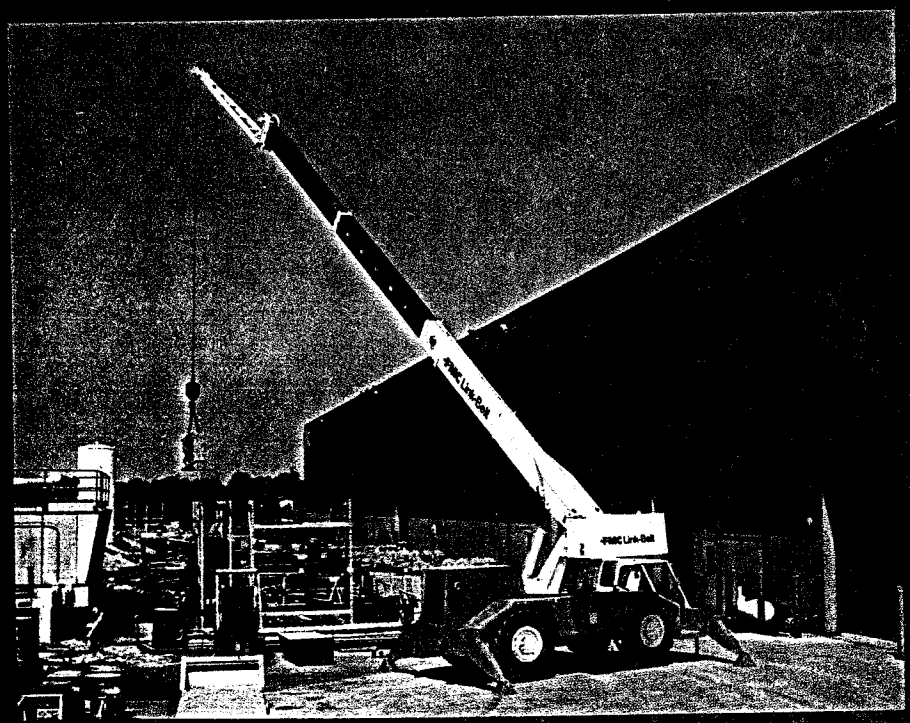
Link-Belt®

HCD-80B

Hydraulic Cab-Down Crane

15-ton *(13.64 metric ton)*



FMC

The HCD-80B, a 15-ton *(13.64 mt)* 8' *(2.43 m)* wide hydraulic cab-down crane built for the **PROS...p**erformance, **r**eliability, **o**perator safety & comfort and **s**erviceability.

Performance

Boom & attachments

- 86' *(26.21 m)* maximum tip height
- 25'–60' *(7.62–18.29 m)* 3-section telescoping boom
- 20' *(6.10 m)* swing-away lattice fly or
- 20' *(6.10 m)* A-frame jib with offsets 0° 15° and 30°
- smooth, synchronized extension system

Hoist system

- 2-speed main winch
- 7,978 lb. *(3618 kg)* maximum permissible line pull
- 420 fpm *(128 m/min)* line speed
- 485' *(148 m)* wire rope capacity
- 9/16" *(14 mm)* wire rope

Capacity

- Best capacities in the class

Stability

- 14'5¼" *(4.40 m)* outrigger spread
- 19'8" *(6.03 m)* outrigger base
- low center of gravity increases 360° capacities

Mobility

- 44,887 lb. *(20 360 kg)* base weight
- 14.0x24 tires standard with 8' width
- 17.5x25 tires optional
- powershift transmission, 6 speeds forward, 6 speeds reverse
- smooth power transfer
- travel lights standard
- 15'9" *(4.80 m)* turning radius with 4 wheel steer for greater maneuverability
- low overall height

Reliability

Components

- GM or Isuzu engine
- heavy duty planetary axles
- 2-section gear-type pumps
- two 10 micron hydraulic filters
- 53 gallon *(200.60 L)* fuel tank

Operator Safety & Comfort

Cab

- 4-way adjustable seat
- large, tinted-glass windows
- two lockable sliding doors
- heater and defroster
- lighted, dash-mounted instrumentation
- best access in the industry

Safety

- rear view mirrors, both sides
- boom angle indicator visible with boom at any angle
- convenient grab rails and steps for easy cab access
- anti-two block with function lockout and alarm standard
- two position house lock
- back up alarm standard

Serviceability

Simplified design

- easy access to fans, belts and batteries
- simplified collector ring for maximum reliability
- quick disconnects on control values
- –1° boom angle for easy access of head machinery

FMC

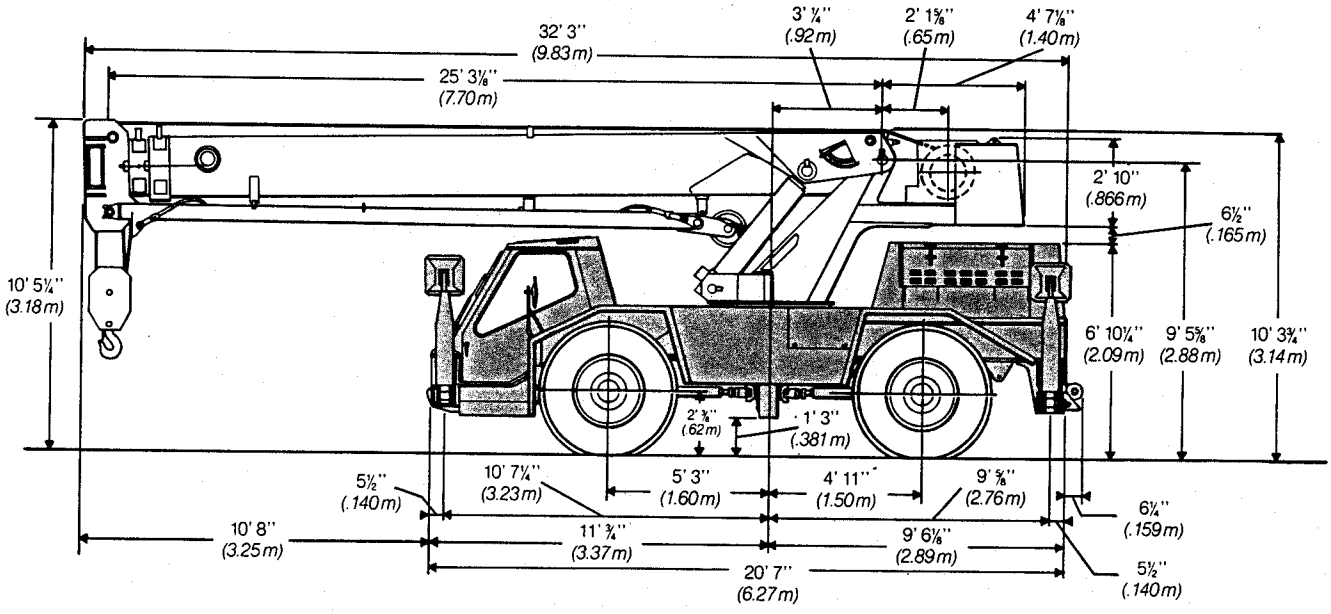
General Specifications

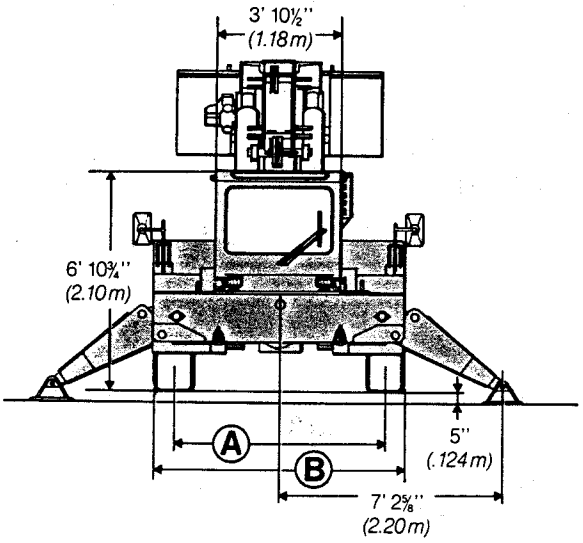
Link-Belt®

GENERAL INFORMATION ONLY

Hydraulic Cab Down Crane

HCD-80B 15 tons *(13.64 metric tons)*





General dimensions	Feet	*meters*
Turning radius (4-wheel steer)	15' 9"	*4.80*
Tailswing of counterweight	8' 10"	*2.69*

Dimensions affected by tires

Tires	14.0 x 24 (20-PR)		17.5 x 25 (20-PR)	
	Feet	*meters*	**Feet**	*meters*
A	6' 9¼"	*2.06*	6' 10¼"	*2.08*
B	8'	*2.43*	8' 3"	*2.52*

L341 6833
(Supersedes L260)

Printed in U.S.A.

