

307-01 Automatic Transaxle/Transmission —  
TorqShift®  
REMOVAL


2015 F-53 Motorhome Chassis, F-59 Commercial Stripped  
Chassis

Procedure revision date: 08/05/2014

## Transmission



### Special Tool(s)

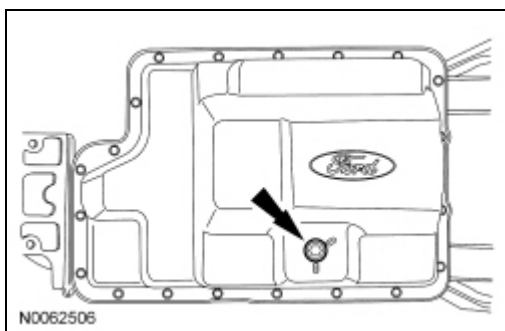
 ST1636-A	Retainer, Torque Converter <a href="#">307-346</a> (T97T-7902-A)
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### Removal

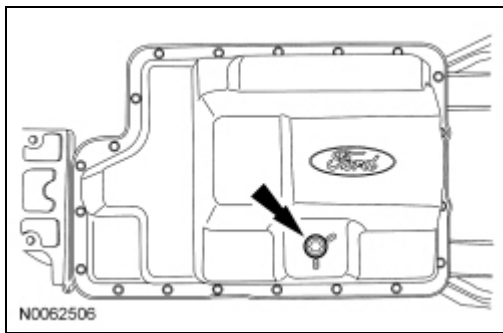
**NOTE:** [Refer to the Transmission Cooler Flushing Job Aid on the FMCDealer website.](#)

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. Remove the exhaust Y-pipe. For additional information, refer to [Section 309-00](#).
3. Remove the transmission mounted park brake. For additional information, refer to [Section 206-05](#).
4. **NOTE:** *If transmission disassembly is required, drain the transmission fluid.*

Remove the transmission fluid pan drain plug and allow the transmission fluid to drain.



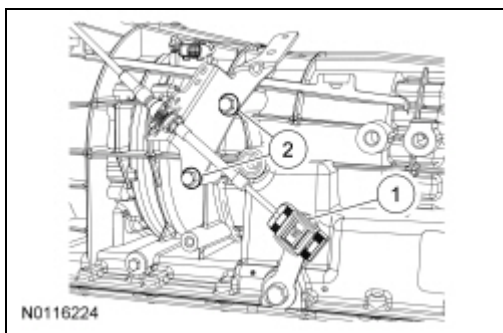
5. Remove the starter. For additional information, refer to [Section 303-06](#).
6. Install the transmission fluid drain plug.
  - Tighten to 18 Nm (159 lb-in).



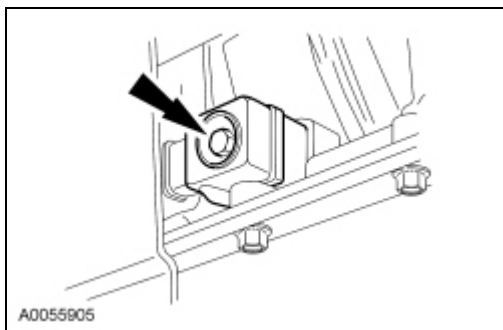
7. Install a suitable high-lift transmission jack.
8. Remove the transmission support crossmember. For additional information, refer to [Section 502-02](#).
9. **NOTICE: To prevent selector lever cable damage, do not apply force to the selector lever cable assembly between the manual control lever and the selector lever cable bracket.**

Remove the selector lever cable.

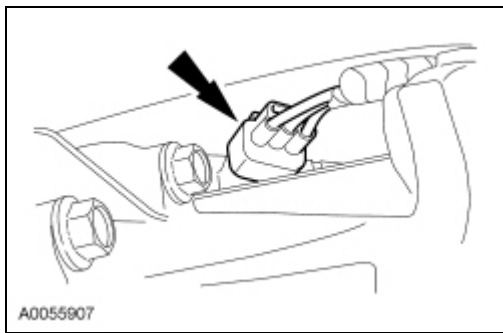
1. Disconnect the selector lever cable from the manual control lever.
2. Remove the selector lever cable bracket bolts and position the selector lever cable and bracket aside.



