Productivity and Economy Features

- High performance Komatsu SDA12V160 engine
  Net horsepower 1048kW 1,406HP
- Komatsu 7 speed, electronically controlled automatic powershift transmission
- 4-wheel oil-cooled, multiple-disc retarder
- Automatic Retard Speed Control (ARSC) standard

Reliability Features

- Flat face-to-face O-ring seals
- Sealed DT connectors
- Fully hydraulic brakes - no air system
Operator Environment and Control

- Spacious cab with excellent visibility
- Ergonomically-designed cab
- Easy-to-see instrument panel
- Advanced K-ATOMiCS with “Skip-shift” function
- Built-in ROPS/FOPS cab (Level 2)
- Parking brake on input shaft
- Supplementary steering
- Push-button operated secondary brake

Easy Maintenance

- Oil-cooled multiple-disc brakes and fully hydraulic-controlled braking system
- Electric circuit breakers
- Vehicle Health Monitoring System (VHMS)
- Remote mounted transmission

Photos may include optional equipment
High Performance Komatsu SDA12V160 Engine
The Komatsu SDA12V160 engine provides the highest horsepower in its class. With 1487 gross horsepower, this engine delivers faster acceleration and higher travel speeds with a high horsepower-to-ton ratio. High torque at low speed, impressive acceleration, and low fuel consumption ensure maximum productivity. Standard features of this engine include the Quantum electronic control system, Cummins Cense monitoring and pre-lubrication.

Seven-Speed Electronically Controlled, Automatic Powershift Transmission
Komatsu’s seven-speed, electronically controlled, automatic powershift transmission uses a rubber damper to comfortably reduce harmful engine shock and vibration to the transmission. A lock-up system, consisting of a wet multiple-disc clutch, is actuated in F1-F7 gears for higher fuel savings. Electronic shift control with automatic clutch modulation in all gears and full diagnostics with memory. The transmission circuit uses a separate hydraulic circuit and cooler.

Komatsu torque converter is transmission-mounted and lock-up clutch is electronically controlled.

Maximum travel speed (empty, 2% rolling resistance)

<table>
<thead>
<tr>
<th>Gear</th>
<th>Speed (km/h)</th>
<th>Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear 1</td>
<td>11.0</td>
<td>6.8</td>
</tr>
<tr>
<td>Gear 2</td>
<td>14.7</td>
<td>9.1</td>
</tr>
<tr>
<td>Gear 3</td>
<td>19.7</td>
<td>12.2</td>
</tr>
<tr>
<td>Gear 4</td>
<td>24.5</td>
<td>15.2</td>
</tr>
<tr>
<td>Gear 5</td>
<td>32.7</td>
<td>20.3</td>
</tr>
<tr>
<td>Gear 6</td>
<td>44.2</td>
<td>27.5</td>
</tr>
<tr>
<td>Gear 7</td>
<td>58.4</td>
<td>36.3</td>
</tr>
<tr>
<td>Reverse</td>
<td>9.4</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Four-Wheel, Oil Cooled, Multiple Disc Brakes
The HD1500-7 is equipped with four wheel, oil cooled, multiple disc brakes which provide the greatest retarding capabilities in its class. Effective and smooth braking characteristics are controlled through the retarding lever by a system of pressure proportioning valves (PPC), which precisely meter the appropriate amount of hydraulic pressure to each brake assembly. The elimination of an air system, common with dry disc brakes, improves reliability and reduces maintenance costs.
Auto Retard Speed Control (ARSC)
ARSC allows the operator to simply set the downhill travel speed and go down slopes at a constant speed. This allows the operator to concentrate on steering. The speed can be set at increments of 1 km/h **0.6 MPH** per click (±5 km/h **3.1 MPH** of setting speed adjustment) 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.

Automatic Idling Setting System (AISS)
This system facilitates quick engine warm-up and cab cooling/warming. When setting the system ON, engine idle speed is kept at 1000 rpm when coolant temperature is **30°C 86°F** or lower. Speed automatically returns to 650 rpm when coolant temperature goes above 30°C **86°F**.

Small Turning Radius
The MacPherson strut type front suspension has a special A-frame between each wheel and the main frame. The wider space created between the front wheels and the main frame increases the turning angle of the wheels. The larger this turning angle, the smaller the turning radius of the truck.
Long Wheelbase and Wide Tread
With an extra-long wheelbase, a wide tread, and an exceptionally low center of gravity, the HD1500-7 hauls its load at higher speed for greater productivity, and delivers superior driving comfort over rough terrain.

Large Body
A wide target area makes for easy loading with minimal spillage and more efficient hauling.

