

IN-VEHICLE REPAIR

FLUID PAN, GASKET AND FILTER

Material

MATERIAL SPECIFICATION

Item	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid XT-10-QLV	MERCON® LV

Removal

NOTE: The use of any transmission fluid other than specified can result in the transmission failing to operate in a normal manner or transmission failure.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING & LIFTING**.
2. Remove the transmission fluid fill plug transmission fluid level indicator assembly located on the passenger side front portion of the transmission case. Removal of the transmission fluid fill plug will relieve any vacuum that might have built up in the transmission. This will aid in allowing the transmission fluid pan to be easily removed when the bolts are removed.



Fig. 133: Locating Transmission Fluid Fill Plug
Courtesy of FORD MOTOR CO.

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



Fig. 134: Locating Transmission Fluid Pan Bolts
Courtesy of FORD MOTOR CO.

4. Remove the transmission fluid pan gasket.

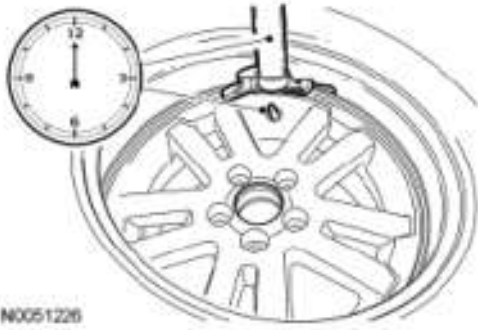


Fig. 135: Locating Transmission Fluid Pan Gasket
Courtesy of FORD MOTOR CO.

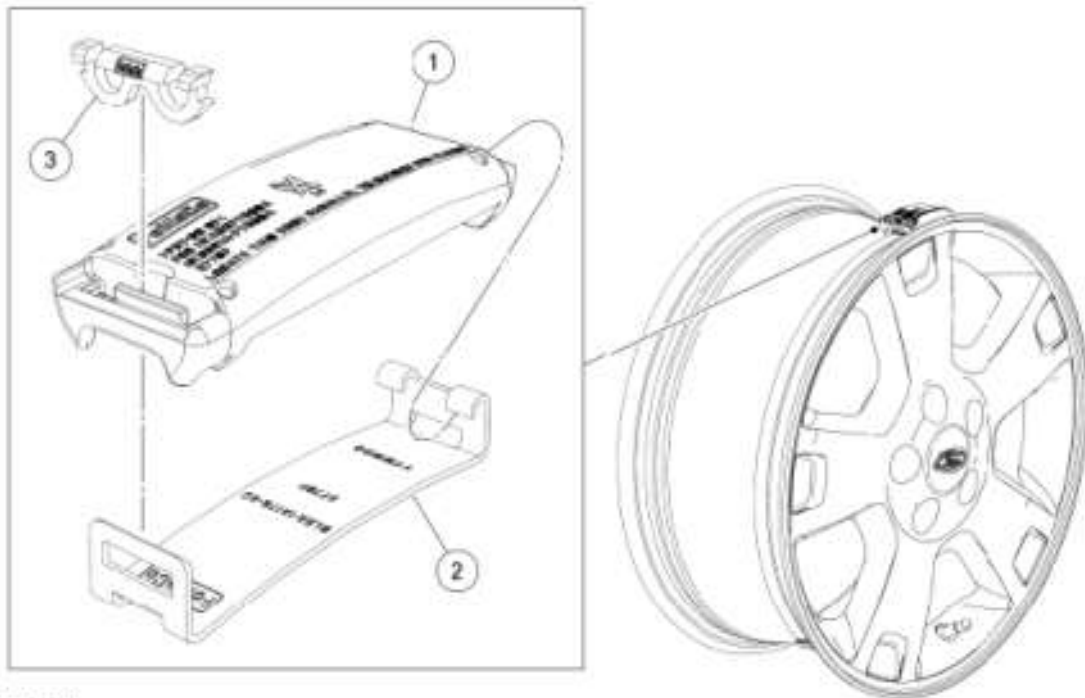
- NOTE:** The transmission fluid filter may be reused if no excessive contamination is indicated.
- 5.

Remove and discard the transmission fluid filter.



Fig. 136: Locating Transmission Fluid Filter
Courtesy of FORD MOTOR CO.

6. Clean and inspect the transmission fluid pan and magnet.



N0043788

Fig. 137: Locating Transmission Fluid Pan Magnet
 Courtesy of FORD MOTOR CO.

Installation

NOTE: If the transmission is being repaired for a contamination-related failure, install a new transmission fluid filter and seal assembly. The transmission fluid filter may be reused if no excessive contamination is indicated.

1. Inspect the transmission case for the transmission fluid filter seal. If the seal is in the case, carefully remove the seal without scratching the case.



N0037213

Fig. 138: Locating Transmission Fluid Filter Seal
 Courtesy of FORD MOTOR CO.

2. Make sure that the seal is on the transmission fluid filter and lubricate the seal with automatic transmission fluid.

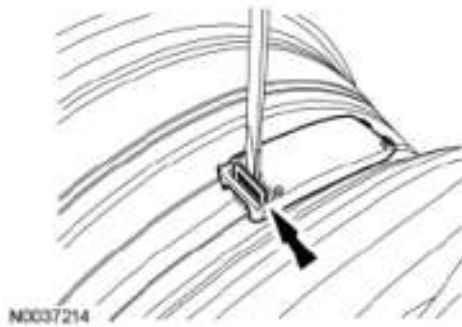


Fig. 139: Locating Seal On Transmission Fluid Filter
 Courtesy of FORD MOTOR CO.

3. **NOTE:** The transmission fluid filter may be reused if no excessive contamination is indicated.

If required, install a new transmission fluid filter.

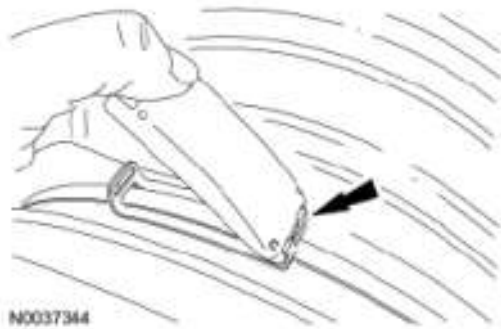


Fig. 140: Locating Transmission Fluid Filter
 Courtesy of FORD MOTOR CO.

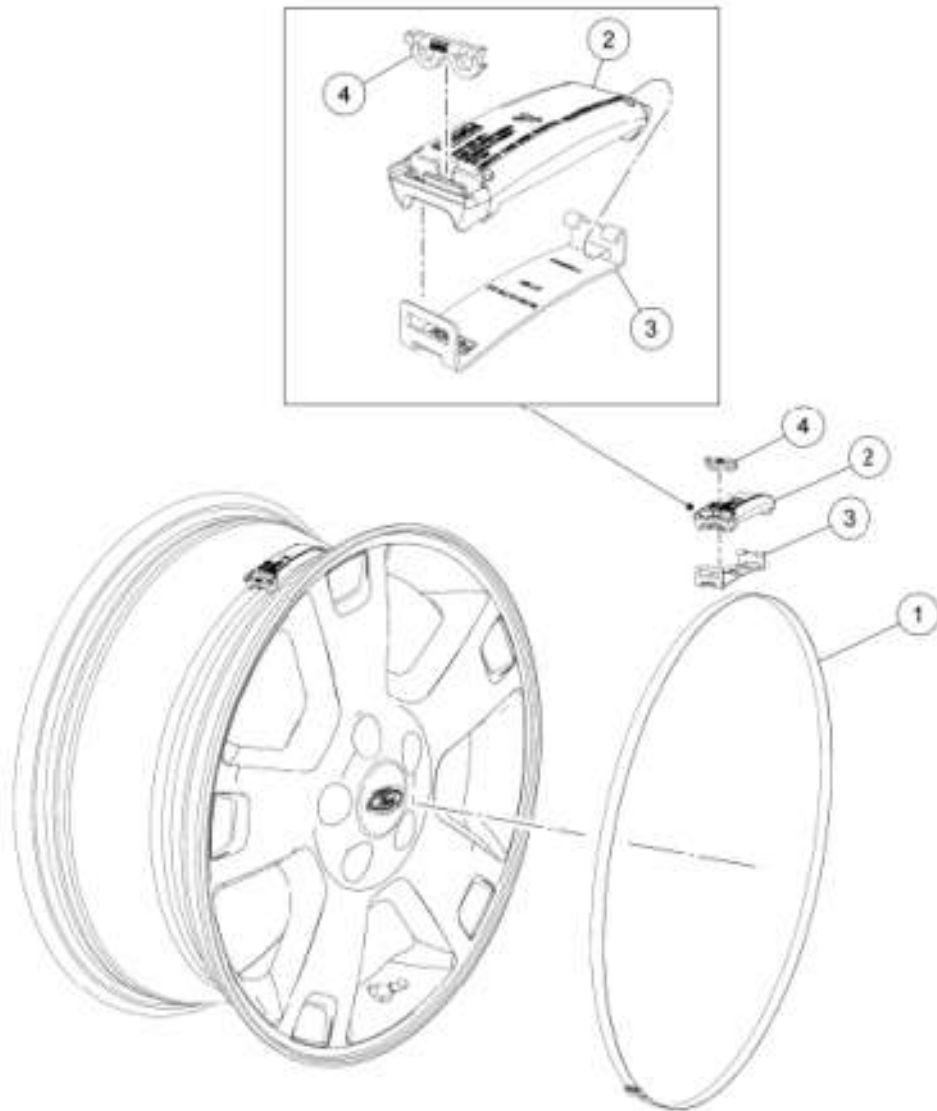
4. Position the magnet in the transmission fluid pan.



Fig. 141: Locating Transmission Fluid Pan Magnet
 Courtesy of FORD MOTOR CO.

5. **NOTE:** The transmission fluid pan gasket can be reused if not damaged.

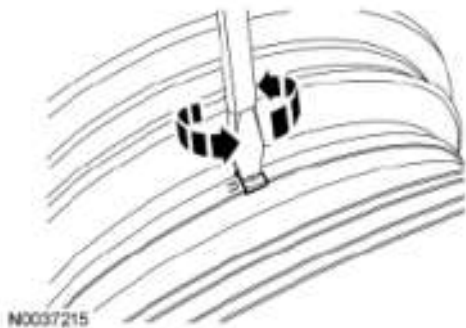
Install a new transmission fluid pan gasket if required.



N0040292

Fig. 142: Locating Transmission Fluid Pan Gasket
 Courtesy of FORD MOTOR CO.

6. Install the transmission fluid pan and tighten the bolts in a crisscross pattern.
 - Tighten to 12 Nm (106 lb-in).



N0037215


Fig. 143: Locating Transmission Fluid Pan Bolts
 Courtesy of FORD MOTOR CO.

- Using the Adding Additional Transmission Fluid procedure, fill and check the transmission fluid. For additional information, refer to **TRANSMISSION FLUID DRAIN AND REFILL**.

MECHATRONIC ASSEMBLY

Special Tool(s)

SPECIAL TOOL SPECIFICATION

 <p data-bbox="167 936 438 995">ST2834-A</p>	<p data-bbox="831 629 1417 766">Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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Removal

Mechatronic assembly

NOTE: The only solenoid that is serviceable in the mechatronic assembly is Shift Solenoid E (SSE). If the mechatronic assembly is being removed due to a faulty SSE , follow the specific steps in this procedure to install a new SSE . If the mechatronic assembly is being removed due to a faulty solenoid other than SSE , a new mechatronic assembly must be installed.

NOTE: If a new or existing mechatronic assembly is installed, the Transmission Control Module (TCM) will need to be programed with the latest calibration.

- With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING & LIFTING** .

- NOTE:** Do not pull on the wire harness to disconnect the connector or damage to the connector will occur.

Disconnect the transmission vehicle harness connector by twisting the outer shell and pulling back on the connector.



Fig. 144: Locating Main Transmission Electrical Harness
Courtesy of FORD MOTOR CO.

3. Remove the transmission fluid fill plug transmission fluid level indicator assembly located on the passenger side front portion of the transmission case. Removal of the transmission fluid fill plug will relieve any vacuum that might have built up in the transmission. This will aid in allowing the transmission fluid pan to be easily removed when the bolts are removed.



Fig. 145: Locating Transmission Fluid Fill Plug
Courtesy of FORD MOTOR CO.

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

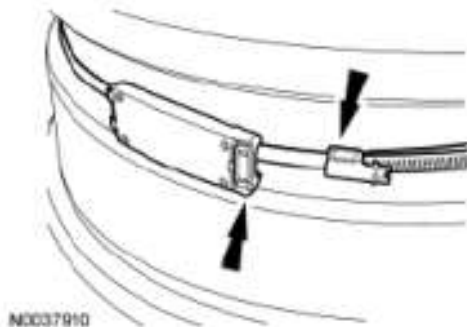


Fig. 146: Locating Transmission Fluid Pan Bolts
Courtesy of FORD MOTOR CO.

5. Remove the transmission fluid pan gasket.

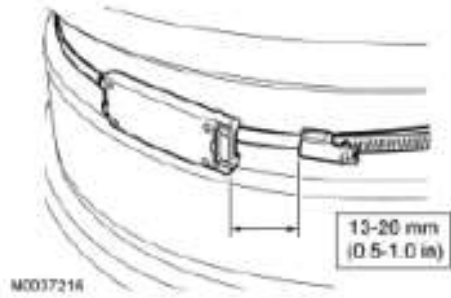


Fig. 147: Locating Transmission Fluid Pan Gasket
Courtesy of FORD MOTOR CO.

- NOTE:** The transmission fluid filter may be reused if no excessive contamination is indicated.
- 6.

Remove and discard the transmission fluid filter.

