CERTAIN 2011 THROUGH 2013 MODEL YEAR F-150, EXPEDITION, NAVIGATOR, AND MUSTANG VEHICLES EQUIPPED WITH A 6R80 AUTOMATIC TRANSMISSION — TRANSMISSION RANGE SENSOR INSPECTION AND/OR REPLACEMENT

NEW! OVERVIEW

In some of the affected vehicles, it is possible that an improper output signal from the Transmission Range Sensor (TRS), which is part of the transmission lead frame assembly, could result in one or more of the following intermittent symptoms when the transmission gearshift lever is placed in reverse:

- *Transmission will not engage into reverse gear*
- *Electronic transmission PRNDL indicator does not display reverse (if equipped)*
- *Back-up lamps are inoperative*
- *Intermittent rear video camera operation (if equipped)*

Before demonstrating or delivering any of the vehicles involved in this recall, dealers are to check the operation of the TRS with a new TRS inspection special service tool, and if necessary, replace the transmission lead frame. This service must be performed on all affected vehicles at no charge to the vehicle owner.

Rotunda TRS Gauge, tool number 307-697, was shipped to all dealers to the attention of the Service Manager on May 24, 2012.

NEW! *INSPECTION PROCEDURE*

F-150 and Expedition/Navigator Vehicles

1. Position the vehicle on a hoist. Apply the parking brake.
2. With the engine "OFF" turn the key to the "ON" position.
3. Shift the transmission into "DRIVE".
4. Raise the vehicle on a hoist. For additional information, refer to Workshop Manual (WSM), Section 100-02.
    - Do not shift the transmission out of the "DRIVE" position.
5. If equipped, remove the underbody shield.

