



# Model 425AT Crane Parts & Specifications

Revised: 20160419



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*Printed on 2 January, 2014*

425AT: 99905680:20140102

## REVISIONS LIST

DATE	LOCATION	DESCRIPTION OF CHANGE
20160113	99905991	PLUMBING DIAGRAMS UPDATE.

## INTRODUCTION

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

Before operation or performance of any maintenance on your crane, familiarize yourself with the OPERATOR'S CRANE SAFETY MANUAL, part number 99900313. It provides information critical to the safe operation and maintenance of your crane. It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible.

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

This manual is provided to assist you with ordering parts for your crane. It also contains specifications, description and installation information.

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

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

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

Three means are used throughout this manual to gain the attention of personnel. They are NOTES, CAUTIONS and WARNINGS and are defined as follows:

### NOTE

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

### CAUTION

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

### WARNING

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

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

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## NOTES

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This image shows a full page of blank, lined paper. It features approximately 28 horizontal blue or grey lines spaced evenly apart, typical of standard notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings on the page.

# 425AT CRANE SPECIFICATIONS

## GENERAL SPECIFICATIONS

<b>CRANE RATING</b>	39,000 ft-lbs (5.39 ton-m)
<b>REACH - FROM CENTERLINE OF ROTATION</b>	25'-2" (7.67m)
<b>HYDRAULIC EXTENSIONS</b>	45"/51" (114.3cm/129.5cm)
<b>MANUAL EXTENSION</b>	45" (114.3cm)
<b>LIFTING HEIGHT - FROM BASE OF CRANE</b>	31'-2" (9.50m)
<b>CRANE WEIGHT</b>	2100 lbs (953 kg)
<b>STORAGE HEIGHT-FROM BASE OF CRANE</b>	7'-0" (2.13m)
<b>MOUNTING SPACE REQUIRED</b>	27'-1/2" x 19" (69.85 x 48.26cm)
<b>MOUNTING HOLE PATTERN</b>	14'-3/4" x 14'-3/4" (37.46 x 37.46cm)
<b>OPTIMUM PUMP CAPACITY</b>	7 U.S. GPM (26.5 liters/min)
<b>OIL RESERVOIR CAPACITY</b>	17 U.S. GAL. (64.3 liters)
<b>DESIGN FACTORS (PINS &amp; HYDRAULICS)</b>	4/1

## LIFTING CAPACITY (FROM CENTERLINE OF ROTATION)

9'-3" (2.82m)	4200 lbs (1905 kg)
13'-5" (4.09m)	2900 lbs (1315 kg)
17'-2" (5.23m)	2250 lbs (1020 kg)
21'-5" (6.53m)	1800 lbs (816 kg)
25'-2" (7.67m)	1350 lbs (612 kg)

Deduct the weight of load handling devices from the capacities listed above.

## PERFORMANCE CHARACTERISTICS:

<b>ROTATION:</b>	450° (7.85 Rad.)	30 seconds
<b>INNER BOOM ELEVATION:</b>	-20° to +72° (-0.35 Rad. to +1.26 Rad.)	15 seconds
<b>OUTER BOOM ARTICULATION:</b>	125° (2.18 Rad.)	17 seconds
<b>TWO-STAGE EXTENSION</b>		
1ST STAGE: 45" (114.3cm)	21 seconds	
2ND STAGE: 51" (129.5cm)	10 seconds	

## POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 12 horsepower.

## CYLINDER HOLDING VALVES

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

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

## ROTATION SYSTEM

Turntable bearing powered with a high-torque hydraulic motor through a ring-and-pinion type spur gear train (total gear reduction is 43.1 to 1).

## HYDRAULIC SYSTEM

Open-centered, full-pressure system that requires 7 GPM (26.5 liters/min.) optimum oil flow at 2,350 PSI (162 bar). Six-spool, stack-type control valve operated remotely. System includes hydraulic oil reservoir, suction-line filter, pump, 6-section valvebank, return-line filter and all hoses and fittings.

## CYLINDERS

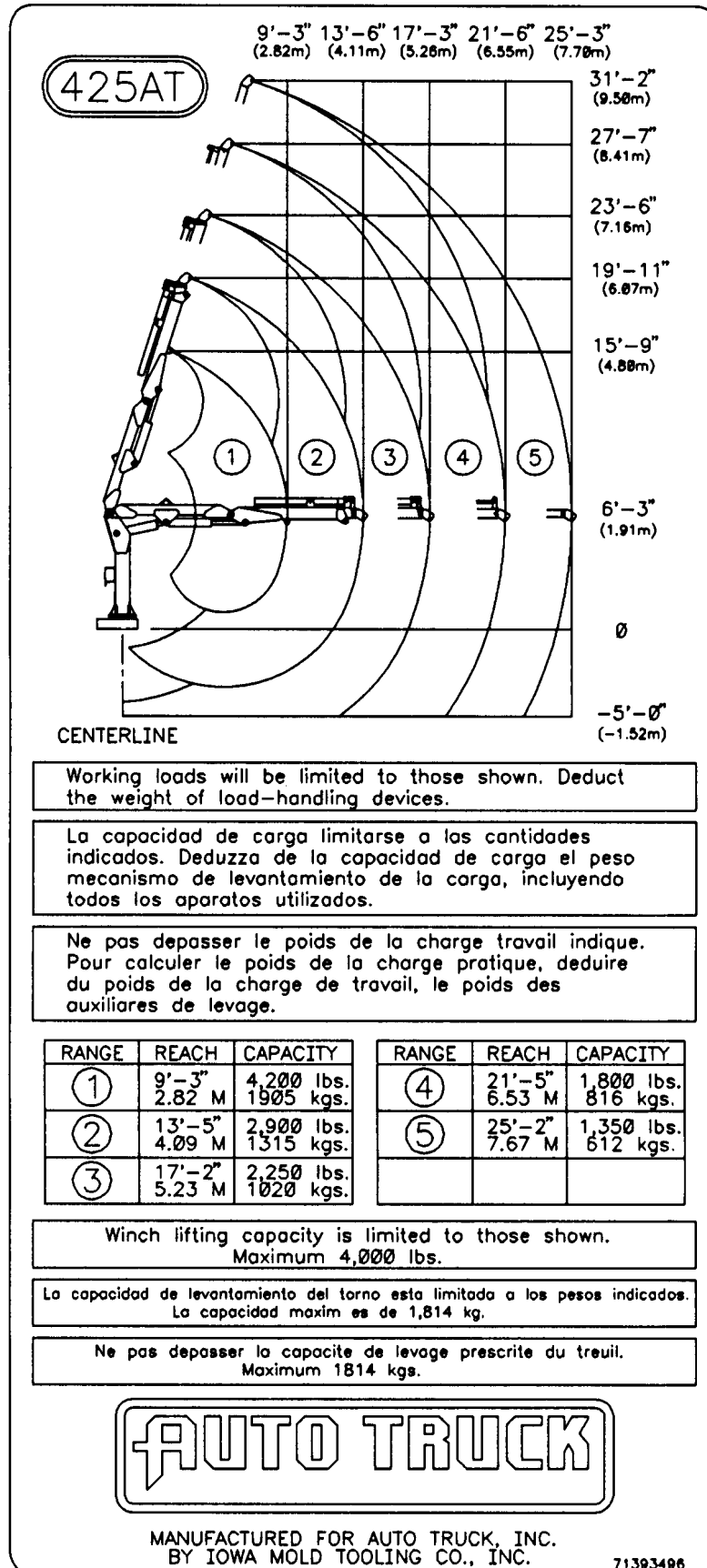
	<b>BORE</b>	<b>STROKE</b>
INNER CYLINDER	5" (12.7cm)	19-1/4" (48.9cm)
OUTER CYLINDER	5" (12.7cm)	21-1/2" 54.6cm)
TWO-STAGE EXTENSION CYLINDER		
1ST STAGE	4" (10.2cm)	45" (114.3cm)
2ND STAGE	2-1/2" (6.4cm)	51" (129.5cm)

## MINIMUM CHASSIS SPECIFICATIONS

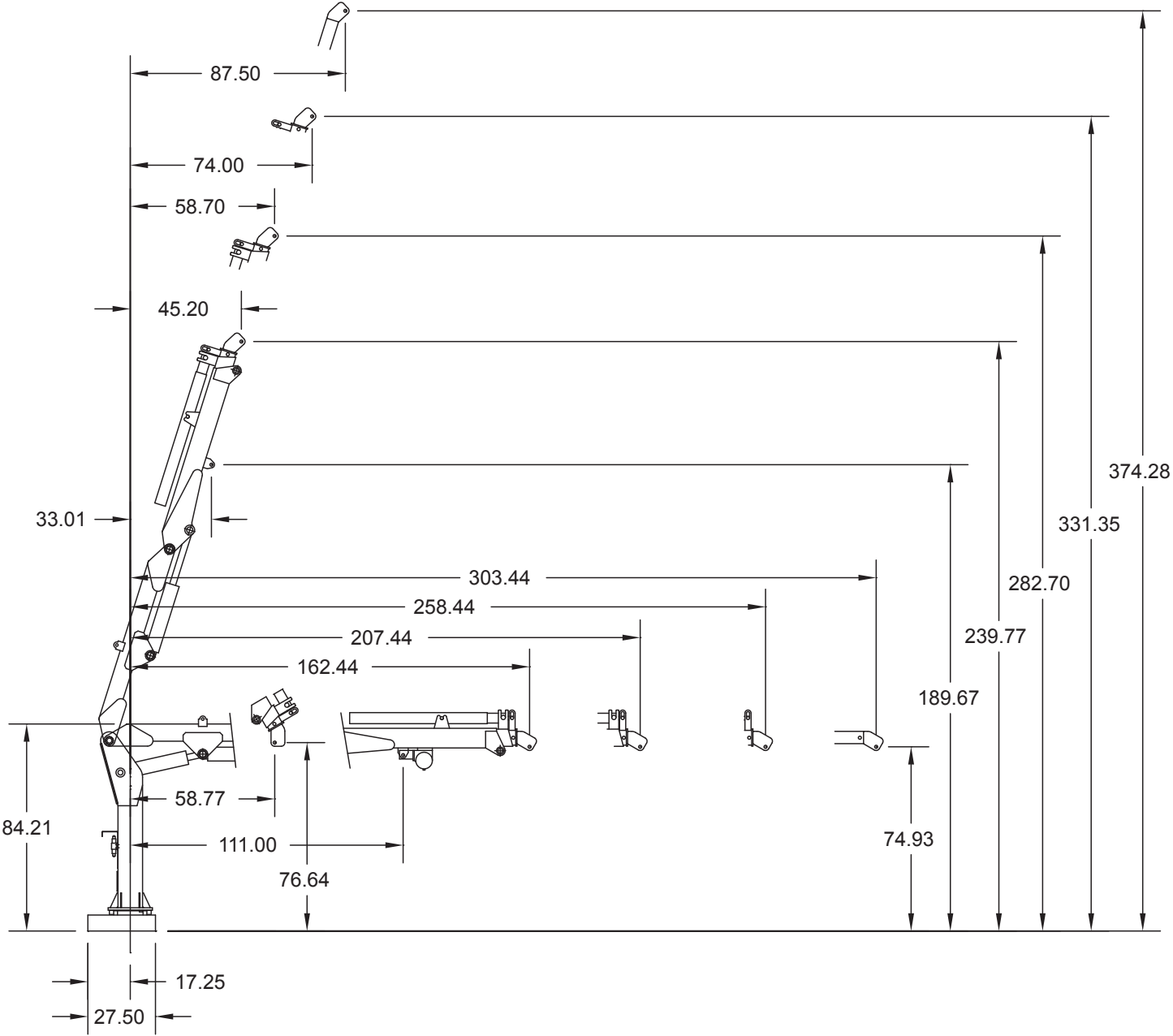
BODY STYLE	Conventional Cab
WHEEL BASE	175" (444.5 cm)
CAB TO AXLE	102" (259.1cm)
FRAME SECTION MODULUS	14 cubic inches (229.4cc)
RBM	680,000 in-lbs (7837 kg-m)
FRONT AXLE RATING	7000 lbs (3175 kg)
REAR AXLE RATING	15,000 lbs (6804 kg)
TRANSMISSION	4-SPEED

In addition to these specifications, heavy-duty electrical and cooling systems and dual rear wheels are required. It is recommended that the vehicle be equipped with an electric tachometer, auxiliary brake lock, power steering and 5-speed transmission in lieu of a 4-speed transmission.



**CAPACITY CHART**

GEOMETRIC CONFIGURATION



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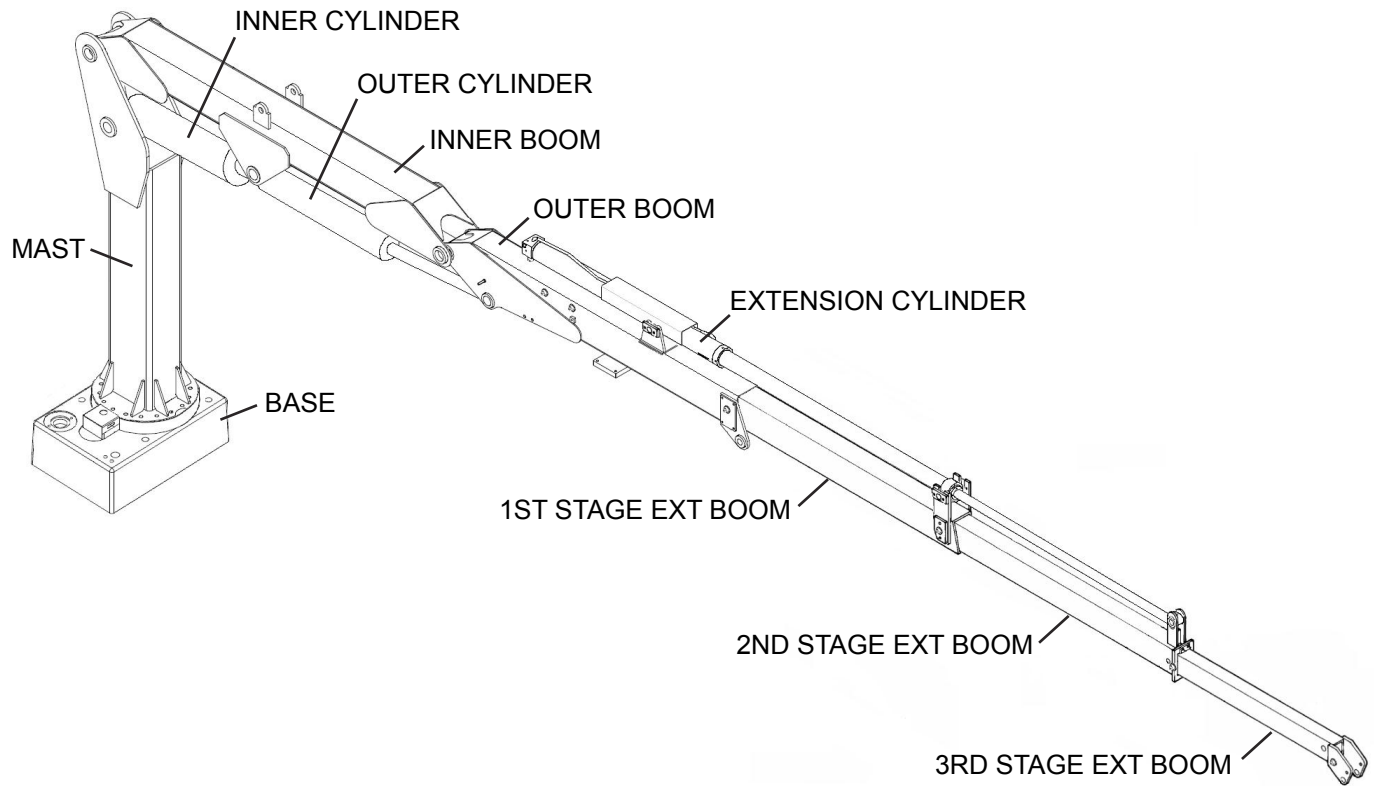
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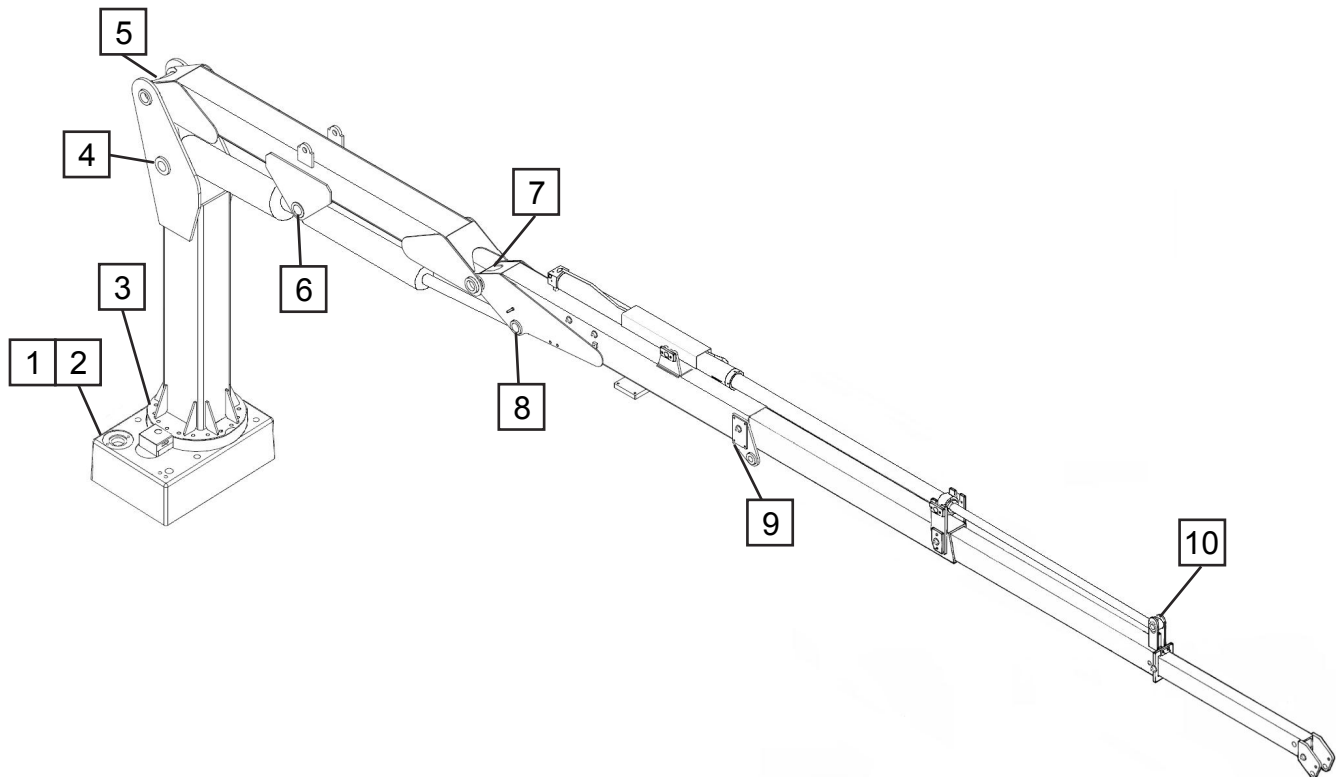
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## MAJOR CRANE ASSEMBLIES

# GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	DRIVE GEAR GREASE EXTENSION	SHELL ALVANIA 2EP  OR  SHELL RETINAX "A"	WEEKLY
2.	TURNTABLE/BEARING GREASE EXTENSION *ROTATE CRANE WHILE GREASING		
3.	PINION GEAR		
4.	MAST/INNER CYLINDER HINGE PIN		
5.	MAST/INNER BOOM HINGE PIN		
6.	INNER CYLINDER ROD/INNER BOOM HINGE PIN		
7.	INNER BOOM/OUTER BOOM HINGE PIN		
8.	OUTER CYLINDER ROD		
9.	OUTER BOOM TRUNNION PIN		
10.	EXTENSION CYLINDER ROD		

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

# RECOMMENDED SPARE PARTS LIST

## 1 YEAR SUPPLY

### 425AT CRANE

#### FOR MANUAL: 99900653

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a year. It is intended to provide the user with a stock of parts sufficient to keep the unit operating with the minimal down-time waiting for parts. There may be parts failures not covered by this list. Parts not listed are considered as not being Critical or Normal Wear items during the first year of operation and you need to contact the distributor manufacturer for availability.

