

P&H T220

HYDRAULIC TRUCK CRANE

22ton maximum crane load
34m maximum boom and jib



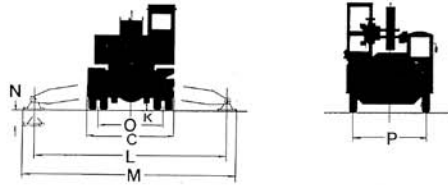
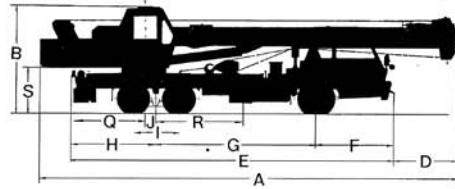
KOBE STEEL

Bulletin No. KP-T220-3

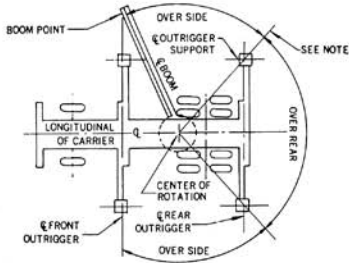
GENERAL DIMENSIONS

Nissan KW30M

- A. Overall length in travelling condition11.95 m (39'-2½")
- B. Overall height 3.20 m (10'-6")
- C. Overall width 2.49 m (8'-2")
- D. Front overhang 1.86 m (6'-1½")
- E. Overall length of carrier 9.25 m (30'-4¾")
- F. Center of front axle to front of carrier 2.13 m (6'-11½")
- G. Center of front axle to center of rear bogie..... 4.60 m (15'-1½")
- H. Center of rear bogie to rear end of carrier 2.52 m (8'-3¾")
- I. Distance between axles (rear) 1.30 m (4'-3¾")
- J. Center of rear bogie to center of rotation 0.33 m (1'-1")
- K. Ground clearance..... 0.23 m (9½")
- L. Effective length of outriggers 5.20 m (17'-¾")
- M. Overall length of outriggers 5.65 m (18'-6¾")
- N. Wheel ground clearance—outrigger cyl's ext'ed 0.13 m (5½")
- O. Tread width (rear) 1.87 m (6'-1½")
- P. Tread width (front)..... 1.99 m (6'-6¾")
- Q. Distance from centerline of rotation to rear outrigger 1.77 m (5'-9¾")
- R. Distance from rear bogie to front outrigger 2.42 m (7'-11¼")
- S. Distance under counterweight to ground..... 1.35 m (4'-5½")

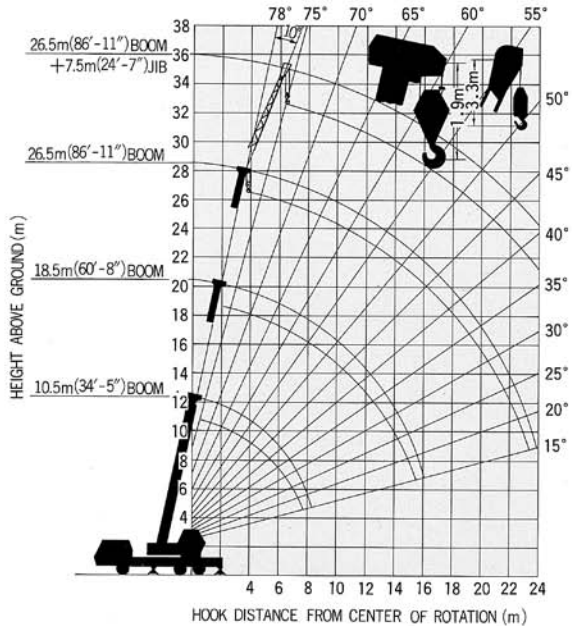


AREAS OF OPERATION



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

WORKING RANGES



P&H T220

SPECIFICATIONS

UPPER

SWING UNIT: Gear type hydraulic moter drives swing pinion through deck mounted planetary gear reducer. 360° continuous rotation.

Swing speed 2.1 rpm

SWING BRAKE: Hydraulic brake valve applied automatically when swing control lever in neutral position, and negative auto disk brake applied in no swing motion in order to sure fix.

SLEWING RING: Single row ball bearing swing circle—internal spur gear type swing gear integral.



MAIN WINCH: Mounted on rear part of revolving frame. Driven with hoist motor through single stage gear reducer and clutch brake assembly.

Clutch—shoe type, internal expanding with hydraulic power.

Brake —band type, direct acting master cylinder and wheel cylinder.

MAX. DRUM CAPACITY 230 m (755 ft)

HOIST LINE SPEED (at 3rd layer of drum)

HOISTING 88 m/min (289 fpm)

LOWERING 88 m/min (289 fpm)

MAIN HOOK SPEED (7 part line)

HOISTING 12.6 m/min (41.3 fpm)

LOWERING 12.6 m/min (41.3 fpm)

HOIST WIRE ROPE (14 ϕ) IWRC 6 \times Fi (22+7) c/o

AUXILIARY WINCH: Mounted on rear part of revolving frame.

Driven with the same hoist motor that drives main winch through single stage gear reducer.

