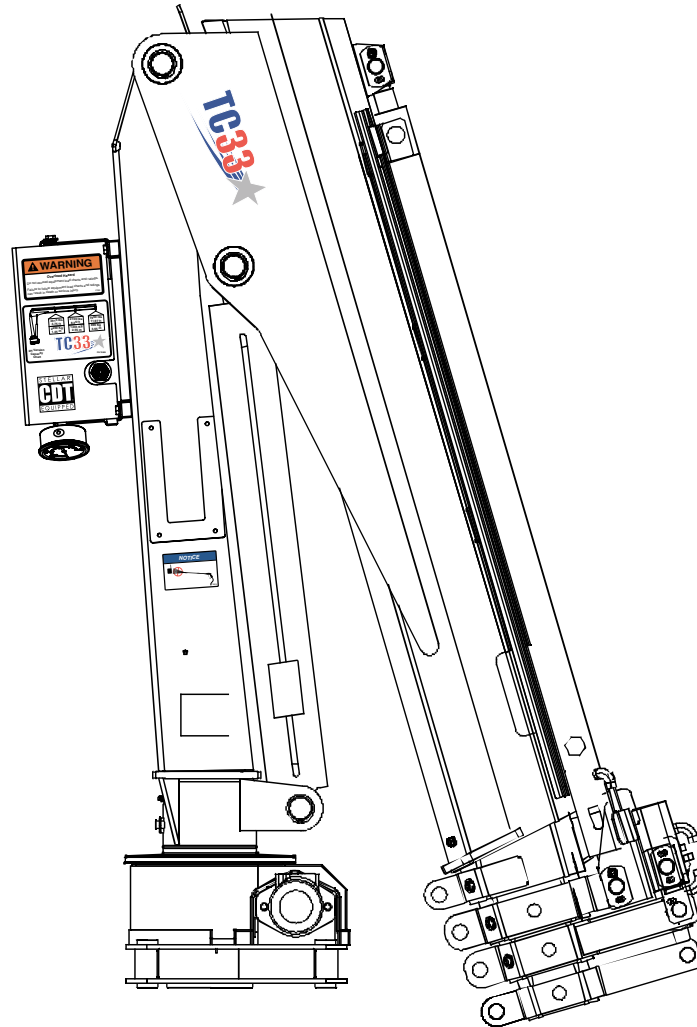




Model TC33 Telescopic Crane Owner's Manual

Installation • Assembly Drawings • Parts



Notice: A copy of this manual must remain with the equipment at all times.
For a printable download copy, please visit: www.stellarindustries.com

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Model TC33 Manual Revisions

Date of Revision	Section Revised	Description of Revision

Serial Tag Location

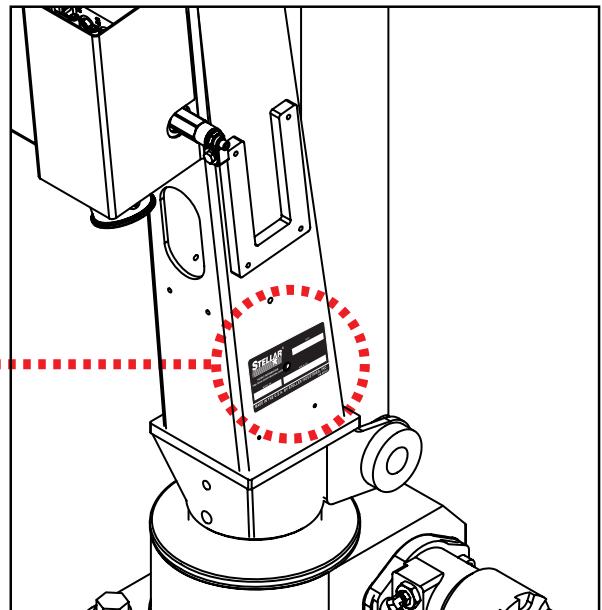
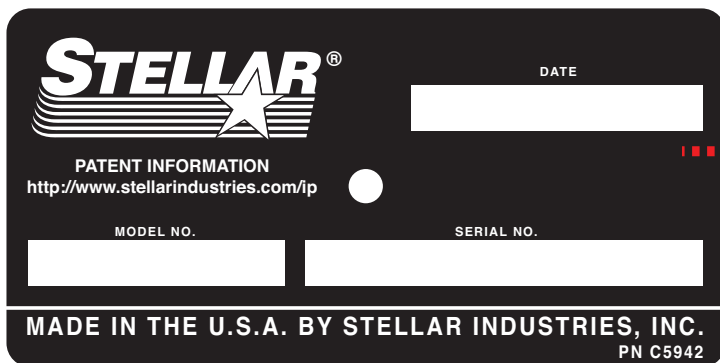


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Introduction

A copy of this manual is provided with every crane and can be found in the hard plastic manual case that is installed on the chassis. A copy of this manual shall remain with the crane at all times.

Throughout the manual, three signal words will be used to bring attention to important items:

NOTICE

A NOTICE signal word indicates a practice not related to physical injury.

⚠ WARNING

A WARNING signal word indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER

A DANGER signal word indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Information contained within this manual does not cover operation, maintenance, or troubleshooting. Please refer to the General Light Duty Crane Manual for details on these items.

This manual is not binding. Stellar Industries, Inc. reserves the right to change, at any time, any or all of the items, components, and parts deemed necessary for product improvement or commercial/production purposes. This right is kept with no requirement or obligation for immediate mandatory updating of this manual.

In closing:

If more information is required or technical assistance is needed, or if you feel that any part of this manual is unclear or incorrect, please contact the Stellar Customer Service Department by phone at 800-321-3741 or email at service@stellarindustries.com.

**For Technical Questions, Information, Parts, or Warranty, Call Toll-Free at
800-321-3741**

Hours: Monday - Friday, 8:00 a.m. - 5:00 p.m. CST

Or email at the following addresses:

