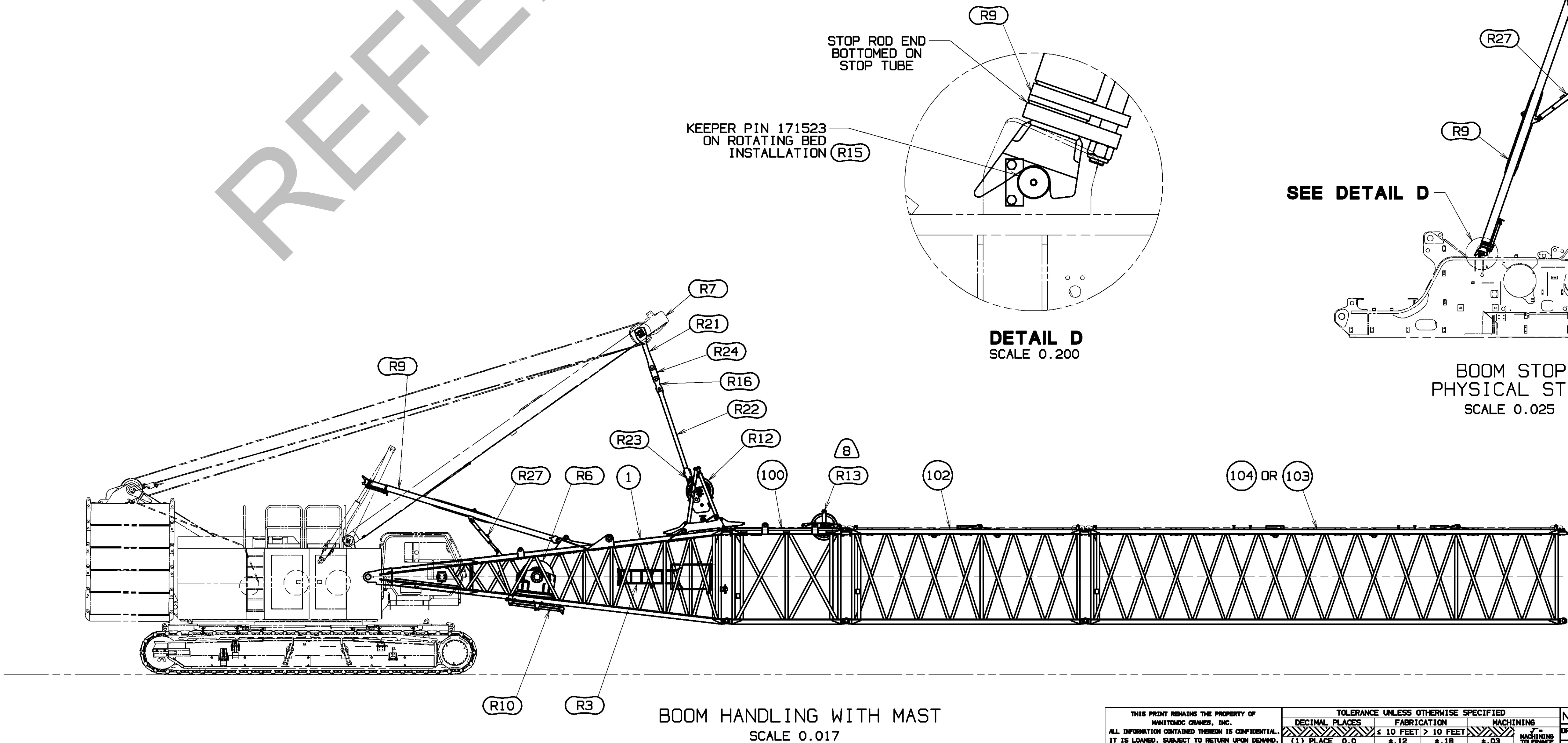
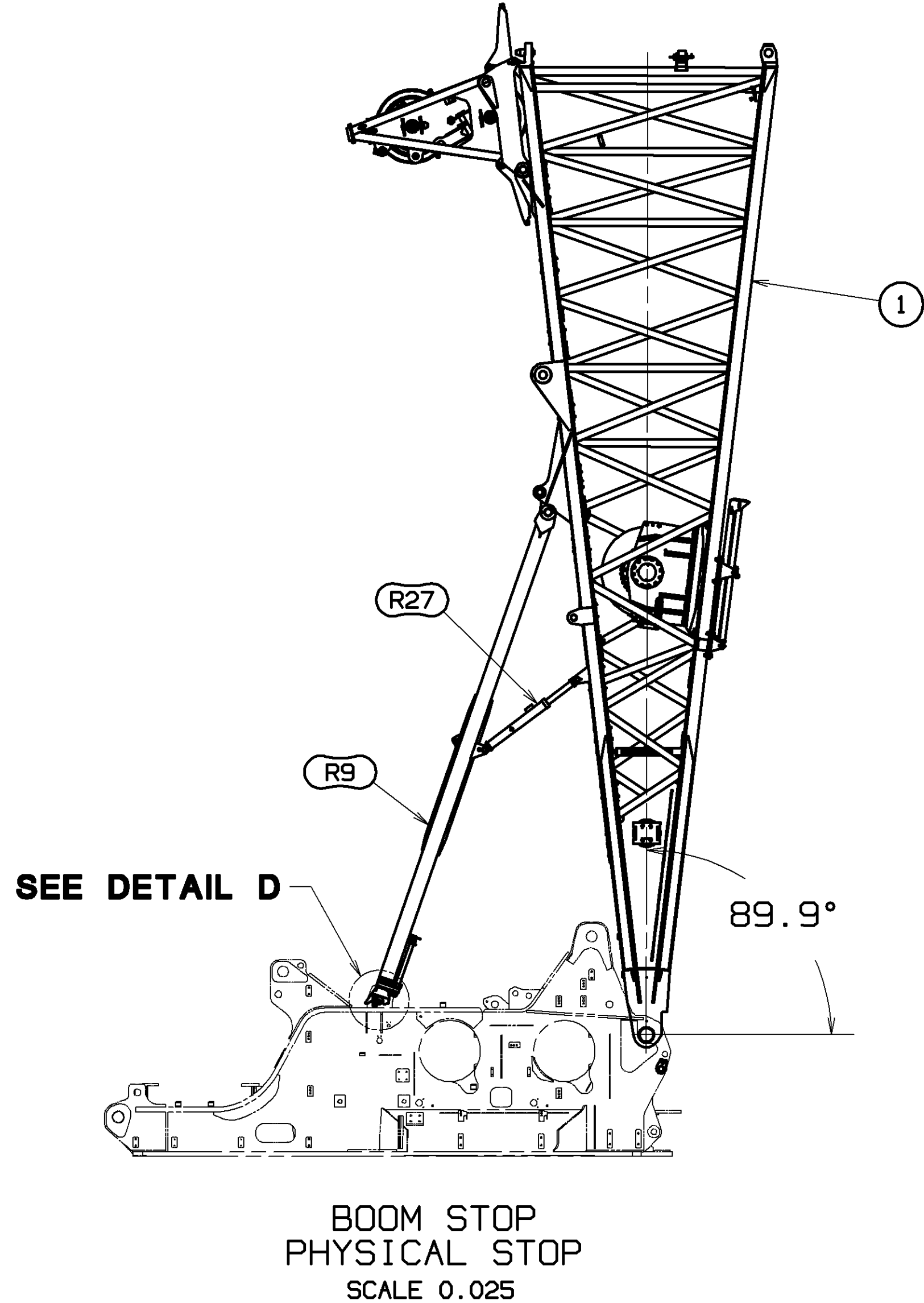
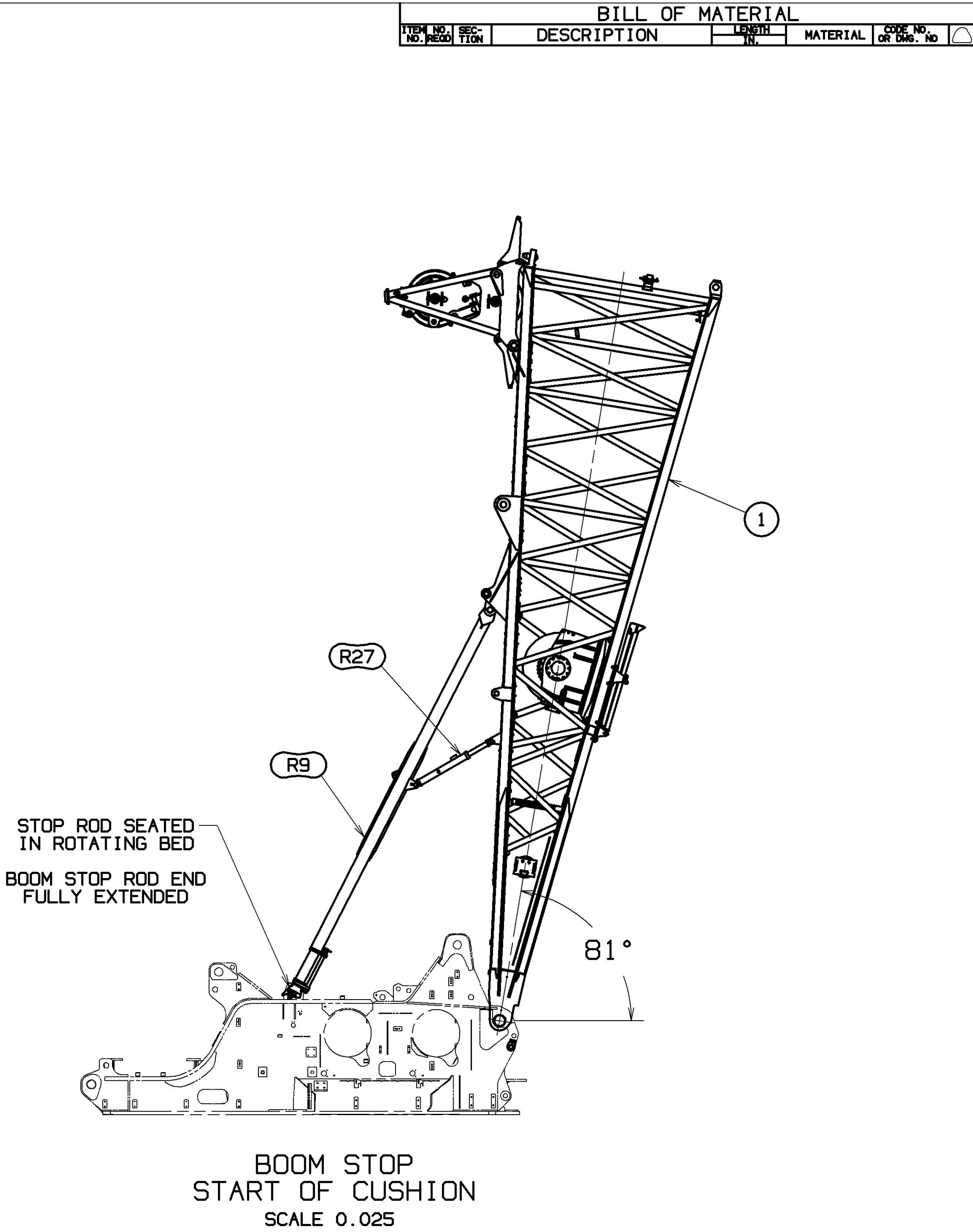


