Lifting Capacities

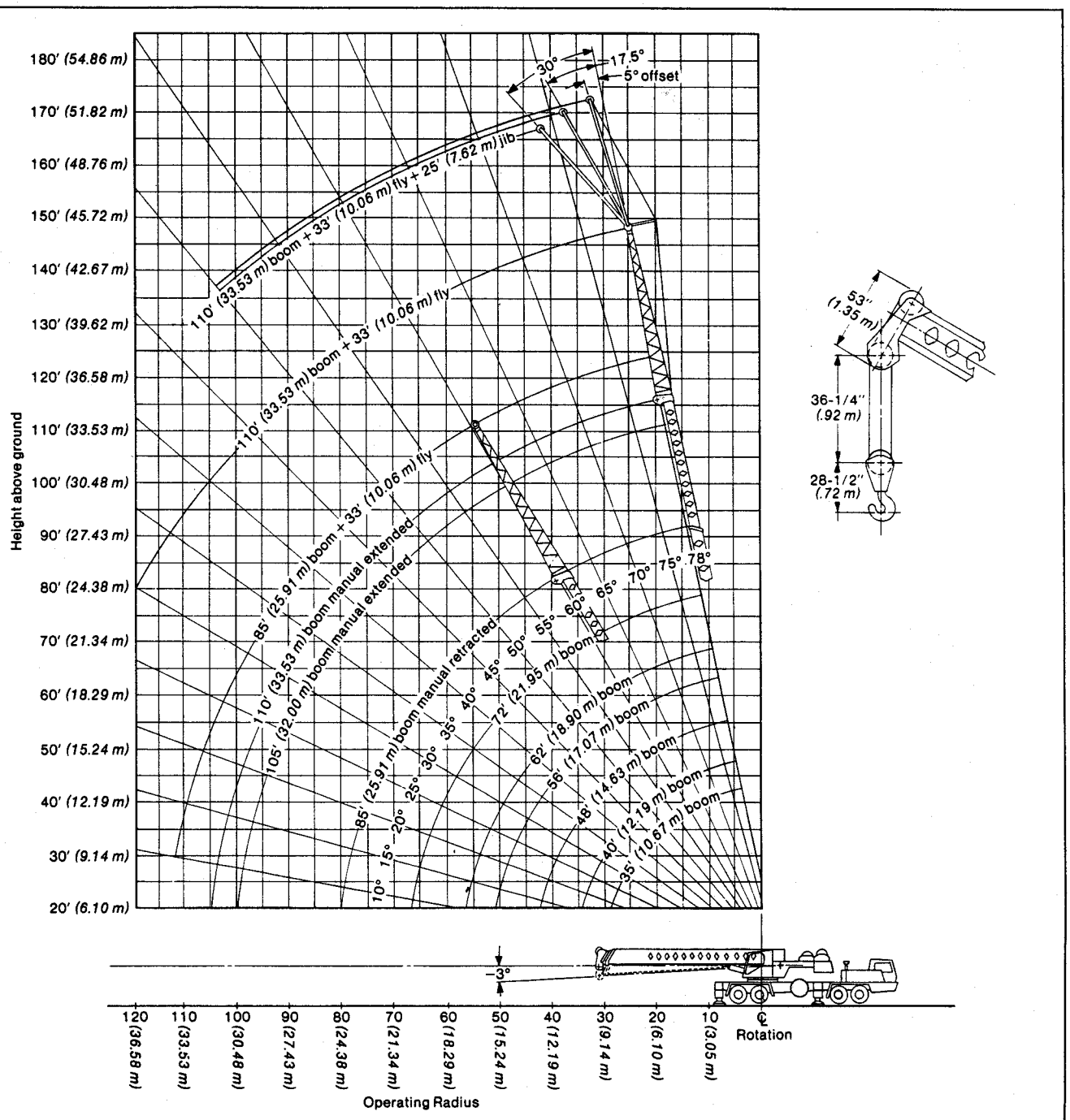
Hydraulic Crane

PCSA Class 10-163

GENERAL INFORMATION ONLY

HTC-860 60-ton *(54.43 metric ton)*

4-section boom



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

CAUTION: This material is supplied for reference only. Operator MUST refer to in-cab capacity plate to determine allowable machine lifting capacities and operating procedures.

