Shocking: Performance Distributors' SOS Coils On Our CTS-V Coupe

For decades, the mechanical distributor and single coil ignition system was found on just about every engine on the road, but today, distributorless ignition systems are the rule. Wasted-spark, coil-on-plug, coil-per-cylinder, or coil-near-plug are all terms you'll hear nowadays in conjunction with modern spark delivery.

As far as performance goes, multi-coil ignition systems are the ideal setup because there is no need for long, bulky, and damage-prone spark plug wires that run to the distributor. Having a multi-coil ignition system reduces radio interference, reduces resistance along the path between the coil and plug, and eliminates any potential misfire problems caused by burning or chafing of the spark plug wire. There's more available dwell time to recharge a multi-coil setup between ignition events at high RPM, and cleaner combustion and better fuel economy are also a benefit of multi-coil ignition systems.

“The end result is getting a longer-duration spark at the plugs.” – Steve Davis, Performance Distributors

But just because the ignition systems found on engines like the LS family are pretty good from the factory doesn’t mean there is no room for improvement. Lucky for us, Performance Distributors sent over a set of their new Sultans Of Spark ignition coils for us to install on our project CTS-V coupe. With additional voltage over the stock coil packs, Performance Distributors’ SOS coil packs are claimed to produce more power, sharpen the throttle response, reduce start-up time, and smooth out the idle. Another plus is that they fit in the same location as the factory coil packs – we can’t wait to get these on the Caddy, let’s get down to business!

Sultans Of Spark

As we mentioned above, SOS coils are designed improve the overall power and efficiency of the vehicle, and that's due to the additional 7,000 volts per coil compared to stock – the increased energy in these coils will fire spark plug gaps up to .065-inches in naturally aspirated applications. "We do suggest, if you're running a lot of boost, probably 12 pounds per square inch or over, to run a smaller plug gap to make up for the extra cylinder pressure," Performance Distributors' Steve Davis adds.

Performance Distributors' engineers have used the latest and greatest technology to enhance the coil windings for a higher voltage output, but maintained the original size of the factory coil so they will bolt right into the OEM

brackets while maintaining the factory primary and secondary wiring.

For great conduction, Performance Distributors uses brass terminals which also resist corrosion, and thermal epoxy provides improved heat transfer and vibration resistance. “The heat needs to be dissipated better because naturally, by increasing the intensity of the spark, the unit is going to run hotter temperature-wise,” explained Davis. Another important aspect to know is the fact that they are fully compatible with flash devices and vehicle programmers as well as providing benefits for vehicles running a stock tune. How’s that for plug and play?

Out With The Old, In With The New

Before we got to work installing the coils, we strapped the car down on our DynoJet 224xLC chassis dynamometer to get some baseline horsepower numbers. Keep in mind that our CTS-V already has the Lingenfelter 378 CID LSA Supercharger Upgrade and a larger Lingenfelter intercooler package with dual 2-speed SPAL fans, so our starting point is going to be a lot higher than the baseline numbers for a factory car, obviously.

After making three baseline passes, the dyno graphs showed us that our CTS-V Coupe has an output of **512.6 horsepower** and **521.7 pound-feet** at the rear wheels – pretty stout, eh?

Installing these coils is about as easy as a speed part gets – it's a very straight-forward process that anyone even a little bit mechanically inclined can tackle in about an hour.

We didn't even need to unstrap the car from the dyno because the install was so simple and quick.

The first step of the installation is to disconnect the negative battery cable. Starting on the driver's side of the car, we removed the coil packs of all the odd-numbered cylinders, then shifted to the passenger side to remove the even-numbered coil packs, even though the install can be started from either side – we just wanted to be organized.