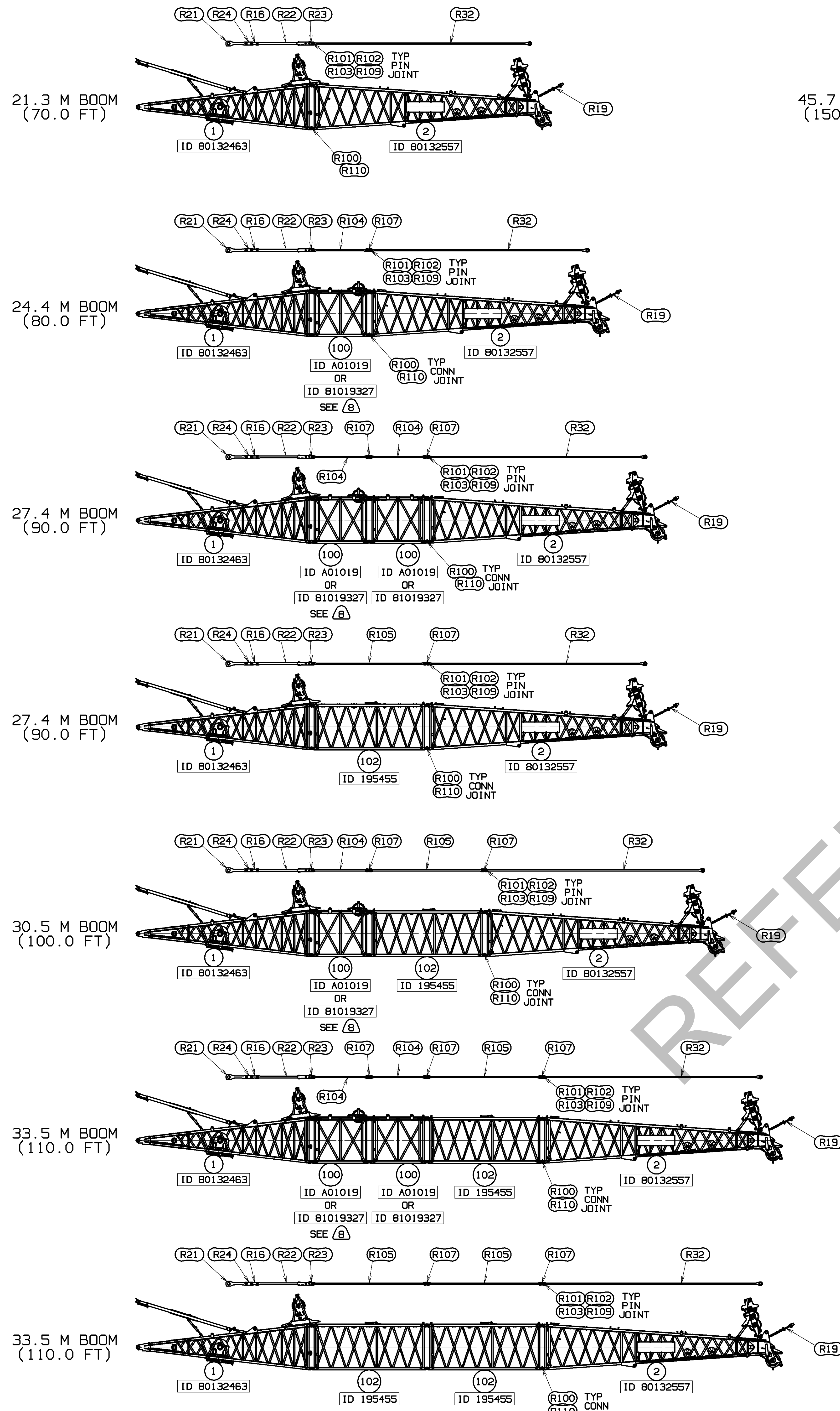
ITEMS REQ'D FOR VARIOUS BOOM LENGTHS - SEE SHEETS 3, 4, 5, 6, 7 & 8 FOR BOOM MAKE-UP																
ITEM NO.		#82 INSERTS 18 19 20				CONNECTOR PINS		STRAPS			LINKS	LINK/STRAP CONNECTION				MAST
		100	102	103 9	104 12	R100	R110	R104	R105	R106	R107	R101	R102	R103	R109	R23
BOOM LENGTH		INSERT 3.05M (10FT) ASSY	INSERT 6.10M (20FT) ASSY	INSERT 12.19M (40FT) ASSY	INSERT 12.19M (40FT) ASSY W/BSTAY	PIN TAPERED 2 HOLES	COTTER	STRAP 2.87M (9.4FT)	STRAP 5.9M (19.4FT)	STRAP 12.0M (39.4FT)	LINK 174.6mm (6.9in)	COLLAR	PIN W/HEAD	PIN CLEVIS	COTTER	LINK ADJUST POSITION 16
METERS	FEET															
21.3	70	0	0	0	0	2	4	0	0	0	0	6	6	6	20	A
24.4	80	1	0	0	0	4	8	2	0	0	4	10	10	10	28	A
27.4	90	OR 2 0	0 1	0 0	0 0	6 4	12 8	4 0	0 2	0 0	8 4	14 10	14 10	14 10	36 28	A
30.5	100	1	1	0	0	6	12	2	2	0	8	14	14	14	36	A
33.5	110	OR 2 0 OR 0	1 2 0	0 0 0	0 0 1	8 6 4	16 16 8	4 0 0	2 4 0	0 0 2	12 8 4	18 14 10	18 14 10	18 14 10	44 36 28	A
36.6	120	OR 1 1	2 0	0 0	0 1	8 6	16 12	2 2	4 0	0 2	12 8	18 14	18 14	18 14	44 36	A
39.6	130	OR 2 0	0 1	0 0	1 1	8 6	16 12	4 0	0 2	2 2	12 8	18 14	18 14	18 14	44 36	A
42.7	140	1	1	0	1	8	16	2	2	2	12	18	18	18	44	A
45.7	150	OR 2 0 OR 0	1 2 0	0 0 1	1 1 1	10 8 6	20 16 12	4 0 0	2 4 0	2 2 4	16 12 8	22 18 14	22 18 14	22 18 14	52 44 36	A
48.8	160	OR 1 1	2 0	0 1	1 1	10 8	20 16	2 2	4 0	2 4	16 12	22 18	22 18	22 18	52 44	A
51.8	170	OR 2 0	0 1	1 1	1 1	10 8	20 16	4 0	0 2	4 4	16 12	22 18	22 18	22 18	52 44	A
54.9	180	1	1	1	1	10	20	2	2	4	16	22	22	22	52	A
57.9	190	OR 2 0 OR 0	1 2 0	1 1 2	1 1 1	12 10 8	24 20 16	4 0 0	2 4 0	4 4 6	20 16 12	26 22 18	26 22 18	26 22 18	60 52 44	B
61.0	200	OR 1 1	2 0	1 2	1 1	12 10	24 20	2 2	4 0	4 6	20 16	26 22	26 22	26 22	60 52	B
64.0	210	OR 2 0	0 1	2 2	1 1	12 10	24 20	4 0	0 2	6 6	20 16	26 22	26 22	26 22	60 52	B
67.1	220	1	1	2	1	12	24	2	2	6	20	26	26	26	60	B
70.1	230	OR 2 0 OR 0	1 2 0	2 2 3	1 1 1	14 12 10	28 24 20	4 0 0	2 4 0	6 6 8	24 20 16	30 26 22	30 26 22	30 26 22	68 60 52	B
73.2	240	OR 1 1	2 0	2 3	1 1	14 12	28 24	2 2	4 0	6 8	24 20	30 26	30 26	30 26	68 60	B
76.2	250	OR 2 0	0 1	3 3	1 1	14 12	28 24	4 0	0 2	8 8	24 20	30 26	30 26	30 26	68 60	B
79.2	260	1	1	3	1	14	28	2	2	8	24	30	30	30	68	B
82.3	270	OR 2 0 OR 0	1 2 0	3 3 4	1 1 1	16 14 12	32 28 24	4 0 0	2 4 0	8 8 10	28 24 20	34 30 26	34 30 26	34 30 26	76 68 60	B
85.3	280	OR 1 1	2 0	3 4	1 1	16 14	32 28	2 2	4 0	8 10	28 24	34 30	34 30	34 30	76 68	B
88.4	290	OR 2 0	0 1	4 4	1 1	16 14	32 28	4 0	0 2	10 10	28 24	34 30	34 30	34 30	76 68	B

BOOM HANDLING WITH MAST WITH MAST STRAPS PINNED TO ROPE GUIDE LINKS: MAXIMUM BOOM THAT CAN BE CANTILEVERED IS AS FOLLOWS:			
LENGTH	3.05M (10FT) INSERT A01018	6.10M (20FT) INSERT 195463	12.19M (40FT) INSERT 195464 OR 195465
3.05M (10FT)	1	0	0
6.10M (20FT)	2 0	0 1	0
9.15M (30FT)	1	1	0
12.19M (40FT)	2 0 0	1 2 0	0 0 1
15.24M (50FT)	1 1	2 0	0 1
18.30M (60FT)	2 0	0 1	1
21.34M (70FT)	1	1	1
24.38M (80FT)	2 0 0	1 2 0	1 1 2

