

CONTROLLING THE 6R80



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The 6R80 has been around since 2009 and, while similar to the 6R60, there are some differences.

Let's start by defining some terms: the term solenoid body refers to the valve body. This transmission has a valve body, a hard-wired harness, and seven solenoids. The tag on the side of the transmission says "Sol Strategy and Sol Body ID." These are the program strategies for the PCM and the valve body/solenoid pairing IDs.

This transmission has all of these sensors mounted on the valve body assembly (figure 1): turbine speed (TSS), output speed (OSS), internal transmission range (ITRS), and transmission fluid temperature (TFT).

The PCM operates the electrical components and

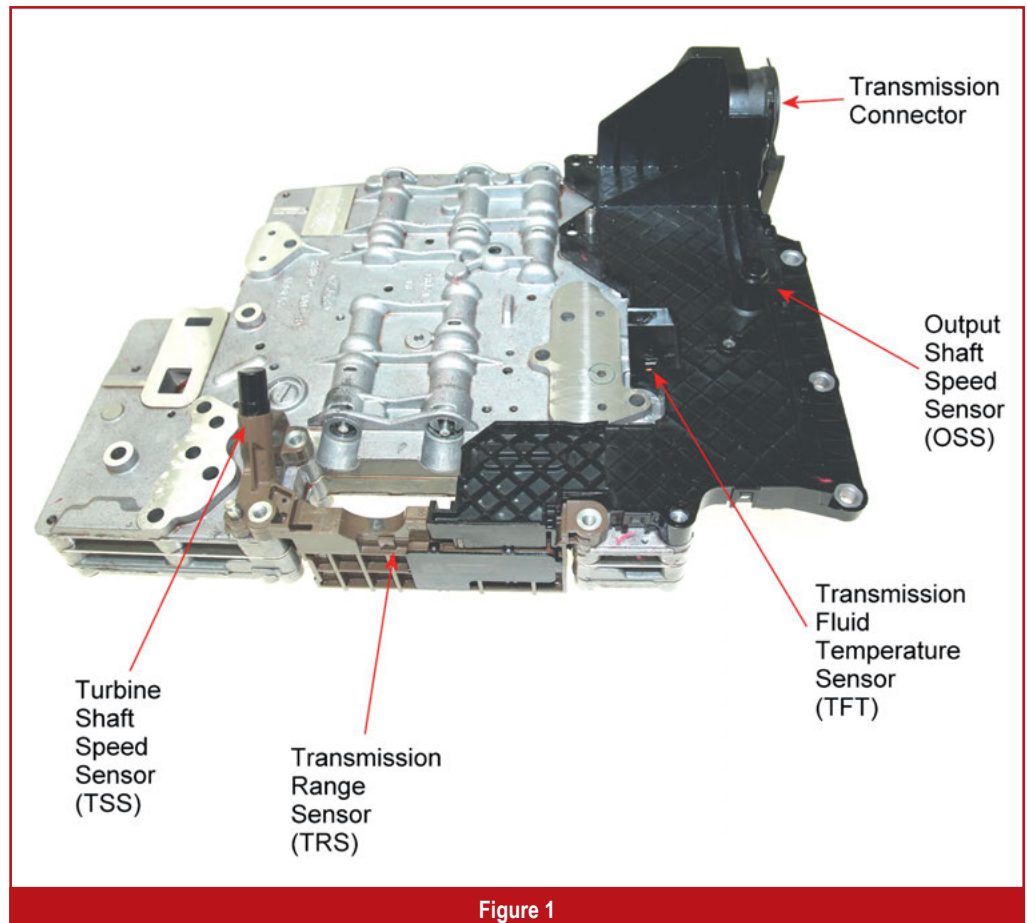


Figure 1

provides control for gear selection shift pressure. If the system loses total control or electrical power, the PCM provides for Failure Mode Effect Management (FMEM) operation or failsafe.

The selector options are P, R, N, D, M, 2 and 1. In failsafe mode you'll have these gears available: P, R, N, D (5th gear for high gear failure) and M (3rd gear for all other failures).

In 3rd gear failsafe, all solenoids are off. In the off position, SSB directs high pressure to the clutch B regulator and latch valves to apply the direct clutch (B). The forward clutch (A) is hydraulically applied in 3rd gear failsafe. PCA provides maximum solenoid pressure to the main regulator valve for maximum line pressure. SSD is on, which directs high pressure to the solenoid multiplex valve, which is redirected to the drive enable valve where it's blocked.

