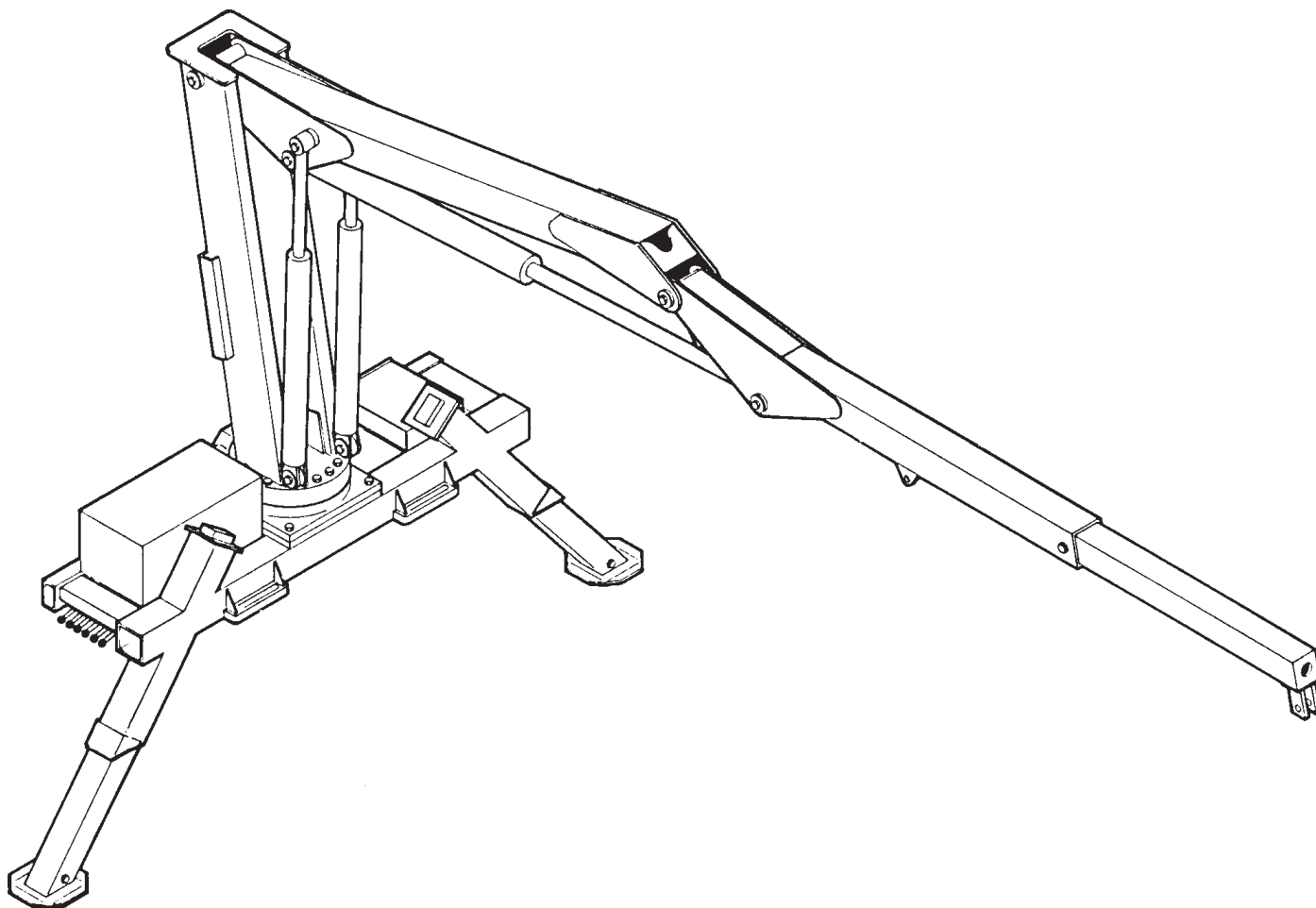




3000 Series Crane & Model 445 (Metric Version)

Volume 2 - PARTS AND SPECIFICATIONS

Section 1	SPECIFICATIONS-3000 SERIES
Section 1A.	SPECIFICATIONS-445 CRANE
Section 2	CRANE REFERENCE
Section 3	REPLACEMENT PARTS
Section 4	GENERAL REFERENCE



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

TEL: 641-923-3711

MANUAL PART NUMBER 99900915

Manual Effective Through July, 2004

REVISIONS LIST

DATE	LOCATION	DESCRIPTION OF CHANGE
20000728	3-4	ECN9000: CHG NOTES. DEL 44, 46, 48, 49
20000808	2-6	ADD "NOTE: The manual controlled with cross controls....."
20000809	3-51	ECN 8590: REV BOM & C'BAL VLV CIRC - CHG DWG
20000811	3-42,44,45	ECN 9000: 91715565-CHG VB PN, REPLC VB DWG & CABLE DWG
20000824	3-44	ADD COIL 77041602 REF TO 70145624 SOL VLV
20000901	3-51	ECN 8611-91714682-CHG QTY 72532657 1 WAS 2, ADD 51716270&60122782 ORIFICE & SETSCR
	3-52	90715295-CHG DWG-REPOSITIONED RAD RMT RCVR
20000906	3-17	ECN 9000-95712499-ADD INSTR DECAL 70395857 REF & TIE 70034069 REF
	3-46	41715293-ADD INSTR DECAL 70395857 & TIE 70034069
20000911	3-43	ECN 9000-99901042-ADD CABLE ASM 51715664, ADD NOTE, CHG DWG
	3-45	ECN 9000-70733394-WIRE LEGEND- INNER WAS OUTER, OUTER WAS INNER
	3-51	ECN 8611-91714682-ADD ADDITIONAL SCHEMATIC DWG
20001031	3-52	ECN-90715295-1-CHG XMTR/ADD BATT CHRGR/CHG DWG
	3-53	90715295-2-CHG DWG
	3-57	70733354-1 RAD RMT KIT REPLACED W/70733476-1
	3-58	70733354-2 RAD RMT KIT REPLACED W/70733476-2
	3-31	ECN8544-31713025-ADD BACKUP ALARM HORN & HRDWARE-CHG DWG
20001207	3-54	ECN9000-93715831-REV 16. ST ELBOW & 20. RED BUSHNG TO STL
20010117	3-49&50	ECN9000-70733323-ADD ITEM 32-37 6WAY CONN/DIODE BRD & CHG DWGS -1 & -2
20010118	3-41	ECN9000-51715568-ADD RED/BLU & YEL/BLU - CHG DWG
20010123	3-48,49,50	ECN8613-ADDED "PRE:3-1-01" TO 70733319 VB, 70733323-1&2 WIRE HARNESS
	3-51	91714682-ADD VB 70733505 EFF 3-1-01
	3-59&60	ADD WIRE HARNESS 77044967 EFF 3-1-01
	3-61	ADD VB ASM 70733505 EFF 3-1-01
	3-62	ADD WIRING SCHEMATIC 99903194 EFF 3-1-01
20010214	2-05	CORRECT SPARE PARTS LIST
20010417	3-32	REVISED DRAWING AND ADDED ITEM #10 72661312
20010418	3-33,34	REMOVED PAGES FOR OPTION-BEACON LIGHT KIT - LOW AND HIGH MOUNT
	3-2	REVISED SECTION 3 INDEX
	3-52	REVISED DRAWING, ADDED ITEM #19 70392785, AND CHG QTY OF #9 TO 2
	3-59	REVISED DRAWING, CHANGED BEACON LIGHT TO FLOOD LIGHT AND BCN LGT TO FLD LGT
20010829	3-32	ADDED NEW LIGHT
20010907	3-53	ECN 8759 - WASHERS ADDED TO SHIP OUT/HARDWARE KIT 93715831
20011105	3-4,6,7,9,11,12,13,14,	ECN 8755 - NEW CYLINDERS WITH IRON PISTON & HEAD
20020206	36,37,40,44,45,49,50,54	ADDED SERIAL NO. INFO. TO ALL PAGES W/NEW CYLINDER INFO.
20020213	3-6,12,14,36	NEW WEAR RING IN CYLINERS
	3-55	ECN 8871 - RMV BATTERY CASE FROM RADIO RMT ASM
20020606	3-39	ECN 8927 - UPDATED HOSE INFORMATION ON 91716937 HYD KIT.
	3-61-66	ECN 8929 - ADDED RETROFIT KIT FOR 7.5" PULLER FAN
20021121	3-50,51	ECN 9036 - UPDATED BATTERY CHARGER INFORMATION
	3-67-69	ADDED CRANE COOLER KIT 99903435
20030327	3-54	ECN 9141, CHANGES TO 73540091 CBAL VALVE, NEW VALVE & PRESSURE SWITCH
20030922	3-34,35	ECN 9245 - REV. E 93714829 (NEW BRACKETS) AND ADDED 93718342
20031230	1-4, 1A-4, 2-5, 2-7, 3-16,34,44,49,50,53	ECN 9248 - ADDED HYDRAULIC COOLER
20040524	3-22	ECN 9476 - CHANGE TO PRESSURE SWITCH ON CAPACITY ALERT 31711302
	3-47,58	ECN 9479 - REMOVED CLIP 77044888 FROM 77044967 AND 70733323

INTRODUCTION

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

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

This manual is provided to assist you with ordering parts for your IMT crane. It also contains additional instructions regarding your particular installation.

It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible.

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

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

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

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

NOTE

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

CAUTION

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

WARNING

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

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

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

NOTES

[illegible]

SECTION 1. SPECIFICATIONS-3000 SERIES

GENERAL 3

PERFORMANCE CHARACTERISTICS 3

POWER SOURCE..... 3

CYLINDER HOLDING VALVES 4

ROTATION SYSTEM 4

HYDRAULIC SYSTEM 4

CONTROL SYSTEM OPTIONS 4

MINIMUM CHASSIS SPECIFICATIONS - For Standard 3000 Series Crane 4

GEOMETRIC CONFIGURATION - 3000 SERIES CRANE 5

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NOTES

[illegible]



3000 SERIES CRANE SPECIFICATIONS

GENERAL

*CRANE RATING (ANSI B30.22)	3015 CRANE 30,000 ft-lbs
*MAXIMUM CRANE RATING	30,150 ft-lbs
HORIZONTAL REACH -from centerline of rotation	15'-0"
HYDRAULIC EXTENSION	36"
VERTICAL REACH -from mounting surface	20'-7"
VERTICAL REACH -from ground / 34" frame ht.	23'-5"
CRANE WEIGHT	1825 lbs
OUTRIGGER SPAN	10'-5"
OUTRIGGER PADS	10" x 10"
CRANE STORAGE HEIGHT -from mounting surface	6'-2"
CRANE STORAGE HEIGHT -from ground / 34" frame ht.	9'-0"
**MOUNTING SPACE REQUIRED	23-1/2"
ROTATIONAL TORQUE	4920 ft-lbs
OPTIMUM PUMP CAPACITY	5 GPM
SYSTEM OPERATING PRESSURE	2700 PSI
OIL RESERVOIR CAPACITY	10 gallons
HOOK APPROACH - HORIZONTAL -from centerline of rotation	34"
HOOK APPROACH - VERTICAL -from mounting surface	5'-10"

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

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

** Allow an additional 2" between the cab and crane base for swing clearance.

PERFORMANCE CHARACTERISTICS

ROTATION:	400°	35 seconds
INNER BOOM ELEVATION:	-45° to +75°	13 seconds
OUTER BOOM ARTICULATION:	139°	14 seconds
EXTENSION:	36"	8 seconds
OUTRIGGER STROKE:	28-3/4"	5 seconds each

POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 10 horsepower.

CYLINDER HOLDING VALVES

The holding sides of all standard cylinders are equipped with integral-mounted holding or counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The inner cylinders share a single, common holding valve block. This block contains double counter-balance valves. The outer boom cylinder has double counter-balance valves. The extension cylinder has a single holding valve on the base end of the cylinder. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing with external worm gear, powered by a high torque hydraulic motor through a self-locking worm. Total gear reduction is 73:1.

HYDRAULIC SYSTEM

The hydraulic system is an open centered, full pressure system, requiring 5 GPM optimum oil flow, at 2700 PSI. System includes separate oil reservoir with built-in suction line strainer (except for the stationary mount version), appropriate control valve and return filter.

CONTROL SYSTEM OPTIONS

WIRELESS REMOTE:

A six spool, proportional stack-type solenoid operated control valve with a wireless remote hand held transmitter with proportional trigger control.

DUAL SIDE MANUAL GROUND CONTROLS:

A six spool, stack-type control valve with dual operational handles located at both sides of the crane for convenient operation.

ON-OFF HARDWIRE REMOTE:

A six spool, stack-type solenoid operated control valve with a 30' (9.14m) hardwire pedant control.

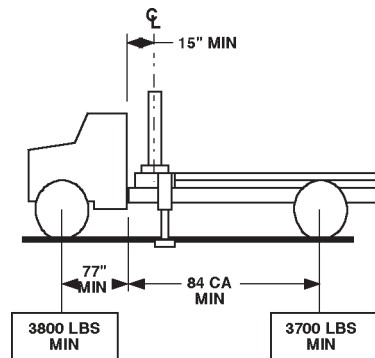
STATIONARY/CORNER MOUNT, PROPORTIONAL REMOTE HARDWIRE CONTROL APPLICATION:

A four spool, proportional stack-type solenoid operated control valve with a 30' (9.14m) hardwire pendant with proportional trigger control.

MINIMUM CHASSIS SPECIFICATIONS - For Standard 3000 Series Crane

Crane Mount	Behind Cab
Crane Working Area	360°
Chassis Style	Conventional Cab
Front Axle Rating (GAWR)	5000 lbs
Rear Axle Rating (GAWR)	Single Axle - 9500 lbs
Wheelbase	161"
Cab-to-axle	84"
Outrigger Width Required	10'-5"
RBM	360,000 in-lbs
Frame Section Modulus	10 cubic inches
Frame Yield Strength	36000 PSI
Minimum Finished Unit Weight To Maintain Vehicle Stability	
Front Axle	* 3800 lbs
Rear Axle	* 3700 lbs
Total Finished Unit Wt.	7500 lbs

FIGURE A.
360° WORKING AREA



* Allows lifting full capacity load in a 360° arc when crane is installed immediately behind the cab. Great care should be taken when swinging the load from rear of vehicle to front of vehicle since the front axle springs will compress, thus affecting the levelness of the vehicle.

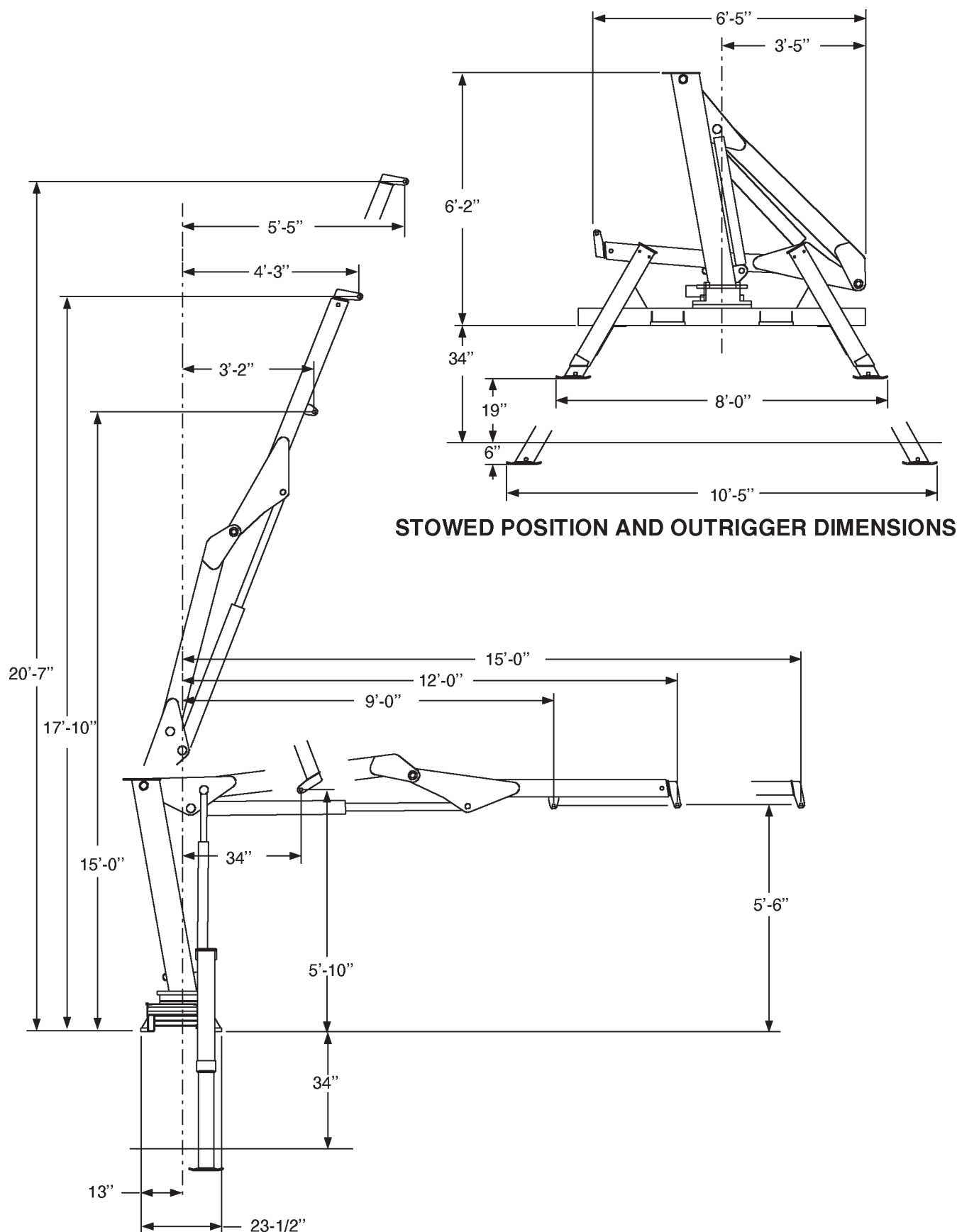
NOTES:

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

4. All chassis and crane combinations must be stability tested to ensure stability per ANSI B30.22.

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

GEOMETRIC CONFIGURATION - 3000 SERIES CRANE



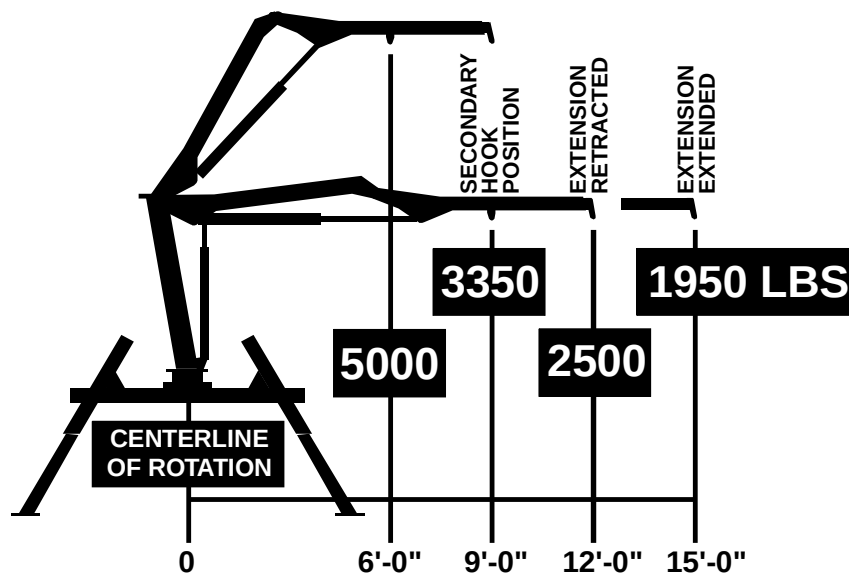
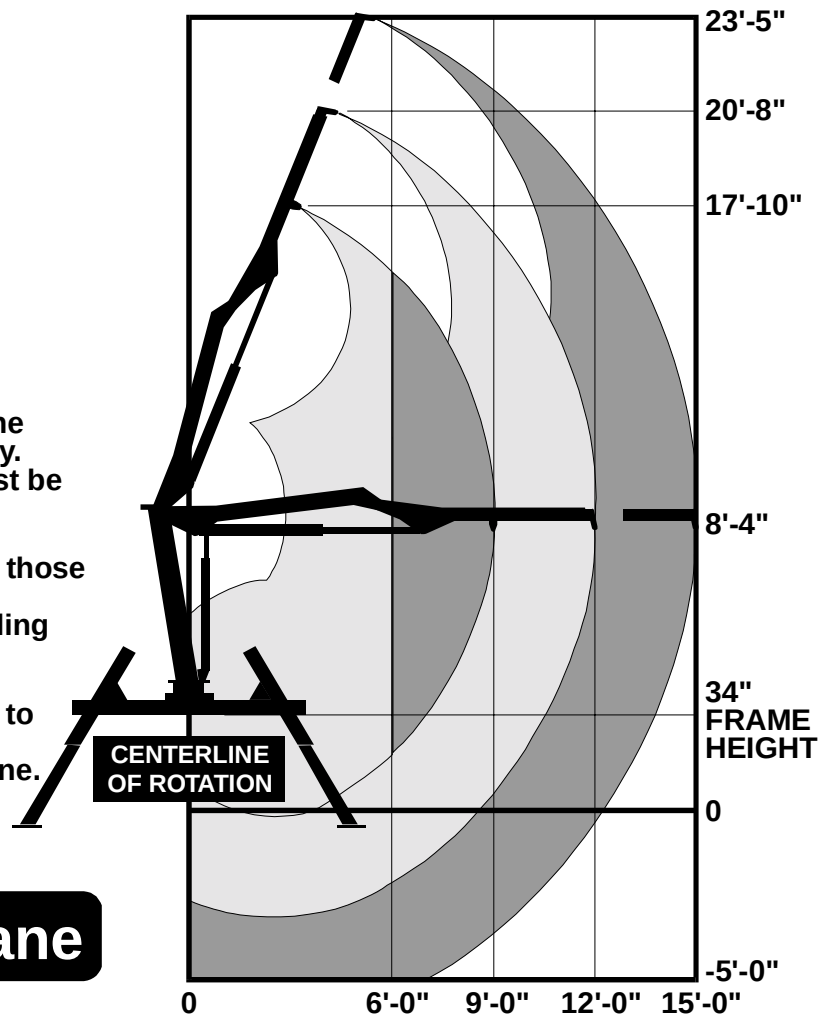
IOWA MOLD TOOLING CO., INC. • BOX 189 • GARNER • IA • 50438 • 641-923-3711
Capacities through geometric range are limited to those shown in horizontal position.

IMT

3000 Series Crane

- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown. Maximum 2500 LBS for 1-part line.

Model 3015 Crane



SECTION 1A. SPECIFICATIONS-445 CRANE

GENERAL 3

PERFORMANCE CHARACTERISTICS 4

POWER SOURCE..... 4

CYLINDER HOLDING VALVES 4

ROTATION SYSTEM 4

HYDRAULIC SYSTEM 4

CONTROL SYSTEM OPTIONS..... 4

SELECTED WEIGHT OF ANCILLARY EQUIPMENT 4

GEOMETRIC CONFIGURATION - MODEL 445 CRANE 5

CAPACITY CHART - MODEL 445 CRANE..... 6

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.



MODEL 445 CRANE SPECIFICATIONS

GENERAL

CRANE RATING	4 ton-meters
HORIZONTAL REACH from centerline of rotation	4.57m
HYDRAULIC EXTENSION	91cm
VERTICAL REACH from mounting surface	6.28m
VERTICAL REACH from ground / 86cm frame ht.	7.14m
**BASE CRANE WEIGHT	723 kg
OUTRIGGER SPAN	3.17m
OUTRIGGER PADS	25 x 25cm
CRANE STORAGE HEIGHT from mounting surface	1.88m
CRANE STORAGE HEIGHT from ground / 86cm frame ht.	2.74m
*MOUNTING SPACE REQUIRED	60cm
ROTATIONAL TORQUE	680 kg-m
OPTIMUM PUMP CAPACITY	15 liters/min
SYSTEM OPERATING PRESSURE	178 bar
OIL RESERVOIR CAPACITY	38 liters
HOOK APPROACH - HORIZONTAL from centerline of rotation	86cm
HOOK APPROACH - VERTICAL from mounting surface	1.78m
DESIGN FACTOR - pins & hydraulics	4/1

* Allow an additional 5cm between the cab and crane base for swing clearance.

** Without outriggers, hydraulic oil reservoir and mounting accessories.

PERFORMANCE CHARACTERISTICS

ROTATION:	400°/6.98 rad	35 seconds
INNER BOOM ELEVATION:	-.79 to +1.31 rad	13 seconds
OUTER BOOM ARTICULATION:	2.48 rad	14 seconds
EXTENSION:	91cm	8 seconds
OUTRIGGER STROKE:	73cm	5 seconds

POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 9 horsepower.

CYLINDER HOLDING VALVES

The holding sides of all standard cylinders are equipped with integral-mounted holding or counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The inner cylinders share a single, common holding valve block. This block contains double counter-balance valves. The outer boom cylinder has double counter-balance valves. The extension cylinder has a single holding valve on the base end of the cylinder. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing with external worm gear, powered by a high torque hydraulic motor through a self-locking work. Total gear reduction is 73:1.

HYDRAULIC SYSTEM

The hydraulic system is an open centered, full pressure system, requiring 15 liters/min optimum oil flow, at 186 bar. System includes separate oil reservoir with built-in suction line strainer (except for the stationary mount version), appropriate control valve and return filter.

CONTROL SYSTEM OPTIONS

WIRELESS REMOTE:

A six spool, proportional stack-type solenoid operated control valve with a wireless remote hand held transmitter with proportional trigger control.

DUAL SIDE MANUAL GROUND CONTROLS:

A six spool, stack-type control valve with dual operational handles located at both sides of the crane for convenient operation.

ON-OFF HARDWIRE REMOTE:

A six spool, stack-type solenoid operated control valve with a 30' (9.14m) hardwire pedant control.

STATIONARY/CORNER MOUNT, PROPORTIONAL REMOTE HARDWIRE CONTROL APPLICATION:

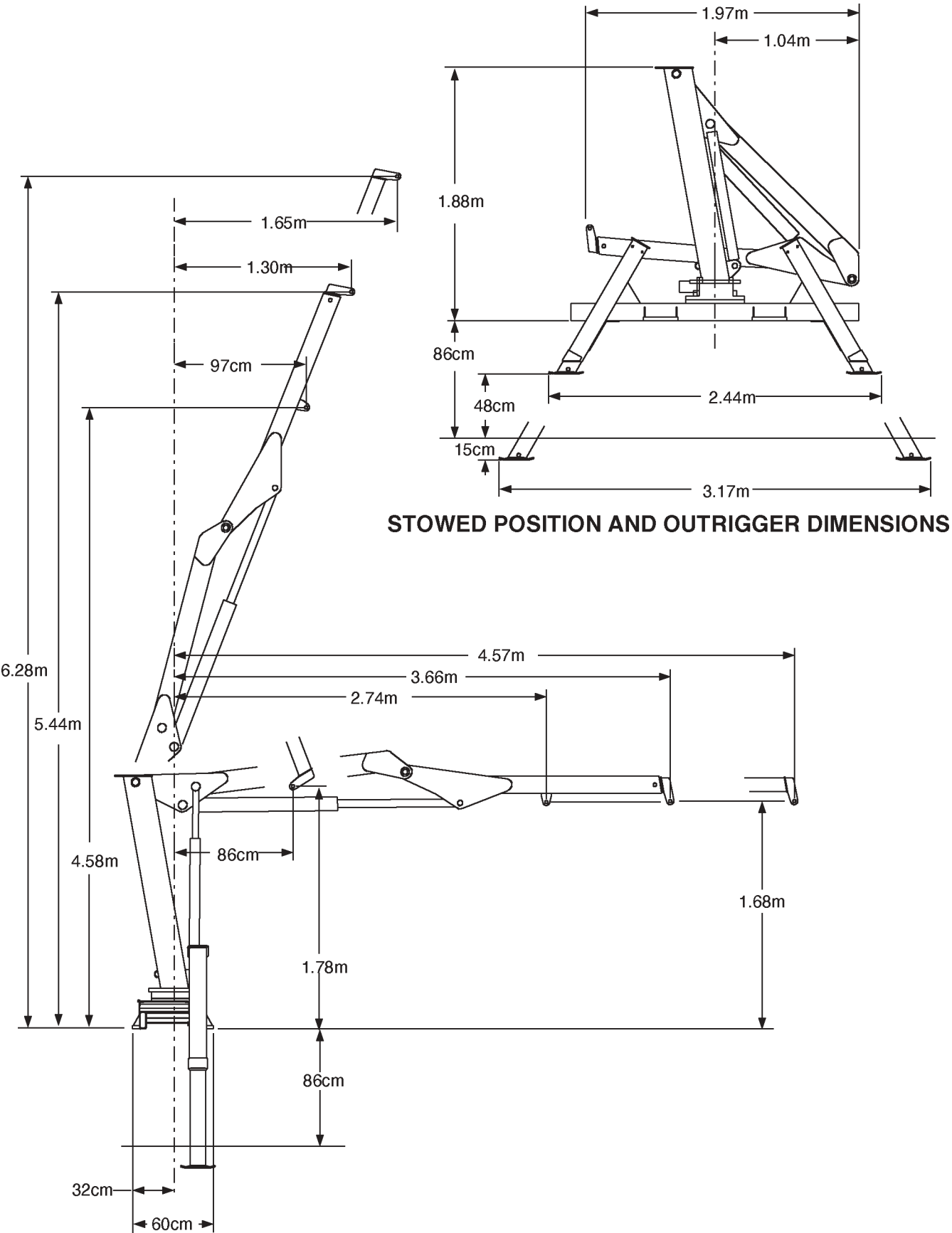
A four spool, proportional stack-type solenoid operated control valve with a 30' (9.14m) hardwire pendant with proportional trigger control.

SELECTED WEIGHT OF ANCILLARY EQUIPMENT

OUTRIGGERS	89 kg
HYDRAULIC OIL RESERVOIR	16 kg

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

GEOMETRIC CONFIGURATION - MODEL 445 CRANE



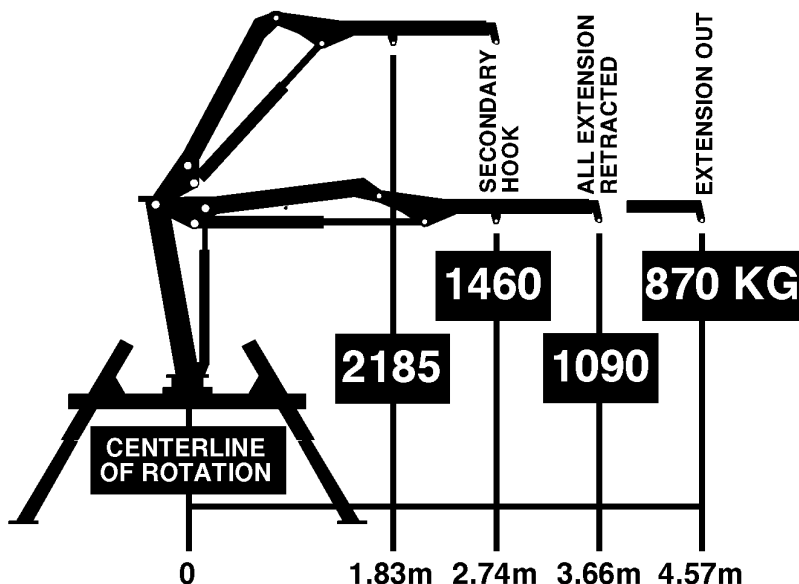
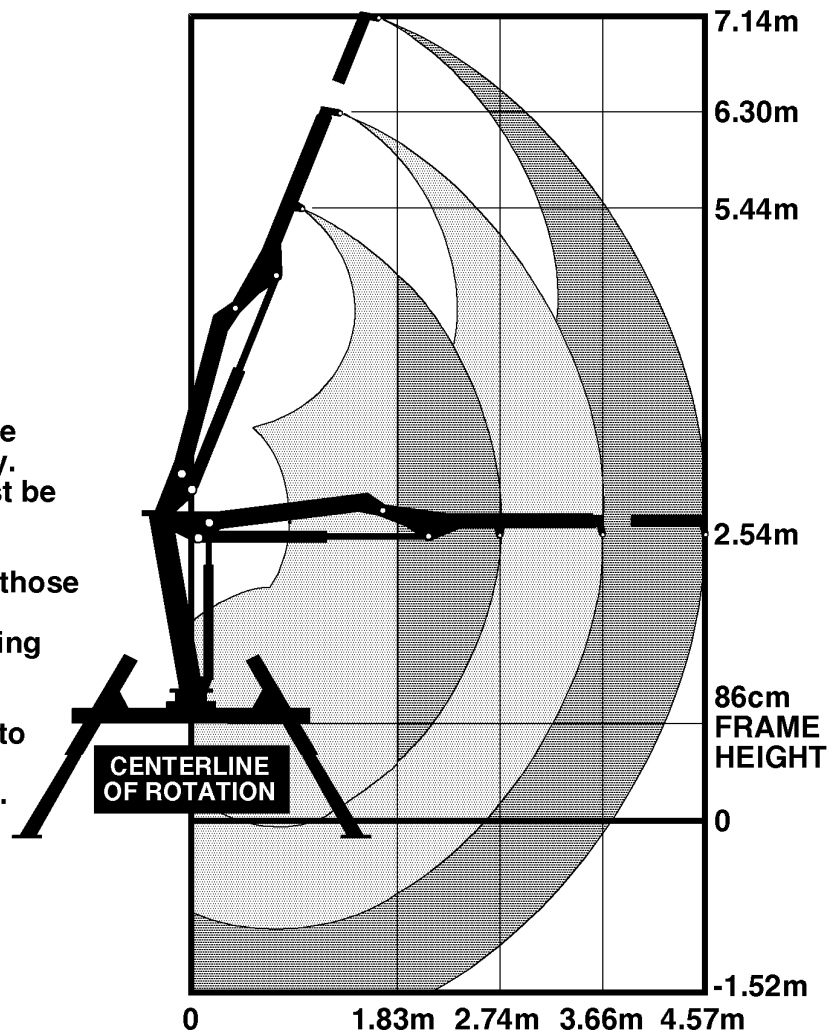
IOWA MOLD TOOLING CO., INC. ● BOX 189 ● GARNER ● IA ● 50438 ● 641-923-3711

Capacities through geometric range are limited to those shown in horizontal position.



MODEL 445

- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown. Maximum 1135 kg for 1-part line.



SECTION 2. CRANE REFERENCE

MAJOR CRANE ASSEMBLIES 3

WELDMENT PART NUMBER LOCATIONS 3

GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS 4

RECOMMENDED SPARE PARTS LIST 5

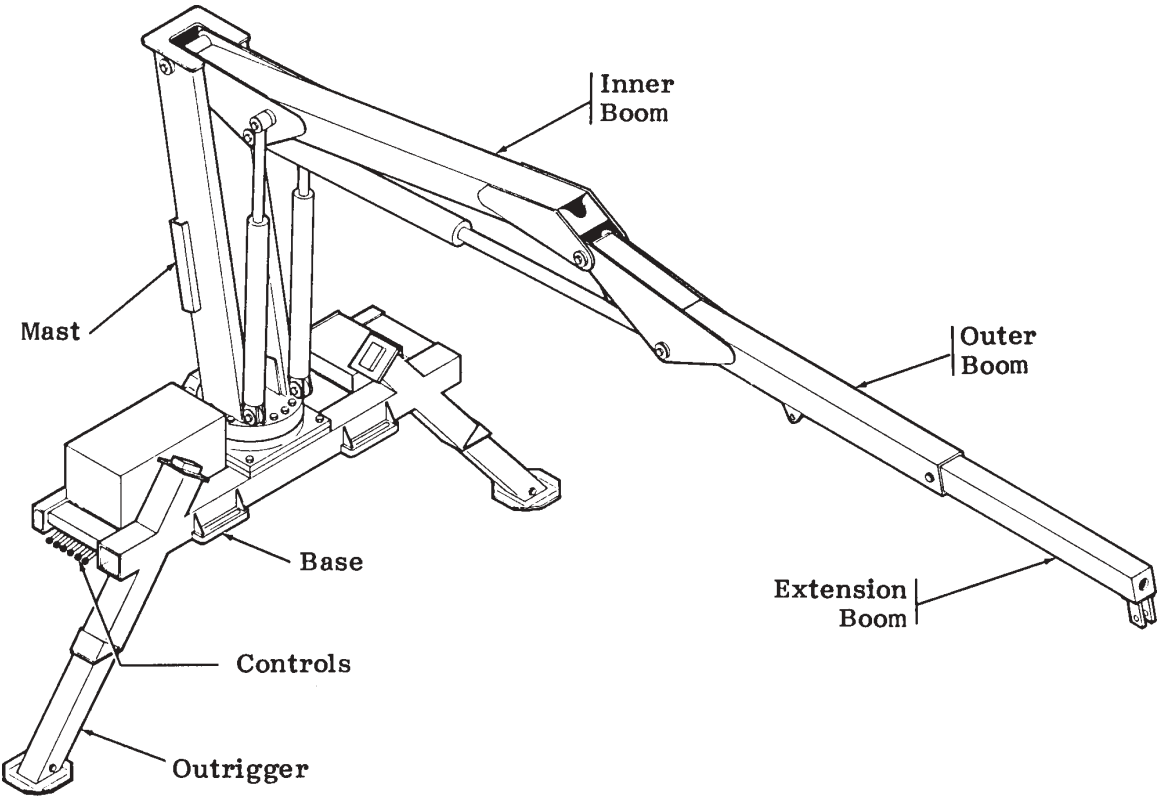
CRANE INSTALLATION 6

HYDRAULIC INSTALLATION 7

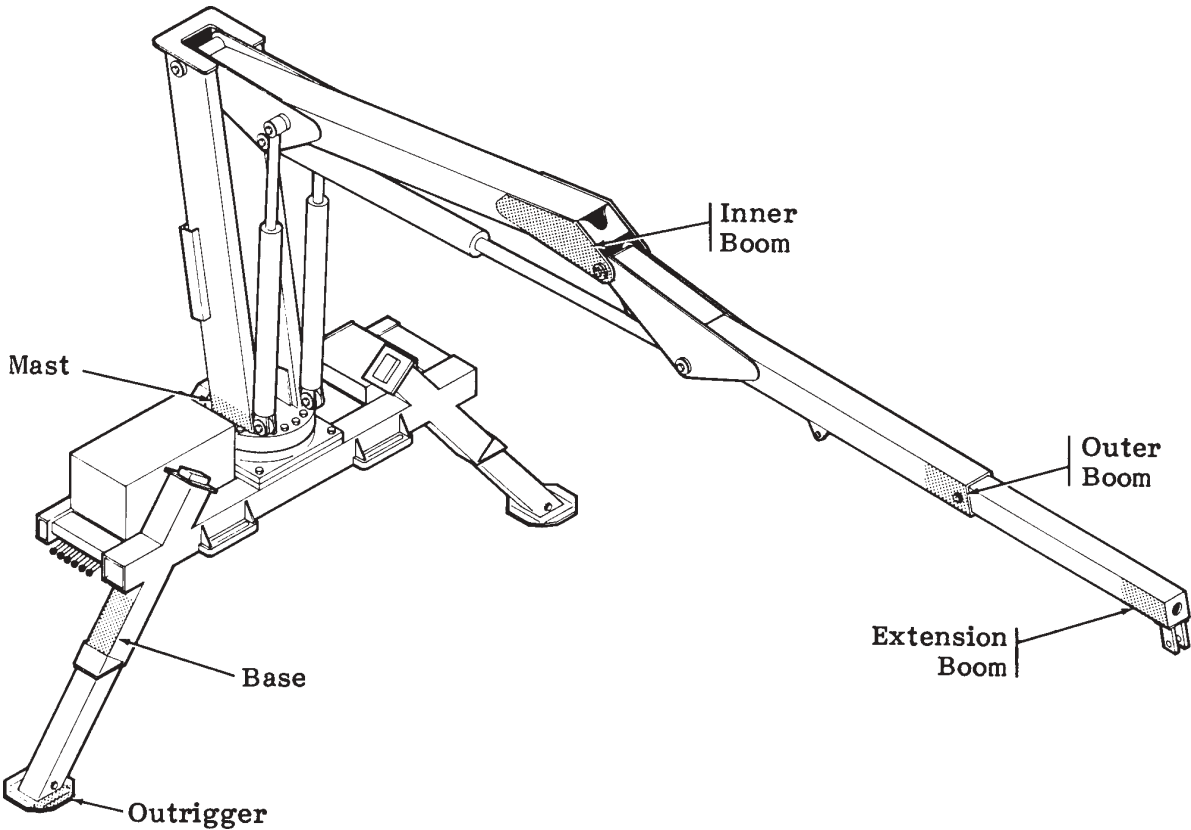
CONTROL VALVE TROUBLESHOOTING 8

NOTES

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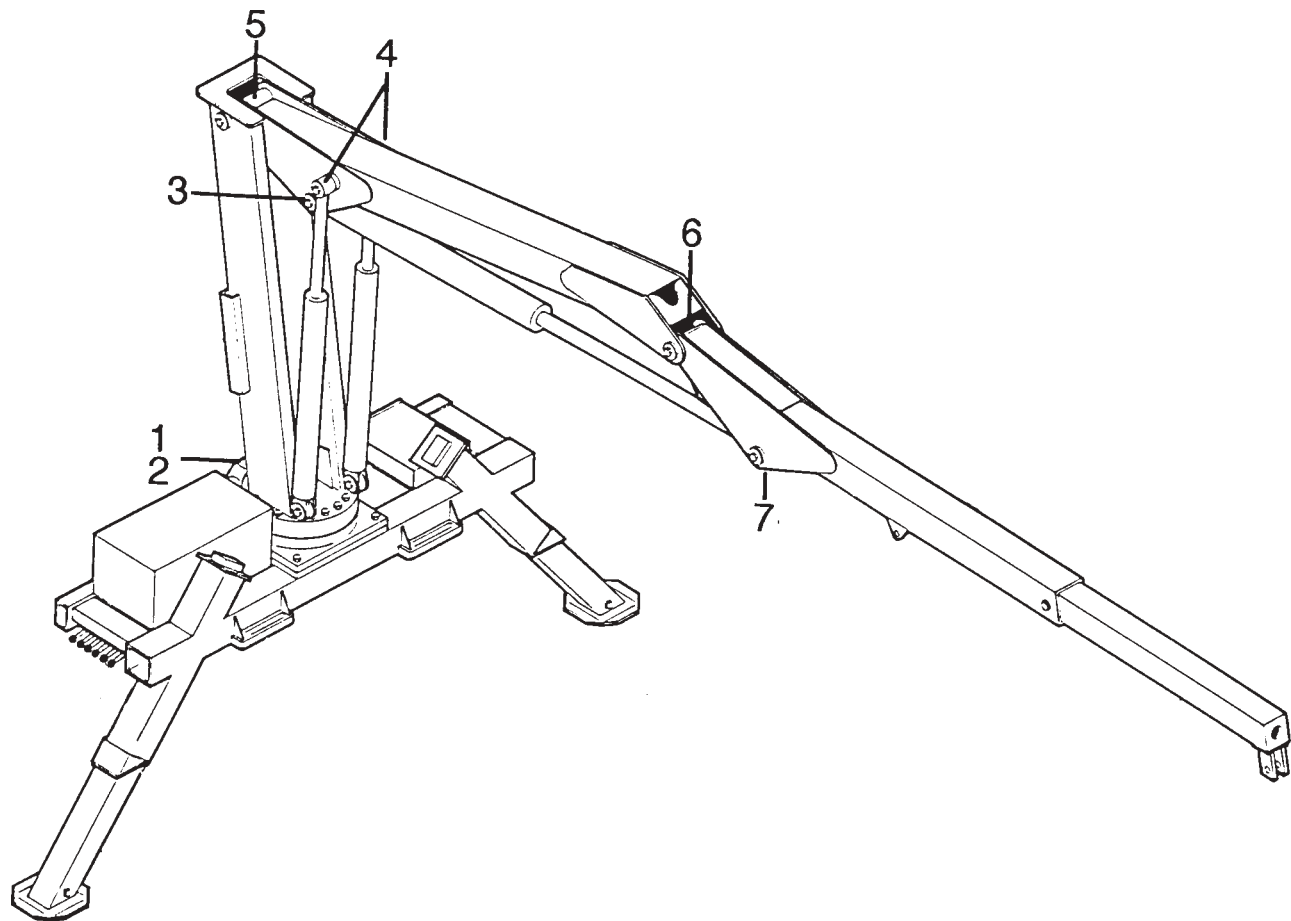


MAJOR CRANE ASSEMBLIES



WELDMENT PART NUMBER LOCATIONS

GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	WORM GEAR	SHELL ALVANIA 2EP	WEEKLY
2.	TURNTABLE/BEARING GREASE EXTENSION *ROTATE CRANE WHILE GREASING		
3.	OUTER CYLINDER BASE	OR	
4.	INNER CYLINDER RODS		
5.	MAST/INNER BOOM HINGE PIN	SHELL RETINAX "A"	
6.	INNER BOOM/OUTER BOOM HINGE PIN		
7.	OUTER 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 3000/445 CRANE FOR MANUAL: 99900915

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

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
41711423	BASE AND OUTRIGGER ASM						
	5	60030116	THRUST BEARING	2	W		
	8	70055147	BEARING	1	W		
	9	70055148	BEARING	1	W		
	10	70056397	WORM GEAR	1	C		
	32	60030097	WEAR PAD	2	W		
		89086159	MOLUB	1	P		
3B010930	OUTRIGGER CYLINDER						
	3	6H020012	HEAD	1	W		
	4	6I020075	PISTON	1	W		
	7	9B081012	SEAL KIT	2	W		
	19	73054004	HOLDING VALVE	2	C		
41707990	MAST ASM						
	2	7BF80715	BUSHING	2	W		
41717046	INNER BOOM ASM						
	3	7BF81215	BUSHING	4	W		
3B165010	INNER CYLINDER						
	3	6HD25017	HEAD	1	W		
	4	6ID25087	PISTON	1	W		
	7	7BF81015	BUSHING	4	W		
	9	9D101414	SEAL KIT	2	W		
41707992	OUTER BOOM ASM						
	3	7BF81215	BUSHING	4	W		
	7	60030138	WEAR PAD	2	W		
	8	60030140	WEAR PAD	1	W		
3B170010	OUTER CYLINDER						
	4	6ID35125	PISTON	1	W		
	3	6HD35022	HEAD	1	W		
	9	9D141820	SEAL KIT	1	W		
	21	73054304	COUNTERBALANCE VALVE	1	C		
	7	7BF81215	BUSHING	2	W		
	6	7BF81015	BUSHING	4	W		
41707993	EXTENSION BOOM ASM						
	3	60030137	WEAR PAD	1	W		
3B160010	EXTENSION CYLINDER						
	3	6HD25015	HEAD	1	W		
	4	6ID25125	PISTON	1	W		
	6	73054004	HOLDING VALVE	1	C		
	8	9D101220	SEAL KIT	1	W		
93707994	INSTALLATION KIT						
		73052000	RETURN FILTER ELEMENT	3	P		

INSTALLATION

GENERAL

This section contains specific instruction 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 Installation - Chassis Preparation in Volume 1).

