

CK1600-II

HYDRAULIC CRAWLER CRANE

Max. Lift Capacity: 160 US Tons
Max. Boom Length: 250 ft
Max. Boom + Jib Length: 200 ft + 100 ft

Max. Lift Capacity with Luffing Jib: 79,000 lbs
Max. Boom Length: 157 ft
Max. Luffing Jib Length: 175 ft



KOBELCO

KOBELCO CRANES NORTH AMERICA, INC.

Reliability is the History of Quality

Features

Cab & Controls

Cab Comfort

Kobelco knows that operator comfort is directly related to performance and has developed the ideal balance between comfort and ergonomics in the CK1600-II's cab design.

Settle into the fully adjustable operator's seat and you'll discover just how comfortable crane operation can be. Viscous silicon-filled cab mounts help eliminate shocks and vibrations that can fatigue an operator and degrade his productivity over a long shift. An air conditioner with fresh air vents will supply plenty of cool air to maintain the operator's desired temperature level.

Totally enclosed from weather, this full-vision cab has safety glass all around. The adjustable, high backed seat with arm rest is standard, allowing operators to customize the position. Whether you're lifting a load, digging with the clamshell or driving piles, there is plenty of leg room and nothing to obstruct the lower field of view. The length and angle of the control levers can be adjusted to the best working position for each operator.

Precise Operation with Responsive Control

Full-hydraulic technology delivers quick, efficient response, with excellent precision. Pilot pressure-assisted controls allow you to control the speed and power of each function in proportion to lever movement. In addition, the hydraulic system is designed so that each function operates independently, ensuring smooth and consistent performance when different functions are used simultaneously. Further precision is available using "inching mode", slowing the machine functions up to 70%.

LCD Display

The easy-to-read LCD multi-display provides current status information on such functions as engine rpm, maintenance and on-board trouble-shooting, providing the operator with an ongoing real-time assessment of the machine's conditions at a glance.

Electric Throttle Control

Sensitive engine control is also assured by an electric throttle control with a twist grip that rotates just 120 degrees to maintain comfortable wrist movement. Or the operator can choose to use the floor mounted accelerator pedal.

Hydraulic Pilot Control System

Smooth, precise operation is ensured by a sophisticated pilot control system that opens and closes the valve spools in direct proportion to control lever movement. The boom hoist and travel circuits have brakes that are spring-set and hydraulically released. When the control levers are in neutral, the spring-applied disc brake stops movement. When the control levers are engaged, pilot pressure releases the brakes.

Free-Fall and Power Lowering

A choice of either power lowering or free-fall mode (optional) can be selected for the winch drum according to requirements. In the power lowering mode, the drum clutch is constantly engaged and the load is powered down at a variable speed. In free-fall mode, the clutch is released automatically when the control lever is placed in neutral and lowering is controlled by the foot-operated brake.



Features

Cab & Controls / Engine

Key-Controlled Release Switches

By using the key-controlled release switches, the safety enhancing mechanisms can be engaged or cancelled for specific operational needs.

Free-Fall Control Switches

The Free-Fall Control Switches, strategically located on the hoist levers, allow the operator to engage free-fall whenever desired without removing his hands from the control levers. The Free-Fall Lock Switch, located on the Key-Controlled Switch panel, must be turned to the “on” position prior to free-fall operation. The red indicator lights will illuminate when it is activated.

Dial-Type Drum Speed Control

Speeds for the main winch, auxiliary winch and boom hoist can be set independently with dial controls. By turning the dials to the right the speed of the drums are increased. Turn the dials to the left to decrease the speed of the drums. This feature allows operators to match line speeds for certain jobs, regardless of parts of line.

Wet-Type Multi-Disc Brake System

The CK1600-II's wet-type multi-disc brake system reduces operator fatigue over extended periods of repeated braking while operating in the free-fall mode.

