



## NRF TECHNICAL ARTICLE

# NRF MAP THERMOSTAT BASICS



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When the engine runs at full load, the higher operating temperature will bring adverse effects. Full load operation will effectively reduce the coolant temperature through the MAP controlled thermostat.

The function and basic mechanical structure of the MAP thermostat are basically the same as that of the conventional thermostat. The MAP thermostat is integrated with a heating element in the expansion element (wax component) and forms a unit with the thermostat housing.

The thermostat housing is made of aluminum or plastic alloy, and the inner part of the thermostat is also integrated with an electrical interface used to connect the expansion element to the heating coil.

The cooling system reads the temperature of the coolant and the engine through the temperature sensor and then connects to heating coil power in the MAP thermostat based on the temperature characteristic curve stored in the ECU. The cartridge determines the opening degree of the thermostat according to the current.



Compared with the conventional thermostat, the MAP thermostat can be open at a predetermined time through a heating cartridge and determine the degree of opening of the thermostat according to the current engine load condition, which can ensure that the engine is maintained at an optimal working temperature.



## WHAT CORRECTIVES DID THE ELECTRONIC CONTROL OF THE THERMOSTATS MAKE?

To the reasons that caused the failure of traditional thermostats, new ones were added, associated with the presence of a resistor, wiring, and contact connections that can oxidize. There are also external reasons, for example, sensor failures. This, in turn, changed the approach to troubleshooting. And now it is problematic to do without computer diagnostics.



## SOME OF THE POSSIBLE FAULT CODES ARE:

- > P0597 - Thermostat Heater Control - Circuit Open
- > P0598 - Thermostat Heater Control - Circuit Low
- > P0599 - Thermostat Heater Control - Circuit High
- > P1619 - Engine coolant thermostat control circuit - Signal low

## NRF VALIDATION

As every product MAP thermostats are extensively validated and tested in our NRF Technical Department on correct fitment, high performance and long durability.

