

---

Manual Part # 99904241

# 7025/8025 Parts & Specifications

Effective 5-2007

Revision Date 20120417



IOWA MOLD TOOLING CO., INC.

PO Box 189

Garner, IA 50438

Tel: 641-923-3711 FAX: 641-923-2424

Website: <http://www.imt.com>

Copyright © 2012 Iowa Mold Tooling Co., Inc.  
All rights reserved

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of Iowa Mold Tooling Co., Inc.

**Iowa Mold Tooling Co., Inc. is an Oshkosh Corporation Company.**



# Contents

Revisions .....	iii
<b>Introduction</b>	<b>5</b>
<b>Specifications</b>	<b>7</b>
7025 & 8025 Specifications.....	8
7025 & 8025 Geometric Configuration .....	11
7025 Capacity Chart .....	12
8025 Capacity Chart .....	13
<b>Crane Reference</b>	<b>15</b>
Assemblies and Grease Zerk Locations .....	16
Recommended Spare Parts List .....	17
Crane Installation.....	18
Telescopic Crane Orientation .....	19
Crane Control.....	19
<b>Parts</b>	<b>21</b>
Parts Information .....	22
Base and Mast Assemblies .....	24
Base & Mast Assembly (99903963) .....	24
Base Weldment (52720144) .....	26
Crane & Winch Assembly (99904141).....	27
Winch Specifications (70570836) .....	30
Winch Parts (70570836).....	31
Lower Cylinder, 7025 (51720511) .....	35
Lower Cylinder, 8025 (71412365) .....	37
Valve Bank Assembly (51720184).....	39
Valve Bank Parts (73734513) (Eff. 1-10).....	40
Valve Bank (73734076).....	41
Counterbalance Valve (73540120) .....	43
Harness, Valvebank (77441204) (Eff. 8-1-06) .....	44
Boom Assemblies & Cylinders.....	46
Boom Assembly (99904232) .....	46
Extension Cylinder (51721022).....	49
Counterbalance Valve (73054900) .....	51
Hydraulics .....	52
Hydraulic Installation (99904113).....	52
Hydraulic Schematic (99903980-1) .....	57
Hydraulic System Specifications (99903980-2) .....	58
Controls .....	61
Controls Installation, Tethered (Kit 90719399/Dwg. 99903697) .....	61
Handle Assembly, Tethered Remote w/Engine Start (51719470) .....	62
Tethered Remote Calibration Mode .....	64

Controls Installation / Radio Remote (Kit 90719400/Dwg. 99903697) .....	67
Miscellaneous .....	68
Decal Placement, 7025 & 8025 (99904247).....	68
Installation Kit (93720655).....	70
Chassis Wiring Harness (99903340) .....	71

<b>General Reference</b>	<b>73</b>
--------------------------	-----------

---

Inspection Checklist .....	73
Deficiency / Recommendation / Corrective Action Report .....	78
Wire Rope Inspection & Replacement .....	80
Hook Inspection.....	81
Holding Valve Inspection .....	82
Anti-Two-Block Device Inspection .....	82
Thread Torques .....	83
Turntable Bearing Thread Tightening Sequence .....	86
Turntable Bearing Inspection.....	87
Turntable Bearing Tilt Test .....	87

## Revisions

DATE	LOCATION	DESCRIPTION
20070501		ECN 10438 - New release.
20070606		ECN 10489 - Changed items 9 and 10 on 71412365.
20070813	Lower Cylinder	ECN 10510 - 51720511 was 71412315.
	73540243	ECN 10559 - Added 73540243-VALVE-PROPORTIONAL 15 GALLON W/ COIL to parts lists for 51720184, 73734076, and to spare parts list.
20071016		Added crane orientation drawing, spare parts to 51719470 cable assembly. ECN 10559 - 73734076 valve bank spare parts changes.
20080123	73734076, 99904113	ECN 10573 - Revised hose routings, valvebank.
20080418	99904232, 73734076	ECN 10726 - Update to 99904232 hardware, added coil part to valve section on 73734076.
20080606	71056627	ECN 10767 - New gear-turntable bearing on 99903963.
	99904113	ECN 10774-Update hoses # 8,9
20100325	99903980	ECN 11102-2- Updated schematic due to stabilizer valvebank changes.
20100617	99903963, 51720184	ECN 11134 - 73734513 valvebank replaced 73734076
20100824	99904141	ECN 11304- Correction of item #13, was mis-identified
20111116		ECN 11628 - Updated stabilizer terminology
20120417	Cylinders	ECN 11615 - Removed wafer locks, added stop tubes.
		Added procedure for setting proportional remote.



---

## CHAPTER 1

# Introduction

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

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

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

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

Warranty of this unit will be void on any part of the unit subjected to misuse due to overloading, abuse, lack of maintenance and unauthorized modifications. No warranty - verbal, written or implied - other than the official, published IMT new machinery and equipment warranty will be valid with this unit. In addition, it is also the user's responsibility to be aware of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this unit. This crane was designed and built to meet the standards of ANSI/ASME B30.5, Mobile & Locomotive Cranes. Contact the American Society of Mechanical Engineers ([www.asme.org](http://www.asme.org)) for more information.

Throughout this manual, three means are used to draw the attention of personnel. They are NOTES, CAUTIONs and WARNINGs and are defined as follows:

### NOTE

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

### CAUTION

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

### WARNING

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

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





---

## CHAPTER 2

# Specifications

### In This Chapter

7025 & 8025 Specifications.....	7
7025 & 8025 Geometric Configuration.....	11
7025 Capacity Chart.....	12
8025 Capacity Chart.....	13

## 7025 & 8025 Specifications

CRANE RATING *	Model 7025 - 70,000 ft-lb (9.68 ton-meters) Model 8025 - 80,000 ft-lb (11.06 ton-meters)
REACH (from centerline of rotation)	24'-10" (7.60 m)
HYDRAULIC EXTENSION	108" (274.3 cm)
LIFTING HEIGHT (from base of crane)	27'-0" (8.23 m)
CRANE WEIGHT	3420 lb (1550 kg)
STABILIZER SPAN (required option)	15'-8" (4.57 m)
STORAGE HEIGHT (crane only)	50" (1.27 m)
MOUNTING SPACE REQUIRED (crane base)	24" x 33" (60.1 cm x 83.8 cm)
OPTIMUM PUMP CAPACITY (PTO Driven)	12 U.S. GPM (45.4 lpm)
OIL RESERVOIR CAPACITY	29 gallons (110 l)
SYSTEM OPERATING PRESSURE	2900 psi (200 bar)
HORIZONTAL CENTER OF GRAVITY (from centerline of rotation)	50" (127 cm)
VERTICAL CENTER OF GRAVITY (from bottom of crane base)	28" (71.1 cm)
TIE-DOWN BOLT PATTERN	20" x 29" (50.8 cm x 73.7 cm)
ROTATIONAL TORQUE	9000 ft-lb (1.2 ton-m)
* Crane rating (ft-lb) is the rated load (lb) multiplied by the respective distance (ft) from the centerline of rotation with all extensions retracted and lower boom in horizontal position.	

### Performance Characteristics

ROTATION	450° (7.85 Rad)	36 seconds stop to stop
LOWER BOOM ELEVATION	-10° to +80° (-0.17 Rad. to +1.40 Rad.)	16 seconds
EXTENSION CYLINDER	108" (274.3 cm)	19 seconds to extend
HORIZONTAL STABILIZER EXTENSION	56.5" (143.5 cm) (Right Side) 44.5" (113.2 cm) (Left Side)	7 seconds (Right Side) 4-5 seconds (Left Side)
VERTICAL STABILIZER EXTENSION	18" (45.7 cm)	7 - 8 seconds
WINCH	60 ft/min (18.3 m/min)	2nd wrap

### Cylinders

	Bore	Stroke
LOWER BOOM CYLINDER	Model 7025 - 6" (15.2 cm) Model 8025 - 6.5" (16.5 cm)	21-1/8" (53.7 cm)
EXTENSION BOOM CYLINDER	3" (7.6 cm)	108" (213.4 cm)
HORIZONTAL STABILIZER CYLINDER	1.25" (3.2 cm)	56.5" (143.5 cm) (Right Side Stabilizer) 44.5" (113.2 cm) (Left Side Stabilizer)
VERTICAL STABILIZER CYLINDER	3.5" (8.9 cm)	18" (45.7 cm)

### **Power Source**

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be used - minimum power required is 24 horsepower based on 12 GPM at 2900 PSI (45.4 liters/min. at 200 bar).

### **Rotation System**

Turntable bearing powered by a high-torque hydraulic motor through a ring-and-pinion type spur-gear train. Total gear reduction is 50.7 to 1.

### **Cylinder Holding Valves**

The base end of the extension cylinder and the extend side of the lower boom cylinder are equipped with counterbalance valves to prevent sudden cylinder collapse in the event of hose breakage or other hydraulic component failure.

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

### **Excessive Load Limit System (ELLS)**

Overloading of the crane is limited by the ELLS. This is done by disarming the crane functions which make possible the application of greater than allowable stress to the crane structure and components. Functions controlled by the ELLS are winch up, extension out and lower boom down. To relieve the situation, the operator may set the load down (winch down) or retract the extension boom (extension in).

### **Winch**

The winch is powered by means of a hydraulic motor driving a 59:1 planetary gear box. The winch may be operated at a line speed of 60 ft/min (18.3 m/min). Maximum single-line lifting capacity of the winch is 7000 lbs. (3175 kg.). The winch is equipped with 100 ft. (30.5 m) 1/2 in. (1.27 cm) 6 x 36 PRF LRL IWRC XIPS wire rope. Nylon sheaves are located at the tip of the extension boom and two-part line block. The ratio of winch drum and boom tip sheave pitch diameter to wire rope diameter is 18:1. The ratio of the two-part line sheave to wire rope diameter is 16:1. 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**

The hydraulic system is an open center, full pressure system requiring maximum flow of 12 GPM (45.4 liters/min.) at 2900 psi (200 bar). It is equipped with a four section, electric remote, stack type control valve. The system includes a separate hydraulic oil reservoir, suction line filter, diffuser, return line filter and control valve.

**MINIMUM CHASSIS SPECIFICATIONS**

BODY STYLE	Conventional Cab
WHEELBASE	189" (480.1 cm)
CAB-TO-AXLE	120" (304.8 cm)
RESISTANCE TO BENDING MOMENT	900,000 in-lb (10,373 kg-m)
FRAME SECTION MODULUS	19.2 cubic inches (314.7 cubic cm)
FRONT AXLE RATING (GAWR)	11,000 lb (4,990 kg)
REAR AXLE RATING (GAWR)	21,000 lb (9,526 kg)
TRANSMISSION	5 speed

In addition to these specifications, heavy duty electrical and cooling systems and dual rear wheels are required. IMT recommends that the vehicle be equipped with an engine tachometer, auxiliary brake lock, and power steering.

**NOTES:**

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

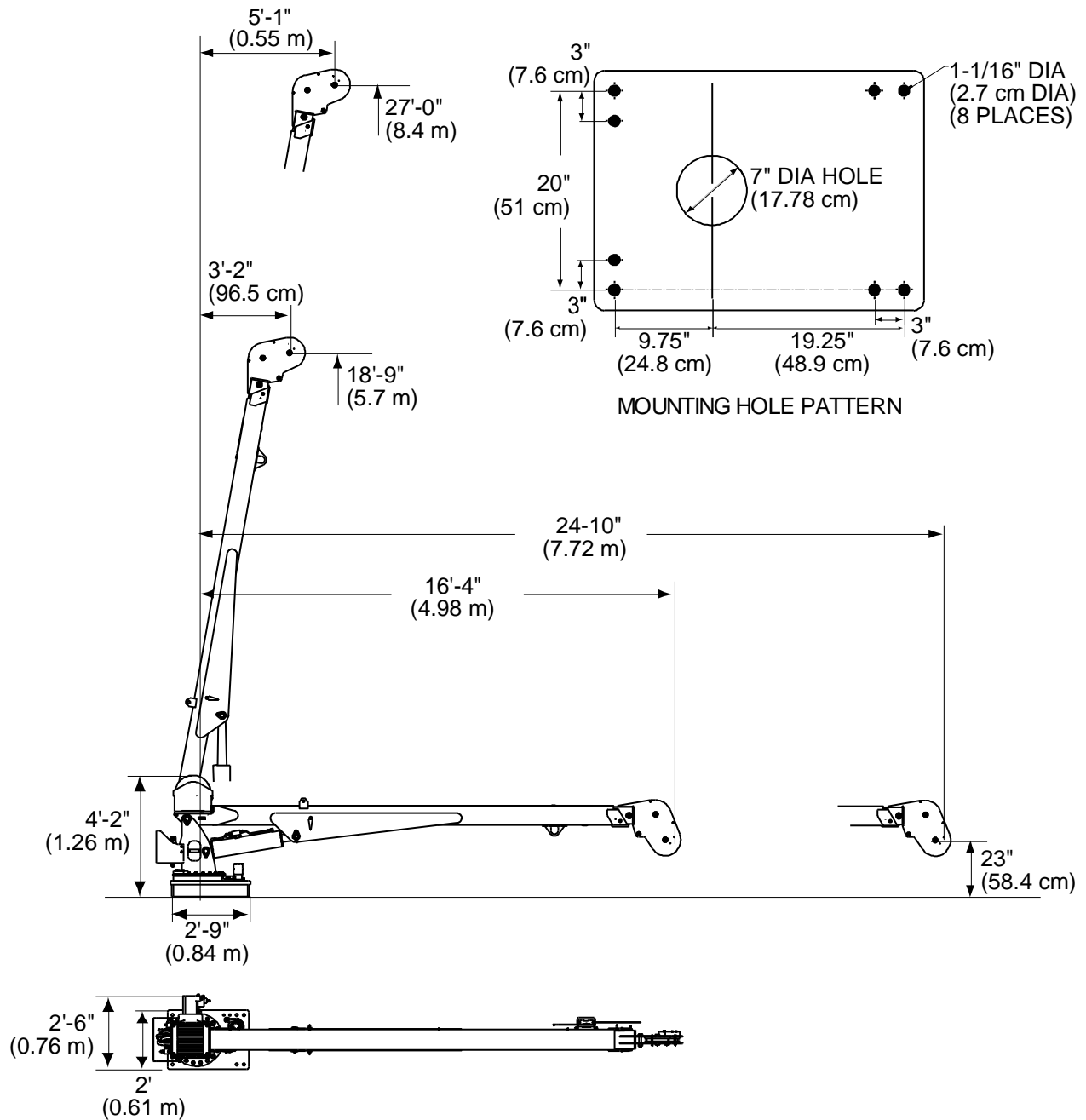
All chassis, crane and body combinations must be stability-tested to ensure stability per ANSI B30.5

---

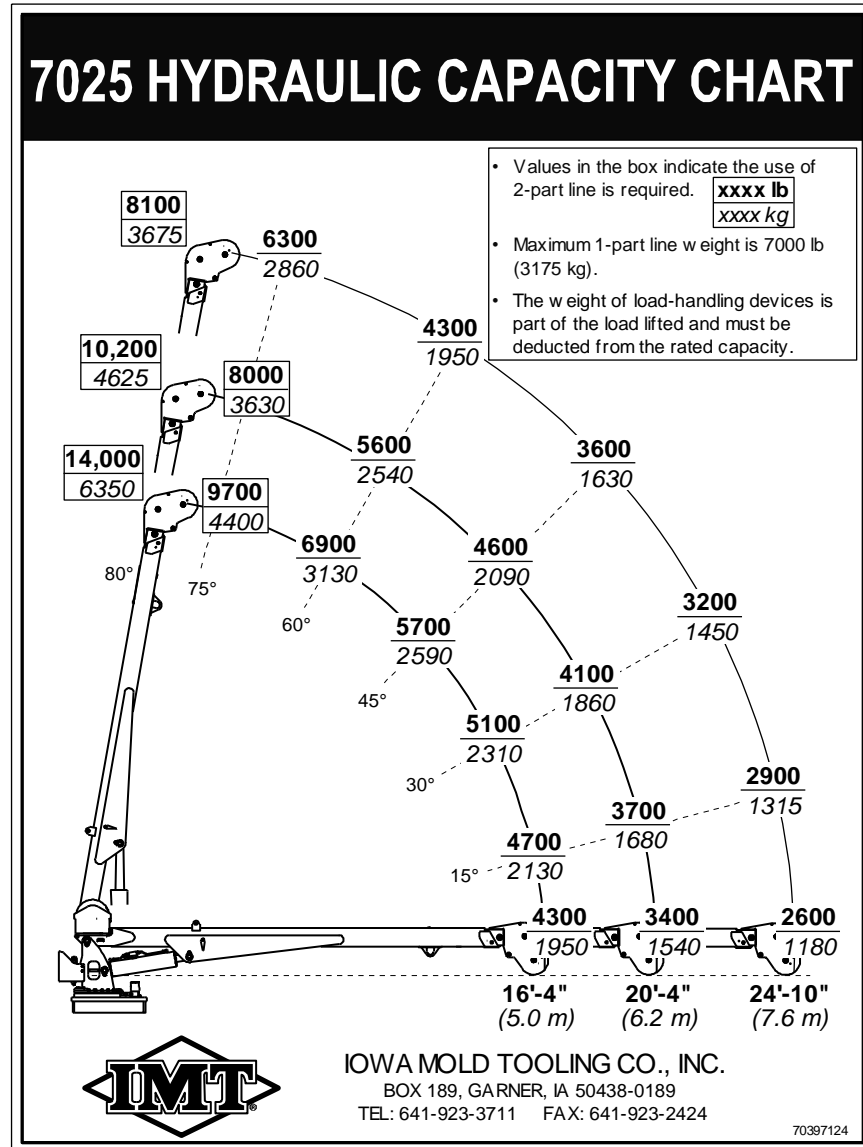
**Iowa Mold Tooling Co., Inc. reserves the right to change specifications and design without notice.**

---

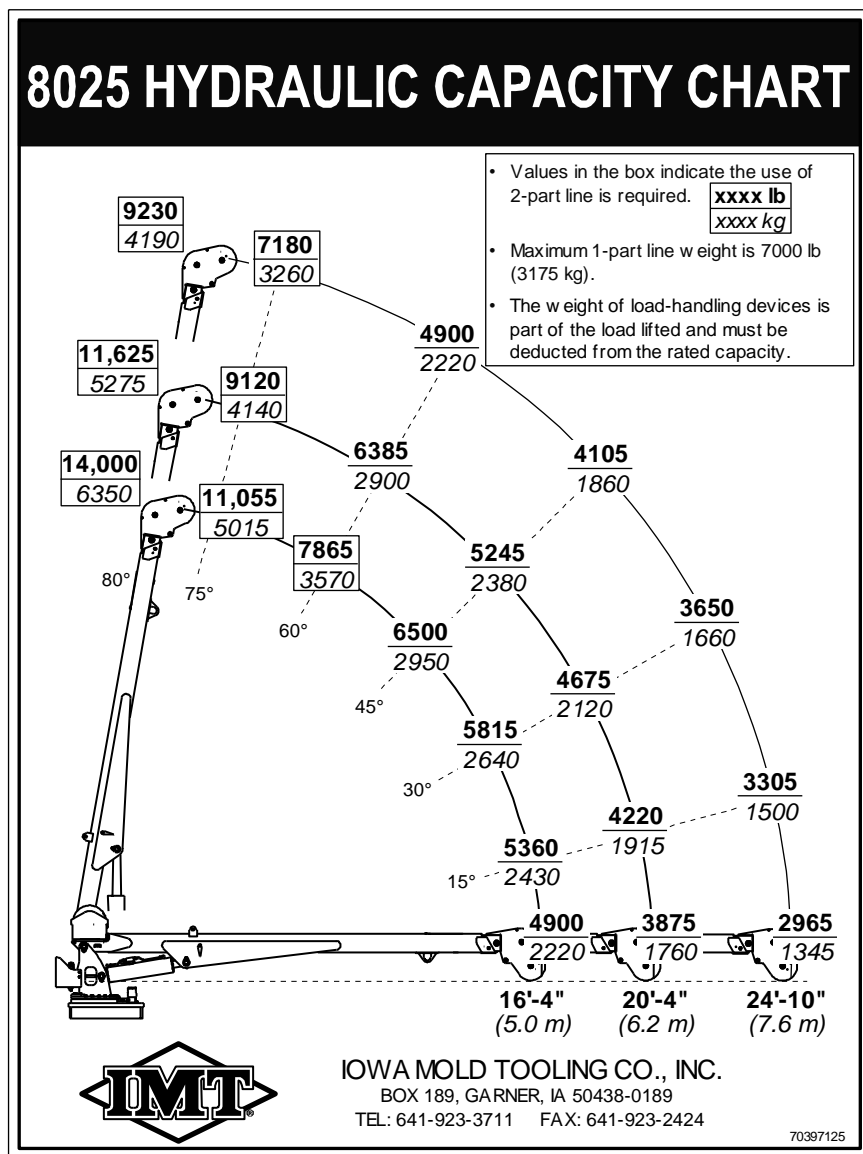
## 7025 & 8025 Geometric Configuration



## 7025 Capacity Chart



## 8025 Capacity Chart







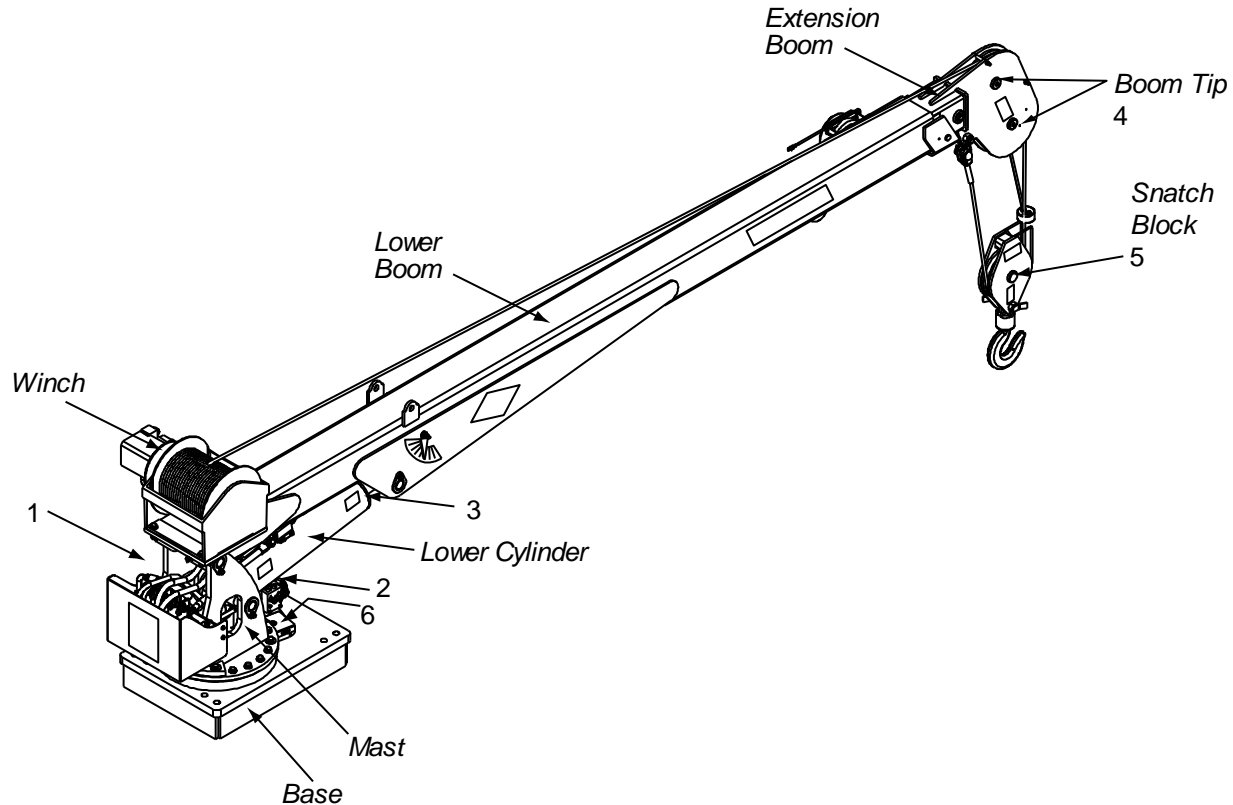
## CHAPTER 3

# Crane Reference

### In This Chapter

Assemblies and Grease Zerk Locations .....	15
Recommended Spare Parts List.....	16
Crane Installation .....	18
Telescopic Crane Orientation.....	19
Crane Control.....	19