HTC-860 Lifting Capacities

8′ *(2.44 m)* carrier

35′-110′ *(10.67 m-33.53 m)* 4-section boom

Refer to **Operating Instructions** page 4

Capacities On Outriggers① Manual Section Retracted

Load radius	35′ *(10.67 m)*		40′ *(12.19 m)*		48′ *(14.63 m)*		56′ *(17.07 m)*		62′ *(18.90 m)*		72′ *(21.95 m)*		85′ *(25.91 m)*		77′ *(23.47 m)* boom plus 33′ *(10.06 m)* fly			85′ *(25.91 m)* boom plus 33′ *(10.06 m0* fly		
	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Side	Rear	Boom angle	Side	Rear	Boom angle	Side	Rear
10′ *3.05 m*	120,000 *54 432*	120,000 *54 432*	72,100 *32 704*	72,100 *32 704*	70,800 *32 115*	70,800 *32 115*	68,000 *30 845*	68,000 *30 845*							See Note ②			See Note ②		
12′ *3.66 m*	92,200 *41 822*	92,200 *41 822*	71,800 *32 568*	71,800 *32 568*	70,800 *32 115*	70,800 *32 115*	68,000 *30 845*	68,000 *30 845*	67,200 *30 482*	67,200 *30 482*										
15′ *4.57 m*	73,100 *33 158*	73,100 *33 158*	68,700 *31 162*	68,700 *31 162*	63,300 *28 713*	63,300 *28 713*	63,300 *28 713*	63,300 *28 713*	58,800 *26 672*	58,800 *26 672*	50,000 *22 680*	50,000 *22 680*								
20′ *6.10 m*	53,300 *24 177*	53,300 *24 177*	53,000 *24 041*	53,000 *24 041*	53,000 *24 041*	53,000 *24 041*	53,000 *24 041*	53,000 *24 041*	48,500 *22 000*	48,500 *22 000*	42,100 *19 096*	42,100 *19 096*	36,200 *16 420*	36,200 *16 420*						
25′ *7.62 m*	39,500 *17 917*	42,000 *19 051*	39,500 *17 917*	42,000 *19 051*	39,500 *17 917*	42,000 *19 051*	39,500 *17 917*	42,000 *19 015*	39,500 *17 917*	41,000 *18 598*	36,300 *16 466*	36,300 *16 466*	30,000 *13 608*	30,000 *13 608*	77°	22,200 *10 070*	22,200 *10 070*	77°	18,500 *8 392*	18,500 *8 392*
30′ *9.14 m*			28,200 *12 791*	31,600 *14 334*	28,200 *12 791*	31,600 *14 334*	28,200 *12 791*	31,600 *14 334*	28,200 *12 791*	31,600 *14 334*	28,200 *12 791*	31,500 *14 288*	24,700 *11 204*	24,700 *11 204*	75°	22,200 *10 070*	22,200 *10 070*	75°	17,500 *7 938*	17,500 *7 938*
35′ *10.67 m*					21,200 *9 616*	24,400 *11 068*	21,200 *9 616*	24,400 *11 068*	21,200 *9 616*	24,400 *11 068*	21,200 *9 616*	24,400 *11 068*	21,200 *9 616*	22,100 *10 025*	72°	20,200 *9 163*	20,000 *9 163*	73°	15,500 *7 031*	15,500 *7 031*
40′ *12.19 m*					16,300 *7 394*	20,900 *9 480*	16,300 *7 394*	20,900 *9 480*	16,300 *7 394*	20,900 *9 480*	16,300 *7 394*	20,900 *9 480*	16,300 *7 394*	18,900 *8 573*	69°	18,600 *8 437*	18,900 *8 573*	71°	13,900 *6 305*	13,900 *6 305*
45′ *13.72 m*							13,000 *5 897*	15,600 *7 076*	13,000 *5 897*	15,600 *7 076*	13,000 *5 897*	15,600 *7 076*	13,000 *5 897*	15,600 *7 076*	67°	15,200 *6 895*	17,300 *7 847*	68°	12,400 *5 625*	12,400 *5 625*
50′ *15.24 m*							10,300 *4 672*	12,800 *5 806*	10,300 *4 672*	12,800 *5 806*	10,300 *4 672*	12,800 *5 806*	10,300 *4 672*	12,800 *5 806*	64°	12,400 *5 625*	15,400 *6 985*	65°	10,900 *4 944*	10,900 *4 944*
55′ *16.76 m*									8,200 *3 719*	10,700 *4 853*	8,200 *3 719*	10,700 *4 853*	8,200 *3 719*	10,700 *4 853*	61°	10,200 *4 627*	13,800 *6 260*	63°	9,600 *4 355*	9,600 *4 355*
60′ *18.29 m*											6,500 *2 948*	8,800 *3 992*	6,500 *2 948*	8,800 *3 992*	57°	8,500 *3 856*	11,800 *5 352*	60°	8,300 *3 765*	8,600 *3 901*
65′ *19.81 m*											5,100 *2 313*	7,600 *3 447*	5,100 *2 313*	7,600 *3 447*	54°	7,200 *3 266*	10,300 *4 672*	57°	6,900 *3 130*	7,700 *3 493*
70′ *21.34 m*													4,000 *1 814*	6,900 *3 130*	50°	6,000 *2 722*	8,900 *4 037*	54°	5,800 *2 631*	6,900 *3 130*
80′ *24.38 m*													2,300 *1 043*	5,000 *2 268*	43°	4,200 *1 905*	6 800 *3 084*	47°	4,000 *1 814*	5,600 *2 540*
90′ *27.43 m*															34°	2,900 *1 315*	5,200 *2 359*	40°	2,700 *1 225*	4,600 *2 086*
100′ *30.48 m*															22°	1,900 *862*	4,000 *1 814*	31°	1,700 *771*	3,800 *1 724*