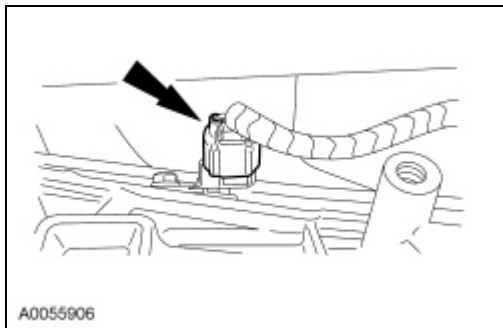
10. Loosen the bolt and disconnect the transmission vehicle harness connector.



11. Disconnect the Output Shaft Speed (OSS) sensor.

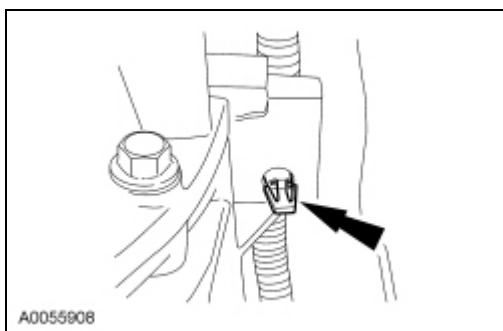


12. Disconnect the Turbine Shaft Speed (TSS) /intermediate shaft speed sensor.

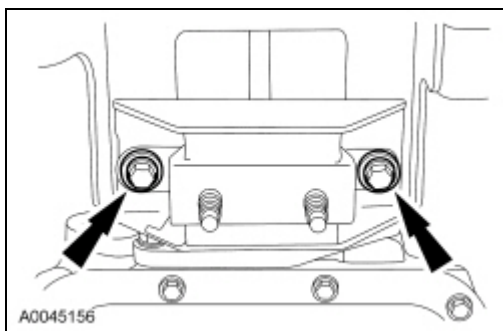


13. **NOTE:** RH shown, LH similar.

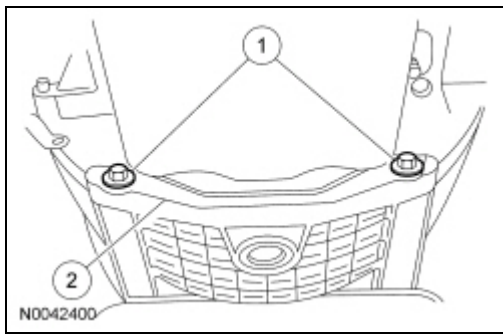
Disconnect the RH and LH wiring harness from the side of the transmission.



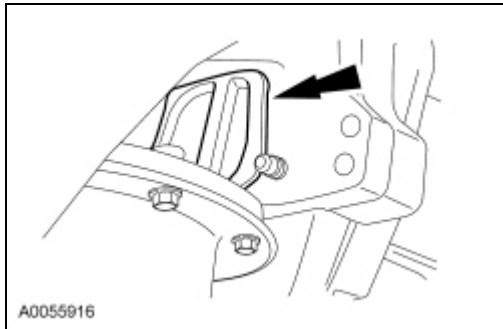
14. Remove and discard the transmission insulator bolts. Remove the transmission insulator.



15. Remove the flexplate inspection cover.
1. Remove the flexplate inspection cover bolts.
  2. Remove the flexplate inspection cover.

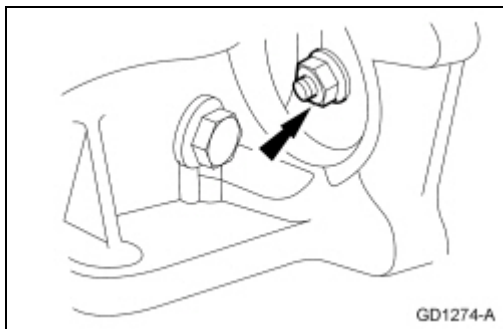


16. Remove the cylinder block opening cover to gain access to the torque converter nuts.

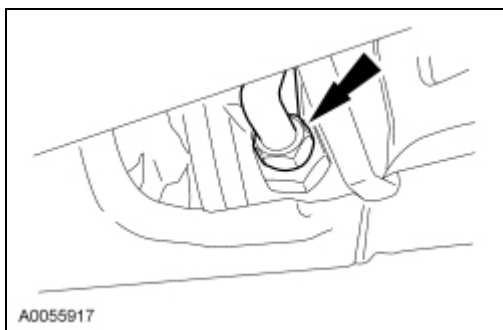


17. **NOTE:** Using a suitable suitable tool, rotate the crankshaft pulley to gain access to the torque converter nuts.

