

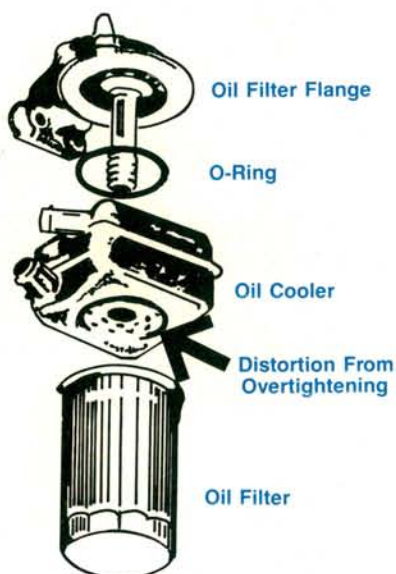
TECH TIPS

Here are the editors' choices for this month's **Tech Tips**. Each of these contributors will receive a fuel injection manual compliments of **Beck/Arnley Worldparts**.

Congratulations! Keep those tips coming. Your fellow technicians really appreciate your knowledge and insights about vehicle specific problems and time saving repair procedures.

For more **Tech Tips**, turn to pages 44-45.

OIL COOLER LEAKS



The aluminum oil cooler housing used on Volkswagen 16-valve engines can be distorted by over tightening of the oil filter during an oil change. This distortion will leave a warped sealing surface between the face of the cooler and the oil filter o-ring. High oil pressure at engine start up has blown the oil filter seal on a number of the engines as a result of this distortion.

David Moquin
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JAGUAR SPARK PLUG TAP

If you're ever greeted with a cross threaded spark plug hole in a Jaguar 12-cylinder engine, here's a new twist on retapping the plug hole. Assuming the hole isn't so badly cross-threaded that it's oversized, you may be able to simply chase the threads to clean them before installing a new plug.

There is a problem with using a standard plug chaser, however. The plug hole has an unthreaded recess before the threads start. Standard chasers don't

work well because they don't have enough reach to clean all the threads.

To get around this problem, we make our own chasers. Take a new spark plug and cut reliefs in the spark plug threads with your die grinder and a whiz wheel. Cut three reliefs, 120 degrees apart and use the spark plug as a tap. Remove any debris from the plug hole, and install a new spark plug.

Mark Adelson
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CLEANING PLUGGED HEATER CORES

Removing plugged heater cores and sending them out for cleaning can be a time consuming process. Instead of removing those difficult to reach heater cores, I've come up with a quicker solution that cleans the cores while they're still in the car. It may work for you.

Disconnect both the inlet and outlet hoses from the heater core. Clamp a foot long piece of heater hose to the lower outlet and plug the other end of the hose. Pour ammonia into the heater core through a hose attached to the top outlet until the core is full. Then walk away.

I let badly plugged cores sit overnight, and partially plugged cores sit for six hours or so. After this time, I drain the ammonia and thoroughly flush the core with fresh water. It works almost every time.

Mark C. Kline
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CRESSIDA AIR MIX DOOR

If the owner of a Toyota Cressida with automatic temperature control complains about large temperature swings while the air conditioning or heater are on, check the threaded rod at the temperature mix actuator. These fluctuations will occur even though the customer is not touching the heater controls.

The threaded rod in question snaps into a plastic arm just above the right side lower dash panel. If the panel has been removed and carelessly reinstalled, the rod may have been knocked loose. Once the rod is disconnected, the air mix door can rock back and forth from centrifugal force or changes in blower motor speed, causing these temperature swings.

Glenn J. Hartline
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CLEANING OIL SOAKED SPEEDO HEADS

With regard to your Dealer Direct item about **oil-soaked speedometer heads in the October 1989 issue**, I have an alternative to simply replacing these heads. Remove the speedometer head and submerge it in clean, fresh Safety-Kleen solution. (I normally keep a separate container of this fluid just for this job.) Then agitate it vigorously until the oil or grease is flushed from the speedometer's magnetic head.

Allow the head to air dry. Apply a light lubricant to the drive gears and shafts. This method has several advantages, not the least of which is that the odometer is still correct.

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TOYOTA VAN MYSTERY KNOCK

We've seen a number of early Toyota vans with a dull knocking sound that comes from the engine. It took us a while to locate the source of the noise the first time. The noise was similar to the noise caused by loose torque converter bolts, but that wasn't the problem. After checking the engine in various places we finally removed the accessory belts and tried to turn the engine by hand at the crankshaft pulley. We found that the crankshaft pulley was loose. But the bolt holding the pulley to the the crankshaft nose was tight!

We removed the bolt and pulley and found that the woodruff key in the crankshaft had started to cut away part of the cast pulley as the pulley rocked back and forth. The crankshaft was undamaged, however.

We bought a new pulley and measured it. Then we measured the depth of the threads in the crankshaft, and the crankshaft bolt length. It seems the bolt was getting tight in the crankshaft (bottoming) before it had a chance to draw the pulley up tight.

Before we replaced the pulley, woodruff key, and crankshaft bolt,

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we tapped the hole in the crankshaft nose to lengthen the threads. That way, the shoulder of the bolt tightened against the pulley face before the bolt bottomed in the nose of the crankshaft.

Some of these engines have been run too long in this condition. One crankshaft was ruined after the pulley became so loose that it spun on the crankshaft nose. Always check the crankshaft for damage or excessive wear before simply replacing the pulley.

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BMW REFERENCE AND SPEED SENSOR TESTER

Here's a handy tool you can make to test the operation of reference and speed sensors on BMW Motronic systems. Find an old 3-pin wire harness connector from a damaged wiring harness with some length of the wiring still attached. Purchase a 1.5 to 2 volt LED and some heat shrink tubing from your local radio parts store.

Proceed as follows:

- Solder the positive terminal of the LED to either of the wires coming from the outside terminals. These are the output terminals.
- Solder the short leg of the LED to the center (common) wire coming out of the connector harness.
- Cover the connections with heat shrink tubing and tape the harness. The tool is ready.

To use the tool, simply unplug the carside harness from either of the sensors and plug in your tester. Crank the engine. Either sensor should cause the LED to flash if it's good, although the speed sensor will make the light flash more rapidly.

(Editor's note: We were able to purchase the connector and wire terminals for the tester from our local Volkswagen dealer for a few dollars.)

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