

# KOMATSU®

## 860E-1K Electric Drive Truck

860E

**GROSS HORSEPOWER**  
2,700 HP 2014 kW

**NET HORSEPOWER**  
2,550 HP 1902 kW

**NOMINAL GVW**  
987,700 lb 448013 kg



PHOTOS MAY INCLUDE OPTIONAL EQUIPMENT

860E

# WALK-AROUND

860E-1K



Photos may include optional equipment

# 860E-1K

## Electric Drive Truck

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@ 1900 rpm

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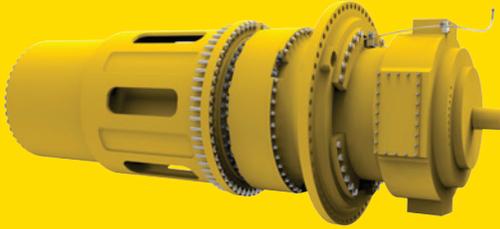
**NOMINAL GVW**  
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### KOMATSU DRIVE

Field tested in the toughest applications, Komatsu Drive is a unique system that features:

- Improved torque capacity
- Top speed of 64 kph **40 mph**
- Independent control of the rear wheel motors
- Siemens liquid cooled IGBT inverter system and Traction Control algorithms

These features come together to deliver higher reliability and superior performance in mining applications.



#### Productivity Features

- High performance Komatsu SSDA16V160 engine  
Gross horsepower 2014 kW **2,700 HP**
- 3469 kW **4,650 HP** continuous retarding capability
- Automatic retard speed control
- Traction (spin-slide) control
- Komatsu designed application specific bodies
- Tight turning radius 15.5 m **51'**
- Payload Meter IV (PLM IV)
- Hill Start

#### Reliability Features

- Frame design optimized for 254 metric ton **280 short ton** payload
- Komatsu Drive Transmission
- Simple and reliable hydraulic system
- Steering and brake accumulators
- Hydraulically actuated multiple-disc wet brakes (All Four Wheels)
- Liquid-cooled IGBT AC electric drive system



#### Environmentally Friendly

- Komatsu SSDA16V160 engine is certified to US EPA Tier 2 emissions regulations
- Low-speed, high-volume squirrel cage cooling blower for quiet operation and optimum cooling
- Optional Trolley Assist Package
- Less fluids compared to mechanical drive trucks

#### Easy Maintenance

- KOMTRAX Plus® allows immediate diagnostics of key engine, chassis, and drive system components
- Oil-cooled wet disc braking system reduces wear and extends component replacement intervals
- Extended Oil Change Intervals with Oil Reserve System
- Automatic lubrication system
- Flange mounted rims with optional Komatsu Smart Rims
- Eliminator® oil filtration system
- In-tank fast fuel system

#### Operator Environment

- Ergonomically designed spacious cab with excellent visibility
- Fully adjustable driving position settings
- Komatsu Hydrair® II suspensions designed for optimum ride comfort
- Four post ROPS/FOPS Level 2 Cab
- User friendly display with payload information
- Isolated cab mounts
- Optional KomVision® All Around Monitoring System

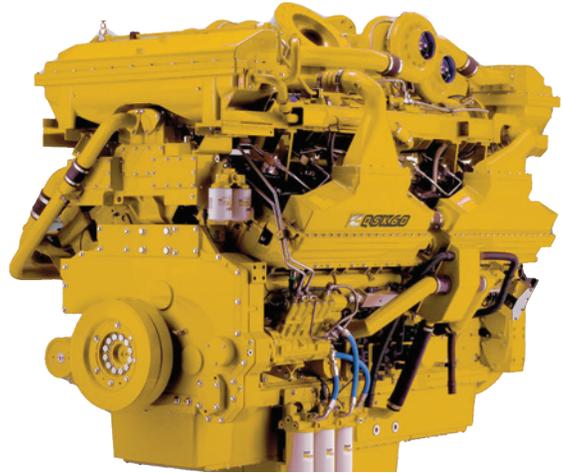
### KOMTRAX Plus®

KOMTRAX Plus equipped machines can send SMR and trend information to a secure website utilizing wireless technology. Machines also relay error codes, cautions, maintenance items, fuel burn, and much more.

