



Dyno Testing the e-RAM Electric Supercharger

When it comes to boost, just about everyone is a traditionalist, pushing away any new ideas and methods of producing power from forced induction. The e-RAM Electric Supercharger is a relatively new device that catches a lot of flack for boosting outside the box. When most magazines won't give it the time of day, S3 jumps right in, installs, and dyno tests the e-RAM on a 95 Honda Civic to find out the truth for ourselves.



Test Monkey: 1995 Civic 1.6-liter (non V-Tec) 4 cylinder engine

How it works: The e-RAM Electric Supercharger is a true "Forced-Air System" and can fit intake tubes from 2.0" diameter to 3.7" diameter. The all-new e-RAM draws 60 Amps from a car battery in the "pre-charged" state at 13.88V, resulting in a total power draw of 833 WATTS. When activated, the e-RAM spools up to 25,300 RPM in less than 1/10th of a second, and tries to blast 800 CFM into your intake.

It is the differential of what the e-RAM is trying to flow, versus what your engine is trying to take in that ends up generating the positive pressure in your intake.

For example, a 5.0 Liter motor draws close to 450cfm when at redline and at full throttle, so even on a 5.0L V8, the e-RAM is trying to blast nearly double what the engine is able to take in. This is why the e-RAM provides 1 PSI of boost through the entire rpm range of all engines 5.0L and under.

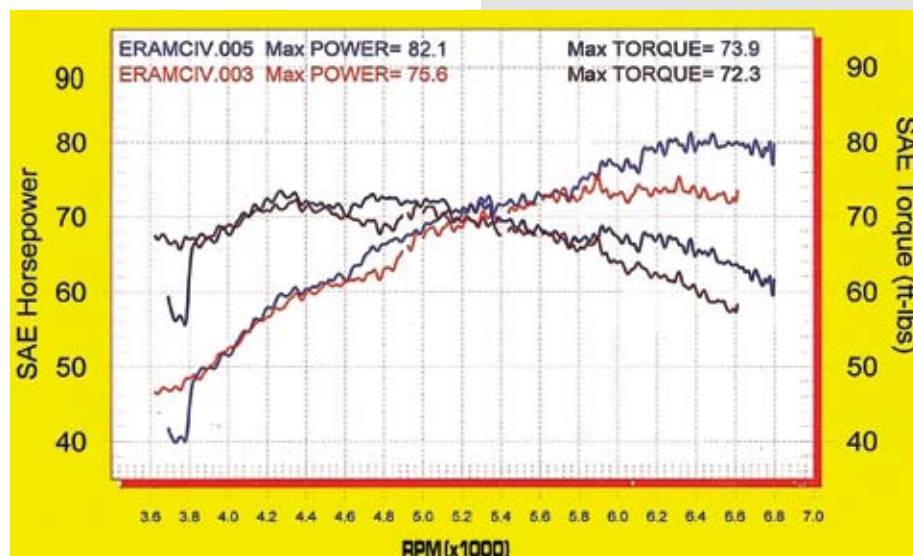
It is designed to operate only at full throttle, since this is when you want the most air pressure available to your engine. By slightly pressurizing the air available to your engine intake system, the air becomes more dense, and is matched with more fuel producing the increased horsepower to the wheels. This small increase of air density is well within the limits of most modern engine management systems, and even carbureted engines. Your engine basically controls fuel delivery the same way it would if you were traveling at high altitude where you lose power. Here the fuel air metering system is able to respond by sensing the change in density via the mass air flow sensor, air flow meter, or manifold pressure sensor, and keep mixture levels correct.

The e-RAM can be installed on any vehicle equipped with a mass airflow sensor, manifold absolute pressure sensor, air flow meter, or even a carburetor. This will determine whether you mount the e-RAM at the end of the intake or in between the throttle body and sensor. Mounting is easy, as the e-RAM comes in a filter or inline configuration and the rubber encasing can be modified to fit all intake sizes.

Test Results: Although the Civic's peak horsepower was raised by 6.7 HP (8.8% gain), there was an even greater gain in other areas of the graph. Previous maximum horsepower was reached at 5,900 rpm (75.6HP). However, with the e-RAM, the horsepower kept climbing until the peak was reached between 6,350 rpm and 6,500 rpm. This resulted in an increase of almost

10hp from 6,100 rpm to 6,800 rpm (13% gain), as the dyno curve on the base run had horsepower dropping off at the higher rpm's, while the e-RAM continued to increase power (and torque) in this rpm range. In addition, horsepower gains from the e-RAM were between 2hp and 4hp gain at the midrange rpm's. PEAK torque was raised by only 1.6 ft./lbs, but looking at the graph, you can see that the real difference is in the areas of the torque curve that were outside of where the peak torque was located (most notably between 4,600 rpm and 5,200 rpm, and between 5,900 rpm to 6,800 rpm). The increased torque was between 4 to 5 ft./lbs at the mid-range, and 6 to 7 ft./lbs at the high rpm's.

Conclusion: You can stack 2 inline e-RAMs for almost twice the boost, but don't expect to line up a dozen e-RAMs, head to the drag strip, and walk away with the track record in your class. That's really not what it's for. But if your looking for a simple, and effective bolt-on that produces power you can enjoy in a daily driver, than an e-RAM is a solid option. It's affordable as well as reliable, and as our test results prove, it makes power the instant you hit wide-open throttle, and adds horsepower over and above any of your existing mods. Let's face it, horsepower is hard to come by. While there are many companies advertising claims of huge horsepower gains from everything from spark plug wires to fuel



additives, it was refreshing to see actual results from the e-RAM that were over and above what was claimed by the manufacturer. You could pay thousands on a several bolt-on's and still not get the amount of power produced by the e-RAM. At \$300, it is simply a great value for guaranteed performance and worth buying. Furthermore, having the e-RAM operate on a wide-open, nitrous style throttle switch ensures that you use the power only when you want it.

HORSEPOWER

Stock: Peak HP 75.6
at roughly 5,900 rpm


e-RAM: Peak HP 82
at roughly 6,400 rpm

TORQUE

Stock: Peak Torque 72.3
at roughly 4,300 rpm

e-RAM: Peak Torque 73.9 at 4,200 rpm

As you can see, the e-RAM builds power through the entire power band.



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The Honda Civic already had a short-ram intake tube with a high-flow cone filter attached. This means that the e-RAM with filter created these HP and Torque gains over and above what was already being gained from the aftermarket intake tube & filter combination.

The e-RAM can be configured to mount as an integrated part of an existing stock, short ram, or cold-air intake tube.

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