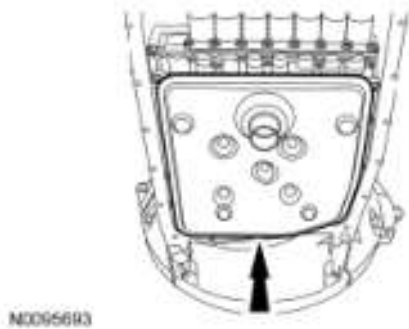
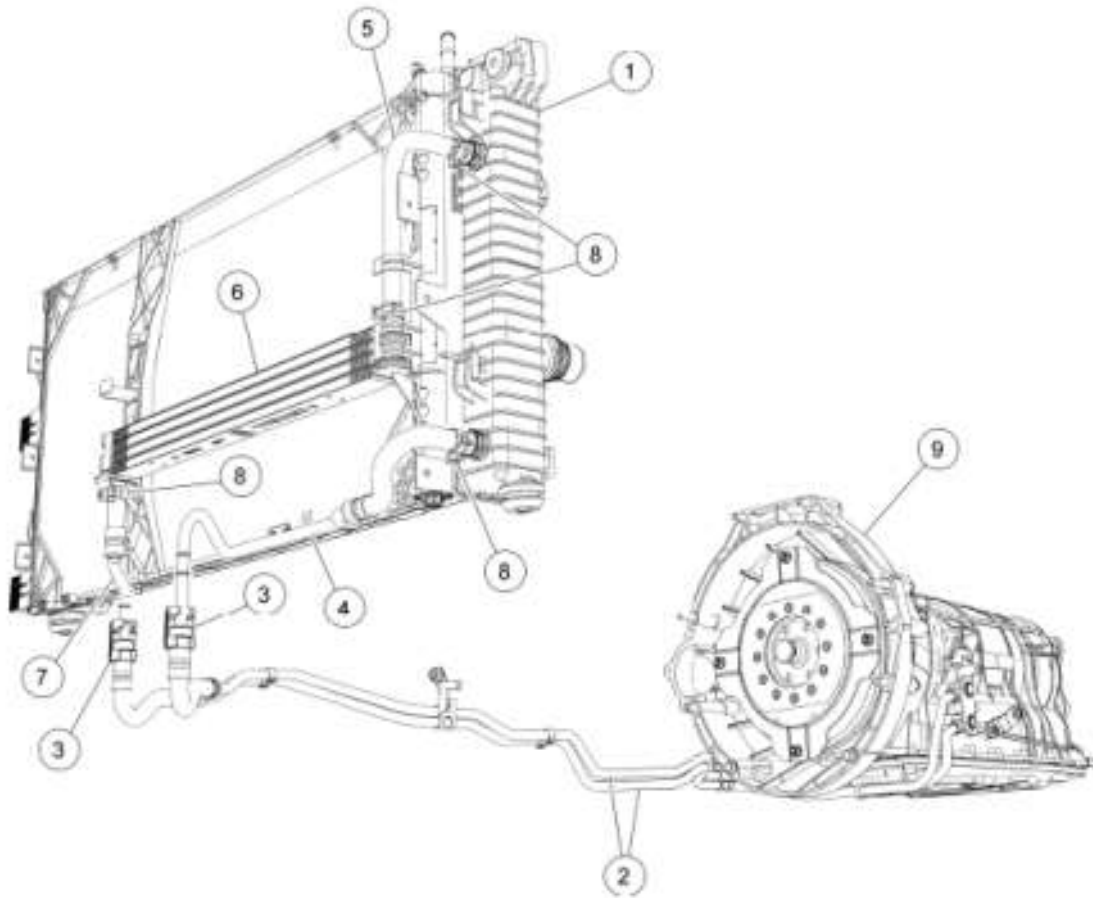


Fig. 148: Locating Transmission Fluid Filter
Courtesy of FORD MOTOR CO.

7. Pull the release tab and pull down on the transmission bulkhead electrical connector retainer.

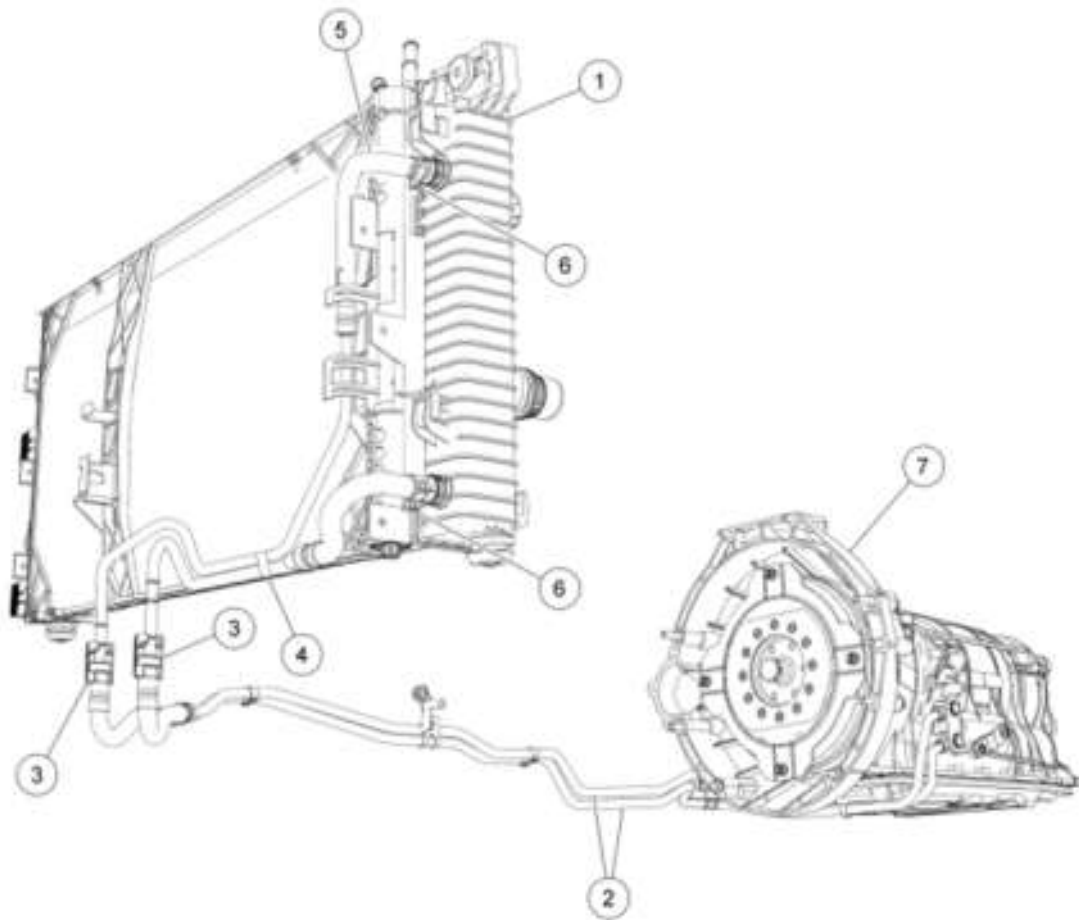


N0093435

Fig. 149: Locating Release Tab
Courtesy of FORD MOTOR CO.

NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the transmission bulkhead electrical connector. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

8. With the release tab down, pull the outer shell of the transmission bulkhead electrical connector out of the mechatronic assembly.



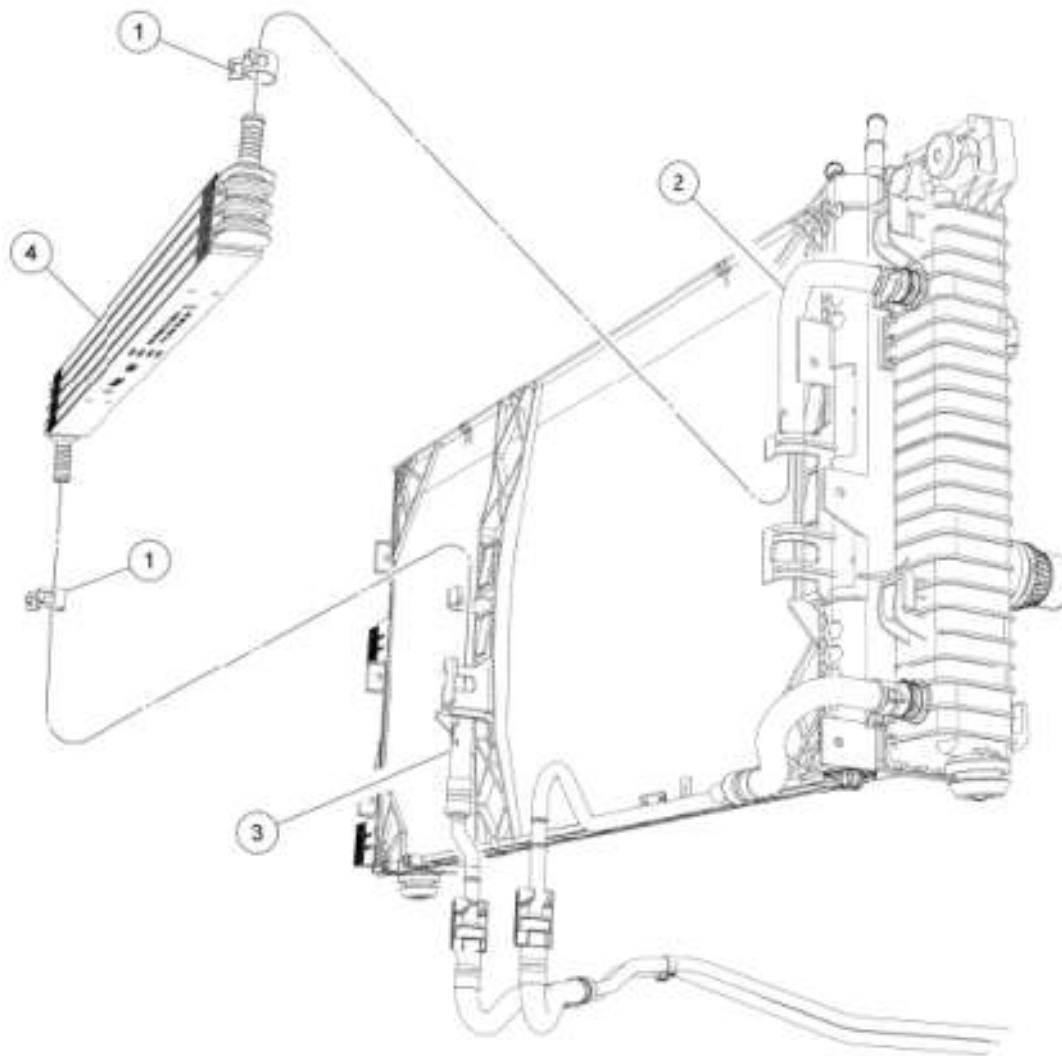
ND106891

Fig. 150: Identifying Outer Shell Of Transmission Vehicle Harness Connector
Courtesy of FORD MOTOR CO.

NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the transmission bulkhead electrical connector. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

9.

Pull the transmission bulkhead electrical connector out of the transmission case.



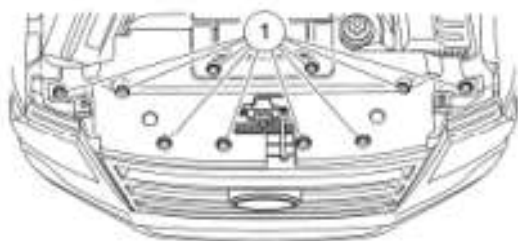
N0093384

Fig. 151: Pulling Bulkhead Connector Out Of Transmission
 Courtesy of FORD MOTOR CO.

NOTE: During removal of the mechatronic assembly, the thermal bypass valve will fall out of the transmission case. Damage to the valve will occur if the valve falls out.

10.

Remove the 11 bolts from the mechatronic assembly and remove the mechatronic assembly and the bypass valve.



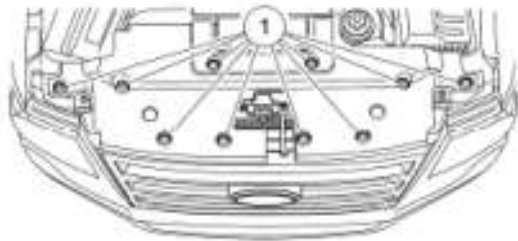
N0062456

Fig. 152: Locating Mechatronic Assembly Bolts

Courtesy of FORD MOTOR CO.

Shift Solenoid E (SSE)

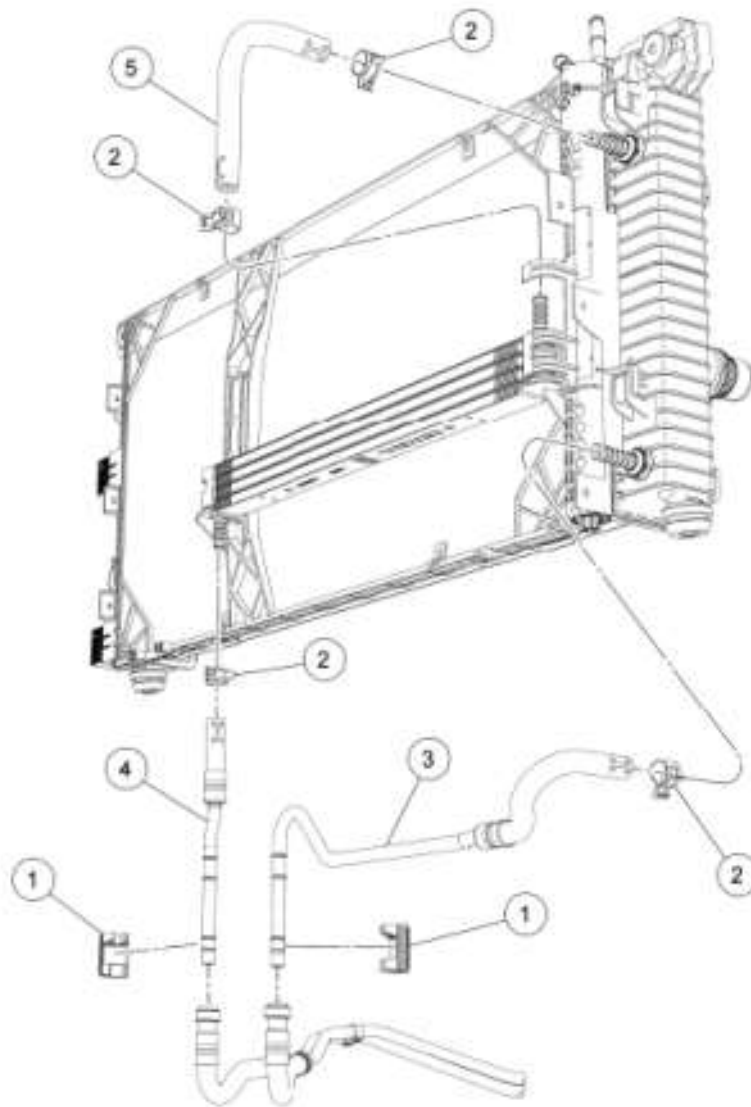
11. Remove the 6 long bolts from the **TCM** unit.



