

ITEM NO.

REV.

DESCRIPTION

QTY

UNIT

MATERIAL

QTY

UNIT

QTY

UNIT

QTY

UNIT

MAST ASSY 30M #59 MAST A14503

12PIN 2 HOLE 2.75 DIA X 6.50 LG (in)167075

2

3

48PIN COTTER .188 DIA X 1.50 LG (in)562085

54PIN COTTER .50 DIA X 4.00 LG (in)562172

68PIN SAFETY .243 DIA X 5.00 LG (in)563640

71WIRE ROPE 1.12 IN DIA W/ EYE81015494

8

96PIN 1 HOLE W/HD 75.8 DIA X 160.4 LG A13294

101BUTT ASSY #59A MAST 6.00M A13640

111TOP ASSY #59A MAST 6.00M A13721

12

13

1422PIN 1 HOLE W/HD 72.0 DIA X 91.5 LG A14070

1522COLLAR 73mm ID A14071

1622PIN 2 HOLES 15.9 DIA X 95.0 LG A14072

171INSERT 12.00M ASSY #59A (HEAVY) A14522

181INSERT 6.00M ASSY #59A (HEAVY) A14525

194STRAP TOP #59A MAST 40 X 100 A14532

2012LINK #59A MAST STRAP A14534

214STRAP 12 METER #59A MAST 40 X 100 A14535

224LINK #59A MAST STRAP A14844

232STRAP 6 METER #59A MAST 40 X 100 A14845

244LINK #59A MAST STRAP A14846

252COLLAR 116mm ID A14925

261PIN 1 HOLE W/HD 115.0 DIA X 91.5 LG A14926

272PIN 2 HOLES 15.9 DIA X 137.0 LG A14929

28

29

301PIN LOAD 4.52 INCH DIA X 305K LBS A15017

31

32

332SHIM .188 THK (IN) A15502

342SHIM .119 THK (IN) A15503

352SHIM .059 THK (IN) A15504

364SCREW M16X2 140MM LG 7126243050

374ELASTIC STOP NUT M16X2 7661240804

OPTIONAL PARTS

381CAT WALK ASSY #59A MAST TOP 81016894

391CAT WALK ASSY 12M #59 OR #59A INSERT 81016933

401CAT WALK ASSY 6M #59A INSERT 81017370

ON DRAWING A14531

731.5 METERS (2400 FT) OF 1.125 INCH BRIDON CONSTRUCTEX, RIGHT HAND REGULAR LAY. MINIMUM BREAKING STRENGTH 707.3KN (159,000 LBS) WEIGHT= 2831kg (6240 LBS)

SEE SHEET 2 FOR MAST INSTALLATION.

SEE SHEET 3 FOR MAST RAISING WITH ANCHOR HOLDBACK.

SEE SHEET 4 FOR MAST RAISING WITH BOOM HOLDBACK.

OBJECT NO.	I.D. TAG #
A13640	A13641
A13721	A11352 (OR) A00648
A14522	A14523 (OR) A17224 (OR) 81013640
A14525	A14526 (OR) A17225 (OR) 81008596

OPTIONAL CAT WALK ASSEMBLY

REFERENCE BOOM SECTION ASSY FOR TIMBER REQUIREMENTS

BOOM SECTION ASSY	OPTIONAL CAT WALK ASSY
A13721	81016894
A14522	81016933
A14525	81017370

8

6

2

5

4

3

1

7

EQUALIZER SHEAVES

MAST TOP SHEAVES

GUIDE SHEAVE IN MAST TOP

BOOM HOIST

BOOM HOIST REEVING DIAGRAM FOR 12 PART LINE

6 A14503 SHT 1 OF 4 OF 03-25-09

PRIVATE LABELING REQUIREMENT TO CONFORM TO ENGINEERING SPECIFICATION 5825103794 FOR COMPONENTS LISTED IN 605500-05-035

05-04-10

PATTERN NO.

A14503

MANITOWOC CRANES, INC.

