ATTENTION

YOUR WARRANTY DEPENDS ON YOUR ADHERENCE TO THESE GUIDELINES

6R140
Ford Automatic Transmission

INSTALLATION GUIDE

VEHICLE PREP

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

- Scan vehicle computer, record any codes, and fix all causes of codes before installation of replacement transmission.
- Check transmission cooler for glycol and/or water contamination.
- Inspect flex plate for cracks or any damage.
- Inspect transmission mounts, carrier bearing, driveshaft, yoke, and U-joints. Excessive vibration due to defective mounts and other faulty driveline parts are the main cause of broken cases.
- Verify all dowel pins are present, clean, and in good condition. Dowel pins must protrude exactly 10mm from engine block to achieve proper alignment.
- Verify proper function of the entire electrical system including the battery, alternator, and cables; as this may affect the ability of the TCM to adapt.
- Inspect crankshaft pilot bore for wear and apply grease to aid with installation.
- Inspect mass air flow and throttle position sensor functions to prevent shift concerns.

PRE-INSTALLATION

- Verify that the replacement transmission matches the original. Pay close attention to the bellhousing pattern, output shaft style, speed sensors, linkages, and mounting bosses. Be sure that the number of torque converter studs (4, 6, or 8) matches original.
- Check for proper installation of all vehicle ground connections. Erratic transmission performance may be caused by faulty ground(s) at various connection locations around the powertrain.

COOLER FLUSHING & REPLACEMENT

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure after a replacement. Failure to follow these directions will void your warranty.

- Gasoline applications utilize an Oil-To-Air (OTA) transmission fluid cooler assembly. **Install a new OTA as part of the transmission exchange. DO NOT** attempt to backflush and clean the OTA.
- Diesel applications utilize a heat exchanger called the Transmission Fluid Cooler Assembly which must be flushed. To properly flush the Transmission Fluid Cooler Assembly, a heated pulsing flush machine must be used. If an approved flush machine is not available, the heat exchanger must be replaced. Shop air and aerosol cleaners are not acceptable for this application.

Important Note: Once the transmission is full of fluid and road tested, it is imperative to check fluid level again. In many cases, when the thermal bypass valve opens, fluid level can drop as much as two quarts.

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TRANSMISSION INSTALLATION

Caution: This transmission weighs approximately 350lbs. Proper handling, procedures, and equipment are needed for safe removal and installation.

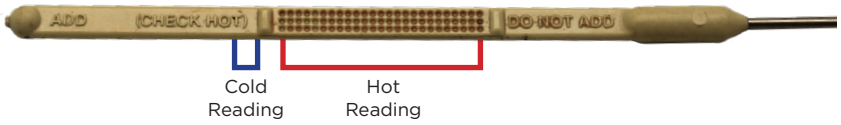
- Position one of the converter pads/studs at the 6 o-clock position as well as one of the stud holes in the flex plate. This will easily align all the studs to the flex plate for the 4, 6, and 8 pad converters.
- Carefully secure the transmission onto a qualified transmission jack.
- Remove the torque converter retaining bracket from bellhousing. Install bracket on core and return to remanufacturer.
- Remove protective case connector bracket, located on side of transmission (see image on next page). Install bracket on core and return to remanufacturer.
- Lubricate the converter pilot with Motorcraft Multi-Purpose Grease Spray / XL-5-A (ESB-M1C93-B) or equivalent.
- Ensure the dowel pins are in their correct location, not damaged, and/or pushed too far into the engine block. Dowel pins should extend 10mm from the back of the block.
- Do not use the bell housing bolts to draw the transmission to the engine block. Instead push the transmission assembly flush against the engine block. Hand tighten 2 opposing bolts on the housing to maintain a secure fit.

FLUID FILL PROCEDURE

Fluid is added through the transmission filler tube and checked with the transmission dipstick which has different graduations for early and late build transmissions. This will result in a difference in final fluid level.

The dry fill capacity for this transmission is 17.4 quarts (16.5 liters) of fluid. Please, keep in mind that this transmission has been dyno tested and up to 1 quart of residual fluid may remain in transmission. The factory recommended fluid is Mercon LV.