Technical Questions, and Information

service@stellarindustries.com

Order Parts

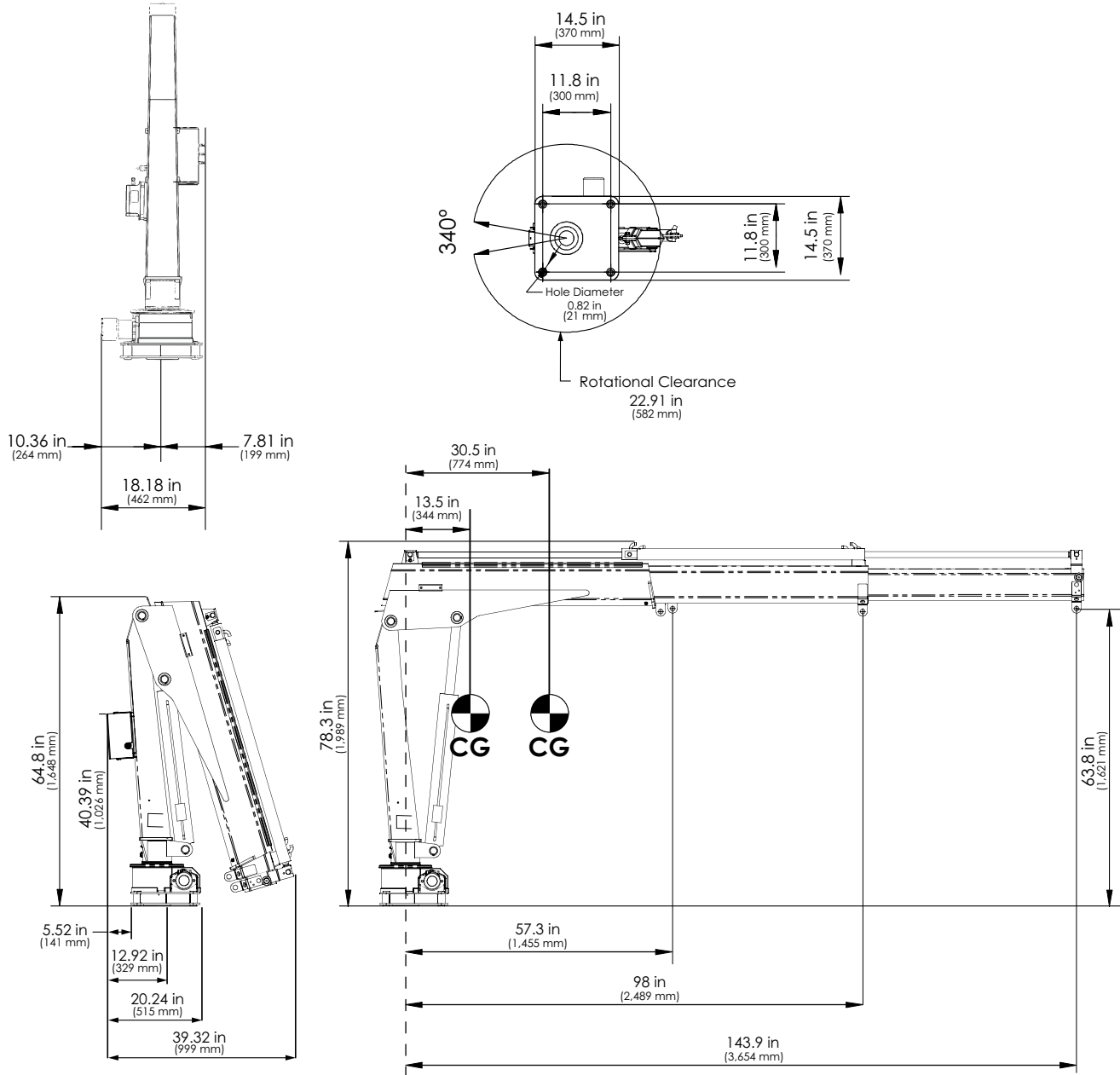
parts@stellarindustries.com

Warranty Information

warranty@stellarindustries.com

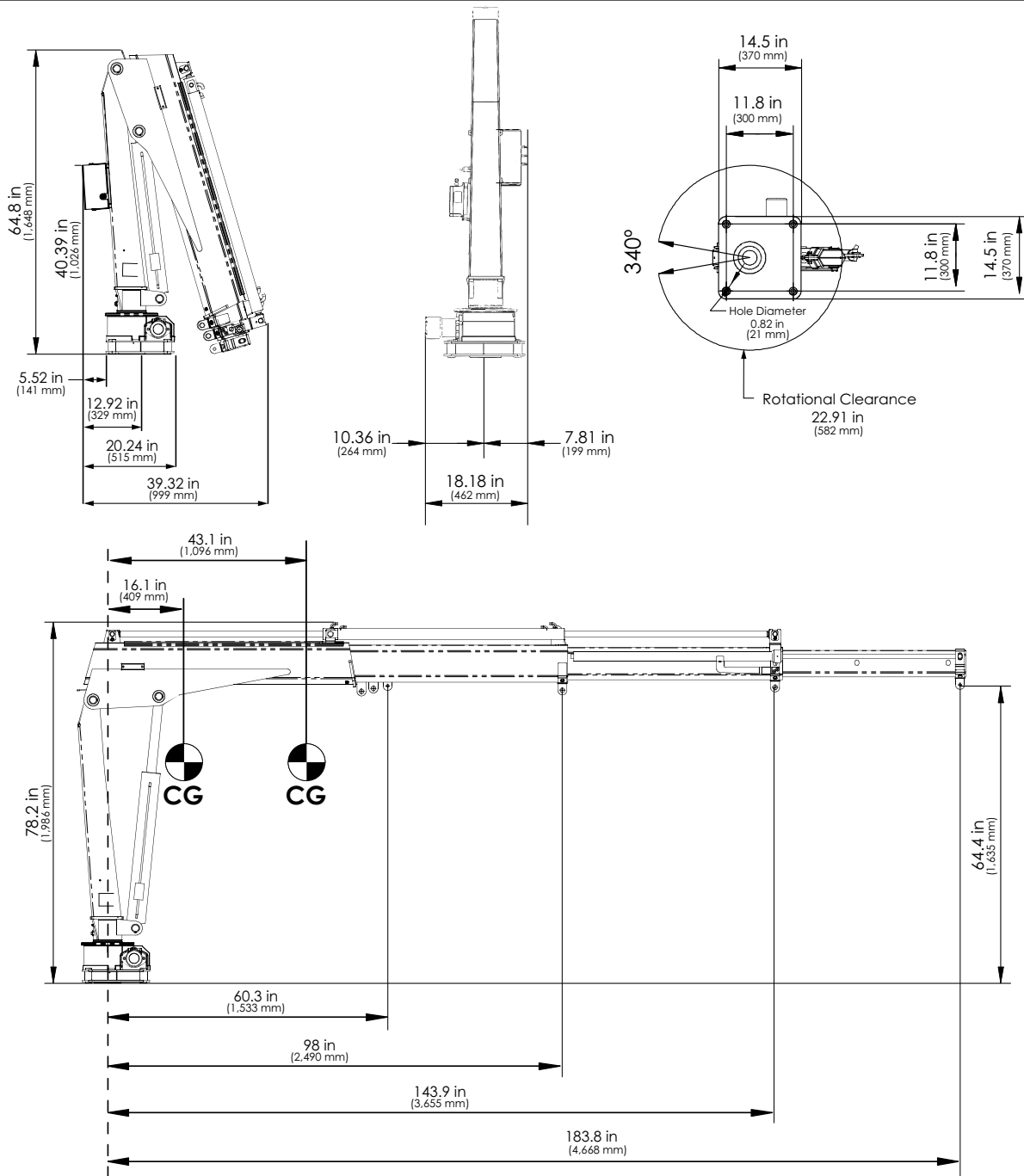
Chapter 1 - Specifications

Model TC33-2H Specifications



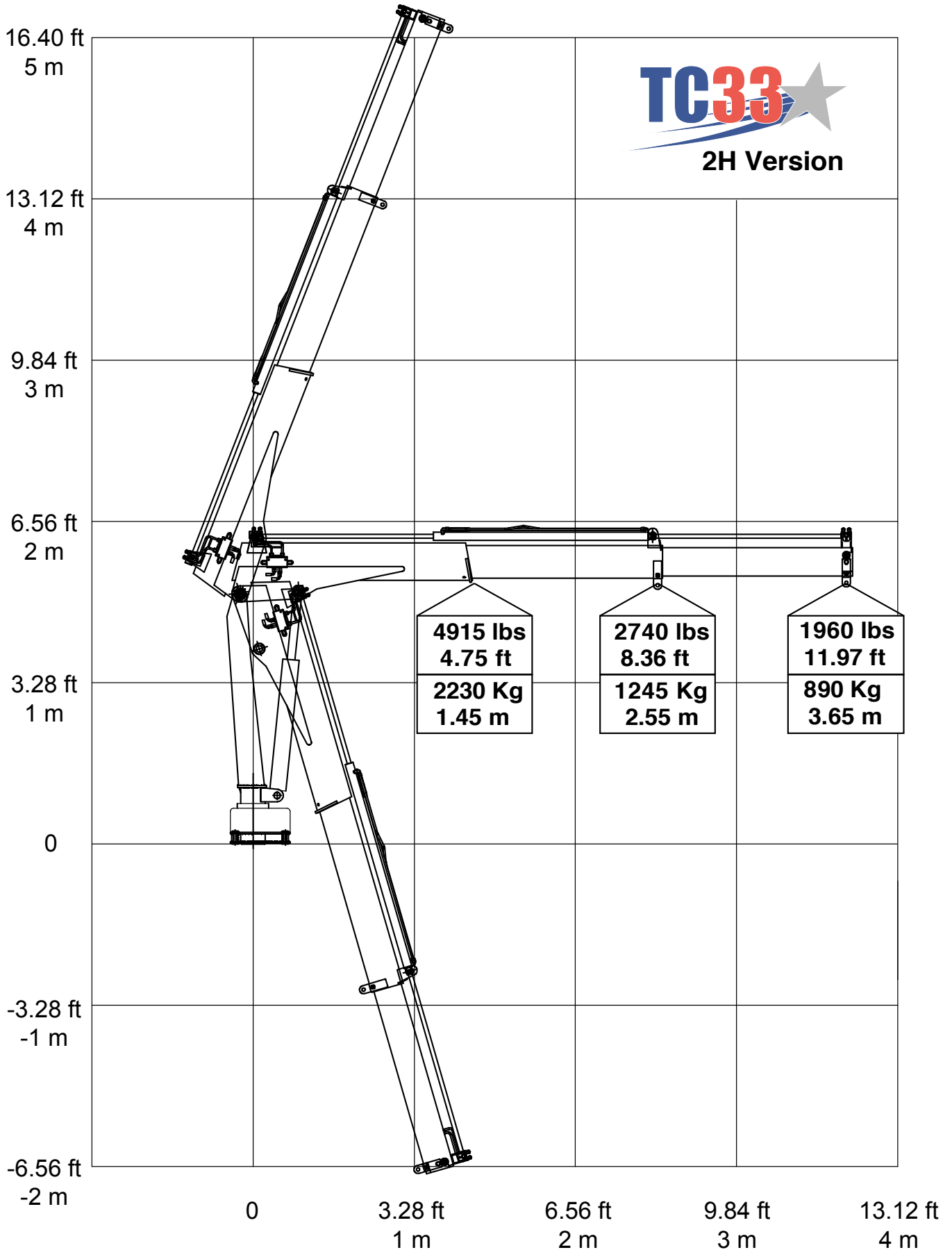
TC33 Crane	Model 2H
Crane Rating:	23,145 ft.lbs (31.0 kNm)
Max Lifting Capacity:	4,915 lbs (2,230 kg)
Max Reach:	11.97 ft (3.65 m)
Slewing Angle:	340°
Slewing Torque:	2,390 ft.lbs 3.2 kNm (0.33 m)
Operating Pressure:	2,755 psi 19.0 Mpa (190 bar)
Pump Capacity:	2.5 gpm (9.5 lpm)
Shipping Weight:	706 lbs (320 kg)

Model TC33-3H Specifications

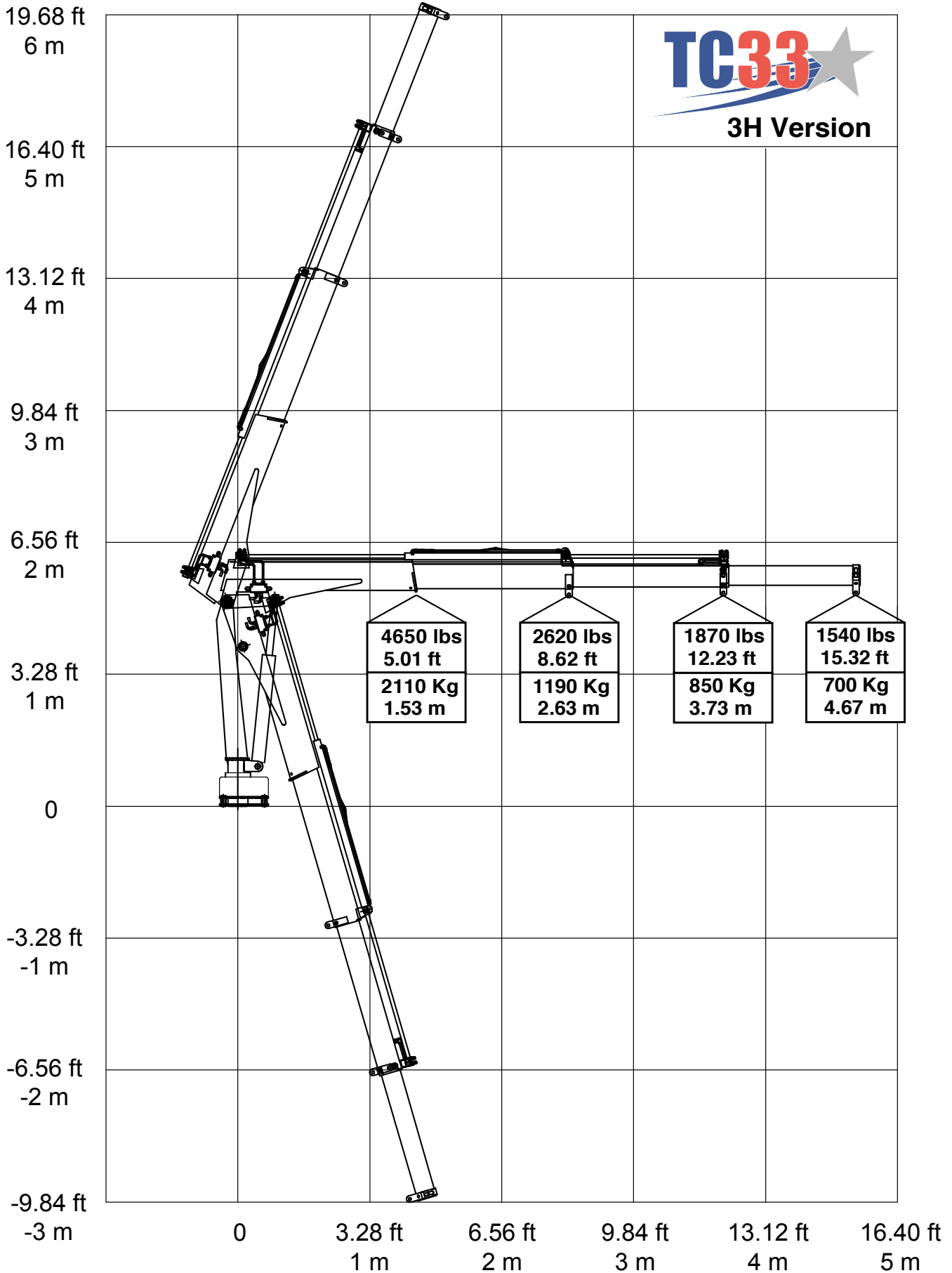


TC33 Crane	Model 3H
Crane Rating:	23,145 ft.lbs (31.0 kNm)
Max Lifting Capacity:	4,650 lbs (2,110 kg)
Max Reach:	15.32 ft (4.67 m)
Slewing Angle:	340°
Slewing Torque:	2,390 ft.lbs 3.2 kNm (0.33 m)
Operating Pressure:	2,755 psi 19.0 Mpa (190 bar)
Pump Capacity:	2.5 gpm (9.5 lpm)
Shipping Weight:	770 lbs (350 kg)

TC33-2H Capacity



TC33-3H Capacity



Chapter 2 - Installation

General Installation

This chapter is designed to serve as a general guide for the installation of a Stellar TC33 Crane on a Stellar Service Body. Each installation is considered unique so certain portions of this chapter may or may not apply to your direct application. If a question should arise during the installation process, please contact Stellar Customer Service at (800) 321 3741.

This crane is designed for use with a Stellar Service Body installed on a vehicle that meets the minimum chassis requirements of the crane. It is the installer's responsibility to assure that the crane is mounted on a platform that will support the maximum crane rating of this crane.

⚠ WARNING Do not install this crane on a body not capable of handling the loads imposed on it. Failure to do so may result in serious injury or death.

NOTICE When installing welder units to the service bodies, it is highly recommended that a surge protector is installed on the chassis batteries to protect the crane radio receiver, wiring and other electronic devices from an unexpected electrical spike or surge. Failure to do so could result in extensive damage to the service body and crane electrical circuit.

Installer Notice

According to Federal Law (49 cfr part 571), each final-stage manufacturer shall complete the vehicle in such a manner that it conforms to the standards in effect on the date of manufacture of the incomplete vehicle, the date of final completion, or a date between those two dates. This requirement shall, however, be superseded by any conflicting provisions of a standard that applies by its terms to vehicles manufactured in two or more stages.

Therefore, the installer of Stellar® Cranes and Bodies is considered one of the manufacturers of the vehicle. As such a manufacturer, the installer is responsible for compliance with all applicable federal and state regulations. They are required to certify that the vehicle is in compliance with the Federal Motor Vehicle Safety Standards and other regulations issued under the National Traffic and Motor Vehicle Safety Act.

Please reference the Code of Federal Regulations, title 49 - Transportation, Volume 5 (400-999), for further information, or visit <http://www.gpoaccess.gov/nara/index.html> for the full text of Code of Federal Regulations.

Torque Data Chart

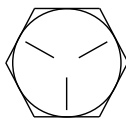
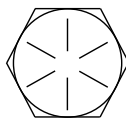
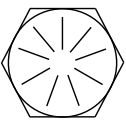
When using the torque data in the chart, the following rules should be observed:

- Bolt manufacturer's particular specifications should be consulted when provided.

- Flat washers of equal strength must be used.

- All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.

- 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.

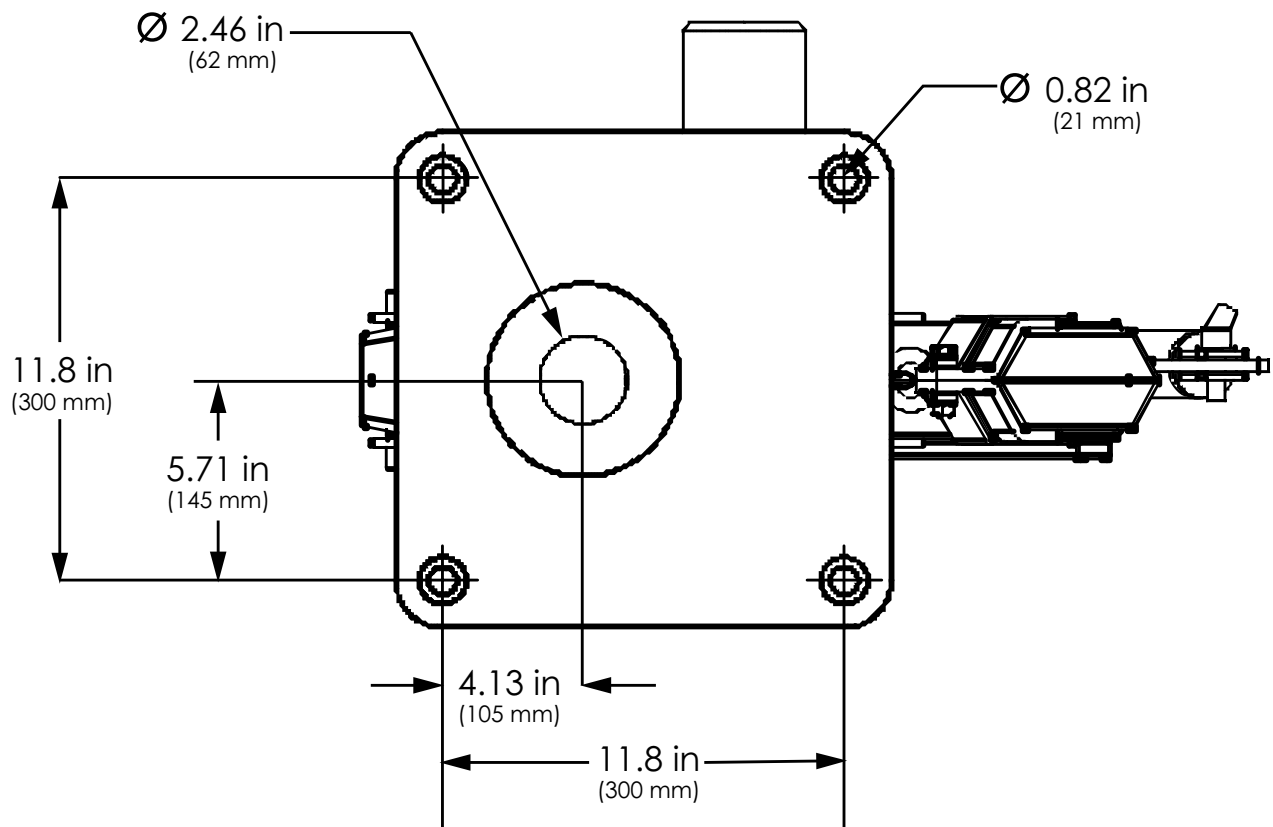
		GRADE 5		GRADE 8		GRADE 9
						
Size (DIA-TPI)	Bolt DIA (Inches)	Plain (Ft-Lb)	Plated (Ft-Lb)	Plain (Ft-Lb)	Plated (Ft-Lb)	Plated (Ft-Lb)
5/16-18	0.3125	17	13	25	18	22
3/8-16	0.3750	31	23	44	33	39
7/16-14	0.4375	49	37	70	52	63
1/2-13	0.5000	75	57	105	80	96
9/16-12	0.5625	110	82	155	115	139
5/8-11	0.6250	150	115	220	160	192
3/4-10	0.7500	265	200	375	280	340
7/8-9	0.8750	395	295	605	455	549
1-8	1.000	590	445	910	680	823
1 1/8-7	1.1250	795	595	1290	965	1167
1 1/4-7	1.2500	1120	840	1815	1360	1646
1 3/8-6	1.3750	1470	1100	2380	1780	2158
1 1/2-6	1.500	1950	1460	3160	2370	2865

- Torque values for socket-head capscrews are the same as for Grade 8 capscrews.
- Do not use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.
- Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.
- Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.
- Tighten plastic insert or crimped steel-type lock nuts to approximately 110 percent of the dry torque values shown in the chart below, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value. *Note: "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without lubrication. Tighten lubricated bolts to approximately 80% of dry bolts.*

