



**LAMINATED
CAPACITY CHARTS**

Model 3000W

Serial Number 30318

MANITOWOC CRANES, INC.

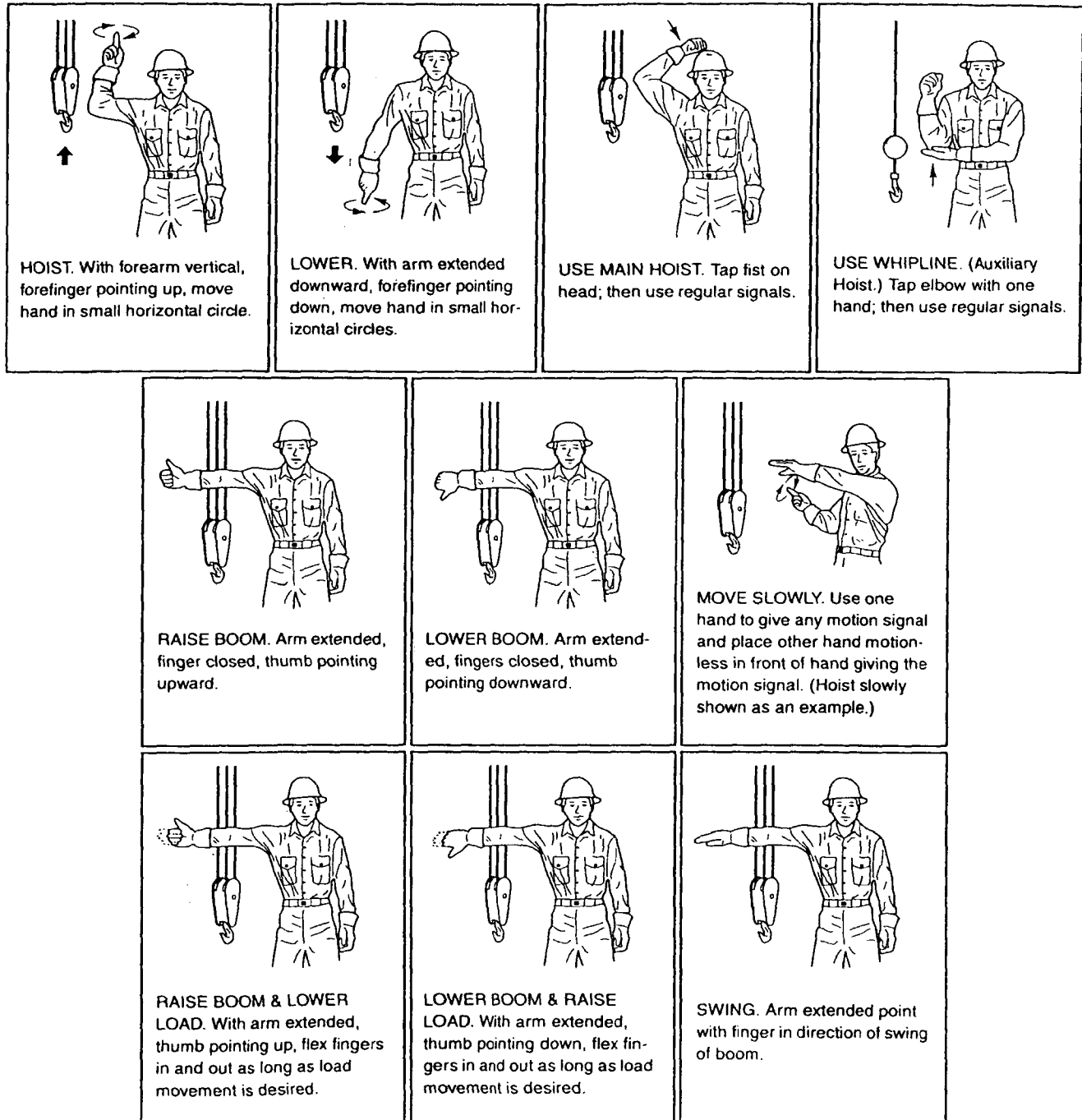
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LAMINATED CAPACITY CHARTS MANUAL INDEX
MODEL 3000W - SERIAL 30318

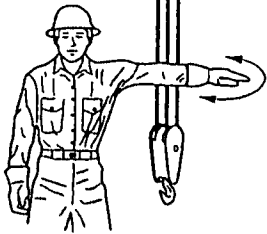
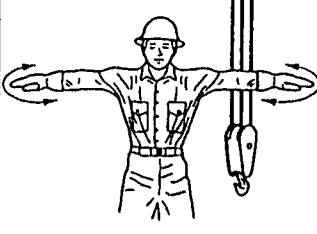
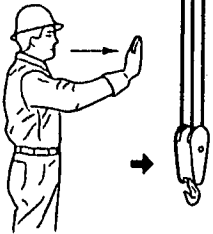
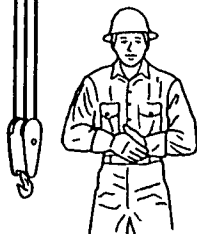
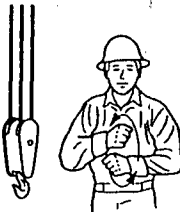
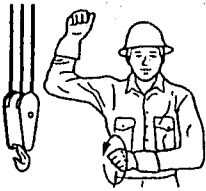
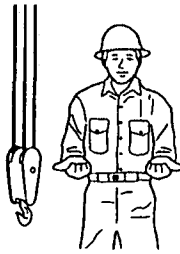
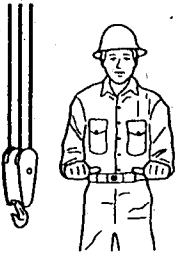
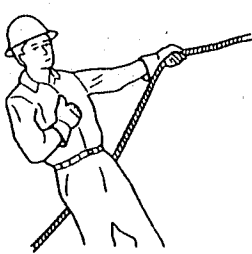
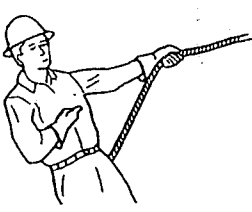
PUBLICATION	DATE	TITLE
GENERAL		
Service Drawing 184679	04/09/97	Standard Hand Signals for Controlling Crane Operations
Folio 855	05/21/01	Guide for Determining Total Load and Maximum Working Radius
Folio 1237	10/28/02	Crawler Blocking Diagram
Folio 1298	10/28/02	Operating Radius
CHARTS		
Capacity Chart 5122	02/24/64	Lifting Capacities
Capacity Chart 5123	02/24/64	Lifting Capacities
Folio 305	03/11/76	Jib No. 121
Capacity Chart 4786	02/23/76	Range Chart
Capacity Chart 5305	02/03/75	Load Line Specifications

STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS

Complies with ASME/ANSI B30.5 — 1993



da0108

 <p>STOP. Arm extended, palm down, move arm back and forth horizontally.</p>	 <p>EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.</p>	 <p>TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>	 <p>DOG EVERYTHING. Clasp hand in front of body.</p>
 <p>TRAVEL. (Both Tracks.) Use both fists in front of body, making a circular motion about each other, indicating direction of travel; forward or backward.</p>	 <p>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.</p>	 <p>EXTEND BOOM. (Telescoping Booms.) Both fists in front of body with thumbs pointing outward.</p>	
 <p>RETRACT BOOM. (Telescoping Boom.) Both fists in front of body with thumbs pointing toward each other.</p>	 <p>EXTEND BOOM. (Telescoping Boom.) One Hand Signal. One fist in front of chest with thumb tapping chest.</p>	 <p>RETRACT BOOM. (Telescoping Boom.) One hand signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.</p>	