- Heaped capacity: 78.0 m$^3$ 102.0 yd$^3$
- Target area (inside length x width): 7670 mm 25'2" x 5705 mm 18'8"

Advanced K-ATOMiCS
The electronically controlled all clutch modulation system, "K-ATOMiCS", optimizes the clutch engagement oil pressure at every gear. This system optimizes the clutch lock-up process for smoother shifting with minimal torque shock.

"Skip-shift" function
When driving uphill, the skip-shift function automatically selects the gear according to the slope of the grade. It reduces the number of down-shifts, makes the driving smoother, improves the operator’s comfort, and reduces spilling of material.

Rear LED Lighting Rack
Frame mounted LED lighting rack at the rear of the truck provides tail, brake, and flasher lights. In addition, this bracket, protected from falling objects by the body structure, includes the reverse horn and back-up lights.

Push Button Actuated Auxiliary Brake
All four wet disc brakes are activated when the auxiliary brake button, located on the dash board, is deployed. In addition, the brakes will automatically apply when the hydraulic pressure drops below the specified level.

Supplementary Steering
Automatic supplementary steering is provided as a standard feature.

The MacPherson Strut-Type Front Suspension
The MacPherson-type independent suspension is utilized on the front wheels. This linkage arrangement allows the front wheel to follow the undulation of the road surface smoothly, realizing excellent riding comfort.
Spacious Cab with Excellent Visibility
The HD1500-7 cab inherits the superior design features of Komatsu's ultra-class haul trucks. Wide windows in the front, side, and back, plus plenty of space in the richly upholstered interior, provide a quiet, comfortable environment for better visibility and control over every aspect of the operation.

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

Easy-to-See Instrument Panel
The instrument panel makes it easy to monitor critical machine functions. In addition, a caution light warns the operator of any problems that may occur. Problems are recorded in the monitor and indicated as service codes. This makes the machine more user friendly and easier to service.

Vehicle Health Monitoring System (VHMS)
VHMS controller monitors the health conditions of major components and enables remote analysis of the machine and its operation. This process is supported by the Komatsu distributors, factory, and design team.

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. A 78 mm 3" wide seat belt is provided as standard equipment.

Photos may include optional equipment
**Automatic Spin Regulator (ASR)**
ASR automatically maximizes traction by preventing the rear tires from slipping on either side.

**Integral Four-Post ROPS/FOPS Cab Structure (Level 2)**

**Wet multi-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. Brakes require no adjustments for wear, meaning even lower maintenance.

Service brake and retarder are isolated from the other truck hydraulic functions to ensure reliable performance. The parking brake is a spring applied, oil released, 3 caliper dry disc mounted on the input yoke to the differential. Fully hydraulic braking systems eliminate the air system; air bleeding is not required, and water condensation that can lead to contamination, corrosion, and freezing is eliminated.

**Automatic Lubrication System**
The Lincoln Auto-lube system features a deck mounted canister, ground level refill point, and an adjustable timer to ensure all pivot points are properly greased.

**Body Dump System**
Two 3-stage cylinders with new concept design and sealing system. Internal cushion valve and over-center damping provide smooth, reliable dumping. The quill design modulates the body return speed after dumping to manage forces into the frame and suspensions.

**Hoist times**
- Power Up: 15 sec
- Power Down: 15 sec
Komatsu Components
Komatsu manufactures the torque converter, transmission, hydraulic cylinders, and electrical parts on this dump truck. Komatsu dump trucks are manufactured with an integrated production system under strict quality control system guidelines.

High-Rigidity Frame
Front support is integrated with the frame. The frame rigidity has been substantially increased. As a result, flexural rigidity and torsional rigidity, which are indicators of drivability and ride quality, are significantly improved.

Rugged and Durable Dump Body Design
The standard dump body is made of high-tensile-strength steel with a Brinell hardness of 400 for excellent rigidity and reduced maintenance cost. The side and bottom plates of the dump section are reinforced with ribs for added strength.

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, a $\beta_{10} = 3$ (min) line filter is located at the entrance to the transmission control valve. This system helps prevent secondary faults.

