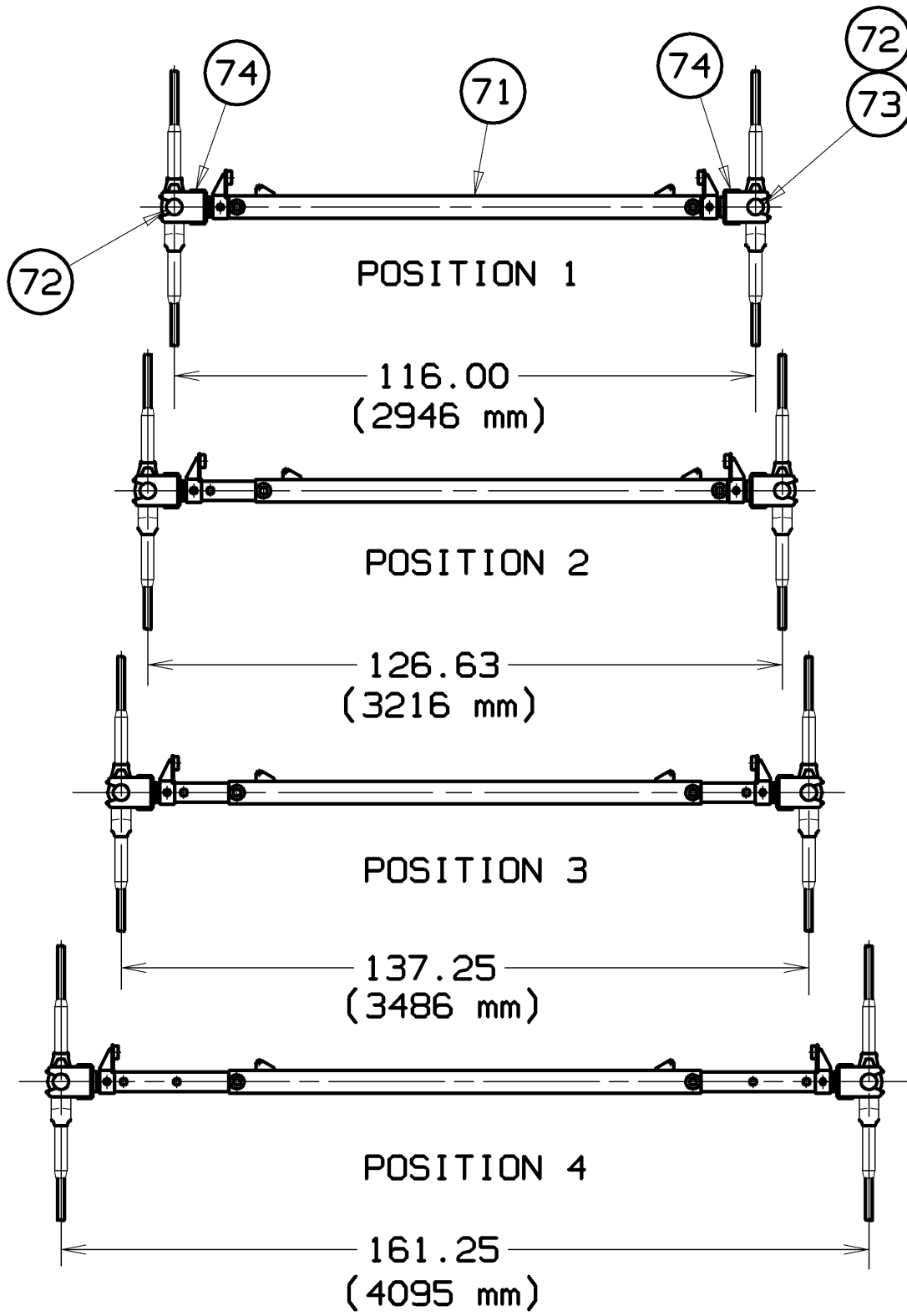


INSERTS, PENDANTS, AND ROLLER GUIDES REQ'D. FOR VARIOUS BOOM LENGTHS

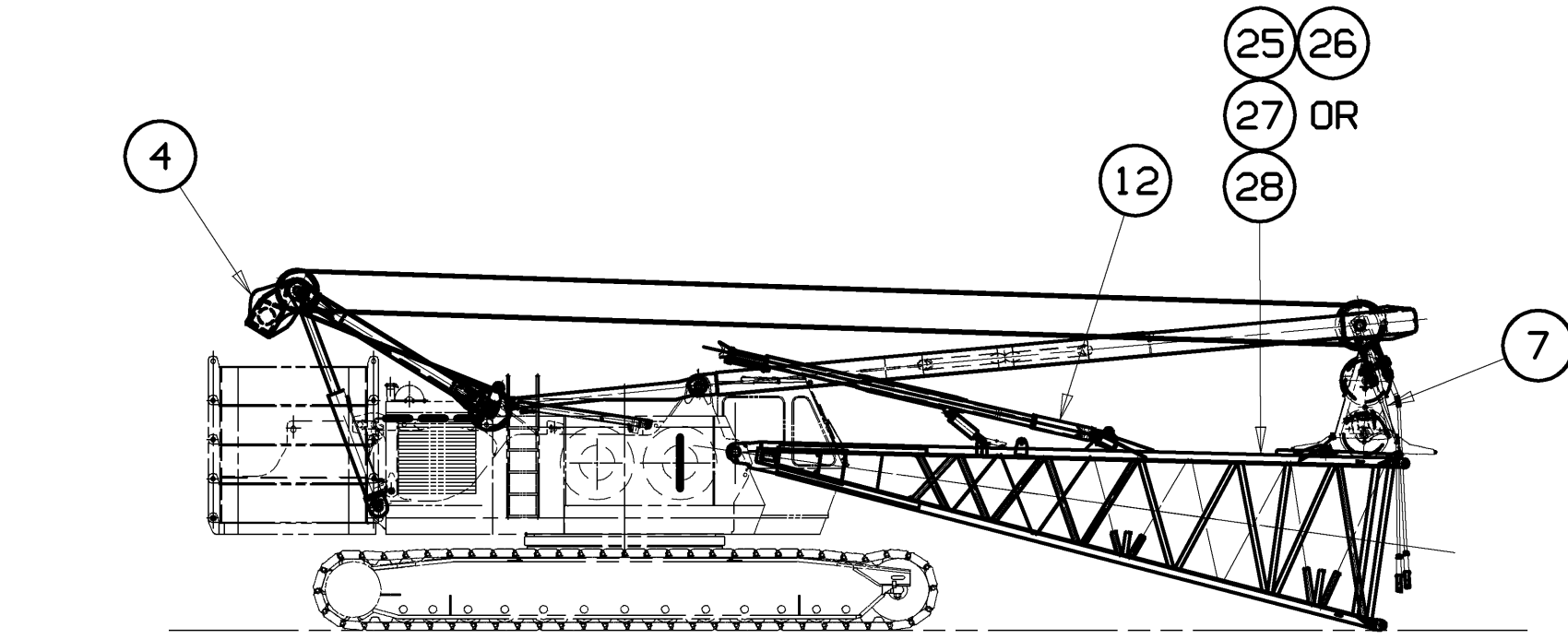
ITEM NO.		29, 32, OR 36		39, 43, 47, OR 51		55, 59, 63, OR 67		30, 33, OR 37		40, 44, 48, OR 52		56, 60, 64, OR 68		35, 42, 46, 50, 54, 58, 62, 66, OR 70		80 SEE (9)		90 SEE (9)		71		31, 34, 38, 41, 45, 49, 53, 57, 61, 65, OR 69		74		72		73	
BOOM LENGTH		10 FT 3.05 M INSERT SEE (13)		20 FT 6.10 M INSERT SEE (18)		40 FT 12.19 M INSERT SEE (3)		10 FT 3.05 M PENDANT		20 FT 6.10 M PENDANT (24)		40 FT 12.19 M PENDANT (24)		WIRE ROPE TIMBER		WIRE ROPE GUIDE ASSEMBLY W/BOOM TOP		WIRE ROPE GUIDE ASSEMBLY W/BOOM TOP		SPREADER SEE (4)		PENDANT TIE BAR SEE (12)		USE WITH SPREADER ITEM NO. 71 IN LINE/OFFSET SEE (4)					
FEET	METERS															IN LINE OFFSET		IN LINE OFFSET		IN LINE OFFSET				SPREADER BRACKET		PIN		END PLATE	
80	24.4	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4/4	0/0	0/0	0/0					
90	27.4	OR 2	0	0	8	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	6/6	0/0	0/0	0/0					
100	30.5	1	1	0	4	4	0	1	1	1	1	1	1	1	1	1	1	1	0	1	6/4	0/2	0/2	0/2					
110	33.5	2	1	0	8	4	0	1	1	1	1	1	1	1	1	1	1	0	1	8/6	0/2	0/2	0/2						
		OR 0	2	0	0	8	0	2	1	1	1	1	1	1	1	1	1	1	0	1	6/4	0/2	0/2	0/2					
120	36.6	OR 1	2	0	4	8	0	2	1	1	1	1	1	1	1	1	1	0	1	8/6	0/2	0/2	0/2						
			1	0	1	4	0	4	2	1	1	1	1	1	1	1	1	0	1	6/4	0/2	0/2	0/2						
130	39.6	OR 2	0	1	8	0	4	2	1	1	1	1	1	1	1	1	1	1	0	1	6/6	2/2	2/2	2/2					
		0	1	1	0	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2					
140	42.7	1	1	1	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
150	45.7	OR 2	1	1	8	4	4	3	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2						
		OR 0	2	1	0	8	4	4	4	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2					
160	48.8	OR 1	2	1	4	8	4	4	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