6. If equipped, remove the nut and the selector lever cable splash shield. See Figure 1.

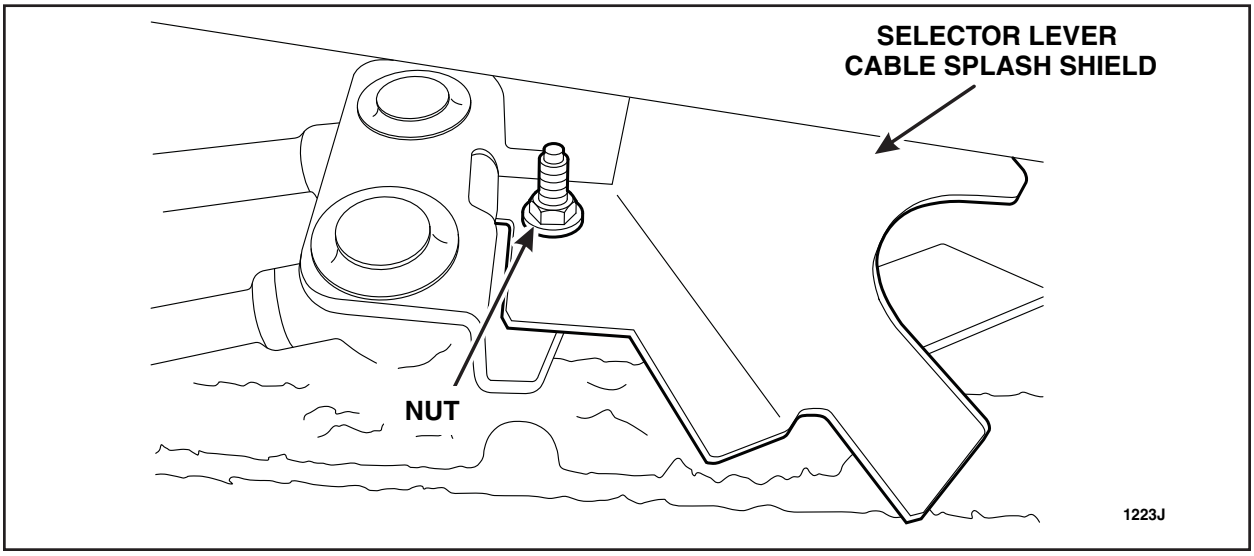

FIGURE 1

7. If equipped, remove the heat shield from the selector lever cable. See Figure 2.

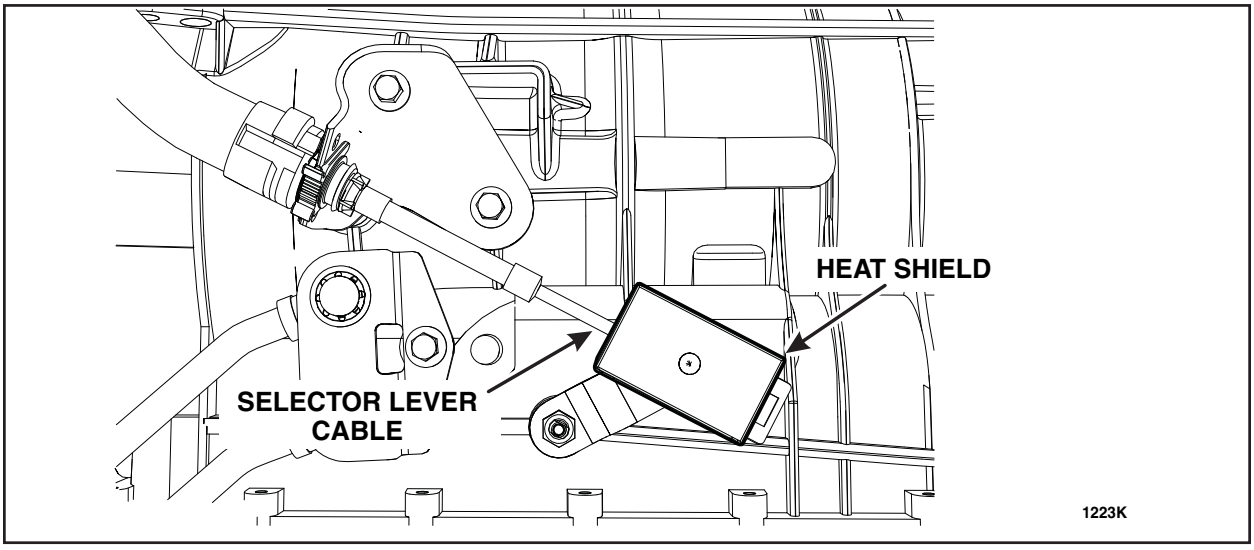

FIGURE 2

8. **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: The column shift is shown, the floor shift is similar.

Remove the selector lever cable and bracket. See Figure 3.

a. Detach the selector lever cable end from the transmission manual control lever by prying gently between the transmission manual control lever and the selector lever cable end.
b. Remove and discard the two selector lever cable bracket bolts and position the selector lever cable bracket aside.

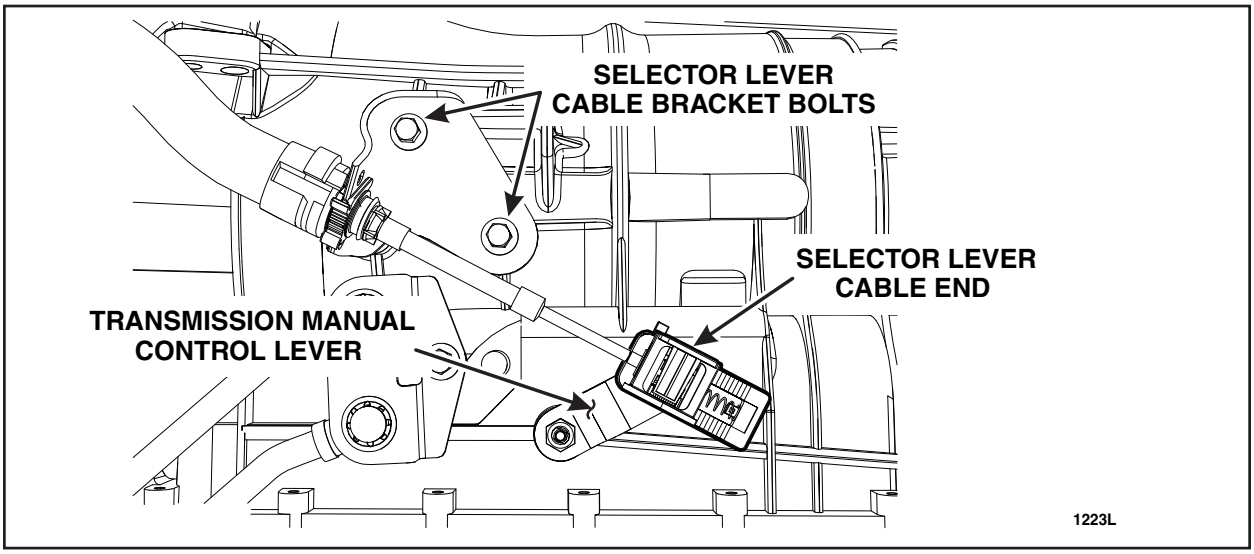

FIGURE 3

9. Position the manual control lever so that the transmission is in the "REVERSE" position.

a. Rotate the manual control lever clockwise until it stops in the "PARK" position.
b. Rotate the manual control lever one click counterclockwise to the "REVERSE" position.
c. Verify that the reverse lights are on.
   - If the reverse lights are on, continue to Step 10.
   - If the reverse lights are not on, the transmission range sensor failed inspection and the lead frame requires replacement. Complete Steps 15-18 and then proceed to “Repair Procedure” on Page 9.

10. Install the special tool 307-697 onto the transmission. See Figure 4.

    a. Position the special tool 307-697 and spacer block supplied with the special tool onto the transmission over the selector lever cable bracket mounting holes.
    b. Loosely install the two longer (40 mm long) bolts supplied with the special tool.
    c. Position special tool 307-697 to make contact with but not move the manual control lever pin. Snug the bolts down while holding the tool to prevent tool movement.