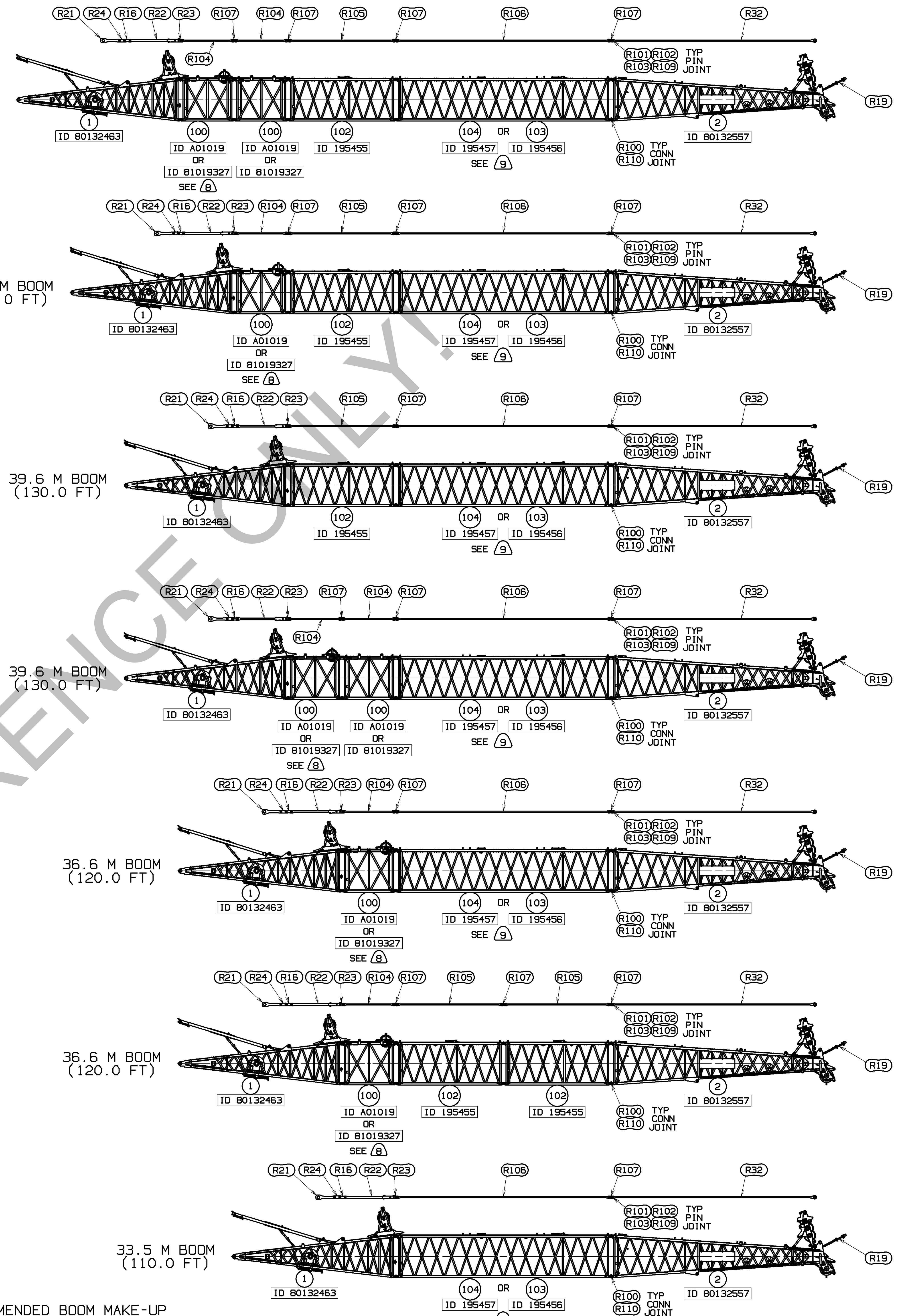


BOOM HANDLING WITH MAST
SCALE 0.017



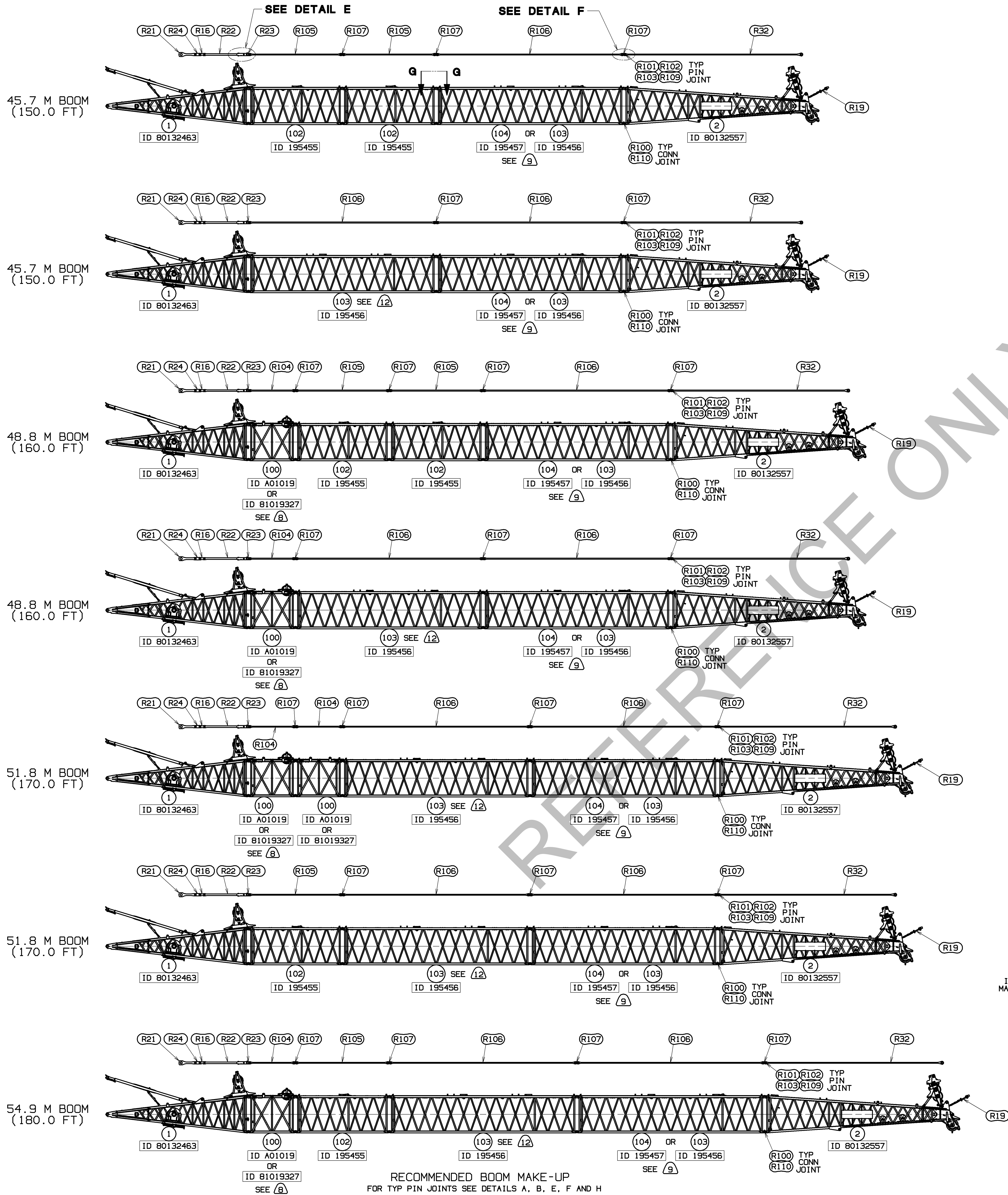


RECOMMENDED BOOM MAKE-UP
FOR TYP PIN JOINTS SEE DETAILS A, B, E, F, AND H



TOLERANCE UNLESS OTHERWISE SPECIFIED		DATE	BY	APP	CHK	DR	MANUFACTURER	BOOM RIGGING
DECIMAL PLACES	FABRICATION	03-16-23	DR. RHV	APP. JRR	CHK. TJA	DR. JJA	Manitowoc Cranes, Inc.	BOOM RIGGING
(1) PLACE 0.5	± 0.12						Manitowoc, Wisconsin	B10:82A
(2) PLACE 0.00	± 0.06						MODEL: MLC250	
(3) PLACE 0.000	± 0.015							
ANGLES	± 1° 30'							

PRIVATE LABELING
REQUIREMENT TO
CONFORM TO
ENGINEERING
SPECIFICATION
6829103794 FOR
COMPONENTS LISTED
IN 682900-06-006
DATE
REV. LVL.
A
80137888
SHT 3 OF 11



BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	DESCRIPTION	QUANTITY	MATERIAL	DATE
1	BOOM	1	ALUMINUM	

REV.	DESCRIPTION	DATE
1	INITIAL	03-16-23

DETAIL E
STRAP ITEM R22 (80146247) ATTACHED TO POSITION "A" OF STRAP MAST ADJUST ITEM R23 (80146248)
SCALE 0.200

DETAIL F
SCALE 0.250

VIEW G-G
TYPICAL LOCATION OF INSERT IDENTIFICATION TAGS
SCALE 0.150

I.D. TAGS LOCATED TOWARD MALE CONNECTOR END OF (4) UPPER AND LOWER CHORDS

RECOMMENDED BOOM MAKE-UP
FOR TYP PIN JOINTS SEE DETAILS A, B, E, F AND H

DECIMAL PLACES	FABRICATION	MACHINING
(1) PLACE 0.0	± 0.12	± 0.18
(2) PLACE 0.00	± 0.06	± 0.09
(3) PLACE 0.000	± 0.03	± 0.045

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MANITOWOC CRANES, INC.
Milwaukee, Wisconsin
MODEL MLC250
APP. JRR

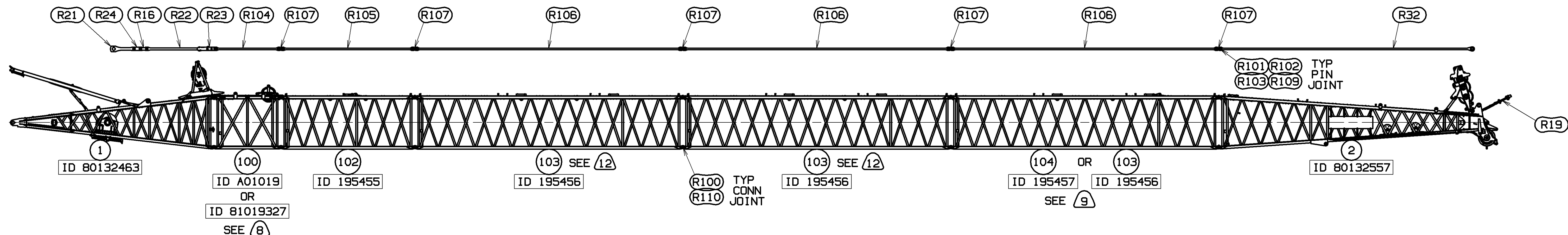
BOOM RIGGING
B10:B2A

DATE: 03-16-23
REV. LTN: A

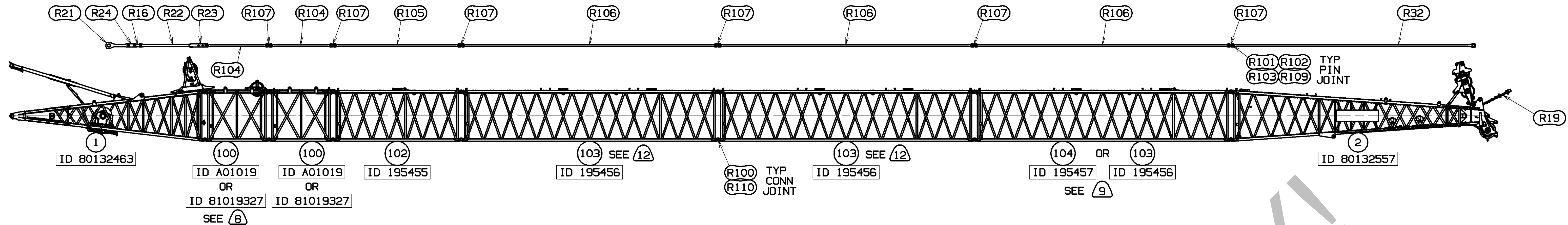
PRIVATE LABELING REQUIREMENT TO CONFORM TO ENGINEERING SPECIFICATION 6629103794 FOR COMPONENTS LISTED IN GDS00-06-006

80137888
SHT 4 OF 11

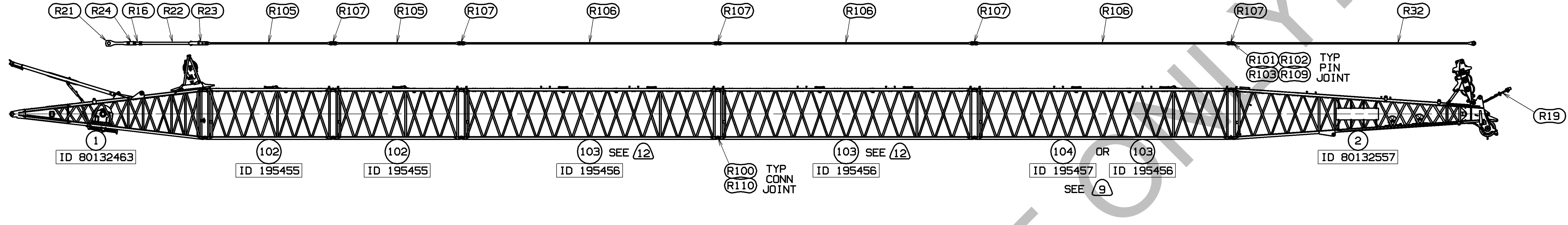
67.1 M BOOM
(220.0 FT)



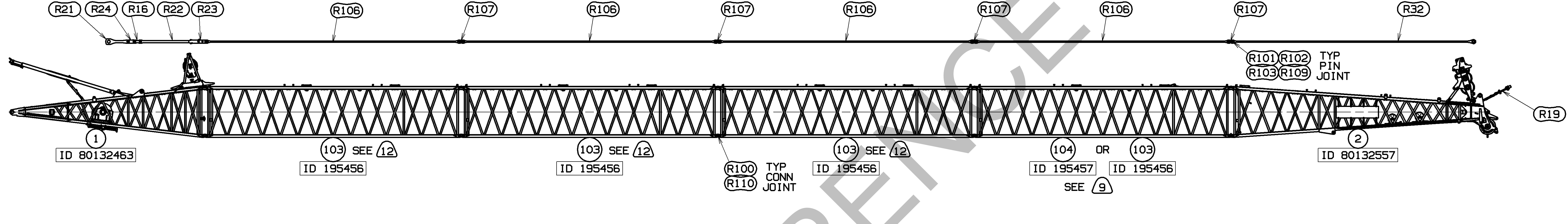
70.1 M BOOM
(230.0 FT)



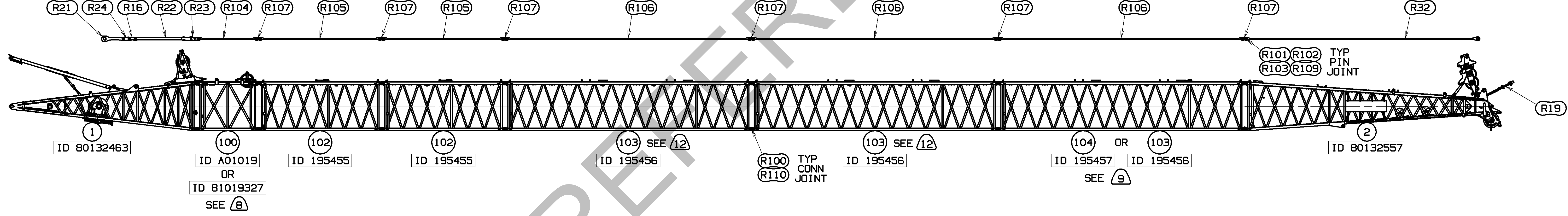
70.1 M BOOM
(230.0 FT)



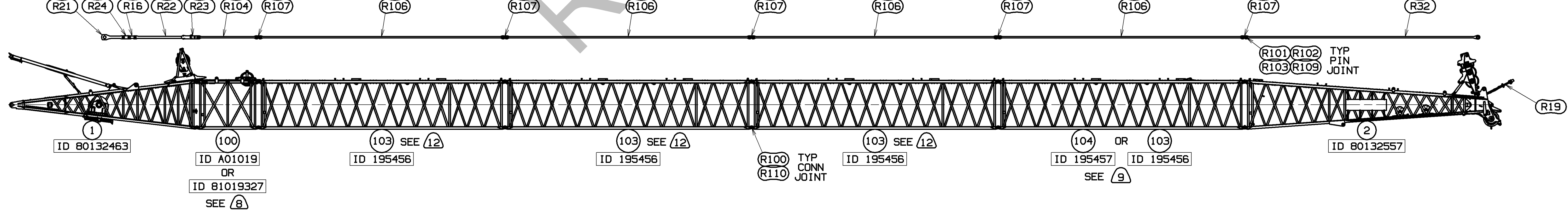
70.1 M BOOM
(230.0 FT)



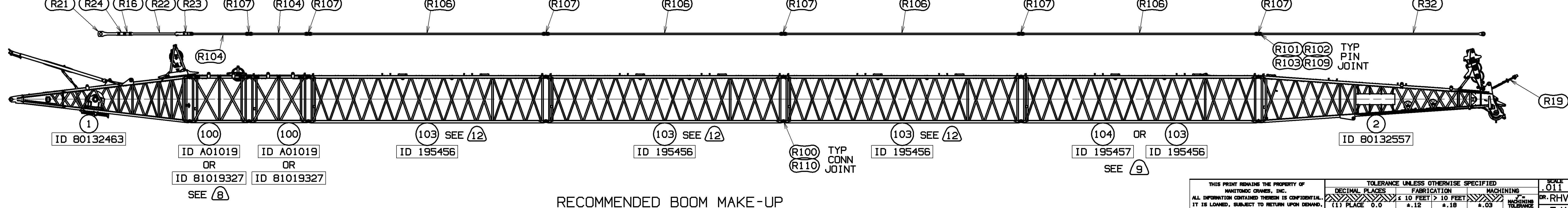
73.2 M BOOM
(240.0 FT)