			1	0	2	4	0	8	4	1	1	1	1	1	1	1	1	1	1	1	4/4	2/2	2/2	2/2					
170	51.8	OR 2	0	2	8	0	8	4	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
		0	1	2	0	4	8	5	1	1	1	1	1	1	1	1	1	1	1	1	4/4	2/2	2/2	2/2					
180	54.9	1	1	2	4	4	8	5	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
190	57.9	OR 2	1	2	8	4	8	5	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2						
		OR 0	2	2	0	8	8	6	1	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2					
200	61.0	OR 1	2	2	4	8	8	6	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2						
210	64.0	1	0	3	4	0	12	6	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
		OR 2	0	3	8	0	12	6	1	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2					
220	67.1	0	1	3	0	4	12	7	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2						
		1	1	3	4	4	12	7	1	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2					
230	70.1	OR 2	1	3	8	4	12	7	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2						
		OR 0	2	3	0	8	12	8	1	1	1	1	1	1	1	1	1	1	1	1	6/6	2/2	2/2	2/2					
240	73.2	OR 1	2	3	4	8	12	8	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2						
		1	0	4	4	0	16	8	1	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2					
250	76.2	OR 2	0	4	8	0	16	8	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2						
		0	1	4	0	4	16	9	1	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2					
260	79.2	1	1	4	4	4	16	9	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2						
270	82.3	OR 2	1	4	8	4	16	9	1	1	1	1	1	1	1	1	1	1	1	12/12	2/2	2/2	2/2						
		OR 0	2	4	0	8	16	10	1	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2					
280	85.3	OR 0	0	5	0	0	20	10	1	1	1	1	1	1	1	1	1	1	1	8/8	2/2	2/2	2/2						
		1	2	4	4	8	16	10	1	1	1	1	1	1	1	1	1	1	1	1	12/12	2/2	2/2	2/2					
290	88.4	OR 1	0	5	0	4	20	10	1	1	1	1	1	1	1	1	1	1	1	10/10	2/2	2/2	2/2						
		2	0	5	8	0	20	10	1	1	1	1	1	1	1	1	1	1	1	1	12/12	2/2	2/2	2/2					

