FMC

# Lifting Capacities

PCSA Class 10-213

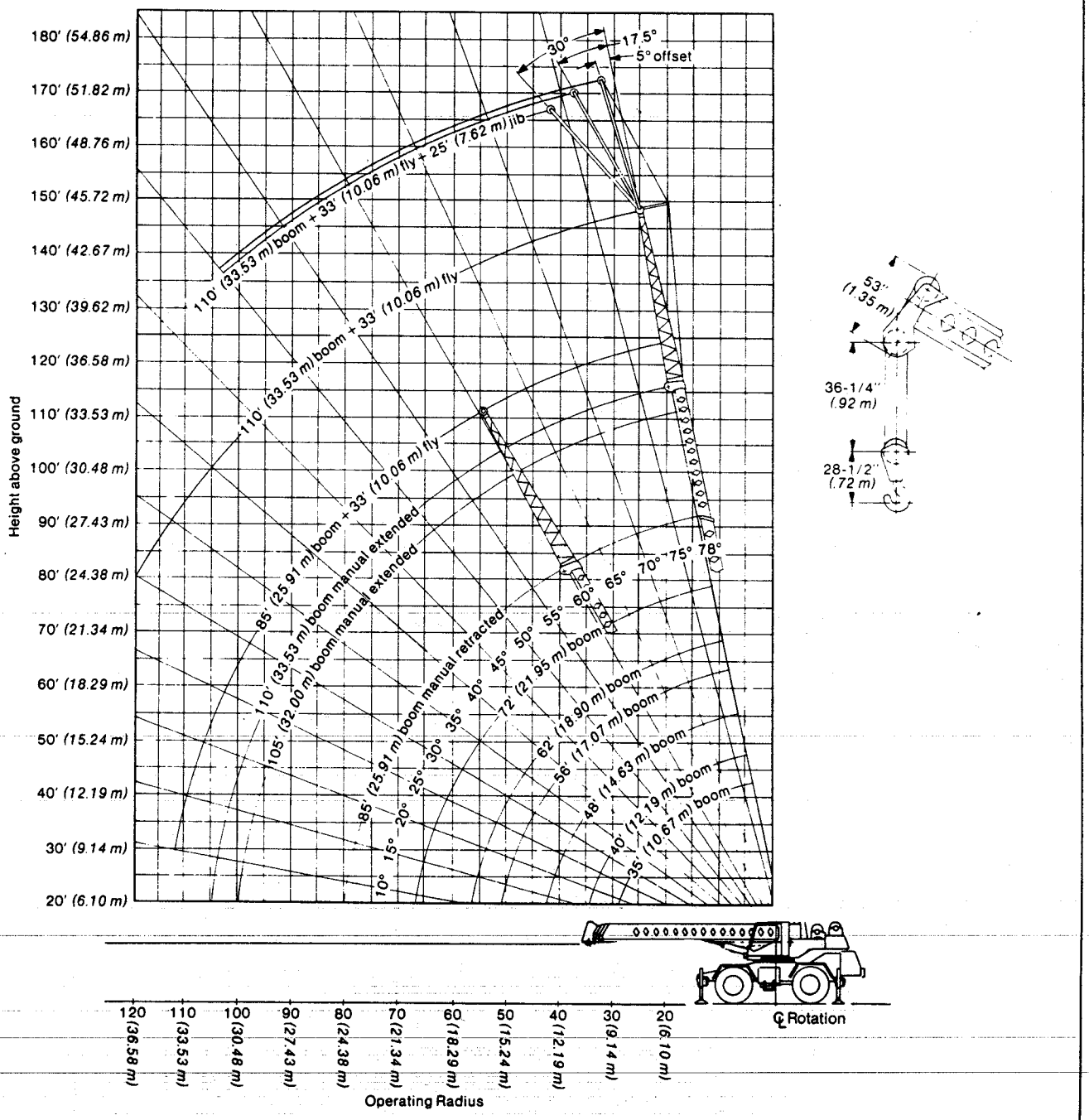
GENERAL INFORMATION ONLY

Link-Belt®

*Eighty Series* Hydraulic Rough Terrain Crane

## HSP-8050 50-ton *(45.36 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-8050 Lifting Capacities

35'-110' *(10.67-33.53 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)* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Front | 360° | Front | 360° | Front | 360° | Front | 360° | Front | 360° | Front | 360° | Front | 360° |
| 10' *3.05 m* | 100,000 *45360* | 100,000 *45360* | 72,100 *32705* | 72,100 *32705* | 70,800 *32115* | 70,800 *32115* | 68,100 *30890* | 68,100 *30890* | | | | | | |
| 12' *3.66 m* | 98,300 *44589* | 98,300 *44589* | 72,100 *32705* | 72,100 *32705* | 70,800 *32115* | 70,800 *32115* | 68,100 *30890* | 68,100 *30890* | 67,600 *30663* | 67,600 *30663* | | | | |
| 15' *4.57 m* | 84,000 *38102* | 84,000 *38102* | 71,500 *32432* | 71,500 *32432* | 70,800 *32114* | 70,800 *32114* | 68,100 *30890* | 68,100 *30890* | 59,400 *26944* | 59,400 *26944* | 51,800 *23496* | 51,800 *23496* | | |
| 20' *6.10 m* | 64,300 *29166* | 64,300 *29166* | 64,300 *29166* | 64,300 *29166* | 64,300 *29166* | 64,300 *29166* | 57,200 *25946* | 57,200 *25946* | 48,900 *22180* | 48,900 *22180* | 43,200 *19596* | 43,200 *19596* | 36,600 *16602* | 36,600 *16602* |
| 25' *7.62 m* | 49,800 *22589* | 49,800 *22589* | 49,800 *22589* | 49,800 *22589* | 49,800 *22589* | 49,800 *22589* | 48,100 *21818* | 48,100 *21818* | 41,300 *18734* | 41,300 *18734* | 36,800 *16692* | 36,800 *16692* | 30,500 *13835* | 30,500 *13835* |