Note: For 360° capacities, use the over side capacities with the bumper outrigger set in proper working position.

① Boom sections must be extended equal distances.

② Capacities for boom plus fly can be extended or retracted, but are based on boom angle only. See Operating Instructions Number 16.

Main Boom Capacities① On Tires

Load radius		Bias Tires				Radials Tires			
		Creep② over rear only		1 mph. *(1.61 kph)* over rear only		Creep② over rear only		1 mph. *(1.61 kph)* over rear only	
Feet	*meters*	Pounds	*Kg*	Pounds	*Kg*	Pounds	*Kg*	Pounds	*Kg*
10	*3.05*	34,800	*15 785*	22,000	*9,979*	26,900	*12,202*	21,700	*9,843*
12	*3.66*	32,400	*14 697*	20,500	*9 299*	25,100	*11,385*	20,300	*9,208*
15	*4.57*	29,300	*13 290*	18,400	*8 346*	22,600	*10,251*	18,200	*8,256*
20	*6.10*	20,800	*9 435*	14,800	*6 713*	18,400	*8,346*	14,700	*6,668*
25	*7.62*	14,700	*6 668*	11,900	*5 398*	14,700	*6,668*	11,700	*5,307*
30	*9.14*	10,600	*4 808*	9,500	*4 309*	10,600	*4,808*	9,400	*4,264*
35	*10.67*	7,900	*3 583*	7,800	*3 538*	7,900	*3,583*	7,600	*3,447*

Crane capacities on tires depend on tire capacity, condition of tires, and tire pressures.

