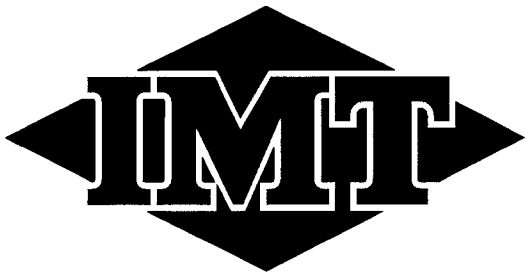

Parts and Specifications

Tirehand 15A

IOWA MOLD TOOLING CO., INC.
BOX 189, GARNER, IA 50438-0189
515-923-3711
PRODUCT SUPPORT FAX: 515-923-3674

MANUAL PART NUMBER 99900507

REVISED
08-30-91
05-04-92
06-19-92
08-06-92
09-14-92
09-18-92
10-09-92
12-08-92
04-20-93
05-19-93
05-25-93
10-18-93
04-05-94

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.

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LIST OF ILLUSTRATIONS

NOTES

Section 1. SPECIFICATIONS

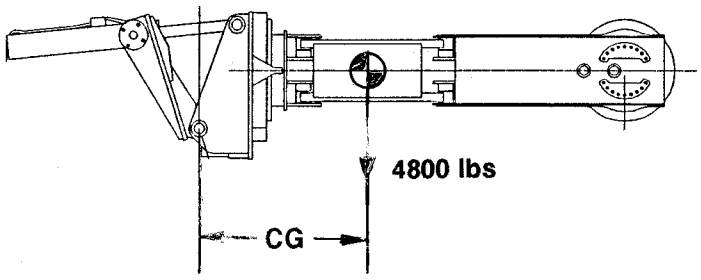
1-1. GENERAL

IMT CRANE WHICH TIREHAND IS DESIGNED	IMT Model 32018 (truck chassis mounted)
TIRE SIZE CAPACITY - NARROW BASE MAXIMUM TIRE DIAMETER MAXIMUM TIRE WEIGHT	18.00-25 thru 40.00-57 66" thru 143" (167.6cm thru 363.2cm) 1100 lbs thru 11000 lbs (499 kg thru 4990 kg)
TIRE SIZE CAPACITY - WIDE BASE MAXIMUM TIRE DIAMETER MAXIMUM TIRE/RIM WEIGHT	26.5-29 thru 50/65-51 76" thru 122" (193cm thru 309.9cm) 1300 lbs thru 7735 lbs (590 kg thru 3509 kg)
TIREHAND MAXIMUM CAPACITY	11,000 lbs (4990 kg)
BODY ROTATION	350° (6.11 Rad)
CLAMPING SPAN	53" to 148" (134.6cm - 375.9cm)
METHOD OF CLAMPING	Parallelogram
CLAMPING PAD ROTATION	360° (6.28 Rad.) continuous
TIREHAND TILT	+33° to -42° (+.58 to -.73 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	4800 lbs (2177 kg)

1-2. CYLINDERS

	BORE	STROKE
CLAMPING	4" (10.16cm)	16-1/4" (41.3cm)
TILT 3" (7.62cm)	5" (12.7cm)	29-5/8" (75.2cm)

1-3. CENTER OF GRAVITY



CG (ARMS EXTENDED) = 37-1/4" (94.6cm)
CG (ARMS RETRACTED) = 43-1/4" (109.9cm)

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

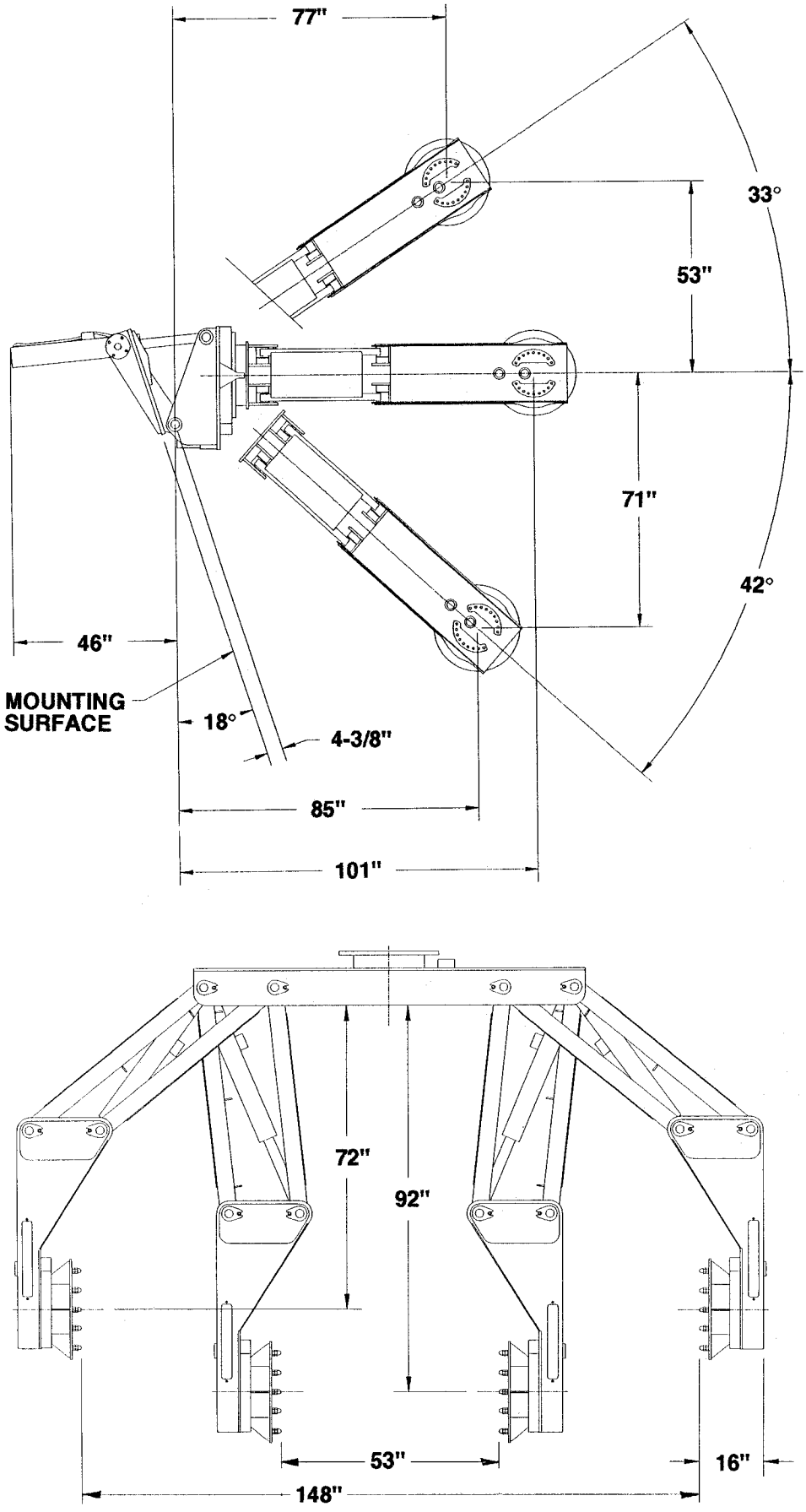


Figure A-1. GEOMETRIC CONFIGURATION - TIREHAND 15A

Tirehand 15A
CAPACITY CHART

MAXIMUM CAPACITY

11000 LBS
(4990 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
			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

Wide base tire weights DO NOT include rim.

Any tires which are shaded are NOT within Tirehand capacity.

71393702

IOWA MOLD TOOLING CO., INC.
BOX 189, GARNER, IA 50438-0189 515-923-3711

Figure A-2. CAPACITY CHART

Section 2. PARTS

2-1. GENERAL

This section contains the exploded parts drawings with the accompanying parts list for the assemblies used on the Tirehand-15A. These drawings are intended to be used in conjunction with those in the 32018 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.

2-2. TIREHAND IDENTIFICATION

Every Tirehand has an identification placard (Figure B-1) 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: 515-923-3711
Product Support Fax: 515-923-3674

or

IMT Cranes Canada, Ltd.
385 West Street South,
Orillia, Ontario, L3V 5H2, Canada
Telephone: 705-325-7458
Fax: 705-325-7625

2-3. 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 (Figure B-2) against the information contained in this manual. You must use the part number stamped on the cylinder case when ordering parts.