Upperstructure

GENERAL INFORMATION ONLY

Boom

5' - 60' *(7.62 - 18.29 m)* 3-section ower boom. Boom telescope sec- ions are supported by wear shoes oth vertically and horizontally to pre- ent metal to metal contact.

Boom head — Two 9-5/8" *(245 mm)* oot diameter sheaves standard. hree head sheaves are available to andle up to 7 parts of wire rope. Two asily removable wire rope guards nd rope dead end lugs for 2-4-6 parts f line. Optional 12-7/8" *(326 mm)* root iameter head sheaves meet 25:1 atio European Safety Code with *14 mm* wire rope.

Boom elevation — Two hydraulic ylinders with holding valves. Hand ontrol lever for controlling boom levation from -1° to 75°. Mechanical oom le indicator standard.

ly

ptional; 20' 0" *(6.10 m)* stowable ne-piece lattice type.

ib

ptional; 20' 0" *(6.10 m)* stowable -frame. Attaches to boom head nly. Can be offset 0°, 15°, and 0°.

Swing

Bi-directional hydraulic swing motor mounted to a planetary reducer for 360° continuous smooth swing at 3.0 rpm.

Swing brake — Automatically applied and released, disc brake coupled to the speed reducer.

Swing lock — Standard two-position pin-type (over front and rear) operated manually.

Counterweight — Bolted to upper-structure frame.

Hydraulic System

Main pump — Double gear-type pump. Powered by carrier engine through hot-shift pump disconnect which can be engaged/disengaged while engine is running.

Swing/steering pump — Tandem pump. Powered by carrier engine through a straight mechanical drive.

Reservoir — 93 gallon *(352 L)* capacity.

Filtration — Two 10 micron filters, located outside of hydraulic reservoir for easy replacement.

Control valves — 4 separate control valves allow simultaneous operation of all crane functions.

Load hoist system

Standard: Main winch with two speed and automatic brake; power up/power down mode of operation. Bi-directional radial piston hydraulic motor, driven through a spur gear reduction unit for positive operator control under all load conditions.

Line pulls and speeds — Maximum permissible line pull 7,978 lbs. *(3618 kg.)* and maximum line speed of 420 fpm *(128 m/min.)* on standard 13-9/16" *(345 mm)* root diameter grooved drum.

Standard upperstructure equipment
Boom length and boom angle indicator, two-speed main winch, grooved drum, 15-ton hook block, anti-two block with function kickout and audible alarm.

Chassis

GENERAL INFORMATION ONLY

Type

8' *(2.43 m)* wide, 122" *(3099 mm)* wheelbase.

4x4x4 — (4 wheel steer, 4 wheel drive). Standard; crab steering allows steering to either side simultaneously.

Frame — All welded box section main frame with integral front and rear outrigger boxes.

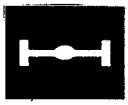
Cab and Controls

Environmental cab — All windows fixed, safety glass used for front window. Slide-by-door opens to 2'2" *(.66 mm)* width. 4-way adjustable operators seat. Cab door is key locked. Control levers for swing, boom telescope, winch and boom hoist, and outriggers.

Cab instrumentation — Dash mounted gauges for engine oil pressure, hydraulic oil temperature, converter temperature, fuel and voltmeter.

Outriggers

Four hydraulic cantilever outriggers. Outrigger cylinders individually controlled from cab. Extend to 14' 5-1/4" *(4.4 m)*. Equipped with 18" *(.46 m)* square steel floats. Sight level bubble located in cab.



Axles

Front — Standard; heavy duty planetary drive/steer type.

Rear — Standard; heavy duty driving/steer type.

Suspension

Front axle — Bolted to frame.

Rear axle — Spring rear suspension provides 4 wheel traction on rough terrain. Equipped with manual hydraulic rear oscillation lockout for picking on tires.

Tires

Front and rear — Standard 14.0 x 24 (20 ply).

Optional — 17.5 x 25 (20 ply).

Brakes

Service — Air over hydraulic brakes on all 4 wheels. 17" x 4" *(0.43 m x 0.10 m)* drum brakes on each wheel.

Parking — Spring applied, air released; cab controlled, mounted on front axle.

Steering — Hydraulic two wheel, four wheel, and "crab" steering controlled from operators cab.

Transmission — Power shift transmission, 6 speeds forward and 6 reverse.

Miscellaneous standard equipment — Hook block tie down, pintle hook-rear, fenders, 12-volt start, tool storage box, back-up alarm, horn, cab heater, defroster, wipers, rear view mirrors -both side, travel lights, lifting lugs, fire extinguisher.

Optional chassis equipment — Engine cover side doors, front winch (hydraulic).

Travel Speeds and Gradeability

Engine	Tires	Maximum Speed		Gradeability at stall	Maximum tractive effort at stall		Gradeability at 1.0 m.p.h. *(1.61 km/h)*	Maximum tractive effort at 1.0 m.p.h. *(1.61 km/h)*	
		m.p.h.	*Km/h*		pounds	kilograms		pounds	kilograms
GM	14.0x24	25.6	*41.19*	79%	28,650	*12 892*	45%	19,280	*8 676*
3-53T	17.5x25	25.5	*41.03*	75%	28,370	*12 766*	44%	19,180	*8 631*
ISUZU	14.0x24	29.1	*46.82*	82%	29,340	*13 203*	44%	19,050	*8 572*
6BD1*	17.5x25	28.9	*46.50*	78%	29,060	*13 077*	43%	18,960	*8 532*

*Optional equipment

ENGINE	GM3-53T	ISUZU 6BD1*
Cylinders - cycle	3 - 2	6 - 4
Bore	3-7/8" *(98.43 mm)*	4 in. *(101.60 mm)*
Stroke	4-1/2" *(114.30 mm)*	4-5/8" *(117.48 mm)*
Displacement	159 cu. in. *(2 606 cm³)*	353 cu. in. *(5785 cm³)*
Maximum Brake h.p.	131@ 2500 rpm	132 @2800 rpm
Peak Torque	312 ft. lbs. *(427.14 J)*	268 ft. lbs. *(363.41 J)*
Electric System	12 v neg. ground	12 v neg. ground
Fuel Cap.	53 gallons *(200.60 L)*	53 gallons *(200.60 L)*
Alternator	42 amp	50 amp
Crankcase Cap.	3.5 gallons *(13.2 L)*	4.5 gallons *(17.0 L)*
Air Compressor	14.5 cfm. *(.41 m³/m)*	7.6 cfm *(.22 m³/m)*

*Optional equipment

Axle loads 3-section boom

Base machine with standard 25'-60' *(7.62-18.29 m)* 3-section boom, enclosed cab, 385' (117.35 m) 9/16" *(14 mm)* wire rope, 4x4x4 carrier with GM 3-53T engine, 14.0x24 tires, counterweight, fenders, and hook block.	G. V. W.		Upper Facing Front				Upper facing rear			
			Front axle		Rear axle		Front axle		Rear axle	
	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*
	44,887	*20 357*	22,233	*10 083*	22,654	*10 274*	17,794	*8 070*	27,093	*12 287*
Engine cover side doors	+ 79	*+ 36*	− 13	*− 6*	+ 93	*+ 42*	− 13	*− 6*	+ 93	*+ 42*
20' lattice fly	+507	*+230*	+ 915	*+415*	−408	*−185*	−426	*−193*	+ 933	*+423*
20' A-frame jib	+736	*+334*	+1142	*+518*	−428	*−194*	−452	*−205*	+1188	*+539*
17.5 x 25 tires	+988	*+448*	+ 463	*+210*	+525	*+238*	+463	*+210*	+ 525	*+238*

① Adjust gross vehicle weight and axle loading according to components weight.