Load Moment Indicator System

The load moment indicator system on the CK1600-II was designed by Kobelco engineering, specifically for Kobelco cranes. This unique system utilizes a large LCD color screen to display accurate load information in the form of numerical data and colorful, user friendly graphics to facilitate at a glance understanding of the current load status. Kobelco's LMI system has a reputation of being one of the most advanced, user friendly, and reliable systems available in today's market.

Additional Features From Kobelco Engineering Include:

- Function lock-out lever - In the “up” position disengages all hydraulic functions while the operator enters & leaves the cab, except travel.
- Inching control - Slows the machine's hydraulic functions to 1/3 of normal speed except for swing, for precision applications.
- Electric throttle - Located on the swing control lever for light, precise engine control.

Power Plant

Diesel Engine Model/Make	Hino P11C-UN (Tier 3 Compliant)
No. of Cylinders	6
Bore and Stroke	4-13/16" x 5-7/8" (122 mm x 150 mm)
Displacement	642 cu. in. (10,520 cm ³)
Rated Power (SAE Gross)	331 HP / 2,000 rpm (247 kW / 2,000 min ⁻¹)
Max. Torque	959 lbs-ft / 1,500 rpm (1,300 Nm / 1,500 min ⁻¹)
Fuel Tank Capacity	106 US gal (400 liters)



Features

Upper Machinery

Upper Frame

The Upper frame is fabricated from all-welded alloy steel and is CAD designed for durable strength.

Incredibly Strong Winches

The CK1600-II's powerful winches boast a rated single maximum line pull of 50,250 lbs. The result is dynamic lifting capacities and continuous trouble-free operations.

Large Capacity Drums

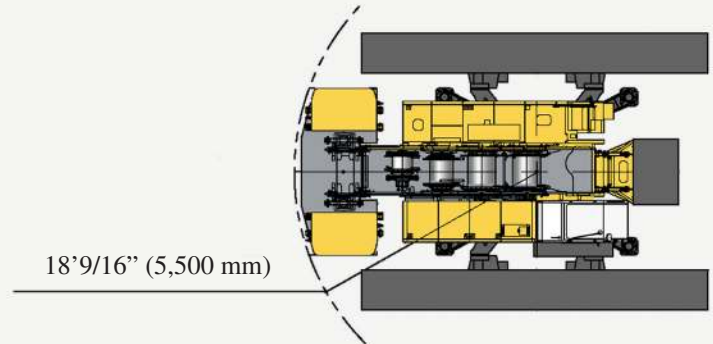
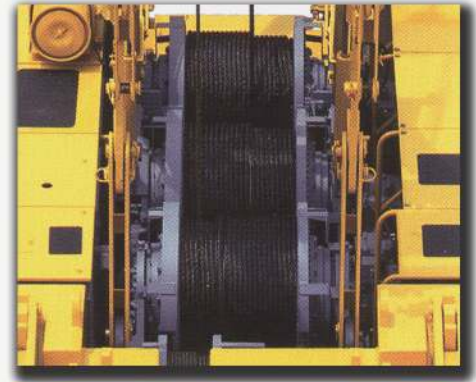
Kobelco's innovative internal disc brake system and installation of the reduction unit inside the drum allows for the use of wider drums, reducing the chance of uneven winding, while extending the service life of the wire rope. An optional, frame mounted, third drum is full sized, allowing for more attachment options.

Additional Features:

- Single line speed for the first layer of rope is the fastest in this weight class, 390 ft/in (120 m/min).
- Swing flashers with audible swing alarm.
- Rear working lights.

Further Improved Stability

Large crawlers have been added to further improve the stability, while keeping the tail swing radius to just 18 feet. The result is a machine with great lifting capacity that can operate in a minimum of onsite space.

