THE PREVENTIVE MAINTENANCE SERIES

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Corvair Engine Cooling Fan Bearings

History: There were two basic types of engine cooling fan bearings; the smaller bearing (and smaller mounting shaft) was used from 60-64 and the larger bearing (and larger mounting shaft) was used from 65-69. The top covers have to match the two bearing shaft diameters and the fans and pulleys have to match the bearing flange mounting diameter and bolt size. The early bearing & hub combo was changed once but retained the same diameters so any early bearing will fit any early hub or top cover. There were also different mounting areas on the top covers to accept the road draft tube or PCV tube. The tube and seal have to match the top cover. You can convert the early style fan bearing to the late style as long as you match up the proper parts. This would be a worthwhile upgrade since the late bearing has larger ball bearings and a larger race diameter. The baffles under the cover were also changed although they are interchangeable. The later baffle is supposed to be better (and stiffer) so consider that in an upgrade.

You may also find a protective dust cap on an original early model bearing. I think they discontinued them in early '62, although they could be transferred between early bearings.

Potential Problems

Issue one: Like all our parts, age and mileage take their toll. When early model bearings run out of grease they start rumbling, slowly getting louder until the noise becomes a roar that nobody can stand. They will eventually lock up but most folks can't drive them that long. The late model bearings do not make the loud rumbling noise, instead they will make a howling noise when first started cold which goes away after a brief period. If not greased soon they will lock up without much warning.

Issue two: When the bearings were installed in the top cover the steel shafts were heat shrunk in to the aluminum cover to provide an interference fit, the same way your cam gear was installed on the cam. This works just fine unless the engine is overheated allowing the bearing shaft to be pulled up from the cover by the belt at which time the fan hits the top shroud and the bearing itself will lock up the accelerator cross shaft. The other loss of the interference fit can occur when a new bearing is installed without heating the cover and cooling the shaft. Pressing the steel shaft into the softer aluminum will broach material out ahead of the shaft thereby loosing the interference fit and almost guaranteeing a release during a hot day on the highway. For folks new to Corvairs, our engines run the hottest under full throttle at high speed and the coolest at idle (yes, in a parade) – just the opposite of water cooled engines. To check your current installation, use a steel straightedge across the top of the fan pulley and measure down to the top shroud next to a carburetor - the measurement should be exactly 6" on an original '62-'69 and 6-3/64" on an original '60-'61. Any deviation means the bearing was either installed wrong or has moved in the cover and belt life will be affected. If you experience a fan-into-the shroud issue on the road, hitting the center shaft of the bearing

with a hammer driving it back down may be a temporary fix to get you home. This event would require a replacement top cover.

Prevention

Both early and late style bearings can be greased on the engine with a tool available from vendors, or your local club may have one for loan. Move air cleaners, turbo parts, cross shaft or whatever your car has that prevents attaching the tool. Drill two small holes on opposite sides in the metal part of the top seal on the bearing. The drill will penetrate the first layer of metal and felt or rubber and stop on top of the race. Remove the four pulley/fan bolts and attach the tool with the proper length of bolts (3 possibilities depending on the bearing). Snug the bolts but do not crush the rubber seal in the tool.

Use high temp wheel bearing grease in a pump gun so you can feel the grease go into the bearing. Pump slowly in an attempt to not pop out the lower seal. However, I have taken covers off with the lower seal popped out and grease sitting on the cover that nobody knew about, so it would not be an issue if you accidentally over greased it. Reinstall parts and run the engine for a minute to expel excessive grease out of the two holes. Clean, sandpaper and put a drop of epoxy on the holes. **Note**: Attempting to grease the bearing without drilling the holes may work but you risk hydraulically jacking the bearing out of the hub; that movement is irreversible without removing the cover.

Installing a New Bearing

Bearings are available in several combinations; bare bearings you press into your old hub, bearings already installed in hubs, bearings with custom hubs, and exchange covers with the bearings installed. My method of installation is to place the cover vertically in a vice, have the bearing and hub cooled in the freezer, adjust my dial caliper to 4.475" as shown in the shop manual (revised in '62 so use this dimension for all) and have it and a steel straightedge at hand. Gently heat up the cover on both sides with a torch and tap the old bearing shaft with a punch. It should easily pop out and then quickly insert the new bearing and tap it to achieve the above measurement between the mounting face of the cover and the mounting face on the bearing hub. If either of the tapping movements would prove to be difficult the cover is not hot enough. Simply reheat the cover until you can tap the old bearing out or the new bearing in to the proper installed height.

Pictured nearby are comparisons of the two bearings and the two top cover PCV tube mounting areas. The PCV tube must be mounted tight and sealed properly or you will have blow-by gases in your heater.

