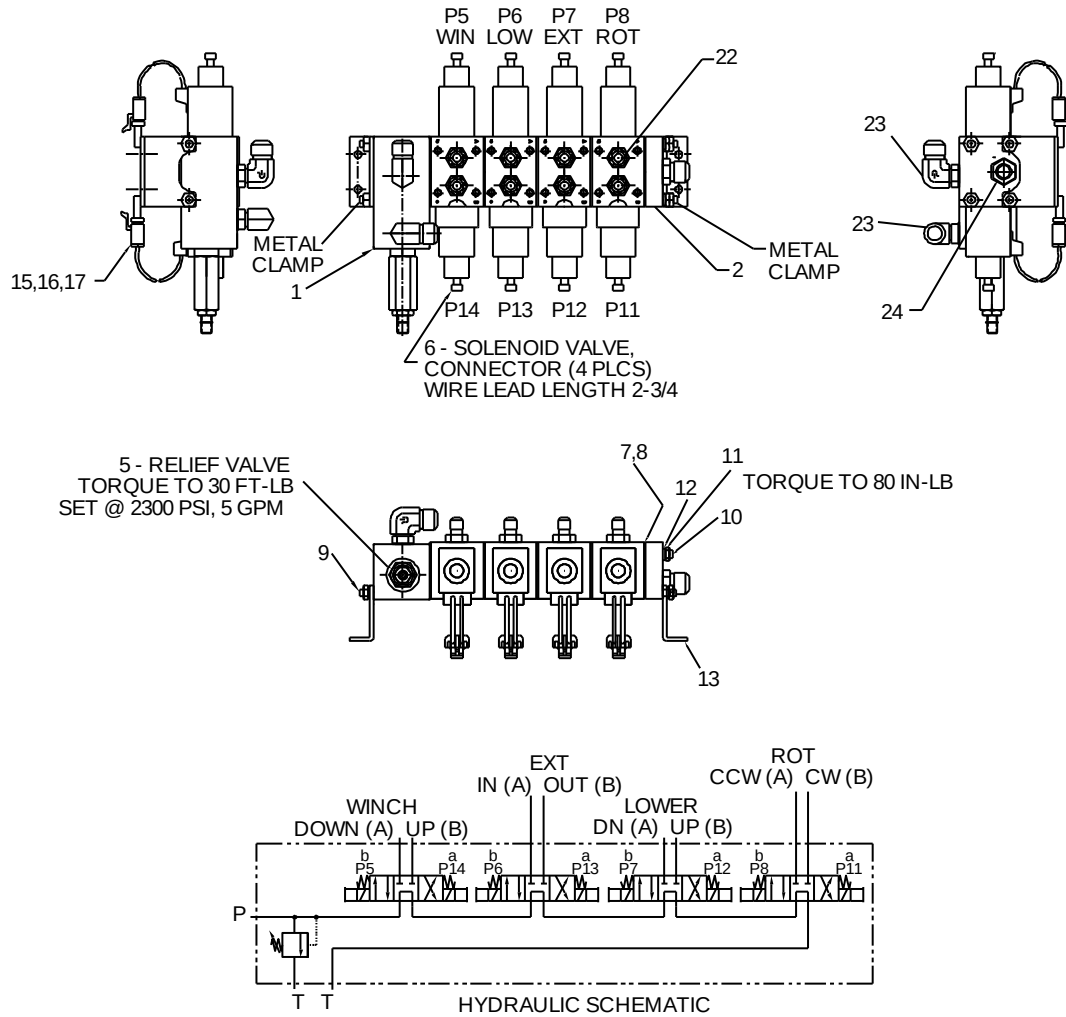
REV. E 20050802

Hydraulic Kit, Power Unit (91715660)



91715660 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70733398	VALVEBANK	1
2.	51395305	HOSE-1/2X23.5 #8 #8 (PART OF 22)	1REF
3.	51394945	HOSE-3/8X28 #8#8(PART OF 22)	1REF
4.	51395538	HOSE-1/4X36 #4#4(PART OF 22)	2REF
5.	51394946	HOSE-1/4X45 #4#4(PART OF 22)	2REF
6.	51395539	HOSE-1/4X70 #4#4(PART OF 22)	2REF
7.	51394948	HOSE-1/4X21 #4#4(PART OF 22)	2REF
8.	72532351	ADAPTER #4MSTR #4MJIC	2
9.	72532722	ADAPTER #10MSTR #6FSTR	4
10.	72532357	ADAPTER #6MSTR #8MJIC	1
11.	72532353	ADAPTER #6MSTR #4MJIC	1
12.	72532671	TEE #8JIC SWVL NUT BRANCH	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	2
14.	72532985	ELBOW #6MSTR #4MJIC 45°	3
15.	72063050	WASHER 5/16 LOCK	4
16.	72063002	WASHER 5/16 WRT	4
17.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2
18.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
19.	72063001	WASHER 1/4 WRT	4
20.	72062104	NUT 1/4-20 LOCK	4
21.	73051957	POWER UNIT	1
22.	51715661	HOSE KIT (INCL:2-7&23)	1
23.	51394949	HOSE-1/2X11-1/2(PART OF 22)	1REF
24.	72532658	ELBOW #8MJIC #8FJIC SWVL	2
25.	72533622	ADAPTER 3/8MPT #8FJIC	1
26.	73052093	RETUEN FILTER 10MIC 3/4FPT	1
27.	72531420	ELBOW 3/8MPT #8MJIC	1
28.	72532779	ELBOW #6MSTR/90/#8MJIC XLG	1
REV A 20111028			

Valvebank, Power Unit (70733398)



70733398 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	70145879	INLET BODY	1
2.	70145628	OUTLET BODY	1
5.	70145625	RELIEF VALVE (2250 PSI)	1
6.	70145624	SOLENOID VALVE	4
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10
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.	70145738	MOUNTING FOOT	2
14.	70145620	NAME TAG	1
15.	77044574	CONNECTOR TOWER	9

70733398 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
16.	77044577	CONNECTOR TERMINAL	16
17.	77044578	CABLE SEAL	16
18.	77044624	CONN SHROUD	1
20.	77044676	CABLE PLUG	6
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

REV. A 20050802

The diagram shows the control panel and gun assembly with the following numbered callouts:

- 1: Control panel
- 2: Gun body
- 3: Trigger
- 4, 10: Mounting bracket
- 6, 9, 12, 27: Screws
- 7: Nut
- 8, 20: Washers
- 13: Bolt
- 14: Mounting plate
- 21: Gun barrel
- 22: Option switch
- 23: Black switch
- 24: Solder wire
- 25: TO SWITCH #19
- 26: Trigger guard
- 28: Trigger spring
- 29: Trigger pin

Diagram illustrating the rear of the vehicle, showing the battery terminal connections and the wiring harness for the 1936-1937 Buick Wildcat. The diagram includes the following components and labels:

- 1 (REF) GRN (TO ROTARY SWITCH)**: Ground connection to the rotary switch.
- 19**: Label for the ground connection.
- BLK/ORN**: Black/Orange wire.
- ORN/BLK**: Orange/Black wire.
- RED**: Red wire.
- BLK/BLU**: Black/Blue wire.
- RED/BLK**: Red/Black wire.
- YEL**: Yellow wire.
- YEL/RED**: Yellow/Red wire.
- 15(19)**: Label for the yellow/red wire connection.
- 18**: Label for the yellow/red wire connection.
- YEL/BLK**: Yellow/Black wire.
- 1(6)**: Label for the ground connection.
- ORN**: Orange wire.
- 17**: Label for the orange wire connection.
- BLU/BLK**: Blue/Black wire.
- 17**: Label for the blue/black wire connection.
- BRN/BLK**: Brown/Black wire.
- 17**: Label for the brown/black wire connection.
- BRN**: Brown wire.
- 5**: Label for the battery terminal connection.
- 14**: Label for the battery terminal connection.
- Garner Iowa USA**: Text on the battery terminal cover.
- 100T**: Text on the battery terminal cover.
- W, X, K, J, B, L, M, N, P, Q, R, S, T, U, V**: Letters on the battery terminal cover, indicating the terminal positions.

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	-
H	BLU/RED	-
J	BLK/RED	-
K	BRN/BLK	ROT CCW
L	RED	POWER
M	BLU	-
N	ORN	LOWER DN
O	BLK/ORN	SOL POWER
P	YEL	LOWER UP
Q	BRN/BLU	-
R	YEL/RED	PUMP SPD
S	BLK	CRANE
T	BLK/BLU	CPRSR
U	RED/BLU	-
V	BLU/ORN	-
W	ORN/BLU	-
X	YEL/BLU	-
-	RED/ORN	-

51716404 PARTS LIST

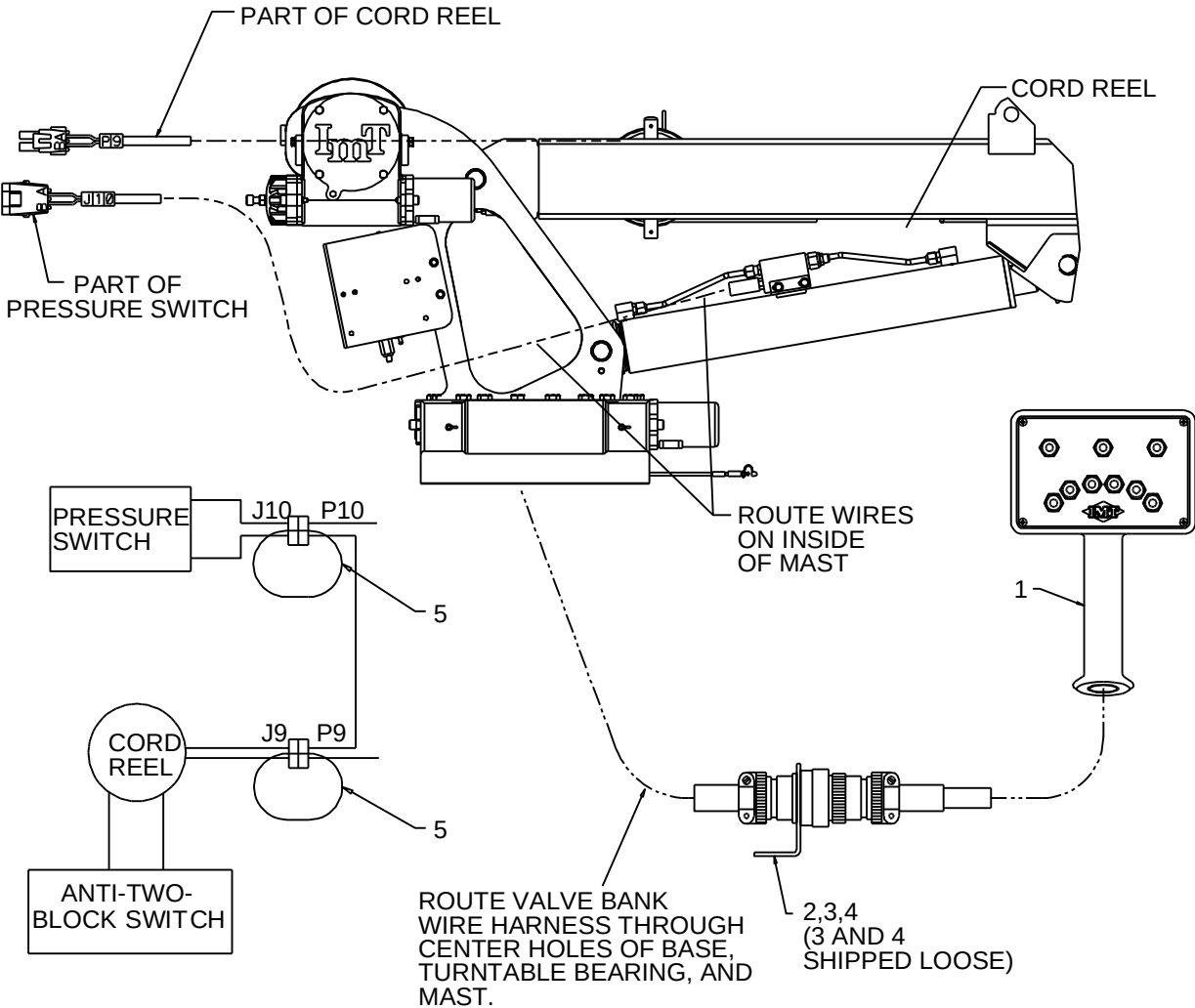
ITEM	PART #	DESCRIPTION	QUANTITY
1.	60045031	WIRE 18GA X 4 GRN	6
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER (PART OF 25)	1REF
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
6.	70029119	PLACARD, SERIAL NUMBER	1
7.	77044196	CORD GRIP, LOCTITE	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
11.	77044969	SWITCH, ROTARY ELEC (PART OF 25)	1REF
12.	72066340	POP RIVET	2
13.	72531833	BUSHING, RED STL 3/4 X 1/2	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERM-SPRSPD #8 16-14GA	19
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	1
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE	30 FT

51716404 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
22.	70392785	PLUG, 1/2	1
23.	77044695	TERMINAL, FSLPON	1
24.	70733518	BRACKET, TRIGGER (PART OF 25)	1REF
25.	51716499	TRIGGER ASSEMBLY (INCL 3,11,24,26,28-29)	1
26.	72601346	SCR-MACH #8-32 PAN HEAD (PART OF 25)	4REF
27.	70395995	DECAL-CAUTION RC HANDLE ELEC PWR UNIT	1
28.	70143223	SPRING, TENSION (PART OF 25)	1REF
29.	72061000	SCR-SHT METAL #6X1/2 PH (PART OF 25)	1REF
30.	70145495	HEAT SHRINK	0.33 FT
REV. A 20050602			

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

Controls & Hydraulics, PTO

Control Kit - Tethered Remote (91714443)



NOTES:

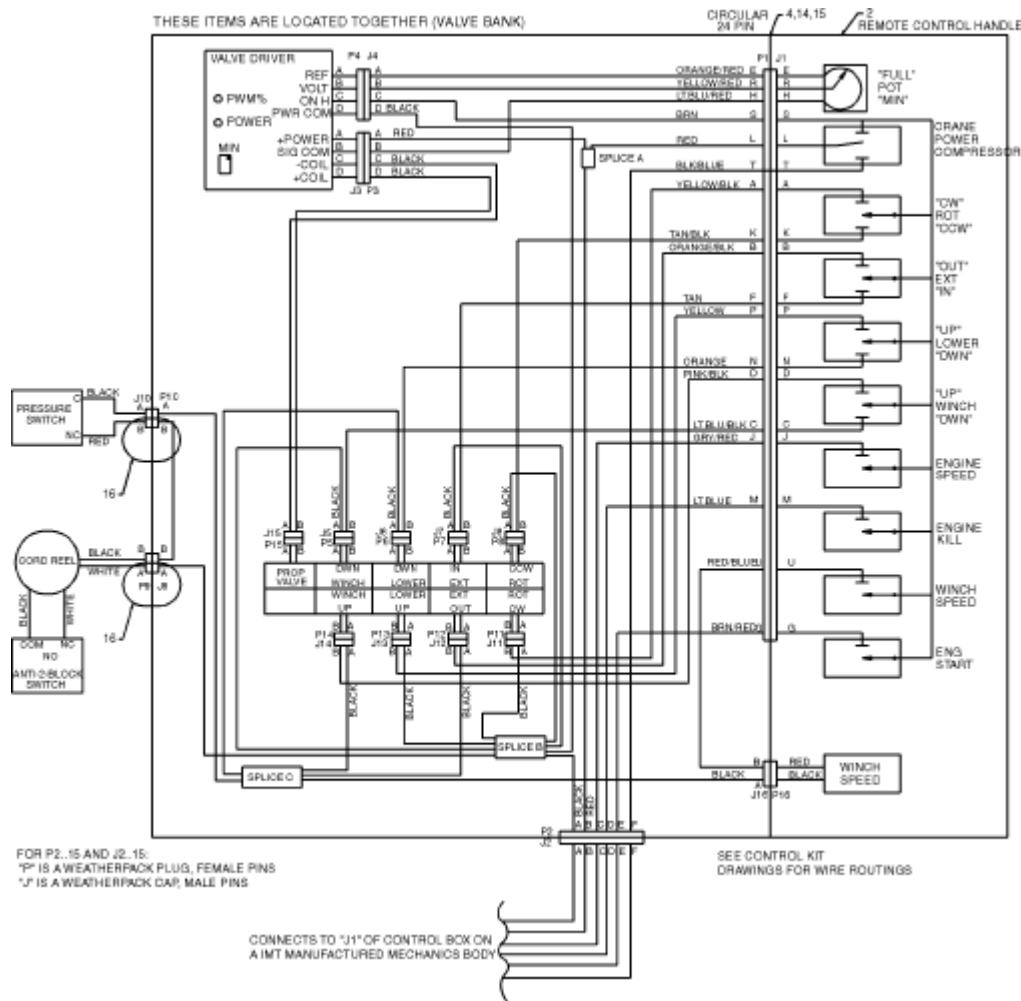
- 1 SHIP PARTS 14, 15 LOOSE IN BAG.
- 2 SEE DRAWING 99903263 FOR WIRE CONNECTIONS AND ELECTRICAL SCHEMATIC.
- 3 BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

91714443 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51713182	HANDLE ASM	1
2.	60119299	BRACKET	1

91714443 PARTS LIST

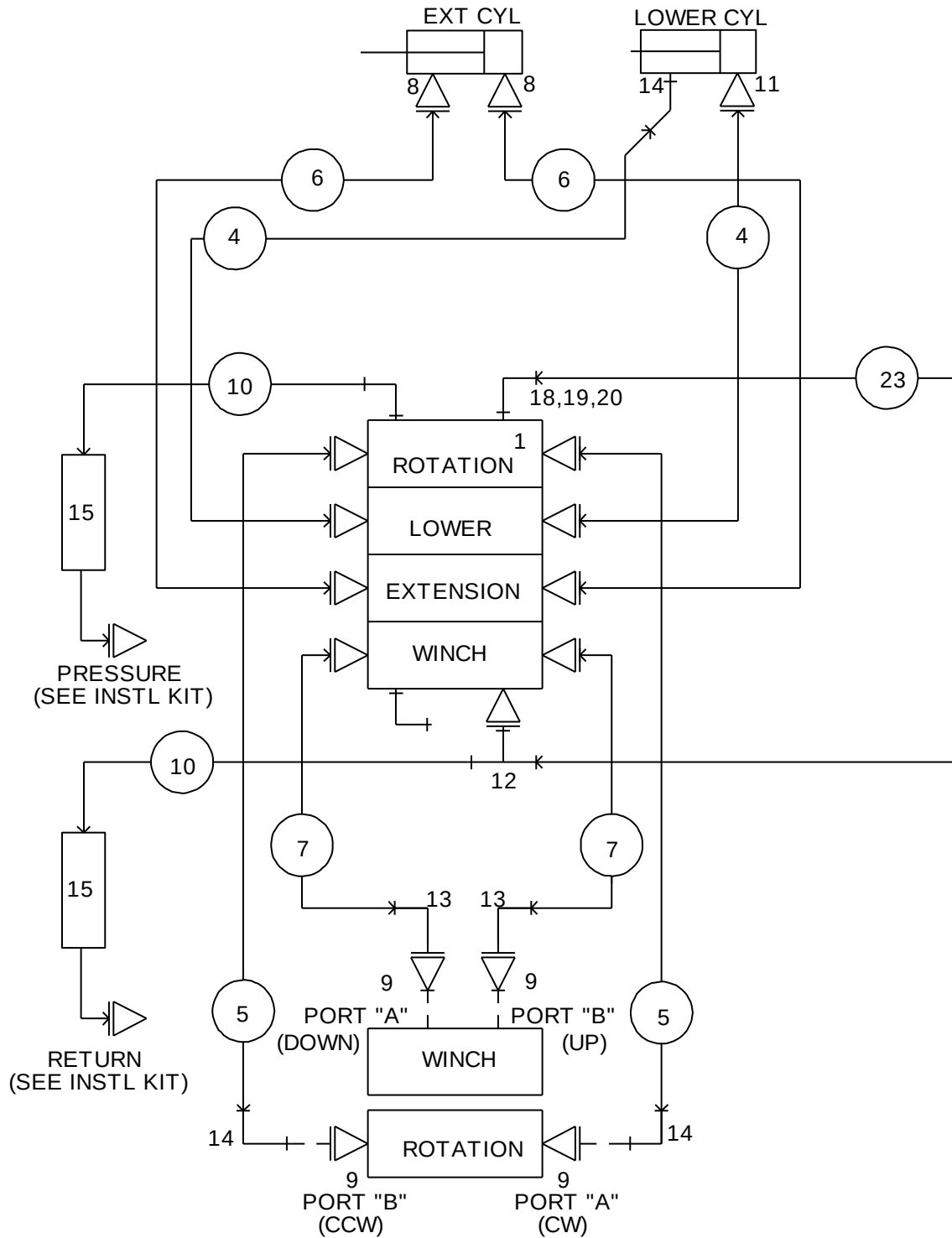
3.	77044645	NUT-DEUTSCH 24 SHELL	1
4.	77044646	WASHER-LOCK DEUTSCH	1
5.	70034439	LOCK WIRE LEAD SEAL 8"	2
6.	99903263	SCHEM - ELEC PROP RC TELE	1
7.	99900339	MANUAL-PROP RMT CONTROL	1

REV. E 20050608

Schematic, Proportional Remote Control (99900990)**99900990 Parts List**

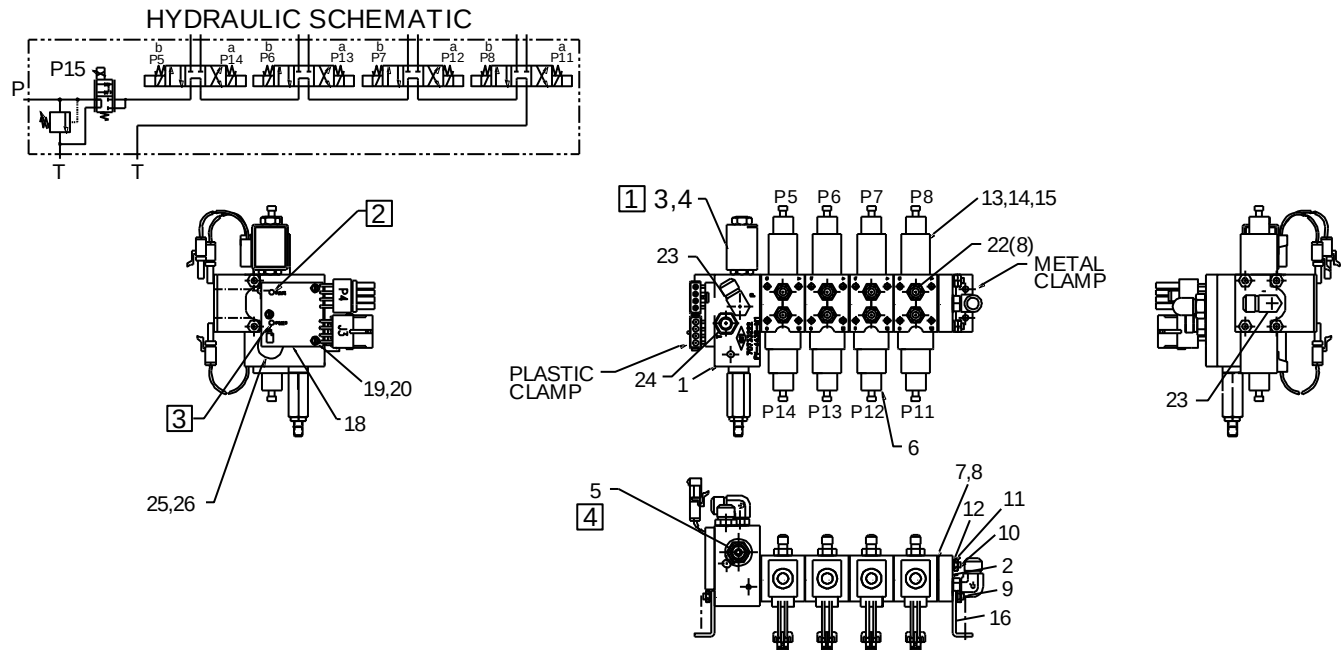
ITEM	PART #	DESCRIPTION	QUANTITY
2.	51713384	HANDLE ASM (ON-OFF PTO)	1
	51713182	HANDLE ASM (PROP'L PTO)	1
4.	60119299	MTG BRACKET	1
14.	77044645	NUT	1
15.	77044646	WASHER-LOCK	1
16.	70034439	LOCK WIRE LEAD SEAL	2

Hydraulic Kit, Prop'l PTO (91715659)



91715659 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	73733399	VALVEBANK	1
4.	51395538	HOSE FJ 25X36 #4#4	2REF
5.	51394946	HOSE FJ 25X45 #4#4	2REF
6.	51395539	HOSE FJ 25X70 #4#4	2REF
7.	51394948	HOSE FJ 25X21 #4#4	2REF
8.	72532351	ADAPTER #4MSTR #4MJIC	2
9.	72532722	ADAPTER #10MSTR #6FSTR	4
10.	51395403	HOSE-FF 1/2X28 OAL (8-8)	2REF
11.	72532353	ADAPTER #6MSTR #4MJIC	1
12.	72532671	TEE #8JIC SWVLNUTBRANCH	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	2
14.	72532985	ELBOW #6MSTR #4MJIC 45°	3
15.	72533648	SWIVEL #8MJIC #8MJIC 90°	2REF
18.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
19.	72063001	WASHER 1/4 WRT	4
20.	72062104	NUT 1/4-20 LOCK	4
22.	51715632	HOSE KIT (INCL:4-7,23)	1
23.	51394950	HOSE FI 50X11.5 #8#8	1REF
REV C 20110602			

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.

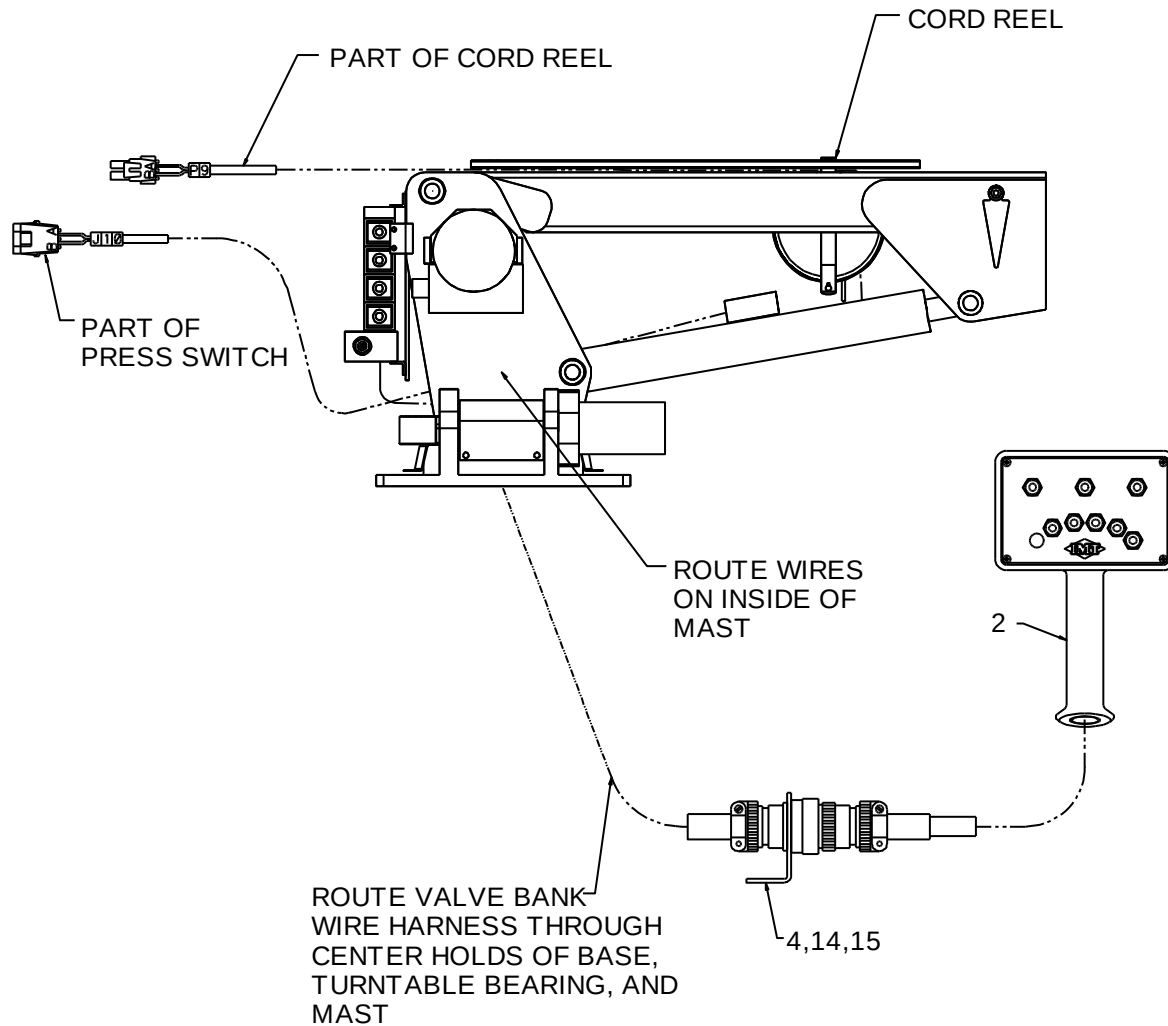
70733399 PARTS LIST

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

70733399 PARTS LIST			
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10
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