If failsafe occurs when the transmission's in 5th or 6th gear, it will default to 5th gear. In 5th gear, the PCM supplies low current to the SSD to apply high, regulated pressure to the solenoid multiplex valve. This directs the pressure to the clutch E regulator and latch valves to apply the overdrive clutch (E). These latch valves, once moved into position, will remain in that position, locking the transmission in 5th gear.

All vehicles come equipped with a Vehicle Certification Label. This label provides the information for programming the PCM and other modules to the vehicle. All transmissions are equipped with an identification tag on the case. That's where you'll find the transmission part number, serial number, and build date (dd/mm/yy; figure 2).

The solenoid body tag on the transmission case contains the 13-digit solenoid body strategy and 12-digit solenoid body identification (figure 3). The 13-digit solenoid body strategy code is also stamped on the valve body casing (figure 4).

When you install a new solenoid body, you'll also need to update the

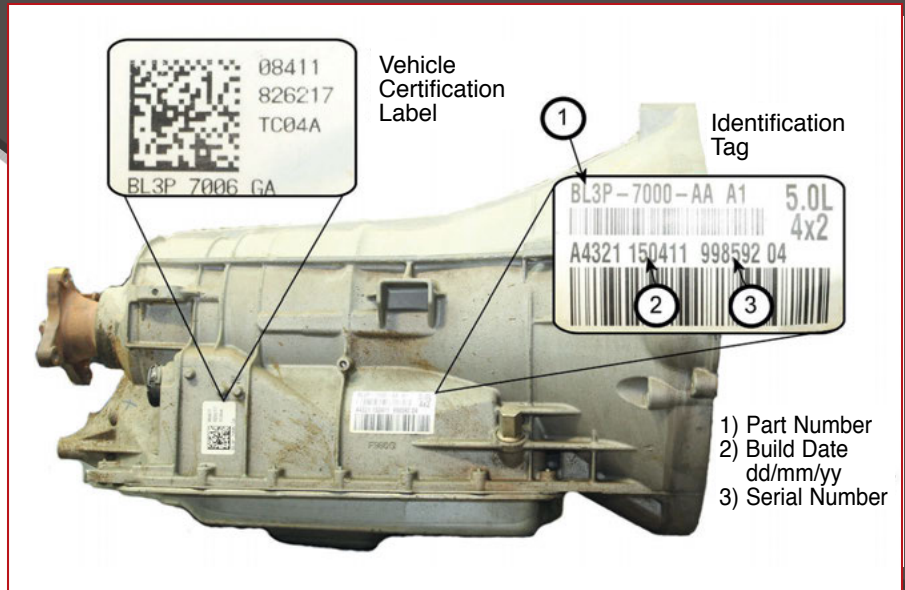


Figure 2

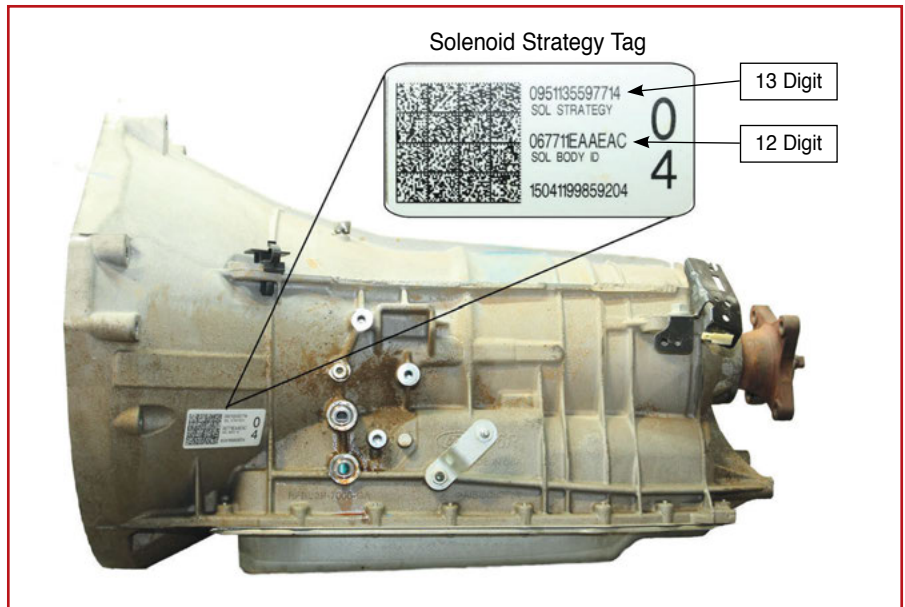