Tires	Ply rating	Creep② Inflation	1.0 m.p.h. *(1.61 km/hr)* Inflation
11.0 x 20.0	14	100 p.s.i. *(6.90 Bars)*	100 p.s.i. *(6.90 Bars)*
12.0 x 20.0	14	100 p.s.i. *(6.90 Bars)*	90 p.s.i. *(6.21 Bars)*
12.0 x 20.0	18	115 p.s.i. *(7.93 Bars)*	115 p.s.i. *(7.93 Bars)*
18.0 x 22.5	16	95 p.s.i. *(6.55 Bars)*	85 p.s.i. *(5.86 Bars)*

① See Operating Instruction; Set-Up Number 4

② See Operating Instruction; Set-Up Number 3

GENERAL INFORMATION ONLY

Wire rope size and type

Wire rope application	Size and type used	Wire rope description
Main winch Auxiliary winch	3/4" *(19 mm)* diameter, Type "N" 3/4" *(19 mm)* diameter, Type "N"	Type "N" - 6 x 25 (6 x 19 class) filler wire, extra improved plow steel, preformed, independent wire rope core, right lay, regular lay.

HTC-860 Lifting Capacities

8′ *(2.44 m)* carrier

35′-110′ *(10.67 m-33.53 m)* 4-section boom

Refer to **Operating Instructions** page 4

	Capacities On Outriggers **Manual Section Extended**								
	105′ *(32.00 m)* ③			110′ *(33.53 m)*			110′ *(33.53 m)* boom plus 33′ *(10.06 m)* fly		
Load radius	Boom angle	Side	Rear	Boom angle	Side	Rear	Boom angle	Side	Rear
		See Note ①			See Note ①			See Note ②	
25′ *7.62 m*	77°	20,200 *9 163*	20,200 *9 163*	77°	19,000 *8 618*	19,000 *8 618*			
30′ *9.14 m*	74°	20,200 *9 163*	20,200 *9 163*	75°	18,500 *8 392*	18,500 *8 392*			
35′ *10.67 m*	72°	19,500 8 845	19,500 8 845	73°	17,900 8 119	17,900 8 119	77°	9,400 *4 264*	9,400 *4 264*
40′ *12.19 m*	69°	18,000 8 165	18,000 8 165	70°	16,000 7 258	16,000 7 258	75°	9,400 *4 264*	9,400 *4 264*
45′ *13.72 m*	66°	14,600 6 623	16,200 7 348	67°	14,100 6 396	14,100 6 396	73°	9,000 *4 082*	9,000 *4 082*
50′ *15.24 m*	63°	11,800 5 352	14,900 6 759	64°	11,700 5 307	12,500 5 670	71°	8,400 *3 810*	8,400 *3 810*
55′ *16.76 m*	60°	9,700 4 400	13,400 6 078	61°	9,600 4 355	11,100 5 035	69°	8,000 *3 629*	8,000 *3 629*
60′ *18.29 m*	56°	8,000 3 629	11,500 5 216	58°	7,900 3 583	10,000 4 536	67°	7,300 *3 311*	7,300 *3 311*
65′ *19.81 m*	53°	6,700 3 039	9,900 4 491	55°	6,600 2 994	8,900 4 037	65°	6,500 *2 948*	6,500 *2 948*
70′ *21.34 m*	49°	5,500 2 495	8,600 3 901	51°	5,500 2 495	7,800 3 538	62°	5,700 *2 586*	5,700 *2 586*
80′ *24.38 m*	40°	3,800 1 724	6,500 2 948	44°	3,700 1 678	6,000 2 722	57°	4,500 *2 041*	4,600 *2 087*
90′ *27.43 m*	30°	2,500 1 134	4,900 2 223	35°	2,400 1 089	4,400 1 996	52°	3,200 1 452	3,600 *1 633*
100′ *30.48 m*	13°		3,600 1 633	23°		3,100 1 406	47°	2,200 998	2,800 *1 270*
110′ *33.53 m*							40°	—	2,100 *953*

Note: For 360° capacities, use the over side capacities with the bumper outrigger set in proper working position.

① Capacities for boom with manual section extended can be extended or retracted, but are based on boom angle only: See Operating Instructions Number 15.