73.2 M BOOM
(240.0 FT)



76.2 M BOOM
(250.0 FT)



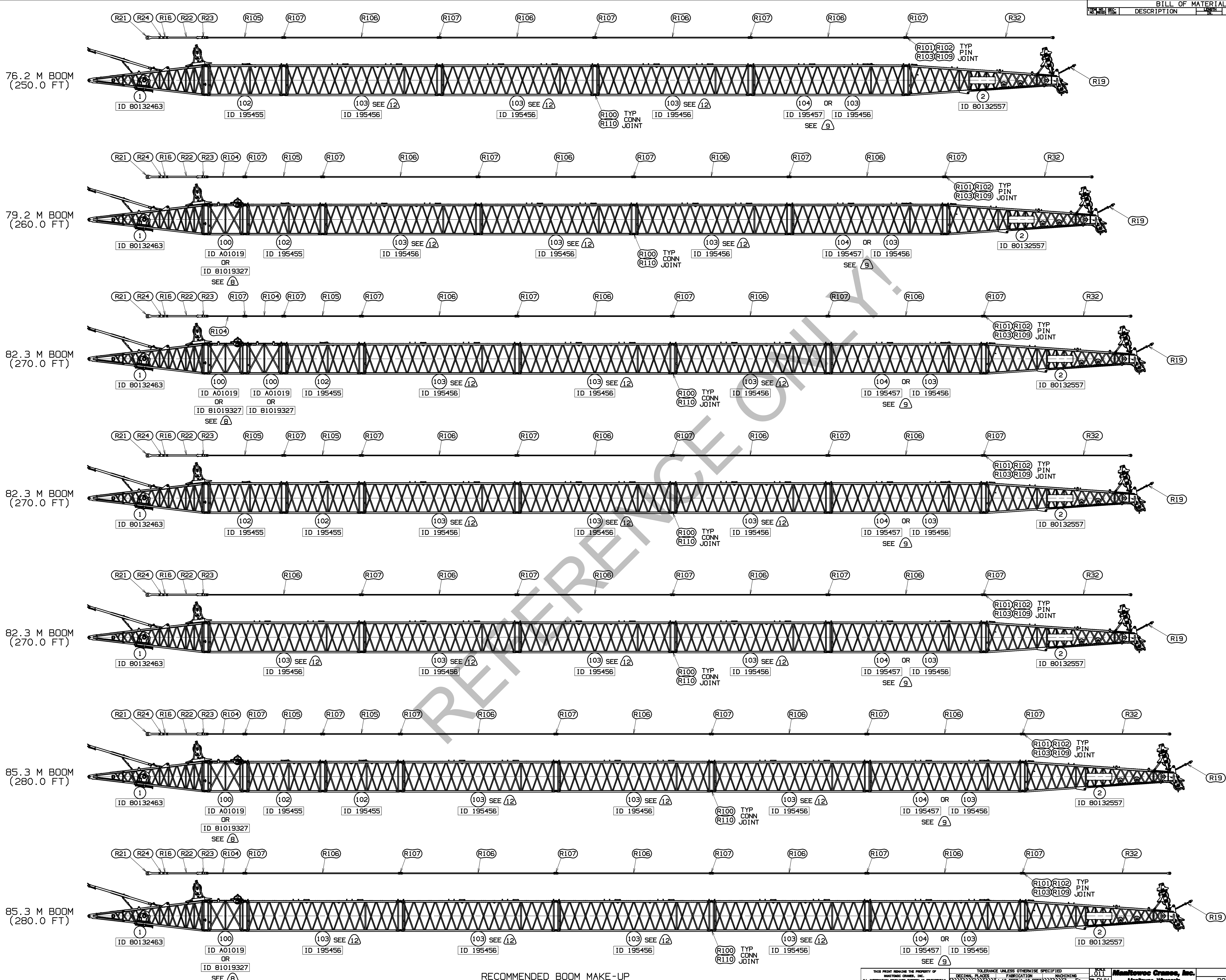
RECOMMENDED BOOM MAKE-UP
FOR TYP PIN JOINTS SEE DETAILS A, B, E, F AND H

DO NOT SCALE THIS DRAWING

TOLERANCE UNLESS OTHERWISE SPECIFIED			
DECIMAL PLACES	FABRICATION	MACHINING	WELDING
(1) PLACE 0.0	± 1.0	± 0.1	± 0.05
(2) PLACE 0.00	± 0.06	± 0.015	± 0.005
(3) PLACE 0.000	± 0.005	± 0.0005	± 0.0005
ANGLES	± 1°	± 30'	± 30'

DATE	03-16-23
REV. LVL.	A
DR. RHY	MANITOWOC CRANES, INC.
CK. TJA	MANITOWOC, WISCONSIN
APP. JRR	MODEL ML250
	BOOM RIGGING
	B10:B2A

PRIVATE LABELING
REQUIREMENT TO
CONFORM TO
ENGINEERING
SPECIFICATION
6829103794 FOR
COMPONENTS LISTED
IN 68290-05-026



BILL OF MATERIAL			
QTY	DESCRIPTION	MATERIAL	UNIT

ASSEMBLIES USED ON

REVISIONS

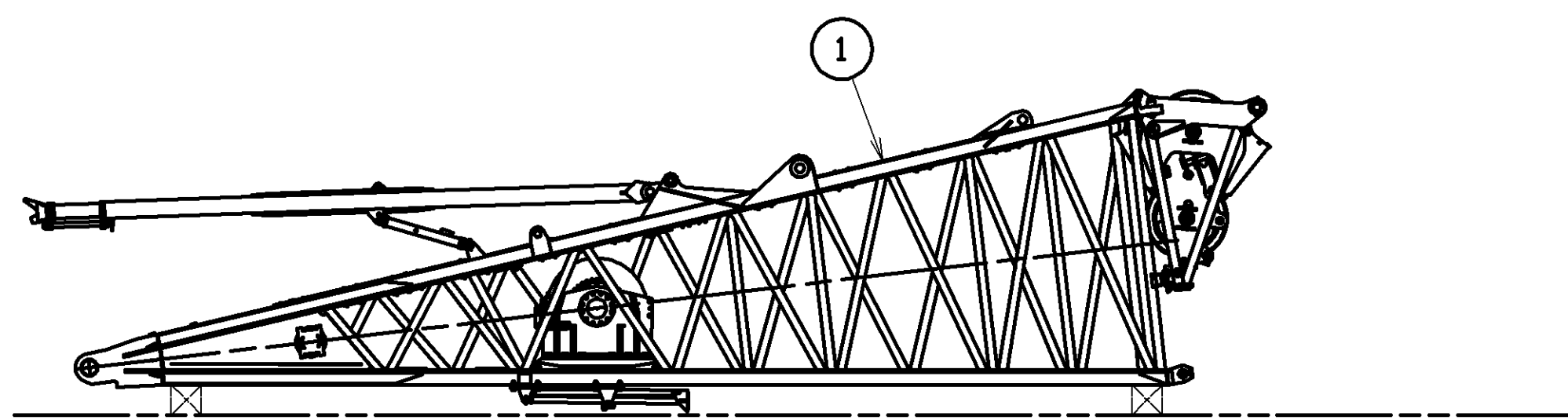
DWG. NO.
80137888
SHT 7 OF 11

RECOMMENDED BOOM MAKE-UP
FOR TYP PIN JOINTS SEE DETAILS A, B, E, F AND H

TOLERANCE UNLESS OTHERWISE SPECIFIED			
DECIMAL PLACES	FRACTIONS	INCHES	MILLIMETERS
(1) PLACE 0.05	1/16	±.05	±.05
(2) PLACE 0.00	1/32	±.02	±.05
(3) PLACE 0.000	1/64	±.01	±.02
ANGLES	1°	±.01°	±.01°

MANUFACTURED BY	MANITOWOC CRANES, INC.
DR. RHY	MANITOWOC, WISCONSIN
CHK. TJA	MODEL ML250
APP. JRR	

PRIVATE LABELING
REQUIREMENT TO
CONFORM TO
SPECIFICATION
6829103794 FOR
COMPONENTS LISTED
IN 68290-06-006
DATE
03-16-23
REV. LTN.
A



BOOM BUTT SHIPPING CONFIGURATION

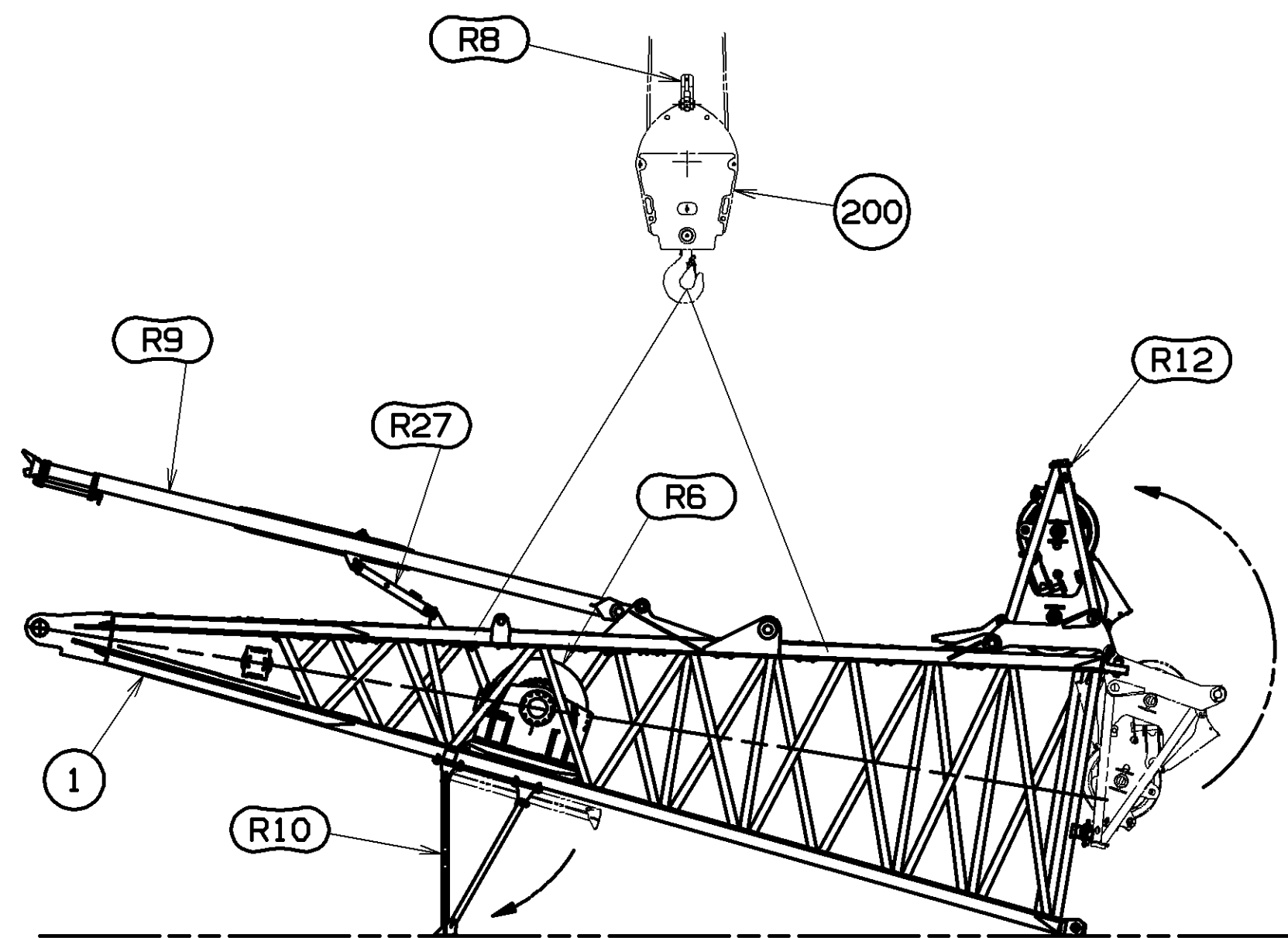
BOOM ASSEMBLY PROCEDURE

(MAST CAN BE USED TO ASSEMBLE ALL RIGGING COMPONENTS)

STEP 1

ASSEMBLE BOOM COMPLETE, WITHOUT BUTT.