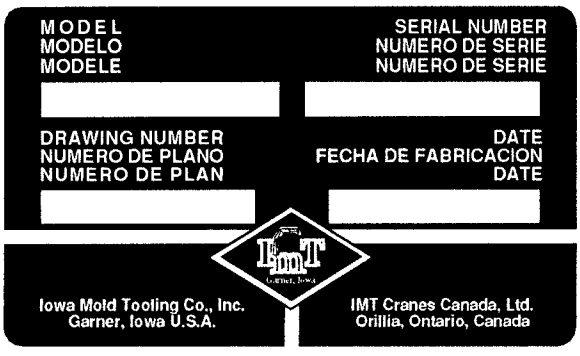


Figure B-1. SERIAL NUMBER PLACARD

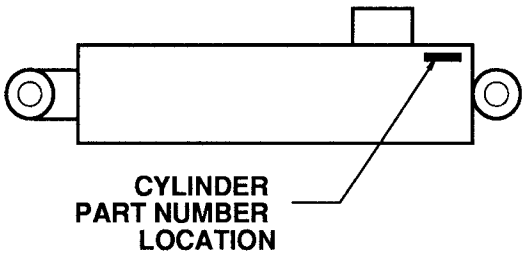


Figure B-2. CYLINDER IDENTIFICATION

2-4. WELDMENT INDENTIFICATION

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 in Figure B-3.

2-5. 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.

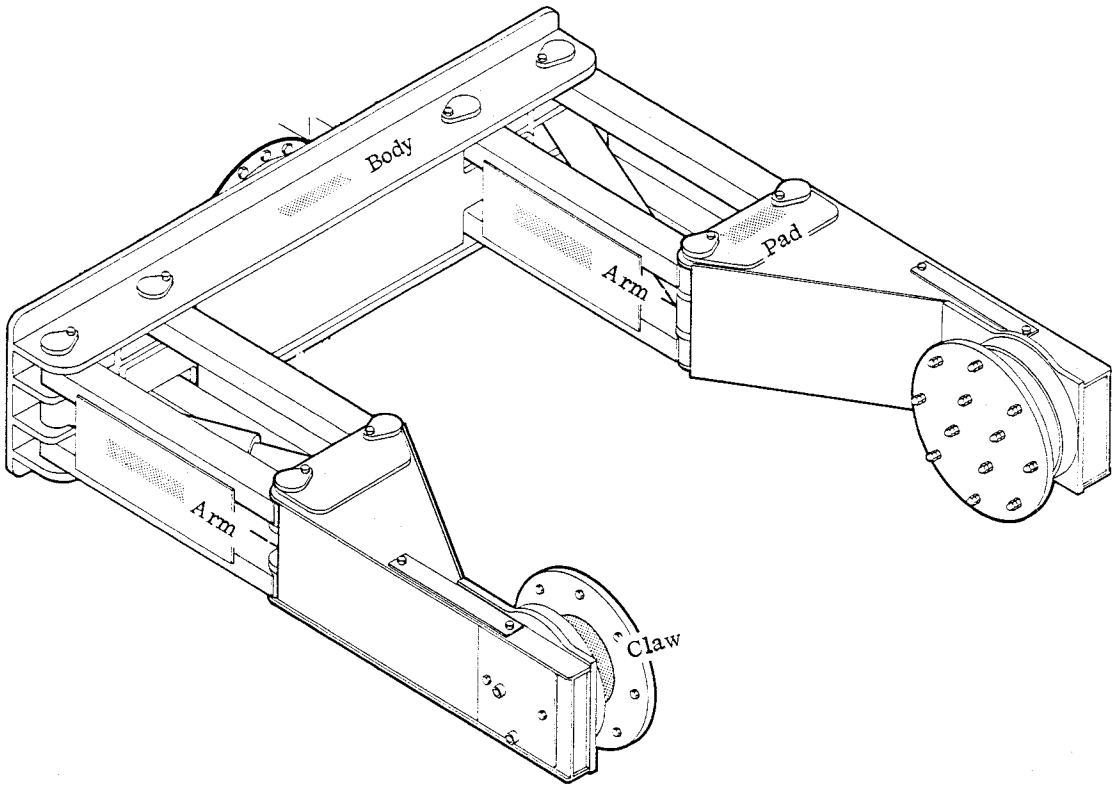
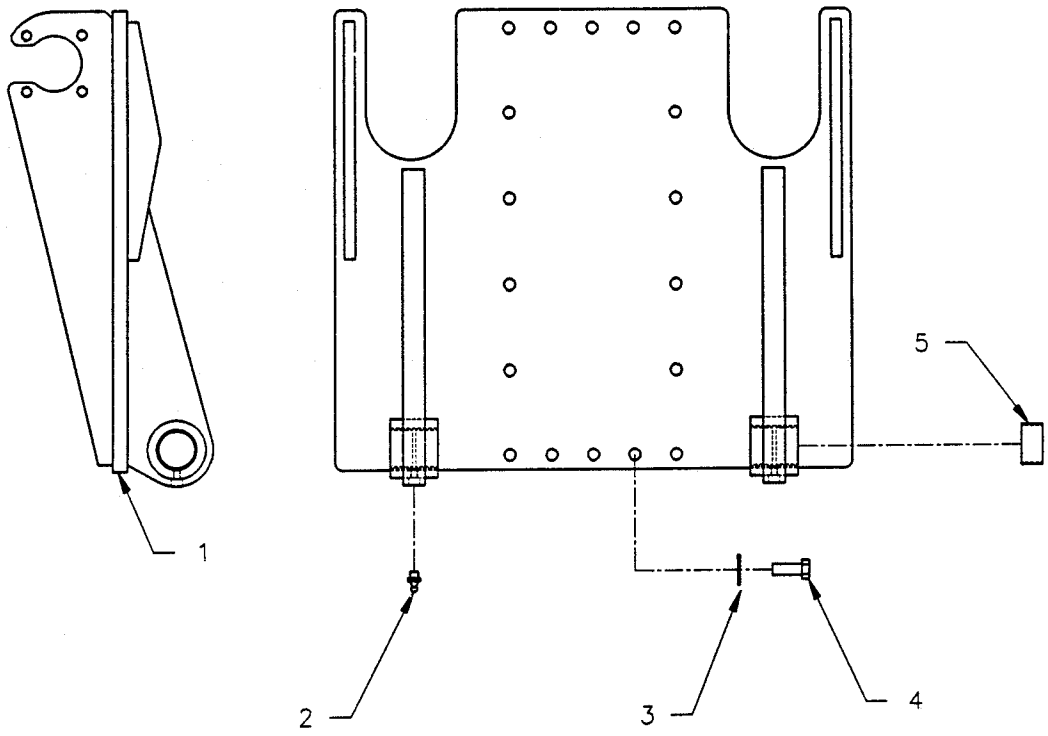
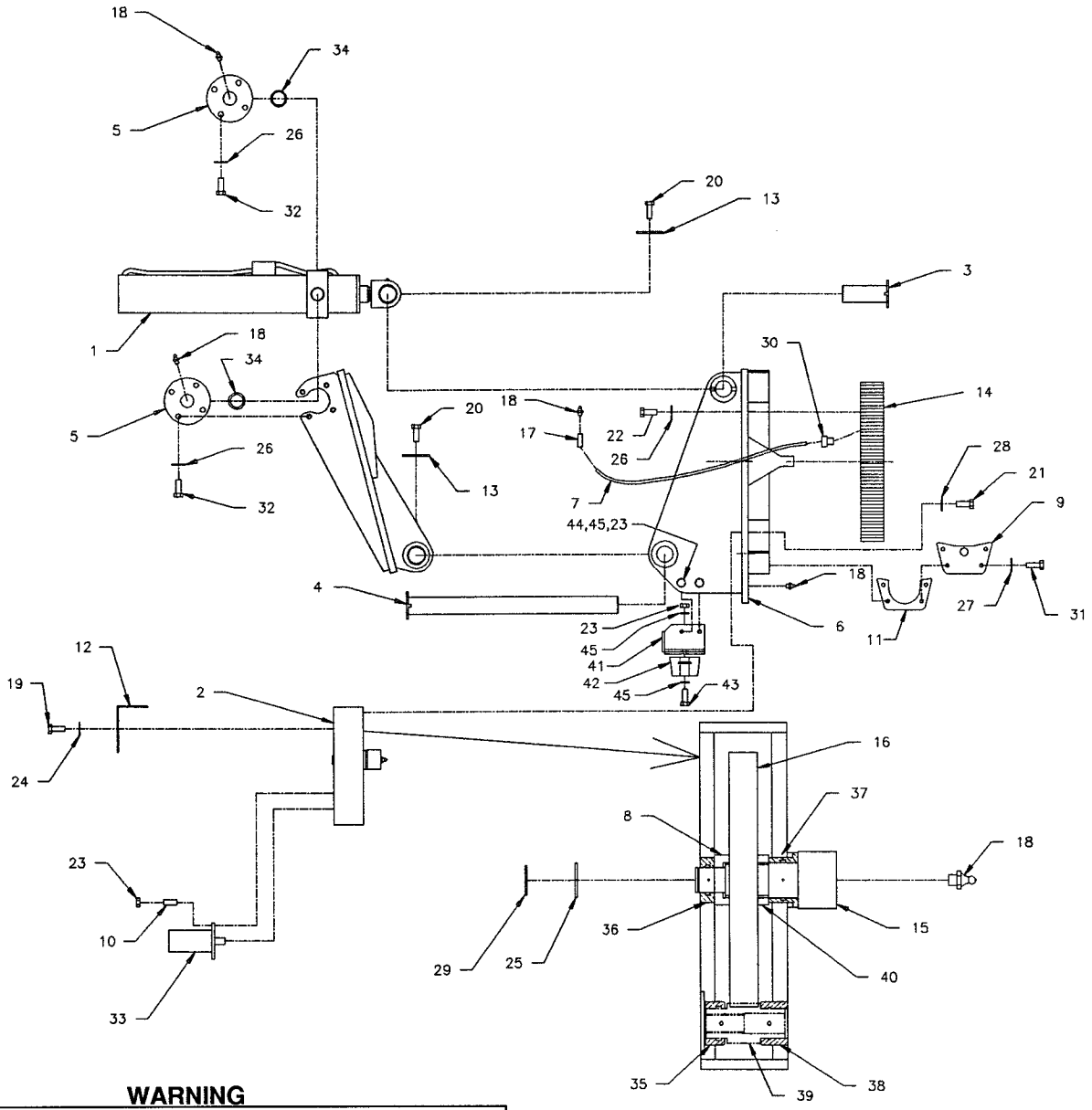


