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Testing of the Hyundai Genesis Coupe V6 Direct-Fit Oil Cooler

Test Vehicle

2010 Hyundai Genesis Coupe V6

Objective

To make an oil cooler kit that directly bolts onto the 2010-2012 Genesis Coupe V6 and that is robust enough for the track but still safe for street conditions.

Apparatus

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

Fluid temperatures were taken with PLX fluid temperature sensors from both the inlet and outlet of the standard Mishimoto oil sandwich plate. Oil pressure was also measured to ensure that no dramatic pressure drop occurs when installing the oil cooler.

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Because the 3.8L Genesis uses a factory cartridge-style filter, we used the Mishimoto CNC-machined oil filter housing and the oil filter sandwich plate adapter in order to obtain baseline temperature and pressure data.

A thermocouple was mounted in the front grill with no obstructions so that ambient air temperatures could be measured.

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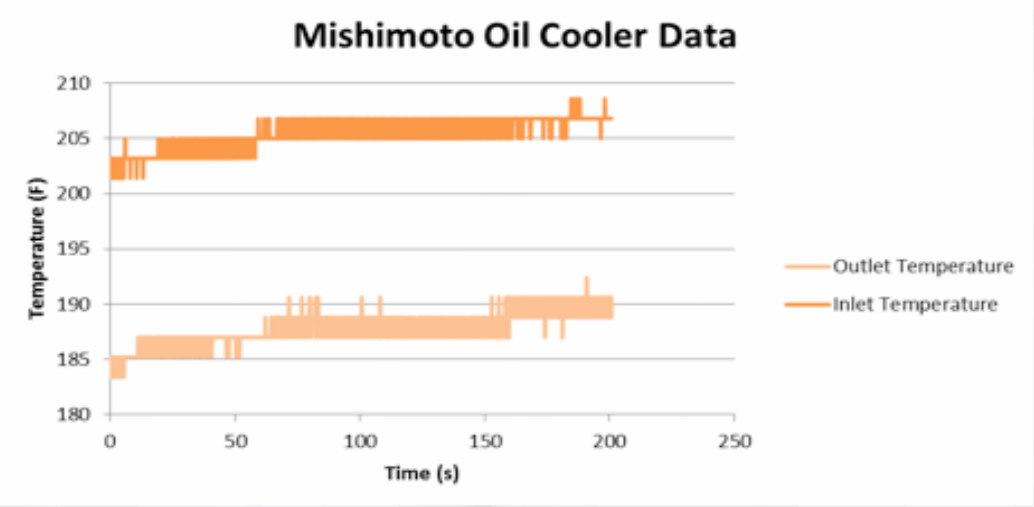
Testing conditions

Testing took place on a hot and humid day. Temperature range: 85–90° F.

Experiment

The test compares the factory oil temperatures versus the Mishimoto 19-row direct-fit oil cooler. Both setups were tested until they reached steady-state conditions. To conduct the test we first let the car idle until it became heat soaked. Next, we drove the Genesis on a highway at approximately 65 mph and cruised for approximately five miles.

Special attention was given to the space between the Genesis and the car in front of it to ensure that fresh air was flowing into the oil cooler. This experiment is 100% repeatable when the test is conducted under similar weather conditions.



At cruising speeds, the oil temperatures entering the cooler are around 203–207 degrees F. The graph above shows that, under cruising conditions, the Mishimoto oil cooler reduced temperatures by approximately 20 degrees on average.

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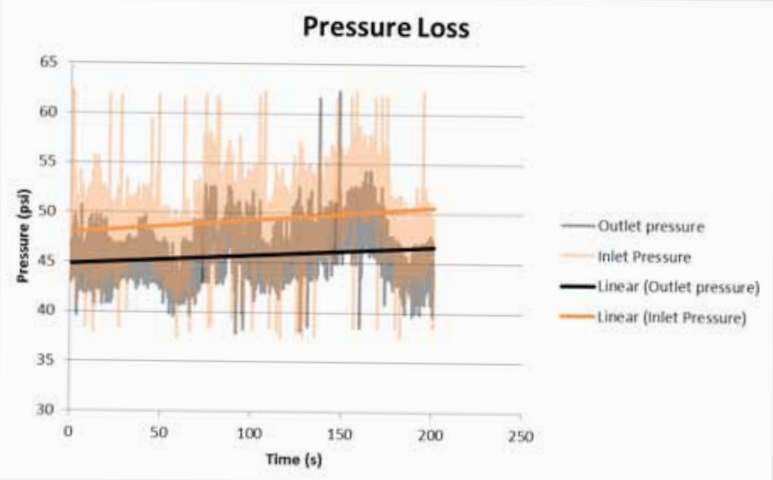
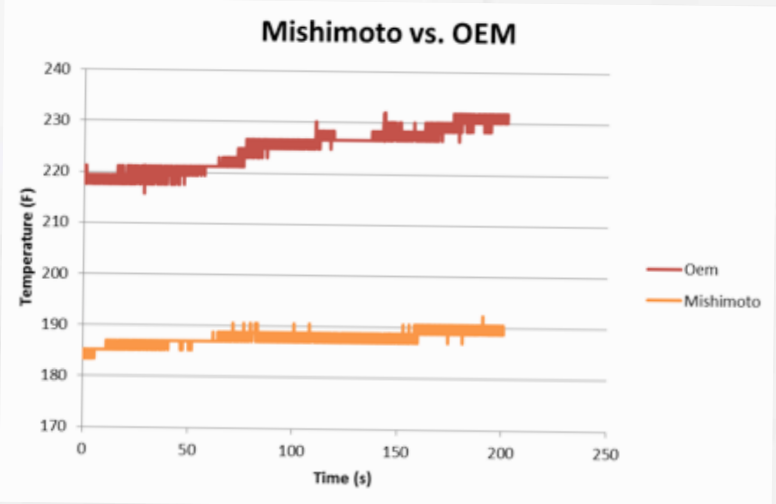
The addition of the 19-row oil cooler to the Genesis causes a slight drop in pressure, about 3–4 psi, but the drop is not enough to cause concern for engine safety.



The graph below compares the temperatures of the oil returning to the engine with and without the oil cooler installed. An average drop in temperature of 37°F occurs when the Genesis is equipped with the Mishimoto 19-row oil cooler.



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Summary

The testing results show that the Mishimoto oil cooler works well to reduce temperatures while losing only a few psi of pressure. Under more harsh driving conditions the inlet temperatures to the cooler will increase, resulting in an even greater difference between inlet and outlet temperatures. Also note that the Mishimoto oil cooler kit for the Genesis V6 replaces the factory oil filter housing with a fully CNC-machined aluminum housing that uses a spin-on oil filter instead of a cartridge-style filter. This was done so we could direct oil flow to the cooler in a neat and direct fashion. Also, we found that use of a spin-on style filter is much cleaner than cartridge filters when changing the oil.

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