P&H®

670-TC

70-TON TRUCK CRANE

NAME CONTRACTORS NAME P&H

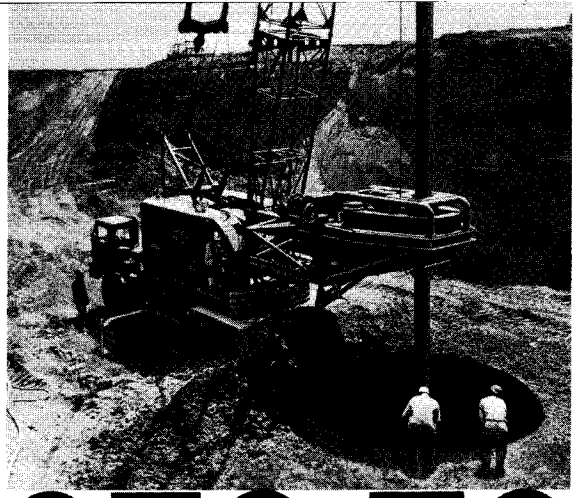
Only Harnischfeger builds as much high-performance into a 70-ton Truck Crane.

Your investment in the P&H 670-TC will return more high-profit production to you than any 70 ton truck crane ever built . . . by P&H or anyone else. Only in a P&H can you get a 70-tonner like this one...

- An upper working structure that will handle any rated load with power, speed, precision and safety. The all-welded, rigid frame encloses all gearing in an oil bath, keeps all shafting in perfect alignment. Controls act instantly, effortlessly — with Full Flow Power Hydraulic drum controls, ultra smooth Magnetorque® swing, power up-and-down boom hoist. Maintenance is minimum.

- A powerful 8 x 4 P&H-built carrier that travels where you want it to — perfectly matched to the upper. P&H double-acting hydraulic outriggers set up fast and provide a steel-on-steel stance over twenty feet wide for a rock-steady working platform on flat or uneven ground. Twenty-speed transmission, air brakes on all wheels, Maxi safety brakes at the rear, planetary drive wheels with inter-axle differential are all **standard equipment.**

- The finest, strongest construction steel available, with 100,000 lb. tensile strength, gives super strength without excess weight to the carrier frame, outrigger beams and tubular booms. This is unmatched anywhere in the industry.

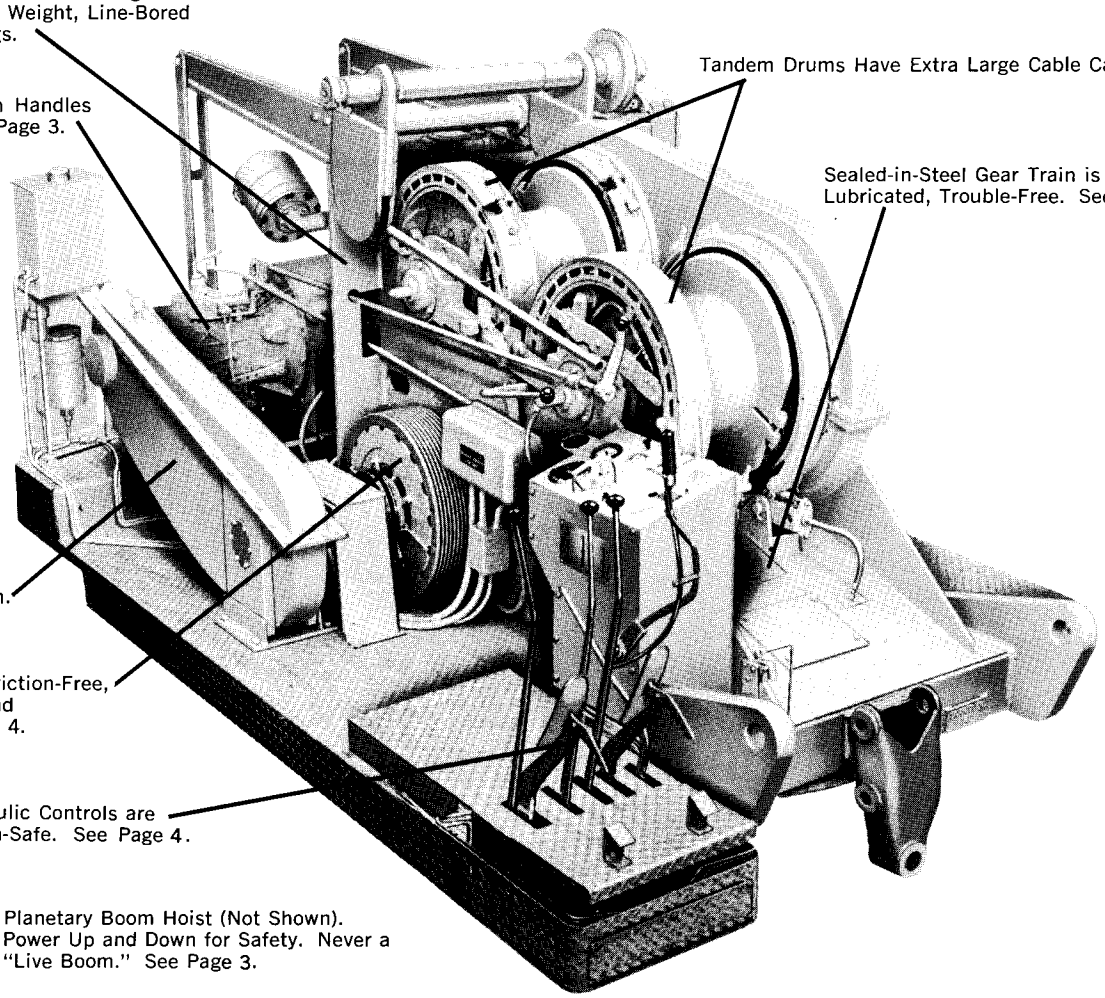


670-TC

THE POWERFUL P&H UPPER — ALL-WELDED STRENGTH — FAST — SMOOTH

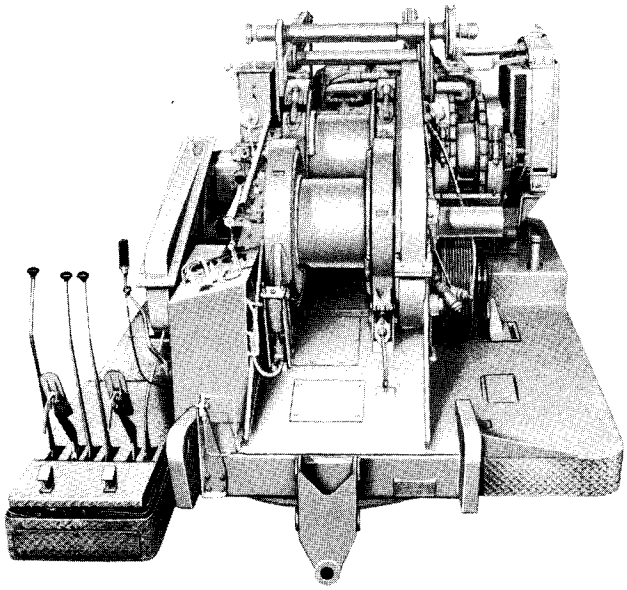
The one-piece, unitized upper frame is all-welded rolled alloy steel, line-bored for perfect shaft alignment. All gears, chains and shafts run in a continuous oil bath in sealed enclosures. The machinery arrangement is compact, scientifically positioned for balance with a minimum of counterweight. Involute splined shafts and anti-friction bearings are used throughout.

From engine to clutches, this upper is virtually maintenance-free, runs at peak efficiency at all times.



POWER UP, POWER DOWN BOOM HOIST

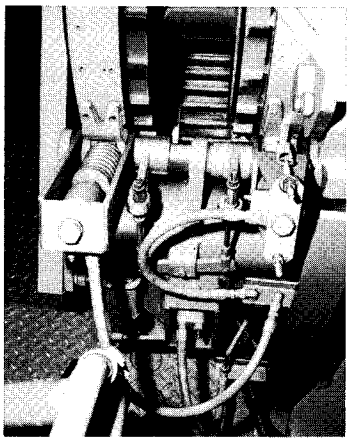
The safest, most reliable boom hoist design is *standard* on all P&H Cranes and Excavators. The operator has full control, up and down, under power. He never has to use the dangerous practice of lowering a live boom by gravity against a brake. Safety pawls are engaged at all times.



Huge Cable Drums Have Added Capacity

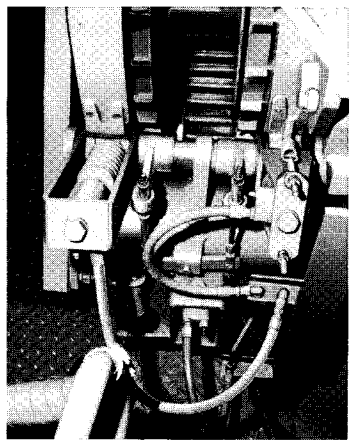
Full-wrap hoist drum brake bands provide extra load handling safety, have spring loaded brakes with double hydraulic cylinders.

Power controlled load lowering through planetary gears is available for both hoist drums for precise, safe control of heavy loads.



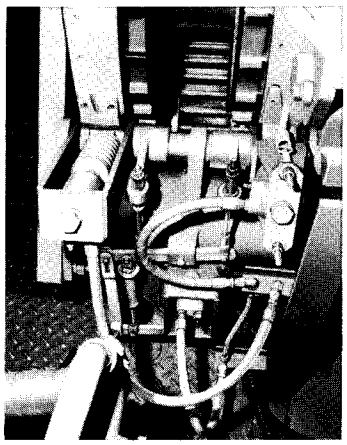
1

When the boom hoist control lever is in the neutral position, the cable drum is locked in position by a wide, full-wrap, spring-set brake band and automatic boom hoist pawl.



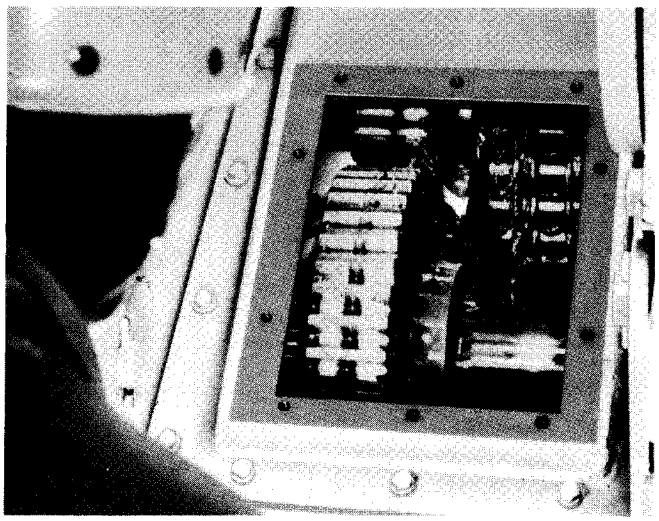
2

The boom is raised by the boom hoist clutch (not shown). Brake is released by a hydraulic cylinder, but the boom hoist pawl remains engaged to prevent a sudden lowering of the boom should the clutch slip.



3

The boom is lowered by engine power through planetary gears. Hydraulic cylinder at left releases drum brake; lower cylinder shifts pawl arrangement so that hoist pawl is disengaged and planetary pawl is engaged. This prevents the lowering boom from overhauling engine speed. Cylinder at right sets planetary brake band which reverses drum direction through planetary gears.



This is a sight seldom seen by owners of a P&H. A continuous oil bath runs over and through hardened gearing and heavy-duty roller chain. Heavy, bolted-on and gasketed plates seal out grit and contaminants that cause wear. This is the ideal machinery environment and trouble is a rare thing indeed. Oil changes are infrequent — seasonal, at the most, where oil viscosity must be changed to meet climate conditions. We recommend a change every six months, but many P&H owners in warm and dry climates leave oil in the gear case for much longer periods and never have occasion to lift the lid.

3-SPEED TRANSMISSION

Multiple speed transmission is standard on all P&H construction equipment. Second gear is the normal range for most operations, but often slower or faster gear ratios are more convenient and efficient. Heavy lifts that must be handled slowly and precisely will be controlled more easily in low gear. Use high gear for fast, light duty.

EXCLUSIVE MAGNETORQUE® SWINGERS!

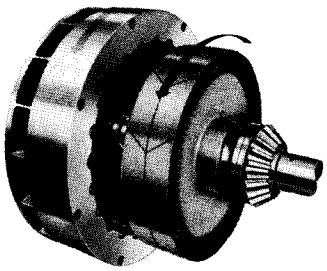
replace friction clutches

Model 670-TC as all medium to large P&H truck cranes, have Magnetorque® swingers — the fastest accelerating, smoothest, most trouble-free swing units yet devised. Magnetorque® is exclusive with Harnischfeger and can be found only on a P&H.

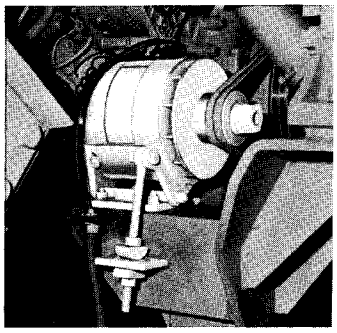
The operator has precise control of his swing motion through an infinitely variable range of speeds. With finger tip control, he can "inch it" or jam on full power. Swings are absolutely smooth through the full range of speed and power.

Magnetorque® is an electro-magnetic coupling, with driving and driven members connected by magnetic force through an air gap. It has no rubbing or wearing parts, no clutch shoes or linings, no discs, no hydraulic lines, cylinders or torque converters, no moving mechanical linkage, nothing to adjust.

Magnetorque® can't jerk, grab, bind or chatter. For dragline or clamshell work, it swings 25% faster than friction type swing clutches giving you 7 work cycles where other machines give you 6. It is one of the main reasons you get highest production with a P&H.

