

ZAXIS-3 series

HITACHI

**ZAXIS**  
**650LC**  
**670LCH**



## HYDRAULIC EXCAVATOR

- **Model Code** : ZX650LC-3 / ZX670LCH-3
- **Engine Rated Power** : 345 kW (469 PS)
- **Operating Weight** : ZX650LC-3 : 65 900 kg  
ZX670LCH-3 : 67 300 kg
- **Backhoe Bucket** : SAE, PCSA Heaped :  
ZX650LC-3 / ZX670LCH-3 : 2.5 - 3.5 m<sup>3</sup>  
CECE Heaped :  
ZX650LC-3 / ZX670LCH-3 : 2.2 - 3.1 m<sup>3</sup>

## The New Generation Hydraulic Excavators

The Hitachi ZAXIS-3 series new-generation hydraulic excavators are packed with a host of technological features - clean engine, Hitachi advanced hydraulic technologies, with strong undercarriage and front attachment, plus well matching of power and speed.

The ZAXIS-3 series can get the job done with proven productivity, durability, and reliability, especially in heavy-duty excavation and quarry operations.

- Clean engine complies with the emission regulations US EPA Tier 3 and EU Stage IIIA.
- Low noise design complies with the EU noise regulation 2000/14/EC, stage II.



# World-Class Productivity

To yield high production yet maintain low fuel consumption, such was the objective of the development of a new engine and hydraulic system for the ZAXIS 650LC / 670LCH.

**Production: Approx. 8% Increase**

(vs. Conventional Model)



## Advanced Hydraulic Technologies

### Increased Digging Force

6% more bucket digging force.  
(At power boost mode)  
(vs. Conventional Model)

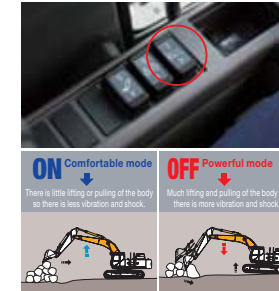
### Enhanced Boom Recirculation System

In combined operation of boom lower and arm, arm speed can be increased by approximately 15% over the conventional. Pressurized oil from boom cylinder bottom side is delivered to boom cylinder rod side to lower the boom, assisted by boom weight. Conventionally, pressurized oil from pump is delivered to boom cylinder rod side to lower the boom. The new system also allows an efficient combined operation of swing and lowering the boom.



### Boom Mode Selector

The amount the body can be lifted or pulled by the front of machine can be ON or OFF selected. This helps to provide for more comfortable operation and contributes to longer component service life.

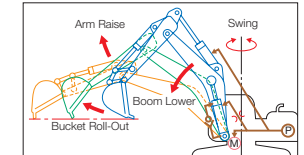


### Larger-Diameter Front Piping

Arm piping is increased in diameter to reduce hydraulic loss (theoretically 7%) for speedy front operation.

### Combined Operation of Boom and Arm

In combined operation of swing + boom lower + arm roll-out, or in leveling (boom lower + arm roll-out), arm roll-out speed can be increased greatly. Here's why. A variable throttle, provided in the arm circuit, adjusts the flow when needed to reduce hydraulic loss in combined operation with arm roll-out.



### New Bucket Regenerative System

Swift bucket actions can be done in combined operation for excavation through the new bucket regenerative circuit. When the load to the bucket is light, pressurized oil from bucket cylinder rod side is delivered through a regenerative valve to bucket cylinder bottom side for the effective use of hydraulic energy.

## New-Generation Clean Engine

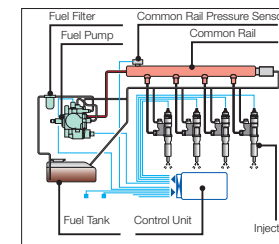
### High Power Yet Low Fuel Consumption

10% Increase in output  
(vs. Conventional Model)  
• 345 kW (469 PS) / 1 800 min<sup>-1</sup>

The new clean engine, complying with the emission regulations Tier 3 in US (EPA) and EU Stage III, can maintain low fuel costs by electronic control.

### Common Rail Type Fuel Injection System

Electronic control common rail type fuel injection system drives an integrated fuel pump at an ultrahigh pressure to distribute fuel to each injector per cylinder through a common rail. This enables optimum combustion to generate big horsepower, and reduce PM\* and fuel consumption.

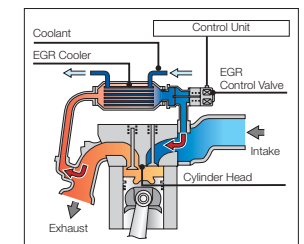


### Cooled EGR\*\* System

Exhaust gas is partially mixed with intake air to lower combustion temperature for reducing NOx and fuel consumption. What's more, the EGR cooler cools down exhaust gas to increase air concentration for complete combustion, reducing PM\*.

\*Particulate Matter

\*\*Exhaust Gas Recirculation



# High Durability Means Long-Lasting Product Value

Strengthened undercarriage for higher durability even in heavy-duty applications.



## Strengthened Undercarriage



### Increased Loading Capacity of Swing Circle

The swing circle ball bearing utilizes more balls to boost the loading capacity of the swing circle by approximately 7%, allowing stable swing even in tough operation.

### Enlarged Upper and Lower Rollers, Idlers and Sprockets

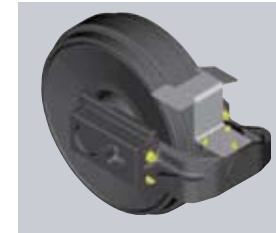
Upper and lower rollers are widened to increase contact areas, and idlers and sprockets are increased in diameter for more durability and mobility.

### Strengthened Track Links

Track links are enlarged for higher strength, durability and reliability to allow tough operations on rough terrain.

### Strengthened Idler Pedestal

The bearing length of the idler pedestal is extended by approximately 84% to increase durability and service life. (vs. Conventional Model)



### Strengthened Idler Bracket

The idler bracket is thickened for rigidity to prevent deformation and increase durability.

### Pressed Master Pins

The master pin of each track link is pressed, instead of master pin using a pin retention to avoid disengagement.



### Full Track Guard Provided Standard

On the H-specification machine, full track guards are provided standard. Full track guards protect track links and lower rollers from damage and deformation. Moreover, they also keep out stones, preventing the overload to the undercarriage to reduce wear and damage.

