NAPA TEMP PRODUCTS

TECH TIPS

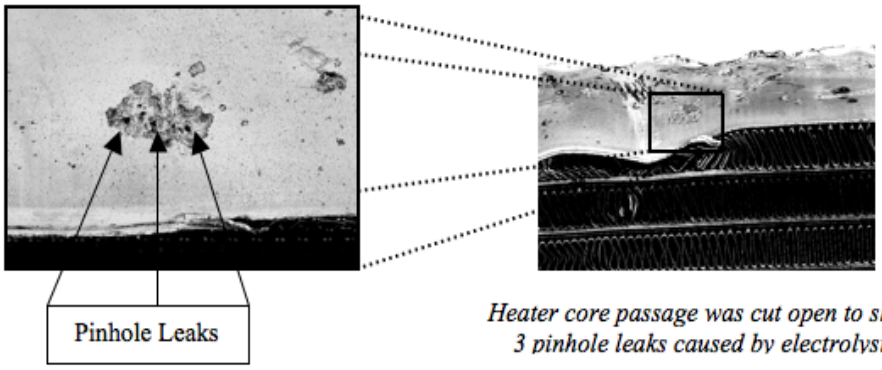
350 Tech Tip

ELECTROLYSIS: A MAJOR CAUSE OF HEATER CORE FAILURE

A major cause of heater core failure is electrolysis, a process of chemical changes in the cooling system, by the passage of an electrical current through the engine coolant. Chemical changes can ionize the system and can cause metal to be removed from the heater core and be deposited to other metals in the system. The result is a pinhole leak(s) at/or within the heater core.

Electrolysis is more noticeable in late model vehicles due to higher engine operating temperatures and different coolant requirements. When the cooling system is neglected or not properly maintained, the coolant can help promote passage of an electrical current.

Current can also exists in the cooling system because the engine serves as a pathway to ground between the battery negative cable and the negative terminals of electrical components, including the starter and engine cooling fan. Dirty, loose or missing ground connections can increase voltage flow, through the cooling system, in search of an alternate ground.



Heater core passage was cut open to show 3 pinhole leaks caused by electrolysis

TESTING FOR ELECTROLYSIS:

- Test with the engine running and at operating temperature. Make sure that all engine ground straps are in place.
- Using a digital voltmeter: Place the negative (-) lead to the battery negative post and the positive (+) lead into the coolant.
- A voltage reading above 0.300V can cause pinholes in the heater core in a short amount of time.

BEFORE THE REPAIR:

- Ask the customer if this is the first heater core failure, or if it is a repeat failure.
- Ask when the cooling system was last serviced and check the condition of the coolant.
- If the system has had multiple heater core failures, (usually with small blackish pinholes) the system should be checked for electrolysis.
- Thoroughly service the coolant system with an approved flush and neutralizer. This should eliminate or reduce the electrolysis action.
- Check all ground cables, straps, wires and terminal connections.