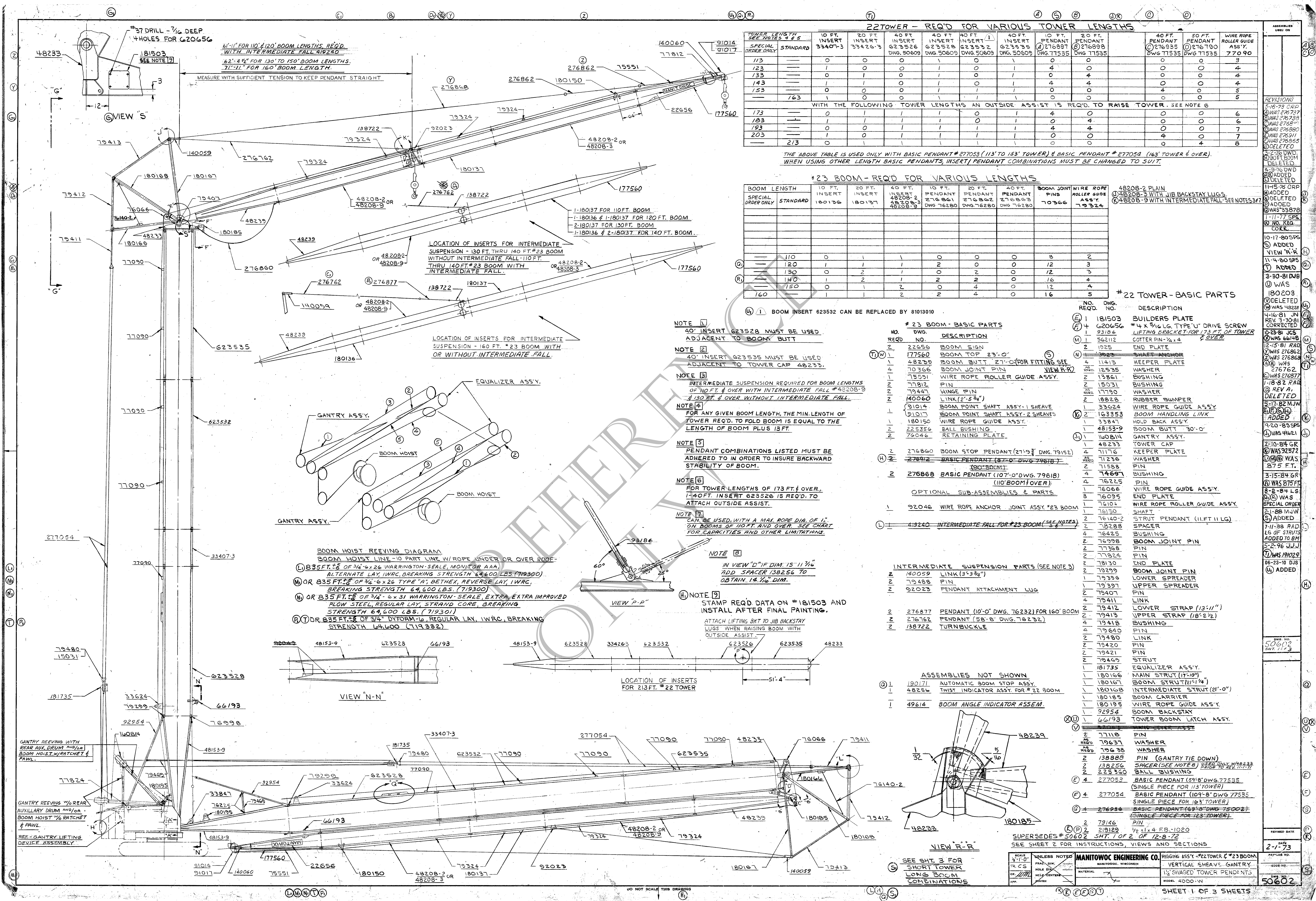




22 TOWER - REQ'D FOR VARIOUS TOWER LENGTHS											
TOWER LENGTH SEE NOTES 4 & 5	10 FT. INSERT	20 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT
SPECIAL ORDER ONLY	STANDARD	33407-3	33426-3	623526 DWG. 50609	623528 DWG. 50609	623532 DWG. 50609	623535 DWG. 50609	623535 DWG. 50609	623535 DWG. 50609	623535 DWG. 50609	623535 DWG. 50609
113	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0
WITH THE FOLLOWING TOWER LENGTHS AN OUTSIDE ASSIST IS REQ'D. TO RAISE TOWER. SEE NOTE 6											
173	0	0	0	0	0	0	0	0	0	0	0
183	0	0	0	0	0	0	0	0	0	0	0
193	0	0	0	0	0	0	0	0	0	0	0
203	0	0	0	0	0	0	0	0	0	0	0
213	0	0	0	0	0	0	0	0	0	0	0

