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Model 2015 Crane

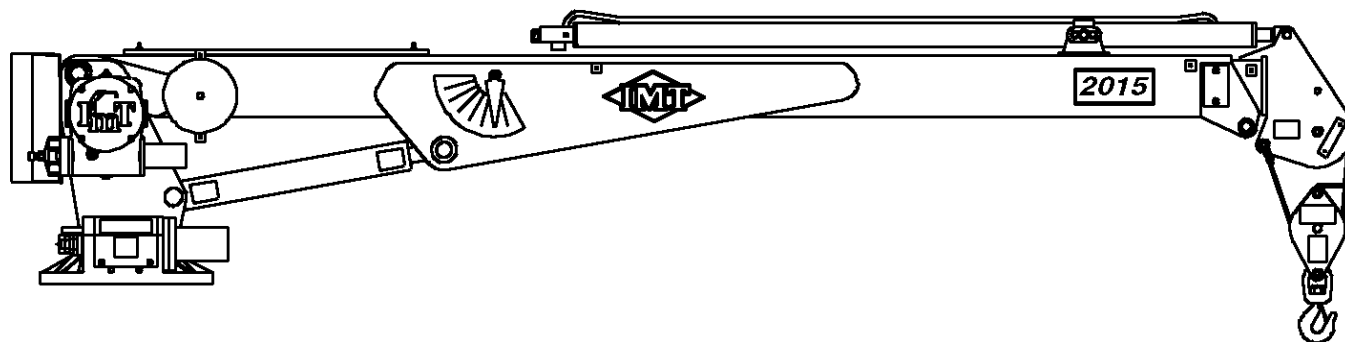
Volume 2 - PARTS AND SPECIFICATIONS

Section 1 CRANE SPECIFICATIONS

Section 2 CRANE REFERENCE

Section 3 REPLACEMENT PARTS

Section 4 GENERAL REFERENCE



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

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MANUAL PART NUMBER 99900104



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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 B30.5
MOBILE and LOCOMOTIVE 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.**



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NOTES

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SPECIFICATIONS

MODEL 2015/2015-20 CRANE

GENERAL

	<u>2015 CRANE</u>	<u>2015-20'</u>
CRANE RATING	20,000 ft-lbs (2.77 ton-meters)	20,000 ft-lbs (2.77 ton-meters)
REACH - from centerline of rotation	15'-0" (4.57m)	20'-0" (6.10m)
HYDRAULIC EXTENSION	60" (152.4cm)	60" (152.4cm)
MANUAL EXTENSION	None	60" (152.4cm)
LIFTING HEIGHT - from base of crane	16'-2" (5.11m)	20'-11" (6.38m)
WEIGHT OF CRANE	830 lbs (376 kg)	920 lbs (417 kg)
STORAGE HEIGHT - crane only	28" (71.1cm)	28" (71.1cm)
MOUNTING SPACE REQUIRED - crane base	17"x17-3/4" (43.1x45.1cm)	17"x17-3/4" (43.1x45.1cm)
TIE-DOWN BOLT PATTERN	14-3/4"x14-3/4" (37.5x37.5cm)	14-3/4"x14-3/4" (37.5x37.5cm)
HORIZONTAL CENTER OF GRAVITY - from centerline of rotation	29" (73.7cm)	31" (78.7cm)
VERTICAL CENTER OF GRAVITY - from bottom of crane base	16" (40.6cm)	17" (43.2cm)
OPTIMUM PUMP CAPACITY (PTO driven)	5 U.S. Gallons/minute (18.9 liters/minute)	5 U.S. Gallons/minute (18.9 liters/minute)
OPTIMUM PUMP CAPACITY (2-stage electric)	1-1/2 & 1-1/2 Gallons/minute (5.7 & 5.7 liters/minute)	1-1/2 & 1-1/2 Gallons/minute (5.7 & 5.7 liters/minute)
DESIGN FACTORS - pins and hydraulics	4/1	4/1

PERFORMANCE CHARACTERISTICS

ROTATION:	400° (6.96 Rad.)	*37 seconds
LOWER BOOM ELEVATION:	0° to +72° (0 Rad. to +1.26 Rad.)	*10 seconds
EXTENSION BOOM:	60" (152.4cm)	*11 seconds
WINCH-single part line:		*17 feet/minute
WINCH-two part line:		*8.5 feet/minute

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

CYLINDERS

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

POWER SOURCE (PTO DRIVEN)

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be used - minimum power required is 8 horsepower based on 5 GPM at 2350 PSI.

POWER SOURCE (ELECTRIC MOTOR)

Power is supplied to the electric motor by a solenoid connected to the 12VDC truck battery. The chassis must be equipped with a 4000 watt Delco Freedom battery (or equivalent) connected in parallel to the chassis' standard heavy duty battery. The chassis must be equipped with a heavy-duty alternator (63 amp. for GM vehicles and 60 amp. for Ford vehicles). For best results, a 130-amp alternator is desirable.

ROTATION SYSTEM

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



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CYLINDER HOLDING VALVES

The base ends (extend side) of the lower boom and extension cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in the event of a hose breakage or other hydraulic component failure.

The extend side of the lower boom cylinder is equipped with a 10 GPM counter balance valve. The counter balance valve serves several functions. First, it is a holding valve. Secondly, it is designed to control the speed at which the lowering function operates, and allows that motion to be metered under load. Finally, it prevents the loss of an excess amount of oil in the event of a hose failure. Only the oil in the hose, at the time of the failure, will be lost.

CAPACITY ALERT SYSTEM

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

WINCH

The winch is powered by a hydraulic motor through a 38:1 ratio worm gear with a mechanical brake. Line speed is 17 feet/minute (5.18 meters/minute) at optimum oil flow of 5 GPM (18.9 liters/minute) and 8.5 feet/minute (2.59 meters/minute) with 2 part-line. Maximum single-line capacity of the winch is 2500 lbs (1134 kg). The winch is equipped with 65' (19.81m) of 5/16" (0.79cm) 6 x 25 FW PRF RRL IWRC IPS wire rope. A nylon sheave riding on a lubricated needle bearing is located at the tip of the extension boom. The ratio of winch drum and sheave pitch diameter to wire rope diameter is 18:1. An anti-two block device is included to prevent the lower block or hook assembly from coming in contact with the boom sheave assembly.

HYDRAULIC SYSTEM (PTO DRIVEN)

Open-centered, full-pressure system that requires 5 GPM (18.9 liters/minute) optimum oil flow at 2350 PSI (162 bar). 4-spool, stack-type, electric, remote-control valve with 25' (7.62m) control cable. System includes separate oil reservoir, suction-line strainer, control valve and return-line filter.

HYDRAULIC SYSTEM (ELECTRIC MOTOR DRIVEN)

Open-centered, full-pressure system that features a 2-stage hydraulic pump, each stage providing 1-1/2 GPM (5.7 liters/minute) at 2350 PSI (162 bar). 4-spool, stack-type, electric, remote-control valve with a 25' (7.62m) control cable. System includes a 3-gallon (11.4 liter) hydraulic oil reservoir, a 60-mesh suction-line strainer and a 2-stage hydraulic pump driven by a permanent-magnet electric motor.

MINIMUM CHASSIS SPECIFICATIONS

BODY STYLE	Conventional Cab	Conventional Cab
WHEEL BASE	137"-161"	348cm-409cm
CAB TO AXLE	60"-84"	152cm-213cm
FRAME SECTION MODULUS	8.0"3	131.12cc
RBM	290,000 in-lbs	3342 kg-meter
FRONT AXLE RATING	4000 lbs	1814 kg
REAR AXLE RATING	7500 lbs	3402 kg

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

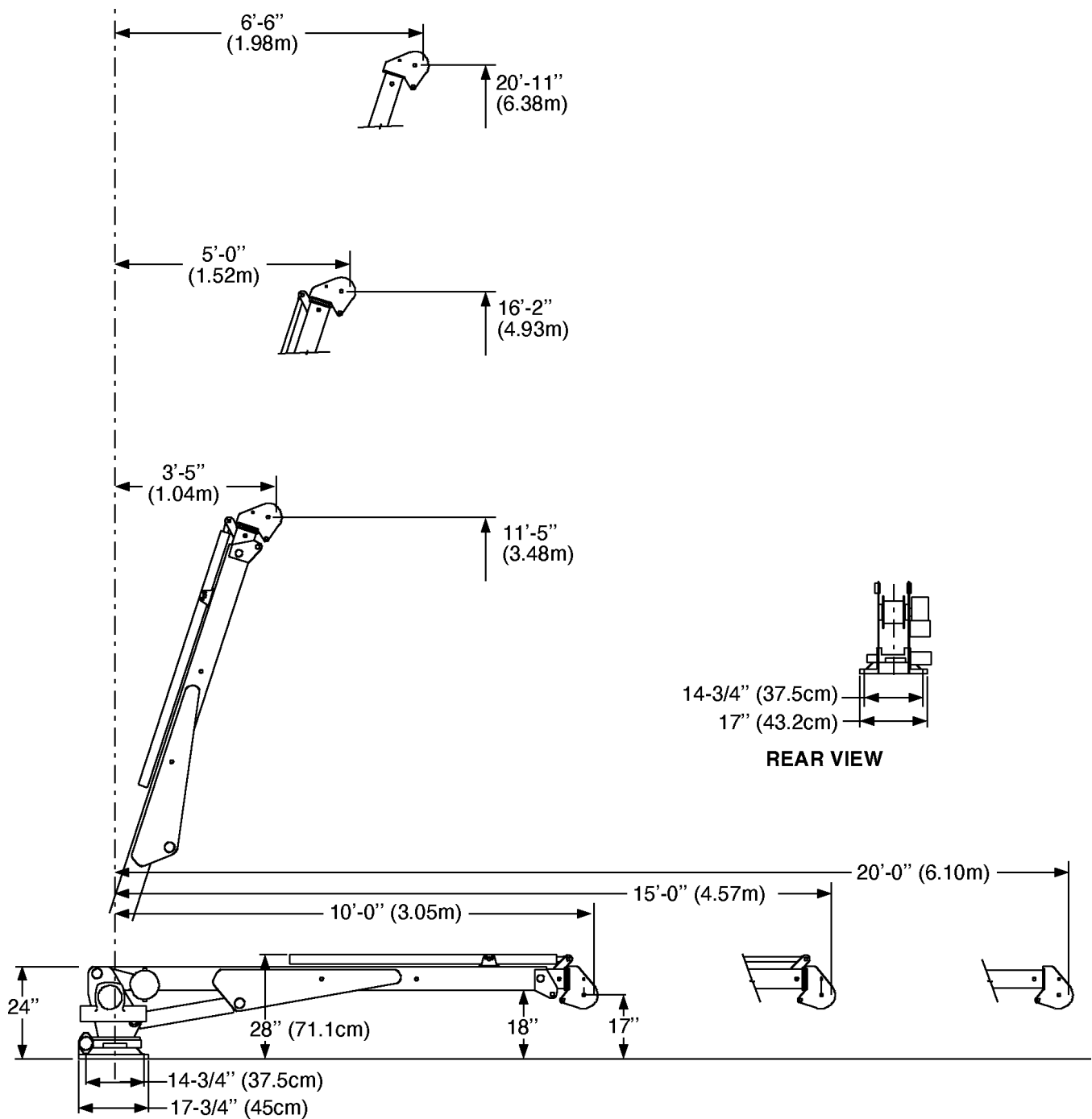
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GEOMETRIC CONFIGURATION

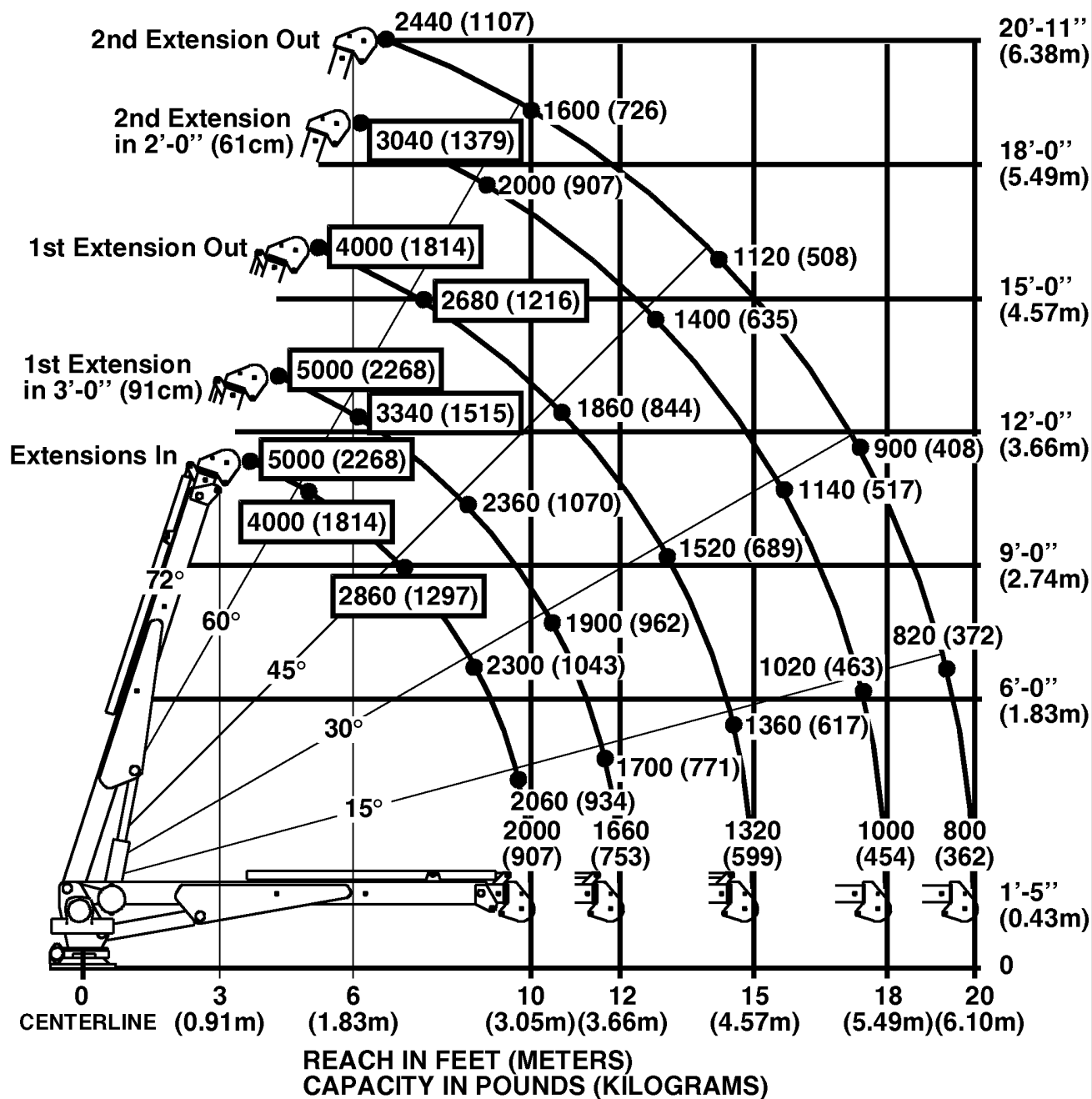




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2015 / 2015-20 CAPACITY CHART



Maximum 1-part line capacity is 2500 lbs (1134 kgs).
For greater loads, use 2-part line.

Weight of load handling devices are part of the load lifted and must be deducted from the capacity.



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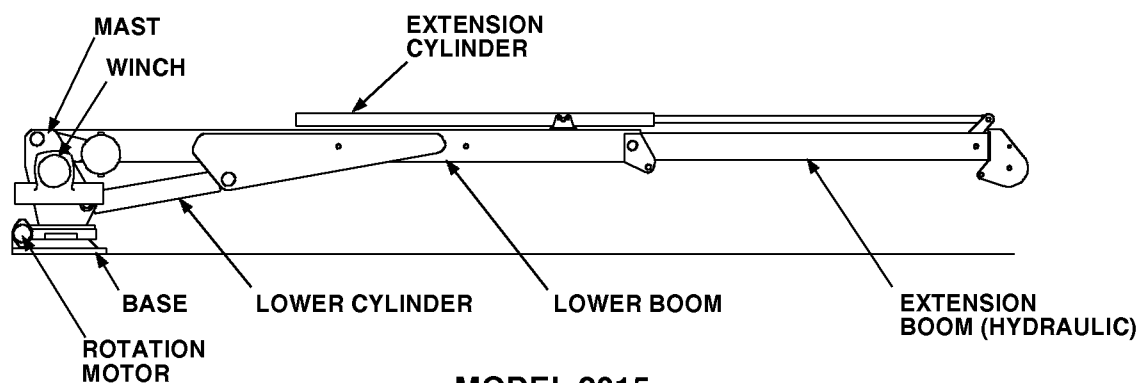
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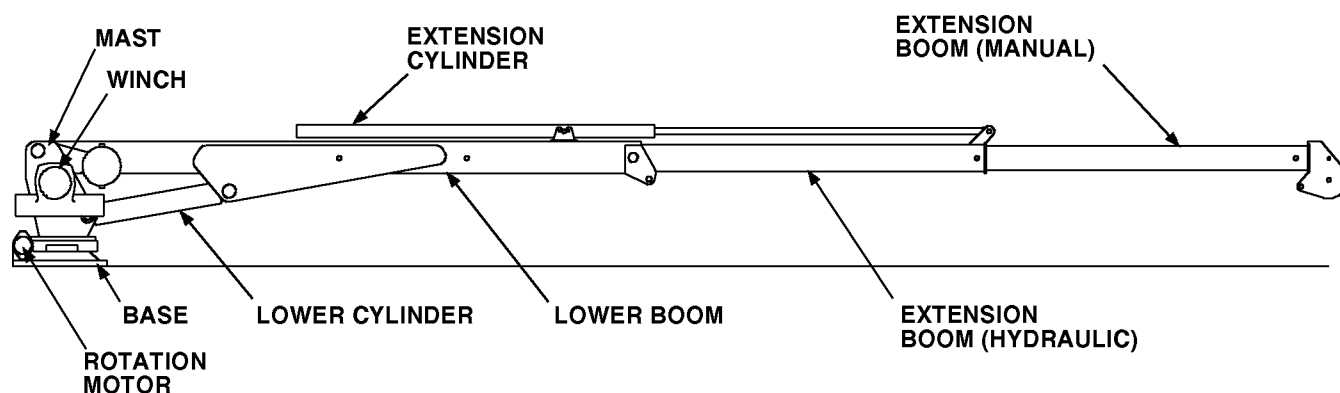


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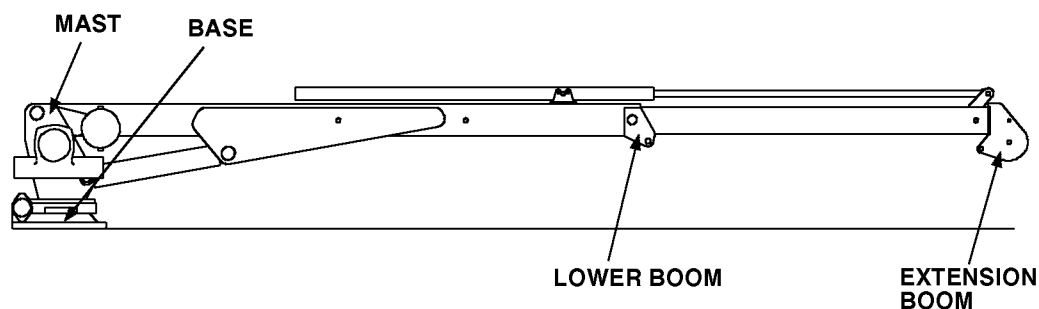


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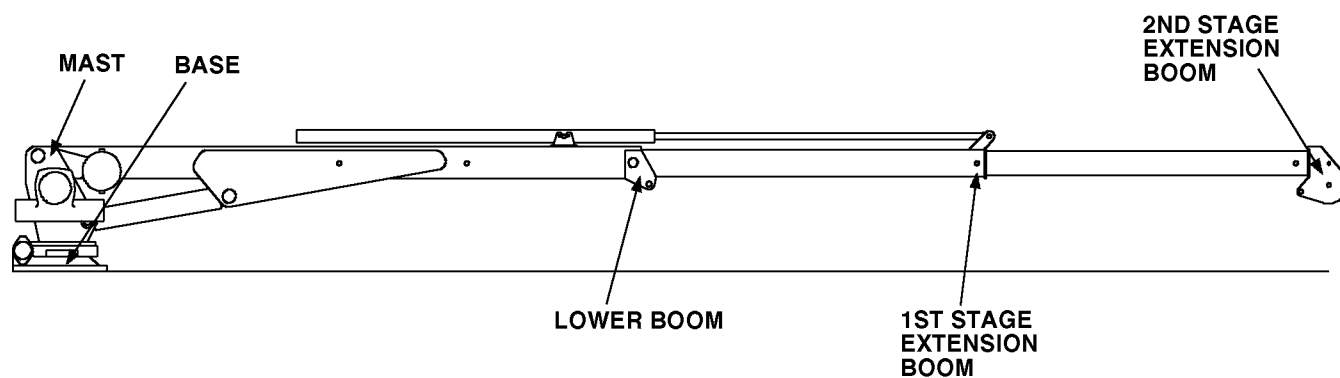


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MAJOR CRANE ASSEMBLIES



MODEL 2015



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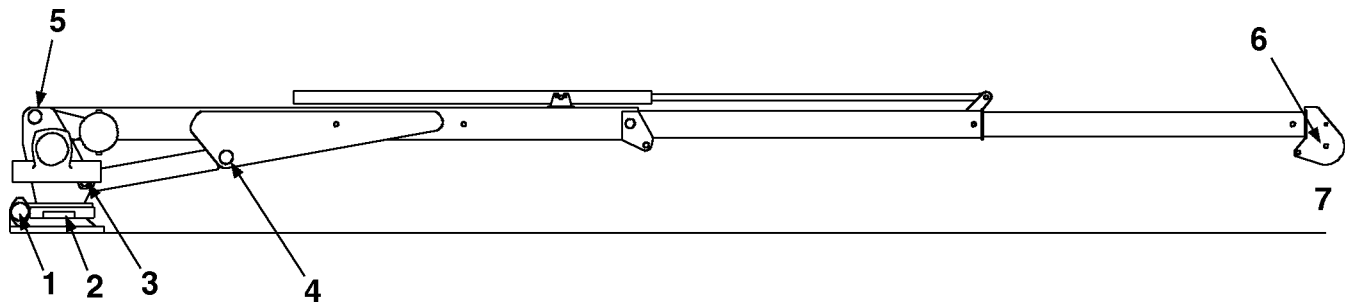
WELDMENT PART NUMBER LOCATIONS



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GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	WORM GEAR	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
2.	TURNABLE/BEARING GREASE EXTENSION		
	*ROTATE CRANE WHILE GREASING		
3.	LOWER CYLINDER BASE		
4.	LOWER CYLINDER ROD		
5.	MAST/LOWER BOOM HINGE PIN		
6.	SHEAVE PIN		
7.	SNATCH BLOCK PIN		

NOTE: All application points must be greased weekly under normal 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.



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RECOMMENDED SPARE PARTS LIST**1 YEAR SUPPLY****MODEL 2015 CRANE****FOR MANUAL: 99900104**

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
41704555.01.19960930	BASE ASM						
	5	60030116	THRUST BEARING	2	W		
	8	70055147	BEARING	1	W		
	9	70055148	BEARING	1	W		
	10	70056307	WORM GEAR	1	W		
		89086159	MOLUB	2	P		
41704557.01.19960930	LOWER BOOM ASM						
	4	7BF81215	BUSHING	4	W		
	5	60030007	WEAR PAD	2	W		
	6	60030083	WEAR PAD	1	W		
3B144820.01.19990128	LOWER BOOM CYLINDER						
	3	6H035017	HEAD	1	W		
	4	6I035125	PISTON	1	W		
	5	7BF81215	BUSHING	2	W		
	6	73054304	VALVE 10GPM	1	C		
	7	9C141420	SEAL KIT	1	W		
41704558.01.19960930	EXTENSION BOOM ASM						
	4	60030081	WEAR PAD	1	W		
	5	60030082	SHEAVE W/BEARING	1	W		
3B138820.01.19960930	EXTENSION BOOM CYLINDER						
	4	73054304	C'BALANCE VALVE 10GPM	1	C		
	5	6I020075	PISTON	1	W		
	6	6H020012	HEAD	1	W		
	7	9B081012	SEAL KIT	1	W		
41706489.01.19960930	EXTENSION BOOM ASM-20'						
	5	60030081	WEAR PAD	1	W		
	6	60030082	SHEAVE W/BEARING	1	W		
41709660.01.19960930	WINCH/CABLE/HOOK KIT						
	10	70055142	BEARING	1	W		
	21	77041291	SWITCH	1	W		
	24	70732193	CORD REEL	1	W		
31704560.01.19960930	CABLE & HOOK KIT						
	3	60030082	SHEAVE W/BEARING	1	W		
	8	60107557	WIRE ROPE 5/16"X65'	1	W		
73051715.01.19970115	HYDRAULIC POWER UNIT						
	4	73054757	SOLENOID VALVE	1	W		
	7	77041237	SOLENOID 12V 150A	1	W		
	19	76393374	O-RING	1	W		
	24	76393376	O-RING	1	W		
51707925.01.19960930	PROPORTIONAL VALVEBANK						
	4	73054628	RELIEF VALVE	1	C		
	5	73054624	SOLENOID VALVE	1	C		
73073772.01.19960930	VALVEBANK						
	3	77041016	COIL 12VDC	2	W		
	REF	94014962	REPAIR KIT (INCLS: 4-10)	2	W		
93704629.01.19970418	INSTALLATION KIT-POWER UNIT						
	19	77041237	SOLENOID 12V 150A	1	W		
93704630.01.19960930	INSTALLATION KIT-PTO						
	19	77041237	SOLENOID 12V 150A	1	W		
	25	77041251	RELAY	2	W		
	REF	70048149	SUCTION FILTER ELEMENT	3	P		
	REF	73052006	RETURN FILTER ELEMENT	3	P		
90713518.01.19970418	PROPORTIONAL REMOTE CONTROL KIT						
	7	7Q072015	O-RING	1	W		
	21	77041283	PRESSURE SWITCH 2800	1	W		
90713517.01.19970418	REMOTE CONTROL KIT-PTO						
	7	7Q072015	O-RING	1	W		
	21	77041283	PRESSURE SWITCH	1	W		

(CONTINUED)



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RECOMMENDED SPARE PARTS LIST (CON'T)

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE MO.	ORDER QTY
90713519.01.19960930			ELECTRIC REMOTE CONTROL KIT				
	7	7Q072015	O-RING	1	W		
	21	77041283	PRESSURE SWITCH	1	W		
51713498.01.19970428			PROPORTIONAL REMOTE HANDLE ASM				
	11	51707507	POTENTIOMETER	1	W		
	16	77040371	TOGGLE SWITCH SPST	2	W		
	17	77040372	TOGGLE SWITCH SPDT	4	W		
	18	77040373	TOGGLE SWITCH SPST	1	W		
	19	77040374	TOGGLE SWITCH SPDT	1	W		
51713383.01.19970428			REMOTE HANDLE ASM-DUPLEX PUMP				
	17	77040372	TOGGLE SWITCH SPDT	4	W		
	18	77040373	TOGGLE SWITCH SPST	1	W		
	19	77040374	TOGGLE SWITCH SPDT	1	W		
	23	77041407	DIODE BOARD	1	W		
51713384.01.19970428			REMOTE HANDLE ASM-PTO				
	16	77040371	TOGGLE SWITCH SPST	4	W		
	17	77040372	TOGGLE SWITCH SPDT	1	W		
	18	77040373	TOGGLE SWITCH SPST	1	W		
	19	77040374	TOGGLE SWITCH SPDT	1	W		



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INSTALLATION

GENERAL

This section is intended to serve as a guide in the installation of the IMT 2015 crane. Since each installation is considered unique, certain components, such as the power unit's battery cable, must be altered to fit the chassis.

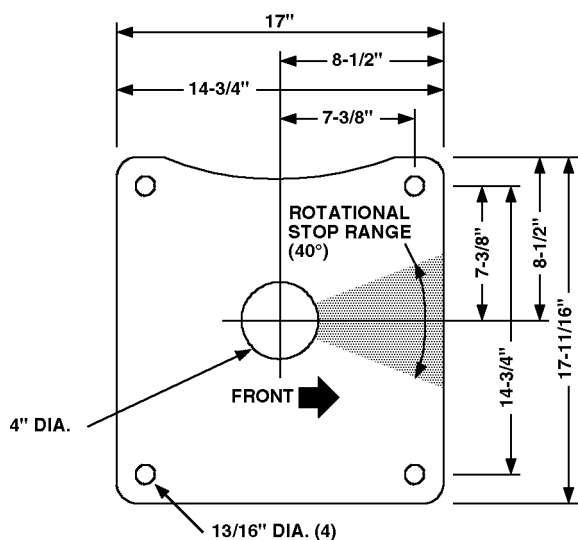
CHASSIS INFORMATION

The crane is designed for use with an IMT body installed on a vehicle meeting the minimum chassis requirements as specified in Section 1.

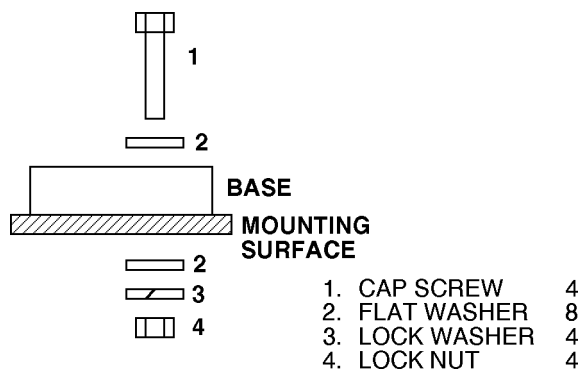
If this crane is being installed on any body other than an IMT mechanic body, check with IMT to determine the suitability of that body.

WARNING

THE USE OF THIS CRANE ON A BODY NOT CAPABLE OF HANDLING THE LOADS IMPOSED ON IT BY THE CRANE, MAY RESULT IN SERIOUS INJURY OR DEATH.



MOUNTING HOLE LAYOUT



CRANE INSTALLATION

CRANE INSTALLATION

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

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

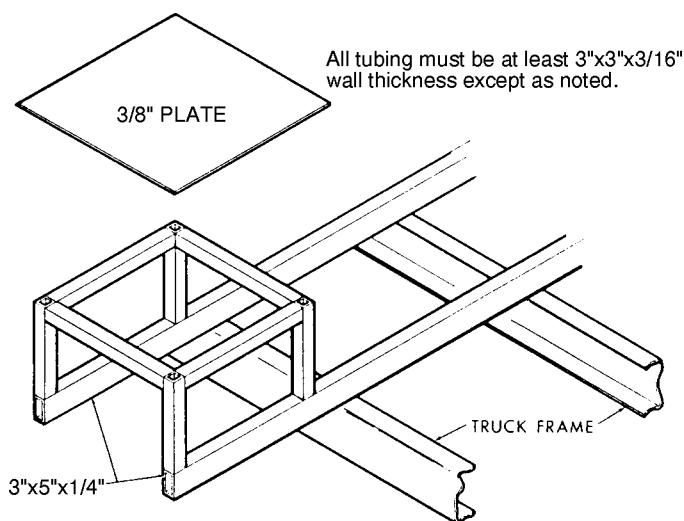
NOTE

IN ADDITION TO THESE SPECIFICATIONS, A HEAVY-DUTY BATTERY AND ALTERNATOR ARE REQUIRED. IT IS RECOMMENDED THAT THE VEHICLE HAVE POWER STEERING AND DUAL REAR WHEELS.

IMT RECOMMENDS ADHERENCE TO THE UPPER LIMIT OF THESE SPECIFICATIONS FOR BEST SYSTEM PERFORMANCE.

BODY REINFORCEMENT

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



REINFORCEMENT



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RELAY BOARD OPERATION

INTRODUCTION

To understand how the relay board operates, it is necessary to understand how the individual relays function.

The Bosch relay (part number 77041251) is a normally open relay between terminals 30 and 87 and normally closed between terminals 30 and 87a. Terminals 85 and 86 energize the relay through the coil. See Figure 1 and 2.