Figure B-3. WELDMENT PART NUMBER LOCATIONS



ITEM	PART NO.	DESCRIPTION	QTY
1.	52710233	MAST	1
2.	72053508	ZERK 1/8NPT	2
3.	72063116	WASHER 3/4 FLAT HARDENED	18
4.	72601484	CAP SCR 3/4-10X1-3/4 HH GR8	18
5.	70055219	BEARING	4

Figure B-4. MAST ASSEMBLY (40710232)



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.

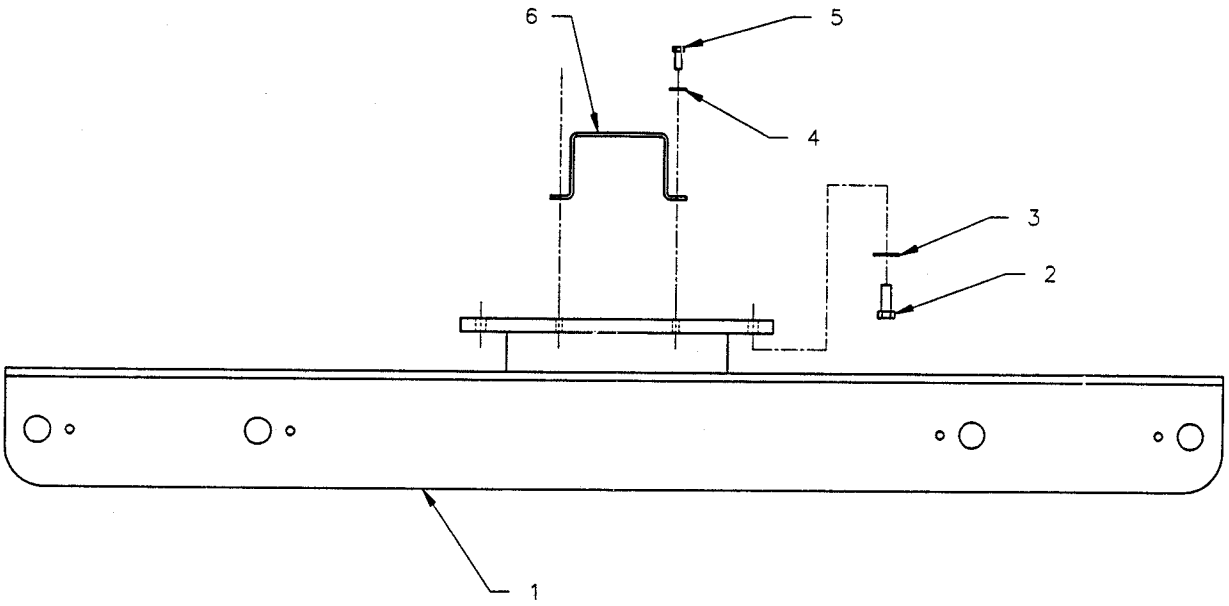
ITEM	PART NO.	DESCRIPTION	QTY
1.	3C162920	TILT CYLINDER	2
2.	51703568	SPUR GEAR BOX (INCL:35-39)	1
3.	52710285	PIN	2
4.	52710286	PIN	1
5.	52710287	CYL LOCK PLATE (INCL:34)	4
6.	52710290	BASE	1
7.	53000703	GREASE EXTENSION 20"	1
8.	60020172	THRUST WASHER	1
9.	60020178	SUPPORT PLATE	1
10.	60106032	STUD 1/2-13X2	2
11.	60106035	PINION SUPPORT SPACER	1
12.	60106043	SPUR GEAR BOX GUARD	1
13.	60106332	PIN RETAINER PLATE 4"	3
14.	71056055	TURNTABLE GEAR BEARING	1
15.	71056073	PINION GEAR	1
16.	71056264	INTERMEDIATE GEAR	1
17.	72053301	COUPLING 1/8NPT	1
18.	72053508	ZERK 1/8NPT	7
19.	72060089	CAP SCR 1/2-13X3/4 HH GR5	2
20.	72060147	CAP SCR 5/8-11X1 HH GR5	3
21.	72060151	CAP SCR 5/8-11X2 HH GR8	7
22.	72060440	CAP SCR 3/4-16X2 HH GR8	23
23.	72062080	NUT 1/2-13 LOCK	10

NOTE

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

ITEM	PART NO.	DESCRIPTION	QTY
24.	72063053	WASHER 1/2 LOCK	2
25.	72063075	MACH BUSHING 2X10GA WR	1
26.	72063116	WASHER 3/4 FLAT HARD	39
27.	72063117	WASHER 9/16 FLAT HARD	4
28.	72063119	WASHER 5/8 FLAT HARD	7
29.	72066095	RETAINING RING 2" STD	1
30.	72531826	REDUCER BUSHING 1/4-1/8NPT	1
31.	72601144	CAP SCR 9/16-12X2 HH GR8	4
32.	72601484	CAP SCR 3/4-10X1-3/4 HH GR8	16
33.	73051004	HYDRAULIC MOTOR	1
34.	60020222	BEARING (PART OF 5)	4REF
35.	60020173	BUSHING (PART OF 2)	1REF
36.	60020174	BUSHING (PART OF 2)	1REF
37.	60020176	BUSHING (PART OF 2)	1REF
38.	60020177	BUSHING (PART OF 2)	1REF
39.	71056011	DRIVE GEAR (PART OF 2)	1REF
40.	60020175	THRUST WASHER	1
41.	52711926	MOTOR PROTECTION BRACKET	1
42.	76393209	BUMPER	2
43.	72060097	CAP SCR 1/2-13X3 HHGR5	4
44.	72060096	CAP SCR 1/2-13X2-1/2 HHGR5	4
45.	72063005	WASHER 1/2 WRT	16

Figure B-5. BASE ASSEMBLY (40710231)

