

Extension Housing Gasket 4x2  [Printable View \(304 KB\)](#)

Special Tool(s)

	E4OD Transmission Jack Adapter 307-F008 (014-00763) or equivalent
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Material

Item	Specification
Motorcraft MERCON® Multi-Purpose (ATF) Transmission Fluid XT-2-QDX	MERCON®

Removal**All applications**

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#) .
2. **NOTE:** When the battery has been disconnected and reconnected, some abnormal drive symptoms can occur while the vehicle relearns its adaptive strategy. The customer needs to be notified that they may experience slightly different upshifts (either soft or firm) and this is a temporary condition that will eventually return to normal operating condition.

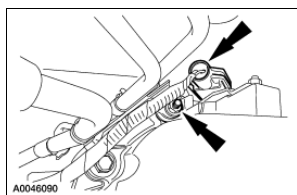
Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#) .

4x4 applications

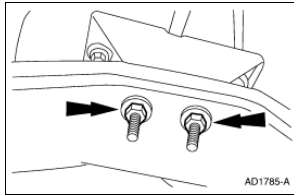
3. Remove the transfer case. For additional information, refer to [Section 308-07B](#) .

All applications

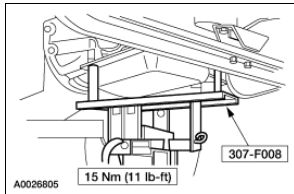
4. Remove the driveshaft. For additional information, refer to [Section 205-01](#) .
5. Disconnect the output shaft speed (OSS) sensor and remove the bolt for the fuel line bracket. Position aside the fuel line bracket.



6. Remove the transmission insulator to crossmember support nuts.



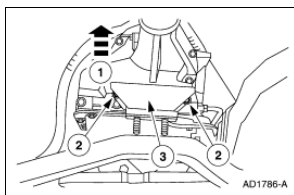
7. Install the high lift transmission jack with the special tool to the transmission.



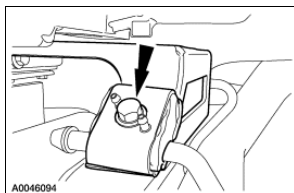
8. **⚠ CAUTION:** Be sure not to raise the back of the transmission too high. If it makes contact with the underbody damage to the TSS and OSS sensors will occur.

Remove the rear transmission mount.

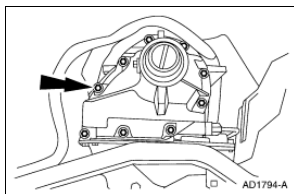
1. Raise the transmission up off the rear crossmember support.
2. Remove the bolts.
3. Remove the rear transmission mount.



9. Remove the bolt for the exhaust bracket hanger and remove the hanger.



10. Remove the transmission extension housing.



11. Remove and discard the extension housing gasket.

Installation

All applications

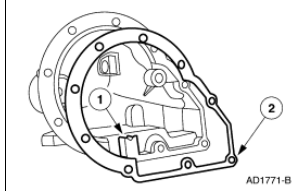
1. **⚠ CAUTION:** The extension must have a shoulder or a boss cast in it to hold the orifice lube

plug in the back of the case. If the wrong extension housing is used the plug may become loose and/or fall out and cause transmission damage.

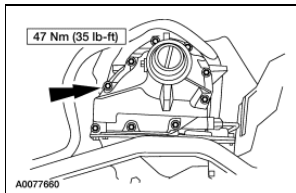
NOTE: Lightly lubricate the gasket with petroleum jelly to hold it in place during assembly.

Install the new extension housing gasket.

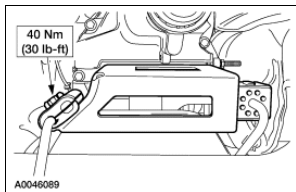
1. Verify that the extension has a shoulder cast in it.
2. Install the new extension housing gasket.



