# KOMATSU® HD785-7

# **HD** 785

### HORSEPOWER

Gross: 895 kW 1200 HP Net: 879 kW 1178 HP

**RATED GROSS VEHICLE WEIGHT (GVW)**163780 kg



# WALK-AROUND





### **ECOLOGY & ECONOMY**

- Komatsu U.S. EPA Tier 2 Emission Certified Engine
- Mode Selection System with Variable HorsePower Control (VHPC)

### PERFORMANCE

- Automatic Retard Speed Control (ARSC) as Standard
- Komatsu Advanced Transmission with Optimum. Modulation Control System (K-ATOMiCS) with Skip Shift Function
- Synchronous Control of Engine and Transmission
- Komatsu Traction Control System (KTCS) (Optional)

### **OPERATOR COMFORT**

- Ergonomically Designed Cab Low Operation Noise
- Air Suspension Seat (Optional) Tilt-away Steering Column
- Three-mode Automatic Hydropneumatic Suspension (Optional)
- Viscous Cab Mounts | Electronic Hoist Control
- Rear view monitor system (Optional)
- Built-in ROPS/FOPS Cab (ISO 3471/ISO 3449)
- Secondary Steering and Brake

### INFORMATION & COMMUNICATION TECHNOLOGY (ICT)

Easy-to-see Instrumental Panel KOMTRAX Plus

### RELIABILITY

- Robust Dump Body Design Payload Meter (PLM)
- Loading Policy High-rigidity Frame

### MAINTENANCE

- Extended Oil Change Interval
- Disc Wheels (Flange type rim) | Electric Circuit Breakers

### HD785-7

HORSEPOWER	Gross: Net:	895 kW 1200 HP 879 kW 1178 HP
RATED GVW		163780 kg

### PRODUCTIVITY & ECONOMY

### High Performance Komatsu SAA12V140E-3 Engine

This engine delivers faster acceleration and higher travel speeds with high horsepower per ton. Advanced technologies, such as High Pressure Common Rail (HPCR) injection system, air-to-air aftercooler and efficient turbo-charger enables the engine to be U.S. EPA Tier 2 emission certified. High torque at low speed, impressive acceleration, and low fuel consumption ensure maximum productivity.

### Mode Selection System with Variable HorsePower Control

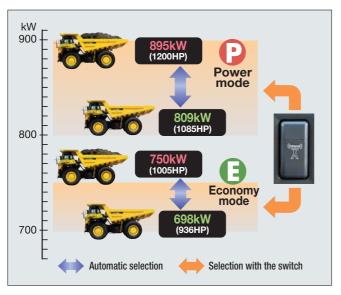
The system allows selection of the appropriate engine output mode <Power mode > or <Economy mode>, according to the working condition. The mode is easily selected with the switch in the operator's cab. When the key switch is turned on, Economy mode is selected automatically. Power mode can be selected by using the switch when needed.

### **Variable HorsePower Control**

Both in Power and Economy modes, the Variable HorsePower Control system detects whether the machine is loaded or unloaded and selects the optimum horsepower setting mode, providing both high production and low fuel consumption.

Power mode: Makes best use of the horsepower to attain optimal production. This mode is suitable for operations including uphill travel loaded where throughput is the top priority.

**Economy mode**: Sets the maximum horsepower at a lower level to reduce fuel consumption. The machine maintains sufficient power for normal operation in this mode.





### F7-R2 (RH/RL) Fully Automatic Transmission

The transmission is configured with 7 forward and 2 reverse gears. Fully automatic control is applied to all forward gears and an optimum gear is automatically selected according to

the travel speed and engine speed. The shifting point is automatically selected depending on the acceleration of the machine to reduce excessive fuel consumption.



### Two-speed Selective Reverse Gears (RH/RL)

In order to meet various operating conditions, two reverse gears are provided. The switch on the panel allows the operator to usually select the appropriate gear for the application, RH or RL depending on the job site conditions. Furthermore, the reverse gear is equipped with a lockup clutch, just like forward gears, allowing the operator to reverse the machine without concern of overheating.

**RH**: Suitable for normal operation. Thanks to the lockup clutch, the machine can be reversed at higher speed.

**RL**: Suitable for operation where steep grades are existing.

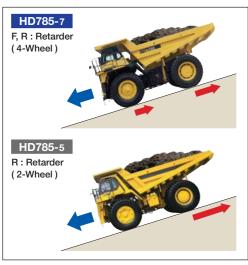
### 4-wheel Oil-cooled Multiple Disc Retarder

The machine is equipped with 4-wheel retarder that applies retarding force on all four wheels. With this retarder, the retarding force is shared between four wheels. This reduces the possibility of tire-lock and enables effective use of retarder capacity, allowing stable downhill travel. The machine descends slopes smoothly and comfortably.

### Retarder absorbing capacity

1092 kW 1464 HP (Continuous descent)

### Brake surface area Front total: 37467 cm<sup>2</sup> Rear total: 72414 cm<sup>2</sup>



### ARSC

ARSC allows the operator to simply set the downhill travel speed and descend grades at a constant speed. This allows the operator to concentrate on steering. The speed can be set at increments of 1 km/h per click (Within ±5 km/h) to match the optimum speed for the slope. The retarder cooling oil temperature is constantly monitored and the descent speed is automatically reduced, if necessary.





### Reducing Hydraulic Losses & Optimizing Transmission Control

Hydraulic circuits such as brake cooling, steering, hoist control, etc. are thoroughly reviewed and the transmission control is optimized to reduce the fuel consumption. As a result, the fuel consumption at medium and light load operations are improved.

### **Automatic Idling Setting System**

This system facilitates quick engine warm-up and operator cab cooling/warming. When setting the system ON, engine idle speed is kept at 945 min<sup>-1</sup>, but is lowered to 750 min<sup>-1</sup> when the coolant temperature rises to 50°C. Speed automatically returns to 945 min<sup>-1</sup> when the coolant temperature drops to 30°C.

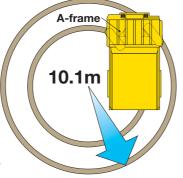


### Long Wheelbase and Wide Tread

With an extra-long wheelbase, a wide tread and an exceptionally low center of gravity, the HD785-7 hauls the load at higher speed for greater productivity, and delivers superior driving comfort over rough terrain.

### **Small Turning Radius**

The MacPherson strut type front suspension has a special A-frame between each wheel and the main frame. The wider spaces created between the front wheels and the main frame increase the steering angle of the wheels. The larger this steering angle, the smaller the turning radius of the truck.



Turning radius varies depending on ground conditions and/or vehicle speed.



### OPERATOR ENVIRONMENT

### **Spacious Cab with Excellent Visibility**

Wide glass areas on front, side and back, plus plenty of space in the richly upholstered interior, provide a quiet, comfortable environment which enables to see and control every aspect of operation. Front underview mirrors also contributes to improve visibility.



### **Ergonomically Designed Cab**

The ergonomically designed operator's compartment makes it very easy and comfortable for the operator to use all the controls. The result is more confident operation and greater productivity.

### **Easy-to-see Instrument Panel**

The instrument panel makes it easy to monitor important machine conditions. In addition, a caution lamp warns the operator of any malfunctions that may occur. Malfunctions are recorded in the monitor and service codes, appear on the instrument panel. This makes the machine user friendly and easy to service.

### **Ideal Driving Position Settings**

The 5-way adjustable operator seat and the tilt-telescopic steering column provide an optimum driving posture, for increased driving comfort and more control over machine operation. The suspension seat dampens vibrations transmitted from the machine and reduces operator fatigue as well as holding the operator securely to assure confident operation. 78 mm width seat belt is provided as standard equipment.

### **Radio with AUX Terminal (Optional)**

To connect MP3 player etc., AUX terminal is prepared in the cab.







## **Synchronous Control of Engine and Transmission**

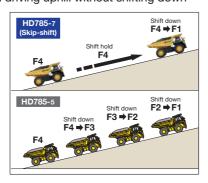
At the time of gear shifting, the engine speed is controlled to coincide with transmission rotation speed to reduce shifting shocks. The synchronous control also contributes to improve durability of power train since it reduces torque fluctuation.

### Komatsu Advanced Transmission with Optimum. Modulation Control System (K-ATOMiCS)

The electronically controlled all clutch modulation system Komatsu Advanced Transmission with Optimum. Modulation Control System (K-ATOMiCS) that optimizes the clutch engagement oil pressure at every gear is further improved so that the oil pressure at lockup clutch engagement is optimized to realize smooth shifting without torque off.

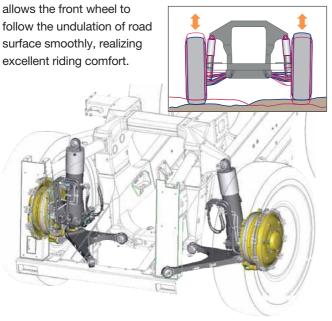
**Skip shift function**: Automatically selects the gear according to the slope grade when driving uphill without shifting down

to the lower gear one by one. It reduces the number of downshifts, makes the driving smoother, improves the operator's comfort and reduces spilling of material.



### The MacPherson Strut Type Front Suspension

The MacPherson type independent suspensions are installed to the front wheels. The linkage arrangement with less friction



## Three-mode Automatic Hydropneumatic Suspension (Optional)

Suspension mode is automatically switched to one of three stages (Soft, medium and hard) according to load and operating conditions, for a more comfortable and stable ride.

### **Viscous Cab Mounts**

Large capacity viscous cab mounts with excellent damping performance are used to mount the cab. They reduce cab vibration significantly and provide comfortable cab space with superb quietness and less vibrations.

Noise level at operator's ear: 75 dB(A)

### **Electronic Hoist Control System**

The control lever is short in travel and can be operated with a light effort. "Kick-out function" provided for the lever facilitates the hoist operation, eliminating a need to hold the lever

in "Raise" position. Furthermore, body seating shock is significantly reduced because a sensor detects the body just before seating on the frame and reduces the lowering speed.





### SAFETY

### **Built-in ROPS/ FOPS Cab**

These structures conform to ISO 3471 ROPS standard, and ISO 3449 FOPS standard.



### **LED Rear Combination Lamp**

LED lamps are used for the rear combination lamp. The LED lamp features long service life and excellent visibility while it is an energy-saving lamp.



### **Under Mirror**

The new round under-mirror provides a wider field of vision.



### Large Screen, Color Rearview Camera & **Monitor** (Optional)

Rearview camera and 7-inch color LCD monitor are available to improve rear visibility. This device serves to improve safety and workability of the machine.





### **Spiked Slip-resistant Plate**

Steps and walkways are made with spiked slip-resistant plates to improve safety when you get on or off the machine or move around on the machine.



### **Parking Brakes on 4-wheels**

The machine is equipped with spring applied parking brakes on 4-wheels. Wet multiple disc brakes built in both front and rear axles apply braking force to all four wheels. These brakes are highly reliable and require no periodic maintenance.



Rear brake

### **Pedal-operated Secondary Brake**

If there should be a failure on the primary brake circuit, both front and rear parking brakes are activated as a pedal operated secondary brake.



### **Antilock Brake System (ABS) (Optional)**

Using its outstanding electronics technology, Komatsu is the first in the industry to introduce ABS on construction machinery. This system prevents the tires from locking, thus minimizes skidding under slippery conditions while applying the service brake.

### **Secondary Steering and Secondary Brake**

Secondary steering and secondary brake are standard features.

Steering: ISO 5010, SAE J1511 Brake: ISO 3450

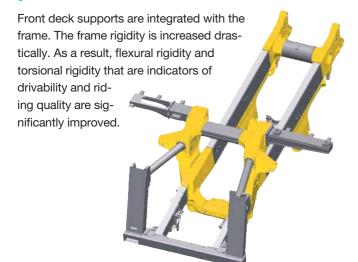
### Komatsu Traction Control System (KTCS) (Optional)

KTCS automatically prevents the rear tire on either side from slipping on soft ground for optimal traction.

### **Komatsu Components**

Komatsu manufactures the engine, torque converter, transmission, hydraulic units, and electronic components on this dump truck. All these components are manufactured with an integrated production system under strict quality control quidelines.

### **High-rigidity Frame**

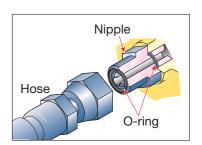


### Reliable Hydraulic System

A large capacity oil cooler is installed in each hydraulic circuit, improving the reliability of the hydraulic units during sudden temperature rises. Further, in addition to the main filter,  $\beta 10 = 3$  (min) line filter is located at the entrance to the transmission control valve.

### Flat Face-to-face O-ring Seals

Flat face- to- face O-ring seals are used to securely seal all hydraulic hose connections and to prevent oil leakage.



### **Sealed Connectors**

Main electric harnesses and controller connectors are equipped with sealed connectors providing high reliability, water resistance and dust resistance.



### For Better Operational Management and Safety

In actual Operational Management activities, the first step to effective use of the HD785-7 is to record each payload. For this purpose, Komatsu has made the "Payload meter" available.

Based on the premise that "Payload meter" can record the payload data, Komatsu intends to apply "Loading Policy" that is intended to be used as guidelines for consistent and better "Operational Management"

### **Loading Policy**

Each dump truck has its own "target payload". Operating a dump truck with an extraordinary payload causes the following adverse effects.

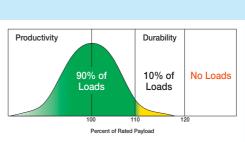
- Operating an underloaded truck cannot fully utilize the vehicle performance and increases the number of round trips required to haul the same quantity of materials, resulting in increased cost-per-ton.
- Operating an overloaded truck causes early wear on brake discs, tires, etc., and shortens the life of components such as drive system etc. resulting in increased maintenance and repair costs.

Our proposal "Loading Policy" relies on an assumption that each HD785-7 is equipped with a "Payload Meter" and each payload is positively recorded. Target payload is defined as rated Gross Vehicle Weight (GVW) minus Empty Vehicle Weight (EVW) with linar and/or attachments.



- 2) 90% of all loads must be below 110% of the target payload of the truck.
- 3) 10% of all loads may be between 110% and 120% of the target payload of the truck.
- 4) Any single load must not exceed 120% of the target payload of the truck.

Observance of the "Loading Policy" results in improvement of productivity by full utilization of the performance of HD785-7, reduction of running cost, and extension of the life of brakes, tires, and other components.



### **Selection of Body**

Several different types of bodies are selectively available for the HD785-7 and optional equipment for the bodies are also prepared for use in various conditions.

Loading machine Material	Shovel, Backhoe (Severity to body: Light)	Wheel loader (Severity to body: Heavy)
Construction Overburden (Severity to body: Light)	Light weight body (Optional)  Recommended use of this body includes relatively light-duty works such as construction and hauling of overburden, coal, etc.  Material thickness: t16/12/8 (Bottom/front/side)	
Quarry (Severity to body: Medium)	(Standal This body is Major portic steel plates	I purpose body rd) s designed for various uses as standard. ons of this body are made of abrasion-resistant to assure high durability. ckness: t19/12/9 (Bottom/front/side)
<b>Ore</b> (Severity to body: Heavy)	This rock by general pur Recommen works such There are v	ody (Optional) ody is made by attaching liner plates to the pose body. ded use of this body is relatively heavy-duty as hauling of ores, etc. arious kinds of thickness and form of liner. sult with Komatsu distributor for details.

<sup>\*</sup>Description of "Light", "Medium" and "Heavy" are rule-of-thumb. Please consult with Komatsu distributor when you select the body.

# **ECOLOGY**

### **Lead-free Radiator**

Several different types of bodies are selectively available for the HD785-7 and optional equipment for the bodies are also prepared for use in various conditions.

### **Brake Cooling Oil Capture Tank**

To protect the environment, a tank is installed to capture brake cooling oil in the event of brake floating seal leakage.





### EASY MAINTENANCE

### **Advanced Monitoring System**

The Komatsu advanced monitoring system identifies maintenance items, indicates oil and filter replacement times left and displays abnormality codes. This monitor system helps to reduce diagnostic times and maximize machine produc-



# Wet Multiple-disc Brakes and Fully Hydraulic Controlled Braking Systems

Realize lower maintenance costs and higher reliability. Wet disc brakes are fully sealed to keep contaminants out, reducing wear and maintenance. The brakes require no adjustments for reducing wear, meaning even lower maintenance. The parking brake is also an adjustment-free, wet multiple-disc system for high reliability and long life. Added reliability is designed into the braking system by the use of three independent hydraulic circuits providing hydraulic backup should one of the circuits fail. Fully hydraulic braking systems eliminate the air system so air bleeding is not required, and water condensation that can lead to contamination, corrosion and freezing is eliminated.

### **Extended Oil Change Intervals**

In order to minimize operating costs, oil change intervals are extended:

Engine oil: 500 hours Hydraulic oil: 4000 hours

# **Centralized Arrangement** of Filters

The filters are centralized so that they can be serviced easily.



### Disc Wheels (Flange Type Rims)

Disc wheels (Flange type rims) provide easy removal/installation of the tires.



### **Electric Circuit Breaker**

Circuit breakers are adopted in important electric circuits that should be restored in a short time when a malfunction occurs in the electrical system.



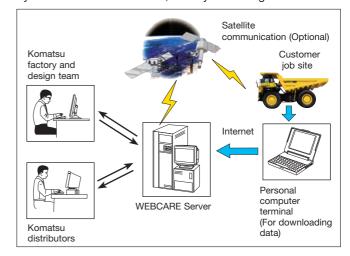
# **Centralized Greasing Points**

Greasing points are centralized at three locations. It enables to approach from ground level.



### **KOMTRAX Plus**

KOMTRAX Plus controller monitors the health conditions of major components and enables remote analysis of the machine condition and its operation. This process is supported by the Komatsu distributors, factory and design team.



### Payload Meter (PLM) (Optional)

PLM allows the production volume and the working conditions of the dump truck to be analyzed and controlled directly via a personal computer. The loadage is also indicated with the outside lamps. The system can store data of

2900 max. working cycles.



### **SPECIFICATIONS**



Model.Komatsu SAA12V140E-3TypeWater-cooled, 4-cycleAspiration.Turbo-charged, after-cooledNumber of cylinders.12Bore x Stroke.140 mm x 165 mmPiston displacement.30.48 LHorsepower
SAE J1995
ISO 9249 / SAE J1349 Net 879 kW 1178 HP
Rated rpm1900 min <sup>-1</sup>
Fan drive type Mechanical
Maximum torque
Fuel systemDirect injection
Governor
Lubrication system
Method
Air cleaner Dry type with double elements and precleaners, with dust indicator

U.S. EPA Tire 2 emission certified.



Torque converter	3-elements, 1-stage, 2-phase
Transmission	Full-automatic, planetary-gear type
Number of gear	. 7 forward and 2 reverse (RH, RL)
Lockup clutch	
Forward	Torque converter drive in 1st gear,
direct driv	e in 1st lockup and all higher gears
Reverse Torque co	onverter drive, direct drive (Lockup)
Shift control Ele	ectronic shift control with automatic
	clutch modulation in all gears
Maximum travel speed	65 km/h



Rear axles	
Ratios:	
Differential	
Planetary	6.333



### **SUSPENSION SYSTEM**

Independent, hydropneumatic suspension cylinder with fixed throttle to dampen vibration.

Effective cylinder stroke:

Front suspension	320	mm	max.
Rear suspension	.127	mm	max.
Rear axle oscillation		6.5°	max.



Type Fully hydraulic power steering with two double-acting cylinders
Secondary steering Meets ISO 5010, SAE J1511
Minimum turning radius
Maximum steering angle41°



Standard	 FOPS	(ISO 3449 level 2)
		<b>ROPS (ISO 3471)</b>



### **MAIN FRAME**

..... Box-sectioned structure, integral front bumper



Brakes meet ISO 3450 standard. Service brakes:

Front......Fully hydraulic control, oil-cooled multiple-disc type Rear ......Fully hydraulic control, oil-cooled multiple-disc type Parking brake . . Spring applied, multiple-disc type (Actuates on all wheels) Retarder. . Oil-cooled, multiple-disc front and rear brakes act as retarder. 

parking brake is automatically actuated.

Brake surface

Front	37467	cm <sup>2</sup>
Rear	72414	cm <sup>2</sup>



### **BODY** (GENERAL PURPOSE BODY)

Capacity: Struck
Heaped (2:1, SAE)
Rated payload
Material 400 Brinell hardness high tensile strength steel
Structure V-shape body with V-bottom
Material thickness:
Bottom
Front
Sides
Target area
(Inside length x width) 7070 mm x 5150 mm
Dumping angle
Height fully raised
Bond prevention



### YDRAULIC SYSTEM

. Twin, 2-stage telescopic type
20.6 MPa 210 kgf/cm <sup>2</sup>
_
13 s
14 s



### WEIGHT (APPROXIMATE)

	pty Vehicle Weight (EVW)	. 72000 kg
	ss Vehicle Weight (GVW)	163780 kg
Includes	optional equipments, operator (80 kg) and pay	yload.
Distributio	n:	
Empty:	Front axle	47%
	Rear axle	53%
Loaded:	Front axle	31.4%
	Rear axle	68.6%



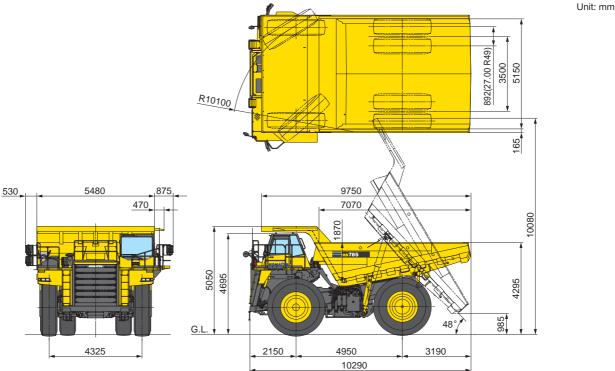
Standard tire



### SERVICE REFILL CAPACITIES

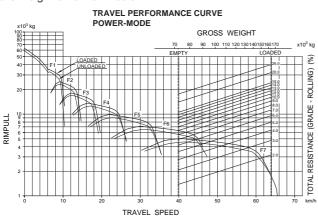
Fuel tank
Engine oil
Torque converter, transmission and retarder cooling 205 L
Differential
Final drives (Total)
Hydraulic system
Brake control
Suspensions (Total) 93 I

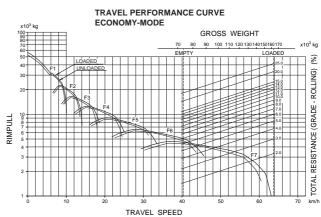




### TRAVEL PERFORMANCE

Read from gross weight down to a line for total resistance in percentage. From this weight-resistance intersection, read horizontally to the curve with the highest obtainable speed range, then down to maximum speed. Usable rimpull depends upon traction available and weight on drive wheels.



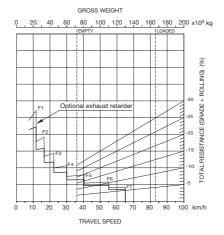


### **BRAKE PERFORMANCE**

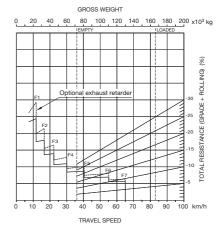
These curves are provided to establish the maximum speed and gear position for safer downhill travel with a given distance. Read from gross weight down to a line for total resistance in percentage. From this weight resistance intersection,

read horizontally to the curve with the highest obtainable speed range, then down to maximum downhill travel speed the brakes can safely handle without exceeding cooling capacity.

### **Grade distance: Continuous Descent**



### Grade distance: 450 m





### STANDARD EQUIPMENT

#### **ENGINE:**

- Alternator, 90 A/24 V
- Automatic Idling Setting System
- Batteries, 4 x 12 V/170 Ah
- Engine, Komatsu SAA12V140E-3
- Mode selection system with Variable HorsePower Control
- Starting motors, 2 x 7.5 kW

#### CAB:

- Ashtray
- Built-in ROPS and FOPS, sound suppression type (ISO 3471/ISO 3449)
- Cigarette lighter
- Cup holder
- Electronic hoist control system
- Electronic maintenance display/ monitoring system
- · Laminated glass, front
- Operator seat, reclining, suspension type with 2-point retractable 78 mm width seat belt
- Power window (LH)
- Space for lunch box
- · Steering wheel, tilt and telescopic
- Sun visor

- Trainer seat with retractable seat belt
- Two doors, left and right
- Windshield washer and wiper (With intermittent feature)

#### LIGHTING SYSTEM:

- Back-up lamp
- Hazard lamps
- Headlamps
- LED rear combination lamps
- Turn signal

### **GUARD AND COVERS:**

- · Canopy side guard, cab side
- · Canopy spill guard
- Drive shaft guards (Front and rear)
- Exhaust thermal guard
- Fire protective covers

### **SAFETY EQUIPMENT:**

- 4-wheel oil-cooled multiple disc retarder
- Alarm, backup
- ARSC
- Coolant temperature alarm and lamp
- · Guard rails for platform
- Horn, electric

- Ladders, left and right hand sides
- Neutral coast inhibitor
- Overrun warning system
- Rearview mirrors and under view mirrors
- Secondary brake
- Secondary steering, automatic, electrical

#### OTHER:

- Centralized greasing
- Disc wheels (Flange type rims)
- Electric circuit breaker, 24 V
- KOMTRAX Plus
- Mud guards

#### **BODY:**

• Body exhaust heating

### TIRES:

• 27.00 R49

# \*

### **OPTIONAL EQUIPMENT**

### CAB:

- 3-point retractable seat belt (Operator seat)
- Air conditioner
- AM/FM radio with AUX terminal
- Operator seat, air suspension type
- Power window (RH)
- Sunvisor, additional

### BODY:

- Body liners
- Light weight body
- Muffler (Without body heating)
- Platform guard, rearward, right hand side
- Rock body

### **LIGHTING SYSTEM:**

- Buck-up lamp additional
- Fog lamps
- HID head lamp (High/low)
- HID side work lamps
- LED head lamp
- LED side work lamps
- Side work lamps, rearward, left and right sides

### SAFETY:

- ABS
- Battery disconnect switch
- Color rear view camera and monitor
- Diagonal ladder
- Engine shutdown switch, ground level
- Exhaust retarder
- Fuel tank step
- KTCS
- Power ladder
- Speed limiter
- Speed limiter (Over load)
- Tire stopper blocks

### ARRANGEMENT:

- Batteries for cold area arrangement
- Cold area arrangement
- Sandy and dusty area arrangement

### OTHER:

- Auto-greasing system
- Auto-greasing system with refill from ground level
- Engine coolant heater
- Engine oil pan heater

- Engine pre-lubrication
- Engine side cover
- Engine underguard
- Fast coolant fill
- Fast fuel fill
- Fast fuel fill from LH
- Fast oil fill
- Fire extinguisher
- KOMTRAX Plus
- (With satellite communication kit)
- Payload Meter
- Smart change rim
- Spare parts for first service
- Three-mode automatic hydropneumatic suspension
- Tool kit
- Transmission underguard
- Vandalism protection

Standard equipment may vary for each country, and this specification sheet may contain attachments and optional equipment that are not available in your area. Please consult your Komatsu distributor for detailed information.

Up to 20% blended biodiesel fuel and paraffine fuel can be used. Please consult your Komatsu distributor for detail. Printed in Japan 201911 IP.As https://home.komatsu/en/ **KOMATSU®** Materials and specifications are subject to change without notice. **KOMAT'SU**° is a trademark of Komatsu Ltd. Japan. CEN00136-10