

E FOR REFERENCE ONLY- SEE A01031

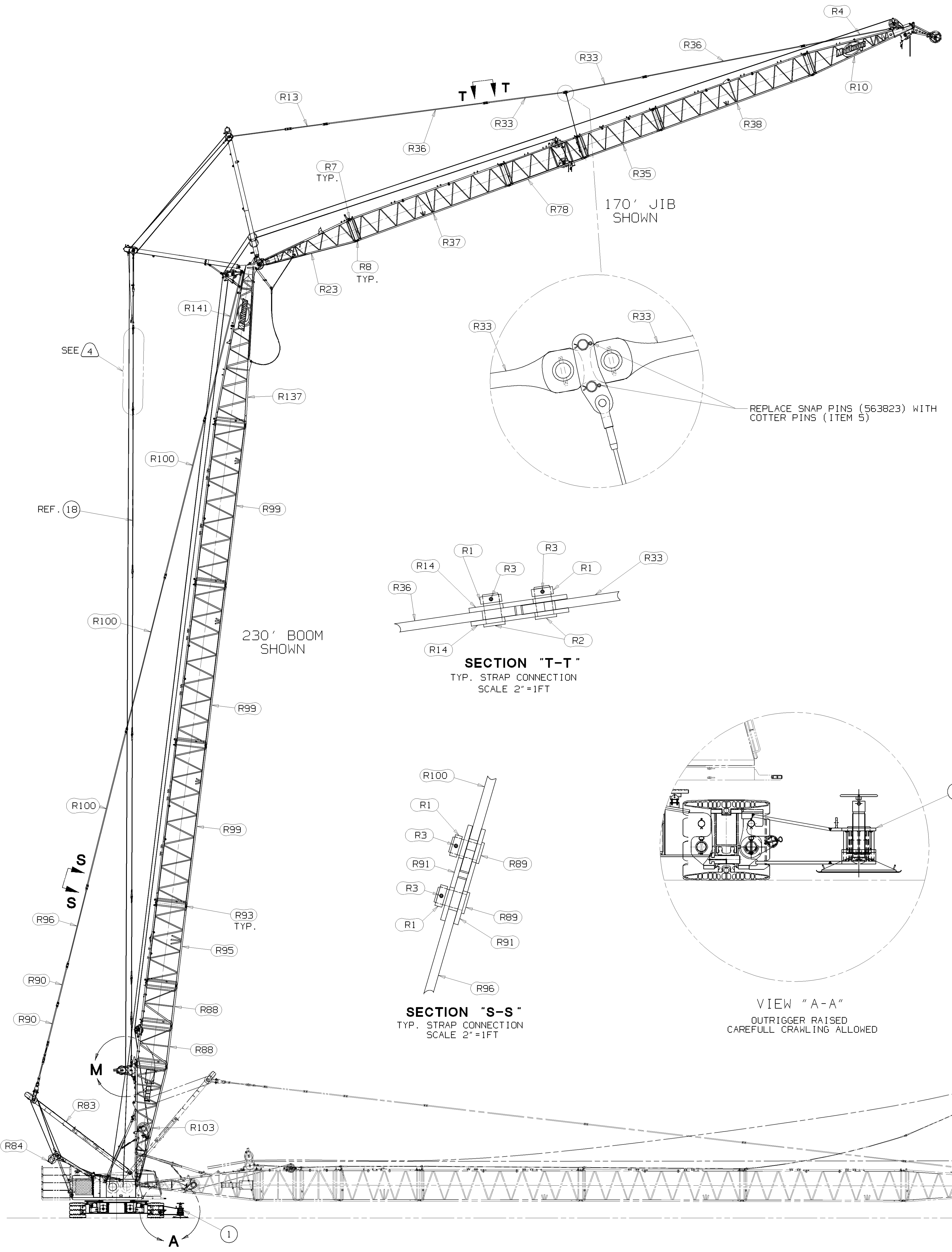
18	2	PENDANT 20 FT. - 1.50 (6.13M)	277383	6
0920-2700 PENDANT 10 FT. - 1.00 (3.07M) JIB BACKSTAY FOR USE WITH 10 FT. BOOM INSERT				
29	2	PENDANT 10 FT. - 1.00 (3.07M)	277382	6
0920-2710 PENDANT 20 FT. - 1.50 (6.13M) JIB BACKSTAY FOR USE WITH 20 FT. BOOM INSERT				
30	2	PENDANT 20 FT. - 1.50 (6.13M)	277383	6
0920-2720 PENDANT 40 FT. - 3.00 (12.27M) JIB BACKSTAY FOR USE WITH 40 FT. BOOM INSERT				
31	2	PENDANT 40 FT. - 3.00 (12.27M)	277384	6

BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	QTY	DESCRIPTION	MATERIAL	CODE NO.
A 0920-3000 ASSEMBLE IN AIR ASSEMBLY				
1	1	BAR		A01337
2	1	ROLLER ASSEMBLY R.H. FEMALE		197077
3	1	ROLLER ASSEMBLY L.H. FEMALE		197081
C 4 RAISING OUTRIGGER ASSEMBLY 196419				
5	8	COTTER PIN		562110
B 0920-3100 REQ'D FOR 210'-230' BOOM				
6	1	RAISING OUTRIGGER ASSEMBLY		196419