Figure 3 shows the relay board with eight relays identified with the letters "A" through "G" and by their basic function. Example: Relay "A" is the "Power ON/OFF" relay, "C" is the "Compressor Speed Control", etc. The small numbers shown on the individual terminals of the relay indicate where that terminal is connected through the circuit board, to the terminal bar. Example: Relay "A" top terminal (#9) is connected to terminal 9 of the terminal bar. The terminal bar is provided with 16 individual terminals of which the last two (15 and 16) are not used. Wires connected to the terminal bar have been identified according to their function in the circuit. The number of terminals used vary with each application. Solid lines between relay terminals indicate existing wiring connections, through the circuit board.

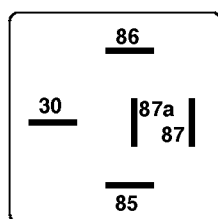


FIGURE 1.
BOTTOM VIEW OF RELAY

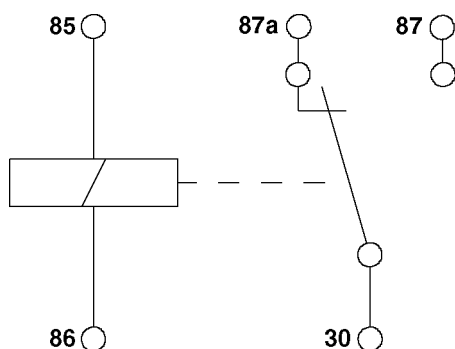


FIGURE 2.
INTERNAL WIRING

The relay board is primarily used on vehicles with remote controlled cranes and remote control cranes and compressors. The circuitry prevents remote starting of the truck engine unless the brakes are applied and the PTO is engaged. It also isolates the crane speed control from the compressor speed control.

OPERATION

IGNITION "ON"

When the ignition switch of the vehicle is turned "ON", terminal 9 of the terminal bar is "HOT". The coil of relay "A" is energized and voltage from terminal 1 of the terminal bar becomes present at terminals "A" of relays "A", "B", "E" and "H". See Figure 3.

REMOTE STARTING THE VEHICLE

The vehicle can be remotely started from the remote control handle by toggling the "Crane-OFF-Compressor" switch to the "Crane" position.

To start the vehicle, the engine start switch at the handle must be depressed. When this is accomplished, terminal 11 of the terminal block becomes "HOT". See Figure 5.

The truck starter is energized when terminals 11 and 12 of the terminal bar are connected through the relay board. When terminal 11 is "HOT", the coil in relay "F" is energized connecting relay terminal 12 and "B" on relays "F" and "G". If terminal 14 of relay "H" and terminal 13 of relay "G" are grounded (brakes and PTO engaged) terminals "B" of relays "F" and "G" are "HOT". Since terminal "B" of relay "F" is "HOT", the truck starter solenoid is activated. Energized circuits are shown as bold in Figure 5.

REMOTE ENGINE STOP

When the engine stop button is depressed on the remote control handle, voltage is applied to terminal 6 of the terminal block and of relay "D". The coil in relay "D" is energized and the ground of the fuel solenoid/distributor coil is interrupted because current can no longer flow from terminal 7 to 8. Relay "D" is normally closed between terminals 7 and 8. See Figure 3.



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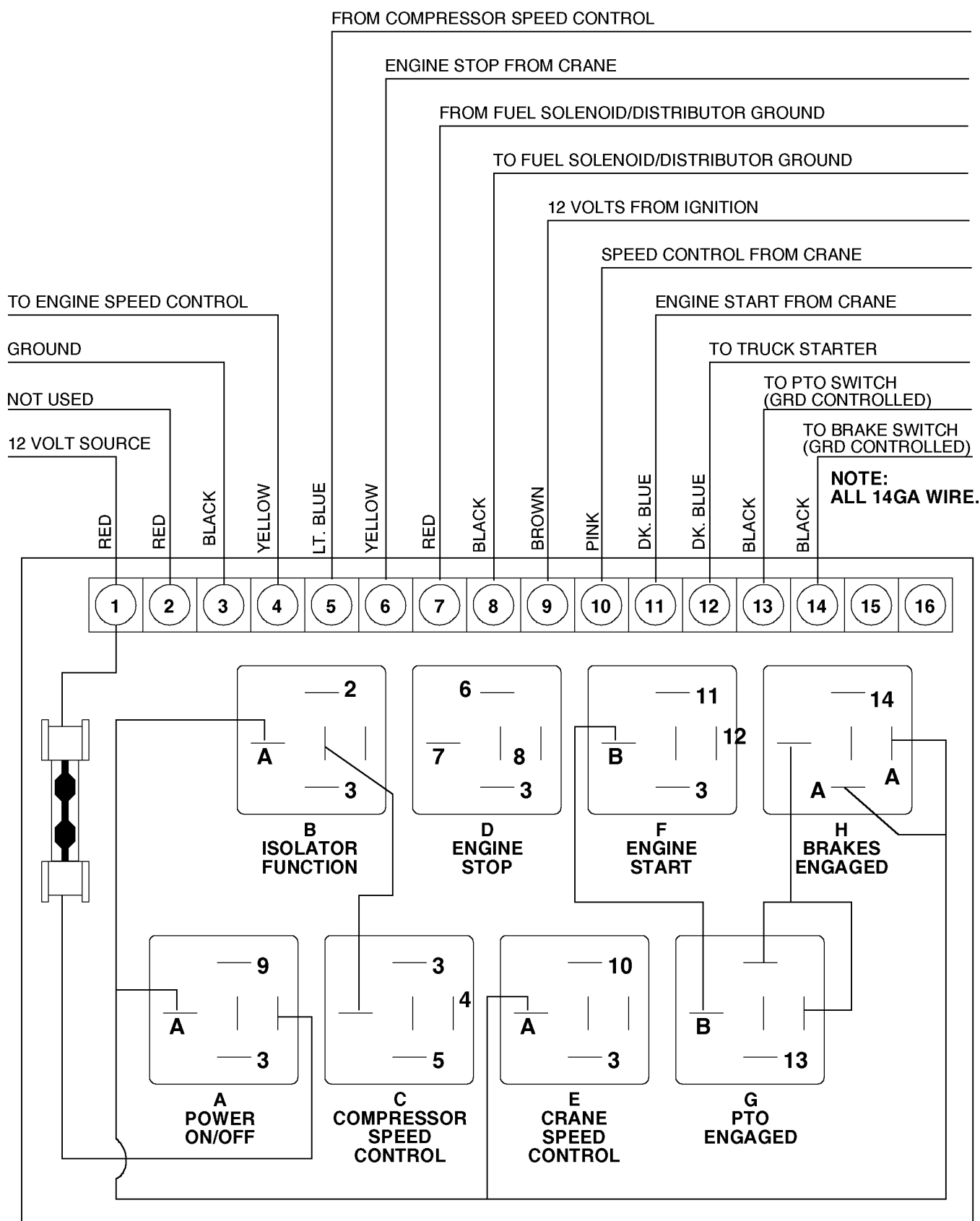


FIGURE 3. RELAY BOARD - COMPONENTS & WIRING



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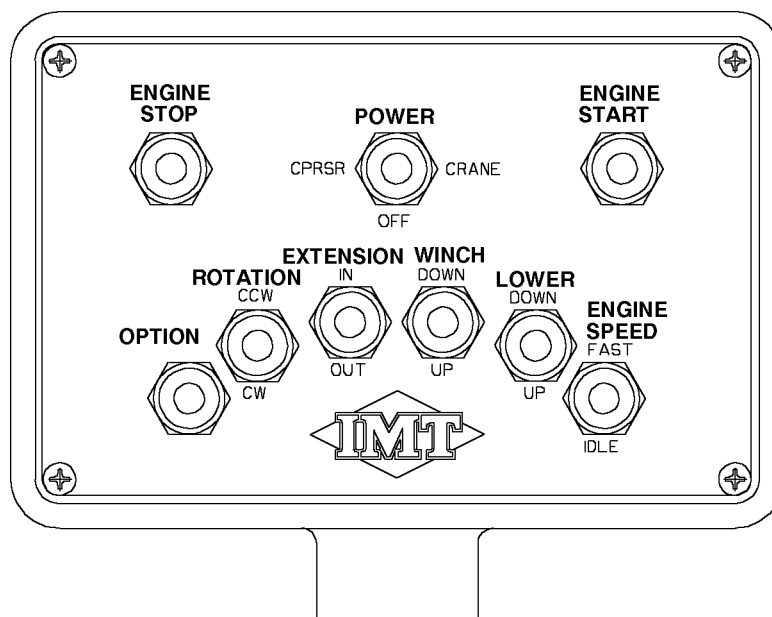
REMOTE ENGINE SPEED (FROM CRANE)

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

2-11

Compressor operation will begin when the “Compressor-OFF-Crane” switch on the handset is toggled to the “Compressor” position. At that time, the power from the handset will provide power to the pressure switch on the compressor. When the pressure switch signals a need for more air pressure, the switch will trip and provide a signal to terminal 5 of the relay board.

Relay “C” energizes the coil in the relay, connecting terminal 4 to terminal “C” of the relay which is “HOT” from relay “B”. Reference Figure 6 showing circuits energized (in bold) when engine speed is increased by the compressor. This will provide a “HOT” signal at terminal 4 which then provides a 12-volt signal to input of the speed control currently installed.

**FIGURE 4. REMOTE CONTROL HANDLE**



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2-12

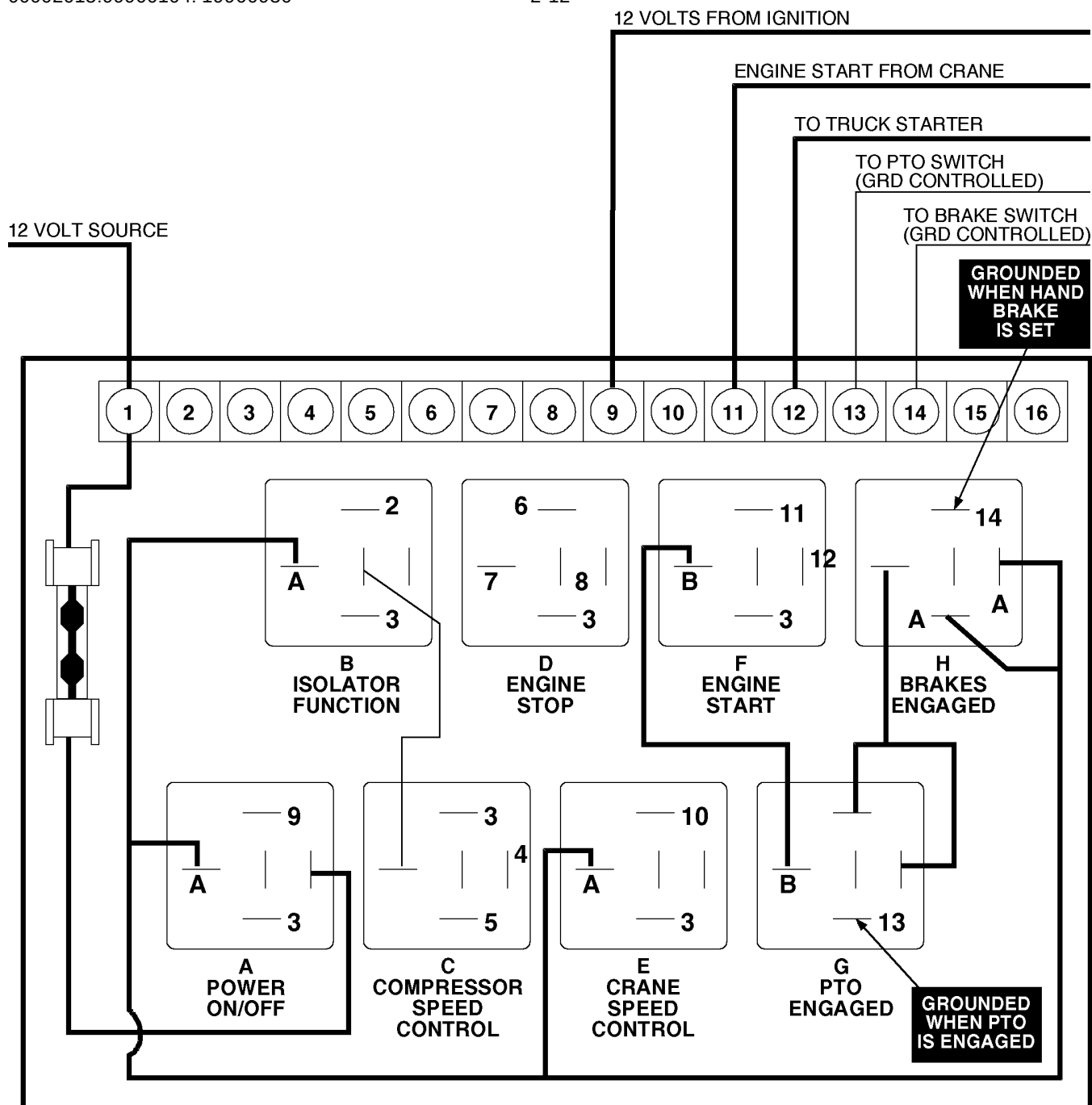


FIGURE 5. REMOTE STARTING OF VEHICLE - IGNITION "ON"



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2-13

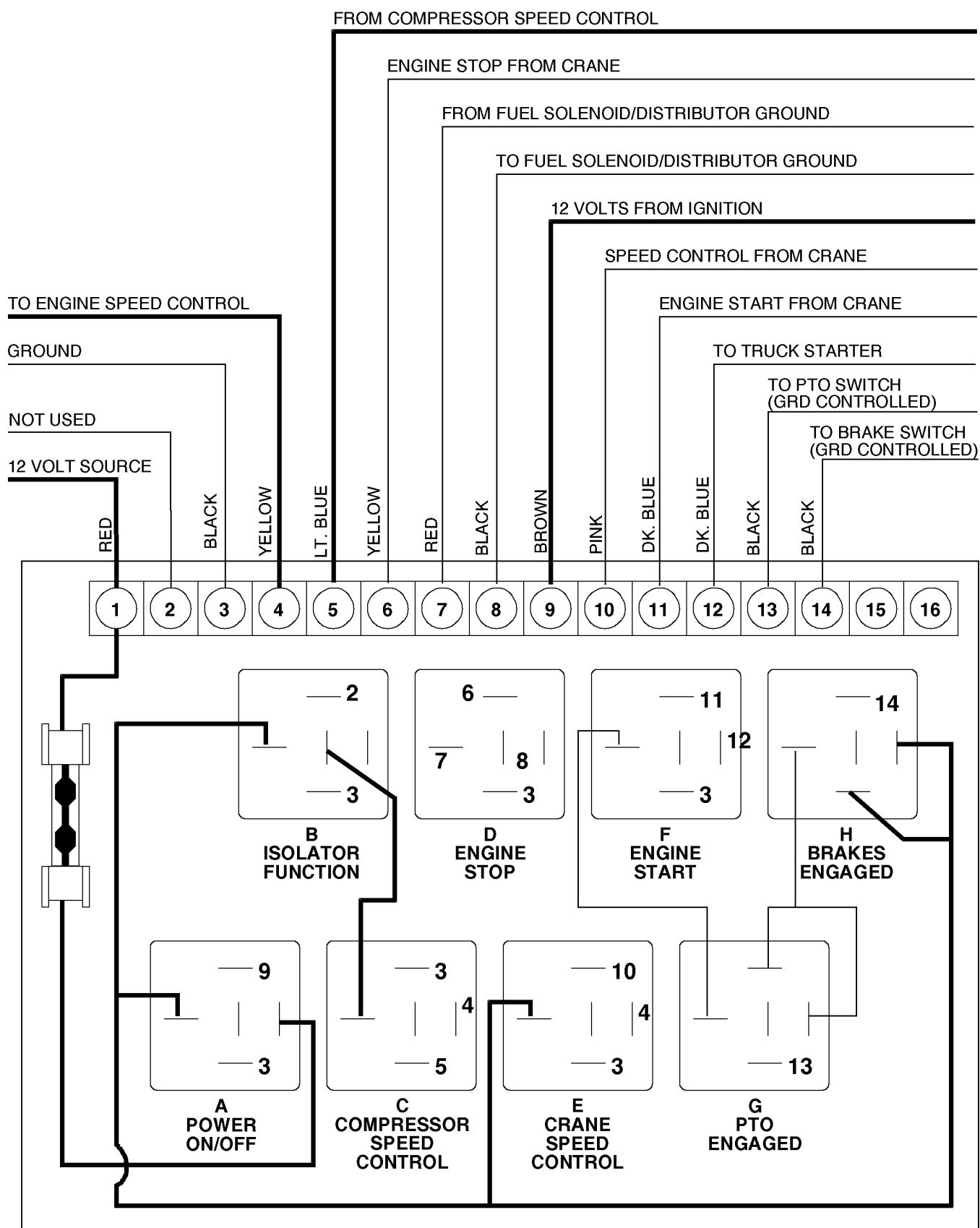


FIGURE 6. SPEED CONTROL - COMPRESSOR ONLY



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2-14

INSTALLATION

1. Locate an area in the engine compartment that will both provide some protection against damage and accessibility for wiring.

2. Provide adequate space between the mounting surface and the back of the circuit board in order to prevent electrical contact. Failure to do so will cause erratic operation and/or circuit board failure.

3. Connect control wiring as indicated in Wiring Chart.

4. Jumper wires connections:

4-1. Jumper wires must connect J to K, and L to M for 12 volts excited systems. Remove the connecting wires between I to J and M to N.

4-2. Jumper wires must connect I to J, and M to N for ground excited systems*. Remove the connecting wires between J to K and L to M.

WARNING

Failure to remove the extra connecting wire will cause the relay board to fail. Check jumper wire connections of relay board being replaced. (Most relay boards are wired as stated in item 4-1.)

* NOTES

Circuits that could be ground excited are 6 - 10 & 11.
Quick Check: (Before connecting wires to circuit board)
Activate the engine stop switch from the crane. If terminal 6 is hot, wire per 4-1. If not, wire per 4-2.

WIRING CHART

TERM	WIRING CONNECTION
1	12-VOLT
2	NC
3	GROUND
4	TO SPEED CONTROL
5	SPEED CONTROL FROM COMPRESSOR
6	ENGINE STOP FROM CRANE
7	FROM FUEL SOLENOID / DISTRIBUTOR
8	GROUND
9	TO FUEL SOLENOID / DISTRIBUTOR
10	GROUND
11	12-VOLT FROM IGNITION
12	SPEED CONTROL FROM CRANE
13	ENGINE START FROM CRANE
14	TO TRUCK STARTER
15	TO PTO SWITCH, CONTROLLED
16	TO BRAKE SWITCH, CONTROLLED
15	NC
16	NC

RELAY FUNCTION

A	ON / OFF, POWER
B	ISOLATION, SPEED CONTROL
C	COMPRESSOR, SPEED CONTROL
D	ENGINE STOP
E	CRANE SPEED CONTROL
F	ENGINE START
G	PTO SWITCH
H	BRAKE SWITCH, CONTROLLED

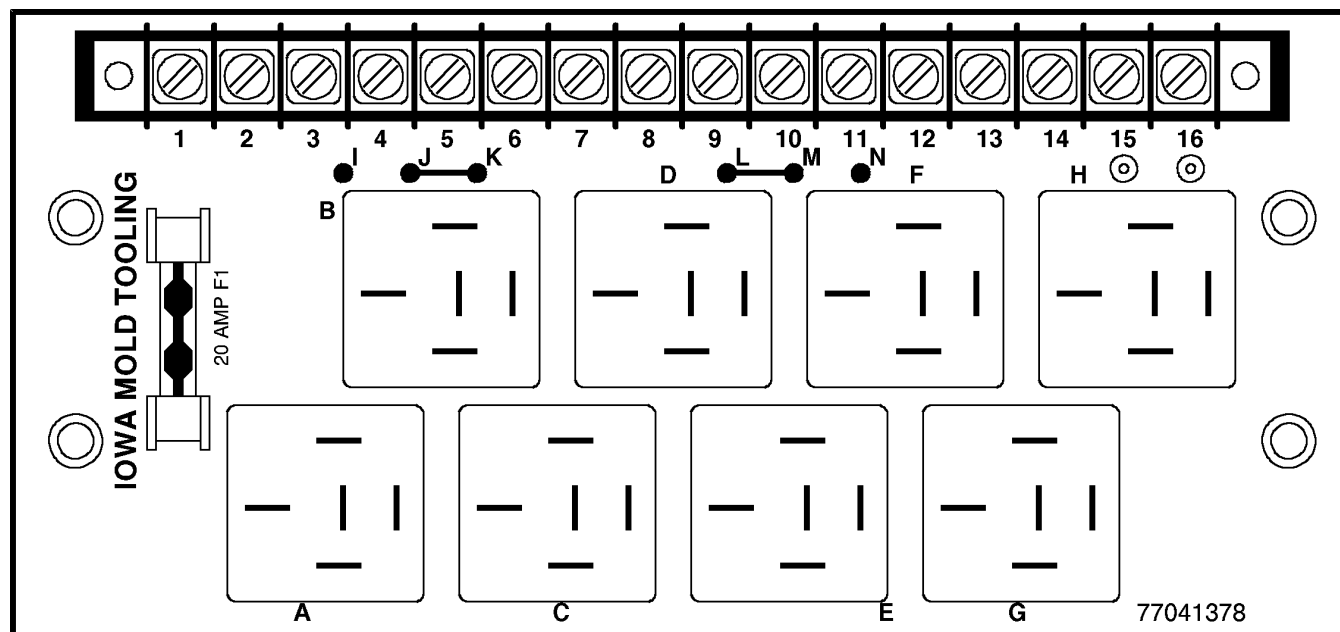


FIGURE 7. RELAY BOARD (77041378) WIRING INSTRUCTIONS



00002015: 99900104:19981021

3-1

SECTION 3. MODEL 2015 REPLACEMENT PARTS

PARTS INFORMATION	3
BASE ASM (41704555)	4
MAST ASM-CURBSIDE (41704556)	5
MAST ASM-STREETSIDE (41712807)	6
LOWER BOOM ASM (41704557)	7
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EXTENSION BOOM ASM (41704558)	9
EXTENSION CYLINDER (3B138820)	10
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WINCH/CABLE/HOOK KIT (41709660)	12
CABLE & HOOK KIT (31704560)	13
WINCH (71057987)	14
DECAL KIT-PWR UNIT (95708638)	15
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HYD PWR UNIT 12VDC (73051715)	17
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HYD KIT-4 SECT-PTO (91707641)	19
HYD KIT-PTO-PROP'L RMT (91709395)	20
VALVEBANK ASM-4 SECT PROP'I RC (51713266)	21
VALVEBANK (73073772)	21
VALVEBANK-PROP'L (51707925)	21
VALVEBANK ASM-4 SECT PROP'I RC (51713265)	22
INSTALLATION KIT-PWR UNIT (93704629)	23
CABLE ASM (51713199)	23
INSTALLATION KIT-PTO (93704630)	24
PROP'L RMT CTRL KIT (90713518-1)	25
PROP'L RMT CTRL KIT (90713518-2)	26
RMT CTRL KIT-PTO (90713517-1)	27
RMT CTRL KIT-PTO (90713517-2)	28
ELEC RMT CTRL KIT (90713519-1)	29
ELEC RMT CTRL KIT (90713519-2)	30
PROP'L RMT HANDLE ASM (51713498)	31
RMT HANDLE ASM-DUPLEX PUMP (51713383)	32
RMT HANDLE ASM-PTO (51713384)	33



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3-2

CABLE ASM-18GA/24W X 72 (51713501)	34
CABLE ASM-ELEC PWR UNIT GROUND (51704787)	35
CABLE ASM-ELEC PWR UNIT GROUND (51713682)	36
OPTION-BOOM SUPPORT/RESERVOIR 20 GAL (51706910)	37
OPTION-RESERVOIR 18 GAL-BULKHEAD (51707798)	38
AUX OUTRIGGERS-REAR-MO/MD (31711125)	39
AUX OUTRIGGER-MO/CRANK DN (31711126)	40
AUX OUTRIGGER-MO/PD (31711127)	41
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CYLINDER-PWR DN (3B048870)	43
CYLINDER-PWR OUT (3B142860)	44
VALVEBANK ASM-2 SECT (51705983)	45
VALVEBANK ASM-3 SECT (51705984)	46
LOWER BOOM ASM W/D-RING (41715074)	47



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3-3

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, refer to the appropriate manual, or consult your IMT sales representative.

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 attached to the mast or to one of the booms in a prominent location. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model number. All inquiries should be directed to:

Iowa Mold Tooling Co., Inc.
Box 189, Garner, IA 50438-0189
Telephone: 515-923-3711
Product Support Fax: 515-923-2424

 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 that the proper cylinder replacement parts are received, it is necessary to specify the complete number/letter sequence for any part requested. Part numbers must be verified by checking the number stamped on the cylinder case (See figure below) against the information included in the service manual. You must include the part number stamped on the cylinder case when ordering parts.

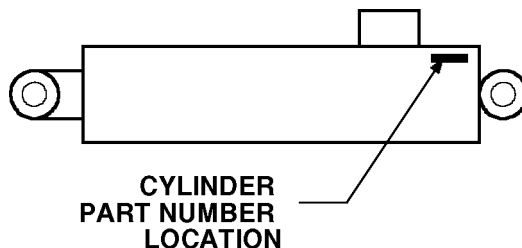
WELDMENT IDENTIFICATION

Each of the major weldments, base, mast, lower boom, extension boom, and outriggers, have a part number stamped on them. Any time one of the weldments is to be replaced, it is necessary to specify the complete part number as stamped on that weldment. The location of the part numbers are shown Section 2.

ORDERING REPAIR PARTS

When ordering replacement parts it is important to follow the steps as outlined below.

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

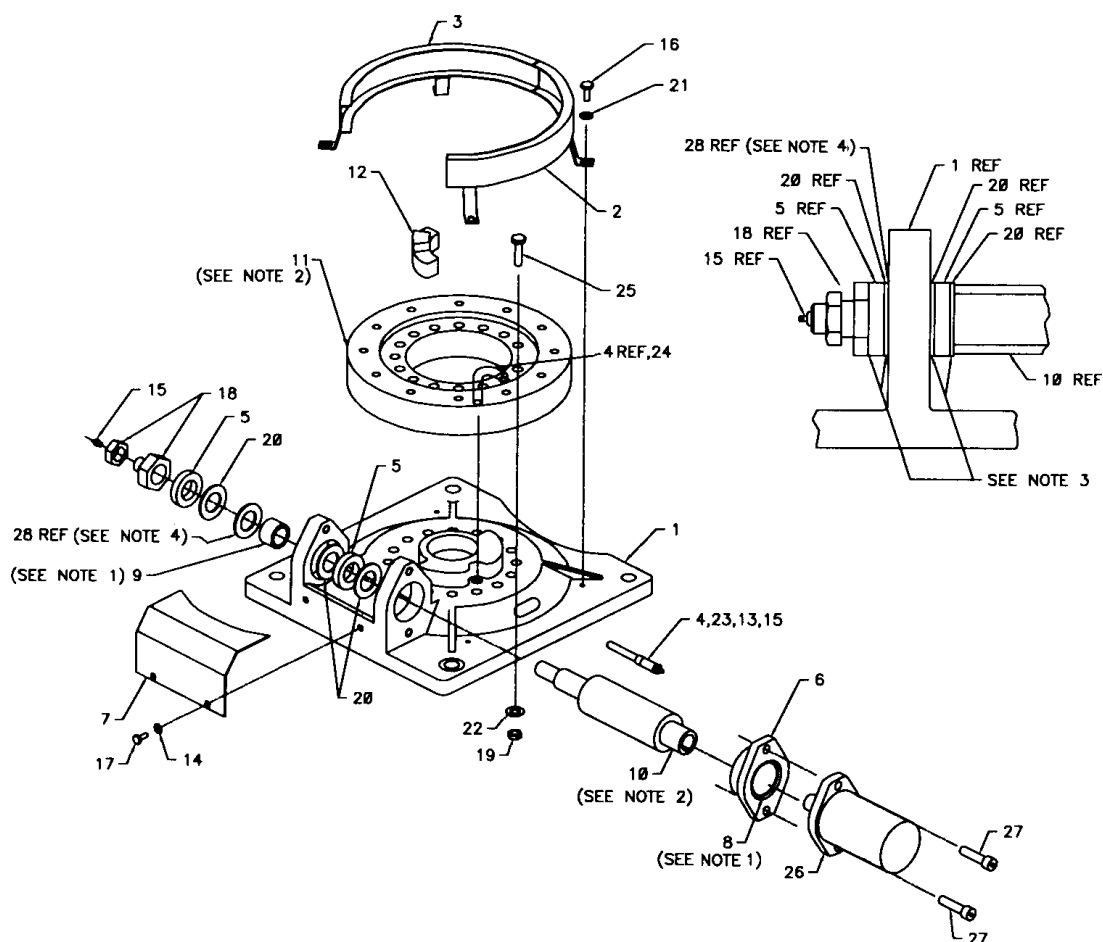
3-4

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. 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 is required at the time of assembly.
Approved lubricants are Slip Plate, Lubri-Plate, or other lubricants containing graphite or MSO_2 .
4. Shim as required if needed.





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3-5

MAST ASM-CURBSIDE (41704556)

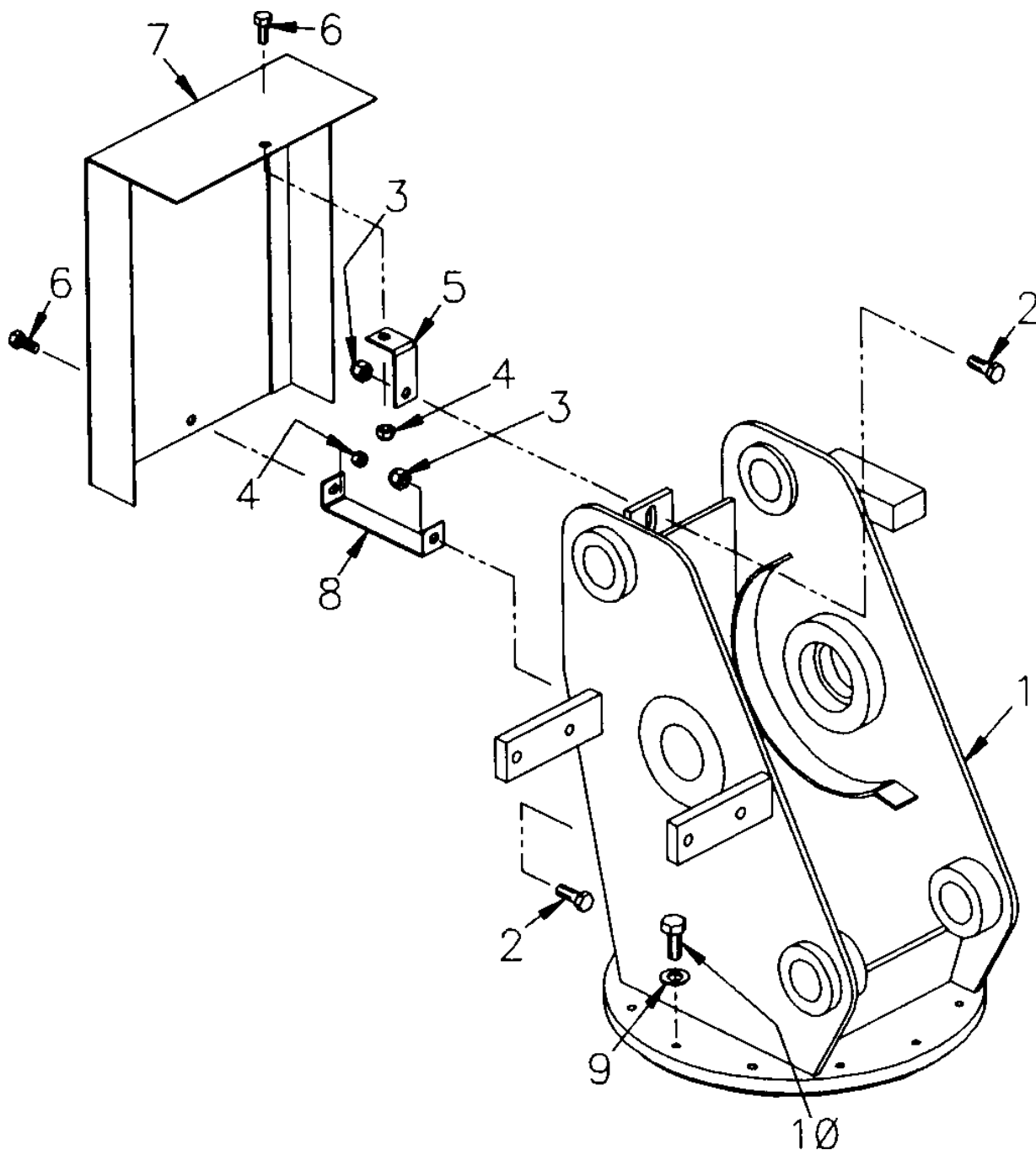
ITEM	PART NO.	DESCRIPTION	QTY
1.	52704552	MAST-CURBSIDE	1
2.	72060046	CAP SCR 3/8-16X1 HHGR5	2
3.	72062103	NUT 3/8-16 LOCK	2
4.	72062109	NUT 5/16-18 LOCK	2
5.	60107613	TOP SUPPORT-VB COVER	1
6.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2
7.	52704603	VALVEBANK COVER	1
8.	60107612	BOTTOM SUPPORT-VB COVER	1
9.	72063117	WASHER 9/16 FLAT HARD	12
10.	72601144	CAP SCR 9/16-12X2 HHGR8	12

NOTE

ROTATION STOP IS LOCATED TOWARD THE REAR OF MAST ON STREETSIDE MODEL AND TOWARD THE FRONT OF MAST ON CURBSIDE MODEL.

