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Subject: 2009-2020 Nissan 370Z Radiator

Test Vehicle

2009 NISSAN 370Z

Installation Difficulty



Apparatus

For hardware Mishimoto choose the PLX sensor modules driven by the Kiwi WiFi plus IMFD. This is a wireless system from the sensor modules to the iPad or laptop computer. The software used was the Palmer Performance Scan XL pro, which has full data logging capabilities.

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Fluid temperatures were taken from both the inlet and outlet of the radiator using Mishimoto inline water temperature sensor adapters and PLX fluid temperature sensors.



A thermocouple was mounted in the grill of the 370Z to measure the temperature of the air as it entered the system.

Testing Conditions

Temperatures were warm, ranging from 80°F to 85°F.

Experiment

The test compares the temperatures of the OEM radiator versus the Mishimoto radiator. To conduct the test we drove the car on a highway at 65mph (engine rpm range, 2500 - 3000) and cruised for approximately five miles. Special attention was given to the space of the car in front of the 370Z to ensure that fresh air was flowing into the radiator.

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Special Notes: Water without antifreeze was used in both tests because we would be draining the water after testing. The OEM thermostat, which opens at 180°F, was used during testing.

Product Notes

The OEM 370Z radiator holds 0.5 gallons (1.89 liters) of coolant whereas the Mishimoto radiator holds 0.93 gallons (3.52 liters) of coolant.

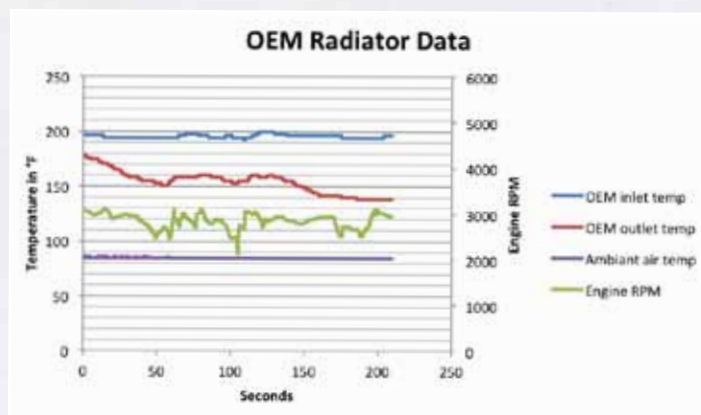


Figure 1: Highway test of OEM radiator.

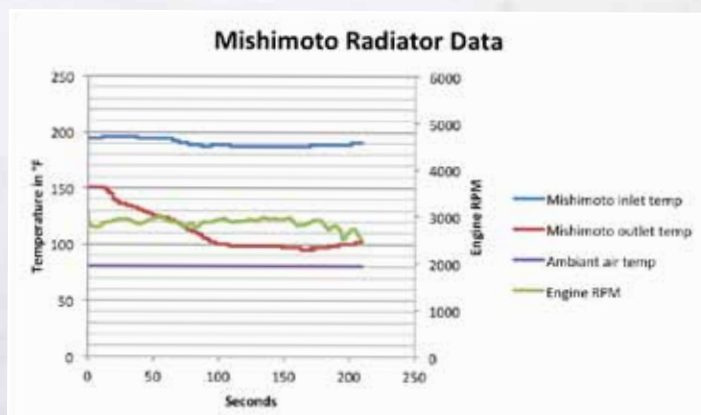


Figure 2: Highway test of Mishimoto radiator.

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Mishimoto vs. OEM: Radiator Outlet Temps

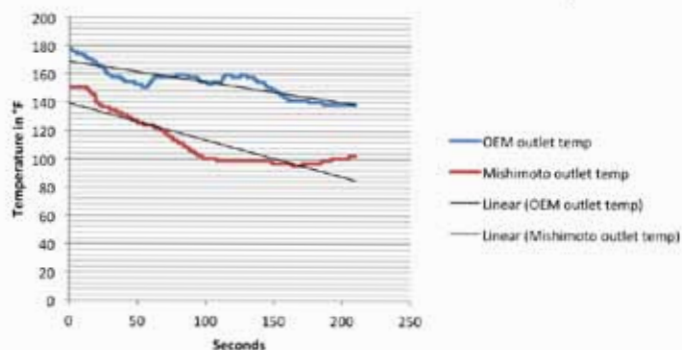


Figure 3: Comparison of radiator outlet temperatures measured from both the OEM and Mishimoto radiators. Notice that the temperatures recorded from the Mishimoto radiator are an average of 40° F cooler than the temperatures recorded from the OEM.

Mishimoto vs. OEM: Efficiency

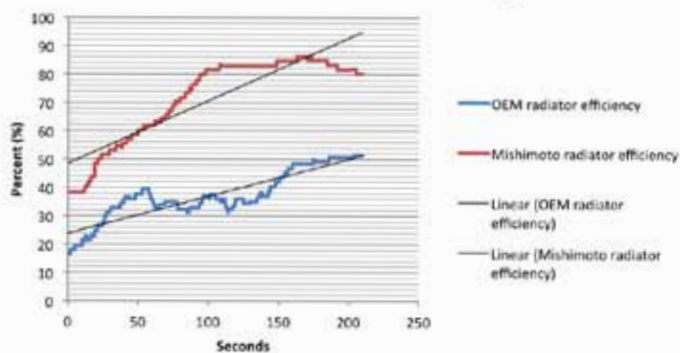


Figure 4: Comparison of efficiency between the OEM and Mishimoto radiators. At the beginning of the test the Mishimoto radiator was roughly 20% more efficient than the OEM, and by the end of the test the Mishimoto efficiency had risen to about 30% more than the OEM. This finding proves that the Mishimoto radiator has a higher capacity to keep the 370Z running cooler.

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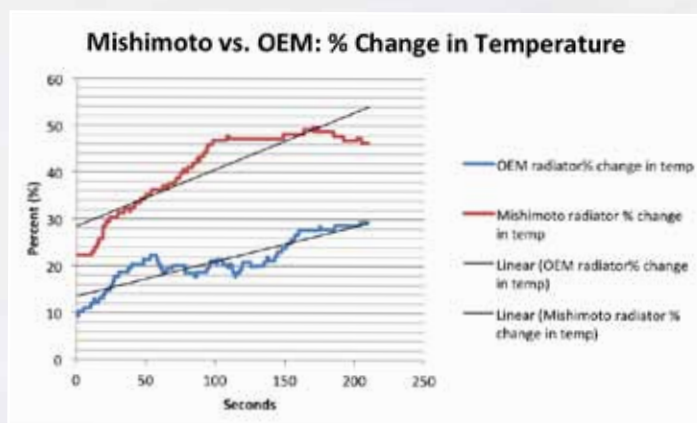


Figure 5: Comparison of percent change in temperature between the OEM and Mishimoto radiators.

Notice that the Mishimoto radiator has a 20% greater change in temperature than the OEM radiator.

Summary

From the data above we have concluded that the Mishimoto radiator is more efficient than the OEM radiator. The Mishimoto radiator holds 0.43 gallons (1.63 liters) more coolant than the OEM radiator. The all-aluminum construction of the Mishimoto radiator makes it 20% more efficient under highway driving conditions, and it decreases coolant temperatures emitted from the radiator by 40°F.

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