

- 12 MAXIMUM NUMBER OF 6 METER INSERTS = 1. 6 METER INSERT MUST BE ADJACENT TO BUTT.
- 13 ITEM 106, 107 AND 101 QUANTITIES INCLUDE ITEMS THAT ARE STOWED WHEN INTERMEDIATE SUSPENSION IS USED. (SEE SHT 6)
- 14 SEE SHEET 5 FOR JIB STOP SETUP AND OPERATION.
- 15 ADD SHIMS (ITEM R50) AS REQUIRED TO INSURE SPACE BETWEEN JIB BUTT AND BOOM TOP, BOTH SIDES, TO CENTER JIB BUTT AND FILL EXISTING CLEARANCE.
- 16 SECURE DEAD END TO BOOM WHEN NOT IN USE. MAY CAUSE DAMAGE TO JIB BUTT DURING ERECTION.
- 17 WIRE ROPE GUIDE, LUFFING/AUX DRUM AND PAWL ASSY ARE REQUIRED FOR LUFFING JIB
- 18 ITEM 31 (PARTS BOX) CONTAINS PART OF ITEM R51 (INT. SUSP) & ITEM R50 TO BE SHIPPED AS A LOOSE ITEM IN JOB BOX (81007957).

BILL OF MATERIAL				ASSEMBLED BY
QTY	DESCRIPTION	MATERIAL	QTY	NO.
<b>LUFFING JIB ASSY #59 JIB</b>				
1	PIN		172592	
2	UPPER JIB POINT WITH ROLLER		174211	4
3	PIN COTTER .38 X 2.50 (inch)		562149	
4	WIRE ROPE 1.00 DIA W/ EYES		81015482	
5	PIN 2 HOLE 146.0 X 98.0 LG		A10812	
6	COLLAR 147 MM ID		A10814	
7	STRAP BASIC #59 BACKSTAY 40 X 2100		A10914	10
8	STRAP TOP #59 JIB 40 X 10216		A10915	10
9	STRAP BASIC #59 BACKSTAY 40 X 6393		A10916	10
10				
11	LINK #58 BOOM TOP		A11676	
12	PIN 1 HOLE W/HD 100.0 DIA X 92.3 LG		A12944	
13	COLLAR 101 MM ID		A12945	
14	PIN 2 HOLE 12.7 DIA X 128.0 LG		A12946	
15	LINK #58 BOOM STRAP		A13237	
16	TOP ASSY #59 11 M		A13417	11
17	STRUT ASSY MAIN - #59 LUFF JIB		A13471	
18	STRUT ASSY JIB - #59 LUFF JIB		A13476	
19	STRUT STOP ASSY LUFFING JIB #59		A13554	
20	JIB STOP ASSY #59 JIB		A14093	14
21	LINK #59 BACKSTAY STRAP		A13644	
22	STRAP BASIC #59 BACKSTAY 40 X 83		A13645	6
23	LINK #59 BACKSTAY STRAP		A13646	
24	STRAP BASIC #59 JIB 40 X 83		A13647	
25	PIN 2 HOLE 12.7 DIA X 185.0 LG		A13741	
26	BUTT ASSY #59 7.00 M		A13753	11
27				
28	DRUM ASSY LUFFING/AUX		A10888	17
29	PAWL ASSEMBLY LUFFING/AUX DRUM		A13917	17
30	GUIDE WIRE ROPE ASSY LUFFING/AUX LINE		A11946	17
31	PARTS BOX		81034119	18

ITEM NO.		105	103	102	104	106	107	101	108	110	109	100	R51
JIB LENGTH		INSERT 6 M (19.7 FT) ASSY	STRAP 6 M (19.7 FT)	INSERT 12 M (39.4 FT) ASSY	STRAP 12 M (39.4 FT)	LINK	PIN	PIN SAFETY	PIN	COLLAR	PIN	PIN COTTER	INTER-MEDIATE SUSPENSION SEE (7) (18)
METERS	FEET												
24	78.7	1	2	0	0	8	4	4	12	12	12	36	0
30	98.4	0	0	1	2	8	4	4	12	12	12	36	0
36	118.1	1	2	1	2	12	6	6	16	16	16	44	0
42	137.8	0	0	2	4	12	6	6	16	16	16	44	0
48	157.5	1	2	2	4	16	8	8	20	20	20	52	0
54	177.2	0	0	3	6	16	8	8	20	20	20	52	0
60	196.9	1	2	3	6	20	10	10	24	24	24	60	0
66	216.5	0	0	4	8	20	10	10	24	24	24	60	0
72	236.2	1	2	4	8	24	12	12	28	28	28	68	0
78	255.9	0	0	5	10	24	12	12	28	28	28	68	1
84	275.6	1	2	5	10	28	14	14	32	32	32	76	1

ITEM NO.		103	104	106	108	109	110	100	113	114	115	116	JIB BACKSTAY ADJUSTMENT HOLE SEE VIEW D
BOOM LENGTH		STRAP 6 M (19.7 FT)	STRAP 12 M (39.4 FT)	LINK	PIN	PIN	COLLAR	PIN COTTER	PIN COTTER	LINK	PIN	LINK	
METERS	FEET												
30	98.4	0	2	8	18	18	18	40	8	4	4	0	A
36	118.1	2	2	12	22	22	22	48	24	8	12	4	A
42	137.8	0	4	12	22	22	22	48	24	8	12	4	B
48	157.5	2	4	16	26	26	26	56	40	12	20	8	B
54	177.2	0	6	16	26	26	26	56	40	12	20	8	C
60	196.9	2	6	20	30	30	30	64	56	16	28	12	C
66	216.5	0	8	20	30	30	30	64	56	16	28	12	C

100	PIN COTTER .188 X 1.50 (inch)	562085
101	PIN SAFETY .234 OD X 5.00 (inch)	563640
102	INSERT 12 M ASSY #59	A10712
103	STRAP 6 M #58 BOOM 40 X 5800	A10918
104	STRAP 12 M #58 BOOM 40 X 11800	A10920
105	INSERT 6 M ASSY #59	A11497
106	LINK #58 BOOM STRAP	A11539
107	PIN 1 HOLE W/HD 76.2 DIA X 160.4 LG	A13294
108	PIN 1 HOLE W/HD 65.0 DIA X 92.2 LG	A11798
109	PIN 2 HOLE 12.0 DIA X 93.0 LG	A11799
110	COLLAR 66.0 ID	A11800
111		
112		
113	PIN COTTER .125 X 1.50	562045
114	LINK, STRAP STOWAGE	A11538
115	PIN 2 HOLES, 19.0 DIA X 132.0 LG	A11795
116	LINK STOWAGE	A11537

200	WEIGHT BALL SWIVEL 20 TON 1.125 WR	A13737
201	HOOK BLOCK ASSY 41 MT (45 US)	236503
202	HOOK BLOCK ASSY 200 TON	A14824
203	HOOK BLOCK ASSY 100 MT (110 US)	A13154
204	HOOK BLOCK ASSY 226 MT (250 US)	A13155
205	BLOCK 100 METRIC TON, 28 MM ROPE	A15927
206	HOOK BLOCK ASSY DUPLEX 180 MT (200 US)	81007437
207	BLOCK 226 METRIC TON DUPLEX HOOK	81015106
208	BLOCK DUPLEX 100MTON 28MM 3 SHEAVE	81016673

- 1 REQUIRES BOOM TOP WIRE ROPE GUIDE EQUIPPED WITH KEEPER PLATES AND PINS FOR LUFFING JIB. (REFERENCE BOOM TOP ASSY A11388 SEE SHT 2)
- 2 SEE SHEET 2 FOR BOOM/BACKSTAY MAKEUP.
- 3 SEE SHEET 3 FOR JIB/JIB STRAP MAKEUP.
- 4 REQUIRED FOR JIB ERECTION.
- 5 REFER TO LUFFING JIB RAISING PROCEDURE FOR RAISING AND LOWERING BOOM AND JIB.
- 6 SEE VIEW D AND TABLE FOR PROPER ADJUSTMENT.
- 7 78 M (255.9 FT) AND 84 M (275.6 FT) JIB REQUIRES INTERMEDIATE SUSPENSION ITEM R51. (SEE SHEET 3 & 6 FOR INTERMEDIATE SUSPENSION INFORMATION).
- 8 SEE DELTA 11 AND 14
- 9 USE FOR 2 PART LINE ON UPPER BOOM POINT. ALSO USED FOR MACHINE ASSEMBLY WITH 9.75 M (32 FT) LIVE MAST.
- 10 DRAWING A10913
- 11 IDENTIFICATION TAGS.

OBJECT NO.	ID TAGS
A11497	A11499 (OR) A17269
A10712	A10713 (OR) A17261
A13753	A13754 (OR) A00876
A13417	A13418

SUPERSEDES A13555 SHEET 1 OF 04-20-12

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TOLERANCE UNLESS OTHERWISE SPECIFIED: DECIMAL PLACES FRACTIONATION FINISHING

19-111 ManiToWoc Cranes, Inc. JIB LUFFING ASSY #59 JIB ON #58 BOOM

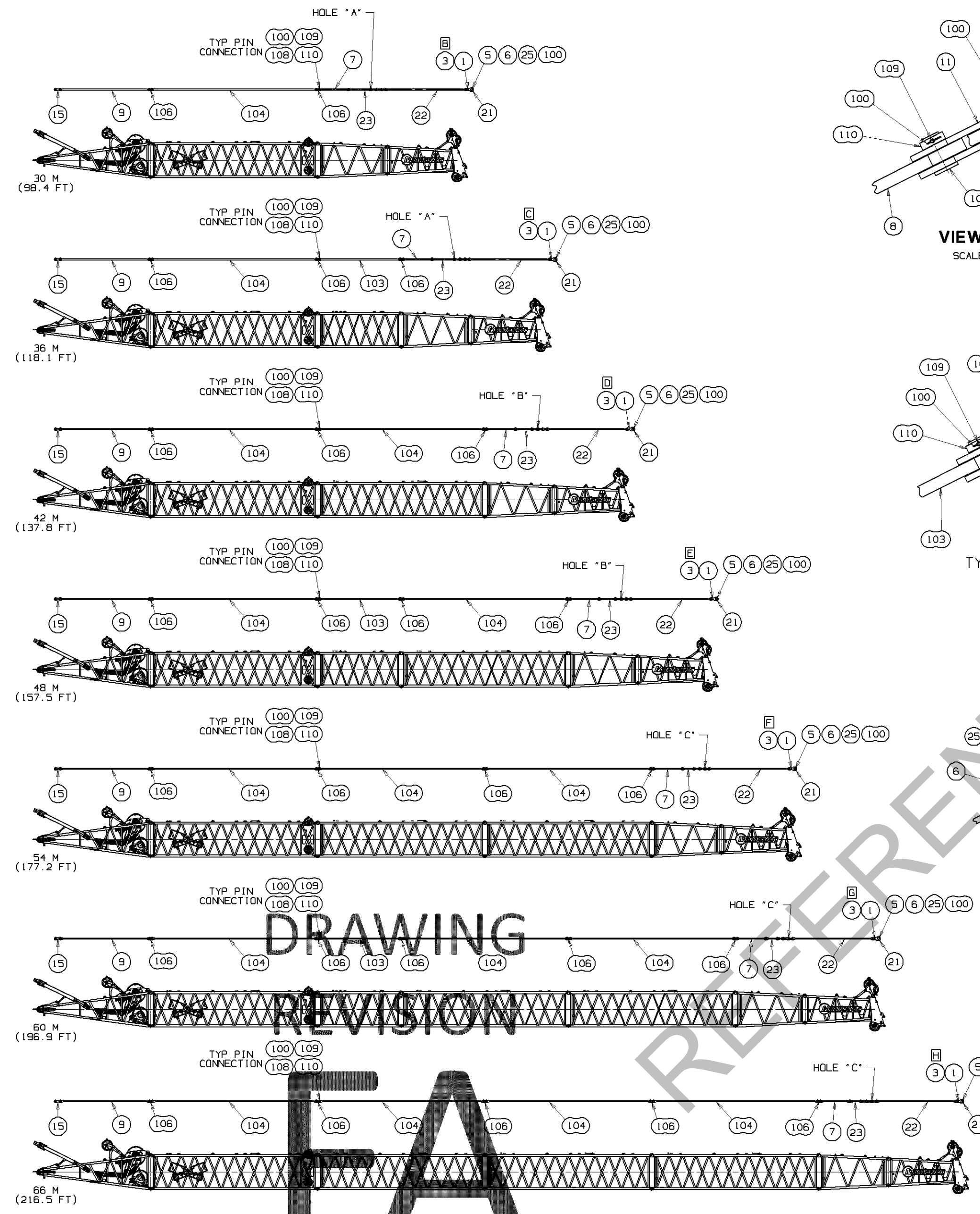
DATE: 08-22-14

PATTERN NO.

APP: JAM

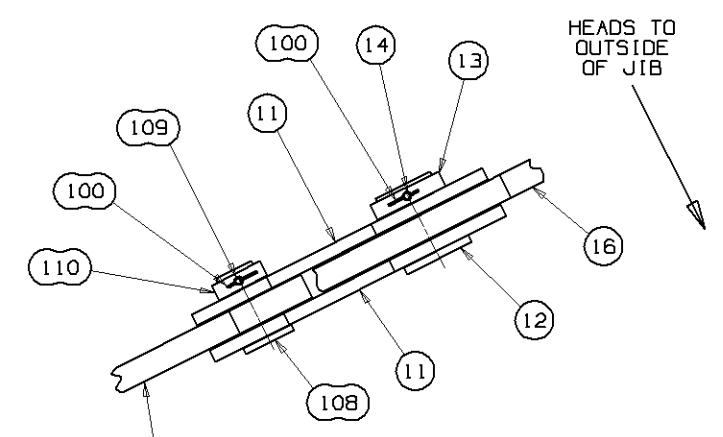
BILL OF MATERIAL			
ITEM NO.	DESCRIPTION	MATERIAL	QUANTITY

REVISIONS
05-31-06 TK SECTION S-S ADDED
10-11-06 JRR WAS ITEM 4 ADDED DELTA 20
08-10-09 JAS WAS SHT 2 OF 6 ADDED 2
02-26-10 JAS UPDATED BOOM SIZES
08-22-14 KKM UPDATED VIEW
VIEW WAS ITEM 27

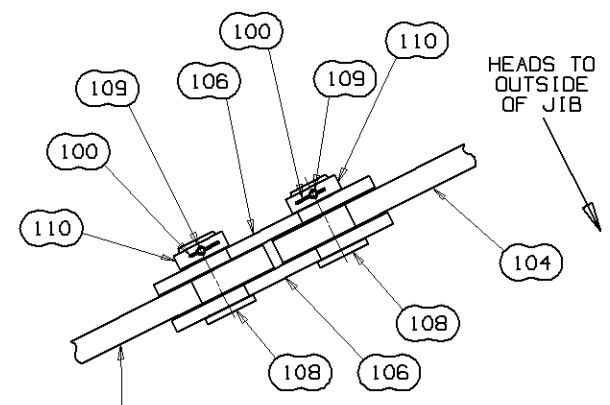


DRAWING REVISION FA

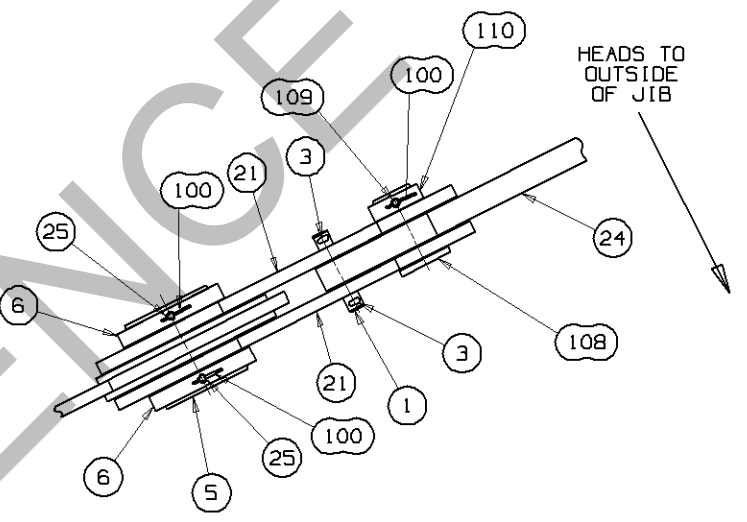
REQ'D. #58 BOOM/BACKSTAY STRAP ASSEMBLY  
SEE TABLE ON SHEET 1  
SCALE: 0.9=1 FT