CRANE INSTALLATION

To install the crane on the chassis:

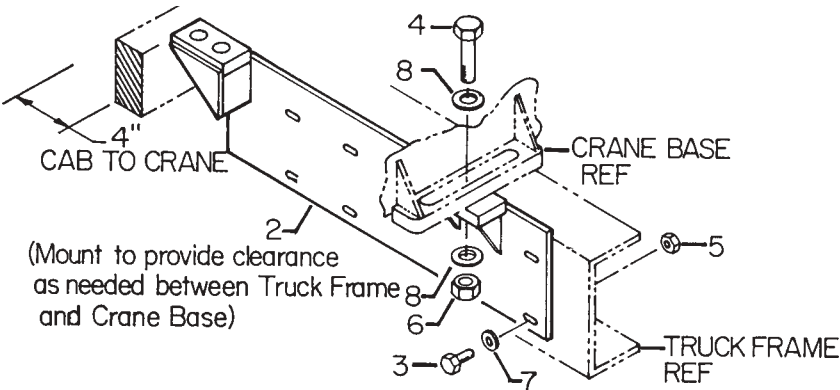
NOTE

The manually controlled with cross controls, and tethered remote version cranes are mounted with the outriggers away from the cab and toward the body. The wireless remote version is mounted with the outriggers toward the truck cab and away from the body.

1. Use a lifting device capable of lifting the weight of the crane-1825 lbs (828 kg). Use a sling or chain around the inner cylinder pin bosses on the inner boom. Secure the lifting device to prevent slippage and lift the crane. 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 - at least 2" (5cm). Check for front to rear alignment.

2. Position the shear plates under the crane base and bolt them snugly to the crane base. Clamp the shear plates to the truck frame and drill the shear plate mounting holes using the shear plate as a template. Use a 1/4" (7mm) drill for a pilot hole and then remove the shear plates. Finish drilling with a 9/16" (15mm) drill.
3. Install the shear plates on the truck chassis - bolts should be only 1/2 turn more than finger tight. Install 3/4-10 x 3-1/2" hex head bolts through crane base and shear plate mounting blocks. Use 3/4" flat washers and locknuts. Torque to 226 ft-lbs (32 kg-m).
4. Torque the 1/2-13 x 1-1/2" hex head bolts that secure the shear plates to the truck chassis at 90 ft-lbs (13 kg-m).
5. See the installation kits in the Parts section for specific part numbers.



ITEM	DESCRIPTION	QTY
2.	SHEAR PLATE	2
3.	CAP SCREW 1/2-13X1-1/2	16
4.	CAP SCREW 3/4-10X3-1/2	4
5.	NUT 1/2-13 LOCK	16
6.	NUT 3/4-10 LOCK	4
7.	WASHER 1/2 HARDENED	16
8.	WASHER 3/4 HARDENED	8

CRANE INSTALLATION

HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.:

1. Install the return-line filter on the truck frame in a position that will provide relatively easy access to the element. The filter must be located as close to the reservoir as possible. The suction line uses a 3/4" diameter hose that runs from the reservoir to the hydraulic pump. The suction filter must be lower than the reservoir and higher than the pump. The return-line filter is plumbed using 1/2" diameter hose that runs from the outlet of the cooler to the inlet of the filter.
2. Install the 3/4" diameter suction hose between the reservoir and the suction port of the pump.
3. Install the 1/2" diameter return hose between the outlet port of the cooler and the inlet port of the return-line filter. Install the 1/2" hose between the outlet port of the filter and reservoir.
4. Install the 3/8" diameter pressure hose between the outlet of the pump and the pressure port of the valve bank.

5. Fill the hydraulic reservoir to the "FULL" mark.
6. Open the gate valve at the suction line filter.
7. Open the return gate valve.
8. Start the vehicle engine and engage the PTO. Allow the system to run for about five minutes and insure that there are no obstructions or air leaks on the suction side of the pump. Check for leaks.

CAUTION

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

CONTROL VALVE TROUBLESHOOTING

GENERAL

This section describes the operating characteristics of the main control valvebank used on this model of crane. It also provides troubleshooting information which applies to this valvebank. See figure on following page for reference.

ELECTRICAL-AMP DRIVER

(For Hardwire Proportional Remote System - Stationary Mount Applications)

POWER LED

The Power LED illuminates red while power is being applied to the valve amplifier. If the LED is not illuminated, no power is being applied to the valve amplifier.

If the Power LED does not function as described, inspect input wiring and repair or replace as necessary. When input power is applied, the LED should illuminate.

PMW% LED

The PMW% LED indicates the condition of the output current flowing to the proportional valve. The LED will change colors from, red to yellow to green. The change of colors indicates the variance of current flowing to the proportional valve. Red indicates minimum current and green indicates maximum current. This represents the flow condition going from low flow (red) to maximum flow (green), thus varying the speed of crane functions.

If the LED stays red, as the speed control trigger is activated, a dead short is present in the circuit. This could be the result of a wiring problem, shorted out proportional coil, etc. Inspect the wiring and replace the proportional coil, if required.

MIN POTENTIOMETER

The Min adjustment pot will be used to set the minimum amount of movement of an individual function at the valvebank when the corresponding function switch at the handset is depressed. To adjust, set engine at high speed control setting. Depress the "Rotation" function switch at the handset. Adjust the Min pot at the AMP driver card clockwise until crane begins to rotate or counterclockwise until motion begins to stop. No other electrical adjustments are required to properly operate the crane.

HYDRAULICS-VALVEBANK

(For Wireless Remote and Proportional Stationary Mount Versions Only)

RELIEF VALVE

The relief valve limits the maximum system pressure. Pressure limits the amount of torque or force an actuator will see. This pressure is preset to 2700 psi at 5 gpm. If the relief valve should fail, it would likely stick open. This would prevent system pressure from developing and cause a lack of torque/force at the actuator. The relief valve can be changed easily by screwing it out and replacing with a new one.

PROPORTIONAL VALVE

The proportional valve varies the oil flow to the individual crane functions. Doing so dictates the speed of the crane functions. As the electrical current increases to the valve, by using the trigger on the control handle, more oil is ported downstream to the crane function. If the valve coil burns out, the operator would be unable to vary the flow to the crane functions. If the valve spool becomes stuck, the operator would be unable to vary the downstream flow. If speed control is the problem, it is likely an indication of a proportional valve problem. It is necessary to verify that current is flowing to the coil correctly, and that it is not an electrical problem. The proportional valve can also be operated manually for test purposes. The valve stem can be screwed out manually to port oil downstream. Doing so will manually position the valve spool and hold it in the manually commanded position.

DIRECTIONAL VALVES

The directional valves (4) control the direction of the crane functions. When one of the solenoids is energized, it shifts the valve spool. This allows oil to flow out one of the valve ports. If a function does not work, a directional valve may be to blame. These valves have a standard manual override. You may manually shift the valve by pushing the pin, located in the middle of the solenoid.

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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. For optional equipment such as winches and remote controls, refer to the appropriate service manual.

WARNING

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

CRANE IDENTIFICATION

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

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

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

SERIAL NUMBER PLACARD

CYLINDER IDENTIFICATION

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

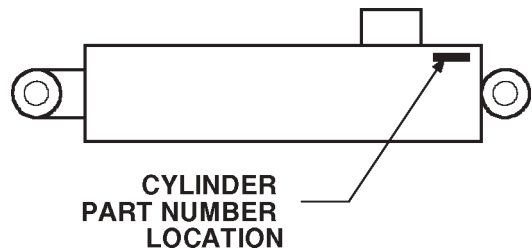
WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and outrigger 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 figure below.

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 & OUTRIGGER ASM (41711423)

1.	51707512	BASE	1REF
2.	52713754	TURNTABLE GUARD RH	1REF
3.	52713755	TURNTABLE GUARD LH	1REF
4.	60030086	TUBING 1/4 X 6	1REF
5.	60030116	THRUST BEARING	2REF
6.	60107543	WORM SUPPORT	1REF
7.	60111627	WORM COVER	1REF
8.	70055147	ROLLER BEARING	1REF
9.	70055148	ROLLER BEARING	1REF
10.	70056397	WORM GEAR	1REF
11.	71056395	TURNTABLE BEARING	1REF
12.	71143165	ROTATION SLIDE	1REF
13.	72053301	COUPLING 1/8NPT	1REF
14.	72063050	WASHER 5/16 LOCK	2REF
15.	72053508	ZERK 1/8NPT	2REF
16.	72060000	CAP SCR 1/4-20X1/2 HHGR5	4REF
17.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2REF
18.	72062251	LOCKNUT 7/8-9	1REF
19.	72062162	NUT 9/16-12 HEX GR8	23REF
20.	72063161	WASHER 1-1/8 HARD	3REF
21.	72063049	WASHER 1/4 LOCK	4REF
22.	72063117	WASHER 9/16 HARD	23REF
23.	72531731	ADAPTER 1/8MPT 1/4TUBE	1REF
24.	72531746	ELBOW 1/8MPT 1/4TUBE 90°	1REF
25.	72601510	CAPSCR 9/16-12X3-3/4HHGR8	23REF

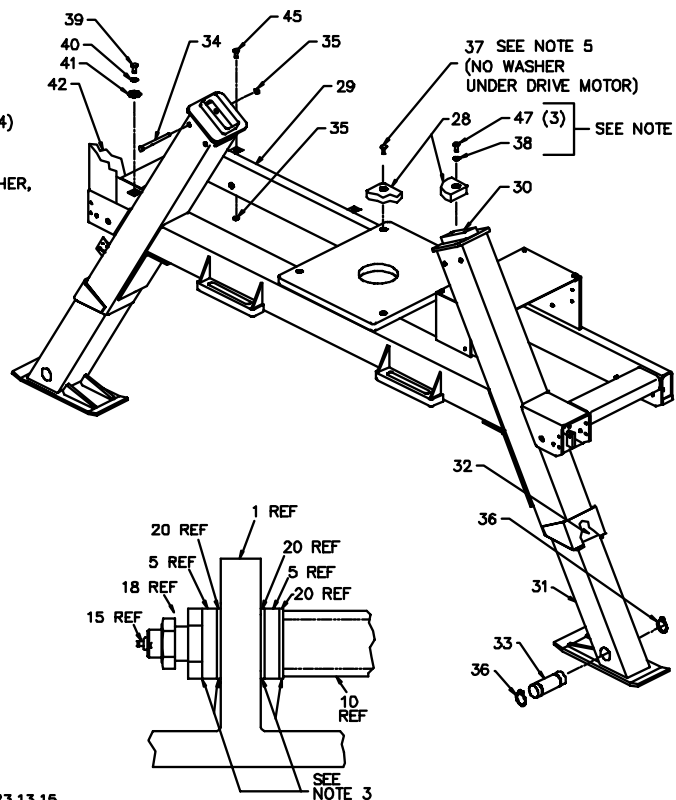
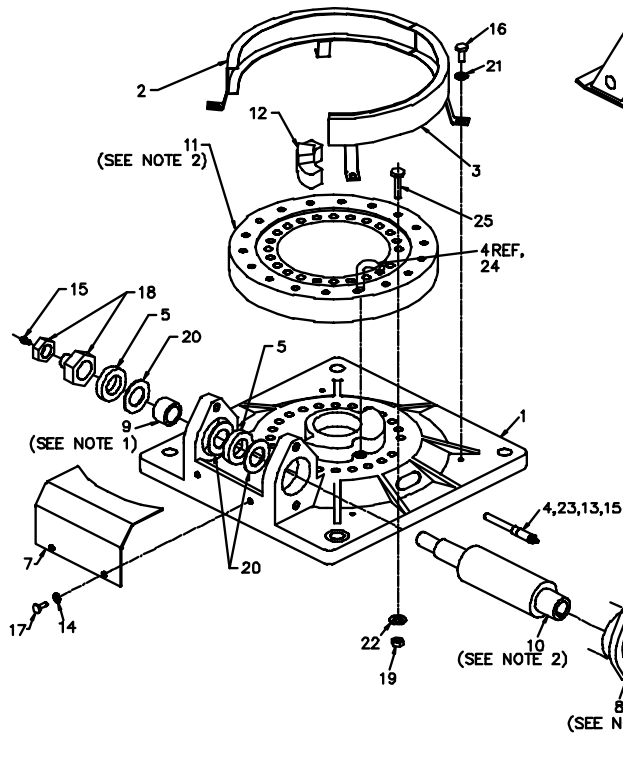
26.	73051482	MOTOR	1REF
27.	72060796	CAP SCR 1/2-13X1-3/4 SH	2REF
28.	41707846	BASE ASM (INCL:1-27)	1
29.	52711414	BASE WLDMT	1
30.	3B175010	OUTRIGGER CYLINDER	2
31.	52714625	OUTRIGGER LEG	2
32.	60030097	WEAR PAD	2
33.	60106968	PIN	2
34.	72060059	CAP SCR 3/8-16X5-1/2 HHGR5	4
35.	72062103	NUT 3/8-16 LOCK	6
36.	72066125	RETAINING RING 1" HD EXT	4
37.	72060185	CAP SCR 3/4-10X2 HHGR5	1
38.	72063116	WASHER 3/4 HARD FLAT	3
39.	72060044	CAP SCR 3/8-16X3/4 HHGR5	2
40.	72063051	WASHER 3/8 LOCK	2
41.	72063003	WASHER 3/8 WRT	6
42.	70732577	RESERVOIR ASM - 10 GALLON	1
43.	72531427	ELBOW 3/4MPT #12MJIC 90°	1
45.	72060047	CAP SCR 3/8-16X1-1/4 HHGR5	2
47.	72601625	CAP SCR 3/4-10X2-1/4 HHGR5	3

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.

NOTES:

1. BEARINGS MUST BE PACKED WITH GREASE AT ASSEMBLY.
2. APPLY "MOLUB-ALLOY 936" TO TURNTABLE BEARING AND WORM TEETH AT ASSEMBLY.
3. INITIAL LUBRICATION OF BOTH SIDES OF THRUST BEARINGS (ITEM 4) IS REQUIRED AT TIME OF INSTALLATION. SEE NOTE 4 FOR APPROVED LUBRICATIONS.
4. APPROVED LUBRICANTS ARE "SLIP PLATE", "LUBRI-PLATE" OR OTHER, LUBRICANTS CONTAINING GRAPHITE OR MSO .2
5. INSTALL ITEM #37 IN THIS LOCATION ONLY, UNDER DRIVE MOTOR. INSTALL ITEMS #47 & #38 IN THE OTHER THREE LOCATIONS. APPLY A SERVICABLE THREADLOCK TO ALL FOUR CONNECTIONS.

**NOTE:**

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS 3B170010, AND COUNTERBALANCE VALVE 73540091.

BASE ASM-STATIONARY MOUNT (41707846)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51707512	BASE	1
2.	52713754	TURNTABLE GUARD-RH	1
3.	52713755	TURNTABLE GUARD-LH	1
4.	60030086	TUBING 1/4 X 6	1
5.	60030116	THRUST BEARING	2
6.	60107543	WORM SUPPORT PLATE	1
7.	60111627	WORM COVER	1
8.	70055147	ROLLER BEARING	1
9.	70055148	ROLLER BEARING	1
10.	70056397	WORM GEAR	1
11.	71056395	TURNTABLE GEAR-BEARING	1
12.	71143165	ROTATION STOP	1
13.	72053301	COUPLING 1/8 NPT	1
14.	72063050	WASHER 5/16 LOCK	2
15.	72053508	GREASE ZERK, 1/8 NPT	2
16.	72060000	CAP SCR 1/4-20X1/2 HHGR5	4
17.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2
18.	72062251	LOCKNUT 7/8-9 DRAKE	1
19.	72062162	NUT 9/16-12 HEX GR8	23
20.	72063161	WASHER 1-1/8 HARDENED	3
21.	72063049	WASHER 1/4 LOCK	4

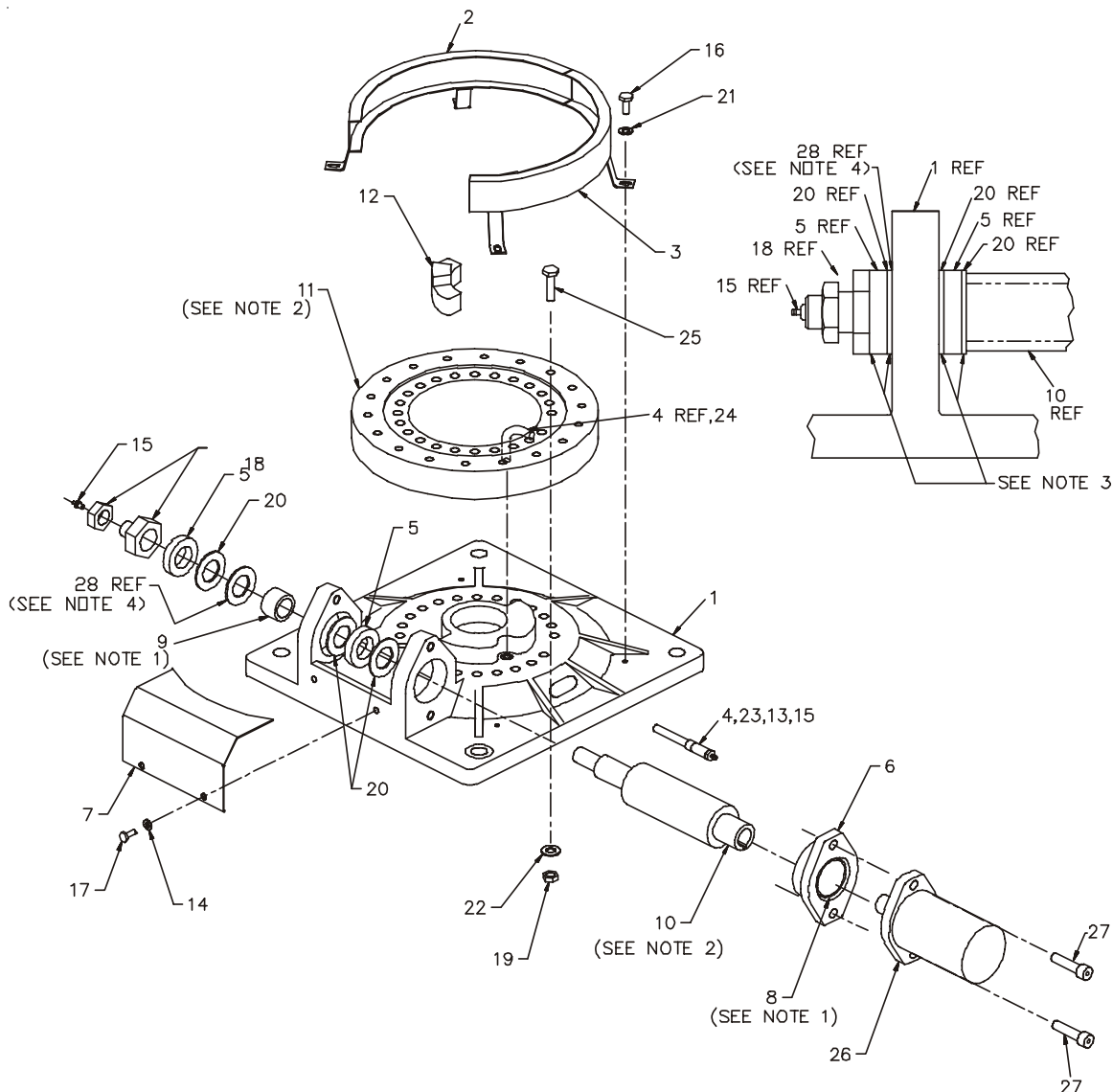
22.	72063117	WASHER 9/16 GR8	23
23.	72531731	ADAPTER, 1/8NPT 1/4TUBE	1
24.	72531746	ADAPTER 1/8NPT 1/4TUBE 90°	1
25.	72601510	CAP SCR 9/16-12X3-3/4 GR8	23
26.	73051482	HYDRAULIC MOTOR	1
27.	72060796	CAP SCR 1/2-13X2 SH	2
28.	60121433	SHIM 2.25X1.81X16GA	REF

WARNING

Any time 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 serious injury or death.

NOTE

1. Apply Molub-Alloy 936 to turntable bearing and worm teeth at assembly.
2. Bearings must be packed with grease at assembly.
3. Initial lubrication of both sides of thrust bearings is required at the time of assembly.
4. Approved lubricants are Slip Plate, Lubri-Plate, or other lubricants containing graphite or MSO₂.
5. Shim as required if needed.



OUTRIGGER CYLINDER (3B175010)

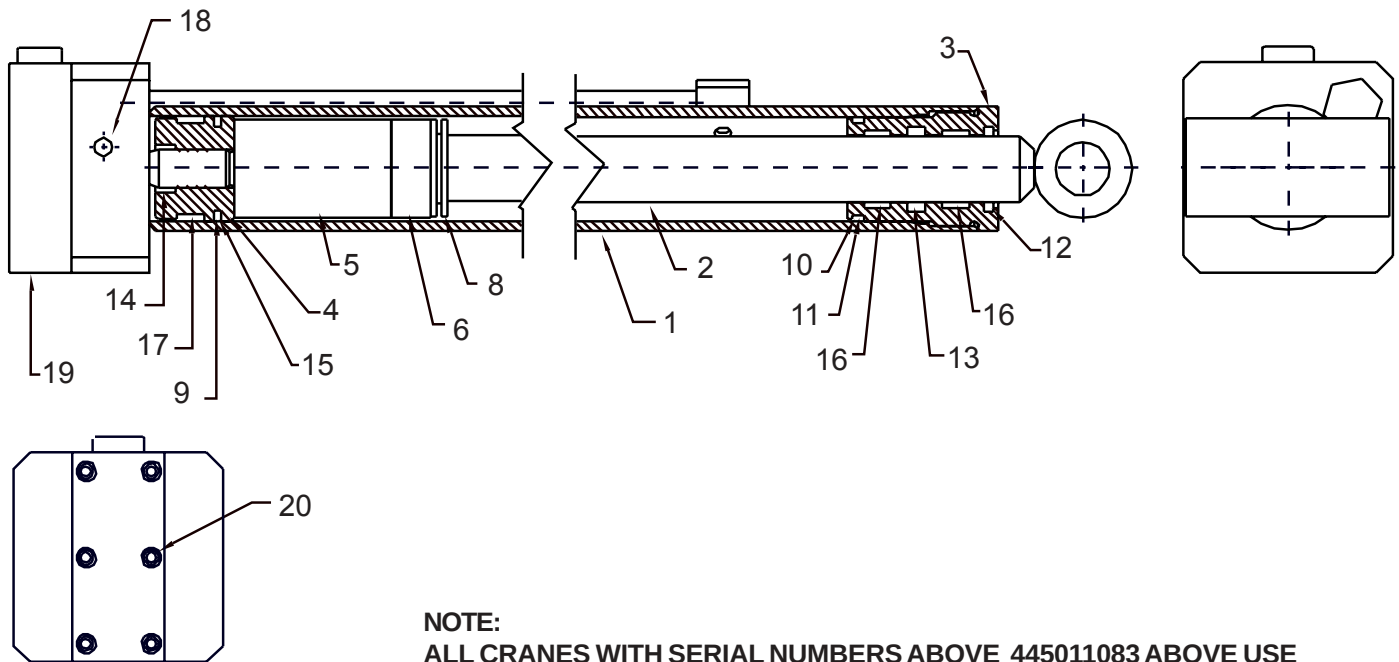
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B175010	CASEASM	1
2.	4G010930	RODASM	1
3.	6HD20012	HEAD	1
4.	6ID20075	PISTON	1
5.	6C300012	STOP TUBE	1
6.	6C075012	STOP TUBE	1
7.	9D081012	SEAL KIT (INCL. 8-17)	1
8.	6A025012	WAFER LOCK (PART OF 7)	1REF
9.	7Q072129	O-RING (PART OF 7)	1REF
10.	7Q072224	O-RING (PART OF 7)	1REF
11.	7Q10P224	BACKUP RING (PART OF 7)	1REF
12.	7R14P012	ROD WIPER (PART OF 7)	1REF
13.	7R546012	U-CUP LOADED (PART OF 7)	1REF
14.	7T61N075	LOCK RING (PART OF 7)	1REF
15.	7T66P020	PISTON SEAL (PART OF 7)	1REF
16.	7T2NX415	WEAR RING (PART OF 7)	2REF
17.	7T2N4020	WEAR RING (PART OF 7)	1REF
18.	7PNPXT02	PLUB 1/8 (PART OF 19)	3REF
19.	73054004	CHECK VALVE (INCL. 18)	1
20.	72060708	CAP SCR 1/4-20 X 1.25	6

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.

**NOTE:**

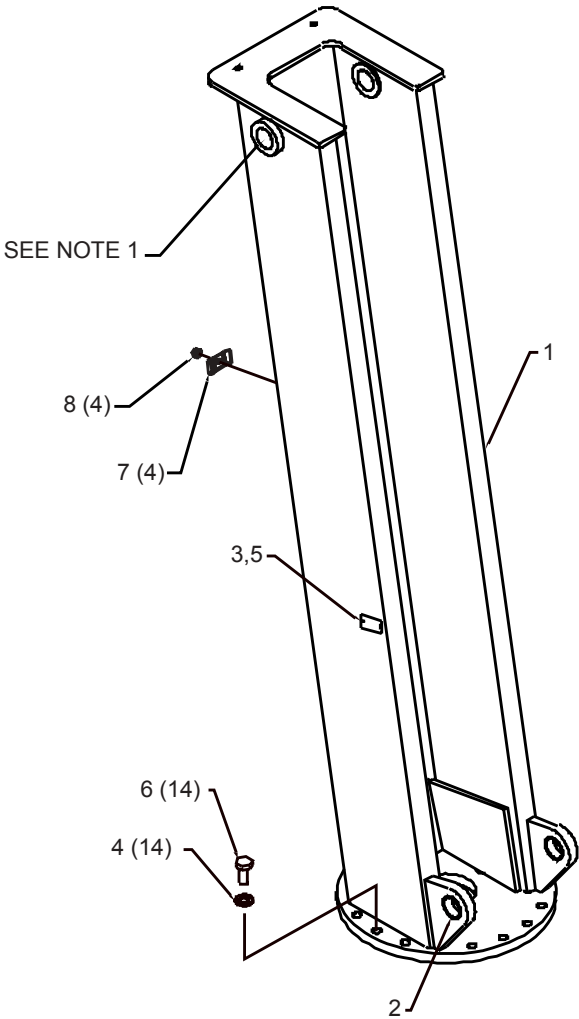
ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

MAST ASM (41707990)

ITEM	PART	DESCRIPTION	QTY
1.	52707985	MAST (INCL: 2)	1
2.	7BF80715	BUSHING (PART OF 1)	2REF
3.	70029119	SERIAL NUMBER PLACARD	1
4.	72063117	WASHER 9/16 FLAT GR8	14
5.	72066340	RIVET 1/8	2
6.	72601144	CAP SCR 9/16-12X2 HHGR8	14
7.	60103278	HOSE CLAMP	4
8.	72062104	NUT 1/4-20 HEX NYLOC ZINC	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.



NOTES:
1. APPLY NEVER-SEEZ TO COLLAR ID.

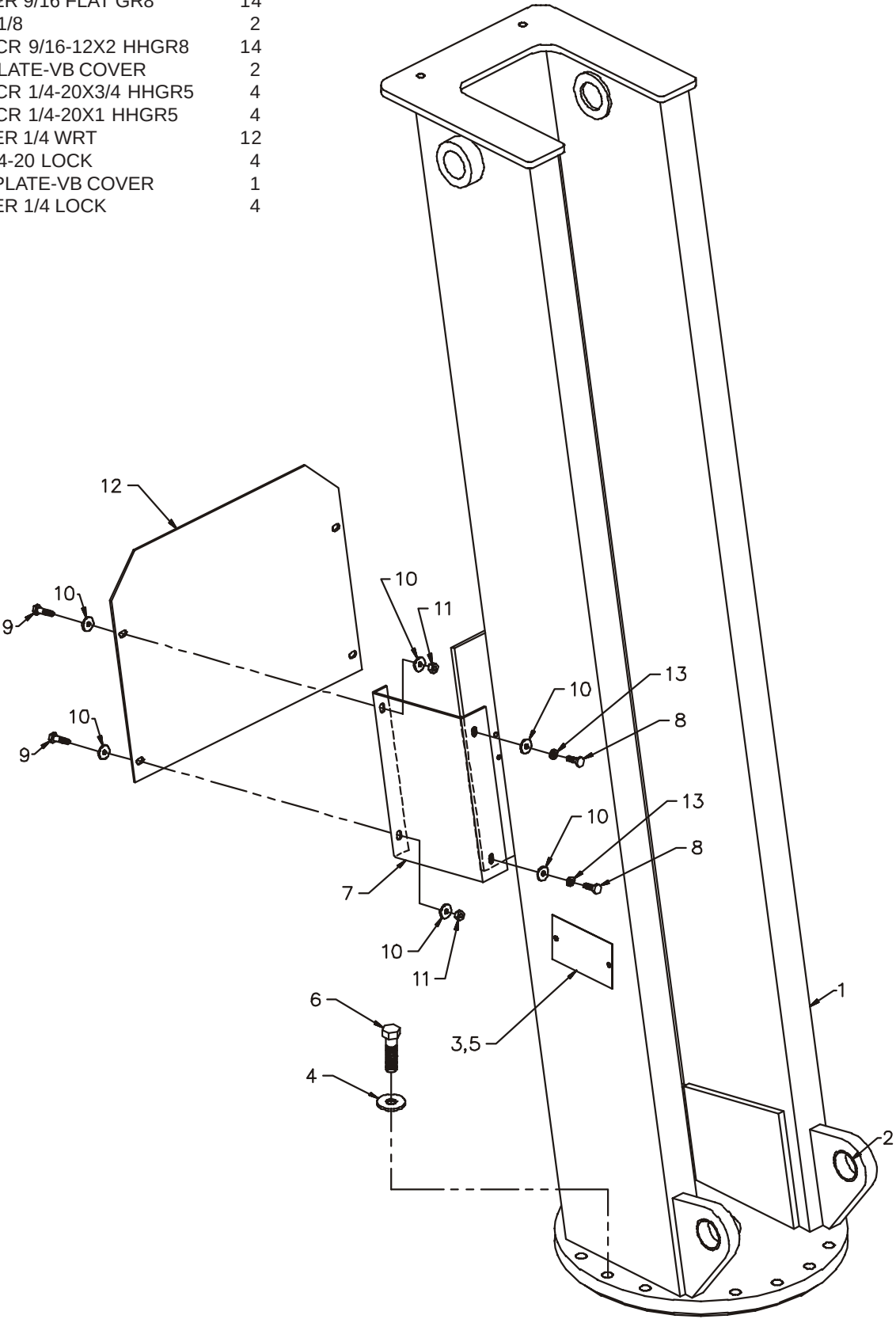
NOTE:
ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

MAST ASM-STATIONARY MOUNT
(41712411)

ITEM	PART	DESCRIPTION	QTY
1.	52712400	MAST (INCL: 2)	1
2.	7BF80715	BUSHING (PART OF 1)	2REF
3.	70029119	SERIAL NUMBER PLACARD	1
4.	72063117	WASHER 9/16 FLAT GR8	14
5.	72066340	RIVET 1/8	2
6.	72601144	CAP SCR 9/16-12X2 HHGR8	14
7.	60118276	SIDE PLATE-VB COVER	2
8.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
9.	72060004	CAP SCR 1/4-20X1 HHGR5	4
10.	72063001	WASHER 1/4 WRT	12
11.	72062104	NUT 1/4-20 LOCK	4
12.	60118282	BACK PLATE-VB COVER	1
13.	72063049	WASHER 1/4 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.



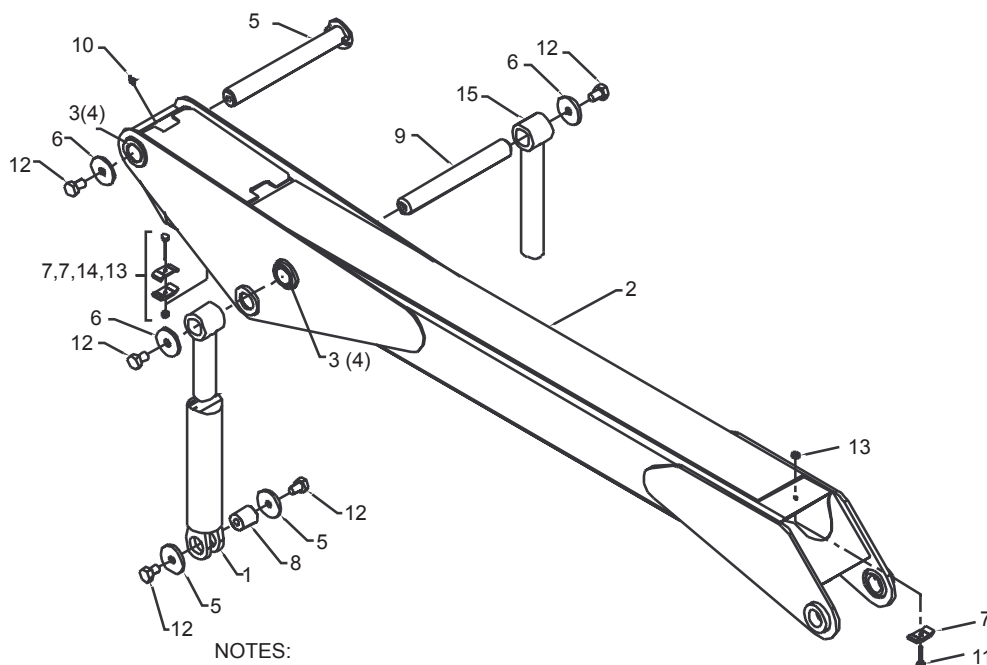
INNER BOOM ASM (41717046)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B165010	CYLINDER	2
2.	52708006	BOOM (INCL. 3)	1
3.	7BF81215	BUSHING (PART OF 2)	8REF
5.	52708016	PIN	1
6.	60106333	RETAINER PLATE PIN	7
7.	60103278	HOSE CLAMP	3
8.	60111934	PIN	2
9.	60111935	PIN	1
10.	72053508	GREASE ZERK 1/8	1
11.	72060006	CAP SCREW 1/4-20X1.5	1
12.	72060147	CAP SCREW 5/8-11X1.00	7
13.	72062104	NUT 1/4-20 HEX NYLOC ZINC	2
14.	72060008	CAP SCREW 1/4-20X2.00	1

NOTE

Apply Never-Seez to collar i.d. and pin at pin cap, not to exceed collar-width.

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

**NOTES:**

1. APPLY NEVER-SEEZ TO COLLAR I.D.
2. APPLY NEVER-SEEZ TO PIN AT PIN CAP. DO NOT EXCEED THE WIDTH OF THE COLLAR.
3. IF REQUIRED, SHIM PIN RETAINING PLATES FLUSH (-0/+0.06) WITH OUTSIDE OF COLLAR USING .75 FLAT WASHERS AS REQUIRED.
4. CLEAN/PRIME ALL PIN RETAINING PLATE CAP SCREWS. APPLY A SERVICEABLE THREAD LOCK TO A MINIMUM OF THREE THREADS. TORQUE PIN RETAINING PLATE CAP SCREWS AS FOLLOWS:
 3/4-10 CAP SCREW (GR5 PLATED) - 200 FT-LB
 5/8-11 CAP SCREW (GR5 PLATED) - 115 FT-LB

NOTE:

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS 3B170010, AND COUNTERBALANCE VALVE 73540091.

INNER CYLINDER (3B092880)

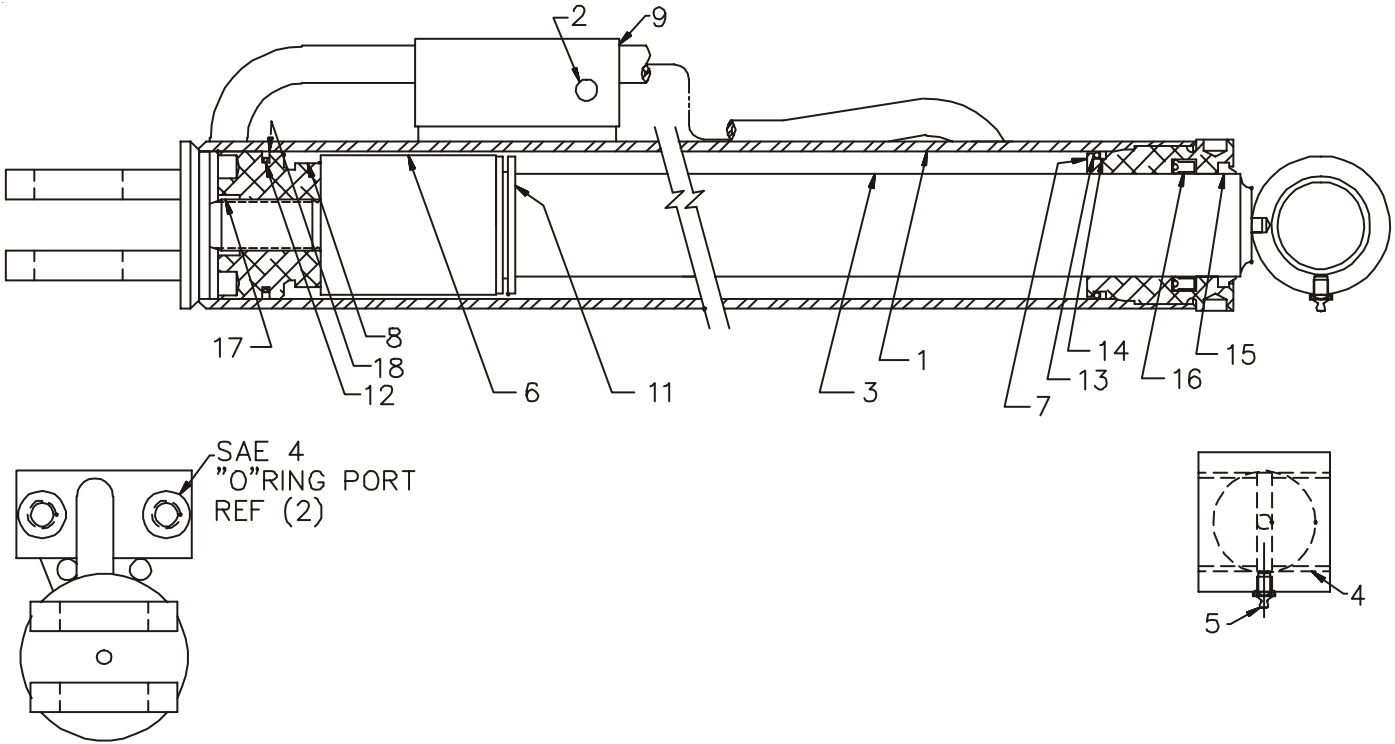
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B092880	CASE (INCL:2)	1
2.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
3.	4G092880	ROD (INCL:4 & 5)	1
4.	7BF81015	BUSHING (PART OF 3)	2REF
5.	72053507	ZERK 1/4-28 (PART OF 3)	1REF
6.	6C300017	STOP TUBE	1
7.	6H025017	HEAD	1
8.	6I025087	PISTON	1
9.	73054304	COUNTERBALANCE VALVE	1
10.	9B101414	SEAL KIT (INCL:11-18)	1
11.	6A025017	WAFER LOCK (PART OF 10)	1REF
12.	7Q072137	O-RING (PART OF 10)	1REF
13.	7Q072228	O-RING (PART OF 10)	1REF
14.	7Q10P228	BACK-UP RING (PART OF 10)	1REF
15.	7R14P017	ROD WIPER (PART OF 10)	1REF
16.	7R546017	ROD SEAL (PART OF 10)	1REF
17.	7T61N087	LOCK-RING SEAL (PART OF 10)	1REF
18.	7T66P025	PISTON SEAL (PART OF 10)	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.