② Capacities for boom plus fly can be extended or retracted, but are based on boom angle only. See operating instructions Number 17.

③ Capacities are shown for 4-section boom with manual extended and with boom retracted to 105′ *(32.00 m)*.

Jib Capacities			
33′ *(10.06 m)* fly plus 25′ *(7.62 m)* jib			
Boom angle	Jib Offset		
	5°	17.5°	30°
78°	5,100 *2 313*	5,100 *2 313*	4,200 *1 905*
75°	5,100 *2 313*	5,100 *2 313*	4,000 *1 814*
70°	5,100 *2 313*	4,900 *2 223*	3,600 *1 633*
65°	4,500 *2 041*	4,100 *1 860*	3,400 *1 542*
60°	2,900 *1 315*	2,600 *1 179*	2,400 *1 089*
55°	1,800 *816*	1,600 *726*	1,500 *680*

Capacity Deductions for Auxiliary Load Handling Equipment	
Aux. Head	200 lb. (91 kg)
Jib Stowed	600 lb. (272 kg)
Fly Stowed	700 lb. (318 kg)
Fly Erected	1700 lb. (771 kg)
Fly & Jib Stowed	1300 lb. (590 kg)
Fly & Jib Erected	4300 lb. (1951 kg)
Picking From 33 Ft. (10.66 m) Fly With	
Jib Erected	2000 lb. (907 kg)
Jib Stowed	600 lb. (272 kg)

Drum wire rope capacities

Wire rope layer	Main and auxiliary drum 17″ *(0.43 m)* root diameter smooth and grooved lagging, 3/4″ *(19 mm)* wire rope			
	Rope per layer		Total wire rope	
	Feet	*meters*	Feet	*meters*
1	97	*29.57*	97	*29.57*
2	111	*33.83*	208	*63.40*
3	114	*34.75*	322	*98.15*
4	122	*37.19*	444	*135.33*
5	130	*39.62*	574	*174.96*
6	139	*42.37*	713	*217.32*
7	140	*42.67*	853	*259.99*

GENERAL INFORMATION ONLY

Line Speeds and Pulls

Layer	Speed	Main or auxiliary winch -17″ *(0.43 m)* drum			
		Line Speeds		Available Line Pulls	
		F.p.m.	*m/min.*	Lbs.	*kgs.*
First	Low High	172 364	*52.43* *110.95*	15,870 7,520	*7199* *3411*
Second	Low High	187 394	*57.00* *120.09*	14,630 6,930	*6636* *3143*
Third	Low High	201 425	*61.26* *129.54*	13,580 6,430	*6160* *2917*
Fourth	Low High	216 456	*65.84* *138.99*	12,660 6,000	*5743* *2722*
Fifth	Low High	230 487	*70.10* *148.44*	11,860 5,620	*5380* *2549*
Sixth	Low High	245 517	*74.68* *157.58*	11,160 5,280	*5062* *2395*
Seventh	Low High	260 548	*79.25* *167.03*	10,530 4,990	*4776* *2264*

Hydraulic Circuit Pressure Settings		
Circuit	Function	Pressure
Main	Boom hoist	2,900 p.s.i. *(200.0 Bars)*
	Wire rope hoist	2,750 p.s.i *(189.66 Bars)*
Secondary	Swing	1,500 p.s.i. *(103.45 Bars)* at port relief
	Inner-mid telescope	2,500 p.s.i. *(172.41 Bars)*
	Outer-mid telescope	2,500 p.s.i. *(172.41 Bars)*
	Outriggers	2,500 p.s.i. *(172.41 Bars)*
Charge Pump	Winch brake and clutch	*1,500 p.s.i. (103.45 Bars)*

Link-Belt
CONSTRUCTION EQUIPMENT

GENERAL INFORMATION ONLY

Warning and Operating Instructions HTC-860

General:

1. Rated lifting capacities in pounds as shown on lift chart pertain to this machine as originally manufactured and normally equipped by Link-Belt Construction Equipment Company. 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 dangerous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with the information in the operator's, parts and safety manuals supplied with this machine. If these manuals are missing, order replacements through the distributor.
3. The operator and other personnel associated with this machine shall fully acquaint themselves with the latest applicable American National Standards Institute (ANSI) Safety Standards for cranes.
4. The maximum allowable lifting capacities are based on machine standing level on firm supporting surface.
5. All capacities are in pounds with metric equivalent in italic.