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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.
-

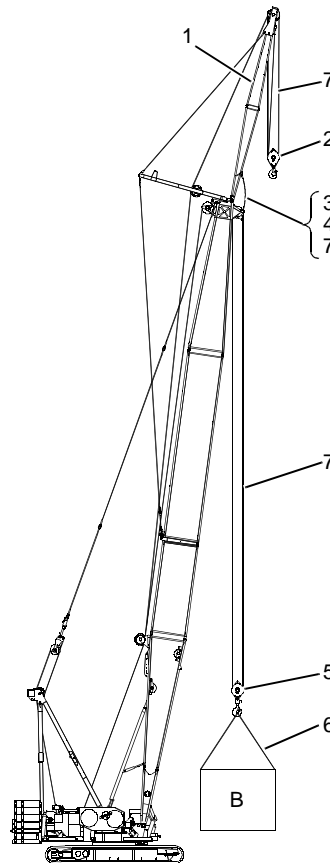
Example**Determining Total Load and Maximum Working Radius
From Lower Boom Point**

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
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
	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	

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DESCRIPTION**WEIGHT (lb)****Component Weights**

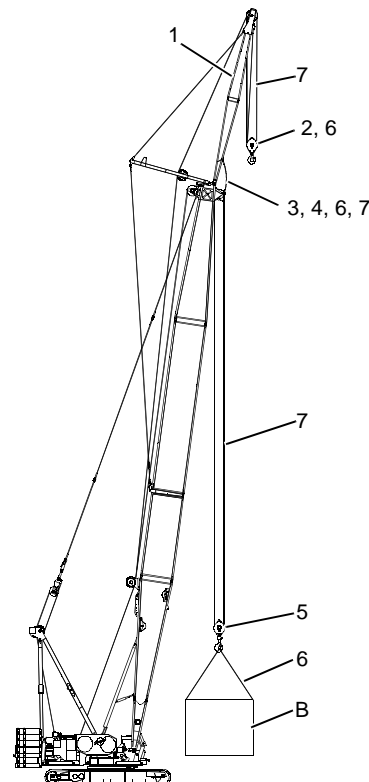
1 Jib (see "Deduct From Capacities When Jib is Attached" table on capacity chart)	6,400
2 Load Block/Hook and Weight Ball (below jib point)	2,825
3 Upper Boom Point (from capacity chart if noted)	Does Not Apply
4 Load Block/Hook and Weight Ball (below upper boom point if attached)	Does Not Apply
5 Load 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 (<i>see “Deduct From Capacities When Jib is Attached” table on capacity chart</i>)	_____
2 Load Block/Hook and Weight Ball (<i>below jib point</i>)	_____
3 Upper Boom Point (<i>from capacity chart if noted</i>)	_____
4 Load Block/Hook and Weight Ball (<i>below upper boom point if attached</i>)	_____
5 Load Block/Hook and Weight Ball (<i>below lower boom point</i>)	_____
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 (<i>see Load Line or Wire Rope Specifications Chart for weight of wire rope</i>)	_____
Totals	
A Total Component Weights (<i>ADD items 1 – 7 above</i>)	_____
B Weight of Load to be Lifted	_____
C Total Load to be Lifted (<i>ADD A and B above</i>)	_____
D Maximum Working Radius (<i>for Total Load to be Lifted from C above — see correct capacity chart</i>)	_____



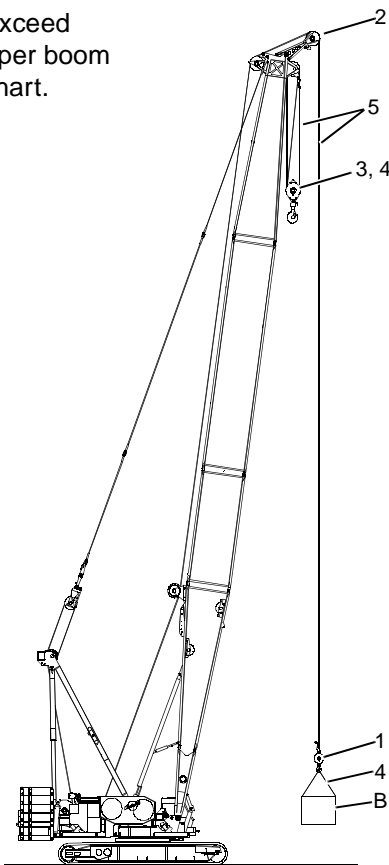
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Worksheet B

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

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

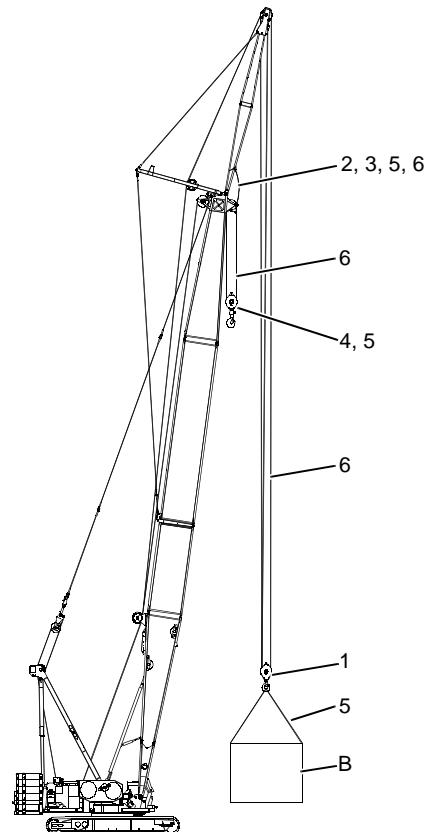
Note 1: Total load to be lifted must not exceed maximum structural rating of upper boom point as specified on capacity chart.



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



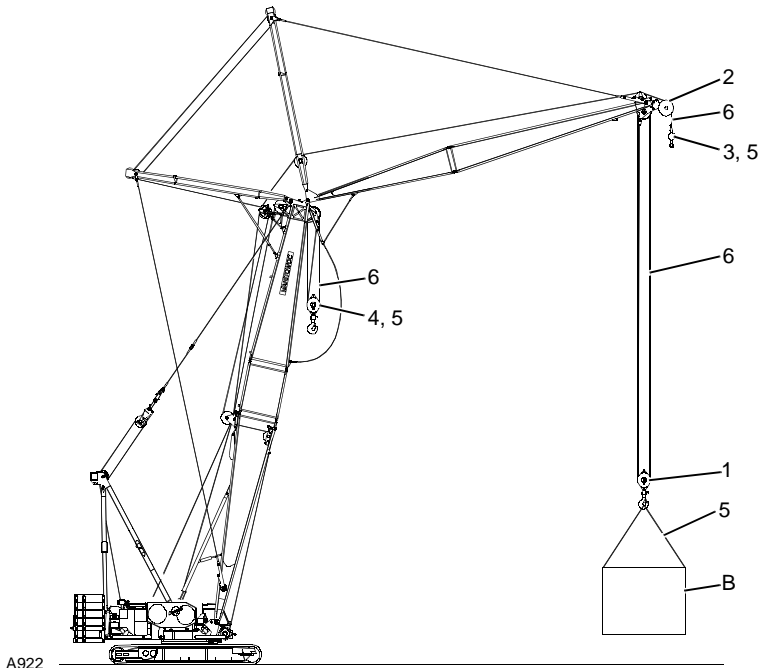
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Worksheet D

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

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

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.