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

Protection Function Supported by Electronic Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downshift inhibitor</td>
<td>Even if the driver downshifts accidentally, a speed appropriate to the current gear is automatically set, limiting potential over-runs.</td>
</tr>
<tr>
<td>Over-run inhibitor</td>
<td>When descending grades, if the vehicle's speed surpasses the maximum for the current gear, the front and rear brakes automatically operate, limiting potential over-runs.</td>
</tr>
<tr>
<td>Reverse inhibitor</td>
<td>The vehicle is prevented from moving backward when operating the body.</td>
</tr>
<tr>
<td>Forward/Reverse shift inhibitor</td>
<td>This device makes it impossible to shift from forward to reverse when the vehicle's speed surpasses 4 km/hr 2.5mph.</td>
</tr>
<tr>
<td>Anti-hunting system</td>
<td>When running near a shift point, smooth automatic shifting takes place.</td>
</tr>
<tr>
<td>Neutral safety</td>
<td>The engine is prevented from starting when the shift lever is not in neutral.</td>
</tr>
</tbody>
</table>
### HD1500-7 Off-Highway Truck

#### Specifications

##### Engine
- **Model**: Komatsu SDA12V160
- **Type**: Water-cooled, 4-cycle
- **Aspiration**: Turbo-charged, after-cooled
- **Number of cylinders**: 12
- **Bore x Stroke**: 159 mm x 190 mm
- **Piston displacement**: 45 ltr, 2,746 in³
- **Horsepower**:
  - SAE J1995: Gross 1109 kW, 1,487 HP
  - ISO 9249 / SAE J1349: Net 1048 kW, 1,406 HP
- **Rated rpm**: 1,900 rpm
- **Fan drive type**: Mechanical
- **Maximum torque**: 697 kg·m, 5,041 lb ft
- **Fuel system**: Direct injection
- **Governor**: Electronic control
- **Lubrication system**:
  - Method: Gear pump, force-lubrication
  - Filter: Full-flow type
- **Air cleaner**: Dry type with double elements and pre-cleaned, with dust indicator

##### Transmission
- **Torque converter**: 3-elements, 1-stage, 2-phase
- **Transmission**: Full-automatic, planetary-shaft type
- **Speed range**: 7 speeds forward and 1 reverse
- **Lockup clutch**: Wet, multiple-disc clutch
- **Forward**: Torque converter drive 1st and 2nd gear with direct drive lock-up in 1st through 7th
- **Reverse**: Torque converter drive with automatic clutch modulation in all gears
- **Maximum travel speed**: 58 km/h, 36 mph

##### Axles
- **Rear axle**:
  - Final drive type: Full-floating
  - Planetary gear
  - Ratios:
    - Differential: 2,647
    - Planetary: 7,235

##### Suspension System
- **Variable rate, hydropneumatic with integral rebound control**
- **Maximum front stroke**: 375 mm, 14.76"
- **Maximum rear stroke**: 106 mm, 4.17"
- **Rear axle oscillation**: +/- 9.2°

##### Steering System
- **Type**: Fully hydraulic power steering with two double-acting cylinders
- **Supplementary steering**: Accumulator assist
- **Minimum turning radius**: 12.2 m, 40'
- **Steering angle (left or right)**: 41°

##### Cab
- **Integral 4-post ROPS/FOPS cab structure (Level 2)**

##### Main Frame
- **Type**: Box-sectioned structure, Integral front bumper

##### Brakes
- **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, oil-released, 3 caliper dry disc mounted on input yoke to differential
- **Retarder**:
  - Oil-cooled, multiple-disc front and rear brakes act as retarder.
- **Secondary brake**:
  - Manual - push button operated.
  - Automatically applied prior to hydraulic system pressure dropping below established level.
- **Braking surface**:
  - 159148 cm², 24,668 in²

##### Body
- **Capacity**:
  - **Struck**: 54 m³, 71 yd³
  - **Heaped (2:1, SAE)**: 78 m³, 102 yd³
  - **Nominal payload**: 144.1 metric tons, 158.9 U.S. tons
- **Material**:
  - 400 Brinell hardness high tensile strength steel
- **Structure**:
  - Flat floor configuration
- **Rear axle**:
  - **Differential**: 240 ltr.
  - **Planetary**: 900 ltr.
- **Front axle**:
  - **Planetary**: 297 ltr.
- **Transmission**:
  - **Differential**: 240 ltr.

##### Hydraulic System
- **Hoist cylinder**:
  - Two, 3-stage telescopic type
- **Relief pressure**: 19.0 MPa, 193.4 kg/cm²
- **Hoist time**:
  - Raise: 15 sec
  - Lower: 15 sec

##### Weight (Approximate)
- **Empty weight**: 105300 kg, 232,144 lb
- **Max. gross vehicle weight**: 249478 kg, 550,000 lb
- **Not to exceed max. gross vehicle weight, including options, fuel and payload. Empty weight is with 100% fuel and operator.**
- **Weight distribution**:
  - **Empty**: Front axle: 48.6%, Rear axle: 51.4%
  - **Loaded**: Front axle: 32.8%, Rear axle: 67.2%

