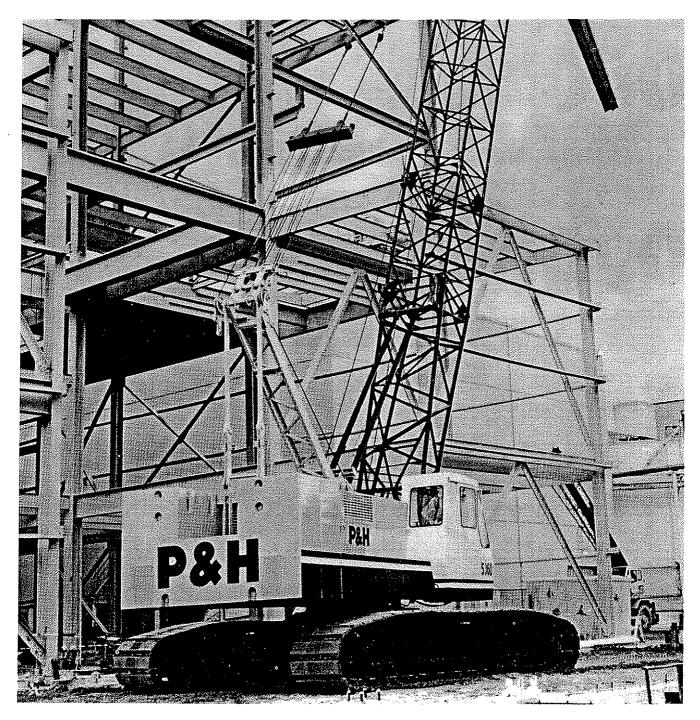
# P&H® 5060

# **60-ton Crawler Crane**



- Travels most anywhere on trailer —
   Crawlers hydraulically retractable under 12 feet (3.66 M).
- Longest and strongest boom in class 210 feet (64 M) max. boom and jib, or 180 foot (54.86 M) boom.
- Short Lever Controls for operator comfort powered by full flow hydraulics.
- Super-Quiet Modular Cab
- Sealed-in-steel crane gearing.

# **Specifications**

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# **BOOM**



Boom is of open throat, lattice construction, fabricated from round tubular 100,000 PSI yield strength alloy steel chord members, and reinforced with contour-cut tubular facings. Sections are pin connected and furnished with appropriate load line timber cord

protectors and pin connected 1.125" (28.6mm) dia, boom pendants. Maximum cross-section of 3.25" (83mm) O.D. chord members is 50" x 50" (1.27m x 1.27m) between chord centers.

Basic boom consists of the base and tip sections.

BASE SECTION: 20" (6.1m) long tapered section with pin connected feet on 50" (1.27m) centers. Boom angle indicator (pendulum type) is mounted on leg adjacent to operator's cab.

**TIP SECTION:** 20' (6.1m) long tapered section has an open throat and four offset boom point sheaves, 18.50" (470mm) P.D. with roller bearings for .750" (19mm) hoist rope (24.67:1 rope ratio).

**BOOM INSERT SECTIONS (OPTIONAL):** Available in 10' (3m), 20' (6.1 m), 30' (9.1m) and 50' (15.2m) lengths. Boom is extendible to 180' (54.9m).

JIB (OPTIONAL): Jib is of open throat, lattice construction, fabricated from round tubular alloy steel chord members and reinforced with contour-cut tubular lacings. Sections are bolt connected. Furnished with compression strut and appropriate front and back stay pendants of .75" (19mm) 6x25 E.I.P.S. I.W.R.C. rope. Maximum cross-section of 1.75" (44mm) O.D. chord members is 24" x 22" (609mm x 558mm).

20' (6.1m) basic jib consists of 10' (3m) long tapered lattice base section and a 10' (3m) long tapered tip section with an open throat and a single 17.25" (438 mm) P.D. point sheave on roller bearings for .75" (19mm) dia. jib holst rope (23:1 rope ratio). Anchor provided at tip for 2 part hoist rope.