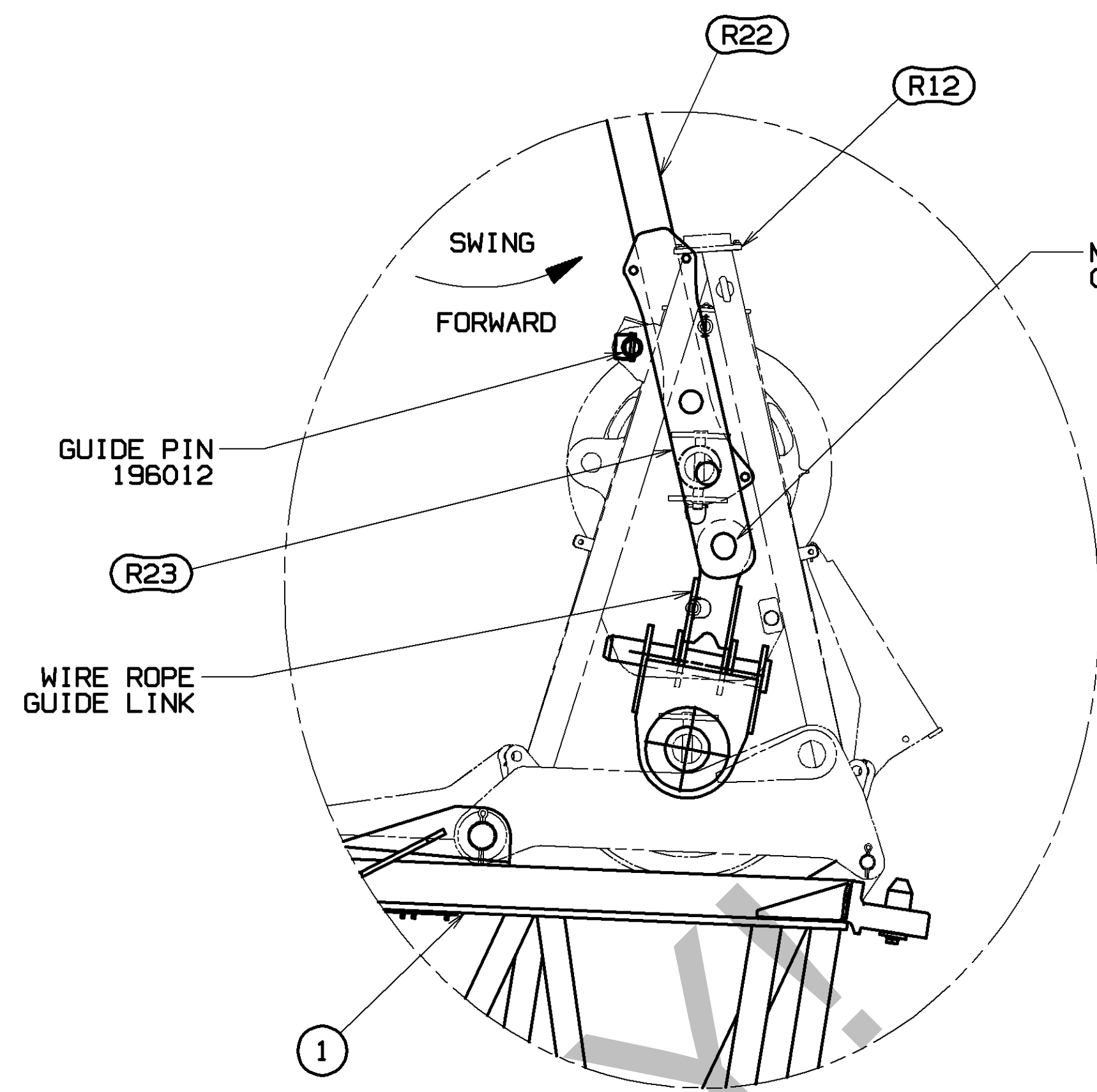
ATTACH ROPE GUIDES, STRAPS, LINKS, AND PINS AS REQUIRED.
(SEE TYPICAL STRAP/LINK/PIN JOINTS - DETAIL A & B ON SHEET 1 AND DETAIL F ON SHEET 4).
(SEE BOOM TOP DETAILS L AND M ON SHEET 8).



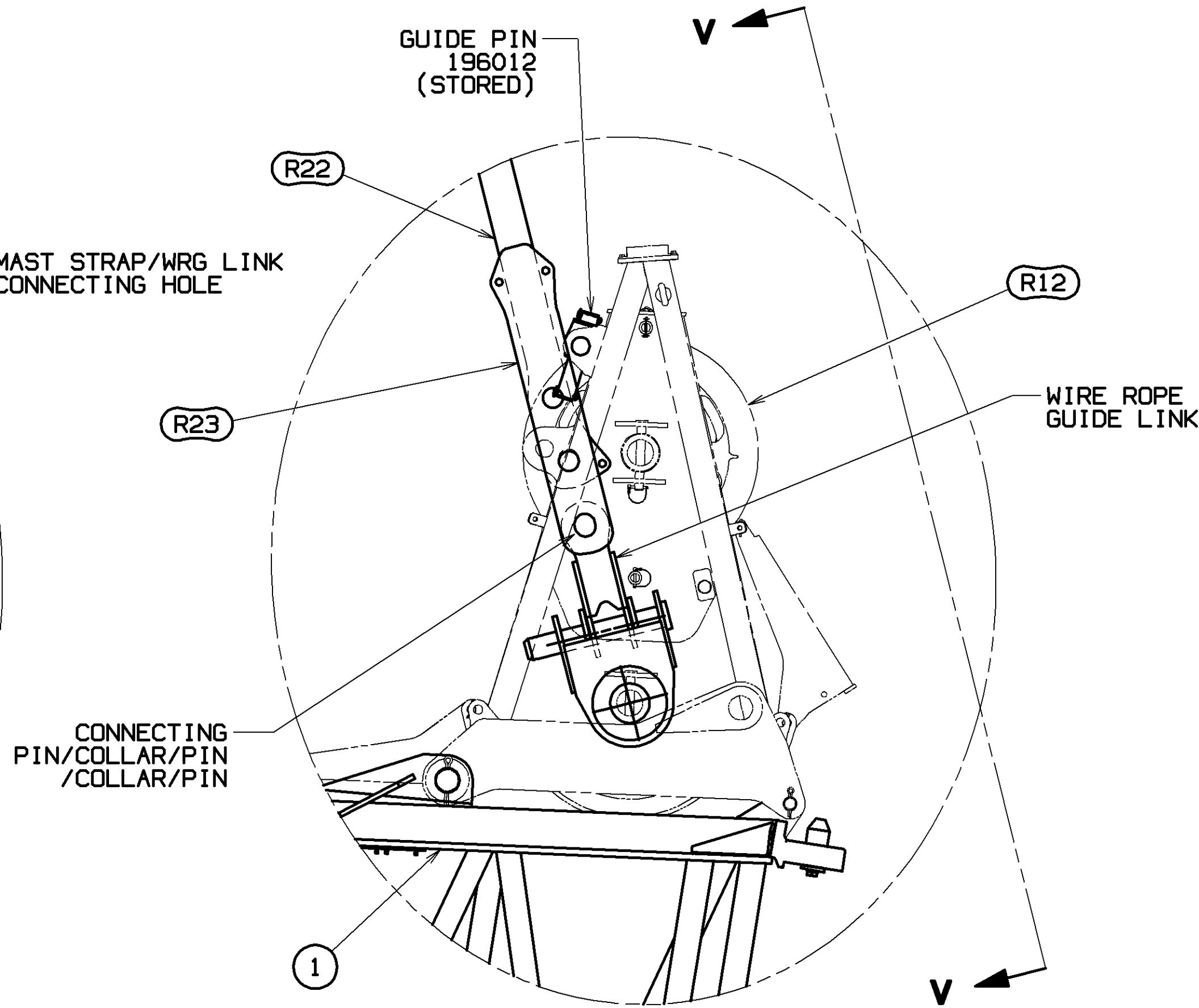
STEP 2

BOOM BUTT INSTALLATION PREP

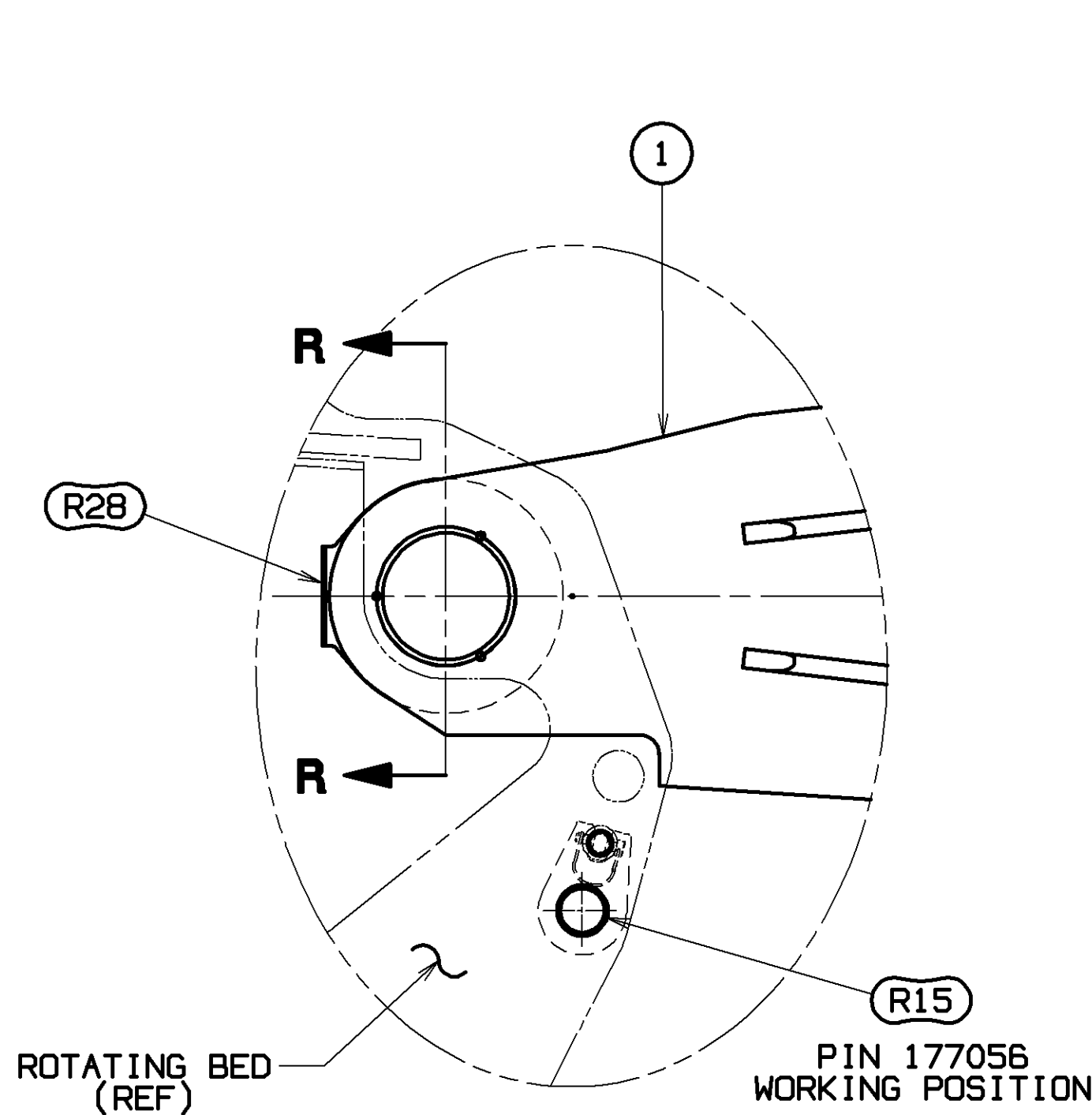
USING MAST W/AUX BLOCK OR AN ASSIST CRANE LIFT BOOM BUTT AS SHOWN.
LOWER BOOM BUTT SUPPORT FRAME (R10) TO SUPPORT BOOM BUTT AND
PIN STRUTS TO BOOM BUTT AS SHOWN.
LIFT WIRE ROPE GUIDE ASSY (R12) TO OPERATION POSITION AND PIN.
LOWER PLATFORM TOWARD BUTT HINGE ON WIRE ROPE GUIDE ASSY (R12)
TO WORKING POSITION AND PIN.



