

DOMESTICALLY SPEAKING

GM Theft Deterrent Systems

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Let's talk about troubleshooting GM's theft deterrent systems.

Some systems disable fuel injector pulse and some disable engine cranking and fuel injector pulse. None disable spark or fuel pump operation. An easy way to determine if a security system exists on the vehicle in question is to check for an amber 'security' or 'theft system' light on the dash or information center.

Some models contain a 'Content Theft Deterrent' system—which activates upon break-in (versus someone trying to steal the vehicle) by sounding the horn and flashing the lights. This Content Theft system usually does not affect engine starting. Most new vehicles contain both a 'Content Theft Deterrent' and an 'Engine Disable' feature.

Pass-key systems are easily identified by a black resistor pellet with a thin metal edge running across it on the key. The key and lock cylinder wiring is usually tested with an ohmmeter. **1)** Measure the resistance of the key pellet by installing one ohmmeter lead to each side of the key pellet. There are 15 different key codes.

2) After establishing key pellet resistance value, remove the knee bolster and hush panel. **3)** Find the two small wires that lead from the key cylinder down to the base of the column (both wires are white in color and a smaller diameter than all other steering column wiring). The connection for the key cylinder at the base of the column is at a small two-terminal connector or a large bulkhead type connector, depending on the year and make of the vehicle.

4) Disconnect the key cylinder wiring at that location. **5)** Connect an ohmmeter across the terminals on the steering column side of the wiring harness. **6)** Install the key into the ignition. The ohm value measured using the steering column wiring should match the value of the key previously measured.

7) Turn the key to the crank position. The ohm value should stay the same throughout the entire key cycle. It is common for the wiring to break at the key cylinder from the repeated rotation of the key, and the resistance value will change indicating a problem with the key cylinder and/or related wiring.

Pass-lock system. This system operation is very similar to Pass-key but the components are very different. Instead of a pellet on the key, the Pass-lock sensor is a hall-effect switch located in the key cylinder housing.

The ignition key is only used to rotate the key cylinder. The key cylinder contains a small magnet that is rotated past the Pass-lock sensor. This sensor has its own power and ground supply which should be checked if the Pass-lock sensor operation is not correct. Testing for this system can be done with a scan tool but also can be checked using a voltmeter. The signal wire (typically yellow) will have about 5 volts provided by the module in control of the system. As the key cylinder is rotated, and the magnet is passed next to the Pass-lock sensor, the voltage will drop to a specific value. Again, that value should stay consistent with each key cycle. There are 10 different voltage values.

Passkey 3 system uses a special key.

This is also easily identified by 'PK3' stamped on the shoulder of the key by the rubber end. The key has a transponder under the rubber cover and a receiver located next to the key cylinder in the steering column. The number of transponder values is tremendous. When the key (transponder) is positioned next to the module (receiver), the module receives the signal that has been learned in the module's memory. The module then sends the signal to the Powertrain Control Module for engine enable. There is no dedicated wiring to test the key and cylinder operation. A scan tool is needed for data and trouble codes.

The modules on these systems can all be different. The Pass-key module learns the pellet value at the first start of the vehicle. It will have learned that value for the life of the module. With the Pass-key module it is important to have a consistent value or the module could learn an incorrect value and be of no use.

The other modules involved in the systems mentioned above can include the instrument cluster, body control module and the security system's own theft system module. With all these modules, the key value can be changed and relearned using a relearn procedure applicable to that particular system. It is important to have a consistent value, or the relearn procedure won't be successful.