N0052456

Fig. 153: Locating TCM Unit Long Bolts
Courtesy of FORD MOTOR CO.

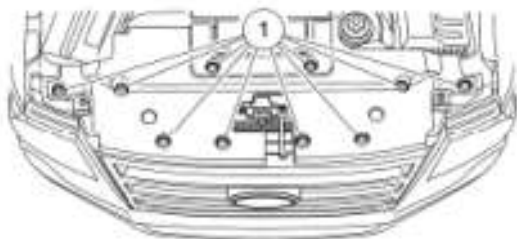
12. Carefully separate the **TCM** from the mechatronic assembly.
 1. **TCM**
 2. Mechatronic assembly



N0093415

Fig. 154: Identifying TCM And Mechatronic Assembly
 Courtesy of FORD MOTOR CO.

13. Remove the 8 solenoid bracket bolts and the solenoid bracket.



N0052456

Fig. 155: Locating Solenoid Bracket Bolts
 Courtesy of FORD MOTOR CO.

14. Remove the Shift Solenoid E (SSE).

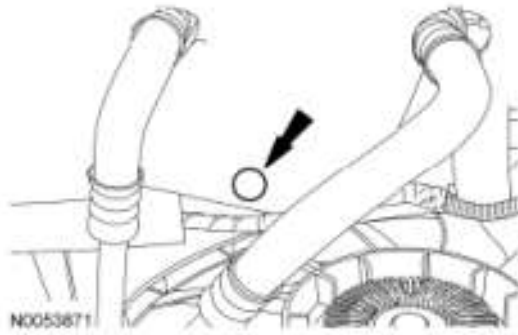


Fig. 156: Locating Shift Solenoid E
Courtesy of FORD MOTOR CO.

Installation

SSE

1. Install the SSE .

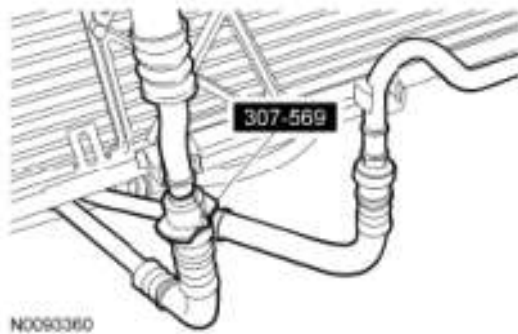


Fig. 157: Locating Shift Solenoid E
Courtesy of FORD MOTOR CO.

2. Position the solenoid bracket in place and install the 8 bolts.
 - Tighten to 6 Nm (53 lb-in).

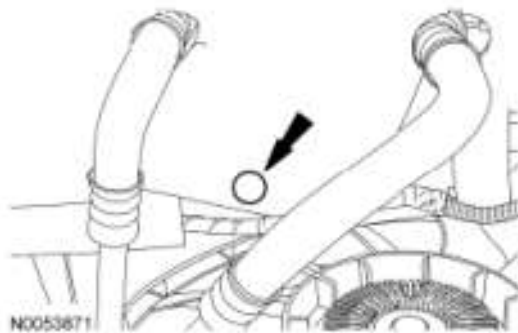


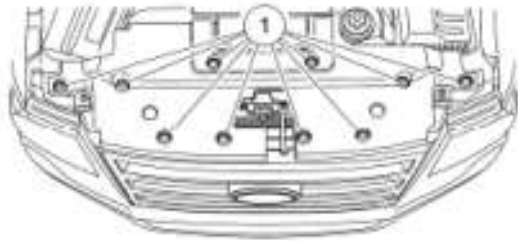
Fig. 158: Locating Solenoid Bracket Bolts
Courtesy of FORD MOTOR CO.

NOTE: The TR switch pin must be aligned with the manual control valve during installation.

- 3.

Position the **TCM** on the mechatronic assembly.

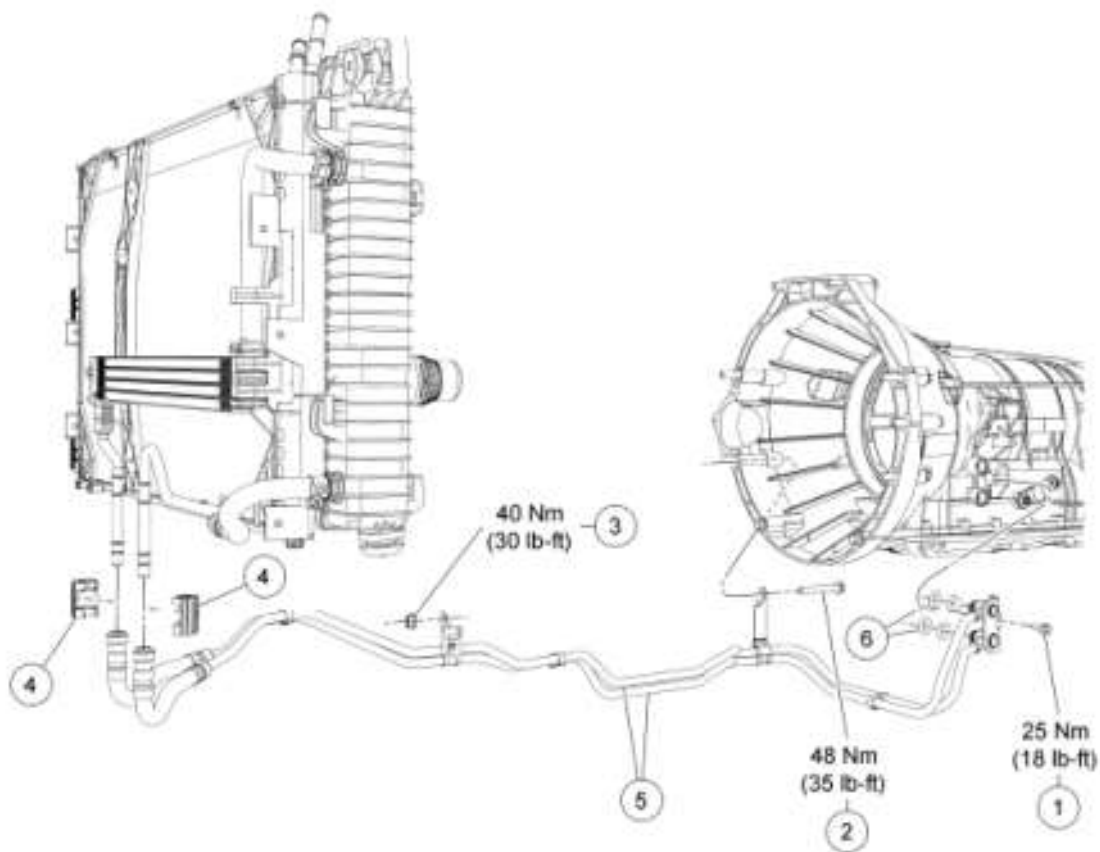
1. **TCM**
2. Mechatronic assembly
3. **TR** switch pin



N0052456

Fig. 159: Identifying TCM And Mechatronic Assembly
Courtesy of FORD MOTOR CO.

4. Install the 6 long bolts into the **TCM** unit. Tighten the bolts in the sequence shown in illustration.
 - Tighten to 6 Nm (53 lb-in).



N0093383

Fig. 160: Identifying TCM Unit Long Bolts Tightening Sequence
Courtesy of FORD MOTOR CO.

Mechatronic assembly

NOTE: Before installing the mechatronic assembly into the transmission case, verify presence and correct orientation of the thermal bypass valve, pump adapter seal and center support seals. Also note that one or more of the center support seals may have remained in the mechatronic assembly during removal and should be installed into the transmission case at this time.

5.

Verify the 4 rubber feed tubes for the center support are in place.

1. Black feed tubes
2. Green feed tube
3. Blue feed tube

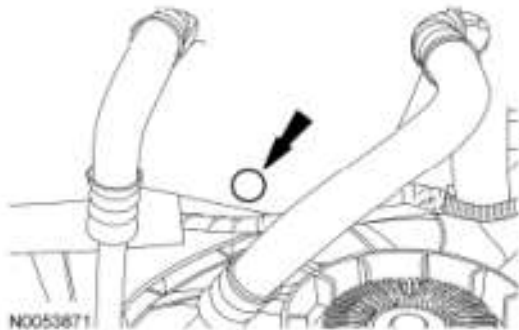


Fig. 161: Locating Center Support Rubber Feed Tubes
Courtesy of FORD MOTOR CO.

6. Verify the rubber adapter is in place.

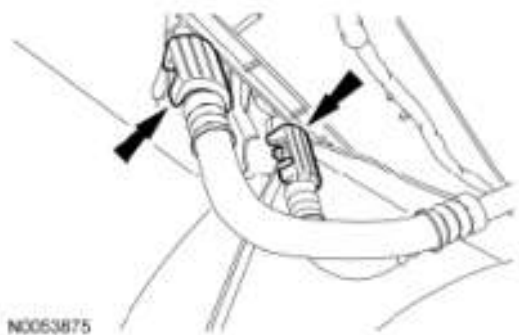


Fig. 162: Locating Rubber Adapter
Courtesy of FORD MOTOR CO.

7. Coat the thermal bypass valve with petroleum jelly to hold it in place and install the thermal bypass valve in the transmission case.



Fig. 163: Locating Thermal Bypass Valve
 Courtesy of FORD MOTOR CO.

NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the transmission vehicle harness connector. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

8.

Position the mechatronic assembly in place and loosely install the 11 bolts.

1. Align the manual valve and control lever linkage.

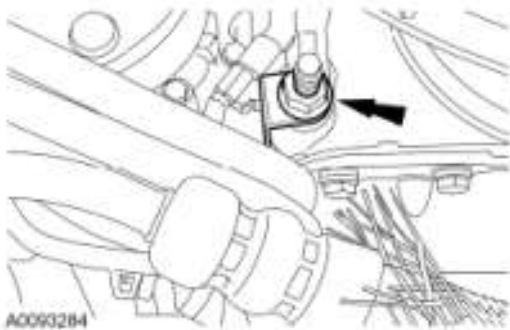


Fig. 164: Locating Mechatronic Assembly Bolts
 Courtesy of FORD MOTOR CO.

9. Tighten the mechatronic bolts in the sequence shown in illustration.
 - Tighten to 8 Nm (71 lb-in).

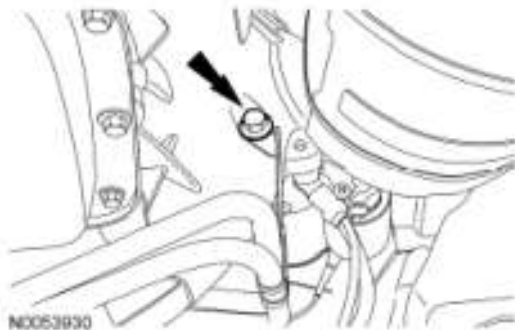


Fig. 165: Identifying Mechatronic Bolts Tightening Sequence
 Courtesy of FORD MOTOR CO.

NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the transmission bulkhead electrical connector. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

10.

With the release tab down and unlocked, push the outer shell of the transmission bulkhead electrical connector into the transmission. Make sure that the transmission bulkhead electrical connector is fully seated into the mechatronic assembly.

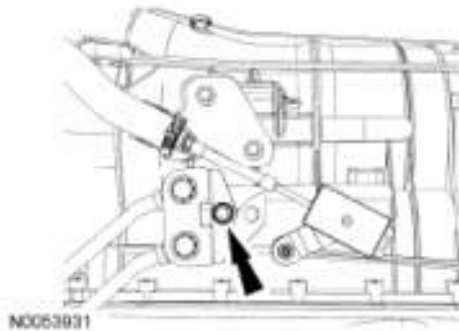


Fig. 166: Identifying Outer Shell Of Transmission Vehicle Harness Connector
Courtesy of FORD MOTOR CO.

11. Press up on the tab and lock the outer shell of the transmission bulkhead electrical connector in place. Make sure that the locking tab is securely locked.

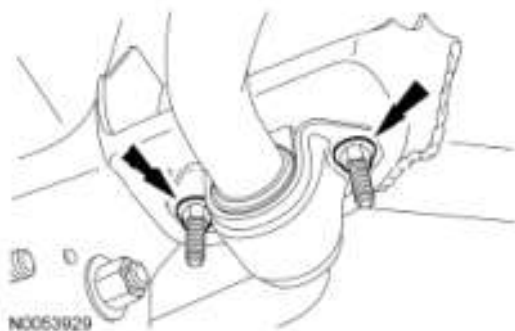


Fig. 167: Pressing Tab And Lock
Courtesy of FORD MOTOR CO.

NOTE: The transmission fluid filter may be reused if no excessive contamination is indicated.

12.

If required, install a new transmission fluid filter.



Fig. 168: Locating Transmission Fluid Filter
 Courtesy of FORD MOTOR CO.

13. **NOTE:** The transmission fluid pan gasket can be reused if not damaged.

Install a new transmission fluid pan gasket, if required.

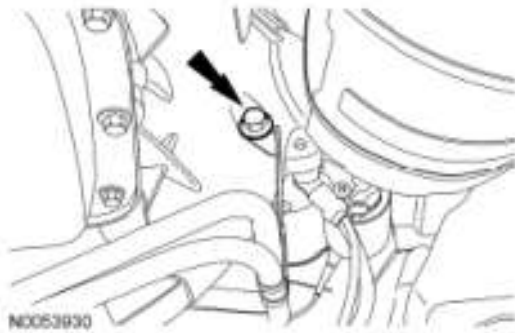


Fig. 169: Locating Transmission Fluid Pan Gasket
 Courtesy of FORD MOTOR CO.

14. Install the transmission fluid pan and tighten the transmission fluid pan bolts in a crisscross pattern.
- Tighten to 12 Nm (106 lb-in).