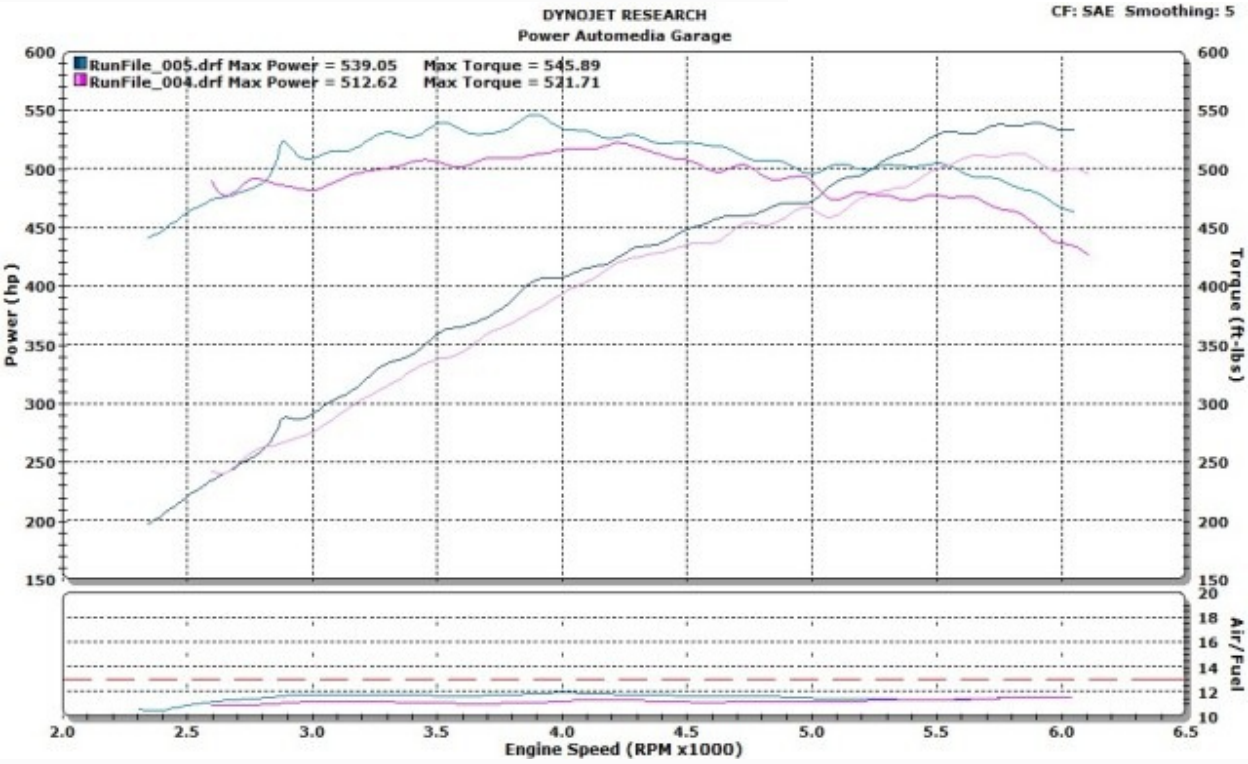
Removing the coil packs is quite simple; all you need to do is disconnect the main power supply connector from the top of the coil, remove the spark plug wire from the bottom of the coil, and unbolt the coil from the bracket on the valve cover. Once all of the coil packs were off, we carefully removed the spark plug wires from the spark plugs, making sure we didn't mix up the order of the wires (joking!).

From left to right: An SOS coil pack next to a factory coil pack, the factory coil packs completely removed, the spark plug wires removed, and the SOS coil packs completely installed.

Installation of the new SOS coil packs was just as easy as removing the stock ones – one connector, two bolts, and one spark plug wire for each coil, and we were done.

The Automotive Lie Detector Test Results

With the car buttoned up (and still strapped to the dyno), we fired it up and let the roller spin. To be honest, we had modest expectations for any improvement; after all, the stock LSA ignition is about as good as a factory setup gets, and we had seen no previous evidence of misfires on this engine, even after our modifications.



When we saw the dyno graphs after the pull we couldn't believe how much of a gain these SOS coils gave our CTS-V – a gain of **26.4 horsepower** and **24.1 pound-feet** at the wheels! That brings the CTS-V's power output up to **539 horsepower** and **545.8 pound-feet** to the ground!

Conclusion

Performance Distributors' SOS coil packs are definitely a great upgrade to the factory ignition system, which is actually really good to begin with. With the SOS coil packs on our CTS-V, we feel a world of difference in response, horsepower, it idles better, and actually does start up a little quicker – we couldn't be more pleased with the product.

Forced induction and higher cylinder pressures make it harder for the spark to jump the gap, so whether you have a factory-supercharged engine (like our LSA) that's had the boost turned up, or added a supercharger to a naturally-aspirated engine, these coils are good insurance against performance-robbing misfires.

Our experiences with Performance Distributors' SOS coil packs have been great, overall. Our CTS-V made more power with them than we expected, plus the drivability of the car is great. Always remember to do your research when upgrading your ignition system or any component of your car in general – it will help you out immensely and you might even learn a few tips and tricks that will help you understand how the system/component works with the engine.

For more information and an application list, as well as their other lines of coil packs, head over to Performance Distributors' website; you won't be disappointed in the quality of their components!