techbench

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RESOURCEFUL RIV-NUTTING

READER'S QUESTION: I removed the spare tire tray and upper tub on my '66 to do some other work, and found that three of the four screws that attach the upper tub were stripped. They appear to be self-tapping screws, and two of the screws that are stripped (the front two) are in a closed box section in a frame crossmember, and the one rear screw that's stripped is in the gas tank support. What's the best way to repair stripped holes like this?

RESPONSE: Yes, all four of those upper tub attaching screws are 5/16" diameter self-tappers that cut their own threads when they're first installed, so when they're over-torqued and strip out, that same size screw won't work anymore. There are several ways to deal with this, depending on what quality of repair you want to make.

EASIEST: The simplest repair is to use the next-larger size fine-thread self-tapping screw, which in this case would be 3/8"; however, these screws will have 9/16" hex heads instead of the original ½" heads, which is easily detected in judging (if that's in your plan). 3/8"-24 self-tapping screws are difficult to find, and you'll have to enlarge the four screw holes in the fiberglass tub as well.

ANOTHER OPTION: Insert loose 5/16"-24 fine-thread loose nuts through the access holes adjacent to the front two screw holes and tape them in place, and drop the gas tank support to place/tape or weld loose nuts behind those two holes, and reuse the original attaching screws. This will work the first time, but you'd probably have to do it all over again the next time you remove the tub.

A PERMANENT, ONE-TIME-ONLY METHOD: Use aluminum "Riv-Nuts," which are designed to replace stripped threads in blind holes in sheet metal with strong, permanent-threaded inserts that clinch themselves solidly in place. "Riv-Nuts" are commonly available at industrial supply houses like McMaster-Carr and through aviation supply houses. Get aluminum ones, not the steel ones – the steel ones require expensive installation tools – but the aluminum ones can be installed with home tools. The ones you need are 5/16"-18 x 1", Riv-Nut part number A31-125.

You can make an installation tool by using a 5/16"-18 x 1-1/4" Allen-head cap screw and a small-diameter AN flat washer (see photo); this will allow you to hold the flange on the Riv-Nut stationary with Channel locks while you drive the cap screw in with an Allen-head bit. When the screw bottoms out, it continues to pull the threaded barrel portion of the Riv-Nut toward the flange and the barrel distorts (like a pop rivet) and clinches the Riv-Nut in place from the back side of the hole. If you oil the threads and both sides of the washer and drive it with an impact wrench, starting with the screw only engaged two or three threads, it will install and clinch instantly. Install the tub with ½" hex 5/16"-18 washer head screws, and nobody will ever know the difference – and the repair is permanent. ■


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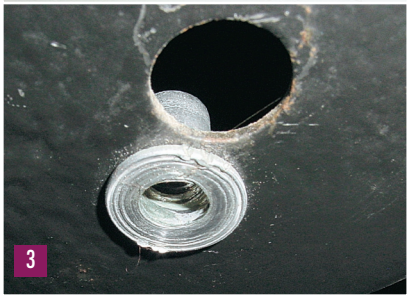
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1 The 5/16"-18 aluminum Riv-Nut. They clinch themselves in place permanently when the installation bolt draws the threaded barrel down against the back side of the hole in the sheet metal.

2 Here's the home-made Riv-Nut installation tool. When the bolt bottoms out on the flange, it distorts the "barrel" to clinch the Riv-Nut in place. Oil the threads and the washer to simplify the installation.

3 Riv-Nut installed in one of the holes in the frame crossmember. This is a permanent repair, and stays in place even with repeated disassembly.