WARNING

ANYTIME THE GEAR-BEARING BOLTS HAVE BEEN REMOVED, THEY MUST BE REPLACED WITH NEW BOLTS OF IDENTICAL GRADE AND SIZE. FAILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJURY OR DEATH.





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3-6

MAST ASM-STREETSIDE (41712807)

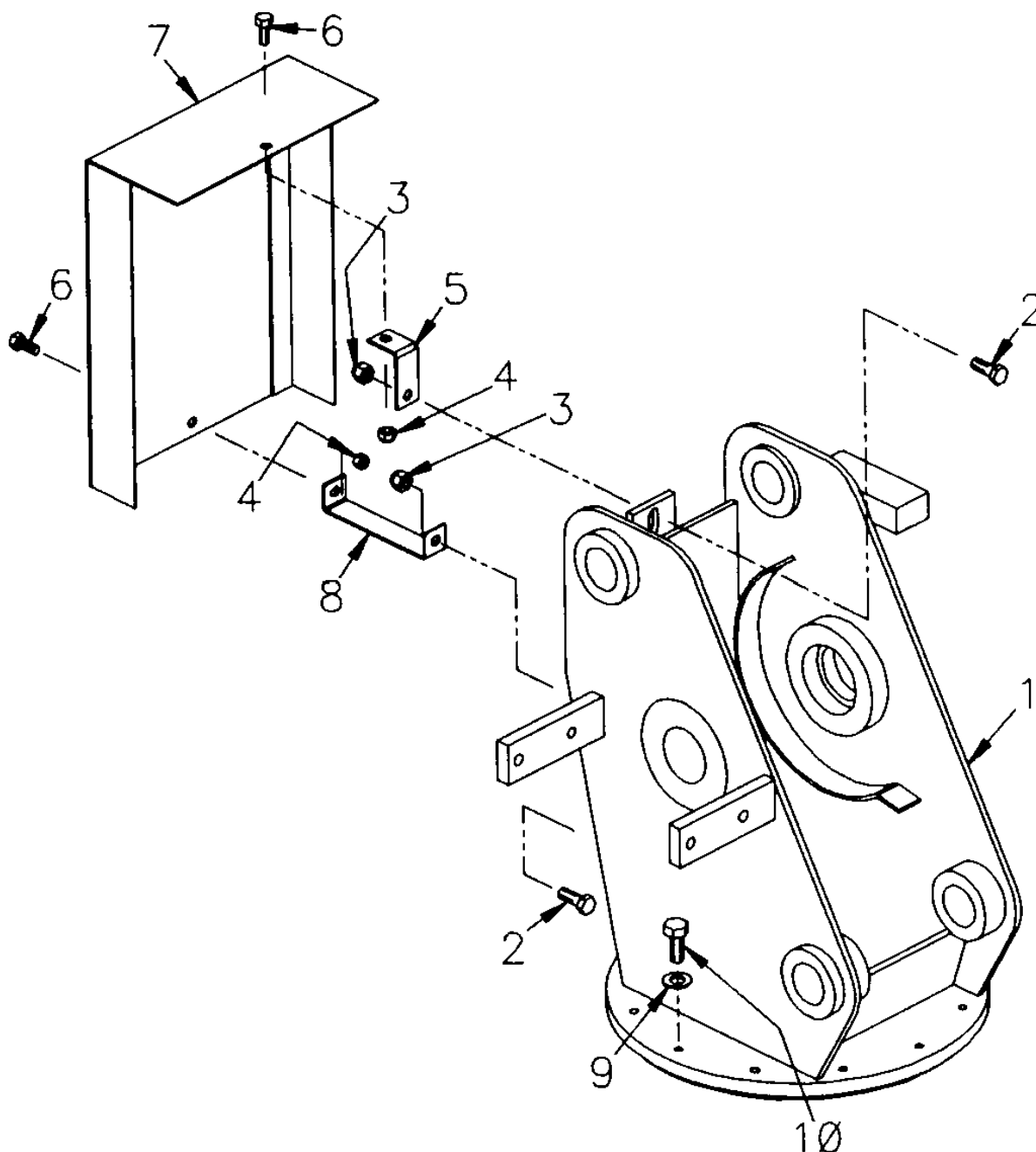
ITEM	PART NO.	DESCRIPTION	QTY
1.	52712806	MAST-STREETSIDE	1
2.	72060046	CAP SCR 3/8-16X1 HHGR5	2
3.	72062103	NUT 3/8-16 LOCK	2
4.	72062109	NUT 5/16-18 LOCK	2
5.	60107613	TOP SUPPORT-VB COVER	1
6.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2
7.	52704603	VALVEBANK COVER	1
8.	60107612	BOTTOM SUPPORT-VB COVER	1
9.	72063117	WASHER 9/16 FLAT HARD	12
10.	72601144	CAP SCR 9/16-12X2 HHGR8	12

NOTE

ROTATION STOP IS LOCATED TOWARD THE REAR OF MAST ON STREETSIDE MODEL AND TOWARD THE FRONT OF MAST ON CURBSIDE MODEL.

WARNING

ANYTIME THE GEAR-BEARING BOLTS HAVE BEEN REMOVED, THEY MUST BE REPLACED WITH NEW BOLTS OF IDENTICAL GRADE AND SIZE. FAILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJURY OR DEATH.





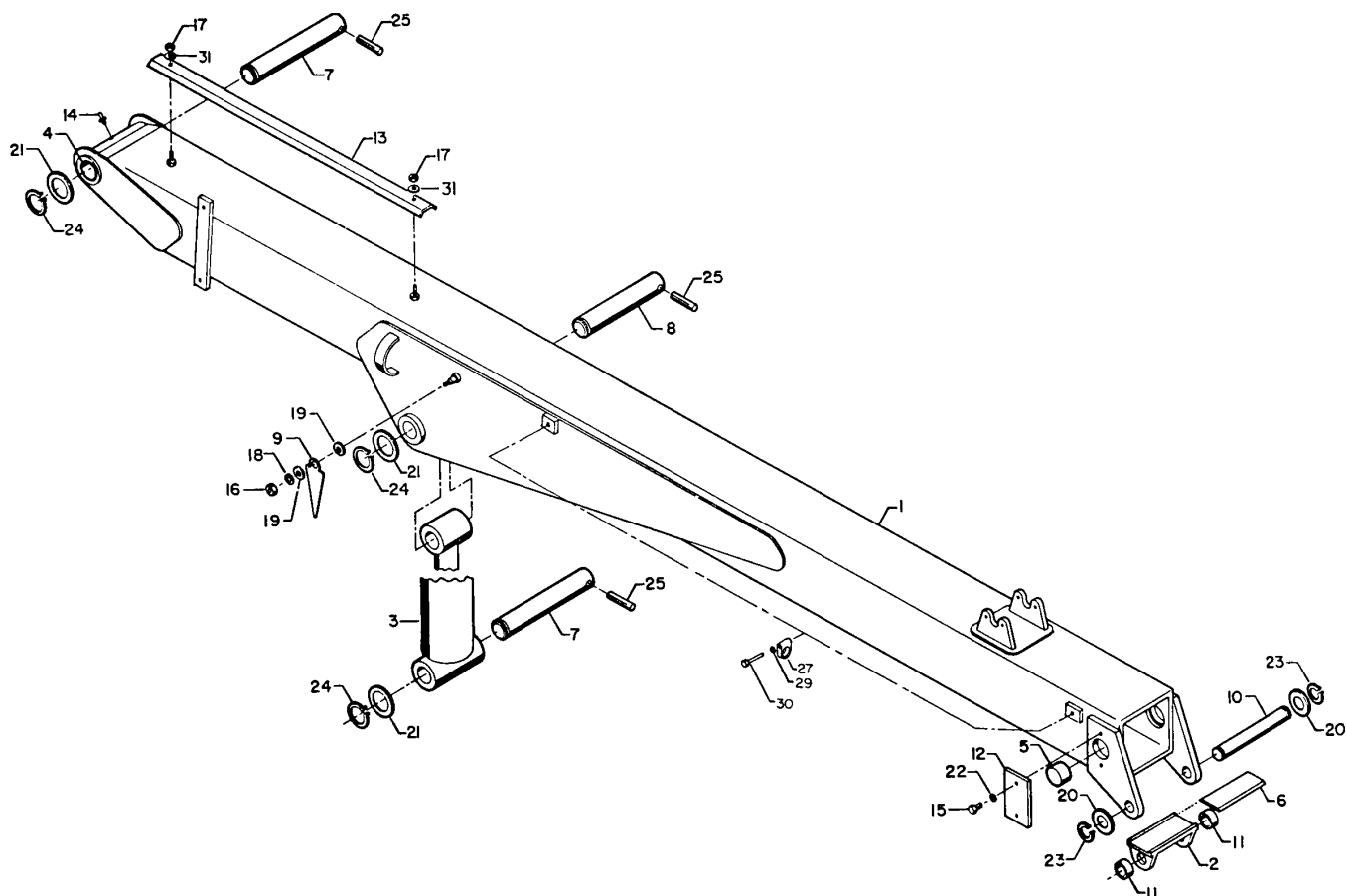
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3-7

LOWER BOOM ASM (41704557)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52704553	LOWER BOOM (INCL:4)	1
2.	52704549	TRUNNION	1
3.	3B144820	LOWER CYLINDER	1
4.	7BF81215	BUSHING (PART OF 1)	4REF
5.	60030007	WEAR PAD	2
6.	60030083	WEAR PAD	1
7.	60102376	PIN	2
8.	60102388	PIN	1
9.	60105544	ANGLE INDICATOR	2
10.	60105749	PIN	1
11.	60107538	PIPE	2
12.	60107550	LOCK PLATE	2
13.	60107595	HOSE GUARD	1
14.	72053508	ZERK 1/8NPT	1

15.	72060044	CAP SCR 3/8-16X3/4 HHGR5	4
16.	72062103	NUT 3/8-16 LOCK	2
17.	72062104	NUT 1/4-20 LOCK	2
18.	72063003	WASHER 3/8 WRT	2
19.	72063005	WASHER 1/2 WRT	4
20.	72063034	MACH BUSHING 1X10GA	2
21.	72063037	MACH BUSHING 1-1/2X10GA	3
22.	72063051	WASHER 3/8 LOCK	4
23.	72066125	RETAINING RING 1" EXT HD	2
24.	72066132	RETAINING RING 1-1/2 EXT HD	3
25.	72661157	GROOVE PIN 1/2X2-1/2	3
26.	72066340	POP RIVET 1/8	2
27.	70034381	CORD GUIDE	2
28.	70029119	SERIAL NUMBER PLACARD	1
29.	72063049	WASHER 1/4 LOCK	2
30.	72060006	CAP SCR 1/4-20X1-1/2 HHGR5	2
31.	72063001	WASHER 1/4 WRT	2





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3-8

LOWER CYLINDER (3B144820)

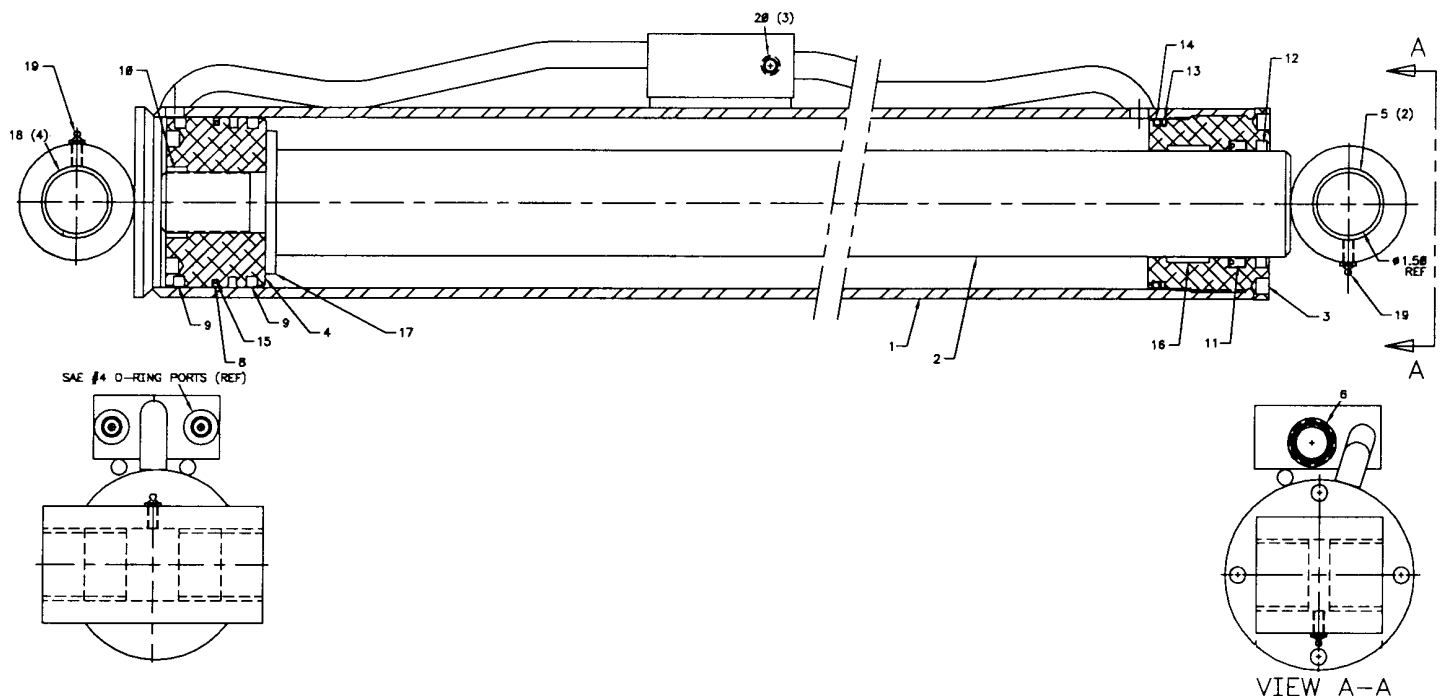
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B144820	CASE (INCL:18-20)	1
2.	4G144820	ROD (INCL:5,19)	1
3.	6H035017	HEAD	1
4.	6I035125	PISTON	1
5.	7BF81215	BUSHING (PART OF 2)	2REF
6.	73054304	VALVE 10GPM	1
7.	9C141420	SEAL KIT (INCL:8-17)	1
8.	7T66P035	PISTON SEAL (PART OF 7)	1REF
9.	7T65I035	PISTON RING (PART OF 7)	2REF
10.	7T61N125	LOCK RING SEAL (PART OF 7)	1REF
11.	7R546017	ROD SEAL (PART OF 7)	1REF
12.	7R14P017	ROD WIPER (PART OF 7)	1REF
13.	7Q10P338	BACK-UP RING (PART OF 7)	1REF
14.	7Q072338	O-RING (PART OF 7)	1REF
15.	7Q072151	O-RING (PART OF 7)	1REF
16.	7T2N8020	WEAR RING (PART OF 7)	1REF
17.	6A025017	WAFFER LOCK (PART OF 7)	1REF
18.	7BF81015	BUSHING (PART OF 1)	4REF
19.	72053507	ZERK 1/4-28 (PART OF 1&2)	2REF
20.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF

NOTE

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

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

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





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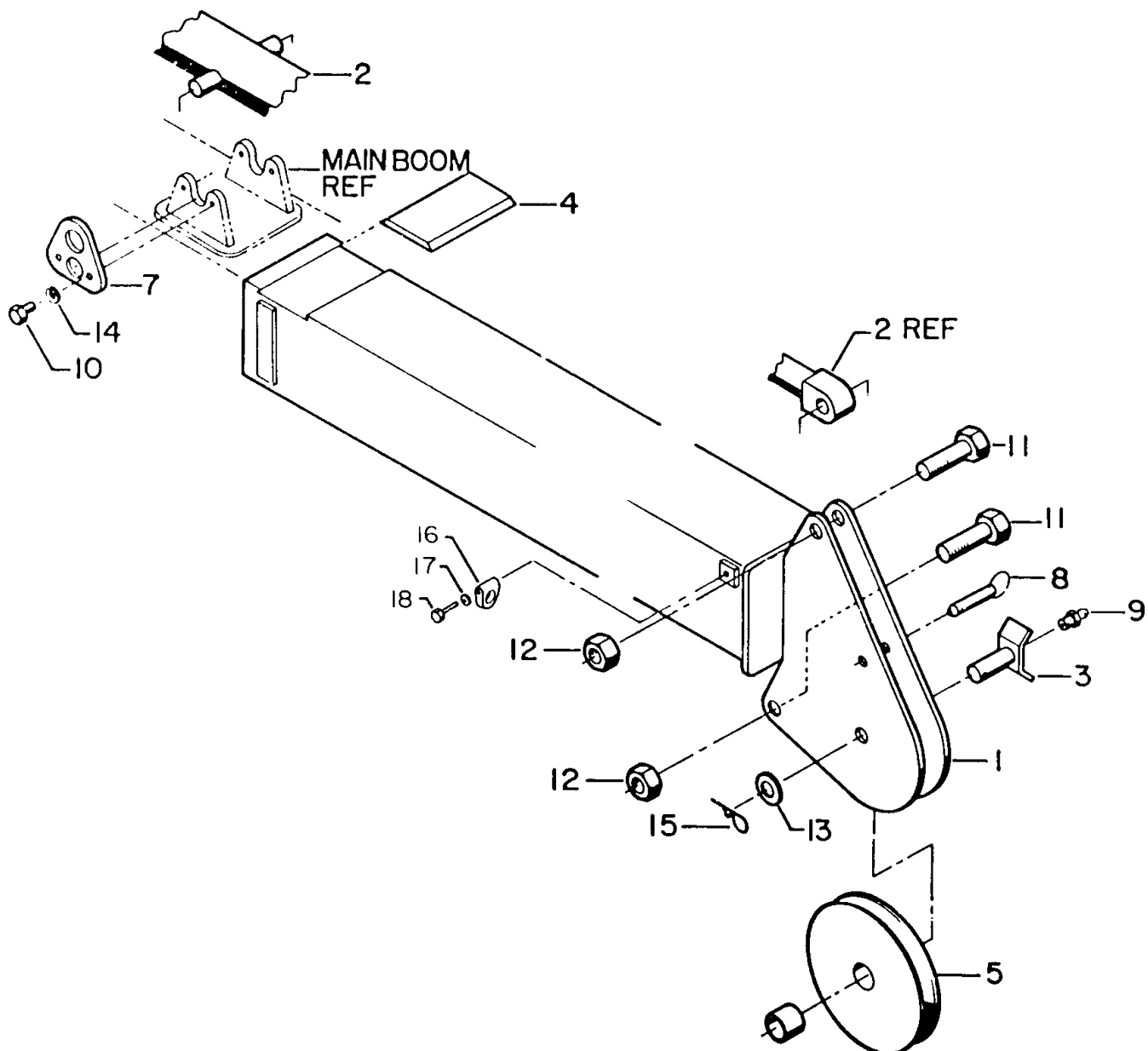
3-9

EXTENSION BOOM ASM (41704558)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52704554	EXTENSION BOOM	1
2.	3B138820	EXTENSION CYLINDER	1
3.	52704255	PIN	1
4.	60030081	WEAR PAD	1
5.	60030082	SHEAVE (INCL: BEARING)	1
7.	60107922	LOCK PLATE	2
8.	71731462	QUICK RELEASE PIN	1
9.	72053508	ZERK 1/8NPT	1
10.	72060044	CAP SCR 3/8-16 X 3/4 HHGR5	4
11.	72060187	CAP SCR 3/4-10X3 HHGR5	2
12.	72062114	NUT 3/4-10 LOCK	2
13.	72063030	MACH BUSHING 3/4X10GA	1
14.	72063051	WASHER 3/8 LOCK	4
15.	72066145	HAIR PIN	1
16.	70034381	CORD GUIDE	1
17.	72063049	WASHER 1/4 LOCK	1
18.	72060006	CAP SCR 1/4-20 X1 1/2 HHGR5	1

NOTE

CORD GUIDE (70034381) SHOULD BE INSTALLED WITH GUIDE HOLE UP.





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3-10

EXTENSION CYLINDER (3B138820)

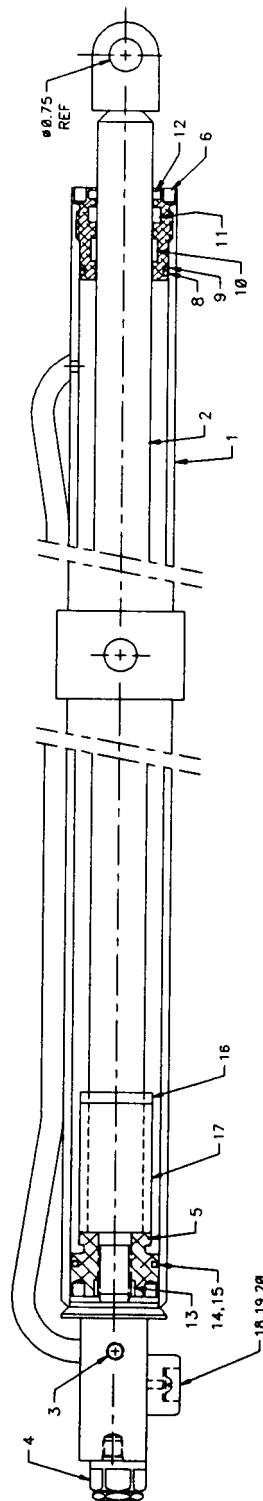
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B138820	CASE (INCL: 3)	1
2.	4G138820	ROD ASM	1
3.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
4.	73054304	VALVE 10GPM	1
5.	6I020075	PISTON	1
6.	6H020012	HEAD	1
7.	9B081012	SEAL KIT (INCL:8-16)	1
8.	7Q072224	O-RING (PART OF 7)	1REF
9.	7Q10P224	BACK-UP RING (PART OF 7)	1REF
10.	7T2N8012	WEAR RING (PART OF 7)	1REF
11.	7R546012	ROD SEAL (PART OF 7)	1REF
12.	7R14P012	ROD WIPER (PART OF 7)	1REF
13.	7T61N075	LOCK RING SEAL (PART OF 7)	1REF
14.	7Q072129	O-RING (PART OF 7)	1REF
15.	7T66P020	PISTON SEAL (PART OF 7)	1REF
16.	6A025012	WAFFER LOCK (PART OF 7)	1REF
17.	6C300012	STOP TUBE	1
18.	70392190	RUBBER BUMPER	1
19.	72060636	SCR #10-24X3/4 RDHD	1
20.	72063123	WASHER #10 WRT	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, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD AND CASE THREADS.





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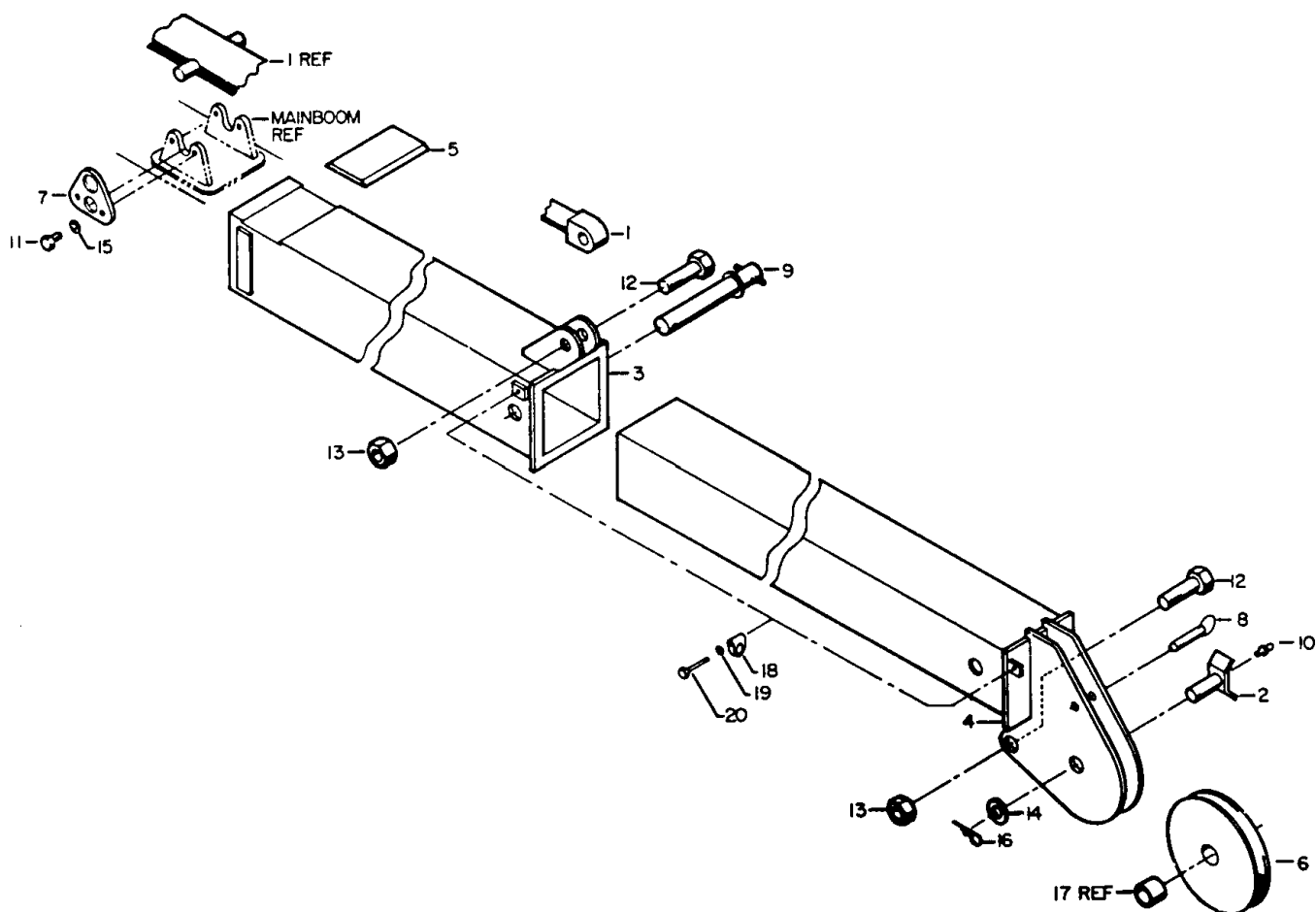
3-11

EXTENSION BOOM ASM-20' (41706489)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B138820	EXTENSION CYLINDER	1
2.	52704255	PIN	1
3.	52706488	1ST STAGE EXTENSION BOOM	1
4.	52706490	2ND STAGE EXTENSION BOOM	1
5.	60030081	WEAR PAD	1
6.	60030082	SHEAVE (INCL:17)	1
7.	60107922	LOCK PLATE	2
8.	71731462	QUICK RELEASE PIN	1
9.	71731799	QUICK RELEASE PIN	1
10.	72053508	ZERK 1/8NPT	1
11.	72060044	CAP SCR 3/8-16X3/4 HHGR5	4
12.	72060187	CAP SCR 3/4-10X3 HHGR5	2
13.	72062114	NUT 3/4-10 LOCK	2
14.	72063030	MACH BUSHING 3/4X10GA	1
15.	72063051	WASHER 3/8 LOCK	4
16.	72066145	HAIR PIN 3/16	1
17.		BEARING (PART OF 6)	REF
18.	70034381	CORD GUIDE	2
19.	72063049	WASHER 1/4 LOCK	2
20.	72060006	CAP SCR 1/4-20X1-1/2 HHGR5	2

NOTE

CORD GUIDE (70034381) SHOULD BE INSTALLED WITH GUIDE HOLE UP.





