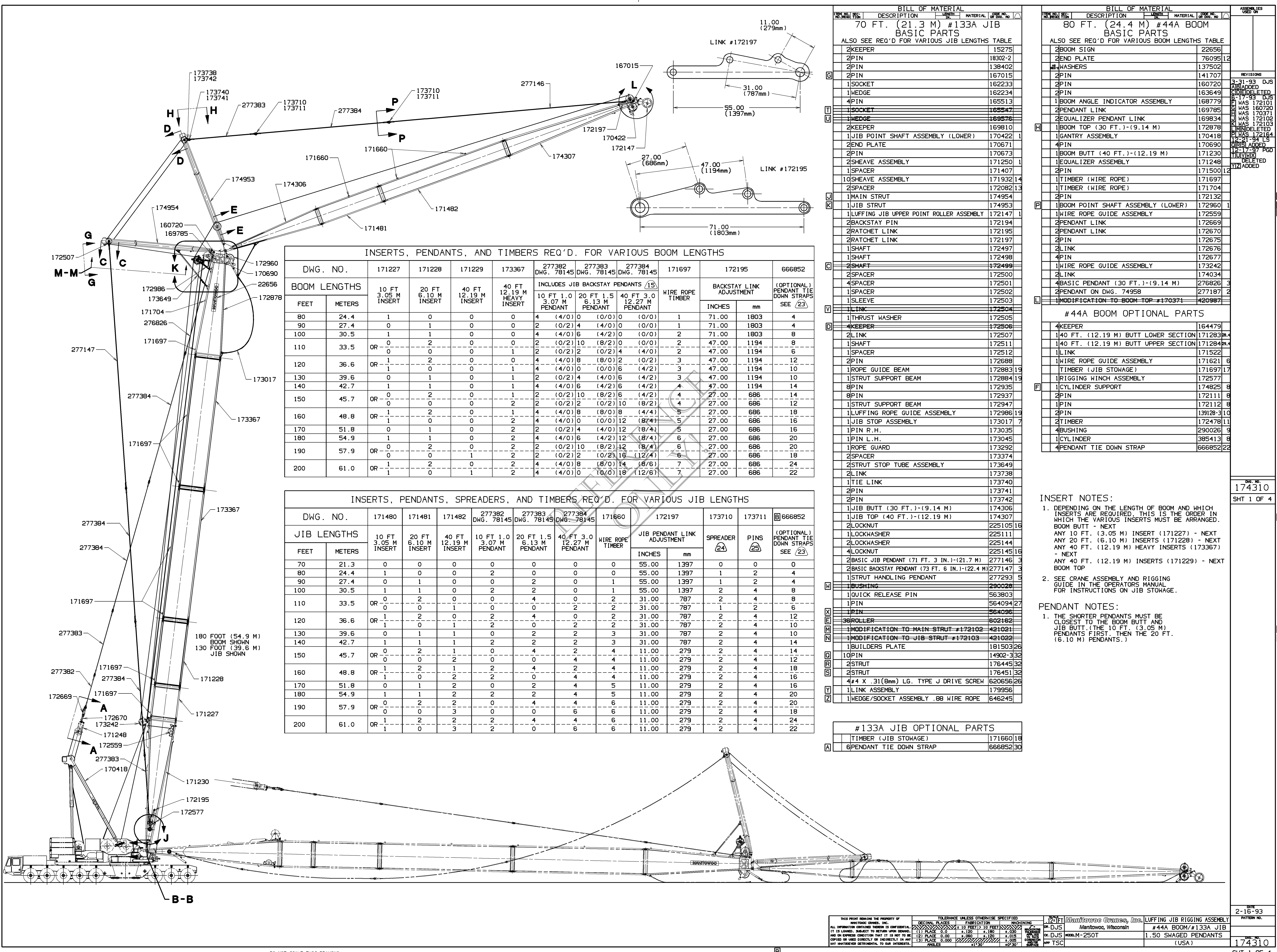




BILL OF MATERIAL				
QTY	DESCRIPTION	QTY	DESCRIPTION	QTY
70 FT. (21.3 M) #133A JIB BASIC PARTS				
ALSO SEE REQ'D FOR VARIOUS JIB LENGTHS TABLE				
2	KEEPER	1	5275	
2	PIN	1	18302-2	
2	PIN	1	138402	
2	PIN	1	167015	
1	SOCKET	1	162233	
1	WEDGE	1	162234	
4	PIN	1	165513	
1	SOCKET	1	165547	
1	WEDGE	1	165576	
2	KEEPER	1	169810	
1	JIB POINT SHAFT ASSEMBLY (LOWER)	1	170422	
2	END PLATE	1	170671	
2	PIN	1	170673	
2	SHEAVE ASSEMBLY	1	171250	
1	SPACER	1	171407	
10	SHEAVE ASSEMBLY	1	171932	
2	SPACER	1	172082	
1	MAIN STRUT	1	174954	
1	JIB STRUT	1	174953	
1	LUFFING JIB UPPER POINT ROLLER ASSEMBLY	1	172147	
2	BACKSTAY PIN	1	172194	
2	RATCHET LINK	1	172195	
2	RATCHET LINK	1	172197	
1	SHAFT	1	172497	
1	SHAFT	1	172498	
2	SHAFT	1	172499	
2	SPACER	1	172500	
4	SPACER	1	172501	
1	SPACER	1	172502	
1	SLEEVE	1	172503	
1	LINK	1	172504	
1	THRUST WASHER	1	172505	
4	KEEPER	1	172506	
2	LINK	1	172507	
1	SHAFT	1	172511	
1	SPACER	1	172512	
2	PIN	1	172688	
1	ROPE GUIDE BEAM	1	172883	
1	STRUT SUPPORT BEAM	1	172884	
8	PIN	1	172935	
8	PIN	1	172937	
1	STRUT SUPPORT BEAM	1	172947	
1	LUFFING ROPE GUIDE ASSEMBLY	1	172986	
1	JIB STOP ASSEMBLY	1	173017	
1	PIN R.H.	1	173035	
1	PIN L.H.	1	173045	
1	ROPE GUARD	1	173292	
2	SPACER	1	173374	
2	STRUT STOP TUBE ASSEMBLY	1	173649	
2	LINK	1	173738	
1	TIE LINK	1	173740	
2	PIN	1	173741	
2	PIN	1	173742	
1	JIB BUTT (30 FT.)-(9.14 M)	1	174306	
1	JIB TOP (40 FT.)-(12.19 M)	1	174307	
2	LOCKNUT	1	225105	
1	LOCKWASHER	1	225111	
2	LOCKWASHER	1	225144	
4	LOCKNUT	1	225145	
2	BASIC JIB PENDANT (71 FT. 3 IN.)-(21.7 M)	1	277146	
2	BASIC BACKSTAY PENDANT (73 FT. 6 IN.)-(22.4 M)	1	277147	
1	STRUT HANDLING PENDANT	1	277293	
1	BUSHING	1	290028	
1	QUICK RELEASE PIN	1	563803	
1	PIN	1	564094	
1	PIN	1	564096	
36	ROLLER	1	602182	
1	MODIFICATION TO MAIN STRUT #172102	1	421021	
1	MODIFICATION TO JIB STRUT #172103	1	421022	
1	BUILDERS PLATE	1	181503	
10	PIN	1	14902-332	
2	STRUT	1	176445	
2	STRUT	1	176451	
4	4 X .31(8mm) LG. TYPE J DRIVE SCREW	1	620656	
1	LINK ASSEMBLY	1	179956	
1	WEDGE/SOCKET ASSEMBLY .88 WIRE ROPE	1	646245	

#133A JIB OPTIONAL PARTS	
TIMBER (JIB STOWAGE)	171660/18
6 PENDANT TIE DOWN STRAP	666852/30

BILL OF MATERIAL				
QTY	DESCRIPTION	QTY	DESCRIPTION	QTY
80 FT. (24.4 M) #44A BOOM BASIC PARTS				
ALSO SEE REQ'D FOR VARIOUS BOOM LENGTHS TABLE				
2	BOOM SIGN	1	22656	
2	END PLATE	1	76095	
2	WASHERS	1	137502	
2	PIN	1	141707	
2	PIN	1	160720	
2	PIN	1	163649	
1	BOOM ANGLE INDICATOR ASSEMBLY	1	168779	
2	PENDANT LINK	1	169785	
2	EQUALIZER PENDANT LINK	1	169834	
1	BOOM TOP (30 FT.)-(9.14 M)	1	172878	
1	GANTRY ASSEMBLY	1	170418	
4	PIN	1	170690	
1	BOOM BUTT (40 FT.)-(12.19 M)	1	171230	
1	EQUALIZER ASSEMBLY	1	171248	
2	PIN	1	171500	
1	TIMBER (WIRE ROPE)	1	171697	
1	TIMBER (WIRE ROPE)	1	171704	
2	PIN	1	172132	
1	BOOM POINT SHAFT ASSEMBLY (LOWER)	1	172960	
1	WIRE ROPE GUIDE ASSEMBLY	1	172559	
2	PENDANT LINK	1	172659	
2	PENDANT LINK	1	172670	
2	PIN	1	172675	
2	LINK	1	172676	
4	PIN	1	172677	
1	WIRE ROPE GUIDE ASSEMBLY	1	173242	
2	LINK	1	174034	
4	BASIC PENDANT (30 FT.)-(9.14 M)	1	276826	
2	PENDANT ON DWG. 74958	1	277187	
1	MODIFICATION TO BOOM TOP #170371	1	420987	

