Diagnosis: Replace compressor?

Test the control valve first

Variable displacement compressors are used in newer vehicles to reduce fuel consumption, and require new testing methods.


The new A/C system compressors have several names, and one thing in common: they can easily be misdiagnosed and require special testing.

Traditional compressor testing doesn’t account for the variable electronic signal sent/received by the compressor, and can lead to a wrong diagnosis, increased cost and unhappy customers.

The clutch is replaced by a thermistor, transducer and solenoid, all controlled by an ECM, PCM, TIPM or a separate A/C controller. The control module varies the compressor duty cycle.

Testing a variable compressor can lead to a correct diagnosis of an issue with the command or control system, saving time, money and customer frustration with unnecessary repairs.

Customer complaint: A/C blows hot, worse gas mileage, vehicle has reduced power with A/C running. In hybrids, battery temperature fault caused by lack of cooling.
Why use the EVDC100 to diagnose?

The always-on compressor helps save fuel but varied voltage makes it hard to diagnose

Why do I need EVDC100?

- Eliminate misdiagnosing customer vehicles and performing unnecessary work
- Correctly diagnose and verify control valve and compressor function, saving time and cost
- Adjustable tester dial mimics variable voltage signal to compressor for wide-range testing
- Variable compressors are used in vehicles from GM, Ford, Toyota, FCA, BMW and more
- Variable compressor manufacturers include Denso, Valeo and Hanon
- Use of variable compressors is likely to increase as they reduce tailpipe emissions, increase fuel economy and eliminate A/C system engagement “bump” and power reduction

How to use the EVDC100:

- Identify the type of compressor. Look for a control valve at the rear of the compressor to confirm it’s a variable displacement compressor
- Disconnect the compressor’s wiring harness
- Connect the EVDC100 test module to the compressor. This places the EVDC100 between the compressor control valve and the wiring harness, to isolate and diagnose system issues
- Connect a manifold gauge set or A/C machine to the vehicle’s high and low side connectors. This is to watch system pressure and monitor compressor function. A scan tool can also be used to monitor high and low side pressures
- Connect the EVDC100 to the vehicle battery
- Use the EVDC100 dial to raise and lower voltage supply to the compressor’s control valve