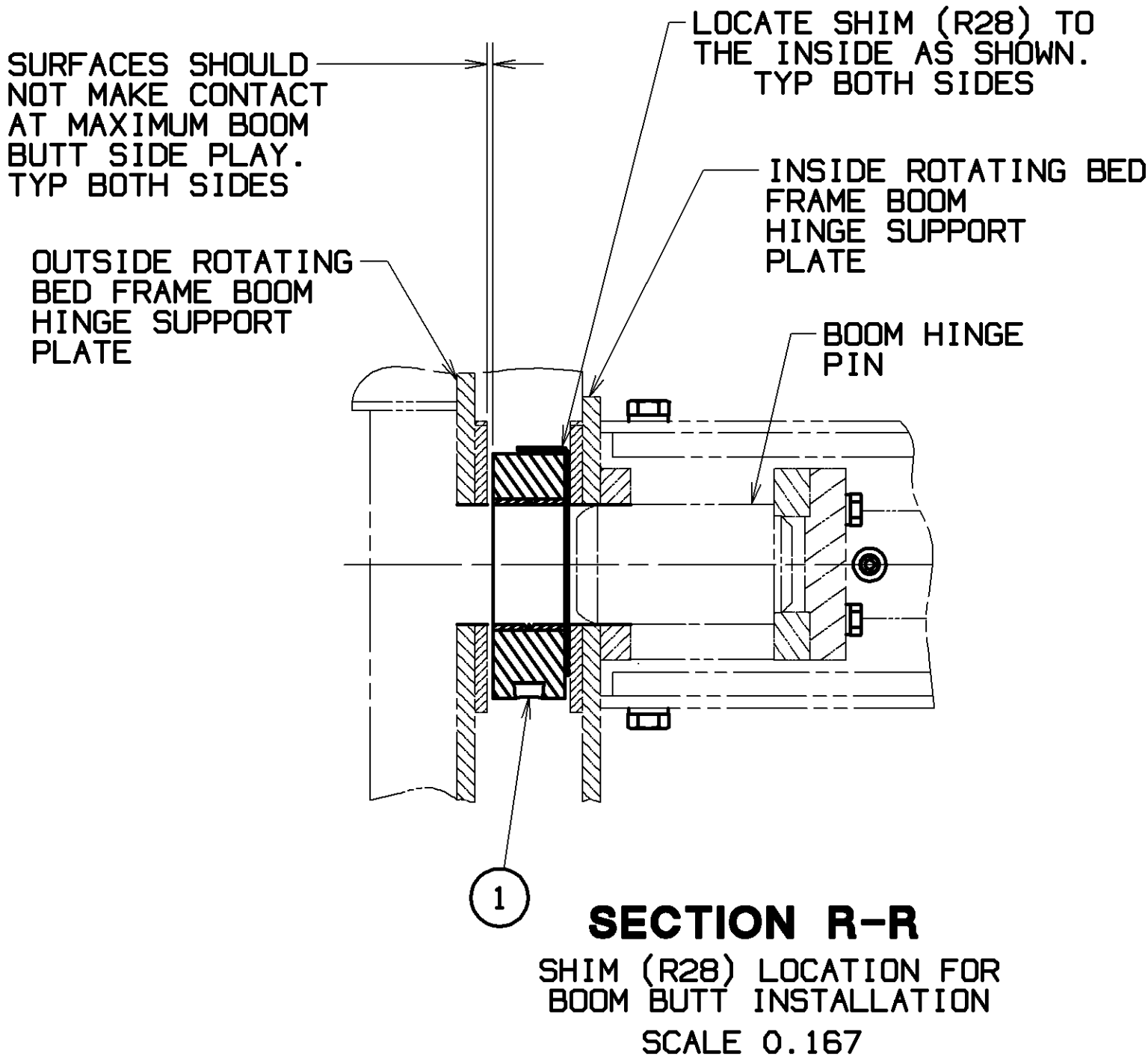
DETAIL T
SCALE 0.080



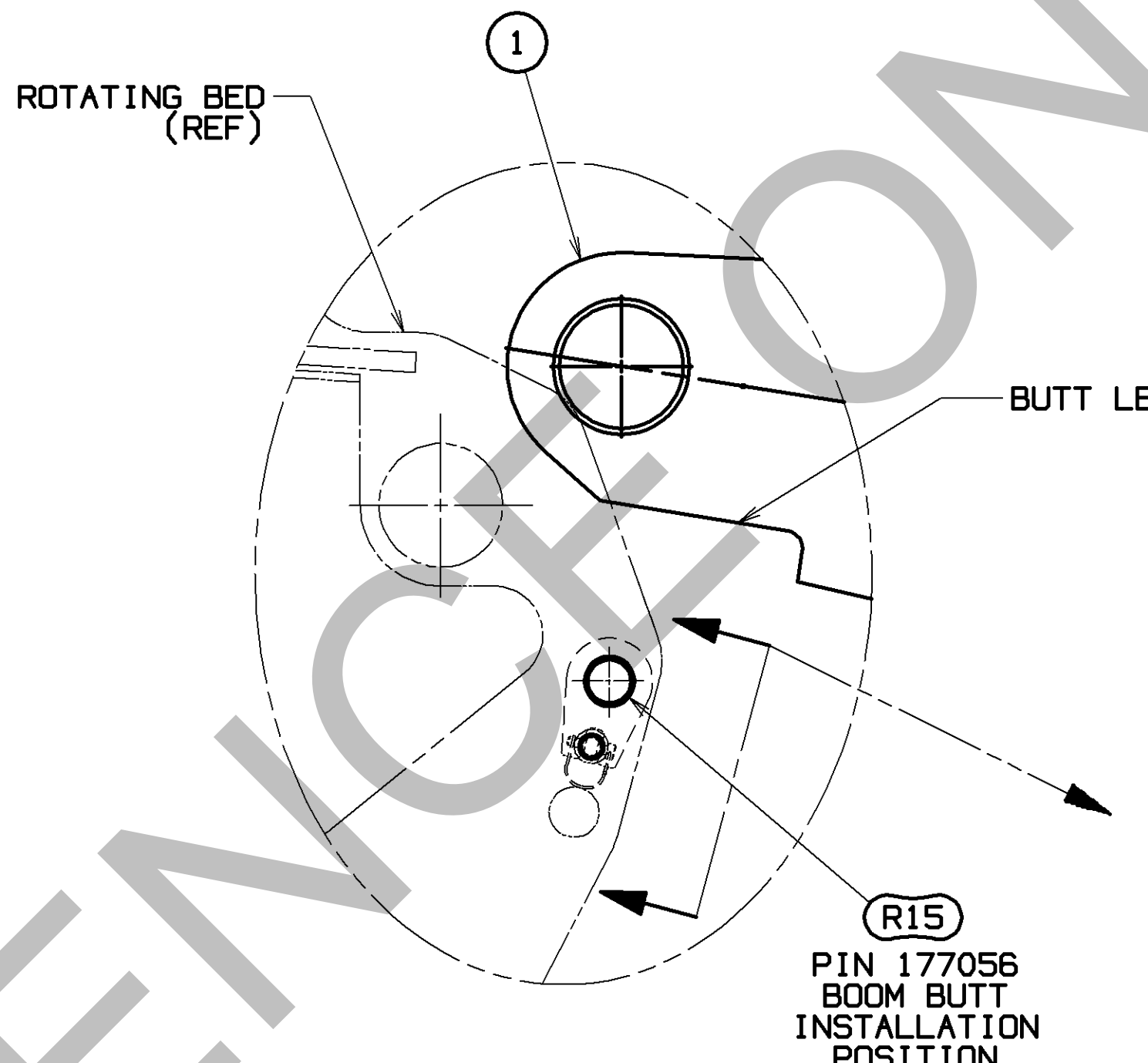
DETAIL U
SCALE 0.080



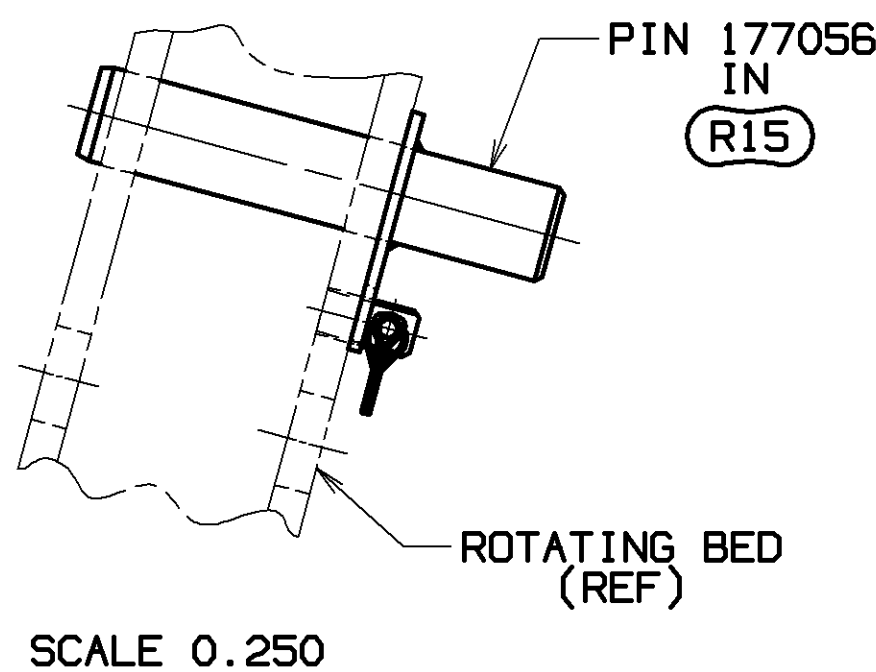
DETAIL Q
BOOM BUTT HINGE
PIN INSTALLATION
SCALE 0.167