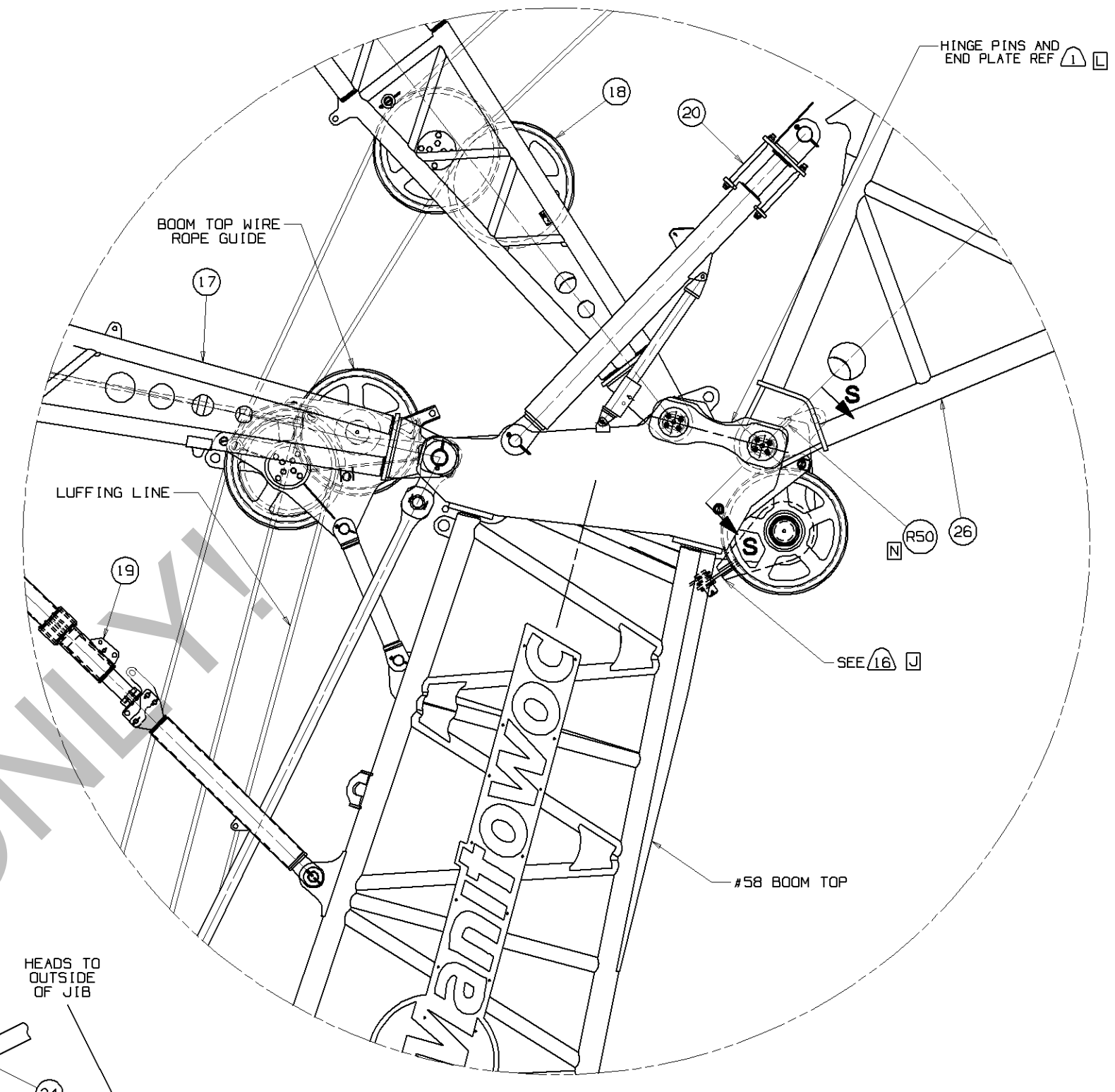
**VIEW A - A**  
SCALE: 2 = 1 FT



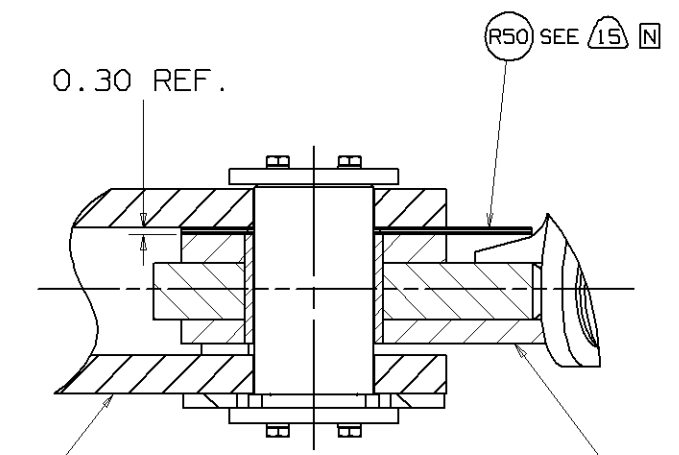
**VIEW B - B**  
TYP STRAP CONNECTION  
SCALE: 2 = 1 FT



**VIEW C - C**  
SCALE: 2 = 1 FT



**VIEW E**  
SCALE: 75 = 1 FT



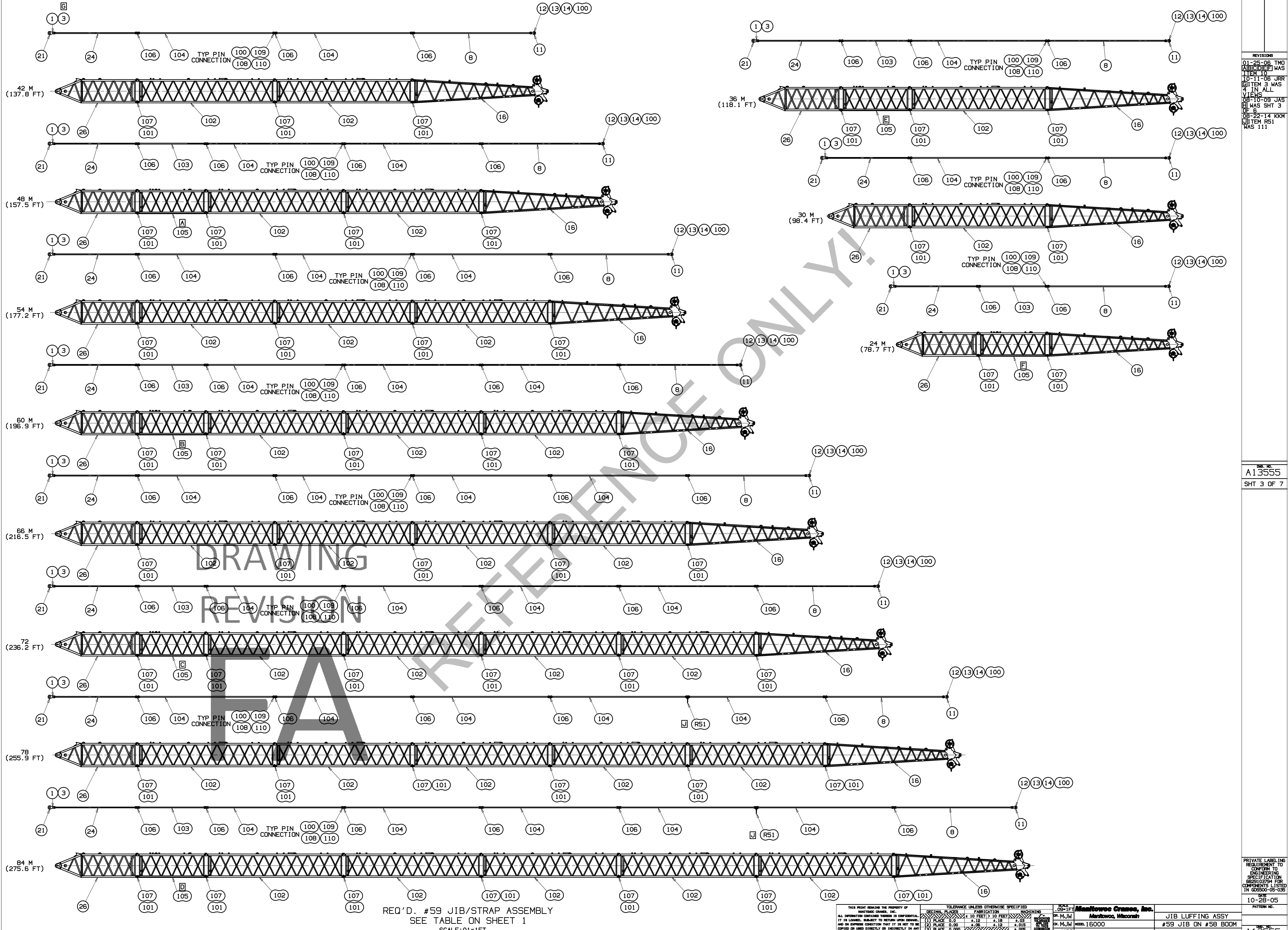
**SECTION S-S**  
SCALE: 3 = 1 FT  
TYPICAL BOTH SIDES

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BILL OF MATERIAL		ASSEMBLIES USED IN
QTY	DESCRIPTION	MATERIAL

REVISIONS  
 01-25-06 TMD  
 A13555 WAS  
 ITEM 10  
 10-11-06 JRR  
 ITEM 3 WAS  
 4 IN ALL  
 08-10-09 JAS  
 WAS SHT 3  
 OF 6  
 08-22-14 KKM  
 ITEM RS1  
 WAS 111



DRAWING REVISION

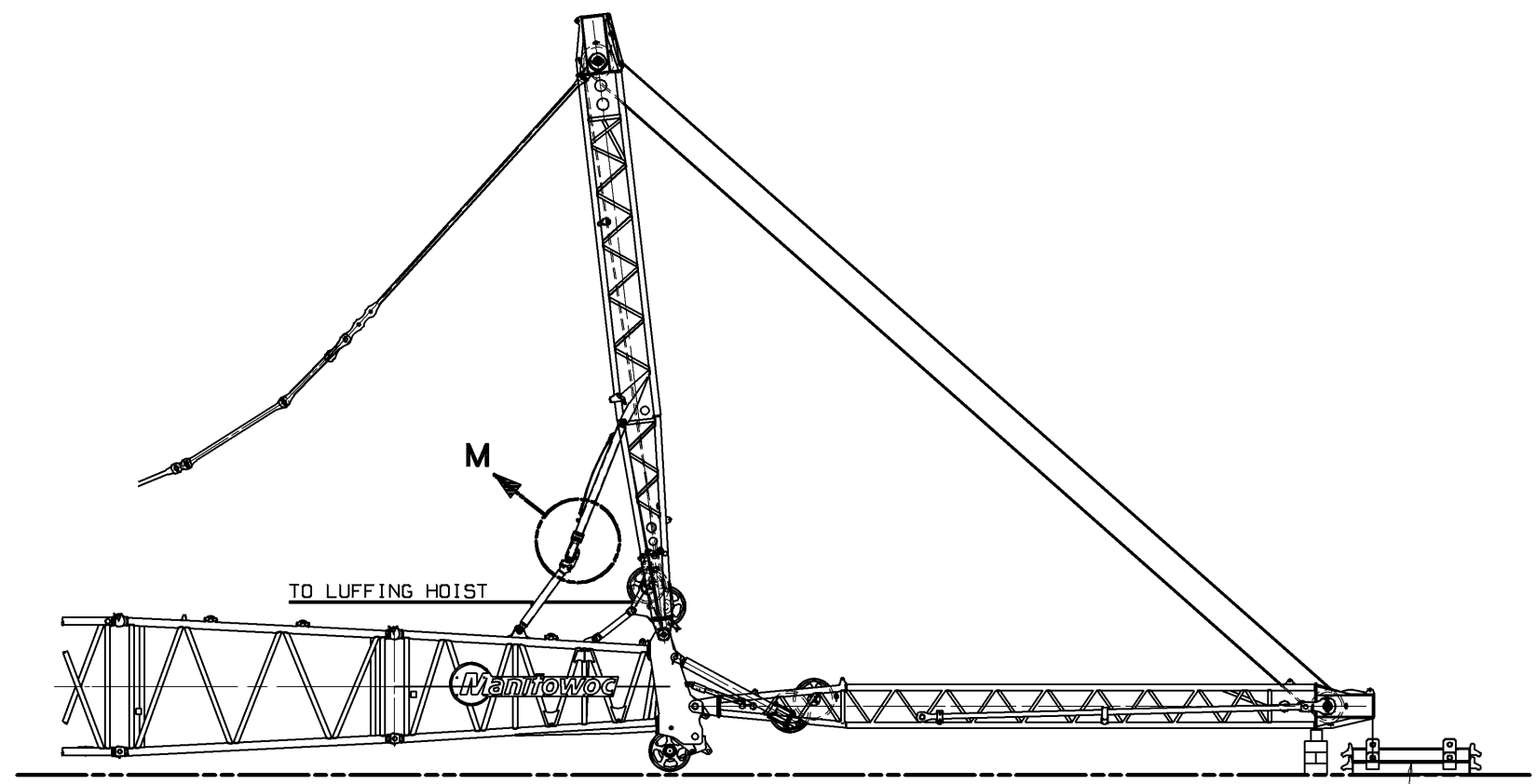
REQ'D. #59 JIB/STRAP ASSEMBLY  
 SEE TABLE ON SHEET 1  
 SCALE: 01=1FT

DECIMAL PLACES	FRACTION	10 FEET	10 FEET	MACHINING
(1) PLACE 0.5	1/2	±.18	±.05	±.05
(2) PLACE 0.05	1/20	±.08	±.015	±.015
(3) PLACE 0.005	1/200	±.04	±.006	±.006
ANGLES		±.30		±.030