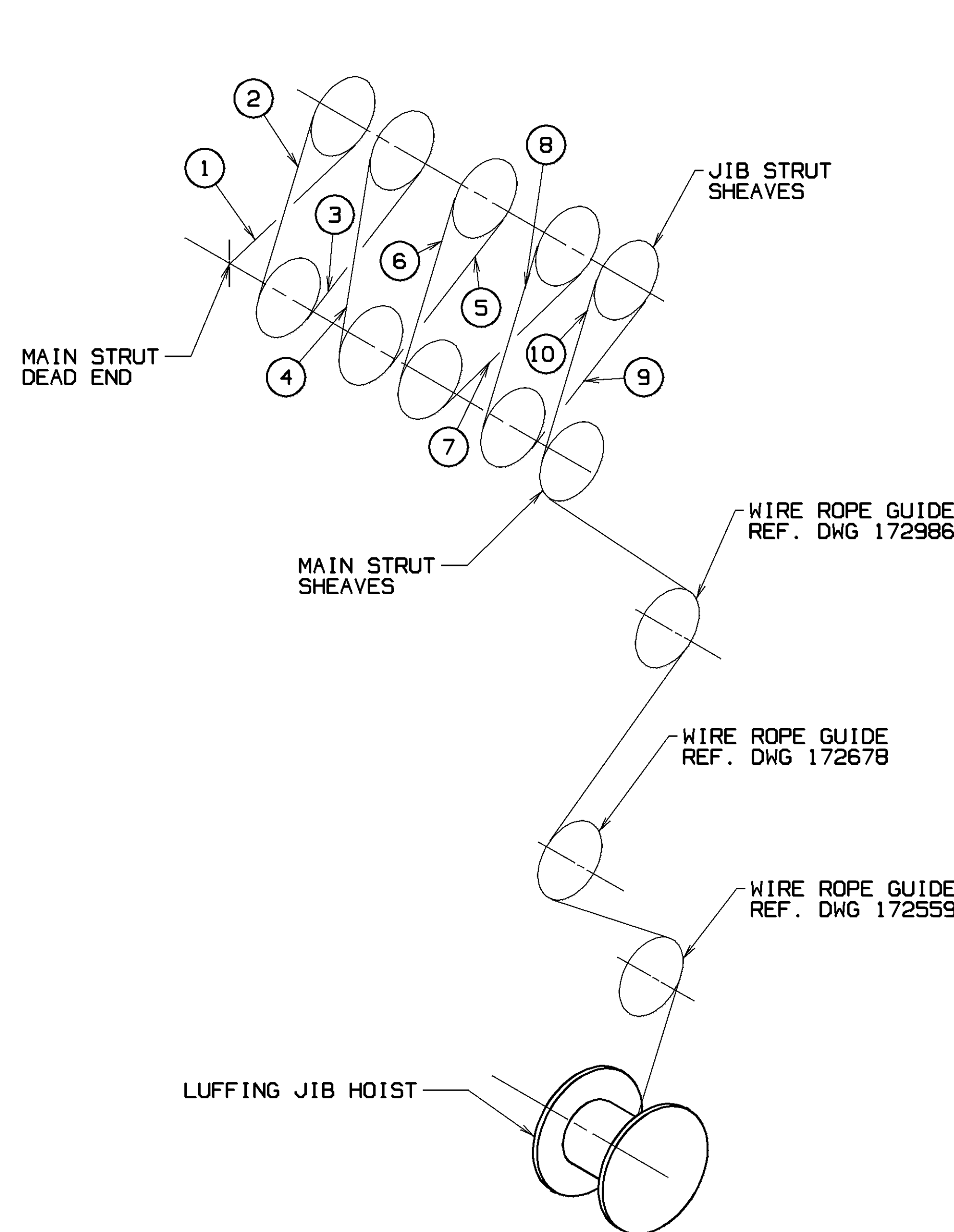
#44A BOOM OPTIONAL PARTS	
4 KEEPER	164479
1 40 FT. (12.19 M) BUTT LOWER SECTION	171283
1 40 FT. (12.19 M) BUTT UPPER SECTION	171284
1 LINK	171522
1 WIRE ROPE GUIDE ASSEMBLY	171621
1 TIMBER (JIB STOWAGE)	171697
1 RIGGING WINCH ASSEMBLY	172577
1 CYLINDER SUPPORT	174825
2 PIN	172111
1 PIN	172112
2 PIN	139128-310
2 TIMBER	172478
4 BUSHING	290026
1 CYLINDER	385413
4 PENDANT TIE DOWN STRAP	666852/22

INSERT NOTES:

1. DEPENDING ON THE LENGTH OF BOOM AND WHICH INSERTS ARE REQUIRED, THIS IS THE ORDER IN WHICH THE VARIOUS INSERTS MUST BE ARRANGED. BOOM BUTT - NEXT ANY 10 FT. (3.05 M) INSERT (171227) - NEXT ANY 20 FT. (6.10 M) INSERTS (171228) - NEXT ANY 40 FT. (12.19 M) HEAVY INSERTS (173367) - NEXT ANY 40 FT. (12.19 M) INSERTS (171229) - NEXT BOOM TOP
2. SEE CRANE ASSEMBLY AND RIGGING GUIDE IN THE OPERATORS MANUAL FOR INSTRUCTIONS ON JIB STOWAGE.

PENDANT NOTES:

1. 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.)



LUFFING JIB HOIST REEVING
DIAGRAM FOR 10 PART LINE SEE 31

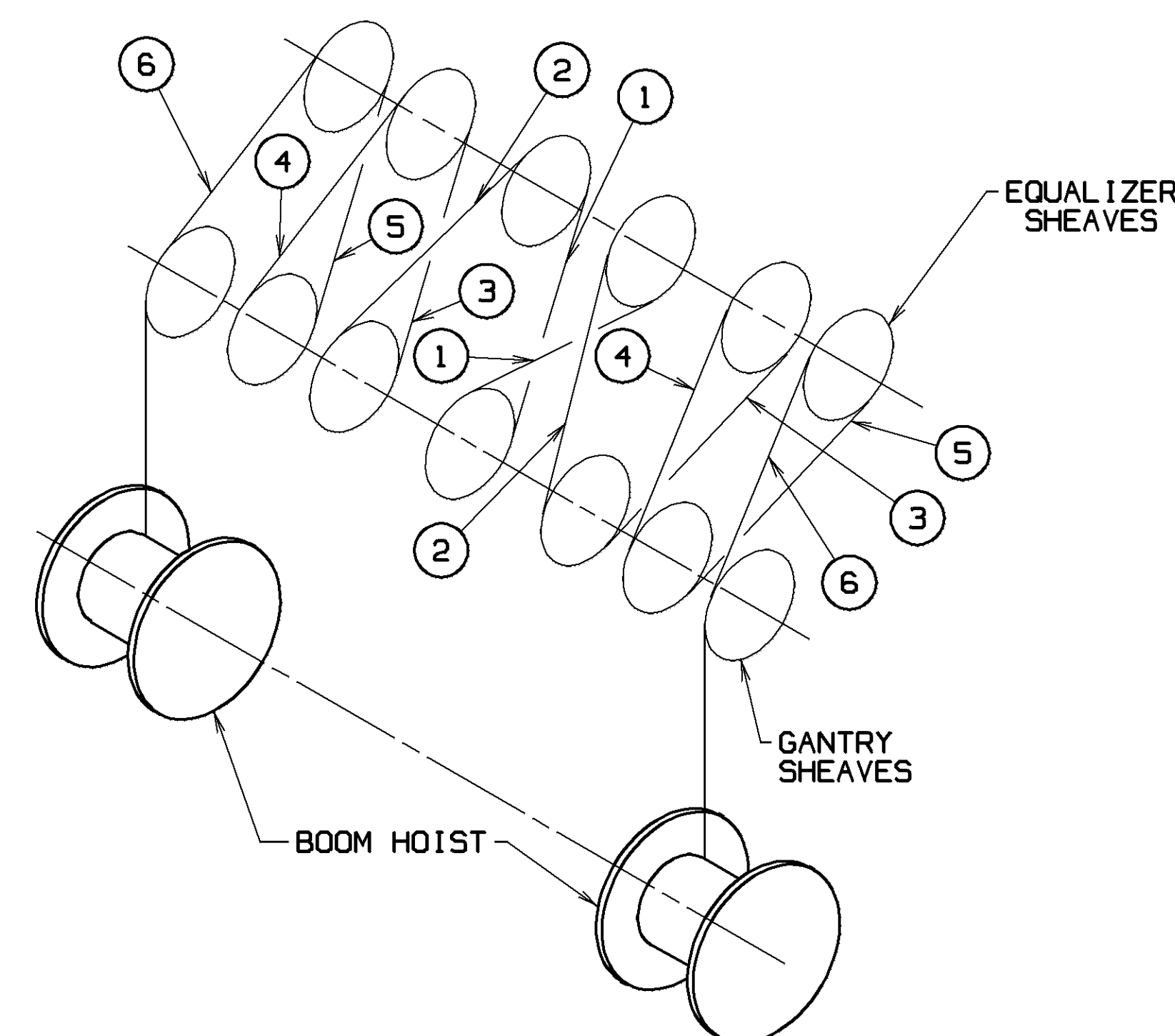
1100 FEET (335.3 M) OF .875" (22mm)-6 X 26 WARRINGTON SEALE, ACTUAL DIA .873/.900,
EXTRA IMPROVED PLOW STEEL, ALTERNATE LAY, IWRC (719094) - B.S. 79,600 LBS. (36 106 kg)