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
41707659.01.19961011	BASE ASM						
	3	60020114	BUSHING	1	W		
	4	60020115	BUSHING	1	W		
	5	60020116	BUSHING	1	W		
	6	60020154	BUSHING	1	W		
	14	7Q072112	O-RING	2	W		
	15	71056010	PINION GEAR	1	W		
	33	73054538	COUNTERBALANCE VALVE	2	C		
41716193.01.20000914	INNER BOOM ASM						
	3	60020131	BUSHING	2	W		
3C166000.01.20000914	INNER BOOM CYLINDER						
	3	6H500025	HEAD	1	W		
	4	6I500181	PISTON	1	W		
	5	7BF81220	BUSHING	4	W		
	6	7BF81020	BUSHING	2	W		
	7	9C166000	SEAL KIT	1	W		
	21	73540052	CBAL VALVE	1	C		
	26	77041605	PR SWITCH	1	C		
41711600.01.19970123	OUTER BOOM ASM						
	3	60020131	BUSHING	2	W		
	4	60030015	WEAR PAD	2	W		
	9	60020126	BUSHING	4	W		
3C081712.01.19990127	OUTER BOOM CYLINDER						
	3	6H050025	HEAD	1	W		
	4	6I050181	PISTON	1	W		
	6	73054242	VALVE	1	C		
	7	9A202029	SEAL KIT	1	W		
	18	7BF81220	BUSHING	2	W		
	19	7BF81520	BUSHING	2	W		
41705246.01.19920203	EXTENSION BOOM ASM						
	8	60030007	WEAR PAD	2	W		
	9	60030064	WEAR PAD	1	W		
	10	60030145	WEAR PAD	1	W		
	25	60030127	WEAR PAD	1	W		
3K095850.01.19970718	EXTENSION CYLINDER						
	4	6H271511	HEAD	1	W		
	5	6H112820	HEAD	1	W		
	6	6I025087	PISTON	1	W		
	7	6I095850	PISTON	1	W		
	11	73054242	VALVE	2	C		
	13	9X095850	SEAL KIT	1	W		
91716194.01.20000914	HYDRAULIC KIT 5F						
	6	72532740	ELBOW	2	W		
73734582 . 20130101	VALVEBANK ASM 5-SECTION						
	5	7Q072205	O-RING	2	W		
	6	76392808	O-RING	10	W		
	7	70143337	O-RING	5	W		
	10	77041556	PROPORTIONAL COIL	1	C		
	14	73540253	COIL - VALVE SECTION	6	W		
51715568.01.20000914	REMOTE HANDLE ASM						
	11	70394183	TRIGGER ASM	1	W		
	16	77040371	TOGGLE SWITCH SPST	1	W		
	17	77040372	TOGGLE SWITCH SPDT	6	W		
	18	77040373	TOGGLE SWITCH SPST	2	W		

(BLANK)



## INSTALLATION

### GENERAL

This section contains specific instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make sure the chassis is ready to receive the crane (refer to Volume 1, MAINTENANCE AND REPAIR for chassis preparation. Each installation may vary in components used. It is important to use hoses of proper length, pumps of correct size, and PTO's of adequate speed. Reinforce the chassis frame as necessary and install the PTO and pump.

### CRANE INSTALLATION

In addition to meeting Minimum Chassis Specifications in Section 1, there must be sufficient room for mounting the crane and the platform must be strong enough to support the crane and rated load.

To install the crane on the chassis:

1. Use a lifting device capable of lifting the weight of the crane - 2100 lbs. (953 kg). Attach the lifting device to the lift bracket welded to the top of the inner boom. Secure the lifting device to prevent slippage and lift the crane. Apply a bead of waterproof compound, such as silicone based caulk, to the bottom of the base. Move the carrier vehicle into position under the crane and lower the crane into position on the chassis. Allow sufficient room between the crane and cab for mast rotation.

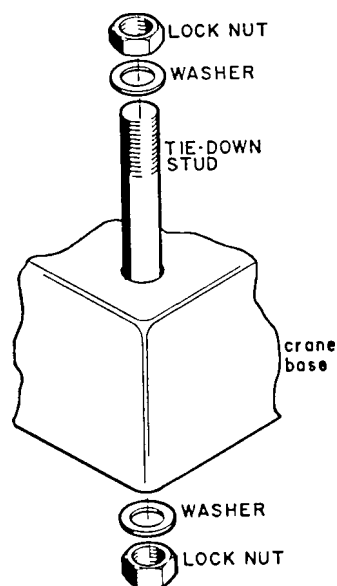
2. Install the mounting tie-rods, washers, and lock-nuts to secure the crane base to the mounting surface (see figure below). Tighten and torque the mounting hardware to 200 ft-lbs (28 kg-m).

#### CAUTION

Do not attempt to apply the same torque to the tie rod and self-locking nuts as shown in the Torque Data Chart in the APPENDIX in Volume 1. Do not exceed 200 ft. lbs. (28 kg-m). Exceeding this torque value could damage either the chassis or crane base.

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

3. Touch up paint on crane and chassis as necessary.



### CRANE INSTALLATION

## HYDRAULIC INSTALLATION

Installations vary and it will be necessary for the installer to determine the best configuration for his individual installation. Following is a general guide to installation (see figure below).

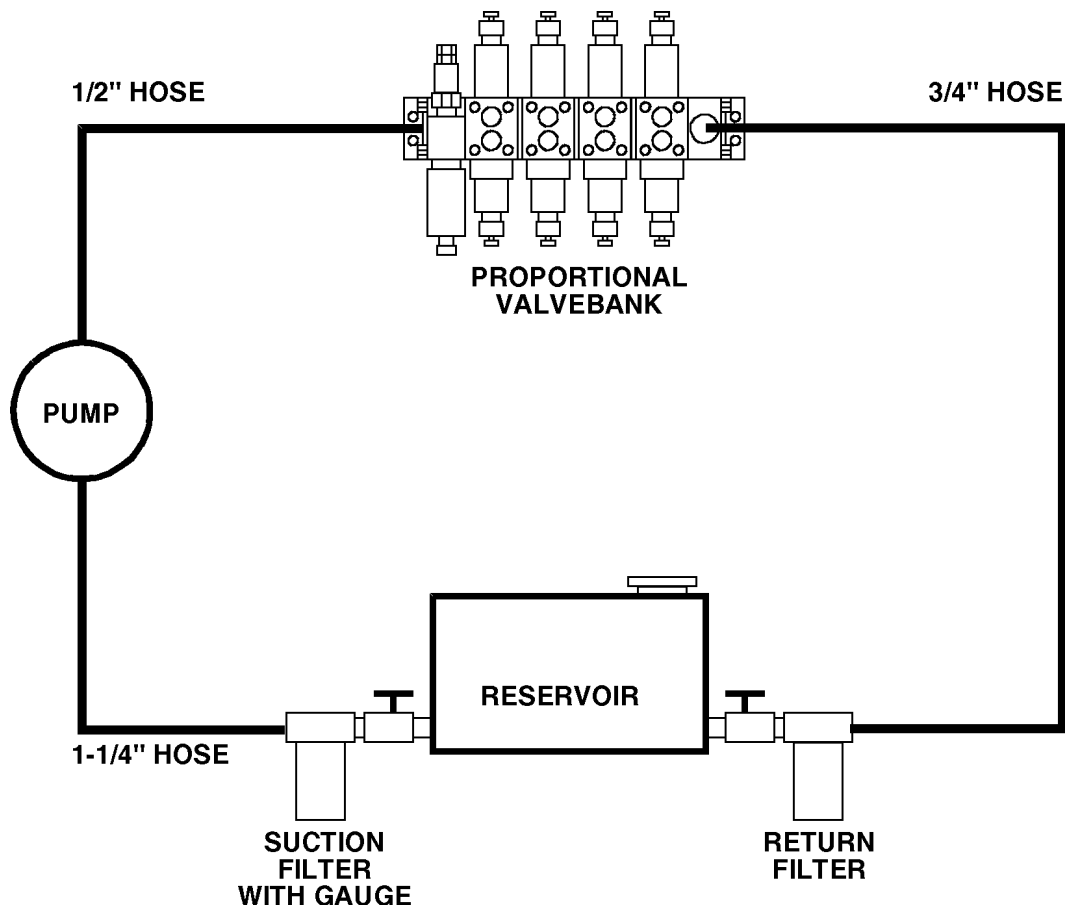
1. Install the suction filter to the suction port, and a return filter to the return port of the standard reservoir with 1-1/4" nipples and gate valves.
2. Install a 1-1/4" diameter hose between the pump and the suction filter, using barbed nipples and hose clamps.
3. Install a 1/2" diameter hose between the pump and the valvebank inlet section.
4. Install a 3/4" diameter hose between the valvebank outlet section and the reservoir

5. Fill the hydraulic reservoir (refer to Volume 1 for hydraulic oil specifications).
6. Check all connections for leaks.
7. Open the gate valves.

### CAUTION

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

8. Start the vehicle engine and test each crane function individually. Conduct a visual inspection to make certain there are no leaks and that everything is operating properly.
9. Check the oil level in the reservoir and add oil if necessary.



## GENERAL HYDRAULIC INSTALLATION

# PROPORTIONAL REMOTE CONTROLS

## GENERAL

This section is provided to help the operator and the installer become familiar with proportional remote controls. It discusses the theory of operation, installation, and troubleshooting.

## OPERATION

The speed at which a crane operates is directly related to the amount of oil supplied to its main control valve. The proportional remote control feature regulates the amount of oil that is made available to the main control valve, thereby controlling the speed of operation. This is accomplished by means of an electrically controlled hydraulic system consisting of a remote control, an amp driver, and a flow control. An increase in signal voltage to the amp driver causes it to provide higher signal voltage to the flow control solenoid. Higher signal voltage at the flow control solenoid causes it to limit the flow of oil allowed to bypass to the reservoir. Limiting the amount of oil that is bypassed forces more oil downstream, thus increasing the speed of operation.

## REMOTE CONTROL

The remote control allows the operator to control the crane remotely. It provides the housing for the switches that control which crane function, or functions, are to be activated. It also houses the potentiometer and trigger assembly that actually provide the signal voltage to the amp driver. It is connected to the main control valve and the amp driver through a 30 foot cable. The function switches in the remote control are simple on/off switches and have no effect on the speed of the function. The speed of the function selected is controlled only by the trigger, therefore, if two functions are selected at the same time, when the trigger is pulled, the speed of both functions will increase.

## AMP DRIVER

The amp driver is an electronic device used to take the signal that it receives from the trigger in the remote control, and subsequently provide a signal voltage to the flow control solenoid. It is often mounted to the mast of the crane, but may be mounted in an alternate location.

## FLOW CONTROL

The flow control may either be an integral part of the inlet on the main control valve, or a separate valve body, depending on the crane model. Its purpose is to regulate the amount of oil flow to the main control valve. In the normal state, the flow control will direct the flow of oil to the reservoir. Its operation is

completely dependent on a variation in signal voltage from the amp driver. As the signal voltage from the amp driver increases, the flow control begins to limit the flow of oil being bypassed, which causes a greater flow directed upstream to the main control valve. Inversely, when the signal voltage from the amp driver begins to drop, the flow control will let more oil bypass to the reservoir, resulting in lesser flow upstream to the main control valve.

## GENERAL INSTALLATION

Refer to the parts drawings in Section 3 for your particular proportional remote control system. The installer must be familiar with the information relating to the crane that is to be installed, before attempting to make that installation. Electrical contacts must be clean and free of oil or other contaminants. Proper ground must be established. This will be accomplished by connecting a 12-gauge (minimum) wire from the ground point of the electrical system to a 5/16 inch self tapping screw installed in the truck frame.

## AMP DRIVER REPLACEMENT

The purpose of this paragraph is to familiarize repair and maintenance personnel with amp driver replacement on cranes produced prior to 1-1-90. Prior to 1-1-90, the amp driver used on proportional remote control cranes was part number 77041329. After that date, the amp driver was changed to part number 77041390.

### NOTE

THE DRAWINGS IN THIS MANUAL ARE SHOWN WITH THE CURRENT PRODUCTION AMP DRIVER, PART NUMBER 77041390. FOR DRAWINGS WITH THE 77041329 AMP DRIVER, REFER TO MANUAL PART NUMBER 99900256.

## AMP DRIVER IDENTIFICATION

Identifying the amp driver used on your crane can be accomplished either by the serial number of the crane, or by determining the material that the enclosure is constructed of. The 77041329 amp driver is housed in a steel enclosure which mounts directly to the crane. The 77041390 amp driver is housed in a cast aluminum or plastic enclosure, which is mounted on an aluminum mounting plate. The aluminum mounting plate, in turn, attaches to the crane.

## AMP DRIVER INSTALLATION

To replace an old style amp driver with a current model:

1. Clearly mark each electrical wire in a manner that can be identified later, and disconnect the 12VDC power source.
2. Disconnect the marked electrical wiring, and remove the amp driver.
3. Install the new amp driver using the same mounting holes.

4. Drill a 1/4" diameter hole in either bottom corner of the enclosure to allow moisture condensation to escape.

5. Using the electrical schematic for your crane, connect the wiring as indicated.

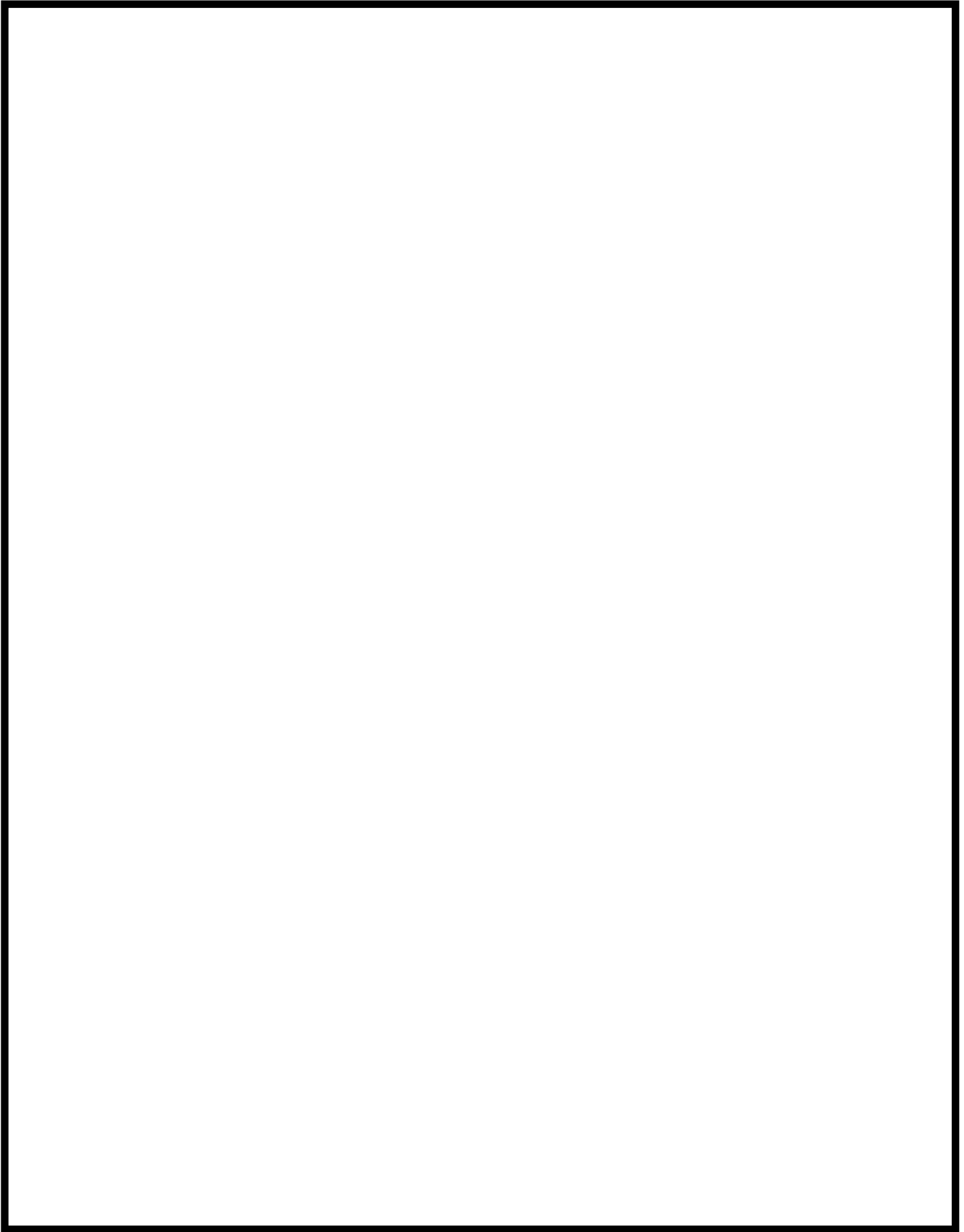
6. Check all connections to make certain that they are correct. Reconnect the 12VDC power source.

## TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
CRANE WILL NOT FUNCTION	NO POWER TO REMOTE CONTROL	CHECK CONNECTIONS TO 12VDC SOURCE. CHECK FUSE IN POWER WIRE.
	NO POWER TO FLOW CONTROL	CHECK CONNECTIONS BETWEEN AMP DRIVER AND FLOW CONTROL. CHECK POLARITY OF AMP DRIVER POWER LEADS. CHECK FUSE IN AMP DRIVER.
	FLOW CONTROL MALFUNCTION	CHECK TORQUE ON FLOW CONTROL SOLENOID. REMOVE FLOW CONTROL AND TEST. REPLACE AS NEEDED.
	VALVE SPOOL NOT SHIFTING	CHECK TIE BOLT TORQUE. REPLACE IF NEEDED.
	PUMP FAILURE	CHECK FLOW/PRESSURE. REPLACE IF NEEDED.
CRANE NOT PROPORTIONAL	FLOW CONTROL MALFUNCTION	CHECK TORQUE ON FLOW CONTROL SOLENOID. REMOVE FLOW CONTROL AND TEST. REPLACE AS NEEDED. CHECK VOLTAGE VARIANCE TO SOLENOID.
	TRIGGER POTENTIOMETER ADJUSTED INCORRECTLY	SET ENGINE AT HIGH SPEED CONTROL SETTING. SET ON ROTATION FUNCTION. ADJUST TRIGGER POT CCW UNTIL CRANE BEGINS TO ROTATE.
CRANE OPERATION NOT SMOOTH	AIR IN THE SYSTEM	BLEED HYDRAULICS AS NEEDED. CRANES WITH IN-LINE FLOW CONTROLS MUST BE BLED AT VALVE.
TRIGGER FUNCTION REVERSED	WIRING AT AMP DRIVER REVERSED	REVERSE THE WIRING TO AMP DRIVER AT TRIGGER IN REMOTE CONTROL.
Q1 IS CRACKED AND/OR DISCOLORED	IMPROPER WIRING	POWER SOURCE POLARITY IS REVERSED. CORRECT WIRING, REPLACE AMP DRIVER.
AMP DRIVER OUTPUT IS 0	IMPROPER WIRING	CHECK CONTINUITY IN THE + SIGNAL (ORANGE) CIRCUIT.
	MOISTURE IN AMP DRIVER	OPEN THE ENCLOSURE AND BLOW DRY. CHECK BOTTOM 1/4" HOLE FOR BLOCKAGE.
	AMP DRIVER HAS FAILED	POWER SOURCE POLARITY IS REVERSED. CORRECT AS NEEDED.
AMP DRIVER OUTPUT IS 1VDC AND WILL NOT VARY	IMPROPER WIRING	CHECK CONTINUITY IN THE SIGNAL(WHITE) CIRCUIT.
AMP DRIVER OUTPUT IS 12VDC AND WILL NOT VARY	IMPROPER WIRING	CHECK CONTINUITY IN THE -SIGNAL (BLUE) CIRCUIT.

## SECTION 3. REPLACEMENT PARTS 425AT CRANE

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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 REPAIR section in Volume 1.

#### WARNING

DO NOT ATTEMPT TO REPAIR ANY COMPONENT WITHOUT READING THE INFORMATION CONTAINED IN THE REPAIR SECTION IN VOLUME 1. PAY PARTICULAR ATTENTION TO STATEMENTS MARKED WARNING, CAUTION, OR NOTE IN THAT SECTION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE EQUIPMENT, PERSONAL INJURY, OR DEATH.

### CRANE IDENTIFICATION

Every IMT crane has an identification placard (see figure) attached to the mast. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model numbers.

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

**SERIAL NUMBER PLACARD**

### CYLINDER IDENTIFICATION

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

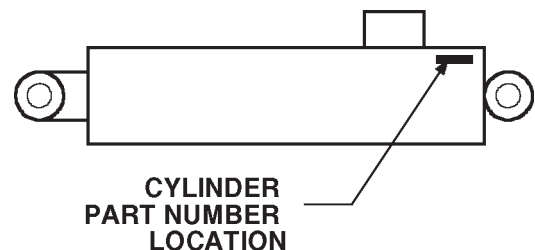
### WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and stabilizer weldments bear a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations of the part numbers are shown on Page 2-3.

### ORDERING REPAIR PARTS

When ordering replacement parts:

1. Give the model number of the unit.
2. Give the serial number of the unit.
3. Specify the complete part number. When ordering cylinder parts, or one of the main weldments, always give the stamped part number.
4. Give a complete description of the part.
5. Specify the quantity required.



