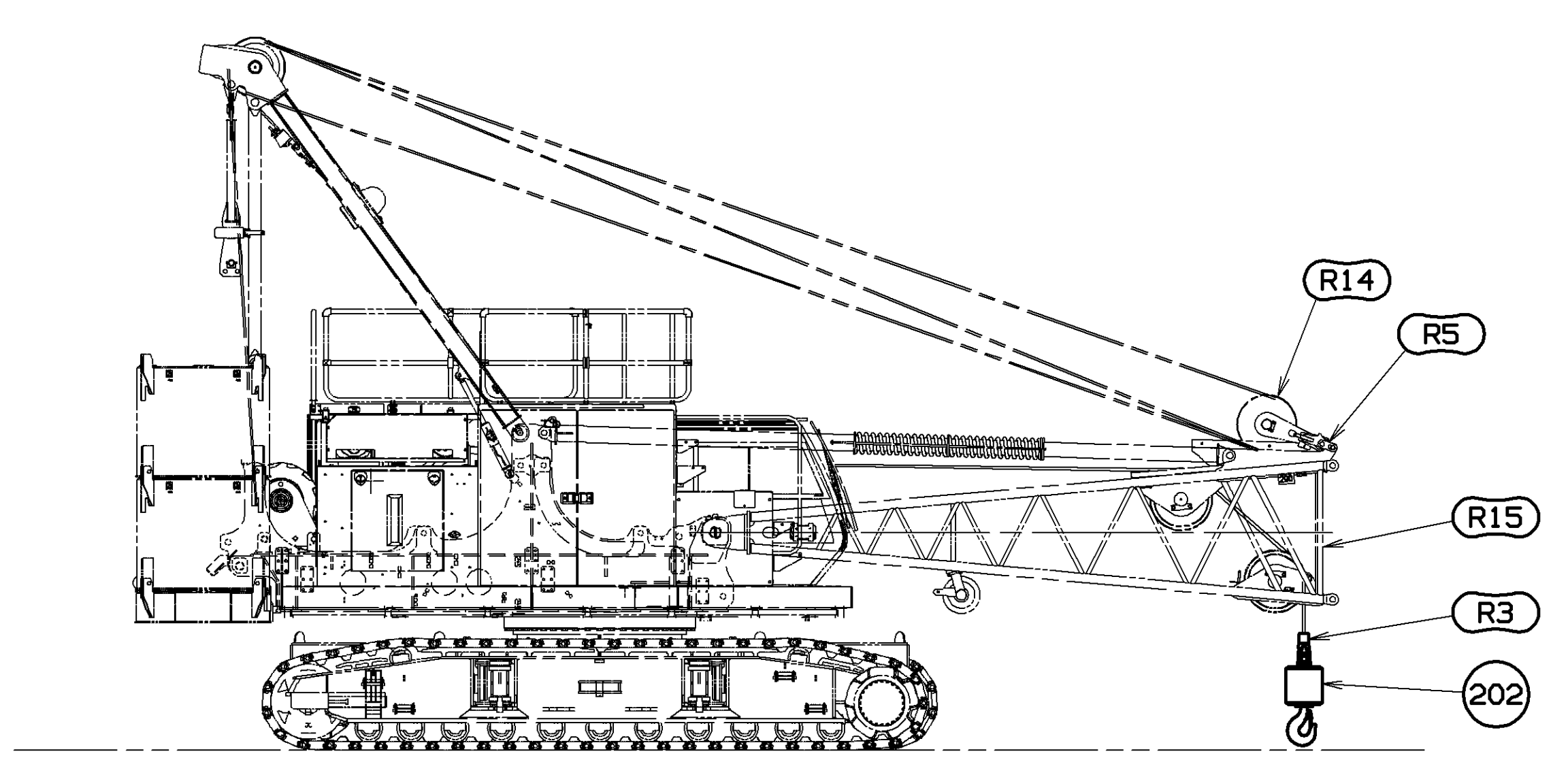


RECOMMENDED BOOM MAKEUP
FOR TYP PIN JOINT SEE DETAILS A, B & E

TOLERANCE UNLESS OTHERWISE SPECIFIED		FABRICATION		MACHINING		WELDING	
DECIMAL PLACES	F. TO FEET	F. TO FEET	I.O. FEET	F. TO FEET	I.O. FEET	F. TO FEET	I.O. FEET
(1) PLACE 0.5	±.12	±.18	±.03	±.03	±.03	±.03	±.03
(2) PLACE 0.00	±.08	±.12	±.015	±.015	±.015	±.015	±.015
(3) PLACE 0.000	±.008	±.012	±.006	±.006	±.006	±.006	±.006
ANGLES	±1.30°	±1.30°	±0.90°	±0.90°	±0.90°	±0.90°	±0.90°