### Komatsu SSDA16V160 Engine

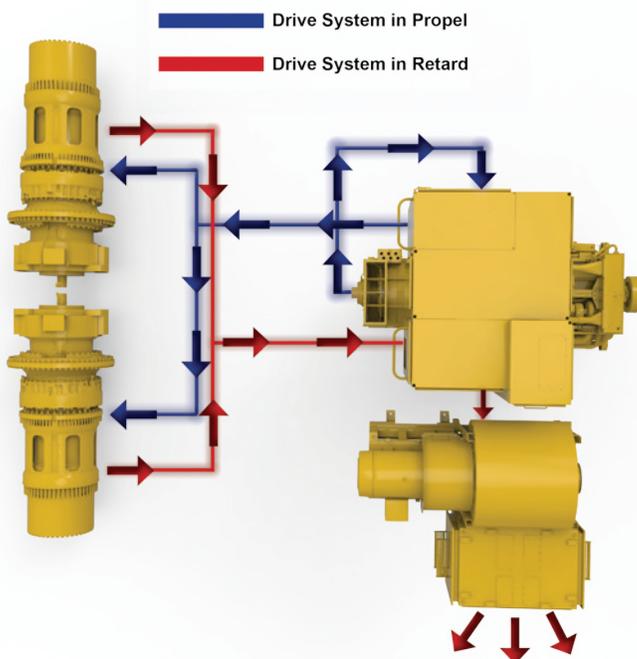
Komatsu's SSDA16V160 engine has earned a reputation for being one of the most reliable high horsepower engines in the mining industry today. This 2014 kW **2,700 HP** engine is certified, out of the exhaust pipe, to meet US EPA Tier 2 emission levels. Fuel efficiency is maximized due to optimized air handling with 2-stage turbocharging. A standard pre-lube system is designed to reduce start-up wear and increase overhaul life. Standard features include:

- CENSE® on board monitoring of engine performance for each cylinder
- CENTINEL® Advanced Engine Oil Management System
- ELIMINATOR® filtration system reduces oil and filter changes by one third
- Oil Reserve System extends oil change interval



### Electric Dynamic Retarder

The 3469 kW **4,650 HP** retarding system provides state-of-the-art braking capacity for navigating today's mining applications which contain steep continuous descents and sharp switchbacks. This power capacity, coupled with the ultra-quiet, high volume, low speed fan makes it possible for the operator to maintain control with confidence while hauling downhill. Electric retard reduces the need for service brake applications.



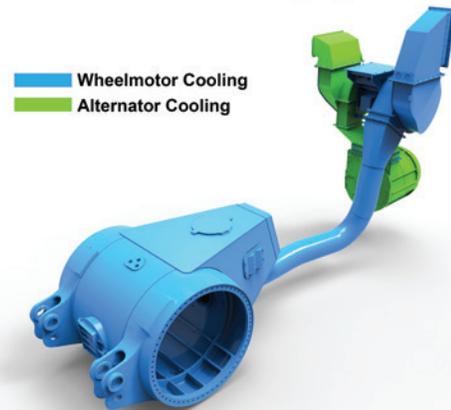
### Komatsu Drive

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- Improved torque capacity
- Top speed of 64 kph **40 mph**
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- Siemens liquid cooled IGBT inverter system and Traction Control algorithms

These features come together to deliver higher reliability and superior performance in applications.

### 860E-1K Cooling System



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## Traction (Spin-Slide) Control

During slippery conditions, the 860E-1K wheel traction control technology detects and corrects wheel spin or slide events. Traction Control operates automatically and independently of the service brakes, providing a means of controlling the machine in slippery conditions.

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## Propulsion/Retard Speed Control

Propulsion/Retard Speed Control allows the operator to set a desired speed. This function monitors the speed of each wheel independently for immediate adjustments in propulsion or retarding effort in order to maintain the desired speed.

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## Trolley (optional)

The 860E-1KT trolley system allows for faster ascent up grades, providing higher production and lower fuel consumption compared to conventional diesel systems.

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## Komatsu Designed Application Specific Body

Utilizing the required body worksheet (BW) process, Komatsu ensures that each body is designed to meet the requirements for each specific application while carrying its rated payload. Komatsu works with each customer to understand all of the material properties at a mine site and to identify the appropriate liner package. Komatsu offers a standard all-welded steel, flat floor body with an over the cab canopy and horizontal bolster.

- Standard Body Struck Capacity: 122 m<sup>3</sup> **160 yd<sup>3</sup>**
- Standard Body SAE Heaped 2:1: 169 m<sup>3</sup> **221 yd<sup>3</sup>**
- Standard Komatsu Body Weight: 33643 kg **74,171 lbs**

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## Hill Start

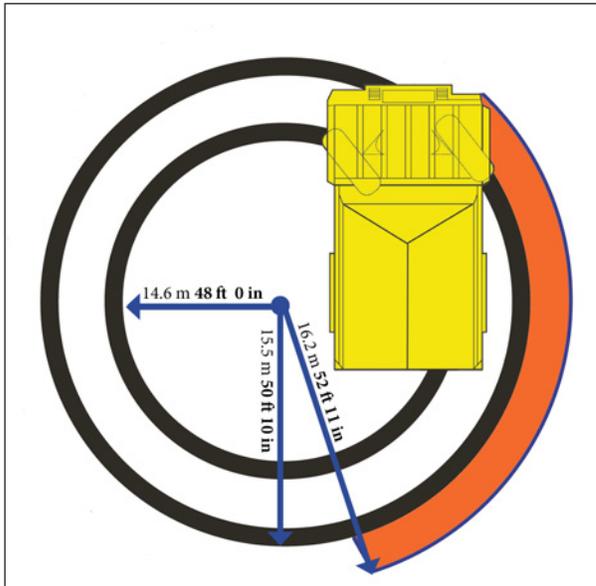
An innovative feature the Komatsu drive system provides is the Hill Start logic. This built in functionality will help reduce rollback in the event of a stop while the truck is ascending a ramp. Additionally, the feature automatically controls the braking function when an operator that is stopped on grade wants to continue up the ramp.