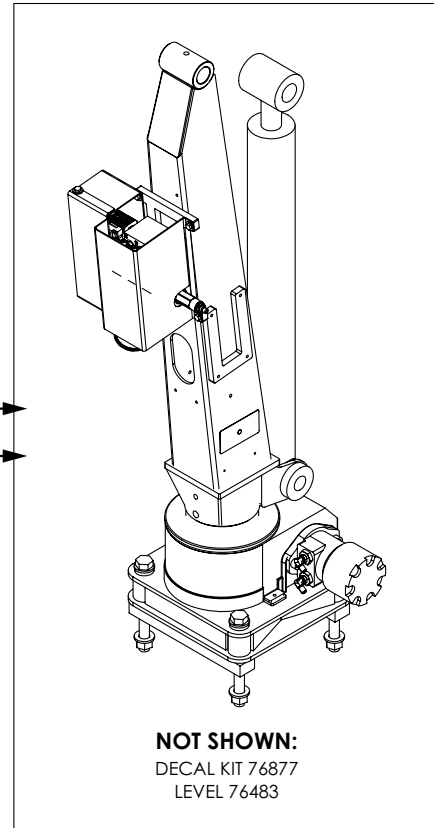
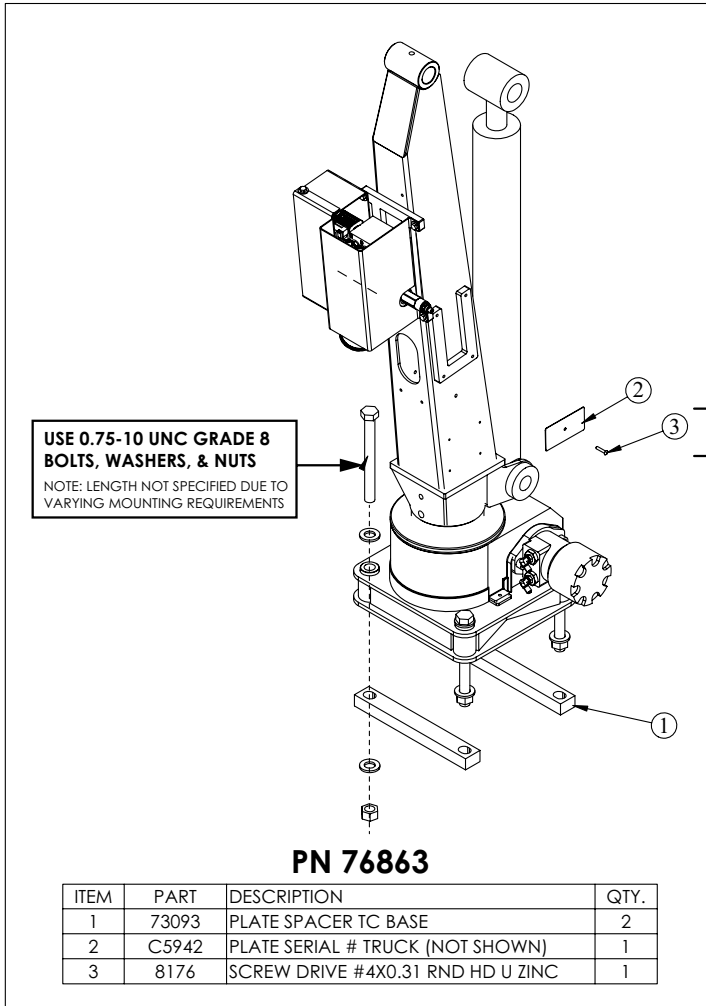
Installation Overview

1. Use the dimensional specifications to properly size and position the crane for mounting.
2. Use the detail on the following page to drill .82" diameter holes into the mounting plate.
3. Use a crane or lifting device capable of lifting the weight of the TC33 (See specifications for shipping weight details).
4. Connect straps or chain from the lifting device to the main boom of the TC33.
5. Remove motor to allow installation of the mounting bolts.
6. Use four (4) 0.75-10 UNC Grade 8 bolts, washers, and nuts. (See install drawing for details)
7. Using the lifting device, lower the TC33 just above the mounting surface and start the bolts. Have someone assist in leveling the crane.
8. Secure the crane using the mounting hardware provided. Note: longer or shorter bolts may be required – recommended thread engagement into crane base is 0.75" – use grade 8, zinc plated bolts only.
9. Torque the bolts to proper torque.
10. Remove supporting crane.
11. Hook up hydraulics and electrical using the schematics provided later in this chapter.

TC33 Mounting Detail

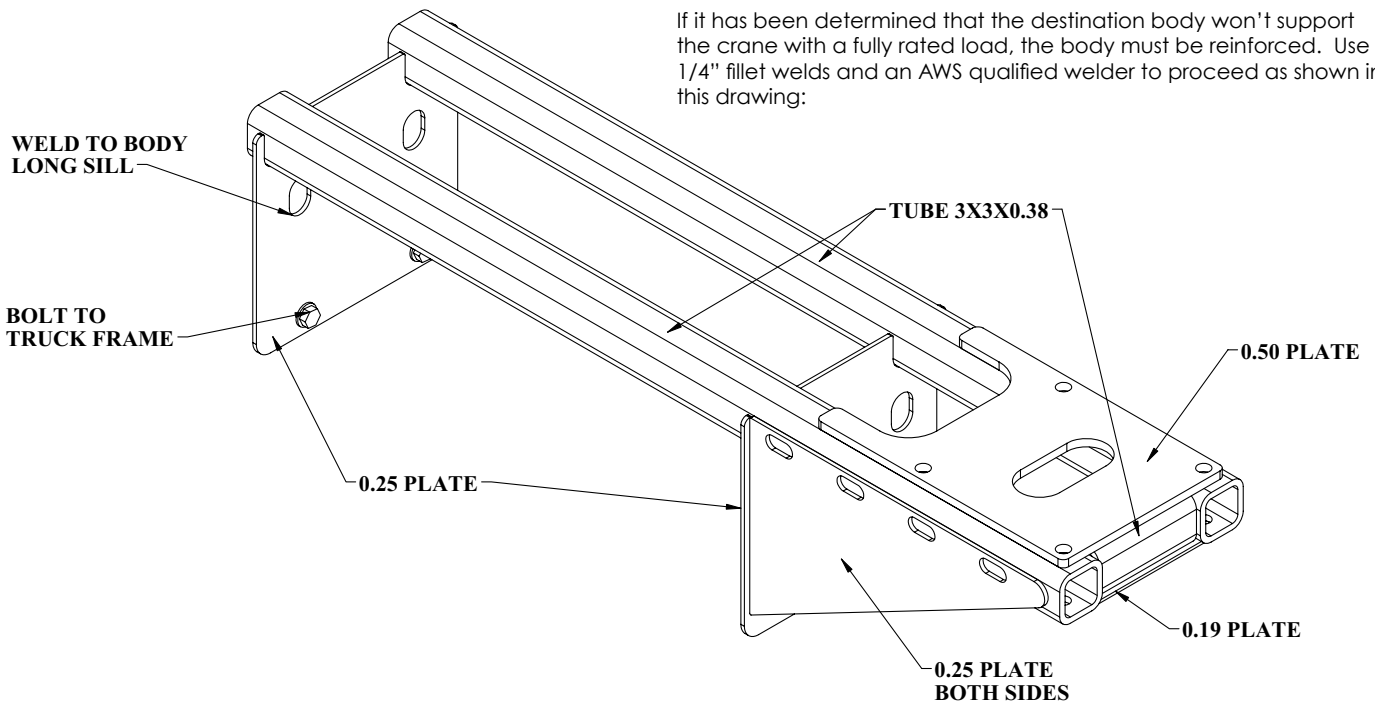


TC33 Installation Drawing - PN 76863

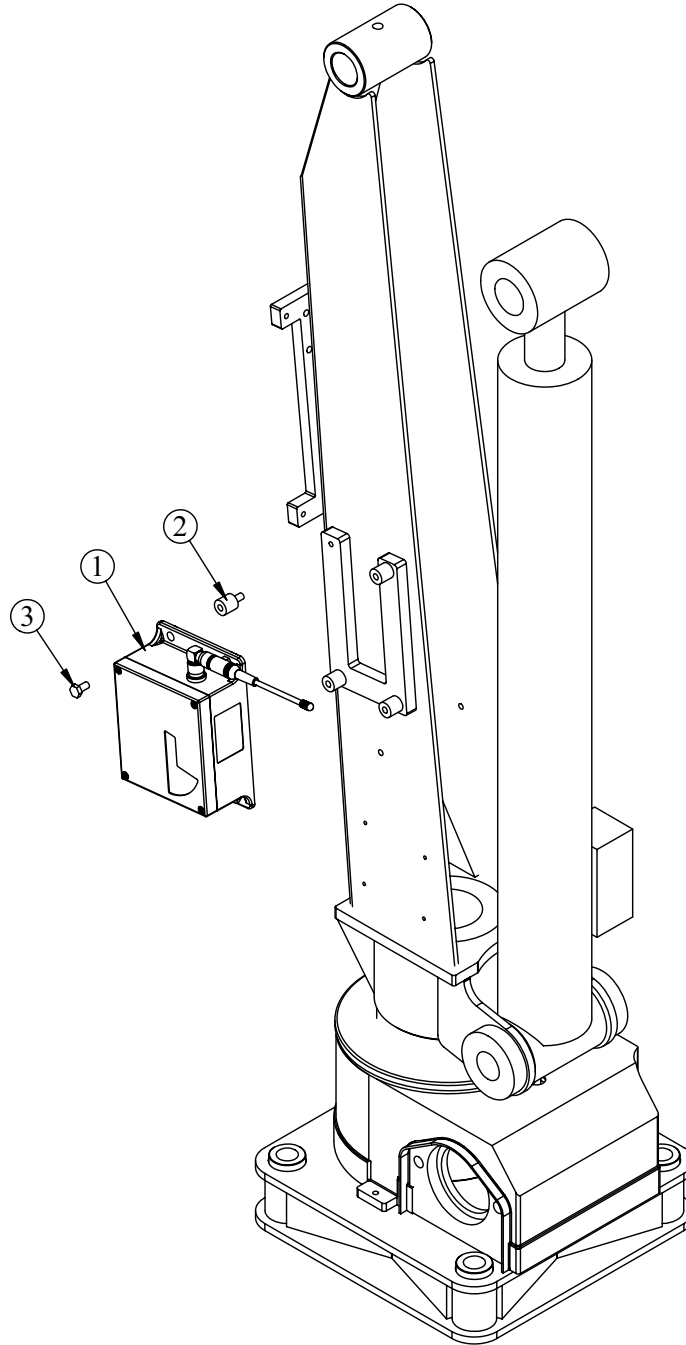


Flatbed Body Reinforcement

If it has been determined that the destination body won't support the crane with a fully rated load, the body must be reinforced. Use 1/4" fillet welds and an AWS qualified welder to proceed as shown in this drawing:



Control Kit - PN 76540



PN 76540

ITEM	PART	DESCRIPTION	QTY.
1	76542	RADIO CTRL ASM 6 FCTN CDT TC 13/23	1
2	76554	ISOLATOR RUBBER 0.25-20X1.13	4
3	0478	CAP SCR 0.25-20X0.50 HHGR5	4