## Strengthened Front Components

### Enlarged Pins

Pins, used throughout the front attachment, are increased in diameter for strengthening.



### Strengthened Arm and Boom

The arm and boom are strengthened by thickening and using stronger material.

### Strengthened H-Bucket for Heavy-Duty

The heavy-duty bucket is reshaped, and bucket parts are strengthened to increase durability.



### Strengthened General-Purpose Bucket

Bucket teeth are reshaped as Super-V teeth for smooth penetration and higher production. Bushings are utilized at both ends of a bucket pin to eliminate clearances, preventing jerky operation.



# Enhanced Operator Comfort

The spacious cab is ergonomically designed with excellent visibility to reduce operator fatigue and burden.



## Excellent Visibility

The glass windows are widened for excellent visibility, especially improving right downward view during travel and excavation.



## Ample Foot Space

Foot space is expanded forward, and pedals are reshaped for pleasant operation.



## Large Multilanguage, Multi Function Monitor

A large multilanguage, multi function monitor is well positioned for easy reading.



## Rear View Camera

The large color LCD monitor, teamed up with the rear view camera (optional) on the counterweight, gives the operator unobstructed rearward view. This system enhances safety during swing and reversing.



## Short-Stroke Levers

Fingertip control of short-stroke levers, with the help of armrests, allows long, continuous operation with less fatigue.
 

- 30% reduction in lever control effort (vs. Conventional Model)

## Comfort-Designed Operator Seat

The operator seat is ergonomically designed for long-hour pleasant operation. The seatback is widened to hold the operator securely, and the headrest is reshaped. The operator seat is strengthened to reduce vibration and shocks, and increase durability.



## Fluid-Filled Elastic Mounts

The cab rests on fluid-filled elastic mounts that absorb shocks and vibration to enhance operator comfort.

## Pressurized Cab

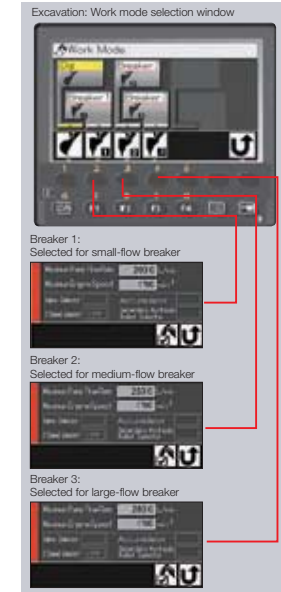
The pressurized cab shuts out debris and dirt.

## Miscellaneous Cab Accessories



## Attachment Support System

The work mode can be selected from the multi-function monitor inside the cab. Pump flow in the selected work mode can be monitored.



## Maintenance Support

The LCD monitor alerts the operator of the replacement timing of hydraulic oil and fuel filters according to user's setting, at each time when turning on the key switch. This scheduled maintenance can prevent machine failure.



## Fuel Consumption Monitoring

Fuel consumption per operating hour can be computed, and the result is displayed on the LCD monitor. This information suggests refueling timing, and assists in energy-saving operation and efficient job management.

## Theft Deterrent System

The electronic immobiliser requires the entry of an encryption code to the multi function monitor each time when starting the engine to prevent theft and vandalism.

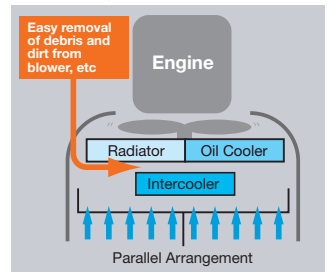
# Simplified Maintenance

Focusing on simplified maintenance, including easy inspection, service and cleaning.



## Simplified Cleaning around Engine

### Parallel Arrangement of Radiator and Oil Cooler



The radiator and oil cooler are laid out in parallel arrangement for easy demounting, instead of conventional in-line arrangement. This new arrangement significantly helps facilitate cleaning around the radiator and oil cooler.

### Air-Conditioner Fresh-Air Filters



Air-conditioner fresh-air filters are relocated to the cab door side from conventional location behind the operator seat. This facilitates cleaning and replacement of fresh-air filters, like air-conditioner circulation-air filters inside the cab.

### Openable Air-Conditioner Condenser

The air-conditioner condenser and fuel cooler are openable for easy cleaning of them and the radiator located behind.



### Enlarged Engine Hood Cover

The engine hood cover is enlarged to allow servicing from one side of the machine. This can significantly reduce servicing time and costs. The hood cover is reduced in weight and provided with a damper for easy opening and closing.

## Simplified Maintenance

### Dual Main Fuel Filters Provided Standard

In addition to a pre-filter, dual main fuel filters are provided standard to reduce clogging of the fuel line to the engine.



### Widened Sidewalk

The sidewalk is widened from 340 mm (Conventional Model) to 510 mm for smooth walking from cab to rear. The sidewalk is the field-proven split type that permits the detaching of its rear when traveling or operating on rough terrain.

### Automatic Lubrication / Repositioned Bucket Lubricating Points

The front attachment is automatically lubricated, except for bucket lubricating points at the top of arm that are repositioned for side lubrication.

### Enlarged Fuel Tank

The fuel tank is enlarged, increasing the capacity from 740 liters (Conventional Model) to 900 liters. Refueling intervals (when filled fully) extend from 16 to 17 hours.

### Extended Hydraulic Oil Filter Change Intervals

Hydraulic oil filter change intervals are extended from 500 hours (Conventional Model) to 1000 hours to help reduce running costs.