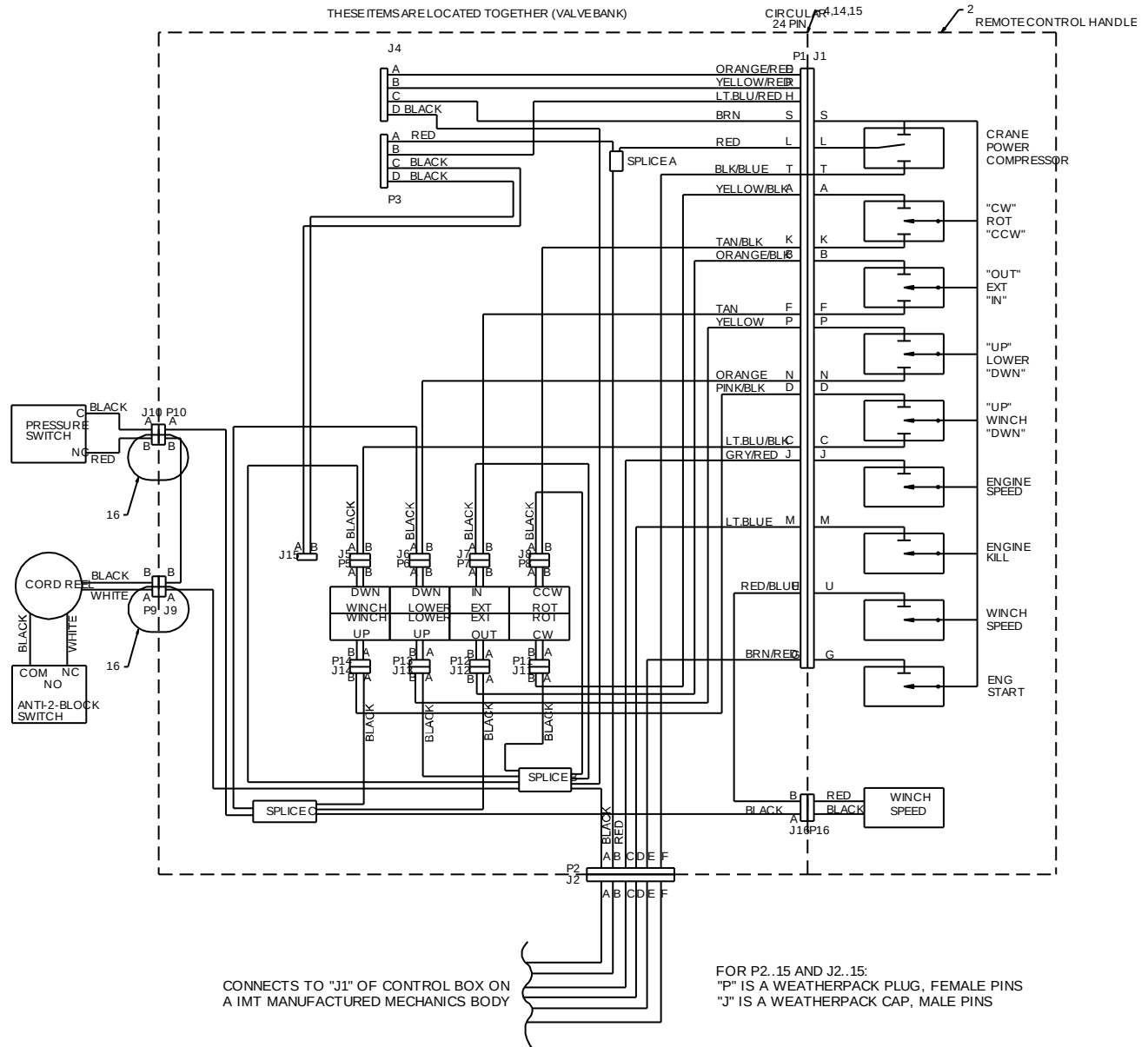
Control Kit, Non-Proportional PTO (91714439)



NOTES:

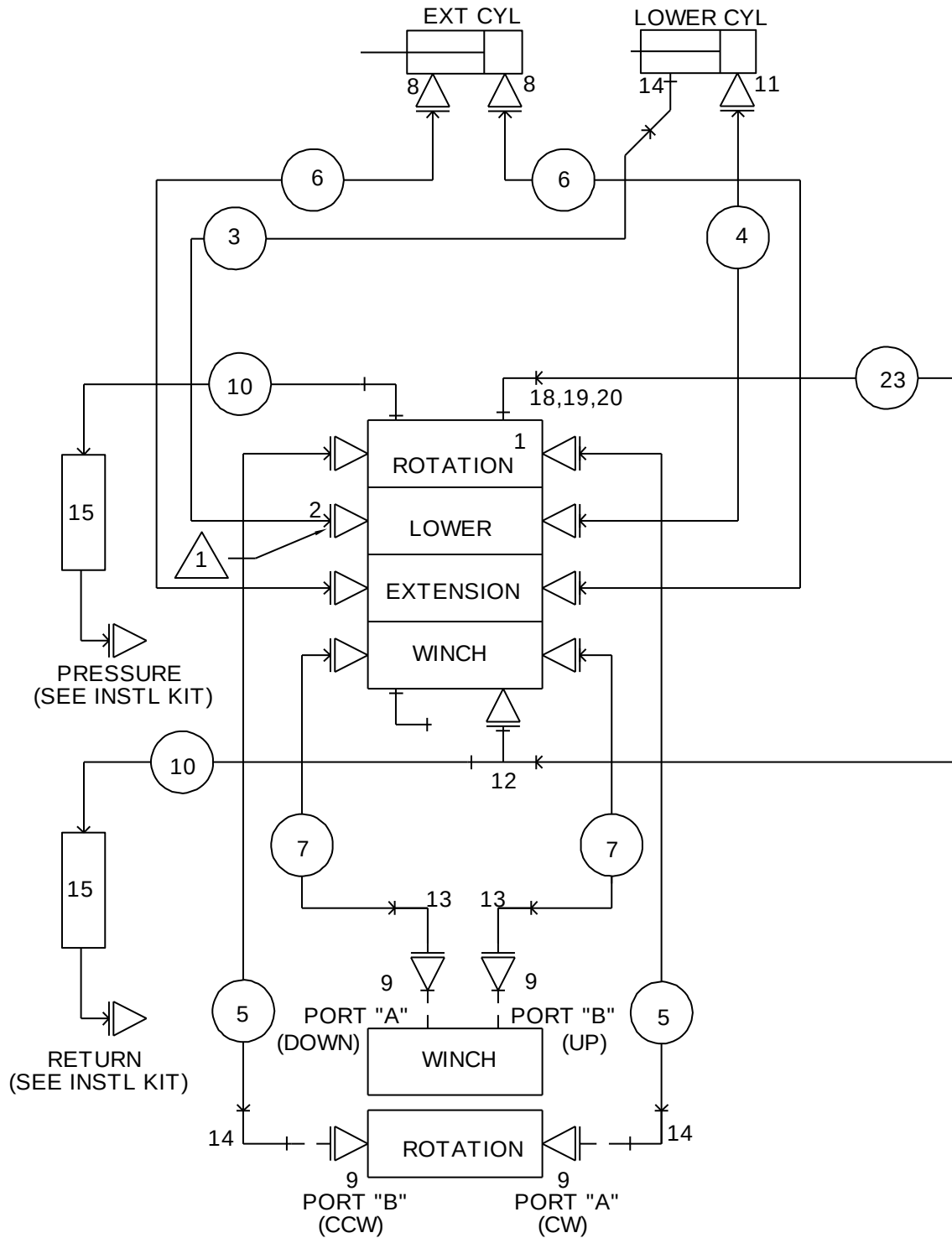
- 1 SHIP PARTS 14, 15 LOOSE IN BAG.
- 2 SEE DRAWING 99901049 FOR WIRE CONNECTIONS AND ELECTRICAL SCHEMATIC.
- 3 BASE AND MAST ASSEMBLY SHOWN AS MOUNTED ON TRUCK.

Schematic, Non-Prop Remote Control (99901049)



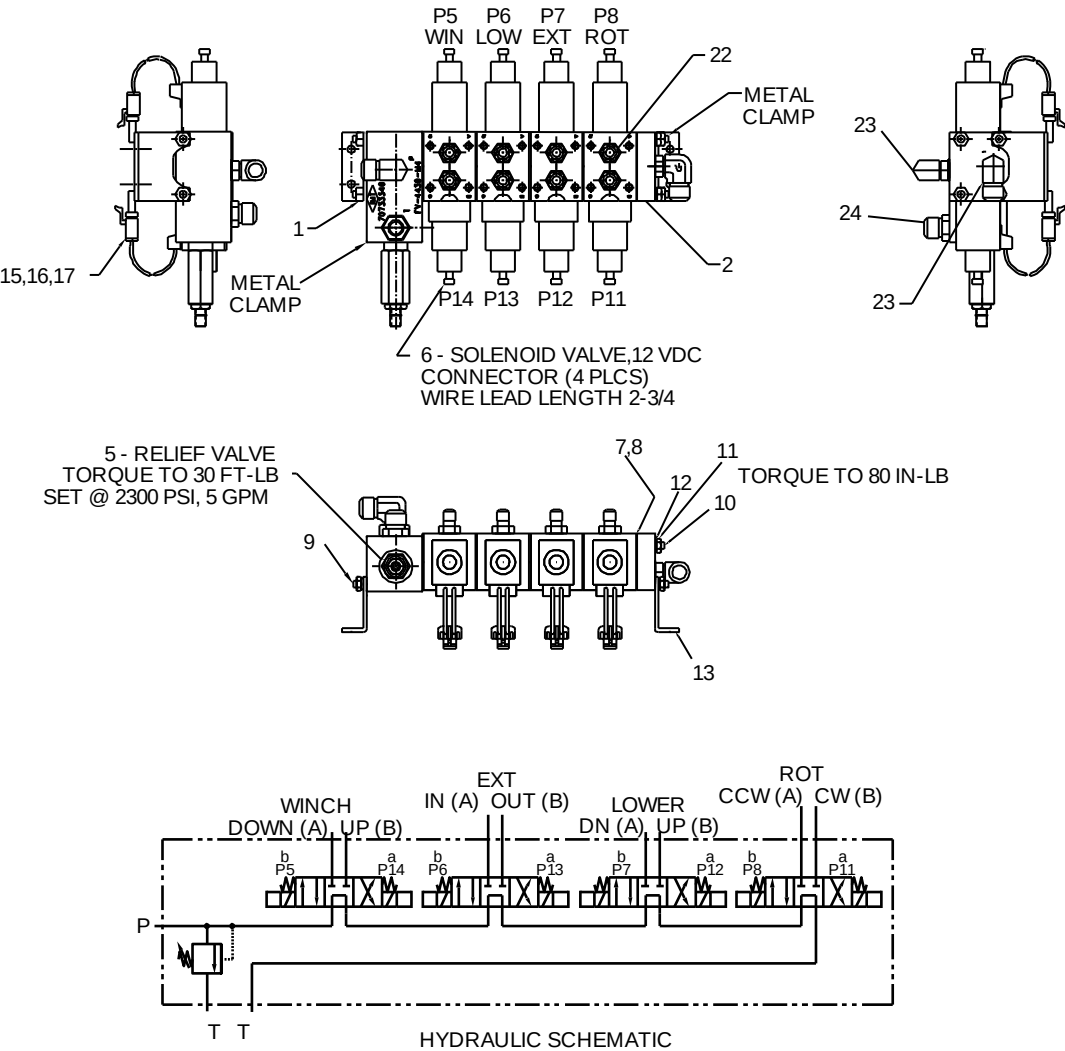
99901049 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
2.	51713384	HANDLE ASSEMBLY, RC ON-OFF PTO	1
4.	60119299	BRACKET, MOUNTING	1
14.	77044645	NUT-DEUTSCH 24 SHELL	1
15.	77044646	WASHER-LOCK DEUTSCH	1
17.	70034439	LOCK WIRE LEAD SEAL 8"	2

Hydraulic Kit, Non-Proportional PTO (91715662)



91715662 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70733400	VALVEBANK	1
2.	70145928	FLOW LIMITER	1
3.	51395540	HOSE-1/4X36 #4#6(PART OF 22)	1REF
4.	51395538	HOSE-1/4X36 #4#4(PART OF 22)	1REF
5.	51394946	HOSE-1/4X45 #4#4(PART OF 22)	2REF
6.	51395539	HOSE-1/4X70 #4#4(PART OF 22)	2REF
7.	51394948	HOSE-1/4X21 #4#4(PART OF 22)	2REF
8.	72532351	ADAPTER #4MSTR #4MJIC	2
9.	72532722	ADAPTER #10MSTR #6FSTR	4
10.	51395403	HOSE-FF 1/2X28 OAL (8-8)	2REF
11.	72532353	ADAPTER #6MSTR #4MJIC	1
12.	72532671	TEE #8JIC SWVL NUT BRANCH	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	2
14.	72532985	ELBOW #6MSTR #4MJIC 45°	3
15.	72533648	SWIVEL #8MJIC #8MJIC 90°	2REF
18.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
19.	72063001	WASHER 1/4 WRT	4
20.	72062104	NUT 1/4-20 LOCK	4
22.	51715663	HOSE KIT (INCL:4-7&23)	1
23.	51394951	HOSE-1/2X10.5 (PART OF 22)	1REF

Valvebank, Non-Prop Remote Control (70733400)

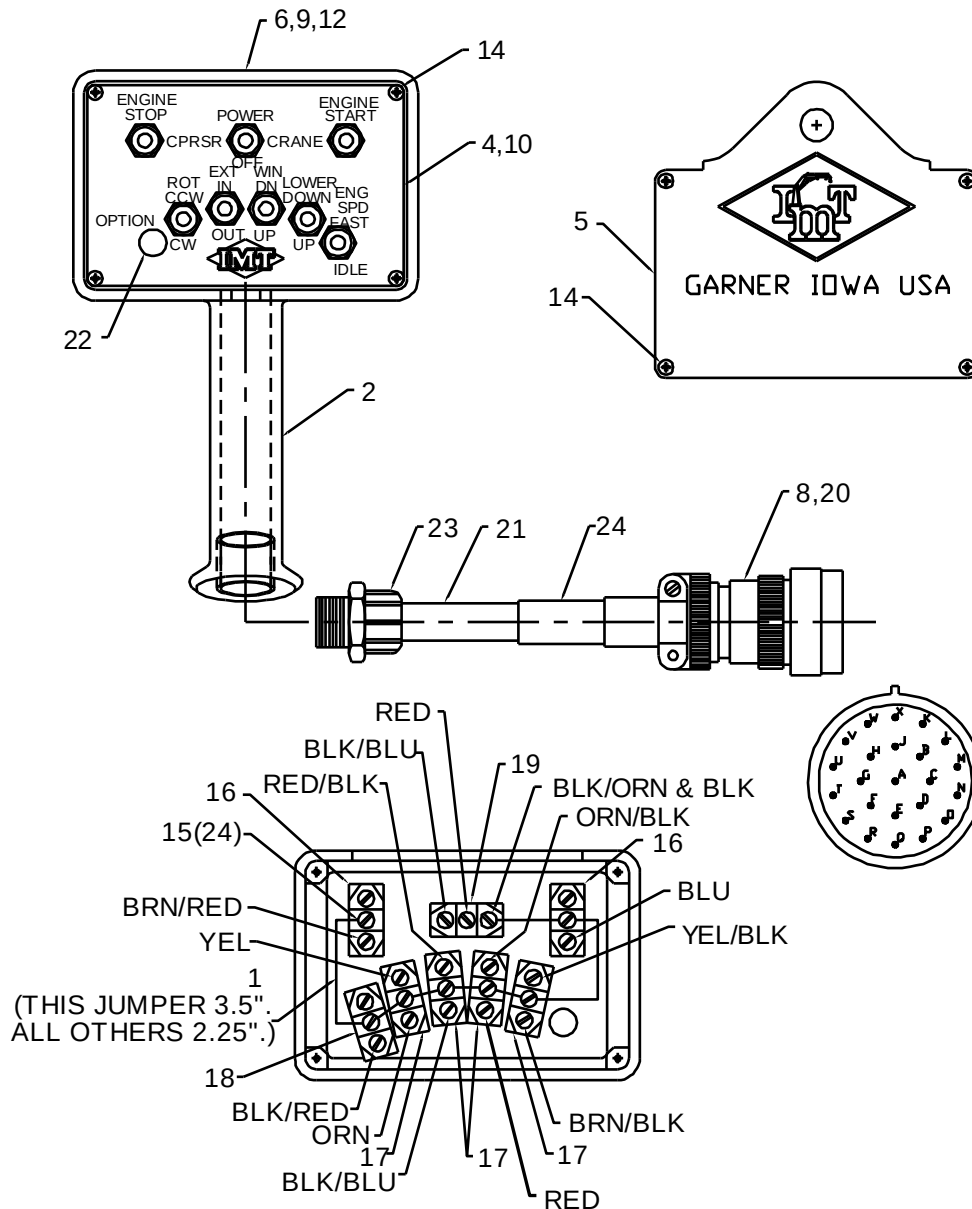


- NOTE:**
- 1 CONNECT J9 AND P10 TOGETHER.
 - 2 ADD DUST CAP TO J16.

