



When diagnosing an engine, there are four key elements which must be present for proper and complete combustion: air, fuel, compression, and ignition. As engines become more complex, the precise metering and flow of the fuel is critical, leading to the technical advancements of fuel injectors. The delivery of the fuel from the injector to the combustion chamber is a crucial component which we will discuss in more detail.

Fuel injection technology has progressed over time, from the early tapered pintle design featuring one large spray hole, to a more advanced disk style, featuring multiple smaller holes. These smaller holes

become subject to deposits, clogging the injector and adversely affecting the flow rate and spray pattern – two crucial factors for a properly functioning injector. These functions can easily be identified and remedied with a benchtop tester and cleaning machine, such as the system we use here at Walker Products to test and verify the correct flow rate of every injector in our program.

One of the lesser known factors is the inductance. Older vehicles used low impedance injectors (1.5 to 4 Ohms), operating off a peak and hold voltage signal from the ECU. Newer vehicles use a higher impedance injector (8 to 16 Ohms), operating off a saturated signal. These two types of injectors are not interchangeable, a potential problem when dealing with aftermarket suppliers. Before any injector is installed it is imperative you confirm it is the same impedance as the OE. This is done by testing resistance across the two terminals. Verifying the impedance is just one of many tests performed by Walker Products.

From fuel injectors to other engine management sensors you can trust the quality of a tested Walker Products part to meet or exceed OE specifications.

- *Mark Anderson, Product Engineer*
Walker Products

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