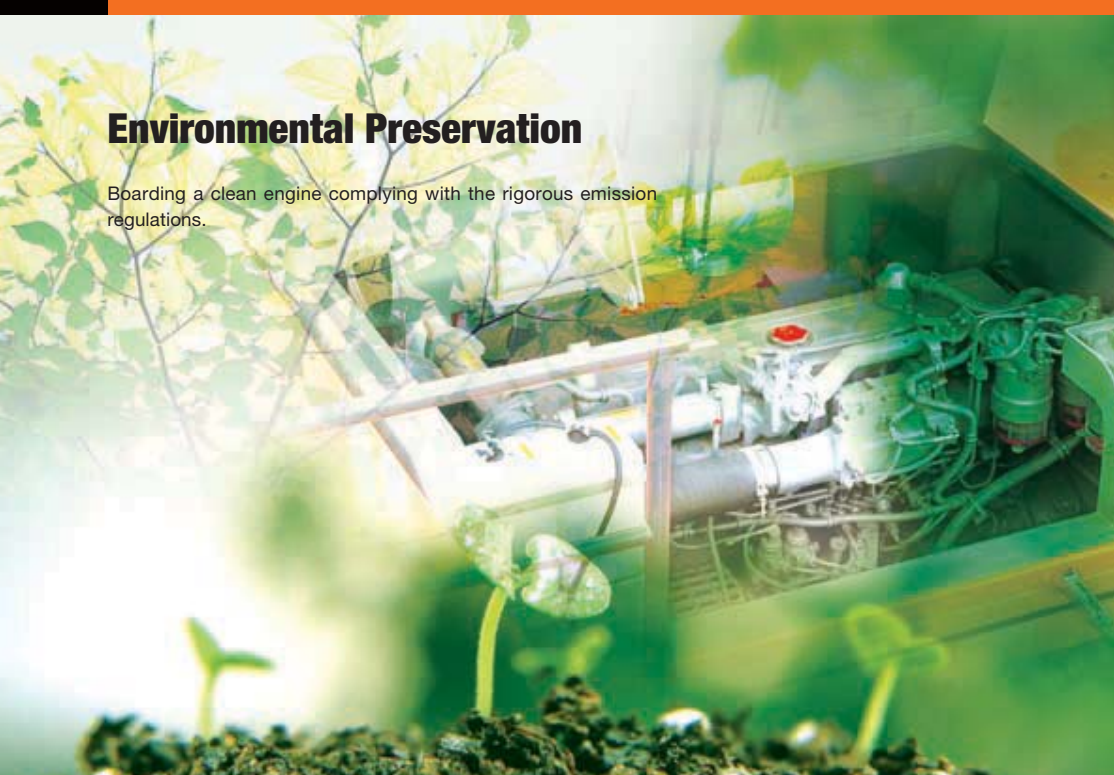
### Easy Draining

The engine oil pan is fitted with a drain coupler. When draining, an associated drain hose is connected to the drain coupler. Unlike a cock, the drain coupler is reliable, avoiding oil spills and vandalism.



## Environmental Preservation

Boarding a clean engine complying with the rigorous emission regulations.



### Environmentally Friendly Designs

#### ■ Boarding Clean Engine

The clean engine complying with the emission regulations Stage III in EU and Tier 3 in US (EPA) is boarded to reduce emissions containing nitrogen oxide (NOx) and particulate matter (PM).

#### ■ Low Noise Engine

Engine noise is reduced by approximately 2 dB with the robust engine. It goes without saying that the engine meets the EU noise regulations.

#### Variable-Speed Fan

The engine cooling fan is a large 1120 mm diameter variable-speed electro-hydraulic fan. This fan automatically starts when temperature comes into the high temperature range, ensuring low noise operation.



#### Proven Muffler

A proven large muffler is provided to reduce sound and exhaust emissions greatly.

### Using Aluminum Radiator, Oil Cooler and Air-Conditioner Condenser

The aluminum radiator, oil cooler and air-conditioner condenser are utilized for the sake of recycling and for increased durability.

### Marking of Recyclable Parts

All resin parts are marked for the sake of recycling. This helps ease the separation of recyclable wastes.



### Reducing the Burden to the Environment

Lead-free design is achieved through the use of lead-free wire harness covering, radiator, oil cooler and others. No asbestos is used. The use of aluminum radiator, oil cooler and intercooler increases the durability of the machine.

### Biodegradable Hydraulic Oil (Optional)

Degradable hydraulic oil is ecological, which is decomposed into water and carbon dioxide in water and ground.



## Enhanced Safety

An array of safety devices for enhanced safety.



### Protecting the Operator From Tipping Accident

#### ■ CRES II Cab

The CRES II cab is designed to help with "just in case" protection for the operator. Safety in case of tipping is improved. The cab top can withstand six-fold loading.



### ■ H/R Cab

The H/R cab utilizes the reinforced front window and FOPS\* at the roof for protection against falling objects. The front glass window, made of straight-laminated, is fixed to shut out dirt and debris. The cab provided with a full guard satisfies the OPG\*\* (Level II) cab requirements stipulated by ISO.

\*Falling Object Protective Structure

\*\*Operator Protective Guards

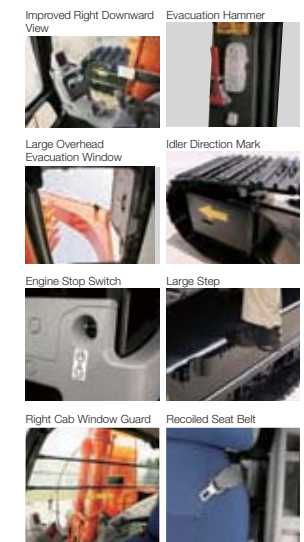


### ■ New Pilot Control Shut-Off Lever

The engine cannot start unless the lock lever is locked completely. This prevents unintended rapid lurching by unintended touching a control lever.



### An Array of Safety Devices



## ZAXIS 670LCH

## ENGINE

Model.....	Isuzu AH-6WG1XYSA-02
Type .....	4-cycle water-cooled, direct injection
Aspiration .....	Turbocharged
No. of cylinders .....	6
Rated power	
DIN 6271, net.....	H/P mode : 345 kW (469 PS) at 1 800 min <sup>-1</sup> (rpm)
SAE J1349, net.....	H/P mode : 345 kW (463 HP) at 1 800 min <sup>-1</sup> (rpm)
Maximum torque .....	1 980 Nm (202 kgf·m) at 1 500 min <sup>-1</sup> (rpm)
Piston displacement....	15.681 L
Bore and stroke.....	147 mm x 154 mm
Batteries.....	2 x 12 V / 170 Ah

