

CFT-30

Ford Continuously Variable Transmission

INSTALLATION GUIDE

Important: Your warranty depends on your adherence to these installation instructions. Read this entire document before beginning transmission installation.

This Guide Contains:

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



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 leading 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.

Cooler tubes must be disconnected from transaxle as well as thermal bypass, and must be flushed separately.

Only CVT fluid can be used for flushing - do not mix with water-based cleaners or mineral spirits.



Fig 1 - Highlighted CFT-30 Dipstick Tube



Fig 2 - CFT-30 Dipstick



Fig 3 - Highlighted Ideal Fluid Level

Fill transmission with **Motorcraft Continuously Variable Chain Type Transmission Fluid**. This transmission will require approximately 10 quarts of fluid. **Do not use any other fluid - synthetic or otherwise.**

Proper fluid level for the CFT-30 transmission is achieved when fluid level is indicated at the upper hole of the dipstick (see figure 3).

With the engine at idle and the transmission in PARK, use a scan tool to verify the transmission temperature is between 190°F and 198°F.

Fill the transmission with fluid until the fluid level is at the top of the dipstick. **Do not overfill.**

[RECALIBRATION]

CFT-30

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

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.**

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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 Ford web site <https://www.motorcraftservice.com> to verify whether or not the vehicle's Transmission Control Module (TCM) has the latest software updates and calibrations to ensure proper transmission operation and shift quality.

Be sure to read and fully understand the section labeled "Reprogramming & Initialization."

Verify that the Transmission Control Module (TCM) is programmed to the latest available **factory OEM** calibrations. If not programmed properly, the Electronic Throttle Control (ETC) warning light (commonly known as a wrench light) on the dashboard may illuminate and the transmission may only operate in Fail-Safe or "Limp" mode.

TCM calibration must be checked via Ford Module Programming application. The application will determine whether or not a new calibration file is available. If you choose to use the new file, the module will be reprogrammed.

Powertrains equipped with aftermarket calibrations will void the warranty.

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TEST DRIVE CYCLE PROCEDURE

After installing the replacement transmission and TCM 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 with foot on brake pedal. Remain stopped for at least 6 seconds.
6. Repeat Step 4 and Step 5 for a total of 5 cycles.
7. Lightly accelerate to at least 50 mph until transmission torque converter engages lock-up.
8. Brake gently to a complete stop, hold foot on brake pedal, and remain stopped for at least 10 seconds.
9. Repeat Step 7 and Step 8 for a total of 3 cycles.
10. 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 INSTALLATION INFORMATION

- Compare replacement transmission and torque converter to original before installation.
- 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.
- Inspect flex plate for any cracks or 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.
- 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 before installing transmission.**
- Do not tighten bell housing bolts with force; torque converter may have shifted.

OTHER POSSIBLE INSTALLATION ISSUES

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.