MANITOWOC, WISCONSIN

MODEL 16000

MAST

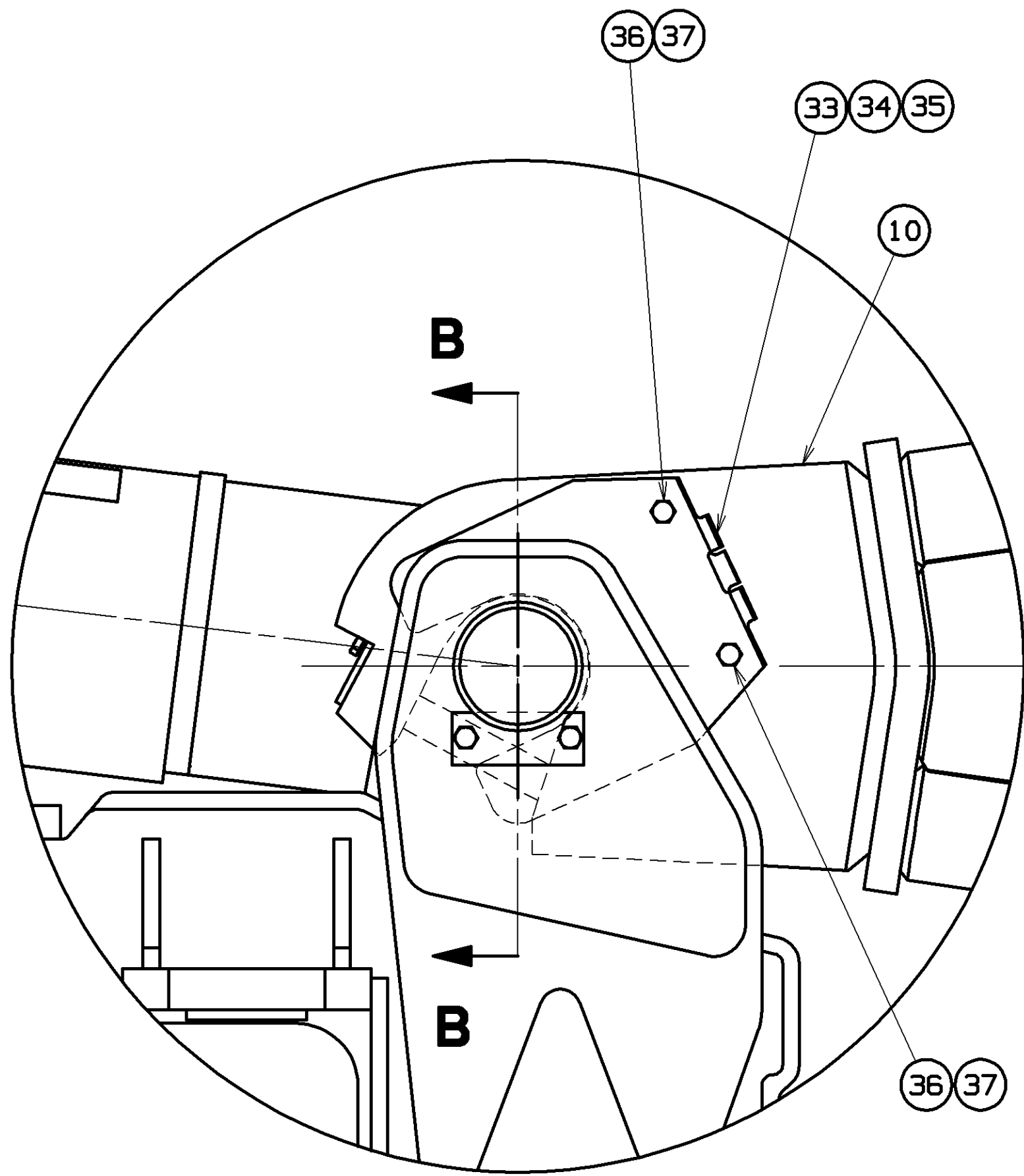
ASSY #59A 30M

MAST INSTALLATION PROCEDURE

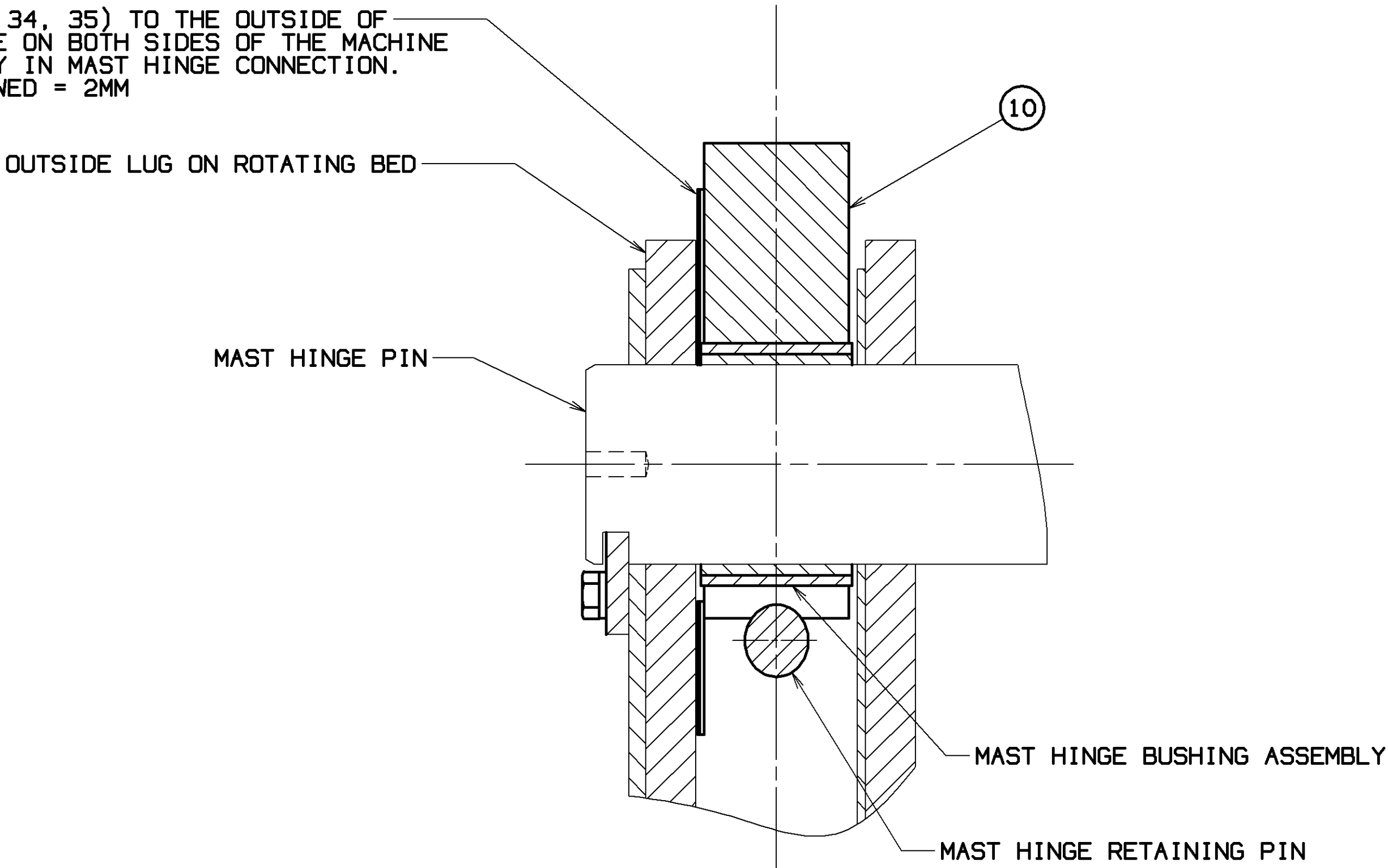
1. WITH ASSIST CRANE OR OTHER MEANS POSITION MAST TOP AND BUTT TRANSPORT PACKAGE ONTO MAST HINGE PIN IN ROTATING BED. SUPPORT MEANS TO REMAIN CONNECTED UNTIL STEP 6 IS COMPLETED.
2. INSTALL MAST HINGE RETAINING PINS AND SCREWS.
3. SHIM MAST HINGE. (SEE MAST SHIM INSTALLATION PROCEDURE)
4. TAKE UP SLACK IN MAST SUPPORT CABLE WITH WINCH AND REMOVE PINS.
5. LOWER MAST SUPPORT WITH WINCH UNTIL PINS CAN BE INSERTED.
WARNING: IF SUPPORTS ARE LOWERED TO FAR THEY WILL FALL OUT OF THE RETAINING TUBES.
6. ATTACH PADS TO SUPPORTS AND LOWER TRANSPORT PACKAGE UNTIL SUPPORT PADS ARE ON FLAT AND LEVEL GROUND.