2. Install the extension housing bolts.



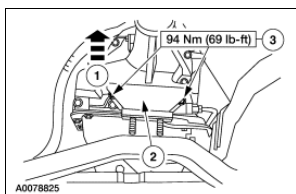
3. Position the exhaust bracket hanger on the exhaust and install the bolt.



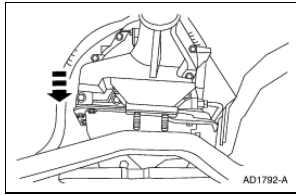
4. **⚠ CAUTION:** Be sure not to raise the back of the transmission too high. If it makes contact with the underbody, damage to the TSS and OSS sensors will occur.

Install the rear transmission mount.

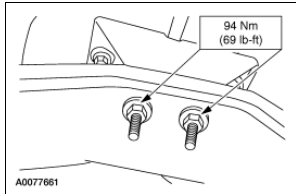
1. Raise the transmission up.
2. Install the rear transmission mount.
3. Install the bolts.



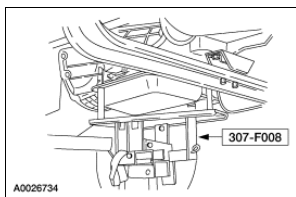
5. Lower the transmission on to the rear crossmember support.



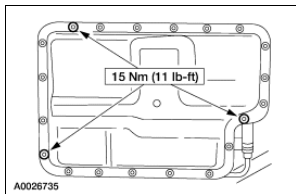
6. Install the transmission insulator and nuts.



7. Remove the high lift transmission jack with the special tool from the transmission.



8. Install the transmission fluid pan-to-case retaining bolts.

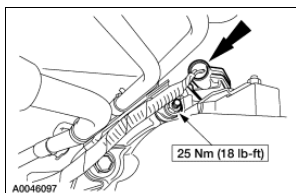


4x4 applications

9. Install the transfer case.

All applications

10. Position the fuel line bracket on the stud and install the nut. Connect the OSS sensor connector.



11. Install the driveshaft. For additional information, refer to [Section 205-01](#).

12. Lower the vehicle.

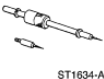



13. Reconnect the battery ground cable.

14. Check fluid level, fill with clean automatic transmission fluid.

15. Check for correct operation.

Manual Control Lever Shaft and Seal  [Printable View \(363 KB\)](#)

Special Tool(s)

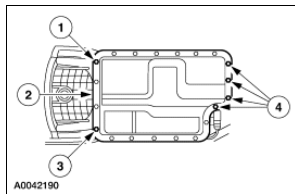
 ST1634-A	Roll Pin Set 211-S060 (T78P-3504-N)
 ST1282-A	Remover, Pilot Bearing 308-001 (T58L-101-B)
 ST1199-A	Installer, Shift Shaft Fluid Seal 307-050 (T74P-77498-A)
 ST1633-A	Alignment Gauge, TR Sensor 307-351 (T97L-70010-A)

Removal

1. **NOTE:** Do not discard the fluid pan gasket unless damaged. This is a reusable gasket.

Remove the transmission fluid pan and gasket.

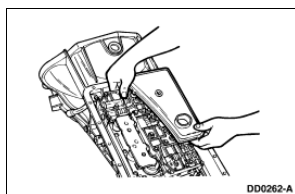
1. Loosen, but do not remove the bolts.
2. Remove the front and side bolts.
3. Lower the front of the fluid pan and allow the fluid to drain.
4. Remove the remaining fluid pan bolts and the fluid pan.



2. **⚠ CAUTION:** If the seal remains in the pump bore, remove it carefully with a small screwdriver so as not to scratch or damage the aluminum bore.

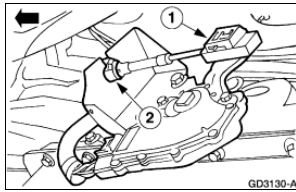
NOTE: After removal, discard the filter and seal assembly.

