



**IMPORTANT SERVICE  
INFORMATION FOR:**

- ✓ SERVICE MANAGER
- ✓ SERVICE ADVISOR
- ✓ PARTS DEPARTMENT
- ✓ WARRANTY PERSONNEL

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GROUP:  
**TRANSMISSION**

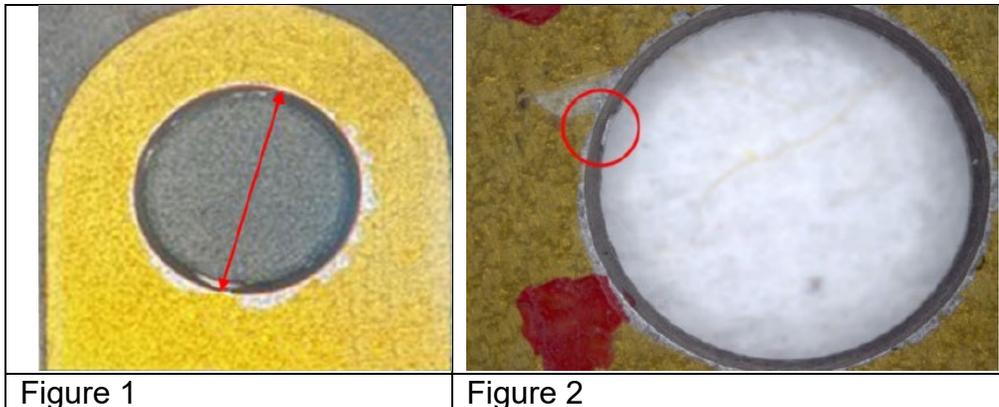
**NO FORWARD GEAR WHEN SHIFTING FROM PARK TO DRIVE AND/OR  
REVERSE TO DRIVE**

**AFFECTED VEHICLES**

- All Isuzu Vehicles equipped with a 6L90 Transmission

**INFORMATION**

Some customers may complain that the vehicle will not move forward after shifting into Drive from Park or from Reverse. Dealers may find that this condition is caused by a spacer plate in the valve body being out of specification (See Figures 1 and 2)



As a result of the spacer plate being out of spec, the check ball will become worn causing the vehicle not to move into Drive from Park or Reverse. Isuzu recommends dealers to replace both the spacer plate and all check balls. See Figure 3.



## PARTS INFORMATION

6L90 Repair Parts		
Part Number	Description	Quantity Required
8242724670	Spacer Plate	1*
7552717260	Transmission Pan Gasket	1**
8242724680	Filter Plate	1***
29005P2020	ATF Dextron VI (Quarts)	7 qts****

\*Included with the spacer plate are eight (8) plastic check balls.

\*\*The transmission pan gasket is reusable. Only replace if damaged/leaking.

\*\*\*Included with the filter plate are O-rings for the pass thru connector and fluid passage seals.

\*\*\*\*Transmission fluid is shipped in case quantities. One (1) Case equals twenty-four (24) one quart bottles.

## SPACER PLATE AND CHECK BALL REPLACEMENT

1. Install wheel chocks and apply the parking brake.
2. Obtain a plastic sheet or similar and cover the exhaust pipe near the transmission pan.
3. Place a suitable drain pan under the transmission.
4. Remove the eighteen (18) transmission pan bolts. Allow the transmission to drain and remove the pan. See Figure 4.

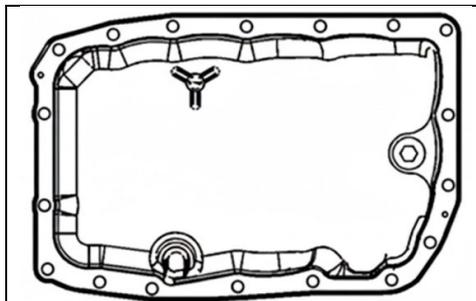


Figure 4

5. Remove the fluid filter assembly by pulling straight out. Place aside for reuse.

**NOTE: Do not bend or twist the filter neck.**

6. Disconnect the vehicle wire harness electrical connector from the transmission electrical connector passage sleeve.
7. Pull down on the slide lock (1). See Figure 5.