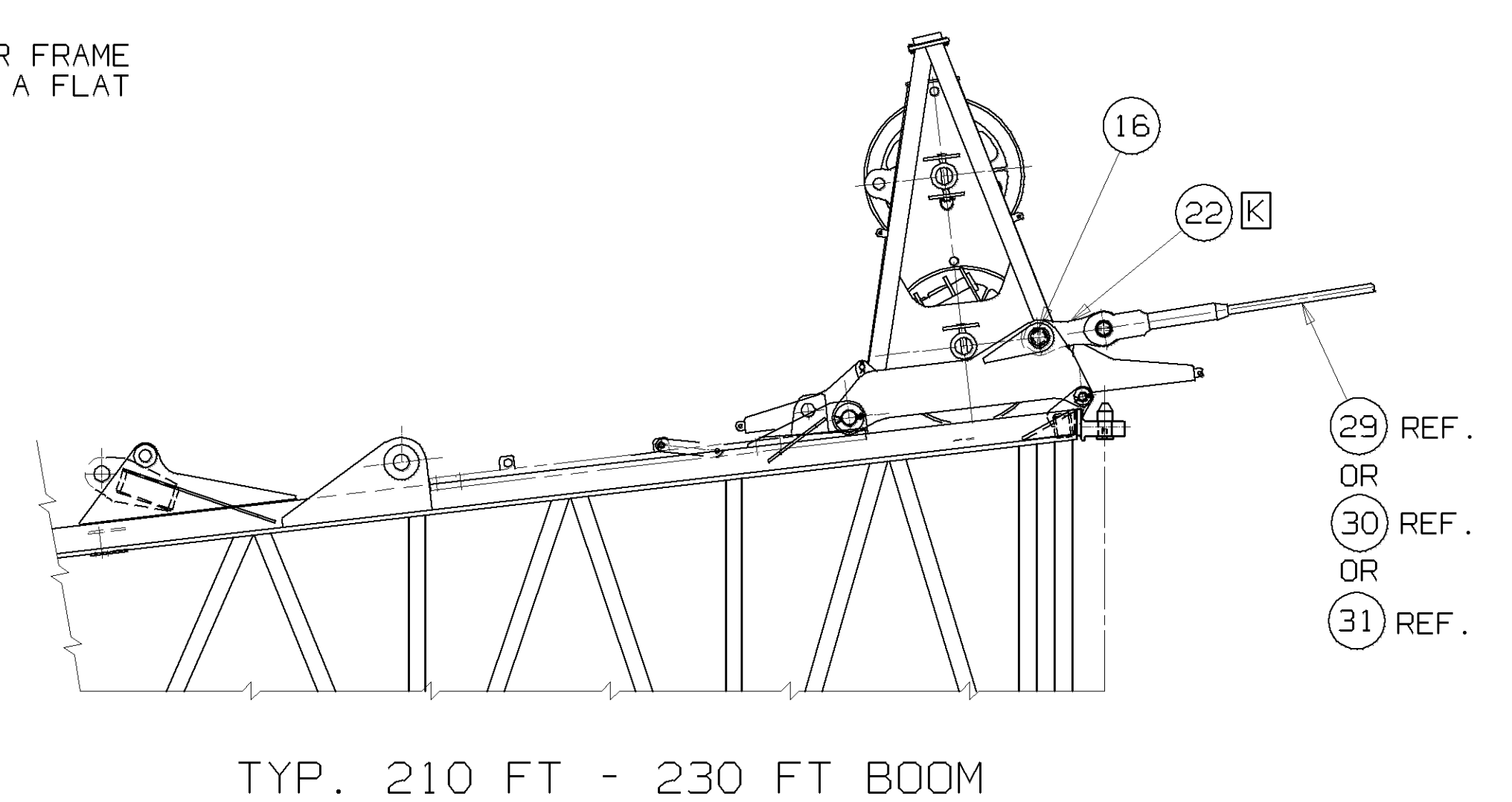
REVISIONS
09-27-01 JMM
A1 ADDED
B1 DELETED
D1 UPDATED
NOTE
10-25-01 DW
E1 ADDED
F1 ADDED REF ITEMS 17, 21, 16, 19 & 20
G1 ADDED VIEW
03-28-02 DJS
J1 WAS
SHEET 1 OF 3
04-24-02 RLP
K1 WAS ITEM 19

- 1 FOR BOOM PARTS, NOTES, TABLES, SECTIONS AND VIEWS FOR BOOM LENGTHS LESS THAN 210 FT. REFER TO ASSEMBLY A01031.
- 2 REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM AND JIB COMBINATIONS.
- 3 SEE LUFFING JIB ASSEMBLE-IN-AIR RAISING PROCEDURE #8411-A FOR RAISING AND LOWERING BOOM AND JIB.
- 4 FOR LUFFING JIB PARTS, NOTES, TABLES, SECTIONS AND VIEWS REFER TO ASSEMBLY A01031.
- 5 TO RAISE MAIN STRUT TO OPERATING POSITION, ADD 2500 LB WEIGHT ON JIB STRUT TOP OR AT LEAST 20 FT INSERT TO JIB BUTT.
- 6 ON DRAWING 78415

INSERTS, PENDANTS, AND ROLLER GUIDES REQUIRED FOR VARIOUS BOOM LENGTHS 1					JIB BACKSTAY PENDANTS, LINKS, AND PINS REQUIRED FOR VARIOUS BOOM LENGTHS 4								
ITEM NO.	BOOM LENGTH			STRAP POSITION	29	30	31	17	21	16	19	20	
	FEET	METERS	ASSEMBLY		10 FT-1.00 3.07 M PEND.	20 FT-1.50 6.13 M PEND.	40 FT-3.00 12.27 M PEND.	REF. 5FT - 5IN 1.54 M PEND.	REF. LINK 24.00 610MM	REF. PIN 170690	REF. LINK 8.50 216MM	REF. PIN A01169	
210	64.0	OR -	2 0	0	3	B	OR -	4 0	0	6	0	0	0
220	67.1	1	1	1	3	B	2	2	6	0	0	0	0
230	70.1	OR -	2 0	1 0	3 4	B	OR -	4 0	2 0	6 8	0	0	0



BASIC LUFFING JIB BACKSTAY PENDANT ARRANGEMENT



DATE: 08-24-01

PATTERN NO.