THE ABOVE TABLE IS USED ONLY WITH BASIC PENDANT #277053 (113' TO 153' TOWER) & BASIC PENDANT #277054 (163' TOWER & OVER). WHEN USING OTHER LENGTH BASIC PENDANTS, INSERT/ PENDANT COMBINATIONS MUST BE CHANGED TO SUIT.

#23 BOOM - REQ'D FOR VARIOUS LENGTHS											
BOOM LENGTH	10 FT. INSERT	20 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT	40 FT. INSERT
SPECIAL ORDER ONLY	STANDARD	180136	180137	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280	48208-2 DWG. 76280
110	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0

BOOM INSERT 623532 CAN BE REPLACED BY 81013010

- NOTE 1
40' INSERT 623528 MUST BE USED ADJACENT TO BOOM BUTT
- NOTE 2
40' INSERT 623535 MUST BE USED ADJACENT TO TOWER CAP 48233.
- NOTE 3
INTERMEDIATE SUSPENSION REQUIRED FOR BOOM LENGTHS OF 110 FT. & OVER WITH INTERMEDIATE FALL #48208-9 & 130 FT. & OVER WITHOUT INTERMEDIATE FALL.
- NOTE 4
FOR ANY GIVEN BOOM LENGTH, THE MIN. LENGTH OF TOWER REQ'D. TO FOLD BOOM IS EQUAL TO THE LENGTH OF BOOM PLUS 13 FT.
- NOTE 5
PENDANT COMBINATIONS LISTED MUST BE ADHERED TO IN ORDER TO INSURE BACKWARD STABILITY OF BOOM.
- NOTE 6
FOR TOWER LENGTHS OF 173 FT. & OVER, 1-40 FT. INSERT 623526 IS REQ'D. TO ATTACH OUTSIDE ASSIST.
- NOTE 7
CAN BE USED WITH A MAX. ROPE DIA. OF 1" ON BOOMS OF 110 FT. AND OVER. SEE CHART FOR CAPACITIES AND OTHER LIMITATIONS.
- NOTE 8
IN VIEW "D" IF DIM. 15" 11 1/2" ADD SPACER 138256 TO OBTAIN 14 1/2" DIM.
- NOTE 9
STAMP REQ'D DATA ON #181503 AND INSTALL AFTER FINAL PAINTING.
- ATTACH LIFTING BKT TO JIB BACKSTAY LUGS WHEN RAISING BOOM WITH OUTSIDE ASSIST.

