



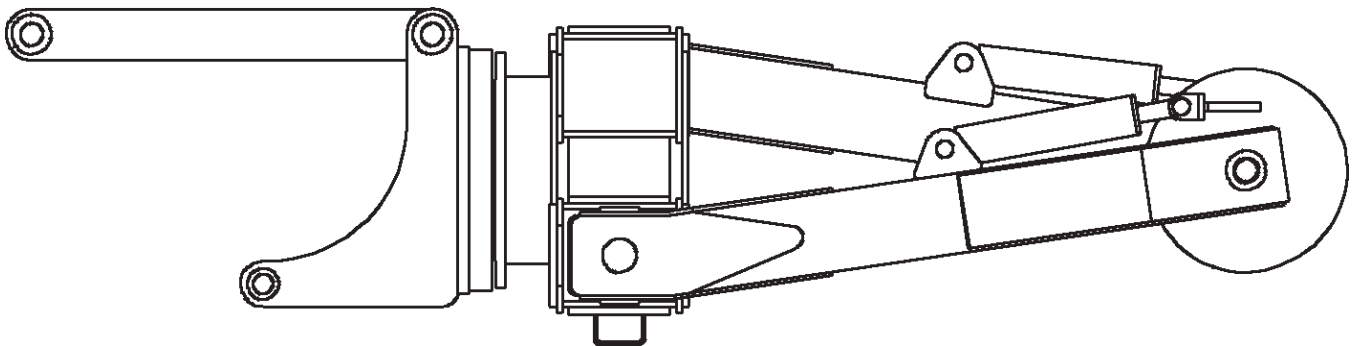
Tirehand 14

PARTS AND SPECIFICATIONS

Section 1 SPECIFICATIONS

Section 2 PARTS

Section 3 REFERENCE



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

TEL: 641-923-3711

TECHNICAL SUPPORT FAX: 641-923-2424

MANUAL PART NUMBER 99900763

Iowa Mold Tooling Co., Inc. is an Oshkosh Truck Corporation company.

REVISIONS LIST

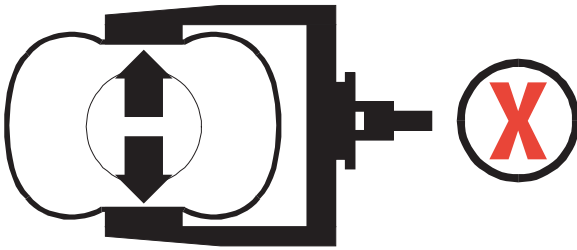
DATE	LOCATION	DESCRIPTION OF CHANGE
20000901	2-05	ECN9000-40715764-REF PART OF 1 ITEMS 9,12-14
20020206	2-5	ADDED MOBILTAC NOTE
	3-1,10	WARRANTY
20050923	2-15	ECN 9924 - ADDED HOLDING VALVE TO 91714929 HYD KIT
20070227	COVER, 2-3	UPDATED OWNERSHIP STATEMENT, NEW SERIAL NUMBER TAG

TIREHAND OPERATING RESTRICTIONS

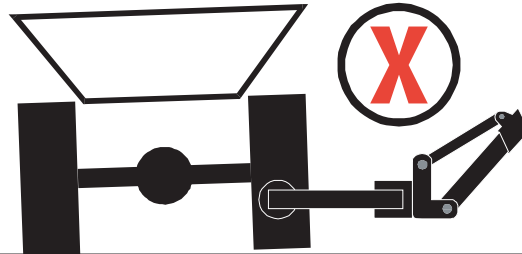
! DANGER

FAILURE TO OBEY THE FOLLOWING
WILL RESULT IN
DEATH, SERIOUS INJURY,
INSTABILITY OR EQUIPMENT DAMAGE

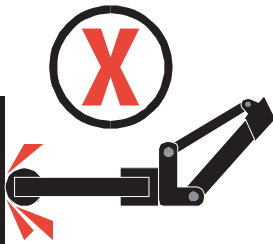
NEVER clamp an uninflated tire and then inflate. Damage or injury WILL result.



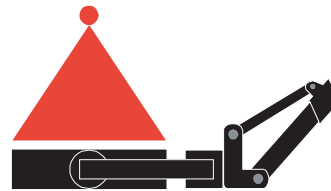
NEVER use the unit for any jacking, pulling or dragging operation involving an object or another vehicle.



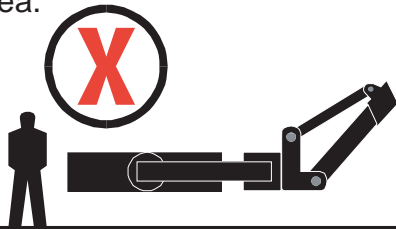
NEVER impact-load or hammer-push with the unit.



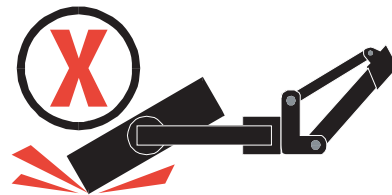
NEVER attempt to handle tires filled with ballast. Stability or structural failure may result if the load limit is exceeded.



NEVER operate the unit while persons not required for operation are in the work area.



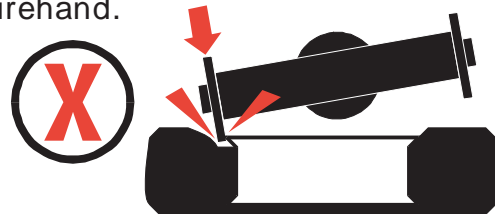
NEVER drag the tire-the unit is designed to lift and position.



NEVER sling a load using one arm of the Tirehand.



NEVER use crane functions to break beads using only one arm of the Tirehand.



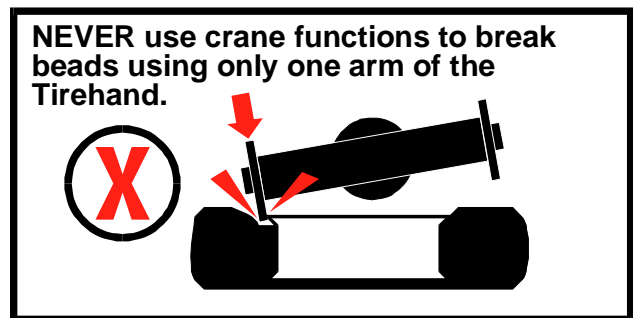
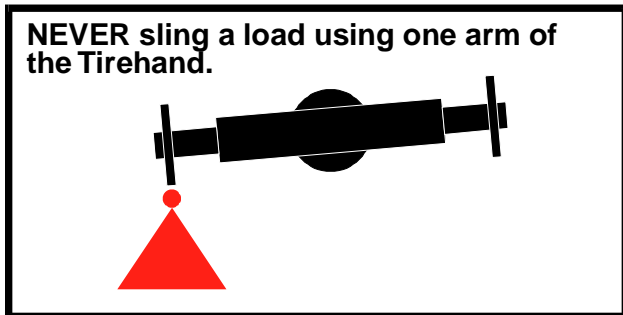
70394272

TIREHAND OPERATING RESTRICTIONS

The Tirehand 14 mounted on the 20017 crane is intended to be a tire lifting and positioning device. There are possible misapplications of this machine that can cause serious damage to the Tirehand rotation gears. It is possible to break the teeth on the Tirehand rotation bearing by applying forces with the crane while attempting to break tire beads **with one arm** of the tire hand, or by slinging a load **under one arm** of the tire hand.

A load-carrying hook is attached to the outer boom of the 20017 for carrying loads other than tires. There is also an open clevis at the end of the extension boom on the crane that can be used for attaching slings. **Use of a single Tirehand arm for lifting or carrying a load will void the tire hand warranty.**

The rotation system on the Tirehand is designed to allow the user to manipulate large tires. It is a precision function that was not designed to apply high loads. However, the load holding valves that are built into this system to help control the tire during handling will also prevent the body of the Tirehand from rotating freely when loads are applied to a single Tirehand arm. The crane is capable of producing very large forces in the downward and outward directions. When one arm is used for bead breaking, these forces can translate into torques that attempt to rotate the body of the Tirehand. The load holding valves will not allow this to occur. In this situation, the forces that are created in the Tirehand rotation turntable are well in excess of what the gear teeth can tolerate. **Using one arm of the Tirehand for bead breaking will void the warranty of the Tirehand.**



A separate bead breaker or a push bar that carries the load to both arms of the Tirehand must be used to separate the tire from the rim. It is acceptable to use the Tirehand for holding the sidewall and flange away from the bead while O-rings and locking rings are being installed.

INTRODUCTION - READ CAREFULLY!

This manual is provided to assist you in the identification and ordering of parts, for your IMT equipment. It contains information such as specifications, parts lists, capacities, and parts identification.

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

Warranty of this equipment will be void on any part of the unit subjected 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 on 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 equipment.

