

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 an all expense paid trip for two to the 1992 Indy 500 to the Tech Tip winner who submits the best tip for 1991. 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.

INJECTOR FLOW TESTING

An electronic "logic pulser" is a handy tool for checking port fuel injector flow rates. Logic pulsers emit either single or continuous pulses of controlled DC voltage and are available from electronic supply stores.

Use the following procedure if you suspect a port fuel injector is doing less than its fair share of the work. This procedure also works for comparing injector flow rates on throttle body injection systems if the system has at least two injectors.

- Install a fuel pressure gauge at the fuel rail, block the fuel return line, then pressurize the fuel rail by cycling the ignition on and off. Record the fuel pressure reading at this point.
- If you do much injector testing, you may want to fabricate a jumper harness to plug into the fuel pump relay harness connector. With a jumper harness, you can keep the fuel rail pressurized during your test without having to recycle the ignition.



- Remove the harness connectors from all of the injectors. If the harness connectors are difficult to reach, consult a wiring diagram. It may be easier to do your testing at a junction in the wiring harness.
- Connect one injector terminal to ground with a jumper wire.
- Attach the logic pulser battery leads to the vehicle battery, then touch the tip of the logic pulser to the remaining injector terminal.
- Press the logic pulser's single pulse button three to five times. The injector will fire each time the pulser button is pressed. Record the drop in fuel pressure.
- Repressurize the fuel rail, then repeat the test for each of the remaining injectors and record your readings. Be sure to cycle the logic pulser the same number of times at each injector.

If all of the injectors are operating about equally, all of the pressure drops will be very close. If an injector is sticking open, its pressure drop will be greater than the others. If an injector is clogged, sticking closed, or has an internal electrical failure, its pressure drop will be much less than the others.

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SEAL INSTALLATION AID

A plastic drinking cup can be modified to serve as a rear crankshaft seal installer. The plastic cup guides the seal lip over the end of the crankshaft, preventing seal damage. Try the following procedure the next time you are faced with a seal that's difficult to install:

- Pick up an assortment of plastic drinking cups at the local grocery store. Take the new seal with you to find the right diameter.
- Cut off the lip of the cup so that it is just large enough to slip over the end of the crankshaft.
- Push the edge of the cup against the end of the crankshaft.
- Slide the crank seal over the cup and onto the crankshaft. The plastic cup will spread the seal lip as it reaches the end of the cup.
- Now press the new seal into the seal carrier as you normally would.

You may find that it's easier to slip the seal onto the cup before placing the cup against the crankshaft. Smaller plastic cups like the ones hospitals use to dispense medicine will work well for installing smaller seals (camshaft, intermediate shaft, etc.).

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STUMBLING STANZA

A loose, hardened, or cracked air inlet hose may cause a stumble when accelerating from a stop on fuel injected Nissan Stanzas equipped with vane style air flow meters. Under acceleration, the engine may shift away from the fender mounted air flow meter, allowing unmeasured air to leak past the defective air inlet hose.

The engine may run normally when accelerating in reverse. In reverse the engine moves closer to the air flow meter, sealing the leak. Inspect the inlet hose for damage. Also check the condition of the motor mounts, as these may be the original cause of the damaged inlet hose. Worn mounts will allow excessive engine movement during gear changes and acceleration.

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DRUM AND ROTOR REFINISHING

When machining the surface of drums or rotors, one of the most important steps is often overlooked. Many techs forget to clean the tiny metal flakes off the rotor or drum before installing it on the car. These flakes can imbed themselves in the pad and shoe surfaces, causing brake noise problems.

Use a good quality brake cleaning solvent and a clean, lint-free rag to remove the flakes. Never use a petroleum-based solvent, as this may leave a residue which can also transfer to the pad or shoe. Remembering this important step will help to eliminate some of your comebacks due to squealing or squeaking complaints.

Barry Cyr
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BMW RADIO SECURITY CODES

Always push the tape eject button before disconnecting battery power to a BMW anti-theft radio. On some models (most certainly the one you're working on) the restore code can't be entered if a cassette was loaded in the radio before battery power was disconnected.

Loading a tape changes the radio button functions. The buttons can't enter numbers in this mode, so the restore code can't be entered. To enter the restore code on a jammed radio, you'll need to make or buy a radio removal tool, then disassemble the radio to remove the tape. After installing the radio, use the radio buttons to enter the restore code.

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