JIB INSERT SECTIONS (OPTIONAL): Available in 10' (3m) and 20' (6.1m) lengths. Jib is extendible to 60' (18.3m).

BOOM POINT SHEAVE GUARD (OPTIONAL): Roller type.

BOOM BACKSTOPS: Tubular spring-loaded type.

**BOOM HOIST KICKOUT:** Restricts raising boom at angles greater than recommended.

**BOOM ANGLE INDICATOR:** Mechanical pendulum type mounted on boom base section. Electronic type is optional.

**BOOM AND JIB ERECTION:** Maximum boom and combinations that can be self-erected.

Postion of Boom	Two Counterweights (34,000 lbs.) 15,422 Kg.	One Counterweight (17,000 lbs.) 7,711 Kg.
Over Front End with Idlers Blocked	180' (54.9m) Boom or 150' (45.7m) Boom and 20-60' (6-18.3m) Jib	150' (45.7m) Boom or 110' (33.5m) Boom and 20-60' (6-18.3m) Jib
Over End or Side with Crawlers Extended	130' (39.6m) Boom and	140' (42.7m) Boom or 100' (30.5m) Boom and 20-60' (6-18.3m) Jib
Over Side with Crawlers Retracted		110' (33.5m) Boom or 80' (24.4m) Boom and 20-60' (6-18.3m) Jib

HOOK BLOCKS: With swivel hook and safety latch. (Optional).

BLOCK CAPACITY	SHEAVES	WIRE ROPE SIZE INCHES	RATIO ROPE TO SHEAVE	JOHNSON BLOCK WEIGHT
17,000 lb. (7711 kg.)	WEIGHTED	ноок w	ITH SWIVEL	215 lb. . (97.5 kg.
50,000 lb. (22,680 kg.)	1	.75	19.00:1	580 lb. (263 kg.)
110,000 lb. (49,896 kg.)	3	.75	21.667:1	1100 lb. (499 kg.)
120,000 lb. (54,432 kg.)	4	.75	21.333:1	1133 lb. (514 kg.)

### **UPPERSTRUCTURE**



FRAME AND TRANSMISSION: All weided frame and integral sealed "powerbox" transmission case constructed of heavy, high strength steel plate is precision machined for proper alignment of all components. Transmission shaft mountings are line bored to insure

precise alignment. Involute splined shafts turn in roller and ball bearings. Hardened gears and roller chains are sealed and splash lubricated in oil tight "powerbox" for long trouble-free operation. Load drums are mounted above transmission on "powerbox" side frames.

MACHINERY CAB: Low profile, steel construction with access panels on both sides to machinery. No lines pass through cab. Machinery is in compact arrangement, easy to maintain and repair. Deck covered with non-skid paint. Counterweights attach to rear of cab.

**GANTRY:** Two position, folding gantry supports boom suspension and is raised and lowered by boom hoist ropes.

BOOM HOIST SPREADERS: Lower spreader assembly is pinned to gantry and contains 6 sheaves 10" (254mm) P.D. with roller bearings for 12-part .50" (13mm) dia. wire rope boom hoist reeving to upper spreader. (20.00:1 rope ratio.)

Upper spreader assembly serves as connection for boom suspension pendants. Contains 6 sheaves 10" (254mm) P.D. with roller bearings for 12-part boom hoist reeving.

**COUNTERWEIGHTS:** One or two piece, located behind rear of machinery cab, bolt connected with shear ledge support. Each piece is 17,000 lbs. (7,711 kg.). Quickly installed or removed by use of rope pendants from gantry. One piece is standard, second piece is optional as crane attachment.

OPERATORS CAB: Environmental, modular type isolated from machinery cab. Rubber mounted and foam insulated for sound suppression. Full vision cab has safety glass in all windows; sliding door, tilt-back ceiling window and self-storing front window. Sevenway adjustable seat has cushion head and armrests. Standard equipment includes insulated floor mat, dome light, signal horn, circular level, gauge light dimmer switch, coat hanger, circuit breakers for electrical protection and quick disconnects for hydraulic and electrical connections. All wiring is coded for easy servicing. Optional equipment includes electric windshield wipers (front and top windows), heater, defroster, fire extinguisher, air conditioner, elevated cab platform, seat bett, drum mirror and tool kit.

