P0115

Fault code description

Coolant temperature - Data erratic, intermittent or incorrect at ignition on

Possible cause

1. Blocked radiator
2. Faulty thermostat
3. Faulty sensor
4. Faulty wiring
5. Faulty connector
6. Engine (block) heater used.

Additional information

Sensor value compared to a corrected average engine power up temperature. For this diagnostic, the engine coolant temperature sensor (F566) reading is compared with average readings of other temperature sensors on/off the engine after the ignition has been keyed off for at least 8 hours.

Set condition of fault code

The PCI ECU (D420) detects that the measured coolant temperature differs by more than 3°C [37°F] from the average of other temperature sensors on the engine for more than 5 seconds (after the ignition has been keyed off for at least 8 hours).

Reset condition of fault code

This fault code will change to inactive immediately after the diagnostic runs and passes. The 8-hour ignition off diagnostic consists of three separate steps:

1. The vehicle ignition may NOT be switched on or engine started for 8-10 consecutive hours (ideal situation would be overnight).
2. Once the 8 to 10 consecutive hours have been reached, key on the ignition (NO engine start) and wait for 10 seconds to allow the system to power up and the diagnostics to run.
3. Start the engine and let it idle for 2 minutes.

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P0115, Diagnostic information

Technical data

"Sensor, coolant temperature (F566)"

Location of component(s)

"Location information, PMCI-2"

Electrical diagram(s)

"PMCI-2"

Description of component(s)

"Coolant temperature sensor (F566)"

Block diagram

"PMCI-2"

Step by step troubleshooting

- Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses.
- Back probing is not recommended, as it could damage the harness.
- The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.

- Disconnecting the PMCI connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pin out locations, always refer to the technical data in Rapido.
- Exit the 'Active errors' screen in

DAVIE and run the diagnostic test again to identify a change in errors.

- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive codes. Refer to the 'possible causes' section in Rapido.

Step by step 1: Related fault codes

Step 1A: Related fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Use DAVIE to check for related fault codes.
3. Before troubleshooting this fault, take notice of any other active or inactive fault codes. One or multiple other faults could have been the cause of this fault.

Are there related active or inactive fault codes?

- Yes – Proceed with the appropriate fault code.
- No – Proceed to step 2A

Step by step 2: Check cooling system

Step 2A: Check the coolant level

Troubleshooting steps

1. Visually inspect the expansion tank reservoir for low coolant (below the appropriate fill line).

Coolant level can be lower under either of the following conditions:

- If the truck is equipped with an Auxiliary Power Unit or devices

that require additional coolant volume.

- If recent cooling system service was performed without fully purging air out of the system.

Is the coolant level below the appropriate fill level?

- Yes – Possible coolant leak. Proceed to step 2B
- No – Possible problem with the coolant temperature sensor. Proceed to step 3A.

Step 2B: Perform a cooling system pressure test

Troubleshooting steps

1. Perform a basic system pressure test to determine if there may be an external leak in the cooling system.

To avoid causing damage to seals and fittings, do not apply more than 20 psi (1.38 bar) air pressure to the cooling system.

Does the cooling system pass a basic pressure test?

- Yes – Proceed to Step 3A
- No – Locate and correct the source of the leak, fill the coolant to the appropriate level, and refer to step 4A to perform the corresponding repair verification cycles. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes. If this code is still present, proceed to step 3A.

Step by step 3: Check coolant temperature sensor

Step 3A: Visually inspect the coolant temperature sensor

Troubleshooting steps

1. Visually inspect the associated component connections and wiring for

any of the following:

- Damaged or loose connectors
- Bent, broken, corroded, or loose connector pins
- Moisture or dirt in the connections
- Damage to the wire harness or insulation
- The correct parts are not installed
- ECU connections are damaged or disconnected
- Battery level is low, contacts are not tight
- Coolant temperature sensor is broken or not installed correctly

Was there evidence of any of the above?

- Yes – Correct any issues found. If the coolant temperature sensor (F566) is found to be damaged or broken, replace it. Refer to step 4A to perform the corresponding repair verification cycles. If this code is still active, proceed to step 3B.
- No – Proceed to Step 3B.

Step 3B: Check the coolant temperature sensor resistance

Troubleshooting steps

1. Perform the component check outlined for the coolant temperature sensor to measure the resistance value for a selected operating temperature.

Are measured values within the expected range for the corresponding temperature values?

- Yes – Proceed to step 3C.
- No – Correct any issue found, or replace the sensor if measured values indicate a sensor error. Refer to step 4A to perform the corresponding repair verification cycles.

Use DAVIE Diagnostics to perform a Quick Check for current trouble codes. If this code is still present, proceed to step 5A

Step 3C: Check the coolant temperature sensor supply voltage

Troubleshooting steps

- Perform the component and circuit check outlined for the coolant temperature sensor to confirm the available supply voltage.

Is the measured value within the expected range?

- Yes – If this code is still active, proceed to step 5A.
- No – Correct any issues found, or replace the sensor if measured values indicate a sensor error. Refer to step 4A to perform the corresponding repair verification cycles. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes. If this code is still present, proceed to step 5A

Step by step 4: Repair Verification Cycle

Step 4A: Repair Verification Cycle

Troubleshooting steps

1. System initiation cycle: Drive the truck under normal conditions until the coolant temperature reaches a minimum of 150°F (65°C). This cycle can be conducted with a loaded trailer or bobtail
2. Transient cycle: With the System Initiation cycle complete, under moderate engine load (A/C and Fan both ON), perform a series of brief accelerations, progressing from a lower to a higher speed until reaching a top speed of 40 mph. Once the top speed has been reached, perform several decelerations from a higher to a lower speed until reaching a bottom speed of 10 mph.

Perform this cycle 5 times. Use DAVIE to check for fault codes.

Is this fault code still active?

- Yes – Proceed to the 5A
- No – Troubleshooting complete

Step by step 5: Contact PACCAR Engine Support Center

Step 5A: Contact PACCAR Engine Support Center

For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.

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