GROSS HORSEPOWER
2610 kW 3,500 HP

NOMINAL GVW
576072 kg 1,270,000 lb

KOMATSU

960E-2K

Photo may include optional and/or site specific equipment.
**Productivity Features**
- High performance Komatsu SSDA18V170 engine
  - Gross horsepower 2610 kW, 3,500 HP
- Komatsu IGBT AC electric drive system
- 4620 kW, 6,196 HP continuous retarding capability
- Propulsion/retard speed control
- Traction (spin-slide) control
- Customer specific body
- Hydropneumatic suspension designed for optimum performance and ride
- Tight turning radius 16 m, 52' 6"
- Payload Meter III®
- Advanced Hill Start

**Environmentally Friendly**
- Optional Tier 4 compliant Komatsu SSDA18V170 engine
- Fuel efficient engine
- 57% less fluids compared to similar class mechanical drive trucks
- Low noise retarding
- Electrically driven main blower

**Reliability Features**
- Frame structurally enhanced for 327 tonne, 360 short ton payload
- Proven and reliable hydraulic system
- Steering and brake accumulators
- Hydraulically actuated multiple-disc wet brakes
Operator Environment

- Ergonomically designed spacious cab with improved visibility
- Fully adjustable driving position settings
- Four post ROPS/FOPS Level 2 Cab
- Advanced dash panel with payload display
- AM/FM/CD/MP3/USB radio

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 based on the Centinel® and Reserve systems
- Automatic lubrication system
- Eliminator® oil filtration system
- In-tank fast fuel fill system

Photos may include optional equipment
Komatsu SSDA18V170 High Horsepower Engine
Komatsu’s SSDA18V170 engine was designed and developed by Industrial Power Alliance (IPA) technical joint venture between Komatsu and Cummins®. This 2610 kW 3,500 HP engine will operate in most of today’s mining applications without experiencing power derate. Fuel efficiency is maximized due to optimized air handling with two-stage turbocharging. A standard pre-lube system is designed to eliminate 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 with Reserve oil
- ELIMINATOR® filtration system reduces oil and filter changes by one-third

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 applications ranging from high rolling resistance to long flat hauls.

Electric Dynamic Retarder
The 4620 kW 6,196 HP retarding system provides state-of-the-art braking capacity for navigating today’s mining operations which contain steep continuous descents and sharp switchbacks.

The power capacity, coupled with the low noise high volume fan, makes it possible for the operator to maintain control while hauling downhill. The dynamic electric retarder reduces the need for service brake applications.

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.
**Traction (Spin-Slide) Control**
During slippery conditions, the 960E-2K 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.

**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.

**Application Specific Body**
For all trucks, Komatsu goes through the Body Worksheet (BW) process to ensure 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 a full canopy and horizontal bolsters. This body includes a driver side eyebrow, body up sling, and rubber mounts on the frame.

- Standard Body Struck Capacity: 149 m³ 195 yd³
- Standard Body SAE Heaped 2:1: 214 m³ 280 yd³
- Standard Komatsu Body Weight: 40823 kg 90,000 lbs
Payload Meter III® (PLM III)

PLM III is an electronic system that monitors and records payload information for Komatsu’s off-highway mining trucks. The accurate and reliable payload measurement system is designed to help optimize payload, maximize productivity and reduce the life cycle cost of the machine. PLM III tracks and records the following key production parameters:
- Payload
- Empty Carry-Back
- Operator Identification
- Haul Cycle, Loading, Dumping Time and Date
- Distance Traveled (Loaded and Empty)
- Cycle Time Information
- Maximum Speeds (Loaded and Empty)
- TMPH Estimate for Front and Rear Tires
- Average Speed (Loaded and Empty)

Example of Payload Summary

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 II® contributes to the durability of the machine’s frame and components.
Ergonomically Designed Cab
The Komatsu 960E-2K cab design provides a comfortable and productive environment to meet today’s mining demands. The cab includes tinted windows, heating and air conditioning, acoustical insulation, double sealed doors, and provides filtered and pressurized air.

