LAMINATED CAPACITY CHARTS

Model 4000W Ringer

Serial Number 10248

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LAMINATED CAPACITY CHARTS MANUAL INDEX
MODEL 4000W Ringer - SERIAL 10248

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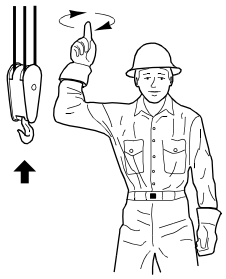
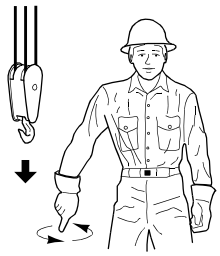
STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS

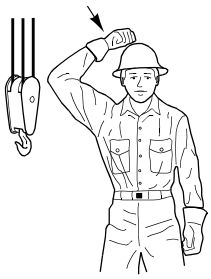
Complies with ASME/ANSI B30.5 — 1993



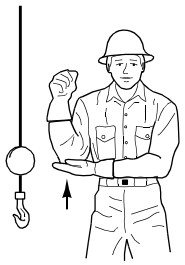
HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle.



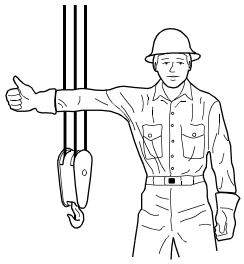
LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.



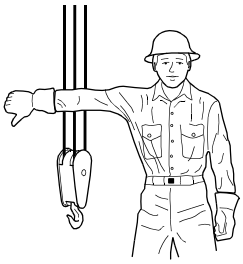
USE MAIN HOIST. Tap fist on head; then use regular signals.



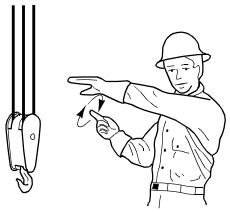
USE WHIPLINE. (Auxiliary Hoist.) Tap elbow with one hand; then use regular signals.



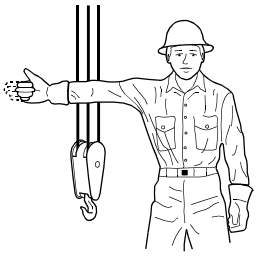
RAISE BOOM. Arm extended, finger closed, thumb pointing upward.



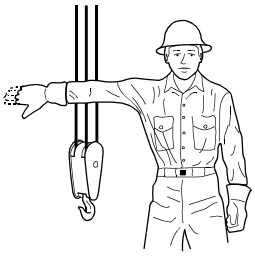
LOWER BOOM. Arm extended, fingers closed, thumb pointing downward.



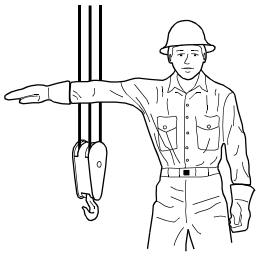
MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as an example.)



RAISE BOOM & LOWER LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.



LOWER BOOM & RAISE LOAD. With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.



SWING. Arm extended point with finger in direction of swing of boom.

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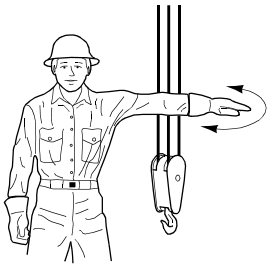
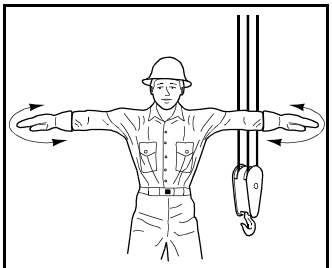
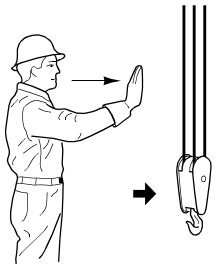
STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS



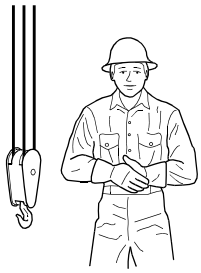
STOP. Arm extended, palm down, move arm back and forth horizontally.



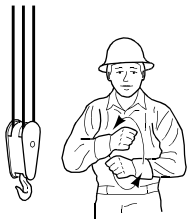
EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.



TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.

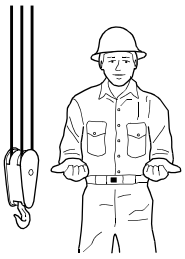


DOG EVERYTHING. Clasp hand in front of body.

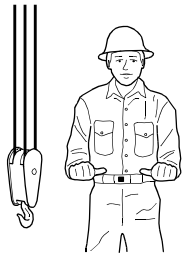


TRAVEL. (Both Tracks.) Use both fists in front of body, making a circular motion about each other, indicating direction of travel; forward or backward.

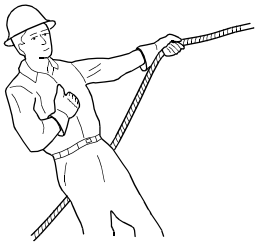
TRAVEL. (One Track.) Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body.



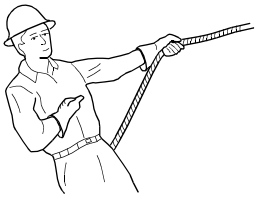
EXTEND BOOM. (Telescoping Booms.) Both fists in front of body with thumbs pointing outward.



RETRACT BOOM. (Telescoping Boom.) Both fists in front of body with thumbs pointing toward each other.



EXTEND BOOM. (Telescoping Boom.) One Hand Signal. One fist in front of chest with thumb tapping chest.



RETRACT BOOM. (Telescoping Boom.) One hand signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.

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GUIDE FOR DETERMINING TOTAL LOAD AND MAXIMUM WORKING RADIUS

Capacity charts for Manitowoc cranes show the total weight of freely-suspended loads for various boom/jib lengths and operating radii.

To determine the total weight of the load that can be lifted at a given radius, the operator must include the weight of certain lifting equipment, such as the following:

- Jib.
- Wire rope below boom and jib points.
- Load blocks and hook and weight balls below boom and jib points.
- Slings and other lifting equipment below boom and jib points.

This folio contains the following worksheets to assist qualified operator's in determining the total load to be lifted and the maximum working radius for that load.

Page	Worksheet[1]	Load Location
2	EXAMPLE	Lower Boom Point
3	A	Lower Boom Point
4	B	Upper Boom Point
5	C	Fixed Jib Point
6	D	Lower Luffing Jib Point
7	E	Lower Boom Point with Luffing Jib Attached
8	F	Tower Boom Point
9	G	Tower Intermediate Fall

1 Worksheets can be reproduced locally.

The work sheets provided in this folio are for standard lifting arrangements. What is and is not considered part of the total load can vary from one capacity chart to another and from one attachment to another. ***Read capacity chart in use to determine what is considered part of total load.*** If in doubt, contact your Manitowoc Distributor or the Service Department at the factory for assistance.

WARNING

Falling Load Hazard! Prevent crane from tipping or structural failure of attachment. Perform following steps prior to lifting any load:

1. Read capacity chart to determine what is considered part of total load.
2. Calculate total load to be lifted.
3. Do not exceed maximum working radius for total load to be lifted.

Example

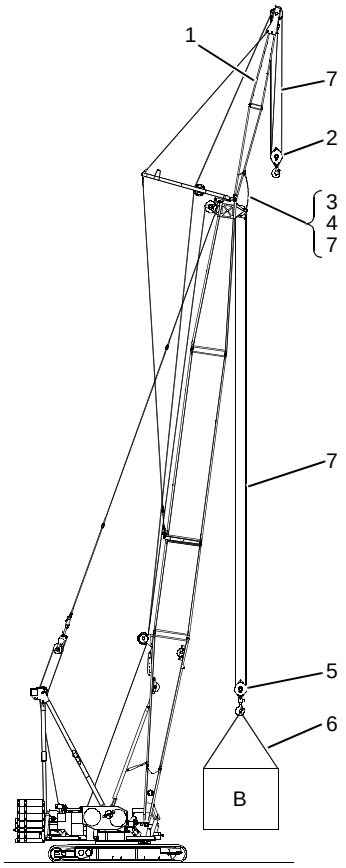
Determining Total Load and Maximum Working Radius From Lower Boom Point

For this example, an M-250 equipped as follows has been used:

- B30.5 Capacity Chart
- 130 ft of #44 Heavy Lift Boom
- 40 ft of #132 Jib
- 60 U.S. Ton Block with 4-Part Load Line Suspended 30 ft below Jib Point
- 100 U.S. Ton Block with 4-Part Load Line from Lower Boom Point (full block travel)
- 50,000 lb Load from Lower Boom Point
- 2.7 lb/ft Weight of Wire Rope.

Deduct from Capacities when Jib is Attached

Jib Length	Jib No. 132
40'	6,400 lbs
60'	(8,200 lbs) ← 1
80'	10,300 lbs
100'	12,800 lbs
120'	15,300 lbs



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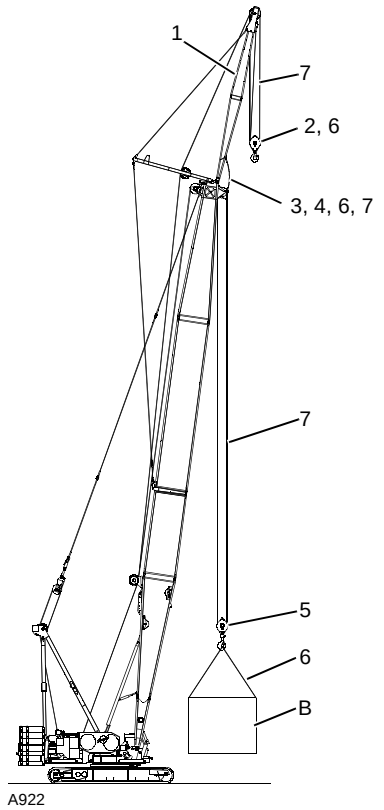
Boom Lgth. Feet	Oper. Rad. Feet	Boom Ang. Deg.	Boom Point Elev. Feet	Capacity Pounds
130	26	82.7	136.6	350,700*
	27	82.2	136.4	348,700*
	28	81.8	136.2	346,700*
	29	81.3	136.1	337,400
	30	80.9	135.9	378,300
	32	80.0	135.5	285,800
	34	79.1	135.1	259,100
	36	78.2	134.6	236,600
	38	77.3	134.2	217,600
	40	76.4	133.6	201,200
	42	75.4	133.1	186,900
	44	74.5	132.5	174,400
	46	73.6	131.9	163,300
	48	72.7	131.2	153,500
	50	71.7	130.5	144,600
	55	69.4	128.7	126,100
	60	67.0	126.5	111,300
	65	64.5	124.1	99,300
	70	62.1	121.5	89,400
	75	59.5	118.5	81,000
	80	56.9	115.3	73,800
	85	54.2	111.7	(67,600) ← D
	90	51.3	107.7	62,200
	95	48.4	103.3	57,400
	100	45.3	98.4	53,200
	105	42.0	92.9	49,400
	110	38.5	86.7	46,000
	115	34.7	79.7	42,900
	120	30.5	71.5	40,100
	125	25.6	61.5	37,600

DESCRIPTION		WEIGHT (lb)
Component Weights		
1	Jib *(see "Deduct From Capacities When Jib is Attached" table on capacity chart)*	6,400
2	Load Block/Hook and Weight Ball *(below jib point)*	2,825
3	Upper Boom Point *(from capacity chart if noted)*	Does Not Apply
4	Load Block/Hook and Weight Ball *(below upper boom point if attached)*	Does Not Apply
5	Load Block/Hook and Weight Ball *(below lower boom point)*	4,800
6	Total Weight of Slings and Other Lifting Equipment Below Jib Point, Upper Boom Point, and Lower Boom Point	700
7	Total Weight of Wire Rope Below Jib Point, Upper Boom Point, and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope per ft)*	1,728
Totals		
A	Total Component Weights (*ADD items 1 – 7 above*)	16,223
B	Weight of Load to be Lifted.	50,000
C	Total Load to be Lifted *(ADD A and B above)*	66,223
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*	85 ft

