PACCAR ENGINES SUPPORT CENTER

Troubleshooting for U1011 and Other E-CAN Faults

This is a dynamic document; the content below will be updated as our engineering team continues to investigate these concerns. Always ensure that you are using the current version before continuing with this procedure. Do not print this document for later use.

This document was designed to assist with troubleshooting fault code U1011, but may help with other E-CAN faults as well, including U1208, U1159, U104C, and U1835.

Unless otherwise indicated, this procedure is meant to be completed with all components installed and connected.

This document is designed for a vehicle that is not equipped with an electric fan. If you have an electric fan, you'll need to check that as well.

1) **Ensure the components are installed correctly**
    a) Inspect the BPV, VTG actuator, EGR valve, and humidity sensor connectors to ensure they are fully latched. Pull on the connectors to ensure they are securely connected.

2) **Check for active faults**
    a) Turn the key on and perform the DAVIE4 procedure "Reset Quick Check."
    b) Are any E-CAN related faults active?
        i. If yes, continue to Step 3.
        ii. If no, go to Step 6.

3) Check the BPV

a) Turn the key off, disconnect the BPV, and then turn the key on.
b) Perform the DAVIE4 procedure “Reset Quick Check.”
c) Is the original fault inactive?
    i. If yes, continue to Step 3d.
    ii. If no, continue to Step 4.
d) Turn the key off, connect the BPV, and then turn the key on.
e) Perform the DAVIE4 procedure “Reset Quick Check.”
f) Is the original fault active?
    i. If yes, the BPV may be failing. It’s recommended to open a SupportLink Engine Diagnostic case.
    ii. If no, continue to Step 4.

4) Check the EGR valve

a) Turn the key off, disconnect the EGR valve, and then turn the key on.
b) Perform the DAVIE4 procedure “Reset Quick Check.”
c) Is the original fault inactive?
    i. If yes, continue to Step 4c.
    ii. If no, go to Step 5.
d) Turn the key off, connect the EGR valve, and then turn the key on.
e) Perform the DAVIE4 procedure “Reset Quick Check.”
f) Is the original fault active?
    i. If yes, the EGR valve may be failing. It’s recommended to open a SupportLink Engine Diagnostic case.
    ii. If no, continue to Step 5.

5) **Check the humidity sensor**
    a) Turn the key off, disconnect the humidity sensor, and then turn the key on.
    b) Perform the DAVIE4 procedure “Reset Quick Check.”
    c) Is the original fault inactive?
        i. If yes, continue to step 5d.
        ii. If no, go to Step 6.
    d) Turn the key off, connect the humidity sensor, and then turn the key on.
    e) Perform the DAVIE4 procedure “Reset Quick Check.”
    f) Is the original fault active?
        i. If yes, the humidity sensor may be failing. It’s recommended to open a SupportLink Engine Diagnostic case.
        ii. If no, continue to Step 6.

6) **Inspect the BPV connector**
    a) Turn the key off and disconnect the BPV.
    b) Visually inspect the pins on both of the connectors for damage, bent pins, corrosion, dirt, or other foreign material.
    c) Using test pins, check the pin drag. Ensure that it doesn’t feel “gritty” or loose.
    d) Ensure that all pins are fully locked into the connector body. Be sure to use something to lightly push on the pins to ensure they can’t be easily popped out of the connector body.
    e) Leave the BPV disconnected. Repair any issues that are found and continue to Step 7.

7) **Inspect the EGR valve connector**
    a) Disconnect the EGR valve.
    b) Repeat the checks supplied in steps 6b-d
    c) Leave the EGR valve disconnected. Repair any issues that are found and continue to Step 8.

8) **Inspect the VTG actuator connector**
    a) Disconnect the VTG actuator.
    b) Repeat the checks supplied in steps 6b-d
    c) Leave the VGT disconnected. Repair any issues that are found. Continue to Step 9.

9) Inspect the humidity sensor connector

a) Key Off, Disconnect the BPV Connector.
b) Repeat the checks supplied in steps 6b-d
c) Leave the humidity sensor disconnected. Repair any issues that are found and continue to Step 10.

10) Inspect the PCI J3 connector

a) Turn the key off and disconnect the PCI J3 (bottom) connector.
b) Repeat the checks supplied in steps 6b-d for pins C90 and C92.
c) Reconnect the J3 harness to the PCI. Repair any issues that are found and continue to Step 11.

11) Check and inspect the wiring between the BPV and VTG actuator

a) Visually inspect the harness between the BPV connector and the VTG connector. Check for signs of rubbing, chafing, or cuts. Refer to Figure 1 below.

b) Install a breakout box (BOB) to the J3 harness side of the BPV connector. Do not connect it to the BPV itself. With the BOB Installed, measure resistance between the CAN high and CAN low wires. You should see 120±6 ohms (Ω).

c) While still measuring the circuit resistance, unbolt the J3 harness from any hangers and meticulously bend the harness inch by inch until you reach the VTG actuator connector. The measured resistance should not fluctuate during this process. Refer to Figure 1 below.

d) Disconnect the BOB from the BPV connector. Leave the BPV disconnected from the J3 harness.