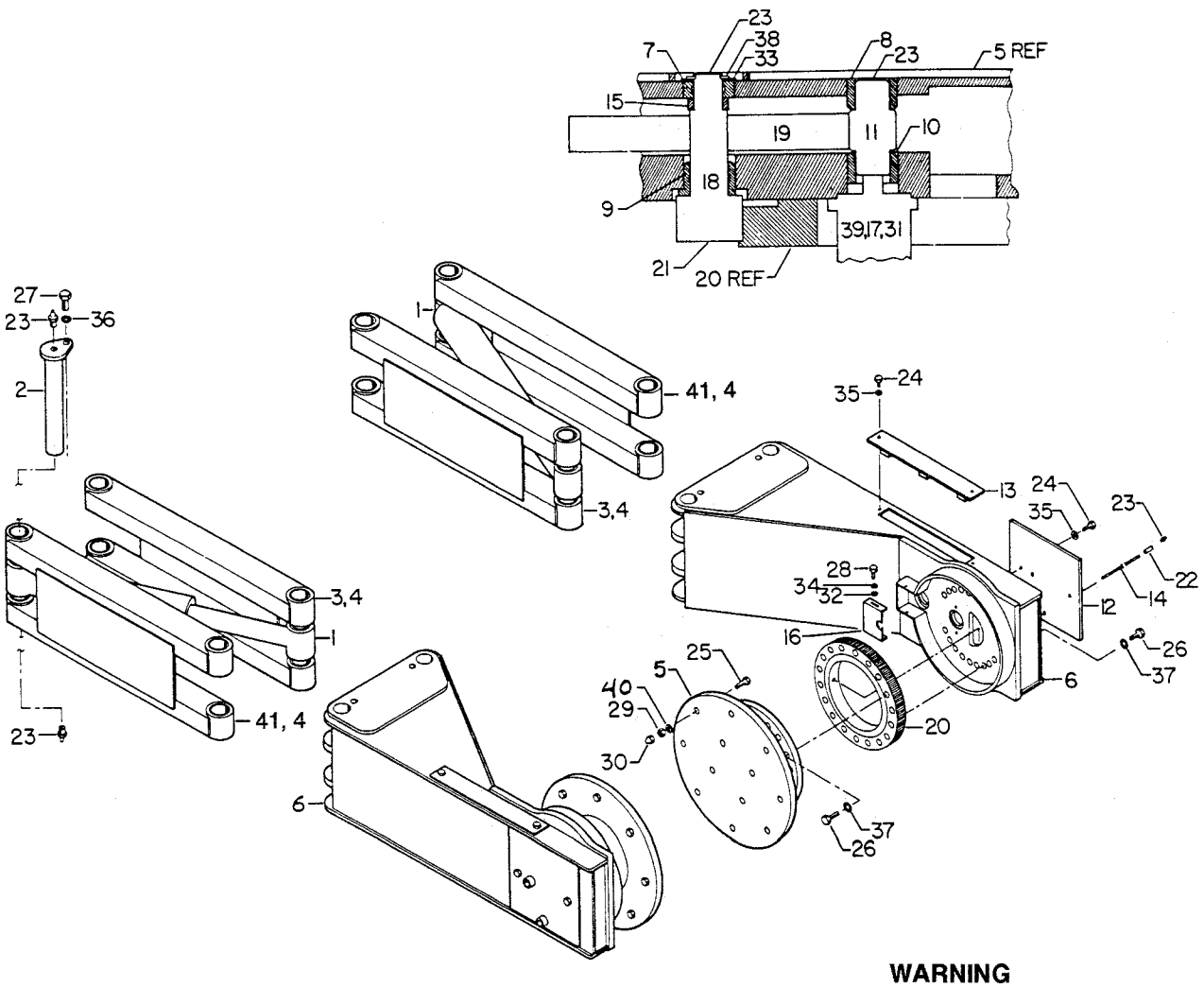


WARNING

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.

ITEM	PART NO.	DESCRIPTION	QTY
1.	52710318	BODY	1
2.	72060440	CAP SCR 3/4-16X2 HH GR8	18
3.	72063116	WASHER 3/4 FLAT HARD	18
4.	72063005	WASHER 1/2 WRT	2
5.	72060091	CAP SCR 1/2-13X1 HH GR5	2
6.	60108401	BULKHEAD PLATE	1

Figure B-6. BODY ASSEMBLY (40710319)

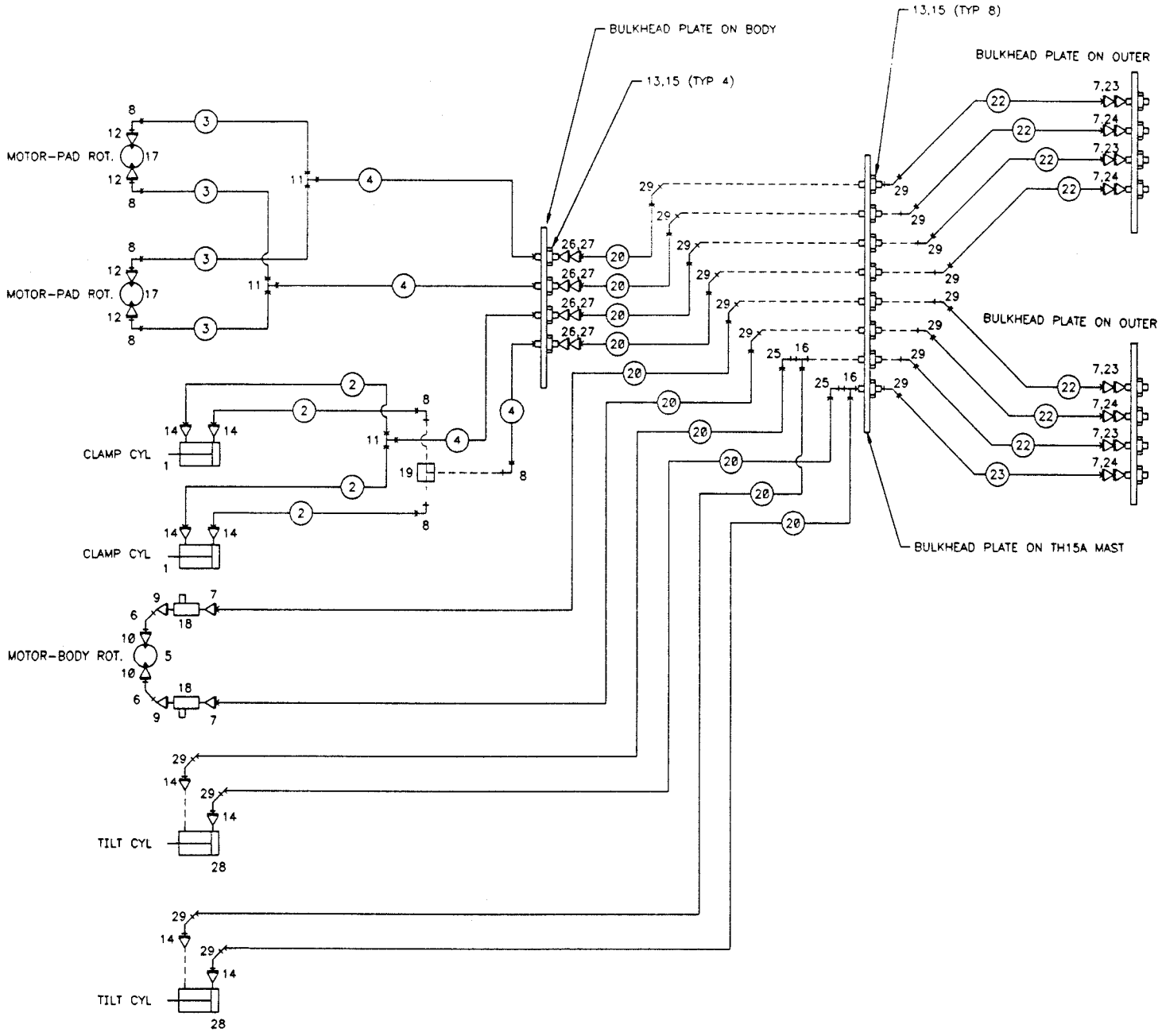


WARNING

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.

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B160920	CLAMP CYLINDER	2
2.	52710354	PIN	8
3.	52710356	ARM (INCL: 4)	2
4.	60020223	BUSHING (PART OF 3)	16REF
5.	52710357	CLAW	2
6.	52710358	PAD (INCL:7-11)	2
7.	60020081	BUSHING (PART OF 6)	2REF
8.	60020100	BUSHING (PART OF 6)	2REF
9.	60020114	BUSHING (PART OF 6)	2REF
10.	60020115	BUSHING (PART OF 6)	2REF
11.	71056011	DRIVE GEAR (PART OF 6)	2REF
12.	52704283	ARM COVER	2
13.	52704284	INTERMEDIATE GEAR COVER	4
14.	53000701	GREASE EXTENSION 14"	2
15.	60102942	SPACER	2
16.	60104763	PINION COVER	2
17.	60106032	STUD 1/2-13X2	4
18.	71056010	PINION GEAR	2
19.	71056012	INTERMEDIATE GEAR	2
20.	71056389	TURNTABLE BEARING	2
21.	72053240	PIPE PLUG 1/8NPT HOL HEX	2
22.	72053301	COUPLING 1/8NPT	2
23.	72053508	ZERK 1/8NPT	22
24.	72060091	CAP SCR 1/2-13X1 HH GR5	12
25.	72060206	CAP SCR 3/4-10X2 HH GR8	24
26.	72060151	CAP SCR 5/8-11X2 HH GR8	68
27.	72060183	CAP SCR 3/4-10X1-1/2 HH GR5	8
28.	72060833	SCR 5/16-18X3/4 HH SLFTPG	4
29.	72062007	NUT 3/4-10 HEX	24
30.	72062239	NUT 3/4-10 ACORN HIGH	24
31.	72062080	NUT 1/2-13 LOCK	4
32.	72063002	WASHER 5/16 WRT	4
33.	72063035	MACH BUSHING 1-1/4X10GA NR	2
34.	72063050	WASHER 5/16 LOCK	4
35.	72063053	WASHER 1/2 LOCK	12
36.	72063008	WASHER 3/4 WRT	8
37.	72063119	WASHER 5/8 FLAT HARD GR8	68
38.	72066084	RETAINING RING 1-1/4 EXT STD	2
39.	73051384	HYDRAULIC MOTOR	2
40.	72063056	WASHER 3/4 LOCK	24
41.	52710355	ARM (INCL: 4)	2

