

# **NATIONAL CRANE**

by **Manitowoc**

## **LOAD CHARTS NBT45**

### **85% STABILITY ON OUTRIGGERS**

**300750**  

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**SERIAL NUMBER**



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## NOTES FOR LIFTING CAPACITIES

### GENERAL:

1. Rated loads as shown on lift chart pertain to this machine as originally manufactured and equipped. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Construction equipment can be hazardous if improperly operated or maintained. Operation and maintenance of this machine shall be in compliance with the information in the Operator's and Safety Handbook, Service Manual and Parts Manual supplied with this machine. If these manuals are missing, order replacements from the manufacturer through the distributor.
3. The operator and other personnel associated with machine shall fully acquaint themselves with the latest American National Safety Standards (ASME/ANSI) for cranes.

### SETUP:

1. The machine shall be level and on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the load to a larger bearing surface.
2. For outrigger operation, all outriggers shall be properly extended with tires raised free of crane weight before operating the boom or lifting loads.
3. When machine is equipped with center front stabilizer, the front stabilizer shall be set in accordance with instructions in Operator's and Safety Handbook.
4. When equipped with removable and/or extendible counterweight, the proper counterweight shall be installed and fully extended before and during operation.
5. With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard cable lengths.
6. Unless approved by the crane manufacturer, do not travel with boom extension or jib erected unless otherwise noted. Refer to Operator's and Safety Handbook for job-site travel information.
7. Inspect vehicle and crane including crane operation prior to use each day.
8. Always level the crane with the level indicator located at each outrigger control station.

### OPERATION:

1. Rated loads at rated radius shall not be exceeded. Do not attempt to tip the machine to determine allowable loads. For clamshell, grapple, magnet or concrete bucket operation, weight of component and load must not exceed 80% of rated lifting capacities.
2. All rated loads have been tested to and meet the requirements of SAE J1063 - Cantilevered Boom Crane Structures - Method of Test, and do not exceed 85% of the tipping load on outriggers fully extended, and SAE J1289 - Mobile Crane Stability Ratings [ $1.25P < (T-0.1A)$ ] on outriggers 50% and 0% extended (fully retracted) as determined by SAE J765 - Crane Stability Test Code.
3. Rated loads include the weight of hookblock, slings and auxiliary lifting devices and their weights shall be subtracted from the listed rating to obtain the net load to be lifted. When more than the minimum required parts of line needed to pick the load are used, the additional rope weight as measured from the lower sheaves of the main boom nose shall be considered part of the load to be lifted. When both the hook block and headache ball are reeved, the lifting device that is NOT in use, including the line as measured from the lower sheave(s) of the nose supporting the unused device shall be considered part of the load.
4. Load ratings are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.
5. The maximum in-service wind speed is 20 m.p.h. on the boom capacities and 15 m.p.h. on the jib capacities. It is recommended when wind velocity is above 20 m.p.h., rated loads and boom lengths shall be appropriately reduced. For machines not in-service, the main boom should be retracted and lowered with the swing brake set in wind velocities over 30 m.p.h.
6. Rated loads are for lift crane service only.
7. Do not operate at a radius or boom length where capacities are not listed. At these positions, the machine may overturn without any load on the hook.
8. The maximum load which can be telescoped is not definable because of variations in loadings and crane maintenance, but it is safe to attempt retraction and extension of the boom within the limits of the capacity chart.
9. When the boom length or lift radius or both are between values listed, the smallest load shown at either the next larger radius or next longer or shorter boom length shall be used.
10. For safe operation, the user shall make due allowances for his particular job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping of loads, experience of personnel, two machine (tandem) lifts, traveling with loads, electric wires, obstacles, hazardous conditions, etc. Side pull on boom or jib is extremely dangerous.

