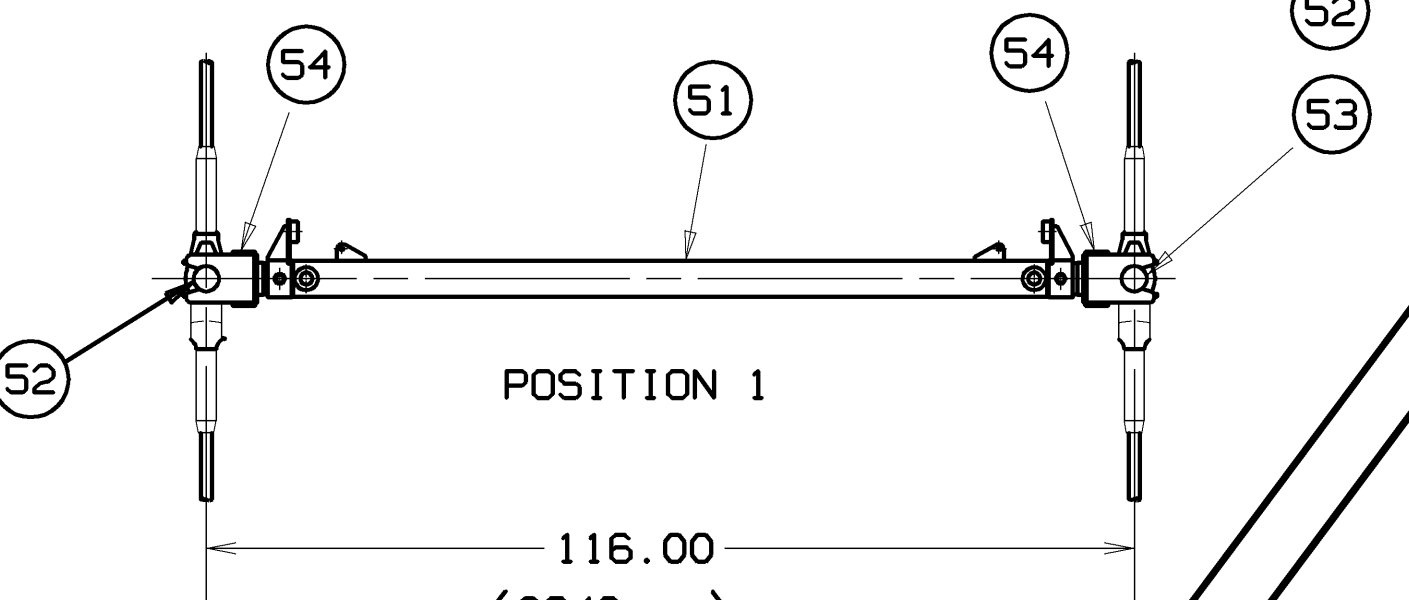
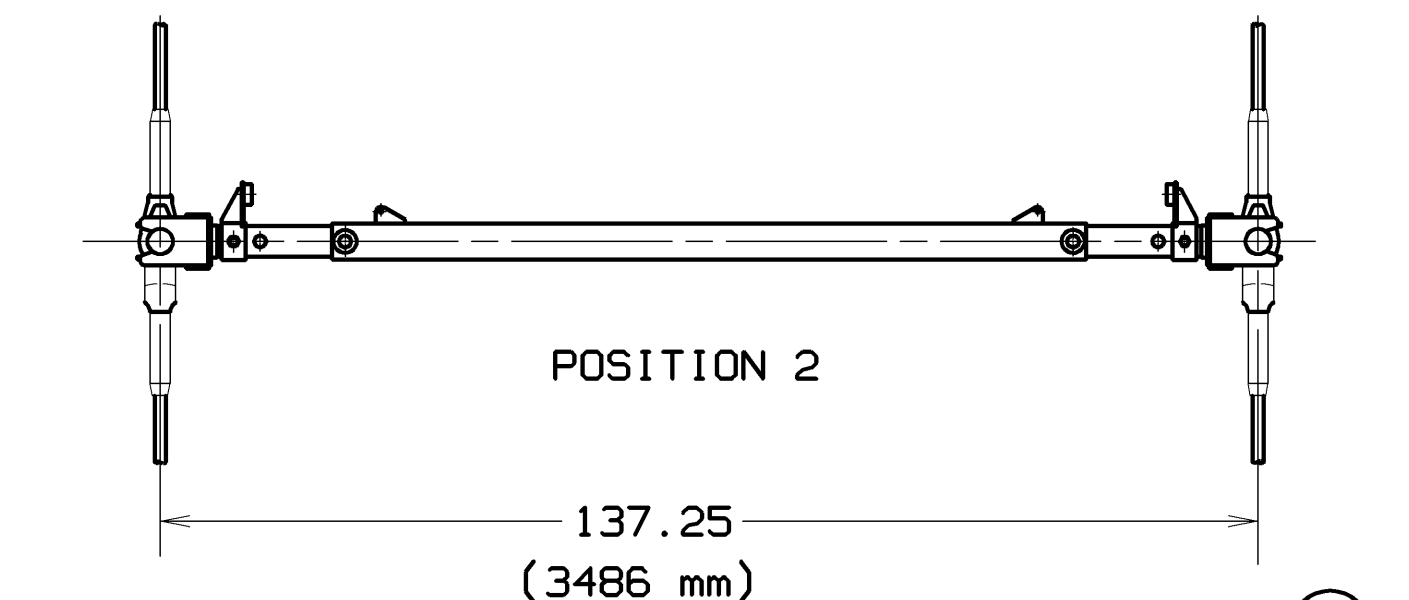