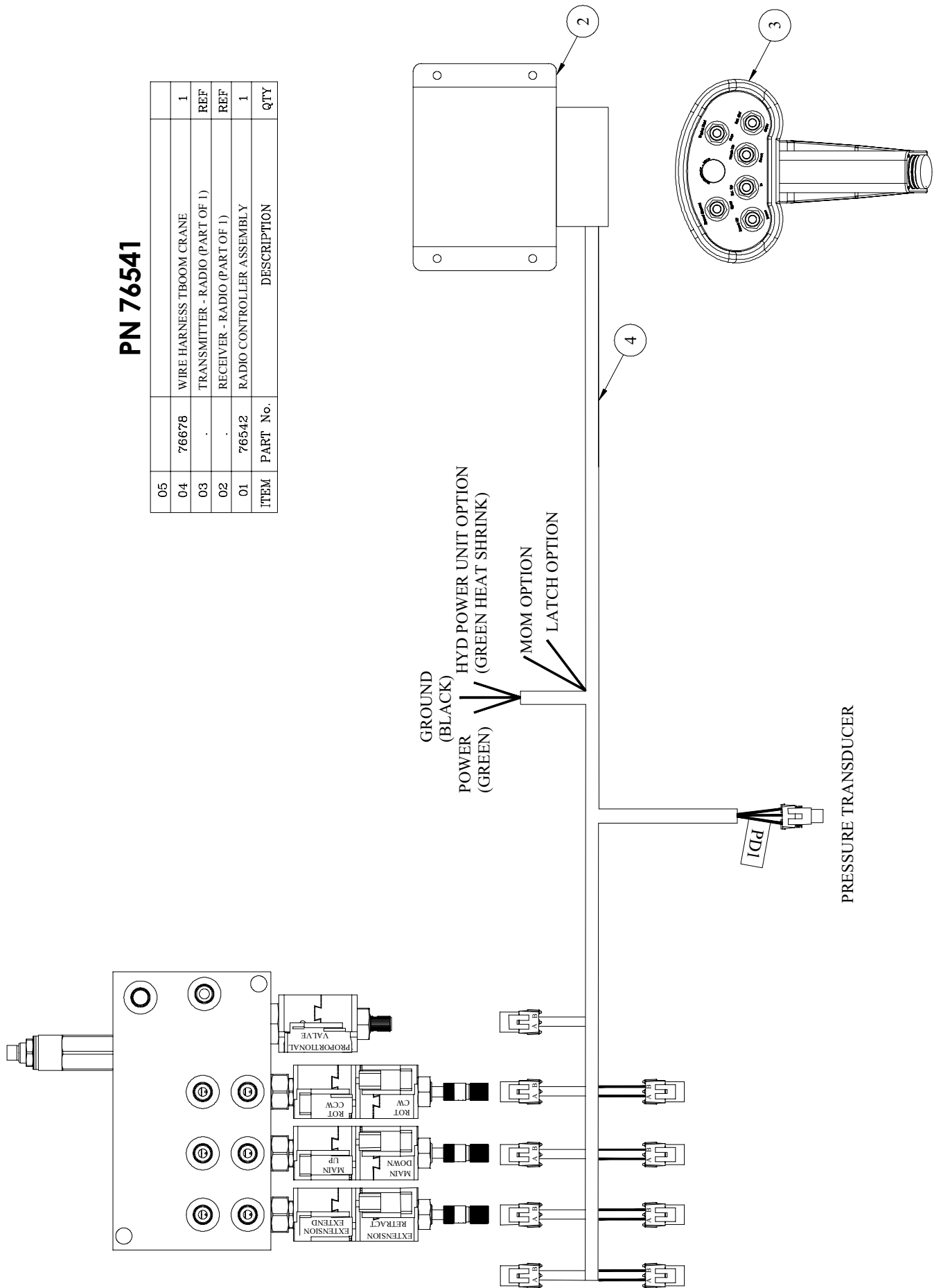
NOT SHOWN: WIRE HARNESS 76678

REFER TO INST DWG 76541

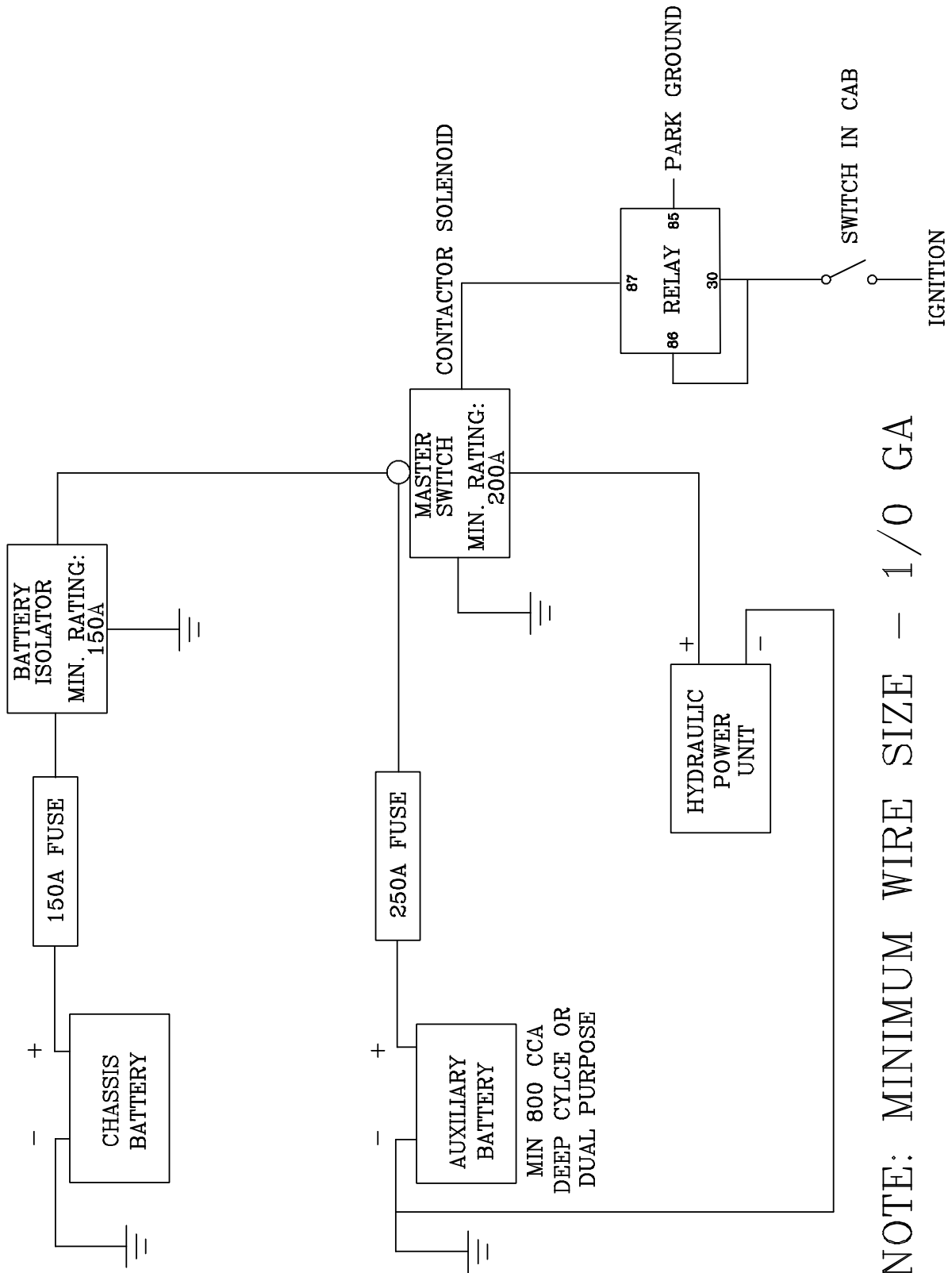
Control Kit Installation Drawing - PN 76541

PN 76541

ITEM	PART No.	DESCRIPTION	QTY
05			
04	76678	WIRE HARNESS TBOOM CRANE	1
03		TRANSMITTER - RADIO (PART OF 1)	REF
02		RECEIVER - RADIO (PART OF 1)	REF
01	76542	RADIO CONTROLLER ASSEMBLY	1

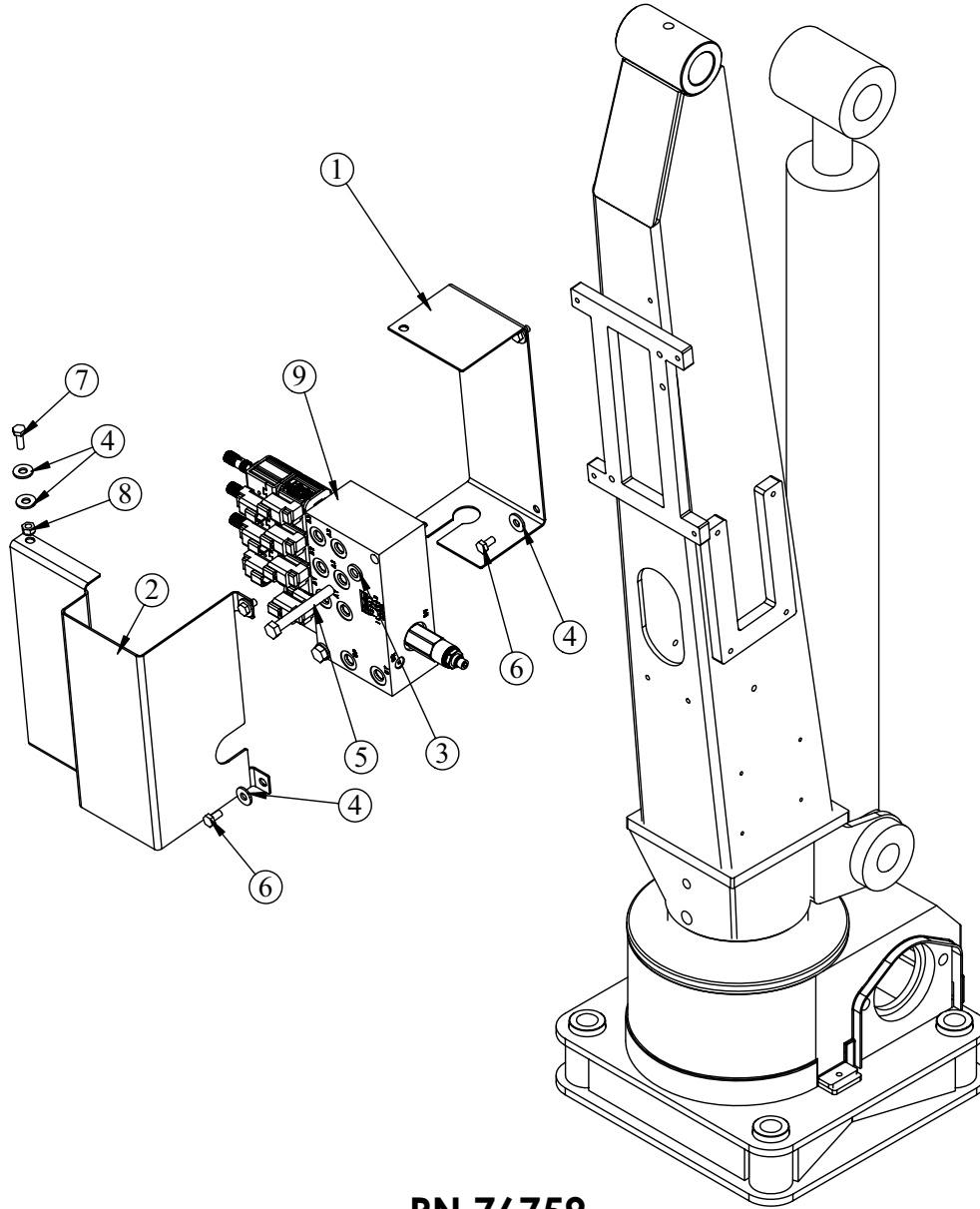


TC Series Wiring Diagram



NOTE: MINIMUM WIRE SIZE - 1/0 GA

Hydraulic Kit - PN 76759



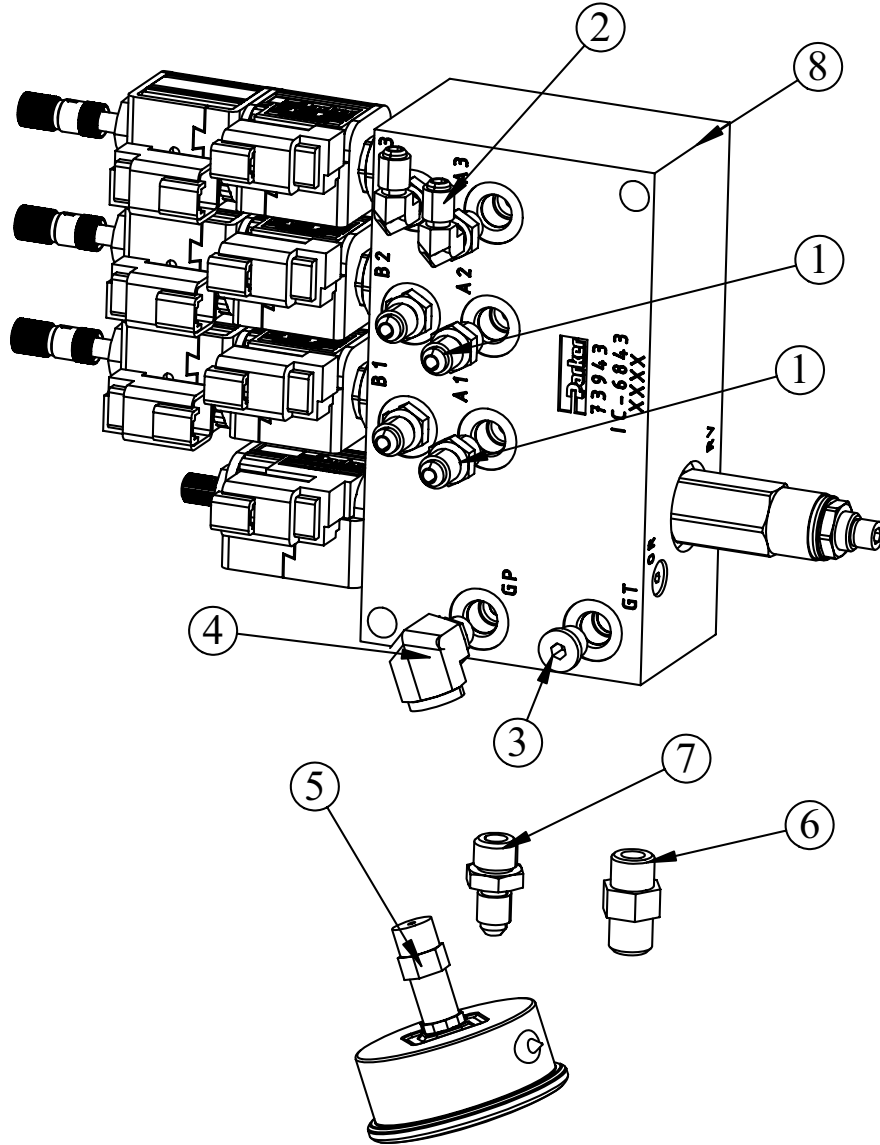
PN 76759

ITEM	PART	DESCRIPTION	QTY.
1	73946	COVER BACK TC CRANES	1
2	73947	COVER FRONT TC CRANES	1
3	0523	WASHER 0.38 LOCK	2
4	0340	WASHER 0.25 USS FLAT	8
5	C0949	CAP SCR 0.38-16X3.00 HHGR5	2
6	0478	CAP SCR 0.25-20X0.50 HHGR5	4
7	0479	CAP SCR 0.25-20X0.75 HHGR5	2
8	0333	NUT 0.25-20 HHGR5 NYLOC	2
9	73943	VB 3 SECT W/PROP STER4GPM-8 VALVE DEUTSCH	1

**PART NUMBERS NOT SHOWN:
76761, 4043, 75229, 75230**

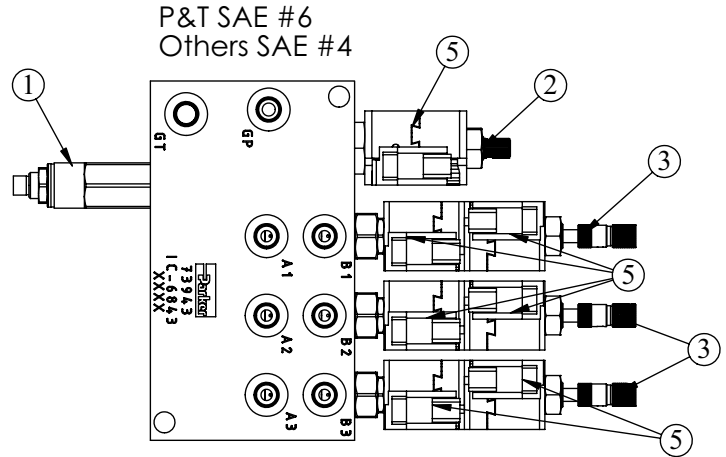
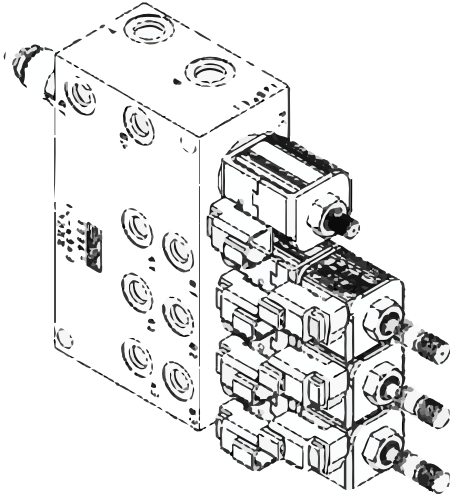
REFER TO INST DWG 76760

Hydraulic Kit - Valve Bank

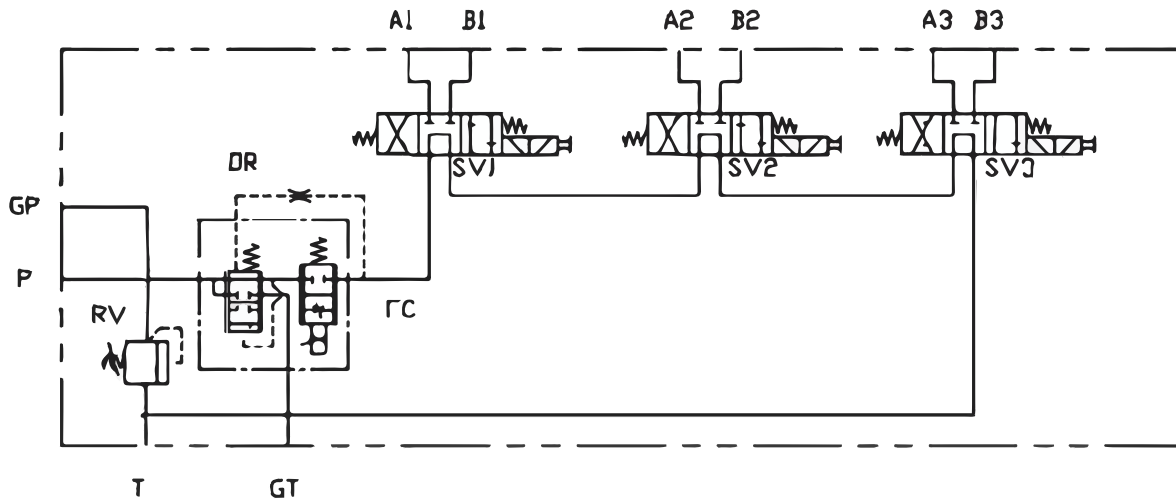


ITEM	PART	DESCRIPTION	QTY.
1	46484	FTG 4-4 MJ-MORB STRAIGHT	4
2	75820	FTG 4-4 MJ-MAORB 90	4
3	D0511	FTG 4 MORB PLUG HOLLOW HEX	1
4	51817	FTG 4-4 MAORB-FORB 90	1
5	39780	GAUGE OIL LF 2.5 0-5000 CBM SAE	1
6	47115	FTG 6-6 MJ-MORB STRAIGHT	1
7	47083	FTG 4-6 MJ-MORB STRAIGHT	1
8	73943	VB 3 SECT W/PROP STER4GPM-8 VALVE DEUTSCH	1