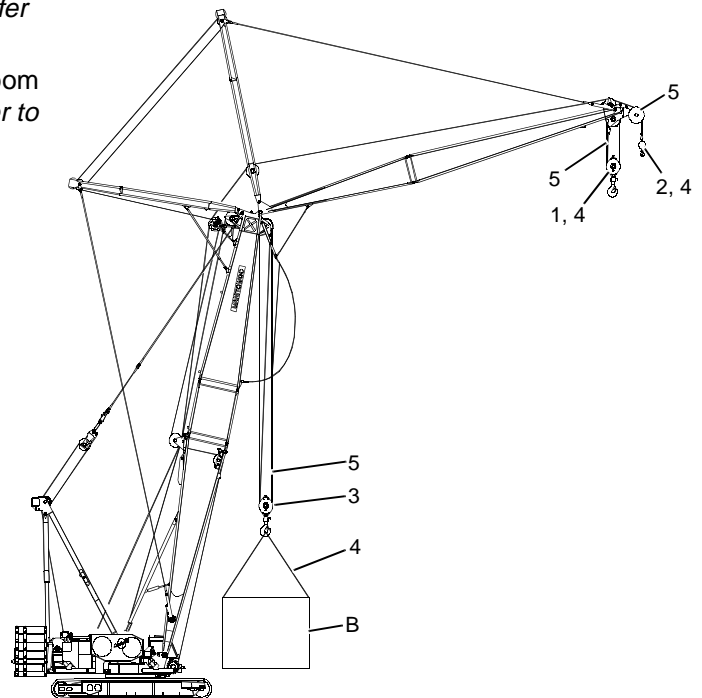


Worksheet E**For Determining Total Load and Maximum Working Radius
From Lower Boom Point with Luffing Jib Attached (see Note 1)**

DESCRIPTION	WEIGHT
Component Weights	
1 Load Block/Hook and Weight Ball (<i>below lower luffing jib point</i>) see Note 1	_____
2 Load Block/Hook and Weight Ball (<i>below upper luffing jib point</i>) see Note 1	_____
3 Load Block/Hook and Weight Ball (<i>below lower boom point</i>) 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 (<i>see Load Line or Wire Rope Specifications Chart for weight of wire rope</i>)	_____
Totals	
A Total Component Weights (<i>ADD items 1-5 above</i>)	_____
B Weight of Load to be Lifted	_____
C Total Load to be Lifted (<i>ADD A and B above</i>)	_____
D Maximum Working Radius (<i>for Total Load to be Lifted from C above — see correct capacity chart</i>)	_____

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.*

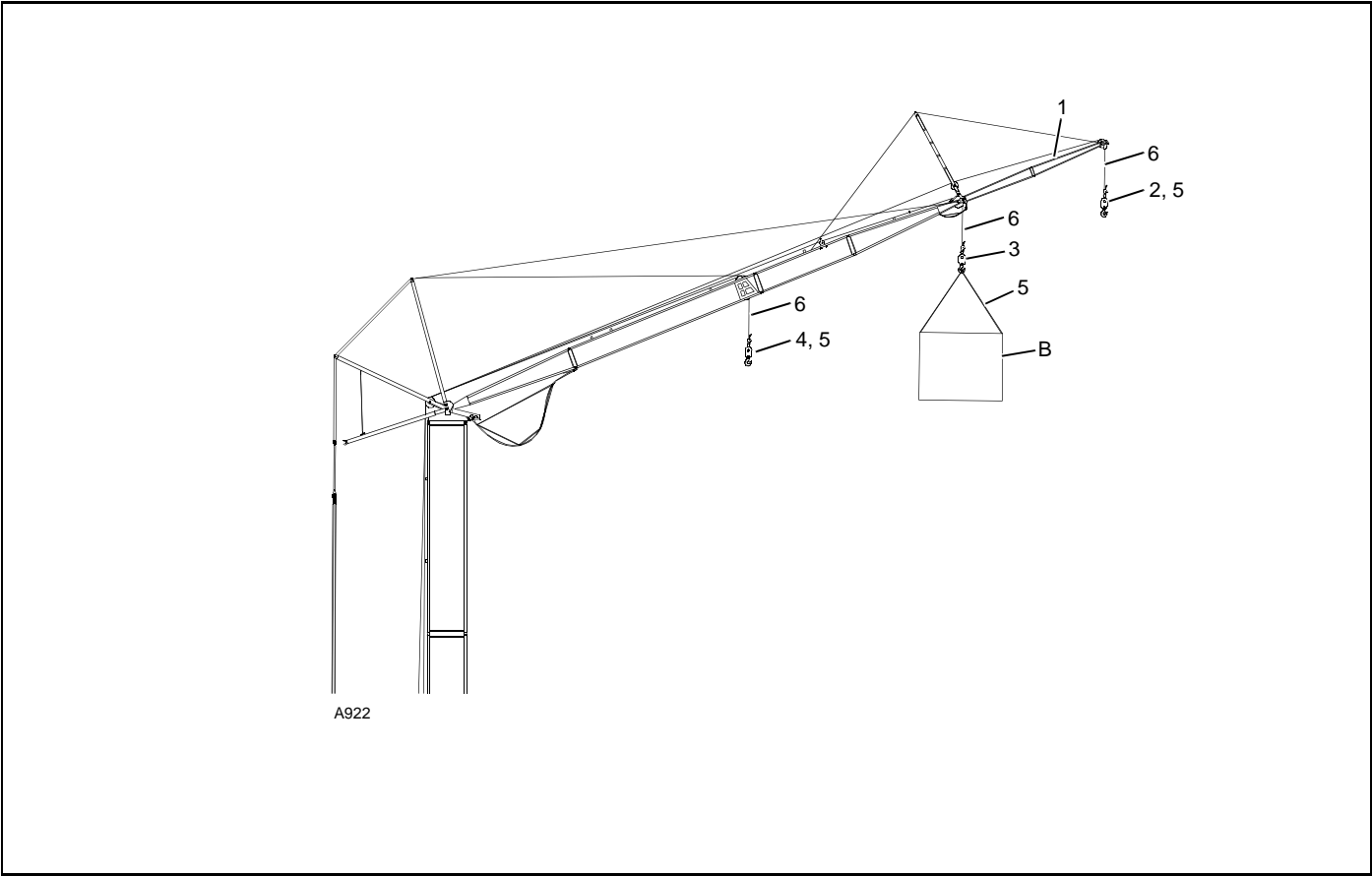


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Worksheet F

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

DESCRIPTION	WEIGHT
Component Weights	
1 Jib (<i>see “Deduct From Capacities When Jib is Attached” table on capacity chart</i>)	_____
2 Load Block/Hook and Weight Ball (<i>below jib point</i>)	_____
3 Load Block/Hook and Weight Ball (<i>below boom point</i>)	_____
4 Load Block/Hook and Weight Ball (<i>below intermediate fall</i>)	_____
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 (<i>see Load Line or Wire Rope Specifications Chart for weight of wire rope</i>)	_____
Totals	
A Total Component Weights (<i>ADD items 1-6 above</i>)	_____
B Weight of Load to be Lifted.	_____
C Total Load to be Lifted (<i>ADD A and B above</i>)	_____
D Maximum Working Radius (<i>for Total Load to be Lifted from C above — see correct capacity chart</i>)	_____

