HB205 - 1
HB215LC - 1

Photo may include optional equipment.
What Komatsu Can Do
and What It Must Do for the Global Environment

Komatsu, as a global corporation, established the Komatsu Earth Environment Charter, which delineated its basic principles as contribution to realization of a sustainable society, simultaneous realization of environmental and economic performances and observance of corporate social responsibility.

Komatsu is promoting various activities that will reduce environmental impact.

Under these principles, Komatsu has collected its total technologies to realize the ideal construction equipment of the next generation.

In 2008, Komatsu succeeded in introducing the world’s first hydraulic excavator equipped with a hybrid system to the market.*

Now, the next generation machine with upgraded specifications and sophisticated styling, Hybrid hydraulic excavator HB205/215LC-1 mark their full debut on the market.

The machines achieve 25% reduction in fuel consumption** and reduced NOx and CO2 emissions, which are the same as the previous model.

Hybrid hydraulic excavator HB205/215LC-1 are have earned their position as the next generation of construction equipment.

* Among marketed hydraulic excavators
** Compared with PC200-8 according to our test standard.
The value depends on the work.
HYBRID SYSTEM

The Leading-edge Machine of the New Generation of Hydraulic Excavators,
Focus both on Environmental Concerns and Practical Performance

Most components including those of the hybrid system are developed and manufactured by Komatsu. They are compact in design and feature excellent reliability and durability.

In Komatsu’s unique hybrid system, the electric swing motor/generator captures and regenerates energy as the upper structure slows down and converts it into electric energy. The regenerated energy is stored in the capacitor and used by the generator/motor to assist the engine when it needs to accelerate. Thus, the hybrid system reduces fuel consumption significantly. Most components of the system are developed and manufactured by Komatsu.

**Reliable and Durable Hybrid Components Developed and Manufactured by Komatsu**

**Generator/motor**
The generator/motor is positioned between the engine and hydraulic pump for effective power transmission to the hydraulic pump. The generator produces electric power and charges the capacitor during the period when the engine is idling.

**Electric Swing Motor/generator**
The electric swing motor/generator is newly developed to recover the energy during swing braking. The motor/generator accelerates the upper structure more efficiently than the conventional hydraulic motor and provides excellent swing performance. The motor generator has a newly developed dedicated lubrication and cooling systems for reliability and durability.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.

**Generator/motor**
The generator/motor is positioned between the engine and hydraulic pump for effective power transmission to the hydraulic pump. The generator produces electric power and charges the capacitor during the period when the engine is idling.

**Electric Swing Motor/generator**
The electric swing motor/generator is newly developed to recover the energy during swing braking. The motor/generator accelerates the upper structure more efficiently than the conventional hydraulic motor and provides excellent swing performance. The motor generator has a newly developed dedicated lubrication and cooling systems for reliability and durability.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.

**Energy Management Screen**
The operation status of the hybrid system is displayed on the screen as energy flows, which include capacitor charging/discharging and engine assist by the generator/motor.

**Hybrid System Temperature Gauge**
The gauge appears on the screen along with other temperature gauges for the coolant and hydraulic oil, and displays the temperature of the hydraulic system, allowing the operator to understand the load on the hybrid system at a glance.

**Easy-to-understand Hybrid Operation Monitor Screen**
The energy flows through the hybrid system, and the operator can easily understand the status of the hybrid components.

**KOMATSU HYBRID SYSTEM**

**Hybrid System Temperature Gauge**
The gauge appears on the screen along with other temperature gauges for the coolant and hydraulic oil, and displays the temperature of the hydraulic system, allowing the operator to understand the load on the hybrid system at a glance.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.

**Reliable and Durable Hybrid Components Developed and Manufactured by Komatsu**

**Generator/motor**
The generator/motor is positioned between the engine and hydraulic pump for effective power transmission to the hydraulic pump. The generator produces electric power and charges the capacitor during the period when the engine is idling.

**Electric Swing Motor/generator**
The electric swing motor/generator is newly developed to recover the energy during swing braking. The motor/generator accelerates the upper structure more efficiently than the conventional hydraulic motor and provides excellent swing performance. The motor/generator has a newly developed dedicated lubrication and cooling systems for reliability and durability.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.

