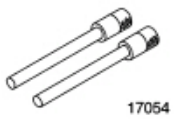
Main Control Valve Body

Base Part Number: 7A100

Special Tool(s) / General Equipment

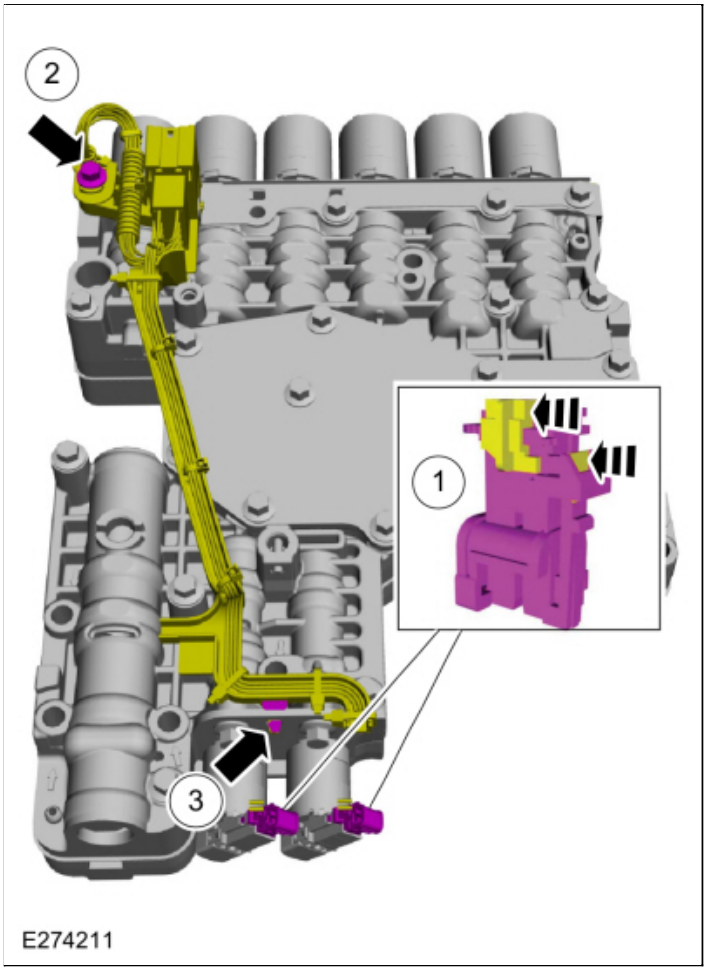
 17054	307-299 Alignment Pins, Valve Body TKIT-1994-LMH/MH2 TKIT-1994-F TKIT-1994-FLM/FM

Materials

Name	Specification
Motorcraft® MERCON® ULV Automatic Transmission Fluid XT-12-QULV	WSS-M2C949-A MERCON® ULV

1. For solenoid and valve identification.
   Refer to: Main Control Valve Body (307-01 Automatic Transmission - 10-Speed Automatic Transmission - 10R80, Description and Operation).

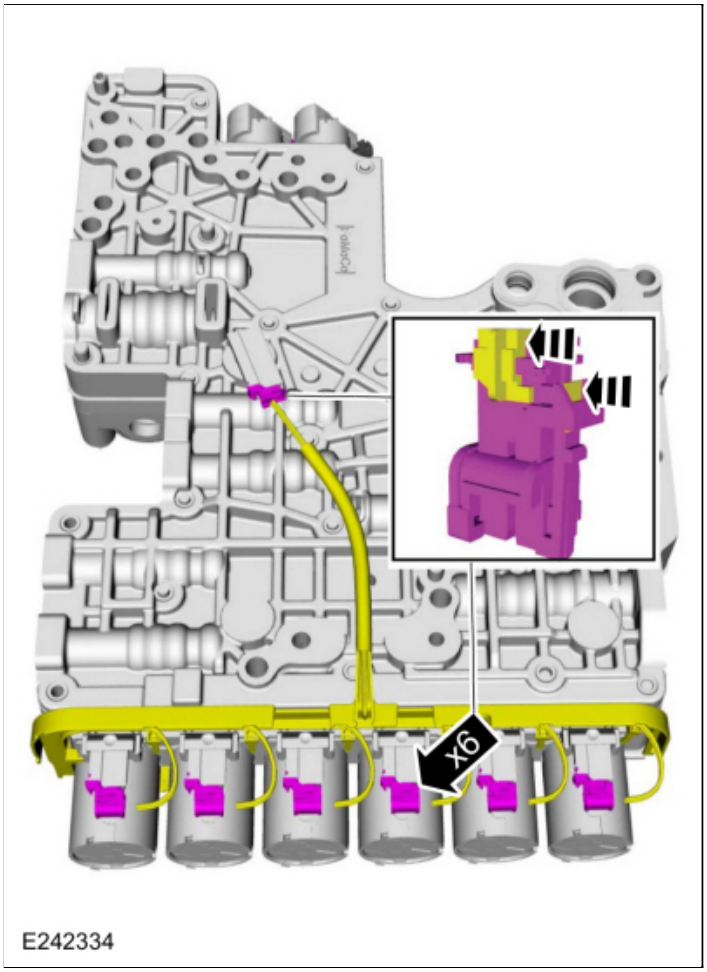
2. Disconnect the internal wiring harness.
   1. Slide the plastic lock to the unlock position. While pressing the plastic tab, disconnect the electrical connector.
   2. Remove internal wiring harness retaining bolt.
   3. Disconnect the internal wiring harness retainer.



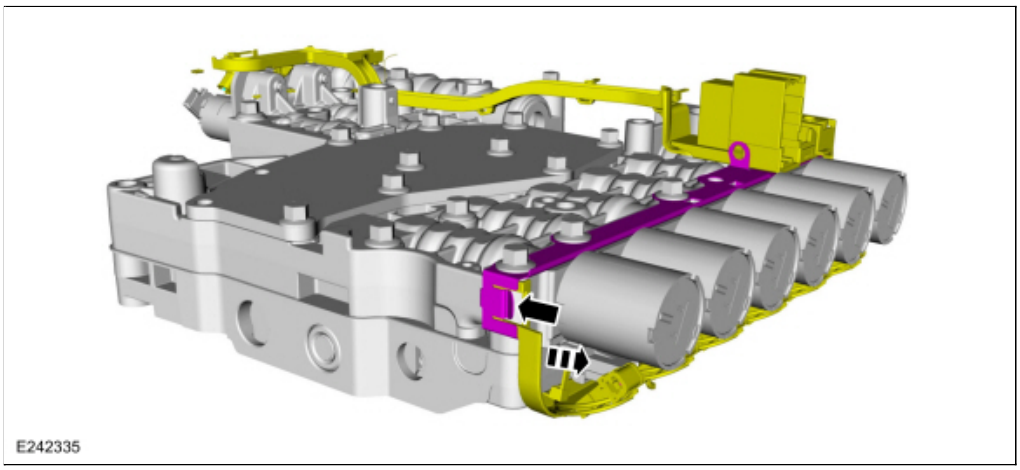
3.

Disconnect the internal wiring harness electrical connectors.

- Slide the plastic lock to the unlock position. While pressing the plastic tab, disconnect the electrical connector.



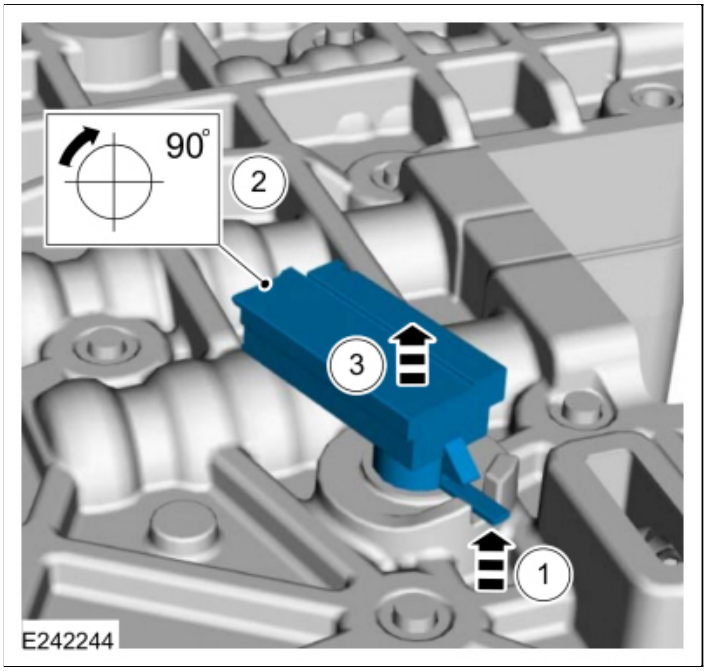
4. Release the retainer and remove the internal wiring harness assembly.



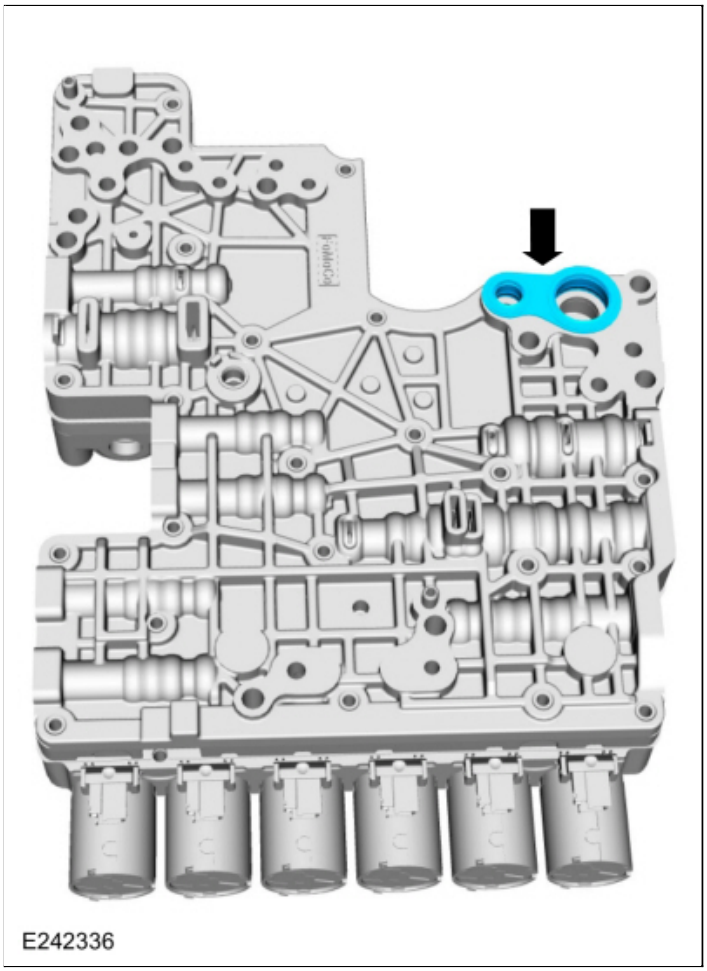
5.

Remove the TFT sensor.

1. Lift plastic tab.
2. Rotate the TFT sensor clockwise.
3. Remove the TFT sensor.

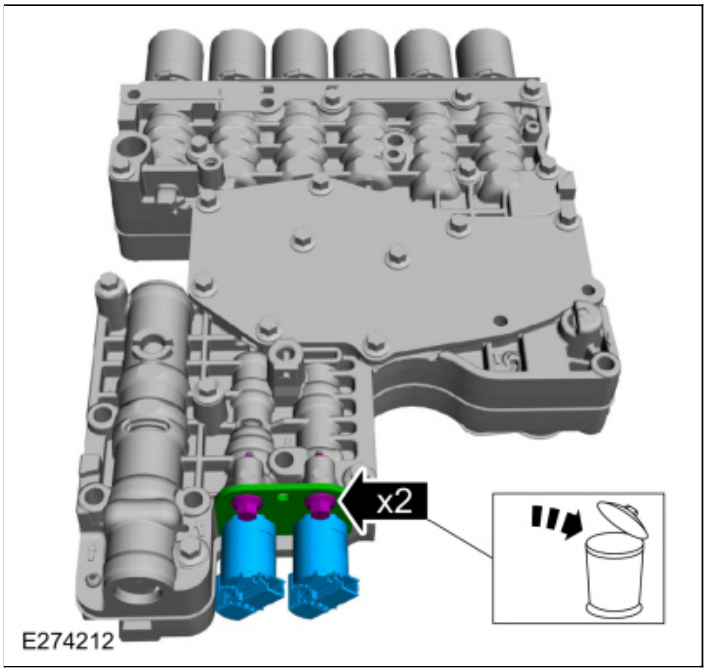


6. Remove the main control assembly to transmission fluid pump seal.

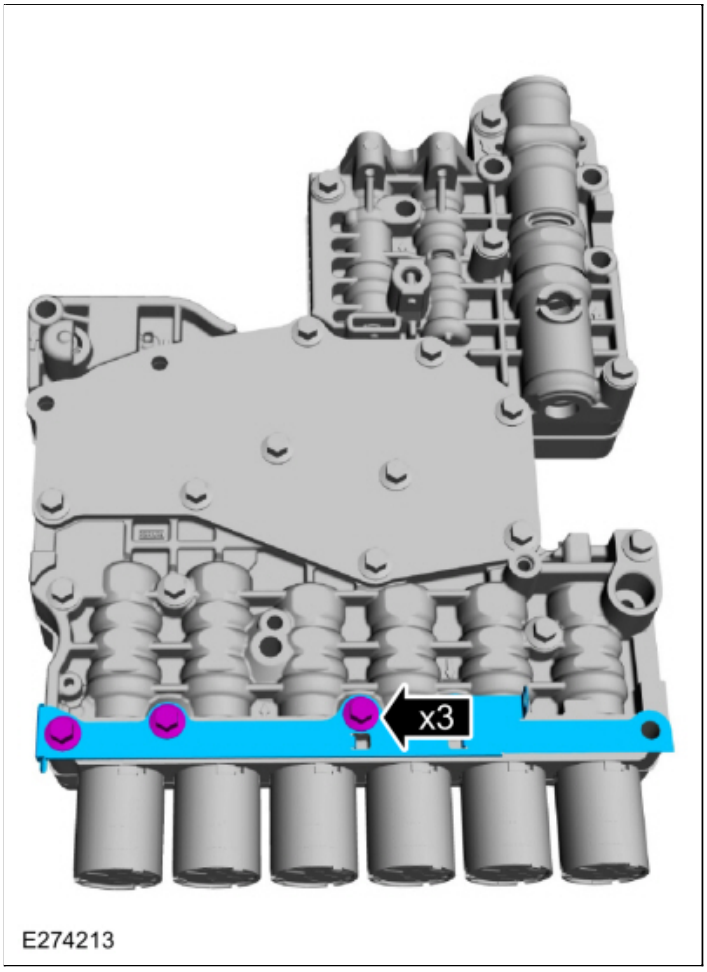


7. **NOTE:** *The orientation of the solenoids before removal.*

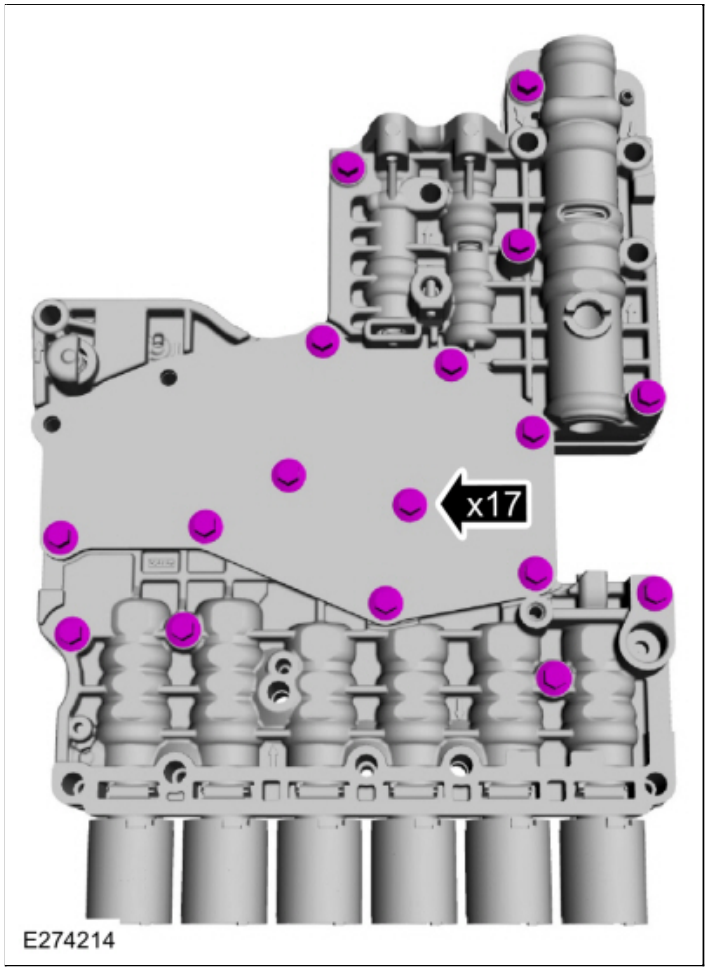
   Remove and discard the bolts. Remove the solenoid retaining plate, TCC solenoid and the LPC solenoid.



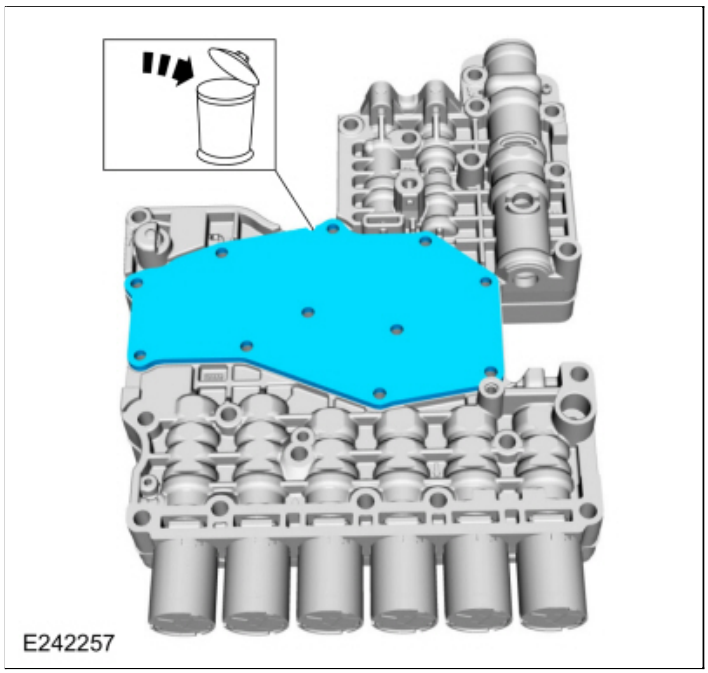
8. Remove bolts and the shift solenoid retaining plate.