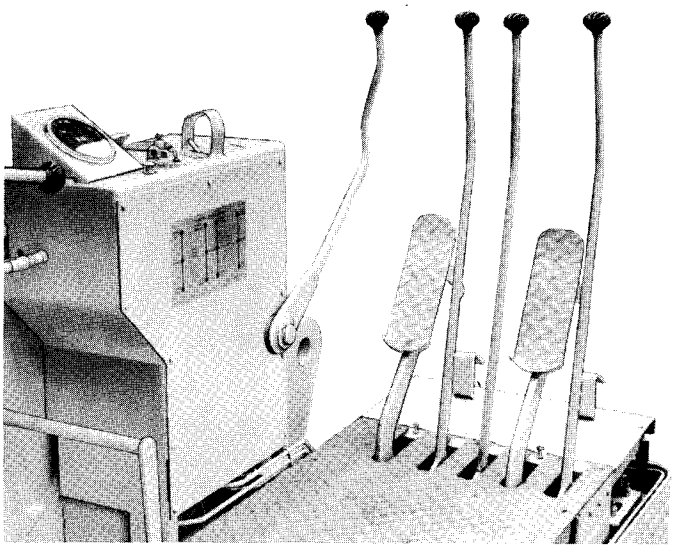


Here's the reason for the silk-smooth swings you get from Magnetorque®. There is no contact between the driving and the driven members. They are separated by an air gap. Power is transmitted by a rotating magnetic field which can be infinitely varied.



Engine-driven alternator supplies power for the twin Magnetorques.® The operator controls the power, in infinite variation, with a simple hand lever.

FULL-FLOW POWER HYDRAULIC CONTROLS
SELF-PURGING — SELF-ADJUSTING — EXTRA SAFE

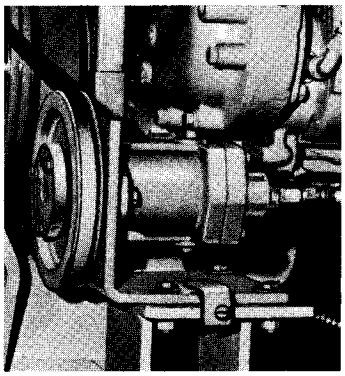


Instant-acting control, maximum load-holding safety are the main features of exclusive P&H Full-Flow Power Hydraulic Controls. The operator has smooth and precise control of every load.

The system is self-adjusting and self-purging. An unlimited supply of hydraulic fluid is constantly recirculated. Trapped air is compressed and eliminated through the reservoir. Fluid is double filtered.

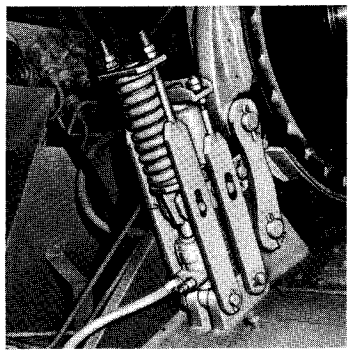
Twin safety features prevent sudden loss of a load in the rare case of oil pressure loss. If the pump output should ever drop, the accumulator will hold sufficient pressure to lower the load safely to the ground. If you should accidentally cut a hydraulic line, spring-loaded drum brakes set automatically and hold until pressure is restored.

The system uses standard automatic transmission fluid.

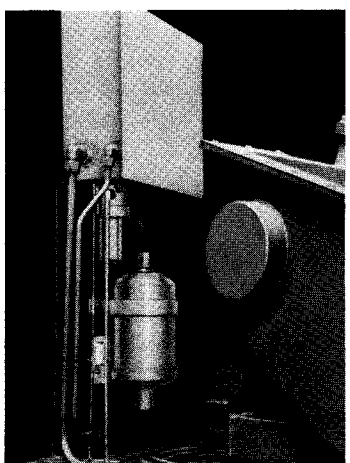


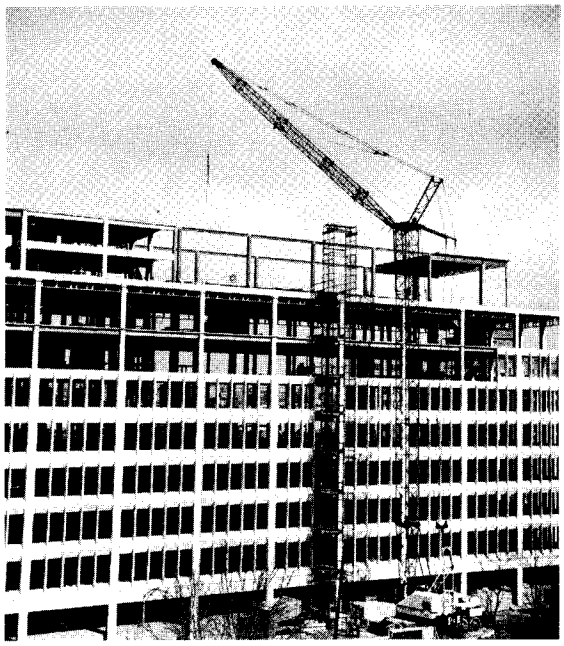
Constant running piston pump is driven by the engine. The pump takes fluid from the reservoir and delivers it to the accumulator, which stores it under pressure. When the accumulator is charged to full system pressure, the automatic unloading valve returns pump output to the reservoir, and back again to the accumulator when the pressure lowers.

Illustration shows hydraulic fluid reservoir, accumulator, filter and unloading valve arranged for easy servicing.



Both hoist drums have automatic brakes that set whenever pressure is off—whether the engine is not running or fluid pressure drops. Heavy springs set brakes and release by hydraulic cylinders which operate only when full control system pressure is reached. Second cylinder is controlled by operator to apply brakes during normal operations.



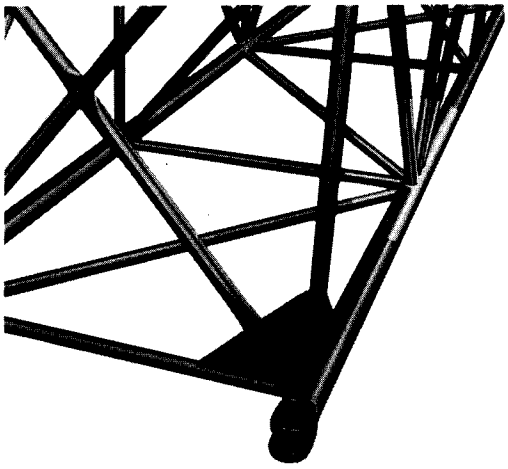


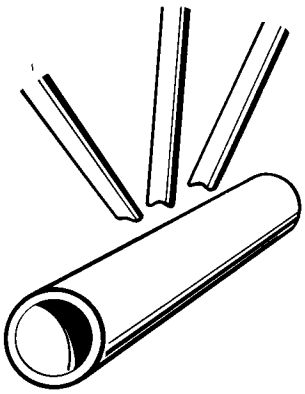
Tower Crane Attachment for High Rise Construction

Reach 130 feet up and 120 feet out with the P&H power-jib tower crane attachment. It uses standard boom inserts, except for the cap section. Concrete, forms, materials and tools can be quickly spotted right at the work site. This high profit-making attachment is available for all P&H truck cranes of 50 tons capacity and up.

670-TC

NAME CONTRACTORS NAME P&H





Greatest Strength to Weight Ratio

THE P&H ROUND TUBULAR BOOM

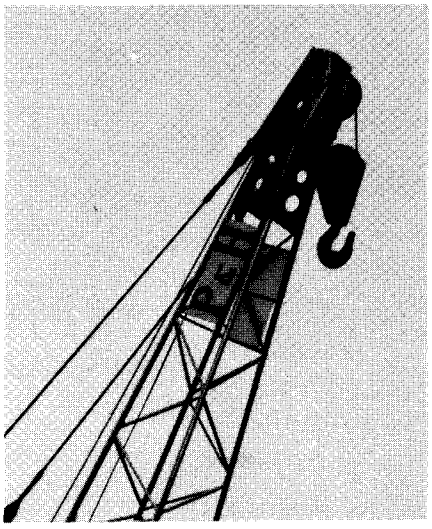
Handles bigger loads higher up... farther out.

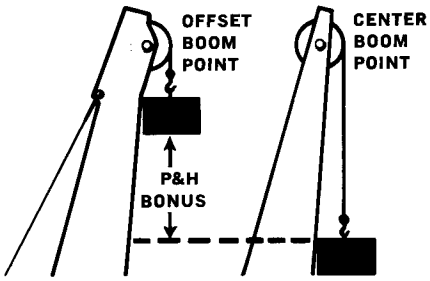
This is the way the P&H tubular boom is constructed to lift bigger loads **per foot of boom** — straight up or far out.

The chords are fabricated of drawn seamless 100,000 lb. tensile strength steel tubing, the strongest construction steel available. The round cross section is best suited to resist torsional or bending stresses **from any direction.**

Very important to the rigidity of the boom is the way P&H ties the chords together with tubular lacings. Each lacing is precisely pre-cut with the ends **contour-fitted** to match the **exact curvature** of the chords to provide maximum bearing surface. Full fillet welds are made completely around and Magna-Fluxed to spot flaws before the boom leaves the factory.

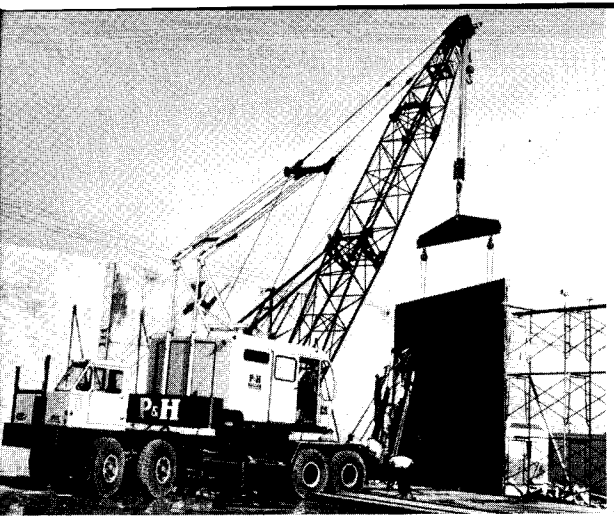
Crimped, one-piece lacings with thin-line welded joints still found on other crane booms, do not pass Harnischfeger standards.



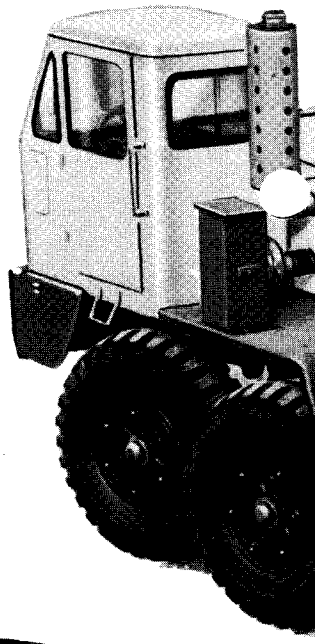


Offset Boom Point — More Lifting Range

The open throat, offset boom point is standard on all P&H truck cranes to allow a greater lifting height when the boom is in a near vertical position. The distance the cable sheaves are offset from the centerline of the boom is multiplied many times in added lifting height. Multiple sheave blocks can be raised higher without fouling.

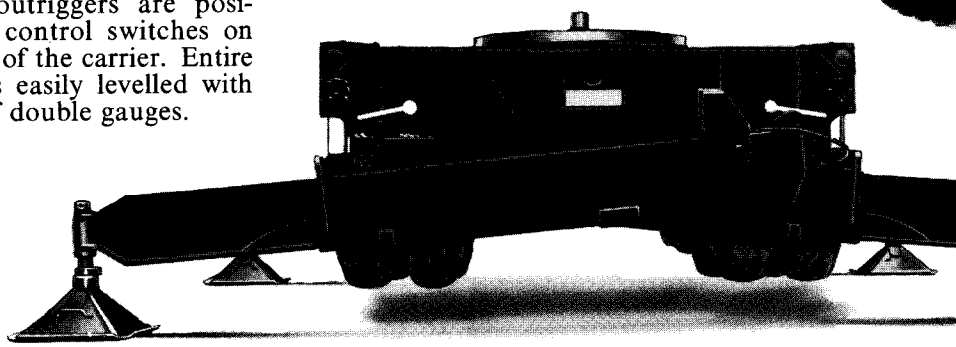


670-TC



Individually Set Outriggers

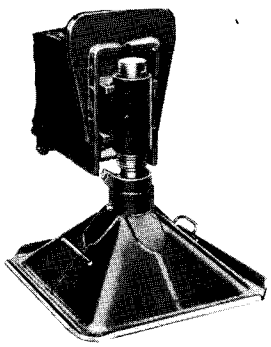
All four outriggers are positioned by control switches on either side of the carrier. Entire machine is easily levelled with the help of double gauges.

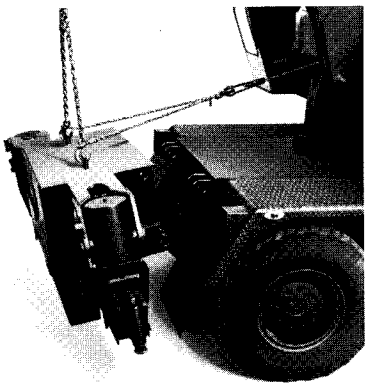


Wide Range — Double Action HYDRAULIC OUTRIGGERS

Hydraulic outriggers — the way only P&H builds them — quickly set up the 670-TC carrier into a solid working platform on flat or uneven ground with a minimum of positioning or shoring under floats. Two husky cylinders position each beam where you want it — out and down — to a maximum 20 foot 6 inch spread.

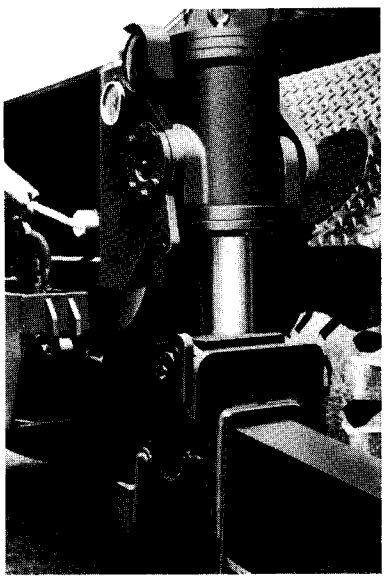
T-1 steel gives the outrigger beams superior strength. Each beam and housing is hinged at the opposite side of the carrier for greatest stability.