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TOLERANCE UNLESS OTHERWISE SPECIFIED		SCALE: 1/8"=1'-0"	
DECIMAL PLACES	FABRICATION	MACHINING	WELDING
(1) PLACE 0.0	+1.00	+1.00	+1.00
(2) PLACE 0.00	+1.00	+1.00	+1.00
(3) PLACE 0.000	+1.00	+1.00	+1.00
ANGLES	+1.50	+1.50	+1.50

DR: JMM	Manitowoc Cranes, Inc.	JIB LUFFING ASSEMBLY
CK: TSC	Manitowoc, Wisconsin	ASSEMBLE-IN-AIR
APP: TSC	MODEL 999	#149 JIB

DWG. NO. A01426

SHT. 1 OF 4

ASSEMBLE-IN-AIR RAISING PROCEDURE

- PREPARATION
1. DESIRED LENGTH OF BOOM ASSEMBLED TO CRANE AND RESTING ON BLOCKING AT GROUND LEVEL.
 2. LOWER BOOM POINT MUST BE REMOVED.
 3. PARTIAL JIB LENGTH ASSEMBLED TO BOOM TOP.
 4. POSITION JIB STRUT TO REST ON JIB BUTT.
 5. SLIDE ROUND BAR (ITEM 1) THROUGH RIGHT END UPPER PIN CONNECTORS OF JIB INSERT AND STRAP LINKS.
 6. CONNECT ROLLERS TO END OF INSERT.
 7. TIE HOIST LINE OFF AT END OF INSERT MAINTAINING SLACK (KEEP HOIST LINE ON TOP OF INSERT).
 8. JIB STOP STRUT MUST BE RETRACTED WITH BOOM ON BLOCKING.
 9. ATTACH ASSEMBLY CRANE LIFTING SLINGS AT LOCATION SHOWN IN TABLE 1.
 10. CHECK TO INSURE JIB STRAPS/LINKS ARE IN BRACKETS.
 11. ATTACH FIXED JIB BACKSTAY PENDANTS TO LUFFING JIB INSERT AND PLACE ON TOP OF INSERT (IF FIXED JIB IS USED).
 12. FOR STEPS 1 THRU 7, FOLLOW INSTRUCTIONS ON PAGES 1 THRU 5 IN LUFFING JIB ASSEMBLE-IN-AIR RAISING PROCEDURE 8411-A.

REVISIONS

NO.	DATE	DESCRIPTION
09-27-01	JMM	ADDED
10-18-01	EDB	ALTERED NOTE TO READ "MUST BE REMOVED FROM '10" BE REMOVED"
03-28-02	DJS	WAS SHEET 2 OF 3
		ALTERED NOTE 12 AND REMOVED NOTE 13

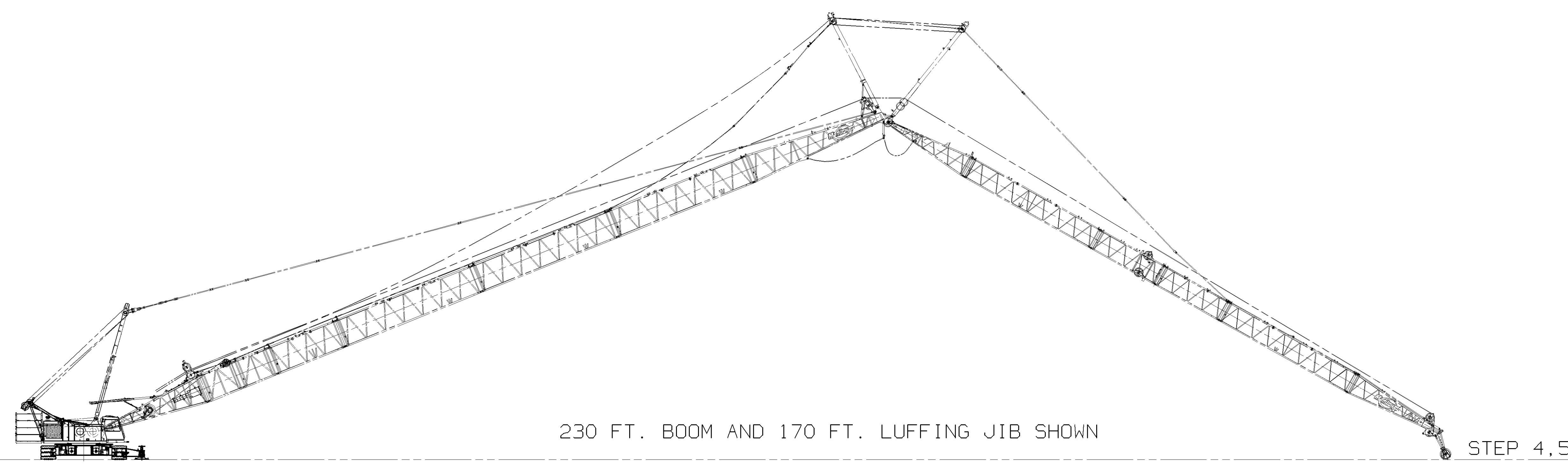
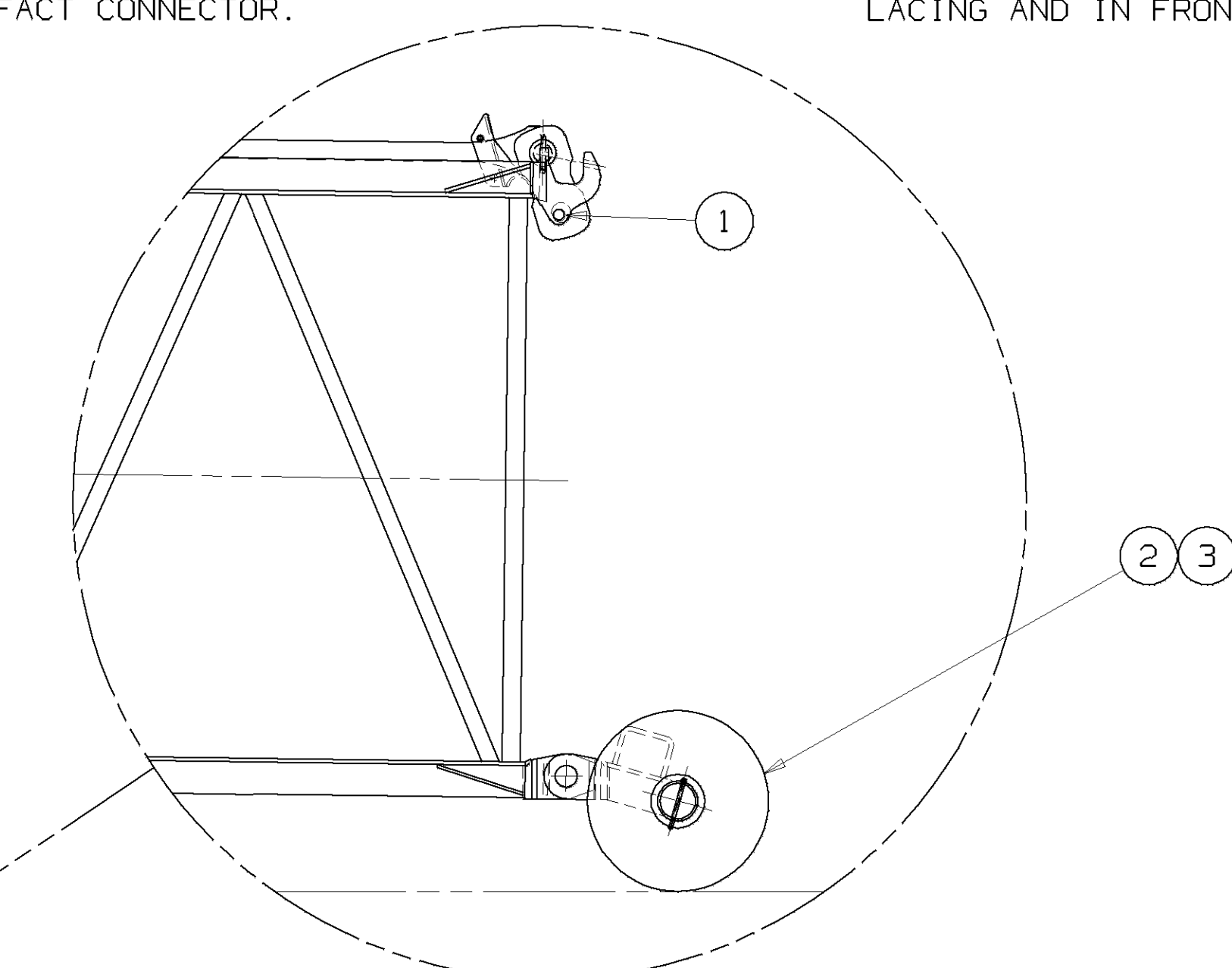
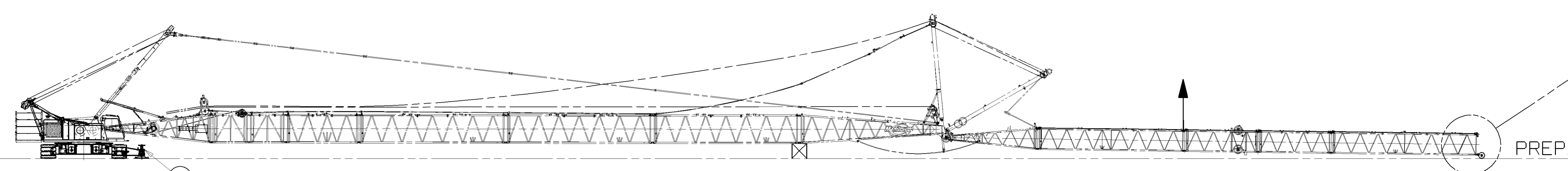
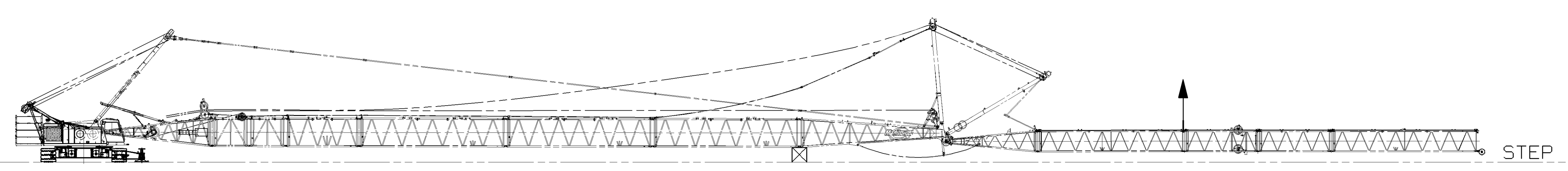