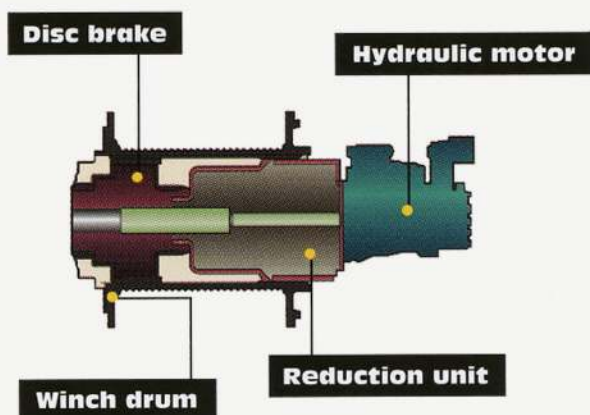


Innovative Wet-Type Disc Brake System

Kobelco's oil cooled wet-type multi-disc brake system is first in its class and provides quiet, dependable braking power. Multiple discs are self adjusting and self equalizing, minimizing maintenance requirements. Forced oil circulation keeps brake temperatures cooler during long, continuous operations and maximizes smooth brake operation. The completely enclosed system eliminates the possibility of outside contamination, providing years of problem free service life. The low brake pedal effort reduces operator fatigue when the machine is working in the free-fall mode.

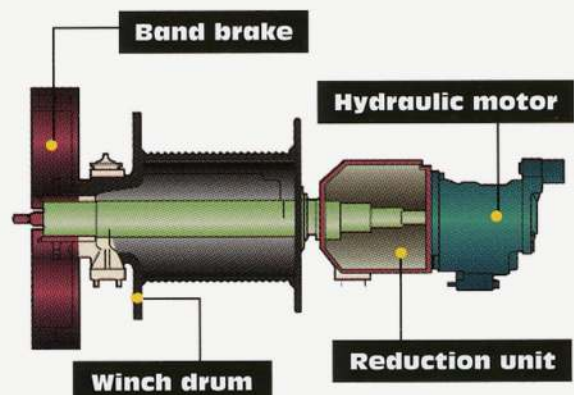
CK1600-II Std.

Wet-type multi-disc brake installed in the winch drum:



Other Cranes

Conventional, externally-fitted band brake:



Features

Upper / Lower Machinery

Carbody

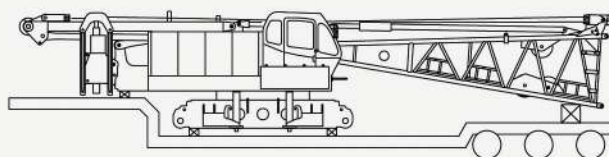
The CK1600-II features a high-tensile strength steel welded carbody with axle. The crawler assemblies are designed with quick disconnect features for individual removal from the axles. The crawler belt tension adjusts with a hydraulic jack and maintained by shims between the idler block and the frame. Each drive consists of a hydraulic motor driving a propel sprocket through a planetary gear box. The hydraulic motor and gearbox are built into the crawler side frame within the shoe width of 48" (1,220 mm), with 60 shoes. The track rollers are sealed for maintenance-free operation.

On-Site Maneuverability

Independently driven hydraulic travel motors with planetary reducers provide three steering modes for optimal on-site maneuverability. In addition to conventional skid steering, the independent crawler drives enables counter-rotation of the tracks as well as differential track speed steering. Travel speed in high range is 0.81 mph (1.3 km/h) and in low range 0.56 mph (0.9 km/h). Travel motors fit within the track shoe width, protecting them from damage.

Transportation

- Transportation width of 11'3" (minimum 10'6" (3.2 m) without catwalks).
- 86,420 lbs transport weight with boom base, self-assembly sheave, counterweight self-removal cylinder, translifter and front, rear, boom hoist wire rope.



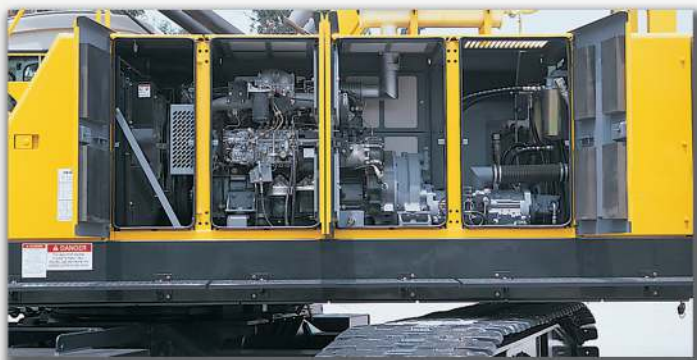
Self-Erecting and Transportation

Kobelco has designed the CK1600-II to be assembled and disassembled without the need of an assist crane by employing a counterweight self-handling system. Using the built-in, remote controlled translifters to lift the crane. Hydraulic cylinders are used to raise the gantry into the working position. The boom base is reeved with a hook block and is used to lift and attach the front and rear carbody counterweights, and used to construct the rear counterweight assembly. The rear counterweights are raised into position by using the counterweight self-removal cylinder. The complete crane can be transported on seven trucks, one main load and six fall off loads.

Tough, Maintenance-Free Durability

Careful attention has been paid to every detail of design so the CK1600-II stays on the job, not in the shop. Routine checks can be conducted easily with the help of service compartment doors and removable panels that provide full access to the engine and hydraulic components. From the wet-type disc brake system to the easy-access engine layout, the CK1600-II is one of the easiest machines in its class to maintain:

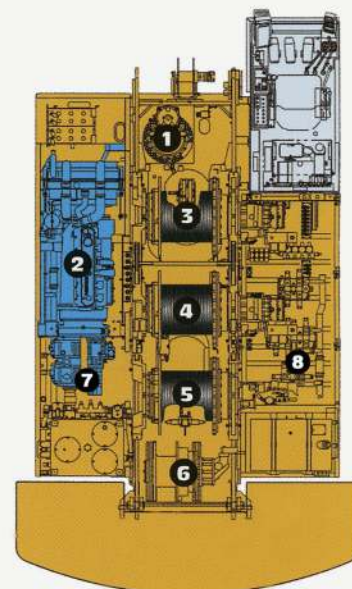
- Forged rollers and cast-iron idler sprockets are lubricated and sealed for long, trouble free service.
- Gantry raising/lowering cylinders.
- Machinery layout simplifies engine checks and routine maintenance.



Simplified Maintenance

The wet-type multi-disc brake system is trouble free and requires no adjustment, so maintenance is simple. Also, the engine layout on the side of the machine provides easy access for routine inspection and servicing.

- ❶ Swing Unit
- ❷ Power Plant
- ❸ Front Winch
- ❹ Rear Winch
- ❺ Third Winch
- ❻ Boom Winch
- ❼ Hydraulic Pumps
- ❽ Control Valves



Features

Hydraulics

Kobelco has designed an innovative full hydraulic system for the CK1600-II. It performs all crane operations including load hoist, boom hoist, swing, propel & crawler extension/retraction, as well as counterweight installation & removal.

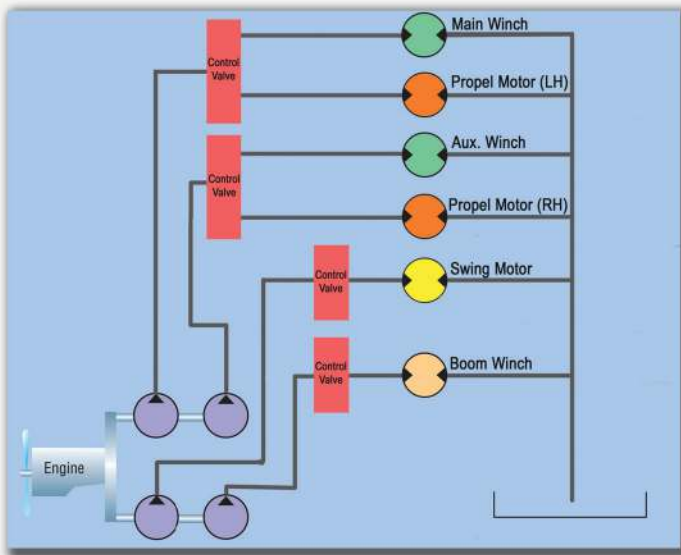
Precision and Control

- Full hydraulic technology delivers quick and efficient operation with excellent precision.
- Pilot pressure-assisted control allows exact manipulation of speed and power for each function in proportion to lever movement.
- Independent swing motor with planetary reducer ensures smooth swing at a maximum speed of 2.1 rpm.
- Swing disc brake is spring set and hydraulically released.



Hydraulic System

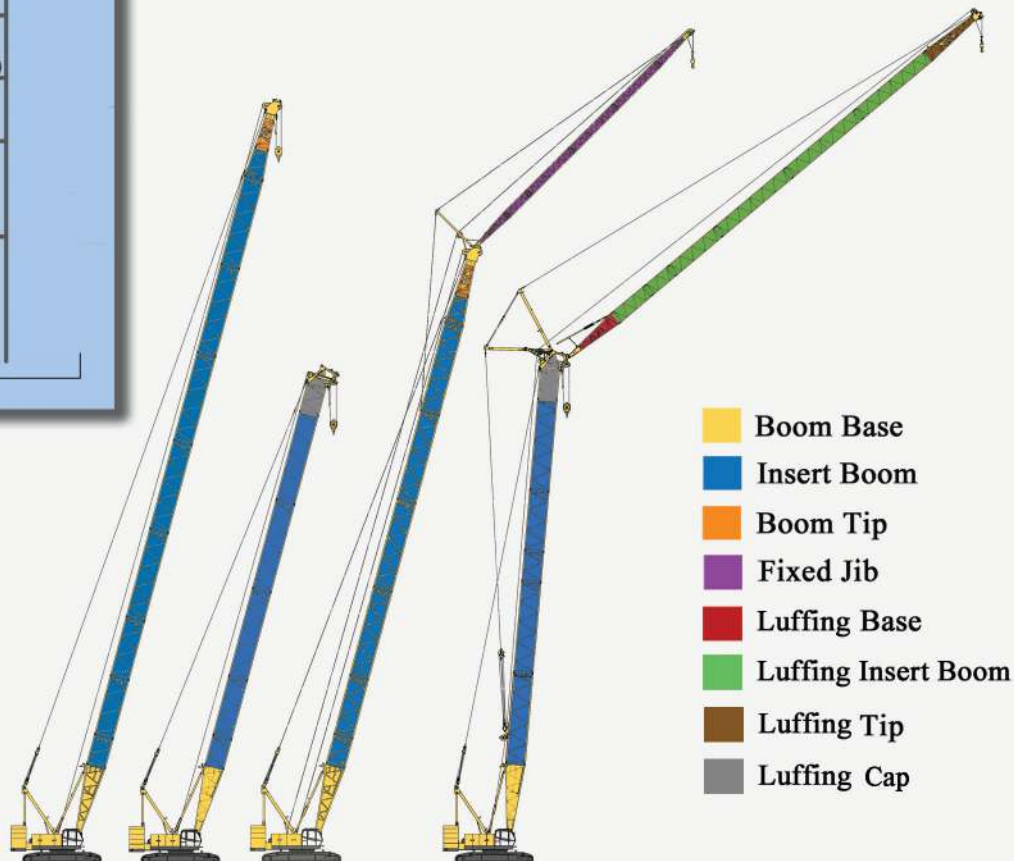
In a conventional series hydraulic circuit (a conflux hydraulic circuit), the boom winch is driven by the same hydraulic pump that drives the main or auxiliary winches. This can result in hydraulic pressure interference that reduces line speed when the hook and boom are hoisted or lowered simultaneously. The CK1600-II features independent hydraulic circuits for the main, auxiliary, and boom hoist winches, thereby eliminating interference. The circuits can be operated simultaneously with lower shocks and virtually no speed reductions, regardless of winch speed or load condition.



Innovative Boom Design

Also designed by Kobelco engineers is an innovative boom design to enhance lifting performance.