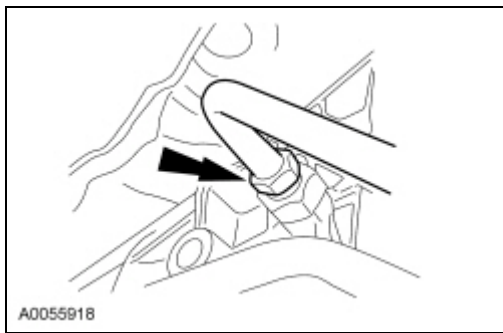
Remove and discard the torque converter nuts.



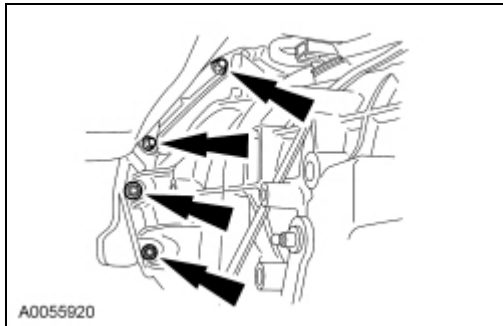
18. While holding the case fitting, remove the rear transmission fluid cooler tube.



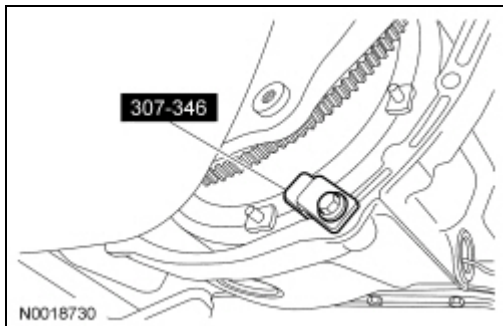
19. While holding the case fitting, remove the front transmission fluid cooler tube.



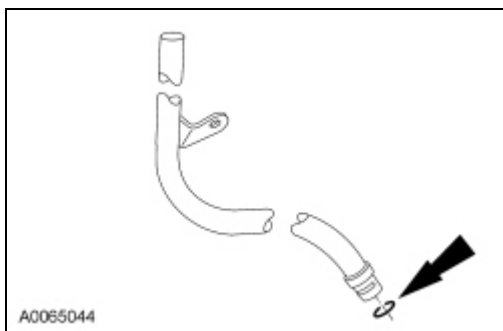
20. Remove the 7 transmission-to-engine bolts.



21. Slide the transmission back and install the Torque Converter Retainer.



22. Carefully lower the transmission assembly.
23. Remove and discard the transmission fluid filler tube O-ring.



24. If the transmission is being overhauled or if installing a new or remanufactured transmission, carry out the Transmission Fluid Cooler Backflushing and Cleaning procedure. For additional information, refer to [Transmission Fluid Cooler — Backflushing and Cleaning](#) in this section.



307-01 Automatic Transaxle/Transmission — TorqShift®  
**INSTALLATION**



2015 F-53 Motorhome Chassis, F-59 Commercial Stripped Chassis

Procedure revision date: 10/01/2014

## Transmission



### Special Tool(s)

 ST1636-A	Retainer, Torque Converter <a href="#">307-346</a> (T97T-7902-A)
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

### Material

Item	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid XT-10-QLVC (US); CXT-10-LV12 (Canada)	MERCON® LV; WSS-M2C938-A
Motorcraft® Multi-Purpose Grease XL-5-A	ESB-M1C93-B

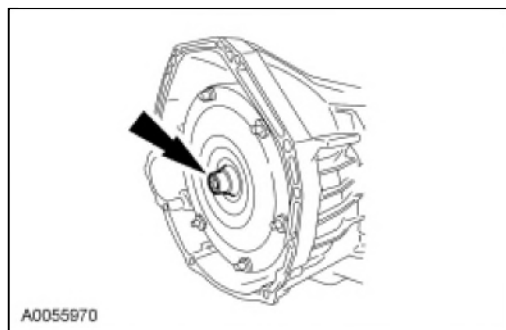
### Installation

**NOTICE:** Install a new OTA cooler when installing a remanufactured transmission due to major metallic failure, multiple clutches or clutch plate failures or sufficient component wear, which results in metallic contamination.