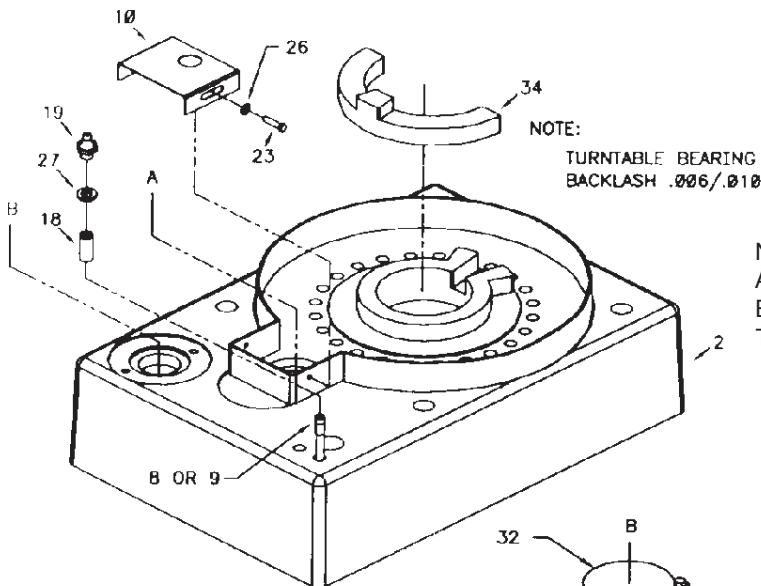
**CYLINDER PART NUMBER LOCATION**

**BASE ASM (41707659)**

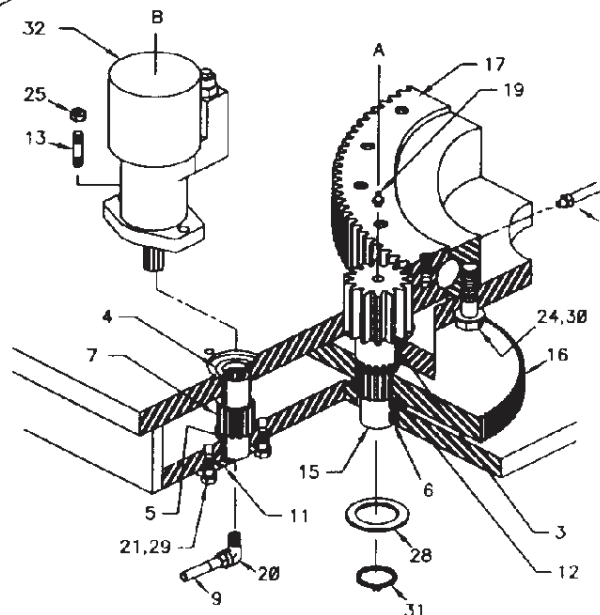
2. 52707658	BASE (INCL:3-7)	1	25. 72062080	NUT 1/2-13 LOCK	2
3. 60020114	BUSHING (PART OF 2)	1REF	26. 72063002	WASHER 5/16 WRT	2
4. 60020115	BUSHING (PART OF 2)	1REF	27. 72063003	WASHER 3/8 WRT	2
5. 60020116	BUSHING (PART OF 2)	1REF	28. 72063035	MACH BUSHING 1-1/4X10GA NR	1
6. 60020154	BUSHING (PART OF 2)	1REF	29. 72063053	WASHER 1/2 LOCK	2
7. 71056011	DRIVE GEAR (PART OF 2)	1REF	30. 72063119	WASHER 5/8 FLAT HARD GR8	24
8. 53000704	GREASE EXTENSION 34"	1	31. 72066084	RETAINING RING 1-1/4 EXT STD	1
9. 53000715	GREASE EXTENSION 18"	1	32. 73540004	HYD MOTOR (FROM 5-15-98)	1
10. 60010235	PINION COVER	1	73051004	HYD MOTOR (TO 5-15-98)	1
11. 60121351	GREASE PLATE	1	73054538	C'BALANCE VALVE (TO 5-15-98)	2
12. 60104694	PINION SPACER	1	5V151830	MOTOR BLOCK (TO 5-15-98)	1
13. 60106032	STUD 1/2-13X2	2	7Q072112	O-RING (TO 5-15-98)	2
15. 71056010	PINION GEAR	1	72060738	CAP SCR (TO 5-15-98)	4
16. 71056012	INTERMEDIATE GEAR	1	34. 71143519	SLIDE-CAST 450° ROTATION	1
17. 71056389	TURNTABLE BEARING	1			
18. 72053301	COUPLING 1/8NPT	2			
19. 72053508	ZERK 1/8NPT	3			
20. 72053589	STREET ELBOW 1/8NPT 90°	1			
21. 72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2			
23. 72060833	SCR 5/16-18X3/4 HH SLFTPG	2			
24. 72060931	CAP SCR 5/8-11X2-3/4 HH GR8	24			

**WARNING**

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



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



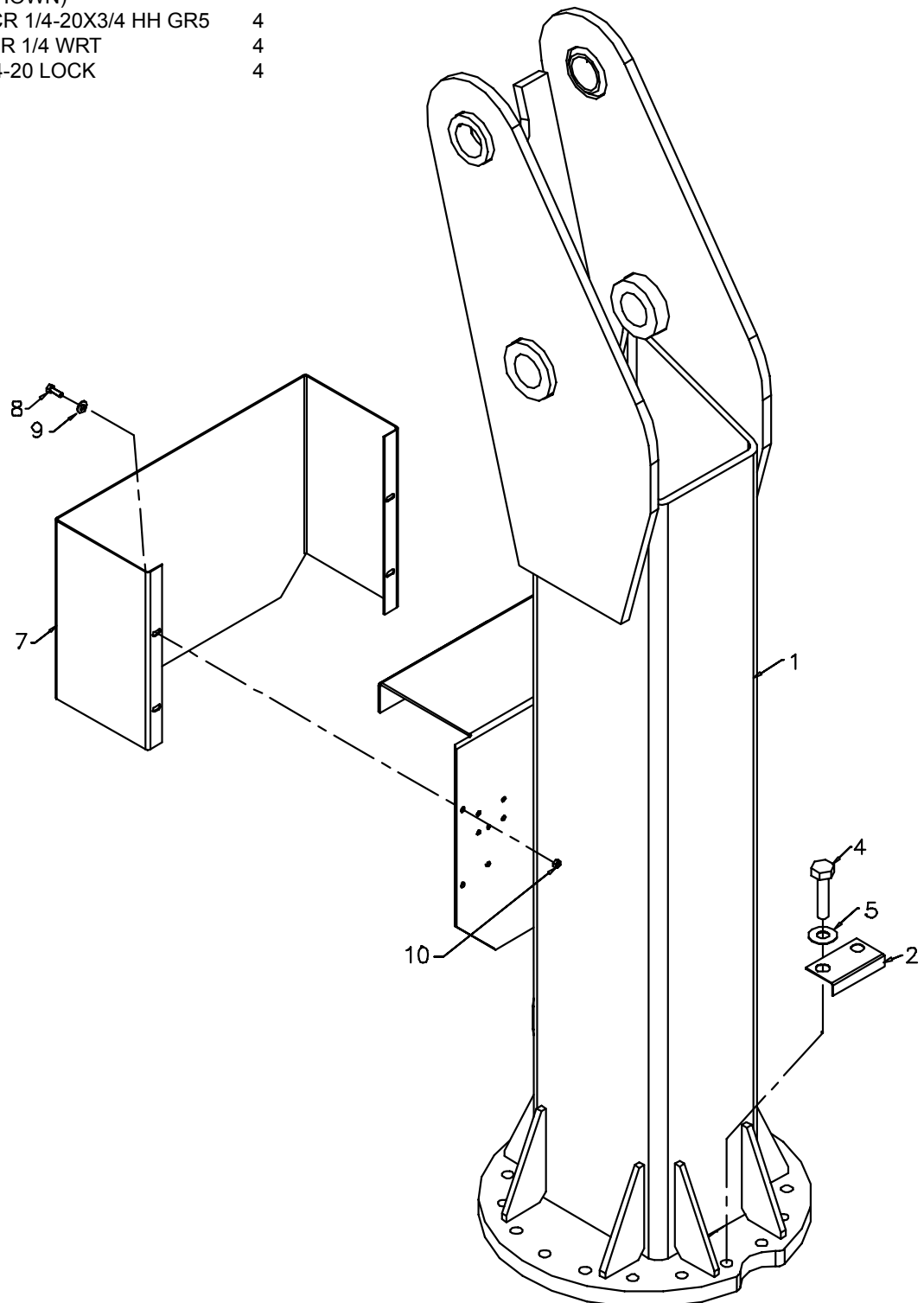


**MAST ASM (41710765)**

1.	52710729	MAST	1
2.	60104540	PINION COVER	1
3.	70029119	SERIAL NO. PLACARD	1
4.	72060931	CAP SCR 5/8-11X2-3/4 HHGR8	18
5.	72063119	WASHER 5/8 FLAT HARD GR8	18
6.	72066340	POP RIVET 1/8	2
7.	60122749	COVER (eff:425AT2K1024 +)	1
	60115956	COVER (pre:425AT2K1024)	1
		(NOT SHOWN)	
8.	72060002	CAP SCR 1/4-20X3/4 HH GR5	4
9.	72063001	WASHER 1/4 WRT	4
10.	72062104	NUT 1/4-20 LOCK	4

**WARNING**

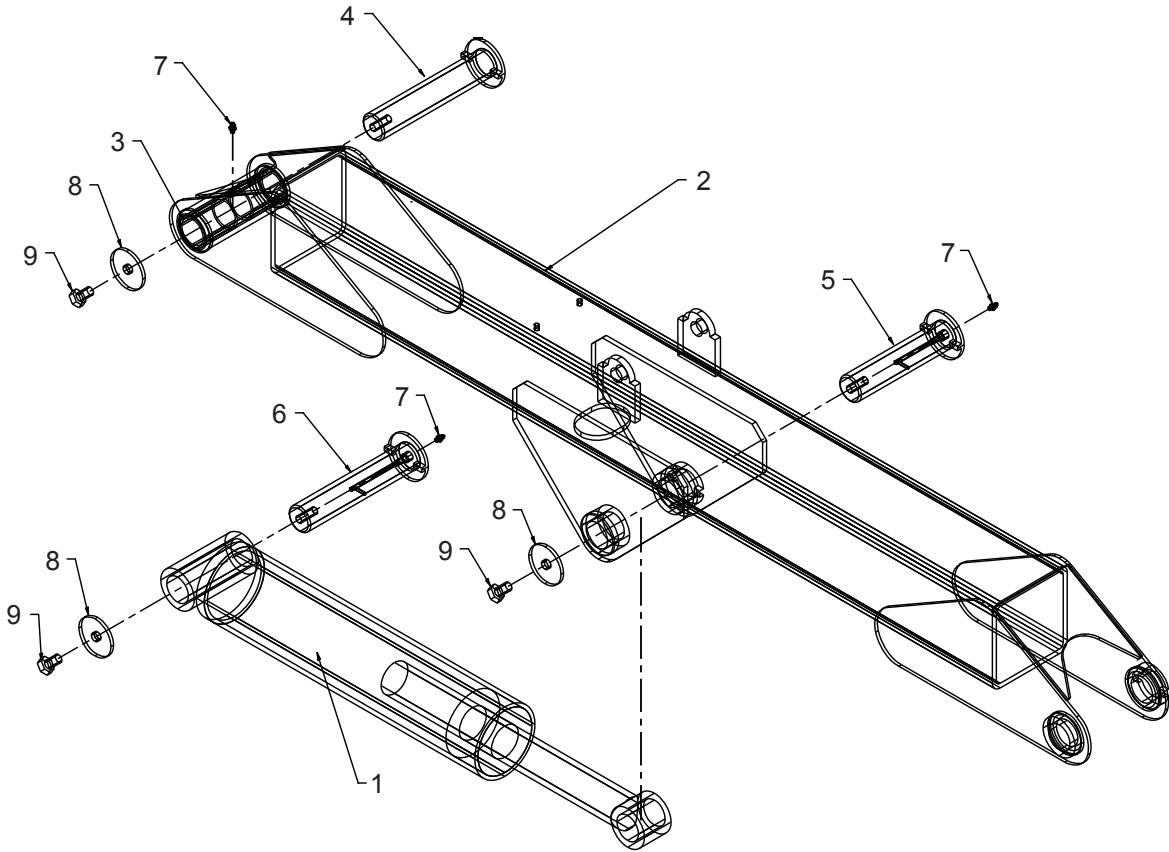
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or death.

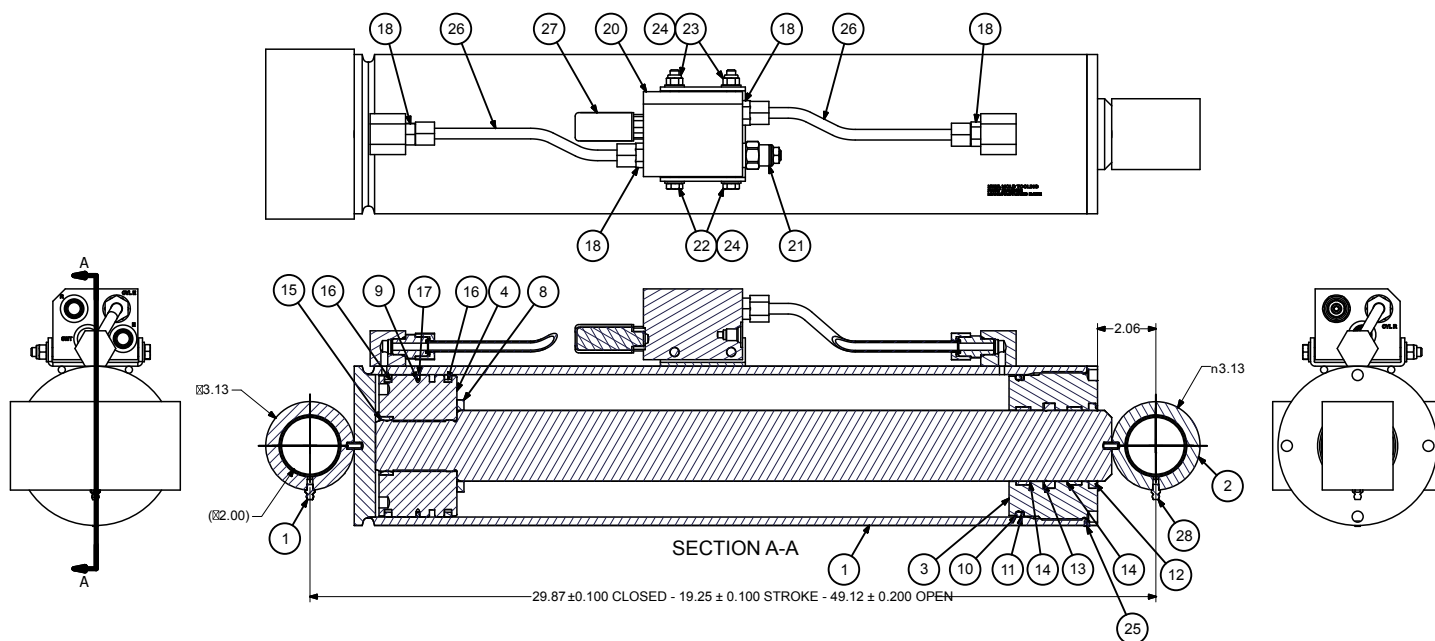


**INNER BOOM ASM (41716193)**

(EFF: SN 425AT2K1024 ON)

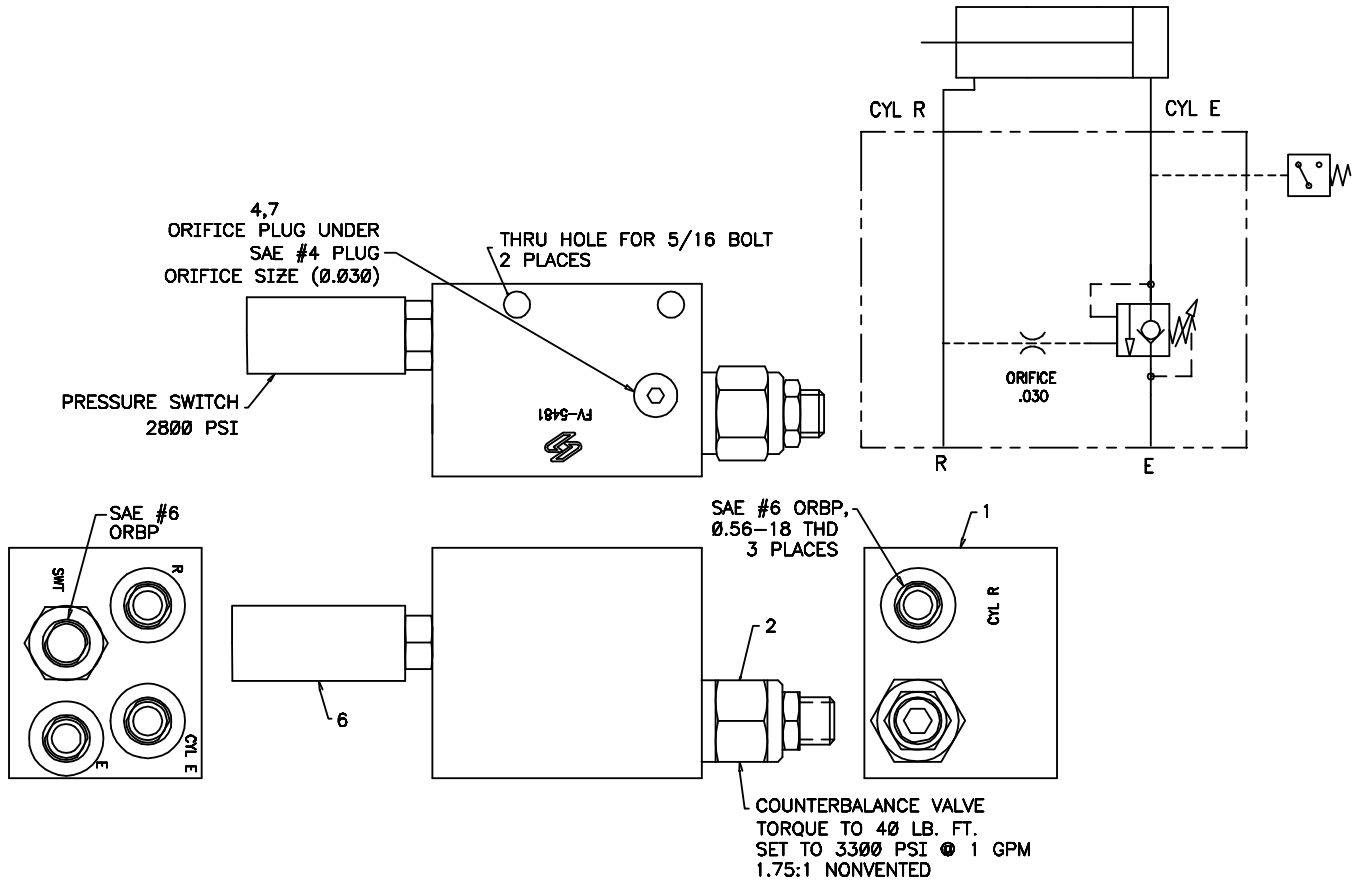
1.	3C166000	INNER CYLINDER	1
2.	52701155	INNER BOOM	1
3.	60020131	BUSHING (PART OF 2)	2REF
4.	52703711	PIN	1
5.	52703758	PIN	1
6.	52715936	PIN	1
7.	72053508	ZERK 1/8NPT	3
8.	60109337	RETAINER PLATE 3"	3
9.	72060147	CAP SCR 5/8-11X1 HHGR5	3





## COUNTERBALANCE VALVE ASM (73540057)

1.	73540051	C'BAL VALV	1
2.	73540052	C'BAL VALVE	1
4.	70145750	ORIFICE	1
6.	77041552	PRESSURE SWITCH	1
7.	72533477	PLUG 7/16STR HOLHEX	2



