



Transmission: 41TE / 42LE
Subject: Torque converter clutch failure
Application: Chrysler
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41TE / 42LE

Torque Converter Clutch Failure

One of the more common 41TE/42LE problems is a failure of the torque converter clutch piston and friction material. Several factors can contribute to this failure, such as restricted cooler systems, poor engine tune, restricted filters and line pressure fluctuations. One other cause of this problem that can be difficult to understand is a sticky valve problem in the valve body. A sticking solenoid switch valve can cause this, and can be responsible for repeat failures of the converter clutch piston in a short amount of time (figure 1).

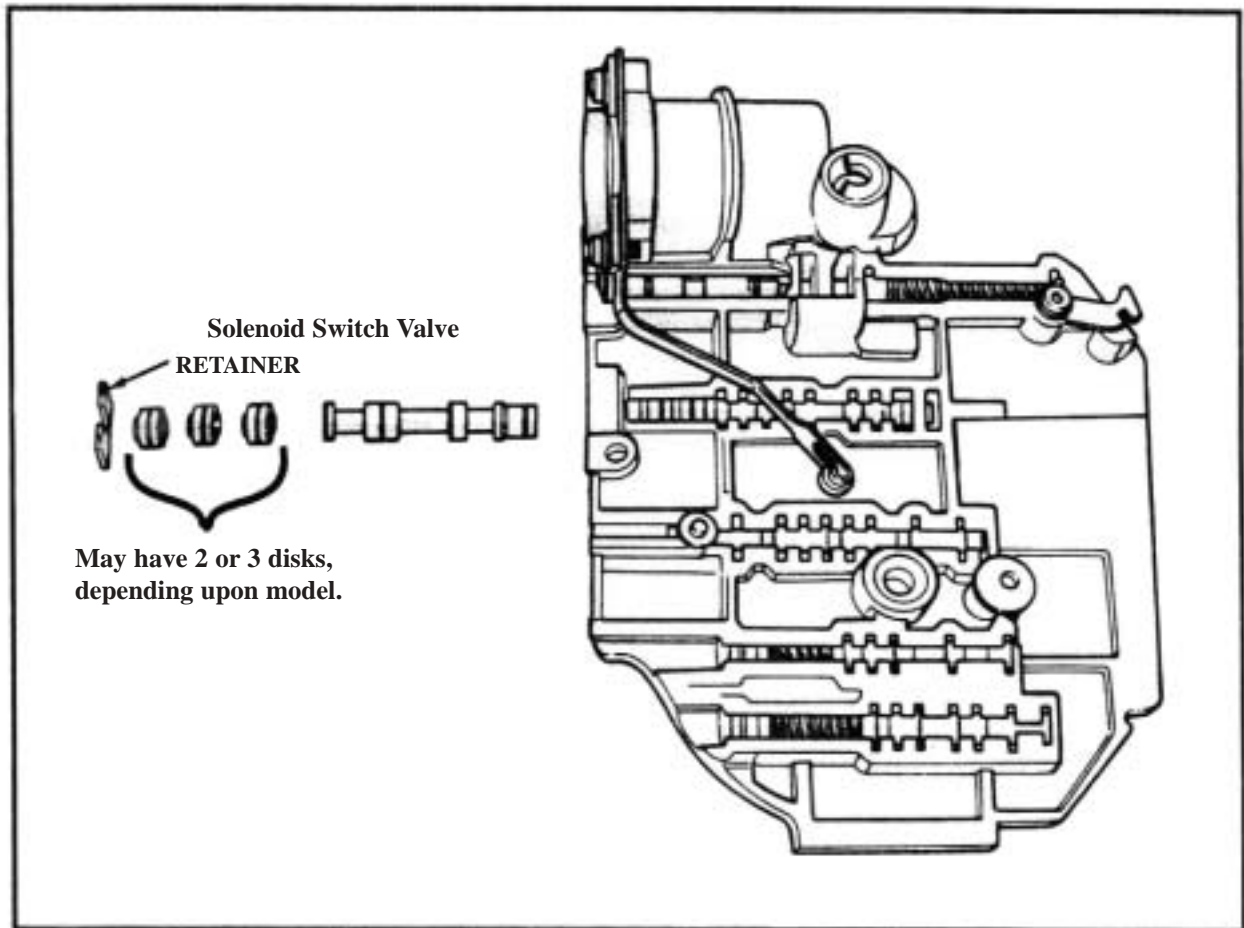


Figure 1

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The solenoid switch valve determines whether the low/reverse lock-up solenoid is going to operate the low/reverse apply circuit or the lock-up apply circuit (figure 2). Since this valve spends almost all of its time in the lock-up operating position, a ridge tends to build up in the valve bore that can hold the valve in this position. When the vehicle is brought to a stop, the underdrive solenoid is momentarily pulsed on, sending a small burst of pressure to the solenoid switch valve. This burst is supposed to place the solenoid switch valve into the low/reverse apply circuit operating position. However, if the valve does not immediately move to this position, remaining in the lock-up control position, the transaxle will not be able to engage the low/reverse clutch, effectively being in neutral when the vehicle comes to a stop.

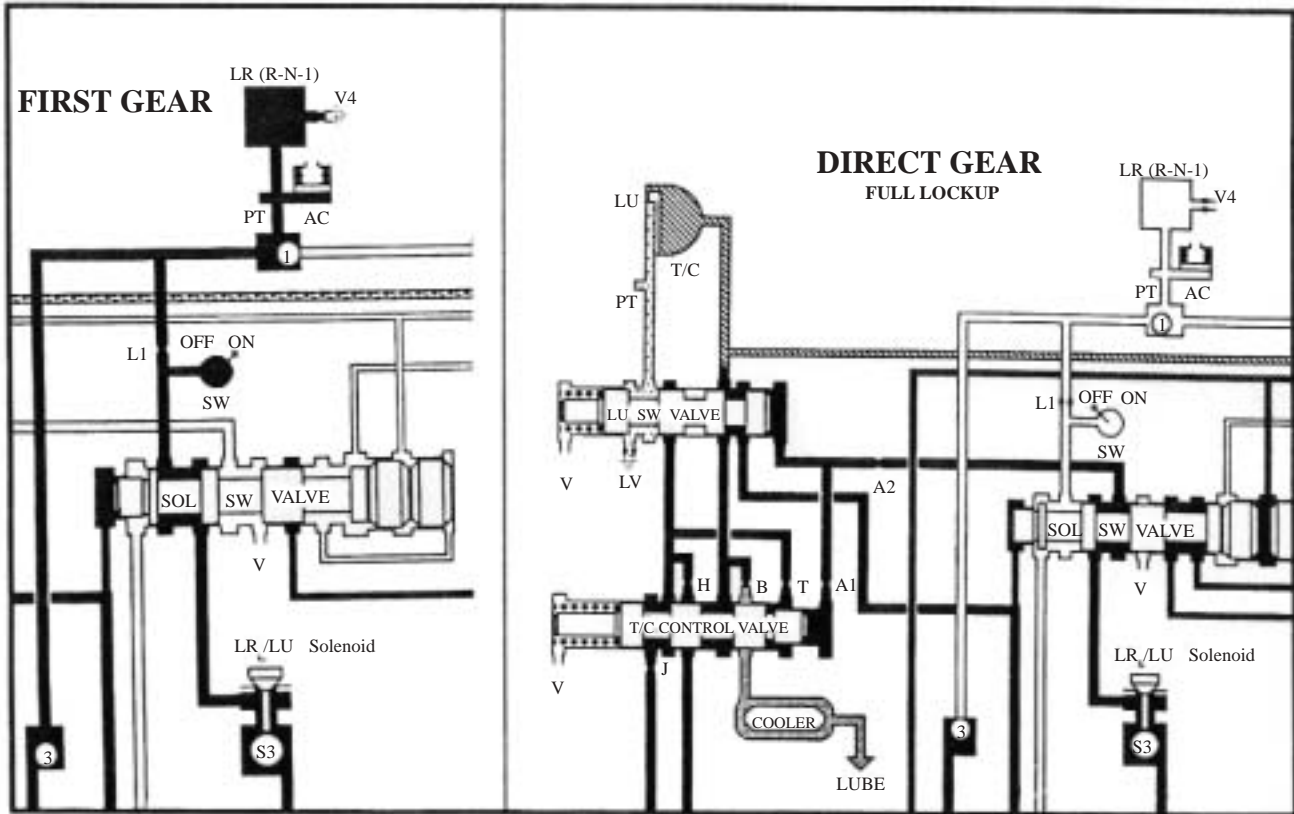


Figure 2a and 2b

The TCM senses that the transaxle is still in a forward range through the PRNODL and neutral safety switches, and watches output speed come to a stop. However, since the transaxle is not engaged in any gear as a result of the low/reverse clutch being released, turbine speed is still roughly the same as engine RPM rather than showing zero RPM as it should. In response, the TCM commands a momentary 'Full On' signal to the low/reverse lock-up solenoid in an attempt to apply the low/reverse clutch. This high volume burst of 120-145 psi is inadvertently sent to the lock-up control valves instead