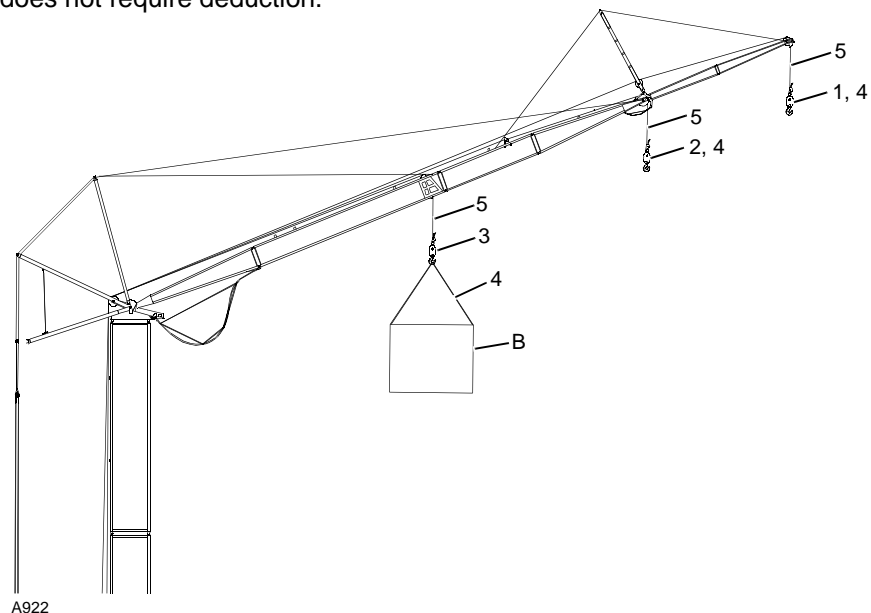


Worksheet G

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 (<i>below jib point</i>) (see Note 1)	_____
2 Load Block/Hook and Weight Ball (<i>below boom point</i>)	_____
3 Load Block/Hook and Weight Ball (<i>below intermediate fall</i>)	_____
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 (<i>see Load Line or Wire Rope Specifications Chart for weight of wire rope</i>)	_____
Totals	
A Total Component Weights (<i>ADD items 1-5 above</i>)	_____
B Weight of Load to be Lifted	_____
C Total Load to be Lifted (<i>ADD A and B above</i>)	_____
D Maximum Working Radius (<i>for Total Load to be Lifted from C above — see correct capacity chart</i>)	_____

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.

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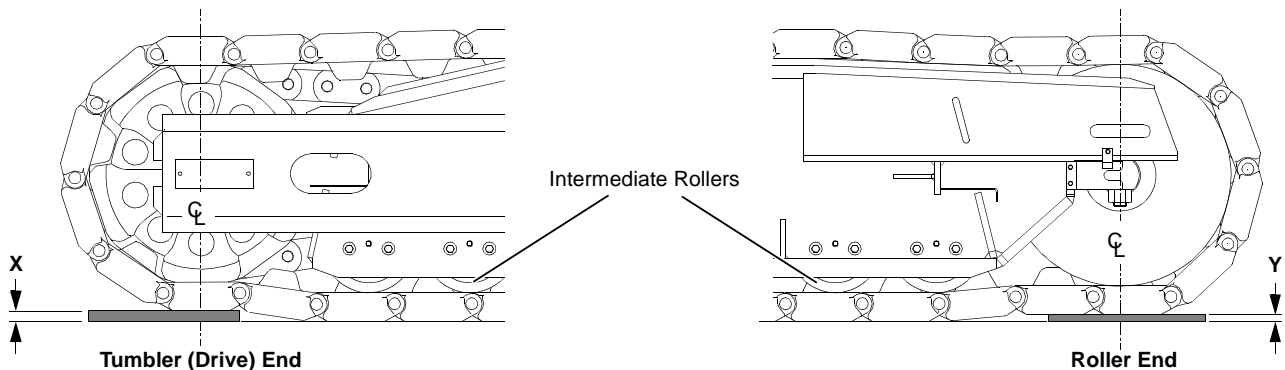


FIGURE 1

Model	Blocking Dimensions				Notes
	X		Y		
	Tumbler (Drive) End		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 | 3. 33" Crawler pads | 5. 48" Crawler pads |
| 2. 36" Crawler pads | 4. 38" Crawler pads | 6. 24' or 27' Crawlers |

OPERATING RADIUS

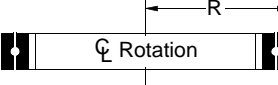
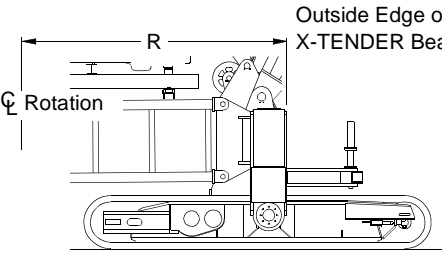
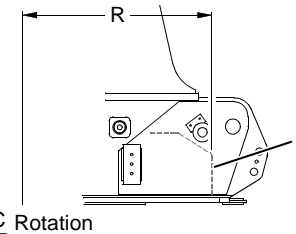
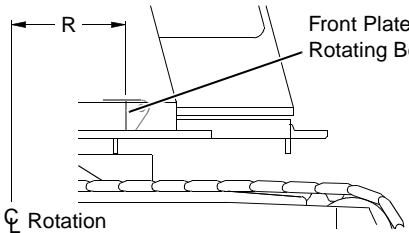


OPERATING RADIUS is the horizontal distance from the crane's centerline of rotation to the center of the freely suspended load line or load block.

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.

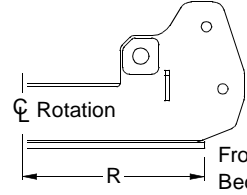
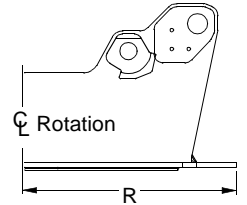
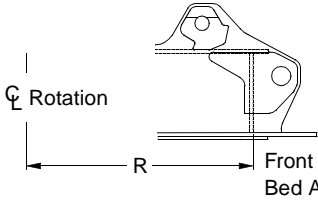
Model	Radius		Identification
	ft-in.	meters	
2000 2300	2-7	0.79	
3000 3000W 3600	3-2	0.96	
888	4-6	1.37	
2900T 2900WC	3-7	1.09	
3900 3900T 3900W or WT 3950D 3950W or WT 4000 4000W	4-5	1.35	
4100W	4-6	1.37	
4600 S-1, 2, 3	5-6	1.68	
4600 S-4, 5 6000W 6000 S-2 6400	5-7	1.70	
4000W RINGER® 4100W RINGER 36' 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		Identification
	ft-in.	meters	
M-50W	2-4	0.71	 <p>Outside Edge of Turntable Bearing</p>
M-80W	2-9	0.84	
M-65SC M-65T M-65W M-85T M-85W 111 222	2-8	0.81	
M-250 2250	6-1	1.85	
4100W S-2 X-TENDER™ S-2	67-4	20.52	 <p>Outside Edge of X-TENDER Beam</p>
555	4-7 ¹ OR 5-4 ²	1.40 ¹ OR 1.63 ²	 <p>Front Plate of Rotating Bed OR Front of Front Counterweight</p>
777 777T	3-11	1.19	 <p>Front Plate of Rotating Bed</p>
999	4-11	1.50	

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

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

A967

Model	Radius		Identification
	ft-in.	meters	
1015	4-6	1.37	 <p>Front Edge of Rotating Bed Adapter Frame</p>
18000	6-1	1.85	 <p>Front Edge of Rotating Bed Adapter Frame</p>
21000	4-8	1.42	 <p>Front Plate of Rotating Bed Adapter Frame</p>

A043001

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin

LIFTING CAPACITIES 3000W

BOOM NO. 16 – LIFT CRANE – OPEN THROAT BOOM TOP 18'-4" CRAWLERS EXTENDED

Maximum Lifting Capacities Equipped and Operated as Follows: Capacities (in pounds) are for machine equipped with 18'-4" extensible width crawlers (crawlers in extended position), 33" treads, 14' gantry, 10 part boom hoist, 1-3/8" pendant rigging and 38,000 lb. counterweight.

