

Shift Solenoids (SS)

Materials

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

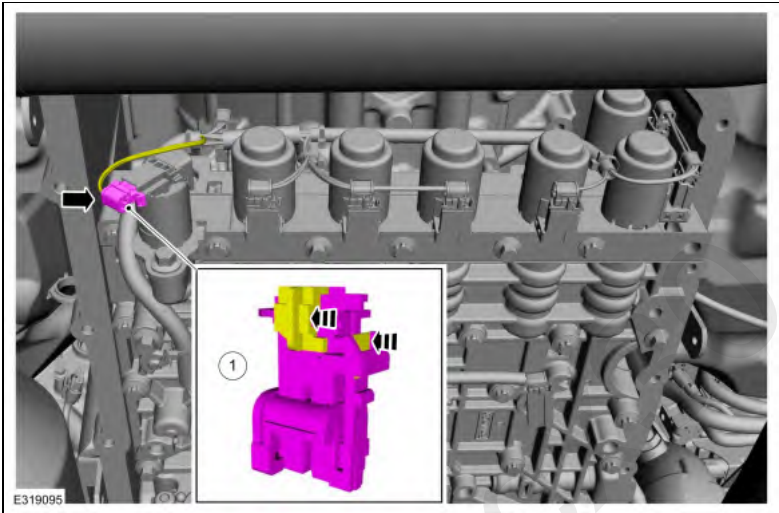
Removal

All Solenoids

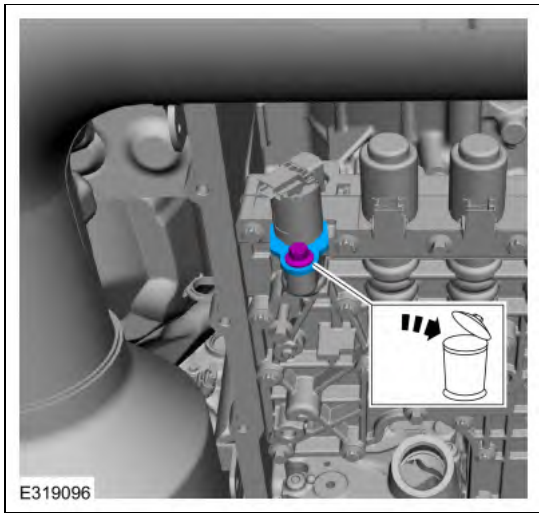
1. Remove the transmission fluid pan gasket and filter.
Refer to: Transmission Fluid Pan, Gasket and Filter (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).

LPC (line pressure control) Solenoid

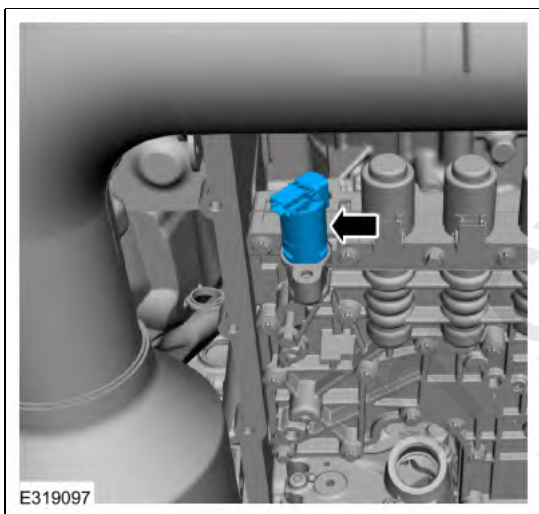
2. Disconnect the solenoid electrical connector.
1. Slide the plastic lock to the unlock position. While pressing the plastic tab, disconnect the electrical connector.