7. AFTER CONNECTING HYDRAULICS REMOVE MAST TOP AND PAY OUT BOOM HOIST TO POSITION TOP FORWARD AS REQUIRED.
8. ATTACH 6 METER INSERT TO MAST BUTT.
9. BLOCK FAR END OF 6 METER INSERT TO RAISE SUPPORT PAD OFF GROUND.
10. REMOVE SUPPORT PAD AND STOW. RAISE SUPPORTS WITH WINCH AND PIN IN RETRACTED POSITION.
WARNING: DO NOT USE MAST SUPPORTS TO SUPPORT MORE THAN MAST BUTT WITH TOP OR MAST BUTT WITH 6 METER INSERT OR MAST SUPPORTS WILL COLLAPSE.
11. WITH 6 METER INSERT STILL BLOCKED, INSTALL 12 METER INSERT. MAST LENGTH IS NOW LONG ENOUGH TO MAINTAIN CLEARANCE IN MAST HINGE AREA.
12. INSTALL AND BLOCK MAST TOP AND POSITION EQUALIZER FOR MAST RAISING.
13. PLACE WIRE ROPE GUIDE IN 6 METER INSERT INTO THE WORKING POSITION.
14. POSITION MAST STOPS IN WORKING POSITION.
15. RAISE LIVE MAST AND ATTACH MAST SUPPORT STRAPS.(SEE SHEET 3 AND 4)
16. MAST IS NOW READY TO BE RAISED.