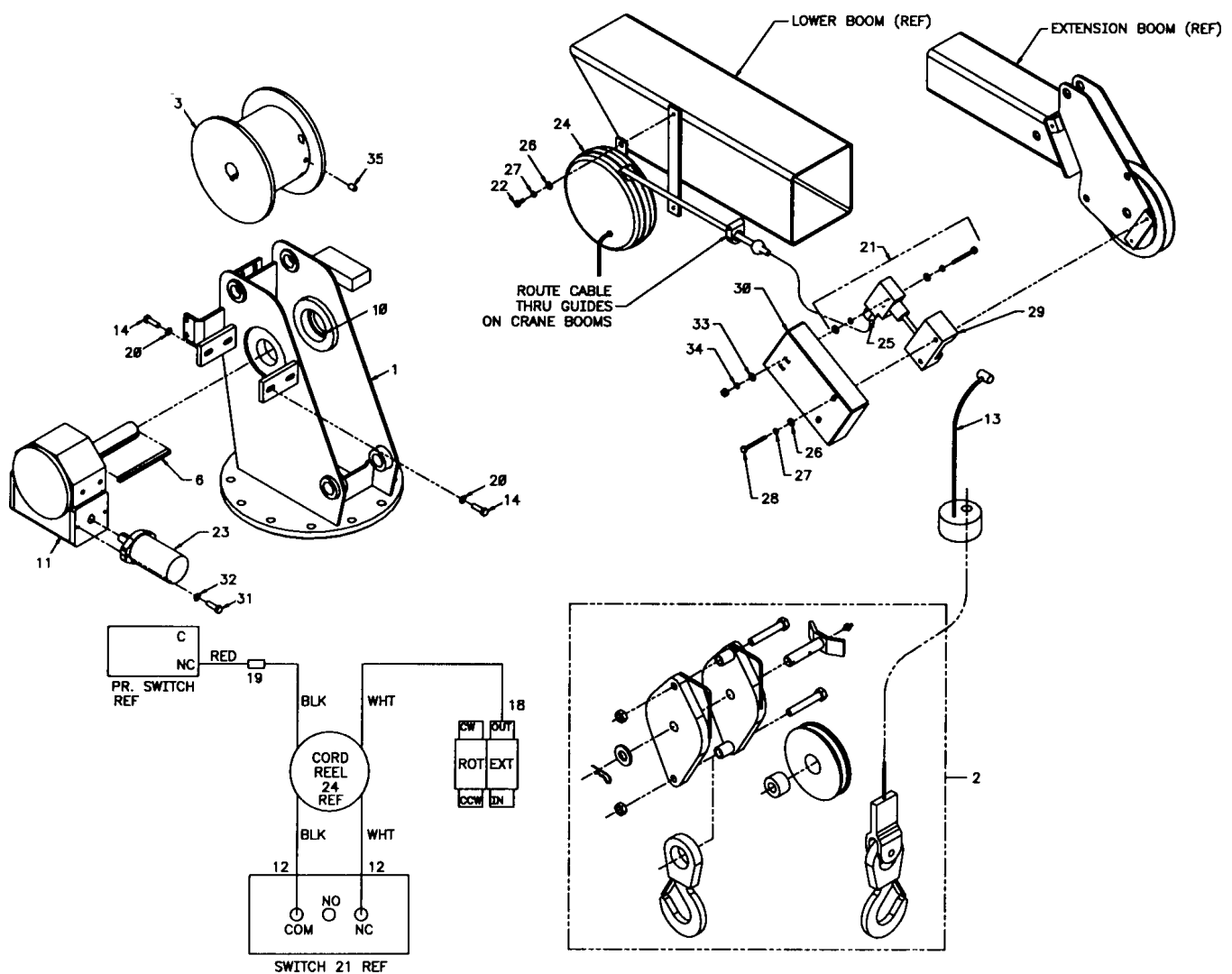
00002015: 41709660.01.19980512

WINCH/CABLE/HOOK KIT (41709660)

ITEM	PART NO.	DESCRIPTION	QTY
1.		MAST	REF
2.	31704560	CABLE & HOOK KIT (SEE DWG)	1
3.	60025211	WINCH DRUM	1
6.	70142746	KEY	1REF
10.	70055142	BEARING	1
11.	71057987	SPEED REDUCER (INCL: 6)	1
12.	77040051	TERMINAL	2
13.	52709413	CABLE WELDMENT	1
14.	72060046	CAP SCR 3/8-16X1 HHGR5	4
18.	77040186	TERMINAL 1/4 FSLPON	1
19.	77040047	TERMINAL 1/4MSLPON	1
20.	72063051	WASHER 3/8 LOCK	4
21.	77041291	MICRO SWITCH	1

3-12

22.	72060000	CAP SCR 1/4-20X1/2 HHGR5	2
23.	73051690	MOTOR	1
24.	70732193	CORD REEL	1
25.	77044468	STRAIN RELIEF	1
26.	72063001	WASHER 1/4 FLAT	4
27.	72063049	WASHER 1/4 LOCK	4
28.	72060008	CAP SCR 1/4-20X2 HHGR5	2
29.	60113594	COVER MTG BLOCK	1
30.	60113593	SWITCH COVER	1
31.	72060063	CAP SCR 7/16-14X1-1/4 HH	2
32.	72063052	WASHER 7/16 LOCK	2
33.	72063098	WASHER .16 FLAT	2
34.	72063047	WASHER #10 LOCK	2
35.	72060579	SET SCR 3/8-16X1/2 SH	1



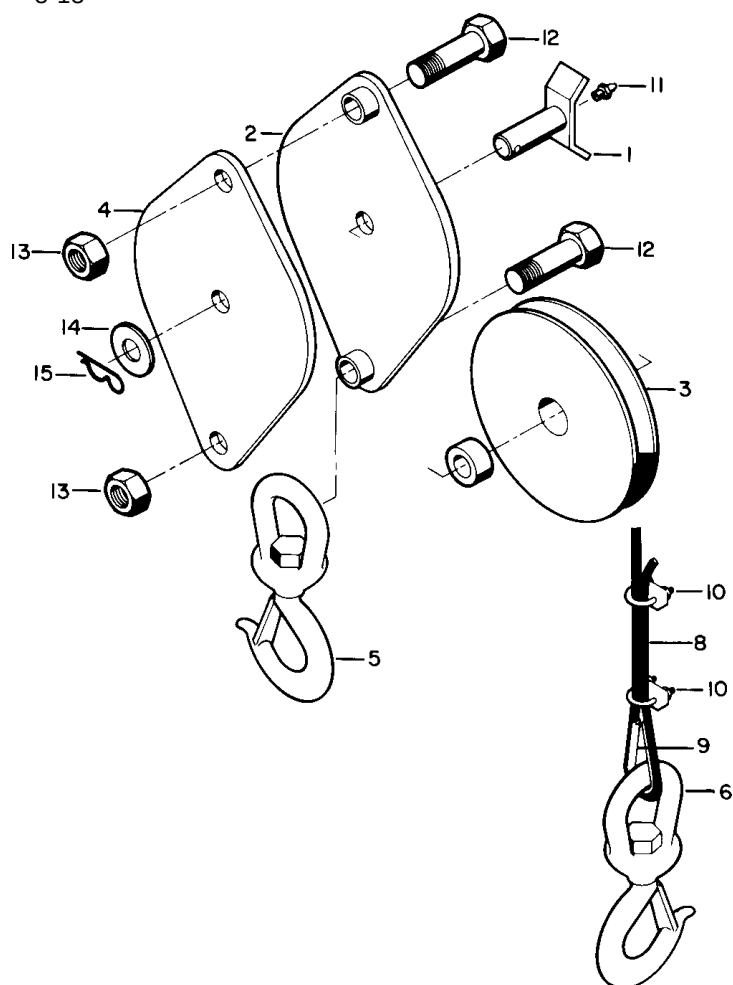


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CABLE & HOOK KIT (31704560)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52704828	PIN	1
2.	52704550	SNATCH BLOCK	1
3.	60030082	SHEAVE (INCL: BEARING)	1
4.	52709407	SIDE PLATE	1
5.	71073920	HOOK - 3 TON	1
6.	71073921	HOOK - 2 TON	1
8.	60107557	CABLE 5/16 X 65'	1
9.	70058026	THIMBLE	1
10.	70058909	CLAMP 5/16	2
11.	72053508	ZERK 1/8NPT	1
12.	72060188	CAP SCR 3/4-10X3-1/2 HHGR5	2
13.	72062114	NUT 3/4-10 LOCK	2
14.	72063030	MACH BUSHING 3/4X10GA	1
15.	72066145	HAIR PIN 3/16	1

3-13





00002015: 71057987.01.19960930

WINCH (71057987)

ITEM	PART NO.	DESCRIPTION	QTY
1.	70143943	SHAFT-OUTPUT	1
2.	70143672	HOUSING	1
3.	70048142	BUSHING & BREATHER KIT 3/8	1
4.	70145277	COVER	1
5.	76393174	O-RING	1
6.	72601568	CAP SCREW	4
7.	76393173	OIL SEAL	1
8.	70143670	BUSHING	2
9.	70143669	WASHER	2
10.	70143668	KEY	2
11.	70056428	GEAR-SR	1
12.	70056427	WORM-SR	1
13.	70732542	BRAKE KIT (INCL:27-38)	1
14.	72661348	RETAINING RING	2
15.	70055202	BALL BEARING	2
16.	70143865	PIPE PLUG	2
17.	72601567	CAP SCREW	2
21.	76393171	GASKET	2
25.	—	PROTECTOR (DISCARD)	1

3-14

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

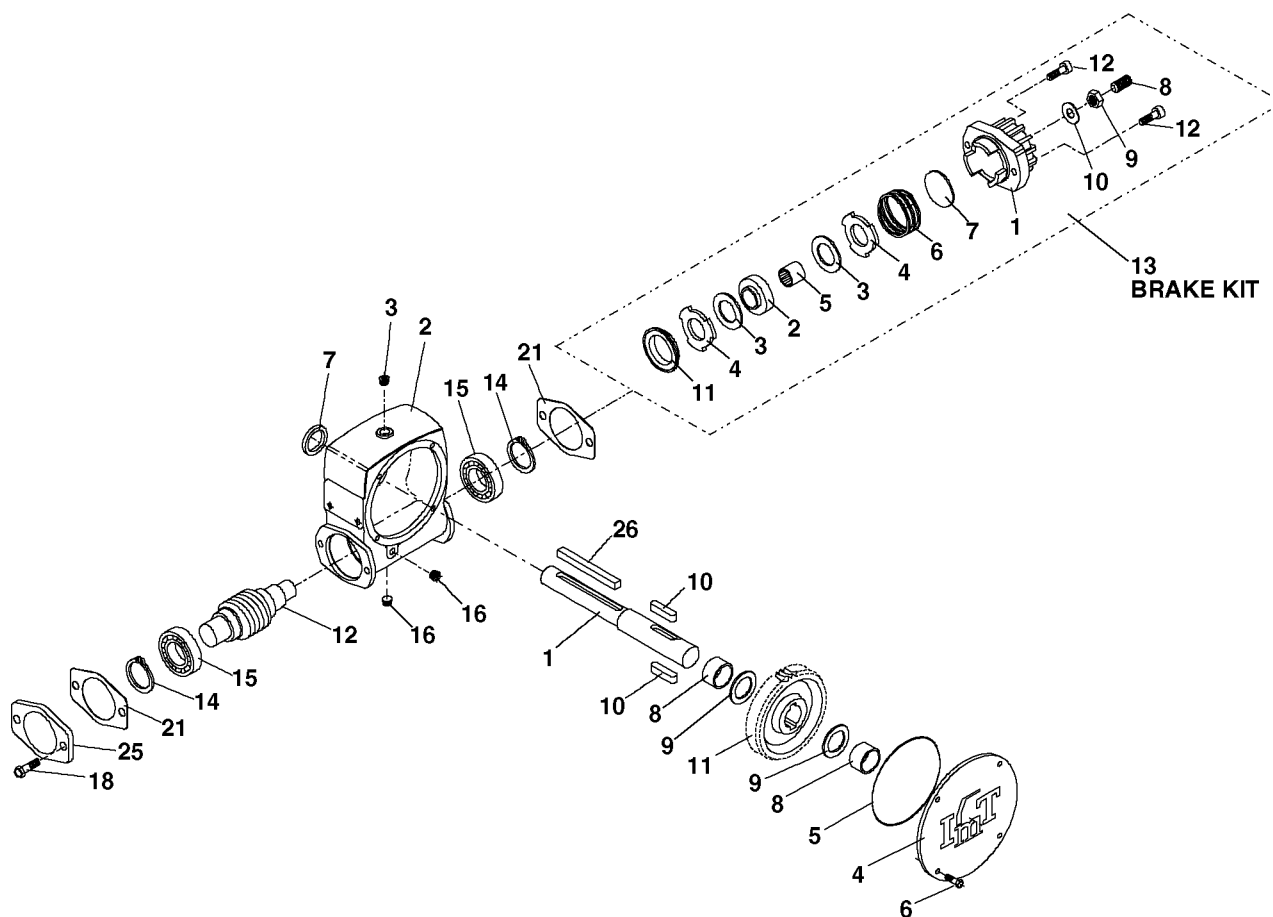
GEAR RATIO: 38:1

OUTPUT TORQUE: 19800 IN-LBS

MAX INPUT TORQUE: 983 IN-LBS

MAX INPUT SPEED: 400 RPM

INSTALLED WEIGHT: 41 LBS





00002015: 95708638.01.20040205

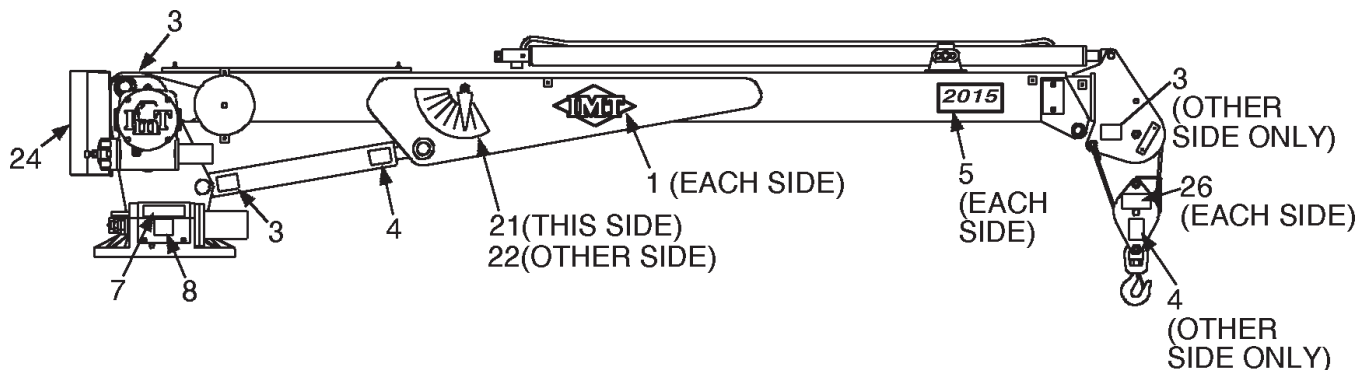
3-15

DECAL KIT-PWR UNIT (95708638)

ITEM	PART NO.	DESCRIPTION	QTY
1.	70392887	IMT DIAMOND	2
2.	70391598	DECAL-WARNING OUTRIGGER	2
3.	70391612	DECAL-GREASE WKLY LEFT	4
4.	70391613	DECAL-GREASE WKLY RIGHT	2
5.	70392207	DECAL-IDENTIFICATION 2015	2
6.	70392213	DECAL-CAUTION WASH/WAX	2
7.	70392399	DECAL-LUBRICATE WORM	1
8.	70392524	DECAL-ROTATE CRNE/GREASE	1
9.	70394444	DECAL-DNGR ELECTRO	1
10.	70392814	DECAL-DGR OPERR TRAINING	1
11.	70392815	DECAL-DANGER OPERATION	1
12.	70392861	DECAL-DANGER 2-BLOCKING	1
13.	70392863	DECAL-DGR HOISTING PERSON	1
14.	70392864	DECAL-DGR OUTRG STND CLR	2
15.	70394445	DECAL-DGR ELECTROCUTION	4
16.	70392866	DECAL-DANGER OPER COND	1
17.	70392867	DECAL-DGR OUTRG MOVING	1
18.	70392868	DECAL-DANGER LOADLINE	4
19.	70392888	DECAL-DGR OPER RESTRICT	1
20.	70394446	DECAL-DGR RC ELECT	1
21.	71391522	DECAL-ANGLE CHART RH	1
22.	71391523	DECAL-ANGLE CHART LH	1
23.	71392095	DECAL-CAUTION CONNECTOR	1
24.	71392690	CAPACITY PLACARD	2
25.	70392982	DECAL-CONTACT IMT	2
26.	71394080	DECAL-LOAD BLCK RATE 2.5T	2
27.	70394189	DECAL-RECOMMEND HYD OIL	2
28.	70394443	DECAL-DGR FREEFALL BOOM	1
29.	70395324	DECAL-ASME/ANSI B30.5	1
30.	71039134	DECAL-CAUTION OIL LEVEL	2

DECAL PLACEMENT

ITEM NO.	LOCATION
6,9,10,11,12,13,16,17,19,20,24,25	AT OR NEAR REMOTE CONTROL STORAGE POINT
2,14	ONE ON EACH OUTRG.
15,18	ONE ON EACH SIDE OF CARRIER VEHICLE
23	NEAR CONNECTOR
27	AT OR NEAR HYD RESERVOIR
28	AT OR NEAR MNL BOOM EXT RETENTION MECHANISM





00002015: 95708637.01.19970428

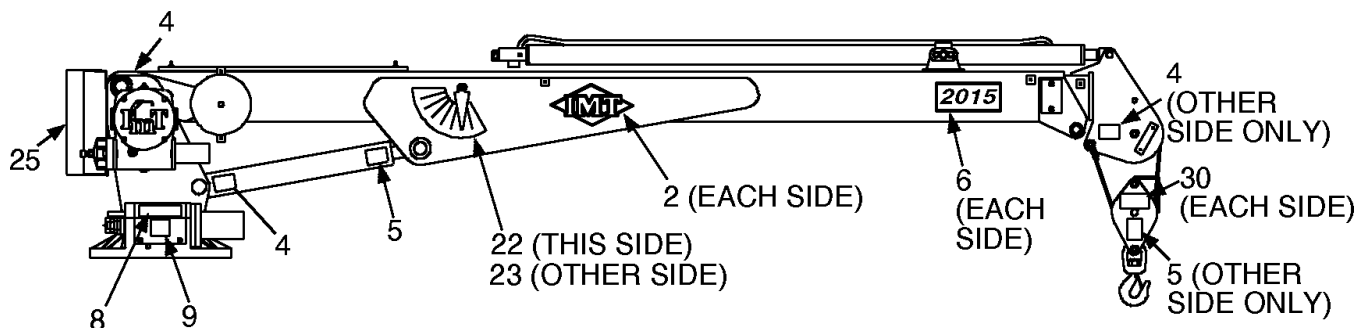
3-16

DECAL KIT-PTO (95708637)

ITEM	PART NO.	DESCRIPTION	QTY
1.	71039134	DECAL-CAUTION OIL LEVEL	1
2.	70392887	IMT DIAMOND	2
3.	70391598	DECAL-WARNING OUTRIGGER	2
4.	70391612	DECAL-GREASE WKLY LEFT	3
5.	70391613	DECAL-GREASE WKLY RIGHT	2
6.	70392207	DECAL-IDENTIFICATION 2015	2
7.	70392213	DECAL-CAUTION WASH/WAX	1
8.	70392399	DECAL-LUBRICATE WORM	1
9.	70392524	DECAL-ROTATE CRNE/GREASE	1
10.	70394444	DECAL-DGR ELECTROCUTION	1
11.	70392814	DECAL-DGR OPER TRAINING	1
12.	70392815	DECAL-DANGER OPERATION	1
13.	70392861	DECAL-DANGER 2-BLOCKING	1
14.	70392863	DECAL-DGR HOISTING PERSON	1
15.	70392864	DECAL-DGR OUTRG STD CLR	2
16.	70394445	DECAL-DGR ELECTROCUTION	4
17.	70392866	DECAL-DANGER OPER COND	1
18.	70392867	DECAL-DGR OUTRG MOVING	1
19.	70392868	DECAL-DANGER LOADLINE	4
20.	70392888	DECAL-DGR OPER RESTRICT	1
21.	70394446	DECAL-DGR RC ELECTRO	1
22.	71391522	DECAL-ANGLE CHART RH	1
23.	71391523	DECAL-ANGLE CHART LH	1
24.	71392095	DECAL-CAUTION CONNECTOR	1
25.	71392690	CAPACITY PLACARD	2
26.	70392982	DECAL-CONTACT IMT	1
27.	70392891	DECAL-DANGER DRIVELINE	1
28.	70392109	DECAL-RETURN LINE	1
29.	70392108	DECAL-SUCTION LINE	1
30.	71394080	DECAL-LOAD BLCK RATING 2.5T	2
31.	70394189	DECAL-RECOMMEND HYD OIL	1
32.	70394443	DECAL-DGR FREEFALL BOOM	1

DECAL PLACEMENT

ITEM NO.	LOCATION
1,7,10,11,12,13,14,17,18,20,21,26,25	AT OR NEAR REMOTE CONTROL STORAGE POINT
3,15	ONE ON EACH OUTRG.
16,19	ONE ON EACH SIDE OF CARRIER VEHICLE
24	NEAR CONNECTOR
28	ON RESERVOIR AT RETURN LINE
29	ON RESERVOIR AT SUCTION LINE
31	AT OR NEAR HYD RESERVOIR
27	AT OR NEAR DRIVELINE
32	AT OR NEAR MNL BOOM EXT RETENTION MECHANISM





00002015: 73051715.01.19970115

HYD PWR UNIT 12VDC (73051715)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73051725	HYDRAULIC PUMP	1
2.	70143884	RESERVOIR	1
3.	73051726	MOTOR 12VDC	1
4.	73054757	SOLENOID VALVE	1
5.	70143885	ADAPTER HOUSING	1
6.	70143886	COUPLING	1
7.	77041237	SOLENOID 12V 150A	1
8.	72661395	CLAMP	1
9.	70580062	CABLE 12VDC	1
10.	70143887	PIPE PLUG	2
11.	70048159	BREATHER	1
12.	70143888	BEAD ADAPTER	1
13.	70393373	SUCTION LINE 6"	1
14.	72533201	BARBED NIPPLE	1
15.	70143889	STRAINER	1
16.	72601639	BOLT 5/16 X 1	2
17.	72063189	WASHER 5/16 LOCK	2
18.	72063190	WASHER 5/16 FLAT	2
19.	76393374	O-RING	1
20.	72533202	CONNECTOR	2
21.	70393375	RETURN LINE	2

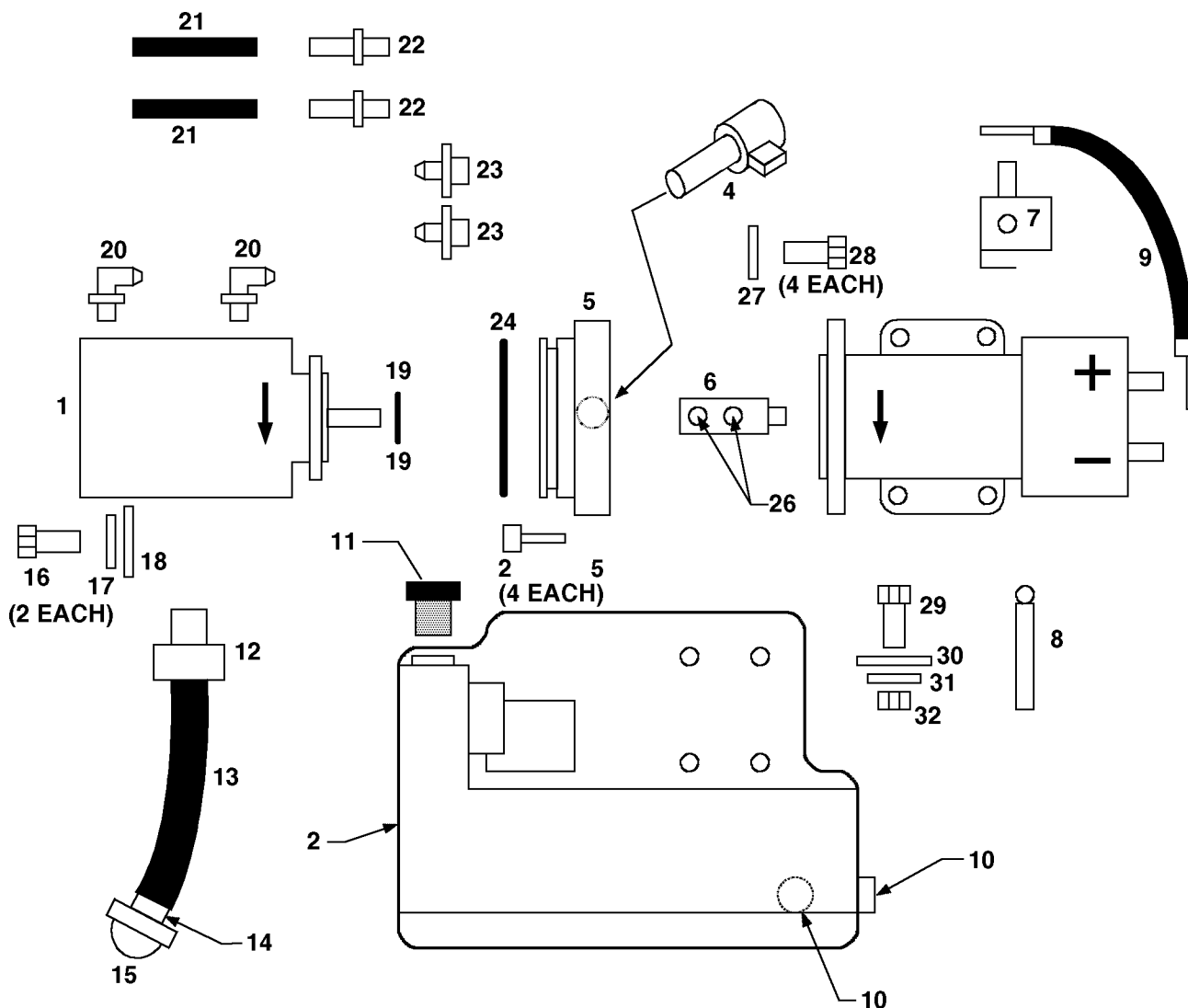
3-17

22.	70143890	RETURN FITTING	2
23.	70143891	FITTING	2
24.	76393376	O-RING	1
25.	72601640	BOLT	4
26.	72601643	SET SCREW #10-24	2
27.	72063191	WASHER 3/8 LOCK	4
28.	72601641	BOLT 3/8 X 1-1/4	4
29.	72601642	BOLT 5/16 X 3/4	4
30.	72063190	WASHER 5/16 FLAT	4
31.	72063189	WASHER 5/16 LOCK	4
32.	72062247	NUT 5/16 HEX	4

TYPICAL AMP DRAW MODEL 2015 CRANE

FUNCTION	SETTING SPEED (AMPS)	
	HIGH	LOW
SWING	91	56
WINCH	132	79
BOOM UP	99	62
BOOM DN	248	115
EXT OUT	87	56
EXT IN	141	81

Actual AMP Draw will vary per unit.





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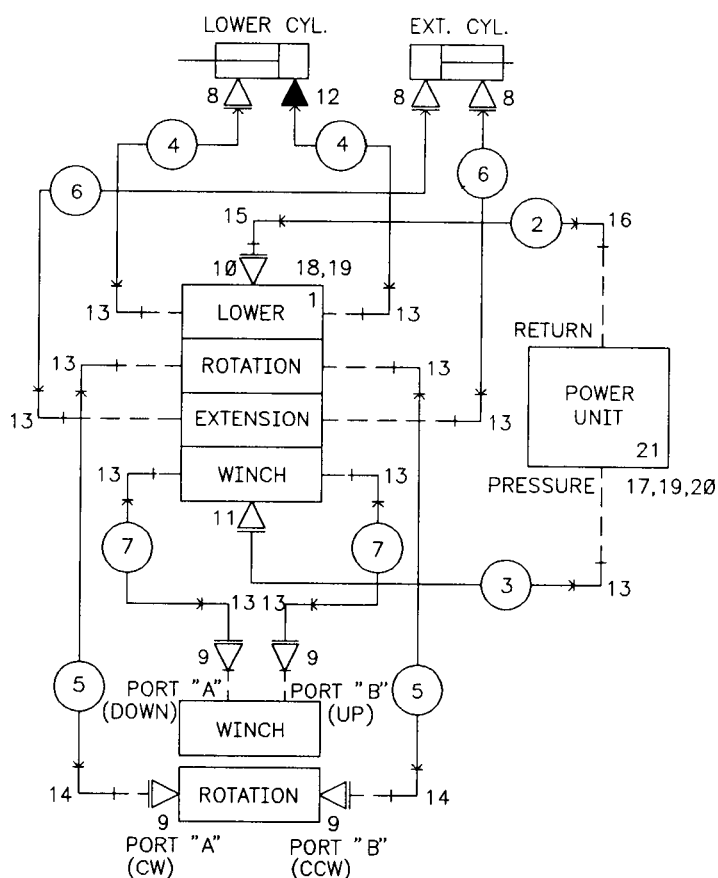
3-18

HYD KIT-4 SECT-PWR UNIT (91704559)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73073772	VALVEBANK 4-SECTION	1
2.	51393930	HOSE ASM 3/8X14 #8F#8F	1
3.	51393931	HOSE ASM 1/4X22 #4F#4F	1
4.	51393932	HOSE ASM 1/4X35 #4F#4F (PART OF 22)	2REF
5.	51393933	HOSE ASM 1/4X41 #4F#4F (PART OF 22)	2REF
6.	51393934	HOSE ASM 1/4X66 #4F#4F (PART OF 22)	2REF
7.	51393935	HOSE ASM 1/4X20 #4F#4F (PART OF 22)	2REF
8.	72532351	ADAPTER #4MSTR #4MJIC	3
9.	72532722	ADAPTER #10MSTR #6FSTR	4
10.	72532357	ADAPTER #6MSTR #8MJIC	1
11.	72532353	ADAPTER #6MSTR #4MJIC	1
12.	73054487	CHECK VALVE	1
13.	72532699	ELBOW #6MSTR #4MJIC 90°	11
14.	72532985	ELBOW #6MSTR #4MJIC 45°	2
15.	72532670	ELBOW #8MJIC #8FJIC 45°	1
16.	72053762	ELBOW #6MSTR #8MJIC 90°	1
17.	72060021	CAP SCR 5/16-18X1/2 HHGR5	2
18.	72060023	CAP SCR 5/16-18X3/4 HHGR5	4
19.	72063050	WASHER 5/16 LOCK	6
20.	72063002	WASHER 5/16 WRT	4
21.	73051715	POWER UNIT (SEE NOTE 1)	1
22.	51712050	HOSE KIT (INCL:4-7)	1

NOTE

1. All electric 2015 cranes manufactured after and including serial number 2015T91C182 use Power Unit 73051715. Previous models use Power Unit 73051503.



