

Ask Ronny

by Ronny Shaver @ Ronny's Garage

Answering Your Questions About Classic Car Care Service And Restoration

Published May 16, 2013

Summer Time Blues - Your Cooling System

by Ronny Shaver

Does your car suffer from the Summer Time Blues? When driving, does the temperature gauge constantly run in the upper end of the range and every time the car is parked a puddle of green fluid develops under the car? Summertime can be difficult for PMCs in Southern California. Let's cover some basics to help protect your precious PMC from the "Summer Time Blues."

The usual preventative maintenance for your car's cooling system is to flush the system with a chemical additive, replace the thermostat and renew the coolant. This is a great idea but has one drawback, if the chemical does a really good job and dislodges sediments and scale from the engine where does it go? It usually fills the top tank of the radiator, blocks the core and makes the car run even hotter. In fact, the radiator "matrix" or "core" can actually act as a filter for debris in the cooling system which is why it is so important to add only clean coolant mixture to the system. A proper cooling system flush includes a power back flush of the radiator with the upper and lower hoses disconnected. This will remove any debris that may have collected in the top tank. Sometimes even a proper cooling system flush won't cure a radiator problem.

A good way to test a radiator's function or efficiency is to get the system up to temperature and check the temperature of the coolant going into the radiator and coming out of the radiator while the car is running. A great tool for this is a "laser digital thermometer". This is a digital thermometer which uses a laser to check the surface temperature of anything without having to touch it. Just point the laser dot at any surface and the temperature is displayed on the screen. The radiator should be about ten to twenty degrees Fahrenheit cooler at the bottom than it is at the top. If there is a larger difference, then the radiator core is probably plugged or has an airflow problem.

Airflow problems can be caused by dirt accumulation on the front surface of the radiator core or possibly a bad fan clutch. One common cause of dirt accumulation on Shadow through Spirit (including Corniche) series cars is a leaking power steering cooler. The steering system cooler on these cars is located on a tray in front of the radiator and behind the grille shell. The cooler is a small metal tube loop with fins on it and has rubber hoses that connect it to the system pipes. These hoses will leak down the front of the radiator and air conditioning condenser (which is directly in front of the radiator) causing dirt to collect and block airflow through the condenser and radiator. Without air flow, the radiator core cannot release heat from the coolant. A common sign of a leaking steering cooler is wetness on the trays at the front when the bonnet is open. These hoses are easy to replace once the grille shell is removed.

The fan clutch is a mechanism that allows the fan to "slip" slightly and reduce drag and noise from fan. Some clutches are thermostatic and will slip when the car is cool and "lock-up" when the car is running hot. The fan clutch can be checked by grabbing a fan blade (with the engine turned off of course) and gently wiggling it fore and aft. If there is a very noticeable amount of play then the clutch is probably bad. If you can see a large accumulation of oil and dirt around the shaft and housing where the fan is attached to the water pump pulley then the clutch has lost its fluid and will not work properly.

If airflow is not the problem then the radiator is most likely plugged. Years of use or even non-use will cause the tubes in the core to accumulated scale and restrict flow. The same as years of improper diet and

lack of exercise can cause arteries to accumulate deposits and cause heart attacks. Sometimes radiator cores can be "rodded-out" and be good as new. "Rodding-out" a radiator consists of un-soldering the radiator tanks from the core, soaking it in a solution then running "rods" through each tube and clearing out any build-up. Unfortunately, most of these cars are many years old and are unable to be "rodded-out" and the core must be replaced with a new one. The good news is that new "high-efficiency" cores can be installed and work much better than original cores. These "high-efficiency" cores can pack more tubes from side to side and more rows from front to back which provide better heat transfer because of the increased surface area.

One more thing, the cooling system is pressurized when warm and has to be able to maintain this pressure. Most average cars have radiator caps with built-in pressure valves that will maintain pressure at a certain level and release when this level is exceeded. If you have a Silver Cloud, Shadow or early Corniche you have probably noticed the radiator cap does not have this type of cap. The filler cap on these cars is a large "plastic" solid cap. The pressure valve for this type of system is built-in to the "expansion tank" incorporated into the radiator top tank or bolted above it. This valve is called a "steam-valve" and performs the same duty as the all-in-one pressurized radiator cap. Unfortunately these steam valves have become very costly in recent years but I have found a solution. A normal pressure cap can be modified to fit inside the "steam valve" housing and works great!

Remember, if your car is running warm, a multitude of causes can cause the condition: plugged radiator, bad fan clutch, malfunctioning thermostat, inefficient water pump operation or the dreaded "blown" head gasket. It is important to correctly diagnose the problem before performing any repairs to minimize cost.

Thank you for the questions and keep them coming. Please send your questions to Ronny at ronnyshaver@ronnysgarage.com.

Happy Motoring!
Ronny