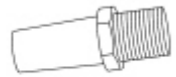
Transmission Fluid Cooler

Special Tool(s)

 ST2581-A	Transmission Fluid Fill Tool 307-437
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

Material

Item	Specification
MERCON® V Automatic Transmission Fluid XT-5-QM (or XT-5-QMC) (US); CXT-5-LM12 (Canada)	MERCON® V

Transmission Fluid Cooler Flow Test

NOTICE: **Whenever a transmission has been disassembled to install new parts or a new or remanufactured transmission has been installed, a new transmission fluid cooler either in-tank or auxiliary, will need to be installed, otherwise transmission damage can occur.**

NOTICE: **Use transmission fluid specified for this transmission. Do not use supplemental fluid additives, treatments or cleaning agents. The use of these materials may affect transmission operation and result in internal damage to the transmission.**

NOTICE: **When internal wear or damage has occurred in the transmission, metal particles, clutch plate material or band material may have been carried into the transmission fluid cooler. These contaminants are a major cause of recurring transmission concerns and must be removed from the system before the transmission is put back into use.**

When evidence of transmission fluid contamination (such as metal particles, clutch plate material or band material) is found in the cooling system, the Transmission Fluid Cooler Flow Test should be carried out.

If the transmission cooling system fails the Transmission Fluid Cooler Flow Test, install a new transmission fluid cooler and flush out the transmission fluid cooler lines. If installing a new transmission fluid cooler, use only factory-approved components.

NOTICE: **The transmission fluid must be at normal operating temperature 85°-93°C (185°-200°F) to make sure that the cooler bypass is open. The cooler bypass is located in the main control valve body. The transmission fluid at normal operating temperature will be hot.**

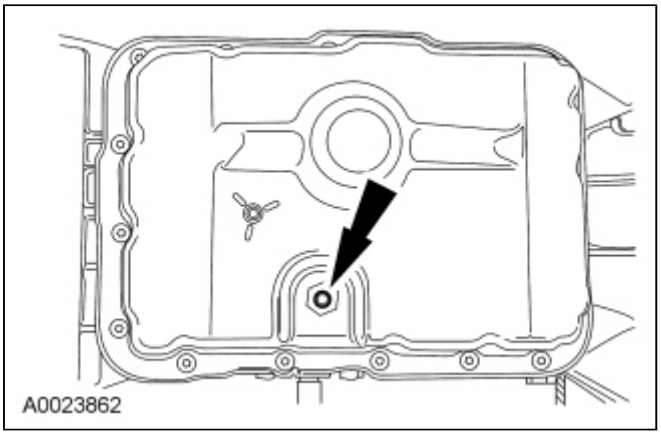
NOTE: The engine idle, selector lever cable adjustment, transmission fluid level and line pressure must be within specification before carrying out this test. Refer to Section 307-05 for selector lever cable adjustments. For information on engine idle diagnosis, refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual. For information on transmission fluid level check, refer to Transmission Fluid Level Check in this section. For

information on line pressure, refer to Special Testing Procedures in this section.

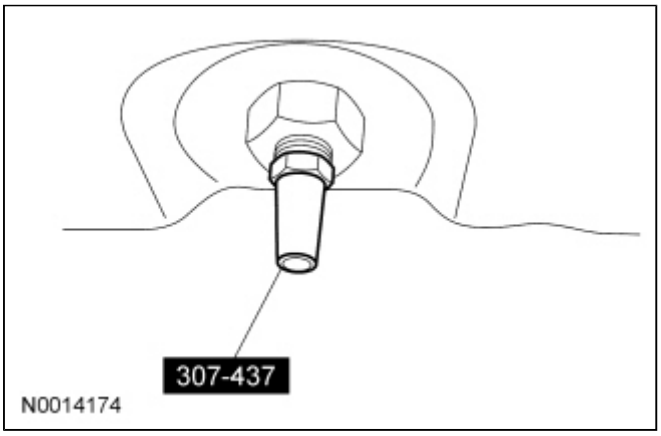
1. Place the selector lever in PARK.

2. Raise the vehicle on a hoist and place suitable safety stands under the vehicle. Refer to Section 100-02 .

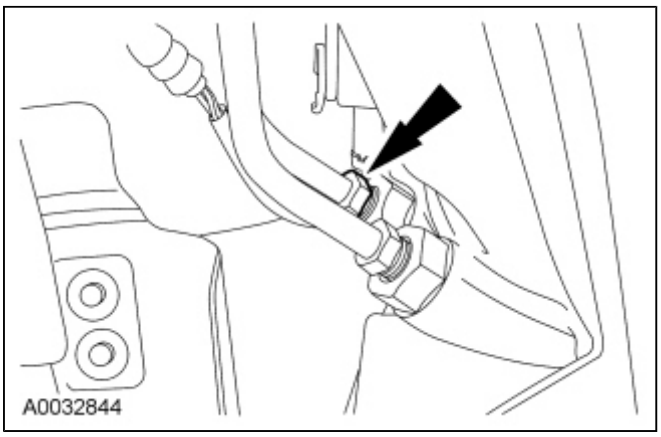
3. Hold the large fluid drain plug with a wrench, and remove the small (center) fluid level indicating plug using a 3/16-inch Allen key.



