TECH TIPS

Winning Tech Tip entries have been selected by the editors of *Import Service* as well as the technical staff at NAPA Echlin. Winning entrants will each receive $100.00 from NAPA Echlin. Each winner's NAPA jobber will also receive a $100.00 prize.

In addition to the $100.00 monthly prizes, NAPA Echlin will award the Tech Tip winner who submits the best tip for 1991 with an all expense paid trip for two to the 1992 Indy 500. The runner-up will receive a check for $2500.00, also courtesy of NAPA Echlin.

So tear out those Tech Tip cards and start mailing us your Tech Tips. We'll print the best ones each month. Everyone will benefit from the shared information, whether you win or not.

SUBARU OHC ENGINE OIL LEAKS

We recently repaired a 1988 Subaru GL that seemed to have a routine oil leak coming from the center of the timing belt cover. After replacing the front crankshaft seal, both camshaft seals, and the camshaft retainer o-rings, the leak persisted. It took about five minutes of warm-up time for the leak to show up at the bottom of the middle timing belt cover.

After removing the timing belt covers the second time, we discovered that the oil pump had a small amount of play in its internal bearing. This allowed oil to leak out around the pump shaft. The oil pump is directly below the crankshaft, so the leak was hidden by the pump's drive sprocket.

A new oil pump and o-rings did the trick. Be careful not to damage the aluminum engine's sealing surfaces when removing the old sealant. We recommend using the factory sealant for a positive seal between the new oil pump and the engine casting.

Norman Peterson
Fine Tuning
Grantsburg, Wisconsin

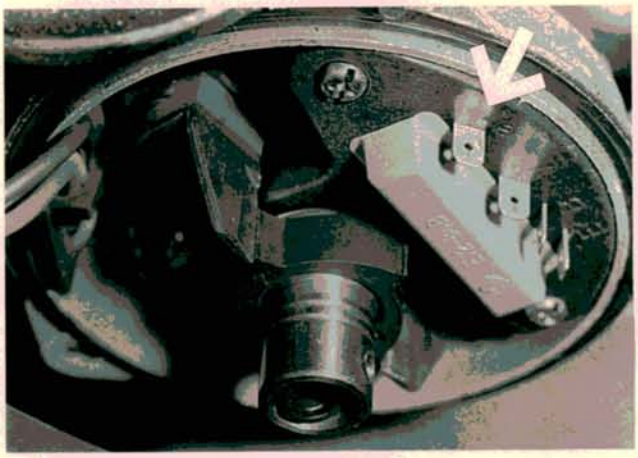
Editors' Note: Camshaft retainer o-rings can also be a source of oil leaks on OHC Subarus, as Tom Bauer of Waterloo Specialties pointed out in a September 1989 Tech Tip. Always check the camshaft retainer and oil pump areas for leakage during timing belt replacement.

A MISSING NISSAN. . .

A distributor rotor that has burned a path to ground on the distributor shaft may cause poor acceleration on 1982-87 Nissan Stanzas. The burnt rotor can keep the spark from reaching some of the spark plugs on this eight spark plug engine, especially during heavy engine loads.

A failed distributor module may cause similar symptoms. There are two separate ignition control circuits in the module, one for the intake coil and one for the exhaust coil. If the intake side of the module fails, the car will have a noticeable loss of power and may be hard to start.

You'll get a slightly different set of symptoms if the exhaust side of the module fails. The module normally shuts off the intake ignition coil under heavy acceleration. If the exhaust side of the module is already dead, the engine will have no ignition when the module shuts off the intake ignition coil. The engine dies, just like the ignition has been shut off (it has).



If you let your foot off the gas, the intake side of the module switches back on and the engine will usually start running again. Customers may describe this as a sudden loss of power during acceleration. Use an oscilloscope or ignition timing light to make sure both sets of spark plugs are firing when they should.

. . . AND A TOYOTA

Worn camshaft lobes may cause a rough idle on Toyota Cressidas and Supras equipped with six-cylinder 5M-GE engines. A compression check probably won't reveal the worn lobes. Remove the camshaft covers to inspect the camshaft lobes for wear. Rotate the engine slowly while inspecting the lobes. Wear on the heel of the lobes, not just the apex, may be causing the problem.

Toyota modified the 5M-GE's camshafts and oil pump to eliminate camshaft wear problems. The oil pump was upgraded in August of 1984 and the camshafts were changed in May of 1985. Upgraded parts may be retrofitted to earlier models.

Larry Marks
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IMITATION INTAKE MANIFOLD GASKET LEAK

I recently repaired a 1983 Toyota Corolla that had a misfiring number 1 cylinder. The engine missed on cold start ups after sitting overnight. The miss would disappear and the engine would operate normally after

running for about ten minutes.

I checked the compression, spark plug and ignition wire, and made sure I had a good seal at the intake manifold gasket. Everything looked fine. After further checking, I found the problem was caused by a leak in the carburetor's auxiliary accelerator pump vacuum diaphragm.

Engine vacuum drew gas out of the carburetor, past the leaking auxiliary accelerator pump diaphragm, through the vacuum supply line, and into the intake manifold. Gas also seemed to run through the hose and into the manifold when the engine wasn't running.

The number 1 cylinder got most of the leaking fuel because the vacuum port in the intake manifold was closest to that cylinder. When starting cold, the fouled spark plug wouldn't clear and start firing until the engine reached normal operating temperature. I replaced the leaking diaphragm and the cold engine miss was gone.

Edward Zborowski
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CAMRY VALVE DEPOSITS

Carbon deposits on the intake valves may cause a loss of power and stalling during acceleration on 1984-86 Toyota Camrys equipped with 2-SE engines. Heavy deposits can keep the valves partially open under certain conditions, causing the power loss. Vehicle mileage doesn't seem to be a factor because we've seen Camrys with as few as 20,000 miles that had this problem.

Customers with valve deposit problems usually complain of a sudden loss of power, often while climbing a hill. The power loss may be so great that the engine stalls. The engine will usually start right back up after pulling to the side of the road. This condition can be hard to diagnose because it may not reoccur for several weeks or months.

Remove the valve cover, then check the wear pattern on the rocker arms. If the valves have been hanging open slightly, the camshaft will have contacted the rocker arms further toward the edges than normal. Normal rocker arm wear should be centered on the rocker arm's friction surface.

We have been able to remove valve deposits with carbon cleaner on some engines. In cases where the deposits were especially heavy, a valve job was the only answer. Since these engines seem to develop valve deposits more quickly than others, we tell our customers to always use good quality fuels.

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