Capacities shown do not exceed 75% of tipping with boom

across crawlers and machine on firm, level ground. Weight of load block, hook, weight ball, sling, etc., is considered part of the load.

Maximum boom length is 160' plus 60' of No. 121 jib. When 30', 40', 50', or 60' of jib is attached, deduct 1,800 lbs., 2,050 lbs., 2,300 lbs. and 2,500 lbs. respectively from capacities shown.

RAD. FT.	BOOM LENGTH – FT.												RAD. FT.
	50	60	70	80	90	100	110	120	130	140	150	160	
12	130,000	130,000											12
13	124,400	124,200											13
14	109,800	109,500	109,300										14
15	98,100	97,900	97,600	97,500									15
16	88,700	88,400	88,200	88,100	87,800								16
17	80,800	80,600	80,300	80,200	80,000								17
18	74,200	74,000	73,700	73,600	73,400	73,200							18
19	68,600	68,300	68,100	68,000	67,700	67,600	67,300						19
20	63,700	63,500	63,200	63,100	62,800	62,700	62,400	62,300					20
22	55,700	55,500	55,200	55,100	54,900	54,700	54,400	54,300	54,000				22
24	49,500	49,200	48,900	48,800	48,600	48,400	48,100	48,000	47,700	47,500			24
26	44,400	44,100	43,900	43,700	43,500	43,300	43,100	42,900	42,600	42,500	39,900		26
28	40,300	40,000	39,700	39,600	39,300	39,100	38,900	38,700	38,500	38,300	38,000	33,700	28
30	36,800	36,500	36,200	36,100	35,800	35,600	35,400	35,200	35,000	34,800	34,500	32,900	30
32	33,800	33,500	33,200	33,100	32,900	32,700	32,400	32,200	32,000	31,800	31,500	31,300	32
34	31,200	31,000	30,700	30,500	30,300	30,100	29,900	29,700	29,400	29,200	29,000	28,800	34
36	29,000	28,700	28,500	28,300	28,100	27,900	27,600	27,400	27,200	27,000	26,700	26,500	36
38	27,100	26,800	26,500	26,400	26,100	25,900	25,700	25,500	25,200	25,000	24,800	24,600	38
40	25,400	25,100	24,800	24,600	24,400	24,200	24,000	23,800	23,500	23,300	23,100	22,800	40
45	21,800	21,500	21,200	21,100	20,800	20,700	20,400	20,400	20,000	19,700	19,500	19,300	45
50	19,100	18,800	18,500	18,300	18,100	17,900	17,600	17,400	17,200	17,000	16,700	16,500	50
55		16,600	16,300	16,100	15,900	15,700	15,400	15,200	15,000	14,800	14,500	14,300	55
60		14,800	14,500	14,300	14,100	13,900	13,600	13,400	13,200	13,000	12,700	12,500	60
65			13,000	12,800	12,600	12,400	12,100	11,900	11,700	11,500	11,200	11,000	65
70			11,700	11,600	11,300	11,100	10,900	10,700	10,400	10,200	9,900	9,700	70
75				10,500	10,200	10,000	9,800	9,600	9,300	9,100	8,900	8,600	75
80				9,500	9,300	9,100	8,800	8,600	8,400	8,200	7,900	7,700	80
85					8,500	8,300	8,000	7,800	7,600	7,300	7,100	6,900	85
90					7,700	7,600	7,300	7,100	6,800	6,600	6,400	6,100	90
95						6,900	6,600	6,400	6,200	6,000	5,700	5,500	95
100						6,300	6,100	5,900	5,600	5,400	5,100	4,900	100
105							5,600	5,400	5,100	4,900	4,600	4,400	105
110								4,900	4,600	4,400	4,200	3,900	110
115								4,500	4,200	4,000	3,700	3,500	115
120									3,800	3,600	3,300	3,100	120
125									3,400	3,200	3,000	2,800	125
130										2,900	2,600	2,400	130
135										2,600	2,300	2,100	135
140											2,100	1,800	140
145											1,800	1,600	145

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin

LIFTING CAPACITIES 3000W

BOOM NO. 16 – LIFTCRANE – OPEN THROAT BOOM TOP 18'-4" CRAWLERS RETRACTED

Maximum Lifting Capacities Equipped and Operated as Follows: Capacities (in pounds) are for machine equipped with 18'-4" extensible width crawlers (crawlers in retracted position), 33" treads, 14' gantry, 10 part boom hoist, 1-3/8" pendant rigging and 38,000 lb. counterweight.

Capacities shown do not exceed 75% of tipping with boom across crawlers and machine on firm, level ground.

Ratings indicated by * represent boom positions which, without load, provide less than standard backward stability. Do not swing without boom. Weight of load block, hook, weight ball, sling, etc., is considered part of the load.

Maximum boom length is 160' plus 60' of No. 121 jib. When 30', 40', 50', or 60' of jib is attached, deduct 1,800 lbs., 2,050 lbs., 2,300 lbs. and 2,500 lbs. respectively from capacities shown.

RAD. FT.	BOOM LENGTH – FT.												RAD. FT.
	50	60	70	80	90	100	110	120	130	140	150	160	
12	115,000*	115,000*											12
13	101,800*	101,500*											13
14	90,800*	90,500*	90,300*										14
15	81,900*	81,600*	81,300*	81,200*									15
16	74,500*	74,300*	74,000*	73,800*	73,600*								16
17	68,300*	68,100*	67,800*	67,700*	67,400*								17
18	63,100*	62,800*	62,500*	62,400*	62,100*	62,000*							18
19	58,500*	58,300*	58,000*	57,800*	57,600*	57,400*	57,200*						19
20	54,600*	54,300*	54,000*	53,900*	53,600*	53,400*	53,200	53,000					20
22	48,000*	47,700*	47,500*	47,300*	47,100*	46,900	46,600	46,400	46,200				22
24	42,800*	42,500*	42,200*	42,100*	41,800	41,700	41,400	41,200	41,000	40,800			24
26	38,600*	38,300*	38,000*	37,900	37,600	37,400	37,200	37,000	36,700	36,500	36,200		26
28	35,100*	34,800*	34,500	34,300	34,100	33,900	33,600	33,400	33,200	33,000	32,700	32,500	28
30	32,100*	31,800*	31,500	31,400	31,100	30,900	30,700	30,500	30,200	30,000	29,700	29,500	30
32	29,500*	29,300	29,000	28,800	28,600	28,400	28,100	27,900	27,700	27,500	27,200	27,000	32
34	27,400*	27,100	26,800	26,600	26,400	26,200	25,900	25,700	25,500	25,300	25,000	24,800	34
36	25,400	25,200	24,900	24,700	24,500	24,300	24,000	23,800	23,600	23,300	23,100	22,900	36
38	23,800	23,500	23,200	23,000	22,800	22,600	22,300	22,100	21,900	21,700	21,400	21,200	38
40	22,300	22,000	21,700	21,500	21,300	21,100	20,800	20,600	20,400	20,200	19,900	19,700	40
45	19,200	18,900	18,600	18,400	18,200	18,000	17,700	17,500	17,300	17,100	16,800	16,600	45
50	16,800	16,500	16,200	16,000	15,800	15,600	15,300	15,100	14,800	14,600	14,400	14,200	50
55		14,500	14,200	14,100	13,800	13,600	13,400	13,200	12,900	12,700	12,400	12,200	55
60		12,900	12,600	12,500	12,200	12,000	11,800	11,600	11,300	11,100	10,800	10,600	60
65			11,300	11,200	10,900	10,700	10,500	10,300	10,000	9,800	9,500	9,300	65
70			10,200	10,100	9,800	9,600	9,300	9,100	8,900	8,700	8,400	8,200	70
75			9,100	8,800	8,600	8,400	8,200	7,900	7,700	7,400	7,200		75
80				8,300	8,000	7,800	7,500	7,300	7,100	6,900	6,600	6,400	80
85					7,300	7,100	6,800	6,600	6,300	6,100	5,900	5,600	85
90					6,600	6,400	6,200	6,000	5,700	5,500	5,200	5,000	90
95						5,800	5,600	5,400	5,100	4,900	4,600	4,400	95
100						5,300	5,100	4,900	4,600	4,400	4,100	3,900	100
105							4,600	4,400	4,100	3,900	3,700	3,400	105
110								4,000	3,700	3,500	3,200	3,000	110
115								3,600	3,300	3,100	2,900	2,600	115
120									3,000	2,800	2,500	2,300	120
125									2,700	2,400	2,200	2,000	125
130										2,200	1,900	1,700	130
135										1,900	1,600		135