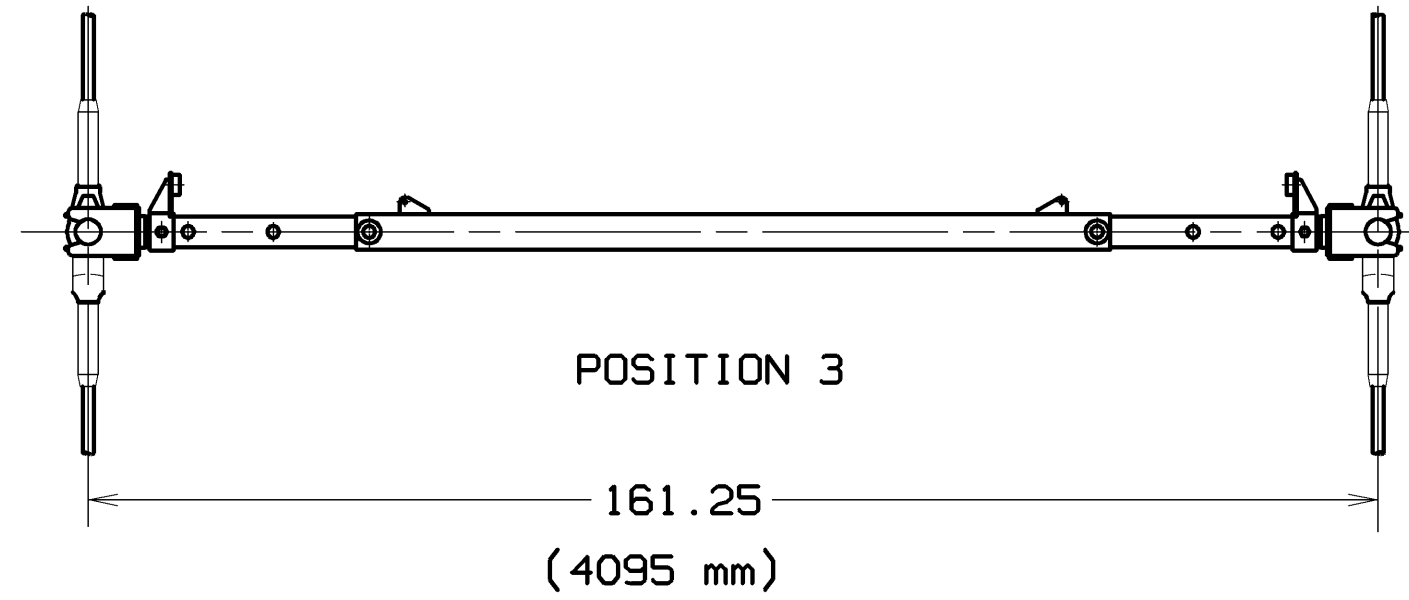