## HYDRAULIC SYSTEM

- Work mode selector  
General purpose mode / Attachment mode
  - Engine speed sensing system
- |                     |  |
|---------------------|--|
| Main pumps.....     | 2 variable displacement axial piston pumps |
| Maximum oil flow... | 2 x 456 L/min                              |
| Pilot pump.....     | 1 gear pump                                |
| Maximum oil flow... | 30 L/min                                   |

## Hydraulic Motors

Travel .....	2 axial piston motors with parking brake
Swing.....	2 axial piston motor

## Relief Valve Settings

Implement circuit.....	31.9 MPa (325 kgf/cm <sup>2</sup> )
Swing circuit.....	29.4 MPa (300 kgf/cm <sup>2</sup> )
Travel circuit .....	34.3 MPa (350 kgf/cm <sup>2</sup> )
Pilot circuit .....	3.9 MPa (40 kgf/cm <sup>2</sup> )
Power boost .....	34.3 MPa (350 kgf/cm <sup>2</sup> )

## Hydraulic Cylinders

High-strength piston rods and tubes. Cylinder cushion mechanisms provided in boom and arm cylinders to absorb shock at stroke ends.

## Dimensions

	Quantity	Bore	Rod diameter
Boom	2	190 mm	130 mm
Arm	1	200 mm	140 mm
Bucket	1	180 mm	130 mm
Bucket (BE)	1	190 mm	130 mm

## Hydraulic Filters

Hydraulic circuits use high-quality hydraulic filters. A suction filter is incorporated in the suction line, and full-flow filters in the return line and swing/travel motor drain lines.

## CONTROLS

Pilot controls. Hitachi's original shock less valve and quick warm-up system built in the pilot circuit.

Implement levers .....	2
Travel levers with pedals.....	2

## UPPER STRUCTURE

## Revolving Frame

Welded sturdy box construction, using heavy-gauge steel plates for ruggedness. D-section frame for resistance to deformation.

## Swing Device

Axial piston motor with planetary reduction gear is bathed in oil. Swing circle is single-row, shear-type ball bearing with induction-hardened internal gear. Internal gear and pinion gear are immersed in lubricant. Swing parking brake is spring-set/hydraulic-released disc type.

Swing speed .....	9.5 min <sup>-1</sup> (rpm)
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## Operator's Cab

Independent spacious cab, 1 005 mm wide by 1 795 mm high, conforming to ISO\* Standards. (OPG top guard fitted Level II (ISO 10262) compliant cab) Reinforced glass windows on 4 sides for visibility. Reclining seat with armrests; adjustable with or without control levers.  
\* International Standardization Organization

## UNDERCARRIAGE

## Tracks

Tractor-type undercarriage. Welded track frame using selected materials. Side frame bolted to track frame. Lubricated track rollers, idlers, and sprockets with floating seals.

Track shoes with triple grousers made of induction-hardened rolled alloy. Heat-treated connecting pins with dirt seals. Hydraulic (grease) track adjusters with shock-absorbing recoil springs.

## Numbers of Rollers and Shoes on Each Side

Upper rollers.....	3
Lower rollers.....	8
Track shoes.....	47
Full track guard.....	1

## Travel Device

Each track driven by axial piston motor through reduction gears for counterrotation of the tracks. Sprockets are replaceable.

Parking brake is spring-set/hydraulic-released disc type.

Automatic transmission system: High-Low.

Travel speeds .....	High : 0 to 4.9 km/h
	Low : 0 to 3.4 km/h

Maximum traction force....	460 kN (46 920 kgf)
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Gradeability .....	35° (70 %) continuous
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## WEIGHTS AND GROUND PRESSURE

Equipped with 7.8 m H-boom, 3.6 m H-arm and 2.9 m<sup>3</sup> rock bucket (SAE, PCSA heaped).

Shoe type	Shoe width	Operating weight	Ground pressure
Double grouser	650 mm	67 300 kg	101 kPa (1.03 kg/cm <sup>2</sup> )
		67 100 kg	101 kPa (1.03 kg/cm <sup>2</sup> )

Figures in  are data on the ZAXIS 670LCH (BE).

## BACKHOE ATTACHMENTS

Boom and arms are of all-welded, box-section design. A number of booms and arms are available. Bucket is of all-welded, high strength steel structure. The ZAXIS 670LCH is a heavy duty type and can be equipped with a reinforced H-boom or BE-boom and H-arm or BE-arm.

## Backhoe Buckets

Capacity		Width		No. of teeth	Weight	Recommendation	
SAE, PCSA heaped	CECE heaped	Without side cutters	With side cutters			ZX670LCH-3	
						6.8 m BE-boom	7.8 m H-boom
						2.9 m BE-arm	3.6 m H-arm
<sup>1</sup> 2.90 m <sup>3</sup>	2.50 m <sup>3</sup>	1 680 mm	1 680 mm	5	2 850 kg	X	●
<sup>1</sup> 3.30 m <sup>3</sup>	2.90 m <sup>3</sup>	1 790 mm	1 790 mm	5	3 120 kg	●	X
<sup>2</sup> 1.50 m <sup>3</sup>	1.30 m <sup>3</sup>	–	1 310 mm	3	3 150 kg	X	●
<sup>2</sup> 1.80 m <sup>3</sup>	1.60 m <sup>3</sup>	–	1 570 mm	3	3 750 kg	●	X
One-point ripper				1	1 800 kg	●	●
Applicable shoe type						650 mm Double grouser	