MAST SHIM INSTALLATION PROCEDURE

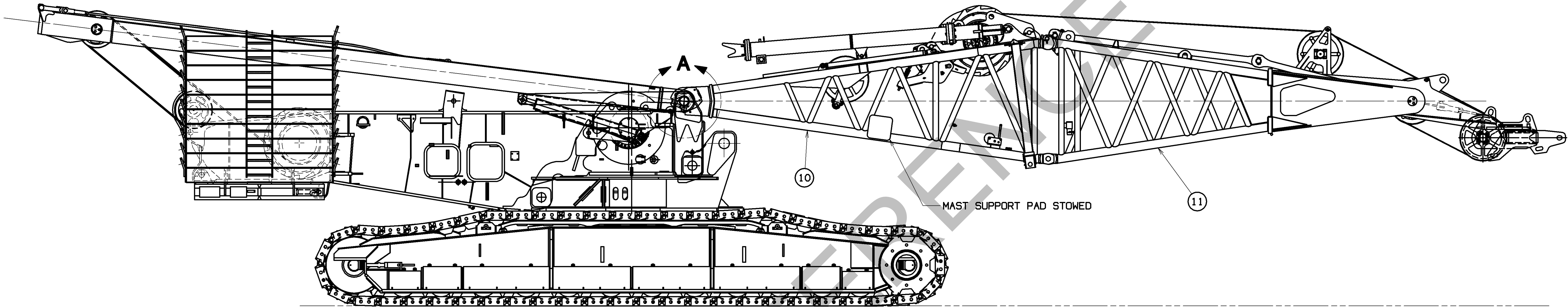
1. CENTER MAST ON ROTATING BED.
2. INSERT THE THICKEST SHIM POSSIBLE BETWEEN THE BUTT HINGE PLATE AND THE OUTSIDE ROTATING BED LUGS ON EACH SIDE OF THE MACHINE.
3. INSERT THE NEXT THICKEST SHIM POSSIBLE BETWEEN THE BUTT HINGE PLATE AND THE FIRST SHIM ON EACH SIDE OF THE MACHINE.
4. INSERT THE LAST SHIM IF POSSIBLE BETWEEN THE BUTT HINGE PLATE AND THE PREVIOUS SHIM ON BOTH SIDES OF THE MACHINE.
5. MAXIMUM MAST SIDE PLAY TO BE 2mm.
6. ALIGN HOLES IN SHIMS WITH HOLES IN BUTT HINGE PLATE AND INSTALL SCREWS AND LOCKNUTS.