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

NOTE

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

CAUTION

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

WARNING

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

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

SECTION 1. TIREHAND 14 SPECIFICATIONS

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TIREHAND 14 SPECIFICATIONS

GENERAL SPECIFICATIONS

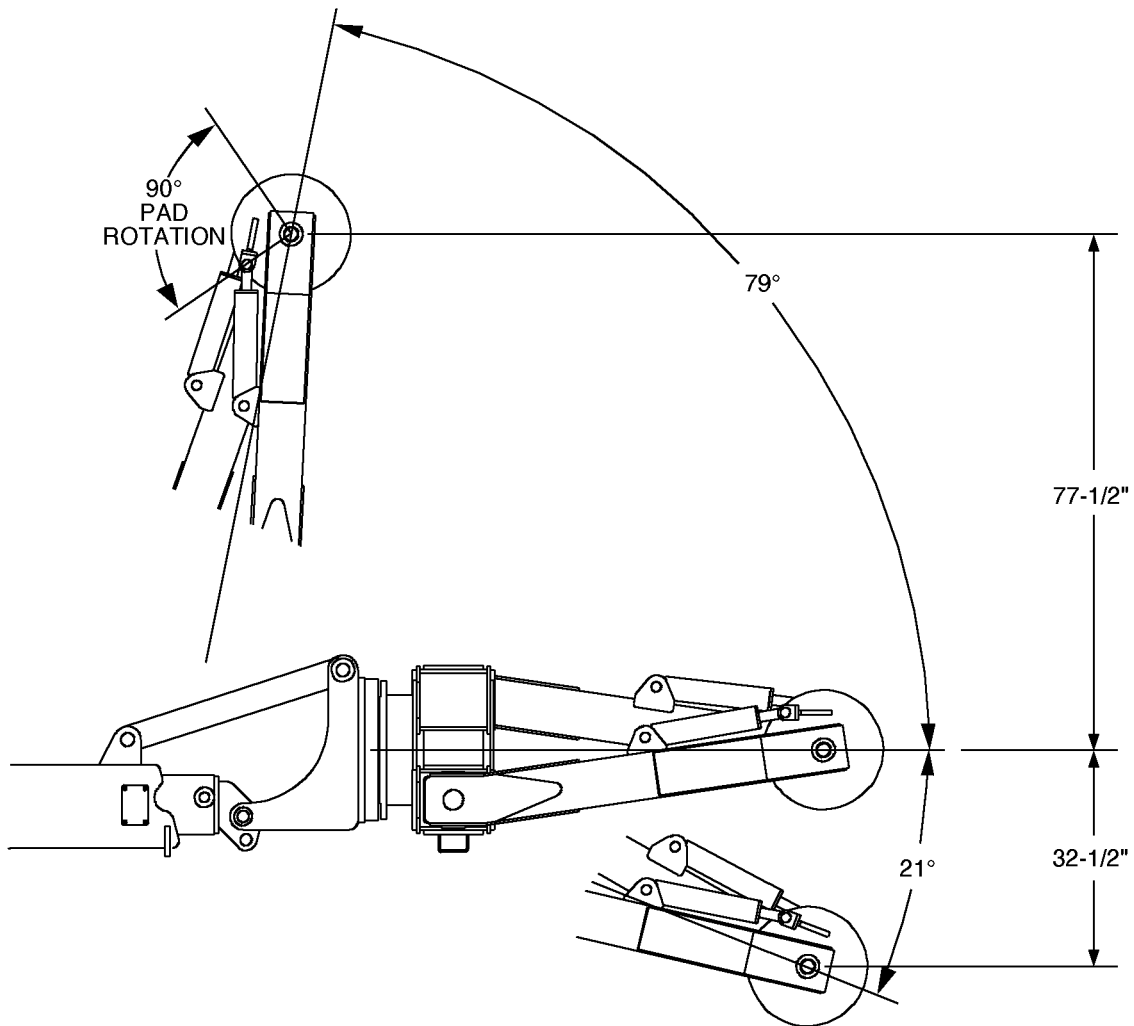
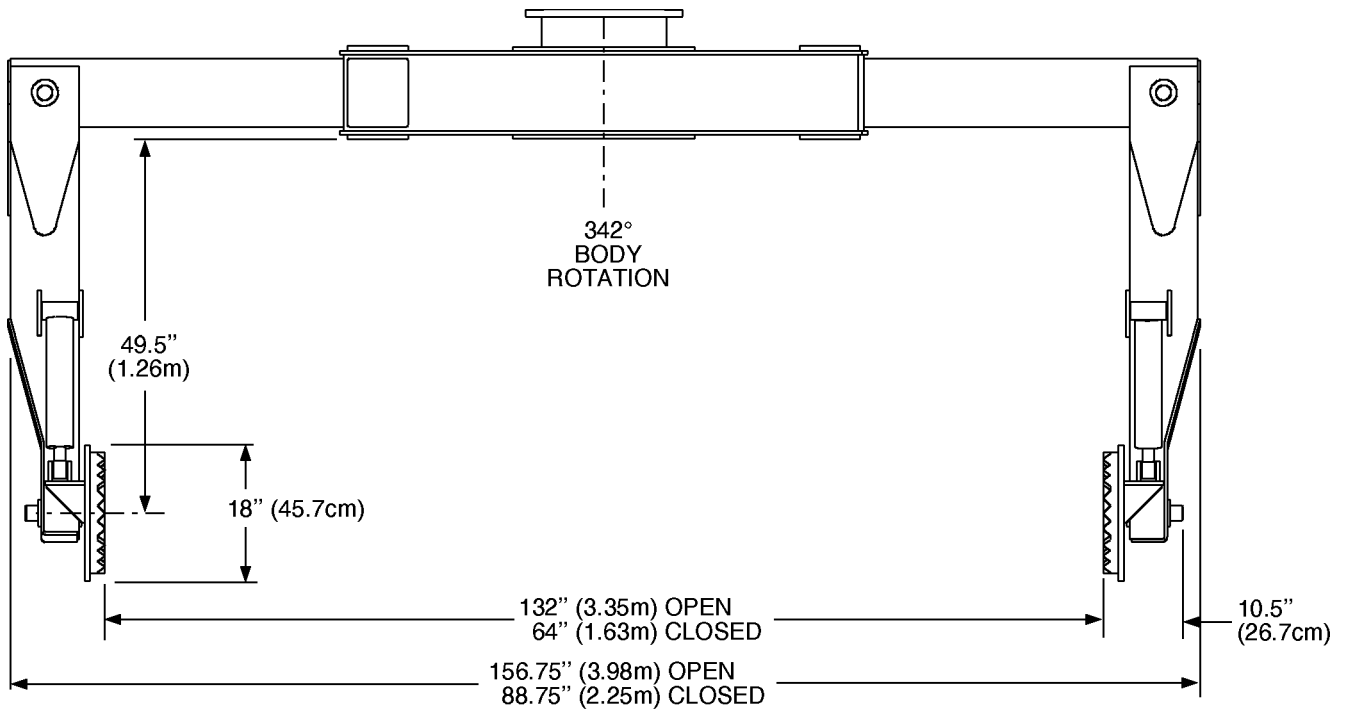
IMT CRANE WHICH TIREHAND IS DESIGNED	IMT Model 20017 (truck chassis mounted)	
TIRE SIZE CAPACITY - NARROW BASE	18.00-25 thru 36.00-51	
MAXIMUM TIRE DIAMETER	60" thru 129" (152.4cm thru 327.7cm)	
MAXIMUM TIRE WEIGHT	1100 lbs thru 8000 lbs (499 kg thru 3629 kg)	
TIRE SIZE CAPACITY - WIDE BASE	23.5-25 thru 50/65-51	
MAXIMUM TIRE DIAMETER	66" thru 129" (167.6cm thru 327.7cm)	
MAXIMUM TIRE/RIM WEIGHT	1200 lbs thru 8000 lbs (544 kg thru 3629 kg)	
TIREHAND MAXIMUM CAPACITY	8000 lbs (3629 kg)	
BODY ROTATION	342° (5.96 Rad)	
CLAMPING SPAN	64" to 132" (162.6cm - 335.3cm)	
METHOD OF CLAMPING	Horizontally telescoping	
CLAMPING PAD ROTATION	90°	
TIREHAND TILT (provided by crane extension boom)	+79° to -21° (+1.38 to -.37 Rad.)	
CLAMPING LOAD HOLDING VALVES	Pilot operated check valves on clamping side	
HYDRAULIC CONTROLS	Incorporated with crane controls	
ROTATION SYSTEM	Spur gear drive	
TIREHAND WEIGHT	3400 lbs (1542 kg)	
ALLOWABLE BEAD BREAKING METHOD	Push Bar, ONLY	

CYLINDERS

	BORE	STROKE
CLAMPING	4" (10.16cm)	34" (86.4cm)
TILT	Provided by crane extension boom	

IMT reserves the right to change specifications and design without notice. Where applicable, specifications are in accordance with SAE standards.

GEOMETRIC CONFIGURATION-TH 14 ON 20017 CRANE



CAPACITY CHART



**Tirehand 14
CAPACITY CHART**

MAXIMUM CAPACITY

**8000 LBS
(3629 KG)**

TIRE APPLICATION CHART

NARROW BASE TIRE SIZE			WIDE BASE TIRE SIZE		
TIRE SIZE	MAX TIRE DIA (in)	TIRE & RIM WEIGHT (lbs)	TIRE SIZE	MAX TIRE DIA (in)	TIRE WEIGHT ONLY (lbs)
18.00x25	66	1100	23.5x25	66	1200
18.00x33	74	1300	26.5x25	71	1600
21.00x35	82	1800	29.5x29	75	2500
24.00x35	87	2500	33.25x29	83	1500
24.00x49	101	3000	33.25x35	91	3400
27.00x49	107	4000	35/65x33	81	2900
30.00x51	115	5400	37.25x35	95	4000
33.00x51	122	6800	37.5x39	100	4200
36.00x51	129	7700	37.5x51	113	3200
37.00Rx57	136	10000	40/65x39	94	3800
40.00x57	143	11000	45/65x45	108	5800
<p>Wide base tire weights DO NOT include rim.</p> <p>Any tires which are shaded are NOT within Tirehand capacity.</p> <p>71393825</p>			49.5x57	143	9000
			50/65x51	121	8000
			50/80/57	142	9500
			53.5/85x57	154	12000
			54.5/80x57	143	13000
			57.5/85x57	154	13000
			67.5/65x51	138	13000

IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

641-923-3711

SECTION 2. TIREHAND 14 PARTS

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PARTS INFORMATION

GENERAL

This section contains the exploded parts drawings with the accompanying parts list for the assemblies used on the Tirehand-14. These drawings are intended to be used in conjunction with those in the 20017 Crane manual and the instructions found in the REPAIR section in Volume 1.

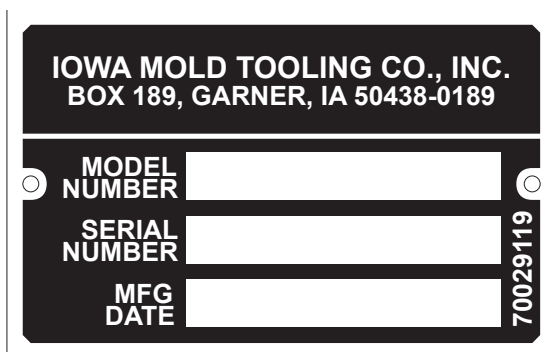
WARNING

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

TIREHAND IDENTIFICATION

Every Tirehand has an identification placard, as shown below, attached to the body assembly. When ordering parts, communicating warranty information or referring to the unit in correspondence, always include the assigned serial and model numbers. All inquiries should be addressed to:

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



SERIAL NUMBER PLACARD

CYLINDER IDENTIFICATION

To ensure proper replacement parts are received, it is necessary to specify a complete number/letter sequence for any part request. Part numbers may be cross checked by comparing the stamped identification of the cylinder case, as shown below, against the information contained in this manual. You must use the part number stamped on the cylinder case when ordering parts.

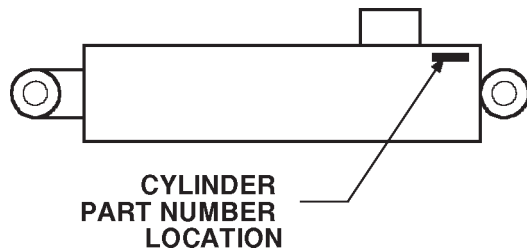
WELDMENT IDENTIFICATION

Each of the major weldments of the Tirehand bears a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations of the part numbers are shown on the next page.