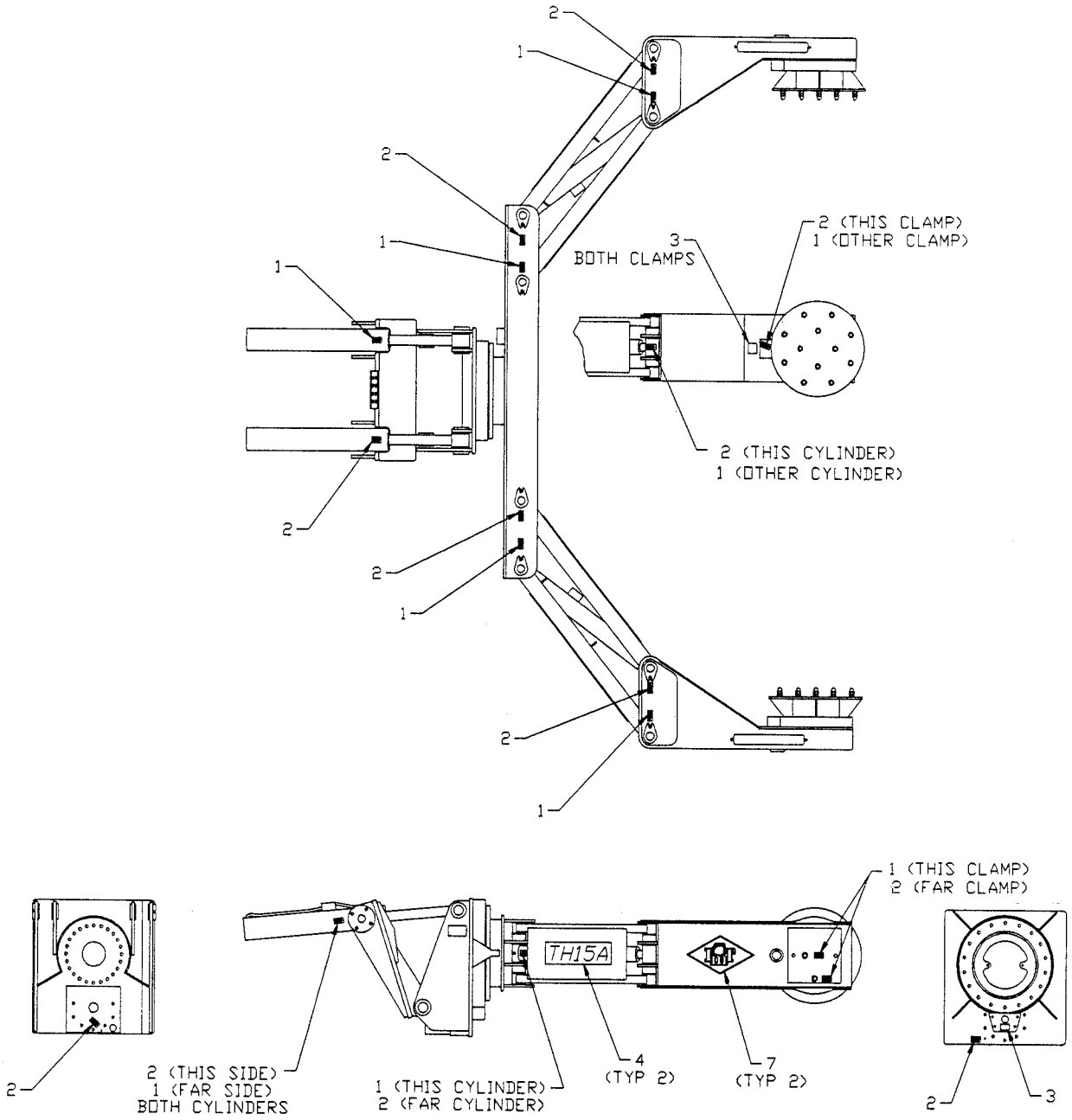
Figure B-7. CLAMP ASSEMBLY (40710229)



ITEM	PART NO.	DESCRIPTION	QTY
1.		CLAMP CYLINDER	REF
2.	51706000	HOSE ASM 3/8X54	4
3.	51705379	HOSE ASM 3/8X140	4
4.	51703701	HOSE ASM 3/8X10	4
5.		HYDRAULIC MOTOR	REF
6.	72053563	STREET ELBOW 3/8NPT 45°	2
7.	72053670	ADAPTER 3/8MPT 3/4MJIC	10
8.	72053673	ELBOW 3/8MSTR 3/8MJIC 90°	7
9.	72053723	ADAPTER 3/8MPT 3/8MPT	2
10.	72053743	ADAPTER 7/8MSTR 3/8FPT	2
11.	72531205	TEE 3/4MJIC	3
12.	72531206	ADAPTER 7/8MSTR 3/4FSTR	4
13.	72531708	NUT 3/4JIC BULKHEAD	12
14.	72532358	ADAPTER 3/4MSTR 3/4MJIC	8

ITEM	PART NO.	DESCRIPTION	QTY
15.	72532672	UNION 3/4JIC BULKHEAD	12
16.	72532657	TEE 3/4JIC SWVL NUT RUN	2
17.		HYDRAULIC MOTOR	REF
18.	73054139	COLORFLOW-NEEDLE VALVE	2
19.	73054483	FLOW DIVIDER VALVE	1
20.	51707812	HOSE ASM 3/8X51	10
22.	51707811	HOSE ASM 3/8X47	8
23.	72053540	DISCONNECT COUPLER 3/8FPT	4
24.	72053542	DISCONNECT NIPPLE 3/8FPT	4
25.	72532658	ELBOW 3/4MJIC 3/4FJIC SWVL	2
26.	72532739	ADAPTER 3/4MJIC 3/4MJIC	4
27.	72532980	ADAPTER 3/4FJIC PR SW IN-LINE	4
28.		TILT CYLINDER	REF
29.	72532670	ELBOW 3/4MJIC 3/4FJIC 45°	18

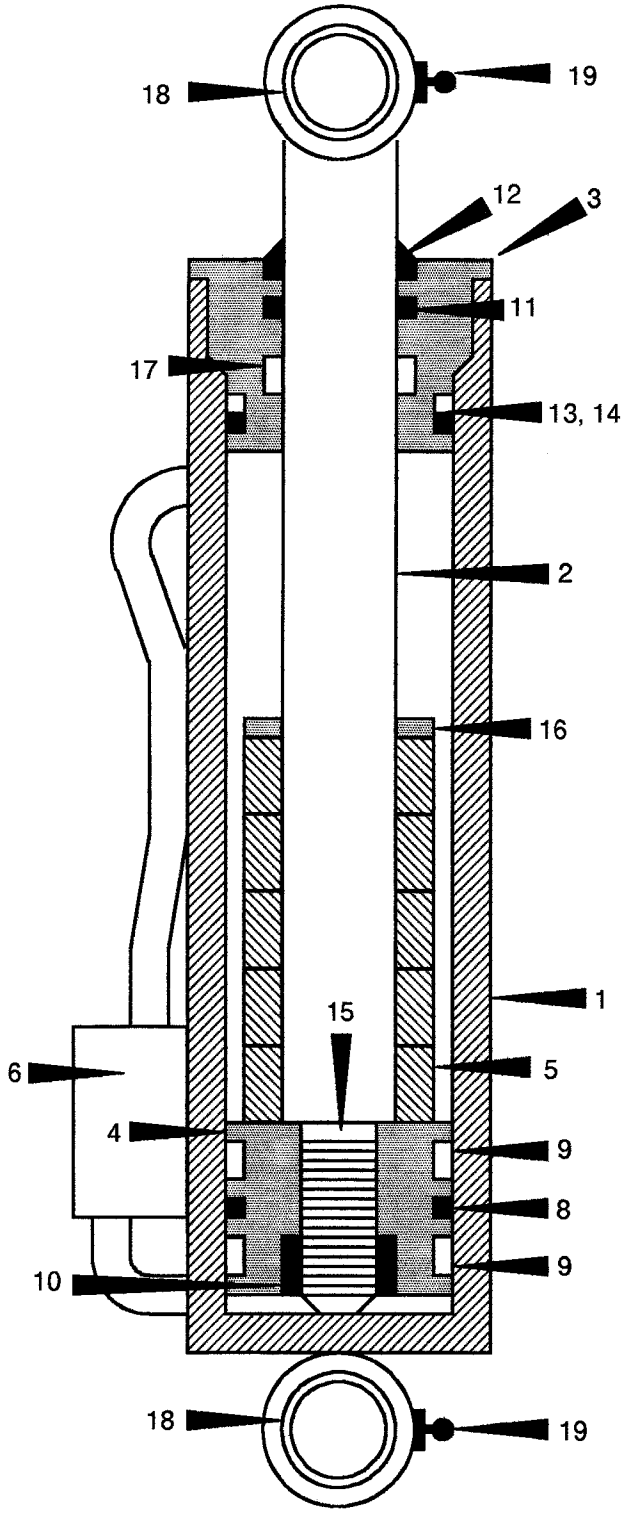
Figure B-8. HYDRAULIC KIT (91710228)



ITEM	PART NO.	DESCRIPTION	QTY
1.	70391612	DECAL - GREASE WKLY LH	12
2.	70391613	DECAL - GREASE WKLY RH	14
3.	70392524	DECAL - ROTATE/GREASE	3
4.	70393429	DECAL - TH-15A IDENTIFICATION	2
5.	71392727	DECAL - CONTROL SS	1
6.	71392728	DECAL - CONTROL CS	1
7.	70392887	IMT DIAMOND	2
8.	71393702	CAPACITY PLACARD	2

NOTE: PLACE ITEM 8 NEAR CRANE OPERATOR STATION.

