

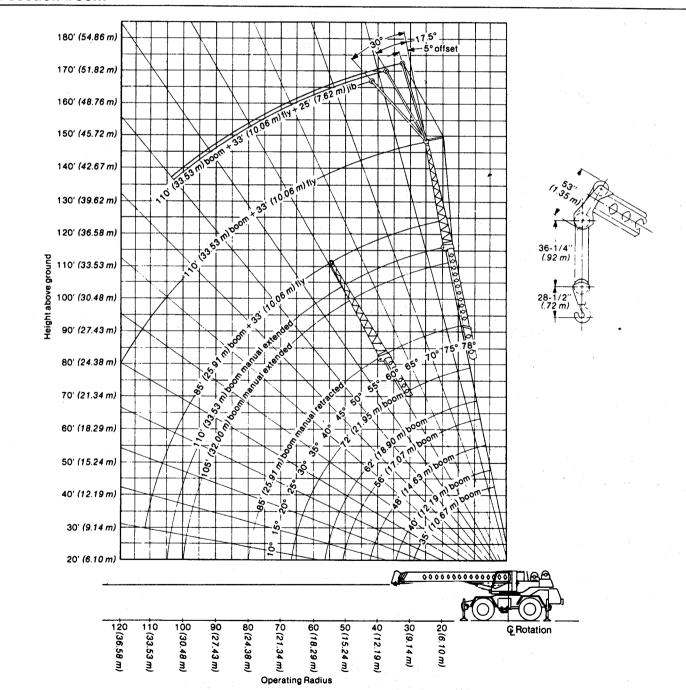
# **Lifting Capacities**

Hydraulic Rough Terrain Crane

GENERAL INFORMATION ONLY

## HSP-8040 40-ton (36.29 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.

### **HSP-8040 Lifting Capacities**

35'-110' (10.67-33.53 m) 4-section boom

Refer to Operating Instructions page 4

	С	apac	ities	On C	Outrig	gers	① Ma	anua	Sec	tion	Retr	acte	d		77' (2	23.47 m) plus	boom	85' (2	25.91 m)	) boom
Load	35′ (10	).67 m)	40' (12	2.19 m)	48' (14	1.63 m)	56' (17	7.07 m)	62' (18	3.90 m)	72' (2'	1.95 m)	85' (25	5.91 m)	33′	(10.06 n	n) fly	33′	<b>pius</b> (10.06 n	n) fly
radius	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Boom angle	Front	360°	Boom angle	Front	360°
10' 3.05 m	80,000 <i>36 288</i>	80,000 <i>36 288</i>	72,100 <i>3270</i> 5	72,100 <i>32 705</i>	70,800 <i>32115</i>	70,800 32115	68,100 <i>30890</i>	68,100 <i>30 890</i>												<del></del>
12' 3.66 m	80,000 <i>36 288</i>	80,000 <i>36,288</i>	72,100 <i>3270</i> 5	72,100 <i>3270</i> 5	70,800 32115	70,800 32 115	68,100 <i>30890</i>	68,100 30890	64,500 29 257	64,500 29 257					S	ee Note	2	<sub>S</sub> ,	e Note	ආ (වි
15' 4.57 m	70,100 <i>31 797</i>	70,100 <i>31 797</i>	68,700 <i>31 162</i>	68,700 31 162	66,400 30119	66,400 30 1 1 9	64,200 29 121	64,200 29 121	56,300 25,538	56,300 25 538	50,100 22,725	50,100 22,725							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, •
20' 6.10 m	54,800 24857	54,800 24,857	54,200 24585	54,200 24585	52,600 23,659	52,600 23,859	51,000 23 134	51,000 23 134	46,200 20956	46,200 20,956	41,500 18 824	41,500 18 824	32,500 14 742	32,500 14742						
25' 7.62 m	43,100 <i>19550</i>	43,100 19 <i>550</i>	43,100 19 <i>55</i> 0	43,100 19550	43,100 19550	43,100 19 <i>550</i>	42,200 19 142	42,200 19 142	38,900 17 <i>645</i>	38,900 17645	35,100 15921	35,100 15921	27,000 12247	27,000 12247	76°	22,200 10 <i>070</i>	22,200 10 <i>07</i> 0	77°	18,500 <i>8392</i>	18,500 8392
30′ 9.14 m			34,700 15,740	34,500 15 649	34,700 <i>15 740</i>	34,500 15 649	34,700 15 <i>740</i>	34,500 15 649	33,400 15 150	33,400 15 150	30,200 13 699	30,200 13 699	22,700 10 <i>2</i> 97	22,700 10 297	74°	22,200 10 <i>070</i>	22,200 10 <i>070</i>	75°	17,500 7938	17,500 7938
35′ 10.67 m					29,400 13336	25,700 11 658	29,400 13336	25,700 11 658	29,400 13 336	25,700 11 658	28,100 12746	25,700 11 <i>658</i>	19,400 8 800	19,400 8800	71°	20,200 10 <i>070</i>	20,200 10 <i>070</i>	72°	15,500 7031	15,500 7031
40′ 12.19 m					23,200 10 524	19,900 <i>9027</i>	23,200 10524	19,900 <i>9027</i>	23,200 10524	19,900 <i>9027</i>	23,200 10524	19,900 <i>9027</i>	16,800 7 <i>620</i>	16,800 7 <i>620</i>	68°	18,900 <i>8573</i>	18,900 <i>8573</i>	70°	13,900 <i>6305</i>	13,900 6305
45′ 13.72 m							19,100 <i>8664</i>	15,900 <i>7212</i>	19,100 <i>8664</i>	15,900 <i>7212</i>	19,100 <i>8 664</i>	15,900 7212	15,700 7122	15,700 7122	66°	17,300 7847	17,300 <i>7847</i>	67°	12,400 5625	12,400 5625
50′ 15.24 m							15,500 <i>70</i> 31	12,800 5 <i>806</i>	15,500 <i>7031</i>	12,800 5 <i>806</i>	15,500 7 <i>031</i>	12,800 5806	13,300 6 <i>033</i>	12,800 5 <i>806</i>	63°	15,400 <i>6985</i>	15,100 6849	64°	10,900 4 <i>944</i>	10,900 4 <i>944</i>
55′ 16.76 m									12,900 5 <i>851</i>	10,500 <i>476</i> 3	12,900 <i>5851</i>	10,500 <i>476</i> 3	11,900 5398	10,500 4763	60°	14,300 <i>6486</i>	12,700 5761	62°	9,600 4 <i>355</i>	9,600 4355
60′ 18.29 m										10	10,800 4 <i>899</i>	8,700 3 <i>946</i>	10,600 4 <i>808</i>	8,700 3 <i>946</i>	56°	12,900 5 <i>8</i> 51	10,700 4 <i>854</i>	59°	8,600 3 <i>901</i>	8,600 3901
65′ 19.81 m								2 1 1			9,100 4 <i>128</i>	7,200 <i>3266</i>	9,100 4128	7,200 3266	53°	11,100 5 <i>0</i> 35	9,200 4173	56°	7,700 3493	7,700 3493
70′ 21.34 m												and the second	7,700 3493	6,900 <i>3 130</i>	50°	9,700 4 <i>400</i>	7,900 3 <i>58</i> 3	53°	6,900 3 130	6,900 3 130
80′ 24.38 m											- <b>.</b>		5,400 2449	3,900 1769	42°	7,400 3357	5 900 2676	46°	5,600 2540	5,600 2540
90′ 27.43 m															33°	5,600 2 <i>540</i>	4,400 1996	39°	4,600 2 <i>0</i> 87	4,100 1880
100′ 30.48 m															21°	4,300 1 <i>950</i>	3,200 1 452	30°	3,900 1 <i>769</i>	3,000 1361
110′ 33.53 <i>m</i>													1.5					17°	3,100 1542	2,100 953

### 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.

#### Drum wire rope capacities

	Main and auxiliary drum 17" (0.43 m) root diameter smooth and grooved lagging							
Wire	3/4" (19 mm) wire rope							
rope	Rope p	er layer	Total wire rope					
layer	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				

#### Footnotes:

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- (i) All capacities on outriggers are based on outriggers fully extended with boom sections extended equal distance.
- ① Calculating capacities for extended or retracted boom plus fly must be based on boom angle only for boom lengths other than those listed. See Operating Instructions Number 14.
- See Operating Instructions; set-up Number 4.