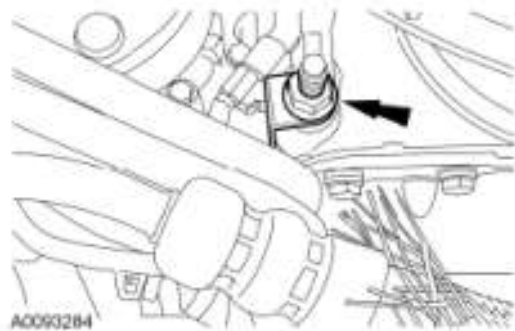


Fig. 170: Locating Transmission Fluid Pan Bolts
 Courtesy of FORD MOTOR CO.

15. Connect the transmission vehicle harness connector by pushing it in and twisting the outer shell to lock it in place.

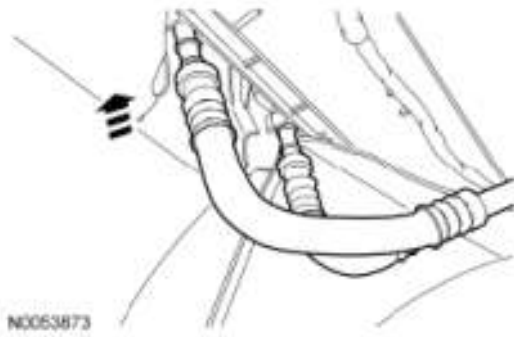


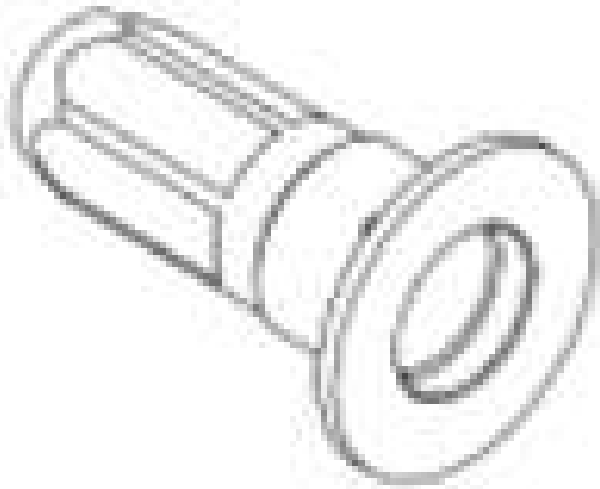
Fig. 171: Locating Main Transmission Electrical Harness
 Courtesy of FORD MOTOR CO.

16. Make sure the transmission fluid is at the correct level, follow the steps for Adding Additional Transmission Fluid or Removing Transmission Fluid. For additional information, refer to **TRANSMISSION FLUID DRAIN AND REFILL**.
17. If a new or existing mechatronic assembly is installed, the TCM will need to be programmed with the latest calibration.

OUTPUT SHAFT SEAL

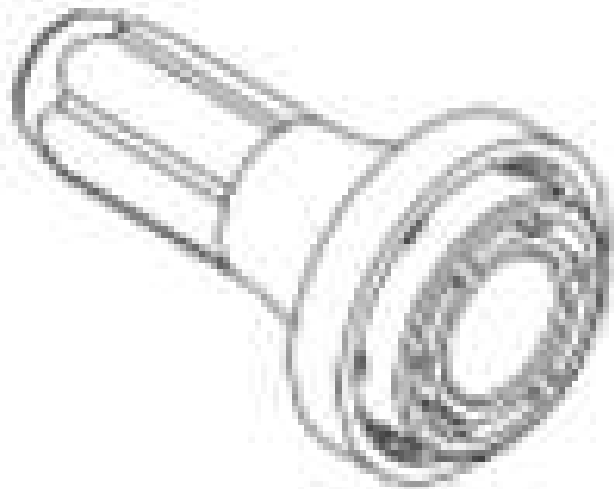
Special Tool(s)

SPECIAL TOOL SPECIFICATION



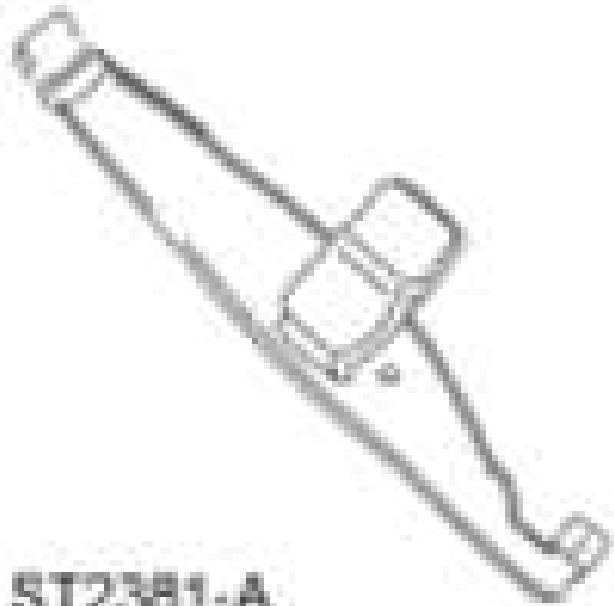
ST3059-A

Installer, Rear Seal 4X4
 307-637



ST3080-A

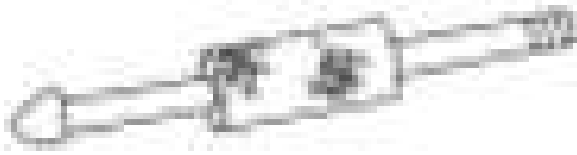
Rear Seal Installer 4X2
307-638



ST2381-A

Remover, Input Shaft Oil Seal
308-375

Slide Hammer
100-001 (T50T-100-A)



ST1187-A

Material

MATERIAL SPECIFICATION

Item	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid XT-10-QLV	MERCON® LV

NOTE: Rear Wheel Drive (RWD) shown in illustration, Four-Wheel Drive (4WD) similar.



Fig. 172: Identifying Output Shaft Seal With Torque Specifications
Courtesy of FORD MOTOR CO.

PART NUMBER REFERENCE

Item	Part Number	Description
1	7045	Output shaft flange nut
2	7052	Extension housing flange seal
3	7089	Output shaft flange
4	7052	Output shaft seal
5	7N357	Slip plane washer

Removal

All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING & LIFTING** .

Rear Wheel Drive (RWD) vehicles

2. Remove the rear driveshaft. For additional information, refer to **DRIVESHAFT** .

NOTE: The output shaft flange nut has been staked to prevent it from coming loose. Prior to removing the nut, remove the stake to prevent damage to the output shaft.

3.

Remove and discard the output shaft flange nut.

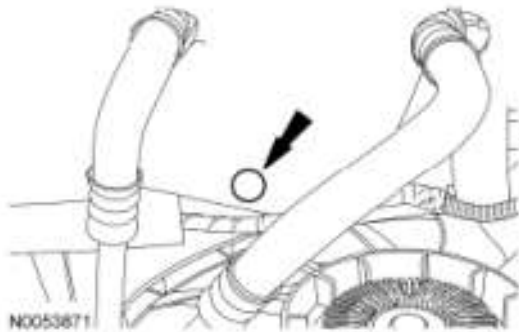


Fig. 173: Locating Output Shaft Flange Nut
Courtesy of FORD MOTOR CO.

4. Remove the extension housing flange seal and the output shaft flange.

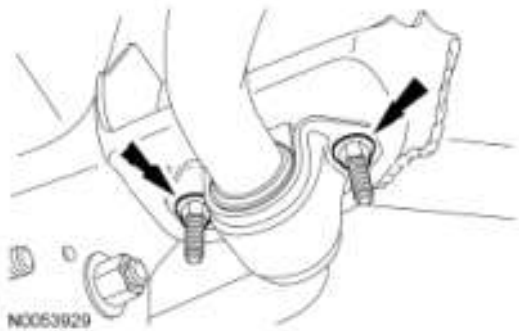


Fig. 174: Identifying Output Shaft Flange
Courtesy of FORD MOTOR CO.

5. Using the Input Shaft Oil Seal Remover and Slide Hammer, remove the output shaft seal.



Fig. 175: Removing Output Shaft Seal
Courtesy of FORD MOTOR CO.

6. Remove the slip plane washer.

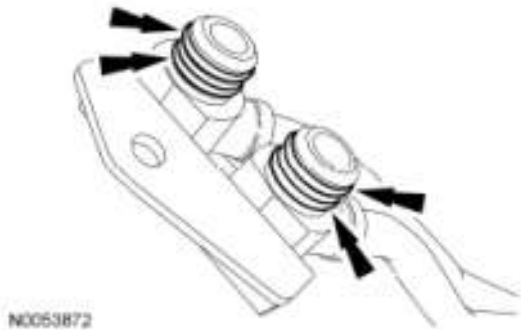


Fig. 176: Locating Slip Plane Washer
Courtesy of FORD MOTOR CO.

Four-Wheel Drive (4WD) vehicles

7. Remove the transfer case. For additional information, refer to **TRANSFER CASE** .
8. Using the Input Shaft Oil Seal Remover and Slide Hammer, remove the output shaft seal.

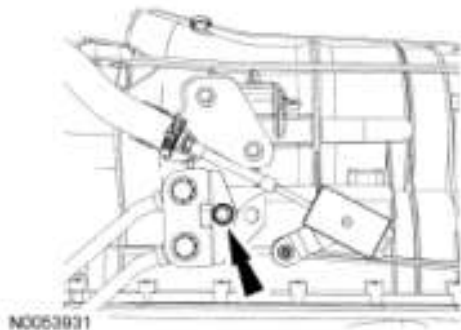


Fig. 177: Removing Output Shaft Seal
Courtesy of FORD MOTOR CO.

Installation

RWD vehicles

1. Install the slip plane washer.



Fig. 178: Locating Slip Plane Washer
 Courtesy of FORD MOTOR CO.

2. Position a new output shaft seal.



Fig. 179: Locating Output Shaft Seal
 Courtesy of FORD MOTOR CO.

3. Using the Rear Seal 4X2 Installer, install the output shaft seal.

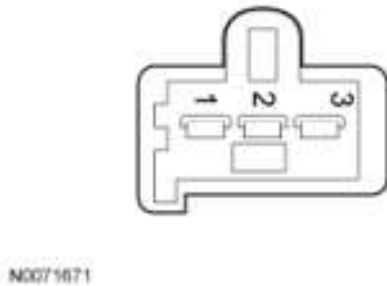
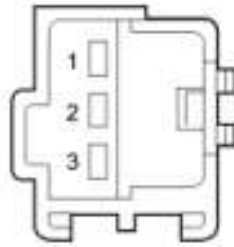


Fig. 180: Identifying Rear Seal 4X2 Installer
 Courtesy of FORD MOTOR CO.

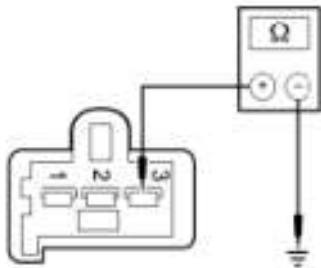
4. Install the output shaft flange.



N0071672

Fig. 181: Identifying Output Shaft Flange
 Courtesy of FORD MOTOR CO.

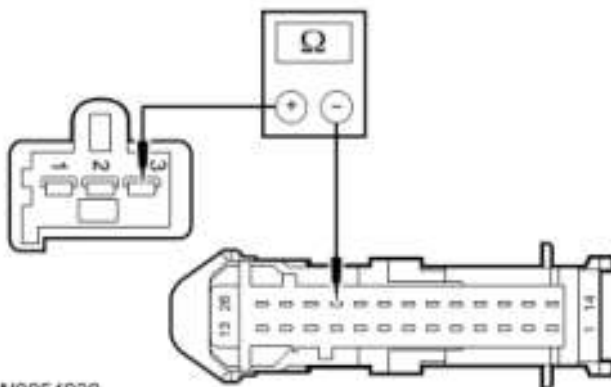
5. Install the extension housing flange seal and a new output shaft flange nut.
 - Tighten to 80 Nm (59 lb-ft).
 - After installing the new output shaft flange nut, it must be staked at the slots to prevent it from coming loose.



N0054829

Fig. 182: Locating Output Shaft Flange Nut
 Courtesy of FORD MOTOR CO.

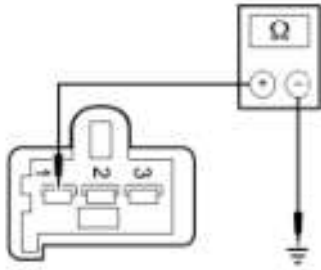
6. Install the rear driveshaft. For additional information, refer to **DRIVESHAFT** .
- 4WD** vehicles
7. Position the output shaft seal.



N0054930

Fig. 183: Positioning Output Shaft Seal
 Courtesy of FORD MOTOR CO.

8. Using the Rear Seal 4X4 Installer, install a new output shaft seal.



N0054931

Fig. 184: Identifying Rear Seal 4X4 Installer
Courtesy of FORD MOTOR CO.

9. Install the transfer case. For additional information, refer to TRANSFER CASE.


All vehicles

10. Fill and check the transmission fluid. For additional information, refer to TRANSMISSION FLUID LEVEL CHECK.

MANUAL CONTROL LEVER SHAFT AND SEAL

Special Tool(s)

SPECIAL TOOL SPECIFICATION

 <p>ST2890-A</p>	<p>Installer, Shifter Fluid Seal 307-559</p>
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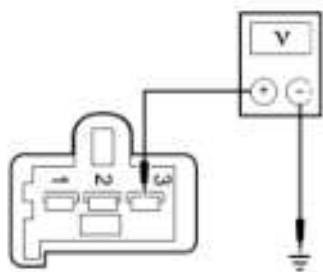
Material

MATERIAL SPECIFICATION

Item	Specification
Motorcraft® MERCON® LV Automatic Transmission Fluid XT-10-QLV	MERCON® LV

Removal

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING & LIFTING**.
2. If equipped, remove the heat shield.

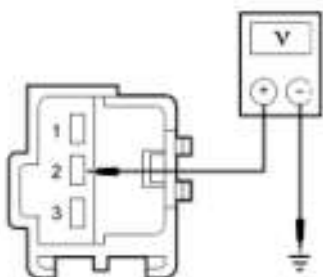


N0054032

Fig. 185: Identifying Heat Shield
Courtesy of FORD MOTOR CO.

NOTE: 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.