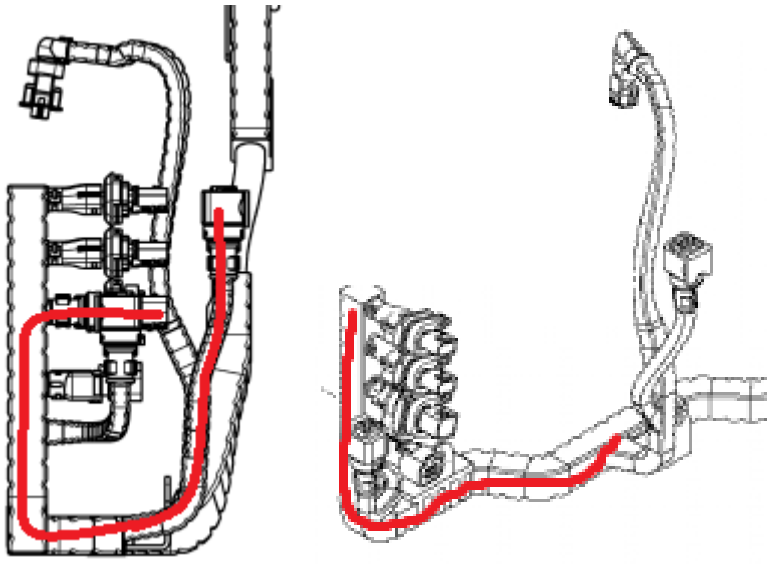

Figure 1: BPV section of J3 harness

12) Check and inspect the wiring between the VTG actuator and the EGR valve

a) Visually inspect the wiring between the VTG actuator connector and the EGR valve connector. Check for signs of rubbing, chafing, or cuts. Refer to Figure 2 below.

b) Install the BOB to the J3 harness side of the VTG actuator connector. Do not connect it to the VTG Actuator itself. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 120±6Ω.

c) While still measuring the circuit resistance, unbolt the J3 harness from any hangers and meticulously bend the harness inch by inch between the VTG actuator connector and the EGR valve connector. The resistance should not fluctuate during this process. Refer to Figure 2 below.

d) Disconnect the BOB from the VTG actuator connector. Leave the VTG actuator disconnected from the J3 harness.

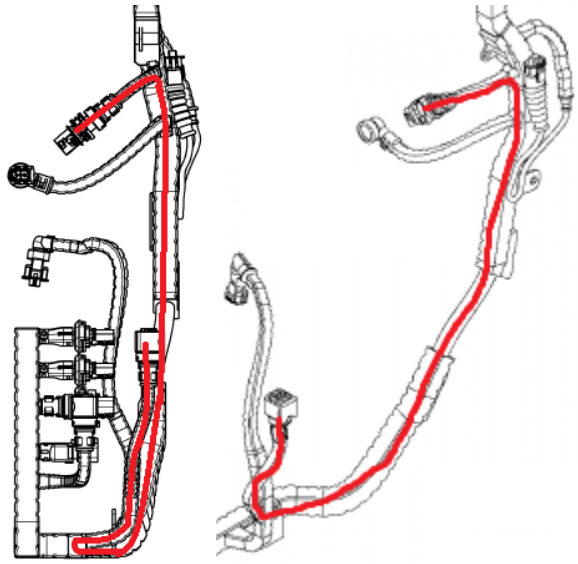

Figure 2: VTG actuator section of J3 harness

13) Check and inspect the wiring between the EGR valve and the PCI

a) Visually inspect the wiring between the EGR valve and the PCI. Check for signs of rubbing, chafing, or cuts. Refer to Figure 3 below.

b) Install the BOB to the J3 harness side of the EGR valve connector. Do not connect it to the EGR valve itself. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 120±6Ω.

c) While still measuring the circuit resistance, unbolt the J3 harness from any hangers and meticulously bend the harness inch by inch between the EGR valve connector and the PCI J3 connector. The resistance should not fluctuate during this process. Refer to Figure 3 below.

d) Disconnect the BOB from the EGR valve connector. Leave the EGR valve disconnected from the J3 Harness.