3. Remove and discard the bolt and remove the solenoid retaining plate.

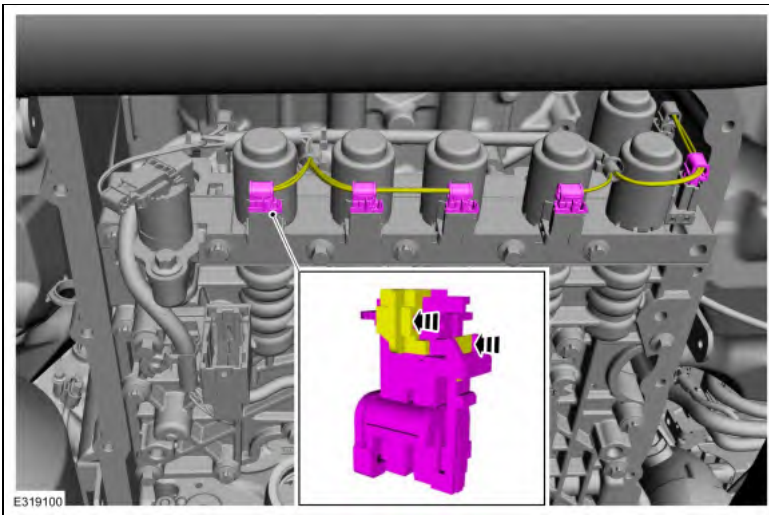


4. Remove the LPC solenoid.



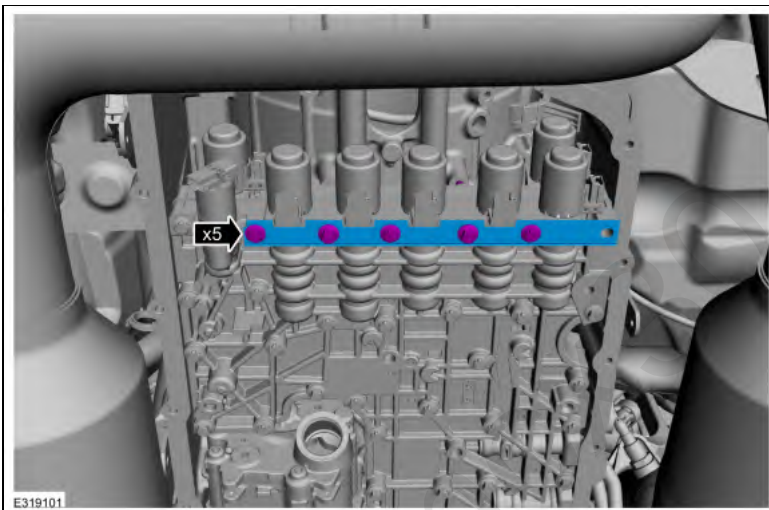
Solenoids A, C, D, E and F

5. Slide the plastic lock to the unlock position. While pressing the plastic tab, disconnect the electrical connector(s).

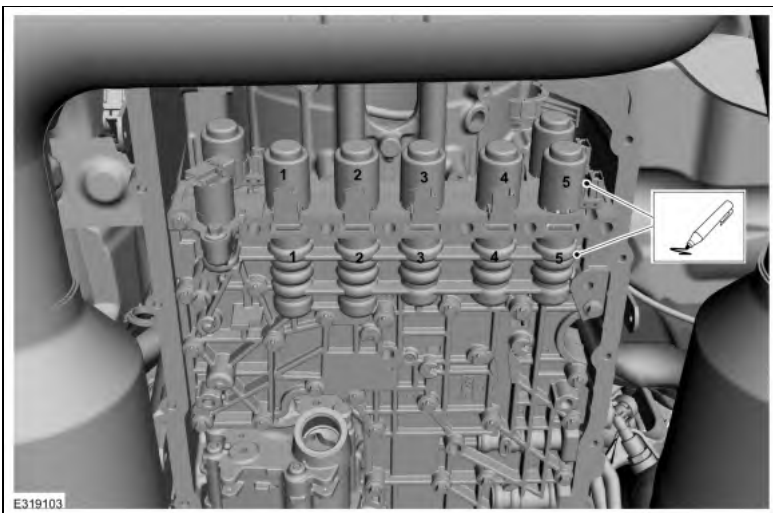


6. **NOTE:** Note the location of the shift solenoid retaining plate bolts.

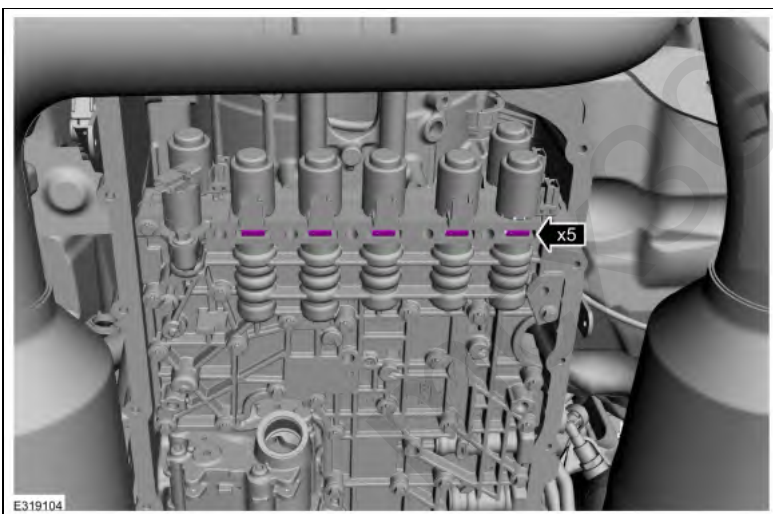
Remove the bolts and the shift solenoid retaining plate.



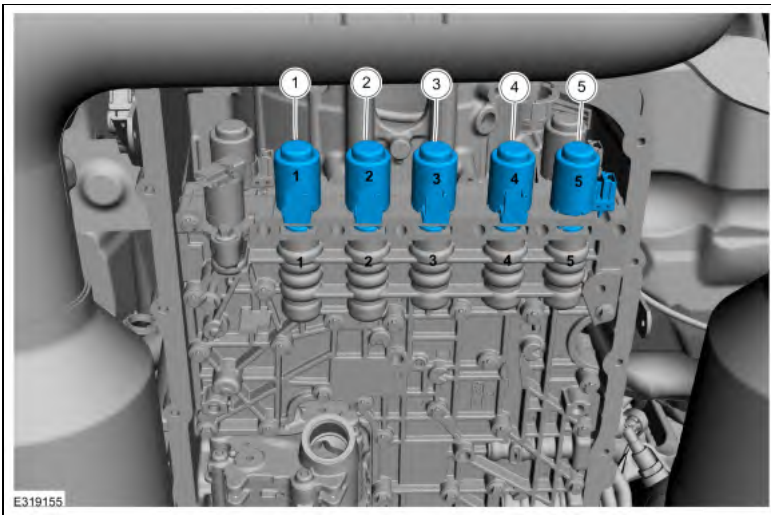
7. If replacing more than one solenoid, number the solenoids and number the main control valve body solenoid ports to correspond to the solenoid.



