



AUTOMOTIVE IGNITION COILS

What is an Ignition Coil? What do they do?

As a brief recap, let's understand how ignition coils function. Current from the vehicle flows through the primary coil windings of an ignition coil, where an interruption (electrical or mechanical) occurs causing a transfer of the electrical energy from the primary to the secondary coil. This induces voltage of up to 10,000+ volts, which is then released and transferred to the spark plug. When 10,000+ volts is applied across the spark plug gap, a high intensity spark ignites the combustion of the fuel-air mixture.



Walker Products 921-2107 COP

While there are several evolutions of ignition coils and how they deliver high voltage, their role has essentially always remained the same. So, whether you have a distributor system, or coil packs controlled by a module, or an ECU managed Coil On Plug system, the goal remains the same – take low voltage, build it up, and deliver high voltage to the spark plug at precisely the right time.

Walker Products 920-1001 Can Coil



What happens when an Ignition Coil Fails?

When a check engine condition indicates an ignition system problem or there is loss of power, the ignition system may have a fault. Vehicles with a malfunctioning Ignition Coil may have these symptoms:

- Check Engine Light (*see our website for common CEL Codes*)
- Misfiring
- Rough Idle
- Failure to Start – even with a warmed up engine
- Engine vibration

It's important not to jump to conclusions too soon however, these common problems and CELs could be caused by other systems in the vehicle related to the ignition or fuel systems. It is important to perform some simple diagnostic work first to ensure proper repairs.



Additional Ignition Coil Technical Notes:

Walker Products 921-92024 Full Service Kit®

- Loss of spark – Disconnection of the coil from the plugs.
 - Check that the wires are securely connected, both to the coil and to the spark plug
 - If it is a COP system, check that the coil is firmly connected to the plug
 - The spark plug could have a broken side wire or a gap that is too large. Fix or replace the spark plug.
 - Dirty or broken wires can give a shorting path for the spark energy, bypassing the spark plugs. Clean or replace the wires.
- Coil malfunction
 - The ignition coil may be overheated, sometimes with telltale signs of melting on the housing. Carefully check the appearance and if needed, replace the coil.
 - Ensure that the power and trigger lines are properly connected and free of damage.
 - Breakage or disconnection of the internal wires. A defective primary coil resistance will be less than 0.2 ohms (shorted) or above 20 ohms. A defective secondary coil resistance will be above 20,000 ohms
- A spark tester can be inserted between the terminal in the boot and the spark plug. If it fails to flash, there is a problem with the coil or spark plug.



Why Buy from Walker Products?

Walker Products goes beyond just testing parts to ensure function – Walker designs and manufactures proprietary testing equipment that gives us even more insight to Ignition Coils and how vehicles respond. With a machine that tests and analyzes against the OE signals and outputs, coils are precisely measured to evaluate performance versus the OE. This data is not available from the manufacturer.

In addition to ThunderSpark® Ignition Coils, Walker Products provides the same level of quality, coverage, and support on other ignition system items. Whether you are performing a simple removal and replacement or an in-depth diagnostic project, always count on Walker Products Ignition and Engine Management products deliver superior Quality, Coverage, and Support.