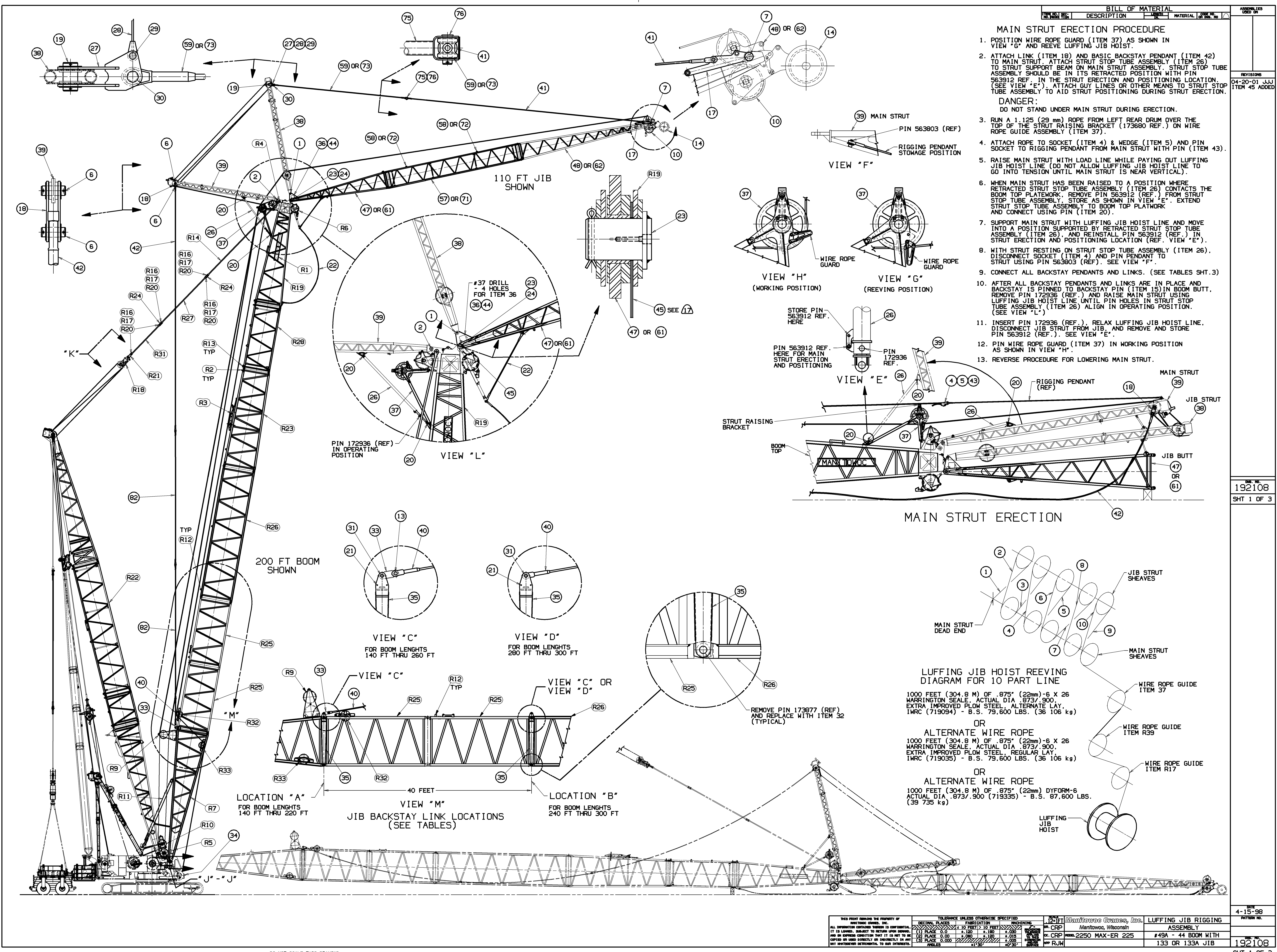
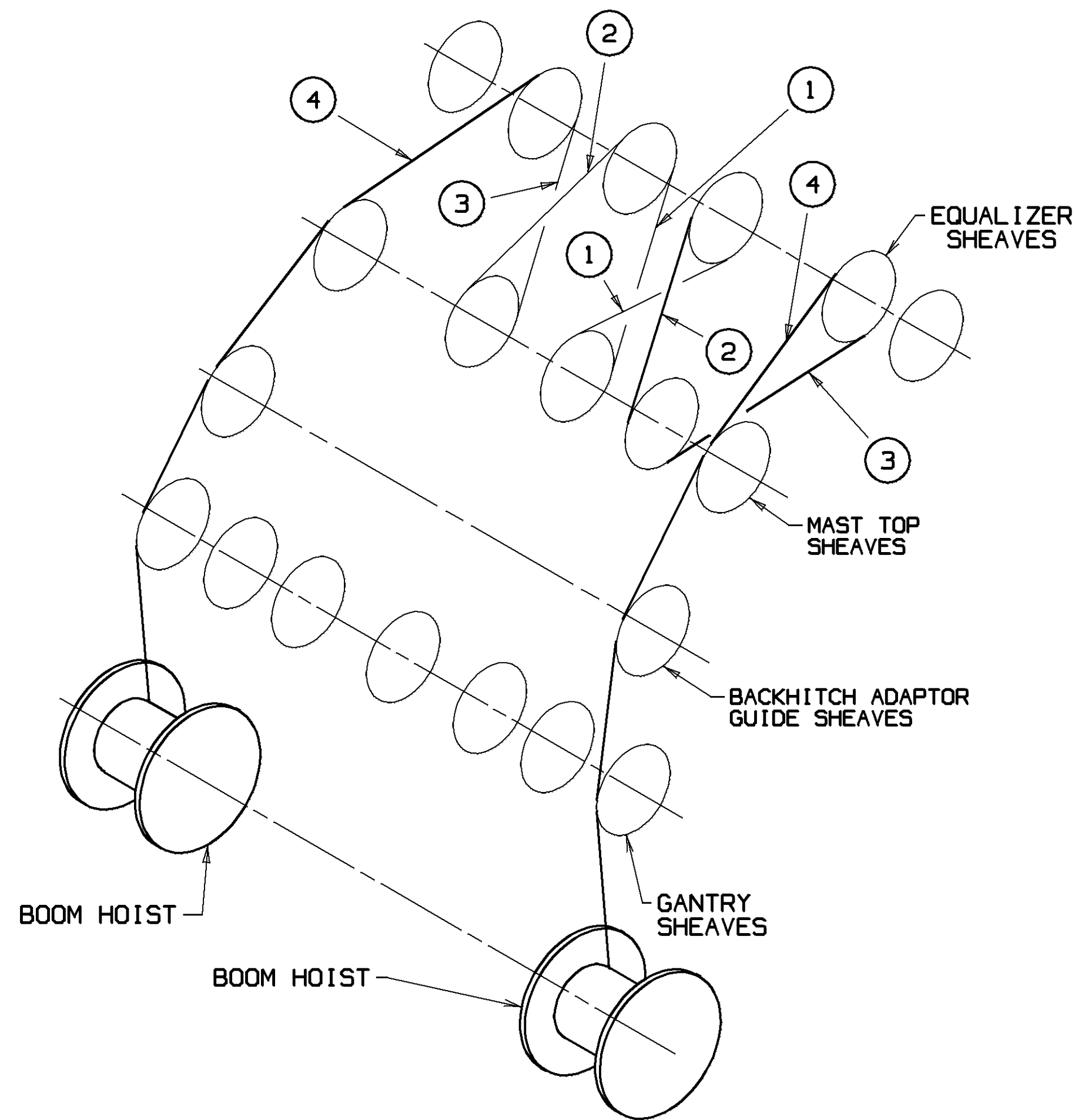




BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	DESCRIPTION	QTY	MATERIAL	DATE
REVISIONS				
04-20-01 JJJ ITEM 45 ADDED				
DATE				
192108				
SHT 1 OF 3				
DATE				
4-15-98				
PATTERN NO.				
THIS DRAWING IS THE PROPERTY OF				
WHITING CRANES, INC.				
ALL INFORMATION CONTAINED HEREIN IS CONFIDENTIAL.				
IT IS LOANED, SUBJECT TO RETURN WHEN DEMAND.				
AND IN EXPRESS CONDITION THAT IT IS NOT TO BE				
REPRODUCED OR USED IN ANY MANNER WITHOUT THE				
WRITTEN PERMISSION OF WHITING CRANES, INC.				
TOLERANCE UNLESS OTHERWISE SPECIFIED				
DECIMAL PLACES	FRACTIONS	PERCENT	MACHINING	
(1) PLACE 0.00	1/16	± 1.00	± 0.015	
(2) PLACE 0.00	1/32	± 1.00	± 0.015	
(3) PLACE 0.000	1/64	± 1.00	± 0.015	
(4) PLACE 0.000	1/128	± 1.00	± 0.015	
(5) PLACE 0.000	1/256	± 1.00	± 0.015	
(6) PLACE 0.000	1/512	± 1.00	± 0.015	
(7) PLACE 0.000	1/1024	± 1.00	± 0.015	
(8) PLACE 0.000	1/2048	± 1.00	± 0.015	
(9) PLACE 0.000	1/4096	± 1.00	± 0.015	
(10) PLACE 0.000	1/8192	± 1.00	± 0.015	
(11) PLACE 0.000	1/16384	± 1.00	± 0.015	
(12) PLACE 0.000	1/32768	± 1.00	± 0.015	
(13) PLACE 0.000	1/65536	± 1.00	± 0.015	
(14) PLACE 0.000	1/131072	± 1.00	± 0.015	
(15) PLACE 0.000	1/262144	± 1.00	± 0.015	
(16) PLACE 0.000	1/524288	± 1.00	± 0.015	
(17) PLACE 0.000	1/1048576	± 1.00	± 0.015	
(18) PLACE 0.000	1/2097152	± 1.00	± 0.015	
(19) PLACE 0.000	1/4194304	± 1.00	± 0.015	
(20) PLACE 0.000	1/8388608	± 1.00	± 0.015	
(21) PLACE 0.000	1/16777216	± 1.00	± 0.015	
(22) PLACE 0.000	1/33554432	± 1.00	± 0.015	
(23) PLACE 0.000	1/67108864	± 1.00	± 0.015	
(24) PLACE 0.000	1/134217728	± 1.00	± 0.015	
(25) PLACE 0.000	1/268435456	± 1.00	± 0.015	
(26) PLACE 0.000	1/536870912	± 1.00	± 0.015	
(27) PLACE 0.000	1/1073741824	± 1.00	± 0.015	
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(124) PLACE 0.000	1/170141183460469231731687303715884105728	± 1.00	± 0.015	
(125) PLACE 0.000	1/340282366920938463463374607431768211456	± 1.00	± 0.015	
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(133) PLACE 0.000	1/87112285931760246646623899502532662132736	± 1.00	± 0.015	
(134) PLACE 0.000	1/17422457186352049329324779900506532426	± 1.00	± 0.015	



BOOM HOIST REEVING DIAGRAM FOR 8 PART LINE

2150 FEET (655.3 M) OF 1.00" (26mm)-6 X 26 HARRINGTON SEALE,
EXTRA IMPROVED PLOW STEEL, ALTERNATE LAY, IWRC (719095)
- B.S. 103,400 LBS. (46 900 kg)

OR
ALTERNATE WIRE ROPE

2150 FEET (655.3 M) OF 1.00" (26mm)-6 X 26 HARRINGTON SEALE,
EXTRA IMPROVED PLOW STEEL, REGULAR LAY, IWRC (719276)
- B.S. 103,400 LBS. (46 900 kg)

