CEBM014700

Shop Manual

730E

DUMP TRUCK

SERIAL NUMBERS **A30299 - A30309 & A30311**

KOMATSU®

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Rear Suspension Nitrogen Charging

⚠WARNING

Lifting equipment (overhead or mobile cranes, or hydraulic jacks) must be of sufficient capacity to lift the truck weight. Be certain that all personnel are clear of lift area before lift is started. Clearances under the truck may be suddenly reduced.

⚠IMPORTANT⚠

Ensure the automatic apply circuit has not applied the service brakes during truck maintenance. If the front brakes are applied during rear suspension charging, the axle cannot pivot for frame raising / lowering, and the rear suspension may be unable to move up or down.

1. If removed, install charging valve with new O-ring (9, Figure 4-3). Lubricate the O-ring with clean HYDRAIR®oil.
2. Tighten valve body (large hex, 6) to **16.5 ft. lbs. (22.4 N.m)** torque. The valve swivel nut (small hex, 4) must be unseated by turning counterclockwise three full turns.

⚠WARNING

Dry nitrogen is the only gas approved for use in HYDRAIR®II suspensions. Charging of these components with oxygen or other gases may result in an explosion which could cause fatalities, serious injuries and/or major property damage. Use only nitrogen gas meeting the specifications shown in chart (Figure 4-6).

3. Install HYDRAIR® Charging Kit and a bottle of pure dry nitrogen. Refer to *Installation of Charging Kit.*
4. Charge the suspensions with nitrogen gas to 2 in. (50.8 mm) greater than the charging height listed in Figure 4-5.
5. Slowly release gas until the suspensions match the charging height listed in Figure 4-5.
6. Close inlet valve (4, Figure 4-1). Leave outlet valves (3) open for five minutes in order to allow the pressures in the suspensions to equalize.
7. Ensure both of the suspension cylinders are extended the same distance ± 10 mm (0.39 in.). If the difference in the extension from side to side exceeds 10 mm, check the front suspensions for equal extension. Adjust the front as necessary.

NOTE: A low left front suspension will cause the right rear suspension to be high. A low right front suspension will cause the left rear suspension to be high.

8. Close outlet valves (3) and remove charging kit components. Refer to *Removal of Charging Kit.*
9. If the charging valve is being reused, tighten swivel nut (4, Figure 4-3) to **4 ft. lbs. (5.4 N.m)** torque.
10. If a new charging valve is being used, tighten swivel nut to **10.5 ft. lbs. (14.2 N.m)** torque, then loosen and retighten the swivel nut to **10.5 ft. lbs. (14.2 N.m)** torque. Again, loosen the swivel nut and retighten to **4 ft. lbs. (5.4 N.m)** torque. Replace valve cap (1) and tighten to **2.5 ft. lbs. (3.3 N.m)** torque (finger tight).
11. Install the protective guards over the charging valves and install the rubber covers over the piston rods.

The rear HYDRAIR® suspensions are now ready for operation. Visually check piston extension both with the truck loaded and empty. Record the extension dimensions. Maximum downward travel is indicated by the dirt ring at the base of the piston rod. Operator comments on steering response and suspension rebound should also be noted.

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HYDRAULIC SYSTEM FILTERS

HOIST CIRCUIT FILTER

The hoist circuit filter (Figure 9-1) is located on the fuel tank below the right frame rail. The filter provides secondary filtering protection for hydraulic oil flowing to the hoist valve and hoist circuit components.

An indicator switch (5) is designed to alert the operator of filter restriction before actual bypass occurs. The switch contacts close at 40 psi (275 kPa) to actuate a warning lamp on the overhead display panel. Actual filter bypass occurs at 50 psi (345 kPa).

NOTE: When the engine is initially started and the hydraulic oil is cold, the warning lamp may actuate. Allow the hydraulic system oil to reach operating temperature before using the warning lamp as an indicator to change the element.

Refer to Section P, "*Lubrication and Service*" for recommended normal filter element replacement interval. Earlier replacement may be required if the restriction indicator lamp turns on.

Premature filter restriction may indicate a system component failure and signal a service requirement before extensive secondary damage can occur.

NOTE: An early indication of the filter warning light at first installation may be due to restriction in the filter as it cleans the system. Unless the fluid appears contaminated or has a strong foul odor, do not change the oil; replace only the filter element.

FILTER ELEMENT REPLACEMENT

⚠WARNING

Relieve pressure before disconnecting hydraulic and other lines. Tighten all connections before applying pressure.

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin and cause serious injury and possibly death if proper medical treatment by a physician familiar with this injury is not received immediately.

