

# Shop Manual



# 830E

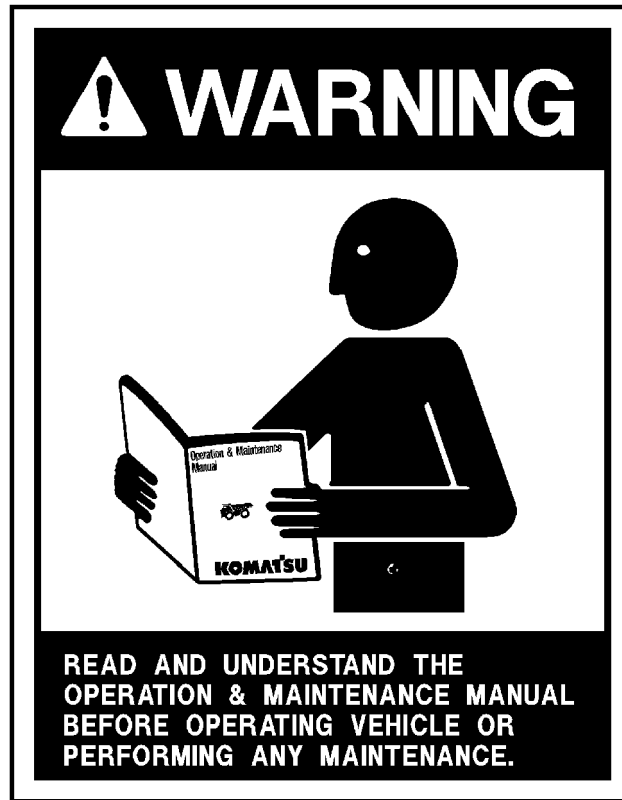
## DUMP TRUCK

SERIAL SUFFIX

**A30625** and up

# KOMATSU





***Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read and understand this manual before operating or maintaining this machine.  
This manual should be kept in or near the machine for reference, and periodically reviewed by all personnel who will come into contact with it.***

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It is the policy of the Company to improve products whenever it is possible and practical to do so. The Company reserves the right to make changes or add improvements at any time without incurring any obligation to install such changes on products sold previously.

Because of continuous research and development, periodic revisions may be made to this publication. Customers should contact their local distributor for information on the latest revision.

**CALIFORNIA  
Proposition 65 Warning**

***Diesel engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.***

**CALIFORNIA  
Proposition 65 Warning**

***Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.  
Wash hands after handling.***

# NOTES:



## EMISSION CONTROL WARRANTY

### EMISSION CONTROL WARRANTY STATEMENT (APPLIES TO CANADA ONLY)

#### 1. Products Warranted

Komatsu America International Company, Komatsu Mining Systems Inc. and Komatsu Utility Corporation (collectively "Komatsu") produce and/or market products under brand names of Komatsu, Dresser, Dressta, Haulpak and Galion. This emissions warranty applies to new engines bearing the Komatsu name installed in these products and used in Canada in machines designed for industrial off-highway use. This warranty applies only to these engines produced on or after January 1, 2000. This warranty will be administered by Komatsu distribution in Canada.

#### 2. Coverage

Komatsu warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built and equipped so as to conform, at the time of sale by Komatsu, with all U.S. Federal emission regulations applicable at the time of manufacture and that it is free from defects in workmanship or material which would cause it not to meet these regulations within five years or 3,000 hours of operation, whichever occurs first, as measured from the date of delivery of the engine to the ultimate purchaser.

#### 3. Limitations

Failures, other than those resulting from defects in materials or workmanship, are not covered by this warranty. Komatsu is not responsible for failures or damage resulting from what Komatsu determines to be abuse or neglect, including, but not limited to: operation without adequate coolant or lubricants; over fueling; over speeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the engine. Komatsu is also not responsible for failures caused by incorrect fuel or by water, dirt or other contaminants in the fuel. Komatsu is not responsible for non-engine repairs, "downtime" expense, related damage, fines, all business costs or other losses resulting from a warrantable failure.

**KOMATSU IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

This warranty, together with the express commercial warranties, are the sole warranties of Komatsu. **THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

## GARANTIE SUR LE CONTRÔLE DES ÉMISSIONS

### ÉNONCÉ DE GARANTIE SUR LE CONTRÔLE DES ÉMISSIONS (APPLICABLE AU CANADA SEULEMENT):

#### 1. Produits garantis:

Komatsu America International Company, Komatsu Mining Systems Inc. et Komatsu Utility Corporation (collectivement Komatsu) produisent et/ou font la mise en marché de produits portant les noms de marque Komatsu, Dresser, Dressta, Haulpak et Galion. Cette garantie sur les émissions s'applique à tous les nouveaux moteurs portant le nom Komatsu, installés dans ces produits et utilisés au Canada dans des machines conçues pour utilisation industrielle non-routière. Cette garantie s'applique seulement sur les moteurs produits à partir du 1er Janvier 2000. Cette garantie sera administrée par la distribution de Komatsu au Canada.