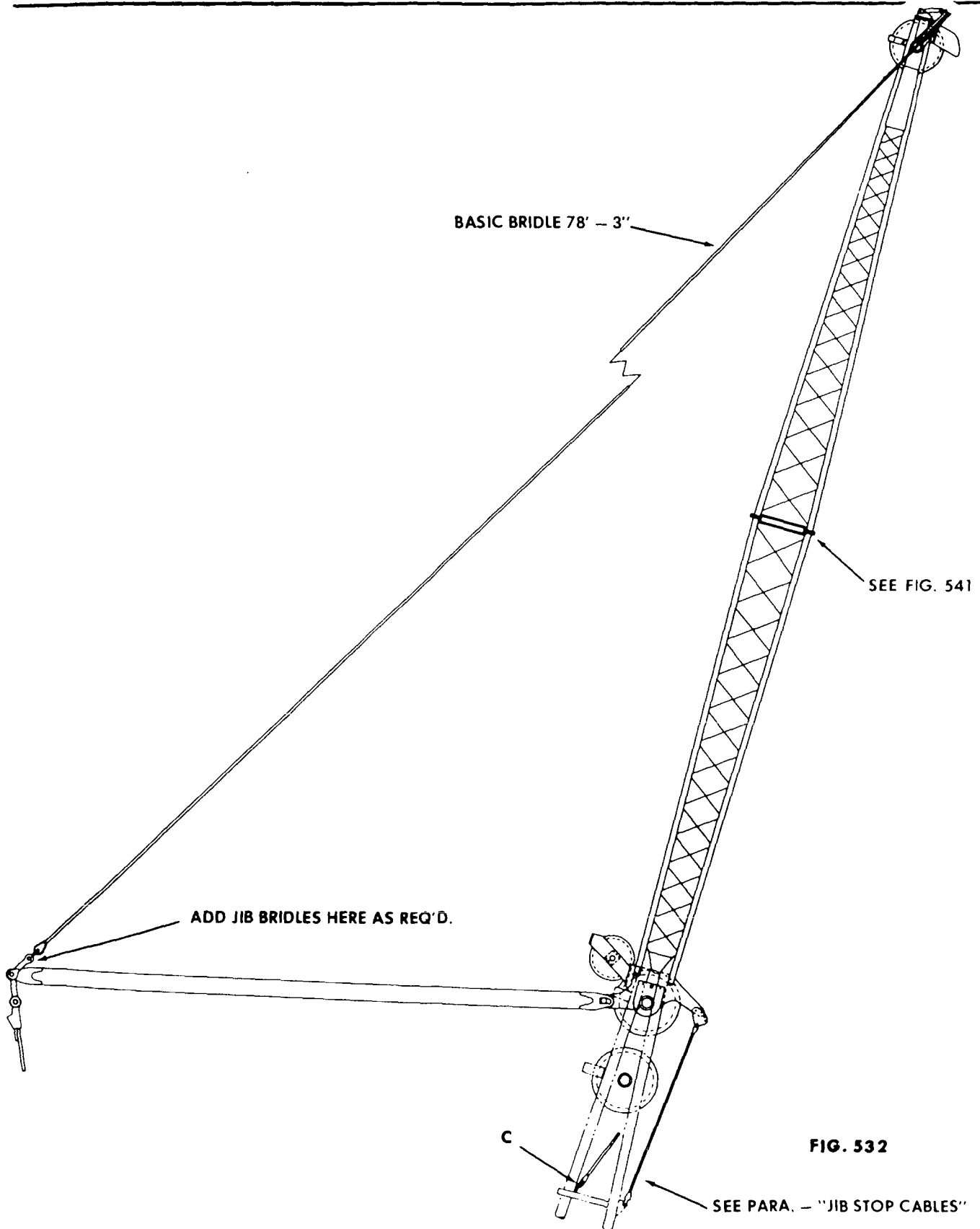
MANITOWOC ENGINEERING CO.

A division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin 54220

JIB NO. 121

TUBULAR- 2" O.D. - 2 BOLT FLANGE



Folio 305

JIB STOP CABLE:

The jib stop cable should be adjusted to remove excessive cable slack by positioning the adjusting bar (A) Figure 544 to the cable being used. A 71-1/4 inch cable is used for zero degree jib offset and a 67-5/8 inch cable is used for a ten degree jib offset or greater. The jib stop cables are used as safety cables to prevent jib kick-back. Figure 532-C is the lug location for the jib stop cable when this jib is used with a No. 12 boom.

* JIB BRIDLES:

Refer to figure 541 for the jib bridles available for various jib lengths when using an 18 foot jib strut.

NOTE: A 7 foot jib strut is available upon request.

When installing the jib bridle yoke (A) — figure 545 — the proper fleet angle should be obtained by selecting the correct adjusting hole (B) for the required jib length.

NOTE: The top hole is used for a 30 foot jib, the middle hole for 40 and 50 foot jibs, and the bottom hole for a 60 foot jib. (B — Figure 545).

The jib bridles should be equalized before the bolts (C) figure 545 are installed in the bridle yoke. The bridle link must be installed with the heavier, smaller end forward, connected to the jib bridle. (Figure 546-D)

REQ'D. FOR VARIOUS BOOM LENGTHS

18 Foot Strut				
JIB LENGTH	10 FOOT INSERT REQUIRED	BRIDLE NUMBER	BRIDLES REQUIRED	BRIDLE LENGTH
30'	0	276692	1	78' - 3"
40'	1	276692	1	78' - 3"
		276691	2	9' - 0"
50'	2	276692	1	78' - 3"
		276691	4	9' - 0"
60'	3	276692	1	78' - 3"
		276691	6	9' - 0"