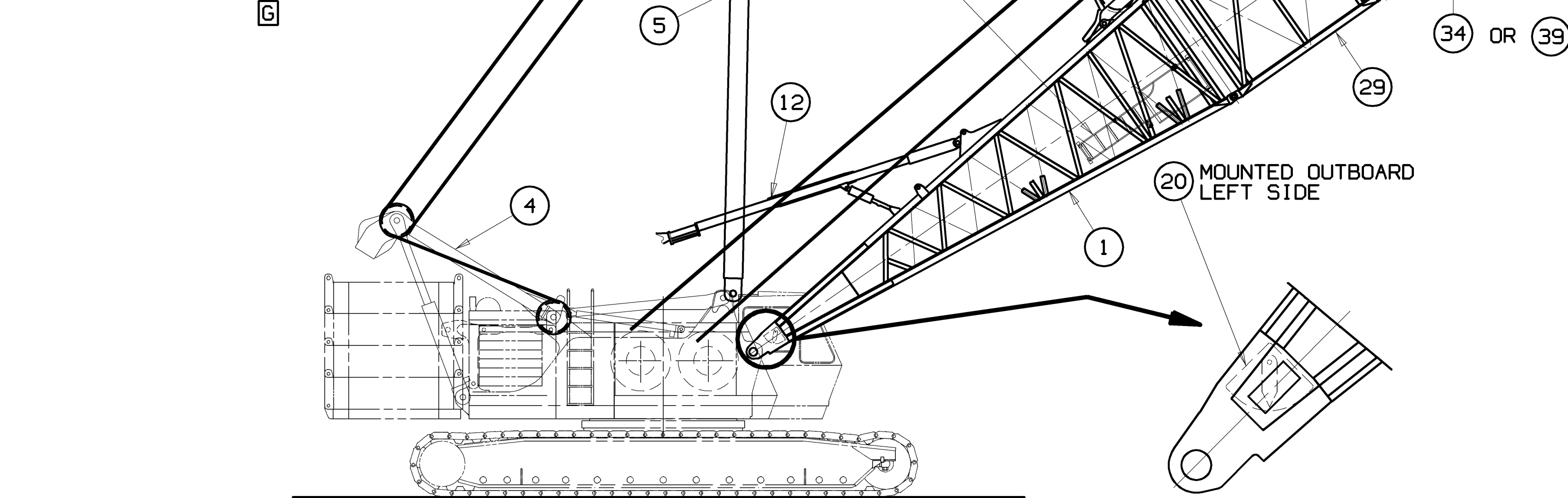
INSERTS, PENDANTS, AND ROLLER GUIDES REQ'D. FOR VARIOUS BOOM LENGTHS

DWG. NO.	33407-2	33426-3 623580 OR	50609-2 623526 OR	276861 DWG. 76280	276862 DWG. 76280	276863 DWG. 76280	192013	92672	180213-4	78307	94652-2	141408	17328
BOOM LENGTH	10 FT 3.05 M INSERT SEE (1)	20 FT 6.10 M INSERT SEE (2)	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	SPREADER (SEE SPREADER TABLE)	PENDANT TIE BAR SEE (12)	SPREADER BRACKET	PIN SEE (4)	END PLATE SEE (4)
FEET	METERS												
120	36.6	1	0	0	4	0	0	0	1	4	2	2	2
130	39.6	OR 2	0	0	8	0	2	0	1	6	2	2	2
140	42.7	1	1	0	4	0	1	1	1	6	2	2	2
150	45.7	OR 2	1	0	8	4	0	1	1	8	2	2	2
		OR 0	2	0	0	8	2	1	1	6	2	2	2
		OR 0	0	1	0	4	2	1	1	4	2	2	2
160	48.8	OR 1	2	0	4	8	0	2	1	8	2	2	2
		OR 1	0	1	4	0	2	1	1	6	2	2	2
170	51.8	OR 2	2	0	8	8	0	2	1	10	2	2	2
		OR 0	1	1	0	4	3	1	1	6	2	2	2
180	54.9	1	1	1	4	4	3	1	1	8	2	2	2
		OR 2	1	1	8	4	3	1	1	10	2	2	2
190	57.9	OR 0	2	1	0	8	4	1	1	8	2	2	2
		OR 0	0	2	0	8	4	1	1	6	2	2	2
200	61.0	OR 1	2	1	4	8	4	1	1	10	2	2	2
		OR 1	0	2	4	8	4	1	1	10	2	2	2
210	64.0	OR 2	0	2	8	8	4	1	1	12	2	2	2
		OR 0	1	2	0	4	5	1	1	8	2	2	2
220	67.1	1	1	2	4	4	8	1	1	10	2	2	2
		OR 2	1	2	8	4	5	1	1	12	2	2	2
230	70.1	OR 0	2	2	0	8	6	1	1	10	2	2	2
		OR 0	0	3	0	8	6	1	1	10	2	2	2
240	73.2	OR 1	2	2	4	8	6	1	1	12	2	2	2
		OR 1	0	3	4	8	6	1	1	12	2	2	2
250	76.2	OR 2	0	3	8	0	6	1	1	12	2	2	2
		OR 0	1	3	0	4	12	7	1	10	2	2	2
260	79.2	1	1	3	4	4	12	7	1	12	2	2	2
		OR 2	1	3	8	4	12	7	1	14	2	2	2
270	82.3	OR 0	2	3	0	8	12	8	1	12	2	2	2
		OR 0	0	4	0	0	16	8	1	10	2	2	2
280	85.3	OR 1	2	3	4	8	12	8	1	14	2	2	2
		OR 1	0	4	4	0	16	8	1	12	2	2	2
290	88.3	OR 2	0	4	8	8	12	8	1	16	2	2	2
		OR 0	1	4	0	4	16	9	1	12	2	2	2
300	91.4	1	1	4	4	4	16	9	1	14	2	2	2
		OR 2	1	4	8	4	16	9	1	16	2	2	2
310	94.4	OR 0	2	4	0	8	16	10	1	14	2	2	2
		OR 0	0	5	0	0	20	10	1	12	2	2	2

SPREADER INSTRUCTIONS			
BOOM LENGTH	SPREADER REQUIRED	SPREADER POSITION	LOCATION FROM LOWER BOOM POINT (26)
110 FT.	NO		
120 FT.-190 FT.	YES	*1*	81 FT. - 7.75 (24.9 M) (81 FT. - 10.5 (24.97 M))
200 FT.-240 FT.	YES	*2*	101 FT. - 7.75 (31.0 M) (102 FT. - 0 (31.1 M))
250 FT.-310 FT.	YES	*3*	121 FT. - 7.75 (37.1 M) (121 FT. - 1.75 (37.2 M))