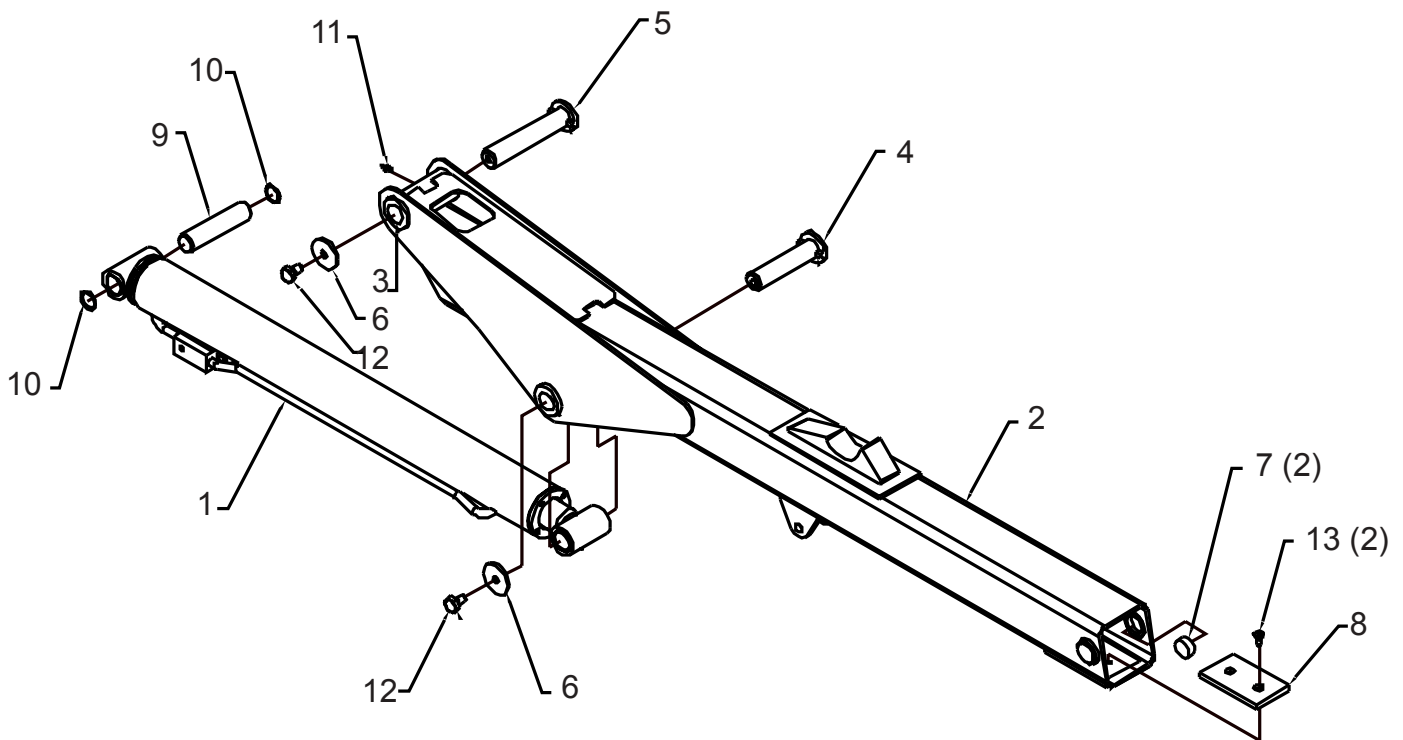
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



OUTER BOOM ASSEMBLY (41707992)**NOTE**

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

ITEM	PART	DESCRIPTION	QTY
1.	3B170010	OUTER CYLINDER	1
2.	52708101	OUTER BOOM (INCL. 3)	1
3.	7BF81215	BUSHING (PART OF 2)	4REF
4.	52708100	PIN	1
5.	52703765	PIN	1
6.	60106333	PIN RETAINER PLATE 2-1/2"	2
7.	60030138	WEAR PAD	2
8.	60030140	WEAR PAD	1
9.	60111937	PIN	1
10.	72661267	RETAINER RING	2
11.	72053508	ZERK 1/8NPT	1
12.	72060147	CAP SCR 5/8-11X1 HHGR5	2
13.	72601043	CAP SCR 3/8-16X3/4 FLH SOC	2

**NOTE:**

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

OUTER CYLINDER (3B170010)

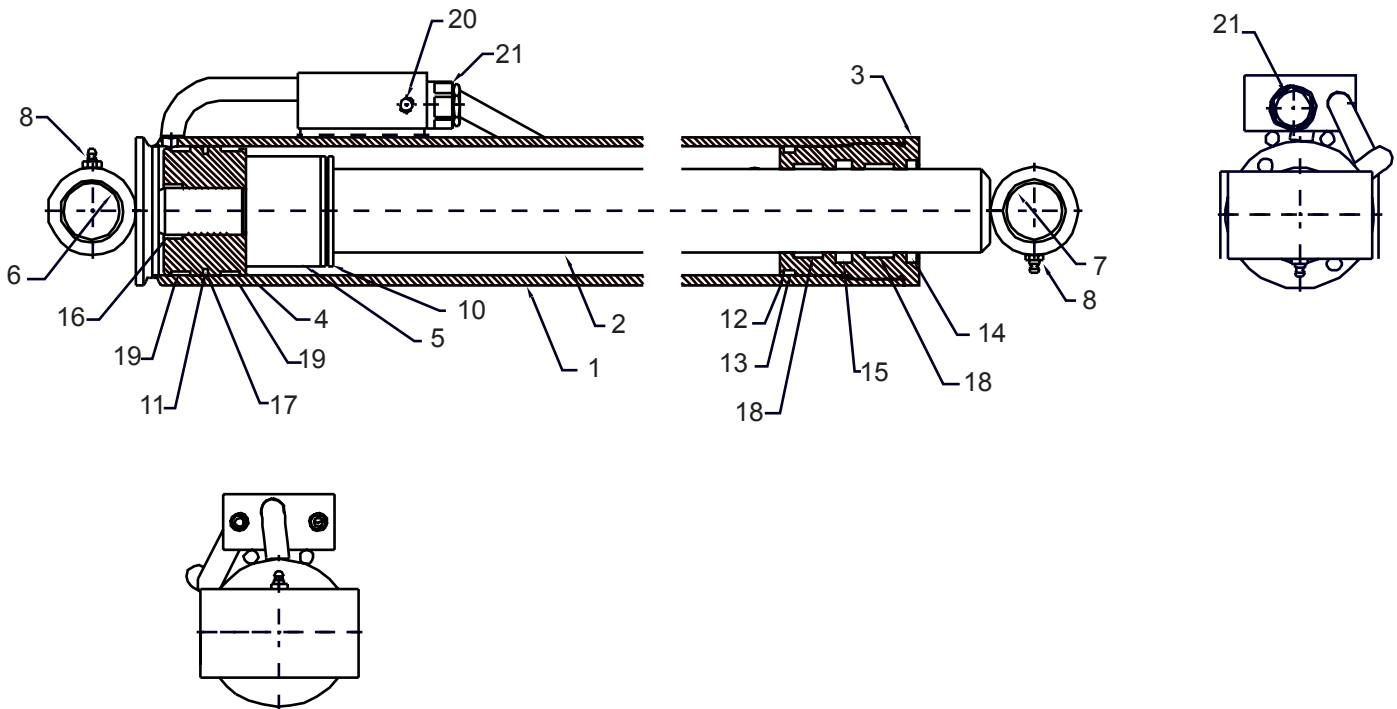
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B170010	CASE (INCL. 6,8,20)	1
2.	4G096880	ROD ASM (INCL. 7,8)	1
3.	6HD35022	HEAD	1
4.	6ID35125	PISTON	1
5.	6C200022	STOP TUBE	1
6.	7BF81015	BUSHING (PART OF 1)	4REF
7.	7BF81215	BUSHING (PART OF 2)	2REF
8.	72053507	ZERK 1/4-18 (PART OF 1,2)	2REF
9.	9D141820	SEAL LOCK (INCL. 10-19)	1
10.	6A025022	WAFFER LOCK (PART OF 9)	1REF
11.	7Q072151	O-RING (PART OF 9)	1REF
12.	7Q072338	O-RING (PART OF 9)	1REF
13.	7Q10P338	BACKUP RING (PART OF 9)	1REF
14.	7R14P022	ROD WIPER (PART OF 9)	1REF
15.	7R546022	U-CUP LOADED (PART OF 9)	1REF
16.	7T61N125	LOCK RING (PART OF 9)	1REF
17.	7T66P035	PISTON SEAL (PART OF 9)	1REF
18.	7T2NX625	WEAR RING - ROD (PART OF 9)	2REF
19.	7T2N4035	WEAR RING - PISTON (PART OF 9)	2REF
20.	7PNPXT02	PIPE PLUG (PART OF 1)	3REF
21.	73054304	C-BALANCE VALVE 10GPM	1

NOTE

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

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

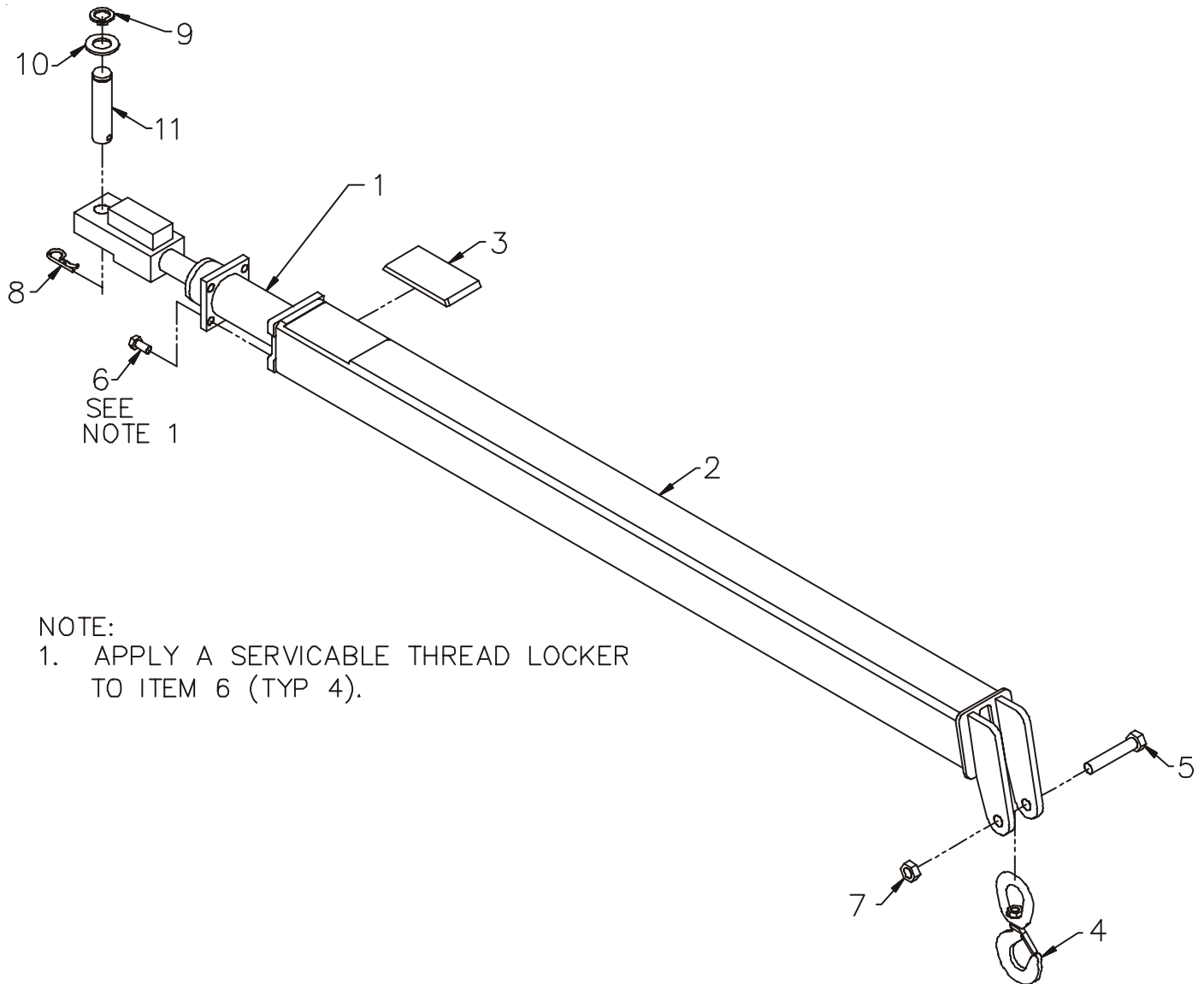
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

**NOTE:**

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS 3B170010, AND COUNTERBALANCE VALVE 73540091.

EXT BOOM ASM (41707993)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B160010	EXTENSION CYLINDER	1
2.	52708102	EXTENSION BOOM	1
3.	60030137	WEAR PAD	1
4.	71073920	HOOK - 3TON W/LATCH	1
5.	72060189	CAP SCR 3/4-10 X 4 HH GR5	1
6.	72060793	CAP SCR 1/2-13 X 1 SH	4
7.	72062114	NUT 3/4-10 LOCK	1
8.	72066145	HAIR PIN	1
9.	72066125	RETAINING RING 1" HD EXT	1
10.	72063034	MACH BUSHING 1 X 10GA NR	1
11.	60101905	PIN	1

**NOTE:**

1. APPLY A SERVICABLE THREAD LOCKER TO ITEM 6 (TYP 4).

NOTE:

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

EXT CYLINDER (3B160010)

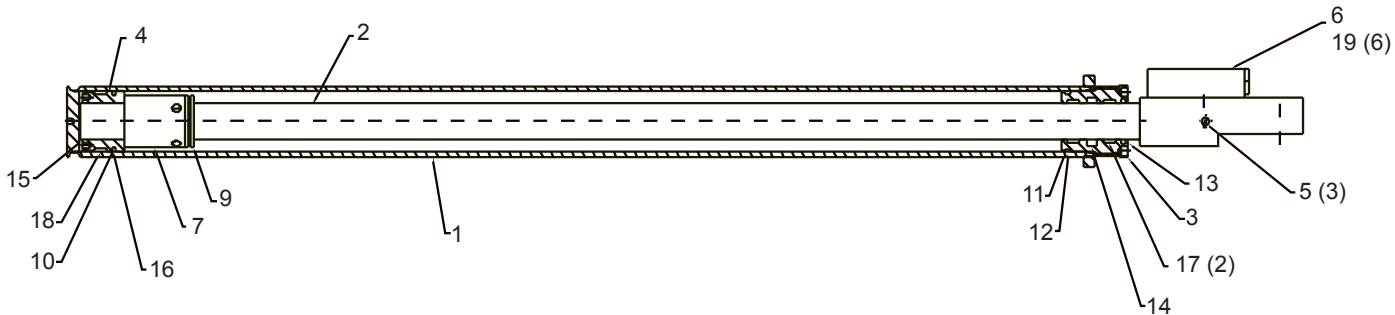
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B160010	CASE	1
2.	4H160010	ROD (INCL: 5)	1
3.	6HD25015	HEAD	1
4.	6ID25125	PISTON	1
5.	7PNPXT02	PIPE PLUG (PART OF 2)	3REF
6.	73054004	CHECK VALVE	1
7.	6C210013	STOP TUBE	1
8.	9D101220	SEAL KIT (INCL. 9-18)	1
9.	6A25015	WAFER LOCK (PART OF 8)	1REF
10.	7Q072137	O-RING (PART OF 8)	1REF
11.	7Q072228	O-RING (PART OF 8)	1REF
12.	7Q10P228	BACKUP RING (PART OF 8)	1REF
13.	7R14P015	ROD WIPER (PART OF 8)	1REF
14.	7R546015	U-CUP SEAL (PART OF 8)	1REF
15.	7T61N125	LOCK RING (PART OF 8)	1REF
16.	7T66P025	PISTON SEAL (PART OF 8)	1REF
17.	7T2NX417	WEAR RING - ROD (PART OF 8)	2REF
18.	7T2N4025	WEAR RING - PISTON (PART OF 8)	1REF
19.	72060708	CAP SCR 1/4-20X1.25	6

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.

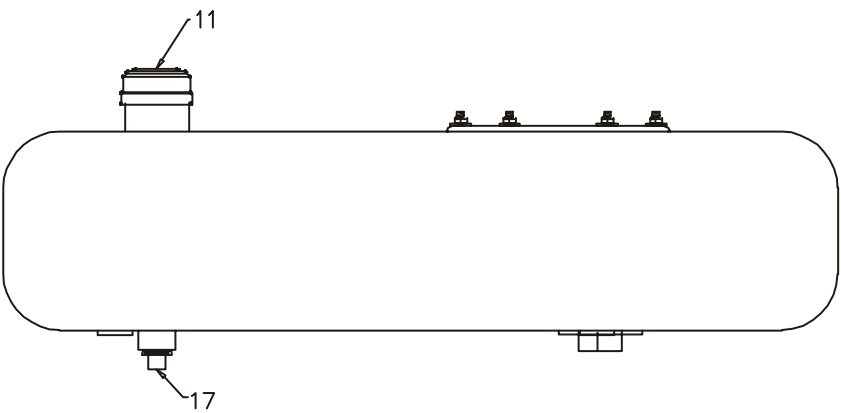
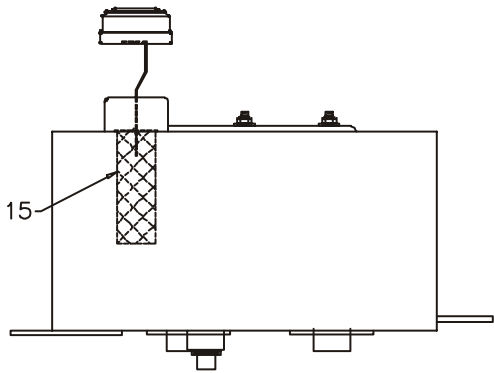
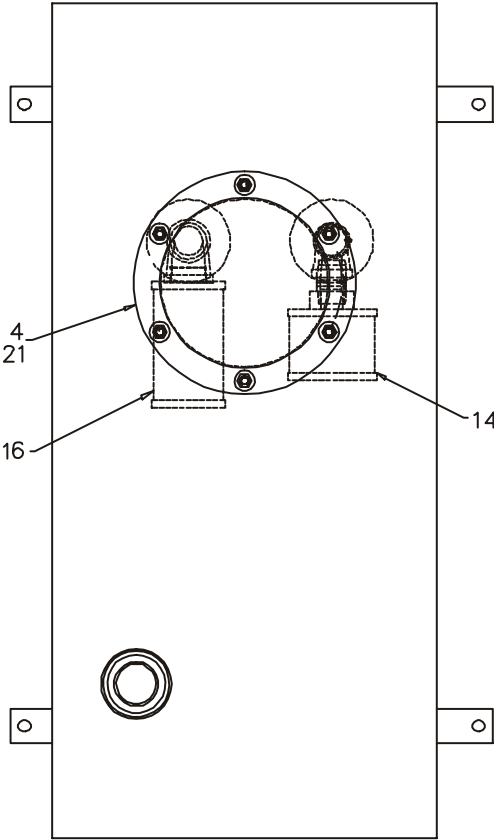
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



NOTE:
ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

RESERVOIR ASM (70732577)

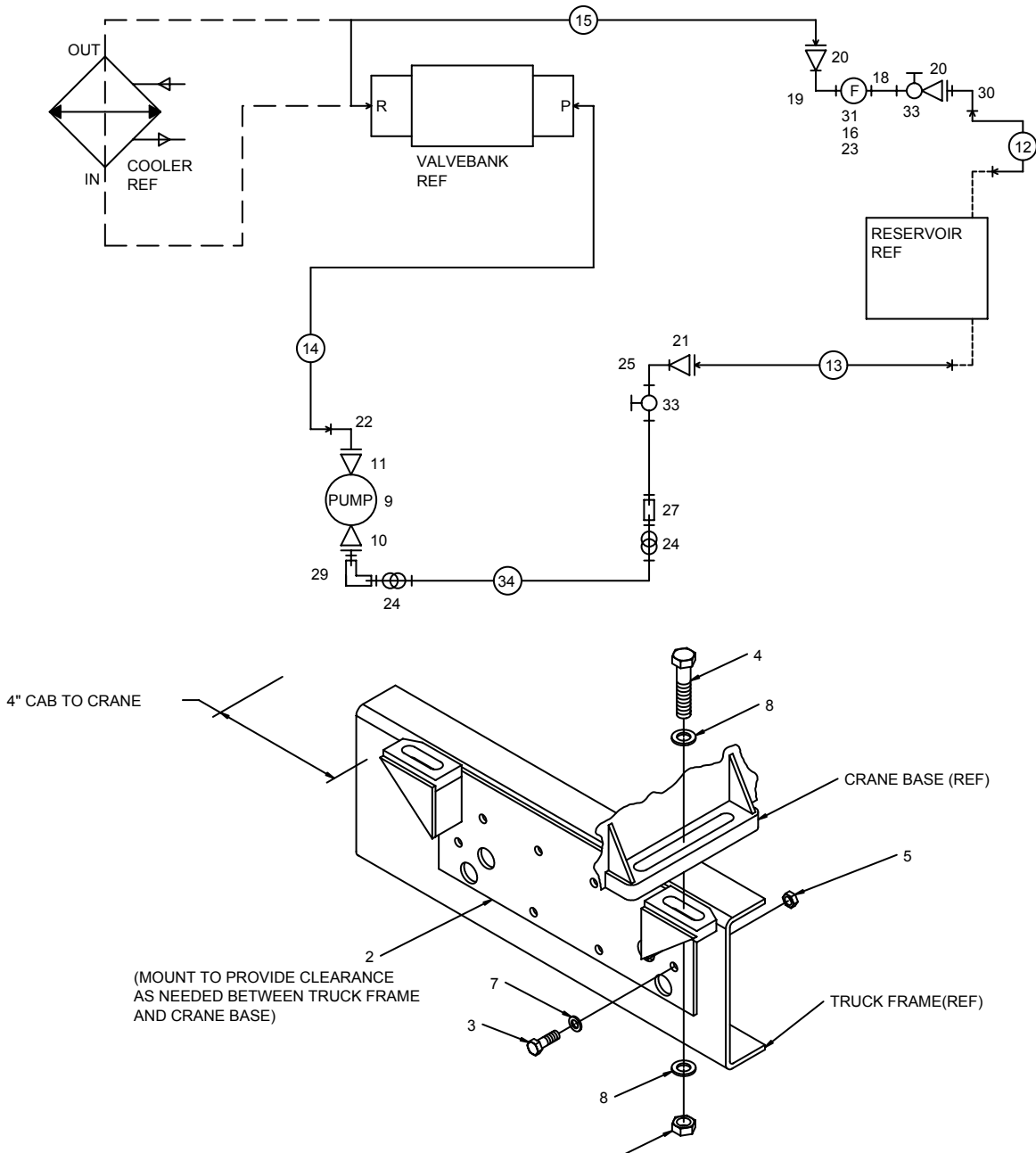
ITEM	PART NO.	DESCRIPTION	QTY
4.	70144163	COVER	1
11.	70732788	DIPSTICK ASM	1
14.	70034410	DIFFUSER	1
15.	70732792	SCREEN	1
16.	70144325	STRAINER	1
17.	73052001	PLUG	1
21.	76393565	O-RING	1



INSTALLATION KIT (93707994)

ITEM	PART NO.	DESCRIPTION	QTY	10.	60103870	OIL FILTER BRACKET	1
2.	52712213	SHEAR PLATE	2	18.	72053141	PIPE NIPPLE 3/4 X CLOSE	1
3.	72060117	CAP SCR 1/2-13X1-1/2 HHGR8	16	19.	72053556	STREET ELBOW 3/4NPT 90°	1
4.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	4	20.	72053671	ADAPTER 3/4MPT 3/4MJIC	2
5.	72062232	NUT1/2-13 TOP LOCK	16	21.	72053676	ADAPTER 3/4MPT 1-1/16MJIC	1
6.	72062140	NUT 3/4-10 LOCK	4	22.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	1
7.	72063132	WASHER 1/2 FLAT HARDENED	16	23.	72060025	CAP SCR 5/16-18 X 1 HH GR5	2
8.	72063116	WASHER 3/4 FLAT GR8	8	24.	72066514	HOSE CLAMP 2-BOLT 3/4	2
9.		PUMP	1	25.	72531087	STREET ELBOW 3/4NPT 45°	1
10.		ADAPTER (PER PUMP)	1	27.	72531548	BARB NIPPLE 3/4BARB3/4HOSE	1
11.		ADAPTER (PER PUMP)	1	29.	72532344	BARB NIPPLE 3/4 3/4 90°	1
12.	51703866	HOSE ASM 1/2 X 12	1	30.	72532670	ELBOW 3/4MJIC 3/4FJIC 45°	1
13.	51703945	HOSE ASM 3/4 X 17	1	31.	73052000	RETURN FILTER	1
14.	51704030	HOSE ASM 3/8 X 84	1	33.	73054129	GATE VALVE 3/4NPT	2
				34.	60035959	HOSE 3/4 100R4 X 32"	1

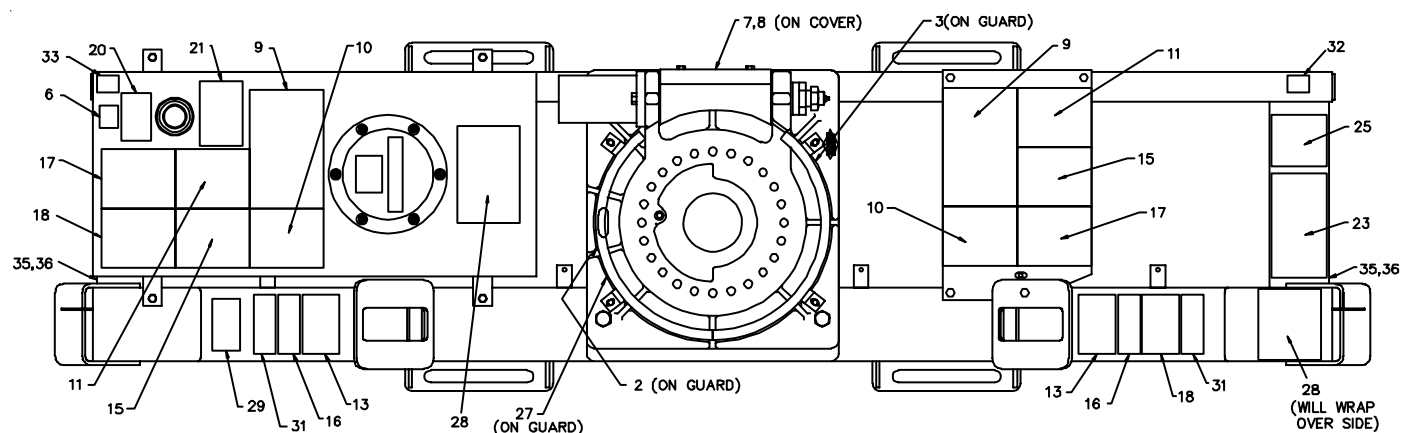
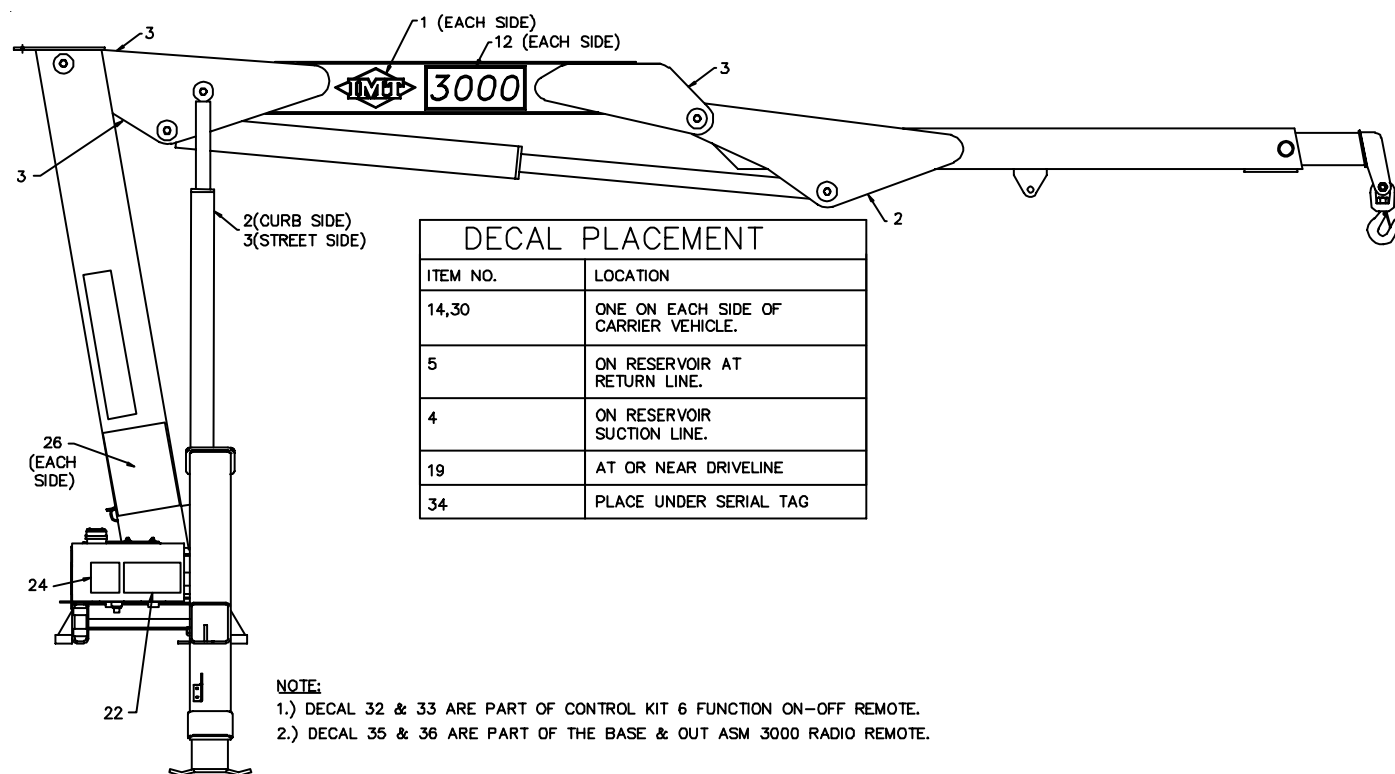
NOTE: WHEN CRANE IS EQUIPED WITH A COOLER
HOSE #15 CONNECTS TO COOLER OUTLET PORT
HOSE P/N 51394716 (PART OF CRANE) CONNECTS "R"
PORT OF VALVE BANK TO INLET PORT OF COOLER



DECAL KIT-3000 SERIES CRANE (95712499)

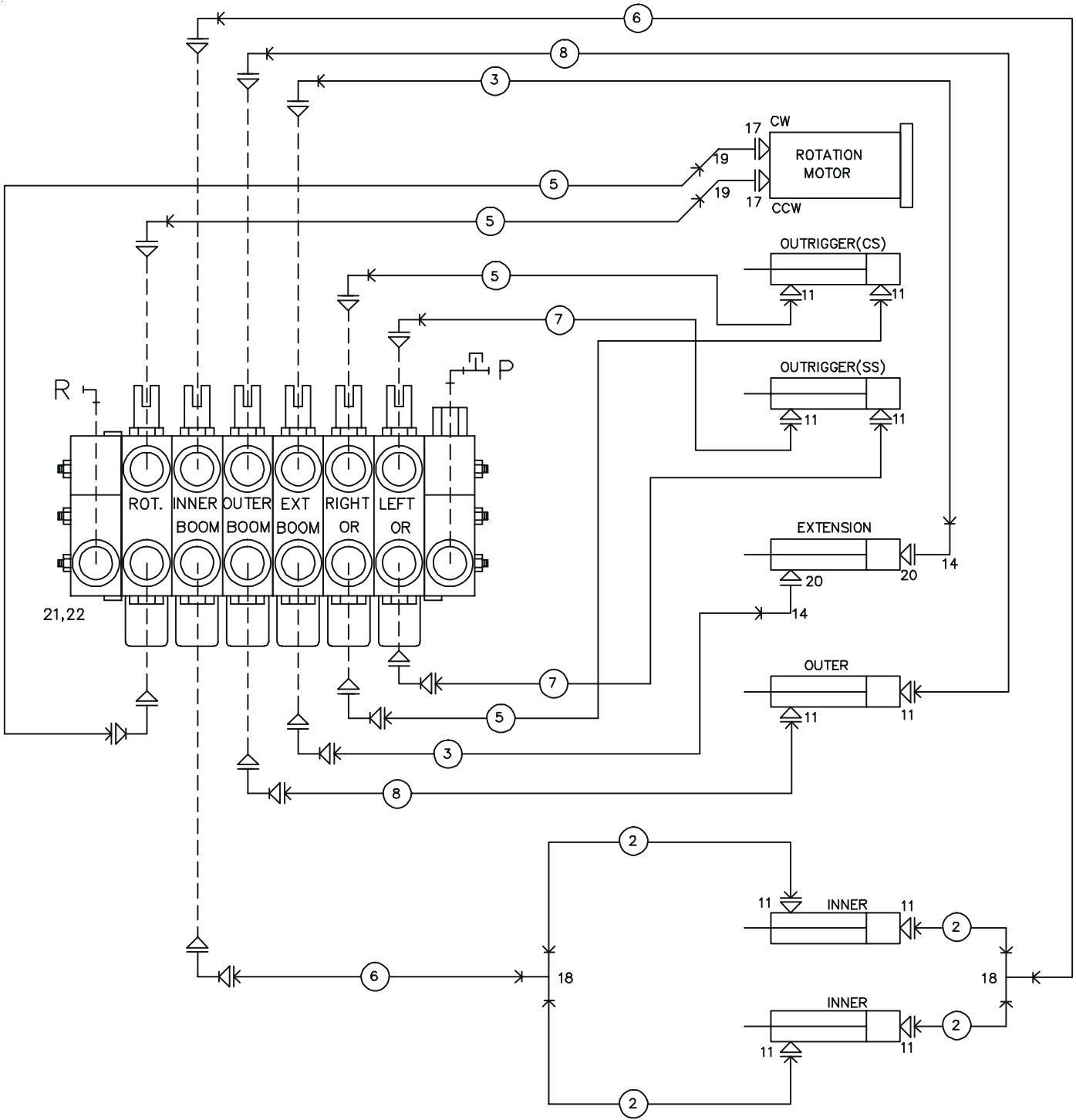
1.	70392887	PLACARD - IMT DIAMOND	2
2.	70391612	DECAL-GREASE WKLY LH	3
3.	70391613	DECAL-GREASE WKLY RH	4
4.	70392108	DECAL-SUCTION LINE	1
5.	70392109	DECAL-RETURN LINE	1
6.	70392213	DECAL-CAUTION WASH/WAX	1
7.	70392399	DECAL-LUBRICATE WORM	1
8.	70392524	DECAL-ROTATE/GREASE	1
9.	70392813	DECAL-DANGER ELECTRO	2
10.	70392814	DECAL-DGR OPER TRAINING	2
11.	70392815	DECAL-DANGER OPERATION	2
12.	70393823	DECAL-3000 SERIES IDENT	2
13.	70392864	DECAL-DGR OUTRG STD CLR	2
14.	70392865	DECAL-DANGER ELECTRO	4
15.	70392866	DECAL-DGR OPER COND	2
16.	70392867	DECAL-DGR OUTRG MOVING	2
17.	70392888	DECAL-DGR OPER RESTRICT	2

18.	70392890	DECAL-DANGER STOW/FOLD	2
19.	70392891	DECAL-DANGER DRIVELINE	2
20.	70392982	DECAL-CONTACT IMT	1
21.	71039134	DECAL-CAUTION OIL LEVEL	1
22.	71392255	DECAL-CONTROLS SS	1
23.	71392256	DECAL-CONTROLS CS	1
24.	71392257	DECAL-PWR DN OR SS	1
25.	71392258	DECAL-PWR DN OR CS	1
26.	71393863	CAP PLACARD-3000 SERIES	2
27.	71392365	DECAL-ALIGN CRANE	1
28.	70391583	DECAL-WARNING STD CLR	2
29.	70394189	DECAL-RECOMMEND HYD OIL	1
30.	70392868	DECAL-DANGER CR LOADLINE	4
31.	70392863	DECAL-DANGER HOIST PERS	2
32.	71392726	DECAL-CTRL OUTRG (CURB)	1REF
33.	71392725	DECAL-CTRL OUTRG (STREET)	1REF
34.	70395323	DECAL-ASME/ANSI B30.22	1
35.	70395857	DECAL-INSTR BASE TO CAB	2REF
36.	70034069	TIE	2REF



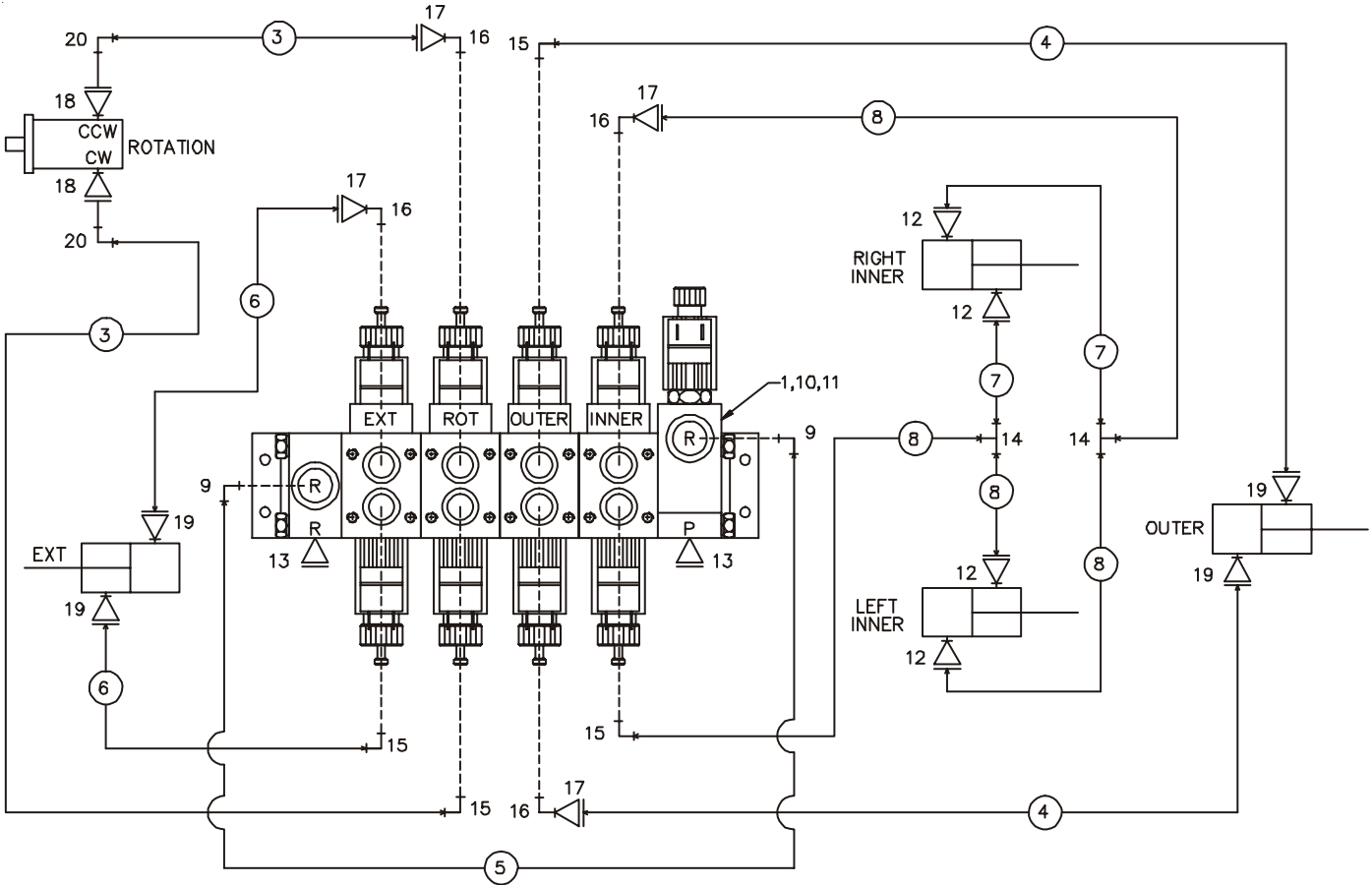
HYDRAULIC KIT (91707996)

1.	51712470	HOSE KIT (INCL:2-8)	1	11.	72532351	ADAPTER #4MSTR #4MJIC	10
2.	51393982	HOSE ASM 1/4X20 #4F#4F	4REF	14.	72532699	ELBOW #6MSTR #4MJIC 90°	2
3.	51393974	HOSE ASM 1/4X189 #4F#4F	2REF	17.	72532722	ADAPTER #10MSTR #6FSTR	2
5.	51393976	HOSE ASM 1/4X42 #4F#4F	4REF	18.	72532768	TEE 7/16JIC	2
6.	51393977	HOSE ASM 1/4X33 #4F#4F	2REF	19.	72532985	ELBOW #6MSTR #4MJIC 45°	2
7.	51393967	HOSE ASM 1/4X56 #4F#4F	2REF	20.	72533052	ADAPTER #8MSTR #6FSTR	2
8.	51393979	HOSE ASM 1/4X115 #4F#4F	2REF	21.	72060048	CAP SCR 3/8-16X1-1/2 HHGR5	3
				22.	72062103	NUT 3/8-16 LOCK	3



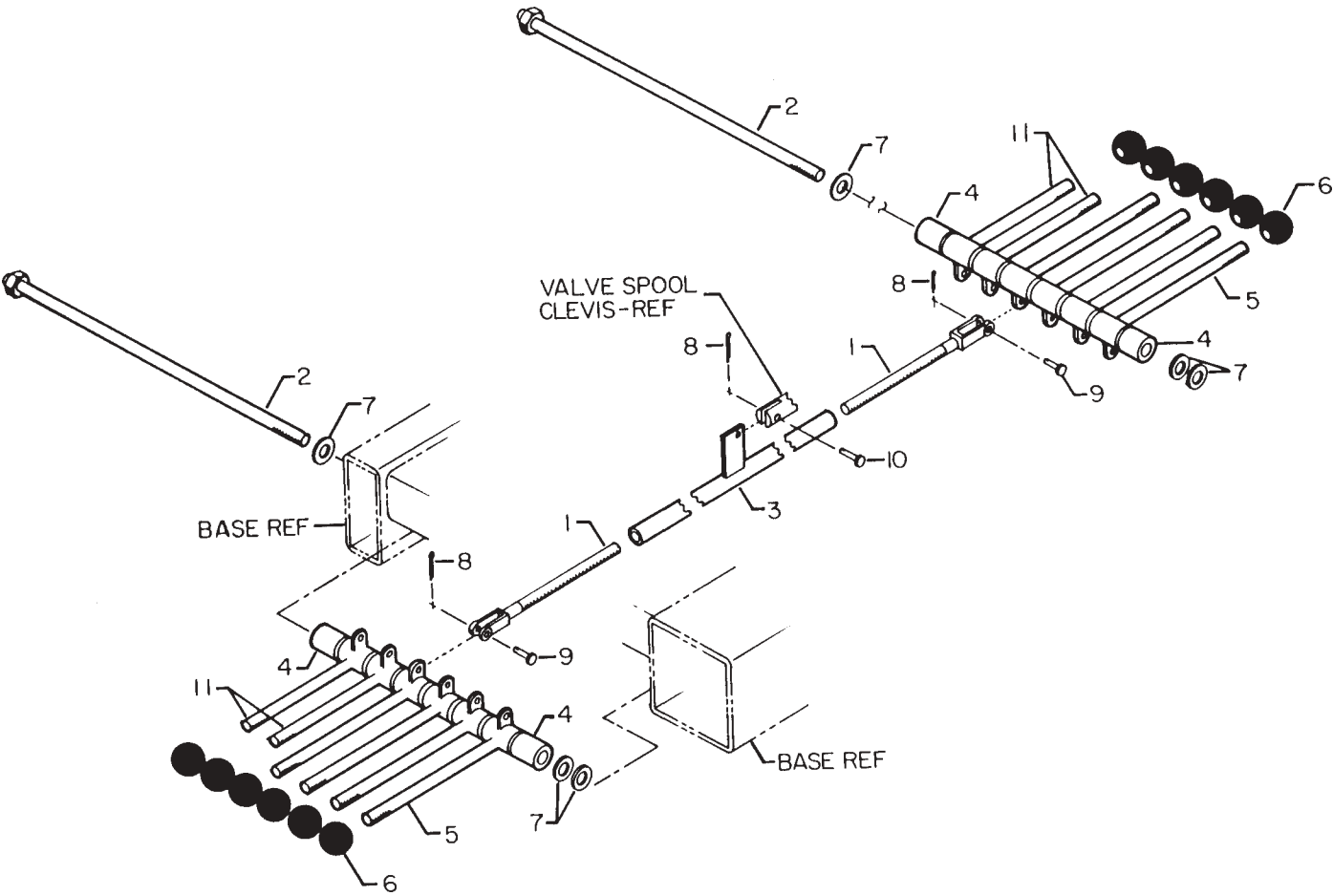
HYD KIT 4-F STAT MNT - PRIOR TO 6/99
(91712402)

1. 73731911	VALVEBANK	1	10. 72060000	CAP SCR 1/4-20X1/2 HHGR5	4
2. 51712471	HOSE KIT (INCL:3-8)	1	11. 72063049	WASHER 1/4 LOCK	4
3. 51393928	HOSE ASM 1/4X51 #4F #4F	2REF	12. 72532351	ADAPTER #4MSTR #4MJIC	4
4. 51393971	HOSE ASM 1/4X57 #4F #4F	2REF	13. 72532358	ADAPTER #8MSTR #8MJIC	2
5. 51393980	HOSE ASM 1/2X16 #8F #8F	1REF	14. 72532768	TEE #4MJIC 1/4TUBE	2
6. 51393981	HOSE ASM 1/4X135 #4F #4F	2REF	15. 72532699	ELBOW #6MSTR #4MJIC 90°	4
7. 51394054	HOSE ASM 1/4X28 #4F #4F	2REF	16. 72532700	ELBOW #6MSTR #6MJIC XLG	4
8. 51394055	HOSE ASM 1/4X24 #4F #4F	4REF	17. 72532707	ADAPTER #4MJIC #6FJIC	4
9. 72053763	ELBOW #8MSTR #8MJIC 90°	2	18. 72532722	ADAPTER #10MSTR #6FSTR	2
			19. 72532792	ADAPTER #8MSTR #4MJIC	4
			20. 72532985	ELBOW #6MSTR #4MJIC 45°	2