SPREADER INSTRUCTIONS FOR BOOM TOP IN LINE			
BOOM LENGTH	SPREADER REQUIRED	SPREADER POSITION	LOCATION FROM LOWER BOOM POINT
70 - 120 FT. (21.3 - 36.6 M)	NO		
130 - 230 FT. (39.6 - 70.1 M)	YES	2	81 FT. 7.75 (24.9 M) (81 FT. 10.75 (24.97M))
240 - 290 FT. (73.2 - 88.4 M)	YES	4	121 FT. 7.75 (37.1 M) (122 FT. 1.75 (37.2 M))

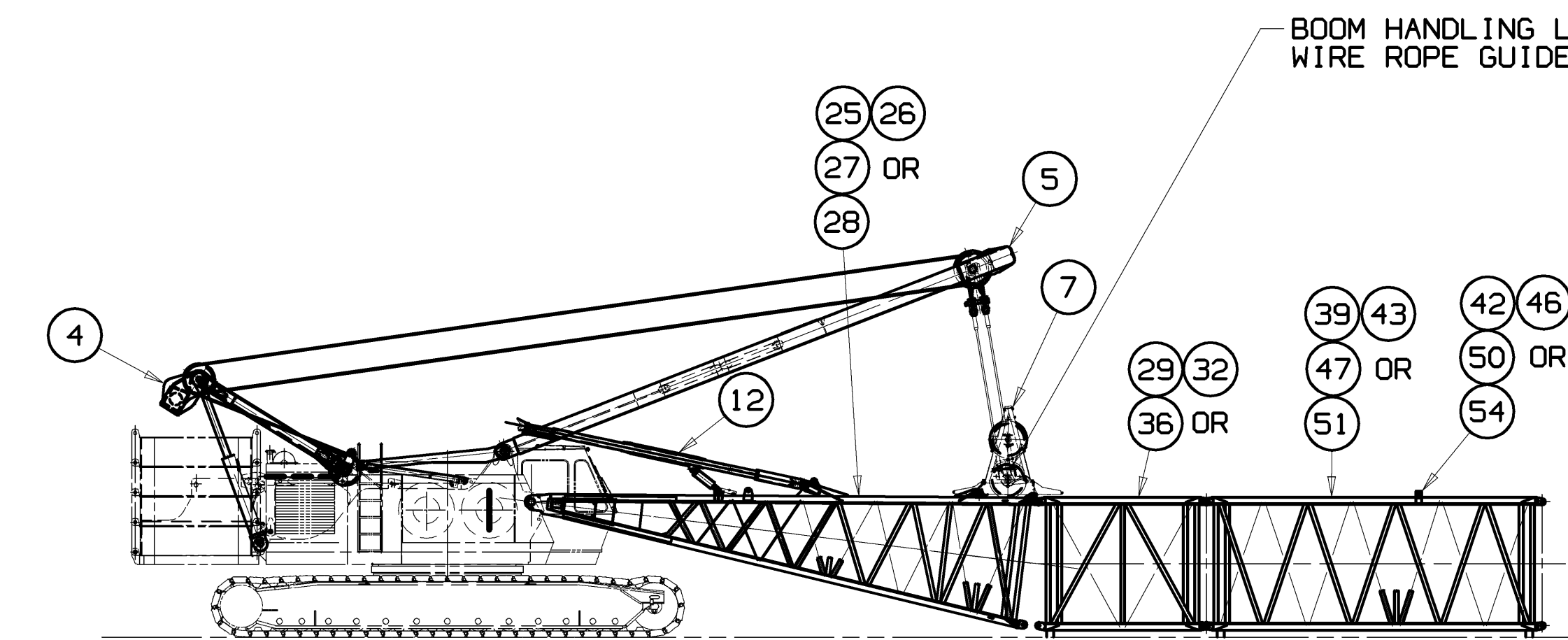
SPREADER INSTRUCTIONS FOR BOOM TOP OFFSET 4.5"			
BOOM LENGTH	SPREADER REQUIRED	SPREADER POSITION	LOCATION FROM LOWER BOOM POINT
70 - 90 FT. (21.3 - 27.4 M)	NO		
100 - 120 FT. (30.5 - 36.6 M)	YES	1	61 FT. 7.75 (18.8 M) (61 FT. 9.25 (18.83 M))
130 - 170 FT. (39.6 - 51.8 M)	YES	3	81 FT. 7.75 (24.9 M) (81 FT. 10.75 (24.97 M))
180 - 290 FT. (54.9 - 88.4 M)	YES	4	121 FT. 7.75 (37.1 M) (122 FT. 1.75 (37.2 M))