Worksheet A — For Determining Total Load and Maximum Working Radius From Lower Boom Point

DESCRIPTION		WEIGHT
Component Weights		
1	Jib *(see "Deduct From Capacities When Jib is Attached" table on capacity chart)*	_____
2	Load Block/Hook and Weight Ball *(below jib point)*	_____
3	Upper Boom Point *(from capacity chart if noted)*.	_____
4	Load Block/Hook and Weight Ball *(below upper boom point if attached)*.	_____
5	Load Block/Hook and Weight Ball *(below lower boom point)*.	_____
6	Total Weight of Slings and Other Lifting Equipment Below Jib Point, Upper Boom Point, and Lower Boom Point	_____
7	Total Weight of Wire Rope Below Jib Point, Upper Boom Point, and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
Totals		
A	Total Component Weights *(ADD items 1 – 7 above)*	_____
B	Weight of Load to be Lifted	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*	_____

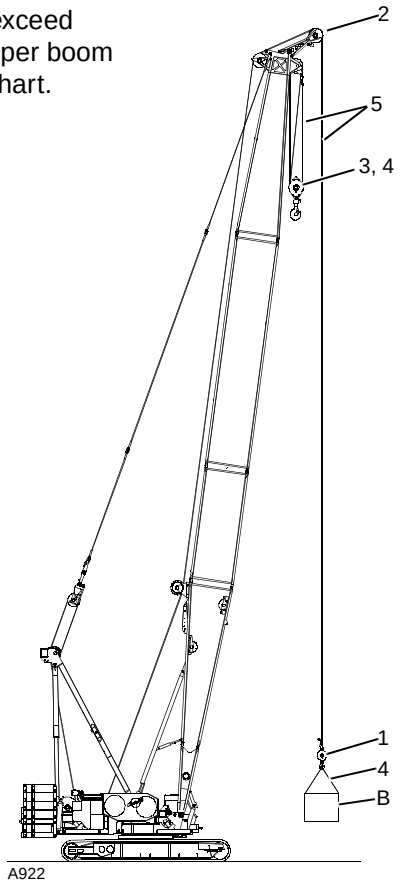


Worksheet B

For Determining Total Load and Maximum Working Radius From Upper Boom Point

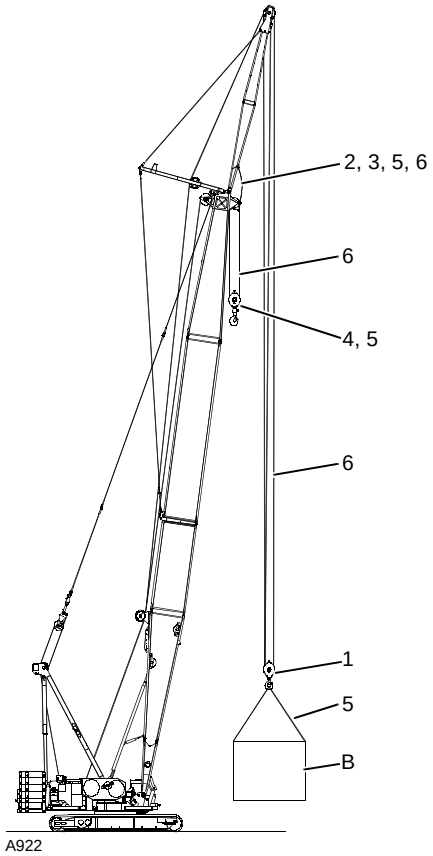
DESCRIPTION		WEIGHT
Component Weights		
1	Load Block/Hook and Weight Ball *(below upper boom point)*	_____
2	Upper Boom Point *(from capacity chart if noted)*	_____
3	Load Block/Hook and Weight Ball *(below lower boom point)*	_____
4	Total Weight of Slings and Other Lifting Equipment Below Upper Boom Point and Lower Boom Point	_____
5	Total Weight of Wire Rope Below Upper Boom Point and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
Totals		
A	Total Component Weights *(ADD items 1-5 above)*	_____
B	Weight of Load to be Lifted.	_____
C	Total Load to be Lifted *(ADD A and B above)* see NOTE 1	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above – see correct capacity chart)*	_____

Note 1: Total load to be lifted must not exceed maximum structural rating of upper boom point as specified on capacity chart.



Worksheet C — For Determining Total Load and Maximum Working Radius From Fixed Jib Point

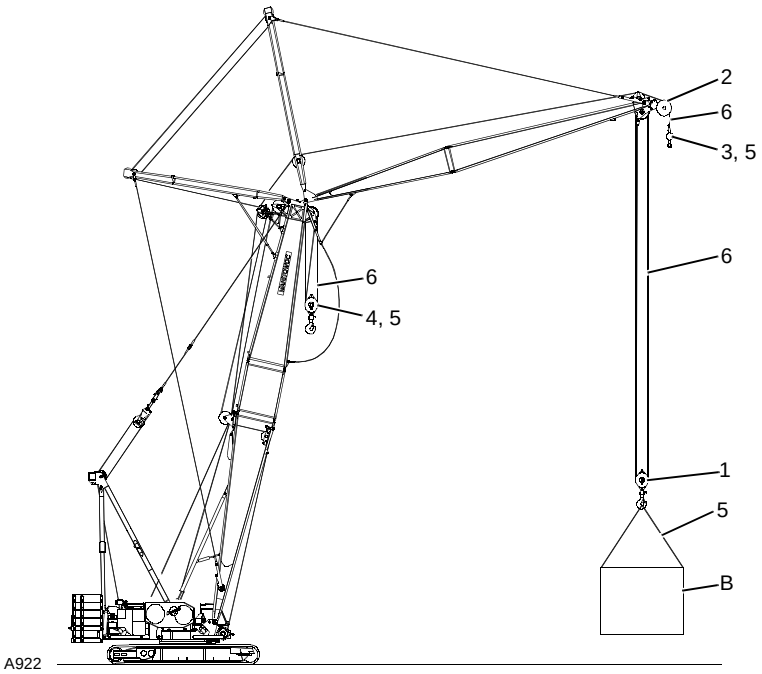
DESCRIPTION		WEIGHT
Component Weights		
1	Load Block/Hook and Weight Ball *(below jib point)*	_____
2	Upper Boom Point *(from capacity chart if noted)*.	_____
3	Load Block/Hook and Weight Ball *(below upper boom point if attached)*.	_____
4	Load Block/Hook and Weight Ball *(below lower boom point)*.	_____
5	Total Weight of Slings and Other Lifting Equipment Below Jib Point, Upper Boom Point, and Lower Boom Point	_____
6	Total Weight of Wire Rope Below Jib Point, Upper Boom Point, and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
Totals		
A	Total Component Weights *(ADD items 1-6 above)*.	_____
B	Weight of Load to be Lifted	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*	_____



Worksheet D — For Determining Total Load and Maximum Working Radius From Lower Luffing Jib Point

	DESCRIPTION	WEIGHT
	Component Weights	
1	Load Block/Hook and Weight Ball *(below lower luffing jib point)*	_____
2	Upper Luffing Jib Point *(from capacity chart if noted)*	_____
3	Load Block/Hook and Weight Ball *(below upper luffing jib point if attached)*	_____
4	Load Block/Hook and Weight Ball *(below lower boom point)* see Note 1	_____
5	Total Weight of Slings and Other Lifting Equipment Below Lower Luffing Jib Point, Upper Luffing Jib Point, and Lower Boom Point	_____
6	Total Weight of Wire Rope Below Lower Luffing Jib Point, Upper Luffing Jib Point, and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
	Totals	
A	Total Component Weights *(ADD items 1-6 above)*	_____
B	Weight of Load to be Lifted.	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*.	_____

Note 1: Depending on jib length, some of the lower boom point sheaves may have to be removed. *Refer to capacity chart for detailed information.*



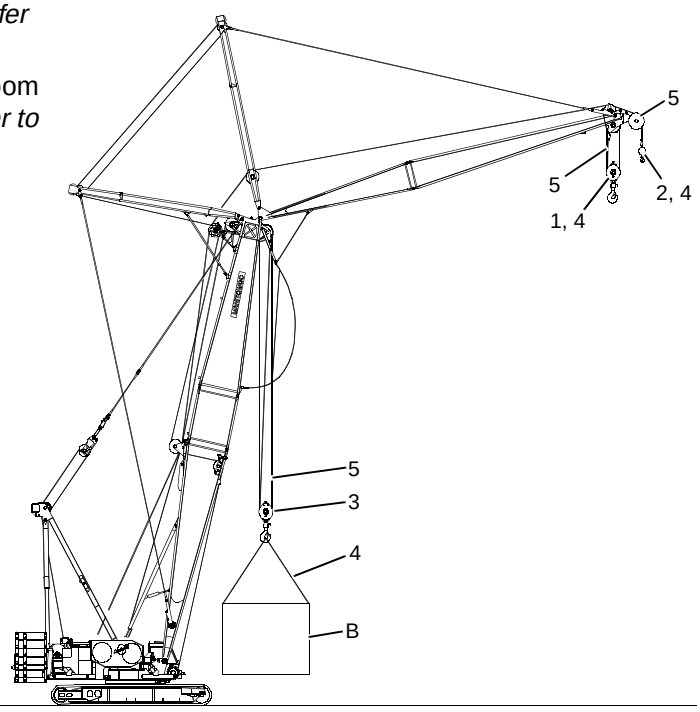
Worksheet E

For Determining Total Load and Maximum Working Radius From Lower Boom Point with Luffing Jib Attached (see Note 1)

DESCRIPTION		WEIGHT
Component Weights		
1	Load Block/Hook and Weight Ball *(below lower luffing jib point)* see Note 1	_____
2	Load Block/Hook and Weight Ball *(below upper luffing jib point)* see Note 1	_____
3	Load Block/Hook and Weight Ball *(below lower boom point)* see Note 2.	_____
4	Total Weight of Slings and Other Lifting Equipment Below Lower Luffing Jib Point, Upper Luffing Point, and Lower Boom Point.	_____
5	Total Weight of Wire Rope Below Lower Luffing Jib Point, Upper Luffing Point, and Lower Boom Point *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*.	_____
Totals		
A	Total Component Weights *(ADD items 1-5 above)*.	_____
B	Weight of Load to be Lifted	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*	_____

Note 1: Weight of luffing jib and a certain amount of weight below the lower luffing jib point have been included in the boom capacity determination and do not have to be added to the total load. *Refer to capacity chart for detailed information.*

Note 2: Depending on jib length, some of the lower boom point sheaves may have to be removed. *Refer to capacity chart for detailed information.*



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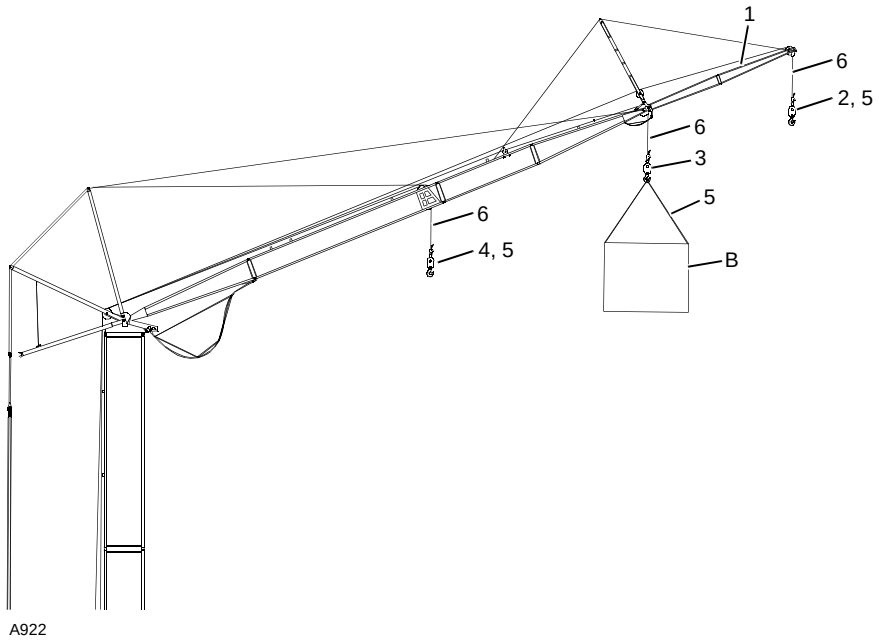
Worksheet F