**Reliable and Durable Hybrid Components Developed and Manufactured by Komatsu**

**Generator/motor**
The generator/motor is positioned between the engine and hydraulic pump for effective power transmission to the hydraulic pump. The generator produces electric power and charges the capacitor during the period when the engine is idling.

**Electric Swing Motor/generator**
The electric swing motor/generator is newly developed to recover the energy during swing braking. The motor/generator accelerates the upper structure more efficiently than the conventional hydraulic motor and provides excellent swing performance. The motor generator has a newly developed dedicated lubrication and cooling systems for reliability and durability.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.

**KOMATSU HYBRID SYSTEM**

**Reliable and Durable Hybrid Components Developed and Manufactured by Komatsu**

**Generator/motor**
The generator/motor is positioned between the engine and hydraulic pump for effective power transmission to the hydraulic pump. The generator produces electric power and charges the capacitor during the period when the engine is idling.

**Electric Swing Motor/generator**
The electric swing motor/generator is newly developed to recover the energy during swing braking. The motor/generator accelerates the upper structure more efficiently than the conventional hydraulic motor and provides excellent swing performance. The motor generator has a newly developed dedicated lubrication and cooling systems for reliability and durability.

**Inverter and Capacitor**
The inverter and the capacitor have high reliability with the dedicated cooling system. The capacitor can charge or discharge more quickly than the battery hybrid system, because it doesn’t require any chemical reactions that take some lag generating the electric current, while the battery requires. The quickness is the advantage for matching the frequent change of the engine speed of construction equipment. The inverter and the capacitor also have the advantage of long life, which require no maintenance because of its little degradation.
**WORKABILITY & ECOLOGY**

**Komatsu’s Next Generation Technologies that Enabled the Hydraulic Excavator to Satisfy both Environment-friendliness and High Working Performance.**

The total vehicle control system and hybrid system from the Komatsu’s technologies realize 25%* reduction in fuel consumption and reduced emissions of NOx and CO2 while keeping a high level of performance.

---

**Low Emission Engine**

Komatsu SAA4D107E-1-A engine is EPA Tier 3 and EU Stage 3A emissions certified, without sacrificing power or machine productivity.

**Low Operation Noise**

Enables low noise operation using the low-noise engine and methods to cut noise at source.

**Fuel-saving Technology**

New technology of Engine and Pump control HB205/215LC-1 introduces new technology of Engine and Hydraulic Pump control, providing further fuel savings with sufficient oil flow at lower Engine speed.

---

**TOTAL VEHICLE CONTROL & HYBRID SYSTEM**

In addition to the engine, hydraulic components, main valve and electronic components that control them, the hybrid system components such as the generator/motor, swing electric motor/generator, inverter and capacitor are also developed and manufactured by Komatsu. They are neatly arranged on the machine. Controlling the inverter enables the optimum operation of the generator/motor, electric swing motor/generator and engine according to the work at hand, allowing the machine to demonstrate its potential fully while reducing fuel consumption significantly. The machine monitor displays the bar chart that indicates the average fuel consumption in the previous 5 minutes. The Eco-gauge shows the work load to assist the operator to perform energy-saving operations. Hybrid HB205/215LC-1 drastically reduces CO2 emissions making them environmentally-friendly machines.

---

**Assistance for Energy-saving Operation for Reduced CO2 Emissions**

**Work Mode Selectable**

Selectable two work modes - P mode for large production and E mode for fuel-saving, it depends on your priority.

- **P mode** – Power or work priority mode has improved fuel consumption, while maintaining maximum production.
- **E mode** – Economy or fuel priority mode reduces fuel consumption, but maintains the P mode-like work equipment speed for light duty work.

You can select Power or Economy modes using a one-touch operation on the monitor panel depending on work loads.

**KOMTRAX Report for Supporting Energy-saving Operation**

The report includes actual operating hours, hydraulic stall hours, etc of the machine, which are extracted from the KOMTRAX information. Customers can get the report and use it for energy-saving operation.

**Idling Caution**

To prevent unnecessary fuel consumption, an idling caution is displayed on the monitor, if the engine idles for 5 minutes or more.