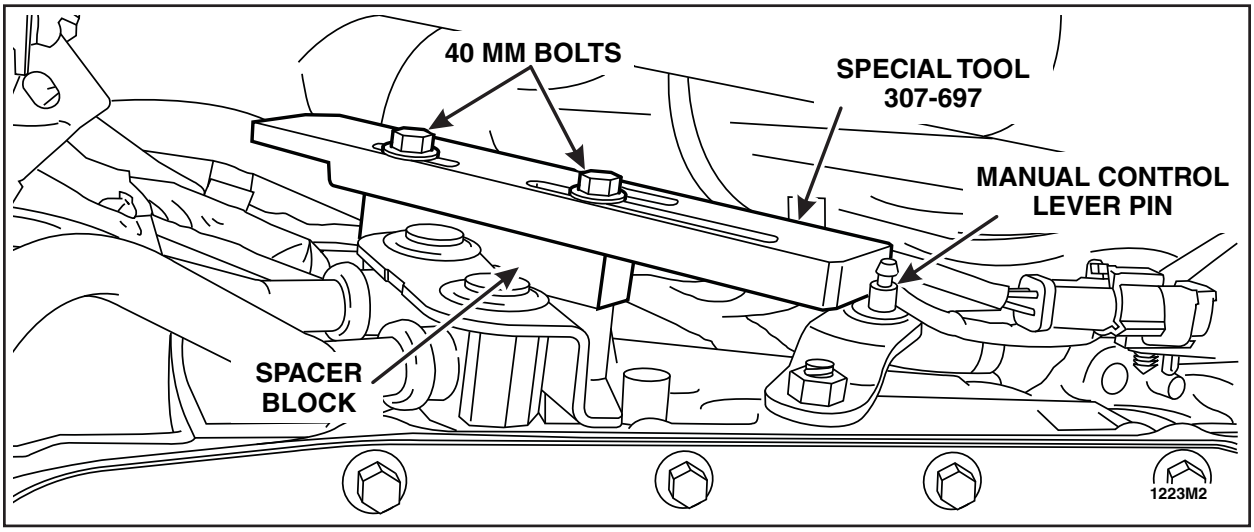

FIGURE 4

11. Install a 0.635 mm (0.025 in) feeler gauge between special tool 307-697 and the manual control lever pin. See Figure 5.

NOTE: Do not allow the manual control lever to snap back against the feeler gauge; doing so may result in a false reading.

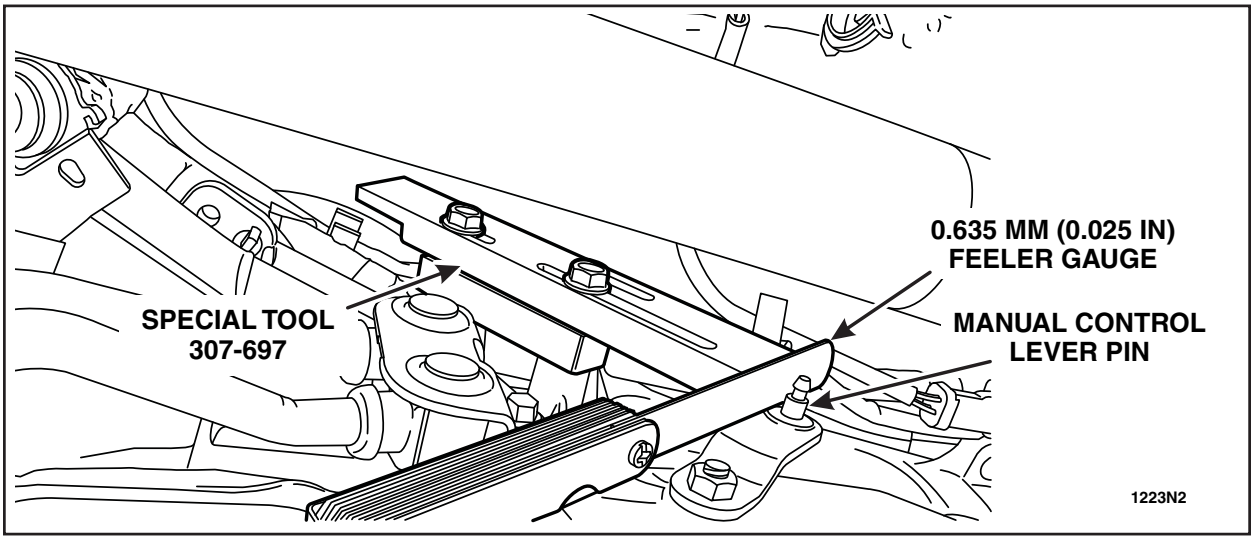

FIGURE 5

12. Verify that the reverse lights are on with the feeler gauge in position.

    - If the reverse lights are on while the transmission manual control lever is in "REVERSE" and the 0.635 mm (0.025 in) feeler gauge is inserted, the vehicle has passed inspection and can be reassembled. Complete Steps 13-22.
    - If the reverse lights are off while the transmission manual control lever is in "REVERSE" and the 0.635 mm (0.025 in) feeler gauge is inserted, the vehicle has failed inspection. Complete Steps 13-18 and then proceed to “Repair Procedure” on Page 9.

13. Remove the feeler gauge from the manual control lever.

14. Remove the special tool 307-697 from the transmission.

15. Position the manual control lever so that the transmission is in the "DRIVE" position.

    a. Rotate the manual control lever clockwise until it stops in the "PARK" position.
    b. Rotate the manual control lever three clicks counterclockwise to the "DRIVE" position.