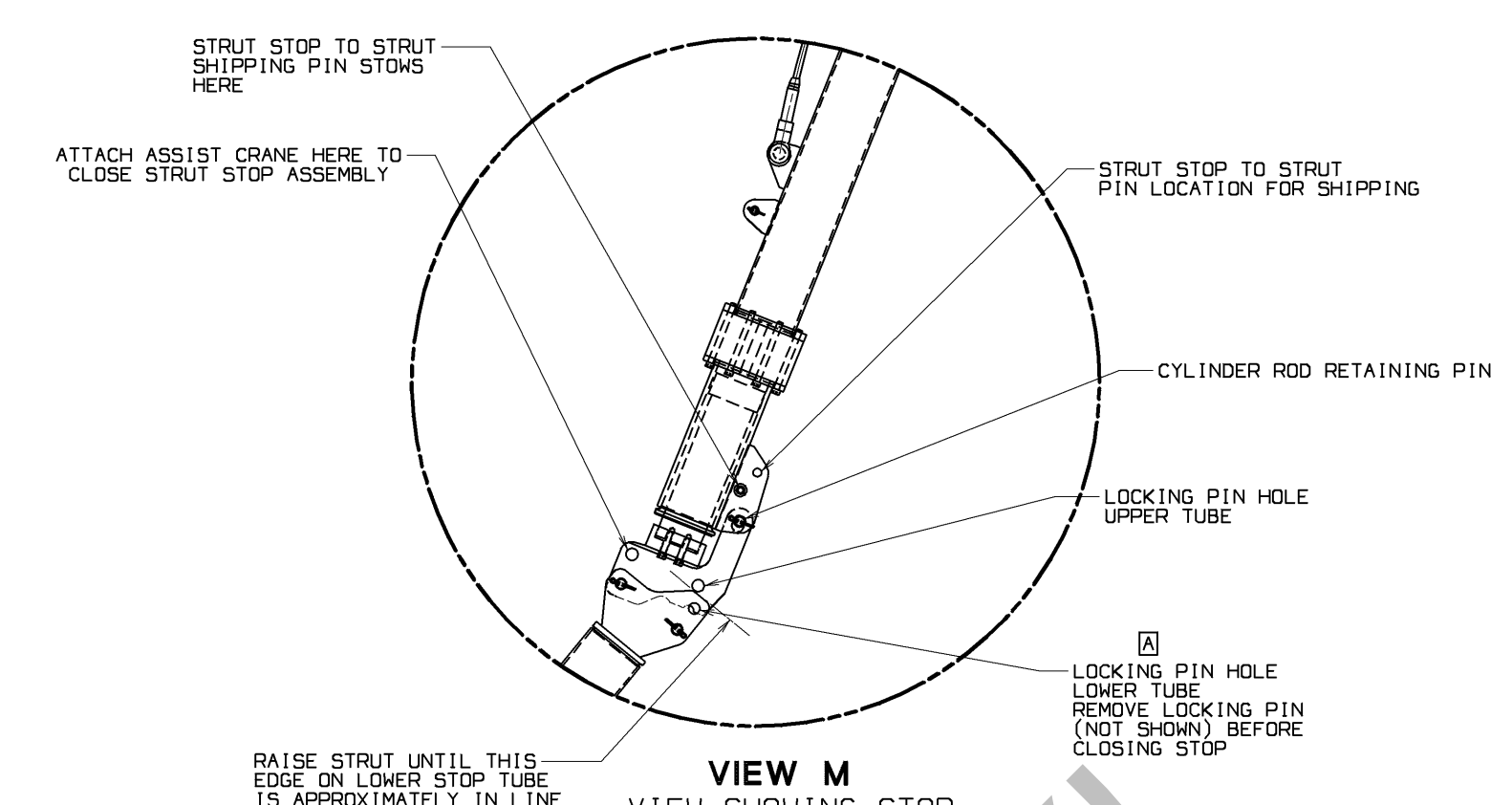
SCALE 1:50-1FT	DR. M.J.W. Marinette, Wisconsin	JIB LUFFING ASSY
MODEL 16000	APP HCS	#59 JIB ON #58 BOOM
DATE 10-28-05		PATTERN NO.

PRIVATE LABELING  
 REQUIREMENT TO  
 CONFORM TO  
 ENGINEERING  
 SPECIFICATION  
 6829103794 FOR  
 COMPONENTS LISTED  
 IN SECTION 05-026  
 10-28-05  
 SHT 3 OF 7

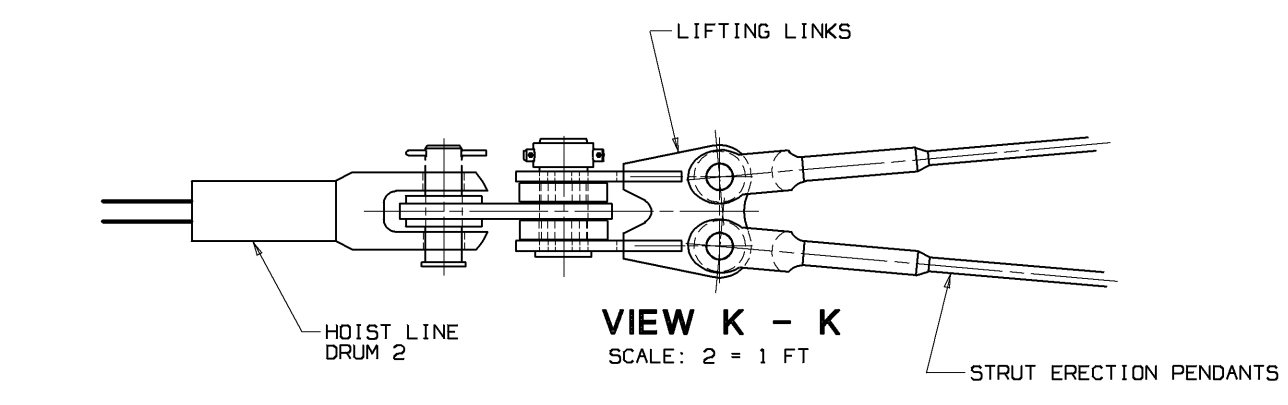




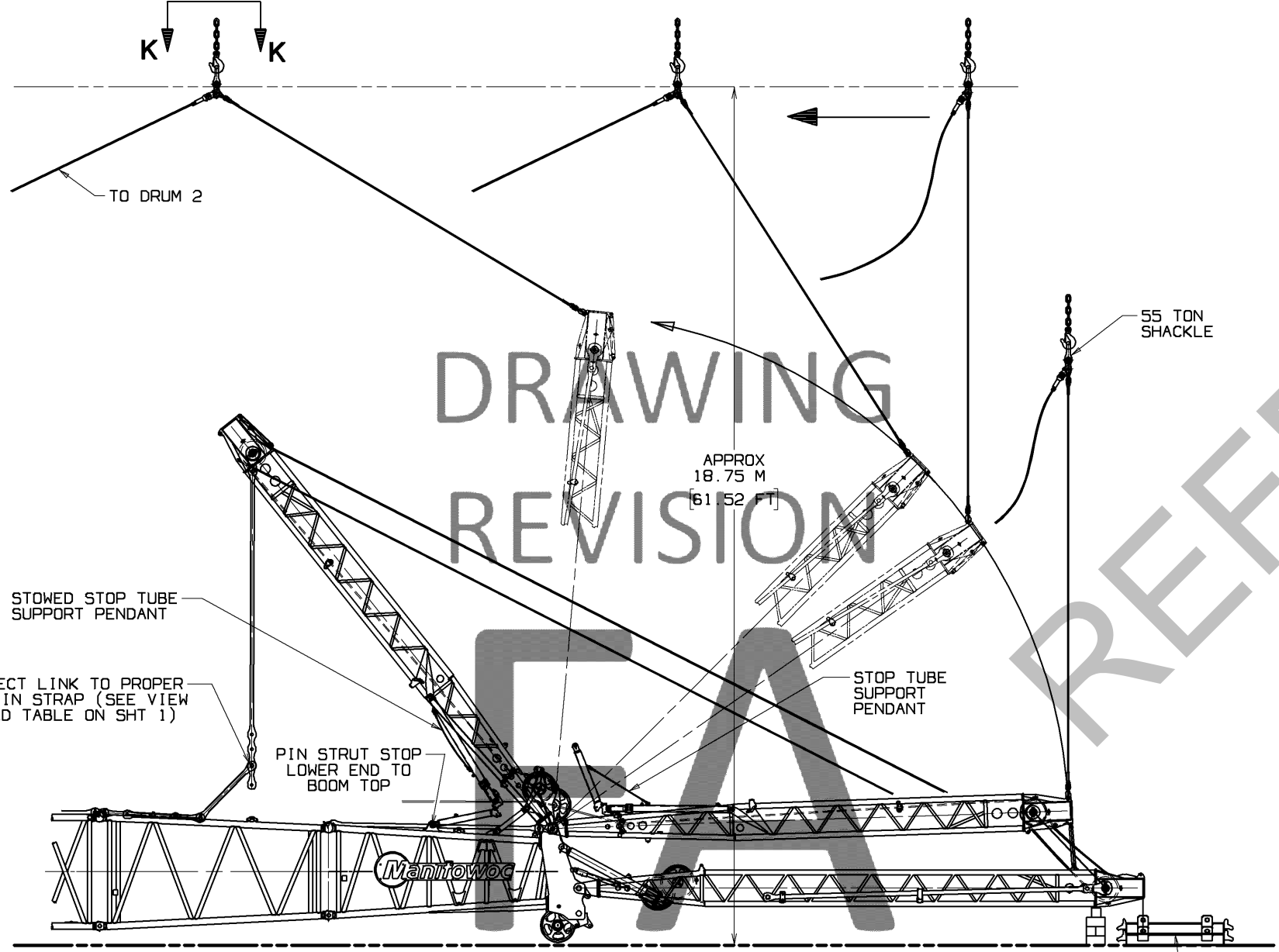
**VIEW L**  
STRUT ERECTION AND STRUT STOP SETUP  
SCALE: .18 = 1 FT



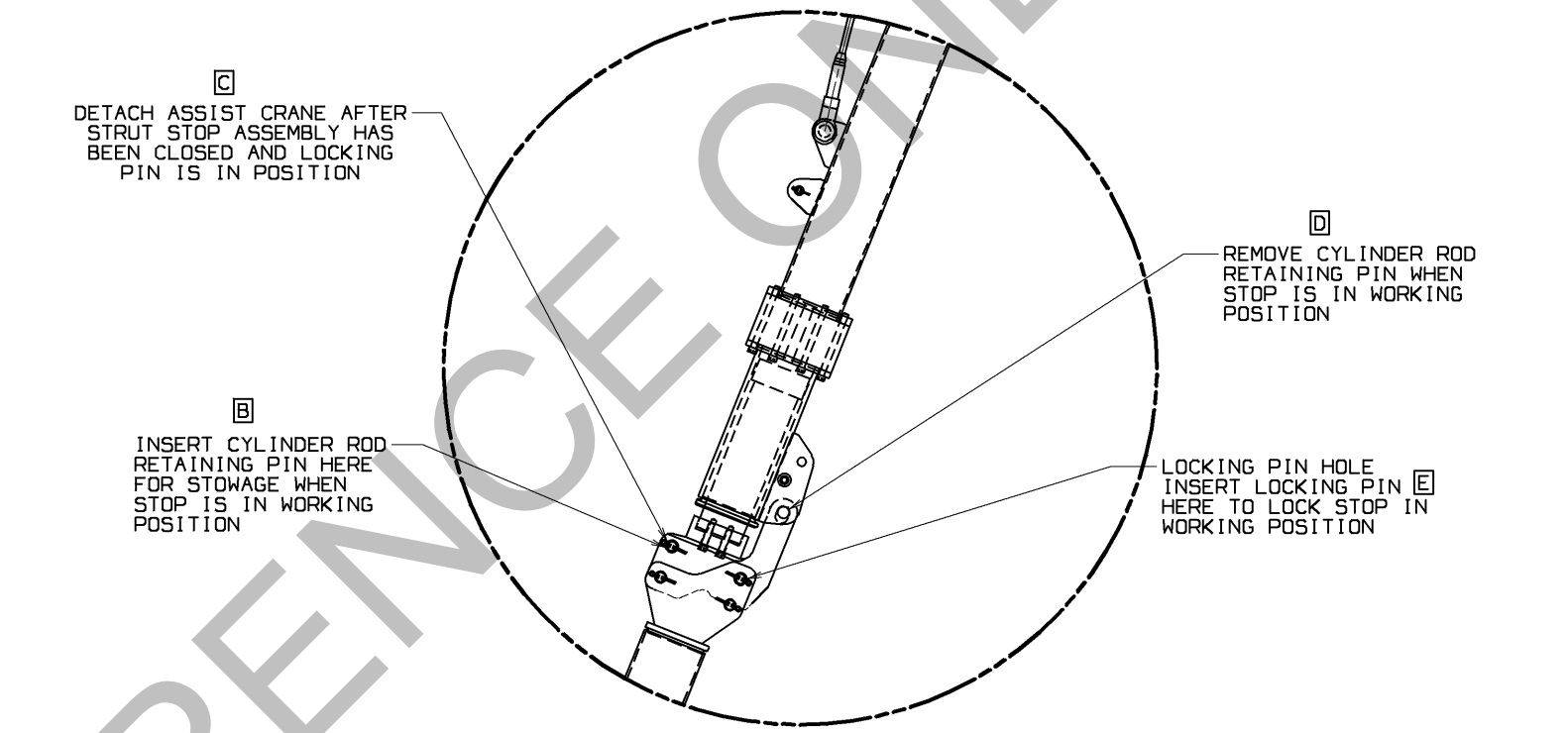
**VIEW M**  
VIEW SHOWING STOP BEFORE CLOSING  
SCALE: 1.5 = 1 FT



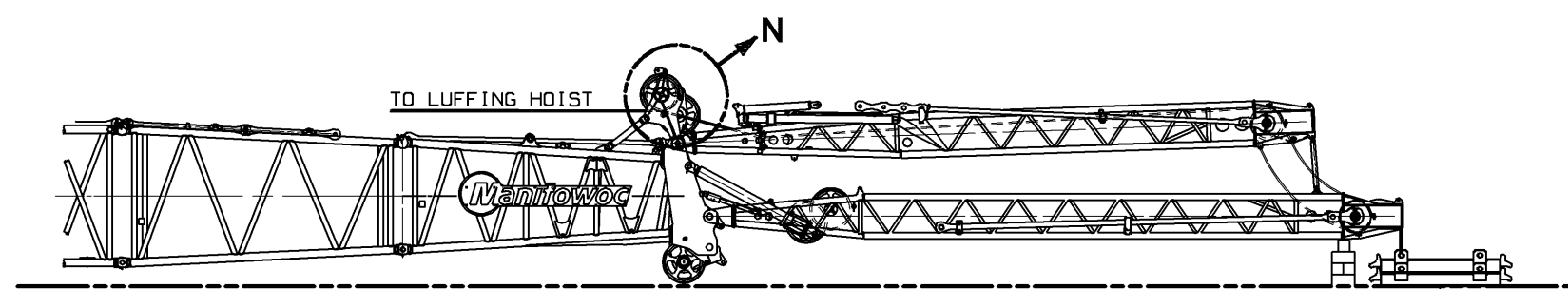
**VIEW K - K**  
SCALE: 2 = 1 FT



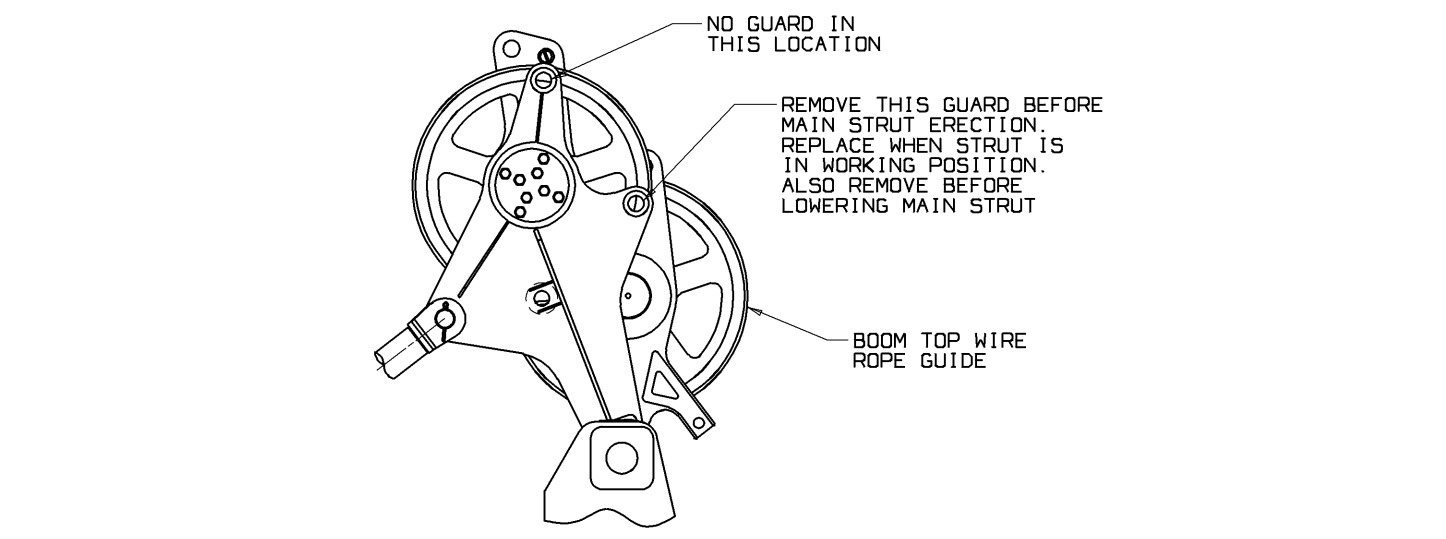
**VIEW J**  
STRUT ERECTION  
SCALE: .18 = 1 FT