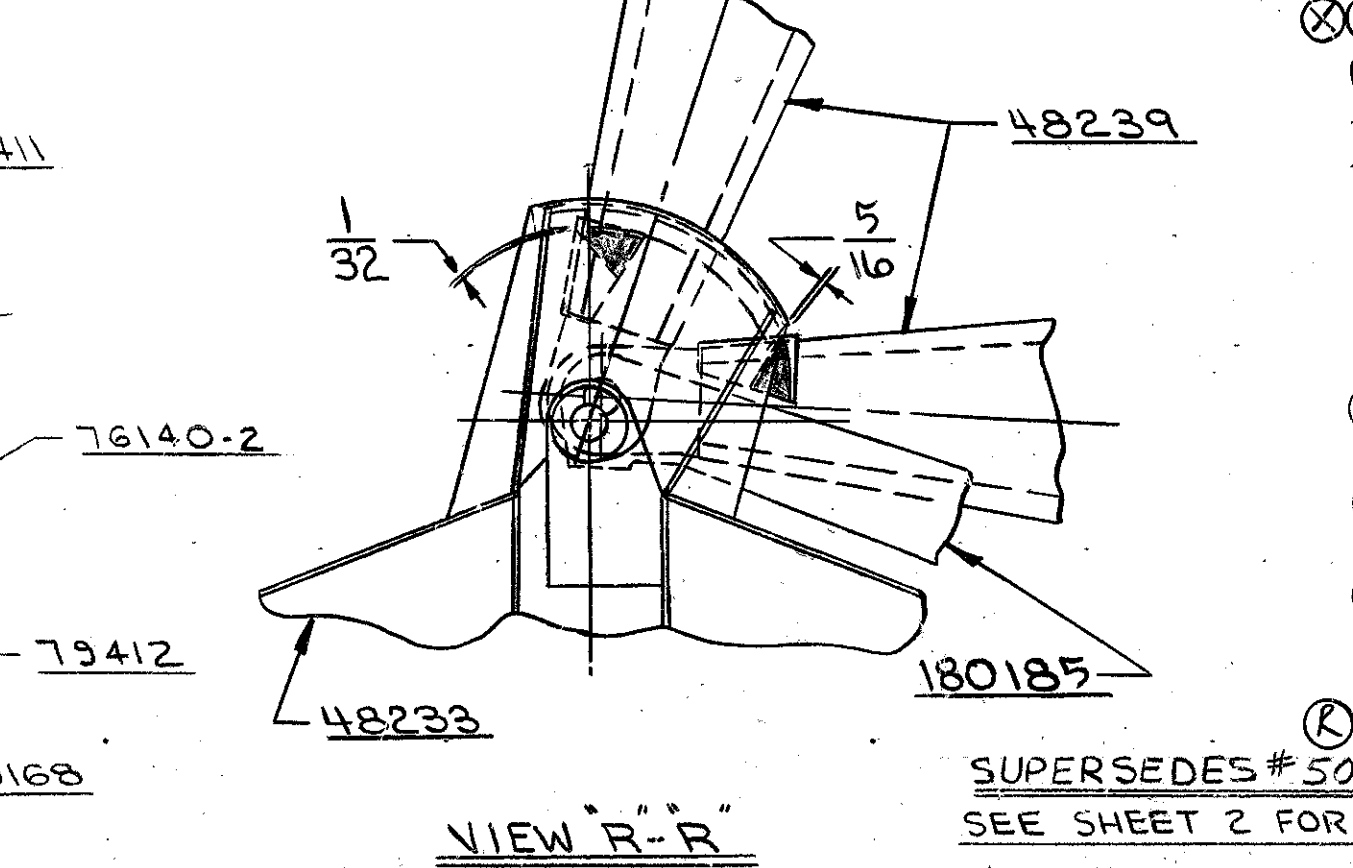
#23 BOOM - BASIC PARTS		
NO.	DWG.	DESCRIPTION
1	22656	BOOM SIGN
2	177560	BOOM TOP 23'-0"
4	48239	BOOM JOINT 27'-0" (FOR FITTING SEE VIEW R-R)
4	10366	BOOM JOINT PIN
1	75551	WIRE ROPE ROLLER GUIDE ASSY.
2	77812	PIN
2	79447	HINGE PIN
2	140060	LINK (2'-5 3/4")
1	91014	BOOM POINT SHAFT ASSY. 1 SHEAVE
1	91017	BOOM POINT SHAFT ASSY. 2 SHEAVES
1	180150	WIRE ROPE GUIDE ASSY.
2	22534	BALL BUSHING
2	76046	RETAINING PLATE
2	276860	BOOM STOP PENDANT (21'-9" DWG. 79152)
2	276912	BASIC PENDANT (87'-0" DWG. 79618)
2	276868	BASIC PENDANT (107'-0" DWG. 79618)
2	276868	BASIC PENDANT (110' BOOM) OVER

OPTIONAL SUB-ASSEMBLIES & PARTS

1	92046	WIRE ROPE ANCHOR JOINT ASSY. #23 BOOM
1	49240	INTERMEDIATE FALL FOR #23 BOOM (SEE NOTE 3)

INTERMEDIATE SUSPENSION PARTS (SEE NOTE 3)		
NO.	DWG.	DESCRIPTION
2	140059	LINK (3'-3 3/4")
2	79488	PIN
2	92023	PENDANT ATTACHMENT LUG
2	276877	PENDANT (10'-0" DWG. 76232) FOR 160' BOOM
2	276762	PENDANT (58'-8" DWG. 76232)
2	138722	TURNBUCKLE

ASSEMBLIES NOT SHOWN		
NO.	DWG.	DESCRIPTION
1	190171	AUTOMATIC BOOM STOP ASSY.
1	48296	TWIST INDICATOR ASSY. FOR #22 BOOM
1	49614	BOOM ANGLE INDICATOR ASSEM.



- #22 TOWER - BASIC PARTS
- | NO. | DWG. | DESCRIPTION |
|-----|---------|--------------------------------------|
| 1 | 181503 | BUILDERS PLATE |
| 2 | 420656 | 4" X 5/16" LG. TYPE 'U' DRIVE SCREW |
| 1 | 9386 | LIFTING BRACKET FOR 173 FT. OF TOWER |
| 1 | 562112 | COTTER PIN 1/4" X 4" |
| 2 | 1925 | END PLATE |
| 2 | 11413 | KEEPER PLATE |
| 2 | 12535 | WASHER |
| 2 | 13861 | BUSHING |
| 2 | 15031 | BUSHING |
| 2 | 17790 | WASHER |
| 2 | 18828 | RUBBER BUMPER |
| 2 | 33024 | WIRE ROPE GUIDE ASSY. |
| 2 | 163353 | BOOM HANDLING LINK |
| 1 | 33847 | HOLD BACK ASSY. |
| 1 | 48153-9 | BOOM BUTT 30'-0" |
| 1 | 160814 | GANTRY ASSY. |
| 1 | 48233 | TOWER CAP |
| 4 | 11176 | KEEPER PLATE |
| 2 | 11236 | WASHER |
| 2 | 11588 | PIN |
| 4 | 74697 | BUSHING |
| 4 | 76225 | PIN |
| 1 | 76066 | WIRE ROPE GUIDE ASSY. |
| 8 | 76095 | END PLATE |
| 1 | 76103 | WIRE ROPE ROLLER GUIDE ASSY. |
| 1 | 76130 | SHAFT |
| 2 | 76140-2 | STRUT PENDANT (11 FT. 11 LG.) |
| 2 | 78288 | SPACER |
| 4 | 76425 | BUSHING |
| 2 | 76998 | BOOM JOINT PIN |
| 2 | 77368 | PIN |
| 2 | 77824 | PIN |
| 2 | 78130 | END PLATE |
| 2 | 79299 | BOOM JOINT PIN |
| 1 | 79396 | LOWER SPREADER |
| 1 | 79397 | UPPER SPREADER |
| 2 | 79407 | PIN |
| 4 | 79411 | LINK |
| 2 | 79412 | LOWER STRAP (13' 11") |
| 2 | 79413 | UPPER STRAP (18' 2 1/2") |
| 4 | 79418 | BUSHING |
| 4 | 79640 | PIN |
| 2 | 79480 | LINK |
| 2 | 79420 | PIN |
| 2 | 79421 | PIN |
| 2 | 79469 | STRUT |
| 1 | 181735 | EQUALIZER ASSY. |
| 1 | 180166 | MAIN STRUT (17'-10") |
| 1 | 180167 | BOOM STRUT (21'-4") |
| 1 | 180168 | INTERMEDIATE STRUT (21'-0") |
| 1 | 180185 | BOOM CARRIER |
| 1 | 180195 | WIRE ROPE GUIDE ASSY. |
| 1 | 92954 | BOOM BACKSTAY |
| 1 | 66193 | TOWER BOOM LATCH ASSY. |

UNLESS NOTED MANITOWOC ENGINEERING CO. RIGGING ASSY. #22 TOWER & #23 BOOM

SCALE: 1" = 10' FRAC. DIM. 1/8" CS. HOLE DIA. 1/8" CS. HOLE CENTER

SHEET 1 OF 3 SHEETS

DATE: 2-7-73

50602

NOTE:
ADD WASHERS 7790 ON EACH
SIDE TO PREVENT SIDE PLAY OF
BOOM BUTT. MAX. SIDE PLAY
ALLOWED - 1/16"

NOTE:
OF THE SPLIT IN THE
OUTER RACE 225356
SHOULD BE PERPENDICULAR
TO Q OF 48239

NOTE:
ADD WASHERS 12535 ON EACH
SIDE TO PREVENT SIDE PLAY OF
180185. MAX. SIDE PLAY
ALLOWED - 1/16"

VIEW "C"

VIEW "F-F"

VIEW "Q"
EQUALIZER PINNED TO RAIL

VIEW "E"

VIEW "B-B"

VIEW "D"

VIEW "L"

VIEW "G-G"

VIEW "A-A"

VIEW "H"

NOTE:
HEAD OF PIN 77812 MUST
BE ON INSIDE OF 140060 (K)
(NEXT TO BOOM)

VIEW "M"