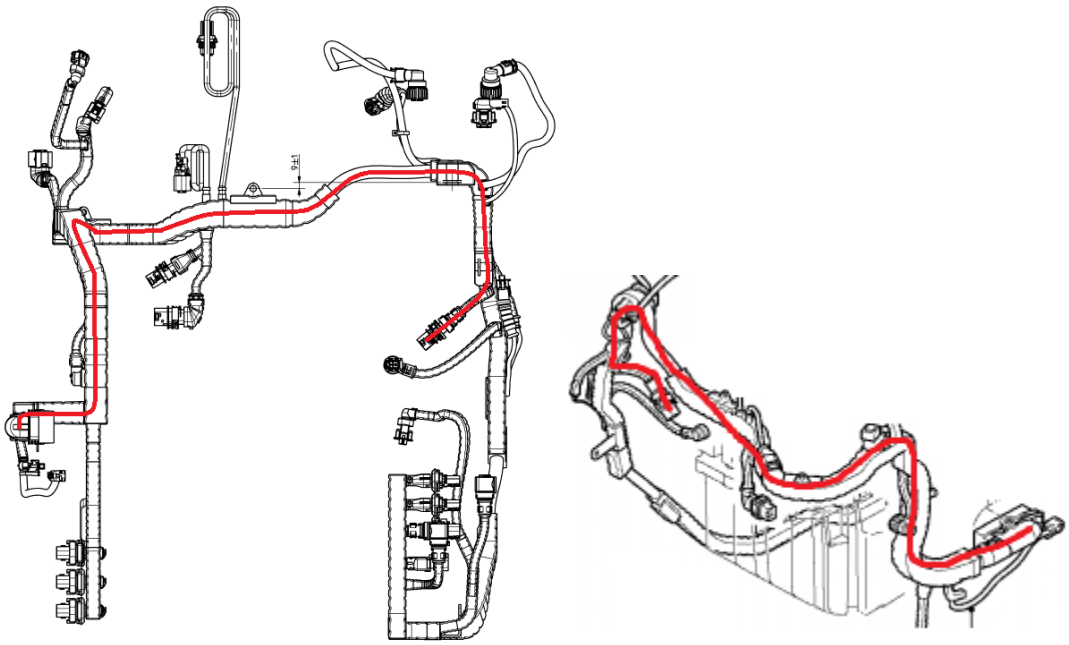

Figure 3: EGR valve section of J3 harness

14) Check and inspect the wiring between the humidity sensor and the J3 harness

a) Visually inspect the wiring between the humidity sensor and the main section of the J3 harness. Check for signs of rubbing, chafing, or cuts. Refer to Figure 4 below.

b) Install the BOB to the J3 harness side of the humidity sensor connector. Do not connect it to the humidity sensor itself. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 120±6Ω.

c) While still measuring the circuit resistance, unbolt the J3 harness from any hangers and meticulously bend the harness inch by inch between the humidity sensor connector and the main section of the J3 harness. The resistance should not fluctuate during this process. Refer to Figure 4 below.

d) Disconnect the BOB from the humidity sensor connector. Leave the humidity sensor disconnected from the J3 harness.

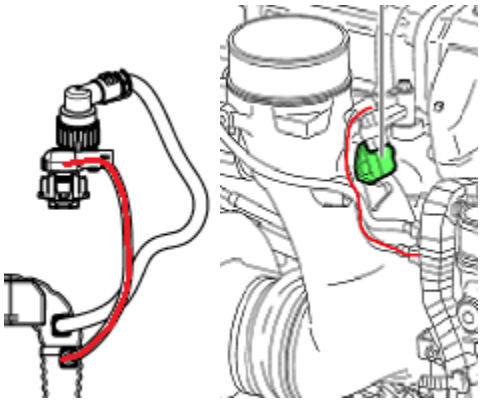

Figure 4: Humidity sensor section of J3 harness

15) Check the BPV internal E-CAN circuit

a) Install the BOB to the BPV connector. Do not connect the BOB to the J3 harness. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 25-50KΩ.
b) While still measuring the internal resistance, meticulously bend the pigtail harness inch by inch between the connector and the BPV. The resistance should not fluctuate during this process.
c) Disconnect the BOB from the BPV.

16) Check the VTG actuator internal E-CAN circuit

a) Install the BOB to the VTG actuator connector. Do not connect the BOB to the J3 harness. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 120±6Ω.
b) While still measuring the internal resistance, meticulously bend the pigtail harness inch by inch between the connector and the VTG actuator. The resistance should not fluctuate during this process.
c) Disconnect the BOB from the VTG actuator.

17) Check the EGR valve internal E-CAN circuit

a) Install the BOB to the EGR valve connector. Do not connect the BOB to the J3 harness. With the BOB installed, measure resistance between the CAN high and CAN low wires. You should see 25-50KΩ.
b) While still measuring the internal resistance, meticulously bend the pigtail harness inch by inch between the connector and the EGR valve. The resistance should not fluctuate during this process.
c) Disconnect the BOB from the EGR valve.

18) Check the humidity sensor internal E-CAN circuit

a) Install the BOB to the humidity sensor itself. Do not connect the BOB to the J3 harness. With the BOB installed, measure resistance between the CAN high and CAN low. You should see 25-50KΩ.
b) Disconnect the BOB from the humidity sensor.

If no issues were found, it's recommended to open a SupportLink Engine Diagnostic case for further troubleshooting assistance.