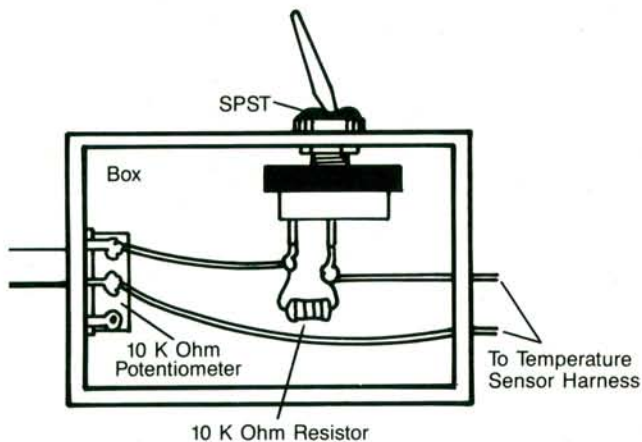


TECH TIPS

Here are the editors' choices for this month's **Tech Tips** column. Both of these contributors will receive *TecMate* fuel injection training tapes compliments of United Technologies Hamilton Test System.

Congratulations. Keep those tips coming.

KE-JETRONIC TESTER



Sometimes, you'll need to trick the **temperature sensor circuit on KE-Jetronic systems** to run tests of the engine temperature sensing circuit. These tests are especially helpful when diagnosing temperature-related performance problems. Here's an inexpensive do-it-yourself project that can be a big help when you need to check the computer's response to messages being sent by the temperature sensor. It's a variable resistor that allows you to dial in any resistance signal between zero and 20 K ohms.

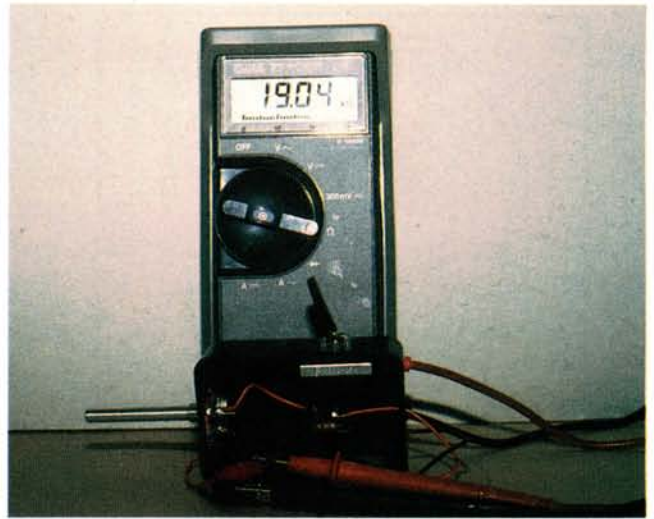
Radio Shack has all the parts, and you can make it for under ten bucks in less than ten minutes. The tool consists of a 10 K potentiometer and a switched, fixed value 10 K resistor. With the 10 K resistor out of the circuit, the potentiometer allows you to make an infinitely variable adjustment in resistance inputs to the computer from 0-10 K ohms. Flip the switch, and the tester goes to an adjustable 10-20 K ohm range, usually enough to handle the job.

To use it, simply unplug the car harness at the temperature sensor. Use your ohmmeter to select the resistance you want sent to the computer, and connect your resistor across the two terminals at the harness. Now you can run milliamp and differential pressure tests to see if they correspond to the signal you're sending.

Here are the Radio Shack part numbers:

- 10 K ohm potentiometer P/N 271-1715
- 10 K ohm resistor P/N 271-034
- Switch SPST P/N 275-651
- Box P/N 270-230
- Wire (clips or connectors to harness)

Be careful when you make your connections at the temperature sensor harness. Don't use the wrong terminal ends (screwdrivers are definitely out), or you



may damage the terminals in the connector, causing a loose connection. If you plan to use the tester a lot, you ought to just buy the correct connector and install it. It'll save time in the long run and keep you from damaging individual terminals.

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MYSTERY ENGINE NOISE

Recently, we saw a late model **Subaru with a 1.8 liter engine that had a strange noise**. It sounded almost like the tapping made by a bad hydraulic valve lifter. A stethoscope traced the noise to the area of the ignition distributor. It was loudest near the base of the distributor.

I pulled the valve cover and examined the valve train. I also removed the distributor and checked it for any loose or broken parts. We found nothing that would explain the noise.

Luckily, the car was also in for replacement of its timing belts. After removing the timing belt covers, we noticed that the belt driving the left camshaft (and as a result the distributor) was much looser than the belt on the right side. We replaced the belts and properly tensioned them.

When we started the engine, the noise was gone. We surmised that the play in the drive belt had allowed the camshaft drive gear to slap against the distributor driven gear. (Editor's note: Please see our article this month on timing belt replacement on Subaru twin camshaft engines. This noise is common in many overhead cam engines when camshaft drive belts get too loose.)

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