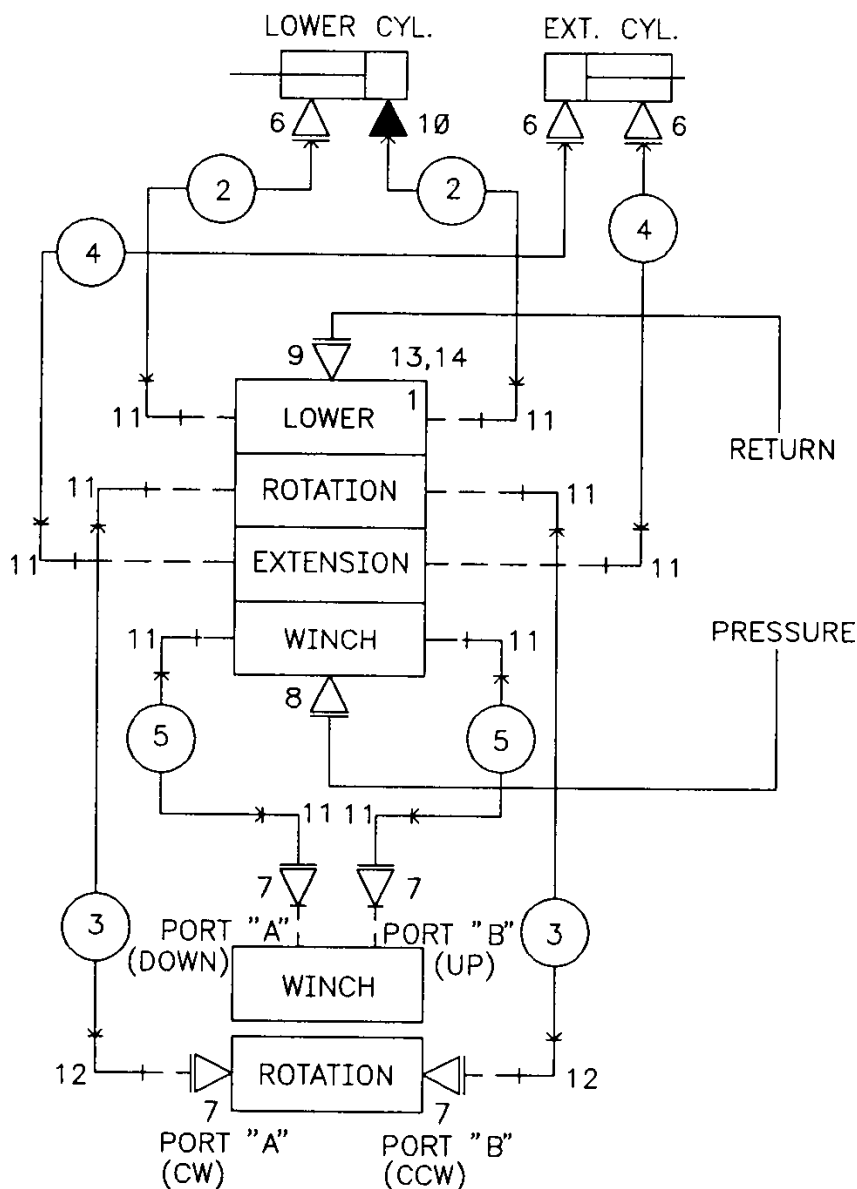


00002015: 91707641.01.19960930

3-19

HYD KIT-4 SECT-PTO (91707641)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73073772	VALVEBANK 4-SECTION	1
2.	51393932	HOSE ASM 1/4X35 #4F#4F (PART OF 15)	2REF
3.	51393933	HOSE ASM 1/4X41 #4F#4F (PART OF 15)	2REF
4.	51393934	HOSE ASM 1/4X66 #4F#4F (PART OF 15)	2REF
5.	51393935	HOSE ASM 1/4X20 #4F#4F (PART OF 15)	2REF
6.	72532351	ADAPTER #4MSTR #4MJIC	3
7.	72532722	ADAPTER #10MSTR #6FSTR	4
8.	72532357	ADAPTER #6MSTR #8MJIC	1
9.	72532795	ADAPTER #6MSTR 3/8FPT	1
10.	73054487	CHECK VALVE	1
11.	72532699	ELBOW #6MSTR #4MJIC 90°	10
12.	72532985	ELBOW #6MSTR #4MJIC 45°	2
13.	72060021	CAP SCR 5/16-18X1/2 HHGR5	2
14.	72063050	WASHER 5/16 LOCK	2
15.	51712050	HOSE KIT (INCL:2-5)	1



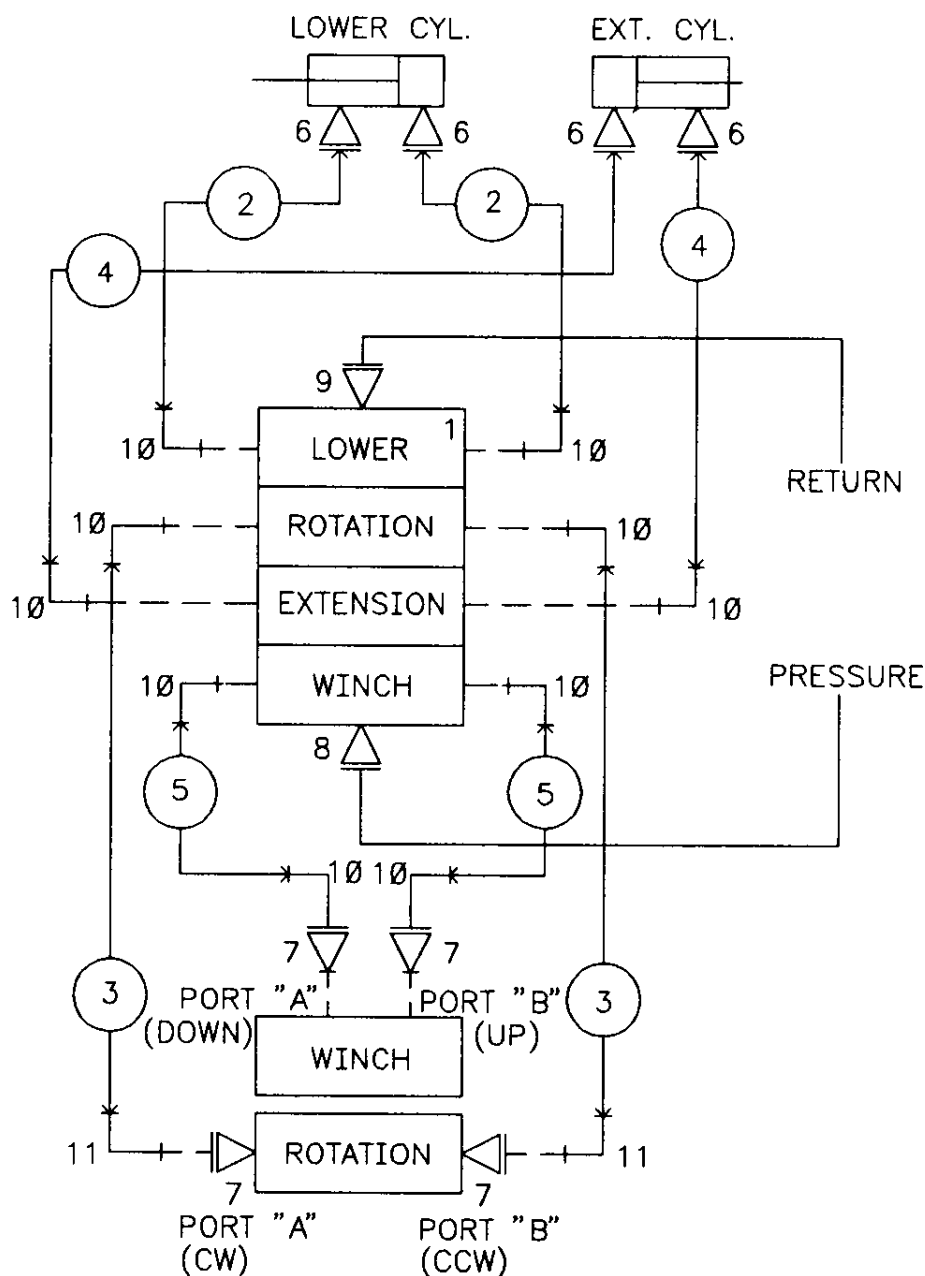


00002015: 91709395.01.19960930

3-20

HYD KIT-PTO-PROP'L RMT (91709395)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51707925	VALVEBANK 4-SECTION	1
2.	51393932	HOSE ASM 1/4X35 #4F#4F (PART OF 12)	2REF
3.	51393933	HOSE ASM 1/4X41 #4F#4F (PART OF 12)	2REF
4.	51393934	HOSE ASM 1/4X66 #4F#4F (PART OF 12)	2REF
5.	51393935	HOSE ASM 1/4X20 #4F#4F (PART OF 12)	2REF
6.	72532351	ADAPTER #4MSTR #4MJIC	4
7.	72532722	ADAPTER #10MSTR #6FSTR	4
8.	72532357	ADAPTER #6MSTR #8MJIC	1
9.	72532795	ADAPTER #6MSTR 3/8FPT	1
10.	72532699	ELBOW #6MSTR #4MJIC 90°	10
11.	72532985	ELBOW #6MSTR #4MJIC 45°	2
12.	51712050	HOSE KIT (INCL:2-5)	1



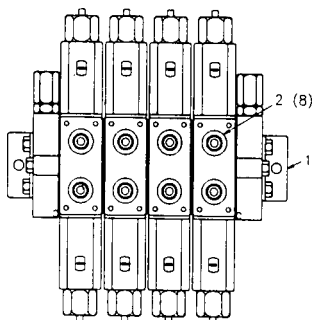


00002015: 51713266.01.19960930

3-21

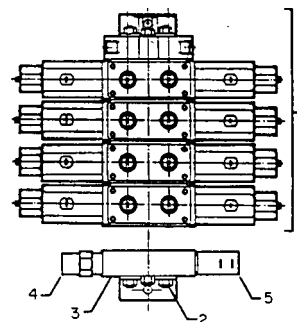
VALVEBANK ASM-4 SECT PROP'L RC (51713266)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51707925	VALVEBANK	1
2.	72532699	ELBOW #6MSTR #4MJIC 90°	8



VALVEBANK-PROP'L (51707925)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73073772	VALVEBANK	1
2.	60103662	TIE-ROD	3
3.	60025669	INLET SECTION	1
4.	73054628	RELIEF VALVE	1
5.	73054624	SOLENOID VALVE 8GPM 12V	1

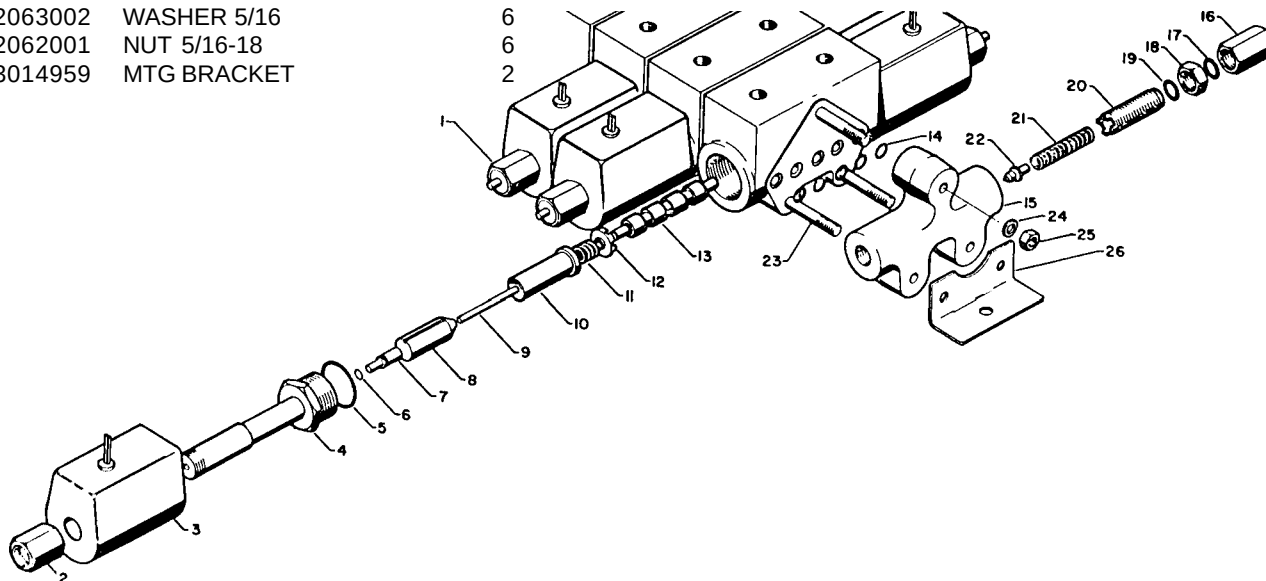


VALVEBANK (73073772)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73054077	VALVE SECTION (INCL:2-14)	4
2.	73014950	NUT	1REF
3.	77040028	COIL 12VDC	2REF
4.	73014958	TUBE	2REF
5.	7Q072113	O-RING	2REF
6.	7Q072008	O-RING	2REF
7.	73014957	BUTTON	2REF
8.	73014956	PLUNGER	2REF
9.	73014954	PIN	2REF
10.	73014955	PLUG	2REF
11.	73014953	SPRING	2REF
12.	73014952	SPRING RETAINER	2REF
13.	51014951	SPOOL & BODY (MATCHED SET)	1REF
14.	7Q072012	O-RING	5REF
15.	73014948	INLET W/RELIEF (INCL:16-22)	1
16.		RELIEF VALVE ADJ CAP	1REF
17.		O-RING	1REF
18.		JAM NUT	1REF
19.		O-RING	1REF
20.		ADJ ROD	1REF
21.		SPRING	1REF
22.		NEEDLE	1REF
23.	73014960	TIE ROD	3
24.	72063002	WASHER 5/16	6
25.	72062001	NUT 5/16-18	6
26.	73014959	MTG BRACKET	2

NOTE

ITEMS 2-12 INDICATE QTY PER VALVE SECTION.
ITEMS 16-22 ARE NOT AVAILABLE SEPARATELY.



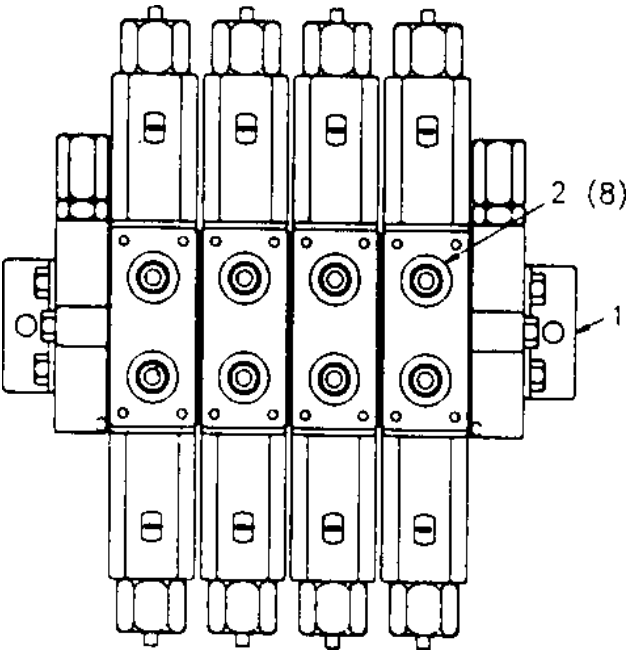


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3-22

**VALVEBANK ASM-4 SECT PROP'L RC
(51713265)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	73073772	VALVEBANK(SEE DWG PREV)	1
2.	72532699	ELBOW #6MSTR #4MJIC 90°	8



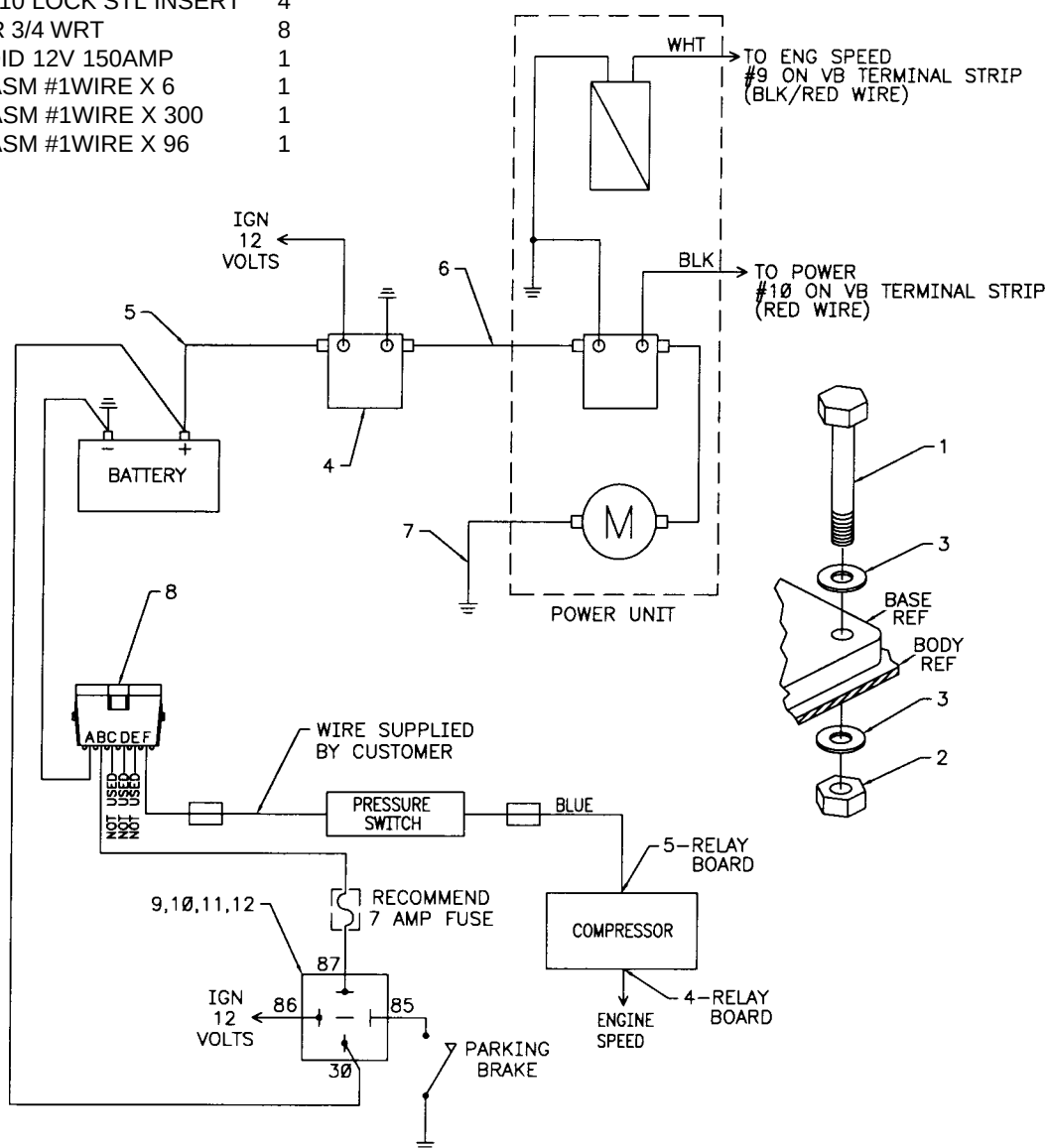
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3-23

INSTALLATION KIT-PWR UNIT (93704629)

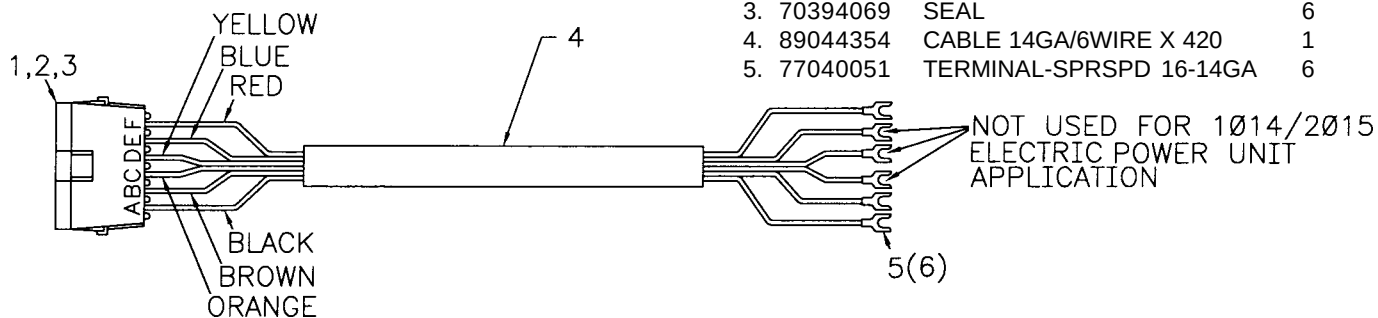
ITEM	PART	DESCRIPTION	QTY
1.	72060188	CAP SCR 3/4-10X3-1/2 HH GR5	4
2.	72062140	NUT 3/4-10 LOCK STL INSERT	4
3.	72063008	WASHER 3/4 WRT	8
4.	77041237	SOLENOID 12V 150AMP	1
5.	51704784	CABLE ASM #1WIRE X 6	1
6.	51704785	CABLE ASM #1WIRE X 300	1
7.	51705925	CABLE ASM #1WIRE X 96	1

8.	51713199	CABLE ASM 14GA/6WIRE X 35'	1
9.	77041251	RELAY	1
10.	72063001	WASHER 1/4 WRT	1
11.	72062104	NUT 1/4-20 LOCK	1
12.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	1



CABLE ASM (51713199)

ITEM	PART NO.	DESCRIPTION	QTY
1.	77044575	CONNECTOR 6-WAY	1
2.	77044552	TERMINAL-M 18-20GA	6
3.	70394069	SEAL	6
4.	89044354	CABLE 14GA/6WIRE X 420	1
5.	77040051	TERMINAL-SPRSPD 16-14GA	6



00002015: 93704630.01.19980514

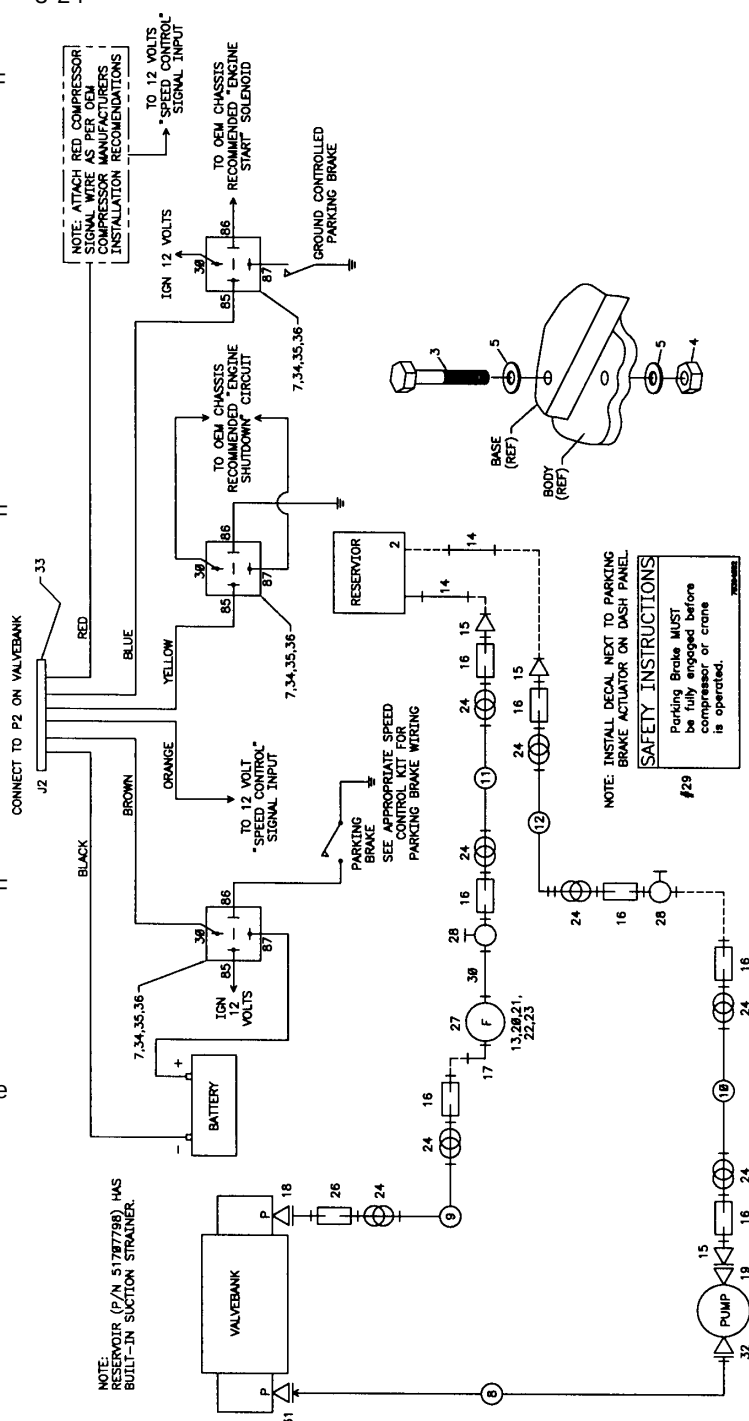
INSTALLATION KIT-PTO (93704630)

ITEM	PART	DESCRIPTION	QTY
2.	51707798	RESERVOIR 20-GAL BULKHD	REF
3.	72060187	CAP SCR 3/4-10 X 3 HH GR5	4
4.	72062140	NUT 3/4-10 LOCK STL INSERT	4
5.	72063008	WASHER 3/4 WRT	8
7.	77041251	RELAY	2
8.	51703614	HOSE ASM 1/2 X 240	1
9.	60035817	HOSE 3/4 100R4 X 240	1
10.	60035818	HOSE 3/4 100R4 X 72	1
11.	60035819	HOSE 3/4 100R4 X 60	1
12.	60035823	HOSE 3/4 100R4 X 52	1
13.	60103870	OIL FILTER BRACKET	1
14.	72053185	PIPE NIPPLE 1 X CLOSE	2
15.	72053376	REDUCER BUSHING 1 X 3/4	3
16.	72053458	BARB NIPPLE 3/4MPT 3/4HOSE	7
17.	72053556	STRT ELBOW 3/4 X 90o	1
18.	72532795	ADAPTER 9/16MSTR 3/8FPT	1REF
19.	72053751	ADAPTER 1-5/16MSTR 1FPT	1
20.	72060002	CAP SCR 1/4-20 X 3/4 HH GR5	2
21.	72060025	CAP SCR 5/16-18 X 1 HH GR5	2
22.	72063049	WASHER 1/4 LOCK	2
23.	72063050	WASHER 5/16 LOCK	2
24.	72066000	HOSE CLAMP	8
25.	72066377	CABLE STOP (NOT SHOWN)	1
26.	72532794	BARB NIPPLE 3/8MPT 3/4HOSE	1
27.	73052000	RETURN FILTER	1
28.	73054129	GATE VALVE 3/4	2
29.	70394092	DECAL-CAUTION BRK/CPRSR	1
30.	72053141	PIPE NIPPLE 3/4	1
31.	72532357	ADAPTER 9/16MSTR 3/4MJIC	1REF
32.	72532360	ADAPTER 1-1/16MSTR 3/4MJIC	1
33.	51713199	CABLE ASM 14GA/6WIREx35	1
34.	72063001	WASHER 1/4W FLAT	3
35.	72062104	NUT 1/4-20 HEX NYLOC	3
36.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	3

The following suction filter and associated fittings are required only when a reservoir other than 51707798 is used.

70048031	VACUUM GAUGE	REF
72053180	REDUCER BUSHING 1-1/4 3/4	REF
72053211	PIPE NIPPLE 1-1/4 X CLOSE	REF
73052012	SUCTION FILTER	REF

3-24





00002015: 90713518.01.19980304

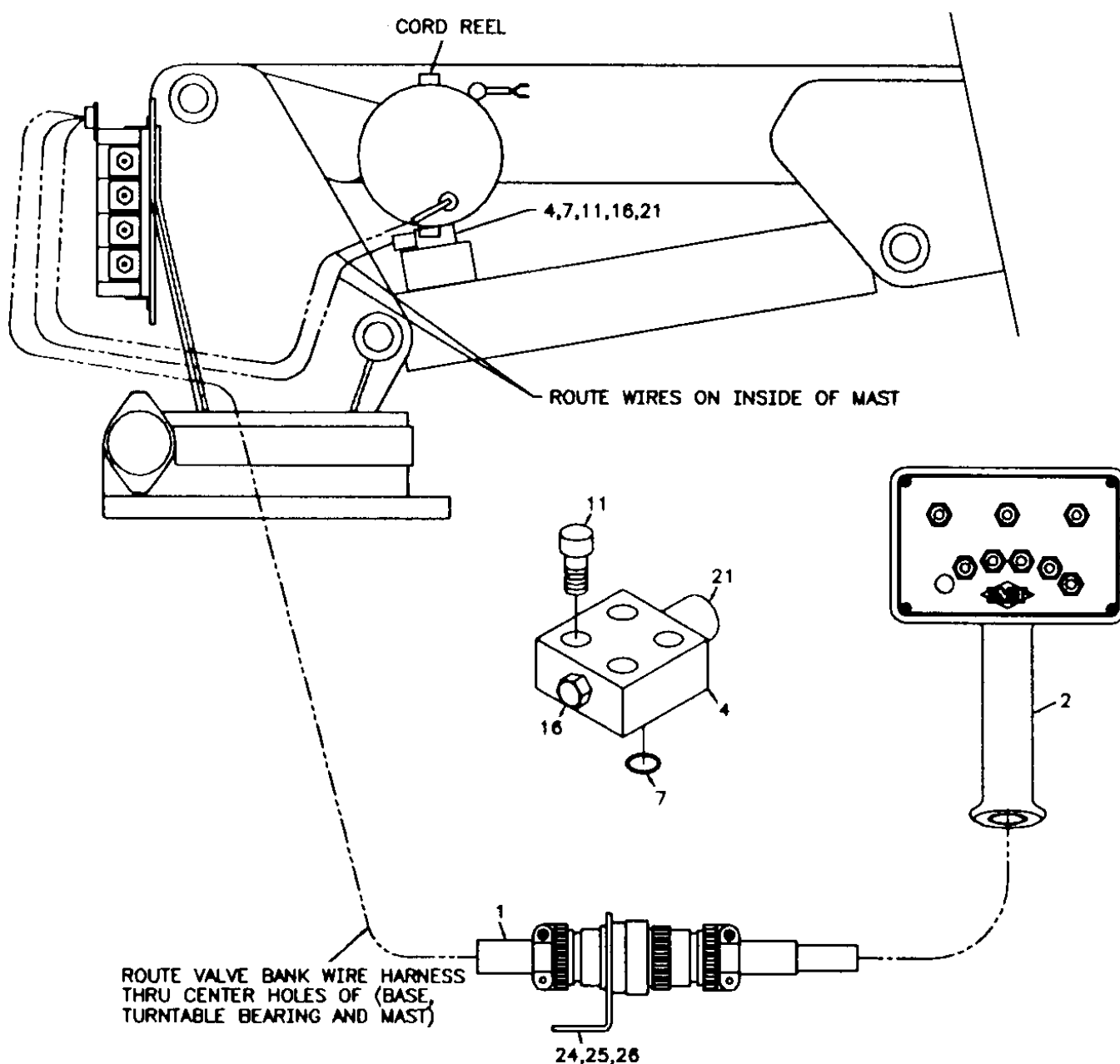
3-25

PROP'L RMT CTRL KIT (90713518-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51713501	CABLE ASM 18GA/24WIRE X 72	1
2.	51713498	HANDLE ASM	1
3.	51704788	CABLE ASM 14GA/2WIRE X 43	1
4.	60025221	MANIFOLD-CAPACITY ALERT	1
6.	60105825	TERMINAL BLOCK MTG	1
7.	7Q072015	O-RING	1
8.	70034060	PLASTIC TIE	4
9.	72060002	CAP SCR 1/4-20X3/4 HHGR5	1
10.	72060703	CAP SCR 1/4-20X1/2 SH	2
11.	72060731	CAP SCR 5/16-18X3/4 SH	4
12.	72061009	SHT MTL SCR #6X3/4 PH	2
14.	72063049	WASHER 1/4 LOCK	2
15.	72066525	HOSE CLAMP 3/4 VINYL COVER	1

CONTINUED

16.	72532140	PLUG #6STR HH	1
17.	77040047	TERMINAL 1/4 MSLPON 16-14G	6
18.	77040051	TERMINAL #8SPRSPD 16-14GA	17
19.	77040130	JUMPER BAR	1
20.	77040186	TERMINAL 1/4 FSLPON 16-14GA	3
21.	77041283	PRESSURE SWITCH	1
22.	77041390	AMP DRIVER	1
23.	77044309	TERMINAL BLOCK-14 CONTACT	1
24.	60119299	MOUNTING BRACKET	1
25.	77044645	NUT-CONNECTOR	1
26.	77044646	WASHER-CONNECTOR	1
30.	77044749	CABLE ASM 14GA/6WIREX72	1