#### 2. Couverture:

Komatsu garantit à l'acheteur ultime et chaque acheteur subséquent que le moteur est conçu, construit et équipé en toute conformité, au moment de la vente par Komatsu, avec toutes les Réglementations fédérales américaines sur les émissions applicables au moment de la fabrication et qu'il est exempt de défauts de construction ou de matériaux qui auraient pour effet de contrevenir à ces réglementations en dedans de 5 ans ou 3000 heures d'opération, mesuré à partir de la date de livraison du moteur au client ultime.

#### 3. Limitations:

Les bris, autres que ceux résultant de défauts de matériaux ou de construction, ne sont pas couverts par cette Garantie. Komatsu n'est pas responsable pour bris ou dommages résultant de ce que Komatsu détermine comme étant de l'abus ou négligence, incluant mais ne se limitant pas à: l'opération sans lubrifiants ou agent refroidissants adéquats; la suralimentation d'essence; la survitesse; le manque d'entretien des systèmes de lubrification, de refroidissement ou d'entrée; de pratiques non-propices d'entreposage, de mise en marche, de réchauffement, de conditionnement ou d'arrêt; les modifications non-autorisées du moteur. De plus, Komatsu n'est pas responsable de bris causés par de l'essence inadéquate ou de l'eau, des saletés ou autres contaminants dans l'essence. Komatsu n'est pas responsable des réparations non-relées au moteur, des dépenses encourues suite aux temps d'arrêts, des dommages relatifs, amendes, et de tout autre coût d'affaires ou autres pertes résultant d'un bris couvert par la garantie.

**KOMATSU N'EST PAS RESPONSABLE DES INCIDENTS OU DOMMAGES CONSÉQUENTS.**

Cette garantie, ainsi que les garanties expresses commerciales, sont les seules garanties de Komatsu. **IL N'Y A AUCUNE AUTRE GARANTIE, EXPRESSE OU SOUS-ENTENDUE, MARCHANDABLE OU PROPICE A UNE UTILISATION PARTICULIÈRE.**

**INFORMATION IMPORTANTE SUR LE MOTEUR**  
 CE MOTEUR EST CONFORME AUX NORMES AMÉRICAINES DEL'EPA (ANNÉE DU MODÈLE) ET DE LA CALIFORNIE POUR LES MOTEURS LARGES NON-ROUTIERS A IGNITION PAR COMPRESSION. CE MOTEUR EST CERTIFIÉ POUR OPERATION À ESSENCE DIÉSEL.

**AVERTISSEMENT**  
 DES BLESSURES PEUVENT RÉsulTER ET LA GARANTIE S'ANNULER SI LES RPM DU TAUX D'ESSENCE OU L'ALTITUDE EXCÉDENT LES VALEURS MAXIMALES PUBLIÉES POUR CE MODÈLE ET SON APPLICATION.

**IMPORTANT ENGINE INFORMATION**  
 THIS ENGINE CONFORMS TO YYYY MODEL YEAR U.S. EPA REGULATION AND THE CALIFORNIA REGULATIONS LARGE NON ROAD COMPRESSION IGNITION ENGINES. THIS ENGINE IS CERTIFIED TO OPERATE ON DIESEL FUEL.

**WARNING**  
 INJURY MAY RESULT AND WARRANTY IS VOIDED IF FUEL RATE RPM OR ALTITUDES EXCEED PUBLISHED MAXIMUM VALUES FOR THIS MODEL AND APPLICATION.

ENGINE MODEL		SERIAL NO.	
ENGINE FAMILY		DISPLACEMENT	LITERS
EXHAUST EMISSION CONTROL SYSTEM		FIRING ORDER	1 - 5 - 3 - 6 - 2 - 4
ADV. LOAD OUTPUT		Kw ( HP)	RPM
VALVE LASH COLD (mm)	IN. EX.	FUEL RATE AT ADV.	mm <sup>3</sup> /STROKE
IDLE SPEED		RPM	FAMILY EMISSION LIMIT
INITIAL INJECTION TIMING	DEG. BTDC	DATE OF MANUFACTURE	
		KOMATSU LTD. MADE IN JAPAN	<b>KOMATSU</b>

KOMATSU LTÉE  
FABRIQUÉ AU JAPON

MODÈLE DU MOTEUR

FAMILLE DU MOTEUR

SYSTÈME DE CONTRÔLE DES ÉMISSIONS D'ÉCHAPPEMENT

CHARGE DE SORTIE ADV.

PORTÉE DE VALVE À FROID (mm)

VITESSE STATIQUE

RÉGLAGE DE L'ALLUMAGE - INJECTION INITIALE

DEG. BTDC

NO. SÉRIE

DÉPLACEMENT

LITRES

SÉQUENCE DE MISE À FEU

mm<sup>3</sup>/BATTEMENT

TAUX D'ESSENCE À ADV.

LIMITE D'ÉMISSION DE LA FAMILLE

DATE DE FABRICATION

ENGINE DATAPLATE - ENGLISH / FRENCH

# FOREWORD

This Shop Manual is written for use by the service technician and is designed to help the technician become fully knowledgeable of the truck and all its systems in order to keep it running and in production. All maintenance personnel should read and understand the materials in this manual before performing maintenance and/or operational checks on the truck. All safety notices, warnings and cautions should be understood and followed when accomplishing repairs on the truck.