ORDERING REPAIR PARTS

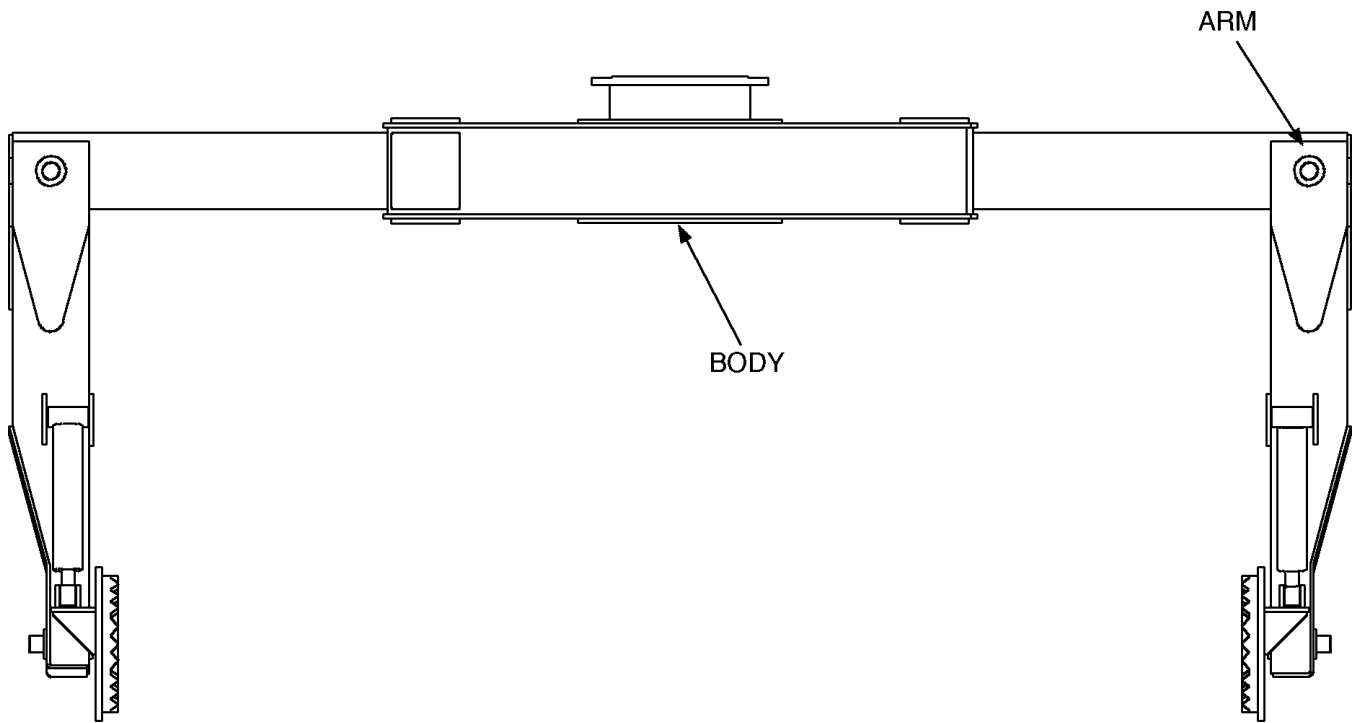
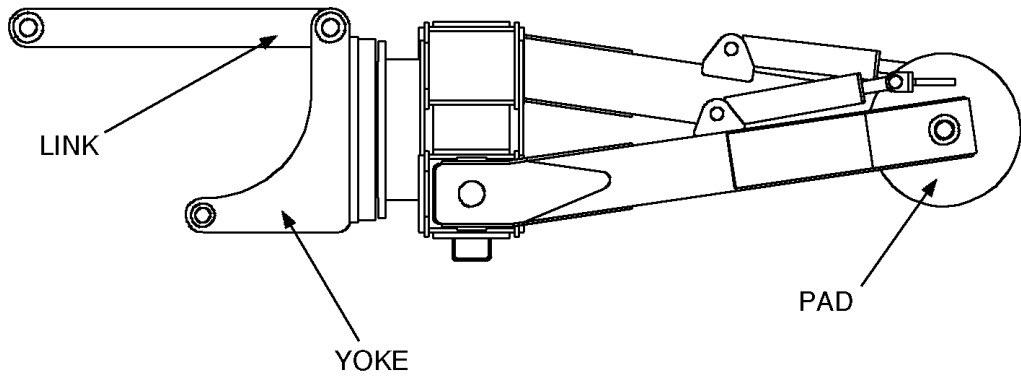
When ordering replacement parts:

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



CYLINDER IDENTIFICATION

WELDMENT PART NUMBER LOCATIONS



YOKE ASM (40715764)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52715762	YOKE (INCL:9,12-14)	1
3.	60010235	PINION COVER	1
4.	60122140	COVER-GEAR BOX	1
5.	60122139	COVER-GEAR BOX	1
6.	71056361	GEAR BEARING	1
7.	71056264	INTERMEDIATE GEAR	1
8.	71056265	PINION GEAR	1
9.	60106309	DRIVE GEAR (PART OF 1)	1REF
10.	60020123	THRUST WASHER	1
11.	60020033	THRUST WASHER	1
12.	60020181	BUSHING (PART OF 1)	1REF
13.	60020182	BUSHING (PART OF 1)	1REF
14.	60020180	BUSHING (PART OF 1)	2REF
15.	51395083	HOSE-AA .13X19.5 #2#2	1
16.	72053508	ZERK 1/8NPT	6
17.	72053301	COUPLING 1/8NPT	1
18.	72066095	RETAINING RING 2"	1
20.	72060091	CAP SCR 1/2-13X1 HHGR5	4
21.	72060833	SCR 5/16-18X3/4 HH SLFTPG	2
22.	60106032	STUD 1/2-13X1	2
24.	72063005	WASHER 1/2 WRT	4
25.	72063053	WASHER 1/2 LOCK	4
26.	72063002	WASHER 5/16 WRT	2
27.	72062080	NUT 1/2-13 LOCK	2
28.	73540004	HYD MOTOR (FROM 5-15-98)	1
	73051004	HYD MOTOR (TO 5-15-98)	1
	7Q072112	O-RING (TO 5-15-98)	2
	73054538	C'BALANCE VLV (TO 5-15-98)	2
	72060738	CAP SCR (TO 5-15-98)	4
	5V151830	BLOCK (TO 5-15-98)	1

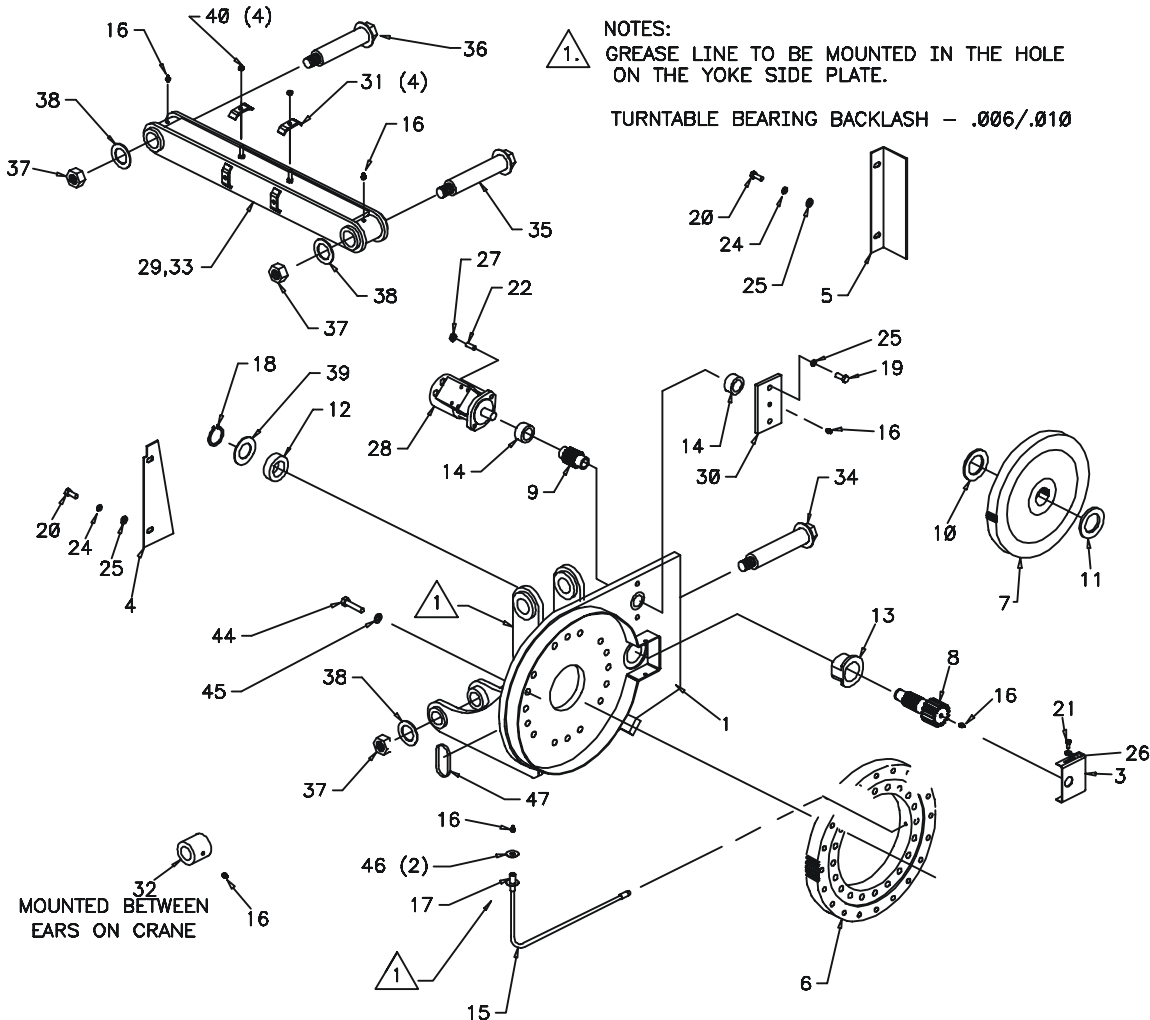
29.	52704466	LINK (INCL:33)	1
30.	60010844	GREASE PLATE	1
31.	60107648	HOSE CLAMP	4
32.	60105322	TUBE-REINFORCEMENT	1
33.	7BF82020	BUSHING (PART OF 29)	4REF
34.	52704930	PIN	1
35.	52704931	PIN	1
36.	52704934	PIN	1
37.	72062142	NUT 1 1/4-7 LOCK	3
38.	72063012	WASHER 1-1/4 WRT	3
39.	72063039	MACH BUSHING 2X10GA NR	1
40.	72062103	NUT 3/8-16 LOCK	4
41.	72060147	CAP SCR 5/8-11X1 HH GR5 (USED AS PLUGS IN ITEM 2)	7
42.	72063055	WASHER 5/8 LOCK (USED AS PLUGS IN ITEM 2)	7
44.	72060207	CAP SCR 3/4-10X3 HHGR8	16
45.	72063116	WASHER 3/4 FLAT HARD	16
46.	72063003	WASHER 3/8 WRT	2
47.	89044330	LOOM 5/8 ID	12"

NOTE

TURNTABLE BEARING BACKLASH = .006"-.010"(.152-.254mm)

WARNING

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



NOTES:
1. GREASE LINE TO BE MOUNTED IN THE HOLE ON THE YOKE SIDE PLATE.