DBA ratings in cab — Door Closed Door Open Engine at high idle — 74.6 79.0



CONTROLS: In front of operator are foot pedals for throttle (optional), left and right drum brakes. Drum brake pedals are short stroke and power-assisted. Console mounted short stroke levers are for left and right drum controls and boom hoist control. Move lever right lend (or boom)

backward to raise load (or boom) — move forward to lower load (or boom). Drum turn indicators are available.

At operators left are console mounted swing control lever and optional third drum control lever. A twist grip throttle control, a swing brake control switch and horn button are located on the swing lever. Move lever forward to swing left — move backward to swing right. Console mounted equipment includes hourmeter, optional tachometer and switches for ignition, cold weather starting aid, panel light dimmer, engine clutch (with signal light), boom hoist override, left and right drum pawls, left and right drum holding brake. Other switches and gauges located above and alongside left side window include windshield wipers (top and front) opt., heater (opt.), defroster fan (opt.), overhoist safety light and buzzer (opt.), engine fault warning light and buzzer (opt.), engine oil pressure gauge, water temperature gauge, voltmeter, fuel gauge, and hydraulic system pressure gauge. Gauges have both English and Metric scales and International symbols.

On the left side console wall behind the operator is the electrical system circuit breaker panel protecting the various upper circuits. Mounted on the lower right side of operators seat are the propel control joystick and the propel holding brake switch. Forward or backward movement of the joystick controls speed and direction of both crawlers. Movement to right or left controls steering (both skid and counter-rotational steering.)



# POWER PLANT:

Oil cooler — Oil to air heat exchanger with 9 quarts (8.5 liters) capacity is mounted in front of radiator. Cooler has cold oil by-pass.

### ENGINE:

Make Model Detroit Diesei

4-53T Diesel Туре

No. of Cylinders 3.875 x 4.50 Bore x Stroke, in.

mm 98.4 x 114.3

Displacement, In.3 212 3.47 liters

Cycles

Turbo-Charged Air Induction

# TRANSMISSION:

Make Model Spicer 5052-B

Туре 4 Speed Manual (2nd gear normal)

Single plate, dry type 14" (356mm) Input Disconnect

Clutch

dia., electrically actuated.

#### **RATINGS:**

Gross HP @ RPM 155 @ 2500 NET HP @ RPM

139.5 @ 2500

(Flywheel) Net HP @ RPM

133.9 @ 919.12

(Transmission Output Shaft)

Altitude Range

0-10,000' (0-3048m)

Temp. Range in F. -20° to 110°

(C.) (-28.9° to 43.3°)

# **ACCESSORIES:**

Cooling

Liquid, recirculating bypass

Radiator

Tube and fin type, thermostat controlled,

rubber mounted

Fan

6 blade, 26 inch (660mm) diameter

suction type

Starting

24 volt motor

Ether-measured cold weather starting aid (required below 30°F) (-1.1°C)

Electrical System

24 volt 50 amp, alternator and 2-215 amp. hr. @ 20 hour rate batteries. 12 volt series

connected

**Fuel Tank** 

76.5 gal. (289.6 liters) Two stage dry type

Air Cleaner

Engine mounted - replaceable

Lube Oil Filter **Fuel Filter** 

Dual spin-on - replaceable

Lube Oil Capacity Engine - 3 gallons (11.4 liters). Filter - 0.63 gals. (2.4 liters)

**Coolant Capacity** 

Engine - 2.25 gallons (8.5 liters). Radiator - 7.5 gailons (28.4 liters)