The first section covers component descriptions, truck specifications and safe work practices, as well as other general information. The major portion of the manual pertains to disassembly, service and reassembly. Each major serviceable area is dealt with individually. For example: The disassembly, service and reassembly of the radiator group is discussed as a unit. The same is true of the engine and engine accessories, and so on through the entire mechanical detail of the truck. Disassembly should be carried only as far as necessary to accomplish needed repairs.

The illustrations used in this manual are, at times, typical of the component shown and may not necessarily depict a specific model.

This manual shows dimensioning of U.S. standard and metric (SI) units throughout and all references to "Right", "Left", "Front", or "Rear" are made with respect to the operator's normal seated position, unless specifically stated otherwise.

Standard torque requirements are shown in torque charts in the general information section and individual torques are provided in the text in bold face type, such as **100 ft.lbs. (135 N.m)** torque. All torque specifications have  $\pm 10\%$  tolerance unless otherwise specified.

A Product Identification plate is normally located on the truck frame in front of the right side front wheel and designates the Truck Model Number, Product Identification Number (vehicle serial number), and Maximum G.V.W. (Gross Vehicle Weight) rating.

The KOMATSU Truck Model designation consists of three numbers and one letter (i.e. 830E). The three numbers represent the basic truck model. The letter "E" designates an Electrical propulsion system.

The Product Identification Number (vehicle serial number) contains information which will identify the original manufacturing bill of material for this unit. This complete number will be necessary for proper ordering of many service parts and/or warranty consideration.

The Gross Vehicle Weight (GVW) is what determines the load on the drive train, frame, tires, and other components. The vehicle design and application guidelines are sensitive to the **total maximum Gross Vehicle Weight (GVW)** and this means **the total weight**: the Empty Vehicle Weight + the fuel & lubricants + the payload.

To determine allowable payload: Service all lubricants for proper level and fill fuel tank of empty truck (which includes all accessories, body liners, tailgates, etc.) and then weigh truck. Record this value and subtract from the GVW rating. The result is the allowable payload.

***NOTE: Accumulations of mud, frozen material, etc. become a part of the GVW and reduces allowable payload. To maximize payload and to keep from exceeding the GVW rating, these accumulations should be removed as often as practical.***

**Exceeding the allowable payload will reduce expected life of truck components.**



*This “ALERT” symbol is used with the signal words, “DANGER”, “WARNING”, and “CAUTION” in this manual to alert the reader to hazards arising from improper operating and maintenance practices.*



*“DANGER” identifies a specific potential hazard WHICH WILL RESULT IN EITHER INJURY OR DEATH if proper precautions are not taken.*



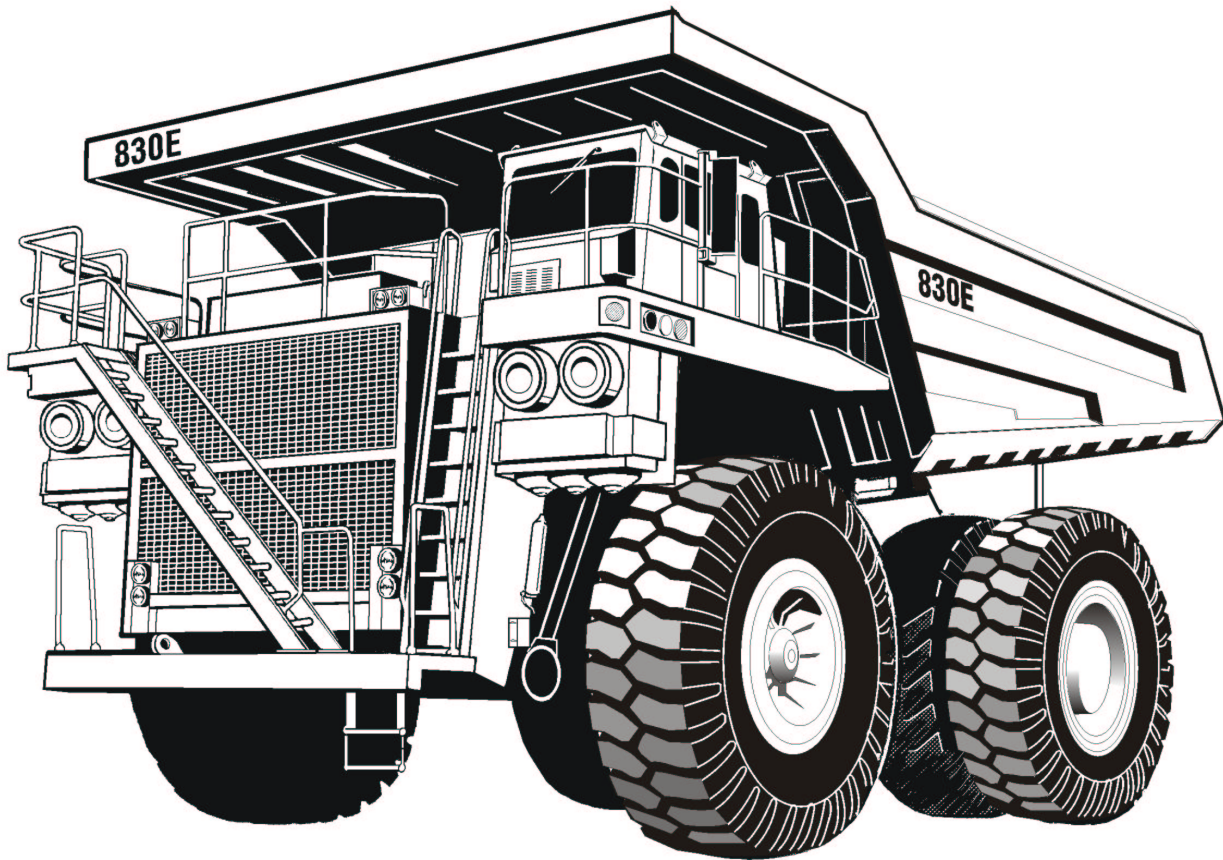
*“WARNING” identifies a specific potential hazard WHICH MAY RESULT IN EITHER INJURY OR DEATH if proper precautions are not taken.*