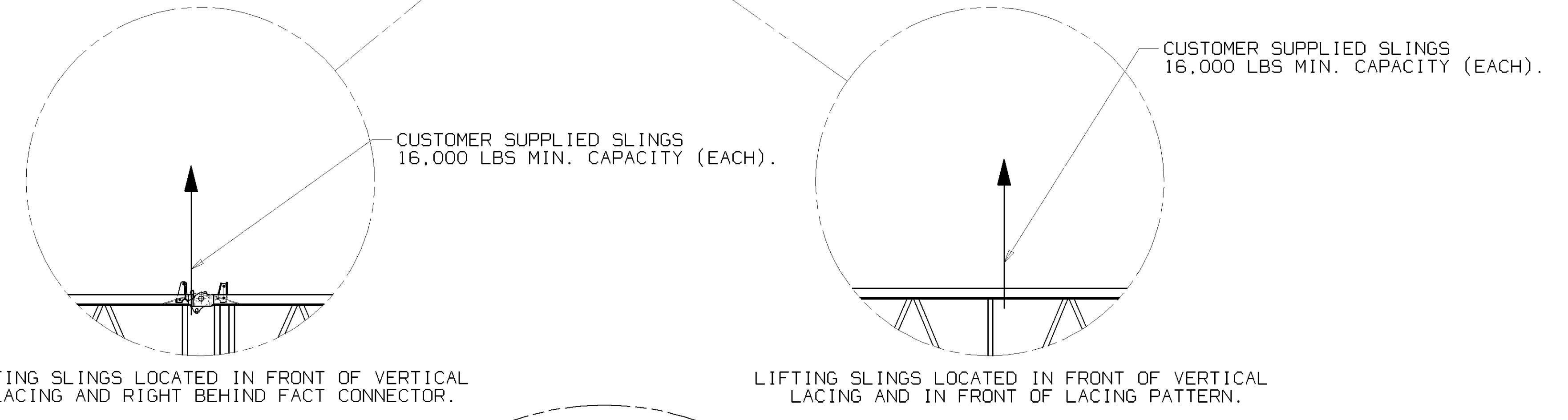
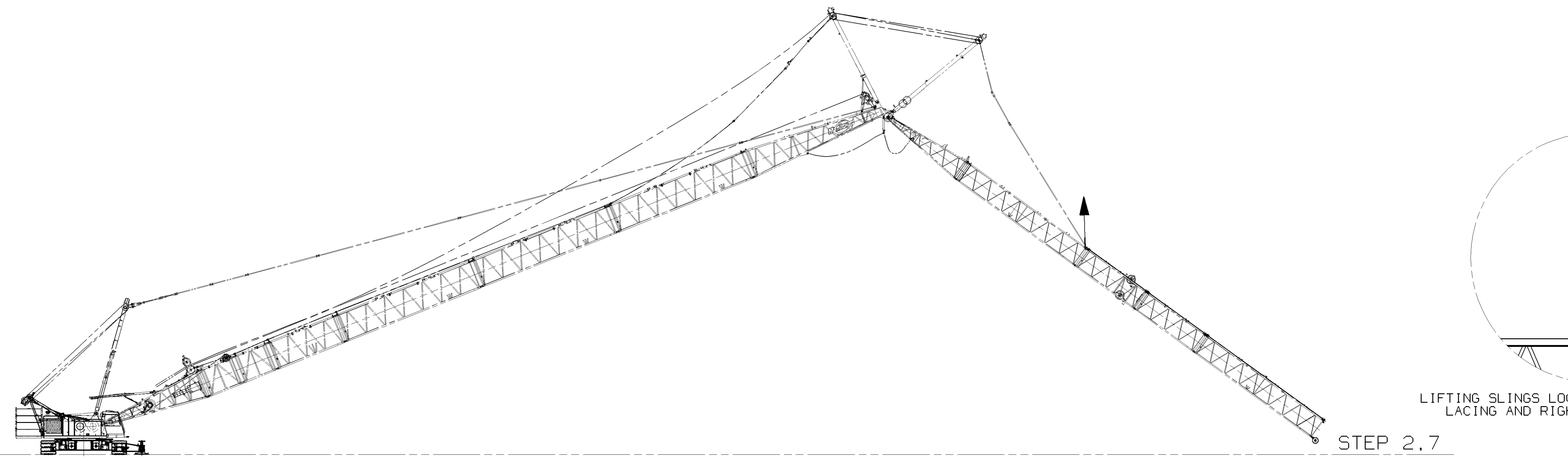
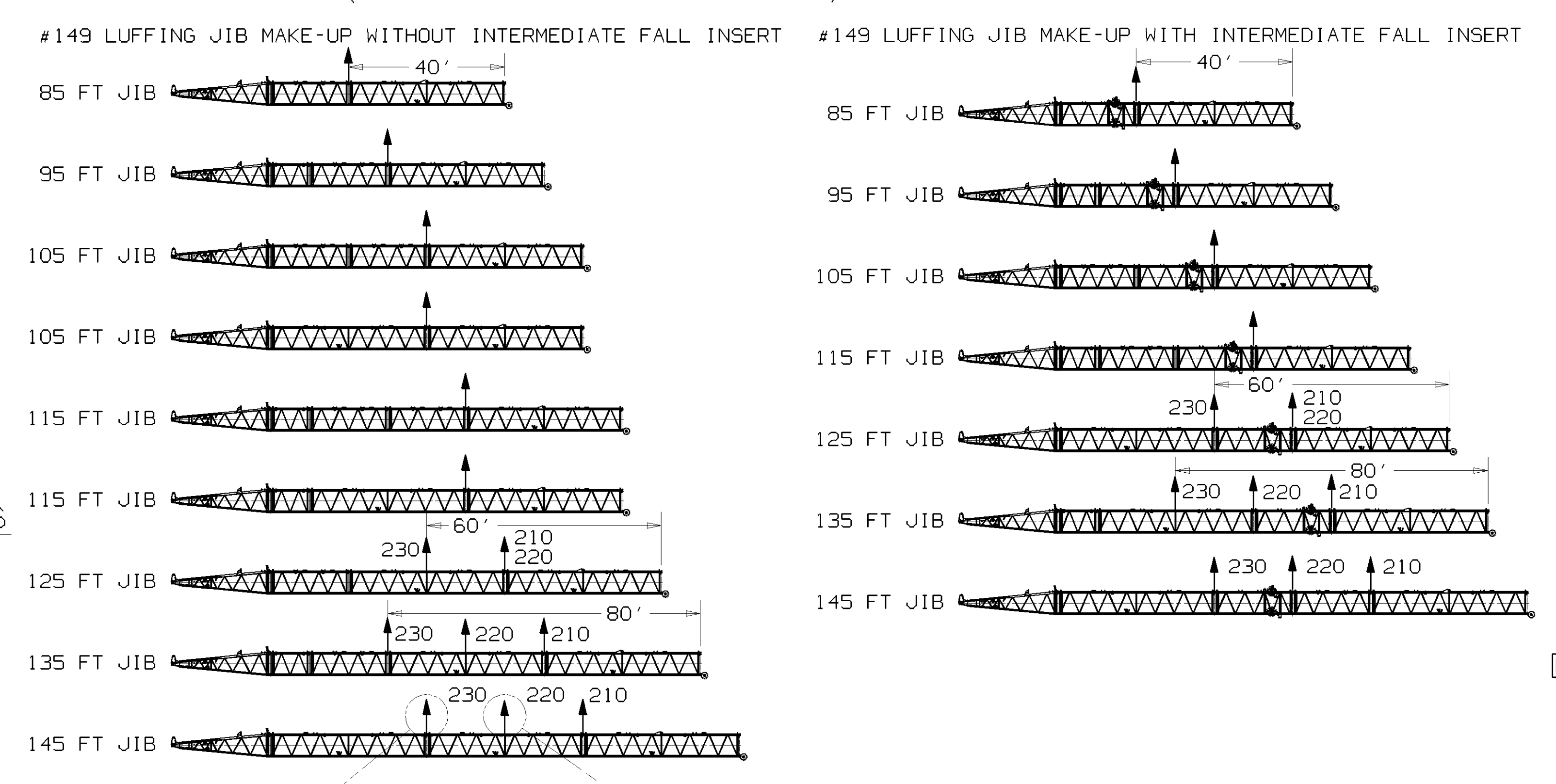
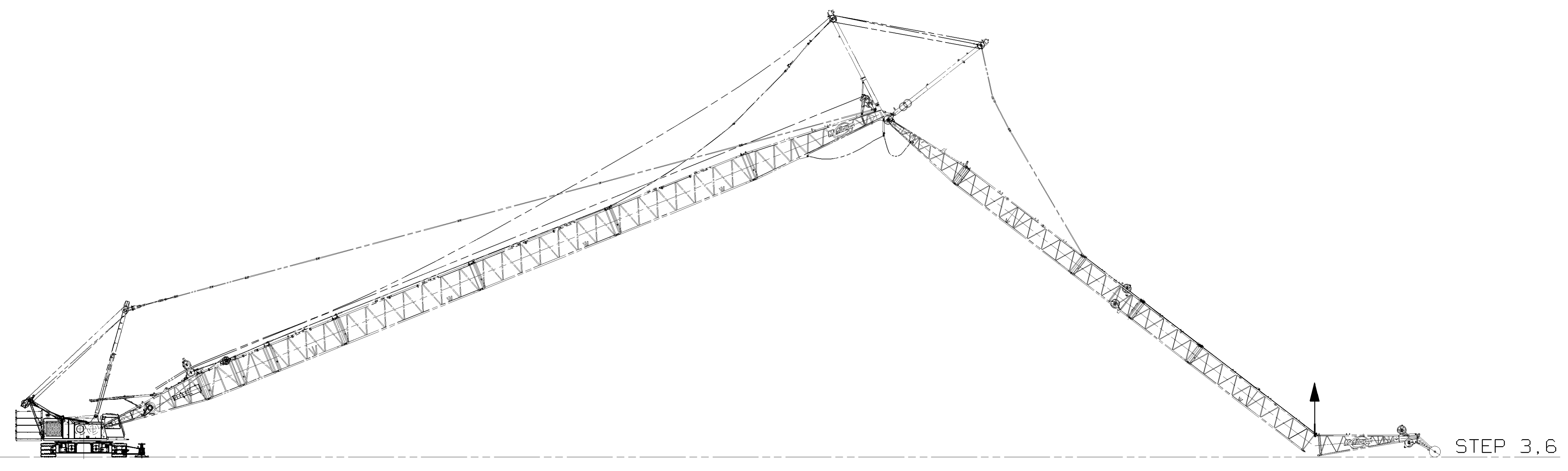