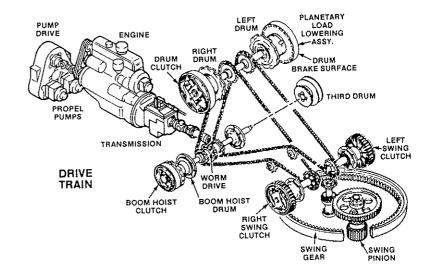
# HYDRAULIC SYSTEM:

Function controls - Full flow hydraulics provide power to left and right drum clutches and boom hoist brakes and clutches. Left and right drum brakes are power-assisted providing smooth, positive feel (similar to power brakes on automobiles). Full flow system operates at 1500 psi (105 kg/cm²) line pressure. Response is instant, positive and smooth. Pumped fluid is filtered, stored in an accumulator under pressure, cooled in a reservoir and filtered again before returning to pump.

Reservoir - 22 gal. (83.3 liter) tank common to both control and propel systems. Individual in-tank full flow pressure filters with replaceable elements for each propel pump.

Propel (crawler) drive — Closed loop system. Maximum pressure rating 5500 psi (387 kg/cm²).

Propel pumps - Two variable displacement piston type pumps, one for each crawler drive. Driven from heavy duty 2-station pump drive at engine speed.



# LOAD HOIST SYSTEM



Independent work-motion system consisting of two side-by-side drums, powered by enclosed chain transmission and gearing from engine driven transmission. Both drums overwind. Each drum is a casting consisting of brake/clutch drum, load drum and

optional planetary lowering brake drum mounted on a drum shaft and supported by grease lubricated roller bearings.

CRANE LOAD DRUMS (RIGHT & LEFT): 17" (432mm) P.D. x 12.50" (318mm) long grooved lagging bolted to drum. For .75" (19mm) dia. wire rope (22.67:1 rope ratio). Rope capacity is 710' (216.4m) storage, 600' (182.8m) working length. Supplied with 195' (59.4m) or 3 parts of wire rope for basic boom.

CLAMSHELL LOAD DRUM (RIGHT): 17" (432mm) P.D. x 12.50" (318mm) long spiral grooved lagging bolted to drum. For 75" (19mm) dia. wire rope (22.67:1 rope ratio). First layer rope capacity is 61' (18.6m). Supplied with 90' (27.4m) holding line for basic boom.

CLAMSHELL LOAD DRUM (LEFT): 17" (432mm) P.D. x 17.50" (444mm) long spiral grooved lagging bolted to drum. For .75" (19mm) dia, wire rope (22.67:1 rope ratio). First layer rope capacity is 88' (26.8m). Supplied with 100' (30.5m) closing line for basic boom.

DRAGLINE LOAD DRUM (RIGHT): 17" (432mm) P.D. x 12.50" (318mm) long spiral grooved lagging bolted to drum. For .75" (19mm) dia. wire rope (22.67:1 rope ratio). First layer rope capacity is 61' (18.6m). Supplied with 120' (36.6m) hoist line for basic boom.

DRAGLINE LOAD DRUM (LEFT): 15.75" (400mm) P.D. x 17.50" (444mm) long spiral grooved lagging bolted to drum. For .875" (22mm) dia, wire rope (18:1 rope ratio). First layer rope capacity is 66' (20.1m). Supplied with 55' (16.8m) digging line for basic boom.

WIRE ROPE (STD.-ALL EXCEPT DIGGING): 3/4" (19mm) dia. P&H type 25 (6 x 25 filler wire preformed extra improved plow steel right regular lay with independent wire rope core) 58,800 pound minimum breaking strength.

WIRE ROPE (DRAGLINE—DIGGING): 7/8" (22mm) dia. P&H type 21A (6 x 21 filler wire preformed extra improved plow steel right lang lay with independent wire rope core) 79,600 pound minimum breaking strenath.



DRUM CLUTCHES: 26" (660 mm) dia. x 3.25" (83 mm) wide, internal expanding full band type, involute splined on shaft. Hydraulically actuated by clutch lever.