*“CAUTION” is used for general reminders of proper safety practices OR to direct the reader’s attention to avoid unsafe or improper practices which may result in damage to the equipment.*

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**KOMATSU MODEL 830E TRUCK**

# SECTION A

## GENERAL INFORMATION

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# NOTES



## MAJOR COMPONENT DESCRIPTION

The KOMATSU Model 830E Truck is an electric drive, off-highway, rear dump truck whose gross vehicle weight is 850,000 lbs. (385 554 kg) (240 - 255 ton nominal payload).

### ENGINE

This Model 830E Truck is powered by a Komatsu SSDA16V160 diesel engine rated at 2500 hp (1864 kW) @ 1900 RPM. The radiator, engine, alternator, and blower are mounted on a separate subframe to provide fast, easy removal and installation of the power module.

### ALTERNATOR (G.E. GTA-26)

The alternator is mounted in-line with the engine. The alternating current (AC) output of the alternator is rectified to direct current (DC) and sent to the wheel mounted DC drive traction motors.

### BLOWER

The dual impeller, in-line blower supplies cooling air for the alternator, rectifiers, and both traction motors. The air is exhausted to atmosphere through the wheel motors.

### WHEEL MOTORS

Traction motors located within each rear wheel structure receive electrical energy from the alternator. The two traction motors convert electrical energy back to mechanical energy through built-in gear trains within the wheel structure. The direction of the drive motors is controlled by a forward or reverse hand selector switch located on a console in the cab to the right side of the operator.

### POWER STEERING

The Komatsu truck is equipped with a full time power steering system which provides positive steering control with a minimum of effort by the operator. The system includes a nitrogen-charged accumulator which automatically provides emergency power if the steering hydraulic pressure is reduced below an established minimum.

### OPERATOR'S CAB

The Operator's Cab has been engineered for operator comfort and to allow for efficient and safe operation of the truck. The cab contains an integrated ROPS and is fully insulated to reduce noise and vibration. The tinted safety-glass windshield and side windows provide excellent visibility. The seat is a comfortable, adjustable suspension seat, the steering wheel provides tilt and telescoping adjustments and controls are mounted within easy reach of the operator. The instrument panel provides the operator with instruments and gauges that are necessary to control and monitor the truck's operating systems and is marked with international symbols for easy identification of functions.