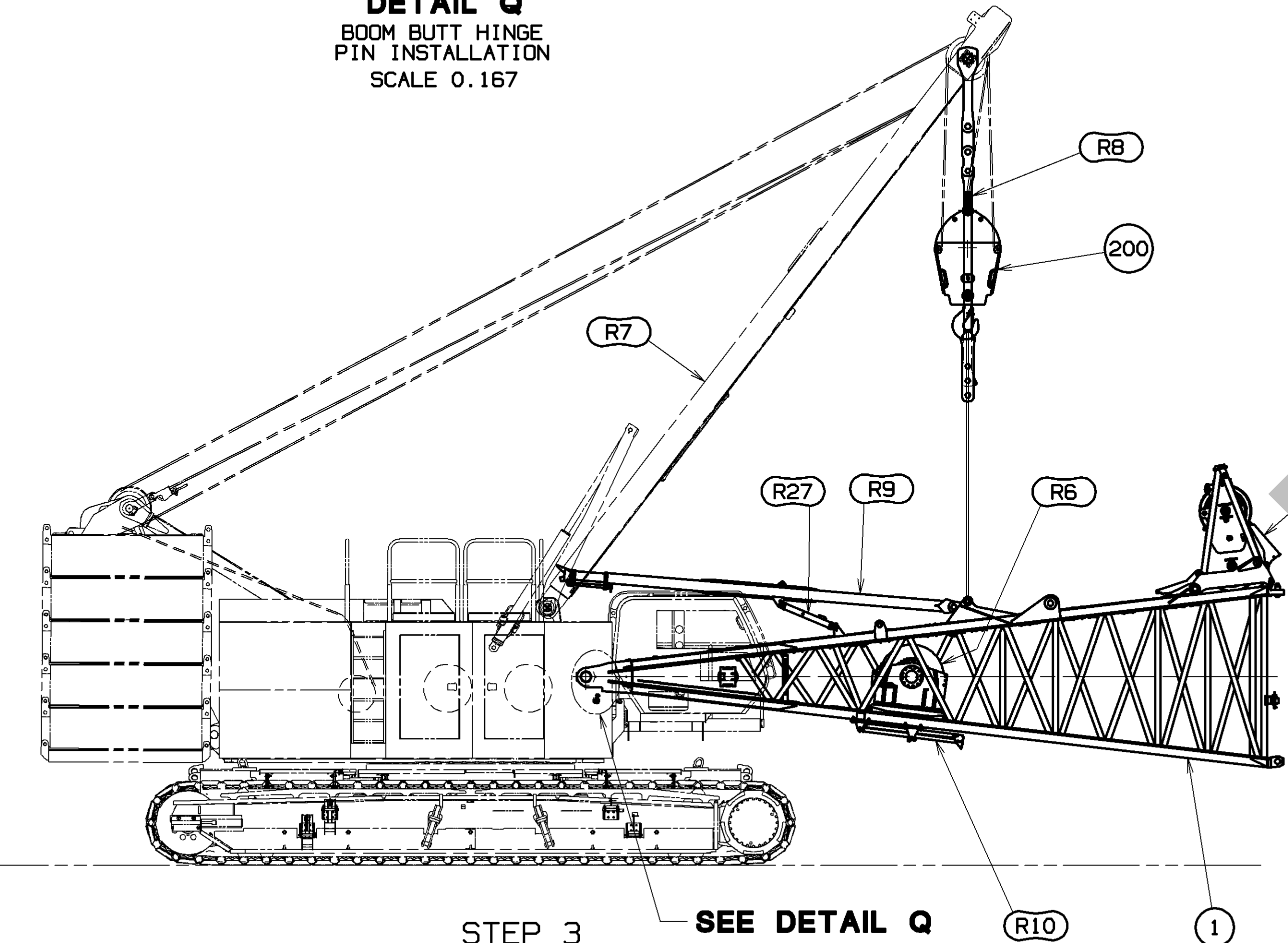
SECTION R-R
SHIM (R28) LOCATION FOR
BOOM BUTT INSTALLATION
SCALE 0.167



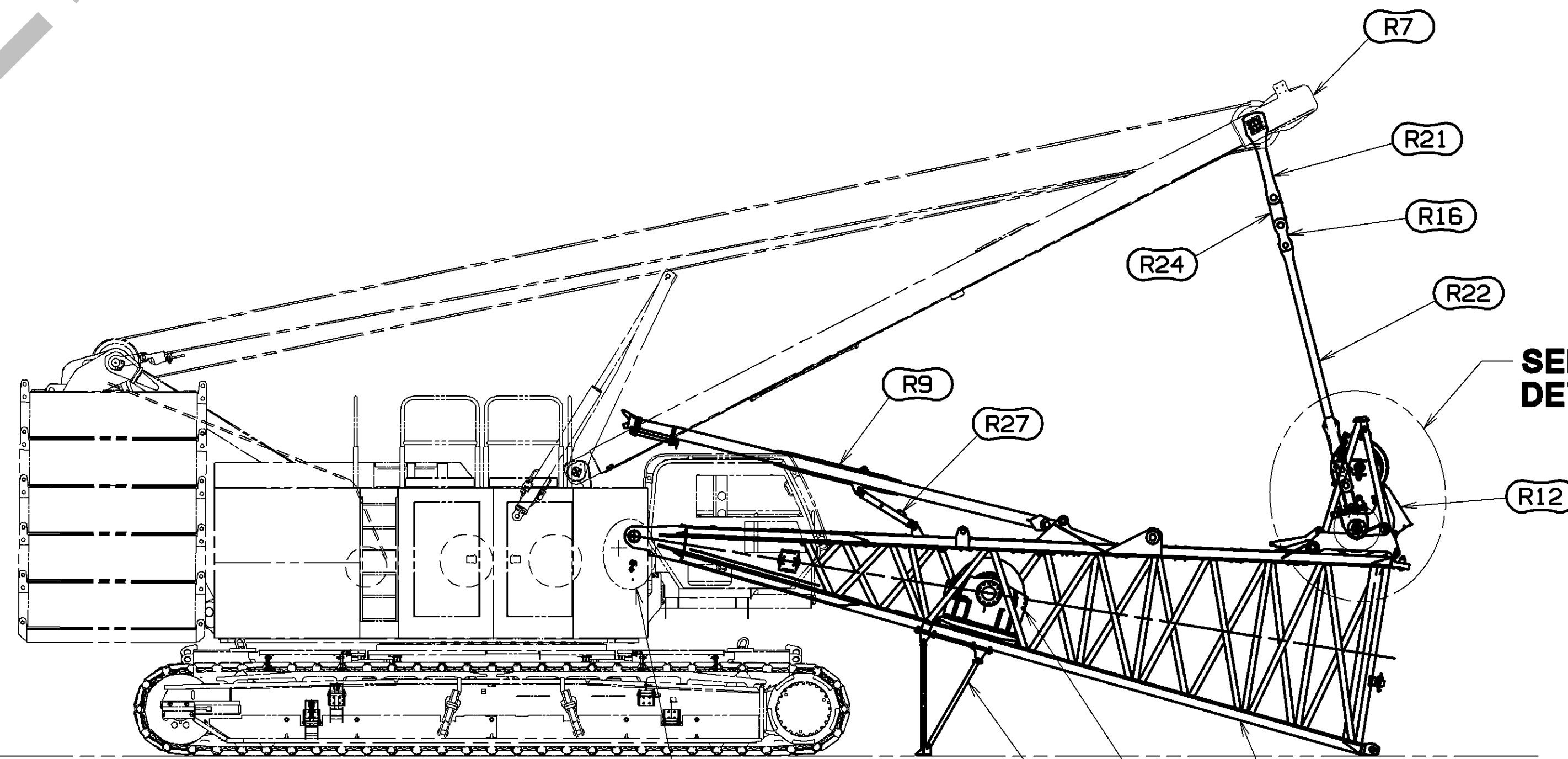
DETAIL S
BOOM BUTT
HINGE PIN PREP
SCALE 0.167



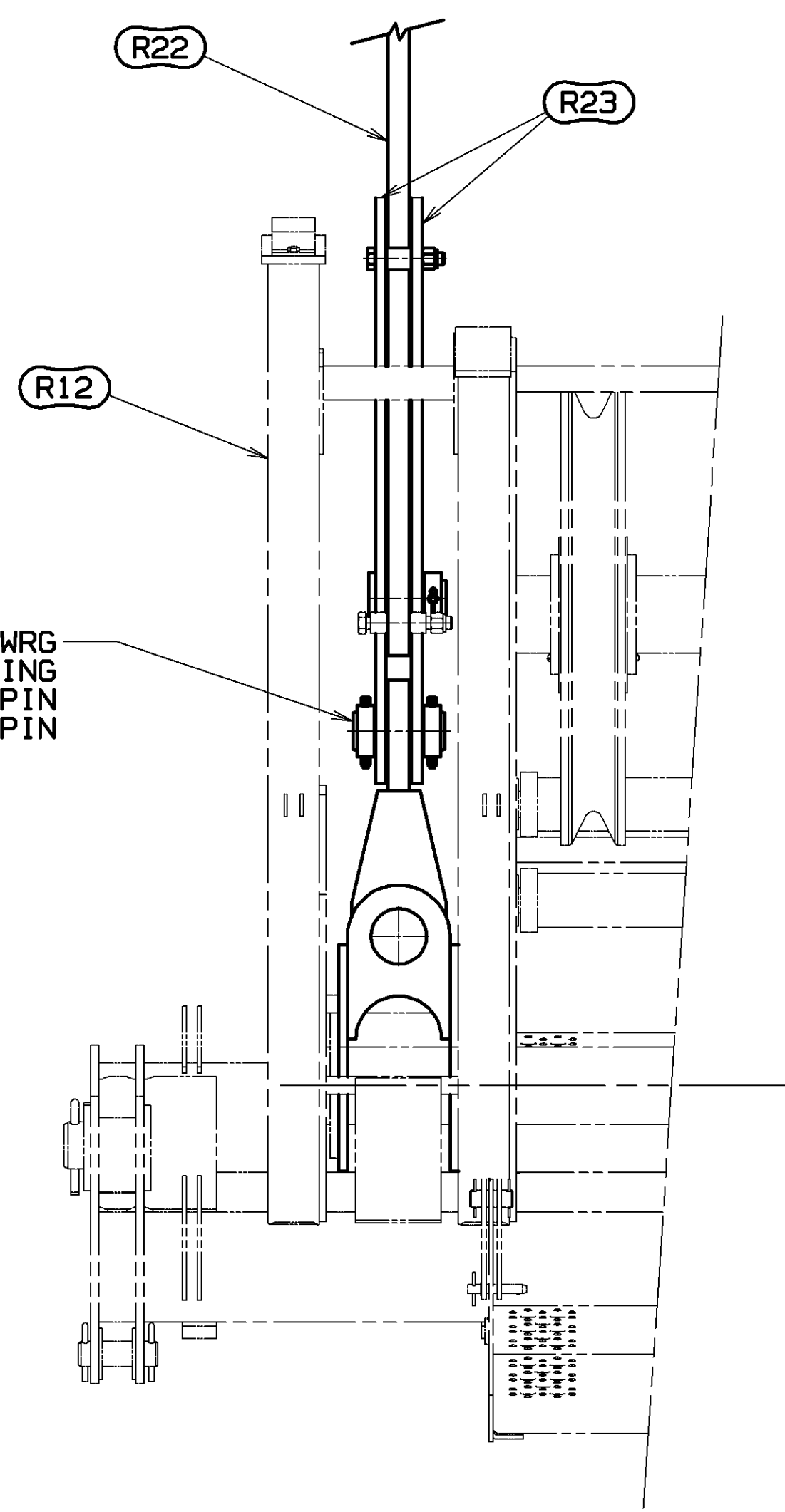
SCALE 0.250



STEP 3
OPTION ATTACHING BOOM BUTT TO ROTATING BED
USING AUXILIARY BLOCK IN MAST



STEP 3
OPTION ATTACHING BOOM BUTT TO ROTATING BED
USING OPTIONAL BOOM BUTT STAND ASSY (R10) AND MAST STRAPS (R22 & R23)



VIEW V
SCALE 0.125

POSITION CRANE IN LINE WITH BOOM BUTT ITEM 1. (BOOM STOPS R9 MUST BE IN SHIPPING (LOWER) POSITIONS).
WITH BOOM HINGE PIN DISENGAGED AND GUIDE PIN 177056 IN BUTT INSTALLATION POSITION. (SEE DETAIL S ON SHEET 9).
LIFT BOOM BUTT ITEM 1 AS SHOWN WITH BUTT LEGS ALIGNED OVER GUIDE PINS 177056. (SEE DETAIL S ON SHEET 9).
USE MAST TO POSITION BOOM BUTT TO ALIGN BUTT HINGE AND ROTATING BED BOOM HINGE PIN. (SEE DETAIL Q ON SHEET 9).
USE SHIMS (R28) AS NEEDED AND ACTIVATE BOOM HINGE PIN. (SEE SECTION R-R ON SHEET 9).
RELOCATE PIN 177056 ON R15 TO WORKING POSITION AS SHOWN IN DETAIL Q ON SHEET 9.

POSITION CRANE IN LINE WITH BOOM BUTT ITEM 1. (BOOM STOPS R9 MUST BE IN SHIPPING (LOWER) POSITIONS).
LOWER MAST UNTIL MAST STRAPS (R22 & R23) ARE NEAR WIRE ROPE GUIDE LINK (R12) ON BOOM BUTT ITEM 1.
SWING MAST STRAPS (R22 & R23) FORWARD AND INSTALL GUIDE PIN 196012. (SEE DETAIL T ON SHEET 9).
LOWER MAST UNTIL CONNECTING HOLES IN MAST STRAPS (R23) LINE UP WITH HOLES IN LINKS ON WIRE ROPE GUIDE (R12).
INSTALL CONNECTING PINS, COLLARS, AND RETAINING PINS. (SEE DETAIL T ON SHEET 9).

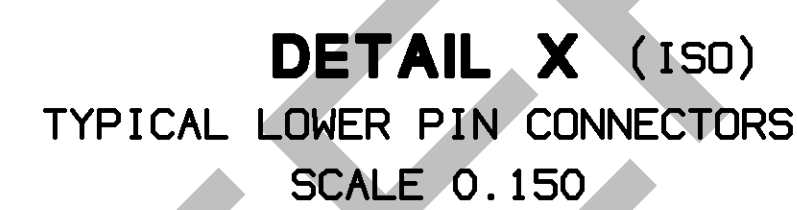
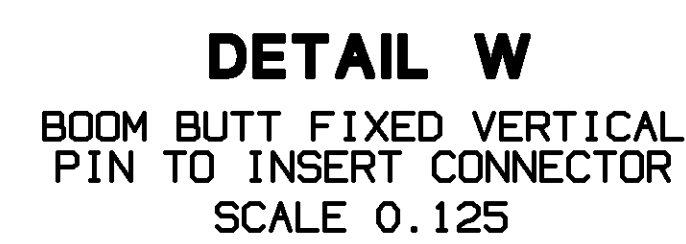
REMOVE AND STORE GUIDE PINS 196012. (SEE DETAIL U ON SHEET 9).
CAUTION: STORE GUIDE PINS BEFORE RAISING MAST TO PREVENT DAMAGE TO WIRE ROPE GUIDE AND GUIDE PINS.

WITH BOOM HINGE PIN DISENGAGED AND GUIDE PIN 177056 IN BUTT INSTALLATION POSITION (SEE DETAIL S ON SHEET 9).
TRAVEL CRANE SLOWLY FORWARD UNTIL BUTT LEGS ARE ALIGNED OVER GUIDE PINS 177056.
USE MAST TO POSITION BOOM BUTT TO ALIGN BUTT HINGE AND ROTATING BED BOOM HINGE PIN. (SEE DETAIL Q ON SHEET 9).
USE SHIMS (R28) AS NEEDED AND ACTIVATE BOOM HINGE PIN.
(SEE SECTION R-R ON SHEET 9).

RELOCATE PIN 177056 ON R15 TO WORKING POSITION AS SHOWN IN DETAIL Q ON SHEET 9.

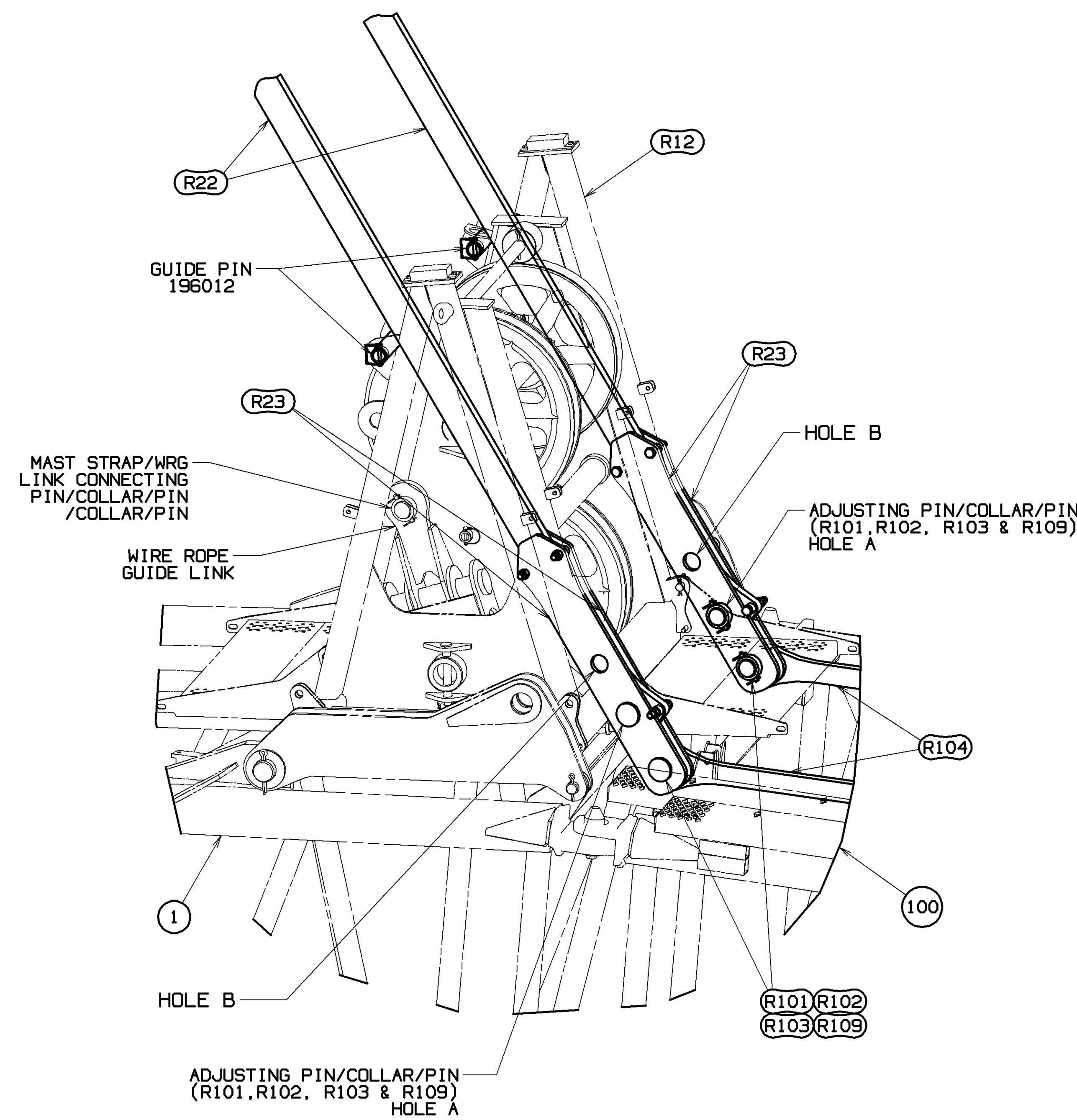


CAUTION: DO NOT CONTINUE TO BOOM UP AFTER BOOM CONNECTOR PINS ARE INSTALLED.
LOWER WIRE ROPE GUIDE (R12) PLATFORM AT BUTT/INSERT JOINT.