TURNTABLE BEARING BACKLASH - .006/.010

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

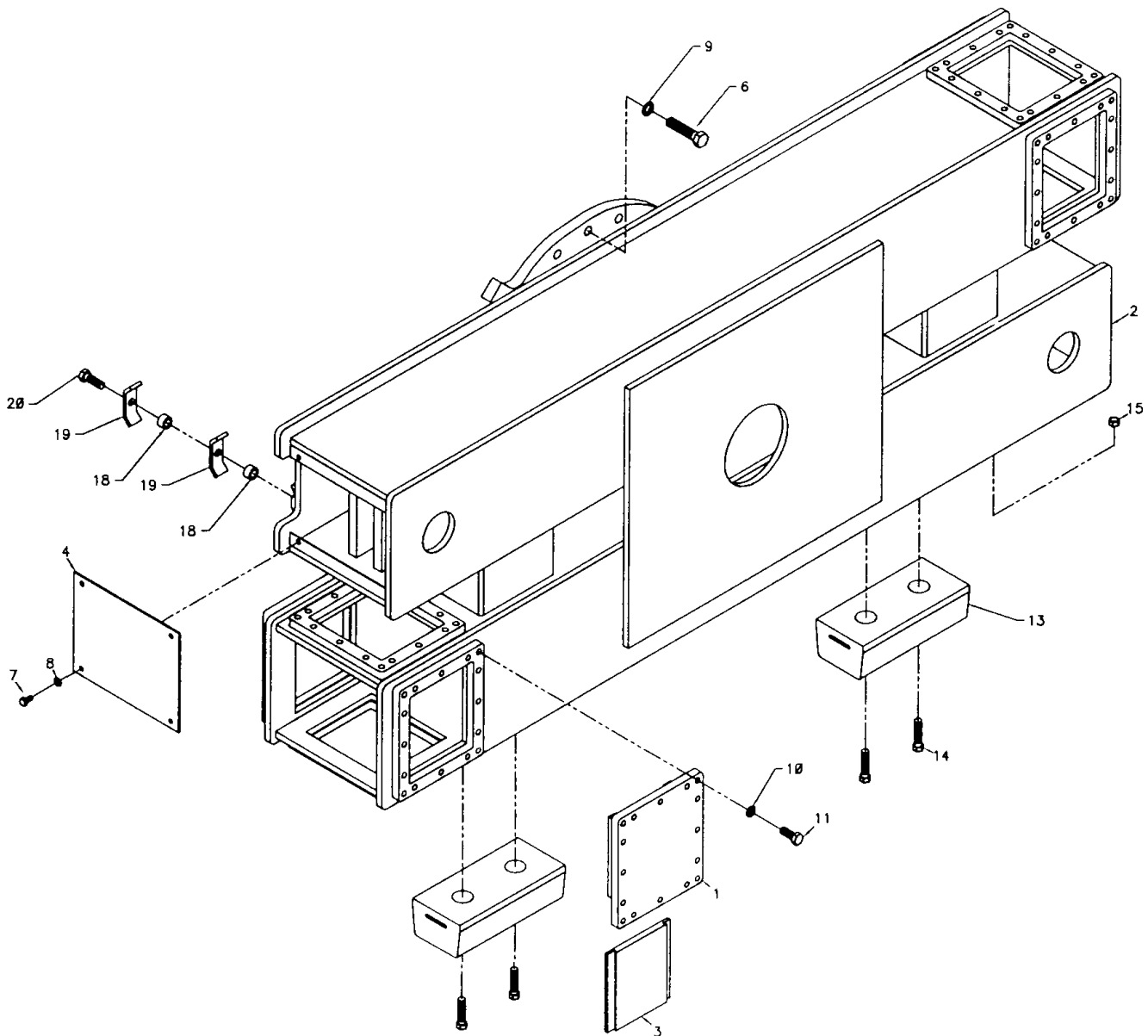
MOUNTED BETWEEN EARS ON CRANE

BODY ASM (40712056)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51707213	WEAR PAD RETAINER	8
2.	52712057	BODY	1
3.	60030187	WEAR PAD	8
4.	60110688	END CAP	2
5.	70029119	SERIAL# PLACARD(NOT SHOWN)	1
6.	72060177	CAP SCR 5/8-11X3 HHGR8	20
7.	72060857	SCR 5/16-18X5/8 HH SLFTPG	8
8.	72063050	WASHER 5/16 LOCK	8
9.	72063119	WASHER 5/8 HARD FLAT	20
10.	72063132	WASHER 1/2 WRT	128
11.	72601272	CAP SCR 1/2-13X1-1/4 HHGR8	128
12.	72066340	POP RIVET 1/8X3/8(NOT SHOWN)	2
13.	76393209	DOCK BUMPER	2
14.	72060095	CAP SCR 1/2-13X2 HHGR5	4
15.	72062080	NUT 1/2-13 LOCK	4
18.	60106742	CLAMP SPACER	4
19.	60106744	CLAMP BAR	4
20.	72060095	CAP SCR 1/2-13X2 HHGR5	2

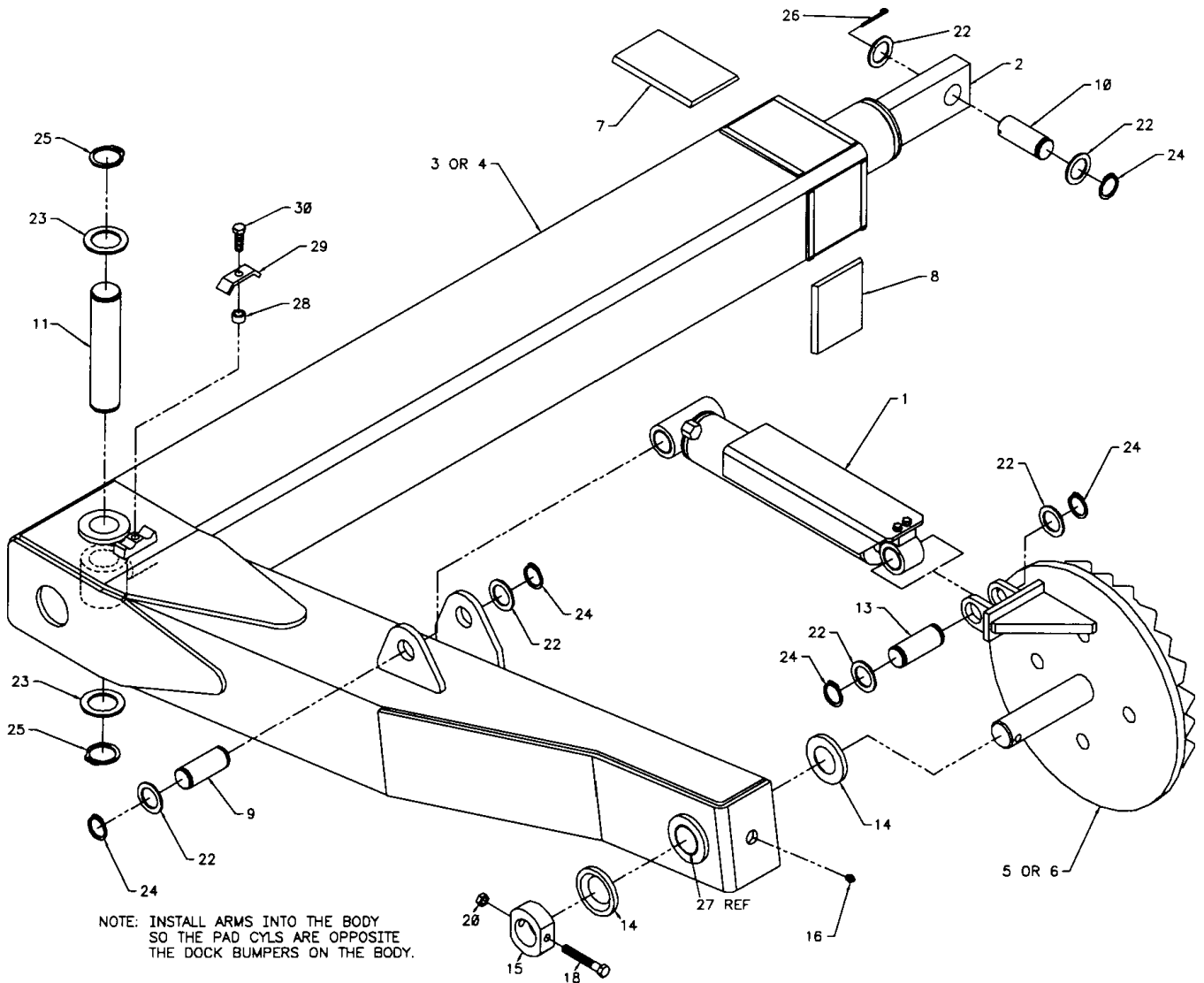
WARNING

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



ARM ASM (40712089)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B111870	PAD ROTATION CYLINDER	2
2.	3B004940	CLAMP CYLINDER	2
3.	52712059	ARM LH (INCL:27)	1
4.	52712060	ARM RH (INCL:27)	1
5.	52712061	PAD LH	1
6.	52712062	PAD RH	1
7.	60030125	WEAR PAD	4
8.	60030300	WEAR PAD	4
9.	60101664	PIN	2
10.	60102096	PIN	2
11.	60102097	PIN	2
13.	60110742	PIN	2
14.	60110744	THRUST WASHER	4
15.	60110745	PAD RETAINER	2
16.	72053508	ZERK 1/8NPT	2
18.	72060098	CAP SCR 1/2-13X3-1/2 HHGR5	2
20.	72062107	NUT 1/2-13 CTR LOCK	2
22.	72063037	MACH BUSHING 1-1/2X10GANR12	2
23.	72063039	MACH BUSHING 2X10GA NR	4
24.	72066132	RETAINING RING 1-1/2 EXT HD	10
25.	72066136	RETAINING RING 2 EXT HD	4
26.	72066197	COTTER PIN .19X2-1/2	2
27.	7BF82020	BUSHING (PART OF 3&4)	4REF
28.	60106742	CLAMP SPACER	2
29.	60106744	CLAMP BAR	2
30.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	2