Figure B-9. DECAL KIT (95710230)



NOTE

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

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

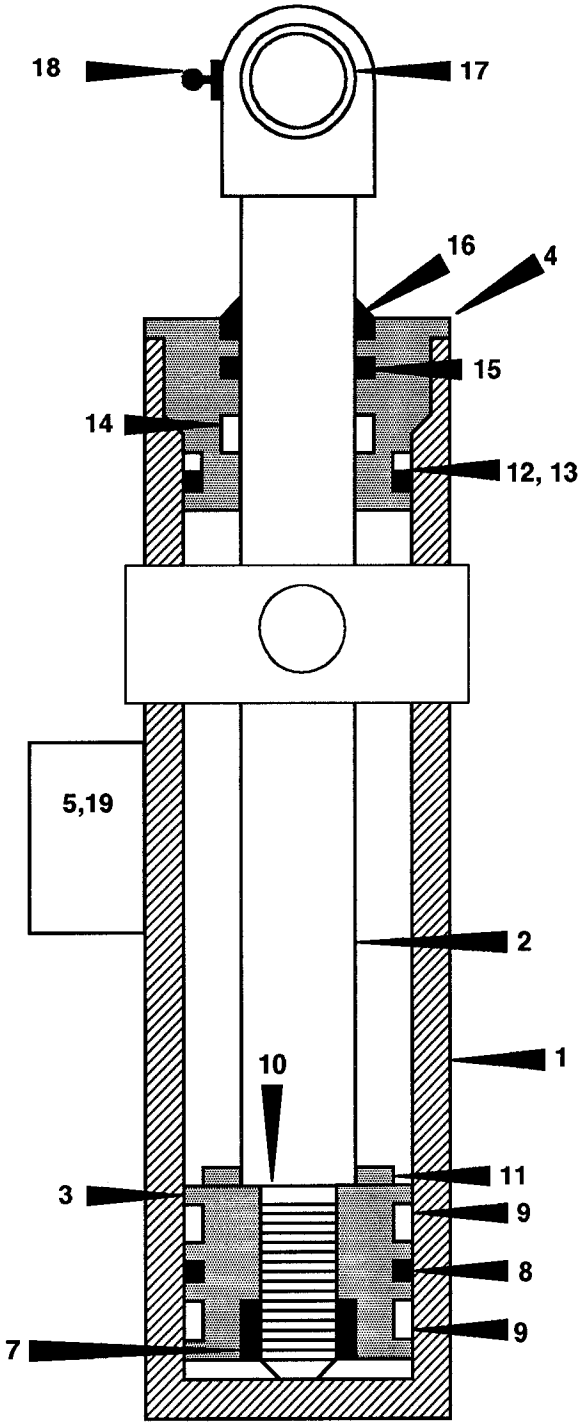
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER. KEEP OFF ALL SEALS.

DIMENSIONS

Bore	4"
Stroke	16-1/4"
C-C Closed	42"
Rod diameter	2-1/2"
Pin diameter	2"

ITEM	PART NO.	DESCRIPTION	QTY
1.	4B160920	CASE ASM	1
2.	4G192910	ROD ASM	1
3.	6H040025	HEAD	1
4.	6I402144	PISTON	1
5.	6C300025	STOP TUBE	5
6.	73054242	VALVE	1
7.	9C160920	SEAL KIT (INCL:8-16)	1
8.	7T66P400	PISTON SEAL (PART OF 7)	1REF
9.	7T2N4040	WEAR RING (PART OF 7)	2REF
10.	7T61N143	LOCK RING (PART OF 7)	1REF
11.	7R546025	U-CUP SEAL (PART OF 7)	1REF
12.	7R14P025	ROD WIPER (PART OF 7)	1REF
13.	7Q10P342	BACKUP RING (PART OF 7)	1REF
14.	7Q072342	O-RING (PART OF 7)	1REF
15.	7Q072127	O-RING (PART OF 7)	1REF
16.	6A025025	WAFER LOCK (PART OF 7)	1REF
17.	7T2N8027	WEAR RING (PART OF 7)	1REF
18.	70055203	BEARING (PART OF 1 & 2)	4REF
19.	72053507	ZERK 1/4-28 (PART OF 1 & 2)	2REF

Figure B-10. CLAMP CYLINDER (3B160920)



NOTE

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

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

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

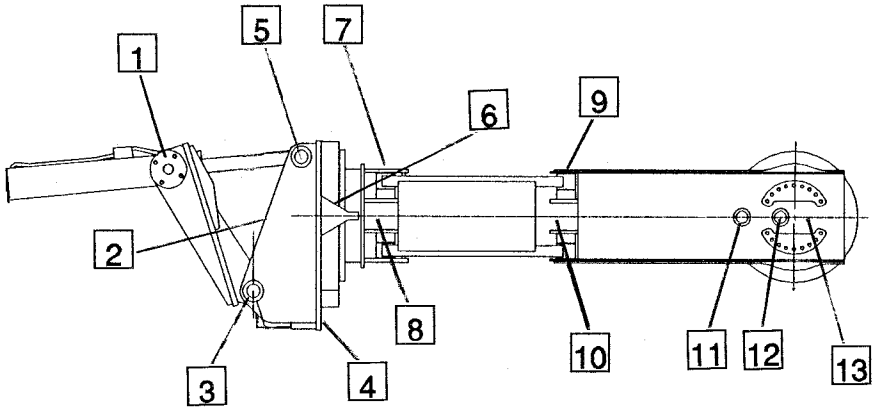
DIMENSIONS

Bore	5"
Stroke	29-5/8"
C-C Closed	10-5/8"
Rod diameter	2-1/2"
Pin diameter	2-1/2"

ITEM	PART NO.	DESCRIPTION	QTY
1.	4C162920	CASE ASM (INCL: 19)	1
2.	4G170910	ROD ASM (INCL:17,18)	1
3.	6I503200	PISTON	1
4.	6H050025	HEAD	1
5.	73054242	COUNTERBALANCE VALVE	1
6.	9C170910	SEAL KIT (INCL:7-16)	1
7.	7T61N200	LOCK RING (PART OF 6)	1REF
8.	7T66P500	PISTON SEAL (PART OF 6)	1REF
9.	7T2N4050	WEAR RING (PART OF 6)	2REF
10.	7Q072033	O-RING (PART OF 6)	1REF
11.	6A025025	WAFER LOCK (PART OF 6)	1REF
12.	7Q072350	O-RING (PART OF 6)	1REF
13.	7Q10P350	BACK-UP RING (PART OF 6)	1REF
14.	7T2N8027	WEAR RING (PART OF 6)	1REF
15.	7R546025	U-CUP SEAL (PART OF 6)	1REF
16.	7R14P025	ROD WIPER (PART OF 6)	1REF
17.	70055219	BEARING (PART OF 1,2)	2REF
18.	72053507	ZERK 1/4-28 (PART OF 2)	1REF
19.	7PNPXT02	PIPE PLUG (PART OF 1)	3REF

Figure B-11. TILT CYLINDER (3C162920)

SECTION 3. Reference



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	TILT CYLINDER BASE PIN	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
2.	TURNTABLE BEARING GREASE EXTENSION *ROTATE TIREHAND WHILE GREASING		
3.	MAST/BASE HINGE PINS		
4.	SPUR GEAR BOX ZERK (DRIVE GEAR)		
5.	TILT CYLINDER ROD		
6.	PINION GEAR		
7.	ARM PINS-TOP & BOTTOM (8 PLACES)		
8.	CLAMP CYLINDER BASE		
9.	ARM PINS-TOP & BOTTOM (8)		
10.	CLAMP CYLINDER ROD		
11.	PAD PINION ZERK		
12.	PAD DRIVE GEAR ZERK		
13.	PAD TURNTABLE GREASE EXTENSIONS *ROTATE PADS WHILE GREASING		

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.

Figure C-1. GREASE ZERK LOCATIONS AND LUBRICANT REQUIREMENTS

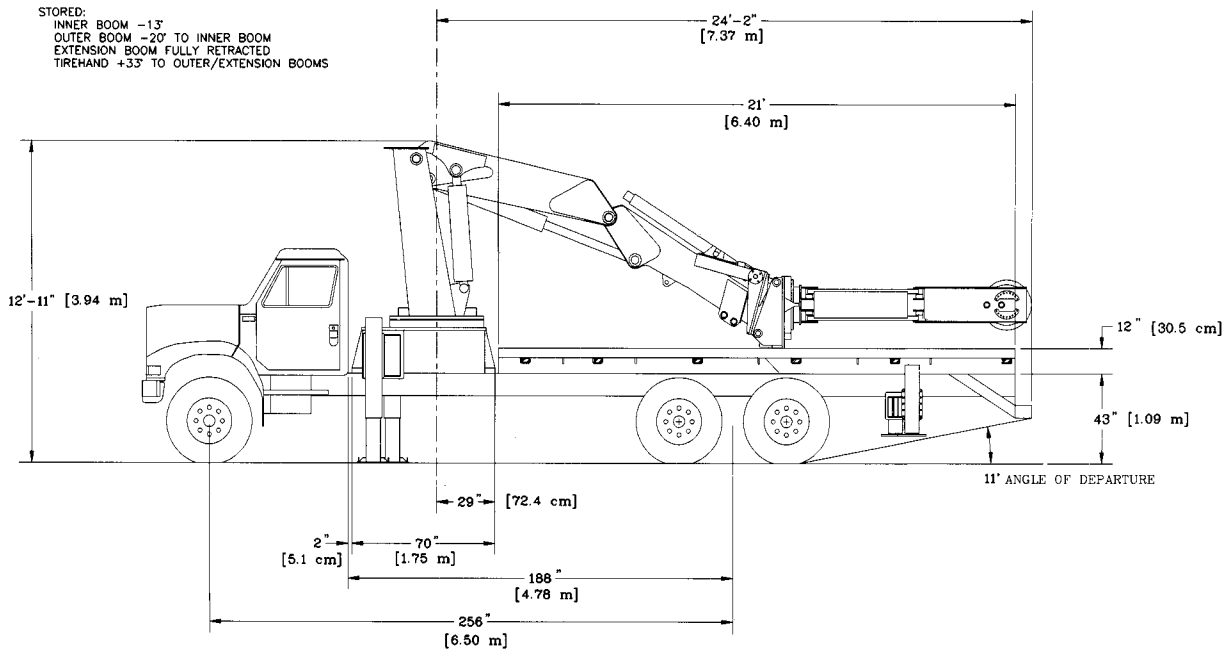


Figure C-2. IMT MODEL 32018 WITH TH15A - STORED POSITION

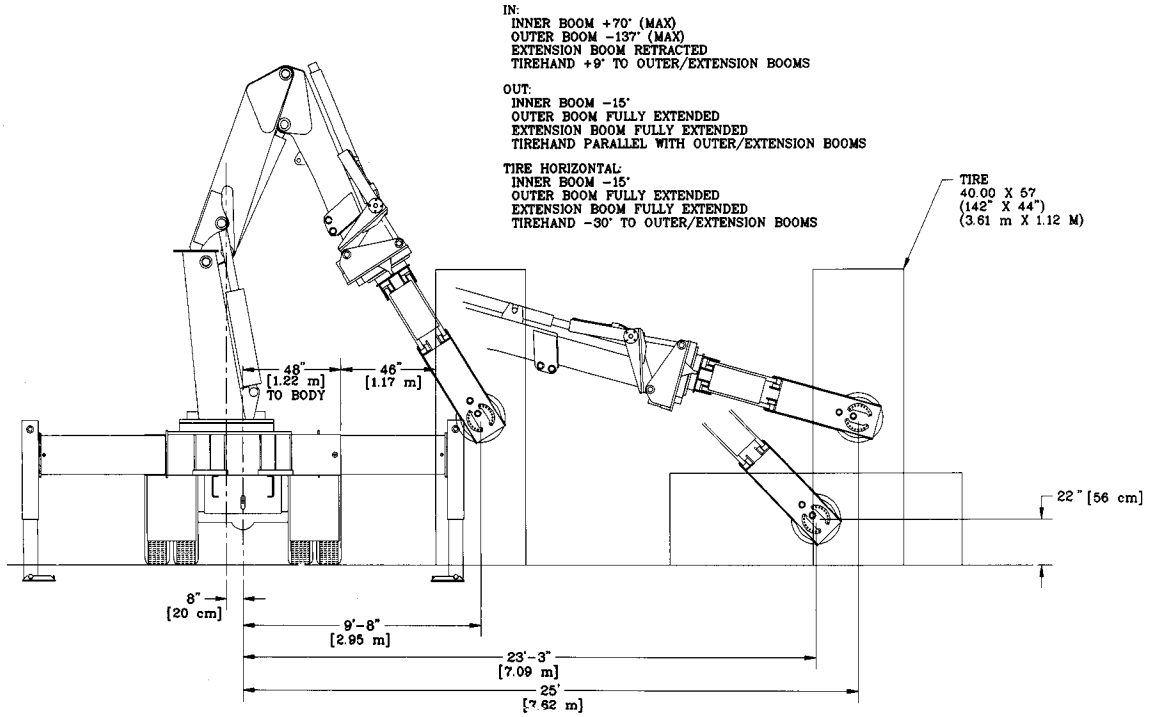


Figure C-3. IMT MODEL 32018 WITH TH15A - SURFACE MOVEMENT

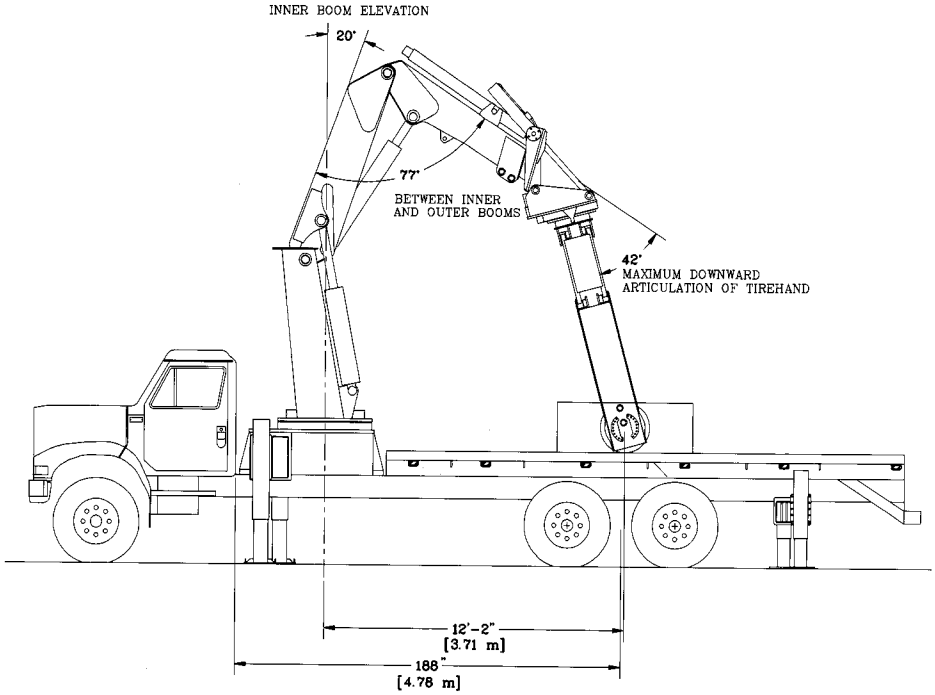


Figure C-4. IMT MODEL 32018 WITH TH15A - INWARD MOVEMENT

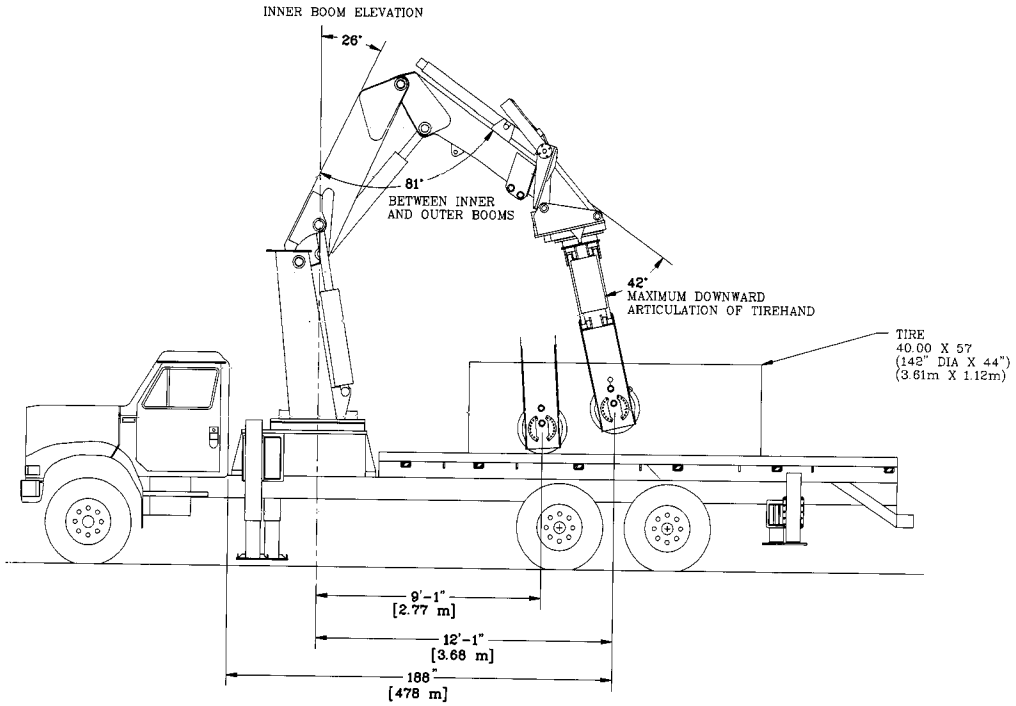


Figure C-5. IMT MODEL 32018 WITH TH15A - INWARD MOVEMENT (40.00 X 57 TIRE)