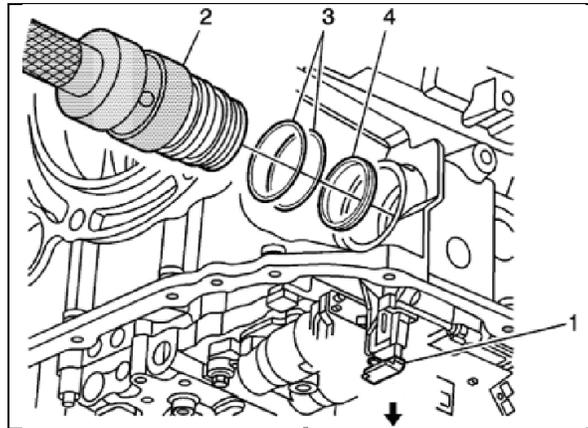


Figure 5

8. Pull the sleeve straight out (DO NOT TWIST) using DT-47715 Electrical Connector Passage Sleeve Remover/Installer and J-42183 Driver Handle (2). Refer to Figure 5.
9. Using DT-48285 Torx Plus Socket, remove the six (6) bolts securing the valve body to the transmission assembly. See Figure 6.

**Important: Note the position of the manual shift shaft position switch in relation to the shift detent lever. The switch will need to be in the same position when reassembling Step 29.**

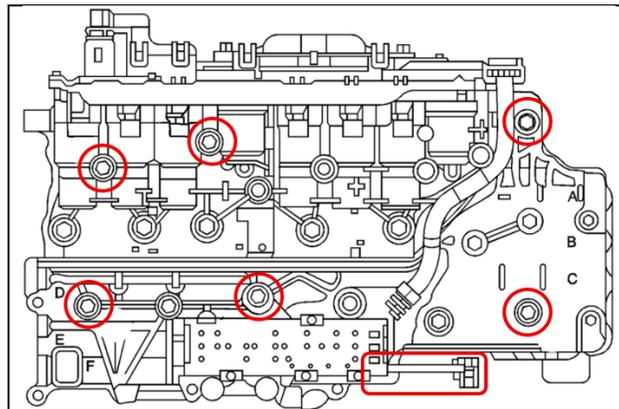


Figure 6

10. Place the valve body on a clean workbench and ONLY remove the speed sensor electrical connector (1). See Figure 7.

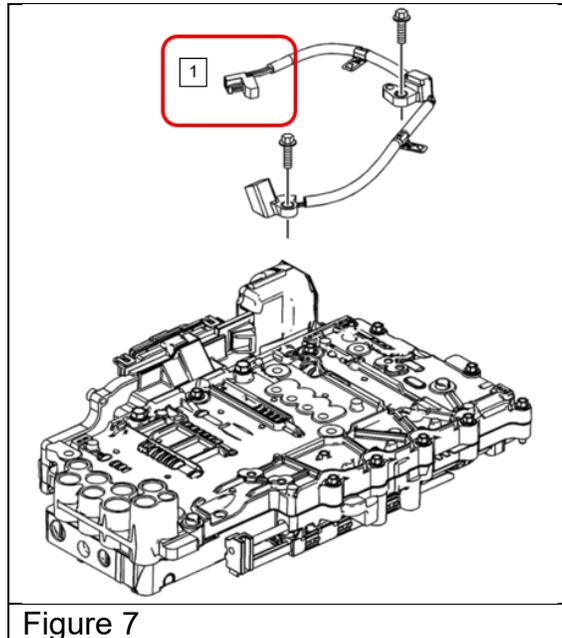


Figure 7

11. Remove manual shift shaft position switch connector and the two bolts for the detent plate and manual shift shaft position switch. See Figure 8.

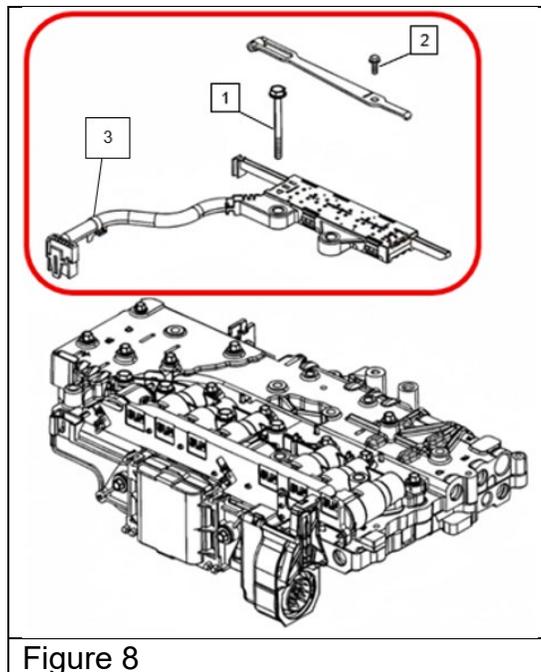


Figure 8

- a. Remove the bolt (1) for the manual shift shaft position switch. Refer to Figure 8
  - b. Disconnect the connector for the manual shift shaft position switch.
  - c. Remove the harness clip (3) for the manual shift shaft position switch.
  - d. Remove the bolt (2) on the detent plate. Place the detent plate aside. Refer to Figure 8.
12. Separate the control solenoid valve assembly by removing the eleven (11) bolts. Place aside in a clean location and discard the old filter plate. See Figure 9.