**INNER CYL (3C078712)****(BEFORE SN: 425AT2K1024)**

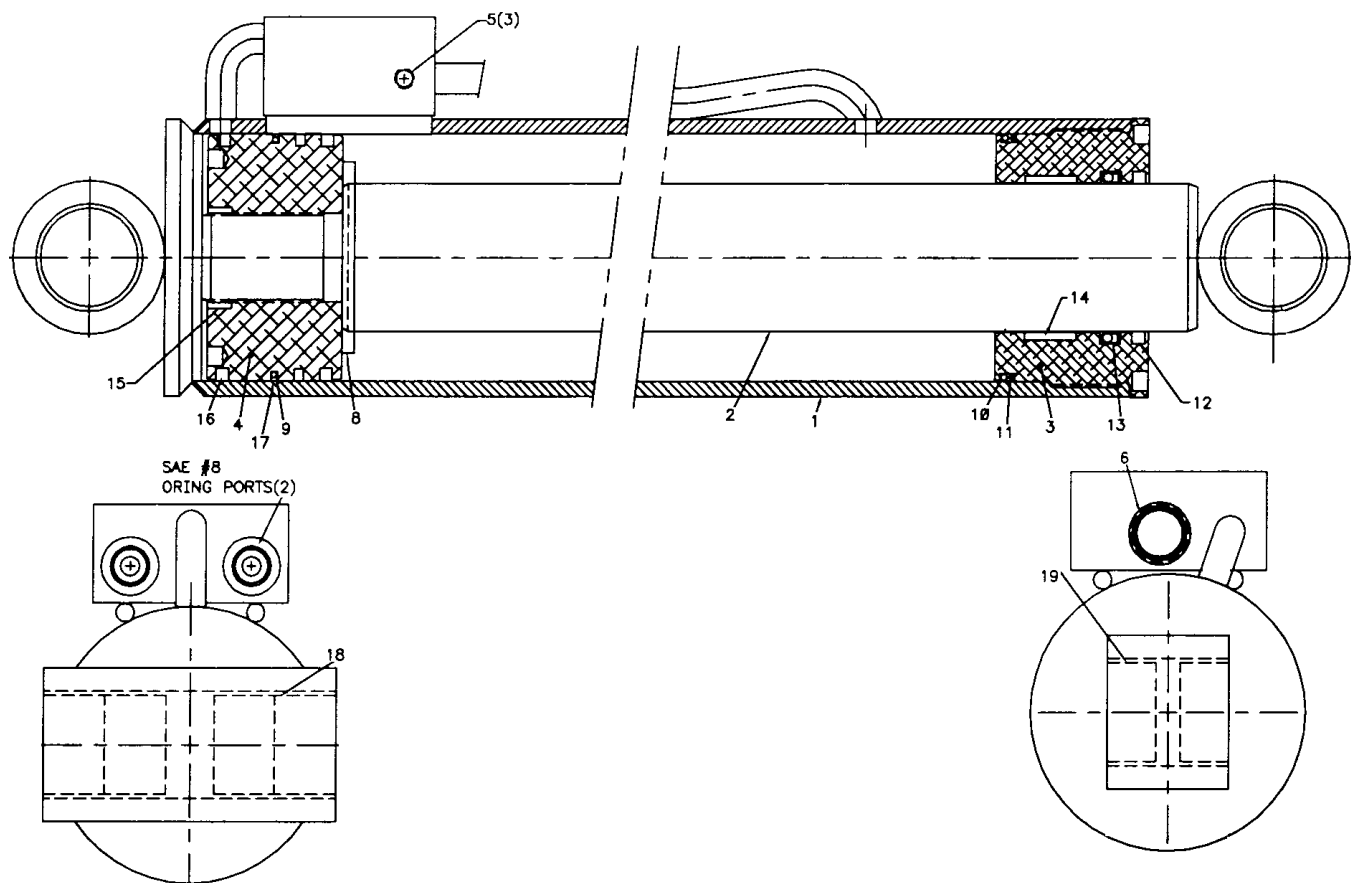
1.	4C078711	CASE (INCL:5&18)	1
2.	4G078710	ROD (INCL:19)	1
3.	6H050025	HEAD	1
4.	6I050181	PISTON	1
5.	7PNPXT02	PIPE PLUG 1/8 (PART OF 1)	3REF
6.	73054242	VALVE - 25GPM	1
7.	9C202029	SEAL KIT (INCL:8-173)	1
8.	6A025025	WAFER LOCK (PART OF 7)	1REF
9.	7Q072157	O-RING (PART OF 7)	1REF
10.	7Q072350	O-RING (PART OF 7)	1REF
11.	7Q10P350	BACK-UP RING (PART OF 7)	1REF
12.	7R14P025	ROD WIPER (PART OF 7)	1REF
13.	7R546025	ROD SEAL (PART OF 7)	1REF
14.	7T2N8027	WEAR RING (PART OF 7)	1REF
15.	7T61N181	LOCK RING SEAL (PART OF 7)	1REF
16.	7T65I050	PISTON RING (PART OF 7)	2REF
17.	7T66P050	PISTON SEAL (PART OF 7)	1REF
18.	7BF81220	BUSHING (PART OF 1)	4REF
19.	7BF81020	BUSHING (PART OF 2)	2REF

**NOTE**

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

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

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER. KEEP AWAY FROM ALL SEALS.

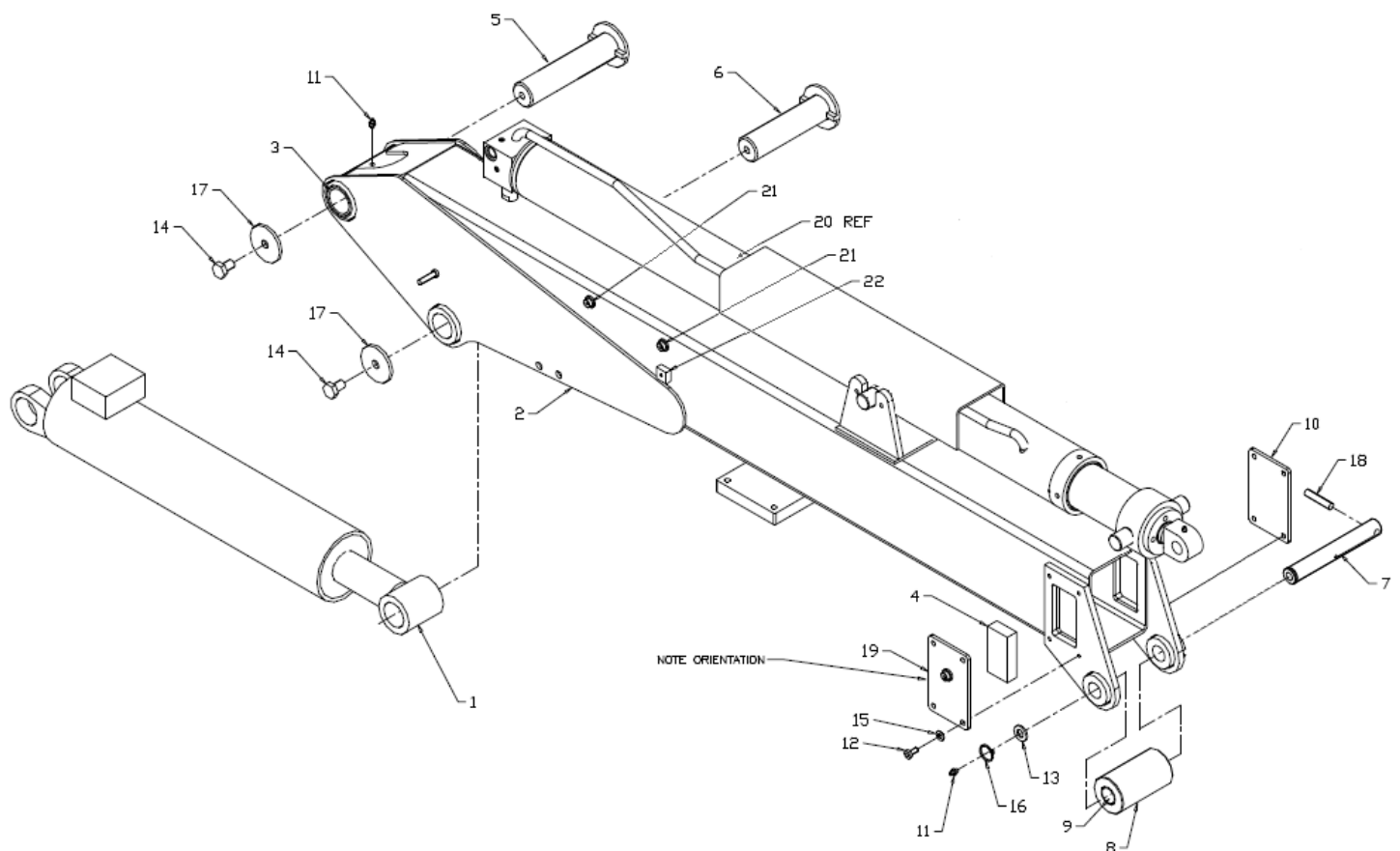


425AT: 41711600.01.20000612

3-10

# **OUTER BOOM ASM (41711600)**

1. 3C081712	OUTER CYLINDER	1	10. 60103463	RETAINING PLATE	2
2. 52711599	OUTER BOOM (INCL:3)	1	11. 72053508	ZERK 1/8NPT	2
3. 60020131	BUSHING (PART OF 2)	2REF	12. 72060023	CAP SCR 5/16-18X3/4 HHGR5	8
4. 60030015	WEAR PAD	2	13. 72063035	MACH BUSHING 1-1/4X10GA	1
5. 52703767	PIN	2	14. 72060147	CAP SCR 5/8-11X1 HHGR5	2
6. 52703710	PIN	1	15. 72063050	WASHER 5/16 LOCK	8
7. 60102558	PIN	1	16. 72066129	RETAINING RING 1-1/4 HD	1
8. 60102559	ROLLER (INCL:9)	1	17. 60109337	RETAINER PLATE 3"	2
9. 60020126	BUSHING (PART OF 8)	4REF	18. 72661157	GROOVE PIN 1/2 X 2-1/2	1
			20.	EXTENSION CYLINDER	REF



**OUTER CYL (3C081712)**

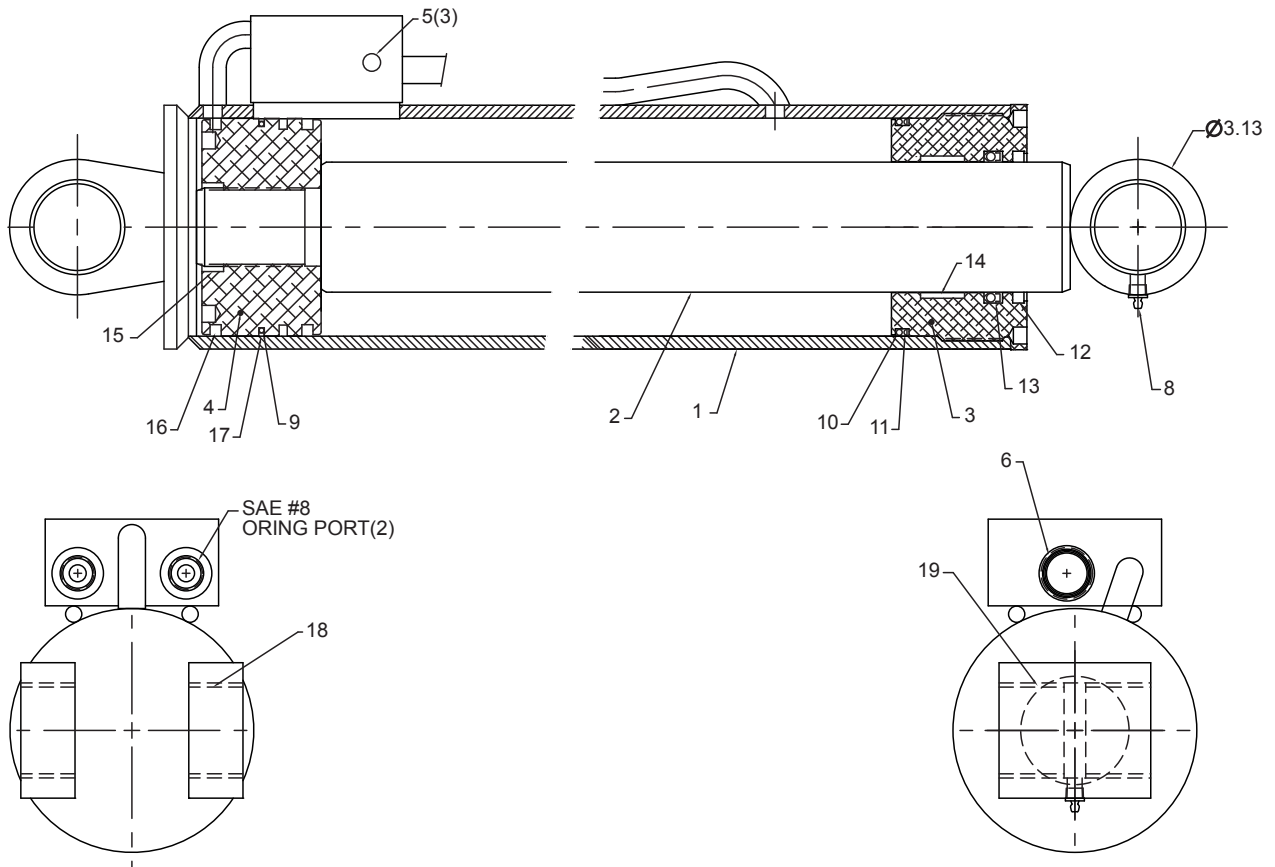
1. 4C081711	CASE (INCL:5&18)	1
2. 4G081710	ROD (INCL:8&19)	1
3. 6H050025	HEAD	1
4. 6I050181	PISTON	1
5. 7PNPXT02	PIPE PLUG 1/8 (PART OF 1)	3REF
6. 73054242	VALVE 25GPM	1
7. 9A202029	SEAL KIT (INCL:9-17)	1
8. 72053507	ZERK 1/4-28 (PART OF 2)	1REF
9. 7Q072157	O-RING (PART OF 7)	1REF
10. 7Q072350	O-RING (PART OF 7)	1REF
11. 7Q10P350	BACK-UP RING (PART OF 7)	1REF
12. 7R14P025	ROD WIPER (PART OF 7)	1REF
13. 7R546025	ROD SEAL (PART OF 7)	1REF
14. 7T2N8027	WEAR RING (PART OF 7)	1REF
16. 7T65I050	PISTON RING (PART OF 7)	2REF
17. 7T66P050	PISTON SEAL (PART OF 7)	1REF
15. 7T61N181	LOCK RING SEAL (PART OF 7)	1REF
18. 7BF81220	BUSHING (PART OF 1)	2REF
19. 7BF81520	BUSHING (PART OF 2)	2REF

**NOTE**

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

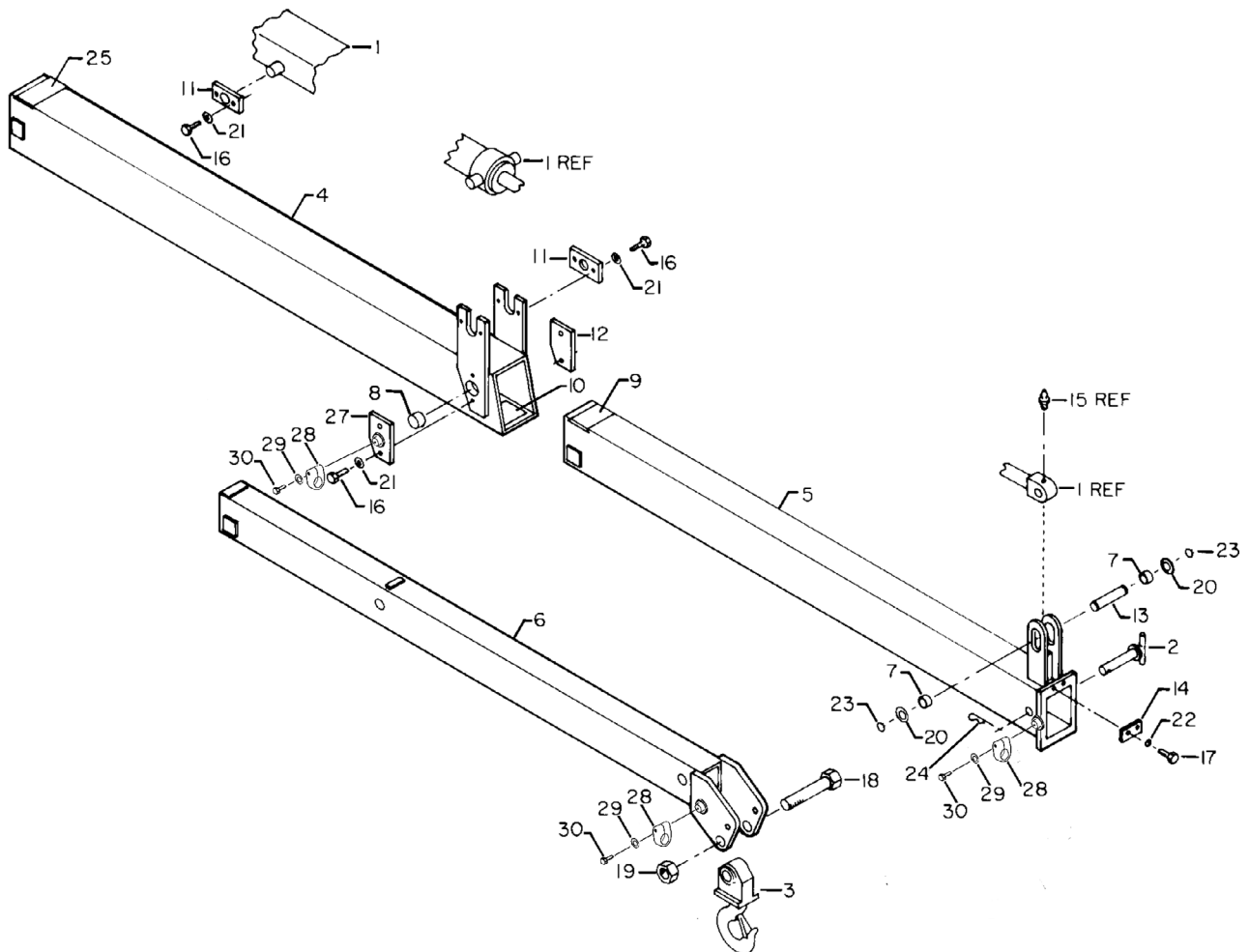
APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER. KEEP AWAY FROM ALL SEALS.



**EXT BOOM ASM (41705246)**

1. 3K095850	EXTENSION CYLINDER	1	16. 72060046	CAP SCR 3/8-16X1 HH GR5	12
2. 52070151	PIN	1	17. 72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2
3. 52701716	HOOK - 5-TON SWVL	1	18. 72060238	CAP SCR 1 1/4-7X6 HH GR5	1
4. 52705249	EXT BOOM - 1ST STAGE	1	19. 72062073	NUT 1 1/4-7 LOCK	1
5. 52705250	EXT BOOM - 2ND STAGE	1	20. 72063010	WASHER 1" WRT	2
6. 52705251	EXT BOOM - 3RD STAGE	1	21. 72063051	WASHER 3/8 LOCK	12
7. 60020197	ROLLER	2	22. 72063053	WASHER 1/2 LOCK	2
8. 60030007	WEAR PAD	2	23. 72066125	RETAINING RING 1" EXT HD	2
9. 60030064	WEAR PAD	1	24. 72066145	HAIR PIN 3/16	1
10. 60030145	WEAR PAD	1	25. 60030127	WEAR PAD	1
11. 60102341	LOCK PLATE	4	26. 72060915	CAP SCR 3/8-16X1 FLTHD SOC	2
12. 60102649	RETAINING PLATE	2	27. 52725064	PLATE W/TAPPED BLOCK	1
13. 60104028	PIN	1	28. 70034381	SUPPORT GP STAUFF	1
14. 60107294	STROKE STOP	1	29. 72063049	WASHER-LOCK .25 ZINC	1
15. 72053507	ZERK 1/4-28 (PART OF 1)	REF	30. 72060006	CAP SCR .25-20X1.50 HH GR5	1





**EXT CYL (3K095850)**

1.	4K095850	CASE (INCL: 12)	1
2.	4H095850	INNER CASE	1
3.	4G095850	ROD	1
4.	6H271511	HEAD	1
5.	6H112820	HEAD	1
6.	6I025087	PISTON	1
7.	6I095850	PISTON	1
8.	4FG09585	MOUNTING RING	1
9.	6C300015	STOP TUBE	1
10.	6C075015	STOP TUBE	1
11.	73054242	VALVE	2
12.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 1)	8
13.	9X095850	SEAL KIT	1
14.	7Q072228	O-RING (PART OF 13)	1REF
15.	7Q10P228	BACK-UP RING (PART OF 13)	1REF
16.	7Q072342	O-RING (PAQRT OF 30)	1REF
17.	7Q10P342	BACK-UP RING (PART OF 13)	1REF
18.	7T2N4037	WEAR RING (PART OF 13)	1REF
19.	7R546015	ROD SEAL (PART OF 13)	1
20.	7R546035	ROD SEAL (PART OF 13)	1REF
21.	7R14P015	ROD WIPER (PART OF 13)	1REF
22.	7R14P035	ROD WIPER (PART OF 13)	1REF
23.	7T65I040	PISTON RING (PART OF 13)	2REF
24.	7Q072137	O-RING (PART OF 13)	1REF
25.	7T66P025	PISTON SEAL (PART OF 13)	1REF
26.	7Q072153	O-RING (PART OF 13)	1REF
27.	7T66P040	PISTON SEAL (PART OF 13)	1REF
28.	7T61N087	LOCK-RING SEAL	1REF
29.	7T2N8015	ROD WEAR RING (PART OF 13)	1
30.	60138272	STOP TUBE (PART OF 13)	1REF
	(WAS 6A025015)		
31.	72053507	ZERK 1/4-28	1
32.	60125699	PIN-LOCK TUBE (PART OF 13)	1REF
33.	7Q072145	O-RING (PART OF 13)	1REF