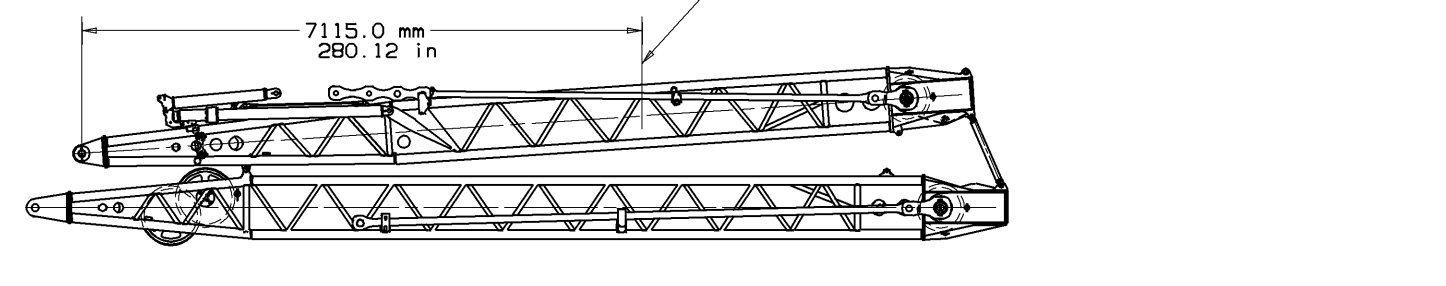
**VIEW M**  
VIEW SHOWING STOP AFTER CLOSING  
SCALE: 1.5 = 1 FT



**VIEW H**  
STRUT ASSEMBLY AND SETUP  
SCALE: .18 = 1 FT



**VIEW N**  
SCALE: 1 = 1 FT



STRUT SHIPPING ARRANGEMENT

**STRUT RAISING PROCEDURE**

- STRUTS TO BE ASSEMBLED AND BLOCKED AS SHOWN IN VIEW "H". ASSEMBLE JIB STRUT HINGE PIN AND KEEPER PLATE IN PROPER ORIENTATION AND TEMPORARILY ATTACH END PLATES (SEE VIEW "E" ON SHT 2). TWO UPPER MACHINE COUNTERWEIGHTS TO BE POSITIONED UNDER JIB STRUT TOP AS SHOWN. COUNTERWEIGHT TIE LINKS TO BE DISCONNECTED. ATTACH COUNTERWEIGHT TO JIB STRUT TOP USING SUITABLE MEANS. CAPACITY OF ATTACHMENT HARDWARE MUST BE 25,000 POUNDS OR GREATER PER SIDE. REEVE STRUTS. REMOVE ROPE GUARD FROM WIRE ROPE GUIDE ON BOOM TOP (SEE VIEW "N").
- STRUT STOP ASSEMBLIES TO BE RETRACTED AND POSITIONED AS SHOWN IN VIEW "J". REMOVE AND STOW STRUT STOP TO STRUT SHIPPING PINS (SEE VIEW "M" AT LEFT). STOP TUBE PRESSURES TO BE WITHIN 5 PSI OF EACH OTHER. PRESSURE GAGE TO BE:
 

240 PSI ± 5 PSI AT 90°F (32 DEG C)
230 PSI ± 5 PSI AT 70°F (21 DEG C)
220 PSI ± 5 PSI AT 50°F (10 DEG C)
210 PSI ± 5 PSI AT 30°F (-1 DEG C)

- ATTACH ASSIST CRANE (25M OR 80 FT BOOM MIN. WITH 40,000# CAPACITY REED.) TO LIFTING LINKS FROM MAIN STRUT ASSEMBLY WITH A 55 TON SHACKLE (SEE VIEW "K-K"). RUN LOAD LINE FROM DRUM 2 TO LINKS (SEE VIEW "J" AND "K-K"). RAISE MAIN STRUT WHILE PAYING OUT LUFFING HOIST LINE. DO NOT RAISE UPPER COUNTERWEIGHT BOX OFF OF LOWER BOX. CONTROL HOIST SPEED BY WATCHING UPPER COUNTERWEIGHT ROCK. AFTER RAISING MAIN STRUT TO 45 DEGREES USE LOAD LINE TO PULL STRUT WHILE FOLLOWING WITH ASSIST CRANE.
- CONTINUE TO PAY OUT LUFFING HOIST LINE WHILE EASING MAIN STRUT OVER CENTER AND LOWER STRUT UNTIL STRUT STOPS AND BACKSTAY STRAPS CAN BE CONNECTED. CONNECT STRUT STOP LOWER END TO BOOM TOP. STOW STRUT STOP LOWER TUBE SUPPORT PENDANT (SEE VIEW J). CONNECT BACKSTAY STRAPS IN PROPER POSITION (SEE VIEW D AND TABLE ON SHEET 1) FOR ASSEMBLED BOOM LENGTH.
- CONNECT TIE LINKS BETWEEN TWO COUNTERWEIGHT BOXES AT JIB STRUT TOP. SLOWLY RAISE MAIN STRUT BY TAKING UP LUFFING HOIST LINE UNTIL STOP APPROXES POSITION SHOWN IN VIEW "M".

**WARNING:** STOP WILL NOT CLOSE WITH LUFFING HOIST. LUFF UP TO POSITION INDICATED IN VIEW "M" ONLY OR DAMAGE TO STRUT, STOP AND BOOM TOP WILL OCCUR.

- ATTACH ASSIST CRANE TO ONE OF THE STOP TUBE ASSEMBLIES AS INDICATED IN VIEW "M". REMOVE LOCKING PIN SLOWLY. HOIST UP. STOP TUBE WILL SNAP INTO POSITION. REPEAT FOR THE OTHER STOP TUBE ASSEMBLY. NOTE: ONLY A SLIGHT VERTICAL MOVEMENT IS REQUIRED TO SNAP TUBE INTO POSITION.
- WITH BOTH STOP TUBE ASSEMBLIES CLOSED (SNAPPED IN POSITION) INSERT PREVIOUSLY REMOVED LOCKING PIN INTO STOP LOCKING HOLE TO LOCK STOP IN WORKING POSITION.

**DANGER:** DO NOT DRIVE OUT CYLINDER ROD RETAINING PINS. PINS MUST BE LOOSE WHEN THEY ARE REMOVED OR CYLINDER ROD MAY EXTEND RAPIDLY. IF EITHER PIN IS TIGHT, FOLLOW STEP 8 TO REMOVE PINS.

- LUFF DOWN TO SET JIB STRUT ON BLOCKING AND ALLOW A SLIGHT AMOUNT OF SLACK IN REEVING. USING HOIST LINE FROM DRUM 2 ATTACHED TO MAIN STRUT RAISING PENDANTS, SLOWLY PULL MAIN STRUT BACK TO REMOVE LOAD IN CYLINDER ROD RETAINING PINS AND REMOVE PINS. (CAUTION: PULL ONLY ENOUGH TO REMOVE LOAD ON PINS OR DAMAGE TO STRUT AND STOPS MAY OCCUR.) INSERT CYLINDER ROD RETAINING PINS IN HOLES INDICATED IN VIEW "M" FOR STOWAGE. PAY OUT LOAD HOIST LINE. CYLINDERS WILL EXTEND ALLOWING STRUT TO ROTATE FORWARD.
- REMOVE ASSIST CRANE FROM MAIN STRUT ERECTION PENDANTS AND STOP ERECTION LINKS AND PENDANTS IN PROPER LOCATION ON MAIN STRUT TO PREVENT DAMAGE TO STRUT AND STOPS. REPLACE ROPE GUARD IN WIRE ROPE GUIDE ON BOOM TOP (SEE VIEW "N").
- DISCONNECT COUNTERWEIGHT FROM JIB STRUT TOP.
- LUFF UP ON LUFFING HOIST LINE TO RAISE JIB STRUT TO A MAXIMUM OF 70 DEGREES TO HORIZONTAL.
- ASSEMBLE JIB BUTT AND ONE INSERT. USE A FOUR POINT HOOKUP WITH SLINGS AROUND CHORDS AND ATTACH TO BOOM TOP. APPLY TO THREADS LOCTITE #242 (MCC OBJECT NO. 822293) AND TORQUE CAPSCREWS ON JIB STRUT AND JIB BUTT END PLATES TO 100 FT/LBS. (SEE VIEW "E" SHT 2)
- PULL STRUT FORWARD AND CONNECT JIB STRAPS ON STRUT WITH STRAPS ON INSERT. FINISH ASSEMBLY OF JIB AND CONNECT STRAPS. (SEE VIEW ON SHT 4).
- INSTALL JIB UPPER BOOM POINT WITH ROLLER TO JIB TOP.
- INSTALL JIB STOPS AND JIB STOP CONTROL CABLE. (SEE SHT 5)
- LUFFING JIB IS READY FOR RAISING AND OPERATION. REFER TO LUFFING JIB RAISING PROCEDURE FOR RAISING AND LOWERING BOOM AND JIB.

**STRUT LOWERING PROCEDURE**

- WITH JIB UPPER POINT ROLLER ON GROUND LOWER BOOM AND LUFFING JIB TO 145 DEGREES BETWEEN BOOM AND JIB
- PERFORM JIB STOP PROCEDURE FOR LOWERING BOOM AND JIB. (SEE SHT 5) THEN CONTINUE TO LOWER BOOM AND JIB TO BLOCKING.
- DISCONNECT JIB STRAPS AND REMOVE JIB.
- LOWER JIB STRUT WITH LUFFING HOIST AND STOW STRAPS. JIB STRUT MAY NEED TO BE PULLED FORWARD TO START LOWERING. SUPPORT JIB STRUT ON BLOCKING AS SHOWN IN VIEW "L".
- TIE OFF JIB STRUT TO COUNTERWEIGHT BOXES AS SHOWN IN VIEW "L". BOXES MUST BE CONNECTED WITH LINKS.
- LUFF DOWN WITH LUFFING HOIST TO ALLOW A SLIGHT AMOUNT OF SLACK IN REEVING. REMOVE ROPE GUARD AS INDICATED IN VIEW "N".
- ATTACH ASSIST CRANE TO STRUT ERECTION PENDANTS, LINKS AND HOIST LINE FROM DRUM 2. SLOWLY PULL MAIN STRUT BACK WITH DRUM 2 TO RETRACT CYLINDERS IN STRUT STOPS. (CAUTION: ONLY PULL BACK ENOUGH TO ALIGN CYLINDER ROD RETAINING PIN HOLES OR DAMAGE TO STRUT AND STOPS MAY OCCUR.) REMOVE RETAINING PINS FROM STOWAGE POSITION HOLE AND INSERT TO RETAIN CYLINDER ROD. REMOVE STOP LOCKING PINS FROM WORKING POSITION. (SEE VIEW "M").
- PAY OUT HOIST LINE FROM DRUM 2 TO UNLATCH STRUT STOP TUBES. (NOTE: UNDER SOME CONDITIONS IT MAY BE NECESSARY TO LUFF UP SLIGHTLY TO UNLATCH STOP TUBES.) WITH STOP TUBES UNLATCHED, LUFF DOWN UNTIL BACKSTAY STRAPS CAN BE DISCONNECTED AND STRUT STOP TO BOOM TOP PINS CAN BE REMOVED. DISCONNECT STRAPS. ATTACH STOP TUBE SUPPORT PENDANT. INSERT LOCKING PIN INTO LOCK PIN HOLE LOWER TUBE AND REMOVE STOP TO BOOM TOP PINS.
- DISCONNECT TIE LINKS BETWEEN COUNTERWEIGHT BOXES AT JIB STRUT TOP. SLOWLY LUFF UP AND FOLLOW WITH ASSIST CRANE AND HOIST LINE TO MOVE MAIN STRUT OVER CENTER. LOWER MAIN STRUT TO JIB STRUT FOR DISASSEMBLY.

REVISIONS

NO.	DATE	DESCRIPTION
04-25-07	RHV	ADDED
08-10-09	JAS	ADDED NOTE TO REMOVE PIN WAS CYL. ROD RETAINING PIN
02-28-10	JAS	UPDATED NOTES PER VIEW "M" REVS
02-28-10	JAS	UPDATED BOOM SIGN

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### JIB STOP SETUP AND OPERATION

JIB STOP AND RELATED COMPONENTS TO BE ASSEMBLED PER THE JIB STOP ASSEMBLY.

FOR JIB STOP INSTALLATION BEFORE THE JIB BUTT IS INSTALLED.

PIN STOP AND STRUT TO BOOM TOP. IF STRUT IS RETRACTED, REMOVE LATCH SPRING RETAINER PIN AND LATCH FROM OUTER STOP TUBE. ATTACH ASSIST CRANE TO LUG ON STOP AND RAISE STOP UNTIL LATCH SPRING RETAINER CAN BE INSERTED BETWEEN OUTER TUBE AND BASE ON STRUT. INSERT LATCH THEN INSTALL LATCH PIN IN UPPER HOLE ON LATCH SPRING RETAINER. IF STRUT IS ALREADY EXTENDED, PIN STOP AND STRUT TO BOOM TOP. REPEAT FOR BOTH SIDES OF BOOM. JIB BUTT MAY NOW BE INSTALLED. (SEE VIEW AT LEFT AND VIEW P)

WARNING: DO NOT EXTEND STRUT MORE THAN REQUIRED TO INSERT LATCH SPRING RETAINER OR DAMAGE TO STRUT WILL OCCUR.

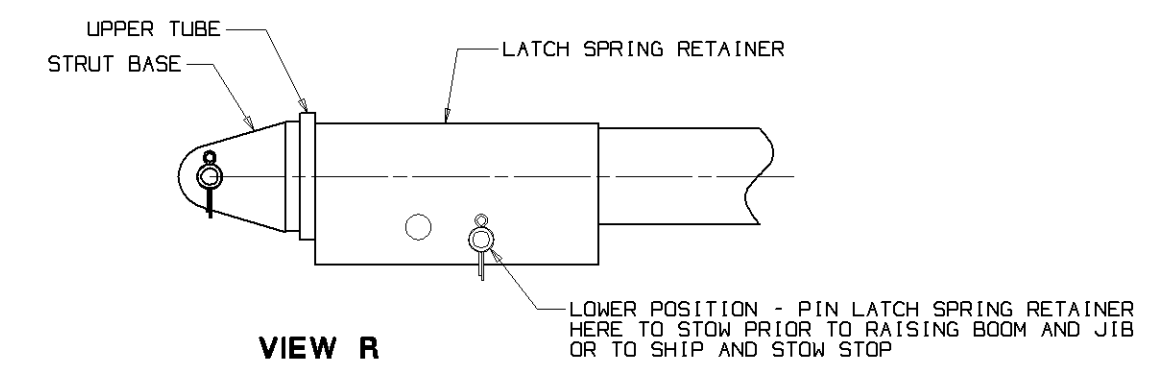
FOR JIB STOP INSTALLATION AFTER THE JIB BUTT IS INSTALLED.