**NOTE: Remember the location for each bolt as each bolt has a different length.**

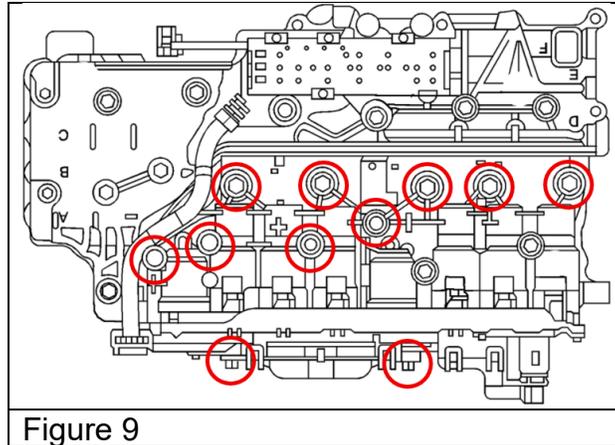


Figure 9

13. Remove the twelve (12) bolts on the valve body (transmission side). See Figure 10.

**NOTE: Pay close attention to the bolt lengths when removed since they are not all the same as some are similar in length.**

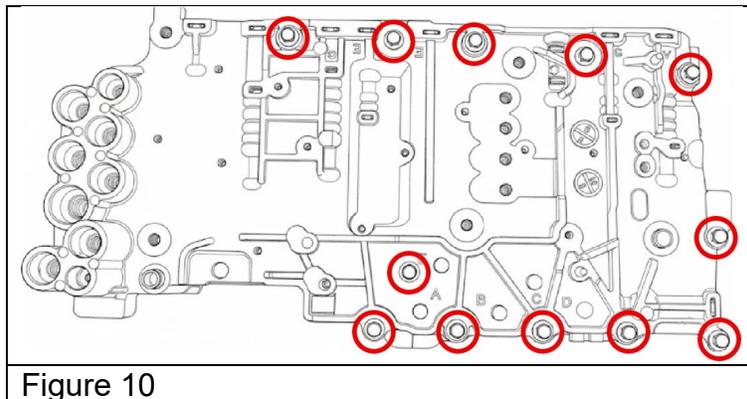


Figure 10

14. Remove the six (6) remaining bolts on the valve body (control solenoid side). See Figure 11.

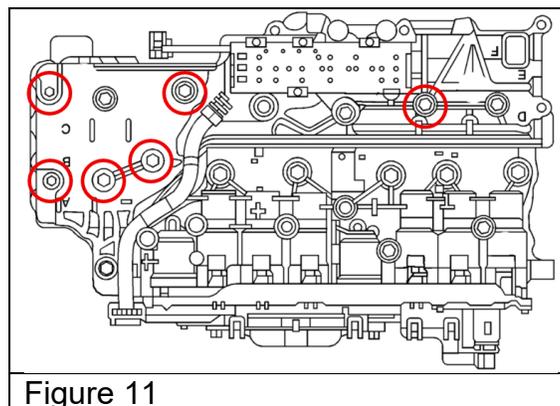


Figure 11

15. With the upper valve body (transmission side) facing down, separate the lower valve body at the point indicated by an arrow in Figure 12.

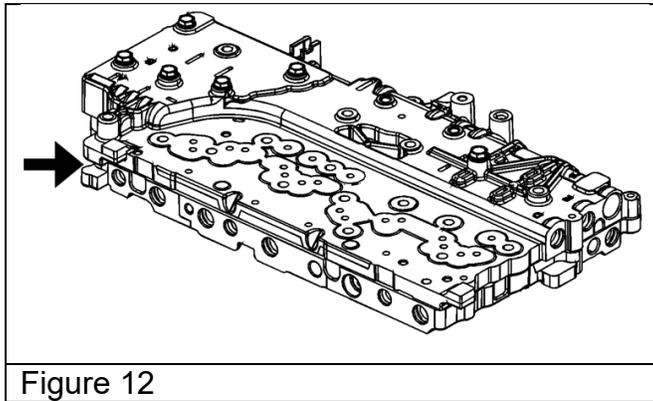


Figure 12

16. Locate the check balls and remove them.

17. Install and verify that **ALL** eight new check balls are installed as shown in Figure 13.

**NOTE:** Earlier versions of the 6L90 transmission came equipped with seven check balls. Eight are now required as shown in Figure 13.