| 30' *9.14 m* | | | 40,300 *18279* | 36,800 *16692* | 40,300 *18279* | 36,800 *16692* | 40,300 *18279* | 36,800 *16692* | 35,500 *16103* | 35,500 *16103* | 31,800 *14424* | 31,800 *14424* | 25,800 *11703* | 25,800 *11703* |
| 35' *10.67 m* | | | | | 32,400 *14696* | 27,500 *12474* | 32,400 *14696* | 27,500 *12474* | 32,400 *14696* | 27,500 *12474* | 27,800 *12602* | 27,500 *12474* | 22,200 *10069* | 22,200 *10069* |
| 40' *12.19 m* | | | | | 25,200 *11430* | 21,300 *9661* | 25,300 *11476* | 21,300 *9661* | 25,400 *11521* | 21,300 *9661* | 24,500 *11113* | 21,300 *9661* | 19,400 *8800* | 19,400 *8800* |
| 45' *13.72 m* | | | | | | | 20,400 *9253* | 17,100 *7757* | 20,400 *9253* | 17,100 *7757* | 20,400 *9253* | 17,100 *7757* | 17,100 *7757* | 17,100 *7757* |
| 50' *15.24 m* | | | | | | | 16,600 *7529* | 13,900 *6305* | 16,600 *7529* | 13,900 *6305* | 16,600 *7529* | 13,900 *6305* | 15,400 *6985* | 13,900 *6305* |
| 55' *16.76 m* | | | | | | | | | 13,900 *6305* | 11,500 *5216* | 13,900 *6305* | 11,500 *5216* | 13,800 *6260* | 11,500 *5216* |
| 60' *18.29 m* | | | | | | | | | | | 11,700 *5307* | 9,600 *4354* | 11,700 *5307* | 9,600 *4354* |
| 65' *19.81 m* | | | | | | | | | | | 9,900 *4490* | 7,900 *3583* | 9,900 *4490* | 7,900 *3583* |
| 70' *21.34 m* | | | | | | | | | | | | | 8,400 *3810* | 6,700 *3039* |
| 80' *24.38 m* | | | | | | | | | | | | | 6,000 *2721* | 4,500 *2041* |
| 90' *27.43 m* | | | | | | | | | | | | | | |
| 100' *30.48 m* | | | | | | | | | | | | | | |
| 110' *33.53 m* | | | | | | | | | | | | | | |