## Assemblies and Grease Zerk Locations



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	Crane Base (Body Side)	Shell Alvania 2EP or Shell Retinax "A"	Weekly
2.	Lower Cylinder Base		
3.	Lower Cylinder Rod		
4.	Upper & Lower Sheave Pin		
5.	Snatch Block Sheave Pin		
6.	Pinion Gear		

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: Telescopic Crane Operation & Safety (99903514) for additional lubrication requirements.

## Recommended Spare Parts List

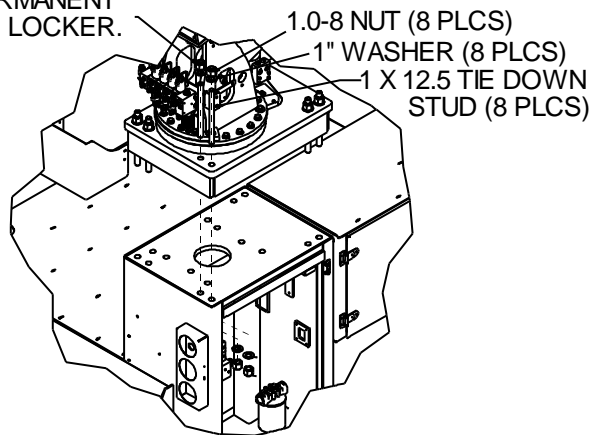
ASSEMBLY DESCRIPTION		
PART #	SPARE PART DESCRIPTION	QUANTITY
BASE & MAST ASSEMBLY (99903963)		
71056256	GEAR-PINION	1
MOTOR ASSEMBLY (73540004)		
73051941	COUNTERBALANCE VALVE	2
73540008	VALVE BLOCK	1
73051004	MOTOR	1
BASE WELDMENT (52720144)		
600210115	BUSHING	1
600210116	BUSHING	1
600210187	BUSHING	1
600210188	BUSHING	1
CRANE & WINCH ASSEMBLY (99904141)		
60030170	SHEAVE (PART OF 52720182 SNATCH BLOCK ASM)	1
70580185	CABLE ASSEMBLY	1
70074004	SAFETY LATCH FOR 4.5 TON HOOK	1
WINCH (70570836)		
73540247	COUNTERBALANCE VALVE	1
94397044	SEAL KIT	1
LOWER CYLINDER, 7025 (51720511)		
7BF81520	BUSHING	4
94396912	SEAL KIT	1
7BF82020	BUSHING	2
LOWER CYLINDER, 8025 (71412365)		
7BF81520	BUSHING	4
94396961	SEAL KIT	1
7BF82020	BUSHING	2
VALVE BANK (73734513)		
73540375	VALVE SECTION	4REF
73054208	PROPORTIONAL VALVE	1REF
73054212	COIL, PROPORTIONAL VALVE	1REF
73540243	VALVE-PROPORTIONAL 15 GALLON W/ COIL (INCL 73054208 & 73054212)	1REF
73054935	RELIEF VALVE	1REF
BOOM ASSEMBLIES & CYLINDERS (99904232)		
51720181	CORD REEL ASSEMBLY	1
60030365	WEAR PAD	1
60030364	WEAR PAD	1
60122985	WEAR PAD	2
77041291	LIMIT SWITCH	1
EXTENSION CYLINDER (51721022)		

51744124	SEAL KIT	1
60030004	WEAR PAD	2
HANDLE ASSEMBLY, TETHERED REMOTE (51719470)		
70394183	TRIGGER ASSEMBLY	1
77040371	TOGGLE SWITCH	2
77040372	TOGGLE SWITCH	4
77040373	TOGGLE SWITCH	2
77040374	TOGGLE SWITCH	1
INSTALLATION KIT (93720655)		
73052092	HYDRAULIC FILTER ELEMENT	1

---

## Crane Installation

TORQUE TIE DOWN  
STUD TO 200 FT-LB.  
USE PERMANENT  
THREAD LOCKER.

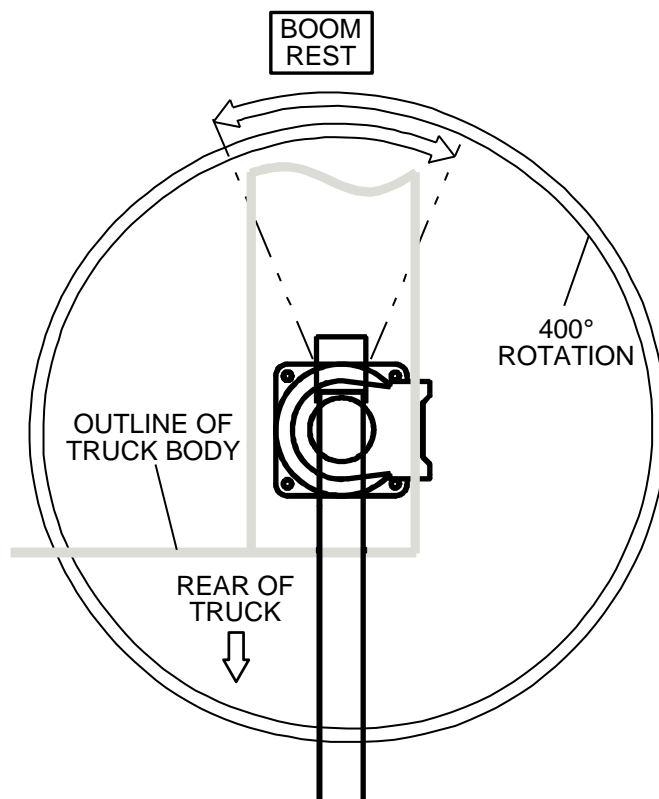


See 93720655 for more information.

---

## Telescopic Crane Orientation

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



---

## Crane Control

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



---

## CHAPTER 4

# Parts

### In This Chapter

Parts Information .....	22
Base and Mast Assemblies .....	24
Boom Assemblies & Cylinders .....	45
Hydraulics .....	52
Controls .....	61
Miscellaneous .....	68
General Reference .....	73

---

## Parts Information

### GENERAL

This section contains the exploded parts drawings and accompanying parts lists for the assemblies used on this crane. These drawings are intended to be used in conjunction with the instructions found in the maintenance and repair manuals for this crane family. For optional equipment such as winches and remote controls, refer to the appropriate service manual.

### WARNING

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

### CRANE IDENTIFICATION

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

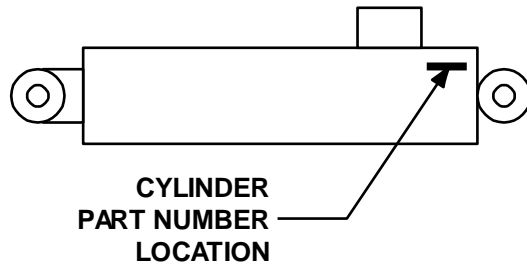
Iowa Mold Tooling Co., Inc.  
Box 189, Garner, IA 50438-0189  
Telephone: 641-923-3711  
Technical Support Fax: 641-923-2424

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



## CYLINDER IDENTIFICATION

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



## WELDMENT IDENTIFICATION

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

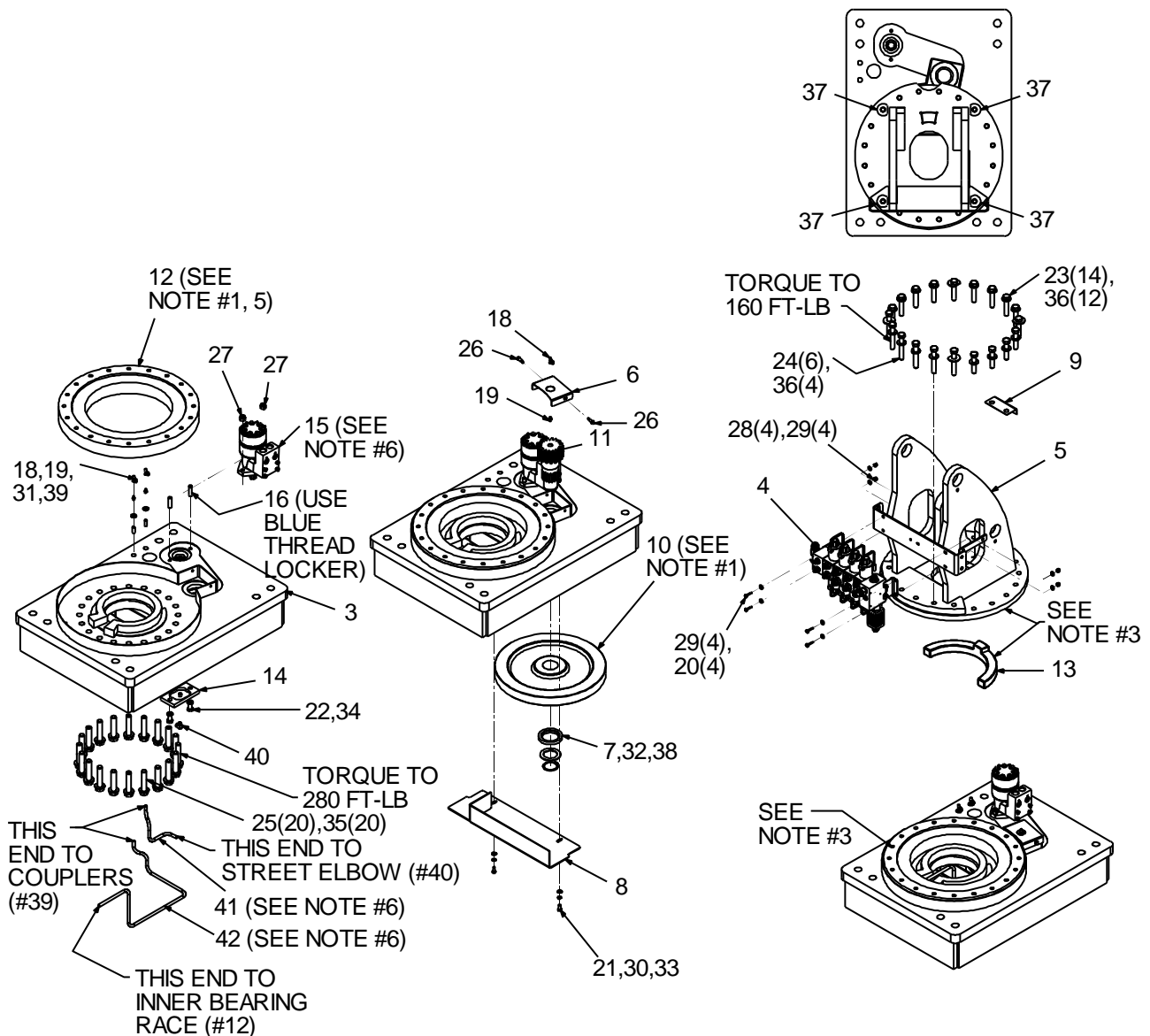
## ORDERING REPAIR PARTS

When ordering replacement parts:

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

## Base and Mast Assemblies

### Base & Mast Assembly (99903963)



#### NOTES:

- 1 INSTALL TURNTABLE GEAR (#12) FIRST, BEFORE INSTALLING INTERMEDIATE GEAR (#10).
- 2 USE 70034060 AS NEEDED TO SECURE WIRE HARNESS.
- 3 USE RUST PREVENTATIVE ON SLIDE STOP, STOP RACE AND BOTTOM OF MAST.
- 4 INSTALL HARNESS JUMPER AND CONNECTORS PER WIRING HARNESS DRAWING.
- 5 APPLY BLACK "MOLUB-ALLOY 936 SF HEAVY" GEAR GREASE TO TURNTABLE GEAR.

- 6 ROUTE HYDRAULIC MOTOR AND GREASE HOSES THROUGH BASE BEFORE ASSEMBLING ON BODY.
- 7 TORQUE MOUNTING BOLTS (ITEMS #23, 24, 25, 36) PER THE *Turntable Bearing Thread Tightening Sequence* (on page 86) INSTRUCTIONS IN THE GENERAL REFERENCE SECTION OF THIS MANUAL.

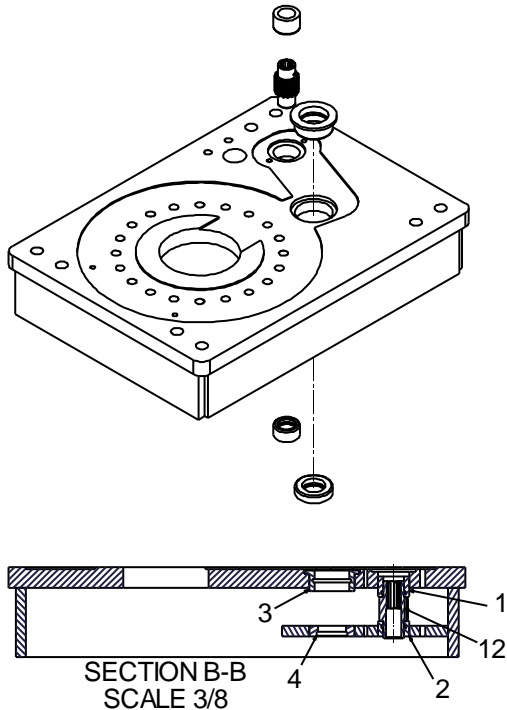
### WARNING

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 DEATH OR SERIOUS INJURY.

99903963 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51720176	HARDWARE KIT-BASE & MAST (INCL 16-39)	1
2.	91720181	HYDRAULIC KIT (INCL 40-42)	1
3.	52720144	BASE WELDMENT	1
4.	51720184	VALVE BANK ASSEMBLY	1
5.	52720145	MAST WELDMENT	1
6.	60130809	COVER-PINION GEAR	1
7.	60106886	SPACER-PINION GEAR 2.50 ID	1
8.	60130817	GUARD-GEAR INTERMEDIATE	2
9.	60110950	COVER-PINION GEAR 7025 MAST	1
10.	71056072	GEAR-INTERMEDIATE	1
11.	71056265	GEAR-PINION	1
12.	71056627	GEAR-TRNTBL BRG (WAS 71056361)	1
13.	71145016	CASTING-SLIDE 450DEG	1
14.	60010844	GREASE PLATE-DRIVE GEAR	1
15.	73540004	MOTOR ASM W/ CB	1
16.	60106032	STUD- .50-13X1.75	2
17.	70034060	TIE-PLASTIC .18W 8.00L BLACK	5
18.	70034382	CAP-GREASE PRO20 GC-RED	3
19.	72053508	ZERK-NPT .12	3
20.	72060004	CAP SCR .25-20X 1.00 HH GR5 Z	4
21.	72060023	CAP SCR .31-18X .75 HH GR5 Z	2
22.	72060092	CAP SCR .50-13X 1.25 HH GR5 Z	2
23.	72060177	CAP SCR .62-11X 3.00 HH GR8 Z	14
24.	72060178	CAP SCR .62-11X 4.00 HH GR8 Z	6
25.	72601295	CAP SCR .75-10X 3.50 HH GR8 Z	20
26.	72060833	SCR-THRD.CUT .31-18X.75 HWH-1	2
27.	72062080	NUT .50-13 HEX NYLOCK	2
28.	72062104	NUT .25-20 HEX NYLOCK	4
29.	72063001	WASHER .25 FLAT	8
30.	72063002	WASHER .31 FLAT	2
31.	72063003	WASHER .38 FLAT	2
32.	72063039	MACHY BUSHING 2.00X10 GA NR	1
33.	72063050	WASHER .31 LOCK	2
34.	72063053	WASHER .50 LOCK	2
35.	72063116	WASHER .75 N FLAT H ASTM F436Z	20
36.	72063119	WASHER .62 FLAT ASTM F436	16
37.	72063216	WASHER .62 N FLAT-CUT 3816	4

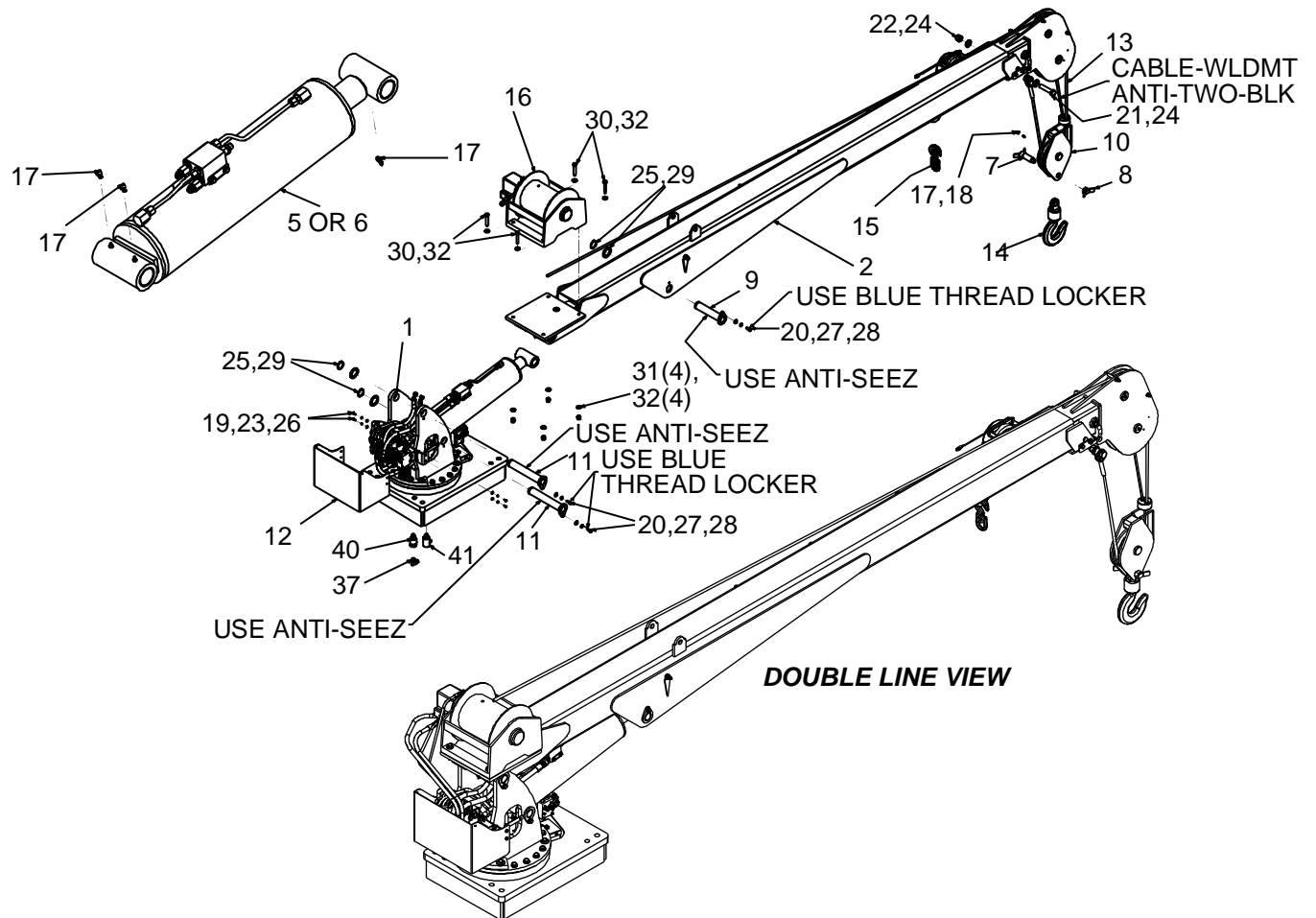
99903963 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
38.	72066095	RETAINING RING-EXT 2.00 STD	1
39.	72053301	COUPLING-BLK .12	2
40.	72053589	ELBOW-STREET STL .12 X 90 DEG	1
41.	51395124	HOSE-AA .13 X 22.50 (2-2)	1
42.	51395125	HOSE-AA .13 X 37.50 (2-2)	1
43.	77441204	HARNESS-TELE CRANE VALVE BANK	1
44.	77441191	HARNESS-PRESSURE SWITCH JUMPER	1
45.	77045945	CONNECTOR-PIN RECEIT	1
46.	77044668	PLUG-SEAL	2
REV. E 20080606			

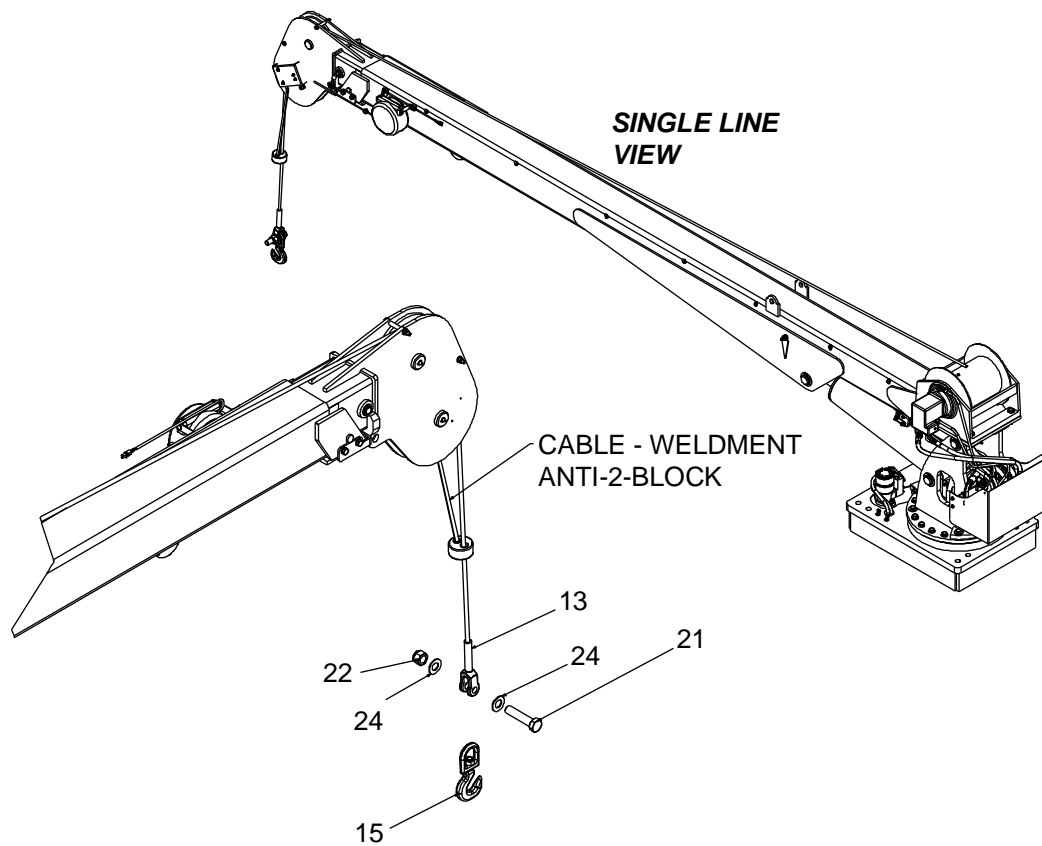
## Base Weldment (52720144)



52720144 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	60020115	BUSHING	1
2.	60020116	BUSHING	1
3.	60020187	BUSHING	1
4.	60020188	BUSHING	1
12.	71056011	PINION GEAR	1
REV. A 20060628			

## Crane & Winch Assembly (99904141)

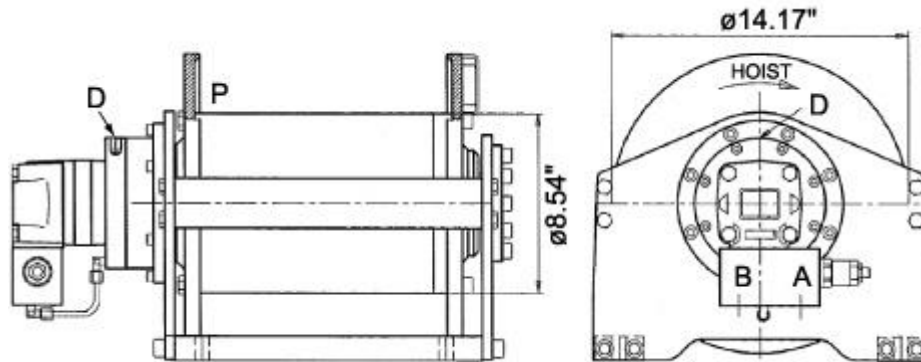


**99904141 PARTS LIST**

ITEM	PART #	DESCRIPTION	QUANTITY
1.	99903963	DRAWING-BASE & MAST ASSEMBLY	REF
2.	99903964	DRAWING-BOOM ASSEMBLY	REF
3.	51720747	HARDWARE KIT-CRANE & WINCH (INCL 17-29)	REF
4.	51720680	HARDWARE KIT-WINCH MOUNT (INCL 30-32)	REF
5.	51720511	CYLINDER (7025) (WAS 71412315)	REF
6.	71412365	CYLINDER (8025)	1
7.	52706664	PIN	1
8.	52706671	RETAINER-PIN W/NUT	1
9.	52720162	PIN	1
10.	52720182	SNATCH BLOCK WLDMT	1
11.	52720185	PIN	2
12.	60127985	COVER-VALVE BANK	1
13.	70580185	CABLE ASSEMBLY	1
14.	70731813	HOOK-SWIVEL	1
15.	71073035	HOOK-SWIVEL W/LATCH	1
16.	70570836	WINCH-PLANETARY 7770 LB LINE PULL	1
17.	70034382	CAP-GREASE	4
18.	72053508	ZERK-NPT .12	1
19.	72060002	CAP SCR .25-20X .75 HH GR5 Z	4
20.	72060091	CAP SCR .50-13X 1.00 HH GR5 Z	3
21.	72060247	CAP SCR 1.00- 8X 4.50 HH GR5 Z	1

99904141 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
22.	72062137	NUT 1.00-8 HEX NYLOCK	1
23.	72063001	WASHER .25 FLAT	4
24.	72063010	WASHER 1.00 FLAT	2
25.	72063039	MACHY BUSHING 2.00X10 GA NR	3
26.	72063049	WASHER .25 LOCK	4
27.	72063053	WASHER .50 LOCK	3
28.	72063132	WASHER .50 FLAT ASTM F436	3
29.	72066136	RETAINING RING-EXT 2.00 HD	3
30.	72060932	CAP SCR .62-11X 3.25 HH GR5 Z	4
31.	72062091	NUT .62-11 HEX NYLOCK	4
32.	72063007	WASHER .62 FLAT	8
REV A 20100824			

## Winch Specifications (70570836)



### WINCH SPECIFICATIONS

LAYER	LINE PULL (POUNDS)	LINE SPEED (FPM)	CAPACITY (FT)
1	7770	54	56
2	7000	60	119
3	6360	66	188
4	5830	72	263

### PERFORMANCE ESTIMATE

PRESSURE	2550 PSI
FLOW	12 GPM
MOTOR DISPLACEMENT	7.67 CI/REV
GEAR RATIO	15:1

### DRUM SPECIFICATIONS

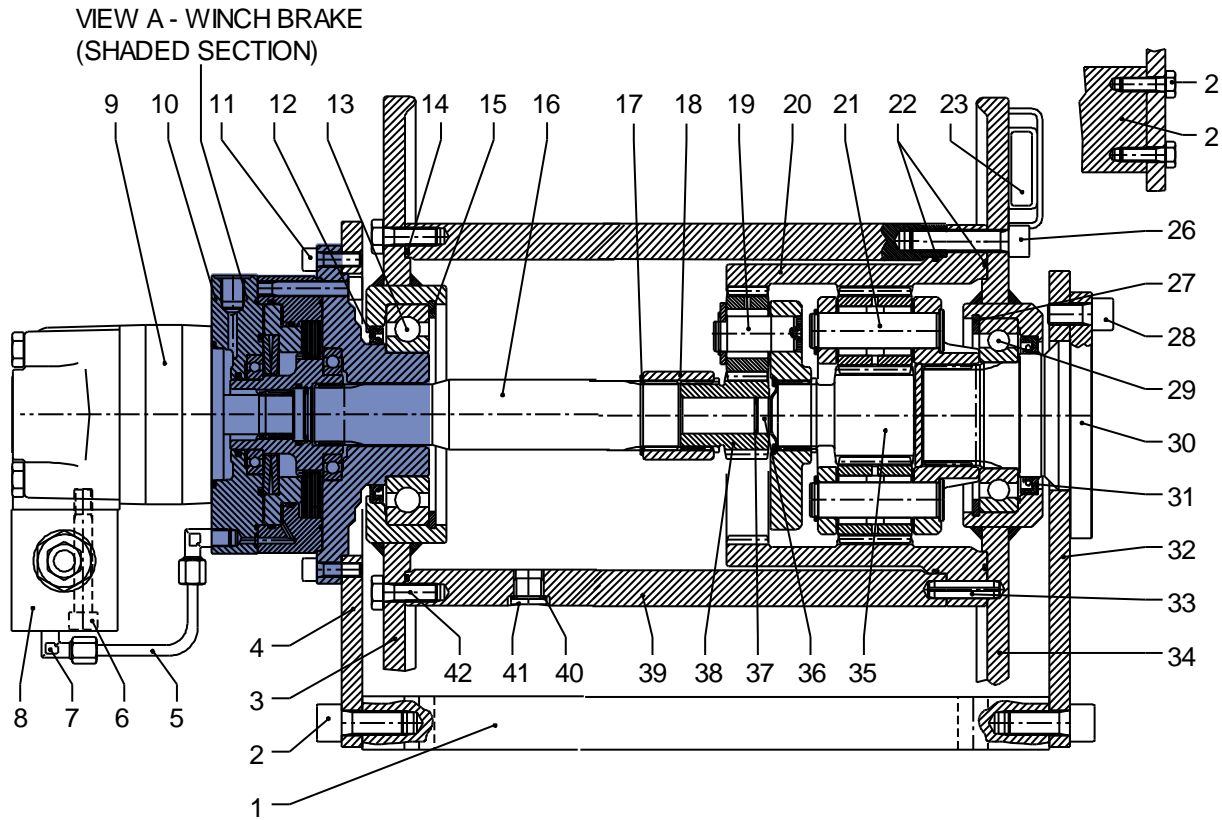
DRUM DIAMETER	8.54 INCHES
FLANGE DIAMETER	14.17 INCHES
ROPE	1/2" DIAMETER

### PORTS

A (HOISTING PORT)	3/4" BSPP
B (LOWERING PORT)	3/4" BSPP
D (MOTOR CASE DRAIN)	1/4" BSP
P (LUBRICATION OIL PLUG)	3/8" BSP

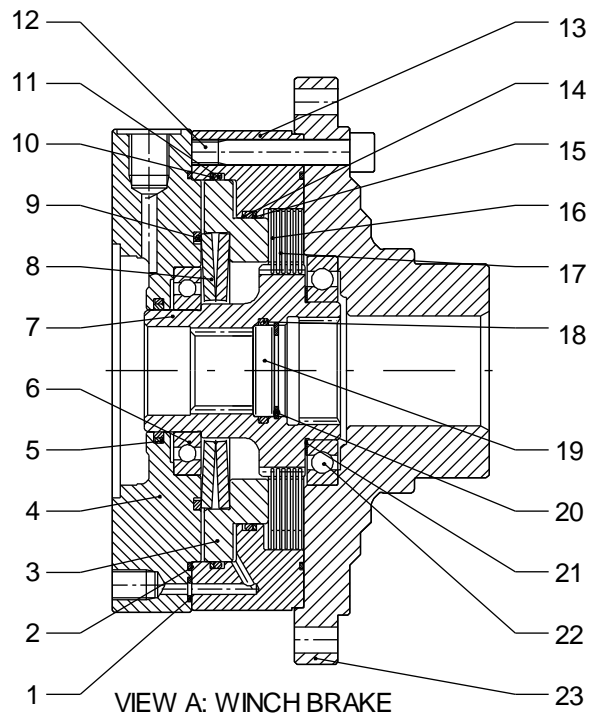


## Winch Parts (70570836)



70570836 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.		CROSS MEMBER (LOWER)	2
2.		SOCKET HEAD CAP SCREW	8
3.		SIDE PANEL, MOTOR SIDE	1
4.		SUPPORT, MOTOR SIDE	1
5.		PIPE	1
6.		SOCKET HEAD CAP SCREW	2
7.		90° CONNECTION (CONICAL)	2
8.	73540344	DUAL COUNTERBALANCE VALVE ASSEMBLY (WAS 73540247)	1
9.	73540248	HYDRAULIC MOTOR	1
10.	71056622	BRAKE UNIT	1
11.		SOCKET HEAD CAP SCREW	8
12.	PART OF 94397044	OIL RETAINER SEAL	1
13.		BALL BEARING	1
14.	PART OF 94397044	O-RING JOINT	1
15.	72661627	RETAINING RING, INTERNAL, LH	1
16.		PROPELLER SHAFT	1

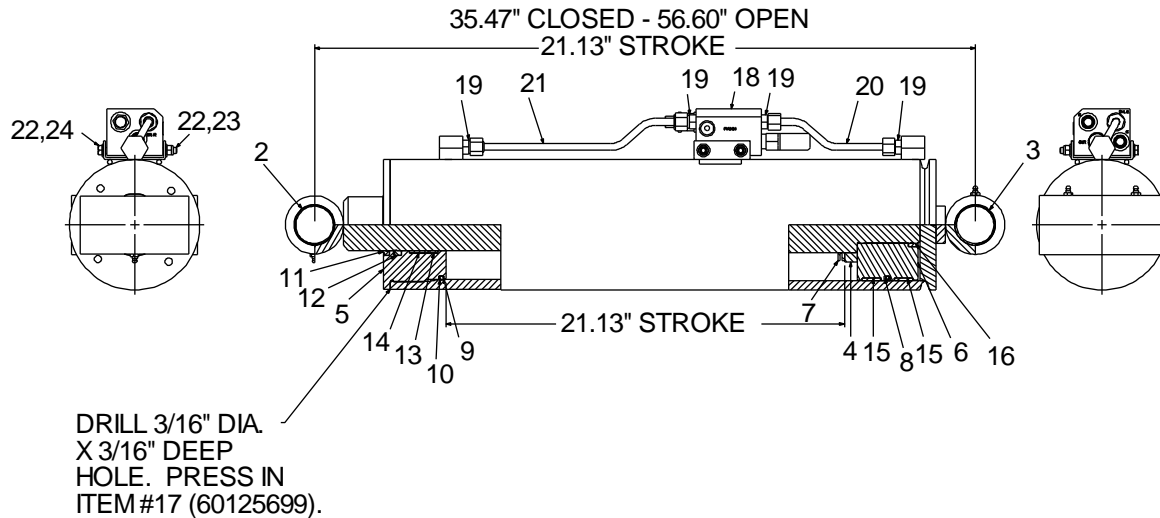
70570836 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
17.		RETAINING RING	1
18.		SLEEVE	1
19.		REDUCTION GEAR UNIT	1
20.		SPUR RING	1
21.		SHAFT	1
22.	PART OF 94397044	O-RING JOINT	2
23.		THIMBLE	1
24.		HEX SCREW	8
25.		CROSS MEMBER (UPPER)	2
26.		SOCKET HEAD CAP SCREW	6
27.	72661628	RETAINING RING, INTERNAL, RH	1
28.		SOCKET HEAD CAP SCREW	10
29.		BALL BEARING	1
30.		ANTI-ROTATION FLANGE	1
31.	PART OF 94397044	OIL RETAINER SEAL	1
32.		GEAR SIDE SUPPORT	1
33.		SPRING PIN	2
34.		REDUCTION GEAR SIDE BODY	1
35.		DRIVE SHAFT	1
36.		INSERT	1
37.		RETAINING RING	1
38.		SUN GEAR	1
39.		WINCH DRUM	1
40.		COPPER WASHER	1
41.		PLUG	1
42.		HEX SCREW	6
REF	94397044	SEAL KIT (INCL. 12,14,22,31)	1
REV 20081021			

**70570836 WINCH BRAKE**

70570836 WINCH BRAKE PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.		O-RING JOINT	1
2.		O-RING JOINT	2
3.		PISTON	1
4.		FLANGE	1
5.	PART OF 94397044	SEAL	1
6.		BALL BEARING	1
7.		GEAR	1
8.	72063237	BELLEVILLE WASHER	2
9.		SHOULDER RING	1
10.	PART OF 94397044	O-RING JOINT	1
11.		ANTI-EXTRUSION RING	1
12.		SOCKET HEAD CAP SCREW	8
13.		BRAKE BODY	1
14.		O-RING JOINT	1
15.		ANTI-EXTRUSION RING	1
16.	71412640	DISC, FRICTION	7
17.	71412641	DISC, BRAKE	6
18.		O-RING JOINT	1
19.		INSERT	1
20.		RETAINING RING	1

70570836 WINCH BRAKE PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
21.		SHIM RING	1
22.		BALL BEARING	1
23.		SUPPORTING FLANGE	1
REF	94397044	SEAL KIT (INCL 5,10)	1

## Lower Cylinder, 7025 (51720511)



### NOTES:

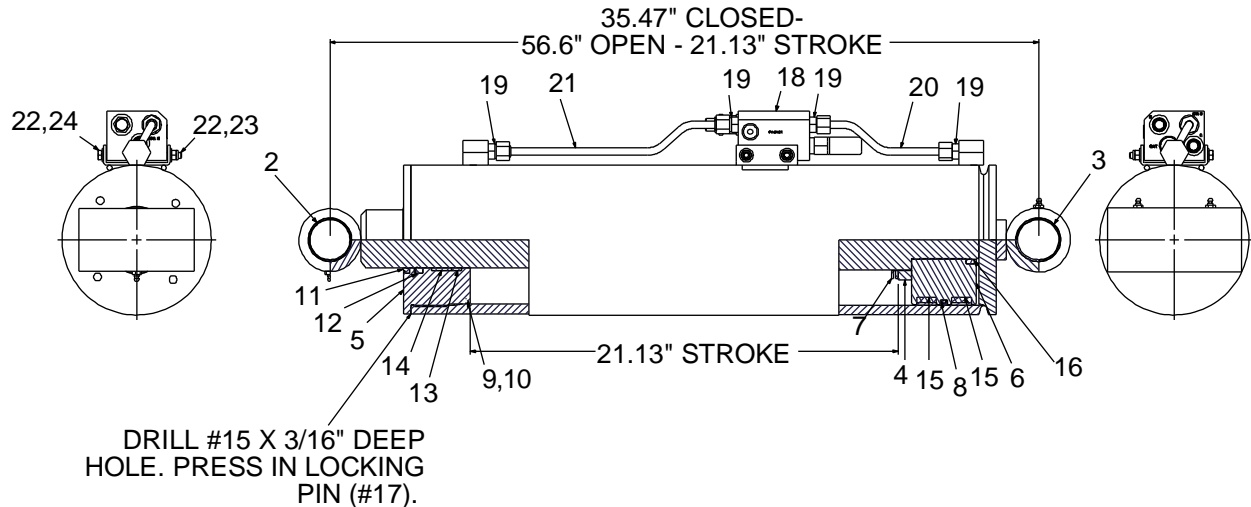
- 1 REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED.
- 2 APPLY REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO THREADS ON CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.
- 3 APPLY "LUBRIPLATE" NO. 630-2 MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT, TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RINGS, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.
- 4 ITEM #7, STOP TUBE, REPLACES 6A025030 WAFER LOCK. USE STOP TUBE INSTEAD OF WAFER LOCK WHEN RESEALING CYLINDER.