Photos may include optional equipment.

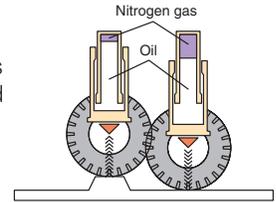
### Tight Turning Radius

By using double acting hydraulic steering cylinders with a six-point articulation linkage, the power steering system provides steering control with minimal operator effort. The turning radius is 15.5 m **51'**, which provides excellent maneuverability for tight loading and dumping conditions. The steering accumulators comply with ISO-5010 standards.



### Hydrair® II Hydropneumatic Suspension

Hydrair® II is a suspension system that utilizes four nitrogen-over-oil cylinders. This suspension system is designed to maximize machine productivity by providing the operator with a smooth and comfortable ride. By absorbing shocks to the chassis during operation, Hydrair® contributes to the durability of the machine's frame and components.



### Payload Meter IV (PLM IV)

PLM IV is an electronic system that monitors and records payload information for Komatsu's family of Off-Highway Mining Trucks. The improved accuracy of payload measurement and reliability of the system are designed to optimize payloads, maximize productivity, and reduce the life cycle costs of the truck. PLM IV tracks and records the following key production parameters:

- Payload
- Empty Carry-Back
- Operator Identification
- Haul Cycle, Loading, Dumping Time of Day
- Distance Traveled (Loaded and Empty)
- Cycle Time Information
- Maximum Speeds (Loaded and Empty)
- TMPH for Front and Rear Tires
- Average Speed (Loaded and Empty)



## OPERATOR ENVIRONMENT

### Ergonomically Designed Cab

The Komatsu 860E-1K cab design provides operators a comfortable and productive environment to meet today's mining demands. The cab features tinted safety glass windows, heating and air conditioning, acoustical insulation, double sealed doors, and filtered - pressurized air to reduce dust.

### User Friendly Display

The 860E-1K comes with a new operator friendly dash configuration which includes lighted gauges, switches, and information panel. This allows the operator to see the status of the machine during operation and informs them of any faults. An instructive message will appear after any fault is detected on the machine.

### Built-in ROPS and FOPS Structure

These structures conform to ISO standards 3471 and 3449.

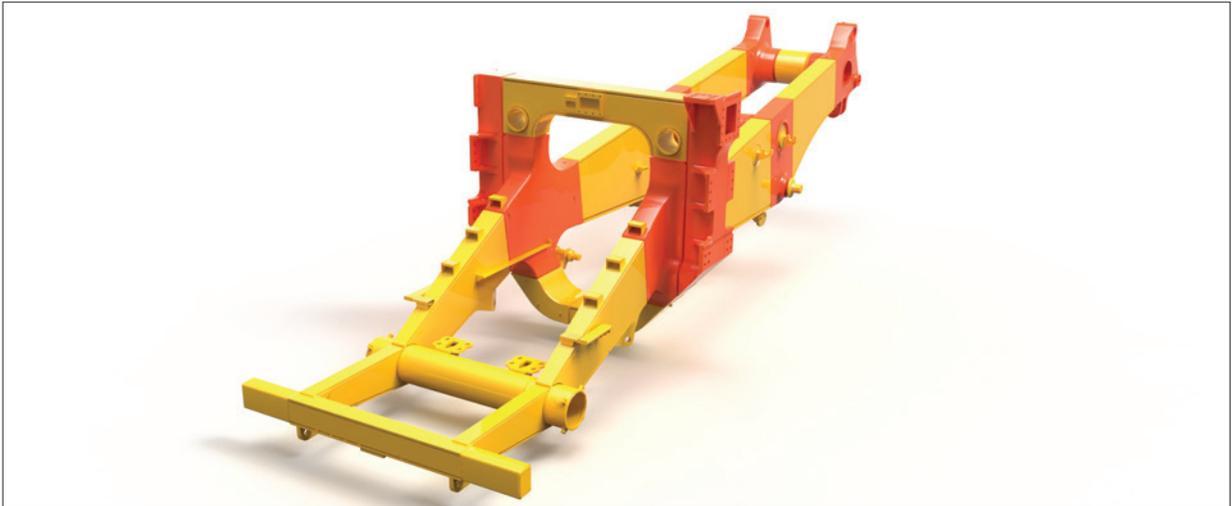
### Operator Seat

Komatsu recognizes that operator comfort is a key to productivity in today's mining environment. The five-way adjustable operator seat and the tilt-telescopic steering column provide an optimum driving posture for increased operator comfort and control over the machine. The air suspension seat absorbs vibrations transmitted from the machine, reducing operator fatigue. A blaze orange 76 mm **3"** wide three-point seat belt is provided as standard equipment.



