



Technical Information...

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Diagnosing Tools – Air Checking

Using air pressure to check the integrity of the clutch and band servo oil circuits is a good practice that most transmission rebuilders do during the rebuilding process. When the clutch is on the bench, you can hear and see how well the clutch is applying. Once the parts are in the case, you rely more on the sound the clutch makes and the hiss of any air leaks. This is a great way to check your work. I air check individual components and recheck everything again with the transmission assembled.

The messy part is air checking a unit after it has been filled with fluid and doesn't work correctly, or checking a low mileage job that you want to diagnose before tearing it apart. Have you ever tried to air check a unit by putting air into the line pressure tap? This method makes less of a mess and you can also air check the valve body and pressure switches too.

Remove the pan and block the pump inlet (filter). Put the manual valve in the position that you want to check and hook up a *Tran-X 2000* or similar tool, so you can fire the shift solenoids in the correct order for the gear or clutch that you want to air check. If you are checking 1st, reverse or the failsafe gear, you don't even need the *Tran-X 2000*. As an example, let's say that you want to air check first gear in drive range on a 4L60E. You would drop the pan, block the hole in the pump where the filter goes, put the manual linkage in drive, turn the ignition to on or run (**DO NOT START ENGINE**) and blow air into the line pressure tap hole. Positioning the manual valve gets the fluid/air going in the correct direction. Blocking the suction side of the pump allows you to pressurize the oil circuit without the pressure blowing out of the filter. Turning the key to on energizes the solenoids for first gear. When you pressurize the line tap, you are air checking everything in the oil circuit. This includes the valve body, accumulators, pressure switches, sealing rings, clutches and servos. Thus, you are now able to know what the entire oil circuit is doing. If the valve body has a leak you will see it with the pan off. Keep in mind that pressurizing the pump and valve body means that you are going to see some oil dripping down from the lube circuit and if you air check long enough, you may push all of the oil out of the lube circuit and hear it hiss instead of drip. You can air check the default gear, (failsafe), the same way except you leave the key in the off position.

You can also do this air check on the bench, but there are a few things to remember when doing so. In addition to blocking the filter hole, the cooler lines must be blocked and the torque converter must be installed with a bracket bolted to the bell housing in order to keep it from being pushed out by the air pressure. I use a bell housing to engine bolt and nut through the open end of a 9/16" combination wrench. I then fasten the bolt and wrench to a hole in the bell housing, tighten the bolt and use the wrench to hold the torque converter in place. Performing this air test on the bench will require a tool that will fire the solenoids in the correct order for the gear that you want to check.

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