SERIAL NUMBER: P9J8-0930

CRANE RATING MANUAL

HTC-8675 *Series II*

4 - Section Boom

For Replacement, Order Part Number: P9P0002
(081908)

Link-Belt
CONSTRUCTION EQUIPMENT

⚠ WARNING

READ AND UNDERSTAND THE OPERATORS AND SAFETY MANUALS AND THE FOLLOWING INSTRUCTIONS AND RATED LIFTING CAPACITIES BEFORE OPERATING THE CRANE. OPERATION WHICH DOES NOT FOLLOW THESE INSTRUCTIONS MAY RESULT IN AN ACCIDENT.

Operating Instructions

General:

1. Rated lifting capacities in pounds as shown on lift charts pertain to this crane as originally manufactured and normally equipped by Link-Belt Construction Equipment Company (LBCE). Modifications to the crane or use of optional equipment other than that specified can result in a reduction in capacity.
2. Construction equipment can be dangerous if improperly operated or maintained. Operation and maintenance of this crane must be in compliance with the information in the Operator's, Parts, and Safety Manuals supplied with this crane. If these manuals are missing, order replacements through the distributor.
3. The operator and other personnel associated with this crane shall read and fully understand the latest applicable American National Standards ASME B30.5 safety standards for cranes.
4. The rated lifting capacities are based on crane standing level on firm supporting surface.

Set Up:

1. The crane shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger pontoons or tires to spread the load to a larger bearing surface.
2. When making lifts on outriggers, all tires must be free of supporting surface. All outrigger beams must be extended to the same length; fully retracted, intermediate extended, or fully extended. The front bumper outrigger must be properly extended.
3. When making lifts on tires, they must be inflated to the recommended pressure. (See Tire Inflation.)
4. Before swinging boom to over side position on tires, or on fully retracted outriggers where capacities are not published, boom sections must be fully retracted and 41° boom angle maintained.
5. For required parts of line, see Wire Rope Capacity Chart and Winch Performance.
6. Before setting up the crane, refer to Allowable Crane Configuration and rated lifting capacities to determine allowable crane configurations.

Operation:

1. Rated lifting capacities at rated radius shall not be exceeded. Do not tip the crane to determine allowable loads.
2. Rated lifting capacities shall be reduced for repetitive lift applications. For concrete bucket operation, weight of bucket and load shall not exceed 80% of rated load. For duty cycle operation, such as loading and unloading, maximum allowable load shall not exceed 70% of rated load. For clamshell and magnet operation, weight of bucket, or magnet, and load shall not exceed 70% of rated load. Lifts with fly erected are prohibited for clamshell and magnet operation.
3. Rated lifting capacities shown on fully extended outriggers do not exceed 85% of the tipping loads. Rated lifting capacities shown on intermediate extended or fully retracted outriggers are determined by the formula, rated load = (tipping load – 0.1 X load factor)/1.25. Rated lifting capacities shown on tires do not exceed 75% of the tipping loads. Tipping loads are determined by SAE crane stability test code J–765.
4. Rated lifting capacities in the shaded areas are based on structural strength or hydraulic limitations and have been tested to meet minimum requirements of SAE J–1063 cantilevered boom crane structures – method of test. Rated lifting capacities in non–shaded areas are based on stability ratings.
5. Rated lifting capacities include the weight of the hook block, hook ball, slings, bucket, magnet, auxiliary lifting devices, etc. Their weights must be subtracted from the listed rated capacity to obtain the net load which can be lifted. Rated lifting capacities include the deduct for either fly stowed on the base of the boom. For deducts of any fly erected, but not used, see Capacity Deductions.
6. Rated lifting capacities are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.
7. Rated lifting capacities are for lift crane service only.
8. Do not operate at radii or boom lengths (minimum or maximum) where capacities are not listed. At these positions, the crane can tip or cause boom failure.
9. The maximum loads which can be telescoped are not definable because of variation in loadings and crane maintenance, but it is permissible to attempt retraction and extension within the limits of the applicable load rating chart.