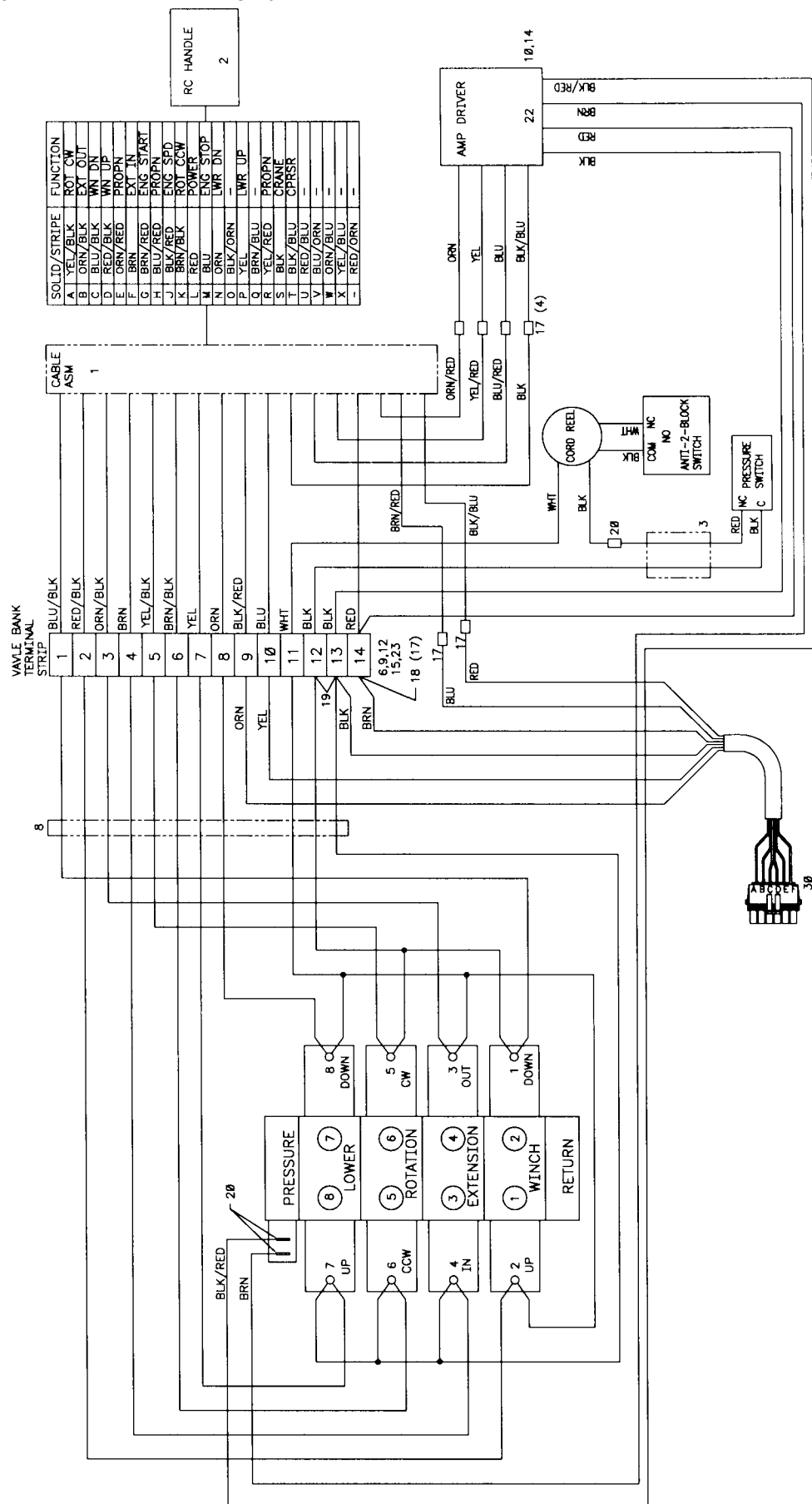




00002015: 90713518.02.19980304

**PROP'L RMT CTRL KIT
(90713518-2)**

3-26





00002015: 90713517.01.19980304

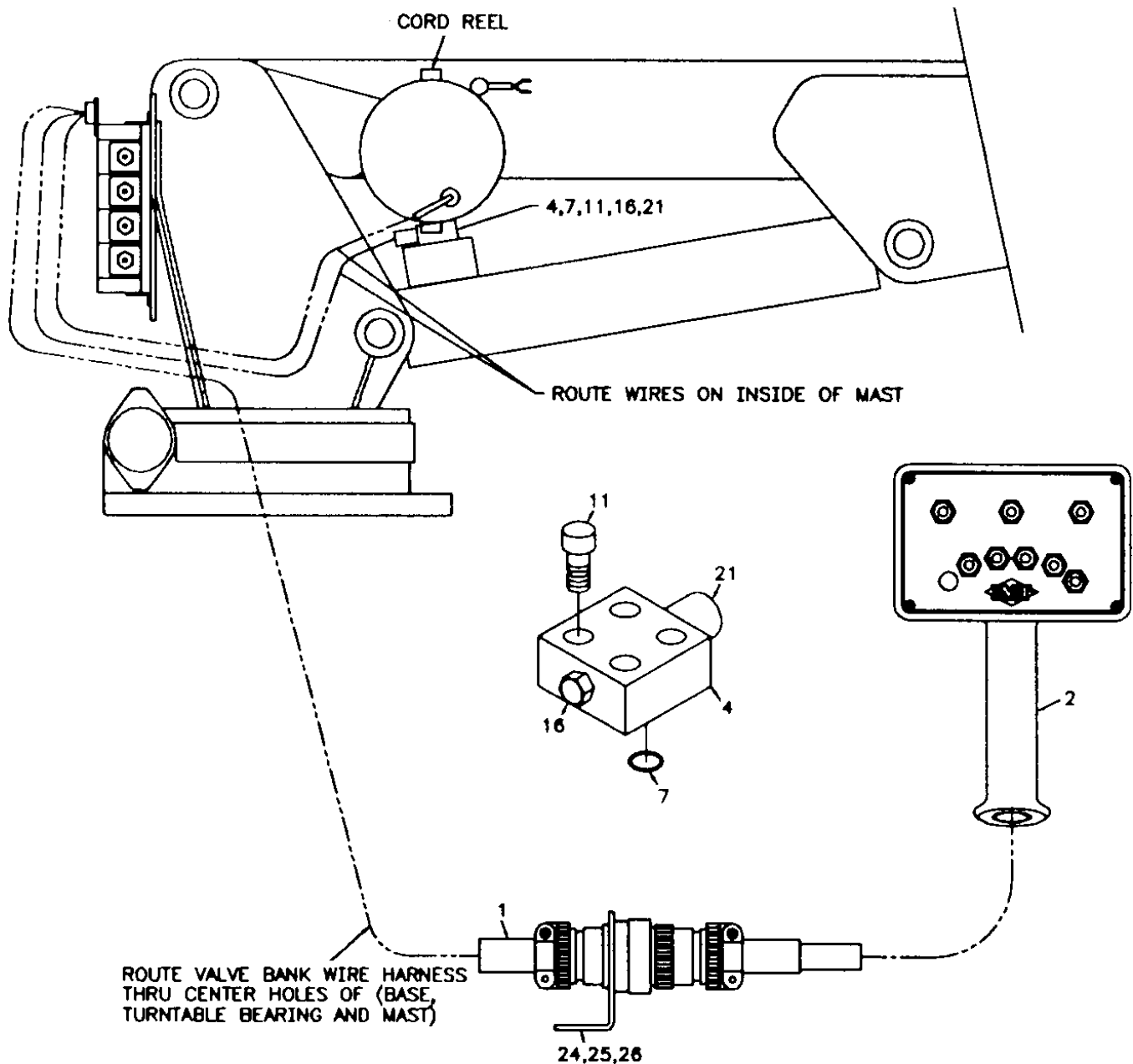
3-27

RMT CTRL KIT-PTO (90713517-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51713501	CABLE ASM 18GA/24WIRE X 72	1
2.	51713384	HANDLE ASM	1
3.	51704788	CABLE ASM 14GA/2WIRE X 43	1
4.	60025221	MANIFOLD-CAPACITY ALERT	1
6.	60105825	TERMINAL BLOCK MTG	1
7.	7Q072015	O-RING	1
8.	70034060	PLASTIC TIE	4
9.	72060002	CAP SCR 1/4-20X3/4 HHGR5	1
11.	72060731	CAP SCR 5/16-18X3/4 SH	4
12.	72061009	SHT MTL SCR #6X3/4 PH	2
15.	72066525	HOSE CLAMP 3/4 VINYL COVER	1

CONTINUED

16.	72532140	PLUG #6STR HH	1
17.	77040047	TERMINAL 1/4MSLPON 16-14GA	2
18.	77040051	TERMINAL #8SPRSPD 16-14GA	17
19.	77040130	JUMPER BAR	1
20.	77040186	TERMINAL 1/4 FSLPON 16-14GA	1
21.	77041283	PRESSURE SWITCH	1
23.	77044309	TERMINAL BLOCK-14 CONTACT	1
24.	60119299	MOUNTING BRACKET	1
25.	77044645	NUT-CONNECTOR	1
26.	77044646	WASHER-CONNECTOR	1
30.	77044749	CABLE ASM 14GA/6WIREX72	1

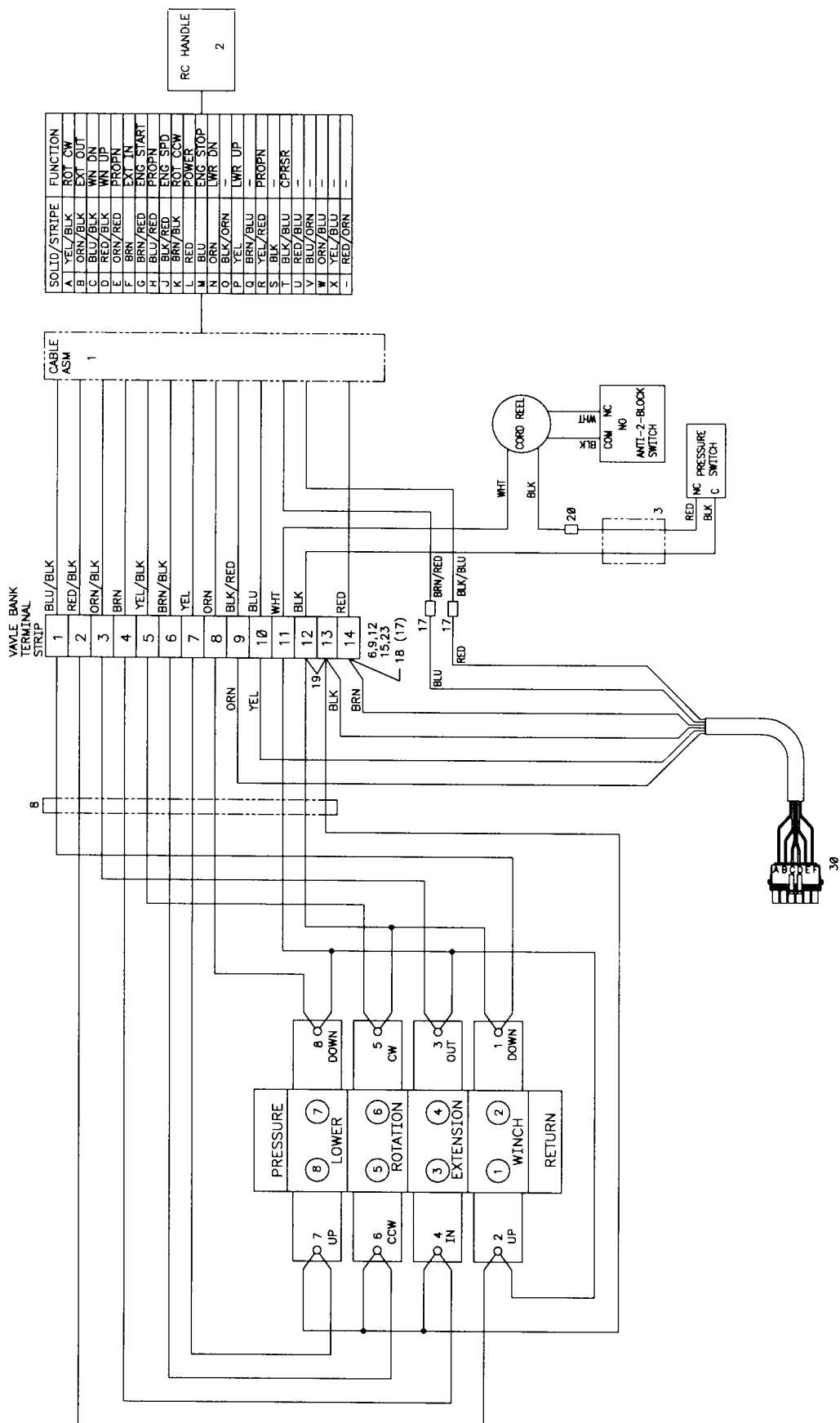




00002015: 90713517.02.19980304

3-28

RMT CTRL KIT-PTO (90713517-2)





00002015: 90713519.01.19980514

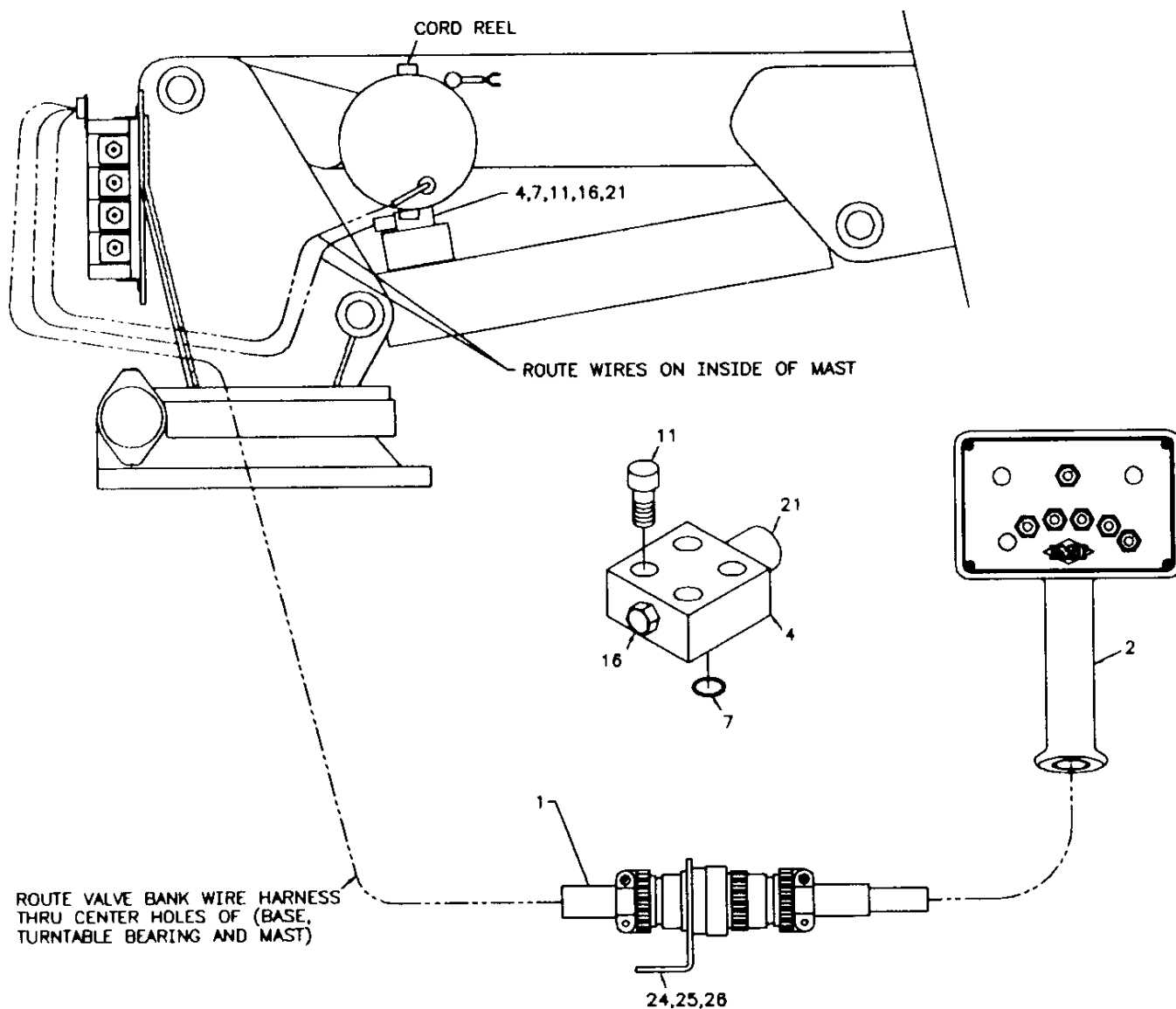
3-29

ELEC RMT CTRL KIT (90713519-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51713501	CABLE ASM 18GA/24WIRE X 72	1
2.	51713383	HANDLE ASM	1
3.	51704788	CABLE ASM 14GA/2WIRE X 43	1
4.	60025221	MANIFOLD-CAPACITY ALERT	1
5.	51704787	CABLE ASM 16GA/3WIRE X 35	1
6.	60105825	TERMINAL BLOCK MTG	1
7.	7Q072015	O-RING	1
8.	70034060	PLASTIC TIE	4
9.	72060002	CAP SCR 1/4-20X3/4 HHGR5	1
10.	51713682	CABLE ASM-GROUND	1
11.	72060731	CAP SCR 5/16-18X3/4 SH	4
12.	72061009	SHT MTL SCR #6X3/4 PH	2
15.	72066525	HOSE CLAMP 3/4 VINYL COVER	1

CONTINUED

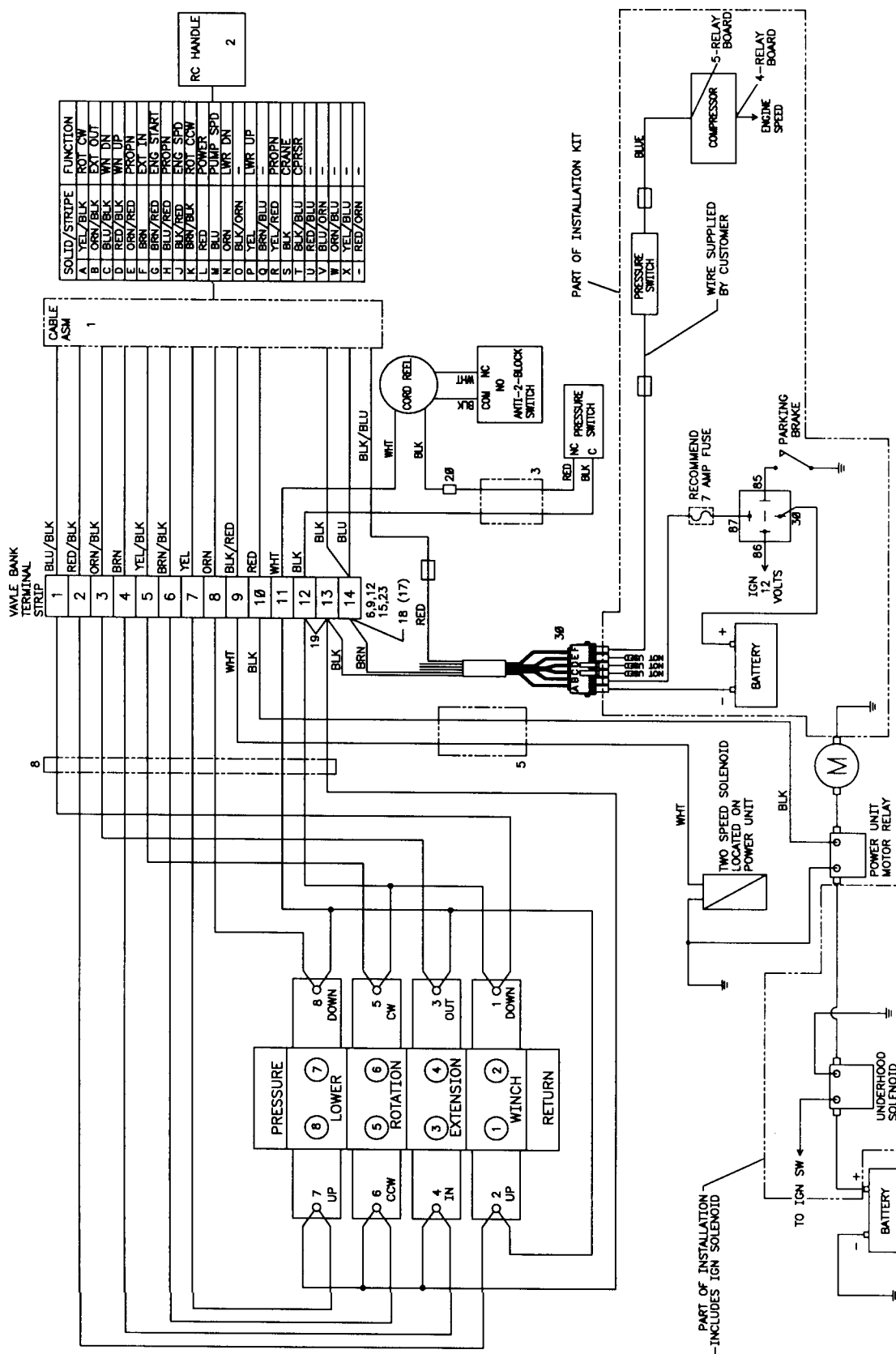
16.	72532140	PLUG #6STR HH	1
18.	77040051	TERMINAL #8SPRSPD 16-14GA 17	
19.	77040130	JUMPER BAR	1
20.	77040186	TERMINAL 1/4 FSLPON 16-14GA 1	
21.	77041283	PRESSURE SWITCH	1
23.	77044309	TERMINAL BLOCK-14 CONTACT	1
24.	60119299	MOUNTING BRACKET	1
25.	77044645	NUT-CONNECTOR	1
26.	77044646	WASHER-CONNECTOR	1
27.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	2
28.	72062104	NUT 1/4-20 LOCK	2
29.	72063001	WASHER 1/4 WRT	2
30.	77044749	CABLE ASM-14GA/6WIREX72	1



00002015: 90713519.02.19980514

3-30

ELEC RMT CTRL KIT (90713519-2)





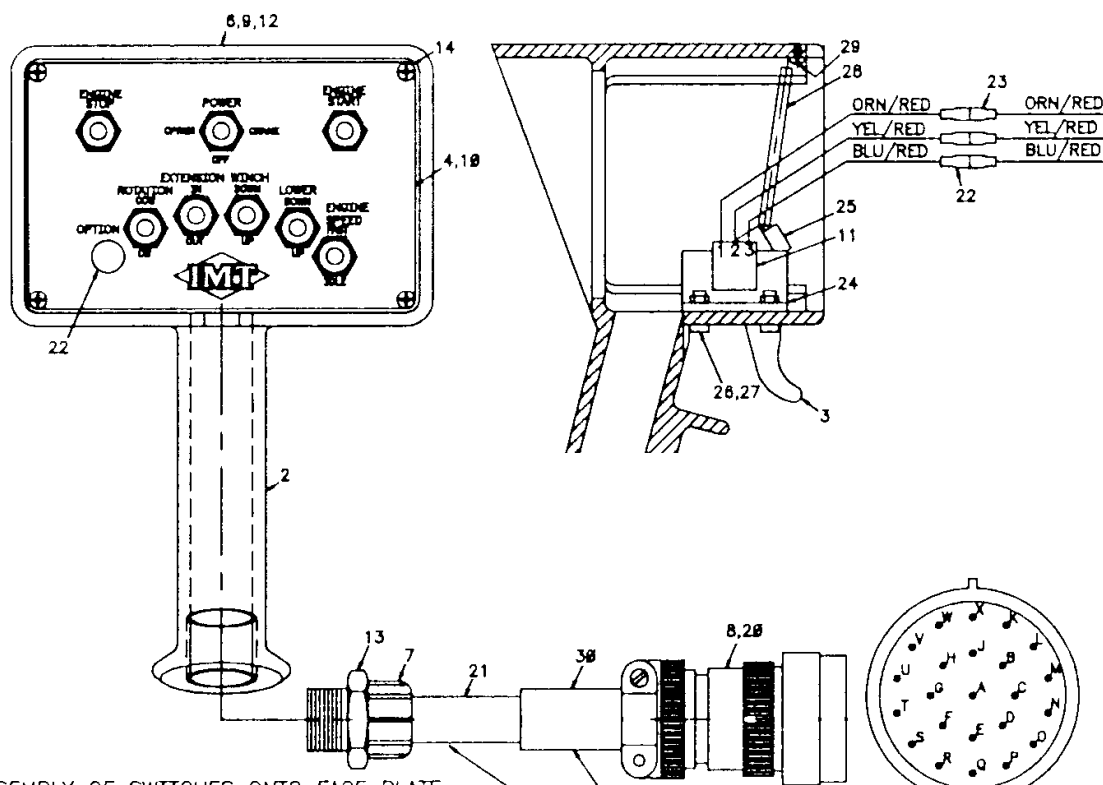
00002015: 51713498.01.19990422

3-31

PROP'L RMT HANDLE ASM (51713498)

ITEM	PART NO.	DESCRIPTION	QTY
1.	60045031	WIRE 18GAX4 GRN	7
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER	1
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
6.	70029119	SERIAL NUMBER PLACARD	1
7.	77044196	CORD GRIP	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
11.	51707507	POTENTIOMETER ASM	1
12.	72066340	POP RIVET 1/8X3/8 GRIP	2
13.	72531833	REDUCER BUSHING 3/4 X 1/2	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8

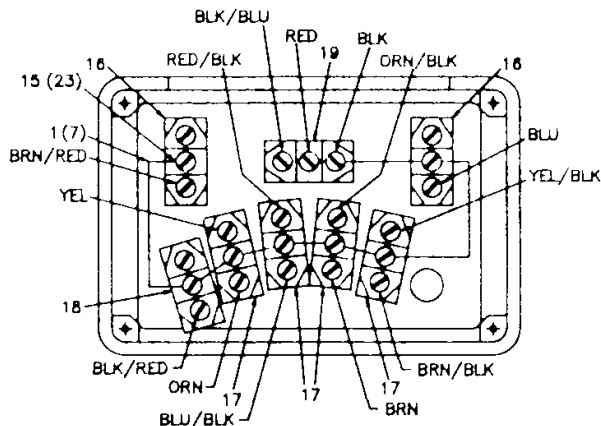
15.	77040051	TERM-SPRSPD #8 16-14GA	23
16.	77040371	TOGGLE SWITCH SPST	2
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	1
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE	30FT
22.	70392785	PLUG 1/2	1
23.	77040186	TERMINAL 1/4 FSLPON 16-14GA	3
24.	60111142	MOUNTING 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.	70145495	HEAT SHRINK	4"

**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.

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.



SOLID/STRIPE	FUNCTION
A YEL/BLK	ROT CW
B ORN/BLK	EXT OUT
C BLU/BLK	WN DN
D RED/BLK	WN UP
E ORN/RED	PROPN
F BRN	EXT IN
G BRN/RED	ENG START
H BLU/RED	PROPN
J BLK/RED	ENG SPD
K BRN/BLK	ROT CCW
L RED	POWER
M BLU	ENG STOP
N ORN	LWR DN
O BLK/ORN	-
P YEL	LWR UP
Q BRN/BLU	-
R YEL/RED	PROPN
S BLK	CRANE
T BLK/BLU	OPRSR
U RED/BLU	-
V BLU/ORN	-
W ORN/BLU	-
X YEL/BLU	-
- RED/ORN	-



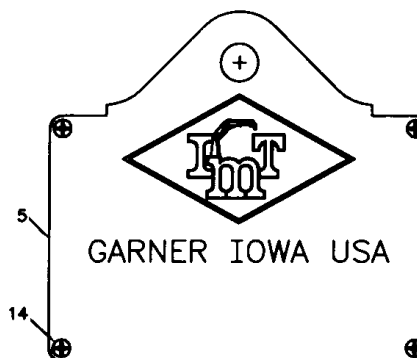
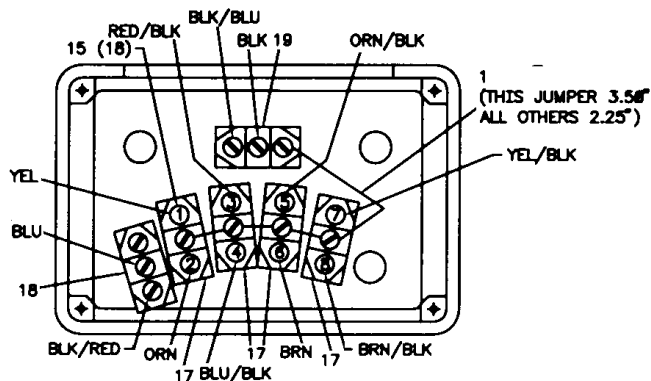
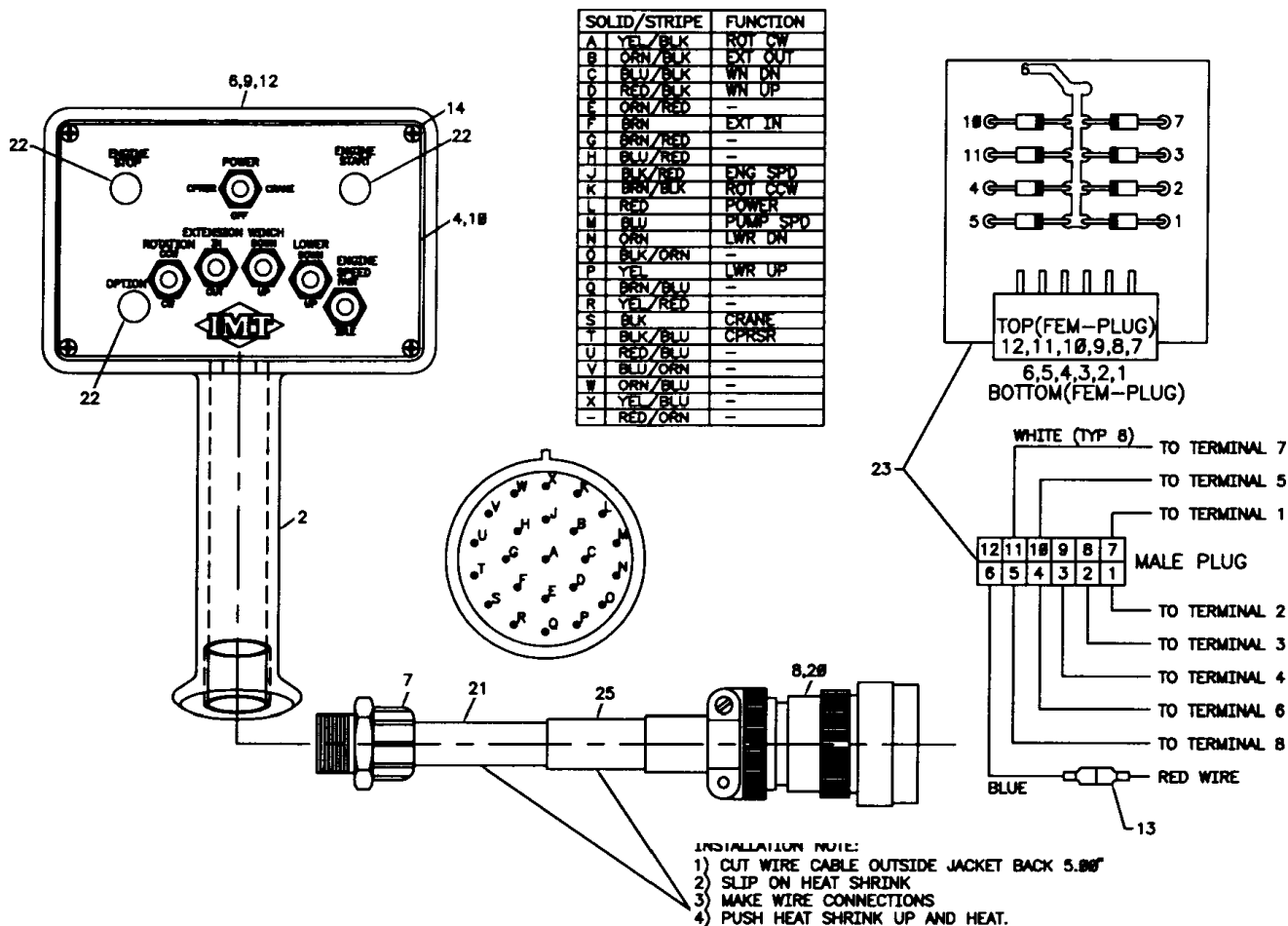
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3-32

**RMT HANDLE ASM-DUPLEX PUMP
(51713383)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	89044214	WIRE 18GAXGRN STRD	.86FT
2.	60119335	CONTROL HANDLE	1
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
13.	77040047	TERM-SPRSPADE #8 16-14GA	1

14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERML-SPRSPD #8 16-14GA	18
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	1
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE	30FT
22.	70392785	PLUG 1/2	3
23.	77041407	DIODE BOARD	1
24.	77044196	CONNECTOR	1
25.	70145495	HEAT SHRINK	.50FT





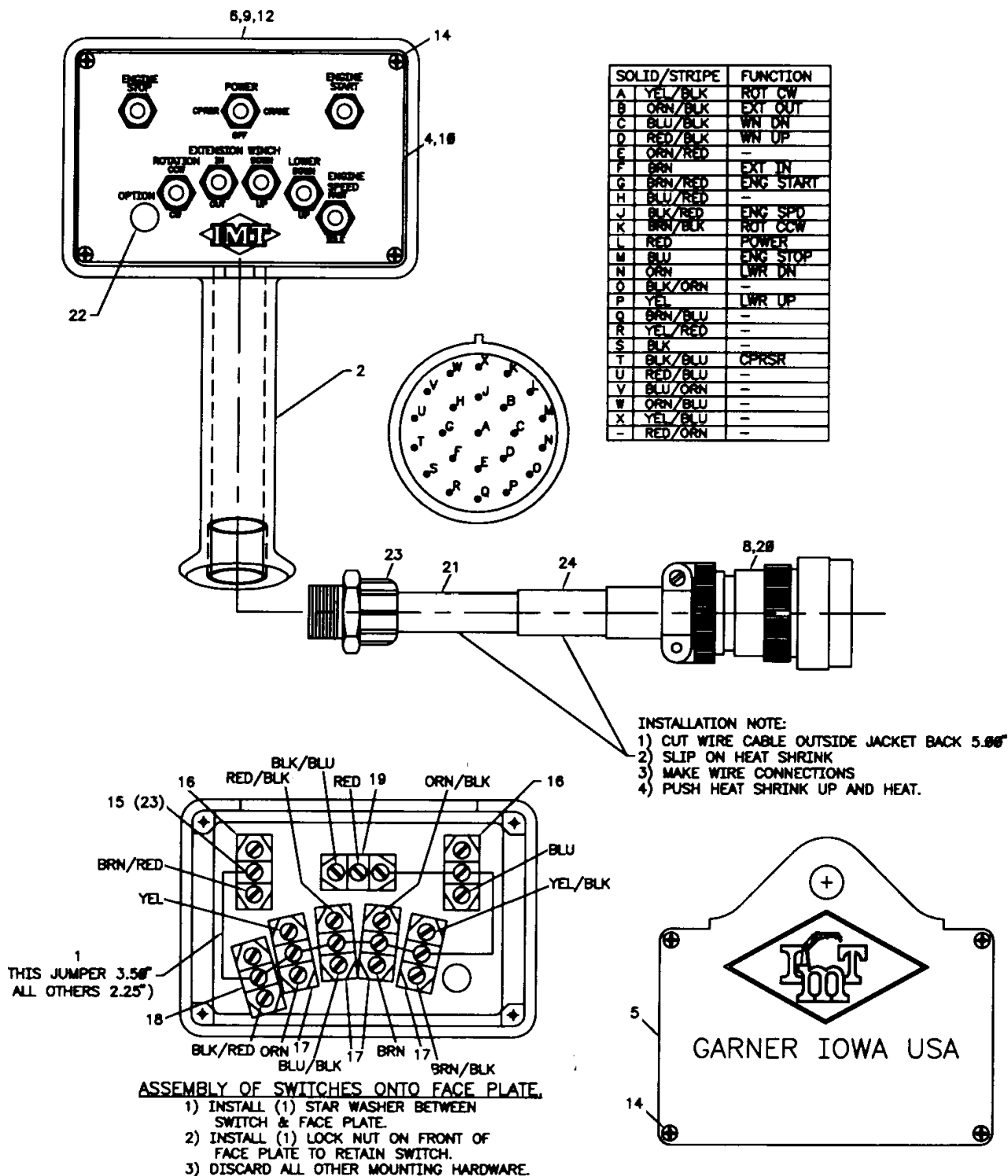
00002015: 51713384.01.19980213

3-33

RMT HANDLE ASM-PTO (51713384)