### DYNAMIC RETARDING

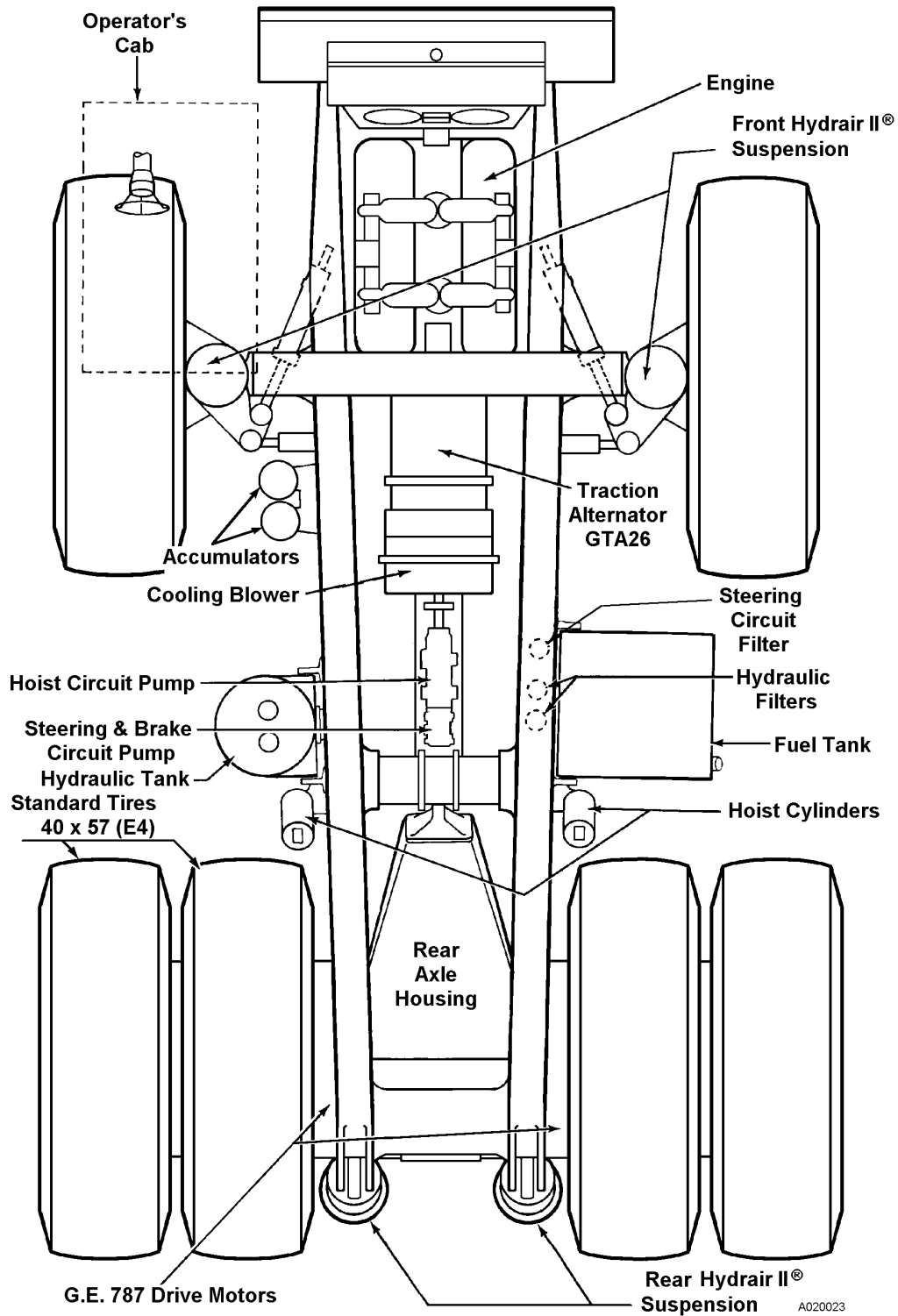
Dynamic retarding is used to slow the truck during normal operation or control speed coming down a grade. The dynamic retarding ability of the DC electric system is controlled by the operator by depressing the foot operated retarder pedal and/or setting the RSC (Retarder Speed Control) on the instrument panel. Dynamic Retarding is automatically activated if truck exceeds the overspeed setting.

### BRAKE SYSTEM

The braking system consists of an all hydraulic actuation system. Depressing the brake pedal actuates wheel-speed single disc front brakes and armature-speed dual disc rear brakes. The brakes can also be activated by operating a switch on the instrument panel. The brakes will be applied automatically if system pressure decreases below a preset minimum.

### SUSPENSION

HYDRAIR® II suspension cylinders located at each wheel provide a smooth and comfortable ride for the operator and dampens shock loads to the chassis during loading.



## 830E MAJOR COMPONENTS

# SPECIFICATIONS

These specifications are for the standard Komatsu 830E Truck. Customer Options may change this listing.

## ENGINE

### Komatsu SSDA16V160

No. of Cylinders . . . . . 16  
Operating Cycle . . . . . 4-Stroke  
Rated Brake HP. . . . . 2500 HP (1887 kW) @ 1900 RPM  
Flywheel HP . . . . . 2409 HP (1818 kW) @ 1900 RPM  
Weight\* (Dry) . . . . . 21,182 pounds (9 608 kg)

\* Weight does not include Radiator, Sub-frame, or Alternator

## ELECTRIC DRIVE SYSTEM - STATEX III

(AC/DC Current)

Alternator . . . . . General Electric GTA - 26  
Dual Impeller, In-Line Blower. . . 9000 cfm (255 m<sup>3</sup>/min)  
Motorized Wheels . . . . . General Electric 787  
Ratio . . . . . 28.125:1  
Maximum Speed\* . . . . . 35.3 MPH (56.9 km/h)  
(\*w/40.00-57 Tires and 28.125:1 gear train)

## DYNAMIC RETARDING

Extended Range Retarding with fully blown 18-Resistor grids and reverse retarding standard equipment.  
Maximum Rating . . . . . 4000 HP (2983 kW)

## TIRES

Rock Service, Deep Tread. . . . . (E-4) Tubeless  
Standard Tire . . . . . 40.00 - 57, 68 Ply Rating

(w/787 Wheelmotor)

Separable Tire Rims \*

5 Piece New Generation™ Rims \*

Rims\* are interchangeable with different positions on the truck, but due to improved design for greater load support, rims are not interchangeable with other manufacturer's rims.