<sup>1</sup> Rock bucket

<sup>2</sup> Ripper bucket

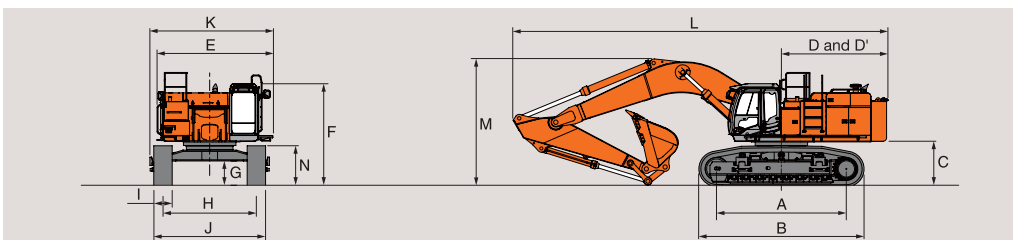
● Heavy-duty service

– Not applicable

X Can't installed

## ZAXIS 670LCH

### DIMENSIONS



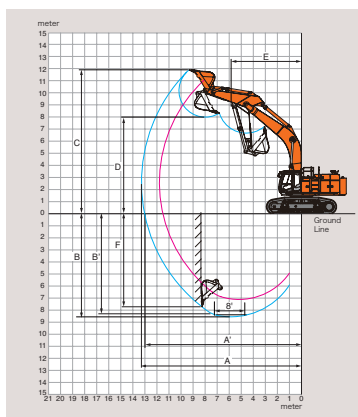
Unit: mm

	ZX670LCH-3
A Distance between tumbler	4 590
B Undercarriage length	5 840
<sup>1</sup> C Counterweight clearance	1 530
D Rear-end swing radius	3 850
D' Rear-end length	3 720
E Overall width of upperstructure	4 100
F Overall height of cab	3 590
<sup>1</sup> G Min. ground clearance	860
H Track gauge	3 300
I Track shoe width	G 650
J Undercarriage width	3 950
K Overall width	4 340
L Overall length	13 200
<sup>2</sup> M Overall height of boom	4 460
N Track height	1 390

<sup>1</sup> Excluding track shoe lug G: Double grouser shoe

<sup>2</sup> Equipped with 7.8 m H-boom and 3.6 m H-arm

### WORKING RANGES



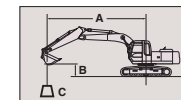
Unit: mm

	ZX670LCH-3	
	6.8 m BE-boom	7.8 m H-boom
Boom length	6.8 m BE-boom	7.8 m H-boom
Arm length	2.9 m BE-arm	3.6 m H-arm
A Max. digging reach	11 800	13 280
A' Max. digging reach (on ground)	11 500	13 030
B Max. digging depth	7 120	8 560
B' Max. digging depth (B' level)	6 970	8 420
C Max. cutting height	11 190	11 940
D Max. dumping height	7 330	8 020
E Min. swing radius	5 240	5 780
F Max. vertical wall	5 280	7 720
Bucket digging force* ISO	369 kN (37 700 kgf)	324 kN (33 100 kgf)
Bucket digging force* SAE : PCSA	332 kN (33 900 kgf)	286 kN (29 200 kgf)
Arm crowd force* ISO	306 kN (31 200 kgf)	255 kN (26 000 kgf)
Arm crowd force* SAE : PCSA	297 kN (30 300 kgf)	246 kN (25 100 kgf)
Equipped bucket	3.3 m <sup>3</sup>	2.9 m <sup>3</sup>

Excluding track shoe lug \* At power boost

### Metric measure

- Notes: 1. Ratings are based on SAE J1097.
2. Lifting capacity of the ZAXIS Series does not exceed 75 % of tipping load with the machine on firm, level ground or 87 % full hydraulic capacity.
3. The load point is a hook (not standard equipment) located on the back of the bucket.
4. \*Indicates load limited by hydraulic capacity.



- A: Load radius
- B: Load point height
- C: Lifting capacity

### ZX670LCH-3

Rating over-side or 360 degrees

Rating over-front

Unit: 1 000 kg

Conditions	Load point height	Load radius										At max. reach								
		3 m		4 m		6 m		8 m		10 m		12 m				meter				
H-Boom 7.80 m	9.0 m																*4.4	*4.4	10.9	
H-Arm 3.60 m	8.0 m																*4.3	*4.3	11.5	
Rock-Bucket	6.0 m																*4.4	*4.4	12.2	
SAE, PCSA: 2.90 m <sup>3</sup>	4.0 m																			
Shoe 650 mm	2.0 m																			
	0 (Ground)																			
	-2.0 m																			
	-4.0 m	*23.0	*23.0	*13.6	*13.6	15.5	24.2	9.5	14.6	6.4	10.0						5.2	*7.3	11.4	
	-6.0 m			*23.8	*23.8	16.3	*18.1	10.0	*12.8									6.7	*9.7	10.0
	-7.0 m					*14.1	*14.1													
BE-Boom 6.80 m	8.0 m																			
BE-Arm 2.90 m	6.0 m																			
Rock-Bucket	4.0 m																			
SAE, PCSA: 3.30 m <sup>3</sup>	2.0 m																			
Shoe 650 mm	0 (Ground)																			
	-2.0 m																			
	-4.0 m																			
	-5.0 m																			

## ZAXIS 670LCH

## STANDARD EQUIPMENT

Standard equipment may vary by country, so please consult your Hitachi dealer for details.

## ENGINE

- H/P mode control
- P mode control
- E mode control
- 50 A alternator
- Dry-type air double filter with evacuator valve (with air filter restriction switch for monitor)
- Cartridge-type engine oil filter
- Cartridge-type fuel filter
- Fuel pre-filter
- Radiator, oil cooler and intercooler with dust protective net
- Radiator reserve tank
- Fan guard
- Isolation-mounted engine
- Auto-idle system

## HYDRAULIC SYSTEM

- Work mode selector
- Engine speed sensing system
- E-P control system
- Power boost
- Auto power lift
- Boom mode selector system
- Shockless valve in pilot circuit
- Control valve with main relief valve
- Extra port for control valve
- Suction filter
- Full-flow filter
- Pilot filter
- Drain filter
- Quick warm-up system for pilot circuit

## CAB

- H/R cab
- OPG top guard fitted Level II (ISO10262) compliant cab
- All-weather sound suppressed steel cab
- Laminated straight and fixed glass front window
- Left side window can be opened
- 6 fluid-filled elastic mounts
- Intermittent windshield wipers
- Front window washer
- Adjustable reclining suspension seat with adjustable armrests
- Footrest
- Electric double horn
- AM-FM radio with digital clock
- Auto-idle selector
- Retractable Seat belt
- Drink holder
- Cigarette lighter
- Ashtray
- Storage box
- Glove compartment
- Floor mat
- Short wrist control levers
- Auto control air conditioner
- Pilot control shut-off lever
- Engine shut-off switch
- Transparent roof with slide curtain

