CEAM021005

Operation & Maintenance Manual

930E-4

DUMP TRUCK

SERIAL NUMBERS **A30750 - A30872**

KOMATSU®

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INSTRUMENT PANEL

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

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

Control Symbols

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

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



This symbol may be used alone or with another symbol. This symbol identifies the OFF position of a switch or control.



This symbol when it appears on an indicator or control identifies that this indicator or control is NOT used.



This symbol may be used alone or with another symbol. This symbol identifies the ON position of a switch or control.



This symbol identifies a rotary control or switch. Rotate the knob clockwise or counterclockwise for functions.



This symbol identifies the "Pushed-In" position of a push-pull switch or control.



This symbol identifies a switch used to test or check a function. Press the switch on the side near the symbol to perform the test.



This symbol identifies the "Pulled-Out" position of a push-pull switch or control.

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250 HOUR LUBRICATION AND MAINTENANCE CHECKS (Cont.)

	TASK	COMMENTS	CHECKED	INITIALS
17.	CAB RECIRCULATION AIR FILTER - Clean the filter element with mild soap and water. Rinse completely and allow to air dry before reinstalling the filter.			
18.	CAB AIR FILTER - Clean the filter element with mild soap and water. Rinse completely and dry with pressure air of 275 kPa (40 psi) maximum. Reinstall the filter.			

500 HOUR LUBRICATION AND MAINTENANCE CHECKS

All *10 Hour (Daily) Inspections* and *250 Hour Lubrication and Maintenance Checks* should also be performed at this time.

NOTE: "Lube Key" references are to the ***Lubrication Chart*** *on page 40-5.*

Truck Serial Number_____ **Site Unit Number**_____ **Date**_____

Hourmeter_____ **Name of Service Technician**_____

	TASK	COMMENTS	CHECKED	INITIALS
1.	FINAL DRIVE CASE BREATHERS - Remove the breather elements for the motorized wheels. Clean or replace the elements.			
2.	HYDRAULIC SYSTEM FILTERS - Replace the hydraulic tank breathers and high pressure filter elements. Check the oil level. Add oil as necessary. (Lube Key "B")			
3.	HYDRAIR® SUSPENSION - Check for proper piston extension (front and rear).			
4.	THROTTLE AND BRAKE PEDAL - Lubricate the treadle roller and hinge pins with lubricating oil. Lift the boot from the mounting plate and apply a few drops of lubricating oil between the mounting plate and the plunger.			
5.	HOIST LEVER LINKAGE - Check the lever operation. Clean, lubricate and adjust the linkage as necessary.			
6.	PARKING BRAKE - Refer to Section J7, Parking Brake, in the shop manual for the recommended inspections.			

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COMPONENTS & SPECIFICATIONS

MAJOR COMPONENT DESCRIPTIONS

Truck And Engine

The 930E-4 Dump Truck is an off-highway, rear dump truck with AC Electric Drive. The gross vehicle weight is 498 960 kg (1,100,000 lb). The engine is a Komatsu SSDA16V160 rated @ 2 014 kW (2,700 HP).

Main Alternator

The diesel engine drives an in-line alternator at engine speed. The alternator produces AC current which is rectified to DC within the main control cabinet. The rectified DC power is converted back to AC by groups of devices called "inverters", which are also within the main control cabinet. Each inverter consists of six phase modules under the control of a gate driver power converter (GDPC). The two GDPCs control the operation of each phase module.

Each phase module contains paired positive and negative semiconductor switches referred to as insulated gate bipolar transistors (IGBT). The IGBTs cycle on and off at varying frequencies to create an AC power signal from the DC supply.

The AC power signal produced by each inverter is a variable-voltage, variable-frequency (VVVF) signal. Frequency and voltage are changed to suit the operating conditions.

Cooling air for the control/power group and wheel motors, as well as the alternator itself, is provided by dual fans mounted on the alternator shaft.

AC Induction Traction Motorized Wheels

The alternator output supplies electrical energy to the two wheel motors attached to the rear axle housing. The motorized wheels use three-phase AC induction motors with full-wave AC power.

The two wheel motors convert electrical energy back to mechanical energy through built-in gear trains within the wheel motor assembly. The direction of the wheel motors is controlled by a directional control lever located on the center console.

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 and operation.