| 77' *(23.47 m)* boom plus 33' *(10.06 m)* fly | | | 85' *(25.91 m)* boom plus 33' *(10.06 m)* fly | | |
|---|---|---|---|---|---|
| Boom angle | Front | 360° | Boom angle | Front | 360° |
| See Note ② | | | See Note ② | | |
| 76° | 22,200 *10070* | 22,200 *10070* | 77° | 18,500 *8392* | 18,500 *8392* |
| 74° | 22,200 *10070* | 22,200 *10070* | 75° | 17,500 *7938* | 17,500 *7938* |
| 71° | 20,200 *10070* | 20,000 *10070* | 72° | 15,500 *7031* | 15,500 *7031* |
| 68° | 18,900 *8573* | 18,900 *8573* | 70° | 13,900 *6305* | 13,900 *6305* |
| 66° | 17,300 *7847* | 17,300 *7847* | 67° | 12,400 *5625* | 12,400 *5625* |
| 63° | 15,400 *6985* | 15,400 *6985* | 64° | 10,900 *4944* | 10,900 *4944* |
| 60° | 14,300 *6486* | 13,600 *6214* | 62° | 9,600 *4355* | 9,600 *4355* |
| 56° | 13,200 *5988* | 11,600 *5261* | 59° | 8,600 *3901* | 8,600 *3901* |
| 53° | 11,900 *5397* | 9,900 *4490* | 56° | 7,700 *3493* | 7,700 *3493* |
| 50° | 10,400 *4717* | 8,600 *3901* | 53° | 6,900 *3130* | 6,900 *3130* |
| 42° | 8,000 *3628* | 6,500 *2948* | 46° | 5,600 *2540* | 5,600 *2540* |
| 33° | 6,200 *2812* | 4,900 *2044* | 39° | 4,600 *2087* | 4,400 *1996* |
| 21° | 4,600 *2086* | 3,400 *1542* | 30° | 3,900 *1769* | 3,400 *1542* |
| | | | 17° | 3,400 *1542* | 2,500 *1133* |

| Wire rope application | Size and type used | Wire rope description |
|---|---|---|
| Main winch<br>Auxiliary winch | 3/4" *(19 mm)* diameter, Type "N"<br>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. |

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## 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* |

Footnotes

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

② 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.

③ See Operating Instructions, set-up Number 4.

## Capacities On Tires

| Load Radius | Max. boom length | Pick & Carry③ | Stationary | |
|---|---|---|---|---|
| | | Over Front | 360° | Over Front |
| 10' *3.05 m* | 35' *10.67 m* | 58,000 *26 309* | 42,100 *19 097* | 57,300 *25 991* |
| 12' *3.66 m* | 35' *10.67 m* | 50,600 *22 952* | 33,700 *15 286* | 50,500 *22 907* |
| 15' *4.57 m* | 35' *10.67 m* | 42,100 *19 097* | 23,100 *10 478* | 42,700 *19 369* |
| 20' *6.10 m* | 35' *10.67 m* | 32,200 *14 606* | 14,000 *6 350* | 32,700 *14 833* |
| 25' *7.62 m* | 35' *10.67 m* | 22,400 *10 160* | 9,100 *4 127* | 22,600 *10 251* |
| 30' *9.14 m* | 40' *12.19 m* | 15,900 *7 212* | 6,000 *2 721* | 15,900 *7 212* |
| 35' *10.67 m* | 40' *12.19 m* | 11,900 *5 398* | 3,800 *1 723* | 11,900 *5 398* |
| 40' *12.19 m* | 48' *14.63 m* | 9,100 *4 127* | — — | 9,100 *4 127* |
| 45' *13.72 m* | 56' *17.07 m* | 7,000 *3 175* | — — | 7,000 *3 175* |
| 50' *15.24 m* | 56' *17.07 m* | 5,400 *2 449* | — — | 5,400 *2 449* |
| 55' *16.76 m* | 62' *18.90 m* | 4,200 *1 904* | — — | 4,200 *1 904* |
| 60' *18.29 m* | 72' *21.95 m* | 3,200 *1 451* | — — | 3,200 *1 451* |