## NOTES FOR LIFTING CAPACITIES (cont'd.)

### OPERATION (cont'd.):

11. When handling personnel, the requirements of the applicable national, state, and local regulations and safety codes must be met.
12. The boom angle before loading should be greater than the loaded boom angle to account for deflection.
13. Capacities appearing above the bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.
14. When operating the machine in the "On Outriggers 50% Extended (17.5' spread)" mode, the outrigger beam pins must be engaged. When operating in the "On Outriggers 0% Extended (6.5' spread)" mode, the outrigger beams must be fully retracted. Failure to follow these precautions could result in structural damage or loss of stability of the machine.
15. Do not lift loads when boom is fully lowered. The Rated Capacity Limiter (RCL) senses pressure and will not provide warnings or lockout. The crane can become overloaded if lift cylinder(s) is fully retracted.
16. Use RCL/angle indicator as reference only.
17. Do not exceed extension capacities at any reduced boom length.
18. Capacities for the 31 ft. boom length shall be lifted with boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for the 43 ft. boom length.
19. Always pay out load line before extending boom to avoid damaging loadline or crane structure or tripping anti-two-block system.
20. The maximum outrigger pad load is 63,100 lb. (for a GVW of 19,760 lb - minimum chassis requirement).
21. Loads lifted must be within safe winch capacity. Multiple part rope reeving must be used on loads exceeding winch single part rated pull. Auxiliary boom head rated for single part use except multi-reeve group used for nominal rated load. Extensions are rated for single part use only.
22. Do not operate the boom over personnel or allow them to walk or stand beneath the boom or load.
23. Do not allow personnel on carrier deck or crane frame area when rotating crane.
24. Rated loads must be reduced when lifting at the boom tip with jib stowed or erected. Refer to the chart labeled "Rated Load Reductions with Extension" for the reduction at each boom length.
25. Do not allow personnel to ride on hook, hook block, or load. Handling of personnel is only permitted with full extension of all outrigger beams. Use only National Crane approved baskets for boom attached platforms.
26. If using an offsettable extension, do not use personnel basket with extension deployed at 30 degree offset.
27. Operate controls slowly and smoothly to avoid damage to crane or personnel.
28. Boom must be in carrying rack and outriggers fully retracted for travel.
29. Maintain a clearance of at least 10 feet between any part of the crane, loadline, or load, and any electrical line carrying up to 50,000 volts. One foot of clearance is required for every additional 30,000 volts or less.

### DEFINITIONS:

1. Operating Radius: Horizontal distance from a projection of the axis of rotation to the supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle (Shown in Parenthesis on Main Boom Capacity Chart): is the angle between the boom base section and the horizontal, after lifting the rated load at the rated radius with the rated boom length.
3. Working Area: Areas measured in a circular arc about the center line of rotation as shown on the working area diagram.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the lift cable.
5. Side Load: Horizontal force applied to the lifted load either on the ground or in the air.
6. No load stability limit: The stability limit radius is the radius beyond which it is not permitted to position the boom plus block configuration because machine can overturn without any load on the hook.
7. Structural length limit: An area where the boom, or the boom with extension deployed, cannot be extended because of structural limitations.

## CAPACITY REDUCTIONS FOR SYNTHETIC ROPE USE:

If only synthetic rope is installed on the hoist(s), the following capacity reductions apply:

	Main boom charts	Extension charts
Outriggers fully extended	140 lb	0 lb
Outriggers 50% extended	270 lb	0 lb
Outriggers 0% extended	450 lb	N/A

If synthetic rope is installed on either the main or aux hoist, and wire rope is installed on the other hoist, no capacity reductions are required.

## LINE PULLS AND REEVING INFORMATION

HOISTS	CABLE SPECS.	PERMISSIBLE LINE PULLS	NOMINAL CABLE LENGTH
Main & Aux	5/8" (16 mm) 35x7 Class EEIPS, WSC Min. breaking strength 56,400 lb	11,250 lb*	450 ft.
Main & Aux	18 mm Synthetic K-100 Hoist Rope (ISO) Min. breaking strength 63,700 lb	12,740 lb*	463 ft.

The approximate weight of 5/8" wire rope is 1.0 lb/ft.

The approximate weight of 18 mm synthetic rope is 0.16 lb/ft.

\* With certain boom and hoist tackle combinations, the allowable line pull may be limited by hoist performance. Refer to Hoist Performance table for lift planning to ensure adequate hoist performance on drum rope layer required.

Parts of line	1	2	3	4	5	6	7	8
Max. boom length (ft.) at max. elevation with stated rigging and load block at ground level	197	142	103	81	66	55	47	40
Low speed lift (lb)	11250	22500	33750	45000	56250	67500	78750	90000
High speed lift (lb)	5000	10000	15000	20000	25000	30000	35000	40000

## HOIST PERFORMANCE

Wire Rope Layer	Hoist Line Pulls		Drum Rope Capacity (ft.)	
	Two Speed Hoist			
	Low	High		
	Available lb*	Available lb*	Layer	Total
1	15,000	7,516	82	82
2	13,529	6,765	92	174
3	12,299	6,150	101	275
4	11,275	5,637	110	385
5	10,407	5,204	119	504