10. Boom extend mode EM4 is for fixed boom lengths only as shown on load rating charts. Rated lifting capacities are based on all sections pinned together and the telescope cylinder unlatched. There is a 10,000 lb capacity given for telescoping the boom with rigging to the appropriate lengths for pinning the section(s) only in EM4 boom mode. Do not attempt to extend or retract the boom with more than 10,000 lb of rigging when utilizing EM4 boom mode.
11. For main boom capacities when either boom length or radius, or both are between values listed, proceed as follows:
    a. For boom lengths not listed, use rating for next longer boom length or next shorter boom length, whichever is smaller.
    b. For load radii not listed, use rating for next larger radius.
12. The user shall operate at reduced ratings to allow for adverse job conditions such as: soft or uneven ground, out of level conditions, wind, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, traveling with loads, electrical wires, etc. Side load on boom or fly is dangerous and shall be avoided.
13. Rated lifting capacities do not account for the effects of wind on a suspended load or boom. Lifting capacities should be considered acceptable for wind speeds up to 20 mph and appropriately reduced for wind speeds greater than 20 mph. (See Wind Speed Restrictions.)
14. For cold weather operation, rated capacities should be reduced by the following rule: a 1% reduction in rated capacity should be taken for each 1°F below 0°F. Example: if the temperature is −10°F a 10% reduction in rated capacities should be taken, at −40°F a 40% reduction.
15. For auxiliary lifting sheave capacities, use main boom charts minus auxiliary lifting sheave deduct. (See Capacity Deductions.) The effective length of the boom increases by 2'.
16. Rated lifting capacities are based on correct reeving. A deduction must be made for excessive reeving. Any reeving over minimum required is considered excessive and must be accounted for when making lifts. Use Working Range Diagram to estimate the extra feet of rope, then deduct the required rope weight (listed on the Wire Rope Capacity Chart) for each extra foot of wire rope before attempting to lift a load.
17. The loaded boom angle combined with the boom length give only an approximation of the operating radius. The boom angle, before loading, should be greater to account for deflection. Some capacities are limited by a maximum obtainable 80° boom angle.
18. Fly capacities are determined by radius only for fully extended boom lengths of 98.7' and 127'. For radii not shown use rating for next larger radius For fly capacities with main boom length less than fully extended, the rated capacities are determined by the boom angle. For angles not shown use the next lower boom angle to determine the rated capacity.
19. The 41' boom length structural lifting capacities are based on boom fully retracted. If the boom is not fully retracted, do not exceed capacities shown for the 50' boom length.
20. Rated lifting capacities on tires depend on tire capacity, condition of tires, and tire air pressure. On tire capacities require lifting from main boom head only on a smooth and level surface. The boom must be centered over the rear of the crane with two position travel swing lock engaged and the load must be restrained from swinging. Pick and carry operations are restricted to maximum speed of 1 mph. For correct tire pressure, see Tire Inflation.

Definitions:

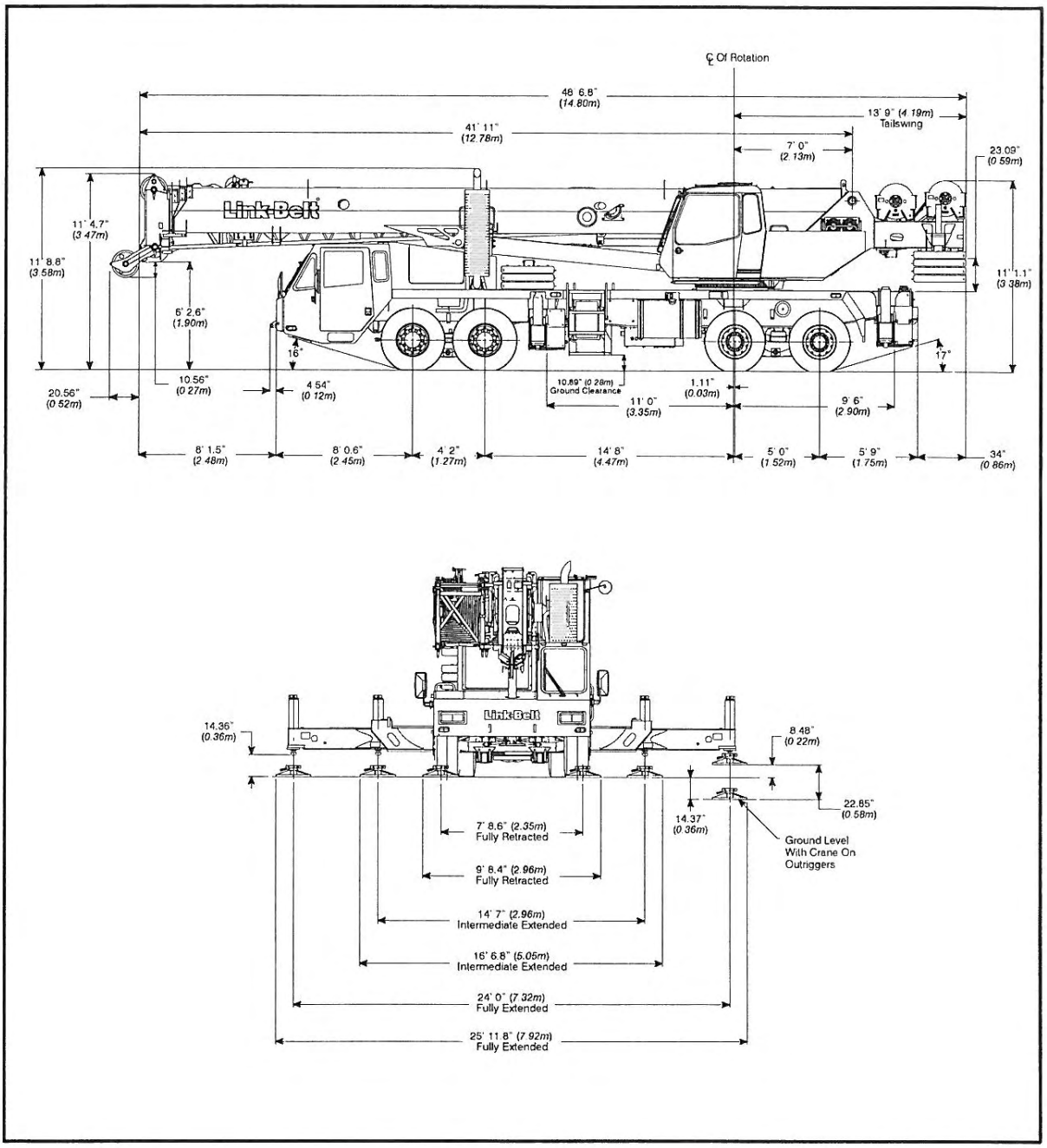
1. Loaded Boom Angle In Degrees: $\measuredangle^{\circ}$ The angle between the boom base section and horizontal with freely suspended load at the rated radius.
2. Load Radius: Horizontal distance from a projection of the axis of rotation to the supporting surface, before loading, to the center of the vertical hoist line or tackle with load applied.
3. Working Area: Area measured in a circular arc about the centerline of rotation as shown on the Working Areas Diagram.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.
6. No Load Stability Limit: The radius or boom angle beyond which it is not permitted to position the boom because the crane can overturn without any load on the hook.
7. Load Factor: Load applied at the boom tip which gives the same moment effect as the boom mass.