This Kobelco manufactured boom is fabricated by "state-of-the-art" laser aligned-robot welders assuring uniformity, reliability, and safety.



Features

General Specifications

PERFORMANCE			
Max. lifting capacity	320,000 lbs (145,200 kg) at 15 ft (4.6 m) radius		
Basic boom length (ft)	50 ft (15.2 m)		
Max. boom length (ft)	250 ft (76.2 m)		
Insert boom length	10 ft (3.1 m), 20 ft (6.1 m) & 40 ft (12.2 m)		
Jib:			
Max. jib lifting capacity	59,000 lbs (26,760 kg) @ 34 ft (10.4 m) radius		
Max. jib length	100 ft (30.5 m)		
Basic jib length	40 ft (12.2 m)		
Insert jib length	10 ft (3.1 m) & 20 ft (6.1 m)		
Max. boom + jib length	200 ft + 100 ft (61.0 m + 30.5 m)		
Luffing Jib:			
Max. lifting capacity with luffing jib	79,000 lbs (35,830 kg) @ 40 ft (12.2 m) radius		
Max. luffing jib length	175 ft (53.3 m)		
Max. boom length	157 ft (47.91 m)		
LOAD HOIST SYSTEM			
Drums: Front rear, and optional 3rd	Winches are powered by a hydraulic motor driving through a planetary reduction unit. The 26.2" (666 mm) P.C.D. x 26.5" (672 mm) wide drums are each grooved for 1" (26 mm) wire rope.		
Brake	Spring set, hydraulically released multi-disc holding brakes are mounted inside the motor and a counter-balance valve is mounted on top of the motor. Spring set, hydraulically released multi-disc brakes for controlling the load are mounted inside the winch assembly. There is an external ratchet for locking the drum.		
Wire rope length (front drum)	902 ft (275 m)		
Wire rope length (rear drum)	836 ft (255 m)		
Storage capacity (front/rear drum)	1,383 ft (422 m)		
Line speed (single line on the first layer)			
Hoisting and lowering	390 ft/min (120 m/min)		
Rated line pull (front and rear) (lbs)	29,500 lbs (13,380 kg)		
*Maximum line pull at first layer (front and rear) (lbs)	50,250 lbs (22,800 kg)		
BOOM & LUFFING HOIST SYSTEM			
Drum	Powered by a hydraulic motor driving through a planetary reduction unit, the boom drum is grooved for 25/32" (20 mm) wire rope and luffing jib is grooved for 1" (26 mm) wire rope.		
Brake	Spring set, hydraulically released, multi-disc holding brakes are mounted inside the motor. There is an external ratchet for locking the drum.		
Line speed (single line on the first layer)			
Boom Hoisting and lowering	157 ft/min (48 m/min)		
Luffing Jib Hoisting and lowering	197 ft/min (60 m/min)		
SWING AND TRAVEL			
Swing speed (rpm)	2.1 RPM		
Max. Travel Speed			
High range	0.81 MPH (1.3 km/h)		
Low range	0.56 MPH (0.9 km/h)		
* Maximum line pull is determined by performance of the winches, not by the strength of the wire rope.			
WEIGHTS			
Crane / Fixed Jib:			
Light Style:	One (1) base counterweight and eight (8) side counterweights totaling 105,820 lbs (48,000 kg) without carbody counterweight.		
Standard Style:	One (1) base counterweight and ten (10) side counterweights totaling 116,840 lbs (53,000 kg) with two (2) carbody counterweights totaling 22,050 lbs (10,000 kg)		
Operating weight w/basic boom (lbs)			
Light Style:	Approximately 273,000 lbs (124,000 kg) (including 50 ft (15.2 m) basic boom and 85 ton hook block		
Standard Style:	Approximately 306,000 lbs (139,000 kg) (including 50 ft (15.2 m) basic boom and 85 ton hook block		
Ground pressure			
Light Style:	Average 10.5 psi (72.3 kPa) with 48" (1.22 m) shoes		
Standard Style:	Average 11.7 psi (80.6 kPa) with 48" (1.22 m) shoes		
Luffing Jib:			
Operating weight (lbs)	Approximately 299,000 lbs (135.5 tons) (including upper and lower machine counterweights, 107' boom + 75' jib, hook block)		
Ground pressure	Average 11.5 psi (7.92 kPa) with 107' boom + 75' jib		
		HYDRAULIC MOTORS	
		Front and rear load hoist	One each variable displacement piston-type motor (total two)
		Boom hoist	One fixed displacement piston-type motor
		Swing	One fixed displacement piston-type motor
		Propel	Two 2-speed variable displacement piston-type motors
		HYDRAULIC SYSTEM	
		Pumps	
		Hoist and propel	2 piston pumps
		Swing	1 piston pump
		Boom	1 piston pump
		Control system and auxiliary	2 gear pumps
		Brake cooling system	2 gear pumps
		Max. discharge pressures	
		Load hoist, boom hoist & propel circuit	4,622 psi (31.9 MPa)
		Control circuit	782 psi (5.4 MPa)
		Swing pressure	3,986 psi (27.5 MPa)
		Reservoir	141.24 US gal (535 liters)