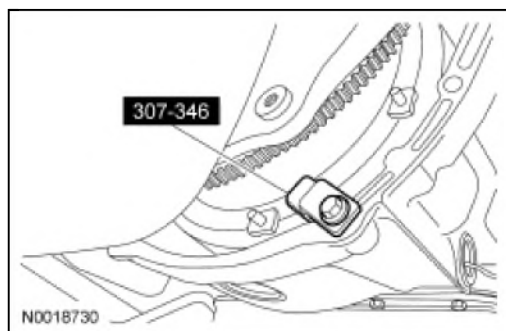
**NOTICE:** Prior to installation of a new or overhauled transmission, clean the transmission fluid cooler tubes. Otherwise transmission failure can occur.

1. When an overhauled or remanufactured transmission is installed, flush and clean the transmission fluid cooler tubes, then verify fluid flow to prevent repeat repairs. Refer to [Transmission Fluid Cooler — Backflushing and Cleaning](#) and [Transmission Fluid Cooler](#).
2. **NOTICE:** Prior to installation of the transmission, lubricate the torque converter pilot hub or damage to the torque converter or engine crankshaft can occur.

Lubricate the torque converter pilot hub with multi-purpose grease.

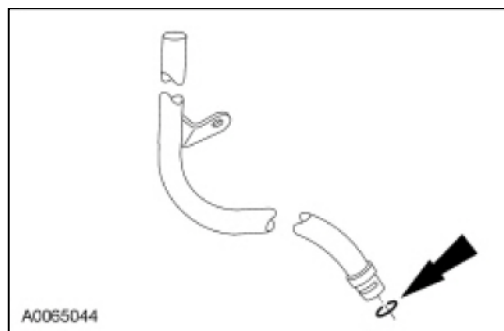


3. Rotate the torque converter so the green or orange paint daub on the converter is in the 12 o'clock position.
4. If the Torque Converter Retainer has not been installed during the assembly of the transmission, install the Torque Converter Retainer to hold the torque converter in place while moving and positioning the transmission in place. Once the transmission is in place, prior to bolting it to the engine, remove the Torque Converter Retainer.

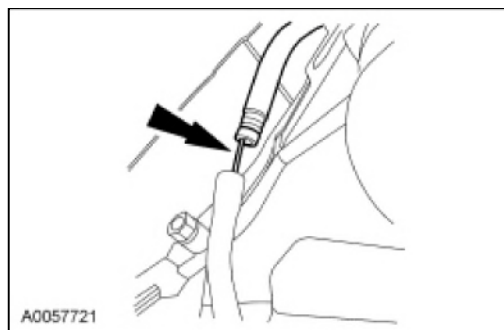


5. Install a new transmission fluid filler tube O-ring.

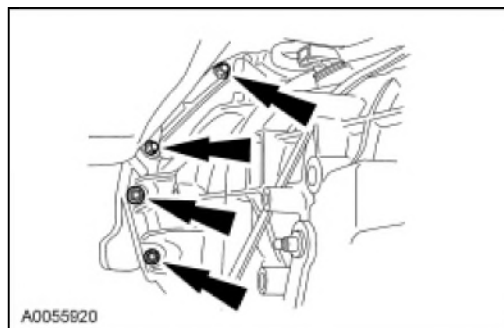




6. Position the transmission. While raising the transmission up into the engine compartment, use the transmission fluid level indicator as a guide and align the transmission fluid filler tube with the stub tube on the transmission .  
While installing the transmission to the engine, align the torque converter studs with the mounting holes in the flexplate.