GENERAL INFORMATION ONLY

FMC Corporation Construction Equipment Group Lexington, Kentucky 40512

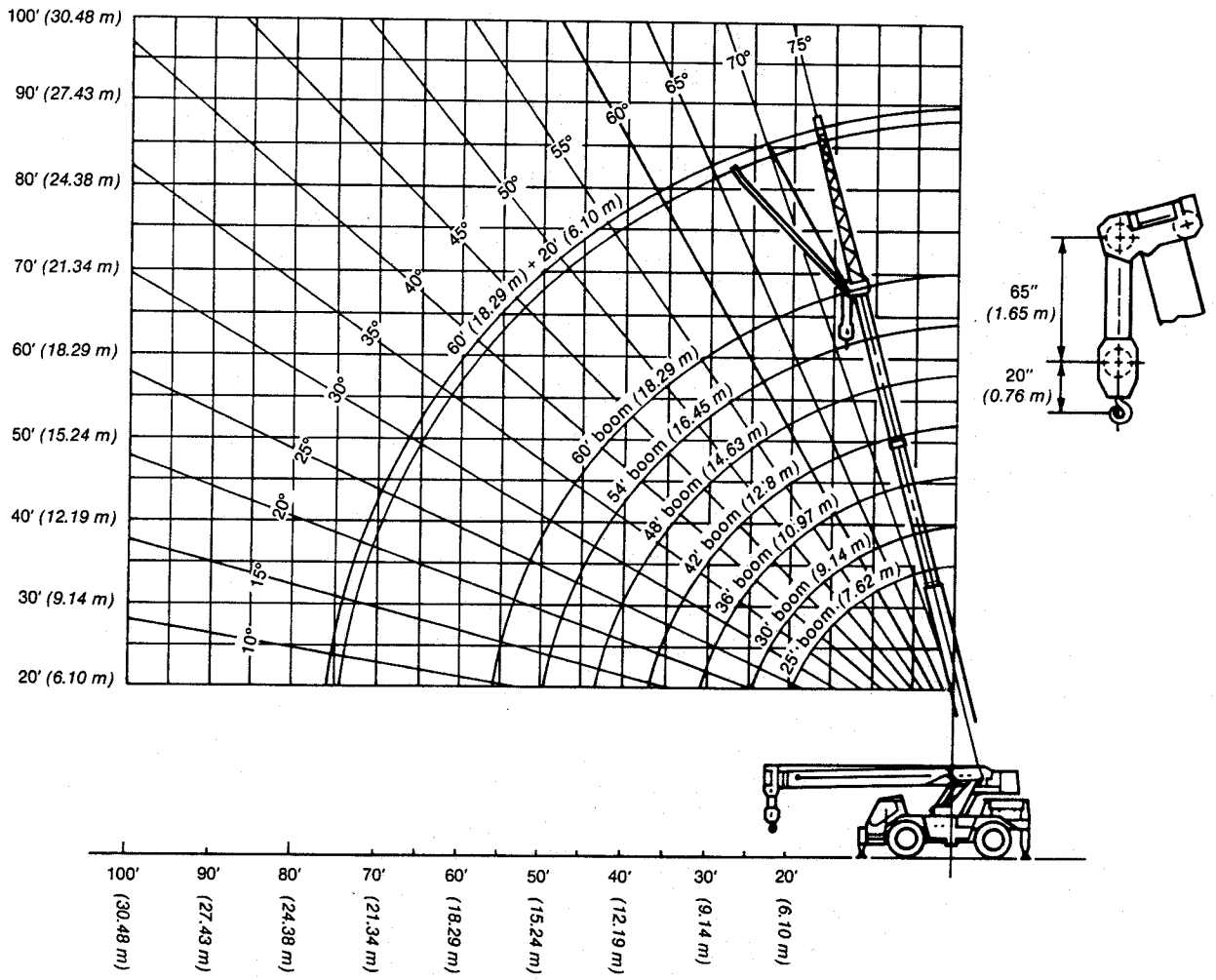
Link-Belt® cranes/excavators manufactured in: Cedar Rapids, Iowa•Lexington & Bowling Green, Ky.•Woodstock, Ontario, Canada•Milan, Italy•Queretaro, Mexico & Nagoya, Japan (under license).

Lifting Capacities

PCSA Class 12-64

GENERAL INFORMATION ONLY

Link-Belt®
Hydraulic Cab Down Crane
HCD-80B 15-ton *(13.64 metric ton)*



Operation radius from axis of rotation in feet.

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

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HCD-80B Lifting Capacities

GENERAL INFORMATION ONLY

Refer to **Operating Instructions**

25' - 60' *(7.62 m - 18.29m)* 3-section boom

Capacities① On Outriggers - 3-Section Boom

Load radius	25.25' *(7.69m)*		30' *(9.14m)*		36' *(10.97m)*		42' *(12.8m)*		48' *(14.63m)*		54' *(16.45m)*		60' *(18.29m)*		60' *(18.29m)* boom plus 20' *(6.10m)* fly ②	
	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Boom angle	360°
10' *3.05 m*	— —	30,000 *13 608*	— —	30,000 *13 608*	— —	30,000 *13 608*	— —	30,000 *13 608*								
12' *3.66 m*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*						
15' *4.57 m*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	27,600 *12 520*	27,600 *12 520*				
20' *6.10 m*	22,900 *10 387*	20,300 *9 208*	22,900 *10 387*	20,300 *9 208*	22,900 *10 387*	20,300 *9 208*	22,600 *10 251*	20,300 *9 208*	22,500 *10 206*	20,300 *9 208*	21,900 *9 933*	20,300 *9 208*	21,500 *9 752*	20,300 *9 208*	75°	11,500 *5 216*
25' *7.62 m*			17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	71°	11,500 *5 216*
30' *9.14 m*					14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	67°	9,000 *4 082*
35' *10.67 m*							12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	63°	7,100 *3 220*
40' *12.19 m*									10,500 *4 762*	6,400 *2 903*	10,500 *4 762*	6,400 *2 903*	10,500 *4 762*	6,400 *2 903*	59°	5,700 *2 585*
45' *13.72 m*											9,100 *4 127*	5,300 *2 404*	9,100 *4 127*	5,300 *2 404*	55°	4,600 *2 086*
50' *15.24 m*													7,800 *3 538*	4,300 *1 950*	50°	3,900 *1 769*
55' *16.76 m*													6,700 *3 039*	3,600 *1 632*	45°	3,200 *1 451*
60' *18.29 m*															39°	2,700 *1 225*
65' *19.81 m*															33°	2,300 *1 043*

①Boom sections must be extended equal distance.