Valve Bank - PN 73943



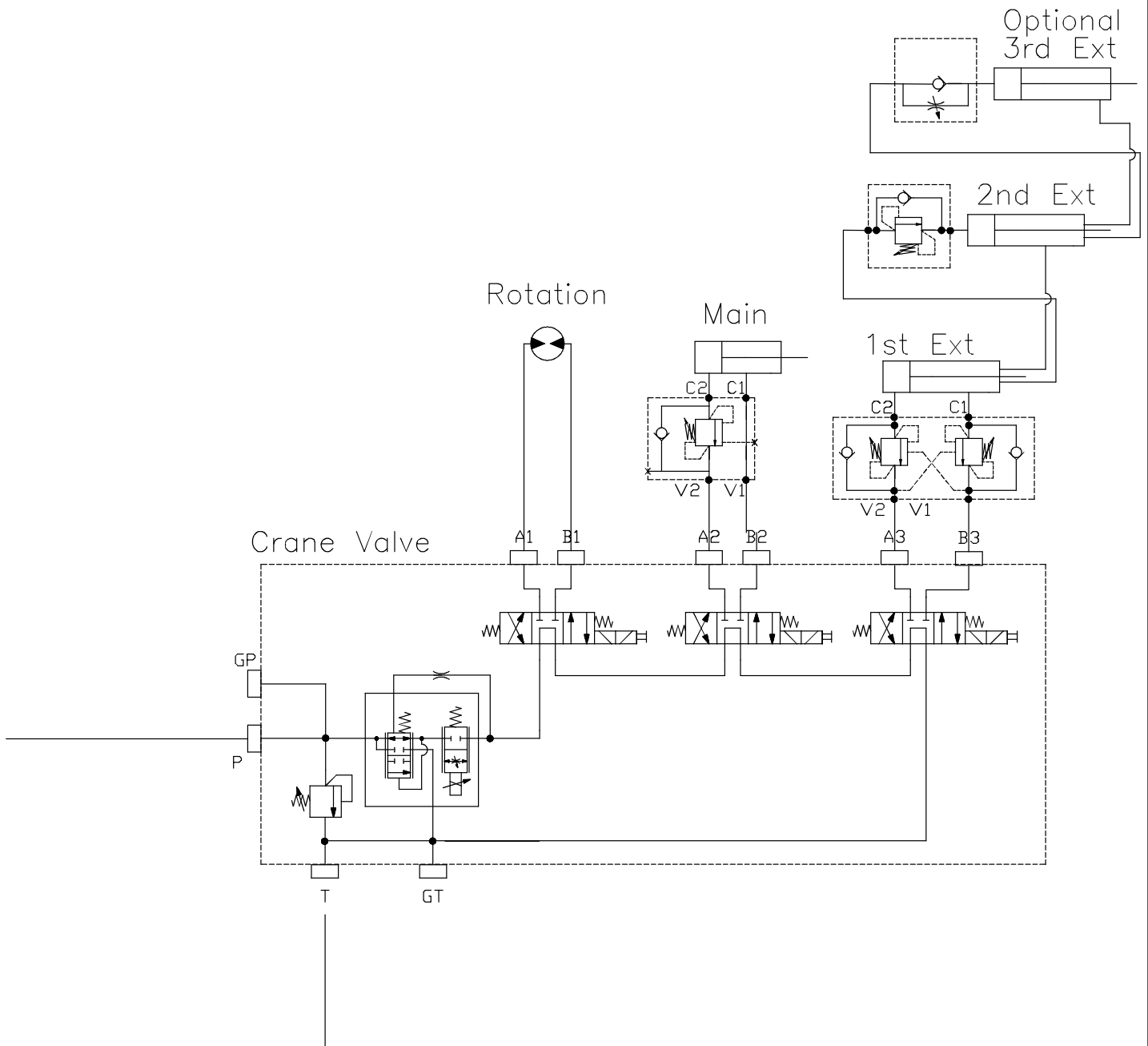
HYDRAULIC SCHEMATIC



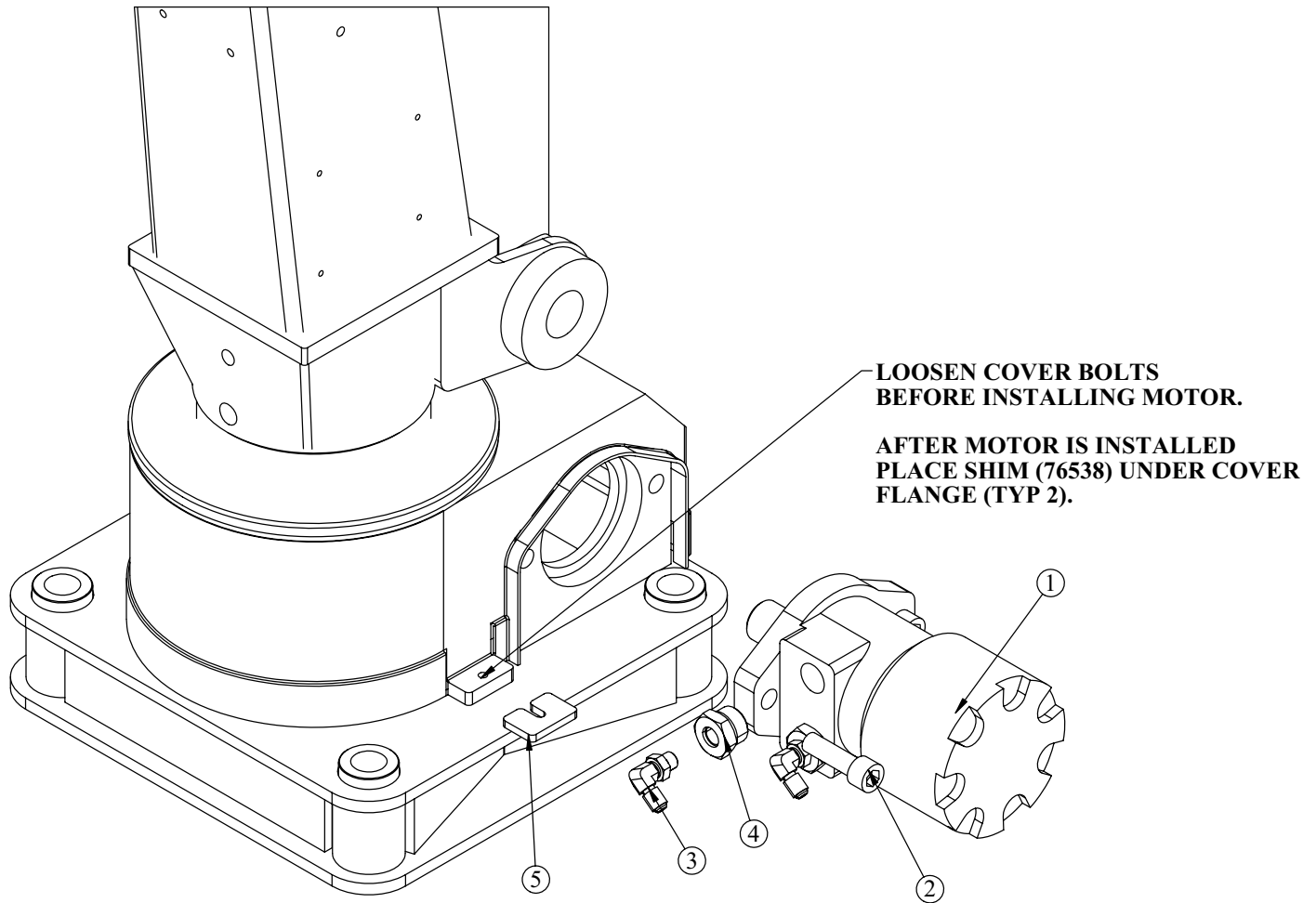
PN 73943

ITEM	PART	DESCRIPTION	QTY	TORQUE
1	25375	RELIEF VALVE 24957	1	23-27 FT LBS
	25376	SEAL KIT 25375		
2	25381	VALVE FLW CTRL PRP/JP04C3150N 0-4	1	20-22 FT LBS
	25369	SEAL KIT 24960/25381		
3	25377	VALVE SOLND 3 POS 4 WAY TAND G02571	3	22FT LBS
4	44532	COIL 12VDC DUETSCH CAP012H	1	22 FT LBS
5	55126	COIL 12VDC DUETSCH CCP012H	6	3 FT LBS

TC Series Hydraulic Schematic

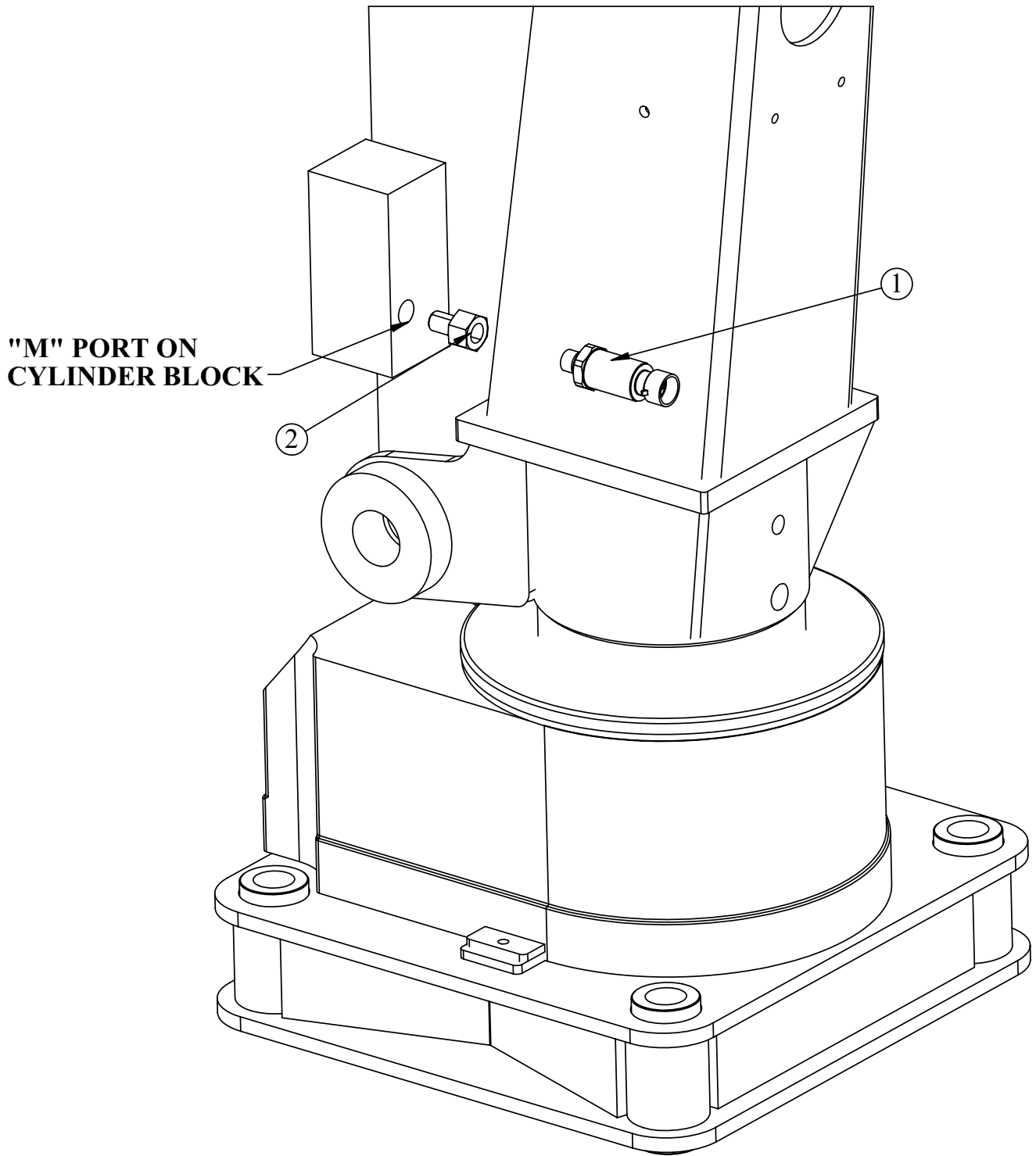


Hydraulic Kit - Motor



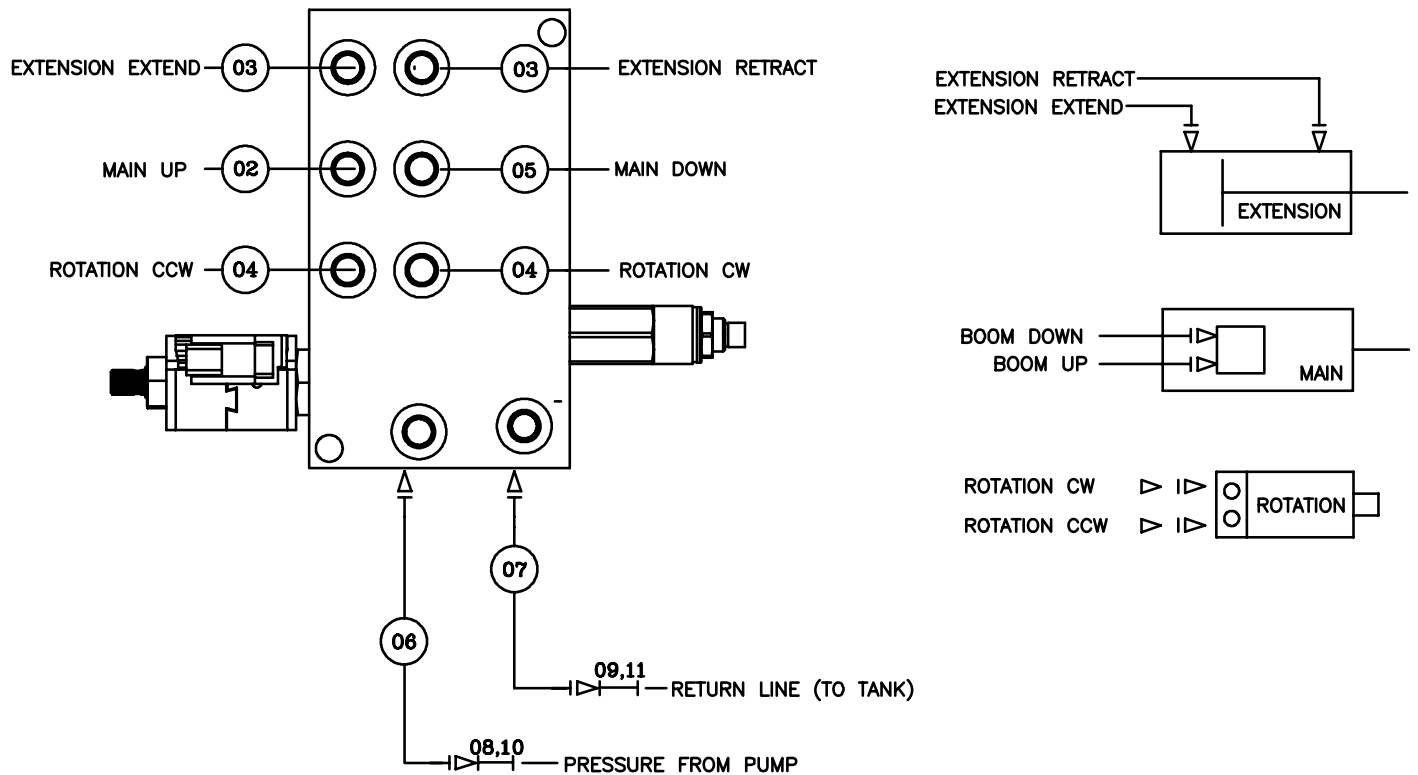
ITEM	PART	DESCRIPTION	QTY.
1	76058	MOTOR 100CC 25MM KEY SHAFT	1
2	62484	CAP SCR 12MMX40MM SH	2
3	75820	FTG 4-4 MJ-MAORB 90	4
4	55833	FTG 10-4 MORB-FORB STRAIGHT REDUCER	2
5	76538	PLATE AL SPACER TC13/23 COVER	2