**Important:** Do not use any type of grease or other material to hold the check ball valves in place during assembly. Grease will cause the valves to not operate properly, resulting in damage to the transmission.

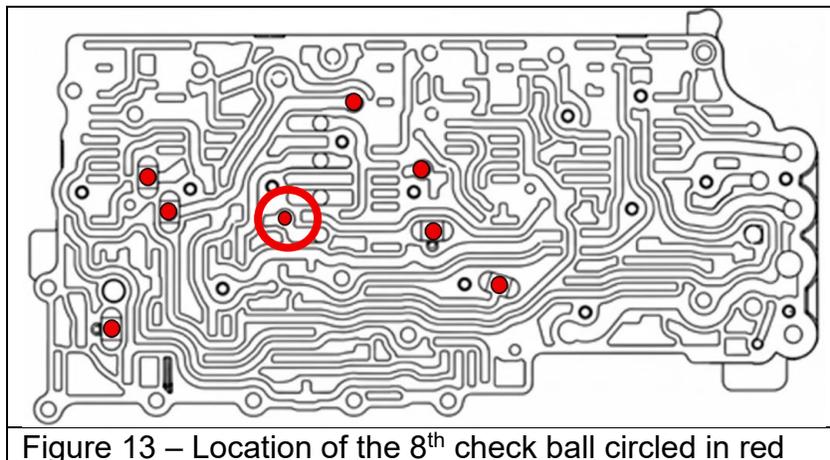


Figure 13 – Location of the 8<sup>th</sup> check ball circled in red

18. Install the new spacer plate on the upper housing (transmission side).

**Important:** Do not use the old spacer plate. Install a **NEW** spacer plate **ONLY**. Reusing an old spacer plate may cause internal transmission leaks and transmission damage.

**NOTE:** Be sure that none of the check balls have fallen out during the installation of the control valve body spacer.

19. Place the lower valve body onto the new spacer plate and upper valve body. Carefully flip the valve body so that the lower valve body (pan side) is facing down.

20. Install the twelve (12) M5x36mm bolts in the sequence shown below. Torque to 8 N•m (71 lb. in). See Figure 14.

**NOTE:** These bolts will be torqued in a later step.

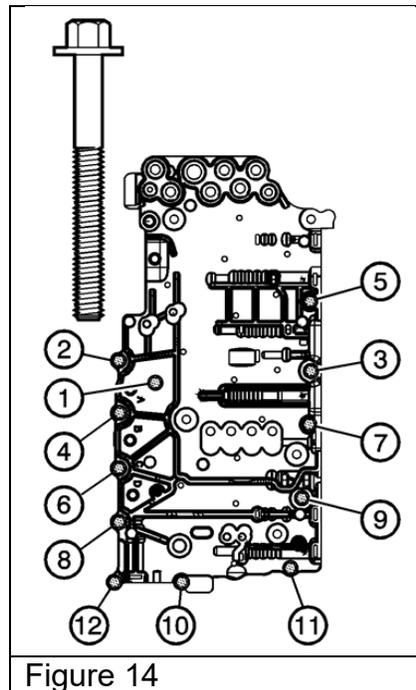


Figure 14

21. Remove the old pump seals and replace them with new ones. See Figure 15.

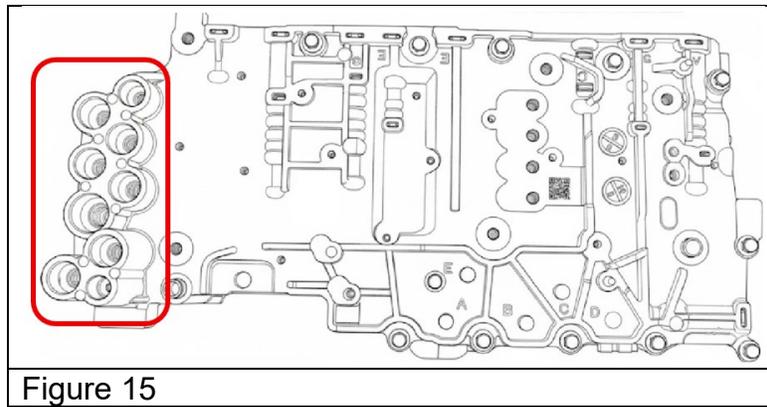
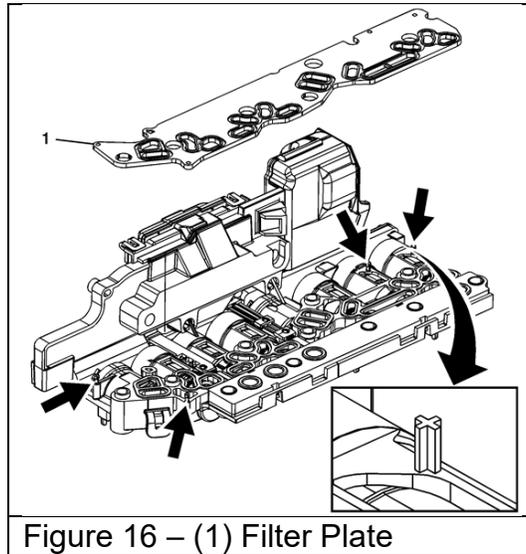