## MONITOR SYSTEM

- Display of meters: water temperature, hour, fuel rate, clock
- Other displays: work mode, auto-idle, glow, rearview monitor, operating conditions, etc
- Alarms: overheat, engine warning, engine oil pressure, alternator, minimum fuel level, hydraulic filter restriction, air filter restriction, work mode, overload, etc
- Alarm buzzers: overheat, engine oil pressure, overload

## LIGHTS

- 2 working lights
- 2 cab lights

## UPPER STRUCTURE

- 4.5 mm thickness Undercover
- 11 100 kg counterweight
- Fuel level float
- 170 Ah batteries
- Hydraulic oil level gauge
- Tool box
- Utility space
- Rearview mirror (right & left side)
- Swing parking brake
- Ladder

## UNDERCARRIAGE

- Travel parking brake
- Travel motor covers
- Hydraulic track adjuster
- Idler track guard
- Bolt-on sprocket
- Upper and lower rollers
- Reinforced track links with pin seals
- Full track guard
- 650 mm double grouser shoes

## FRONT ATTACHMENTS

- Flanged pin
- Centralized lubrication system
- Dirt seal on all bucket pins
- 7.8 m H-boom and 3.6 m H-arm
- Damage prevention plate and square bars
- 2.9 m<sup>3</sup> (SAE, PCSA heaped) rock bucket (with dual type side shrouds)

## MISCELLANEOUS

- Standard tool kit
- Lockable machine covers
- Lockable fuel filling cap
- Skid-resistant tapes, plates, handrails and sidewalk
- Travel direction mark on track frame
- Onboard information controller
- Theft deterrent system

## OPTIONAL EQUIPMENT

Optional equipment may vary by country, so please consult your Hitachi dealer for details.

- Hose rupture valves
- Electric fuel refilling pump with auto-stop
- Swing motion alarm device with lamps
- Travel motion alarm device
- Biodegradable oil
- Pre cleaner
- Cab front step
- Auto-grease lubricator
- Electric grease gun
- Right side walk
- Rain guard for cab
- Attachment basic piping
- Accessories for breaker
- Accessories for breaker & crusher
- Accessories for 2 speed selector
- Sun visor
- 12 V power source
- Additional fuse box
- Overload alarm
- Rear view camera
- Front glass lower guard
- Front glass upper guard
- Counterweight removal device
- 6.8 m BE-boom
- 2.9 m BE-arm

## ZAXIS 650LC

## ENGINE

Model.....	Isuzu AH-6WG1XYS-A-02
Type .....	4-cycle water-cooled, direct injection
Aspiration .....	Turbocharged
No. of cylinders .....	6
Rated power	
DIN 6271, net.....	H/P mode : 345 kW (469 PS) at 1 800 min <sup>-1</sup> (rpm)
SAE J1349, net.....	H/P mode : 345 kW (463 HP) at 1 800 min <sup>-1</sup> (rpm)
Maximum torque .....	1 980 Nm (202 kgf·m) at 1 500 min <sup>-1</sup> (rpm)
Piston displacement....	15.681 L
Bore and stroke.....	147 mm x 154 mm
Batteries.....	2 x 12 V / 170 Ah

## HYDRAULIC SYSTEM

- Work mode selector  
General purpose mode / Attachment mode
  - Engine speed sensing system
- |                     |  |
|---------------------|--|
| Main pumps.....     | 2 variable displacement axial piston pumps |
| Maximum oil flow... | 2 x 456 L/min                              |
| Pilot pump.....     | 1 gear pump                                |
| Maximum oil flow... | 30 L/min                                   |

## Hydraulic Motors

Travel .....	2 axial piston motors with parking brake
Swing.....	2 axial piston motor

## Relief Valve Settings

Implement circuit.....	31.9 MPa (325 kgf/cm <sup>2</sup> )
Swing circuit.....	29.4 MPa (300 kgf/cm <sup>2</sup> )
Travel circuit .....	34.3 MPa (350 kgf/cm <sup>2</sup> )
Pilot circuit .....	3.9 MPa (40 kgf/cm <sup>2</sup> )
Power boost .....	34.3 MPa (350 kgf/cm <sup>2</sup> )

## Hydraulic Cylinders

High-strength piston rods and tubes. Cylinder cushion mechanisms provided in boom and arm cylinders to absorb shock at stroke ends.

## Dimensions

	Quantity	Bore	Rod diameter
Boom	2	190 mm	130 mm
Arm	1	200 mm	140 mm
Bucket	1	180 mm	130 mm
Bucket (BE)	1	190 mm	130 mm

## Hydraulic Filters

Hydraulic circuits use high-quality hydraulic filters. A suction filter is incorporated in the suction line, and full-flow filters in the return line and swing/travel motor drain lines.

## CONTROLS

Pilot controls. Hitachi's original shock less valve and quick warm-up system built in the pilot circuit.

Implement levers .....	2
Travel levers with pedals.....	2

## UPPER STRUCTURE

## Revolving Frame

Welded sturdy box construction, using heavy-gauge steel plates for ruggedness. D-section frame for resistance to deformation.

## Swing Device

Axial piston motor with planetary reduction gear is bathed in oil. Swing circle is single-row, shear-type ball bearing with induction-hardened internal gear. Internal gear and pinion gear are immersed in lubricant. Swing parking brake is spring-set/hydraulic-released disc type.

Swing speed ..... 9.5 min<sup>-1</sup> (rpm)

## Operator's Cab

Independent spacious cab, 1 005 mm wide by 1 675 mm high, conforming to ISO\* Standards. (OPG top guard fitted Level II (ISO 10262) compliant cab) Reinforced glass windows on 4 sides for visibility. Openable front windows (upper and lower). Reclining seat with armrests; adjustable with or without control levers.

\* International Standardization Organization

## UNDERCARRIAGE

## Tracks

Tractor-type undercarriage. Welded track frame using selected materials. Side frame bolted to track frame. Lubricated track rollers, idlers, and sprockets with floating seals.

Track shoes with triple grousers made of induction-hardened rolled alloy. Heat-treated connecting pins with dirt seals. Hydraulic (grease) track adjusters with shock-absorbing recoil springs.

## Numbers of Rollers and Shoes on Each Side

Upper rollers.....	3
Lower rollers.....	8
Track shoes.....	47
Track guard .....	2

## Travel Device

Each track driven by axial piston motor through reduction gears for counterrotation of the tracks. Sprockets are replaceable.