For Determining Total Load and Maximum Working Radius From Tower Boom Point

DESCRIPTION		WEIGHT
Component Weights		
1	Jib *(see "Deduct From Capacities When Jib is Attached" table on capacity chart)*	_____
2	Load Block/Hook and Weight Ball *(below jib point)*	_____
3	Load Block/Hook and Weight Ball *(below boom point)*	_____
4	Load Block/Hook and Weight Ball *(below intermediate fall)*	_____
5	Total Weight of Slings and Other Lifting Equipment Below Jib Point, Boom Point, and Intermediate Fall	_____
6	Total Weight of Wire Rope Below Jib Point, Boom Point, and Intermediate Fall *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
Totals		
A	Total Component Weights *(ADD items 1-6 above)*	_____
B	Weight of Load to be Lifted.	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*.	_____

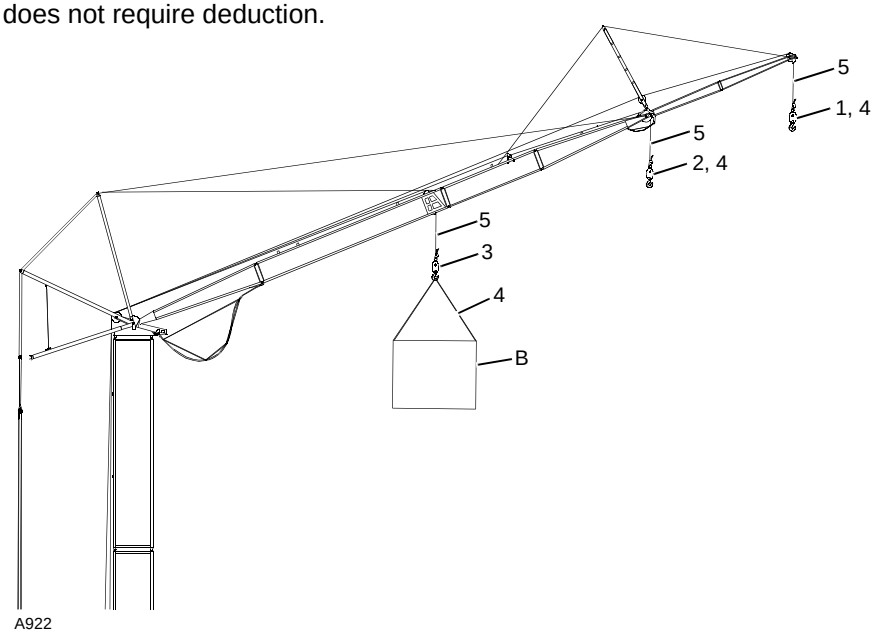


Worksheet G

For Determining Total Load and Maximum Working Radius From Tower Intermediate Fall (see Note 1)

DESCRIPTION		WEIGHT
Component Weights		
1	Load Block/Hook and Weight Ball *(below jib point)* (see Note 1)	_____
2	Load Block/Hook and Weight Ball *(below boom point)*	_____
3	Load Block/Hook and Weight Ball *(below intermediate fall)*	_____
4	Total Weight of Slings and Other Lifting Equipment Below Jib Point, Boom Point, and Intermediate Fall	_____
5	Total Weight of Wire Rope Below Jib Point, Boom Point, and Intermediate Fall *(see Load Line or Wire Rope Specifications Chart for weight of wire rope)*	_____
Totals		
A	Total Component Weights *(ADD items 1-5 above)*	_____
B	Weight of Load to be Lifted	_____
C	Total Load to be Lifted *(ADD A and B above)*	_____
D	Maximum Working Radius *(for Total Load to be Lifted from C above — see correct capacity chart)*	_____

Note 1: Weight of jib has been included in the capacity determination and does not require deduction.



CRAWLER BLOCKING DIAGRAM

All Crawler Mounted Cranes

WARNING

READ CAPACITY CHARTS!

Do not attempt to operate crane without first reading and understanding capacity charts.

Crane must be rigged, blocked, and operated according to instructions given in capacity charts.

All operations must be performed with crane level as specified in capacity charts; otherwise crane could tip.

Failing to comply with capacity charts can result in tipping or structural failure of boom, boom and fixed jib, tower attachment, or luffing jib attachment.

Death or serious injury to personnel can result.

Figure 1 shows proper blocking of the crawlers for the following operating conditions:

- Raising and lowering booms, boom and fixed jibs, tower attachments, and luffing jib attachments which require increased stability as stated on the capacity chart.
- Capacity chart ratings which require front of crawlers to be blocked (limited swing).
- Capacity chart ratings which require front ***and*** rear of crawlers to be blocked (360° rating).

Hardwood or steel blocking must provide even support, equal to the width of crawler pads under the centerline of the crawler rollers and/or the tumblers. ***Blocking must be thick enough to maintain dimensions given in table even after ground and blocking are compacted.***

The blocking ensures that the centerline of the crawler rollers or the tumblers becomes the tipping fulcrum.

CAUTION

Crawler Damage!

DO NOT extend blocking into area of intermediate rollers. Damage to crawler components may result.

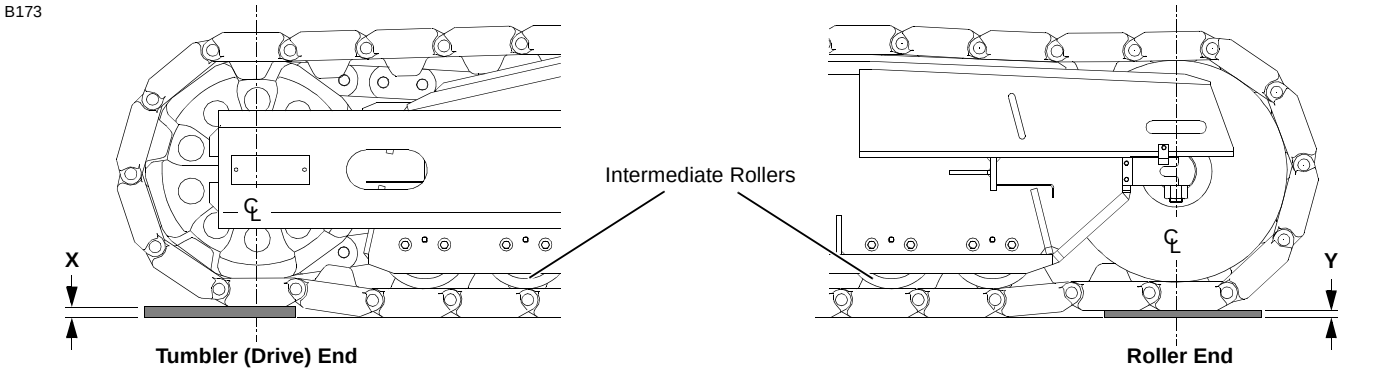


FIGURE 1

Model	Blocking Dimensions				Notes
	X Tumbler (Drive) End		Y Roller End		
	inches	mm	inches	mm	
M-50W	1-1/2	38.10	1-3/8	34.93	
M-65W	1-1/4	31.75	1-1/4	31.75	
M-80W	1-1/2	38.10	1-1/4	31.75	
M-85W	1-1/2	38.10	1-1/4	31.75	
111	1/2	12.70	1/2	12.70	
222	1-1/2	38.10	1-1/2	38.10	
M-250, S2	1-1/4	31.75	1/2	12.70	
555	1-1/4	31.75	1-1/4	31.75	
777	1-1/2	38.10	3/4	19.05	4
777	1	25.40	1/4	6.35	5
888 S1, S2	1-1/8	28.58	1/2	12.70	
999	1	25.40	1/2	12.70	
1015	1/4	6.35	7/8	22.22	
2250	1	25.40	1/2	12.70	
2900WC	3/4	19.05	3/4	19.05	1
2900WC	1	25.40	1	25.40	2
3000W	1/4	6.35	1	25.40	3
3900	1/4	6.35	1/2	12.70	4, 5
3900W	1/4	6.35	1/2	12.70	6
3950D	1/4	6.35	3/4	19.05	
3950W	1/4	6.35	3/4	19.05	
4000	1/2	12.70	3/4	19.05	
4000W	1/4	6.35	1/2	12.70	
4100W S1, S2	5/8	15.88	1/2	12.70	
4600	5/8	15.88	5/8	15.88	
4600 S3	5/8	15.88	5/8	15.88	
4600 S4, S5	5/8	15.88	5/8	15.88	
6000W	1	25.40	1-1/4	31.75	
6000 S2	1	25.40	1-1/4	31.75	
7000	1	25.40	1-1/4	31.75	
18000	2-7/8	73.02	2-5/8	66.67	
21000	1-1/4	31.75	Not Applicable		

NOTES:

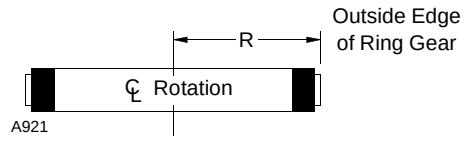
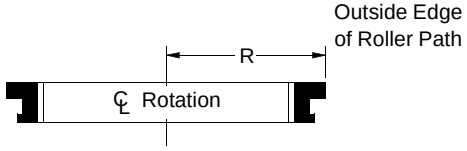
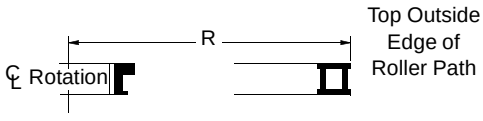
1. 30" Crawler pads
2. 36" Crawler pads
3. 33" Crawler pads
4 38" Crawler pads
5. 48" Crawler pads
6. 24' or 27' Crawlers

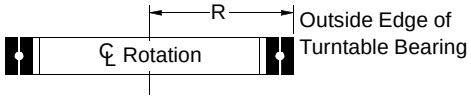
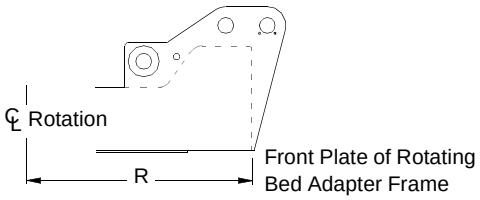
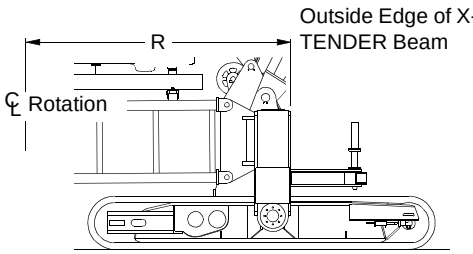
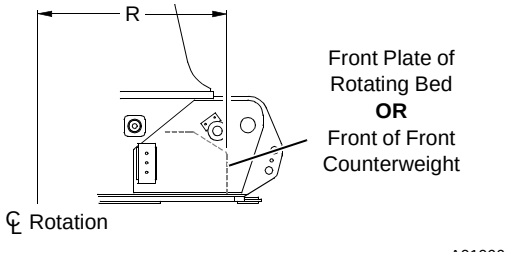
OPERATING RADIUS

OPERATING RADIUS is the horizontal distance from the crane's centerline of rotation to the center of the freely suspended load line or load block.

The centerline of rotation is difficult to locate. Therefore, deduct the radius (**R**) given in the table from the operating radius given on the capacity chart. Then measure from the point indicated in the appropriate illustration to the center of the load line or load block.

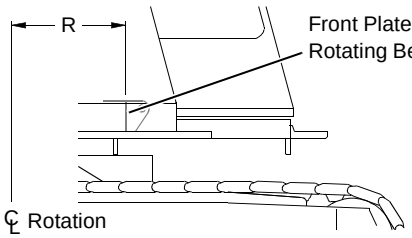
This practice will eliminate the need to find the crane's centerline of rotation when measuring operating radius.