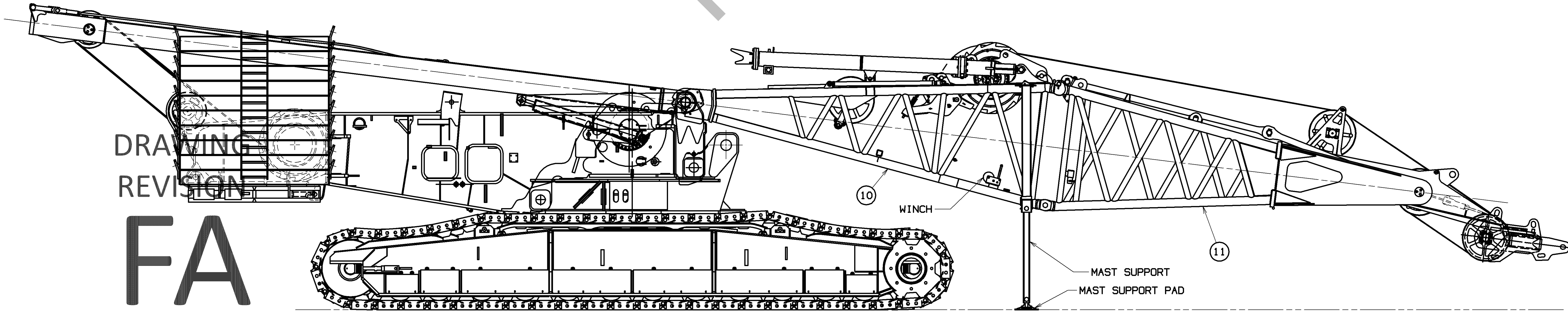
VIEW A
SCALE: 2 = 1 FT



SECTION B-B
SCALE: 4 = 1 FT



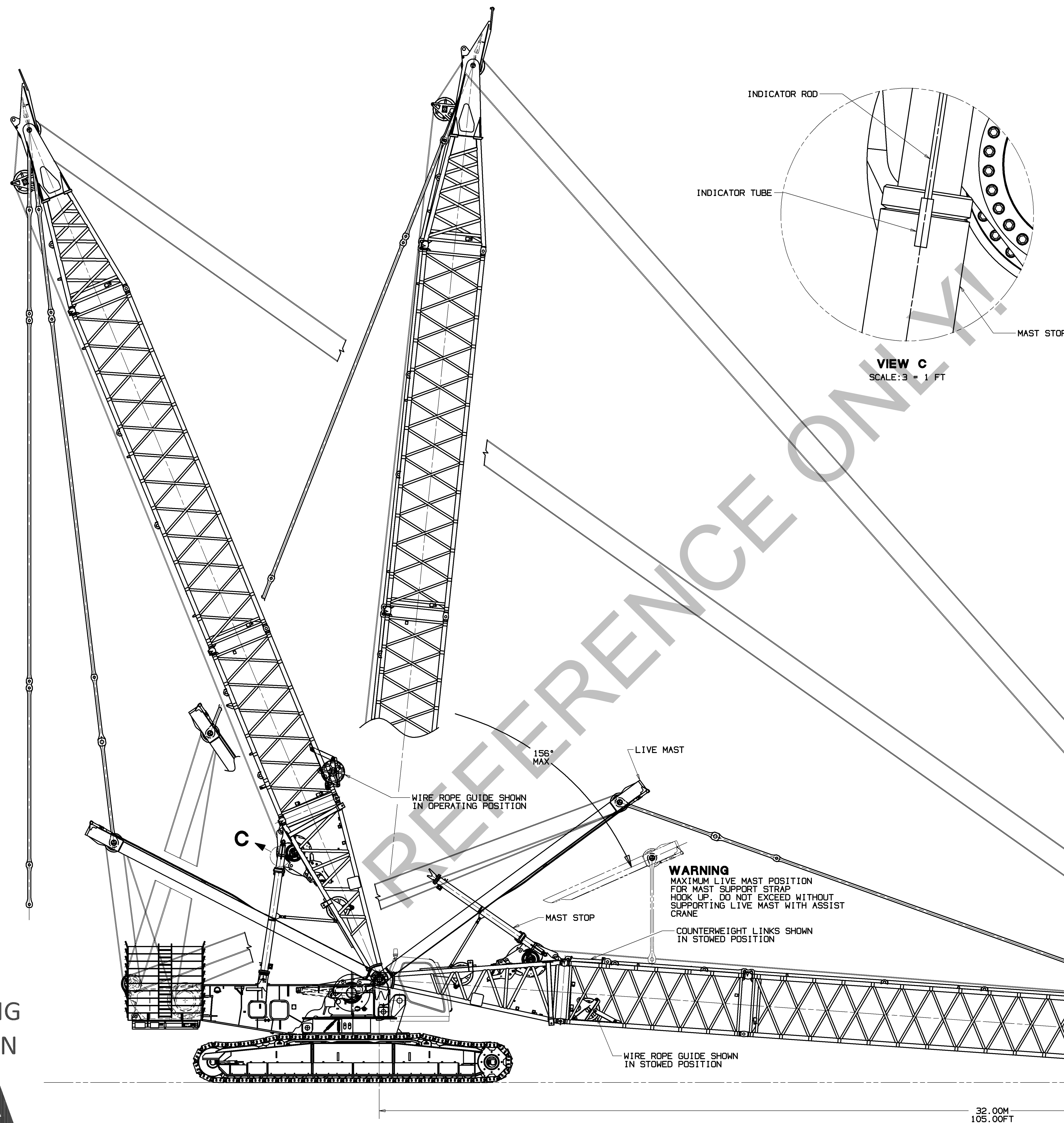
MAST TRANSPORTATION PACKAGE INSTALLATION