# HSP-8050 Lifting Capacities

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

Refer to **Operating Instructions** page 4

## Capacities① On Outriggers **Manual Section Extended**

| Load radius | 105′ *(32.00 m)* | | | 110′ *(33.53 m)* | | | 110′ *(33.53 m)* boom plus 33′ *(10.06 m)* fly | | |
|---|---|---|---|---|---|---|---|---|---|
| | Boom angle | Front | 360° | Boom angle | Front | 360° | Boom angle | Front | 360° |
| | See Note ② | | | See Note ② | | | See Note ③ | | |
| 25′ *7.62 m* | 76° | 20,200 *9 163* | 20,200 *9 163* | 77° | 19,000 *8 618* | 19,000 *9 027* | | | |
| 30′ *9.14 m* | 73° | 20,200 *9 163* | 20,200 *9 163* | 74° | 18,500 *8 392* | 18,500 *8 392* | | | |
| 35′ *10.67 m* | 71° | 20,200 *9 163* | 20,200 *9 163* | 72° | 17,600 *8 121* | 17,600 *8 121* | 76° | 9,400 *4 264* | 9,400 *4 264* |
| 40′ *12.19 m* | 68° | 18,200 *8 256* | 18,200 *8 256* | 69° | 15,500 *7 030* | 15,500 *7 030* | 74° | 9,400 *4 264* | 9,400 *4 264* |
| 45′ *13.72 m* | 65° | 16,400 *7 439* | 16,400 *7 439* | 66° | 13,700 *6 214* | 13,700 *6 214* | 72° | 9,000 *4 082* | 9,000 *4 082* |
| 50′ *15.24 m* | 62° | 15,000 *6 804* | 15,000 *6 804* | 63° | 12,100 *5 488* | 12,100 *5 488* | 70° | 8,400 *3 810* | 8,400 *3 810* |
| 55′ *16.76 m* | 59° | 13,800 *6 260* | 13,100 *5 942* | 60° | 10,700 *4 853* | 10,700 *4 853* | 68° | 8,000 *3 629* | 8,000 *3 629* |
| 60′ *18.29 m* | 55° | 12,700 *5 760* | 11,100 *5 034* | 57° | 9,700 *4 400* | 9,700 *4 400* | 66° | 7,300 *3 311* | 7,300 *3 311* |
| 65′ *19.81 m* | 52° | 11,500 *5 216* | 9,500 *4 308* | 54° | 8,700 *3 946* | 8,700 *3 946* | 64° | 6,500 *2 948* | 6,500 *2 948* |
| 70′ *21.34 m* | 48° | 9,900 *4 490* | 8,200 *3 719* | 50° | 7,800 *3 357* | 7,800 *3 357* | 61° | 5,700 *2 586* | 5,700 *2 586* |
| 80′ *24.38 m* | 39° | 7,500 *3 401* | 6,100 *2 767* | 43° | 6,400 *2 903* | 6,000 *2 721* | 56° | 4,600 *2 087* | 4,600 *2 087* |
| 90′ *27.43 m* | 29° | 5,800 *2 631* | 4,500 *2 040* | 34° | 5,500 *2 495* | 4,400 *1 995*③ | 51° | 3,600 *1 633* | 3,600 *1 633* |
| 100′ *30.48 m* | 12° | 4,400 *1 996* | 3,200 *1 451* | 22° | 4,300 *1 950* | 3,200 *1 451* | 46° | 2,800 *1 270* | 2,800 *1 270* |
| 110′ *33.53 m* | | | | | | | 39° | 2,100 *953* | 2,100 *953* |
| 120′ *36.58 m* | | | | | | | 32° | 1,500 *680* | 1,500 *680* |

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

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

③ 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.