ITEM	PART NO.	DESCRIPTION	QTY
1.	89044214	WIRE 18GAX GRN STRD	1.42FT
2.	60119335	CONTROL HANDLE	1
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70394142	DECAL-CTRL	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8

15.	77040051	TERM-SPRSPD #8 16-14GA	23
16.	77040371	TOGGLE SWITCH SPST	2
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	1
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE	30FT
22.	70392785	PLUG 1/2	1
23.	77044196	CONNECTOR	1
24.	70145495	HEAT SHRINK	.50FT





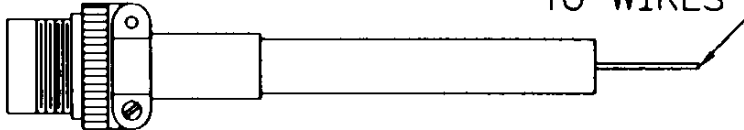
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3-34

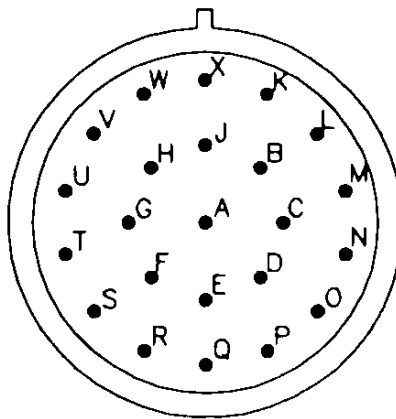
CABLE ASM-18GA/24W X 72 (51713501)

ITEM	PART NO.	DESCRIPTION	QTY
1.	89044100	CABLE 18GA/24WIRE	72"
2.	77040186	TERM-1/4 FSLPON 16-14GA	6
3.	77040051	TERM-#8 SPRSPD 16-14GA	11
4.	77044620	CONNECTOR	1
5.	77044580	SOCKET	23

ADD TERMINAL ENDS
TO WIRES PER CHART



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



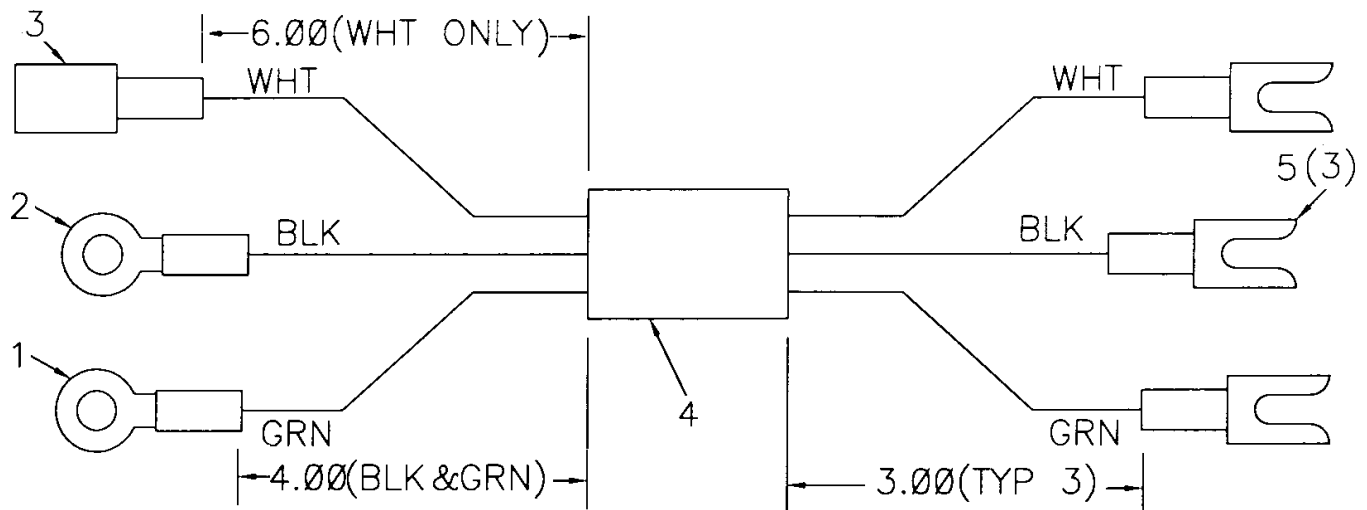


00002015: 51704787.01.19980304

3-35

**CABLE ASM-ELEC PWR UNIT GROUND
(51704787)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	77044651	TERMINAL 3/8 RING 16-14GA	1
2.	77040000	TERMINAL #10 RING 16-14GA	1
3.	77040186	TERMINAL 1/4 FSLPON 16-14GA	1
4.	89044053	CABLE 16GA/3WIRE	35"
5.	77040051	TERMINAL #8 SPRSPD 16-14GA	3



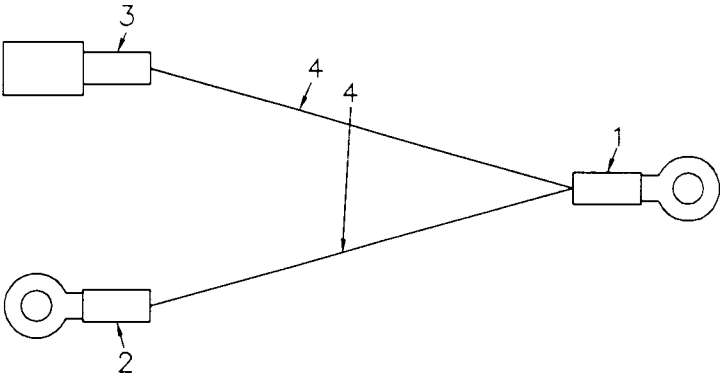


00002015: 51713682.01.19960930

3-36

CABLE ASM-ELEC PWR UNIT GROUND
(51713682)

ITEM	PART NO.	DESCRIPTION	QTY
1.	77044651	TERMINAL 3/8 RING 16-14GA	1
2.	77040000	TERMINAL #10 RING 16-14GA	1
3.	77040186	TERMINAL 1/4 FSLPON 16-14GA	1
4.	89044398	WIRE 16GA BLK X 6	2





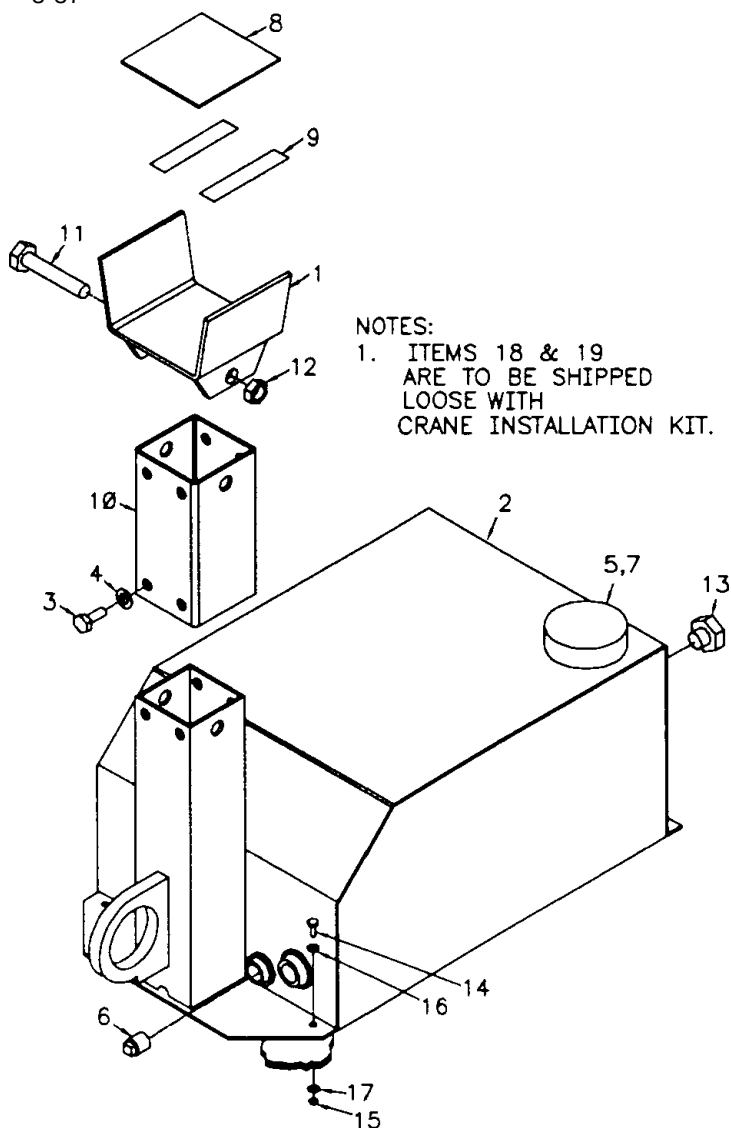
00002015: 51706910.01.19970127

**OPTION-BOOM SUPPORT/RESERVOIR
20 GAL (51706910)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	52705061	SADDLE	1
2.	52706909	RESERVOIR, 20 GAL.	1
3.	72060092	CAP SCREW, 1/2 X 1 1/4 GR5	4
4.	72063053	WASHER, LOCK, 1/2	4
5.	73014671	CAP, FILL	1
6.	73052001	PLUG, MAGNETIC, 3/4 NPT	1
7.	73141276	SCREEN, FILL NECK	1
8.	60030162	PAD, WEAR	1
9.	70086054	TAPE	12"
10.	60109252	TUBE, SADDLE	1
11.	72060195	CAP SCREW, 3/4 X 7 GR5	1
12.	72062114	NUT, SELF LOCKING, 3/4	1
13.	72532261	PLUG, SIGHT GAUGE, 3/4	1
14.	72060046	CAP SCREW, 3/8 X 1 GR5	4
15.	72062103	NUT, SELF LOCKING, 3/8	4
16.	72063003	WASHER, FLAT, 3/8	4
17.	76392821	SEAL, THREAD, 3/8	4
18.	73052012	SUCTION FILTER	1*
19.	72053211	PIPE NIPPLE	1*
20.	70394189	PLACARD-MOBIL OIL	1

* ITEMS 18 & 19 ARE SHIPPED LOOSE.

3-37



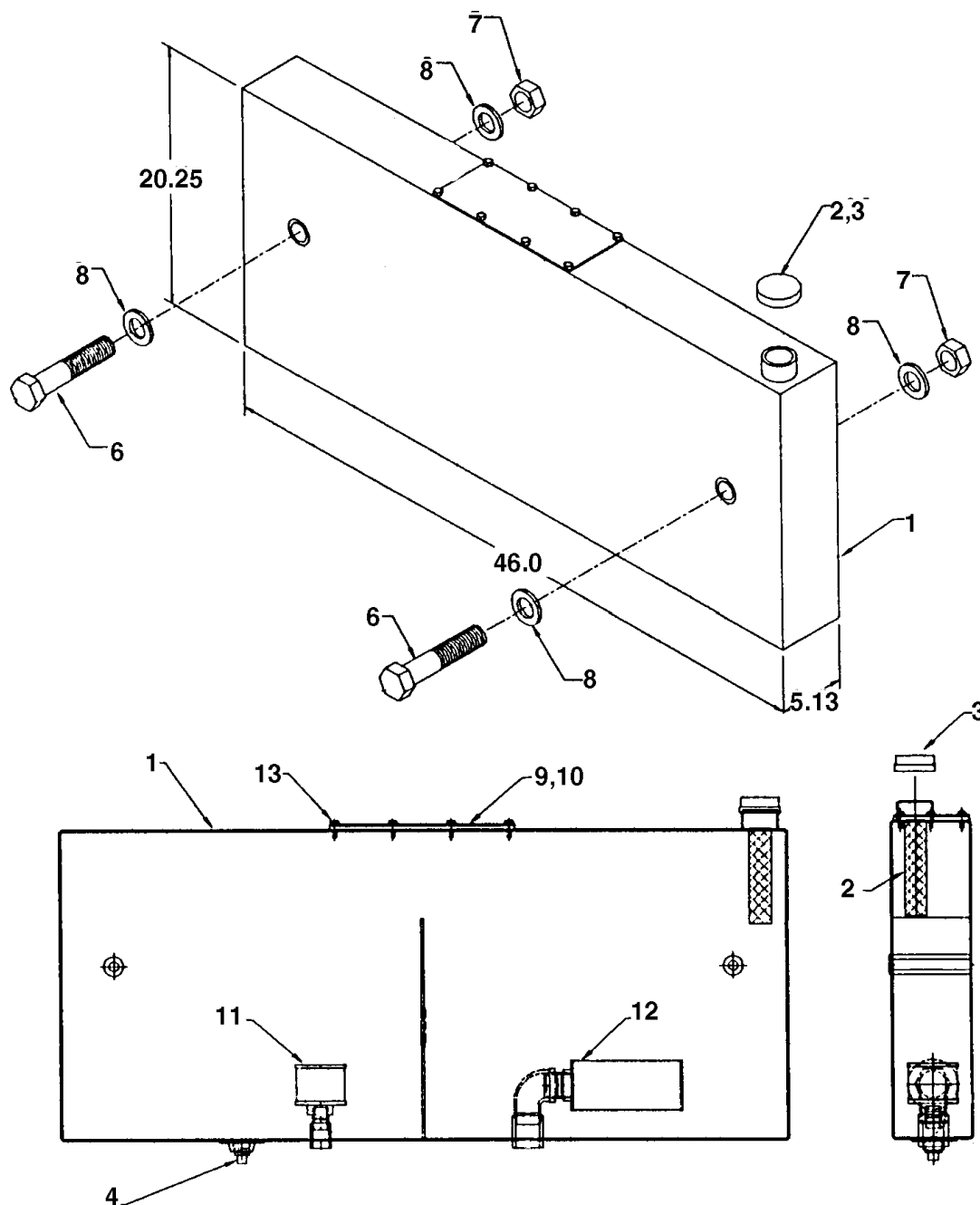


00002015: 51707798.01.19961118

3-38

**OPTION-RESERVOIR 18 GAL-
BULKHEAD (51707798)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	52711432	RESERVOIR WELDMENT	1REF
2.	70142482	FILL NECK STRAINER	1REF
3.	70142483	FILL CAP	1REF
4.	72053503	PIPE PLUG 3/4NPT SQHD	1REF
6.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	2
7.	72062080	NUT 1/2-13 LOCK	2
8.	72063005	WASHER 1/2 WRT	8
9.	76394152	GASKET 1/4X4-5/8X11-5/8	1
10.	60119158	COVER PLATE	1
11.	70733058	DIFFUSER-33 GAL 3/4NPT	1
12.	70733059	STRAINER-20GPM 1-1/4NPT	1
13.	72061151	SCR 1/4X1 SLFTPG W/SEAL	10
	51711433	RESERVOIR ASM (INCL:1-4)	1REF





00002015: 31711125.01.19961118

3-39

AUX OUTRIGGERS-REAR-MO/MD (31711125)

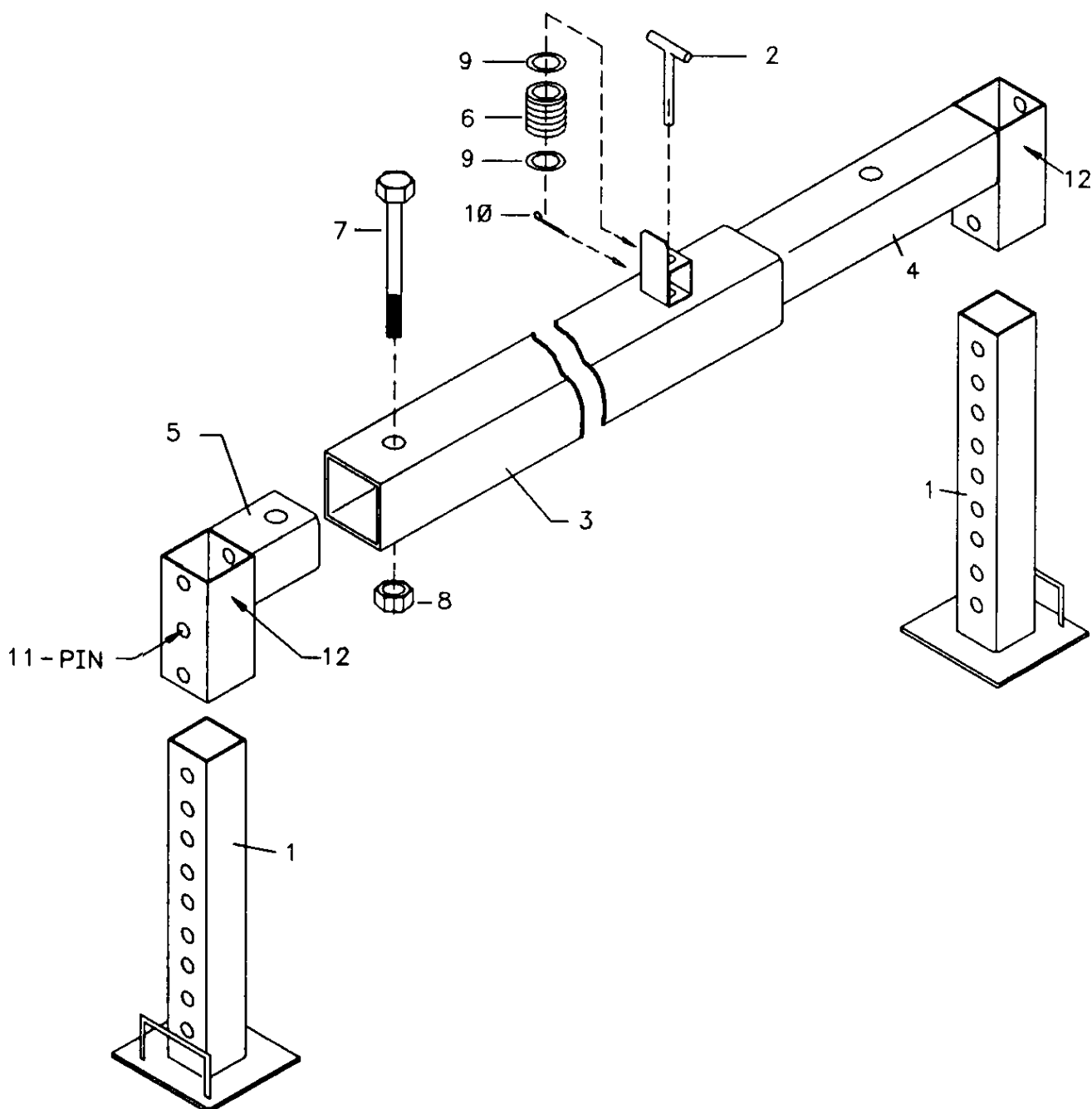
ITEM	PART NO.	DESCRIPTION	QTY
1.	52703353	OUTRIGGER LEG-MNL DN	2
2.	52070138	T-PIN	1
3.		OUTRIGGER HOUSING	1
4.	52712688	ARM-ADJ MNL OUT/DN	1
5.	52712689	ARM-STAT MNL OUT/DN	1
6.	60010351	SPRING	1
7.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	1
8.	72062080	NUT 1/2-13 LOCK	1
9.	72063007	WASHER 5/8 WRT	2
10.	72066185	COTTER PIN 5/32X1	1
11.	71731461	PIN-QUICK RELEASE	2
12.	70392864	DECAL-DANGER STAND CLEAR	2

INSTALLATION NOTE

OUTRIGGER HOUSING TUBE (ITEM 3) MUST BE TIED INTO THE STRUCTURAL SUPPORT OF THE CRANE.

DECAL PLACEMENT

ITEM	LOCATION
14	ONE ON EACH OUTRIGGER





00002015: 31711126.01.19961118

3-40

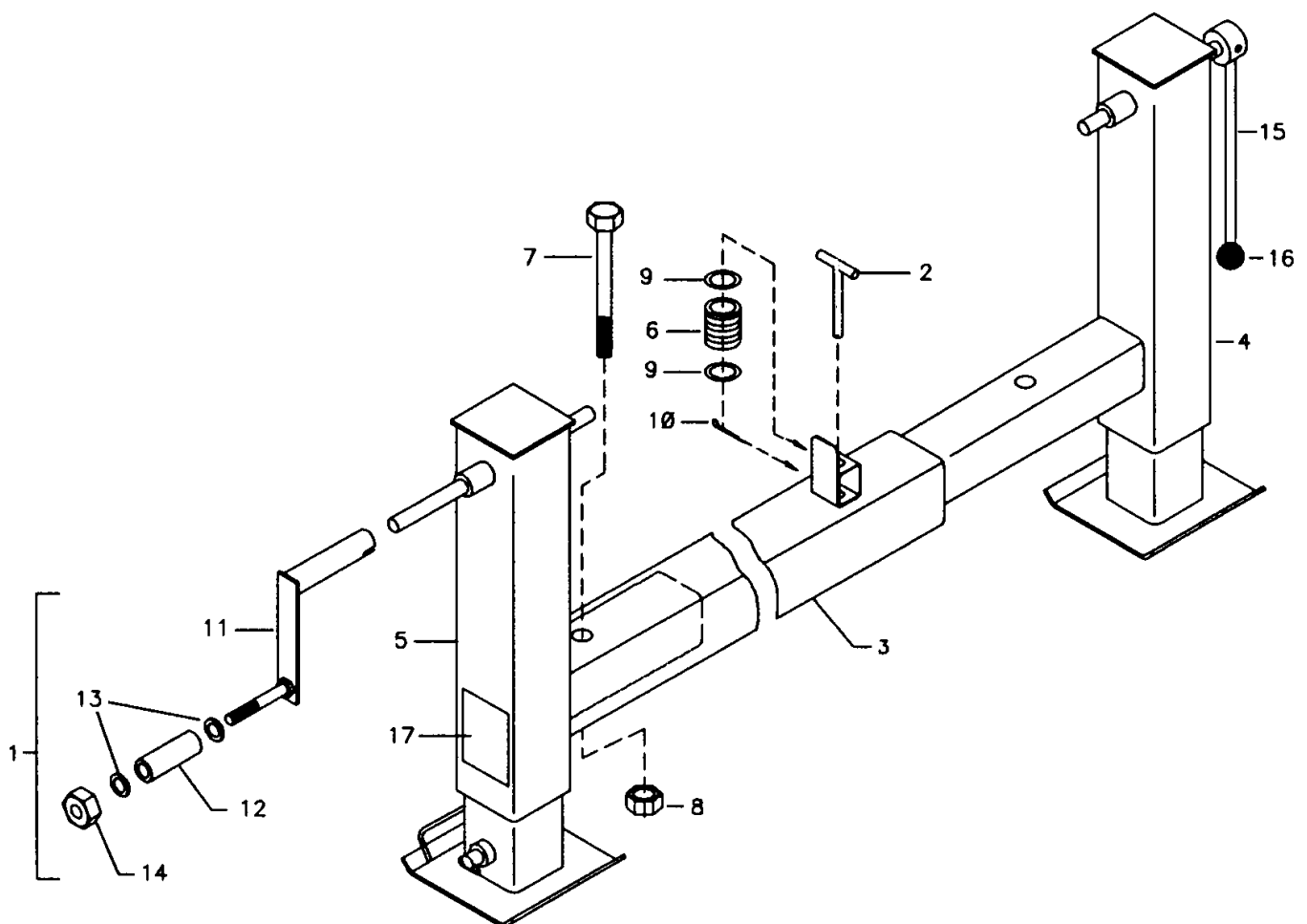
**AUX OUTRIGGER-MO/CRANK DN
(31711126)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	51705040	CRANK ASM (INCLUDES 11-14)	1
2.	52070138	T-PIN	1
3.	52704814	HOUSING	1
4.	52712690	ARM-ADJUSTABLE	1
5.	52712691	ARM-STATIONARY	1
6.	60010351	SPRING	1
7.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	1
8.	72062080	NUT 1/2-13 HEX LOCK	1
9.	72063007	WASHER 5/8 WRT	2
10.	72066185	COTTER PIN 5/32X1	1
11.	52705039	CRANK (PART OF 1)	1REF
12.	60030099	ROLLER (PART OF 1)	1REF
13.	72063003	WASHER 3/8 WRT (PART OF 1)	2REF
14.	72062103	NUT 3/8-16 LOCK (PART OF 1)	1REF
15.	52703319	CRANK HANDLE	1
16.	71039096	CONTROL KNOB 1-1/2"	1
17.	70392864	DECAL-DANGER STAND CLEAR	2

INSTALLATION NOTE

OUTRIGGER HOUSING TUBE MUST BE TIED INTO THE STRUCTURAL SUPPORT OF THE CRANE.

DECAL PLACEMENT	
ITEM	LOCATION
17	ONE ON EACH OUTRIGGER





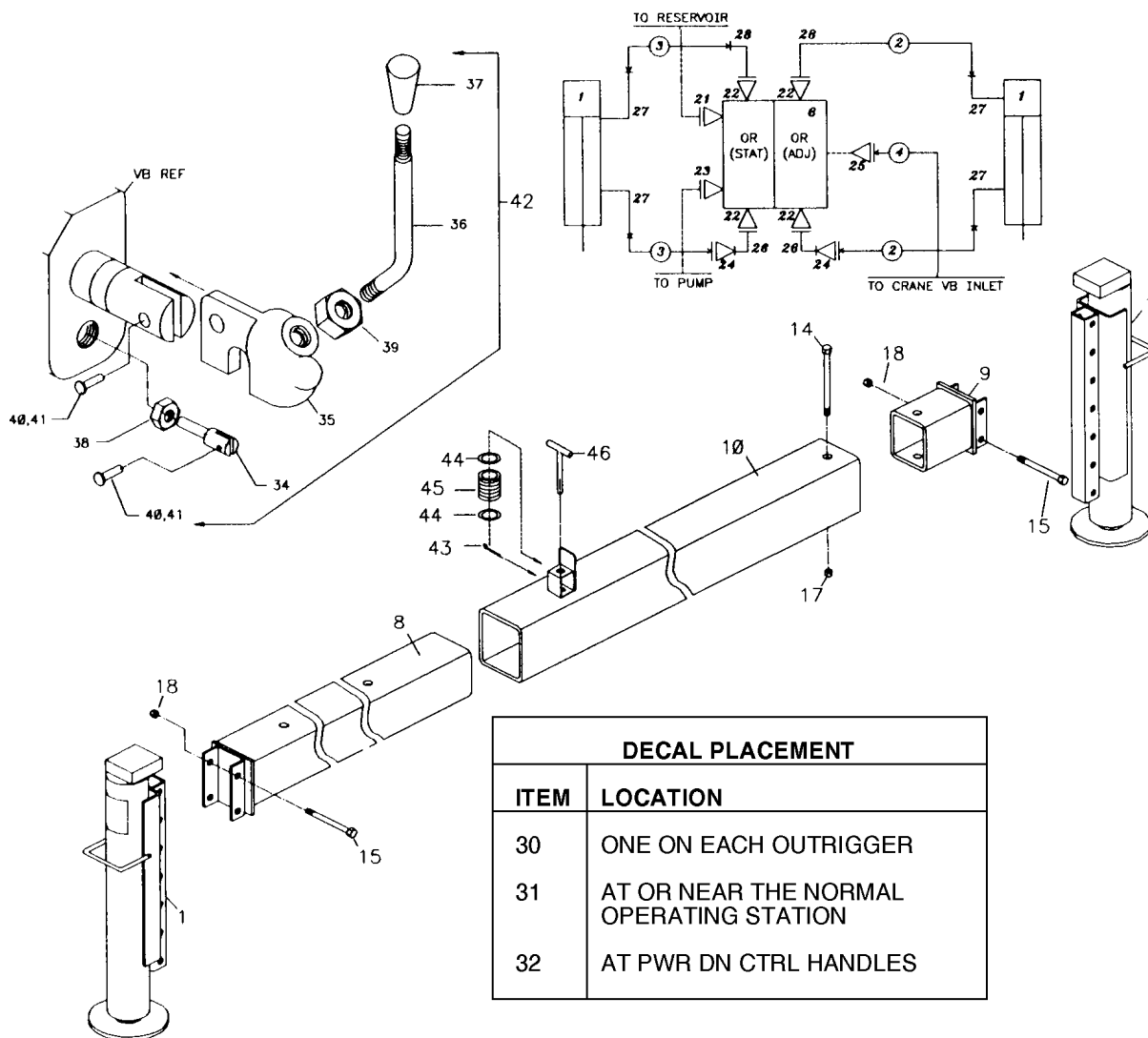
00002015: 31711127.01.19961118

3-41

AUX OUTRIGGER-MO/PD (31711127)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B048870	POWER DOWN CYLINDER	2
2.	51705191	HOSE ASM 1/4X96 FF	2
3.	51703596	HOSE ASM 1/4X120 FF	2
4.	51703939	HOSE ASM 1/2X96 FF	1
6.	51705983	VALVEBANK 2-SECT (INCL:42)	1
8.	52711140	ARM-ADJUSTABLE	1
9.	52711139	ARM-STATIONARY	1
10.	52704814	OUTRIGGER HOUSING	1
14.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	1
15.	72060155	CAP SCR 5/8-11X3-1/2 HHGR5	4
17.	72062080	NUT 1/2-13 LOCK	1
18.	72062091	NUT 5/8-11 LOCK	4
21.	72532365	ADAPTER #10MSTR #12MJIC	1
22.	72532722	ADAPTER #10MSTR #6FSTR	4
23.	72532358	ADAPTER #8MSTR #8MJIC	1
24.	72532707	ADAPTER #4MJIC #6MJIC	2
25.	72053764	ELBOW #10MSTR #8MJIC 90°	1
26.	72532700	ELBOW #6MSTR#6MJIC XLG 90° 2	

27.	72053758	ELBOW #4MSTR #4MJIC 90°	4
28.	72532699	ELBOW #6MSTR #4MJIC 90°	2
30.	70392864	DECAL-DGR STAND CLEAR	2
31.	70392867	DECAL-DGR OUTRGR MOVING	1
32.	71392257	DECAL-CONTROL PO	1
34.	70142648	LEVER PIVOT (PART OF 42)	2REF
35.	70142650	LEVER SUPPORT (PART OF 42)	2REF
36.	70142651	LEVER-CTRL HNDL (PART 42)	2REF
37.	71392269	KNOB (PART OF 42)	2REF
38.	72062021	NUT 5/16-18 HEX (PART OF 42)	2REF
39.	72062024	NUT 1/2-13 HEX(PART OF 42)	2REF
40.	72066162	COTTER PIN (PART OF 42)	4REF
41.	72661204	CLEVIS PIN (PART OF 42)	4REF
42.	51731580	HANDLE ASM (INCL:34-41) (PART OF 5)	2REF
43.	72066185	COTTER PIN 5/32X1	1
44.	72063007	WASHER 5/8 WRT	2
45.	60010351	SPRING	1
46.	52070138	T-PIN	1

**INSTALLATION NOTE**

OUTRIGGER HOUSING TUBE MUST BE TIED INTO THE STRUCTURAL SUPPORT OF THE CRANE.