**Fuel Consumption Monitor and Eco-gauge**

The bar chart displayed at the center of the screen shows the average fuel consumption in previous 5 minutes to promote energy-saving operation. The screen can be switched to past average fuel consumption log screens for last one hour, 12 hours, one week and one month. The Eco-gauge appears on the right of the screen. Operating the machine by keeping the gauge in the green zone reduces CO2 emissions and fuel consumption as well.

---

**Photo may include optional equipment.**
SAFETY & COMFORT

Comfortable and Relaxed Operating Environment for the Operator

The silent and spacious ROPS cab and various safety features allow the operator to operate the machine comfortably and efficiently.

ROPS CAB

The machine is equipped with a ROPS cab that conforms to ISO 12117-2 for excavators as standard equipment. The ROPS cab has high shock-absorption performance, featuring excellent durability and impact strength. It also satisfies the requirements of ISO OPG top guard level 1 for falling objects. Combined with the retractable seat belt, the ROPS cab protects the operator in case of tipping over and against falling objects.

Safety Design to Conform to Safety Standards in Japan, U.S.A and Europe

Lock Lever
The lever makes all hydraulic controls in the cab inoperable. The neutral start function allows the engine to start with this lever only in LOCK position.

Retractable Seat Belt
Emergency Escape Hammer

Reinforced and Tinted Window Glass
Large Side-view, Rear, and Sidewise Mirrors
Enlarged left-side mirror and addition of rear and side mirror allow the PC200-8 to meet the new ISO visibility requirements.

Comfortable Cab for Reduced Operator Fatigue

Low Noise Level similar to that of a modern automobile
Wide Cab
Wide and spacious cab provides ample leg room, allowing an operator with a large body frame to take the appropriate operational posture. The operator seat is the reclining type. The seat height and back rest inclination are adjustable. Reclining it further allows it to be placed into fully flat state with the headrest attached. The operator can set it to the optimum operating position.

Cab Damper Mounts
Significantly reduces vibration at operator seat.

Side View Mirror
Rear View Monitoring System (optional)

Anti-slip Plates
Thermal and Fan Guards
Pump/engine Room Partition
Large Handrail
Large Step
Travel Alarm

Full-automatic Air Conditioner, with fresh air in take
Pressurized Cab
Auto air conditioner, air filter and a higher internal air pressure prevent external dust from entering the cab.

Standard Equipment

Sliding window glass (left side)
Remote intermittent wiper with windshield washer
Opening and closing skylight (conforms to the ISO standard)
Cigar lighter
Magazine Rack and Cup holder
Plastic bottle storage
Wide and spacious cab provides ample leg room, allowing an operator with a large body frame to take the appropriate operational posture. The operator seat is the reclining type. The seat height and back rest inclination are adjustable. Reclining it further allows it to be placed into fully flat state with the headrest attached. The operator can set it to the optimum operating position.

Photo may include optional equipment.
Komatsu hybrid hydraulic excavators working around the world demonstrate excellent fuel consumption and high reliability.

Photo may include optional equipment.
ICT & KOMTRAX

The up-to-date ICT Makes the KOMTRAX System Easy-to-use, Convenient, and Worthy of Your Confidence

KOMTRAX with advanced ICT assists the operator in operating the machine and the administrator in managing their machines and reducing fuel cost.

Large Multi-lingual LCD Monitor

A large user-friendly color monitor enables safe, accurate and smooth work. Improved screen visibility is achieved by the use of TFT liquid crystal display that can easily be read at various angles and lighting conditions. The switches are simple and easy to operate. Industry first function keys facilitate multi-function operations. Displays data in 12 languages to globally support operators around the world.

Operator Assistance Function for Effective and Efficient Operation

Fuel Consumption and Energy Flow Screens

The operator can check information of recent fuel consumption rates and the energy flow among engine and hybrid components on the machine monitor at any time.

Rear View Monitoring system that Conforms to New ISO Standard (optional)

The machine is equipped with a rear view camera, allowing the operator to see the blind spot behind the machine on the large LCD monitor screen.

Password Protection for Engine Start (Immobilizer)

The engine cannot be started unless the registered password is entered correctly.

KOMTRAX Message

KOMTRAX communication function allows you to get and read messages from your Komatsu dealer on the machine monitor.

Equipment Management Support

KOMTRAX terminal installed on your machine collects and sends information such as machine location, working record, machine conditions, etc. using wireless communication. You can review the KOMTRAX data remotely via the online application. KOMTRAX not only gives you the power of knowledge on your machine, but also the convenience of managing your fleet on the Web.

Energy-saving Operation Support Report

KOMTRAX can provide various useful information which includes the energy-saving operation support report created based on the operating information of your machine such as fuel consumption and idle time.
Excellent Maintainability for Reduced Check and Maintenance Time

Side-by-side Cooling
Since radiator, aftercooler and oil cooler are arranged in parallel, they are easy to clean, remove and install. Radiator, aftercooler, and oil cooler are made of aluminum, have high cooling efficiency, and are easily recycled.

Toolbox
The toolbox is installed behind the step.

Air Conditioner Filter
The air conditioner filter is removed and installed without the use of tools facilitating filter maintenance.

Equipped with the engine Eco-drain Valve as Standard.

Large capacity fuel tank of 400 liters with rustproof treatment
Sloping track frame for reduced accumulation of dirt and sand and easy removal
Washable cab floor mat

Gas Assisted Engine Hood
Damper Cylinders

Gas Assisted Engine Hood

EMMS (Equipment Management Monitoring System)

Monitor Function
Controller monitors engine oil level, coolant temperature, battery charge and air clogging, etc. If controller finds any abnormality, it is displayed on the LCD.

Maintenance Function
Monitor informs replacement time of oil and filters on LCD when the replacement interval is reached.

Trouble Data Memory Function
Monitor stores abnormalities for effective troubleshooting.

Accurate and Prompt Diagnosis Thanks to EMMS

High Efficiency Fuel Filter
Fuel system reliability is even better with high efficiency fuel filter.

Easy Access to Engine Oil Filter and Fuel Drain Valve

Long-life Oil, Filter
Uses high-performance filtering materials and long-life oil. Extends the oil and filter replacement interval.

Engine oil & Engine oil filter every 500 hours
Hydraulic oil every 1000 hours
Hydraulic oil filter every 1000 hours

Work Equipment Greasing Interval; Every 500 Hours
SPECIFICATIONS

ENGINE
Model: Komatsu SAA4D107E-1-A
Type: Water-cooled, 4-cycle, direct injection
Aspiration: Turbocharged, aftercooled
Number of cylinders: 4
Bore: 107 mm 4.21"
Stroke: 124 mm 4.88"
Piston displacement: 4.46ltr 272 in³
Horsepower: SAE J1995
Gross 110 kW 148 HP
ISO 5802 / SAE J1349
Net 104 kW 135 HP
Rated rpm: 2000 rpm
Fan drive method for radiator cooling: Mechanical Governor
Governor: All-speed control, electronic
EPA Tier 3 and EU Stage 3A emission certified

HYDRAULICS
Type: HydraulMind (Hydraulic Mechanical Intelligence New Design) system, closed-center system with load sensing valves and pressure-compensated valves
Number of selectable working modes: 5
Main pump: Variable displacement piston type
Pumps for: Boom, arm, bucket and travel circuits
Maximum flow: 439 ft³/min 116 U.S. gal/min
Supply for control circuit: Self-reducing valve
Hydraulic motors: Travel
Relief valve setting: 3.7 MPa 33 kgf/cm² 470 psi
Implement circuits: 37.3 MPa 380 kgf/cm² 5,400 psi
Travel circuit: 2095 mm 6'10" 380 kgf/cm² 5,400 psi

UNDERCARRIAGE
Center frame: X-frame
Track frame: Box-section
Seal of track: Sealed track
Track adjuster: Hydraulic
Number of shoes (each side): HB205-1: 48
HB215LC-1: 49
Number of center rollers: 2 each side
Number of track rollers (each side): HB205-1: 7
HB215LC-1: 9

COOLANT AND LUBRICANT
Fuel tank: 400 ltr 105.7 U.S. gal
Coolant (Engine): 17.3 ltr 4.6 U.S. gal
Coolant (Hydraulic): 5.2 ltr 1.4 U.S. gal
Final drive, each side: 2 x axial piston motor with parking brake
Swing drive: 7.1 ltr 1.9 U.S. gal
Swing motor: 1.6 ltr 0.4 U.S. gal
Generator motor: 6.0 ltr 1.6 U.S. gal
Hydraulic tank: 135 ltr 35.7 U.S. gal

SWING SYSTEM
Door: 2-120 mm x 1334 mm x 85 mm 4.7" x 52.5" x 33.3"
Arm: 1-135 mm x 1490 mm x 95 mm 5.3" x 58.7" x 3.7"
Bucket: 1-214 mm x 1260 mm x 80 mm 4.5" x 49.6" x 3.2"

DRIVES AND BRAKES
Steering control: Two levers with pedals
Drive method: Hydrostatic
Maximum drawbar pull: 178 kN 18200 kg 40,120 lb
Gradingability: 70%, 35%
Maximum travel speed: High: 15 km/h 9.3 mph
(Auto-Shift) Mid: 4.1 km/h 2.5 mph
(Auto-Shift) Low: 3.0 km/h 1.9 mph
Service brake: Hydraulic lock
Parking brake: Mechanical disc brake

OPERATING WEIGHT (APPROXIMATE)
HB205-1
Shoes 600 mm 24" 700 mm 28" 800 mm 31.5"
Operating Weight 20200 kg 44,537 lb 20550 kg 45,075 lb 20830 kg 45,508 lb
Operating Ground Pressure 46.3 kPa 6.7 psi 46.4 kPa 6.7 psi 38.6 kPa 5.6 psi
HB215LC-1
Shoes 600 mm 24" 700 mm 28" 800 mm 31.5"
Operating Weight 21220 kg 46,786 lb 21600 kg 47,264 lb 21550 kg 47,175 lb
Operating Ground Pressure 44.9 kPa 6.4 psi 38.3 kPa 5.6 psi 33.9 kPa 4.9 psi

DIMENSIONS
Arm Length
HB205-1: 2925 mm 9'7" HB215LC-1: 3085 mm 10'1"

WORKING RANGE
Arm
2925 mm 9'7" 3085 mm 10'1"

BACKHOE BUCKET, ARM, AND BOOM COMBINATION

- General purpose use, density-up to 1.8 ton/m³ 1.0 U.S. ton/yd³
- Light duty work, density up to 2.2 ton/m³ 1.3 U.S. ton/yd³
Conditions:
- **5700 mm 18”/8 one-piece boom**
- **0.8 m³ 1.05 yd³ SAE heaped bucket**
- **Shoe width:** — HB205-1 600 mm 24” triple grouser

**Air conditioner with defroster**
- **Alternator: 35 Ampere, 24 V**
- **Anti-slip plates**
- **Auto-decel**
- **Automatic engine warm-up system**
- **Batteries, 110 Ah x 2 12 V**
- **Boom holding valve**
- **ROPS cab (ISO 12117-2)**
- **Counterweight**
- **Dry type air cleaner, double element**
- **Electric horn**
- **EMMS monitoring system**

**Engine, Komatsu SAA4D107E-1-A**
**Engine overheat prevention system**
**Fan guard structure**
**Hydraulic track adjusters (each side)**
**KOMTRAX**
**Multi-function color monitor**
**Power maximizing system**
**PPC hydraulic control system**
**Radiator and oil cooler dust proof net**
**Rear reflector**
**Rearview mirrors (RH, LH, rear, sidewise)**
**Starting motor, 5.5 kW/24 V x 1**

**Additional filter system for poor-quality fuel**
- **Alternator: 60 Ampere, 24 V**
- **Arms:** — 2925 mm 9”7” arm assembly
- **Batteries, large capacity**
- **Boat-on top guard, [Operator Protective Guards level 2]**
- **Boom, 5700 mm 18”8”**
- **Cab accessories:** — Rain visor
— Sun visor
— Cab front guard
— Full height guard
— Full height guard

**Seat belt, retractable**
**Seat, suspension**
**Service valve**
**Shoes, triple grouser** — HB205-1 700 mm 28”, 800 mm 31.5” — HB215LC-1 600 mm 24”, 800 mm 31.5”

**Working lights**
— 2 on cab
— 1 counterweight