3. Move the locking tab up and disconnect the transmission selector lever cable end from the manual control lever.



N0054036

Fig. 186: Locating Selector Lever Cable
Courtesy of FORD MOTOR CO.

4. Remove the transmission fluid fill plug transmission fluid level indicator assembly located on the passenger side front portion of the transmission case. Removal of the transmission fluid fill plug will relieve any vacuum that might have built up in the transmission. This will aid in allowing the transmission fluid pan to be easily removed when the bolts are removed.

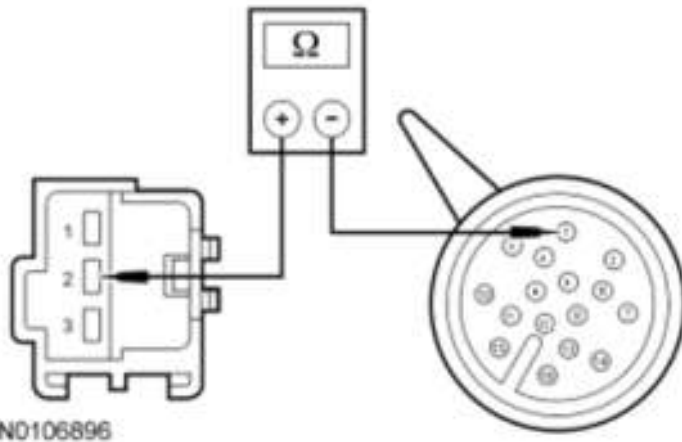


Fig. 187: Locating Transmission Fluid Fill Plug
 Courtesy of FORD MOTOR CO.

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

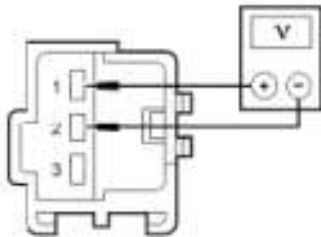


Fig. 188: Locating Transmission Fluid Pan Bolts
 Courtesy of FORD MOTOR CO.

6. **NOTE:** The transmission fluid pan gasket can be reused if not damaged.

Remove the transmission fluid pan gasket.

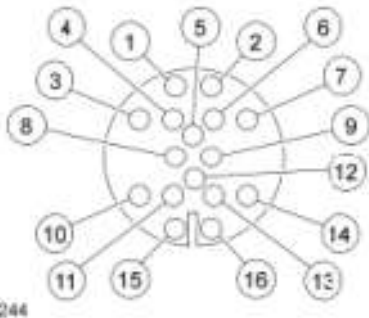
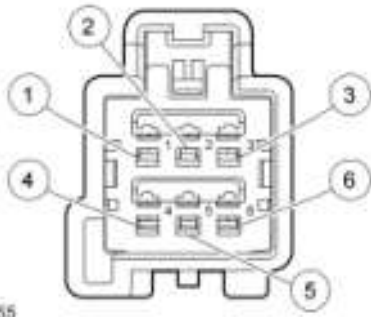


Fig. 189: Locating Transmission Fluid Pan Gasket
 Courtesy of FORD MOTOR CO.

7. Remove and discard the transmission fluid filter.

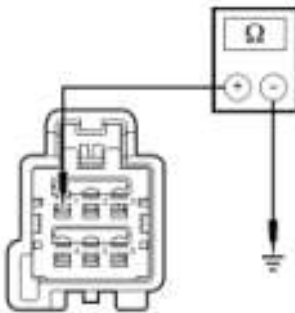


N0054055

Fig. 190: Locating Transmission Fluid Filter
 Courtesy of FORD MOTOR CO.

8. **NOTE: Do not pull on the wire harness to disconnect the connector or damage to the connector will occur.**

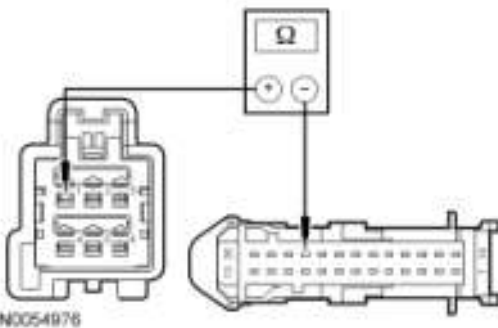
Disconnect the transmission vehicle harness connector by twisting the outer shell and pulling back on the connector.



N0054075

Fig. 191: Locating Main Transmission Electrical Harness
 Courtesy of FORD MOTOR CO.

9. Pull the release tab and pull down on the bulkhead connector retainer.



N0054076

Fig. 192: Pressing Release Tab
 Courtesy of FORD MOTOR CO.

10. **NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the bulkhead connector. Electrostatic discharge may occur and may cause damage to the mechatronic unit.**

With the bulkhead connector release tab down, pull the outer shell of the bulkhead connector out of the mechatronic assembly.

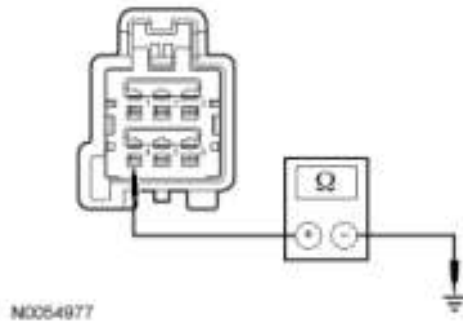


Fig. 193: Identifying Outer Shell Of Transmission Vehicle Harness Connector
Courtesy of FORD MOTOR CO.

11. **NOTE:** Do not touch the electrical connector pins or the exposed solenoid tabs on the mechatronic unit. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

Pull the bulkhead connector out of the transmission.

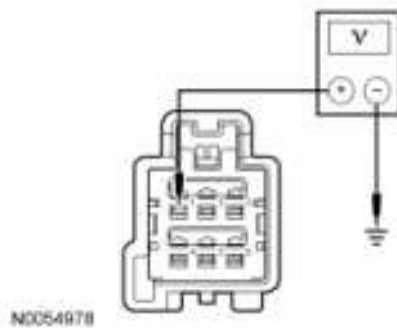
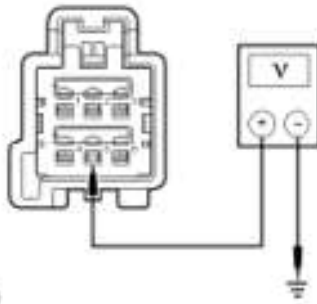


Fig. 194: Pulling Bulkhead Connector Out Of Transmission
Courtesy of FORD MOTOR CO.

12. **NOTE:** During removal of the mechatronic assembly, the thermal bypass valve will fall out of the transmission case. Damage to the valve will occur if the valve falls out.

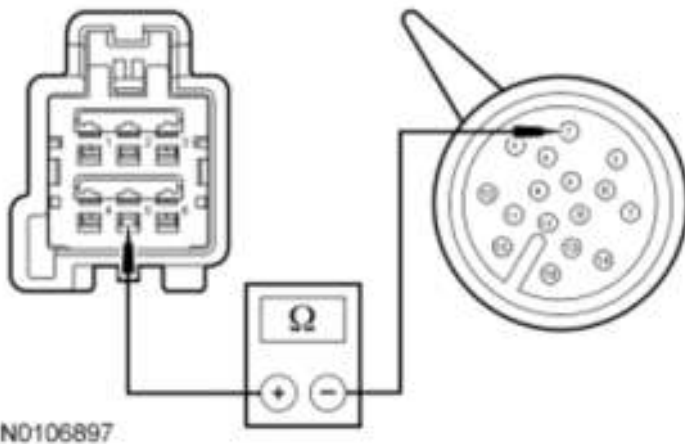
Remove the 11 bolts from the mechatronic assembly and remove the mechatronic assembly and the bypass valve.



N0055560

Fig. 195: Locating Mechatronic Assembly Bolts
 Courtesy of FORD MOTOR CO.

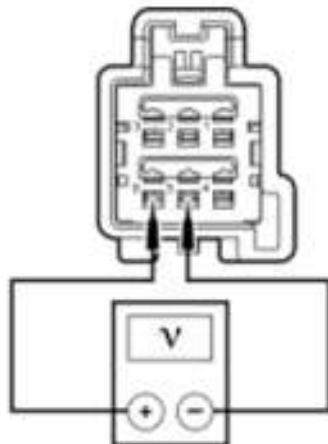
13. Remove the park rod actuating plate.



N0106897

Fig. 196: Locating Park Rod Actuating Plate Bolts
 Courtesy of FORD MOTOR CO.

14. Remove the manual control lever.
 1. Remove the roll pin.
 2. Slide the manual control lever shaft out of the case.
 3. Hold the spacer to keep it from falling out of the case.
 4. Remove the manual valve inner lever and the park rod as an assembly.



N0087345

Fig. 197: Identifying Manual Control Lever
Courtesy of FORD MOTOR CO.

15. Remove and discard the manual control lever seal.

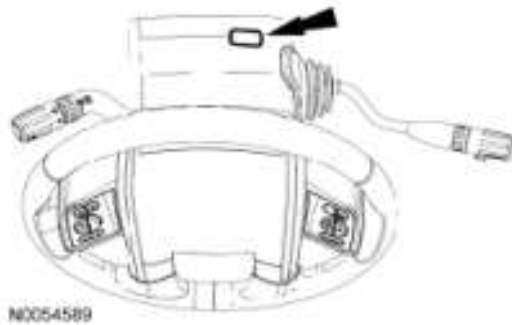


Fig. 198: Locating Manual Control Lever Seal
Courtesy of FORD MOTOR CO.

Installation

1. Position a new manual control lever seal in place.

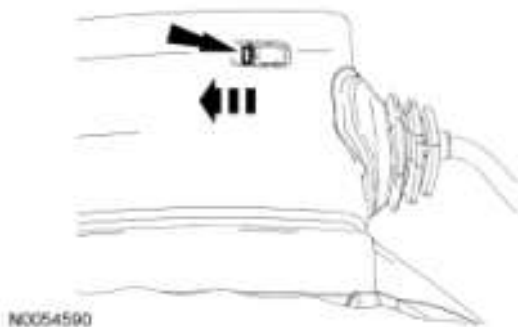


Fig. 199: Locating Manual Control Lever Seal
Courtesy of FORD MOTOR CO.

2. Using the Shifter Fluid Seal Installer, install a new manual control lever shaft seal.

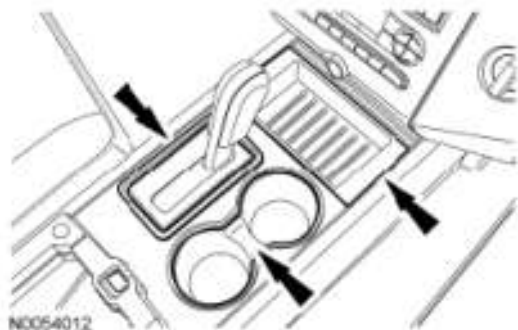


Fig. 200: Identifying Shifter Fluid Seal Installer
Courtesy of FORD MOTOR CO.

3. Install the manual lever in the case.

1. Slide the manual lever in the case.
2. Position the spacer in place while sliding the manual lever into the spacer.
3. Position the manual valve inner lever while sliding the manual lever and lining up the roll pin hole.
4. Install the roll pin.



Fig. 201: Identifying Manual Lever
 Courtesy of FORD MOTOR CO.

4. Position the park rod in place. Push down on the park pawl and position the park rod in place.
5. While holding the park rod down, install the park rod actuating plate.
 - Tighten to 12 Nm (106 lb-in).

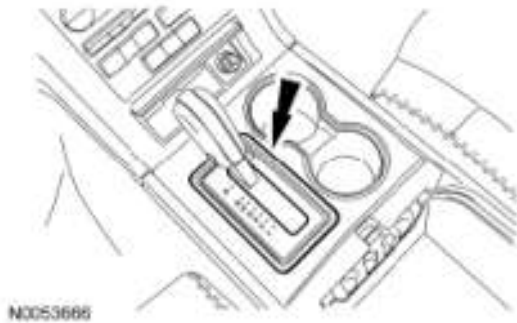


Fig. 202: Locating Park Rod Actuating Plate Bolts
 Courtesy of FORD MOTOR CO.

NOTE: Before installing the mechatronic assembly into the transmission case, verify presence and correct orientation of the thermal bypass valve, pump adapter seal and center support seals. Also note that one or more of the center support seals may have remained in the mechatronic assembly during removal and should be installed into the transmission case at this time.

6.

Verify the 4 rubber feed tubes for the center support are in place.

1. Black feed tubes
2. Green feed tube
3. Blue feed tube

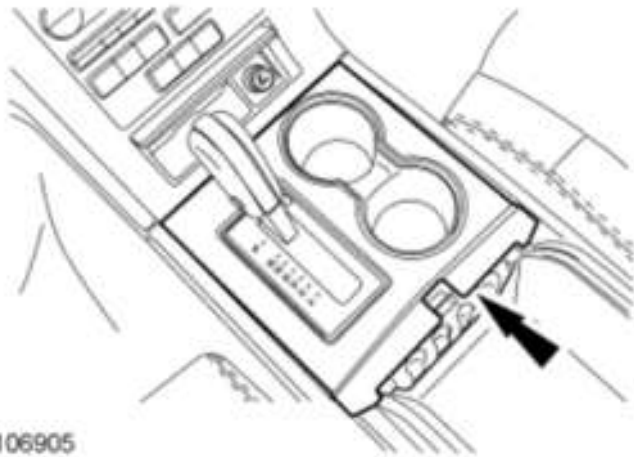


Fig. 203: Locating Center Support Rubber Feed Tubes
Courtesy of FORD MOTOR CO.

7. Verify the rubber adapter is in place.

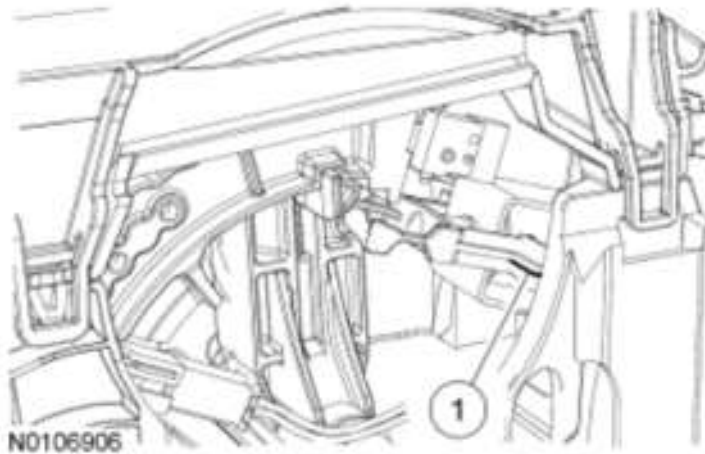


Fig. 204: Locating Rubber Adapter
Courtesy of FORD MOTOR CO.