TABLE 1
ATTACHMENT LOCATION OF ASSEMBLY CRANE FROM RIGHT END OF JIB INSERT - FT.

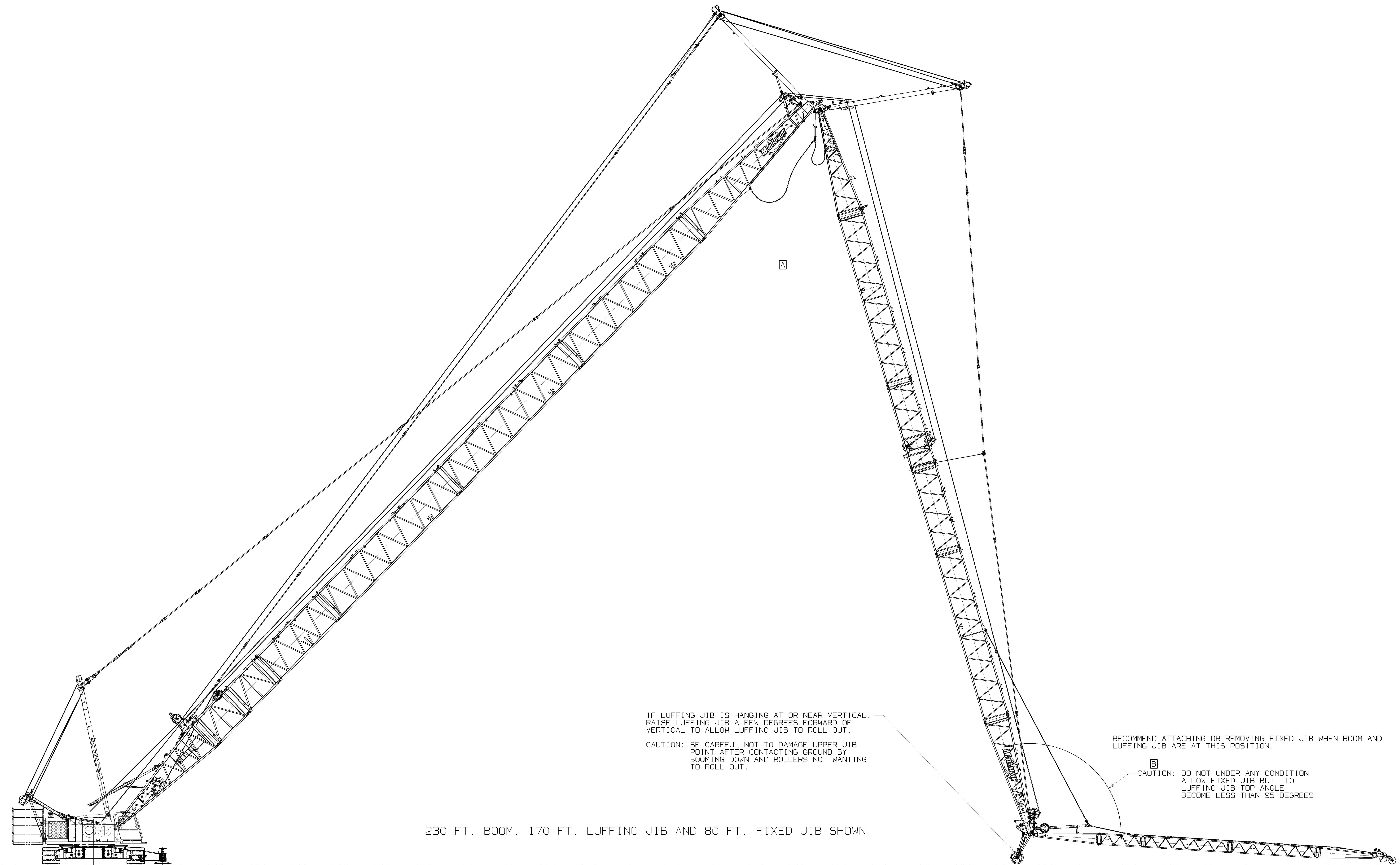
BOOM LENGTH FT.	PARTIAL LUFFING JIB (LESS 25 FT. TOP) - FT.						
	85	95	105	115	125	135	145
200	---	---	---	N/A	N/A	N/A	N/A
210	N/A	N/A	40	40	40	40	40
220	40	40	40	40	40	60	60
230	NOT ALLOWED	NOT ALLOWED	NOT ALLOWED	NOT ALLOWED	60	80	80

