6F50N

Ford 6-Speed Automatic Transmission

INSTALLATION GUIDE

Important: Your warranty depends on your adherence to these installation instructions.

This Guide Contains:

- Pre-Installation Tips
- Checking Fluid Levels
- Installation Guidelines
- Test Drive-Cycle Procedures
- General Installation Tips
- Troubleshooting Installation Problems

[PRE-INSTALLATION]

Prior to installation of the replacement transmission, determine the cause or causes of failure of the previous unit.

- 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 cooler has evidence of transmission hard parts failure, it 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.

[FLUID LEVEL]

6F50N dipstick.

Top of dipstick.

Proper fluid level indicated in red highlighted area.

Proper fluid level for 6F50N transmission is achieved when fluid level is indicated in the cross-hatched area of the dipstick.

With the engine at idle and the transmission in PARK, warm the transmission to between 175°F and 190°F. Fill the transmission with fluid until the fluid level is between the hash marks.

Fill transmission with **Mercon LV** or **SP** fluid (synthetic required); approximately 10 quarts.

[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 for transmission performance problems.

- **Check for proper installation of all vehicle ground connections.** Erratic transmission performance may be caused by faulty or missing 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.
- Verify battery has proper charge before attempting reflash. Before starting reflash procedure, battery voltage should be between 12VDC – 16VDC. If battery voltage is low, charge battery BEFORE initiating reflash process. **DO NOT INSTALL BATTERY CHARGER AT ANY TIME DURING THE REFLASH PROCESS.**
- Please note: Your local dealership can perform the following steps for a nominal charge, after installation. ***If you do not have the proper equipment, do not attempt to perform these procedures.***
    - Visit the Ford web site: motorcraftservice.com/vdirs/retail/ and verify the vehicle's Powertrain Control Module (PCM) has the latest software updates and calibrations to ensure proper transmission operation and shift quality.
    - Verify that the Powertrain Control Module (PCM) is programmed to the latest available ***factory OEM*** calibrations. If not programmed properly, the Electronic Throttle Control (ETC) warning light (commonly known as wrench light) on the dashboard may illuminate, and the powertrain may only operate in fail-safe or "limp" mode.
    - **The PCM must be reflashed with new 7-digit Solenoid Body ID and new 13-digit Solenoid Body Strategy as indicated on the replacement transmission.**

Transmissions operated with aftermarket calibrations will void the ETE warranty.

[TEST-DRIVE]

After the replacement transmission is installed and PCM recalibration is complete, perform a vehicle test-drive using the following test-drive-cycle procedure:

1. Verify vehicle is on level ground when performing relearn procedure.
2. Verify transmission fluid temperature (TFT) is above 175°F.
3. Reset the adaptive memory and PCM keep-alive memory (KAM) using a scan tool.
4. Lightly accelerate from stop to 15 mph, release accelerator.
5. Brake gently to a complete stop, w/ foot on brake pedal. Remain stopped for at least six (6) seconds.
6. Repeat Step 4 and Step 5 for a total of five (5) cycles.
7. Lightly accelerate from stop. Verify 1-2, 2-3 & 3-4 upshifts occur between 1300rpm – 1800rpm.
8. Continue gentle acceleration to at least 50mph until transmission shifts into 5th gear and finally 6th gear.
9. Brake gently to a complete stop, hold foot on brake pedal, and remain stopped for at least ten (10) seconds.
10. Repeat Step 7 thru Step 9 for a total of three (3) cycles.
11. Advise customer 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 PCM and the TCM. Perform diagnostic and/or repair procedures to correct these codes prior to returning the vehicle to the customer.

ADDITIONAL GENERAL INSTALLATION INFORMATION

- 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 onto input shaft**
- Do not tighten bell housing bolts with force, torque converter may have shifted
- 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. Excessive vibration due to defective mounts and other faulty driveline parts is the main cause of broken cases.

OTHER POSSIBLE PROBLEMS

For vehicles so equipped, shift concerns or complaints may be caused by poorly routed wiring for the manual shift lever mounted on the steering column. Wiring can be damaged or chafed by the steering column cover mounting screws.

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.

Torque converter clutch application must be checked at less than 30% throttle. If there is none present, check the vehicle's brake light bulbs for presence of LED lamps. Aftermarket LED lamps cannot be used.