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 51 mm 2” wide three-point seat belt is provided as standard equipment.

Built-in ROPS and FOPS Structure
Integral ROPS/FOPS Level 2 cab. These structures conform to ISO standards 3471 and 3449.
Structurally Enhanced Frame Design
By using advanced computer-aided design, finite element analysis, and full-scale dynamic and static testing, the frame has been designed to carry 327 tonne 360 short tons and provides the highest structural reliability from Komatsu.

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 minimum, 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 hoisting. In-line, replaceable filtration elements provide protection from hydraulic system contamination. This makes 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.

Komatsu AC Drive
Our Komatsu AC drive is designed to provide the reliability and highest quality from Komatsu. Held to the highest standards, the transmission was subjected to extensive testing and quality confirmation, both on the bench and in the field. A full scale bench durability test was conducted during development to evaluate design quality prior to production. By using planetary design, extensive machining is not required during a standard rebuild.
**Fully Hydraulic Controlled Multiple-Disc Wet Brakes**

Although the dynamic retarding system is the primary braking force, the 960E-2K 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: 18960 kPa 2,750 psi
- Total friction area per brake: 103729 cm² 16,078 in²

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.
Advanced Monitoring System – On-board Diagnostics
The Komatsu advanced monitoring system identifies maintenance items to the operator, reduces diagnostic times, indicates oil and filter replacement hours, and displays fault codes. This monitoring system is designed to maximize machine availability.

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.

KO M TRAX 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.

Extended Oil Change System
Cummins CENTINEL® oil management system and ELIMINATOR® filtration system reduce oil and filter changes by one-third. Oil drain is extended to 4,000 hours, and there are no spin-on oil filters. Centrifuge paper is replaced every 1,500 hours.

Flange Type Tire Rims
The flange type rims allow quicker removal and installation of the tires which minimizes the overall impact on downtime.
Environmentally Friendly

**Komatsu SSDA18V170 Engine**
Optional Tier 4 compliant Komatsu SSDA18V170 engine.

**Noise Reduction**
The 960E-2K comes with a remarkably quiet retarding package, designed to reduce noise through the low speed high volume fan.

**Reduced Fuel Consumption**
An electrically driven, more efficient main blower reduces fuel consumption and lowers operating costs.

**Less Fluids Than Mechanical Drives**
Komatsu electric drive trucks contain 57% less fluid compared to similar class mechanical drive trucks, creating a lower environmental impact and makes fluid replacement simpler, quicker and more economical.

Selectable Stairway Direction

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
960E-2K  ELECTRIC DRIVE TRUCK

SPECIFICATIONS

ENGINE

Make and model* ....................................... Komatsu SSDA18V170
Fuel ..................................................... Diesel
Number of cylinders ..................................... 18
Operating cycle ............................................ 4 cycle
Gross horsepower* ...................................... 2610 kW 3,500 HP @ 1900 rpm
Net flywheel power*** ................................... 2495 kW 3,346 HP @ 1900 rpm
Weight (wet) ............................................. 11750 kg 25,897 lb

** Gross horsepower is the output of the engine as installed in this machine, at governed rpm and with engine manufacturer’s approved fuel setting. Accessory losses include water pump, fuel pump and oil pump.
*** Net flywheel power is the rated power at the engine flywheel minus the average accessory losses. Accessories include fan and charging alternator. Rating(s) represent net engine performance in accordance with SAE J1349 conditions.

ELECTRIC DRIVE

AC/DC CURRENT

Drive System* .............................................. Komatsu AC Drive
Alternator .................................................. Siemens
Dual Fan Main Blower
Alternator Flow ........................................... 266 m³/min 9,380 cfm
Wheel Motor Flow ........................................ 419 m³/min 14,890 cfm
Control ..................................................... IGBT AC Torque Control System
Ratio .......................................................... 38.12
Speed (maximum) ......................................... 64.5 km/h 40 mph

* Drive system performance depends upon gross vehicle weight, haul road grade, haul road length, rolling resistance and other parameters. Komatsu must analyze each job condition to assure acceptable application.