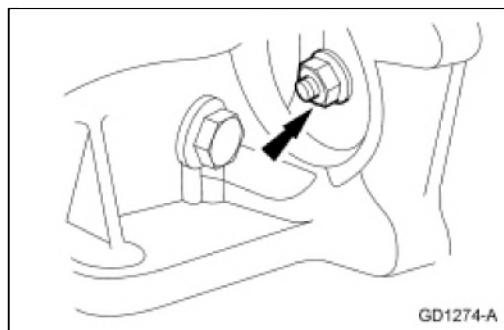


7. Install the 7 transmission-to-engine bolts.
- Tighten to 47 Nm (35 lb-ft).

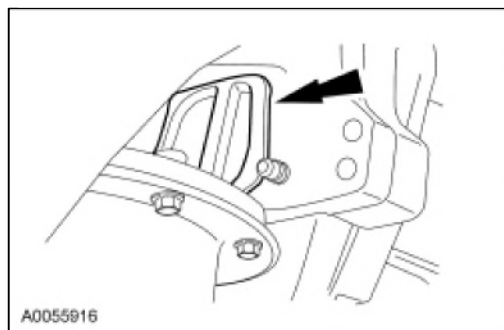


8. Rotate the crankshaft and pulley, install the new torque converter nuts.

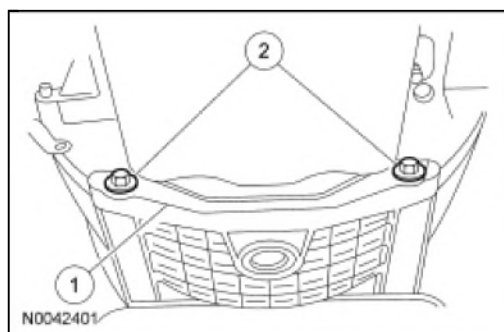
- Tighten to 48 Nm (35 lb-ft).



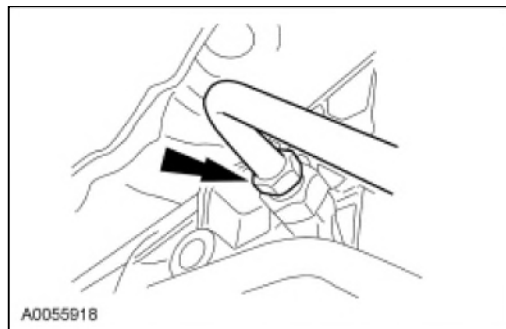
9. Install the cylinder block opening cover.



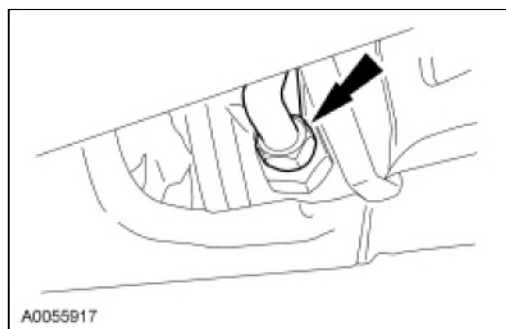
10. Install the flexplate inspection cover.
1. Position the flexplate inspection cover.
  2. Install the flexplate inspection cover bolts.
    - Tighten to 34 Nm (25 lb-ft).



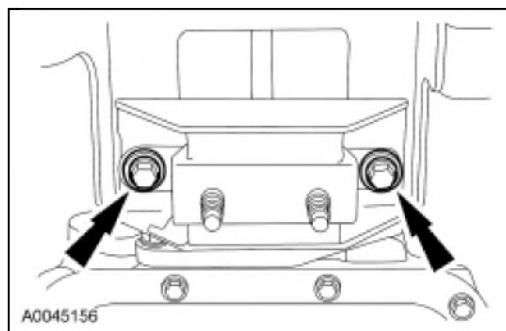
11. Install the front transmission fluid cooler tube.
- Tighten to 40 Nm (30 lb-ft).



12. Install the rear transmission fluid cooler tube.
- Tighten to 40 Nm (30 lb-ft).



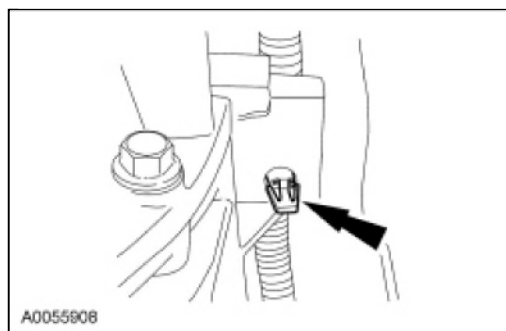
13. Install the transmission insulator and new transmission insulator bolts.
- Tighten to 90 Nm (66 lb-ft).