Remove the filter and seal assembly by carefully pulling and rotating the filter as necessary.

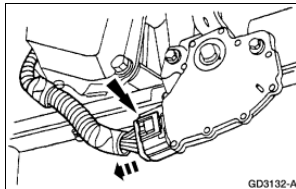


3. Disconnect the shift cable.

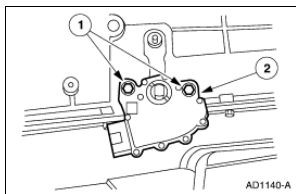
1. Disconnect the shift cable from the manual lever.
2. Disconnect the cable housing from the bracket; position aside.



4. Disconnect the digital transmission range (TR) sensor electrical connector.

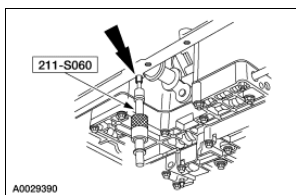


5. Remove the digital transmission (TR) sensor.
 1. Remove the bolts.
 2. Remove the digital transmission range (TR) sensor.



6. **NOTE:** A No. 53 drill bit (1/16 inch) can be used instead to remove the manual lever shaft retaining pin.

Using the special tool, remove the manual lever shaft retaining pin.



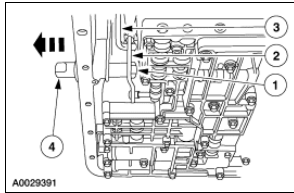
7. **⚠ CAUTION: Be careful not to damage the manual control lever bore.**

NOTE: The manual control lever and manual control lever shaft are one piece.

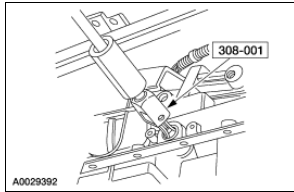
NOTE: Use a crescent wrench on the manual control lever or outer flats of manual control lever shaft assembly when removing the inner manual valve detent lever nut.

Remove the manual control lever shaft assembly.

1. Remove the inner manual valve nut.
2. Remove the inner manual valve detent lever.
3. Remove the parking pawl actuating rod.
4. Remove the manual control lever shaft assembly.



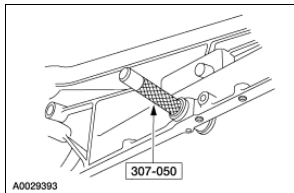
8. Using the special tool, remove the manual control lever seal.



Installation

1. **NOTE:** Prior to installing the manual control lever seal, clean the bore opening with mineral spirits.

Using the special tool, install the manual control lever seal.



2. Install the manual control lever shaft assembly.

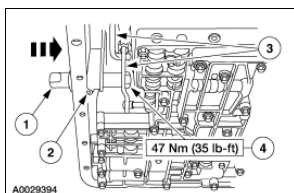
1. Install the manual control lever shaft assembly.
2. Install and seat the manual lever shaft retaining pin below the case surface.
3. **NOTE:** The inner manual valve detent lever must be seated on the flats of the manual control lever shaft assembly, and the parking pawl actuating rod must be through the guide plate.

NOTE: The manual control valve detent lever spring must be on the inner manual valve detent lever, and the detent lever pin must align with the manual shift valve.

Install the parking pawl actuating rod and the inner manual valve detent lever.

4. **NOTE:** Use a crescent wrench on the manual control lever or the outer flats of the manual control lever shaft assembly when installing the inner manual valve detent lever nut.

Install the inner manual valve detent lever nut.

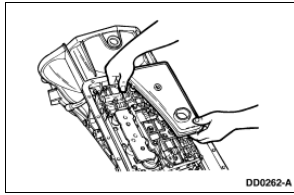


3. **⚠ CAUTION:** Do not reuse the old filter and seal assembly.

⚠ CAUTION: Make sure that the pump bore is clean and the old filter seal has been removed.