8. Coat the thermal bypass valve with petroleum jelly to hold it in place and install the thermal bypass valve in the transmission case.

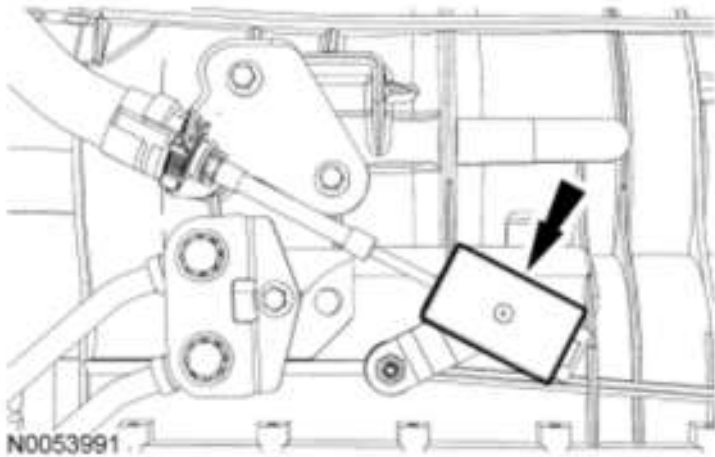


Fig. 205: Locating Thermal Bypass Valve
 Courtesy of FORD MOTOR CO.

NOTE: Do not touch the electrical connector pins or the exposed solenoid tabs on the mechatronic unit. Electrostatic discharge may occur and may cause damage to the mechatronic unit.

9.

Position the mechatronic assembly in place and loosely install the 11 bolts.

1. Align the manual valve and control lever linkage.

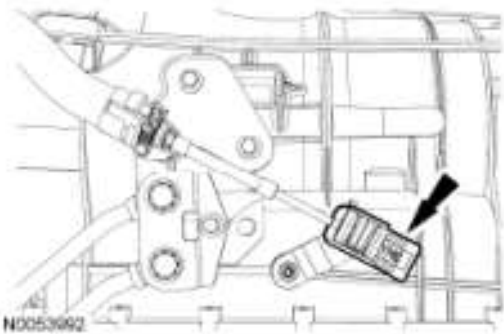


Fig. 206: Locating Mechatronic Assembly Bolts
 Courtesy of FORD MOTOR CO.

10. Tighten the mechatronic bolts in the sequence shown in illustration.

- Tighten to 8 Nm (71 lb-in).

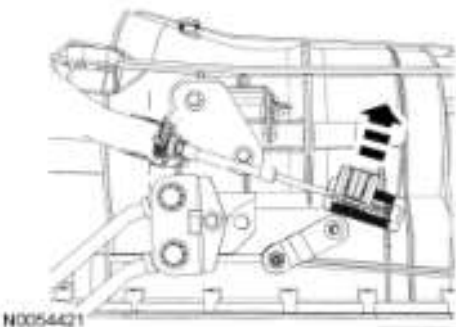


Fig. 207: Identifying Mechatronic Bolts Tightening Sequence
Courtesy of FORD MOTOR CO.

11. **NOTE: Do not touch the electrical connector pins. Electrostatic discharge may occur and will cause damage to the mechatronic unit.**

With the bulkhead connector release tab down and unlocked, push the outer shell of the bulkhead connector into the transmission. Make sure that the bulkhead connector is fully seated into the mechatronic assembly.

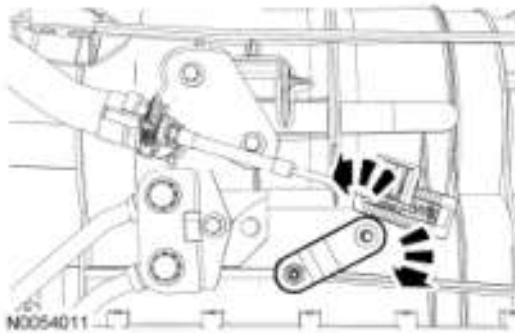


Fig. 208: Identifying Outer Shell Of Transmission Vehicle Harness Connector
Courtesy of FORD MOTOR CO.

12. Press up on the tab and lock the outer shell of the bulkhead connector in place.

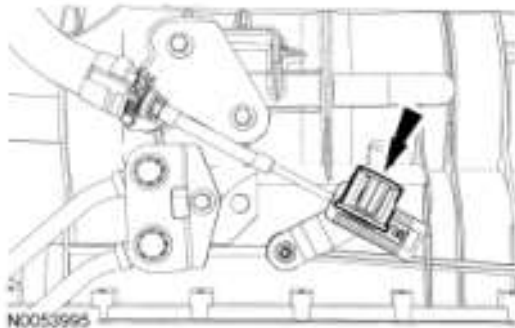


Fig. 209: Pressing Down Tab
Courtesy of FORD MOTOR CO.

13. Install a new transmission fluid filter.

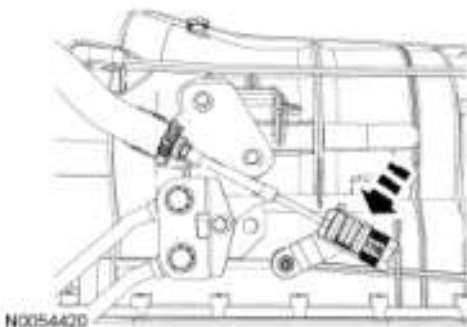


Fig. 210: Locating Transmission Fluid Filter
Courtesy of FORD MOTOR CO.

14. **NOTE:** **The transmission fluid pan gasket can be reused if not damaged.**

Install a new transmission fluid pan gasket, if necessary.

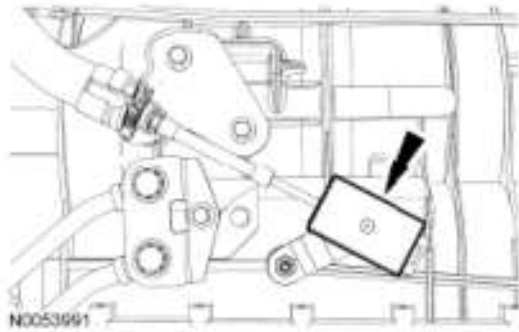
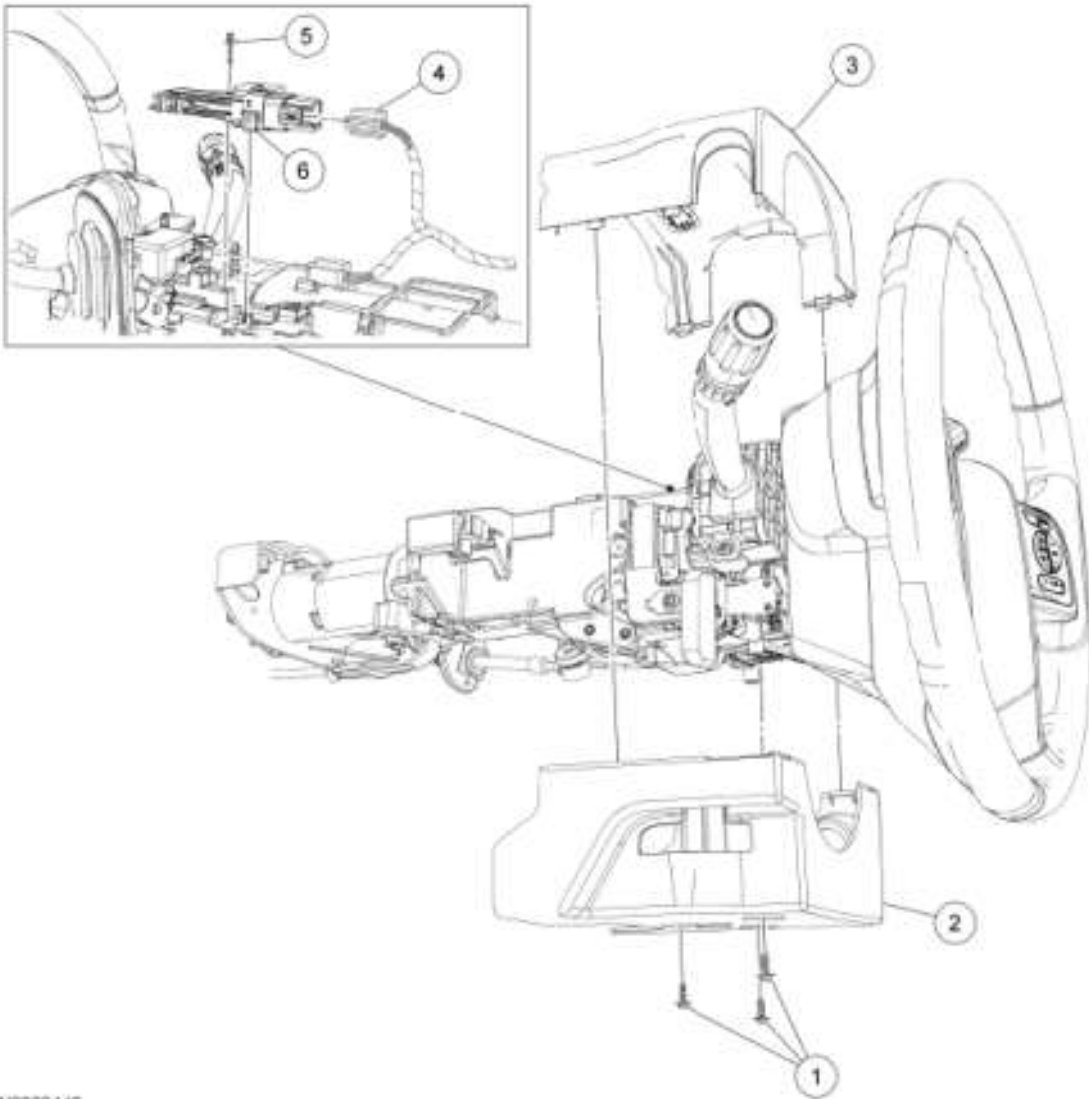


Fig. 211: Locating Transmission Fluid Pan Gasket
Courtesy of FORD MOTOR CO.

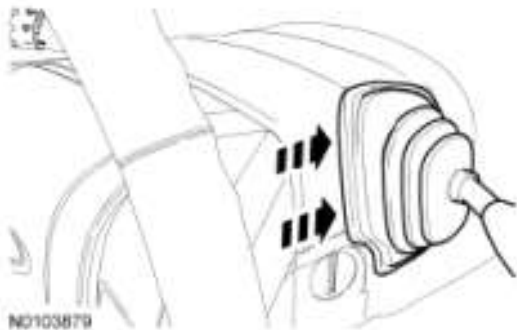
15. Install the transmission fluid pan and tighten the transmission fluid pan bolts in a crisscross pattern.
- Tighten to 12 Nm (106 lb-in).



N0060446

Fig. 212: Locating Transmission Fluid Pan Bolts
 Courtesy of FORD MOTOR CO.

16. Connect the transmission vehicle harness connector by pushing it in and twisting the outer shell to lock it in place.



N0103879

Fig. 213: Locating Main Transmission Electrical Harness
 Courtesy of FORD MOTOR CO.

17. **NOTE:** 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. Pull back on the selector lever cable end to make sure that the selector lever cable end is securely installed onto the manual control lever.

Install the selector lever cable end onto the manual control lever.

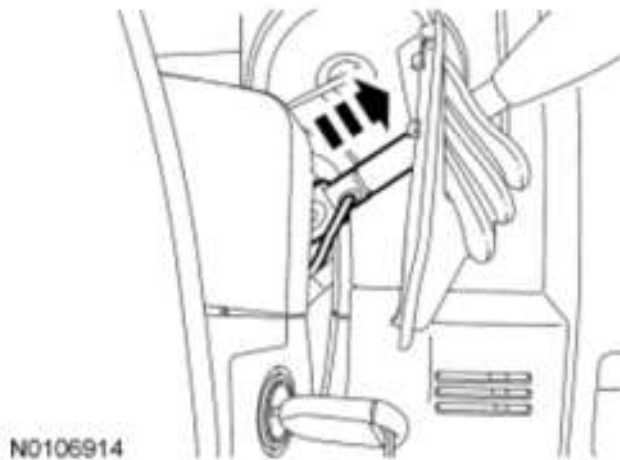


Fig. 214: Locating Selector Lever Cable
Courtesy of FORD MOTOR CO.

18. Lock the selector lever cable lock tab.

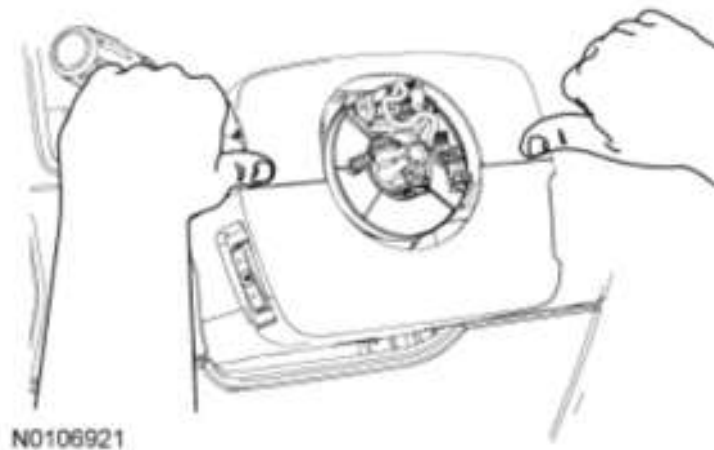


Fig. 215: Locating Selector Lever Cable Lock Tab
Courtesy of FORD MOTOR CO.