Clutch—shoe type, internal expanding with hydraulic power.

Brake —band type, direct acting master cylinder and wheel cylinder.

MAX. DRUM CAPACITY 230 m (755 ft)

JIB HOOK SPEED (at 2nd layer of drum)

81 m/min (266 fpm)

BOOM HOIST: One double acting cylinder for boom hoist and one double acting cylinder for telescopic boom sections. Each cylinder equipped with integral safety holding valve.

BOOM HOISTING SPEED (0-78°) 65 sec.

BOOM LOWERING SPEED (78-0°) 40 sec.



BOOM TELESCOPE: Two telescopic boom sections can be hydraulically extended and retracted even with load.

LENGTH, FULLY EXTENDED

26.5 m (86'11")

LENGTH, FULLY RETRACTED 10.5 m (34'5")

TELESCOPING SPEED

EXTEND (10.5-26.5 m) 65 sec.

RETRACT (26.5-10.5 m) 60 sec.



CONTROLS: Four adjustable hand control levers for swing, telescope, boom hoist and winch, two short hand levers for main and auxiliary winch clutch ON-OFF. One short hand lever for swing brake lock.

Two brake pedals for main and auxiliary winch drum brake. Foot pedal for engine throttle control.



OPERATOR'S CAB: Compact full visibility operator's cab is fully enclosed for working in all weather. Six operating control levers and brake pedals for main and auxiliary winches and acceleration pedals are conveniently arranged for the operator's comfort and efficiency.

SAFETY DEVICES: Boom angle indicator, over hoist alarm bell, relief valves to prevent over-pressure to hydraulic circuits, safety holding valves for boom hoist and telescopic cylinder, counter balance valve for hoist motor, overload relief valves for swing motor standard
Safe load indicator optional

HYDRAULIC SYSTEM

POWER SYSTEM: Power for all motions of upper structure and outriggers is delivered from carrier engine PTO to the hydraulic motors and hydraulic cylinders through hydraulic pumps mounted on the carrier.

PUMPS: Carrier engine PTO drives gear type 3-tandem pumps.

First pump actuates boom hoisting cylinder, boom extension cylinder and winch motor.

Second pump actuates winch motor, and first pump joints to second pump in case of high speed hoist and lowering operation.

Third pump actuates swing motor via outrigger hydraulic system.

MOTORS: One gear type hydraulic motor for swing.

One radial piston hydraulic motor for hoist.

CONTROL VALVES: One set of 4-stack, 4-way valves.

OIL TANK CAPACITY 380 l (100 gals)

T220

- Longest boom among those mounted on 22-ton class hydraulic truck cranes, best suitable for jobs at high levels.
- Well-balanced structures with excellent stability.
- Three independently driven hydraulic pumps to perform three functions accurately and simultaneously.
- Main winch that can perform accurate inching.
- Hydraulically operated telescopic boom.
- Very smooth rotating motion.
- Highly reliable safety devices.

CARRIER

MAKE AND MODEL:

Left hand drive : Nissan KW30M (6×4)

Right hand drive: Nissan KW30M (6×4)



POWER PLANT: Nissan PE6, diesel, 6 cyl.
220 ps/2,300 rpm.

ELECTRICAL SYSTEM: 24 volt electric starting, 2×12 volt batteries.

FUEL TANK CAPACITY:.....200 l (53 gals.)

CLUTCH: Directly actuated through hydraulic power cylinder—Dry single plate.

TRANSMISSION: Five Speed—forward, and one—reverse.

BRAKES:

SERVICE—Full air brake on all six wheels, internal expanding shoe type.

PARKING—Manually actuated internal expanding shoes at propeller shaft.



STEERING: Ball and nut type with power booster.

FRAME: All welded construction of high tensile steel, ladder type, box section side member.

SUSPENSION:

FRONT—Semi-elliptic leaf springs with shock absorbers.

REAR —Solid bogie mounted with torque rod.

AXLE:

FRONT—“I” section beam, reverse “Elliot” type.

REAR —Full floating type, pressed steel banjo type housing, tandem type.



OUTRIGGERS: Manual valve controlled, X-type hydraulic outriggers.

Eight double acting hydraulic cylinders for independent horizontal and vertical motion of each beam standard

TIRES:

FRONT—10:00×20 14 PR.

REAR —10:00×20 14 PR.

CAB: All steel—one side type—offset left (right) side of engine.

LIGHTS: Head lights, tail lights, parking lights, directional signal lights—front and rear, licence plate light, back up light, cab inside light and fog lamp. 24 V electrical system.

EQUIPMENT: Front bumper, full fenders skirts, 2×12 V batteries, horn, rear view mirrors, air tank, boom rack, illuminated instrument panel with speedometer, ammeter, air

pressure gauge, oil pressure gauge and fuel gauge, tools and accessories.

PERFORMANCE:

Gross vehicle weight with jib.....20,150 kg (44,420 lbs)

Max. travelling speed 70 km/h (43 mph)

Grade ability (sin θ) 0.28

Min. turning radius 9.5 m (31 ft)

ATTACHMENTS

BOOM: All welded high tensile steel plate box type construction.