SPREADER POSITION DIAGRAMS



DO NOT SCALE THIS DRAWING

- (1) EXISTING 10 FT. (3.05 M) BOOM INSERT 33407-3 CAN ALSO BE USED.
- (2) 33426-3 WITHOUT JIB BACKSTAY LUGS. 623580 WITH JIB BACKSTAY LUGS. EXISTING 20 FT. (6.10 M) BOOM INSERT 623564 WITHOUT JIB BACKSTAY LUGS CAN ALSO 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. PENDANT COMBINATIONS MUST BE FOLLOWED TO LOCATE SPREADER FOR 200 FT. (61.0 M) THRU 240 FT. (73.2 M) BOOM LENGTHS.
- (5) 4 - 30.00 DIA. SHEAVES
- (6) DWG. 139353
- (7) GRADE 5
- (8) JIB CANNOT BE USED WITH THIS ASSEMBLY.
- (9) ROPE GUIDE ITEM 60 CANNOT BE USED WITH 110 FT. (33.5 M) THRU 130 FT. (39.6 M) OF BOOM LENGTHS. MODIFICATION ITEM 64 MUST BE USED WITH ROPE GUIDE ASSEMBLY ITEM 60 FOR JIB APPLICATIONS.
- (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) AND (16)
- (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) AND (16)
- (19) ITEMS 21, 31, 36, 41, 46 & 51 HAVE THE SAME PART NO. 78307.

180 FOOT (54.9 METER) BOOM SHOWN

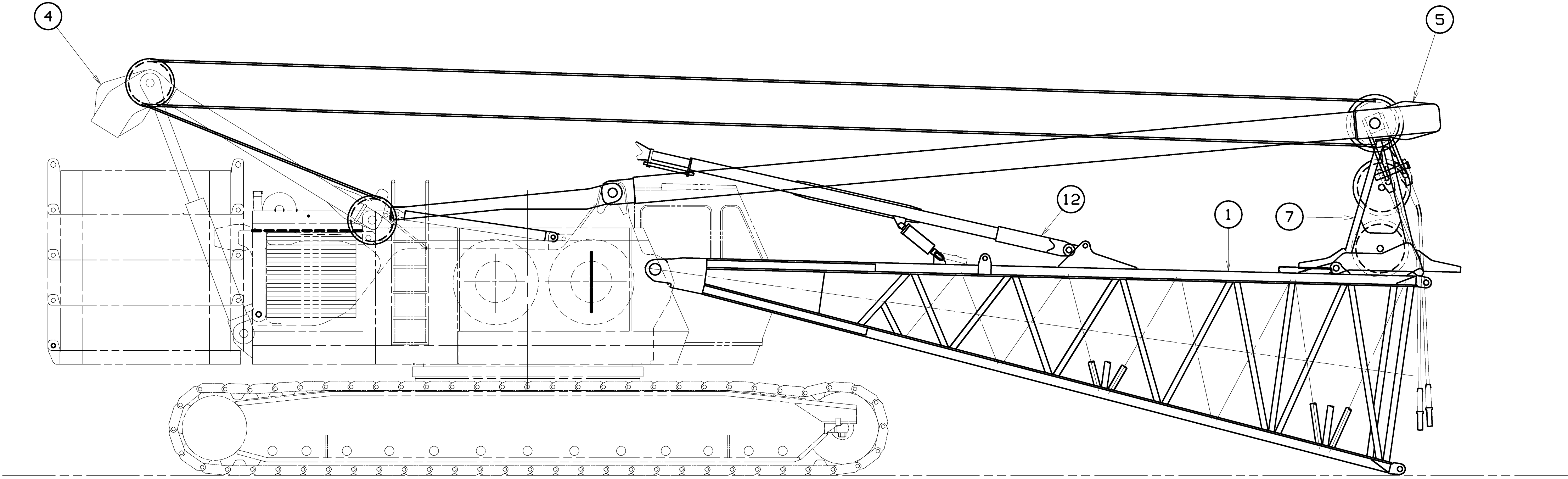
- (20) ITEMS 37, 42, 47 & 52 HAVE THE SAME PART NO. 192013.
- (21) ITEMS 35 & 40 HAVE THE SAME PART NO. 276862.
- (22) ITEMS 45 & 50 HAVE THE SAME PART NO. 276863.
- (23) PENDANTS SHOWN ATTACHED TO MAST ARE CALLED FOR ON MAST ASSEMBLY (ITEM 5) AND ARE REQUIRED FOR ALL BOOM LENGTHS.
- (24) 20 FT 1.50 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 (LOCATION USING) 276862/276863 (277426/277427)
- (27) DISCARD TOP PLATE ON ITEM 13. ITEM 23 IS USED INSTEAD.
- (28) ATTACH TIMBERS SO THEY ARE FREE TO SLIDE UNDER THERMAL EXPANSION/CONTRACTION OF PLASTIC

BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	QTY	DESCRIPTION	LOGS	
4381-0000 BASIC BOOM 110 FT. (33.5M)				
1	1	BOOM BUTT 30 FT. #22E	176967	
2	1	TAPERED INSERT - 30 FT. #22A	49252	
3	1	BOOM TOP 50 FT. #22A	49255	
4	1	GANTRY ASSEMBLY	176396	
5	1	MAST ASSEMBLY	176397	
6	2	BUSHING	74759	
7	1	WIRE ROPE GUIDE ASSEMBLY	176985	
8	2	PENDANT LINK	91125	
9	1	BOOM POINT SHAFT ASSEMBLY	93479	
10	4	PENDANT 40 FT (12.19 M)	276863	
11	4	PENDANT BASIC 40 FT 9.75 (12.4 M)	276963	
12	1	BOOM STOP ASSEMBLY	176601	
13	2	CLAMP	345678	
14	1	TIMBER 60.44 LG X 3.50 X 2.50	8101717926	
15	4	SCREW CAP HEX .50-13UNC X 5.50 LG.	612683	
16	4	WASHER LOCK .50	710306	
17	1	WIRE ROPE TIMBER	192032	
18	1	WIRE ROPE TIMBER	192033	
19	1	WIRE ROPE TIMBER	192034	
20	1	BOOM ANGLE INDICATOR ASSEMBLY	168779	
21	2	PENDANT TIE BAR	78307	
22				
23				
24	1	BOOM ASSEMBLY LADDER STORAGE	177969	
25	2	HHCS 10 X 100 8.8	7126192650	
26	2	HEX LOCK NUT PA 10 8 ISO 7040	7661190803	
27	4	F WASHER 10 ST ISO 7089	7951190014	
28	1	BRACKET TIMBER	81017945	
4381-0010 INSERT 10 FT. (3.05M)				
29	1	INSERT 10 FT. (3.05M)	33407-2	
30	4	PENDANT 10 FT. (3.05M)	276861	
31	2	TIE BAR	78307	
32				
33				
4381-0020 INSERT 20 FT. WITHOUT JIB BACKSTAY				
34	1	INSERT 20 FT. (6.10M)	33426-3	
35	4	PENDANT 20 FT. (6.10M)	276862	
36	2	TIE BAR	78307	
37	1	WIRE ROPE TIMBER	192013	
38				
4381-0030 INSERT 20 FT. WITH JIB BACKSTAY				
39	1	INSERT 20 FT. (6.10M)	623580	
40	4	PENDANT 20 FT. (6.10M)	276862	
41	2	TIE BAR	78307	
42	1	WIRE ROPE TIMBER	192013	
43				
4381-0040 INSERT 40 FT. WITHOUT JIB BACKSTAY				
44	1	INSERT 40 FT. (12.19M)	50609-2	
45	4	PENDANT 40 FT. (12.19M)	276863	
46	2	TIE BAR	78307	
47	2	WIRE ROPE TIMBER	192013	
48				
4381-0050 INSERT 40 FT. WITH JIB BACKSTAY				
49	1	INSERT 40 FT. (12.19M)	623526	
50	4	PENDANT 40 FT. (12.19M)	276863	
51	2	TIE BAR	78307	
52	2	WIRE ROPE TIMBER	192013	
53				
4381-0060 SPREADER				
54	1	SPREADER	180213-4	
55	2	PIN	141408	
56	2	END PLATE	17328	
57	2	BRACKET	94652-2	
58				
59				
OPTIONAL ASSEMBLY LIST				
60	1	WIRE ROPE GUIDE ASSEMBLY	92672	
61	1	UPPER BOOM POINT SHAFT ASSEMBLY	95020	
62	1	UNIVERSAL WIRE ROPE ANCHOR ASSEMBLY	93549	
63	1	BOOM BUTT ATTACHING ASSEMBLY	177055	
64	1	MOD. TO WIRE ROPE GUIDE ASSEMBLY	421205	
65	1	BOOM ASSEMBLY LADDER STORAGE	177969	
66				
67				
68				