OR
ALTERNATE WIRE ROPE

1100 FEET (335.3 M) OF .875" (22mm)-6 X 26 WARRINGTON SEALE, ACTUAL DIA .873/.900,
EXTRA IMPROVED PLOW STEEL, REGULAR LAY, IWRC (719035) - B.S. 79,600 LBS. (36 106 kg)

OR
ALTERNATE WIRE ROPE

1100 FEET (335.3 M) OF .875" (22mm) DYFORM-6, ACTUAL DI .873/.900
(719335) - B.S. 87,600 LBS. (39 735 kg)



BOOM HOIST REEVING DIAGRAM FOR 12 PART LINE

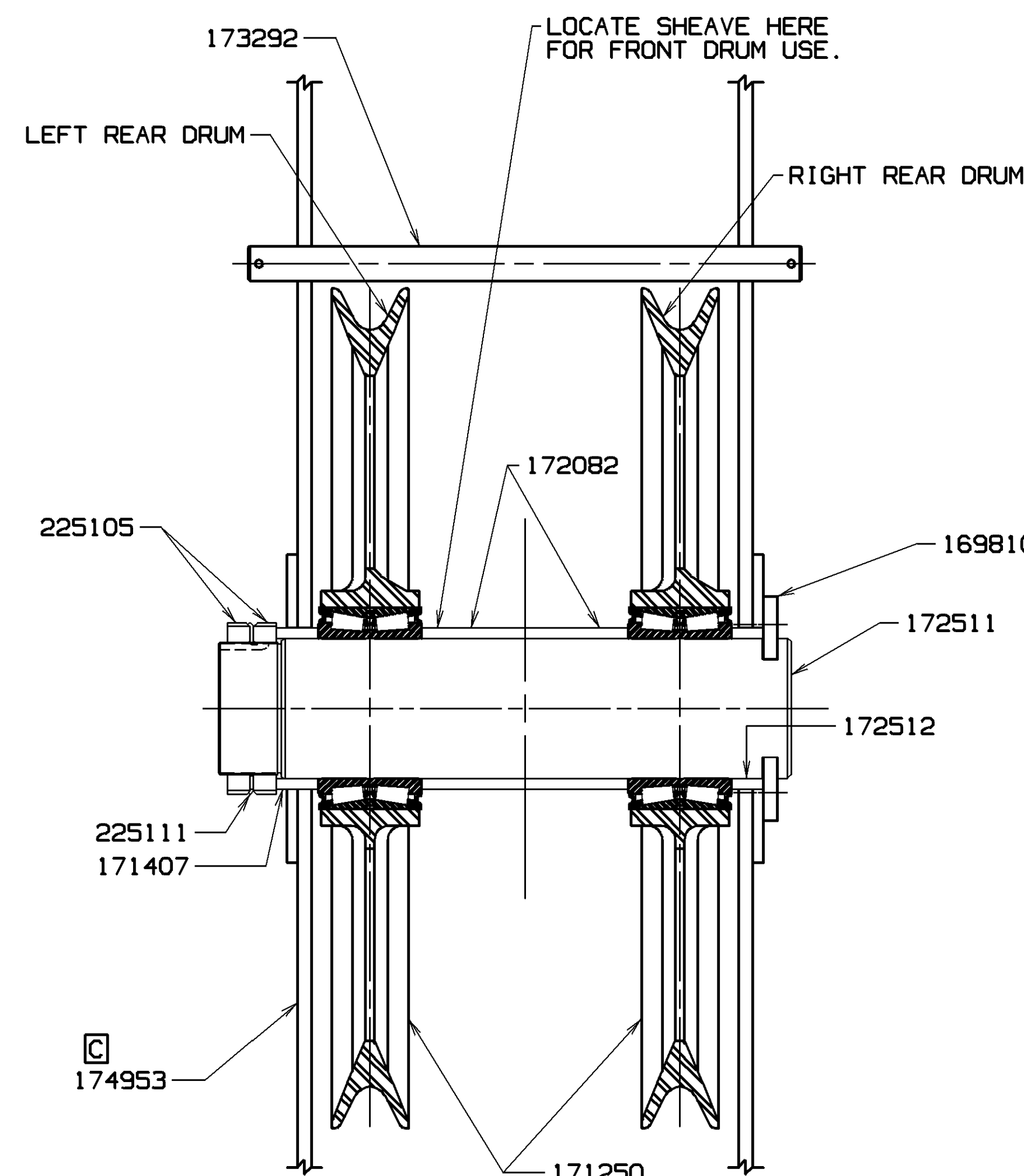
975 FEET (297.2 M) OF 1.00" (26mm)-6 X 26 WARRINGTON SEALE, EXTRA IMPROVED
PLOW STEEL, ALTERNATE LAY, IWRC (719095) - B.S. 103,400 LBS. (46 900 kg)

OR
ALTERNATE WIRE ROPE

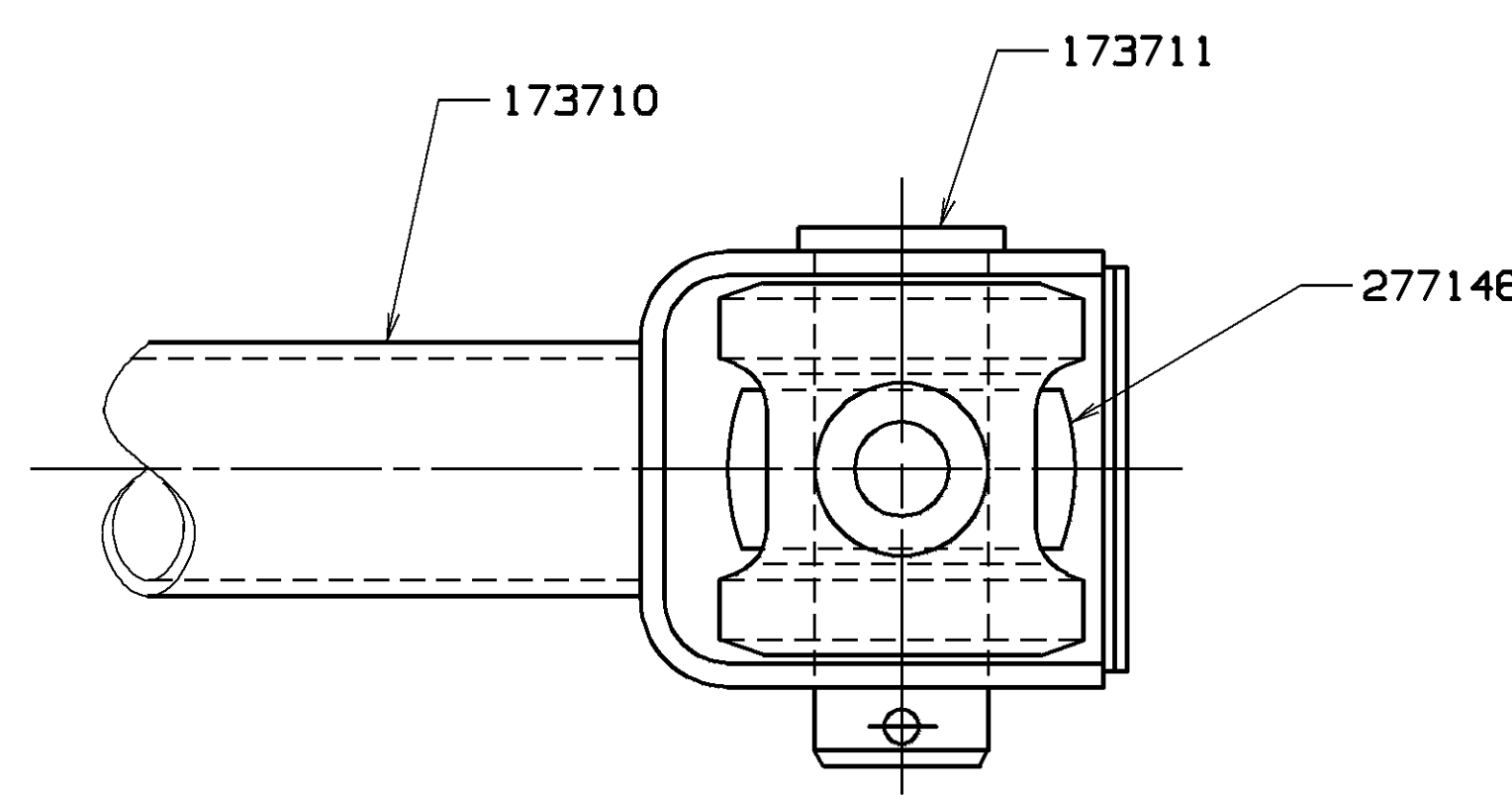
975 FEET (297.2 M) OF 1.00" (26mm)-6 X 26 WARRINGTON SEALE, EXTRA IMPROVED
PLOW STEEL, REGULAR LAY, IWRC (719276) - B.S. 103,400 LBS. (46 900 kg)