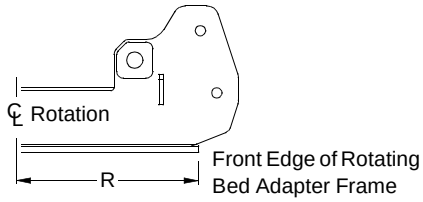
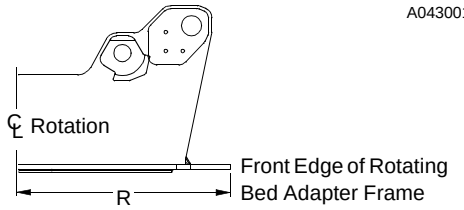
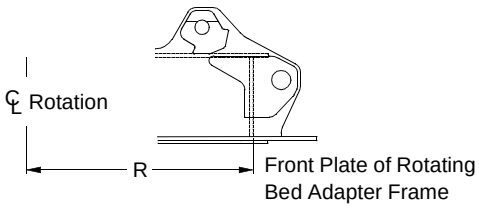
Model	Radius		Identification
	ft-in.	meters	
2000 2300	2-7	0.79	
3000 3000W 3600	3-2	0.96	
888	4-6	1.37	
2900T 2900WC	3-7	1.09	
3900 3900T 3900W or WT 3950D 3950W or WT 4000 4000W	4-5	1.35	
4100W	4-6	1.37	
4600 S-1, 2, 3	5-6	1.68	
4600 S-4, 5 6000W 6000 S-2 6400	5-7	1.70	
4000W RINGER® 4100W RINGER 36' P.R.	18-1	5.51	
7000	18-4	5.59	
4600 RINGERS 60' P.R.	30-0	9.14	
M-1200 RINGER	30-2	9.19	
888 RINGER	22-7	6.88	

Model	Radius ft-in.	Radius meters	Identification
M-50W	2-4	0.71	
M-80W	2-9	0.84	
M-65SC M-65T M-65W M-85T M-85W 111 222 222 Wagon	2-8	0.81	
M-250 2250	6-1	1.85	
4100W S-2 X-TENDER™ S-2	67-4	20.52	
555	4-7 [1] **OR** 5-4 [2]	1.40 [1] **OR** 1.63 [2]	

[1] Without front counterweight (cranes with free fall on both drums).

[2] With front counterweight (cranes with free fall on both drums)

777 777T	3-11	1.19	A967
999	4-11	1.50	

Model	Radius		Identification
	ft-in.	meters	
1015	4-6	1.37	
18000	6-1	1.85	A043001 
21000	4-8	1.42	

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	80	90	100	110	120	130	140	150	160	170	
28	600,000*										28
30	587,100	585,000									30
32	507,600	506,700	506,000								32
34	446,800	445,800	445,300	444,300	444,100						34
36	398,700	397,700	397,200	396,200	396,000	395,100					36
38	359,700	358,800	358,200	357,300	357,100	356,100	355,500				38
40	326,500*	326,500	326,000	325,100	324,800	323,900	323,300	322,400	322,100		40
45	257,300*	263,800*	265,500	264,600	264,400	263,500	262,900	262,000	261,600	258,900*	45
50	210,300*	215,600*	221,300*	222,400	222,200	221,300	220,700	219,800	219,400	217,700*	50
55	176,200*	180,800*	185,500*	188,700*	191,100	190,200	189,600	188,700	188,300	187,000*	55
60	150,400*	154,400*	158,600*	161,300*	164,900*	166,000*	165,400*	164,800	164,400	163,300*	60
65	130,000*	133,800*	137,500*	139,800*	143,000*	145,000*	145,900*	145,700*	145,500	144,300*	65
70	113,600*	117,200*	120,500*	122,700*	125,500*	127,200*	128,700*	129,800*	129,800*	128,700*	70
75	99,900*	103,400*	106,600*	108,600*	111,200*	112,600*	114,000*	115,300*	116,600*	115,700*	75
80	88,300*	91,900*	94,900*	96,800*	99,200*	100,500*	101,700*	102,800*	104,200*	104,600*	80
85	78,200*	81,900*	85,000*	86,800*	89,100*	90,200*	91,300*	92,200*	93,500*	93,900*	85
90		73,200*	76,400*	78,100*	80,400*	81,400*	82,500*	83,200*	84,400*	84,700*	90
95		65,400*	68,800*	70,600*	72,800*	73,800*	74,800*	75,400*	76,500*	76,700*	95
100			62,000*	63,900*	66,100*	67,100*	68,000*	68,600*	69,600*	69,800*	100
105			55,800*	58,000*	60,200*	61,100*	62,000*	62,600*	63,500*	63,700*	105
110				52,500*	54,800*	55,800*	56,700*	57,200*	58,100*	58,200*	110
115				47,500*	50,000*	51,000*	52,000*	52,400*	53,300*	53,400*	115
120					45,500*	46,600*	47,600*	48,100*	48,900*	49,000*	120
125					41,300*	42,600*	43,700*	44,100*	45,000*	45,000*	125
130						38,900*	40,000*	40,500*	41,400*	41,400*	130
135						35,300*	36,700*	37,200*	38,100*	38,100*	135
140							33,500*	34,100*	35,000*	35,100*	140
145								31,200*	32,200*	32,300*	145
150								28,500*	29,500*	29,700*	150
155									27,000*	27,200*	155
160									24,600*	24,900*	160
165										22,700*	165
170										20,600*	170

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 85% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6416, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK.

MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-A1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	180	190	200	210	220	230	240	250	260	270	
45	257,600*	256,300*	253,100*								45
50	216,500*	215,400*	213,100*	210,200*	207,300*	206,400*	204,000*				50
55	186,100*	185,000*	183,200*	180,700*	178,600*	177,600*	175,500*	173,000*	172,600*	170,000*	55
60	162,500*	161,500*	160,100*	158,000*	156,200*	155,200*	153,400*	151,400*	150,700*	148,600*	60
65	143,600*	142,700*	141,500*	139,800*	138,200*	137,200*	135,700*	133,800*	133,200*	131,300*	65
70	128,100*	127,300*	126,300*	124,800*	123,400*	122,500*	121,200*	119,500*	118,800*	117,100*	70
75	115,200*	114,400*	113,600*	112,200*	111,000*	110,100*	109,000*	107,500*	106,800*	105,200*	75
80	104,200*	103,500*	102,800*	101,600*	100,500*	99,600*	98,700*	97,200*	96,600*	95,000*	80
85	94,700*	94,100*	93,500*	92,400*	91,400*	90,600*	89,700*	88,400*	87,700*	86,300*	85
90	85,400*	85,800*	85,400*	84,400*	83,500*	82,700*	81,800*	80,600*	80,000*	78,700*	90
95	77,300*	77,600*	78,100*	77,300*	76,500*	75,700*	75,000*	73,800*	73,200*	72,000*	95
100	70,300*	70,500*	70,900*	70,800*	70,300*	69,500*	68,900*	67,800*	67,200*	66,000*	100
105	64,100*	64,200*	64,600*	64,500*	64,500*	64,000*	63,400*	62,400*	61,800*	60,600*	105
110	58,600*	58,700*	59,000*	58,800*	58,800*	58,700*	58,500*	57,500*	56,900*	55,800*	110
115	53,700*	53,700*	54,000*	53,800*	53,800*	53,600*	53,700*	53,100*	52,500*	51,500*	115
120	49,300*	49,300*	49,600*	49,300*	49,200*	49,000*	49,100*	48,700*	48,500*	47,500*	120
125	45,300*	45,200*	45,500*	45,300*	45,200*	44,900*	44,900*	44,500*	44,500*	43,900*	125
130	41,700*	41,600*	41,800*	41,600*	41,400*	41,200*	41,200*	40,800*	40,600*	40,200*	130
135	38,400*	38,300*	38,500*	38,200*	38,100*	37,800*	37,800*	37,300*	37,100*	36,600*	135
140	35,300*	35,200*	35,400*	35,100*	35,000*	34,700*	34,600*	34,200*	34,000*	33,500*	140
145	32,500*	32,400*	32,600*	32,300*	32,200*	31,800*	31,800*	31,300*	31,100*	30,500*	145
150	29,900*	29,800*	30,000*	29,700*	29,500*	29,200*	29,100*	28,600*	28,400*	27,800*	150
155	27,500*	27,400*	27,600*	27,300*	27,100*	26,700*	26,700*	26,200*	25,900*	25,400*	155
160	25,200*	25,100*	25,400*	25,000*	24,900*	24,500*	24,400*	23,900*	23,600*	23,100*	160
165	23,100*	23,000*	23,300*	23,000*	22,800*	22,400*	22,300*	21,800*	21,500*	20,900*	165
170	21,100*	21,000*	21,300*	21,000*	20,800*	20,400*	20,300*	19,800*	19,500*	18,900*	170
175	19,100*	19,100*	19,400*	19,100*	19,000*	18,600*	18,500*	18,000*	17,700*	17,100*	175
180	17,200*	17,300*	17,700*	17,400*	17,300*	16,800*	16,800*	16,300*	15,900*	15,300*	180
185		15,600*	16,000*	15,800*	15,600*	15,200*	15,100*	14,600*	14,300*	13,700*	185
190			14,400*	14,200*	14,100*	13,700*	13,600*	13,100*	12,800*	12,200*	190
195			12,800*	12,700*	12,600*	12,200*	12,200*	11,700*	11,300*	10,700*	195
200				11,300*	11,200*	10,800*	10,800*	10,300*	9,900*	9,400*	200

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 85% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

MAXIMUM BOOM AND JIB LENGTHS LIFTED UNASSISTED		DEDUCT FROM CAPACITIES WHEN JIB IS ATTACHED	
BM. LGTH.	JIB #123	JIB LGTH.	JIB #123
270'	---	30'	3,000#
260'	---	40'	3,600#
250'	60'	50'	4,200#
		60'	4,900#

LOAD BLOCK, HOOK & WEIGHT BALL ON GROUND AT START.

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6416, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

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DJK
REV. 2/2/77
DRWG. #6269-A1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP OFFSET 4-1/2 DEGREES

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	80	90	100	110	120	130	140	150	160	170	
28	402,700*										28
30	390,800*	390,000*									30
32	379,700*	382,000*	385,600*								32
34	369,500*	372,000*	375,500*	385,000*	395,700*						34
36	360,000*	363,000*	366,000*	375,000*	385,700*	379,800*					36
38	351,100*	354,000*	357,000*	357,300	357,100	356,100	355,500				38
40	326,500*	326,500	326,000	325,100	324,800	323,900	323,300	322,400	322,100		40
45	257,300*	263,800*	265,500	264,600	264,400	263,500	262,900	262,000	261,600	258,900*	45
50	210,300*	215,600*	221,300*	222,400	222,200	221,300	220,700	219,800	219,400	217,700*	50
55	176,200*	180,800*	185,500*	188,700*	191,100	190,200	189,600	188,700	188,300	187,000*	55
60	150,400*	154,400*	158,600*	161,300*	164,900*	166,000*	165,400*	164,800	164,400	163,300*	60
65	130,000*	133,800*	137,500*	139,800*	143,000*	145,000*	145,900*	145,700*	145,500	144,300*	65
70	113,600*	117,200*	120,500*	122,700*	125,500*	127,200*	128,700*	129,800*	129,800*	128,700*	70
75	99,900*	103,400*	106,600*	108,600*	111,200*	112,600*	114,000*	115,300*	116,600*	115,700*	75
80	88,300*	91,900*	94,900*	96,800*	99,200*	100,500*	101,700*	102,800*	104,200*	104,600*	80
85	78,200*	81,900*	85,000*	86,800*	89,100*	90,200*	91,300*	92,200*	93,500*	93,900*	85
90	68,900*	73,200*	76,400*	78,100*	80,400*	81,400*	82,500*	83,200*	84,400*	84,700*	90
95		65,400*	68,800*	70,600*	72,800*	73,800*	74,800*	75,400*	76,500*	76,700*	95
100		58,200*	62,000*	63,900*	66,100*	67,100*	68,000*	68,600*	69,600*	69,800*	100
105			55,800*	58,000*	60,200*	61,100*	62,000*	62,600*	63,500*	63,700*	105
110				52,500*	54,800*	55,800*	56,700*	57,200*	58,100*	58,200*	110
115				47,500*	50,000*	51,000*	52,000*	52,400*	53,300*	53,400*	115
120					45,500*	46,600*	47,600*	48,100*	48,900*	49,000*	120
125					41,300*	42,600*	43,700*	44,100*	45,000*	45,000*	125
130						38,900*	40,000*	40,500*	41,400*	41,400*	130
135						35,300*	36,700*	37,200*	38,100*	38,100*	135
140							33,500*	34,100*	35,000*	35,100*	140
145							30,400*	31,200*	32,200*	32,300*	145
150								28,500*	29,500*	29,700*	150
155									27,000*	27,200*	155
160									24,600*	24,900*	160
165										22,700*	165
170										20,600*	170

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 85% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6417, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK.

MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-B1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP OFFSET 4-1/2 DEGREES

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	180	190	200	210	220	230	240	250	260	270	
45	257,600*	256,300*	253,100*								45
50	216,500*	215,400*	213,100*	210,200*	207,300*	206,400*	204,000*				50
55	186,100*	185,000*	183,200*	180,700*	178,600*	177,600*	175,500*	173,000*	172,600*	170,000*	55
60	162,500*	161,500*	160,100*	158,000*	156,200*	155,200*	153,400*	151,400*	150,700*	148,600*	60
65	143,600*	142,700*	141,500*	139,800*	138,200*	137,200*	135,700*	133,800*	133,200*	131,300*	65
70	128,100*	127,300*	126,300*	124,800*	123,400*	122,500*	121,200*	119,500*	118,800*	117,100*	70
75	115,200*	114,400*	113,600*	112,200*	111,000*	110,100*	109,000*	107,500*	106,800*	105,200*	75
80	104,200*	103,500*	102,800*	101,600*	100,500*	99,600*	98,700*	97,200*	96,600*	95,000*	80
85	94,700*	94,100*	93,500*	92,400*	91,400*	90,600*	89,700*	88,400*	87,700*	86,300*	85
90	85,400*	85,800*	85,400*	84,400*	83,500*	82,700*	81,800*	80,600*	80,000*	78,700*	90
95	77,300*	77,600*	78,100*	77,300*	76,500*	75,700*	75,000*	73,800*	73,200*	72,000*	95
100	70,300*	70,500*	70,900*	70,800*	70,300*	69,500*	68,900*	67,800*	67,200*	66,000*	100
105	64,100*	64,200*	64,600*	64,500*	64,500*	64,000*	63,400*	62,400*	61,800*	60,600*	105
110	58,600*	58,700*	59,000*	58,800*	58,800*	58,700*	58,500*	57,500*	56,900*	55,800*	110
115	53,700*	53,700*	54,000*	53,800*	53,800*	53,600*	53,700*	53,100*	52,500*	51,500*	115
120	49,300*	49,300*	49,600*	49,300*	49,200*	49,000*	49,100*	48,700*	48,500*	47,500*	120
125	45,300*	45,200*	45,500*	45,300*	45,200*	44,900*	44,900*	44,500*	44,500*	43,900*	125
130	41,700*	41,600*	41,800*	41,600*	41,400*	41,200*	41,200*	40,800*	40,600*	40,200*	130
135	38,400*	38,300*	38,500*	38,200*	38,100*	37,800*	37,800*	37,300*	37,100*	36,600*	135
140	35,300*	35,200*	35,400*	35,100*	35,000*	34,700*	34,600*	34,200*	34,000*	33,500*	140
145	32,500*	32,400*	32,600*	32,300*	32,200*	31,800*	31,800*	31,300*	31,100*	30,500*	145
150	29,900*	29,800*	30,000*	29,700*	29,500*	29,200*	29,100*	28,600*	28,400*	27,800*	150
155	27,500*	27,400*	27,600*	27,300*	27,100*	26,700*	26,700*	26,200*	25,900*	25,400*	155
160	25,200*	25,100*	25,400*	25,000*	24,900*	24,500*	24,400*	23,900*	23,600*	23,100*	160
165	23,100*	23,000*	23,300*	23,000*	22,800*	22,400*	22,300*	21,800*	21,500*	20,900*	165
170	21,100*	21,000*	21,300*	21,000*	20,800*	20,400*	20,300*	19,800*	19,500*	18,900*	170
175	19,100*	19,100*	19,400*	19,100*	19,000*	18,600*	18,500*	18,000*	17,700*	17,100*	175
180	17,200*	17,300*	17,700*	17,400*	17,300*	16,800*	16,800*	16,300*	15,900*	15,300*	180
185		15,600*	16,000*	15,800*	15,600*	15,200*	15,100*	14,600*	14,300*	13,700*	185
190		13,900*	14,400*	14,200*	14,100*	13,700*	13,600*	13,100*	12,800*	12,200*	190
195			12,800*	12,700*	12,600*	12,200*	12,200*	11,700*	11,300*	10,700*	195
200				11,300*	11,200*	10,800*	10,800*	10,300*	9,900*	9,400*	200

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 85% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED.

MAXIMUM BOOM AND JIB LENGTHS LIFTED UNASSISTED		DEDUCT FROM CAPACITIES WHEN JIB IS ATTACHED	
BM. LGTH.	JIB #123	JIB LGTH.	JIB #123
270'	---	30'	3,000#
260'	---	40'	3,600#
250'	60'	50'	4,200#
		60'	4,900#
LOAD BLOCK, HOOK & WEIGHT BALL ON GROUND AT START. SEE BOOM RAISING CAPABILITY CHART.			

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6417, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK.

MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-B1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	80	90	100	110	120	130	140	150	160	170	
28	600,000*										28
30	518,000	517,200									30
32	447,900	447,100	446,600								32
34	394,200	393,400	392,900	392,100	391,900						34
36	351,800	350,900	350,500	349,600	349,400	348,600					36
38	317,400	316,600	316,100	315,200	315,000	314,200	313,700				38
40	289,000	288,100	287,600	286,800	286,600	285,800	285,300	284,500	284,200		40
45	235,600	234,800	234,300	233,500	233,300	232,500	231,900	231,100	230,800	230,100	45
50	198,400	197,500	197,100	196,200	196,000	195,200	194,700	193,900	193,600	192,800	50
55	170,900	170,100	169,600	168,800	168,600	167,800	167,300	166,500	166,200	165,400	55
60	149,800	149,000	148,500	147,700	147,500	146,700	146,200	145,400	145,100	144,300	60
65	130,000*	132,300	131,800	131,000	130,800	130,000	129,500	128,700	128,400	127,600	65
70	113,600*	117,200*	118,300	117,500	117,300	116,500	115,900	115,200	114,800	114,100	70
75	99,900*	103,400*	106,600*	106,300	106,000	105,300	104,700	103,900	103,600	102,900	75
80	88,300*	91,900*	94,900*	96,800*	96,600	95,800	95,300	94,500	94,200	93,400	80
85	78,200*	81,900*	85,000*	86,800*	88,600	87,800	87,200	86,400	86,100	85,400	85
90		73,200*	76,400*	78,100*	80,400*	80,800	80,300	79,500	79,200	78,400	90
95		65,400*	68,800*	70,600*	72,800*	73,800*	74,200	73,400	73,100	72,400	95
100			62,000*	63,900*	66,100*	67,100*	68,000*	68,100	67,800	67,000	100
105			55,800*	58,000*	60,200*	61,100*	62,000*	62,600*	63,100	62,300	105
110				52,500*	54,800*	55,800*	56,700*	57,200*	58,100*	58,100	110
115				47,500*	50,000*	51,000*	52,000*	52,400*	53,300*	53,400*	115
120					45,500*	46,600*	47,600*	48,100*	48,900*	49,000*	120
125					41,300*	42,600*	43,700*	44,100*	45,000*	45,000*	125
130						38,900*	40,000*	40,500*	41,400*	41,400*	130
135						35,300*	36,700*	37,200*	38,100*	38,100*	135
140							33,500*	34,100*	35,000*	35,100*	140
145								31,200*	32,200*	32,300*	145
150								28,500*	29,500*	29,700*	150
155									27,000*	27,200*	155
160									24,600*	24,900*	160
165										22,700*	165
170										20,600*	170

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 75% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6416, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

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DJK
REV. 2/2/77
DRWG. #6269-C1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	180	190	200	210	220	230	240	250	260	270	
45	229,500	228,700	228,300	227,600							45
50	192,300	191,500	191,100	190,400	189,800	189,100	188,600				50
55	164,800	164,100	163,700	162,900	162,400	161,600	161,200	160,500	159,900	159,100	55
60	143,700	143,000	142,600	141,900	141,300	140,500	140,100	139,400	138,800	138,100	60
65	127,100	126,300	125,900	125,200	124,600	123,800	123,400	122,700	122,100	121,400	65
70	113,500	112,700	112,400	111,600	111,000	110,300	109,900	109,100	108,600	107,800	70
75	102,300	101,500	101,100	100,400	99,800	99,100	98,700	97,900	97,300	96,600	75
80	92,900	92,100	91,700	91,000	90,400	89,700	89,200	88,500	87,900	87,200	80
85	84,800	84,000	83,700	82,900	82,300	81,600	81,200	80,400	79,900	79,100	85
90	77,900	77,100	76,700	76,000	75,400	74,700	74,200	73,500	72,900	72,200	90
95	71,800	71,000	70,700	69,900	69,300	68,600	68,200	67,400	66,800	66,100	95
100	66,500	65,700	65,300	64,600	64,000	63,300	62,800	62,100	61,500	60,800	100
105	61,700	61,000	60,600	59,900	59,300	58,500	58,100	57,400	56,800	56,100	105
110	57,500	56,800	56,400	55,600	55,100	54,300	53,900	53,200	52,600	51,900	110
115	53,700*	53,000	52,600	51,900	51,300	50,500	50,100	49,400	48,800	48,100	115
120	49,300*	49,300*	49,200	48,400	47,900	47,100	46,700	46,000	45,400	44,600	120
125	45,300*	45,200*	45,500*	45,300*	44,700	44,000	43,600	42,900	42,300	41,500	125
130	41,700*	41,600*	41,800*	41,600*	41,400*	41,200	40,800	40,000	39,400	38,700	130
135	38,400*	38,300*	38,500*	38,200*	38,100*	37,800*	37,800*	37,300*	36,900	36,100	135
140	35,300*	35,200*	35,400*	35,100*	35,000*	34,700*	34,600*	34,200*	34,000*	33,500*	140
145	32,500*	32,400*	32,600*	32,300*	32,200*	31,800*	31,800*	31,300*	31,100*	30,500*	145
150	29,900*	29,800*	30,000*	29,700*	29,500*	29,200*	29,100*	28,600*	28,400*	27,800*	150
155	27,500*	27,400*	27,600*	27,300*	27,100*	26,700*	26,700*	26,200*	25,900*	25,400*	155
160	25,200*	25,100*	25,400*	25,000*	24,900*	24,500*	24,400*	23,900*	23,600*	23,100*	160
165	23,100*	23,000*	23,300*	23,000*	22,800*	22,400*	22,300*	21,800*	21,500*	20,900*	165
170	21,100*	21,000*	21,300*	21,000*	20,800*	20,400*	20,300*	19,800*	19,500*	18,900*	170
175	19,100*	19,100*	19,400*	19,100*	19,000*	18,600*	18,500*	18,000*	17,700*	17,100*	175
180	17,200*	17,300*	17,700*	17,400*	17,300*	16,800*	16,800*	16,300*	15,900*	15,300*	180
185		15,600*	16,000*	15,800*	15,600*	15,200*	15,100*	14,600*	14,300*	13,700*	185
190			14,400*	14,200*	14,100*	13,700*	13,600*	13,100*	12,800*	12,200*	190
195			12,800*	12,700*	12,600*	12,200*	12,200*	11,700*	11,300*	10,700*	195
200				11,300*	11,200*	10,800*	10,800*	10,300*	9,900*	9,400*	200

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 75% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

MAXIMUM BOOM AND JIB LENGTHS LIFTED UNASSISTED		DEDUCT FROM CAPACITIES WHEN JIB IS ATTACHED	
BM. LGTH.	JIB #123	JIB LGTH.	JIB #123
270'	---	30'	3,000#
260'	---	40'	3,600#
250'	60'	50'	4,200#
		60'	4,900#
LOAD BLOCK, HOOK & WEIGHT BALL ON GROUND AT START.			