OR
ALTERNATE WIRE ROPE

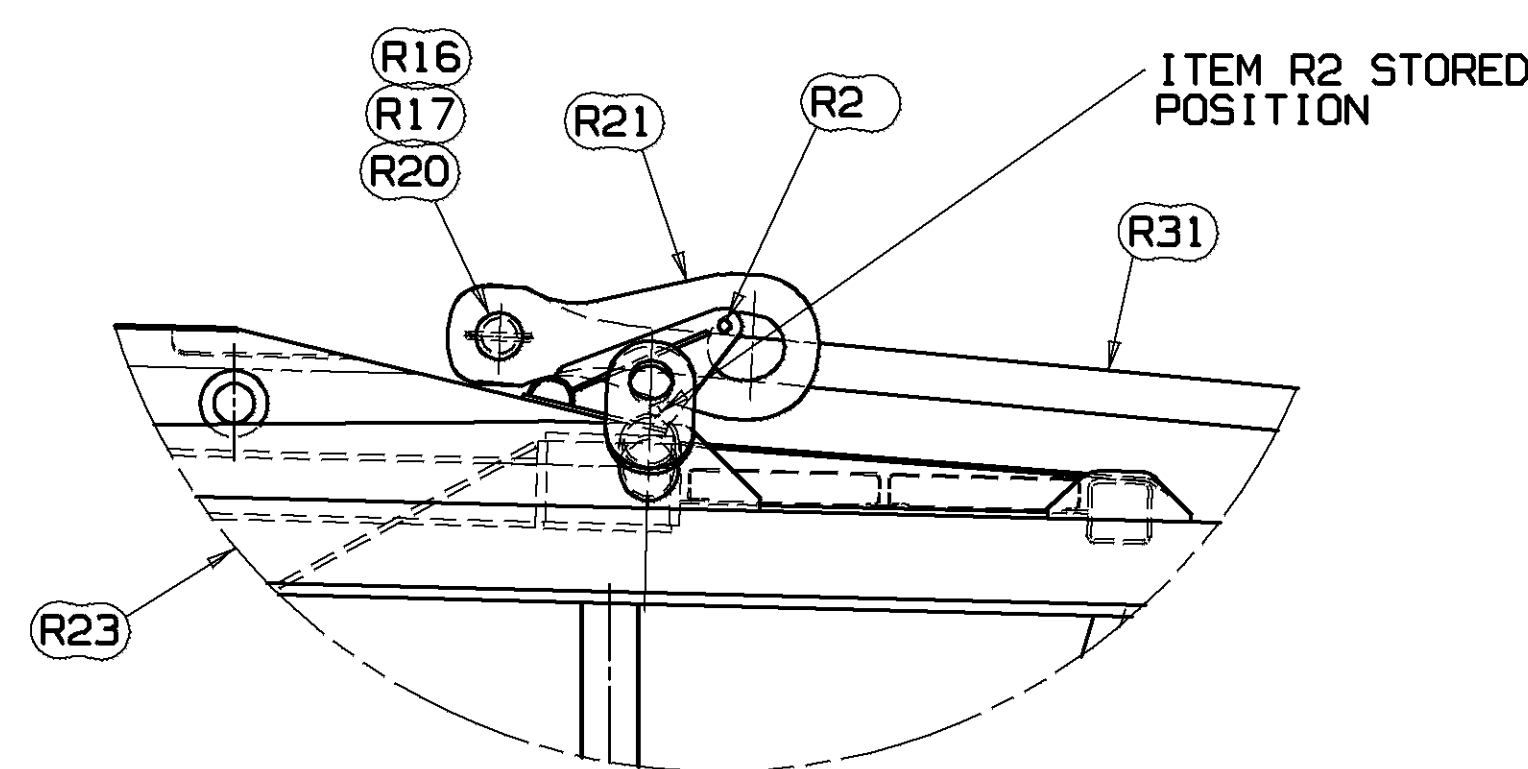
2150 FEET (655.3 M) OF 1.00" (26mm) DYFORM-6
(719359) - B.S. 113,800 LBS. (51 620 kg)

OR
ALTERNATE WIRE ROPE

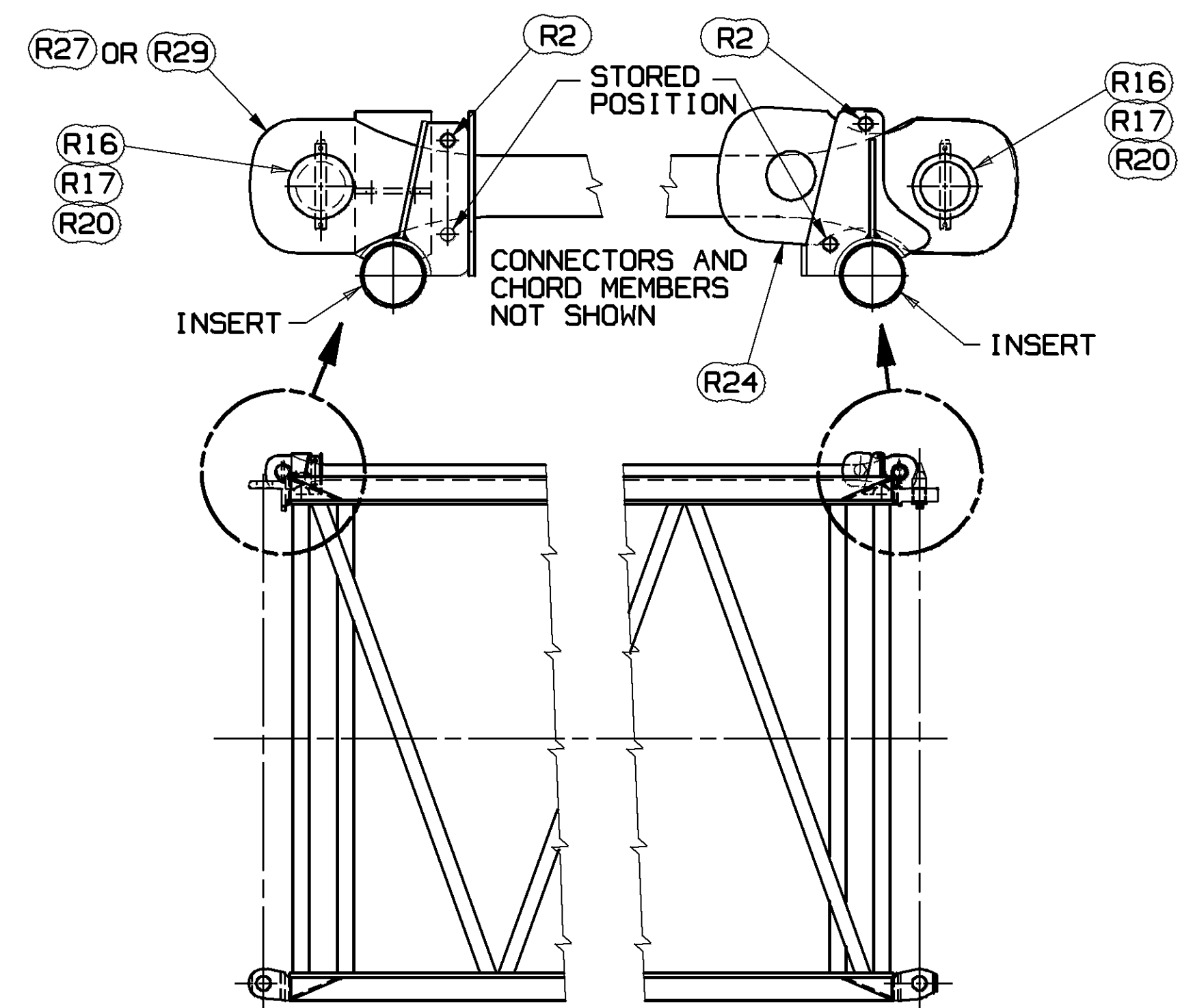
USE WHEN A SAFETY FACTOR OF 6.0 OR LESS IS REQUIRED.
2150 FEET (655.3 M) OF 1.00" (25mm) CASAR SUPERLAST, (719372)
B.S. 137,200 LBS. (62 230 kg) (UK-EUROPEAN)