Hydraulic Kit - Pressure Transducer



ITEM	PART	DESCRIPTION	QTY.
1	28485	TRANSDUCER PRESSURE 5000 PSI	1
2	78580	FTG 4-4 MBSPP W/BS-FORB	1

Hydraulic Kit Installation Drawing - PN 76760

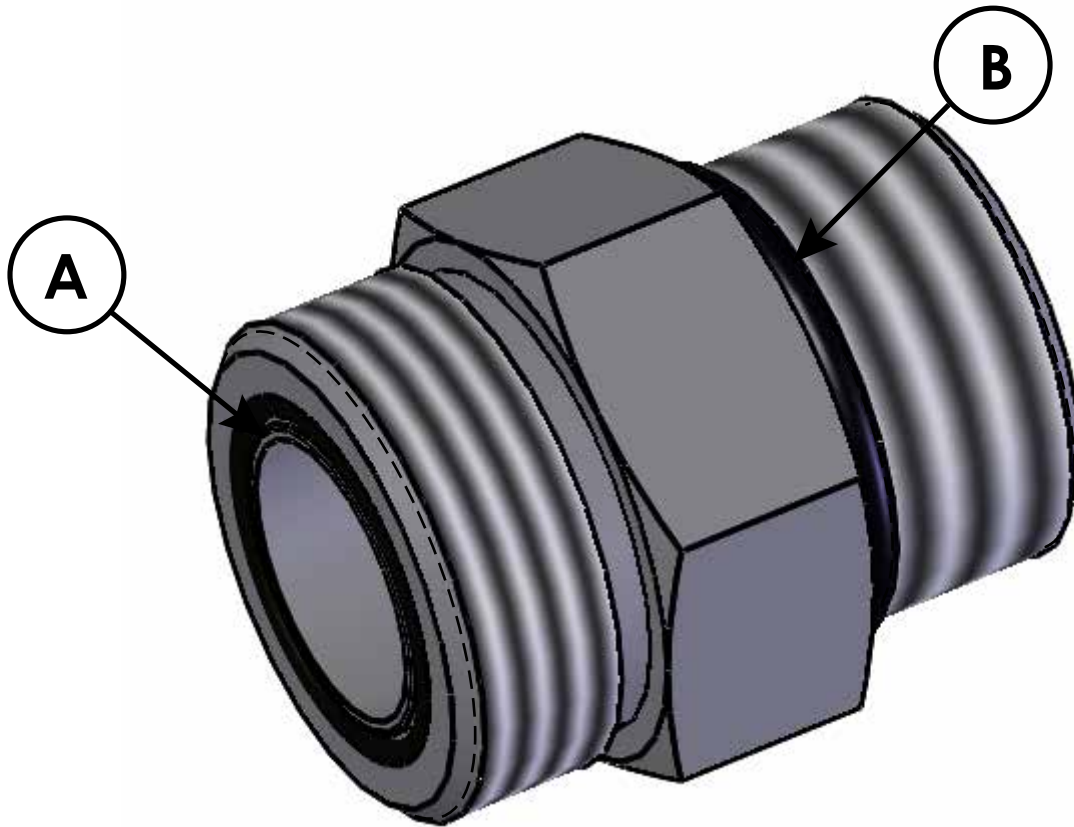


PN 76760

12	4043	HOSE PROTECTOR 0.50 AS-B-17	20'
11	55237	FTG 6 JIC CAP NUT	1
10	81759	FTG 4 JIC CAP NUT	1
09	75230	FTG 6-6 MJ-MJ SWIVEL STRAIGHT	1
08	75229	FTG 4-4 MJ-MJ SWIVEL STRAIGHT	1
07	76684	HOSE-HYD .38 X 34	1ref
06	76559	HOSE-HYD .25 X 34	1ref
05	76558	HOSE-HYD .25 X 40	1ref
04	76557	HOSE-HYD .25 X 54	2ref
03	77084	HOSE-HYD .25 X 37	2ref
02	76555	HOSE-HYD .25 X 38	1ref
01	76761	HOSE KIT TC33/38 (incl:2-7)	1
ITEM	PART No.	DESCRIPTION	QTY

NOTE: USE HOSE PROTECTOR
P/N 4043 OVER ALL HOSES

Face Seal/O-Ring Size Chart



Hose Size	Fitting Size	Face Seal (A) Stellar® PN	O-ring Boss (B) Stellar® PN
1/4"	#4	C2027	D1245
3/8"	#6	C2028	D1246
1/2"	#8	C2029	D1247
5/8"	#10	32223	D1248
3/4"	#12	D1244	D1249
1"	#16		D1250

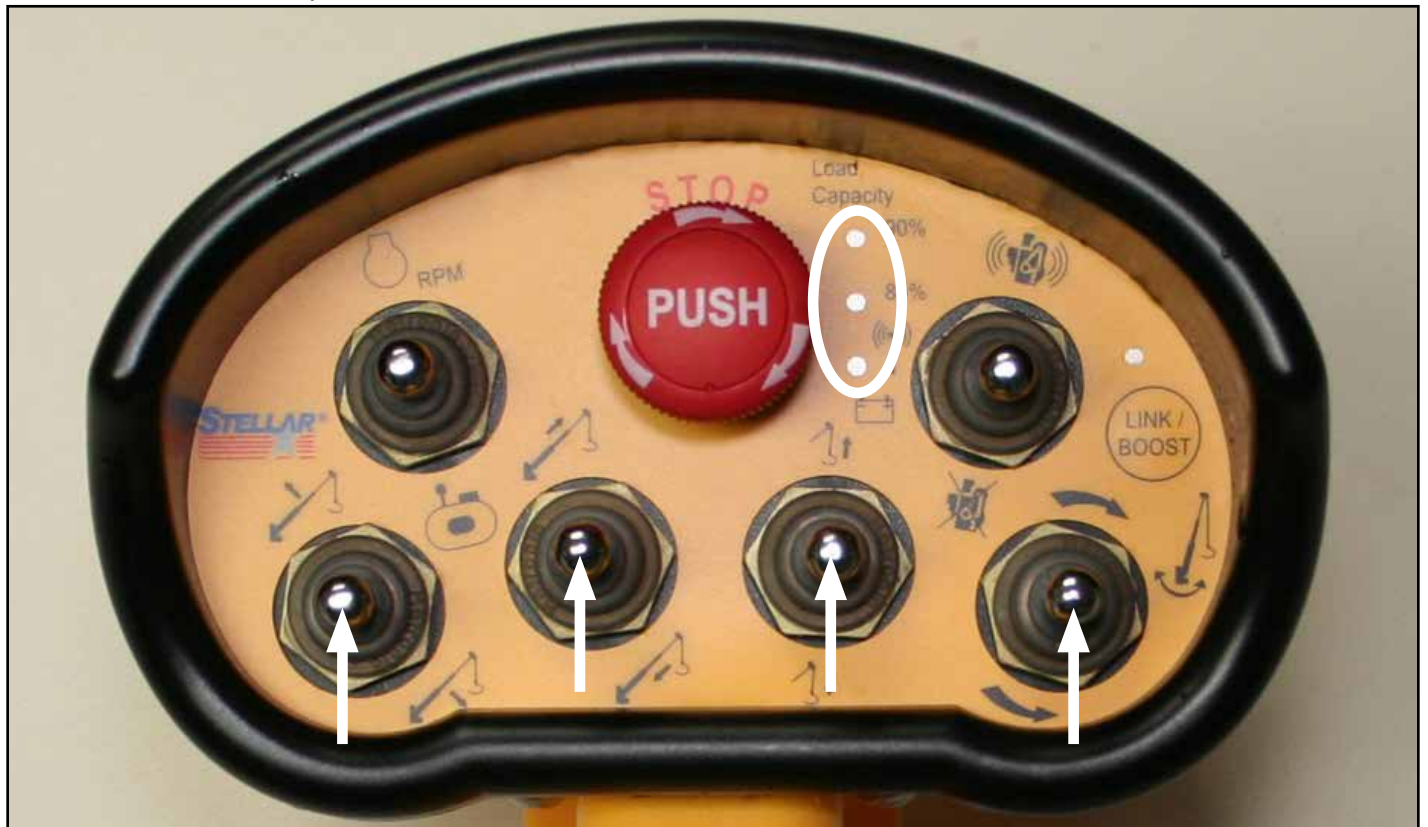
Stability Procedure

Definition of Stability for the Stellar® Telescopic Crane Products:

A truck is stable until the load cannot be lifted off the ground with the winch, without tipping over the truck. Every Stellar® Crane installed must be tested for stability to determine the actual load capacity of the final truck package. The actual test data must be recorded and supplied with the truck at the time of in-service and should be kept with the truck at all times. The following procedure will test the truck package for stability and will provide a stability capacity chart. The load limit information shown on the stability capacity chart is formulated on 85% tipping.

Set Up:

1. Locate the truck on a test course in position for loading and engage travel brakes.
2. Set stabilizers so that they make contact with firm, level footing.
3. Operate the crane under partial load to assure operator proficiency and proper machine function.
4. Put the radio into Stability Test Mode:
 - A. Push the bottom four switches up and hold until all lights come on (approximately 5 seconds.)



- B. At this point, the crane will have enough capacity to handle the weight for the stability test.
- C. The radio will timeout of stability mode after 30 minutes or when the E-Stop button is pushed.

Note: The radio can only be put into stability mode five times. After that, the radio would have to be returned to Stellar to be reprogrammed to allow additional stability testing. All other radio functions will work properly even if stability mode is not available.

Stability Procedure Continued...

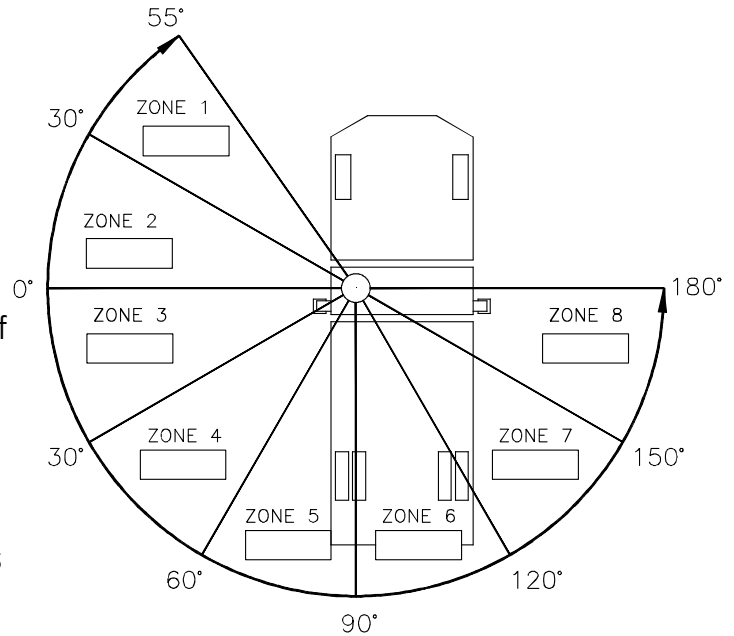
TC33 Stability Data		
Model	Max Horiz. Reach	Test Weight
TC33-2H	11.97 ft (3.65 m)	5,800 lbs
TC33-3H	15.32 ft (4.67 m)	5,490 lbs

Test Procedure

1. Rotate the crane into Zone 1 position.
2. With the crane fully retracted and the boom horizontal, winch the test weight off the ground. Note: Keep weight within six inches of the ground at all times.
3. Extend the boom outward until full extension has been reached or until the truck becomes unstable (Again, use the winch to keep the weight within six inches of the ground.)
4. If the boom goes full extension without becoming unstable, the crane is termed stable for this zone and 100% can be written in the Zone 1 data box.
5. If the truck becomes unstable prior to going full extension, retract the boom until the truck becomes stable and measure the horizontal reach in this position (center of rotation to boom tip). This is the stable horizontal reach for this zone. Stable horizontal reach divided by Maximum horizontal reach multiplied by 100 equals the percentage of rated capacity for this zone. Use the following formula to determine the percentage of rated capacity:

$$\frac{\text{Stable Horizontal Reach}}{\text{Max Horizontal Reach}} \times 100 = \text{Percentage of Rated Capacity}$$

6. Record this number in the data box for Zone 1. This is the revised capacity due to stability for this zone.
7. Repeat this procedure for each zone until the worksheet is completed.
8. This is the revised capacity based on stability of this package.



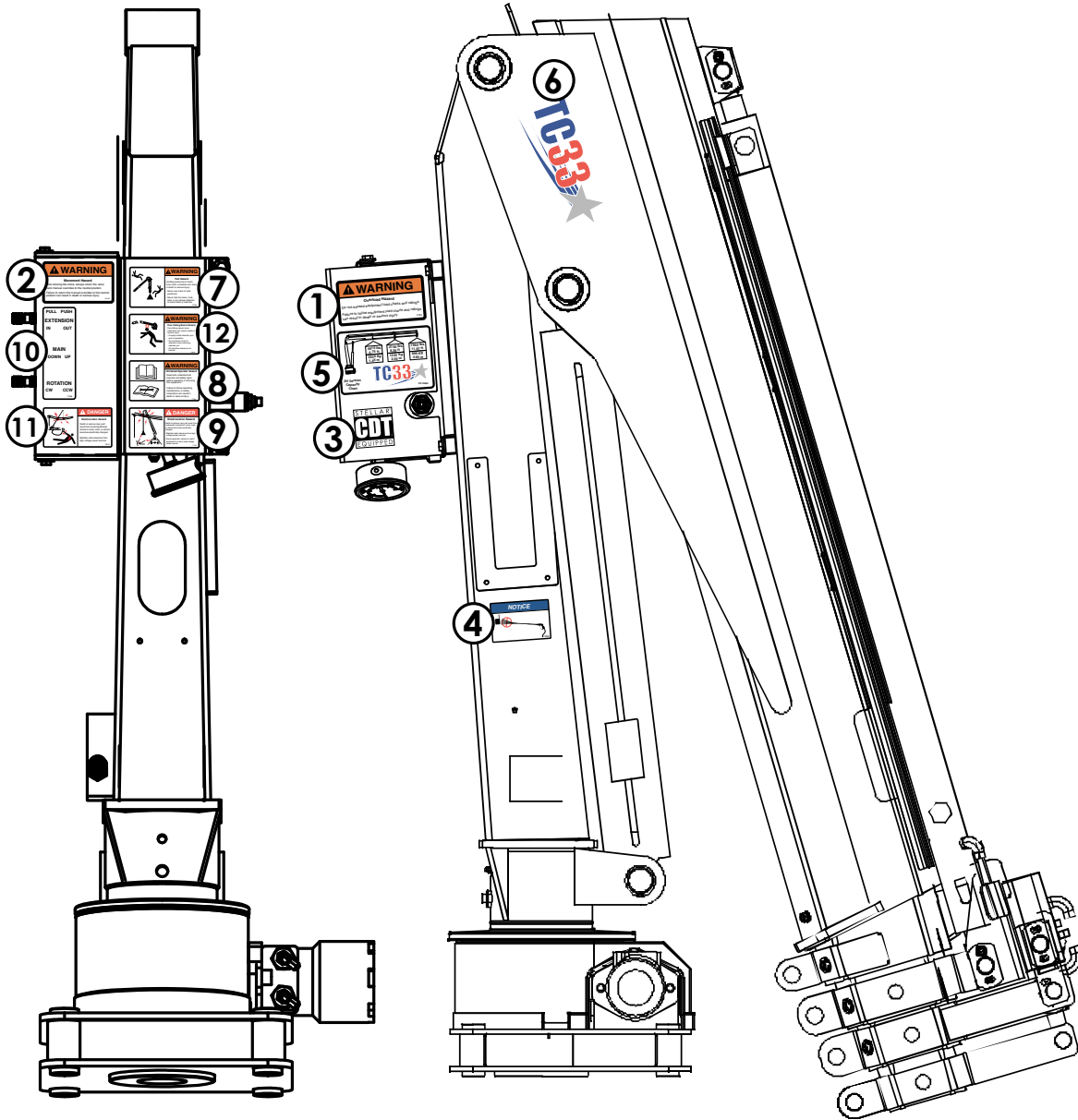
Crane Load Level Indicator

Stellar® Cranes are shipped with a load level indicator that is used to determine if the truck is level (side to side) before using the crane to pick/move a load. This level should be installed in the isolated crane compartment of the body. If level indicator is missing or damaged, please contact Stellar Customer Support for a replacement.