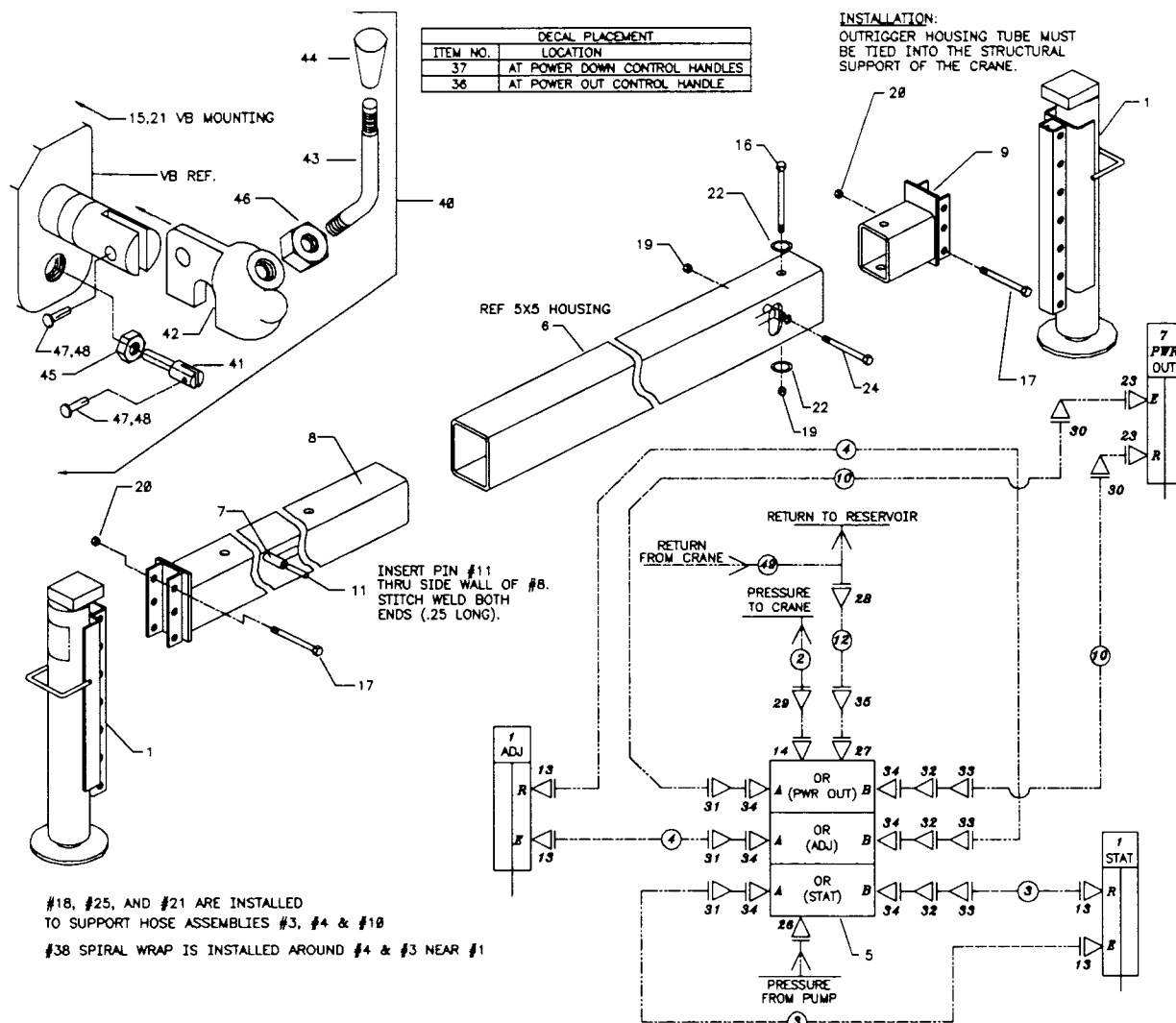
00002015: 31711128.01.19961118

3-42

**AUX OUTRIGGERS-PO/PD 5X5
(31711128)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B048870	CYLINDER-PWR DN	2
2.	51703604	HOSE ASM 3/8X134 FF	1
3.	51705364	HOSE ASM 1/4X128 FF	2
4.	51705191	HOSE ASM 1/4X96 FF	2
5.	51705984	VALVEBANK 3-SECT (INCL:40)	1
6.	60116643	TUBE	1
7.	3B142860	CYLINDER-PWR OUT	1
8.	52711140	ARM-ADJUSTABLE	1
9.	52711139	ARM-STATIONARY	1
10.	51707597	HOSE ASM 1/4X105 FF	2
11.	60107866	PIN	1
12.	51705062	HOSE ASM 1/2X48 FF	1
13.	72053758	ELBOW #4MSTR #4MJIC 90°	4
14.	72053764	ELBOW #10MSTR #8MJIC 90°	1
15.	72060025	CAP SCR 5/16-18X1 HHGR5	4
16.	72060104	CAP SCR 1/2-13X6-1/2 HHGR5	1
17.	72060155	CAP SCR 5/8-11X3-1/2 HHGR5	4
18.	72060833	SCR 5/16-18X3/4 THRD CUTING	2
19.	72062080	NUT 1/2-13 LOCK	2
20.	72062091	NUT 5/8-11 LOCK	4
21.	72063002	WASHER 5/16 WRT	6
22.	72063005	WASHER 1/2 WRT	2
23.	72532351	ADAPTER #4MSTR #4MJIC	4
24.	72601297	CAP SCR 1/2-13X5-3/4 HHGR5	1

25.	72066582	CLAMP	2
26.	72532358	ADAPTER #8MSTR #8MJIC	1
27.	72532365	ADAPTER #10MSTR #12MJIC	1
28.	72532769	TEE 9/16JIC 3/8TUBE	1
29.	72532658	ELBOW #8MJIC #8FJIC SW	1
30.	72532690	ELBOW #4MJIC #4FJIC SW	2
31.	72532699	ELBOW #6MSTR #4MJIC 90°	3
32.	72532700	ELBOW #6MSTR #6MJIC 90°XLG	3
33.	72532707	ADAPTER #4MJIC #6FJIC	3
34.	72532722	ADAPTER #10MSTR #6FSTR	6
35.	72532696	ELBOW #12MJIC #12FJIC SW	1
36.	71392277	DECAL-PWR OUT	1
37.	76391511	DECAL-STABILIZER	1
38.	89034049	SPIRAL WRAP	6'
39.	99900644	MANUAL-OUTRIGGER	1
40.	51731580	HANDLE (INCL:41-48,PART OF 5)	2REF
41.	70142648	PIVOT-LEVER (PART OF 40)	2REF
42.	70142650	LEVER SUPPORT (PART OF 40)	2REF
43.	70142651	LEVER-CTRL (PART OF 40)	2REF
44.	71392269	KNOB (PART OF 40)	2REF
45.	72062021	NUT 5/16-18 HEX (PART OF 40)	2REF
46.	72062024	NUT 1/2-13 HEX (PART OF 40)	2REF
47.	72066162	COTTER PIN (PART OF 40)	4REF
48.	72661204	CLEVIS PIN (PART OF 40)	4REF
49.	51703939	HOSE ASM 1/2X96 FF	1



#18, #25, AND #21 ARE INSTALLED
TO SUPPORT HOSE ASSEMBLIES #3, #4 & #10
#38 SPIRAL WRAP IS INSTALLED AROUND #4 & #3 NEAR #1



00002015: 3B048870.01.19971027

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CYLINDER-PWR DN (3B048870)

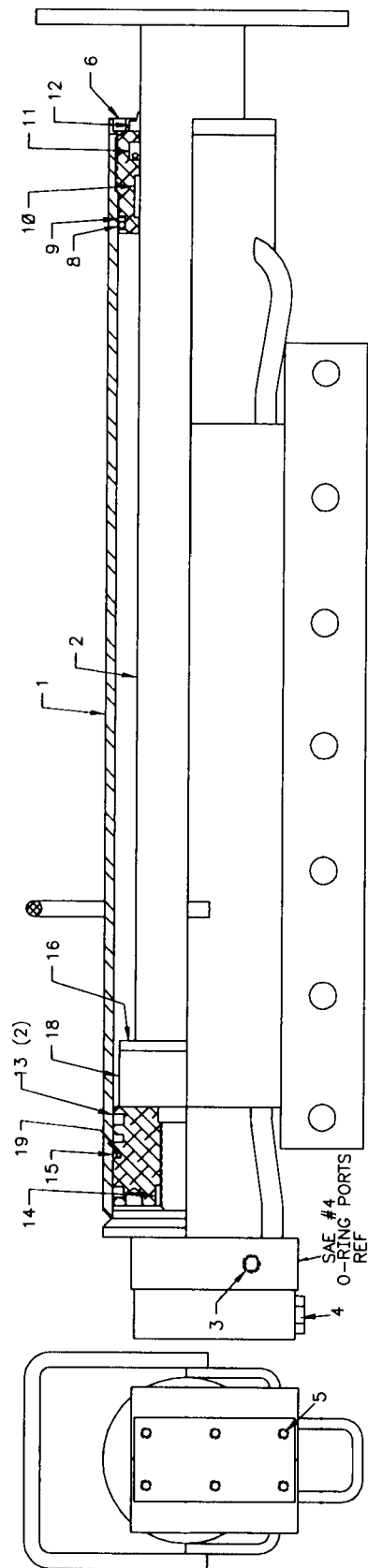
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B048870	CASE ASM	1
2.	4G048870	ROD ASM	1
3.	7PNPXT02	PIPE PLUG (PART OF 1)	4REF
4.	73054004	VALVE	1
5.	72060708	CAP SCR 1/4-20X1-1/4 SH	6
6.	6H035025	HEAD	1
7.	6I035125	PISTON	1
8.	7Q072338	O-RING (PART OF 17)	1REF
9.	7Q10P338	BACK-UP RING (PART OF 17)	1REF
10.	7T2N8027	WEAR RING (PART OF 17)	1REF
11.	7R546025	ROD SEAL (PART OF 17)	1REF
12.	7R14P025	ROD WIPER (PART OF 17)	1REF
13.	7T65I035	PISTON RING (PART OF 17)	2REF
14.	7T61N125	LOCK RING SEAL (PART OF 17)	1REF
15.	7T66P035	PISTON SEAL (PART OF 17)	1REF
16.	6A025025	WAFFER LOCK (PART OF 17)	1REF
17.	9C142020	SEAL KIT (INCL:8-16,19)	1
18.	6C150025	STOP TUBE	1
19.	7Q072151	O-RING (PART OF 17)	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.





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3-44

CYLINDER-PWR OUT (3B142860)

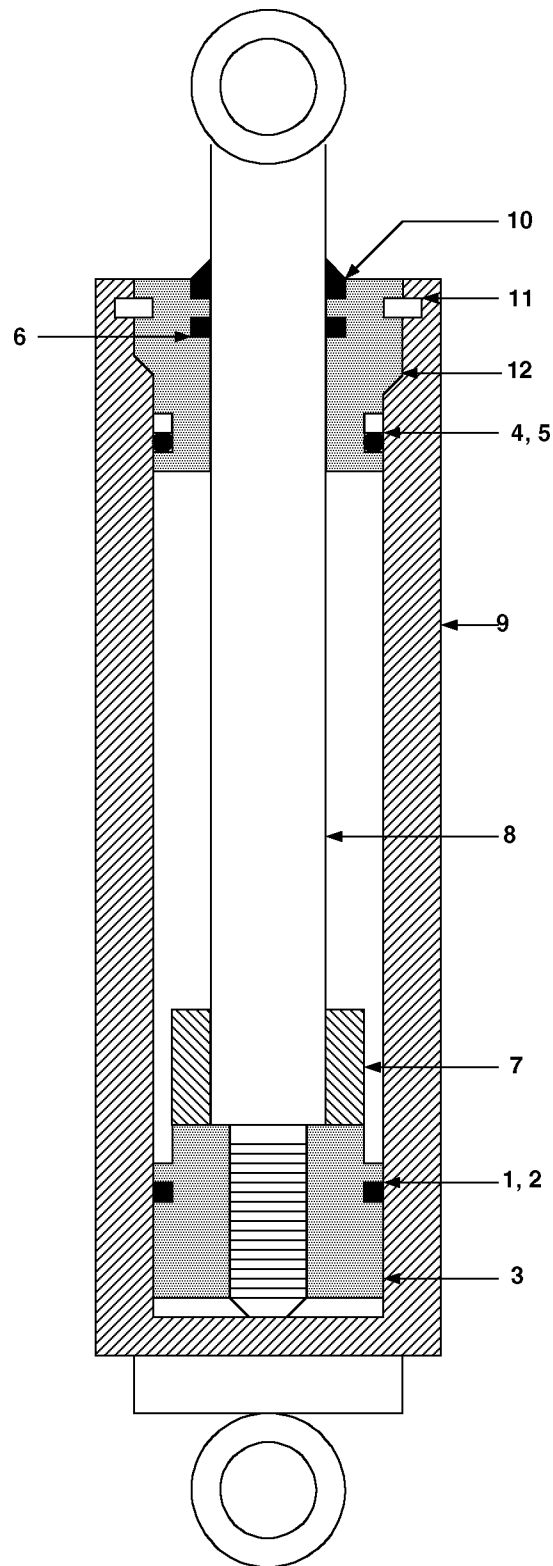
ITEM	PART NO.	DESCRIPTION	QTY
1.	7Q072021	O-RING (PART OF 13)	1REF
2.	7T66P012	PISTON SEAL (PART OF 13)	1REF
3.	6I012050	PISTON	1
4.	7Q072214	O-RING (PART OF 13)	1REF
5.	7Q10P214	BACK-UP RING (PART OF 13)	1REF
6.	7R100750	ROD SEAL (PART OF 13)	1REF
7.	6C125007	STOP TUBE	1
8.	4G142860	ROD ASM	1
9.	4B142860	CASE ASM	1
10.	7R13P007	ROD WIPER (PART OF 13)	1REF
11.	72066029	RETAINING RING	1
12.	6H012007	HEAD	1
13.	9B050608	SEAL KIT (INCL:1,2,4-6,10)	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.



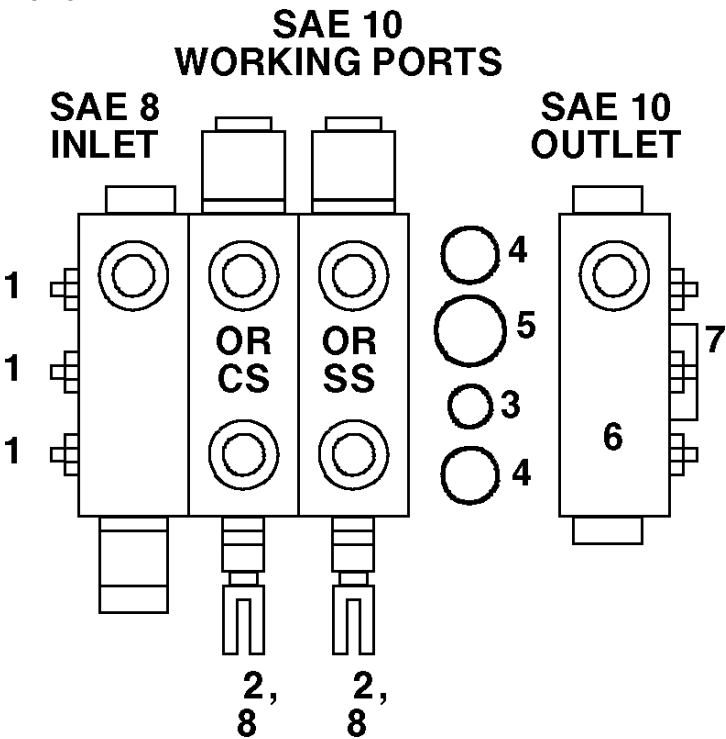


00002015: 51705983.01.19961118

VALVEBANK ASM-2 SECT (51705983)

ITEM	PART NO.	DESCRIPTION	QTY
1.	94731764	TIE ROD KIT	3
2.	73054490	TANDEM VALVE SECTION	2
3.	7Q072017	O-RING SM	3
4.	7Q072018	O-RING MED	6
5.	7Q072021	O-RING LG	3
6.	73731576	END CAP - RH	1
7.	73731763	POWER BEYOND SLEEVE	1
8.	51731580	LEVER ASM (NOT SHOWN)	2

3-45

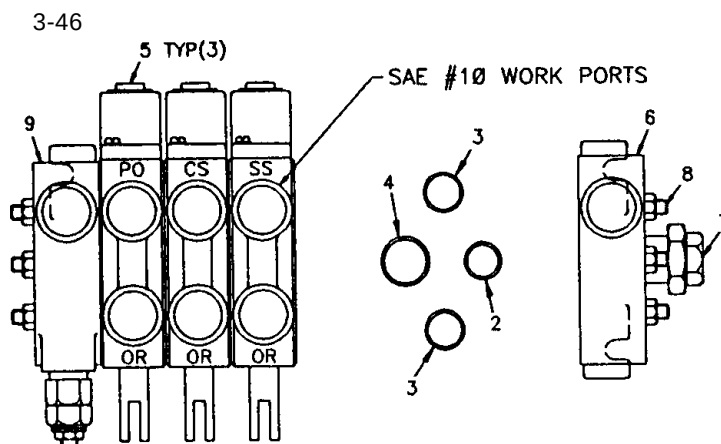




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VALVEBANK ASM-3 SECT (51705984)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51731580	LEVER ASM (NOT SHOWN)	3
2.	7Q072017	O-RING SM	4
3.	7Q072018	O-RING MED	8
4.	7Q072021	O-RING LG	4
5.	73054490	TANDEM VALVE SECTION	3
6.	73731576	END CAP - RH	1
7.	73731763	POWER BEYOND SLEEVE	1
8.	94731764	TIE ROD KIT	3
9.	73054488	END COVER LH	1





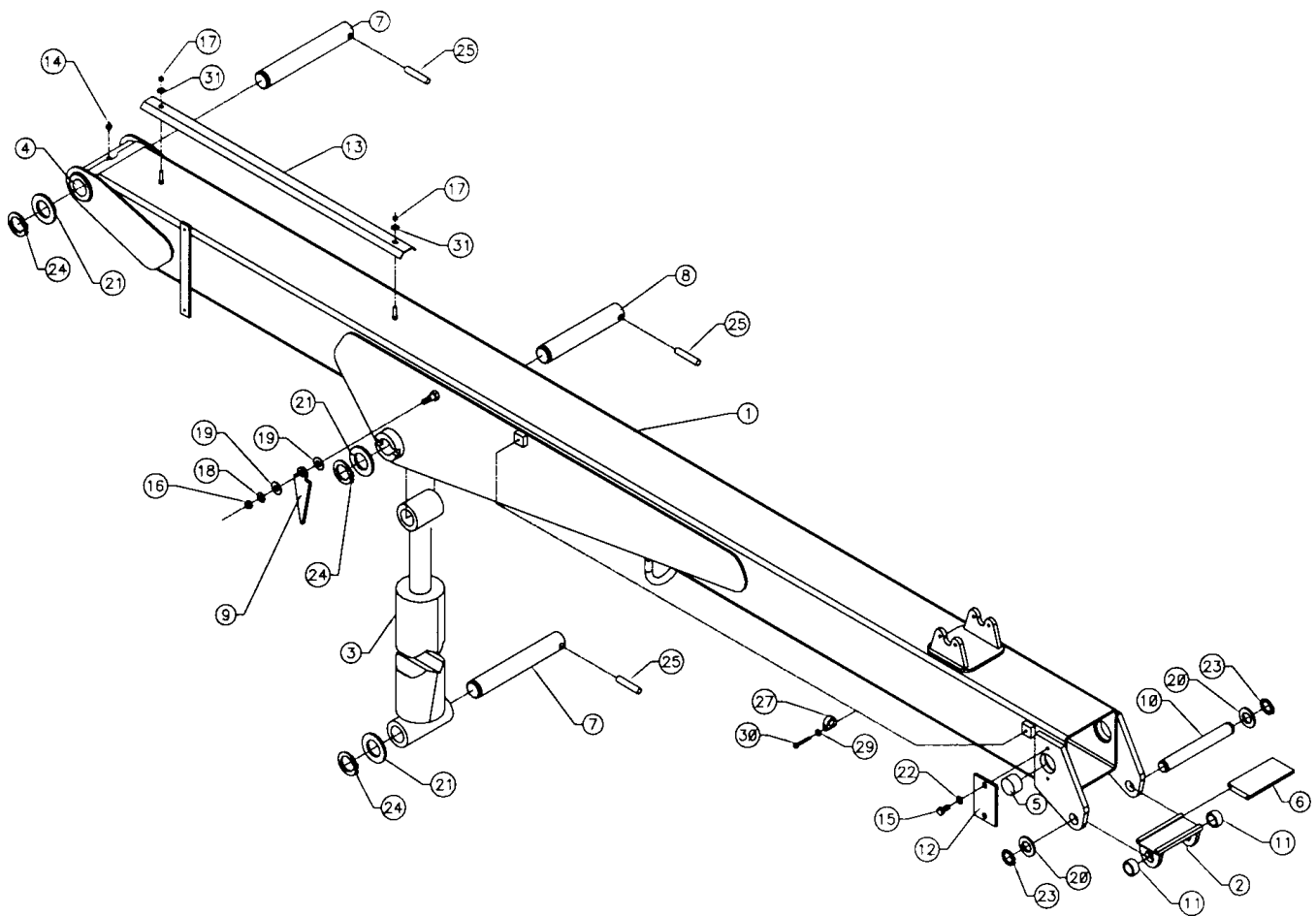
00002015: 41715074.01.19990104

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**LOWER BOOM ASM W/D-RING
(41715074)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	52713010	LWR BOOM W/D-RING(INCL:4)	1
2.	52704549	TRUNNION	1
3.	3B144820	LOWER CYLINDER	1
4.	7BF81215	BUSHING (PART OF 1)	4REF
5.	60030007	WEAR PAD	2
6.	60030083	WEAR PAD	1
7.	60102376	PIN	2
8.	60102388	PIN	1
9.	60105544	ANGLE INDICATOR	2
10.	60105749	PIN	1
11.	60107538	PIPE	2
12.	60107550	LOCK PLATE	2
13.	60107595	HOSE GUARD	1
14.	72053508	ZERK 1/8NPT	1

15.	72060044	CAP SCR 3/8-16X3/4 HHGR5	4
16.	72062103	NUT 3/8-16 LOCK	2
17.	72062104	NUT 1/4-20 LOCK	2
18.	72063003	WASHER 3/8 WRT	2
19.	72063005	WASHER 1/2 WRT	4
20.	72063034	MACH BUSHING 1X10GA	2
21.	72063037	MACH BUSHING 1-1/2X10GA	3
22.	72063051	WASHER 3/8 LOCK	4
23.	72066125	RETAINING RING 1" EXT HD	2
24.	72066132	RETAINING RING 1-1/2 EXT HD	3
25.	72661157	GROOVE PIN 1/2X2-1/2	3
26.	72066340	POP RIVET 1/8	2
27.	70034381	CORD GUIDE	2
28.	70029119	SERIAL NUMBER PLACARD	1
29.	72063049	WASHER 1/4 LOCK	2
30.	72060006	CAP SCR 1/4-20X1-1/2 HHGR5	2
31.	72063001	WASHER 1/4 WRT	2





00002015: 19990104

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SECTION 4. GENERAL REFERENCE

INSPECTION CHECKLIST 3

WIRE ROPE INSPECTION 7

HOOK INSPECTION 7

HOLDING VALVE INSPECTION 8

ANTI-TWO BLOCKING DEVICE INSPECTION 8

TORQUE DATA CHART-DOMESTIC 9

TORQUE DATA CHART-METRIC 10

TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE 11

TURNTABLE BEARING INSPECTION FOR REPLACEMENT 12

LIMITED WARRANTY 14



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SECTION 4. GENERAL REFERENCE

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SECTION 4. GENERAL REFERENCE

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		1
CRANES		
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		

REV: 6-18-99

TYPE OF INSPECTION**NOTES:**

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

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

One hour of normal crane operation assumes 20 complete cycles per hour. If operation exceeds 20 cycles per hour, inspection frequency should be increased accordingly.

Consult Operator / Service Manual for additional inspection items, service bulletins and other information.

Before inspecting and operating crane, crane must be set up away from power lines and leveled with 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		



SECTION 4. GENERAL REFERENCE

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Deficiency / Recommendation / Corrective Action Report DATE OWNER 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

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SECTION 4. GENERAL REFERENCE

4

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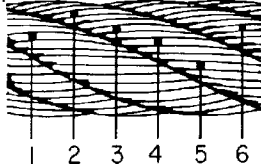
4-7

SECTION 4. GENERAL REFERENCE

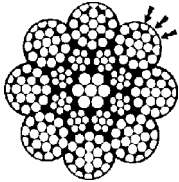
WIRE ROPE INSPECTION

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

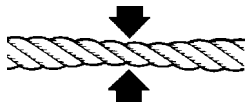
- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



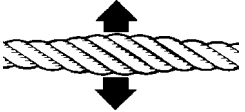
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



- 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

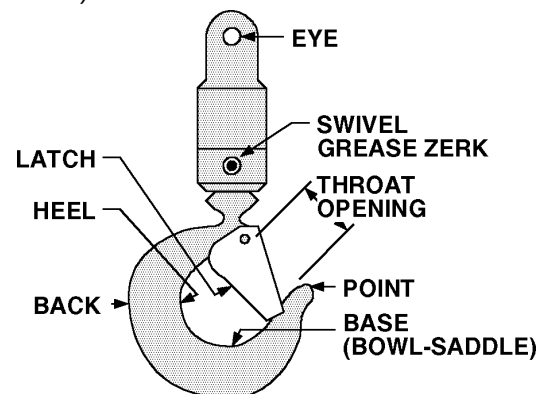
Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally, following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued 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)





19990519

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SECTION 4. GENERAL REFERENCE

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)

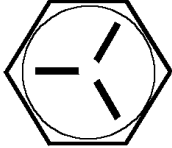
The anti two block system should be checked daily as follows:

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-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
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

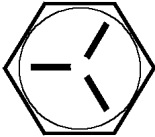
When using the torque data in the charts above, the following rules should be observed.

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.

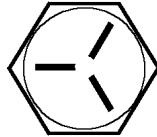
WARNING

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-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
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-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
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

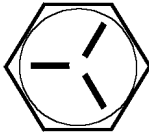
When using the torque data in the charts above, the following rules should be observed.

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.

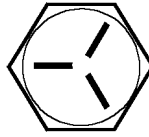
WARNING

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.

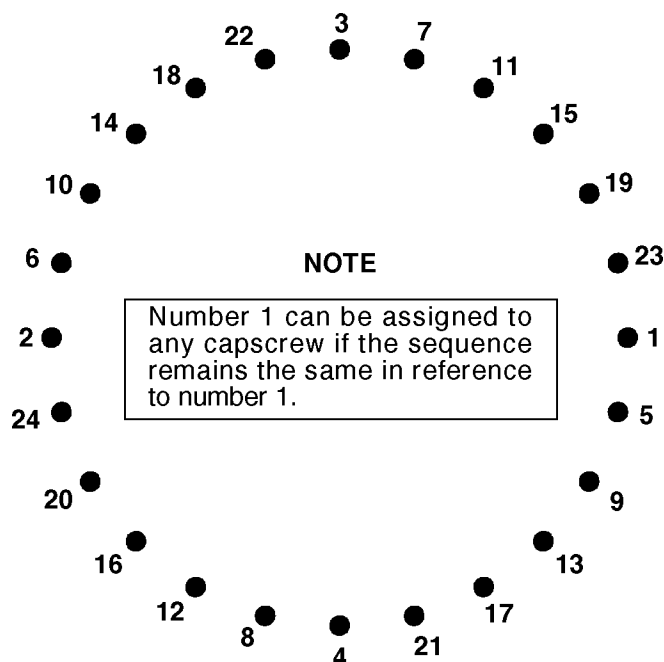
WARNING

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



TURNTABLE BEARING INSPECTION FOR REPLACEMENT

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

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

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

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

TEST PROCEDURE

STEP 1.

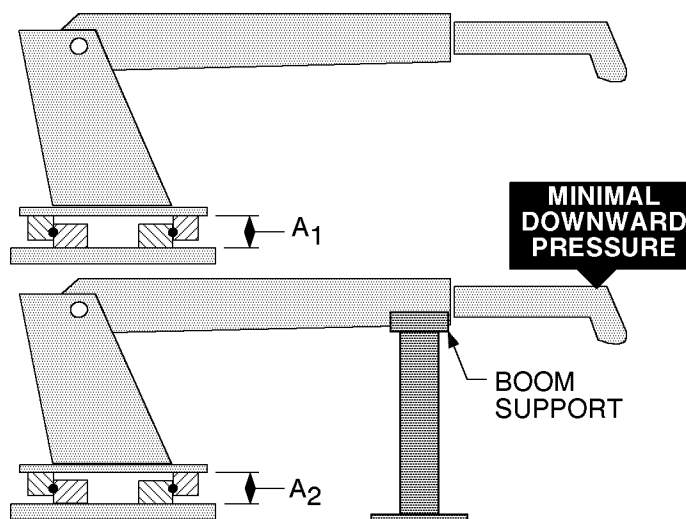
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A1), using a dial indicator for accuracy.

STEP 2.

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

STEP 3.

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



COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

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 2015 2020 2109 3000 3016 3816 3020 425 4300 5016 6016 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 32030 T30 T40	9800 12916 13031 13034 14000 15000 18000 20017 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. (A₁-A₂)	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)



19990519

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

MANUAL CHANGE REQUEST

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

☐

ERROR FOUND

LOCATION OF ERROR (page no.): _____

DESCRIPTION OF ERROR: _____

☐

REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION: _____

REASON FOR ADDITION: _____

MAIL TO: IOWA MOLD TOOLING Co., Inc.
Box 189,
Garner IA 50438-0189
ATTN: Technical Publications



19990519

LIMITED WARRANTY

WARRANTY COVERAGE - Products manufactured by Iowa Mold Tooling Co., Inc. (IMT) are warranted to be free from defects in material and workmanship, under proper use, application and maintenance in accordance with IMT's written recommendations, instructions and specifications as follows:

1. Ninety (90) days; labor on IMT workmanship from the date of shipment to the end user.
2. One (1) year; original IMT parts from the date of shipment to the end user.

IMT's obligation under this warranty is limited to, and the sole remedy for any such defect shall be the repair or replacement (at IMT's option) of unaltered parts returned to IMT, freight prepaid, and proven to have such defect, provided such defect occurs within the above stated warranty period and is reported within fourteen (14) days of its occurrence.

IMPLIED WARRANTY EXCLUDED - This is the only authorized IMT warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness for any particular purpose or of any other obligations on the part of IMT.

ITEMS EXCLUDED - The manufacturer gives no warranty on any components purchased by the manufacturer, and such components as are covered only by the warranties of their respective manufacturers.

WARRANTY CLAIMS - Warranty claims must be submitted and shall be processed in accordance with IMT's established warranty claim procedure.

WARRANTY SERVICE - Warranty service will be performed by any IMT distributor authorized to sell new IMT products of the type involved or by any IMT Service Center authorized to service the type of product involved or by IMT in the event of direct sales made by IMT. At the time of requesting warranty service, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any premium for overtime labor requested by the purchaser, any charge for making service calls and for transporting the equipment to the place where warranty work is performed.

WARRANTY VOIDED - All obligations of IMT under this warranty shall be terminated: (1) if service other than normal maintenance or normal replacement of service items is performed by someone other than an authorized IMT dealer, (2) if product is modified or altered in ways not approved by IMT.

PURCHASER'S RESPONSIBILITY - This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper protection in storage, or improper use. The purchaser has the obligation of performing the care and maintenance duties discussed in IMT's written recommendations, instructions and specifications. Any damage which results because of purchaser's failure to perform such duties shall not be covered by this warranty. The cost of normal maintenance and normal replacement of service items such as filters, belts, etc. shall be paid by the purchaser.

CONSEQUENTIAL DAMAGES - The only remedies the purchaser has in connection with the breach or performance of any warranty on IMT products are those set forth above. In no event will the dealer, IMT or any company affiliated with IMT, be liable for business interruptions, loss of sales and/or profits, rental or substitute equipment, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

REPRESENTATIONS EXCLUDED - IMT products are subject to no expressed, implied or statutory warranty other than herein set forth, and no agent, representative or distributor of the manufacturer has any authority to alter the terms of this warranty in any way whatsoever or to make any representations or promises, express or implied, as to the quality or performance of IMT products other than those set forth above.

CHANGE IN DESIGN - IMT reserves the right to make changes in design or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

Effective January, 1985

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