OR
ALTERNATE WIRE ROPE

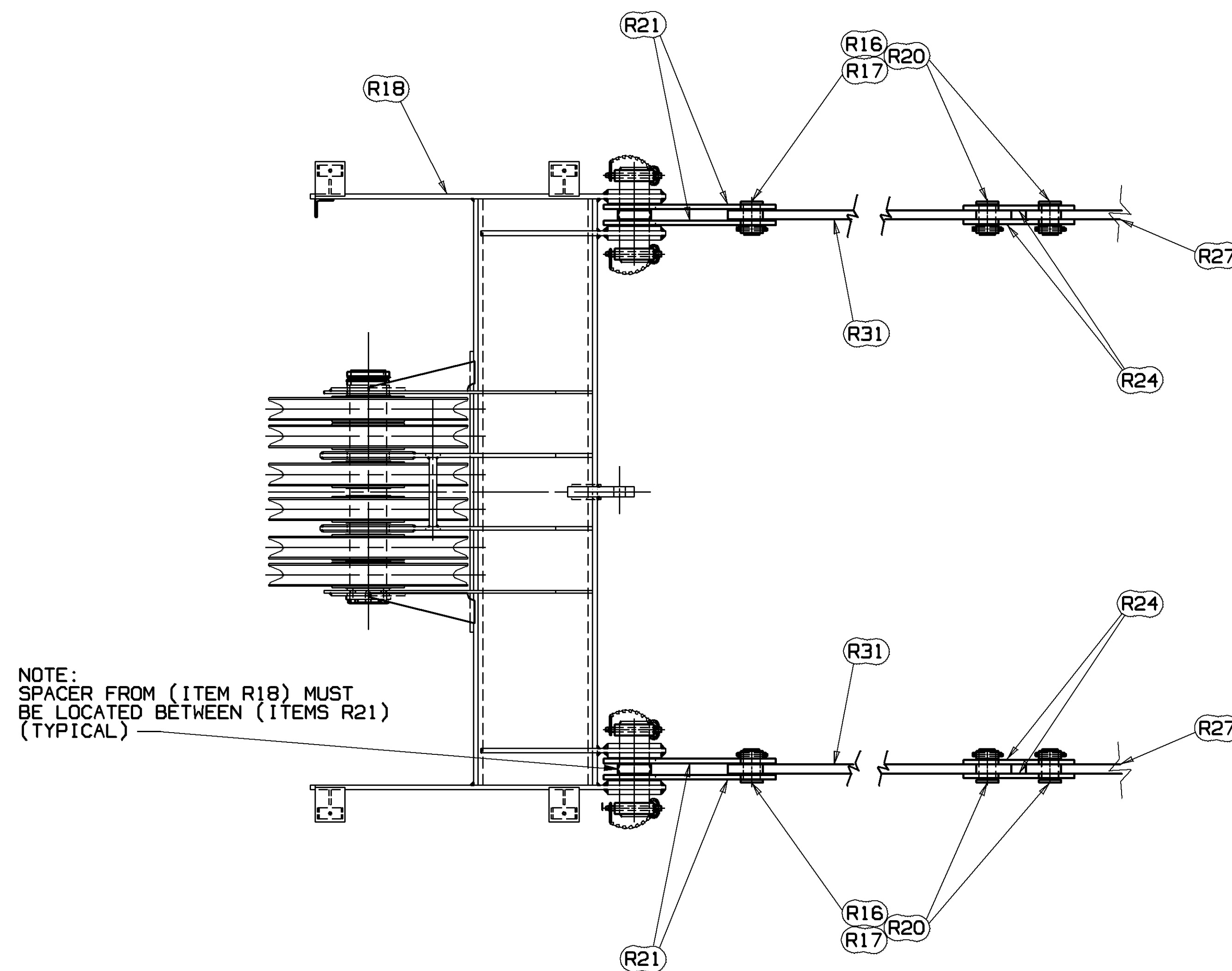
2150 FEET (655.3 M) OF 1.10" (28mm) DYFORM-6 #RRL
719390) - B.S. 147,289 LBS. (66 809 kg) (JAPANESE)



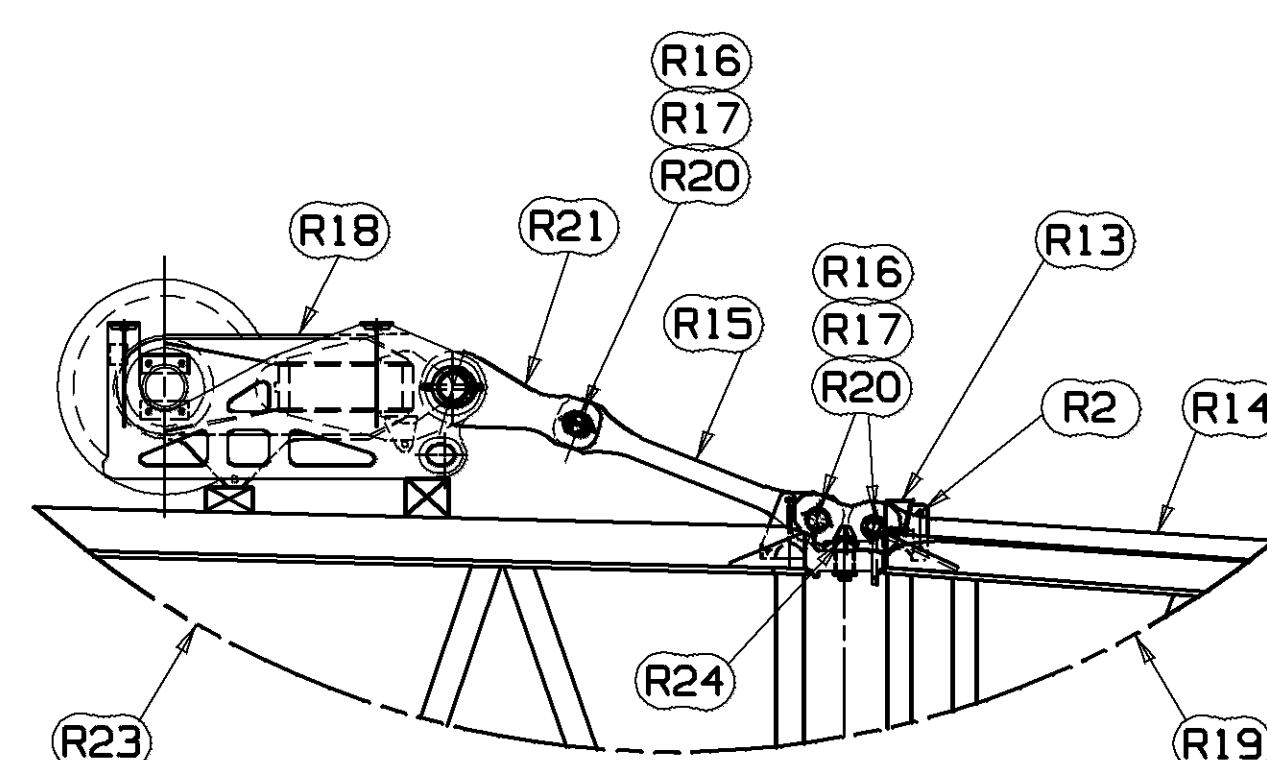
PENDANT STRAP AND LINK
STOWAGE ON TRANSITION INSERT



PENDANT STRAP STOWAGE (TYPICAL
ON 20 OR 40 FT #44 INSERT)

