



AutoCare

TechTips

REMOVING STUBBORN MANIFOLD CONNECTIONS

TT-3400

It's easy - if you know what you're doing! The secret, of course, is to have patience and not carelessly break a stud or cap screw in the first place. A manifold stud or cap screw usually breaks due to excess torque applied in removing a rusted nut.

There are several ways of removing stubborn nuts from manifold studs or cap screws from manifolds without breaking otherwise usable studs or screws. The first would be liberal use of penetrating oil directed on the stud nut or manifold where the cap screw goes into the manifold. You may split the nut by placing a chisel on the end of the nut parallel to and against the stud (see diagram 4 on last page). The chisel is then driven into the nut to split it and facilitate removal of it with a suitable tool. Damaged threads can then be "cleaned up" with a thread chaser. The best way to remove a frozen nut is, of course, heating it to a cherry red color with an oxy acetylene torch and removing it while still hot. This should only be used when suitable conditions exist as outlined later.

Normal rust and corrosion often cause manifold nuts and cap screw heads to be somewhat undersized. To prevent rounding off the hex points on nuts or screws, we recommend the use of six point sockets instead of the more normal twelve point tools. These tools allow more contact with the screw or nuts. In many cases, undersized (using 1/2" for 9/16") sockets or metric sockets slightly smaller than nominal American sizes may be useful and save grief.

Before you start working, check the following points:

1. Laws may prohibit use of a torch in service shops. If you can use one, use an oxy acetylene torch which produces high heat to concentrated areas. Never use a torch if there is a fuel leak or fuel odor anywhere in the area. Do not use it near fuel lines. Torch heat is just as dangerous as the flame.
2. Unless you're a professional, do not attempt to use an air or electric impact wrench to apply force against a rusted nut. Its power is difficult to control on marginal studs.
3. Remove the battery ground cable to avoid grounding out the electrical system. This is particularly necessary on Chrysler products.
4. If a stud or cap screw breaks, manifold removal may be necessary for access in some instances.
5. It's harder to break the stud or cap screw on newer car models, simply because they have not deteriorated as much as older models. Ford products are less likely to break than other makes, regardless of age. Most Chrysler products have cap screws and nuts, therefore, if one breaks, it is readily removable.