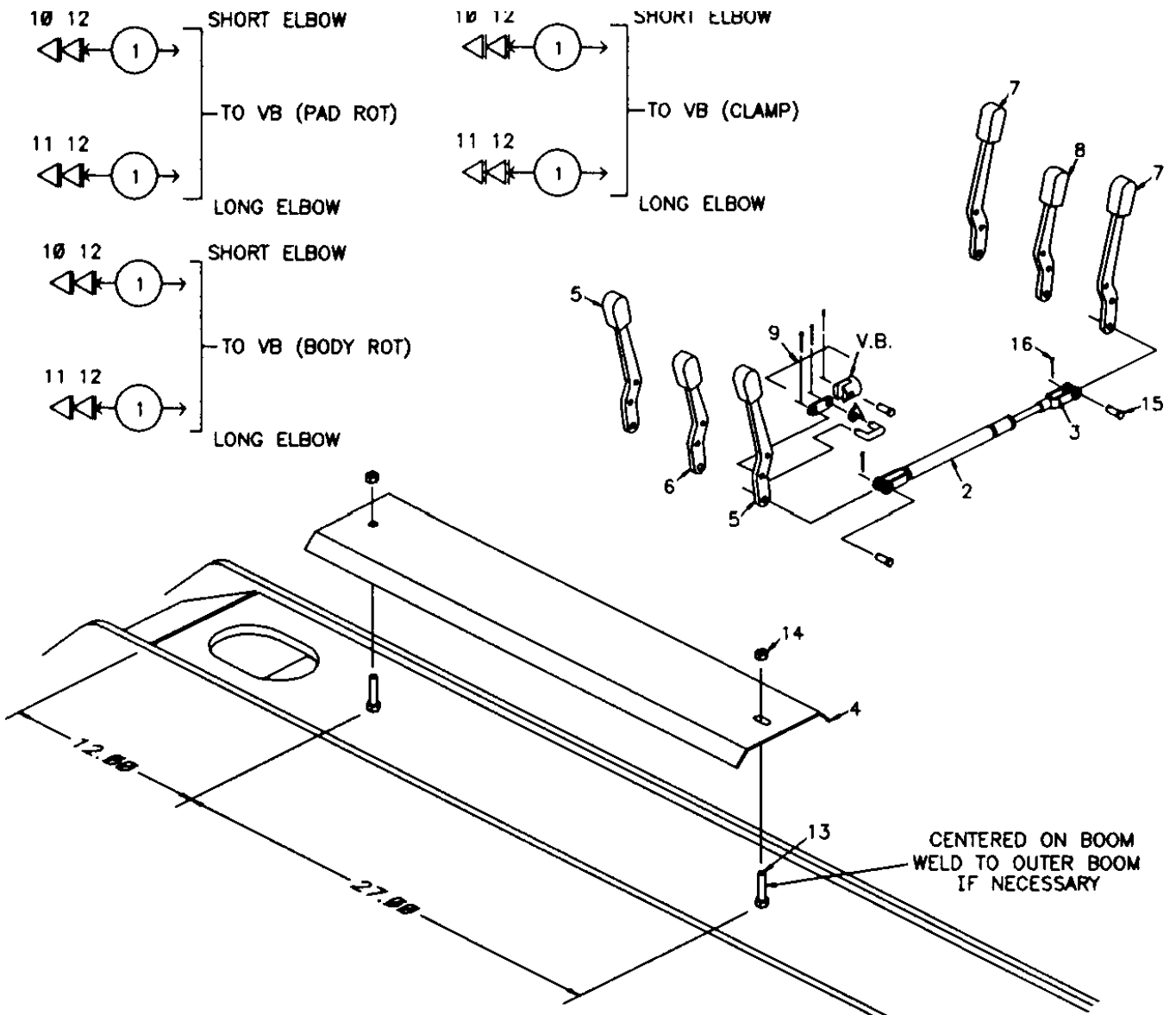
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**INSTALLATION KIT-TH14/20017 CRANE
(93712058)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	51706162	HOSE ASM 3/8X300	6
2.	52702016	CONTROL ROD-F	3
3.	52702018	CONTROL ROD-M	3
4.	60118086	HOSE SHROUD	1
5.	70141982	CONTROL HANDLE-VB LONG	2
6.	70141983	CONTROL HANDLE-VB SHORT	1
7.	70141984	CONTROL HANDLE-DVB LONG	2
8.	70141985	CONTROL HANDLE-DVB SHORT	1
9.	94731839	LINK & PIN KIT	3
10.	72533101	DISCONNECT COUPLER 3/8FPT	3
11.	72533102	DISCONNECT NIPPLE 3/8FPT	6
12.	72053670	ADAPTER 3/8MPT 3/4MJIC	2
13.	72060048	CAP SCR 3/8-16X1-1/2 HH GR5	2
14.	72062103	NUT 3/8-16 LOCK	2
15.	72066338	CLEVIS PIN 5/16X1	6
16.	72066168	COTTER PIN .09X3/4	6

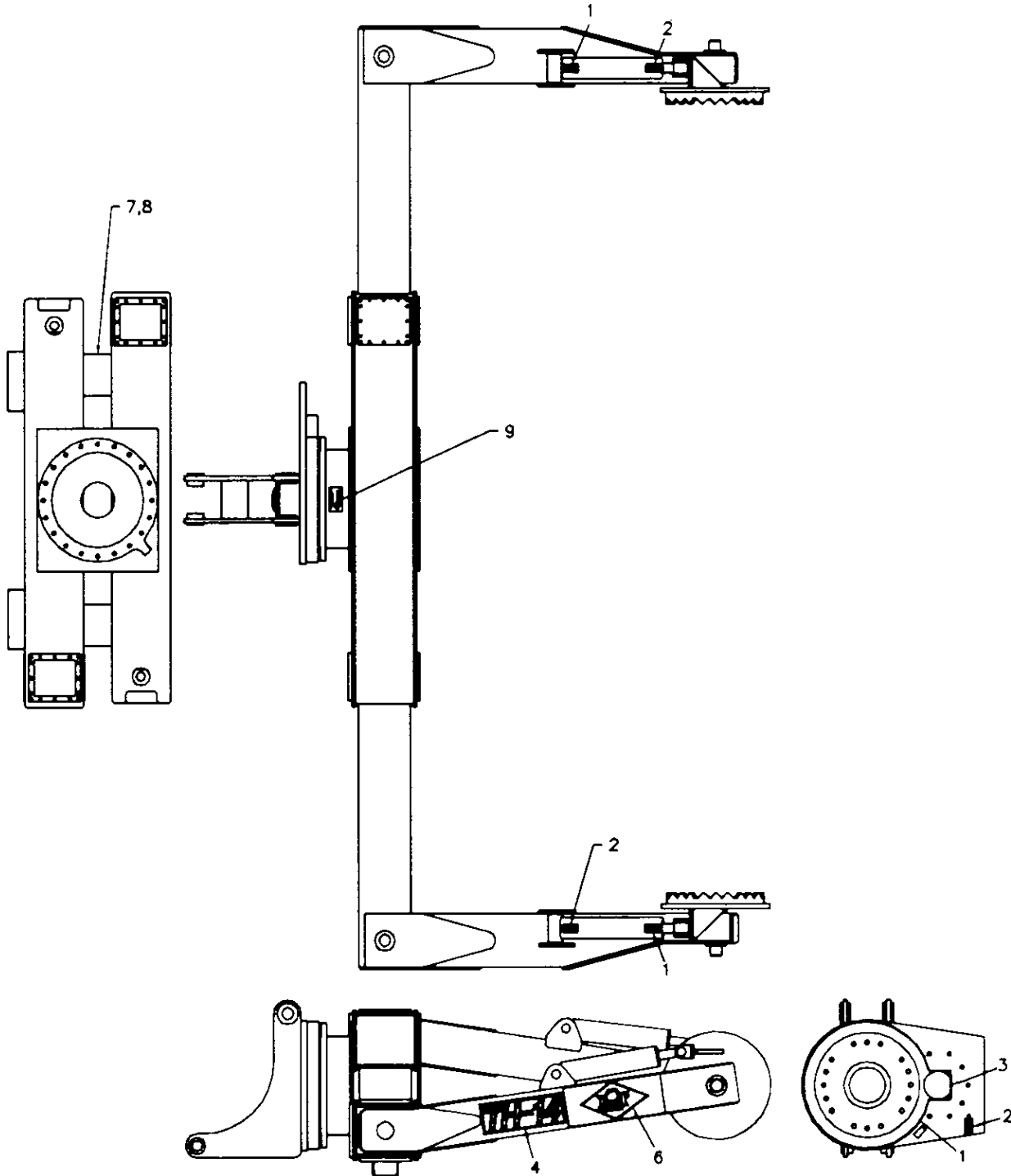


DECAL KIT (95712090)

ITEM	PART NO.	DESCRIPTION	QTY
1.	70391612	DECAL - GREASE WKLY LH	3
2.	70391613	DECAL - GREASE WKLY RH	3
3.	70392524	DECAL - ROTATE/GREASE	1
4.	70393819	DECAL-TH14 IDENTIFICATION	2
5.	70394272	DECAL-OP RESTRICTIONS	2
6.	70029251	IMT DIAMOND	2
7.	70029119	SERIAL NUMBER PLACARD	1REF
8.	72066340	POP RIVET 1/8	2REF
9.	70039261	PLACARD-PATENT	1
10.	71393825	CAPACITY PLACARD	2

DECAL PLACEMENT

ITEM	LOCATION
5,10	NEAR EACH CRANE OPERATOR STATION IN CLEAR VIEW OF OPERATOR



CLAMP CYLINDER (3B004940)

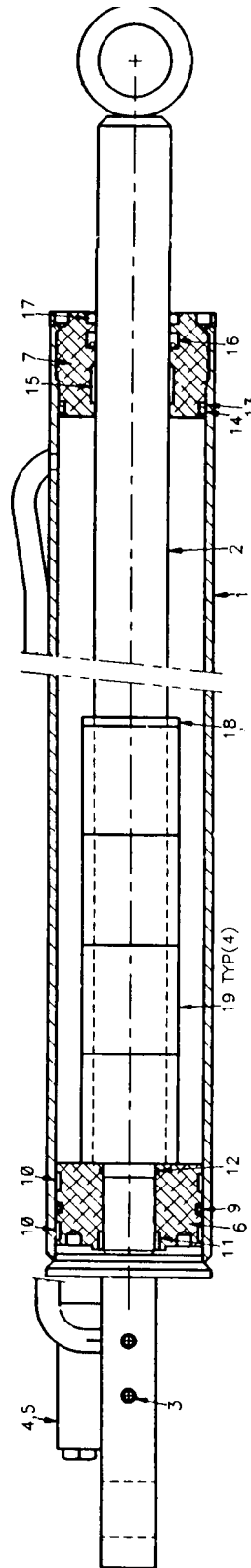
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B004940	CASE ASM (INCL:3)	1
2.	4G148870	ROD ASM	1
3.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
4.	73054004	CHECK VALVE	1
5.	72060708	CAP SCR 1/4-20X1-1/4 SH	6
6.	6I402144	PISTON	1
7.	6H040020	HEAD	1
8.	9B015930	SEAL KIT (INCL:9-18)	1
9.	7T66P400	PISTON SEAL (PART OF 8)	1REF
10.	7T2N4040	WEAR RING (PART OF 8)	2REF
11.	7T61N143	LOCK RING (PART OF 8)	1REF
12.	7Q072127	O-RING (PART OF 8)	1REF
13.	7Q10P342	BACKUP RING (PART OF 8)	1REF
14.	7Q072342	O-RING (PART OF 8)	1REF
15.	7T2N8022	WEAR RING (PART OF 8)	1REF
16.	7R546020	U-CUP SEAL (PART OF 8)	1REF
17.	7R14P020	ROD WIPER (PART OF 8)	1REF
18.	6A025020	WAFER LOCK (PART OF 8)	1REF
19.	6C300020	STOP TUBE 3"	4

NOTE

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

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

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



PAD ROTATION CYLINDER (3B111870)