### Rim Size:

29 in. (737 mm) X 57 in. (1448 mm) X 6 in. (152 mm)

## 24 VDC ELECTRIC SYSTEM

Batteries . . . . . Four 12 Volt Batteries in Series/Parallel  
. . . . . 220 Ampere-Hour Capacity w/Disconnect Switch  
Alternator . . . . . 24 Volt, 240 Ampere Output  
Lighting . . . . . 24 Volt  
Starters . . . . . (2) 24 Volt

## SERVICE CAPACITIES

. . . . . U.S. Gallons . . . . . (Liters)  
Crankcase \* . . . . . 66.0 . . . . . 250.0  
\* Includes Lube Oil Filters  
Cooling System . . . . . 150 . . . . . 568  
Fuel . . . . . 1200 . . . . . 4543  
Hydraulic System. . . . . 250 . . . . . 947  
Hydraulic Tank . . . . . 238 . . . . . 901  
Wheel Motor Gear Box (each) . . . . . 10.5 . . . . . 39.7

## HYDRAULIC SYSTEMS\*

Pumps

Hoist . . . . . Tandem Gear Pumps  
Rated @ . . . . . 230 GPM (870 l/min.) @ 1900 RPM  
Steering . . . . . Radial Piston-Pressure Compensating  
(also Brake) . . . . . 65 GPM (246 l/min.) @ 1900 RPM

System Relief Pressures

Hoist/Steering . . . . . 2500 psi (17.2 MPa)  
Brakes . . . . . 3500 psi (24.1 MPa)  
Hoist Cylinders (2) . . . . . 3-Stage  
Tank (Vertical/Cylindrical) . . . . . Non-Pressurized  
Filtration. . . Remote-mounted, Replaceable, Elements  
Suction. . . . . Single, Full Flow, 100 Mesh  
Hoist & Steering . . . . .  
. . . . . Full Flow, Dual In-Line,  
. . . . . High Pressure Beta 12 Rating =200

\*With Quick Disconnects for powering disabled truck and system diagnostics.

## STEERING (w / Accumulators)

Turning Circle - Front Wheel Track . . . . . 93 ft. (28.4 m)  
Full Time Power Steering . . . . . Twin Cylinders  
Automatic Emergency Steering . . . . . Standard

**SERVICE BRAKES**

Actuation. . . . . All Hydraulic  
*Front* . . . . . Wheel Speed, Single Disc  
     Inboard Mounted . . . . . 3 Calipers  
     Disc Diameter, O.D. . . . . 47.75 in. (1213 mm)  
*Rear* . . . . . Armature Speed, Dual Disc  
     Disc Diameter, O.D. . . . . 25.00 in. (635 mm)  
**Emergency Brake-** . . . . . Automatically Applied (Standard)  
**Wheel Brake Lock.** . . . . . Manual Switch on Panel  
     . . . . . (Loading and Dumping)

**DISC PARKING BRAKE**

Each Rear Wheel . . . . . Single Caliper  
     . . . . . Spring Applied, Hydraulically Released

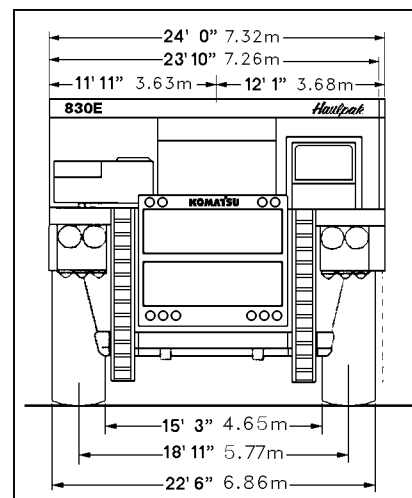
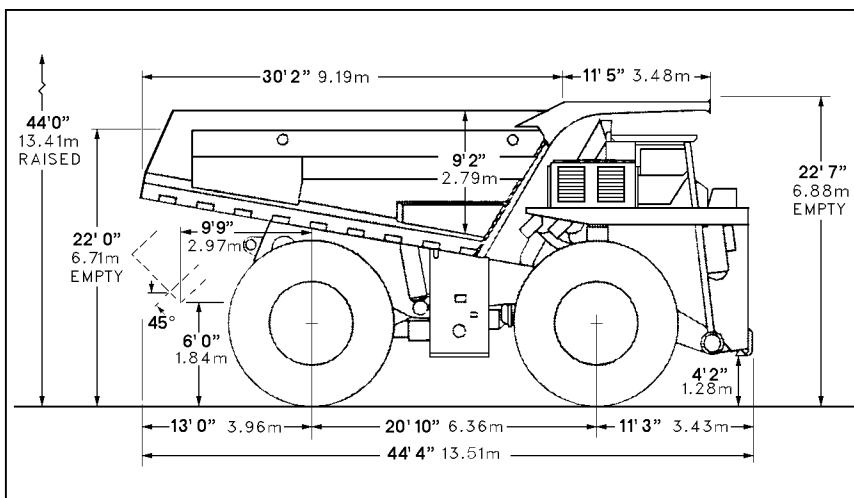
**DUMP BODY CAPACITIES AND DIMENSIONS**

**Standard, Heaped @ 2:1 (SAE)** . . . .193 yd<sup>3</sup> (147 m<sup>3</sup>)  
     Struck . . . . .153 yd<sup>3</sup> (117 m<sup>3</sup>)  
 Loading Height Empty . . . . . 22 ft. 1 in. (6.71 m)  
 Dumping Angle . . . . . 45  
 Non-heated Body w/Exhaust Mufflers . . . . . Standard

