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2006 Evo 9 Oil Cooler

MISHIMOTO ENGINEERING REPORT

Testing of the 2006 Evo 9 Direct Fit Oil Cooler

Test Vehicle

2006 Evo 9 MR

Objective

To make an oil cooler kit that directly bolts onto the Evo 7/8/9 and is robust enough for the track, but still safe for street conditions.

Testing conditions

Testing took place on a mild day. Temperature range: 60-64°F.

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 from both the inlet and outlet of the 25-row oil cooler, using custom inline sensor housings and PLX fluid temperature sensors. Oil pressure was also tested to ensure no dramatic pressure drop occurs when installing the oil cooler.

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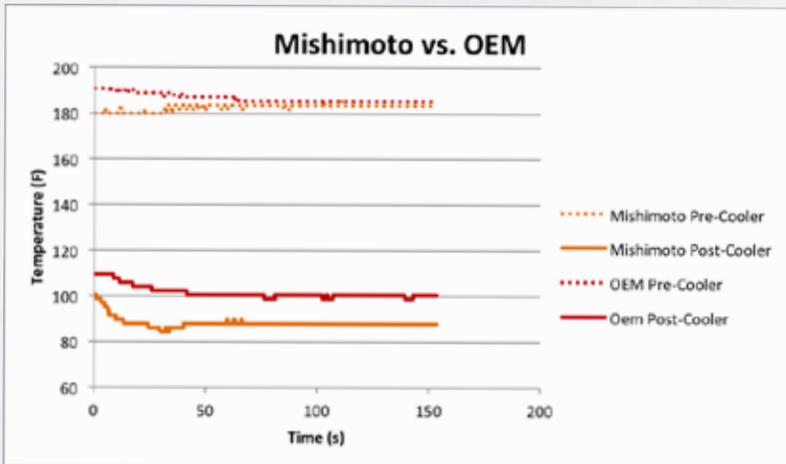
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Experiment

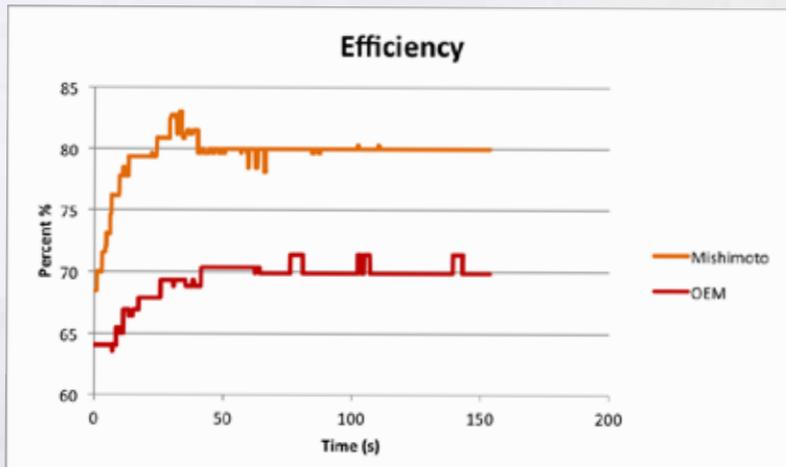
The test compares the oil temperatures of the OEM versus the Mishimoto 25-row direct-fit oil cooler. Both setups were tested until they reached steady-state conditions. To conduct the test we first let the car idle until it became heat soaked. Next, we drove the Evo on a highway at approximately 65 mph and cruised for approximately three miles. Special attention was given to the space between the Evo 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.



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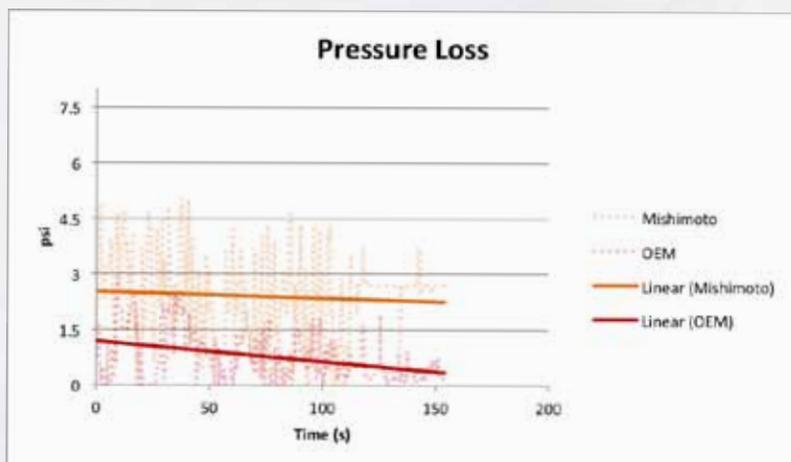
The graph above shows that the Mishimoto unit was able to cool the oil an extra 10-12 degrees compared to the OEM unit.



The graph above shows that the Mishimoto is 10% more efficient than the OEM unit. The Mishimoto cooler contains more cooling plates than the OEM unit, making it more efficient.

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Pressure loss averaged 2.5 psi for the Mishimoto unit and about 1 psi for the OEM unit. This pressure loss in the Mishimoto cooler is due to the additional cooling plates that the oil must travel through when compared to the OEM unit. A pressure loss of 2.5 psi is minimal and will not affect engine performance.

Conclusion

The Mishimoto 25-row oil cooler proved to be more efficient than the OEM unit, without sacrificing large pressure losses. Under more harsh driving conditions the inlet temperatures to the cooler will increase, resulting in an even greater difference between inlet and outlet temperatures. The kit also upgrades the OEM's soft rubber lines to stainless steel braided lines, which help with pressure loss and durability. This kit is a direct-fit replacement, so no cutting or trimming is required for installation.

Kevin McCardle
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