Capacities On Tires						
	Max.	Pick & Carry®	Stationary			
Load Radius	boom length	Over Front	360°	Over Front		
10′	35′	58,000	42,100	57,300		
<i>3.05 m</i>	10.67 m	<i>26 309</i>	<i>19 097</i>	<i>25 991</i>		
12'	35′	50,600	33,700	50,500		
3.66 m	10.67 m	22 952	1 <i>5 286</i>	22 907		
15′	35′	42,100	23,100	42,700		
4.57 m	10.67 m	19 097	10 478	19 369		
20'	35′	32,200	14,000	32,700		
6.10 m	10.67 m	14 606	<i>6 350</i>	14 833		
25′	35′	22,400	9,100	22,600		
7.62 m	10.67 m	10 160	<i>4 127</i>	10 251		
30′	40'	15,900	6,000	15,900		
9.14 m	12.19 m	7 212	<i>2 721</i>	7 212		
35′	40′	11,900	3,800	11,900		
10.67 m	12.19 m	<i>5 398</i>	1 723	5 398		
40'	48'	9,100	_	9,100		
12.19 m	14.63 m	<i>4 127</i>		<i>4 127</i>		
45′	56′	7,000	=,	7,000		
13.72 m	17.07 m	3 175		3 175		
50'	56'	5,400	_	5,400		
15.24 m	17.07 m	2 449		2 449		
55′	62' <sub> </sub>	4,200		4,200		
16.76 m	18.90 m	1 904		1 904		
୍ଟେ 60'	72'	3,200	=	3,200 »		
18.29 m	21.95 m	1 451		1 451		



### **HSP-8040 Lifting Capacities**

35'-110' (10.67-33.53 m) 4-section boom

Refer to Operating Instructions page 4

Jib Offset

17.5°

5,100

2313

5,100

2313

4,900

2223

4,100

1860

3.300

1 497

2,700

1 225

2,300

30°

4,200

1 905

4,000

1814

3,600

1 633

3,400

1542

2,800

1 270

2,400

1 089

2,000

**Jib Capacities** 33' (8.84 m) fly plus 25' (7.62 m) jib

5°

5,100

2313

5,100

2313

5,100

2313

4,500

2041

3,700

1678

3,000

1 361

2,500

Boom angle

78°

75°

70°

65°

50°

	Capa	cities① (	On Outri	iggers	Manua	l Section	n Ext	ended		
Load		105′ (32.00	m)		110′ (33.53	m)	110' (33.53 m) boom plus 33' (10.06 m) fly			
radius	Boom angle	Front	360°	Boom angle	Front	360°	Boom angle	Front	360°	
		See Note	2		See Note	2				
25′ 7.62 m	76°	20,200 <i>9 163</i>	20,200 <i>9 163</i>	77°	19,000 <i>8618</i>	19,000 <i>9027</i>	See Note ③			
30′ 9.14 m	73°	20,200 <i>9</i> 163	20,200 <i>9</i> 163	74°	18,500 <i>8392</i>	18,500 <i>8392</i>				
35′ 10.67 m	71°	20,200 9 163	20,200 <i>9 163</i>	72°	17,300 <i>7847</i>	17,300 <i>7847</i>	76°	9,400 4 <i>26</i> 4	9,400 4 <i>264</i>	
40' 12.19 m	68°	18,200 <i>8256</i>	18,200 <i>8256</i>	69°	14,800 <i>6713</i>	14,800 <i>6713</i>	74°	9,400 4,264	9,400 4 <i>264</i>	
45' 13.72m	65°	16,400 7439	16,400 <i>74</i> 39	66°	13,300 6 <i>033</i>	13,300 6 <i>0</i> 33	72°	9,000 4 <i>082</i>	9,000 4 <i>082</i>	
50' 15.24 m	62°	15,000 <i>6804</i>	14,600 6 <i>623</i>	63°	11,600 5262	11,600 5262	70°	8,400 3 <i>8</i> 10	8,400 3810	
55′ 16.76 m	59°	13,800 <i>6260</i>	12,200 5534	60°	10,200 4 <i>627</i>	10,200 4 <i>627</i>	68°	8,000 3 <i>629</i>	8,000 3 <i>629</i>	
60' 18.29 m	55°	12,500 5 <i>670</i>	10,300 4 <i>672</i>	57°	9,100 4128	9,100 4128	66°	7,300 3,311	7,300 3311	
65' 19.81 m	52°	10,700 4854	8,700 <i>3946</i>	54°	8,200 3,720	8,200 3720	64°	6,500 2948	6,500 2948	
70' 21.34 m	48°	9,200 4173	7,500 3402	50°	7,400 3357	7,400 3357	61*	5,700 2,586	5,700 2586	
80' 24.38 m	39°	7,000 3175	5,500 2495	43°	6,100 2767	5,400 2449	56°	4,600 2087	4,600 2087	
90' 27.43 m	29°	5,200 2359	4,000 1 <i>8</i> 14	34°	4,600 2087	3,900 1769	51°	3,600 1 633	3,600 1 <i>6</i> 33	
100′ 30.48 m	12°	3,800 1,724	2,800 1,270	22°	3,800 1,724	2,700 1,225	46°	2,800 1,270	2,800 1,270	
110' 33.53 m					(1444) (1444)	11 11 12	39°	2,100 <i>953</i>	2,100 953	
120' 36.58 m					Mary and the	e e e e e Santa e e e e e	32°	1,500 680	1,500 <i>680</i>	