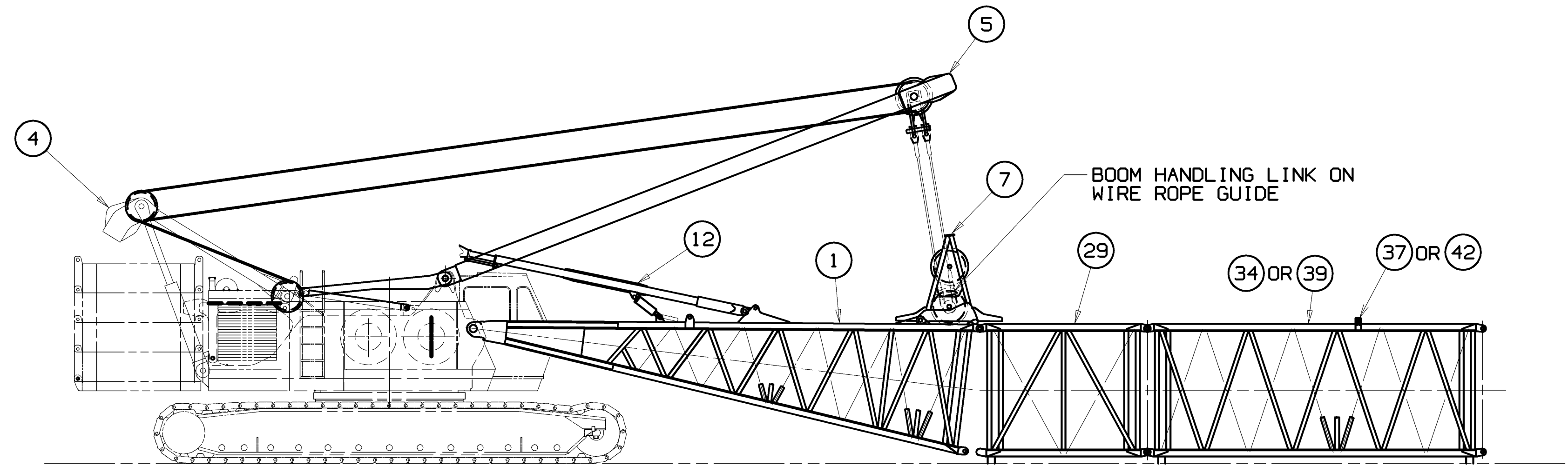
OPTIONAL ASSEMBLY LIST			
ITEM NO.	QTY	DESCRIPTION	LOGS
60	1	WIRE ROPE GUIDE ASSEMBLY	92672
61	1	UPPER BOOM POINT SHAFT ASSEMBLY	95020
62	1	UNIVERSAL WIRE ROPE ANCHOR ASSEMBLY	93549
63	1	BOOM BUTT ATTACHING ASSEMBLY	177055
64	1	MOD. TO WIRE ROPE GUIDE ASSEMBLY	421205
65	1	BOOM ASSEMBLY LADDER STORAGE	177969
66			
67			
68			

TOLERANCE UNLESS OTHERWISE SPECIFIED			
DECIMAL PLACES	FABRICATION	MACHINING	
(1) PLACE 0.0	± .12	± .18	± .05
(2) PLACE 0.00	± .06	± .12	± .015
(3) PLACE 0.000	± .005	± .010	± .005
ANGLES	± 1°	± 1°	± 1°

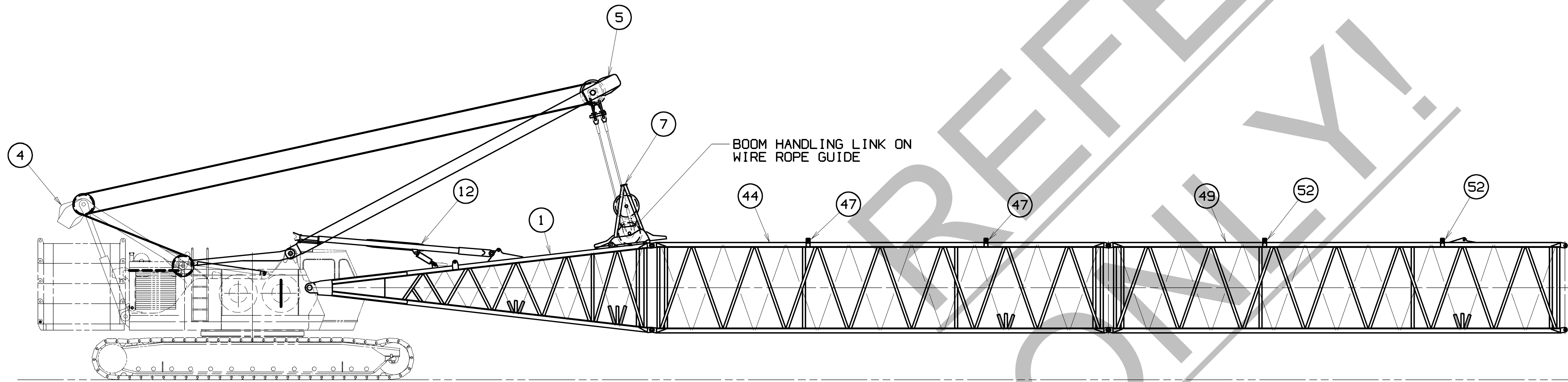
PRIVATE LABELING
REQUIREMENT TO
CONFORM TO
ENGINEERING
SPECIFICATION
6829103794 FOR
COMPONENTS LISTED
IN 6829103794
7-18-95
PATTERN NO.
176931