8. Remove the shift solenoid retainer(s).

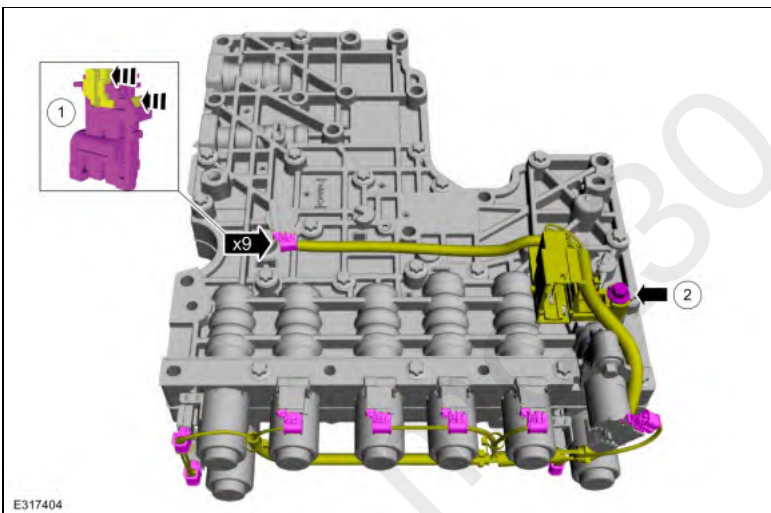


9. Remove the solenoid(s) from the main control valve body.
1. SSD (7J136)
 2. SSE (7J136)
 3. SSF (7J136)
 4. SSA (7J136)
 5. SSC (7J136)



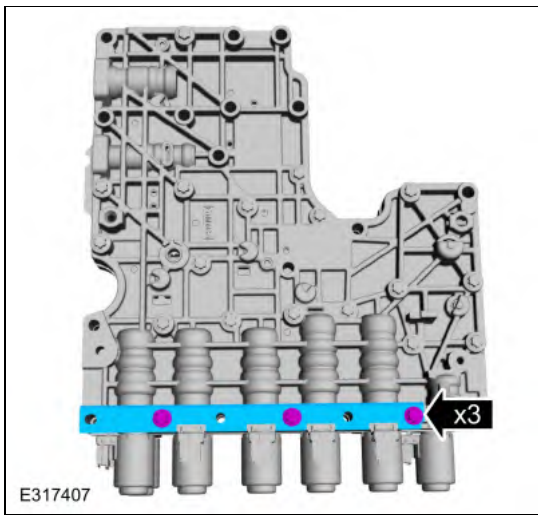
Solenoids B and TCC (torque converter clutch)

10. Remove the main control valve body.
Refer to: Main Control Valve Body (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission " 10R140, Removal and Installation).
11. Remove the internal wiring harness.
 1. Slide the plastic lock to the unlock position. While pressing the plastic tab, disconnect the electrical connectors.
 2. Remove internal wiring harness retaining bolt.

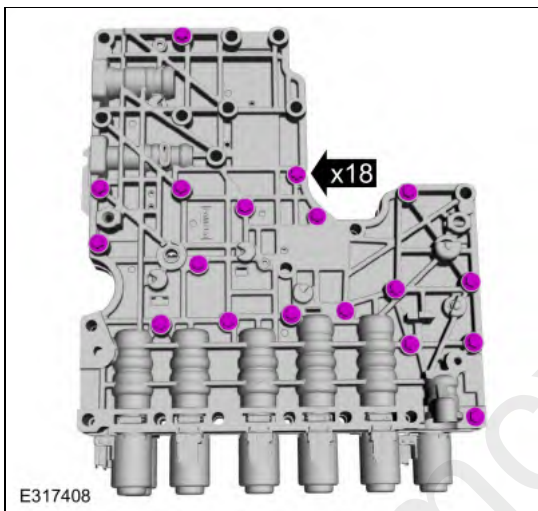


12. **NOTE:** Use a 10ep Torx Plus® socket to remove the bolts.

Remove bolts and the shift solenoid retaining plate.

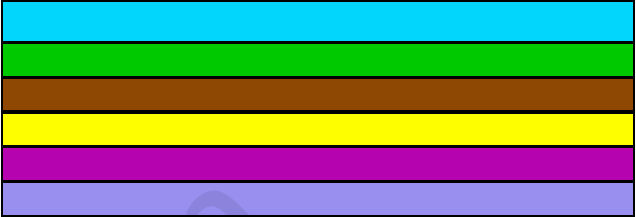
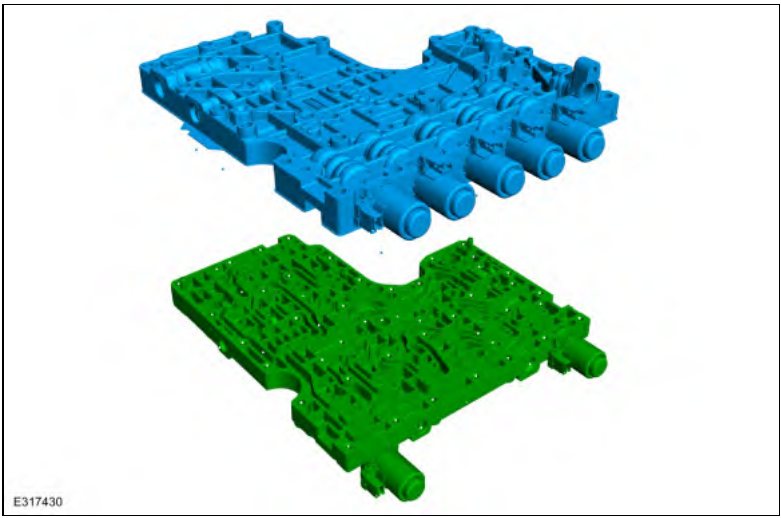