51720511 CYLINDER DATA	
EXTENDED	28.26 IN <sup>2</sup> , 2.58 GAL
RETRACTED	21.21 IN <sup>2</sup> , 1.94 GAL
CASE	7.00" x 6.00" X 28.69" LONG
ROD	3.00" x 30.94" LONG
DRY WEIGHT	216.32 LB
TEST PRESSURE	3500 PSI
MAX. OPERATING PRESSURE	3000 PSI
PORTS	SAE #6 O-RING BOSS (9/16-18 UNF-2B)
CYLINDER CASE BURST PRESSURE	12,143 PSI
TORQUES	PISTON TO ROD: 710 - 740 FT-LB
	HEAD: 625 FT-LB
	CARTRIDGE: 65 FT-LB
	CAP SCREW 16 FT-LB

51720511 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	94396912	SEAL KIT (INCL: 7-17)	1
2.	52720282	ROD ASM	1
3.	52720283	CASE ASM	1
4.	60129955	STOP TUBE	1

51720511 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
5.	60130011	HEAD	1
6.	60130012	PISTON	1
7.	60138277	STOP TUBE (WAS 6A025030)	1
8.	76396909	SEAL- PISTON	1
9.	7Q072358	O RING	1
10.	7Q10P358	BACKUP RING	1
11.	7R14P030	ROD WIPER	1
12.	7R546030	U-CUP LOADED	1
13.	7T2N4032	WEAR RING-ROD	1
14.	7T2N8032	WEAR RING-ROD	1
15.	7T2N8060	WEAR RING-PISTON	2
16.	7T61N200	LOCK RING-NYLON	1
17.	60125699	PIN - LOCK TUBE	1
18.	73540120	VALVE-CBAL	1
19.	72533186	ADPTR-M FACE/M STR 6 6	4
20.	70145753	TUBE ASM	1
21.	70146258	TUBE ASM	1
22.	72060037	CAP SCR .31-18X 4.00 HH GR5 Z	2
23.	72062109	NUT .31-18 HEX NYLOCK	2
24.	72063002	WASHER .31 FLAT	4
REV B 20120417			

## Lower Cylinder, 8025 (71412365)



### NOTES:

- 1 TO REDUCE DOWNTIME, REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED.
- 2 APPLY NEVER-SEEZ REGULAR GRADE ANTI-SIEZE AND LUBRICATING COMPOUND TO CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.
- 3 APPLY LUBRIPLATE #630-2 MEDIUM HEAVY MULTI-PURPOSE LUBRICANT TO ALL PISTON, HEAD GLAND AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.

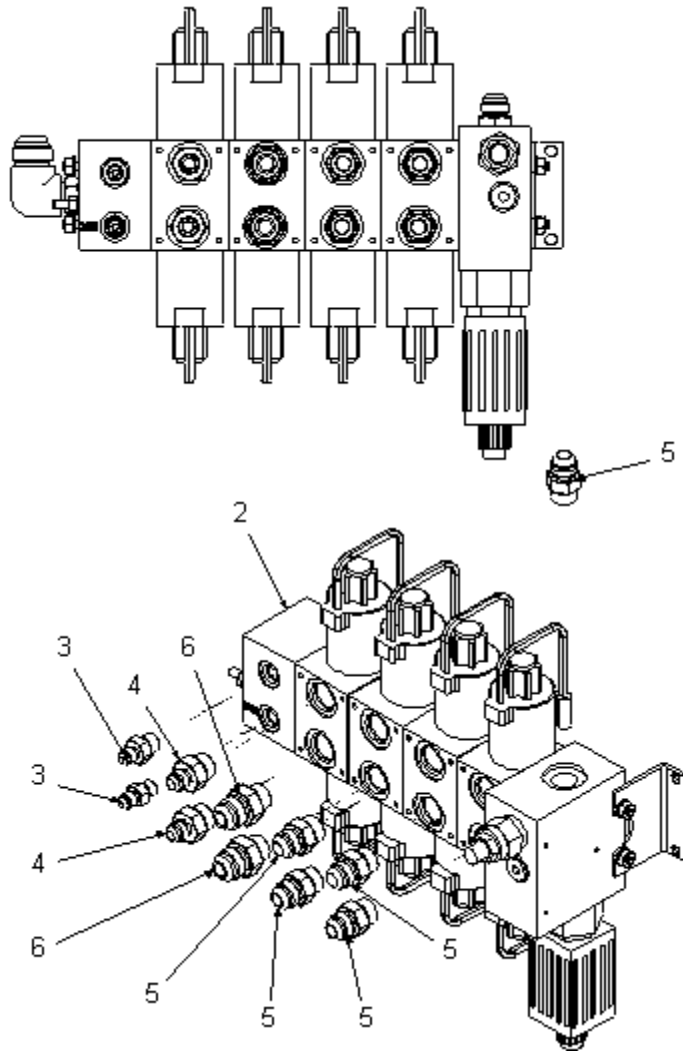
CYLINDER DATA	
EXTENDED	28.26 IN <sup>2</sup> , 3.04 GAL
RETRACTED	21.21 IN <sup>2</sup> , 2.39 GAL
CASE	7.50" X 6.50" X 28.69"
ROD	ø3" X 30.94"
DRY WEIGHT	216.32#
TEST PRESSURE	3500 PSI
OPERATING PRESSURE	3000 PSI
PORTS	SAE #8 O-RING BOSS (3/4-16 UNF-2B)
CYLINDER TUBE BURST PRESSURE	11,333 PSI
TORQUES	PISTON TO ROD: 710-740 FT-LB
	HEAD GLAND TO CYLINDER: 650 FT-LB

71412365 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	94396961	SEAL KIT (INCL: 7-16)	1
2.	52720282	ROD ASSEMBLY	1
3.	52720513	CASE ASSEMBLY	1
4.	60129955	STOP TUBE	1
5.	60130706	HEAD	1
6.	60130707	PISTON	1
7.	6A025030	WAFER LOCK- IMT 2.25	1
8.	76396960	PISTON SEAL	1

71412365 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
9.	7Q072437	O RING 6.00X 6.50X .25	1
11.	7R14P030	ROD WIPER	1
12.	7R546030	U-CUP LOADED 3.00X3.50X.38 B	1
13.	7T2N4032	WEAR RING-ROD 3.00 ID X .50W	1
14.	7T2N8032	WEAR RING-ROD 3.00 ID X 1.00W	1
15.	7T2N8065	WEAR RING-PISTON 6.50 ODX1.00W	2
16.	7T61N200	LOCK RING-NYLON 2.00in.	1
17.	60125699	PIN - LOCK TUBE 0.19 OD X 0.065 WALL	1
18.	73540120	VALVE-CBAL	1
19.	72533186	ADPTR-M FACE/M STR 6 6	4
20.	70145753	TUBE ASM	1
21.	70146258	TUBE ASM	1
22.	72060037	CAP SCR .31-18X 4.00 HH GR5 Z	2
23.	72062109	NUT .31-18 HEX NYLOCK	2
24.	72063002	WASHER .31 FLAT	4
REV. C 20120417			



## Valve Bank Assembly (51720184)



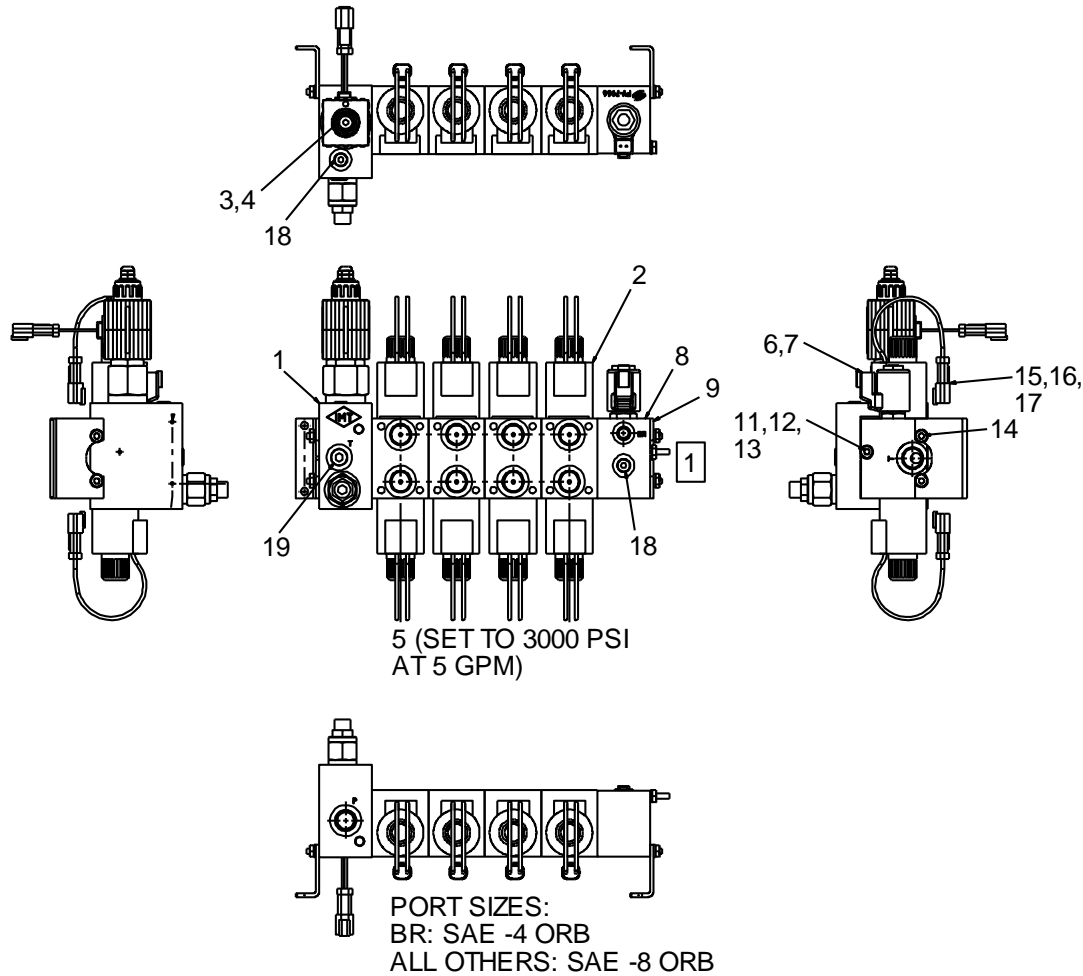
51720184 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	91720183	VALVE BANK HYD KIT (INCL 3-6)	1
2.	73734513	VALVE BANK ASM-4-SECT W/BRAKE 15 GPM TEL (WAS 73734076)	1
3.	72532351	ADPTR #4MSTR #4MJIC	1
4.	72532356	ADPTR-M STR/M JIC 8 6	2
5.	72532358	ADPTR-M STR/M JIC 8 8	5
6.	72532361	ADPTR-M STR/M JIC 8 10	2
REV B 20100615			

73734513 EFFECTIVE 7025S2101001.

## Valve Bank Parts (73734513) (Eff. 1-10)

VALVE BANK PARTS (73734513)		
73540375	VALVE SECTION	4REF
73054208	PROPORTIONAL VALVE	1REF
73054212	COIL, PROPORTIONAL VALVE	1REF
73540243	VALVE-PROPORTIONAL 15 GALLON W/ COIL (INCL 73054208 & 73054212)	1REF
73054935	RELIEF VALVE	1REF

## Valve Bank (73734076)



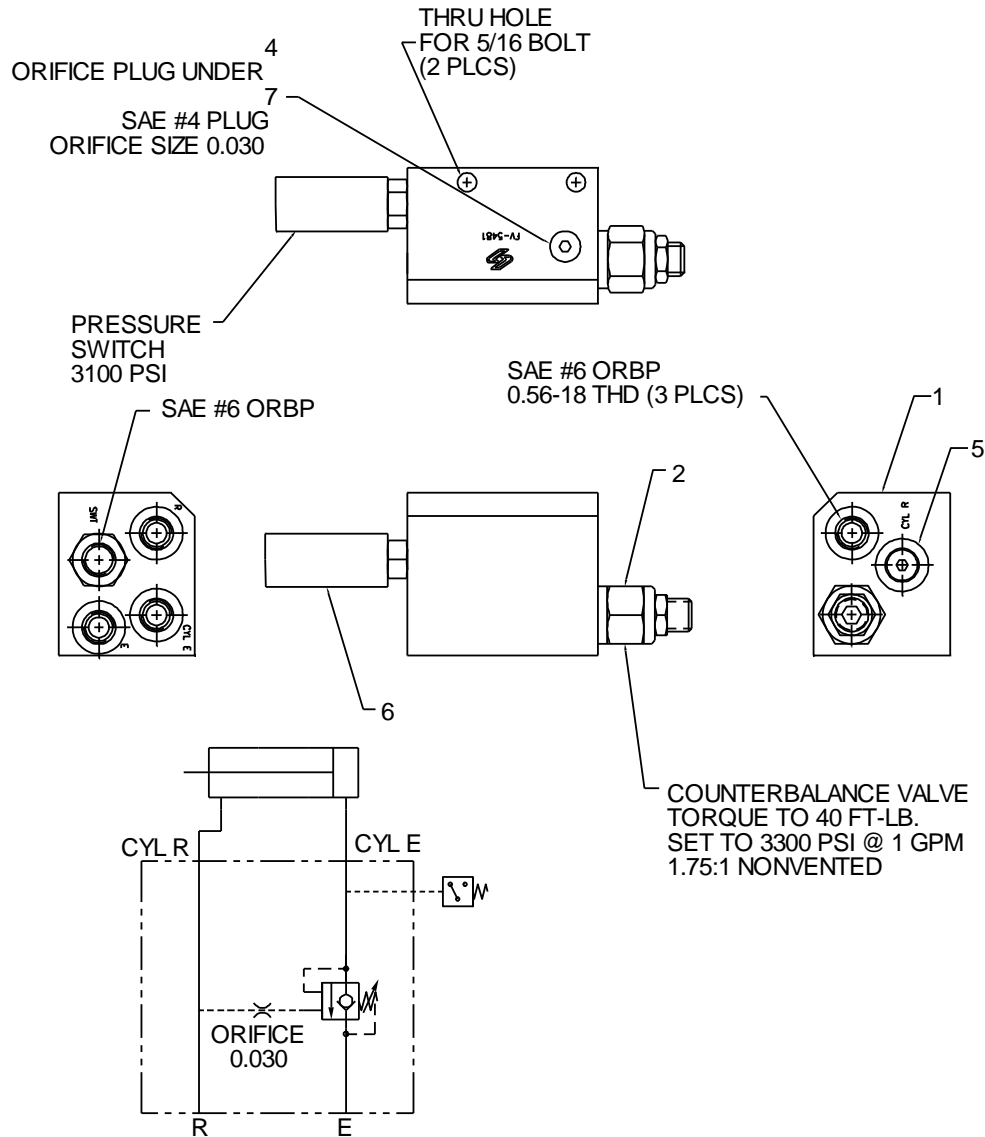
### NOTES (SEE REFERENCE NUMBER IN BOX):

1 ADD 72533623 ELBOW - #8 MALE STRAIGHT / 90° / #12 MALE JIC TO END VALVE BODY #8 (72534211).

73734076 PARTS LIST				
ITEM	PART #	DESCRIPTION	QUANTITY	TORQUE
1.	73540028	BLOCK-INLET VB	1	
2.	73540375	VALVE-SECTION W/SOLENOID (WAS 73054214, 73054207) (COIL ONLY - 70734468)	4	
3.	73540243	VALVE-PROP FLOW CONTROL 15 GPM	1	100 FT LB
4.	73054212	COIL-PROPORTIONAL VALVE 12VDC-36W (PART OF #3)	1REF	
5.	73054935	VALVE-RELIEF	1	38 FT LB
6.	73540255	VALVE-SOLENOID (INCL. COIL 73540256)	1	30 FT LB
7.	73540256	VALVE-12VDC DEUTSCH COIL	1	
8.	73054211	VALVE-BODY	1	

73734076 PARTS LIST				
ITEM	PART #	DESCRIPTION	QUANTITY	TORQUE
9.	.	MOUNTING FOOT	2	
10.	.	N90 DURO O-RING	2	
11.	72063049	WASHER .25 LOCK ZINC	5	
12.	72062000	NUT .25-20 HEX ZINC	5	58 IN LB
13.	71412306	ROD-THREADED 25-20X 11.75	1	
14.	71412307	ROD-THREADED 25-20X 13.50	2	
15.	77045945	CONNECTOR - DT 2 PIN RECEPT	9	
16.	77045946	LOCK-WEDGE DT 2 POSITION PIN	9	
17.	77044621	PIN-CONTACT 70141	18	
18.	72533477	PLUG-STR HOL HEX STL .44 THD	2	107 IN LB
19.	72533603	PLUG-STR HOL HEX STL .56	1	225 IN LB
20.		EXPANSION PLUG, 9 mm	1	
21.	72533623	ELBOW - #8 MALE STRAIGHT / 90° / #12 MALE JIC	1REF (NOT SHOWN)	
REV D 20100615				

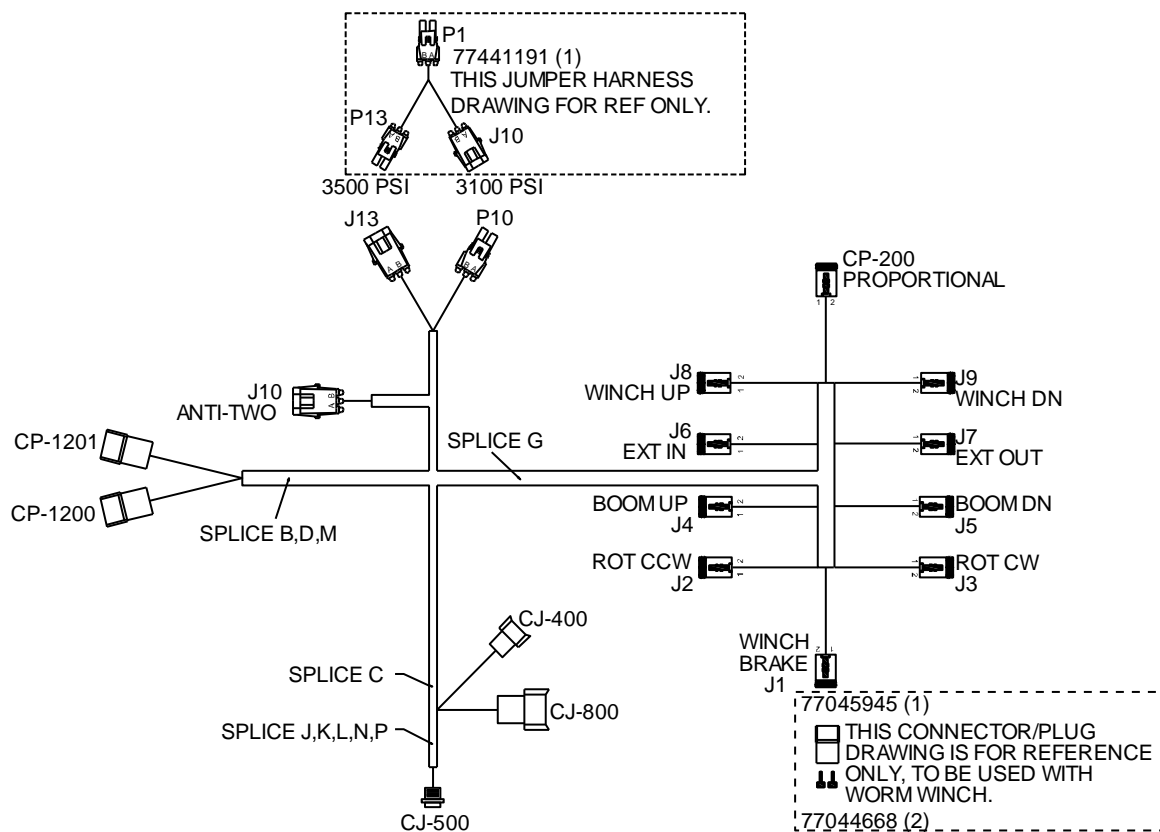
## Counterbalance Valve (73540120)



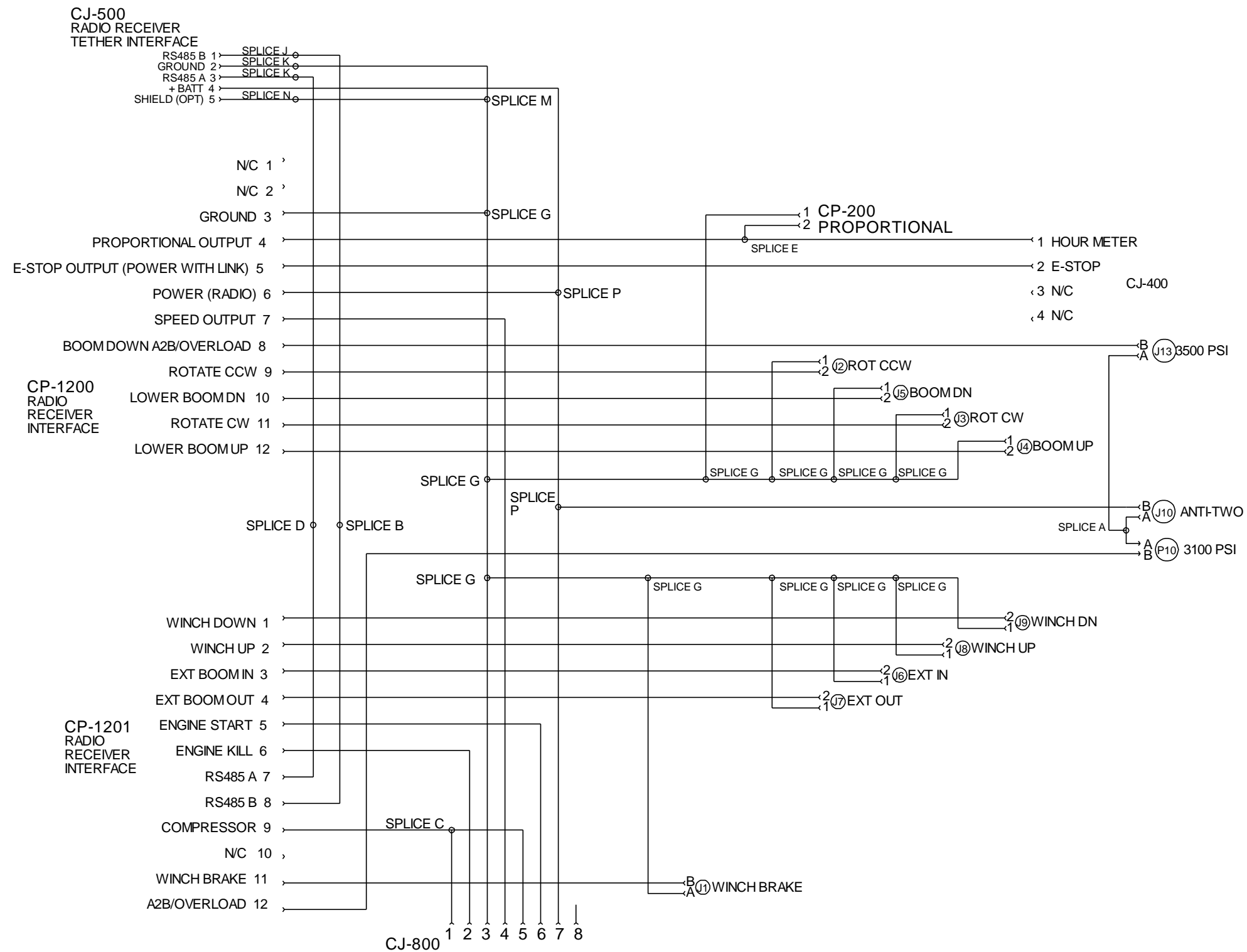
### 73540120 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	73540149	COUNTERBALANCE VALVE	1
2.	73540052	COUNTERBALANCE VALVE	1
3.			
4.	70145750	ORIFICE FV-1147	1
5.	72533603	PLUG-STR HOL HEX STL 0.56	1
6.	77041625	PRESSURE SWITCH	1
7.	72533477	PLUG-STR HOL HEX STL 0.44 THD	2
REV. B 20060606			