DRUM BRAKES: 30" (762mm) dia. x 5" (127mm) wide, external contracting full-wrap band type. Hydraulically applied by foot pedal. Additional spring set — hydraulically released safety mechanism automatically sets brake on loss of power or hydraulic pressure, and electrically controlled as holding brake. Drum is locked in position by electrically controlled safety stop pawl.



PLANETARY POWER LOAD LOWERING (OPTIONAL): Rapid, controlled safe lowering through reverse planetary gearing in drum using engine power. 30" (762mm) dia. x 4" (102mm) wide, external contracting full-wrapped band brake engages planetary gears.

**DRUM TURN INDICATORS (OPTIONAL):** Clutch control lever handles pulsate per drum revolution, in either direction.

	LOAD HOIST PERFORMANCE					
	Transmission Range	1st Gear	2nd Gear (Normal)	3rd Gear	4th Gear	
HOISTING CRANE, CLAMSHELL and DRAGLINE	Gear Ratio	4.37 to 1	2.72 to 1	1.62 to 1	1.00 to 1	
	Line Speed	fpm mpm	fpm mpm	fpm mpm	fpm mpm	
	1st Layer	100.1 30.5	160.8 49.0	270.0 82.3	437,4 133.3	
	4th Layer	122.7 37.4	197.1 60.1	331.0 100.9	536.3 163.5	
	7th Layer	145.3 44.3	233.5 71.2	392.0 119.5	635.1 193.6	
	Line Pull	łb. kg.	lb. kg.	lb. kg.	lb. kg.	
	1st Layer	39,873 18,086	24,818 11,257	14,781 6,705	9,124 4,139	
	4th Layer	32,523 14,752	20,243 9,182	12,056 5,469	11,186 5,074	
	7th Layer	27,461 12,456	17,092 7,753	10,180 4,617	9,445 4,284	
LOWERING	Line Speed	fpm mpm	fpm mpm	fpm mpm	fpm mpm	
	1st Layer	70.6 21.5	113.4 34.6	190.4 58.0	308.4 94.0	
	4th Layer	86.6 26.4	139.0 42.4	233.4 71.2	378.1 115.2	
	7th Layer	102.5 31.3	164.7 50.2	276.5 84.3	447.8 136.5	
DIGGING DRAGLINE	Line Speed	fpm mpm	fpm mpm	fpm mpm	fpm mpm	
	1st Layer	92.7 28.3	149.0 45.4	250.1 76.2	405.2 123.5	
	Line Pull	lb. kg.	lb. kg.	lb. kg.	lb. kg.	
	1st Layer	43,038 19,522	26,788 12,151	15,954 7,237	9,848 4,467	

Based on engine full load HP at governed RPM.

TAGLINE WINDER (Supplied with Clamshell Attachment): McCaffrey Rud-O-Matic, spring type #648, with 90' (27.4m) .375" (9mm) dia. tagline wire rope.

FAIRLEAD (Supplied with Dragline Attachment): Two sheave swivel type, with 2 front guide rollers, roller bearings, and dirt guard. Sheaves are 10.875" (276mm) P.D. for .875" (22mm) dia. digging line (12.43:1 rope ratio).

# **BOOM HOIST SYSTEM**



An independent work-motion system — controlled raising and lowering of boom with engine power — raising through clutch engagement, lowering through low speed planetary gear drive, with automatic safety pawls always engaged during raising, lowering, or

holding operations.

BOOM HOIST DRUM: Single drum is a one-piece casting consisting of planetary system, load drum and brake/clutch drum mounted on a drum shaft and supported by grease lubricated roller bearings. The drum as well as planetary spider have ratchet teeth which engage the locking pawls.

Drum is 9.00" (229mm) P.D. x 6.21" (158mm) long, grooved for .50" (13mm) dia. wire rope (18:00:1 rope ratio). Rope capacity is 343' (104.5m) storage, 249' (75.9m) working length. Supplied with 500' (152.4m) or 12 parts of wire rope.

WIRE ROPE (STD.): 1/2" (13mm) dia. P&H type 27D (6 x 24 Warrington Seale preformed extra improved plow steel right alternate lay with independent wire rope core) 26,600 pound minimum breaking strength.