Figure 15

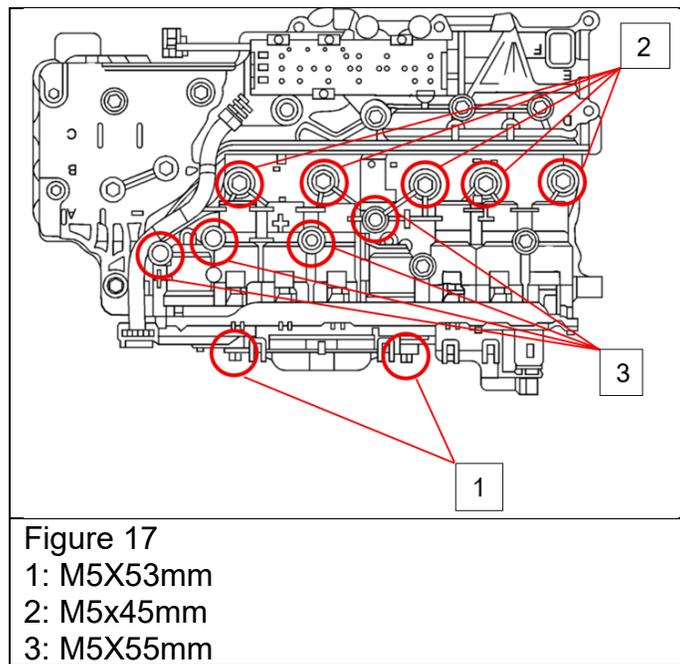
22. Install the new filter plate assembly on the control solenoid valve assembly. See Figure 16.

**Important: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal components, including the TCM, may result.**

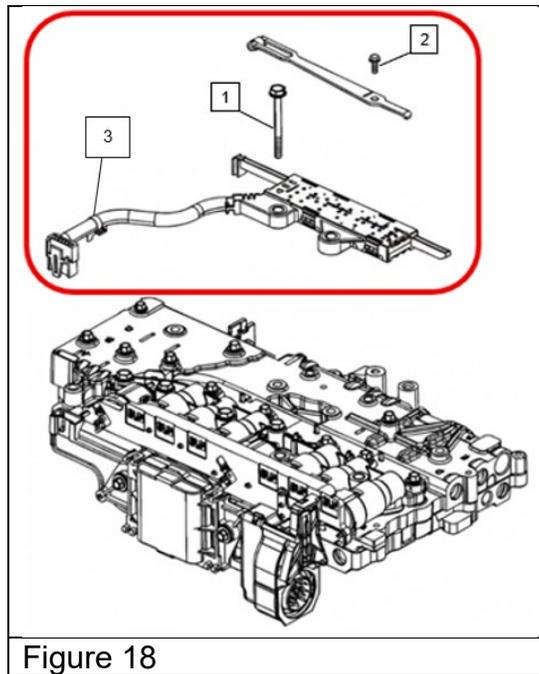
**Important: Replace with a NEW filter plate. Reusing an old filter plate may cause damage to the control solenoid valve assembly.**



23. Install the control solenoid valve assembly onto the valve body by hand tightening the eleven (11) bolts. See Figure 17.



24. Install the manual shift shaft position switch and the detent plate. See Figure 18.

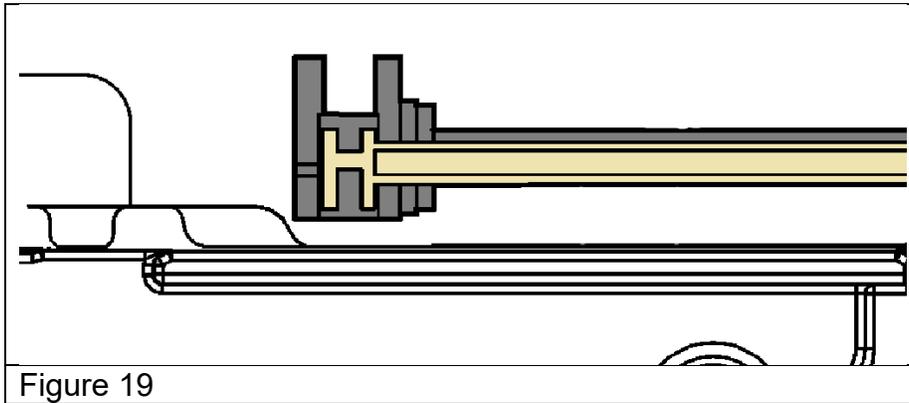


- a. Install and hand tighten the M5 x 55mm bolt (1) for the manual shift shaft position Switch. Refer to Figure 18.
- b. Install the Manual shift shaft position switch harness clip (3). Refer to Figure 18.