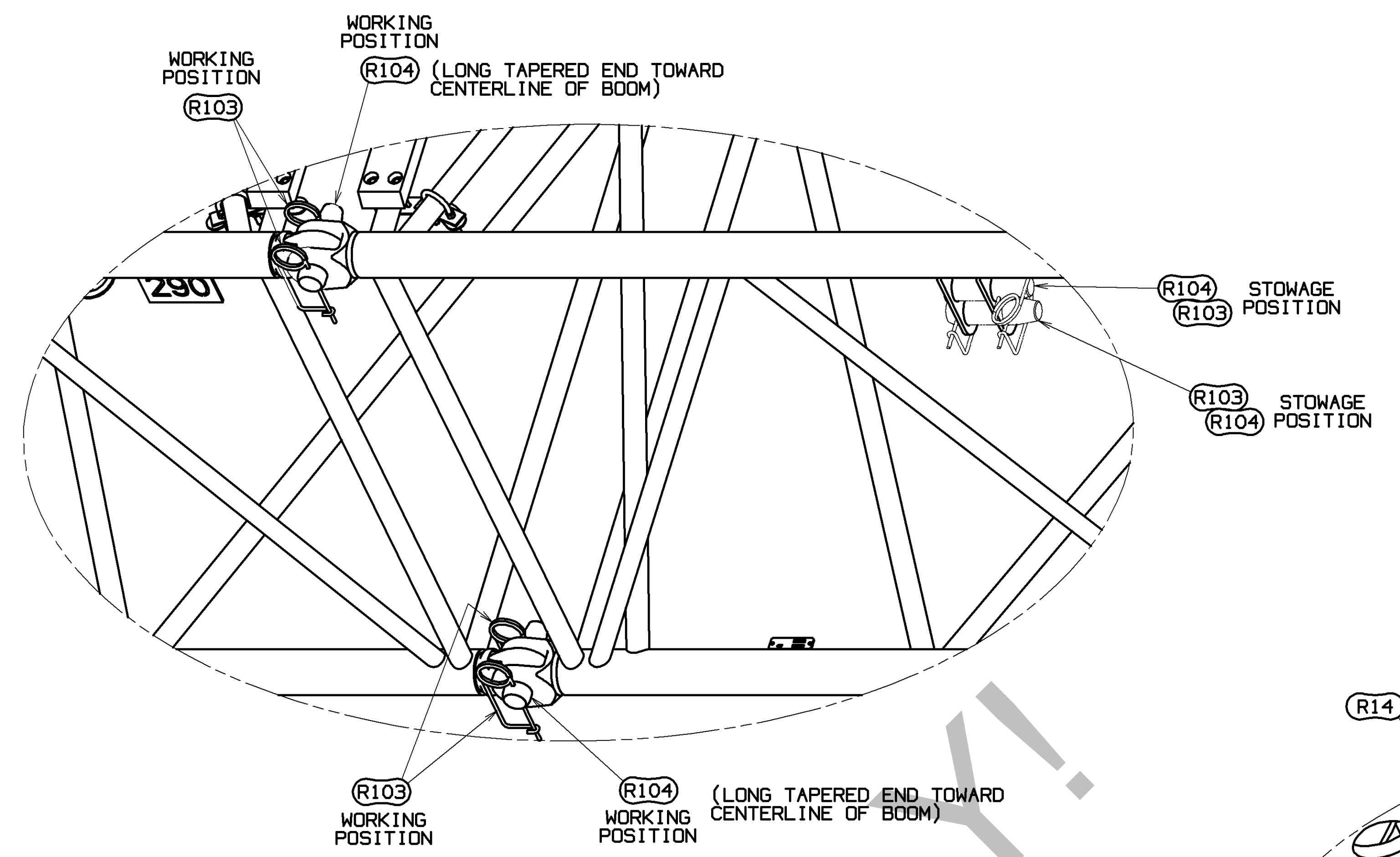
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TO ASSEMBLE BOOM

