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PUT YOUR TCC CIRCUIT TO THE TEST

Testing TCC control circuits can help identify areas that need service or confirm that your repairs have restored hydraulic integrity. On some units, these tests can allow you to check the entire lockup and release circuits – if you use a little creativity. These tests are especially useful when they can be performed in the vehicle, allowing for diagnosis and possible repair without removing the unit. At the other end of the process, these tests can be performed on the bench to confirm your repairs have corrected the problem before you reinstall the unit back in the vehicle.

The 4T60-E transmission is one unit that testing can tell you a lot about. When tests are made on the bench, it is important to have a wet converter installed and secured to the transmission. Remove the side cover and the oil pump to expose the area where the tests will be performed. Refer to the Wet Air Test photos (Figures 1 & 2 on the following page) to help identify the apply and release locations to pressurize with shop air regulated at 60-80 psi.

The 4T60-E transmission is one unit that testing can tell you a lot about - whether the test is done in the vehicle during the diagnosis phase or on the bench after you've completed your repairs but before you reinstall the unit.

Since Wet Air Tests are often subjective, the more experience you have with good or bad valves and circuits, the easier it is to identify their condition.

Before applying air to the release circuit, be sure the apply valve is against the solenoid. (Figure 1 shows an arrow pointing to the area you should inspect to ensure the valve is positioned properly.) When air is applied in the port shown, the only place it should exit from is the cooler line. There should not be excessive leakage at the TCC regulator valve. The air being applied to the release circuit is sent between the two spools on the TCC regulator valve. Any leakage here would be seen where the sleeve is visible (*see Figure 1*) or is an internal leak inside the valve body that can be heard but not seen. If oil is seen coming from the shaft area, then a reseal is required.

When checking the apply circuit, (*see Figure 2*) it is necessary to hold the TCC apply valve inward, either by removing the solenoid and holding it or by using a 1/4" ball between the solenoid and valve to keep it in the inward position. (Don't forget to remove the ball when you've finished your test!) Insert a piece of 5/16-inch copper tubing – 2 inches long and slightly squared at the end

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as shown in Figure 2 – to assist in pressurizing the apply circuit.

While applying air pressure here you may hear an initial hiss of air as the TCC piston seals against the cover, but once the piston contacts the cover there should be no leakage at the points shown in Figure 2 for the TCC apply circuit. Leakage just above and to the right of the copper tube is air leaking past the inner spool of the apply valve, signaling that you have a worn bore. Once again, leakage at the shaft requires a reseal.

Once the apply and release circuits have been air tested with positive results, you have confirmed that the pump shaft seal, stator, converter, TCC regulator and the apply valve are in good working condition. Now the unit can be put into service with more confidence that TCC codes will not return.

Figure 1

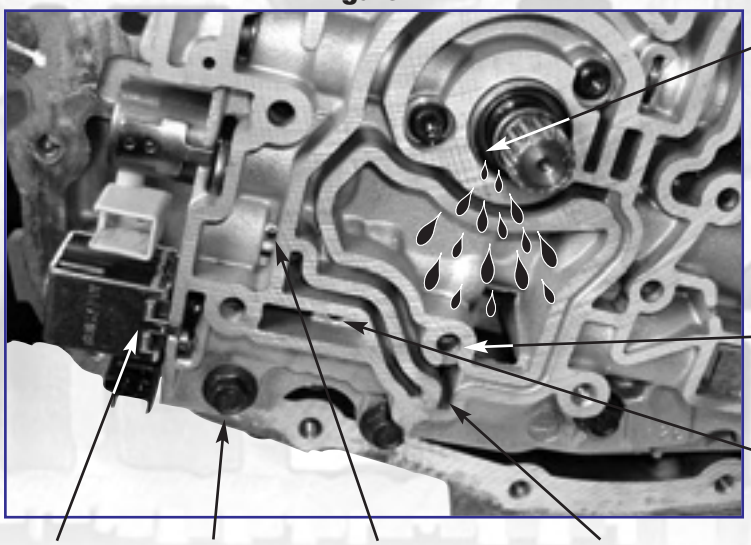

Figure 2