of the low/reverse clutch. This smashes the converter clutch piston into the converter cover with much more force than it was designed to tolerate, bending the inner diameter of the piston (which has no friction material lining) forward until it contacts the surface of the converter cover (figure 3). This immediately generates metal particles from the contact, causing immediate, and sometimes total, damage to the torque converter. Make certain that all 41TE and 42LE valve bodies are thoroughly cleaned and serviced to avoid sticky valve problems that can result in costly failures of this type.

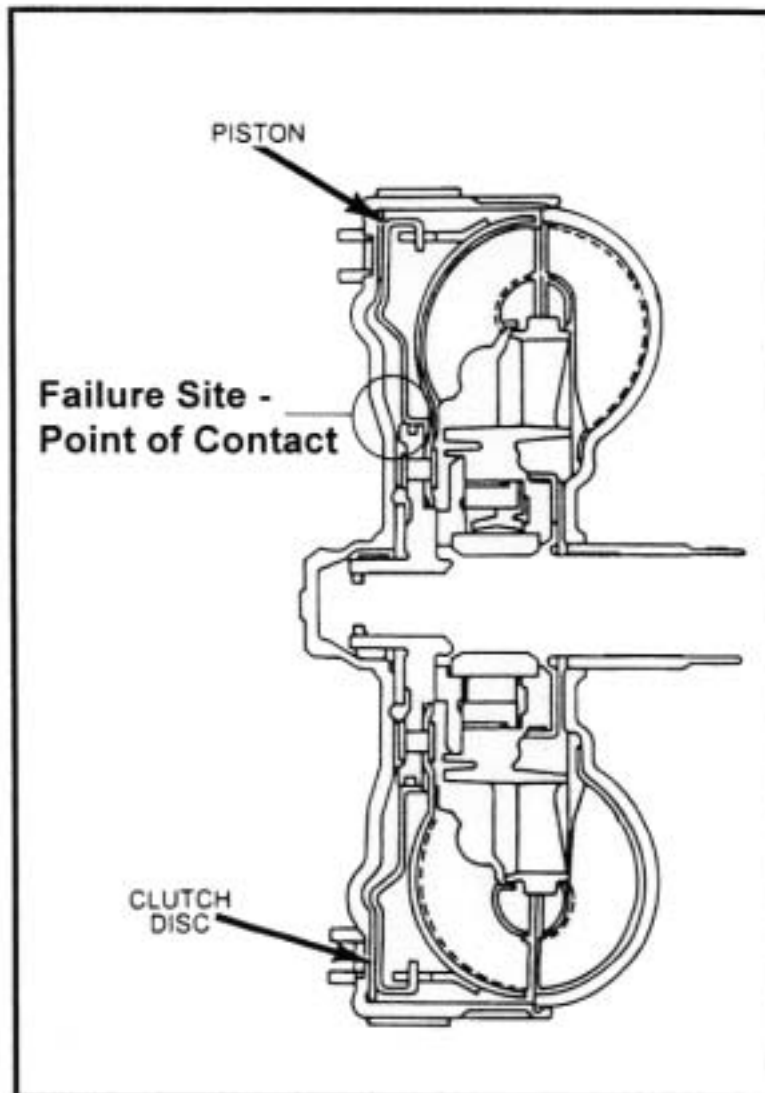


Figure 3