Parking brake is spring-set/hydraulic-released disc type.

Automatic transmission system: High-Low.

Travel speeds .....	High : 0 to 4.9 km/h
	Low : 0 to 3.4 km/h

Maximum traction force.... 460 kN (46 920 kgf)

Gradeability ..... 35° (70 %) continuous

## WEIGHTS AND GROUND PRESSURE

Equipped with 7.8 m boom, 3.6 m arm and 2.9 m<sup>3</sup> bucket (SAE, PCSA heaped).

Shoe type	Shoe width	Operating weight	Ground pressure
Double grouser	650 mm	65 900 kg	99 kPa (1.01 kg/cm <sup>2</sup> )
		66 300 kg	100 kPa (1.02 kg/cm <sup>2</sup> )
	750 mm	66 500 kg	87 kPa (0.87 kg/cm <sup>2</sup> )
		67 000 kg	87 kPa (0.89 kg/cm <sup>2</sup> )
	900 mm	67 500 kg	73 kPa (0.75 kg/cm <sup>2</sup> )
		67 900 kg	74 kPa (0.75 kg/cm <sup>2</sup> )

Figures in   are data on the ZAXIS 650LC (BE).

Note: Depending on the jobsites conditions, 750 mm grouser shoe and 900 mm grouser shoe may not be recommended for rock, hard surface or forestry application.

## BACKHOE ATTACHMENTS

Boom and arms are of all-welded, box-section design. A number of booms and arms are available. Bucket is of all-welded, high strength steel structure.

## Backhoe Buckets

Capacity		Width		No. of teeth	Weight	Recommendation		
SAE, PCSA heaped	CECE heaped	Without side cutters	With side cutters			ZX650LC-3		
						6.8 m BE-boom	7.8 m boom	
						2.9 m BE-arm	3.6 m arm	4.2 m arm
2.50 m <sup>3</sup>	2.20 m <sup>3</sup>	1 480 mm	1 620 mm	5	2 150 kg	X	⊙	⊙
2.90 m <sup>3</sup>	2.50 m <sup>3</sup>	1 680 mm	1 820 mm	5	2 310 kg	X	⊙	—
3.50 m <sup>3</sup>	3.10 m <sup>3</sup>	1 800 mm	1 990 mm	5	2 980 kg	⊙	X	X
Applicable shoe type						650 mm Double grouser		
						750 mm Double grouser		
						900 mm Double grouser		

⊙ Suitable for materials with density of 1 800 kg/m<sup>3</sup> or less

— Not applicable

X Can't installed



## ZAXIS 650LC

## STANDARD EQUIPMENT

Standard equipment may vary by country, so please consult your Hitachi dealer for details.

## ENGINE

- H/P mode control
- P mode control
- E mode control
- 50 A alternator
- Dry-type air double filter with evacuator valve (with air filter restriction switch for monitor)
- Cartridge-type engine oil filter
- Cartridge-type fuel filter
- Fuel pre-filter
- Radiator, oil cooler and intercooler with dust protective net
- Radiator reserve tank
- Fan guard
- Isolation-mounted engine
- Auto-idle system

## HYDRAULIC SYSTEM

- Work mode selector
- Engine speed sensing system
- E-P control system
- Power boost
- Auto power lift
- Boom mode selector system
- Shockless valve in pilot circuit
- Control valve with main relief valve
- Extra port for control valve
- Suction filter
- Full-flow filter
- Pilot filter
- Drain filter
- Quick warm-up system for pilot circuit

## CAB

- CRES II cab
- OPG top guard fitted Level I (ISO10262) compliant cab
- All-weather sound suppressed steel cab
- Tinted (green color) glass windows
- 6 fluid-filled elastic mounts
- Openable windows ; upper and lower front, and left side
- Intermittent windshield wipers
- Front window washer
- Adjustable reclining suspension seat with adjustable armrests
- Footrest
- Electric double horn
- AM-FM radio with digital clock
- Auto-idle selector
- Retractable Seat belt
- Drink holder
- Cigarette lighter
- Ashtray
- Storage box
- Glove compartment
- Floor mat
- Short wrist control levers
- Auto control air conditioner
- Pilot control shut-off lever
- Engine shut-off switch
- Transparent roof with slide curtain

## MONITOR SYSTEM

- Display of meters: water temperature, hour, fuel rate, clock
- Other displays: work mode, auto-idle, glow, rearview monitor, operating conditions, etc
- Alarms: overheat, engine warning, engine oil pressure, alternator, minimum fuel level, hydraulic filter restriction, air filter restriction, work mode, overload, etc
- Alarm buzzers: overheat, engine oil pressure, overload

## LIGHTS

- 2 working lights

## UPPER STRUCTURE

- Undercover
- 11 100 kg counterweight
- Fuel level float
- 170 Ah batteries
- Hydraulic oil level gauge
- Tool box
- Utility space
- Rearview mirror (right & left side)
- Swing parking brake
- Ladder

## UNDERCARRIAGE

- Travel parking brake
- Travel motor covers
- 2 track guard and hydraulic track adjuster
- Idler track guard
- Bolt-on sprocket
- Upper and lower rollers
- Reinforced track links with pin seals
- 650 mm double grouser shoes

## FRONT ATTACHMENTS

- Flanged pin
- Monolithically cast bucket link A
- Centralized lubrication system
- Dirt seal on all bucket pins
- 7.8 m boom and 3.6 m arm
- 2.9 m<sup>3</sup> (SAE, PCSA heaped) bucket

## MISCELLANEOUS

- Standard tool kit
- Lockable machine covers
- Lockable fuel filling cap
- Skid-resistant tapes, plates, handrails and sidewalk
- Travel direction mark on track frame
- Onboard information controller
- Theft deterrent system

## OPTIONAL EQUIPMENT

Optional equipment may vary by country, so please consult your Hitachi dealer for details.