MAST TRANSPORTATION PACKAGE SELF SUPPORTED

DRAWING
REVISION
FA

DRAWING
REVISION
FA



BILL OF MATERIAL				ASSEMBLY USED IN
QTY	UNIT	DESCRIPTION	MATERIAL	QTY
1	EA	MAST RAISING: (ANCHOR HOLDBACK)		A14546

- 1) POSITION BOOM HOIST EQUALIZER AT 32M (105 FT) FROM MAST HINGE PIN AND TIE OFF EQUALIZER TO SUPPORT THE FOLLOWING LOADS.

$F_y = 25,000 \text{ LBS.}$
 $F_x = 30,000 \text{ LBS.}$

- 2) REFER TO ASSEMBLY GUIDE FOR MAST RAISING PROCEDURE.

MAST RAISING PROCEDURE

1. INSTALL MAST STOP AND WIRE ROPE GUIDE IN OPERATING POSITION AS SHOWN. ROTATE MAX-ER COUNTERWEIGHT LINKS FROM 6.0M INSERT TO MAST BUTT. TIE OFF TO LOWEST MAX-ER COUNTERWEIGHT LINK WITH A ROPE ON EACH SIDE OF MAST. CONNECT MAST SUPPORT STRAPS TO LIVE MAST.

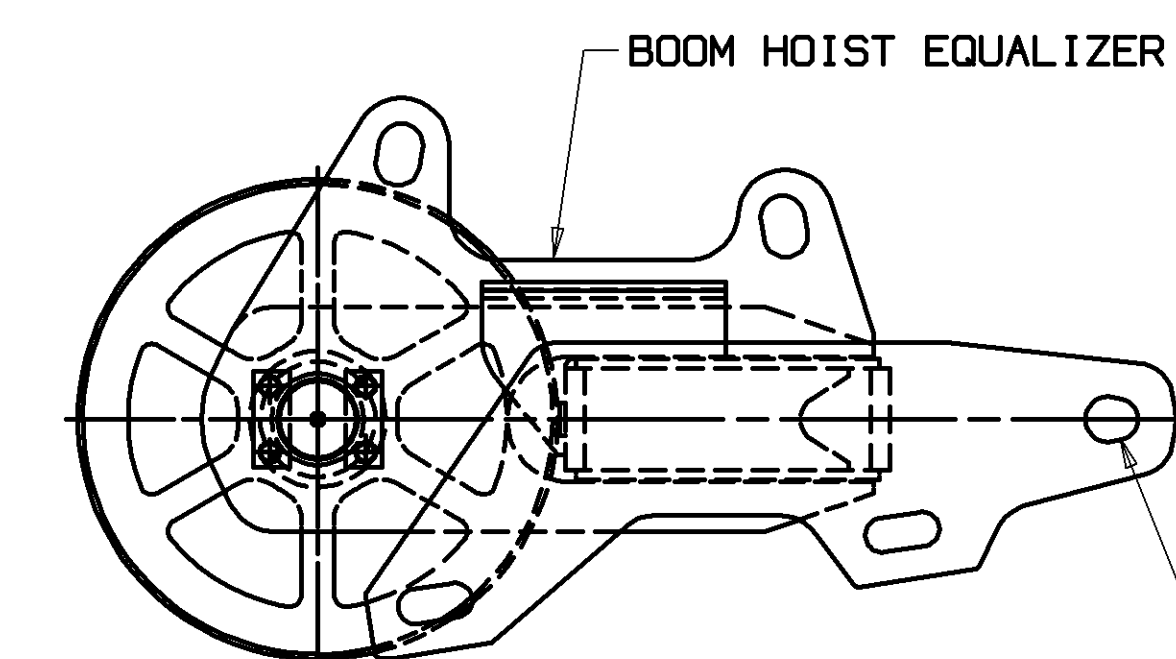
WARNING:

DO NOT LOWER MAST BEYOND 156° WITHOUT ATTACHING ASSIST CRANE OR MAST CAN FALL.

2. ANCHOR BOOM HOIST EQUALIZER AS INDICATED ABOVE.
3. RAISE MAST WITH MAST HOIST WHILE PAYING OUT BOOM HOIST LINE. (DO NOT ALLOW BOOM HOIST TO GO INTO TENSION AT THIS TIME) ADEQUATE SLACK MUST BE MAINTAINED TO PREVENT BOOM HOIST ROPE FROM BEARING UP AGAINST ROPE GUARD TUBE IN MAST POINT.