JIB STOP STRUT MUST BE IN THE EXTENDED POSITION WITH LATCH SPRING RETAINER PINNED IN PROPER POSITION. PIN STOP AND STRUT TO BOTH SIDES OF BOOM TOP. (SEE VIEW AT LEFT AND VIEW P)

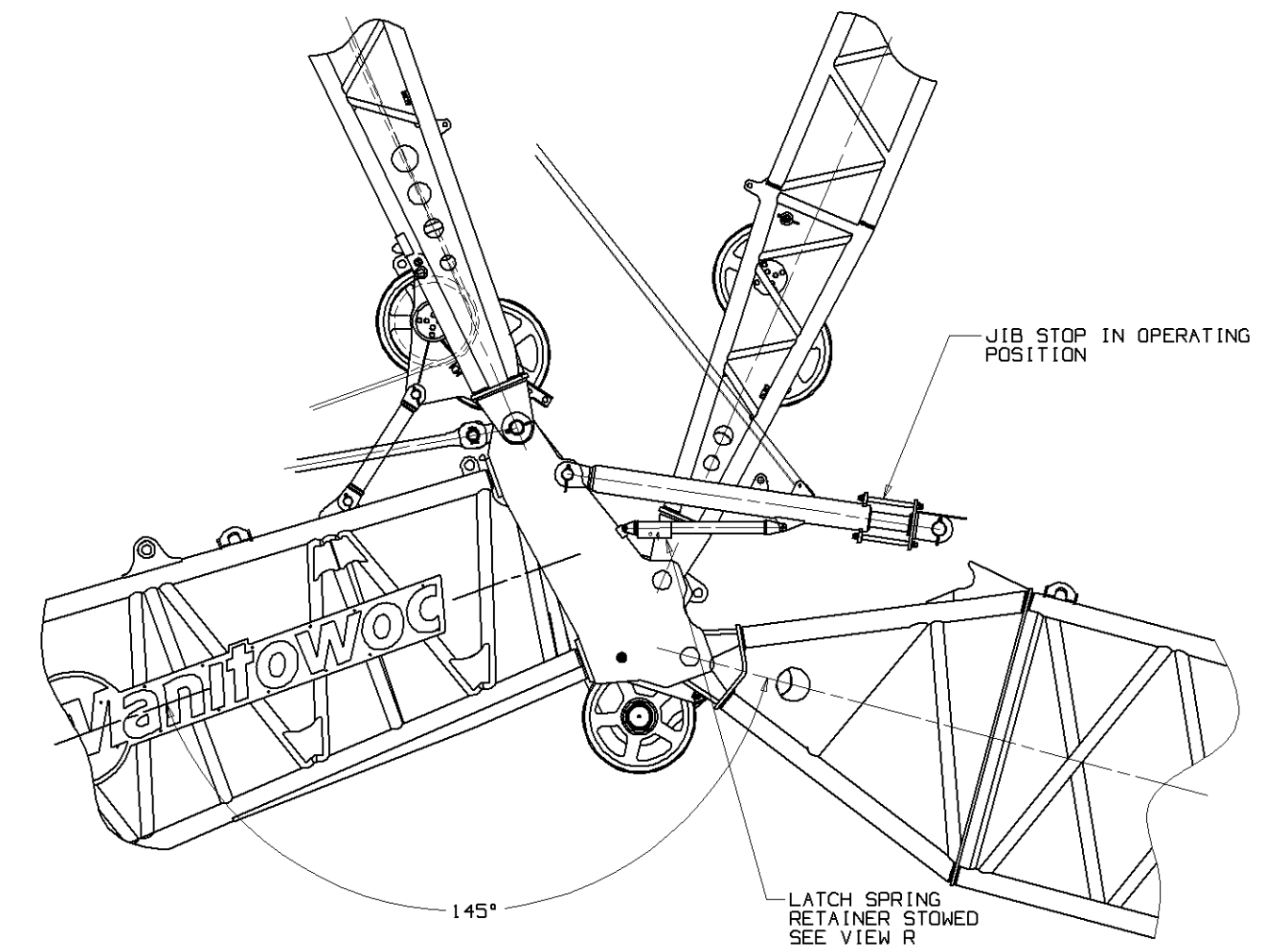
WITH THE JIB INSTALLED, COMPLETE JIB STOP INSTALLATION. ALL CONTROL CABLES MUST BE IN APPROPRIATE SHEAVES WITH GUARDS IN PLACE. ALL CABLES ARE TO BE ROUTED FREE OF OBSTRUCTIONS AND MUST OPERATE FREELY.

#### TO RAISE BOOM AND JIB

WHEN BOOM AND JIB ARE READY TO BE ERECTED, TAKE UP LINE ON HAND WINCH IN JIB TOP TO RAISE JIB STOP. REMOVE LATCH SPRING RETAINER FROM BETWEEN STRUT UPPER TUBE AND STRUT BASE. PLACE LATCH SPRING RETAINER OVER STRUT UPPER TUBE AND PIN IN LOWER HOLE. STOP MUST BE SUPPORTED BY CABLE AND CLEAR JIB BUTT UNTILL BOOM/JIB ANGLE REACHES 145°. (SEE VIEW R)



WHEN BOOM/JIB REACHES 145°, BACK OFF LINE WITH HAND WINCH TO LOWER JIB STOPS INTO OPERATING POSITION. ALLOW APPROXIMATELY 1 METER (3 FT) OF SLACK IN CABLE AT WINCH. JIB STOP IS NOW READY FOR OPERATION. (SEE VIEW BELOW)



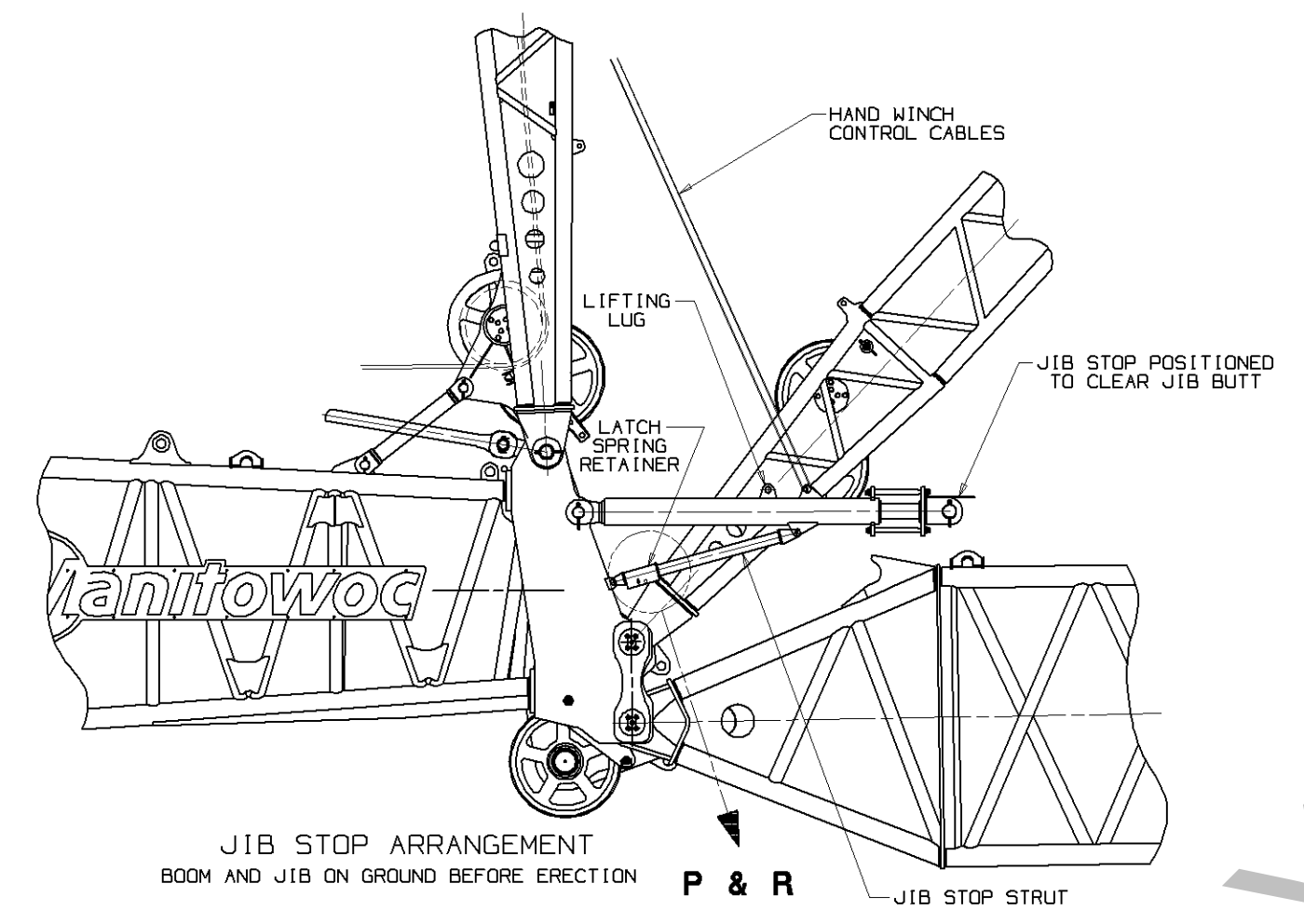
#### JIB STOP IN OPERATING POSITION

#### TO LOWER BOOM AND JIB

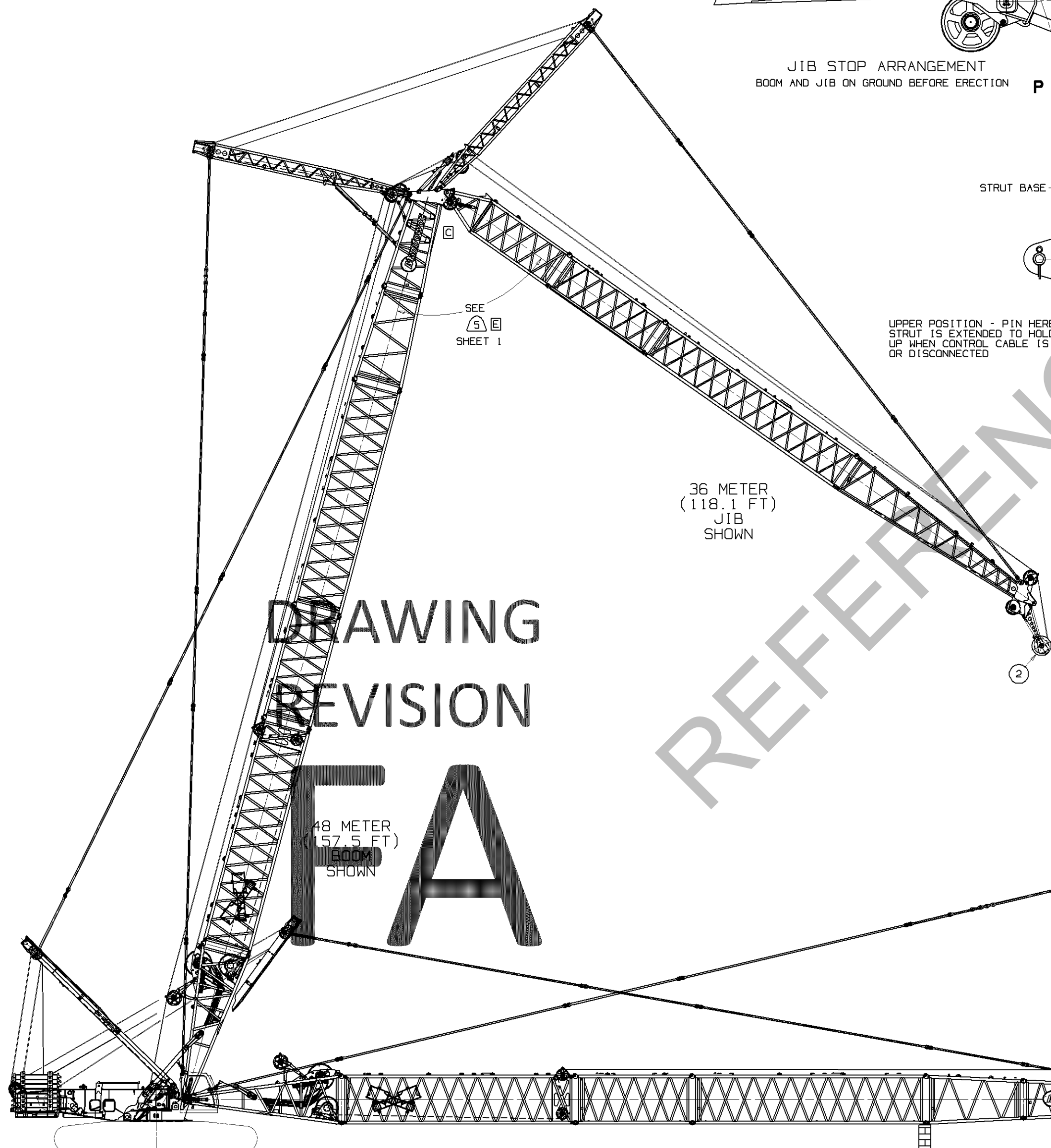
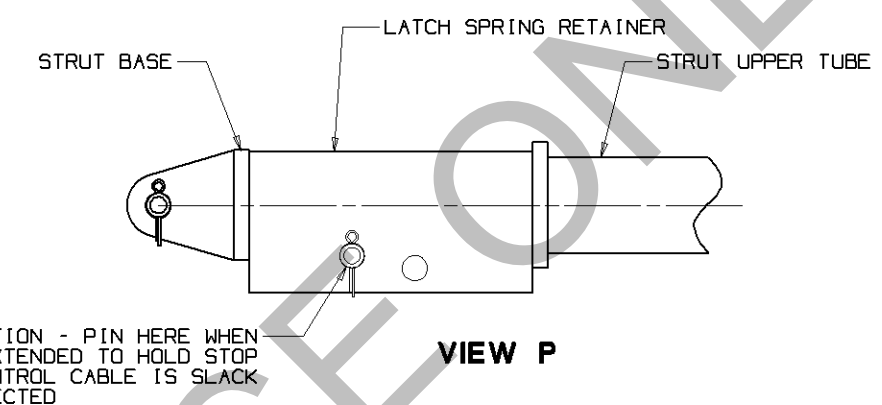
TO LOWER BOOM AND JIB TO GROUND, BOOM AND LUFF DOWN UNTIL BOOM TO JIB ANGLE IS 145°. TAKE UP CABLE ON HAND WINCH IN JIB TOP TO RAISE JIB STOP CLEAR OF JIB BUTT. LOWER BOOM/JIB TO GROUND. POSITION LATCH SPRING RETAINER BETWEEN STRUT UPPER TUBE AND STRUT BASE AS SHOWN IN VIEW P. PIN LATCH IN PLACE THEN LET OUT LINE AT HAND WINCH IN JIB TOP.

IT IS RECOMMENDED THAT JIB STOP STRUT BE RETRACTED FOR SHIPPING AND STORAGE. (STRUT CAN NOT BE RETRACTED WITH JIB BUTT ATTACHED TO BOOM TOP) JIB STOP CAN BE SHIPPED AND STOWED ATTACHED TO BOOM TOP, HOWEVER IT MUST BE REMOVED FOR BOOM ONLY OPERATION.

TO RETRACT STRUT: SUPPORT JIB STOP AT LIFTING LUG WITH ASSIST CRANE. REMOVE LATCH SPRING RETAINER AND PLACE IT OVER JIB STOP STRUT OUTER TUBE. INSERT PIN IN LOWER HOLE ON LATCH SPRING RETAINER. (SEE VIEW R) LOWER JIB STOP UNTIL IT IS SUPPORTED BY STRUT.