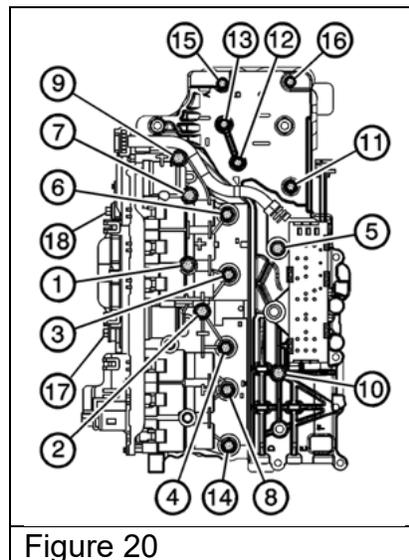
**NOTE: The wiring harness clip (3) on the manual shift shaft position switch does not need to be replaced if damaged or missing. The clip functions only as a manufacturing assembly aid to keep the harness clear during an automated bolt installation process. If the clip is damaged, simply remove and discard.**

- c. Connect and lock the manual shift shaft position switch electrical connector to the control solenoid valve assembly.
- d. Install the bolt (2) for the detent plate. Torque 8 N•m (71 lb. in). Refer to Figure 18.
- e. Align the switch activator slide with the manual valve link. See Figure 19.
- f. Confirm that the manual shift shaft position switch is aligned with the manual valve link. Refer to Figure 19.

**IMPORTANT: Be sure to align the manual shift shaft in the same position as removed in Step 9. Failure to align the manual shift shaft position switch will result in a no-start condition and/or DTC's being set.**

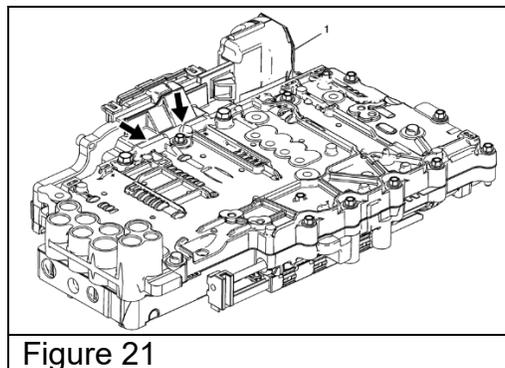


25. Tighten all 18 bolts in the sequence shown below. Torque to 8 N•m (71 lb. in). See Figure 20.

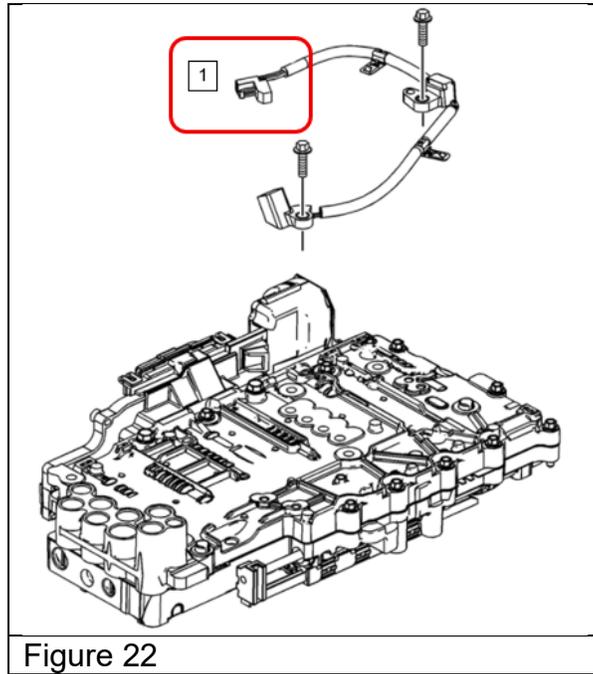


26. Inspect the contact area between the "heat sink" area of the control solenoid valve assembly and the valve body. There should be no visible gap. See Figure 21.

