

A T T E N T I O N

YOUR WARRANTY DEPENDS ON YOUR ADHERENCE TO THESE GUIDELINES

6L80 & 6L90

General Motors Automatic Transmission

INSTALLATION GUIDE

MUST FLATBED VEHICLE TO DEALERSHIP FOR REFLASH*

*Details on page 3.

PRE-INSTALLATION

Prior to installation of the replacement transmission, determine the cause(s) of failure of the previous unit. Also:

- Check transmission cooler for glycol and/or water contamination.
- Scan vehicle computer, record any codes, and fix all causes of codes before installation of replacement transmission

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure after a replacement.

If the transmission has evidence of hard parts failure, the transmission cooler must be replaced. Plate-type oil-to-air (OTA) transmission coolers must always be replaced.

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

FILTER CRUSH

If transmission jack does not rise to the height required for installation, **DO NOT** use a foreign object between the transmission and the jack. This will cause damage to the pan (fig. 1 & 2) and internal filter (fig. 3 & 4) leading to shifting and movement concerns. Instead, lower the vehicle to meet the height of the transmission jack.

Damage of this nature will void your warranty.

Figure 1



Figure 2



Figure 3



Figure 4



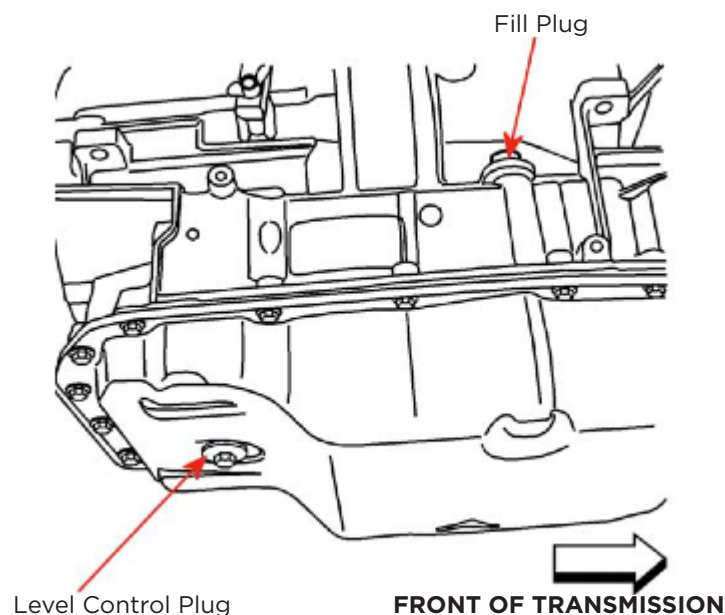
INSTALLATION CHECKLIST

- Inspect flex plate for cracks or any damage.
- Compare bolt pattern on flex plate to bolt pattern on new torque converter.
- Inspect crankshaft pilot bore for wear and apply grease to aid with installation.
- Compare replacement transmission and torque converter to original before installation.
- Verify all dowel pins are present, clean, and in good condition - these are critical for proper alignment.
- Verify torque converter is properly and completely installed into input shaft and pump.
- Verify transmission is flush against engine block before tightening bell housing bolts.
- Install supplied tailshaft housing gaskets and seals.
- If 4WD application, inspect and/or replace transfer case input shaft seal.
- Inspect transmission mounts, carrier bearing, driveshaft, yoke, and U-joints (main causes of broken cases/vibration).

FLUID FILL & CHECK PROCEDURE WITHOUT DIPSTICK

Some 6L80 / 6L90 transmissions do not use a dipstick. Proper fluid level is achieved when fluid begins to drip from the Level Control Plug opening.

Fill transmission only with synthetic fluid included with transmission purchase or Dexron VI. This transmission will require approximately 10 quarts of fluid.



1. Verify vehicle is on level ground when performing fluid fill and check procedure.
2. Verify drive wheels are blocked and parking brake is applied.
3. Remove fill plug and add 5 quarts of fluid through fill hole.
4. Start engine and run at idle.
5. Remove level control plug from oil pan.
6. Add fluid through fill hole until fluid begins to run from level control opening in pan.
7. With the brake applied, shift transmission through each gear range - hold in each range for at least three (3) seconds. When complete, shift vehicle back into PARK.
8. Verify transmission fluid temperature (TFT) is between 86°F and 122°F.
9. If fluid does not drip from opening (underfill condition), add fluid until fluid drips slightly.
10. If fluid runs from opening when Level Control Plug is removed (overfill condition), allow fluid to flow until only a slight drip remains.
11. Reinstall Level Control Plug. Reinstall Fill Plug.
- 12. REFLASH TCM TO LATEST CALIBRATION. (see page 3)**
13. Road test vehicle to check transmission operation.
14. Perform final fluid level check.

REFLASHING GUIDELINES

This is an electronically-controlled transmission. The following information is VERY important to understand and perform correctly. Failure to do so may cause damage to your new transmission and/or be the main cause of performance problems.

Check for proper installation of all vehicle ground connections. Erratic transmission performance may be caused by faulty ground(s) at various connection locations under the hood.

Inspect transmission wiring harness for damaged wires or connectors. Verify proper function of the entire electrical system including the battery, alternator, mass air flow sensor, and throttle position sensor.

Check that the battery is fully charged to 12.6 volts. If the battery voltage is low, charge the battery fully before attempting a reflash. It is recommended that a battery maintainer be installed during the reflash process. **DO NOT INSTALL A BATTERY CHARGER AT ANY TIME DURING THE REFLASH PROCESS!**

Tools Required for Reflash

- Pass-thru J2534-compliant vehicle reflash hardware such as CarDAQ-Plus2 or equivalent: <http://www.drewtech.com>.
- GM / AC Delco Service reprogramming subscription.
- Hi-speed internet connection.
- PC with Windows 7 / USB port / sufficient USB cabling to reach between PC and vehicle.

Reflash Procedure

Please note: your local dealership can perform the following steps for a nominal charge, after transmission installation. If you do not have the proper equipment, do not attempt to perform these procedures.

Visit the GM web site <https://tis2web.service.gm.com/tis2web> to verify whether or not the vehicle's Engine Control Module (ECM) has the latest software updates and calibrations to ensure proper transmission operation and shift quality.

Start and follow prompts on GM Service Programming System (SPS) site.

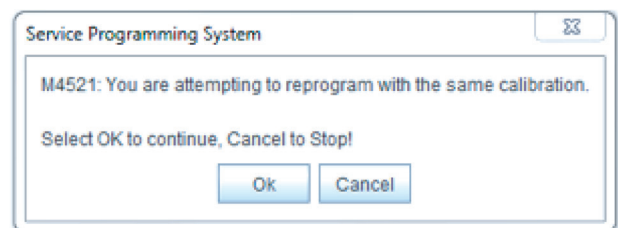
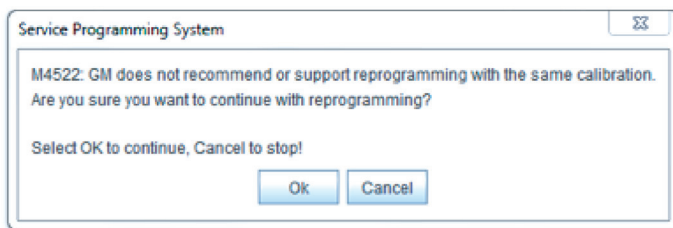
Verify that the Engine Control Module (ECM) and Transmission Control Module (TCM) are programmed to the latest available factory OEM calibrations. If not programmed properly, the Malfunction Indicator Lamp (MIL) warning light on the dash may illuminate, and the transmission may only operate in fail-safe or "limp" mode.

The TCM cannot be reflashed independently - it must be reflashed at the same time as the ECM.

Transmissions equipped with aftermarket calibrations will void the warranty.

Reflash Troubleshooting

If one of the following prompts appears, calibration is already at the latest level and no further action is required. Press "Cancel" to stop the reprogramming process.



Programming problems are often caused by the following issues:

- Antivirus Programs: be sure that your PC does not have an active antivirus program.
- Firewalls: firewalls should be turned off to allow programming.
- Java: be sure that your PC is running the latest version of Java.
- Vehicle Battery Voltage: during programming the vehicle battery needs to remain fully charged to 12.6 volts.
- Aftermarket Components: aftermarket electronic components can impede the programming process.

SERVICE FAST LEARN ADAPTS

After installing the replacement transmission and completing ECM/TCM calibrations, perform a vehicle Service Fast Learn Adapts procedure:

1. Verify vehicle is on level ground when performing relearn procedure.
2. Verify drive wheels are blocked and parking brake is applied.
3. Verify engine is idling at 0% throttle with no external engine rpm control.
4. Verify transmission fluid temperature (TFT) is between 158°F and 212°F.
5. Perform three (3) cycles of PARK – REV. When complete, shift vehicle back into PARK.
6. Initiate Service Fast Learn Adapts procedure using scan tool.
7. Follow directions on scan tool data display.
8. When procedure on scan tool is complete, exit to main screen and shut down scan tool.
9. Unplug scan tool from DLC (data link connector port).
10. Shut off engine.
11. Restart engine.

Service Fast Learn Adapts procedure is now complete.

GARAGE SHIFT ADAPTS

Next, the Garage Shift Adapts must be completed:

1. With engine still running and vehicle still secured, verify transmission fluid temperature is still above 86°F.
2. With engine at idle, shift from REVERSE to DRIVE and leave shift lever in DRIVE for five (5) seconds. After five seconds, shift back to REVERSE and leave shift lever in REVERSE for five seconds. Perform this procedure twenty (20) times (R-D-R-D-R-D...). The shift transitions need to be directly between DRIVE and REVERSE - no stopping in Neutral.
3. With engine at idle, shift from NEUTRAL to DRIVE and leave shift lever in DRIVE for five (5) seconds. After five seconds, shift back to NEUTRAL position and leave shift lever in NEUTRAL for five seconds. Perform this procedure ten (10) times (N-D-N-D-N-D...).
4. With the engine at idle, shift from NEUTRAL to REVERSE and leave shift lever in REVERSE for five (5) seconds. After five seconds, shift back to NEUTRAL position and leave shift lever in NEUTRAL for five seconds. Perform this procedure ten (10) times (N-R-N-R-N-R...).

Be advised that it may take several days of driving for the transmission to fully adapt.

A final system scan is required after the road test or if problems are detected during the test drive. If codes are present, compare to original code scan recorded prior to transmission replacement.

Use a scan tool to check for Diagnostic Trouble Codes (DTCs) stored by the ECM and the TCM. Perform diagnostic and/or repair procedures to correct these codes.

TROUBLESHOOTING GUIDE

Aftermarket/performance air filters are shipped pre-oiled and can contaminate the Mass Air Flow sensor. MAF sensor must be tested with a voltmeter at the sensor - some vehicle computers may compensate for out-of-range signal. Your scanner will only display compensated values.