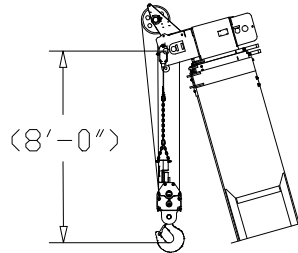
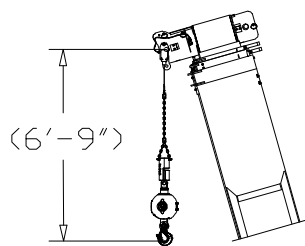
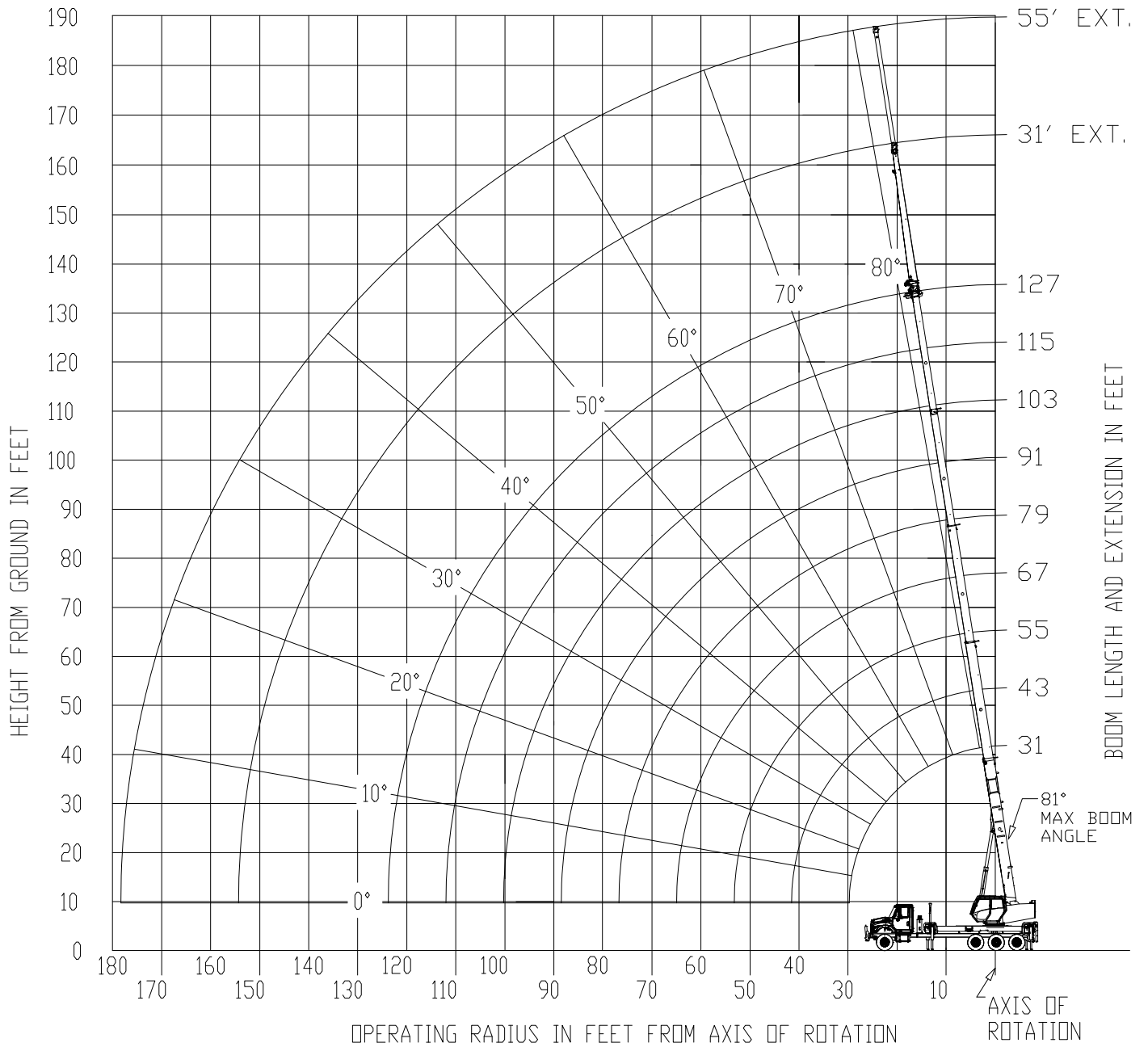
\* Refer to Line Pulls and Reeving Information table for max. lifting capacity of wire rope.

Synthetic rope layer height may vary and may reduce available line pull per layer.