9. Remove the valve body bolts.

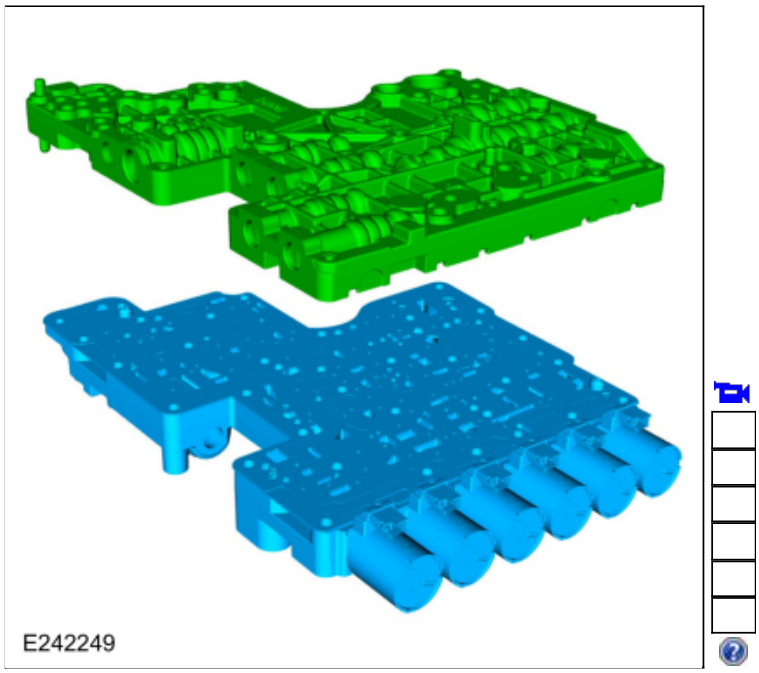


10. Remove and discard the valve channel plate.



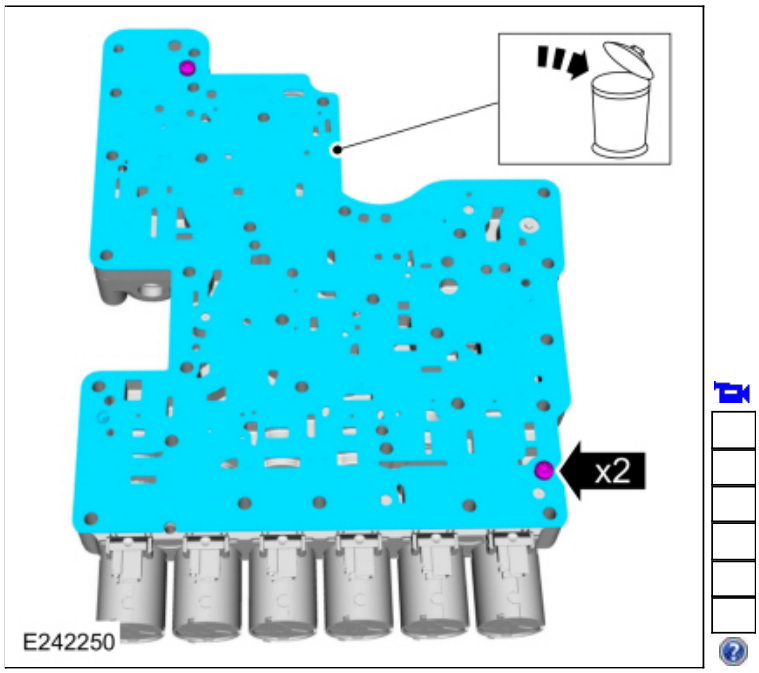
11. **NOTICE: Many components and surfaces in the main control valve body are precision machined. Use care when handling the upper and lower valve body or damage can occur to the machined surfaces.**

    Separate the upper valve body from the lower valve body.



Lower Valve Body

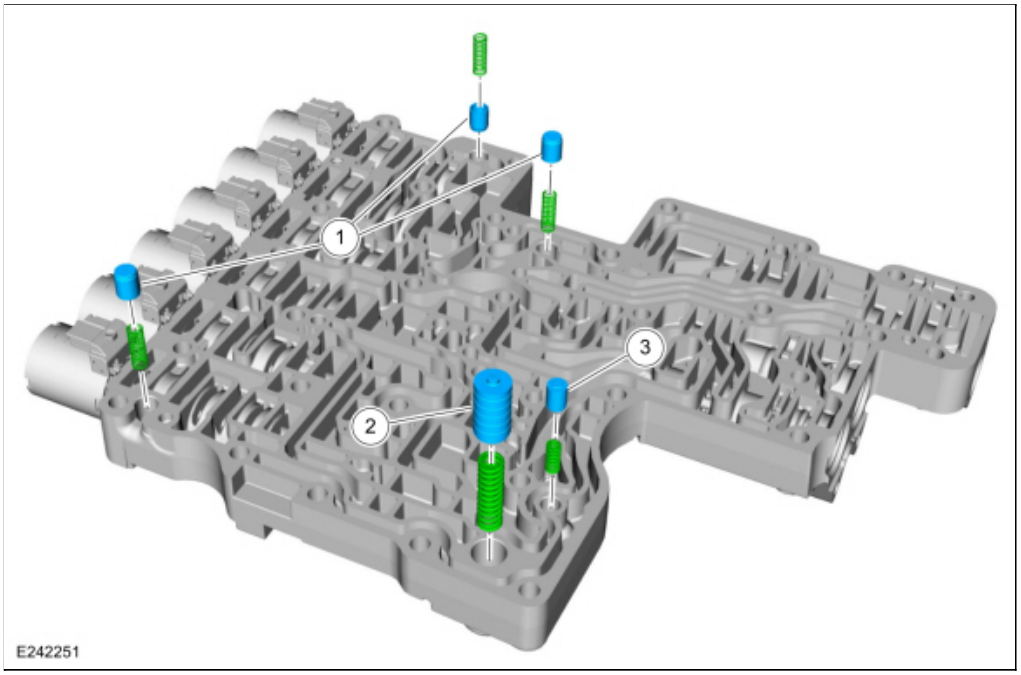
12. Remove bolts and discard the valve body separator plate.



13. **NOTE:** *The orientation of the valves and springs.*

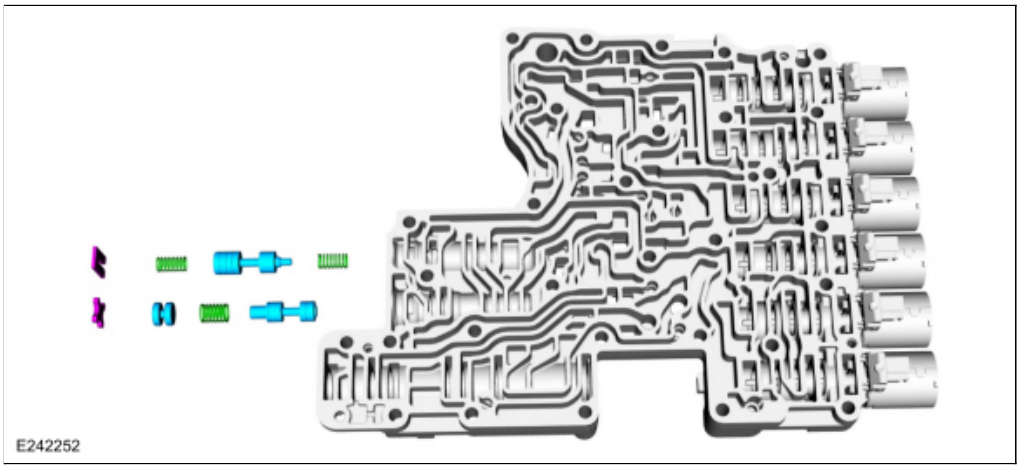
Remove the following items:

1. Check valve assemblies
2. LPC damper assembly
3. TCC damper assembly



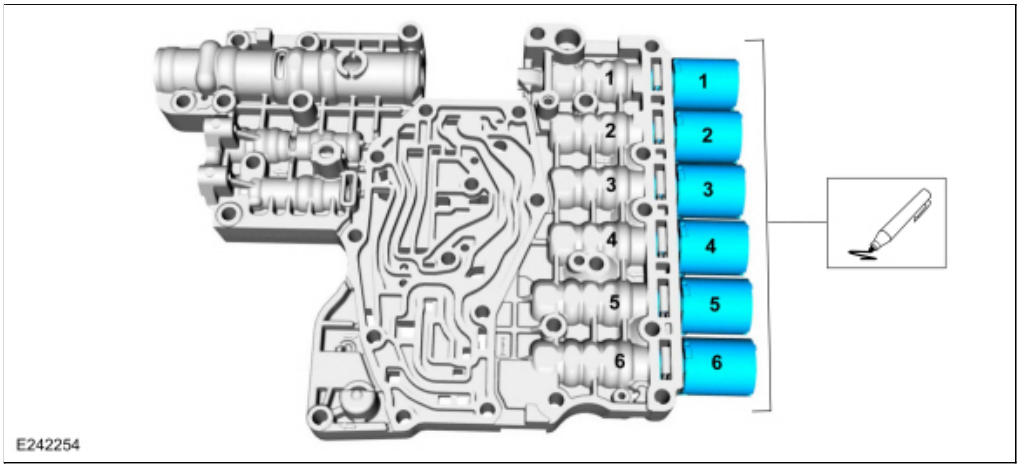
14. **NOTICE: Note the location of the retaining clips, caps, valves and valve springs for assembly. Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.**

    Remove the retaining clips, cap, valves and valve springs from each bore of the valve body assembly.



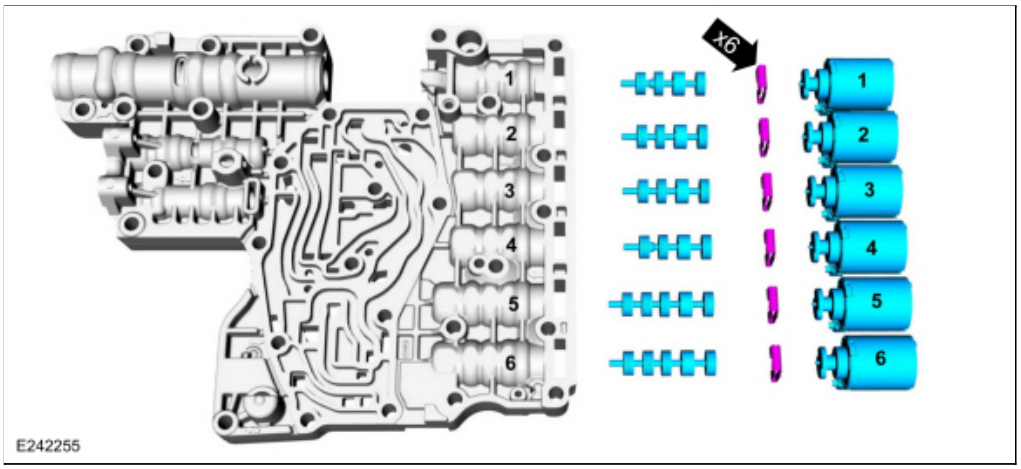
15. **NOTICE: Solenoids and clutch control valves may visually appear the same but they are calibrated from the factory and are not all the same. Use care not to assemble the main control assembly incorrectly. Incorrect solenoid and clutch control valve installation results in poor transmission shift quality.**

    Number the solenoids 1 through 6 and number the main control solenoid ports 1 through 6 to correspond to the solenoids.



16. **NOTE:** *Note the location of the clutch control valves and solenoids for assembly.*

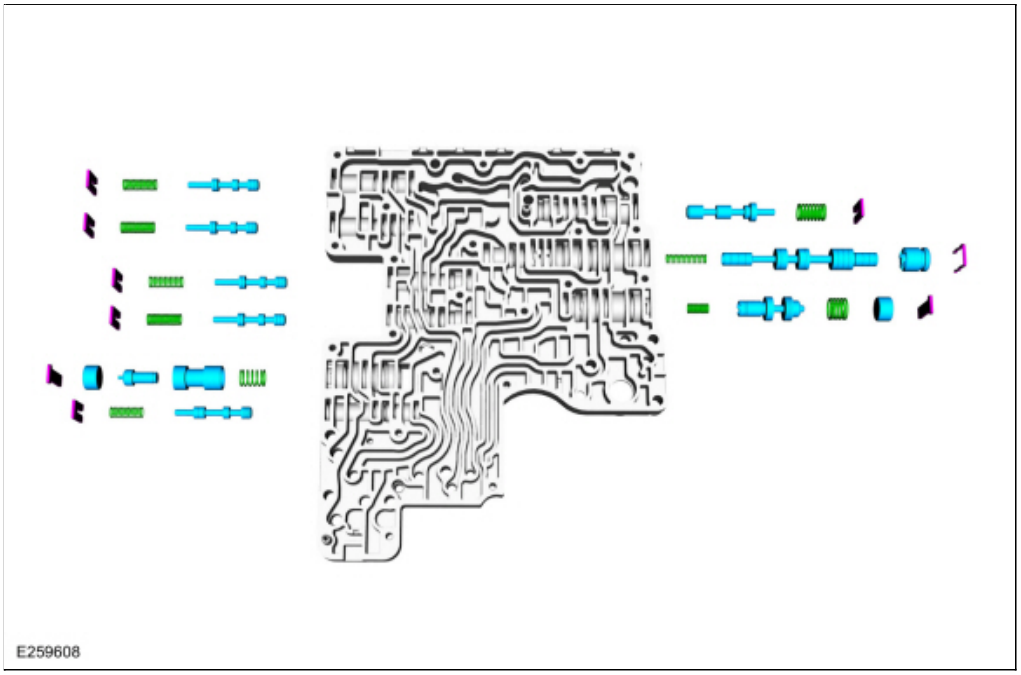
    Remove the shift solenoid retainers, shift solenoids, and clutch control valves.



Upper Valve Body

17. **NOTICE: Note the location of the retaining clips, caps, valves and valve springs for assembly. Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.**

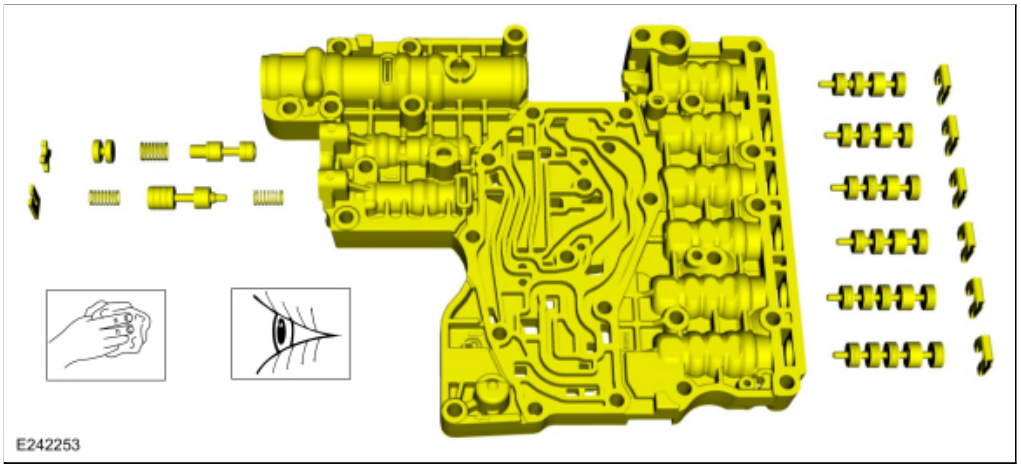
    Remove the retaining clips, cap, valves and valve springs from each bore of the valve body assembly.



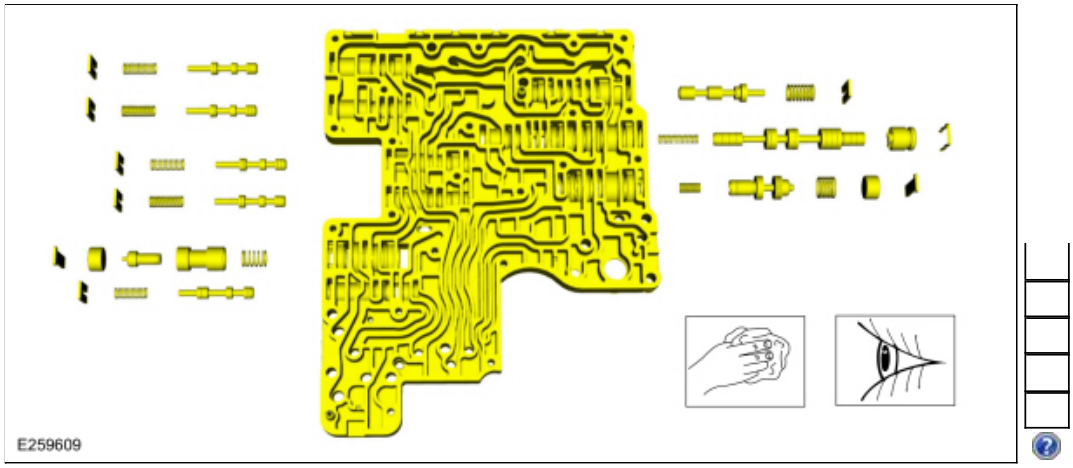
Upper and Lower Valve Body

18. **NOTICE: Many components and surfaces in the main control valve body are precision machined. Use care when cleaning the lower valve body or damage can occur to the machined surfaces.**

    Clean and inspect the lower valve body for damage. Inspect the passages and valves for damage and clean any excessive debris. Install a new component if necessary.



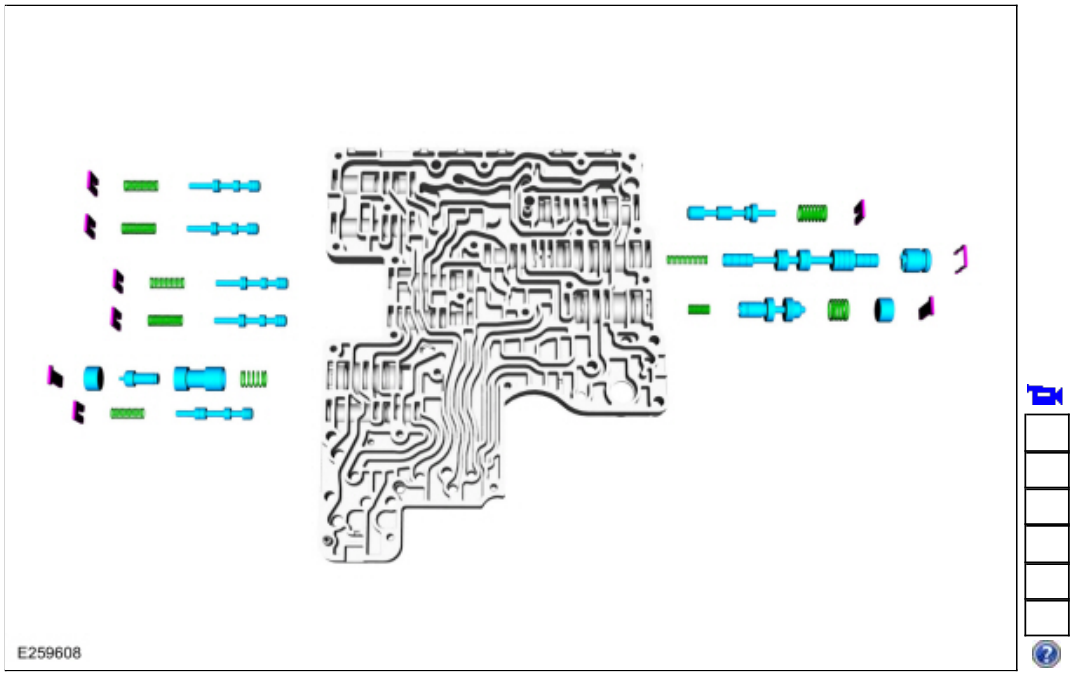
19. Clean and inspect the upper valve body for damage. Inspect the passages and valves for damage and clean any excessive debris. Install a new component if necessary.