TIRES AND RIMS

Rock service, tubeless, radial tires
Standard tire* .............................................. 56/80 R63
Flange mount rim
1041 mm x 1600 mm x 140 mm 41° x 63° x 5.5" rim assembly.
Rims rated at 758 kPa 110 psi cold inflation pressure.
Typical tire weight ................................. 2955 kg 65,154 lb

* Tires should meet application requirements for tkph/tmph, tread, compound, inflation pressure, ply rating or equivalent, etc.

BODY

All-welded steel flat floor body with horizontal bolsters and full canopy. Rubber mounts on frame are standard. Eyebrow, body up sling, extended canopy and pivot exhaust heating are optional.

Floor sheet ................................................. 16 mm 0.63" Outer
19 mm 0.75" Center
1379 MPa 200,000 psi tensile strength steel
Front sheet ............................................... 10 mm 0.39" Outer
12 mm 0.47" Center
1379 MPa 200,000 psi tensile strength steel
Side sheet .................................................. 10 mm 0.39"
1379 MPa 200,000 psi tensile strength steel
Canopy sheet .............................................. 6 mm 0.24"
690 MPa 100,000 psi tensile strength steel
Capacity struck ........................................... 149 m³ 195 yd³
SAE heaped 2:1 ............................................. 214 m³ 280 yd³
Standard Komatsu body weight .................. 40823 kg 90,000 lb

CAB

Advanced Operator Environment with integral 4-post ROPS/FOPS
Level 2 cab (ISO 3449), adjustable air suspension seat w/lumbar support and arm rests, full-size passenger seat, maximum R-value insulation, tilt and telescoping steering column, electric windshield wipers w/washer, tinted glass, power windows, Payload Meter III, 61,000 Btu/hr heater and defroster, 19,900 Btu/hr air conditioning (HFC - 134A refrigerant).
### ELECTRICAL SYSTEM

4 x 8D 1450 CCA, 12 volt, in series/parallel, bumper-mounted with disconnect switch.
- Alternator: 24 volt, 250 amp
- Lighting: 24 volt
- Cranking motors: Two/24 volt

### HYDRAULIC SYSTEM

- Steering: Accumulator assisted with twin double acting cylinders provide constant rate steering. Secondary steering automatically supplied by accumulator.
- Turning circle diameter (SAE): 32 m 105'
- 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: 24 sec
  - Power-down: 14 sec
  - Float-down empty: 24 sec
- Pumps: Two pumps, single package, in-line
- Hoist and brake cooling: Tandem gear pump with output of 931 lpm 246 gpm at 1900 rpm and 18960 kPa 2,750 psi
- Steering and brake: Pressure-compensating piston pump with output of 246 lpm 65 gpm at 1900 rpm and 20685 kPa 3,000 psi
- System relief pressures:
  - Hoist and brake cooling: 17237 kPa 2,500 psi
  - Steering and brake: 20685 kPa 3,000 psi
- Ports available for powering disabled truck and for system diagnostics.

### DIMENSIONS

All dimensions are for unladen truck with standard body.

<table>
<thead>
<tr>
<th>Body</th>
<th>Capacity</th>
<th>Loading Height*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Struck 149 m³ 195 yd³</td>
<td>2:1 Heap 214 m³ 280 yd³</td>
</tr>
</tbody>
</table>

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

Typical Number of Passes to Load

<table>
<thead>
<tr>
<th>Komatsu Trucks</th>
<th>HD785</th>
<th>HD1500</th>
<th>730E</th>
<th>830E-AC</th>
<th>860E-1K</th>
<th>930E-4</th>
<th>930E-4SE</th>
<th>960E</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 ton</td>
<td>4</td>
<td>159 ton</td>
<td>203 ton</td>
<td>244 ton</td>
<td>280 ton</td>
<td>320 ton</td>
<td>320 ton</td>
<td>360 ton</td>
</tr>
<tr>
<td>157.7 yd³</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.5 yd³</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>29 yd³</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>37 yd³</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>55 yd³</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Nominal truck payload rating (short tons)
Bucket ratings are based on 1780 kg/lcm 3,000 lbs/lcy material density.
### Empty Vehicle Weight