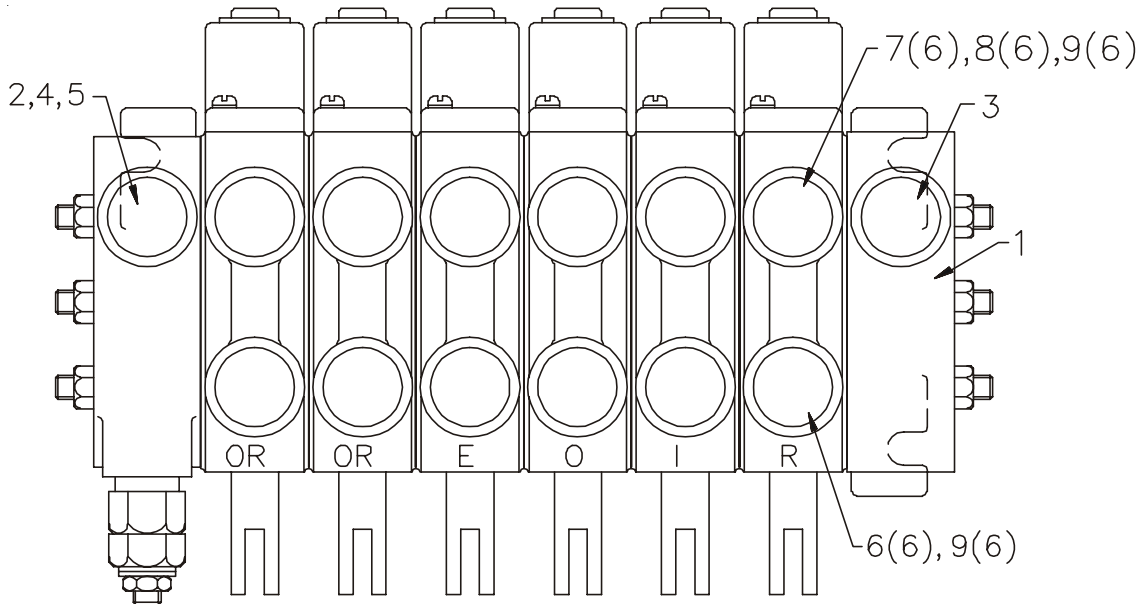
CONTROL KIT 6-F MNL (90707995)

1.	52704745	CONTROL ROD - MALE	12
2.	52708022	CONTROL HANDLE ROD	2
3.	52708023	CONTROL ROD - FEMALE	6
4.	60030141	SPACER 1/2	4
5.	70029451	CONTROL HANDLE - VB	8
6.	71039096	CONTROL KNOB 1-1/2	12
7.	72063119	WASHER 5/8 FLAT HARD GR8	6
8.	72066168	COTTER PIN .09X1	18
9.	72066338	CLEVIS PIN 5/16X1	12
10.	72661169	CLEVIS PIN 5/16X3/4	6
11.	60025254	CONTROL HANDLE - SHORT	4

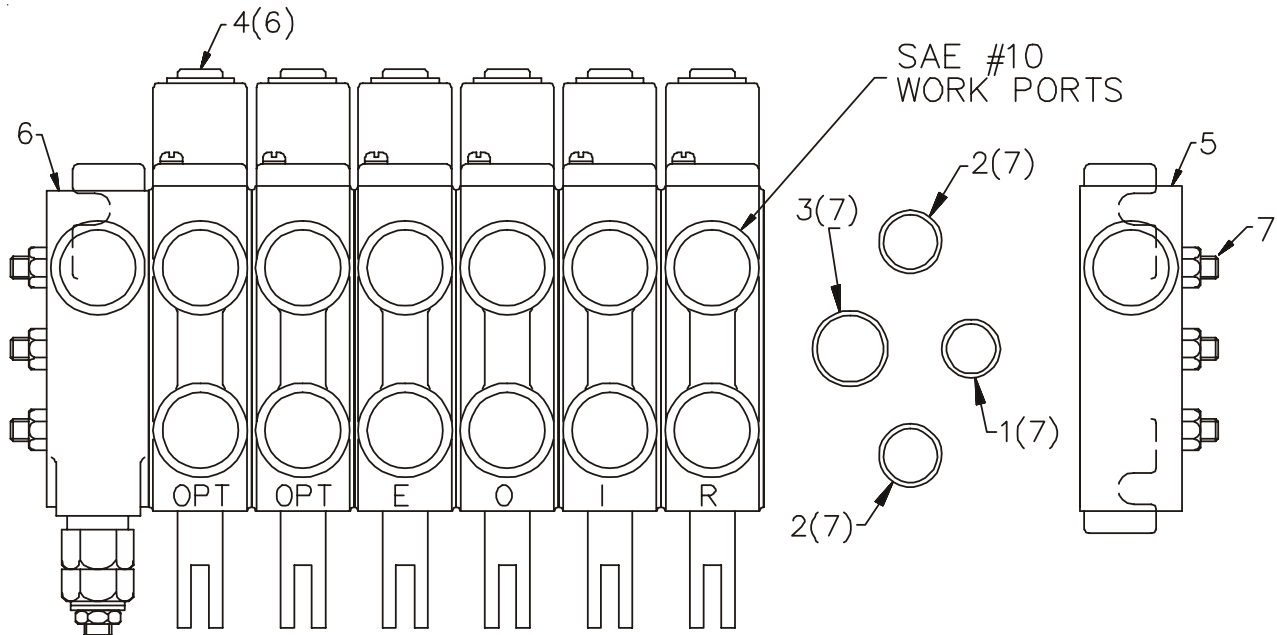


VALVEBANK ASM 6-SECT (51715037)

1.	51704803	VALVEBANK	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	1
3.	72053764	ELBOW #10MSTR #8MJIC 90°	1
4.	72532657	TEE SWVL 3/4JIC	1
5.	72532675	CAP STL 3/4JIC	1
6.	72532699	ELBOW #6MSTR #4MJIC 90°	6
7.	72532700	ELBOW #6MSTR #6MJIC 90° XLG	6
8.	72532707	ADPTR #4MJIC #6FJIC	6
9.	72532722	ADPTR #10MJIC #6FSTR	12

**VALVEBANK 6-SECT (51704803)**

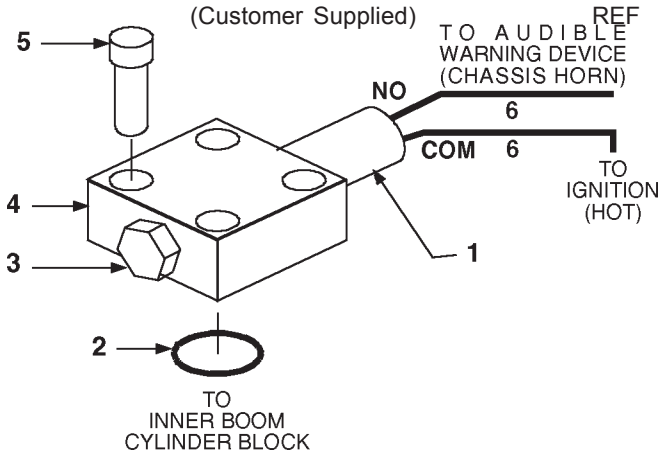
1.	7Q072017	O-RING	7
2.	7Q072018	O-RING	14
3.	7Q072021	O-RING	7
4.	73054490	SECTION	6
5.	73731576	END CAP-RH	1
6.	73054488	END CAP-LH	1
7.	94731591	TIE ROD KIT	1



**CAPACITY ALERT KIT-AUDIBLE-3000PSI
(31711302)**

- | | | | |
|----|----------|-------------------------|---|
| 1. | 77041258 | PRESS. SWITCH-3000PSI | 1 |
| | | (WAS 77041283) | |
| 2. | 7Q072015 | O-RING | 1 |
| 3. | 72532140 | PLUG 9/16-18 STR THD HH | 1 |
| 4. | 60025221 | MANIFOLD | 1 |
| 5. | 72060731 | CAP SCR 5/16-18X3/4 SH | 4 |
| 6. | 89044188 | WIRE-14GA | |

(Customer Supplied)

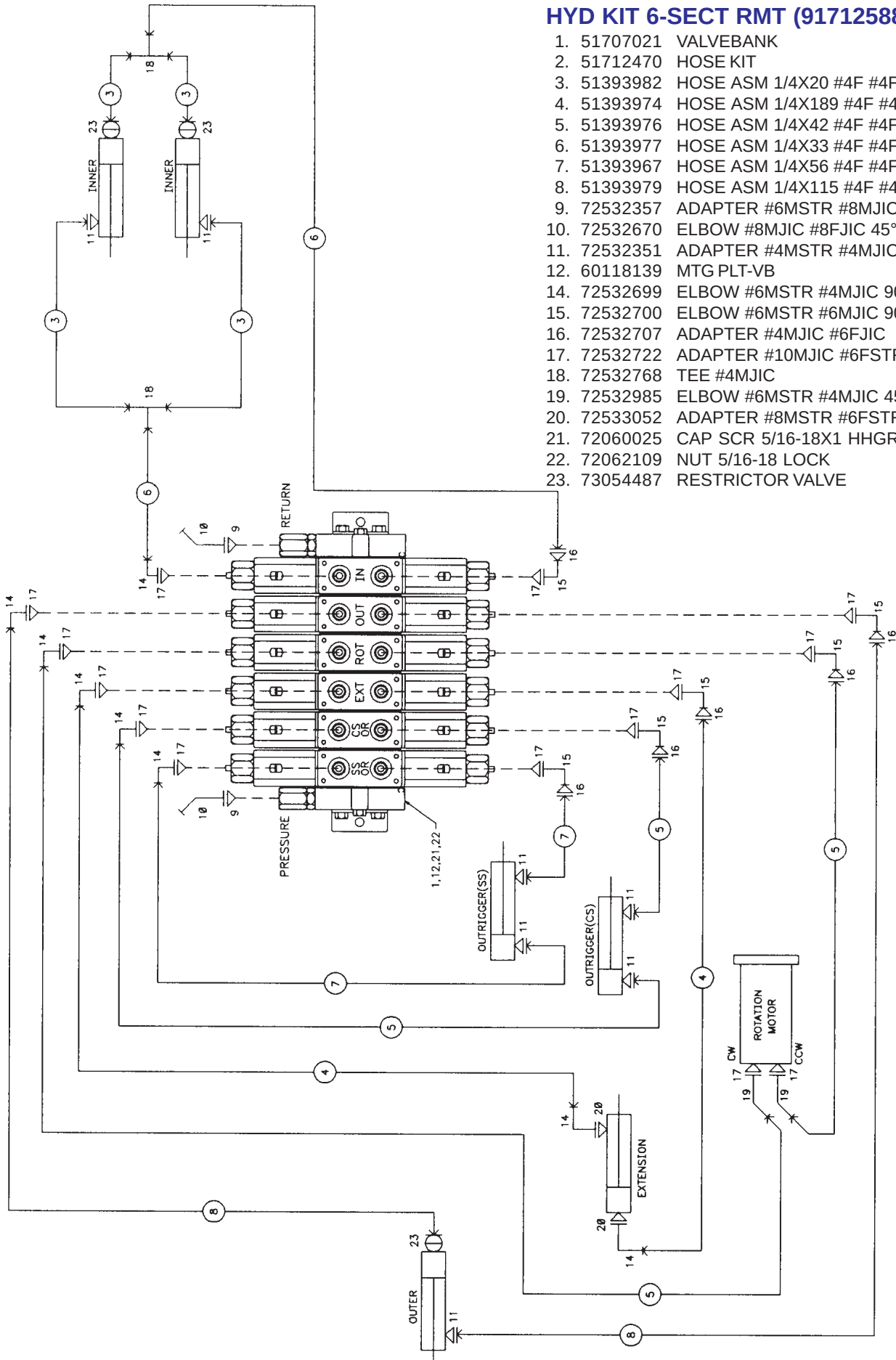


NOTE

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

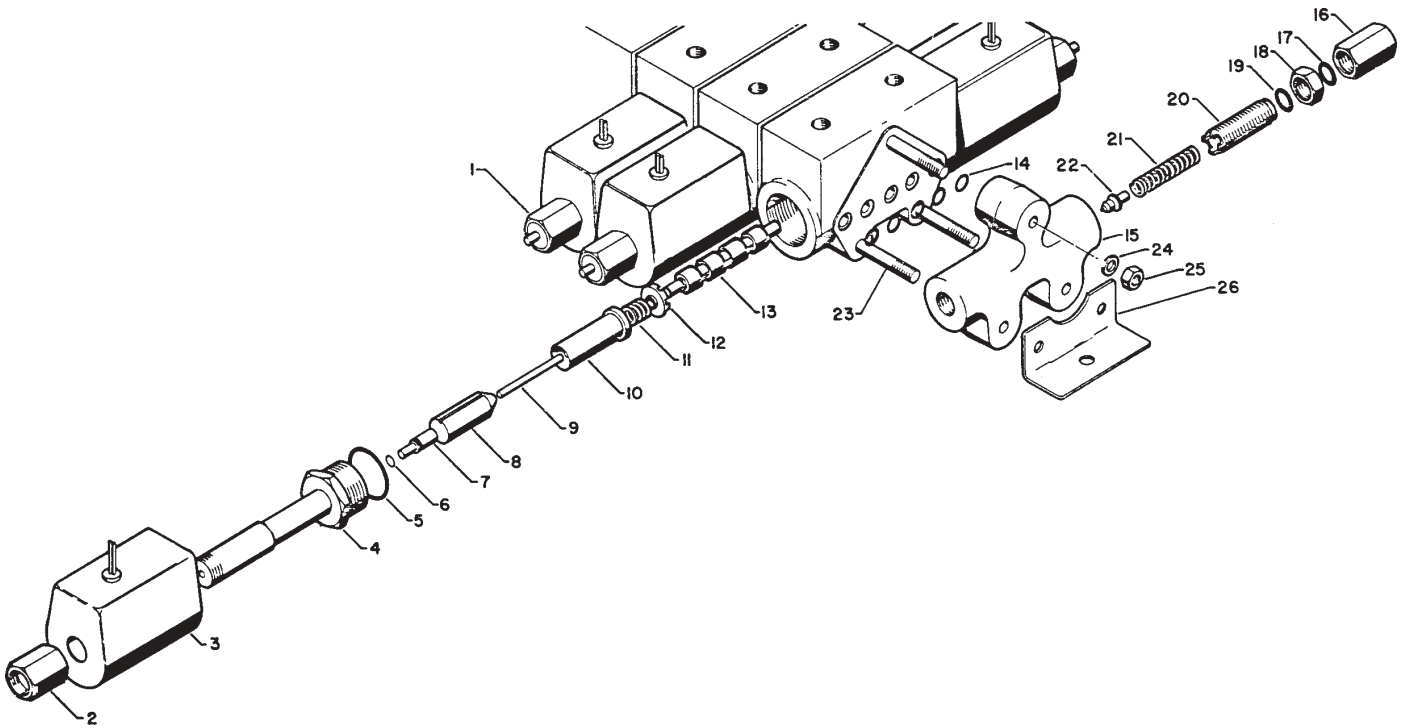
HYD KIT 6-SECT RMT (91712588)

1.	51707021	VALVEBANK	1
2.	51712470	HOSE KIT	1
3.	51393982	HOSE ASM 1/4X20 #4F #4F	4REF
4.	51393974	HOSE ASM 1/4X189 #4F #4F	2REF
5.	51393976	HOSE ASM 1/4X42 #4F #4F	4REF
6.	51393977	HOSE ASM 1/4X33 #4F #4F	2REF
7.	51393967	HOSE ASM 1/4X56 #4F #4F	2REF
8.	51393979	HOSE ASM 1/4X115 #4F #4F	2REF
9.	72532357	ADAPTER #6MSTR #8MJIC	2
10.	72532670	ELBOW #8MJIC #8FJIC 45°	2
11.	72532351	ADAPTER #4MSTR #4MJIC	7
12.	60118139	MTG PLT-VB	1
14.	72532699	ELBOW #6MSTR #4MJIC 90°	8
15.	72532700	ELBOW #6MSTR #6MJIC 90°	6
16.	72532707	ADAPTER #4MJIC #6FJIC	6
17.	72532722	ADAPTER #10MJIC #6FSTR	14
18.	72532768	TEE #4MJIC	2
19.	72532985	ELBOW #6MSTR #4MJIC 45°	2
20.	72533052	ADAPTER #8MSTR #6FSTR	2
21.	72060025	CAP SCR 5/16-18X1 HHGR5	3
22.	72062109	NUT 5/16-18 LOCK	3
23.	73054487	RESTRICTOR VALVE	3



VALVEBANK ASM 6-SECT (51707021)

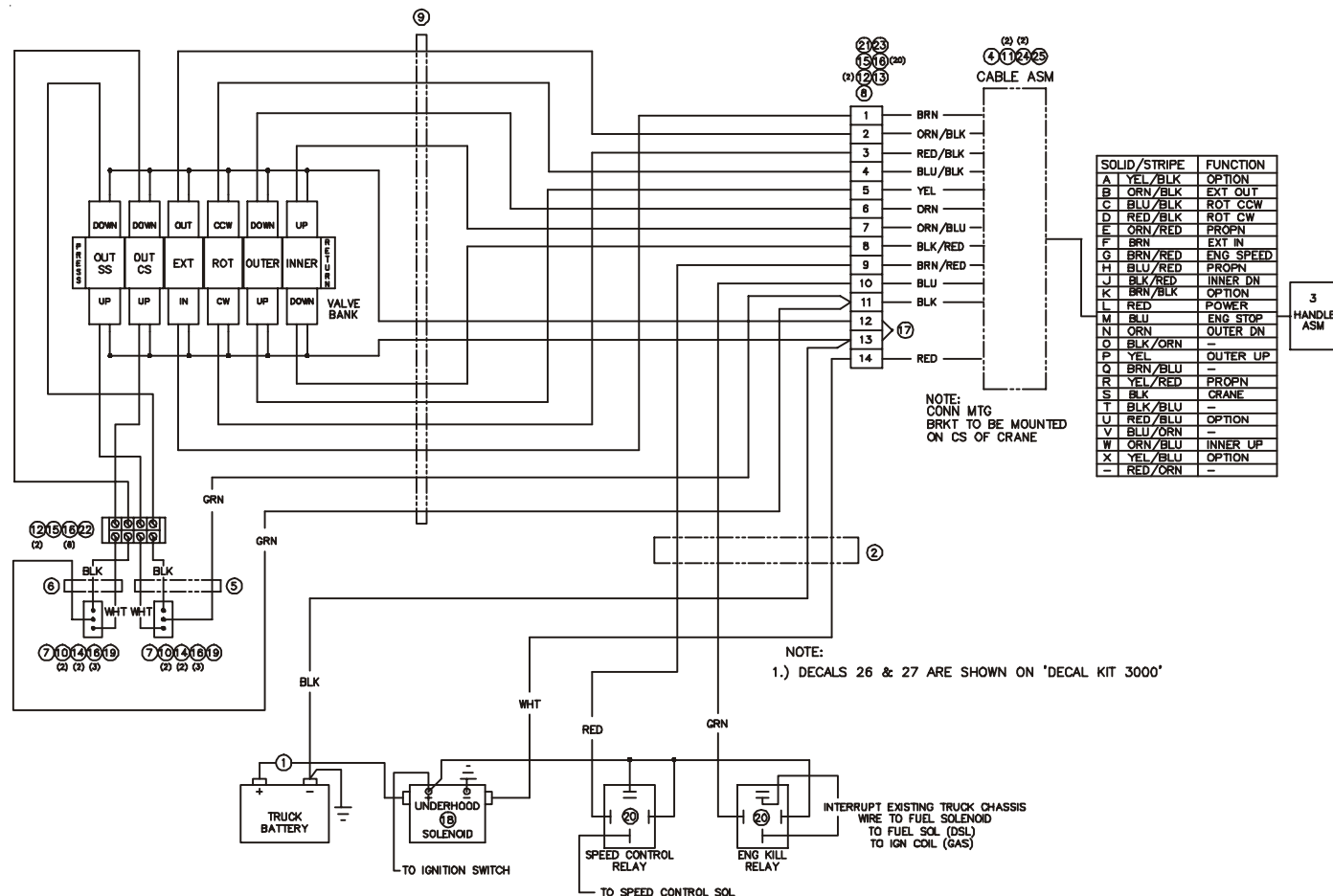
1.	73054077	VALVE SECTION (INCL:2-14)	6
2.	73014950	NUT (PART OF 1)	1REF
3.	77040028	COIL-12V (PART OF 1)	2REF
4.	73014958	TUBE (PART OF 1)	2REF
5.	7Q072113	O-RING (PART OF 1)	2REF
6.	7Q072008	O-RING (PART OF 1)	2REF
7.	73014957	BUTTON (PART OF 1)	2REF
8.	73014956	PLUNGER (PART OF 1)	2REF
9.	73014954	PIN (PART OF 1)	2REF
10.	73014955	PLUG (PART OF 1)	2REF
11.	73014953	SPRING (PART OF 1)	2REF
12.	73014952	SPRING RETAINER (PART OF 1)	2REF
13.	51014951	SPOOL & BODY (PART OF 1)	1REF
14.	7Q072012	O-RING (PART OF 1)	5REF
15.	73014948	INLET W/RELIEF	1
16-22.		NOT AVAILABLE SEPARATELY	
23.	60110377	TIE ROD	3
24.	72063002	WASHER 5/16	6
25.	72062001	NUT 5/16-18	6
26.	60110376	MTG BRKT	2



RMT CTRL KIT-6F ON/OFF (90713550)

- | | | | |
|-----|----------|----------------------------|----|
| 1. | 51704784 | CABLE ASM #1WIRE X 6 | 1 |
| 2. | 51704993 | CABLE ASM 16GA/4WIRE X 150 | 1 |
| 3. | 51713724 | HANDLE ASM | 1 |
| 4. | 51713559 | CABLE ASM 18GA/24WIRE X 52 | 1 |
| 5. | 89044053 | CABLE 16GA/3WIRE X 60 | 1 |
| 6. | 89044053 | CABLE 16GA/3WIRE X 108 | 1 |
| 7. | 52713436 | MTG PLATE | 2 |
| 8. | 60105825 | TERMINAL BLOCK MTG BAR | 1 |
| 9. | 70034060 | TIE 6.75 | 12 |
| 10. | 72060857 | SCR 5/16-12X5/8 HH SLFTPG | 4 |
| 11. | 72060004 | CAP SCR 1/4-20X1 HHGR5 | 2 |
| 12. | 72060002 | CAP SCR 1/4-20X3/4 HHGR5 | 4 |
| 13. | 72061009 | SHT MTL SCR #6X3/4 PH | 4 |

- | | | | |
|-----|----------|---------------------------|----|
| 14. | 72063002 | WASHER 5/16 WRT | 4 |
| 15. | 72066525 | HOSE CLAMP | 2 |
| 16. | 77040051 | TERM #8 SPRSPD 16-14GA | 34 |
| 17. | 77040130 | JUMPER BAR | 1 |
| 18. | 77041237 | SOLENOID 12V 150A | 1 |
| 19. | 77041006 | TOGGLE SWITCH DT | 2 |
| 20. | 77041251 | RELAY | 2 |
| 21. | 77044309 | TERMINAL BLOCK-14 | 1 |
| 22. | 77044341 | TERMINAL BLOCK-4 | 1 |
| 23. | 60111699 | TERMINAL MTG BLOCK | 1 |
| 24. | 72062104 | NUT 1/4-20 LOCK | 2 |
| 25. | 60119806 | MTG BRACKET | 1 |
| 26. | 71392726 | DECAL CTRL OUTRG (CURB) | 1 |
| 27. | 71392725 | DECAL CTRL OUTRG (STREET) | 1 |



RMT CTRL KIT-4F STAT MNT - PRIOR TO 6/99 (90713551)

1.

77044837

VALVE DRIVER

1
2.

72060703

CAP SCR 1/4-20X1/2 SH

2
3.

72063049

WASHER 1/4 LOCK

4
4.

51713556

CABLE ASM 18GA/24WIRE X 94

1
5.

51713430

HANDLE ASM

1
6.

77041251

RELAY

2
7.

77041237

SOLENOID 12V 150A

1
8.

51704784

CABLE ASM #1WIRE X 6

1
9.

77044341

TERMINAL BLOCK-4

12
10.

60111832

MOUNTING PLATE

1

11.

72061009

SHT MTL SCR #6X3/4 PH

2
12.

60111833

SPACER

2
13.

72060006

CAP SCR 1/4-20X1-1/2 HHGR5

2
15.

77040186

TERMINAL 1/4 FSLPON 16-14GA

8
16.

77040051

TERMINAL #8 SPRSPD 16-14GA

9
17.

89044188

CABLE 14GA/2WIRE X 36

1
18.

77040282

TERMINAL 1/4PIGBAC 16-14GA

7
19.

89044231

WIRE 14GA GRN X 4

4
20.

89044231

WIRE 14GA GRN X 10

3
21.

60119806

MTG BRACKET

1
22.

72060004

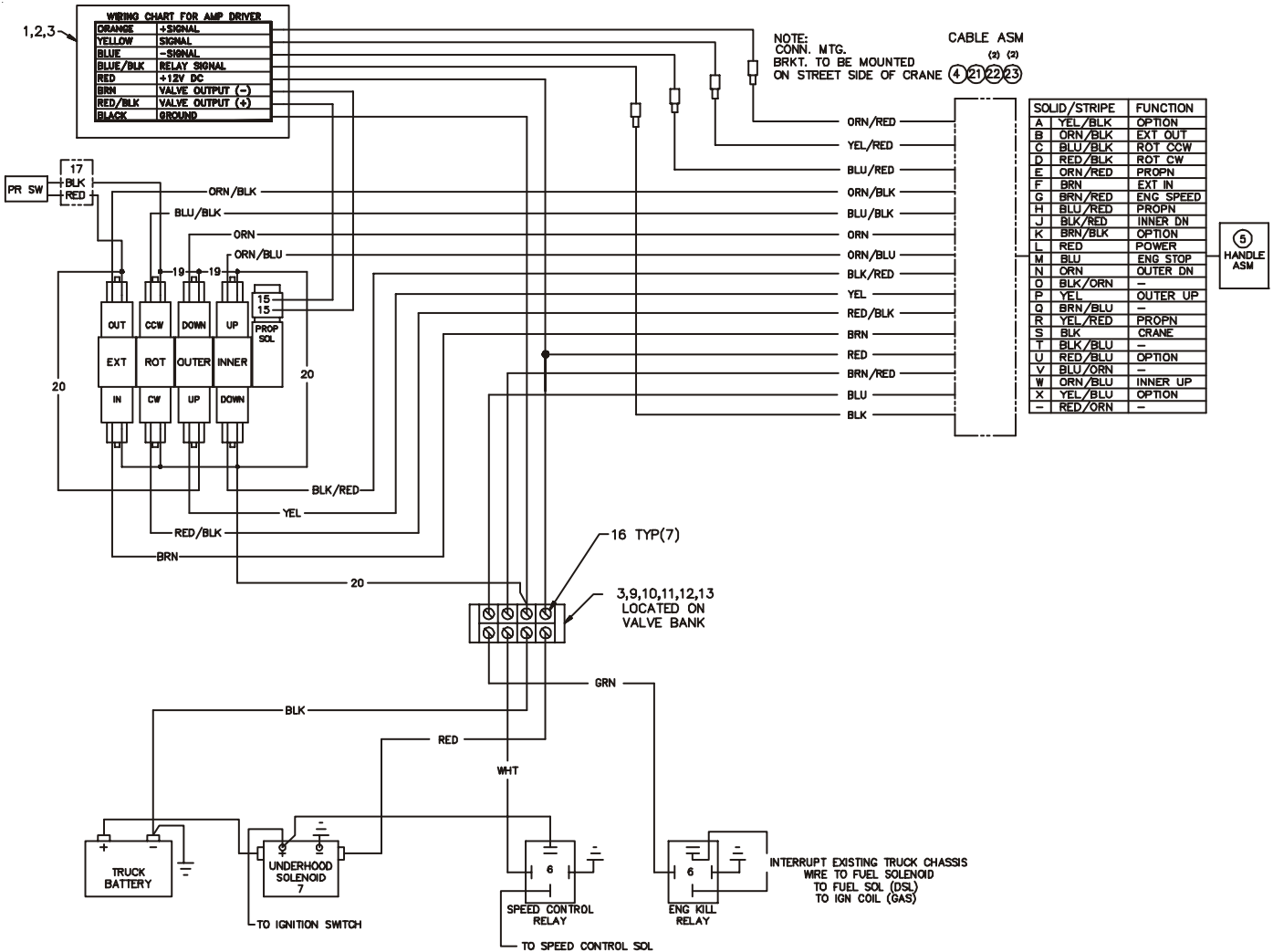
CAP SCR 1/4-20X1 HHGR5

2
23.

72062104

NUT 1/4-20 LOCK

2



RMT HANDLE ASM-6F (51713430)

1. 60045031 WIRE 18GA GRN X 4

2. 60119335 CONTROL HANDLE

3. 60111141 TRIGGER

4. 60119277 COVER-RC

5. 70034306 BACK COVER-RC

6. 70029119 SER NO PLACARD

8. 77044621 PIN

9. 70392862 DECAL-DGR RC ELECTRO SM

10. 71394283 DECAL-RC HANDLE

11. 51707507 POTENTIOMETER ASM(INCL 22)

12. 72066340 POP RIVET

14. 72061009 SHT MTL SCR #6X3/4 PH

15. 77040051 TERM #8SPRSPD 16-14GA
- 8

1

1

1

1

1

23

1

1

1

1

2

8

25

16. 77040371 TOGGLE SWITCH SPST

17. 77040372 TOGGLE SWITCH SPDT

18. 77040373 TOGGLE SWITCH SPST

20. 77044579 CONNECTOR

21. 89044100 CABLE 18GA/24WIRE X 30FT

22. 77040047 TERMINAL (PART OF 22)

23. 77040186 TERMINAL 1/4 FSLPON 16-14GA

24. 60111142 MTG BRACKET

25. 72060669 CAP SCR #10-32X5/8 SH

26. 72060636 CAP SCR #10-24X3/4 SH

27. 72062106 NUT #10-24 LOCK

28. 70143223 SPRING

29. 72061000 SHT MTL SCR #6X1/2 PH

30. 77044196 STRAIN RELIEF 3/4
- 1

6

2

1

1

3REF

3

1

1

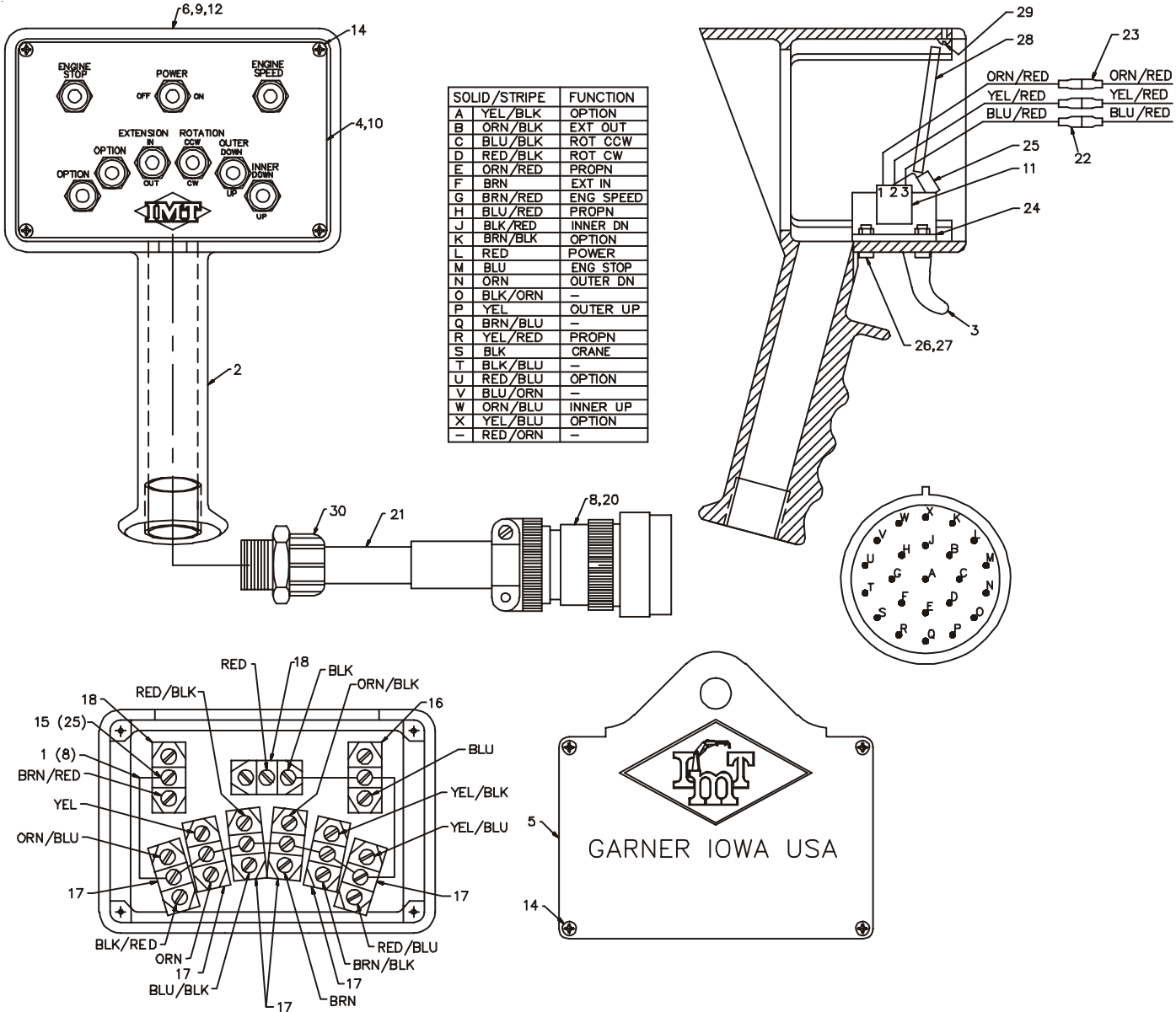
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2

1

1

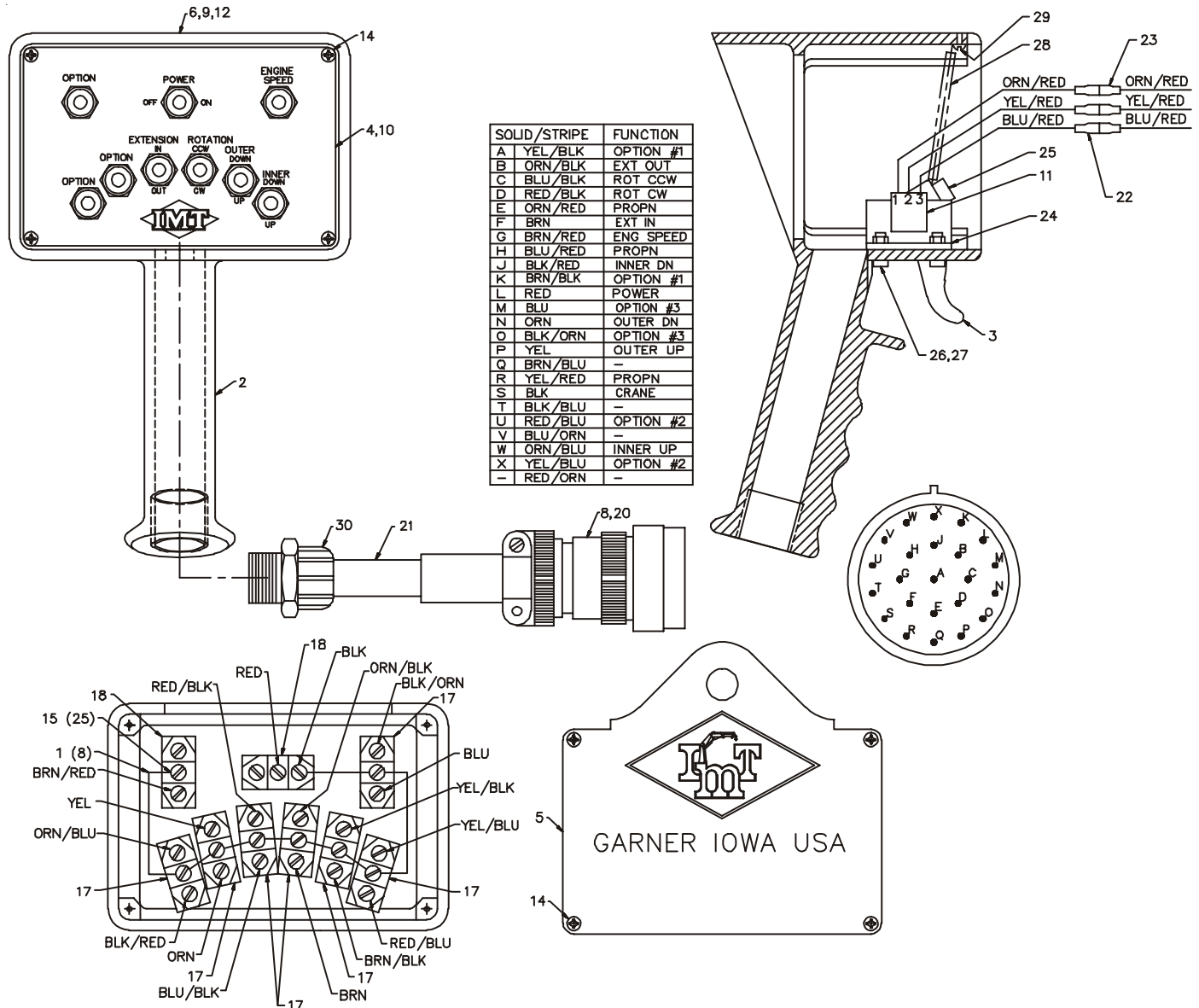
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RMT HANDLE ASM-7F STAT MNT - PREV MODEL ASM (51713564)

1.	60045031	WIRE 18GA GRN X 4	8
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER	1
4.	60119277	COVER-RC	1
5.	70034306	BACK COVER-RC	1
6.	70029119	SER NO PLACARD	1
8.	77044621	PIN	23
9.	70392862	DECAL-DGR RC ELECTRO SM	1
10.	70394203	DECAL-RC HANDLE	1
11.	51707507	POTENTIOMETER ASM(INCL 22)	1
12.	72066340	POP RIVET	2
14.	72061009	SHT MTL SCR #6X3/4 PH	8

15.	77040051	TERM #8SPRSPD 16-14GA	25
17.	77040372	TOGGLE SWITCH SPDT	7
18.	77040373	TOGGLE SWITCH SPST	2
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA/24WIRE X 30FT	1
22.	77040047	TERMINAL (PART OF 22)	3REF
23.	77040186	TERMINAL 1/4FSLPON 16-14GA	3
24.	60111142	MTG BRACKET	1
25.	72060669	CAP SCR #10-32X5/8 SH	1
26.	72060636	CAP SCR #10-24X3/4 SH	2
27.	72062106	NUT #10-24 LOCK	2
28.	70143223	SPRING	1
29.	72061000	SHT MTL SCR #6X1/2 PH	1
30.	77044196	STRAIN RELIEF 3/4	1



CABLE ASM 18GA/24WIRE X 94 - PRIOR TO 6/99 (51713556)

1. 89044100 CABLE 18GA/24WIRE

2. 77040186 TERM 1/4 FSLPON 16-14GA

3. 77040051 TERM #8 SPRSPD 16-14GA

4. 77040047 TERM 1/4 MSLPON 16-14GA

5. 77044620 CONNECTOR

6. 77044580 SOCKET

7. 77044667 PLUG-CAP
- 94"

8

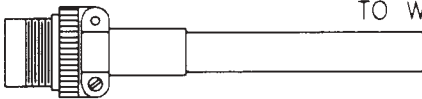
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4

1

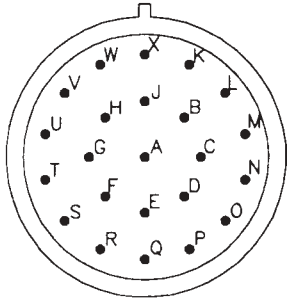
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1



ADD TERMINAL ENDS
TO WIRES PER CHART

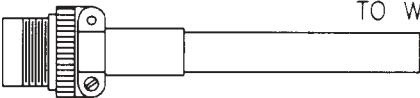
SOLID/STRIPE		TERM	ITEM NO
A	YEL/BLK	-	
B	ORN/BLK	2	
C	BLU/BLK	2	
D	RED/BLK	2	
E	ORN/RED	4	
F	BRN	2	
G	BRN/RED	3	
H	BLU/RED	4	
J	BLK/RED	2	
K	BRN/BLK	-	
L	RED	3	
M	BLU	3	
N	ORN	2	
O	BLK/ORN	-	
P	YEL	2	
Q	BRN/BLU	-	
R	YEL/RED	4	
S	BLK	4	
T	BLK/BLU	-	
U	RED/BLU	-	
V	BLU/ORN	-	
W	ORN/BLU	2	
X	YEL/BLU	-	
-	RED/ORN	-	



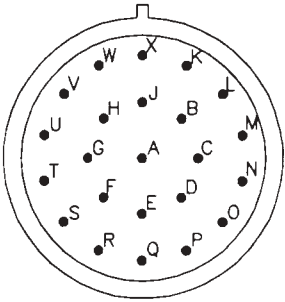
CABLE ASM 18GA/24WIRE X 90
(51713565)

- 1. 89044100 CABLE 18GA/24WIRE
- 3. 77040051 TERM #8 SPRSPD 16-14GA
- 4. 77044620 CONNECTOR
- 5. 77044580 SOCKET
- 7. 77044667 PLUG-CAP

90"
20
1
23
1

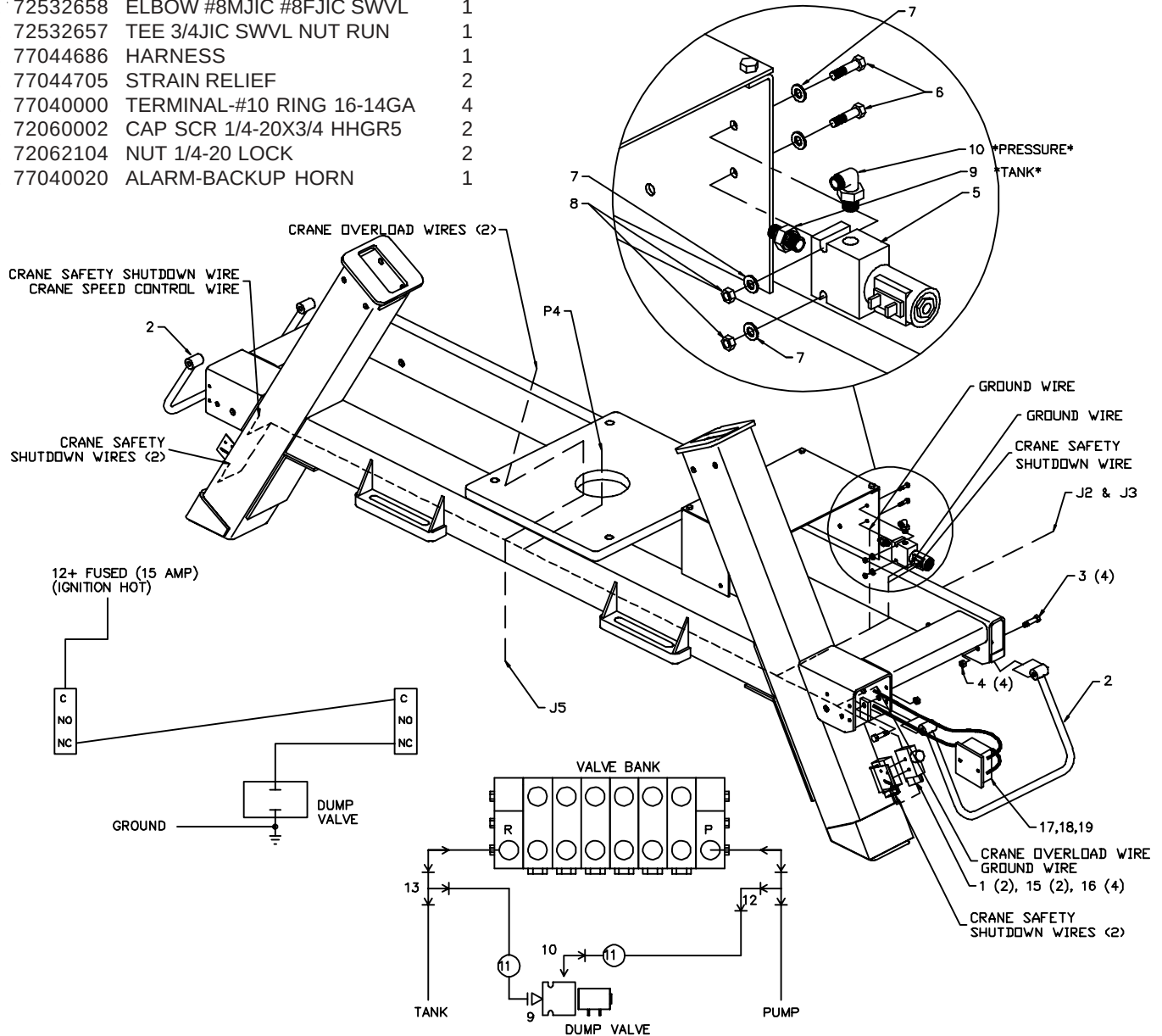


SOLID/STRIPE		TERM	ITEM NO
A	YEL/BLK		3
B	ORN/BLK		3
C	BLU/BLK		3
D	RED/BLK		3
E	ORN/RED		3
F	BRN		3
G	BRN/RED		3
H	BLU/RED		3
J	BLK/RED		3
K	BRN/BLK		3
L	RED		3
M	BLU		3
N	ORN		3
O	BLK/ORN		3
P	YEL		3
Q	BRN/BLU		-
R	YEL/RED		3
S	BLK		3
T	BLK/BLU		-
U	RED/BLU		3
V	BLU/ORN		-
W	ORN/BLU		3
X	YEL/BLU		3
-	RED/ORN		-