N/A = NOT APPLICABLE (ASSEMBLY CRANE NOT REQ'D FOR THIS COMBINATION).
 [B] 200 FT. BOOM LENGTH WITH 140 FT. THRU 170 FT. LUFFING JIB WITH INTERMEDIATE FALL MAY BE RAISED OVER END OF BLOCKED CRAWLERS (5 FT. RAISING OUTRIGGER NOT REQUIRED).



BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	REV.	DESCRIPTION	QTY.	MATERIAL

REVISIONS	
09-27-01	JMM
A	DELETED BOOM TO JIB ANGLE DIM.
10-8-01	EDB
B	ADDED NOTE
03-28-02	DJS
C	WAS
SHEET 3 OF 3	



IF LUFFING JIB IS HANGING AT OR NEAR VERTICAL, RAISE LUFFING JIB A FEW DEGREES FORWARD OF VERTICAL TO ALLOW LUFFING JIB TO ROLL OUT.
 CAUTION: BE CAREFUL NOT TO DAMAGE UPPER JIB POINT AFTER CONTACTING GROUND BY BOOMING DOWN AND ROLLERS NOT WANTING TO ROLL OUT.

RECOMMEND ATTACHING OR REMOVING FIXED JIB WHEN BOOM AND LUFFING JIB ARE AT THIS POSITION.

CAUTION: DO NOT UNDER ANY CONDITION ALLOW FIXED JIB BUTT TO LUFFING JIB TOP ANGLE BECOME LESS THAN 95 DEGREES

230 FT. BOOM, 170 FT. LUFFING JIB AND 80 FT. FIXED JIB SHOWN

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DECIMAL PLACES	FABRICATION	MACHINING	WELDING	DR. JMM	Manitowoc Cranes, Inc.	JIB LUFFING ASSEMBLY			
(1) PLACE 0.0	± 1.00	± 1.00	± 0.00	CHK. TSC	Manitowoc, Wisconsin	ASSEMBLE-IN-AIR			
(2) PLACE 0.00	± 0.00	± 1.20	± 0.15	APP. TSC	MODEL 999	#149 JIB			
(3) PLACE 0.000	± 0.00	± 0.05	± 0.00			A01426			
ANGLES	± 1.50		± 0.30			DATE 08-24-01			

ASSEMBLE-IN-AIR RAISING PROCEDURE

ALTERNATE PROCEDURE FOR 200 FT. BOOM ONLY WITH 140-170 FT. LUFFING JIB WITH INTERMEDIATE FALL.

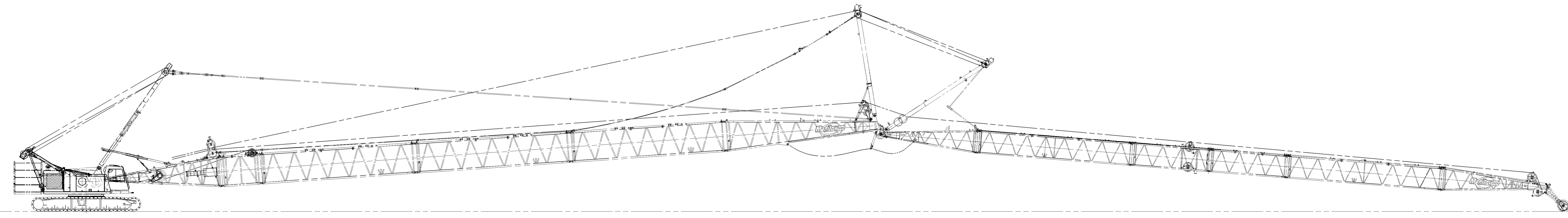
PREPARATION:

1. 200 FT. BOOM LENGTH ASSEMBLED TO CRANE AND RESTING ON BLOCKING AT GROUND LEVEL.
2. LOWER BOOM POINT MUST BE REMOVED.
3. FULL JIB LENGTH ASSEMBLED TO BOOM TOP.
4. POSITION JIB STRUT TO REST ON JIB BUTT.
5. JIB STOP STRUT MUST BE RETRACTED WITH BOOM ON BLOCKING.
6. ATTACH ASSEMBLY CRANE LIFTING SLINGS AT LOCATION SHOWN IN TABLE 2.
7. CHECK TO INSURE JIB STRAPS/LINKS ARE IN BRACKETS.
8. ATTACH FIXED JIB BACKSTAY PENDANTS TO LUFFING JIB INSERT AND PLACE ON TOP OF INSERT AND JIB TOP (IF FIXED JIB IS USED).
9. FOR STEPS 1 THRU 4, FOLLOW INSTRUCTIONS ON PAGES 6 AND 7 IN LUFFING JIB ASSEMBLE-IN-AIR RAISING PROCEDURE 8411-A.

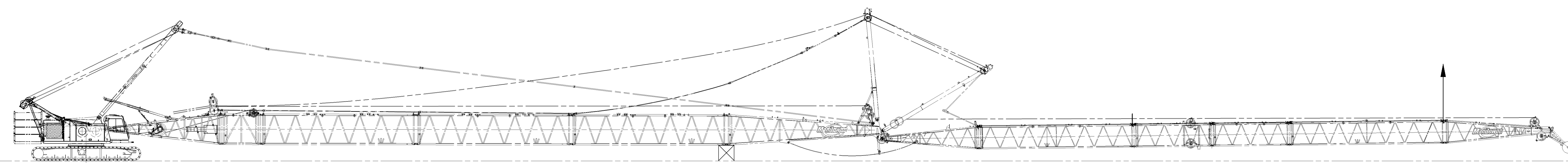
TABLE 2
ATTACHMENT LOCATION OF ASSEMBLY CRANE FROM RIGHT END OF JIB TOP - FT.