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6416, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK.

MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-C1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP OFFSET 4-1/2 DEGREES

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	80	90	100	110	120	130	140	150	160	170	
28	402,700*										28
30	390,800*	390,000*									30
32	379,700*	382,000*	385,600*								32
34	369,500*	372,000*	375,500*	385,000*	391,900						34
36	351,800	350,900	350,500	349,600	349,400	348,600					36
38	317,400	316,600	316,100	315,200	315,000	314,200	313,700				38
40	289,000	288,100	287,600	286,800	286,600	285,800	285,300	284,500	284,200		40
45	235,600	234,800	234,300	233,500	233,300	232,500	231,900	231,100	230,800	230,100	45
50	198,400	197,500	197,100	196,200	196,000	195,200	194,700	193,900	193,600	192,800	50
55	170,900	170,100	169,600	168,800	168,600	167,800	167,300	166,500	166,200	165,400	55
60	149,800	149,000	148,500	147,700	147,500	146,700	146,200	145,400	145,100	144,300	60
65	130,000*	132,300	131,800	131,000	130,800	130,000	129,500	128,700	128,400	127,600	65
70	113,600*	117,200*	118,300	117,500	117,300	116,500	115,900	115,200	114,800	114,100	70
75	99,900*	103,400*	106,600*	106,300	106,000	105,300	104,700	103,900	103,600	102,900	75
80	88,300*	91,900*	94,900*	96,800*	96,600	95,800	95,300	94,500	94,200	93,400	80
85	78,200*	81,900*	85,000*	86,800*	88,600	87,800	87,200	86,400	86,100	85,400	85
90	68,900*	73,200*	76,400*	78,100*	80,400*	80,800	80,300	79,500	79,200	78,400	90
95		65,400*	68,800*	70,600*	72,800*	73,800*	74,200	73,400	73,100	72,400	95
100		58,200*	62,000*	63,900*	66,100*	67,100*	68,000*	68,100	67,800	67,000	100
105			55,800*	58,000*	60,200*	61,100*	62,000*	62,600*	63,100	62,300	105
110				52,500*	54,800*	55,800*	56,700*	57,200*	58,100*	58,100	110
115				47,500*	50,000*	51,000*	52,000*	52,400*	53,300*	53,400*	115
120					45,500*	46,600*	47,600*	48,100*	48,900*	49,000*	120
125					41,300*	42,600*	43,700*	44,100*	45,000*	45,000*	125
130						38,900*	40,000*	40,500*	41,400*	41,400*	130
135						35,300*	36,700*	37,200*	38,100*	38,100*	135
140							33,500*	34,100*	35,000*	35,100*	140
145							30,400*	31,200*	32,200*	32,300*	145
150								28,500*	29,500*	29,700*	150
155									27,000*	27,200*	155
160									24,600*	24,900*	160
165										22,700*	165
170										20,600*	170

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 75% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

WEIGHT OF JIB, ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES BENEATH BOOM AND JIB POINT SHEAVES, ETC. IS CONSIDERED PART OF THE MAIN BOOM LOAD. DEDUCT 1,200# FROM ABOVE CAPACITIES WHEN SINGLE SHEAVE UPPER BOOM POINT IS ATTACHED AND 1,500# WHEN TWO SHEAVE UPPER BOOM POINT IS ATTACHED. BOOM IS NOT TO BE LOWERED BEYOND RADII WHERE COMBINED WEIGHTS ARE GREATER THAN RATED CAPACITY. WHERE NO CAPACITY IS SHOWN, OPERATION IS NOT INTENDED OR APPROVED. SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6417, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS THE HORIZONTAL DISTANCE FROM THE AXIS OF ROTATION TO THE CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK.

MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-D1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

MANITOWOC 4000W RINGER - 50,000# AUXILIARY CWT.
RINGER CAPACITIES - 36 FT. RINGER ATTACHMENT
ON BLOCKING OR SCREW JACKS
BOOM #27 WITH OPEN THROAT TOP OFFSET 4-1/2 DEGREES

RAD. IN FT.	CAPACITIES IN POUNDS BOOM LENGTH - FT.										RAD. IN FT.
	180	190	200	210	220	230	240	250	260	270	
45	229,500	228,700	228,300								45
50	192,300	191,500	191,100	190,400	189,800	189,100	188,600				50
55	164,800	164,100	163,700	162,900	162,400	161,600	161,200	160,500	159,900	159,100	55
60	143,700	143,000	142,600	141,900	141,300	140,500	140,100	139,400	138,800	138,100	60
65	127,100	126,300	125,900	125,200	124,600	123,800	123,400	122,700	122,100	121,400	65
70	113,500	112,700	112,400	111,600	111,000	110,300	109,900	109,100	108,600	107,800	70
75	102,300	101,500	101,100	100,400	99,800	99,100	98,700	97,900	97,300	96,600	75
80	92,900	92,100	91,700	91,000	90,400	89,700	89,200	88,500	87,900	87,200	80
85	84,800	84,000	83,700	82,900	82,300	81,600	81,200	80,400	79,900	79,100	85
90	77,900	77,100	76,700	76,000	75,400	74,700	74,200	73,500	72,900	72,200	90
95	71,800	71,000	70,700	69,900	69,300	68,600	68,200	67,400	66,800	66,100	95
100	66,500	65,700	65,300	64,600	64,000	63,300	62,800	62,100	61,500	60,800	100
105	61,700	61,000	60,600	59,900	59,300	58,500	58,100	57,400	56,800	56,100	105
110	57,500	56,800	56,400	55,600	55,100	54,300	53,900	53,200	52,600	51,900	110
115	53,700*	53,000	52,600	51,900	51,300	50,500	50,100	49,400	48,800	48,100	115
120	49,300*	49,300*	49,200	48,400	47,900	47,100	46,700	46,000	45,400	44,600	120
125	45,300*	45,200*	45,500*	45,300*	44,700	44,000	43,600	42,900	42,300	41,500	125
130	41,700*	41,600*	41,800*	41,600*	41,400*	41,200*	40,800	40,000	39,400	38,700	130
135	38,400*	38,300*	38,500*	38,200*	38,100*	37,800*	37,800*	37,300*	36,900	36,100	135
140	35,300*	35,200*	35,400*	35,100*	35,000*	34,700*	34,600*	34,200*	34,000*	33,500*	140
145	32,500*	32,400*	32,600*	32,300*	32,200*	31,800*	31,800*	31,300*	31,100*	30,500*	145
150	29,900*	29,800*	30,000*	29,700*	29,500*	29,200*	29,100*	28,600*	28,400*	27,800*	150
155	27,500*	27,400*	27,600*	27,300*	27,100*	26,700*	26,700*	26,200*	25,900*	25,400*	155
160	25,200*	25,100*	25,400*	25,000*	24,900*	24,500*	24,400*	23,900*	23,600*	23,100*	160
165	23,100*	23,000*	23,300*	23,000*	22,800*	22,400*	22,300*	21,800*	21,500*	20,900*	165
170	21,100*	21,000*	21,300*	21,000*	20,800*	20,400*	20,300*	19,800*	19,500*	18,900*	170
175	19,100*	19,100*	19,400*	19,100*	19,000*	18,600*	18,500*	18,000*	17,700*	17,100*	175
180	17,200*	17,300*	17,700*	17,400*	17,300*	16,800*	16,800*	16,300*	15,900*	15,300*	180
185		15,600*	16,000*	15,800*	15,600*	15,200*	15,100*	14,600*	14,300*	13,700*	185
190		13,900*	14,400*	14,200*	14,100*	13,700*	13,600*	13,100*	12,800*	12,200*	190
195			12,800*	12,700*	12,600*	12,200*	12,200*	11,700*	11,300*	10,700*	195
200				11,300*	11,200*	10,800*	10,800*	10,300*	9,900*	9,400*	200

CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 75% OF A STATIC TIPPING LOAD). CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

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MAXIMUM BOOM AND JIB LENGTHS LIFTED UNASSISTED		DEDUCT FROM CAPACITIES WHEN JIB IS ATTACHED	
BM. LGTH.	JIB #123	JIB LGTH.	JIB #123
270'	---	30'	3,000#
260'	---	40'	3,600#
250'	60'	50'	4,200#
		60'	4,900#

LOAD BLOCK, HOOK & WEIGHT BALL ON GROUND AT START.

SEE BOOM RAISING CAPABILITY CHART.

MACHINE TO OPERATE WITH ROLLER PATH LEVEL WITHIN A TOLERANCE OF 3/4 IN. IN 36 FT. AND PROPERLY SUPPORTED. REFER TO RIGGING #50972, LOAD LINE SPECIFICATION CHART #6140 OR #6141, RANGE CHART #6417, BLOCKING #65154 OR SCREW JACK SUPPORT #49397. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

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MACHINE EQUIPPED WITH 24'-0 EXTENDIBLE CRAWLERS, 48 IN. TREADS, 15' RETRACTABLE GANTRY, 39' MAST WITH 12 PART BOOM HOIST REEVING, FOUR 1-3/8 IN. BOOM PENDANTS, 154,400# OF CRANE AND AUXILIARY COUNTERWEIGHT.

DJK
REV. 2/2/77
DRWG. #6269-D1

MANITOWOC ENGINEERING CO.
MANITOWOC, WISCONSIN

Manitowoc Cranes, Inc.
Manitowoc, Wisconsin 54220 U.S.A.

Liftcrane Boom Capacities 4000W RINGER

Boom No. 27 With Open Throat Top
Offset 4-1/2 Degrees
36 Ft. RINGER Attachment
104,400 Lb. Crane Counterweight
50,000 Lb. Auxiliary Counterweight
Barge Mount - 1-1/2 Degree Machine List
360 Degree Rating

LIFTING CAPACITIES: Lifting capacities are for a crawler machine when operating on a barge. Machine shall be positively secured to prevent shifting. Lifting capacities for various boom lengths and operating radii are for freely suspended loads and are based on structural competence.

Upper boom point capacity for liftcrane service with single part whip line is 28,300 Lbs. (19,900 Lbs. when auxiliary rear drum is used). In all cases, upper boom point capacities cannot exceed those listed for main boom capacity.

Weight of all load blocks, hooks, weight ball, slings, hoist lines, etc., beneath boom point sheaves, is considered part of main boom load. Boom is not to be lowered beyond radii where combined weights are greater than rated capacity. Where no capacity is shown, operation is not intended or approved.

OPERATING CONDITIONS: Machine to operate with roller path properly supported and machine list not to exceed 1-1/2 degrees. Refer to boom rigging **No. 50972** and Wire Rope Specification chart **No. 6140** or **No. 6141**. Crane operator judgment must be used to allow for dynamic load effects of swinging, hoisting or lowering, wind conditions, as well as adverse operating conditions and physical machine depreciation. Refer to operators manual for operating guidelines.

OPERATING RADIUS: Operating radius is horizontal distance from axis of rotation at barge deck to center of vertical hoist line or load block. Boom angle is angle between horizontal and centerline of boom butt and inserts, and is an indication of operating radius. In all cases, operating radius shall govern capacity.

BOOM POINT ELEVATION: Boom point elevation is vertical distance from barge deck to centerline of boom point shaft.

MACHINE EQUIPMENT: Machine equipped with 36 Ft. RINGER attachment, 24 Ft. 0 in. crawlers, 48 in. treads, 15 Ft. gantry, 39 Ft. mast, 12 part boom hoist reeving, four 1-3/8 in. boom pendants, 104,400 Lb. crane counterweight and 50,000 Lb. auxiliary counterweight.

Jib is not to be used on machine while operating on barge.

Upper Boom Point Deduct
Deduct 800 Lbs. from boom capacities when upper boom point is attached.