70733400 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70145879	INLET BODY	1
2.	70145628	OUTLET BODY	1
5.	70145625	RELIEF VALVE (2250 PSI)	1
6.	70145624	SOLENOID VALVE	4
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10
9.	70145622	THREADED ROD GR8	2

70733400 PARTS LIST			
10.	70145621	THREADED ROD GR8	2
11.	72062000	NUT 1/4-20	6
12.	72063047	WASHER 1/4 LOCK	6
13.	70145738	MOUNTING FOOT	2
14.	70145620	NAME TAG	1
15.	77044574	CONNECTOR TOWER	9
16.	77044577	CONNECTOR TERMINAL	16
17.	77044578	CABLE SEAL	16
20.	77044676	CABLE PLUG	6
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

Handle Assembly, Remote, PTO On/Off (51713384)



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 SPD
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	RELAY 1
T	BLK/BLU	CPRSR
U	RED/BLU	-
V	BLU/ORN	-
W	ORN/BLU	-
X	YEL/BLU	-
-	RED/ORN	-

51713384 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	89044214	WIRE 18GA (6 @ 2.25", 1 @ 3.5")	1.42'
2.	60119335	CONTROL HANDLE	1
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERM-SPRSPD #8 16-14GA	24
16.	77040371	TOGGLE SWITCH SPST	2
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	1
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE (NOTE: MUST ORDER 30-FEET)	30 FT
22.	70392785	PLUG, 1/2	1
23.	77044196	CONNECTOR 3/4 STRAIN RELIEF	1
24.	70145495	HEAT SHRINK	0.50 FT
REV. G 20050802			

NOTE: 51717816, 30-FOOT TETHERED CABLE ASSEMBLY, INCLUDES #8, 15, 20, 21, AND 24. ORDER 51717816 FOR SERVICE.

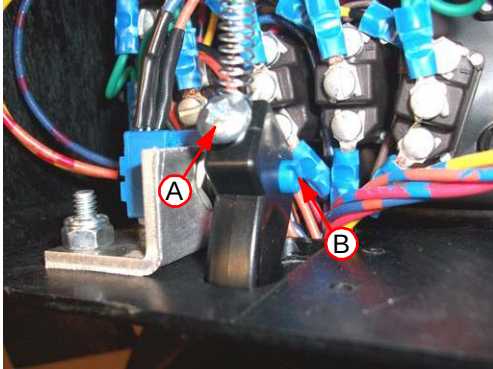
G	BRN/RED	ENG START
H	BLU/RED	-
J	BLK/RED	ENG SPD
K	BRN/BLK	ROT CCW
L	RED	POWER
M	BLU	ENG STOP
N	ORN	LOWER DN
O	BLK/ORN	SOL POWER
P	YEL	LOWER UP
Q	BRN/BLU	-
R	YEL/RED	-
S	BLK	CRANE
T	BLK/BLU	CPRSR
U	RED/BLU	OPTION
V	BLU/ORN	-
W	ORN/BLU	-
X	YEL/BLU	-
-	RED/ORN	-

51713182 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	89044214	WIRE 18GA (7 @ 2.25", 1 @ 3.5")	1.61'
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER (PART OF 11)	1REF
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
7.	77044196	CONNECTOR, STRAIN RELIEF 0.75"	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
11.	70394183	TRIGGER ASSEMBLY (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	30 FT
22.	77040147	TERMINAL FSLPON	3
23.	77040047	TERMINAL MSLPON	3
24.	72060602	SCREW MACH #6-32 X 0.38 RDH	4
25.	70145495	HEAT SHRINK	0.50 FT
REV. H 20050602			

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

Tethered Proportional Remote Potentiometer Adjustment



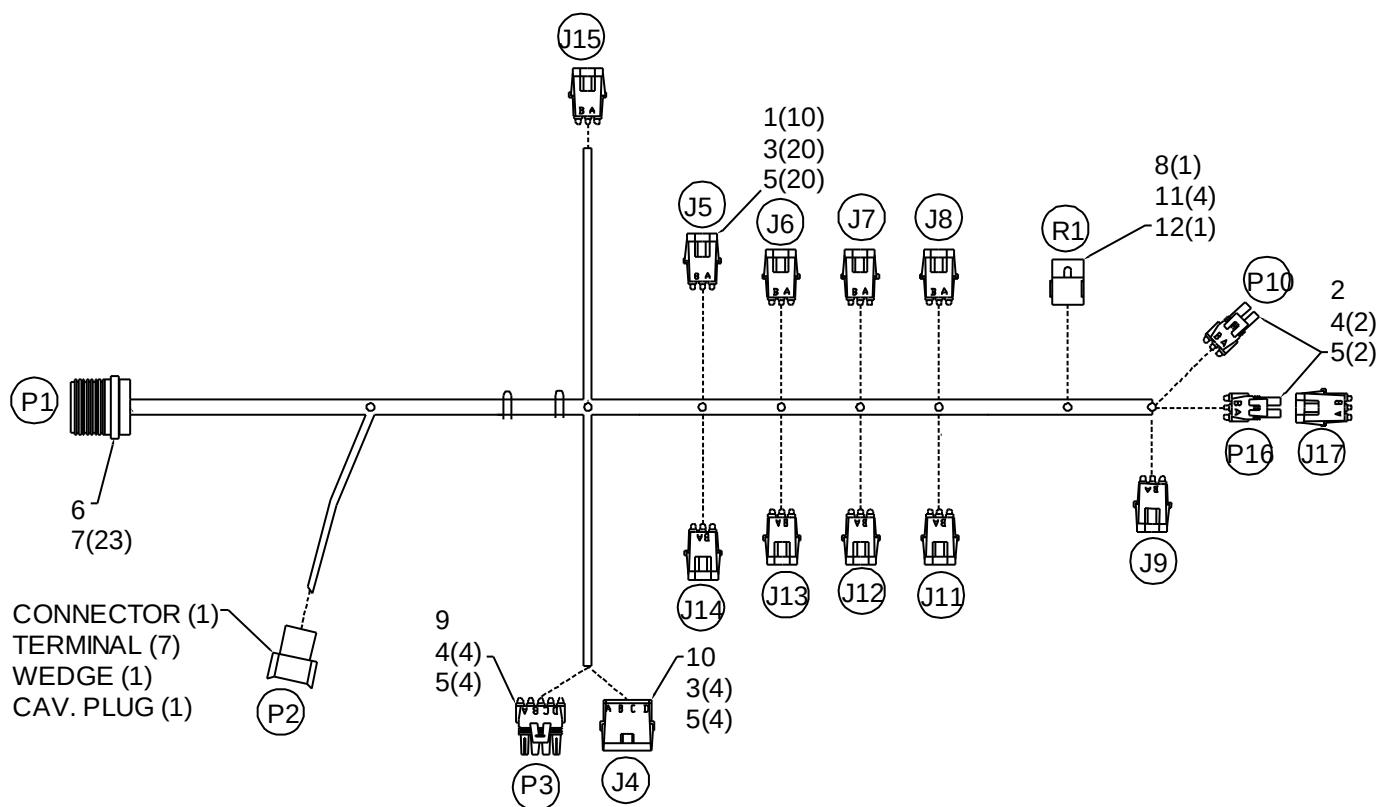
NOTE

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.

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

WIRING CHART (70733394)

LOCATOR CODE: P1			DEUTSCH: HDP34-24-23SN059			
TERM: 0462-201-16141			SEAL: -		CAVITY PLUG: 114017	
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	18	ROT J11B	TO	J11	B
B	WHT	18	EXT J13B	TO	J13	B
C	WHT	18	WIN J5B	TO	J5	B
D	WHT	18	WIN J14B	TO	J14	B
E	WHT	18	J4A REF	TO	J4	A
F	WHT	18	EXT J6B	TO	J6	B
G	WHT	16	P2 6 ENG START	TO	P2	6
H	WHT	18	P3B SIG COMM	TO	P3	B
I	-	-	-	TO	-	-
J	WHT	18	P2 4 SPD RLA	TO	P2	4
K	WHT	18	ROT J8B	TO	J8	B
L	WHT	16	PENDANT PWR(+)	TO	SPL A	-
M	WHT	18	P2 2 KILL RLA	TO	P2	2
N	WHT	18	LOWER J7B	TO	J7	B
O	WHT	16	P1 O SOL WPR	TO	P2	1
P	WHT	18	LOWER J12B	TO	J12	B
Q	-	-	-	TO	-	-
R	WHT	18	J4B VOLTAGE	TO	J4	B
S	WHT	18	P1S ON H	TO	SPL D	-
T	WHT	16	P2 5 COMPR	TO	P2	5
U	WHT	16	WNSPD P16B	TO	P16	B
V	-	-	-	-	-	-
W	-	-	-	-	-	-

LOCATOR CODE: P2			DEUTSCH: DT04-8PA			
TERM: 1060-16-0122			WEDGE: W8P		CAVITY PLUG: 114017	
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
1	WHT	16	P1 SOL PWR	TO	P1	-
2	WHT	18	P2 2 KILL RLA	TO	P1	M
3	WHT	16	P2 3 BAT (-)	TO	SPL B	-
4	WHT	18	P2 4 SPD RLA	TO	P1	J
5	WHT	16	P2 5 COMPRESSOR	TO	P1	T
6	WHT	16	P2 6 ENG START	TO	P1	G
7	WHT	16	P2 7 IGN SOL	TO	SPL A	-
8	-	-	-	TO	-	-

LOCATOR CODE: P3			PACKARD: 12015797			
TERM: 12089188			SEAL: 12015323			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY

WIRING CHART (70733394)

A	WHT	16	P3A POWER (+)	TO	SPL A	-
B	WHT	18	P3B SIG COMM	TO	P1	H
C	WHT	16	PRPVLV (-)	TO	J15	A
D	WHT	16	PRPVLV (+)	TO	J15	B

LOCATOR CODE: J4		PACKARD: 12010974				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	18	J4A REF	TO	J1	E
B	WHT	18	J4B VOLTAGE	TO	J1	R
C	WHT	18	J4C ON H	TO	SPL D	-
D	WHT	16	J4D PWR COM	TO	SPL B	-

LOCATOR CODE: J5		PACKARD: 12010973				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J5A WINCH	TO	SPL B	-
B	WHT	18	J5B WINCH	TO	P1	C

LOCATOR CODE: J6		PACKARD: 12010973				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	EXT J6A	TO	SPL B	-
B	WHT	18	EXT J6B	TO	P1	F

LOCATOR CODE: J7		PACKARD: 12010973				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	LOWER J7A	TO	SPL C	-
B	WHT	18	LOWER J7B	TO	P1	N

LOCATOR CODE: J8		PACKARD: 12010973				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	ROT J8A	TO	SPL B	-
B	WHT	18	ROT J8B	TO	P1	K

LOCATOR CODE: J9		PACKARD: 12010973				
TERM: 12089040		SEAL: 12015323				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J9A ANTI-TWO	TO	SPL B	-
B	WHT	16	P10B & P9B	TO	P10	B

LOCATOR CODE: P10		PACKARD: 12015792				
TERM: 12089188		SEAL: 12015323				

WIRING CHART (70733394)						
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	OPSI P10A	TO	R1	85
B	WHT	16	P10B & J9B	TO	J9	B

LOCATOR CODE: J11		PACKARD: 12010973				
TERM: 12089040				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J11A ROT	TO	SPL B	-
B	WHT	18	J11B ROT	TO	P1	-

LOCATOR CODE: J12		PACKARD: 12010973				
TERM: 12089040				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J12A LOWER	TO	SPL B	-
B	WHT	18	J12B LOWER	TO	P1	P

LOCATOR CODE: J13		PACKARD: 12010973				
TERM: 12089040				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J13A EXT	TO	SPL C	-
B	WHT	18	J13B EXT	TO	P1	B

LOCATOR CODE: J14		PACKARD: 12010973				
TERM: 12089040				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	J14A WINCH	TO	SPL C	-
B	WHT	18	J14B WINCH	TO	P1	D

LOCATOR CODE: J15		PACKARD: 12010973				
TERM: 12089040				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	PRPVLV (-)	TO	P3	C
B	WHT	16	PRPVLV (+)	TO	P3	D

LOCATOR CODE: P16		PACKARD: 12015792				
TERM: 12089188				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	WHT	16	P16A WNSPD	TO	SPL C	-
B	WHT	16	WNSPD P16B	TO	P1	U

LOCATOR CODE: -		SPLICE A				
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
-	WHT	16	PENDANT PWR (+)	TO	P1	L
-	WHT	16	P2 7 IGN SOL	TO	P2	7

WIRING CHART (70733394)

-	WHT	16	P3A POWER (+)	TO	P3	A
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LOCATOR CODE: -			SPLICE B			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
-	WHT	16	WINCH J5A	TO	J5	A
-	WHT	16	RELAY GND	TO	R1	87
-	WHT	16	P2 3 BAT (-)	TO	P2	3
-	WHT	16	J4D PWR COM	TO	J4	D
-	WHT	16	ROT J11A	TO	J11	A
-	WHT	16	LOWER J12A	TO	J12	A
-	WHT	16	EXT J6A	TO	J6	A
-	WHT	16	ROT J8A	TO	J8	A
-	WHT	16	ATB J9A	TO	J9	A