19. If equipped, install the heat shield.

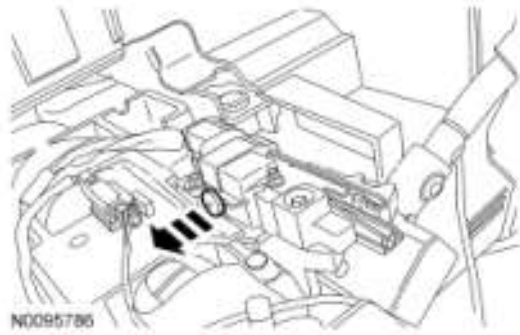


Fig. 216: Identifying Heat Shield
 Courtesy of FORD MOTOR CO.

20. Make sure the transmission fluid is at the correct level, follow the steps for Adding Additional Transmission Fluid or Removing Transmission Fluid. For additional information, refer to **TRANSMISSION FLUID DRAIN AND REFILL.**

TRANSMISSION INSULATOR AND RETAINER

Transmission Insulator and Retainer Rear Wheel Drive (RWD)

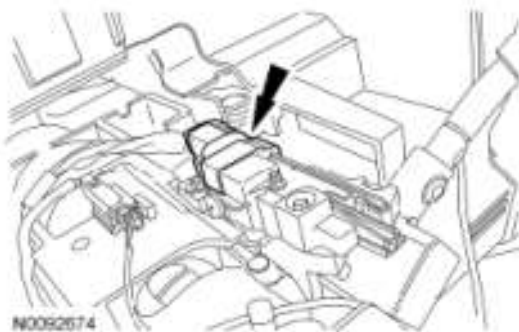


Fig. 217: Identifying Transmission Insulator And Retainer Rear Wheel Drive With Torque Specifications (RWD)
 Courtesy of FORD MOTOR CO.

PART NUMBER REFERENCE

Item	Part Number	Description
1	9L34	Transmission insulator and retainer
2	W711140	Transmission insulator and retainer bolt
3	N621945	Transmission insulator and retainer nut

Transmission Insulator and Retainer Four-Wheel Drive (4WD)

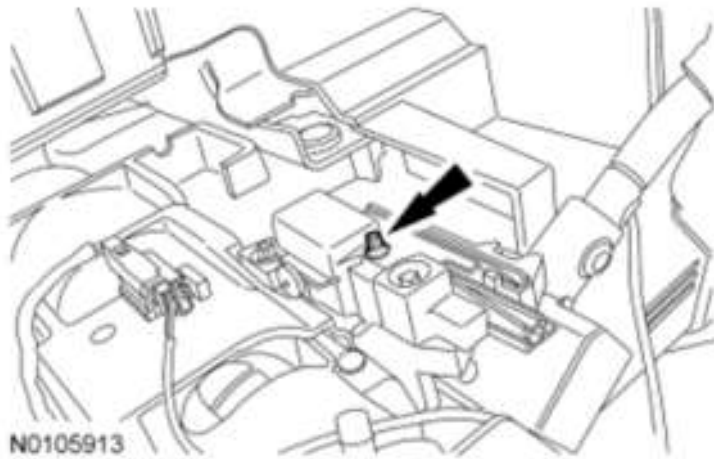


Fig. 218: Identifying Transmission Insulator And Retainer Four-Wheel Drive With Torque Specifications (4WD)
 Courtesy of FORD MOTOR CO.

PART NUMBER REFERENCE

Item	Part Number	Description
1	9L34	Transmission insulator and retainer
2	W711140	Transmission insulator and retainer bolt
3	N621945	Transmission insulator and retainer nut

Removal

All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING & LIFTING** .

Rear Wheel Drive (RWD) vehicles

2. Remove the RH exhaust heat shield bolt from the transmission crossmember.

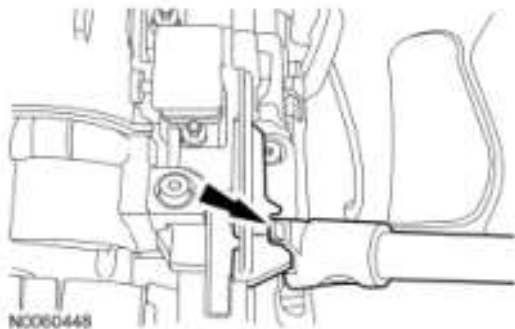
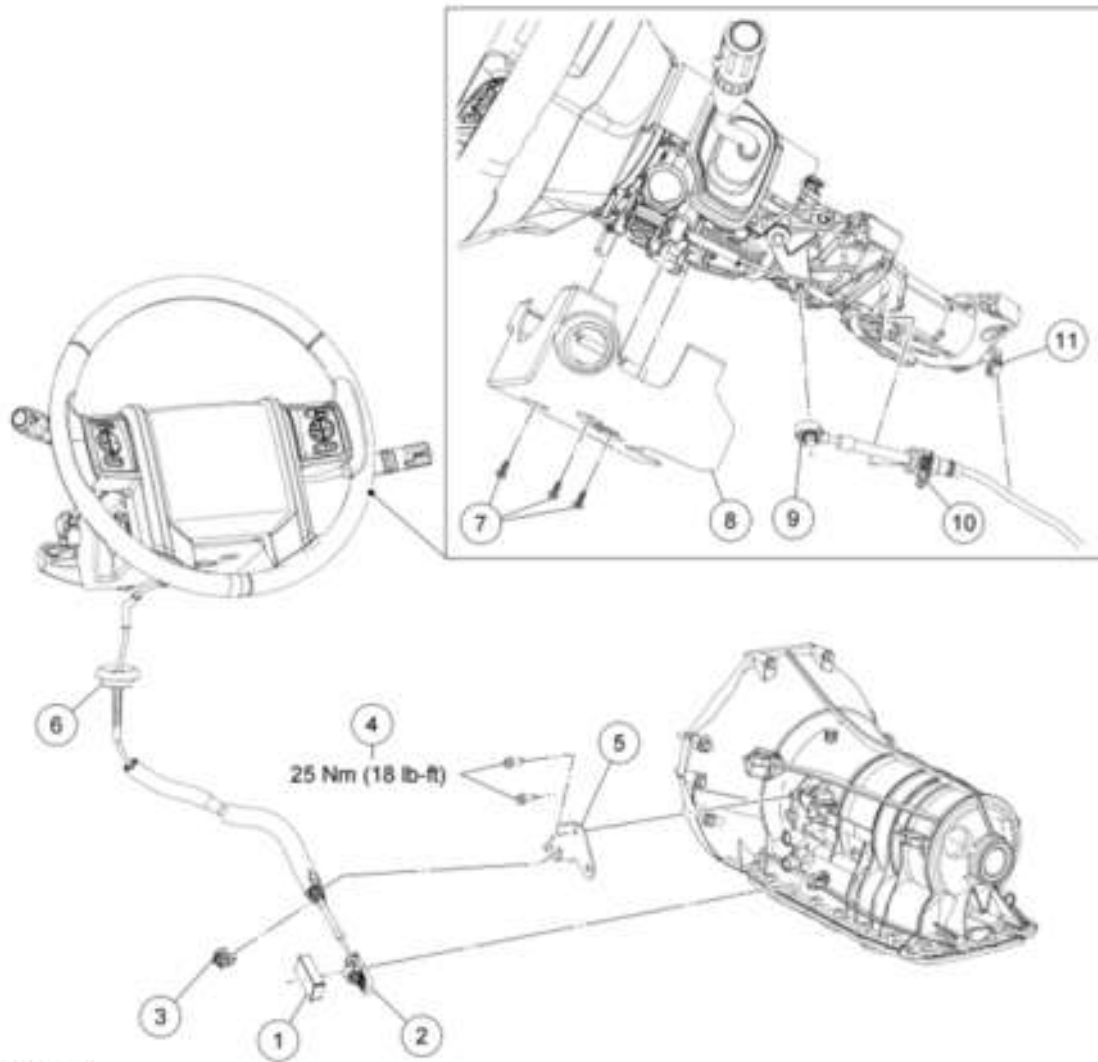


Fig. 219: Locating Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

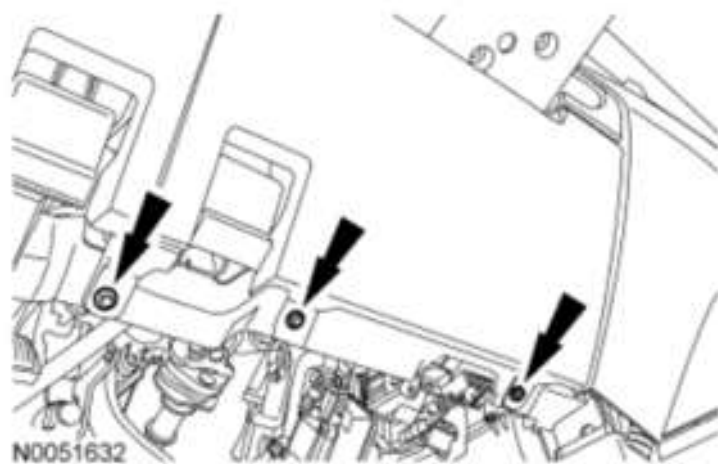
3. Remove the LH exhaust heat shield bolt from the transmission crossmember.



N0106080

Fig. 220: Locating LH Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

4. Remove the 2 transmission insulator and retainer nuts.



N0051632

Fig. 221: Locating Transmission Insulator And Retainer Crossmember Nuts

Courtesy of FORD MOTOR CO.

5. Remove the LH isolator cap bolt.



Fig. 222: Locating LH Isolator Cap Bolt
Courtesy of FORD MOTOR CO.

6. Remove the Evaporative Emission (EVAP) canister front bracket bolt from the transmission crossmember.
7. Position a suitable high-lift transmission jack under the transmission.
8. Remove the 4 transmission crossmember bolts (2 each side) and remove the transmission crossmember.

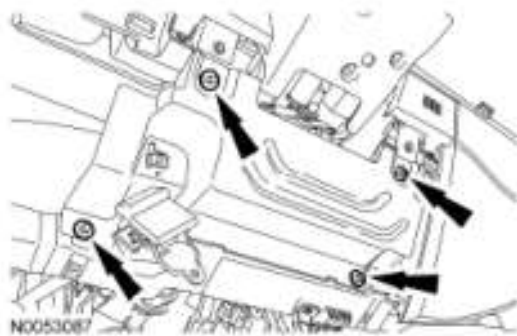


Fig. 223: Locating Transmission Crossmember Bolts
Courtesy of FORD MOTOR CO.

9. Remove the 3 transmission insulator and retainer bolts and remove the transmission insulator and retainer.



Fig. 224: Locating Bolts And Transmission Mounting Bracket From Exhaust Y-Pipe Dual Catalytic Converter
 Courtesy of FORD MOTOR CO.

Four-Wheel Drive (4WD) vehicles

10. If equipped, remove the 4 skid plate bolts and remove the skid plate.

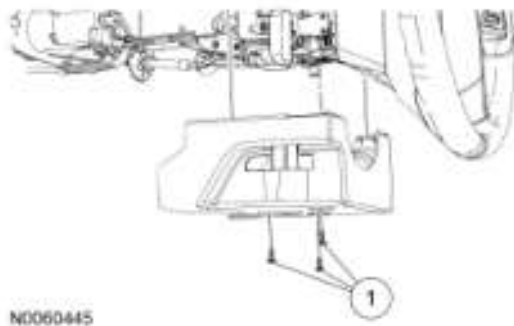


Fig. 225: Locating Skid Plate Bolts
 Courtesy of FORD MOTOR CO.

11. Remove the RH exhaust heat shield bolt from the transmission crossmember.

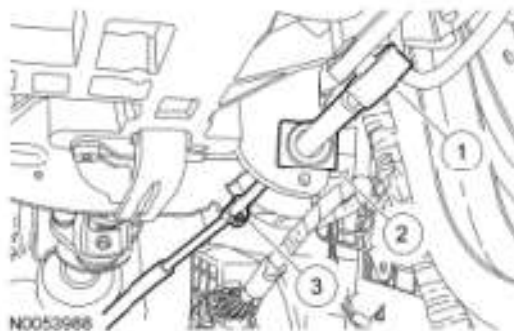


Fig. 226: Locating Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

12. Remove the LH exhaust heat shield bolt from the transmission crossmember.



Fig. 227: Locating LH Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

- NOTE:** Index-mark the driveshaft to maintain initial driveshaft balance for installation.
- 13.

Remove the front driveshaft. For additional information, refer to DRIVESHAFT .

14. Remove the 2 transmission insulator and retainer nuts.

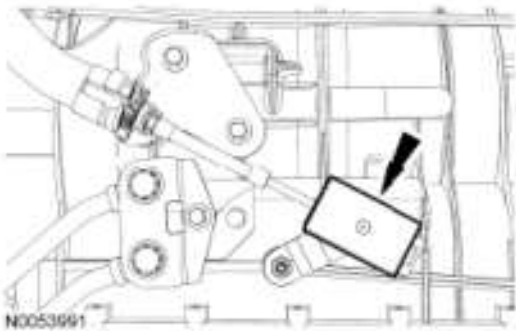


Fig. 228: Locating Transmission Insulator And Retainer Nuts
 Courtesy of FORD MOTOR CO.

15. Remove the LH insulator cap bolt.

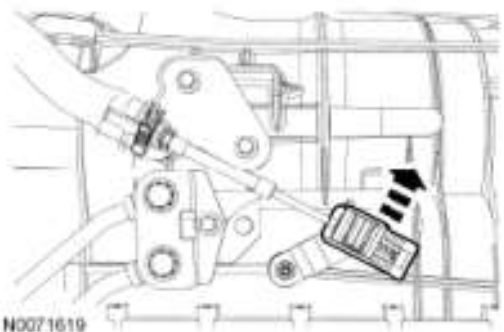


Fig. 229: Locating Isolator Bolt And Cap
 Courtesy of FORD MOTOR CO.

- NOTE:** Right side shown in illustration, left side similar. Transmission crossmember removed for clarity.
- 16.

Remove the 4 transmission insulator and retainer bolts.

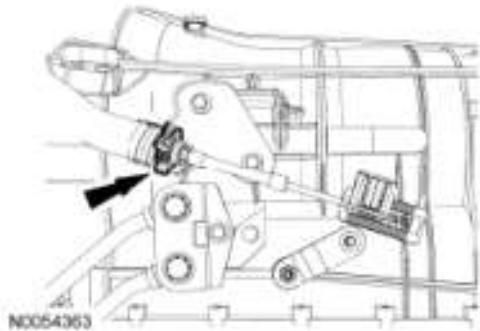


Fig. 230: Locating Transmission Insulator And Retainer Bolts
Courtesy of FORD MOTOR CO.