**NOTE**

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

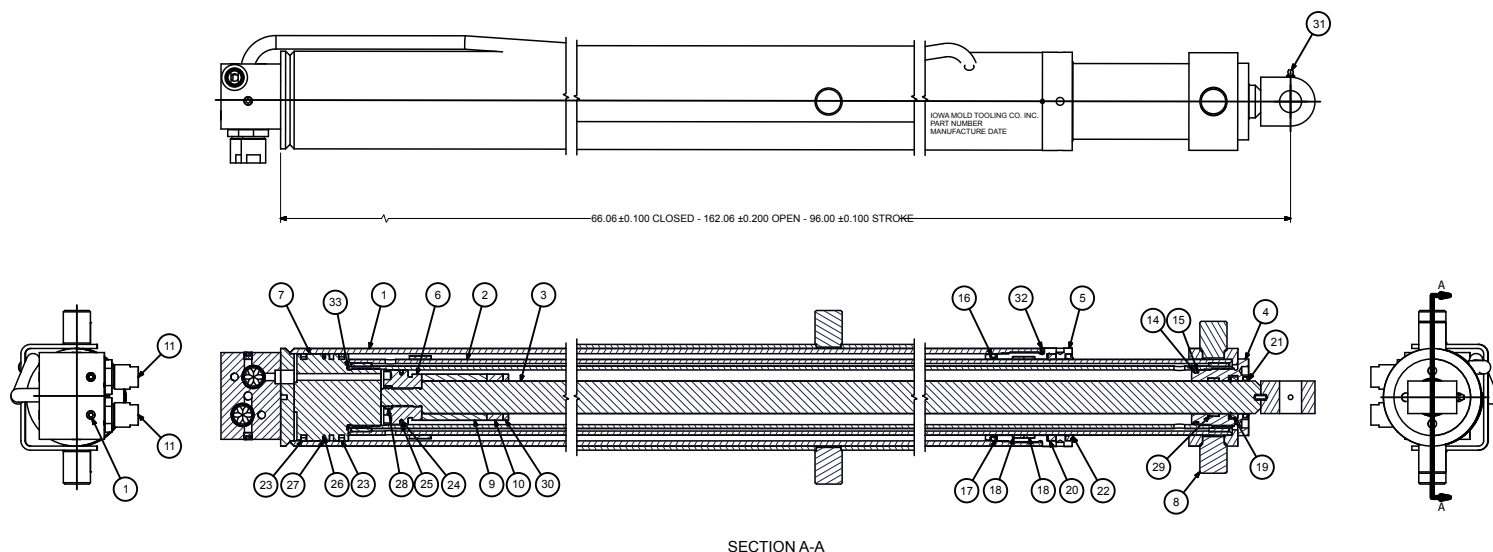
APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

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

ITEM #30, STOP TUBE, REPLACES 6A025015 WAFER LOCK. USE STOP TUBE INSTEAD OF WAFER LOCK WHEN RESEALING CYLINDER.

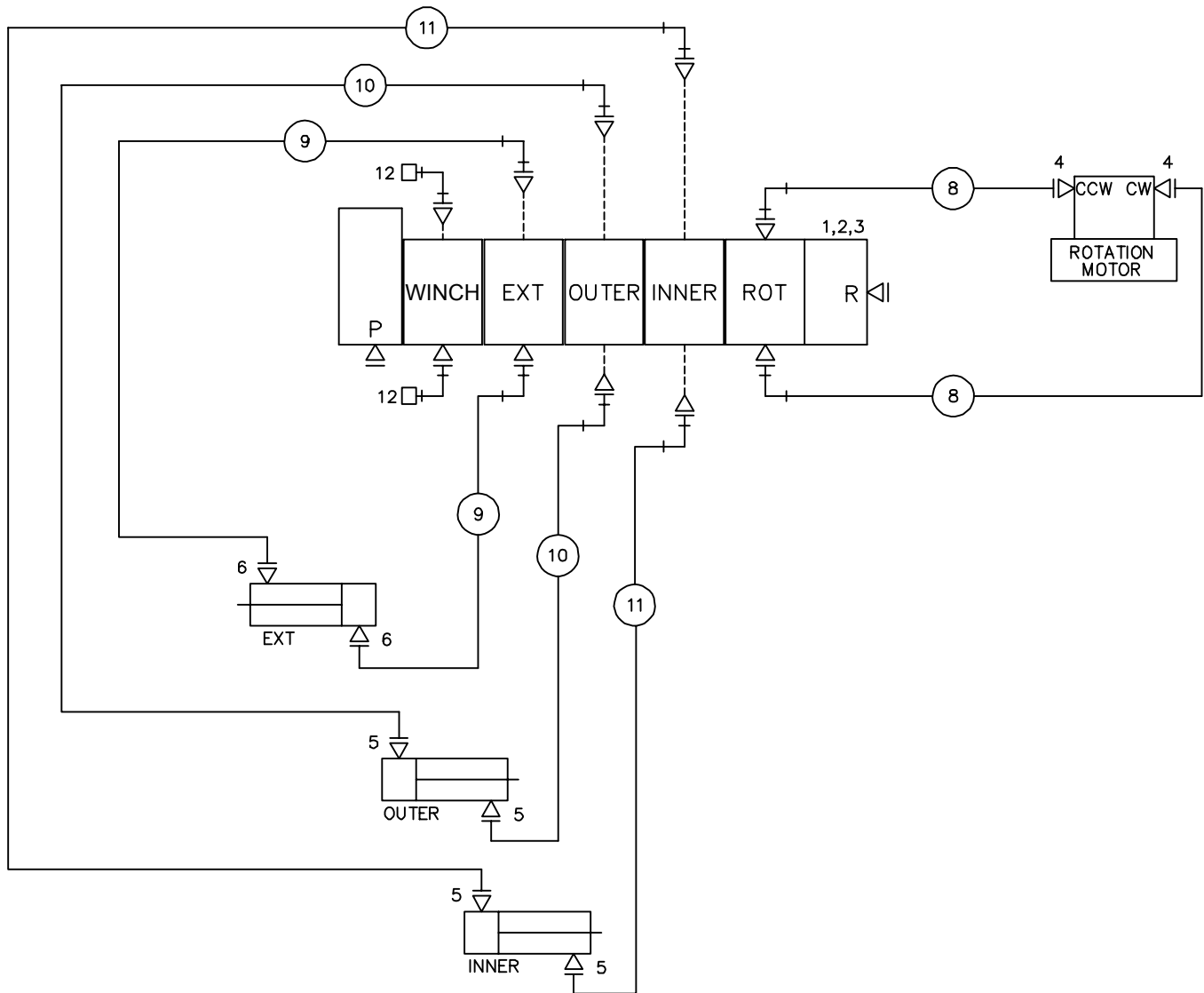
PRESS LOCKING PIN (ITEM #32) INTO #15 HOLE DRILLED 0.188" DEEP.

TORQUE PISTON TO 200-230 FT-LB, HEAD TO 268 FT-LB, CARTRIDGE TO 65 FT-LB, AND CAP SCREW TO 16 FT-LB.



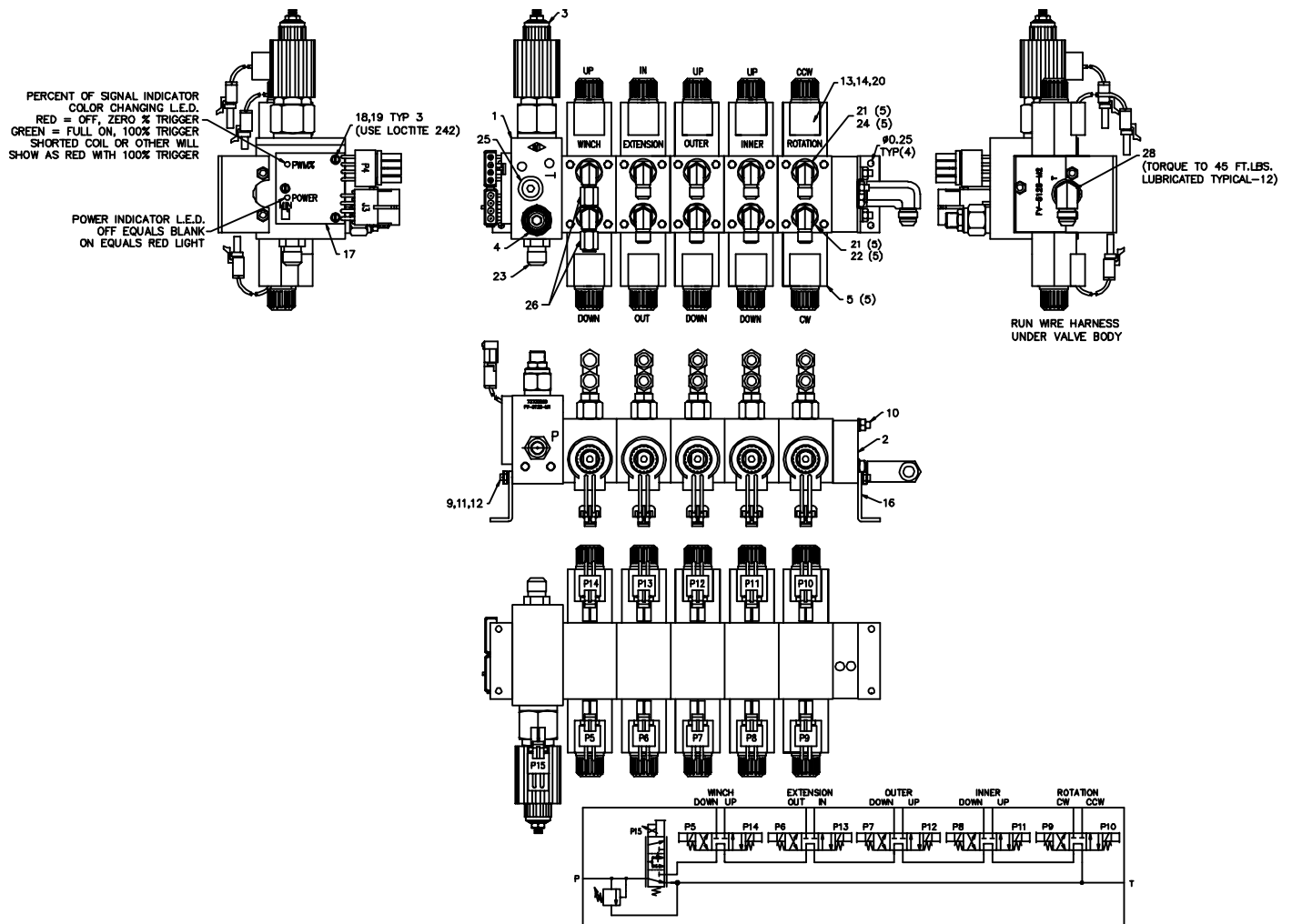
**HYD KIT-5F (91716194)****(EFF: SN 425AT2K1024 ON)**

1.	73733479	VB 5-SECT	1
2.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
3.	72062104	NUT 1/4-20 LOCK	4
4.	72532351	ADAPTER #4MSTR #4MJIC	2
5.	72532358	ADAPTER #8MSTR #8MJIC	4
6.	72532740	ELBOW #8MSTR #8MJIC SW90°	2
7.	51716271	HOSE KIT (INCL:8-11)	1
8.	51395853	HOSE-FF .25X71 #4#6	2REF
9.	51395855	HOSE-FF .38X182 #6#8	2REF
10.	51395742	HOSE-FF .38X126 #6#8	2REF
11.	51395854	HOSE-FF .38X78 #6#6	2REF
12.	72532738	CAP 9/16JIC	2

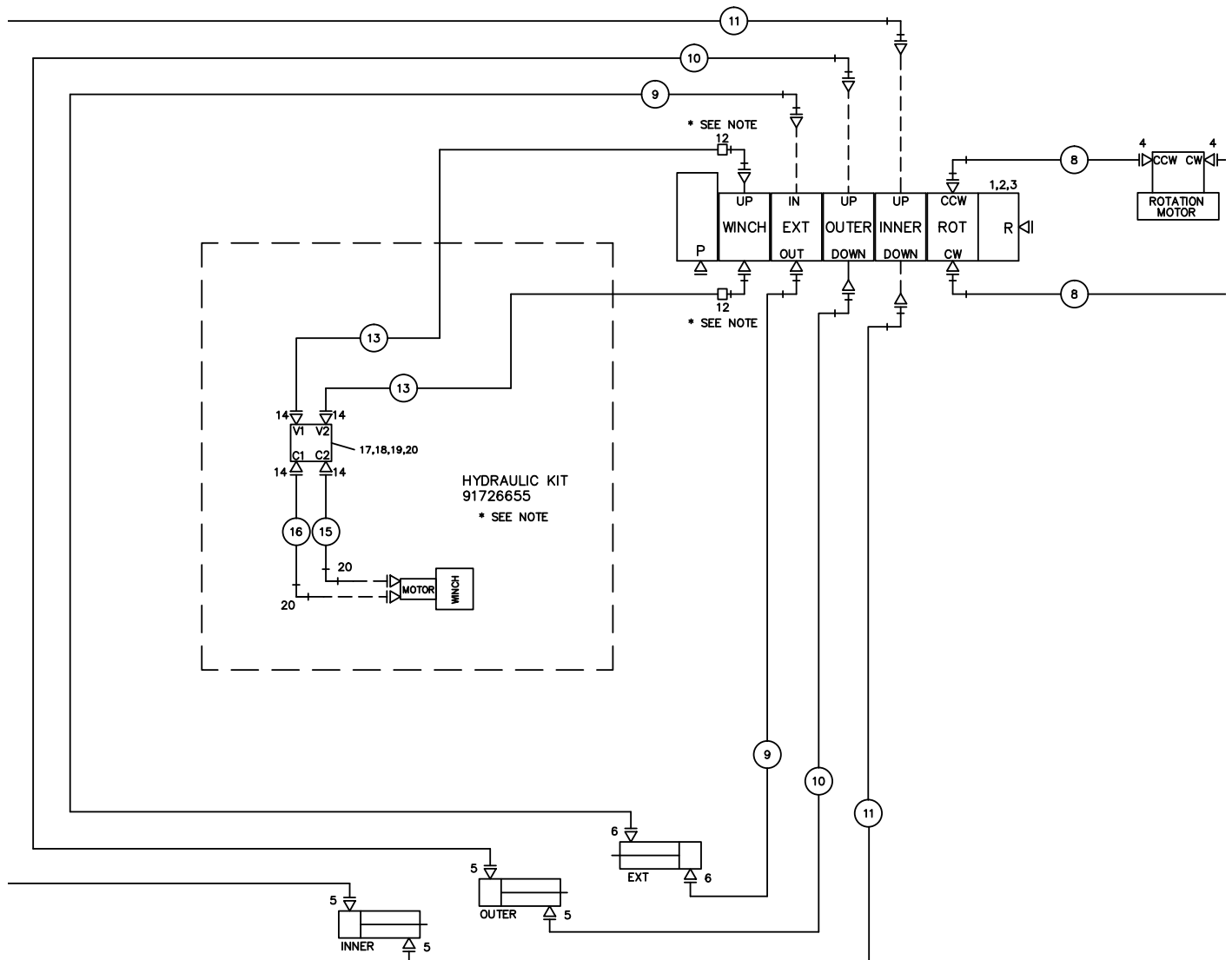


**VB-5 SECT (73734582)**

1. 73540028	INLET BLOCK	1	16. 70145830	BRACKET	2
2. 73540027	END CAP	1	17. 77044595	VALVE DRIVER	1
3. 73054934	VALVE-PROP FLOW CTRL	1	18. 72601704	MACH SCR #6-32X3/4 RDHD	3
4. 73054935	VALVE-RELIEF	1	19. 72061705	WASHER #6 WRT	3
5. 73540375	VALVE SECT	5	20. 77044594	CABLE SEAL	22
6. 7Q072013	O-RING	12	21. 72533052	ADAPTER #6MSTR #6FSTR	10
7. 72533477	PLUG #4STR HOLHX	1	22. 72053760	ELBOW #6MSTR #6FSTR	5
8. 70145829	EXPANDER PLUG	4	23. 72532358	ADAPTER #8MSTR #8MJIC	1
9.	ROD 1/4-20X14 GR5	2	24. 72533567	ELBOW #6MSTR #6MJIC XLG	5
10.	ROD 1/4-20X12-3/4 GR5	1	25. 72533603	PLUG 9/16 HOLHX	1
11. 72062000	NUT 1/4-20 HEX	5	26. 72532738	CAP 9/16JIC	2
12. 72063047	WASHER #10 LOCK	5	27. 73733411	WIRE HARNESS	1
13. 77044574	CONNECTOR	11	28. 72532666	ELBOW #8MSTR #8MJIC XLG	1
14. 77044550	TERMINAL-F	22	29. 73540253	COIL-SECTION	10 REF
15. 70394069	SEAL-CABLE	2	30. 77041556	COIL-PROP VALVE	1 REF



# HYDRAULIC INSTALLATION (99905991) Effective 5/2016



WINCH OPERATION REQUIRES INSTALLATION OF HYDRAULIC KIT 91726654 (ITEMS 13-22) TO SUPPLEMENT KIT 91726654 (ITEMS 1-12), ITEM 12 WILL BE REMOVED AND DISCARDED.

99905991 PARTS LIST			
ITEM	PART NO	DESCRIPTION	QTY
1	73734582	VALVE BANK - 5 SEC FAUVER 1P69 425 AT/HARN	1
2	72060002	CAP SCR .25 - 20 X .75 HH GR5	4
3	72062104	NUT .25 - 20 NYLOCK	4
4	72532351	ADPTR - MSTR / MJIC .44 .44	2
5	72532358	ADPTR - MSTR / MJIC .75 .75	4
6	72532740	ELEBOW - MSTR / 90° / MJIC SWVL #8 #8	2
7	51715271	HOSE KIT - 425AT FAUVER 18D (INCL 8-11)	4
8	51395853	HOSE - FF .25 X 71.00 OAL (4-6)	2 REF
9	51395855	HOSE - FF .38 X 182.00 OAL (6-8)	2 REF
10	51395742	HOSE - FF .38 X 126.00 OAL (6-8)	2 REF

## 99905991 PARTS LIST

ITEM	PART NO	DESCRIPTION	QTY
11	51395854	HOSE - FF .38 X 78.00 OAL (6-6)	2 REF
12	72532738	CAP - JIC STL .56 THD	2
13	51706024	HOSE - FF .38 X 213.00 (8-6) 100R2	2 REF
14	72532358	ADPTER - M STR / M JIC 8 8	4
15	51706518	HOSE -FF .38 X 21.00 (8-8) 100R16	1 REF
16	51707970	HOSE - FF .38 X 22.00 (8-8) 100R16	1 REF
17	73054218	VALVE - CHECK PILOT / OPEN NONVENT 100PSI	1
18	70144192	MANIFOLD - CAVITY BLOCK -8 SUN XVI 4-PORT	1
19	72060006	CAP SCR .25 - 20X 1.50 HH GR5 Z	2
20	72062104	NUT .25 - 20 HEX GR5 Z NYLOCK	2
21	72534435	ELBOW - M STR / 90 / M JIC XLG 10 8	2
22	51726656	HOSE KIT-425AT FAUVER WINCH ADD (INCL 13, 15, 16)	1
REV. NEW 20160113			


**WIRE HARNESS-VB (73733411-1)**

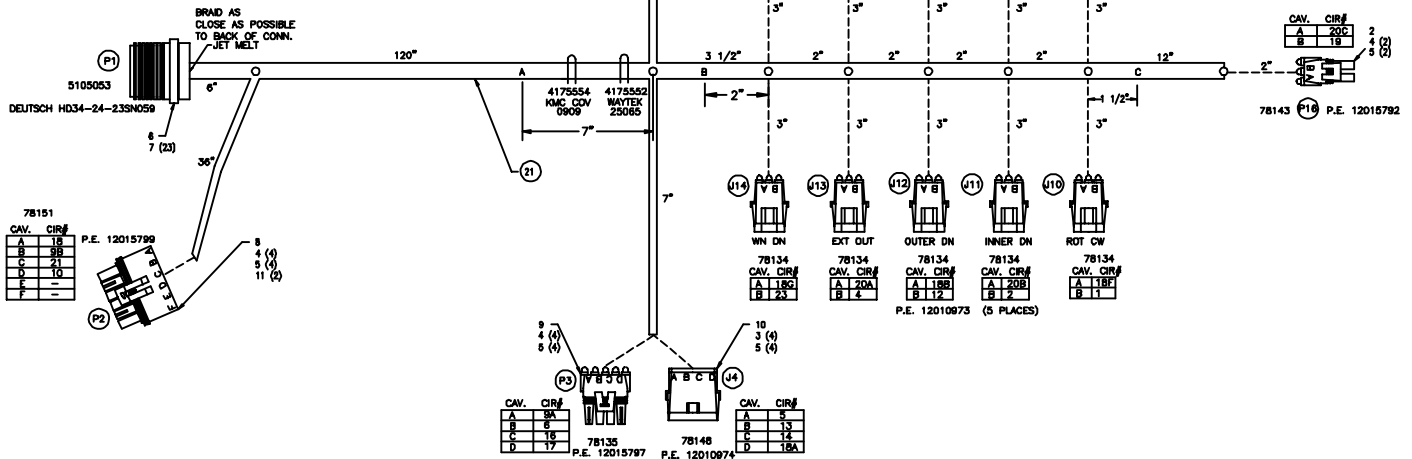
(EFF: SN 425AT2K1024 ON)