16. Install the selector lever cable bracket.

    a. Install the selector lever cable end onto the transmission manual control lever.
    b. Install the selector lever cable bracket and two *new* selector lever cable bracket bolts onto the transmission.
        - Tighten to 25 Nm (18 lb-ft).

17. If equipped, install the heat shield onto the selector lever cable. See Figure 2.

18. If equipped, install the selector lever cable splash shield and the nut. See Figure 1.

    - Tighten to 12 Nm (106 lb-in).

Vehicles that Passed Inspection

19. If equipped, install the underbody shield.

20. Lower the vehicle.

21. Release the parking brake.

22. Release the vehicle to the customer.

Vehicles that Failed Inspection

- Go to "Repair Procedure" on Page 9.

NEW! INSPECTION PROCEDURE

Mustang Vehicles

1. Position the vehicle on a hoist. Apply the parking brake.
2. With the engine "OFF" turn the key to the "ON" position.
3. Shift the transmission into "DRIVE".
4. **NOTE:** The IDS will need to be accessible while the vehicle is raised on the hoist.

   Connect IDS and start a new session.
5. Raise the vehicle on a hoist. For additional information, refer to WSM, Section 100-02.

   - Do not shift the transmission out of the "DRIVE" position.
6. **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.**

   Remove the selector lever cable and bracket. See Figure 1.

   a. Detach the selector lever cable end from the transmission manual control lever by prying gently between the transmission manual control lever and the selector lever cable end.
   b. Remove and discard the two selector lever cable bracket bolts and position the selector lever cable bracket aside.

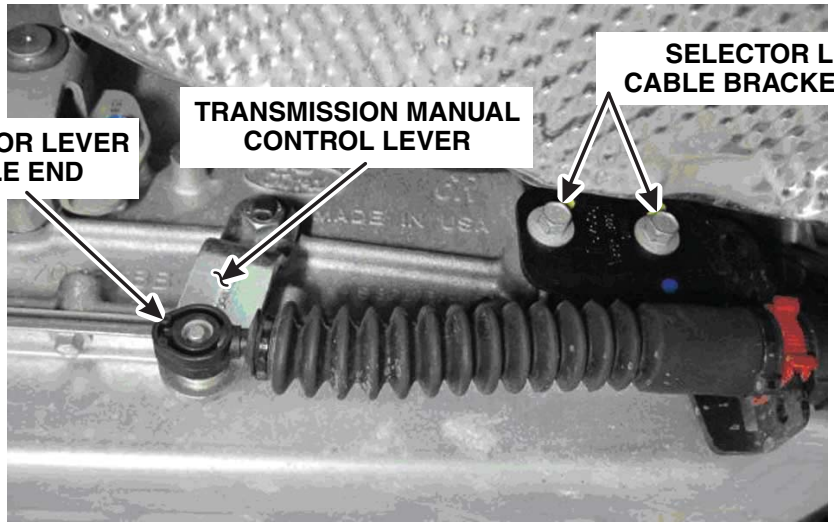

FIGURE 1

7. Position the manual control lever so that the transmission is in the "REVERSE" position.

    a. Rotate the manual control lever clockwise until it stops in the "PARK" position.
    b. Rotate the manual control lever one click counterclockwise to the "REVERSE" position.

8. Using IDS monitor the transmission TR_DC PID.

    - If the TR_DC PID is between 32-38%, continue to Step 9.
    - If the TR_DC PID is not between 32%-38%, the transmission range sensor failed inspection and the lead frame requires replacement. Complete Steps 14-15 and then proceed to "Repair Procedure" on Page 9.

9. Install the special tool 307-697 onto the transmission. See Figure 2.

    a. Position the special tool 307-697 onto the transmission over the selector lever cable bracket mounting holes.
    b. Loosely install the two shorter (25 mm long) bolts supplied with the special tool.
    c. Position special tool 307-697 to make contact with but not move the manual control lever pin. Snug the bolts down while holding the tool to prevent tool movement.

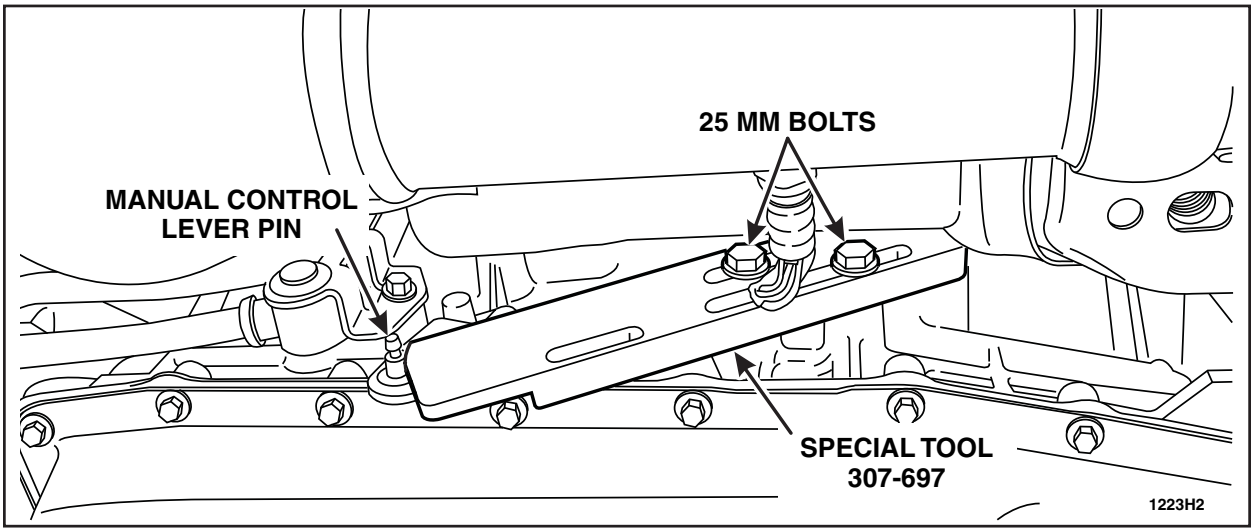

FIGURE 2

10. Install a 0.635 mm (0.025 in) feeler gauge between special tool 307-697 and the manual control lever pin. See Figure 3.

NOTE: Do not allow the manual control lever to snap back against the feeler gauge; doing so may result in a false reading.

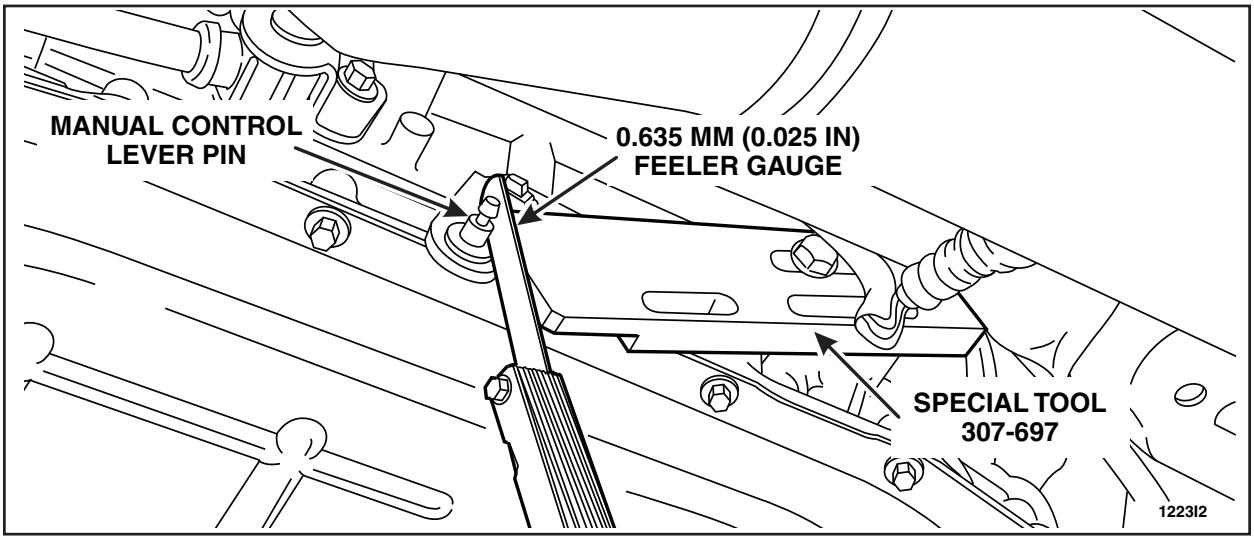

FIGURE 3

11. Using IDS monitor the transmission TR_DC PID.

- If the TR_DC PID is between 32-38%, while the transmission manual control lever is in "REVERSE" and the 0.635 mm (0.025 in) feeler gauge is inserted, the vehicle has passed inspection and can be reassembled. Complete Steps 12-18.
- If the TR_DC PID is not between 32%-38%, while the transmission manual control lever is in "REVERSE" and the 0.635 mm (0.025 in) feeler gauge is inserted, the vehicle has failed inspection. Complete Steps 12-15 and then proceed to “Repair Procedure” on Page 9.

12. Remove the feeler gauge from the manual control lever.

13. Remove the special tool 307-697 from the transmission.

14. Position the manual control lever so that the transmission is in the "DRIVE" position.

a. Rotate the manual control lever clockwise until it stops in the "PARK" position.
b. Rotate the manual control lever three clicks counterclockwise to the "DRIVE" position.

15. Install the selector lever cable bracket.

a. Install the selector lever cable end onto the transmission manual control lever.
b. Install the selector lever cable bracket and two *new* selector lever cable bracket bolts onto the transmission.
   - Tighten to 25 Nm (18 lb-ft).

Vehicles that Passed Inspection

16. Lower the vehicle.

17. Release the parking brake.

18. Release the vehicle to the customer.

Vehicles that Failed Inspection

- Go to "Repair Procedure".

REPAIR PROCEDURE

NOTE: Do not proceed with this procedure until parts are ordered and received. This will prevent excessive transmission fluid loss while the main control assembly is removed.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to WSM, Section 100-02.