Figure 3

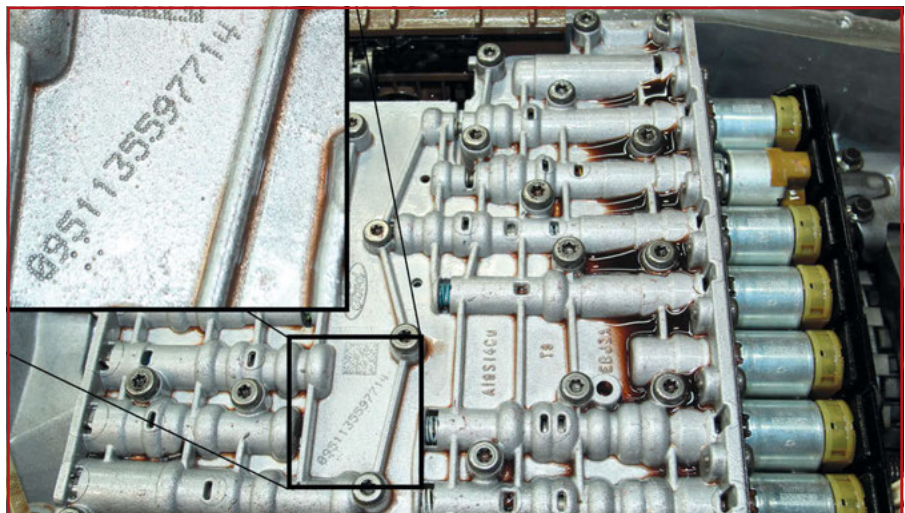


Figure 4

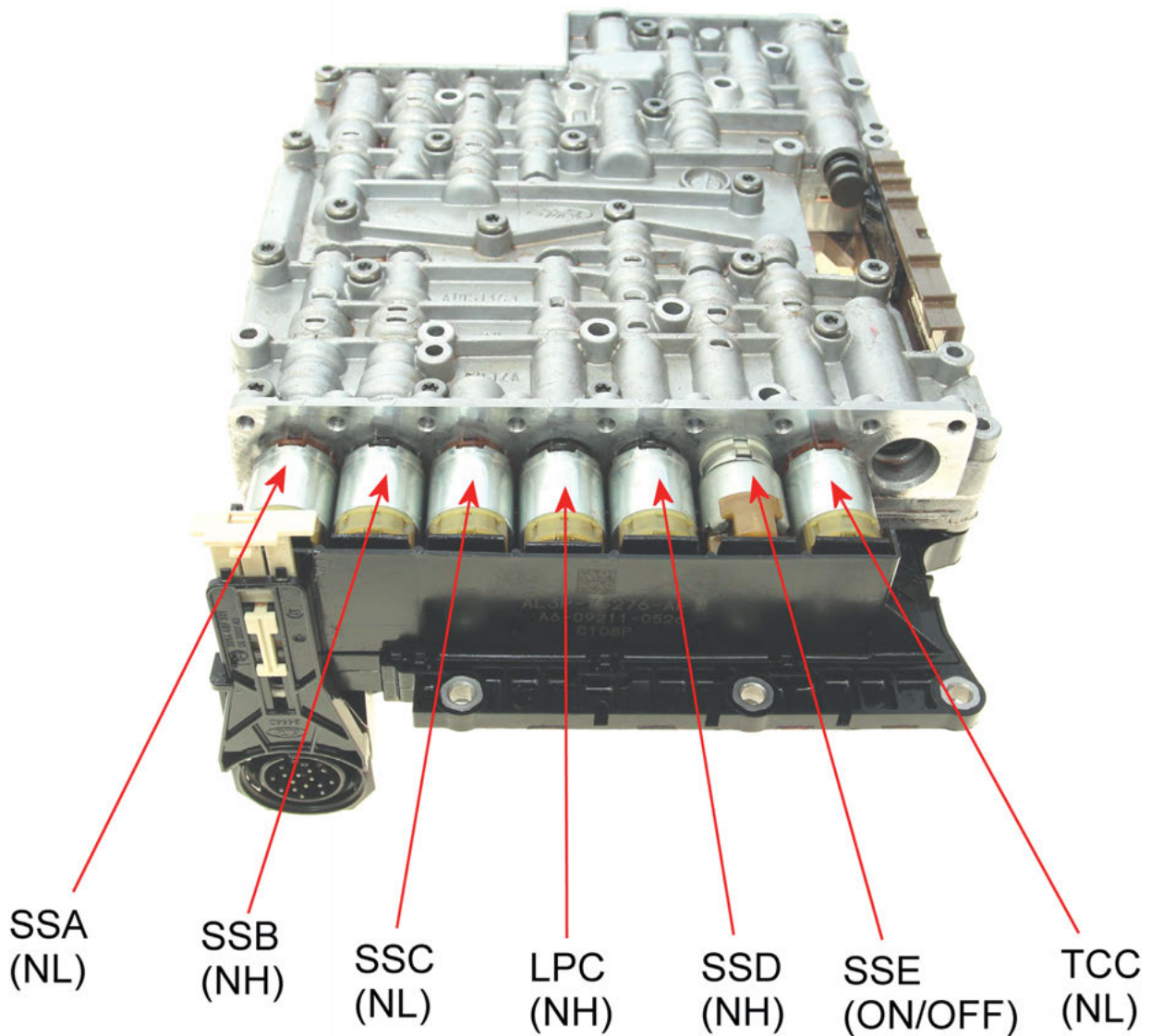


Figure 5

solenoid body strategy in the PCM. A replacement solenoid body tag comes with the new solenoid body, which provides the 13-digit solenoid body strategy and the 12-digit solenoid body identification. Always place the new tag over the original tag to make sure you have the proper calibration data.

If the solenoid body strategy etched on the main control doesn't match what's displayed on your scan tool, you'll need to update the solenoid body strategy or you may experience harsh shifts.

The solenoids come in five different calibrations per solenoid, so a multitude of solenoid calibration combinations can be achieved. This becomes very important when it comes to solenoid replacement. You

can replace the solenoids individually, but only with a solenoid that has an injector nozzle and band number that matches the original solenoid (figure 5). The band number is next to the matrix barcode on the side of the solenoid and will be a 1, 2, 3, 4, or 5 (figure 6).

If a repair is necessary, it's a good idea to reprogram the system and reset the adaptive strategies.