Removable Outrigger Frame

A pin-connected rear frame containing the entire outrigger structure is standard where extra weight reduction is required. The frame is quickly and easily handled with the crane hook.



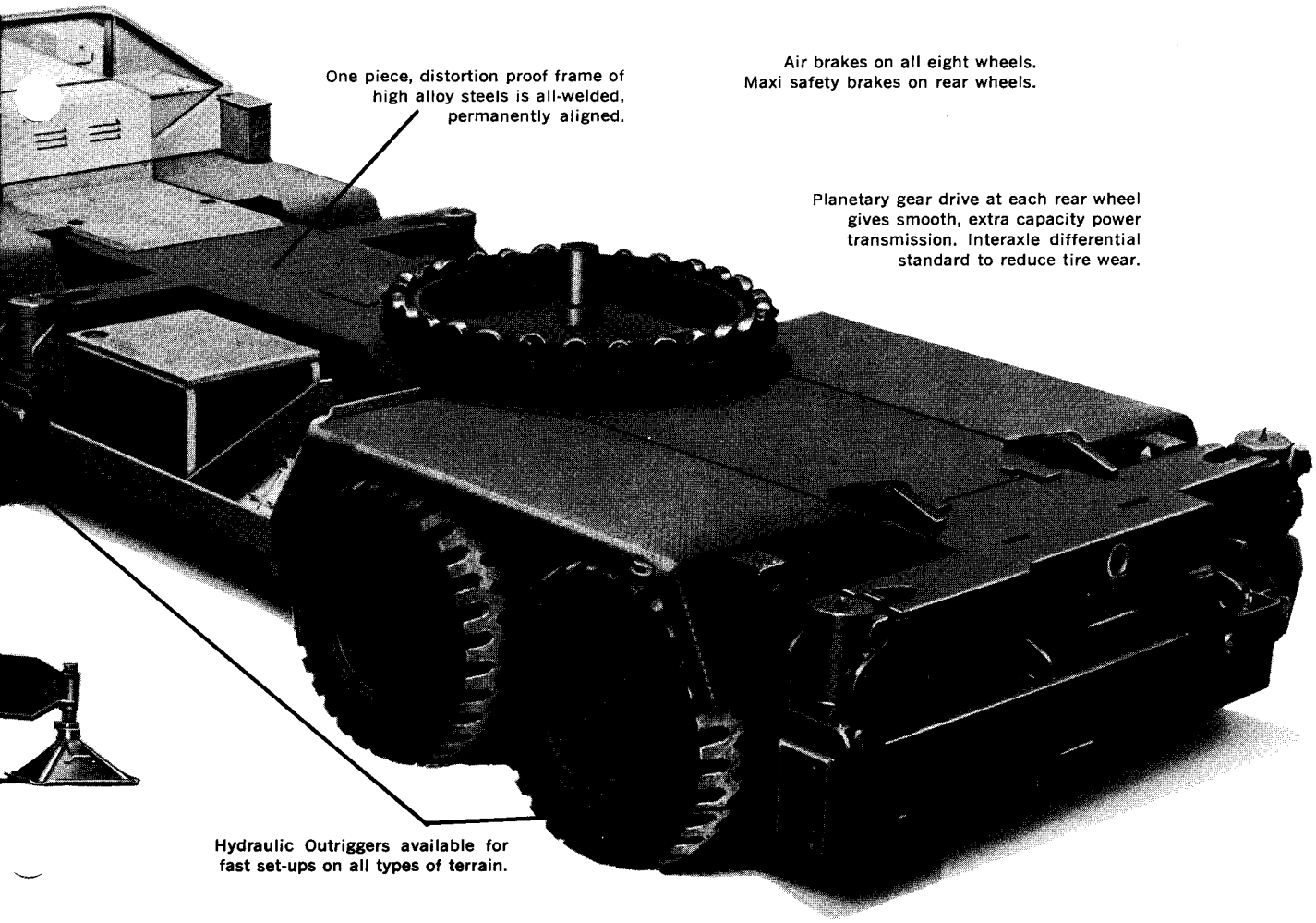
Husky vertical cylinders mounted on carrier frame move beams up and down and provide extra range at the end of the beams. Steel-on-steel cam locks assure double safety and prevent outriggers from backing down. Operator merely flips the lever after outriggers are set.

20-speed 5 x 4 transmission for on and off highway travel.

One piece, distortion proof frame of high alloy steels is all-welded, permanently aligned.

Air brakes on all eight wheels. Maxi safety brakes on rear wheels.

Planetary gear drive at each rear wheel gives smooth, extra capacity power transmission. Interaxle differential standard to reduce tire wear.



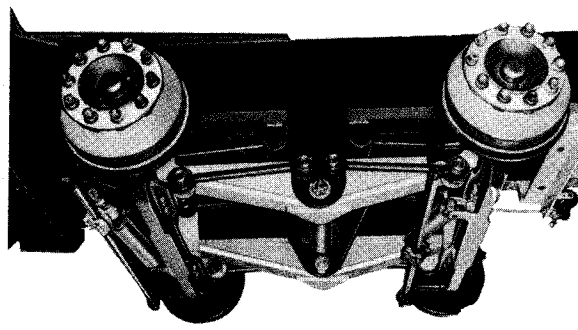
Hydraulic Outriggers available for fast set-ups on all types of terrain.

P&H HEAVY-DUTY CARRIER
Solid Support for Big Lifts or Long Booms

The 670-TC Carrier has the strength and ruggedness to provide a firm, stable base for the 70-ton lifts or the 240' foot boom reaches of the matched upper. Yet, its strength is without excessive weight.

From the ground to the boom point, extensive use of the finest construction steel available, with a tensile strength in excess of 100,000 lbs., makes the 670-TC "all working machine." Without dead weight, it is "all traveling machine," too. The 670-TC carrier gets to the job, on or off the highway, maneuvers in close and sets up fast.

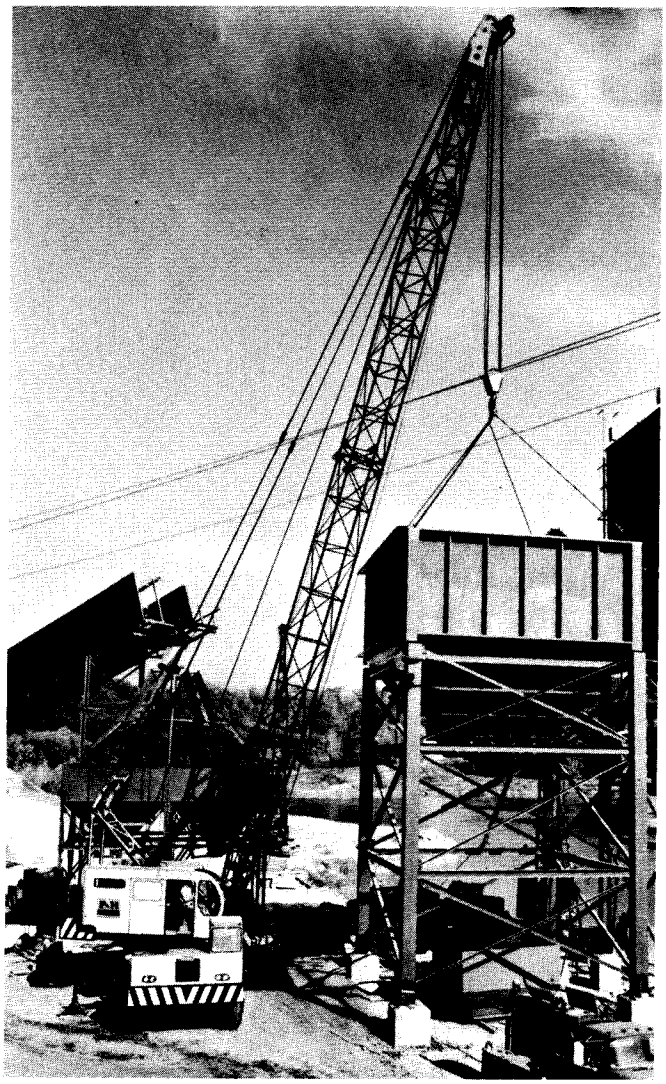
There is as much high-performance built into the 670-TC carrier as there is in its superb upper.



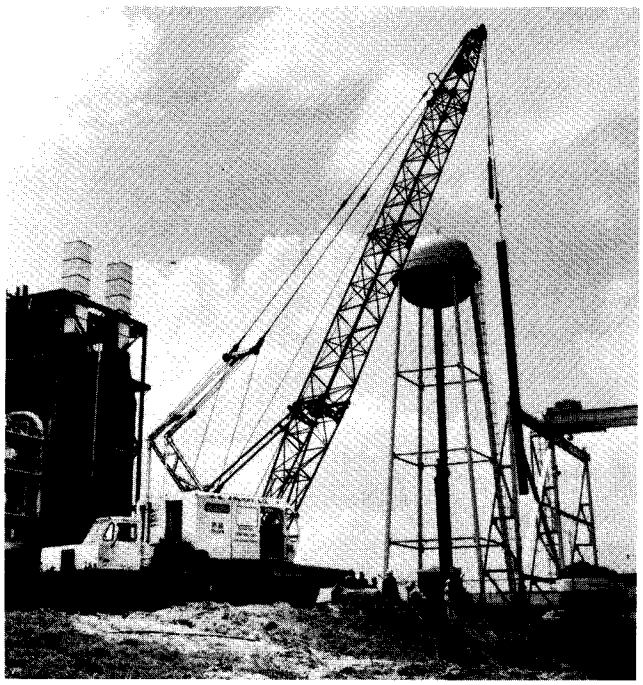
Exceptional lifts on rubber and minimal side tipping action are assured with front and rear solid bogie mounting with torque rods. Dual power steering cylinders ease handling and maneuvering.

670-TC

High-production concrete pouring is made to order for Magnetorque® swingers — fast and smooth cycling with never an adjustment.



Fast set ups on all types of terrain make quick work of most erecting jobs for the 670-TC.



Full-Flow Power Hydraulic Controls and power down Boom Hoist spots all loads accurately and safely.

MEMBER PCSA POWER CRANE AND EXCAVATOR ASSOCIATION

Address inquiries to:

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
P&H
milwaukee, wisconsin. 53201

TX-497

D5-977 Litho in U.S.A.

P&H® 670-TC

70-ton Truck Crane

UPPER MACHINERY

POWER PLANT:

ENGINE	STANDARD	OPTIONAL
Make	Cummins	Detroit Diesel
Model	N-855P	6-71 (6-71N with Converter)
Type	Diesel	Diesel
No. of Cylinders	6	6
Bore x Stroke, In.	5.50 x 6.00	4.25 x 5.00
cm	139.7 x 152.4	107.9 x 127
Displacement, In.^{3}	855	426
liters	14.011	6.981
Cycles	4	2
Air Induction	Nat. Aspirated	Super-Charged (Roots Blower)
Cooling	Liquid	Liquid
Starter	24 V.	24 V.
Alternator	24 V. - 50 A.	24 V. - 50 A.

TRANSMISSION:	STANDARD	OPTIONAL
Make	Cotta	Cotta
Model	T3U-1771	T3U-1771
Type	3-Speed Manual (2nd Gear Normal)	3-Speed Manual (2nd Gear Normal)
RATINGS:		
Net HP @ RPM (at Flywheel)	135 @ 2000	140 @ 1800
Net HP @ RPM (at Trans. Output Shaft)	130 @ 1000	134.4 @ 1000
Altitude Range (m)	0-10,000 ft. (0-3040)	0-8500 ft. (0-2584)
Temp. Range in F. (C.)	-20° to 110° (-28° to 43°)	-20° to 110° (-28° to 43°)

TORQUE CONVERTER:		OPTIONAL
Make	Twin Disc	Allison
Model	CO-10066	TCDOA-475
Type	3-Stage	2-Stage
RATINGS:		
Net HP @ RPM (at Flywheel)	157.5 @ 2100	175 @ 1800
Net HP @ RPM (at Trans. Output Shaft)	125.4 @ 1065	132 @ 1180
Altitude Range (m)	0-8500 ft. (0 to 2584)	0-6000 ft. (0-1824)
Temp. Range in F. (C.)	-20° to 110° (-28° to 43°)	-20° to 110° (-28° to 43°)

Input disconnect clutch — Transmission: Double plate dry type mechanically engaged. 11.5" dia. Torque converter: Twin Disc - 3 stage (opt. with Cummins engines only), or Allison - single stage (opt. with D.D.A. engines only).

Converter charging hydraulic system — Gear type pump charges converter. Oil to water heat exchanger cools fluid. Filtered with full flow pressure filters with replaceable paper elements.

Governor control — Twist grip (standard) — Twist grip and foot pedal (optional).

Fuel tank capacity — 75 gallons (283.9 liters).

	Cummins N-855P	Detroit 6-71
Lube Oil Capacity	Engine-24 qts. (22.7 liters) Filter-16 qts. (15 liters)	Engine-18 qts. (17.4 liters) Filter-2 qts. (1.9 liters)
Coolant Capacity	Engine-5 gal. (18.9 liters) Radiator-12 gal. (45 liters)	Engine-5.5 gal. (21.3 liters Radiator-3.25 gal. (12.6 liters)
Air Cleaner	Farr, 2 stage dry type	Donaldson dry type
Lube Oil Filter	Full flow - replaceable By-psss - replaceable	Full flow - replaceable By-pass - none
Fuel Filter	Primary - none Secondary - replaceable spin on	Primary - replaceable Secondary - replaceable

Starting aid — Required below 14 F (-10 C.) ether-measured shot standard equipment for all power plants.

Hydraulic pump — Flange mounted, constant displacement in-line piston pump. 3000 psi (210 kg/cm^2), 5 GPM (19 liters per minute).

Batteries — (2) - 12 volt H.D. rated, series connected. Disconnect switch prevents start-up while servicing. 215 amp. hours @ 20 hour rate.