### Structurally Enhanced Frame Design

By using advanced computer-aided design, finite element analysis, and full-scale dynamic and static testing, the frame design has been structurally enhanced to carry 254 tonne **280 short tons** and provides the highest reliability in the industry.



### Castings Used in High Stress Areas

To increase frame reliability, steel castings have been incorporated at key frame pivot points and key load bearing critical portions of the frame. This includes the rear body pivot and horsecollar sections.

### Steering and Brake Accumulators

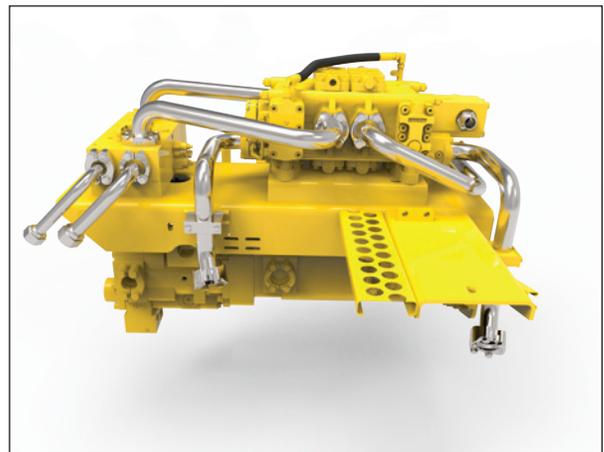
In the event that the hydraulic pressure in the steering or braking system drops below an acceptable level, nitrogen charged accumulators will automatically apply the brakes so that the truck may be stopped. There are separate accumulators for the braking and steering systems.



### Simple and Reliable Hydraulic System

The hydraulic system is a proven and reliable design with fewer parts than other OEMs. The system utilizes a single tank, providing one common source of fluid for steering, braking, and hoist actuation. In-line, replaceable filtration elements provide protection from hydraulic system contamination, making the system easier to service.

To keep downtime to a minimum, Komatsu developed a sub-frame pump module that can be removed and replaced as a single unit. This reduces change-out time and allows easy access to the hydraulic pump module.



## Dynamic Retarding

For daily operation, the 860E-1K is equipped with an electric retarding package which can supply up to 3469 kW **4,650 hp** of resistance. When requested, the wheel motors switch from motors to electrical generators. The resistive force created from this process is used to slow the truck to the desired speed. The power generated is then run over an 18 element grid which converts the electricity into heat. The heat is then dissipated into the atmosphere by the quietest grid blower Komatsu has ever used.

## Fully Hydraulic Controlled Multiple-Disc Wet Brakes

Although the dynamic retarding system is the primary braking force, the 860E-1K comes standard with four-wheel, hydraulically actuated, oil cooled service brakes. In the event that the truck's hydraulic system pressure drops below an acceptable level, accumulator tanks will automatically apply all wheel brakes to bring the truck to a complete stop.

- Max. service apply pressure: 16547 kPa **2,400 psi**
- Total friction area per brake: 75439 cm<sup>2</sup> **11,693 in<sup>2</sup>**

The oil cooled brake system provides lower maintenance costs and higher reliability versus dry disc brakes. This system is fully sealed to help keep contaminants out and reduce brake wear and maintenance. The brakes are hydraulically actuated, removing all air from the design. By eliminating an air system, air bleeding is not required and water condensation that can lead to contamination, freezing, and corrosion is no longer present. There are three independent hydraulic circuits that provide hydraulic back-up.

## Integrated Park Brake

To further reduce the maintenance on the 860E-1K, Komatsu has included an integrated, spring applied, park brake. This system uses the existing components of the service brakes to function as the park brake. This eliminates the need to change high wear parts on independent service and parking brake systems.

## Service Brake Performance



Photos may include optional equipment

### Advanced Monitoring System – On-board Diagnostics

The Komatsu advanced monitoring system identifies maintenance items to the operator, reduces diagnostic times, indicates oil filter replacement hours, and displays fault codes to maximize machine availability and productivity.

### Extended Engine Oil Change

CENTINEL® oil management system and ELIMINATOR® filtration system reduce oil and filter changes to lower scheduled downtime. Oil drain is extended to up to 4,000 hours, and there are no spin-on oil filters. ELIMINATOR® paper is replaced every 1,500 hours.

### Automatic Lubrication System

The automatic lubrication system is designed to reduce downtime for lubrication by having a centralized location that automatically distributes grease to all lubrication points.