4. Install the Transmission Fluid Fill Tool into the pan.

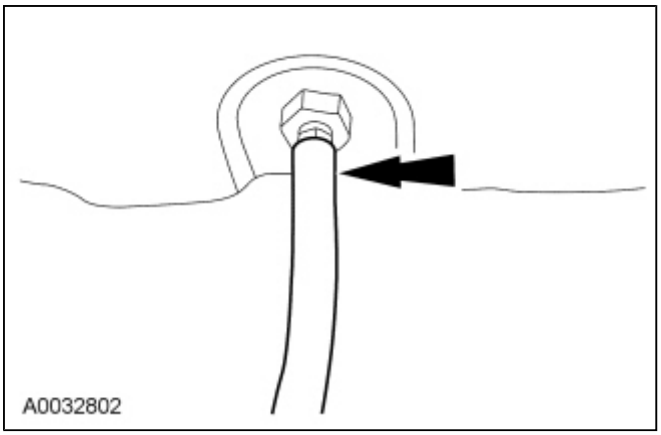


5. Remove the transmission cooler return tube (upper tube) from the fitting on the transmission case.



6. **NOTE:** Use only high temperature hose for this procedure.

   Connect one end of the high temperature clear hose to the cooler return tube and route the other end of the hose to the Transmission Fluid Fill Tool in the pan.



7. Remove the safety stands and lower the vehicle.

8. Install a scan tool.

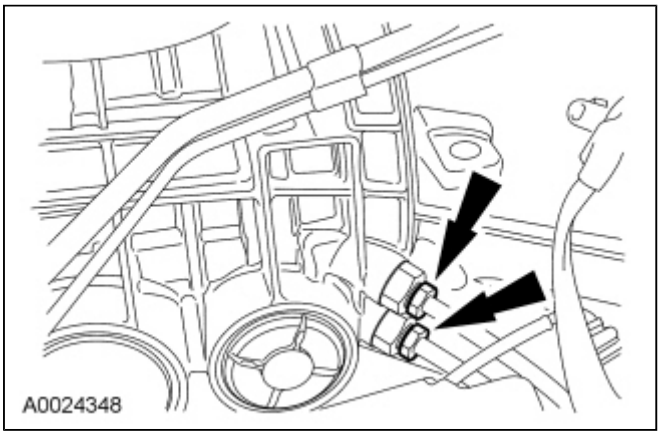
9. Start the engine and run at idle.

10. With the engine running, raise the vehicle on a hoist and place suitable safety stands under the vehicle. Refer to Section 100-02 .

11. Monitor the TFT PID to verify that the transmission fluid is at normal operating temperature 85°C-93°C (185°F-200°F).

12. Once a steady flow of transmission fluid (without air bubbles) is observed, remove the hose from the Transmission Fluid Fill Tool and place the hose in a measuring container for 15 seconds. After 15 seconds, place the hose back onto the Transmission Fluid Fill Tool. Lower the vehicle and turn the engine OFF. Measure the amount of transmission fluid in the container. If adequate flow was observed, approximately 208 ml (7 oz) will be in the measuring container. The test is complete. Reconnect the cooler tube and install the fluid level indicator plug.
    - Tighten to 10 Nm (89 lb-in).

13. If the flow is not liberal, disconnect the hose from the cooler return tube and connect the hose to the cooler inlet (lower tube) on the transmission case. Reconnect the cooler return tube to the transmission cooler tube fitting-to-case (upper fitting) and tighten the transmission cooler tube nut-to-case fitting.
    - Tighten to 40 Nm (30 lb-ft).



14. Repeat Steps 9 through 12. If flow is now approximately 208 ml (7 oz) in 15 seconds, the cooler tubes and auxiliary cooler must be cleaned. Refer to Transmission Fluid Cooler Backflushing and Cleaning in this section. Carry out this entire test after the Transmission Fluid Cooler Backflushing and Cleaning procedure. If, after carrying out the Transmission Fluid Cooler Backflushing and Cleaning procedure, the flow is still not adequate, new cooler tubes and/or an auxiliary cooler must be installed. If the flow from the case is still not adequate after the installation of new cooler tubes and/or an auxiliary cooler (208 ml [7 oz] in 15 seconds), the pump and/or torque converter may be at fault. Carry out the appropriate procedures for diagnosis and repair in this section.