FRAME: All welded frame and power box constructed of heavy steel plate. Shaft mountings are line bored to insure precise alignment of all parts. Gearing (except swing) is sealed and splash lubricated. Involute splined shafts are used, turn in roller and ball bearings. Gears and roller chains are hardened, sealed in oil bath for long, trouble free operation. Deck covered with non-skid floorplate.

MACHINERY CAB: All steel construction, access panels on both sides and roof. Removable panels for main drum brake access. No lines pass through cab. Low profile, recessed center roof. Deck machinery is in compact arrangement, easy to maintain and repair.

GANTRY: Two position, telescopic gantry. Raised and lowered by boom hoist ropes — 6 sheaves — 12.75" (32.4 cm) P.D.

OPERATORS CAB: Totally enclosed from weather. Full vision cab has safety glass throughout, sliding front window and door. Operators four-way adjustable seat is standard. Cab heater — defroster, signal horn, windshield wiper, drum turn indicator, boom angle indicator and boom hoist kick-out limit switch available.

CONTROLS:

In front of operator are foot pedals for front and rear drum brakes, hand levers for swing control, front and rear drum controls, boom hoist control, swing brake and engine speed control. At operators left are console mounted switches for front and rear drum pawls and brake locks, engine start, starting aid, lights and master switch. At operators left are also located levers for front and rear drum brake locks, transmission shifting, and swing brake lock. Included are gauges for upper hydraulic oil pressure, fuel level, engine water temperature, oil pressure, ammeter, hourmeter, drum brake pressure, converter oil charging pressure (on torque converter equipped

Specifications

machines only), engine clutch hand lever and trouble light receptacle and drum turn indicators. (optional)

HYDRAULIC SYSTEM: Full flow hydraulic system for infinitely variable pressure to front and rear drums and boom hoist brakes and clutches. System at 1500 psi (105 kg/cm²) line pressure. Response is instant, positive and smooth to operators touch. Pumped fluid is filtered, stored in an accumulator under pressure, cooled in 15 gal. (57 liter) reservoir and filtered again before returning to pump.

BOOM HOIST:

Independent internal expanding band type clutch, with automatic brake and planetary lowering. Twin external safety ratchets for locking main drum or planetary drum. Main drum mounted on anti-friction bearings.

DRUM: 13.75" (34.9 cm) P.D. x 7" (17.8 cm) long. Total wire rope length per drum for 3/4" (19 mm) wire rope is 352.2 ft. (107.3 m) storage or 295.4 ft. (90 m) working length.

Transmission Range		Low	Normal	High
	Gear Ratio	3.217 to 1	2.000 to 1	1.000 to 1
HOISTING	Line Speed	80.14 fpm (24.4 m/min.)	128.9 fpm (39.2 m/min.)	257.8 fpm (78.6 m/min.)
	Line Pull	22,519 lbs. (10214.62 kg)	14000 lbs. (6350.4 kg)	7000 lbs. (3175.2 kg)
LOWERING	Line Speed	48.98 fpm (14.9 m/min.)	78.8 fpm (24 m/min.)	157.6 fpm (48 m/min.)

CLUTCH SIZE: 23" (58.4 cm) dia. x 4" (10.2 cm) wide, band type, internal expanding.

BRAKE SIZE: (2) - 25.5" (64.8 cm) dia. 3" (7.6 cm) wide, band type external contracting "full wrap" design.

LOAD DRUMS:

Standard Drums:

FRONT: (Crane & dragline) 18.375" (46.6 cm) P.D. x 13.875" (35.24 cm) long smooth drum for crane — grooved drum for dragline. Total wire rope length of .875" (22 mm) dia. wire rope is 618 ft. (188.3 m) storage or 510 ft. (155.4 m) working length.

FRONT (Clamshell); **REAR** (Crane, clamshell & dragline) 18.25" (46.3 cm) P.D. x 13.875" (35.24 cm) long smooth drum. Total wire rope length of .75" (19 mm) dia. wire rope is 836 ft. (254.8 m) storage or 708 ft. (215.7 m) working length.

High-Speed Drum: OPTIONAL
REAR: (Crane) 19.75" (50.2 cm) P.D. x 13.875" (35.2 cm) long smooth drum. Total wire rope length per drum for 3/4" (19 m) wire rope is 758 ft. (231 m) storage or 630 ft. (192 m) working length.

Transmission Range		Low	Normal	High
	Gear Ratio	3.217 to 1	2.000 to 1	1.000 to 1
HOISTING: Front clam-shell	Line Speed	106.3 fpm (32.4 m/min.)	171 fpm (52.1 m/min.)	342 fpm (104.2 m/min.)
	Line Pull	36658.3 lbs. (16628.2 kg)	22150 lbs. (10047.2 kg)	11075 lbs. (5023.6 kg)
Front Crane & Drag-line	Line Speed	106.9 fpm (32.6 m/min.)	172 fpm (52.4 m/min.)	344 fpm (104.8 m/min.)
	Line Pull	35387 lbs. (16051.5 kg)	22000 lbs. (9979.2 kg)	11000 lbs. (4989.6 kg)
LOWERING: Front Clamshell	Line Speed	171.0 fpm (52.1 m/min.)	275.2 fpm (83.9 m/min.)	550.4 fpm (167.8 m/min.)
Front Crane & Dragline	Line Speed	170.9 fpm (52.1 m/min.)	275 fpm (83.8 m/min.)	550 rpm (167.6 m/min.)

continued next column

HOISTING: Rear Standard	Line Speed	106.31 fpm (32.4 m/min.)	171 fpm (52.1 m/min.)	342 fpm (104.2 m/min.)
	Line Pull	34582.75 lbs. (15686.4 kg)	21500 lbs. (9752.4 kg)	10750 lbs. (4876.2 kg)
High Speed	Line Speed	115 fpm (35 m/min.)	185 fpm (56.4 m/min.)	370 fpm (112.8 m/min.)
	Line Pull	31930 lb. (14482.8 kg)	19850.2 lb. (9004.3 kg)	9925.1 lb. (4502.1 kg)
LOWERING: Rear Standard	Line Speed	171 fpm (52.1 m/min.)	275.2 fpm (83.9 m/min.)	550.4 fpm (167.8 m/min.)
High Speed	Line Speed	185 fpm (56.4 m/min.)	298 fpm (90.8 m/min.)	596 fpm (181.7 m/min.)

CLUTCH: 28" (71.1 cm) dia. x 4" (10.2 cm) wide, band type internal expanding.

BRAKE: 32.5" (82.5 cm) dia. x 5" (12.7 cm) wide band type, external contracting hydraulic set, with additional spring set hydraulically released brake lock and external ratchet for locking drum.

POWER CONTROLLED LOAD LOWERING: Reverse planetary gearing in drum, transmission and engine. External spider brake on drum engages planetary gears.

THIRD DRUM:

Mounts on extension of front shaft to left of main drum. Does not interfere with any machine function or front end attachment. (Optional).

DRUM: 16.125" (40.9 cm) P.D. x 6" (15.2 cm) long. Total wire rope length of .625" (15.8 mm) wire rope is 269.5 ft. (82.1 m) storage or 217.3 ft. (66.2 m) working.

Transmission Range	Low	Normal	High
Gear Ratio	3.217 to 1	2.000 to 1	1.000 to 1
Line Speed	93.87 fpm (28.6 m/min.)	151 fpm (46 m/min.)	302 fpm (92 m/min.)
Line Pull	12868 lbs. (5837 kg)	8000 lbs. (3629 kg)	4000 lbs. (1814 kg)

CLUTCH: (2) - 20" (50.8 cm) dia. x 4" (10.1 cm) wide, band type, internal expanding.

BRAKE: 22.5" (57.1 cm) dia. x 3" (7.6 cm) wide, band type, external contracting "full wrap" design.

SWING:

CLUTCH: (2) - 23.5" (59.7 cm) dia. x 6.25" (15.8 cm) wide, electro-magnetic Magnetorque®. Powered by engine driven alternator.

BRAKE: 18" (45.7 cm) dia. x 2.5" (6.3 cm) wide, band type, external contracting, hydraulic release, spring set.

SWING ROLLERS: Live roller circle with 28 - 4.875" (12.4 cm) dia. roller bearings (equally spaced) held in place by a retainer. Roller circle has 68" (172.7 cm) P.D.

SWING GEAR: 147 internal cut teeth, 58.8" (149.3 cm) P.D.

Transmission Range	Low	Normal	High
Gear Ratio	3.217 to 1	2.000 to 1	1.000 to 1
Swing Speed	3.22 rpm	5.18 rpm	10.36 rpm

FASTENING TO LOWER: 6 adjustable hook rollers, one double front, two double rear, bolted to frame and hooked under lip of roller path on carrier.

COUNTERWEIGHT: 22,500 lb. (10,193 kg). Removable using 2 hydraulic jacks, set in carrier frame, and hand pump or optional electric hydraulic pump.

CARRIER: 8 WHEELS, 4 WHEEL DRIVE, 12 TIRES

POWER PLANT:

ENGINE:	STANDARD	OPTIONAL
Make	Cummins	Detroit Diesel
Model	NTF-255	6-71N
Type	Diesel	Diesel
No. of Cylinders	6	6
Bore x Stroke, In.	5.5 x 6.0	4.25 x 5.00
cm	(14.0 x 15.2)	(10.8 x 12.7)
Displacement, In.^{3}	855	426
liters	(14.0)	(7.0)
Cycles	4	2
Air Induction	Turbocharged	Roots blower
Cooling	Liquid	Liquid
Starter	24 volt	12 volt
Charging	12 v. - 75 amp	12 v. - 62 amp
Compressor, Air	13.2 CFM	12 CFM
Governor, Air	105 to 120 PSI	105 to 120 PSI
Horsepower, Gross	255 HP @	236 HP @
	2300 rpm	2300 rpm
Altitude Range	0-3000	0-3000
In Ft. (m)	(0-914)	(0-914)
Temp. Range in F.	-20° to 110°	-20° to 110°
(C.)	(-28° to 43°)	(-28° to 43°)

Fuel tank capacity — 75 gallons (284 liters). Meets FHWA requirements.

RADIATOR: Vertical tube and fin type core, rubber mounted thermostat temperature control. Dearation baffle in top of tank.

Air cleaner — Farr dry type.

Starting aid — Required below 14°F. (-10°C.) ether-measured shot (optional). (Std. on Detroit Diesel).

Batteries — (2) - 12 volt H.D. rated, series connected, 215 amp hours @ 20 hour rate.

TRANSMISSION	MAIN	AUXILIARY
Make	Fuller	Spicer
Model	RT-906	R-8031-R
Type	6 speeds fwd., 2 reverse	3 speeds
	Total of 18 forward gear ratios.	

Clutch — Lipe-Rollway 14-2 DLB.

PROP. SHAFTS: Front, intermediate and interaxle prop. shaft — Spicer 1710 series.

FRAME: Front section is fabricated from 18" -58 lb. channel. Rear section is a fabricated box section 19.38 inches deep, crossbraced and reinforced. Front bumper of 0.38 inch bent plate. High strength low alloy steel plate used extensively. Tow loops front and rear.

BODY: Cab, engine hood, front and side panels, front skirts, equipment boxes and dirt shields formed from sheet steel. Front and rear fenders, transmission cover, body floor plate, running boards, battery box and cover formed from non-skid floor plate.

CAB: 32 inch (81 cm) wide one-man cab offset to left side of engine compartment, all windows safety glass, electric windshield wiper, removable dash panel (with tachometer, speedometer, air pressure gage, voltmeter, coolant temperature gage, engine oil pressure gage, fuel level gage and switches), air horn, dome light, seat assembly with seat belt and West Coast mirror — left side. Crank down door window and slide-by type right side windows. Air vent on left side.

LIGHTING: Two headlights with foot operated dimmer switch. Stop, tail, directional, clearance and rear license plate lights. Two weather-proof sockets provided for upper lighting during transit. In cab dome light, illuminated gages, indicator lights for hi-beam, directional, emergency flasher and low air pressure warning.

STEERING: Ross worm and roller steering gear 32.5 to 1 ratio. 21 inch (53 cm) diameter steering wheel. Garrison power assist.

FRONT AXLE:

Shuler FTC 5½" dia. tube 1" wall axles in tandem. 92.875 inches king pin centers. 102.3 inch (260 cm) track.

REAR AXLE: Rockwell Standard SPR-250 planetary drive tandem axle with interaxle differential. 100 inch (254 cm) track. 10.107:1 total ratio. Alternate axle: Clark BD-57000 planetary drive tandem axle with interaxle differential. 100 inch (254 cm) track. 10.281:1 ratio.

BRAKES:

Service — Dual air brake circuit with front and rear brakes on separate circuits. Front linings: 17.25 in. (43.8 cm) diameter by 4 in. (10.1 cm) wide (500 sq. in. (1270 cm^2) total front lining area), 16 sq. in. (40.6 cm) air chambers. Rear linings: 17.25 in. (43.8 cm) diameter by 5.5 in. (13.9 cm) wide (808 sq. in. (1244 cm) total rear lining area), 36 sq. in. (91.4 cm) air chambers. Total brake lining area — 1308 sq. in. (3321 cm). (Std. Rockwell Axles.)

Emergency/Parking — Air release, spring set brake chambers on all rear wheels controlled from cab. Separate reservoir for emergency release of spring set brakes.

SUSPENSION: Front and rear — unsprung box section bogie beam with torque rods. Self-aligning bearings on both ends of bogie beams.

TIRES: Twelve 1400 x 20-J load range (18 PR) with non-directional treads on Goodyear 1020 MD rims. On-Off highway tread optional.

OUTRIGGERS:

Four (4) fabricated independent boxes of high strength low alloy steel plate. Front and rear boxes are pin connected and removable. Rollers and mechanical stops are provided when manually-operated outriggers are furnished.

OUTRIGGER BEAMS: Four (4) fabricated reinforced box section beams of high strength low alloy steel plate. Beams telescope to fully extended position of 123" (312 m) from longitudinal center of carrier to center line of jackscrew.

HYDRAULIC OUTRIGGER ASSEMBLY: Eight (8) double acting hydraulic cylinders provide independent horizontal and vertical movement of each beam. Vertical cylinders have lock check valves. Electric solenoid actuated directional control valves are operated from two control panels. Each panel controls outriggers on control side only. Optional.

FLOATS: Four (4) aluminum floats 26.5 x 26.5 inches (67 x 67 cm).

MISCELLANEOUS EQUIPMENT: Tire inflation valve and hose, two (2) manual hydraulic jacks, upper lighting cable, hydraulic by-pass hose and special tools.

OPTIONS: Hydraulic outriggers, spare rim — 1020 MD, front "fifth" jack float for 360° operation, Jacobs engine brake, 14000 lb. (6250 kg) front bumper counterweight, automatic thermostatically controlled radiator shutters, 30 CFM — two cylinder air compressor, hourmeter, backup alarm and light assembly, power counterweight remover, heater and defroster fan, R.H. West Coast mirror, low profile floats, Bostrom seat.

ATTACHMENTS

STANDARD BOOM:

Two piece 40' (12.1 m) long, open throat lattice type tubular boom consisting of a 20' (6.1 m) long tapered base section and a 20' long standard tapered tip section. All boom sections are pin connected, have a 50" x 50" (127 cm x 127 cm) cross section and complete

with suspension cable assemblies. Sections are fabricated from seamless tubular T-1 steel and reinforced with contour-cut tubular lacings for strongest welded joints.

STANDARD TIP: 20' (6.1 m) long section has 4 offset boom point sheaves 18.625" (47.3 cm) P.D. with roller bearings. Boom extendible to 180' (54.6 m).

DRAGLINE BOOM POINT EXTENSION: Single boom point sheave (on center line of boom) 23.75" (60.3 cm) P.D. with roller bearings.

BOOM INSERT SECTION: 10' (3.1 m) Boom insert with suspension cable assemblies, pin connections .....optional
20' (6.1 m) insert .....optional
30' (9.1 m) insert .....optional
50' (15.2 m) insert .....optional

JIB: 20' (6.1 m) long jib, open throat lattice type, two equal tapered sections, pin connected, having a 22" x 24" (56 cm x 61 cm) cross section and with single 17.25" (43.8 cm) P.D. jib point sheave, compression strut and guy cables assemblies. Extendible to 60' (18.3 m). Extends reach to 230' (70.1 m). For lifts not exceeding 22,000 lb. (9979 kg). Optional.

JIB INSERT SECTIONS:
10' (3.1 m) jib insert with cable assemblies .....optional
20' (6.1 m) jib insert .....optional

MID-POINT SUSPENSION: Required when boom length is 170' (51.8 m) or longer.

BOOM HOIST REEVING: 10 parts of line standard — 8 parts optional within rating chart limitations.

BOOM BACKSTOPS: Spring loaded, shock absorber type. (Optional).

WIRE ROPE GUIDE ROLLERS: Use as required to eliminate cable interference.

SHEAVE AND DRUM TO WIRE ROPE RATIOS:

	Boom Hoist	Front Crane	Front Dragline	Front Clamshell
Sheave to Wire Rope	21.3 to 1	21.3 to 1	———	24.33 to 1
Drum to Wire Rope	18.33 to 1	21 to 1	21 to 1	24.33 to 1
	Third	Rear Crane	Rear Dragline	Rear Clamshell
Sheave to Wire Rope	———	23 to 1	31.83 to 1	24.33 to 1
Drum to Wire Rope	25.8 to 1	Standard 24.33 to 1 High Speed 26.33 to 1	24.33 to 1	24.33 to 1

TOWER CRANE: Consists of two boom elements, tower and jib.

TOWER BOOM — 110' (32.4 m) long lattice type tubular boom. 56" x 56" (142.2 cm x 142.2 cm) cross section consisting of 20' (6.1 m) base. 30' (9.1 m) insert, two-20' (6.1 m) inserts totalling 40" (12.2 m) and 20' (6.1 m) cap section, pin connected with suspension cable assemblies and strut. Tower extendible to 130' (38.5 m). Optional.

JIB BOOM — 60' (18.3 m) long lattice type tubular boom. 42" x 42" (106.7 cm x 106.7 cm) cross section consisting of 20' (6.1 m) base, 20' (6.1 m) insert and 20' (6.1 m) tip section with one boom point sheave 17.25" (43.8 cm) P.D. with roller bearings, pin connected with suspension cable assemblies. Jib extendible to 120' (35.4 m). Optional.

TOWER INSERT SECTIONS:
10' (3.1 m) insert with cable assemblies .....optional
20' (6.1 m) insert with cable assemblies .....optional
30' (9.1 m) insert with cable assemblies .....optional
50' (15.2 m) insert with cable assemblies .....optional

JIB INSERT SECTIONS:
10' (3.1 m) jib insert with cable assemblies .....optional
20' (6.1 m) jib insert with cable assemblies .....optional
30' (9.1 m) jib insert with cable assemblies .....optional

HOOK BLOCKS:

Block Capacity	Number Sheaves	Wire Rope Size	Weight	Wire Rope to Sheave Ratio	Part No.
22,000 lbs. (9979 kg)	1	75	350 lbs. (158.8 kg)	16.66 to 1	8U7-D4 (Jib-Opt.)
52,500 lbs. (23,814 kg)	1	.875	575 lbs. (260.8 kg)	18.7 to 1	8U7-D10 (Std.)
87,500 lbs. (36,690 kg)	2	1"	840 lbs. (381 kg)	18.3 to 1	8U7-D24 (Opt.)
105,000 lbs. (47,628 kg)	3	.875	2220 lbs. (1007 kg)	24.4 to 1	8U7-D71 (Opt.)
140,000 lb. (63,504 kg)	4	1"	1820 lb. (825.5 kg)	18.3 to 1	8U7-D26 (Opt.)
14,500 lbs. (6577 kg)	Weighted hook		364 lbs. (165.1 kg)	—	8U7-D503 (Jib opt.)

WEIGHTS:

Carrier — Including turret, hydraulic outriggers, floats, roller circle and standard tires — 50,680 lbs. (22,990 kg).

Upper machine — 36,066 lb. (16,359.5 kg)
Gantry — 1742 lbs. (790.2 kg)
Counterweight — 22,500 lbs. (10,193 kg)
Boom:
- Base — 1840 lbs. (834.6 kg)
- Inserts — 10 ft. (3 m) — 625 lbs. (283.5 kg)
  20 ft. (6.1 m) — 1000 lbs. (453.6 kg)
  30 ft. (9.1 m) — 1405 lbs. (637.3 kg)
  50 ft. (15.2 m) — 2180 lb. (988.8 kg)
- Tip — 2235 lbs. (1013.8 kg)

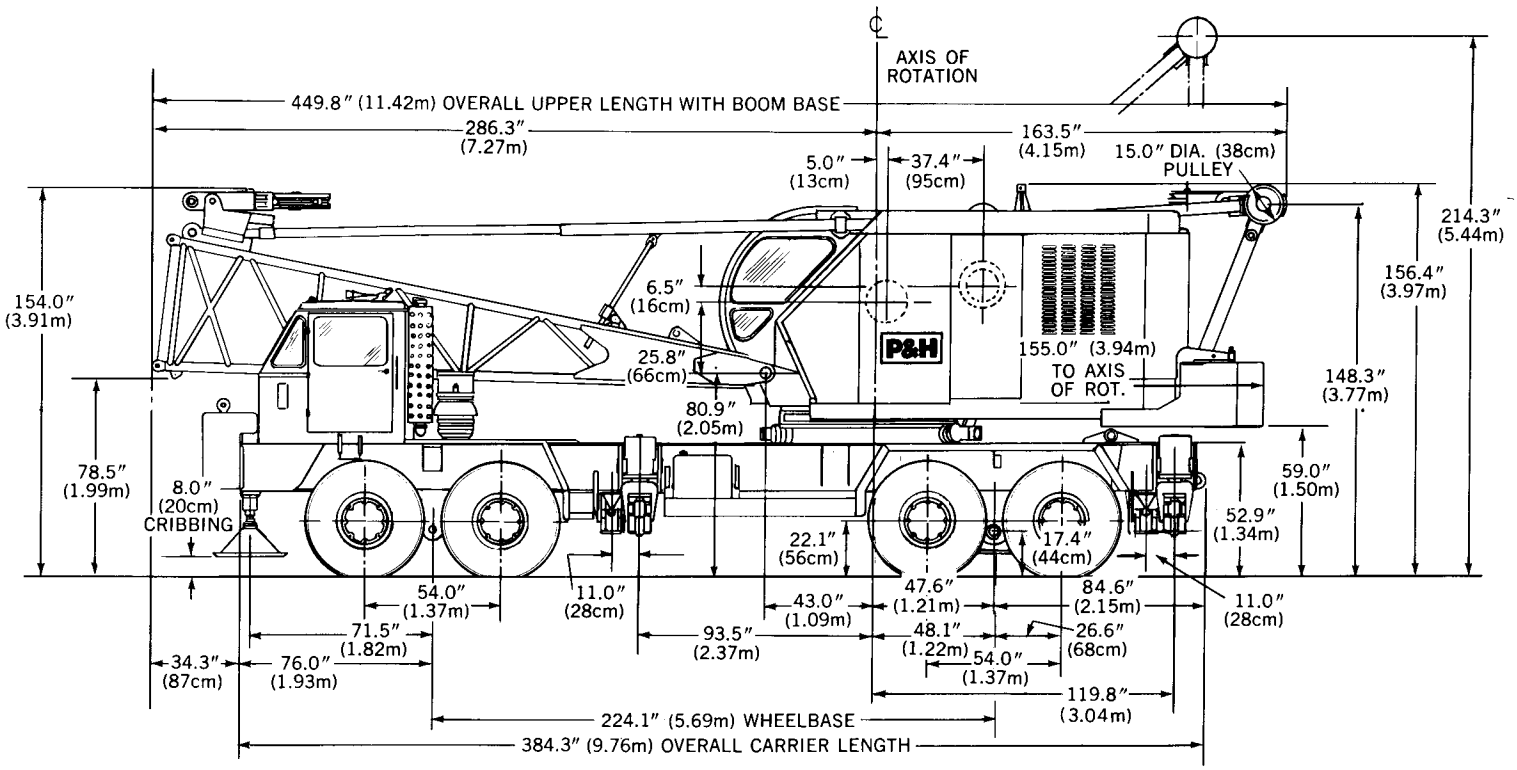
Jib:
- Base — 345 lbs. (156.5 kg)
- Inserts — 10 ft. (3 m) — 170 lbs. (77.1 kg)
  20 ft. (6.1 m) — 310 lbs. (140.6 kg)
- Tip — 395 lbs. (179.2 kg)

PERFORMANCE

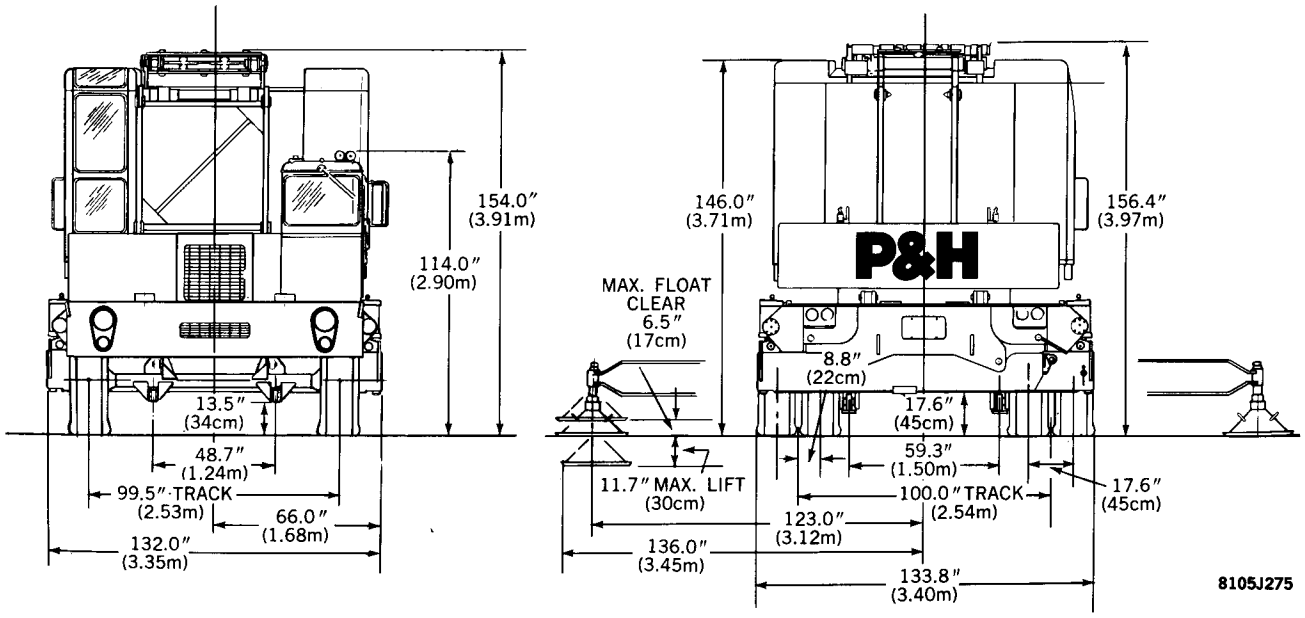
ON HIGHWAY:* 12 forward speeds, 2 reverse speeds. Performance in highest and lowest gear based on engine @ full load rpm and 89,000# (40370 kg) GVW (Class I, good surface road).
Lowest gear: 3.3 MPH (5.3 km/h) to 23.2 percent grade.
Highest gear: 40.8 MPH (65.7 km/h) to 0.4 percent grade.

OFF HIGHWAY:* 6 forward speeds, 1 reverse speed. Performance in lowest gear ratio based on engine @ max. torque RPM and 89,000# (40370 kg) GVW. (Class II road). 0.9 MPH (1.3 FPS((1.4 km/h) to 30.0 percent grade.

* Std. engine and axles.



TURNING CLEARANCE RADIUS—692.4 INCHES (17.6m)



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.

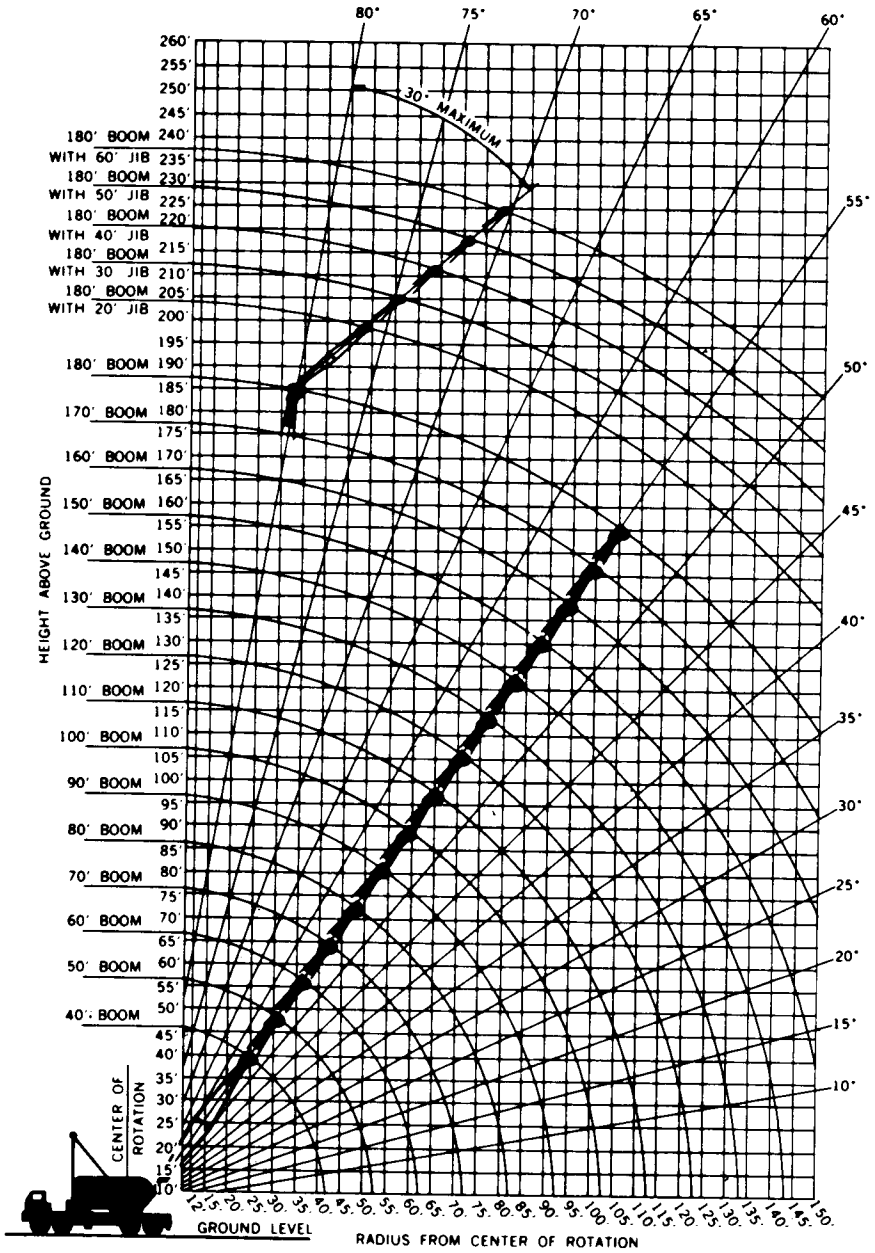
Harnischfeger
P&H
milwaukee, wisconsin. 53201

Address inquiries to:

D10-977 Litho in U.S.A.

P&H® 670-TC

70-ton Truck Crane
180' boom, 60' jib



Your versatile P & H 670-TC adapts readily to your sepcial operating needs. This brochure contains these crane rating charts:

1. 22,500 lbs. counterweight - on outriggers 40 to 180 foot boom lengths
2. 22,500 lbs. counterweight - on rubber 40 to 120 foot boom lengths

Jib Ratings
All boom combinations

This P & H Model 670-TC meets the requirements of ANSI B30.5 1968. Boom structure has been tested per SAE J 987. Machine stability has been tested per SAE J 765.

Standard
50" wide x 50" deep
Boom

crane lifting capacities working ranges

P&H® 670-TC

PCSA CLASS 12-381

rated crane loads in pounds — main boom (50" w. x 50" d.) in over side . . . . .

Oper. Rad. Ft.	Angle	40 Ft. Boom Boom Pt. El.	40 Ft. Boom Rating Lbs.	Angle	50 Ft. Boom Boom Pt. El.	50 Ft. Boom Rating Lbs.	Angle	60 Ft. Boom Boom Pt. El.	60 Ft. Boom Rating Lbs.	Angle	70 Ft. Boom Boom Pt. El.	70 Ft. Boom Rating Lbs.	Angle	80 Ft. Boom Boom Pt. El.	80 Ft. Boom Rating Lbs.	Angle	90 Ft. Boom Boom Pt. El.	90 Ft. Boom Rating Lbs.	Angle	100 Ft. Boom Boom Pt. El.	100 Ft. Boom Rating Lbs.	Angle	110 Ft. Boom Boom Pt. El.	110 Ft. Boom Rating Lbs.
12	79	47.5	140,000					RATINGS ABOVE HEAVY LINE ARE LIMITED BY STRENGTH OF MATERIALS																
15	74	46.8	134,000	78	57.1	133,700																		
20	67	45.1	107,000	72	55.8	106,700	75	66.2	106,400	77	76.5	106,100												
25	59	42.5	80,100	66	53.8	80,100	70	64.6	80,100	73	75.1	80,000	75	85.5	79,900	77	95.8	79,700	78	106.1	79,600			
30	50	38.8	59,100	59	51.2	59,000	65	62.5	58,900	68	73.4	58,800	71	84.0	58,700	73	94.5	58,500	75	104.9	58,300	77	115.2	58,300
35	39	33.6	46,600	52	47.7	46,400	59	59.8	46,300	64	71.2	46,100	67	82.2	46,000	70	92.9	45,800	72	103.5	45,600	74	113.9	45,600
40	26	25.3	*37,300	44	43.1	38,100	53	56.5	38,000	59	68.5	37,800	63	79.9	37,600	67	90.9	37,400	69	101.7	37,100	71	112.3	37,200
45				35	36.8	32,200	47	52.2	32,100	54	65.2	31,800	59	77.2	31,600	63	88.6	31,400	66	99.6	31,100	68	110.5	31,200
50				23	27.3	27,800	40	46.8	27,600	49	61.2	27,400	55	73.9	27,200	59	85.8	26,900	63	97.2	26,700	65	108.4	26,700
60							21	29.1	21,500	37	50.3	21,200	46	65.5	21,000	52	78.9	20,700	56	91.3	20,400	60	103.2	20,400
70										19	30.8	17,100	34	53.4	16,800	43	69.6	16,600	49	83.6	16,300	53	96.5	16,300
80													18	32.3	14,000	32	56.4	13,600	41	73.3	13,300	46	87.9	13,300
90																17	33.8	11,500	31	59.1	11,200	39	76.9	11,100
100																			16	35.2	9,550	29	61.7	9,450
110																						15	36.5	8,150
120																								
130																								
140																								
150																								

WARNING:
WHEN BOOM IS EQUIPPED WITH JIB, MAIN HOOK RATING MUST BE REDUCED TO COMPENSATE FOR JIB ATTACHMENT WEIGHT.

Jib Length	20 Ft.	30 Ft.	40 Ft.	50 Ft.	60 Ft.
Deduct — Lbs.	1500	1500	2000	2500	3000

32R11-B

rated crane loads in pounds — main boom — without outriggers — tires . . . . .

Oper. Rad. Ft.	Angle	40 Ft. Boom Over Side	40 Ft. Boom Over Rear	Angle	50 Ft. Boom Over Side	50 Ft. Boom Over Rear	Angle	60 Ft. Boom Over Side	60 Ft. Boom Over Rear	Angle	70 Ft. Boom Over Side	70 Ft. Boom Over Rear	Angle	80 Ft. Boom Over Side	80 Ft. Boom Over Rear	Angle	90 Ft. Boom Over Side	90 Ft. Boom Over Rear	Angle	100 Ft. Boom Over Side	100 Ft. Boom Over Rear	Angle	110 Ft. Boom Over Side	110 Ft. Boom Over Rear
12	79		76,000																					
15	74		64,300	78		63,700																		
20	67		46,800	72		46,600	75	39,100	46,500	77	38,900	46,200												
25	59	29,400	35,000	66	29,100	34,800	70	29,000	34,600	73	28,700	34,300	75	28,500	34,100	77	28,200	33,800	78	27,900	33,500			
30	50	23,100	27,700	59	22,900	27,500	65	22,700	27,300	68	22,400	27,000	71	22,200	26,800	73	21,900	26,500	75	21,600	26,200	77	21,500	26,100
35	39	19,000	22,800	52	18,700	22,500	59	18,500	22,400	64	18,200	22,100	67	18,000	21,800	70	17,700	21,500	72	17,400	21,200	74	17,300	21,100
40	26	16,000	19,300	44	15,600	19,000	53	15,500	18,800	59	15,200	18,500	63	14,900	18,300	67	14,600	18,000	69	14,300	17,600	71	14,200	17,600
45				35	13,400	16,300	47	13,200	16,100	54	12,900	15,800	59	12,600	15,600	63	12,300	15,300	66	12,000	14,900	68	11,900	14,900
50				23	11,600	14,300	40	11,400	14,000	49	11,100	13,700	55	10,800	13,500	59	10,500	13,100	63	10,200	12,800	65	10,100	12,700
60							21	8,850	11,000	37	8,500	10,600	46	8,200	10,400	52	7,900	10,100	56	7,600	9,750	60	7,500	9,650
70										19	6,750	8,600	34	6,450	8,250	43	6,100	7,950	49	5,750	7,600	53	5,650	7,500
80													18	5,150	6,750	32	4,800	6,400	41	4,450	6,050	46	4,350	5,900
90																17	3,850	5,250	31	3,450	4,900	39	3,300	4,750
100																			16	2,750	4,050	29	2,550	3,800

operating instructions printed throughout this brochure are for your safety and will contribute to the long life of your P&H 670-TC

Operating radius is the horizontal distance from centerline of rotation to a vertical line through the center of gravity of the load.

Ratings shown are based on freely suspended loads and make no allowance for such factors as wind effect on lifted loads, ground conditions, out-of-level, operating speeds or any other condition that could be detrimental to the safe operation of this equipment. The operator, therefore, has the responsibility to judge the existing conditions and reduce lifted loads and operating speeds accordingly. Ratings do not exceed 85% of tipping load as determined by SAE J 765. Deduct weight of hook block(s), slings, cement bucket, and all other load handling accessories from main boom or jib rating shown. Ratings shown are based on 22,500 lbs. counterweight.

Ratings shown are only for combination of P & H manufactured upper, boom, jib, counterweights, carrier and outriggers. Boom backstops are required for all boom

. . . . . and over rear work areas with outriggers fully extended and set

Angle	120 Ft. Boom		Angle	130 Ft. Boom		Angle	140 Ft. Boom		Angle	150 Ft. Boom		Angle	160 Ft. Boom		Angle	170 Ft. Boom		Angle	180 Ft. Boom		Oper. Rad. Ft.
	Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.		Boom Pt. El.	Rating Lbs.	
				Boom lengths 80 ft. and above locate jib backstay anchor at top end of second insert below boom tip section.											Midpoint suspension (center hitch) required. Attach 80 ft. up boom from boom foot pin.						12
																					15
																					20
																					25
78	125.5	58,100																			30
75	124.3	45,400	76	134.6	45,200	77	144.8	45,100													35
73	122.9	36,900	74	133.3	36,700	75	143.6	36,600	76	154.0	36,400	77	164.2	36,400							40
70	121.2	30,900	72	131.8	30,700	73	142.2	30,600	74	152.6	30,400	75	163.0	30,300	76	173.3	30,100	77	183.6	29,900	45
68	119.3	26,400	69	130.0	26,200	71	140.6	26,100	72	151.2	25,900	73	161.6	25,800	74	172.0	25,600	75	182.4	25,400	50
62	114.6	20,200	65	125.8	19,900	67	136.7	19,800	68	147.6	19,500	70	158.3	19,500	71	168.9	19,200	72	179.5	19,000	60
57	108.7	16,000	60	120.5	15,700	62	131.9	15,600	64	143.2	15,400	66	154.2	15,300	67	165.1	15,000	69	175.9	14,800	70
51	101.3	13,000	54	113.9	12,800	57	126.0	12,600	60	137.8	12,400	62	149.3	12,300	64	160.5	12,000	65	171.6	11,800	80
44	92.1	10,800	49	105.9	10,600	52	118.9	10,400	55	131.4	10,100	58	143.4	10,000	60	155.1	9,800	62	166.6	9,550	90
37	80.3	9,150	42	96.0	8,850	47	110.3	8,700	50	123.7	8,400	53	136.5	8,300	56	148.8	8,050	58	160.7	7,800	100
28	64.2	7,800	35	83.5	7,500	41	99.8	7,300	45	114.5	7,050	49	128.3	6,900	51	141.4	6,650	54	154.0	6,450	110
14	37.7	6,800	27	66.6	6,450	34	86.6	6,200	39	103.4	5,950	44	118.6	5,800	47	132.7	5,500	50	146.1	5,300	120
			14	38.9	5,600	26	68.9	5,300	33	89.5	5,050	38	106.9	4,850	42	122.5	4,600	46	137.0	4,350	130
						13	40.1	4,600	25	71.1	4,250	32	92.4	4,050	37	110.3	3,800	41	126.3	3,550	140
									13	41.2	3,650	24	73.3	3,400	31	95.2	3,150	36	113.5	2,900	150

NOTE: OPERATION OF THIS EQUIPMENT IN EXCESS OF LOAD RATINGS AND DISREGARD OF INSTRUCTIONS VOIDS THE WARRANTY.