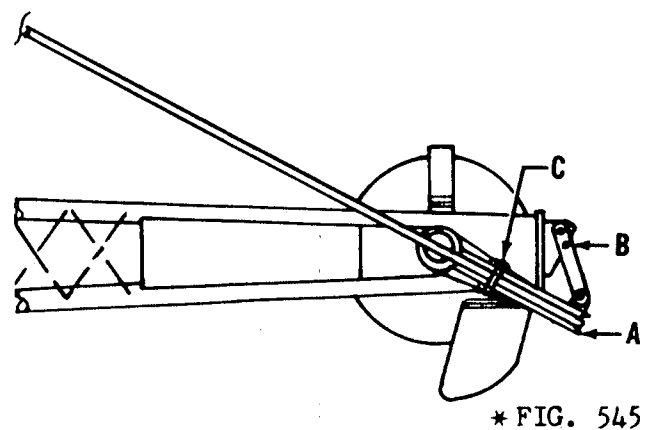
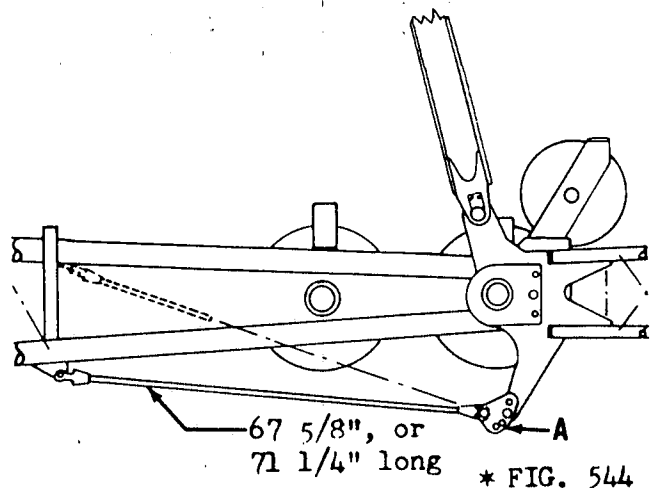
FIG. 541

JIB BACKSTAY CABLES:

The jib backstay cable length can be changed to obtain the desired jib offset from the boom. The cables are taken up thru the wedges down at the jib backstay lug on the boom insert. (Figure 649)

REQ'D. FOR VARIOUS BOOM LENGTHS

7 Foot Strut			
JIB LENGTH	BRIDLE NUMBER	BRIDLES REQUIRED	BRIDLE LENGTH
30'	276740	1	67' - 0"
40'	276740	1	67' - 0"
	276691	2	9' - 0"
50'	276740	1	67' - 0"
	276691	4	9' - 0"



JIB BACKSTAY LUGS:

The jib backstay cables fasten to the jib backstay lugs on the insert usually located immediately below the boom top. The lug locations may differ with the boom length and type, so it is advisable to check the individual boom instructions for the exact location of inserts with jib backstay lugs.

JIB SPECIFICATIONS:

JIB NO.	FITS BOOM NO.	*RATED CAPACITY	JIB WEIGHT W/BACK STAY	TYPE	SHAPE OF CHORDS	SIZE OF CHORDS	TYPE OF JOINT
121 w/ 18' Strut	3-6-8-9-11	30 Ft. — 10 Ton	1,760*	Sectional	Tubular	2" O.D.	Flange 2-Bolt
	13-15-16	40 Ft. — 7 Ton	1,990*				
	17-20-21	50 Ft. — 5 Ton	2,200*				
		60 Ft. — 2.5 Ton	2,450*				
121 w/ 7' Strut	3-6-8-9-11	30 Ft. — 6 Ton	1,610*	Sectional	Tubular	2" O.D.	Flange 2-Bolt
	13-15-16	40 Ft. — 4 Ton	1,840*				
	17-20-21	50 Ft. — 2.5 Ton	2,050*				

*NOTE: CAPACITIES ARE FOR GENERAL RATING PURPOSES ONLY. SEE FIGURE 649 FOR JIB OPERATING RANGE.

JIB INSERTS:

Additional jib inserts are available and may be added to the basic 30 foot jib to increase the total jib length. Refer to figure 541 for inserts required for various jib lengths.

JIB WORKING ANGLE:

Figure 649 illustrates a safe boom and jib working range. When the boom is positioned at a 60° angle, the jib offset must not exceed a 20° angle. The rated capacities in the chart are determined from this position. These figures are based on jib structural ratings only, however, jib capacities should be checked with the boom charts in the instruction book to determine when the jib structural rating is within the stability of the machine.

The chart below will serve as a guide for quick reference of boom operating ranges in relation to jib angle.

JIB REPAIR RECOMMENDATIONS:

Lacings (only) can be replaced in the field, if — the lacings are ordered from the Manitowoc Engineering Co. — the welding procedures in Bulletin 96C are followed — and the work is performed by a competent firm. Repairs to main chord members are not considered practical. Of course, Manitowoc Engineering Co. cannot be held responsible for field repairs of the jib.

NOTE: Check for identification number stampings before attempting repairs or welding. Check with factory for material specs to identify proper welding rod and procedure.

RIGGING - Top of Jib Strut

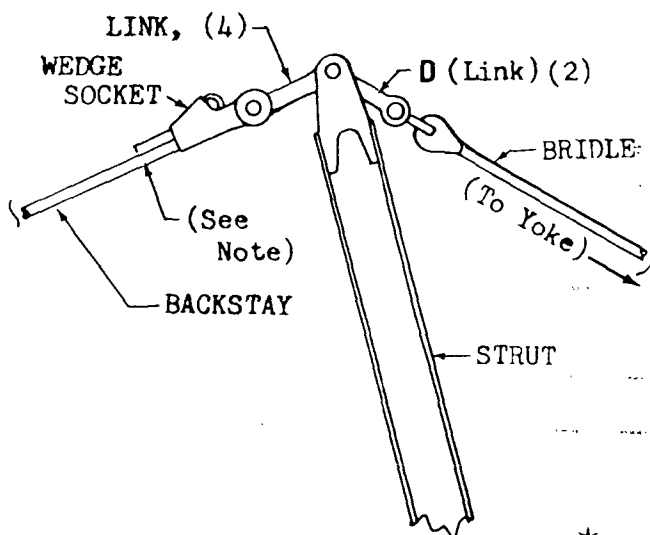


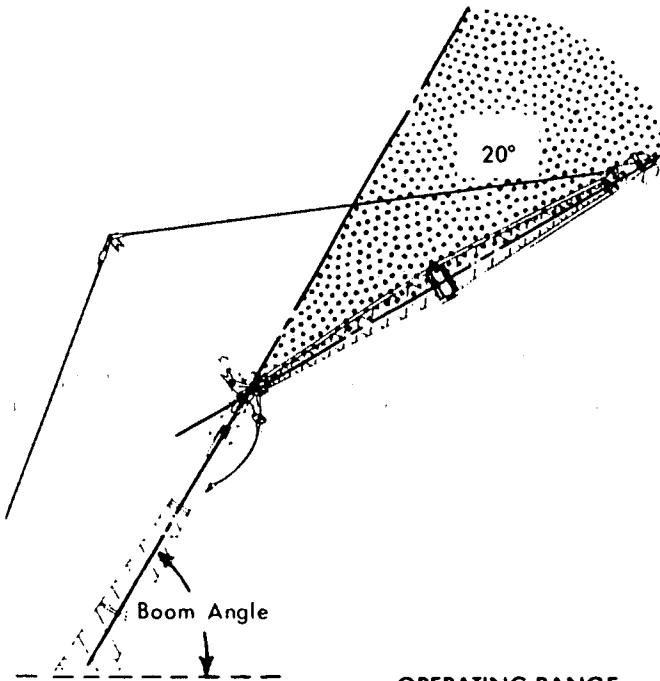
FIG. 546

* NOTE: If Wire Rope Clamps are used, (Fig. 546) at Strut end of Backstays, Install ONLY after seating the Rope in the Sockets by loading the Backstays, i.e. after lifting a test load!

