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Mishimoto Evo X Race Intercooler

MISHIMOTO ENGINEERING REPORT

Testing Mishimoto Evo X Race Intercooler



Test Vehicle

2011 Mitsubishi Evo X GSR
- No modifications, 100% stock

Introduction

Mishimoto engineers wanted to dyno test the stock Evo X to see any improvements that would occur by adding our race intercooler. All tests were completed on our in-house dyno jet. The engineers tested each setup three times, or until they obtained three consistent runs. They tested the OEM intercooler and two Mishimoto intercoolers, each having different fins and densities. One of the Mishimoto core types performed slightly better than the other; the results for this intercooler are shown in the charts below.

Testing conditions

Ambient temperature: 85-87 degrees F, with high humidity.

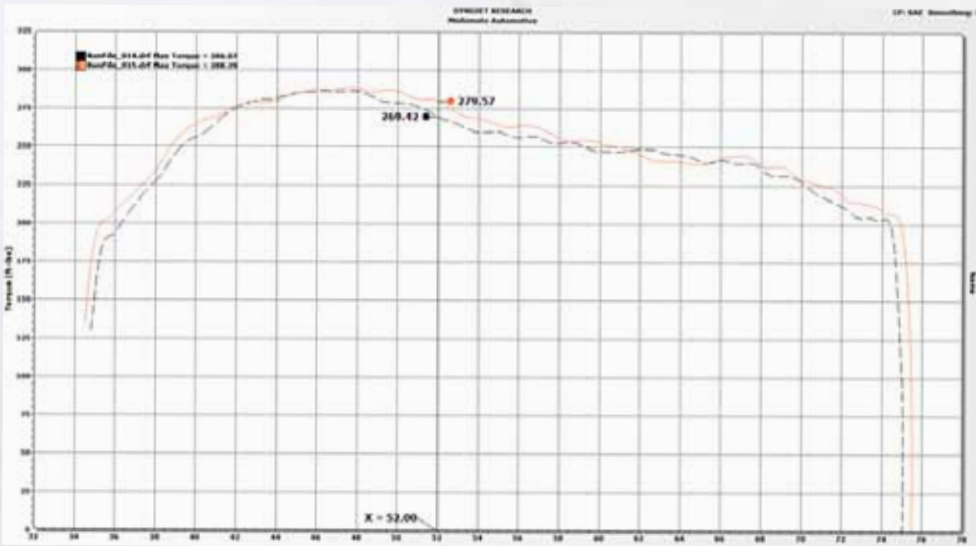
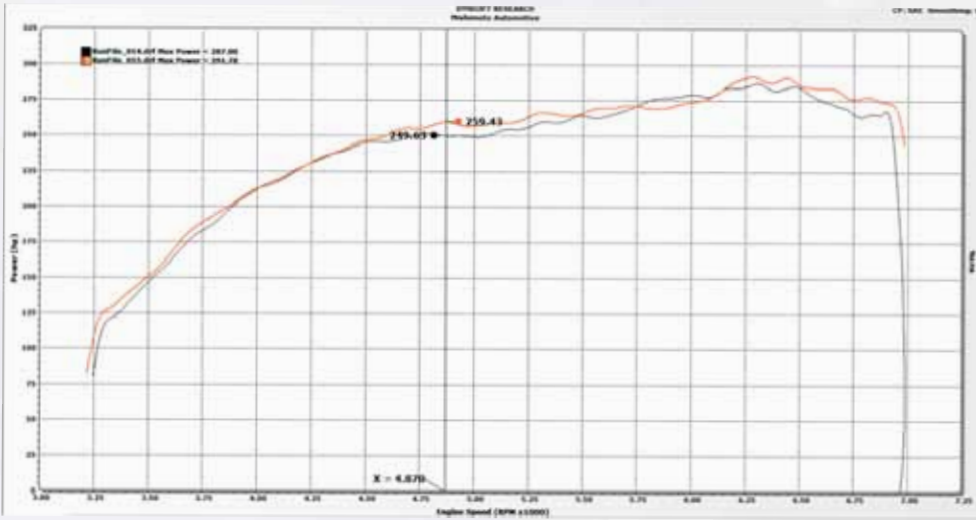
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Dynamometer Testing

Our engineers found that just by swapping the intercoolers alone, with no additional tuning, they were able to gain 10 whp and 10 ft-lb. These gains are significant for a simple bolt-on modification.



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High-Horsepower Testing



Test Vehicle

2010 Mitsubishi Evo X GSR

- Precision 6262 turbo
- Equal-length manifold
- External wastegate
- Aftermarket intercooler
- Professionally tuned
- 3" Exhaust
- 2.5" Intercooler piping

Introduction

Mishimoto engineers wanted to see if our intercooler performs well for high-horsepower and high-boost applications. The goal of the testing was to confirm that the Mishimoto intercooler could match or exceed the performance of a large and reputable aftermarket intercooler. With the Mishimoto unit installed, the test vehicle achieved more than 400 whp; this represents the level at which many Evo enthusiasts would want to modify their vehicles.