# GEOMETRIC RANGE DIAGRAM

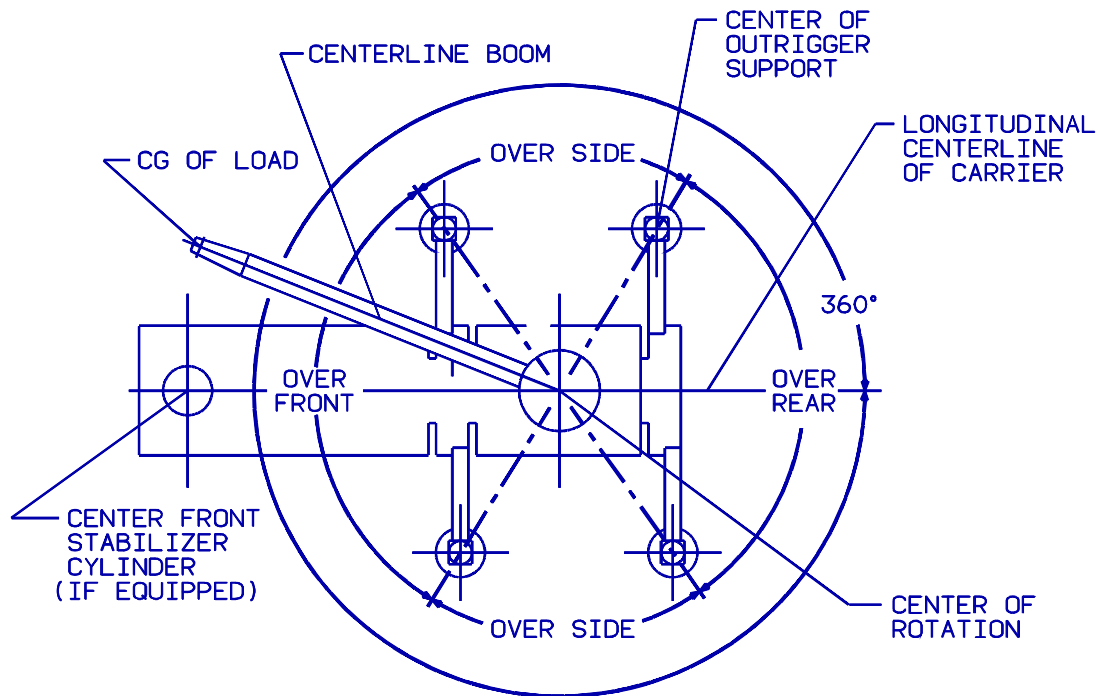
(BOOM DEFLECTION NOT SHOWN)

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DIMENSIONS ARE FOR LARGEST FURNISHED HOOK BLOCK & HEADACHE BALL, WITH ANTI-TWO BLOCK ACTIVATED.

\*DRAWING IS TO SHOW THE PHYSICAL REACH OF THE MACHINE. ALWAYS REFER TO LOAD CHART TO SEE WHAT PORTIONS OF THIS RANGE ARE STRUCTURALLY AND STABILITY LIMITED.



6-829-005671

BOLD LINES DETERMINE THE LIMITING POSITION OF ANY  
LOAD FOR OPERATION WITHIN WORKING AREAS INDICATED  
WORKING AREA DIAGRAM

## WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

AUXILIARY BOOM NOSE	71 lb
HOOKBLOCKS and HEADACHE BALLS:	
50 ton, 4 sheave	800 lb+
40 ton, 3 sheave	600 lb+
30 ton, 2 sheave	500 lb+
20 ton, 1 sheave	400 lb+
7 ton overhaul ball	250 lb+

+Refer to rating plate for actual weight.

When lifting over boom extension, deduct total weight of all load handling devices reeved over main boom nose directly from boom extension capacity.

**NOTE:** All load handling devices and boom attachments are considered part of the load and suitable allowances **MUST BE MADE** for their combined weights. Weights are for National Crane furnished equipment.

## RCL operating codes for use with Man Basket:

- #11 - Man Basket on main boom
- #12 - Man Basket on 31 ft. tele extension
- #13 - Man Basket on 55 ft. tele extension



# RATED LIFTING CAPACITIES IN POUNDS WITHOUT STOWED EXTENSION 31 FT. - 127 FT. BOOM

## ON OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	#01								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	90,000 (73.6)								
8	81,400 (71.6)								
10	69,600 (67.6)	41,000 (74.2)							
12	57,600 (63.4)	41,000 (71.4)	40,500 (75.8)	40,300 (78.8)					
15	45,300 (56.8)	39,000 (67)	40,500 (72.6)	37,300 (76.2)	28,700 (78.6)	21,850 (80.4)			
20	32,700 (44.4)	33,200 (59.4)	33,600 (66.9)	33,400 (71.7)	25,100 (74.9)	19,400 (77.2)	16,300 (79.2)	12,850 (80.7)	
25	24,900 (27.8)	25,450 (51)	25,900 (61)	26,100 (67)	22,200 (71.1)	17,250 (74)	14,950 (76.5)	12,600 (78.4)	10,000 (79.9)
30		20,250 (41.4)	20,700 (54.6)	20,900 (62.1)	20,150 (67.2)	15,650 (70.8)	13,700 (73.7)	11,800 (76)	9,900 (77.9)
35		16,450 (29.4)	16,950 (47.8)	17,100 (57)	17,300 (63.1)	14,450 (67.4)	12,650 (70.8)	10,950 (73.7)	9,500 (75.8)
40			13,450 (40)	13,650 (51.6)	13,850 (58.8)	13,250 (63.9)	11,600 (67.9)	10,300 (71.2)	9,000 (73.6)
45			11,050 (30.6)	11,200 (45.7)	11,350 (54.3)	11,500 (60.3)	10,700 (65.1)	9,600 (68.6)	8,600 (71.4)
50			9,100 (18.5)	9,400 (39.8)	9,550 (50)	9,700 (56.8)	9,850 (62)	9,000 (65.9)	8,100 (69)
55				7,850 (32.2)	8,050 (44.8)	8,150 (52.7)	8,300 (58.6)	8,350 (63.1)	7,650 (66.7)
60				6,600 (22.3)	6,800 (39.2)	6,900 (48.4)	7,050 (55.1)	7,150 (60.1)	7,200 (64.2)
65					5,750 (32.7)	5,900 (43.9)	6,000 (51.4)	6,100 (57)	6,200 (61.5)
70					4,900 (24.7)	5,000 (38.9)	5,150 (47.5)	5,200 (53.7)	5,300 (58.6)
75					4,150 (12.4)	4,300 (33.2)	4,400 (43.3)	4,450 (50.3)	4,550 (55.7)
80						3,650 (26.5)	3,750 (38.8)	3,800 (46.8)	3,900 (52.7)
85						3,050 (17.4)	3,200 (33.8)	3,250 (43)	3,350 (49.5)
90							2,700 (28)	2,750 (38.9)	2,850 (46.2)
95							2,250 (20.6)	2,300 (34.3)	2,400 (42.7)
100							1,850 (7.1)	1,950 (29.2)	2,000 (38.9)
105								1,550 (22.9)	1,650 (34.8)
110								1,250 (13.9)	1,300 (30.1)
115									1,000 (24.7)
Minimum boom angle (°) for indicated length (no load)									0
Maximum boom length (ft.) at 0° boom angle (no load)									127

NOTE: ( ) Boom angles are in degrees.

#RCL operating code. Refer to RCL manual for operating instructions.

Lifting Capacities at Zero Degree Boom Angle									
Boom Angle	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	
0°	21,200 (28.5)	12,900 (40.5)	8,200 (52.5)	5,600 (64.5)	3,900 (76.5)	2,700 (88.5)	1,800 (100.5)	1,100 (112.5)	

NOTE: ( ) Reference radii in feet.

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Rated Load Reductions from main boom capacity when lifting over main boom nose with ext. erected (retracted):									
(in lb)	2,300	2,150	2,000	1,950	1,900	1,850	1,800	1,750	1,700

# RATED LIFTING CAPACITIES IN POUNDS WITH STOWED EXTENSION 31 FT. - 127 FT. BOOM

ON OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	#02								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	89,200 (73.6)								
8	80,600 (71.6)								
10	68,800 (67.6)	40,350 (74.2)							
12	56,800 (63.4)	40,350 (71.4)	40,050 (75.8)	39,900 (78.8)					
15	44,500 (56.8)	38,350 (67)	40,050 (72.6)	36,900 (76.2)	28,350 (78.6)	21,550 (80.4)			
20	31,900 (44.4)	32,550 (59.4)	33,150 (66.9)	33,000 (71.7)	24,750 (74.9)	19,100 (77.2)	16,050 (79.2)	12,600 (80.7)	
25	24,100 (27.8)	24,800 (51)	25,450 (61)	25,700 (67)	21,850 (71.1)	16,950 (74)	14,700 (76.5)	12,350 (78.4)	9,800 (79.9)
30		19,600 (41.4)	20,250 (54.6)	20,500 (62.1)	19,800 (67.2)	15,350 (70.8)	13,450 (73.7)	11,550 (76)	9,700 (77.9)
35		15,800 (29.4)	16,500 (47.8)	16,700 (57)	16,950 (63.1)	14,150 (67.4)	12,400 (70.8)	10,700 (73.7)	9,300 (75.8)
40			13,000 (40)	13,250 (51.6)	13,500 (58.8)	12,950 (63.9)	11,350 (67.9)	10,050 (71.2)	8,800 (73.6)
45			10,600 (30.6)	10,800 (45.7)	11,000 (54.3)	11,200 (60.3)	10,450 (65.1)	9,350 (68.6)	8,400 (71.4)
50			8,650 (18.5)	9,000 (39.8)	9,200 (50)	9,400 (56.8)	9,600 (62)	8,750 (65.9)	7,900 (69)
55				7,450 (32.2)	7,700 (44.8)	7,850 (52.7)	8,050 (58.6)	8,100 (63.1)	7,450 (66.7)
60				6,200 (22.3)	6,450 (39.2)	6,600 (48.4)	6,800 (55.1)	6,900 (60.1)	7,000 (64.2)
65					5,400 (32.7)	5,600 (43.9)	5,750 (51.4)	5,850 (57)	6,000 (61.5)
70					4,550 (24.7)	4,700 (38.9)	4,900 (47.5)	4,950 (53.7)	5,100 (58.6)
75					3,800 (12.4)	4,000 (33.2)	4,150 (43.3)	4,200 (50.3)	4,350 (55.7)
80						3,350 (26.5)	3,500 (38.8)	3,550 (46.8)	3,700 (52.7)
85						2,750 (17.4)	2,950 (33.8)	3,000 (43)	3,150 (49.5)
90							2,450 (28)	2,500 (38.9)	2,650 (46.2)
95							2,000 (20.6)	2,050 (34.3)	2,200 (42.7)
100							1,600 (7.1)	1,700 (29.2)	1,800 (38.9)
105								1,300 (22.9)	1,450 (34.8)
110								1,000 (13.9)	1,100 (30.1)
115									800 (24.7)
Minimum boom angle (°) for indicated length (no load)									0
Maximum boom length (ft.) at 0° boom angle (no load)									127

NOTE: ( ) Boom angles are in degrees.

#RCL operating code. Refer to RCL manual for operating instructions.

Lifting Capacities at Zero Degree Boom Angle									
Boom Angle	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	
0°	20,400 (28.5)	12,250 (40.5)	7,750 (52.5)	5,200 (64.5)	3,550 (76.5)	2,400 (88.5)	1,550 (100.5)	850 (112.5)	

NOTE: ( ) Reference radii in feet.

80026003

## 31 FT. - 55 FT. TELE BOOM EXTENSION

### ON OUTRIGGERS FULLY EXTENDED - 360°

Radius in Feet	31 ft. LENGTH
	<b>#03</b>
30	3,400 (80)
46	3,200 (75)
60	2,700 (70)
73	2,100 (65)
85	1,700 (60)
96	1,200 (55)
106	650 (50)
Min. boom angle for indicated length (no load)	40.2°
Max. boom length at 0° boom angle (no load)	91 ft.

Radius in Feet	55 ft. LENGTH
	<b>#04</b>
36	2,200 (80)
54	2,200 (75)
70	1,600 (70)
85	1,000 (65)
Min. boom angle for indicated length (no load)	42.8°
Max. boom length at 0° boom angle (no load)	91 ft.

80025875A

NOTE: ( ) Boom angles are in degrees.  
#RCL operating code. Refer to RCL manual for  
operating instructions.

#### BOOM EXTENSION CAPACITY NOTES:

1. All capacities above the bold line are based on structural strength of boom extension.
2. 31 ft. and 55 ft. extension lengths may be used for single line lifting service.
3. Radii listed are for a fully extended boom with the boom extension erected. For main boom lengths less than fully extended, the rated loads are determined by boom angle. For boom angles not shown, use the rating of the next lower boom angle.

**WARNING:** Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advance warning.

4. Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
5. Capacities listed are with outriggers properly extended and vertical jacks set.
6. When lifting over the main boom nose with 31 ft. or 55 ft. extension erected, the outriggers must be fully extended or 50% extended (17.5' spread).

**RATED LIFTING CAPACITIES IN POUNDS WITHOUT STOWED EXTENSION  
31 FT. - 127 FT. BOOM**

**ON OUTRIGGERS 50% EXTENDED (17.5 ft. spread) - 360°**

Radius in Feet	#21								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	90,000 (73.6)								
8	81,400 (71.6)								
10	69,600 (67.6)	41,000 (74.2)							
12	57,600 (63.4)	41,000 (71.4)	40,500 (75.8)	40,300 (78.8)					
15	45,300 (56.8)	39,000 (67)	40,500 (72.6)	37,300 (76.2)	28,700 (78.6)	21,850 (80.4)			
20	28,900 (44.4)	29,800 (59.4)	30,350 (66.9)	30,750 (71.7)	25,100 (74.9)	19,400 (77.2)	16,300 (79.2)	12,850 (80.7)	
25	18,000 (27.8)	18,900 (51)	19,350 (61)	19,700 (67)	19,950 (71.1)	17,250 (74)	14,950 (76.5)	12,600 (78.4)	10,000 (79.9)
30		13,150 (41.4)	13,550 (54.6)	13,850 (62.1)	14,050 (67.1)	14,300 (70.8)	13,700 (73.7)	11,800 (76)	9,900 (77.9)
35		9,500 (29.4)	9,950 (47.7)	10,200 (56.9)	10,400 (62.9)	10,550 (67.4)	10,750 (70.8)	10,950 (73.7)	9,500 (75.8)
40			7,600 (40.7)	7,850 (52)	8,000 (59)	8,150 (64)	8,350 (68)	8,350 (71.2)	8,550 (73.6)
45			5,750 (31.5)	6,000 (46.1)	6,200 (54.5)	6,350 (60.3)	6,500 (64.8)	6,600 (68.4)	6,750 (71.4)
50			4,350 (18.5)	4,650 (39.6)	4,800 (49.7)	4,950 (56.4)	5,050 (61.4)	5,200 (65.5)	5,300 (68.8)
55				3,550 (32)	3,750 (44.6)	3,850 (52.4)	3,950 (58)	4,050 (62.5)	4,200 (66.1)
60				2,700 (22.2)	2,850 (38.9)	2,950 (48.1)	3,100 (54.5)	3,150 (59.4)	3,250 (63.3)
65					2,150 (32.5)	2,250 (43.5)	2,350 (50.8)	2,450 (56.2)	2,500 (60.5)
70					1,500 (24.5)	1,650 (38.5)	1,750 (46.9)	1,800 (53)	1,900 (57.7)
75					1,000 (12.2)	1,150 (32.9)	1,200 (42.8)	1,300 (49.6)	1,350 (54.7)
80							750 (38.3)	850 (46)	900 (51.7)
Minimum boom angle (°) for indicated length (no load)						0	27.4	38	41.7
Maximum boom length (ft.) at 0° boom angle (no load)						91			

NOTE: ( ) Boom angles are in degrees.

#RCL operating code. Refer to RCL manual for operating instructions.

Lifting Capacities at Zero Degree Boom Angle									
Boom Angle	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D				
0°	13,950 (28.5)	7,100 (40.5)	3,750 (52.5)	2,000 (64.5)	850 (76.5)				

NOTE: ( ) Reference radii in feet.

80025873A

Rated Load Reductions from main boom capacity when lifting over main boom nose with ext. erected (retracted):									
(in lb)	2,300	2,150	2,000	1,950	1,900	1,850	1,800	1,750	1,700

**RATED LIFTING CAPACITIES IN POUNDS WITH STOWED EXTENSION**  
**31 FT. - 127 FT. BOOM**

**ON OUTRIGGERS 50% EXTENDED (17.5 ft. spread) - 360°**

Radius in Feet	#22								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	89,200 (73.6)								
8	80,600 (71.6)								
10	68,800 (67.6)	40,350 (74.2)							
12	56,800 (63.4)	40,350 (71.4)	40,050 (75.8)	39,900 (78.8)					
15	44,500 (56.8)	38,350 (67)	40,050 (72.6)	36,900 (76.2)	28,350 (78.6)	21,550 (80.4)			
20	28,100 (44.4)	29,150 (59.4)	29,900 (66.9)	30,350 (71.7)	24,750 (74.9)	19,100 (77.2)	16,050 (79.2)	12,600 (80.7)	
25	17,200 (27.8)	18,250 (51)	18,900 (61)	19,300 (67)	19,600 (71.1)	16,950 (74)	14,700 (76.5)	12,350 (78.4)	9,800 (79.9)
30		12,500 (41.4)	13,100 (54.6)	13,450 (62.1)	13,700 (67.1)	14,000 (70.8)	13,450 (73.7)	11,550 (76)	9,700 (77.9)
35		8,850 (29.4)	9,500 (47.7)	9,800 (56.9)	10,050 (62.9)	10,250 (67.4)	10,500 (70.8)	10,700 (73.7)	9,300 (75.8)
40			7,150 (40.7)	7,450 (52)	7,650 (59)	7,850 (64)	8,100 (68)	8,100 (71.2)	8,350 (73.6)
45			5,300 (31.5)	5,600 (46.1)	5,850 (54.5)	6,050 (60.3)	6,250 (64.8)	6,350 (68.4)	6,550 (71.4)
50			3,900 (18.5)	4,250 (39.6)	4,450 (49.7)	4,650 (56.4)	4,800 (61.4)	4,950 (65.5)	5,100 (68.8)
55				3,150 (32)	3,400 (44.6)	3,550 (52.4)	3,700 (58)	3,800 (62.5)	4,000 (66.1)
60				2,300 (22.2)	2,500 (38.9)	2,650 (48.1)	2,850 (54.5)	2,900 (59.4)	3,050 (63.3)
65					1,800 (32.5)	1,950 (43.5)	2,100 (50.8)	2,200 (56.2)	2,300 (60.5)
70					1,150 (24.5)	1,350 (38.5)	1,500 (46.9)	1,550 (53)	1,700 (57.7)
75					650 (12.2)	850 (32.9)	950 (42.8)	1,050 (49.6)	1,150 (54.7)
80							500 (38.3)	600 (46)	700 (51.7)
Minimum boom angle (°) for indicated length (no load)						0	27.4	38	41.7
Maximum boom length (ft.) at 0° boom angle (no load)						91			

NOTE: ( ) Boom angles are in degrees.

#RCL operating code. Refer to RCL manual for operating instructions.

Lifting Capacities at Zero Degree Boom Angle									
Boom Angle	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D				
0°	13,150 (28.5)	6,450 (40.5)	3,300 (52.5)	1,600 (64.5)	500 (76.5)				

NOTE: ( ) Reference radii in feet.

80026006A

## 31 FT. - 55 FT. TELE BOOM EXTENSION

ON OUTRIGGERS 50% EXTENDED (17.5 ft. spread) - 360°

Radius in Feet	31 ft. LENGTH
	<b>#23</b>
30	3,400 (80)
46	3,200 (75)
58	900 (70)
Min. boom angle for indicated length (no load)	55°
Max. boom length at 0° boom angle (no load)	67 ft.

80025876A

NOTE: ( ) Boom angles are in degrees.  
#RCL operating code. Refer to RCL manual for  
operating instructions.

### BOOM EXTENSION CAPACITY NOTES:

1. All capacities above the bold line are based on structural strength of boom extension.
2. 31 ft. extension length may be used for single line lifting service. (WARNING: Lifting with 55 ft. extension length is not permitted on partial outrigger spread.)
3. Radii listed are for a fully extended boom with the boom extension erected. For main boom lengths less than fully extended, the rated loads are determined by boom angle. For boom angles not shown, use the rating of the next lower boom angle.  
  
**WARNING:** Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advance warning.
4. Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
5. Capacities listed are with outriggers properly extended and vertical jacks set only
6. When lifting over the main boom nose with 31 ft. or 55 ft. extension erected, the outriggers must be fully extended or 50% extended (17.5' spread).

**RATED LIFTING CAPACITIES IN POUNDS WITHOUT STOWED EXTENSION  
31 FT. - 127 FT. BOOM**

**ON OUTRIGGERS 0% EXTENDED (6.5 ft. spread) - 360°**

Radius in Feet	#31								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	43,350 (73.5)								
8	32,950 (71.6)								
10	21,450 (67.5)	22,200 (74.1)							
12	15,200 (63.3)	15,900 (71.3)	16,300 (75.6)	16,600 (78.5)					
15	9,750 (56.7)	10,400 (66.9)	10,750 (72.3)	11,000 (75.7)	11,200 (78.2)	11,400 (80.1)			
20	5,150 (45.6)	5,800 (60)	6,100 (67.2)	6,350 (71.6)	6,500 (74.7)	6,650 (77)	6,800 (78.9)	6,950 (80.4)	
25	2,500 (29.7)	3,150 (51.7)	3,500 (61.3)	3,700 (66.9)	3,800 (70.8)	3,950 (73.6)	4,050 (75.9)	4,150 (77.7)	4,250 (79.3)
30		1,500 (42.3)	1,800 (55)	2,000 (62)	2,150 (66.8)	2,250 (70.2)	2,350 (72.8)	2,400 (75)	2,500 (76.7)
35				850 (57)	1,000 (62.7)	1,100 (66.7)	1,150 (69.8)	1,250 (72.2)	1,300 (74.2)
Minimum boom angle (°) for indicated length (no load)		30.6	40.5	51.6	58.4	63.1	66.6	69.4	71.60
Maximum boom length (ft.) at 0° boom angle (no load)	31								

NOTE: ( ) Boom angles are in degrees.

80025874

#RCL operating code. Refer to RCL manual for operating instructions.

(NOTE: Lifting over main boom nose with the tele extension erected with outriggers in the fully retracted position is prohibited.)

**RATED LIFTING CAPACITIES IN POUNDS WITH STOWED EXTENSION**  
**31 FT. - 127 FT. BOOM**

**ON OUTRIGGERS 0% EXTENDED (6.5 ft. spread) - 360°**

Radius in Feet	#32								
	Main Boom Length in Feet								
	31	43-A	55-B	67-C	79-D	91-E	103-F	115-G	127
7	42,550 (73.5)								
8	32,150 (71.6)								
10	20,650 (67.5)	21,550 (74.1)							
12	14,400 (63.3)	15,250 (71.3)	15,850 (75.6)	16,200 (78.5)					
15	8,950 (56.7)	9,750 (66.9)	10,300 (72.3)	10,600 (75.7)	10,850 (78.2)	11,100 (80.1)			
20	4,350 (45.6)	5,150 (60)	5,650 (67.2)	5,950 (71.6)	6,150 (74.7)	6,350 (77)	6,550 (78.9)	6,700 (80.4)	
25	1,700 (29.7)	2,500 (51.7)	3,050 (61.3)	3,300 (66.9)	3,450 (70.8)	3,650 (73.6)	3,800 (75.9)	3,900 (77.7)	4,050 (79.3)
30		850 (42.3)	1,350 (55)	1,600 (62)	1,800 (66.8)	1,950 (70.2)	2,100 (72.8)	2,150 (75)	2,300 (76.7)
35				450 (57)	650 (62.7)	800 (66.7)	900 (69.8)	1,000 (72.2)	1,100 (74.2)
Minimum boom angle (°) for indicated length (no load)		30.6	40.5	51.6	58.4	63.1	66.6	69.4	71.60
Maximum boom length (ft.) at 0° boom angle (no load)	31								

NOTE: ( ) Boom angles are in degrees.

80026017

#RCL operating code. Refer to RCL manual for operating instructions.