Folio 305

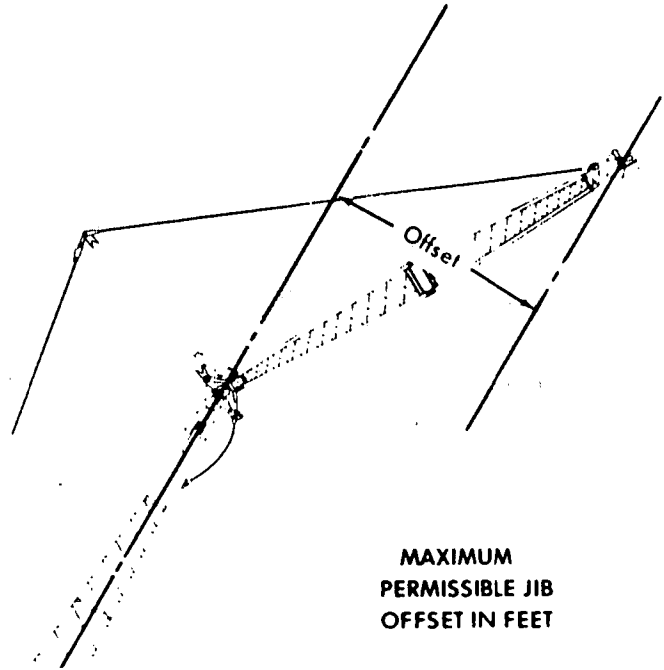
TYPICAL JIB OPERATING RANGE – SEE INST.
60° BOOM ANGLE – SEE CHART BELOW

FIG. 649



OPERATING RANGE

JIB OFFSET FROM \bar{C} BOOM	BOOM ANGLE
0° Off \bar{C}	80° To 40°
10° Off \bar{C}	80° To 50°
20° Off \bar{C}	80° To 60°



MAXIMUM
PERMISSIBLE JIB
OFFSET IN FEET

JIB LENGTH	JIB OFFSET
30'	10'
40'	13'
50'	17'
60'	20'

NOTE: Jib offset is equivalent
to 20° jib angle.

RANGE CHART

3000W

BOOM NO. 16 WITH OPEN THROAT TOP

OPERATING RADIUS: Operating radius is the horizontal distance from the axis of rotation to the center of vertical hoist line or load block with load freely suspended. Add 11" to boom point radius for radius of sheave when using single part hoist line.

Boom angle is the 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.

RAD. IN FT.	BOOM LENGTH												RAD. IN FT.
	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'	160'	
	Boom Angle In Degrees												
12	80.4	82.0											12
13	79.2	81.0											13
14	78.0	80.0	81.5										14
15	76.9	79.1	80.6	81.8									15
16	75.7	78.1	79.8	81.1	82.1								16
17	74.5	77.1	79.0	80.4	81.5								17
18	73.3	76.1	78.1	79.6	80.8	81.7							18
19	72.1	75.2	77.3	78.9	80.2	81.2	82.0						19
20	70.9	74.2	76.5	78.2	79.5	80.6	81.4	82.2					20
22	68.4	72.2	74.8	76.7	78.2	79.4	80.4	81.2	81.9				22
24	66.0	70.1	73.1	75.2	76.9	78.2	79.3	80.2	81.0	81.6			24
26	63.4	68.1	71.4	73.8	75.6	77.1	78.3	79.3	80.1	80.8	81.4		26
28	60.8	66.0	69.6	72.3	74.3	75.9	77.2	78.3	79.2	80.0	80.6	81.2	28
30	58.2	63.9	67.9	70.8	73.0	74.7	76.1	77.3	78.3	79.1	79.9	80.5	30
32	55.4	61.8	66.1	69.2	71.6	73.5	75.1	76.3	77.4	78.3	79.1	79.8	32
34	52.6	59.6	64.3	67.7	70.3	72.3	74.0	75.3	76.5	77.5	78.3	79.1	34
36	49.6	57.3	62.5	66.1	68.9	71.1	72.9	74.3	75.6	76.6	77.5	78.3	36
38	46.6	55.0	60.6	64.6	67.5	69.9	71.8	73.4	74.7	75.8	76.8	77.6	38
40	43.3	52.7	58.7	63.0	66.2	68.7	70.7	72.4	73.8	74.9	76.0	76.9	40
45	34.2	46.4	53.8	58.9	62.6	65.6	67.9	69.8	71.4	72.8	74.0	75.0	45
50	22.0	39.4	48.5	54.8	59.0	62.4	65.1	67.3	69.1	70.7	72.0	73.2	50
55		31.1	42.8	50.0	55.2	59.1	62.2	64.7	66.7	68.5	70.0	71.3	55
60		20.0	36.4	45.2	51.2	55.7	59.2	62.0	64.3	66.3	67.9	69.4	60
65			28.7	39.9	47.0	52.1	56.1	59.2	61.8	64.0	65.8	67.4	65
70			18.5	33.9	42.5	48.4	52.9	56.4	59.3	61.7	63.7	65.5	70
75				26.9	37.5	44.5	49.5	53.5	56.7	59.3	61.6	63.5	75
80				17.3	31.9	40.2	46.0	50.5	54.0	56.9	59.4	61.5	80
85					25.3	35.5	42.3	47.3	51.2	54.5	57.1	59.4	85
90					16.3	30.3	38.3	44.0	48.4	51.9	54.8	57.3	90
95						24.0	33.8	40.4	45.3	49.3	52.5	55.2	95
100						15.5	28.8	36.8	42.2	45.5	50.0	53.0	100
105							22.8	32.4	38.8	43.6	47.5	50.7	105
110								27.6	35.1	40.6	44.8	48.3	110
115								21.9	31.0	37.3	42.1	45.9	115
120	NOTE: THIS IS A RANGE CHART								26.5	33.8	39.1	43.3	120
125	NOT A CAPACITY CHART								21.0	29.9	36.0		125

MANITOWOC ENGINEERING CO.

(A division of The Manitowoc Company, Inc.) Manitowoc, Wisconsin 54220

**LOAD LINE SPECIFICATIONS****LIFT CRANE — BOOM NO. 16 WITH OPEN THROAT TOP**

BOOM OR BOOM AND JIB LENGTH FEET	WHIP LINE LEFT DRUM FEET		LOAD LINE RIGHT DRUM FEET	MAXIMUM REQUIRED PARTS OF LINE
	1 PART	2 PART		
50	125	175	380	6
60	145	205	415	6
70	165	235	445	5
80	185	265	505	5
90	205	295	505	4
100	225	325	525	4
110	245	355	525	3
120	265	385	525	3
130	285	415	545	3
140	305	445	585	3
150	325	475	585	2
160	345	505	585	2
170	365	---		
180	385	---		
190	405	---		
200	425	---		
210	445	---		
220	465	---		

LOAD LINE: 1" — 6 x 25 Filler Wire, Improved Plow Steel, Regular Lay, IWRC. Minimum Breaking Strength 44.9 Ton.
(Approx. Weight Per Ft. in Lbs. 1.85)

HOIST REEVING FOR MAIN LOAD BLOCK						
No. Parts of Line	1	2	3	4	5	6
Maximum Load — Lbs.	22,500	45,000	67,500	90,000	112,500	130,000

WHIP LINE: 7/8" — 6 x 25 Filler Wire, Improved Plow Steel, Regular Lay, IWRC. Minimum Breaking Strength 34.6 Ton. Maximum Load = 17,300 Lbs./Line.
(Approx. Weight Per Ft. in Lbs. 1.42)

MASTER