②Capacities are determined by boom angle only.

Capacities① On Tires② - 3-Section Boom

Load Radius	14.00 x 24 (20 PR.)			17.50 x 25 (20 PR.)		
	Pick & Carry③	Stationary		Pick & Carry③	Stationary	
	Over Front	360°	Over Front	Over Front	360°	Over Front
10' *3.05 m*	—	20,400 *9 253*	—	—	20,500 *9 298*	—
12' *3.66 m*	21,000 *9 526*	16,700 *7 575*	24,600 *11 158*	20,900 *9 480*	17,200 *7 801*	24,400 *11 067*
15' *4.57 m*	17,300 *7 847*	11,600 *5 261*	20,100 *9 117*	17,000 *7 711*	12,300 *5 579*	20,000 *9 072*
20' *6.10 m*	12,900 *5 851*	6,600 *2 993*	12,900 *5 851*	12,900 *5 851*	7,000 *3 175*	13,200 *5 987*
25' *7.62 m*	9,000 *4 082*	4,500 *2 041*	9,000 *4 082*	9,200 *4 173*	4,800 *2 177*	9,200 *4 173*
30' *9.14 m*	6,700 *3 039*	3,200 *1 451*	6,700 *3 039*	6,900 *3 129*	3,500 *1 587*	6,900 *3 129*
35' *10.67 m*	5,200 *2 358*	2,300 *1 043*	5,200 *2 358*	5,300 *2 404*	2,500 *1 134*	5,300 *2 404*
40' *12.19 m*	4,100 *1 859*	1,700 *771*	4,100 *1 859*	4,200 *1 905*	1,800 *816*	4,200 *1 905*
45' *13.72 m*	3,300 *1 496*	1,100 *498*	3,300 *1 496*	3,400 *1 542*	1,300 *589*	3,400 *1 542*
50' *15.24 m*	2,600 *1 179*	—	2,600 *1 179*	2,700 *1 224*	—	2,700 *1 224*
55' *16.76 m*	2,000 *907*	—	2,000 *907*	2,000 *9 072*	—	2,000 *907*

① Off main boom head only; boom sections must be equally extended.
② Refer to tire inflation chart.
③ Limited to 1.0 m.p.h. *(1.609 km/hr)* travel speed, and swing lock must be engaged.

Jib Capacities*

60' *(18.29 m)* boom + 20' *(6.10 m)* jib

Boom angle	Jib Offset		
	0°	15°	30°
75°	10,000 *4 536*	6,500 *2 948*	4,500 *2 041*
70°	9,000 *4 082*	6,000 *2 722*	4,100 *1 860*
65°	7,400 *3 357*	5,400 *2 449*	3,900 *1 769*
60°	5,800 *2 631*	4,900 *2 223*	3,700 *1 678*
55°	4,800 *2 177*	4,100 *1 860*	3,500 *1 588*
50°	4,000 *1 814*	3,600 *1 633*	3,300 *1 497*
45°	3,300 *1 497*	3,100 *1 406*	3,000 *1 361*
40°	2,900 *1 315*	2,700 *1 225*	2,600 *1 179*
35°	2,500 *1 134*	2,400 *1 089*	2,400 *1 089*
30°	2,200 *998*	2,200 *998*	2,200 *998*

* Jib capacities are based on structural strength.

Tire Inflation

Tires	PR	Stationary	'Pick & Carry'
14.00 x 24	20	115 p.s.i. *(7.93 Bars)*	115 p.s.i. *(7.93 Bars)*
17.50 x 25	20	95 p.s.i. *(6.55 Bars)*	95 p.s.i. *(6.55 Bars)*

HCD-80B Wire Rope/Drum Data

GENERAL INFORMATION ONLY

Wire rope size and type

Wire rope application	Size and type used	Wire rope description
Main winch	9/16" *(14 mm)* diameter, Type "C"	Type "C" - 6 x 29 (6 x 37 class) filler wire, extra improved plow steel, preformed, independent wire rope core, right lay, regular lay.

Drum wire rope capacities

Wire rope layer	Main drum 13-9/16" *(345 mm)* root diameter grooved lagging			
	9/16" *(14 mm)* wire rope			
	Rope per layer		Total wire rope	
	Feet	*meters*	Feet	*meters*
1	85	*25.90*	85	*25.90*
2	91	*27.74*	176	*53.64*
3	97	*29.56*	273	*83.21*
4	103	*31.40*	376	*114.61*
*5	109	*33.22*	485	*147.83*

*For storage purposes only - not a working layer

HCD-80B Hydraulic Circuit Pressure Settings	
Function	**Pressure**
Wire Rope Hoist Outriggers	3000 PSI *(206.89 Bars)*
Boom Telescope Boom Hoist	3280 PSI *(226.20 Bars)*
Swing Steering	2000 PSI *(137.93 Bars)*

Line speeds and pulls

Layer	Speed	Main Winch - 13-9/16" *(345 mm)* drum					
		Line speeds		Line pulls @ stall			
				Available*		Permissible	
		F.p.m.	*m/min.*	Lbs.	*kgs.*	Lbs.	*kgs.*
1st	Low High	148 331	*45* *101*	8774	*3980*	7978	*3618*
2nd	Low High	159 354	*48* *108*	8139	*3692*	7399	*3356*
3rd	Low High	169 377	*52* *115*	7590	*3443*	6900	*3130*
4th	Low High	178 397	*54* *121*	7110	*3225*	6464	*2932*
5th	Low High	188 420	*57* *128*	6693	*3036*	6085	*2760*

*Developed by machinery with first layer of wire rope, but not based on wire rope strength.

FMC

HCD-80B Warning & Operating Instructions

GENERAL INFORMATION ONLY

General:

1. These capacities apply only to the machine as originally manufactured and normally equipped by FMC Corporation, Construction Equipment Group.
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 manual supplied with the 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 machine standing level on firm supporting surface under ideal job conditions
2. When making lifts on outriggers, machine must be level and supported on fully extended outriggers with tires free of supporting surface.
3. The front and rear outriggers must be in proper working position before swinging over side.
4. Lift 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 at 1.0 m.p.h. *(1.60 km/h)*. Boom sections must be extended equally with swing lock engaged.

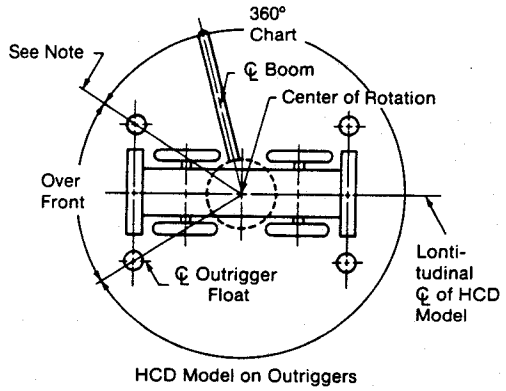
Operation:

1. For the clamshell and concrete bucket operation weight of bucket and material must not exceed 80% of rated lifting capacity. Fly or jib is not to be used for clamshell operation.
2. Crane capacities do not exceed 85% of minimum tipping loads.
3. Those capacities above the heavy line indicate capacities based on factors other than those which would cause a tipping condition.
4. Do not operate machine with boom or boom plus fly lengths at or beyond radii where no capacities are shown. Machine may overturn without any load on the hook.
5. 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.
6. When making lifts at a load radius not shown on charts, use next longer radius to determine allowable capacity.
7. 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. Deduction from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, fly, or other suspended gear.
8. The following deductions from rated main boom capacities must be made if machine is equipped with the following:
   a. 20' *(6.10 m)* one-piece fly stowed on boom - 500 lbs. *(226.8 kg)*.
   b. 20' *(6.10 m)* one-piece fly in working position - 1300 lbs *(589.7 kg)*.
   c. 20' *(6.10 m)* one-piece jib stowed on boom - 500 lbs *(226.8 kg)*.
   d. 20' *(6.10 m)* one-piece jib in working position - 1300 lbs. *(589.7 kg)*.
10. Extension or retraction of the boom with loads within the limits of the applicable rating chart may be attempted. The ability to telescope load 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. Deduction must be made for excessive reeving. Any reeving over minimum required is considered excessive.
13. For boom lengths with fly less than 80' *(24.38 m)*, the rated loads are determined by boom angle only.
14. The 20' *(6.10 m)* jib capacities are based on main boom angle regardless of main boom length. Capacity values are for 360° operation.
15. The 25'4" *(7.69 m)* boom length capacities are based on boom fully retracted. If not fully retracted, do not exceed ratings for the 30' *(9.14 m)* boom length.