HSP-8040 hydraulie circuit pressure settings					
Circuit	Function	Pressure			
Main	Boom hoist	2,900 p.s.i. (200.0 Bars)			
Man	Wire rope hoist	2,750 p.s.i. (189.66 Bars)			
	Swing	1,500 p.s.i. (103.45 Bars) at port relief			
Canadani	Innermid telescope Steering	2,500 p.s.i. (172.41 Bars)			
Secondary	Outermid telescope	• 2,700 p.s.i. (186.21 Bars)			
	Outriggers	2,700 p.s.i. (186.21 Bars)			
Charge Pump	Winch brake and clutch	1,500 p.s.i. (103.45 Bars)			

① All capacities on outriggers are based on outriggers fully extended with boom sections extended equal distance.

#### Line Speeds and Pulls

		Main or auxiliary winch -17" (0.43 m) drum						
Layer	Speed	Line S	peeds	Available Line Pulls				
		F.p.m.	m/min.	Lbs.	kgs.			
First	Low	172	52.43	15,870	7199			
	High	364	110.95	7,520	3411			
Second	Low	187	57.00	14,630	6 636			
	High	394	120.09	6,930	3 143			
Third	Low	201	61.26	13,580	6 160			
	High	425	129.54	6,430	2917			
Fourth	Low	216	65.84	12,660	5 743			
	High	456	138.99	6,000	2 722			
Fifth	Low	230	70.10	11,860	5 380			
	High	487	148.44	5,620	2 549			
Sixth	Low	245	74.68	11,160	5 062			
	High	517	157.58	5,280	2 395			
Seventh	Low	260	79.25	10,530	4776			
	High	548	167.03	4,990	2264			

### Tire Inflation

Tires	Ply	Pressure
21.0 x 25	24	85 p.s.i. <i>(5.86 Bars)</i>
26.5×25	24	75 p.s.i. <i>(5.17 Bars)</i>
29.5 x 25	22	60 p.s.i. (2.14 Bars)





② Calculating capacities for extended or retracted boom with manual section extended must be based on boom angle only. See Operating Instructions Number 13.

Calculating capacities for extended or retracted boom with manual section extended plus fly must be based on boom angle only. See Operating Instructions Number 15.



### **Warning and Operating Instructions**

#### HSP-8040



- 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.
- 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.
- 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.
- All capacities are in pounds with metric equivalent in italic.

#### Set-Up:

- Capacities included in this chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. 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.
- When making lifts on outriggers, outrigger beams must be fully extended with tires free of supporting surface.
- Eight parts of ¾" (19 mm) diameter Type "N" wire rope required to lift maximum 80,000 lbs. (36 288 kg): ated load.
- 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 ce. Pick and carry operations (creep), are restricted to 1.0 m.p.h. (1.61 km/h) with the boom centered over front, the travel swing lock engaged and the load restrained from swinging. Lifts with the manual extended, fly or fly/jib combination erected are prohibited.
- When making lifts on rubber, tires must be inflated to the recommended pressure and power sections must be equally extended.