Liftcrane Boom Capacities

4000W RINGER

Boom No. 27 With Open Throat Top
Offset 4-1/2 Degrees
36 Ft. RINGER Attachment
104,400 Lb. Crane Counterweight
50,000 Lb. Auxiliary Counterweight
Barge Mount - 1-1/2 Degree Machine List
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
80 Ft. BOOM			
32	81.5	86.6	416,400
34	80.1	86.2	406,600
36	78.6	85.7	397,400
38	77.1	85.2	359,700
40	75.6	84.7	326,500
45	71.9	83.0	257,300
50	68.0	80.9	210,300
55	64.0	78.5	176,200
60	59.9	75.6	150,400
65	55.6	72.1	130,000
70	51.0	68.1	113,600
75	46.0	63.3	99,900
80	40.6	57.6	88,300
85	34.4	50.6	78,200
90	26.9	41.4	68,900

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
100 Ft. BOOM			
36	80.9	106.2	363,400
38	79.7	105.8	354,900
40	78.6	105.3	326,000
45	75.6	104.0	265,500
50	72.6	102.4	221,300
55	69.6	100.5	185,500
60	66.4	98.3	158,600
65	63.2	95.8	137,500
70	59.9	92.9	120,500
75	56.5	89.6	106,600
80	52.9	85.8	94,900
85	49.1	81.5	85,000
90	45.1	76.6	76,400
95	40.8	70.9	68,800
100	36.0	64.1	62,000
105	30.5	56.0	55,800

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
120 Ft. BOOM			
38	81.5	126.1	324,900
40	80.5	125.8	318,800
45	78.1	124.7	264,400
50	75.6	123.4	222,200
55	73.1	121.8	191,100
60	70.6	120.1	164,900
65	68.0	118.0	143,000
70	65.4	115.7	125,500
75	62.7	113.1	111,200
80	59.9	110.2	99,200
85	57.1	107.0	89,100
90	54.1	103.4	80,400
95	51.1	99.3	72,800
100	47.9	94.8	66,100
105	44.5	89.8	60,200
110	40.9	84.1	54,800
115	37.0	77.6	50,000
120	32.6	70.0	45,500
125	27.7	60.8	41,300

Liftcrane Boom Capacities

4000W RINGER

Boom No. 27 With Open Throat Top
Offset 4-1/2 Degrees
36 Ft. RINGER Attachment
104,400 Lb. Crane Counterweight
50,000 Lb. Auxiliary Counterweight
Barge Mount - 1-1/2 Degree Machine List
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
140 Ft. BOOM			
45	79.8	145.2	262,900
50	77.7	144.0	220,700
55	75.6	142.7	189,600
60	73.5	141.2	165,400
65	71.3	139.5	145,900
70	69.1	137.6	128,700
75	66.9	135.5	114,000
80	64.6	133.1	101,700
85	62.3	130.4	91,300
90	59.9	127.5	82,500
95	57.5	124.4	74,800
100	55.0	120.9	68,000
105	52.4	117.0	62,000
110	49.8	112.8	56,700
115	47.0	108.2	52,000
120	44.1	103.0	47,600
125	41.0	97.3	43,700
130	37.6	90.9	40,000
135	34.0	83.7	36,700
140	30.0	75.3	33,500
145	25.5	65.3	30,400

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
160 Ft. BOOM			
45	81.1	165.5	253,700
50	79.3	164.5	219,400
55	77.4	163.4	188,300
60	75.6	162.1	164,400
65	73.7	160.6	145,500
70	71.8	159.0	129,800
75	69.9	157.1	116,600
80	68.0	155.1	104,200
85	66.0	152.9	93,500
90	64.0	150.4	84,400
95	62.0	147.8	76,500
100	59.9	144.9	69,600
105	57.8	141.7	63,500
110	55.7	138.3	58,100
115	53.4	134.6	53,300
120	51.1	130.6	48,900
125	48.8	126.2	45,000
130	46.3	121.5	41,400
135	43.7	116.3	38,100
140	41.0	110.6	35,000
145	38.1	104.3	32,200
150	35.1	97.3	29,500
155	31.7	89.4	27,000
160	28.0	80.3	24,600

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
180 Ft. BOOM			
50	80.5	184.9	216,500
55	78.8	183.9	186,100
60	77.2	182.8	162,500
65	75.6	181.5	143,600
70	73.9	180.0	128,100
75	72.2	178.4	115,200
80	70.6	176.6	104,200
85	68.9	174.7	94,700
90	67.1	172.6	85,400
95	65.4	170.3	77,300
100	63.6	167.8	70,300
105	61.8	165.1	64,100
110	60.0	162.2	58,600
115	58.1	159.1	53,700
120	56.2	155.7	49,300
125	54.2	152.1	45,300
130	52.2	148.2	41,700
135	50.1	144.1	38,400
140	48.0	139.6	35,300
145	45.8	134.7	32,500
150	43.5	129.5	29,900
155	41.1	123.8	27,500
160	38.5	117.6	25,200
165	35.8	110.8	23,100
170	32.9	103.2	21,100
175	29.8	94.7	19,100
180	26.3	84.9	17,200

Liftcrane Boom Capacities

4000W RINGER

Boom No. 27 With Open Throat Top
Offset 4-1/2 Degrees
36 Ft. RINGER Attachment
104,400 Lb. Crane Counterweight
50,000 Lb. Auxiliary Counterweight
Barge Mount - 1-1/2 Degree Machine List
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
200 Ft. BOOM			
50	81.4	205.2	205,200
55	80.0	204.3	183,200
60	78.5	203.3	160,100
65	77.0	202.1	141,500
70	75.6	200.8	126,300
75	74.1	199.4	113,600
80	72.6	197.8	102,800
85	71.1	196.1	93,500
90	69.5	194.2	85,400
95	68.0	192.2	78,100
100	66.4	190.0	70,900
105	64.8	187.6	64,600
110	63.2	185.1	59,000
115	61.6	182.4	54,000
120	60.0	179.5	49,600
125	58.3	176.4	45,500
130	56.6	173.1	41,800
135	54.8	169.6	38,500
140	53.0	165.8	35,400
145	51.2	161.8	32,600
150	49.3	157.5	30,000
155	47.4	152.9	27,600
160	45.3	148.0	25,400
165	43.3	142.7	23,300
170	41.1	137.0	21,300
175	38.8	130.9	19,400
180	36.4	124.2	17,700
185	33.9	116.9	16,000
190	31.2	108.7	14,400
195	28.2	99.7	12,800

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
220 Ft. BOOM			
55	80.9	224.7	178,600
60	79.6	223.7	156,200
65	78.2	222.7	138,200
70	76.9	221.5	123,400
75	75.6	220.2	111,000
80	74.2	218.8	100,500
85	72.8	217.2	91,400
90	71.5	215.5	83,500
95	70.1	213.7	76,500
100	68.7	211.8	70,300
105	67.3	209.7	64,500
110	65.9	207.4	58,800
115	64.4	205.0	53,800
120	62.9	202.4	49,200
125	61.5	199.7	45,200
130	60.0	196.8	41,400
135	58.4	193.7	38,100
140	56.9	190.5	35,000
145	55.3	187.0	32,200
150	53.7	183.3	29,500
155	52.0	179.5	27,100
160	50.3	175.3	24,900
165	48.6	170.9	22,800
170	46.8	166.2	20,800
175	45.0	161.3	19,000
180	43.1	156.0	17,300
185	41.1	150.3	15,600
190	39.1	144.2	14,100
195	36.9	137.6	12,600
200	34.6	130.4	11,200
205	32.2	122.6	9,900
210	29.6	114.0	8,600
215	26.8	104.4	7,300

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	1-1/2 Degree List Boom Capacity Pounds
240 Ft. BOOM			
60	80.5	244.1	153,400
65	79.2	243.1	135,700
70	78.0	242.1	121,200
75	76.8	240.9	109,000
80	75.6	239.6	98,700
85	74.3	238.2	89,700
90	73.1	236.6	81,800
95	71.8	235.0	75,000
100	70.6	233.2	68,900
105	69.3	231.3	63,400
110	68.0	229.3	58,500
115	66.7	227.1	53,700
120	65.4	224.8	49,100
125	64.0	222.4	44,900
130	62.7	219.8	41,200
135	61.3	217.0	37,800
140	60.0	214.1	34,600
145	58.6	211.1	31,800
150	57.1	207.9	29,100
155	55.7	204.4	26,700
160	54.2	200.8	24,400
165	52.7	197.0	22,300
170	51.2	193.0	20,300
175	49.6	188.8	18,500
180	48.0	184.3	16,800
185	46.4	179.6	15,100
190	44.7	174.5	13,600
195	43.0	169.2	12,200
200	41.1	163.5	10,800
205	39.3	157.4	9,500
210	37.3	150.9	8,200
215	35.3	143.9	7,000
220	33.1	136.4	5,900
225	30.8	128.1	4,800
230	28.3	119.0	3,700
235	25.6	108.9	2,600

MANITOWOC ENGINEERING CO.
(A division of The Manitowoc Company, Inc.) *Manitowoc, Wisconsin 54220*

LOAD LINE SPECIFICATIONS — 4000W RINGER®

PROCEDURE FOR DETERMINING PARTS OF LINE, MAXIMUM HOISTING DISTANCE AND ROPE LENGTHS:

WIDE AND NARROW FRONT DRUMS

A. Parts of line required to hoist a given load are shown in (Table 1). Weight of load block, hook, weight ball, slings, etc. is considered part of the load.

B. (1) From job layout, determine maximum distance load is to be lifted.

(2) Multiply hoist distance (from step B-1) x parts of line. Check this total amount of rope with drum spooling capacity (Table 2) to determine if spooling capacity is adequate. When using main drum and additional spooling capacity is required, rope can be reeved from main drum through load block and dead end attached to whip drum. This will provide the spooling capacity of the whip drum in addition to that of the main drum. An even number of parts of line is required for this method. Whip line cannot be used when both drums are used for main hoist.

C. (1) To determine total length of wire rope required for main hoist, multiply parts of line x total distance from centerline of sheaves in boom top to centerline of sheaves in block with block at lowest elevation. Add boom length and wire rope constant from (Table 3) corresponding to parts of line used. When winding on both drums add twice length of boom plus 15' for 2 wraps on additional drum.

(2) For whip line the standard length will be twice boom length plus 30 ft. When jib is used, increase length of whip line by twice the length of jib.

(3) Other considerations such as length of rope available and rope required to drop hook to grade may influence total length of rope selected.

TABLE 1: HOIST REEVING FOR MAIN LOAD BLOCK

Parts of Line	2	3	4	5	6	7	8	9	10
Max. Load Lbs.	64,000	95,500	126,200	157,000	186,800	212,000	241,000	273,000	302,000
Parts of Line	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	
Max. Load Lbs.	329,000	357,000	382,000	411,000	437,000	462,000	487,000	512,000	

LOAD LINE – 1-1/8" – 6 x 31 Warrington-Seale, Regular Lay, Extra Improved Plow Steel, Preformed, IWRC. Minimum Breaking Strength 65 Ton.
(Approx. Weight Per Ft. in Lbs. 2.34)

WHIP LINE – 1-1/8" – 6 x 25 Filler Wire, Regular Lay, Improved Plow Steel, Preformed, IWRC. Minimum Breaking Strength 56.5 Ton. Maximum Load Per Line = 28,300 Lbs.
(Approx. Weight Per Ft. in Lbs. 2.34)

Machine equipped with 20-3/8" wide right drum with single brake and 14-3/8" wide left drum with single brake.

TABLE 2: MAXIMUM SPOOLING CAPACITIES

20-3/8" wide right drum (load line) 820' – 1-1/8" rope – 7 layers
14-3/8" wide left drum (whip line or load line) 515' – 1-1/8" rope – 6 layers

TABLE 3: WIRE ROPE CONSTANT

Amount of Wire Rope Required to Reeve Sheaves in Boom Point and Load Block									
Parts of Line	2	3	4	5	6	7	8	9	10
Amount to Reeve Sheaves	25'-0"	30'-0"	35'-0"	40'-0"	45'-0"	45'-0"	50'-0"	55'-0"	60'-0"
Parts of Line	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	
Amount to Reeve Sheaves	60'-0"	65'-0"	70'-0"	70'-0"	75'-0"	80'-0"	80'-0"	85'-0"	

NOTE: Above figures include the following:
2 wraps on main hoist drum (12'-6" approx.) Wire rope for wedge and sockets (3'-0")

Drwg. No. 6140, 4-8-71/GA

MANITOWOC ENGINEERING CO.
(A division of The Manitowoc Company, Inc.) *Manitowoc, Wisconsin 54220*

LOAD LINE SPECIFICATIONS — 4000W RINGER®

PROCEDURE FOR DETERMINING PARTS OF LINE, MAXIMUM HOISTING DISTANCE AND ROPE LENGTHS:

FULL WIDTH FRONT DRUM

A. Parts of line required to hoist a given load are shown in (Table 1). Weight of load block, hook, weight ball, slings, etc., is considered part of the load.