Three sections—boom base section and two telescopic sections.

Four boom point sheaves with roller bearings standard

Bottom diameter of point sheaves 243 mm (9 $\frac{3}{8}$ ")



HOOK BLOCK: (standard) 20 metric ton, three sheaves, with swivel hook and safety latch.

JIB: (optional) Tubular lattice type construction, folded on the side of boom base section.

Effective length 7.5 m (24'-7")

JIB HOOK: (optional) 2.3 metric ton for single jib line.

AXLE LOAD

Total..... 20,150 kg (44,420 lbs)

Front axle 5,660 kg (12,480 lbs)

Rear axle..... 14,490 kg (31,940 lbs)

LIFTING CAPACITIES

LOAD RATINGS IN KG (LBS.) WITH OUTRIGGERS - Over Rear and Over Side

Operating Radius in m (Ft.-In.)	10.5 m (34'-5") Boom		18.5 m (60'-8") Boom		26.5 m (86'-11") Boom	
	Angle	kg (Lbs.)	Angle	kg (Lbs.)	Angle	kg (Lbs.)
3 (9-10)	64°	20,000 (44,090)	77°	11,000 (24,250)		
4 (13-1)	58°	16,000 (35,270)	74°	11,000 (24,250)		
5 (16-5)	52°	12,500 (27,560)	71°	11,000 (24,250)	78°	6,000 (13,230)
5.5 (18-1)	50°	11,000 (24,250)	69°	11,000 (24,250)	77°	6,000 (13,230)
6 (19-8)	46°	9,500 (20,940)	67°	9,500 (20,940)	76°	6,000 (13,230)
7 (22-11)	35°	7,400 (16,310)	63°	7,400 (16,310)	73°	6,000 (13,230)
8 (26-3)	24°	6,000 (13,230)	60°	6,000 (13,230)	71°	6,000 (13,230)
9 (29-6)			56°	4,900 (10,800)	69°	4,900 (10,800)
10 (32-10)			52°	4,200 (9,260)	66°	4,200 (9,260)
12 (39-4)			43°	3,000 (6,610)	61°	3,000 (6,610)
14 (45-11)			33°	2,200 (4,850)	56°	2,200 (4,850)
16 (52-5)			17°	1,700 (3,750)	50°	1,700 (3,750)
18 (59-0)					43°	1,300 (2,870)
20 (65-7)					36°	1,000 (2,200)
22 (72-2)					28°	700 (1,540)
24 (78-9)					15°	500 (1,100)

JIB LOAD RATINGS IN KG (LBS.)

Main Boom Angle	10.5-26.5 m Boom + 7.5 m Jib (34'-5"-86'-11" Boom + 24'-7" Jib)
78°	2,300 (5,070)
75°	2,300 (5,070)
73°	2,000 (4,410)
70°	1,700 (3,750)
65°	1,300 (2,870)
60°	950 (2,090)
55°	600 (1,320)
50°	250 (550)

HOIST REEVING—14 mm (9/16") Dia. Wire Rope Min. Breaking Strength—15,600 kg (34,400 Lbs.)

Parts of Line	1	2	3	4	5	6	7
Max. Load kg (lbs.)	2,860 (6,310)	5,710 (12,590)	8,570 (18,890)	11,430 (25,200)	14,290 (31,500)	17,140 (37,790)	20,000 (44,090)

Note:

- Operating radius is horizontal distance from centerline of rotation to a vertical line through the gravity center of the load. The gross crane ratings shown do not exceed 78 percent of tipping loads.
- The ratings of main boom include weight of main hook—abt. 200 kg (440 lbs.)—and other hoist attachments.
- The ratings of jib boom include weight of jib hook—abt. 50 kg (110 lbs.)—and other hoist attachments.
- The ratings of jib boom are decided by boom angle.
- Deduct 300 kg (660 lbs.) from main boom ratings when main boom is equipped with jib, deduct 650 kg (1,430 lbs.) from main boom ratings when jib boom is extended.
- Areas on plate where no ratings are shown, operation is not intended or approved.
- Ratings are contingent upon freely suspended loads and machine standing on a firm, level, uniformly supporting surface.

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

P&H T220

NOTE: In furtherance of our policy of continual product improvement, all designs and specifications are subject to change without advance notice. Data 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.

Licensed by HARNISCHFEGER INTERNATIONAL CORPORATION
Milwaukee, Wisconsin, U.S.A.



KOBE STEEL, LTD.

CONSTRUCTION MACHINERY DIVISION

Tokyo Head Office:

Tekko Bldg.,
No. 8-2, 1-chome, Marunouchi, Chiyoda-ku, Tokyo, Japan
Phone: Tokyo (03) 218-7111
Cable : "KOBESTEEL TOKYO"
Telex : No. 222-3601 (KOBESTEEL TOK)

Construction Machinery Plant:

123, Fukuda, Okubo-cho, Akashi-city, Japan
Phone: Akashi (078) 936-1331
Cable : "KOBESTEEL AKA"
Telex : No. 5628944 (KOBESTL J)

Address Inquiries to: