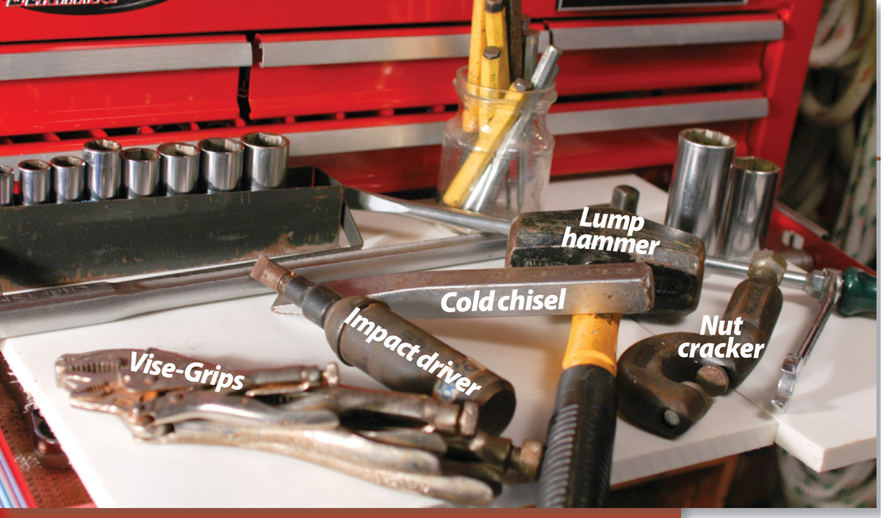

Specialized tools and carefully applied force may be needed to free some rusty bolts.

Tools of the Trade for Cracking Nuts

Like a chef with a favorite set of sauce recipes, a good mechanic needs a tried and proven list of tricks to help coax rusted fasteners into submission. Their tools range from penetrants and ingenuity to pure brute force. A breaker bar for sockets and the learned wisdom of just the right amount of torque works much of the time. For really stubborn fasteners, there are nut cutters, and a wide range of torque- and shock-inducing gadgets.

One unusual but effective fastener-freeing technique involves massive thermal change that causes an abrupt material expansion or contraction. A piece of dry ice is pressed against a stubborn bolt head to shrink its dimensions. This results in the disruption of the rusty bond and more willingness for the bolt to turn.

Less esoteric solutions include box or socket wrenches with fewer facets, which afford a tighter grip on a nut or bolt head and allow more torque without stripping the hardware. The better your ability to apply force, the more careful you must be to avoid breaking the fastener.

The rusting process also degrades bolt head shape. A last ditch effort may require a pair of Vise-Grips or sockets designed to grab deformed bolt heads.

Frozen, rusted nuts present a similar problem, but there are tools that allow you to split the nut without destroying the bolt. Nut crackers use a chisel-like edge that is screw-pressed against the side of a nut. Once the tool is tightened, a machinist's hammer is used to smack the tool, and its blade splits the nut.