## Jib Capacities

33′ *(8.84 m)* **fly** plus **25′** *(7.62 m)* **jib**

| Boom angle | Jib Offset | | |
|---|---|---|---|
| | 5° | 17.5° | 30° |
| 78° | 5,100 *2313* | 5,100 *2313* | 4,200 *1 905* |
| 75° | 5,100 *2313* | 5,100 *2313* | 4,000 *1 814* |
| 70° | 5,100 *2313* | 4,900 *2223* | 3,600 *1 633* |
| 65° | 4,500 *2041* | 4,100 *1 860* | 3,400 *1 542* |
| 60° | 3,700 *1 678* | 3,300 *1 497* | 2,800 *1 270* |
| 55° | 3,000 *1 361* | 2,700 *1 225* | 2,400 *1 089* |
| 50° | 2,500 *1 134* | 2,300 *1 043* | 2,000 *907* |

## HSP-8050 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 |
| | Innermid telescope<br>Steering | 2,500 p.s.i. *(172.41 Bars)* |
| | 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)* |

## 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<br>High | 172<br>364 | *52.43*<br>*110.95* | 15,870<br>7,520 | *7 199*<br>*3 411* |
| Second | Low<br>High | 187<br>394 | *57.00*<br>*120.09* | 14,630<br>6,930 | *6 636*<br>*3 143* |
| Third | Low<br>High | 201<br>425 | *61.26*<br>*129.54* | 13,580<br>6,430 | *6 160*<br>*2 917* |
| Fourth | Low<br>High | 216<br>456 | *65.84*<br>*138.99* | 12,660<br>6,000 | *5 743*<br>*2 722* |
| Fifth | Low<br>High | 230<br>487 | *70.10*<br>*148.44* | 11,860<br>5,620 | *5 380*<br>*2 549* |
| Sixth | Low<br>High | 245<br>517 | *74.68*<br>*157.58* | 11,160<br>5,280 | *5 062*<br>*2 395* |
| Seventh | Low<br>High | 260<br>548 | *79.25*<br>*167.03* | 10,530<br>4,990 | *4 776*<br>*2 264* |

## Tire Inflation

| Tires | Ply | Pressure |
|---|---|---|
| 26.5 x 25 | 24 | 75 p.s.i. *(5.17 Bars)* |
| 29.5 x 25 | 22 | 60 p.s.i. *(2.14 Bars)* |

GENERAL INFORMATION ONLY

# Warning and Operating Instructions HSP-8050

## General:

1. Rated lifting capacities in pounds as shown on lift chart pertain to this machine as originally manufactured and normally equipped by FMC Corporation, Construction Equipment Group. 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. All capacities are in pounds with metric equivalent in italic.

## Set-Up:

1. 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.
2. When making lifts on outriggers, outrigger beams must be fully extended with tires free of supporting surface.
3. Eight parts of ¾" *(19 mm)* diameter Type "N" wire rope required to lift maximum 100,000 lbs. *(45 360 kg)* rated load.
4. 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. 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.
5. When making lifts on rubber, tires must be inflated to the recommended pressure and power sections must be equally extended.