**WEIGHT DISTRIBUTION**

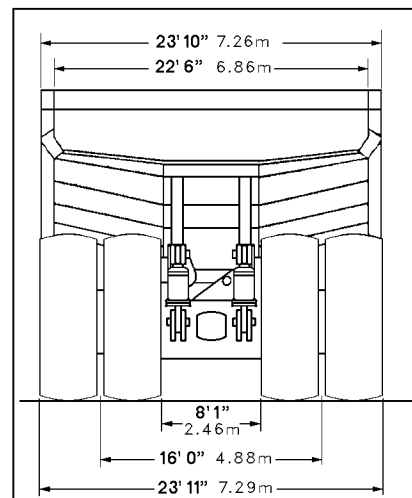
<b>Empty Vehicle</b> . . . . .	<b>Pounds. (Kilograms)</b>
Front Axle . . . . .	173,593 . . . . (78 740)
Rear Axle . . . . .	<u>175,543 . . . . (79 625)</u>
Total . . . . .	349,136 . . . (158 365)
<b>Loaded Vehicle</b> . . . . .	<b>Pounds. (Kilograms)</b>
Front Axle . . . . .	280,157 . . . (127 077)
Rear Axle . . . . .	<u>569,843 . . . (258 476)</u>
Total * . . . . .	850,000 . . . (385 554)

\*Not To Exceed 850,000 lbs. (385 554 kg) including options, liners, fuel and payload, and subject to approval by Komatsu.



**OVERALL TRUCK DIMENSIONS  
 (Empty with Standard Body)**

Length . . . . . 44 ft. 4 in. (13.51 m)  
 Width . . . . . 24 ft. 0 in. (7.32 m)  
 Height with Canopy . . . . . 22 ft. 7 in. (6.88 m)  
 Height with Dump Body Up . . . . . 44 ft. 0 in. (13.41 m)  
 Turning Circle (on front track) . . . . . 93 ft. 0 in. (28.35 m)



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# GENERAL SAFETY

This safety section also contains precautions for optional equipment and attachments.



***Read and follow all safety precautions. Failure to do so may result in serious injury or death.***

## SAFETY RULES

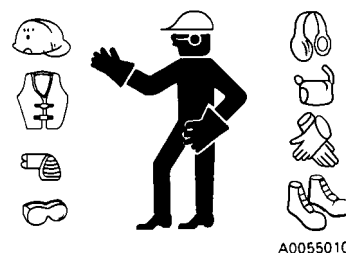
- ONLY trained and authorized personnel can operate and maintain the machine.
- Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.
- When working with another operator or a person on worksite traffic duty, be sure all personnel understand all hand signals that are to be used.

## SAFETY FEATURES

- Be sure all guards and covers are in their proper position. Have guards and covers repaired if damaged. (See Walk-Around Inspection, Operating Instructions - Section 3)
- Learn the proper use of safety features such as safety locks, safety pins, and seat belts, and use these safety features properly.
- NEVER remove any safety features. ALWAYS keep them in good operating condition.
- Improper use of safety features could result in serious bodily injury or death.

## CLOTHING AND PERSONAL PROTECTIVE ITEMS

- Avoid loose clothing, jewelry, and loose long hair. They can catch on controls or in moving parts and cause serious injury or death. Also, do not wear oily clothes because they are flammable.
- Wear a hard hat, safety glasses, safety shoes, mask or gloves when operating or maintaining the machine. Always wear safety goggles, hard hat and heavy gloves if your job involves scattering metal chips or minute materials—this is so particularly when driving pins with a hammer and when cleaning the air cleaner element with compressed air. Check also that there is no one near the machine.



## UNAUTHORIZED MODIFICATION

- Any modification made without authorization from Komatsu can create hazards.
- Before making a modification, consult your Komatsu distributor. Komatsu will not be responsible for any injury or damage caused by any unauthorized modification.

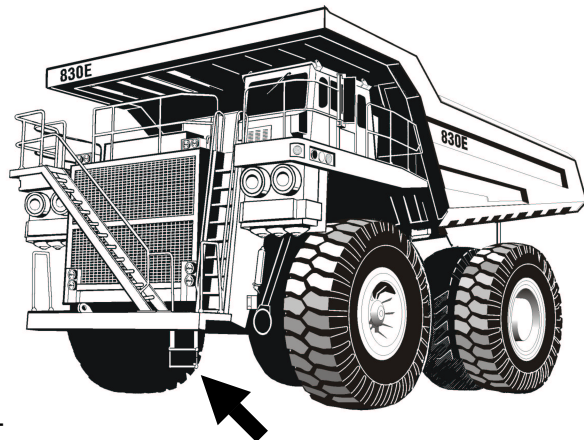
## STANDING UP FROM THE SEAT

When preparing to leave the operator's seat, always carry out the following procedures to prevent accidental operations from occurring:

- Place the selector switch lever in the Neutral (N) position and apply the parking brake.
- Lower the dump body, set the dump lever to the HOLD position.
- Stop the engine. When leaving the machine, always lock everything. Always remember to take the key with you. If the machine should suddenly move or move in an unexpected way, this may result in serious bodily injury or death.