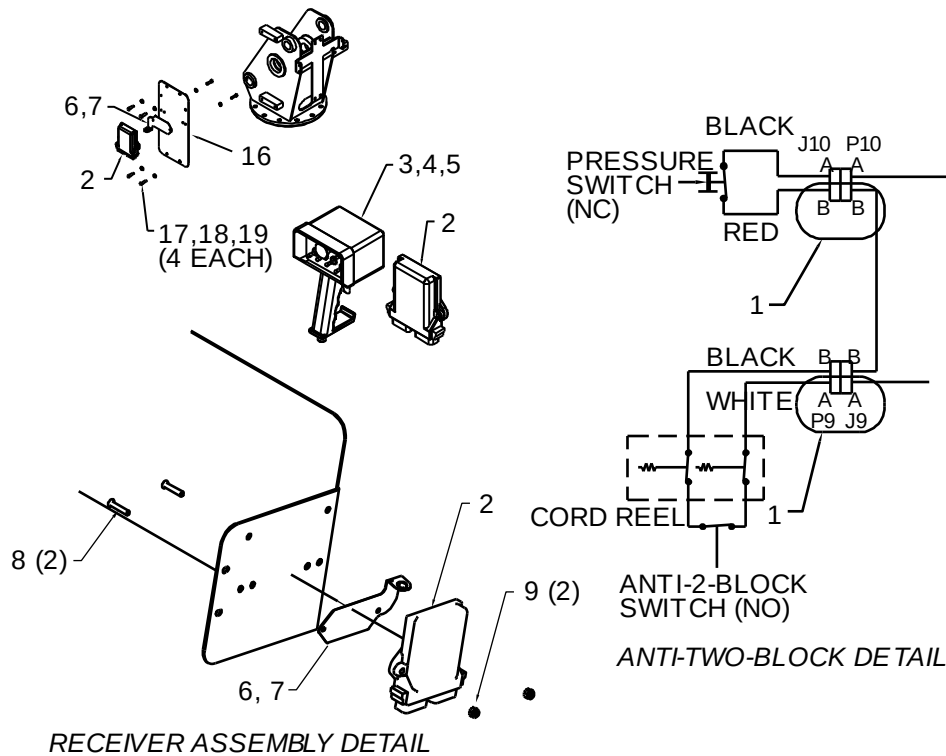
LOCATOR CODE: R1						
RELAY SOCKET: PACKARD 12065685, 12052834						
TERM: 12066614	RELAY: HELLA 87411 (SEALED)					
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
30	WHT	16	ATB & OPRES GRD	TO	SPL C	-
87	WHT	16	RELAY GRD	TO	SPL B	-
87A	-	-	-	TO	-	-
86	WHT	16	RELAY PWR (+)	TO	SPL D	-
85	WHT	16	OPSI P10A	TO	P10	A

LOCATOR CODE: -			SPLICE C			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
-	WHT	16	J7A LOWER	TO	J7	A
-	WHT	16	ATB & OPRES GND	TO	R1	30
-	WHT	16	EXT J13A	TO	J13	A
-	WHT	16	WINCH J14A	TO	J14	A
-	WHT	16	WNSPD P16A	TO	P16	A

LOCATOR CODE: -			SPLICE D			
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
-	WHT	18	P1S ON H	TO	P1	S
-	WHT	16	RELAY PWR (+)	TO	R1	86
-	WHT	18	J4C ON H	TO	J4	C

Controls & Hydraulics, Radio Remote

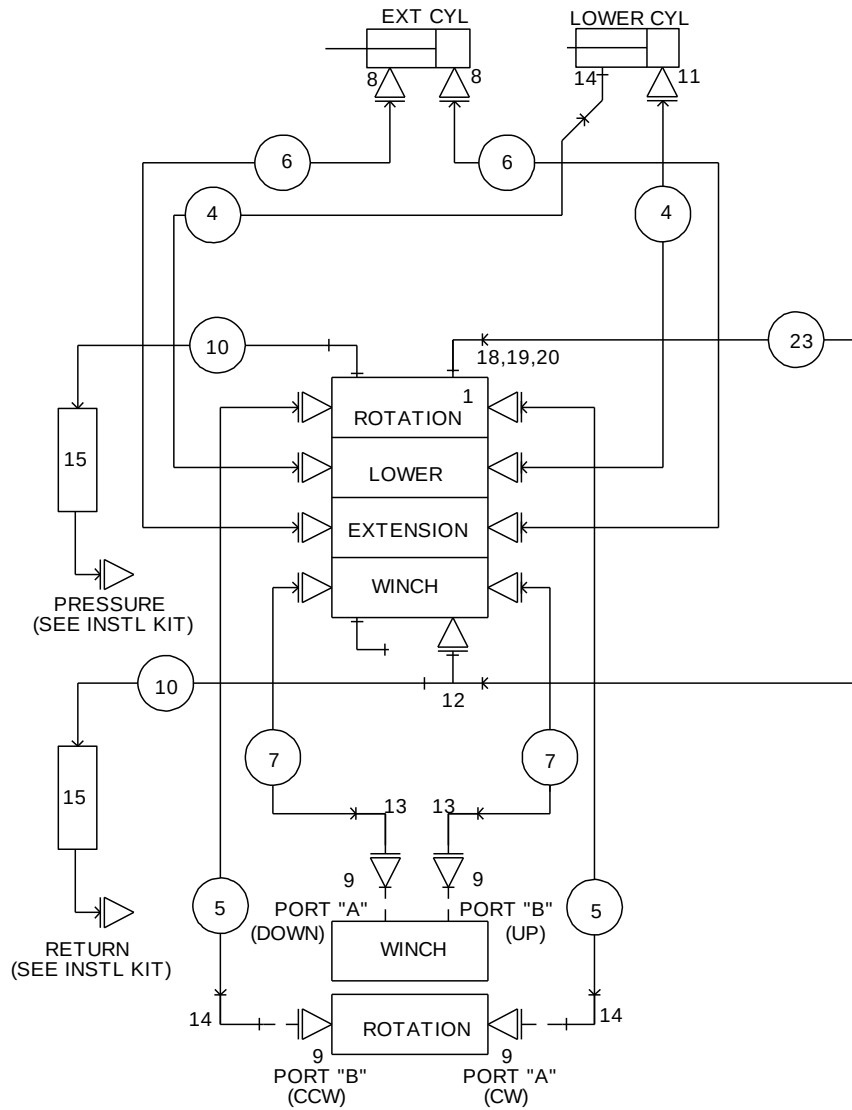
Control Kit, Radio Remote (90718830) (REF 99903629)



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 SCREW-22 1/4-20X1-1/4 HEX HEAD	2
9.	72062194	NUT-STAINLESS STEEL 1/4-20 NYLOC	2
10.	99903628	INSTRUCTIONS, RADIO REMOTE	1
13.	99903629	INSTALLATION DRAWING, RADIO REMOTE	1
16.	60121960	BRACKET, RADIO REMOTE RECEIVER	1
17.	72062167	NUT-STAINLESS STEEL 0.31-18 HEX NYLOC	4
18.	72601829	CAP SCREW-STAINLESS STEEL 0.31-18X.75 HEX HEAD	4
19.	72063151	WASHER-STAINLESS STEEL 0.31 LOCK TYPE 304	4

Hydraulic Kit, Radio Remote (91715631)

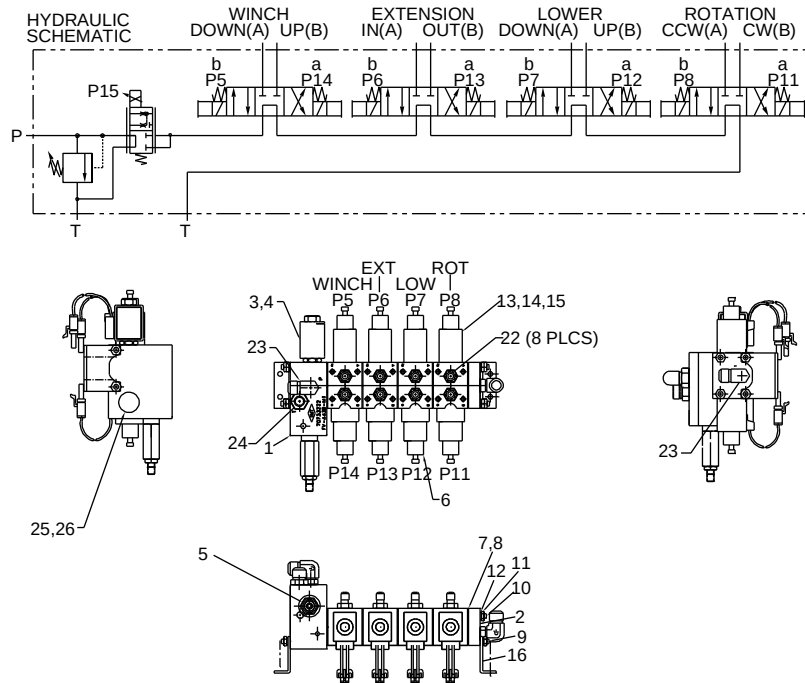


91715631 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	73733931	VALVEBANK	1
4.	51395538	HOSE FJ 25X36 #4#4	2REF
5.	51394946	HOSE FJ 25X45 #4#4	2REF
6.	51395539	HOSE FJ 25X70 #4#4	2REF
7.	51394948	HOSE FJ 25X21 #4#4	2REF
8.	72532351	ADAPTER #4MSTR #4MJIC	2
9.	72532722	ADAPTER #10MSTR #6FSTR	4
10.	51395403	HOSE-FF 1/2X28 OAL (8-8)	2REF
11.	72532353	ADAPTER #6MSTR #4MJIC	1
12.	72532671	TEE #8JIC SWVLNUTBRANCH	1

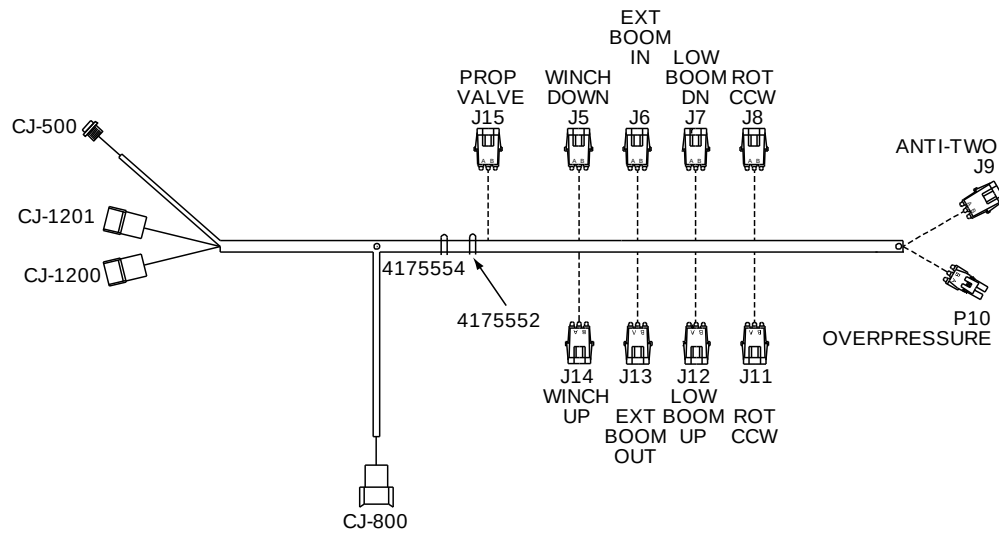
91715631 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
13.	72532699	ELBOW #6MSTR #4MJIC 90°	2
14.	72532985	ELBOW #6MSTR #4MJIC 45°	3
15.	72533648	SWIVEL #8MJIC #8MJIC 90°	2REF
18.	72060002	CAP SCREW 1/4-20X3/4 HHGR5	4
19.	72063001	WASHER 1/4 WRT	4
20.	72062104	NUT 1/4-20 LOCK	4
22.	51715632	HOSE KIT (INCL:4-7,23)	1
23.	51394950	HOSE FI .50X11.5 #8 #8	1REF
REV D 20110602			

Valvebank, Radio Remote (73733931)