B. (1) From job layout, determine maximum distance load is to be lifted.

(2) Multiply hoist distance (from Step B-1) x parts of line. Check this total amount of rope with drum spooling capacity (Table 2) to determine if spooling capacity is adequate.

C. (1) To determine total length of wire rope required for main hoist, multiply parts of line x total distance from center line of sheaves in boom top to center line of sheaves in block with block at lowest elevation. Add boom length and wire rope constant from (Table 3) corresponding to parts of line used.

(2) For whip line, the standard length will be twice boom length plus 30 ft. When jib is used, increase length of whip line by twice the length of jib.

(3) Other considerations such as length of rope available and rope required to drop hook to grade may influence total length of rope selected.

TABLE 1: HOIST REEVING FOR MAIN LOAD BLOCK

Parts of Line	2	3	4	5	6	7	8	9	10
Max. Load Lbs.	65,000	97,500	130,000	162,500	195,000	227,500	260,000	292,500	325,000
Parts of Line	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	
Max. Load Lbs.	357,500	390,000	422,500	455,000	487,500	520,000	552,500	600,000	

LOAD LINE – 1-1/8" – 6 x 31 Warrington-Seale, Regular Lay, Extra Improved Plow Steel, Preformed, IWRC. Minimum Breaking Strength 65 Ton. (Approx. Weight Per Ft. in Lbs. 2.34)

MAXIMUM LOAD PER LINE – 32,500 lbs.

WHIP LINE – 7/8" – 6 x 25 Filler Wire, Regular Lay, Extra Improved Plow Steel, Preformed, IWRC. Minimum Breaking Strength 39.8 Ton. (Approx. Weight Per Ft. in Lbs. 1.42)

MAXIMUM LOAD PER LINE – 19,900 lbs.

Machine equipped with full width front drum with double brakes and auxiliary rear drum.

TABLE 2: MAXIMUM SPOOLING CAPACITIES

Full width front drum (load line) 1505' – 1-1/8" rope – 7 layers.
Max. single line working load 32,500 lbs.
Auxiliary rear drum (whip line) 540' – 7/8" rope – 3 layers.

TABLE 3: WIRE ROPE CONSTANT

Amount of Wire Rope Required to Reeve Sheaves in Boom Point and Load Block									
Parts of Line	2	3	4	5	6	7	8	9	10
Amount to Reeve Sheaves	25'-0"	30'-0"	35'-0"	40'-0"	45'-0"	45'-0"	50'-0"	55'-0"	60'-0"
Parts of Line	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	
Amount to Reeve Sheaves	60'-0"	65'-0"	70'-0"	70'-0"	75'-0"	80'-0"	80'-0"	85'-0"	

NOTE: Above figures include the following:
2 wraps on main hoist drum (12'-6" approx.)
Wire rope for wedge and sockets (3'-0")

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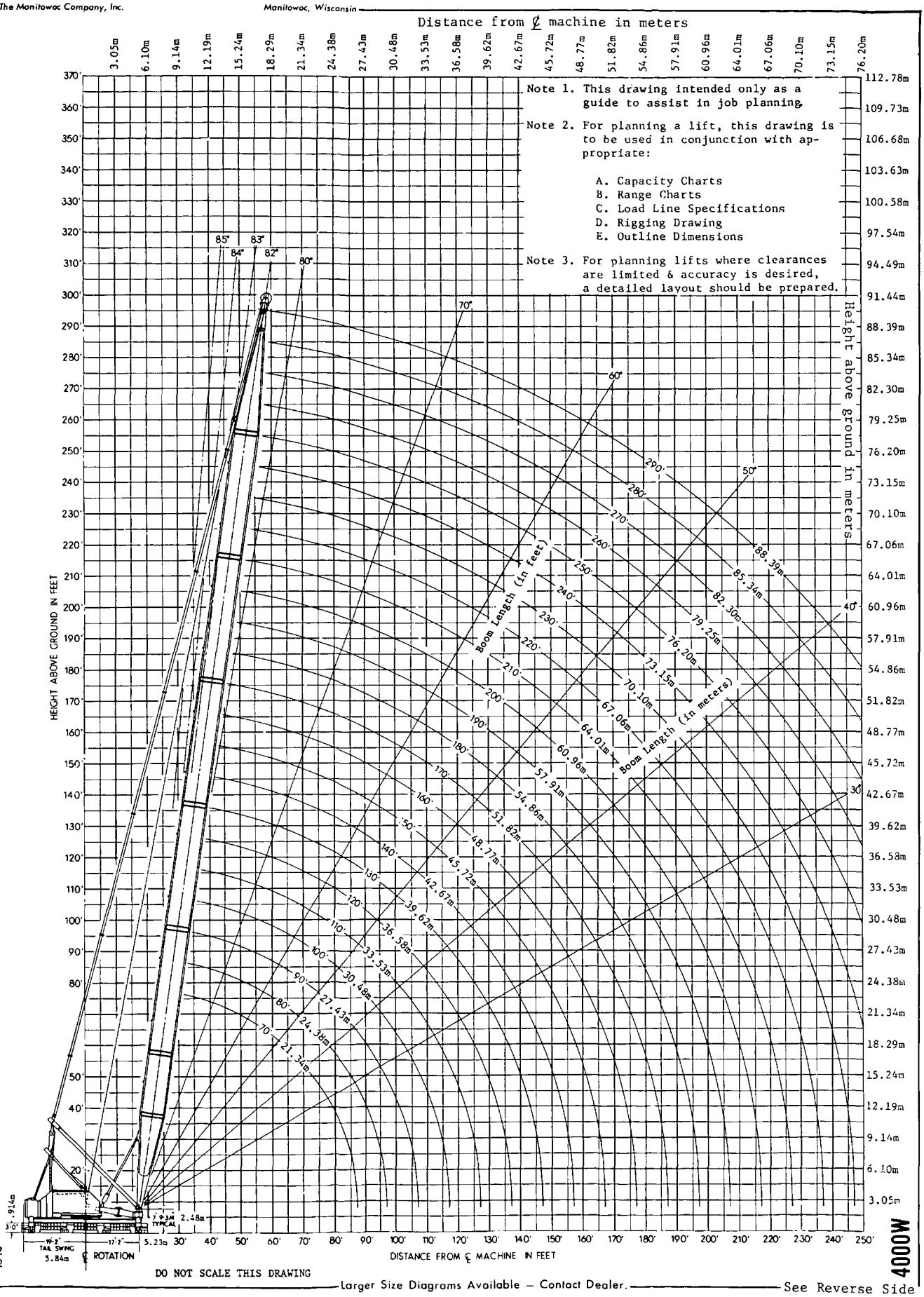


50965-1

9-12-72
1-10-72
3-5-71

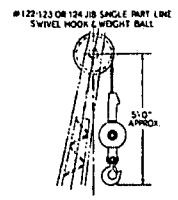
DO NOT SCALE THIS DRAWING

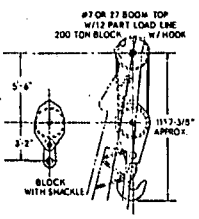
Larger Size Diagrams Available – Contact Dealer.

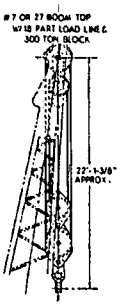
See Reverse Side

50965-1

RANGE DIAGRAM- Ringer® (No.22 Boom Shown) 4000W

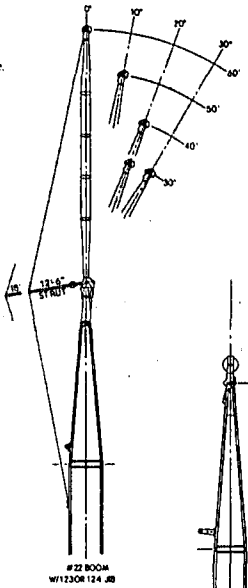


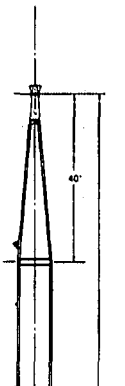


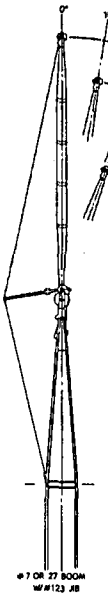


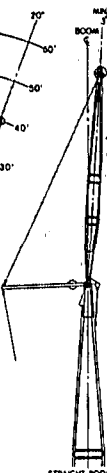
Note:
Distance of MANITOWOC Load Block To Boom Point Based On 3°Fleet Angle Or Physical Limitations.

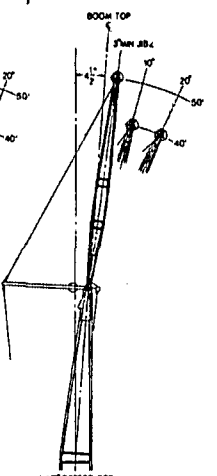
Note:
When Equipped With Hoist Line Limit Switch, Contact Factory For Load Block To Boom Point Minimum Distance.

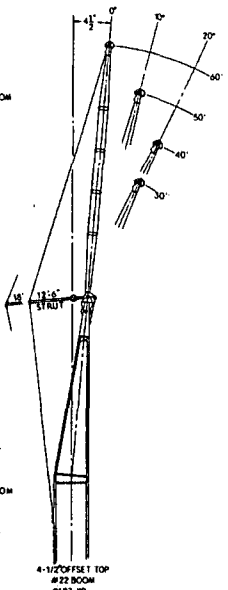


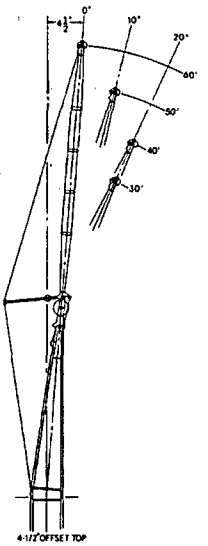


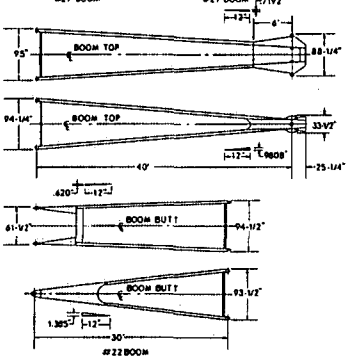


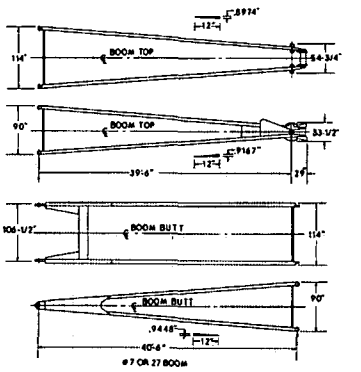


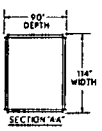


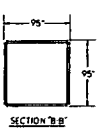












MAXIMUM BOOM ANGLES

NO. 7 OR 27 STRAIGHT BOOM:	82°MAX.	
NO. 7 OR 27 W/ 4-1/2°OFFSET:	85°MAX.	
NO. 22 STRAIGHT BOOM:	82°MAX.	
NO. 22 W/ 4-1/2°OFFSET:	83°MAX.	
NO. 7 OR 27-22 COMBINATION:		9-12-72
STRAIGHT BOOM:	82°MAX.	1-10-72
W/ 4-1/2°OFFSET:	84°MAX.	3-5-71

50965-2

RANGE DIAGRAM - M4000W - RINGER® (Details)