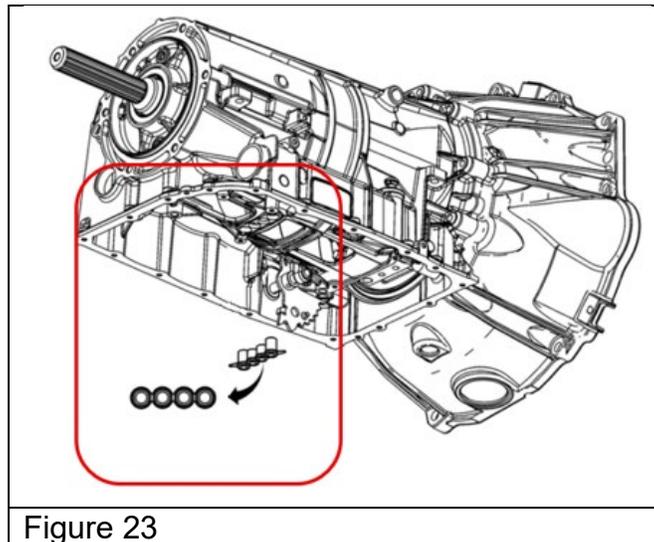
- If a gap exists, loosen all 18 bolts and re-tighten in the required sequence shown in Figure 20. Torque to 8 N•m (71 lb. in).
- If no gap exists, proceed to Step 27.



27. Install the input and output speed sensor connector (1). See Figure 22



28. Remove the old center support fluid passage seals and replace them with new seals. See Figure 23.



29. Install the valve body into the transmission while lining up the manual shift shaft position switch with the detent lever guide pin. See Figure 24.

**Important: Be sure to line up the manual shift shaft position switch activator slide with the detent lever guide pin. Failure to line up the manual shift shaft position switch activator slide with the guide pin will result in a no start condition and/or DTC's to be set.**

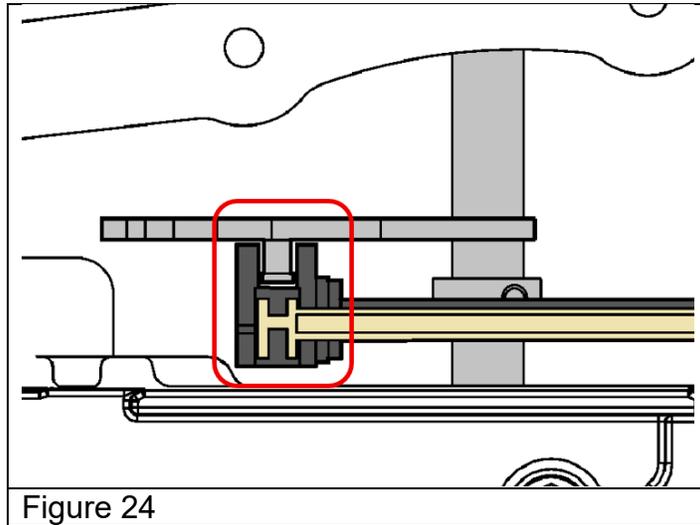


Figure 24

30. Hand tighten the six (6) bolts before the final torque sequence. Torque the six (6) bolts to 8 N•m (71 lb. in). See Figure 25.

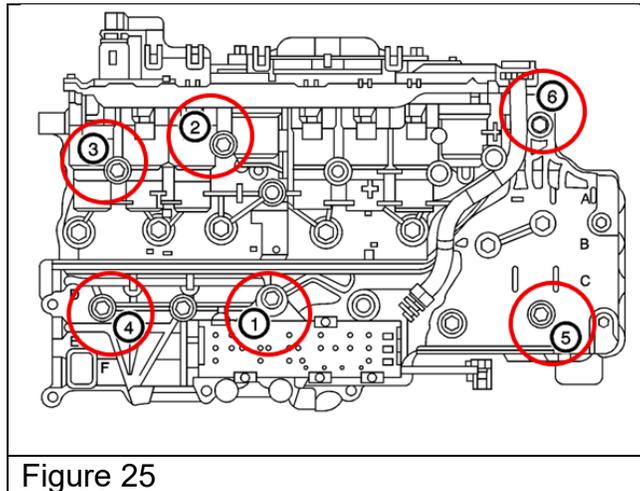


Figure 25

31. Install the transmission filter (4) in the transmission assembly. See Figure 26.  
**NOTE: The old filter can be reused as it is not required to be replaced.**