Upper Valve Body

20. **NOTICE: Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.**

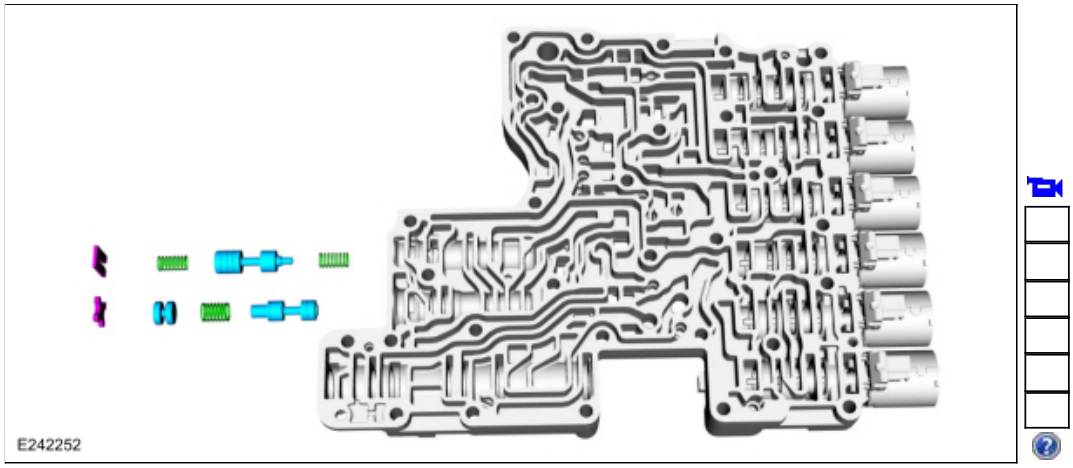
    Install the valves, valve springs, caps and the retaining clips into the correct valve body valve bore.



Lower Valve Body

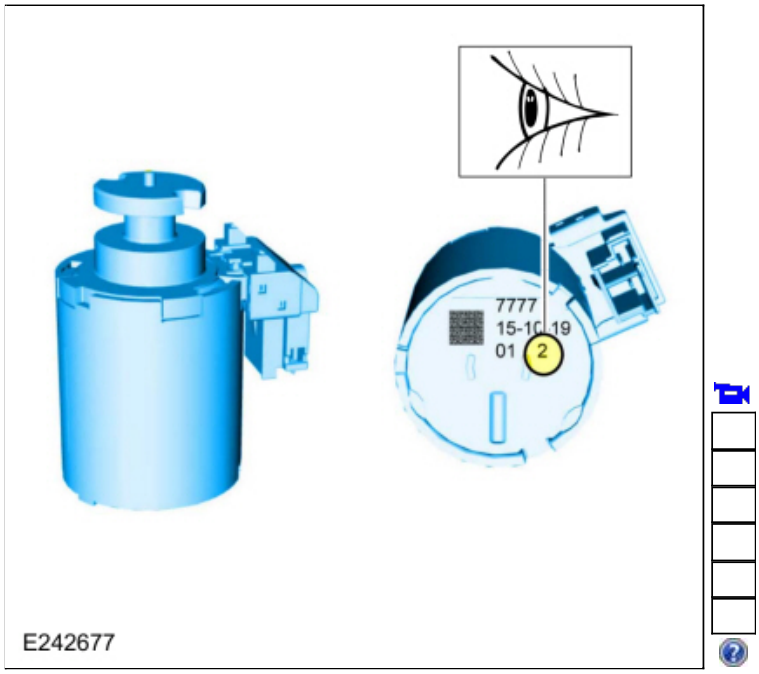
21. **NOTICE: Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.**

    Install the valves, valve springs, cap and the retaining clips into the correct valve body valve bore.



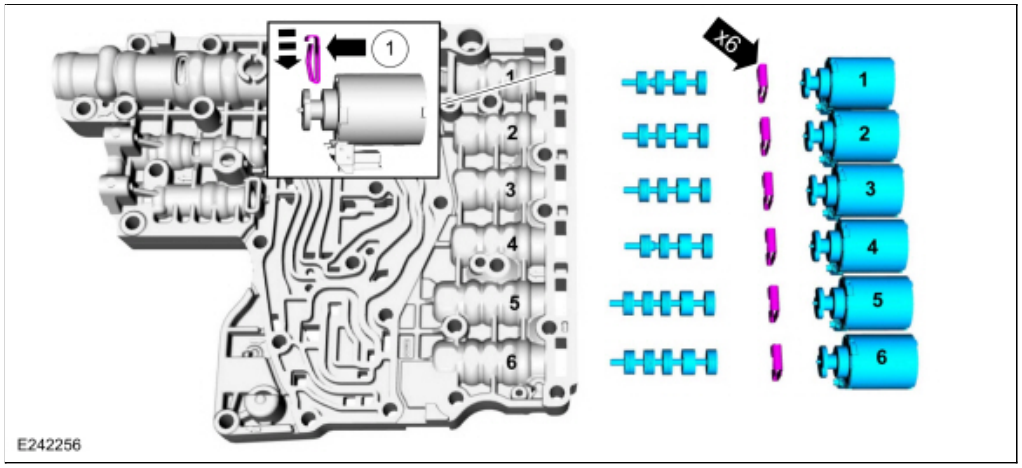
22. **NOTICE: Solenoids are calibrated from the factory and are not all the same. To replace a solenoid, match the band number with the original solenoid or harsh shifts or damage to the transmission can occur.**

    If new solenoids are needed, identify the solenoid band number.



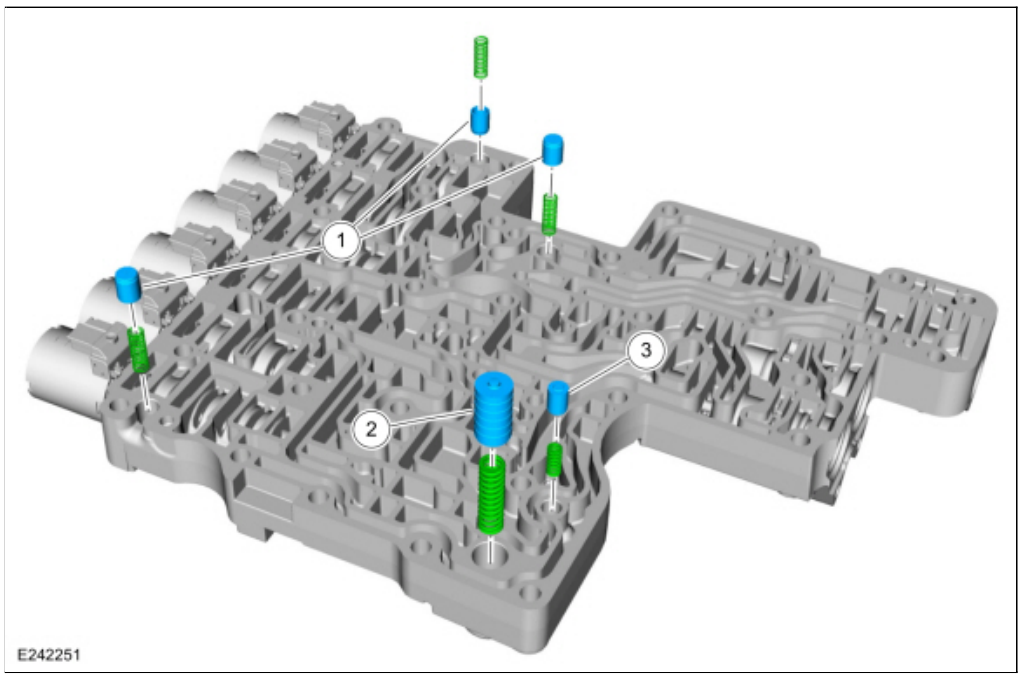
23. **NOTICE: Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.**

    Install the clutch control valves, and the shift solenoids in the corresponding marked location. Install the shift solenoid retainers with the flat side towards the solenoids.
    1. Retainer flat side

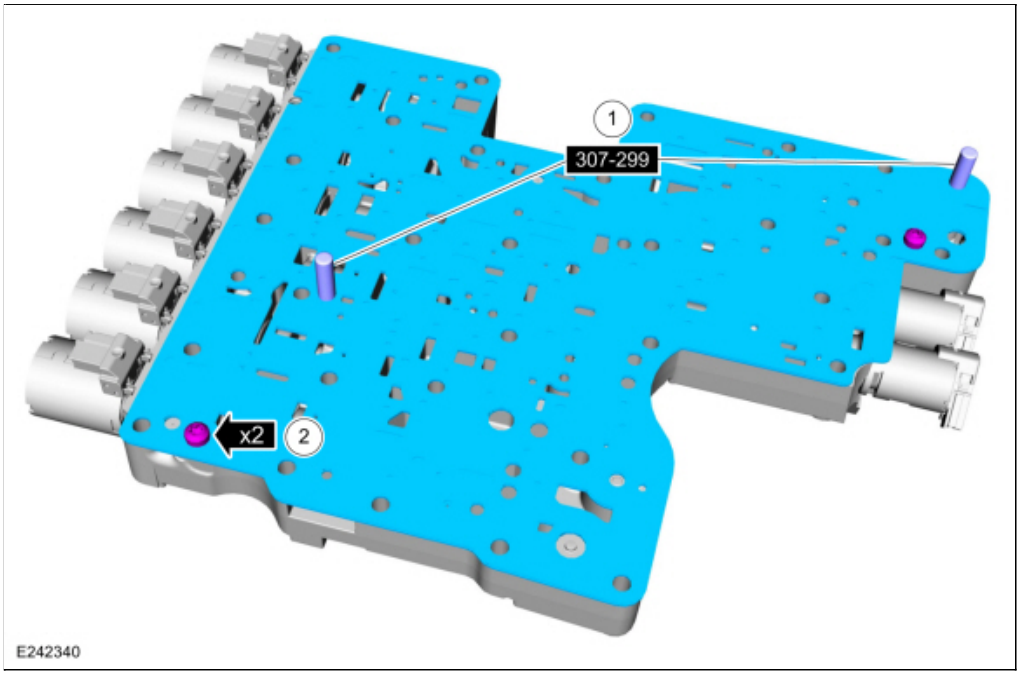


24. **NOTE:** *The orientation of the valves and springs.*

Install the following items:
1. Check valve assemblies
2. LPC damper assembly
3. TCC damper assembly

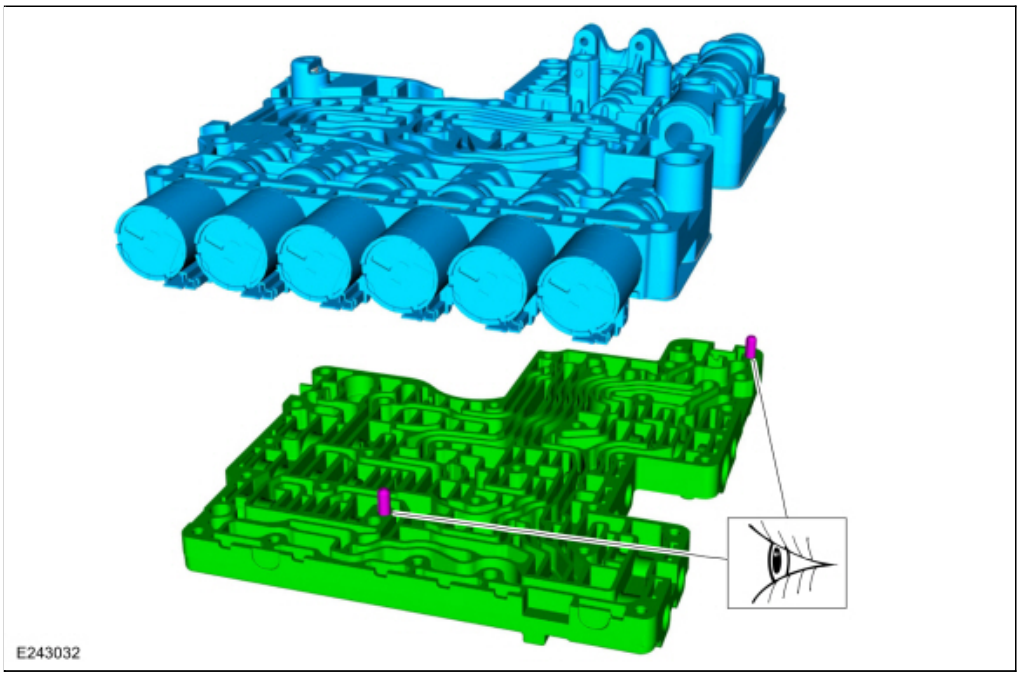


25. Using the special tools align the new valve body spacer plate onto the lower valve body and install the bolts.
Use Special Service Tool: 307-299 Alignment Pins, Valve Body.
Torque: 71 lb.in (8 Nm)

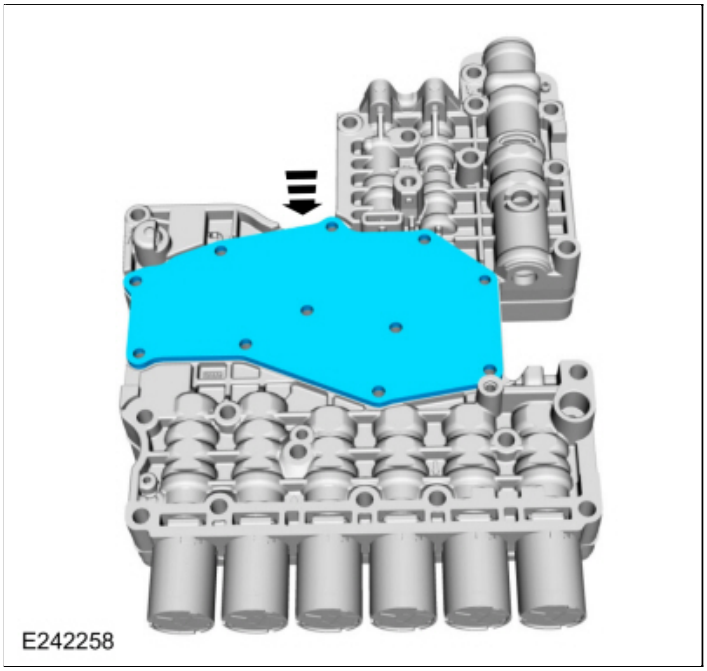


Upper and Lower Valve Body

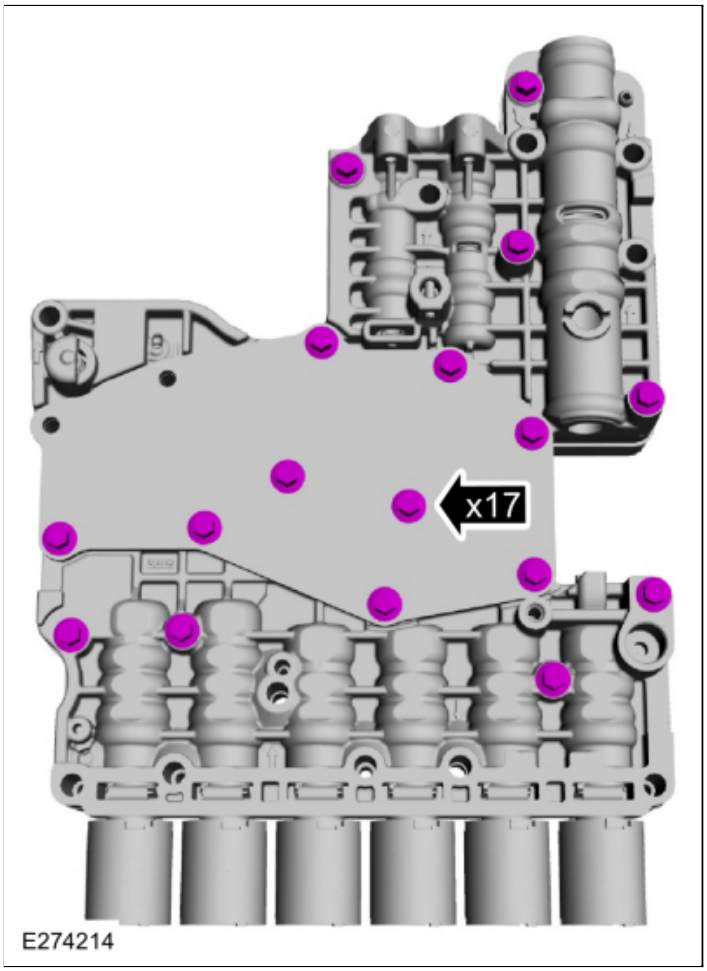
26. Align the guide pins on the upper valve body with the alignment holes in the lower valve body.



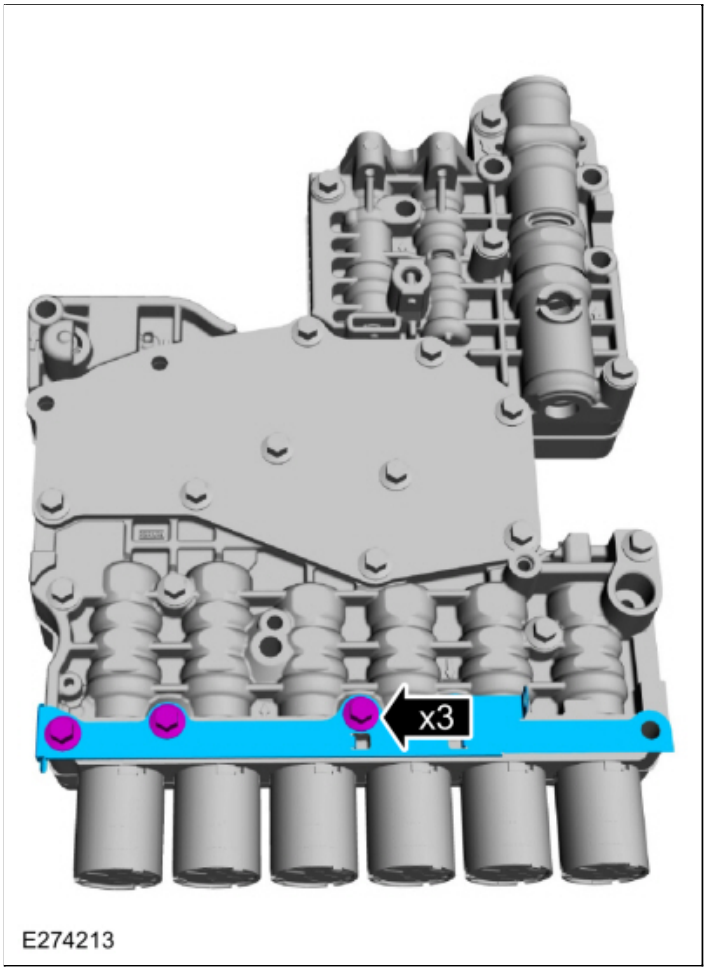
27. Install the new valve body channel plate.



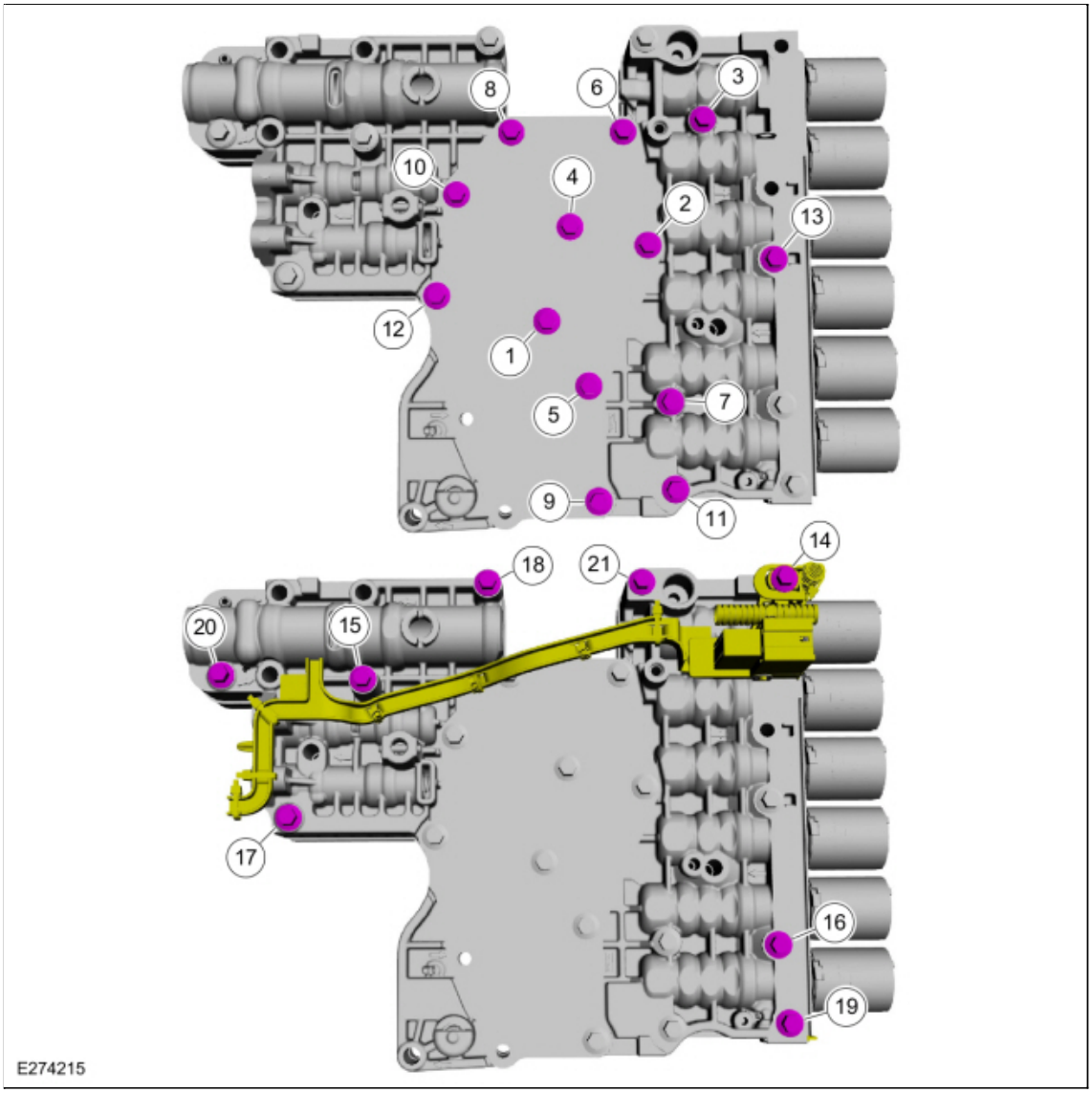
28. Loosely install the valve body bolts.



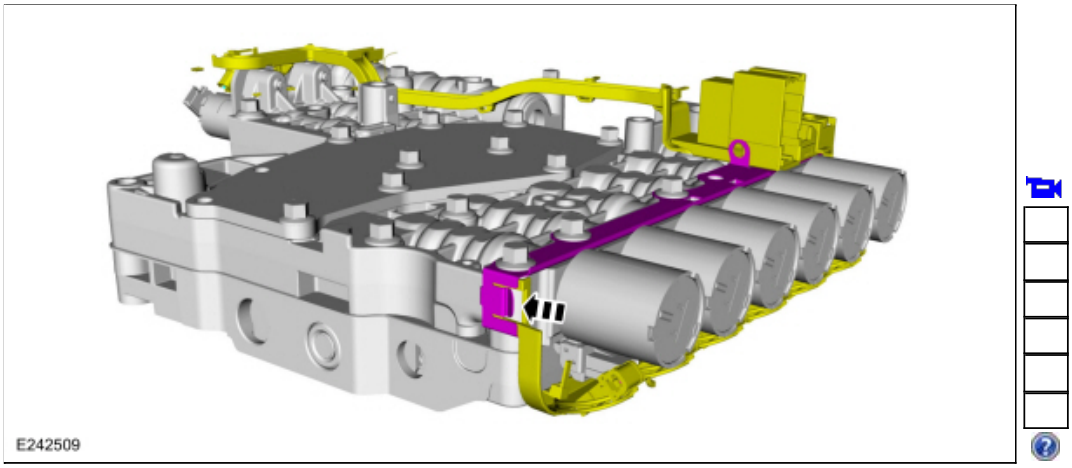
29. Install the shift solenoid retaining plate and loosely install the bolts.



30. Tighten the bolts in the sequence shown.
Torque: 106 lb.in (12 Nm)



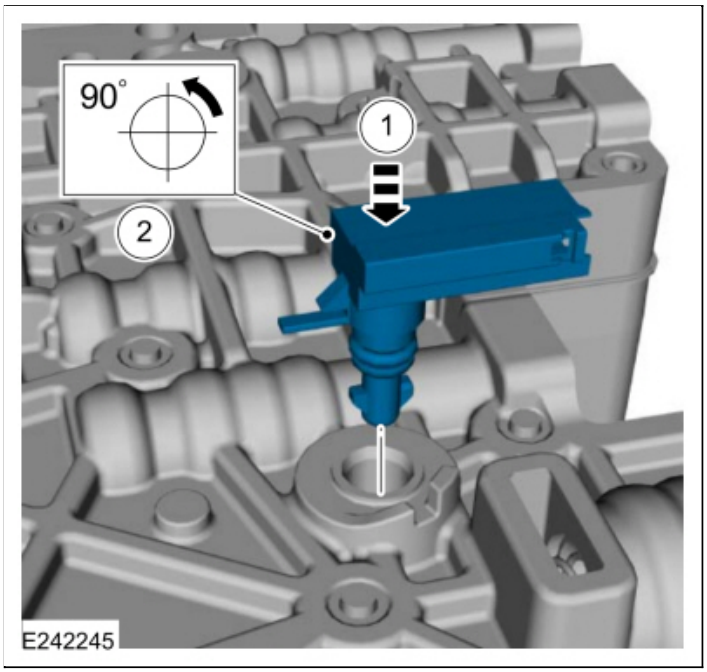
31. Push the internal wiring harness into the retainer.



32.

Install the TFT sensor.

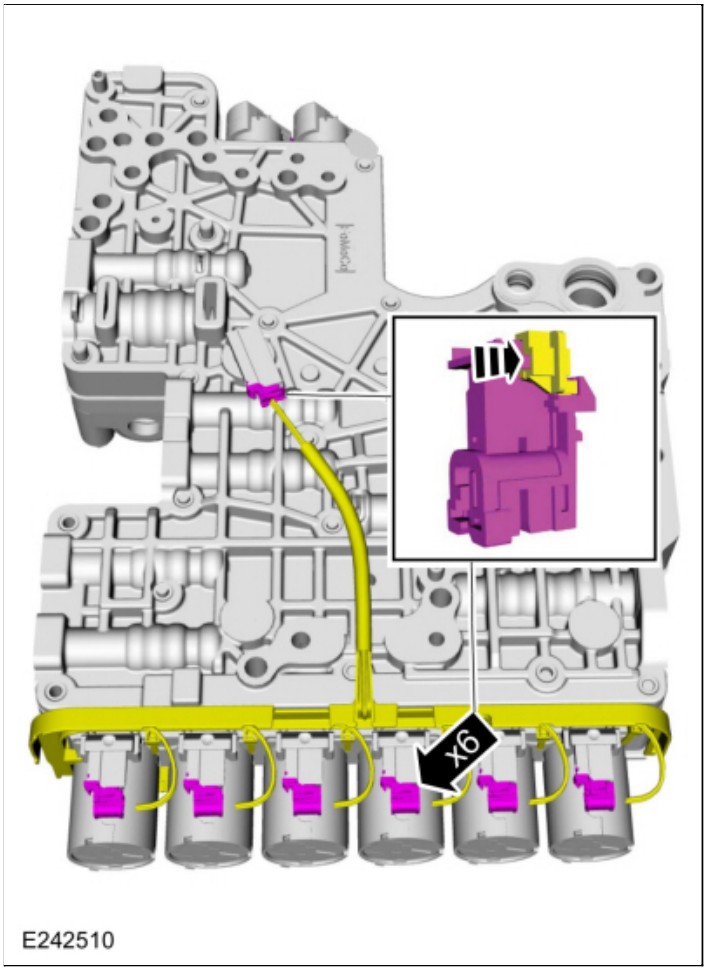
1. Position the TFT sensor in the main control valve body.
2. Rotate the TFT sensor counter clockwise until the plastic tab locks into place.



33.

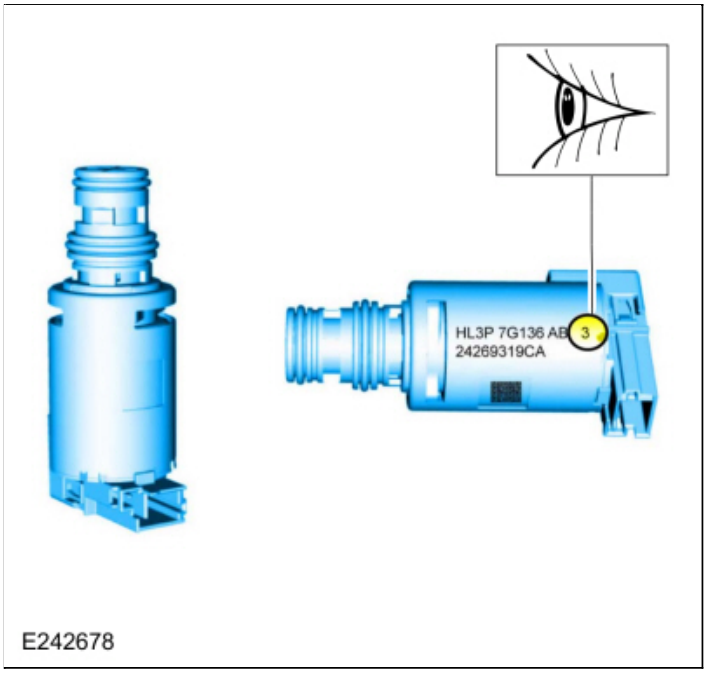
Connect the internal wiring harness electrical connectors.

- Slide the plastic lock to the locked position.



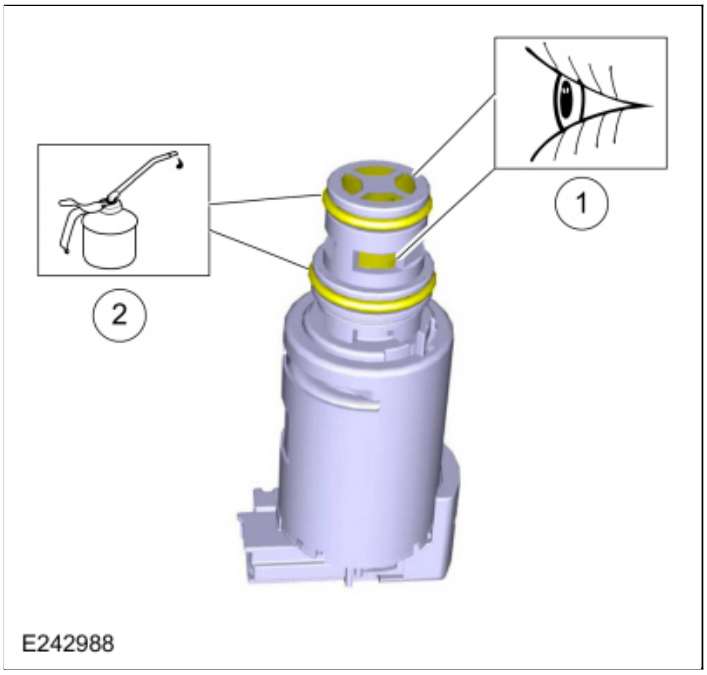
34. **NOTICE: Solenoids are calibrated from the factory and are not all the same. To replace a solenoid, match the replacement solenoid type (normally high/normally low) and the band number with the original solenoid or harsh shifts or damage to the transmission can occur.**

    If new solenoids are needed, identify which type (normally high/normally low) of solenoid it is and the solenoid band number.

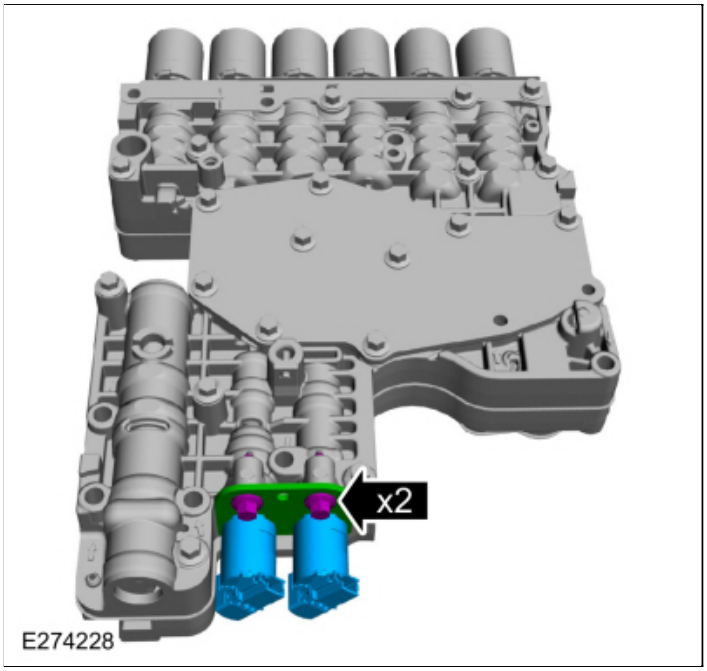


35.

1. Inspect the solenoid screens for debris that may restrict fluid flow
2. Lubricate the solenoid O-ring seals.
   Material: Motorcraft® MERCON® ULV Automatic Transmission Fluid / XT-12-QULV (WSS-M2C949-A) (MERCON® ULV)



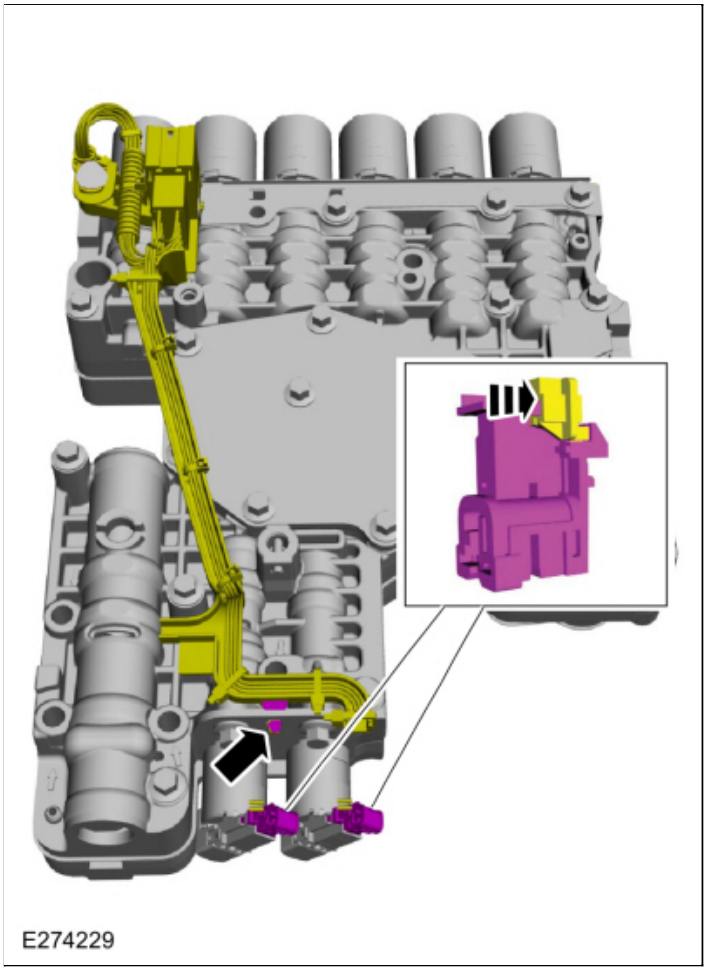
36. Install the TCC solenoid, LPC solenoid, solenoid retaining plate and the new bolts.
   Torque: 80 lb.in (9 Nm)



37.

Connect the internal wiring harness.

1. Slide the plastic lock to the locked position.
2. Connect the internal wiring harness retainer.



38. Install the main control assembly to transmission fluid pump seal.