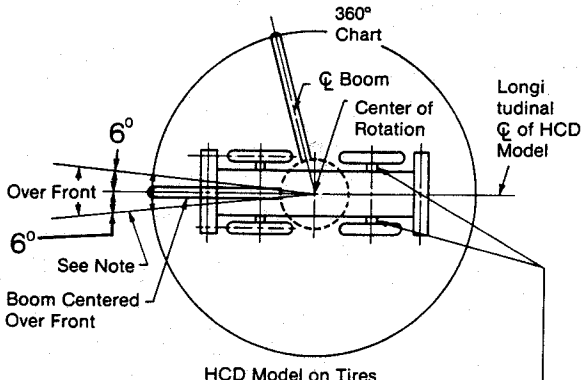
Definitions:

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: The angle between the boom base section and the horizontal, after lifting the rated load at the rated radius.
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.

HCD-80B Working Areas



HCD Model on Outriggers



HCD Model on Tires

Rear axle oscillation lockouts must be engaged for 360° operation

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

FMC Corporation Construction Equipment Group Lexington Kentucky 40512

Link-Belt • cranes/excavators manufactured in: Cedar Rapids Iowa • Lexington & Bowling Green Kentucky • Ontario Canada • Milan Italy • Queretaro Mexico & Nagoya Japan (under license)

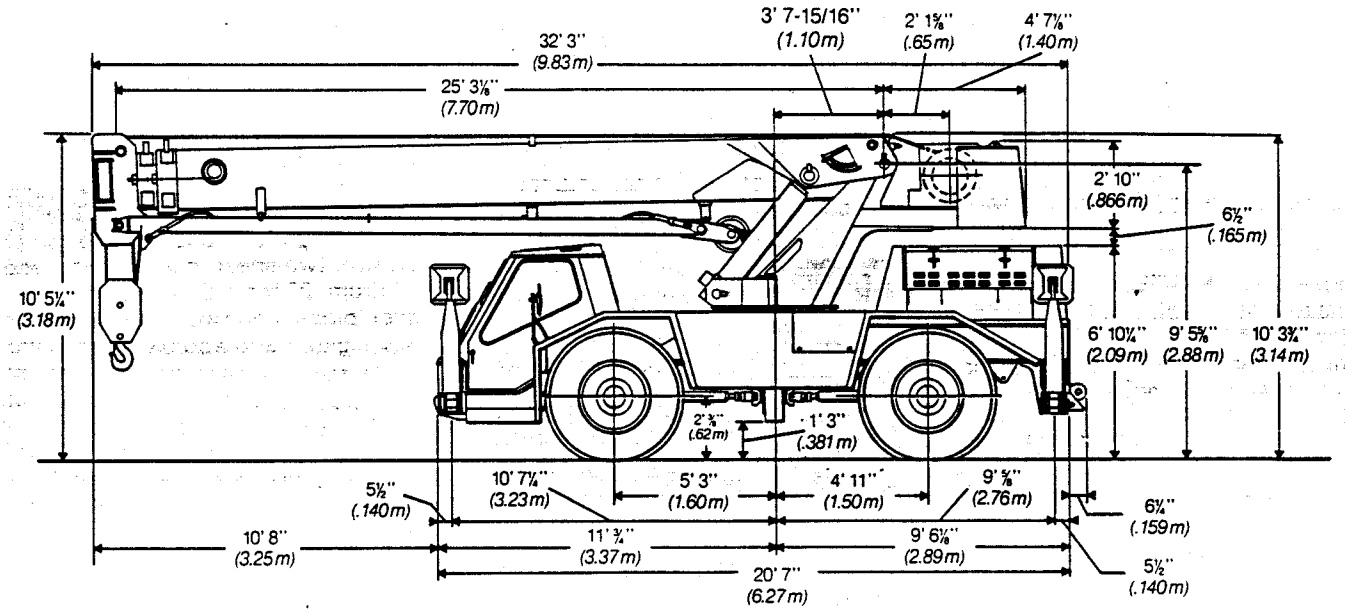
MEMBER PCSA POWER CRANE AND SHOVEL ASSOCIATION

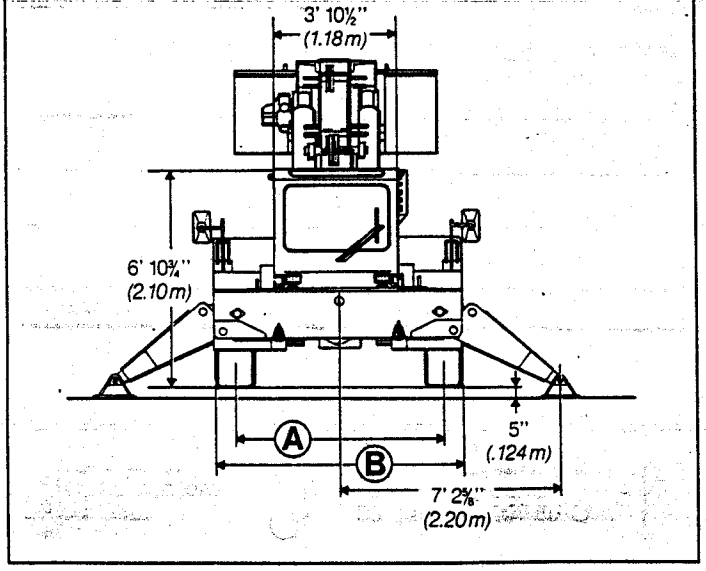
General Specifications

Link-Belt®

Hydraulic Cab Down Crane

HCD-80B 20 tons *(18.14 metric tons)*





General dimensions	Feet	*meters*
Turning radius (4-wheel steer)	15' 9"	*4.80*
Tailswing of counterweight	8' 10"	*2.69*

Dimensions affected by tires

Tires	14.0 x 24 (20-PR)		17.5 x 25 (20-PR)	
	Feet	*meters*	Feet	*meters*
A	6' 9¼"	*2.06*	6' 10¼"	*2.08*
B	8'	*2.43*	8' 3"	*2.52*

Upperstructure

Boom

25' - 60' *(7.62 - 18.29 m)* 3-section power boom. Boom telescope sections are supported by wear shoes both vertically and horizontally to prevent metal to metal contact.

Boom head — Three 9-5/8" *(245 mm)* root diameter sheaves standard. Four head sheaves are available to handle up to 8 parts of wire rope. Two easily removable wire rope guards and rope dead end lugs for 2-4-6-8 parts of line. Optional 12-7/8" *(326 mm)* root diameter head sheaves meet 25:1 ratio European Safety Code with *14 mm* wire rope.

Boom elevation — Two hydraulic cylinders with holding valves. Hand control lever for controlling boom elevation from -1° to 75°. Mechanical boom angle indicator standard.