2. Remove the transmission fluid fill plug. See Figure 1.

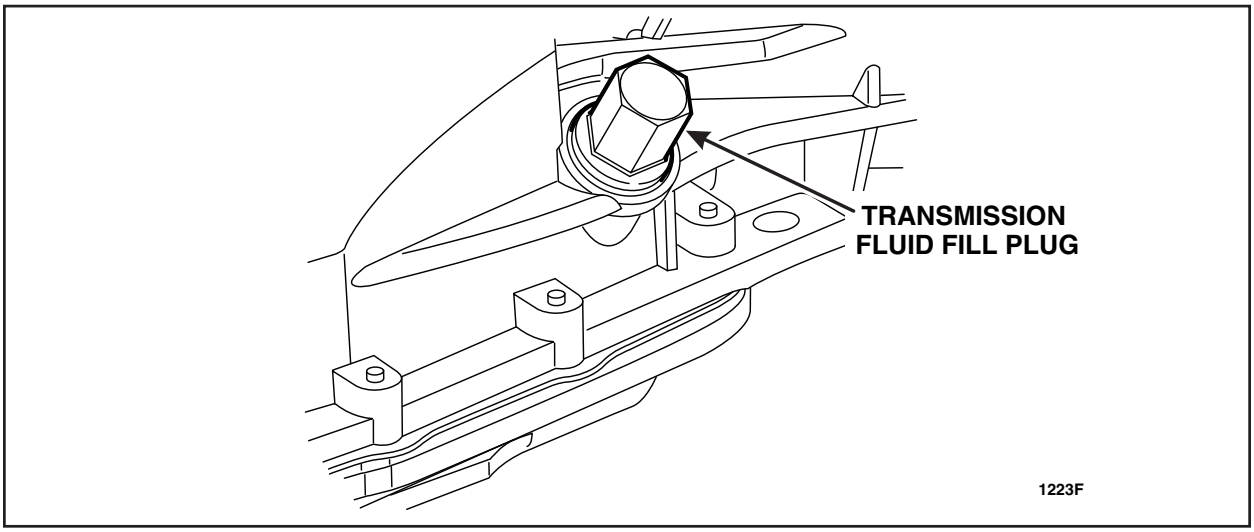

FIGURE 1

NOTICE: All recovered transmission fluid should be placed in clean suitable containers to prevent fluid contamination. Any tools or machines used for storage or transfer of other fluids must be purged and cleaned before use.

NOTE: Unless the transmission fluid is contaminated, it is to be reused for this repair.

NOTE: During disassembly, ensure that a clean drain pan is placed under the transmission in order to recover the maximum amount of transmission fluid possible.

3. Using a suitable clean fluid transfer pump such as 307-D465, MIT7201 or an equivalent commercially available tool, recover the transmission fluid through the transmission fill hole.

NOTE: Depending on the length of time since the vehicle was last started, approximately 5 to 8 quarts of transmission fluid may be recovered after the transmission fluid pan, fluid filter, and main control assembly are removed.

