

The Preventive Maintenance Series

Mike Dawson

Winter Things.2

Last month's PMS on *Winter Things* brought an email and a phone call about my mention of checking the resistor by-pass. The only issue with this system originally was leaving it off of some FC's during assembly. However, after 50 years of age and (well intentioned) abuse, I wanted to go ahead and explain the system and the reason for it; also how to test it.

Background: The ignition system (including Pertronix) of a running Corvair engine is designed to operate with something less than 6 volts supplied to the coil + terminal. This keeps the points from overheating and helps kept the voltage at the coil almost constant even though the generator/alternator might put out a changing voltage. To achieve this, a resistance wire which is a special alloy steel that cannot be soldered, is in place (except the '62-'63 turbo) in the engine compartment rearward from the multi connector on the left side. Anytime the engine is running, the voltage at the + side of the coil is 6 volts or less. You can identify the wire (in all but '62-'63 turbo engines) by the asbestos wrapping as the wire leaves the connector and enters the harness. Those early turbo engines had a ceramic ballast resistor located near the distributor that had lower resistance and was paired to a special coil. Their by pass wire was separate and ran straight from the two wire connector to the coil + terminal. All late model cars ran the resistance wire in the harness to the rear of the compartment where it did a 180 and ran back up to the two wire starter connector where it hooked to the yellow wire (or black W/Yellow Stripe) which then turned around and went to the coil+ terminal. Some early models ran both the resistance wire and the by-pass wire all the way to the coil. The yellow wire to the front of the two wire connector then goes to the "R" terminal on the starter solenoid.

During cold weather starting, the available voltage to the ignition system is reduced by starter draw (plus the resistor) so the reason for the resistor by-pass was to provide full battery voltage while the starter cranked and then back to 6 volts during running. The "R" terminal on the solenoid is connected internally across to the disc that energizes the starter motor when the solenoid pulls in the drive.

Testing: To check that the by-pass feature works, you will need a voltmeter and a jumper wire. Do not unhook the two wire connector going to the starter. Do connect the negative coil terminal to ground (including Pertronix units). Hook up the voltmeter red wire to the coil+ terminal and the black to ground. Have a helper crank the engine and observe the voltmeter; it should read close to the same as the battery cranking voltage, 10 volts or above. Next, leave the jumper and voltmeter attached and turn the key to the run position but do not start. The voltage should be less than six volts.

If you have no by pass voltage the most likely problem is that the yellow wire at the starter solenoid has been broken off during some type of work in that area. Next, the yellow wire has been broken off at the two wire connector. Or in the case of both of my '62 Greenbriers, it was never installed in the rear harness at the factory.