

ZW-5 series

HITACHI

Reliable solutions

ZW310



WHEEL LOADER

Model Code: ZW310-SA
Engine power: 216 kW (290 HP)
Operating Weight: 22 410 - 22 860 kg
Bucket ISO Heaped: 3.4 - 4.5 m³

Amazing Performance with Enhanced Controllability

The new ZW310 wheel loader employs advanced technologies to achieve excellent productivity with enhanced controllability. Furthermore, the machine has a comfortable cab, easy maintenance features, and Hitachi's comprehensive service package, including ConSite, enabling operators to work efficiently in tough environments.

CONTENTS

Powerful and Efficient Operation

Page 4 - 5

Production and efficiency

Enhanced Controllability

Page 6 - 7

Controllability

Operator-Friendly Features
to Improve Operator Comfort

Page 8 - 9

Operator comfort

Simplified Maintenance and Durability
with Proven Support System

Page 10 - 11

Maintainability and durability

The New **ZW310** Wheel Loader



Note: The photos in the brochure may include optional equipment, such as pre-cleaner.







ZW Empower your Vision.

Powerful and Efficient Operation

Operators can choose between 2 modes according to job site requirements.

PICK UP Extra Power with Power Mode

Standard mode is preselected and sufficient for ordinary work. On the other hand, the power mode gives extra power when needed. It is particularly useful on sites where strong traction or acceleration is required.

Slope climbing	Handling	Acceleration
		
		
Power Mode		Standard Mode

NEW 2 Ways to Activate Power Mode



Power mode can be activated by 2 ways and operators can choose either switch depending on the site required.

A Quick Power Switch (QPS)

Use the QPS on the lever when extra power is needed temporarily, such as climbing a steep slope. When switching forward/reverse or when the travel load reduces, the power mode selected via the QPS automatically reverts to the standard mode. By using the QPS, the power mode is activated only when needed and this helps to reduce fuel consumption.

B Power Mode Switch

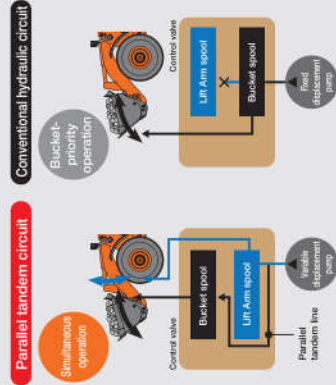
Use the power mode switch when extra power is needed constantly, such as moving heavy materials like rocks, and getting the job done quickly. When the power mode is activated via the power mode switch, the mode will remain on until the engine is turned off.

NEW Active Engine Control System for Economical Operation and Easy Control



The "Active Engine Control System" plays a key role achieving economical operation. Strategically positioned sensors detect movements throughout the machine and adjust engine speed accordingly to eliminate energy losses to maximize fuel conservation. This delivers smooth, fuel-efficient operation.

Parallel Tandem for Smooth Operation



The parallel tandem circuit carries out simultaneous operations of the bucket and the lift arm. Front work such as excavation and loading can be done smoothly and boosts the efficiency.

NEW ECO Mark Indicator for Fuel-Efficient Operation



Monitor indication items:
Speed meter, clock, hour meter, odometer, oilfilter hour meter

The ECO mark indicator turns on when fuel-efficient operation is activated. This function encourages operators to utilize fuel-efficient operation.

Enhanced Controllability

Hitachi analyzed various wheel loader operations including digging, approach to a dump truck, operation after dumping and travel. This led to the development of features to improve wheel loader controllability.

PICK UP New Transmission

The new transmission comes standard with the Auto mode* that can automatically select an optimum gear according to the load, thereby reducing fuel consumption.

* AUTO1 (1st-4th gear) and AUTO2 (2nd-4th gear) are selectable using travel mode selector.

AUTO1	Automatic gear shift: gears 1-4			
AUTO2	1st	2nd	3rd	4th
Manual	1st	2nd	3rd	4th



Travel mode selector

NEW

Levers for Easy Operation



Two levers



Fingertip control



Grip control

In order to offer more efficient and comfortable operation, a new type of lever is employed to suit both fingertip control and grip control.

