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 and a special NAPA Echlin jacket.

A cash prize of $2500.00 will be awarded at the end of the year to the entrant who submits the best 1992 Tech Tip. The first runner-up will receive $1000.00 worth of NAPA Echlin products.

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.

CLUTCH RELEASE SHAFT DAMAGE, PART ONE

Broken clutch release shaft roll pins may cause excessive clutch pedal free play on some Hyundai Excel models. When the release shaft roll pins break, the release shaft will rotate inside the clutch fork assembly, preventing the clutch from disengaging as it should.

Always inspect the condition of the release shaft and roll pins during any service that requires removal of the transmission. Replace worn or broken clutch parts as necessary.

Fred Schoneman
Bill Smith Foreign Cars
Solana Beach, California

CLUTCH RELEASE SHAFT DAMAGE, PART TWO

The clutch release shaft operating lever on some 1988 and later Volkswagen Fox models may slip out of position on the clutch release shaft. When the lever slips, it also prevents proper clutch operation and causes excessive clutch pedal free play.

Replace the damaged operating lever and retaining bolt to correct this problem. Always check the condition of these parts when diagnosing clutch problems and during any normal clutch service.

Erich Klan
Vista Independent V.W. Repair
Vista, California

VALVE DAMAGE QUICK CHECK

Not all engines are designed to "free wheel" when their timing belts break. Some may bend valves when the belt lets go. If the timing belt has broken, there's still a chance that there has been no internal engine damage. Be careful not to add to the problem by moving things in the wrong order, or you may be the cause of a bent valve.

Use the following procedure to check for valve damage when repairing an engine that's broken its timing belt:

- Start by making sure that none of the pistons is at top dead center. This can be done by checking the timing marks on the crankshaft pulley. If necessary, turn the crank very gently to reposition the pistons away from top dead center, making sure that there's no piston-to-valve interference during the process.
- Remove the valve cover, then watch the valves as you rotate the camshaft until both valves on a given cylinder are completely closed.
- Turn the crankshaft until the piston on that cylinder is at bottom dead center. We'll be applying shop air pressure to the cylinder in a moment. We don't want the compressed air to spin the crank. A piston might strike an open valve on another cylinder.
- Apply shop air pressure to the cylinder using an air hold, then listen for air leaks at the carburetor and tail pipe.

• Repeat the procedure on the remaining cylinders.

If all the cylinders hold air, you can be reasonably sure that the valves weren't damaged when the timing belt broke. This makes it easier to accurately quote a price on the job and will save you the trouble of installing a new timing belt on an engine that needs more extensive repairs.

Roy Holm
Roy's Tuneup
Portland, Oregon

ONE PICTURE IS WORTH ...

Some customers are reluctant to pay repair bills that include large amounts of labor and little or no parts. One example of this type of job is a wiring harness repair that requires major dashboard disassembly. It may be hard to explain why it took several hours to replace a few dollar's worth of wire.

We keep an instant camera in the shop so we can document these jobs. We take pictures when the car is in its most advanced state of disassembly and also take closeups of the damaged area.

When the job is done, we show the photos to the customer and also give him a copy of the wiring diagram to illustrate the different electrical devices that are served by the affected circuit. Once the customer sees the amount of work that was necessary to get to the problem area, he's usually more understanding about paying his bill.

Jack Wilroy
Wilroy Auto Service
Bayville, New York

SUBARU RADIATORS

Incorrect radiator mounting may cause the top radiator braces to separate from the upper radiator tank on some 1980-84 Subaru models.

The lower radiator tank is attached to the core support by two locating tabs. If there's too much space between the tabs and the rubber grommets in the core support, the full weight of the radiator hangs from the upper radiator mounting braces. Engine and road vibration may then break off the mounting braces.

To correct this problem, place spacer shims between the radiator's lower rubber mounting grommets and the frame. The shims should support the radiator and raise it high enough to take the stress off the upper mounting braces.

Gary BeVan
BeVan's Radiator Repair
Moscow, Idaho

HONDA TIMING BELT TIPS

I'd like to add the following pointers to your "Shoehorn Fit" article on Honda Accord timing belt replacement in the February 1992 *Import Service*:

• Some camshaft sprocket timing marks don't line up with the top of the cylinder head. Instead, they line up with a mark embossed on the aluminum behind the camshaft sprocket. Identify which design you have before removing the old timing belt.
• The lower belt cover may be difficult to remove, even after all of the bolts have been removed. A hardened tensioner bolt seal may be the cause. Order replacement seals ahead of time, then remove the old hardened seal with a sharp chisel or screwdriver.
• Another part that you may want to order is the front crankshaft seal. Some seals become so hardened by engine heat that they will crack when prodded with a screwdriver.
• If the crankshaft seal has been leaking oil, take a good look at the rubber seal that surrounds the lower timing belt cover. If the seal has been swollen by oil, it may squeeze out from behind the timing belt cover when you tighten the cover bolts. Pieces of the cover seal will wreak havoc with the new belt when you fire up the engine and could cause a return visit from the customer.
• Make sure the water pump alignment pins don't get discarded with the old water pump. Push the pins into the block before you install the new water pump.
• Carefully inspect the accessory belts. Belt access is pretty tight (shoehorn fit). Why reinstall a belt that will need to be replaced next month?
• Always check the ignition timing after installing a new timing belt. If the timing hasn't been adjusted since the old timing belt was new, the timing will probably be correct. But if the timing has been adjusted, it will be wrong now due to belt stretch of the old timing belt.
• Check the operation of the distributor advance mechanisms. Frozen centrifugal advance, perforated vacuum diaphragms, and balky breaker plates are all common problems. Ignore this step and you may incorrectly adjust the timing.
• If the inside of the distributor looks rusty, the rubber weather seal between the distributor cap and the distributor isn't doing its job. There are two types of seals and you should stock them both if you're doing a lot of Honda repair.

If you check and repair all of these items, the timing belt job can end up being quite expensive. But few customers enjoy paying for a series of repairs in the same area and should appreciate your thoroughness.

Geoff Luebbert
Last Resort Automotive
Oakland, California