HYD SHUTDOWN KIT (31713025)

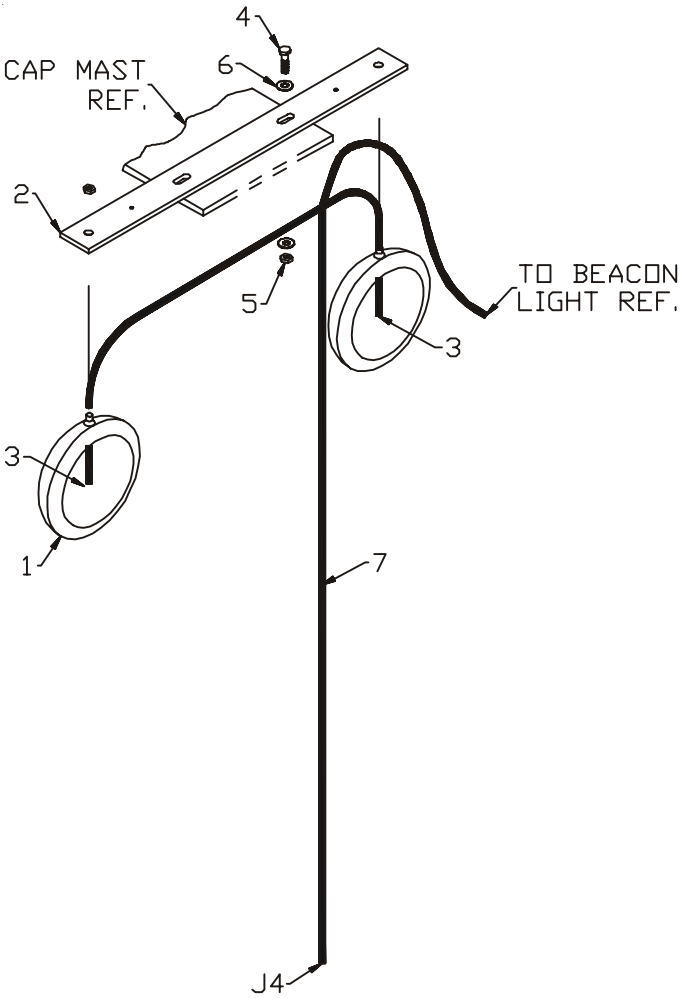
1.	77041459	LIMIT SWITCH	2
2.	52713106	HANDLE WELDMENT	2
3.	72060053	CAP SCR 3/8-16X2-3/4 HHGR5	4
4.	72062103	NUT 3/8-16 LOCK	4
5.	73054980	VALVE-SOLENOID	1
6.	72060008	CAP SCR 1/4-20X2 HHGR5	2
7.	72063001	WASHER 1/4 WRT	6
8.	72063049	NUT 1/4-20 LOCK	2
9.	72532358	ADAPTER #8MSTR #8MJIC	1
10.	72053763	ELBOW #8MSTR #8MJIC 90°	1
11.	51710586	HOSE ASM 1/2X30 FF	2
12.	72532658	ELBOW #8MJIC #8FJIC SWVL	1
13.	72532657	TEE 3/4JIC SWVL NUT RUN	1
14.	77044686	HARNESS	1
15.	77044705	STRAIN RELIEF	2
16.	77040000	TERMINAL-#10 RING 16-14GA	4
17.	72060002	CAP SCR 1/4-20X3/4 HHGR5	2
18.	72062104	NUT 1/4-20 LOCK	2
19.	77040020	ALARM-BACKUP HORN	1



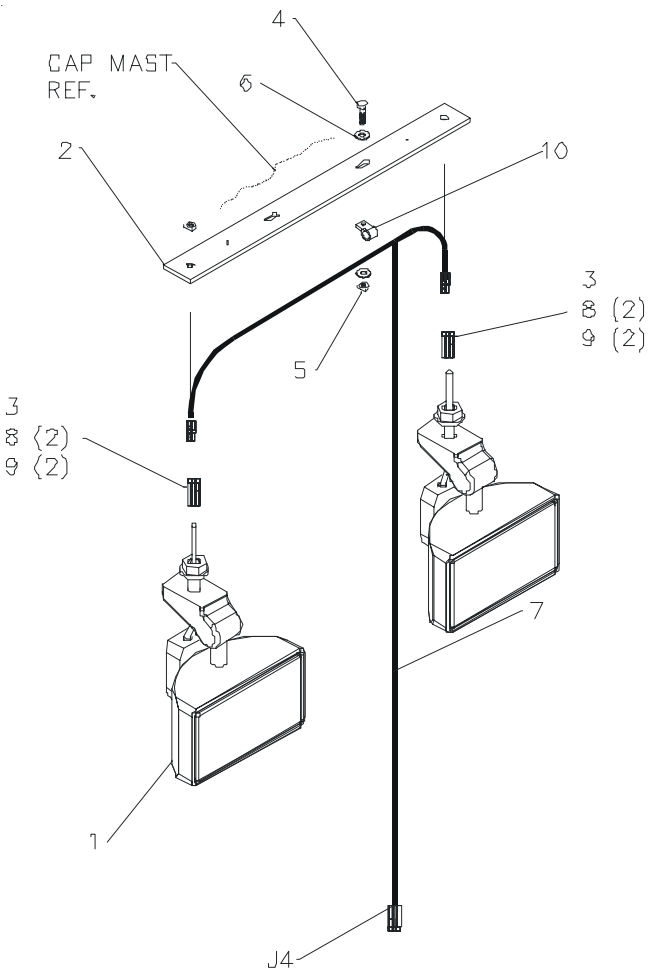
OPTION-FLOODLIGHT KIT (51708400)

1.	77040281	FLOODLIGHT (PRE: 3-1-01)	2
	77040193	FLOODLIGHT	
		(EFF: 3-1-01 TO 9-1-01)	2
	77040424	FLOODLIGHT (EFF: 9-1-01)	2
2.	60113425	LIGHT BRACKET	1
3.	77040000	TERM-RING #10 (PRE: 3-1-01)	2
	77044573	CONNECTOR 2-WAY (EFF: 3-1-01)	2
4.	72060048	CAP SCR 3/8-16X1-1/2 HHGR5	2
5.	72062103	NUT 3/8-16 LOCK	2
6.	72063003	WASHER 3/8 FLAT	4
7.	77044702	HARNESS (PRE: 3-1-01)	1
	77044968	HARNESS (EFF: 3-1-01)	1
8.	77044552	TERMINAL 18-20GA (EFF: 3-1-01)	4
9.	70394069	CABLE SEAL (EFF: 3-1-01)	4
10.	72661312	CLAMP-.50 LOOP CUSHION	2

PRE: 3-1-01

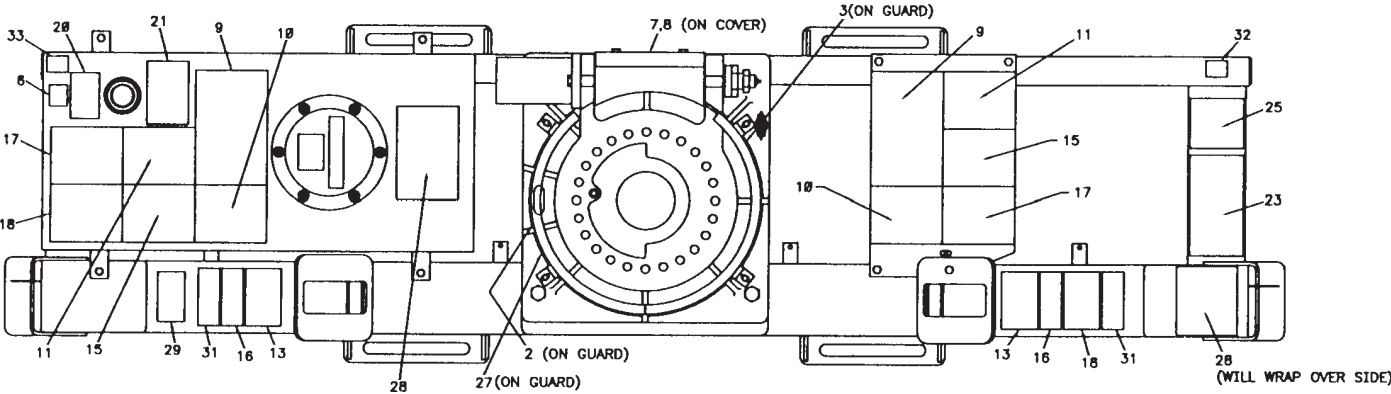
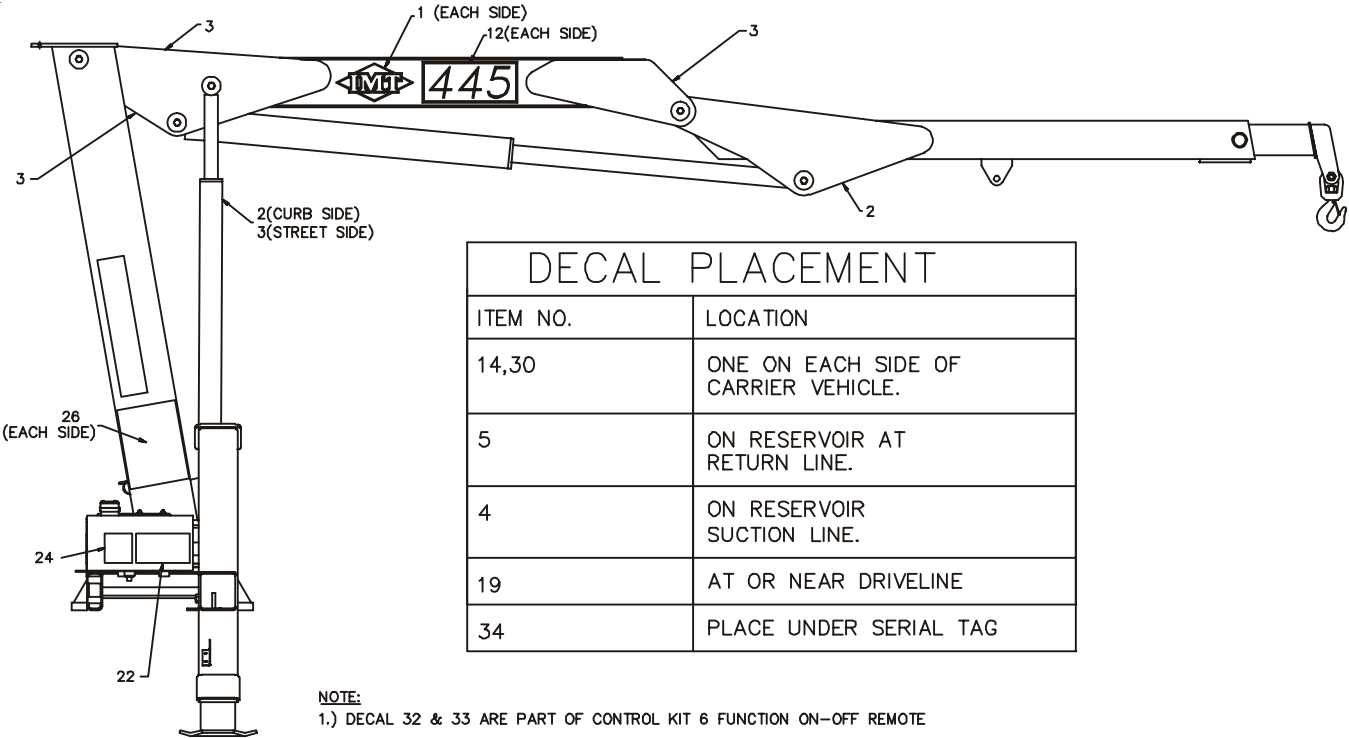


EFF: 9-1-01



DECAL KIT-MODEL 445 (95711800)

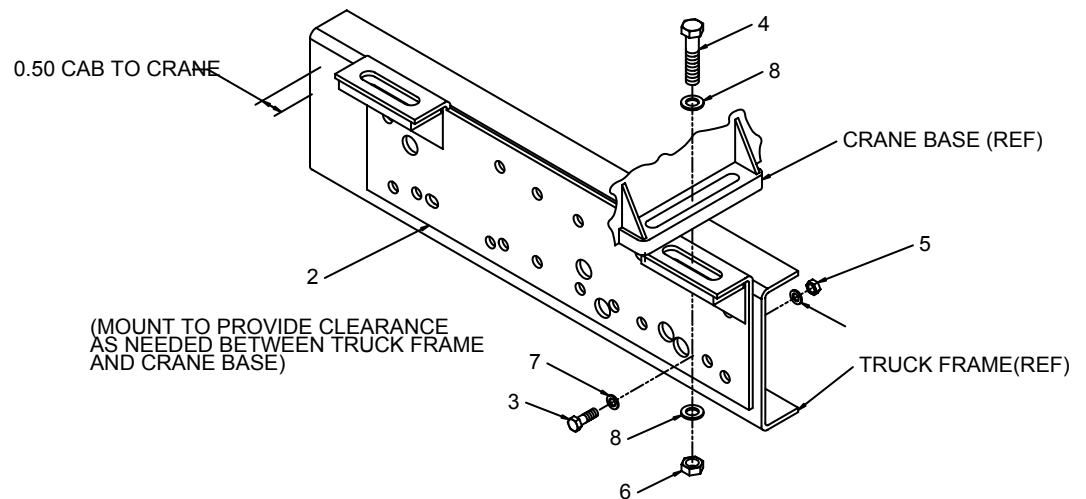
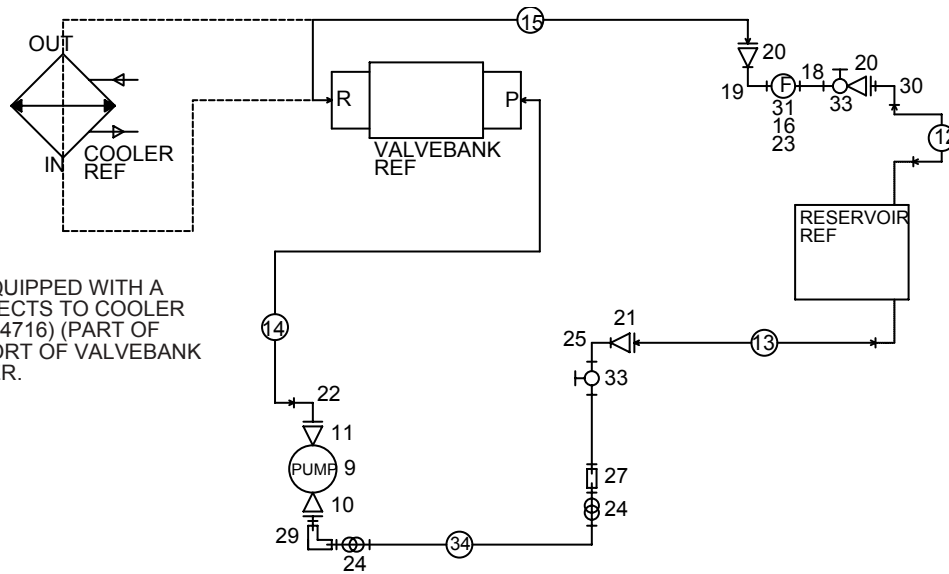
1. 70392887	PLACARD - IMT DIAMOND	2	17. 70392888	DECAL-DGR OPER RESTRICT	2
2. 70391612	DECAL-GREASE WKLY LH	3	18. 70392890	DECAL-DANGER STOW/FOLD	2
3. 70391613	DECAL-GREASE WKLY RH	4	19. 70392891	DECAL-DANGER DRIVELINE	2
4. 70392108	DECAL-SUCTION LINE	1	20. 70392982	DECAL-CONTACT IMT	1
5. 70392109	DECAL-RETURN LINE	1	21. 71039134	DECAL-CAUTION OIL LEVEL	1
6. 70392213	DECAL-CAUTION WASH/WAX	1	22. 71392255	DECAL-CONTROLS SS	1
7. 70392399	DECAL-LUBRICATE WORM	1	23. 71392256	DECAL-CONTROLS CS	1
8. 70392524	DECAL-ROTATE/GREASE	1	24. 71392257	DECAL-PWR DN OR SS	1
9. 70392813	DECAL-DGR ELECTROCUTION	2	25. 71392258	DECAL-PWR DN OR CS	1
10. 70392814	DECAL-DNGR OPER TRAINING	2	26. 71393769	CAPACITY PLACARD-445	2
11. 70392815	DECAL-DANGER OPERATION	2	27. 71392365	DECAL-ALIGN CRANE	1
12. 71393788	DECAL-445 IDENTIFICATION	2	28. 70391583	DECAL-WARNING STD CLR	2
13. 70392864	DECAL-DGR OUTRG STD CLR	2	29. 70394189	DECAL-RECOMMEND HYD OIL	1
14. 70392865	DECAL-DGR ELECTROCUTION	4	30. 70392868	DECAL-DANGER CR LOADLINE	4
15. 70392866	DECAL-DGR OPER CONDITIONS	2	31. 70392863	DECAL-DANGER HOIST PERS	2
16. 70392867	DECAL-DGR OUTRG MOVING	2	32. 71392726	DECAL-CTRL OUTRG (CURB)	1REF
			33. 71392725	DECAL-CTRL OUTRG (STREET)	1REF
			34. 70395323	DECAL-ASME/ANSI B30.22	1



INSTALLATION KIT-1999 FORD (93714829)

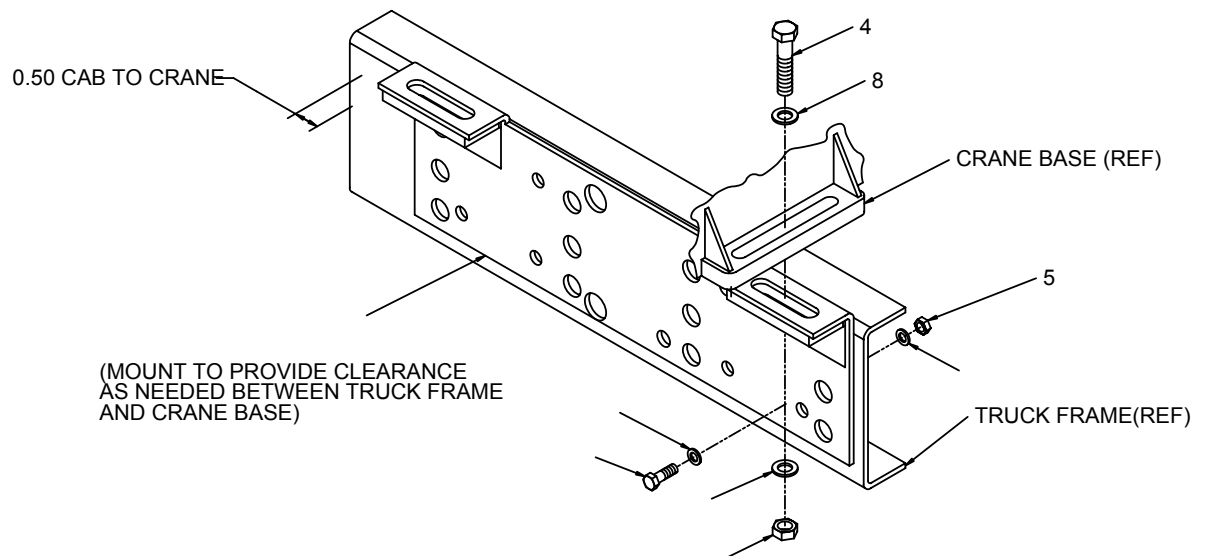
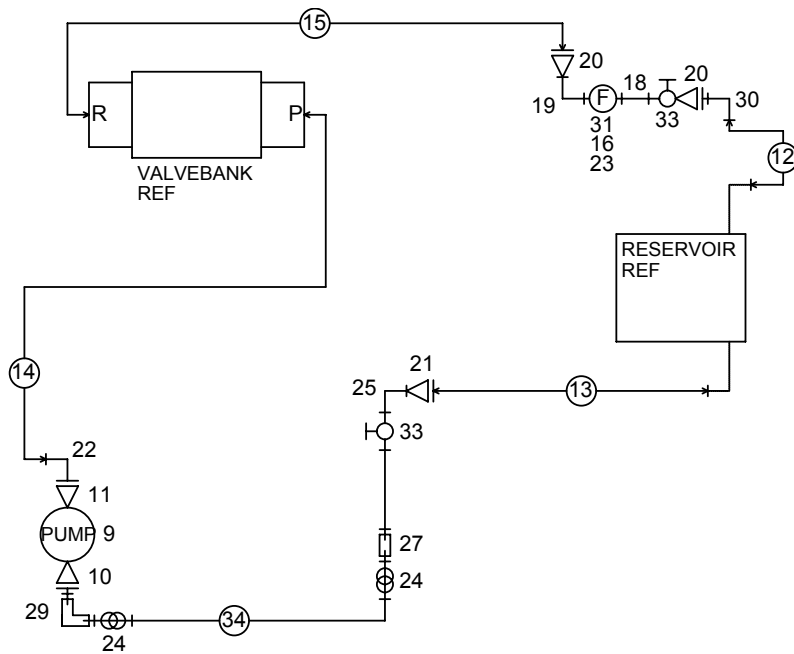
2.	52714705	SHEAR PLATE (1999 FORD)	2	15.	51706041	HOSE ASM-1/2X22 FF	1
3.	72060151	CAP SCR 5/8-11X2 HHGR8	16	16.	60103870	OIL FILTER BRACKET	1
4.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	4	18.	72053141	NIPPLE BLK PIPE 3/4XCLOSE	1
5.	72062233	NUT 5/8-11 HEX TOP LOCK GR8	16	19.	72053556	ELBOW 3/4X90° STREET STL	1
6.	72062140	NUT 3/4-10 HEX LOCK STIN GR5	4	20.	72053671	ADPTR 3/4MPT #8MJIC	2
7.	72063119	WASHER 5/8N FLAT	32	21.	72053676	ADPTR 3/4MPT #12MJIC	1
		(QTY. WAS 16)		22.	72053763	ELBOW #8MSTR #8MJIC 90°	1
8.	72063116	WASHER 3/4N FLAT	8	23.	72060025	CAP SCR 5/16-18X1 HHGR5	2
9.		PUMP	1REF	24.	72066514	CLAMP-HOSE 3/4 2-BOLT	2
10.		ADPTR(DEPENDENT ON PUMP)	1REF	25.	72531087	ELBOW-STL 3/4X45°	1
11.		ADPTR(DEPENDENT ON PUMP)	1REF	27.	72531548	NIPPLE-BARB STL 3/4MPT 3/4	1
12.	51703866	HOSE ASM-1/2X12 FF	1	29.	72532344	NIPPLE-BARB 90° 3/4 3/4	1
13.	51703945	HOSE ASM-3/4X17 FF	1	30.	72532670	ELBOW #8MJIC #8FJIC 45°	1
14.	51704030	HOSE ASM-3/8X84 FF	1	31.	73052000	FILTER HYD 10MIC	1
				33.	73054129	VALVE-GATE 3/4 BRASS	2
				34.	60035959	HOSE 3/4X32 100R4	1

NOTE: WHEN CRANE IS EQUIPPED WITH A COOLER, HOSE #15 CONNECTS TO COOLER OUTLET PORT HOSE (51394716) (PART OF CRANE) CONNECTS "R" PORT OF VALVEBANK TO INLET PORT OF COOLER.



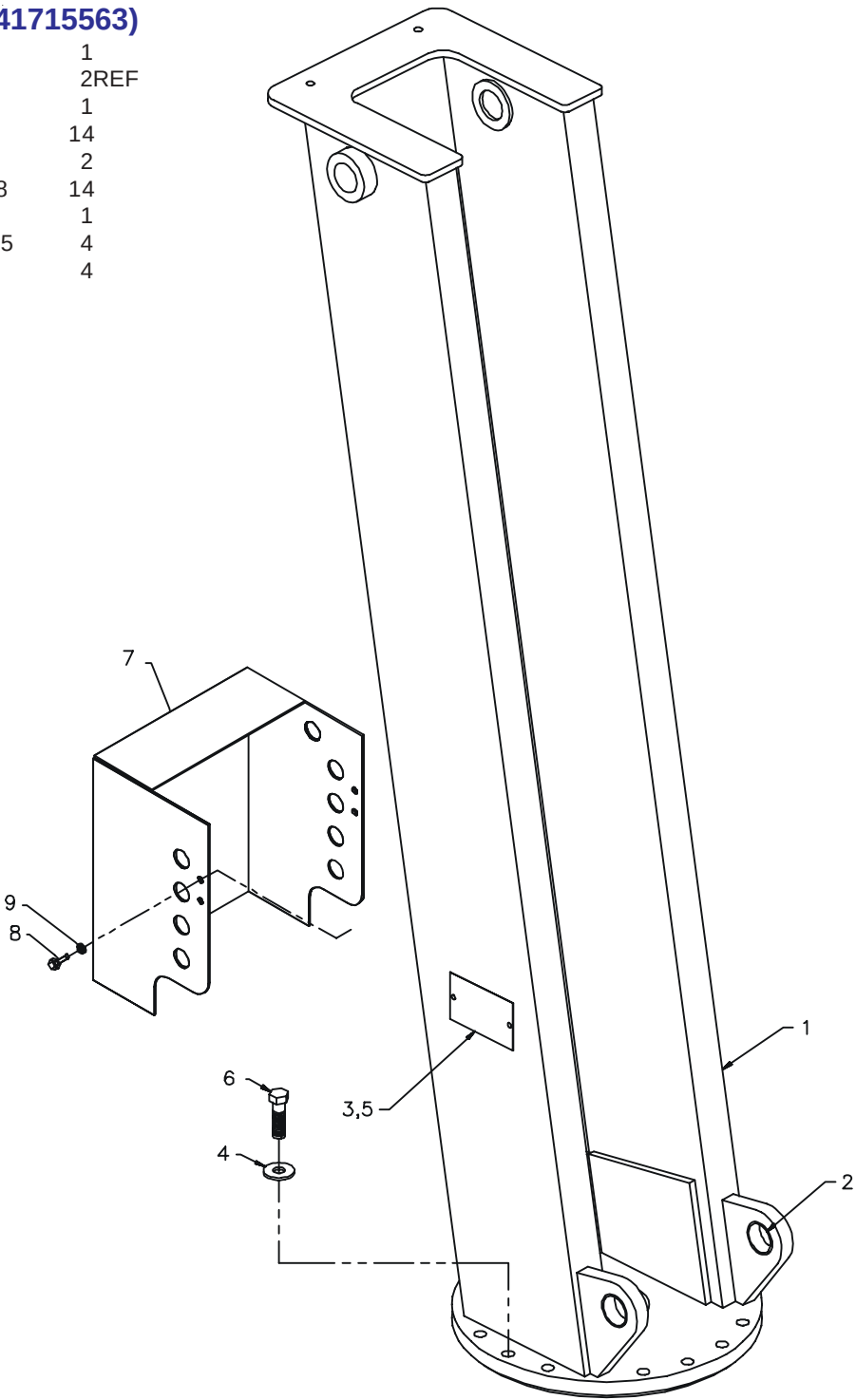
INSTALLATION KIT-1999 FORD (93718342)

2.	52715749	SHEAR PLATE	2	15.	51706041	HOSE ASM-1/2X22 FF	1
3.	72060151	CAP SCR 5/8-11X2 HHGR8	16	16.	60103870	OIL FILTER BRACKET	1
4.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	4	18.	72053141	NIPPLE BLK PIPE 3/4XCLOSE	1
5.	72062233	NUT 5/8-11 HEX TOP LOCK GR8	16	19.	72053556	ELBOW 3/4X90° STREET STL	1
6.	72062140	NUT 3/4-10 HEX LOCK STIN GR5	4	20.	72053671	ADPTR 3/4MPT #8MJIC	2
7.	72063119	WASHER 5/8N FLAT	32	21.	72053676	ADPTR 3/4MPT #12MJIC	1
8.	72063116	WASHER 3/4N FLAT	8	22.	72053763	ELBOW #8MSTR #8MJIC 90°	1
9.		PUMP	1REF	23.	72060025	CAP SCR 5/16-18X1 HHGR5	2
10.		ADPTR(DEPENDENT ON PUMP)	1REF	24.	72066514	CLAMP-HOSE 3/4 2-BOLT	2
11.		ADPTR(DEPENDENT ON PUMP)	1REF	25.	72531087	ELBOW-STL 3/4X45°	1
12.	51703866	HOSE ASM-1/2X12 FF	1	27.	72531548	NIPPLE-BARB STL 3/4MPT 3/4	1
13.	51703945	HOSE ASM-3/4X17 FF	1	29.	72532344	NIPPLE-BARB 90° 3/4 3/4	1
14.	51704030	HOSE ASM-3/8X84 FF	1	30.	72532670	ELBOW #8MJIC #8FJIC 45°	1
				31.	73052000	FILTER HYD 10MIC	1
				33.	73054129	VALVE-GATE 3/4 BRASS	2
				34.	60035959	HOSE 3/4X32 100R4	1



MAST ASM-STATIONARY MNT (41715563)

1.	52715562	MAST	1
2.	7BF80715	BUSHING	2REF
3.	70029119	SERIAL NO. PLACARD	1
4.	72063117	WASHER 9/16 FLAT HARD	14
5.	72066340	POP RIVET 1/8	2
6.	72601144	CAP SCR 9/16-12X2 HHGR8	14
7.	60121921	VB COVER	1
8.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4
9.	72063040	WASHER 1/4 LOCK	4



INNER CYLINDER (3B165010)

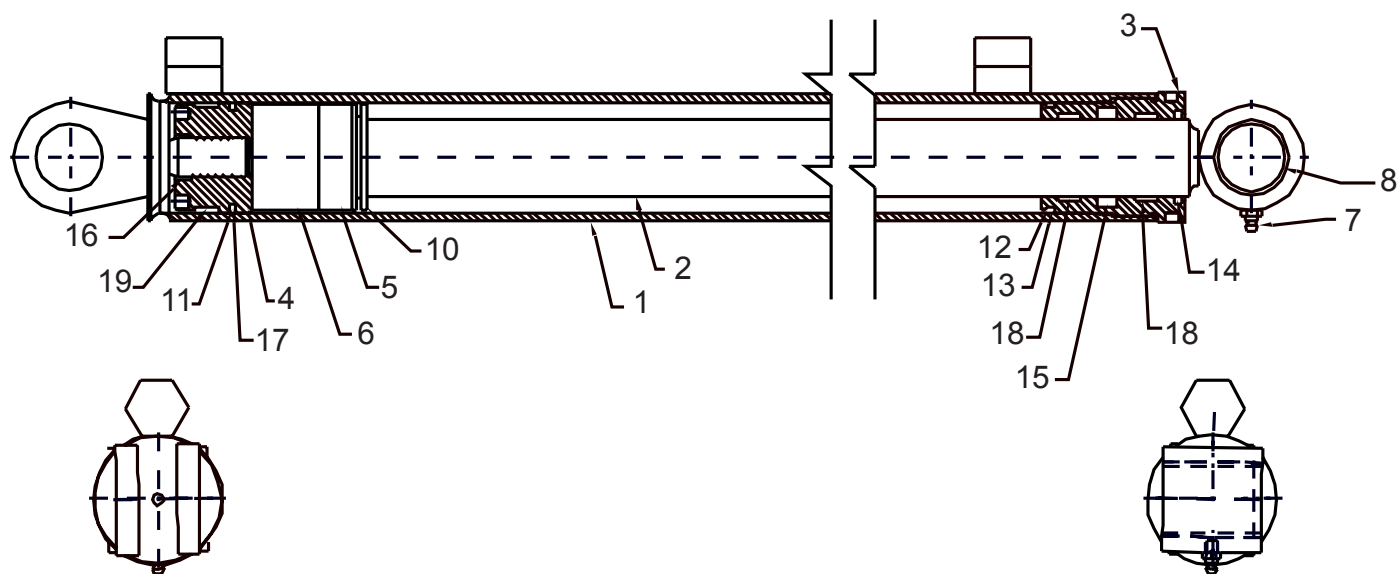
1.	4B165010	CASE	1
2.	4G092880	ROD ASM (INCL. 7,8)	1
3.	6HD25017	HEAD	1
4.	6ID25087	PISTON	1
5.	6C075017	STOP TUBE	1
6.	6C150017	STOP TUBE	1
7.	7BF81015	BUSHING (PART OF 2)	2REF
8.	72053507	ZERK 1/4-28 (PART OF 2)	1REF
9.	9D101414	SEAL KIT (INCL. 9-19)	1
10.	6A025017	WAFFER LOCK (PART OF 9)	1REF
11.	7Q072137	O-RING (PART OF 9)	1REF
12.	7Q072228	O-RING (PART OF 9)	1REF
13.	7Q10P228	BACKUP RING (PART OF 9)	1REF
14.	7R14P017	ROD WIPER (PART OF 9)	1REF
15.	7R546017	U-CUP (PART OF 9)	1REF
16.	7T61N087	LOCK RING (PART OF 9)	1REF
17.	7T66P025	PISTON SEAL (PART OF 9)	1REF
18.	7T2NX420	WEAR RING (PART OF 9)	2REF
19.	7T2N4025	WEAR RING (PART OF 9)	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.

**NOTE:**

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.

INNER CYLINDER (3B209980)

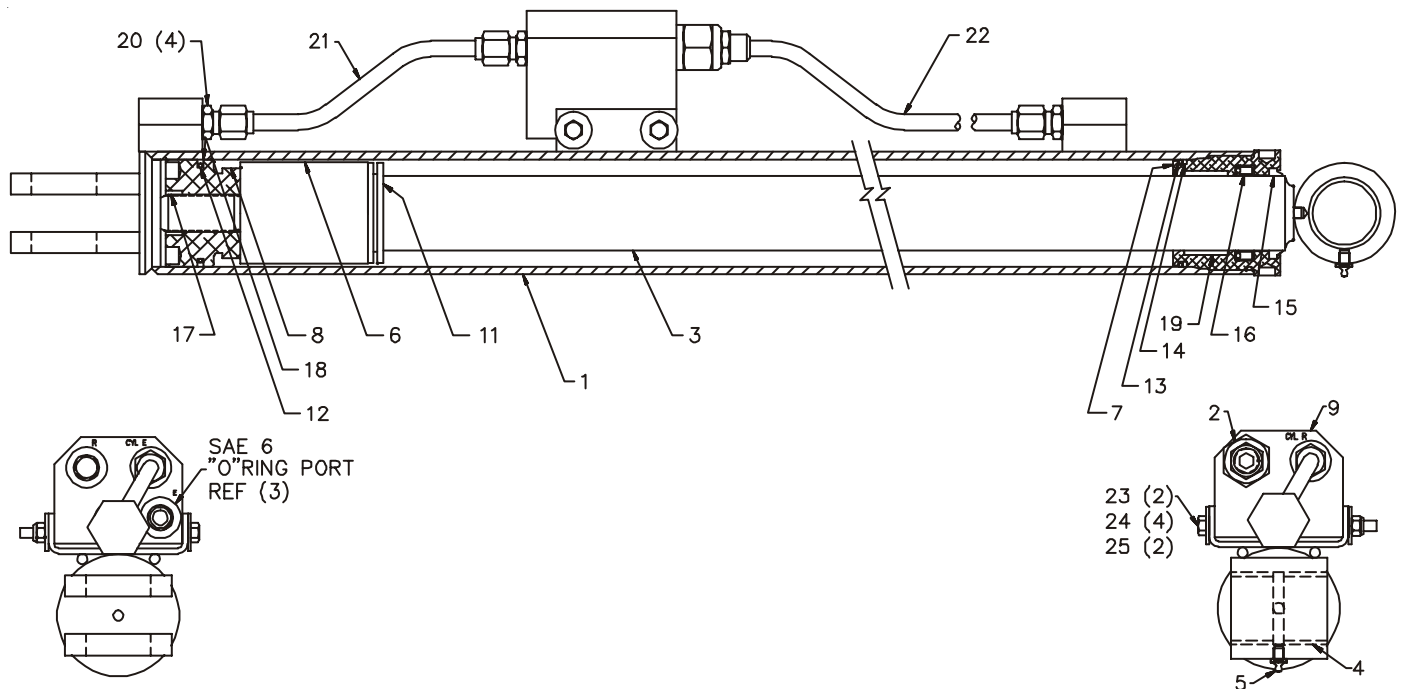
1. 4B208980 CASE ASM	1REF
2. 73540049 C'BAL VALVE (PART OF 9)	1REF
3. 4G092880 ROD ASM (INCL:4,5)	1REF
4. 7BF81015 BUSHING (PART OF 3)	2REF
5. 72053507 ZERK 1/4-28 (PART OF 3)	1REF
6. 6C300017 STOP TUBE 3"	1REF
7. 6H025017 HEAD	1REF
8. 6I025087 PISTON	1REF
9. 73540059 C'BAL VALVE (INCL:2)	1
10. 9B101414 SEAL KIT (INCL:11-18)	1REF
11. 6A025017 WAFER LOCK (PART OF 10)	1REF
12. 7Q072137 O-RING (PART OF 10)	1REF
13. 7Q072228 O-RING (PART OF 10)	1REF
14. 7Q10P228 BACKUP RING (PART OF 10)	1REF
15. 7R14P017 ROD WIPER (PART OF 10)	1REF
16. 7R546017 U-CUP LOADED (PART OF 10)	1REF
17. 7T61N087 LOCK RING (PART OF 10)	1REF
18. 7T66P025 PISTON SEAL (PART OF 10)	1REF
19. 7T2N8020 WEAR RING (PART OF 10)	1REF
20. 72533186 ADAPTER #6MFACE #6MSTR	4
21. 70145752 TUBE ASM (1014 CRANE)	1
22. 70145755 TUBE ASM (3000 CRANE)	1
23. 72060037 CAP SCR 5/16-18X4 HHGR5	2
24. 72063002 WASHER 5/16 WRT	4
25. 72062109 NUT 5/16-18 LOCK	2
26. 3B208980A CYLINDER	1

NOTE

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

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

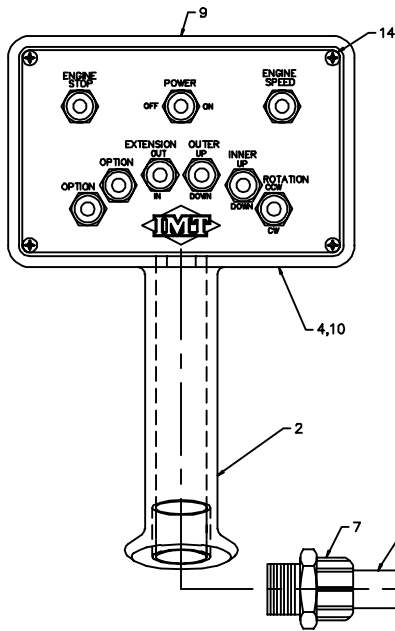
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



REMOTE HANDLE ASM-TIRE SERVICE (51715568)

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

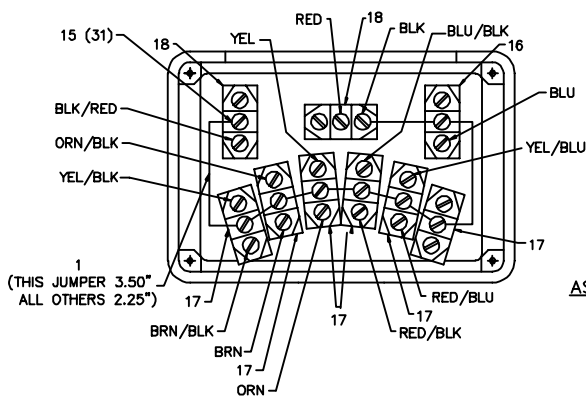
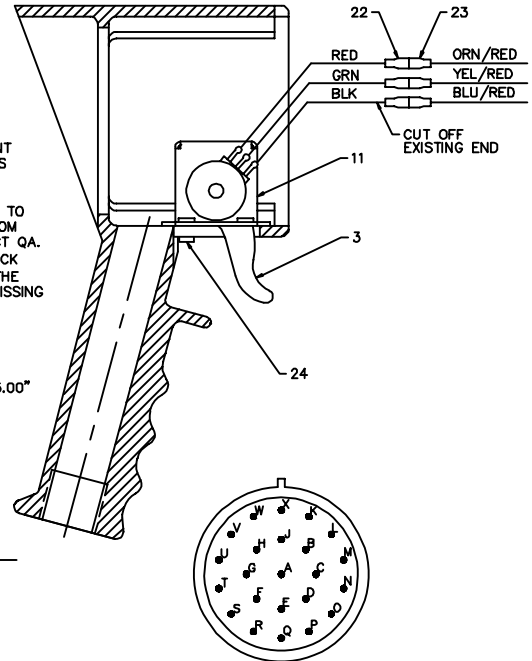


ASSEMBLY OF PROPORTIONAL TRIGGER

- 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.)
- 3) PUSH THE TRIGGER ASSEMBLY TOWARDS THE FRONT OF THE HOUSING, AS THE MOUNTING SCREW HOLES WILL ALLOW. DO NOT FULLY TIGHTEN AT THIS POINT.
- 4) TIGHTEN THE SCREWS FULLY AT THIS POINT.
- 5) 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.
- 6) FILL THE RIGHT HAND SCREWS 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.)
- 7) 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.

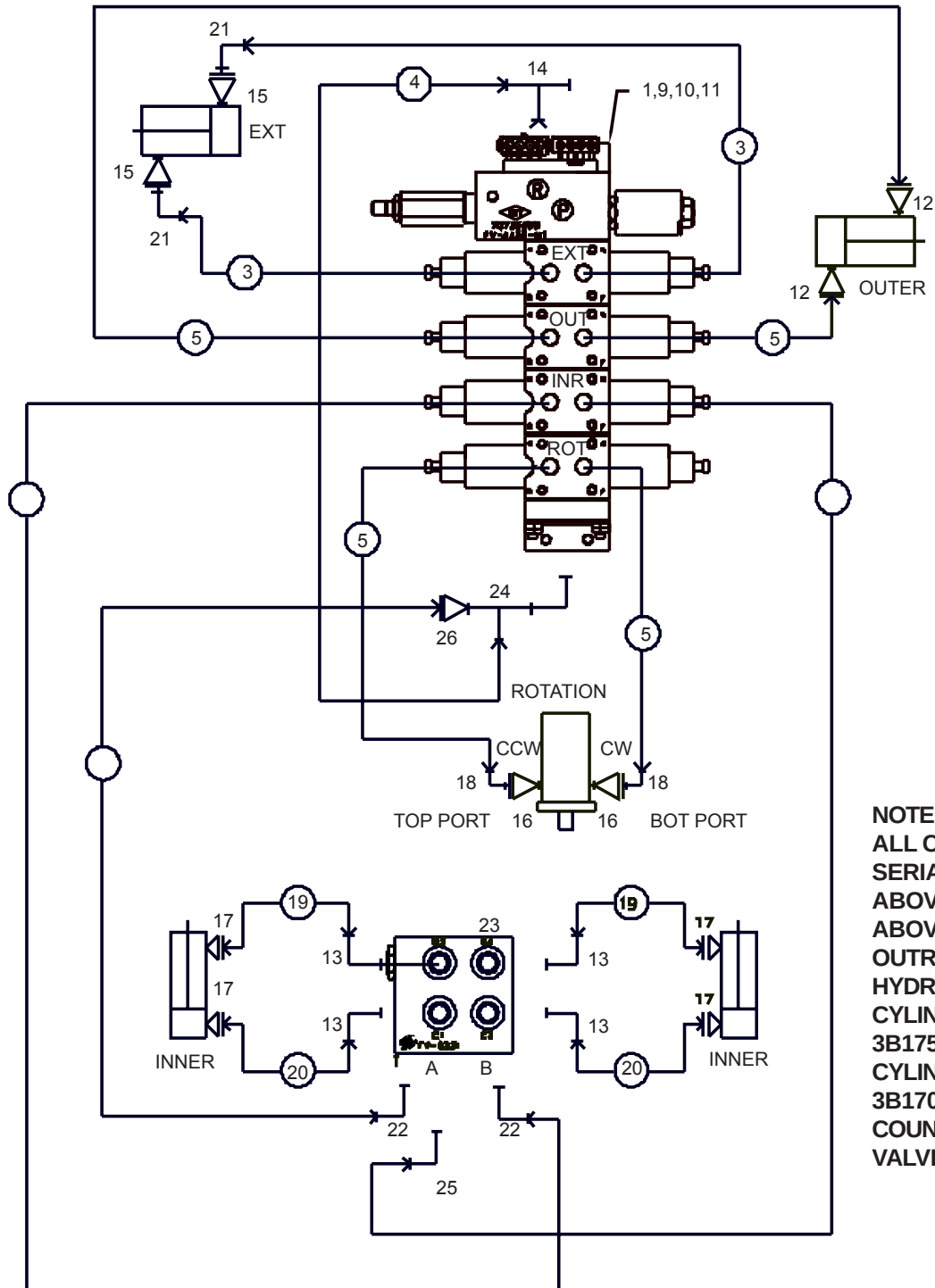
- 1) INSTALL (1) STAR WASHER BETWEEN SWITCH & FACE PLATE.
- 2) INSTALL (1) LOCK NUT ON FRONT OF FACE PLATE TO RETAIN SWITCH.
- 3) DISCARD ALL OTHER MOUNTING HARDWARE.