. . . . . at 100 p.s.i.

Oper. Rad. Ft.	Angle	120 Ft. Boom Over Side	120 Ft. Boom Over Rear
12			
15			
20			
25			
30	78	21,300	25,900
35	75	17,000	20,900
40	73	14,000	17,300
45	70	11,700	14,600
50	68	9,850	12,500
60	62	7,200	9,400
70	57	5,400	7,250
80	51	4,050	5,650
90	44	3,050	4,450
100	37	2,250	3,550

maximum boom length to lift off ground

Maximum Boom Length to Lift Off Ground						
Boom Over	Without Front Bumper Counterweight				With 14,000 lbs. Front Bumper Counterweight* and Outriggers Set	
	With Outriggers Set		Without Outriggers Set			
	Boom Only	Boom & Jib	Boom Only	Boom & Jib	Boom Only	Boom & Jib
Side	180	170 + 30	120	100 + 30	180	170 + 30
Rear	180	180 + 20	120	110 + 30	180	180 + 60

*Front bumper counterweight is not an operating counterweight — is used only to erect boom with jib (30' and longer) over the rear without load.

WARNING: When operating crane "without outriggers" loads lifted over rear and swung over side, will increase in radius due to tire deflection. This increase in radius must be compensated for by raising boom, or machine may tip over.

WARNING

Using this equipment in excess of rated loads, in areas of chart not rated, or with disregard of instructions will result in unsafe operating conditions and is a violation of the U.S. Dept. of Labor, Safety and Health regulations for construction.

lengths. Boom inserts must be arranged as shown in the Boom Make-Up Chart. Standard boom hoist reeving is 10 part line. Eight (8) part boom hoist reeving is approved only for clamshell or dragline operation and "without outrigger" ratings. Gantry must be in raised position for all "with outriggers" ratings. Gantry may be in lowered position only for "without outriggers" ratings. Refer to boom hoist reeving plate 32Q80 for additional information. Refer to diagrams for applicable working area.

WARNING: The wind effect on the lifted load can cause sufficient side load to overstress boom or jib structure. When suspended load will not remain in line with boom, derate chart 25%. We recommend stopping operation when wind is above 30 m.p.h. and tieing off or lowering boom when wind is above 50 m.p.h. When continued operation under windy conditions is necessary, consult factory for special derated load rating chart.

Maximum approved travel speed with 14,000 pound front bumper counterweight installed is 5 m.p.h. All tires must be evenly inflated to 100 P.S.I. Maximum approved boom length for travel is 120 ft. or 100 ft. boom and 30 ft. jib. Boom must be positioned over rear of carrier. Gantry must be in raised position over rear of carrier.

WARNING: When ¾ inch diameter P & H type 11 wire rope (18 x 7 non-rotating preformed plow steel wire rope fiber core) is used for jib line on rear drum maximum lifted load including hook must not exceed 8,720 lbs. Do not use dead-end swivels with non-rotating wire rope.

WARNING: Welding or other repair to tubular steel boom may weaken the structure. See your P&H dealer for authorized boom repair service. Unauthorized repair will void all warranties.

boom make-up

BOOM ARRANGEMENT			
Base Length = 20 ft.; Tip Length = 20 ft. Inserts: A = 10 ft.; B = 20 ft.; C = 30 ft.; D = 50 ft.			
Boom Length	Boom Makeup	Boom Length	Boom Makeup
50	Base A-Tip	120	Base D-C-Tip
60	Base B-Tip	130	Base A-C-D-Tip
70	Base B-A-Tip	140	Base B-C-D-Tip
80	Base C-A-Tip	150	Base A-B-C-D-Tip
90	Base C-B-Tip	160	Base B-D-D-Tip
100	Base A-B-C-Tip	170	Base A-D-B-D-Tip
110	Base D-B-Tip	180	Base A-D-C-D-Tip

One specified insert may be replaced by two shorter inserts without reducing load ratings.

WARNING: When assembling boom inserts, do not cantilever more than 60 ft. of inserts past point of pendant rope attachment to boom. Relocate point of attachment out on boom as additional inserts are added.

jib ratings

MAXIMUM JIB (24" W. x 22" D.) RATINGS FOR LIFTING CRANE SERVICE — LBS.

Three-Quarter Inch Dia. P&H Type 4 Wire Rope					
* Use Two Parts of Line for Loads Above 14,500 Lbs.					
Offset Angle Jib to Boom Under Full Load	20 Ft. Jib	30 Ft. Jib	40 Ft. Jib	50 Ft. Jib	60 Ft. Jib
10°	22,000*	20,000*	16,000*	12,000	8,000
20°	16,000*	14,500	12,000	9,500	7,000
30° Max.	13,000	11,000	8,500	7,000	6,000

MAXIMUM JIB RATINGS FOR BUCKET SERVICE—LBS.

* Use Three-Quarter Inch Dia. P&H Type 25 Wire Rope for Loads Above 14,500 Lbs.					
10°	16,500*	16,000*	12,800	9,600	6,400
20°	12,800	11,600	9,600	7,600	5,600
30° Max.	10,400	8,800	6,800	5,600	4,800

Jib Crane Ratings are based on strength of materials. When main boom load rating at operating radius is less than maximum jib ratings, stability governs and the lower value of main boom load rating must be used. Jibs are intended to increase lifting height — not operating radius — therefore, maximum jib operating radius is limited to maximum rated radius of boom length on which jib is mounted.

P & H type 4 wire rope: 6 x 25 with filler wire, preformed improved plow steel wire rope 7 x 7 I.W.R.C.

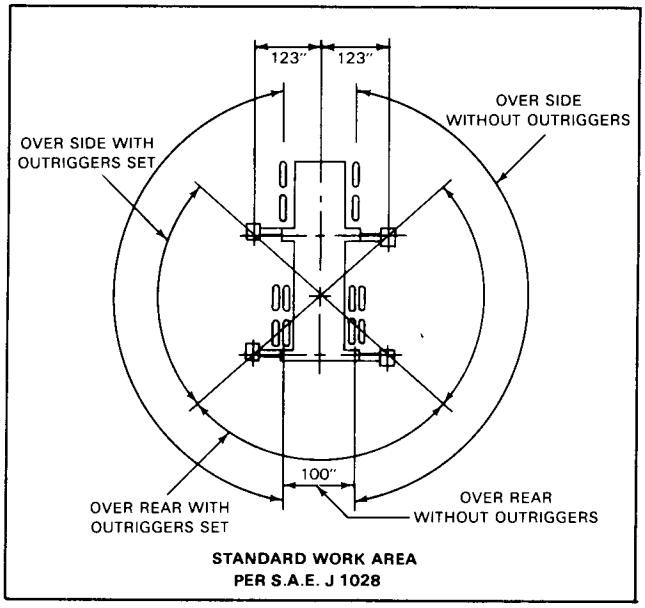
P & H type 25 wire rope: 6 x 25 I.W.R.C., preformed extra improved plow steel wire rope (filler wire).

reeving data

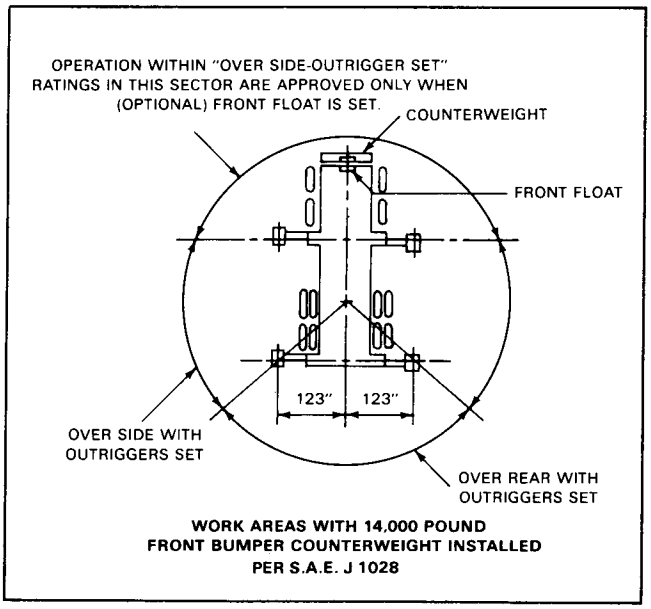
RECOMMENDED WIRE ROPE LENGTH FOR DRUMS — FT.					
BOOM LENGTH FT.	MAIN HOIST DRUM	JIB HOIST DRUM	BOOM LENGTH FT.	MAIN HOIST DRUM	JIB HOIST DRUM
40	415	255	160	670	615
50	505	285	170	540	645
60	530	315	180	570	675
70	610	345			
80	520	375			
90	580	405			
100	640	435			
110	590	465			
120	640	495			
130	550	525			
140	590	555			
150	630	585			

MAIN HOIST DRUM RATED LOADS FOR SEVEN-EIGHTHS INCH DIAMETER P&H TYPE 4 WIRE ROPE								
Number of Parts of Main Hoist Reeving	1	2	3	4	5	6	7	8
Maximum Load — Lbs.	17,500	35,000	52,500	70,000	87,500	105,000	122,500	140,000

AREAS OF OPERATION



STANDARD WORK AREA PER S.A.E. J 1028



WORK AREAS WITH 14,000 POUND FRONT BUMPER COUNTERWEIGHT INSTALLED PER S.A.E. J 1028

MEMBER PCSA

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 P&H

milwaukee, wisconsin. 53201

Address inquiries to:

D10-976 Litho in U.S.A.

P&H® 670-TC

70-ton Truck Crane

	TOTAL WEIGHT OR ADJUSTMENT		BOOM OVER FRONT OF CARRIER FRONT TANDEM WEIGHT		BOOM OVER FRONT OF CARRIER REAR TANDEM WEIGHT		BOOM OVER REAR OF CARRIER FRONT TANDEM WEIGHT		BOOM OVER REAR OF CARRIER REAR TANDEM WEIGHT	
DESCRIPTION OR ITEM(S)	**(lbs)**	**(kgs)**	**(lbs)**	**(kgs)**	**(lbs)**	**(kgs)**	**(lbs)**	**(kgs)**	**(lbs)**	**(kgs)**
Basic Machine Including: Hyd. Outriggers Assembly w/Floats (4) 1400 x 20—18 PR Tires (12) Upper Gantry — Lowered Position Roller Circle Bustle Counterweight No Cable Transmission — Upper 75 Gal. Fuel — Upper 75 Gal. Fuel — Lower No Crane Attachment *	107460	48744	9980	4527	97480	44217	52560	23841	54900	24903
Complete Basic Machine Incld: Carrier Upper 40 Ft. Basic Boom (34'-8" Operating Rad.) Backstop Assembly Bustle Counterweight Gantry — Lowered Position 0.750 In. Dia. x 375 Ft. Cable (Boom Hoist) 0.875 In. Dia. x 350 Ft. Cable (Load Hoist) 75 Gal. Fuel — Upper 75 Gal. Fuel — Lower *	114580	51973	17300	7847	97280	44126	48020	21782	66560	30192
Effect of Removing:										
Bustle Counterweight *	-22560	-10233	8800	3992	-31360	-14225	-18340	-8319	-4220	-1914
O/R Beams — Frt. (2)	-1820	-826	-1194	-542	-626	-284	-1194	-542	-626	-284
O/R Beams & Horizontal Cyl. — Frt. (2)	-2060	-934	-1352	-613	-708	-321	-1352	-613	-708	-321
O/R Boxes, Beams, & Horiz. Cyl. — Frt. (2)	-4020	-1823	-2638	-1197	-1382	-627	-2638	-1197	-1382	-627
O/R Vert. Cyl. & Trunnions — Frt. (2)	-880	-399	-578	-262	-302	-137	-578	-262	-302	-137
O/R Beams — Rear (2)	-1820	-826	-538	-244	-2358	-1070	538	244	-2358	-1070
O/R Beams & Horizontal Cyl. — Rear (2)	-2060	-934	609	276	-2669	-1211	609	276	-2669	-1211
O/R Boxes, Beams & Horiz. Cyl. — Rear (2)	-4020	-1823	1189	539	-5209	-2363	1189	539	-5209	-2363
O/R Vert. Cyl. & Trunnions — Rear (2)	-880	-399	260	118	-1140	-517	260	118	-1140	-517
Complete Removable Rear Housing (Hyd. O/R) *	-7760	-3520	2230	1012	-9990	-4531	2230	1012	-9990	-4531
20 Ft. Boom Tip Incld: Tip Guy Lines (2)	-2505	-1136	-5461	-2477	2956	1341	4387	1990	-6892	-3126
20 Ft. Boom Base Incld:										
Backstop Assembly Upper Spreader	-3696	-1677	-3536	-1604	-160	-73	1972	894	-5668	-2571
Backstop Assembly	-1076	-488	-560	-254	-516	-234	99	45	-1175	-533
Upper Spreader	-780	-354	-923	-419	143	65	588	267	-1368	-621
Basic Upper Incld: Gantry — Lowered Position Lower Spreader No Cable	-34210	-15518	260	118	-34470	-15636	-14921	-6768	-19289	-8749
Roller Circle	-300	-136	-64	-29	-236	-107	-64	-29	-236	-107
Hydr. O/R for Manual O/R	-2180	-989	-476	-216	-1704	-773	-476	-216	-1704	-773
Basic Carrier Including: Hyd. O/R Assembly w/Floats (4) 1400 x 20—18 PR Tires (12) W/O Roller Circle 6 Gal. Fuel *	50380	22852	19750	8959	30630	13894	19750	8959	30630	13894
Basic Carrier Including: Hyd. O/R Assembly w/Floats (4) 1400 x 20—18 PR Tires (12) W/O Roller Circle 6 Gal. Fuel Less Complete Removable Rear Housing *	42620	19332	21980	9970	20640	9362	21980	9970	20640	9362
Miscellaneous Weights:										
Cable-0.750 In.Dia.(lb/ft) Kgs/mm	1.032	1.536 x10⁻³								
Cable-0.875 In.Dia.(lb/ft) Kgs/mm	1.416	2.107 x10⁻³								
Cable-1.000 In.Dia.(lb/ft) Kgs/mm	1.848	2.750 x10⁻³								
Float (Std. 26 In. x 26 In.)	125	56.7								
Bottom Block(1 Sheave-25 T)	460	208.6								
Bottom Block(2 Sheave-50 T)	840	381								
Bottom Block(3 Sheave-60 T)	1270	576								
Bottom Block(4 Sheave-80 T)	1820	825.5								
Effect of Adding:										
Front Bumper Counter-weight	14000	6350	19135	8680	-5135	-2329	19135	8680	-5135	-2329

* Actual scaled weights from "TRUCK CRANE WEIGHT AND COMPLIANCE TO B30.5-1968 CODE" DATES: 10-20-71, 11-4-71, 5-15-75.

axle loadings

BOOM LENGTHS, OVERALL LENGTHS, AND AXLE LOADS (U.S. AND METRIC UNITS) FOR TRAVELING (BOOM NOT FOLDED) MACHINE WITH MANUALLY OPERATED OUTRIGGERS.

CRANE ATTACHMENT*						ATTACHMENT		GROSS		BOOM OVER FRONT OF CARRIER						BOOM OVER REAR OF CARRIER					
BOOM LENGTH		INSERT LENGTHS		ATTACHMENT WEIGHT**		C.of G. from BASE		VEHICLE Wt.***		FRONT TANDEM		REAR TANDEM		OVERALL LENGTH		FRONT TANDEM		REAR TANDEM		OVERALL LENGTH	
(ft)	(mm)	(ft)	(mm)	(lbs)	(kgs)	(in)	(mm)	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)	(ft)	(mm)	(lbs)	(kgs)	(lbs)	(kgs)	(ft)	(mm)
40	12192	Basic		6201	2813	234.7	5961	114580	51973	18730	8496	95850	43478	58.3	17770	51120	23188	63460	28785	65.9	20086
50	15240	10	305	7036	3192	285.2	7244	115420	52355	21520	9761	93900	42593	68.3	20818	48670	22077	66750	30278	75.9	23134
60	18288	20	610	7491	3398	336.5	8547	115870	152559	23990	10882	91880	41677	78.2	23835	46390	21043	69480	31516	85.9	26182
70	21336	20-10	610-305	8326	3777	393.0	9982	116710	52940	27670	12551	89040	40389	88.2	26883	43050	19527	73660	33412	95.9	29230
80	24384	30-10	915-305	8801	3992	448.8	11400	117180	53153	30880	14007	86300	39146	98.2	29931	40040	18162	77140	34991	105.9	32278
90	27432	30-20	915-610	9256	4199	500.0	12700	117640	53362	34080	15459	83560	37903	108.1	32949	37020	16792	80620	36569	115.9	35326
100	30480	10-20 -30	305-610-915	10091	4577	545.6	13858	118470	53738	38320	17382	80150	36356	118.1	35997	33120	15023	85350	38715	125.9	38374

8105N70

**Crane attachment weights include boom, guy lines, boom backstops and upper spreaders, less hook block.

***Component list for gross vehicle weight is found under complete basic machine list. Subsequent tandem loads are calculated for the boom in travel position, less bottom block.

NOTE(S):

1. THE STRUCTURAL MATERIAL USED TO FABRICATE THIS MODEL HAS A NOMINAL WEIGHT TOLERANCE OF ± 3%. THEREFORE, THE WEIGHT DATA PROVIDED SHOULD BE USED FOR REFERENCE ONLY. TO INSURE THAT ANY SPECIFIC CONFIGURATION MEETS LOCAL HIGHWAY REGULATIONS, IT IS SUGGESTED THAT THE CALCULATED WEIGHT DISTRIBUTION BE VERIFIED BY ACTUAL SCALED WEIGHTS.
2. TO OBTAIN TOTAL ALLOWABLE AXLE LOAD, MULTIPLY THE ALLOWABLE SINGLE TIRE LOAD BY THE NUMBER OF TIRES PER AXLE.

TIRE RATING CHART

TIRE SIZE	ALLOWABLE LOAD/TIRE — lbs/kgs													
	(mph)	(kph)	(mph)	(kph)	(mph)	(kph)	(mph)	(kph)	(mph)	(kph)	(mph)	(kph)	(mph)	(kph)
1400 x 20-J (18 PR)	0-1.5	0-2.41	1.5-5	2.41-8.05	5-10	8.05-16.09	10-20	16.09-32.19	20-30	32.19-48.28	30-40	48.28-64.37	40-50	64.37-80.47
	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)
	26130	11853	16700	7575	14450	6555	11630	5275	10860	4926	10280	4663	9610	4359

MEMBER PCSA

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.

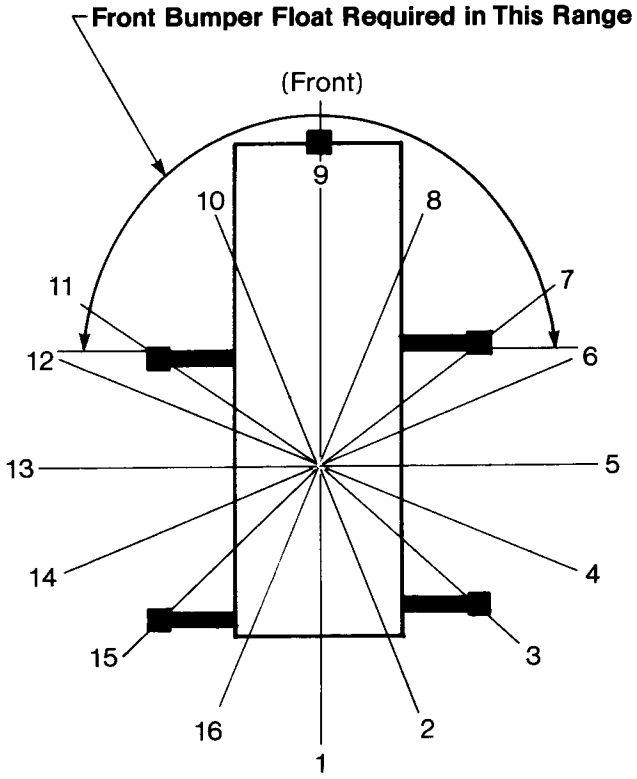
Harnischfeger P&H

milwaukee, wisconsin. 53201

Address inquiries to:

P&H® 670-TC

70 ton Truck Crane



Boom Positions

For rated loads per 32R11

Float Load Within 20' R.		
Pos. Ref.	Boom* Swing Angle	Maximum Load (lbs.)
1	0.00	124,000
2	22.50	113,500
3	48.52	121,000
4	67.50	108,500
5	90.00	113,500
6	112.50	132,000
7	130.35	145,500
8	157.50	126,000
9	180.00	88,500
10	202.50	123,500
11	132.76	151,000
12	247.50	140,500
13	270.00	108,500
14	292.50	100,000
15	314.23	115,000
16	337.50	110,000

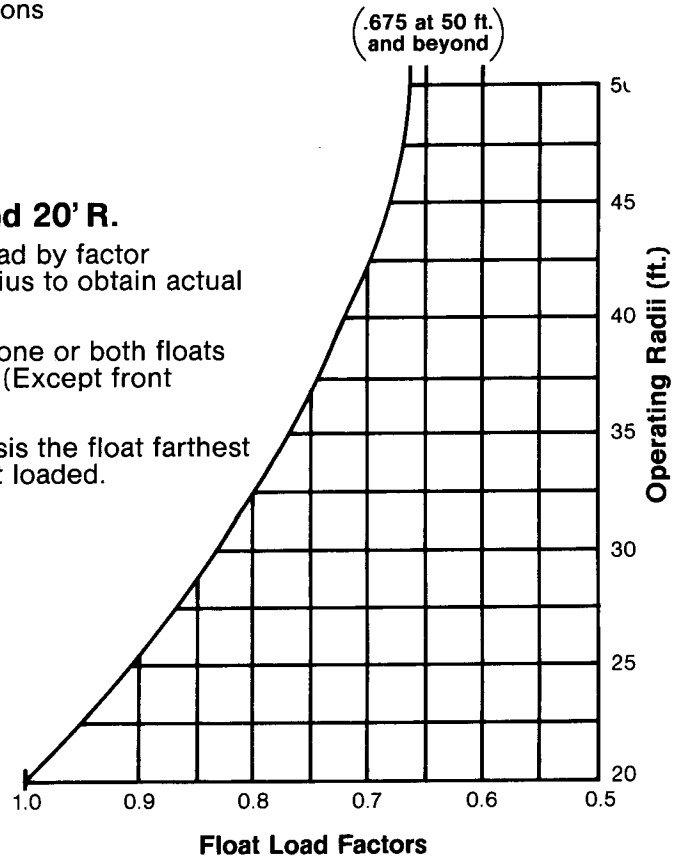
*Boom angles measured counter-clockwise from rear position No. 1

Float Load Beyond 20' R.

Multiply max. float load by factor corresponding to radius to obtain actual float load.

Max. load occurs on one or both floats closest to lifted load. (Except front bumper float).

Calculated on the basis the float farthest from lifted load is not loaded.



Outrigger float loads

P&H® 670-TC

70-ton Truck Crane
wire rope chart

FOR 50' x 50' BOOM

FOR	BOOM LENGTH FT.	WIRE ROPE TYPE NO.	WIRE ROPE DIA. IN.	PARTS OF LINE — CRANE* 1 FT.	2 FT.	3 FT.	4 FT.	5 FT.	6 FT.	7 FT.	8 FT.	DRAG-LINE FT.	CLAM-* SHELL FT.
BOOM HOIST LINE	All	4	3/4	REFER TO PARTS BOOK									
BOOM GUYLINES	All	4	1-3/8	375' — 10 PARTS OF LINE									
HOIST LINE (FRONT)	40	4	7/8		145	190	235	280	325	370	415		
	50	4	7/8		170	230	285	340	395	450	505		
	60	4	7/8		200	270	335	400	465				
	70	4	7/8		230	310	385	460	530				
	80	4	7/8		260	350	435	520					
	90	4	7/8		290	390	485	580					
	100	4	7/8		320	430	535	640					
	110	4	7/8		350	470	585						
	120	4	7/8		380	510	635						
	130	4	7/8		410	550	685						
	140	4	7/8		440	590							
	150	4	7/8		470	630							
	160	4	7/8		500	670							
	170	4	7/8		530								
	180	4	7/8		560								
HOIST LINE (REAR)	40	4	3/4									110	
	50	4	3/4									130	
	60	4	3/4									150	
DIGGING LINE (FRONT)	40	4	7/8									60	
	50	4	7/8									70	
	60	4	7/8									80	
CLOSING LINE	40	4	3/4										130
	50	4	3/4										150
	60	4	3/4										170
HOLDING LINE	40	4	3/4	*EXTRA ROPE LENGTH REQUIRED FOR OPERATING BELOW GROUND LEVEL									100
	50	4	3/4										120
	60	4	3/4										140
TAGLINE	40	12	3/8										70
	50	12	3/8										70
	60	12	3/8										70

105N319-E

CONTINUED

P & H type 4 wire rope: 6 x 25 with filler wire, preformed improved plow steel wire rope, 7 x 7 I.W.R.C.

P & H type 12 wire rope: 6 x 37 with filler wire, preformed improved plow steel wire rope fibre core.

FOR	BOOM LENGTH FT.	WIRE ROPE TYPE NO.	WIRE ROPE DIA. IN.	PARTS OF LINE 20' Jib 1	20' Jib 2	30' Jib 1	30' Jib 2	40' Jib 1	40' Jib 2	50' Jib 1	50' Jib 2	60' Jib 1	60' Jib 2
JIB HOIST (REAR)	40	4	3/4	140	205	160	235						
	50	4	3/4	160	235	180	265	200	290				
	60	4	3/4	180	265	200	295	220	320	235	350		
	70	4	3/4	200	295	220	325	235	350	255	380	275	410
	80	4	3/4	220	325	240	350	255	380	275	410	295	440
	90	4	3/4	240	355	260	380	275	410	295	440	315	470
	100	4	3/4	260	385	275	410	295	440	315	470	335	500
	110	4	3/4	280	415	295	440	315	470	335	500	355	525
	120	4	3/4	300	440	315	470	335	500	355	530	375	555
	130	4	3/4	320	470	335	500	355	530	375	560	395	585
	140	4	3/4	335	500	355	530	375	560	395	585	415	615
	150	4	3/4	355	530	375	560	395	590	415	615	435	645
	160	4	3/4	375	560	395	590	415	620	435	645	455	675
	170	4	3/4	395	590	415	620	435	650	455	675	475	705
	180	4	3/4	415	620	435	650	455	675	475	705	495	735
GUYLINE JIB TO STRUT	Flared Strut	4	3/4	(2) 28'		(2) 37'		(2) 47'		(2) 57'		(2) 67'	
	Std. Strut	4	3/4	51'		70'		89'		109'		129'	
GUYLINE STRUT TO BOOM	40	4	3/4	Anchor on Base Section		Std. Strut (1) 90'-0"				Flared Strut (2) 50'-0"			
	50	4	3/4			Std. Strut (1) 102'-0"				Flared Strut (2) 60'-0"			
	60	4	3/4	20' From Boom Point		Std. Strut (1) 60'				Flared Strut (2) 35'			
	70 & 80	4	3/4	30' From Boom Point		Std. Strut (1) 79'				Flared Strut (2) 44'			
	90 & 110	4	3/4	40' From Boom Point		Std. Strut (1) 101'				Flared Strut (2) 50'			
	100 & 120	4	3/4	50' From Boom Point		Std. Strut (1) 122'				Flared Strut (2) 60'			
	130 & Above	4	3/4	70' From Boom Point		Std. Strut (1) 159'				Flared Strut (2) 84'			

105N319-E

MEMBER PCSA

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 P&H
milwaukee, wisconsin. 53201

Address inquiries to:

D5-1279 Litho in U.S.A.