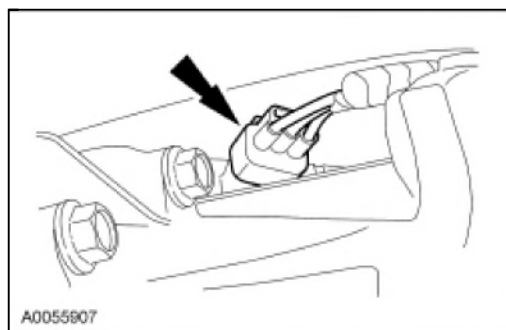
14. Install the transmission support crossmember. Refer to [Section 502-02](#).

15. **NOTE:** *RH shown, LH similar.*

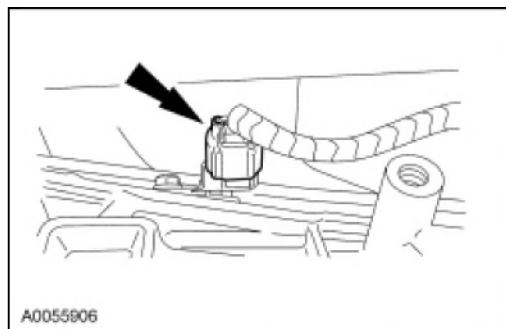
Connect the RH and LH wiring harness to the side of the transmission.



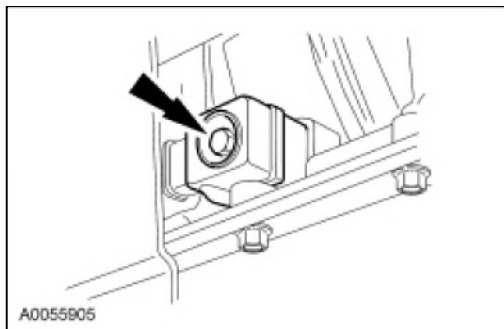
16. Connect the OSS sensor connector.



17. Connect the TSS /intermediate shaft speed sensor connector.



18. Connect the transmission vehicle harness connector and tighten the transmission vehicle harness connector bolt.
- Tighten to 5 Nm (44 lb-in).

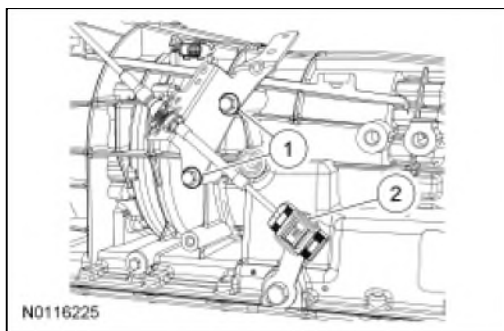


19. **NOTICE:** To prevent selector lever cable damage, do not apply force to the selector lever cable between the manual control lever and the selector lever cable bracket.

**NOTE:** When installing the selector lever cable end, make sure that the selector lever cable end is correctly installed onto the manual control lever ball stud. Pull back on the selector lever end to make sure that the selector lever cable end is correctly installed onto the manual control lever ball stud.

Install the selector lever cable.

1. Install the selector lever cable bracket and selector lever cable bracket bolts.
  - Tighten to 48 Nm (35 lb-ft).
2. Connect the selector lever to the manual control lever.



20. Install the transmission mounted park brake. Refer to [Section 206-05](#).
21. Install the exhaust Y-pipe . Refer to [Section 309-00](#).
22. Install the starter. Refer to [Section 303-06](#).

23. Fill the transmission with clean transmission fluid.
24. Adjust the selector lever cable. Verify that the vehicle starts in PARK and NEUTRAL and the REVERSE lamps illuminate in REVERSE. Refer to [Section 307-05](#).
25. **NOTICE: Using transmission fluid other than what is specified can result in the transmission failing to operate in a normal manner or transmission failure.**

Using the scan tool with the engine running, make sure the transmission is at normal operating temperature 66-77°C (150-170°F). Check and adjust the transmission fluid level and check for any leaks. If transmission fluid is needed, add transmission fluid in increments of 0.24L (0.5 pt) until the correct level is achieved.

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