Fly

Optional; 20' 0" *(6.10 m)* stowable one-piece lattice type.

Jib

Optional; 20' 0" *(6.10 m)* stowable A-frame. Attaches to boom head only. Can be offset 0°, 15°, and 30°.

Swing

Bi-directional hydraulic swing motor mounted to a planetary reducer for 360° continuous smooth swing at 3.0 rpm.

Swing brake — Automatically applied and released, disc brake coupled to the speed reducer.

Swing lock — Standard two-position pin-type (over front and rear) operated manually.

Counterweight — Bolted to upperstructure frame.

Hydraulic System

Main pump — Double gear-type pump. Powered by carrier engine through hot-shift pump disconnect which can be engaged/disengaged while engine is running.

Swing/steering pump — Tandem pump. Powered by carrier engine through a straight mechanical drive.

Reservoir — 93 gallon *(352 L)* capacity.

Filtration — Two 10 micron filters, located outside of hydraulic reservoir for easy replacement.

Control valves — 4 separate control valves allow simultaneous operation of all crane functions.

Load hoist system

Standard: Main winch with two speed and automatic brake; power up/power down mode of operation. Bi-directional radial piston hydraulic motor, driven through a spur gear reduction unit for positive operator control under all load conditions.

Line pulls and speeds — Maximum permissible line pull 7,978 lbs. *(3618 kg.)* and maximum line speed of 420 fpm *(128 m/min.)* on standard 13-9/16" *(345 mm)* root diameter grooved drum.

Standard upperstructure equipment
Boom length and boom angle indicator, two-speed main winch, grooved drum, 20-ton (18.14 metric ton) hook block, anti-two block with function kickout and audible alarm.

Chassis

Type

8' *(2.43 m)* wide, 122" *(3099 mm)* wheelbase.

4x4x4 — (4 wheel steer, 4 wheel drive). Standard; crab steering allows steering to either side simultaneously.

Frame — All welded box section main frame with integral front and rear outrigger boxes.

Cab and Controls

Environmental cab — All windows fixed, safety glass used for front window. Slide-by-door opens to 2'2" *(.66 mm)* width. 4-way adjustable operators seat. Cab door is key locked. Control levers for swing, boom telescope, winch and boom hoist, and outriggers.

Cab instrumentation — Dash mounted gauges for engine oil pressure, hydraulic oil temperature, converter temperature, fuel and voltmeter.

Outriggers

Four hydraulic cantilever outriggers. Outrigger cylinders individually controlled from cab. Extend to 14' 5-1/4" *(4.4 m)*. Equipped with 18" *(.46 m)* square steel floats. Sight level bubble located in cab.

Axles

Front — Standard; heavy duty planetary drive/steer type.

Rear — Standard; heavy duty driving/steer type.

Suspension

Front axle — Bolted to frame.

Rear axle — Spring rear suspension provides 4 wheel traction on rough terrain. Equipped with manual hydraulic rear oscillation lockout for picking on tires.

Tires

Front and rear — Standard 14.0 x 24 (20 ply).

Optional — 17.5 x 25 (20 ply).

Brakes

Service — Air over hydraulic brakes on all 4 wheels. 17" x 4" *(0.43 m x 0.10 m)* drum brakes on each wheel.

Parking — Spring applied, air released; cab controlled, mounted on front axle.

Steering — Hydraulic two wheel, four wheel, and "crab" steering controlled from operators cab.

Transmission — Power shift transmission, 6 speeds forward and 6 reverse.

Miscellaneous standard equipment — Hook block tie down, pintle hook-rear, fenders, 12-volt start, tool storage box, back-up alarm, horn, cab heater, defroster, wipers, rear view mirrors -both side, travel lights, lifting lugs, fire extinguisher.

Optional chassis equipment — Engine cover side doors, front winch (hydraulic).

Travel Speeds and Gradeability

Engine	Tires	Maximum Speed		Gradeability at stall	Maximum tractive effort at stall		Gradeability at 1.0 m.p.h. *(1.61 km/h)*	Maximum tractive effort at 1.0 m.p.h. *(1.61 km/h)*	
		m.p.h.	*Km/h*		pounds	kilograms		pounds	kilograms
GM 3-53T	14.0x24	25.6	*41.19*	79%	28,650	*12 892*	45%	19,280	*8 676*
	17.5x25	25.5	*41.03*	75%	28,370	*12 766*	44%	19,180	*8 631*
ISUZU 6BD1*	14.0x24	29.1	*46.82*	82%	29,340	*13 203*	44%	19,050	*8 572*
	17.5x25	28.9	*46.50*	78%	29,060	*13 077*	43%	18,960	*8 532*

*Optional equipment

ENGINE	GM3-53T	ISUZU 6BD1*
Cylinders - cycle	3 - 2	6 - 4
Bore	3-7/8" *(98.43 mm)*	4 in. *(101.60 mm)*
Stroke	4-1/2" *(114.30 mm)*	4-5/8" *(117.48 mm)*
Displacement	159 cu. in. *(2 606 cm³)*	353 cu. in. *(5785 cm³)*
Maximum Brake h.p.	131@ 2500 rpm	132 @2800 rpm
Peak Torque	312 ft. lbs. *(427.14 J)*	268 ft. lbs. *(363.41 J)*
Electric System	12 v neg. ground	12 v neg. ground
Fuel Cap.	53 gallons *(200.60 L)*	53 gallons *(200.60 L)*
Alternator	42 amp	50 amp
Crankcase Cap.	3.5 gallons *(13.2 L)*	4.5 gallons *(17.0 L)*
Air Compressor	14.5 cfm. *(.41 m³/m)*	7.6 cfm *(.22 m³/m)*

*Optional equipment

Axle loads 3-section boom

Base machine with standard 25'-60' *(7.62-18.29 m)* 3-section boom, enclosed cab, 385' *(117 m)* $\frac{9}{16}$" *(14 mm)* wire rope, 4x4x4 carrier with GM 3-53T eng.ne, 14.0x24 tires, counterweight, fenders, and hook block.	G. V. W.		Upper Facing Front				Upper facing rear			
			Front axle		Rear axle		Front axle		Rear axle	
	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*	Lbs.	*Kg.*
	45,139	*20 475*	22,277	*10 105*	22,862	*10 370*	21,028	*9 538*	24,112	*10 937*
Engine cover side doors	+ 79	*+ 36*	− 13	*− 6*	+ 93	*+ 42*	− 13	*− 6*	+ 93	*+ 42*
20' lattice fly, stowed	+507	*+230*	+ 915	*+415*	−408	*−185*	−426	*−193*	+ 933	*+423*
20' A-frame jib,stowed	+736	*+334*	+1164	*+528*	−428	*−194*	−452	*−205*	+1188	*+539*
17.5 x 25 tires	+988	*+448*	+ 463	*+210*	+525	*+238*	+463	*+210*	+ 525	*+238*

① Adjust gross vehicle weight and axle loading according to components weight.