**JIB STOP ARRANGEMENT**  
BOOM AND JIB ON GROUND BEFORE ERECTION **P & R**



**DRAWING REVISION**

**FA**

REFERENCE ONLY!

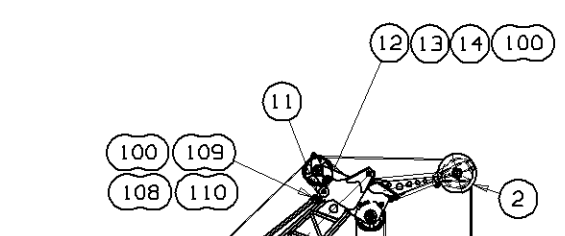
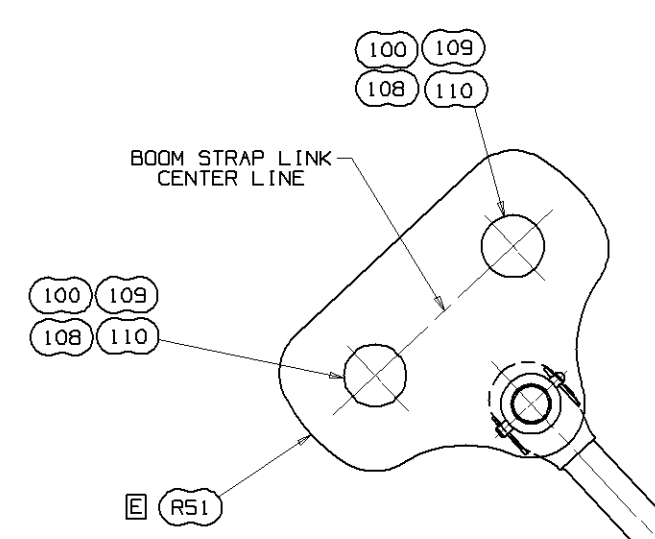
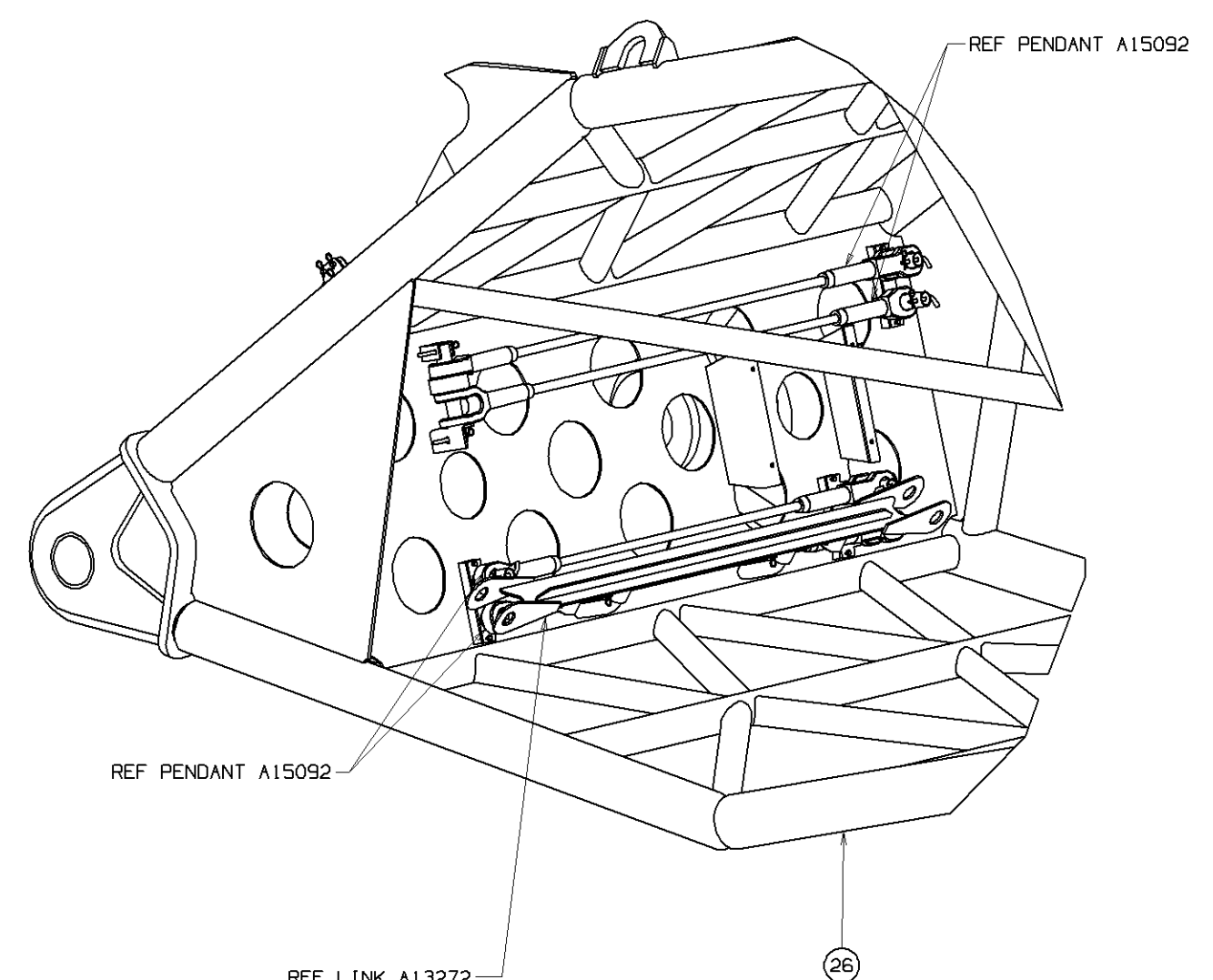
NO.	DATE	DESCRIPTION
08-10-09	JAS	AS WAS SHT 5 OF 6
09-26-10	JAS	BOOM SIGN
03-17-10	JAS	UPDATED BOOM SIGN
05-20-13	RYS	BOOM TOP VIEW
08-22-14	KKM	AS WAS DELTA 6

DRG NO  
**A13555**  
SHT 5 OF 7

DATE  
10-28-05  
PATTERN NO

TOLERANCE UNLESS OTHERWISE SPECIFIED		MACHINING		MATERIAL		MANUFACTURER	
DECIMAL PLACES	FRACTIONS	19-11F	19-11F	19-11F	19-11F	19-11F	19-11F
(1) PLACE 0.1	1/16	±0.015	±0.015	19-11F	19-11F	19-11F	19-11F
(2) PLACE 0.00	±0.00	±0.005	±0.005	19-11F	19-11F	19-11F	19-11F
(3) PLACE 0.000	±0.000	±0.0005	±0.0005	19-11F	19-11F	19-11F	19-11F
ANGLES		±1.5°	±1.5°	19-11F	19-11F	19-11F	19-11F

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DR. M.J.W.	Manitowoc, Wisconsin									
CK. M.J.W.	MODEL 16000									
APP. HCS										
JIB LUFFING ASSY										
#59 JIB ON #58 BOOM										



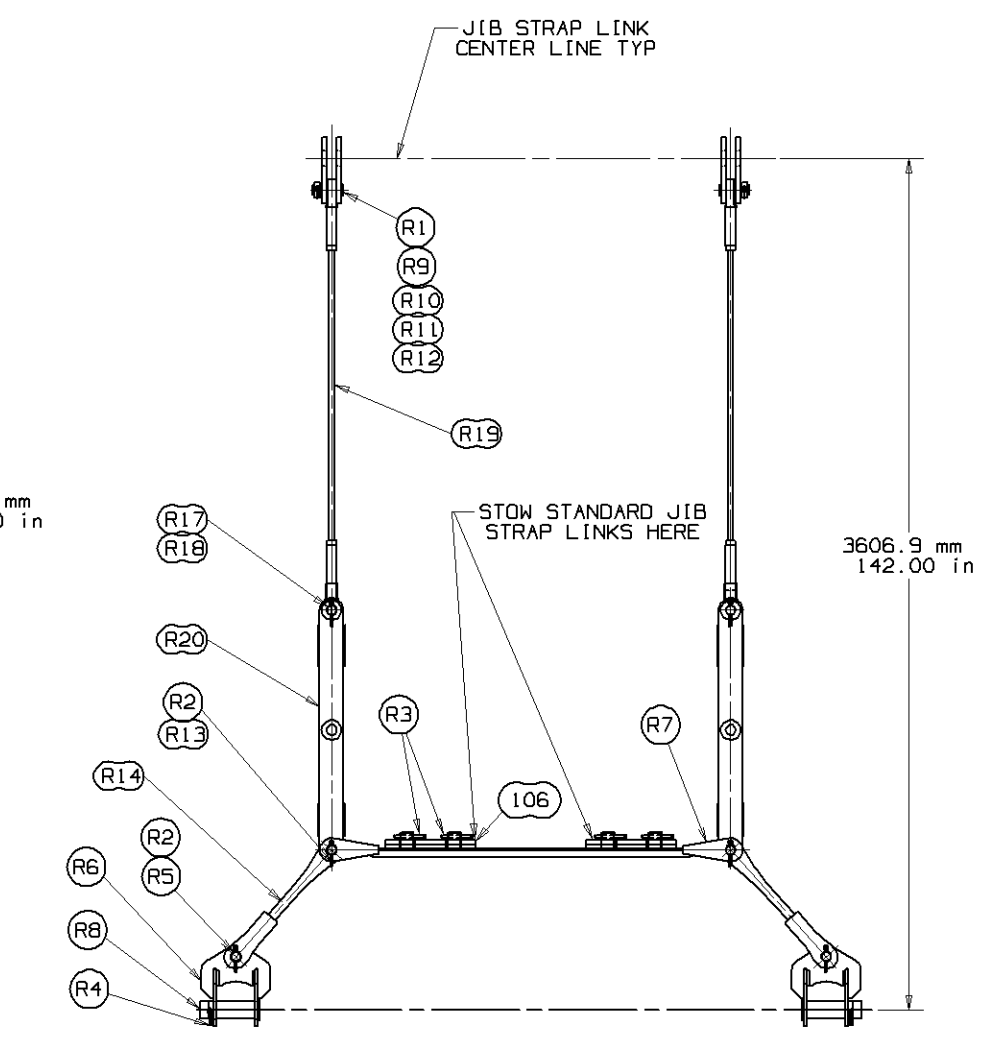
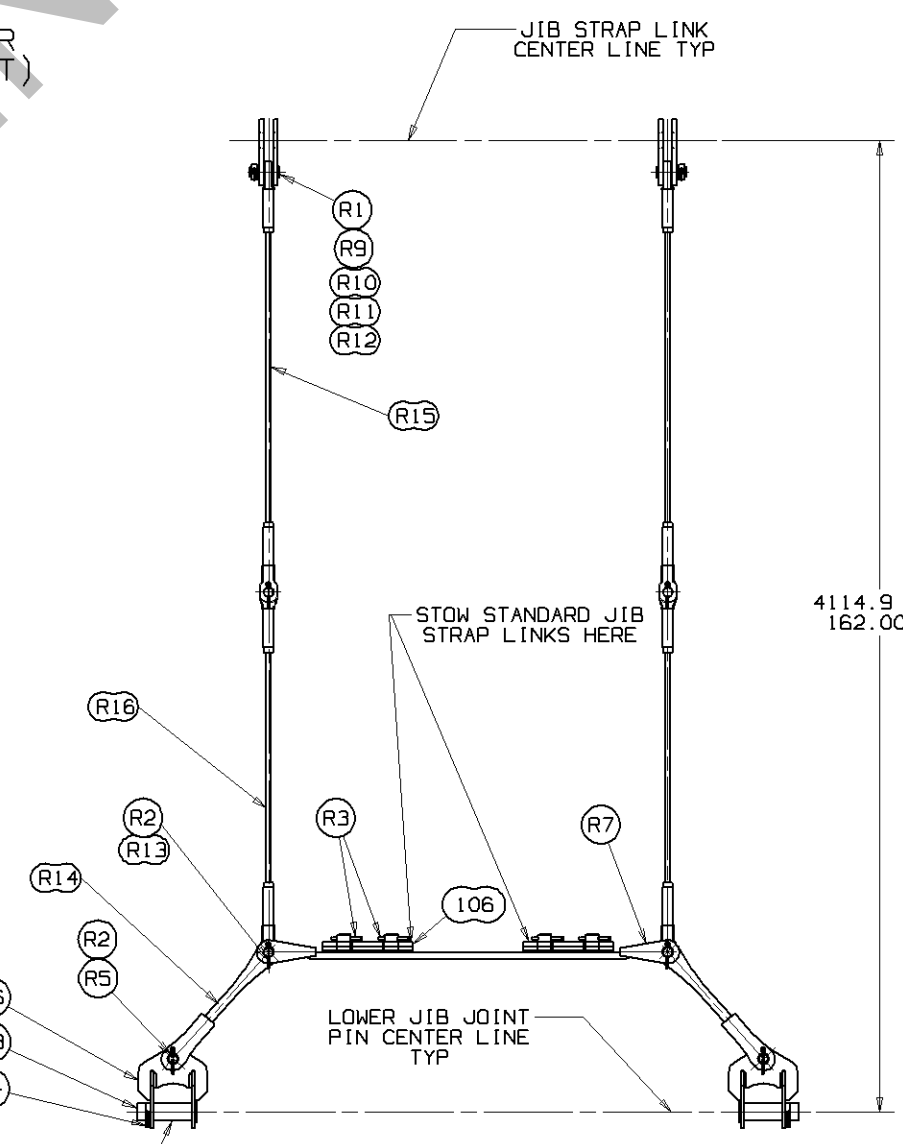
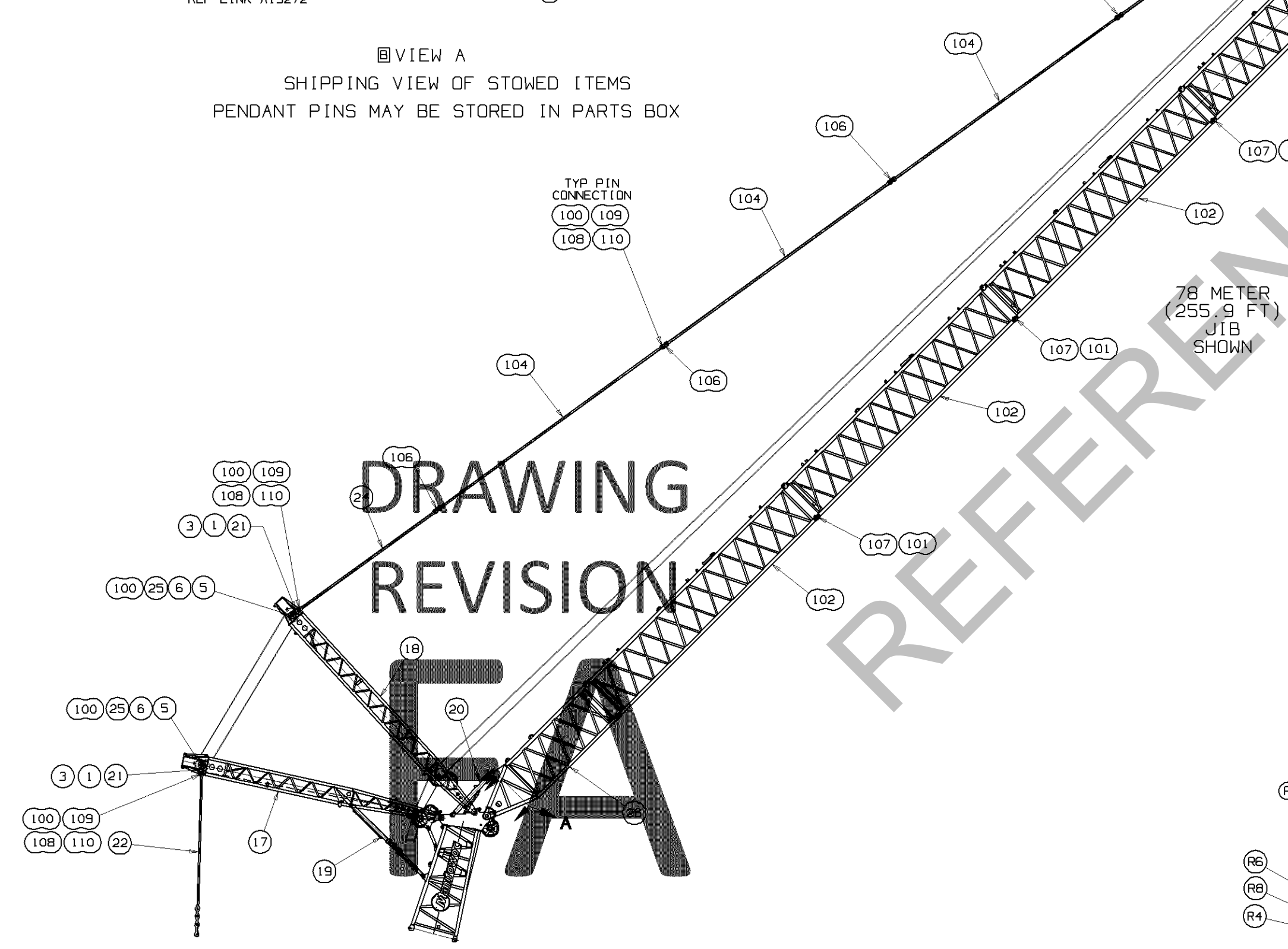
WHEN INTERMEDIATE SUSPENSION IS USED, STANDARD JIB STRAP LINKS SHIPPED WITH STRAPS ARE TO BE REPLACED WITH JIB STRAP LINKS SUPPLIED WITH INTERMEDIATE SUSPENSION ASSEMBLY.