### KOMTRAX Plus®

As part of a complete service and support program, Komatsu equips every mining and quarry sized machine with Komtrax Plus®. By using a satellite-based communication system, Komtrax Plus® offers a new vision of monitoring your valuable assets by providing insight to critical operating metrics and information that can be used to increase availability, lower owning and operating costs and maximize fuel efficiency.

The Komtrax Plus® information available on MyKomatsu.com allows service personnel and asset owners to review cautions, operational data, fuel consumption, payloads and key component measurements provided in forms of trends. With Komtrax Plus®, knowledge becomes the power to fuel your productivity.



### (Optional) Komatsu Smart Rims

Komatsu Smart Rim technology allows for easy removal and installation of the tires to minimize the overall impact on machine downtime.



## ADDITIONAL FEATURES

### Environmentally Friendly

#### U.S. EPA Tier 2 Compliant Engine

The Komatsu SSDA16V160 is certified to US EPA Tier 2 emission regulations out of the exhaust pipe.

#### Less Hydraulic Fluid Than Mechanical Drives

The Komatsu 860E-1K contains 53% less hydraulic fluid compared to similar class mechanical drive trucks, creating a lower environmental impact and makes fluid replacement simpler, quicker and more economical.

#### Low Speed - High Volume Quiet Grid Blower

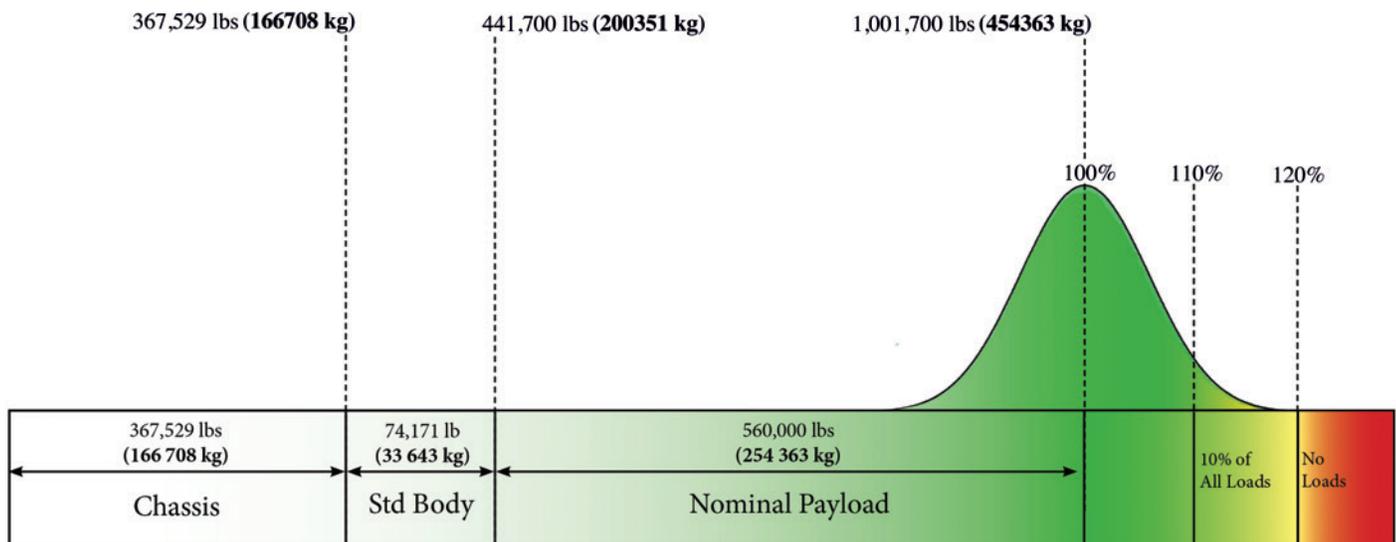
The new grid blower design used on the 860E-1K is quiet and responsive to the truck's retarding needs. This blower has the lowest noise output of any retarding system used on Komatsu trucks to date.

### Payload Policy

#### 10-10-20 Load Policy Criteria

Recognizing that variation occurs naturally in material density, fill factors, and loading equipment, Komatsu America Corp. deems it necessary to establish a consistent payload policy. This payload policy is intended to identify the guidelines and limitations for the loading of Komatsu mining trucks, and is valid for approved applications and haul profiles only.