PN 76483

Decal Placement - PN 76876

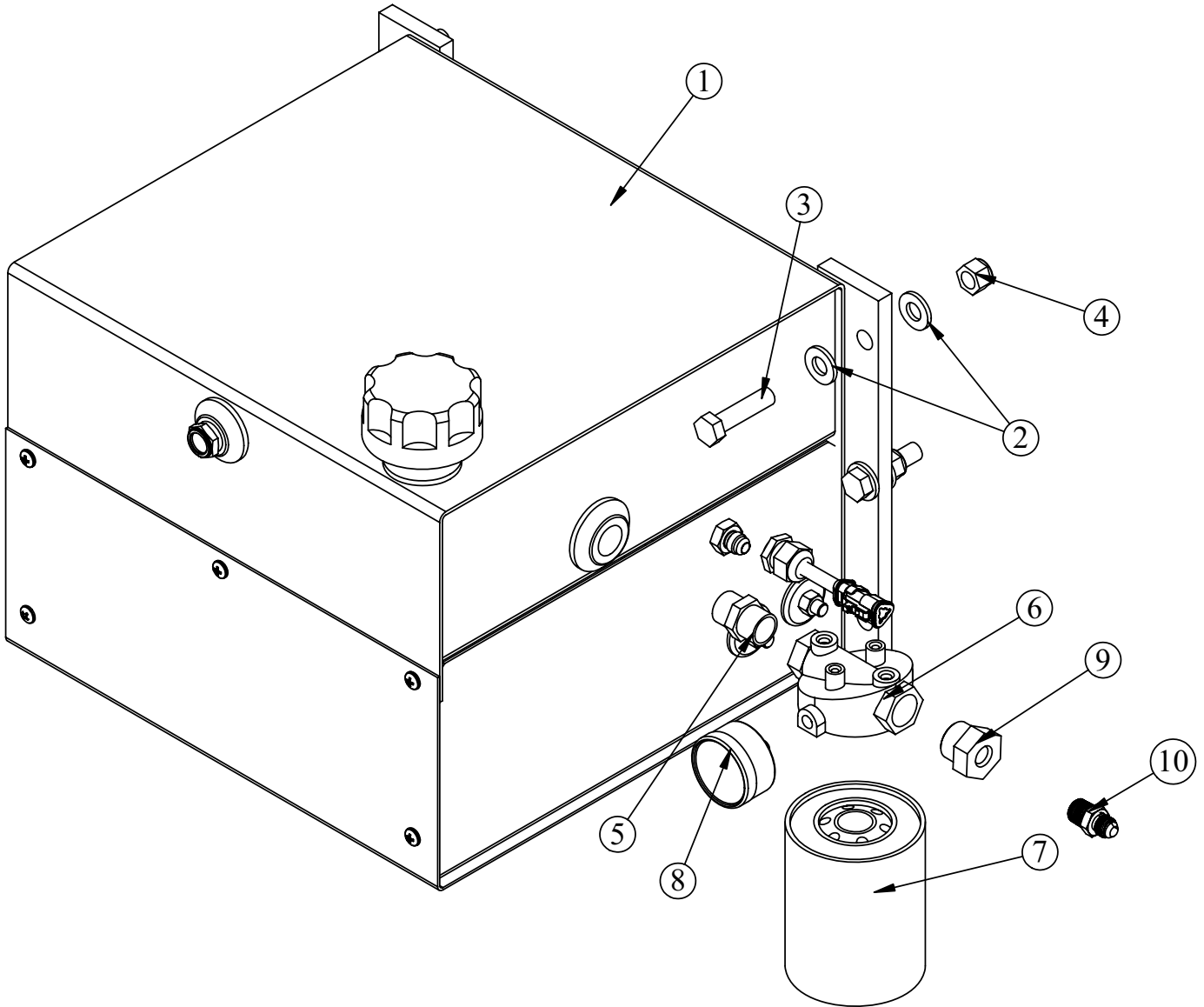


PN 76877
Rev B - 03/08/16

For use with Crane Package

ITEM	PN	DESCRIPTION	LOCATION	QTY
01	4189	DECAL WARNING OVERLOAD	On mast valve bank cover - side	1
02	25159	DECAL WARNING MANUAL OVERRIDES	On mast next to valve bank controls	1
03	54588	DECAL CDT 2.00 x 2.00	On mast valve bank cover - side	1
04	73929	DECAL PRESSURE WASH	On mast under receiver box	1
05	76883	DECAL CAPACITY TC33 2H	On mast valve bank cover - side	1
06	77088	DECAL IDENTIFICATION TC33	Crane boom - both sides	2
07	77733	DECAL WARNING HOISTING PERSONNEL	On mast valve bank cover - back	1
08	77734	DECAL WARNING UNTRAINED OPERATOR	On mast valve bank cover - back	1
09	77735	DECAL DANGER ELECTROCUTION SMALL	On mast valve bank cover - back	1
10	77736	DECAL VB 3 SECTION TC	On mast next to valve bank controls	1
11	78078	DECAL DANGER ELECTROCUTION REMOTE 2.00 X 3.50	On mast next to valve bank controls	1
12	78079	DECAL WARNING MANUAL EXT 2.00 X 3.50	On mast valve bank cover - back	1

Optional Power Unit Assembly - PN 77897



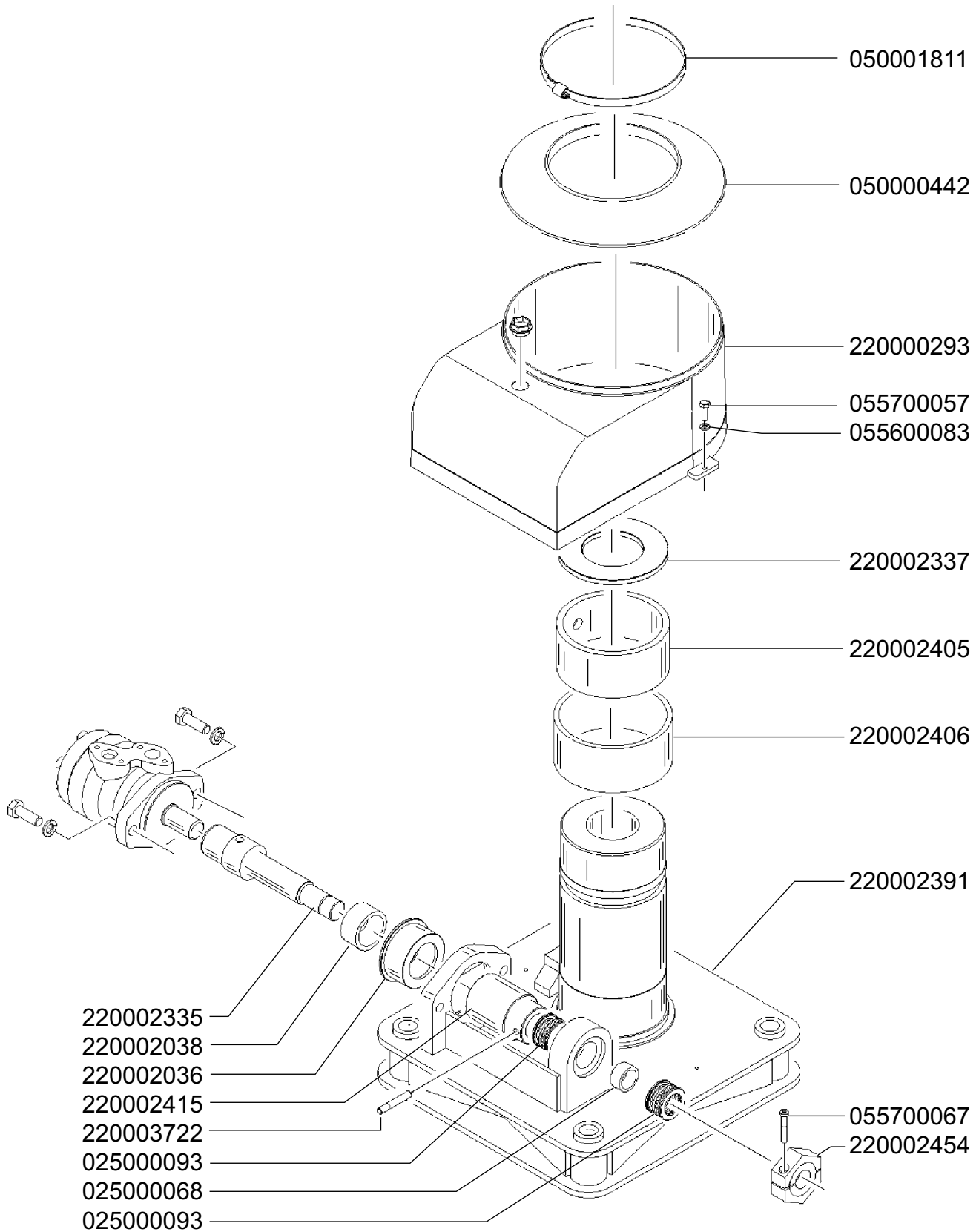
PN 77897

ITEM	PART	DESCRIPTION	QTY.
1	77896	POWER UNIT 12V 2.5GPM 4 GAL RSRVR	1
2	D0790	WASHER 0.50 SAE FLAT YELLOW GR8	8
3	8833	CAP SCR 0.50-13X2.00 HHGR8	4
4	5468	NUT 0.50-13 HHGR8 NYLOC	4
5	C6162	FTG 12-12 MP-MP HEX NIPPLE STRAIGHT	1
6	C6226	FILTER HEAD	1
7	C6227	FILTER SHORT	1
8	16145	GAUGE PRES FILTER SERVICE CI20	1
9	53485	FTG 12-6 MP-FP REDUCER BUSHING	1
10	77898	FTG 6-6 MJ-MP STRAIGHT	1