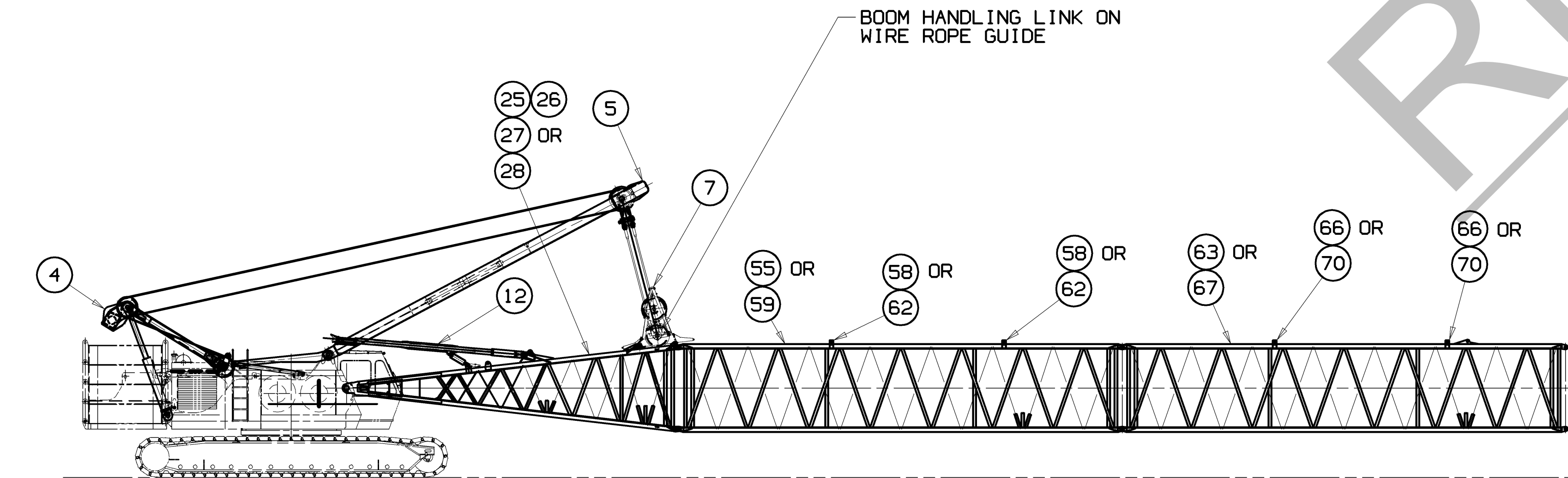
SPREADER POSITION DIAGRAMS



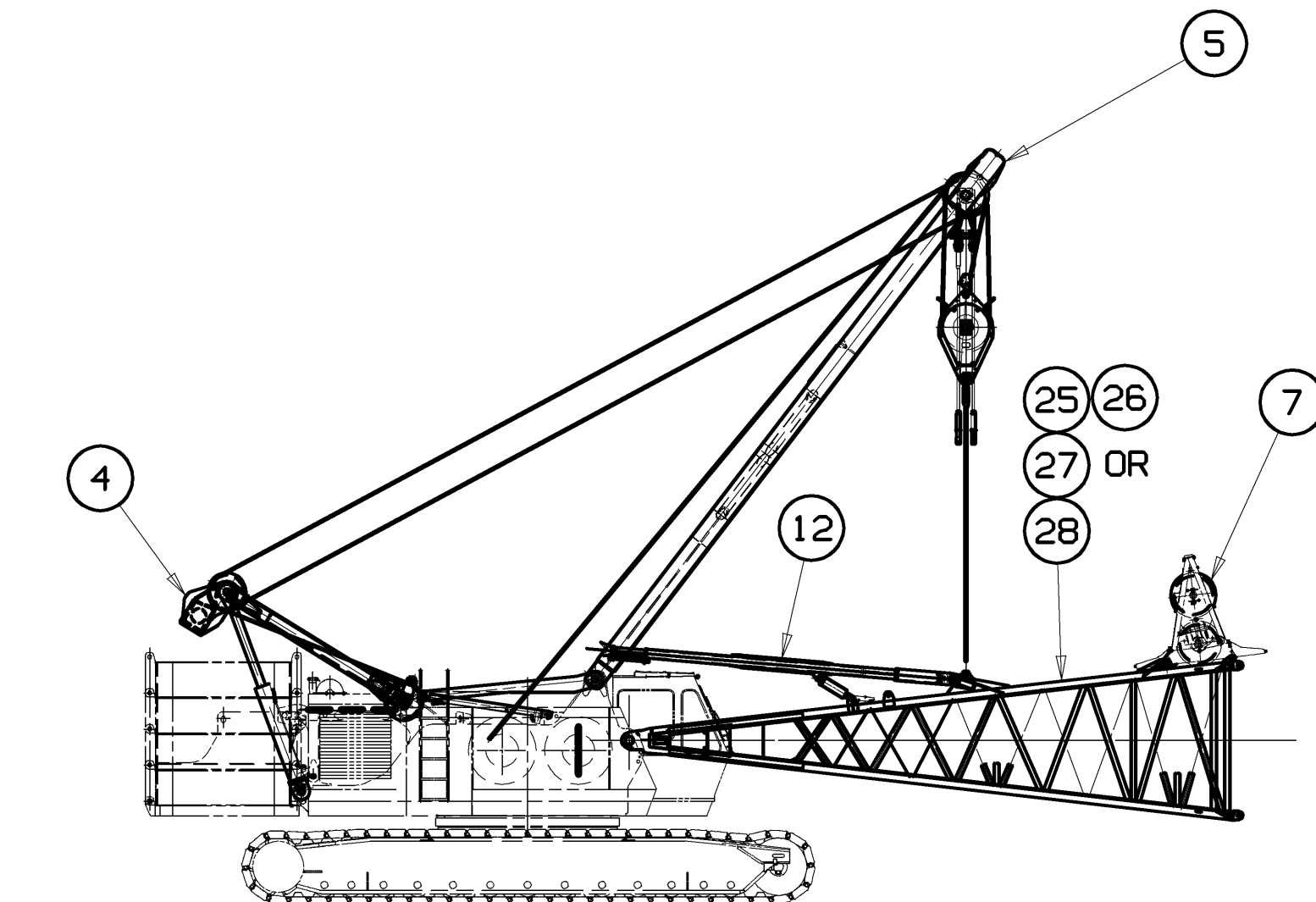
MAST RESTING ON BOOM BUTT WIRE ROPE GUIDE



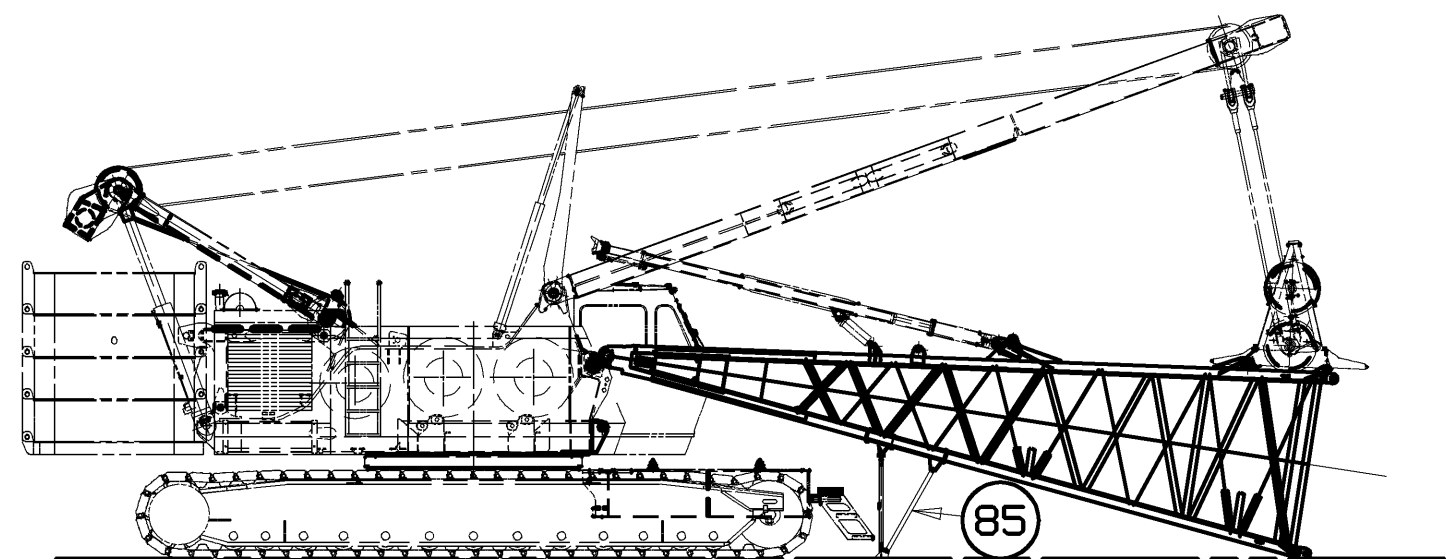
BOOM ASSEMBLY WITH MAST



BOOM HANDLING WITH MAST



ATTACHING BOOM BUTT TO ROTATING BED USING AUXILIARY BLOCK IN MAST.



ATTACHING BOOM BUTT TO ROTATING BED USING OPTIONAL BUTT SUPPORT ASSEMBLY.

1 EXISTING 10 FT. (3.05 M) BOOM INSERT 33407-3 CAN ALSO BE USED.

2 623526 WITH JIB BACKSTAY LUGS. 623580 WITH JIB BACKSTAY LUGS. EXISTING 20 FT (6.10 M) BOOM INSERT 623564 WITHOUT JIB BACSTAY LUGS CAN BE USED.

3 50609-2 WITHOUT JIB BACKSTAY LUGS. 623526 WITH JIB BACKSTAY LUGS. THE FOLLOWING EXISTING 40 FT. (12.19 M) BOOM INSERTS CAN ALSO BE USED: 623537, 623532, 623535, 623533, 623534 AND 623536 WITHOUT BACKSTAY LUGS. 623527, 623579 & 623530 WITH BACKSTAY LUGS.

4 SEE SPREADER INSTRUCTION TABLES AND SPREADER POSITION DIAGRAMS FOR SPREADER REQUIREMENTS.

4 - 20FT. (6.10M) PENDANTS ITEM 40, 44, 48, OR 52 ARE REQUIRED TO LOCATE SPREADER FOR 110 FT. (33.5M) BOOM LENGTH WITH OFFSET TOP.

8 - 20FT. (6.10M) PENDANTS ITEM 40, 44, 48, OR 52 ARE REQUIRED TO LOCATE SPREADER FOR 120 FT. (36.6M) BOOM LENGTH WITH OFFSET TOP.

6 - 30.00 DIA. SHEAVES

5 DWG. 139353

7 GRADE 5

8 JIB CANNOT BE USED WITH THIS ASSEMBLY.

9 EITHER WIRE ROPE GUIDE, ITEM 80 OR 90 MAY BE USED WHEN BOOM BUTT IS NOT EQUIPPED WITH AUXILIARY DRUM. ITEM 90 MUST BE USED WHEN BOOM BUTT IS EQUIPPED WITH AUXILIARY DRUM. ROPE GUIDE, ITEM 80 CANNOT BE USED ON 70 FT. AND 80 FT. IN LINE TOP OR 70 FT. OFFSET TOP. MODIFICATION ITEM 86 MUST BE USED WITH ROPE GUIDE ASSEMBLY ITEM 80 FOR JIB APPLICATIONS. ROPE GUIDE ITEM 90 CANNOT BE USED ON 70 FT. IN LINE OR OFFSET TOP.

10 REQUIRED FOR TWO PART LINE.

11 DWG. 76280

12 CLAMP TIE BARS TO PENDANT FITTING AT EACH CONNECTION WITHOUT SPREADER PIN.

13 SEE 1, 14, 16 AND 34

14 MAXIMUM NO. OF 10 FT (3.05 M) INSERTS = 2

15 MAXIMUM NO. OF 20 FT (6.10 M) INSERTS = 2

16 COMBINATION OF 10 FT. (3.05M) AND 20 FT. (6.10M) INSERTS CANNOT EXCEED 2 - 10 FT. (3.05M) PLUS 1 - 20 FT. (6.10M) OR 1 - 10 FT. (3.05M) PLUS 2 - 20 FT. (6.10M).

17 STARTING WITH THE BOOM BUTT, INSERTS MUST BE INSTALLED IN ORDER OF ASCENDING LENGTH.

18 SEE 2, 15, 16 AND 35

19 ITEMS 18, 31, 34, 38, 41, 45, 49, 53, 57, 61, 65 AND 69 HAVE THE SAME PART NO. 78307.

20 ITEMS 35, 46, 54, 62 AND 70 HAVE THE SAME PART NO. 192014.

21 ITEMS 40, 44, 48, & 52 HAVE THE SAME PART NO. 276862.

22 ITEMS 56, 60, 64, & 68 HAVE THE SAME PART NO. 276863.

23 PENDANTS SHOWN ATTACHED TO MAST ARE CALLED FOR ON MAST ASSEMBLY (ITEM 5) AND ARE REQUIRED FOR ALL BOOM LENGTHS.

24 20 FT 1.50 IN (6.13 M), #277426 AND 40 FT 3 IN. (12.27 M), #277427 PENDANTS FROM #22EL BOOM RIGGING CAN BE USED IN PLACE OF 20 FT. (6.10 M), #277862 AND 40 FT. (12.19 M), #277863 PENDANTS.

DO NOT MIX PENDANTS OF ONE LENGTH WITH THOSE OF A DIFFERENT LENGTH.

PENDANTS MUST BE INSTALLED IN MATCH SETS (PENDANTS ON ONE SIDE OF BOOM MUST MATCH LENGTH OF PENDANTS ON OTHER SIDE OF BOOM). FAILING TO OBSERVE THIS PRECAUTION WILL CAUSE MAST TO TWIST EXCESSIVELY WHEN BOOM IS RAISED. STRUCTURAL DAMAGE TO MAST OR BOOM WILL OCCUR.

25 SEE 11 AND 24

26 LOCATION USING 276863 (LOCATION USING 277427)

27 LOCATION USING 276862/276863 (LOCATION USING 277426/277427)

28 WHEN AUXILIARY DRUM SHAFT ASSEMBLY (ITEM 88) IS USED, BOOM BUTT (ITEM 27 OR 29), WIRE ROPE GUIDE ASSEMBLIES (ITEMS 89 AND 90) AND 10 FT (3.05 M) INSERT (ITEM 36) ARE REQUIRED. THE 10 FT (3.05 M) INSERT (ITEM 36) MUST BE ADJACENT TO THE BOOM BUTT AT ALL TIMES. MINIMUM BOOM LENGTH USING THESE COMPONENTS IS 80 FT (24.2 M). MAXIMUM BOOM LENGTH IS 280 FT (85.3M) USING THESE COMPONENTS.