* A variety of lever patterns are available depending on job needs and operator's preference.

NEW

Speed-Responding Clutch Cut-Off System



Clutch cut-off timing is adjusted by sensing travel speed and pedal depression for smooth, efficient truck loading. The Flat mode, Slope mode and OFF are selectable by switch control according to job requirements.



Clutch cut position switch

NEW

Shift Change Delay Mode (Optional)



Shift change delay mode is provided to avoid an excessive rise in travel speed during approaching to a dump truck/hopper. When moving forward, the second gear is kept for 4 seconds to prevent over-speed. When reversing, the second gear is kept for five seconds. These delays to third gear help to keep fuel consumption down ensuring smooth loading.

Lift Arm Restriction Valve

This restriction valve suppresses the shaking of the machine when the lift arm stops to improve operator comfort and avoid load spills.



Lift Arm Auto Leveler (Optional)

The lift arm can be automatically stopped at a preset level for efficient truck-loading, and lowering the bucket after dumping. The operator can concentrate on traveling without worrying about the lift arm.

Operator-Friendly Features to Improve Operator Comfort

The cab is both comfortable and functional with a series of features aimed at reducing operator fatigue.

PICK UP Bi-Level Auto Air Conditioner

This auto air conditioner has bi-level control function: warming at foot space and cooling at overhead. The pressurized cab shuts out dust, keeping the cab interior clean. In dusty environments, optional external double-filters are available for the air conditioner.



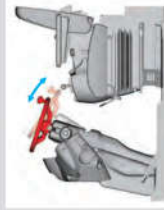
Panoramic Cab



The spacious panoramic cab offers near all-round visibility through pillar-less bonded windows, enhancing safety. The seat and steering wheel can be adjusted to suit the operator, keeping the operator in an optimum position. In-cab noise is suppressed further. Even when the going gets tough, the operator can feel comfortable with less fatigue.

Tilttable Steering Wheel

The steering wheel is tilttable to fit the wheel to the operator for comfortable operation.



Tilttable steering wheel

Comfort-Designed Suspension Seat

The mechanical suspension seat absorbs shocks and vibration from the machine in order to reduce operator's physical stresses.

* The air suspension seat is available as an option.



Suspension seat

AM/FM Radio with 2 Speakers

The AM/FM radio has an auto-tuning feature and the 2 speakers stereo system provides excellent sound quality.

* An AUX port (stereo mini jack) is an option for connection with a mobile music player for entertainment during breaks.



AM/FM radio with 2 speakers

NEW Rearview Monitor (Optional)

The rearview monitor allows the operator to see the rear of the machine, including a view behind the counterweight. This rearview monitor enhances safe operation.



Rearview camera Rearview monitor

An Array of Convenient Accessories



Large storage space



Drink holder



Storage for small items



Hot and cool box



Rear air outlet



Front defroster

Glove compartment, cigarette lighter and ashtray

Simplified Maintenance and Durability with Proven Support System

Hitachi Support Chain offers a comprehensive suite of support services for customers.

PICK UP

Simplified Maintenance

The engine cover swings up to provide a wide service space. Inspection/maintenance points are concentrated for easy inspection and servicing from the ground.



- A Coolant reservoir sight gauge
- B Air cleaner element
- C Fuel filter
- D Engine oil gauge

Robust Frame

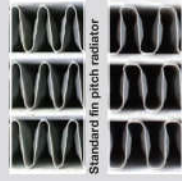
The main frame and its joints are thoroughly strengthened. The box-section structure is adopted around center pins, where concentrated forces are applied, for reinforcement. Frame plate thicknesses are optimally determined by 3D stress analysis.



Robust frame

Wide Fin Pitch Radiator (Optional)

Wide fin pitch radiator is available for use in dusty environments, where there are large amounts of airborne debris, to avoid dust clogging and overheating as a result. Cleaning the radiator by air blowing is easy and simple.



Standard fin pitch radiator

Wide fin pitch radiator

NEW Automatic Reversible Cooling Fan (Optional) to Reduce Dust Deposits



The automatic reversible cooling fan is available to keep the radiator clean at all times. The cooling fan is automatically self-reversed every 30 minutes to blow dust off the radiator.