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

FMC Corporation Construction Equipment Group Lexington, Kentucky 40512

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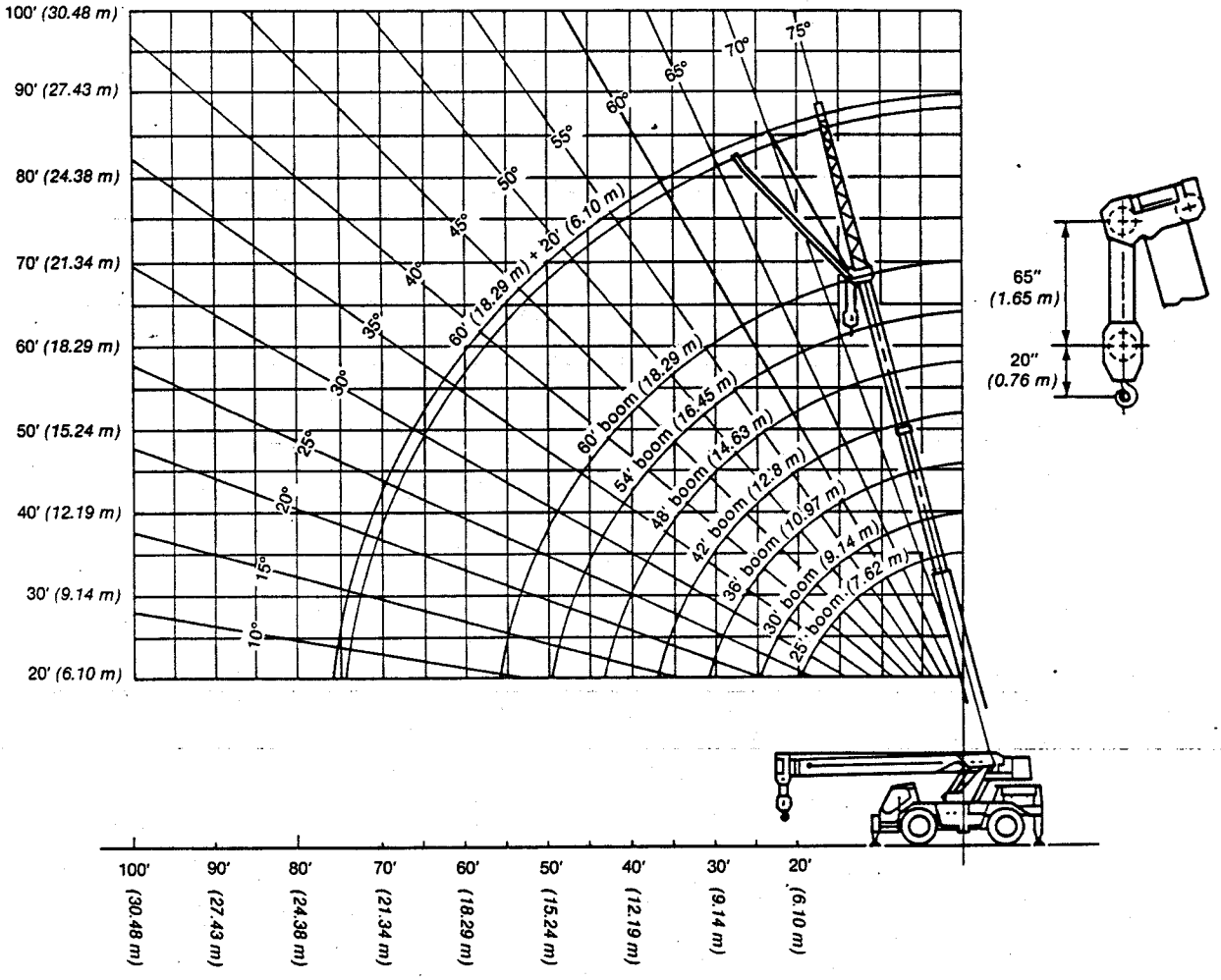
Lifting Capacities

PCSA Class 10-64

Link-Belt®
Hydraulic Cab Down Crane
HCD-80B 20-ton *(18.14 metric ton)*



Operation radius from axis of rotation in feet.

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

Litho in USA 7/84

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.

CD-80B 20-ton *(18.14 mt)* Lifting Capacities

Refer to **Operating Instructions**

25' - 60' *(7.62 m - 18.29m)* 3-section boom

Capacities① On Outriggers - 3-Section Boom

Load radius	25.25' *(7.69m)*		30' *(9.14m)*		36' *(10.97m)*		42' *(12.8m)*		48' *(14.63m)*		54' *(16.45m)*		60' *(18.29m)*		60' *(18.29m)* boom plus 20' *(6.10m)* fly①	
	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Front	360°	Boom angle	360°
10' *3.05 m*	— —	40,000 *18 144*	— —	30,000 *13 608*	— —	30,000 *13 608*	— —	30,000 *13 608*								
12' *3.66 m*	34,500 *15 649*	34,500 *15 649*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*	30,000 *13 608*						
15' *4.57 m*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	30,000 *13 608*	28,000 *12 700*	27,600 *12 520*	27,600 *12 520*				
20' *6.10 m*	22,900 *10 387*	20,300 *9 208*	22,900 *10 387*	20,300 *9 208*	22,900 *10 387*	20,300 *9 208*	22,600 *10 251*	20,300 *9 208*	22,500 *10 206*	20,300 *9 208*	21,900 *9 933*	20,300 *9 208*	21,500 *9 752*	20,300 *9 208*	75°	11,500 *5 216*
25' *7.62 m*			17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	17,800 *8 074*	13,900 *6 305*	71°	11,500 *5 216*
30' *9.14 m*					14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	14,700 *6 667*	10,300 *4 672*	67°	9,000 *4 082*
35' *10.67 m*							12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	12,300 *5 579*	8,000 *3 628*	63°	7,100 *3 220*
40' *12.19 m*									10,500 *4 762*	6,400 *2 903*	10,500 *4 762*	6,400 *2 903*	10,500 *4 762*	6,400 *2 903*	59°	5,700 *2 585*
45' *13.72 m*											9,100 *4 127*	5,300 *2 404*	9,100 *4 127*	5,300 *2 404*	55°	4,600 *2 086*
50' *15.24 m*													7,800 *3 538*	4,300 *1 950*	50°	3,900 *1 769*
55' *16.76 m*													6,700 *3 039*	3,600 *1 632*	45°	3,200 *1 451*
60' *18.29 m*															39°	2,700 *1 225*
65' *19.81 m*															33°	2,300 *1 043*

①Boom sections must be extended equal distance.

②Capacities are determined by boom angle only.

Capacities① On Tires② - 3-Section Boom

Load Radius	14.00 x 24 (20 PR.)			17.50 x 25 (20 PR.)		
	Pick & Carry③	Stationary		Pick & Carry③	Stationary	
	Over Front	360°	Over Front	Over Front	360°	Over Front
10' *3.05 m*	—	20,400 *9 253*	—	—	20,500 *9 298*	—
12' *3.66 m*	21,000 *9 526*	16,700 *7 575*	24,600 *11 158*	20,900 *9 480*	17,200 *7 801*	24,400 *11 067*
15' *4.57 m*	17,300 *7 847*	11,600 *5 261*	20,100 *9 117*	17,000 *7 711*	12,300 *5 579*	20,000 *9 072*
20' *6.10 m*	12,900 *5 851*	6,600 *2 993*	12,900 *5 851*	12,900 *5 851*	7,000 *3 175*	13,200 *5 987*
25' *7.62 m*	9,000 *4 082*	4,500 *2 041*	9,000 *4 082*	9,200 *4 173*	4,800 *2 177*	9,200 *4 173*
30' *9.14 m*	6,700 *3 039*	3,200 *1 451*	6,700 *3 039*	6,900 *3 129*	3,500 *1 587*	6,900 *3 129*
35' *10.67 m*	5,200 *2 358*	2,300 *1 043*	5,200 *2 358*	5,300 *2 404*	2,500 *1 134*	5,300 *2 404*
40' *12.19 m*	4,100 *1 859*	1,700 *771*	4,100 *1 859*	4,200 *1 905*	1,800 *816*	4,200 *1 905*
45' *13.72 m*	3,300 *1 496*	1,100 *498*	3,300 *1 496*	3,400 *1 542*	1,300 *589*	3,400 *1 542*
50' *15.24 m*	2,600 *1 179*	—	2,600 *1 179*	2,700 *1 224*	—	2,700 *1 224*
55' *16.76 m*	2,000 *907*	—	2,000 *907*	2,000 *9 072*	—	2,000 *907*

① Off main boom head only; boom sections must be equally extended.
② Refer to tire inflation chart.
③ Limited to 1.0 m.p.h. *(1.609 km/hr)* travel speed, and swing lock must be engaged.