## Harness, Valvebank (77441204) (Eff. 8-1-06)

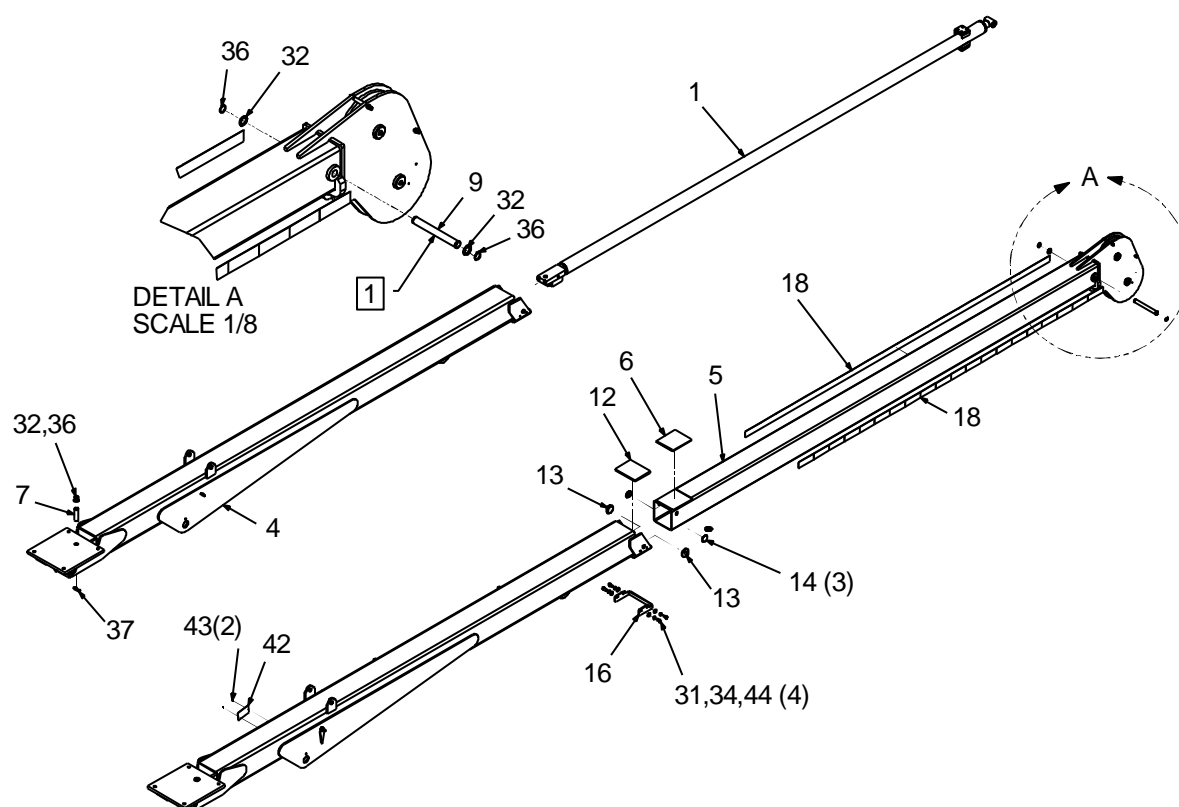


## 77441204 ELECTRICAL SCHEMATIC

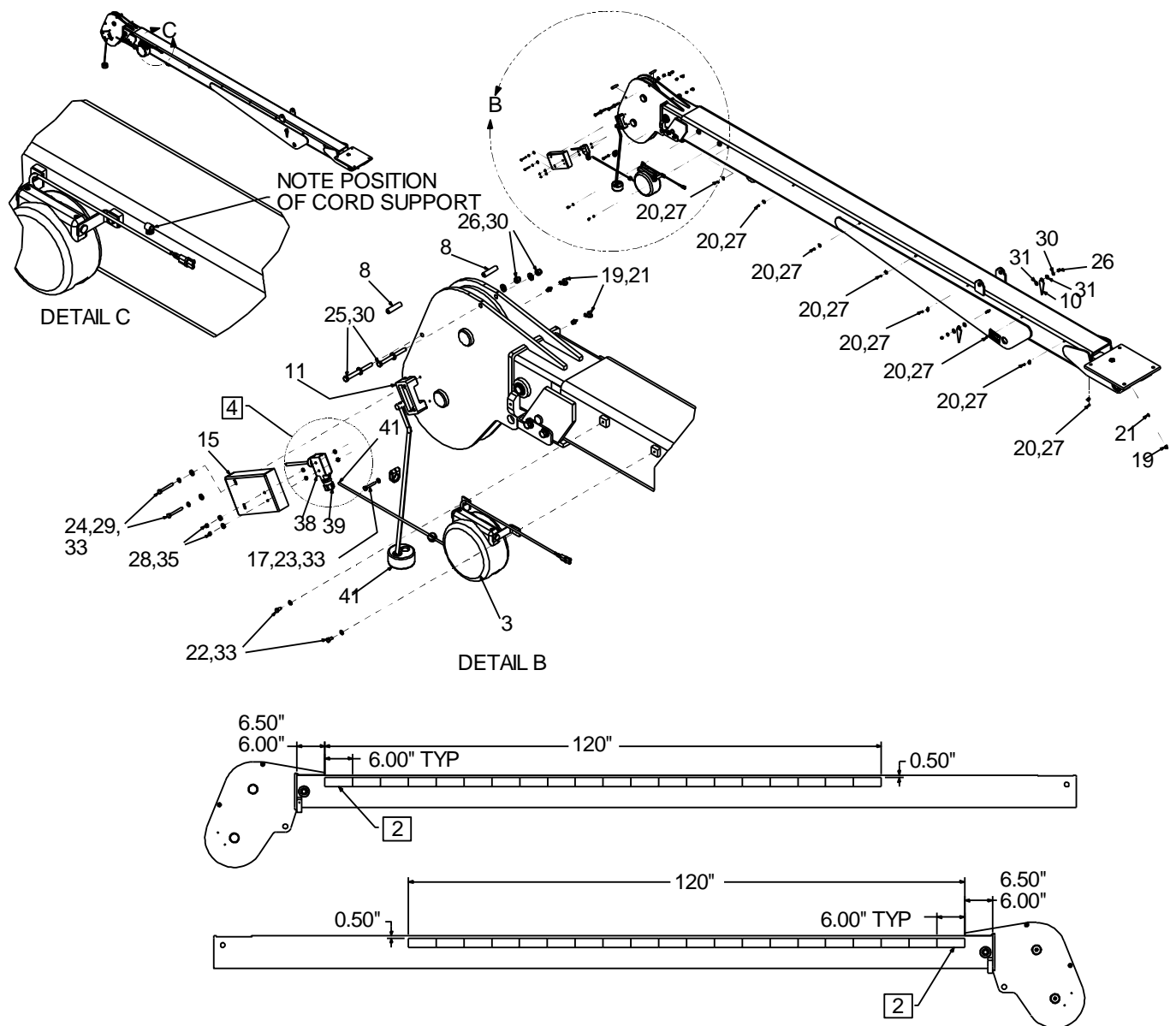


## Boom Assemblies & Cylinders

### Boom Assembly (99904232)







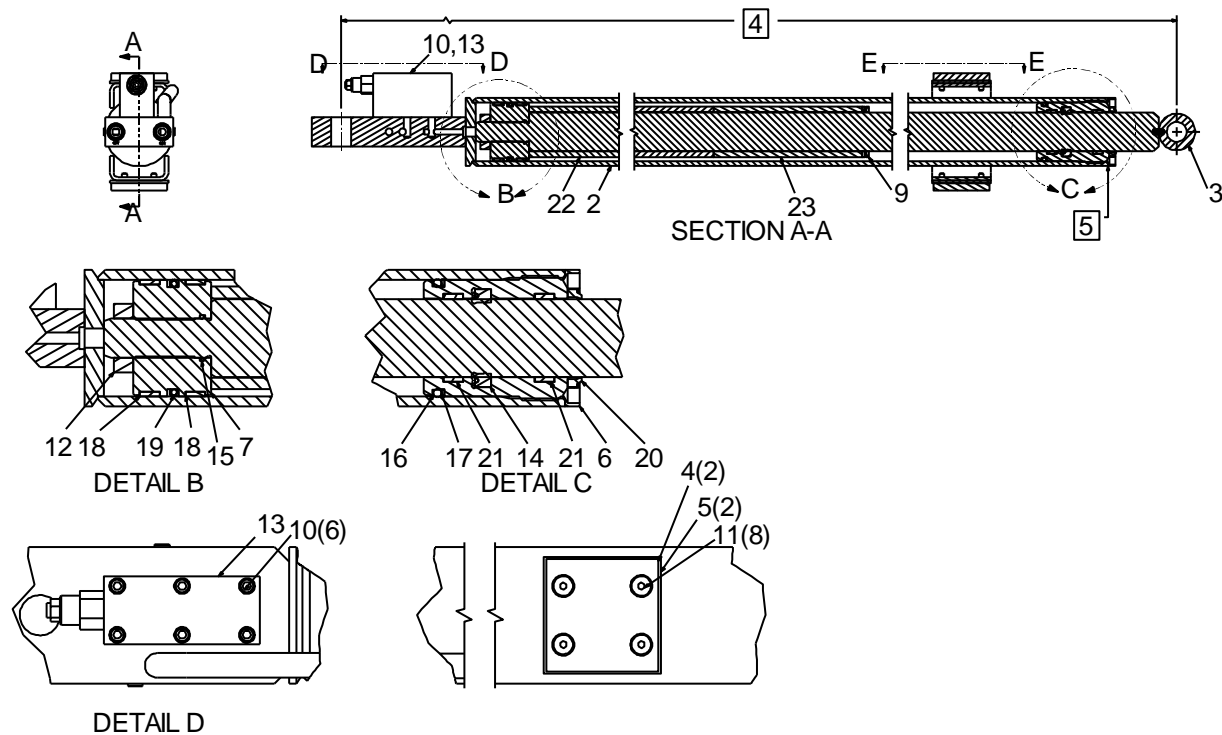
### NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN • ):

- 1 APPLY NEVER-SEEZ TO PIN.
- 2 APPLY BOOM LENGTH INDICATOR TAPE ON BOTH SIDES OF BOOM AND EXTENSION. START WITH RED SEGMENT. START WITH RED SEGMENT.
- 3 PART OF CORD REEL.
- 4 PART OF SWITCH. CONNECT CORD REEL WIRE TO ANTI-TWO-BLOCK SWITCH. WIRES CONNECT TO "NORMALLY CLOSED" AND "COMMON".

99904232 PARTS LIST				
ITEM	PART #	DESCRIPTION	KIT #	QUANTITY
1.	51721022	CYL-3.00/2.00 X 102.00S 175.25 CCC		1
2.	51720171	KIT HDWR BOOM ASSY 7025 SII		1
3.	51720181	CORD REEL ASM- W/PACKARD CONNECTOR		1

99904232 PARTS LIST				
ITEM	PART #	DESCRIPTION	KIT #	QUANTITY
4.	52720146	BOOM-LOWER WLDMT 7025 SII		1
5.	52720147	BOOM-EXT WLDMT 7025		1
6.	60030365	WEAR PAD-BV NYL .31X7.75X 6.50		1
7.	60101905	PIN-TYPE B 1.00X 4.12 ( 3.62)		1
8.	60102596	SPACER- .38 BLK PIPE X 2.00		2
9.	60103821	PIN-TYPE A 1.00X 8.62 ( 8.19)		1
10.	60105544	PLATE-ANGLE PLASTIC		2
11.	60113594	MTG BLOCK-COVER ANTI-2BLK 5016		1
12.	60030364	WEAR PAD- .50 X6.25 X 7.88		1
13.	60122985	WEAR PAD-RND 6625 BOOMS		2
14.	60125478	WEAR PAD RND 2.00		3
15.	60127876	COVER-ANTI 2 BLOCK MICRO SWITCH LEFT		1
16.	60130799	BRKT-WEAR PAD 7025 SII LOWER BOOM		1
17.	70034381	SUPPORT-GP STAUFF LN-4190-PA	#2	1
18.	70396894	DECAL-BOOM LENGTH INDICATOR (10 FT)		2
19.	70034382	CAP-GREASE PRO20 GC-RED	#2	3
20.	72034485	CLAMP-PLASTIC 1/4" CABLE	#2	8
21.	72053508	ZERK-NPT .12	#2	3
22.	72060000	CAP SCR .25-20X .50 HH GR5 Z	#2	2
23.	72060006	CAP SCR .25-20X 1.50 HH GR5 Z	#2	1
24.	72060008	CAP SCR .25-20X 2.00 HH GR5 Z	#2	2
25.	72060056	CAP SCR .38-16X 4.00 HH GR5 Z	#2	2
26.	72062103	NUT .38-16 HEX NYLOCK	#2	4
27.	72062106	NUT 10-24 HEX NYLOCK	#2	8
28.	72062207	NUT 8-32 HEX NYLOCK	#2	2
29.	72063001	WASHER .25 FLAT	#2	2
30.	72063003	WASHER .38 FLAT	#2	6
31.	72063005	WASHER .50 FLAT	#2	8
32.	72063033	MACHY BUSHING 1.00X14 GA NR	#2	3
33.	72063049	WASHER .25 LOCK	#2	5
34.	72063053	WASHER .50 LOCK	#2	4
35.	72063098	WASHER .16 W FLAT ANSI B27.2Z	#2	2
36.	72066125	RETAINING RING-EXT 1.00 HD	#2	3
37.	72066145	HAIR PIN .19 ZINC	#2	1
38.	77041291	SWITCH-LIMIT BZE6-2RN18		1
39.	77044468	CONNECTOR- .50 STR RLF .12-.25		1
40.	77040051	TERM-SPRSPADE I #8 STUD 16-14		2
41.	52709415	CABLE-WLDMT ANTI-2 BLOCK 315A		1
42.	70029119	PLACARD-SERIAL NUMBER		1
43.	72661638	TACK-METAL		2
44.	72060091	CAP SCR .50-13X 1.00 HH GR5 Z		4
REV B 20080418				

## Extension Cylinder (51721022)



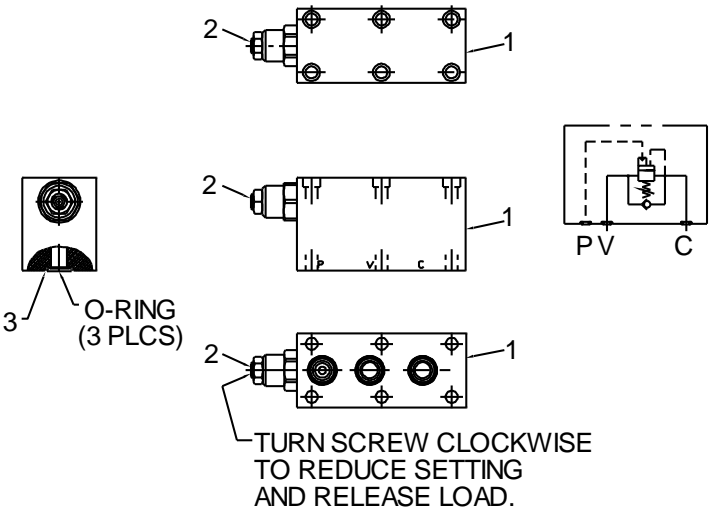
### NOTES (IF TIED TO DRAWING, SEE REFERENCE NUMBER IN •):

- 1 REPLACE ALL COMPONENTS OF THE SEAL KIT WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.
- 2 APPLY REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO THREADS ON CYLINDER HEAD ONLY. KEEP AWAY FROM ALL SEALS.
- 3 APPLY "LUBRIPLATE" NO. 630-2 MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT, TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.
- 4 CYLINDER SPECIFICATIONS - 175.25" CLOSED, 277.25" OPEN, 102" STROKE.
- 5 DRILL #15 HOLE, 3/16" DEEP. PRESS IN PIN #8, 60125699.
- 6 TORQUE PISTON TO 300-330 FT-LB, HEAD TO 300 FT-LB, CARTRIDGE TO 30-35 FT-LB, AND CAP SCREW TO 16 FT-LB.

51721022 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	51744124	SEAL KIT (INCL 8,9,14-21)	1
2.	52720159	CASE-WLDMT 3.00 BORE X 172.84	1
3.	52720160	ROD ASM-2.00 DIA X 168.38 LG 1.00 S	1
4.	60030004	WEAR PAD-B4 NYL .38X2.88X 2.88	2
5.	60106350	SPACER-WEAR PAD 1331 EXT CYL	2
6.	60124581	HEAD-3.00B 2.00R 4.0 LG	1
7.	60125661	PISTON - 3.00 BORE X 1.00 STGR	1
8.	60125699	PIN - LOCK TUBE 0.19 OD X 0.065 WALL	1
9.	60138274	STOP TUBE (WAS 6A025020)	1

51721022 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
10.	72060713	CAP SCR .25-20 2.50 SH PLAIN	6
11.	72060836	CAP SCR .25-20X .75 FLH	8
12.	72062302	COLLAR-LOCK 1-14 X 1.75 X 1/2	1
13.	73054900	VALVE ASM-CBAL CYLMNT	1
14.	76534386	U-CUP LOADED 2.00X2.50X.38 MPS	1
15.	7Q072120	O RING 1.00X 1.19X .09 70	1
16.	7Q072334	O RING 2.62X 3.00X .19 70	1
17.	7Q10P334	BACKUP RING- 2.62 ID X 3.00 OD	1
18.	7T2N4030	WEAR RING-PISTON 3.00 OD X 0.50 W	2
19.	7T66P300	PISTON SEAL-PSP 3.00	1
20.	7R17P020	ROD WIPER-TYPE D 2.00 ROD HAL	1
21.	7T104000	WEAR RING-ROD 2.00 ID X 0.50W HAL	2
22.	60131635	STOP TUBE-2.00 ROD X 10.56 LG	1
23.	60129951	STOP TUBE-2.00 ROD X 7.61 LONG	6
REV B 20120417			

# Counterbalance Valve (73054900)



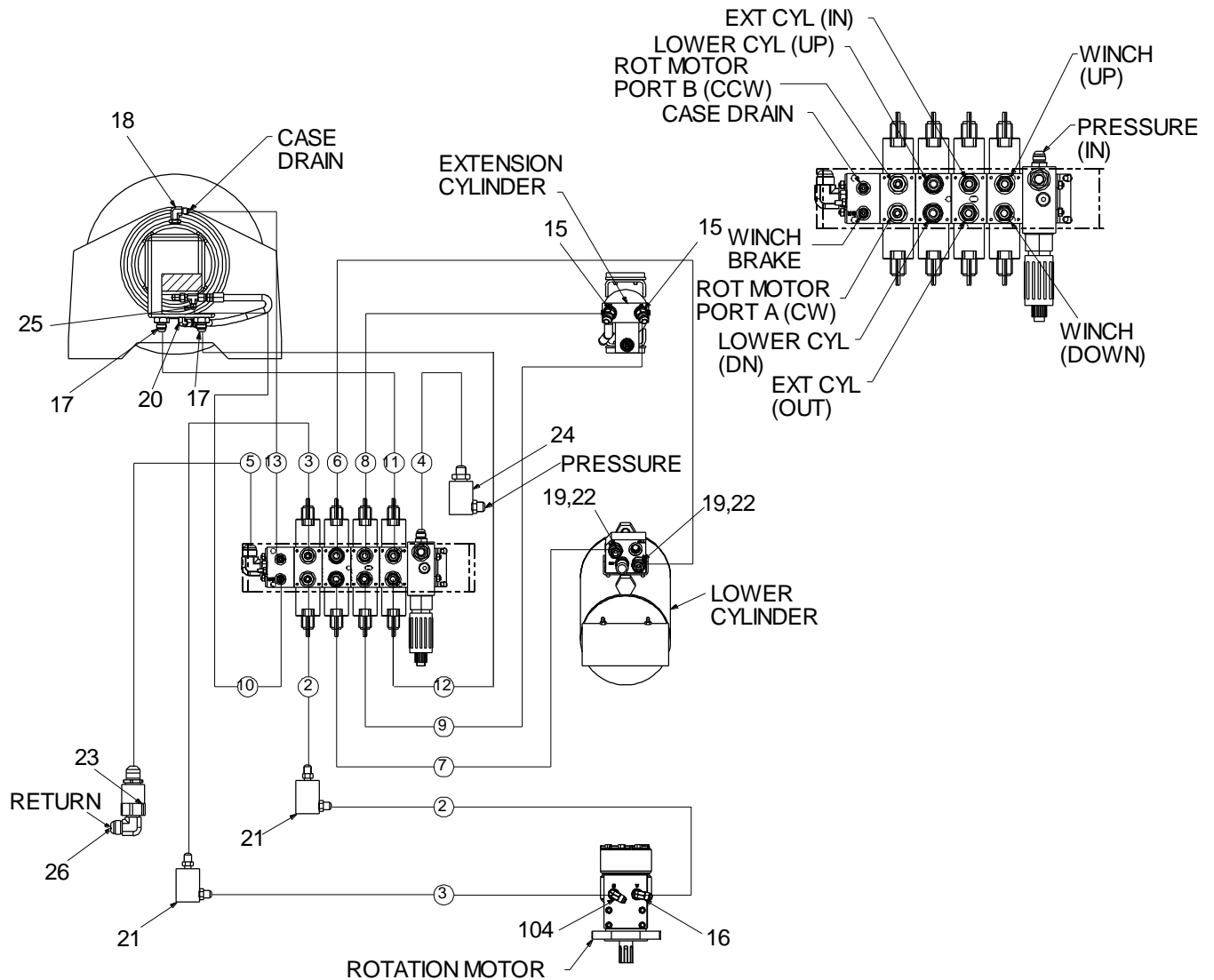
**NOTES:**

- 1 INSTALLATION TORQUE FOR #2 C'BAL VALVE IS 30-35 FT-LB.
- 2 MOUNTING HOLES - 0.28 DIA THROUGH - C'BORE 0.41" DIA X 0.22" DEEP (6 PLACES).