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	-

HYDRAULIC KIT - 4 FUNCTION (91716937)

1.	70733399	VALVE BANK	1
3.	51395552	HOSE-FJ 1/4-135.00 OAL (4-4)	2REF
4.	51394949	HOSE-FJ 1/2X11.50 OAL (8-8)	1REF
5.	51394954	HOSE-FJ 1/4X57.00 OAL (4-4)	4REF
6.	51717652	HOSE KIT (INCL 3-5,7,8)	1
7.	51395644	HOSE-1/4 X 18.00 OAL (4-4)	1REF
8.	51394948	HOSE-1/4 X 21.00 OAL (4-4)	2REF
9.	72060002	CAP SCREW 1/4-20X3/4HH GR5	4
10.	72063001	WASHER 1/4 FLAT	4
11.	72062104	NUT 1/4-20 NYLOC	4
12.	72532351	ADPTR #4MSTR #4MJIC	4

13.	72533163	ELBOW #6MSTR #6MFACE 90°	4
14.	72532671	TEE-SWIVEL NUT BRANCH 8	1
15.	72533052	ADPTR-#8MSTR #6FSTR	2
16.	72532722	ADPTR-#10MSTR #6FSTR	2
17.	72533186	ADPTR #6MFACE #6MSTR	4
18.	72532985	ELBOW #6MSTR #4MJIC 45°	2
19.	70146344	TUBE ASM	2
20.	70146345	TUBE ASM	2
21.	72532699	ELBOW #6MSTR #4MJIC 90°	2
22.	72053758	ELBOW #4MSTR #4MJIC 90°	2
23.	73540091	VALVE	1
24.	72532657	TEE SWIVEL NUT RUN JIC #8	1
25.	72533598	ELBOW #4MSTR #4MJIC XLG	1
26.	72532665	ADPTR #4MJIC #8FJIC	1

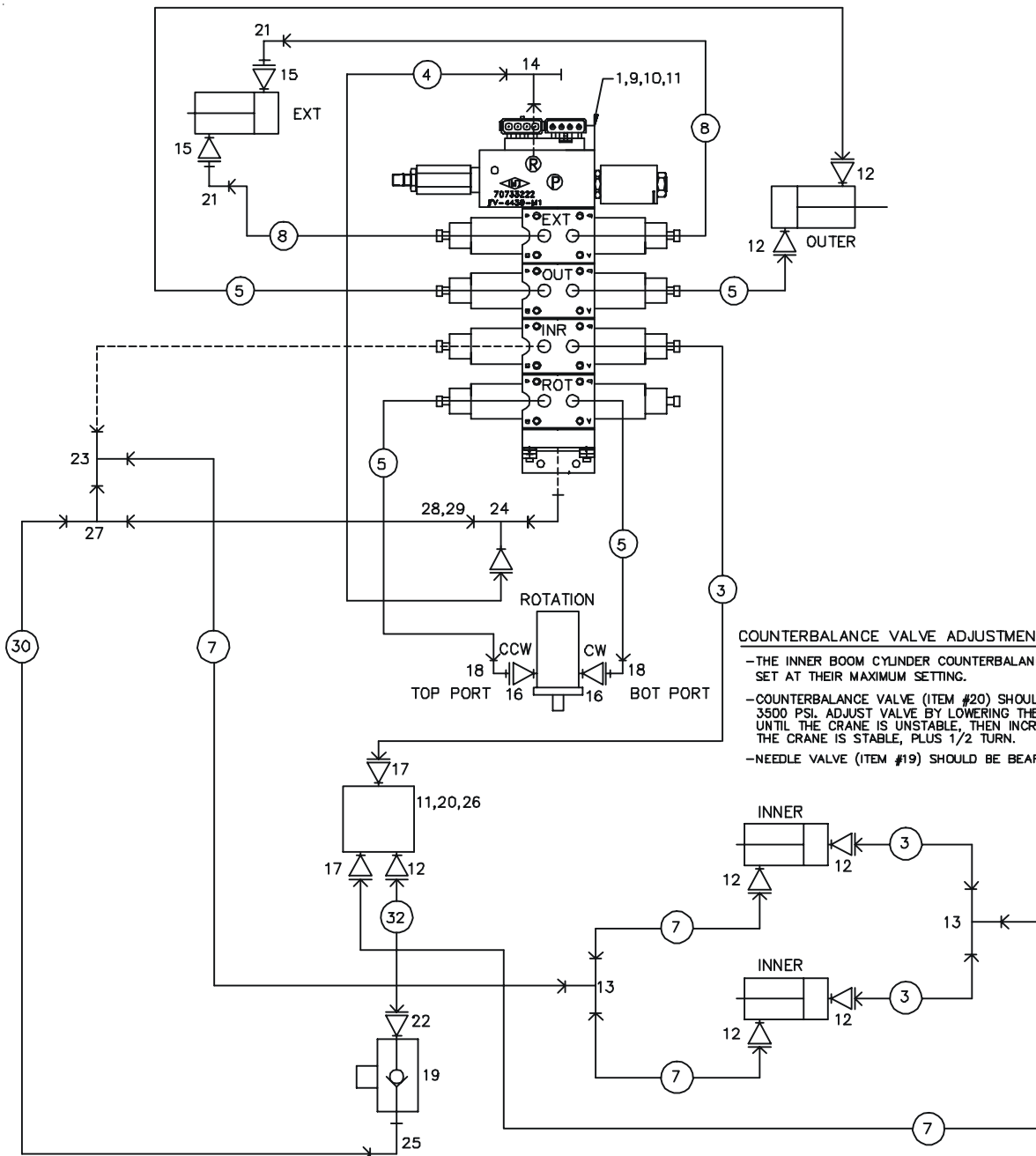


NOTE:
ALL CRANES WITH
SERIAL NUMBERS
ABOVE 445011083
ABOVE USE
OUTRIGGER
HYDRAULIC
CYLINDERS
3B175010, OUTER
CYLINDERS
3B170010, AND
COUNTERBALANCE
VALVE 73540091.

HYD KIT-4F-STATIONARY MNT (91715565)

1.	70733399	VALVEBANK 4SECT PROP	1	17.	72532792	ADAPTER #8MSTR #4MJIC	2
2.	51715569	HOSE KIT (INCL:35,7,8,30-32)	1	18.	72532985	ELBOW #6MSTR #4MJIC 45°	2
3.	51394948	HOSE ASM-FJ .25X21 #4#4	3REF*	19.	73540060	NEEDLE VALVE W/CHECK	1
4.	51394950	HOSE ASM-FI .50X11.5 #8#8	1REF*	20.	73540061	C'BAL VALVE	1
5.	51394954	HOSE ASM-FJ .25X57 #4#4	4REF*	21.	72532699	ELBOW #6MSTR #4MJIC 90°	2
7.	51395551	HOSE ASM-FF .25X27 #4#4	4REF*	22.	72053499	ADAPTER 1/4MPT #4MJIC	1
8.	51395552	HOSE ASM-FJ .25X135 #4#4	2REF*	23.	72532981	TEE 1/4MPT #4MJIC	1
9.	72060002	CAP SCR 1/4-20X3/4 HHGR5	4	24.	72532657	TEE #8 SWVLNUTRUN	1
10.	72063001	WASHER 1/4 WRT	4	25.	72531412	ELBOW 1/4MPT #4MJIC 90°	1
11.	72062104	NUT 1/4-20 LOCK	4	26.	72060009	CAP SCR 1/4-20X2-1/4 HHGR5	2
12.	72532351	ADAPTER #4MSTR #4MJIC	7	27.	72533021	TEE #4 SWVLNUTBRANCH	1
13.	72532768	TEE #4MJIC 1/4TUBE	2	28.	72532665	ADAPTER #4MJIC #8FJIC	1
14.	72532671	TEE #8 SWVLNUTBRANCH	1	29.	60120299	ORIFICE	1
15.	72533052	ADAPTER #8MSTR #8FSTR	2	30.	51395663	HOSE-FJ .25X14 #4#4	1REF*
16.	72532722	ADAPTER #10MSTR #6FSTR	2	31.	51395664	HOSE-FJ .25X10.5 #4#4	1REF*
				32.	51395665	HOSE-FI .25X6.5 #4#4	1REF*

* PART OF ITEM 2, HOSE KIT

**COUNTERBALANCE VALVE ADJUSTMENT INSTRUCTIONS:**

- THE INNER BOOM CYLINDER COUNTERBALANCE VALVES MUST BE SET AT THEIR MAXIMUM SETTING.
- COUNTERBALANCE VALVE (ITEM #20) SHOULD BE SET AT APPROXIMATELY 3500 PSI. ADJUST VALVE BY LOWERING THE SETTING OF THE VALVE UNTIL THE CRANE IS UNSTABLE, THEN INCREASING THE SETTING UNTIL THE CRANE IS STABLE, PLUS 1/2 TURN.
- NEEDLE VALVE (ITEM #19) SHOULD BE BEARLY OPEN.

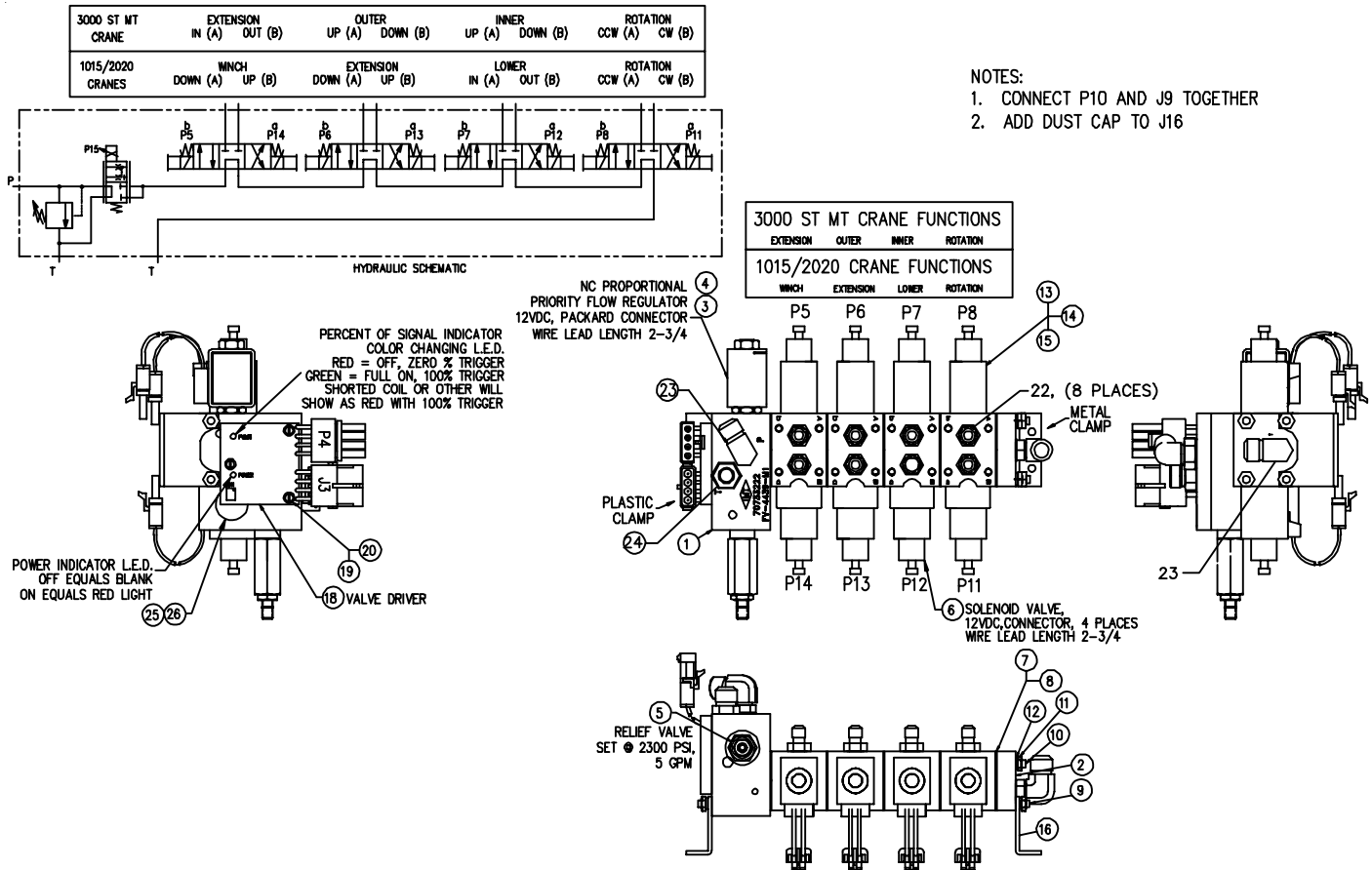
VB- 4 SECT PROP'L RMT (70733399)

1. 70145629	INLET BODY	1
2. 70145628	OUTLET BODY	1
3. 70145627	NC PRPL FLOW REG	1
4. 70145626	COIL 12VDC	1
5. 70145625	RELIEF VALVE SEAT @ 2300PSI	1
6. 70145624	SOLENOID VALVE	4
77041602	COIL	REF
7. 70143337	O-RING PLATE	5
8. 70145623	O-RING	10
9. 70145622	ROD 1/4-20X11-1/2 GR8	2
10. 70145621	ROD 1/4-20X9-1/2 GR8	2
11. 72062000	NUT 1/4-20	6
12. 72063047	WASHER 1/4 LOCK	6

13. 77044574	CONN TOWER	9
14. 77044577	CONN TERM	18
15. 77044578	CABLE SEAL	18
16. 70145738	MTG FOOT	2
17. 70145620	TAG-TIE ROD	1
18. 77044826	VALVE DRIVER	1
19. 72601704	MACH SCR 6-32X3/4	3
20. 72601705	WASHER #6 FLAT	3
21. 70733394	CABLE ASM	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

NOTES:

1. CONNECT P10 AND J9 TOGETHER
2. ADD DUST CAP TO J16



CABLE ASM-STAT MNT (70733394)

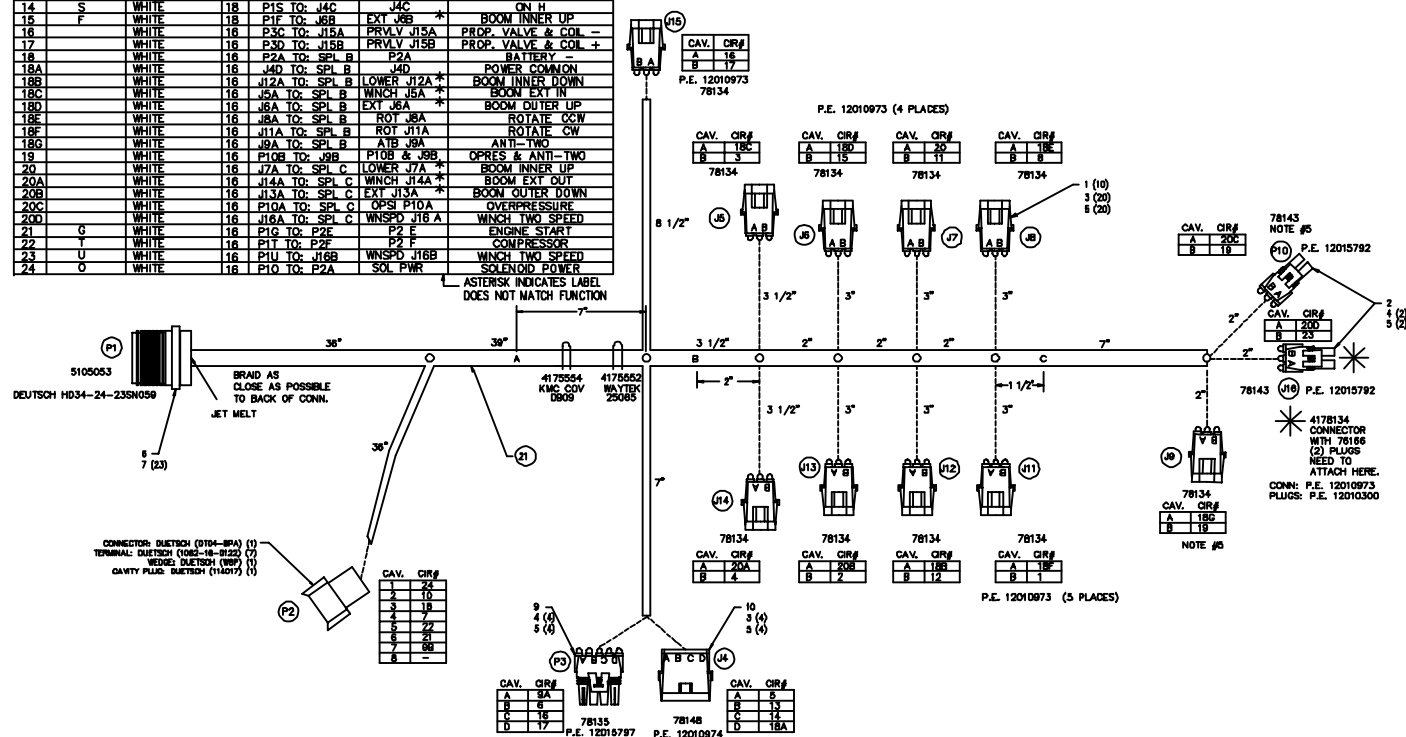
- | | | | |
|-----|----------|--------------------|-------|
| 1. | 77044573 | SHROUD CONN | 10REF |
| 2. | 77044574 | TOWER CONN | 2REF |
| 3. | 77044576 | TERM-M | 24REF |
| 4. | 77044577 | TERM-F | 8REF |
| 5. | 77044578 | CABLE ASM | 32REF |
| 6. | 77044620 | CONN RCPT | 1REF |
| 7. | 77044580 | SOCKET | 23REF |
| 9. | 77044623 | TOWER CONN 4-CONT | 1REF |
| 10. | 77044624 | SHROUD CONN 4-CONT | 1REF |

CIR		5105053	COLOR	GA	WEATHER PAK	LABELING	FUNCTION
		PIN CAVITY	WHITE		CONNECTOR		
1	A	WHITE	18	P1A TO J11B	ROT J11B	*	ROTATE CW
2	C	WHITE	18	P1B TO J13B	ROT J13B	*	BOOM INNER DOWN
3	A	WHITE	18	P1C TO J5B	WIN J5B	*	BOOM EXT UP
4	D	WHITE	18	P1D TO J14B	WIN J14B	*	BOOM EXT DOWN
5	E	WHITE	18	P1E TO J4A	J4A		REF
6	G	WHITE	18	P1H TO J2C	P2B		SIGNAL COMM
7	J	WHITE	18	P1J TO P2C	P2C		SPEED RELAY
8	K	WHITE	18	PIK TO J6B	ROT J6B		ROTATE CCW
9	L	WHITE	16	P1L TO SPL A	N7A		PI TO SPLICE
9A		WHITE	16	P5A TO SPL A	P5A		POWER +
9B		WHITE	16	P2B TO SPL A	P2B		IGNITION SOLENOID
10	M	WHITE	18	P1M TO P2D	P2D		KEL RELAY
11	N	WHITE	18	P1N TO J7B	LOWER J7B *		BOOM OUTER UP
12	P	WHITE	18	P1P TO J12B	LOWER J12B *		BOOM OUTER DOWN
13	R	WHITE	18	P1R TO J4C	J4C		VOLTS
14	S	WHITE	18	P1S TO J4C	J4C		Q N H
15	F	WHITE	18	P1F TO J6B	EXT J6B *		BOOM INNER UP
16		WHITE	16	P3C TO J15A	PRV J15A		PRDP. VALVE & COIL -
17		WHITE	16	P3D TO J15B	PRV J15B		PRDP. VALVE & COIL +
18		WHITE	16	P2A TO SPL B	P2A		BATTERY -
18A		WHITE	16	J4D TO SPL B	J4D		POWER COMMON
18B		WHITE	16	J12A TO SPL B	LOWER J12A *		BOOM INNER DOWN
18C		WHITE	16	J5A TO SPL B	WINCH J5A *		BOOM EXT UP
18D		WHITE	16	J6A TO SPL B	EXT J6A *		BOOM OUTER UP
18E		WHITE	16	J8A TO SPL B	ROT J8A		ROTATE CCW
18F		WHITE	16	J11A TO SPL B	ROT J11A		ROTATE CW
18G		WHITE	16	J9A TO SPL B	ATB J9A		ANTI-TWO
19		WHITE	16	P10B TO J5B	P10B & J5B		OPRES. LIMIT-TWO
20		WHITE	16	J7A TO SPL C	LOWER J7A *		BOOM INNER UP
20A		WHITE	16	J13A TO SPL C	WINCH J13A *		BOOM EXT OUT
20B		WHITE	16	J14A TO SPL C	EXT J14A *		BOOM OUTER DOWN
20C		WHITE	16	J10A TO SPL C	OPS P10A		OVERSPEED
20D		WHITE	16	J16A TO SPL C	WNSPD J16 A		WINCH TWO SPEED
21	G	WHITE	16	P1G TO P2E	P2 E		ENGINE START
22	T	WHITE	16	P1T TO P2F	P2 F		COMPRESSOR
23	U	WHITE	16	P1U TO J16B	WNSPD J16B		WINCH TWO SPD
24	O	WHITE	16		SPL PWR		SPL P100 POWER

WIRE SPECIFICATIONS			
PART #	SIZE (AWG)	# OF STRANDS	INSULATION THICKNESS
GXL16	16	19/29	.023 MILS-NOM.
GXL18	18	16/30	.023 MILS-NOM.

- HEAT RESISTANCE IN ACCORDANCE WITH SAE J-1128
 - TEMPERATURE RANGE: -51 C TO +125 C
 - MEETS FORD SPEC (M1L-858) & CHRYSLER (NS-8900)

THIS WIRE HARNESS CONFIGURATION
IS FOR THE 3000 ST MT CRANE ONLY



BASE & OUTRIGGER ASM-RADIO RMT (41715293)

1. 51707512	BASE	1REF	32. 60030097	WEAR PAD	2
2. 52713754	TURNTABLE GUARD RH	1REF	33. 60106968	PIN	2
3. 52713755	TURNTABLE GUARD LH	1REF	34. 72060059	CAP SCR 3/8-16X5-1/2 HHGR5	4
4. 60030086	TUBING 1/4 X 6	1REF	35. 72062103	NUT 3/8-16 LOCK	6
5. 60030116	THRUST BEARING	2REF	36. 72066125	RETAINING RING 1" HD EXT	4
6. 60107543	WORM SUPPORT	1REF	37. 72060185	CAP SCR 3/4-10X2 HHGR5	1
7. 60111627	WORM COVER	1REF	38. 72063116	WASHER 3/4 HARD FLAT	3
8. 70055147	ROLLER BEARING	1REF	39. 72060044	CAP SCR 3/8-16X3/4 HHGR5	2
9. 70055148	ROLLER BEARING	1REF	40. 72063051	WASHER 3/8 LOCK	2
10. 70056397	WORM GEAR	1REF	41. 72063003	WASHER 3/8 WRT	6
11. 71056395	TURNTABLE BEARING	1REF	42. 70732577	RESERVOIR ASM - 10 GALLON	1
12. 71143165	ROTATION SLIDE	1REF	43. 72531427	ELBOW 3/4MPT #12MJIC 90°	1
13. 72053301	COUPLING 1/8NPT	1REF	44. 72601625	CAP SCR 3/4-10X2.25 HH GR5	3
14. 72063050	WASHER 5/16 LOCK	2REF	45. 72060047	CAP SCR 3/8-16X1-1/4 HHGR5	2
15. 72053508	ZERK 1/8NPT	2REF	46. 70145799	RETAINER, ELEC HARNESS	3
16. 72060000	CAP SCR 1/4-20X1/2 HHGR5	4REF	47. 70395857	DECAL-INSTRUCTION	2
17. 72060023	CAP SCR 5/16-18X3/4 HHGR5	2REF	48. 70034069	PLASTIC TIES	2
18. 72062251	LOCKNUT 7/8-9	1REF	49. 70143144	OIL COOLER	1REF
19. 72062162	NUT 9/16-12 HEX GR8	23REF	50. 51718482	FANASM	1
20. 72063161	WASHER 1-1/8 HARD	3REF	51. 72060046	CAP SCR 3/8-16X1 HHGR5Z	4REF
21. 72063049	WASHER 1/4 LOCK	4REF	52. 72063003	WASHER 3/8 FLAT	4REF
22. 72063117	WASHER 9/16 HARD	23REF	53. 72062103	NUT 3/8-16 HEX NYLOC	4REF
23. 72531731	ADAPTER 1/8MPT 1/4TUBE	1REF	54. 70396481	MOUNT PIN	4
24. 72531746	ELBOW 1/8MPT 1/4TUBE 90°	1REF			
25. 72601510	CAPSCR 9/16-12X3-3/4HHGR8	23REF			
26. 73051482	MOTOR	1REF			
27. 72060796	CAP SCR 1/2-13X1-3/4 SH	2REF			
28. 41707846	BASE ASM (INCL:1-27)	1			
29. 52715058	BASE WLDMT-RADIO	1			
30. 3B175010	OUTRIGGER CYLINDER	2			
31. 52714625	OUTRIGGER LEG	2			

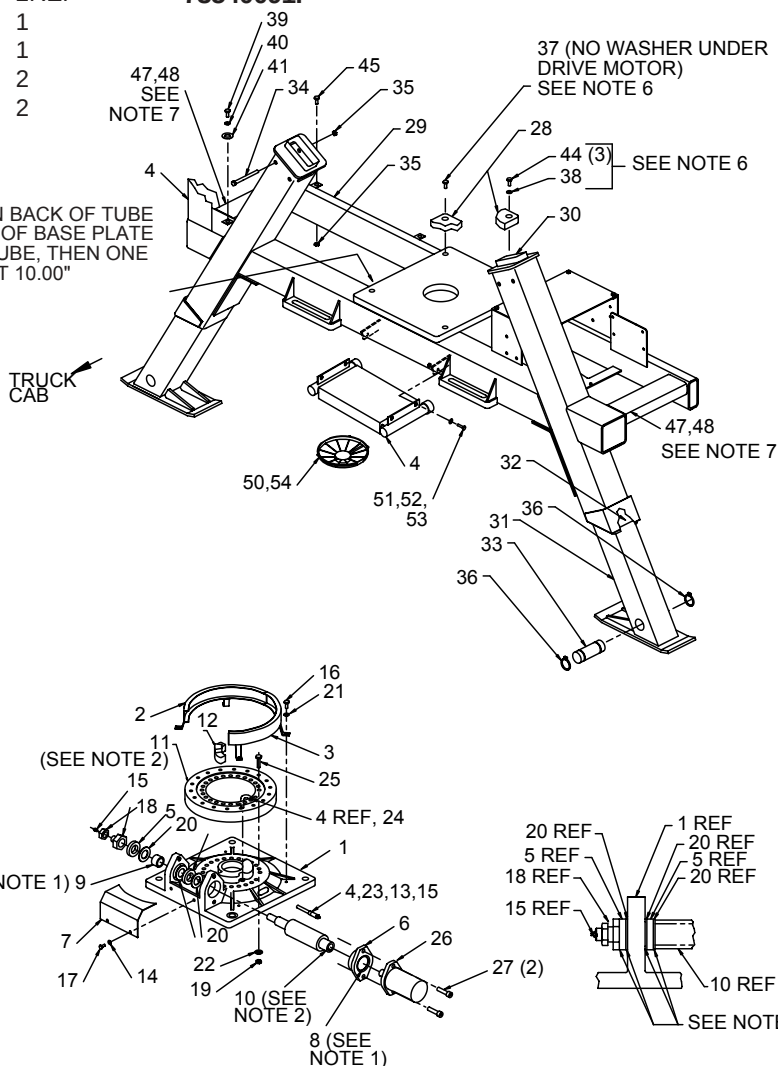
NOTE:

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS 3B170010, AND COUNTERBALANCE VALVE 73540091.

PLACE ITEM #46 (3) ON BACK OF TUBE STARTING IN CENTER OF BASE PLATE ON CENTER OF THE TUBE, THEN ONE AT 13.50" THEN ONE AT 10.00" (SEE NOTE 6)

ASSEMBLY NOTES:

1. Pack bearings with grease.
2. Apply Molub-Alloy 936 to turntable bearing and worm teeth.
3. Lubricate both sides of thrust bearings (#4) at installation. See Note 4 for approved lubrications.
4. Approved lubricants include "Slip Plate", "Lubri-Plate," or other lubricants including graphite or 2MSO.
5. Install item #37 in this location only, under drive motor. Install #47 and #38 in the other three locations. Apply servicable threadlock to all four locations.
6. Spray or wipe tube surface with alcohol. Scrub with clean rag or paper towel until surface is dry before applying item #46 to the tube. Apply pressure and hole - 15 psi for 10 to 15 seconds. On heavy grime or oxidized surfaces, you may need to abrade the surface with scotch pad, fine steel wool, or abrasive paper (220 grit or finer) to cut the problem surface.
7. Install decal #47 and tie #48.

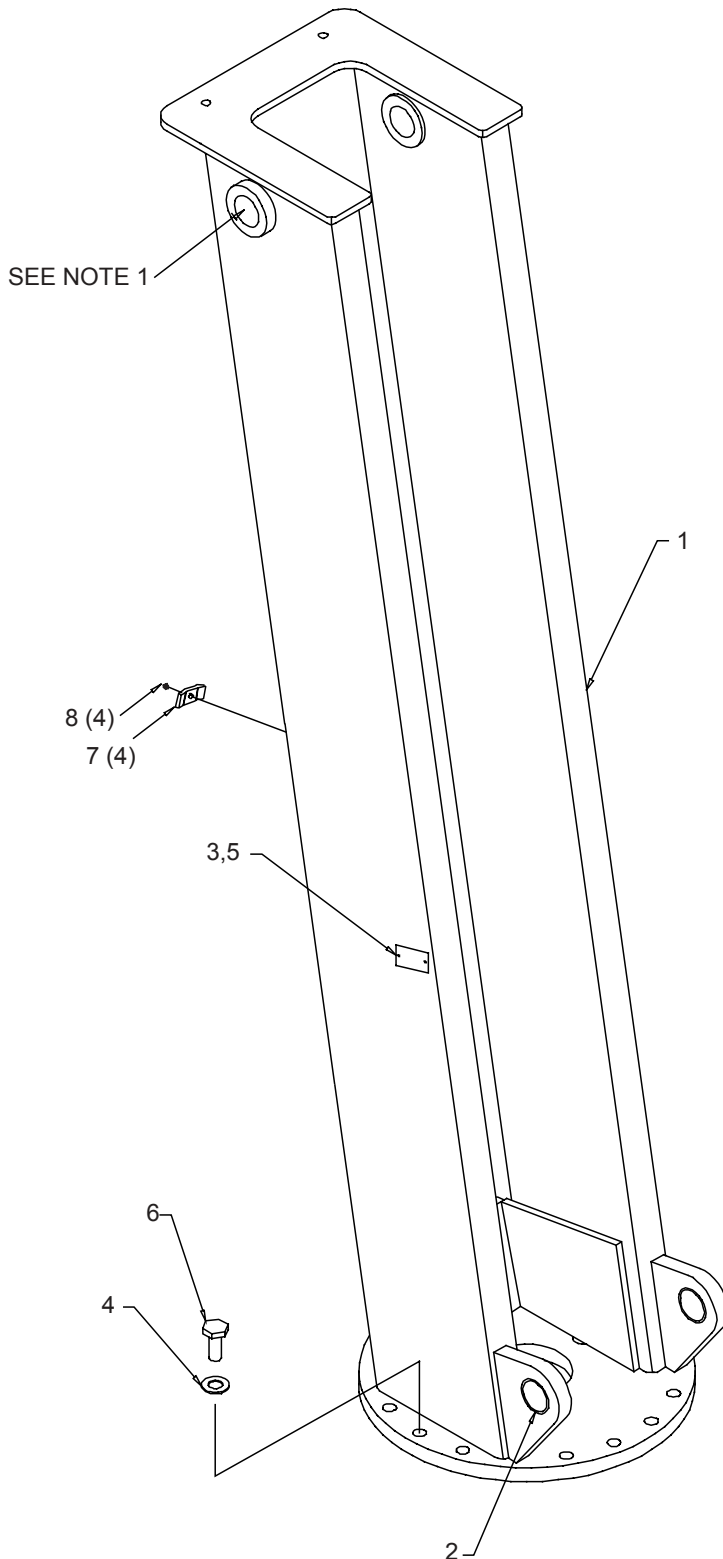


MAST ASM-RADIO REMOTE (41715825)

1.	52715813	MAST (INCL: 2)	1
2.	7BF80715	BUSHING (PART OF 1)	2REF
3.	70029119	SERIAL NUMBER PLACARD	1
4.	72063117	WASHER 9/16 FLAT GR8	14
5.	72066340	RIVET 1/8	2
6.	72601144	CAP SCR 9/16-12X2 HHGR8	14
7.	60103278	HOSE CLAMP	4
8.	72062104	NUT 1/4-20 HEX NYLOC ZINC	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.

**NOTE:**

1. APPLY NEVER-SEEZ TO COLLAR ID.

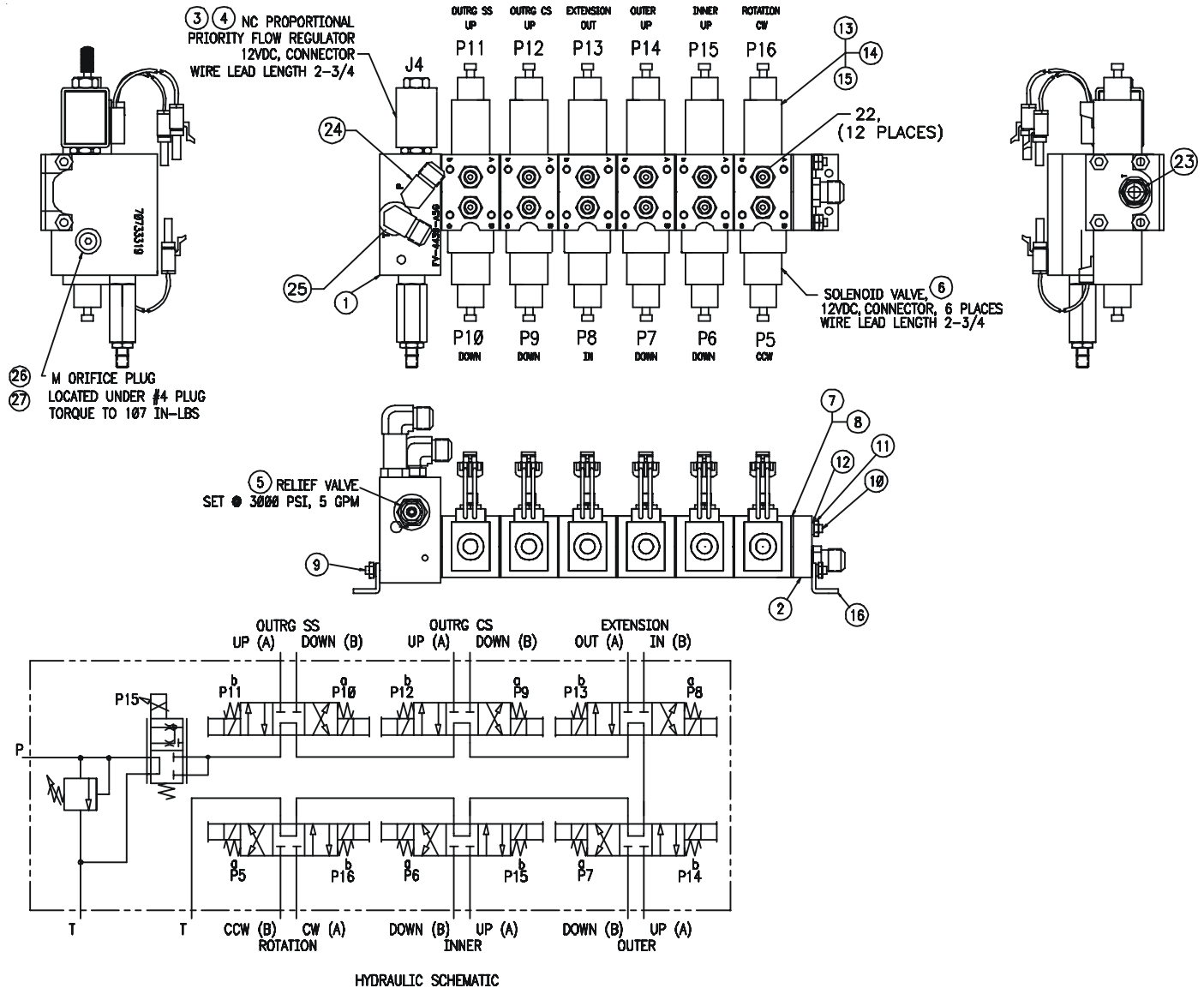
NOTE:

ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS 3B170010, AND COUNTERBALANCE VALVE 73540091.

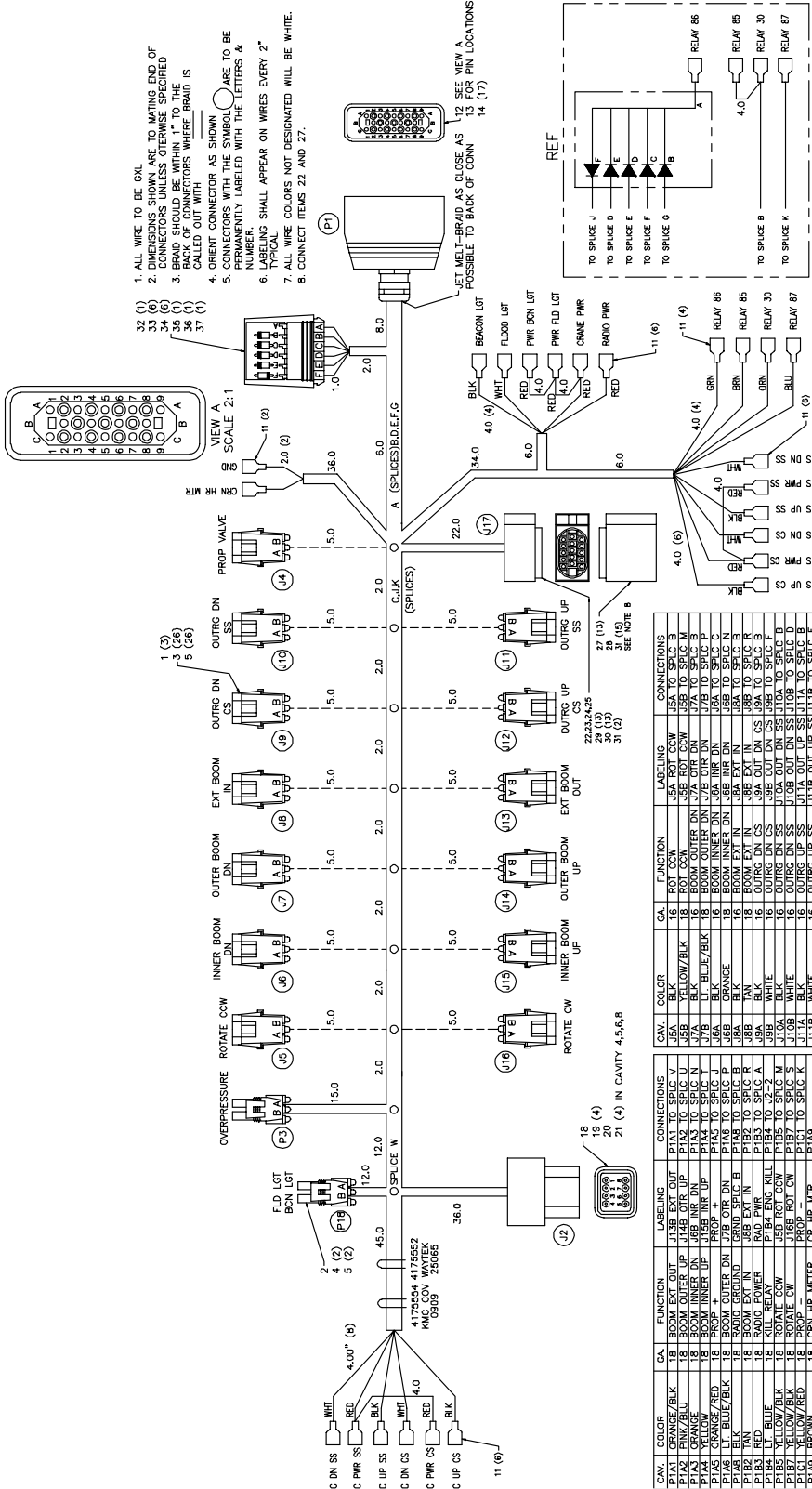
VB ASM-6 SECT PROP'L RC-PRE: 3-1-01 (70733319)

1.	70145629	INLET BODY	1
2.	70145628	OUTLET BODY	1
3.	70145627	FLOW REGULATOR	1
4.	70145626	COIL 12VDC	1
5.	70145625	RELIEF VALVE SET@3000PSI 5GPM	1
6.	70145624	SOLENOID VALVE	6
7.	70143337	O-RING PLATE	7
8.	70145623	O-RING	14
9.	70145859	THREADED ROD 1/4-20X13.45	2
10.	70145860	THREADED ROD 1/4-20X15.37	2
11.	72062000	NUT 1/4-20	6

12.	72063047	WASHER 1/4 LOCK	6
13.	77044574	CONNECTOR TOWER	13
14.	77044577	CONNECTOR TERMINAL	26
15.	77044578	CABLE SEAL-GRN	26
16.	70143336	MOUNTING FOOT	2
17.	70145620	NAME TAG-TI ROD	1
21.	70733323	WIRING HARNESS	1
22.	72532353	ADAPTER #6MSTR #4MJIC	12
23.	72532357	ADAPTER #6MSTR #8MJIC	1
24.	72053762	ELBOW #6MSTR #8MJIC 90°	1
25.	72532779	ELBOW #6MSTR #8MJIC 90°XLG	1
26.	70145861	ORIFICE PLUG 1/16-27NPT	1
27.	70145862	PLUG #4 HEX SH	1



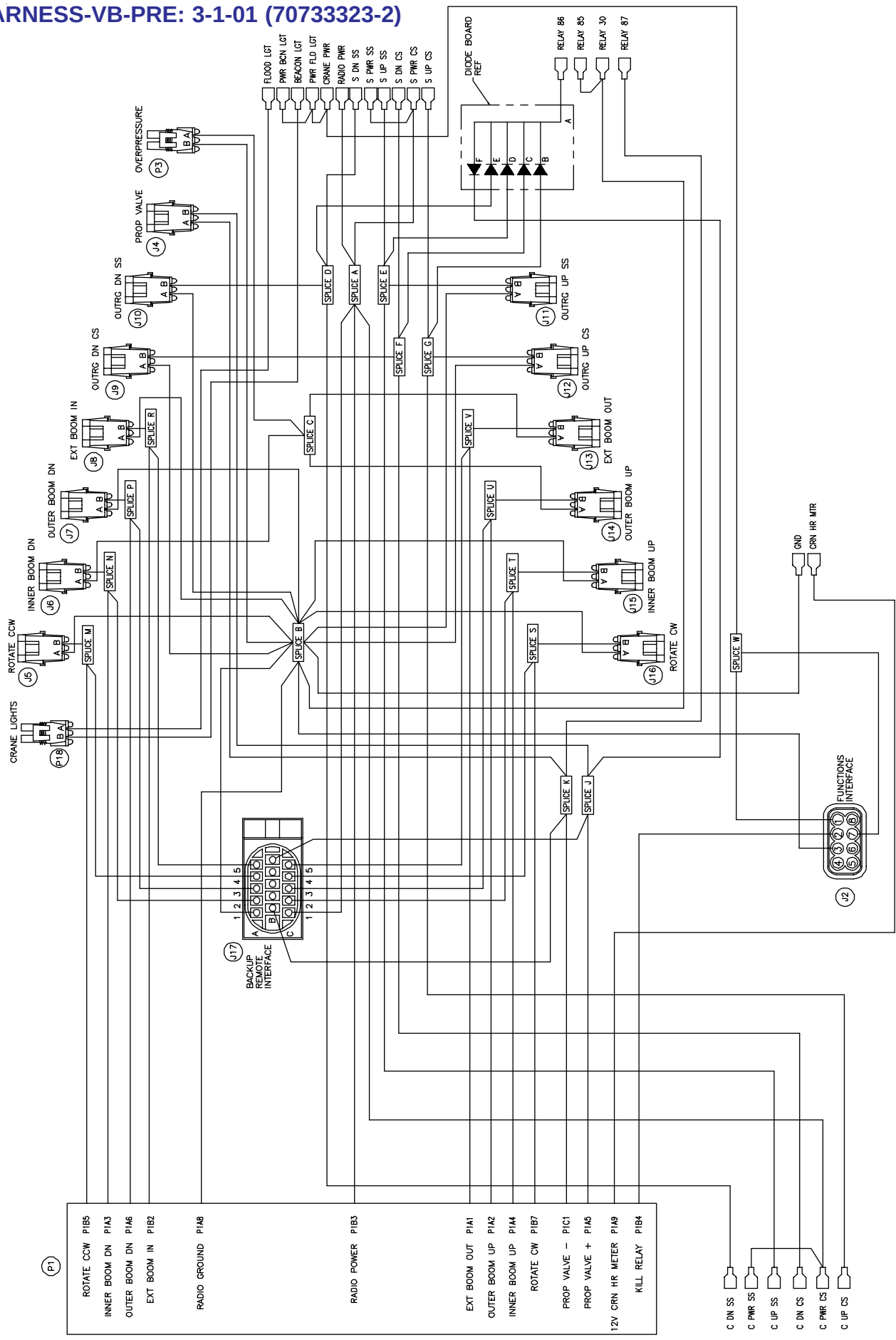
WIRE HARNESS-VB-PRE: 3-1-01 (70733323-1)