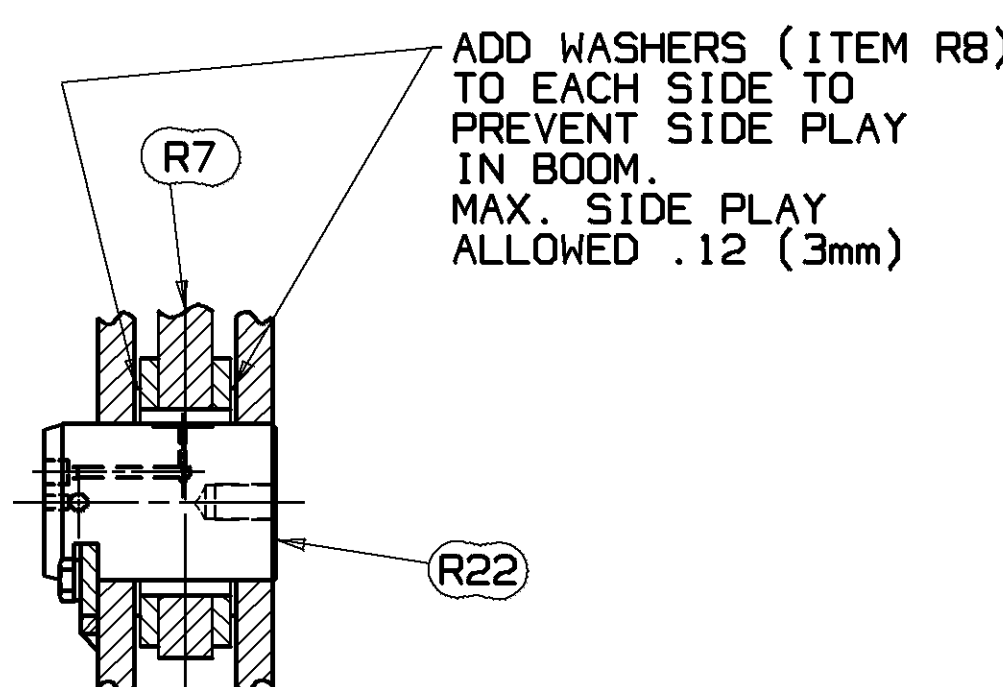


VIEW "B" - "B"

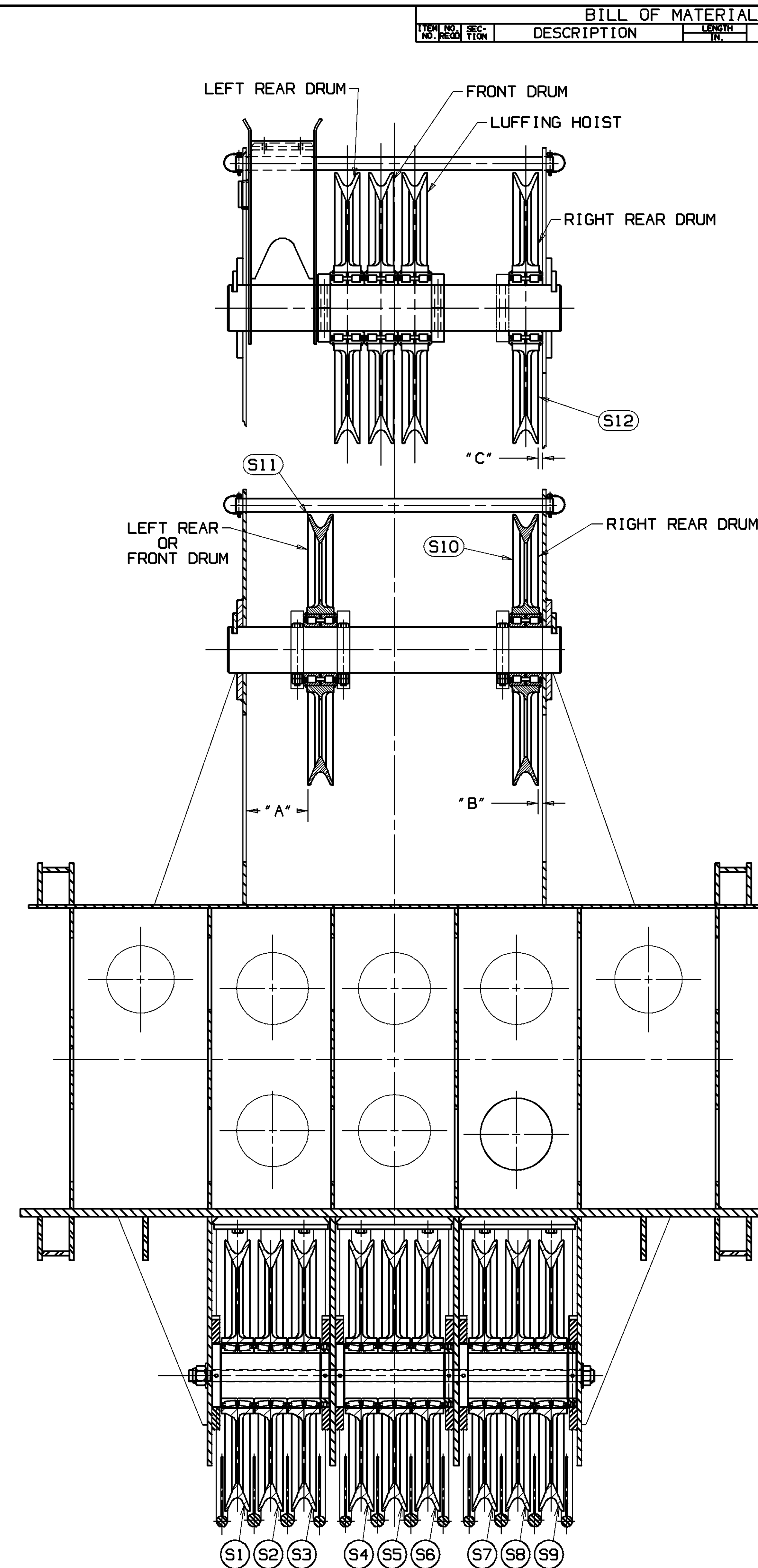


VIEW "N"

SUPPORT EQUALIZER WITH TIMBERS
FOR 140 FT BASIC BOOM ONLY



SECTION "J" - "J"



LOCATION OF SHEAVES WITH LEAD
LINE GOING TO SHEAVES INDICATED.

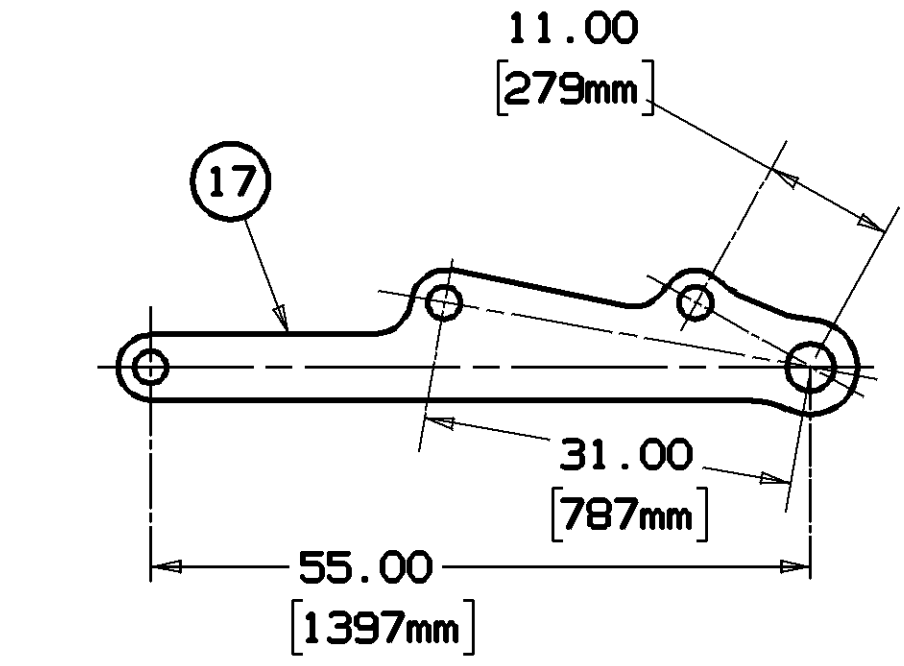
RIGHT REAR DRUM SHEAVE		
LEAD LINE REEVING TO SHEAVE	DIMENSION "C"	DIMENSION "B"
S12 TO S10 TO S9	0.50 IN. (13mm)	0.50 IN. (13mm)
S12 TO S10 TO S8	1.94 IN. (49mm)	1.94 IN. (49mm)
S12 TO S10 TO S7	4.62 IN. (117mm)	4.62 IN. (117mm)
S12 TO S10 TO S6	9.03 IN. (229mm)	10.31 IN. (262mm)

LEFT REAR DRUM SHEAVE	
LEAD LINE REEVING TO SHEAVE	DIMENSION "A"
S11 TO S4	9.31 IN. (237mm)
S11 TO S3	3.62 IN. (92mm)

FRONT DRUM SHEAVE	
LEAD LINE REEVING TO SHEAVE	DIMENSION "A"
S11 TO S4	10.56 IN. (268mm)

REQUIRED FOR VARIOUS BOOM LENGTHS (REFERENCE)																REQUIRED FOR VARIOUS JIB BACKSTAYS							
ITEM NO.		R25	R26	R12	R28	R30	R27	R29	R2	R13	R24	R16	R17	R20	R15	R31	33 (SEE VIEW "M")			13	80	82	91
BOOM LENGTH		#49A 20 FT 6.10 M INSERT	#49A 40 FT 12.19 M INSERT	WIRE ROPE TIMBER	#44 20 FT 6.10 M INSERT	#44 40 FT 12.19 M INSERT	19 FT 4.75 (5.91M) STRAP	39 FT 4.75 (12.00M) STRAP	PIN	TIMBER	BOOM SUPPORT LINK	COLLAR	PIN	PIN	BOOM SUPPORT STRAP	BOOM SUPPORT STRAP	LINK	LOCATION	VIEW	PIN	20FT-1.50 (6.13M) PENDANT	40FT-3.50 (12.27M) PENDANT	(OPTIONAL) PENDANT TIE DOWN STRAPS
FEET	METERS																						
140 BASIC	42.7	OR 2 0	0 1	2 2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 2	0 0	2 2	*A* *A*	*C* *C*	2 2	2 2	0 0	0 0
160	48.8	1	1	3	0	0	0	0	0	0	0	0	0	0	0	2	2	*A* *A*	*C* *C*	2 2	0 0	2 0	4 0
180	54.9	OR 2 0	1 2	4 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 2	2 2	*A* *A*	*C* *C*	2 2	2 2	2 2	0 0
200	61.0	OR 2 0	1 2	4 4	1 1	0 0	2 2	0 0	4 4	1 1	4 4	4 4	4 4	4 4	0 0	2 2	2 2	*A* *A*	*C* *C*	2 2	0 0	4 4	4 4
220	67.1	OR 2 0	1 2	4 4	2 0	1 0	4 0	0 2	8 4	2 2	8 4	8 4	8 4	8 4	0 0	2 2	2 2	*A* *A*	*C* *C*	2 2	2 2	4 4	8 6
240	73.2	OR 2 0	1 2	4 4	1 1	1 1	2 2	2 2	8 8	3 3	8 8	8 8	8 8	8 8	0 0	2 2	2 2	*B* *B*	*C* *C*	2 2	0 0	4 4	10 10
260	79.2	OR 2 0	1 2	4 4	2 0	1 2	4 0	2 4	12 8	4 4	12 8	12 8	12 8	12 8	0 0	2 2	2 2	*B* *B*	*C* *C*	2 2	2 2	4 4	14 12
280	85.3	OR 2 0	1 2	4 4	1 1	2 2	2 4	4 8	12 12	5 5	12 12	12 12	12 12	12 12	0 0	2 2	0 0	*B* *B*	*D* *D*	0 0	0 0	6 6	16 16
300	91.4	OR 2 0	1 2	4 4	2 0	2 3	4 0	4 6	16 12	6 6	16 12	16 12	16 12	16 12	0 0	2 2	0 0	*B* *B*	*D* *D*	0 0	2 2	6 6	20 18

REQUIRED FOR VARIOUS JIB LENGTHS													
ITEM NO.		50 OR 64	53 OR 67	57 OR 71	51 OR 65	55 OR 69	59 OR 73	54, 58 68 OR 72	17		75	76	91
JIB LENGTHS		10 FT 3.05 M INSERT	20 FT 6.10 M INSERT	40 FT 12.19 M INSERT	10 FT 1.0 3.07 M PENDANT	20 FT 1.5 6.13 M PENDANT	40 FT 3.0 12.27 M PENDANT	WIRE ROPE TIMBER	JIB PENDANT LINK ADJUSTMENT		SPREADER	PINS	(OPTIONAL) PENDANT TIE DOWN STRAPS
FEET	METERS								INCHES	mm	9	10	8
70	21.3	0	0	0	0	0	0	0	55.00	1397	0	0	0
80	24.4	1	0	0	2	0	0	0	55.00	1397	1	2	4
90	27.4	0	1	0	0	2	0	1	55.00	1397	1	2	4
100	30.5	1	1	0	2	2	0	1	55.00	1397	2	4	8
110	33.5	OR 0 0	2 0	0 1	0 0	4 0	0 2	2 2	31.00	787	2	4	8
120	36.6	OR 1 1	2 0	0 1	2 2	4 0	0 2	2 2	31.00	787	2	4	12
130	39.6	0	1	1	0	2	2	3	31.00	787	2	4	10
140	42.7	1	1	1	2	2	2	3	31.00	787	2	4	14
150	45.7	OR 0 0	2 0	1 2	0 0	4 4	2 4	4 4	11.00	279	2	4	14
160	48.8	OR 1 1	2 0	1 2	2 2	4 0	2 4	4 4	11.00	279	2	4	18
170	51.8	0	1	2	0	2	4	5	11.00	279	2	4	16
180	54.9	1	1	2	2	2	4	5	11.00	279	2	4	20
190	57.9	OR 0 0	2 0	2 3	0 0	4 0	4 6	6 6	11.00	279	2	4	18
200	61.0	OR 1 1	2 0	2 3	2 2	4 0	4 6	6 6	11.00	279	2	4	24



(REQ'D FOR VARIOUS JIB LENGTHS)

- INSERT NOTES:
- THE SHORTER INSERTS MUST BE CLOSEST TO THE BOOM BUTT AND JIB BUTT (10 FT. (3.05 M) INSERT FIRST. THEN THE 20 FT. (6.10 M) INSERTS.)
 - SEE CRANE ASSEMBLY AND RIGGING GUIDE IN THE OPERATORS MANUAL FOR INSTRUCTIONS ON JIB STOWAGE.

- PENDANT NOTES:
- THE SHORTER PENDANTS MUST BE CLOSEST TO THE BOOM BUTT AND JIB BUTT. (THE 10 FT. (3.05 M) PENDANTS FIRST. THEN THE 20 FT. (6.10 M) PENDANTS.)

REFERENCE BOOM PARTS LIST (SEE BOOM RIGGING ASSEMBLY 192107)			
R1	BOOM SIGN	22656	
R2	PIN	78292	
R3	PIN	139128	3
R4	PIN	160720	
R5	BOOM ANGLE INDICATOR ASSEMBLY	168779	
R6	BOOM POINT SHAFT ASSEMBLY (LOWER)	172960	1
R7	#49A BOOM BUTT (40 FT) (12.19M)	174551	
R8	WASHERS	174904	
R9	WIRE ROPE GUIDE ASSEMBLY	174944	
R10	WIRE ROPE GUIDE ASSEMBLY	174946	2
R11	BOOM STOP ASSEMBLY	174955	
R12	TIMBER	174915	6
R13	TIMBER	178905	7
R14	BOOM SUPPORT STRAP (BASIC)	179840	
R15	BOOM SUPPORT STRAP (BASIC)	179841	11
R16	COLLAR	179862	
R17	PIN	179863	
R18	EQUALIZER ASSEMBLY	179896	
R19	BOOM TOP (30 FT) (9.14M)	179915	8
R20	PIN	179959	
R21	BOOM SUPPORT LINK	179984	
R22	MAST ASSEMBLY	192221	
R23	TRANSITION INSERT (30 FT) (9.14M)	192228	
R24	BOOM SUPPORT LINK	192250	
R25	INSERT 20 FT (6.10M) #49A BOOM	174425	
R26	INSERT 40 FT (12.19M) #49A BOOM	174422	
R27	BOOM SUPPORT STRAP (20 FT)	179838	
R28	INSERT 20 FT (6.10M) #44 BOOM	179913	9
R29	BOOM SUPPORT STRAP (40 FT)	179839	
R30	INSERT 40 FT (12.19M) #44 BOOM	179914	10
R31	BOOM SUPPORT STRAP	192109	
R32	WIRE ROPE GUIDE ASSEMBLY	176259	5
R33	WIRE ROPE GUIDE ASSEMBLY	176260	5

- R1 1.125 (29mm) WIRE ROPE.
- R2 BOOM STOP SUPPORT BEAM 174960 (REF.) AND MAST (ITEM R22) MUST BE IN PLACE BEFORE INSTALLING WIRE ROPE GUIDE ASSEMBLY (ITEM R10). ASSEMBLY (ITEM R10) MUST BE REMOVED PRIOR TO LOWERING MAST.
- R3 PIN USED DURING MACHINE SET UP. PIN TO BE STOWED FOR NORMAL CRANE OPERATION.
- R4 REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM AND BOOM/JIB COMBINATIONS.
- R5 REQUIRED FOR LUFFING JIB.
- R6 USE LOCTITE #242 OR EQUIVALENT ON MOUNTING SCREW THREADS AT ASSEMBLY.
- R7 ATTACH TIMBERS SO THEY ARE FREE TO SLIDE UNDER THERMAL EXPANSION/CONTRACTION OF PLASTIC.
- R8 SAME AS MODIFICATION #421309 WITH #421315.
- R9 SAME AS MODIFICATION #421322.
- R10 SAME AS MODIFICATION #421323.
- R11 SEE VIEW "N"

BOOM HANDLING INSTRUCTIONS			
TRAVEL SPEED NOT TO EXCEED 1/2 MPH (.80 km/h) BOOM ANGLE AT 10° OR LESS.			
MAST POSITION	MAX. LENGTH OF BOOM HANDLED	BOOM MAKE UP	BOOM CONDITIONS OR LIMITATIONS
UP	FEET 230	METERS 70.1	BUTT & INSERTS EQUALIZER PINNED TO RAILS. CAN CANTILEVER 80 FT. (24.4 M) OF INSERTS.

BILL OF MATERIAL		
ITEM NO.	DESCRIPTION	QUANTITY
1910-0090	SPREADER	
751	SPREADER	1737109
762	PIN	17371110
77		
78		
79		
1910-0100	PENDANT 20 FT (JIB BACKSTAY)	
802	PENDANT 20 FT-1.50 (6.13M)	277383
81		
1910-0110	PENDANT 40 FT (JIB BACKSTAY)	
822	PENDANT 40 FT-3.00 (12.27M)	277384
83		
84		
85		
86		
87		
88		
OPTIONAL PARTS		
1910-0120	TIMBER (JIB STOWAGE)	
896	TIMBER (JIB STOWAGE)	1716605
90		
1910-0130	PENDANT TIE DOWN STRAP	
911	PENDANT TIE DOWN STRAP	6668523

- 1 1.125 (29mm) WIRE ROPE.
- 2 ON DWG. 78145.
- 3 6 USED ON LUFFING JIB TOP - SEE 8
- 4 SEE JIB STOP ASSEM. FOR JIB STOP ERECTION PROCEDURE.
- 5

STOWAGE TIMBER REQUIRED		
STOWAGE CASE		TIMBERS (ITEM 89)
#132 JIB IN #133A JIB		
FEET	METERS	
40	12.19	6
60 - 80	18.29 - 24.4	12
100 - 120	30.50 - 36.6	18

STOWAGE TIMBERS MUST BE REMOVED FROM JIB SECTIONS FOR CRANE OPERATION.

- 6 REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM AND JIB COMBINATIONS.
- 7 REFER TO LUFFING JIB RAISING PROCEDURE FOR RAISING LOWERING BOOM AND JIB.
- 8 SEE CRANE ASSEMBLY & RIGGING GUIDE IN THE OPERATIONS MANUAL FOR INSTRUCTIONS ON PENDANT STOWAGE.
- 9 SPREADER LOCATIONS:
A) FOR JIBS REQUIRING ONE SPREADER:
LOCATE AT THE FIRST PENDANT CONNECTION CLOSEST TO THE LUFFING JIB TOP.
B) FOR JIBS REQUIRING TWO SPREADERS:
LOCATE ONE AT THE FIRST PENDANT CONNECTION CLOSEST TO THE LUFFING JIB TOP AND THE SECOND SPREADER AT THE PENDANT CONNECTION CLOSEST TO THE JIB STRUT.
- 10 PIN (ITEM 76) IS USED IN CONJUNCTION WITH SPREADER (ITEM 75)(2 PINS PER SPREADER) AND REPLACES PIN SUPPLIED WITH PENDANT.
- 11 STAMP DATA ON (ITEM 36) AND INSTALL AFTER FINAL PAINTING.
- 12 PIN (ITEM 43) IS TO BE USED FOR MAIN STRUT ERECTION ONLY. IF WEDGE SOCKET (ITEM 4) IS USED FOR ANY LOAD LIFTING LINE, PIN 563960 (REF.) IS REQUIRED.
- 13 PIN CONNECTED 133A
- 14 FACT CONNECTED 133
- 15 PIN CONNECTED 133A - MAY USE 421319 OR 174307
- 16 FACT CONNECTED 133 - MAY USE 421318 OR 171483
- 17 ADD SHIMS (ITEM 45) AS REQUIRED (IN AREA SHOWN) TO LIMIT LATERAL MOVEMENT OF JIB BUTT. USE AN EQUAL AMOUNT OF SHIMS ON BOTH SIDES TO CENTER JIB BUTT WITH BOOM TOP.

BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	QTY	DESCRIPTION	MATERIAL	QTY REQ.
1910-4000 BASIC LUFFING JIB FOR 70 FT (21.3M) (SEE TABLE OF COMPONENTS FOR VARIOUS JIB LENGTHS)				
1	2	PIN		18302-2
2	2	PIN		138402
3				
4	1	SOCKET		162233
5	1	WEDGE		162234
6	4	PIN		165513
7	2	PIN		167015
8				
9				
101		JIB POINT SHAFT ASSEMBLY (LOWER)		170422 1
112		END PLATE		170671
122		PIN		170673
132		PIN		174788
141		LUFFING JIB UPPER POINT ROLLER ASSEMBLY		172147 1
152		BACKSTAY PIN		172194
16				
172		RATCHET LINK		172197
182		LINK		172507
192		PIN		172688
204		PIN		172937
212		PIN		176170
221		JIB STOP ASSEMBLY		173017 4
231		PIN R.H.		173035
241		PIN L.H.		173045
252		SPACER		173374
262		STRUT STOP TUBE ASSEMBLY		173649
272		LINK		173738
281		TIE LINK		173740
292		PIN		173741
302		PIN		173742
312		PIN		176171
322		PIN		176172
332		BACKSTAY LINK		176190
341		JIB LUFFING HOIST ASSEMBLY		177356
352		LINK		176216
361		BUILDERS PLATE		181503 11
371		WIRE ROPE GUIDE ASSEMBLY		192085
381		JIB STRUT ASSEMBLY		192132
391		MAIN STRUT ASSEMBLY		192133
402		BASIC BACKSTAY PENDANT 7 FT-9.00 - (2.3M)		277350 2
412		BASIC JIB PENDANT 71 FT-3.00 - (21.7 M)		277146 2
422		BASIC BACKSTAY PENDANT 73 FT-6.00 - (22.4 M)		277147 2
431		PIN		564094 12
444		#4 X .31(8mm) LG. TYPE J DRIVE SCREW		620656 11
A 4510		SHIM		A00520 17
46				
1910-0010 BASIC 133A JIB				
471		JIB BUTT 30 FT (9.14M)		174308 13
481		JIB TOP 40 FT (12.19M)		192063 15
49				
1910-0020 INSERT 10 FT (3.05M) 133A JIB				
501		INSERT 10 FT (3.05M)		171480 13
512		PENDANT 10 FT-1.00 (3.07M)		277382
52				
1910-0030 INSERT 20 FT (6.10M) 133A JIB				
531		INSERT 20 FT (6.10M)		171481 13
541		TIMBER		171660
552		PENDANT 20 FT-1.50 (6.13M)		277383
56				
1910-0040 INSERT 40 FT (12.19M) 133A JIB				
571		INSERT 40 FT (12.19M)		171482 13
582		TIMBER		171660
592		PENDANT 40 FT-3.00 (12.27M)		277384
60				
1910-0050 BASIC 133 JIB				
611		JIB BUTT 30 FT (9.14M)		173068 14
621		JIB TOP 40 FT (12.19M)		192062 16
63				
1910-0060 INSERT 10 FT (3.05M) 133 JIB				
641		INSERT 10 FT (3.05M)		172045 14
652		PENDANT 10 FT-1.00 (3.07M)		277382
66				
1910-0070 INSERT 20 FT (6.10M) 133 JIB				
671		INSERT 20 FT (6.10M)		172046 14
681		TIMBER		171660
692		PENDANT 20 FT-1.50 (6.13M)		277383
70				
1910-0080 INSERT 40 FT (12.19M) 133 JIB				
711		INSERT 40 FT (12.19M)		172047 14
722		TIMBER		171660
732		PENDANT 40 FT-3.00 (12.27M)		277384
74				