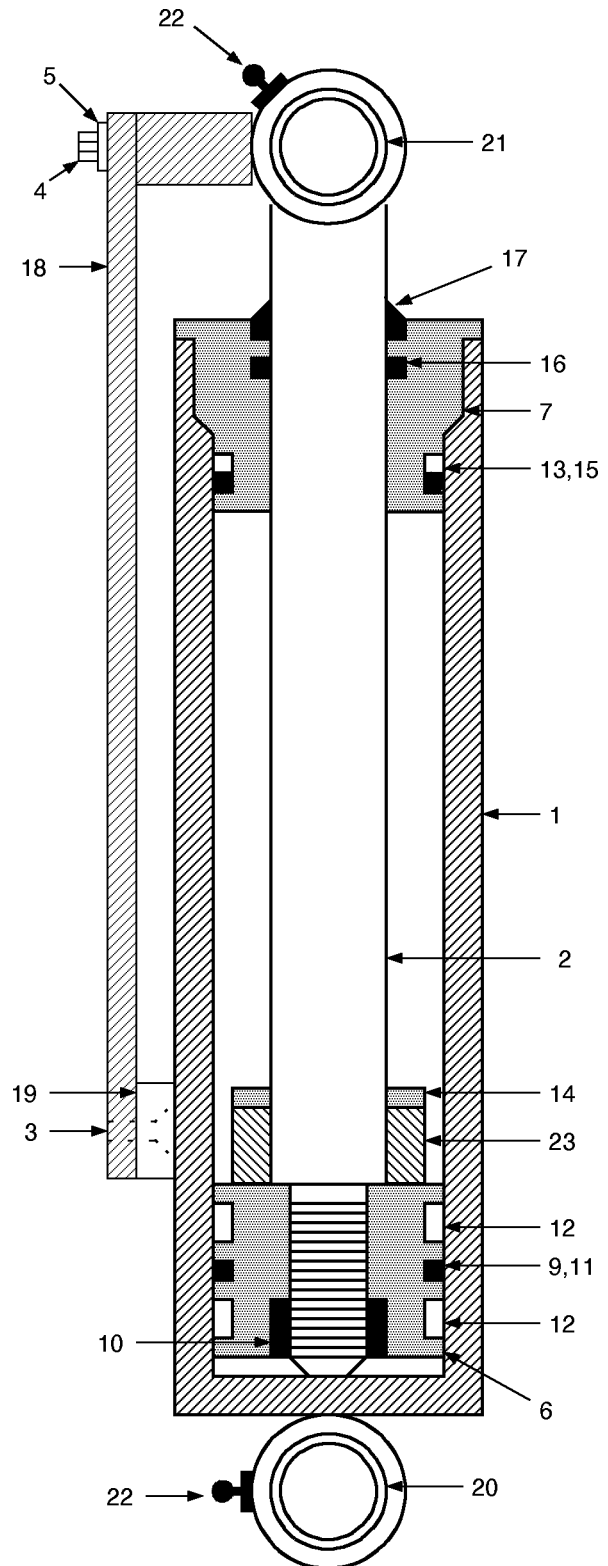
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B111870	CASE ASM	1
2.	4G111870	ROD ASM	1
3.	72060868	SCR 1/4-20X1/2 SLT FLT	1
4.	72060708	CAP SCR 5/16-18X3/4 HHGR5	2
5.	72063050	WASHER 5/16 LOCK	2
6.	6I030106	PISTON	1
7.	6H030015	HEAD	1
8.	9C121217	SEAL KIT (INCL:9-18)	1
9.	7T66P030	PISTON SEAL (PART OF 8)	1REF
10.	7T61N106	LOCK RING (PART OF 8)	1REF
11.	7Q072145	O-RING (PART OF 8)	1REF
12.	7T65I030	PISTON RING (PART OF 8)	2REF
13.	7Q072334	O-RING (PART OF 8)	1REF
14.	6A025015	WAFER LOCK (PART OF 8)	1REF
15.	7Q10P334	BACKUP RING (PART OF 8)	1REF
16.	7R546015	ROD SEAL (PART OF 8)	1REF
17.	7R14P015	ROD WIPER (PART OF 8)	1REF
18.	5FF11187	ROD MTG CHANNEL	1
19.	5F022850	WEAR PAD	1
20.	7BF81015	BUSHING (PART OF 1)	4REF
21.	7BF80715	BUSHING (PART OF 2)	2REF
22.	72053507	ZERK 1/4-28 (PART OF 1&2)	3REF
23.	6C075015	STOP TUBE	1

NOTE

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

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

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



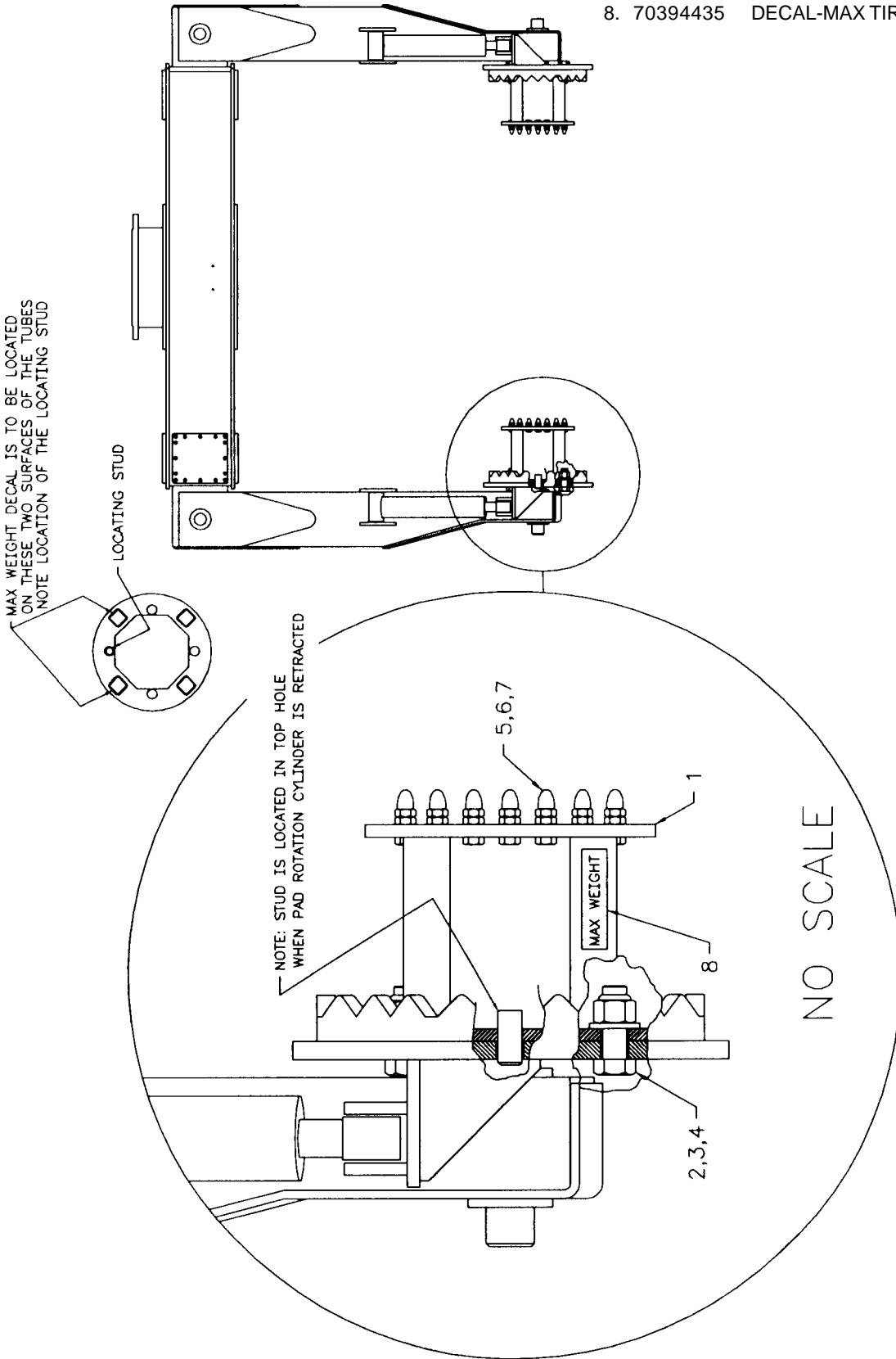
0000TH14: 30713926.01:19970212

2-13

PAD EXTENSION KIT (30713926)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52713919	PAD EXTENSION	2
2.	72601494	CAP SCR 1-8X3	6

3.	72062137	NUT 1-8 LOCK	6
4.	72063010	WASHER 1 WRT	6
5.	72062004	NUT 1/2-13 HEX	24
6.	72062134	NUT 1/2-13 HIGH ACORN	24
7.	72060093	CAP SCR 1/2-13X1-1/2	24
8.	70394435	DECAL-MAX TIRE WEIGHT	4



70394435

MAXIMUM TIRE WEIGHT ALLOWED IS 2000 LBS.

INSTALLATION INSTRUCTIONS-PAD EXTENSION KIT (30713926)

WARNING

BEFORE ATTEMPTING INSTALLATION OF THE KIT, LOWER THE TIREHAND TO THE STOWED POSITION ON THE TRUCK BED.

NOTE

REFER TO DRAWING ON PREVIOUS PAGE FOR REFERENCE AND PARTS LISTING.

This installation can be performed by a single person in approximately 30 minutes. Listed below are tools which are required to perform this installation.

QTY	DESCRIPTION
2	1-1/2" OPEN END WRENCH OR CRESCENT WRENCH
2	3/4" OPEN END WRENCH OR 3/4" SOCKET WRENCH OR CRESCENT WRENCH

- Before attaching the Pad Extensions to the Tirehand, check that the twelve 1/2" cap screws, hex nuts and acorn nuts have been assembled to each pad extension. If not, install the 1/2" cap screws (item 7), 1/2" hex nuts (item 5), and 1/2" acorn nuts (item 6) as shown in the drawing. Tighten firmly.
- Retract the Pad Rotation Cylinders completely.
- While the Pad Rotation Cylinders are retracted completely, place the Pad Extension (item 1) on the existing Pad with the Locating Stud (See drawing) in the Top Hole of the standard pad.
- Once the Pad Extension is positioned on the locating stud, install the front and bottom 1" Cap Screws (item 2), 1" Washers (item 4), and 1" Lock Nuts (item 3).
- Extend the Pad Rotation Cylinders fully.
- With the Pad Rotation Cylinders fully extended, install the remaining 1" Cap Screw, Washer and Nut in each pad. The remaining hole should be in the top position.
- Once the Pad Extensions are firmly attached to the Tirehand 14 pads, be certain to apply the four decals (item 8), positioned as shown in the detail on the drawing.

PRECAUTIONS WHEN USING PAD EXTENSION KIT (30713926)

PAD EXTENSIONS MUST BE USED IN PAIRS.