VIEW "K"

VIEW "J"

CONDITIONS BEFORE ERECTION PROCEDURE

1. THE AREA FOR SET-UP, OR THE SURFACE UPON WHICH THE UNIT WILL TRAVEL, MUST BE FIRM AND LEVEL.
2. THE UNITS CRAWLERS MUST BE IN THE EXTENDED POSITION.
3. THE UNIT MUST BE LEVELED WITH MATS USING THE CROSS LEVEL AT THE OPERATORS STATION.
4. THE MAXIMUM LENGTHS TO BE RAISED OVER THE FRONT, WITHOUT AN OUTSIDE ASSIST ARE:
(A) 163 FT. OF #22 TOWER AND 150 FT OF #23 BOOM.

REMOVING OR ADDING INSERTS (SEE VIEW "L")

5. KEEP BOOM HOIST LINE TIGHT AND INSERT PIN 77368 IN POSITION TO RETAIN SPREADER 79397. LOOSEN HOIST LINE AND CHANGE INSERTS.
6. AFTER CHANGING INSERTS, TIGHTEN HOIST LINE. REMOVE AND LOCK PIN 77368 IN BRACKETS ON MAIN STRUT 180166.

ERECTING TOWER AND BOOM

7. WITH BOOM TOP LATCHED TO TOWER AND GANTRY IN UP POSITION, RAISE TOWER WITH BOOM HOIST AND PIN TOWER BACKSTAYS TO CAB REAR. THE HOLD-BACK LINE FROM THE LEFT DRUM SHOULD BE KEPT MODERATELY TIGHT AS THE TOWER APPROACHES VERTICAL POSITION.
8. LOWER GANTRY TO DOWNWARD POSITION (SEE VIEW "H"):
(A) MAINTAIN LOAD ON BOOM RIGGING SUFFICIENT TO KEEP TENSION IN BACKHITCH LINKS;
(B) REMOVE GANTRY HOLD UP PINS;
(C) LOWER GANTRY BY SLACKING OFF BOOM HOIST LINE;
(D) PIN GANTRY HOLD-DOWN STRAPS TO COUNTERWEIGHT.
9. RELEASE BOOM TOP FROM TOWER BY PULLING LATCH LEVER ON TOWER BUTT DOWNWARD.

10. RAISE BOOM USING THE BOOM HOIST.

LOWERING TOWER AND BOOM

11. LOWER BOOM USING BOOM HOIST. (BOOM TOP WILL AUTOMATICALLY LATCH TO TOWER)
12. RAISE GANTRY TO UP POSITION:
(A) DISCONNECT HOLD-DOWN STRAPS FROM COUNTERWEIGHT
(B) RAISE GANTRY TO UP POSITION WITH BOOM RIGGING.
(C) HOLD GANTRY IN POSITION WITH BOOM RIGGING.
(D) REPLACE GANTRY HOLD UP PINS.
13. DISCONNECT TOWER BACKSTAYS FROM CAB REAR AND LOWER TOWER.

IMPORTANT NOTE:

REMOVE WIRE ROPE GUIDE ROLLERS & ROLLER SUPPORT FROM ASSY #181294 (H) AND ALSO REMOVE ADJUSTABLE ROD AND REACH ROD ON BOOM. STOR ASSEMBLY 48222 WHEN USING TOWER CRANE ATTACHMENT.

BOOM HANDLING INSTRUCTIONS - SEE VIEW "Q"			
ATTACHMENT ARRANGEMENT	GANTRY POSITION	MAX LG. OF BOOM HANDLED	BOOM LENGTH
EQUALIZER PINNED TO UPPER HOLE OF INSERT RAIL W/ BOOM HANDLING LINK (63353)	DOWN	110 FT.	2-40' INSERTS BUTT #
	UP	110 FT.	2-40' INSERTS BUTT #
EQUALIZER PINNED TO RAIL - FORWARD HOLE ON EQUALIZER AT UPPER HOLE ON RAIL			ONE 40 FT. INSERT IS THE MAX. LENGTH TO BE CANTILEVERED
EQUALIZER PINNED TO RAIL - FORWARD HOLE ON EQUALIZER AT LOWER HOLE ON RAIL			PROVIDES NECESSARY PENDANT SLACK FOR ASSEMBLING AND DISASSEMBLING.
			EQUALIZER WILL NORMALLY LAND AT THIS POSITION WHEN LOWERED ONTO THE BUTT.