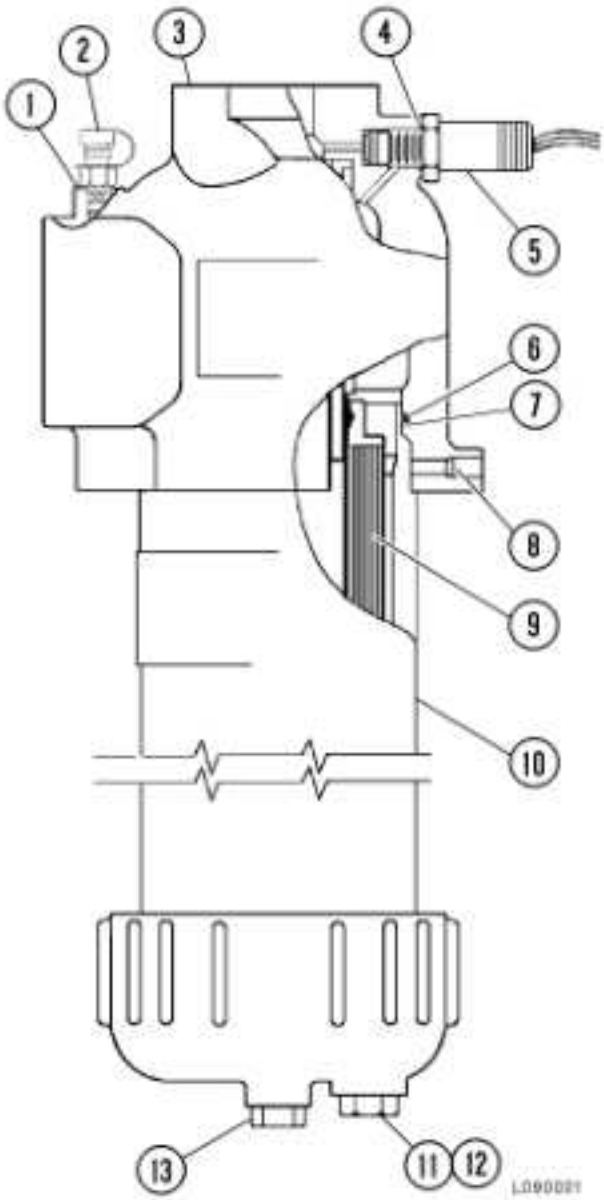


FIGURE 9-1. HOIST CIRCUIT FILTER

1. O-Ring
2. Plug
3. Filter Head
4. O-Ring
5. Indicator Switch
6. O-Ring
7. Backup Ring
8. Setscrew
9. Filter Element
10. Bowl
11. Bleed Plug
12. O-Ring
13. Bottom Plug

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TROUBLESHOOTING SECTION

Troubleshooting

Troubleshooting the PLMIII system is done through the PC software you can:

- View active alarms.
- View the sensor inputs using the Real-Time Data Display.
- Test the payload lights.
- Create log files of sensor inputs for further analysis.
- These activities require a connecion to the PLMIII system.

Viewing Active Alarms

Active alarms are alarms that have been set, but not yet cleared. Each alarm is set when the conditions for activation are held for 5 seconds. Each alarm is cleared when the condition has been returned to normal range for 5 seconds. For example, 5 seconds after the left-rear pressure sensor is disconnected, the LR-Pressure Lo alarm will be activated. This can be viewed using to the "Connect to Payload Meter" screen. 5 seconds after the pressure sensor is reconnected, the alarm will clear and be recorded in memory.

Active alarms are recorded in memory as "cleared" when the keyswitch is turned off. When power is restored to the payload meter, the alarms will be reactivated if the conditions still exist for 5 seconds.

To view active alarms:

1. Connect to the payload meter and start the PC software.
2. From the main menu, select "Connect to Payload Meter". The PC will request the latest status information from the payload meter.
3. If there are active alarms, the "Display Active Alarms" button in the lower left corner will be available. If the button is not available, there are no active alarms at the time of connection. The screen does not automatically refresh. If a condition changes to cause an alarm, the user must exit and re-enter the "Connect to Payload Meter" screen.

Real-Time Data Display



The PC software can be used to view the 'live' input readings from the payload meter. The numbers displayed are 1-second averages.

1. Connect to the payload meter and start the PC software.
2. From the main menu, select "Connect to Payload Meter". The PC will request the latest status information from the payload meter.
3. Select the "Real Time Data" button. The real time data screen will pop up. The PC will request the payload meter to begin transmitting data.
4. To exit the real time data mode, press the "Close" button.

The units for each measurement are determined by the setting in the Program Options for the PC software. The four suspension pressures and inclinometer are shown. The status of the Body-Up and Brake-Lock inputs is also shown. The haul cycle state and speed is displayed. The current sprung weight is displayed. This differs from pure payload. The sprung weight is a measurement of the weight of the truck above the suspension. It does not include the tires, spindles, wheel motors, drive case, or anything below the suspensions.

Testing the Payload Lights

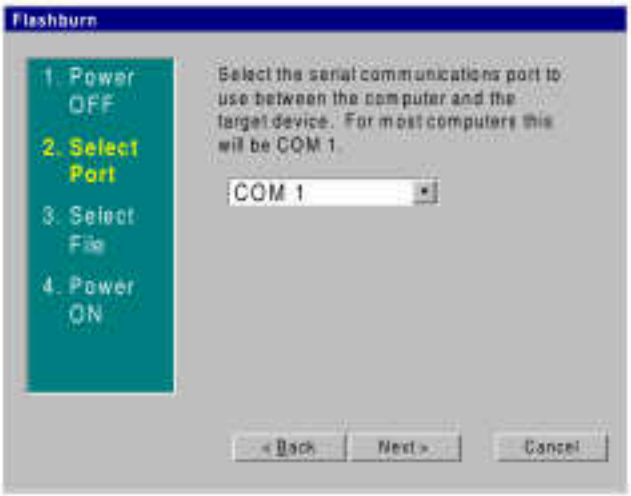
The real time data display also allows the user to individually power the payload lights. This can be useful for testing the lights. To turn on a particular color payload light:

1. Click the check box beside the color light to power.
2. Press the "Set Lights" button to turn on the light.
3. Uncheck the box and press "Set Lights" to turn off the light.

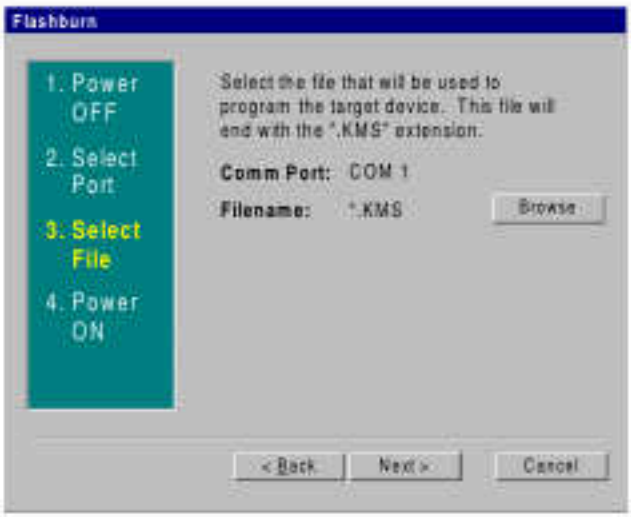
The lights will return to their normal state when the real time data display is closed.

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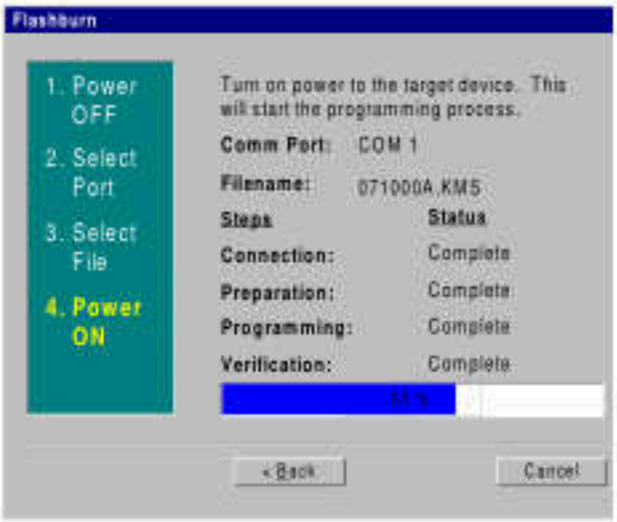
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



5. Press "BROWSE" and select the ".kms" file to program into the payload meter. Press "NEXT".



6. When instructed, turn the keyswitch "ON" in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.



7. After successful programming, turn the key witch "OFF".
8. Wait 20 seconds and turn the keyswitch "ON".
9. The payload meter will need to be configured as instructed in the manual using the Payload Data Manager software on the laptop computer.

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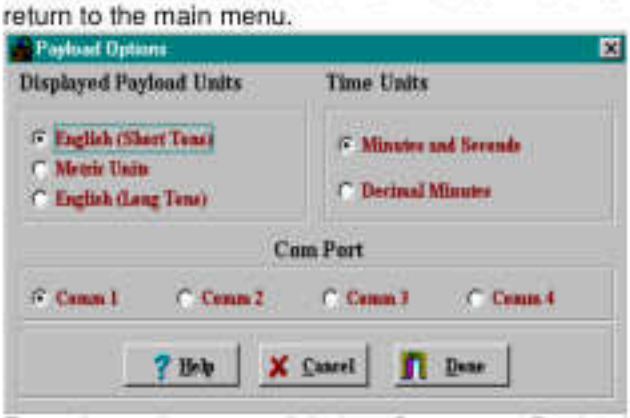
PLMIII System Configuration

Starting Communications

The PDM software allows users to download and configure the system.



Before connecting to the payload meter, select "Change Program Options" and confirm that the program has selected the correct laptop serial port. Most laptops use Comm 1 for serial communications. The units displayed for reports and graphs by the PC software can be set on this form. Click "Done" to return to the main menu.



From the main menu, click the "Connect to Payload Meter" button. The PC will try to connect to the payload meter and request basic information from the system. In the event of communications trouble, the PC will try 3 times to connect before "timing-out". This may take several seconds.

Displayed Payload Units

Three options are available for the display of units in the PC 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

Time Units

Minutes and Seconds Example:
Five minutes and thirty-two seconds = 5:32
Decimal Minutes Example:
Five minutes and thirty-two seconds = 5.53

Connection Menu



The connection screen displays basic system information to the user.

- Frame S/N should agree with 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.
- The 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 meter system on the truck.

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