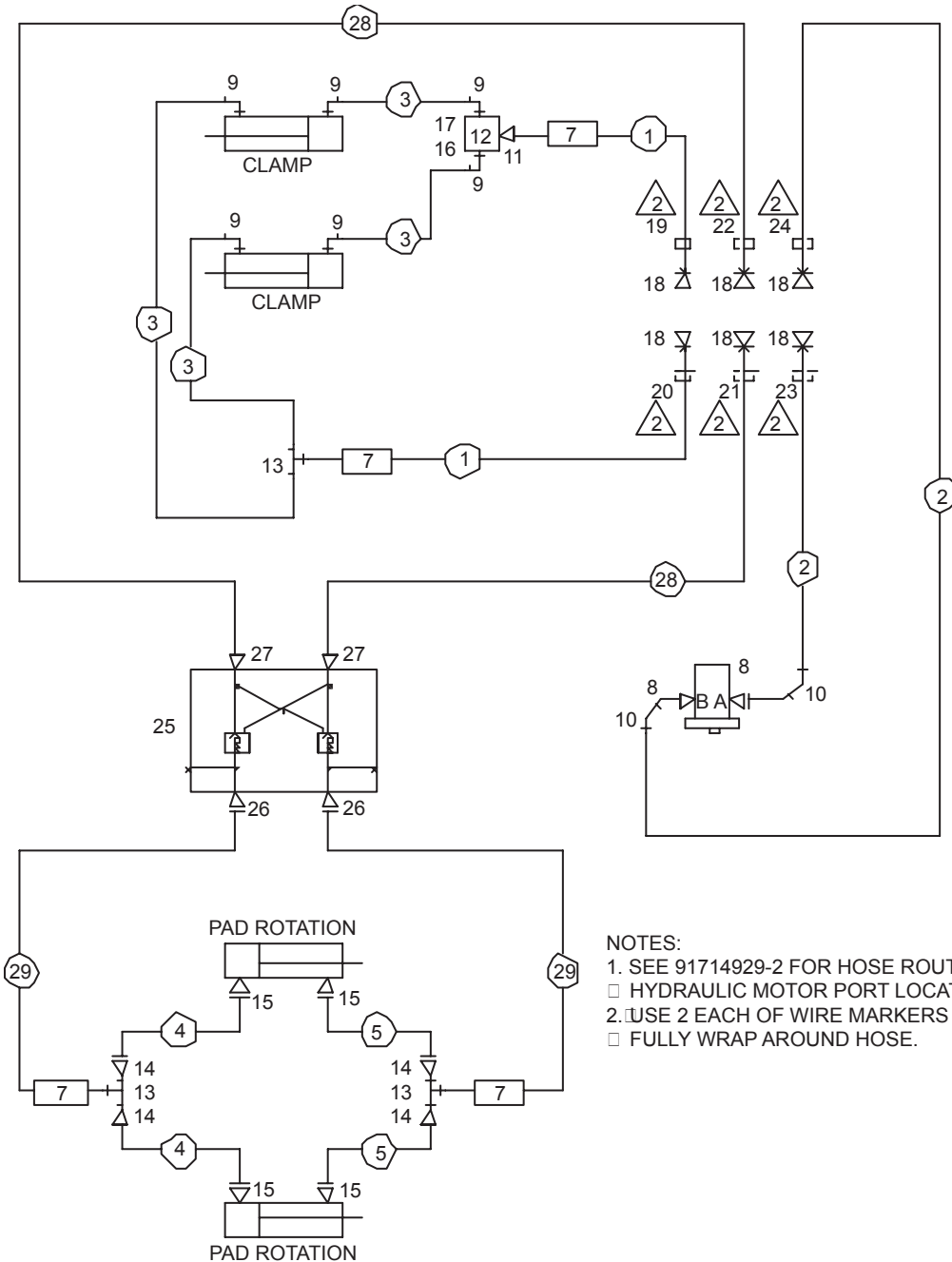
PAD EXTENSIONS ARE DESIGNED FOR LIFTING TIRES AND ARE NOT TO BE USED FOR ANY OTHER PURPOSE.

WHEN USING PAD EXTENSIONS, THE MAXIMUM LOAD IS LIMITED TO 2000 LBS (907 KGS).

HYDRAULIC KIT (91714929-1)

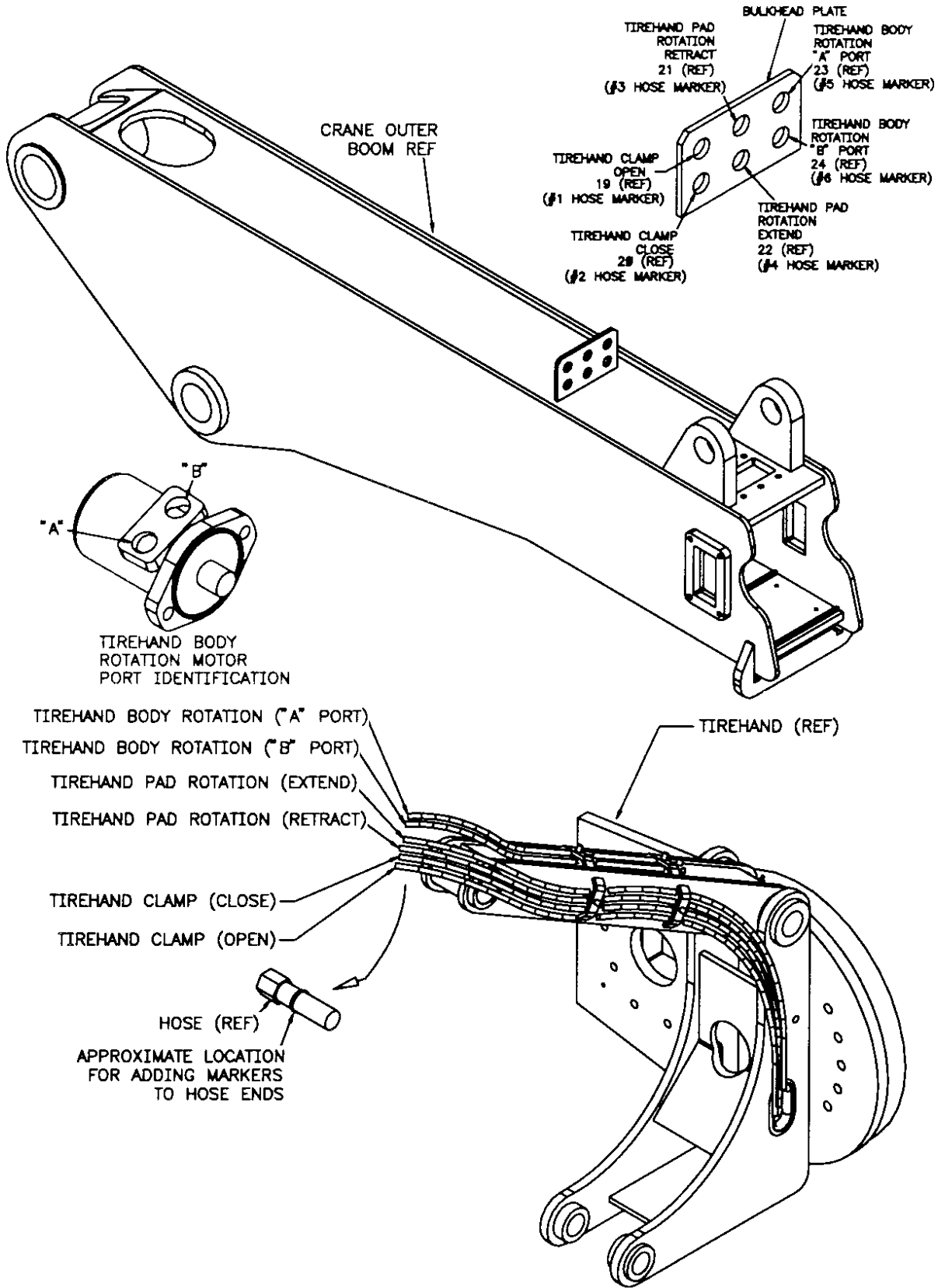
ITEM	PART NO.	DESCRIPTION	QTY
1.	51395202	HOSE ASM 3/8X83 #8F#8F	2REF
2.	51395203	HOSE ASM 3/8X72 #6F#8F	2REF
3.	51395204	HOSE ASM 3/8X45 #8F#8F	4REF
4.	51395205	HOSE ASM 1/4X117-1/2 #4F#4F	2REF
5.	51395206	HOSE ASM 1/4X129-1/2 #4F#4F	2REF
6.	51714931	HOSE KIT (INCL:1-5,28,29)	1
7.	72532980	ADAPTER-PR SW INLINE	4
8.	72532992	ADAPTER #4MSTR #6FSTR	2
9.	72053763	ELBOW #8MSTR #8MJIC 90°	6
10.	72053776	ELBOW #6MSTR #6MJIC 90°	2
11.	72532358	ADAPTER #8MSTR #8MJIC	1
12.	73054922	FLOW DIVIDER VALVE	1
13.	72531205	TEE #8MJIC 1/2TUBE	3
14.	72532665	ADAPTER #4MJIC #8FJIC	4

15.	72532351	ADAPTER #4MSTR #4MJIC	4
16.	72060009	CAP SCR 1/4-20X2-1/4 HHGR5	2
17.	72063001	WASHER 1/4 WRT	2
18.	72532679	PLUG #8JIC HH STL	6
19.	70145798	WIRE MARKER 43-001	2
20.	70145831	WIRE MARKER 43-002	2
21.	70145832	WIRE MARKER 43-003	2
22.	70145833	WIRE MARKER 43-004	2
23.	70145834	WIRE MARKER 43-005	2
24.	70145835	WIRE MARKER 43-006	2
25.	5V312990	VALVE BANK, SGL 16 GPM #8SAE	1
26.	72053761	ELBOW #8MSTR #6MJIC 90DEG	2
27.	72532358	ADPTR #8MSTR #8MJIC	2
28.	51395082	HOSE-FF 3/8X68 (8-8)	2REF
29.	51396788	HOSE-FJ 3/8X30 (8-6)	2REF



- NOTES:
- SEE 91714929-2 FOR HOSE ROUTINGS AND □ HYDRAULIC MOTOR PORT LOCATIONS.
 - USE 2 EACH OF WIRE MARKERS 19-24 TO □ FULLY WRAP AROUND HOSE.

