CEAM015803

Operation & Maintenance Manual

960E-1

DUMP TRUCK

SERIAL NUMBERS **A30003 - A30024**

KOMATSU®

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Manual discharge of capacitors

If the voltage is greater than 1V on any of the capacitors, the capacitor must be manually discharged. With a suitable capacitor discharge device, such as ground stick pair (PC3299), discharge the capacitors where needed per the following instructions:

1. With the control cabinet high voltage compartment doors closed, connect the ground stick pair ground lead to ground. The most convenient location is the middle top bolt that attaches the door center post to the control cabinet frame.
2. Verify the ground connection and ground stick resistance levels. Measure the resistance between each individual ground stick tip to either the GND1 or GND2 ground block in the low voltage compartment of the control cabinet using a multimeter (Figure 20-9). Ensure that the resistance is within the manufacturer's specifications for the ground sticks.

   For PC3299 grounding sticks, the valid range is 80 to 125 ohms per stick.

⚠WARNING

Hazardous voltages are present in this equipment. Avoid touching any energized equipment when the door to the low voltage area is open. Failure to do so may result in personal injury and equipment damage.

3. Discharge the relevant capacitors. Open the door(s) and place one grounding stick on one of the positive (+) capacitor terminals and the other on the diagonally located negative (-) terminal. Refer to Figure 20-8 and Figure 20-10. Attempt to minimize the time between application of the positive stick and the negative stick so that the current flow will be positive to negative rather than either to ground. Leave sticks in place until capacitors are discharged. Refer to Figure 20-10.

NOTE: On the capacitors located behind the door post, it is difficult to access diagonal terminals on the same capacitor. If using adjacent terminals, use care to keep the tips separated while discharging or else use a positive terminal on one capacitor and negative terminal of the adjacent capacitor on the same bus bar.

For PC3299 grounding sticks, the discharge times from 2000 volts are:

- 15 seconds (maximum) for 2 capacitors
- 75 seconds (maximum) for 10 capacitors

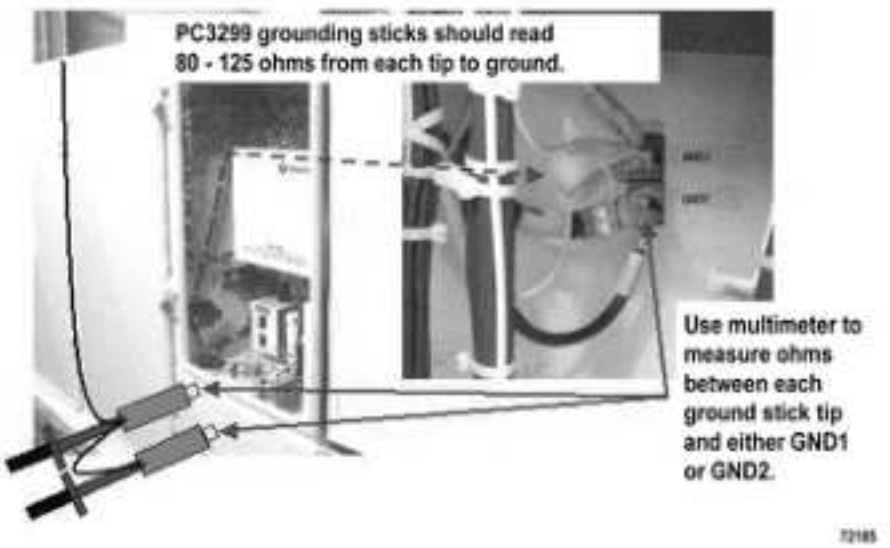


FIGURE 20-9. GROUNDING STICK LEAD CONNECTION AND CHECK

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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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1000 HOUR LUBRICATION AND MAINTENANCE CHECKS

Every *10 Hour (Daily) Inspection*, *250 Hour* and *500 Hour Lubrication and Maintenance Check* should also be performed at this time.

NOTE: "Lube Key" references are to the ***Lubrication Chart*** *on page 40-9.*

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

Hourmeter_____ **Name of Service Technician**_____

	TASK	COMMENTS	CHECKED	INITIALS
1.	HYDRAULIC TANK - Drain the hydraulic tank and clean the inlet strainer. Refill the tank with approximately 947 L (250 gal) of oil. Use Lube Key "B".			
2.	COOLING SYSTEM - Drain the cooling system. Clean the cooling system with a quality cleaning compound. Flush with water. Refill the system with anti-freeze and water solution. Refer to the Cooling Specifications on page 40-2 for the correct mixture.			
3.	FUEL TANK - Remove the breather and clean it in solvent. Dry it with pressurized air and reinstall.			
4.	OPERATOR'S SEAT - Apply grease to the slide rails. Use Lube Key "D".			
5.	AUTOMATIC BRAKE APPLICATION - Ensure that the brakes are automatically applied when brake pressure decreases below the specified limit. Refer to the shop manual for instructions.			
5.	BRAKE DISC WEAR INSPECTION - Use the front and rear brake wear indicators included in the truck's tool group to check for brake disc wear. Refer to the shop manual for instructions.			
6.	AUTO LUBE PUMP HOUSING OIL LEVEL - Remove the plug on the auto lube pump housing and check the oil level. The oil level should be at the bottom of the fill port. Add oil if necessary. Use Lube Key "C".			

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Failure of the discharge system

If the capacitor charge lights remain illuminated, a failure of the normal (fast) capacitor discharge system (RP discharge path) has likely occurred. The slow discharge resistors that are hard wired across the DC link should then discharge the capacitors. The slow discharge resistors will discharge the DC link to less than 1 VDC in under 7.5 minutes. If after 7.5 minutes, the capacitor charge lights are still illuminated, it must be assumed that the automatic discharge system is not working and that high voltage is present in the high voltage area.

1. Open the high voltage area doors.
2. With a suitable high voltage meter rated for at least 2000 VDC, such as PC3186 or equivalent, plus suitable protective equipment, measure the voltage across each of the DC link capacitors. Place one meter lead on the positive (+) capacitor terminal, and the other meter lead on the negative (-) capacitor terminal, and observe the voltage. See Figure 20-7 and Figure 20-8. If the voltage is less than 1.0 V the capacitor is sufficiently discharged. Repeat on all DC Link capacitors. If the voltage of any capacitor is above 1.0 V, manually discharge the capacitor as described in "Manual discharge of capacitors" on page 20-21.



FIGURE 20-7. DC METER ON CAPACITOR

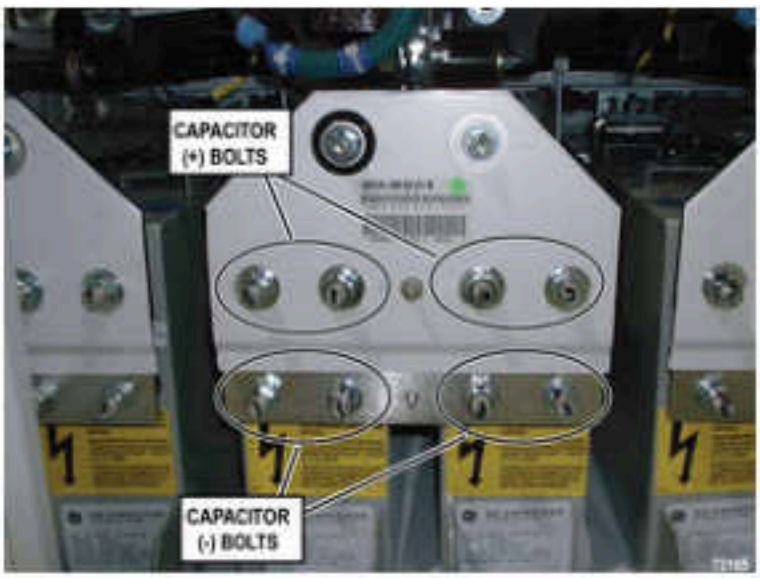


FIGURE 20-8. CAPACITOR TERMINAL POLARITY

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PLM III SYSTEM CONFIGURATION

Starting Communications



Before connecting to the payload meter, select "Change Program Options".

- Confirm that the program has selected the correct Com Port. Most laptop computers use Comm 1 for serial communications.
- Three options are available for the displaying payload units in the software, reports, and graphs:

  Short Tons: Payload is displayed in short tons, distances and speeds will be displayed in miles.

  Metric Tons: Payload is displayed in metric tons, distances and speeds are displayed in kilometers.

  Long Tons: Payload is displayed in long tons, distances and speeds are displayed in miles.
- Two options are available for displaying time units in the software, reports, and graphs:

  Minutes and Seconds:
  Five minutes and thirty-two seconds = **5:32**

  Decimal Minutes:
  Five minutes and thirty-two seconds = **5.53**



Click "Done" to return to the main menu. From the main menu, select "Connect to Payload Meter". The computer will try to connect to the payload meter and request basic information from the system. In the event of communications trouble, the computer will try three times to connect before "timing out". This may take several seconds.

Connection Menu



The connection screen displays basic system information to the user.

- **Frame S/N** should be the same as the truck serial number from the serial plate located on the truck frame.
- **Truck Number** is an ID number assigned to the truck by the mine.
- **Payload Meter Date / Time** values come from the payload meter at the moment of connection.
- **Number of Haul Cycle Records** is the number of haul cycles records stored in memory and available for download.
- **Number of Active Alarms** shows how many alarms are currently active in the system at the time of connection. If there are active alarms, the "Display Active Alarms" button is available.
- **Number of Inactive Alarms** shows how many alarms have been recorded in memory and are available for download.
- **PLM Software Version** displays the current version of software in the payload meter.

The information on the connection menu comes from the configuration of the payload system on the truck.

There are also many configuration and download options available from this screen. The Connection Menu is updated only when the connection is first made. It does not update automatically. To view changes made while connected, the user must close the window and reconnect to the payload meter.

The connection menu is displayed after a serial connection has been established and the PDM software has connected to the payload meter.

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