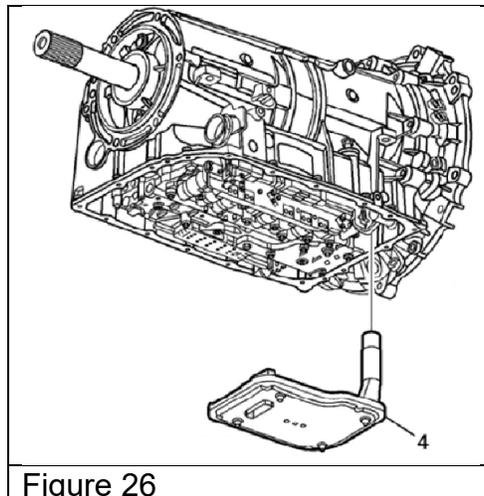
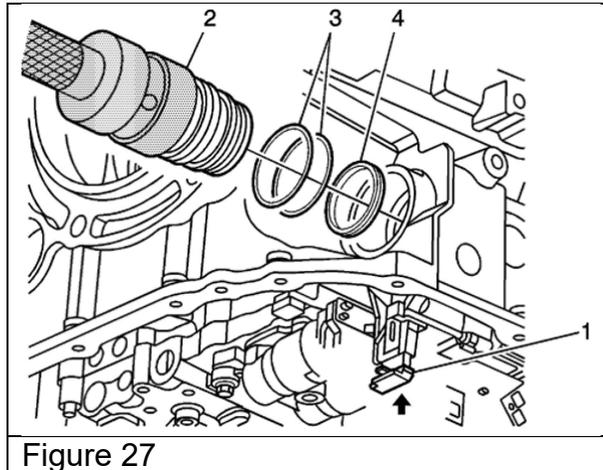


Figure 26

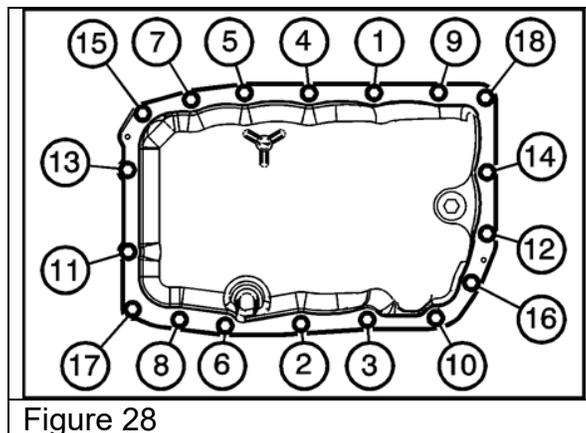
32. Remove and replace the O-rings seals (3) and (4) on the electrical connector passage sleeve. See Figure 27.



33. Use the DT-47715 Electrical Connector Passage Sleeve Remover/Installer and J-42183 Driver Handle (2) to install the electrical connector passage sleeve. Refer to Figure 27.
34. Push the slide lock (1) in towards the transmission to lock the electrical passage sleeve into place. Refer to Figure 27.
35. Connect the vehicle wiring harness electrical connector to the transmission electrical connector passage sleeve.

**Important: Be sure that the electrical connector passage sleeve is inserted all the way in.**

36. Using an appropriate cleaner, clean the transmission pan.
37. Install the gasket on the pan and install the eighteen (18) pan bolts. Tighten in the sequence shown below and torque to 9 N•m (80 lb. in) See Figure 28.



38. Remove the dipstick and fill the transmission with approximately 6.0 quarts of the appropriate transmission fluid. Reinstall the dipstick.
39. Check transmission fluid level using the following procedure. Do the following:
- Apply the parking brake and place the shift lever in PARK (P).
  - Start the engine and allow engine to come to an idle.

- c. Depress the brake pedal and move the shift lever through each gear range, pausing for about 3 seconds in each range. Then, move the shift lever back to PARK (P).
- d. Allow the engine to idle 500-800 rpm for at least 1 minute. Slowly release the brake pedal.
- e. Allow the transmission to warm up to operating temperature. Once the transmission has warmed up, check the transmission fluid level and adjust as necessary.

**NOTE: Use IDSS scan tool data to verify that transmission temperature is between 158°F - 176°F (70°C - 80°C).**

- f. Clear all DTC's.

***Important: It is recommended that the transmission reset adapts be completed anytime the following is done:***

- Transmission internal service/overhaul
- Valve body repair or replacement
- Control solenoid valve assembly replacement
- TCM software/calibration update
- Any service in response to a shift quality concern

40. Perform the Reset Transmission Adapts:

Scan Tool → Output Control Tests → Transmission → Reset Transmission Adapts

41. Follow the on-screen instructions.

42. Once Reset Transmission Adapts has been completed, verify proper transmission operation.

### WARRANTY INFORMATION

Labor Code	Description	Labor Hours
K6730	6L90 Spacer Plate and Check Ball Replacement	See published time.