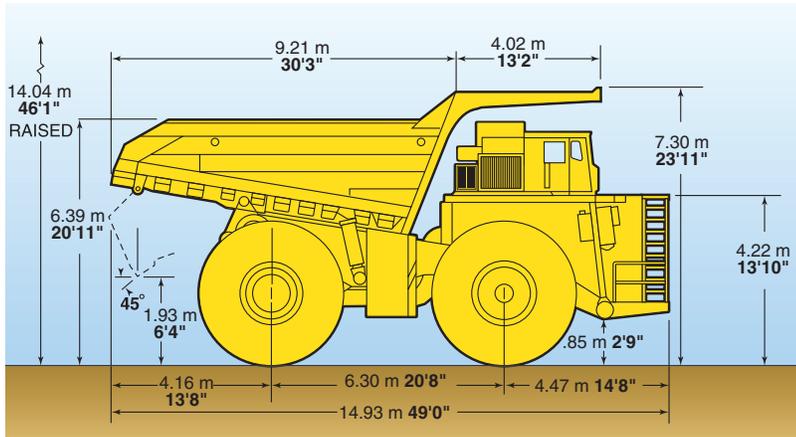
- 1) The average monthly payload must not exceed the rated payload of the truck
- 2) 90% of all loads must be below 110% of the rated payload of the truck
- 3) 10% of all loads may be between 110% and 120% of the rated payload of the truck
- 4) No single payload may exceed 120% of the rated payload of the truck







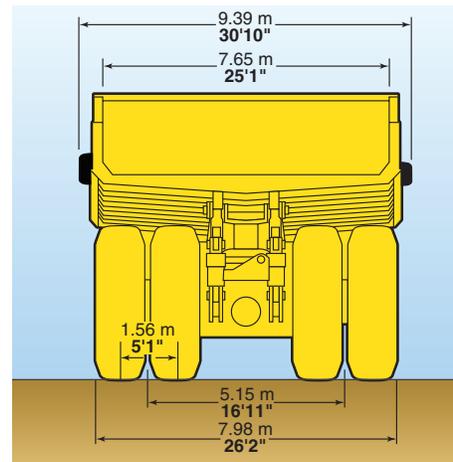
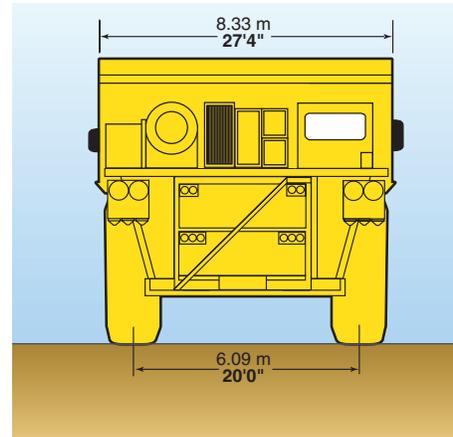
## DIMENSIONS



All dimensions are for unladen truck with standard body.

Body	Capacity		Loading Height*
	Struck	2:1 Heap	
Standard	122 m <sup>3</sup> 160 yd <sup>3</sup>	169 m <sup>3</sup> 221 yd <sup>3</sup>	6.37 m 20'11"

\*Exact load height may vary due to tire make, type, and inflation pressure.