4. AS MAST APPROACHES VERTICAL. TAKE UP EXCESS SLACK IN BOOM HOIST AND EASE MAST OVER CENTER. USE ROPES TO GUIDE MAX-ER COUNTERWEIGHT LINKS AROUND LIVE MAST.
5. LOWER MAST TO ENGAGE MAST STOPS.
6. WHILE OBSERVING INDICATOR ROD IN MAST STOP, TAKE UP MAST HOIST UNTIL INDICATOR ROD JUST PROTRUDES THRU INDICATOR TUBE. (SEE VIEW C)

TO LOWER MAST

1. ANCHOR BOOM HOIST EQUALIZER AS INDICATED ABOVE.
2. CONNECT ROPES TO MAX-ER COUNTERWEIGHT LINKS. USE ROPES TO GUIDE LINKS AROUND LIVE MAST.
3. REMOVE TENSION FROM MAST HOIST.
4. MOVE MAST FORWARD WITH BOOM HOIST WHILE PAYING OUT MAST HOIST ROPE AND EASE MAST OVER CENTER. (CAUTION: MAINTAIN MINIMUM SLACK IN MAST HOIST)
5. LOWER MAST TO BLOCKING WITH MAST HOIST WHILE TAKING UP BOOM HOIST ROPE.



USE THIS HOLE IN BOTH OUTSIDE PLATES FOR EQUALIZER TIE DOWN TO ANCHOR HOLD BACK

ROPE GUARD TUBE

25,000 LBS VERTICAL

30,000 LBS HORIZONTAL

BOOM HOIST EQUALIZER

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1. REFER TO ASSEMBLY GUIDE FOR MAST RAISING PROCEDURE.

1. INSTALL MAST STOP AND WIRE ROPE GUIDE IN OPERATING POSITION AS SHOWN. ROTATE MAX-ER COUNTERWEIGHT LINKS FROM 6.0M INSERT TO MAST BUTT. TIE OFF TO LOWEST MAX-ER COUNTERWEIGHT LINK WITH A ROPE ON EACH SIDE OF MAST. CONNECT MAST SUPPORT STRAPS TO LIVE MAST.