- Rated lifting capacities at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell and concrete bucket operation, weight of bucket and load shall not exceed 80% of rated lifting capacities. Clamshell bucket weight including bucket content is restricted to a maximum of 7,000 pounds (3175 kg) with a maximum boom length of 56 feet (17.07 m) and a minimum boom angle of 35°. Manual extended, fly or fly/jib combinations are prohibited for clam work.
- 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. Those capacities above the heavy bold line indicate capacities based on factors other than those which would cause a tipping

- Do not operate at boom lengths or beyond radii where no capacities are shown. Machine may overturn without any load on the hook
- To determine capacities in-between those shown on charts, refer to the rated lifting capacity of the next longer and next shorter booms for the same radius. The lesser of the two capacities will apply.
- When making lifts at a load radius not shown on charts, use the next longer radius to determine allowable capacity.
- Crane capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, and operating speeds Operator must reduce load ratings to take such conditions into account. Deductions from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, fly or other suspended gear.
- Rated lifting capacities are based on correct reeving. Deduction must be made for excessive reeving. Any reeving over minimum required is considered excessive and must be taken into account. Use working range plate to estimate the extra feet of rope and then deduct 1 lb. (.4536 kg) for each foot of wire rope before attempting to lift a load.
- The following deductions from rated main boom capacities must be made if the machine is equipped with the following:
  - auxiliary lifting sheave 200 lbs. (91 kg.)
  - 33' (10.06 m) one-piece fly stowed on boom 700 lbs. (318 kg).
  - 33' (10.06 m) one-piece fly in working position -1,800 lbs. (816 kg)
  - 33' (10.06 m) fly plus 25' (7.62 m) jib stowed on boom 1,100 lbs. (499 kg) .33' (10.06 m) fly plus 25' (7.62 m) jib in working position 4,400 lbs. (1 996 kg) .25' (7.62 m) jib in working position and picking from

  - fly tip 1,900 lbs. (862 kg)
- Powered boom length is from 35' (10.67 m) to 85' (25.91 m).
- Extension or retraction of the boom with loads within the 10. limits of the applicable rating chart may be attempted. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, boom lubrication, etc.
- Do not move load to radii or boom lengths greater than those specified on applicable chart.
- Effective length of boom with auxiliary lifting sheave is length shown on boom length indicator plus 2' (0.61 m).
- 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 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 110' (33.53 m) manual extended. For angles not shown, use next lower boom angle to determine allowable capacity.

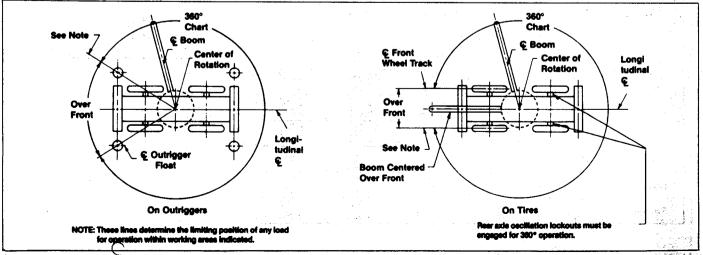
- The rated loads for the manual retracted with 33' (10.06 m) fly are determined by boom angle only for boom lengths other than 110' (33.53 m) and 118' (35.97 m) as follows: For boom lengths with fly and manual retracted less than 110' (33.53 m), the rated loads are determined by boom angle only in the column headed 110' (33.53 m) manual retracted with fly. For boom lengths with fly and manual retracted between 110' (33.53 m) and 11E (35.97 m), the rated loads are determined by boom angle only in the column headed 118' (35.97 m). For angles not shown, use the next lower boom angle to determin allowable capacity.
- For boom lengths with fly less than 143' (44 m) with manual extended, the rated loads are determined by boom angle only in the column headed 143' (44 m). For angles not shown, use the next lower boom angle to determine allowable capacity.
- The 25' (8 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 are for 360 degree operation Warning: Do not lower 25' (8 m) jib in working position below 50 degrees unless boom is fully retracted.
- 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:**

- 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.
- 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.
- Working Area: Area measured in a circular arc about the center line of rotation as shown on the working area diagram.
- Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
- Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

### **Working Areas**

### **HSP-8040**



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