

Tech Tips



Tech Tip winners are selected monthly by the editors of Import Service and the Beck/Arnley technical staff.

Authors of published *Tech Tips* will receive \$100 from Beck/Arnley. A cash prize of \$2500 will also be awarded to the entrant submitting the best *Tech Tip* of 1999. Use the attached *Tech Tip* card, or submit your *Tech Tips* online at www.gemini-comm.com.

A Pattern in the Pattern

Usually an oxygen sensor gives you a fairly predictable pattern, oscillating from rich to lean several times per second and taking longer as the oxygen sensor gets older and builds a crust on the exhaust-side surface. But sometimes you find a sensor with a signal including odd spikes and dips in the middle of the general wave. This almost always means one or more dirty or plugged injectors. When the puff of overlean or missed-fire exhaust passes the sensor, the output voltage wants to jump down, just for the passage of that cylinder's exhaust. You can also feel this sometimes when accelerating briskly at 30 to 40 mph. A slight stumble at that speed means either a dirty injector or a plugged filter, and a WOT run up a steep hill should clear up for you whether the filter is plugged.

Brian Hendricks
Brian's Mobile Diagnostics
Northridge, California

Plugging the Tube Hole

On most Toyotas, I've found, it's much easier to replace the water pump if you remove the dipstick tube first. Of course, the problem then is that all the water that leaks out of the water pump cavity runs directly down into the dipstick tube hole and into the crankcase oil. A solution I've found also enables me to get rid of the old soft-foam earplugs occasionally used when I have an engine running with the exhaust system off. The earplugs are already tapered just right, so when you roll them a little smaller, they expand enough to form a watertight seal against the water pump slosh. Plus, this gives you a good reason to get a new pair of earplugs!

Brad Foltz
Foltz's Repair
Hedgesville, West Virginia

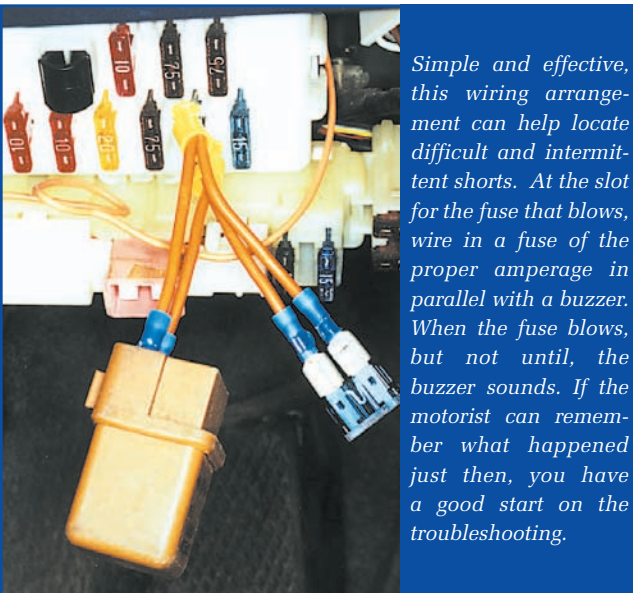


Sound a Short Alarm!

People don't like to pay for a lot of time spent chasing intermittent shorts in their car's electric system, particularly when you can't predict how long it will take. And who can blame them? Here's something you can do to let the motorist chip in and help find the short, mostly on his own time:

Wire a 12-volt buzzer in parallel with the fuse that keeps blowing, as shown in the photo. Leave a good fuse of the proper amperage in the circuit. The next time the fuse blows, the buzzer will suddenly have power on one side and ground on the other, where before it had power on both sides. That will sound the alarm that whatever just happened included the short circuit. If the motorist can provide a reasonable description of what he was up to at the time, this can often reduce the time it takes to find the short.

Sonny Reeves
Technical High School of Carrollton County
Carrollton, Georgia



Simple and effective, this wiring arrangement can help locate difficult and intermittent shorts. At the slot for the fuse that blows, wire in a fuse of the proper amperage in parallel with a buzzer. When the fuse blows, but not until, the buzzer sounds. If the motorist can remember what happened just then, you have a good start on the troubleshooting.

'Shred-Test' for Radiator Fans

Durned if I have time to stand around waiting for a radiator fan to come on. So I just lay a paper towel in the fan shroud. Then I can go solve some other problem and come back and check the towel. If it's shredded, the fan must have come on. Obviously, you can't wander off for hours if you're not sure about the fan, but you can do something useful for a few minutes!

Harold Atkinson, Jr.
Atkinson Auto Clinic
Cheswick, Pennsylvania

Not-Quite Junk Parts

Nobody can afford to keep enough 'known-good' parts to SWAG-test everything, but one thing we do in that direction is to keep parts left over from vehicles that show a problem only after the vehicle warms up and runs for some distance. Even if that component has a temperature-related fault, we still keep it for the vehicle coming in next week with a no-start. It's short, it's quick, it's cheap!

Sal Hamer
Hamer Brothers Auto Repair
Los Angeles, California

Those !@#%&*^ VW Exhaust Clamps!

While there are elegant special tools to help install Volkswagen exhaust manifold-to-pipe spring clamps, you have to do the job a lot to make it worth buying them. If you only occasionally have one of these to do, you can make your own special tool with a length of steel line, like 5/16-inch fuel line, a threaded rod that fits inside and a nut. Put the spring clamp in a vise, insert your tool and turn the nut to spread the clamp jaws enough to fit over the flanges. Depending on how much clearance you have, you can either release the clamp by unthreading it or — since threaded rod and steel tubing are cheap — just use the 'blue wrench' to bend it out.

Steven H. Gillard
Sullivan Tire Co.
Pembroke, Massachusetts



A short length of threaded rod, some steel tubing and a nut can make an occasional special tool for VW exhaust clamps. If you can get to it easily, just turn the nut until the clamp locks in place. If you can't, the parts are cheap; take 'em out with the 'blue wrench.'