Operator's Cab

The operator cab has been engineered for operator comfort and to allow for efficient and safe operation of the truck. The cab provides wide visibility with an integral 4-post ROPS/FOPS structure and an advanced analog operator environment. It includes a tinted safety-glass windshield and power-operated side windows, a deluxe interior with a fully adjustable seat with lumbar support, a fully adjustable/tilt steering wheel, controls mounted within easy reach of the operator, and an analog instrument panel which provides the operator with all instruments and gauges which are necessary to control and/or monitor the truck's operating systems.

Power Steering

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

Dynamic Retarding

The dynamic retarding is used to slow the truck during normal operation or control speed coming down a grade. The dynamic retarding ability of the electric system is controlled by the operator through the activation of the retarder pedal (or by operating a lever on the steering wheel) in the operators cab and by setting the RSC (Retarder Speed Control). Dynamic retarding is automatically activated, if the truck speed goes to a preset overspeed setting.

Brake System

Service brakes at each wheel are oil-cooled multiple disc brakes applied by an all-hydraulic actuation system. Depressing the brake pedal actuates both front and rear brakes after first applying the retarder. All wheel brakes will be applied automatically if the brake system pressure decreases below a preset minimum.

The parking brake is a dry disc type, mounted inboard on each rear wheel motor, and is spring-applied and hydraulically-released with wheel speed application protection (will not apply with truck moving).

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2. Observe both capacitor charge lights (CCL1, CCL2). CCL1 is on the outside of the contactor box. CCL2 is on the switch panel inside the low voltage area. The lights will stay illuminated as long as the voltage on the DC link is greater than 50 VDC. Refer to Figure 20-6.

⚠WARNING

Hazardous voltages may be present in this equipment even if the engine and capacitor charge lights are off.

Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.

⚠WARNING

Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.

Failure to observe these precautions may result in death or serious personal injury.

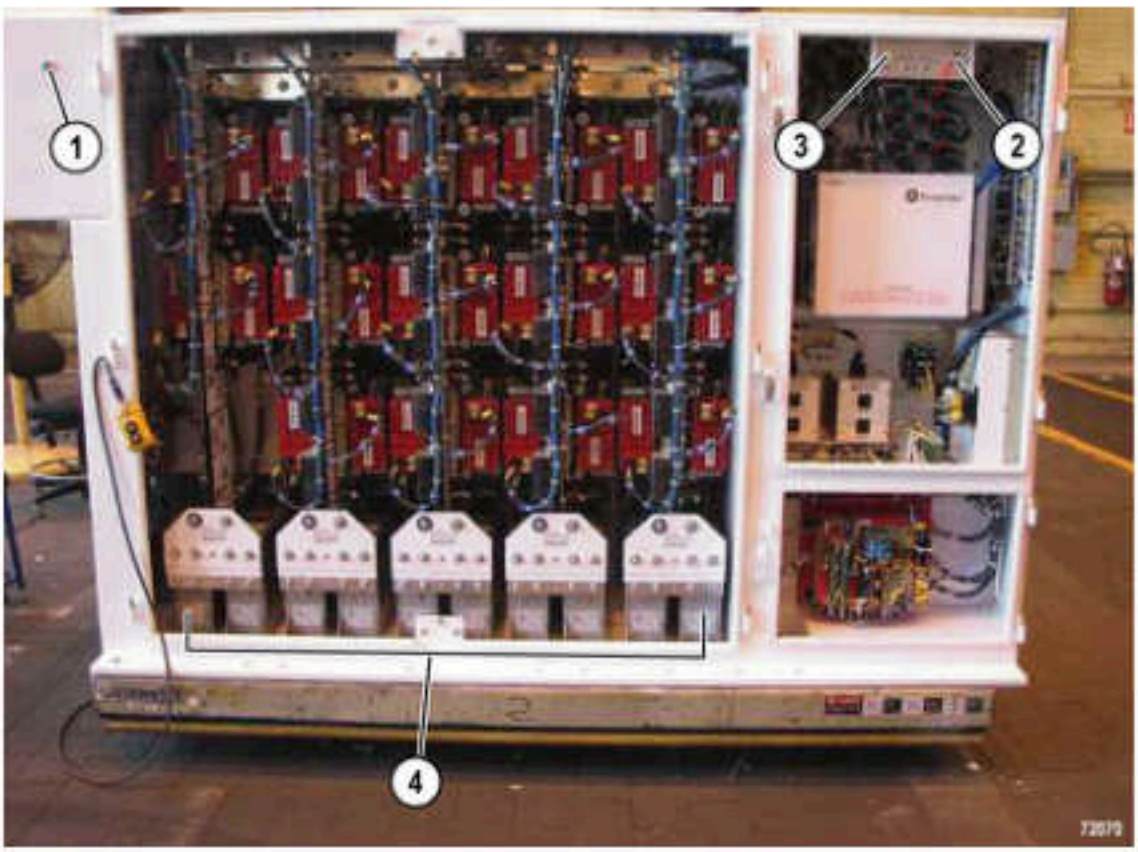


FIGURE 20-6. CAPACITOR CHARGE LIGHTS

1. Exterior Capacitor Charge Light (CCL2)
2. Interior Capacitor Charge Light (CCL1)
3. Information Display Panel
4. DC Link Capacitors

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Setting the Computer Subnet Mask and IP Address

If the adaptor software does not allow for setting an IP address, then this must be done manually.

The Windows TCP/IP settings must be modified for the correct subnet mask and an adequate IP address. The steps to reach the point where the TCP/IP settings can be modified vary according to the operating system and are described below. The actual steps for making the changes to the settings are described for the following operating systems.

Windows 2000:

1. Click on the start menu, select settings and then "Network and Dial-up Connections."
2. Right click on the wireless network adaptor and select "properties." Skip instructions for other Operating Systems and continue to the topic of "Properties".

Windows XP:

1. Click on the start menu, right click on "My Networks" and select "Properties." A window with all available networks will be shown.
2. Right click on the wireless network and select "Properties." Skip instructions for Windows Vista and continue to the topic of "Properties".

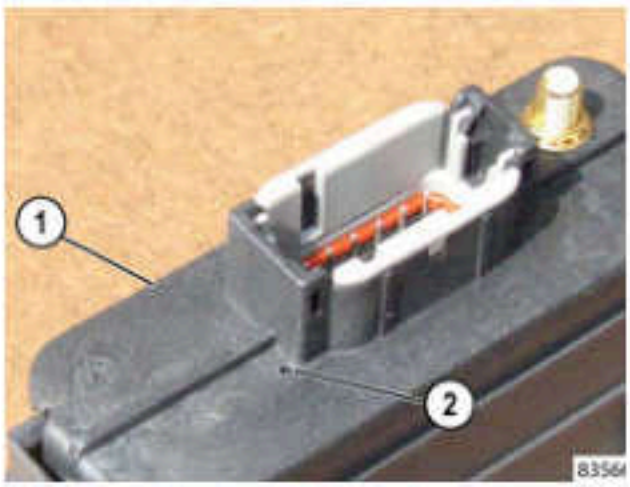


FIGURE 32-15. RESET LOCATION

1. Komatsu Wireless Bridge
2. Reset Button Hole

Windows Vista:

1. Click on the Windows menu, right click on "Network" then select "Properties." A window will open with the option "Manage network connections" as one of the options on the left side. Select that option.
2. A new window showing all available networks will open. Right click on the wireless network to be used to connect to the KWB and select "Properties." Vista will inquire if this was an intentional selection; select "Continue." Continue to the topic of "Properties".

Properties

Once the window with the list of available protocols is shown, the TCP/IP should then be selected. Click on "Properties" and bring up a window for setting the IP address and the subnet mask (alternatively, double click on TCP/IP). Before making any changes, write down the current settings. These settings will be needed to restore the original computer settings if needed.

3. Select "Use the following IP address," then set the IP address to 192.168.0.xxx, where xxx represents any number between 1 and 255. 123 is generally used. However, no two computers should use the same IP address). The subnet mask should now be set to 255.255.0.0. If a gateway address is requested, this is set to the same as the IP address.

This prepares the computer to communicate with the KWB and to interact with the automatic download software.

NOTE: The previous steps are not necessary if the software that comes with the computer/adaptor allows an IP address and mask to be assigned to each profile. This is done automatically by selecting the profile.
It may be necessary to repeat these steps to restore the computer settings when connecting to another network.

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