## HYDRAULIC SYSTEM

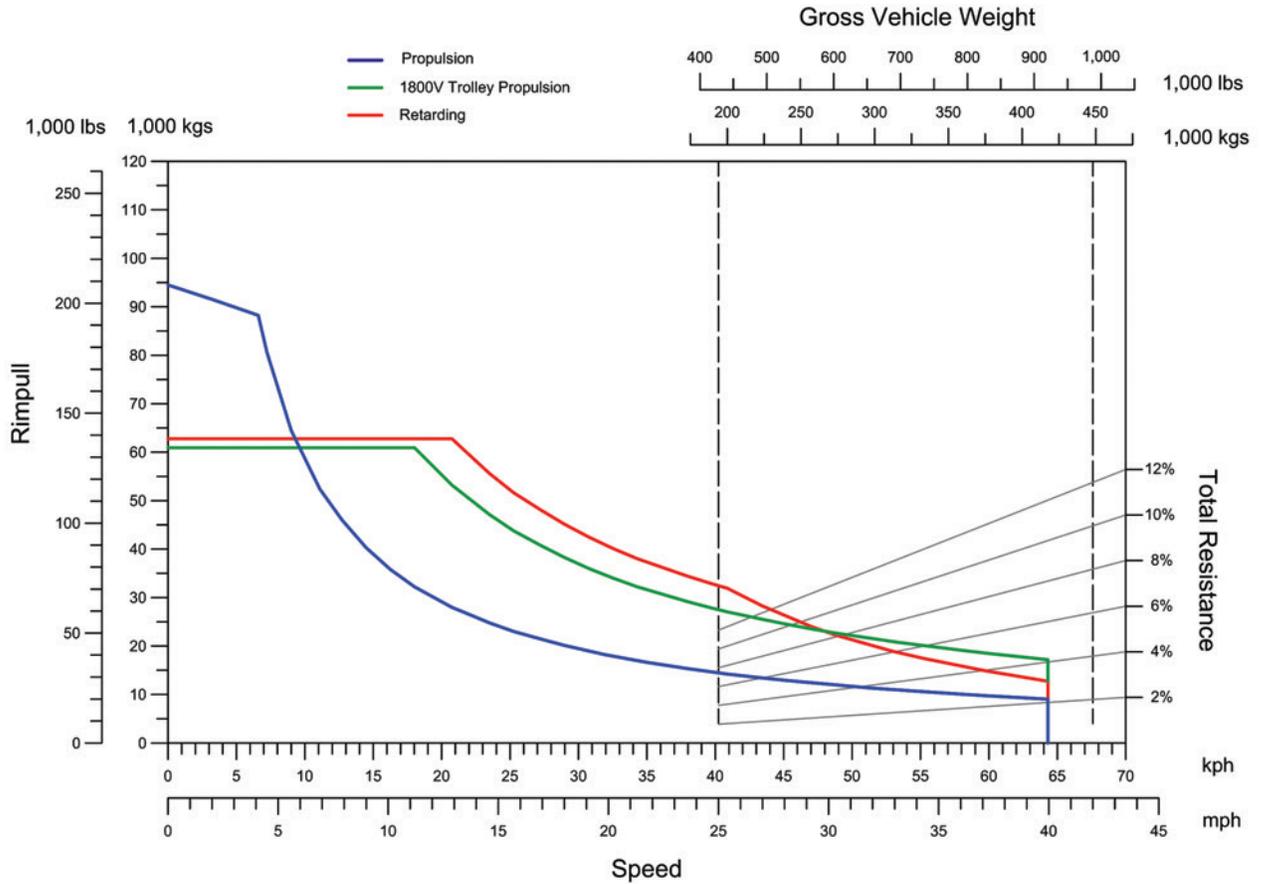
- Steering ..... Accumulator assisted with twin double acting cylinders provide constant rate steering. Secondary steering automatically supplied by accumulator.
- Turning circle diameter (SAE) ..... 31 m **102'**
- Reservoir ..... 947 L **250 U.S. gal**
- Filtration ..... In-line replaceable elements
  - Suction ..... Single, full flow, 100 mesh
  - Hoist and steering ..... Dual, in-line, high pressure
- Brake component cabinet ..... Above deck, easily accessible with diagnostic test connections
- Hoist ..... Two 3-stage dual-acting outboard cylinders, internal cushion valve, over-center dampening
- Hoist times
  - Power-up loaded ..... 22 sec
  - Power-down (high idle) ..... 13 sec
  - Float-down (low idle) ..... 23 sec
- Pumps ..... Two pumps, single package, end of alternator
  - Hoist and brake cooling ..... Tandem gear pump with output of 931 lpm **246 gpm** at 1900 rpm and 17237 kPa **2,500 psi**
  - Steering and brake ..... Pressure-compensating piston pump with output of 246 lpm **65 gpm** at 1900 rpm and 18960 kPa **2,750 psi**
- System relief pressures
  - Hoist and brake cooling ..... 17237 kPa **2,500 psi**
  - Steering and brake ..... 27579 kPa **4,000 psi**
- Quick disconnects standard for dumping disabled truck and for systems diagnostics.



## ELECTRICAL SYSTEM

- 4 x 8D 1400 CCA, 12 volt, in series/parallel, 180 AMP-hours batteries, bumper-mounted with disconnect switch.
- Alternator ..... 24 volt, 250 amp
- Lighting ..... 24 volt
- Cranking motors ..... Two/24 volt

## Performance Chart



860E-1K

## Vehicle Weights

<b>Standard Chassis</b>	137325 kg	<b>302,749 lbs</b>
<b>Komatsu Body</b>	33643 kg	<b>74,171 lbs</b>
<b>Standard Tire Weight</b>	23033 kg	<b>50,780 lbs</b>
<b>Option Allowance</b>	6350 kg	<b>14,000 lbs</b>
<b>Empty Vehicle Weight</b>	200351 kg	<b>441,700 lbs</b>
<b>Front Axle (49%)</b>	98361 kg	<b>216,850 lbs</b>
<b>Rear Axle (51%)</b>	101990 kg	<b>224,850 lbs</b>
<b>Max. Gross Vehicle Weight</b>	454363 kg	<b>1,001,700 lbs</b>
<b>Front Axle (33.5%)</b>	152392 kg	<b>335,871 lbs</b>
<b>Rear Axle (66.5%)</b>	301971 kg	<b>665,829 lbs</b>
<b>Nominal Payload</b>	254363 kg	<b>560,000 lbs</b>
	254 metric tons	<b>280 short tons</b>

Nominal payload is defined by Komatsu America Corp's payload policy documentation. In general, the nominal payload must be adjusted for the specific vehicle configuration and site application. The figures above are provided for basic product description purposes. Please contact your Komatsu distributor for specific application requirements.