## MOUNTING AND DISMOUNTING

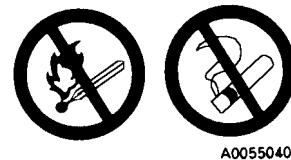
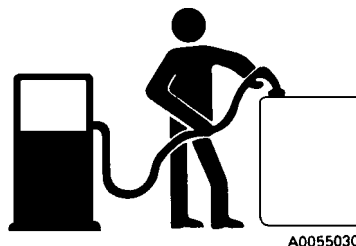
- NEVER jump on or off the machine. NEVER get on or off a moving machine.
- When getting on or off the machine, face the machine and use the handhold and steps.
- Never hold any control levers when getting on or off the machine.
- Always maintain three-point contact with the handholds and steps to ensure that you support yourself.
- When bringing tools to the operator's compartment, always pass them by hand or pull them up by rope.
- If there is any oil, grease, or mud on the handholds or steps, wipe it off immediately. Always keep these parts clean. Repair any damage and tighten any loose bolts.
- Use the step marked by the arrow in the illustration at the right. Use handrails when ascending or descending the ladder when getting on or off the truck.



## FIRE PREVENTION FOR FUEL AND OIL

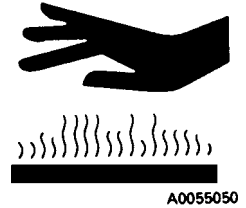
Fuel, oil, and antifreeze can be ignited by a flame. Fuel is particularly **FLAMMABLE** and can be **HAZARDOUS**.

- Keep flame away from flammable fluids.
- Stop the engine and do not smoke when refueling.
- Tighten all fuel and oil tank caps securely.
- Refueling and oiling should be made in well ventilated areas.
- Keep oil and fuel in the determined place and do not allow unauthorized persons to enter.



## PRECAUTIONS WHEN HANDLING AT HIGH TEMPERATURES

- Immediately after operations, the engine cooling water, engine oil, differential and final drive case oil, and hydraulic oil are at high temperature and are under pressure. If the cap is removed or the oil or water is drained or the filters are replaced, there is danger of serious burns. Always wait for the temperature to go down, and carry out the operation according to the specified procedure.
- To prevent hot water from spurting out:
  - 1) Stop the engine.
  - 2) Wait for the water temperature to go down.
  - 3) Turn the cap slowly to release the pressure before removing the cap.
- To prevent hot oil from spurting out:
  - 1) Stop the engine.
  - 2) Wait for the oil temperature to go down.
  - 3) Turn the cap slowly to release the pressure before removing the cap.

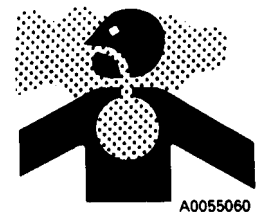


## ASBESTOS DUST HAZARD PREVENTION

Asbestos dust can be HAZARDOUS to your health if it is inhaled.

If you handle materials containing asbestos fibers, follow these guidelines as given below:

- NEVER use compressed air for cleaning.
- Use water for cleaning to keep down the dust.
- Operate the machine with the wind to your back, whenever possible.
- Use an approved respirator if necessary.

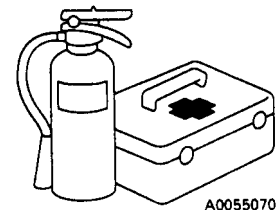


## PREVENTION OF INJURY BY WORK EQUIPMENT

- Never enter or put your hand or arm or any other part of your body between movable parts such as the dump body and chassis or cylinders. If the work equipment is operated, the clearance will change and this may lead to serious bodily injury or death.

## FIRE EXTINGUISHER AND FIRST AID KIT

- Be sure fire extinguishers have been provided and know how to use them.
- Provide a first aid kit at the storage point.
- Know what to do in the event of a fire.
- Be sure you know the phone numbers of persons you should contact in case of an emergency.



### **PRECAUTIONS REGARDING ROPS (Roll Over Protective Structure)**

- If ROPS is installed, the ROPS must never be removed when operating the machine.
- The ROPS is installed to protect the operator if the machine should roll over. It is designed not only to support the load if the machine should roll over, but also to absorb the impact energy.
- The ROPS installed on equipment manufactured and designed by Komatsu Mining Systems, Inc. fulfills all of the regulations and standards for all countries, but if it is modified or repaired without authorization from Komatsu Mining Systems, Inc., or is damaged when the machine rolls over, the strength will be reduced and it will not be able to fulfill its function properly. It can only be effective if it is repaired or modified in the specified way.
- When modifying or repairing the ROPS, always consult the authorized regional Komatsu Mining Systems, Inc. distributor.
- Even if the ROPS is installed, it cannot provide full protection if the operator does not fasten the seat belt properly.

***Always fasten the seat belt when operating the truck.***

### **PRECAUTIONS FOR ATTACHMENTS**

- When installing and using optional equipment, read the instruction manual for the attachment and the information related to attachments in this manual.
- Do not use attachments that are not authorized by Komatsu Mining Systems, Inc. or the authorized regional Komatsu Mining Systems, Inc. distributor. Use of unauthorized attachments could create a safety problem and adversely affect the proper operation and useful life of the machine.
- Any injuries, accidents, and product failures resulting from the use of unauthorized attachments will not be the responsibility of Komatsu Mining Systems, Inc. or the authorized regional Komatsu Mining Systems, Inc. distributor.