**DRUM CLUTCH:** 16" (406 mm) dia. x 3" (76 mm) wide, internal expanding full band type, involute splined on shaft. Hydraulically actuated by boom hoist lever being moved rearward.



**DRUM BRAKE (Lowering):** 18" (457 mm) dia. x 3" (76 mm) wide, external contracting, full wrapped band type automatic safety brake, spring set — hydraulically released, actuated by boom hoist lever being returned to neutral position.



PLANETARY BRAKE (Lowering): 18" (457 mm) dia. x 3" (76 mm) wide, external contracting, full wrapped band type. Hydraulically set-spring released, actuated by forward movement of boom hoist lever. As drum brake is released hydraulically, hoist pawl is automatically released, planetary pawl is automatically engaged and planetary brake is set. As the brake is set, planetary gears reverse drum rotation, lowering the boom by engine power through the planetary.

BOOM HOIST PERFORMANCE					
Transmission Range		1st Gear	2nd Gear (Normal)	3rd Gear	4th Gear
Gear Ratio		4.37 to 1	2.72 to 1	1.62 to 1	1.00 to 1
HOISTING Line Speed L	1st	145.6 fpm (44.4 mpm)	234 fpm (71.3 mpm)	392.9 fpm (119.8 mpm)	636.5 fpm (194.0 mpm)
Li		186.9 fpm (57 mpm)	300.3 fpm (91.5 mpm)	504.2 fpm (153.7 mpm)	816.8 fpm (249.0 mpm)
La	4	228.1 fpm (69.5 mpm)	366.6 fpm (111.7 mpm)	615.5 fpm (187.6 mpm)	997.2 fpm (303.9 mpm)
LOWERING Line Speed La	1st	69.1 fpm (21.1 mpm)	111.1 fpm (33.9 mpm)	186.5 fpm (56.9 mpm)	302.2 fpm (92.1 mpm)
La		88.7 fpm (27.0 mpm)	142.6 fpm (43.5 mpm)	239.3 fpm (73.0 mpm)	387.8 fpm (118.2 mpm)
La		108.3 fpm (33.0 mpm)	174.1 fpm (53.1 mpm)	292.2 fpm (89.1 mpm)	473.5 fpm (1 44.3 mpm)

<sup>\*</sup>Based on engine full load HP at governed RPM.

# **SWING SYSTEM**



Swing Drive is an independent work-motion system and consists of driving and driven members coupled by a clutch. Driving member is chain driven from rear of engine. Driven member drives swing gear through bevel and spur gears.

CLUTCH: 2 - 21" (533 mm) dia. x 4.50" (114 mm) wide, shoe type, internal expanding. Drums have cooling fins on exterior.



 $\textbf{BRAKE:}\ 13''\ (330\ \text{mm})\ \text{dia.}\ "V"\ \text{groove.}\ \text{Hydraulic release, spring set.}$ 

SWING GEAR: 121 internal cut teeth, 48.40" (1229 mm) P.D.

SWING PERFORMANCE						
Swing speed	Normal rpm	2.96				

FASTENING TO UNDERCARRIAGE: P&H double row roller bearing 62.42" (1585 mm) O.D. Swing Circle® with swing gear integral. Bolted to both upperstructure and undercarriage.

**HOUSE LOCK:** Two position (front and rear) pin-in-hole lock manually engaged is standard. A positive 360° position lock is optional.

# **UNDERCARRIAGE**



CAR BODY: Car body of alloy steel welded construction with double axle housing integral and hydraulic swivel for crawler drive. Crawler frames shear mounted and bolted to end of extendible axles.