Parts and Service

Parts

Hitachi Global Online Network, a parts supply system, is linked with CPD (Central Parts Depot), overseas depots and dealers abroad to deliver on-line parts information, including in-stock parts, order receptions, shipments and delivery period of over one million parts and components.

Genuine Hitachi Parts

Genuine Hitachi parts, meeting Hitachi stringent quality standards, are guaranteed according to Hitachi warranty standards. The use of genuine Hitachi parts, including engine, fuel, hydraulic oil and filters, may slash running costs, and extend machine life.

Service

Technical Training

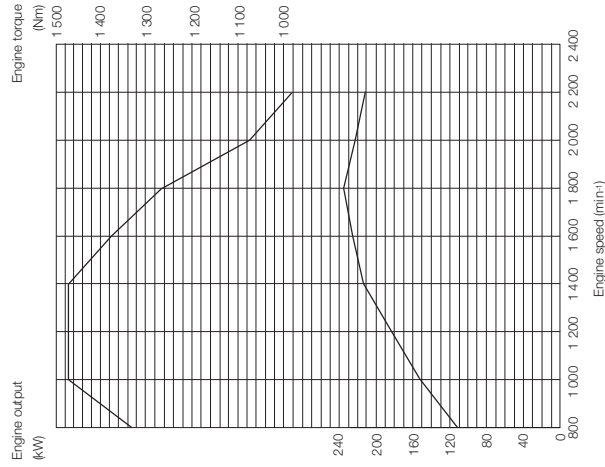
On-site servicing matters despite locations to keep the machine at peak performance and reduce downtime. Technical Training Center (TTC), located in Japan, educates and trains service technicians and service support personnel coming from Hitachi dealers and factories on the globe according to the international training programs.



Consolidated Solution for Construction Sites

SPECIFICATIONS

ENGINE	
Model	CUMMINS QSM11
Type	4-cycle, water-cooled, direct injection
Aspiration	Turbocharger and intercooled
No. of cylinders	6
Maximum power	239 kW (320 HP) at 1 800 rpm
SAE J1995/ISO 14396, gross.....	236 kW (316 HP) at 1 800 rpm
Rated power	216 kW (290 HP) at 2 100 rpm
SAE J1995, gross	1 478 Nm at 1 000 - 1 400 min ⁻¹ (rpm)
Maximum torque	1 25 mm X 147 mm
Bore and stroke	10.82 L
Piston displacement	DC 12 V X 2
Batteries	Double element dry type with restriction indicator
Air cleaner	



POWER TRAIN

Transmission	Torque converter, countershaft type powershift with computer-controlled automatic shift and manual shift features included.
Toque converter	Three element, single stage, single phase
Main clutch	Wet hydraulic, multi-disc type
Cooling method	Forced circulation type
Travel speed* Forward / Reverse	
1st	6.8 / 6.8 km/h
2nd	11.5 / 11.5 km/h
3rd	21.6 / 21.6 km/h
4th	34.7 / 34.7 km/h
* With 26.5-25-16PR (L3) tires.	
Data at power mode are the same as data at standard mode.	

AXLE AND FINAL DRIVE

Drive system	Four-wheel drive system
Front & rear axle	Semi-floating
Front	Fixed to the front frame
Rear	Trunnion support
Reduction and differential gear	Single stage reduction with torque proportioning differential (Std) / limited slip differential (optional)
Oscillation angle	Total 20° (+10°/-10°)
Final drives	Heavy-duty planetary, mounted inboard

TIRES

Tire size	26.5-25-16PR (L3)
Optional	Refer to standard & optional equipment list

BRAKES

Service brakes	Inboard mounted fully hydraulic 4 wheel wet disc brake. Front & rear independent brake circuit
Parking brakes	Spring applied, hydraulically released, located in transmission

STEERING SYSTEM

Type	Articulated frame steering
Steering angle	Each direction 37°; total 74°
Cylinders	Double-acting piston type
No. x Bore x Stroke	2 x 7.0 mm x 542 mm