13. Remove the valve body bolts.

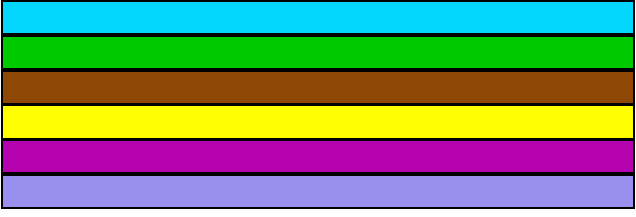
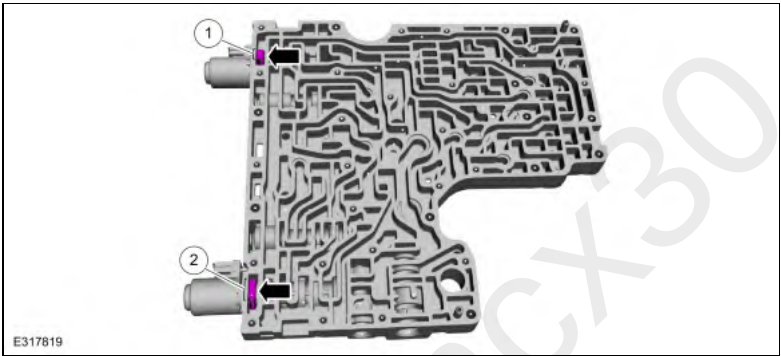


14. **NOTICE:** Many components and surfaces in the main control valve body are precision machined. Use care when handling the upper and lower valve body or damage can occur to the machined surfaces.

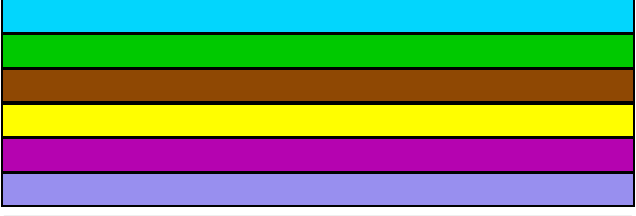
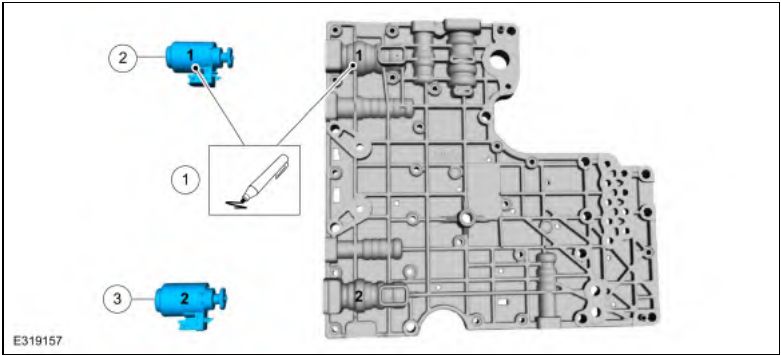
Separate the lower valve body from the upper valve body.



- 15.
1. Remove the small shift solenoid retainer.
 2. Remove the large shift solenoid retainer.



16. **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.
1. Number the solenoids and number the main control solenoid ports to correspond to the solenoids.
 2. Remove the TCC solenoid (7J136).
 3. Remove the SSB (7J136).

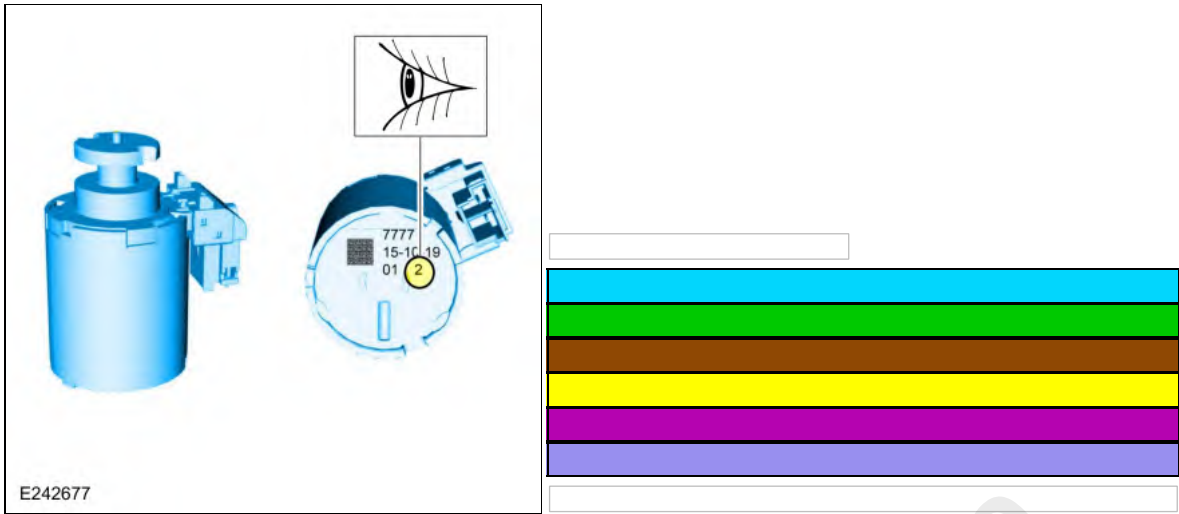


Installation

Solenoids B and TCC (torque converter clutch)

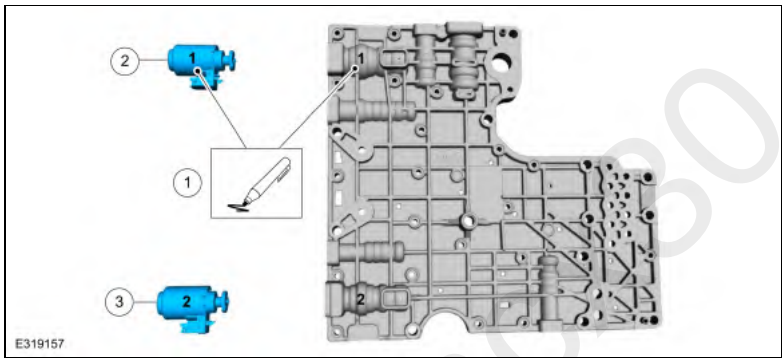
1. **NOTICE:** Solenoids are calibrated from the factory and are not all the same. To replace a solenoid, match the band number with the original solenoid or harsh shifts or damage to the transmission can occur.