VIEW A  
SHIPPING VIEW OF STOWED ITEMS  
PENDANT PINS MAY BE STORED IN PARTS BOX

BILL OF MATERIAL				ASSEMBLIES USED ON
QTY	REF	DESCRIPTION	MATERIAL	REF
<b>INTERMEDIATE SUSPENSION (19 &amp; 21)</b>				
1	R51	BOOM ASSY #58 INTERMEDIATE SUSPENSION	A13849	
4	R1	PIN COTTER .188 X 1.50	562085	
4	R2	PIN COTTER .375 X 3.50	562151	
4	R3	PIN COTTER .50 X 4.00	562172	
2	R4	PIN SAFETY .243 X 5.00	563640	
2	R5	PIN 1 HOLE W/HD 1.63 DIA X 3.69 LG	564095	
2	R6	LINK	A13248	
1	R7	LINK	A13272	
2	R8	PIN 1 HOLE W/HD 75.80 DIA X 200.0 LG	A13276	
4	R9	LINK #58 BOOM STRAP INTER SUSP	A13277	
2	R10	PIN 2 HOLES 12.7 DIA X 70.0 LG	A13278	
2	R11	COLLAR 42.3mm ID	A13279	
2	R12	PIN 1 HOLE W/HD 41.28 DIA X 92.0 LG	A13280	
2	R13	PIN 1 HOLE W/HD 41.28 DIA X 118.0 LG	A13291	
2	R14	LINK	A14789	
<b>78 M JIB</b>				
2	R15	PENDANT 0.875 DIA X 5 FT 10.0 IN LG	A15091	
2	R16	PENDANT 0.875 DIA X 5 FT LG	A15092	
<b>84 M JIB</b>				
2	R17	PIN COTTER .375 X 3.50	562151	
2	R18	PIN 1 HOLE W/HD 41.28 DIA X 138.0 LG	A13292	
2	R19	PENDANT 0.875 DIA X 5 FT 10.0 IN LG	A15091	
2	R20	LINK	A15093	

REVISIONS  
06-14-05 MJW CORRECTED VIEW  
10-19-05 TMB UPDATED VIEW  
08-10-09 JAS [A] WAS SHFT  
8 OF 6  
[B] ADDED VIEWS FOR STORING PENDANTS AND LINK  
[C] ADDED REF BILL OF MATL  
02-26-10 JAS UPDATED BOOM SIGN  
08-22-14 KKM [D] ITEM R51 WAS ITEM 111 [E] WAS DELTA [F] WAS DELTA [G] WAS DELTA [H] WAS DELTA [I] WAS DELTA [J] WAS DELTA [K] WAS DELTA [L] WAS DELTA [M] WAS DELTA [N] WAS DELTA [O] WAS DELTA [P] WAS DELTA [Q] WAS DELTA [R] WAS DELTA [S] WAS DELTA [T] WAS DELTA [U] WAS DELTA [V] WAS DELTA [W] WAS DELTA [X] WAS DELTA [Y] WAS DELTA [Z] WAS DELTA

[19] REFERENCE ITEMS LISTED ARE FROM A13849  
[20] FOR 78 M & 84 M JIB - BETWEEN THE JIB TOP ASSEMBLY AND THE INTERMEDIATE SUSPENSION NEEDS TO BE (1) 12 M JIB INSERT  
[21] ALL ITEMS (EXCEPT PENDANTS A15091, A15092, AND LINK A13272) ARE STORED IN A PARTS BOX PENDANTS A15091, A15092 AND LINK A13272 ARE STOWED ON THE LUFFING JIB BUTT AS SHOWN



**DRAWING REVISION**

WHEN INTERMEDIATE SUSPENSION IS USED, STANDARD LOWER JIB JOINT PINS SHIPPED WITH JIB INSERTS ARE TO BE STOWED AND REPLACED WITH PINS SUPPLIED WITH INTERMEDIATE SUSPENSION ASSEMBLY.

SEE TABLE ON SHEET 1 FOR INTERMEDIATE SUSPENSION REQUIREMENTS AND JIB MAKEUP VIEWS ON SHEET 3 FOR INTERMEDIATE SUSPENSION LOCATIONS FOR VARIOUS JIB LENGTHS

(251)

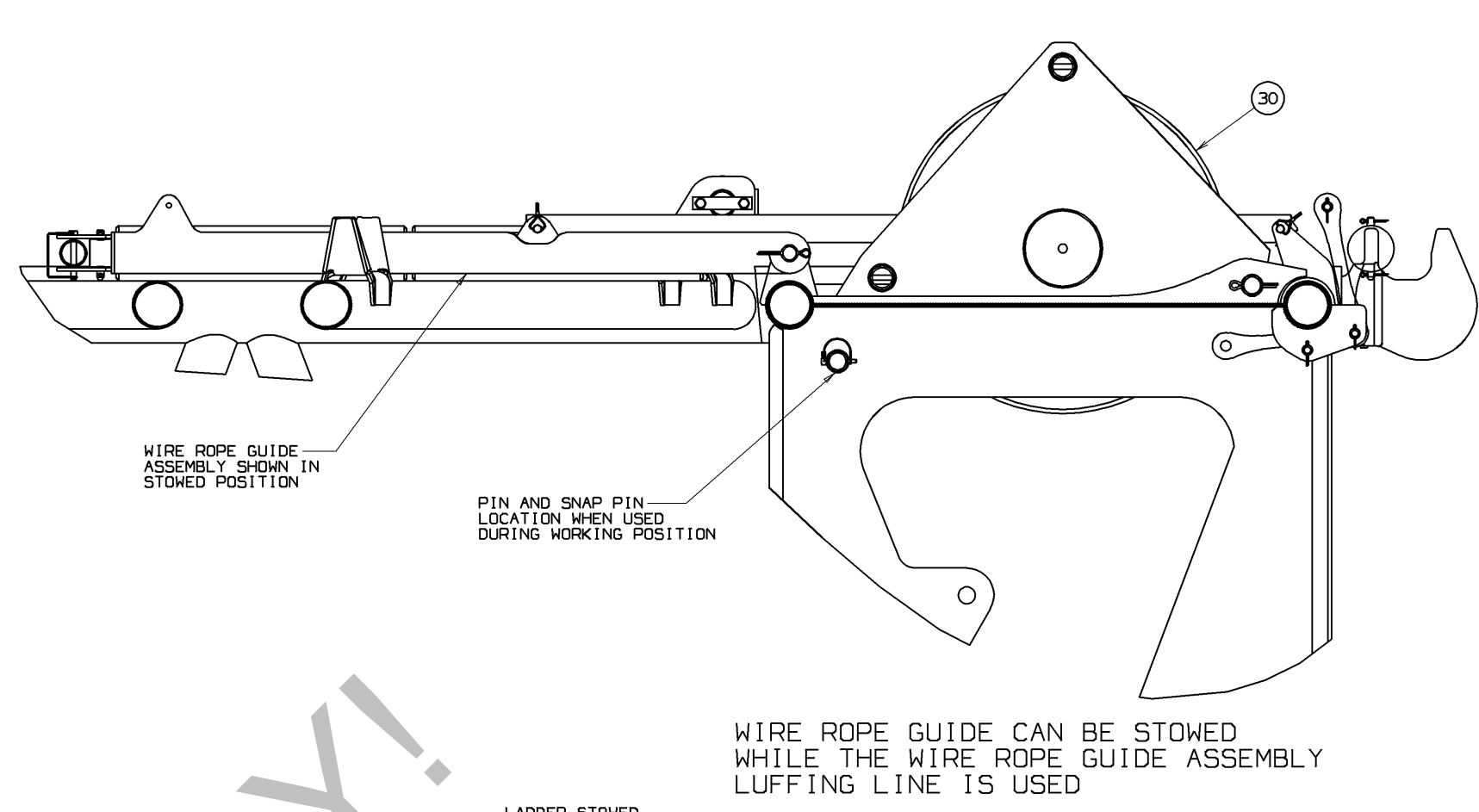
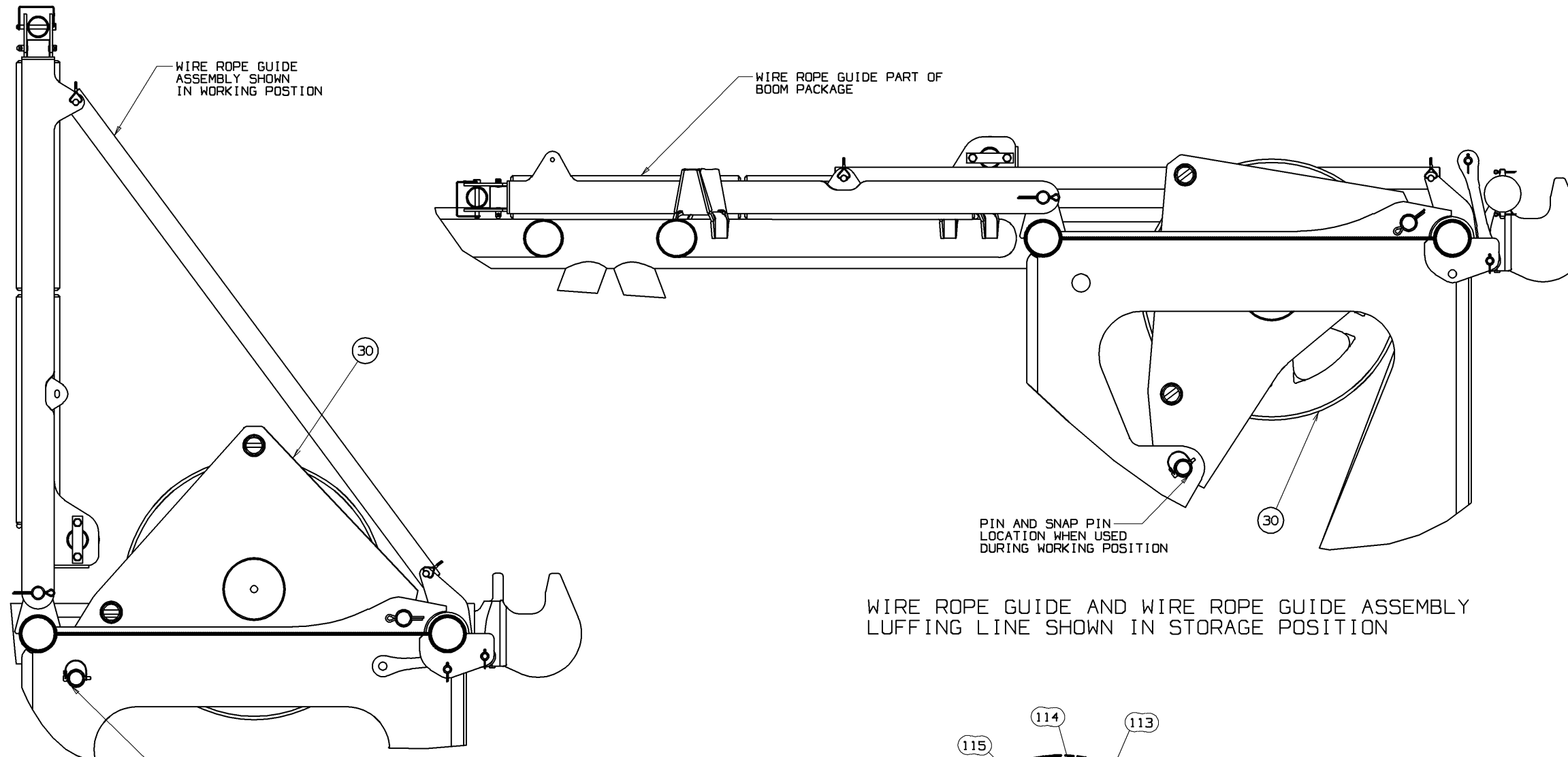
TOLERANCE UNLESS OTHERWISE SPECIFIED			
DECIMAL PLACES	FRACTIONS	ANGLES	HOLDING DIMENSIONS
(1) PLACE 0.1	1/8, 1/4, 3/8, 1/2	1/2, 30, 45, 60, 90, 120, 150, 180	1/16, 1/8, 1/4, 3/8, 1/2
(2) PLACE 0.00	1/32, 1/16		1/32, 1/16
(3) PLACE 0.000			1/64, 1/32
ANGLES		11.25, 22.5, 33.75, 45, 67.5, 89.25, 112.5, 135, 157.5, 180	1/16, 1/8, 1/4, 3/8, 1/2