ALL LISTED PARTS ARE FOR REFERENCE ONLY

1.	77044573	SHROUD CONN 2-CONTACT	13REF
2.	77044574	TOWER CONN 2-CONTACT	1REF
3.	77044576	TERMINAL-MALE 20-18GA	26REF
4.	77044577	TERMINAL-FEM 20-18GA	8REF
5.	77044578	CABLE SEAL-GRN 20-18GA	34REF
8.	77044622	TOWER CONN 6-CONTACT	1REF
9.	---	DIODE	4REF
10.	---	DIODE	1REF
11.	77040186	TERMINAL-1/4FSLPON 16-14GA	24REF
12.	70145941	CONN-HOOD	1REF
13.	70145942	CONNECTOR	1REF
14.	70145943	TERMINAL	17REF
15.	70145930	PLUG-12SOCKET	1REF
16.	70145937	SOCKET	11REF
17.	70145939	SEALING PLUG	1REF
18.	77044910	RECEPTACLE-8WAY	1REF
19.	77044905	PIN-TERMINAL	4REF
20.	77044904	LOCK WEDGE-8WAY RECPT	1REF
21.	77044909	CAVITY PLUG	4REF
22.	77044884	CONN-15F	1REF
23.	77044885	TPA-15F	1REF
24.	77044886	CABLE SEAL	1REF
25.	77044887	CPA SLIDE LOCK	1REF
27.	77044889	CONNECTOR-15M	1REF
28.	77044890	TPA-15M	1REF
29.	77044891	TERMINAL-FEM 16-18GA	13REF
30.	77044892	CABLE SEAL 16-18GA	13REF
31.	77044893	CAVITY PLUG	17REF
32.	77044926	CONNECTOR 6-WAY	1REF
33.	77044927	CABLE SEAL 12-14GA	6REF
34.	77044928	TERMINAL-F 12-14GA	6REF
35.	77044929	TPA-BLUE 6F	1REF
36.	77044930	CAP-CLEAR DIODE BOARD	1REF
37.	77044931	DIODE BOARD	1REF

WIRE HARNESS-VB-PRE: 3-1-01 (70733323-2)

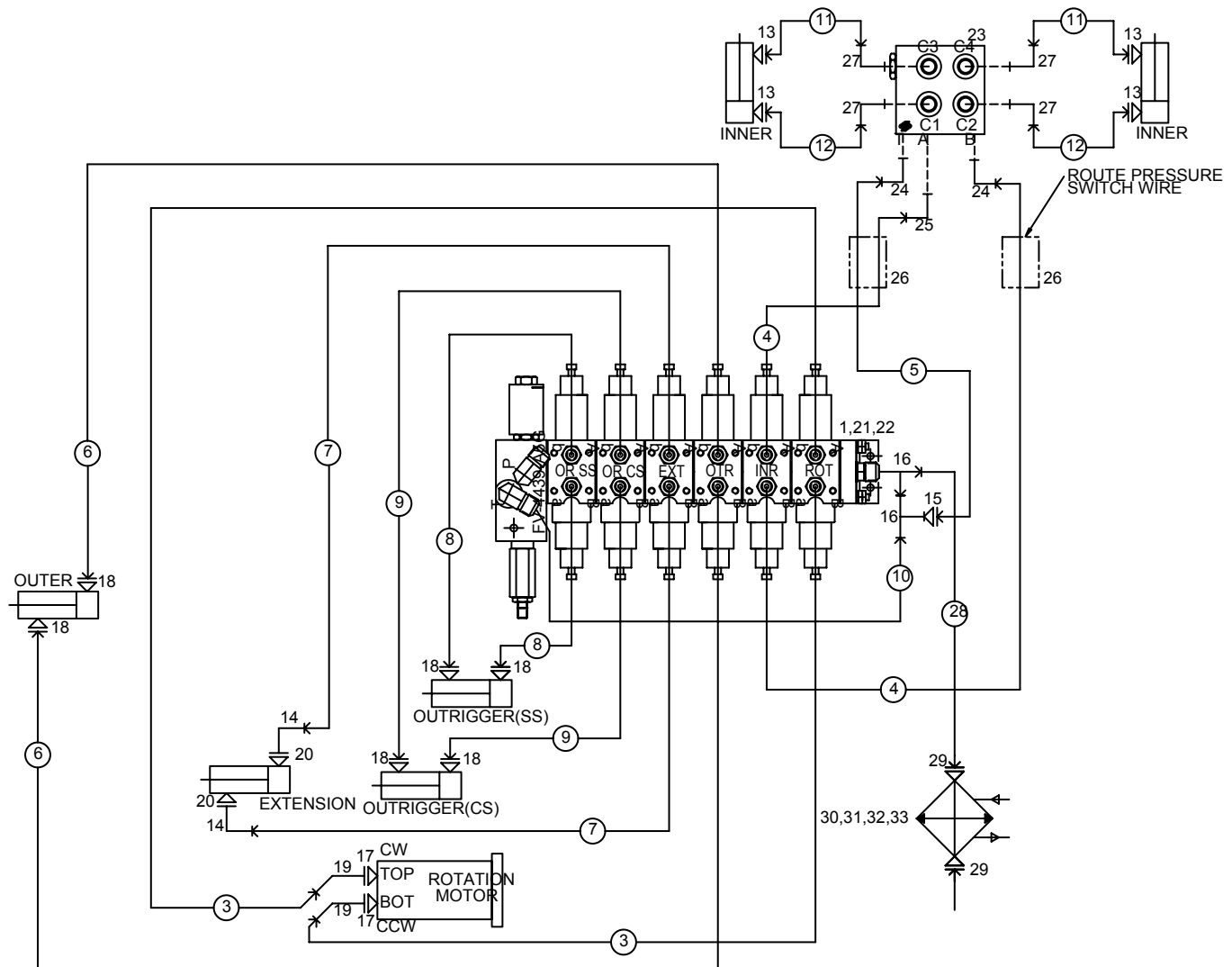


HYD KIT-6F RADIO RMT (91716735-1)

1.	70733505	VALVE BANK ASM	1
2.	51716923	HOSE KIT 6F RAD RMT (INCL. 3-10)	1
3.	51395636	HOSE FJ 1/4X33.00 OAL (4-4)	2REF
4.	51395762	HOSE FJ 1/4X69.00 OAL (4-4)	2REF
5.	51395883	HOSE FJ 1/4X56.00 OAL (4-4)	1REF
6.	51395639	HOSE FJ 1/4X117.00 OAL (4-4)	2REF
7.	51395640	HOSE FJ 1/4X196.00 OAL (4-4)	2REF
8.	51395641	HOSE FJ 1/4X28.00 OAL (4-4)	2REF
9.	51395642	HOSE FJ 1/4X54.00 OAL (4-4)	2REF
10.	51395645	HOSE FJ 1/4X16.00 OAL (4-4)	2REF
11.	70146344	TUBE ASM	2
12.	70146345	TUBE ASM	2
13.	72533186	ADPTR #6MFACE #6MSTR	4
14.	72532699	ELBOW #6MSTR #4MJIC 90°	2
15.	72532665	ADPTR #4MJIC #8FJIC	1
16.	72532657	TEE-SWVL NUT RUN JIC #8	2
17.	72532722	ADPTR #10MJIC #6FSTR	2
18.	72532351	ADPTR #4MSTR #4MJIC	6

19.	72532985	ELBOW #6MSTR #4MJIC 45°	2
20.	72533052	ADPTR #8MSTR #6FSTR	2
21.	72060002	CAP SCR 1/4-20X.75 HH GR5	4
22.	72062104	NUT 1/4-20 NYLOC	4
23.	73540091	C'BALANCE VALVE	1
24.	72053758	ELBOW #4MSTR #4MJIC 90°	2
25.	72533598	ELBOW #4MSTR #4MJIC XLG	1
26.	60350084	SLEEVE - HOSE	2
27.	72533163	ELBOW #6MSTR #6MFACE 90°	4
28.	51394716	HOSE-FF 1/2X18 OAL (8-8)	1
29.	72534380	ELBOW 1" MPT #8MJIC 90°	2
30.	70143144	OIL COOLER	1
31.	72060046	CAP SCR 3/8-16X1 HHGR5Z	4
32.	72063003	WASHER 3/8 FLAT	4
33.	72062103	NUT 3/8-16 HEX NYLOC	4

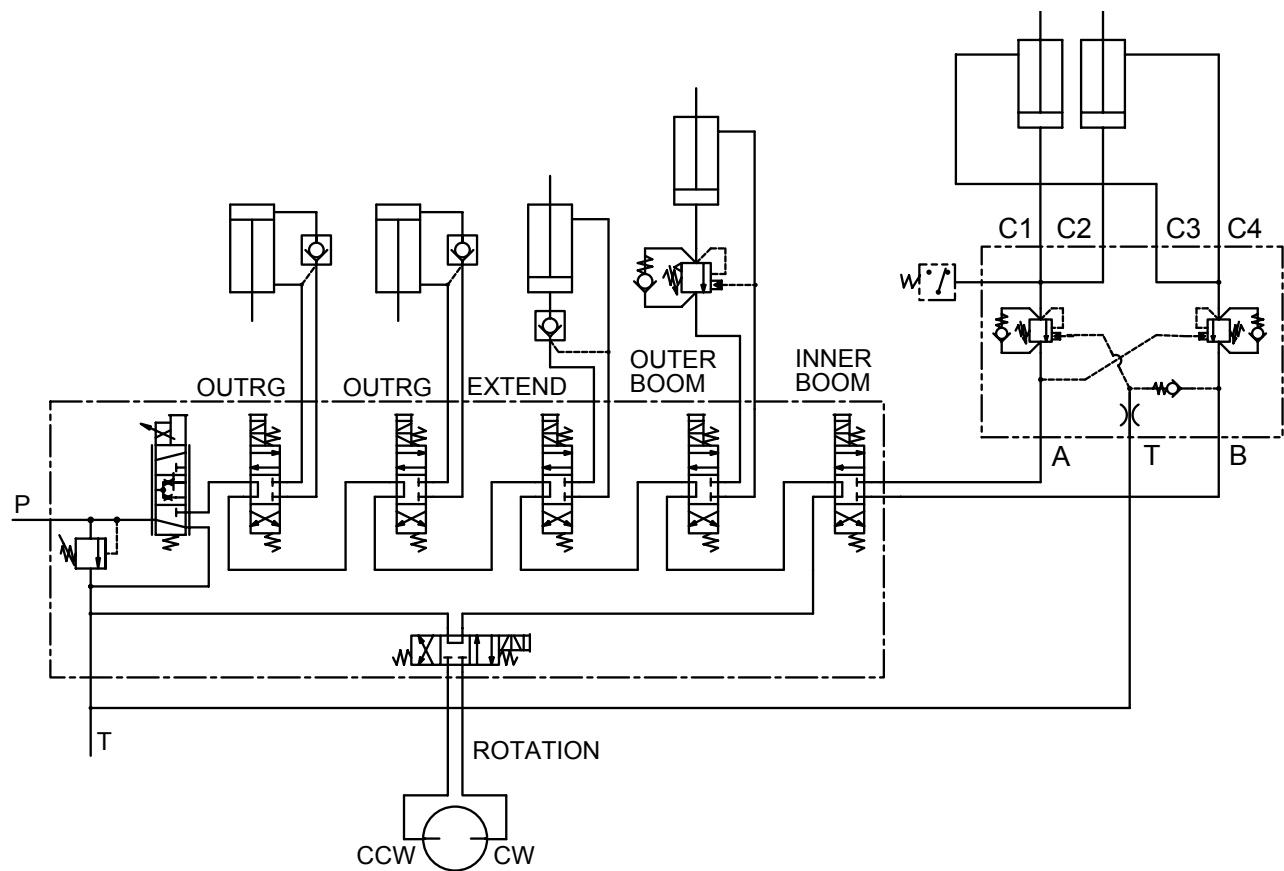
CONTINUED ON NEXT PAGE

**NOTE:**

**ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.**

HYD KIT-6F RADIO RMT (91716735-2)

PARTS LIST ON PREVIOUS PAGE

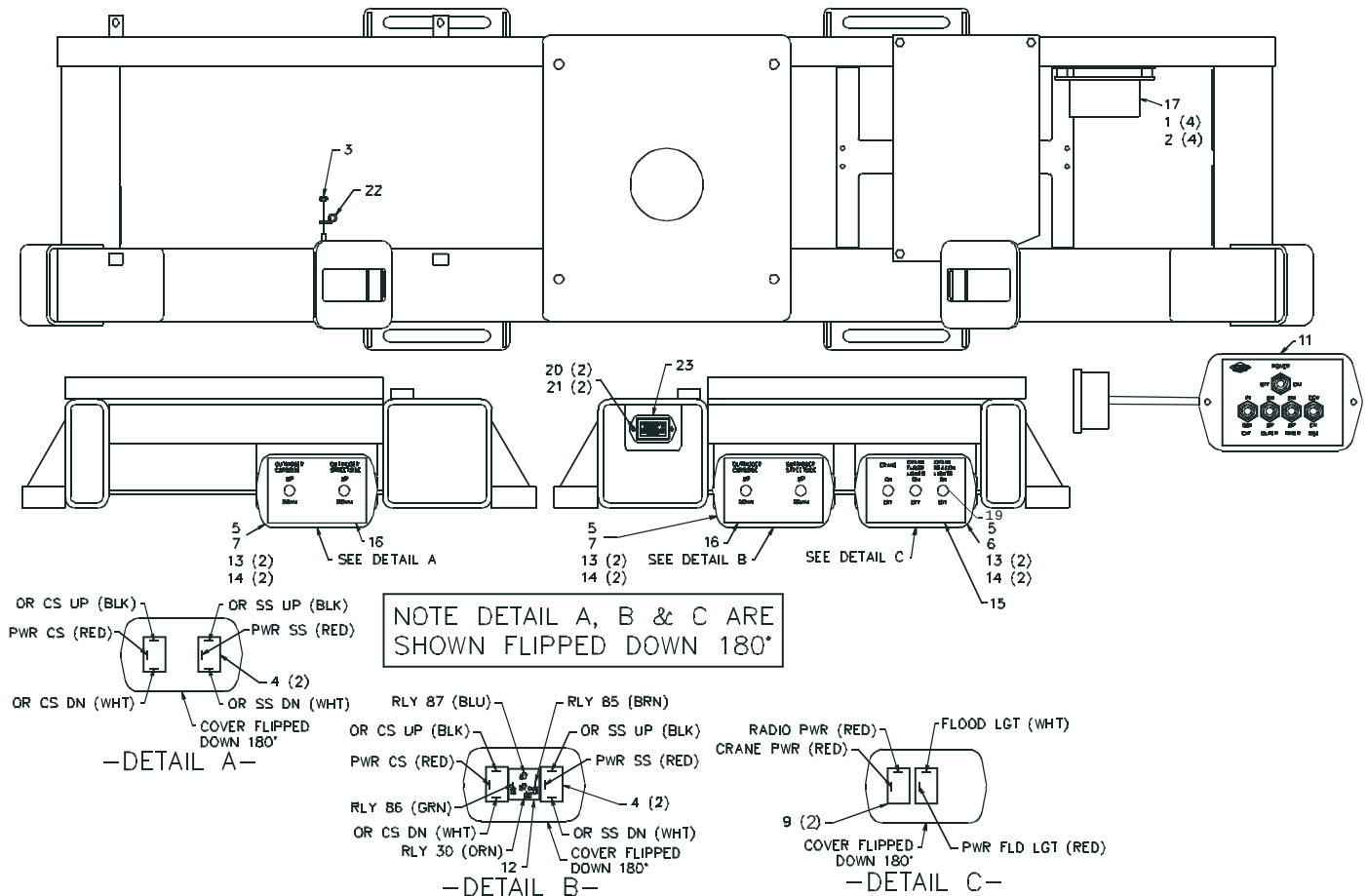


CTRL KIT-6F RADIO RMT (90715295-1)

1.	72063049	WASHER 1/4 LOCK	4
2.	72601500	CAP SCR M6-1X25 HH Z	4
3.	72062104	NUT 1/4-20 LOCK	1
4.	77041346	TOGGLE SWITCH DT	4
5.	77044018	CONNECTOR 1/2 STRAIN RELIEF	3
6.	60119077	JIC BOX	1
7.	60121517	JIC BOX	2
8.	70733476	RADIO REMOTE (INCL:17,18,25-28)	1
9.	77041345	TOGGLE SWITCH ST	2
10.	77044702	HARNESS-LIGHTS (NOT SHOWN)	1
11.	51715708	HANDLE ASM	1
12.	77041383	RELAY	1

13.	72601743	CAP SCR #10-24X3/4 SH	6
14.	72062106	NUT #10-24 LOCK	6
15.	70395102	DECAL-LIGHTS	1
16.	70395103	DECAL-OUTR	2
17.	73733392	RCVR-RADIO RMT (PART OF 8)	1REF
18.	73733477	XMTR-RADIO RMT	1REF
19.	70392785	PLUG-PLSTC .50 PRY-OUT BLACK	1
20.	72601725	MACH SCR #6-32X1/2 RDHDPHLP	2
21.	72601726	NUT #6-32 LOCK	2
22.	72066535	HOSE CLAMP 3/8	1
23.	70073155	HOURLMETER	1
25.	70146100	BATTER 3.6V (PART OF 8)	2REF
28.	70146279	BATTERY CHRGR-115V (PART OF 8)	1REF

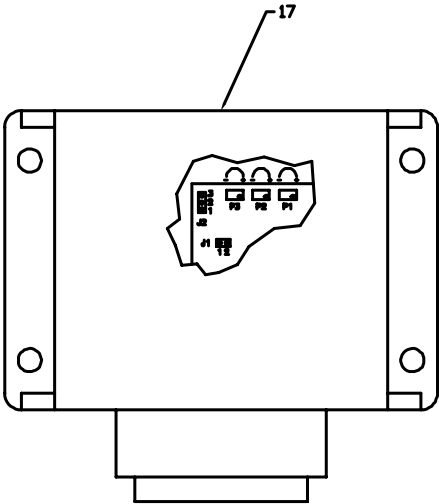
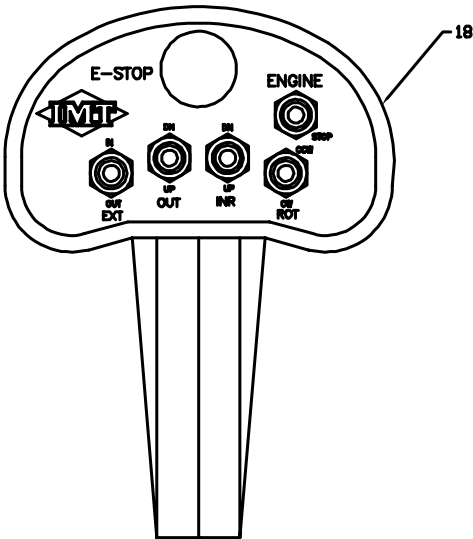
NOTE: #7 remote included battery components 70146101 and 70146102 through 10/16/02.



CTRL KIT-6F RADIO RMT (90715295-2)

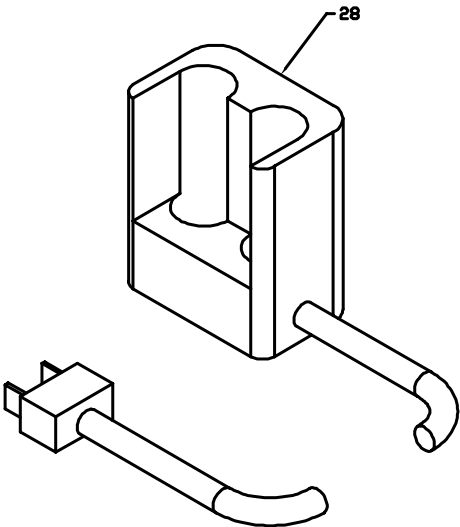
CONNECTOR PIN LETTER	INT ASSIGNED FUNCTION
A1	EXT OUT
A2	OUTER UP
A3	INNER DN
A4	INNER UP
A5	PROP VALVE +
A6	OUTER DN
A7	NOT USED
A8	RADIO GND
A9	CRN HR METER
B1	NOT USED
B2	EXT IN
B3	RADIO POWER
B4	KILL RELAY
B5	ROT CCW
B6	NOT USED
B7	ROT CW
B8	NOT USED
B9	NOT USED
C1	PROP VALVE -
C2	NOT USED
C3	NOT USED
C4	NOT USED
C5	NOT USED
C6	NOT USED
C7	NOT USED
C8	NOT USED
C9	NOT USED

- ALL SWITCHES ARE MOMENTARY
UNLATCHED TYPE

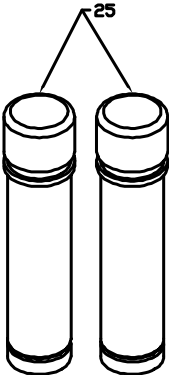


JUMPER CONNECTIONS INSIDE RECEIVER

- J1: PULSE/DITHER FREQUENCY
- NO JUMPER
- J2: CONTROL RANGE OF OUTPUT CURRENT (ONLY
CURRENT-CONTROL)
- PIN 2/3 CONNECTED: 0-2A



- P1: TRIMMING POTENTIOMETER FOR MAXIMUM VALUES. ON TRANSMITTER HANDLE, ENGAGE ROTATION CW OR CCW FUNCTION SWITCH AND PULL TRIGGER FULLY DN. CRANE MAY OR MAY NOT BEGIN TO MOVE AT THIS TIME DUE TO P1 INITIAL SETTING. TURN P1 POTENTIOMETER COUNTERCLOCKWISE UNTIL DESIRED MAXIMUM SPEED IS OBTAINED OR UNTIL SPEED NO LONGER CONTINUES TO INCREASE.
- P2: TRIMMING POTENTIOMETER FOR INITIAL VALUE ADJUSTMENT. ON TRANSMITTER, ENGAGE ROTATION CW OR CCW FUNCTION SWITCH. WITHOUT PULLING TRIGGER, ADJUST P2 COUNTERCLOCKWISE UNTIL CRANE BEGINS TO MOVE. AT THIS TIME, ADJUST P2 CLOCKWISE UNTIL NO MOVEMENT IS DETECTED. SLIGHTLY ENGAGE TRIGGER AND ADJUST P2 TO FINE TUNE.
- P3: TRIMMING POTENTIOMETER TO ADJUST DITHERAMPLITUDE: ADJUST CLOCKWISE OR COUNTERCLOCKWISE FOR SMOOTHNESS OF OPERATION.

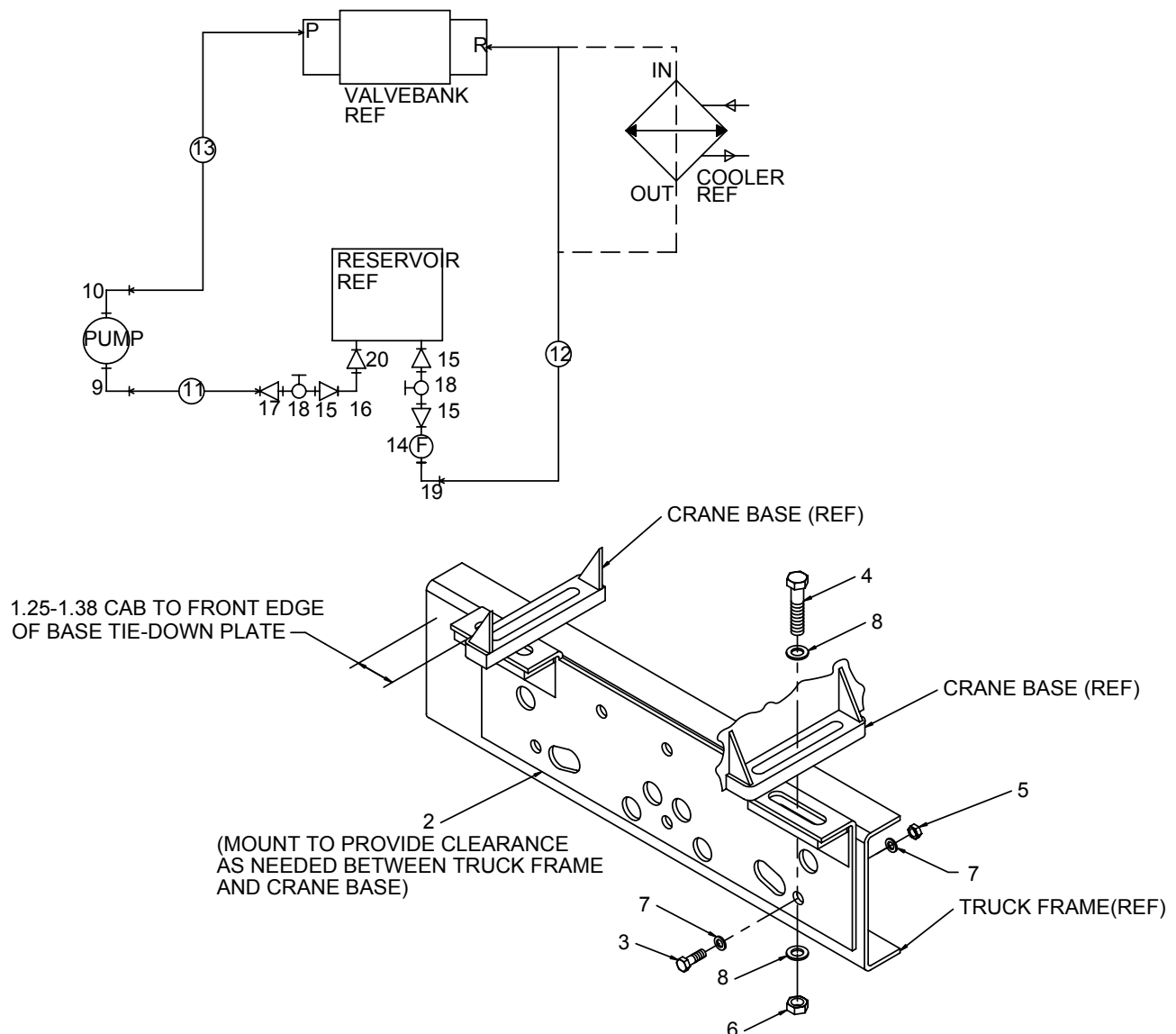


INSTALLATION KIT-RADIO RMT-FACTORY (93715831)

2.	52714705	SHEAR PLATE	2REF*
3.	72060151	CAP SCR 5/8-11X2 HHGR8	16REF*
4.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	4REF*
5.	72062233	NUT 5/8-11 HEX TOP LOCK	16REF*
6.	72062140	NUT 3/4-10 HEX STL INS GR5	4REF*
7.	72063119	WASHER 5/8 FLAT HARD	32REF*
8.	72063116	WASHER 3/4 FLAT HARD	8REF*
9.	72053767	ELBOW #12MSTR #12MJIC 90°	1
10.	72053764	ELBOW #10MSTR #8MJIC 90°	1
11.	975412100	HOSE 3/4X100 (PART OF 200129)	1REF
12.	975408040	HOSE 1/2X40 (PART OF 200129)	1REF
13.	975508096	HOSE 1/2X96 (PART OF 200129)	1REF
14.	73052000	HYD FILTER 10MIC 3/4NPTF	1REF*
15.	72053558	ADAPTER 3/4MPT 3/4MPT HEX	3
16.	72531134	STREET ELBOW 3/4NPT 90° STL	1
17.	72053676	ADAPTER 3/4MPT #12MJIC	1
18.	73054230	BALL VALVE 3/4NPT	2
19.	72531422	ELBOW .75MPT #8MJIC 90°	1
20.	72053559	REDUCER BUSHING 1NPT-3/4 STL	1

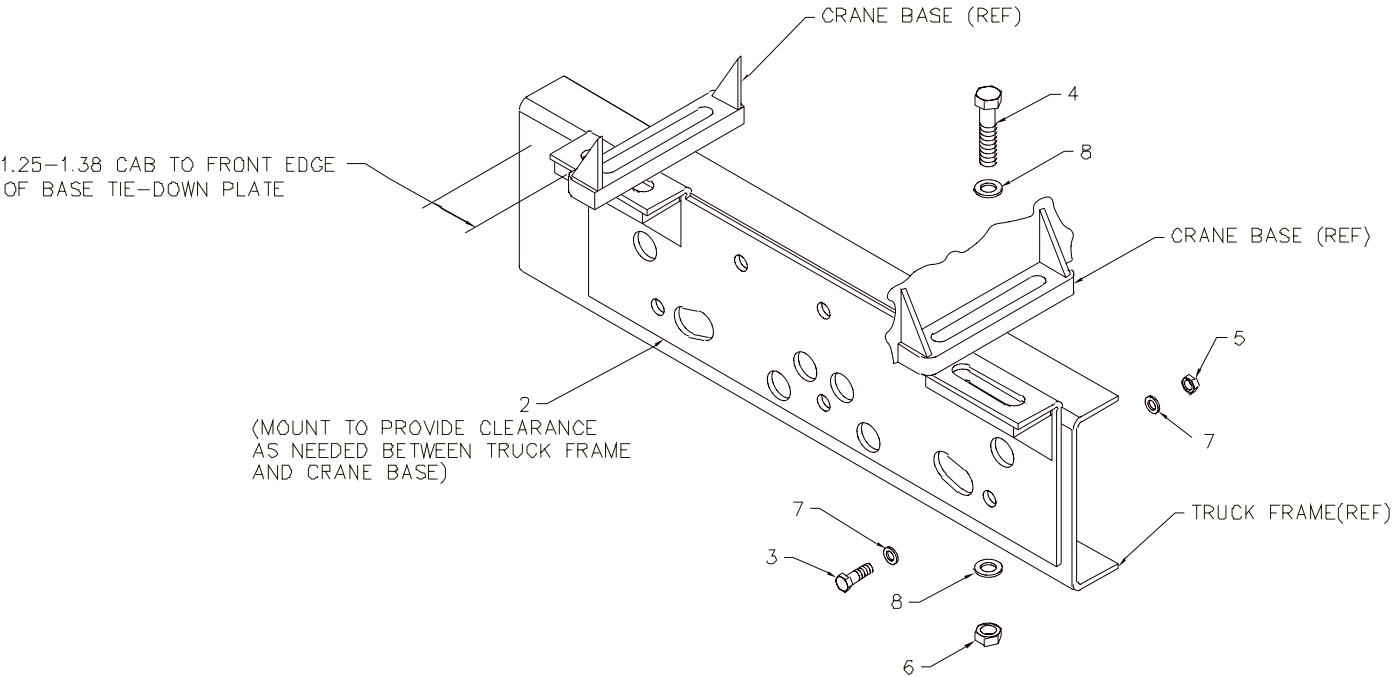
* PART OF 93715830

NOTE: WHEN CRANE IS EQUIPED WITH A COOLER
HOSE #12 CONNECTS TO COOLER OUTLET PORT
HOSE P/N 51394716 (PART OF CRANE) CONNECTS "R"
PORT OF VALVE BANK TO INLET PORT OF COOLER



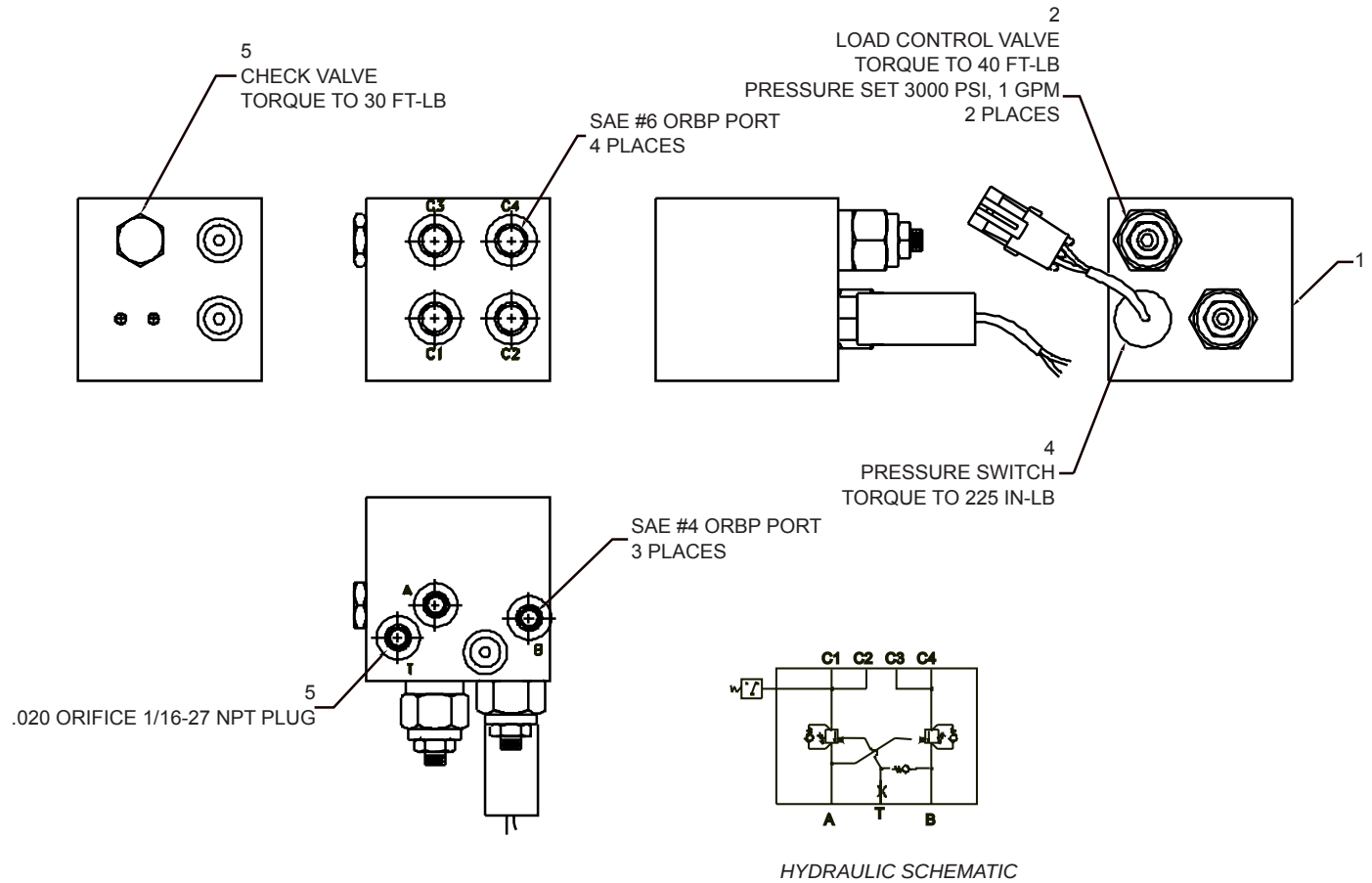
INSTALLATION KIT-RADIO RMT-SHIPOUT
(93715830)

1.	73052000	FILTER-HYD RTN 10MIC 3/4 NPTF	1
2.	52714705	SHEAR PLATE	2
3.	72060151	CAP SCR 5/8-11X2 HHGR8	16
4.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	4
5.	72062233	NUT 5/8-11 HEX TOP LOCK	16
6.	72062140	NUT 3/4-10 HEX STL INS GR5	4
7.	72063119	WASHER 5/8 FLAT HARD	32
8.	72063116	WASHER 3/4 FLAT HARD	8



C'BAL VALVE (73540091)

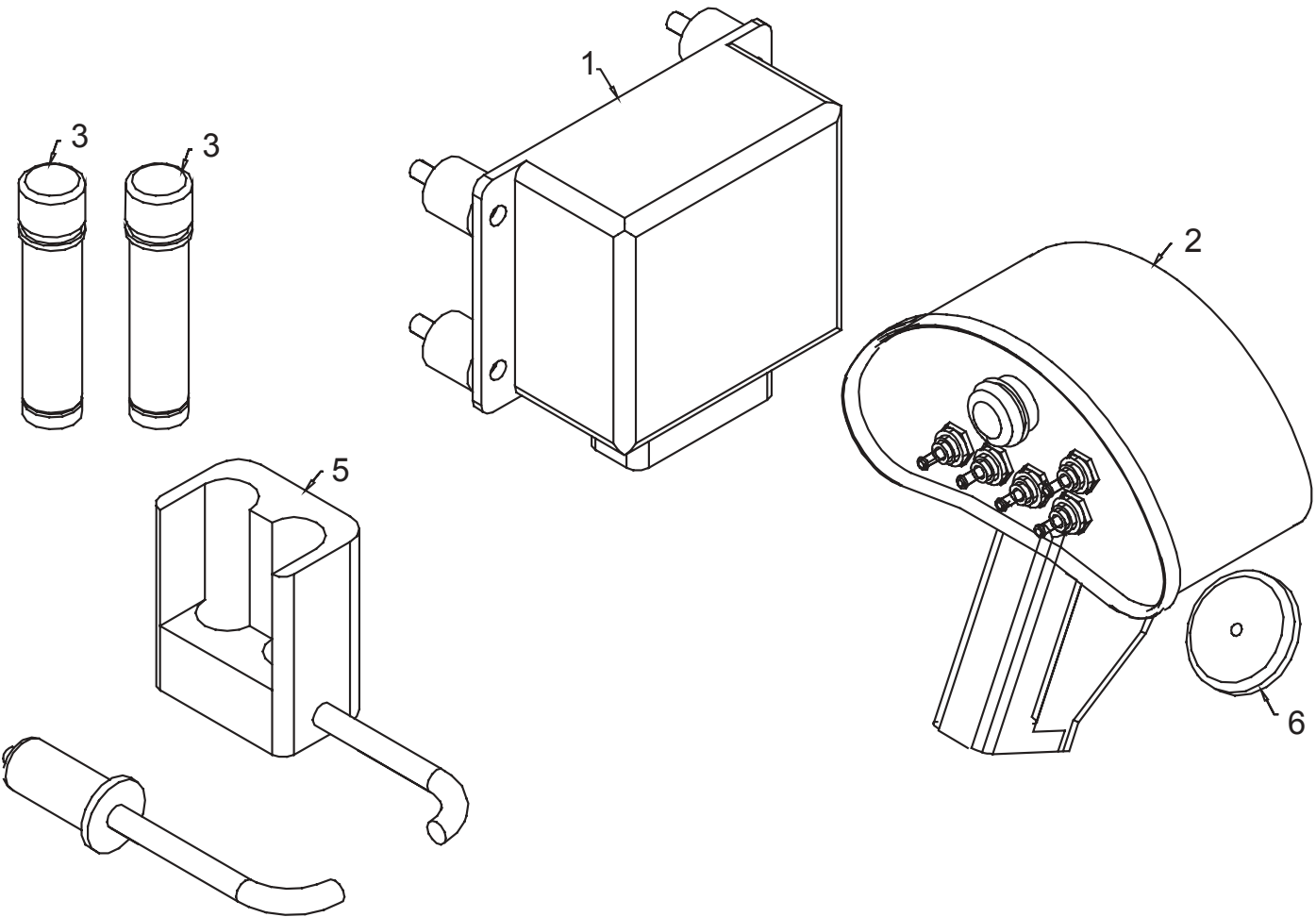
1.	73540093	C'BAL VALVE BKICJ	1
2.	73540128	C'BAL VALVE 3000 PSI ADJ (WAS 73540082)	2
3.	70146413	ORIFICE	1
4.	77041625	PRESSURE SWITCH (WAS 77041627)	1
5.	70146414	CHECK VALVE	1

**NOTE:**

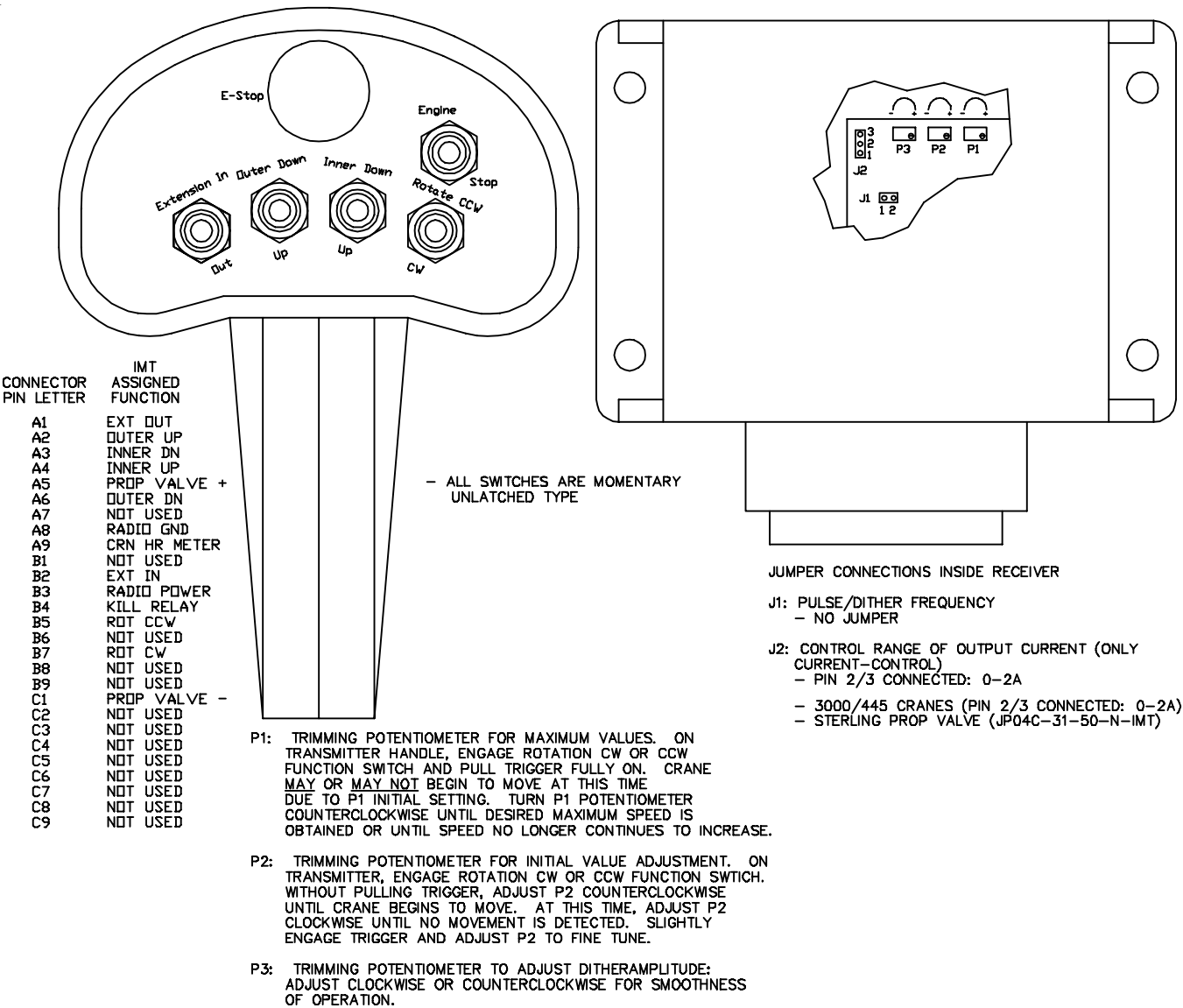
**ALL CRANES WITH SERIAL NUMBERS ABOVE 445011083 ABOVE USE
OUTRIGGER HYDRAULIC CYLINDERS 3B175010, OUTER CYLINDERS
3B170010, AND COUNTERBALANCE VALVE 73540091.**