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



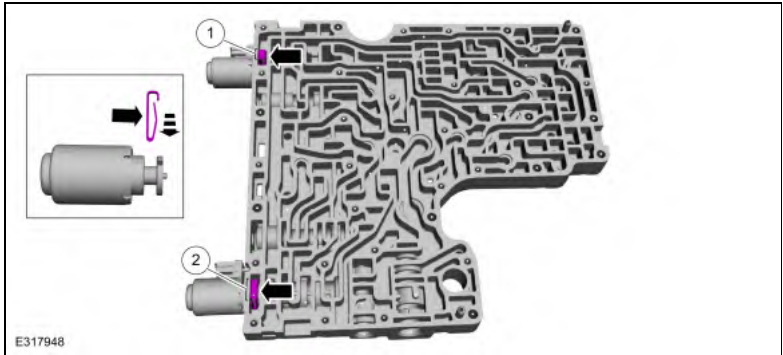
2. **NOTICE:** Failure to install the components in the correct location will result in harsh/soft or no shifts or damage to the transmission.

1. Install the shift solenoids in the corresponding marked location.
2. Install the TCC solenoid (7J136).
3. Install the SSB (7J136).

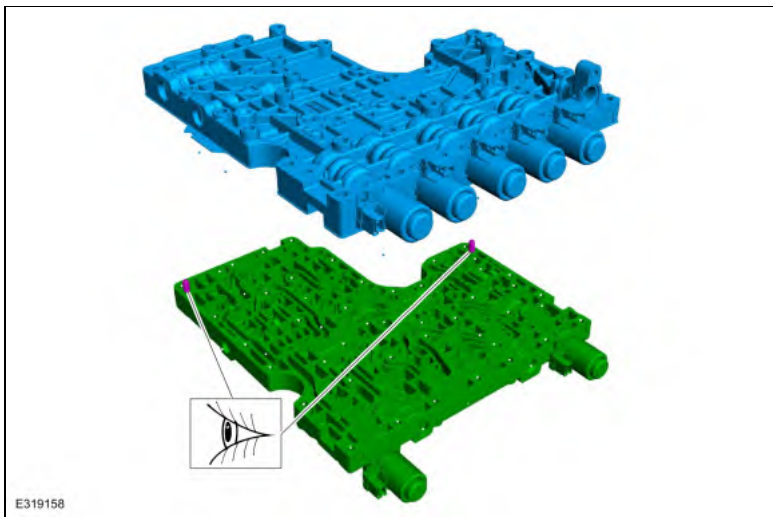


3. Install the shift solenoid retainers with the flat side towards the solenoids.

1. Install the small shift solenoid retainer.
2. Install the large shift solenoid retainer.

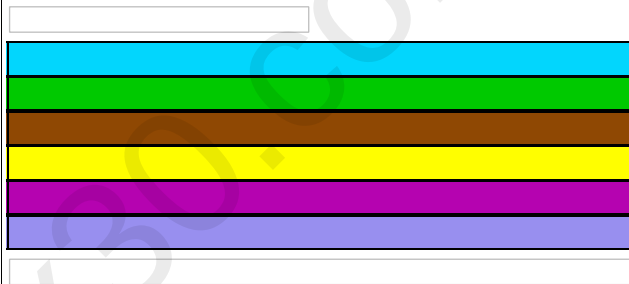
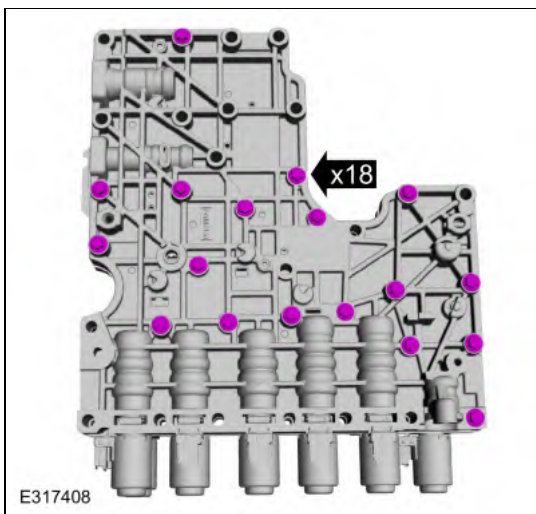


4. Align the guide pins on the upper valve body with the alignment holes in the lower valve body.

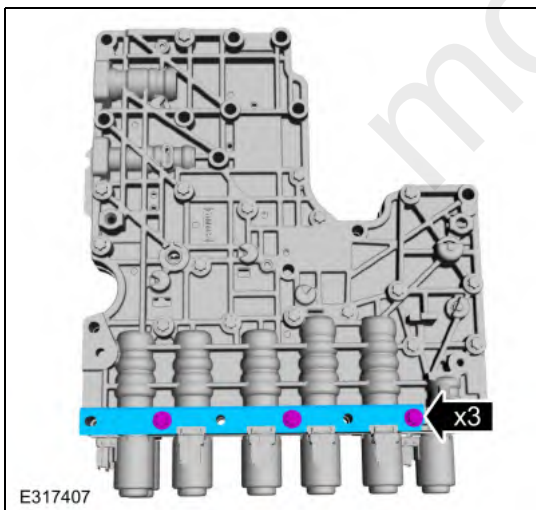


5. **NOTE:** Use a 10ep Torx Plus[®] socket to install the bolts.