NOTE: Prior to installation, lightly lubricate the fluid filter seal with clean automatic transmission fluid.

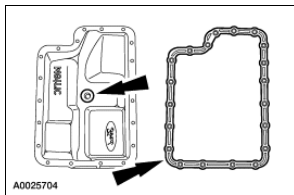
Install a new filter and seal assembly by pressing it into place.



4. **NOTE:** Do not discard the gasket unless damaged. This is a reusable gasket.

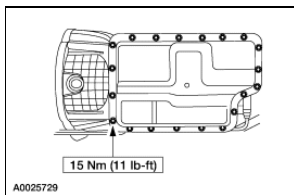
NOTE: Apply a light coat of petroleum jelly to hold the gasket to the fluid pan.

Position the gasket onto the clean fluid pan. Make sure the magnet is positioned over the dimple in the fluid pan.

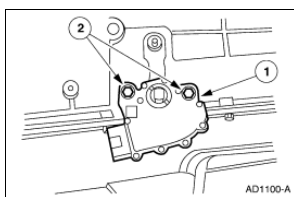


5. **⚠ CAUTION:** Mixing the 4x2-style and 4x4-style transmission fluid filters and transmission pan assembly components can cause transmission damage.

Install the correct pan with gasket for this application. Alternately tighten the bolts.

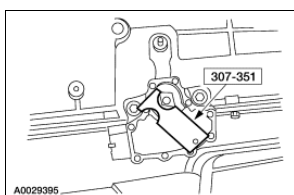


6. Install the digital transmission range (TR) sensor.
1. Install the digital transmission range sensor.
2. Loosely install the bolts.

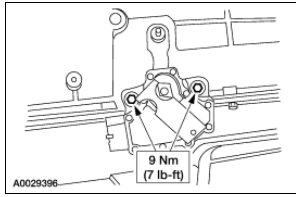


7. **NOTE:** Make sure that the manual control lever is in the neutral position.

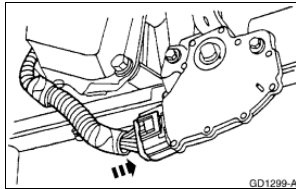
Using the special tool, align the digital TR sensor. The tool is designed to fit snug.



8. Tighten the bolts.

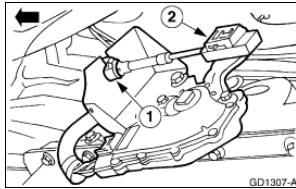


9. Connect the digital transmission range (TR) sensor electrical connector.



10. Connect the shift cable.

1. Install the cable housing to the bracket.
2. Install the shift cable to the manual lever.

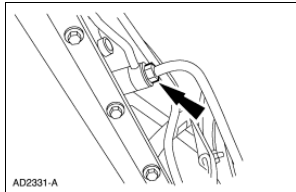


Cooler Bypass Valve  [Printable View \(141 KB\)](#)**Material**

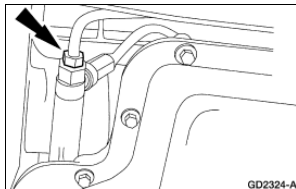
Item	Specification
Motorcraft MERCON® Multi-Purpose (ATF) Transmission Fluid XT-2-QDX	MERCON®

Removal

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. Remove the front cooler tube, from the front cooler bypass valve (CBV) fitting.

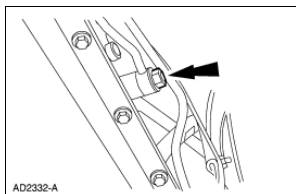


3. Remove the rear cooler tube from the rear CBV fitting.



4. **NOTE:** The rubber-coated sealing washers can fall off during removal of the front CBV bolt cooler line case fitting.

Remove the front CBV bolt cooler case fitting.



5. **NOTE:** The rubber coated sealing washers can fall off during removal of the rear CBV bolt cooler line case fitting.

Remove the rear CBV bolt cooler line case fitting.