

28° OFFSET SHOWN  
SEE DETAILS S AND T FOR 35° OFFSET  
(SEE SHEET 10)

SEE DETAIL T FOR 41° OFFSET  
(SEE SHEET 10)

SEE DETAIL A  
SEE DETAIL C

- 1 REQ'D FOR LUFFING JIB. LUFFING JIB WIRE ROPE GUIDES CALLED FOR ON #680 12M XH INSERT (ITEM 6) CAN BE LOCATED IN EITHER #685 12M INSERT (ITEM 9) OR #680 12M XH INSERT (INSERT 6) AND MAY REMAIN IN PLACE WITH BOOM ONLY MAKEUP. LUFFING DRUM IN BOOM BUTT MAY REMAIN IN PLACE WITH BOOM ONLY MAKEUP. ITEMS MAY BE IN OPERATING OR SHIPPING POSITION.
- 2 BUTT 6.0M I.D. TAG #81020304
- 3 INSERT 4.00M X-HEAVY I.D. TAG #81020307. SEE DELTA NOTE 42 ON SHEET 2.
- 4 INSERT 12.00M I.D. TAG #81021311. SEE DELTA NOTE 42 ON SHEET 2.
- 5 INSERT TRANSITION 6.00M I.D. TAG #81021715. SEE DELTA NOTE 42 ON SHEET 2.
- 6 INSERT 12.00M X-HEAVY W/SHEAVES I.D. TAG #81021997
- 7 TOP 1.00M CAP I.D. TAG #81026275. SEE DELTA NOTE 42 ON SHEET 2.
- 8 INSERT 12.00M MEDIUM W/SUSPENSION I.D. TAG #81035137. SEE DELTA NOTE 42 ON SHEET 2.
- 9 INSERT 12.00M X-HEAVY W/SHEAVES I.D. TAG #84034001. SEE DELTA NOTE 42 ON SHEET 2.
- 10 INSERT 12.00M X-HEAVY I.D. TAG #84034005. SEE DELTA NOTE 42 ON SHEET 2.
- 11 INSERT 12.00M X-HEAVY W/EQUALIZER I.D. TAG #84034008. SEE DELTA NOTE 42 ON SHEET 2.
- 12 INSERT 12.00M X-HEAVY I.D. TAG #84034011
- 13 INSERT 12.00M HEAVY I.D. TAG #81020425. SEE DELTA NOTE 42 ON SHEET 2.
- 14 INSERT 6.00M HEAVY I.D. TAG #81020428. SEE DELTA NOTE 42 ON SHEET 2.
- 15 INSERT 12.00M I.D. TAG #81021199. SEE DELTA NOTE 42 ON SHEET 2.
- 16 INSERT 6.00M I.D. TAG #81021205. SEE DELTA NOTE 42 ON SHEET 2.
- 17 INSERT 3.00M I.D. TAG #81022005. SEE DELTA NOTE 42 ON SHEET 2.
- 18 INSERT 12.00M HEAVY W/EQUALIZER I.D. TAG #81022605. SEE DELTA NOTE 42 ON SHEET 2.
- 19 INSERT 12.00M I.D. TAG #81034543. SEE DELTA NOTE 42 ON SHEET 2.
- 20 INSERT 12.00M X-HEAVY I.D. TAG #81034978. SEE DELTA NOTE 42 ON SHEET 2.
- 21 POINT EXT UPPER I.D. TAG #81009979
- 22 FOR BOOM STRAP COMPONENTS ON OPTIONAL INSERT REFER TO BOOM LENGTH TABLE ON SHEET 2.
- 23 MAY BE USED AT 2 SHEAVE LOWER BOOM POINT ON ITEM 7 TOP ASSY 81026272.
- 24 BOOM STRAPS/LINKS MAY REMAIN ON INSERT DURING OPERATION.
- 25 PER CAPACITY CHART JIB BACKSTAY STRAPS AND LINKS ARE NOT PERMITTED ON BOOM ASSY B85.
- 26 CALLED FOR ON TOP ASSY ITEM 7 AS OPTION 1 EQUIPPED. FOR SHEAVE CONFIGURATION REFER TO SHEET 10.
- 27
- 28 REFER TO SHEET 10 FOR COMPONENT CONFIGURATION. STOWS IN PARTS BOX 81028467.
- 29 SEE BLOCK REEVING DIAGRAM 81042787 FOR RIGGING CONFIGURATION OPTIONS AND INSTRUCTIONS. SEE RIGGING WINCH ASSY 81026267 FOR BLOCK AND WIRE ROPE ASSEMBLY.
- 30 PIN 81032548 AS SHOWN IN VIEW K-K ON SHEET 6 NOT REQUIRED FOR BOOM. ONLY USED FOR "IN AIR" ASSEMBLY OF LUFFING JIB INSERTS #681 OR #682.
- 31 107.0M (351.0 FT) THRU 164.0M (538.1 FT) BOOM REQUIRES INTERMEDIATE SUSPENSION ITEM 6. ITEM 6 IS OPTION 3 IN ITEM 8. 81035136 REFER TO BOOM LENGTH TABLE (SHEET 2) FOR SUSPENSION BUTT NUMBER. SEE SHEET 11 FOR OPERATIONAL INSTRUCTIONS.

(DELTA NOTES CONTINUE ON SHEET 2)

107.0 M (351.0 FT)  
#685-680-681-682 BOOM SHOWN

BILL OF MATERIAL				ASSEMBLY NO.
NO.	DESCRIPTION	QTY	MATERIAL	81018136
<b>BOOM RIGGING B85:685-680-681-682</b>				
1	POINT ASSY EXT UPPER #58WA	1	81009979	21
2	BUTT ASSY #680, 6.0M	1	81020303	2
3	INSERT ASSY #680, 4.00M	1	81020306	3
4	INSERT ASSY #680/681, 12.00M	1	81021310	4
5	TRANSITION INSERT ASSY #681/682, 6M	1	81021714	5
6	INSERT ASSY #680, 12M W/SHV	1	81021996	6
7	TOP ASSY #682 1 METER CAP	1	81026272	7
8	INSERT ASSY #680, 12.00M W/SUSP	1	81035136	8
9	INSERT ASSY #685 12M W/SHV	1	84034000	9
10	INSERT ASSY #685 12M	1	84034004	10
11	INSERT ASSY #685 12M W/EQ	1	84034007	11
12	INSERT ASSY #685/680 12M	1	84034010	12
13	GUIDE ASSY - WIRE ROPE	1	84022926	13
NO. REQ'D FOR THE FOLLOWING ITEMS ARE IN THE BOOM LENGTH TABLE				
100	INSERT ASSY #680, 12.00M HEAVY	1	81020424	13
101	INSERT ASSY #680, 6.00M HEAVY	1	81020427	14
102	INSERT ASSY #682, 12.00M	1	81021198	15
103	INSERT ASSY #681, 6M	1	81021204	16
104				
105	INSERT ASSY #681, 3.00M	1	81022004	17
106	INSERT ASSY 680 12M HV W/EQ	1	81022604	18
107	INSERT ASSY #681, 12.00M	1	81034541	19
108	INSERT ASSY #680, 12.00M X-HEAVY	1	81034977	20
109	SUSPENDER WIRE ROPE	1	84040952	38
<b>OPTION 1: HOOK BLOCKS</b>				
200	BLOCK HOOK 135MT 32WR 3SH	1	81023461	23
201	BLOCK HOOK 100MT 28WR 3SH	1	81031987	23
202	WEIGHT BALL SWIVEL 22.2MT, 25MM & 32MM WR	1	81033344	23
203	HOOK BLOCK 160MT 35H 32WR	1	84039500	23
<b>BASIC REFERENCE ITEMS</b>				
R1	PIN COTTER 3/16 DIA X 2.00 LG	1	562087	
R2	LINK CONNECTING #680 12.00M W/STRUT	1	81028261	
R3	STRAP 12M #680 W/STRUT	1	81028322	
R4	STRAP 12M #680 W/STRUT	1	81028323	
R5	LINK #680 BOOM STRAP	1	81025610	
R6	SUSPENDER WIRE ROPE #680	1	81036355	31
R7	PIN SAFETY .250 DIA X 5.20 LG	1	81027802	
R8	PIN 2 HOLE 110.3 DIA X 242.9 LG	1	84036353	
R9	LINK CONNECTING MACHINING	1	84022978	33
R10	MAST ASSEMBLY	1	81025005	41
R11	EQUALIZER ASSY	1	81027149	
R12	LINK #680, 4M INSERT	1	81027236	
R13	ROPE GUIDE #682 1 METER CAP	1	84046945	
R14	PIN 1 HOLE W/HD 127.3 DIA X 122.5 LG	1	81027653	
R15	MAST ASSEMBLY	1	84050187	41
R16	PIN 1 HOLE W/HD 105.0 DIA X 121.1 LG	1	81028258	
R17	PIN 1 HOLE W/HD 127.0 DIA X 121.1 LG	1	81028259	
R18	COLLAR 106.5 MM I.D.	1	81028260	
R19	PIN 2 HOLE 19.05 DIA X 142.0 LG	1	81028262	
R20	COLLAR 128.2 MM I.D.	1	81028264	
R21	PIN 2 HOLE 19.05 DIA X 167.8 LG	1	81028265	
R22	LOAD CELL LINK 25.00M KGS	1	81030836	28
B1				
R24	BOOM POINT LOWER ASSY 2 SHEAVES	1	81030118	26
R25	STRAP 12M #680/681	1	81030485	
R26	STRAP 12M #680/681	1	81030486	
R27	STRAP 6M #681/682 TRNSN	1	81030487	
B2				
R29	LINK ASSY DEAD END	1	81042356	28
B3				
R30	LINK ASSY LOAD	1	84047539	
R31	ESI POSITION LIGHT AND ANEMOMETER	1	81031642	34
R32	LINK #682 BOOM STRAP	1	81042554	
R33	LINK #680 EQ TO STRAP	1	81042617	
R34	PIN 2 HOLE 22.2 DIA X 152.0 LG	1	A15390	
R35	COLLAR 128.0 I.D.	1	A15391	
NO. REQ'D FOR THE FOLLOWING REFERENCE ITEMS ARE IN THE BOOM LENGTH TABLE (SHEET 2)				
R100	PIN COTTER 1/4 DIA X 1.50 LG	1	562105	
R101	STRAP 12M #680, 681, 682	1	81020475	
R102	LINK #680 BOOM	1	81020476	
R103	PIN 1 HOLE W/HD 79.3 DIA X 121.1 LG	1	81020477	
R104	COLLAR 80.2MM I.D.	1	81020478	
R105	STRAP 6M #680	1	81021271	
R106	STRAP 3M #680	1	81022552	
R107	STRAP 12M #680 W/EQUALIZER	1	81027608	
R108	STRAP 12M #680 W/EQUALIZER	1	81027609	
R109	LINK #680 BOOM	1	81027655	
R110				
R111	PENDANT 1.375 DIA X 5' 10" LG	1	84023914	39
R112				
R113				
R114	LINK SUSPENSION	1	84040955	36
R115	PIN 2 HOLE 19.05 DIA X 117.0 LG	1	A16804	
REFERENCE ITEMS FOR ASSEMBLY AND RIGGING PURPOSE ONLY				
R200				
R201				
R202				
R203	PIN PULLER BOOM BUTT CAGE WELD	1	81030540	32
R204	PIN PULLER ASSY HAND HELD	1	81030756	32
R205	SLING LIFTING 100,000 LBSX10.83 FT	1	81038731	32
R206				
R207				
R208	SLING LIFTING 25,000(LBS)X12.5(FT)	1	81040162	32
R209	SLING 70000 LBS 16.4 FT	1	81042116	32
REFERENCE OPTION 3: EUBP DEAD END				
R300	LINK ASSY DEAD END	1	81042356	28

BOOM HOIST REEVING DIAGRAM FOR 16 PART LINE FOR REFERENCE ONLY



ITEMS REQ'D FOR VARIOUS BOOM LENGTHS - SEE SHEETS 3, 4, 5, & 6 FOR BOOM MAKE-UP

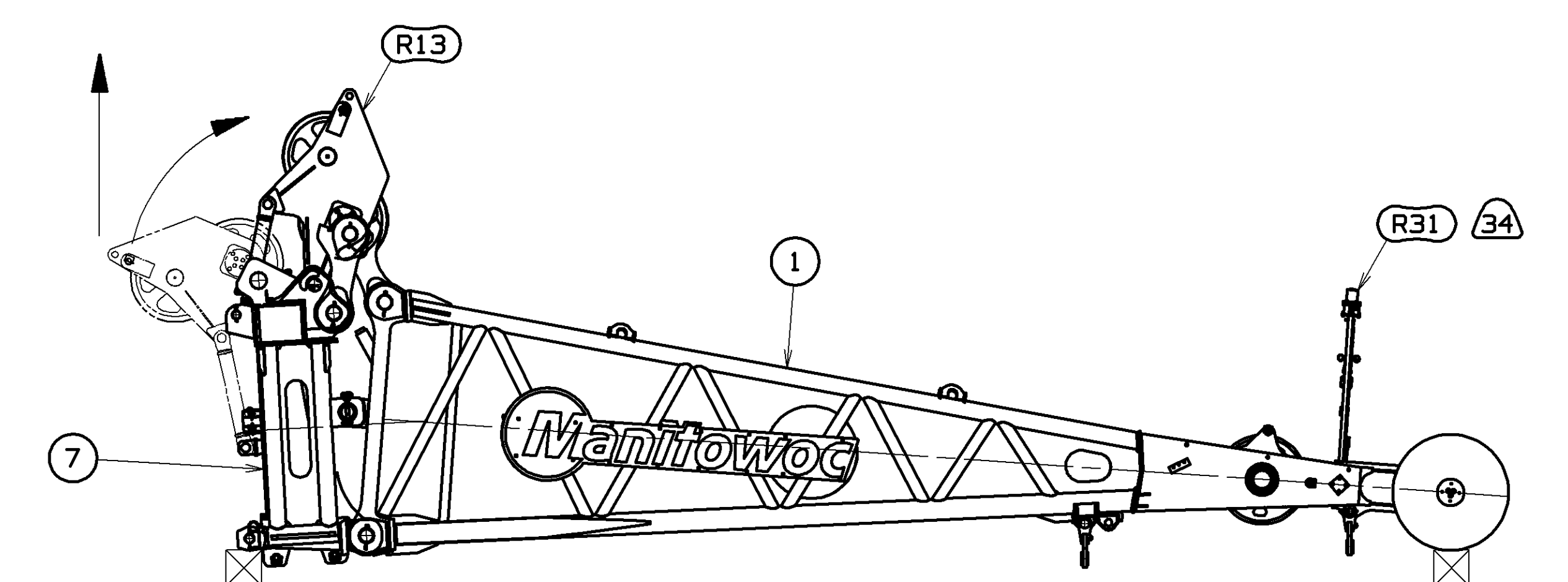
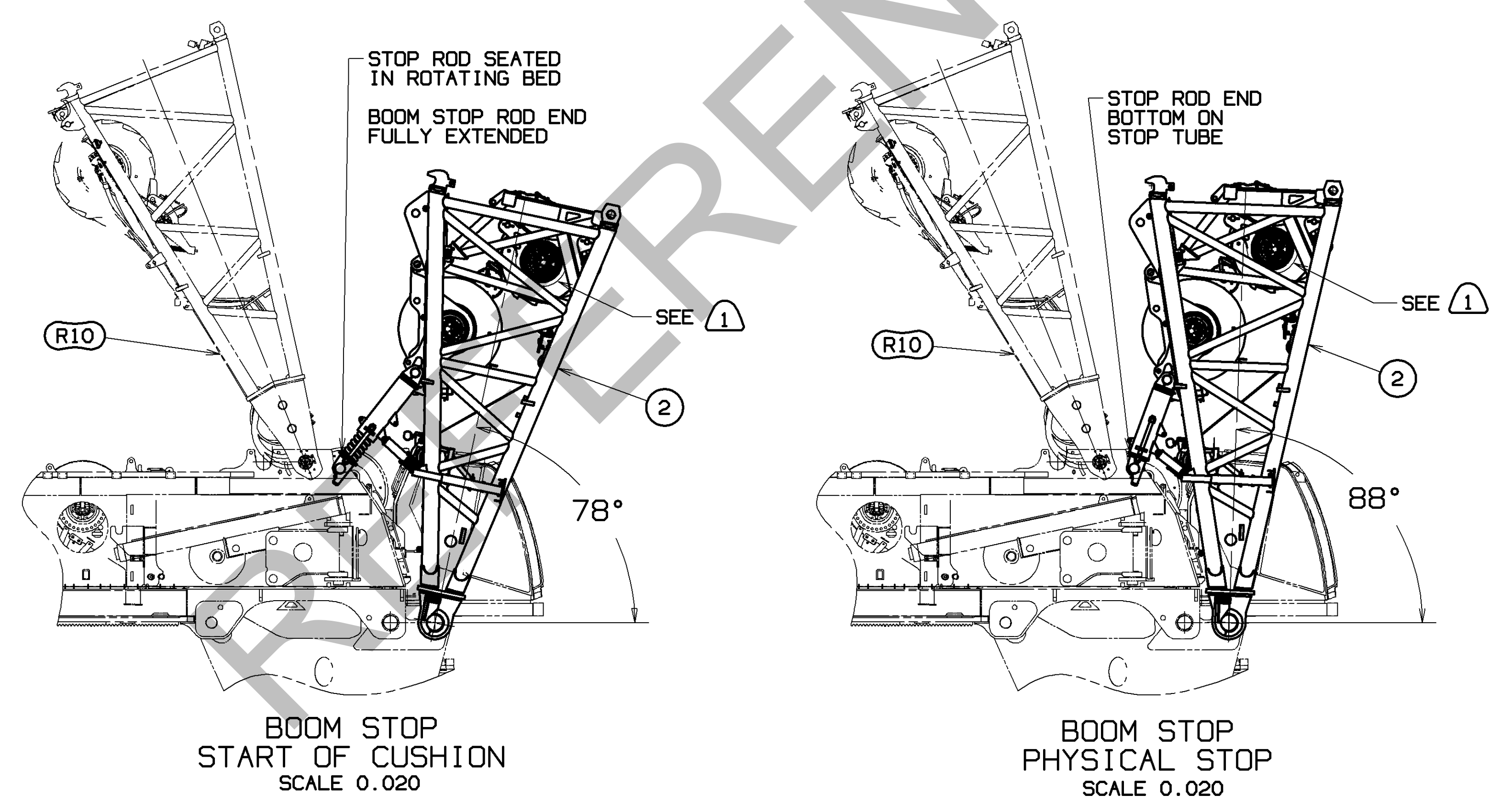
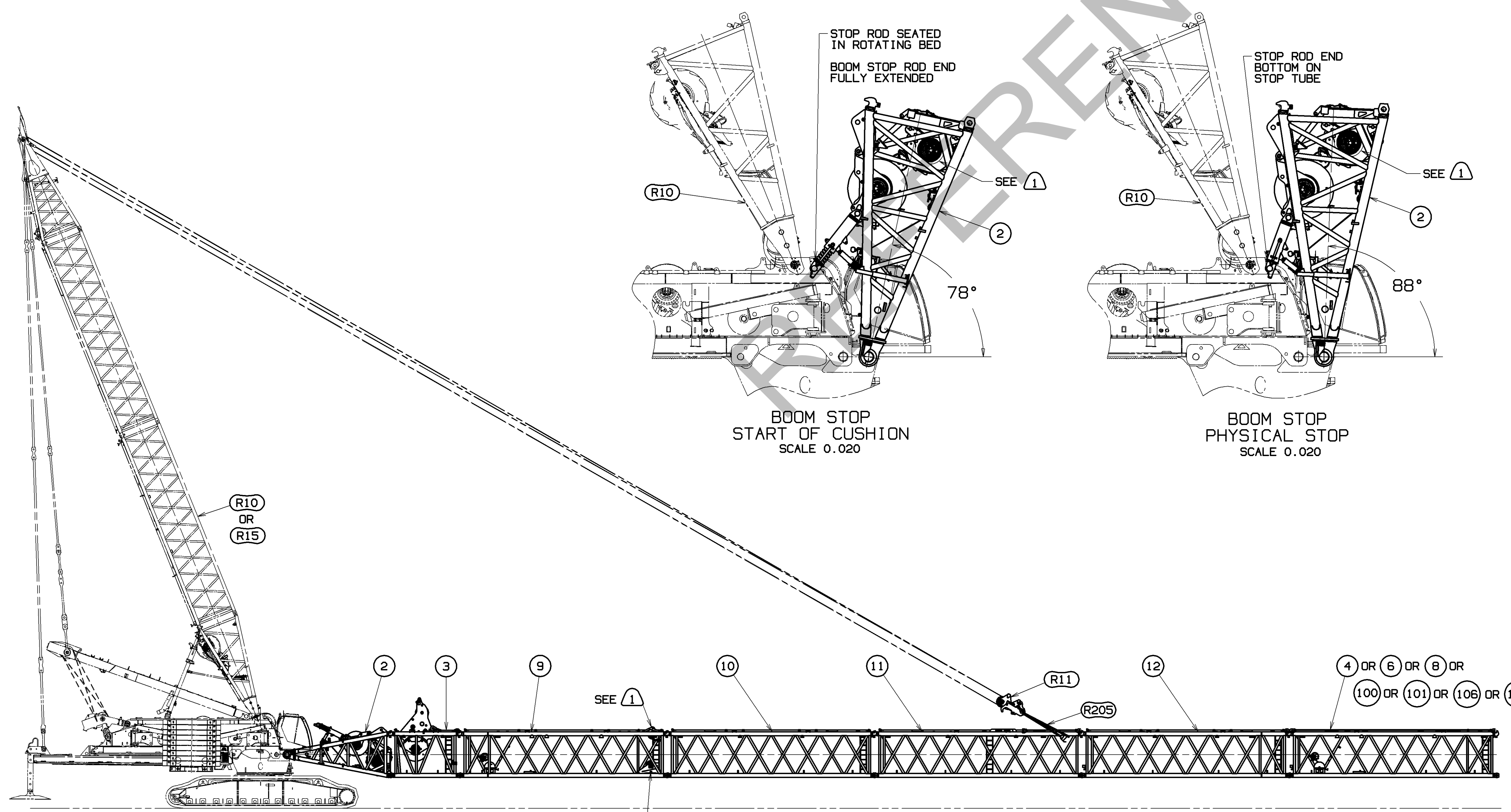
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BILL OF MATERIAL				ASSEMBLIES USED ON
QTY	DESCRIPTION	MATERIAL	REF. NO.	

ITEM NO.	#680 INSERTS				#681 INSERTS				#682 INSERT	STRAP					LINK			PIN	COTTER	COLLAR	SUSPENSION (40)		
	X-HEAVY	HEAVY			107	103	105	102	R101	R105	R106	R107	R108	R102	R109	R114	R103	R115	R100	R104	INSERT SUSPENSION	INSERT SUSPENDER	DROP DOWN SUSPENSION
	108	100	101	106																	R6	R111	109
BOOM LENGTH	INSERT 12M (39.4FT) ASSY	INSERT 12M (39.4FT) ASSY	INSERT 6M (19.7FT) ASSY	INSERT 12M (39.4FT) ED ASSY	INSERT 12M (39.4FT) ASSY	INSERT 6M (19.7FT) ASSY	INSERT 3M (9.8FT) ASSY	INSERT 12M (39.4FT) ASSY	STRAP 12M (39.4FT)	STRAP 6M (19.7FT)	STRAP 3M (9.8FT)	STRAP SHORT W/EQUAL	STRAP LONG W/EQUAL	LINK	LINK W/EQUAL	LINK CONNECT W/SUSP	PIN	PIN	COTTER	COLLAR	PENDANT BUTTON NUMBER SEE (31)	#680 PENDANT SEE (33)	PENDANT BUTTON NUMBER SEE (35)
METERS	FEET																						
107	351.0	0	0	1	0	0	0	0	4	2	0	2	0	32	0	0	44	44	100	44	7	2	-
110	360.9	0	0	1	0	0	1	0	4	2	2	2	0	36	0	0	48	48	108	48	9	-	-
113	370.7	1	0	0	0	0	0	0	6	0	0	2	0	32	0	0	44	44	100	44	7	2	-
116	380.6	1	0	0	0	0	1	0	6	0	2	2	0	36	0	0	48	48	108	48	7	2	-
119	390.4	1	0	1	0	0	0	0	6	2	0	2	0	36	0	0	48	48	108	48	8	-	-
122	400.3	1	0	1	0	0	1	0	6	2	2	2	0	40	0	0	52	52	116	52	5	2	-
125	410.1	1	0	1	0	0	1	0	6	4	0	2	0	40	0	0	52	52	116	52	5	2	-
128	419.9	1	0	1	0	0	1	1	6	4	2	2	0	44	0	0	56	56	124	56	5	2	-
131	429.8	1	OR 0/1	1	1/0	0	0	0	6/8	2/0	0	4/2	2/0	40	4/0	0	56/52	56/52	124/116	56/52	6	-	-
134	439.6	1	OR 0/1	1	1/0	0	0	1	6/8	2/2	2	4/2	2/0	44	4/0	0	60/56	60/56	132/124	60/56	6	-	-
137	449.5	1	OR 0/1	1	1/0	0	1	0	6/8	4/0	0	4/2	2/0	44	4/0	0	60/56	60/56	132/124	60/56	6	-	-
140	459.3	1	OR 0/1	1	1/0	0	1	1	6/8	4/2	2	4/2	2/0	48	4/0	0	64/60	64/60	140/132	64/60	6	-	-
143	469.2	1	OR 1/2	1	1/0	0	0	0	8/10	2/0	0	4/2	2/0	(37) 40	4/0	4	60/56	60/56	132/124	60/56	4	-	8
146	479.0	1	OR 1/2	1	1/0	0	0	1	8/10	2/2	2	4/2	2/0	(37) 44	4/0	4	64/60	64/60	140/132	64/60	4	-	8
149	488.8	1	OR 1/2	1	1/0	0	1	0	8/10	4/0	0	4/2	2/0	(37) 44	4/0	4	64/60	64/60	140/132	64/60	4	-	8
152	498.7	1	OR 1/2	1	1/0	0	1	1	8/10	4/2	2	4/2	2/0	(37) 48	4/0	4	68/64	68/64	148/140	68/64	4	-	8
155	508.5	1	OR 1/2	1	1/0	1	0	0	10/12	2/0	0	4/2	2/0	(37) 44	4/0	4	64/60	64/60	140/132	64/60	4	-	8
158	518.4	1	OR 1/2	1	1/0	1	0	1	10/12	2/2	2	4/2	2/0	(37) 48	4/0	4	68/64	68/64	148/140	68/64	4	-	8
161	528.2	1	OR 1/2	1	1/0	0	1	0	10/12	4/0	0	4/2	2/0	(37) 48	4/0	4	68/64	68/64	148/140	68/64	3	-	8
164	538.1	1	OR 1/2	0	1/0	1	0	1	12/14	0/2	2	4/2	2/0	(37) 48	4/0	4	68/64	68/64	148/140	68/64	4	-	10

(DELTA NOTES CONTINUED FROM SHEET 1)

- (32) STOWS IN PARTS BOX 81028467.
- (33) CALLED FOR ON EXTENDED UPPER POINT ITEM 1 AS OPTION 12 EQUIPPED. LINK R2 CAN BE USED FOR 35° OR 41° OFFSET. (SEE DETAIL T ON SHEET 10).
- (34) RELOCATE FROM MAIN BOOM. (12M INSERT W/SHEAVE ITEM 6).
- (35) INTERMEDIATE BLOCKING IS REQUIRED FOR BOOM LENGTHS 128.0 M (419.9 FT) THROUGH 164.0 M (538.1 FT). DISTANCE BETWEEN BOOM SUPPORT LOCATIONS IS NOT TO EXCEED 60.0 M (196.9 FT). (SEE INTERMEDIATE BLOCKING VIEW ON SHEET 8).
- (36) REPLACE (4) EXISTING STRAP LINKS ITEM R102 WITH (4) SUSPENSION LINKS R114 ON SUSPENDER WIRE ROPE ITEM 109. (SEE SUSPENSION ASSEMBLY SEQUENCE ON SHEET 12)
- (37) QUANTITIES OF LINK (ITEM R102) IN BOOM LENGTH TABLE (SHEET 2) REFLECT REMOVAL OF LINKS ITEM R102 PER DELTA NOTE 36.
- (38) 143.0M (469.2 FT) THRU 164.0M (538.1 FT) BOOM REQUIRES DROP-DOWN INTERMEDIATE SUSPENSION ITEM 109. REFER TO BOOM LENGTH TABLE (SHEET 2) FOR SUSPENSION BUTTON NUMBER. SEE SHEET 12 FOR OPERATIONAL INSTRUCTIONS.
- (39) STOWS ON GUIDE ASSY-WIRE ROPE (ITEM 13). USED WITH #680 INTERMEDIATE SUSPENSION (R6) ON 107M, 113M, 116M, 122M, 125M, 128M & 140M BOOM LENGTHS.
- (40) SUSPENSION PENDANT MAY APPEAR SLACK DURING RAISING AND OPERATION. CHECK SUSPENSION LOCATION AND PENDANT BUTTON NUMBER AND CONTINUE OPERATION.
- B7 (41) MAST RIGGING M10:684 (R10) CONTAINS MAST BUTT ASSY 81025380 WITH "PASSIVE" FIXED MAST STOP.
- MAST RIGGING M11:684 (R15) CONTAINS MAST BUTT ASSY 84041844 WITH "ACTIVE" FIXED MAST STOP.
- BB (42) IF EQUIPPED WITH LOWER BOOM CONNECTOR PIN COMPONENTS USED WITH HAND HELD CYLINDER (R204) 81030756. SEE DETAIL N ON SHEET 8.
- IF EQUIPPED WITH MANUAL LOWER BOOM CONNECTOR PINS (R8), SEE DETAIL Q ON SHEET 9.



BOOM TOP 1 METER CAP WIRE ROPE GUIDE ARRANGEMENT  
SCALE 0.025

LENGTH	BOOM HANDLING WITH EQUALIZER							
	12M (39.4FT) INSERT 84034010	6M (19.7FT) INSERT 81020427	12M (39.4FT) INSERT 81021310	12M (39.4FT) INSERT 81021996	12M (39.4FT) INSERT 81034977	12M (39.4FT) INSERT 81020424	12M (39.4FT) INSERT 81022604	12M (39.4FT) INSERT 81035136
12M (39.4FT)	1	0	0	0	0	0	0	0
18M (59.1FT)	1	1	0	0	0	0	0	0
24M (78.7FT)	1	0	OR 1/0	0	0	0	0	0

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MANITOWOC CRANES, INC. BOOM RIGGING BBS:685-680-681-682

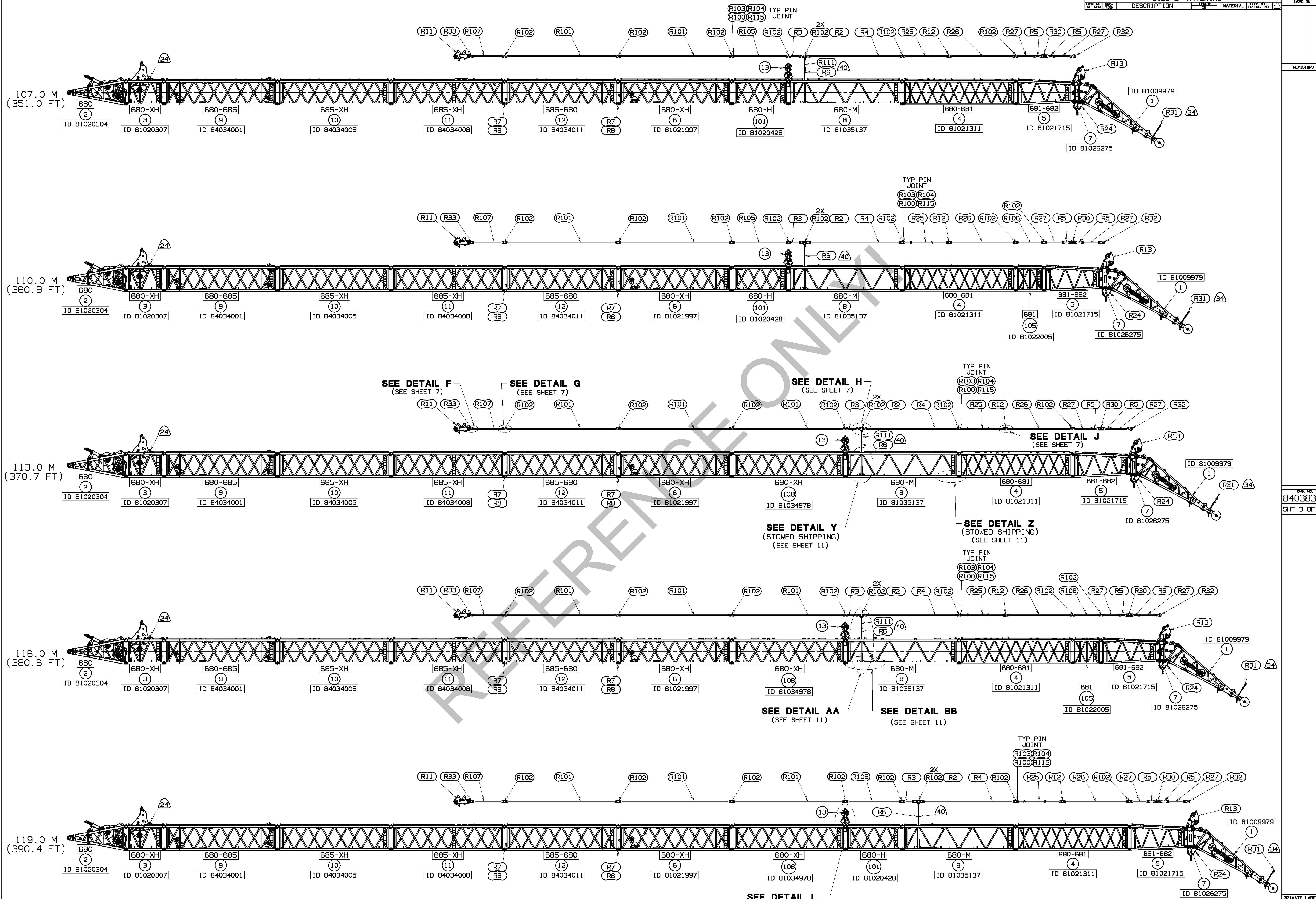
84038306  
SHT 2 OF 12

DATE: 11-29-16  
REV. LNK: B

PRIVATE LABELING REQUIREMENT TO CONFORM TO ENGINEERING SPECIFICATION 8629103794 FOR COMPONENTS LISTED IN 862900-00-006

84038306  
SHT 2 OF 12





RECOMMENDED BOOM MAKEUP  
 FOR TYP PIN JOINT SEE SECTIONS B-B & D-D  
 AND DETAILS F, G, H & J

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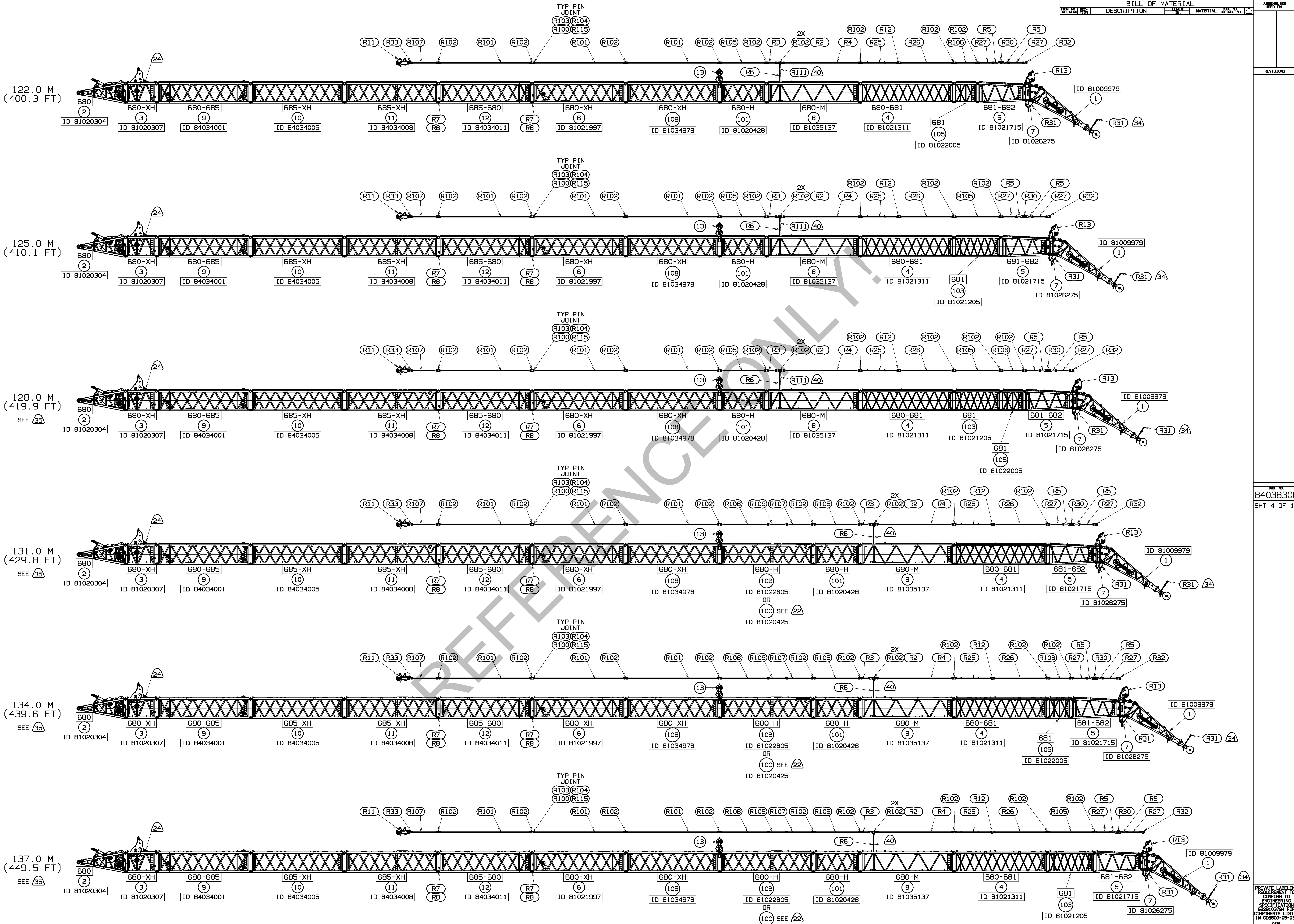
DR. NO. 84038306  
 SHT 3 OF 12

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

DATE 11-29-16  
 REF. LNK. B

84038306  
 SHT 3 OF 12



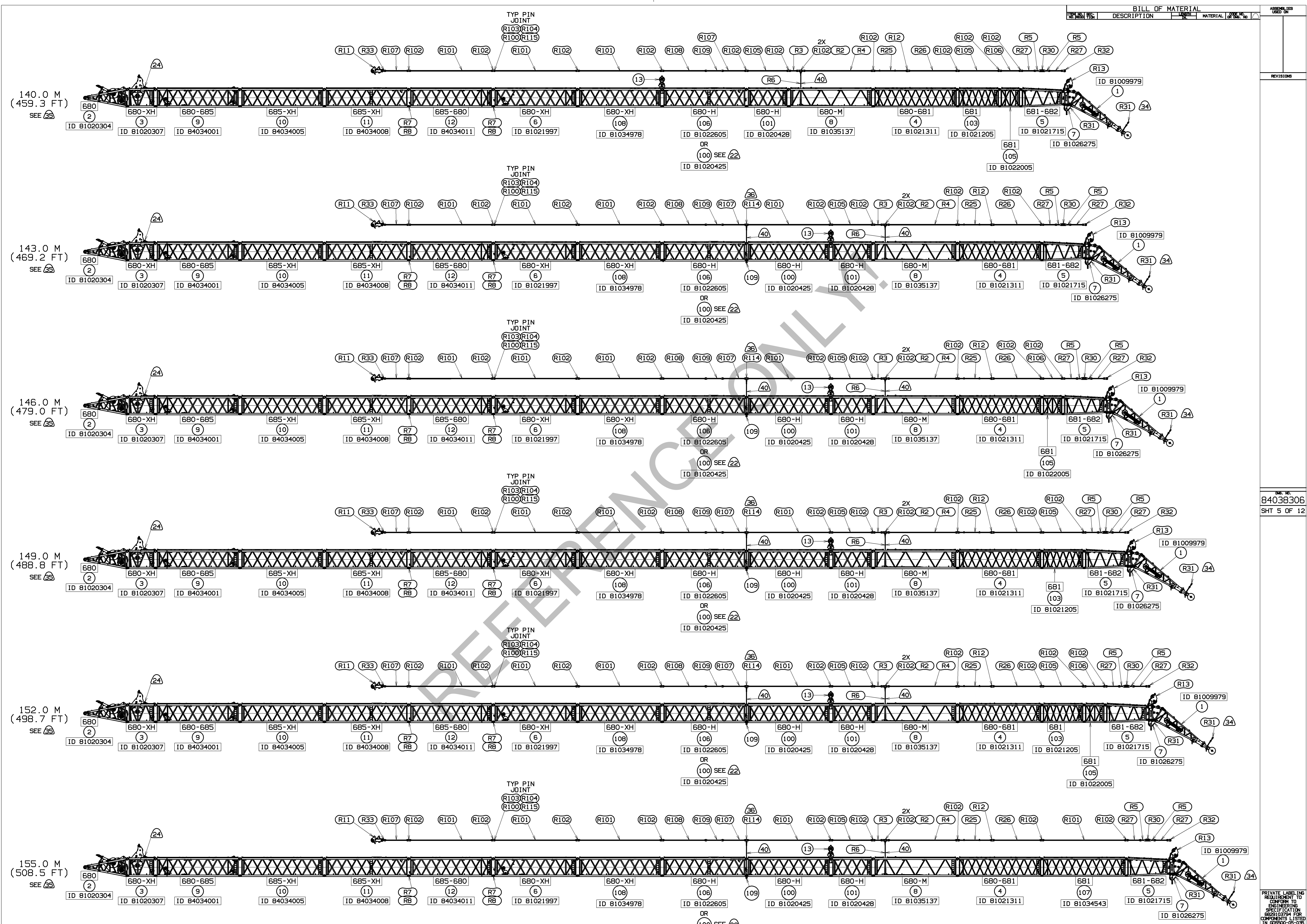


RECOMMENDED BOOM MAKEUP  
FOR TYP PIN JOINT SEE SECTIONS B-B & D-D  
AND DETAILS F,G,H,J & M

TOLERANCE UNLESS OTHERWISE SPECIFIED		MATERIAL		FINISHING		DRAWING		DATE	
DECIMAL PLACES	FRACTIONS	DESCRIPTION	GRADE	PROCESS	APP	REV	DATE	BY	CHK
(1) PLACE 0.1	1/16	STEEL	A36	PAINT	JRR	1	11-29-16	B	
(2) PLACE 0.00	1/32								
(3) PLACE 0.000	1/128								

PRIVATE LABELING  
REQUIREMENT TO  
CONFORM TO  
ENGINEERING  
SPECIFICATION  
S629103794 FOR  
COMPONENTS LISTED  
IN SECTION 05-006





RECOMMENDED BOOM MAKEUP  
FOR TYP PIN JOINT SEE SECTIONS B-B & D-D  
AND DETAILS F,G,H,J & M

TOLERANCE UNLESS OTHERWISE SPECIFIED		MATERIAL		FINISHING		DR. RHY		DATE	
DECIMAL PLACES	F. TO FEET								
(1) PLACE 0.5	±.12								
(2) PLACE 0.00	±.08								
(3) PLACE 0.000	±.015								
ANGLES	±.30								

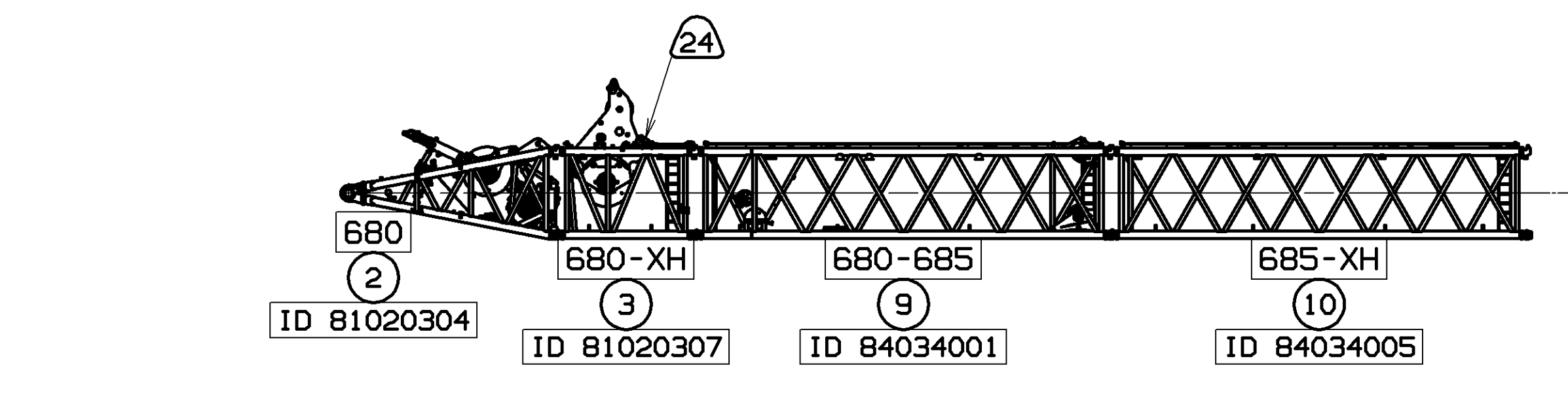
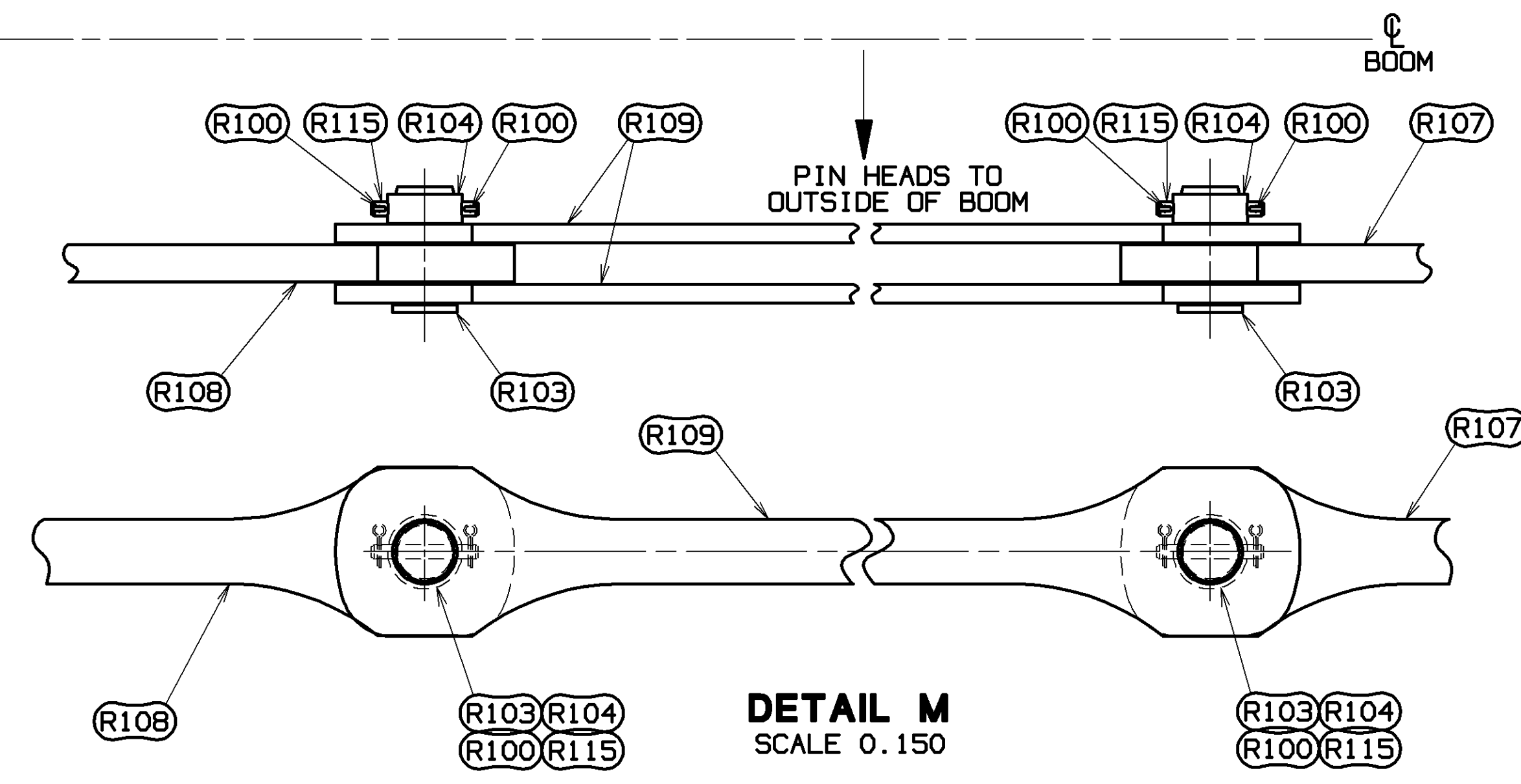
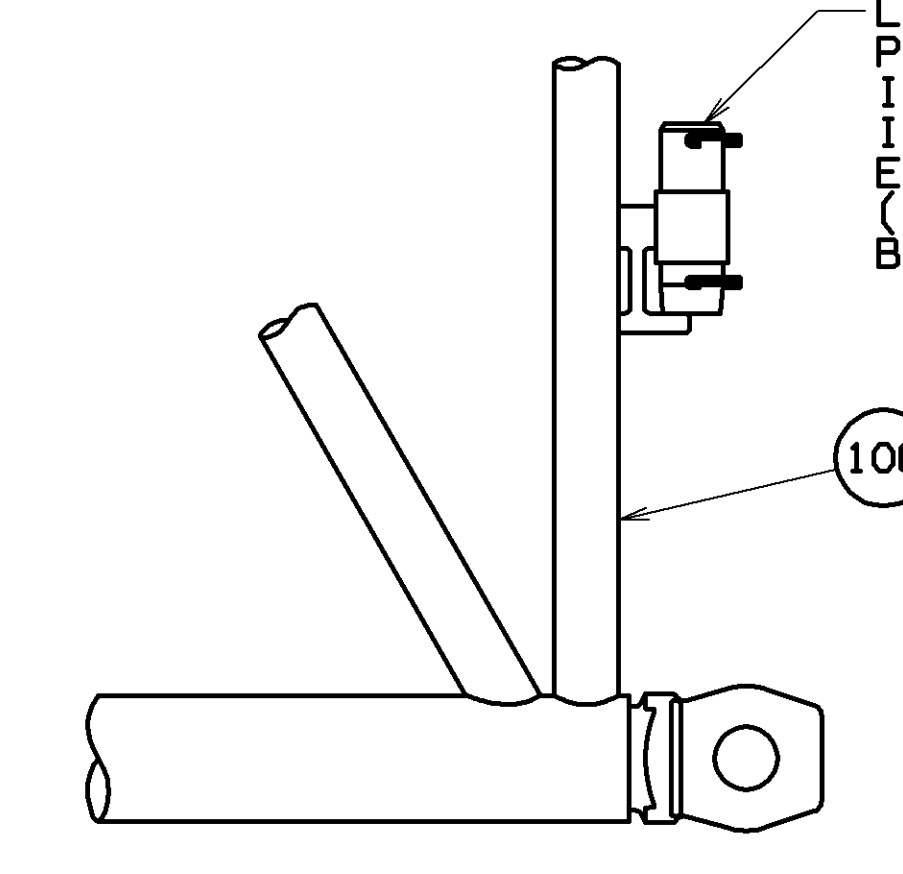
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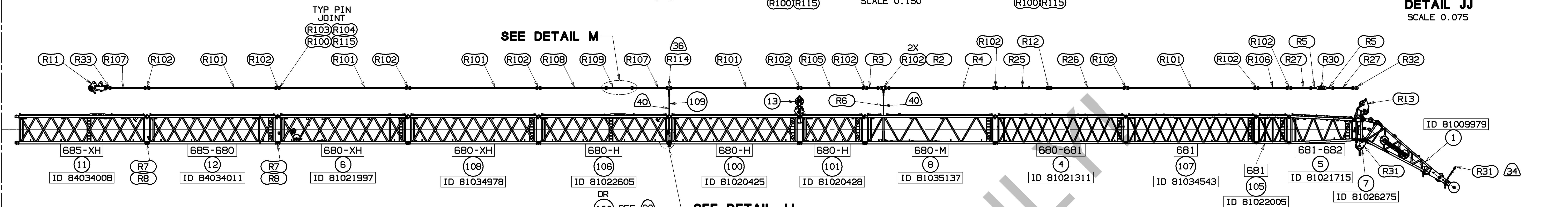
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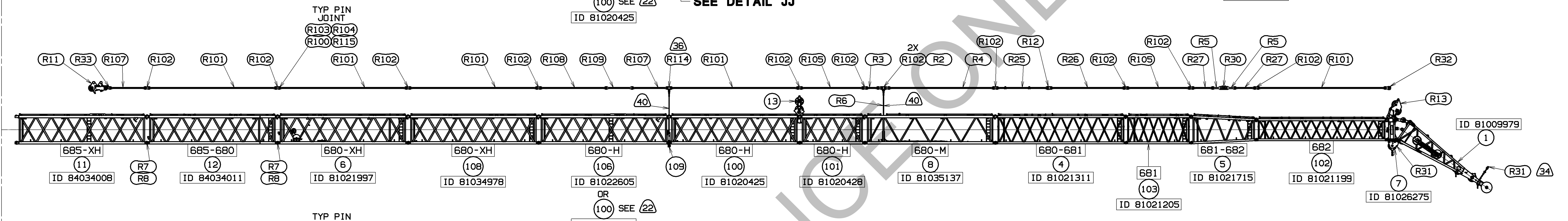
LOWER BOOM CONNECTOR PIN USED FOR MANUAL PIN INSTALLATION WHEN INSERT ITEM 106 IS USED WITH EQUALIZER. (NOT USED WITH A #685 BOOM CONFIGURATION).



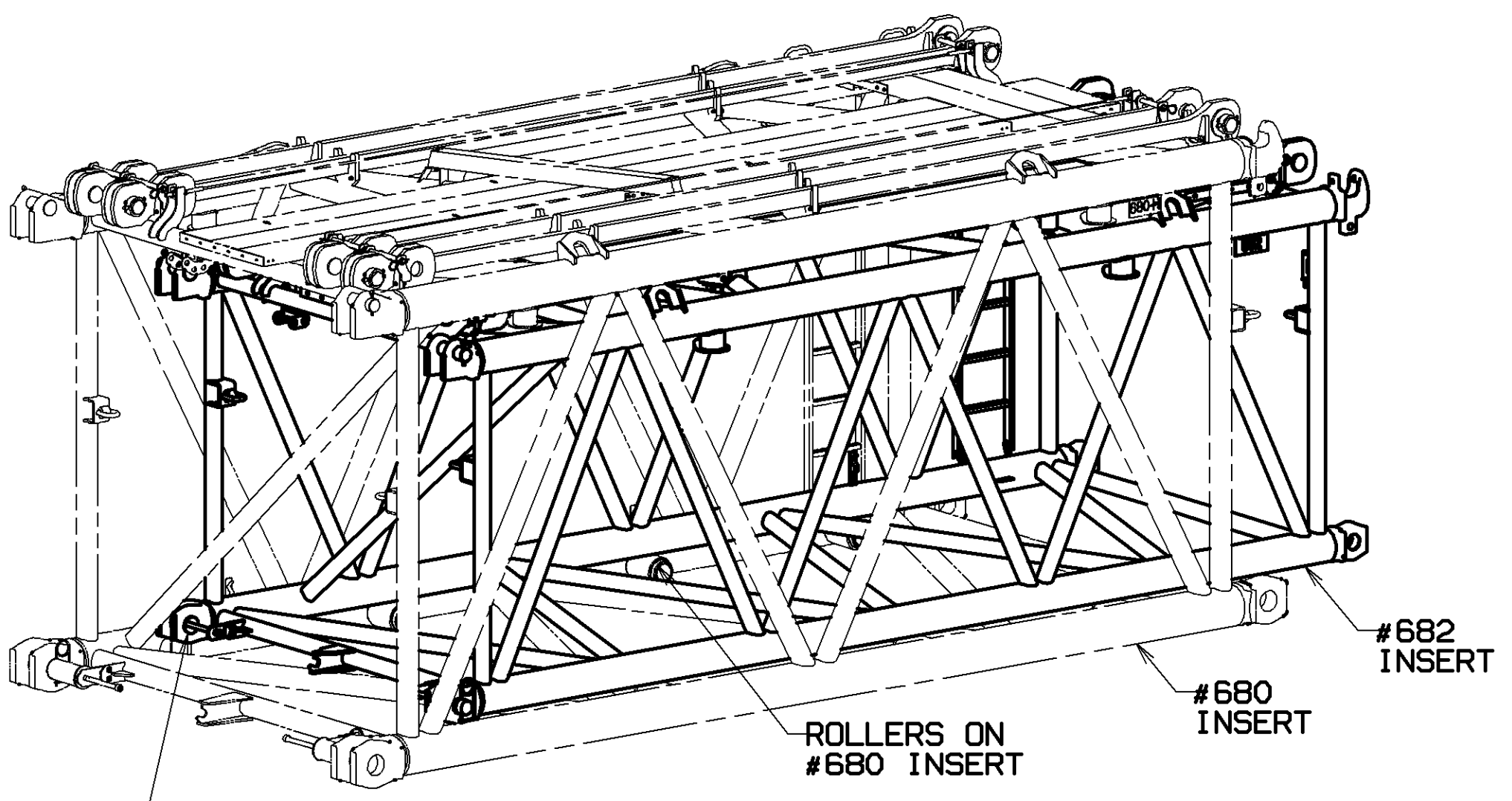
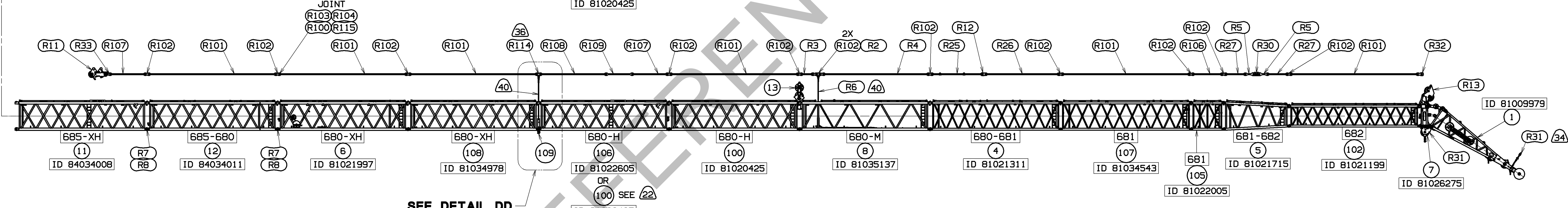
158.0 M (518.4 FT)  
SEE 35



161.0 M (528.2 FT)  
SEE 35



164.0 M (538.1 FT)  
SEE 35



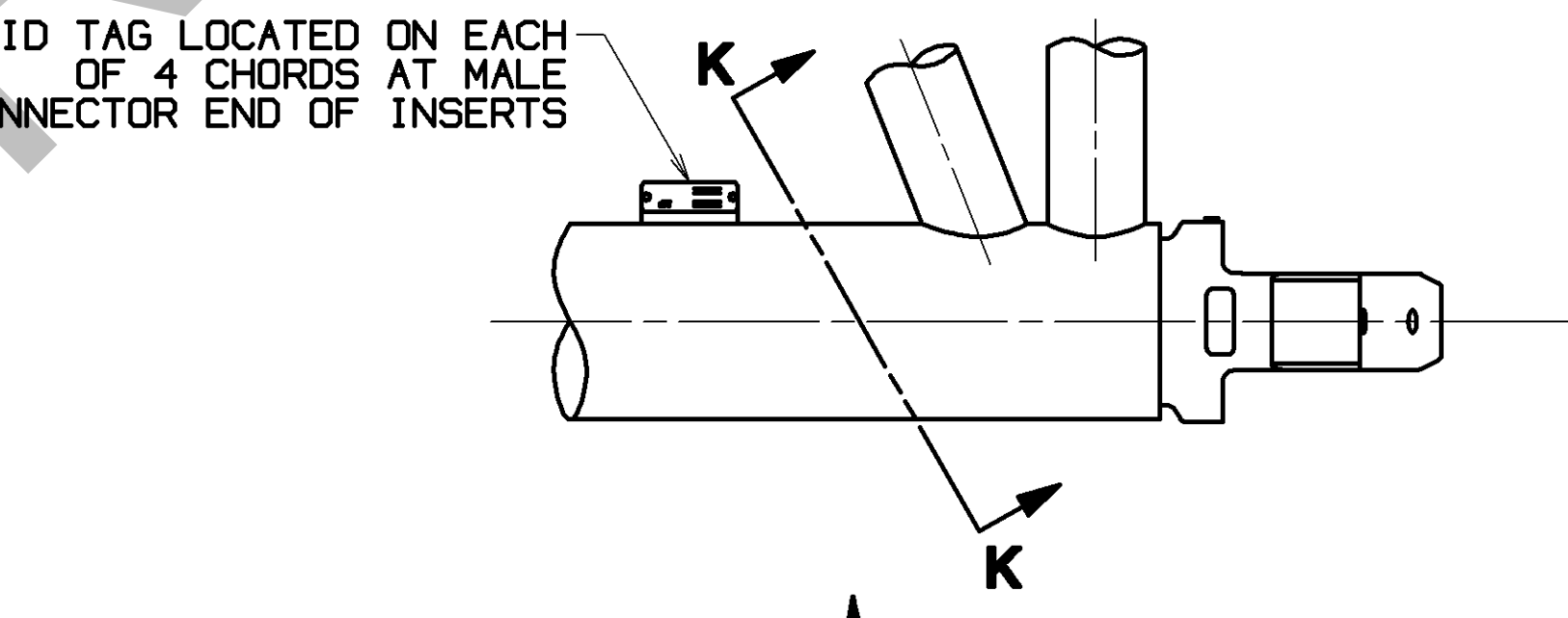
STOWABLE INSERT CONFIGURATION (#682 INTO #680) SEE TABLE BELOW

STOWABLE INSERT CONFIGURATION (#682 INTO #680)	
#680 INSERT W/STOWABLE #682 INSERT FEATURE	#682 (12M) STOWABLE INSERT
81020424 (12M) (ITEM 100)	81021198 (ITEM 102)
81034977 (12M) (ITEM 12)	81021198 (ITEM 102)

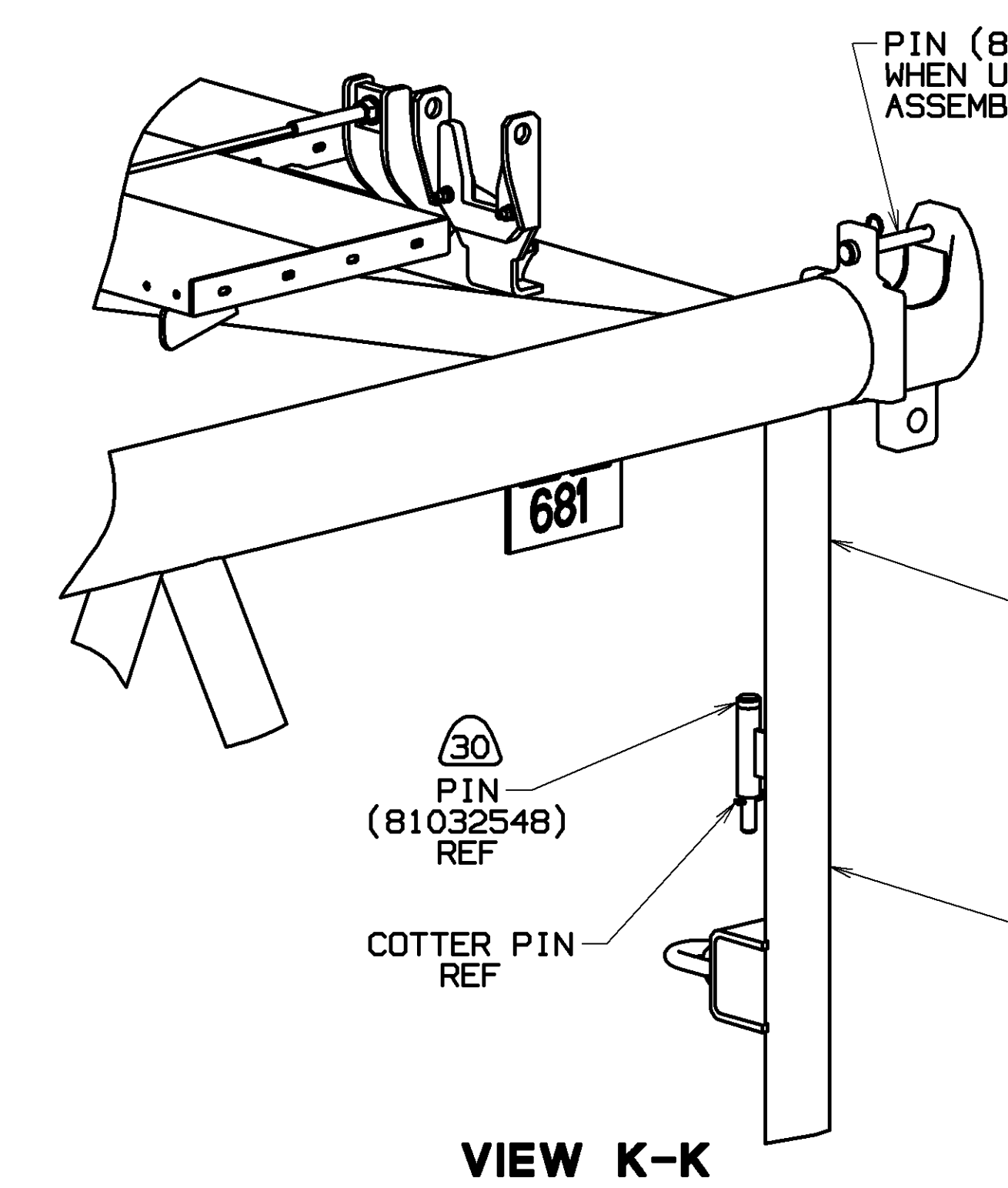
SEE DETAIL DD (SEE SHEET 12)

RECOMMENDED BOOM MAKEUP FOR TYP PIN JOINT SEE SECTIONS B-B & D-D AND DETAILS F, G, H, J & M

ID TAG LOCATED ON EACH OF 4 CHORDS AT MALE CONNECTOR END OF INSERTS

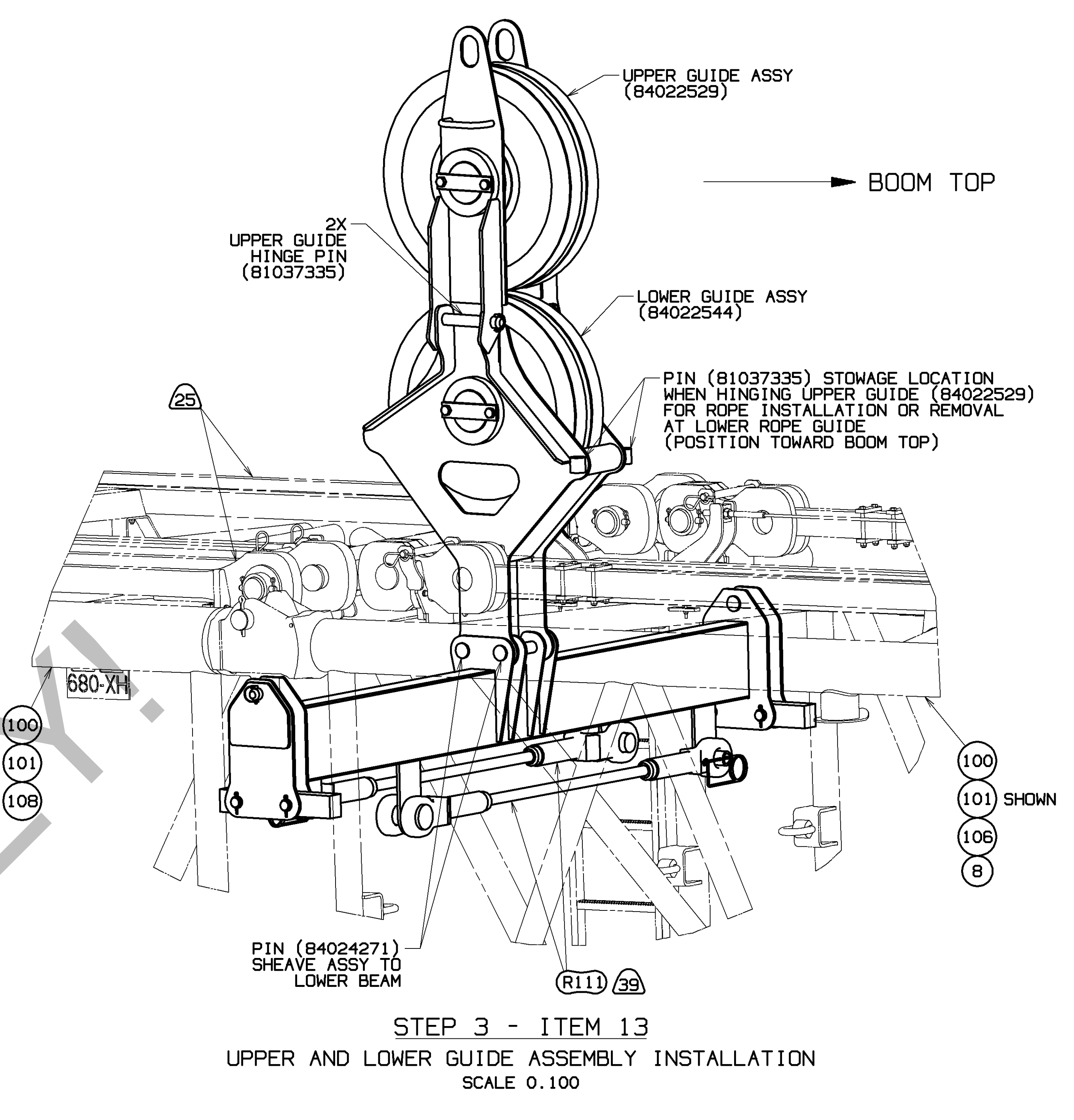
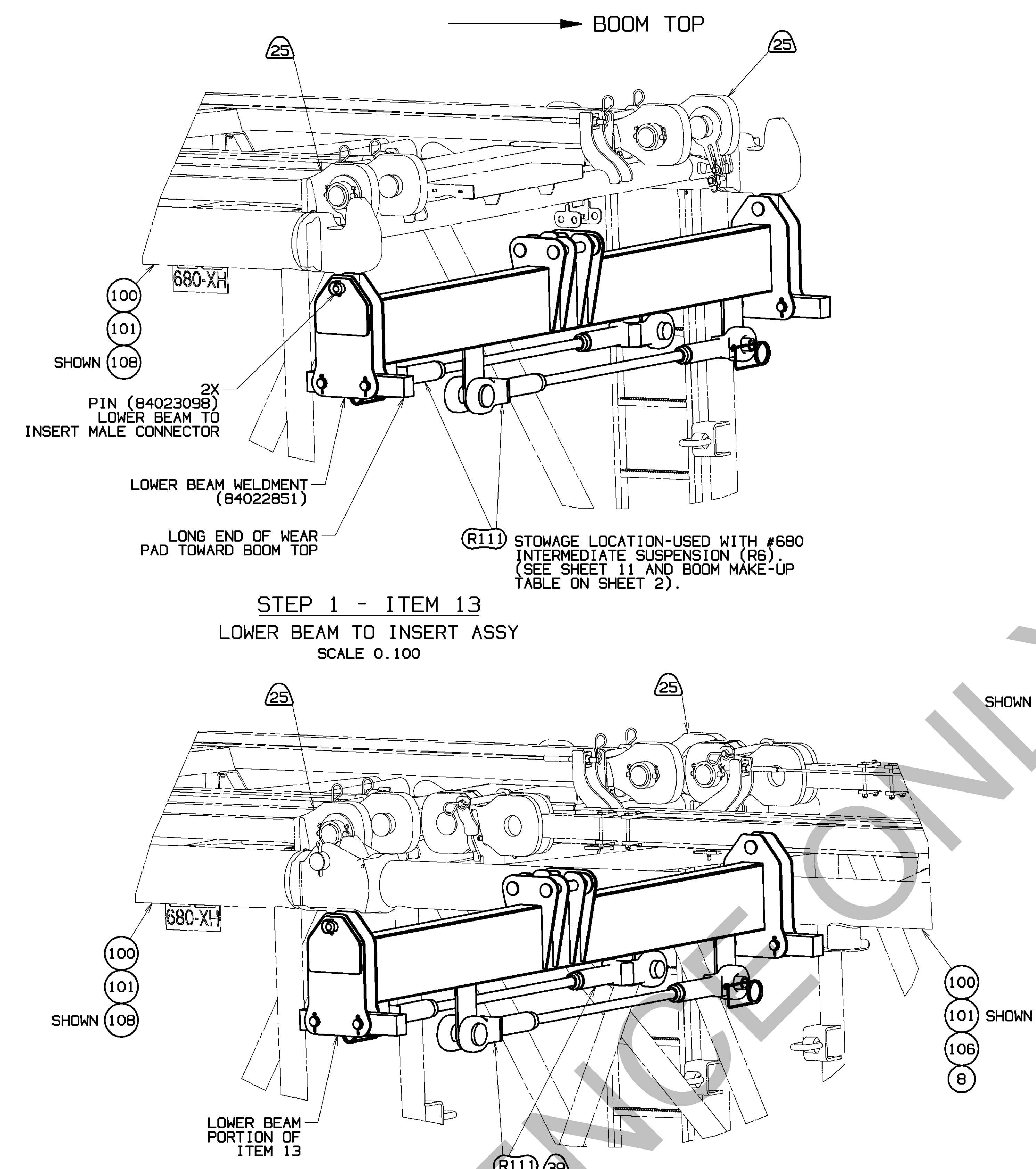
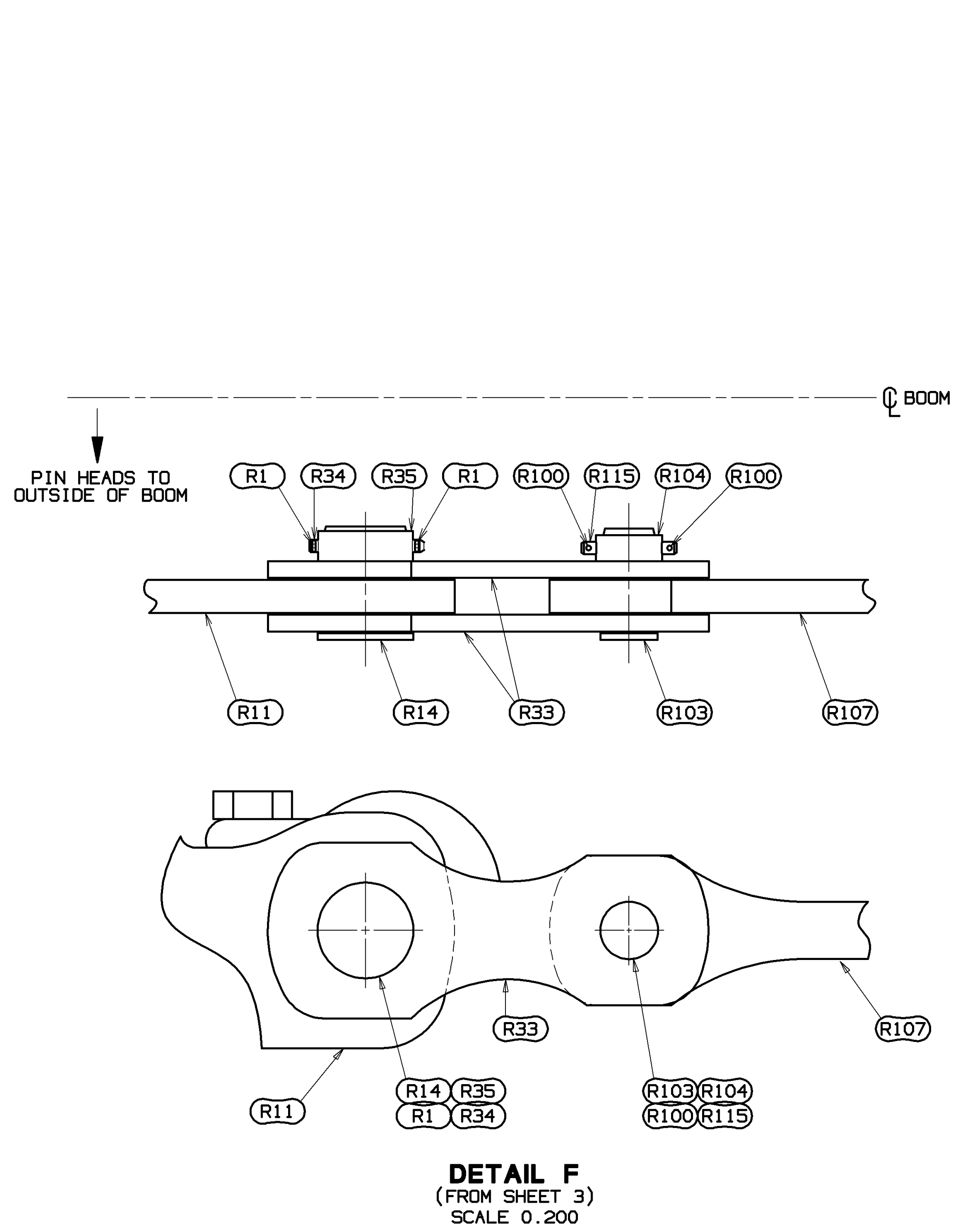


TYPICAL LOCATION OF BOOM CHORD ID PLATE AND INSERT ID TAGS SCALE 0.150



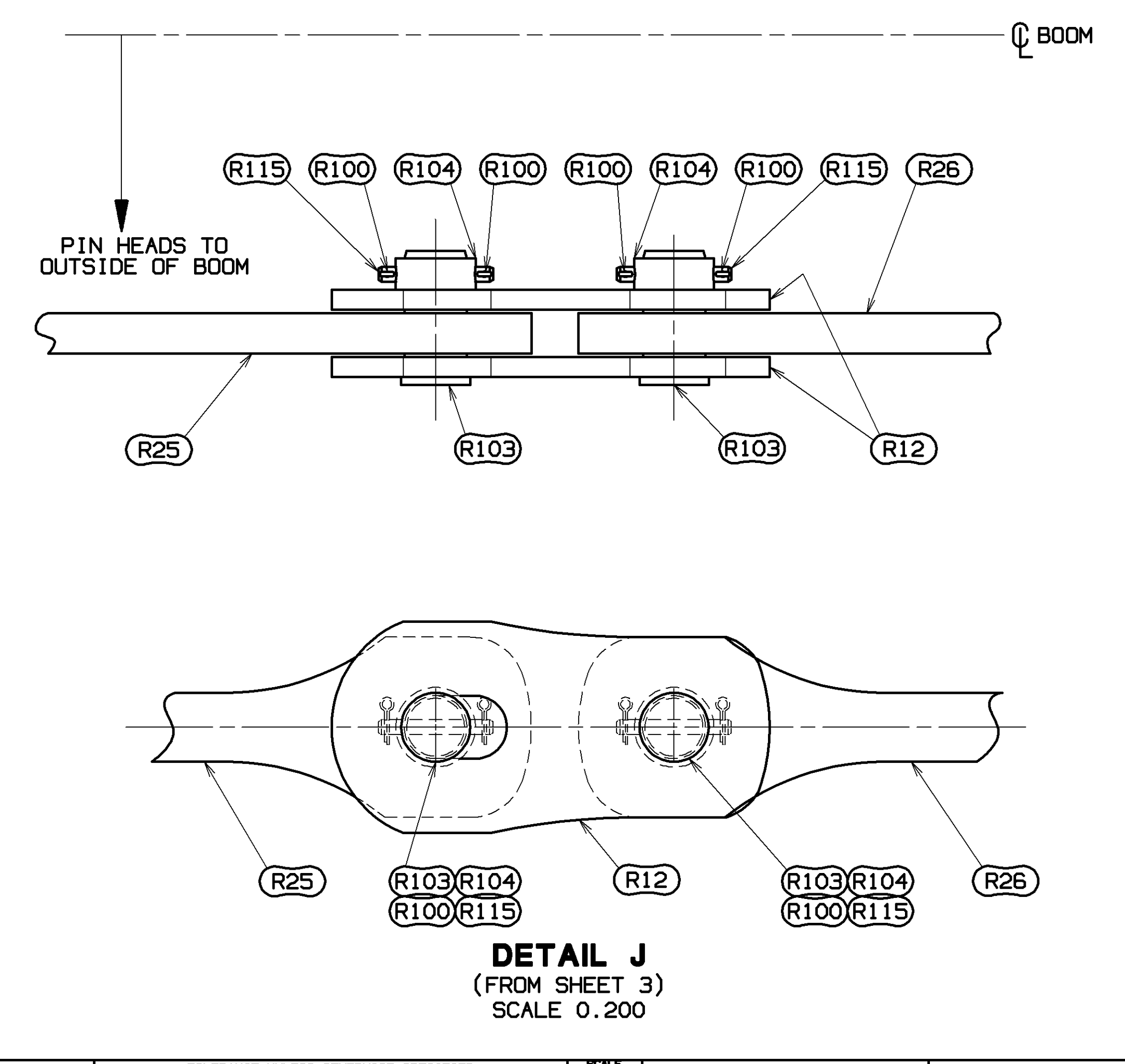
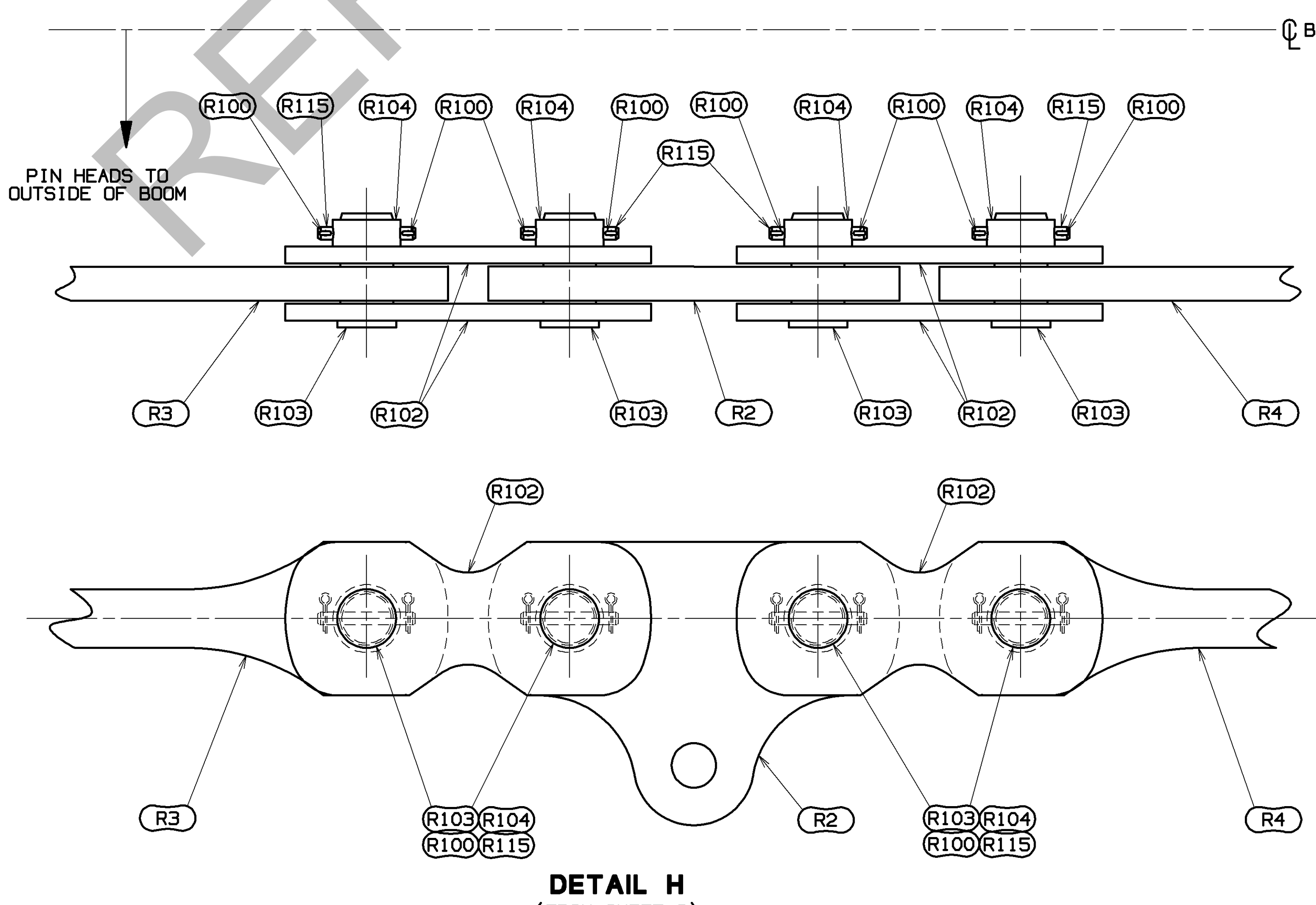
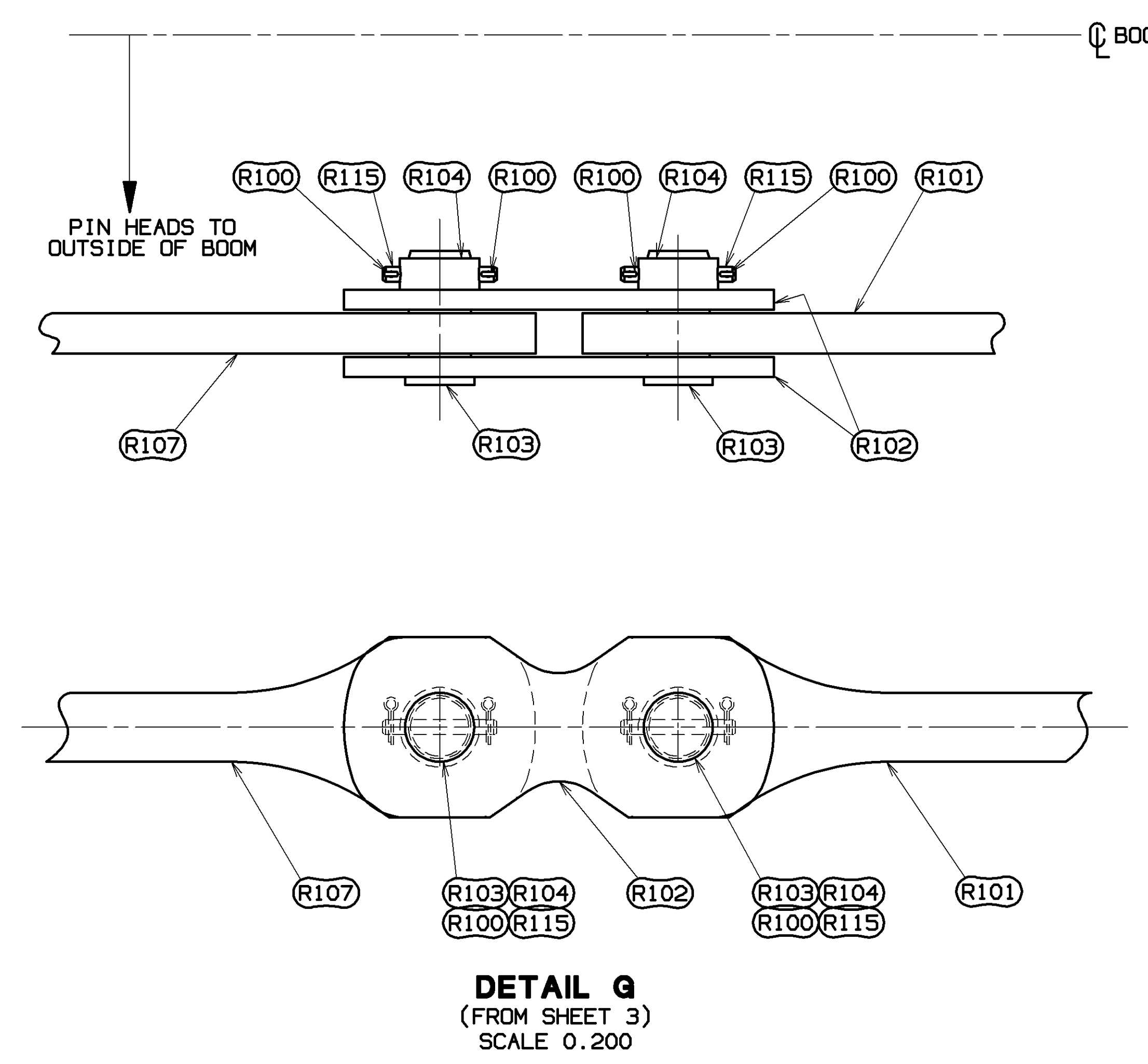
VIEW K-K UPPER MALE CONNECTOR PIN HOLE FOR "IN AIR" ASSEMBLY OF LUFFING JIB INSERTS #681 OR #682 SCALE 0.125





**DETAIL L**  
ENCAPSULATING SHEAVE (ITEM 13) INSTALLATION  
(FROM SHEET 3)

- STEP 1: INSTALL LOWER BEAM PORTION OF ITEM 13 TO MALE CONNECTOR FIXTURE HOLES ON 12M INSERT (ITEM 8 OR 100) OR 6M INSERT (ITEM 101) WITH LOWER BEAM PINS (84023098). (POSITION LONG END OF WEAR PADS TOWARD BOOM TOP).
- STEP 2: ASSEMBLE #680 12M INSERT (ITEM 100, 101, 106 OR 108) OR 6M INSERT (ITEM 101) TO #680 12M INSERT (ITEM 8, OR 100) OR 6M INSERT (ITEM 101) PER TYPICAL INSERT INSTALLATION. INSTALL LOWER BOOM CONNECTOR PINS. (SEE DETAIL N ON SHEET 8).
- STEP 3: INSTALL UPPER (84022529) AND LOWER (84022544) SHEAVE ASSEMBLY TO LOWER BEAM (84022851) AND ATTACH WITH PINS (84024271). (POSITION LOWER GUIDE ASSY WITH PIN STORAGE HOLDERS TOWARD BOOM TOP).



DECIMAL PLACES	FRACTIONS	ANGLES	WELDING	FINISHING	DATE	BY	CHK	APP	REV	DESCRIPTION
1	1/16	1/16	1/16	1/16	11-29-16	DR. RHY	CK. MJU	APP. JRR	1	BOOM RIGGING
2	1/32	1/32	1/32	1/32						
3	1/64	1/64	1/64	1/64						

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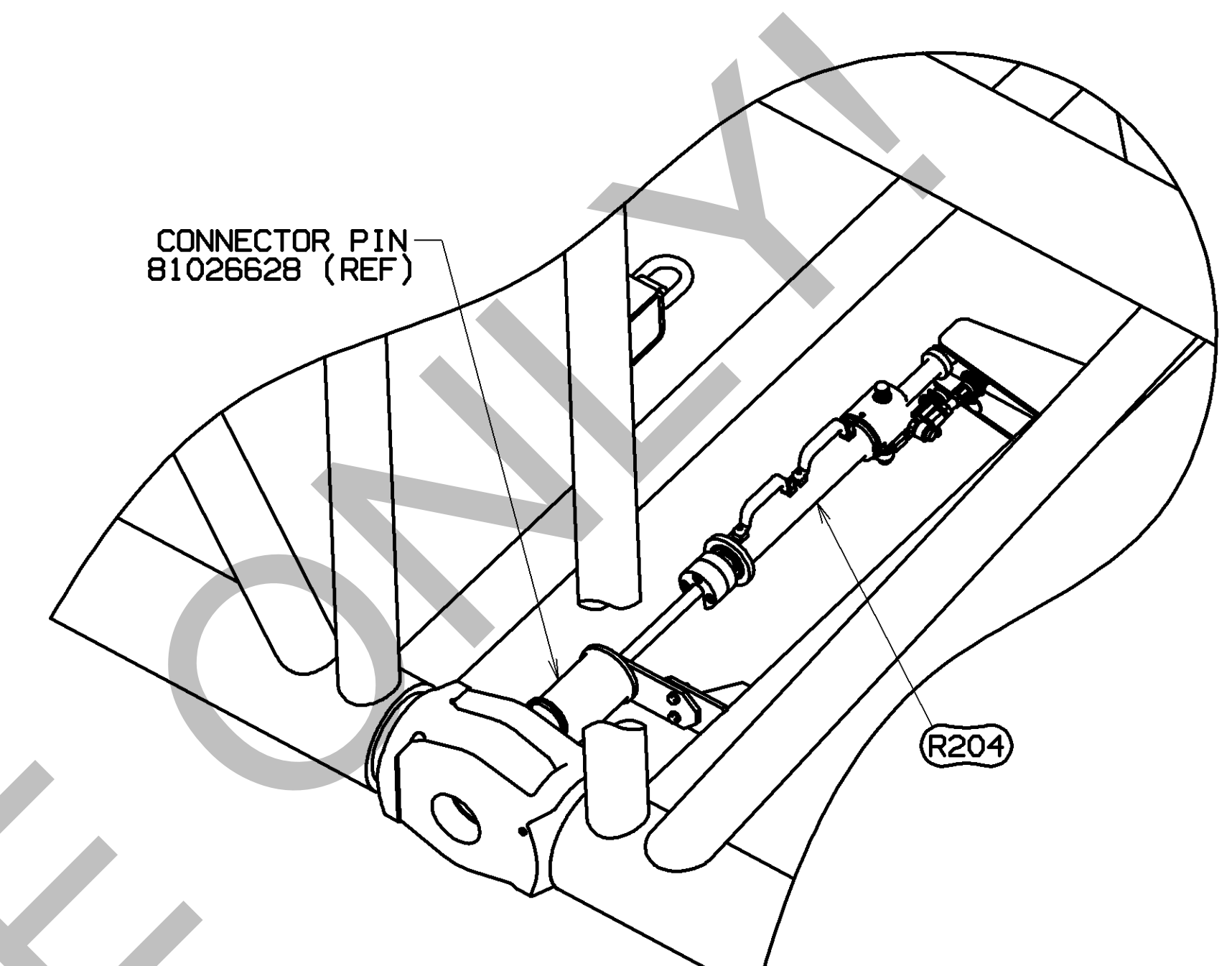
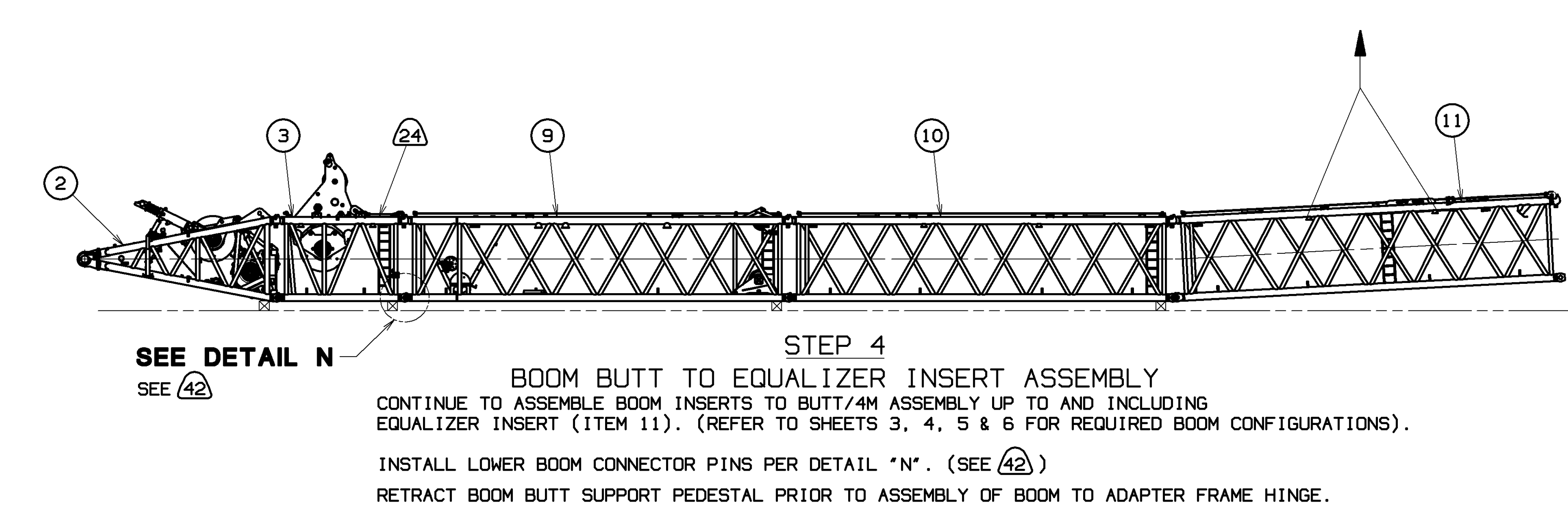
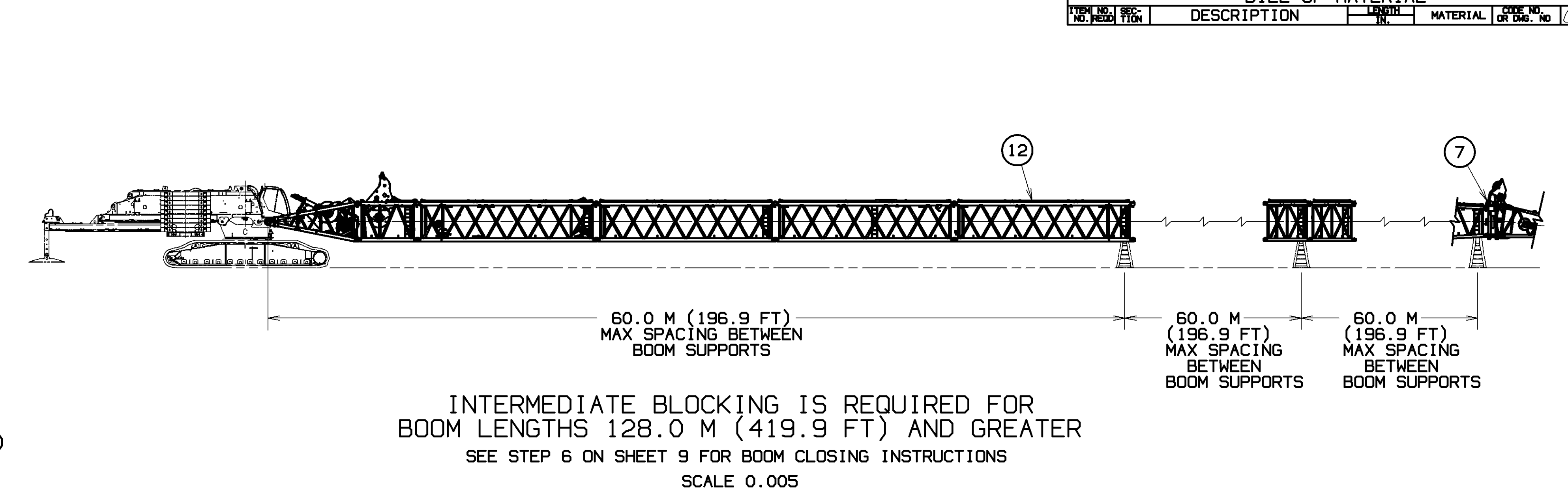
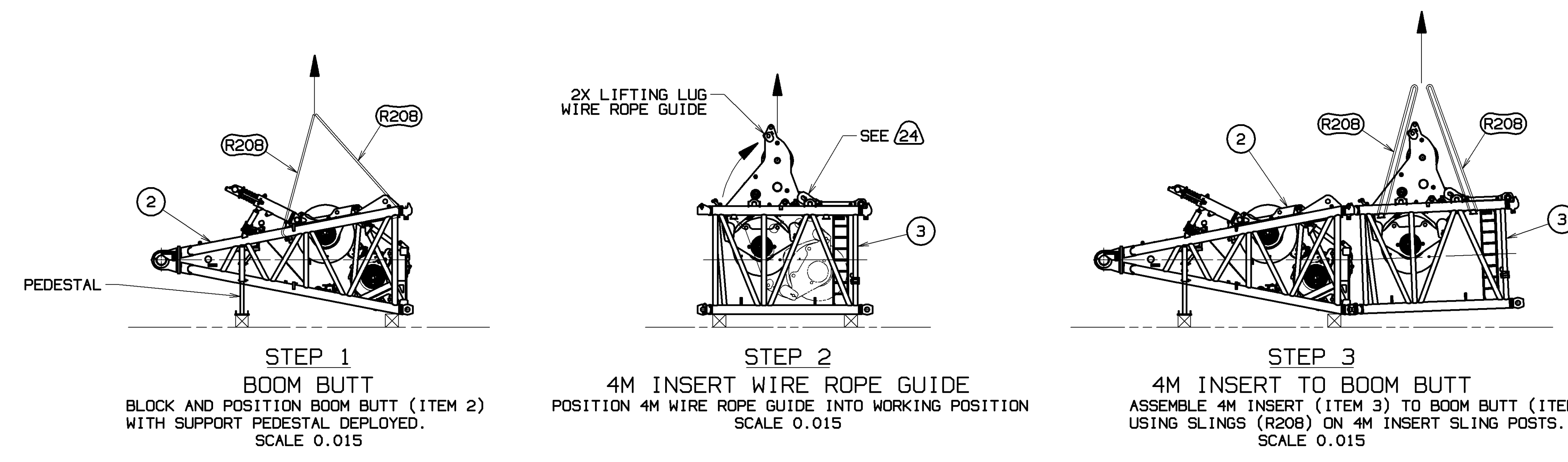
TOLERANCE UNLESS OTHERWISE SPECIFIED:  
DECIMAL PLACES: ±.0000  
FRACTIONS: ±.0005  
ANGLES: ±.0005

MANITOWOC CRANES, INC.  
MILWAUKEE, WISCONSIN  
MODEL: MLC650

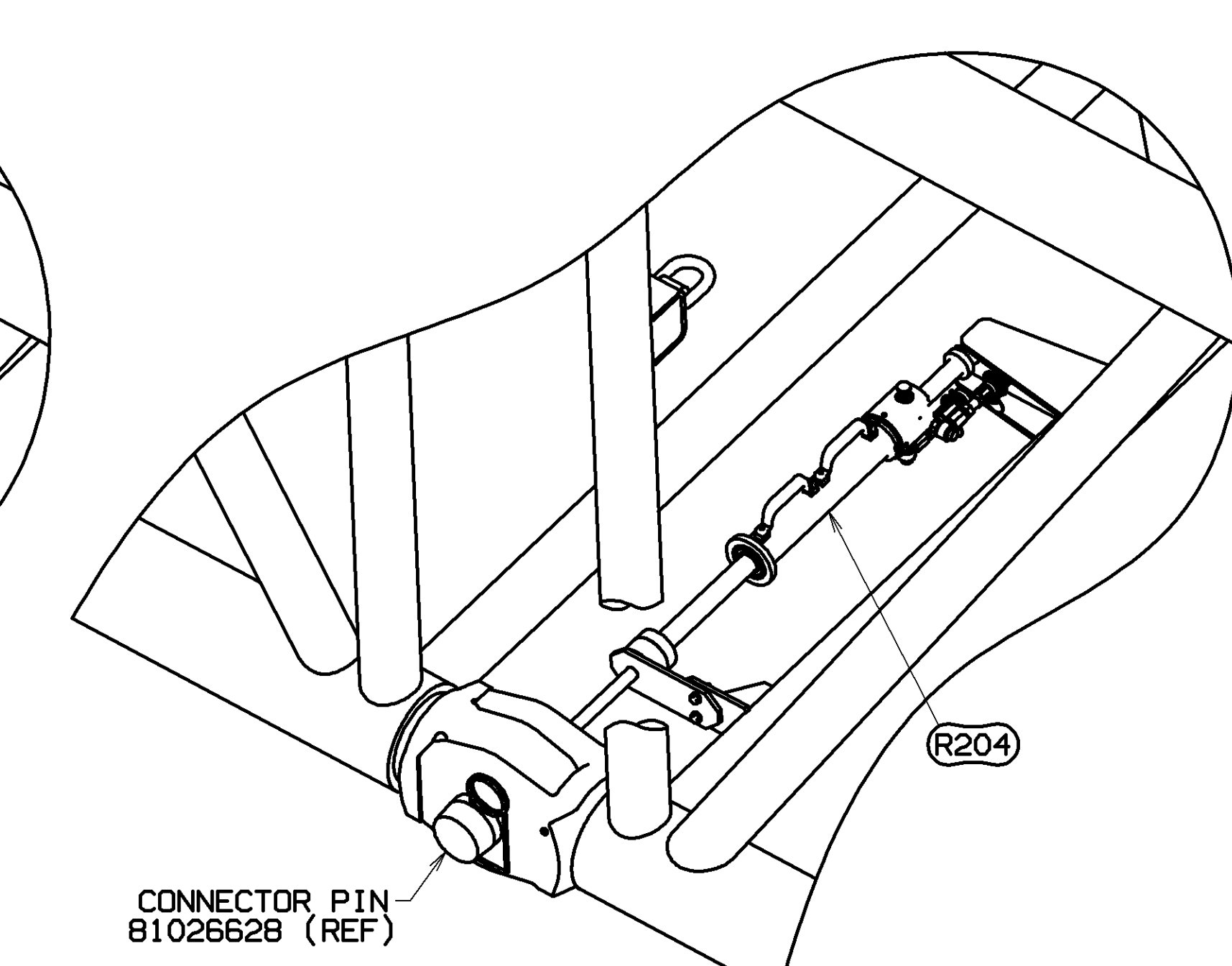
DATE: 11-29-16  
REV: 1  
BY: DR. RHY  
CHK: MJU  
APP: JRR

BOOM RIGGING  
BBS: 685-680-681-682

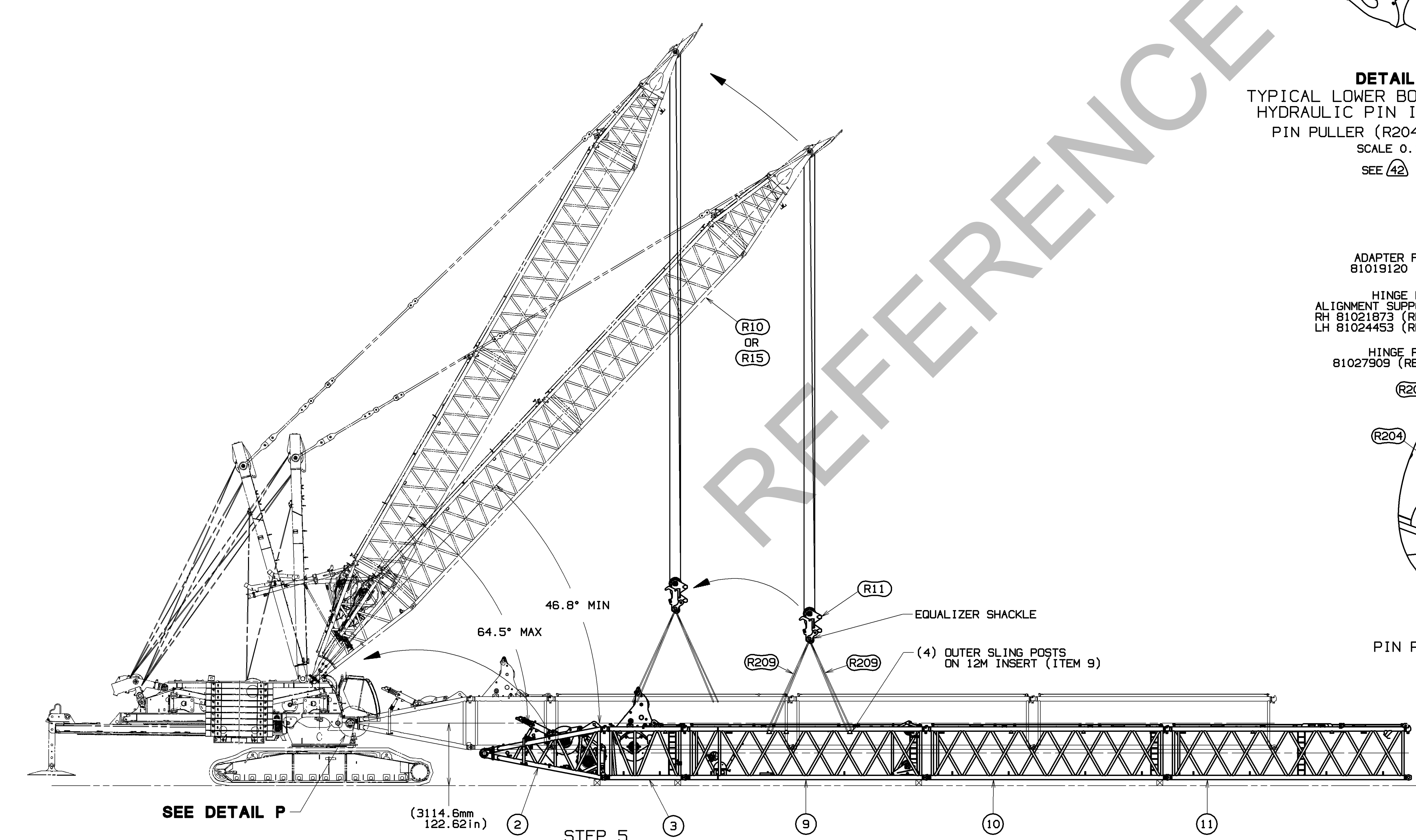




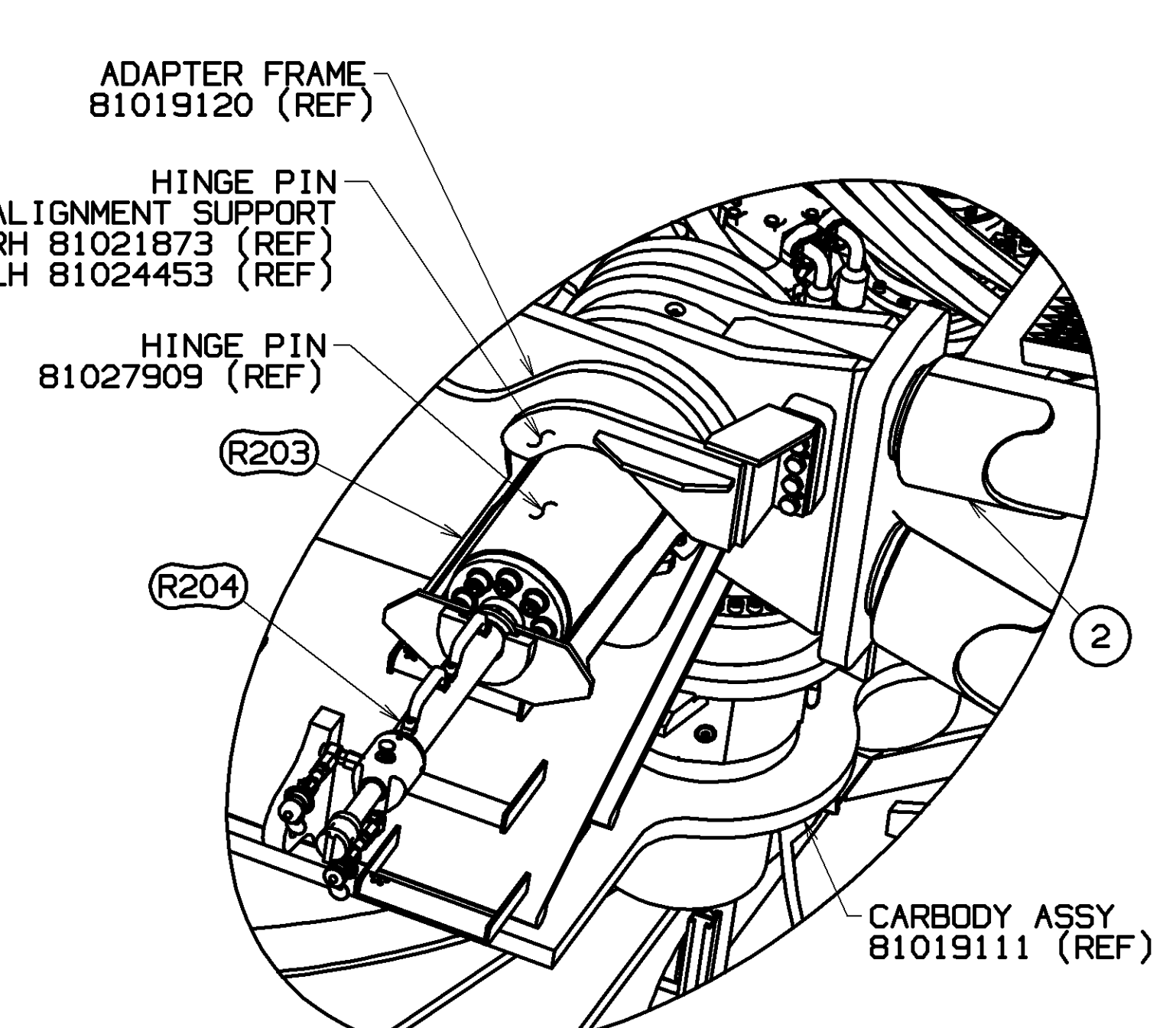
**DETAIL N**  
TYPICAL LOWER BOOM CONNECTOR  
HYDRAULIC PIN INSTALLATION  
PIN PULLER (R204) RETRACTED  
SCALE 0.100  
SEE 42



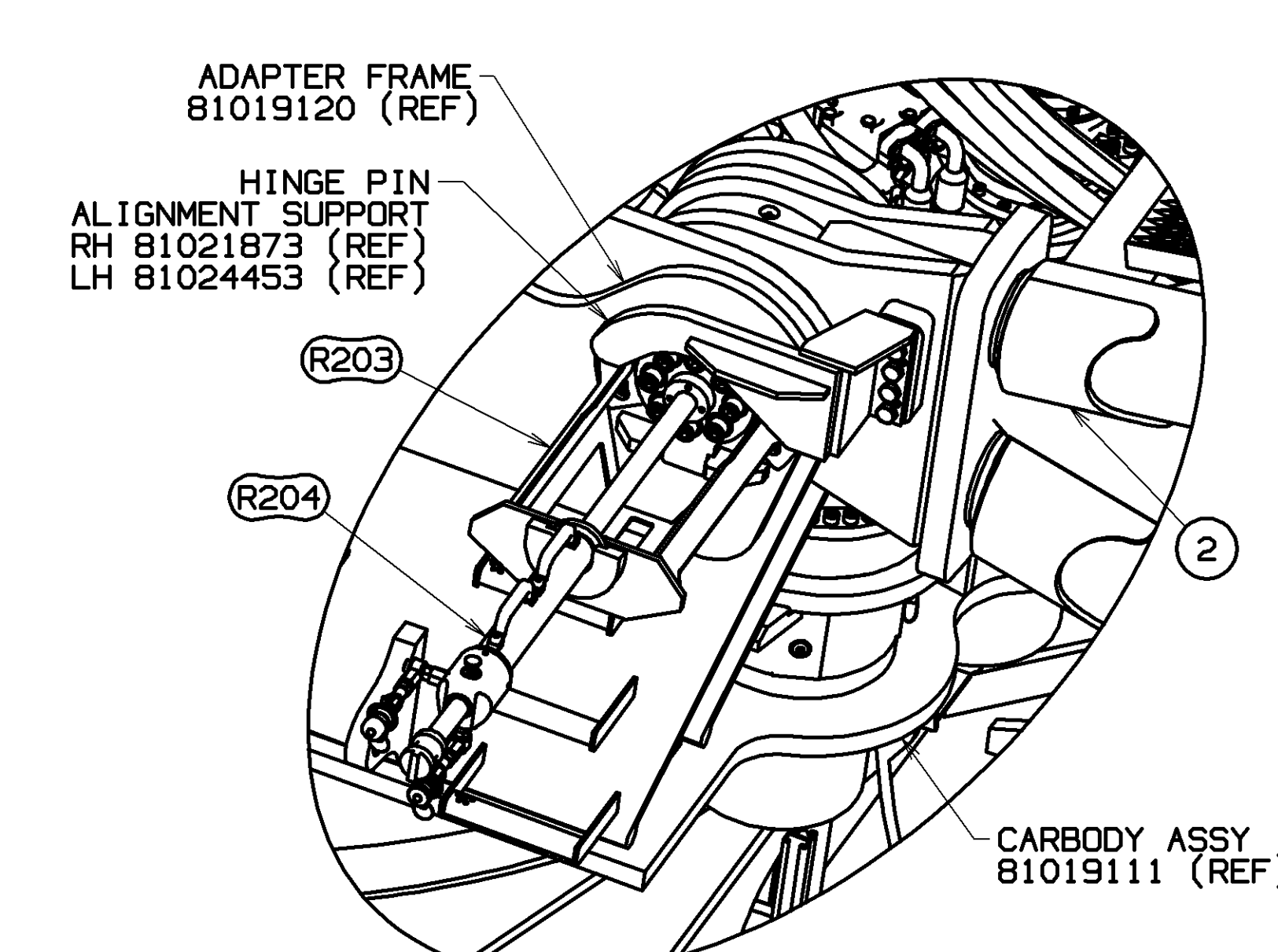
**DETAIL N**  
TYPICAL LOWER BOOM CONNECTOR  
HYDRAULIC PIN INSTALLATION  
PIN PULLER (R204) EXTENDED  
SCALE 0.100  
SEE 42



**BUTT/EQUALIZER ASSY TO ADAPTER FRAME HINGE USING FIXED MAST**  
ATTACH (4) SLINGS (R209) FROM EQUALIZER (R11) SHACKLES TO OUTER SLING POSTS ON 12M INSERT (ITEM 9).  
USING PREVIOUSLY ASSEMBLED FIXED MAST (R10 OR R15) PER ASSEMBLY INSTRUCTIONS 81025005 OR 84050187, ASSEMBLE THE BUTT/EQUALIZER ASSEMBLY (STEP 4) TO ADAPTER FRAME HINGE.  
POSITION HINGE PIN ALIGNMENT SUPPORT ON PIN. (SEE DETAIL P)  
POSITION PIN PULLER ASSY (R204) INTO PIN PULLER CAGE WELDNENT (R203) AND ACTIVATE CYLINDER TO INSTALL HINGE PIN INTO BUTT. (SEE DETAIL P)  
FIXED MAST OPERATING RANGE WHEN ASSEMBLING BOOM IS 46.8° TO 64.5°  
LOWER BOOM ONTO BLOCKING AND DISCONNECT SLINGS (R209) FROM 12M INSERT (ITEM 9).

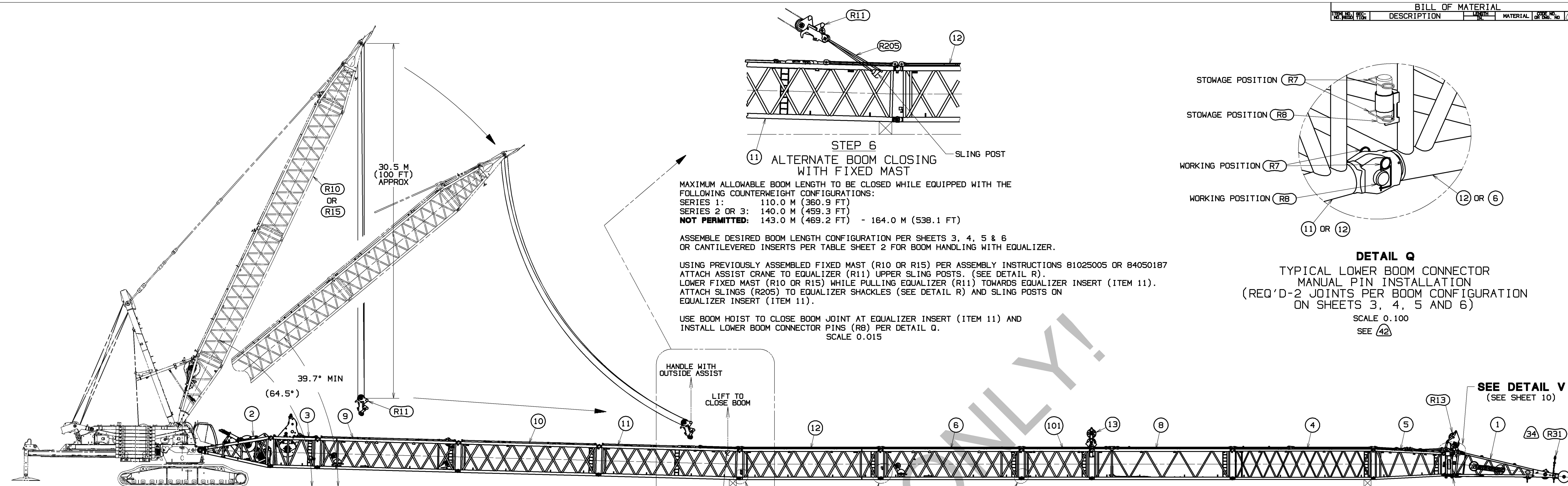


**DETAIL P**  
PIN PULLER (R204) RETRACTED  
SCALE 0.100



**DETAIL P**  
PIN PULLER (R204) EXTENDED  
SCALE 0.100





**STEP 6**  
**11 ALTERNATE BOOM CLOSING WITH FIXED MAST**

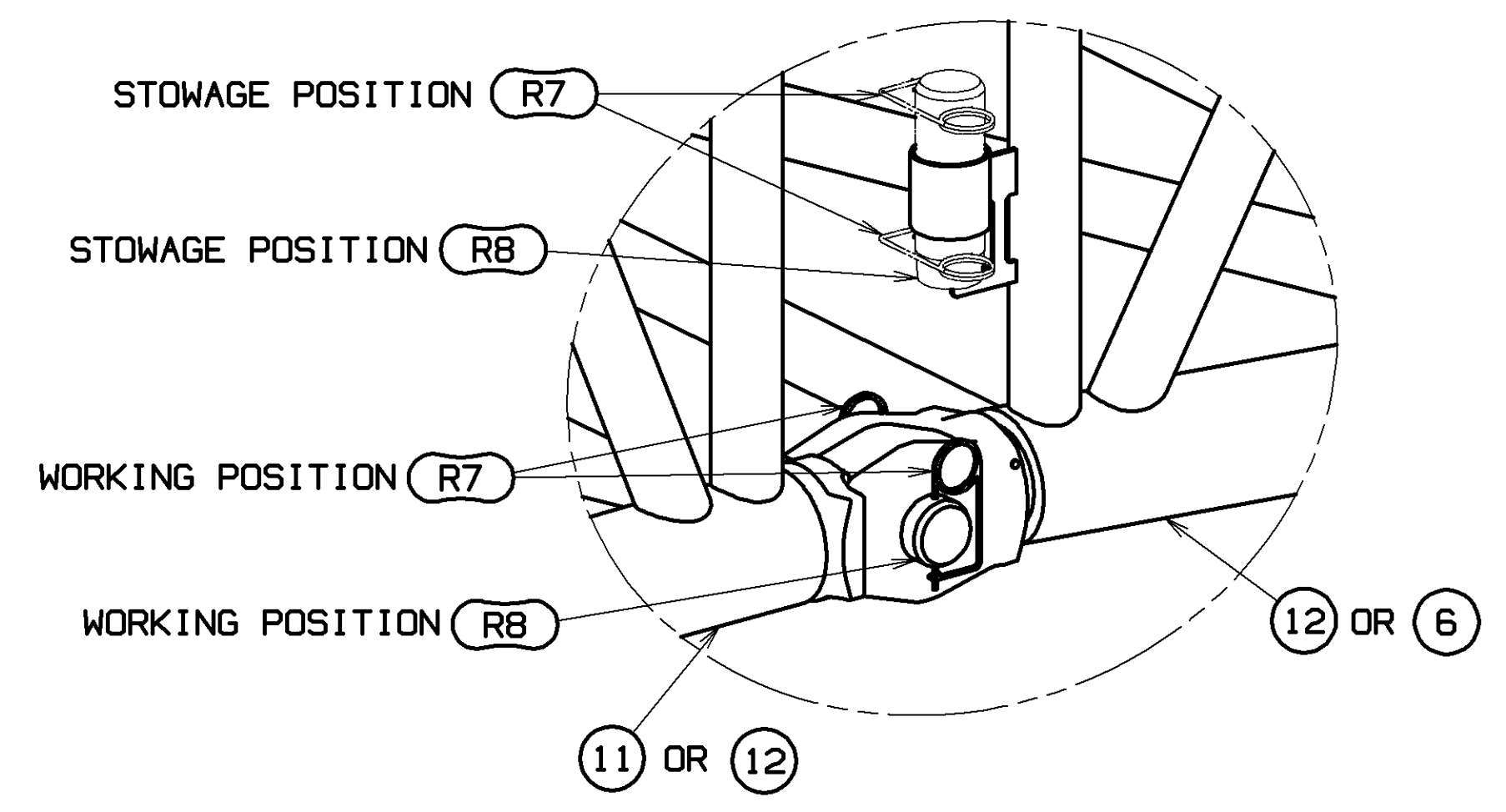
MAXIMUM ALLOWABLE BOOM LENGTH TO BE CLOSED WHILE EQUIPPED WITH THE FOLLOWING COUNTERWEIGHT CONFIGURATIONS:  
 SERIES 1: 110.0 M (360.9 FT)  
 SERIES 2 OR 3: 140.0 M (459.3 FT)  
**NOT PERMITTED:** 143.0 M (469.2 FT) - 164.0 M (538.1 FT)

ASSEMBLE DESIRED BOOM LENGTH CONFIGURATION PER SHEETS 3, 4, 5 & 6 OR CANTILEVERED INSERTS PER TABLE SHEET 2 FOR BOOM HANDLING WITH EQUALIZER.

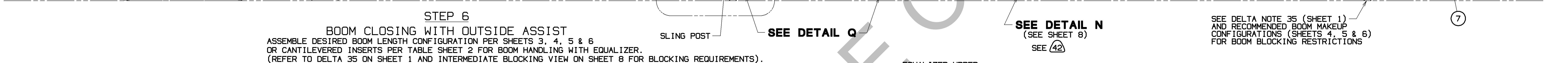
USING PREVIOUSLY ASSEMBLED FIXED MAST (R10 OR R15) PER ASSEMBLY INSTRUCTIONS 81025005 OR 84050187 ATTACH ASSIST CRANE TO EQUALIZER (R11) UPPER SLING POSTS. (SEE DETAIL R). LOWER FIXED MAST (R10 OR R15) WHILE PULLING EQUALIZER (R11) TOWARDS EQUALIZER INSERT (ITEM 11). ATTACH SLINGS (R205) TO EQUALIZER SHACKLES (SEE DETAIL R) AND SLING POSTS ON EQUALIZER INSERT (ITEM 11).

USE BOOM HOIST TO CLOSE BOOM JOINT AT EQUALIZER INSERT (ITEM 11) AND INSTALL LOWER BOOM CONNECTOR PINS (R8) PER DETAIL Q.

SCALE 0.015



**DETAIL Q**  
 TYPICAL LOWER BOOM CONNECTOR  
 MANUAL PIN INSTALLATION  
 (REQ'D-2 JOINTS PER BOOM CONFIGURATION ON SHEETS 3, 4, 5 AND 6)  
 SCALE 0.100  
 SEE 42



**STEP 6**  
**BOOM CLOSING WITH OUTSIDE ASSIST**

ASSEMBLE DESIRED BOOM LENGTH CONFIGURATION PER SHEETS 3, 4, 5 & 6 OR CANTILEVERED INSERTS PER TABLE SHEET 2 FOR BOOM HANDLING WITH EQUALIZER. (REFER TO DELTA 35 ON SHEET 1 AND INTERMEDIATE BLOCKING VIEW ON SHEET 8 FOR BLOCKING REQUIREMENTS).

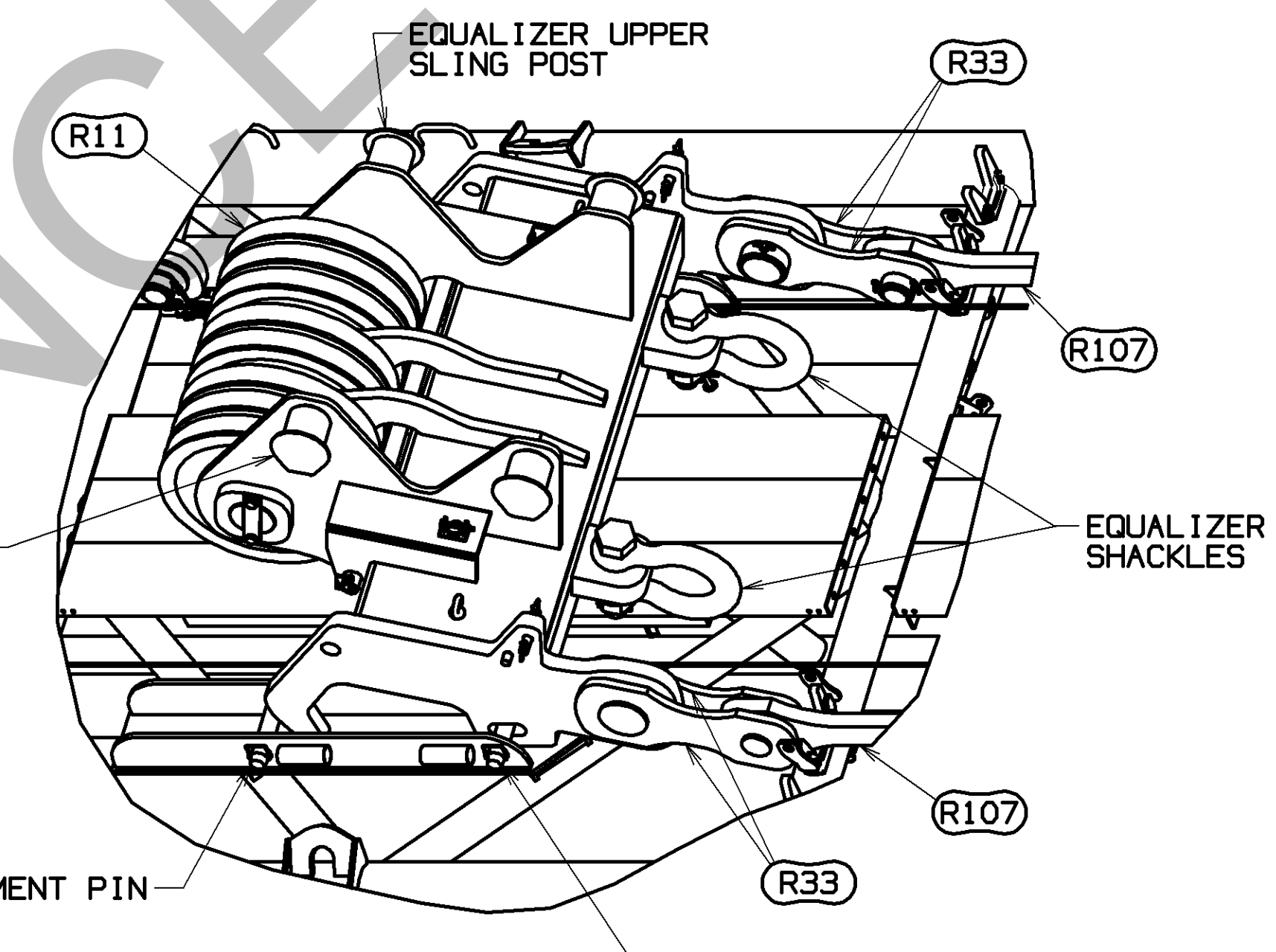
USING OUTSIDE ASSIST TO CLOSE BOOM, LIFT UP ON EQUALIZER INSERT (ITEM 11) AT SLING POSTS.

INSTALL EQUALIZER INSERT LOWER BOOM CONNECTOR PINS (R8) PER DETAIL Q.

ATTACH ASSIST CRANE TO EQUALIZER (R11) UPPER SLING POSTS. (SEE DETAIL R). LOWER FIXED MAST (R10) WHILE PULLING EQUALIZER (R11) TOWARDS EQUALIZER INSERT (ITEM 11).

**SEE DETAIL Q**  
**SEE DETAIL N**  
 (SEE SHEET 8)  
 SEE 42

SEE DELTA NOTE 35 (SHEET 1) AND RECOMMENDED BOOM MAKEUP CONFIGURATIONS (SHEETS 4, 5 & 6) FOR BOOM BLOCKING RESTRICTIONS

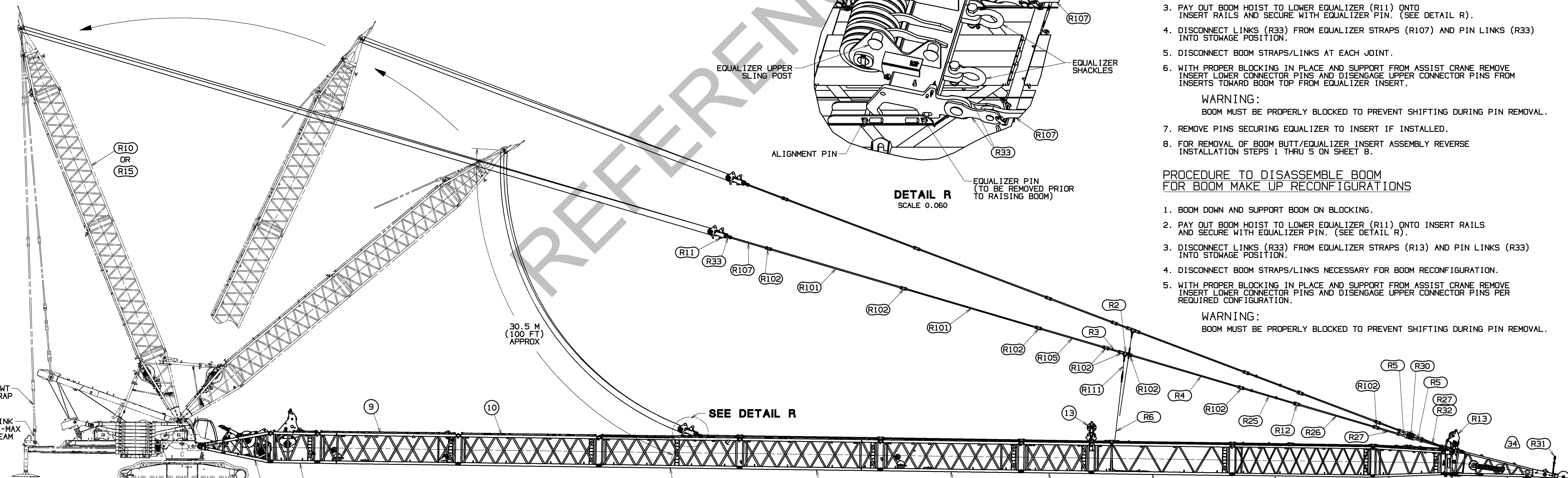


**PROCEDURE TO DISASSEMBLE BOOM**

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING.
  2. BOOM FIXED MAST (R10 OR R15) 1° TOWARD MAST STOPS AND DISCONNECT MAST COUNTERWEIGHT STRAPS FROM LINKS ON VPC-MAX BEAM.
  3. PAY OUT BOOM HOIST TO LOWER EQUALIZER (R11) ONTO INSERT RAILS AND SECURE WITH EQUALIZER PIN. (SEE DETAIL R).
  4. DISCONNECT LINKS (R33) FROM EQUALIZER STRAPS (R107) AND PIN LINKS (R33) INTO STORAGE POSITION.
  5. DISCONNECT BOOM STRAPS/LINKS AT EACH JOINT.
  6. WITH PROPER BLOCKING IN PLACE AND SUPPORT FROM ASSIST CRANE REMOVE INSERT LOWER CONNECTOR PINS AND DISENGAGE UPPER CONNECTOR PINS FROM INSERTS TOWARD BOOM TOP FROM EQUALIZER INSERT.
- WARNING:**  
 BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.
7. REMOVE PINS SECURING EQUALIZER TO INSERT IF INSTALLED.
  8. FOR REMOVAL OF BOOM BUTT/EQUALIZER INSERT ASSEMBLY REVERSE INSTALLATION STEPS 1 THRU 5 ON SHEET 8.

**PROCEDURE TO DISASSEMBLE BOOM FOR BOOM MAKE UP RECONFIGURATIONS**

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING.
  2. PAY OUT BOOM HOIST TO LOWER EQUALIZER (R11) ONTO INSERT RAILS AND SECURE WITH EQUALIZER PIN. (SEE DETAIL R).
  3. DISCONNECT LINKS (R33) FROM EQUALIZER STRAPS (R13) AND PIN LINKS (R33) INTO STORAGE POSITION.
  4. DISCONNECT BOOM STRAPS/LINKS NECESSARY FOR BOOM RECONFIGURATION.
  5. WITH PROPER BLOCKING IN PLACE AND SUPPORT FROM ASSIST CRANE REMOVE INSERT LOWER CONNECTOR PINS AND DISENGAGE UPPER CONNECTOR PINS PER REQUIRED CONFIGURATION.
- WARNING:**  
 BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.



**STEP 7**  
**EQUALIZER TO STRAPS ASSEMBLY**

LOWER EQUALIZER (R11) ONTO RAILS OF EQUALIZER INSERT (ITEM 11).  
 NOTE: IF USED ALTERNATE BOOM CLOSING W/FIXED MAST, DETACH SLINGS (R205) FROM EQUALIZER (R11) AND INSERT (ITEM 11) SLING POSTS.

CONNECT BOOM STRAPS/LINKS FROM BOOM TOP (ITEM 7) TO EQUALIZER INSERT (ITEM 11) IF NOT PREVIOUSLY DONE.

CONNECT EQUALIZER LINKS (R33) TO BOOM STRAPS (R107).

REMOVE PINS SECURING EQUALIZER TO INSERT IF INSTALLED.

(PINS SECURING EQUALIZER TO INSERT (SEE DETAIL R) ARE ONLY REQUIRED WHEN CHANGING BOOM LENGTHS AND THE EQUALIZER IS NOT SUPPORTED BY AN ASSIST CRANE OR CONNECTED TO THE BOOM STRAPS).

CONNECT MAST COUNTERWEIGHT STRAPS TO LINKS ON VPC-MAX BEAM PER FIXED MAST ASSEMBLY INSTRUCTIONS 81025005. BOOM UP TO DESIRED ANGLE.

DECIMAL PLACES	TOLERANCE UNLESS OTHERWISE SPECIFIED				SCALE	MATERIAL	PART NO.	DESCRIPTION	QTY.
	FRACTIONAL	10 FEET	10 FEET	10 FEET					
(1) PLACE 0.5	1/16	±0.12	±0.18	±0.03	0.008	0.008	0.008	0.008	0.008
(2) PLACE 0.00	1/32	±0.08	±0.12	±0.015	0.004	0.004	0.004	0.004	0.004
(3) PLACE 0.000	1/64	±0.05	±0.08	±0.008	0.002	0.002	0.002	0.002	0.002

<b>Manitowoc Cranes, Inc.</b>	<b>BOOM RIGGING</b>
Model: MLC650	BBS: 685-680-681-682

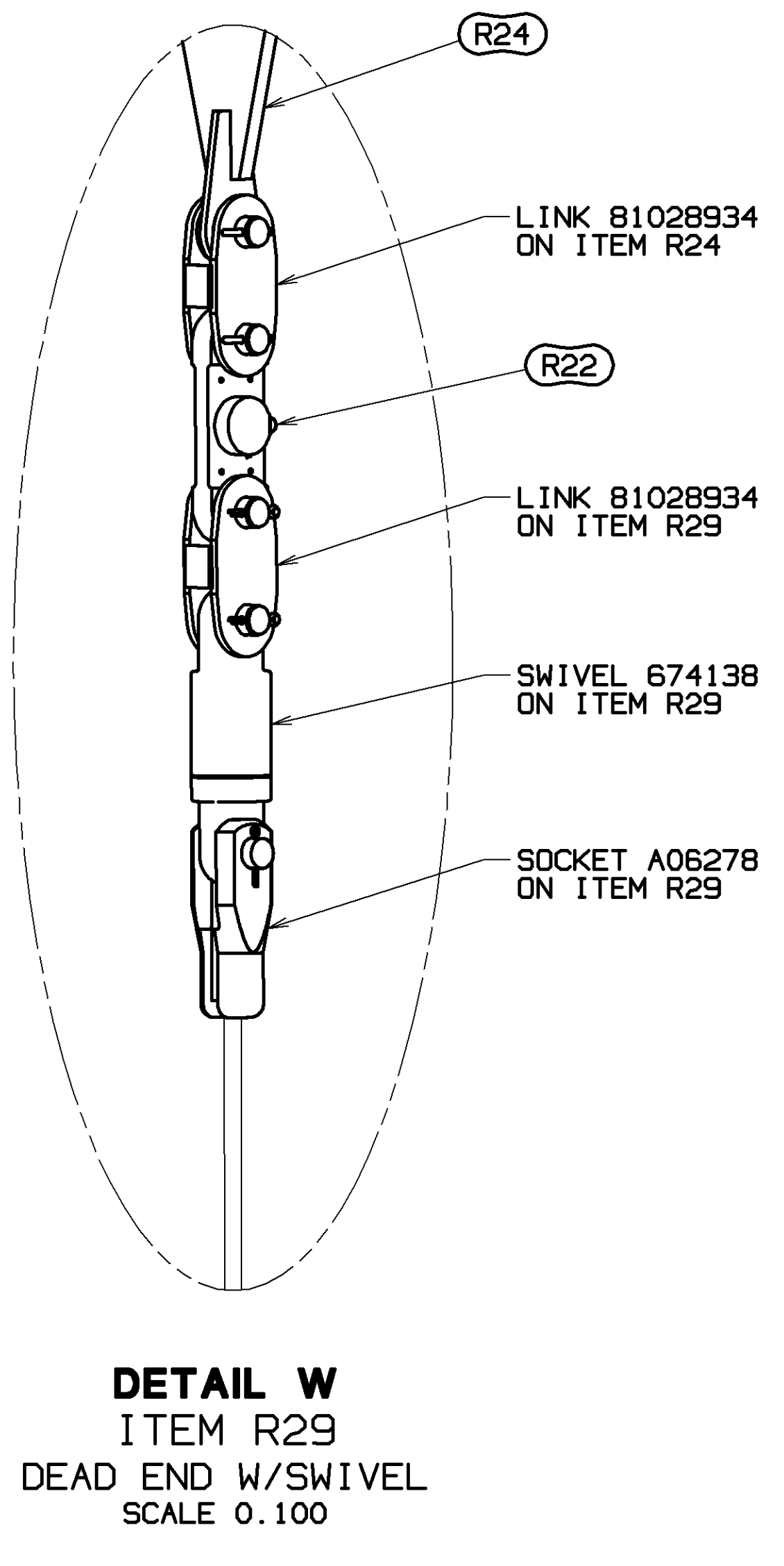
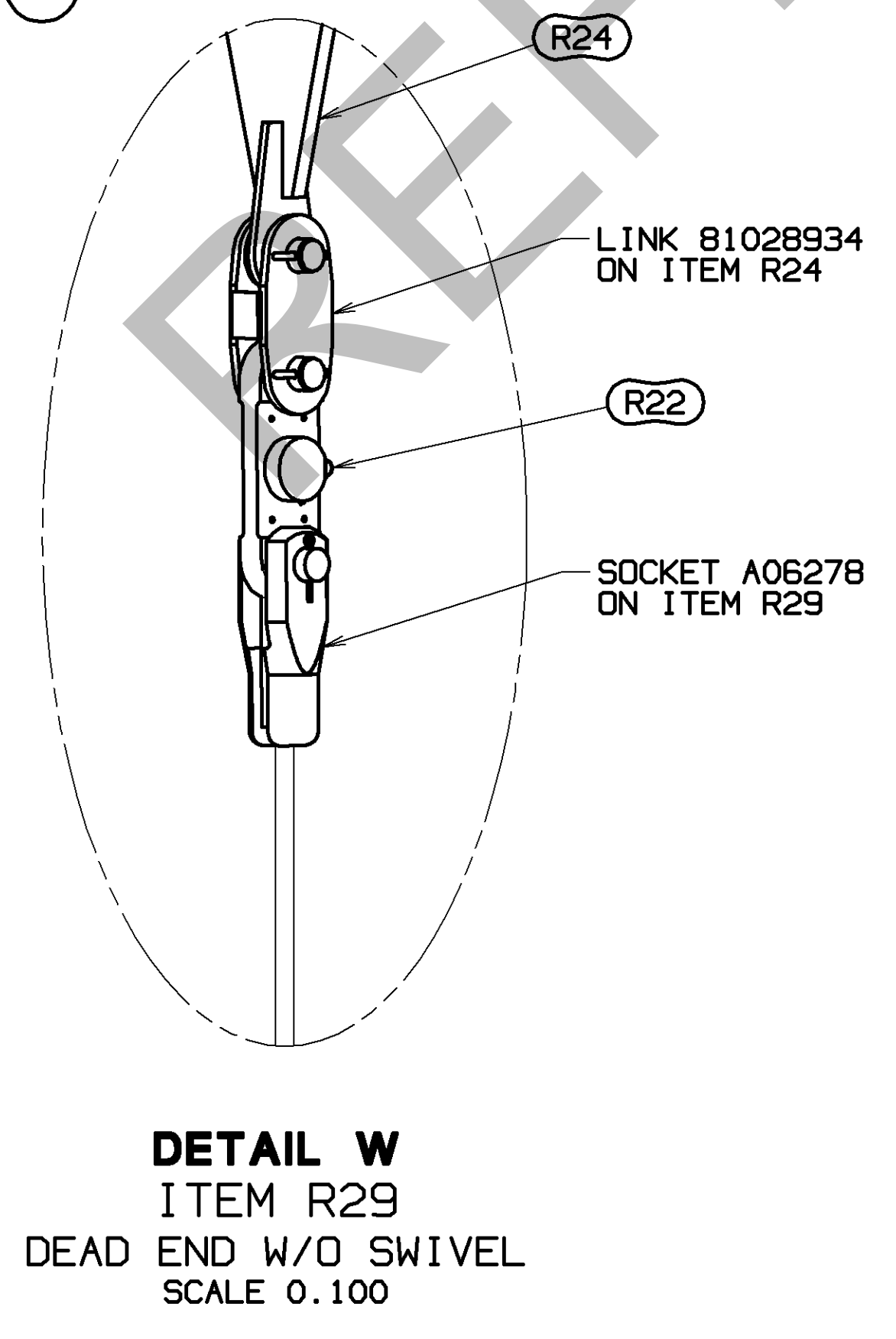
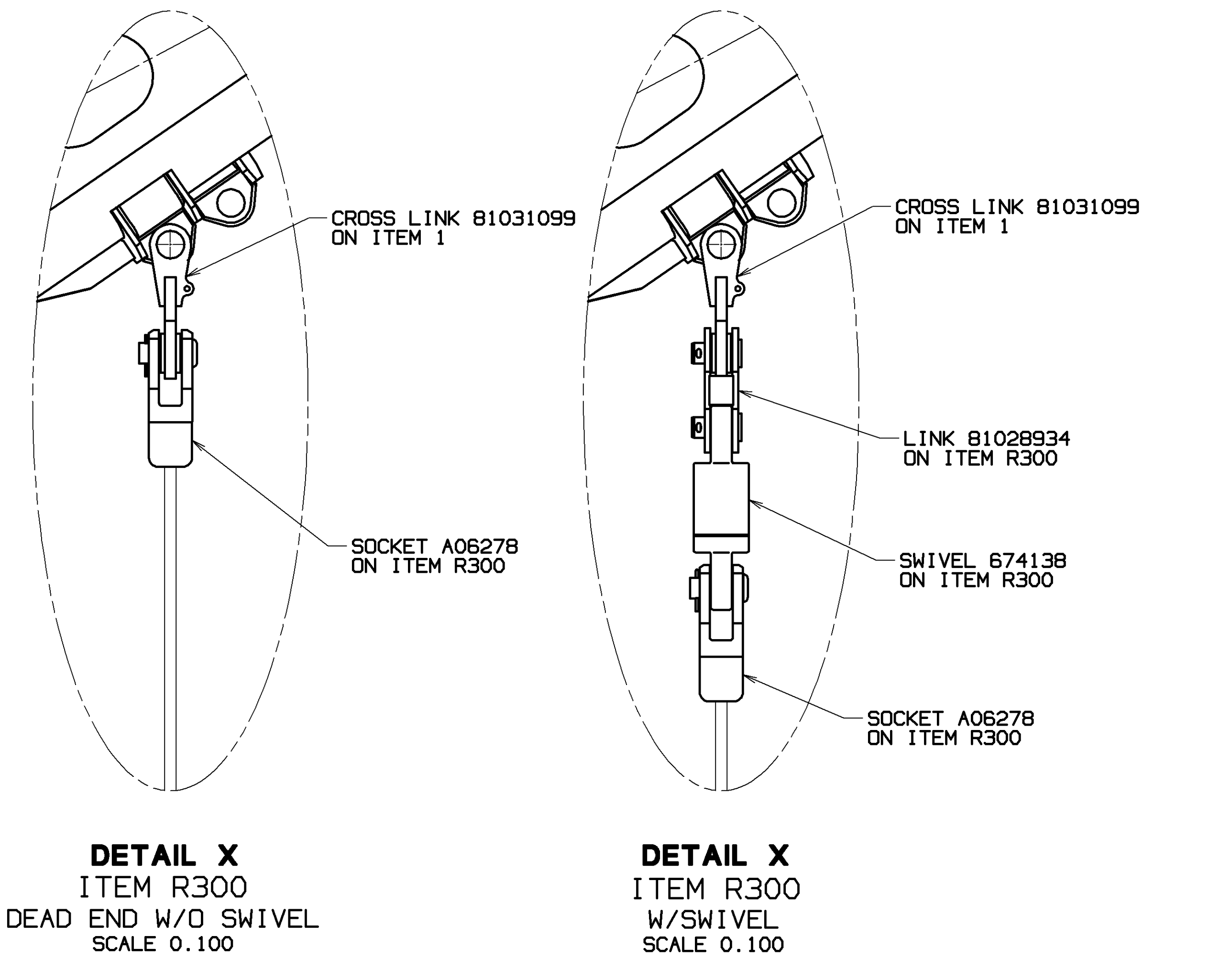
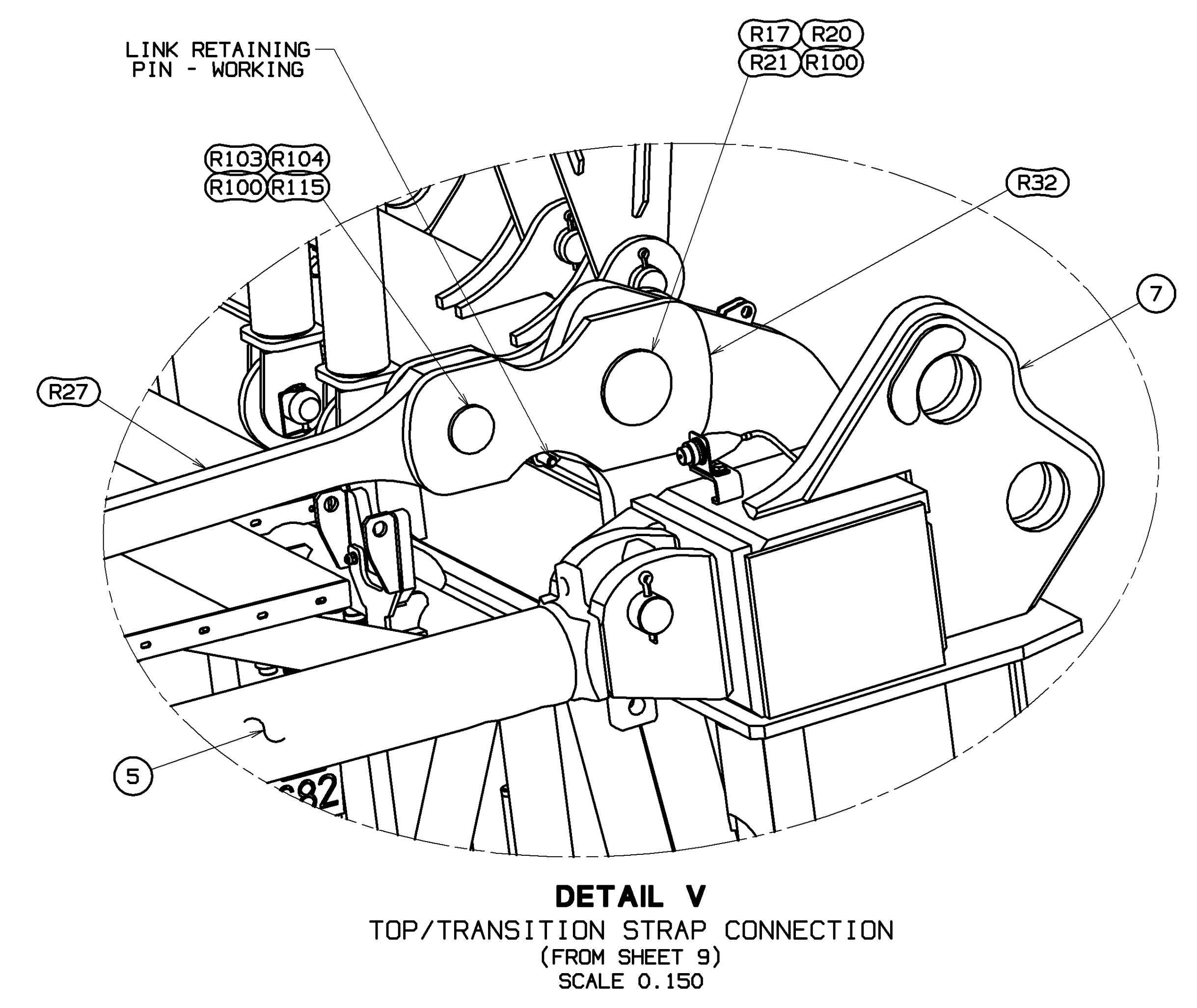
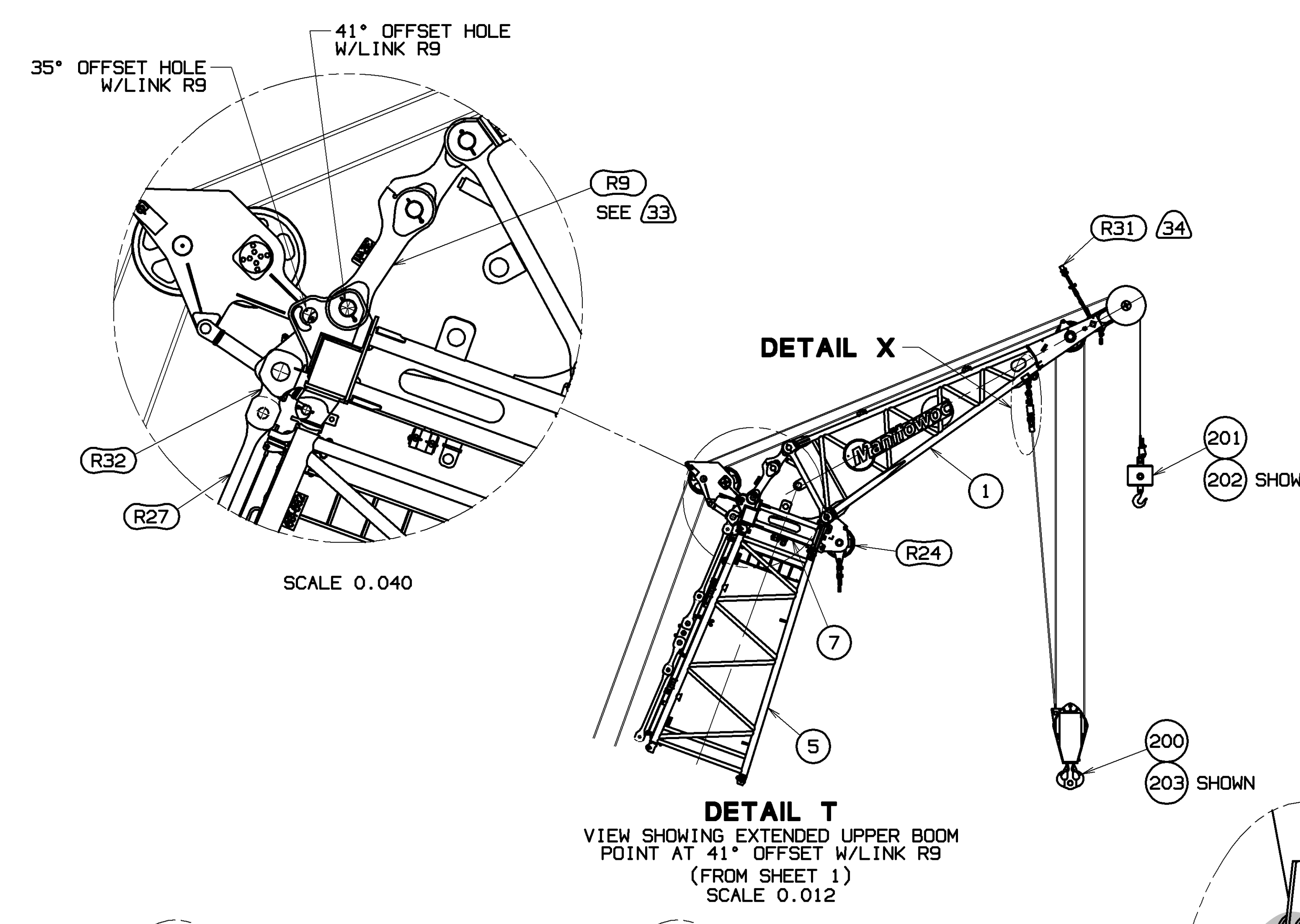
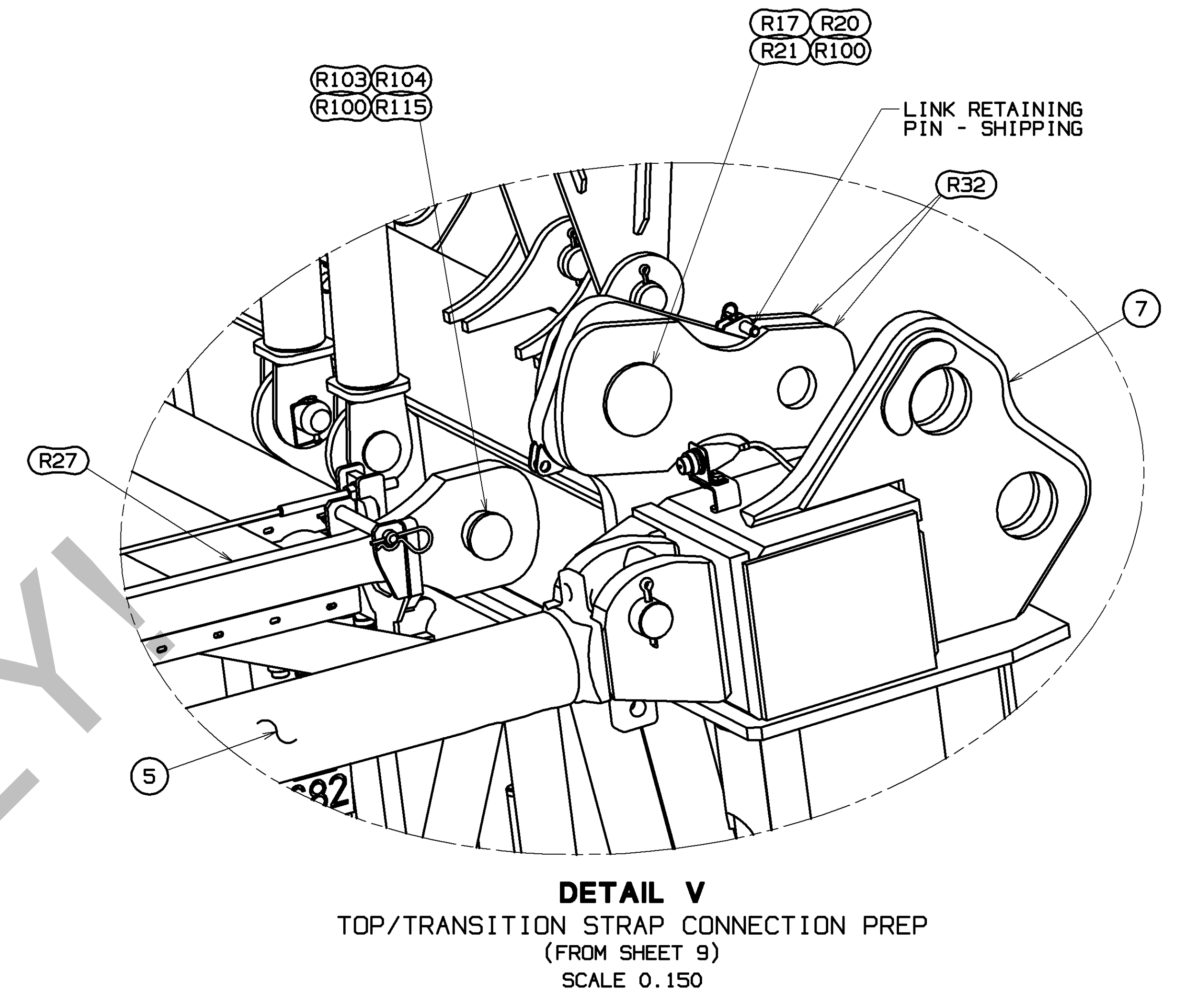
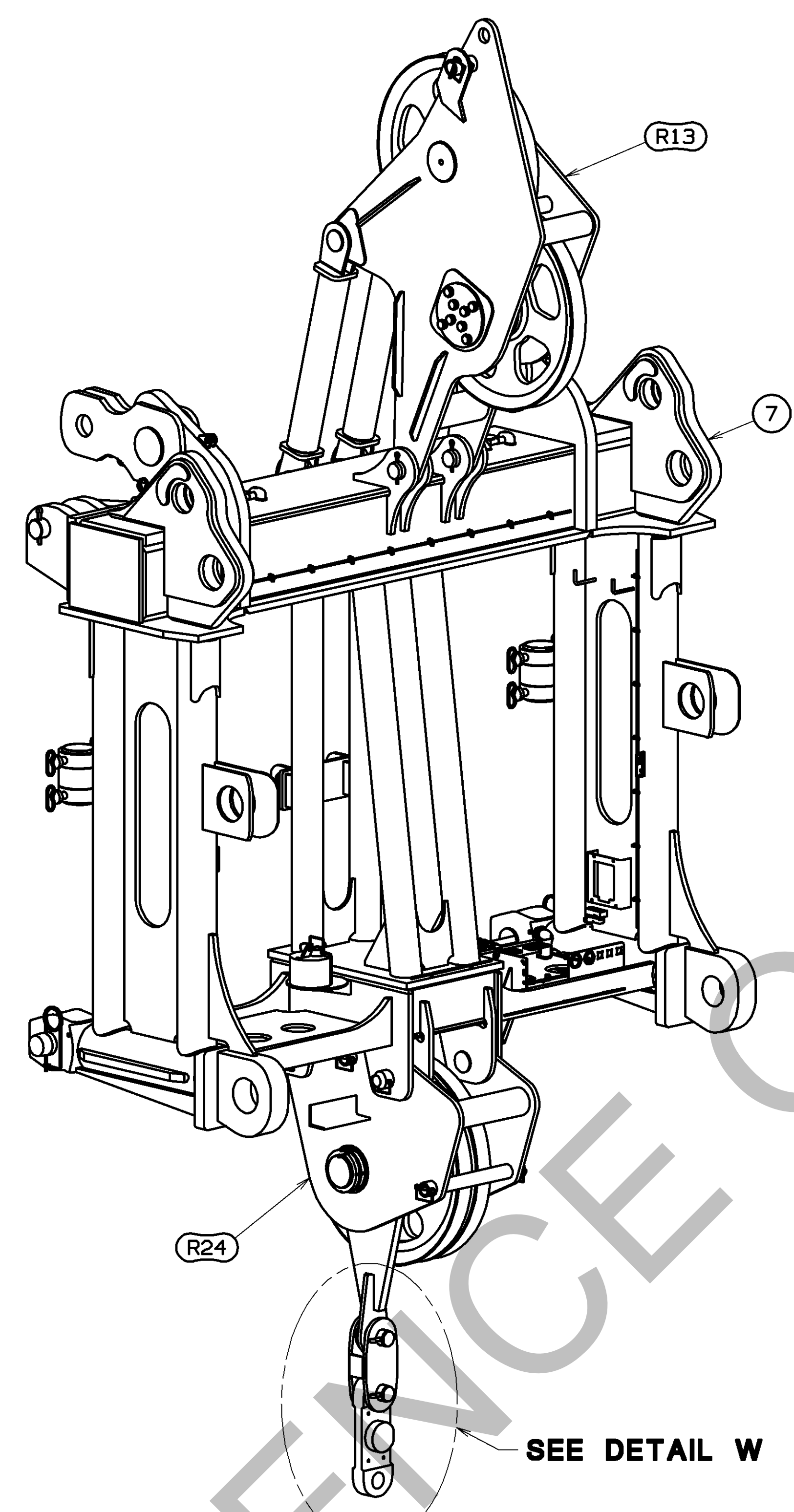
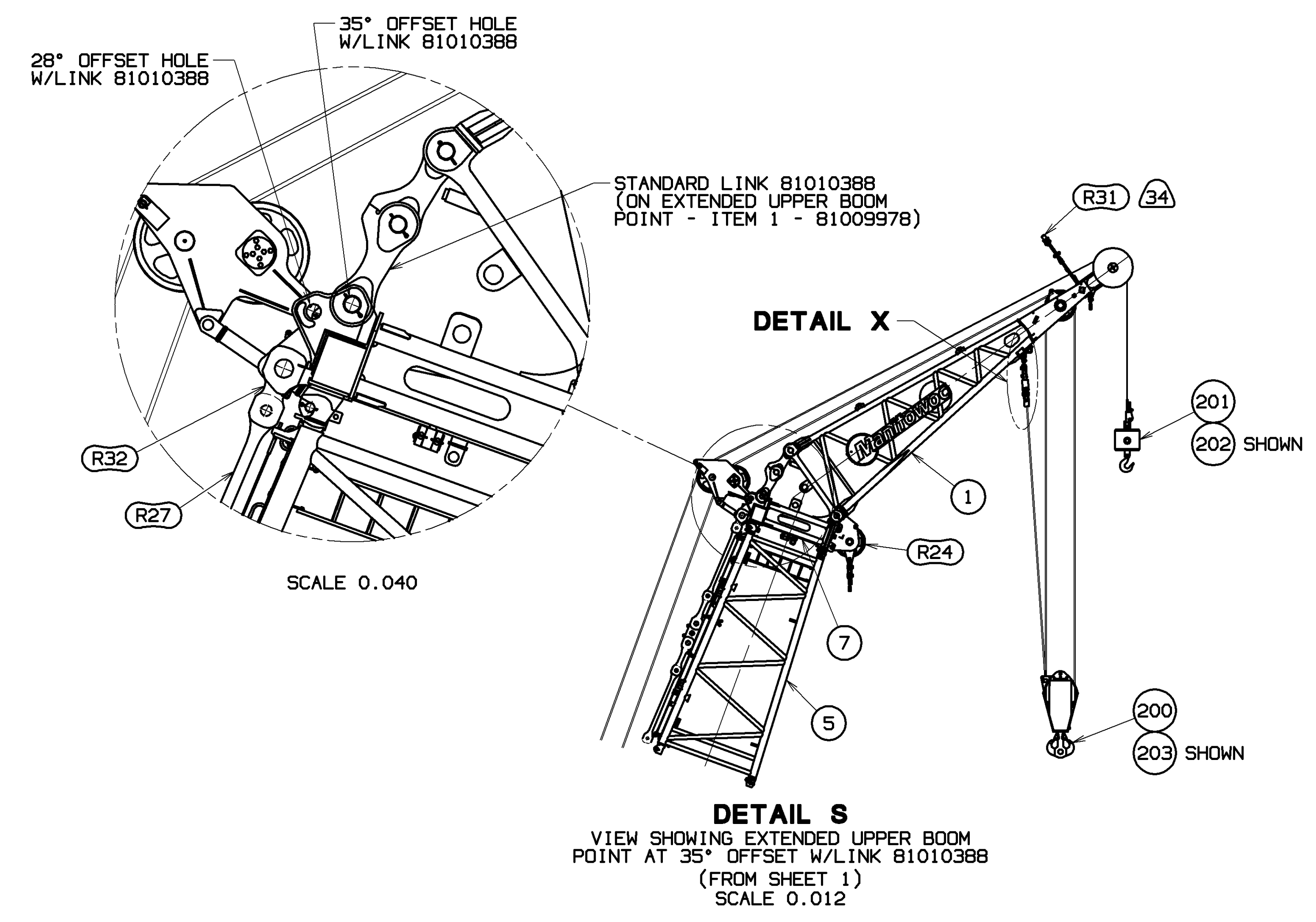
REVISIONS

DATE: 11-29-16  
 REF. LNK: B1

PRIVATE LABELING REQUIREMENT TO CONFORM TO ENGINEERING SPECIFICATION 8629103794 FOR COMPONENTS LISTED IN 86290-09-036

84038306  
 SHT 9 OF 12





- BOOM TOP ASSY LINKS TO TRANSITION INSERT STRAP INSTALLATION (SEE DETAIL V-TOP/TRANSITION STRAP CONNECTION PREP)
- WITH STRAP AND LINKS IN STOWAGE POSITION REMOVE LINK RETAINING PIN FROM SHIPPING POSITION ON TOP ASSY ITEM 7.
  - RELOCATE LINK RETAINING PIN TO WORKING POSITION.
  - ROTATE LINKS (R32) TO REST ON LINK RETAINING PIN.
  - ELEVATE STRAP (R27) TO PIN HOLES AND INSTALL PIN (R103), COLLAR (R104), PIN (R115) AND COTTERS (R100).
- REVERSE INSTALLATION STEPS 1 THRU 4 TO RETURN TO SHIPPING POSITION.

REV	DATE	DESCRIPTION

84038306  
 SHT 10 OF 12

PRIVATE LABELING REQUIREMENT TO CONFORM TO ENGINEERING SPECIFICATION 8829103794 FOR COMPONENTS LISTED IN 882908-08-036  
 DATE 11-29-16  
 REF. LINK B

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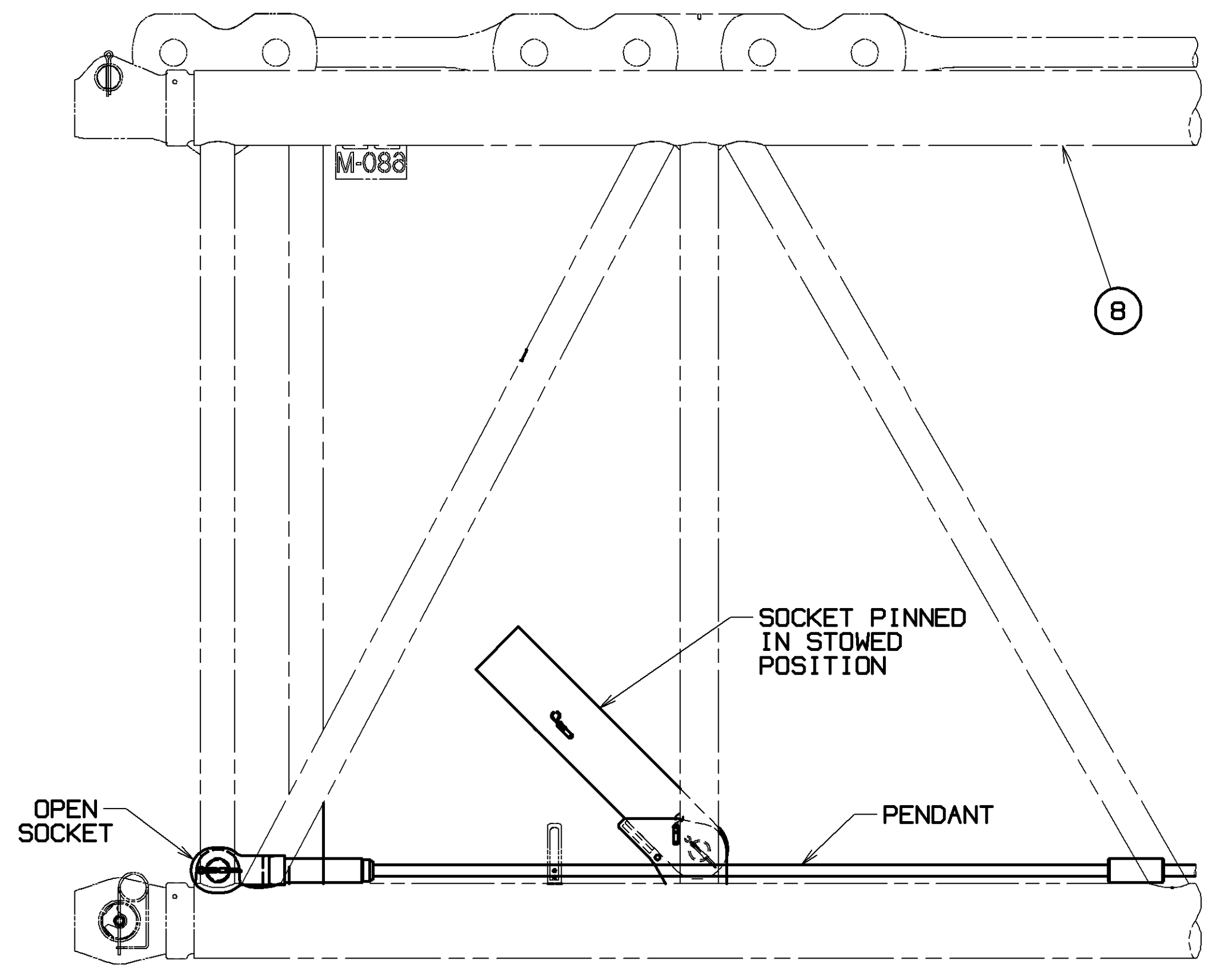


#680 INTERMEDIATE SUSPENSION (R6) INSTALLATION

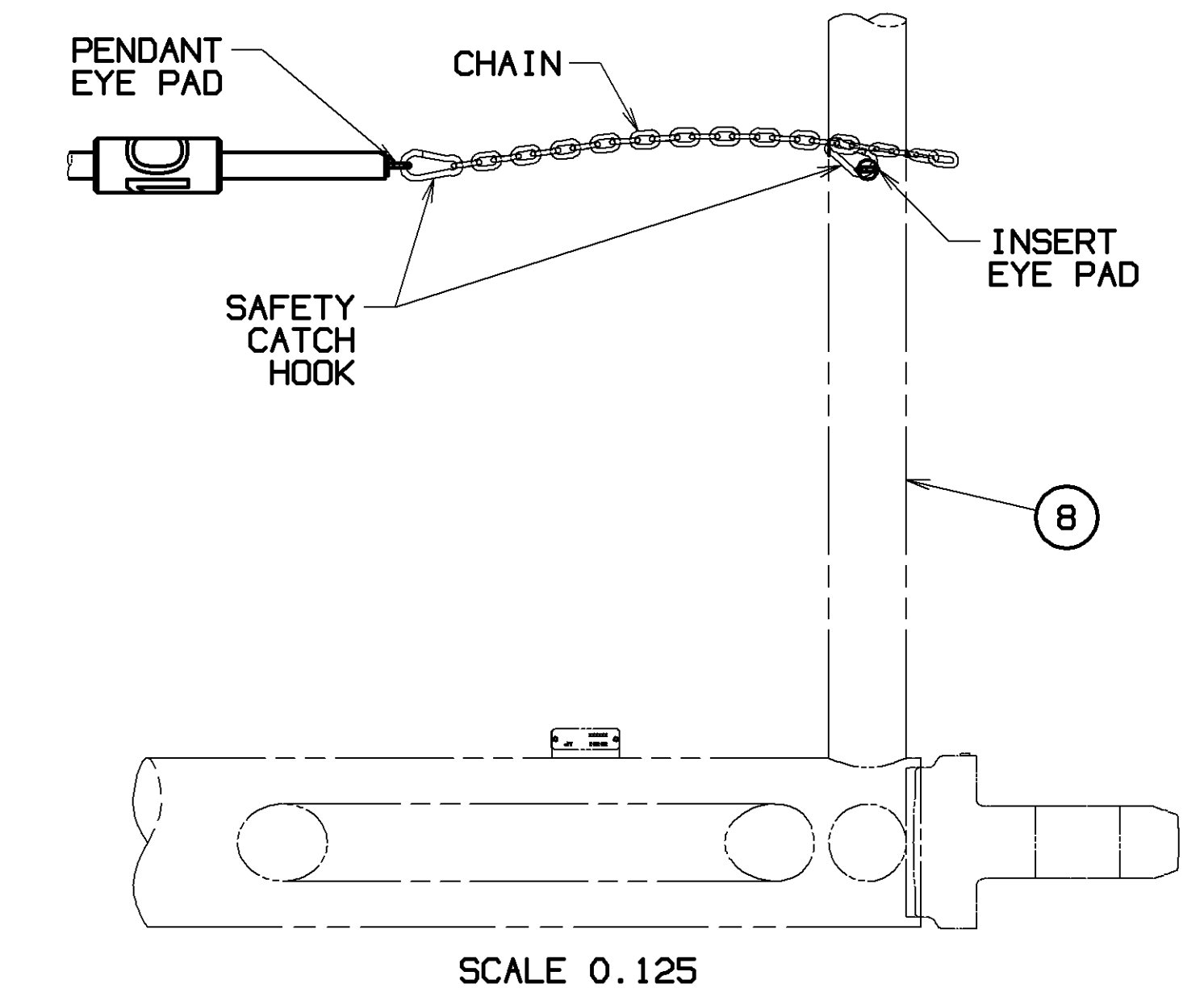
SEE BOOM MAKEUP VIEWS ON SHEETS 3, 4, 5 & 6 AND BOOM LENGTH TABLE ON SHEET 2 FOR REQUIRED SUSPENSION & WIRE ROPE BUTT IDENTIFICATION LOCATION.

- FOR BOOM LENGTHS 107M, 113M, 116M, 122M, 125M & 128M:  
REMOVE BOTH PENDANTS (R111) FROM STORAGE LOCATION ON LOWER BEAM WELDMENT OF GUIDE ASSY-WIRE ROPE ITEM 13.
- FOR BOOM LENGTHS 107M, 113M, 116M, 122M, 125M & 128M:  
ATTACH OPEN SOCKET END OF PENDANT (R111) TO CONNECTING LINK R2 AT TOP OF INSERT ITEM B. (SEE DETAIL AA-PREPARED NON-WORKING).
- REMOVE MULTI-BUTTON PENDANT FROM STOWED SHIPPING POSITION. (SEE DETAIL Y & Z)
- FOR BOOM LENGTHS 107M, 113M, 116M, 122M, 125M & 128M:  
ATTACH OPEN SOCKET END OF BUTTAN PENDANT (B4022845) TO CLOSED SOCKET END OF PENDANT (R111). (SEE DETAIL AA-PREPARED NON-WORKING)
- FOR BOOM LENGTHS 110M, 119M, 131M THRU 164M:  
ATTACH OPEN SOCKET END OF BUTTAN PENDANT (B4022845) TO CONNECTING LINK R2 AT TOP OF INSERT ITEM B. (SEE DETAIL AA-PREPARED NON-WORKING)
- SLOWLY RAISE BOOM. AS THE STRAPS RISE, GUIDE THE INTERMEDIATE SUSPENSION PENDANTS THROUGH THE OPENINGS IN THE BOOM INSERT. STOP THE BOOM RAISING PROCEDURE WHEN THE REQUIRED PENDANT BUTTON NEARS THE SOCKET. FROM STOWED POSITION REMOVE BUTTAN RETAINING HITCH PIN FROM SOCKET AND POSITION THE IDENTIFIED PENDANT BUTTON INTO SOCKET. REINSTALL BUTTAN RETAINING HITCH PIN INTO SOCKET. LOCKING PENDANT IN POSITION. (SEE DETAIL AA-PREPARED NON-WORKING)
- RELOCATE SOCKET LOCKING HITCH PIN FROM SOCKET AND UPPER BRACKET HOLE TO LOWER BRACKET HOLE. (SEE DETAIL AA-WORKING)
- ATTACH PENDANT EYE PAD TO INSERT EYE PADS USING A SAFETY CATCH HOOK AT EACH END OF CHAIN. ADJUST PENDANT TENSION BY POSITIONING SAFETY CATCH HOOK IN APPROPRIATE CHAIN LINK. (SEE VIEW BB-BB)
- CONTINUE TO BOOM UP SLOWLY AS PENDANT BECOMES TIGHT AND SOCKET PIVOTS INTO WORKING POSITION. (SEE DETAIL AA-WORKING)

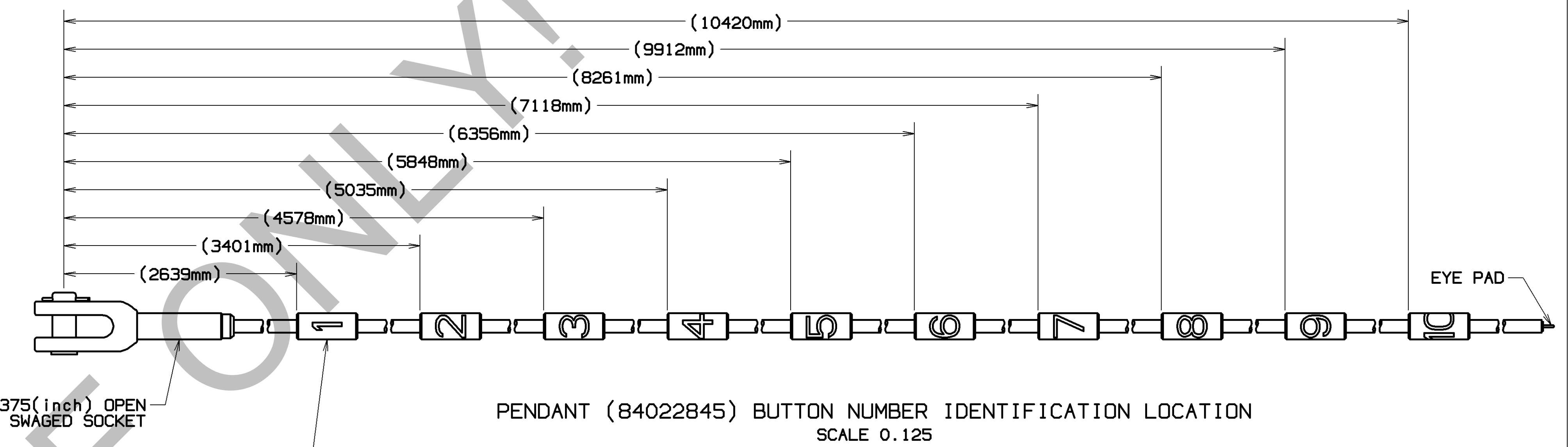
FOR REMOVAL OF INTERMEDIATE SUSPENSION REVERSE INSTALLATION STEPS 1 THRU 8. ASSURING SOCKET PIVOTS TOWARD STORAGE POSITION.  
 VERIFY THAT SLACK IN PENDANT CHAIN ALLOWS FOR SOCKET TO PIVOT INTO STOWED POSITION.



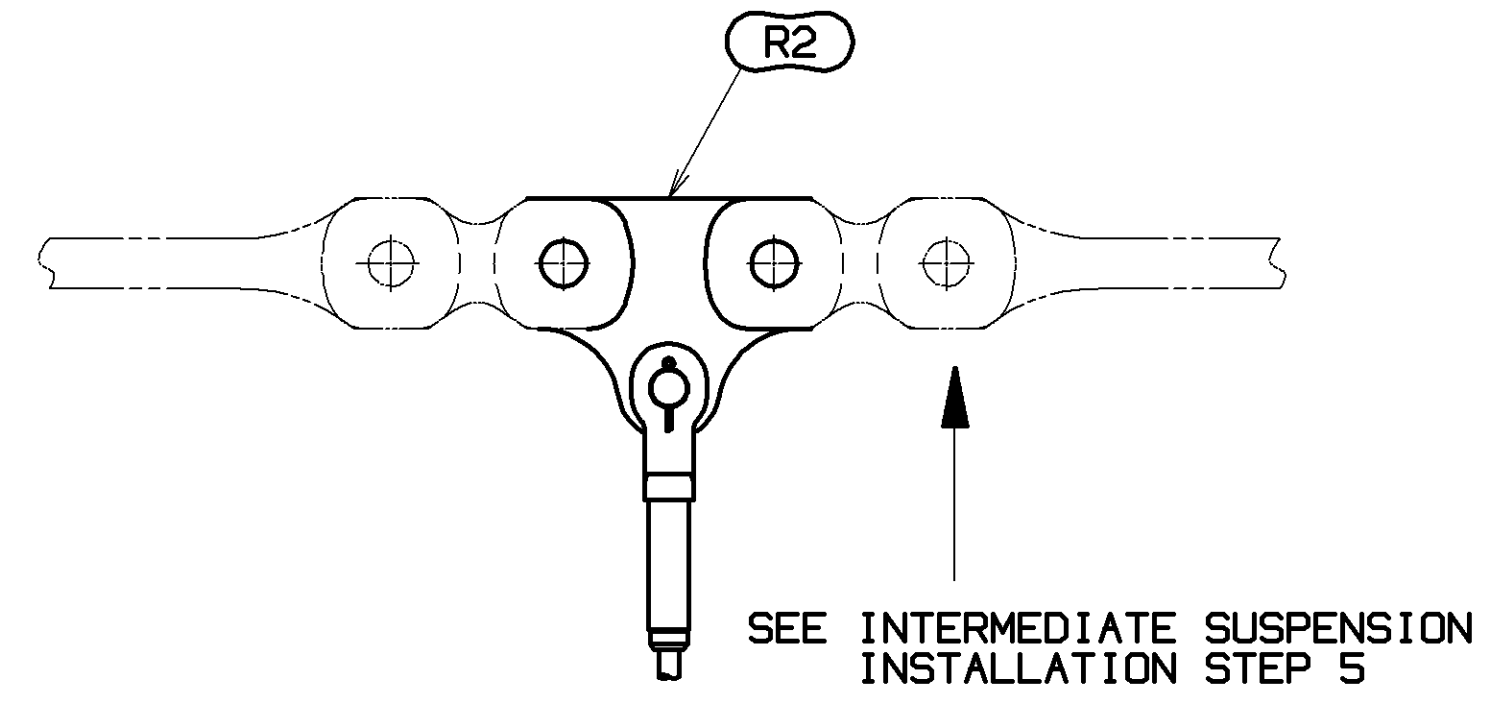
**DETAIL Y - STOWED SHIPPING**  
 SUSPENSION WIRE ROPE #680  
 ITEM R6, 81036355  
 (FROM SHEET 3)  
 SUSPENSION PENDANTS STOWED POSITION FOR SHIPPING OR WHEN INSERT WORKING W/O SUSPENSION  
 SCALE 0.075



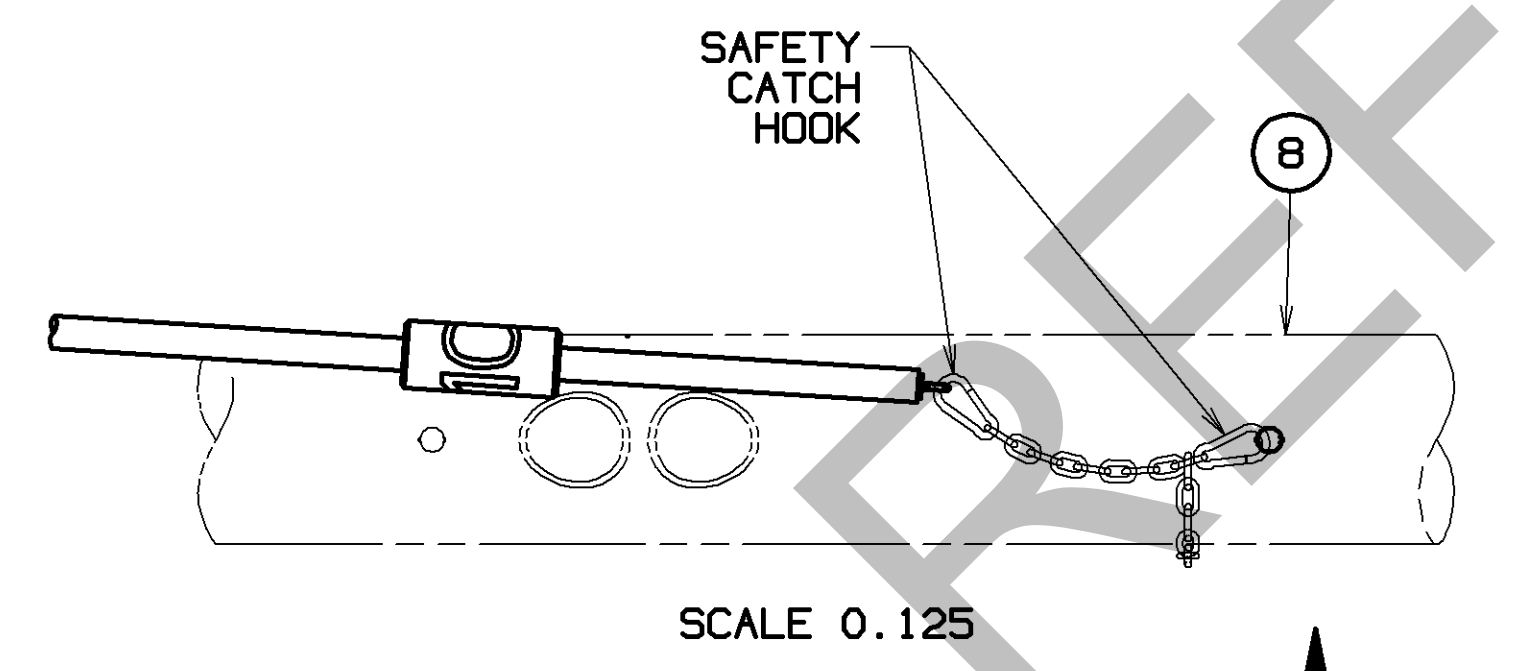
**DETAIL Z - STOWED SHIPPING**  
 SUSPENSION WIRE ROPE #680  
 ITEM R6, 81036355  
 (FROM SHEET 3)  
 SUSPENSION PENDANTS STOWED POSITION FOR SHIPPING OR WHEN INSERT WORKING W/O SUSPENSION  
 SCALE 0.125



PENDANT (B4022845) BUTTON NUMBER IDENTIFICATION LOCATION  
 SCALE 0.125

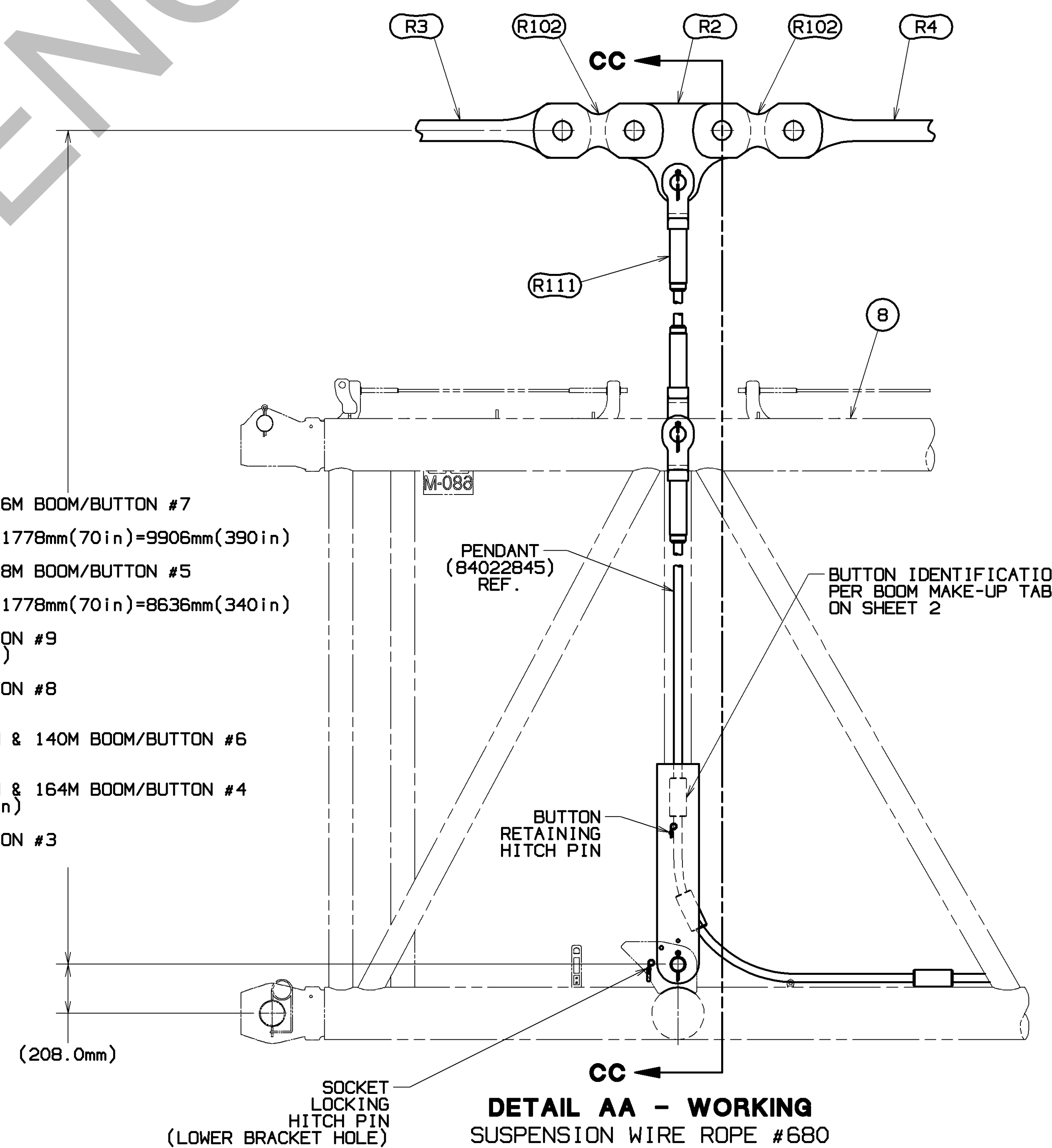


**DETAIL AA - PREPARED NON-WORKING**  
 SUSPENSION WIRE ROPE #680  
 ITEM R6, 81036355  
 (FROM SHEET 3)  
 SUSPENSION SOCKET & ROPE LOCATION FOR PREPARED NON-WORKING BOOM LENGTHS 107M THRU 164M  
 SCALE 0.075

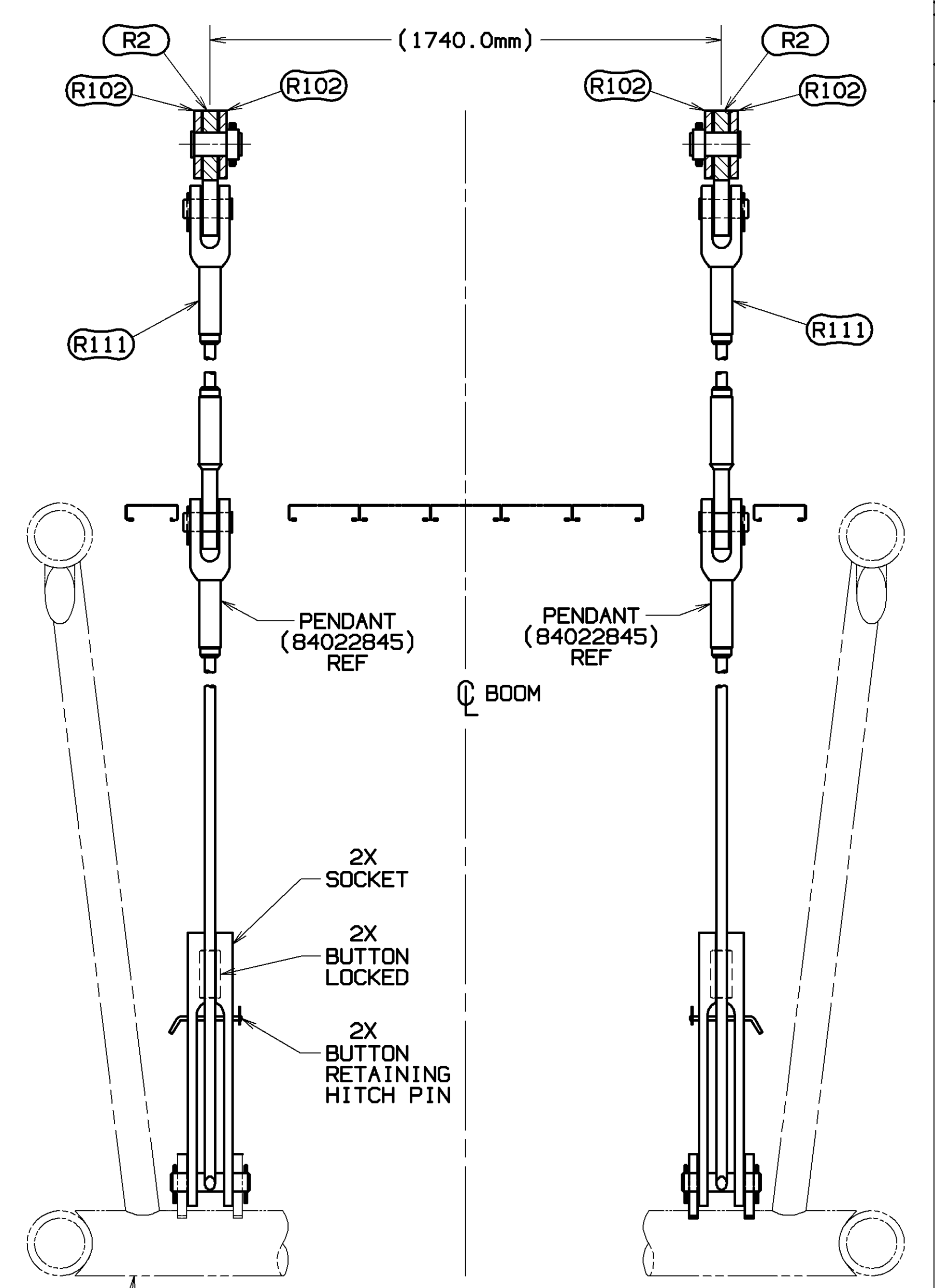


**DETAIL BB**  
 SUSPENSION WIRE ROPE #680  
 ITEM R6, 81036355  
 (FROM SHEET 3)  
 SCALE 0.125

- SEE 40
- 107M, 113M & 116M BOOM/BUTTON #7  
W/PENDANT R111  
8126mm (320in) \* 1778mm (70in) = 9906mm (390in)
  - 122M, 125M & 128M BOOM/BUTTON #5  
W/PENDANT R111  
6858mm (270in) \* 1778mm (70in) = 8636mm (340in)
  - 110M BOOM/BUTTON #9  
10922mm (430in)
  - 119M BOOM/BUTTON #8  
9271mm (365in)
  - 131M, 134M, 137M & 140M BOOM/BUTTON #6  
7366mm (290mm)
  - 143M THRU 158M & 164M BOOM/BUTTON #4  
6045.2mm (238in)
  - 161M BOOM/BUTTON #3  
5588mm (220in)



**DETAIL AA - WORKING**  
 SUSPENSION WIRE ROPE #680  
 ITEM R6, 81036355  
 (FROM SHEET 3)  
 SUSPENSION SOCKET & ROPE LOCATION FOR WORKING BOOM LENGTHS 107M THRU 164M  
 SCALE 0.075

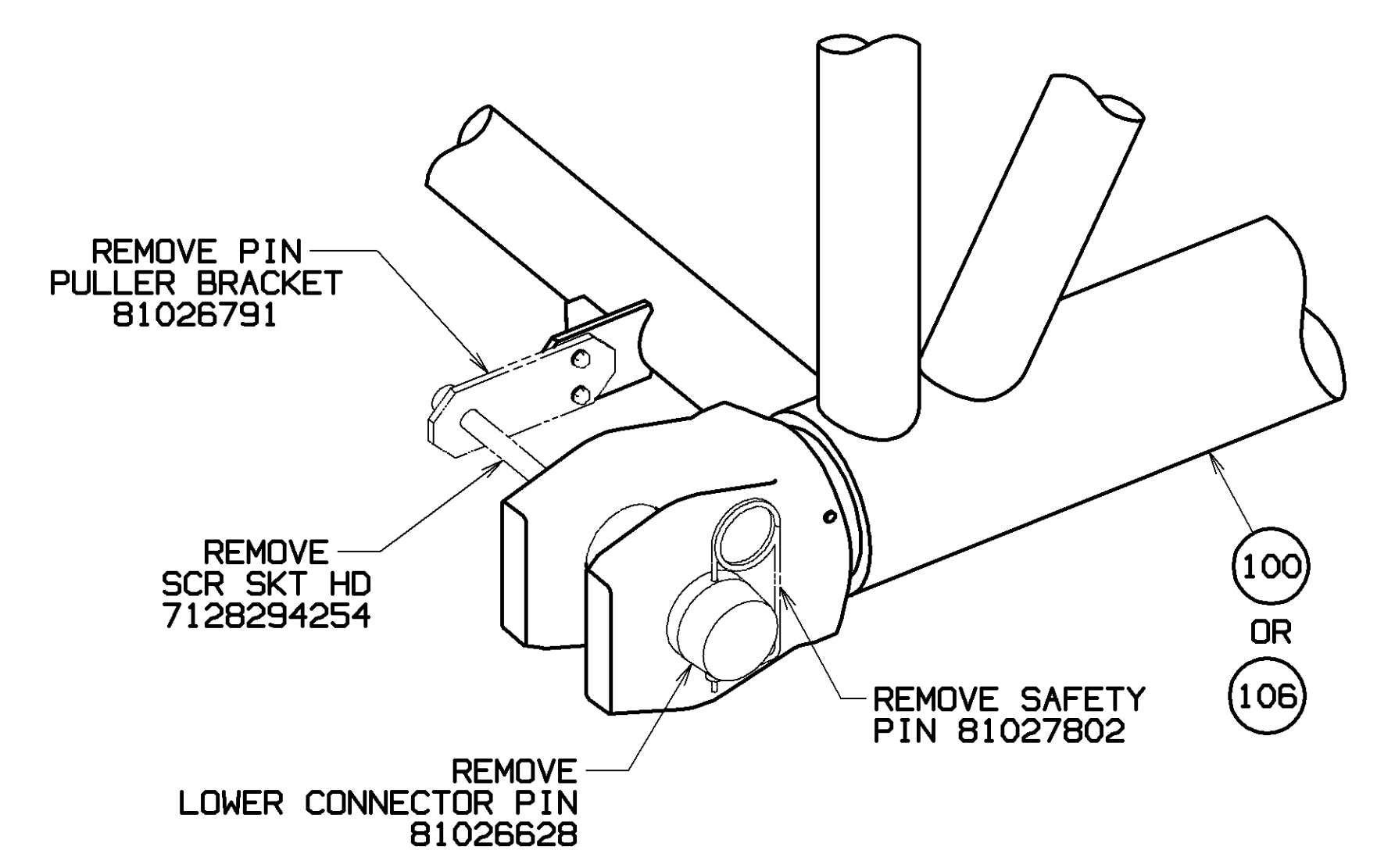


**SECTION CC-CC**

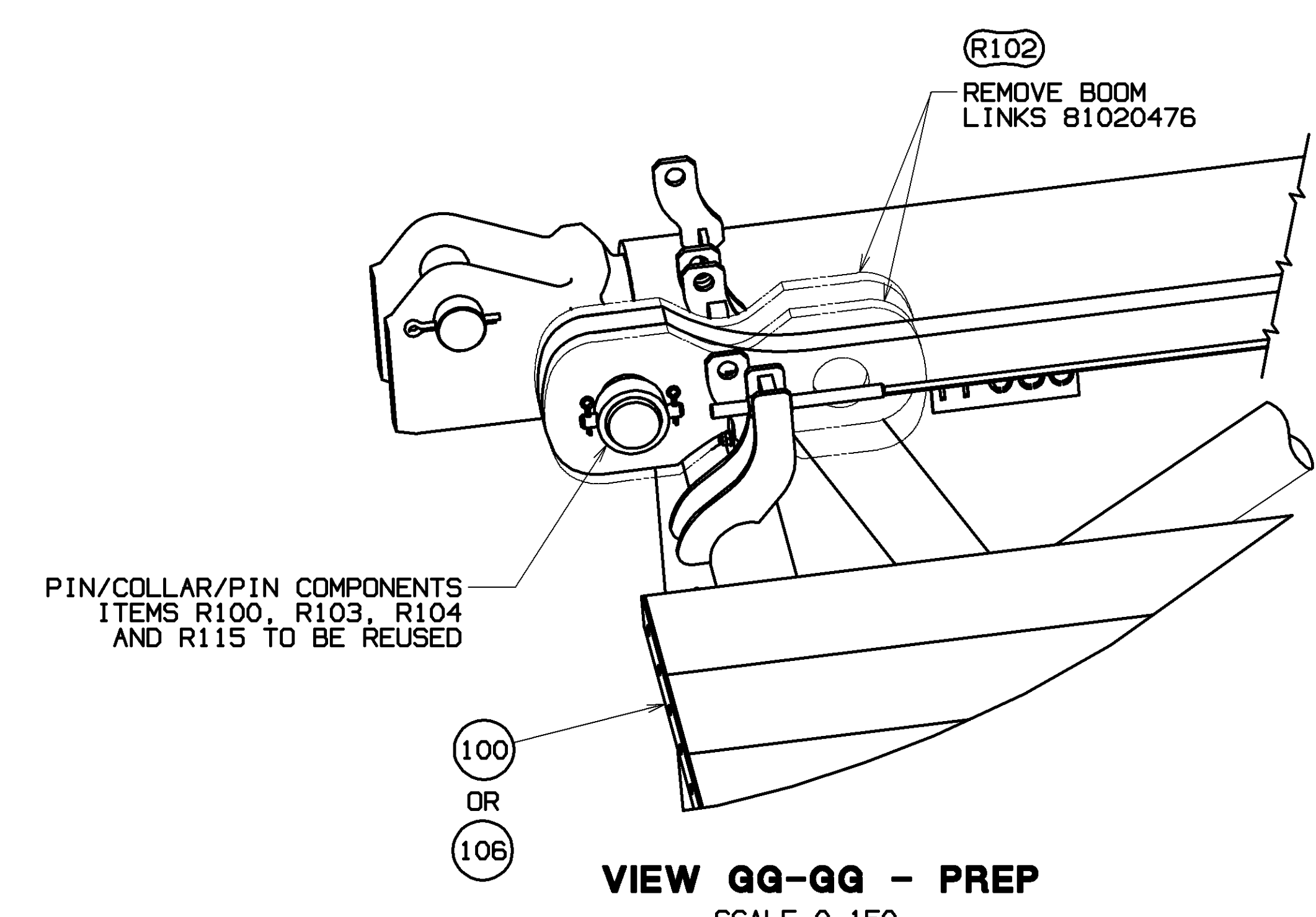
TOLERANCE UNLESS OTHERWISE SPECIFIED		DATE NOTED	MANUFACTURER	MODEL	ITEM NO.
DECIMAL PLACES	FRACTIONS	DR. RHY	Manitowoc, Wisconsin	MLC650	B1
(1) PLACE 0.5	±.12 ±.18	DR. MJU			
(2) PLACE 0.00	±.06 ±.12 ±.015	APP. JRR			
(3) PLACE 0.000	±.006 ±.009				
ANGLES	±1.30°				



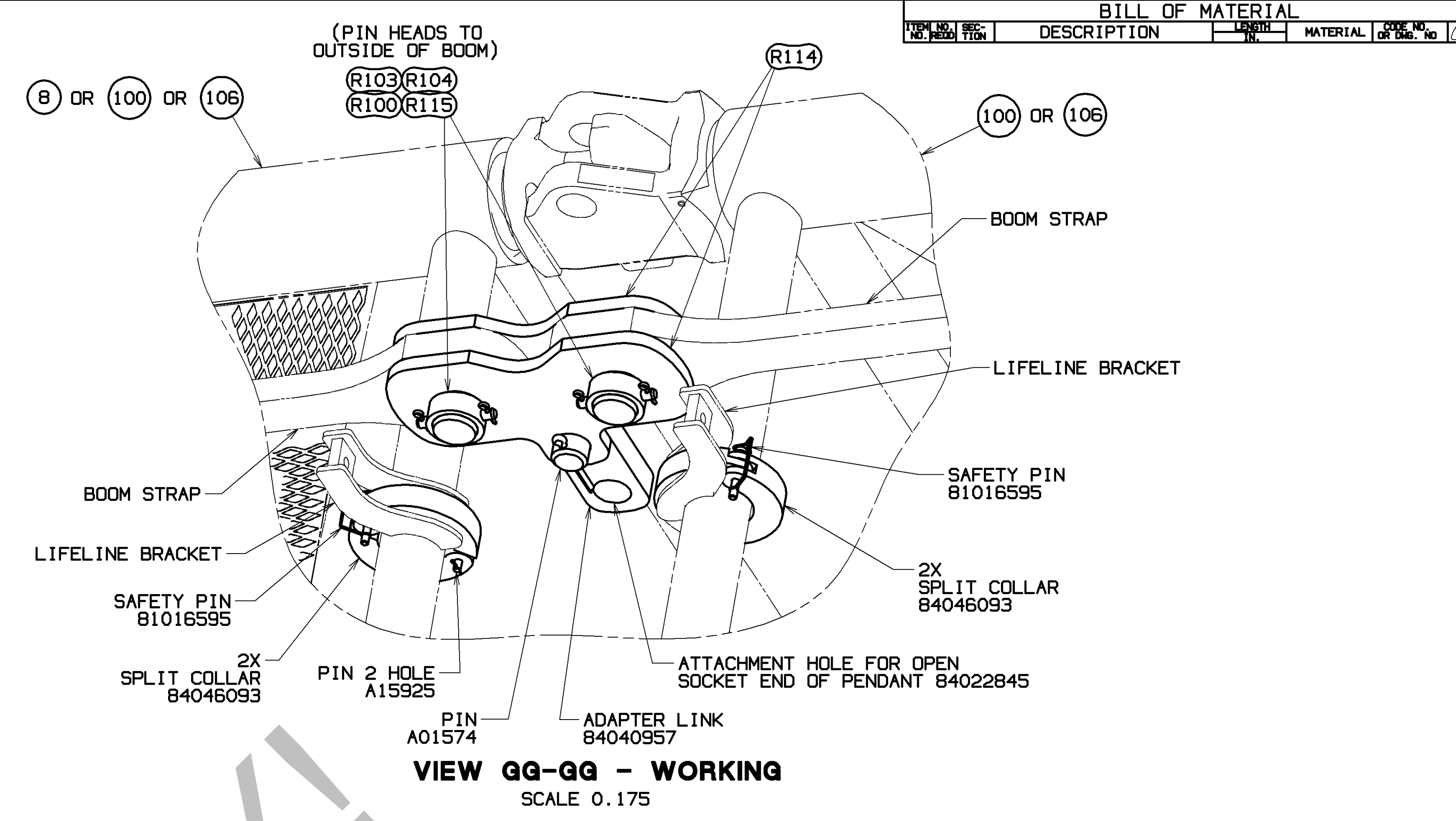
BILL OF MATERIAL				ASSEMBLIES USED ON
QTY	ITEM NO	DESCRIPTION	MATERIAL	DATE



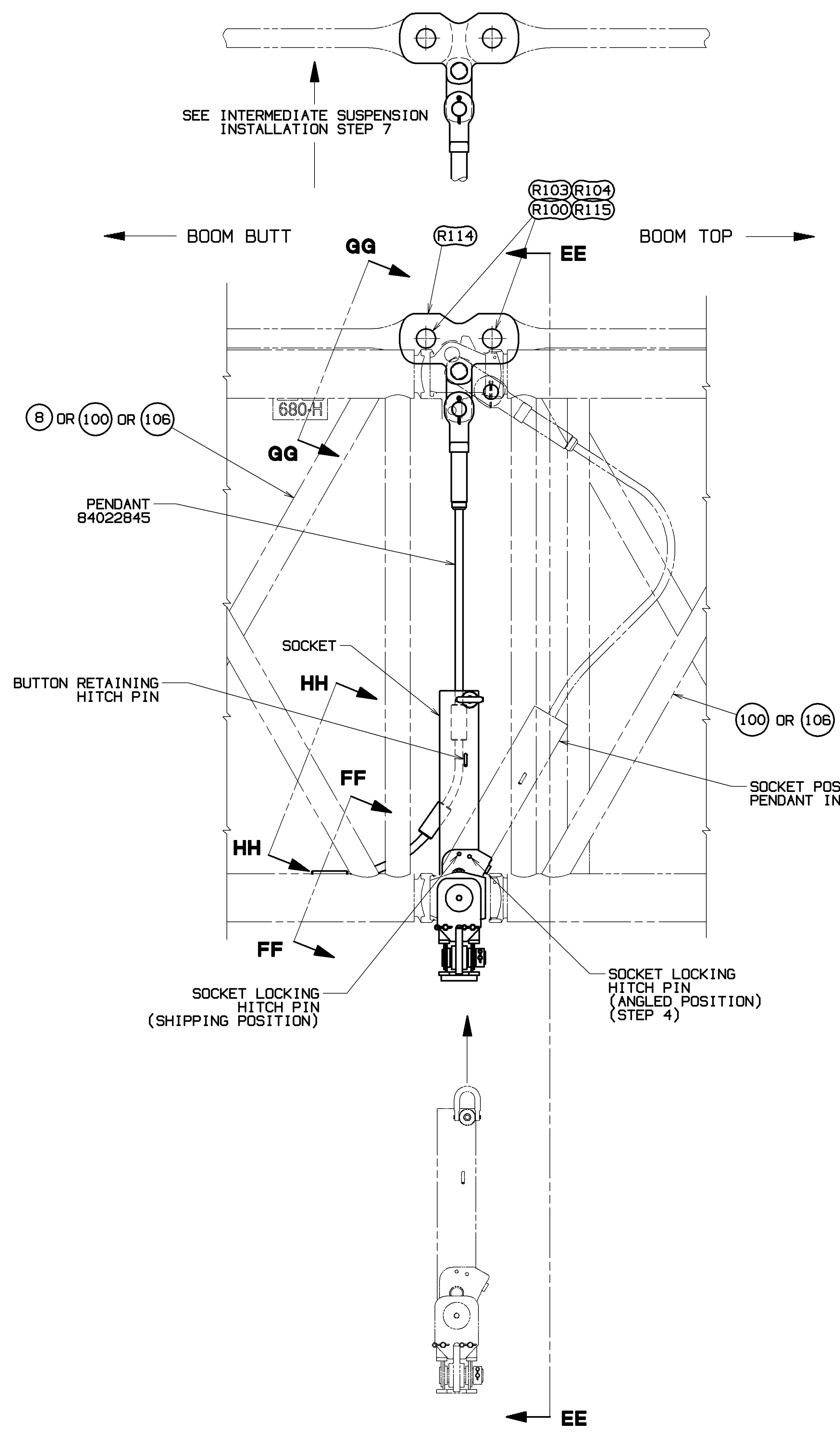
**VIEW FF-FF - PREP**  
SCALE 0.150



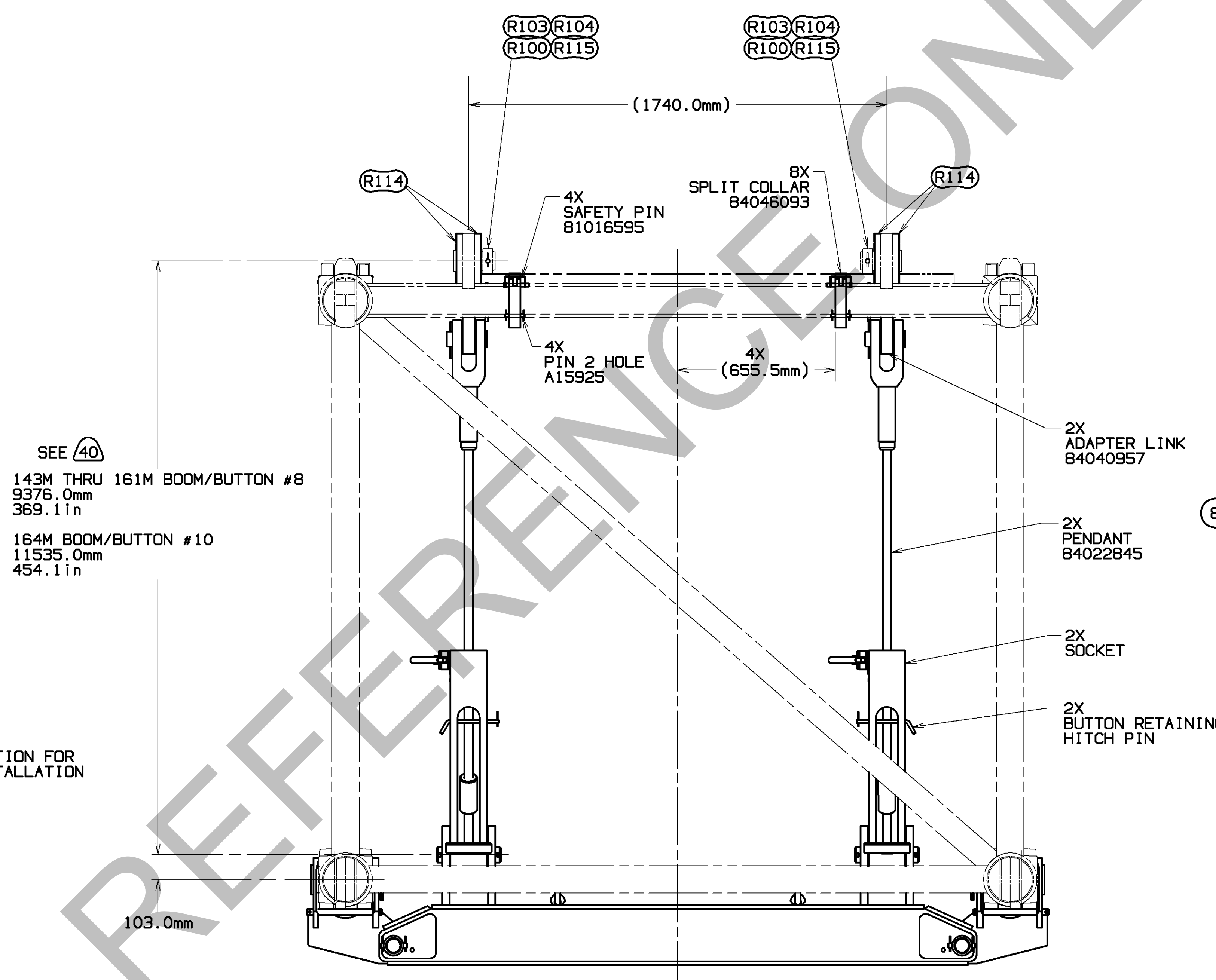
**VIEW GG-GG - PREP**  
SCALE 0.150



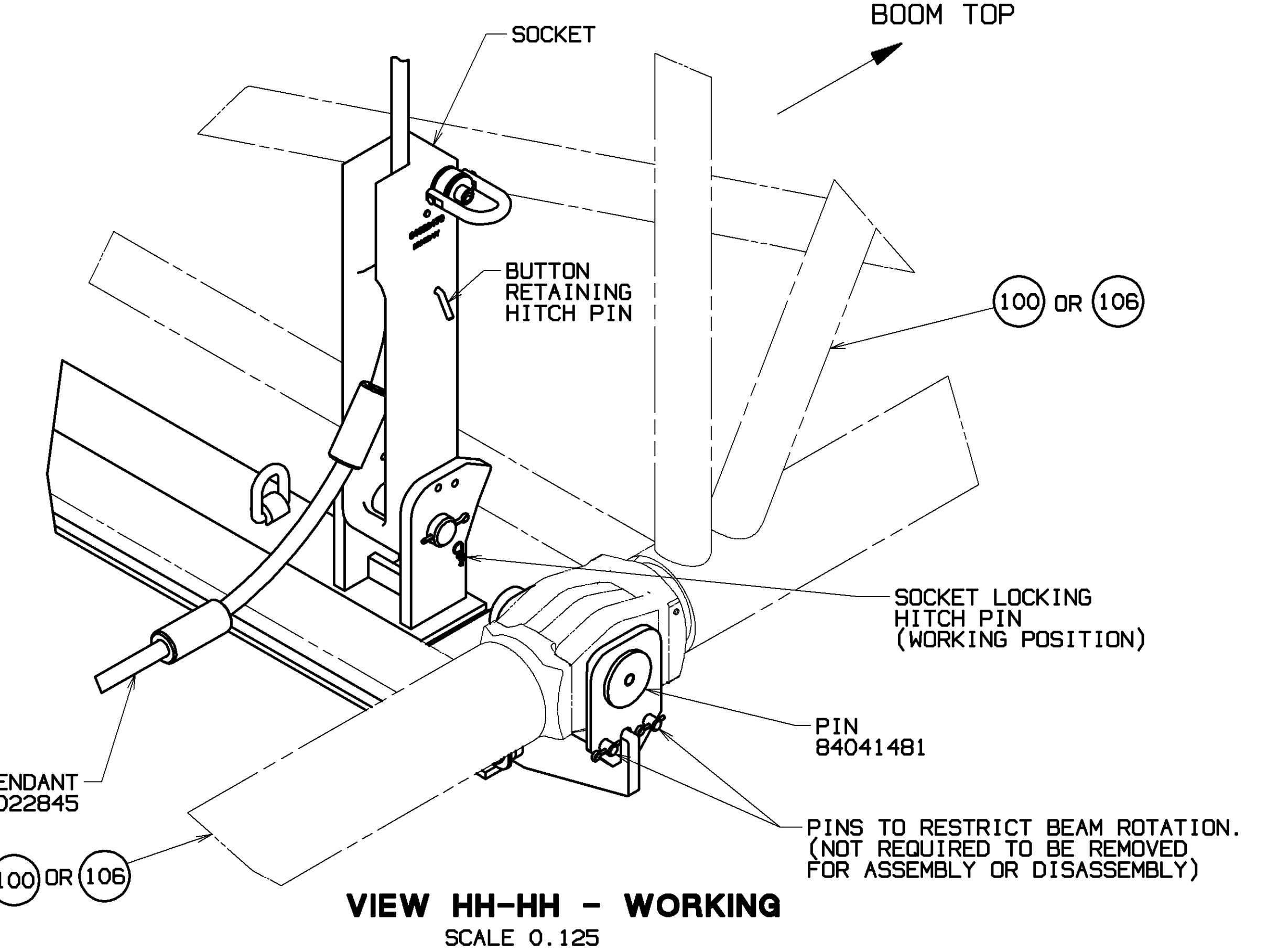
**VIEW GG-GG - WORKING**  
SCALE 0.175



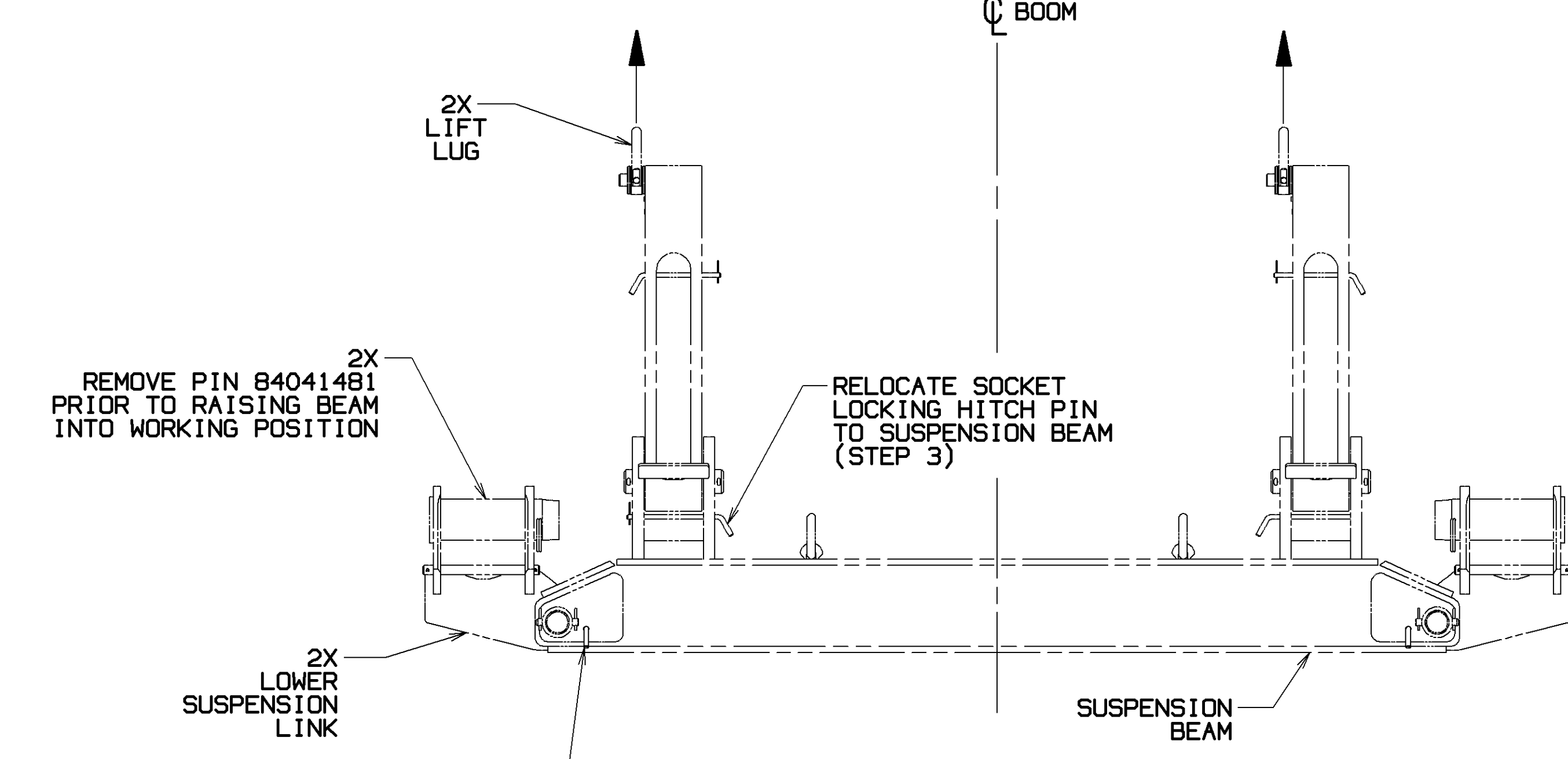
**DETAIL DD**  
SUSPENSION WIRE ROPE  
ITEM 109, 84040952  
(FROM SHEET 6)  
SCALE 0.085



**SECTION EE-EE**  
SCALE 0.085



**VIEW HH-HH - WORKING**  
SCALE 0.125



LOCATION OF SOCKET LOCKING HITCH PIN IN SUSPENSION BEAM DURING SETUP TO ALIGN THE LOWER SUSPENSION LINK

**INTERMEDIATE SUSPENSION (ITEM 109) INSTALLATION**

- SEE BOOM MAKEUP VIEWS ON SHEETS 5 & 6 AND BOOM LENGTH TABLE ON SHEET 2 FOR REQUIRED SUSPENSION & WIRE ROPE BUTTON IDENTIFICATION LOCATION. REFERENCE SUSPENDER WIRE ROPE ASSY 84040952 FOR ADDITIONAL INFORMATION. (REFER TO SHEET 11 FOR BUTTON NUMBER IDENTIFICATION LOCATION ON PENDANT 84022845).
1. FROM MATING INSERT TOWARD BOOM TOP (ITEMS 100 OR 106), REMOVE LOWER BOOM CONNECTOR PIN COMPONENTS USED WITH HAND HELD CYLINDER. (SEE VIEW FF-FF - PREP).
  2. FROM SAME MATING INSERT ABOVE, REMOVE (4) BOOM LINKS (R102) AND STORE IN PARTS BOX 81028467. PIN/COLLAR/PIN COMPONENTS (ITEMS R100, R103, R104 & R115) WILL BE REUSED WITH SUSPENSION LINK PER STEP 5 BELOW. (SEE VIEW GG-GG - PREP).
  3. POSITION SUSPENSION BEAM AND LOWER SUSPENSION LINK UNDER APPROPRIATE INSERT AT MALE CONNECTOR END. ASSEMBLE UPPER CONNECTOR OF MATING INSERT AND PIVOT INSERT TO ALIGN LOWER CONNECTOR HOLES. RELOCATE THE SOCKET LOCKING HITCH PINS FROM THE SOCKET AND UPPER MOST BRACKET HOLE (SHIPPING POSITION) TO THE SUSPENSION BEAM TO ALIGN THE LOWER SUSPENSION LINKS. (SEE SECTION EE-EE) WITH SUSPENSION LINK PINS 84041481 REMOVED, USE AN ASSIST TO RAISE SUSPENSION BEAM ASSY TO ALIGN LOWER CONNECTOR AND LOWER SUSPENSION LINK HOLES. REINSTALL PIN 84041481. (SEE DETAIL DD AND SECTION EE-EE).
  4. PIVOT SOCKET INTO 30° POSITION AND REINSTALL SOCKET LOCKING PIN THROUGH BRACKET AND SOCKET (ANGLED POSITION). (SEE DETAIL DD).
  5. ATTACH INSERT BOOM STRAPS WITH DOUBLE LINKS (R114) USING EXISTING PIN/COLLAR/PIN COMPONENTS (ITEMS R100, R103, R104 & R115) REMOVED IN VIEW GG-GG - PREP. ATTACH ADAPTER LINK (84040957) TO DOUBLE LINKS (R114). ATTACH OPEN SOCKET END OF PENDANT 84022845 TO ADAPTER LINK. (SEE VIEW GG-GG - WORKING).
  6. BETWEEN THE (4) LIFELINE BRACKET SIDE PLATES NEAR THE SUSPENSION, ASSEMBLE THE SPLIT COLLARS (84046093) WITH THE SAFETY PIN (81016595) UPWARDS TOWARD BRACKET SIDE PLATES AND 2 HOLE PIN (A15925) AND COTTER TOWARD SUSPENSION PENDANT. (SEE VIEW GG-GG - WORKING).
  7. WITH SOCKET LOCKED IN 30° POSITION, SLOWLY RAISE BOOM. AS THE STRAPS RISE, GUIDE THE INTERMEDIATE SUSPENSION PENDANTS THROUGH THE OPENING BETWEEN THE BOOM INSERTS. STOP THE BOOM RAISING PROCEDURE WHEN THE REQUIRED PENDANT BUTTON NEARS THE SOCKET. REMOVE BUTTON RETAINING HITCH PIN FROM SOCKET. POSITION THE IDENTIFIED PENDANT BUTTON OF THE MULTI-BUTTON PENDANT 84022845 INTO SOCKET AND REINSTALL BUTTON RETAINING HITCH PIN INTO SOCKET, LOCKING PENDANT IN POSITION. (SEE DETAIL DD).
  8. PRIOR TO CONTINUATION OF BOOM RAISING, REMOVE SOCKET LOCKING HITCH PIN FROM 30° POSITIONED SOCKET AND BRACKET. STOW IN LOWEST BRACKET HOLE (WORKING POSITION) ALLOWING SOCKET TO PIVOT AS BOOM STRAPS RAISE. (SEE VIEW HH-HH - WORKING).
  9. BOOM UP SLOWLY AS PENDANT BECOMES TIGHT AND SOCKET PIVOTS INTO WORKING POSITION.
- FOR REMOVAL OF DROP-DOWN INTERMEDIATE SUSPENSION (ITEM 109) REVERSE INSTALLATION STEPS 1 THRU 9, ASSURING SOCKET PIVOTS TOWARD 30° POSITION WHEN LOWERING BOOM STRAPS.

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DECIMAL PLACES	FRACTION	10 FEET	10 FEET	10 FEET	10 FEET	11-29-16	REV. LNK
(1) PLACE 0.1	1/16	±.12	±.12	±.12	±.12		(B)
(2) PLACE 0.00	1/64	±.08	±.12	±.015	±.015		
(3) PLACE 0.000	1/1000	±.008	±.008	±.008	±.008		
ANGLES		±1.0°	±1.0°	±0.5°	±0.5°		
DRAWN BY: DR. RHY				CHECKED BY: DR. MJU			
DESIGNED BY: DR. MJU				APPROVED BY: APP. JRR			
MATERIAL: MARITOWNE CRANES, INC.				MATERIAL: MARITOWNE CRANES, INC.			
PART: BOOM RIGGING				PART: BOOM RIGGING			
MODEL: MLC650				MODEL: MLC650			
REV: B85:685-680-681-682				REV: B85:685-680-681-682			

REVISIONS

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