HYDRAULIC SYSTEM

Lift arm and bucket are controlled by independent control lever.	
Lift arm controls	Four position valve: raise, hold, lower, float
Bucket controls with automatic bucket return-to-dig control	
.....	Three position valve-re: roll back, hold, dump
Main pump (Serve as steering pump)	
Maximum flow	Variable displacement axial piston pump
Maximum pressure	323 L/min at 2 000 min ⁻¹ (rpm)
Fan pump	29.4 MPa
Maximum flow	Fixed displacement gear pump
Maximum pressure	84.9 L/min at 2 000 min ⁻¹ (rpm)
.....	17.4 MPa

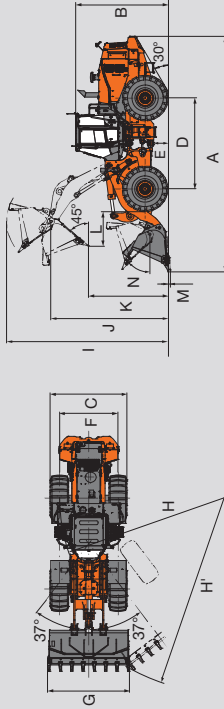
Hydraulic cylinders	
Type	Double acting type
No. x Bore x Stroke	Arm : 2 x 145 mm x 930 mm
.....	Bucket : 1 x 185 mm x 510 mm
Filters	Full-flow 15 micron return filter in reservoir
Hydraulic cycle times*	
Lift arm raise	6.2 s
Lift arm lower	3.2 s
Bucket dump	1.2 s
Total	10.6 s

*Data at power mode are the same as data at standard mode.

SERVICE REFILL CAPACITIES

Fuel tank	370 L
Engine coolant	40 L
Engine oil	34 L
Torque converter & transmission	52 L
Front axle differential & wheel hubs	48 L
Hydraulic oil tank	123 L

DIMENSIONS & SPECIFICATIONS



Bucket type		Standard arm				Rock bucket	High lift arm
		General purpose		Bolt-on teeth			
		Bolt-on cutting edge				Bolt-on cutting edge	
Bucket capacity	ISO heaped ISO struck	m³ m³	4.0 3.5	4.5 4.0	3.8 3.3	4.3 3.8	3.4 2.9
A Overall length	mm	mm	8 790	8 910	8 930	9 050	8 900
B Overall height	mm	mm					
C Width over ties	mm	mm			3 470		
D Wheel base	mm	mm			2 930	3 450	
E Ground clearance	mm	mm			505		
F Tread	mm	mm			2 230		
G Bucket width	mm	mm	3 100	3 100	3 120	3 120	3 100
H Turning radius (Centerline of outside tire)	mm	mm	7 330	7 360	7 385	7 415	7 520
I Loader clearance radius, bucket in carry position	mm	mm	6 100	6 215	6 100	6 215	6 555
J Overall operating height	mm	mm			4 410		4 866
K Height to bucket hinge pin, fully raised	mm	mm	3 035	3 010	2 975	2 890	3 000
L Dumping clearance 45 degree, full height	mm	mm	1 215	1 300	1 280	1 370	1 245
M Reach, 45 degree dump, full height	mm	mm	95	95	125	125	95
N Digging depth (Horizontal digging angle)	mm	mm					
O Max. roll back at carry position	deg	deg			50		48
P Static tipping load *	kg	kg	17 090	16 940	17 260	17 120	14 100
Breakout force	kN	kN	14 910	14 780	15 060	14 930	12 300
Operating weight†	kg	kg	184	169	198	181	202
	kg	kg	17 240	17 200	20 400	18 450	20 600
	kg	kg	22 540	22 670	22 410	22 540	22 620
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					
	kg	kg					

Note: All dimensions, weight and performance data based on ISO 6746-1:1997 ISO 7191:2009 and ISO 7546:1993

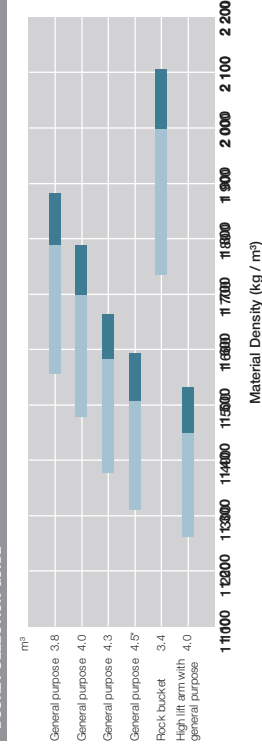
*: Static tipping load and operating weight marked with "indicates 26.5-25-16PR(L3) tires. No. slash with lubricants, full fuel tank, 2.00kg counterweight, ROPS cab and operator.

Machine stability and operating weight depend on counterweight, tire size and other attachments.

WEIGHT CHANGE

Option item	Operating weight (kg)	Tipping load (kg)		Overall width (mm) (outside tire)	Overall height (mm)	Overall length (mm)
		Straight	37 degree turn			
Tire						
26.5-25-16PR (L3)	±0	±0	±0	±0	±0	±0
26.5-25-20PR (L3)	+100	+70	+60	±0	±0	±0
26.5-25-20PR (L4)	+800	+420	+370	±0	±0	±0
26.5-25-20PR (L5)	+940	+690	+600	±0	±0	±0
26.5-25-20PR (L6)	+100	+70	+60	±0	±0	±0
26.5-25-20PR (L7)	+500	+320	+270	±15	+30	+25
26.5-25-20PR (L8)	+840	+620	+540	±15	+30	+25
Belly guard (front frame)	+100	+30	+30	-	-	-
Belly guard (rear frame)	+95	+100	+90	-	-	-
2.5-40 kg Counterweight	+460	+1 070	+930	-	-	-




BUCKET SELECTION GUIDE



EQUIPMENT

OPERATOR'S STATION	
Adjustable steering column	●
Astiray, cigar lighter	●
Autib	○
AMFM radio	●
AM/FM radio with AUX for digital audio player	○
Auto control air conditioner with single intake filter	●
with double intake filter	○
Cab	
ROPS (ISO347.1), FOPS (ISO3449)	●
Non ROPS / FOPS cab	○
Coat hook	●
Front/Rear defroster	●
Glove compartment	●
Rear view camera & monitor	○
Rear view mirrors	●
Inside (2)	●
Outside (2)	●
Retractable seat belt, 50 mm	●
Rubber floor mat	●
Seat	●
Mechanical suspension seat: fabric, high back, adjustable for armrest angle, fore-aft position, reclining angle and weight-height.	●
Air suspension seat with headrest and heater; fabric, high back, adjustable for armrest angle, damper, fore-aft position, headrest height and angle, inclination of the seat, lumbar support, reclining angle, seat depth and weight-height.	○
Storage	●
Cup holder	●
Digital audio player holder (with AUX for digital audio player)	○
Document holder	●
Hot & cool box	●
Seatback pocket	●
Sun visor	●
Textured steering wheel with spinner knob	●
Safety glass (tempered)	●
Windshield washer front and rear	●
Windshield wipers front and rear	●
ELECTRICAL SYSTEM	
Backup alarm	●
Batteries	
Standard batteries (108 Ah-765 CCA)	●
Large capacity batteries (140 Ah -930 CCA)	○
Battery disconnect switch	○
12 V power outlet	○

COOLING SYSTEM		● Standard equipment	○ Optional equipment
Fan			
Cooling fan with heat sensing	●		
Automatic reversible cooling fan with heat sensing	○		
Fan guard	●		
Radiator			
Standard fin pitch radiator	●		
Wide fin pitch radiator	○		
LIGHTS			
Brake & tail lights	●		
Clearance lights	●		
Headlights	●		
Turn signals with hazard switch	●		
Work lights			
Front lights on cab (2)	●		
Rear lights on rear grille side cover (2)	●		
Additional front lights on cab (2)	○		
Rear lights on cab (2)	○		
POWER TRAIN			
Automatic transmission with load sensing system	●		
Clutch cut position switch	●		
Differential			
TPD (Torque Proportioning Differential)	●		
LSD (Limited Slip Differential)	○		
DSS Down Shift Switch	●		
Forward/Reverse lever	●		
Power mode switch	●		
Quick power switch	●		
Travel mode selector (Auto1-Auto2)	●		
ENGINE			
Air intake			
Rain cap	●		
Pre-cleaner (Sy-Kone)	○		
Air filter double elements	●		
Cartridge-type engine oil filter	●		
Cartridge-type fuel filter	●		
Engine oil remote drain	●		
MONITORING SYSTEM			
Gauge: coolant temperature, fuel, transmission oil temperature	●		
Indicator lights: air filter restriction, clearance lights, control lever lock, discharge warning, emergency steering, engine warning, fan reverse, forward/reverse selector switch, high beam, hydraulic oil temperature, maintenance, parking brake power mode, preheat, seat belt, service, transmission oil temperature, transmission warning, turn signals, work lights	●		
LCD monitor display: clock, ECO, F-N-R/Shift position, hold, hour meter, odometer, replacement intervals, ride control, speedometer	●		
Warning lights: axle oil temperature, brake oil low pressure, engine oil low pressure, overheat, steering oil low pressure	●		

BRAKE SYSTEM	
Front & rear independent brake circuit	●
Inboard mounted full hydraulic 4 wheel wet disc	●
Pedal	
Double LH & RH brake pedal	●
Single brake pedal	○
Spring-set/hydraulic-released parking brake	●
HYDRAULIC SYSTEM	
Control lever for 2 spools control valve	●
2 levers	
	●
Multifunction lever (MF lever)	○
for 3 spools control valve	
MF lever & AUX lever for 3rd function	○
2 levers & AUX lever for 3rd function	
	○
	
- Outside layout pattern (Bucket - lf arm - 3rd)	
Control lever lock handle	○
Dual lift arm auto leveler	○
Hydraulic filters	●
Lift arm float system	●
Lift arm kick out	●
Reservoir sight gauge	●
Ride control system (OFF-AUTO type)	○

TIRES	
26.5-25-16PR (L3)	●
26.5-25-20PR (L3)	○
26.5-25-20PR (L5)	○
26.5R25 (L3)	○
26.5R25 (L5)	○
MISCELLANEOUS	
Articulation lock bar	●
Bucket auto leveler (Automatic return to dig control)	○
Bucket cylinder guard	○
Counterweight	
2 080 kg counterweight	●
2 540 kg counterweight	○
Drawbar with locking pin	●
Emergency steering	○
Fenders	
Front & half covered rear fenders	●
Front & full covered rear fenders with mud flaps	○
Front & half covered rear fenders with mud flaps	○
Global e-service	●
Lift arm	
Standard lift arm	●
High lift arm	○
Lift & tie down hooks	●
On board information controller	●
Anti-vandal protection	
Battery cover with locking bracket	●
Lockable engine cover	●
Lockable fuel refilling cap	●
Standard and optional equipment may vary by country, so please consult your Hitachi dealer for details.	



Built on the foundation of superb technological capabilities, Hitachi Construction Machinery is committed to providing leading-edge solutions and services to contribute as a reliable partner to the business of customers worldwide.

Hitachi Environmental Vision 2050

Our Environmental Vision envisions a low-carbon society; a resource efficient society; a harmonized society with nature. To achieve such a sustainable society, we have established a set of long-term environmental targets called Hitachi Environmental Innovation 2050.

Reducing Environmental Impact by New ZW

Hitachi makes a green way to cut carbon emissions for global warming prevention according to LCA*. New ZW utilizes many technological advances, including the new standard mode which optimizes fuel efficiency. Hitachi has long been committed to recycling of components, such as aluminum parts in radiators and oil coolers. Resin parts are marked for recycling.

*Life Cycle Assessment – ISO 14040

Before using a machine with a satellite communication system, please make sure that the satellite communication system complies with local regulations, safety standards and legal requirements. If not so, please make modifications accordingly.

These specifications are subject to change without notice.

Illustrations and photos show the standard models, and may or may not include optional equipment, accessories, and all standard equipment with some differences in color and features. Before use, read and understand the Operator's Manual for proper operation.