##### Tires
- **Standard tire**: 33.00 R51

##### Service Refill Capacities
- **Fuel tank**: 2120 ltr, 560 U.S. Gal
- **Engine oil**: 193 ltr, 51 U.S. Gal
- **Hydraulic system**: 297 ltr, 78 U.S. Gal
- **Differential**: 240 ltr, 63.5 U.S. Gal
- **Transmission**: 153 ltr, 40.5 U.S. Gal
**TRAVEL PERFORMANCE**

To determine travel performance: Read from gross weight down to the percent of total resistance. From this weight-resistance point, 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**

To determine brake performance: These curves are provided to establish the maximum speed and gearshift position for safer descents on roads with a given distance. Read from gross weight down to the percent of total resistance. From this weight resistance point, read horizontally to the curve with the highest obtainable speed range, then down to maximum descent speed the brakes can safely handle without exceeding cooling capacity.
STANDARD EQUIPMENT

POWERTRAIN
- Air cleaner (2); battery disconnect; engine electronic control; engine electronic monitor; engine overspeed protection; engine pre-lube system; ground level shutdown; variable speed engine fan (electronic-over-hydraulic)
- Powertrain Management (these items located in the cab): -transmission controller -retard controller -monitor display -data download port
- Seven-speed automatic transmission: -electronic control -body-up reverse interlock -body-up shift inhibitor -neutral start switch -transmission belly guard
- Torque converter (electronic lockup control)

CAB
- Air conditioning (R134A)
- Electric windows (both doors)
- Glass, tinted
- Heater/defroster
- Instrumentation (gauge and monitor): -speedometer -tachometer -engine coolant temperature -brake oil temperature -fuel lever -shift indicator -hourmeter -odometer -torque converter temperature -warning lights -Insulated and sound-suppressed Radio, AM/FM/Cassette -Seat, air suspension (driver) -Seat, passenger -Seat belts 78 mm 3” retractable -Steering wheel, tilt and telescopic -Sun visor -Windshield washer and wiper

LIGHTING
- Back-up light, rear (1)
- Back-up lights, deck-mounted (2)
- Clearance lights, front
- Engine service lights (2)
- Headlights, halogen (8)
- Hi-low beam selector
- Instrument panel lights
- Ladder lights, driver side
- Retarder lights (2)
- Stop and tail lights LED
- Turn signals LED

GENERAL
- Back-up warning alarm
- Body up cable
- Cab guard (on canopy)
- Drive line protector (front and rear)
- Engine fan and pulley guards
- Exhaust pipe blanket
- Ground level engine shutdown
- Handrails

- Heat shield behind engine
- Horn, electric (2)
- Ladder, deck-to-transmission
- Ladders, right and left (front)
- Mirrors, right and left
- Mud flaps
- Parking brake (3 caliper, spring-applied)
- Reverse hoist interlock
- Rock ejectors
- ROPS/FOPS cab-integral 4-post (Level 2)
- Secondary brake system, automatic and manual
- Skid-resistant walkway on deck
- Supplementary steering system, automatic
- Windshield, laminated safety glass

OTHER
- Auto-Retard Speed Control (ARSC)
- Automatic Spin Regulator (ASR)
- Automatic lubrication system
- Body mounting group
- Fast fill fuel system (Wiggins) right-hand side of the machine
- Integrated Komatsu Payload Meter
- Operation, parts, and maintenance manuals (1 set)
- Rims (6), 24 x 51 (for 33 x 51 and 33R51 tires)
- Tow hooks, front
- Tow pin, rear
- Vehicle health monitoring system (VHMS)

OPTIONAL EQUIPMENT

(Optional equipment may change operating weight.)
Weights listed are approximate change from operating weight.

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub odometer, miles or kilometers</td>
<td>2 kg</td>
</tr>
<tr>
<td>Disabled truck quick connects</td>
<td>13.5 kg</td>
</tr>
<tr>
<td>Kim Hot Start</td>
<td>16 kg</td>
</tr>
<tr>
<td>Fast fill fuel, Wiggins left-hand side</td>
<td>2 kg</td>
</tr>
<tr>
<td>Fast oil change, Wiggins (engine)</td>
<td>7 kg</td>
</tr>
<tr>
<td>Service center, Wiggins left-hand side</td>
<td>36 kg</td>
</tr>
<tr>
<td>Muffler, deck-mounted</td>
<td>50 kg</td>
</tr>
<tr>
<td>Fire extinguisher</td>
<td>14 kg</td>
</tr>
<tr>
<td>Body liners</td>
<td>30 lb</td>
</tr>
<tr>
<td>Rear half of canopy (400 Brinell Steel)</td>
<td>8320 kg</td>
</tr>
</tbody>
</table>

www.KomatsuAmerica.com

©2007 Komatsu America Corp. Printed in USA D09(2.5M)C 9/07 (EV-1)