ALL ITEMS ARE REFERENCE ONLY

1.	77044573	SHROUD CONN 2-CONT	11
2.	77044574	TOWER CONN 2-CONT	1
3.	77044576	TERMINAL-M	26
4.	77044577	TERMINAL-F	10
5.	77044578	CABLE SEAL	36
6.	77044620	CONN RCPT	1
7.	77044550	SOCKET	23
8.	77044622	TOWER CONN 6-CONT	1
9.	77044623	TOWER CONN 4-CONT	1
10.	77044624	SHROUD CONN 4-CONT	1
11.	77044676	PLUG	2

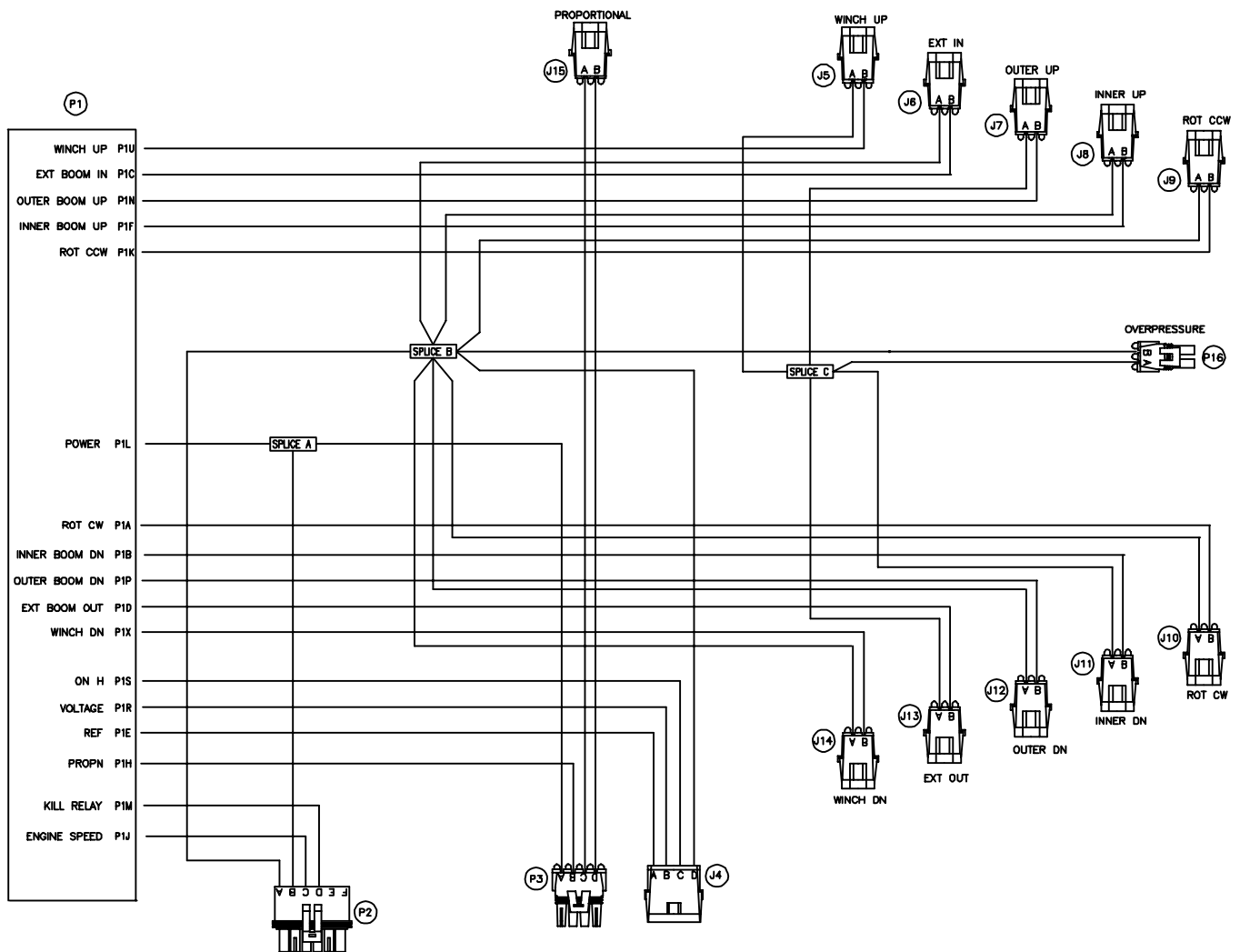
WIRE LEGEND					
CIR	PIN CAVITY	COLOR	GA	WEATHER PAK	LABELING
1	A	YELLOW/BLK	18	P1A TO: J10B	ROT J10B
2	B	ORANGE/BLK	18	P1B TO: J11B	INNER J11B
3	C	LT BLUE/BLK	18	P1C TO: J6B	EXT J6B
4	D	PINK/BLK	18	P1D TO: J13B	EXT J13B
5	E	ORANGE/RED	18	P1E TO: J4A	J4A
6	H	LT BLUE/RED	18	P1H TO: F3B	F3B
7	U	GRAY/RED	18	P1U TO: J5B	WIN J5B
8	K	YAN/BLK	18	P1K TO: J9B	ROT J9B
9	L	RED	16	P1L TO: SPL A	POWER
9A	RED	RED	16	P3A TO: SPL A	POWER +
9B	RED	RED	16	P2B TO: SPL A	P2B
10	M	LT BLUE	18	P1M TO: P2D	P2D
11	N	ORANGE	18	P1N TO: J7B	OUTER J7B
12	P	YELLOW	18	P1P TO: J12B	OUTER J12B
13	R	YELLOW/RED	18	P1R TO: J4B	J4B
14	S	BROWN	18	P1S TO: J4C	J4C
15	F	YAN	18	P1F TO: J8B	INNER J8B
16	BLACK	BLACK	16	P3C TO: J15A	PRVLV J15A
17	BLACK	BLACK	16	P3D TO: J15B	PRVLV J15B
18	BLACK	BLACK	16	P2A TO: SPL B	P2A
18A	BLACK	BLACK	16	J4D TO: SPL B	J4D
18B	BLACK	BLACK	16	J12A TO: SPL B	OUTER J12A
18C	BLACK	BLACK	16	J8A TO: SPL B	EXT J8A
18D	BLACK	BLACK	16	J8A TO: SPL B	INNER J8A
18E	BLACK	BLACK	16	J9A TO: SPL B	ROT J9A
18F	BLACK	BLACK	16	J10A TO: SPL B	ROT J10A
18G	BLACK	BLACK	16	J14A TO: SPL B	WIN J14A
19	BLACK	BLACK	16	P16B TO: SPL B	OPSI P16B
20	BLACK	BLACK	16	J7A TO: SPL C	OUTER J7A
20A	BLACK	BLACK	16	J13A TO: SPL C	EXT J13A
20B	BLACK	BLACK	16	J11A TO: SPL C	INNER J11A
20C	BLACK	BLACK	16	P16A TO: SPL C	OPSI P16A
20D	BLACK	BLACK	16	J5A TO: SPL C	WIN J5A
21	J	BRN/RED	16	P1J TO: P2C	ENG SPD P2C
22					
23	X	RED/BLUE	18	P1X TO: J14B	WIN J14B

- ALL WIRE TO BE GXL
- DIMENSIONS SHOWN ARE TO MATING END OF CONNECTORS UNLESS OTHERWISE SPECIFIED
- BRAD SHOULD BE WITHIN 1" TO THE BACK OF CONNECTORS WHERE BRAD IS CALLED OUT WITH
- ORIENT CONNECTOR AS SHOWN
- CONNECTORS WITH THE SYMBOL  ARE TO BE PERMANENTLY LABELED WITH THE LETTERS & NUMBER.
- LABELING SHALL APPEAR ON WIRES EVERY 2"



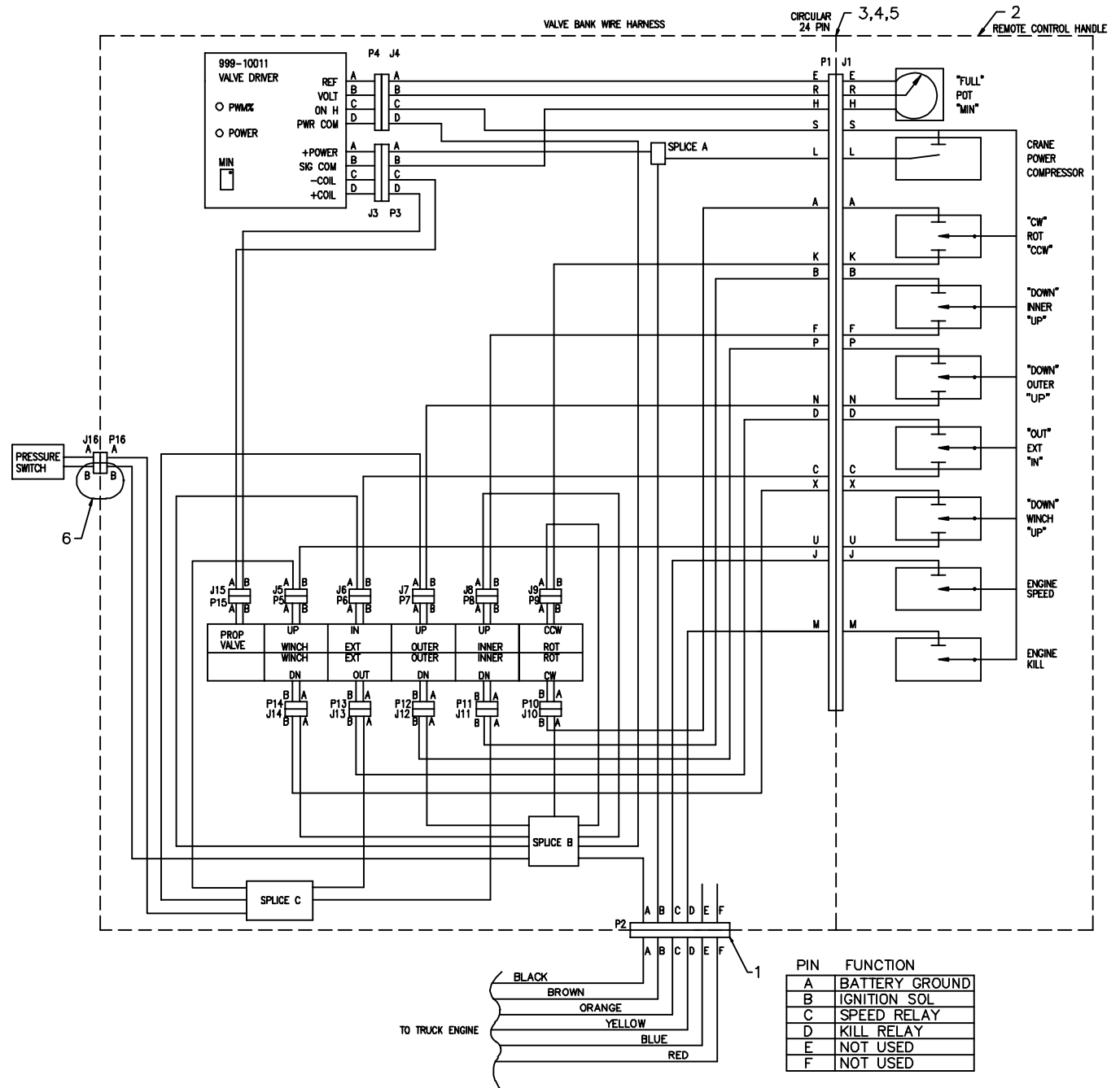
**WIRE HARNESS-VB (73733411-2)**

(EFF: SN 425AT2K1024 ON)



**ELEC SCHEMATIC (99903200)****(EFF: SN 425AT2K1024 ON)**

- |    |          |                            |   |
|----|----------|----------------------------|---|
| 1. | 51713199 | CABLE ASM 14GA/6WIRE X 35' | 1 |
| 2. | 51715568 | HANDLE ASM                 | 1 |
| 3. | 60119299 | MTG BRACKET                | 1 |
| 4. | 77044645 | NUT                        | 1 |
| 5. | 77044646 | WASHER                     | 1 |
| 6. | 70034439 | LOCK WIRE LEAD SEAL 8"     | 1 |

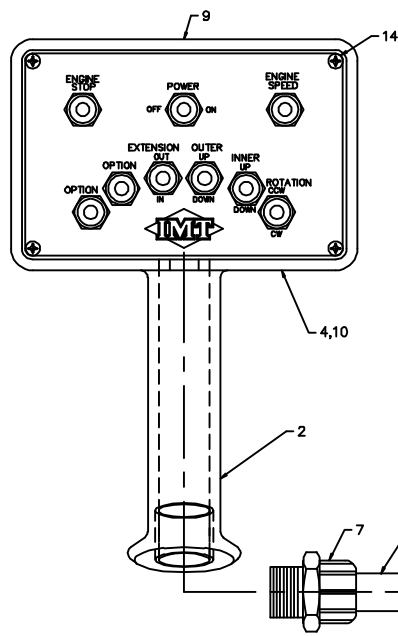




**RMT HANDLE ASM (51715568)****(EFF: SN 425AT2K1024 ON)**

1.	89044214	WIRE 18GA GRN (7-2.25"/1-3.5")	1.61FT
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER (PART OF 11)	1REF
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
7.	77044196	STRAIN RELIEF 3/4	1
8.	77044621	PIN	23
9.	77044862	DECAL-DGR RC ELECTRO SM	1
10.	70394282	DECAL-RC HANDLE	1

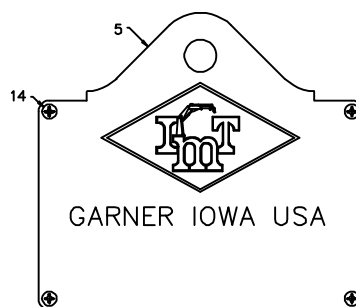
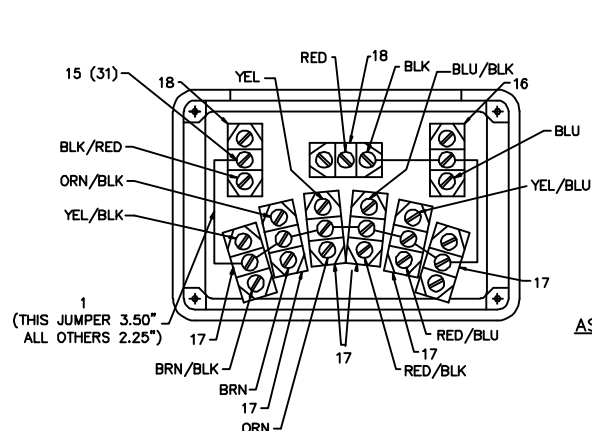
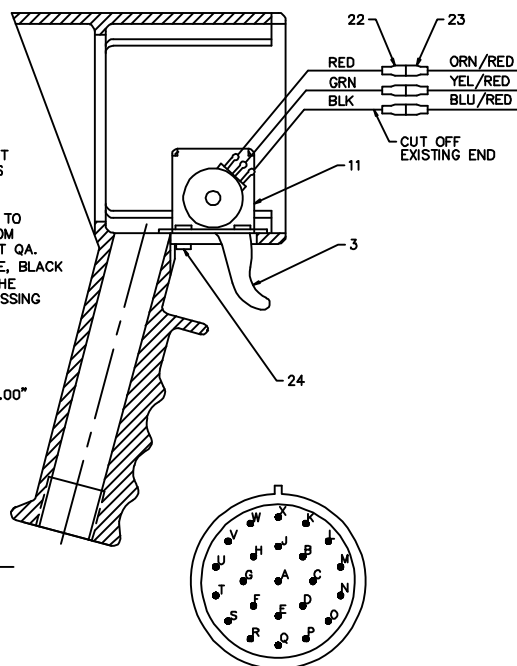
11.	70394183	TRIGGER ASM (INCL:3)	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERMINAL #8 SPRSPD 16-14GA	31
16.	77040371	TOGGLE SWITCH SPST	1
17.	77040372	TOGGLE SWITCH SPDT	6
18.	77040373	TOGGLE SWITCH SPST	2
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE	30FT
22.	77040147	TERMINAL 1/4 FSLPON 22-18GA	3
23.	77040047	TERMINAL 1/4 MSLPON 16-14GA	3
24.	72060602	MACH SCR #6-32X3/8 RDHD	4
25.	70145495	HEAT SHRINK 3/4 W/ADHESIVE	.50FT

**ASSEMBLY OF PROPORTIONAL TRIGGER**

- 1) POSITION TRIGGER ASSEMBLY INTO HANDLE ASSEMBLY.
- 2) LOOKING FROM THE BACKSIDE OF THE HANDLE, INSTALL ONLY THE TWO SCREWS LOCATED ON THE LEFT-HAND SIDE OF THE TRIGGER ASSEMBLY. (TWO SCREWS ARE SUFFICIENT FOR HOLDING THE ASSEMBLY IN PLACE.) DO NOT FULLY TIGHTEN AT THIS POINT.
- 3) PUSH THE TRIGGER ASSEMBLY TOWARDS THE FRONT OF THE HOUSING, AS THE MOUNTING SCREW HOLES WILL ALLOW. TIGHTEN THE SCREWS FULLY AT THIS POINT.
- 4) CONNECT OHMMETER TO GREEN AND BLACK WIRES TO CHECK OHM READING. ALLOWABLE SETTING IS FROM 100 TO 320 OHMS. IF OTHER THAN THIS CONTACT QA.
- 5) FILL THE RIGHT HAND SCREWS HOLES WITH SILICONE, BLACK (IF AVAILABLE) OR CLEAR. (THIS WILL ELIMINATE THE CONCERN BY THE CUSTOMER THAT THE UNIT IS MISSING THE TWO SCREWS ON THE RIGHT SIDE.)
- 6) ASSEMBLY THE REST OF THE HANDLE.

**INSTALLATION NOTE:**

- 1) CUT WIRE CABLE OUTSIDE JACKET BACK 5.00"
- 2) SLIP ON HEAT SHRINK
- 3) MAKE WIRE CONNECTIONS
- 4) PUSH HEAT SHRINK UP AND HEAT.

**ASSEMBLY OF SWITCHES ONTO FACE PLATE.**

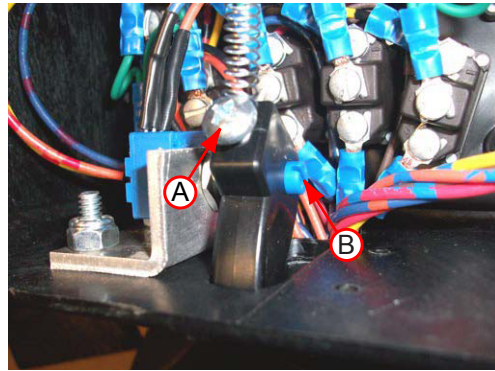
- 1) INSTALL (1) STAR WASHER BETWEEN SWITCH & FACE PLATE.
- 2) INSTALL (1) LOCK NUT ON FRONT OF FACE PLATE TO RETAIN SWITCH.
- 3) DISCARD ALL OTHER MOUNTING HARDWARE.

SOLID/STRIPE	FUNCTION
A YEL/BLK	ROT CW
B ORN/BLK	INNER DN
C BLU/BLK	EXT IN
D RED/BLK	EXT OUT
E ORN/RED	REF
F BRN	INNER UP
G BRN/RED	-
H BLU/RED	SIGNAL COM
J BLK/RED	ENG SPEED
K BRN/BLK	ROT CCW
L RED	POWER
M BLU	ENG STOP
N ORN	OUTER UP
O BLK/ORN	-
P YEL	OUTER DN
Q BRN/BLU	-
R YEL/RED	VOLTAGE
S BLK	ON HANDLE
T BLK/BLU	-
U RED/BLU	WINCH UP
V BLU/ORN	-
W ORN/BLU	-
X YEL/BLU	WINCH DN
- RED/ORN	-

## TETHERED PROPORTIONAL REMOTE POTENTIOMETER ADJUSTMENT

**NOTES:** 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.

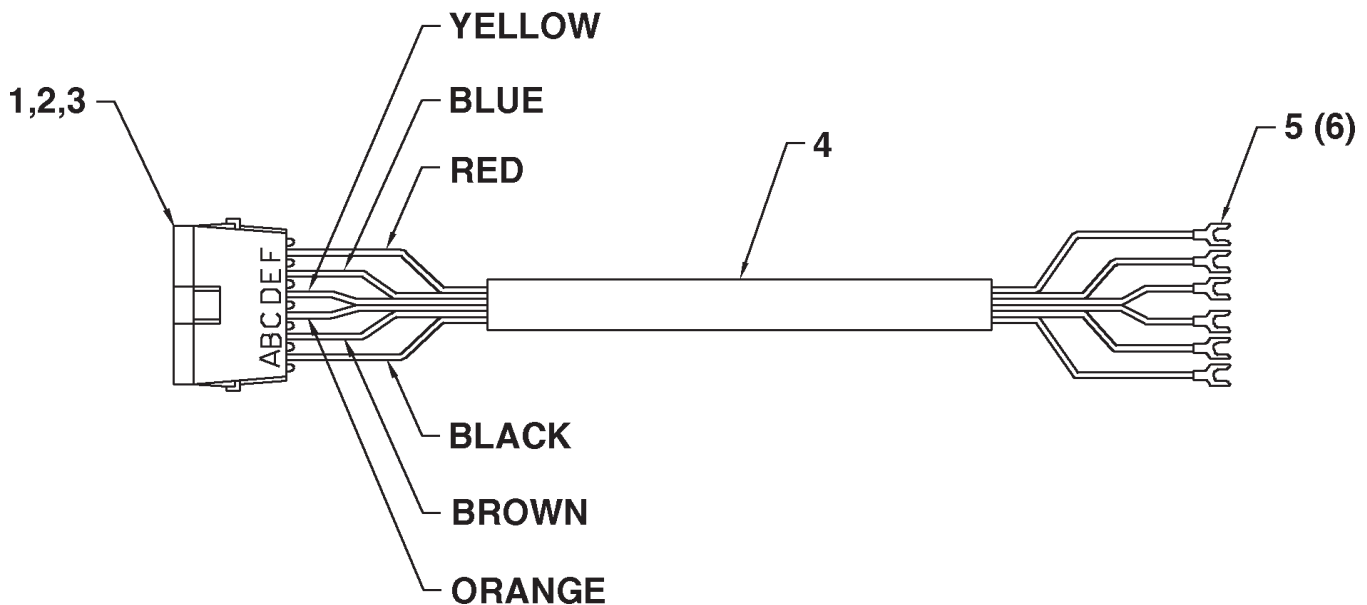
1. Following proper crane and stabilizer set-up, with the PTO engaged and the truck running, move the crane from the stowed position to a position off to the side of the truck. Unstow the winch cable hook and lower the winch approx (6) six feet.
2. Remove the back cover of the remote control handle.
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 ASM 14GA 6WIRE X 35' (51713199)

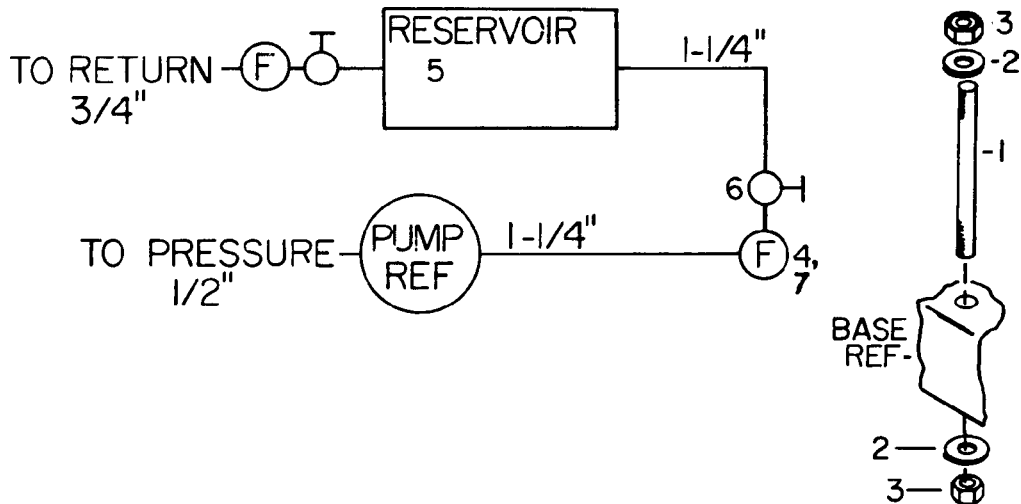
(EFF: SN 425AT2K1024 ON)

1.	77044575	SHROUD CONNECTOR	1
2.	77044576	TERMINAL	6
3.	77044578	CABLE SEAL	6
4.	89044354	CABLE	1
5.	77040051	TERMINAL-SPRSPADE	6

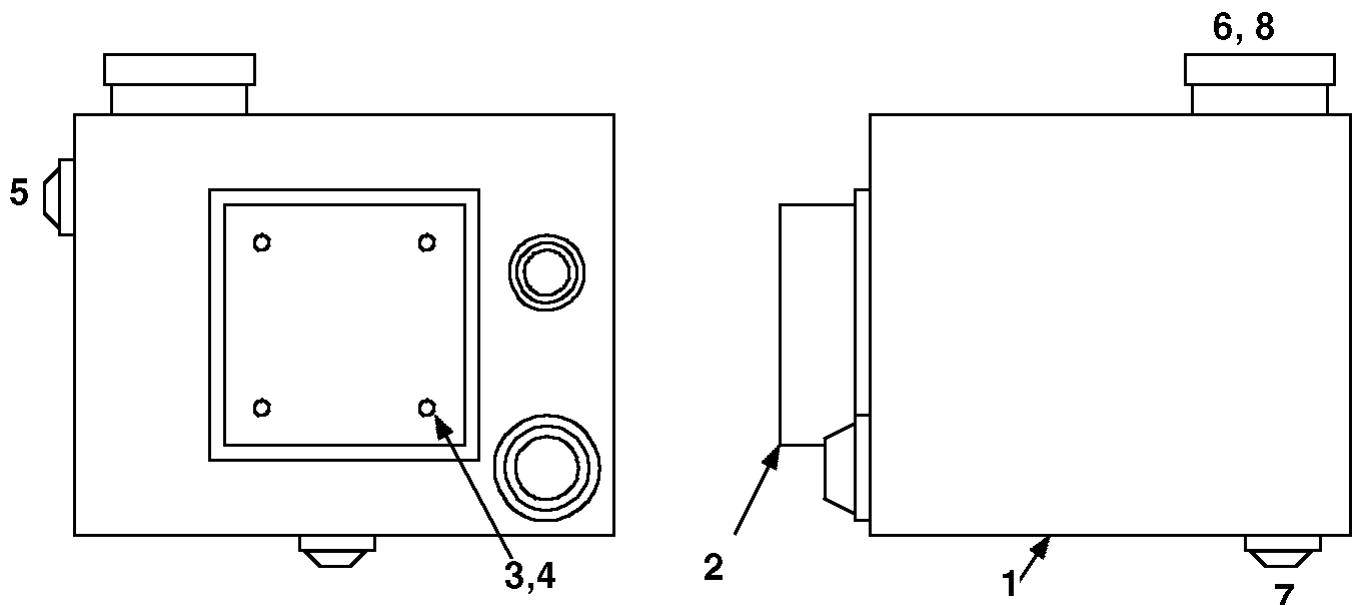


**INSTALLATION KIT (93710761)**

1.	60106481	TIE-DOWN STUD 1-8X12-1/2	4
2.	72063066	WASHER 1 HI STR	8
3.	72062141	NUT 1-8 LOCK	8
4.	73052012	SUCTION FILTER	1
	70048149	FILTER ELEMENT 100MESH	REF
5.		RESERVOIR ASM	REF
6.	73054130	GATE VALVE 1-1/4	1
7.	60103870	FILTER BRACKET	1



1.	52705133	RESERVOIR 17 GAL	1
2.	60108148	MTG BRKT	1
3.	72060044	CAP SCR 3/8-16X3/4 HH GR5	4
4.	72062103	NUT 3/8-16 LOCK	4
5.	72532261	SIGHT GAUGE 3/4NPT	1
6.	73014671	FILL CAP	1
7.	73052021	PLUG-MAGNETIC 3/4NPT	1
8.	73141276	FILL NECK SCREEN	1

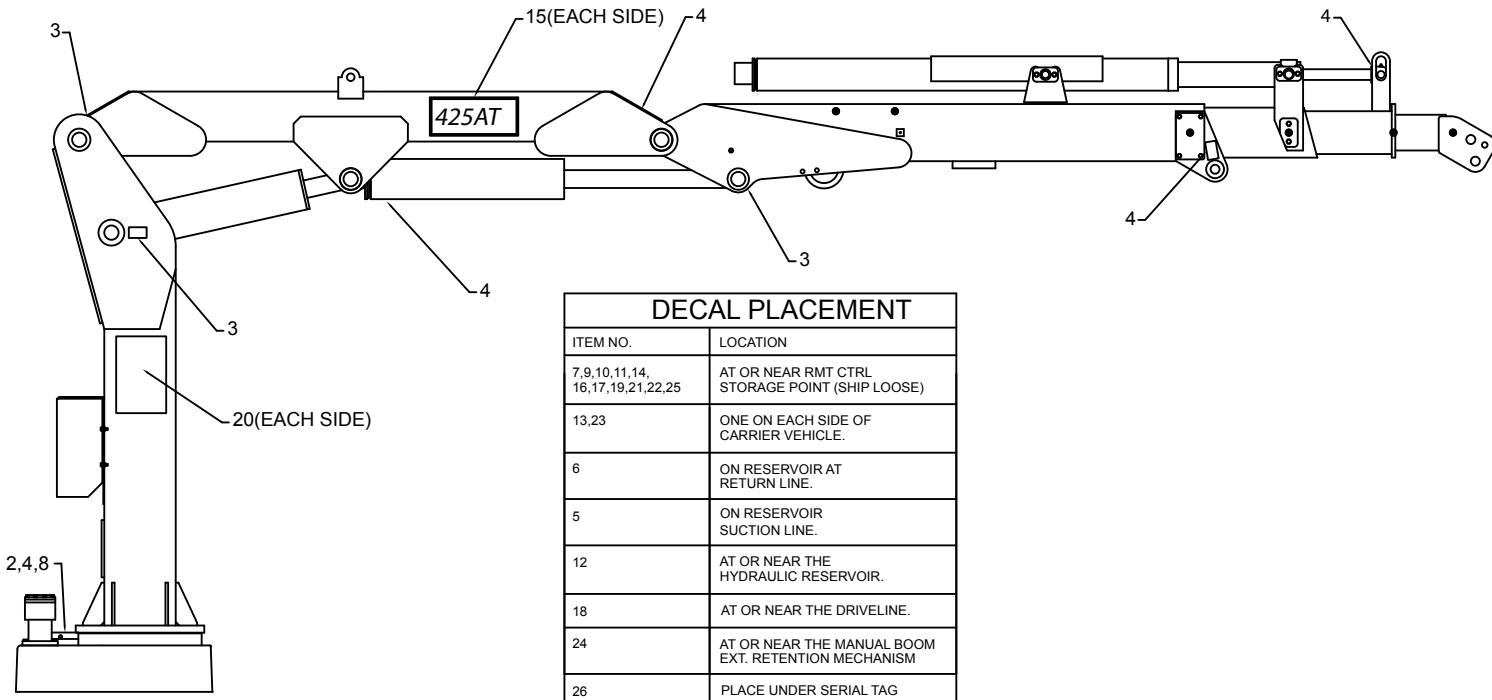


425AT: 95710760.01.20000516

3-22

# **DECAL KIT (95710760)**

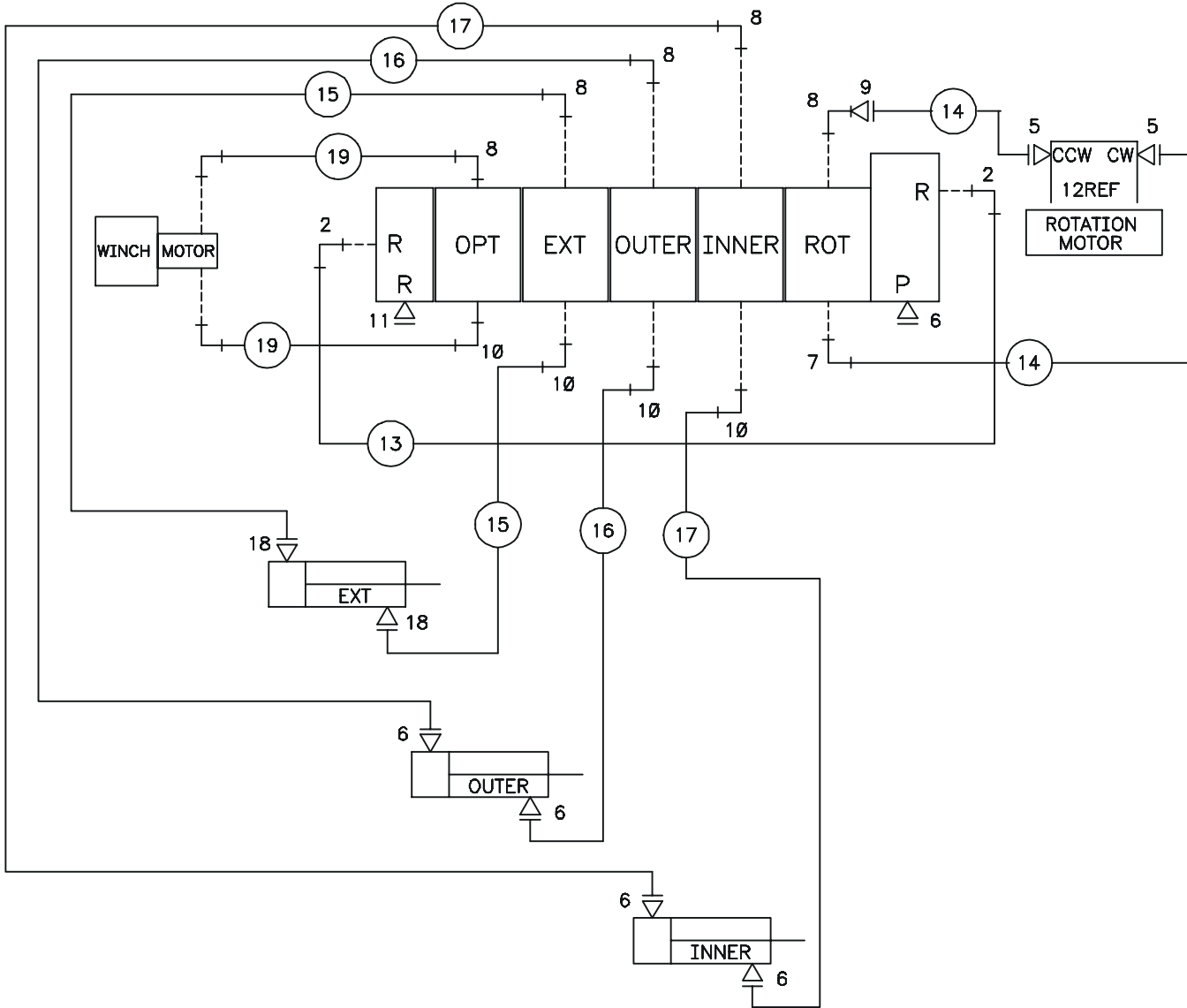
2.	70391583	DECAL-SETUP/STOW	1	14.	70392866	DECAL-DANGER OPER COND	2
3.	70391612	DECAL-GREASE WKLY LEFT	3	15.	70393497	DECAL-IDENTIFICATION	2
4.	70391613	DECAL-GREASE WKLY RIGHT	5	16.	70392888	DECAL-DGR OPER RESTRICT	2
5.	70392108	DECAL-SUCTION LINE	1	17.	70392890	DECAL-DANGER FOLD/STOW	2
6.	70392109	DECAL-RETURN LINE	1	18.	70392891	DECAL-DANGER DRIVELINE	2
7.	70392213	DECAL-CAUTION WASH/WAX	1	19.	70392982	DECAL-CONTACT IMT	1
8.	70392524	DECAL-ROTATE/GREASE	1	20.	71393496	CAPACITY PLACARD	2
9.	70392813	DECAL-DGR ELECTROCUT'N	2	21.	71039134	DECAL-CAUTION OIL LEVEL	2
10.	70392814	DECAL-DGR OPER TRAINING	2	22.	70392863	DECAL-DGR HOIST PERS	1
11.	70392815	DECAL-DANGER OPERATION	2	23.	70392868	DECAL-DGR CR LOADLINE	4
12.	70394189	DECAL-RECOMMEND HYD OIL	1	24.	70394443	DECAL-DGR FREEFALL BOOM	1REF
13.	70392865	DECAL-DANGER ELECT HZD	4	25.	70392889	DECAL-DANGER RC ELECTRO	2
				26.	70395323	DECAL-ASME/ANSI B30.22	1



**HYD KIT-5F (91711604)**

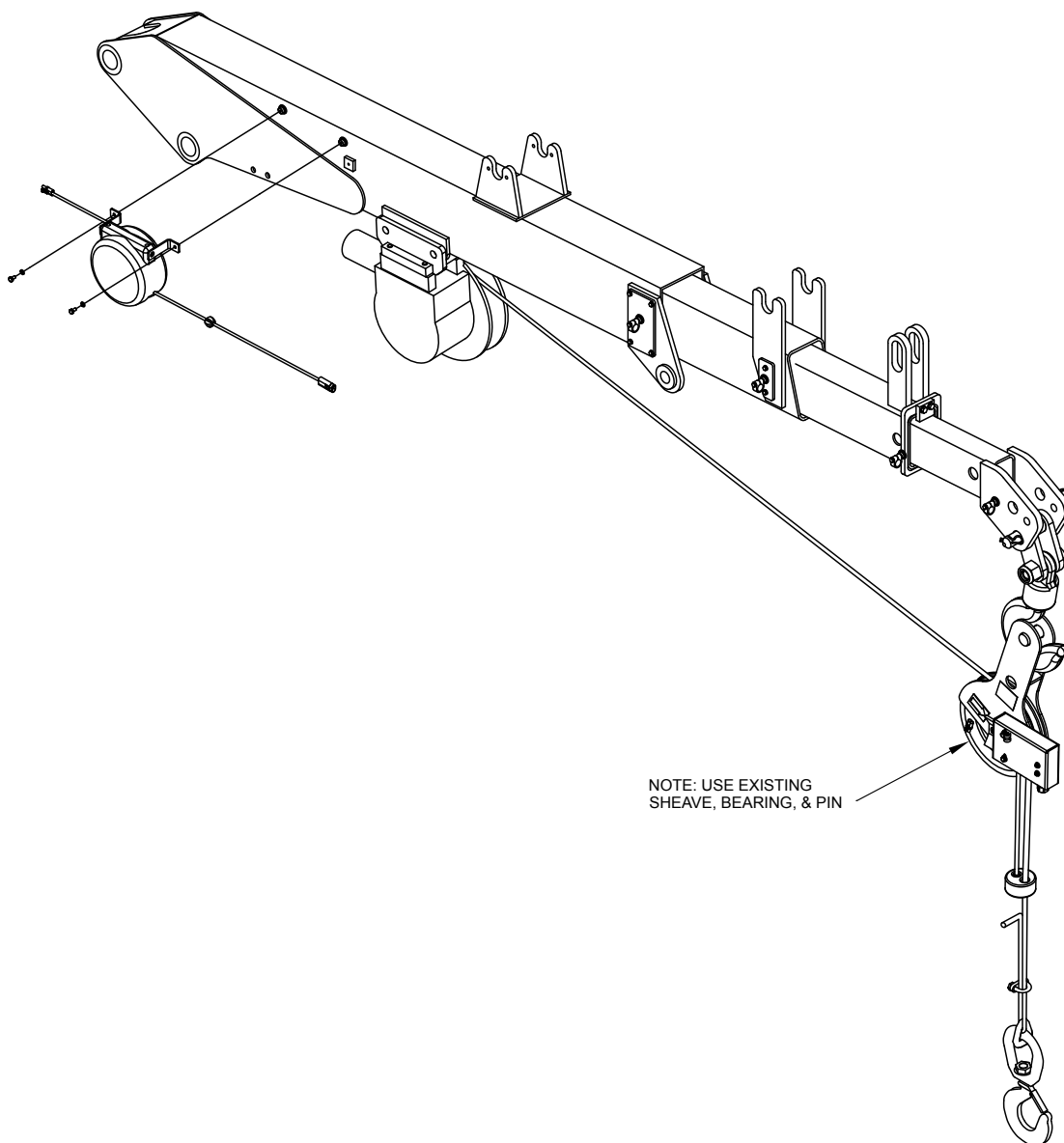
(BEFORE SN: 425AT2K1024)

1.	73732831	VALVEBANK 5-SECT PROP RC	1	9.	72532707	ADAPTER 7/16MJIC 9/16FJIC	1
2.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	2	10.	72053760	ELBOW 9/16MSTR 9/16MJIC 90°	4
3.	72060002	CAP SCR 1/4-20X3/4 HH GR5	4	11.	72532364	ADAPTER 3/4MSTR 1-1/16MJIC	1
4.	72062104	NUT 1/4-20 LOCK	4	12.	5V151830	MOTOR BLOCK	1REF
5.	72532351	ADAPTER 7/16MSTR 7/16MJIC	2	13.	51710753	HOSE ASM 1/2X24	1
6.	72532358	ADAPTER 3/4MSTR 3/4MJIC	5	14.	51706916	HOSE ASM 1/4X72	2
7.	72532699	ELBOW 9/16MSTR 7/16MJIC 90°	1	15.	51710727	HOSE ASM 3/8X182	2
8.	72532700	ELBOW 9/16MSTR9/16MJIC XLG	5	16.	51710726	HOSE ASM 3/8X126	2
				17.	51710724	HOSE ASM 3/8X78	2
				18.	72532740	ELBOW #8MSTR#8MJIC90° SW	2
				19.	51704582	HOSE ASM 3/8X209	2



**TWO-BLOCK DAMAGE PREVENTION  
KIT (51725496 / DWG 99905634)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	51724375	YOKE-A2BASM	1
3.	51724374	CORD REELASM	1
4.	70034381	SUPPORT	3
5.	72060006	CAP SCR .25-20X 1.50 HH GR5 Z	3
6.	72060000	CAP SCR .25-20X .50 HH GR5 Z	2
7.	72063001	WASHER .25 FLAT	3
8.	72063049	WASHER .25 LOCK	2
9.	77441479	HARNESS - A2B	1 REF
10.	51714756	JUMPER - HARNESS	1 REF



**SECTION 4. GENERAL REFERENCE**

**INSPECTION CHECKLIST ..... 3**

**WIRE ROPE INSPECTION ..... 7**

**HOOK INSPECTION ..... 7**

**HOLDING VALVE INSPECTION ..... 8**

**ANTI-TWO BLOCKING DEVICE INSPECTION ..... 8**

**TORQUE DATA CHART - DOMESTIC ..... 9**

**TORQUE DATA CHART - METRIC ..... 10**

**TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE ..... 11**

**TURNTABLE BEARING INSPECTION FOR REPLACEMENT ..... 12**

## NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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

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

REV 6-18-99

**TYPE OF INSPECTION****NOTES:**

Daily and monthly inspections are to be performed by a “designated” person, who has been selected or assigned by the employer or the employer’s representative as being competent to perform specific duties.