To reprogram the PCM, always follow these steps in order, without skipping a step:

1. Using a scan tool/PC, select Module Programming and Programmable Parameters from the toolbox icon.
2. Select Transmission.
3. Follow the instructions displayed

on the scan tool. There are fields to enter the solenoid body 12-digit identification and 13-digit strategy recorded from the solenoid body. Enter those codes as displayed on the solenoid body tag.

Your scan tool will verify whether the numbers entered are valid and will display a message if the information is invalid.

IMPORTANT: If you installed a new solenoid body, compare the 12-digit identification and 13-digit strategy fields from the solenoid body to the replacement solenoid body tag provided with the solenoid body service kit and place it over the existing identification tag.

CAUTION: If the solenoid body information is incorrect, transmission



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The band number is next to the matrix barcode on the side of the solenoid and will be a 1, 2, 3, 4, or 5

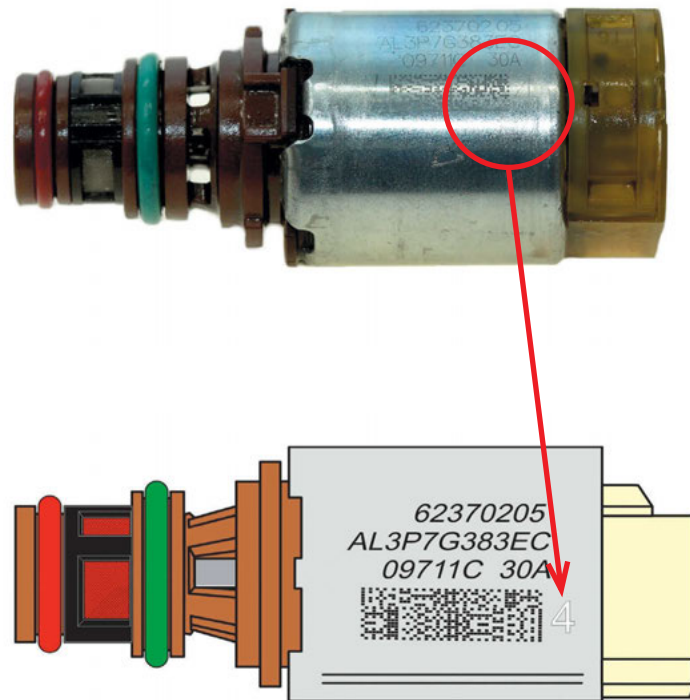


Figure 6

damage or driveability problems can occur.

