

THE PREVENTIVE MAINTENANCE SERIES

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The following is a collection of items that might raise questions during various maintenance or rebuild efforts, the kinds of things that may be unclear or missing from shop manuals.

Powerglide Differential Pinion Shaft Front Seal: This is the seal that does not press in flush with the front pinion bearing adjusting sleeve (flush will contact the bearing). There are conflicting pictures in all of the shop manuals which show it installed with the flat side toward the differential and also installed with the flat side towards the transmission. After working on differentials for forty years I can say that the seal was installed at the factory both ways and has been installed during service both ways. Furthermore, it appears to work fine installed either way. Most of these seals leak because the pinion shaft bearings were not pre-loaded properly during service or the bearings were worn enough to let the shaft wobble; this allowed the seal to leak. If you use logic, the flat side would be towards the differential as the more fluid ATF might be harder to contain. Neither side receives pressurized fluid – gear lube is being thrown into the differential bearing and transmission fluid is spraying out of the governor and draining back from other areas. As a final authority, I would quote the GM publication Servicing the Corvair 4 Speed Transmission and Differential. On page 7 of the differential section it clearly states: “install with flat side toward carrier”.

Spark Plug Gaskets: Most later design plug gaskets are an “S” shaped sandwich gasket that is designed to crush for better sealing. One side can be slightly wider than the other and the wider side should be placed towards the aluminum head, which is softer than the steel spark plug seat.

Head Gaskets: The stainless head gaskets are also a sandwich gasket designed to crush and provide a better seal. Again, one side is wider than the other and should be placed towards the aluminum head.

Pressure Plate Bolts: These are a special shouldered bolt designed to center the pressure plate perfectly on the flywheel and thus maintain the necessary balance. Use the correct bolt and a lock washer.

Flywheel and Flex Plate Bolts: These special thread bolts are two different lengths. The longer bolt is used with a reinforcing ring on the manual flywheel and the shorter one is used with the flex plate. Using the longer bolt on a flex plate will break the teeth on the aluminum cam gear which is located at the exit of the threaded holes. The same goes for omitting the reinforcing ring. Use a thread sealer on the bolts.

U-joint Strap Bolts on '65 Models: The original ¼ - 20 bolts had a shallow head and used a lock washer. Bolt heads would rust and have dirt built up around them - combine that with odd angles for sockets and the heads would round off. After service complaints, a re-designed bolt was issued for dealer installation that had a deeper head, but not many of these made it into actual service. The caution is to be sure and use new grade 8 bolts with lock washers to make the next removal easier. This issue was resolved in '66 with a redesigned strap and bolt.

Early Model Turn Signal Switch Screws: The two screws holding the early turn signal switch to the column are a special length machine screw and sometimes hard to get started back in the hole. Periodically folks will opt for a pointed sheet metal screw which is much easier to get started but it will be long enough to contact the steering shaft. You could get several strange noises on turns depending on how much the shaft is out of true.

Special Thread Studs: The studs used for cylinder head mounting, carburetor mounting, lower studs on the oil pump housing and exhaust manifold clamps are a special cut thread. You cannot use a thread chaser - they are designed to stay in place while you remove the nuts. If you do change them, replace them with a like stud, clean the threads as much as possible and be sure to use anti-seize (they can gall on re-entry). If you have to use a helicoil or an insert, then you must re-cut the threads to fit the coil using a standard tap. Another variation is the difference in threads for the temperature switch and thermister between the standard engine and a turbo or 140. All engines except turbo/140 use a coarse thread switch; the turbo/140 uses a fine thread temperature switch and thermister.

Fuel Pump Mounting Bolt: The bolt head should have an “L” stamped on it. If not, it will have too long of a point and can either let the pump work loose or actually punch a hole through the pump casting and lock up the pushrod. Either install the correct bolt or cut off 1/8” and round the edges of the cut.

Use of Screws and Nail Guns in Car Floors: Floor repair or carpet installation by others can result in gas tank and wiring damage. When drilling holes, using self drilling screws and using nail guns during floor repair, the tunnel pan area in the front and back must be avoided – it contains wiring, gas lines, brake lines and cables. Another danger area is across the front of the front floor on both sides as the floor slopes up – you are only 1/4” from the gas tank. A third area that can attract gas tank damage is the horizontal package area in the trunk (just under the master cylinder & wiper area). Mounting anything on this shelf with screws should be reviewed for gas tank clearance.

Clutch Housing and Converter Housing Bolts: There are 7 bolts with 1 3/8 shank and thin flat washers and 2 bolts on the bottom with 1 5/8 shank and no washers. Use of thick flat washers on the bottom two bolts or use of bolts with thicker heads may result in the flywheel rubbing on the bolt heads.

Generator, Alternator & Starter Washers: Generators came with lock washers, alternators had a special narrow OD flat washer and starters were installed with no washers.

Oil Filter: The Corvair oil filter is not a spin on filter. If you are new to the car or have others change your oil and filter, you should be aware of the need for 20 ft lbs of torque. Check the bolt again after a week – the fiber washer supplied with some filters will crush slowly.