MANITOWOC CRANES, INC. 19-1FT  
 DRAWN BY MJW  
 CHECKED BY MJW  
 APPR'D BY HCS

Manitowoc Cranes, Inc.  
 MODEL 16000  
 JIB LUFFING ASSY  
 #59 JIB ON #58 BOOM

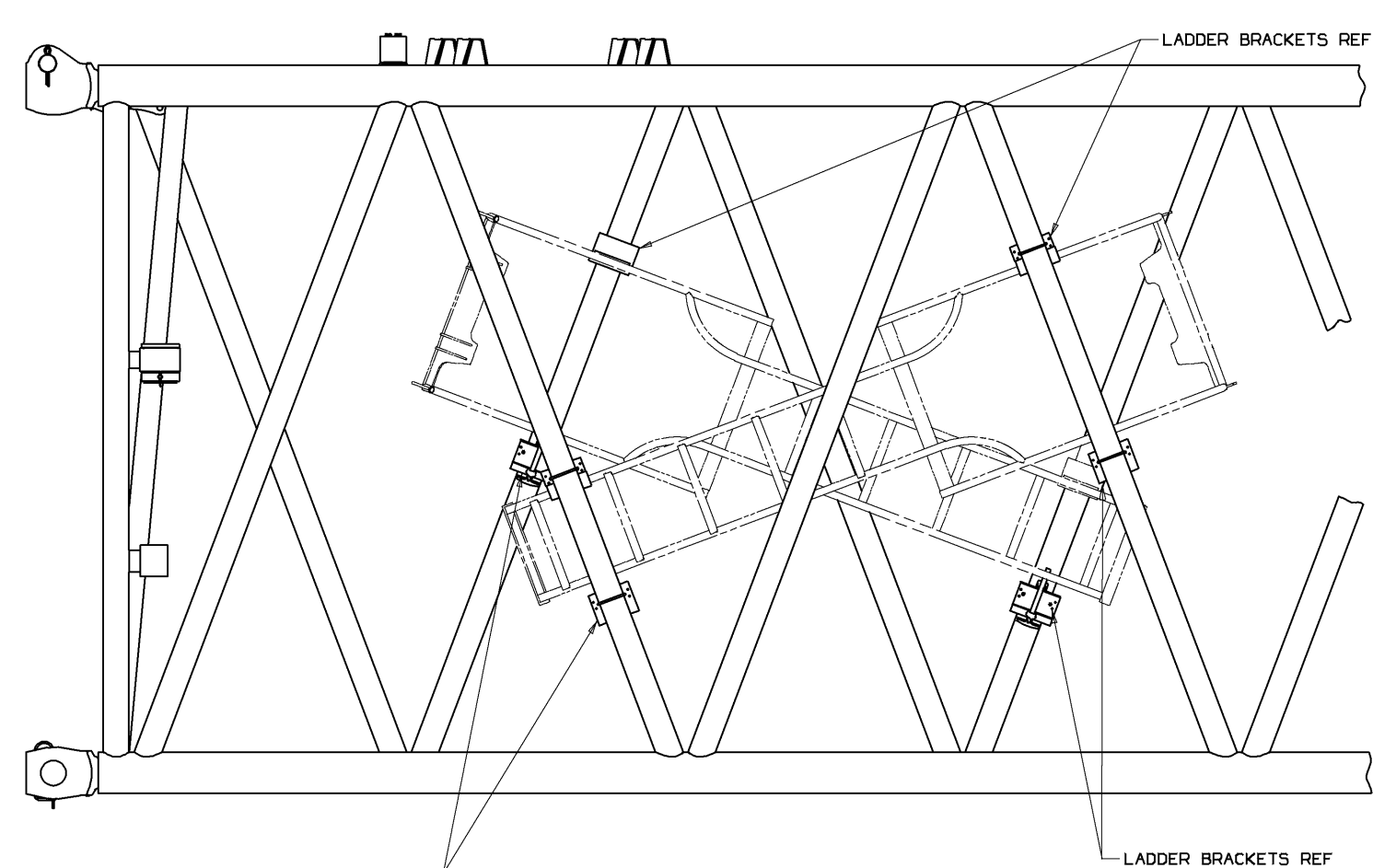
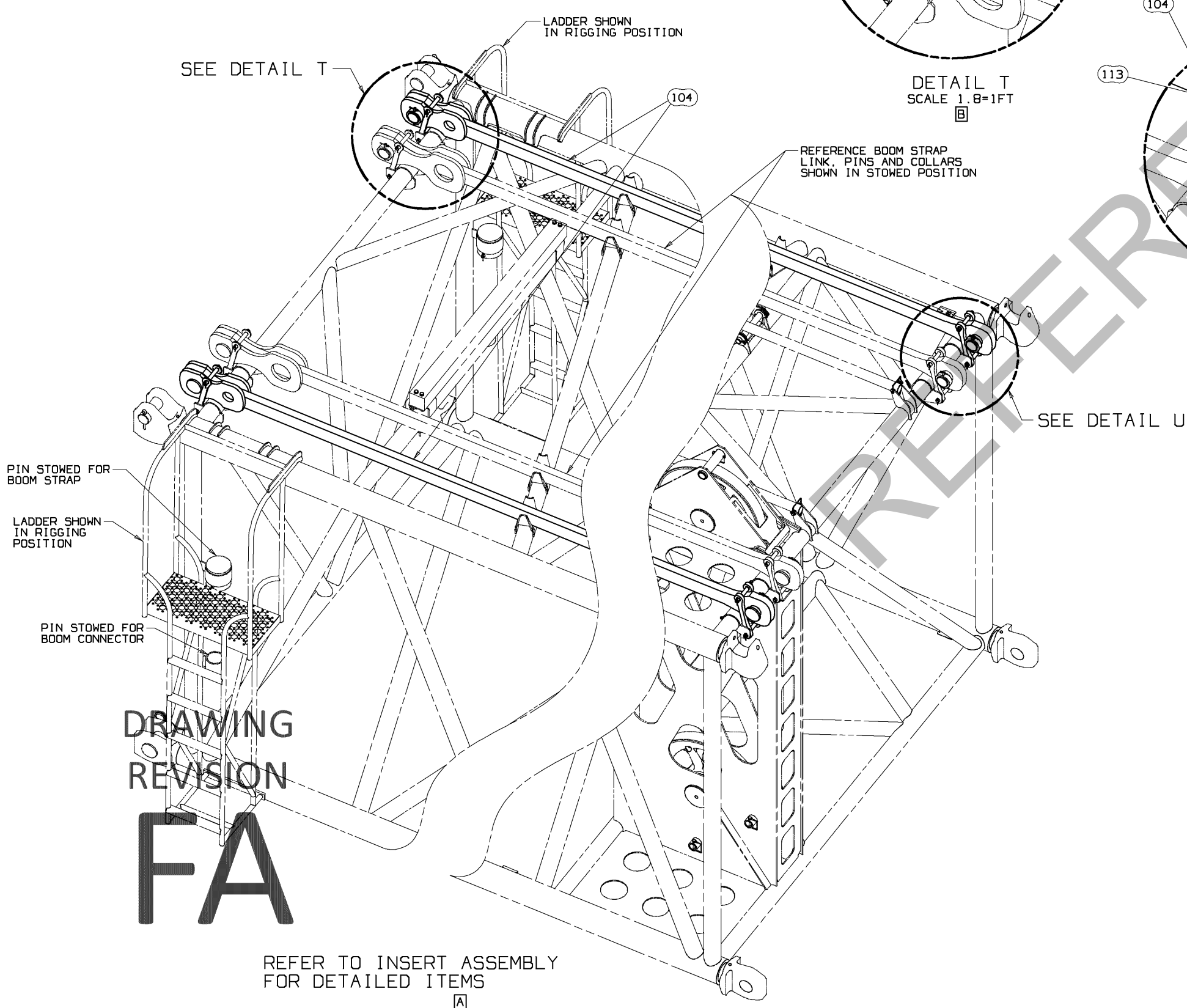
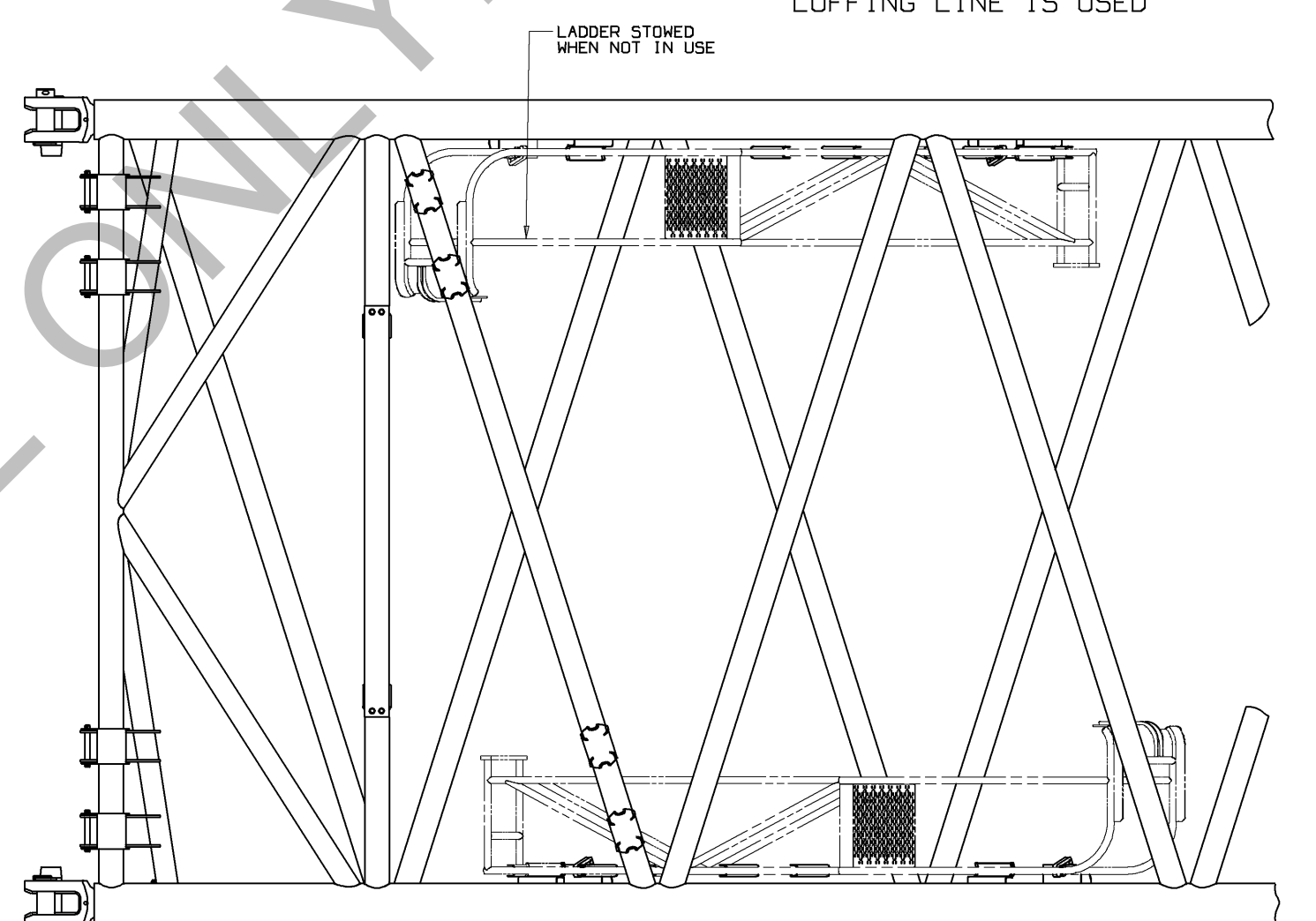
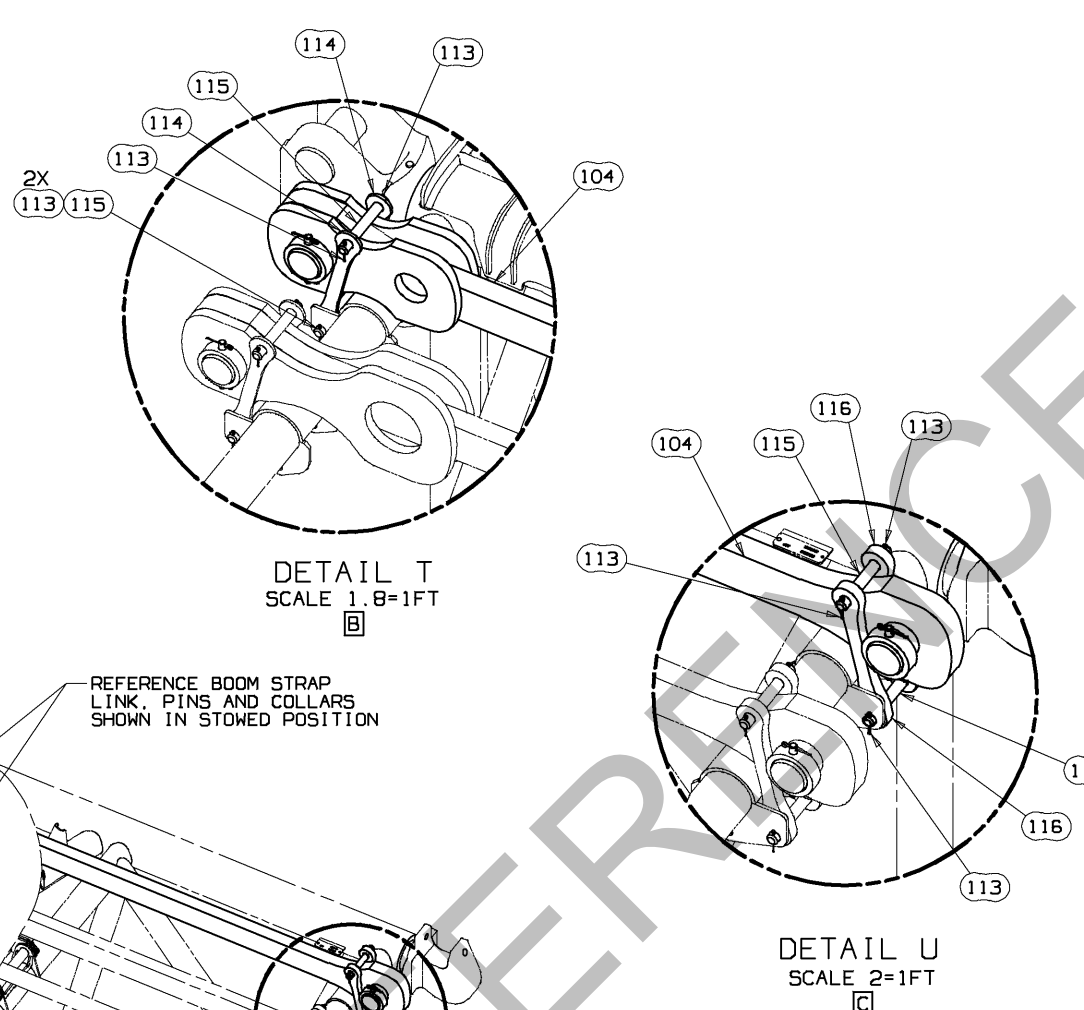
DATE 10-28-05  
 PATTERN NO  
 10-28-05  
 A13555  
 SHT 6 OF 7





PIN AND SNAP PIN LOCATION WHEN USED DURING WORKING POSITION

WIRE ROPE GUIDE AND WIRE ROPE GUIDE ASSEMBLY LUFFING LINE SHOWN IN WORKING POSITION



SECURE LADDERS IN BRACKETS FOR STORAGE AND SHIPPING

DRAWING REVISION  
**FA**

REFER TO INSERT ASSEMBLY FOR DETAILED ITEMS

REVISIONS  
 05-14-10 KKM  
 UPDATED VIEW  
 BEADDED  
 DETAIL

QWG. NO.  
 A13555  
 SHT 7 OF 7

DATE  
 08-10-09  
 PRIVATE LABELING  
 REQUIREMENT TO  
 CONFORM TO  
 ENGINEERING  
 SPECIFICATION  
 6629103794 FOR  
 COMPONENTS LISTED  
 IN 60500-09-026

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DECIMAL PLACES	FABRICATION	1/16"	1/32"	1/64"	1/32"	1/64"	1/32"	1/64"	1/32"
(1) PLACE	0.5	±.12	±.18	±.05	±.05	±.05	±.05	±.05	±.05
(2) PLACE	0.00	±.06	±.12	±.015	±.015	±.015	±.015	±.015	±.015
(3) PLACE	0.000	±.003	±.005	±.001	±.001	±.001	±.001	±.001	±.001
ANGLES		±.30	±.30	±.30	±.30	±.30	±.30	±.30	±.30
DRN	JAS	DATE	08-10-09	APP	HCS	MODEL	16000	PROJECT	JIB LUFFING ASSY
CHK	MJH	DATE		APP		MODEL		PROJECT	#59 JIB ON #58 BOOM
APP		DATE		APP		MODEL		PROJECT	