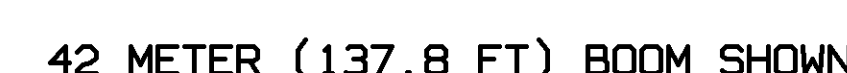
WARNING:
DO NOT LOWER MAST BEYOND 156° WITHOUT
ATTACHING ASSIST CRANE OR MAST CAN FALL.
SEE WARNING AND VIEW ON SHEET 3

2. SUPPORT BOOM HOIST EQUALIZER WITH A SUITABLE MEANS TO PREVENT EQUALIZER FROM SKIDDING DURING MAST RAISING.
3. RAISE MAST WITH MAST HOIST TO A MAXIMUM OF 65° WHILE PAYING OUT BOOM HOIST LINE. (DO NOT ALLOW BOOM HOIST TO GO INTO TENSION AT THIS TIME) ALLOW SLACK MUST BE MAINTAINED TO PREVENT BOOM HOIST ROPE FROM BEARING UP AGAINST ROPE GUARD TIE IN MAST POINT. (SEE VIEW ON SHEET 3.)

WARNING:
MAXIMUM MAST ANGLE IS 65° UNTIL BOOM HOIST
EQUALIZER IS ATTACHED TO BOOM SUPPORT STRAPS
AND EXCESS SLACK IS REMOVED FROM REEVING.

4. ASSEMBLE BOOM. PLACE BOOM HOIST EQUALIZER ON INSERT WITH EQUALIZER RAILS. CONNECT EQUALIZER TO BOOM SUPPORT STRAPS. (SEE BOOM ASSEMBLY FOR PROPER STRAP/LINK ARRANGEMENT FOR VARIOUS BOOM LENGTHS) WIRE ROPE GUIDE IN BOOM BUTT MUST BE IN THE STOWED POSITION FOR BOOM WITH MAST.
5. RAISE MAST WITH MAST HOIST. AS MAST APPROACHES VERTICAL, TAKE UP EXCESS SLACK IN BOOM HOIST AND ENGINE MAST CENTER LINE WIRE ROPE GUIDE MAX-ER COUNTERWEIGHT LINKS AROUND LIVE MAST.
6. LOWER MAST TO ENGAGE MAST STOPS.
7. WHILE OBSERVING INDICATOR ROD IN MAST STOP, TAKE UP MAST HOIST UNTIL INDICATOR ROD JUST PROTRUDES THRU INDICATOR TUBE. (SEE VIEW C ON SHEET 3)

1. LOWER BOOM TO GROUND AND BLOCK AS REQUIRED.
2. CONNECT ROPES TO MAX-ER COUNTERWEIGHT LINKS.
USE ROPES TO GUIDE LINKS AROUND LIVE MAST.
3. REMOVE TENSION FROM MAST HOIST.
4. MOVE MAST FORWARD WITH BOOM HOIST WHILE PAYING
OUT MAST HOIST ROPE AND EASE MAST OVER CENTER.
(CAUTION: MAINTAIN MINIMUM SLACK IN MAST HOIST)
5. LOWER MAST TO A MAXIMUM OF 65° ABOVE HORIZONTAL.
6. REMOVE BOOM HOIST EQUALIZER FROM BOOM AND
DISASSEMBLE BOOM.
7. SUPPORT EQUALIZER WITH A SUITABLE MEANS TO PREVENT
EQUALIZER FROM SKIDDING.
8. LOWER MAST TO BLOCKING AS REQUIRED WHILE TAKING UP
BOOM HOIST LINE.



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	DECIMAL FRACTIONS	PERCENTAGE	DR: CDC				
	1" PLACE 0.00 ± 0.12 ± 0.18 ± 0.03	1" PLACE 0.00 ± 0.12 ± 0.18 ± 0.03	CR: MJW				
	2" PLACE 0.00 ± 0.06 ± 0.12 ± 0.05	2" PLACE 0.00 ± 0.06 ± 0.12 ± 0.05	MODEL 16000				
	3" PLACE 0.000 ± 0.003 ± 0.006 ± 0.001	3" PLACE 0.000 ± 0.003 ± 0.006 ± 0.001	APP: HCS				
					ASSY #59A 30M	A	1450
							A14503