OR
ALTERNATE WIRE ROPE

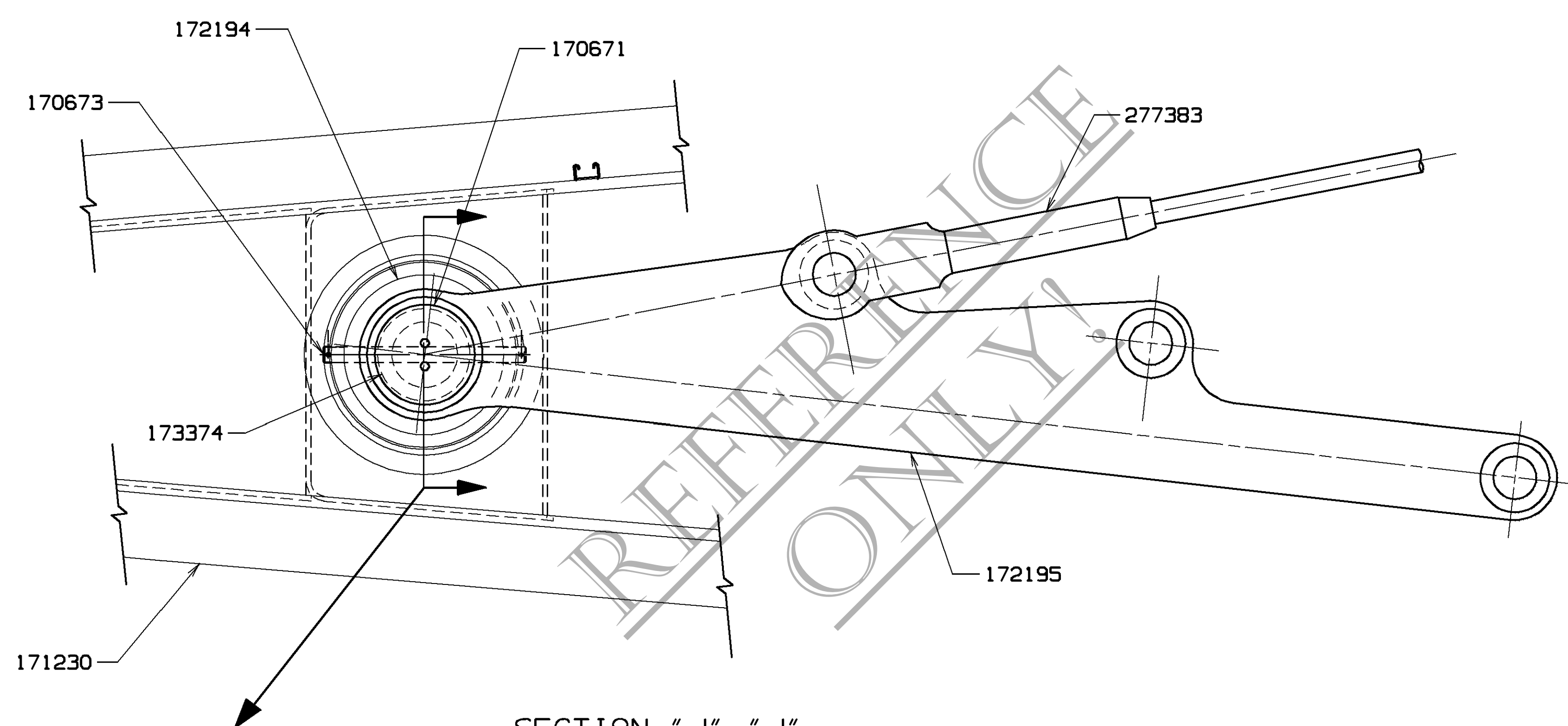
975 FEET (297.2 M) OF 1.00" (26mm) DYFORM-6
(719359) - B.S. 113,800 LBS. (51 620 kg)



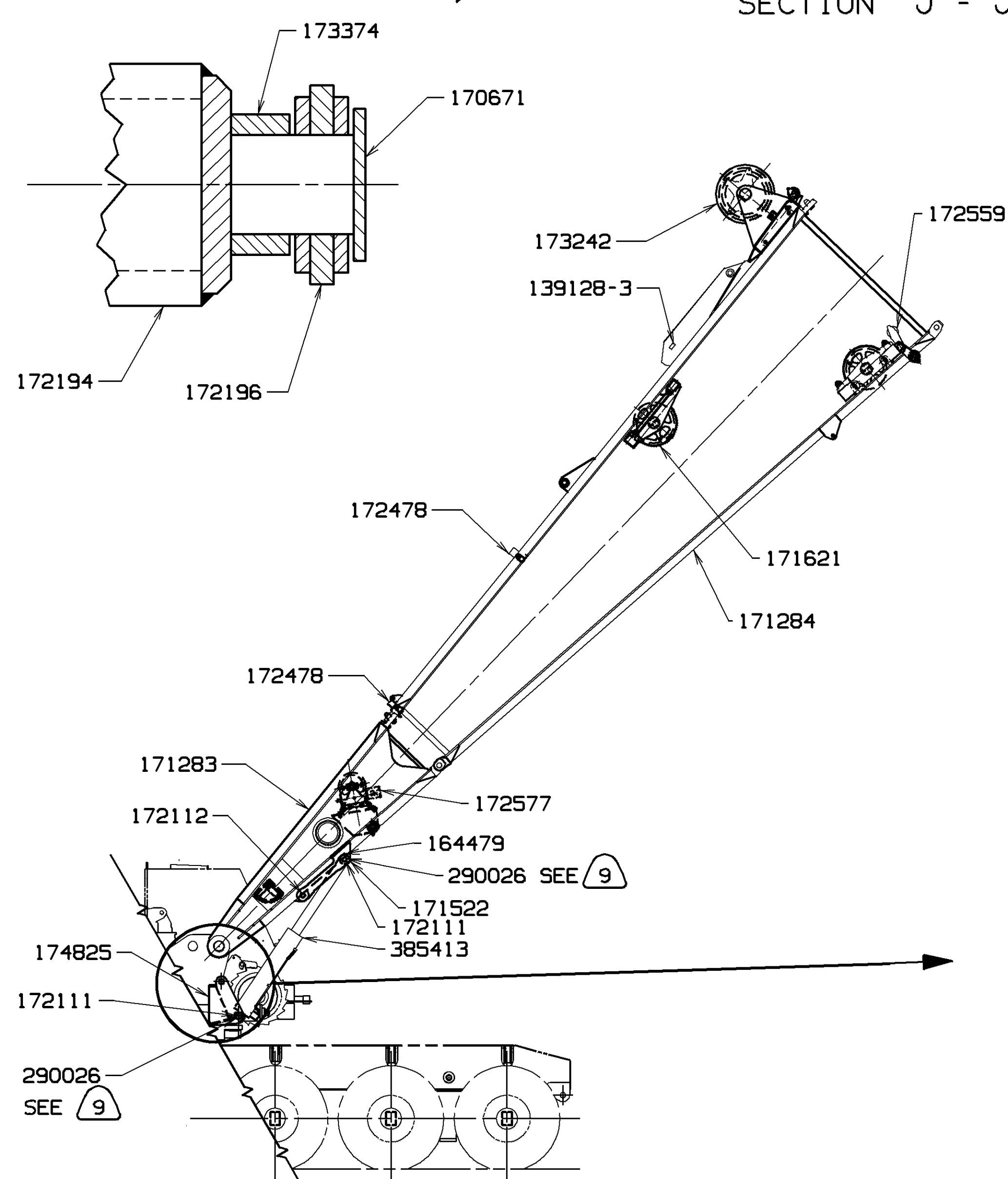
SECTION "E" - "E"



VIEW "P" - "P"



SECTION "J" - "J"



VIEW SHOWING 2-PIECE
BUTT COMBINATION

BOOM HANDLING INSTRUCTIONS

TRAVEL SPEED NOT TO EXCEED 1/2 MPH (.80 km/h)
BOOM ANGLE AT 10° OR LESS.