73054900 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	5V245940	VALVE BODY	1
2.	73054999	VALVE-CBAL	1
3.	7Q072112	O-RING	3
REV C 20060607			

# Hydraulics

## Hydraulic Installation (99904113)



### 99904113 PARTS LIST

ITEM	PART #	DESCRIPTION	QUANTITY
1.	91721353	HYDRAULIC INSTALLATION KIT (INCL 2-27) (WAS 91721353)	1
2.	51397266	HOSE-FZ .38 X 33.50 OAL (6-6) (WAS 51396807)	1
3.	51397267	HOSE-FJ .38 X 30.50 OAL (6-6) (WAS 51396809)	3
4.	51396816	HOSE-FJ .50 X 39.50 OAL (8-8)	1
5.	51396898	HOSE-FZ .75 X 39.50 OAL (12-12)R10017	1

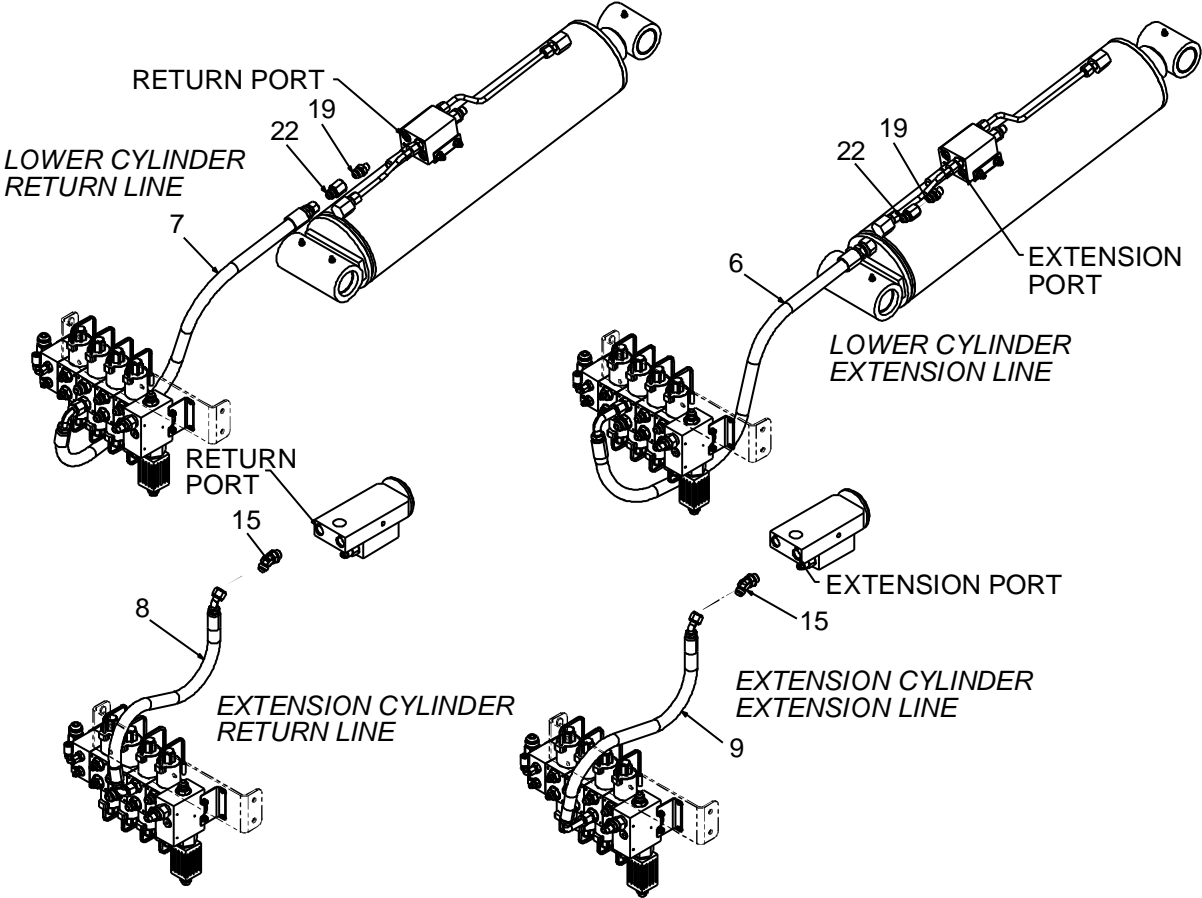
99904113 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
6.	51396899	HOSE-FZ .62 X 37.00 OAL (10-10)R10017	1
7.	51396900	HOSE-FJ .62 X 36.00 OAL (10-10)R10017	1
8.	51397268	HOSE-ZI .50 X 44.00 OAL (8-8) 220 DEG (WAS 51396901)	1
9.	51397269	HOSE-JI .50 X 40.00 OAL (8-8) 140 DEG (WAS 51396902)	1
10.	51397270	HOSE-FZ .25 X 32.00 OAL (4-4) R10017 (WAS 51396903)	1
11.	51397271	HOSE-FJ .50 X 33.00 OAL (8-8) R10017 (WAS 51396904)	1
12.	51396905	HOSE-FZ .50 X 42.00 OAL (8-8) R10017	1
13.	51397272	HOSE-FJ .25 X 42.00 OAL (4-4)R10017 (WAS 51396906)	1
14.	51397027	HOSE-FF .25 X 16.50 OAL (4-4) R10017	1
15.	72053777	ELBOW-M STR/45/M JIC 8 8	2
16.	72533594	ELBOW-M STR/90/M JIC 6 4	2
17.	72532359	ADPTR-M STR/M JIC 10 8 (WAS 72532359)	2
18.	72534474	ELBOW-M BSPP/90/M JIC 4 4	2
19.	72532357	ADPTR-M STR/M JIC 6 8	2
20.	72534479	ELBOW M JIC/M BSPT 4 2 (WAS 72533490)	2
21.	72534527	SWIVEL-M JIC/90/M JIC 6 6 (WAS 72534527)	2
22.	72534465	ADPTR-M JIC/F JIC 10 8	2
23.	72532973	SWIVEL-M JIC/F JIC 12 12 INLINE	1
24.	72533648	SWIVEL-M JIC/90/M JIC 8 8 (WAS 3)	1
25.	72532981	TEE-SW/VL NUT RUB JIC 4 (WAS 72533021)	1
26.	72533757	ELBOW-M JIC/90/M JIC 12 12	1
27.	60350142	SLEEVE-HOSE NHS-254 X 15 CUT & SEALED	1
28.	51720184	VALVE BANK ASSEMBLY	REF
REV. D 20080606			

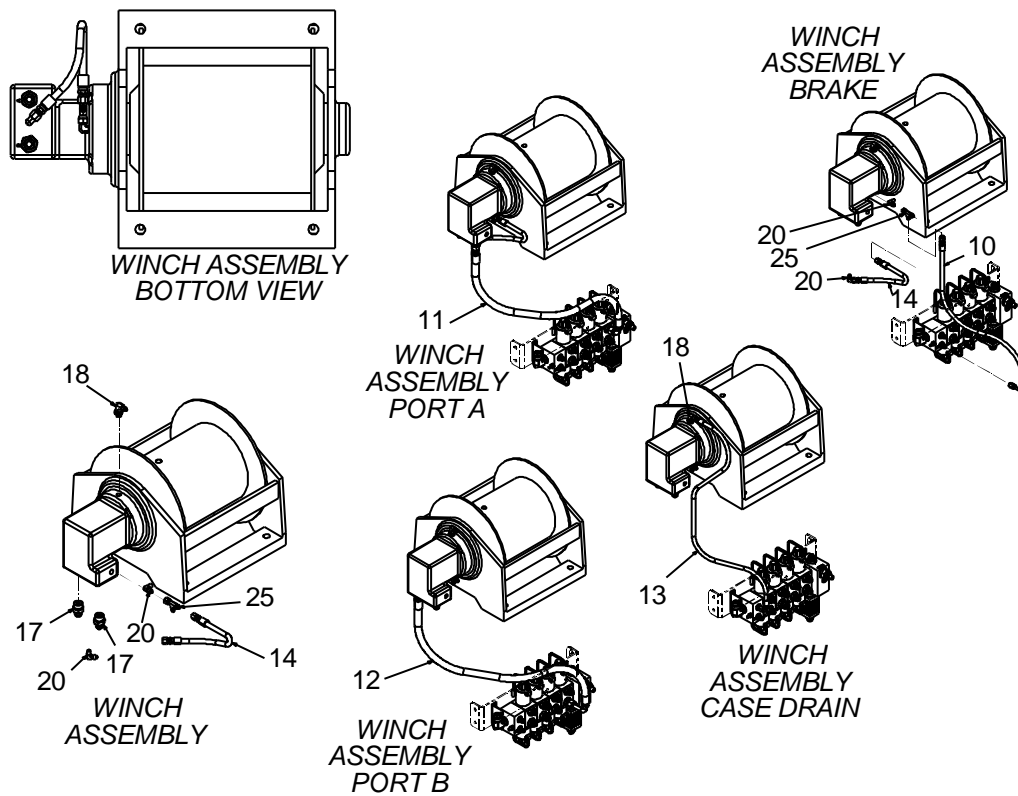
**NOTE:**

- 1 ROUTE WINCH HOSES (#10-13) THRU SLEEVE 60350142.
- 2 WINCH HAS BSPT PORTS FOR WINCH BRAKE AND CASE DRAIN.







**WINCH ASSEMBLY****NOTE:**

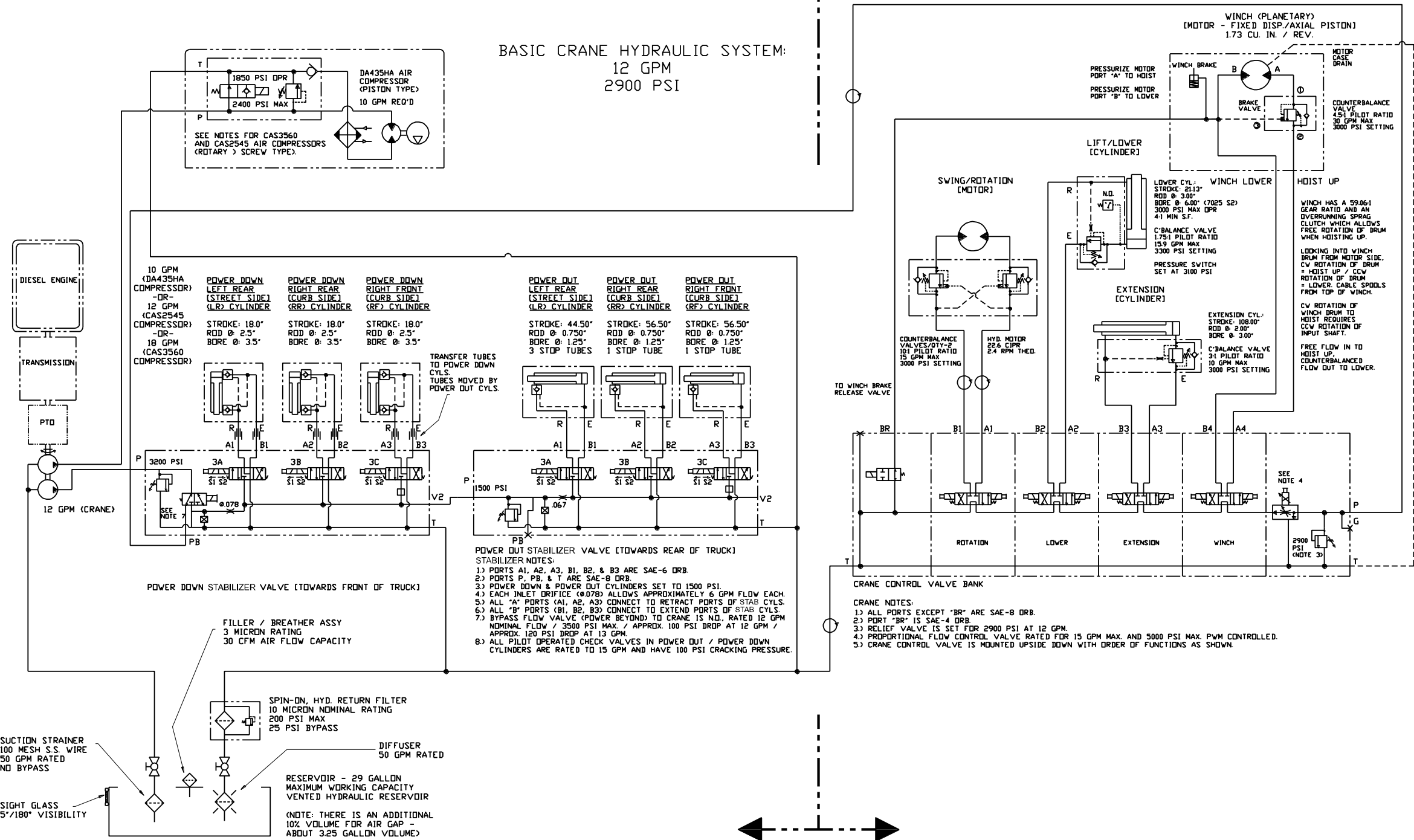
1 BSPP PORTS ON WINCH ONLY.

# Hydraulic Schematic (99903980-1)

7025 SERIES II / 8025 TELESCOPIC CRANE ON A DOMINATOR IV SERIES 11 BODY WITH POWER OUT AND POWER DOWN STABILIZERS ON THREE CORNERS

DOM IV SII MECHANICS BODY & TRUCK CHASSIS

7025 SII / 8025 TELESCOPIC CRANE (12.2 GPM MAX. INLET / 2900 PSI MAX. AT RELIEF)



## Hydraulic System Specifications (99903980-2)

### Truck / Crane Configuration

The 99903980 hydraulic schematic reflects the following configurations:

<b>Telescopic Cranes</b>	
7025 (2006 Release)	70,000 ft-lb crane rating with 25'-4" reach
8025	80,000 ft-lb crane rating with 25'-4" reach
<b>Crane Controls (Remote)</b>	
Tether Controls	PWM Proportional
Radio Controls	PWM Proportional
<b>Air Compressors</b>	
CAS435HA Piston Air Compressor	35 cfm at 100 psi air delivery
CAS3560	65 cfm at 150 psi air delivery
	90 cfm at 100 psi air delivery
<b>Mounting</b>	
Dominator 4 (2006 Release) Mechanics Body	14-foot body length version
	19-foot body length version
<b>Pumps</b>	
Dual Gear Pumps	Crane: 12 GPM
	Compressor: 10 GPM - DA435HA or 18 GPM - CAS3560
	PTO driven from manual or automatic transmission
<b>Stabilizers</b>	
Beam Type Stabilizers (Power Out/Power Down)	One front stabilizer beam
	Two rear stabilizer beams stacked vertically

### Rotation / Swing Motor & System

Displacement	22.6 cubic inches/revolution
Mounting Flange	2-bolt 3.25" diameter x 0.12" pilot 0.535" mounting holes on 4.18" diameter b.c.
Motor Shaft	1" diameter SAE 6B splined shaft
Ports	SAE-4 o-ring boss (Quantity 2)
Case Drain	N/A
Ring & Pinion Spur Gear Rotation System	50.7 :1 total rotation gear ratio
	2.4 RPM max theoretical
	450° total rotation stop to stop

### Air Compressors

The control hydraulic schematic for the CAS3560 air compressor is the same as for the DA435HA air compressor, except for the check valve has been omitted, the compressor has an external oil cooler (there is still a second internal lube oil cooler), and the compressor required flow rate is 18 GPM.

### Winch (Planetary)

Nominal Winch Rating	8,000 lb line pull on first layer
Required Spec. Rating	7,000 lb line pull at 60 fpm line speed on second layer with single part line
Motor Displacement	1.73 cubic inches/rev
Drum Diameter	8.5"
Drum Flange Diameter	14.56"
Drum Width	12.25"
Pressure	2700 psi

Flow	11.6 GPM
D/d	18:1
Motor Efficiency	0.85
Motor Slip	1.25 GPM
Gear Ratio	59.06 to 1
Winch Efficiency	0.93
HP Input	20 HP maximum input
RPM Input	1504 RPM maximum
Wire Rope Diameter	0.5"
Single Reduction Planetary Winch	Solid Brake Coupling - Brake must be released in both directions before drum will turn.
	Spring applied hydraulically released brake.
	Winch has an overrunning sprag clutch which allows free rotation of drum when hoisting up.
	Counterbalance valve effective in the lowering direction.
	Hoist direction is clockwise when viewed from the motor end.
	Motor rotation is opposite drum rotation.