TORQUE DATA CHART

FINE THREAD BOLTS

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

COARSE THREAD BOLTS

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

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

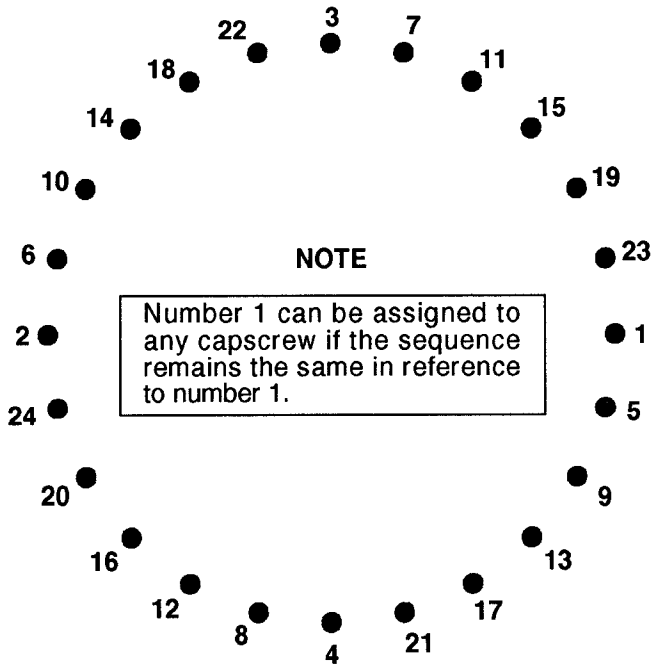
1. **Bolt manufacturer's particular specifications should be consulted when provided.**
2. **Flat washers of equal strength must be used.**
3. **All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.**
4. **Torque values specified are for bolts with residual oils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

WARNING

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

Figure C-6. TORQUE DATA CHART

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



TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of capscrew used.

2. Follow the tightening sequence shown in the diagram. Note that the quantity of capscrews may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.

3. Torque all capscrews to approximately 40% of the specified torque value, by following the sequence. (EXAMPLE: .40 x 265 FT-LBS = 106 FT-LBS)

4. Repeat Step 3, but torqueing all capscrews to 75% of the specified torque value. Continue to follow the tightening sequence. (EXAMPLE: .75 x 265 FT-LBS = 199 FT-LBS)

5. Using the proper sequence, torque all capscrews to the listed torque value as determined from the Torque Data Chart.

Figure C-7. TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

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

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

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

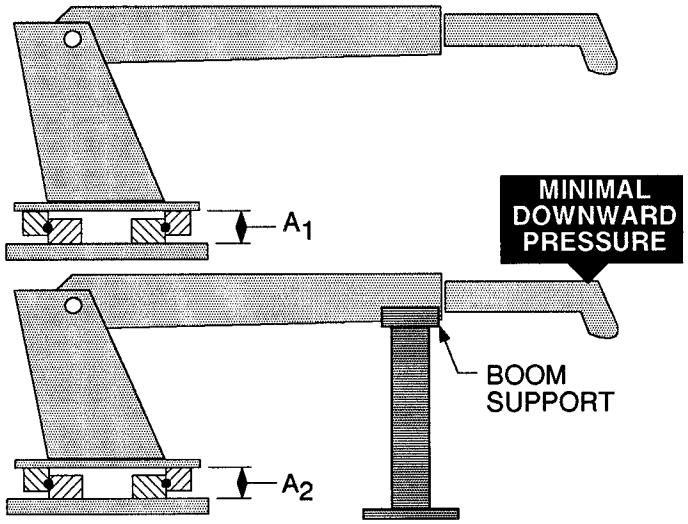
Periodic readings indicating a steady increase in TILT may be an indicator of bearing wear. Note that a bearing found to have no raceway cracks or other structural irregularities should be reassembled and returned to service.

TEST PROCEDURE

STEP 1.
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (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					
THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED. IF THERE IS REASON TO SUSPECT AN EXCESS OF BEARING WEAR AND THE MEASURED TILT DIMENSION EXCEEDS THE DIMENSION LISTED, REMOVE THE BEARING FOR INSPECTION.	**IMT CRANE OR TIREHAND MODEL**	814 1007 1014 2010 215 2015 2109 2815 3016 315A 320H 3515 3617 3625 421 425 5016 TH7 BODY ROT'N TH1449A BODY ROT'N TH15A CLAMP TH1836A CLAMP TH2551 CLAMP TH2557 CLAMP TH2557A CLAMP	4817 4825 516 525 5826 6014 6425 725 7020 7025 8025 8031 TH10 BODY ROT'N TH12 BODY ROT'N	32018 32030 HAWK-H1150 HAWK-H1150TL HAWK-H4961	9616 9825 9831 10020 10025 1216 1325 1331 13031 13034 13426 14018 14048 14126 15033 1725 18026 20017 HAWK-H1200 TH1836 BODY ROT'N TH1836A BODY ROT'N TH2551 BODY ROT'N TH2557 BODY ROT'N TH2557A BODY ROT'N
	BALL DIA. (REF)	.875" (22mm)	1.00" (25mm)	1.18" - 1.25" (30 - 32mm)	1.75" (44mm)
	TILT DIM. (A_1 - A_2)	**.060" (1.524mm)**	**.070" (1.778mm)**	**.075" (1.905mm)**	**.090" (2.286mm)**

Figure C-8. TURNTABLE BEARING INSPECTION FOR REPLACEMENT

SPARE PARTS LIST
1-Year Supply

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 minimal down-time waiting for parts. Obviously, there may be part failures not covered by this list.

The item numbers shown on this list correspond to the item numbers on the figure listed.

FIG. NO.	ITEM NO.	PART NO.	DESCRIPTION	QTY
B-4.	3	72063116	WASHER	18
B-4.	4	72601484	CAP SCR 3/4-10X1-3/4 HH GR8	18
B-4.	5	70055219	BEARING	4
B-5.	8	60020172	THRUST WASHER	1
B-5.	14	71056055	TURNTABLE GEAR BEARING	1
B-5.	15	71056073	PINION GEAR	1
B-5.	21	72060151	CAP SCR 5/8-11X2 HH GR8	7
B-5.	22	72060440	CAP SCR 3/4-16X2 HH GR8	23
B-5.	26	72063116	WASHER 3/4 FLAT HARD	39
B-5.	27	72063117	WASHER 9/16 FLAT HARD	4
B-5.	28	72063119	WASHER 5/8 FLAT HARD	7
B-5.	33	73051384	HYDRAULIC MOTOR	1
B-5.	34	60020222	BEARING	4
B-5.	35	60020173	BUSHING	1
B-5.	36	60020174	BUSHING	1
B-5.	37	60020176	BUSHING	1
B-5.	38	60020117	BUSHING	1
B-5.	39	71056011	DRIVE GEAR	1
B-5.	40	60020175	THRUST WASHER	1
B-6.	2	72060440	CAP SCR 3/4-16X2 HH GR8	18
B-6.	3	72063116	WASHER 3/4 FLAT HARD	18
B-7.	4	60020223	BUSHING	16
B-7.	7	60020081	BUSHING	2
B-7.	8	60020100	BUSHING	2
B-7.	9	60020114	BUSHING	2
B-7.	10	60020115	BUSHING	2
B-7.	11	71056011	DRIVE GEAR	2
B-7.	18	71056010	PINION GEAR	2
B-7.	19	71056012	INTERMEDIATE GEAR	2
B-7.	20	71056389	TURNTABLE GEAR BEARING	2
B-7.	25	72060206	CAP SCR 3/4-10X2 HH GR8	24
B-7.	26	72060151	CAP SCR 5/8-11X2 HH GR8	68
B-7.	37	72063119	WASHER 5/8 FLAT HARD GR8	68
B-7.	39	73051384	HYDRAULIC MOTOR	2
B-10.	6	73054242	VALVE	2
B-10.	7	9C160920	SEAL KIT	2
B-10.	18	70055203	BEARING	4
B-11.	5	73054242	VALVE	2
B-11.	6	9C170910	SEAL KIT	2
B-11.	17	70055219	BEARING	4

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 TH-15A	MANUAL PART NO. 99900507-8/91
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
ATTN: Technical Publications

MANUFACTURER'S LIMITED WARRANTY

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

1. Ninety (90) days; labor on IMT workmanship from the date of delivery to the end user.

2. One (1) year; original IMT parts from the date of delivery to the end user.

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

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

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

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

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

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

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

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

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

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

Effective January, 1984

IOWA MOLD TOOLING Co., Inc.
BOX 189, GARNER, IA 50438-0189
TEL: 515-923-3711
PRODUCT SUPPORT FAX: 515-923-3674