Loosely install the valve body bolts.



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

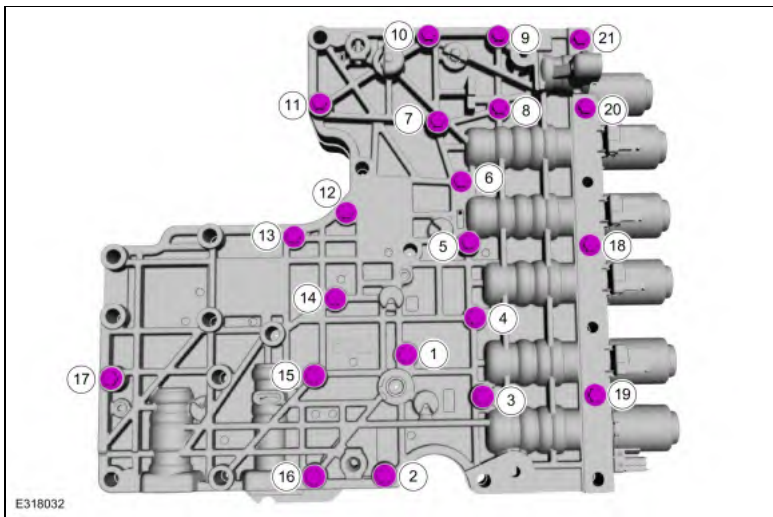


7. Tighten the bolts in the sequence shown.

Torque:

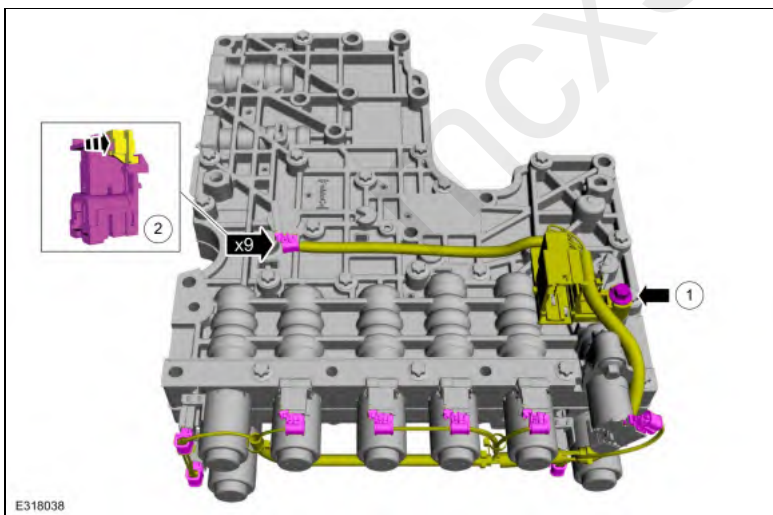
Stage 1: 62 lb.in (7 Nm)

Stage 2: 97 lb.in (11 Nm)



8.

1. Install the internal wiring harness and bolt.
Torque: 97 lb.in (11 Nm)
2. Connect the internal wiring harness electrical connectors and slide the plastic locks to the locked position.

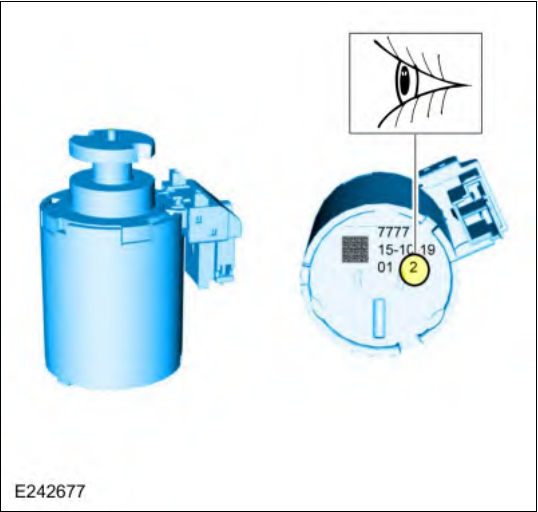


9. Install the main control valve body.
Refer to: Main Control Valve Body (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R140, Removal and Installation).

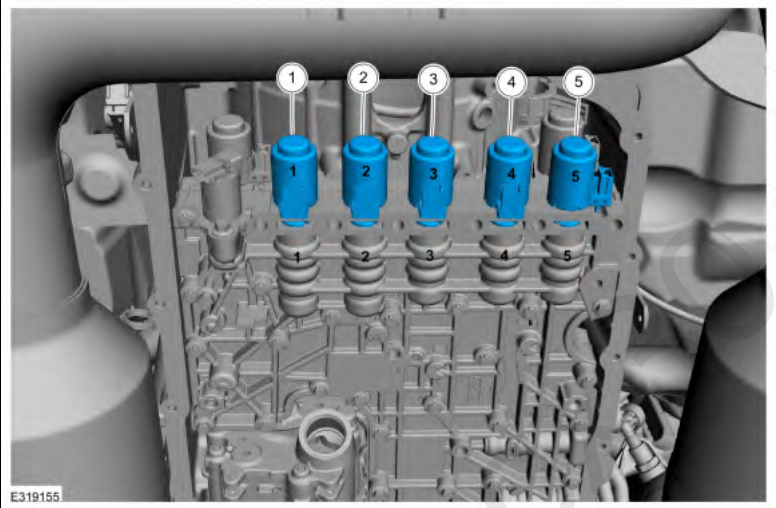
Solenoids A, C, D, E and F

10. **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.**

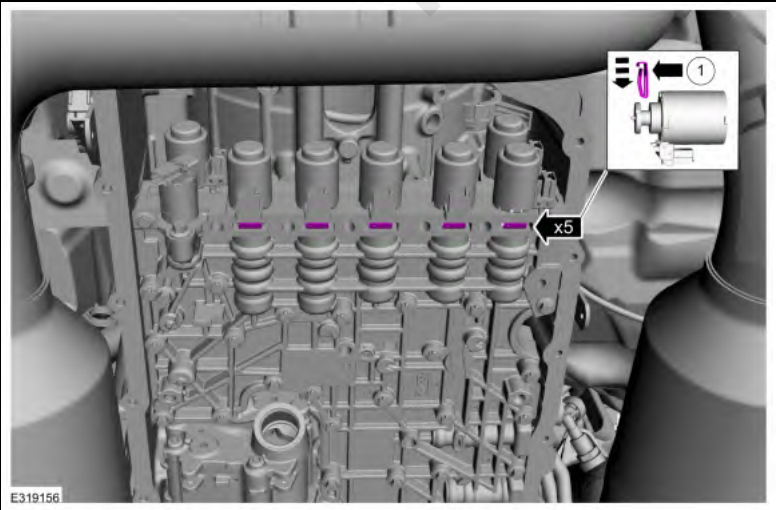
If new solenoids are needed, identify the solenoid band number.



11. Install the solenoid(s) in the main control valve body in the correct port(s) as marked during removal.
1. SSD (7J136)
 2. SSE (7J136)
 3. SSF (7J136)
 4. SSA (7J136)
 5. SSC (7J136)

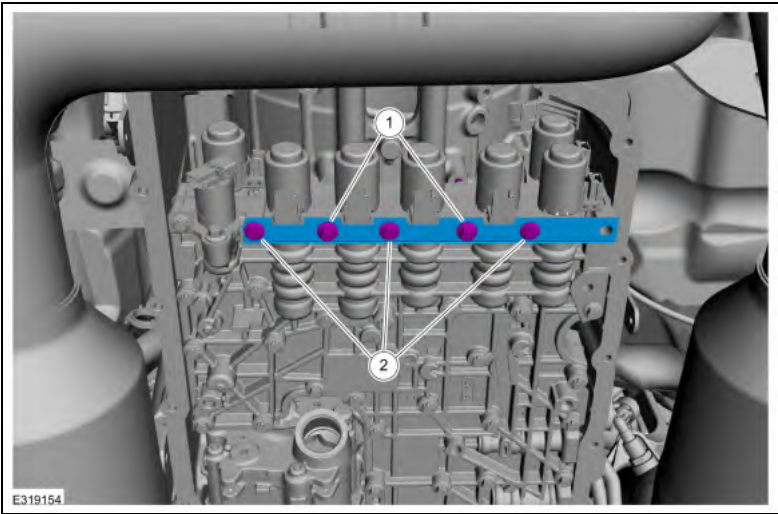


12. Install the shift solenoid retainer(s) with the flat side towards the solenoids.
1. Retainer flat side

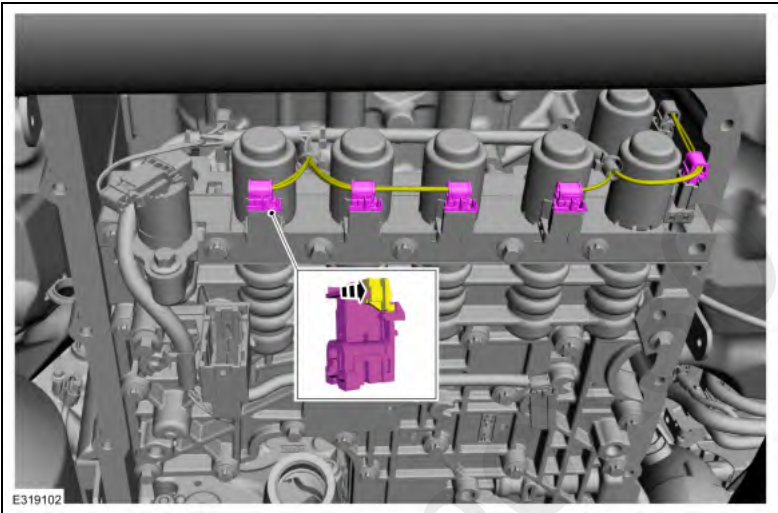


13. Install and the shift solenoid retaining plate and the bolts in the correct location.

- 1. Bolt
Torque: 97 lb.in (11 Nm)
Dimension: 2.6772 in (68 mm)
- 2. Bolt
Torque: 97 lb.in (11 Nm)
Dimension: 1.7717 in (45 mm)



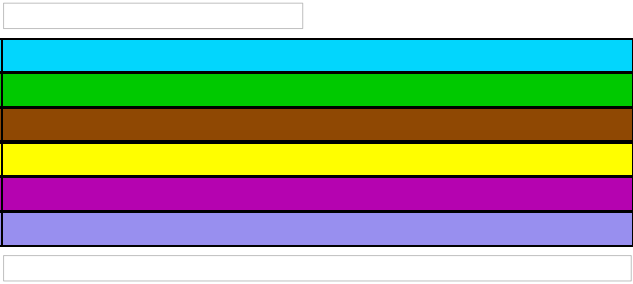
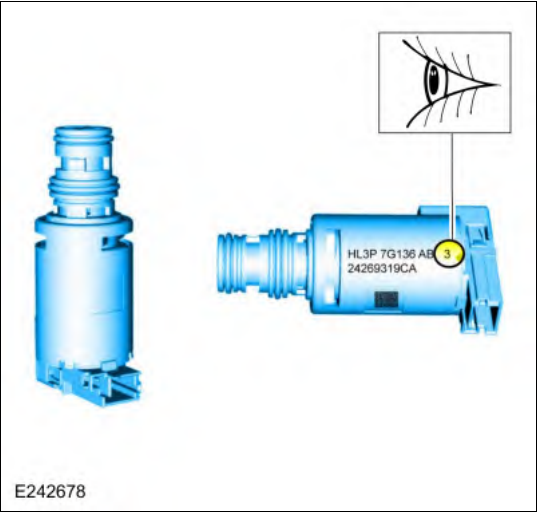
14. Connect the solenoid electrical connector. Slide the plastic lock to the locked position.



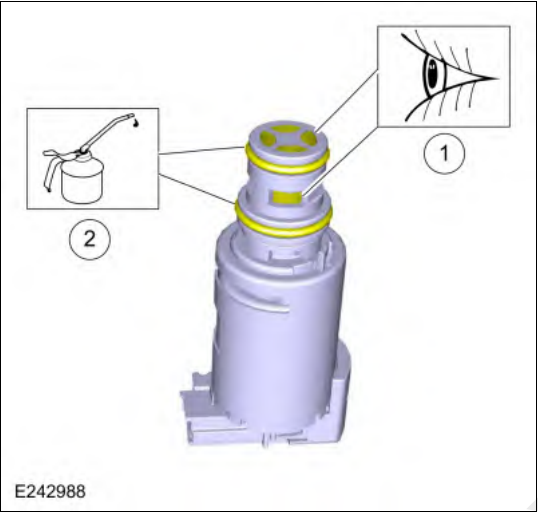
LPC (line pressure control) Solenoid

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

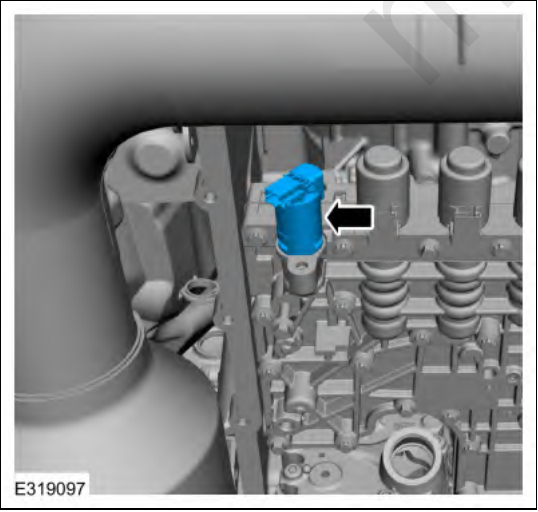
If new solenoids are needed, identify the solenoid band number.



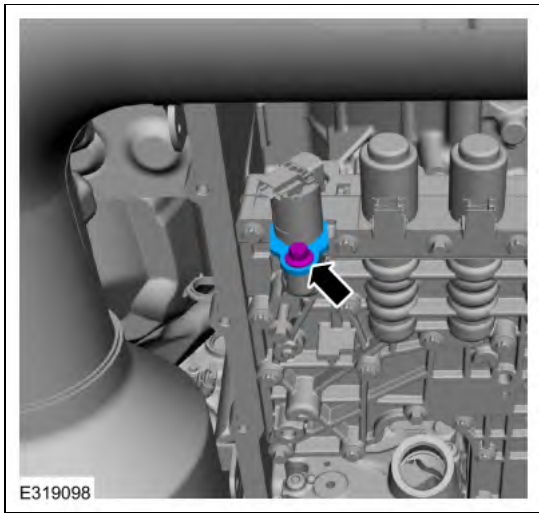
- 16.
1. Inspect the solenoid screens for debris that may restrict fluid flow.
 2. Lubricate the solenoid O-ring seals.
- Material: Motorcraft® MERCON® ULV Automatic Transmission Fluid / XT-12-QULV (WSS-M2C949-A,) (MERCON® ULV)*



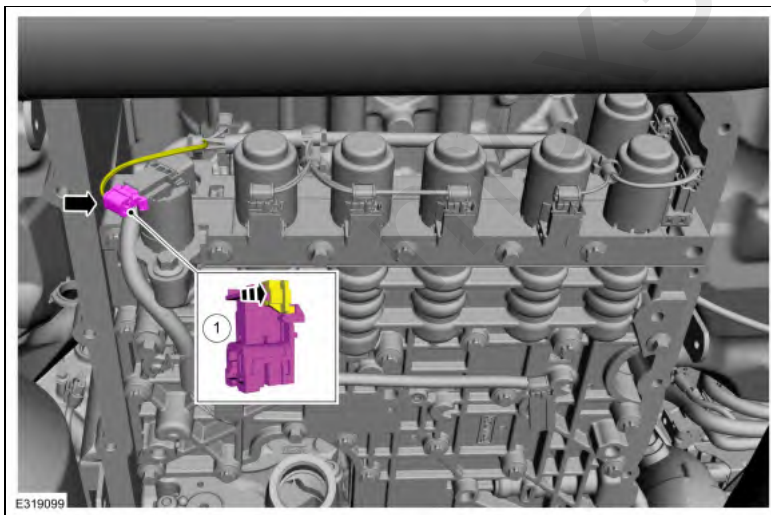
17. Install the LPC solenoid in the main control valve body.



18. Install the solenoid retaining plate and the new bolt.
- Torque: 97 lb.in (11 Nm)*



19. Connect the solenoid electrical connector.
1. Slide the plastic lock to the locked position.



All Solenoids

20. Install the transmission fluid pan gasket and filter.
Refer to: Transmission Fluid Pan, Gasket and Filter (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