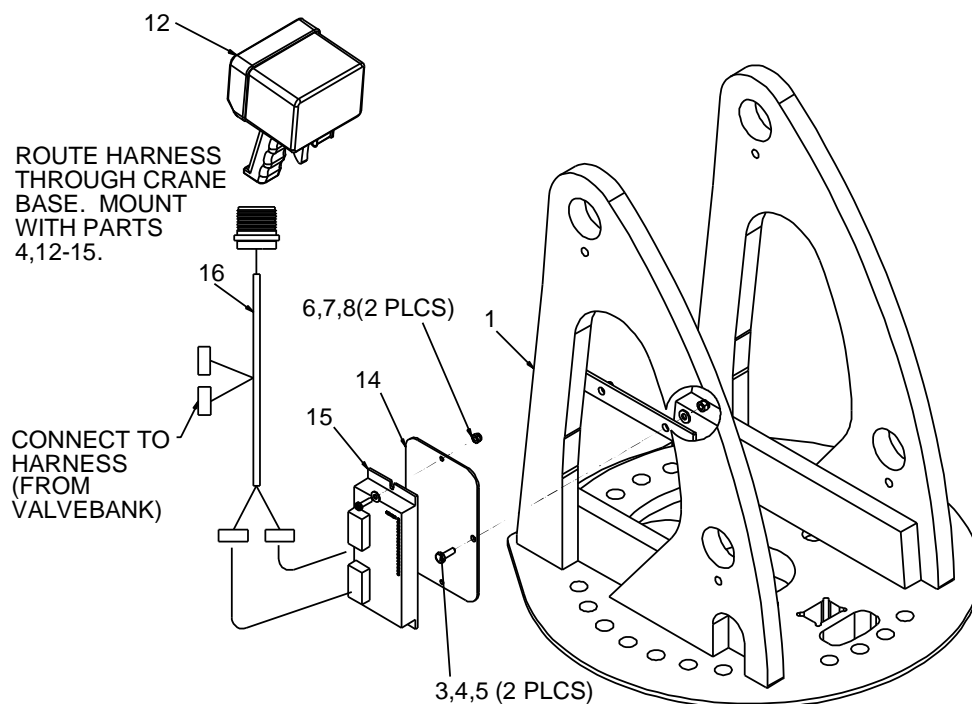
## Cylinders

Extend Cylinder	108" Stroke
	2" Diameter Rod
	3" Bore
Lift/Lower Cylinder	21.13" Stroke
	3" Diameter Rod
	6" Bore (7025)
	6.5" Bore (8025)
	3000 psi maximum operating pressure
	Minimum 4.1 safety factor to minimum burst



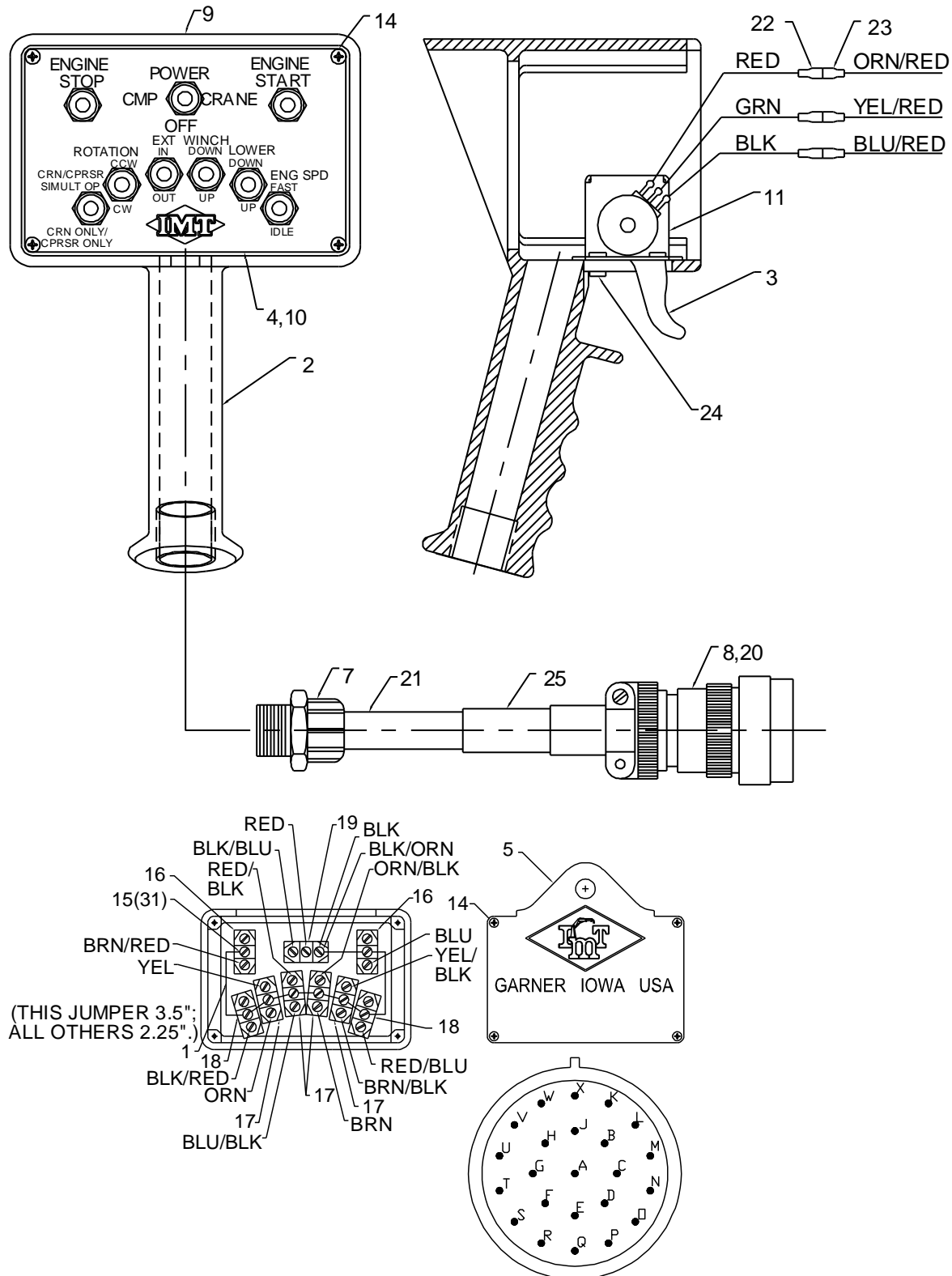
# Controls

## Controls Installation, Tethered (Kit 90719399/Dwg. 99903697)



90719399 TETHERED CONTROLS PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	N/A	MAST WLDMNT	1
2.	51719412	HARDWARE KIT - TELE CRANE, TETH CONTROLS (INCL 3-11)	REF
3.	72601827	CAP SCR-SS .25-20X .75 HH GR5	2
4.	72063166	WASHER-SS .25 R WRT18-8 .62OD	2
5.	72062194	NUT-SS .25-20 NYLOC	2
6.	72060636	SCR-MACH#10-24X .75 RDH PH Z	2
7.	72062106	NUT 10-24 HEX NYLOCK	2
8.	72063000	WASHER .19 W FLAT ANSI B27.2Z	2
9.	77044645	NUT-DEUTSCH 24 SHELL112263-90	1
10.	77044646	WASHER-LOCK DEUTSCH 112264	1
11.	72601330	CAP SCR-SS .25-20X 1.00 HH	2
12.	51719470	HANDLE ASSEMBLY	1
13.	60119299	BRACKET-MTG	1
14.	60128881	BRACKET-CONTROLLER	1
15.	71411554	TETHER LOGIC MODULE	1
16.	77441164	HARNESS-TETHER	1
REV. B 20050513			

## Handle Assembly, Tethered Remote w/Engine Start (51719470)





**51719470 HANDLE ASSEMBLY WIRE FUNCTIONS**

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

**51719470 PARTS LIST**

ITEM	PART #	DESCRIPTION	QUANTITY
1.	89044214	WIRE 18GA GRN	1.61 FT
2.	60119335	CONTROL HANDLE	1
3.	60111141	TRIGGER (PART OF 11)	1REF
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
7.	77044196	STRAIN RELIEF 3/4	1
8.	77044621	PIN	23
9.	70394447	DECAL-DGR RC ELECTRO SM	1
10.	70396719	DECAL-CTRL	1
11.	70394183	TRIGGER ASM (INCL 3)	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8
15.	77040051	TERM-SPRSPD #8 16-14GA	31
16.	77040371	TOGGLE SWITCH SPST	2
17.	77040372	TOGGLE SWITCH SPDT	4
18.	77040373	TOGGLE SWITCH SPST	2
19.	77040374	TOGGLE SWITCH SPDT	1
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA 24WIRE (NOTE: MUST ORDER 40 FT)	40 FT
REF	51717817	TETHERED CABLE, 40' (INCL 8, 15 (24) 20, 21, 25)	1
22.	77040147	TERM-FSLPON 1/4TAB 22-18	3

51719470 PARTS LIST			
23.	77040047	TERM-MSLPON 1/4TAB 16-14	3
24.	72060602	MACH SCR #6-32X3/8 RDHD	4
25.	70145495	TUBING-HEAT SHRINK	.5 FT
REV 20071016			

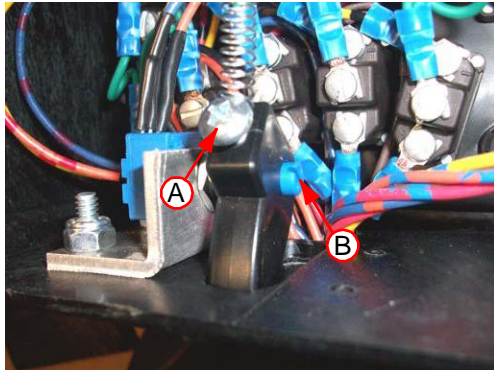
NOTE: KIT # 51717817, TETHERED CABLE - 40 FEET, INCLUDES ITEMS 8, 15 (QTY 24), 20, 21, AND 25. ORDER 51717817 TO REPLACE THE CABLE ASSEMBLY.

## Tethered Remote Calibration Mode

To enter the calibration mode on the tethered remote control,

- 1 Turn on the CRANE switch.
- 2 With the trigger released, hold the momentary EXTENSION OUT and WINCH UP switches while activating the momentary LOWER DOWN switch four (4) times in succession.
- 3 The CRANE AND COMPRESSOR ON output and LED will begin to flash, indicating successful entry to the calibration mode. Release momentary switches at this time.
- 4 Use the CCW/CW momentary switches to adjust the minimum output to the valve. CCW will increase the minimum output and CW will decrease the minimum output.
- 5 To adjust the maximum output to the valve, squeeze the trigger all the way and use the CCW/CW switches in a similar manner. CCW will increase the maximum output and CW will decrease the maximum output.
- 6 When finished, move the CRANE switch to the OFF position to save the new values to flash memory and exit the calibration mode.

## Tethered Proportional Remote Potentiometer Adjustment



**NOTE:**

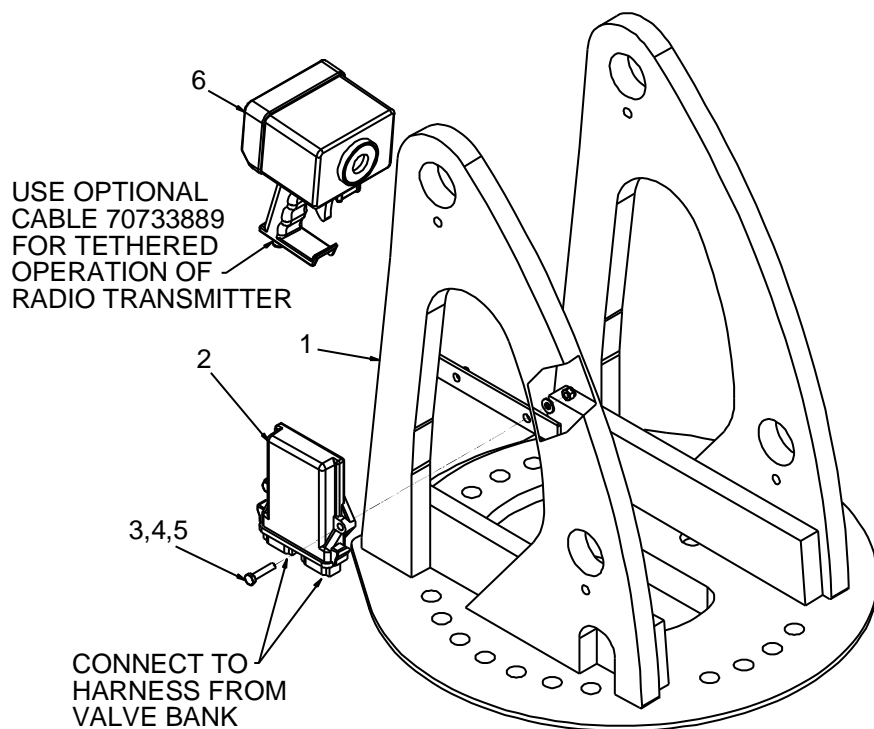
ONLY use this procedure to set the low-end output on the remote handle assembly if crane functions operate without pulling the proportional trigger.

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

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



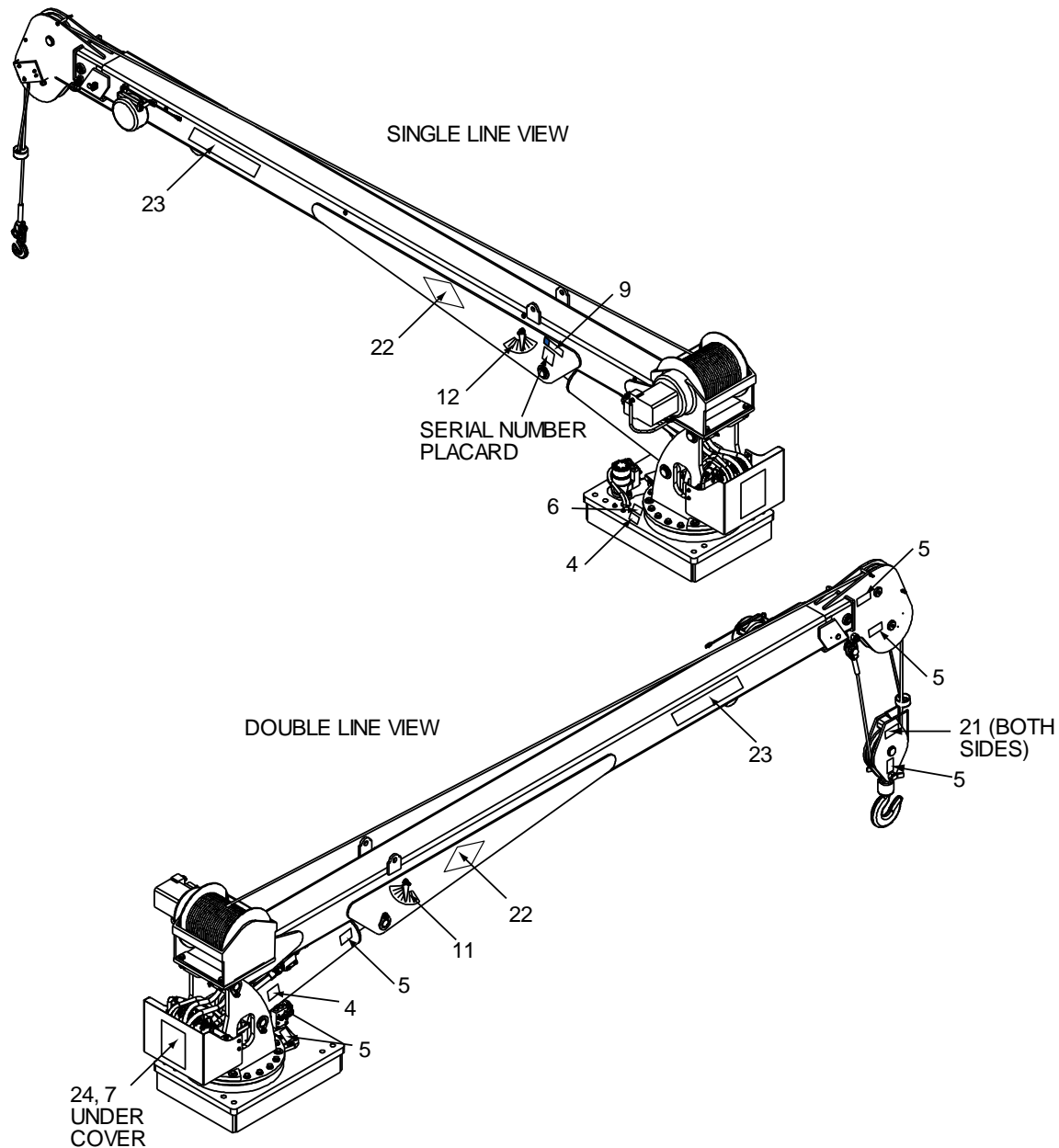
## Controls Installation / Radio Remote (Kit 90719400/Dwg. 99903697)



90719400 TETHERED CONTROLS PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	N/A	MAST WELDMENT	1
2.	70733956	RECEIVER - RADIO REMOTE TELE VORC	1
3.	72601846	CAP SCR-SS .25-20X 1.25 HH	2
4.	72063166	WASHER-SS .25 R WRT 18-8 .62OD	2
5.	72062194	NUT-SS .25-20 NYLOC	2
6.	70733883	TRANSMITTER-RADIO REMOTE TELE	1
7.	51719413	HARDWARE KIT-TELE CRANE RADIO CONTROLS	REF
NEW 20050329			

## Miscellaneous

### Decal Placement, 7025 & 8025 (99904247)

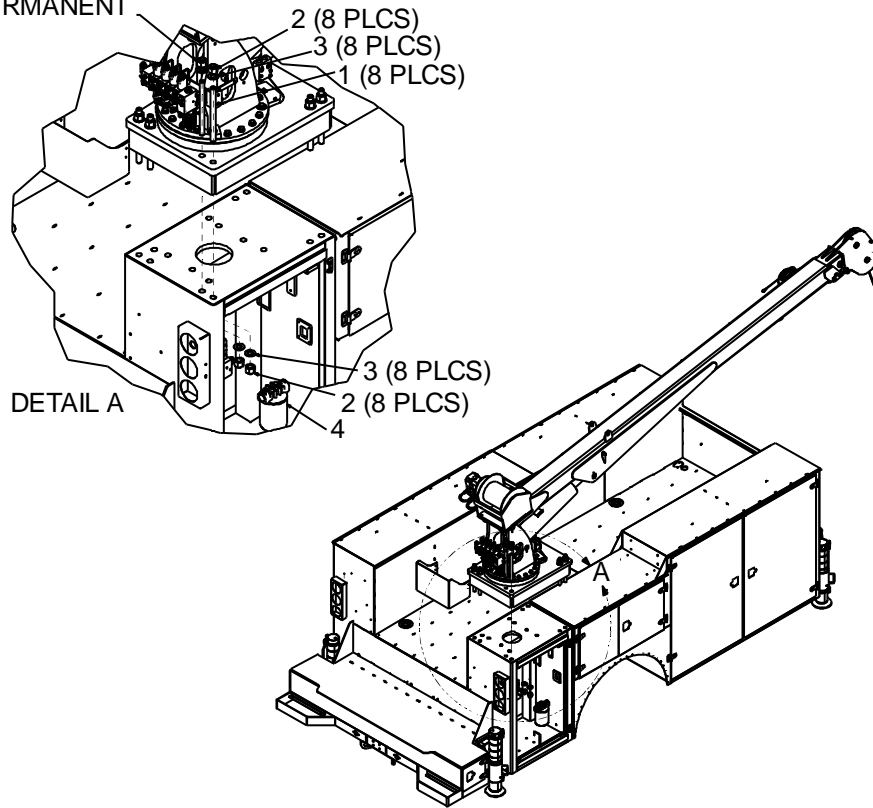


DECAL PLACEMENT (IF NOT SHOWN ON CRANE)	
ITEM #	PLACEMENT
13,18,20,25	AT OR NEAR REMOTE HANDLE
24	STORAGE POINT
14	2 ON REAR STABILIZERS, 2 ON SIDEPACK FRONT WALLS
16	AT OR NEAR DRIVELINE
15,17	ON ALL FOUR SIDES OF CARRIER VEHICLE
20	ON OIL RESERVOIR
6	ON TOP OF BASE

99904247 PARTS LIST					
ITEM	PART #	DESCRIPTION	KIT #	QTY IN KIT	QTY ON CRANE
1.	95719347	DECAL KIT - TELE COMMON			1
2.	95719348	DECAL KIT - BODY COMMON			1
3.	95721066	DECAL KIT - 7025 SPECIFIC			1
	95721067	DECAL KIT - 8025 SPECIFIC			1
4.	70391612	DECAL-GREASE WEEKLY (LEFT)	1	9	2
5.	70391613	DECAL-GREASE WEEKLY (RIGHT)	1	6	5
6.	70392524	DECAL-ROTATE CRANE WHILE GREAS	1	1	1
7.	70394166	DECAL-INSTR FOR MNL OPERATION	1	1	1
8.	70394443	DECAL-DANGER FREEFALLING BOOMS	1	1	0
9.	70395324	DECAL-ASME/ANSI B30.5-TELESCOP	1	1	1
10.	70395670	DECAL-CAUTION DOWN HAUL WT	1	2	0
11.	71391522	DECAL-ANGLE INDICATOR RH	1	1	1
12.	71391523	DECAL-ANGLE INDICATOR LH	1	1	1
13.	70392213	DECAL-CAUTION DONT WASH/WAX	1	1	1
14.	70392864	DECAL-WARNING STABILIZER STAND CLEAR	2	4	4
15.	70392868	DECAL-WARNING CR LOADLINE (TRK)	2	4	4
16.	70392891	DECAL-DANGER DRIVELINE	2	1	1
17.	70394445	DECAL-DANGER ELEC HZD LG TELES	2	4	4
18.	70396613	DECAL-CRANE SAFETY & OPER	2	1	1
19.	70394189	DECAL-MOBILOIL RESERVOIR	2	1	1
20.	71039134	DECAL-CAUTION OIL LEVEL	2	1	1
21.	71394082	DECAL-LOAD BLOCK RATING 7.0TON	3	2	2
22.	70029251	DECAL-DIAMOND IMT 6.75X13.50	3	2	2
23.	70396989	DECAL-7025 ID	3	2	2REF
	70396926	DECAL-8025 ID	3	2	2REF
24.	70397124	DECAL-CAPACITY CHART 7025	3	2	2REF
	70397125	DECAL-CAPACITY CHART 8025	3	2	2REF
25.	70392982	DECAL-SERVICE & REPAIR	2	1	1
NEW 20070423					