<table>
<thead>
<tr>
<th></th>
<th>Weight (kg)</th>
<th>lbs</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Axle</td>
<td>123490</td>
<td>272,250</td>
<td>49.5%</td>
</tr>
<tr>
<td>Rear Axle</td>
<td>125985</td>
<td>277,750</td>
<td>50.5%</td>
</tr>
<tr>
<td>Total EVW</td>
<td>249475</td>
<td>550,000</td>
<td></td>
</tr>
</tbody>
</table>

### Gross Vehicle Weight

<table>
<thead>
<tr>
<th></th>
<th>Weight (kg)</th>
<th>lbs</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Axle</td>
<td>190104</td>
<td>419,100</td>
<td>33.0%</td>
</tr>
<tr>
<td>Rear Axle</td>
<td>385968</td>
<td>850,900</td>
<td>67.0%</td>
</tr>
<tr>
<td>Nominal GVW</td>
<td>576072</td>
<td>1,270,000</td>
<td></td>
</tr>
</tbody>
</table>

### Payload

<table>
<thead>
<tr>
<th></th>
<th>Weight (kg)</th>
<th>lbs</th>
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<tbody>
<tr>
<td>Nominal Payload</td>
<td>326585</td>
<td>720,000</td>
</tr>
<tr>
<td></td>
<td>327 metric</td>
<td>360 short</td>
</tr>
</tbody>
</table>

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, Donaldson® w/ evacuators
- Alternator (24 volt/250A)
- Automatic lubrication system w/ ground level fill & level indicator
- Battery: oil-cooled, multiple disc front & rear
- Brake disconnect switch
- Eliminator®, Centinel®, Sense®
- Fast-fill fuel system (in tank and left side remote)
- Filters, high pressure hydraulic
- Fuel tank sight gauge (3)
- Ground level radiator fill
- L&M Radiator
- Mud flaps
- Muffled exhaust–deck-mounted
- Power supply, 24 volt and 12 volt DC
- Propel/retard speed control
- Quick disconnects (hoist and diagnostics)
- Radiator sight gauge
- Radiator sight gauge, hydraulic oil temperature gauge
- Radiator sight gauge, coolant temperature gauge, hydraulic oil temperature gauge
- Radiator fan guard
- Radiator sight gauge, engine, alternator
- Reverse retarding
- Service center–LH
- Thermostatic fan clutch
- Stairway-selectable direction (L to R)
- Thermosiphon fan clutch
- High beam selector and indicator
- Heated body
- Headlight switch
- Headlight switch
- Headlight switch
- Operator seat, adjustable w/ air suspension, lumbar support and arm rests
- Panel lighting (adjustable)
- Passenger seat, mechanical suspension
- Power windows
- Pressure regulator
- Pressurized cab air system w/ fan on
- Single brake/retarder pedal
- Starter key switch
- Sunvisor (adjustable)
- Tilt & telescoping steering column
- Windows
- - Laminated glass, front
- - Tempered glass, sides and rear
- Windshield wiper (dual) and washer (electric)

OPTIONAL EQUIPMENT
- Accumulators (cold weather)
- Antifreeze (-40°C)
- Battery disconnect switch
- Battery: oil-cooled, multiple disc front & rear
- Brake and retard lights on top of cab
- Brake and retard lights on top of cab
- Brake and retard lights on top of cab
- Brake lock and drive system interlock
- Brake lock and drive system interlock
- Brake lock and drive system interlock
- Circuit breakers, 24 volt
- Diagonal ladder tread cap plates
- Dynamic retarding with continuous rated element grids
- Engine access guard rail
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