## STANDARD EQUIPMENT

- Air cleaners, with dust evacuators
- Alternator (24 volt/250A)
- Auto lubrication system w/ground level fill & low level indicator
- Batteries—4 x 8D (1400 CCA's)
- Battery charging cable and socket
- Body impact plate
- Body over center device
- Body up sling
- Brakes: oil-cooled, multiple disc front & rear
- Control cabinet
- Electric start
- Eliminator®, Centinel®, Cense®
- Fast-fill fuel system (in tank and left side remote)
- Filters, high pressure hydraulic
- Ground level radiator fill
- Mirrors, LH flat and RH rectangular convex
- Mud flaps
- Muffled exhaust—deck-mounted
- Power supply, 24 volt and 12 volt DC
- Quick disconnects (hoist and diagnostics)
- Radiator sight gauge
- Removable power module unit (radiator, engine, alternator, blower)
- Reverse retarding
- Service center—LH
- Speed Control (Propel & Retard)
- Thermostatic fan clutch

### OPERATOR ENVIRONMENT & CONTROL

- All hydraulic service brakes with emergency auto apply
- Back up alarm
- Battery disconnect switch
- Brake lock and drive system interlock
- Diagonal staircase across grille, L to R
- Dynamic retarding with continuous rated element grids
- Engine shutdown at ground level
- Fuses, 24 volt
- Hoist propulsion interlock
- Horns (electric—front)
- Integral ROPS/FOPS Level 2

- Maintenance and power lockout
- Parking brakes with warning light & speed application protection
- Power steering w/auto secondary steering
- Protective deck handrails with kick plate
- Pump driveline protector
- Radiator fan guard
- Seat belts 76 mm 3", 3-point, retractable
- Skid-resistant surface on walkways

### STANDARD HIGH VISIBILITY DELUXE CAB

- Status and instrument panel
  - Body up
  - Parking brake
  - Propulsion system not ready
  - No DC link voltage
  - High engine oil temp
  - No propel
  - Service brake applied
  - Wheel brake lock applied
  - Repair monitor
  - Engine warming up
  - Engine shut down timer
  - Grid Drier
  - Traction control
  - Dynamic Retarding
- Air cleaner restriction gauges
- Air conditioner HFC-134A
- AM/FM radio with CD & USB
- Column-mounted speed control
- Digital tachometer and speedometer
- Dome light
- Engine hourmeter
- Engine shutdown w/ "Smart Timer" delay
- Floor mat (double barrier)
- Fuel gauge in cab and site gauge on tank
- Fuel low level light and buzzer
- Gauges (w/backlight)
  - Oil Pressure
  - Coolant Temperature
  - Hydraulic Oil Temperature
- Headlight switch
- Heater and defroster (heavy-duty)
- High beam selector and indicator

- Horn (center of steering wheel)
- Indicator lights (blue)
  - Engine service
  - KOMTRAX Plus snapshot (IM)
- Komatsu Payload Meter IV (PLM IV)
- Operator seat, adjustable w/air suspension, lumbar support and arm rests
- Panel lighting (adjustable)
- Passenger seat, full size, heavy duty mechanical suspension
- Power windows
- Pressurized cab air system w/fan on
- Single brake/retarder pedal
- Starter key switch
- Sunvisor (adjustable)
- Thermal insulation
- Tilt & telescoping steering wheel
- KOMTRAX Plus
- Windshield (tinted safety plate)
- Windshield wiper (dual) and washer (electric)

### LIGHTING

- Back-up lights—rear mount (2, halogen)
- Back-up lights—R and L - deck mount (2, halogen)
- Brake and retard lights on top of cab (LED)
- Clearance lights (LED)
- Control cabinet service light (LED)
- Dynamic retarding, rear (2, LED)
- Engine compartment service lights
- Fog lights (2, halogen)
- Headlights (8, halogen)
- Manual back-up light, switch and indicator
- Payload lights R and L (LED)
- Platform lights R, L and Center (3, halogen)
- Stairway lights (1, halogen)
- Stop & tail lights (2, LED)
- Turn signals (LED)



## OPTIONAL EQUIPMENT

Note: Optional equipment may change operating weight.

- Body Liners\*
- Cold Weather Options
- DTSA Body
- Fire extinguisher 9 kg **20 lb**
- Headlights (HID)
- Heated body
- Hot start engine coolant (220V 2-2500W)
- Hot start engine oil (220V 2-500W)
- Hot start hydraulic oil
- Hubodometer
- Komatsu Smart Rims
- Komatsu Wireless Bridge
- KomVision™ All Around Monitoring System
- Mufflers between frame rails
- PLM IV® Scoreboards
- Premium Operator and Passenger Seats
- Reversed access ladder, R to L
- Service center—RH
- Shutters (radiator)
- Special language decals
- Suspensions, cold weather
- Tires (50/90R57)
- Trolley assist

\*Available factory installed or non-installed. All other options and accessories listed are available factory installed only.

# KOMATSU®