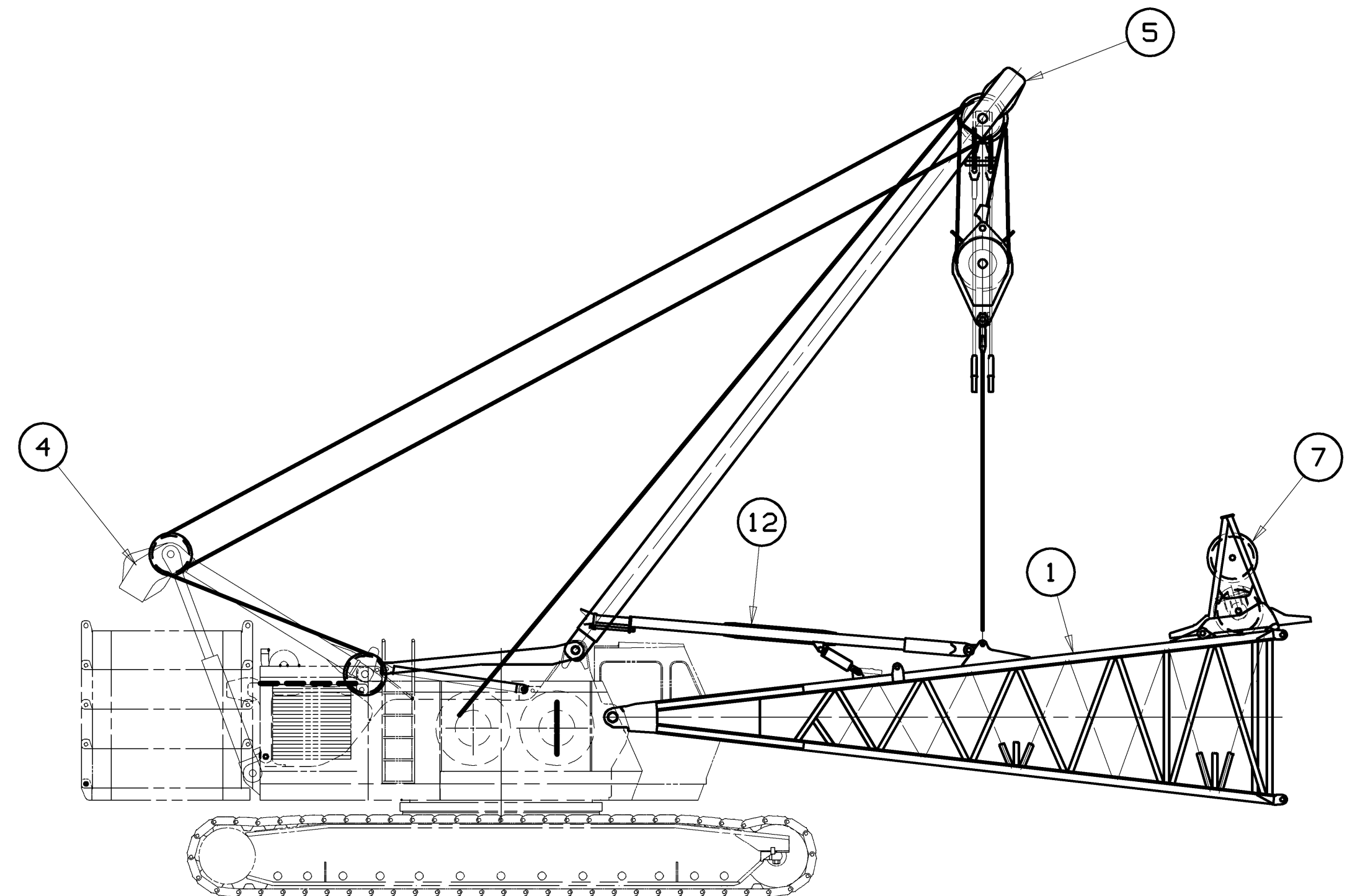
MAST RESTING ON BOOM BUTT WIRE ROPE GUIDE