Jib Capacities*

60' *(18.29 m)* boom + 20' *(6.10 m)* jib

Boom angle	Jib Offset		
	0°	15°	30°
75°	10,000 *4 536*	6,500 *2 948*	4,500 *2 041*
70°	9,000 *4 082*	6,000 *2 722*	4,100 *1 860*
65°	7,400 *3 357*	5,400 *2 449*	3,900 *1 769*
60°	5,800 *2 631*	4,900 *2 223*	3,700 *1 678*
55°	4,800 *2 177*	4,100 *1 860*	3,500 *1 588*
50°	4,000 *1 814*	3,600 *1 633*	3,300 *1 497*
45°	3,300 *1 497*	3,100 *1 406*	3,000 *1 361*
40°	2,900 *1 315*	2,700 *1 225*	2,600 *1 179*
35°	2,500 *1 134*	2,400 *1 089*	2,400 *1 089*
30°	2,200 *998*	2,200 *998*	2,200 *998*

* Jib capacities are based on structural strength.

Tire Inflation

Tires	PR	Stationary	'Pick & Carry'
14.00 x 24	20	115 p.s.i. *(7.93 Bars)*	115 p.s.i. *(7.93 Bars)*
17.50 x 25	20	95 p.s.i. *(6.55 Bars)*	95 p.s.i. *(6.55 Bars)*

Wire Rope/Drum Data

Wire rope size and type

Wire rope application	Size and type used	Wire rope description
Main winch	9/16" *(14 mm)* diameter, Type "C"	Type "C" - 6 x 29 (6 x 37 class) filler wire, extra improved plow steel, preformed, independent wire rope core, right lay, regular lay.

Drum wire rope capacities

Wire rope layer	Main drum 13-9/16" *(345 mm)* root diameter grooved lagging			
	9/16" *(14 mm)* wire rope			
	Rope per layer		Total wire rope	
	Feet	*meters*	Feet	*meters*
1	85	*25.90*	85	*25.90*
2	91	*27.74*	176	*53.64*
3	97	*29.56*	273	*83.21*
4	103	*31.40*	376	*114.61*
*5	109	*33.22*	485	*147.83*

*For storage purposes only - not a working layer

Hydraulic Circuit Pressure Settings	
Function	**Pressure**
Wire Rope Hoist Outriggers	3000 PSI *(206.89 Bars)*
Boom Telescope Boom Hoist	3280 PSI *(226.20 Bars)*
Swing Steering	2000 PSI *(137.93 Bars)*

Line speeds and pulls

Layer	Speed	Main Winch - 13-9/16" *(345 mm)* drum					
		Line speeds		Line pulls @ stall			
				Available*		Permissible	
		F.p.m.	*m/min.*	Lbs.	*kgs.*	Lbs.	*kgs.*
1st	Low High	148 331	*45* *101*	8774	*3980*	7978	*3618*
2nd	Low High	159 354	*48* *108*	8139	*3692*	7399	*3356*
3rd	Low High	169 377	*52* *115*	7590	*3443*	6900	*3130*
4th	Low High	178 397	*54* *121*	7110	*3225*	6464	*2932*
5th	Low High	188 420	*57* *128*	6693	*3036*	6085	*2760*

*Developed by machinery with first layer of wire rope, but not based on wire rope strength.

Warning & Operating Instructions

General:

1. These capacities apply only to the machine as originally manufactured and normally equipped by FMC Corporation, Construction Equipment Group.
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 manual supplied with the 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 machine standing level on firm supporting surface under ideal job conditions
2. When making lifts on outriggers, machine must be level and supported on fully extended outriggers with tires free of supporting surface.
3. The front and rear outriggers must be in proper working position before swinging [illegible] side.
4. [illegible]e 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 at 1.0 m.p.h. *(1.60 km/h)*. Boom sections must be extended equally with swing lock engaged.

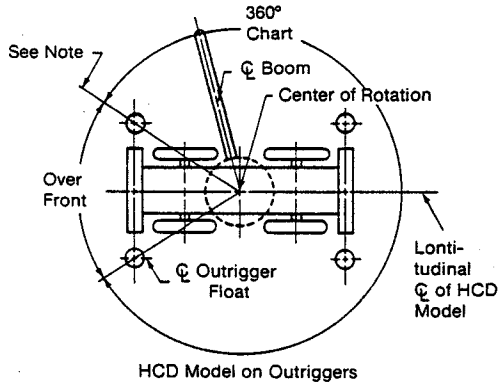
Operation:

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 5,000 lbs. *(2 268 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 5,000 lbs. *(2 268 kg)* or 80% of rated lifting capacity, which ever is less. For clamshell and magnet operation, maximum boom length is restricted to 36' *(10.97 m)* and the boom angle is restricted to a minimum of 35°. The fly or jib is not to be used for clam or magnet operation.
2. Crane capacities do not exceed 85% of minimum tipping loads.
3. Those capacities above the heavy line indicate capacities based on factors other than those which would cause a tipping condition.
4. Do not operate machine with boom or boom plus fly lengths at or beyond radii where no capacities are shown. Machine may overturn without any load on the hook.
5. 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.
6. When making lifts at a load radius not shown on charts, use next longer radius to determine allowable capacity.
7. 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. Deduction from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, fly, or other suspended gear.
8. The following deductions from rated main boom capacities must be made if machine is equipped with the following:
   a. 20' *(6.10 m)* one-piece fly stowed on boom - 500 lbs. *(226.8 kg)*.
   b. 20' *(6.10 m)* one-piece fly in working position - 1300 lbs *(589.7 kg)*.
   c. 20' *(6.10 m)* one-piece jib stowed on boom - 500 lbs *(226.8 kg)*.
   d. 20' *(6.10 m)* one-piece jib in working position - 1300 lbs. *(589.7 kg)*.
10. Extension or retraction of the boom with loads within the limits of the applicable rating chart may be attempted. The ability to telescope load 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. Deduction must be made for excessive reeving. Any reeving over minimum required is considered excessive.
13. For boom lengths with fly less than 80' *(24.38 m)*, the rated loads are determined by boom angle only.
14. The 20' *(6.10 m)* jib capacities are based on main boom angle regardless of main boom length. Capacity values are for 360° operation.
15. The 25'4" *(7.69 m)* boom length capacities are based on boom fully retracted. If not fully retracted, do not exceed ratings for the 30' *(9.14 m)* boom length.

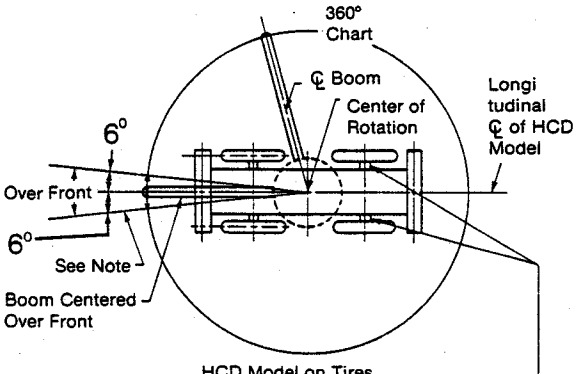
Definitions:

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: The angle between the boom base section and the horizontal, after lifting the rated load at the rated radius.
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.

Working Areas



HCD Model on Outriggers



HCD Model on Tires

Rear axle oscillation lockouts must be engaged for 360° operation

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

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