CEAM028202

Operation & Maintenance Manual

Dump Truck

960E-2KT

Serial Numbers A50028 — A50088

WARNING

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

NOTICE

Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

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GENERAL INFORMATION E.2-0000051234

This manual provides dual dimensioning for many specifications. Metric units are specified first, with U.S. standard units in parentheses. When torque values are not specified in the assembly instructions contained in this manual, use the standard torque value for the hardware being used. Standard value torque tables are contained in this chapter for metric and SAE hardware.

This truck is assembled with both metric and SAE (U.S.) hardware. Reference the correct table when determining the proper torque value.

⚠ CAUTION

- **References throughout the manual to standard torques or other standard values will be to one of the following tables. Do not use standard values to replace specific torque values in assembly instructions.**

For values not shown in any of the charts or tables, standard conversion factors for most commonly used measurements are provided in the following tables.

Effect Of Special Lubricants

The Komatsu engineering department does not recommend the use of special friction-reducing lubricants, such as Copper Coat, Never-Seez®, and other similar products, on the threads of standard fasteners where standard torque values are applied. The use of special friction-reducing lubricants will significantly alter the clamping force being applied to fasteners during the tightening process.

If special friction-reducing lubricants are used with the standard torque values listed in this chapter, excessive stress and possible breakage of the fasteners may result.

Where the torque tables specify "Lubricated Threads" for the standard torque values listed, these standard torque values are to be used with simple lithium base chassis grease (multi-purpose EP NLGI) or a rust-preventive grease (see below) on the threads and seats unless specified otherwise.

NOTE: *Ensure the threads of fasteners and tapped holes are free of burrs and other imperfections before assembling.*

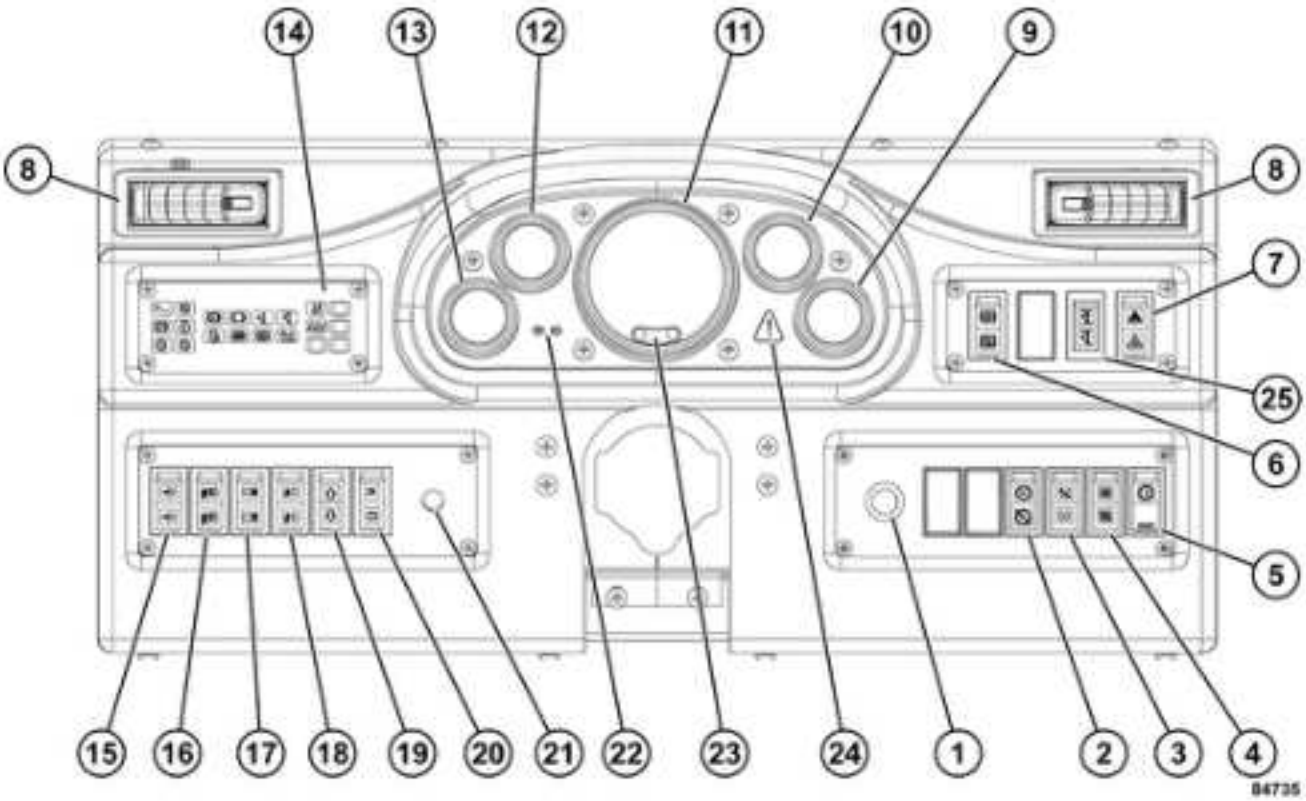
Suggested Sources For Rust Preventive Grease

NOTE: *This list represents the current engineering approved sources for use in Komatsu manufacture. It is not exclusive. Other products may meet the same specifications of this list.*

- American Anti-Rust Grease #3-X from Standard Oil Company (also American Oil Co.)
- Gulf NoRust #3 from Gulf Oil Company.
- Mobilarma 355, Product No. 66705 from Mobil Oil Corporation.
- Rust Ban 326 from Humble Oil Company.
- Rustolene B Grease from Sinclair Oil Co.
- Rust Preventive Grease - Code 312 from the Southwest Grease and Oil Company.

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INSTRUMENT PANEL B.17-0000053956



1. Key Switch
2. Speed Control Switch
3. Traction Control Switch
4. Retarding Grid Drier Switch
5. AC Drive System Rest Switch
6. Wheel Brake Lock Switch
7. Hazard Light Switch
8. Heater/Air Conditioner Vents
9. Drive System Temperature Gauge
10. Fuel Level Gauge
11. Speedometer/Digital Display
12. Coolant Temperature Gauge
13. Hydraulic Oil Temperature Gauge
14. Status Indicator Light Panel
15. Headlight/Panel Illumination Switch
16. Ladder Light Switch
17. Backup Light Switch
18. Fog Light Switch
19. Mode Switch #2
20. Mode Switch #1
21. Panel Lights Dimmer Switch
22. Turn Signal Indicators
23. Digital Display Contrast Buttons
24. Warning Light
25. Pantograph Switch

Figure 6-11 PANEL GAUGES, INDICATORS, AND CONTROLS

CONTROL SYMBOLS

The operator must understand the function and operation of each instrument and control. Many control functions are identified with international symbols that the operator must learn to recognize immediately. This knowledge is essential for proper and safe operation.

Items that are marked optional do not apply to every truck.

The following symbols are general indicators and may appear in multiple locations and combinations on the instrument panel.

Most switches have two LED lights inside them, one amber and one green in color. The amber is located in the top portion of the switch and indicates that function has been activated. The green LED is located in the lower portion of the switch and indicates that function has not been activated.

- To activate a function, push on the top portion of the switch. At this time, the amber LED will be illuminated, and the green LED will be OFF.
- To de-activate a function, push on the lower portion of the switch. At this time, the green LED will be illuminated, and the amber LED will be OFF.

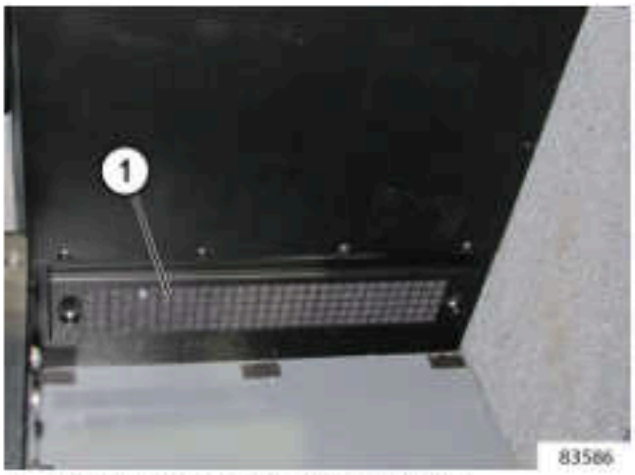
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EVERY 3000 HOUR LUBRICATION AND MAINTENANCE INSPECTION B.14-0000053905

NOTE: *Maintenance for every 10, 250, 500 & 1,000 hour Lubrication and Maintenance Checks must also be performed at this time. "Lube Key" references are to the lubrication chart.*