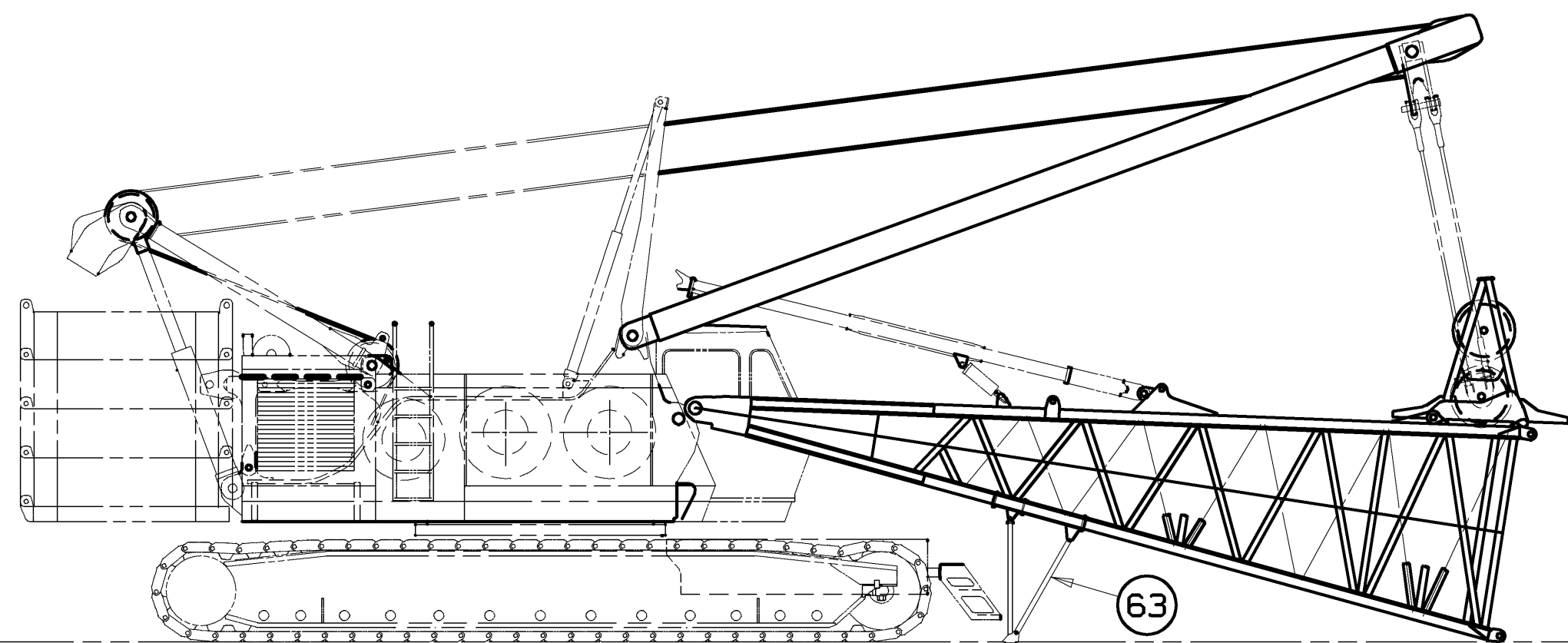
BOOM ASSEMBLY WITH MAST



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.

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 CYLINDER 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.

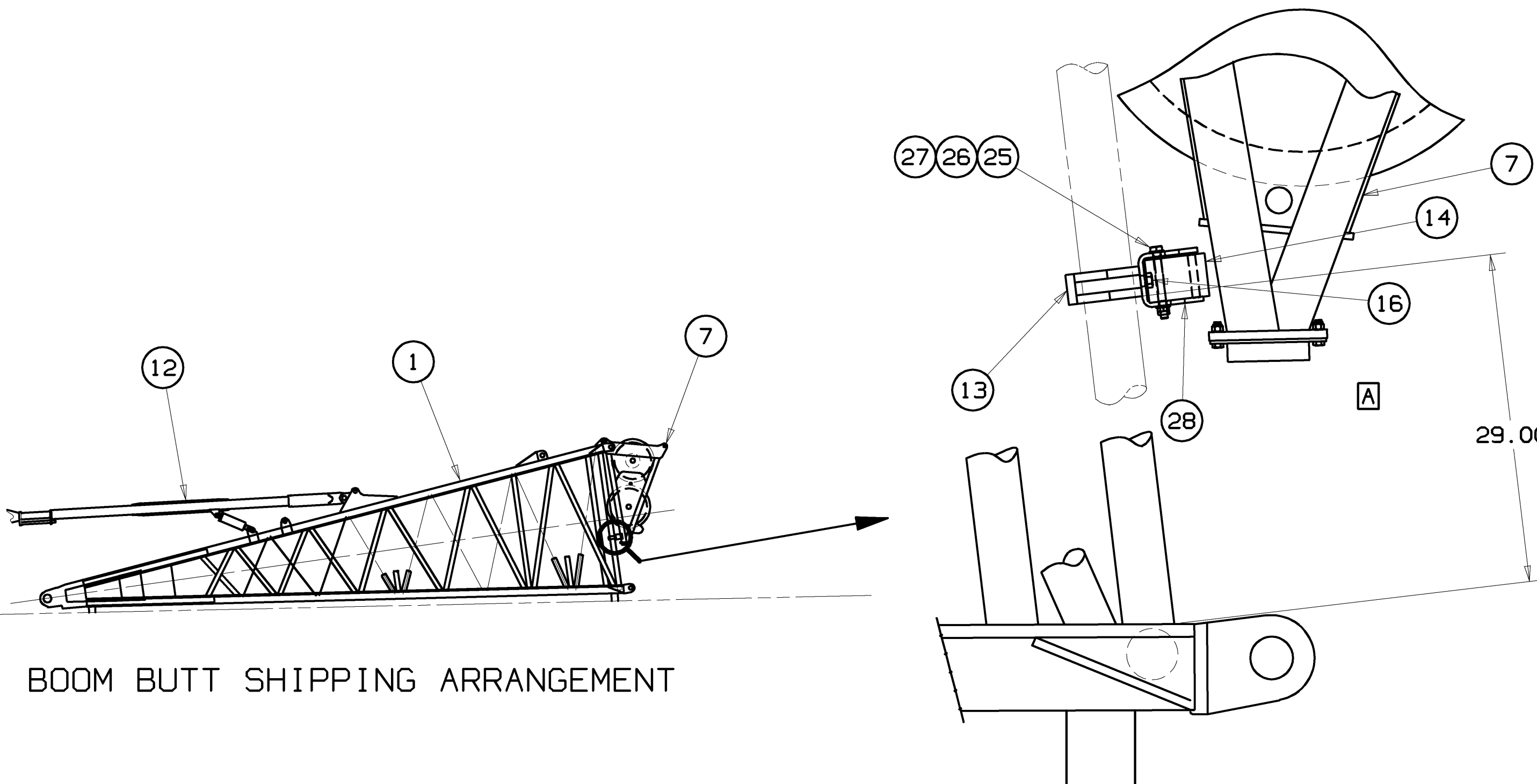
WARNING:

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