Set-Up:

1. The machine 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 floats or tires to spread the load to a larger bearing surface.
2. When making lifts on outriggers, outrigger beams must be fully extended with tires free of supporting surface.
3. Crane Capacities on tires depend on tire capacity, condition of tires, and tire pressure. On-tire picks require lifting from main boom head only on a smooth and level surface. Boom sections **must** be extended equally. Two conditions are available for pick and carry operations. The first condition is creep. Creep is motion for less than 200' *(60.9 m)* in a 30 minute period and not exceeding 1 m.p.h. *(1.61 km/hr)*. The second condition is 1 m.p.h. *(1.61 km/hr)*. This operation is restricted to 1 m.p.h. *(1.61 km/hr)* maximum speed. For each condition, creep and 1 m.p.h. *(1.61 km/hr)*, the boom must be centered over rear with swinglock engaged and the load must be restrained from swinging. Lifts with manual extended, fly or fly-jib combination erected are prohibited on tires.
4. When making lifts on rubber, tires must be inflated to the recommended pressure.
5. Over the front working area, as on the working area diagram, is restricted to a 35' *(10.67 m)* boom length, unless machine is equipped with a front bumper outrigger and the front bumper outrigger is set in proper working position.
6. Outriggers must be set before swinging boom to over side position as shown on working area diagram.
7. When installing or removing counterweight, use fully retracted boom only. Do not swing counterweight beyond a 25' *(7.62 m)* radius. Machine must be on outriggers during this operation.

Operation:

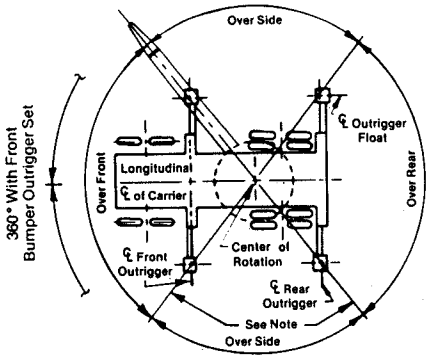
1. Rated lifting capacities at rated radius shall not be exceeded. Do not tip machine to determine allowable load. For concrete bucket operation, weight of bucket and load shall not exceed 80% of rated lifting capacity. For clamshell bucket operation, weight of bucket and bucket content is restricted to a maximum weight of 7,000 pounds *(3175 kg)* or 80% of rated lifting capacity which ever is less. For magnet operation weight of magnet and load is restricted to a maximum weight of 7,000 pounds *(3175 kg)* or 80% of rated lifting capacity which ever is less. For clamshell and magnet operation maximum boom length is restricted to 56 feet *(17.07 m)* and the boom angle is restricted to a minimum of 35°. Manual extended, fly or fly-jib combinations are prohibited for both clam and magnet operation.
2. The crane capacities shown on outriggers do not exceed 85% of the tipping loads and crane capacities shown on tires do not exceed 75% of the tipping loads as determined by SAE crane stability test code J-765a.
3. The crane capacities above the bold lines are based on structural strength or hydraulic limitations.
4. Rated lifting capacities include the weight of hook block, slings, bucket, magnet and auxiliary lifting devices. Their weights must be subtracted from the listed rated load to obtain the net load to be lifted.
   See also deductions for auxiliary head, fly and jib.
5. 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.
6. Rated lifting capacities are for lift crane service only.
7. Do not operate at radii or boom lengths where capacities are not listed. At these positions, the machine can overturn without any load on the hook.
8. 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 load rating chart.
9. When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or boom length shall be used.
10. 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, two machine lifts, traveling with loads, electrical wires, etc. Side load on boom, fly or jib is extremely dangerous.
11. When making lifts with auxiliary head machinery, the effective length of the boom increases by 2' *(.61 m)*. Effective length of boom is length shown on boom length indicator plus 2' *(.61 m)*.
12. Power sections must be extended equally.
13. The least stable rated working area on outriggers is over the side.
14. Rated lifting capacities are based on correct reeving. Deduction must be made for excessive reeving. Any reeving over minimum required (see wire rope strength plate) is considered excessive and must be accounted for. Use working range plate to estimate the extra feet of rope then deduct 1 lb. *(.45 kg)* for each foot of wire rope before attempting to lift a load.
15. The rated loads for the manual extended are determined by boom angle only for boom lengths other than 105' *(32.00 m)* and 110' *(33.53 m)* as follows: For boom lengths less than 105' *(32.00 m)*, the rated loads are determined by boom angle only in the column headed by 105' *(32.00 m)*. For boom lengths between 105' *(32.00 m)* and 110' *(33.53 m)*, the rated loads are determined by boom angle only in the column headed by 110' *(33.53 m)*, manual extended. For angles not shown, use the next lower boom angle to determine allowable capacity.
16. The rated loads for the manual retracted with 33' *(10.06 m)* fly are determined by boom angle only for boom lengths other than 110' *(33.53 m)* and 118' *(35.97 m)* as follows: For boom lengths less than 110' *(33.53 m)* the rated loads are determined by boom angle only in the column headed by 110' *(33.53 m)*, manual retracted with fly. For boom lengths between 110' *(33.53 m)* and 118' *(35.97 m)*, the rated loads are determined by boom angle only in the column headed by 118' *(35.97 m)*. For angles not shown, use the next lower boom angle to determine allowable capacity.
17. For boom lengths with fly less than 143' *(43.59 m)* with manual extended, the rated loads are determined by boom angle only in the column headed by 143' *(43.59 m)*. For angles not shown, use the next lower boom angle to determine allowable capacity.
18. With front bumper outrigger set, use over side capacity values for 360° working area.
19. Do not lower 105' *(32.00 m)* boom length below 13°. Do not lower 110' *(33.53 m)* boom length below 23°. Do not lower 77' *(23.47 m)* boom with 33' *(10.06 m)* fly below 22°. Do not lower 85' *(25.91 m)* boom with 33' *(10.06 m)* fly below 31°. Do not lower 110' *(33.53 m)* boom with 33' *(10.06 m)* fly below 40°.
20. The 25' *(7.62 m)* jib capacities are based on main boom angle regardless of main boom length. For angles not shown use next lower boom angle to determine allowable capacity. Capacity values can be used to operate over rear or over side. Warning: Do not lower 25' *(7.62 m)* jib in working position below 55° unless boom is fully retracted.
21. The 35' *(10.67 m)* boom length capacities are based on boom fully retracted. If not fully retracted, do not exceed ratings for the 40' *(12.19 m)* boom length.

Definitions:

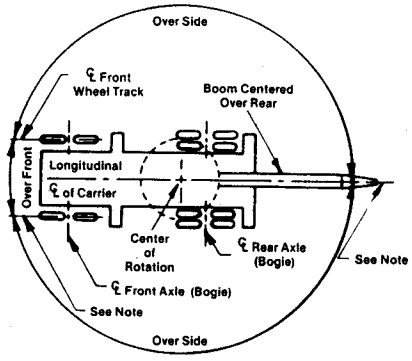
1. Load Radius: Horizontal distance from a projection of the axis of rotation to the supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal after lifting the load at the rated radius. The boom angle, before loading, should be greater to account for deflections.
3. Working Area: Area measured in a circular arc about the center line of rotation as shown on the woking area 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.

Working Areas HTC-860

Carrier On Outriggers



Carrier On Tires



Note: These lines determine the limiting position of any load for operation within working areas indicated.

Link-Belt Construction Equipment Company Lexington, Kentucky