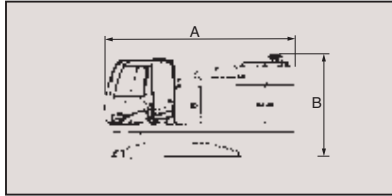
- H/R cab : OPG top guard fitted Level II (ISO10262) compliant cab (with 2 cab lights)
- Hose rupture valves
- Electric fuel refilling pump with auto-stop
- Swing motion alarm device with lamps
- Travel motion alarm device
- Biodegradable oil
- Pre cleaner

- Cab front step
- 2 cab lights
- Auto-grease lubricator
- Electric grease gun
- Right side walk
- Rain guard for cab
- Attachment basic piping
- Accessories for 2 speed selector
- 12 V power source
- Additional fuse box
- Overload alarm

- Rear view camera
- Front glass lower guard
- Front glass upper guard
- Full track guard
- 750 mm double grouser shoe
- 900 mm double grouser shoe
- Counterweight removal device
- 6.8 m BE-boom and
- 2.9 m BE-arm
- 4.2 m arm : ZX650LC-3

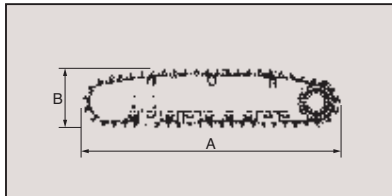
## TRANSPORTATION

### UPPERSTRUCTURE



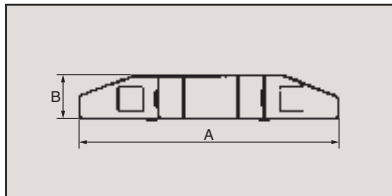
	A	B	Overall width	Weight
ZX650LC-3	5 060 mm	2 720 mm	3 470 mm	19 900 kg
ZX650LCH-3	5 060 mm	2 740 mm	3 470 mm	20 100 kg

### SIDE FRAME



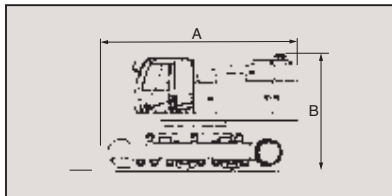
	Shoe width	A	B	Overall width	Weight
ZX650LC-3	650 mm	5 840 mm	1 450 mm	1 190 mm	10 300 kg
	750 mm	5 840 mm	1 450 mm	1 240 mm	10 600 kg
ZX650LCH-3	650 mm	5 840 mm	1 450 mm	1 190 mm	10 500 kg
	750 mm	5 840 mm	1 450 mm	1 240 mm	10 800 kg

### COUNTERWEIGHT



A	B	Overall height	Weight
3 360 mm	590 mm	1 550 mm	11 100 kg

### BASIC MACHINE ( WITHOUT COUNTERWEIGHT )

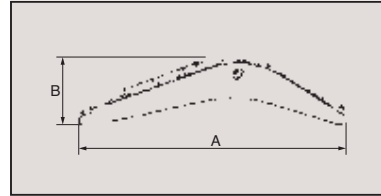


	Shoe width	A	B	Overall width	Weight
ZX650LC-3	650 mm	6 100 mm	3 630 mm	3 480 mm	53 300 kg
	750 mm	6 100 mm	3 630 mm	3 580 mm	53 900 kg
ZX650LCH-3	650 mm	6 100 mm	3 640 mm	3 480 mm	54 000 kg
	750 mm	6 100 mm	3 640 mm	3 580 mm	54 600 kg

Notes: Undercarriage retracted

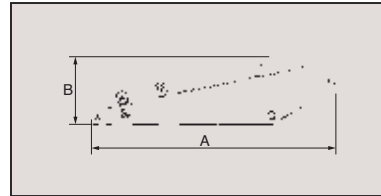
## TRANSPORTATION

### BOOM



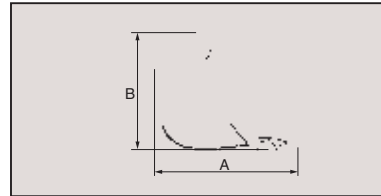
Boom	A	B	Overall width	Weight
6.8 m BE	7 140 mm	2 510 mm	1 390 mm	6 110 kg
7.8 m	8 130 mm	2 330 mm	1 390 mm	6 550 kg
7.8 m H	8 130 mm	2 330 mm	1 390 mm	6 560 kg

### ARM



Arm	A	B	Overall width	Weight
2.9 m BE	4 370 mm	1 690 mm	800 mm	3 820 kg
3.6 m	5 110 mm	1 440 mm	800 mm	3 620 kg
3.6 m H	5 110 mm	1 440 mm	800 mm	3 750 kg
4.2 m	5 710 mm	1 390 mm	800 mm	3 930 kg

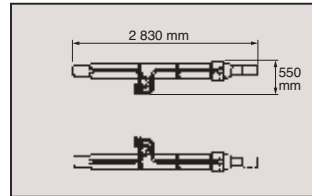
### BUCKET



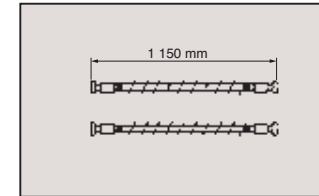
Capacity		A	B	Overall width	Weight
SAE, PCSA heaped	CECE heaped				
2.5 m <sup>3</sup>	2.2 m <sup>3</sup>	2 220 mm	1 810 mm	1 620 mm	2 150 kg
2.9 m <sup>3</sup>	2.5 m <sup>3</sup>	2 220 mm	1 810 mm	1 820 mm	2 310 kg
3.5 m <sup>3</sup>	3.1 m <sup>3</sup>	2 250 mm	1 890 mm	1 990 mm	2 980 kg
<sup>†</sup> 2.9 m <sup>3</sup>	2.5 m <sup>3</sup>	2 290 mm	1 770 mm	1 680 mm	2 850 kg
<sup>†</sup> 3.3 m <sup>3</sup>	2.9 m <sup>3</sup>	2 250 mm	1 890 mm	1 790 mm	3 120 kg

<sup>†</sup> Rock bucket

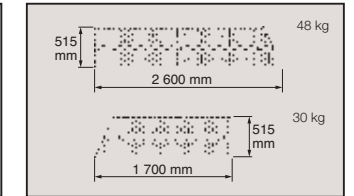
### BOOM CYLINDERS 550 kg X 2



### HOSE OF BOOM CYLINDERS 7 kg X 2 / 10 kg X 2



### LEFT SIDEWALK



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.