## Operation:

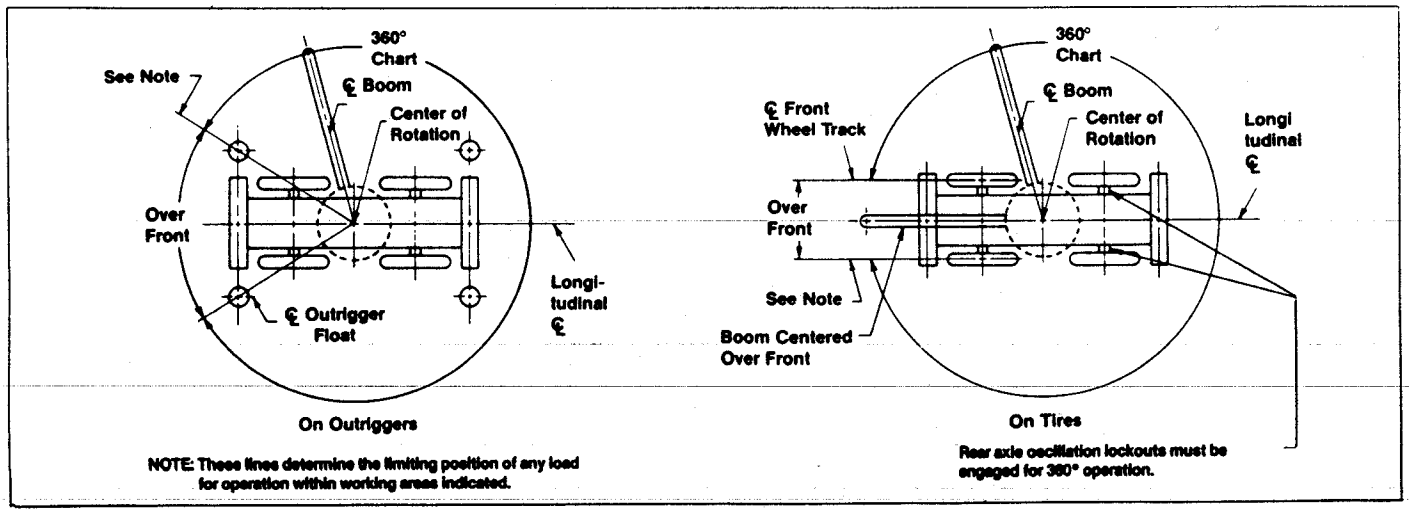
1. Rated lifting capacities at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell and concrete bucket operation, weight of bucket and load shall not exceed 80% of rated lifting capacities. Clamshell bucket weight including bucket content is restricted 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.
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. Those capacities above the heavy bold line indicate capacities based on factors other than those which would cause a tipping condition.
3. Do not operate at boom lengths or beyond radii where no capacities are shown. Machine may overturn without any load on the hook.
4. 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.
5. When making lifts at a load radius not shown on charts, use the next longer radius to determine allowable capacity.
6. 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.
7. 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.
8. The following deductions from rated main boom capacities must be made if the machine is equipped with the following:
   a. auxiliary lifting sheave - 200 lbs. *(91 kg.)*
   b. 33' *(10.06 m)* one-piece fly stowed on boom — 700 lbs. *(318 kg)*.
   c. 33' *(10.06 m)* one-piece fly in working position — 1,800 lbs. *(816 kg)*
   d. 33' *(10.06 m)* fly plus 25' *(7.62 m)* jib stowed on boom — 1,100 lbs. *(499 kg)*
   e. 33' *(10.06 m)* fly plus 25' *(7.62 m)* jib in working position — 4,400 lbs. *(1 996 kg)*
   f. 25' *(7.62 m)* jib in working position and picking from fly tip — 1,900 lbs. *(862 kg)*
9. Powered boom length is from 35' *(10.67 m)* to 85' *(25.91 m)*.
10. Extension or retraction of the boom with loads within the 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.
11. Do not move load to radii or boom lengths greater than those specified on applicable chart.
12. Effective length of boom with auxiliary lifting sheave is length shown on boom length indicator plus 2' *(0.61 m)*.
13. 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.
14. 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 118' *(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 determine allowable capacity.
15. 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.
16. 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.
17. 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 working 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.

GENERAL INFORMATION ONLY

# Working Areas HSP-8050




We are constantly improving our products and therefore reserve the right to change designs and specifications.