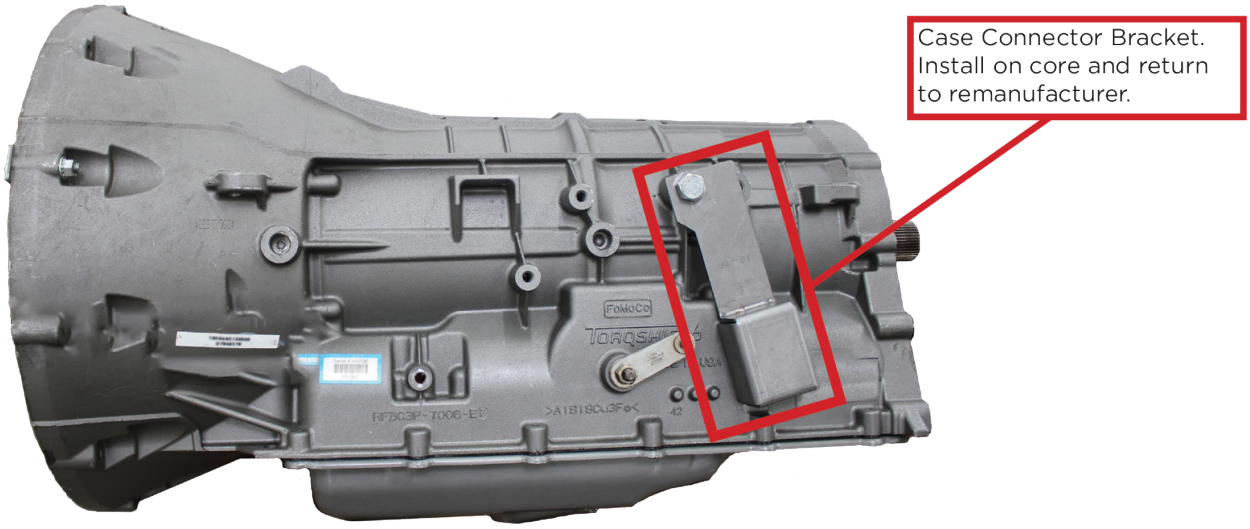
1. Fill transmission with 4-6 quarts of fluid and start engine.
2. Continue to fill transmission. Once 14 quarts of fluid have been added, begin to check the level. Look at both sides of the dipstick and read the lowest level observed.
3. Add fluid as needed to bring level to the bottom of the “hot” hash marks. This is the cold reading on late dipsticks.



4. Once full, move selector lever through all gear ranges while checking engagements to allow the main control hydraulic circuits to fill with transmission fluid.
5. Using the scan tool and with the engine running, check to make sure the transmission is at normal operating temperature, between 180ºF to 200ºF (82ºC to 93ºC). Check fluid level.
6. Inspect transmission for leaks and adjust fluid level as indicated by reading on dipstick. If fluid is needed, add in increments of 8 ounces (.24 liters) until the correct level is achieved.

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ADAPTIVE DRIVE CYCLE PROCEDURE

The 6R140 utilizes an adaptive drive cycle to insure continuous shift quality and therefore must have the shift adapts reset when repairs are completed. The following Adaptive Drive Cycle must be performed:

1. Using a scan tool, clear the TCM KAM. **DO NOT CLEAR THE PCM KAM.**
2. Make sure the transmission is at normal operating temperature, between 180ºF to 200ºF (82ºC to 93ºC).
3. With the engine running and the brakes applied, move the selector lever in the following sequence:
   - N - R - N - D - R - D - N
   - Pause for 4 seconds between each position.
   - Perform this sequence a total of 3 times.
4. Accelerate at moderate throttle so each shift occurs around 2,000 rpm for gas engines and 1,500 rpm for diesel engines. You may need to accelerate up to 65 mph. Brake moderately to a stop. Perform this sequence a total of 3 times.
5. Accelerate at moderate throttle so each shift occurs around 3,000 rpm for gas engines and 2,250 rpm for diesel engines. You may need to accelerate up to 65 mph. Perform this sequence a total of 3 times.
6. Come to a complete stop.
7. With the engine running and the brakes applied, move the selector lever in the following sequence:
   - N - R - N - D - R - D - N
   - Pause for 4 seconds between each position.
   - Perform this sequence a total of 3 times.