4. Remove the main control assembly. For additional information, refer to WSM, Section 307-01.

5. Remove the six long bolts from the molded lead frame. See Figure 2.

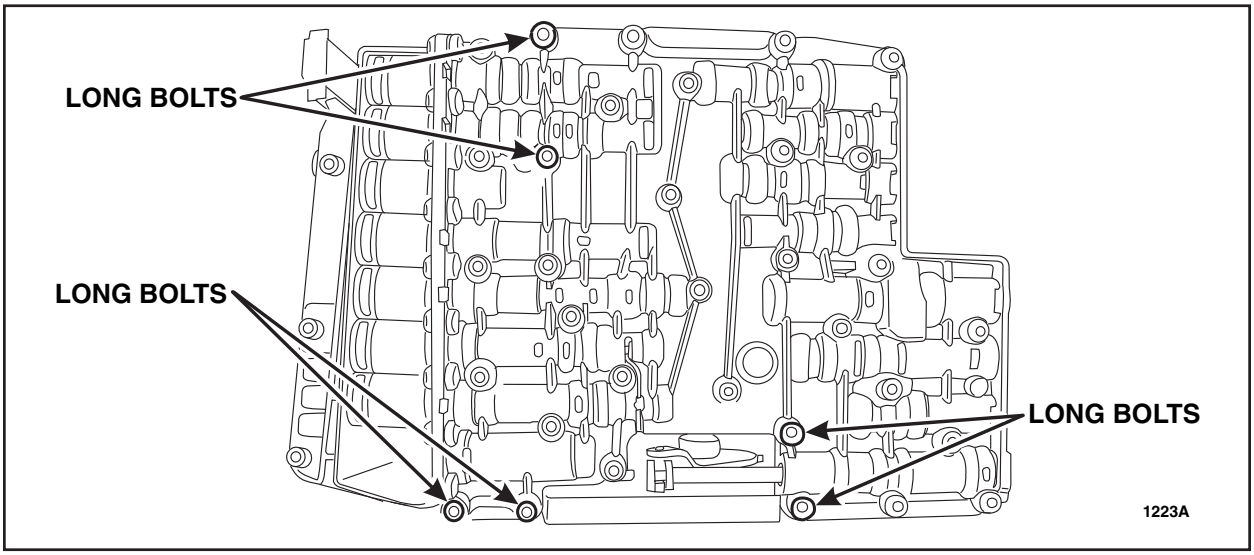

FIGURE 2

6. Carefully separate the molded lead frame from the main control assembly. See Figure 3.

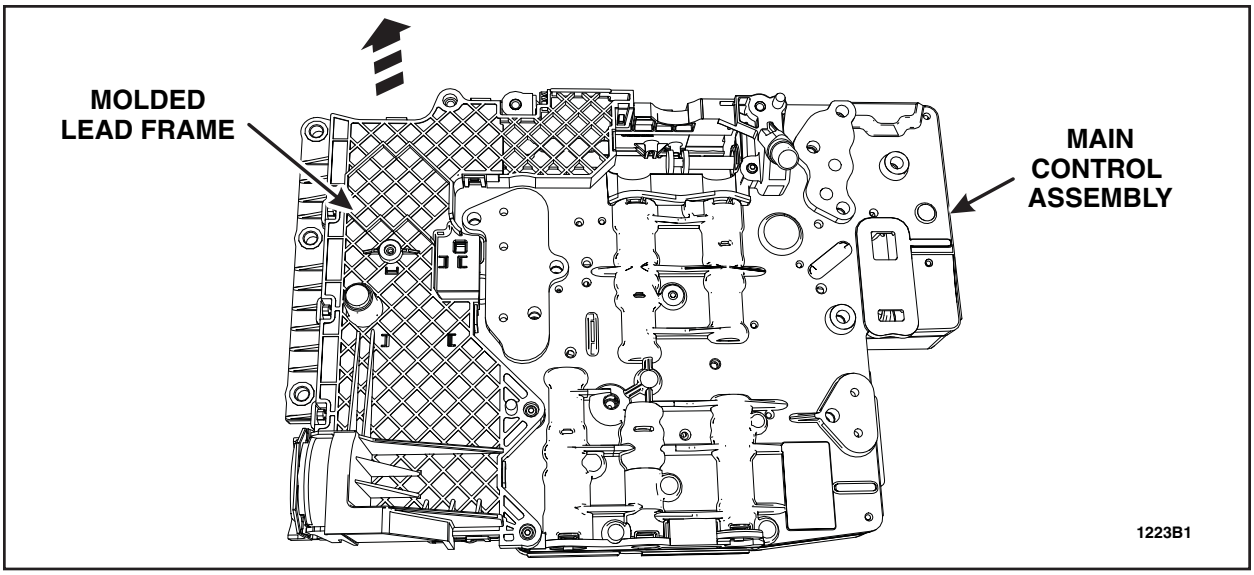

FIGURE 3

7. **NOTE:** The TRS pin must be aligned with the manual control valve during installation.

   Position the *new* molded lead frame on the main control assembly. See Figure 4.