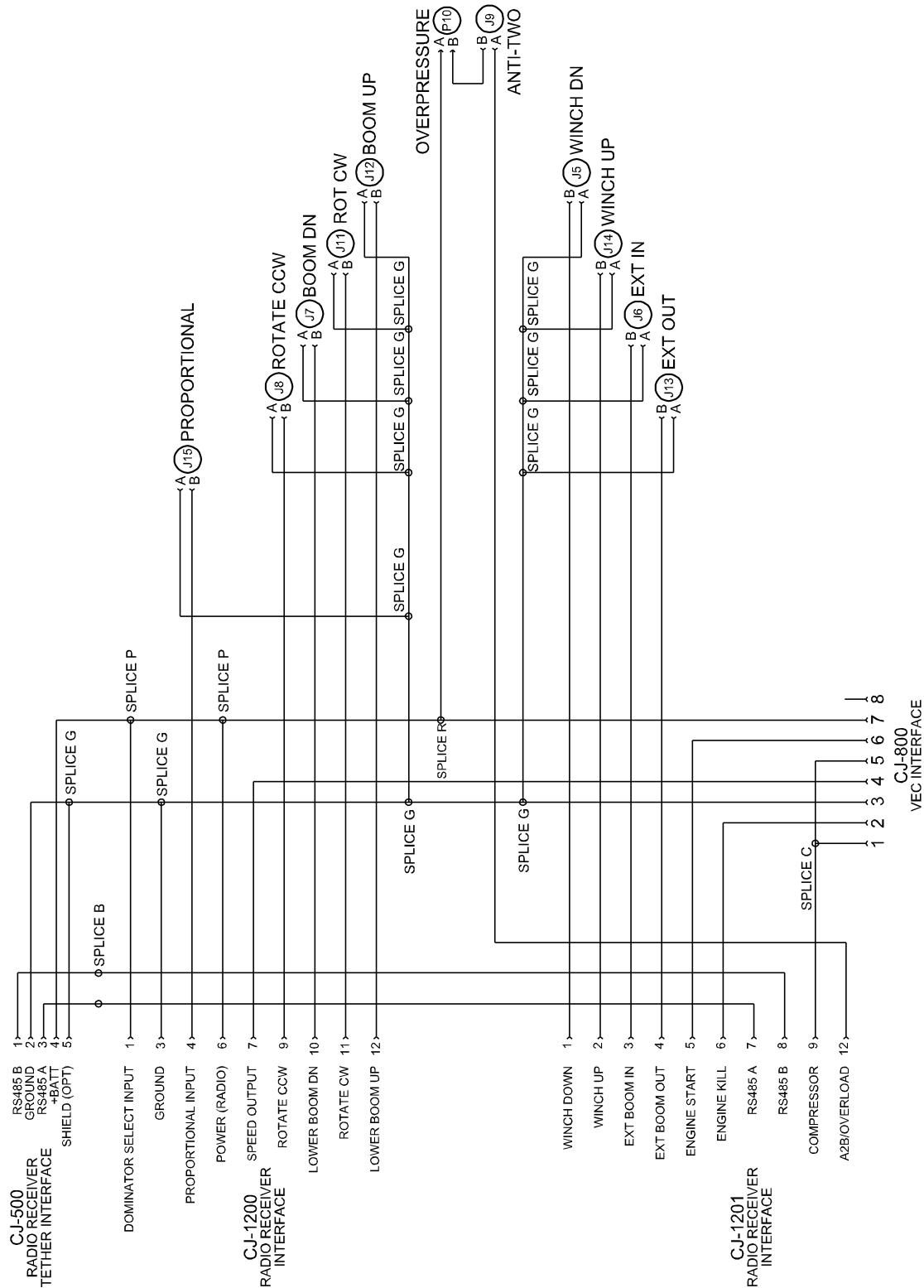


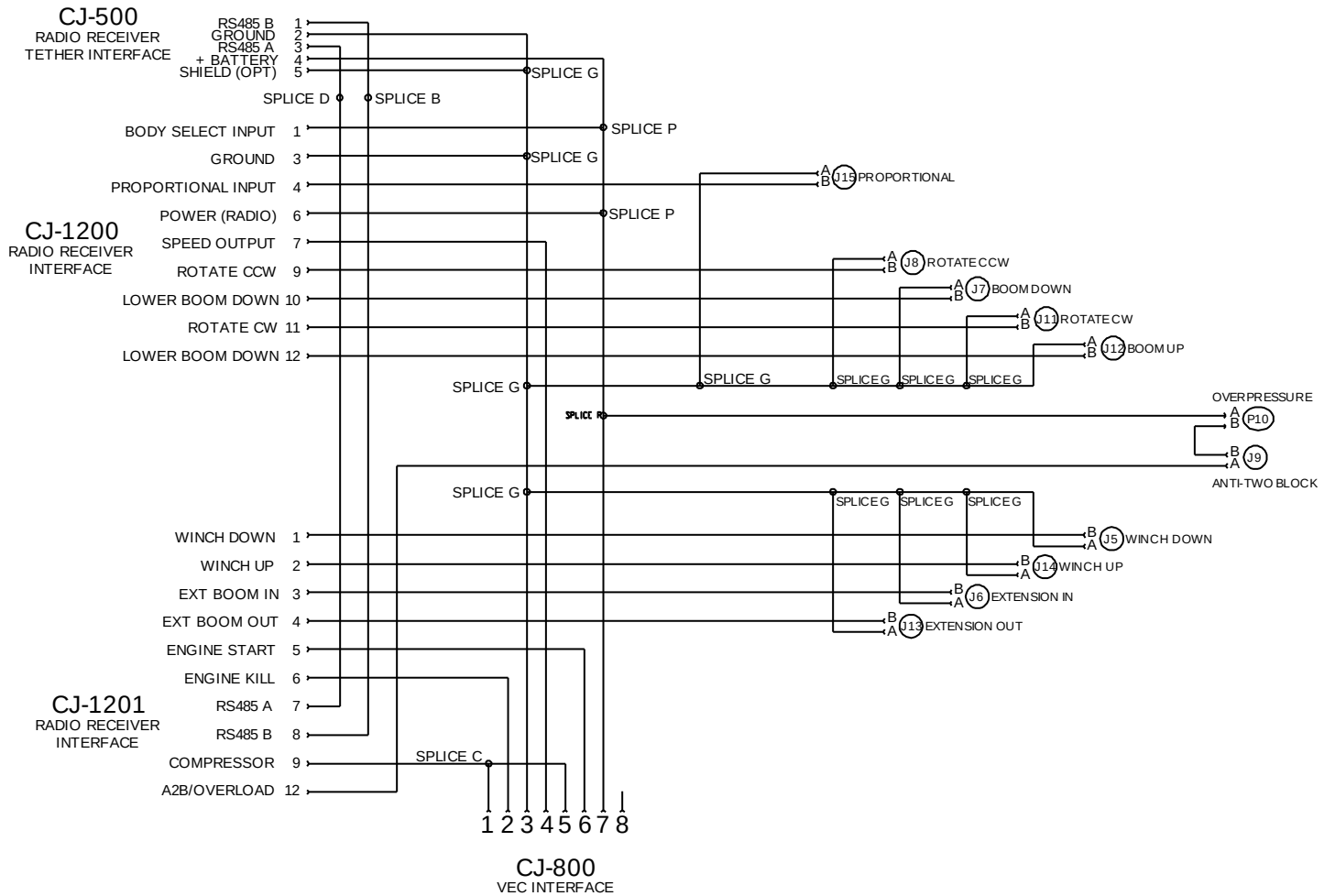
73733931 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	70145629	INLET BODY	1
2.	70145628	OUTLET BODY	1
3.	70145627	PROPORTIONAL FLOW REGULATOR	1
4.	70145626	COIL 12VDC	1
5.	70145625	RELIEF VALVE SET AT 2300PSI	1
6.	70145624	SOLENOID VALVE	4
7.	70143337	O-RING PLATE	5
8.	70145623	O-RING	10
9.	70145622	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

Cable Assembly, Radio Remote (77441101)



Electrical Schematic, Radio Remote (77441101)

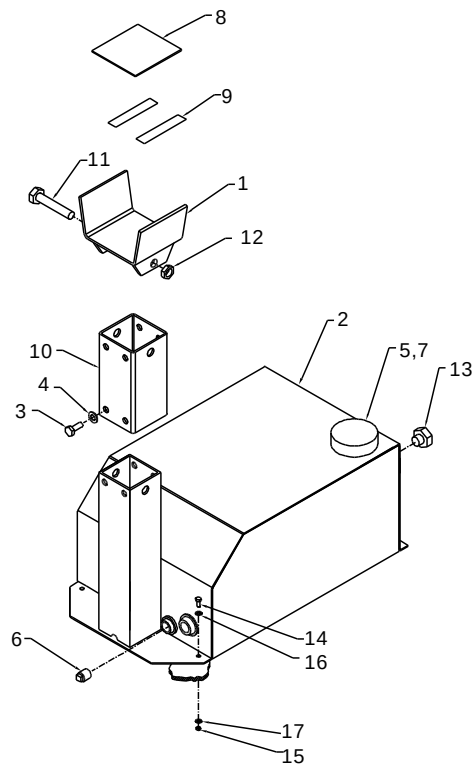




Stabilizers (Reference 99905457 Auxiliary Stabilizer Manual)

Miscellaneous

Reservoir Assembly (51706910)

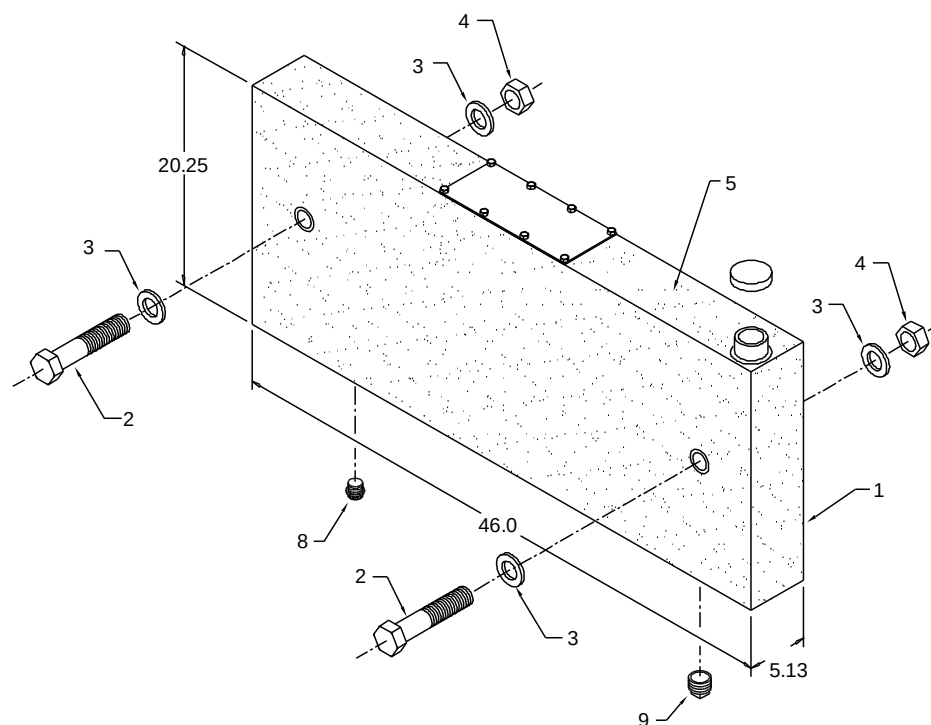


51706910 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	52705061	SADDLE	1
2.	52706909	RESERVOIR, 20 GAL.	1
3.	72060092	CAP SCREW, 1/2 X 1 1/4 GRADE 5	4
4.	72063053	WASHER, LOCK, 1/2	4
5.	73014671	CAP, FILL	1
6.	73052001	PLUG, MAGNETIC, 3/4 NPT	1
7.	73141276	SCREEN, FILL NECK	1
8.	60030162	PAD, WEAR	1
9.	70086054	TAPE	12"
10.	60109252	TUBE, SADDLE	1
11.	72060195	CAP SCREW, 3/4 X 7 GRADE 5	1
12.	72062114	NUT, SELF LOCKING, 3/4	1
13.	72532261	PLUG, SIGHT GAUGE, 3/4	1
14.	72060046	CAP SCREW, 3/8 X 1 GRADE 5	4

51706910 PARTS LIST			
15.	72062103	NUT, SELF LOCKING, 3/8	4
16.	72063003	WASHER, FLAT, 3/8	4
17.	76392821	SEAL, THREAD, 3/8	4
18.	73052012	SUCTION FILTER	1
19.	72053211	PIPE NIPPLE	1
20.	70394189	PLACARD-MOBILOIL	1

REV. C 20050519

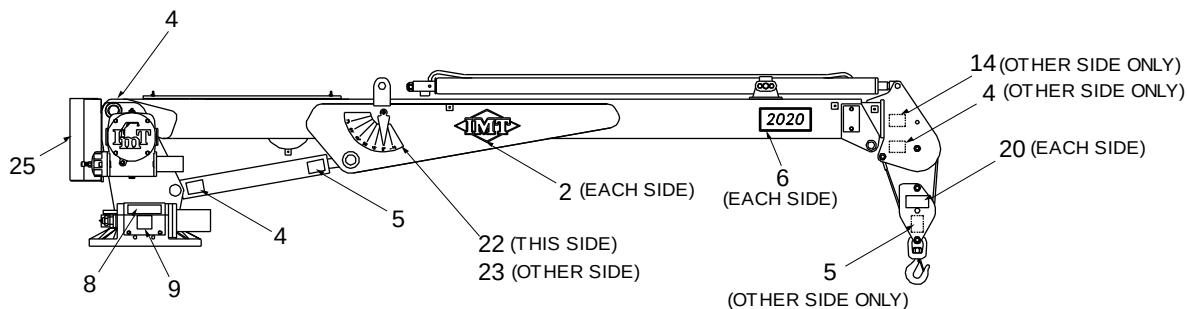
Reservoir (51707798)



51707798 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	52711432	RESERVOIR WELDMENT	1
2.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	2
3.	72063005	WASHER 1/2 WRT	8
4.	72062080	NUT 1/2-13 LOCK	2
5.	70394189	DECAL-OIL RECOMMENDED	1
8.	70393233	PLUG 3/4NPT	1
9.	72601004	PLUG 1-1/4NPT SQUARE HEAD	1

REV. H 20051213

Decal Placement, 2020 PTO (99903725) Effective 10-6-14

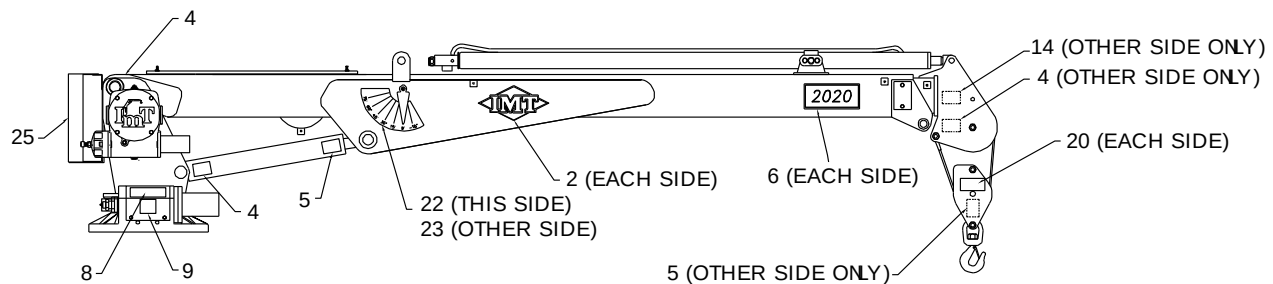


DECAL PLACEMENT	
ITEM NO.	LOCATION
1, 7, 25, 17, 26	AT OR NEAR RMT CTRL STORAGE POINT.
3	ONE ON EACH OUTRIGGER.
16, 19	ONE ON EACH SIDE OF CARRIR VEHICLE.
24	NEAR CONNECTOR.
18	AT OR NEAR TH EHYDRAULIC RESERVOIR.
21	AT OR NEAR THE DRIVELINE.
32	AT OR NEAR CRANE SERIAL NUMBER PLACARD
15	TWO ON FRONT SIDEPACKS TWO ON REAR OUTRIGGERS

99903725 PARTS LIST Effective 10/6/14				
ITEM	PART NO.	DESCRIPTION	QTY	KIT NO.
1	71039134	DECAL-CAUTION OIL LEVEL	1	11
2	70392887	DECAL-DIAMOND IMT 5.00 X 10. 00	2	12
3	70391598	DECAL-WARNING 315A OUTRIGGER	2	11
4	70391612	DECAL-GREASE WEEKLY (LEFT)	4	10
5	70391613	DECAL-GREASE WEEKLY (RIGHT)	2	10
6	70395332	DECAL-2020 IDENTIFICATION	2	12
7	70392213	DECAL-CAUTION DON'T WASH / WAX	1	10
8	70392399	DECAL-LUBRICATE WORM	1	10
9	70392524	DECAL KIT-ROTATE CRANE WHILE GREASE	1	10
10	95719347	DECAL KIT-TELE COMMON (SHEET)	1	
11	95719348	DECAL KIT-BODY COMMON (BAG)	1	
12	95719350	DECAL SHEET-TELE CRANE MODEL 2020	1	
13	70396613	DECAL-CRANE SAFETY & OPER	1	11
14	70394443	DECAL-DANGER FRE FALLING BOOMS	1	10
15	70392864	DECAL-DANGER OUTRG STAND CLEAR	4	11
16	70394445	DECAL-DANGER ELEC HZD LG TELES	4	11

