



## IN-VEHICLE TEST PROCEDURE FOR MOTOROLA ELECTRONIC IGNITION SYSTEMS

## MODELS 6SK2026 6SK2027

The following test procedure is presented for those cases where difficulty is encountered in an installation of a Motorola Electronic Ignition System.

In most cases, the troubleshooting tests require only standard shop electrical test equipment to isolate ignition system problems. However, problems may arise occa-

sionally that require more sophisticated equipment for effective diagnosis — especially if additional ignition units are not available for substitution tests.

During all test and repair operations, it is vitally important that the following precautionary notes be observed when dealing with electronic ignition systems.

### ELECTRONIC IGNITION SYSTEM TEST PRECAUTIONS

1. After the cause of ignition malfunction has been determined, disconnect the battery ground lead before doing any kind of repair work.
2. Be sure all connections are tight and clean.
3. Be very careful about grounding any part of the ignition system when using jumpers as permanent damage to the amplifier may result.
4. When using tachometers, consult manufacturer's instructions regarding test compatibility and application with electronic ignition system.
5. RFI capacitors are permissible on the ignition coil positive (BAT) terminal ONLY — no capacitors should be connected to the negative (DIST) terminal.
6. Do not allow the ignition coil to operate with the high voltage center lead removed from the tower terminal, unless as otherwise stated in the test procedure.

### TEST PROCEDURE

The procedure is separated into two sections in order to cover the most frequently encountered conversion problems in the field — namely: engines that won't start, and

poor running engines. In addition, the tests are intended primarily for normally operating vehicles that have been converted to electronic ignition systems. Consequently, the tests cannot and should not be expected to include all other forms of vehicle operational deficiencies.

### ENGINE WILL NOT START

If trouble is experienced after conversion to electronic ignition, carefully check over the entire installation per the installation instructions (see Figure 6). If the installation appears correct and properly made, then proceed with the tests in order to isolate the troublesome area.

1. Make a spark test by holding the coil center lead approximately 1/4" away from an engine ground point while cranking the engine, see Figure 1. If spark is OK, check plugs, wires (replacement is recommended if more than 2 years old), distributor components etc. Should the ignition circuit check out all right, attention should be directed to other systems such as fuel, carburetor, etc. If no spark is apparent, proceed to next step.
2. Check sensor gap and lead connections, Figure 2. Make sure distributor cam is set at "high" point as shown, crank engine as required — then repeat Step 1 spark test again. If no spark occurs, proceed to Step 3.
3. Remove amplifier green, white, and blue leads:
  - a. Measure battery voltage with ignition key "OFF" Figure 3A, and note voltage.
  - b. Then measure voltage at coil terminal (+ or BAT) with key "ON", Figure 3B. The voltage at coil terminal should not be lower than 0.5 volts below battery voltage. Lower voltage indicates that the vehicle's wiring harness or ignition switch may be defective. If voltage is good, proceed to Step 4.
4. Use an ohmmeter to measure sensor resistance with sensor leads disconnected and ignition switch OFF, Figure 4A. Sensor resistance should be between 490 and 730 ohms for a good unit. Also, determine if sensor is shorted to ground by testing from each lead to ground, Figure 4B. Replace sensor if unit fails to meet previous test requirements. If sensor is good, reconnect sensor leads and proceed to Step 5.
5. Recheck all leads to existing ignition coil. Then, check coil by substitution; or make a resistance check with an ohmmeter (with all leads disconnected from coil), Figure 5. Typically, the primary resistance should be about 0.5 to 5 ohms, and the secondary about 5,000 to 20,000 ohms — replace coil if defective; check coil manufacturer's specifications. If coil is good, reconnect all leads to coil and proceed to Step 6.
6. Check ignition amplifier by substitution and repeat Step 1 again. If there is still no spark, the problem area must be the plugs, wires, distributor components, etc.

