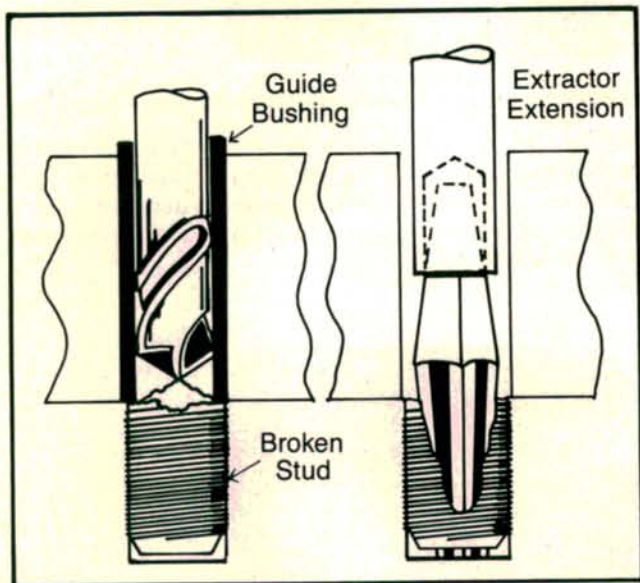


TECH TIPS

Here are the editor's choices for this month's **Tech Tips**. Each of these contributors will receive an assortment of preventive maintenance products from Lubro-Moly North America.

Congratulations! Keep those tips coming!



REMOVING BROKEN BOLTS AND STUDS

Removing a cylinder head or front cover in order to remove a broken stud or bolt can be a very expensive job—especially when there may be another way!

I use a couple of simple tools to remove broken bolts and studs without removing things such as heads or front covers.

Refer to the illustration shown above. Using the drill recommended for the appropriate size straight type screw extractor (such as the one in the Snap-on E1020 set), drill a hole into the end of a length of steel rod. Drill this hole about $\frac{3}{4}$ inch deep and press the screw extractor into the hole.

Next, make a drill-centering bushing to center the drill as you're drilling through the broken stub in the engine block. Using a long drill that is sized for the extractor, insert the drill bushing and drill completely through the broken stub.

Soak the hole with penetrating oil for about 30 minutes or so to loosen the stub. Install your extractor/extension tool into the stub and carefully start working the stub out.

If you find a bolt that doesn't come out, it's no loss except the time to make a tool that works better than 75 percent of the time!

Jim Wolf
Import Auto Center
El Cajon, CA

STUCK PILOT BEARINGS

To remove a **stuck pilot bearing** from a flywheel, simply pump the cavity behind the bearing full of grease. Then find a round punch that's the same diameter as the pilot bearing hole. Being careful to wear eye protection, hammer the drift sharply into the hole. Hydraulic pressure will remove most bearings.

Jon Height
Height's Imports
South Egremont, MA

STUCK STEERING WHEEL REMOVAL TRICK

When I have to remove a steering wheel, I don't use a puller. Instead, I remove the horn switch device and I tighten the steering wheel nut *slightly*. This unseats the tapered spline of the steering wheel column. Then remove the nut and rock the steering wheel back and forth. The steering wheel will come right off! This approach is a lot quicker.

Richard Fulfer
Auto Mobile
Monrovia, CA

STUCK TIMING GEAR LOCATOR PINS

When adjusting **cam timing on a Porsche 911**, the locator pin used to lock the cam and chain gears together can be difficult to remove. Rather than purchase the special tool sold to remove the pin, I simply unscrew the cap from an old Bosch spark plug. Then I screw the plug into the threaded hole in the pin. The spark plug makes a nice handle and gives me enough leverage to remove the pin.

Marvin Besmer
Sportwagens
Reno, NV

STUCK CRANKSHAFT BOLTS

When removing a **crankshaft pulley retaining bolt** from a tight spot, I simply remove the number one spark plug and turn the number one cylinder to TDC. Then I insert a cut piece of old v-belt into the plug hole. The piston jams against the soft belt without being damaged, and I can turn the bolt without turning the engine. To remove the belt, simply turn the engine the opposite direction.

Murray Carlson
Carlson's Service
Janesville, MN