99903725 PARTS LIST Effective 10/6/14				
ITEM	PART NO.	DESCRIPTION	QTY	KIT NO.
17	70395324	DECAL-ASME / ANSI B30.D-TELESCOP	1	10
18	70394189	PLACARD-MOBILOIL RESERVOIR	1	11
19	70392868	DECAL-DANGER CR LOADLINE (TRK)	4	11
20	71394080	DECAL-LOAD BLOCK RATING 2.5 TON	2	12
21	70392891	DECAL-DANGER DRIVELINE	1	11
22	71391522	DECAL-ANGLE INDICATOR RH	1	10
23	71391523	DECAL-ANGLE INDICATOR LH	1	10
24	71392095	DECAL-CAUTION AMPHENOL CONN	1	12
25	70395497	PLACARD-CAPACITY 2020	2	12
26	70392982	DECAL-SERVICE & REPAIR (Garner)	1	11
REV. C 20160629				

Decal Placement, 2020 PTO (99903725)



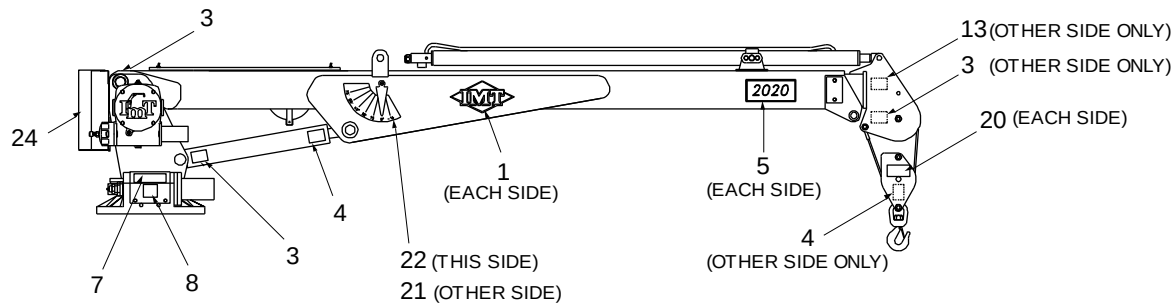
DECAL PLACEMENT	
ITEM NO.	LOCATION
3	ONE ON EACH STABILIZER
1,7,17,25,26	AT OR NEAR REMOTE CONTROL STORAGE POINT.
32	AT OR NEAR CRANE SERIAL NUMBER PLACARD
15	2 ON FRONT SIDEPACKS, 2 ON REAR STABILIZER
16,19	ONE ON EACH SIDE OF CARRIER VEHICLE
18	AT OR NEAR HYDRAULIC RESERVOIR
21	AT OR NEAR DRIVELINE
24	NEAR CONNECTOR

99903725 PARTS LIST				
ITEM	PART #	DESCRIPTION	QUANTITY	
1.	71039134	DECAL-CAUTION, OIL LEVEL	1	PART OF #11
2.	70392887	DECAL-IMT DIAMOND	2	PART OF #12
3.	70391598	DECAL-WARNING STABILIZER	2	PART OF # 11
4.	70391612	DECAL-GREASE WKLY LH	4	PART OF # 10
5.	70391613	DECAL-GREASE WKLY RH	2	PART OF # 10
6.	70395332	DECAL-2020 ID	2	PART OF #12
7.	70392213	DECAL-CAUTION DON'T WASH/WAX	1	PART OF #10
8.	70392399	DECAL-LUBRICATE WORM	1	PART OF #10
9.	70392524	DECAL-ROTATE CRANE WHILE GREAS	1	PART OF #10
10.	95719347	DECAL KIT (TELE-COMMON)	1	

99903725 PARTS LIST				
11.	95719348	DECAL KIT (BODY-COMMON)	1	
12.	95719350	DECAL KIT - 2020 SPECIFIC	1	
13.	70396613	DECAL-CRANE SAFETY/OPERATION	1	PART OF # 11
14.	70394443	DECAL-DANGER FREEFALL BOOMS	1	PART OF #10
15.	70392864	DECAL-DGR STAND CLEAR	4	PART OF # 11
16.	70394445	DECAL-DANGER ELEC HZD LG	4	PART OF # 11
17.	70395324	DECAL-ASME/ANSI B30.5	1	PART OF #10
18.	70394189	PLACARD-MOBIL OIL RESERVOIR	1	PART OF #11
19.	70392868	DECAL-DANGER CR LOADLINE	4	PART OF #11
20.	71394080	DECAL-LOAD BLK RATING 2.5 TON	2	PART OF #12
21.	70392891	DECAL-DANGER DRIVELINE	1	PART OF # 11
22.	71391522	DECAL-ANGLE INDICATOR RH	1	PART OF # 10
23.	71391523	DECAL-ANGLE INDICATOR LH	1	PART OF # 10
24.	71392095	DECAL-CAUTION AMPHENOL CONN	1	PART OF #12
25.	70395497	PLACARD-CAPACITY 2020	2	PART OF #12
26.	70392982	DECAL-SERVICE & REPAIR	1	PART OF #11

REV C 20140911

Decal Placement, 2020 Pump (99903726)

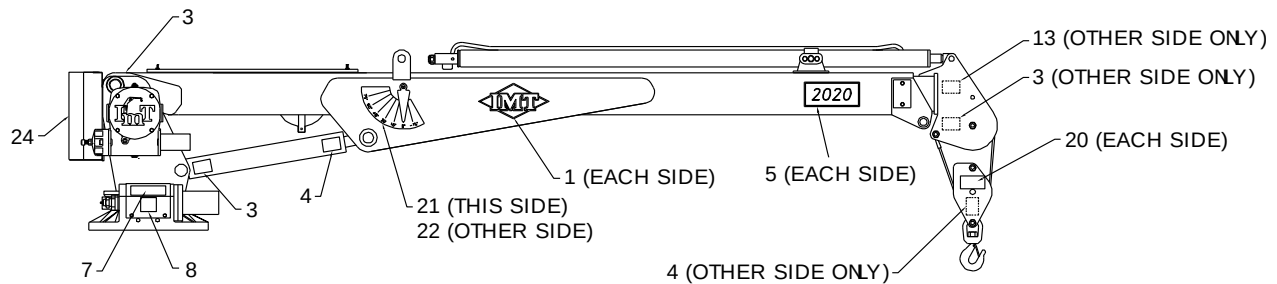


DECAL PLACEMENT	
ITEM NO.	LOCATION
6, 12, 24, 16, 25	AT OR NEAR RMT CTROL STORAGE POINT.
2	ONE ON EACH OUTRIGGER.
15, 18	ONE ON EACH SIDE OF CARRIER VEHICLE.
23	NEAR CONNECTOR.
6, 19, 29	AT OR NEAR THE HYDRAULIC RESERVOIR.
17	AT OR NEAR CRANE SERIAL NUMBER PLACARD.
14	TWO ON FRONT SIDEPACKS TWO ON REAR OUTRIGGERS.

99903726 PARTS LIST				
ITEM	PART NO.	DESCRIPTION	QTY	KIT NO.
1	70392887	DECAL-DIAMOND IMT 5.00 X 10.00	2	11
2	70391598	DECAL-WARNING 315A OUTRIGGER	2	10
3	70391612	DECAL-GREASE WEEKLY (LEFT)	4	9
4	70391613	DECAL-GREASE WEEKLY (RIGHT)	2	9
5	70395332	DECAL-2020 IDENTIFICTION	2	11
6	70392213	DECAL-CAUTION DON'T WASH / WAX	1	9
7	70392399	DECAL-LUBRICATE WORM	1	9
8	70392524	DECAL-ROTATE CRANE WHILE GREASE	1	9
9	95719347	DECAL KIT TELE COMMON (SHEET)	1	
10	95719348	DECAL KIT BODY COMMON (BAG)	1	
11	95719350	DECAL SHEET-TELE CRANE MODEL 2020	1	
12	70396613	DECAL-CRANE SAFETY & OPER	1	10
13	70394443	DECAL-DANGER FREEFALLING BOOMS	1	9
14	70392864	DECAL-DANGER OUTRG STAND CLEAR	4	10
15	70394445	DECAL-DANGER ELEC HZD LG TELES	4	10
16	71039134	DECAL-CAUTION OIL LEVEL	2	10
17	70395324	DECAL-ASME / ANSI B30.5-TELESCOP	1	9
18	70392868	DECAL-DANGER CR LOADLINE (TRK)	4	10
19	70394189	PLACARD-MOBILEOIL RESERVOIR	2	10
20	71394080	DECAL-LOAD BLOCK RATING 2.5 TON	2	11
21	71391522	DECAL-ANGLE INDICATOR RH	1	9
22	71391523	DECAL-ANGLE INDICATOR LH	1	9

99903726 PARTS LIST				
ITEM	PART NO.	DESCRIPTION	QTY	KIT NO.
23	71392095	DECAL-CAUTION AMPHENOL CONN	1	11
24	70395497	PLACARD-CAPACITY 2020	2	11
25	70392982	DECAL-SERVICE & REPAIR	1	10
REV. C 20160630				

Decal Placement, 2020 Pump (99903726)



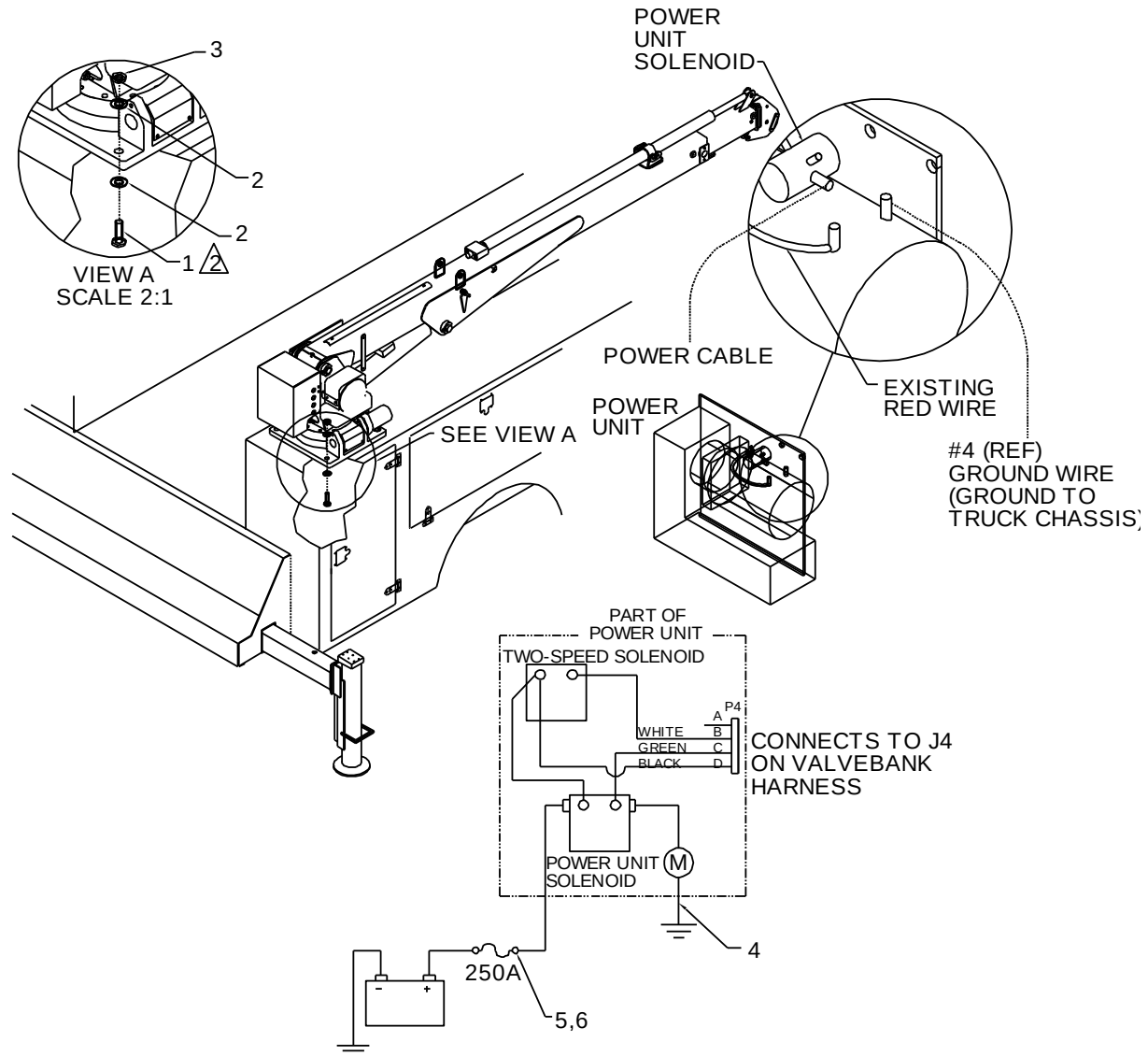
DECAL PLACEMENT	
ITEM NO.	LOCATION
2	ONE ON EACH STABILIZER
6,12,16,24,25	AT OR NEAR REMOTE CONTROL STORAGE POINT.
17	AT OR NEAR CRANE SERIAL NUMBER PLACARD
14	2 ON FRONT SIDEPACKS, 2 ON REAR OUTRIGGERS
15,18	ONE ON EACH SIDE OF CARRIER VEHICLE
6,19,29	AT OR NEAR HYDRAULIC RESERVOIR
23	NEAR CONNECTOR

99903726 PARTS LIST				
ITEM	PART #	DESCRIPTION	QUANTITY	
1.	70392887	DECAL-IMT DIAMOND	2	PART OF #11
2.	70391598	DECAL-WARNING STABILIZER	2	PART OF # 10
3.	70391612	DECAL-GREASE WKLY LH	4	PART OF # 9
4.	70391613	DECAL-GREASE WKLY RH	2	PART OF # 9
5.	70395332	DECAL-2020 ID	2	PART OF #11
6.	70392213	DECAL-CAUTION DON'T WASH/WAX	1	PART OF #9
7.	70392399	DECAL-LUBRICATE WORM	1	PART OF #9
8.	70392524	DECAL-ROTATE CRANE WHILE GREAS	1	PART OF #9
9.	95719347	DECAL KIT (TELE-COMMON)	1	
10.	95719348	DECAL KIT (BODY-COMMON)	1	
11.	95719350	DECAL KIT - 2020 SPECIFIC	1	
12.	70396613	DECAL-CRANE SAFETY/OPERATION	1	PART OF # 10
13.	70394443	DECAL-WARNING FREEFALL BOOMS	1	PART OF #9
14.	70392864	DECAL-WARNING STAND CLEAR	4	PART OF # 10
15.	70394445	DECAL-DANGER ELEC HZD LG	4	PART OF # 10

