

The Preventive Maintenance Series

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The following information is based on my experiences and may contain useful suggestions in some cases. Forty to fifty years of age, heat and rust sometimes require innovation when performing what should be a simple task.

Upper crankcase studs: they can be somewhat of a complicated problem on both ends. Removing the nut can be a challenge; if the nut is frozen the stud may come out with the nut attached, not desirable, but workable. Put the stud in a vice, lube the threads and use an impact wrench to screw the nut further on to the good threads. Chase the outer threads and remove the nut. Another approach: you may have good luck trying to slightly tighten the nut before trying to loosen it. Soaking the exposed threads with penetrating oil for as much time as possible before attempting removal is always a good idea.

If the stud is frozen in the crankcase and the nut is quite rusted, the nut it may round off. My favorite method of addressing this is use of a 12 point 13mm SnapOn socket (quality matters here) and a medium steel hammer to wedge it on to the nut; it must be completely seated to work. Apply an impact wrench for best results. In a couple of cases I had to resort to the next size smaller socket after using a sharp chisel to clean up the nut so the socket would seat.

In an extreme case, careful use of a torch to heat the nut before applying impact may be necessary. Use of a break over bar or jack handle can break the stud (you will feel the stud start to windup), so an impact wrench is best: multiple rapid blows. In many cases the outer threads beyond the nut area may be rusted away but the threads inside the nut will be quite usable. (Use acorn nuts with anti seize on top of the head nut when you finish your head torque to preserve the end threads). If the area of the head that the nut mates against is damaged, any machine shop or head service has a tool for cleaning those areas up.

When you are ready to install the stud in the crankcase, observe the threads on that end – they are not standard threads and you cannot use thread chasers or dies. Most important of all, **you must use anti seize when installing the studs**. If you try to install them dry, you run a very real risk of galling the steel threads with aluminum and they will lock in place before they are completely installed – not even heat will free them up if that happens. Be sure you install them to the correct depth: 8 9/32" for the upper studs. If they screw in too far in an open end hole, the rod bolt tips will hit them.

If you are faced with a stud that has pulled the aluminum threads out of the crankcase, the solution is to install one of the repair coils or inserts that are available. Once you feel the stud is pulling out, you can continue to tighten the nut which will pull the soft threads out of the case and make the repair work easier. Continue to torque the other nuts to make sure they hold.

My favorite choice for repair of pulled out studs is an actual insert instead of a Helicoil. The reason behind this choice is that an insert has greater width into the aluminum, even

if it is shorter, whereas I have replaced Helicoils with inserts when the Helicoils installed by others have failed. I normally only use one insert but you could use two of the ½" inserts in the 1" hole. This would work best on a blind end hole since you need to keep drill chips out of the crankcase. Another possibility: Larry Claypool sells an insert that is actually 1" long.

Use of the following inserts will require a 31/64" drill and a 9/16-12 tap:

Pioneer Products Inc. (I stock them or check local speed shops)	Part No. EL-6
Granger (Thanks to Ray Segó)	Part No. 4ZE20

Alignment of the drill is very important and I would suggest putting a depth stop of some kind on the bit – do not drill completely through into the case if it is an open end hole. That stops chips from entering the case and makes sure the insert will not screw in with the stud. You do have to rethread the case end of the stud to match the 3/8-16 insert. If your die is adjustable, set it slightly shallow to keep the stud tight in the insert.

Other individuals may have had good experiences with other types of repairs and there are additional references for coils and inserts in the CORSA Tech Guide on pages 13-16 of the Engine Mechanical section.

Airtex Fuel Pump Update

I received the following email from Ken Otey at Airtex concerning the pump failures:

Mike,

We are currently in the process of relocating our Mechanical Pump Line back to Southern Illinois from Mexico. We are completely resetting our manufacturing and quality teams to address lingering issues such as yours. I have forwarded your comments to our Mechanical Team and they will be addressed when our line is up and running. I will keep you posted on the progress of the move and when date codes will reflect manufactured in USA. I sincerely apologize for the issues you and your fellow Corvair enthusiasts have endured and would extend an open invitation to visit our plant in Fairfield, IL and help us celebrate our 75th Anniversary. Best regards to you and your group!!