Patents:

1. This crane is covered by one or more of the following patents:

6,131,750	6,357,773
6,499,612	6,601,719

General Dimensions



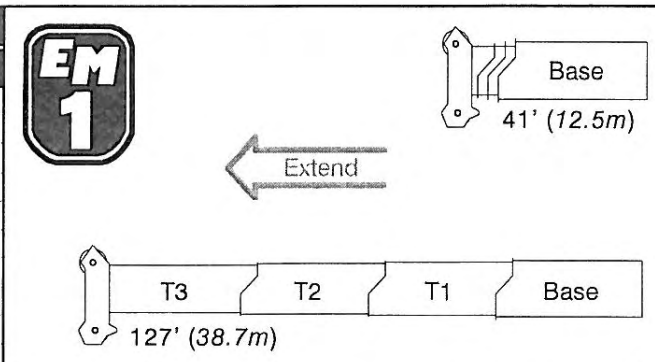
Tire Inflation

Tire Size	Operation	Tire Pressure (psi)
12 R 22.5	1 mph Stationary	120 120

Boom Extend Modes

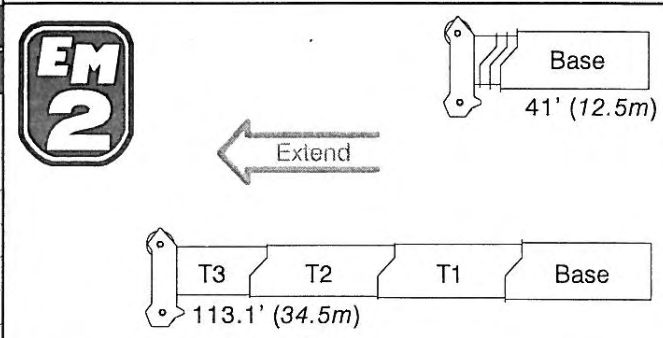
Boom Length (ft)	Boom Telescope Length (ft)		
	T3	T2	T1
41			
50	9.0		
60	19.0		
70	27.8	1.2	
80	27.8	11.2	
90	27.8	21.2	
100	27.8	28.7	2.5
110	27.8	28.7	12.5
120	27.8	28.7	22.5
127	27.8	28.7	29.5

EM 1



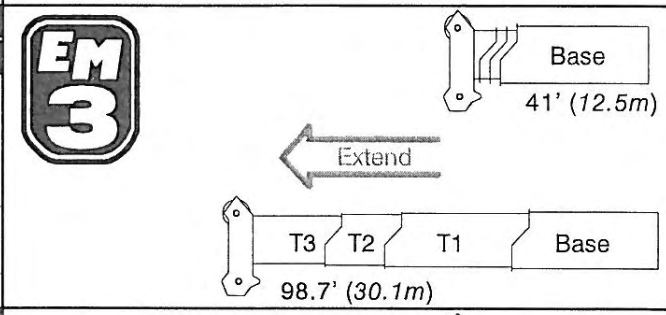
Boom Length (ft)	Boom Telescope Length (ft)		
	T3	T2	T1
41			
50	9.0		
60	13.9	5.1	
70	13.9	15.1	
80	13.9	25.1	
90	13.9	28.7	6.4
100	13.9	28.7	16.4
113.1	13.9	28.7	29.5

EM 2



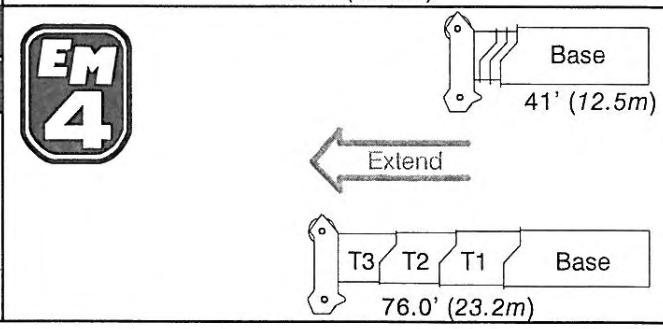
Boom Length (ft)	Boom Telescope Length (ft)		
	T3	T2	T1
41			
50	9.0		
60	13.9	5.1	
70	13.9	14.3	0.8
80	13.9	14.3	10.8
90	13.9	14.3	20.8
98.7	13.9	14.3	29.5

EM 3



Boom Length (ft)	Boom Fixed Length (ft)		
	T3	T2	T1
41			
47.0	6.0		
61.3	6.0	14.3	
76.0	6.0	14.3	14.7

EM 4



Boom Mode Performance – General Reference Guide

Shaded areas reflect maximum capacity at radius, based on boom modes and boom lengths.

0 lb Counterweight

Rad (ft)	EM 1 Boom Length (ft)	EM 2 Boom Length (ft)	EM 3 Boom Length (ft)	EM 4 Boom Length (ft)
	50			47.0
10				
20				
40				
	60			61.3
10				
25				
40				
50				
	70			76
12				
25				
40				
60				
	80			
12				
25				
40				
55				
70				
	90			
15				
30				
45				
60				
80				
	100		98.7	
20				
30				
45				
70				
90				
	110	113.1		
25				
45				
65				
85				
100				

10,800 lb Counterweight

Rad (ft)	EM 1 Boom Length (ft)	EM 2 Boom Length (ft)	EM 3 Boom Length (ft)	EM 4 Boom Length (ft)
	50			47.0
10				
20				
40				
	60			61.3
10				
25				
40				
50				
	70			76
12				
25				
40				
60				
	80			
12				
25				
40				
55				
70				
	90			
15				
30				
45				
60				
80				
	100		98.7	
20				
30				
45				
70				
90				
	110	113.1		
25				
45				
65				
85				
100				

18,400 lb Counterweight

Rad (ft)	EM 1 Boom Length (ft)	EM 2 Boom Length (ft)	EM 3 Boom Length (ft)	EM 4 Boom Length (ft)
	50			47.0
10				
20				
40				
	60			61.3
10				
25				
40				
50				
	70			76
12				
25				
40				
60				
	80			
12				
25				
40				
55				
70				
	90			
15				
30				
45				
60				
80				
	100		98.7	
20				
30				
45				
70				
90				
	110	113.1		
25				
45				
65				
85				
100				

Pontoon Loadings

Maximum Pontoon Load (lb)	Maximum Pontoon Ground Bearing Pressure (psi)
Front – 97,400	199
Rear – 106,000	217
Bumper – 51,000	262

Winch Performance

Wire Rope Layer	Winch Line Pulls		Drum Rope Capacity (ft)	
	Two Speed Winch			
	Low Speed	High Speed		
	Available (lb*)	Available (lb)	Layer	Total
1	16,880	7,595	114	114
2	15,519	6,982	124	238
3	14,362	6,461	134	372
4	13,365	6,013	144	516
5	12,497	5,623	154	670
6	N/A	N/A	164	834

*Maximum lifting capacity: Type GC Rope=22,400 lb, Type RB Rope=12,920 lb, Type ZB Rope=15,600 lb