GANTRY POSITION	MAX. LENGTH OF BOOM HANDLED		BOOM MAKE UP	BOOM CONDITIONS OR LIMITATIONS
	FEET	METERS		
DOWN	40	12.19	BUTT ONLY	EQUALIZER PINNED TO RAILS
UP	120	36.6	BUTT & INSERTS	EQUALIZER PINNED TO RAILS. CAN CANTILEVER 80 FT. (24.4 M) OF INSERTS.

SEE VIEW Q ON SHT. 4.

BILL OF MATERIAL					ASSEMBLIES USED IN
ITEM NO.	QTY	DESCRIPTION	UNIT	MATERIAL	
1	1	1.125 (29mm) WIRE ROPE.			
2	1	USED FOR GANTRY TIE DOWN.			
3	1	ON DWG. 78145.			
4	1	THE COMBINATION OF BUTT SECTIONS 171283 AND 171284 REPLACE 40 FT. (12.19 M) BUTT 171230.			
5	1	ON DWG. 73026.			
6	1	REQUIRED FOR CRAWLER HANDLING.			
7	1	SEE JIB STOP ASSEMBLY FOR JIB STOP ERECTION PROCEDURE.			
8	1	REQ'D. FOR BOOM BUTT HANDLING:			
CAN BE USED WITH 2-PIECE BOOM BUTT ONLY. MAX. COMBINATION THAT CAN BE HANDLED WITH CYLINDER 385413 IS: BUTT SECTIONS 171283 & 171284; ROPE GUIDES 173242, 172559 & 171621; RIGGING WINCH 172577; EQUALIZER 171248; BOOM STOPS 170474 REF. AND 2 PARTS OF 1.125 (29mm) WIRE ROPE (FOR EQUALIZER HANDLING). CYLINDER MUST BE FULLY RETRACTED FOR CRANE OPERATION.					
9	1	INSTALL 2 BUSHINGS 290026 (1 EACH SIDE) IN LOWER PIN EYE AND 2 (1 EACH SIDE) IN UPPER PIN EYE OF CYLINDER 385413. BUSHINGS TO BE FLUSH WITH OUTSIDE FACE OF PIN EYE.			
10	1	PIN IN PLACE ONLY DURING EQUALIZER RELOCATION FROM GANTRY STORAGE TO BOOM BUTT EQUALIZER RAIL. PIN TO BE STOWED FOR NORMAL CRANE OPERATION.			
11	1	REQ'D. FOR 2 PIECE BOOM BUTT. USE LOCKTITE 242 OR EQUIVALENT ON MOUNTING SCR. THDS. AT ASSEMBLY.			
12	1	INSTALL WITH HEAD ON BOTTOM. WIRE END PLATE SCREWS TOGETHER.			
13	1	LOCATE AS REQ'D SEE SECTION "E" - "E".			
14	1	.875 (22mm) WIRE ROPE.			
15	1	SHOWN IN THE FORMAT:			
TOTAL PENDANTS REQ'D (BOOM PENDANTS REQ'D / JIB BACKSTAY PENDANTS REQ'D)					
16	1	TIGHTEN LOCKNUT SUFFICIENTLY TO CLAMP BEARING INNER RACE.			
17	1	STOWAGE TIMBER REQUIRED			

STOWAGE TIMBER REQUIRED			
STOWAGE CASE		TIMBERS (171697)	
#133A JIB IN #44 BOOM			
FEET	METERS		
70 - 80	21.3 - 24.4	16	
90 - 120	27.4 - 36.6	24	
130 - 160	39.6 - 48.8	32	
170 - 200	51.8 - 61.0	40	