## Installation Kit (93720655)

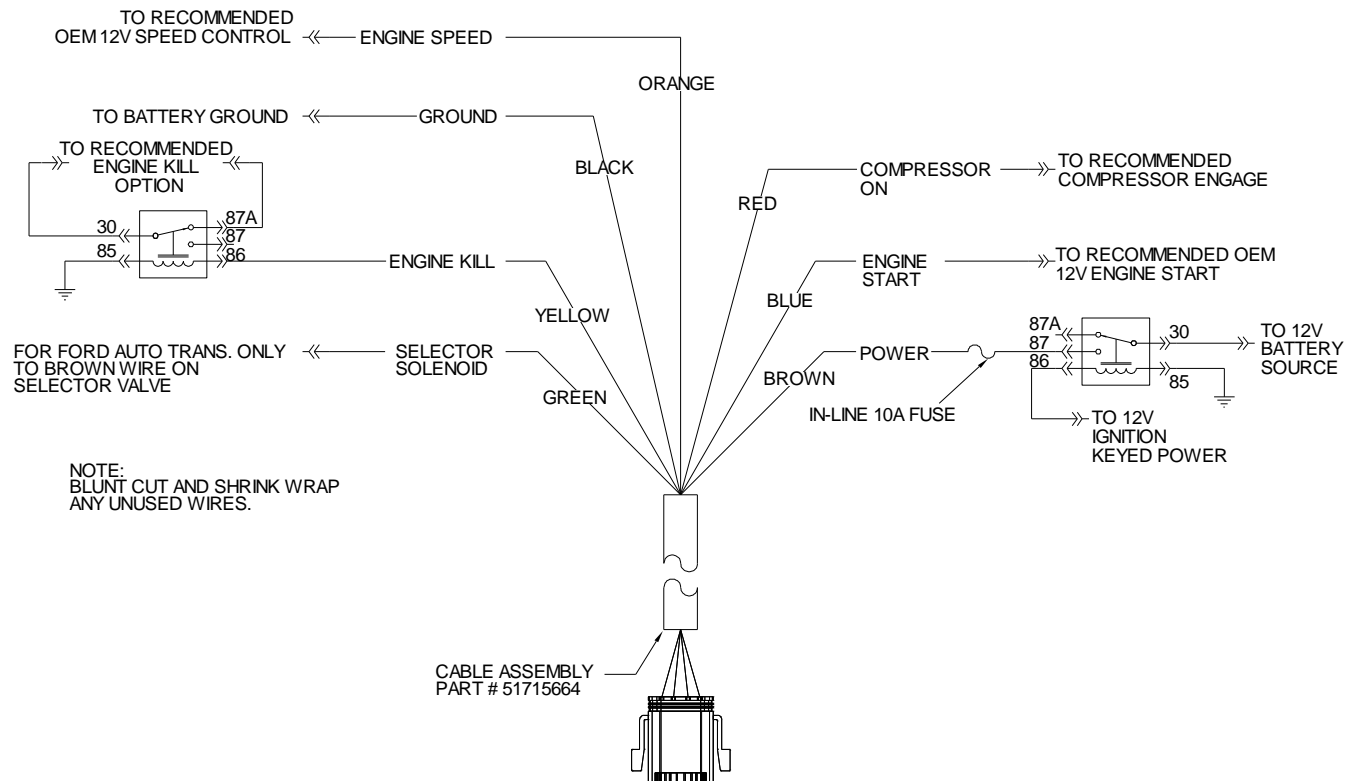
TORQUE TO 590 FT-LB.  
USE PERMANENT



93715349 PARTS LIST			
ITEM	PART #	DESCRIPTION	QUANTITY
1.	60106481	STUD-TIE DOWN 1X12.5	8
2.	72062141	NUT 1-8 HEX LOCK STIN GR5	16
3.	72063066	WASHER 1" HI STR ZINC YELLOW	16
4.	73052091	FILTER-HYD RET 10 MIC 1.25 NPIF	1
NEW 20060926			



## Chassis Wiring Harness (99903340)



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



## CHAPTER 5

# General Reference

## In This Chapter

Inspection Checklist.....	73
Deficiency / Recommendation / Corrective Action Report .....	78
Wire Rope Inspection & Replacement .....	80
Hook Inspection .....	81
Holding Valve Inspection .....	82
Anti-Two-Block Device Inspection .....	82
Thread Torques.....	83
Turntable Bearing Thread Tightening Sequence .....	86
Turntable Bearing Inspection .....	87
Turntable Bearing Tilt Test.....	87

## Inspection Checklist

### NOTICE:

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

OWNER/COMPANY:	TYPE OF INSPECTION (circle one):			
CONTACT PERSON:	DAILY	MONTHLY	QUARTERLY	ANNUAL
CRANE MAKE & MODEL:	DATE INSPECTED:			
CRANE SERIAL NUMBER:	HOURMETER READING (if applicable):			
UNIT I.D. NUMBER:	INSPECTED BY (print):			
LOCATION OF UNIT:	SIGNATURE OF INSPECTOR:			

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

Daily and monthly inspections are to be performed by a “competent person”, who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

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

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

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

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

DAILY (D): Before each shift of operation, those items designated with a (D) must be inspected.

MONTHLY (M): Monthly inspections or 100 hours of normal operation (which ever comes first) includes all daily inspections plus items designated with an (M). This inspection must be recorded and retained for a minimum of 3 months.

QUARTERLY (Q): Every three to four months or 300 hours of normal operation (which ever comes first) includes all daily and monthly inspection items plus items designated with a (Q). This inspection must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection.

ANNUAL (A): Each year or 1200 hours of normal operation (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 documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection.

**INSPECTION CHECKLIST STATUS KEY:**

S = Satisfactory	X = Deficient
R = Recommendation (Should be considered for corrective action)	(NOTE: If a deficiency is found, an immediate determination must be made as to whether the deficiency constitutes a safety hazard and must be corrected prior to operation.)
NA = Not Applicable	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
D	1	Labels	All load charts, safety & warning labels, and control labels are present and legible.	
D	2	Crane	Check all safety devices for proper operation.	
D	3	Controls	Control mechanisms for proper operation of all functions, leaks and cracks.	
D	4	Station	Control and operator's station for dirt, contamination by lubricants, and foreign material.	
D	5	Hydraulic System	Hydraulic system (hoses, tubes, fittings) for leakage and proper oil level.	
D	6	Hook	Presence and proper operation of hook safety latches.	
D	7	Wire Rope	Inspect for apparent deficiencies per applicable requirements and manufacturer's specifications.	
D	8	Pins	Proper engagement of all connecting pins and pin retaining devices.	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
D	9	General	Overall observation of crane for damaged or missing parts, cracked welds, and presence of safety covers.	
D	10	Operation	During operation, observe crane for abnormal performance, unusual wear (loose pins, wire rope damage, etc.). If observed, discontinue use and determine cause and severity of hazard.	
D	11	Remote Ctrl	Operate remote control devices to check for proper operation.	
D	12	Electrical	Operate all lights, alarms, etc. to check for proper operation.	
D	13	Anti Two-Block or Two-Block Damage Prevention	Operate anti two-block or two-block damage prevention device to check for proper operation.	
D	14	Tires	Check tires (when in use) for proper inflation and condition.	
D	15	Ground Conditions	Check ground conditions around the equipment for proper support, watching for ground settling under and around stabilizers and supporting foundations, ground water accumulation, or similar conditions.	
D	16	Level	Check the equipment for level position within the tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each move and setup.	
D	17	Operator cab windows	Check windows for cracks, breaks, or other deficiencies which would hamper the operator's view.	
D	18	Rails, rail stops, rail clamps and supporting surfaces	Check rails, rail stops, rail clamps and supporting surfaces when the equipment has rail traveling.	
D	19	Safety devices	Check safety devices and operational aids for proper operation.	
D	20	Electrical	Check electrical apparatus for malfunctioning, signs of apparent excessive deterioration, dirt or moisture accumulation.	
D	21		Other	
D	22		Other	
M	23	Daily	All daily inspection items.	
M	24	Cylinders	Visual inspection of cylinders for leakage at rod, fittings, and welds. Damage to rod and case.	
M	25	Valves	Holding valves for proper operation.	
M	26	Valves	Control valves for leaks at fittings and between stations.	
M	27	Valves	Control valve linkages for wear, smoothness of operation, and tightness of fasteners. Relief valve for proper pressure settings.	
M	28	General	Bent, broken, or significantly rusted/corroded parts.	
M	29	Electrical	Electrical apparatus for malfunctioning, signs of apparent excessive deterioration, dirt or moisture accumulation. Electrical systems for presence of dirt, moisture, and frayed wires.	
M	30	Structure	All structural members for damage.	
M	31	Welds	All welds for breaks and cracks.	
M	32	Pins	All pins for proper installation and condition.	
M	33	Hardware	All bolts, fasteners and retaining rings for tightness, wear and corrosion.	
M	34	Wear Pads	Presence of wear pads.	
M	35	Pump & Motor	Hydraulic pumps and motors for leakage at fittings, seals, and between sections. Check tightness of mounting bolts.	
M	36	PTO	Transmission/PTO for leakage, abnormal vibration & noise, alignment, and mounting bolt torque.	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
M	37	Hyd Fluid	Quality of hydraulic fluid and presence of water.	
M	38	Hyd Lines	Hoses & tubes for leakage, abrasion damage, blistering, cracking, deterioration, fitting leakage, and secured properly.	
M	39	Hook	Load hook for abnormal throat distance, twist, wear, and cracks.	
M	40	Wire Rope	Condition of load line.	
M	41	Manual	Presence of operator's manual with unit.	
M	42		Other	
M	43		Other	
Q	44	Daily	All daily inspection items.	
Q	45	Monthly	All monthly inspection items.	
Q	46	Rotation Sys	Rotation bearing for proper torque of all mounting bolts.	
Q	47	Hardware	Base mounting bolts for proper torque.	
Q	48	Structure	All structural members for deformation, cracks and corrosion.	
	49		• Base	
	50		• Stabilizer beams and legs	
	51		• Mast	
	52		• Inner Boom	
	53		• Outer Boom	
	54		• Extension(s)	
	55		• Jib boom	
	56		• Jib extension(s)	
	57		• Other	
Q	58	Hardware	Pins, bearing, shafts, gears, rollers, and locking devices for wear, cracks, corrosion and distortion.	
	59		• Rotation bearing(s)	
	60		• Inner boom pivot pin(s) and retainer(s)	
	61		• Outer boom pivot pin(s) and retainer(s)	
	62		• Inner boom cylinder pin(s) and retainer(s)	
	63		• Outer boom cylinder pin(s) and retainer(s)	
	64		• Extension cylinder pin(s) and retainer(s)	
	65		• Jib boom pin(s) and retainer(s)	
	66		• Jib cylinder pin(s) and retainer(s)	
	67		• Jib extension cylinder pin(s) and retainer(s)	
	68		• Boom tip attachment	
	69		• Other	
Q	70	Hyd Lines	Hoses, fittings and tubing for proper routing, leakage, blistering, deformation and excessive abrasion.	
	71		• Pressure line(s) from pump to control valve	
	72		• Return line(s) from control valve to reservoir	
	73		• Suction line(s) from reservoir to pump	
	74		• Pressure line(s) from control valve to each function	
	75		• Load holding valve pipe(s) and hose(s)	
	76		• Other	
Q	77	Pumps & Motors	Pumps and Motors for loose bolts/fasteners, leaks, noise, vibration, loss of performance, heating & excess pressure.	
	78		• Winch motor(s)	
	79		• Rotation motor(s)	
	80		• Other	
Q	81	Valves	Hydraulic valves for cracks, spool return to neutral, sticking spools, proper relief valve setting, relief valve failure.	

FREQUENCY	ITEM	KEY	INSPECTION DESCRIPTION	STATUS (S,R,X,NA)
	82		• Main control valve	
	83		• Load holding valve(s)	
	84		• Stabilizer or auxiliary control valve(s)	
	85		• Other	
	86		• Other	
Q	87	Cylinders	Hydraulic cylinders for drifting, rod seal leakage and leakage at welds. Rods for nicks, scores and dents. Case for damage. Case and rod ends for damage and abnormal wear.	
	88		• Stabilizer cylinder(s)	
	89		• Inner boom cylinder(s)	
	90		• Outer boom cylinder(s)	
	91		• Extension cylinder(s)	
	92		• Rotation cylinder(s)	
	93		• Jib lift cylinder(s)	
	94		• Jib extension cylinder(s)	
	95		• Other	
Q	96	Winch	Winch, sheaves and drums for damage, abnormal wear, abrasions and other irregularities.	
Q	97	Hyd Filters	Hydraulic filters for replacement per maintenance schedule.	
A	98	Daily	All daily inspection items.	
A	99	Monthly	All monthly inspection items.	
A	100	Quarterly	All quarterly inspection items.	
A	101	Hyd Sys	Hydraulic fluid change per maintenance schedule.	
A	102	Controls	Control valve calibration for correct pressure & relief valve settings.	
A	103	Valves	Safety valve calibration for correct pressure & relief valve settings.	
A	104	Valves	Valves for failure to maintain correct settings.	
A	105	Rotation Sys	Rotation drive system for proper backlash clearance & abnormal wear, deformation and cracks.	
A	106	Lubrication	Gear oil change in rotation drive system per maintenance schedule.	
A	107	Hardware	Check tightness of all fasteners and bolts, using torque specifications on component drawings or torque chart.	
A	108	Wear Pads	Wear pads for excessive wear.	
A	109	Loadline	Loadline for proper attachment to drum.	

## Deficiency / Recommendation / Corrective Action Report



[illegible]

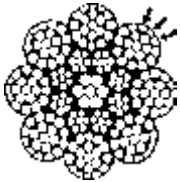
## Wire Rope Inspection & Replacement

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

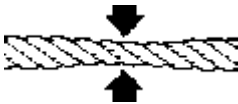
- a Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- b When there are either three broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



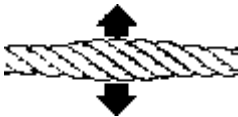
- c When flat spots on the outer wires appear and those outside wires are less than  $\frac{2}{3}$  the thickness of the unworn outer wire.



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



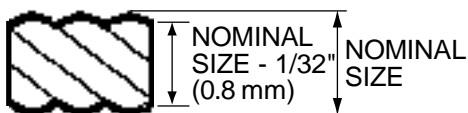
- e When kinking, crushing, birdcaging or other distortion occurs.



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



- g When the diameter is reduced from nominal size by  $\frac{1}{32}$ " (0.8 mm) or more.



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



## Hook Inspection

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

### a DISTORTION

#### Bending / Twisting

A bend or twist exceeding  $10^\circ$  from the plane of the unbent hook.

#### Increased Throat Opening

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

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

### b WEAR

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

### c CRACKS, NICKS, GOUGES

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

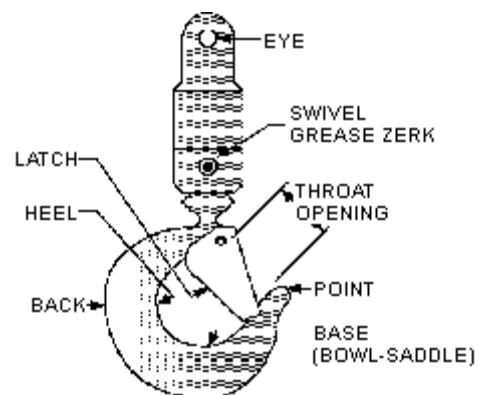
### d LATCH

#### Engagement, Damage & Malfunction

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

### e HOOK ATTACHMENTS & SECURING MEANS

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



## Holding Valve Inspection

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

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

## Anti-Two-Block Device Inspection

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

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

- 1 Examine flexible rod and weight to insure free unrestricted mechanical operation.
- 2 Examine cord for damage, cuts or breaks. Grasp cord and pull to check operation of cord reel. The cord should retract on reel when released.
- 3 Start vehicle, engage PTO and slowly winch loadline up until anti-two-block weight comes in contact with the hook end of the loadline cable. At the moment the weight is fully supported, a marked difference in winch operation should be noted. At this point, the winch up function should become very sluggish or non-functioning and have very little pull capability. Slowly increase truck engine speed while simultaneously actuating the winch up function. The winch characteristics should remain sluggish with little or no tensioning of the cable. If operation other than as described occurs, stop immediately and investigate. Failure to do so will risk damage to the cable or the crane. If all is well at this point, actuate the boom extend function slowly, and gradually increase to full actuation. Once again the function should be sluggish or non-existent with no tightening of the winch cable. If operation other than described occurs, stop immediately and reverse the function.
- 4 The final check involves actuating both the winch up and extend functions together and checking for proper operation of the anti-two-blocking circuit. Once again, start slowly and stop if it appears the cable is being tensioned.
- 5 If the anti-two-block function appears to be functioning normally, winch the cable down until the sensing weight swings free.

## Thread Torques

### 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.

---



When using the torque data in the torque charts, 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 disulphide, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values.



**FINE THREAD TORQUE CHART (ENGLISH)****TIGHTENING TORQUE**

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



**COARSE THREAD TORQUE CHART (ENGLISH)****TIGHTENING TORQUE**

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

**FINE THREAD TORQUE CHART (METRIC)****TIGHTENING TORQUE**

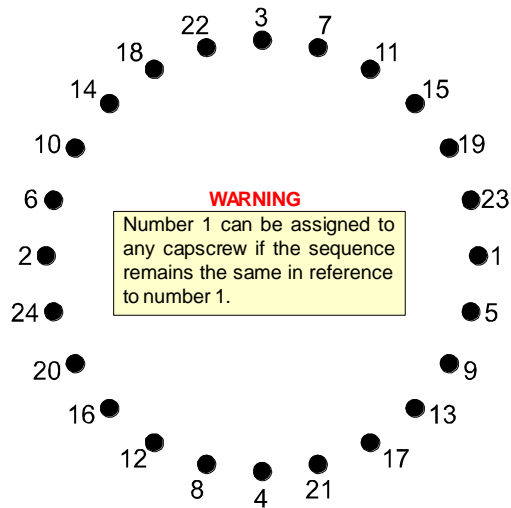
SIZE (DIA-TPI)	BOLT DIA. (INCHES)	 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-24	0.3125	3	2	4	3
3/8-24	0.375	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.625	24	18	33	25
3/4-16	0.75	41	31	58	44
7/8-11	0.875	62	45	93	69
1-12	1	89	67	138	103
1 1/8-12	1.125	123	93	200	150
1 1/4-12	1.25	171	129	278	209
1 3/8-12	1.375	232	174	375	281
1 1/2-12	1.5	304	228	492	369

**COARSE THREAD TORQUE CHART (METRIC)****TIGHTENING TORQUE**

SIZE (DIA-TPI)	BOLT DIA. (INCHES)	 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.375	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.625	21	16	30	22
3/4-10	0.75	37	28	52	39
7/8-9	0.875	55	41	84	63
1-8	1	82	62	126	94
1 1/8-7	1.125	110	82	178	133
1 1/4-7	1.25	155	116	251	188
1 3/8-6	1.375	203	152	329	246
1 1/2-6	1.5	270	210	438	328

## Turntable Bearing Thread Tightening Sequence

Refer to the turntable bearing thread tightening 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:  $.40 \times 265 \text{ FT-LB} = 106 \text{ FT-LB}$ )  
(EXAMPLE-METRIC:  $.40 \times 36 \text{ KG-M} = 14.4 \text{ KG-M}$ )
- 4 Repeat Step 3, but torquing all cap screws to 75% of the specified torque value. Continue to follow the tightening sequence.  
(EXAMPLE:  $.75 \times 265 \text{ FT-LB} = 199 \text{ FT-LB}$ )  
(EXAMPLE-METRIC:  $.75 \times 36 \text{ KG-M} = 27 \text{ KG-M}$ )
- 5 Using the proper sequence, torque all cap screws to the listed torque value as determined from the Torque Data Chart.



## Turntable Bearing Inspection

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

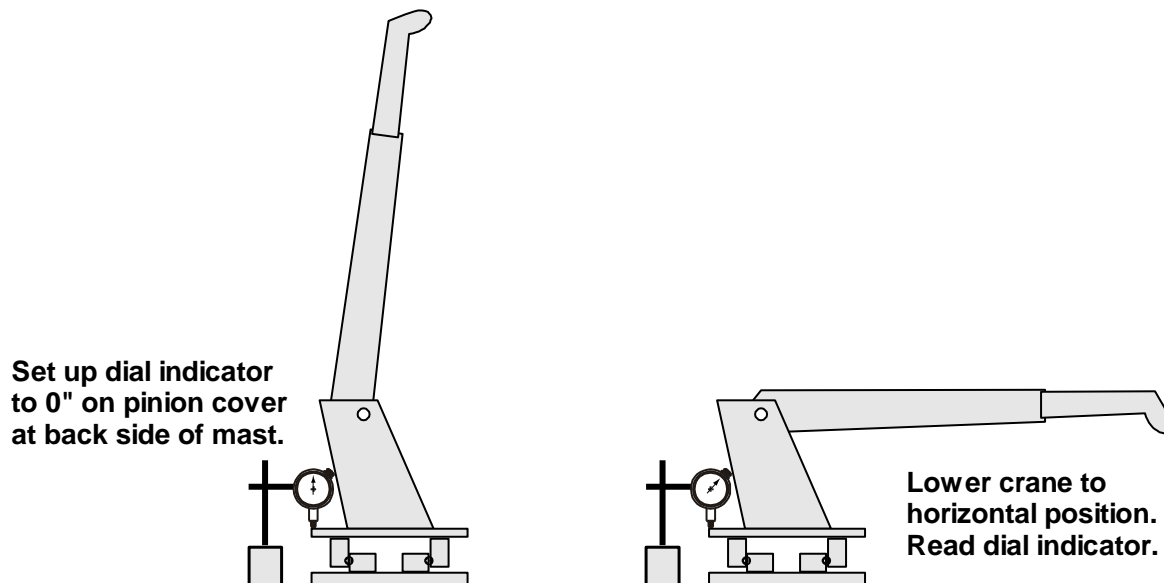
- 1 Metal particles present in the bearing lubricant.
- 2 Increased drive power required to rotate the crane.
- 3 Noise emitting from the bearing during rotation.
- 4 Rough rotation.
- 5 Uneven or excessive wear between the pinion gear and turntable gear.

If one or more of the above conditions exists, further inspection may be required. Limits are measured in "TILT" which is dependent on the internal clearances of the bearing. TILT is the most practical determination of a bearings' internal clearance once mounted on a crane. You can measure the tilt using the **Turntable Bearing Tilt Test**. (see "Turntable Bearing Tilt Test" on page 87)

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

## Turntable Bearing Tilt Test

- 1 Place crane in vertical position.
- 2 Set a dial indicator at 0 on the pinion cover plate at back side of mast.
- 3 Lower crane to the horizontal position.
- 4 Check and record the dial indicator change. It should not exceed the tilt measurement noted in the chart below.
- 5 Return the crane to the vertical position. The dial indicator should return to 0.



## COMPARISON CHART - MEASURED TILT DIMENSION PER CRANE MODEL

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

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

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