29 #22E BOOM BUTT (176967) IF MODIFIED PER (421218) CAN BE USED WITH AUXILIARY DRUM SHAFT ASSEMBLY (ITEM 88).

30 FOR STOWAGE DURING SHIPPING ONLY. MUST BE REMOVED FOR CRANE OPERATION.

31 (2) TIMBERS ARE REQUIRED FOR STOWAGE DURING SHIPPING BUT MUST BE REMOVED FOR CRANE OPERATION. REINSTALL (1) TIMBER ON TOP OF INSERT CHORDS FOR CRANE OPERATION.

32 (3) TIMBERS ARE REQUIRED FOR STOWAGE DURING SHIPPING BUT MUST BE REMOVED FOR CRANE OPERATION. REINSTALL (2) TIMBERS ON TOP OF INSERT CHORDS FOR CRANE OPERATION.

33 #22E BOOM BUTT (176967) IF MODIFIED PER (421262) OR (177290) IF MODIFIED PER (421258) CAN BE USED AS THE #22EL FIXED JIB BUTT

34 INSERT (33407) 10 FT (3.05M) CAN BE EQUIPPED WITH REMOVABLE DIAGONAL LACINGS PER MODIFICATION (421257).

35 INSERT (33426) 20 FT (6.10M) CAN BE EQUIPPED WITH REMOVABLE DIAGONAL LACINGS PER MODIFICATION (421258).

36 INSERT (50609) 40 FT (12.19M) CAN BE EQUIPPED WITH REMOVABLE DIAGONAL LACINGS PER MODIFICATION (421259).

37 SEE 15, 16 AND 35

38 ITEMS 42, 50, 58 AND 66 HAVE THE SAME PART NO. 192013

39 DISCARD TOP PLATE ON ITEM 13. ITEM 23 IS USED INSTEAD.

40 ATTACH TIMBERS SO THEY ARE FREE TO SLIDE UNDER THERMAL EXPANSION/CONTRACTION OF PLASTIC

BOOM ASSEMBLY PROCEDURE

(MAST CAN BE USED TO ASSEMBLE ALL RIGGING COMPONENTS.)

1. ASSEMBLE BOOM COMPLETE, WITHOUT BUTT.
2. ATTACH ROPE GUIDES, PENDANTS, SPREADER, LINKS AND PINS AS REQ'D.
3. USING THE MAST WITH AUXILIARY BLOCK OR THE OPTIONAL BOOM BUTT SUPPORT, INSTALL THE BOOM BUTT WITH ROPE GUIDE AND BOOM STOPS TO ROTATING BED. (BOOM STOPS MUST BE IN SHIPPING (LOWER) POSITION.)
4. BOOM DOWN AND ATTACH MAST PENDANTS TO BOOM HANDLING LINK ON ROPE GUIDE ITEM 7.
5. BOOM UP TO CLEAR GROUND WITH BUTT.
6. POSITION MACHINE TO ALIGN UPPER PIN CONNECTOR HOLES ON BOOM BUTT WITH UPPER PIN CONNECTOR HOLES ON FIRST BOOM INSERT AND INSERT PINS.
7. SLOWLY BOOM UP TO ALIGN LOWER PIN CONNECTOR HOLES ON BOOM BUTT WITH LOWER PIN CONNECTOR HOLES IN FIRST BOOM INSERT AND INSERT PINS.

WARNING:

DO NOT BOOM UP PAST LOWER CONNECTOR HOLES. IF BOOMING UP CONTINUES AFTER CONNECTORS BOTTOM OUT OR AFTER PINS ARE INSERTED, DAMAGE TO ROPE GUIDE AND BOOM BUTT WILL OCCUR.

8. BOOM DOWN TO DISCONNECT MAST PENDANTS FROM ROPE GUIDE LINKS.
9. ATTACH MAST PENDANTS TO BOOM PENDANTS.
10. BOOM UP TO REMOVE SOME SLACK FROM PENDANTS.
11. CONNECT AIR SUPPLY TO BOOM STOPS AND RAISE BOOM STOPS INTO POSITION. ROTATE CYLINDER BRACKET INTO POSITION AND PIN.
12. BOOM UP TO DESIRED BOOM ANGLE.

TO DISASSEMBLE BOOM

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING.
2. ROTATE CLYINDER BRACKET AND LOWER BOOM STOPS. DISCONNECT BOOM STOP AIR LINES.
3. DISCONNECT MAST PENDANTS FROM BOOM PENDANTS
4. CONNECT MAST PENDANTS TO HANDLING LINK ON ROPE GUIDE.
5. BOOM UP TO REMOVE SLACK FROM MAST PENDANTS.

WARNING:

DO NOT BOOM UP TO PUT TENSION INTO MAST PENDANTS. (REMOVE SLACK ONLY) TENSION IN MAST PENDANTS WILL DAMAGE ROPE GUIDE AND BOOM BUTT.

6. REMOVE LOWER AND THEN UPPER BOOM BUTT CONNECTOR TO BOOM INSERT CONNECTOR PINS.

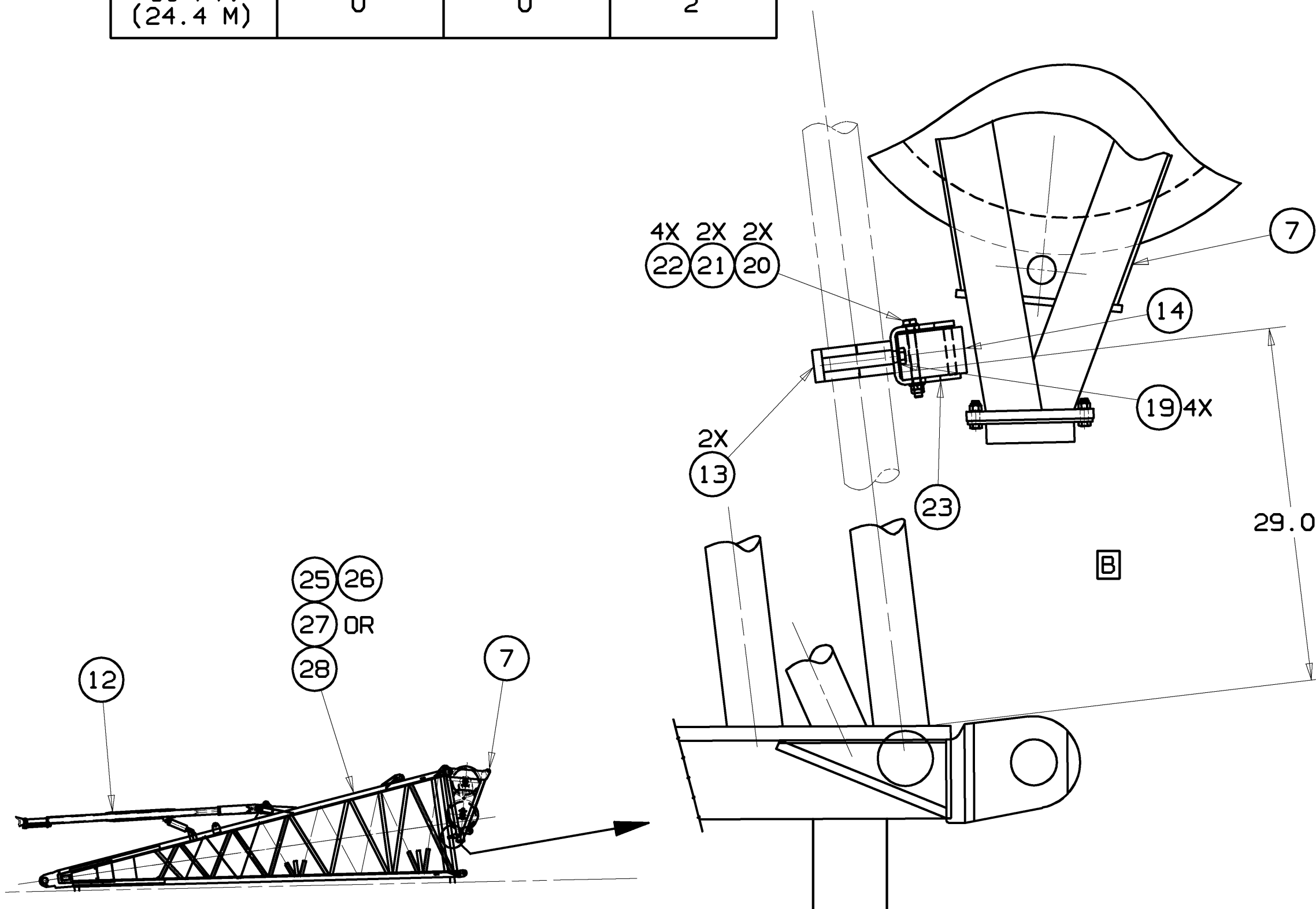
WARNING:

BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.

7. SLOWLY BOOM UP TO SUPPORT BOOM BUTT WITH MAST PENDANTS AND BACK AWAY FROM BOOM.
8. REMOVE BOOM BUTT FROM ROTATING BED WITH MAST.
9. DISASSEMBLE BOOM WITH MAST.

BOOM HANDLING WITH MAST
WITH MAST PENDANTS PINNED TO ROPE GUIDE
LINKS: MAXIMUM BOOM THAT CAN BE
CANTILEVERED IS AS FOLLOWS:

LENGTH	10 FT. (3.05 M) INSERT	20 FT. (6.10 M) INSERT	40 FT. (12.2 M) INSERT
40 FT. (12.2 M)	2	1	0
50 FT. (15.2 M)	1	2	0
60 FT. (18.3 M)	2	0	1
60 FT. (18.3 M)	0	1	1
80 FT. (24.4 M)	0	0	2



BOOM BUTT SHIPPING ARRANGEMENT

SPUERSEDES 176519 SHT 2 OF 8-31-95

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PRIVATE LABELING
REQUIREMENT TO
CONFORM TO
ENGINEERING
SPECIFICATION
S629103794 FOR
COMPONENTS LISTED
IN S629103794-05-058

DATE
4-18-97
PATTERN NO.
176519

DATE
4-18-97
PATTERN NO.
176519

DATE
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176519

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