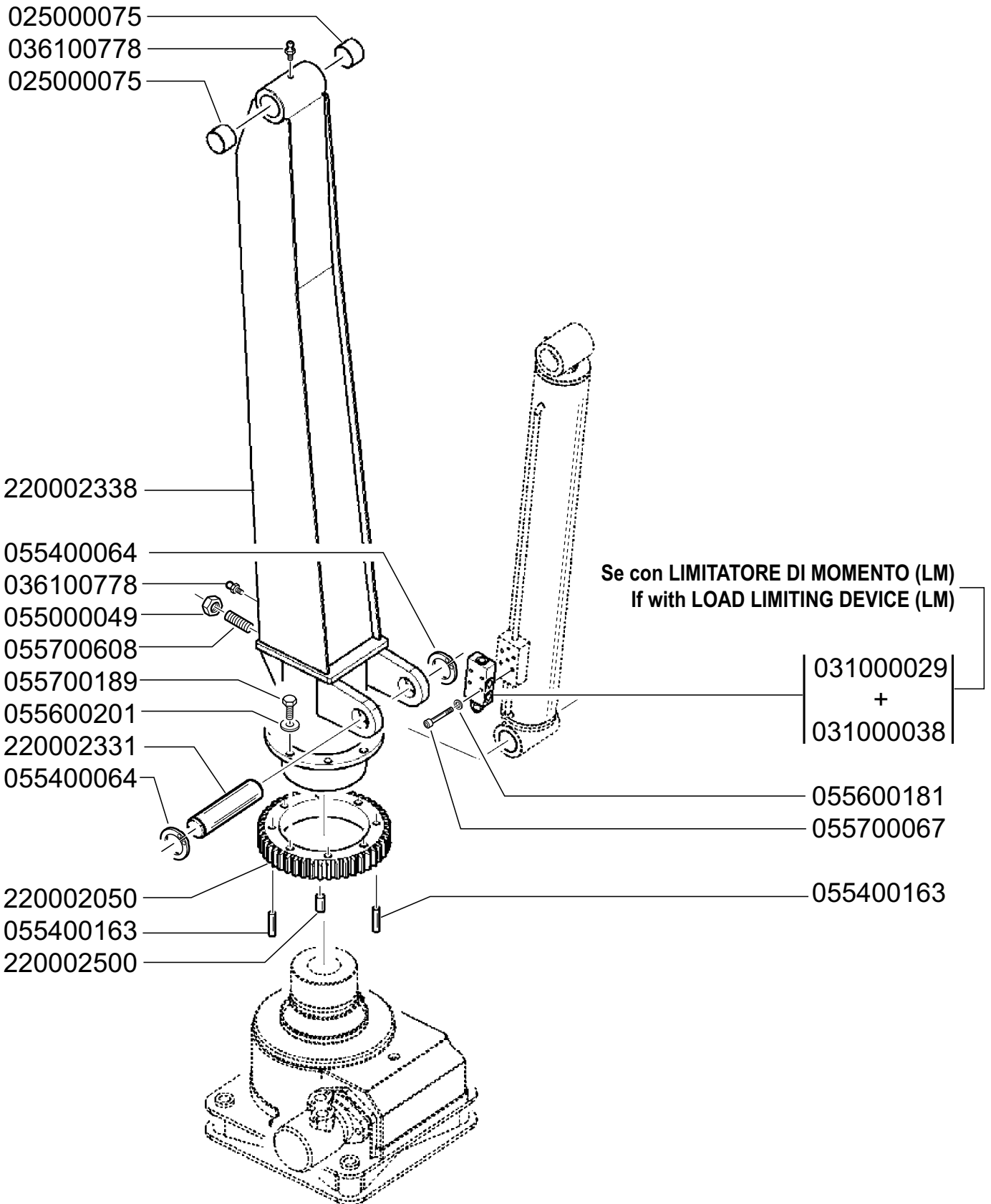
NOTE: ALL PARTS TO BE SHIPPED LOOSE

Chapter 3 - Assembly Drawings

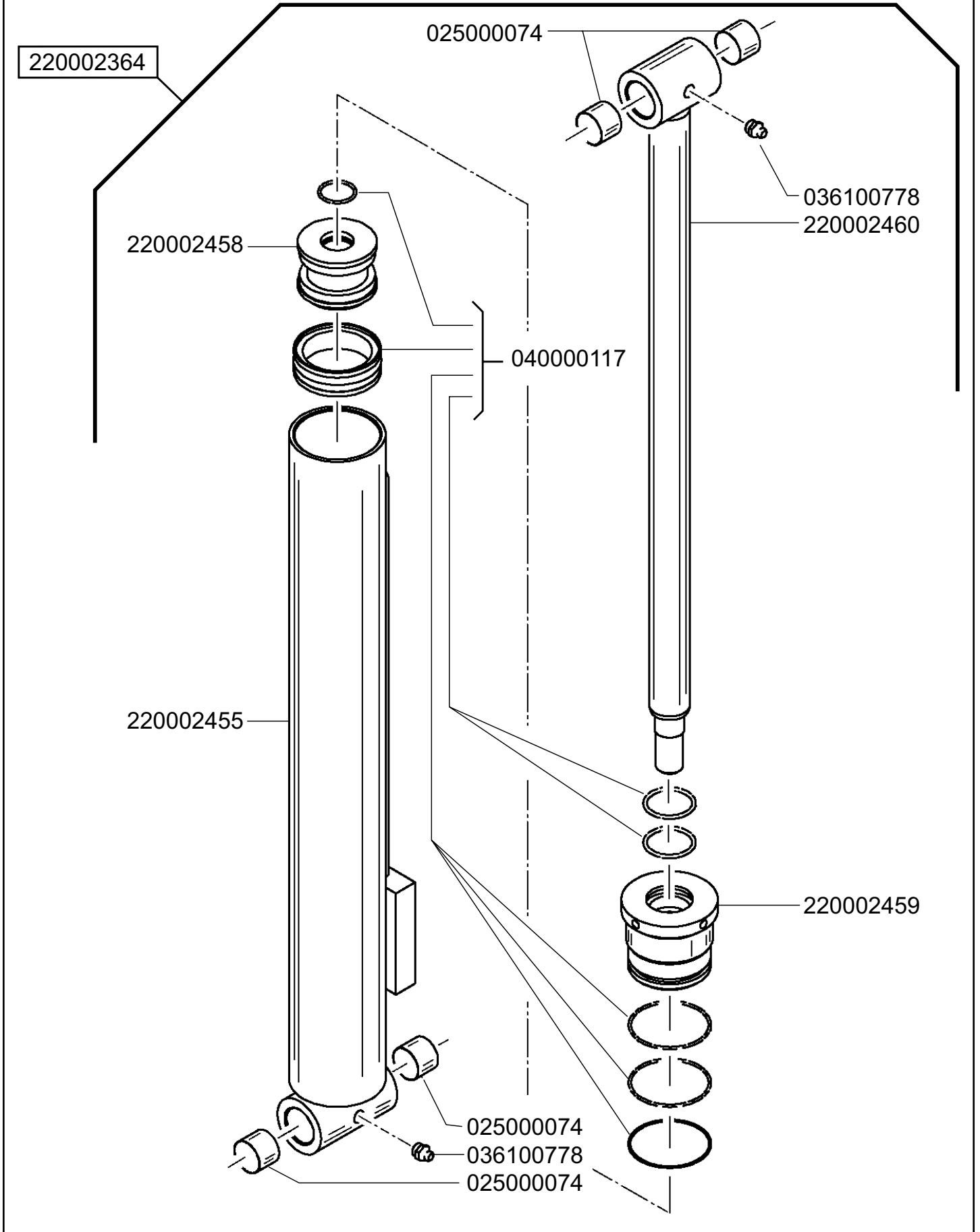
Base Assembly



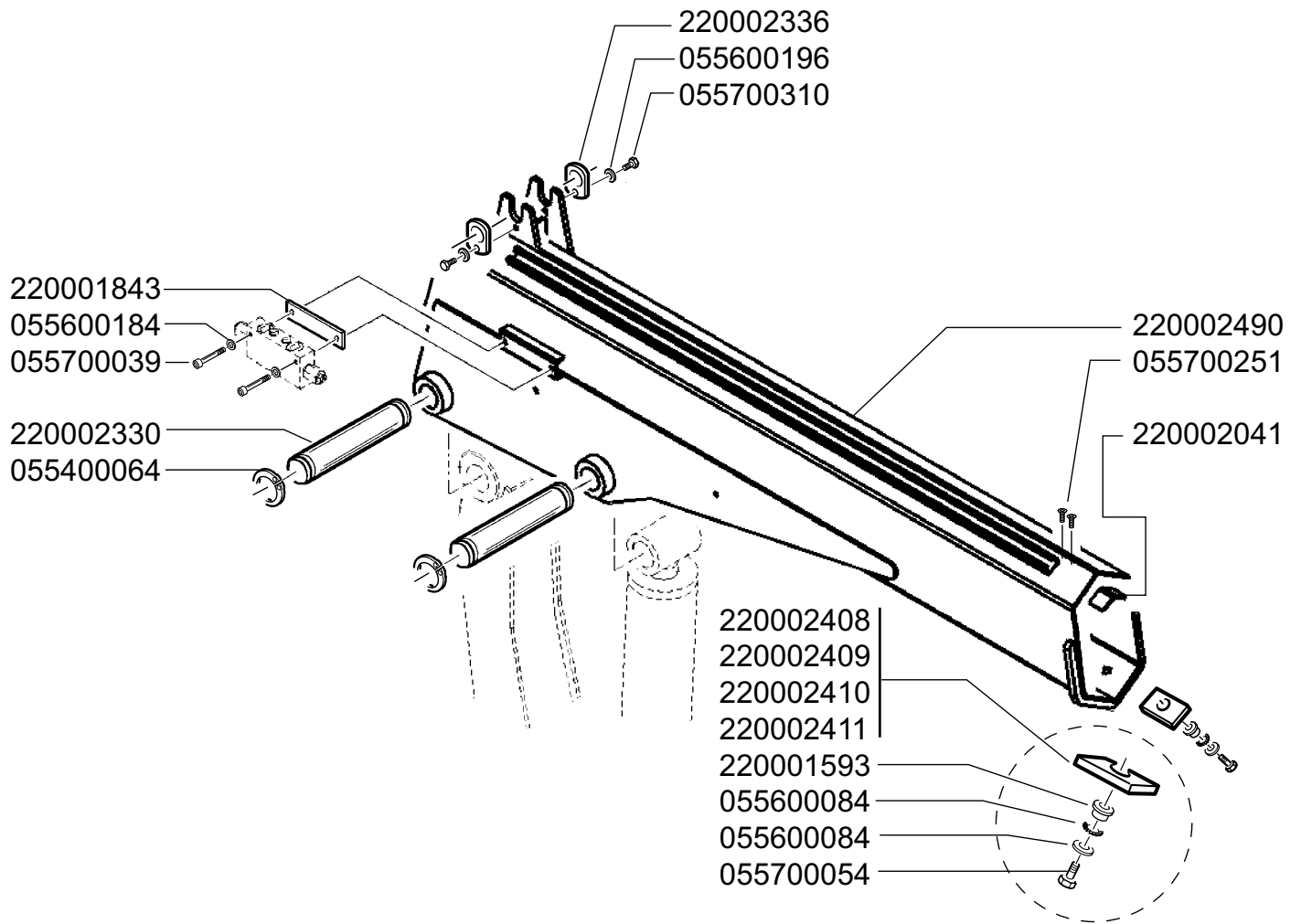
Mast Assembly



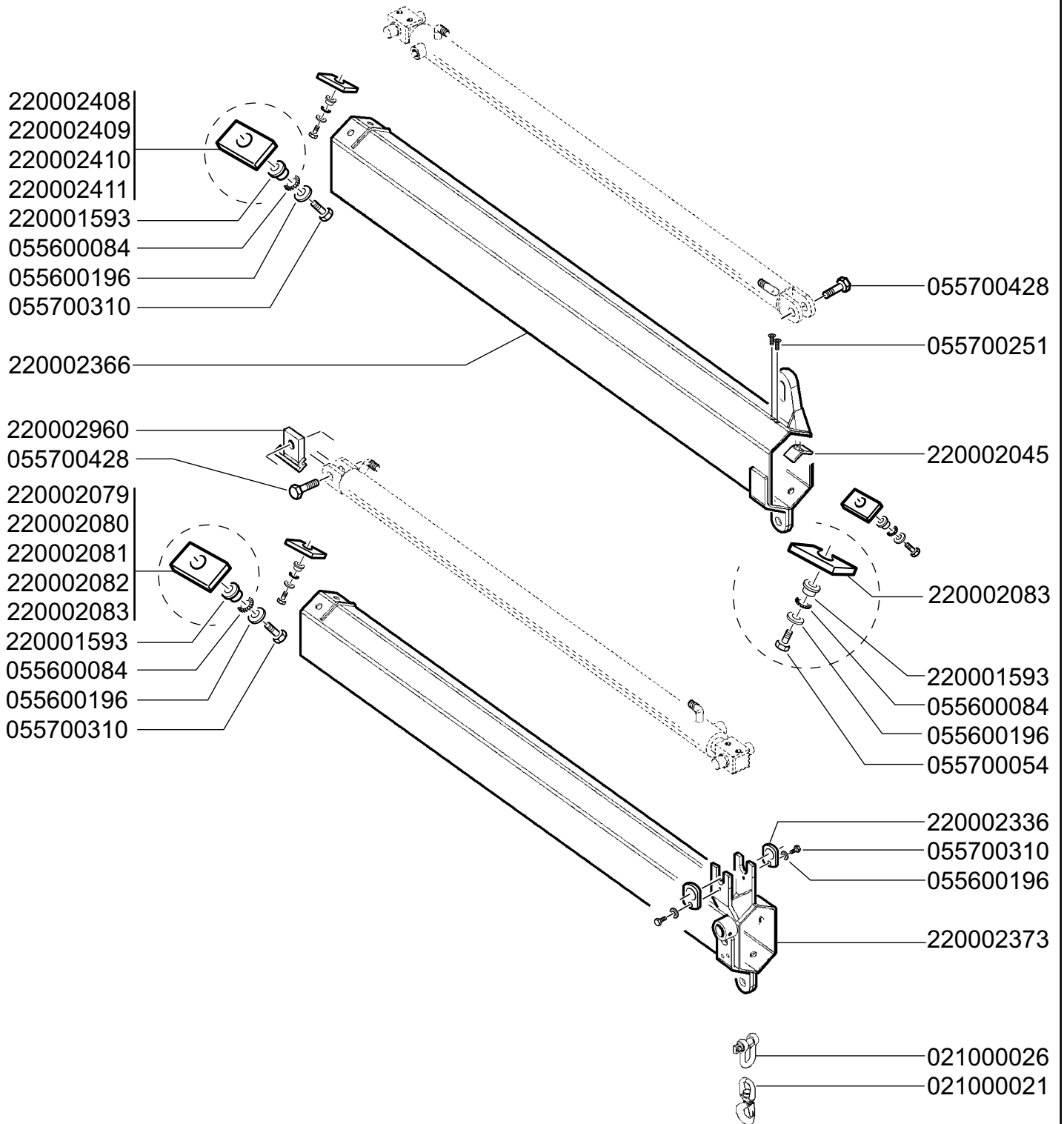
Main Cylinder Assembly



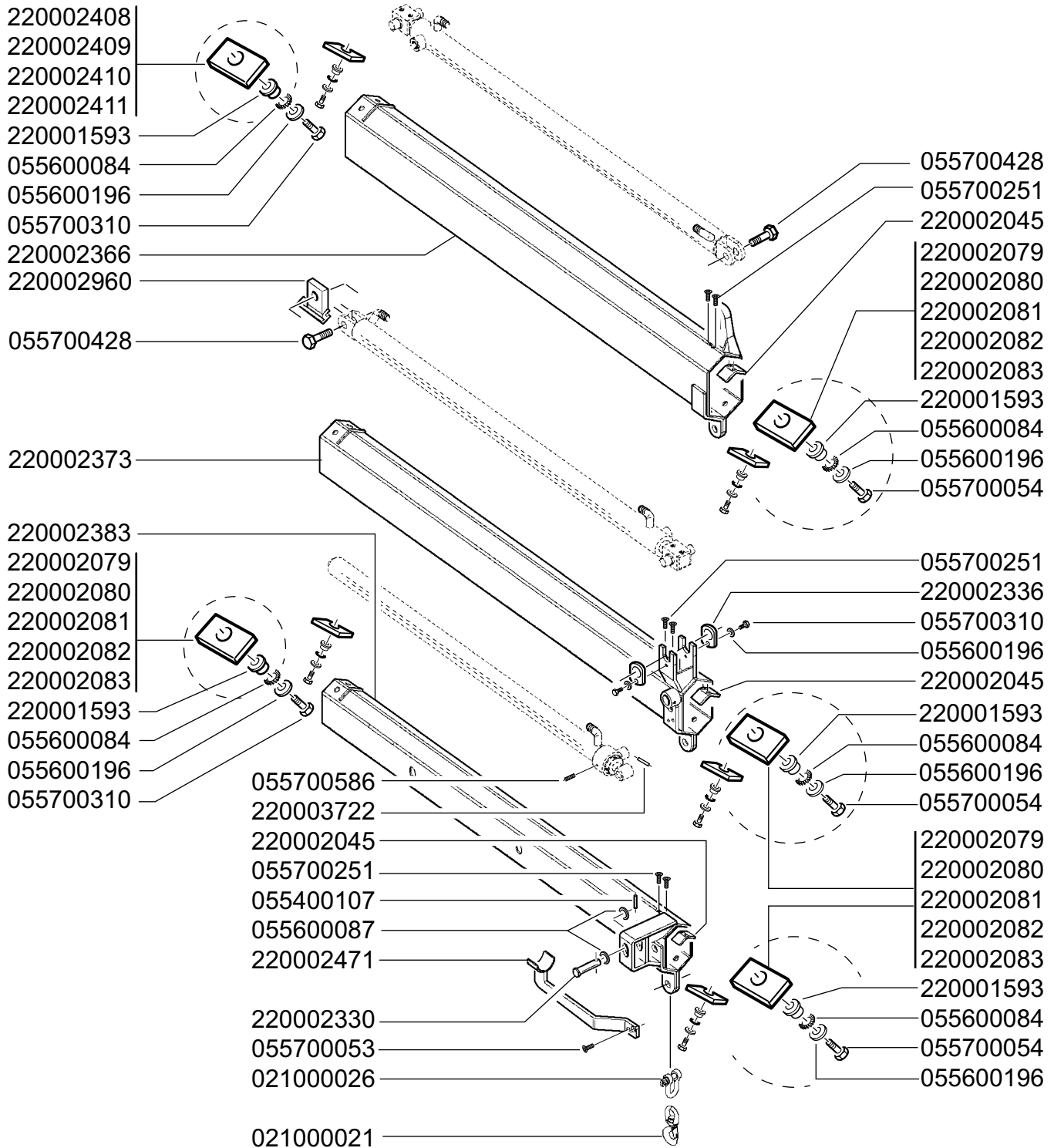
Main Boom Assembly



TC33-2H Extension Boom Assembly



TC33-3H Extension Boom Assembly



Extension Cylinder Assemblies