17. Support the transfer case.

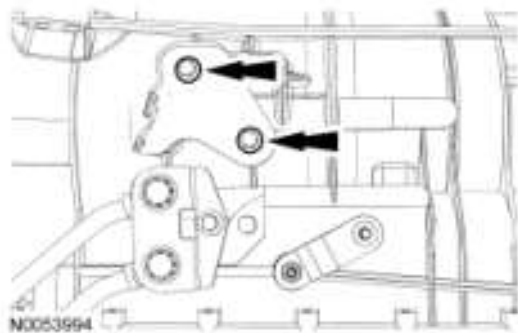


Fig. 231: Locating Transfer Case
Courtesy of FORD MOTOR CO.

18. Remove the 4 transmission crossmember nuts and bolts.

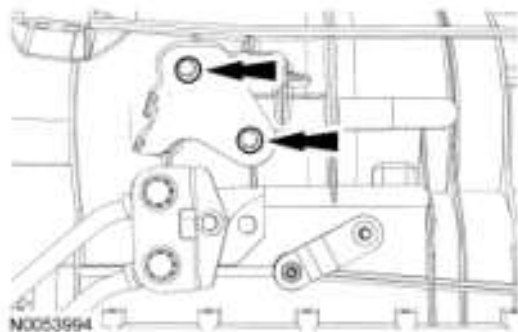


Fig. 232: Locating Transmission Support Crossmember Nuts And Bolts
Courtesy of FORD MOTOR CO.

19. Remove the transmission insulator and retainer.

Installation

RWD vehicles

1. Install the transmission insulator and retainer and the 3 bolts.
 - Tighten to 90 Nm (66 lb-ft).

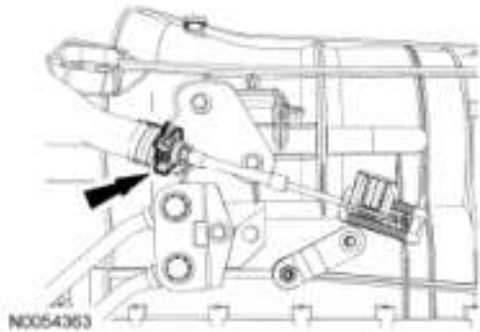


Fig. 233: Locating Transmission Insulator And Retainer And Bolts
Courtesy of FORD MOTOR CO.

2. Install the transmission crossmember and the 4 transmission crossmember nuts and bolts (2 each side).
 - Tighten to 90 Nm (66 lb-ft).

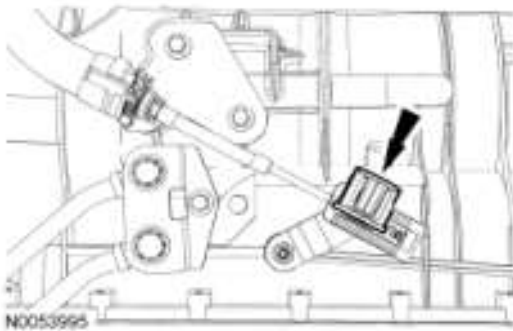


Fig. 234: Locating Transmission Crossmember Bolts
Courtesy of FORD MOTOR CO.

3. Install the Evaporative Emission (EVAP) canister front bracket bolt to the transmission crossmember.
 - Tighten to 20 Nm (177 lb-in).
4. Lower the transmission onto the transmission crossmember and install the 2 transmission insulator and retainer nuts.
 - Tighten to 115 Nm (85 lb-ft).

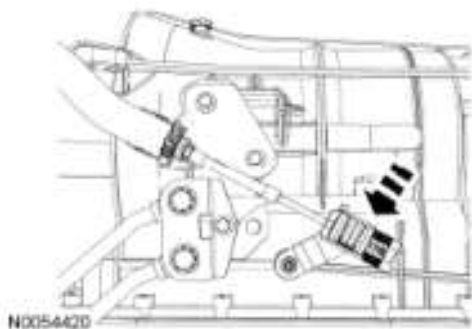


Fig. 235: Locating Rear Transmission Support Nuts
Courtesy of FORD MOTOR CO.

5. Install the LH isolator cap bolt.
 - Tighten to 35 Nm (26 lb-ft).

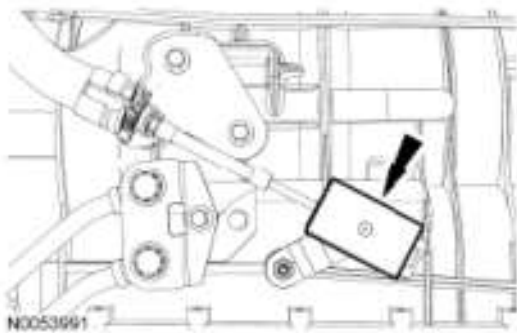


Fig. 236: Locating LH Isolator Cap Bolt
Courtesy of FORD MOTOR CO.

6. Install the LH exhaust heat shield bolt to the transmission crossmember.
 - Tighten to 15 Nm (133 lb-in).



Fig. 237: Locating LH Exhaust Heat Shield Bolt
Courtesy of FORD MOTOR CO.

7. Install the RH exhaust heat shield bolt to the transmission crossmember.
 - Tighten to 15 Nm (133 lb-in).

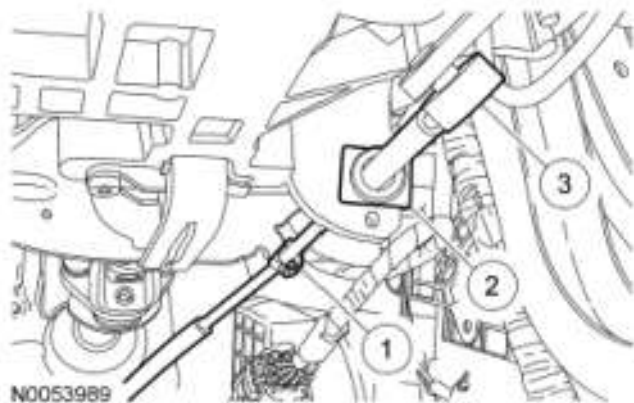


Fig. 238: Locating Exhaust Heat Shield Bolt
Courtesy of FORD MOTOR CO.

4WD vehicles

8. Loosely install the transmission insulator and retainer and the 4 bolts.

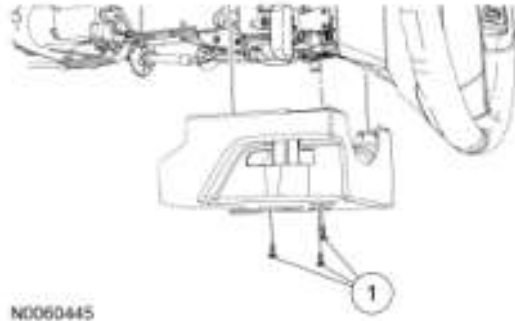


Fig. 239: Locating Transmission Insulator And Retainer Bolts
Courtesy of FORD MOTOR CO.

9. Position the transmission crossmember and loosely install the 2 transmission insulator and retainer nuts.

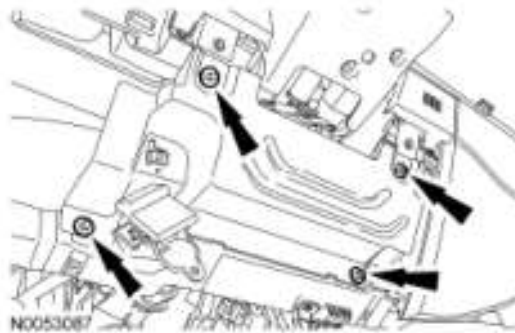


Fig. 240: Locating Transmission Insulator And Retainer Nuts
Courtesy of FORD MOTOR CO.

10. Install the 4 transmission support crossmember bolts and nuts.
 - Tighten the transmission insulator and retainer bolts to 90 Nm (66 lb-ft).
 - Tighten the transmission crossmember bolts and nuts to 90 Nm (66 lb-ft).
 - Tighten the transmission insulator and retainer nuts to 115 Nm (85 lb-ft).



Fig. 241: Locating Transmission Support Crossmember Nuts And Bolts
Courtesy of FORD MOTOR CO.

11. Install the bolt for the LH isolator cap bolt bracket.
 - Tighten to 35 Nm (26 lb-ft).

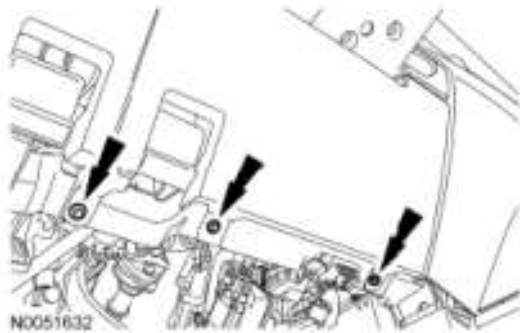


Fig. 242: Locating Isolator Cap Bolt Bracket
Courtesy of FORD MOTOR CO.

12. Install the LH exhaust heat shield bolt to the transmission crossmember.
 - Tighten to 15 Nm (133 lb-in).

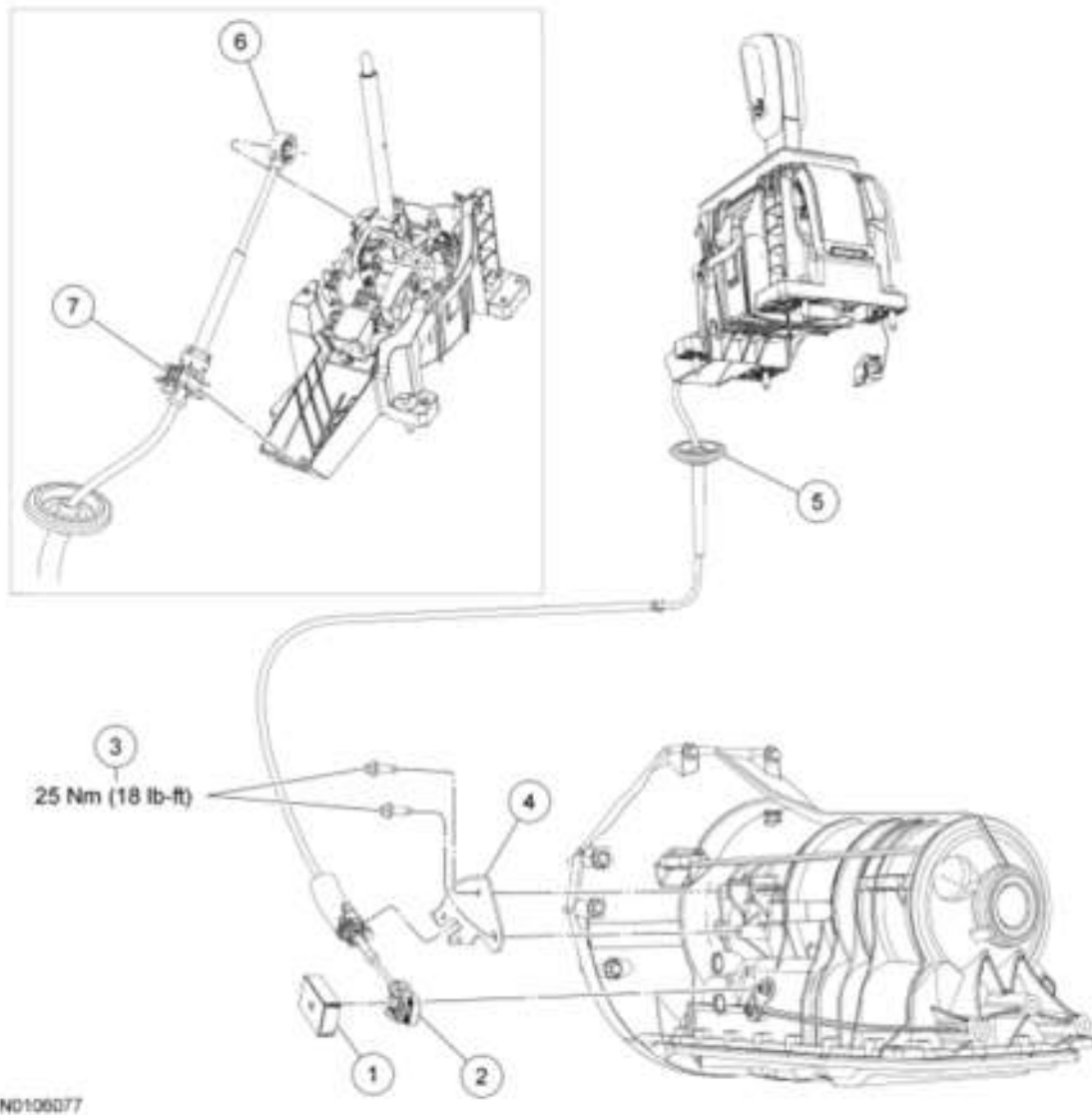


Fig. 243: Locating LH Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

13. Install the RH exhaust heat shield bolt to the transmission crossmember.
 - Tighten to 15 Nm (133 lb-in).

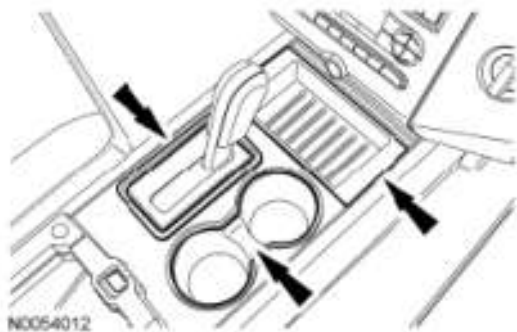


Fig. 244: Locating Exhaust Heat Shield Bolt
 Courtesy of FORD MOTOR CO.

14. **NOTE:** **Align the index-marks made during removal.**

Install the front driveshaft. For additional information, refer to **DRIVESHAFT** .

15. If equipped, install the skid plate and the 4 skid plate bolts.
- Tighten to 40 Nm (30 lb-ft).



Fig. 245: Locating Skid Plate Bolts
Courtesy of FORD MOTOR CO.