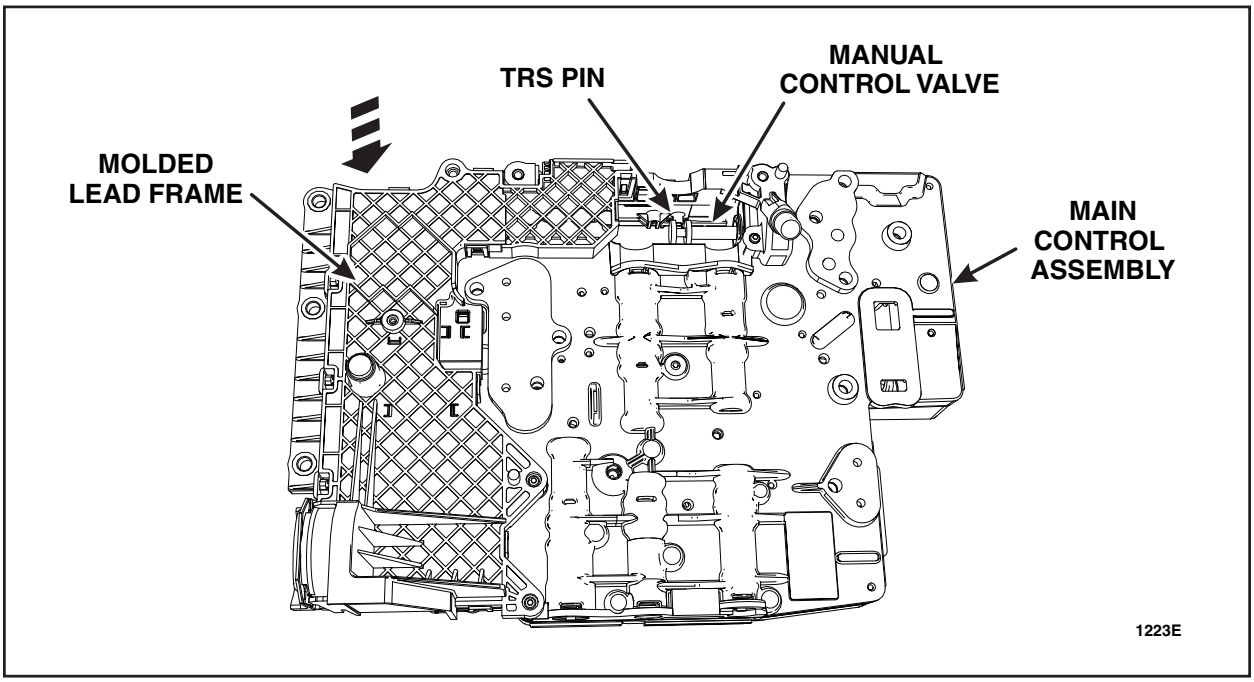

FIGURE 4

8. Install the six long bolts to the *new* molded lead frame. See Figure 5.

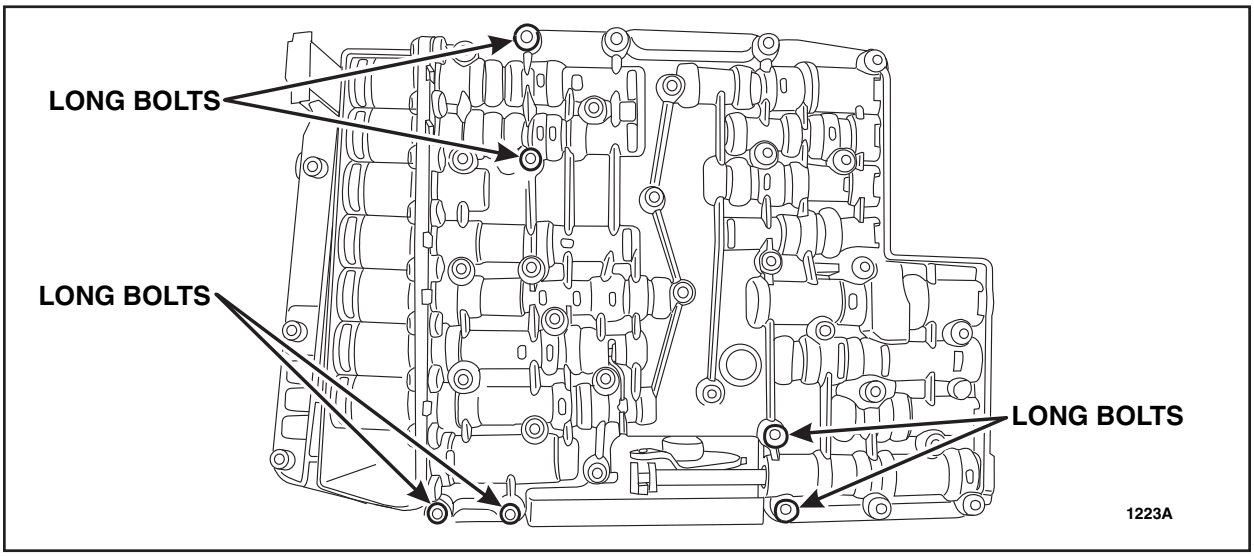

FIGURE 5

9. Tighten the long bolts to 6 Nm (53 lb-in) in the sequence shown. See Figure 6.

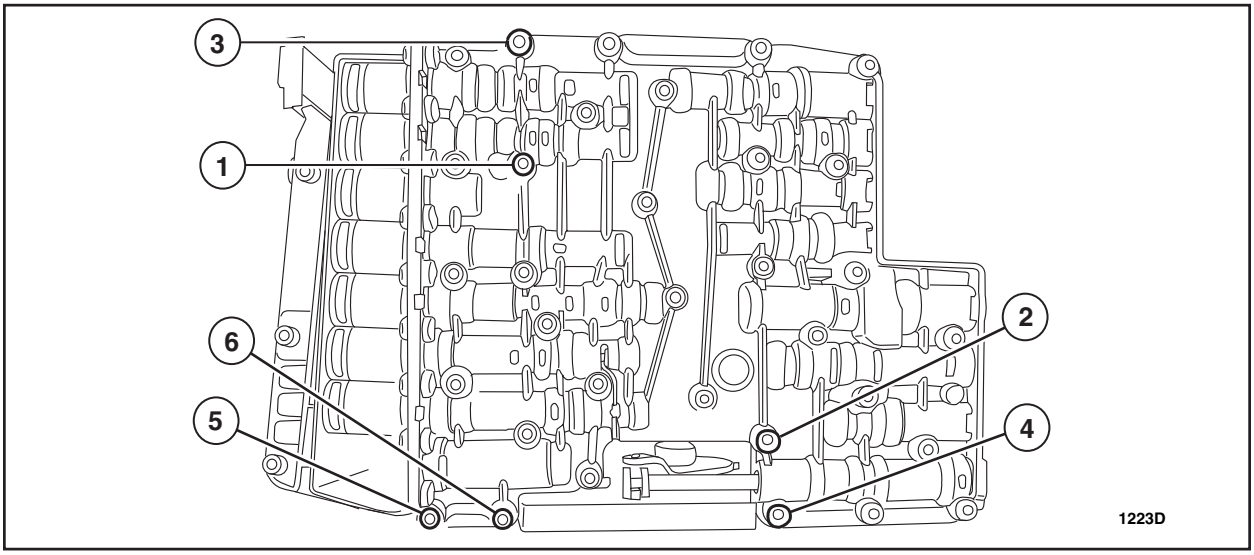

FIGURE 6

10. Install the main control assembly. For additional information, refer to WSM, Section 307-01.

11. Return vehicle to customer.