4. Verify whether the file is available in the scan tool. If the file is available, skip to step 9. If the file isn't available, continue with step 5.
5. Connect your scan tool to the Professional Technician Society (PTS) server.
6. Follow the instructions on the network to download the strategy file to your scan tool.
7. If your scan tool can't connect to the Professional Technician Society (PTS) server, download the file from www.motorcraft.com. If your scan tool can't download a strategy from the web site, a partial strategy will be downloaded automatically.
8. Reconnect your scan tool to the vehicle.
9. Follow the instructions displayed on the scan tool to complete the programming procedure.

Always perform a complete transmission drive cycle after repairs. If you don't complete a drive cycle, the system won't reset properly, and you may experience erratic shifts and driveability complaints.

WARNING: Always drive the vehicle in a safe manner according to driving conditions and obey all traffic laws.

For the system to set a code, failures must occur four consecutive

times for shift error codes and five consecutive times for continuous TCC codes. Use the transmission drive cycle to check for failures after performing a self-test.

Follow these steps to perform a drive cycle:

1. Record then clear all diagnostic trouble codes (DTCs).
2. Run the engine until it reaches normal operating temperature.
3. Make sure the transmission fluid level is correct.
4. With the selector lever in D, moderately accelerate from stop to 80 km/h (50 MPH), allowing the transmission to shift into 6th gear. Keep vehicle speed and throttle steady for at least 15 seconds.
5. With the transmission in 6th gear, maintain a consistent vehicle speed and throttle position, and lightly apply and release the brake to operate the brake lights. Maintain the speed and throttle for at least five seconds.
6. Brake to a stop and remain stopped for at least 20 seconds.
7. Repeat steps 4 through 6 five times.
8. Perform a self-test and record any DTCs. If DTCs are present, repair

all non-transmission DTCs first, as they can directly affect the transmission operation.

9. Repeat the self-test and road test the vehicle to verify the repair.
10. Clear the DTCs.
11. Perform the drive cycle and repeat the self-test after completing the repair.

Remember, you can be the cause of erratic shifts and improper transmission behavior if you fail to reprogram and retrain the computer system. Or, you can be the one whose transmissions set the standards for all others to follow. In some cases all it takes is to follow the procedures.

Next time we'll examine parts interchange and the problems associated with mismatching parts.



Automatic Transmission Parts

Hard Parts

- OE Manufacturer, Aftermarket New, Remanufactured, & Used
- Drums
- Shafts
- Pumps
- Planets
- Valve Bodies
- Complete Line of Miscellaneous parts

Torque Converters

- Complete line of CVC Remanufactured Converters

Soft Parts

- Master Kits
- Banner Kits (Less Steels)
- Overhaul Kits
- Paper/Rubber Kits
- Filters & Kits
- Frictions
- Steels
- Bushings
- CVT Belts
- Washers
- Bearings
- Gaskets
- Bands
- Flex Plates & Flywheels
- Coolers
- TeckPak Conversion Kits
- Superior Shift Correction Packages
- Transgo Reprogramming Kits
- Transgo Shift Kits

Standard Transmission Parts

- Rebuild Kits
- Bearing Kits with Syncro Rings
- Gasket Sets
- Forks & Sliders
- Gears & Shafts

Rebuilt Transmissions

- Transfer Cases
- Standards & Automatics

Clutch Parts

- LUK
- Forks
- Pilot Bushings & Bearings
- Clutch Alignment Tools

Transfer Case Parts

- Gasket & Seals Kits
- Overhaul Kits
- Chains & Sprockets

Shop Supplies & Tools

- Additives
- Assembly Lubricants
- Builders Benches
- Lifts
- Parts Washer Soap
- Rough Service Light Bulbs
- R.T.V. Black, Blue, Clear
- Technical Manuals
- Tools & Equipment
- Threadlock & Thread Repair

Electrical

- Solenoids, Sensors, & Switches
- Electrical Components



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