RADIO RMT KIT (70733476-1)

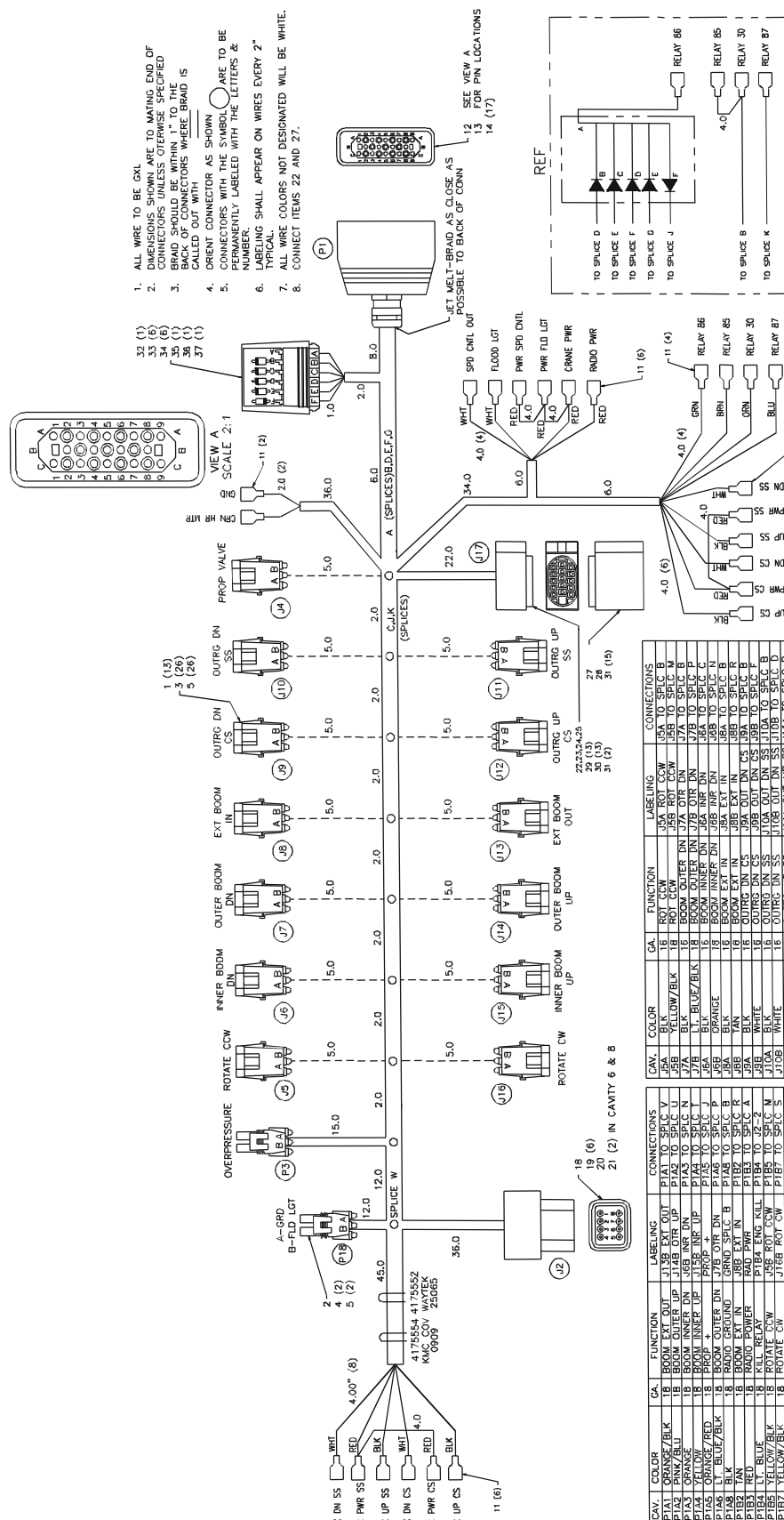
1.	73733392	RECEIVER	1
2.	73733477	TRANSMITTER	1
3.	70146100	BATTERY	2
5.	70146102	BATTERY CHARGER	1
6.	70146103	MAGNET	1



RADIO RMT KIT (70733476-2)



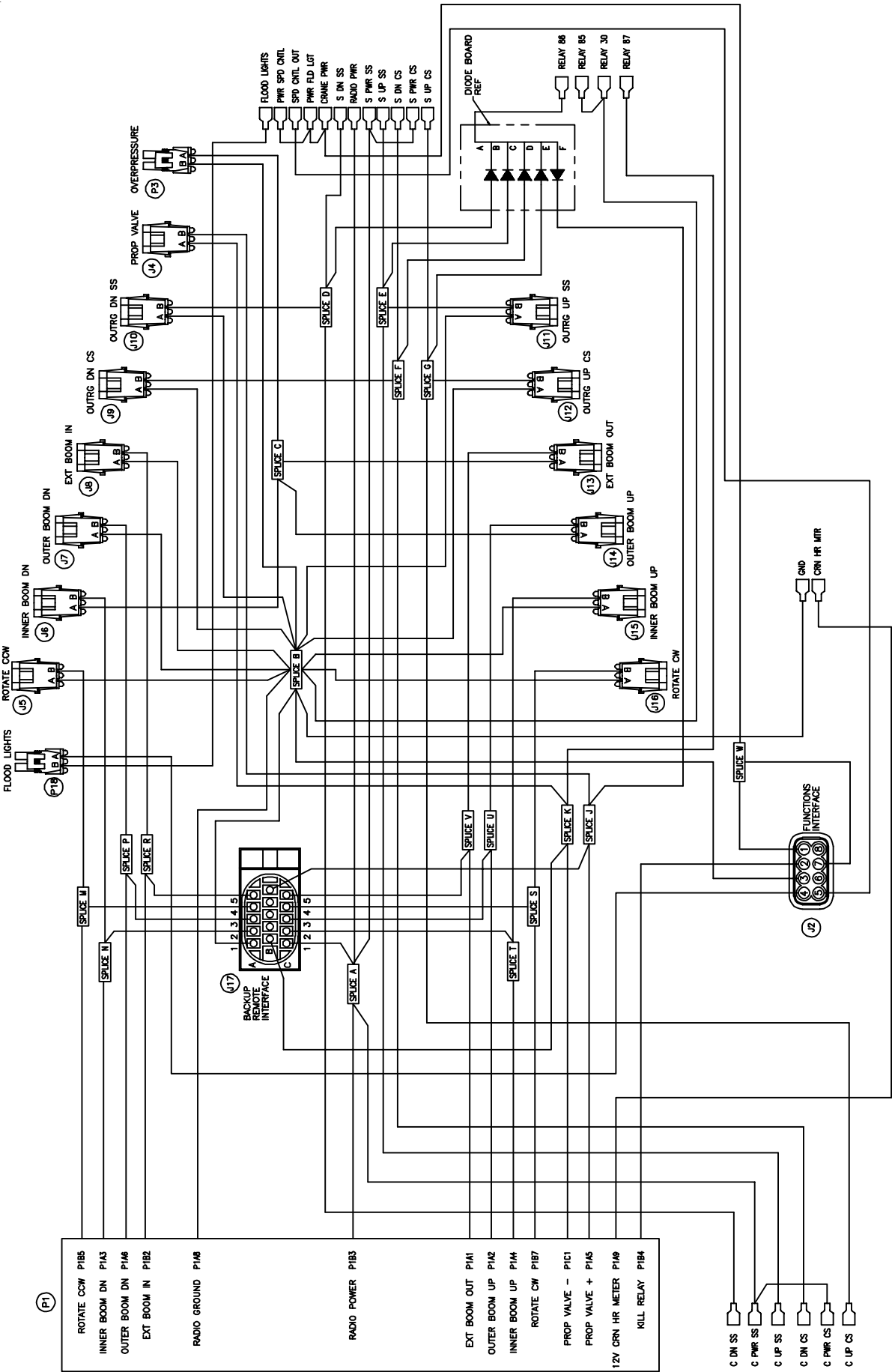
ALL LISTED PARTS ARE FOR REFERENCE ONLY



1.	77044573	SHROUD CONN 2-CONTACT	13REF
2.	77044574	TOWER CONN 2-CONTACT	2REF
3.	77044576	TERMINAL-MALE 20-18GA	26REF
4.	77044577	TERMINAL-FEM 20-18GA	4REF
5.	77044578	CABLE SEAL-GRN 20-18GA	30REF
11.	77040186	TERMINAL-1/4FSLPON 16-14GA	28REF
12.	70145941	CONN-HOOD	1REF
13.	70145942	CONNECTOR	1REF
14.	70145943	TERMINAL	17REF
18.	77044910	RECEPTACLE-8WAY	1REF
19.	77044905	PIN-TERMINAL	6REF
20.	77044904	LOCK WEDGE-8WAY RECPT	1REF
21.	77044909	CAVITY PLUG	2REF
22.	77044884	CONN-15F	1REF
23.	77044885	TPA-15F	1REF
24.	77044886	CABLE SEAL	1REF
25.	77044887	CPA SLIDE LOCK	1REF
27.	77044889	CONNECTOR-15M	1REF
28.	77044890	TPA-15M	1REF
29.	77044891	TERMINAL-FEM 16-18GA	13REF
30.	77044892	CABLE SEAL 16-18GA	13REF
31.	77044893	CAVITY PLUG	17REF
32.	77044926	CONNECTOR 6-WAY	1REF
33.	77044927	CABLE SEAL 12-14GA	6REF
34.	77044928	TERMINAL-F 12-14GA	6REF
35.	77044929	TPA-BLUE 6F	1REF
36.	77044930	CAP-CLEAR DIODE BOARD	1REF
37.	77044931	DIODE BOARD	1REF

[illegible]

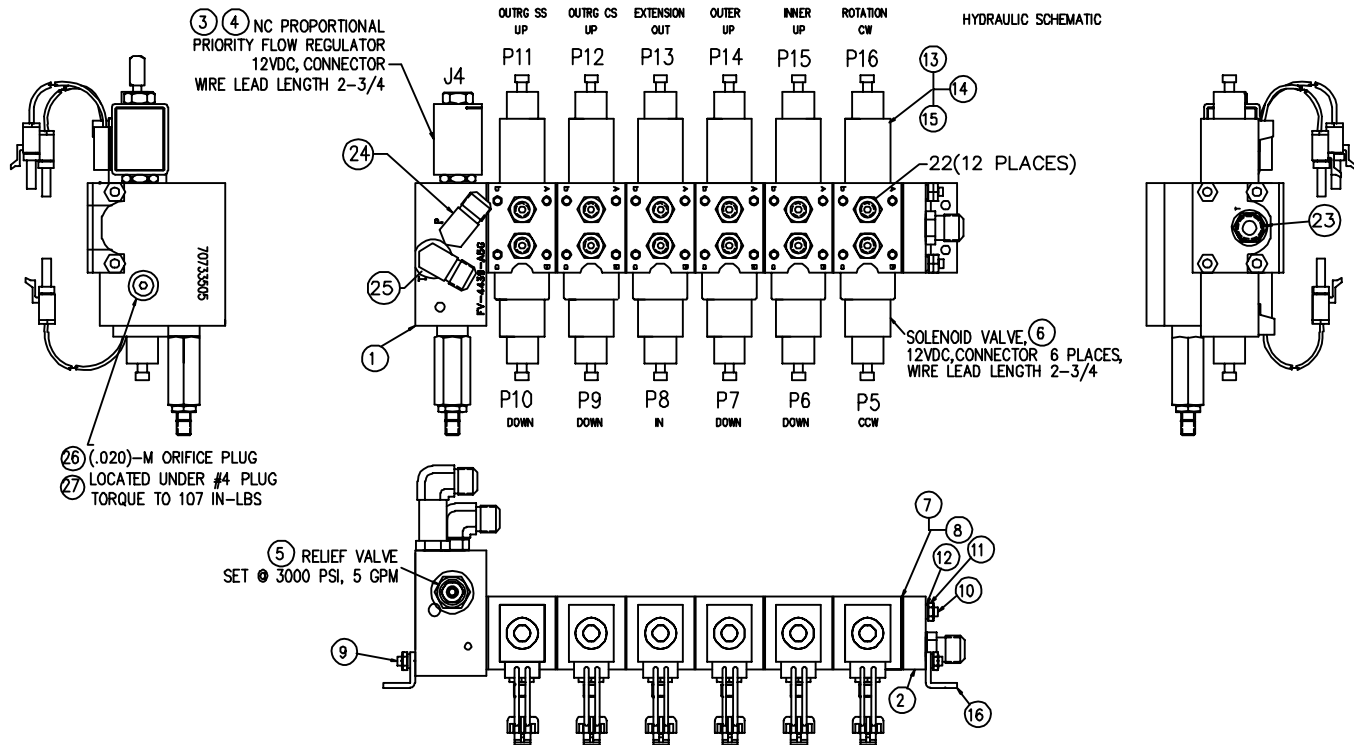
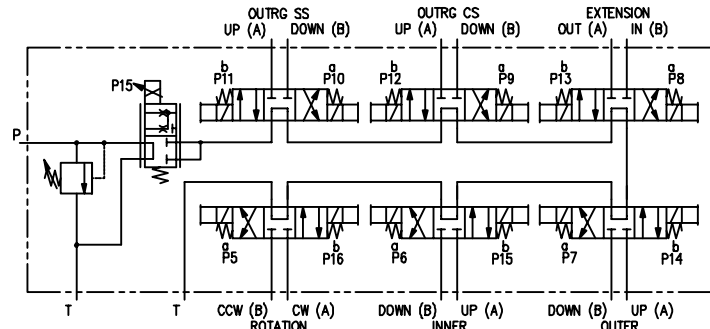
WIRE HARNESS-VB-EFF: 3-1-01 (77044967-2)



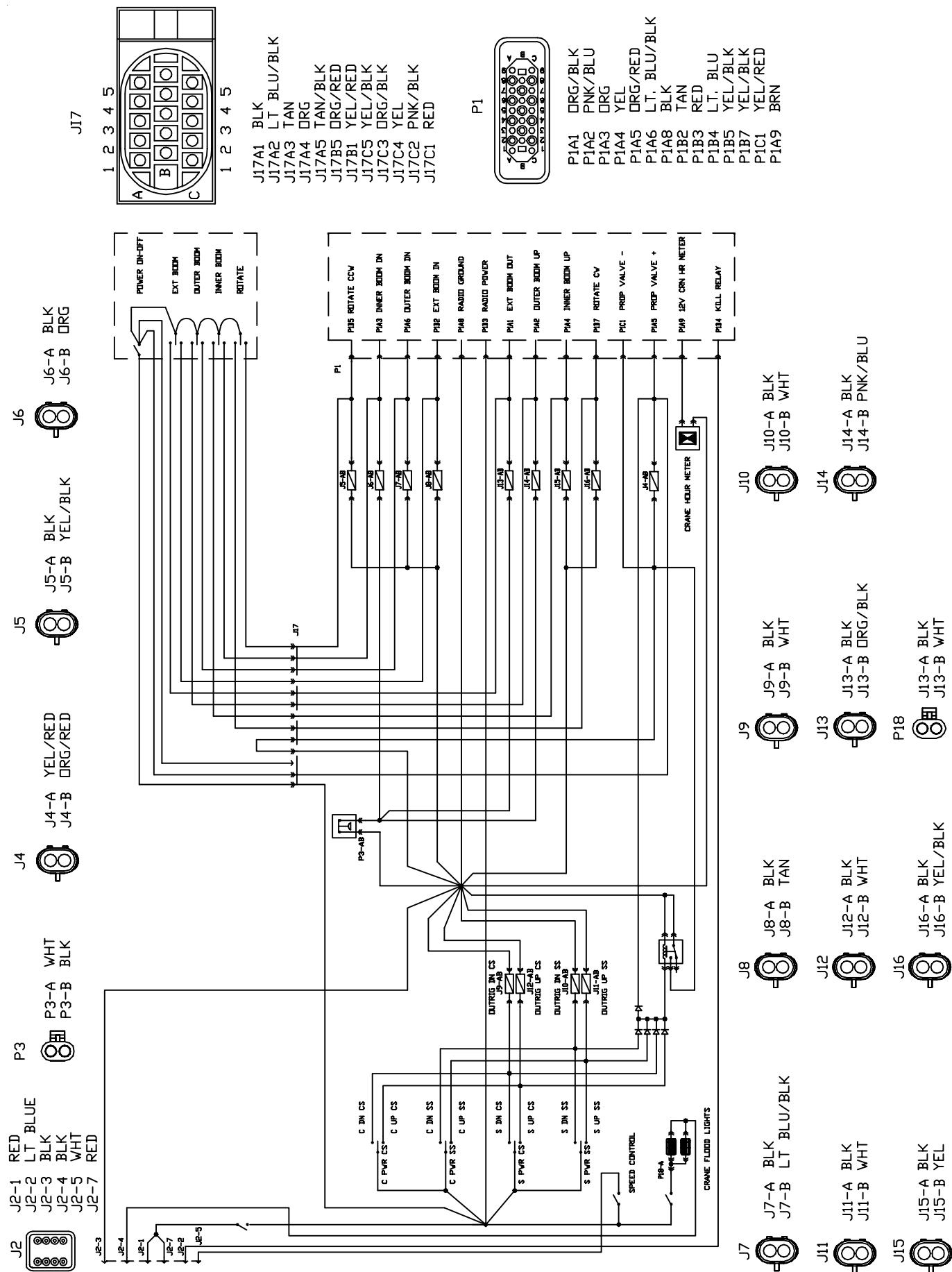
VB ASM-6 SECT PROP'L RC-EFF:3-1-01 (70733505)

1.	70145629	INLET BODY	1
2.	70145628	OUTLET BODY	1
3.	70145627	FLOW REGULATOR	1
4.	70145626	COIL 12VDC	1
5.	70145625	RELIEF VALVE SET@3000PSI 5GPM	1
6.	70145624	SOLENOID VALVE	6
7.	70143337	O-RING PLATE	7
8.	70145623	O-RING	14
9.	70145859	THREADED ROD 1/4-20X13.45	2
10.	70145860	THREADED ROD 1/4-20X15.37	2
11.	72062000	NUT 1/4-20	6

12.	72063047	WASHER 1/4 LOCK	6
13.	77044574	CONNECTOR TOWER	13
14.	77044577	CONNECTOR TERMINAL	26
15.	77044578	CABLE SEAL-GRN	26
16.	70143336	MOUNTING FOOT	2
17.	70145620	NAME TAG-TI ROD	1
21.	77044967	WIRING HARNESS	1
22.	72532353	ADAPTER #6MSTR #4MJIC	12
23.	72532357	ADAPTER #6MSTR #8MJIC	1
24.	72053762	ELBOW #6MSTR #8MJIC 90°	1
25.	72532779	ELBOW #6MSTR #8MJIC 90°XLG	1
26.	70145861	ORIFICE PLUG 1/16-27NPT	1
27.	70145862	PLUG #4 HEX SH	1



WIRING SCHEMATIC-EFF:3-1-01 (99903194)



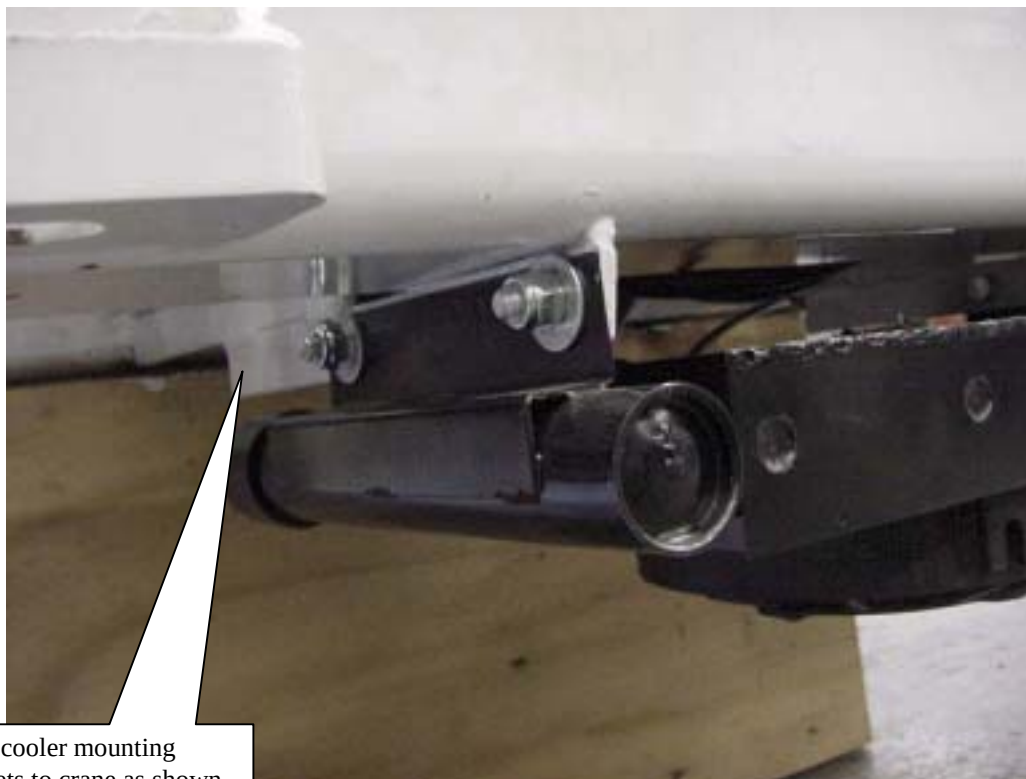
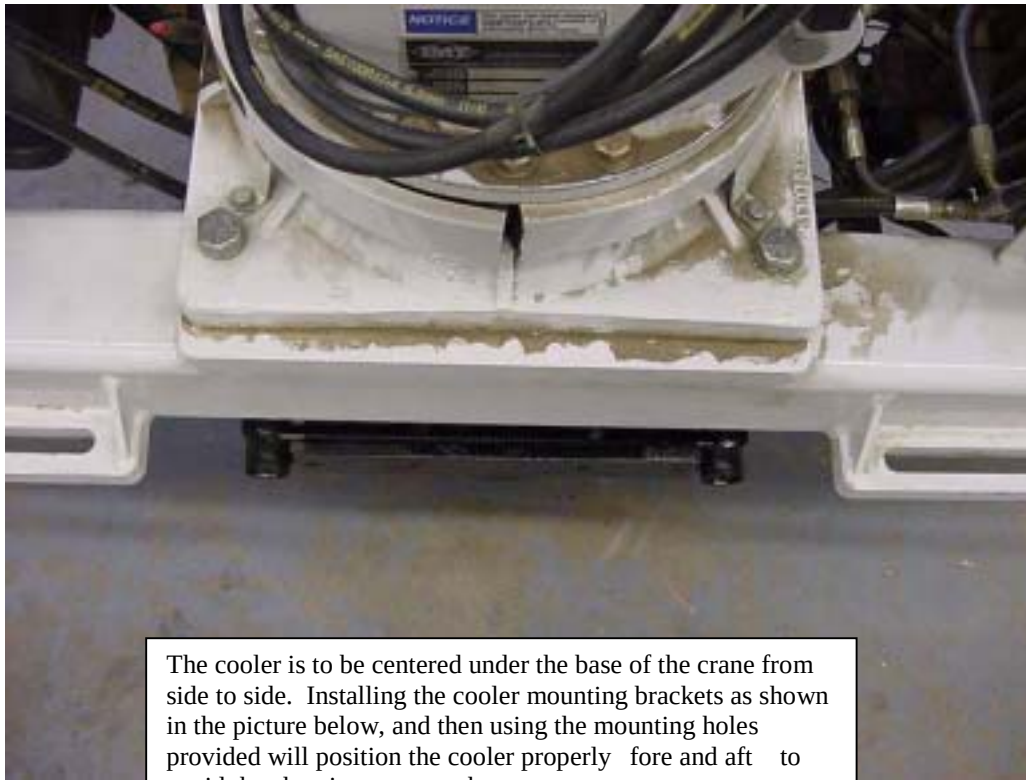
**RETROFIT KIT - 7.5" PULLER FAN
(91717654)**

1.	70143144	OIL COOLER	1
2.	51394716	HOSE-FF 1/2 X 18.00 OAL (8-8)	1
3.	77043056	FAN-7.5" PULLER	1
4.	60124457	MOUNT-COOLER	2
5.	72531421	ELBOW 1/2 MPT #8MJIC 90°	2
6.	72531308	RED BUSHING-BLK 1 - 1/2	2
7.	72060046	CAP SCR 3/8-16 X 1 HHGR5	4
8.	72063003	WASHER 3/8 FLAT	4
9.	72062103	NUT 3/8-16 HEX NYLOC	4
10.	89044232	WIRE-14GA RED STRD GPT	4'
11.	77040048	TERMINAL-BUTT CONN 16-14GA	2
12.	77040282	TERM-PB FVD 16/14GA 1/4TAB	1
13.	70146065	HEAT SHRINK 1/4 DUAL WALL-6"	1
14.	89044056	LOOM-5/16 ID SPLIT (BULK)	8'
15.	89044274	WIRE-14GA BLACK STRD GPT	4'
16.	77040052	TERM-RING I 3/8 STUD 12-10GA	1
17.	99903435	MANUAL-7.5" FAN RETRO	1

NOTE:

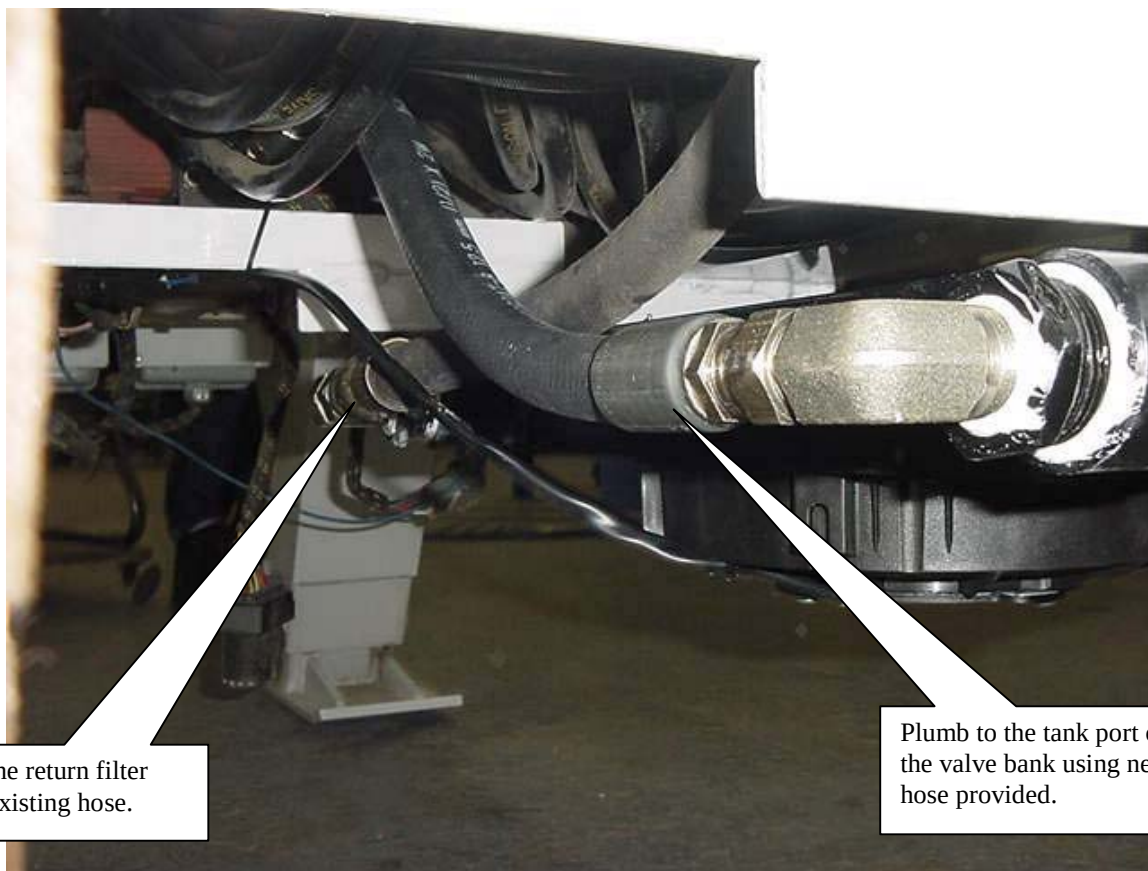
NO DRAWING FOR THIS PART NUMBER. SEE 99903435
FOR INSTALLATION AND WIRING INFORMATION FOR
THE 91717654 PULLER FAN.

INSTALLATION GUIDE - 7.5" PULLER FAN (99903435-1)



Plumb cooler as indicated using fittings in 91717654 retrofit kit.

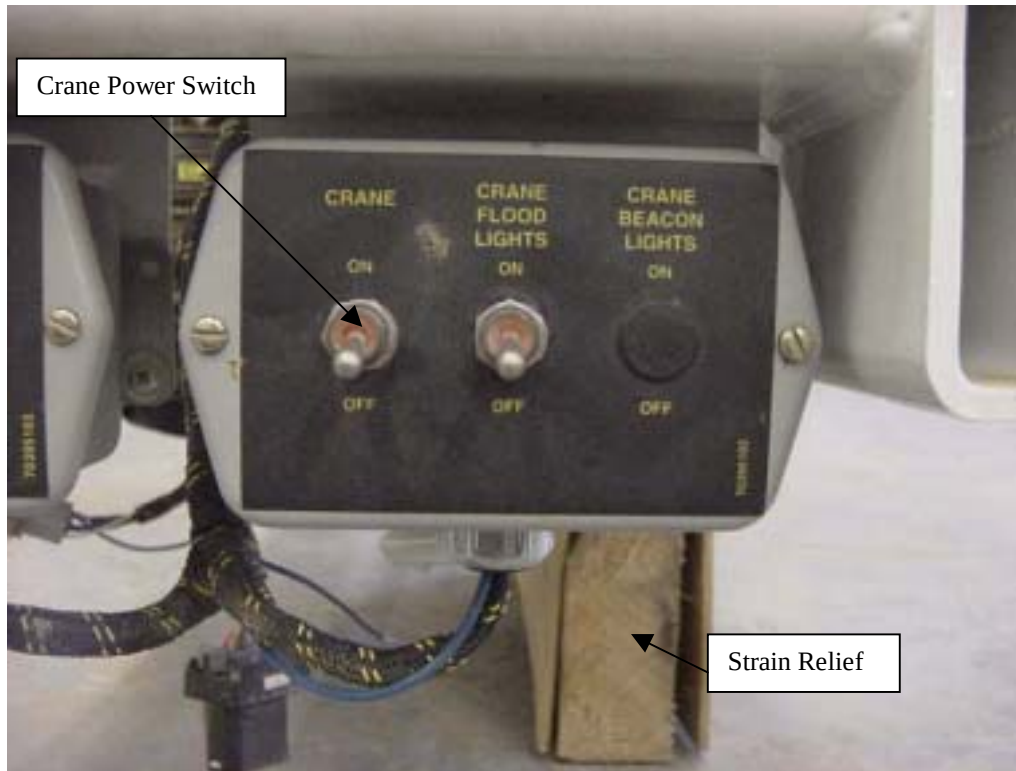
INSTALLATION GUIDE - 7.5" PULLER FAN (99903435-2)



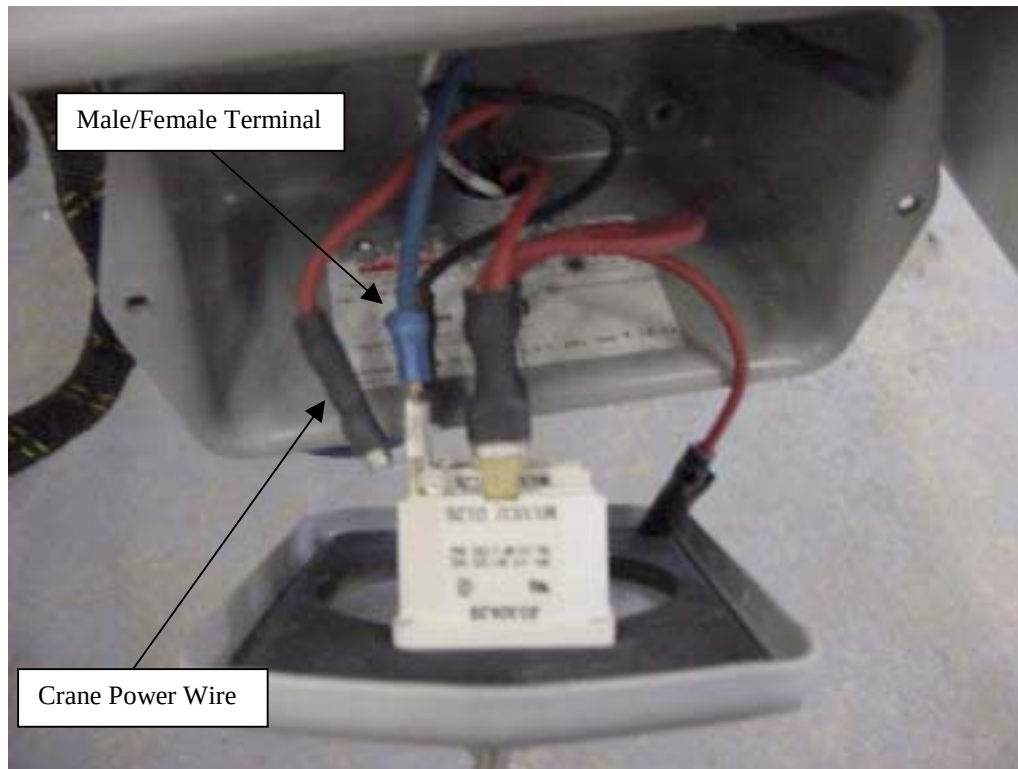
Plumb to the return filter
using the existing hose.

Plumb to the tank port of
the valve bank using new
hose provided.

ELECTRICAL INSTALLATION GUIDE - 7.5" PULLER FAN (99903435-3)



1. Loosen the strain relief on the JIC box containing the crane power switch.



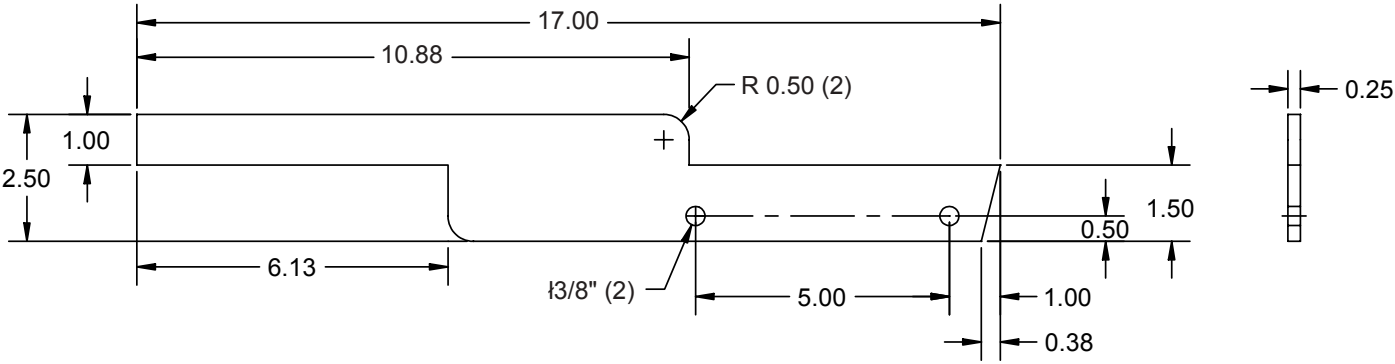
2. Remove the two screws holding the cover of the JIC box containing the crane power switch.

ELECTRICAL INSTALLATION GUIDE - 7.5" PULLER FAN (99903435-4)

(NOTE: Steps 1 and 2 on previous page with photos.)

3. Thread RED wire through the strain relief and crimp on the male/female push-on terminal.
4. Remove the crane power wire from the crane power switch. Push on the male/female terminal, then attach the crane power wire to the male/female terminal.
5. Replace the cover of the JIC box. Tighten the strain relief.
6. Thread the red wire back to the cooling fan.
7. Place approximately 2.5" of heat shrink over the red wire. Butt connect the red wire to the cooling fan positive wire (usually blue).
8. Center the heat shrink over the butt-connector. Heat up the heat shrink to shrink over the butt-connector and seal it.
9. Place approximately 2.5" of heat shrink over the BLACK wire. Butt-connect the black wire to the fan negative wire (usually black).
10. Center the heat shrink over the butt-connector. Heat up the heat shrink to shrink over the butt-connector and seal it.
11. Thread the black wire to a location on the chassis frame where it can be attached with the 3/8" terminal ring.
12. Place approximately 1-inch of heat shrink over the black wire. Crimp the 3/8" terminal ring to the black wire.
13. Center the heat shrink over the terminal ring. Heat it up to shrink over the terminal ring crimp and seal it.
14. Bolt the terminal ring to the chassis frame.
15. Use the supplied wire loom to cover the red and black wires for their protection.

MOUNT - COOLER (60124457)



SECTION 4. GENERAL REFERENCE

INSPECTION CHECKLIST 3

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HOOK INSPECTION 7

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NOTES

[illegible]

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****1**

REV: 6-18-99

TYPE OF INSPECTION (check one)

☐

DAILY (if deficiency found)

☐

QUARTERLY

☐

MONTHLY

☐

ANNUAL

DATE INSPECTED

HOUR METER READING (if applicable)

INSPECTED BY (print)

SIGNATURE OF INSPECTOR

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 outriggers 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 ✗ = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA= NOT APPLICABLE	STATUS ✓ , ✗ , R, NA
			INSPECTION DESCRIPTION		
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 Ctrl's	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		

Inspection Checklist**CRANES****2**

FREQUENCY	ITEM	KEY	✓ = SATISFACTORY ✕ = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA = NOT APPLICABLE	STATUS ✓ , ✕ , R, NA
			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		● Outrigger 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		

3

Deficiency / Recommendation / Corrective Action Report

UNIT I.D. NUMBER

- 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.

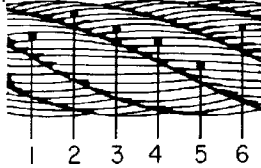
X = DEFICIENCY **R** = RECOMMENDATION **CA** = CORRECTIVE ACTION TAKEN

[illegible]

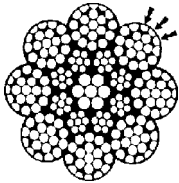
WIRE ROPE INSPECTION

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

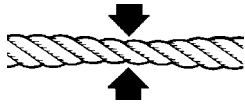
- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



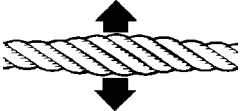
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



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



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



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



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



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

**HOOK INSPECTION**

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

A. DISTORTION**Bending / Twisting**

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

Increased Throat Opening

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

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

B. WEAR

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

C. CRACKS, NICKS, GOUGES

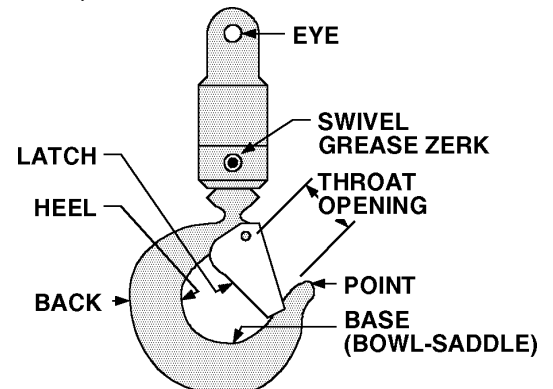
Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally, following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued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

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

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

E. HOOK ATTACHMENTS & SECURING MEANS

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



HOLDING VALVE INSPECTION

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

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

ANTI-TWO BLOCKING DEVICE INSPECTION

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

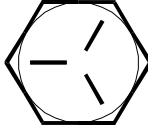
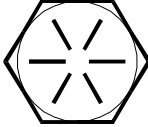
The anti two block system should be checked daily as follows:

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.

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.

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

COARSE THREAD BOLTS

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

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

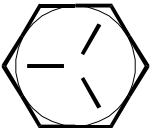
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special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

WARNING

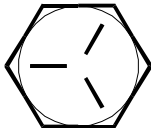
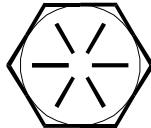
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

TORQUE DATA CHART - DOMESTIC

FINE THREAD BOLTS

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

COARSE THREAD BOLTS

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

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

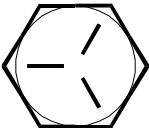
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special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

WARNING

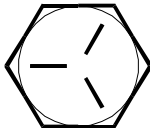
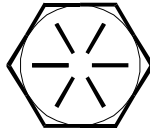
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. 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.

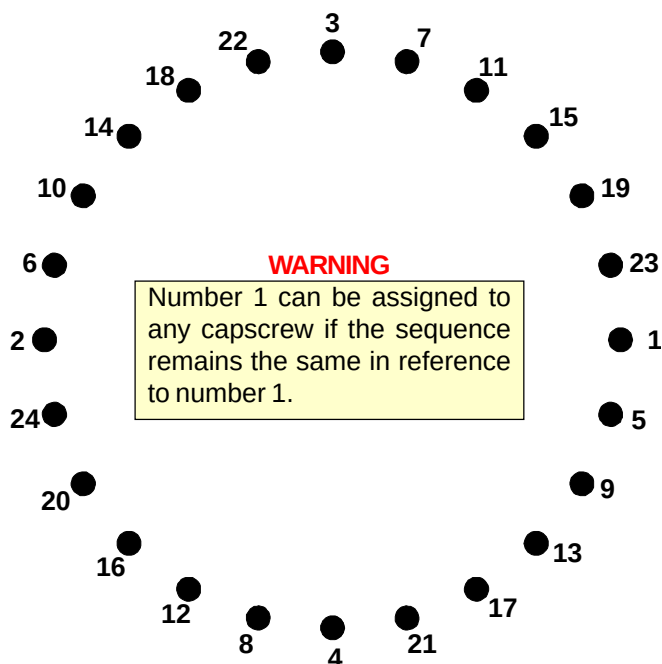
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied.
If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
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/torquing sequence of the turntable bearing to the crane base and crane mast. The total quantity of cap screws varies dependent on crane model.



TIGHTENING PROCEDURE:

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

TURNTABLE BEARING INSPECTION FOR REPLACEMENT

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

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

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

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

TEST PROCEDURE

STEP 1.

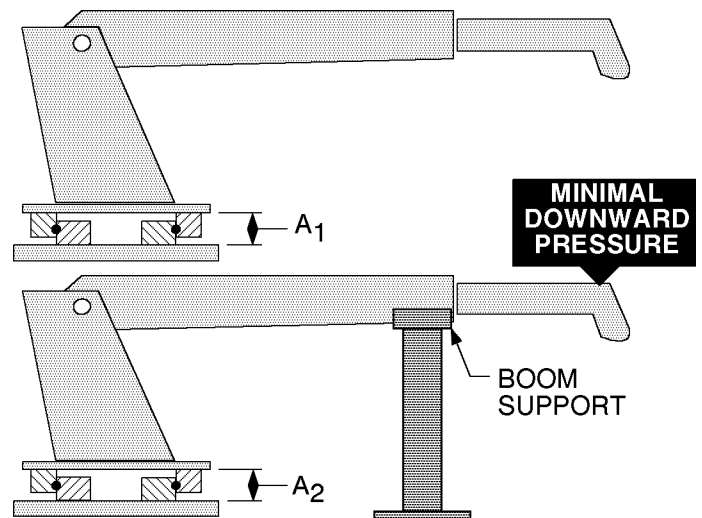
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A1), using a dial indicator for accuracy.

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

NOTE 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.	IMT CRANE, LOADER OR TIREHAND MODEL	1007 1014 1014A 1015 2015/2020 2109 3000 3816/3820 3016/3020 421/425 4300 5016/5020 6016/6020 TH7 BODY ROT'N TH1449 BODY ROT'N TH15B CLAMP TH2551B CLAMP TH2557A CLAMP	5200 5200R 5217 5800 7020 7025 7200 7415 9000 TH10 BODY ROT'N TH14 BODY ROT'N	16000 32018 32027 32030 T30 T40	9800 12916 13031 13034 14000 15000 18000 20017 8000L H1200 H1200RR T50 TH2551B BODY ROT'N TH2557B BODY ROT'N TH2557A BODY ROT'N
	BALL DIA. (REF)	.875" (22mm)	1.00" (25mm)	1.18"-1.25" (30-32mm)	1.75" (44mm)
	TILT DIM. (A ₁ -A ₂)	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)

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		

☐

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LOCATION OF ERROR (page no.):

DESCRIPTION OF ERROR:

☐

ERROR FOUND

DESCRIPTION OF ADDITION:

REASON FOR ADDITION:

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