STANDARD EQUIPMENT

Upper Machinery

- Anti-two block device
- Boom angle indicator
- Boom back-stops
- Boom hoist drum lock
- Boom over hoist prevention device
- Counterweight/Crawler self-removal device
- Dial-type drum speed control
- Drum rotation indicators-front and rear drums
- Folding-type gantry with hydraulic cylinders for easy transport
- Front and rear hoist drum locks
- Grooved front and rear drums
- Rear swing flashers and rear working lights
- Swing lock
- Tandem drums powered independently by two hydraulic axial piston motors through planetary reducers.
- Tool kit
- One (1) Base counterweight, and ten (10) side counterweights - 116,840 lbs
- 1" diameter wire rope - front and rear drums
- 50' tubular steel boom w/self assembly sheave (base & tip)
- Sound dampening panels for quiet operation
- 3rd drum prep
- Catwalks

Cab

- Air conditioning
- Electric twist-grip hand throttle and foot pedal
- Function lock-out lever
- Fire extinguisher
- Hydraulic controls
- Load Moment Indicator (LMI - Kobelco designed)
- Operator's and Parts Manuals (2 sets)
- Signal horn
- Swing lock
- Tachometer
- Totally enclosed full vision cab with safety glass
- Windshield wiper/washer

Engine

- Alternator (50 amp)
- Fuel tank (106 US gallons) with tank mounted fill pump.
- Heavy duty batteries (2-12 volt-136 AH)
- Hino P11C-UN, 6 cylinder, Tier 3 compliant
- 331 SAE GROSS HP @ 2,000 RPM
- Starting motor (24 Volt-6.0 kW)

Lower Machinery

- Independent hydraulic propel motors built into each side frame
- 2-piece, 22,050 lb carbody weights
- 48" crawler shoes
- Kobelco factory warranty - including engine

OPTIONAL EQUIPMENT

- 10' boom insert with guy cables and deflector roller
- 20' boom insert with guy cables and deflector roller
- 40' boom insert with guy cables and deflector roller
- 40' jib assembly, with guy cables and jib hoist line
- 20' jib insert with guy cables
- Auxiliary sheave
- 20' Luffing boom base
- 10' Luffing boom insert
- 40' Luffing boom insert
- 30' Luffing boom insert with idler sheave
- 5' Luffing jib tip with pin connected boom point sheave
- Front and rear winch free-fall (Wet-type disc brake)
- Third drum & third drum wire rope.
- Reeving winch
- Pillow plate for boom self-erection
- 19 ton overhaul ball hook
- 30 ton single sheave hook block
- 75 ton four sheave hook block
- 115 ton four sheave hook block
- Free Fall
- Custom color

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

Meets applicable requirements of OSHA -

- 1910.180

- Subpart N section 1926.550.

Meets applicable requirements of ANSI/ASME -

- B30.5-1968 safety code.