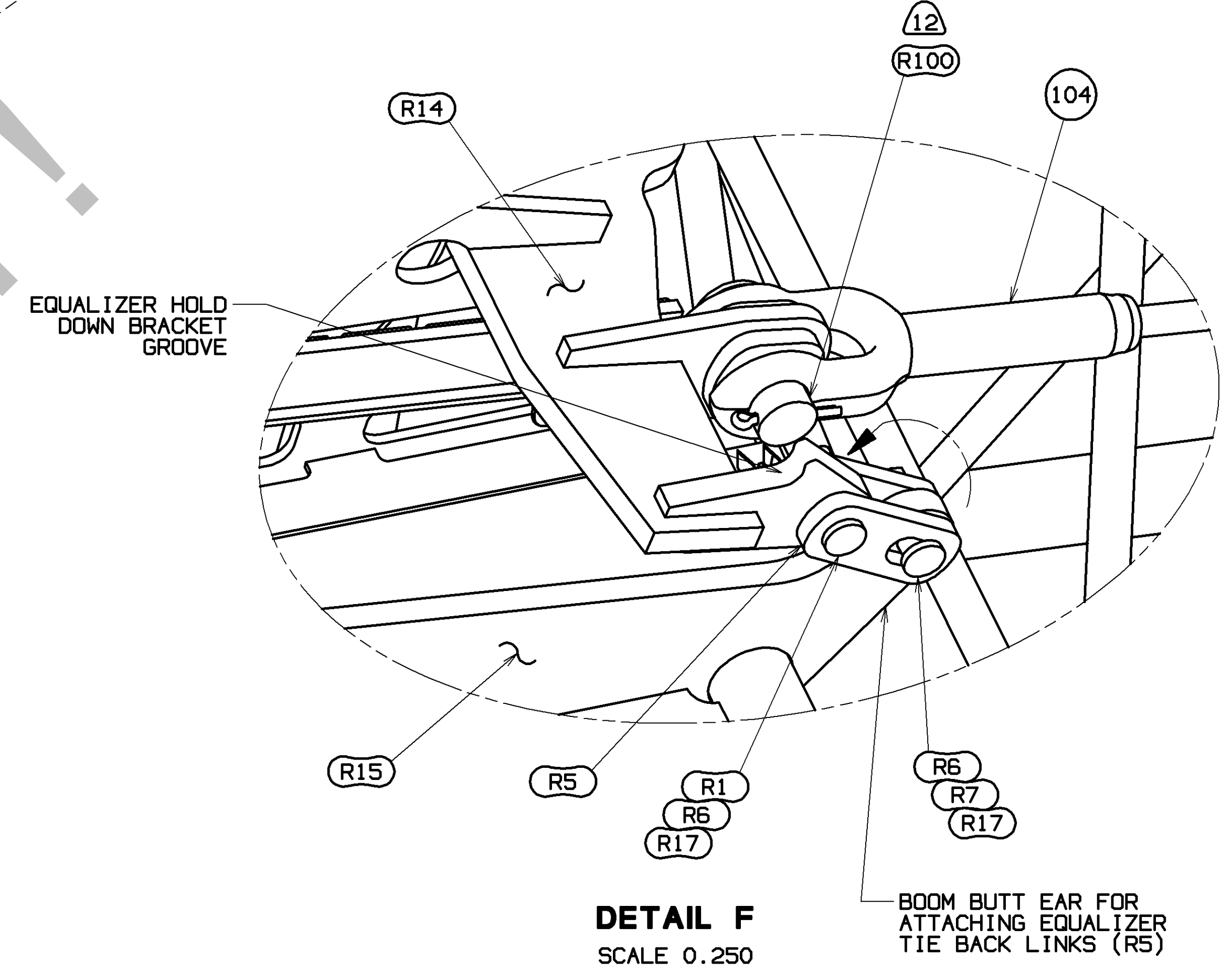


STEP 1
MACHINE PREP FOR BOOM ASSEMBLY USING BUTT

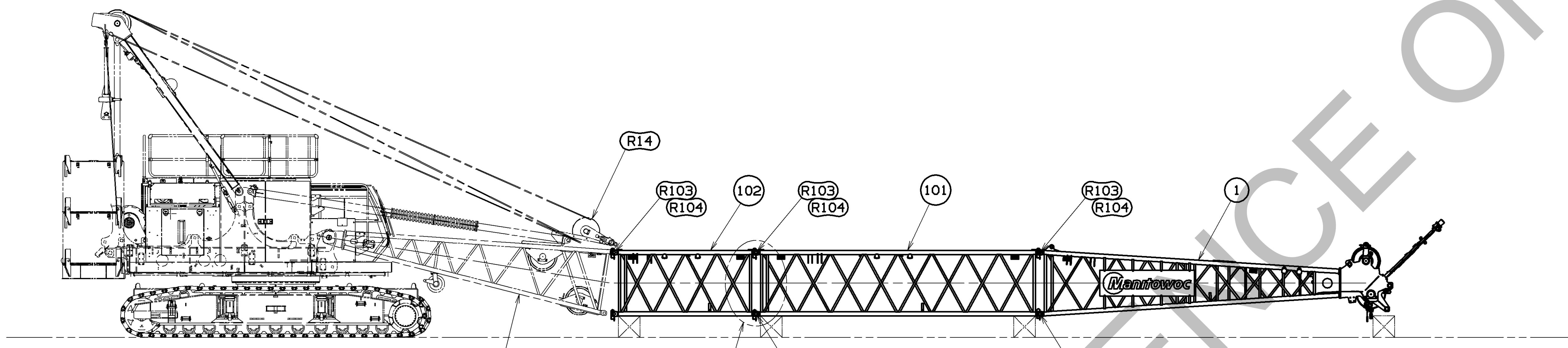
EQUALIZER (R14) TO BE PINNED TO BOOM BUTT (R15) WITH LINKS (R5). (SEE DETAIL F).
 REEVE 1 PART LINE FROM FRONT DRUM OVER UPPER AND LOWER INTERNAL BUTT WIRE ROPE SHEAVES AND CONNECT TO WEIGHT BALL (ITEM 202) WITH SOCKET (R3).
 ASSEMBLE BOOM COMPLETE, WITHOUT BUTT.
 DOUBLE TAPERED PIN (R104) AND SAFETY PIN (R103) TO BE INSTALLED AT TOP CONNECTORS. (SEE DETAIL E).
 DOUBLE TAPERED PIN (R104) AND SAFETY PIN (R103) TO BE INSTALLED AT BOTTOM CONNECTORS. (SEE DETAIL E).
 REMOVE WEIGHT BALL (ITEM 202) PRIOR TO ASSEMBLY OF BOOM TO BUTT (STEP 2).



DETAIL E
TYPICAL PIN CONNECTORS
SCALE 0.150



DETAIL F
SCALE 0.250



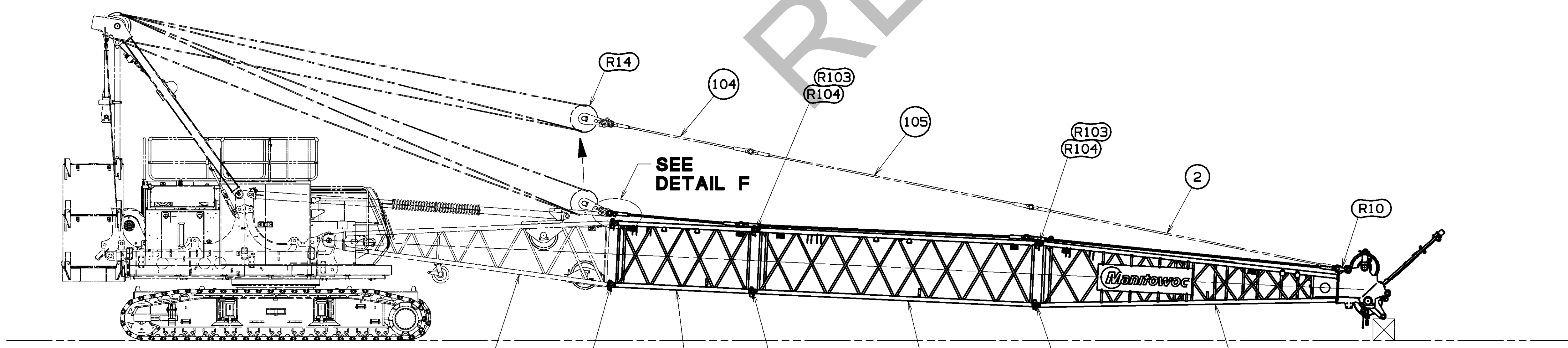
STEP 2
BOOM CLOSING

WITH EQUALIZER (R14) STILL PINNED TO BOOM BUTT (R15) AND THE BOOM INSERTS/TOP ASSEMBLY SUPPORTED ON BLOCKING, PIN BUTT (R15) UPPER CONNECTORS TO MATING INSERT/TOP CONNECTORS WITH DOUBLE TAPERED PINS (R104) AND SAFETY PINS (R103). (SEE DETAIL E).
 SLOWLY BOOM UP TO MATE LOWER CONNECTORS AND INSTALL DOUBLE TAPERED PINS (R104) AND SAFETY PINS (R103). (SEE DETAIL E).
 THIS BOOM CLOSING PROCEDURE CAN BE PERFORMED FOR ALL BOOM LENGTHS (19M (62.3FT) - 61M (200.1FT)).

NOTE:
SEE TABLE ON SHEET 2 FOR MAXIMUM BOOM INSERTS THAT CAN BE CANTILEVERED WITH EQUALIZER (R14) PINNED TO BUTT (R15).

TO DISASSEMBLE BOOM

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING. UNREEVE BLOCK.
 2. ATTACH EQUALIZER (R14) TO BOOM BUTT (R15). UNPIN TIE BACK LINKS (R5) FROM STORAGE LOCATION ON EQUALIZER HOLD DOWN BRACKET (SEE DETAIL B ON SHEET 1) AND ROTATE TO REATTACH TIE BACK LINKS TO EAR ON BOOM BUTT. (SEE DETAIL F).
 3. DETACH AND STORE PENDANTS FROM EQUALIZER (R14) OUT TO BOOM TOP (ITEM 1). STORE TOP LINKS (R10), PINS (R8 & R1) AND COTTERS (R2) WITH BOOM TOP PENDANTS (ITEM 2) OR IN PARTS BOX 84054316. (SEE DETAIL A ON SHEET 1 AND DELTA NOTE 13 ON SHEET 1).
 4. SLOWLY BOOM UP TO CREATE ENOUGH TENSION TO SUPPORT BOOM BUTT (R15) WHEN LOWER CONNECTOR PINS (R104) ARE REMOVED.
 5. REMOVE PINS (R104) FROM LOWER PIN CONNECTORS AT BUTT JOINT AND BOOM DOWN TO BLOCKING. (SEE VIEW "STEP 2 BOOM CLOSING").
 6. REMOVE PINS (R104) FROM UPPER PIN CONNECTORS AT BUTT JOINT.
- WARNING:
BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.
7. SLOWLY BACK AWAY FROM BOOM.
 8. REPEAT ASSEMBLY STEP 1 TO PREP MACHINE WITH WEIGHT BALL (ITEM 202) FOR DISASSEMBLY OF BOOM.
 9. DISASSEMBLE BOOM.



STEP 3
BOOM PENDANT ASSEMBLY

ASSEMBLE BOOM PENDANTS AS REQUIRED.
 SEE DETAIL A ON SHEET 1 FOR PENDANT (ITEM 2) TO LINK (R10) AND LINK (R10) TO TOP (ITEM 1) ATTACHMENT.
 SEE DETAIL B ON SHEET 1 FOR PENDANT TO PENDANT AND PENDANT TO EQUALIZER (R14) ATTACHMENT.
 DETACH EQUALIZER (R14) FROM BOOM BUTT (R15) BY REMOVING PIN (R6) WITH LOCKING PIN (R7) FROM TIE BACK LINKS (R5). PIVOT TIE BACK LINKS AROUND UPPER LINK PIN AND RELOCATE SLOT IN TIE BACK LINKS TO MATCH GROOVE ON EQUALIZER HOLD DOWN BRACKET. (SEE DETAIL F).
 REATTACH PIN (R6), WASHER (R17) AND LOCKING PIN (R7) INTO SLOTTED TIE BACK LINK HOLE AND EQUALIZER HOLD DOWN BRACKET GROOVE. (SEE DETAIL B ON SHEET 1).
 RIG BLOCK (SEE DELTA NOTE 11 ON SHEET 1) AND RAISE BOOM.

DECIMAL PLACES	FABRICATION	MACHINING	WELDING	APP
(1) PLACE 0.5	±.12 ±.18 ±.03	±.12 ±.18 ±.03	±.12 ±.18 ±.03	±.12 ±.18 ±.03
(2) PLACE 0.00	±.08 ±.12 ±.015	±.08 ±.12 ±.015	±.08 ±.12 ±.015	±.08 ±.12 ±.015
(3) PLACE 0.000	±.008 ±.012 ±.002	±.008 ±.012 ±.002	±.008 ±.012 ±.002	±.008 ±.012 ±.002

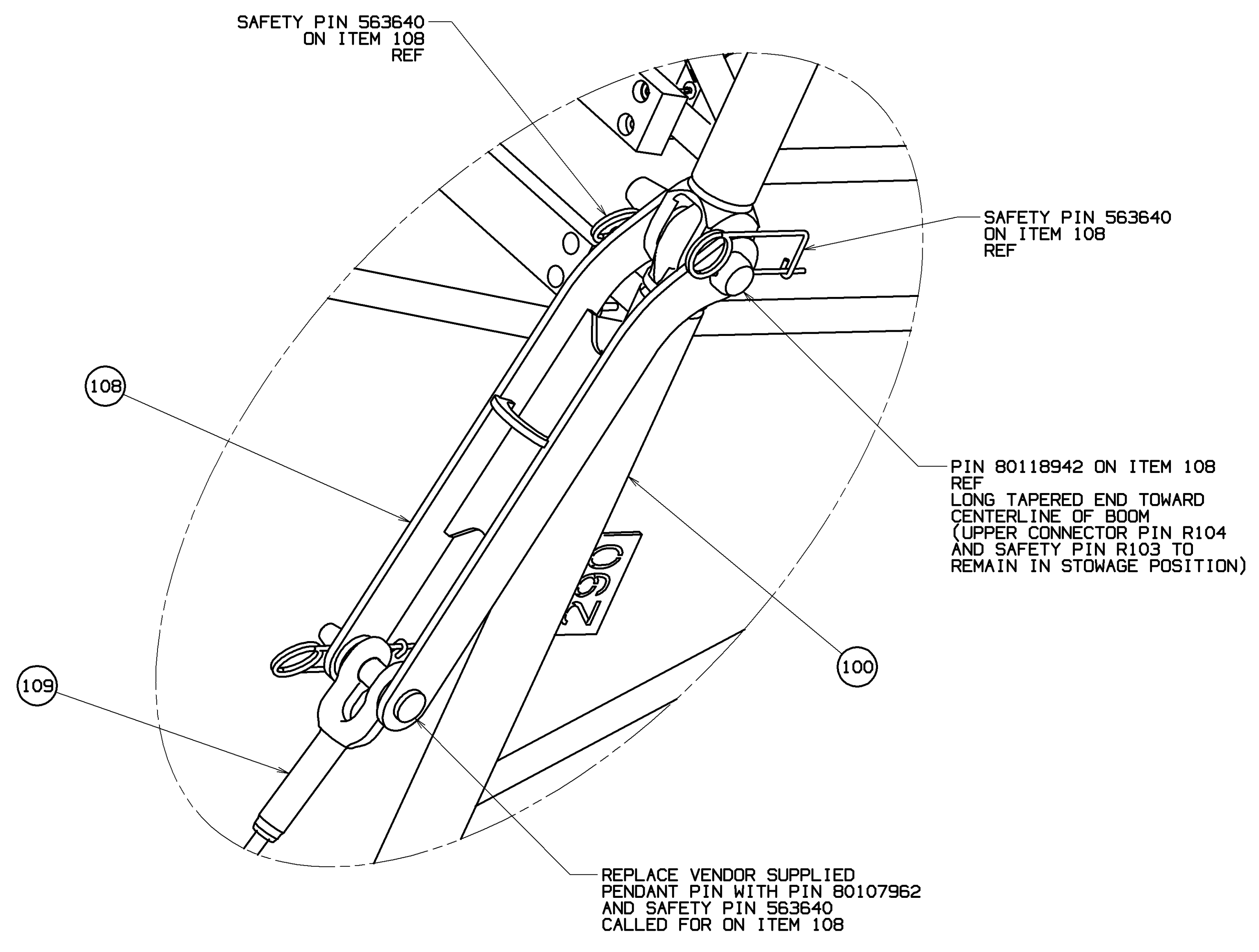
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REV: LNK
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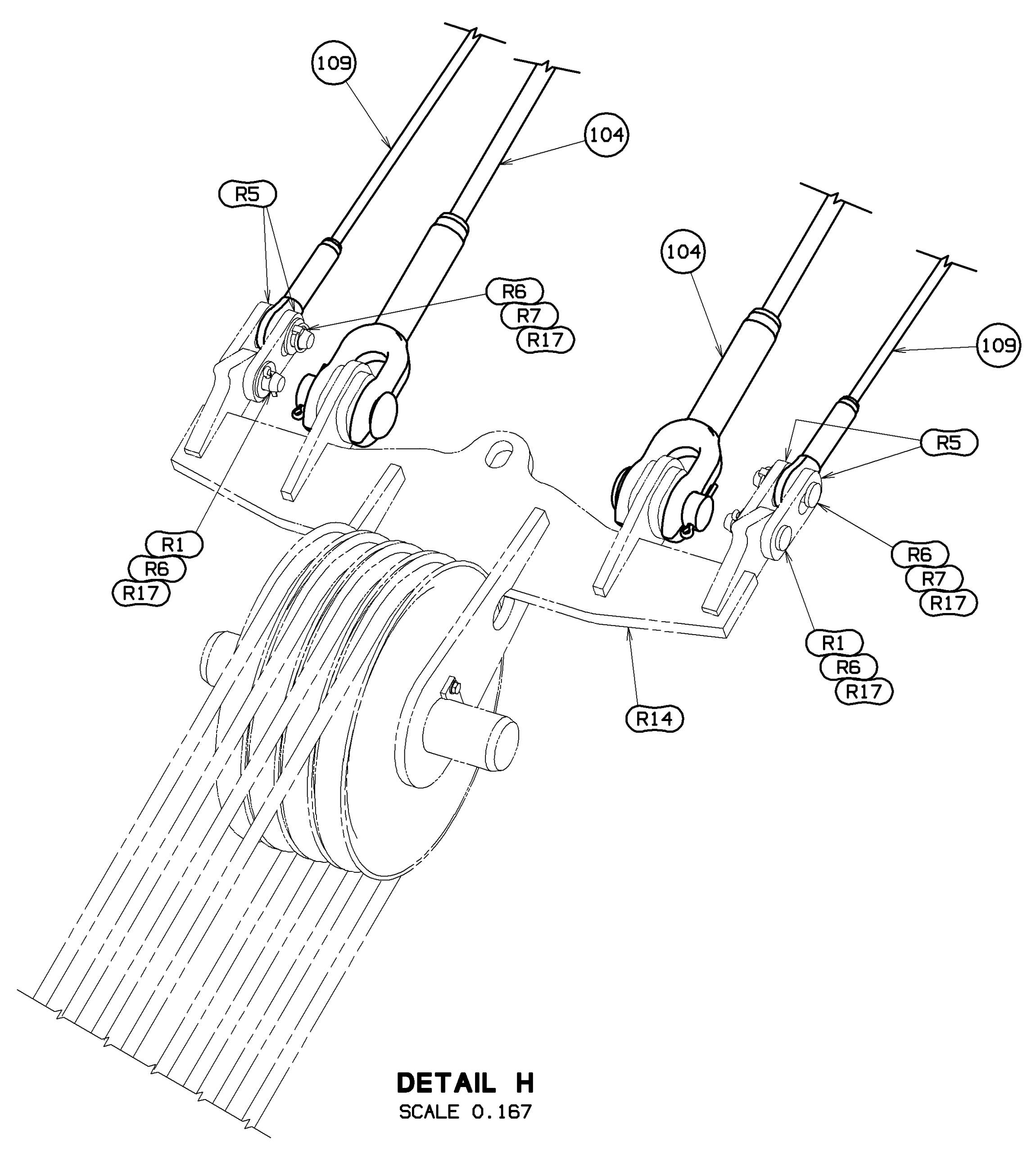
Manitowoc Cranes, Inc.
Manitowoc, Wisconsin
MODEL: MLC90A-1
BOOM RIGGING
B10:290

INTERMEDIATE SUSPENSION (ITEMS 108 AND 109) INSTALLATION

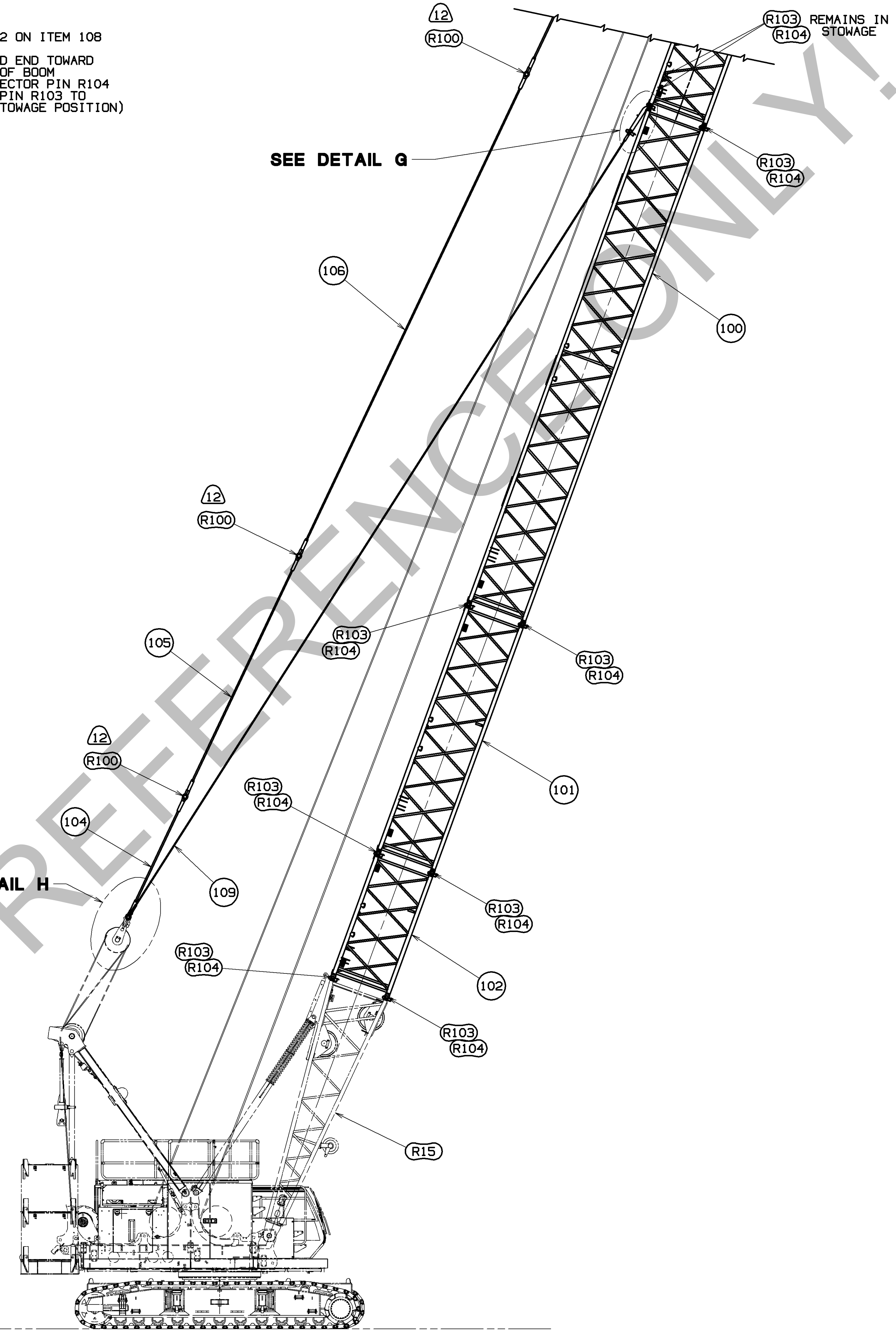
1. IF PREVIOUSLY INSTALLED, REMOVE AND STOW THE UPPER CONNECTOR PINS (R104) FROM THE JOINT TOWARD THE BOOM TOP ON THE 12M INSERT (ITEM 100) LOCATED NEAREST THE BOOM HINGE. (SEE 58M AND 61M #290 BOOM SHOWN).
 2. INSTALL INTERMEDIATE LINK ASSY (ITEM 108) AT THIS JOINT USING PIN AND SAFETY PIN PROVIDED WITH ITEM 108. (SEE DETAIL G).
 3. INSTALL PENDANT (ITEM 109) FEMALE END ONTO INTERMEDIATE LINK ASSY (ITEM 108). ATTACH USING PIN AND SAFETY PIN SUPPLIED WITH INTERMEDIATE LINK ASSY. (SEE DETAIL G).
 4. FROM EQUALIZER (R14) DETACH TIE BACK LINKS (R5) BY REMOVING PIN (R6), WASHER (R17) AND LOCKING PIN (R7). (SEE DETAIL B ON SHEET 1).
 5. PIVOT TIE BACK LINKS TOWARD BOOM TOP AND INSTALL PENDANT (ITEM 109) MALE END BETWEEN TIE BACK LINKS AND REINSTALL PIN (R6), WASHER (R17) AND LOCKING PIN (R7) THRU SLOTTED HOLE. (SEE DETAIL H).
- FOR REMOVAL OF INTERMEDIATE SUSPENSION (ITEM 108) REVERSE INSTALLATION STEPS 1 THRU 5.



DETAIL G
SCALE 0.250



DETAIL H
SCALE 0.167



58.0 M (190.3 FT)
61.0 M (200.1 FT)
#290 BOOM SHOWN