

The Preventive Maintenance Series

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Powerglide Drive Train Considerations

If you are going to pull the engine and drive train from a Corvair Powerglide for whatever reason, the following observations might be helpful depending on what you might be contemplating. Generally speaking, replacement of all seals and gaskets and inspection of bushings and bearings might be desirable for 40+ year old units. However, if you are just making swaps or repairing one thing, keep the following in mind:

There is a difference between early (60-63) and late (64-69) transmissions. There were upgrades done to the late model to better accommodate the increased horsepower and torque. The difference is partially identified by the difference in the throttle valve lever. The 60-64 lever has a 1/2" accelerator grommet hole and the 65 and later lever has a 5/8" accelerator grommet hole. The only way to identify a 64 is to pull the pan and look for the small notch in the end of the reaction plate. The complete transmissions interchange, but the 67-69 lever will interfere with early suspensions and will have to be changed or modified.

There is a difference between the early and late flex plates (.070). The late style can be identified by an additional small hole in the area of the mounting bolts. The flex plate needs to match the crankshaft (gear) being used: 145 or 164.

Use the correct bolts to mount the flex plate – use of flywheel bolts, which are longer, will break teeth on the cam gear. Be sure you install the flex plate with the concave side towards the engine.

Adjust the low band: remove the lock nut, tighten the bolt to 40 inch pounds, back off the bolt four full turns and retighten the lock nut.

Replace the bushing in the converter, install a 1/8-27 pipe tap drain plug (before removing the engine is easiest) to drain the converter, and dress up the stator shaft where the bushing rides. Most stator shafts are worn and no new ones are available, so a small fluid leak at that area can occur even with a new bushing and seal. Only use a National converter seal (9845) – others may leak. If possible, obtain a spare stator shaft to check the clutches in the converter when it is off the engine: insert the shaft in the converter and spin it in both directions. There should be a difference in effort required between clockwise and counter clockwise.

If you are making any changes to the differential/transmission combination, you should check the running clearance between the governor gear spacers and the end of the planetary unit that protrudes from the transmission case. Measure from the spacers to the differential face and from the transmission face to the end of the planetary unit. There must be between 0.025 and 0.045 difference between the two measurements. Page 4-6 of the 1965 shop manual illustrates what to do but they make it way too difficult. Just follow the above instructions.

To correctly install the shifter cable, you must place the selector in Drive, remove upper and lower rods from the transmission throttle valve lever and rotate the lever fully counter clockwise before inserting the cable ball. When it is located correctly the upper hole of the throttle valve lever will be close to the pan gasket line when you release the lever.

The shifter cable (throttle valve linkage) is adjustable. This adjustment would be done with the shifter in "D", transmission pan removed and the cable hooked back up – a pictorial guide is on page 7-31 & 32 of the 1965 shop manual. You do not need the special tool, simply look at the illustration for the valve relationship and then look in the end of the valve body where the book shows inserting the tool. You will see the area where the valve must have the proper location. Out of adjustment can cause slow going into gear, flares on up shifts, and creeping in neutral.

If the differential and transmission are separated, you should check the differential pinion bearing adjusting sleeve to make sure the pinion shaft has correct preload – many are loose and will shorten differential life as well as being noisy. If the adjusting sleeve is loose, you should remove the cover and check the pinion gear for looseness on the shaft. Finally you should re-adjust all the preloads.

If you are replacing the seal in the pinion bearing adjusting sleeve, note that the lips face the transmission, not the differential, and that it is only installed about half of its depth into the sleeve (the seal is installed with the sleeve off). Pressing it in all the way will block oil passage to the pinion bearing.

Be careful with the transmission pump shaft tip – the opposite end which is in the transmission has two small snap rings that locate the pump drive. Bumping the end of the shaft can pop a snap ring off and you will have a no drive situation when you finish the project.

Check the vacuum modulator for fluid in the vacuum port and that the actual valve moves freely.

Check the governor teeth for wear and the outer shell of the valve for wear. Use a small screwdriver to make sure the valve moves freely inside the shell and add a new o-ring.

While your starter is in front of you, replacing the drive assembly and front bushing will prolong the live of the torque converter ring gear. (obviously a rebuilt starter would be the best suggestion).