HYDRAULIC KIT (91714929-2)



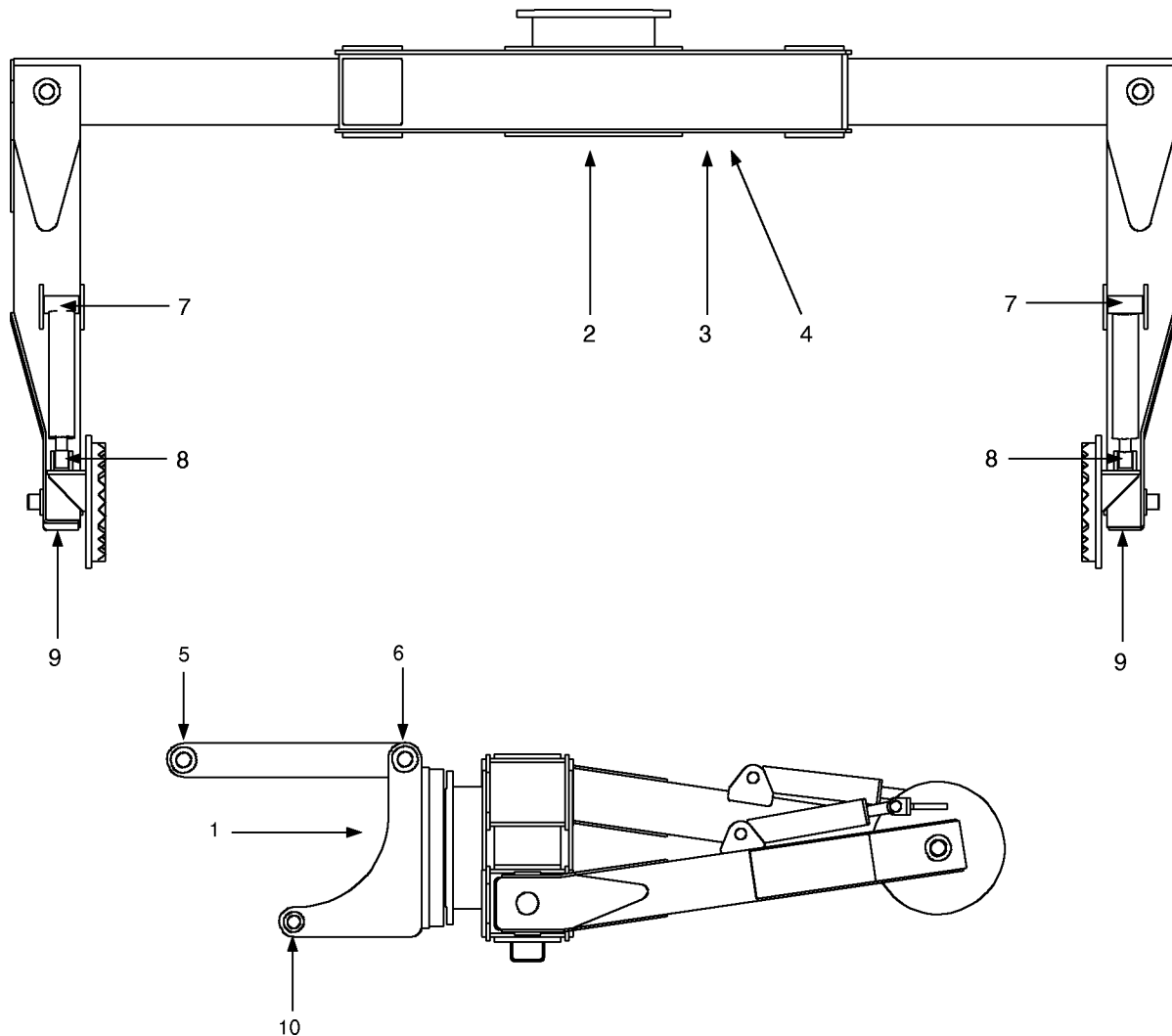
NOTES:

1. ON THE TIREHAND BODY ROTATION MOTOR TURN THE COUNTER BALANCE VALVE SETTING SCREWS CLOCKWISE UNTIL THEY SEAT.

SECTION 3. REFERENCE

GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS 3
TORQUE DATA CHART-DOMESTIC 4
TORQUE DATA CHART-METRIC 5
TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE 6
TURNTABLE BEARING INSPECTION FOR REPLACEMENT 7
RECOMMENDED SPARE PARTS LIST 8

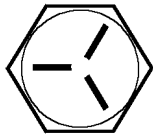

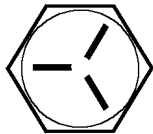

GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	SPUR GEAR BOX	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
2.	TURNTABLE BEARING GREASE EXTENSION *ROTATE TIREHAND WHILE GREASING		
3.	PINION GEAR		
4.	DRIVE GEAR		
5.	CRANE LINK PIN		
6.	LINK/YOKE PIN		
7.	PAD ROTATION CYLINDER BASE		
8.	PAD ROTATION CYLINDER ROD		
9.	PAD ROTATION PIN		
10.	CRANE/YOKE PIN		

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

TORQUE DATA CHART - DOMESTIC**FINE THREAD BOLTS****COARSE THREAD BOLTS**

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE				SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
											
		SAE J429 GRADE 5		SAE J429 GRADE 8				SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)			PLAIN (FT-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
5/16-24	0.3125	19	14	27	20	5/16-18	0.3125	17	13	25	18
3/8-24	0.3750	35	26	49	35	3/8-16	0.3750	31	23	44	33
7/16-20	0.4375	55	41	78	58	7/16-14	0.4375	49	37	70	52
1/2-20	0.5000	90	64	120	90	1/2-13	0.5000	75	57	105	80
9/16-18	0.5625	120	90	170	130	9/16-12	0.5625	110	82	155	115
5/8-18	0.6250	170	130	240	180	5/8-11	0.6250	150	115	220	160
3/4-16	0.7500	300	225	420	315	3/4-10	0.7500	265	200	375	280
7/8-11	0.8750	445	325	670	500	7/8-9	0.8750	395	295	605	455
1-12	1.0000	645	485	995	745	1-8	1.0000	590	445	910	680
1 1/8-12	1.1250	890	670	1445	1085	1 1/8-7	1.1250	795	595	1290	965
1 1/4-12	1.2500	1240	930	2010	1510	1 1/4-7	1.2500	1120	840	1815	1360
1-3/8-12	1.3750	1675	1255	2710	2035	1-3/8-6	1.3750	1470	1100	2380	1780
1 1/2-12	1.5000	2195	1645	3560	2670	1 1/2-6	1.5000	1950	1460	3160	2370

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

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

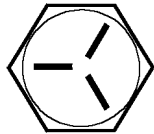

WARNING

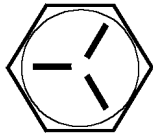

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing.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

TORQUE DATA CHART - METRIC

FINE THREAD BOLTS

COARSE THREAD BOLTS

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

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

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

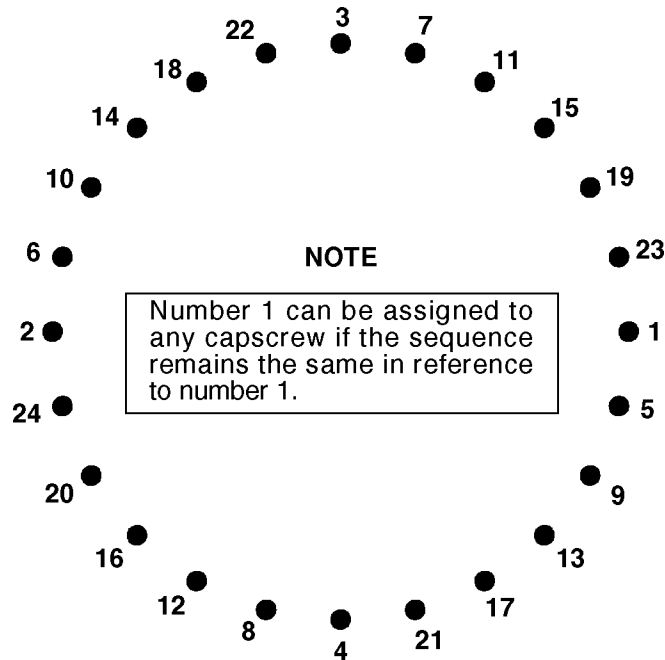
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants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

WARNING

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

TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

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



TIGHTENING PROCEDURE:

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

TURNABLE BEARING INSPECTION FOR REPLACEMENT

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

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

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

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

TEST PROCEDURE

STEP 1.

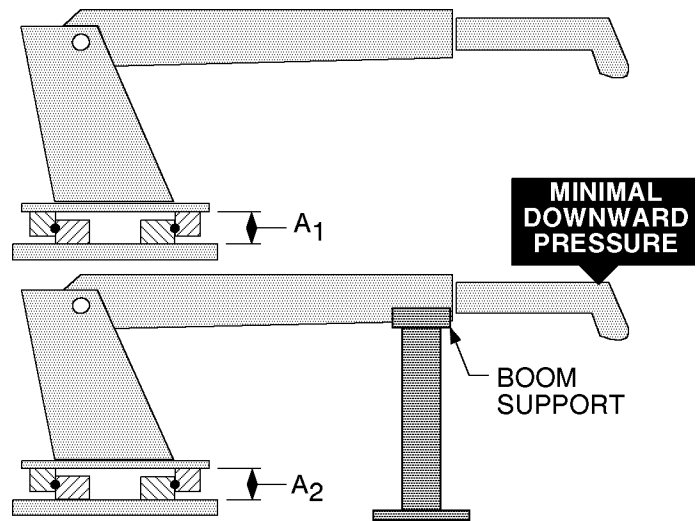
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A_1), using a dial indicator for accuracy.

STEP 2.

Reverse the load by applying minimal downward pressure on the boom while the boom is in the boom support or on a solid surface. Again measure A_2 .

STEP 3.

Subtract A_1 from A_2 to determine tilt and compare the result with the accompanying chart.



COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

NOTE	IMT CRANE, LOADER OR TIREHAND MODEL	1007	5200	16035	9800
		<p>THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED.</p> <p>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.</p>	1014 2015 2015GH 2109 2200 3000 3016 321GH 3816 425 4300 5016 6016 TH7 BODY ROT'N TH1449 BODY ROT'N TH15B CLAMP TH2551B CLAMP TH2557A CLAMP	5200R 5217 5800 7020 7025 7200 7415 9000 TH10 BODY ROT'N TH14 BODY ROT'N	16042 32018 32030 T30 T40
	BALL DIA. (REF)	.875" (22mm)	1.00" (25mm)	1.18"-1.25" (30-32mm)	1.75" (44mm)
	TILT DIM. ($A_1 - A_2$)	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)

RECOMMENDED SPARE PARTS LIST**1 YEAR SUPPLY****TIREHAND 14****FOR MANUAL: 99900763**

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

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
40712054.01.19961122	YOKE ASM						
	8	71056265	PINION GEAR	1	C		
	10	60020123	THRUST WASHER	1	W		
	11	60020033	THRUST WASHER	1	W		
	12	60020181	BUSHING	1	W		
	13	60020182	BUSHING	1	W		
	14	60020180	BUSHING	1	W		
	33	7BF82020	BUSHING	4	W		
	46	73054538	COUNTERBALANCE VALVE	2	C		
40712056.01.19971118	BODY ASM						
	3	60030187	WEAR PAD	8	W		
40712089.01.19970728	13	76393209	DOCK BUMPER	2	W		
	ARM ASM						
	7	60030125	WEAR PAD	4	W		
91712063.01.19961126	8	60030300	WEAR PAD	4	W		
	27	7BF82020	BUSHING	4	W		
	HYDRAULIC KIT						
3B004940.01.19940601	18	73054921	FLOW CONTROL VALVE	2	W		
	20	73054922	FLOW DIVIDER VALVE	1	W		
3B111870.01.19940601	CLAMP CYLINDER						
	4	73054004	CHECK VALVE	2	C		
	6	61402144	PISTON	1	W		
	7	6H040020	HEAD	1	W		
3B111870.01.19940601	8	9B015930	SEAL KIT	2	W		
	PAD ROTATION CYLINDER						
	6	6I030106	PISTON	1	W		
	7	6H030015	HEAD	1	W		
	8	9C121217	SEAL KIT	2	W		
	19	5F022850	WEAR PAD	2	W		
	20	7BF81015	BUSHING	8	W		
	21	7BF80715	BUSHING	4	W		

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

MANUAL CHANGE REQUEST

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

ERROR FOUND

LOCATION OF ERROR (page no.): _____

DESCRIPTION OF ERROR: _____

REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION: _____

REASON FOR ADDITION: _____

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

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IOWA MOLD TOOLING CO., INC.
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