

HITACHI SUMITOMO

SCX2000A-2

HYDRAULIC CRAWLER CRANE

Specifications

ASIAN ISSUE



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Superstructure

UPPER REVOLVING FRAME:

All-welded, precision machined, robust construction. A machined surface provided for mounting load hoist and boom hoist assemblies, and mounting itself on turntable bearing. And pins bail frame with a 10-sheave machinery and single center sheave of a 21.0 D/d ratio for 2×10-part boom hoist reeving.

TURNTABLE BEARING WITH INTERNAL SLEWING GEAR:

Heavy duty, single shear ball type; inner race of turntable bearing with integral, internal slewing (ring) gear bolted to lower frame, and outer race of turntable bearing bolted to upper revolving frame.

CONTROL SYSTEM:

System contains two sets of triplicate tandem valves which direct oil to various machine function and are actuated by control levers via remote controlled hydraulic servo for all motions. Working speeds can be precisely controlled by motorcycle type throttle and pilot-operated arm chair single axis control levers in cooperation with "EPC" controller that varies engine rpm and hyd. pump discharge simultaneously, or varies just hyd. pump discharge while keeping engine rpm via motorcycle type grip throttle. System also takes a specially-tailored unique hydraulic circuit to maximizes drum horsepower, and reduces horsepower loss with eliminating the possibility of engine stall.

Pump control system — By "EPC" controller that provides two modes of engine-pump control.

MODE I:

The "EPC" Controller is normally programmed to vary the engine speed and pump discharge simultaneously. Simply twisting the grip advances the engine to maximum speed and the hydraulic pumps to maximum flow at the same time. This mode is suitable to precision crane work.

MODE II:

By activating a switch, it is able to vary just the pump discharge by means of the grip throttle, while keeping engine speed fixed. Mode II is convenient for operations such as bucket work, where the engine is normally run at full throttle.

A specially-tailored pressure compensating valve — Utilized in hydraulic circuits to realize a good minute operation of two main, boom hoist and opt. luffing jib hoist drums.

HYDRAULIC SYSTEM:

System provided with three variable displacement axial piston pumps and one fixed displacement duplicate tandem gear pump for both independent and combined operations of all functions. Gear pump also used for system valves and cylinder controls.

Main/aux. crane hoist motors — Variable displacement axial piston motor with counterbalance valve and spring-applied/hydraulically released multiple wet-disc type automatic brake as std.

Boom hoist motor — Variable displacement axial piston type with counterbalance valve and spring-applied/hydraulically released multiple wet-disc type automatic brake.

Tower jib hoist drum motor — Option extra; Variable displacement axial piston motor with counterbalance valve and spring-applied/hydraulically released multiple wet-disc type automatic brake; available for tower jib hoisting / lowering.

Slewing motor — Two; axial piston type with spring-applied/hydraulically released multiple wet-disc type brake; electrically controlled from instrument panel of operator's cab.

Travel motors — Shoe-in design; axial piston motor with brake valve and spring-applied/hydraulically released multiple wet-disc type automatic brake.

Oil cooler — Aluminum-make; located at a part of superstructure as separated from engine radiator together with an independent autocooling fan for better cooling efficiency and heat balance.

Hydraulic oil reservoir — 450 liters capacity.

Kind of hyd. oil — Standardized with ISO VG46 having viscosity ranging from 41.4 thru 50.6mm²/sec at 40°C.

LOAD HOIST ASSEMBLY (w/out free-fall function):

Std.; front and rear main operating drums driven by independent hydraulic motor of bi-directional, variable displacement axial piston motor through a 2-stage planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering load. Both of drums size in same dimension.

Brakes — Spring-applied, power hydraulically released multiple wet-disc type automatic brake; provided within hyd. motor.

Drums — One piece, parallel grooved lagging with locking ratchet wheel cast integral; provided with a drum internal ring gear to mesh with planetary gears of two rows of reduction gear unit which is involute-splined to hyd. motor shaft which is mounted on anti-friction bearing. Available to wind up 58m long cable of 28mm dia. at drum 1st layer.

Drum locks — Electrically controlled pawl.

Drum rollers — Optional extra; available for right cable winding onto drums.

Drum rotation speed controller — Max. rotation speed can be tuned according to arbitrary value that is electrically controlled by dialing, and then varies pump discharge. Available on two main operating drums independently.

Motor swash plate angle setting switch — Available to set motor swash plates of front/rear drum winch motors at a certain angle for easily synchronizing front and rear drum rotation speeds.

LOAD HOIST ASSEMBLY (w/free-fall function):

Optional extra; front and rear main operating drums driven by independent hydraulic motor of bi-directional, variable displacement axial piston motor through a 2-stage planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering load. Reduction gear unit installed within drum inside together with multiple wet-disc brake unit. Both of drums size in same dimension.

Brakes — Multiple wet-disc unit with negative brake design that takes the function of "spring-applied, power hydraulically released", and maintains a high brake safety even if a hydraulic pressure drop in the circuit happens; installed within drum inside together with reduction gear unit. Eliminate clutch, and require no brake maintenance on this brake design.

Brake control — Applies dynamic hydraulic pressure for brake release operation with an extreme light pedaling force.

Brake mode — Available in two modes; one is automatic as suitable for liftcrane operation, and the other is free-fall mode as suitable for bucket operation. Free-fall interlocking is also designed for fail-safe operation.

A forced-oil cooling system — Available in both front and rear drum brake units to keep brake performance even in continuous heavy-duty operations.

Drum rotation speed controller — Max. rotation speed can be tuned according to arbitrary value that is electrically controlled by dialing, and then varies pump discharge. Available on two main operating drums independently.

Motor swash plate angle setting switch — Available to set motor swash plates of front/rear drum winch motors at a certain angle for easily synchronizing front and rear drum rotation speeds.

Drums — One piece, parallel grooved lagging with locking ratchet wheel cast integral; provided with a drum internal ring gear to mesh with planetary gears of first reduction gear unit which is involute-splined to hyd. motor shaft, and final reduction planetary gears meshes with its external ring gears which couples with multiple wet-disc brake unit shaft thru involute-spline. Available to wind up 58m long cable of 28mm dia. at drum 1st layer.

Drum locks — Electrically operated pawl.

Drum rollers — Optional extra; available for right cable winding onto drums.

BOOM HOIST ASSEMBLY:

Twin-drum design; driven by single bi-directional, axial piston hydraulic motor through a 3-stage planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering boom.

Brake — Spring-applied, power hydraulically released multiple wet-disc type automatic brake.

Drum — One piece, twin-design, parallel grooved lagging with locking ratchet wheel cast integral; bolted to planetary reduction gear unit outer case.

Drum lock — Power hydraulically operated automatic pawl.

Drum rotation speed controller — Max. rotation speed can be tuned according to arbitrary value that is electrically controlled by dialing, and then varies pump discharge.

TOWER JIB HOIST DRUM WINCH MECHANISM:

Optional extra; driven by independent hydraulic motor of bi-directional, variable displacement axial piston motor through a 2-stage planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering tower jib.

Brake — Spring-applied, power hydraulically released multiple wet-disc type automatic brake; provided within hyd. motor.

Drum — One piece, parallel grooved lagging with locking ratchet wheel cast integral; provided with a drum internal ring gear to mesh with planetary gear of two rows of reduction gear shaft which is mounted on anti-friction bearing.

Drum lock — Electrically controlled pawl.

Drum rotation speed controller — Max. rotation speed can be tuned according to arbitrary value that is electrically controlled by dialing, and then varies pump discharge.

SLEWING:

Driven by two units of bi-directional, axial piston hydraulic motors through 2 sets of planetary reduction gear unit powering slewing pinion. Slewing pinion meshes with

internal teeth of slewing (ring) gear of turntable bearing inner race.

Brakes — Spring-applied, power hydraulically released multiple wet-disc type; provided on each of hydraulic motor.

Slewing speed controller — Max. slewing speed can be tuned according to arbitrary value that is electrically controlled by dialing, and then varies pump discharge.

Lock — Mechanically operated drop pin.

Speed — 1.7min.⁻¹ <1.7rpm>

OPERATOR'S CAB:

A 2.3mm thickness steel plate construction with 940mm wide and a stamped-and-rounded corner designs; acoustically treated, full-vision, cushion rubber mounted, well-ventilated, full compartment, roomy operator's cab with a large straightened front window with green-tinted safety glass; provided with an arrangement of "EPC" control/slewing lever, armchair control station, sunvisor, sunshade, rear-view mirrors, dual intermittent type window shield wipers with washer on both front and roof windows, sliding windows on both sides of cab, and slewing-link type sliding door.

Instrument panel — Contains engine monitoring lamps, graphic display panel of Load Moment Indicator, gauges & meter, warning lamps and other necessary controllers and switches.

Operator's seat — Full adjustable reclining seat with head rest and both R/H and L/H side arm rests.

Air-conditioner — Provided as std.; built-in type full air-conditioner.

Microphone & loud-speaker — Optional extra; this is for operator's convenience for loud speaking.

Engine foot throttle — Optional extra; available for right-hand foot with electrical control.

Electric outlet — 24V; available in cab.

Operator's cab sidestep cab / frontstep — Available for access ease to operator's cab.

AM/FM radio — Provided as std. with clock.

Fire extinguisher — Optional extra; powder type with 1kg capacity.

Drum brake pedals — Optional extra; correspondingly designed in the case that an optional free-fall function is required on two main operating drums.

MACHINERY CAB:

Equipped with hinged doors on both sides for machinery access and inspection; affixed tape-type non-skid material on the roof.

CATWALKS:

Optional extra; hitched in place along both sides of machinery cab.

HYDRAULIC TAGLINE WINDER:

Optional extra; provided in front of upper revolving frame, and this is available for preventing a shake of suspended load like clamshell bucket by an 10mm dia. tug cable with light force.

COUNTERWEIGHTS:

Weights 80.6ton consisting of a 17.8ton base weight and a 12-piece cast iron block of 3 pcs. each of "R1"(5.5t), "L1"(5.8t), "R2"(4.6t) and "L2"(5.0t), totally weighing 62.7t.

Note: When 15.25m basic boom only, one piece each of "R2" and "L2" should be deducted.

Counterweight self-removal device — Provided as std.; raises and lowers a 80.6ton full counterweight by a lifting mechanism with two

power hyd. cylinders attached on the base weight.

ELECTRICAL SYSTEM:

24-volt negative ground system; provided with two maintenance free 12-volt batteries.

LIGHTING SYSTEM:

Includes following lights.
 • Two 70 W working lights;
 • One 10 W interior cab light.

REAR VIEW MIRRORS:

Two; each provided on front-left and -right corners of superstructure.

POWER UNIT:

Make & Model	Mitsubishi 6M70-TL
Type	Water-cooled, 4-cycle, direct injection, turbo-charged, diesel w/automatic cooling fan
No. of Cylinders	Six (6)
Bore & Stroke	130 mm × 150 mm
Displacement	12,880 cc
Rated Output	272 kW/2,000 min ⁻¹ <370 ps/2,000 rpm>
Maximum Torque	1,510 N·m/1,600 min ⁻¹ <154 kgf-m/1,600 rpm>
Fuel Tank	500 liters

Notes:

1. The engine meets Stage/Tier 3 of current smoke emission regulations in Europe, America and Japan.
2. A 272kW engine horsepower shown above is defined under a current international engine horsepower indication formula which includes necessary horsepower for engine alternator drive but excludes engine fan drive.

Undercarriage

LOWER FRAME:

All-welded, precision machined, box type construction; provided with four heavy duty tip blocks w/pins and lugs to hook and then assemble crawler side frames on. To mount turntable bearing, a machined surface is provided too.

LOWER FRAME JACK-UP DEVICE:

Contains four hydraulic jack cylinders attached on lower frame jack cylinder beams which is pinned to lower frame for disassembling/assembling ease of crawler side frames.

Remote control box — Provided for control of lower frame jack cylinders and hyd. removal joint-pins.

Pontoon — All-welded construction; four pontoons each attached on side of jack cylinder beams or lower frame.

CRAWLER SIDE FRAMES:

All-welded, box type construction, precision machined; each provided with two steel plate