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

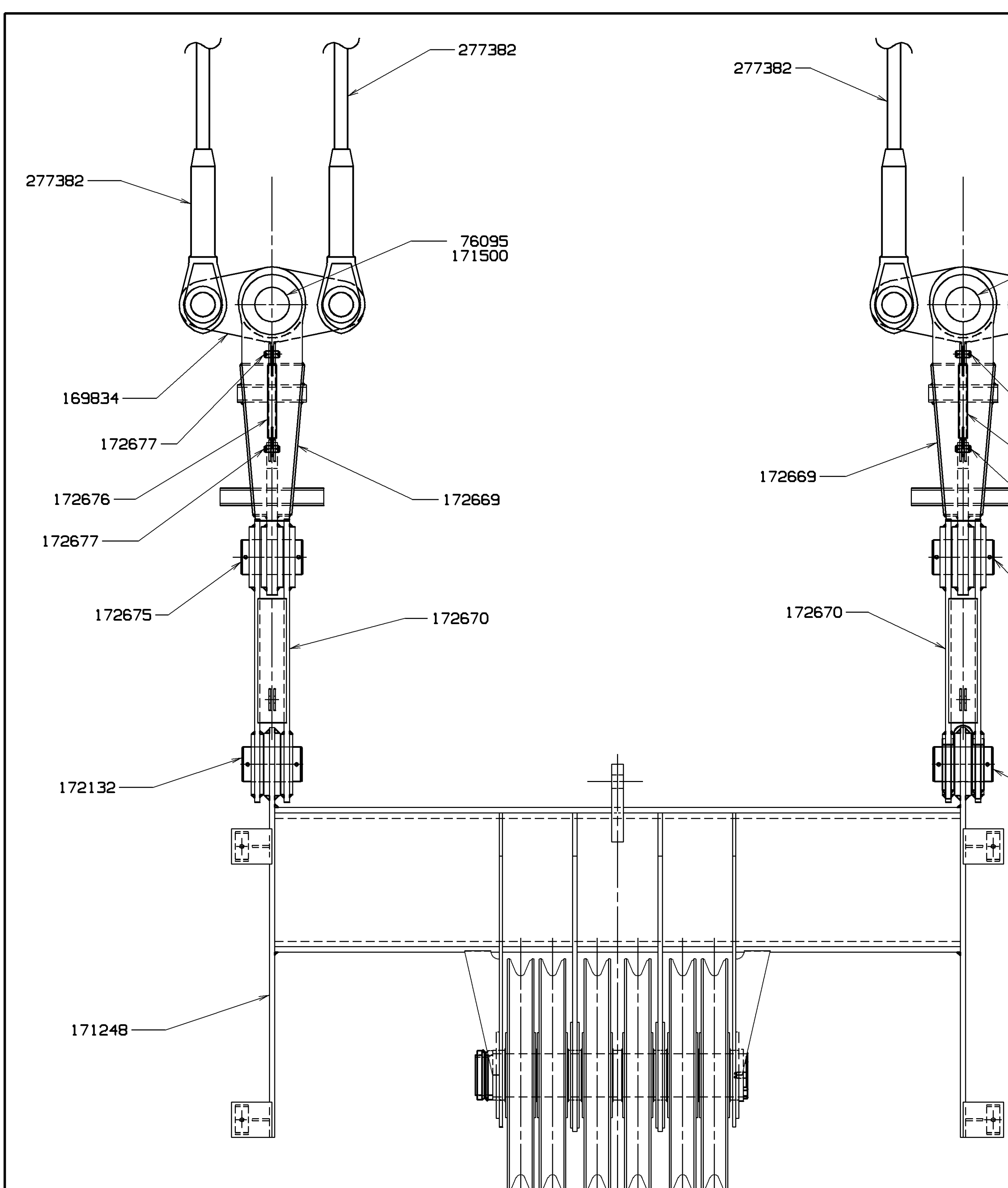
18

STOWAGE TIMBER REQUIRED		
STOWAGE CASE		TIMBERS (171660)
#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

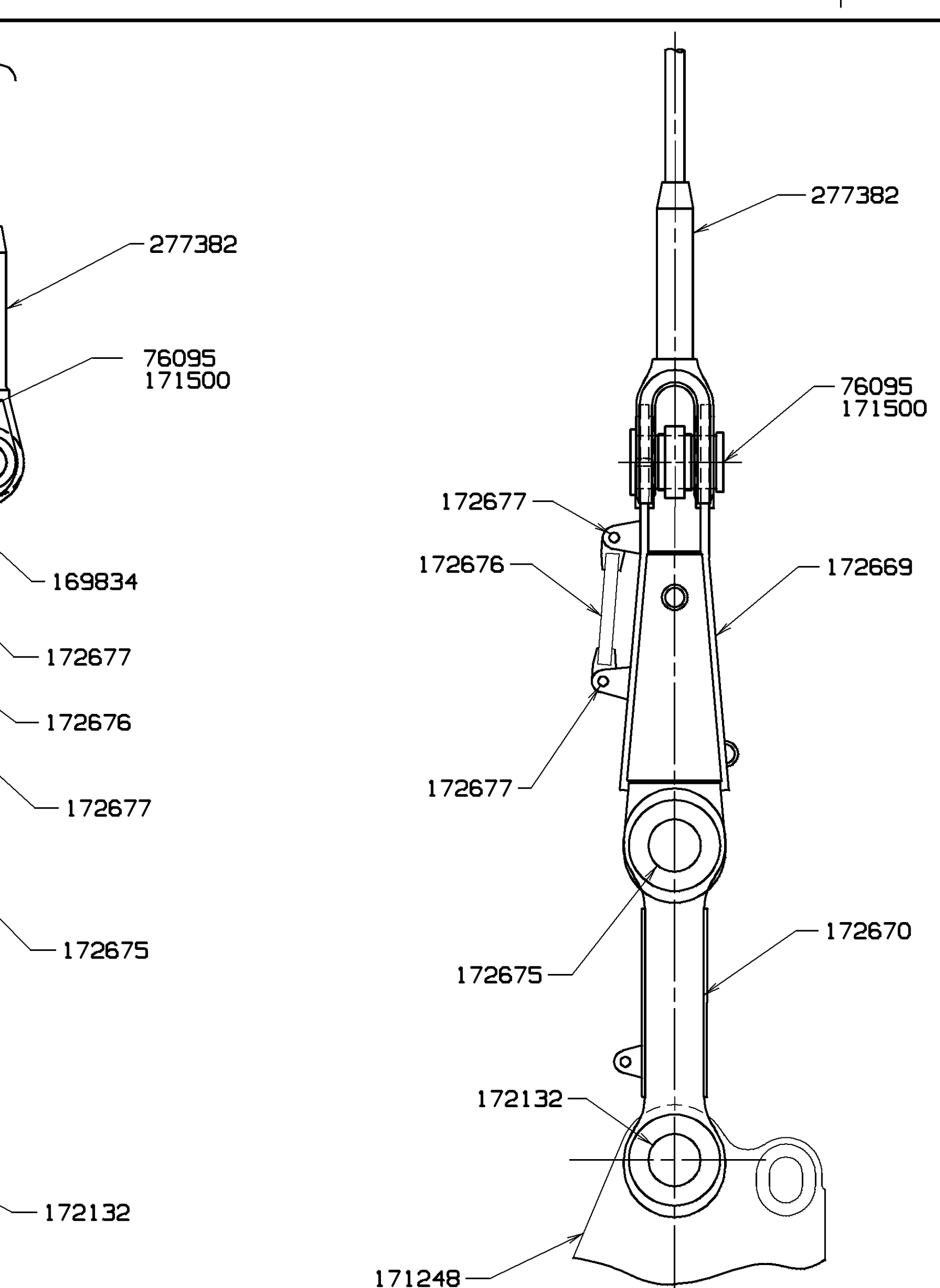
STOWAGE TIMBERS MUST BE REMOVED FROM JIB SECTIONS FOR CRANE OPERATION.

- 19 BEAM 172883 & 172884 AND ROPE GUIDE ASSEMBLY 172986 MUST BE REMOVED FOR LIFT CRANE OPERATION.
- 20 REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM & JIB COMBINATIONS.
- 21 REFER TO LUFFING JIB RAISING PROCEDURE #7658A FOR RAISING & LOWERING BOOM & JIB.
- 22 USED ON BOOM TOP - SEE 23
- 23 SEE CRANE ASSEMBLY & RIGGING GUIDE IN THE OPERATIONS MANUAL FOR INSTRUCTIONS ON PENDANT STOWAGE.
- 24 SPREADER LOCATIONS:
- A) FOR JIBS REQUIRING ONE SPREADER: LOCATE AT THE FIRST PENDANT CONNECTION CLOSEST TO THE LUFFING JIB TOP. (REF. VIEW "P" - "P").
- 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.
- 25 PIN 173711 IS USED IN CONJUNCTION WITH SPREADER 173710 (2 PINS PER SPREADER) AND REPLACES PIN SUPPLIED WITH PENDANT. (REF. VIEW "P" - "P").
- 26 STAMP DATA ON 181503 AND INSTALL AFTER FINAL PAINTING.
- 27 PIN 564094 IS TO BE USED FOR MAIN STRUT ERECTION ONLY. IF WEDGE SOCKET 162233 IS USED FOR ANY LOAD LIFTING LINE, PIN 563960 (REF.) IS REQUIRED.
- 28 (12 FT.)-(3.66 M)
- 29 (28 FT.)-(8.53 M)
- 30 USED ON LUFFING JIB TOP - SEE 23
- 31 LUFFING JIB ASSEMBLIES REQUIRING OUTSIDE ASSIST MUST HAVE 1000 FT. (304.8 M) OF JIB HOIST LINE.

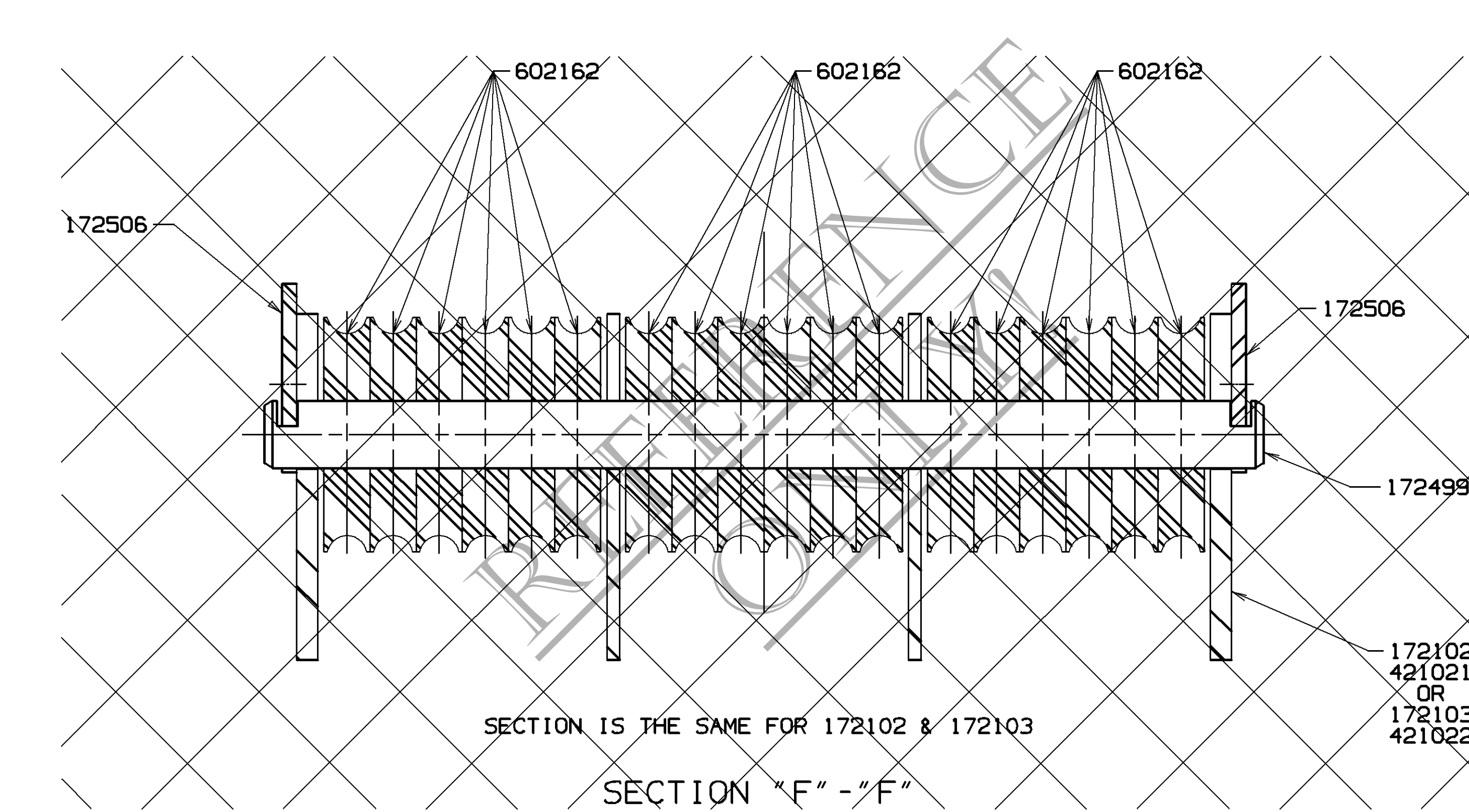
THIS PRINT REMAINS THE PROPERTY OF WHITING CRANES, INC. ALL INFORMATION CONTAINED HEREON IS CONFIDENTIAL. IT IS LOANED, SUBJECT TO RETURN WHEN DEMAND. AND ON EXPRESS CONDITION THAT IT IS NOT TO BE COPIED OR USED DIRECTLY OR INDIRECTLY IN ANY MANNER DETRIMENTAL TO OUR INTERESTS.				TOLERANCE UNLESS OTHERWISE SPECIFIED		MACHINING		SCALE		Mantoway Cranes, Inc.		LUFFING JIB RIGGING ASSEMBLY		DATE	
				DECIMAL PLACES	FABRICATION	10 FEET	10 FEET	DR: DJS	Mantoway, Wisconsin	#44A BOOM/#133A JIB				2-16-93	
				(1) PLACE 0.0	±.150	±.180	±.180	DR: DJS	MOBL-250T	1.50 SHAGED PENDANTS				174310	
				(2) PLACE 0.00	±.090	±.120	±.015	APP TSC		(USA)					
				(3) PLACE 0.000	±.005	±.005	±.005								
				ANGLES	41°-50°	40°-50°	40°-50°								



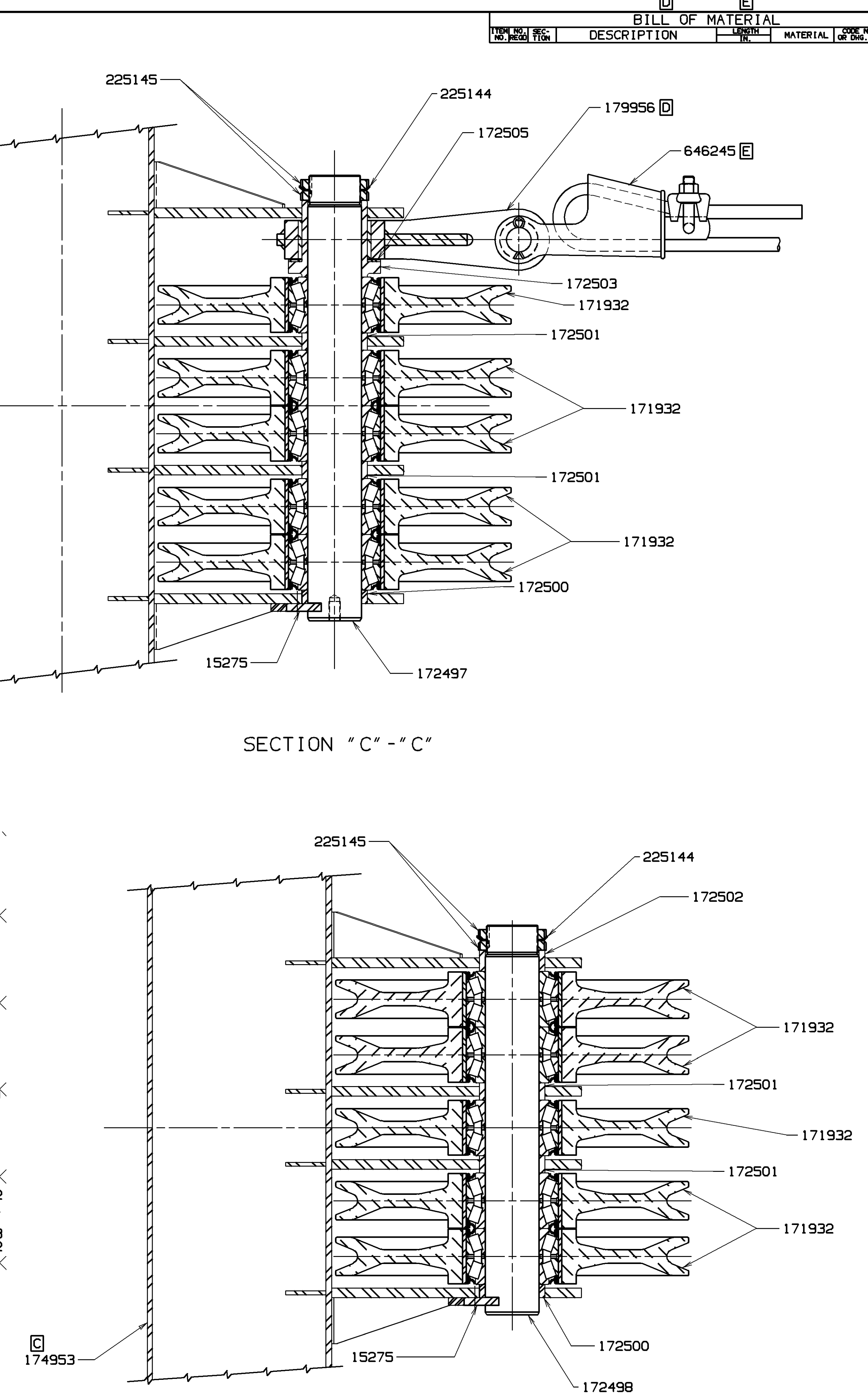
VIEW "A" - "A"



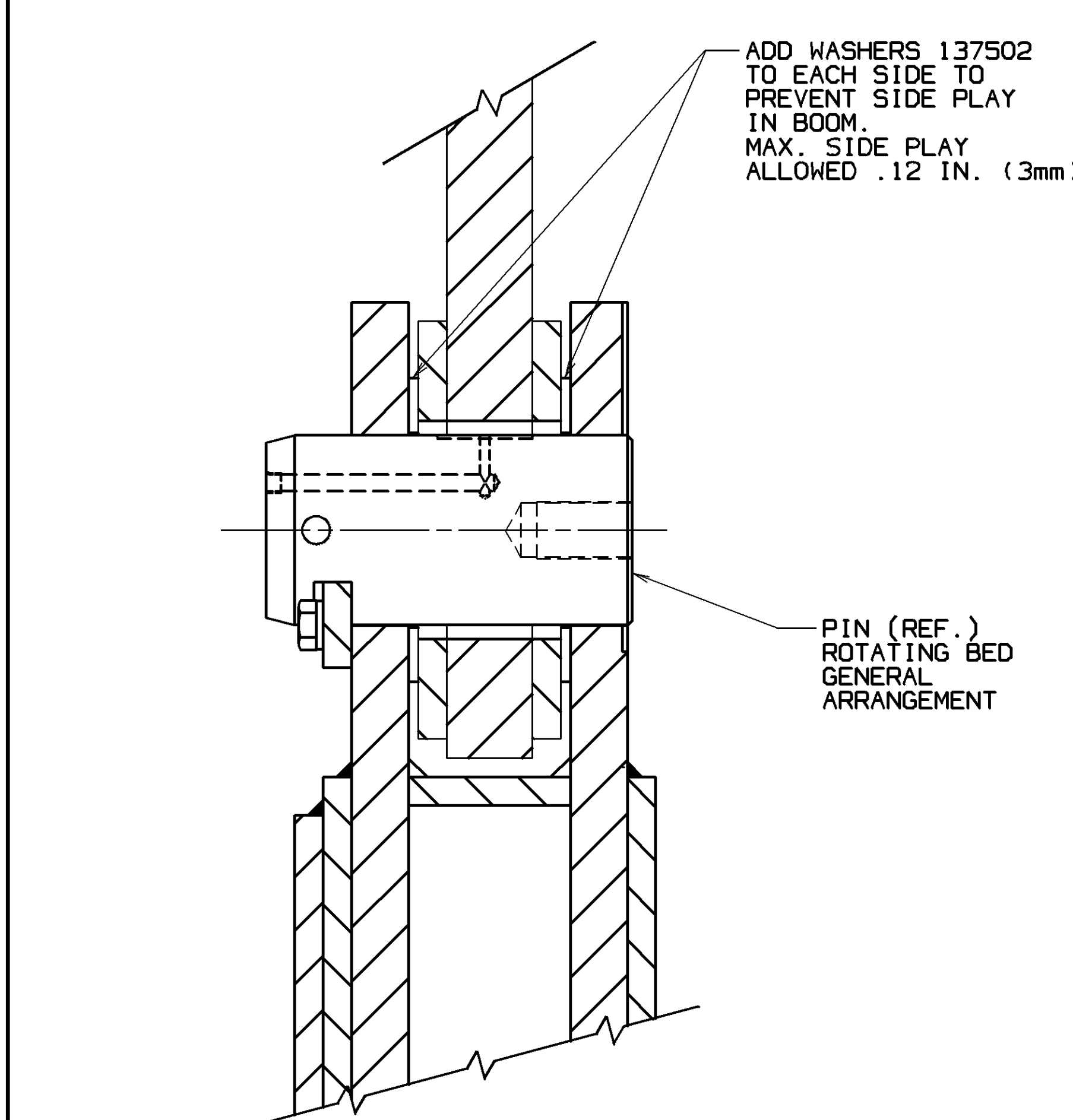
SECTION "C" - "C"



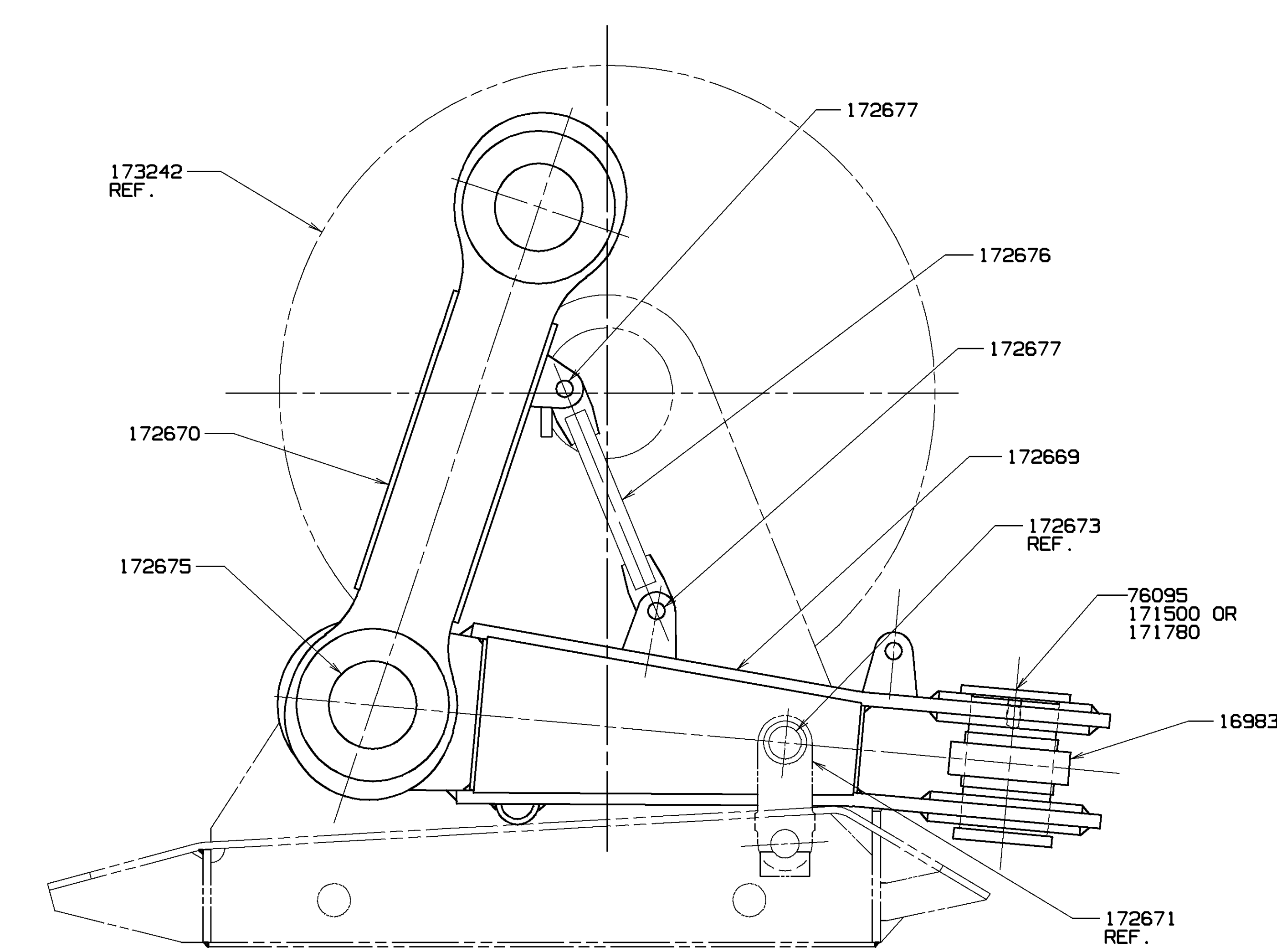
SECTION "F" - "F"



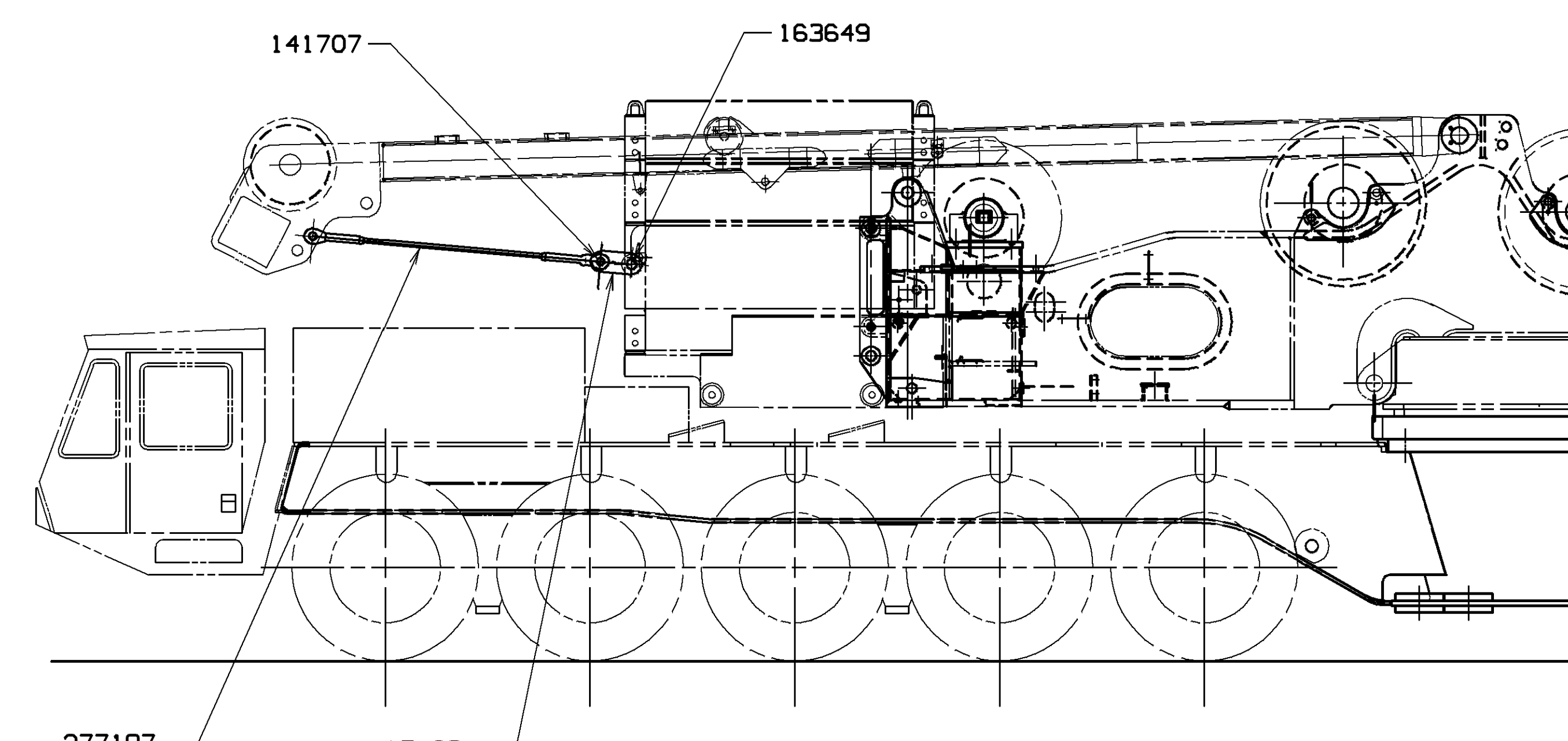
SECTION "D" - "D"



SECTION "B" - "B"



LINK STORAGE FOR SHIPPING



VIEW SHOWING GANTRY TIE-DOWN

BILL OF MATERIAL				ASSEMBLIES USED ON
ITEM NO.	DESCRIPTION	QTY	MATERIAL	DATE
3-31-93	DJS			
3-17-93	DJS			
4-21-02	WAS 172102			
4-21-02	WAS 172103			
12-17-97	PSD			
12-17-97	WAS 172504			
12-17-97	WAS 165547/169576/564096			
REVISIONS				
3-31-93	DJS			
3-17-93	DJS			
4-21-02	WAS 172102			
4-21-02	WAS 172103			
12-17-97	PSD			
12-17-97	WAS 172504			
12-17-97	WAS 165547/169576/564096			
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310
SHT 3 OF 4				
DATE				2-16-93
PART NO.				174310