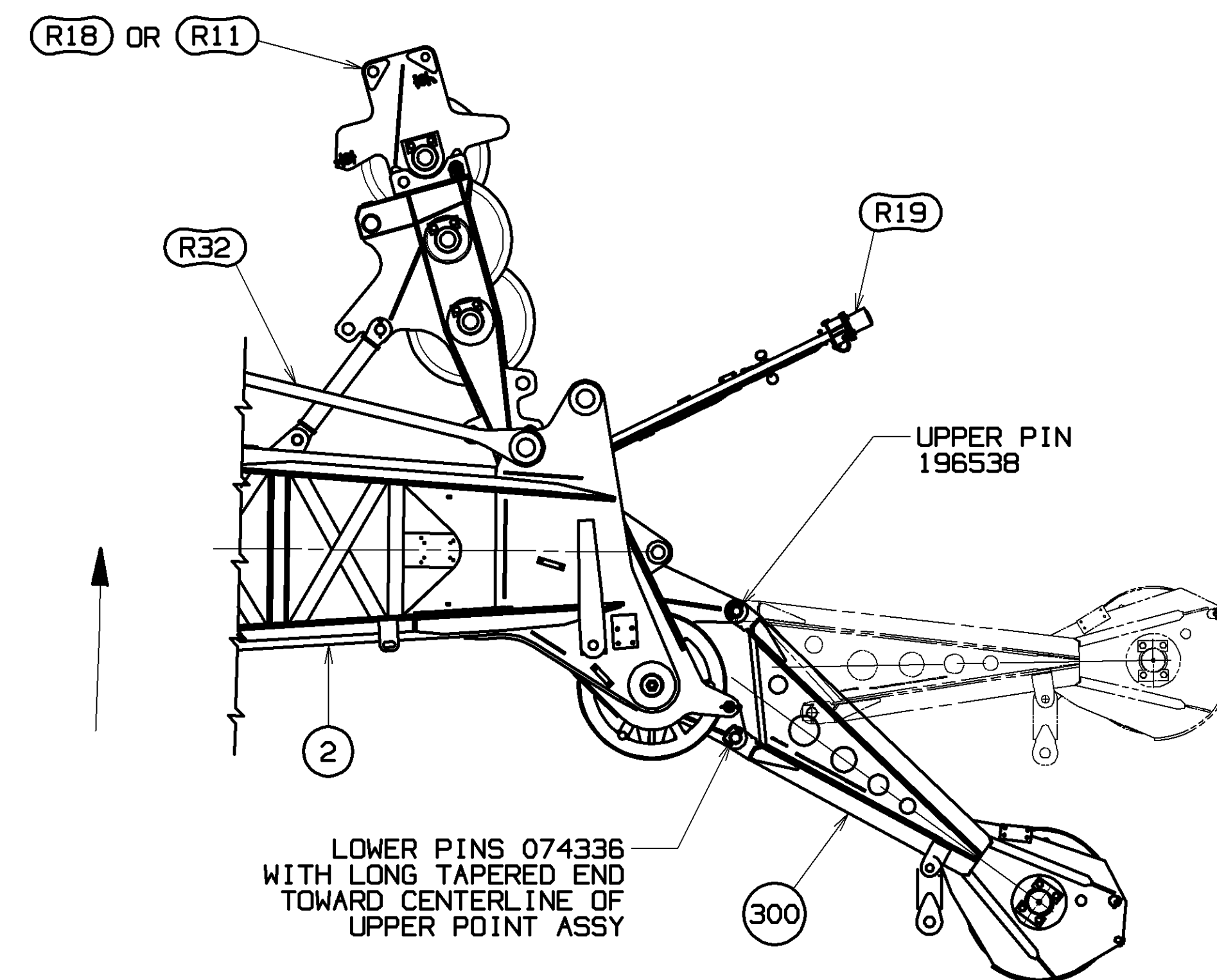


UNPIN MAST STRAPS (R22 & R23) FROM LINKS IN WIRE ROPE GUIDE (R12). UNPIN GUIDE PINS 196012 ALLOWING MAST STRAPS (R22 & R23) TO SWING INTO VERTICAL POSITION. STORE GUIDE PINS 196012 PER DETAIL U ON SHEET 9.

BOOM UP TO RAISE BOOM STOPS (R9) AND EXTEND STRUTS (R27) UNTIL HOLE IN STRUT OUTER TUBE IS ABOVE ENDS OF STRUT INNER TUBES. INSTALL PINS (R31) STORED ON STRUT (R27) TO LOCK BOOM STOP (R9) IN WORKING POSITION. (SEE DETAIL Z ON SHEET 10).



DETAIL AA (ISO)
SCALE 0.100



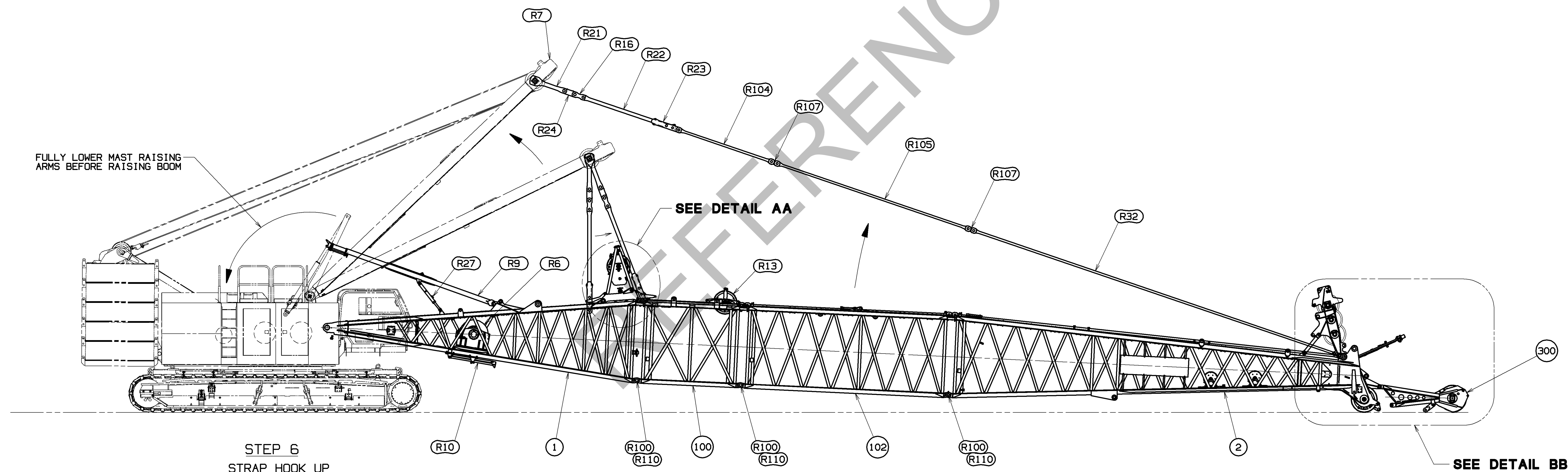
DETAIL BB

UPPER BOOM POINT ASSEMBLY

WITH UPPER PIN INSTALLED RAISE BOOM TO ALLOW
UPPER BOOM POINT (ITEM 300) TO ROTATE INTO
POSITION TO ALLOW LOWER PINS TO BE INSTALLED.
(SEE DETAIL J ON SHEET 5).

SCALE 0.040

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING. UNNEEVE BLOCK.
IF EQUIPPED WITH UPPER BOOM POINT (ITEM 300) REMOVE LOWER CONNECTING PINS BEFORE UPPER POINT CONTACTS GROUND. (SEE DETAIL BB ON SHEET 11).
 2. DISCONNECT MAST STRAPS FROM BOOM INSERT STRAPS.
(REVERSE INSTALLATION STEP 6 ON SHEET 11).
 3. LOWER BOOM STOPS TO SHIPPING POSITION USING PENDANTS (R33).
(REVERSE LATER PORTION OF INSTALLATION STEP 5 ON SHEET 10).
 4. CONNECT MAST STRAPS TO HANDLING LINK ON ROPE GUIDE (R12).
(REVERSE FIRST PORTION ON INSTALLATION STEP 5 ON SHEET 10).
 5. BOOM UP TO REMOVE SLACK FROM MAST STRAPS.
- WARNING:
DO NOT BOOM UP TO PUT TENSION INTO MAST STRAPS. (REMOVE SLACK ONLY).
TENSION IN MAST STRAPS WILL DAMAGE ROPE GUIDE AND BOOM BUTT.
6. REMOVE LOWER BUTT TO INSERT PINS AND BOOM DOWN TO DISENGAGE UPPER BOOM BUTT TO INSERT PINS. (REVERSE INSTALLATION STEP 4 ON SHEET 10).
- WARNING:
BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.
7. SLOWLY BACK AWAY FROM BOOM.
 8. REMOVE BOOM BUTT FROM ROTATING BED WITH MAST.
(REVERSE INSTALLATION STEP 3 ON SHEET 9).
- DANGER:
PREVENT MAST FROM COLLAPSING:
FULLY RAISE MAST ARMS BEFORE RAISING MAST TO VERTICAL.
9. DISASSEMBLE BOOM WITH MAST. REMOVE LOWER CONNECTOR PINS FIRST.
WITH BOOM STRAPS POSITIONED IN BRACKETS ON INSERTS AND BOOM TOP UNPIN LINKS (R107) AND ROTATE THEM INTO SHIPPING POSITION AND RETAIN THEM TO STRAPS WITH STOWAGE PIN.



RAISE OR LOWER MAST UNTIL MAST STRAPS (R22 & R23) ARE NEAR WIRE ROPE GUIDE LINKS (R12) ON BOOM BUTT ITEM 1. SWING MAST STRAPS (R22 & R23) FORWARD AND INSTALL GUIDE PINS 196012. (SEE DETAIL AA ON SHEET 11). BOOM DOWN TO ALIGN CONNECTING HOLES IN MAST STRAPS WITH HOLES IN BOOM STRAPS (SEE DETAIL AA ON SHEET 11). (MAST STRAPS WILL SLIDE DOWN OVER GUIDE PINS 19612 AS SHOWN IN DETAIL AA ON SHEET 11. PUSH MAST STRAPS FORWARD AS REQUIRED).

PIN MAST STRAPS (R23) TO BOOM STRAPS WITH PINS/COLLARS/PINS (R101, R102, R103 & R109). HEADS OF PINS (R102) TO BE FACING OUTSIDE.

RELOCATE ADJUSTING PINS/COLLARS/PINS (R101, R102, R103 & R109) TO HOLE "A" OR "B" AS SPECIFIED ON BOOM LENGTH TABLE ON SHEET 2. BOOM MAST UP OR DOWN AS NEEDED TO ALIGN HOLES AND INSTALL PINS IN PROPER HOLES.

REMOVE AND STORE GUIDE PINS 196012. (SEE DETAIL U ON SHEET 9).

CAUTION: STORE GUIDE PINS BEFORE RAISING MAST TO PREVENT DAMAGE TO WIRE ROPE GUIDE AND GUIDE PINS.

FULLY LOWER MAST RAISING ARMS.

ANGER: MAST WILL BUCKLE AND COLLAPSE IF IT CONTACTS ARMS WITH A FULLY RIGGED BOOM ATTACHED.

BOOM CAN NOW BE RAISED. (SEE DETAIL BB ON SHEET 11 FOR UPPER BOOM POINT ASSEMBLY (ITEM 300) IF EQUIPPED).

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		(1) PLACE 0.0 .12 .18 .40		7/8" MACHINING TO 1/8" TYPICAL		DR. RHV		A	
		(2) PLACE 0.00 .06 .12 .015		TO 1/8" TYPICAL		C/C TJA		BOOM RIGGING	
		(3) PLACE 0.000 $\frac{1}{16}$ $\frac{1}{8}$.005		TO 1/8" TYPICAL		MODEL MLC250		B10:02	
				APP URR				DATE: 03-18-23	