99903726 PARTS LIST				
16.	71039134	DECAL-CAUTION OIL LEVEL	2	PART OF #10
17.	70395324	DECAL-ASME/ANSI B30.5	1	PART OF #9
18.	70392868	DECAL-WARNING CR LOADLINE	4	PART OF #10
19.	70394189	PLACARD-MOBIL OIL RESERVOIR	2	PART OF #10
20.	71394080	DECAL-LOAD BLK RATING 2.5 TON	2	PART OF #11
21.	71391522	DECAL-ANGLE INDICATOR RH	1	PART OF # 9
22.	71391523	DECAL-ANGLE INDICATOR LH	1	PART OF # 9
23.	71392095	DECAL-CAUTION AMPHENOL CONN	1	PART OF #11
24.	70395497	PLACARD-CAPACITY 2020	2	PART OF #11
25.	70392982	DECAL-SERVICE & REPAIR	1	PART OF #10

REV C 20140911

Installation Kit, 2020 Power Unit (93714598)



NOTE:

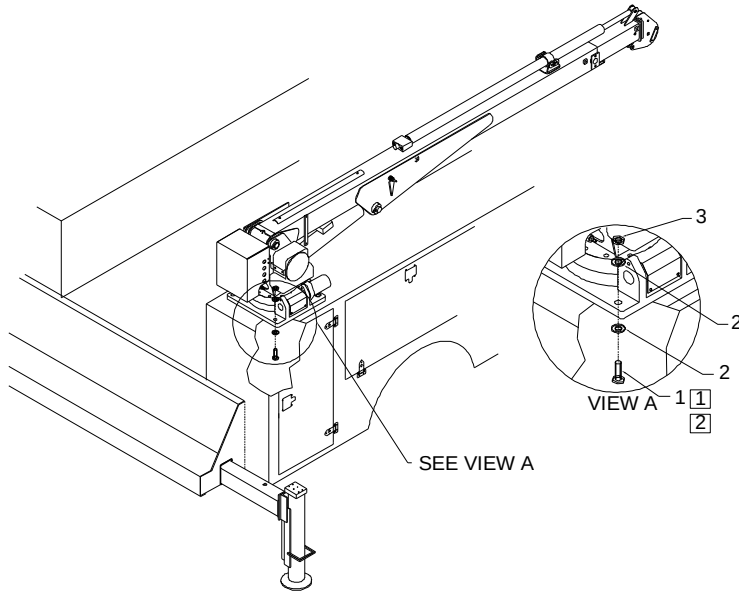
- 1 TORQUE ITEM #1 TO 200 FT-LB
- 2 USE PERMANENT THREAD LOCK

93714598 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	72060189	CAP SCREW 3/4-10 X 3	4
2.	72063008	WASHER 3/4 FLAT	8
3.	72062140	NUT 3/4-10 HEX LOCK STINGER GR5	4
4.	51705925	CABLE ASM	1
5.	77041592	FUSE	1
6.	77041593	FUSEHOLDER	1

REV. B 20050913

Installation Kit, 2020 PTO (93715347)

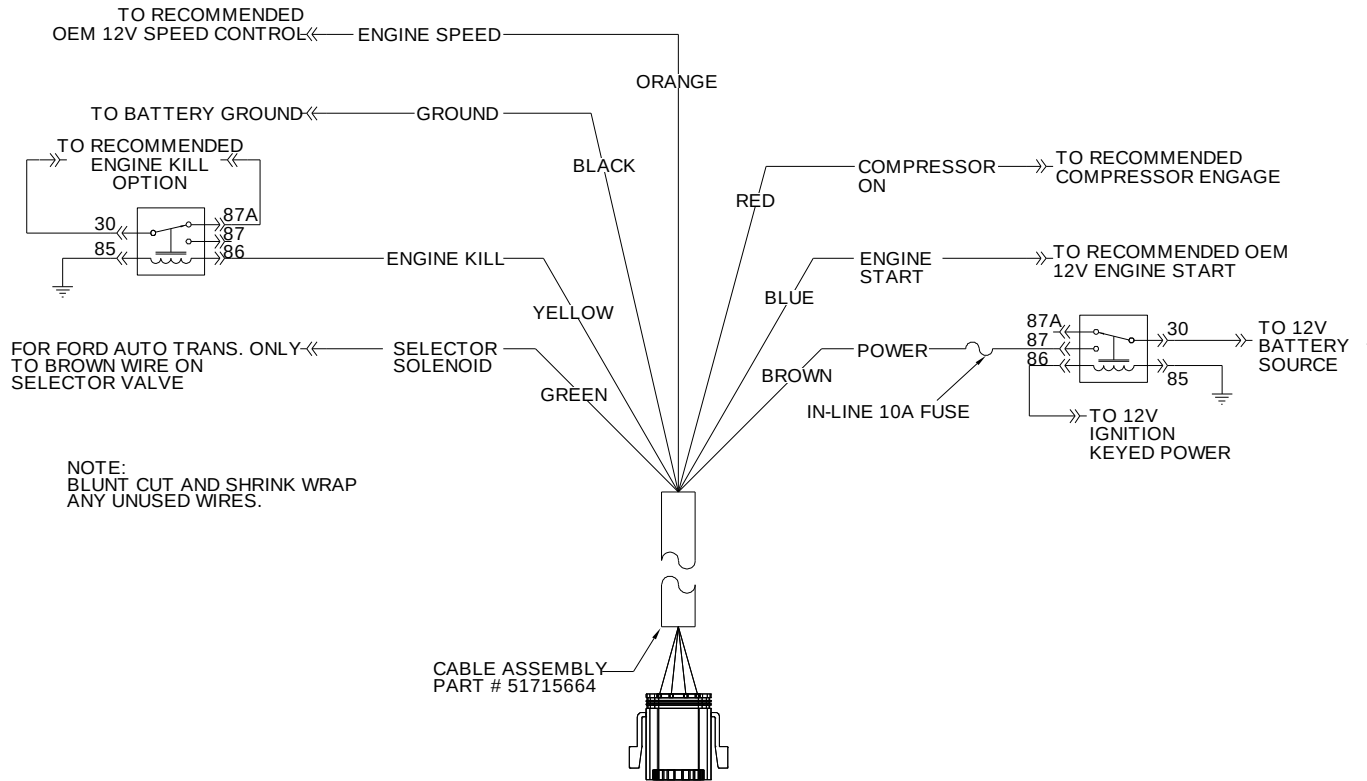
**NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN BOX):**

- 1 TORQUE ITEM #1 TO 200 FT-LB
- 2 USE PERMANENT THREAD LOCK

93715347 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	72060189	CAP SCREW 3/4-10 X 3 HEX HEAD GRADE 5	4
2.	72063008	WASHER 3/4 FLAT	8
3.	72062140	NUT 3/4-10 HEX LOCK STINGER GRADE 5	4
4.	73052091	HYDRAULIC RETURN FILTER, 10 MIC (NOT SHOWN)	1

REV. B 20050913

Chassis Wiring Harness (99903340)



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

CHAPTER 5

General Reference

In This Chapter

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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	X = Deficient
R = Recommendation (Should be considered for corrective action)	(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.)
NA = Not Applicable	

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.	

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	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS
				(S,R,X,NA)
	75		• Load holding valve pipe(s) and hose(s)	
	76		• Other	
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:
GUIDELINES 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. NOTE: Deficiencies (X) listed must be followed by the corresponding corrective action taken (CA). X = DEFICIENCY R = RECOMMENDATION CA = CORRECTIVE ACTION TAKEN		

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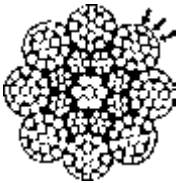
Wire Rope Inspection & Replacement

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

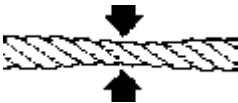
- a Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- b When there are either three broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



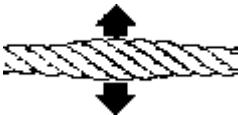
- c When flat spots on the outer wires appear and those outside wires are less than $\frac{2}{3}$ the thickness of the unworn outer wire.



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



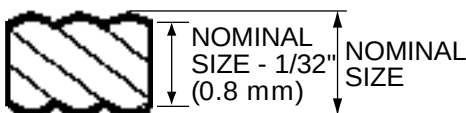
- e When kinking, crushing, birdcaging or other distortion occurs.



- 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

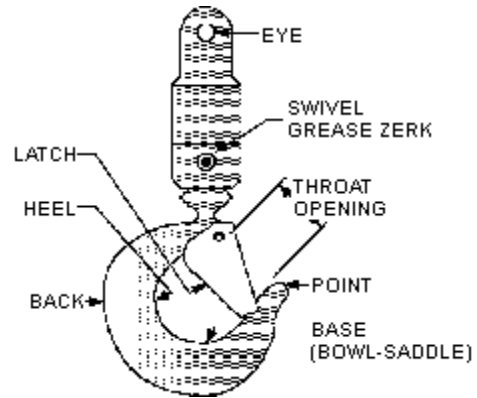
If a latch becomes inoperative because of wear or deformation, and is required for the service involved, it shall be replaced or repaired before the hook is put back into service. If the latch fails to fully close the throat opening, the hook shall be removed from service or wired closed (moused) until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

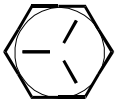
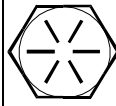
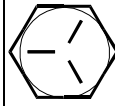
Anti-Two-Block Device Inspection

(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)						COARSE THREAD BOLTS (ENGLISH)					
SIZE	BOLT DIA.	 GRADE 5 SAE J429 GRADE 5		 GRADE 8 SAE J429 GRADE 8		SIZE	BOLT DIA.	 GRADE 5 SAE J429 GRADE 5		 GRADE 8 SAE J429 GRADE 8	
(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED	(DIA-TPI)	(INCHES)	PLAIN	PLATED	PLAIN	PLATED
		(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)			(FT-LB)	(FT-LB)	(FT-LB)	(FT-LB)
5/16-24	0.3125	19	14	27	20	5/16-18	0.3125	17	13	25	18
3/8-24	0.375	35	26	49	35	3/8-16	0.375	31	23	44	33
7/16-20	0.4375	55	41	78	58	7/16-14	0.4375	49	37	70	52
1/2-20	0.5	90	64	120	90	1/2-13	0.5	75	57	105	80
9/16-18	0.5625	120	90	170	130	9/16-12	0.5625	110	82	155	115
5/8-18	0.625	170	130	240	180	5/8-11	0.625	150	115	220	160
3/4-16	0.75	300	225	420	315	3/4-10	0.75	265	200	375	280
7/8-11	0.875	445	325	670	500	7/8-9	0.875	395	295	605	455
1-12	1	645	485	995	745	1-8	1	590	445	910	680
1 1/8-12	1.125	890	670	1445	1085	1 1/8-7	1.125	795	595	1290	965
1 1/4-12	1.25	1240	930	2010	1510	1 1/4-7	1.25	1120	840	1815	1360
1 3/8-12	1.375	1675	1255	2710	2035	1 3/8-6	1.375	1470	1100	2380	1780
1 1/2-12	1.5	2195	1645	3560	2670	1 1/2-6	1.5	1950	1460	3160	2370

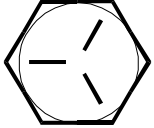
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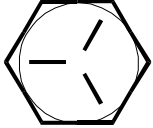
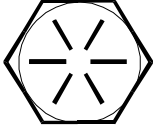
- 1 Tightening torques provided are midrange.
- 2 Consult bolt manufacturer's particular specifications, when provided.
- 3 Use flat washers of equal strength.
- 4 All torque measurements are given in foot-pounds.
- 5 Torque values specified are for bolts with residual oils or no special lubricants applied. 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)
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)
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.

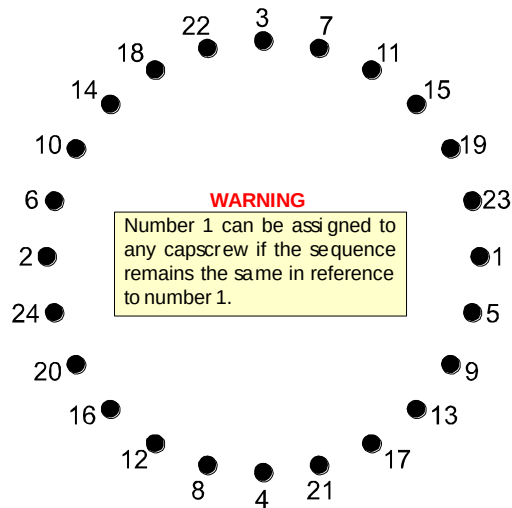
- 5 Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the 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.

Turntable Bearing Thread Tightening Sequence

Refer to the turntable bearing thread tightening 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 cap screw 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-LB = 106 FT-LB)
(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-LB = 199 FT-LB)
(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

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.

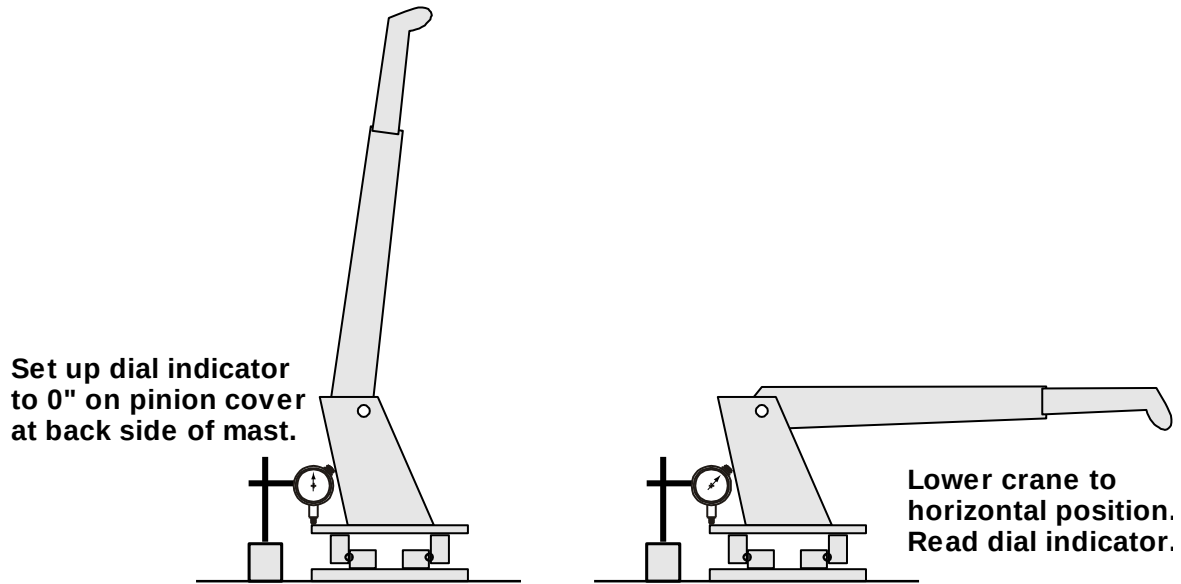
If one or more of the above conditions exists, further inspection may be required. Limits are measured in "TILT" which is dependent on the internal clearances of the bearing. TILT is the most practical determination of a bearings' internal clearance once mounted on a crane. You can measure the tilt using the **Turntable Bearing Tilt Test**. (see "Turntable Bearing Tilt Test" on page 122)

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 – MEASURE 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)