Wire Rope Capacity Chart

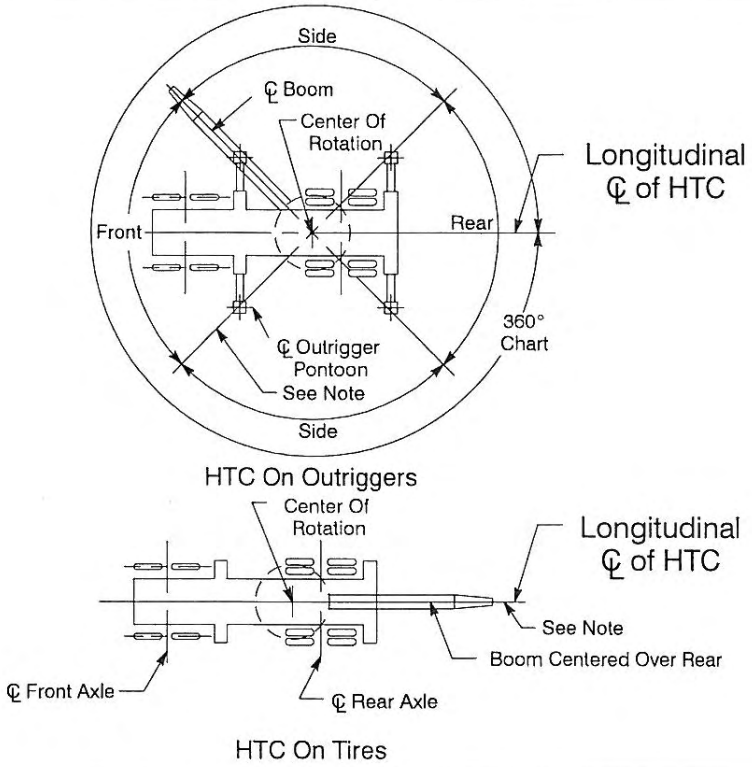
Maximum Lifting Capacities Based On Wire Rope Strength				Wire Rope Line Pull – Third Layer*
Parts of Line	3/4" Type GC	3/4" Type RB	3/4" Type ZB	
1	22,400	12,920	15,600	14,362
2	44,800	25,840	31,200	28,724
3	67,200	38,760	46,800	43,086
4	89,600	51,680	62,400	57,448
5	112,000	64,600	78,000	71,810
6	134,400	77,520	93,600	86,172
7	156,800	90,440	109,200	100,534
8	179,200	103,360	124,800	114,896
9	201,600	116,280	140,400	129,258
10	224,000	129,200	156,000	143,620
11	–	142,120	171,600	157,982
Rope Weight–Pounds Per Foot	1.1	1.2	1.3	N/A

LBCE Type	Description
GC	4 Strand, Low Torque, Compacted Strand, Right Regular Lay
RB	18 X 19 Rotation Resistant – Compacted Strand – High Strength Preformed, Right Regular Lay
ZB	34 X 7 Non–Rotating – Extra Improved Plow Steel – Right Regular Lay

* Available low speed winch line pull on third layer wire rope.

Notes:
1. Capacities shown are in pounds and working loads must not exceed the ratings on the capacity charts in the Crane Rating Manual.
2. Capacity deducts for auxiliary lifting devices do not apply for wire rope strength capacities.
3. Special reeving is required when using more than 10 parts of line.
4. Consult Operator's Manual for wire rope inspection procedures, single part of line applications, and reeving diagrams.
5. Due to the high single line pull allowable when using type "GC" wire rope, it is recommended that the winch available line pull be used to calculate the required parts of line to make the lift. (Calculations are given for third layer. See Wire Rope Capacity Chart above.)
   If using other than the third layer, calculate per the follow examples:
   Using the 1st layer line pull to lift from: (Load(lb)/16,880=Parts of line)
   Using the 4th layer line pull to lift from: (Load(lb)/13,365=Parts of line)
   If the above formula is not used to calculate parts of line for the type "GC" wire rope, the possibility exists that the wire rope single line pull will be greater than the winch available line pull, causing the winch to stall.

Working Areas



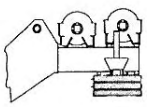
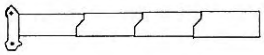
Note: These Lines Determine The Limiting Position Of Any Load For Operation Within Working Areas Indicated.

Capacity Deductions

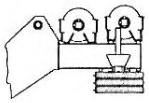
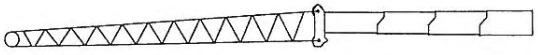
Load Handling Equipment	Weight (lb)
30 Ton Quick Reeve 3 Sheave Hook Block (See Hook Block For Actual Weight)	711
40 Ton Quick Reeve 4 Sheave Hook Block (See Hook Block For Actual Weight)	900
60 Ton Quick Reeve 4 Sheave Hook Block (See Hook Block For Actual Weight)	1,109
75 Ton Quick Reeve 5 Sheave Hook Block (See Hook Block For Actual Weight)	1,406
8.5 Ton Hook Ball (See Hook Ball For Actual Weight)	360
10 Ton Hook Ball (See Hook Ball For Actual Weight)	583

Auxiliary Lifting Devices	Weight (lb)	
Auxiliary Lifting Sheave Attached	100	
Lifting From Main Boom With:	**2° Offset**	**15°–45° Offset**
38' or 64' Fly Stowed On Boom Base (See Operation Note 5)	0	0
38' Offset Fly Erected But Not Used	6,200	11,500
64' Offset Fly Erected But Not Used	11,200	21,900
80' or 96' Offset Fly Erected But Not Used	**Prohibited**	
16' Fly Erected But Not Used	2,300	N/A
Lifting From 38' Offset Fly With:		
26' Fly Tip Erected But Not Used	**Prohibited**	
26' Fly Tip Stowed On 38' Offset Fly		
Note: Capacity deductions are for Link-Belt supplied equipment only.		

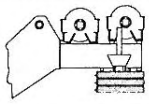
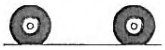
Allowable Crane Configuration – Main Boom

		 Boom Length (ft)			
Outrigger Position	Counterweight (lb)	EM 1	EM 2	EM 3	EM 4
Full	0	41–127	41–113.1	41–98.7	41–76
	3,600				
	7,200				
	10,800				
	14,400				
	18,400				
Intermediate	0	41–110	41–100	41–98.7	41–76
	3,600	41–120	41–113.1		
	7,200	41–127			
	10,800				
	14,400				
	18,400				
Retracted	0	Not Allowed			
	3,600				
	7,200	41–90			
	10,800	41–100			
	14,400	41–110			
	18,400				
On Tires	0–18,400	41–90	Not Allowed		

Allowable Crane Configuration – Main Boom + Attachments

		 Boom Length (ft)				
		EM 1 / EM 3	EM 1 / EM 3	EM 1	EM 1	EM 1
Outrigger Position	Counterweight (lb)	38' Fly	64' Fly	80' Fly	96' Fly	16' Ext.
Full	0	EM1 41–127 EM3 41–98.7		Not Allowed		
	3,600					
	7,200					
	10,800					
	14,400					
	18,400			EM1 41–127		
Intermediate	0–18,400	Not Allowed				
Retracted	0–18,400					
On Tires	0–18,400					

Backward Stability – Maximum Boom Angle


Counterweight (lb)	On Tires	Outrigger Position		
		Retracted	Intermediate	Full
0	80°	80°	80°	80°
3,600	76°			
7,200	70°			
10,800	63°	76°		
14,400	57°	70°		
18,400	49°	63°		

Maximum boom angle is based on retracted boom at the least stable over side position.

Wind Speed Restrictions

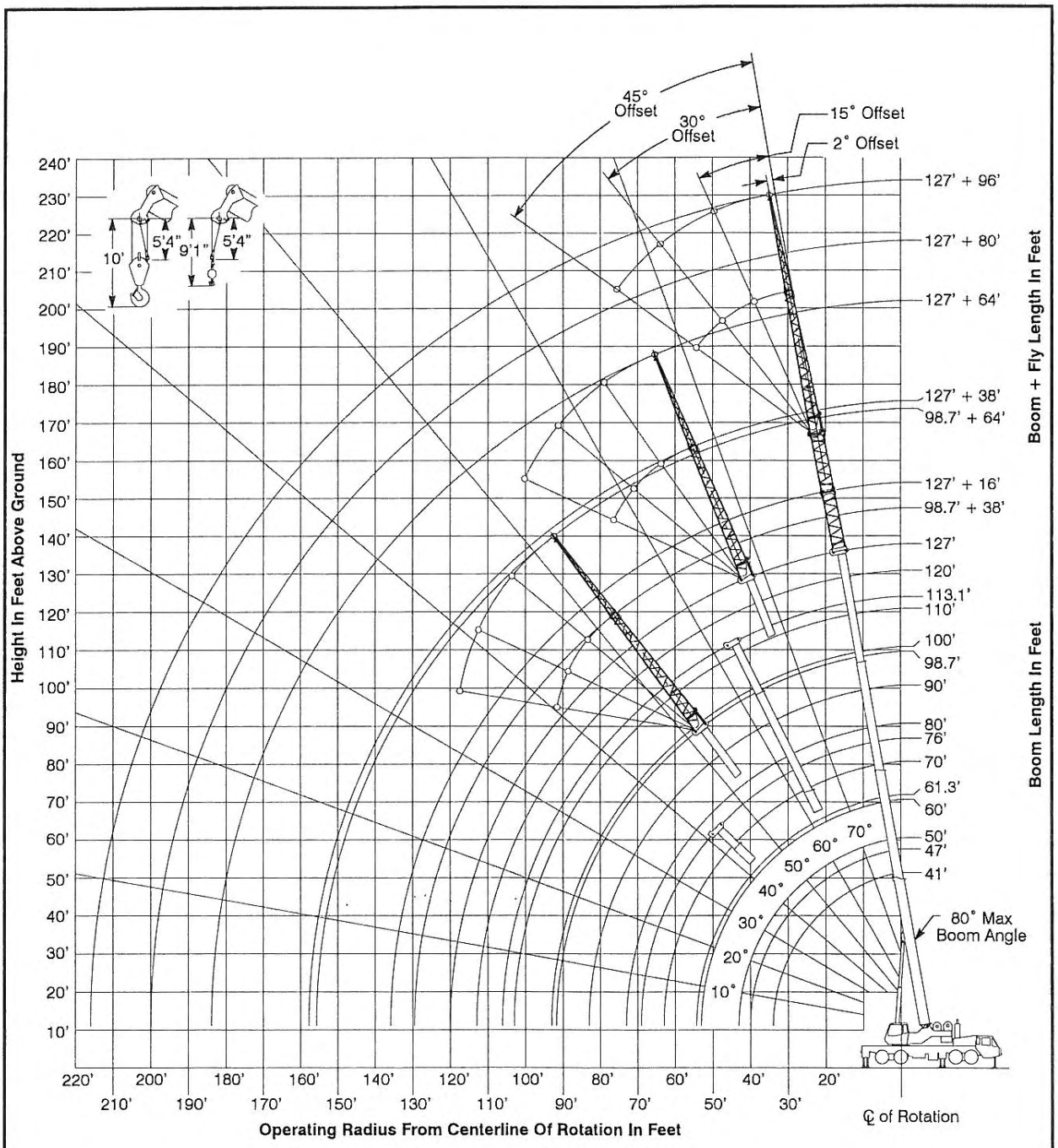
If The Wind Speed Is:	Rated Lifted Capacities Must Be Reduced By At Least:
0–20 mph	Normal Lifting Operations (See Capacity Charts)
21–29 mph	40%
30–39 mph	70%
40 mph or Greater	Crane operation must be shutdown and the boom retracted and lowered to horizontal.

- Additional reductions are required for loads with large wind sail area.
- These restrictions are based on crane on fully extended outriggers.
- During high winds (above 20 mph), the operator shall add 10° to all minimum boom angles due to no load stability and shall not boom down below that angle.

Hydraulic Circuit Pressure Settings

Function	Pressure (psi)
Front And Rear Winch	3,500
Outriggers	3,000
Boom Hoist	3,850
Telescope	3,850
Swing	2,000
Steering	2,000
Bumper Outrigger	650
Pilot Control	500

Working Range Diagram



Note: Boom and fly geometry shown are for unloaded condition and crane standing level on firm supporting surface. Boom deflection, subsequent radius, and boom angle change must be accounted for when applying load to hook.

⚠ WARNING

Do Not Lower The Boom Below The Minimum Boom Angle For No Load Stability As Shown In The Lift Charts For The Boom Lengths Given. Loss Of Stability Will Occur Causing A Tipping Condition.