BOOM LENGTH FT.	LUFFING JIB LENGTH (INCLUDES 25 FT. JIB TOP) - FT.			
	70 - 130	140	150	160 170
200	---	25	25	25 25

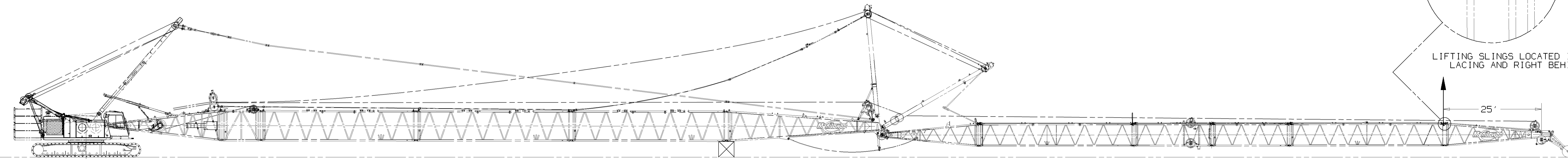
200 FT. BOOM LENGTH WITH 140 FT. THRU 170 FT. LUFFING JIB WITH INTERMEDIATE FALL MAY BE RAISED OR LOWERED OVER END OF BLOCKED CRAWLERS (5 FT. RAISING OUTRIGGER NOT REQUIRED).



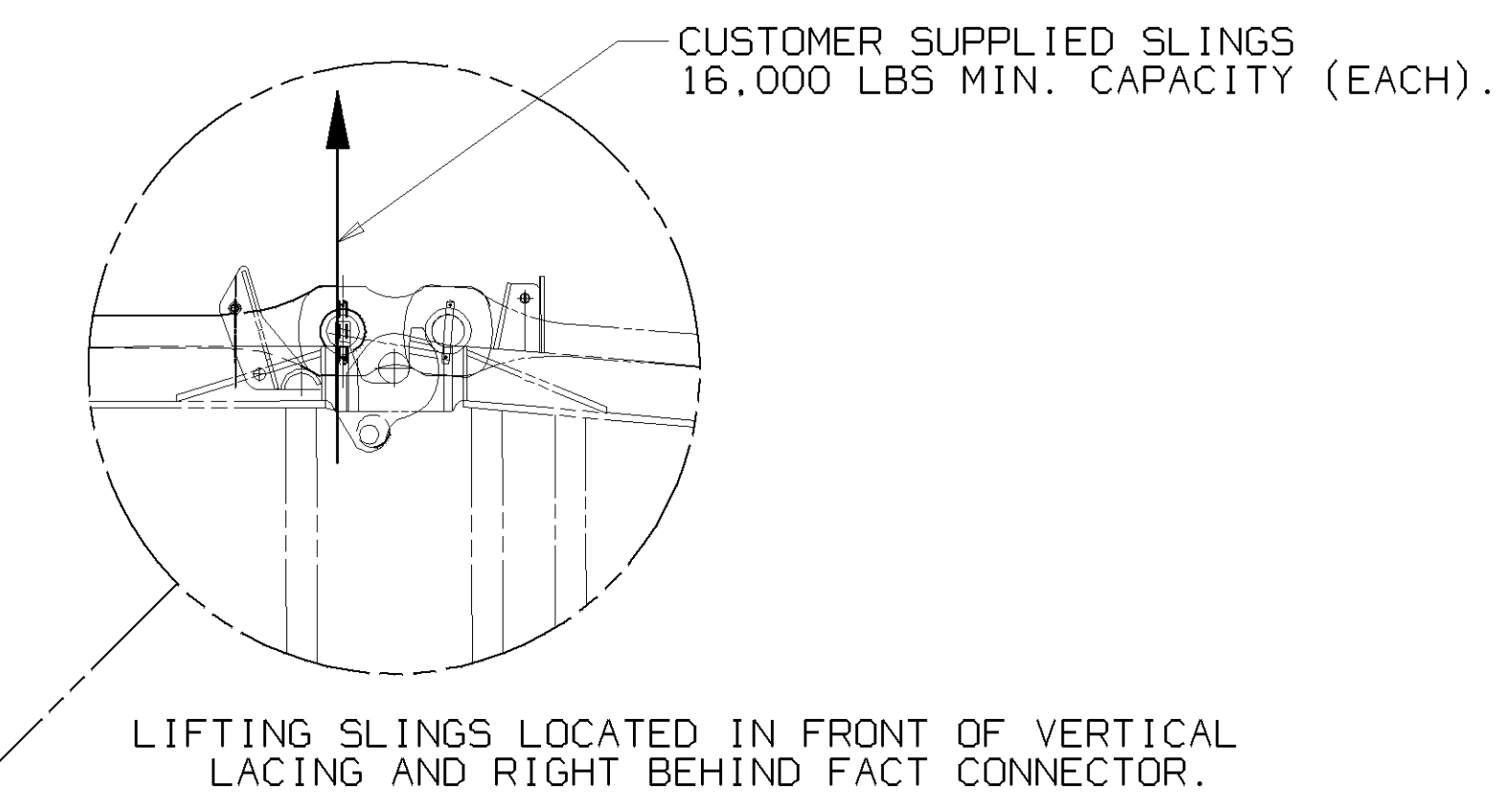
STEP 2.4



STEP 1.4



PREPARATION



200 FT. BOOM AND 170 FT. LUFFING JIB SHOWN

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DECIMAL PLACES	FABRICATION	MACHINING	WELDING	CASTING	FORGING	DR. DJS	APP. DLK	MODEL 999	DATE 03-28-02
(1) PLACE 0.0	+1.00	+1.00	+1.00	+1.00	+1.00	CHK. DLK	APP. DLK		PATTERN NO.
(2) PLACE 0.00	+1.00	+1.20	+1.05	+1.05	+1.05				
(3) PLACE 0.000		+1.20	+1.05	+1.05	+1.05				
ANGLES		+1.50	+1.50	+1.50	+1.50				