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

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 day of operation, those items designated with a (D) must be inspected. This inspection need not be recorded unless a deficiency (X) is found. If the end user chooses to record all daily inspections and those daily inspections include the monthly inspection requirements, there would be no need for a separate monthly inspection.

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

**QUARTERLY (Q):** Every three to four months or 300 hours of normal operation (which ever comes first) includes all daily and monthly inspection items plus items designated with a (Q). This inspection must be recorded.

**ANNUAL (A):** Each year or 1200 hours of normal operation (which ever comes first) includes all items on this form which encompasses daily, monthly and quarterly inspections plus those items designated by (A). This inspection must be recorded.



FREQUENCY	ITEM	KEY	✓ = SATISFACTORY X = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA = NOT APPLICABLE	STATUS
			INSPECTION DESCRIPTION		✓, X, R, NA
D	1	Labels	All load charts, safety & warning labels, & control labels are present and legible.		
D	2		Check all safety devices for proper operation.		
D	3	Controls	Control mechanisms for proper operation of all functions, leaks & cracks.		
D	4	Station	Control and operator's station for dirt, contamination by lubricants, & foreign materials.		
D	5	Hyd System	Hydraulic system (hoses, tubes & fittings) for leakage & proper oil level.		
D	6	Hook	Presence & proper operation of hook safety latches.		
D	7	Rope	Proper reeving of wire rope on sheaves & winch drum.		
D	8	Pins	Proper engagement of all connecting pins & pin retaining devices.		
D	9	General	Overall observation of crane for damaged or missing parts, cracked welds & 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 & determine cause & severity of hazard.		
D	11	Remote Ctrls	Operate remote control devices to check for proper operation.		
D	12	Electrical	Operate all lights, alarms, etc. to check for proper operation.		
D	13	Anti 2-Blocking	Operate anti 2-blocking device to check for proper operation.		
D	14		Other		
D	15		Other		

<b>Inspection Checklist</b>			<b>CRANES</b>	<b>2</b>	
FREQUENCY	ITEM	KEY	= SATISFACTORY <b>X</b> = DEFICIENCY (must be corrected prior to operation)	<b>R</b> = RECOMMENDATION (should be considered for corrective action) <b>NA</b> = NOT APPLICABLE	<b>STATUS</b> , <b>X</b> , <b>R</b> , <b>NA</b>
			INSPECTION DESCRIPTION		
M	16	Daily	All daily inspection items		
M	17	Cylinders	Visual inspection of cylinders for leakage at rod, fittings & welds. Damage to rod & case.		
M	18	Valves	Holding valves for proper operation.		
M	19	Valves	Control valve for leaks at fittings & between sections.		
M	20	Valves	Control valve linkages for wear, smoothness of operation & tightness of fasteners.		
M	21	General	Bent, broken or significantly rusted/corroded parts.		
M	22	Electrical	Electrical systems for presence of dirt, moisture & frayed wires.		
M	23	Structure	All structural members for damage.		
M	24	Welds	All welds for breaks & cracks.		
M	25	Pins	All pins for proper installation & condition.		
M	26	Hardware	All bolts, fasteners & retaining rings for tightness, wear & corrosion		
M	27	Wear Pads	Presence of wear pads.		
M	28	Pump & Motor	Hydraulic pumps & motors for leakage at fittings, seals & between sections.		
M	29	PTO	Transmission/PTO for leakage, abnormal vibration & noise.		
M	30	Hyd Fluid	Quality of hydraulic fluid and for presence of water.		
M	31	Hyd Lines	Hoses & tubes for leakage, abrasion damage, blistering, cracking, deterioration, fitting leakage & secured properly.		
M	32	Hook	Load hook for abnormal throat distance, twist, wear & cracks.		
M	33	Rope	Condition of load line.		
M	34	Manual	Presence of operator's manuals with unit.		
M	35		Other		
Q	36	Daily	All daily inspection items.		
Q	37	Monthly	All monthly inspection items.		
Q	38		Condition of wear pads		
Q	39	Rotation Sys	Rotation bearing for proper torque of all accessible mounting bolts.		
Q	40	Hardware	Base mounting bolts for proper torque.		
Q	41	Structure	All structural members for deformation, cracks & corrosion.		
	42		• Base		
	43		• Stabilizer beams & legs		
	44		• Mast		
	45		• Inner boom		
	46		• Outer boom		
	47		• Extension(s)		
	48		• Jib boom		
	49		• Jib extension(s)		
	50		• Other		
Q	51	Hardware	Pins, bearings, shafts, gears, rollers, & locking devices for wear, cracks, corrosion & distortion.		
	52		• Rotation bearing(s)		
	53		• Inner boom pivot pin(s) & retainer(s)		
	54		• Outer boom pivot pin(s) & retainer(s)		
	55		• Inner boom cylinder pin(s) & retainer(s)		
	56		• Outer boom cylinder pin(s) & retainer(s)		
	57		• Extension cylinder pin(s) & retainer(s)		
	58		• Jib boom pin(s) & retainer(s)		
	59		• Jib cylinder pin(s) & retainer(s)		
	60		• Jib extension cylinder pin(s) & retainer(s)		
	61		• Boom tip attachments		
	62		• Other		
Q	63	Hyd Lines	Hoses, fittings & tubing for proper routing, leakage, blistering, deformation & excessive abrasion.		
	64		• Pressure line(s) from pump to control valve		
	65		• Return line(s) from control valve to reservoir		
	66		• Suction line(s) from reservoir to pump		
	67		• Pressure line(s) from control valve to each function		
	68		• Load holding valve pipe(s) and hose(s)		
	69		• Other		

## Inspection Checklist

## ***CRANES***

3

FREQUENCY	ITEM	KEY	 = SATISFACTORY <b>X</b> = DEFICIENCY (must be corrected prior to operation)	<b>R</b> = RECOMMENDATION (should be considered for corrective action) <b>NA</b> = NOT APPLICABLE	STATUS
			INSPECTION DESCRIPTION	 <b>X</b> , <b>R</b> , <b>NA</b>	
Q	70	Pumps,PTO's & Motors	Pumps,PTO's & motors for loose bolts/fasteners, leaks, noise, vibration, loss of performance, heating & excess pressure		
	71		<ul style="list-style-type: none"><li>Winch motor(s)</li></ul>		
	72		<ul style="list-style-type: none"><li>Rotation motor(s)</li></ul>		
	73		<ul style="list-style-type: none"><li>Other</li></ul>		
Q	74	Valves	Hydraulic valves for cracks, spool return to neutral, sticking spools, proper relief valve setting, relief valve failure		
	75		<ul style="list-style-type: none"><li>Main control valve</li></ul>		
	76		<ul style="list-style-type: none"><li>Load holding valve(s)</li></ul>		
	77		<ul style="list-style-type: none"><li>Stabilizer or auxiliary control valve(s)</li></ul>		
	78		<ul style="list-style-type: none"><li>Other</li></ul>		
	79		<ul style="list-style-type: none"><li>Other</li></ul>		
Q	80	Cylinders	Hydraulic cylinders for drifting, rod seal leakage & leakage at welds. Rods for nicks, scores & dents. Case for damage. Case & rod ends for damage & abnormal wear.		
	81		<ul style="list-style-type: none"><li>Stabilizer cylinder(s)</li></ul>		
	82		<ul style="list-style-type: none"><li>Inner boom cylinder(s)</li></ul>		
	83		<ul style="list-style-type: none"><li>Outter boom cylinder(s)</li></ul>		
	84		<ul style="list-style-type: none"><li>Extension syylinder(s)</li></ul>		
	85		<ul style="list-style-type: none"><li>Rotation cylinder(s)</li></ul>		
	86		<ul style="list-style-type: none"><li>Jib lift cylinder(s)</li></ul>		
	87		<ul style="list-style-type: none"><li>Jib extension cylinder(s)</li></ul>		
	88		<ul style="list-style-type: none"><li>Other</li></ul>		
Q	89	Winch	Winch, sheaves & drums for damage, abnormal wear, abrasions & other irregularities.		
Q	90	Hyd Filters	Hydraulic filters for replacement per maintenance schedule.		
A	91	Daily	All daily inspection items.		
A	92	Monthly	All monthly inspection items.		
A	93	Quarterly	All quarterly inspection items.		
A	94	Hyd Sys	Hydraulic fluid change per maintenance schedule.		
A	95	Controls	Control valve calibration for correct pressures & relief valve settings.		
A	96	Valves	Safety valve calibration for correct pressures & relief valve settings.		
A	97	Valves	Valves for failure to maintain correct settings.		
A	98	Rotation Sys	Rotation drive system for proper backlash clearance & abnormal wear, deformation & cracks.		
A	99	Lubrication	Gear oil change in rotation drive system per maintenance schedule.		
A	100	Hardware	Check tightness of all fasteners and bolts.		
A	101	Wear Pads	Wear pads for excessive wear.		
A	102	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. **X** must be corrected and/or faulty parts replaced before resuming operation.
- B. Recommendations (**R**) should be considered for corrective actions. Corrective action for a particular recommendation depends on the facts in each situation.
- C. Corrective actions (**CA**), repairs, adjustments, parts replacement, etc. are to be performed by a qualified person in accordance with all manufacturer's recommendations, specifications and requirements.

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

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

[illegible]

### ***Deficiency / Recommendation / Corrective Action Report (cont)***

4

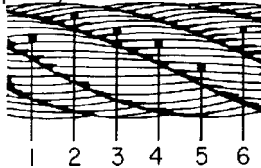
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*If additional space is required, reproduce this page and attach to this report*

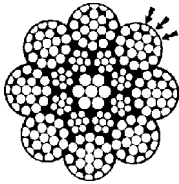
**WIRE ROPE INSPECTION**

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

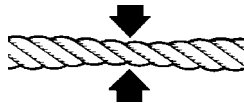
- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



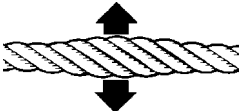
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



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



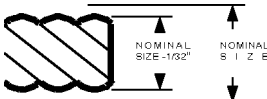
- E. When kinking, crushing, birdcaging or other distortion occurs.



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



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



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

**HOOK INSPECTION**

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

**A. DISTORTION****Bending / Twisting**

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

**Increased Throat Opening**

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

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

**B. WEAR**

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

**C. CRACKS, NICKS, GOUGES**

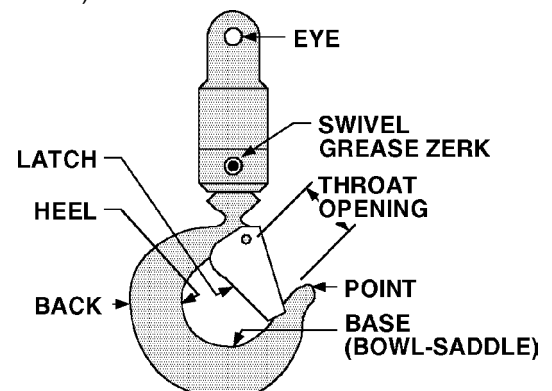
Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally , following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued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

**D. LATCH****Engagement, Damage & Malfunction**

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

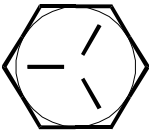

**E. HOOK ATTACHMENTS & SECURING MEANS**

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

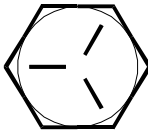
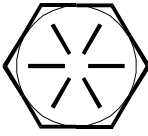


# TORQUE DATA CHART - DOMESTIC

## FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LBS)	PLATED (FT-LBS)	PLAIN (FT-LBS)	PLATED (FT-LBS)
5/16-24	0.3125	19	14	27	20
3/8-24	0.3750	35	26	49	35
7/16-20	0.4375	55	41	78	58
1/2-20	0.5000	90	64	120	90
9/16-18	0.5625	120	90	170	130
5/8-18	0.6250	170	130	240	180
3/4-16	0.7500	300	225	420	315
7/8-11	0.8750	445	325	670	500
1-12	1.0000	645	485	995	745
1 1/8-12	1.1250	890	670	1445	1085
1 1/4-12	1.2500	1240	930	2010	1510
1 3/8-12	1.3750	1675	1255	2710	2035
1 1/2-12	1.5000	2195	1645	3560	2670

## COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LBS)	PLATED (FT-LBS)	PLAIN (FT-LBS)	PLATED (FT-LBS)
5/16-18	0.3125	17	13	25	18
3/8-16	0.3750	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5000	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.6250	150	115	220	160
3/4-10	0.7500	265	200	375	280
7/8-9	0.8750	395	295	605	455
1-8	1.0000	590	445	910	680
1 1/8-7	1.1250	795	595	1290	965
1 1/4-7	1.2500	1120	840	1815	1360
1 3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

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

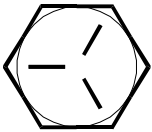
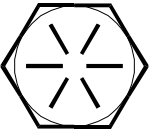
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special lubricants applied.  
If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

### WARNING

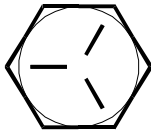
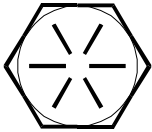
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

# TORQUE DATA CHART - METRIC

## FINE THREAD BOLTS

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

## COARSE THREAD BOLTS

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

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

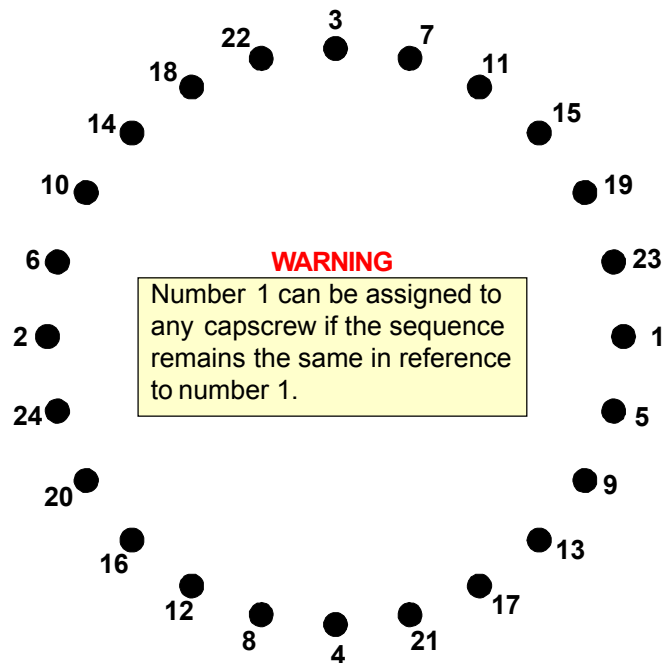
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied.  
If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

### WARNING

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

## TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

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



### TIGHTENING PROCEDURE:

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



# TURNTABLE BEARING INSPECTION FOR REPLACEMENT

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

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

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

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

## TEST PROCEDURE

### STEP 1.

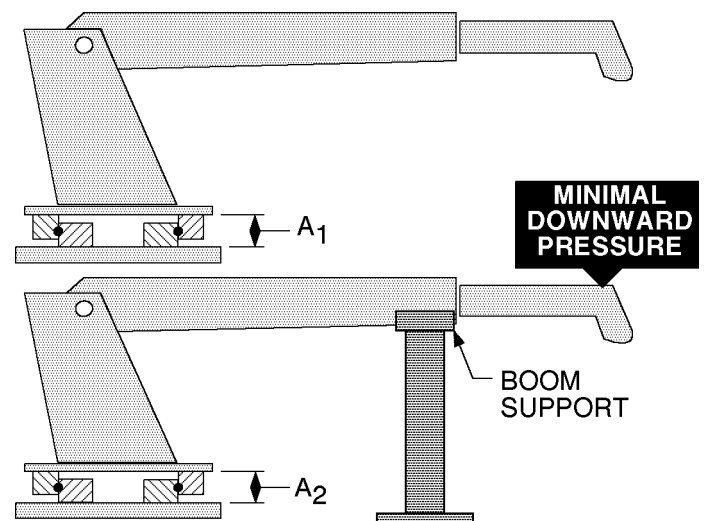
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A1), using a dial indicator for accuracy.

### STEP 2.

Reverse the load by applying minimal downward pressure on the boom while the boom is in the boom support or on a solid surface. Again measure A2.

### STEP 3.

Subtract A1 from A2 to determine tilt and compare the result with the accompanying chart.



## COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

<b>NOTE</b> THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED.  IF THERE IS REASON TO SUSPECT AN EXCESS OF BEARING WEAR AND THE MEASURED TILT DIMENSION EXCEEDS THE DIMENSION LISTED, REMOVE THE BEARING FOR INSPECTION.	<b>IMT CRANE, LOADER OR TIREHAND MODEL</b>	1007	5200	16000	9800
		1014	5200R	32018	12916
		1014A	5217	32027	13031
		1015	5800	32030	13034
		2015/2020	7020	T30	14000
		2109	7025	T40	15000
		3000	7200		18000
		3816/3820	7415		20017
		3016/3020	9000		8000L
		421/425	TH10 BODY ROT'N		H1200
		4300	TH14 BODY ROT'N		H1200RR
		5016/5020			T50
		6016/6020			TH2551B BODY ROT'N
		TH7 BODY ROT'N			TH2557B BODY ROT'N
		TH1449 BODY ROT'N			TH2557A BODY ROT'N
		TH15B CLAMP			
		TH2551B CLAMP			
		TH2557A CLAMP			
	<b>BALL DIA. (REF)</b>	.875"	1.00"	1.18"-1.25"	1.75"
		(22mm)	(25mm)	(30-32mm)	(44mm)
	<b>TILT DIM. (A<sub>1</sub>-A<sub>2</sub>)</b>	.060"	.070"	.075"	.090"
		(1.524mm)	(1.778mm)	(1.905mm)	(2.286mm)

20140102

The information within this manual has been compiled and checked but errors do occur. To provide our customers with a method of communicating those errors we have provided the Manual Change Request form below. In addition to error reporting, you are encouraged to suggest changes or additions to the manual which would be of benefit to you. We cannot guarantee that these additions will be made but we do promise to consider them. When completing the form, please write or print clearly. Submit a copy of the completed form to the address listed below

# MANUAL CHANGE REQUEST

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

☐ ERROR FOUND

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

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

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☐ ERROR FOUND

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

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

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