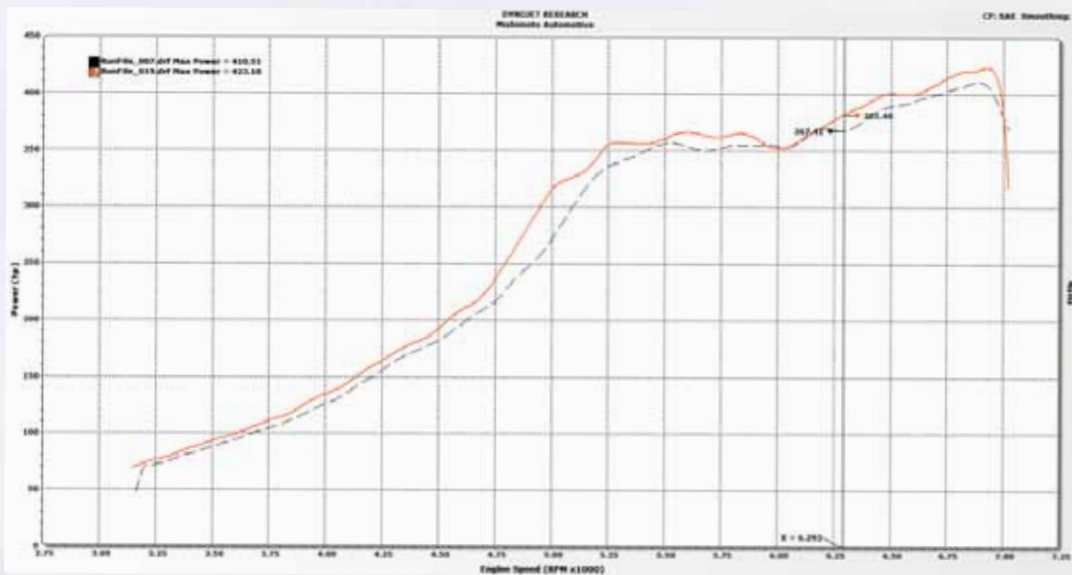
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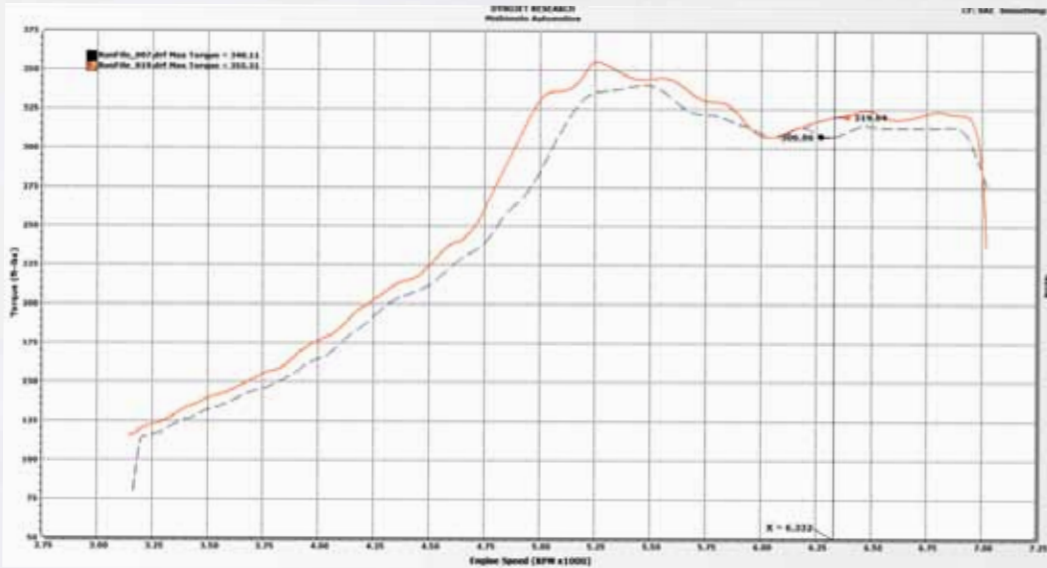
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Dynamometer Testing

Three intercoolers were dyno tested: a brand-name aftermarket intercooler with a 4" thick core, and two Mishimoto intercoolers each with different fin and density levels. The testing results for one of the Mishimoto cores matched the results of the aftermarket intercooler, but the second Mishimoto core substantially outperformed the aftermarket unit.

The average run for each test is represented below. No tuning or other changes were made to the vehicle, other than simply swapping the intercoolers. Compared with the larger 4" intercooler, the Mishimoto unit built power much faster, maintaining an extra 10-15 whp and 10-15 ft-lb of torque throughout the entire power band.





Conclusion

The Mishimoto race intercooler outperformed both the OEM intercooler and the large aftermarket intercooler. The Mishimoto core has much denser fins that allow for large temperature drops, resulting in higher overall efficiency of the intercooler. The Mishimoto unit also features cast end tanks that eliminate sharp edges, which would restrict airflow and cause pressure loss. In the high-horsepower test, the increase in turbo lag is clearly evident because the 4-inch core is too large for the system. This is a great example of why bigger does not always mean better. The Mishimoto race intercooler with its 3.5-inch bar-and-plate core is rated to 600 whp. Whether you want to bolt on some extra power to your stock Evo or you need an intercooler to support your high-horsepower build, this Mishimoto race intercooler is perfect for the job.