EVERY 3000 HOUR MAINTENANCE	
Item	**Task**
TRACTION ALTERNATOR	• Regrease bearing. Add 80 g (2.8 oz) of Mobilith SHC 100. DO NOT over grease. (Lube Key E) • Clean condensation water drain holes at the underside of the alternator. • Check the inlet air duct connection to the N end shield and retorque, if necessary. • Check the end shield and intermediate housing bolt connections. Retorque if necessary. • Check the cable connection to terminal boxes and retorque, if necessary. • Check the pulse generator and speed sensor. • Check air outlet covering for foreign bodies and damage.
IGBT CONTROL BOX	• Overhaul/replace inner liquid to air heat exchanger motor. • Drain the coolant from the system. • Replace coolant pump. • Overhaul/Replace coolant pump motor. • Replace coolant with fresh water/Antifrogen® mixture.
GRID BOX	• Regrease DE and NDE grid blower shaft bearings (add 22g). ***NOTE:*** *Grid blower shaft bearings and coupling are lubricated from the vendor with Mobolith AW2 and should be relubricated with the same or some equivalent.* • Visually inspect grid resistors for damage by looking in the grid box outlet, replace resistors if necessary. • Regrease coupling between motor and blower shaft (add 10g).
MAIN BLOWER	Megger the motor windings and record for future reference. The value must be > 1.4 M ohms @ 500V.
TRACTION MOTOR	Regrease bearings.

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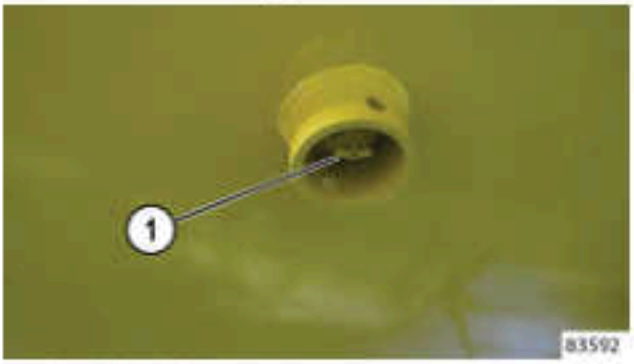
1. HVAC Recirculation Filter Element

Figure 7-7 HVAC RECIRCULATION FILTER LOCATION

1. Clean both filter elements (1, Figure 7-6 CAB AIR FILTER LOCATION, page 7-6 and Figure 7-7 HVAC RECIRCULATION FILTER LOCATION, page 7-7) with mild soap and water.
2. Rinse completely clean and air dry with a maximum of 275 kPa (40 psi).
3. Reinstall the filters.

FUEL SYSTEM SERVICE G.44-0000051601

Fuel Tank Cleaning

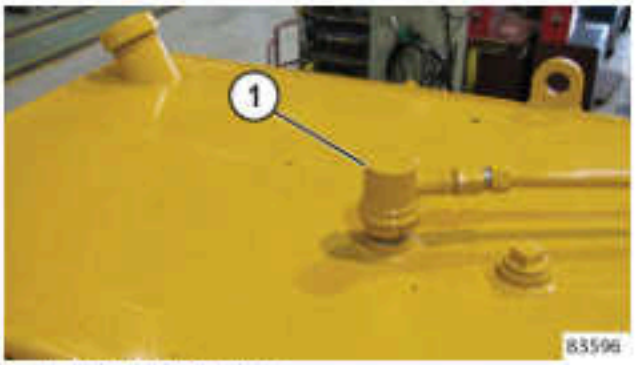


1. Fuel Tank Drain

Figure 7-8 FUEL TANK

Open fuel tank drain (1, Figure 7-8 FUEL TANK, page 7-7) to drain water and sediment from the fuel tank. The fuel tank is provided with a drain and a cleaning port in the side that allows steam or solvent to be utilized in cleaning tanks that have accumulated foreign material.

It is not necessary to remove the tank from the truck for cleaning of sediment, however rust and scale on the walls and baffles may require complete tank removal. Prior to a cleaning procedure of this type, all vents, fuel gauge, and hose connections should be removed and temporarily sealed. After all scale, rust, and foreign material has been removed, the temporary plugs can be removed. A small amount of light oil must be sprayed into the tank to prevent rust if the tank is to remain out of service. All openings should be sealed for rust prevention.

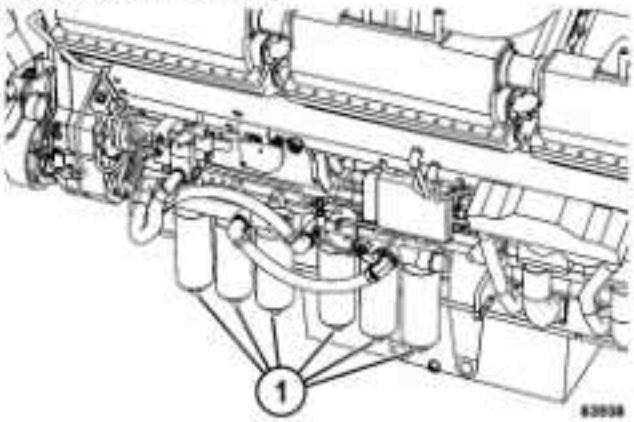


1. Fuel Tank Breather

Figure 7-9 FUEL TANK BREATHER

Remove breather (1, Figure 7-9 FUEL TANK BREATHER, page 7-7) and clean in solvent. Dry with pressurized air and reinstall.

Fuel Filter Service



1. Water Drain Valves

Figure 7-10 WATER SEPARATOR DRAIN

Open water drain valves (1, Figure 7-10 WATER SEPARATOR DRAIN, page 7-7) to remove water from the fuel/water separators daily.

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Lubricant Required For Automatic Lubrication System

Grease requirements will depend on ambient temperatures encountered during truck operation:

- Above 32°C (90°F) - Use NLGI No. 2 multipurpose grease (MPG).
- -32° to 32°C (-25° to 90°F) - Use NLGI No. 1 multipurpose grease (MPG).
- Below -32°C (-25°F) - Refer to local supplier for extreme cold weather lubricant requirements.

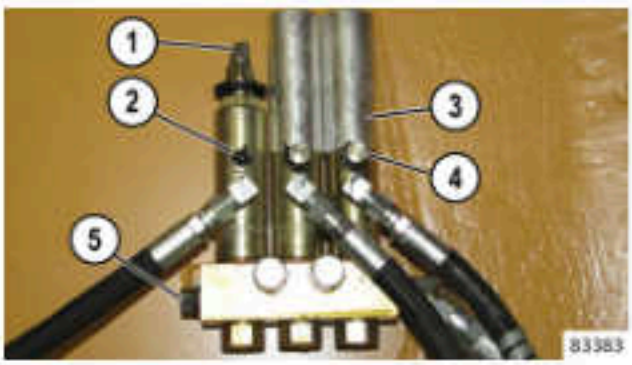
Priming The Automatic Lubrication System

The system must be full of grease and free of air pockets to function properly. After maintenance, if primary or secondary lubrication lines were replaced, it will be necessary to prime the system to eject all entrapped air.



1. Vent Valve
2. Main Supply Line

Figure 5-14 AUTO LUBE MAIN SUPPLY LINE



1. Injector Indicator
2. Injector Grease Zerk
3. Injector Cover
4. Injector Grease Zerk Cap
5. Injector Manifold Plug

Figure 5-15 INJECTOR MANIFOLD

To prime the main supply lines, perform the following:

1. Fill lube reservoir with lubricant, if necessary.
2. Remove injector manifold plug (5, Figure 5-15 INJECTOR MANIFOLD, page 5-46) from injector manifold. Always start with the injector manifold closest to the pump. The last grease line to be purged should be the main grease line to the rear axle (longest grease line).
3. Disconnect main supply line (2, Figure 5-14 AUTO LUBE MAIN SUPPLY LINE, page 5-46) from vent valve (1). Connect an external grease supply to main supply line (2).
4. Pump grease in main supply line (2) until grease appears at the injector manifold plug.
5. Re-install the injector manifold plug. Repeat for remaining injector groups.

After all main supply lines are purged of air, the injector circuits must now be primed.

To prime the secondary supply lines, perform the following:

1. If necessary, disconnect an injector grease line from the component that particular injector supplies grease to.
2. Remove injector grease zerk cap (4, Figure 5-15 INJECTOR MANIFOLD, page 5-46) from each injector and connect an external grease supply to injector grease zerk (2) on the injector.
3. Pump grease into the injector until grease appears at the far end of the individual grease line or the joint being greased.
4. Reconnect injector grease line to the component, remove the external grease supply, and reinstall injector grease zerk cap.
5. Repeat steps 1 through 4 until all secondary supply lines have been primed.
6. After all grease lines are primed, use the override switch to cycle the automatic lubrication pump a few times to lube the components.

PREVENTIVE MAINTENANCE PROCEDURES E.6-0000051465

Use the following maintenance procedures to ensure proper system operation.

Daily Lubrication System Inspection

1. Check the grease reservoir level after each shift of operation. Grease usage should be consistent from day-to-day operations. Lack of lubricant usage would indicate an inoperative

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