



## Remove and Replace Bulletin

Symptom: Outside air temperature display functions, but the temperature value is displayed incorrectly. (Value displayed is 5 degrees greater or less than value provided by an independently known source).

Models affected: Paccar vehicles with aero mirrors and an outside air temperature display within the cab or on the exterior mirror glass.

Solution: Remove and replace the OAT sensor

Approximate time to complete sensor replacement: 15 minutes

Approximate total time for diagnostics along with sensor replacement: 30 minutes

Replacement sensor part number: Q21-1036

### Tools and parts required:

Phillips screwdriver

Small knife or razor

Wire cutters/strippers

Wire crimpers

Replacement OAT sensor (Paccar # Q21-1036)

2 – butt splice connectors

Heat shrink tubing (two 2” pieces)

Heat source for shrink tubing

### Steps to diagnose if sensor replacement is necessary:

1. Place vehicle in a controlled environment where temperature is maintained at a known level.
2. Allow sufficient time for mirror and temperature sensor to equalize with ambient temperature.
3. Remove the mirror glass.
4. Reset the display electronics by toggling the display to the “off” position using the small gray button on the back of the display housing.
5. Allow the display to remain in the “off” position for a few seconds and then use the button to toggle back to the desired “C” or “F” mode.
6. Observe the temperature being displayed. If the temperature is more than 5 degrees higher or lower than known ambient temperature then the sensor should be replaced.

**\*\*\* NOTE: Avoid touching the sensor or allowing the sensor to contact any object during the diagnostic process. Doing so may cause the temperature display to give a “false” temperature reading.**

Steps to replace:

1. Remove the mirror bezel by removing the 6 screws around the perimeter. Allow the bezel assembly to hang from the convex glass heater wires. Be careful not to cut or pinch these wires. *See Image 1*
2. Slide the sensor out of the slot in the mirror shell. *See Image 2*
3. Cut the sensor wires approximately 4 inches from the base of the sensor.
4. On the portion of the harness remaining in the mirror head, carefully strip back the jacket exposing the two wires. Remove approximately 3" of jacket. *See Image 3*
5. Cut off the harness from the new replacement sensor approximately 4 inches from the sensor base, and strip back the jacket in a similar manner as was done in step 4.
6. Remove approximately 1/2" of insulation from each of the four wires exposed in steps 4 and 5.
7. Slide the pieces of heat shrink tubing onto the wires, and connect the wire leads by using 2 butt splice connectors. Note: Sensor is not polarity sensitive. *See Image 4*
8. Cover the connections with heat shrink tubing. Note: shrink tubing needs
9. Slide the new sensor into the slot on the bottom of the mirror shell. *See Image 5*
10. Verify that sensor wires will not interfere with the movement of the mirror glass.
11. Replace the mirror bezel. OAT sensor replacement is now complete.
12. Turn the ignition to the ON position and verify that the temperature display functions properly.
13. If the problem persists, and your temperature display is on the mirror glass, contact Hadley technical support at 616-249-8462.



*Image 1 (left) – Bezel removed and hanging from heater wires*



*Image 2 (right) – Sensor exposed after removal of bezel*



*Image 3 - View of sensor harness after removal of defective sensor*



*Image 4 – New sensor connected to existing sensor harness with the use of butt splices*



*Image 5 – Splice connections covered with heat shrink tubing, and new sensor placed into slot on mirror shell*