### CRAWLER:

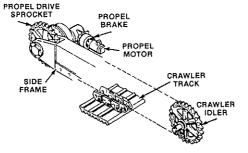
Crawler side frames are extendible and retractable by means of hydraulic cylinders to convert from wide track operating condition to a narrower overall width for travel and transportation. A bank of valves on left side of upperstructure controls the extension cylinders to each side frame. A valve in the upper diverts fluid from the upper control system to the extension cylinders. Jacks are not needed to extend or retract crawlers. Crawlers designed with quick hydraulic line disconnect feature for individual removal as a unit from axles. Crawler belt tension maintained by shims between track adjusting bearing block and frame. 12 lower rollers in each frame, with double rolling surfaces, 8.75" (222 mm) dia.

CRAWLER DRIVE: Independent hydraulic propel drive built into each crawler side frame. Each drive consists of a piston type motor propelling a driving sprocket (wheel) through a planetary gear box. Self-contained system eliminates gear and chain drives in carbody and shaft extensions when axles are extended.

**CRAWLER BRAKES:** Spring set, hydraulically released parking brakes are built into each propel drive.

STEERING MECHANISM: The hydraulic propel system provides both differential speed steering (driving one track faster than the other) and counter-rotating steering (driving each track in opposite direction) with single joystick control.

TRACK: Track type crawler beit with bolted shoes.



CRAWLER SHOES: Total number 114 both sides, 30" (762 mm) flat forged (std.), 36" (914 mm) flat forged optional extra.

**OPTIONAL EQUIPMENT:** Load moment device, load indicating device, anti-two block device, spreader control, magnet and controls, automatic brakes, dead-man controls, light and generating package (either automotive or 110V-AC), dragline bucket, and clamshell bucket.

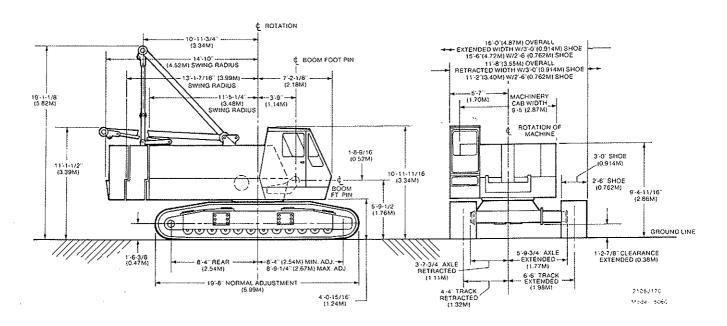
#### **WEIGHTS:**

Basic machine, with 40 gallons fuel, two counterweights, 30" shoes, 40 foot boom, 3 part hoist rope, 25 ton hook block	lbs.	(42,816	Kg)
less counterweight	∤bs.	(11,462	Kg)
Lower machine with crawlers, 30" shoes 46,702	lbs.	(21,184	Kg)
Counterweight (each)	lbs.	(7,711	Kg)
Boom Base with pins	lbs.	(771	Kg)
Boom tip with pendants, pins2,530	lbs.	(1,148	Kg)
10 foot insert with pendants, pins			
20 foot insert with pendants, pins 1,210			Kg)
30 foot insert with pendants, pins 1,671			Kg)
50 foot insert with pendants, pins2,630		(1,193	
Jib weights:			
Jib Base with pins	lbs.	(150	Kg)
Jib Tip with pins404			Kg)
Jib Strut with pins415			Kg)
10 foot insert with pins			Kg)
20 foot insert with pins			Kg)
AVERAGE GROUND BEARING PRESSURE			
BASIC MACHINE:	PSI	Kg	/cm²

TRAVEL SPEED: 1.12 mph (1.80 km/h) approximate. Gradeability in excess of PCSA's 30% requirement.

36" shoes ..... 6.11

with 2 counterweights, 30" shoes ............................ 8.66



0.61

0.51

0.52

0.43



NOTE: All designs, specifications and components of the equipment described above are subject to change at the manufacturer's sole discretion at any time without advance notice. Data published herein is informational in nature and shall not be construed to warrant suitability of the machine for any particular purpose as performance may vary with the conditions encountered. The only warranty applicable is our standard written warranty for this machine. Manufactured and sold in conformance with U. S. Department of Commerce Commercial Standard CS-90-58.

Harnischfeger



Address inquiries to: