CEBM027101

Shop Manual

930E-4SE

DUMP TRUCK

SERIAL NUMBERS **A31165 & UP**

KOMATSU®

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Fault Code A005: Left rear suspension pressure sensor signal is high

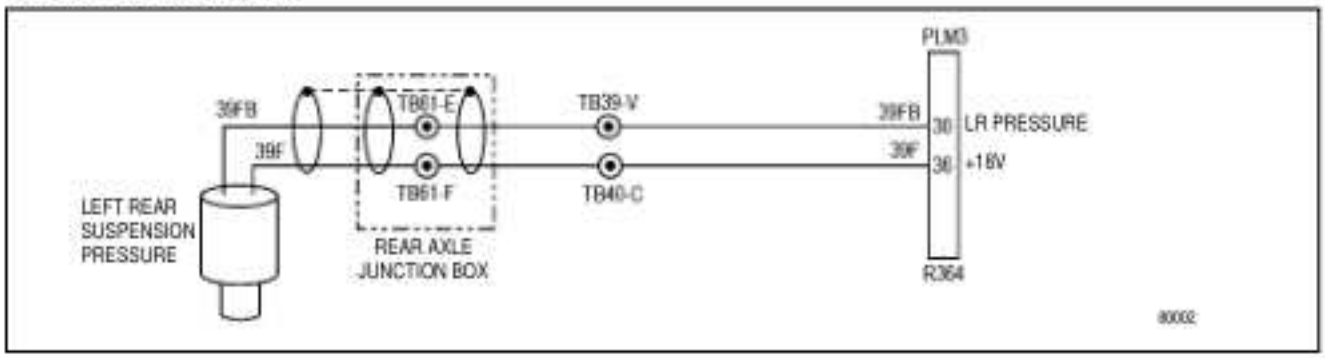
Operator Action	None
Fault Code	A005
Description	Left rear suspension pressure sensor signal is high.
Fault Conditions	Sets if pressure signal is out of range high (sensor current over 22 ma). Resets if reading returns to normal.
Operator Alerting System Response	PLM Display: ------
Resulting Problem(s)	Bad payload computation.
Related Information	

Table

1. This fault is generated by PLM in response to a problem in the sensor circuit. This sensor circuit may have a related fault that can be used to resolve the problem. Refer to the Troubleshooting Instructions for the active parameter fault(s).
2. If there are no active parameter fault codes, then, based on the truck's setup while this fault is active, determine which of the parameters in the Table is not shown in its expected state on the IM Realtime Data Monitor program. Refer to the schematic to identify which item(s) may be causing the parameter(s) to be in the unexpected state. Troubleshoot these items.
3. If this fault is not currently active or if no parameters are currently in the unexpected state and the malfunction is still unresolved, then check each of the parameters in the Table for proper functionality. Troubleshoot all item(s) related to the parameter(s) which are found to be malfunctioning.

Parameter	Expected State and/or Related Fault(s)
Left Rear Pressure Sensor (PLM3 36,30)	Sensor current > 22 ma: failed high Sensor current < 2 ma: failed low Sensor current > 2 ma but less than 22 ma: valid readings Fault(s): A006

Related circuit diagram



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Fault Code A317: Operation of brake auto apply valve without a detected response

Operator Action	Go to shop now
Fault Code	A317
Description	Operation of brake auto apply valve without a detected response.
Fault Conditions	Sets if operation of brake auto apply valve for 1 second (with keyswitch on and after engine has been running for 90 seconds) does not cause the service brake pressure switch to operate. Parking brake release is defined as the opening of the parking brake release pressure switch. Resets when parking brake is released for 5 seconds.
Operator Alerting System Response	Amber, dimmable "Service Brake" Lamp flashes Left Lamp Module Row 2, Column 3 Amber "IM Maintenance" Lamp No Buzzer Right Lamp Module Row 5, Column 3
Resulting Problem(s)	Failure of brake auto apply circuit could cause damage to parking brake.
Related Information	A laptop running "IM Realtime Data Monitor" software may be required to resolve this fault.

Table

1. This fault's logic contains more than one parameter, each of which may have its own related fault code(s). This fault may be resolved by resolving the parameter(s) active fault code(s). Refer to the Troubleshooting Instructions for the active parameter fault(s).
2. If there are no active parameter fault codes, then based on the truck's setup while this fault is active, determine which of the parameters in the Table is not shown in its expected state on the IM Realtime Data Monitor program. Refer to the schematic to identify which item(s) may be causing the parameter(s) to be in the unexpected state. Troubleshoot these items.
3. If this fault is not currently active or if no parameters are currently in the unexpected state and the malfunction is still unresolved, then check each of the parameters in the Table for proper functionality. Troubleshoot all item(s) related to the parameter(s) which are found to be malfunctioning.

Parameter	Expected State and/or Related Fault(s)
Auto Brake Apply Solenoid (IM1 R)	Status - Open Load: Unexpected if park brake request and keyswitch are on. But expected if park brake request is off or keyswitch is off. Troubleshoot if inconsistent. Status - Normal: Expected if park brake request and keyswitch are on. Troubleshoot if status is normal with park brake request off or keyswitch off. Status - Shorted to ground: Unexpected. Troubleshoot Status - Overload: Unexpected. Troubleshoot. 0: normal operation with park brake either on or off. This valve operates only transiently when the park brake is turned on. 1: brake auto apply valve operates for 1.5 seconds after the park brake is turned on if the truck is stopped. If moving, it will not operate until truck speed has dropped to 0.8 kph. Fault(s): A359
Service Brake Pressure Switch (IM3 C)	0: Service brake not applied 1: Service brake applied

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Load Calculation

The final load calculation is different from the last swingload calculation. The accuracy of the swing load calculation depends on loading conditions and the position of the truck during loading. The last swingload calculation is not the value recorded in memory as the final load. The final load is determined by a series of calculations made while the truck is traveling to the dump site.

Carry Back

Carry back is calculated as the difference between the current truck tare and the clean truck tare. The clean truck tare is calculated using the PC software. When the suspensions are serviced or changes are made that may affect the sprung weight of the truck, a new clean truck tare should be calculated.

Measurement Accuracy

Payload measurements are typically repeatable within 1%. Accuracy for a particular scale test depends on specific combinations of pressure sensors and payload meters as well as the specifics of each scale test. Comparisons from different scale tests are often made without considering the differences introduced by the specific installation and operation of the scales for each test. In addition, each pressure sensor and payload meter introduces it's own non-linearity. Each truck becomes an individual combination of sensors and payload meter. Errors from these sources can introduce up to a ±7% bias in the payload meter calculations for a specific scale test, for an individual truck.

Because the PLMIII calculates a new empty tare for each payload, a detailed scale test must weigh the trucks empty and loaded for each haul cycle. Using a simple average of 2 or 3 empty truck weights as an empty tare for the entire scale test will introduce significant error when comparing scale weights to PLMIII weights.

SOURCES FOR PAYLOAD ERROR

Payload Error

The number one source of error in payload calculation is improperly serviced suspensions. The payload meter calculates payload by measuring differences in the sprung weight of the truck when it is empty and when it is loaded. The sprung weight is the weight of the truck supported by the suspensions. The only method for determining sprung weight is by measuring the pressure of the nitrogen gas in the suspensions. If the suspensions are not properly maintained, the payload meter cannot determine an accurate value for payload. The two critical factors are proper oil height and proper nitrogen charge.

If the suspensions are overcharged, the payload meter will not be able to determine the empty sprung weight of the truck. The suspension cylinder must be able to travel up and down as the truck drives empty. The pressure in an overcharged suspension can push the suspension rod to full extension. In this case, the pressure inside the cylinder does not accurately represent the force necessary to support that portion of the truck.

If the suspensions are undercharged, the payload meter will not be able to determine the loaded sprung weight of the truck. The suspension cylinder must be able to travel up and down as the truck drives loaded. If the pressure in an undercharged suspension cannot support the load, the suspension will collapse and make metal-to-metal contact. In this case, the pressure inside the cylinder does not accurately represent the force necessary to support that portion of the truck.

Low oil height can also introduce errors by not correctly supporting a loaded truck. This is why the correct oil height and nitrogen charge are the most critical factors in the measurement of payload. If the suspensions are not properly maintained, accurate payload measurement is not possible. In addition, suspension maintenance is very important to the life of the truck.

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4. Navigate the highlighted bar downward to the row named "Camera Switch" (Figure 33-17) using the minus button. Press the enter button to cause the setting for this row to become highlighted in green color. Use the plus button or the minus button as needed to cycle to option "4C" in the available settings. When "4C" is shown, select this option by pressing the enter button. Now the complete row should be highlighted in yellow and the text "4C" is shown as the selected option.

NOTE: The other options are also shown in Figure 33-17, and they are QUA, 2C, 3C AND OFF.



FIGURE 33-17.

5. Now Navigate the highlighted bar downward to the row named "Frontcam", then press the enter button. This will have a default setting screen similar to Figure 33-18. Set "Enable Frontcam" to OFF.

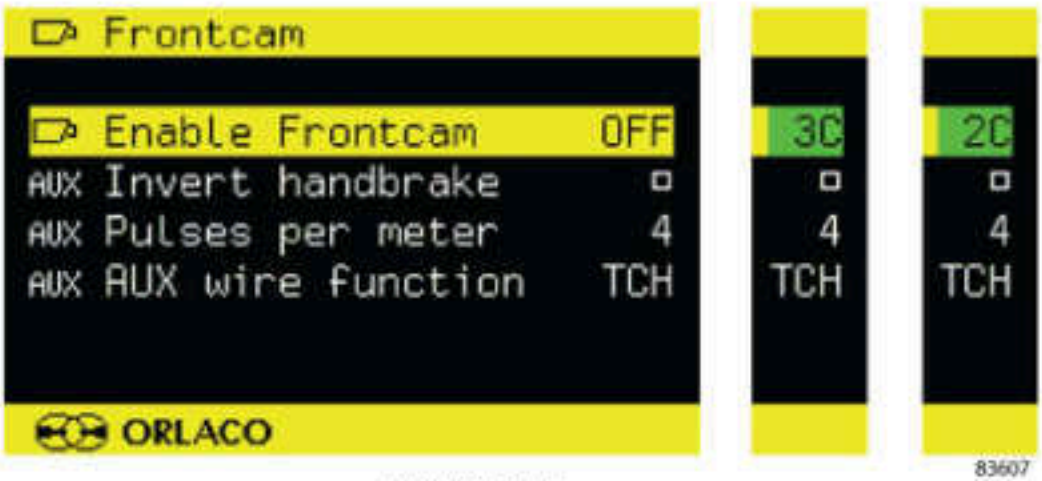
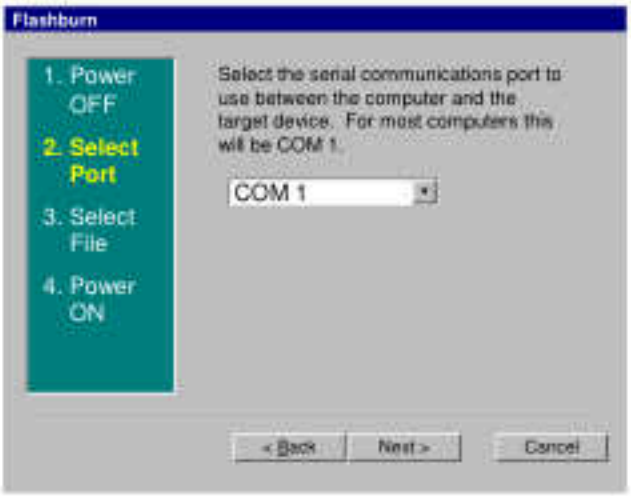


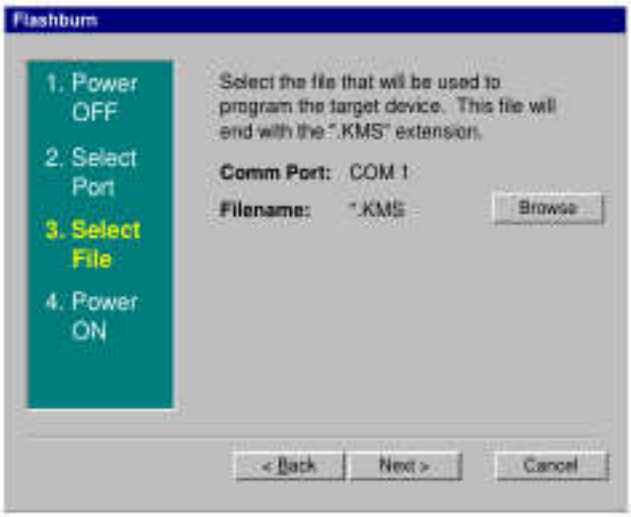
FIGURE 33-18.

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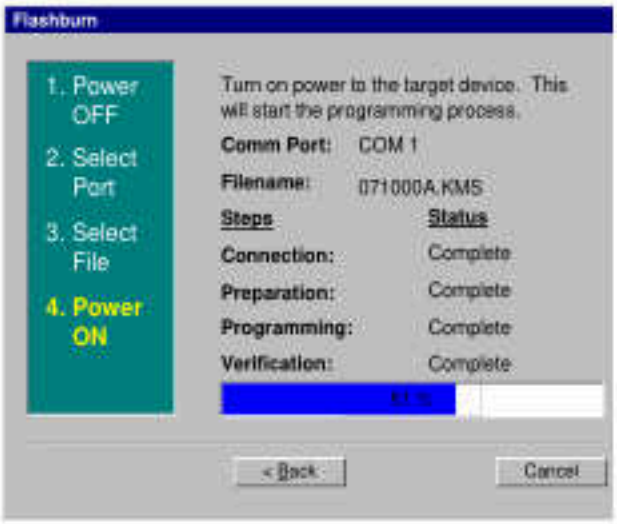
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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

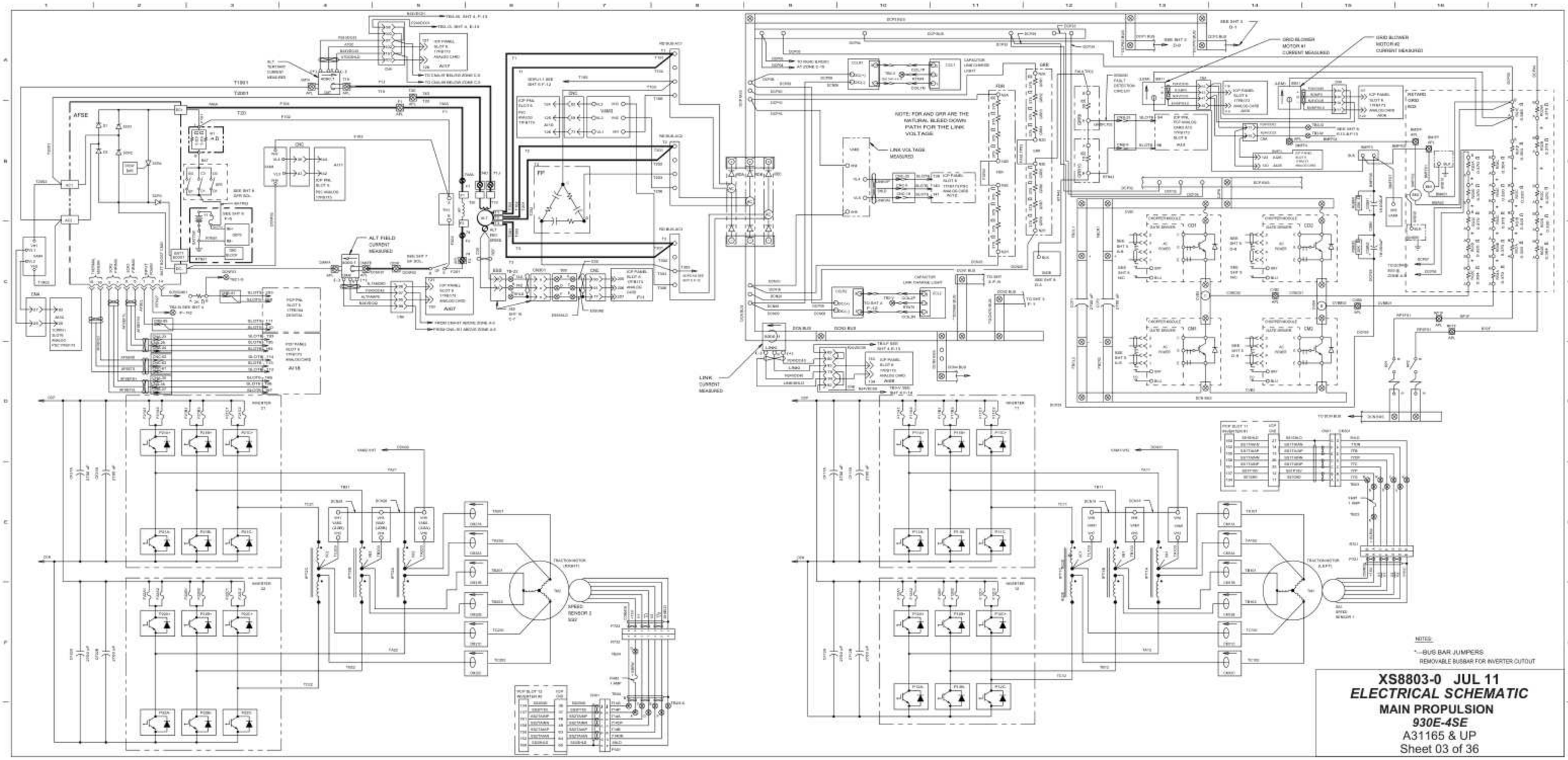


6. When instructed, turn the key switch ON in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.



7. After successful programming, turn the key witch OFF.
8. Wait 20 seconds and turn the key switch 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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