

GEN 3.1 Auxiliary Block Spacer Replacement Procedure

This Technical Service Bulletin is specifically for Ground Support Baggage Tractors that have been experiencing a loss of forward at moderate to high transmission temperatures. This includes both a loss of forward while in forward and a loss of forward after shifting to neutral and back to forward. To alleviate the issue, an improved Auxiliary Block spacer and 2 gaskets have been provided for replacement in the transmission. Changing the Transmission Control Module or calibration will not resolve the reported issue. This procedure may be performed on transmissions that have dark transmission fluid that exhibits a burned smell; however, it is not guaranteed to resolve the issue. This procedure will not resolve the issue if inadequate line pressure is not provided by the transmission pump or cooler system.

It is critical to record the transmission serial number, vehicle hours, and any reported failure temperatures to gsetechs@powertraincontrol.com. If there are any questions regarding the following procedures, or if the failure mode is not identical please do not hesitate to contact gsetechs@powertraincontrol.com or 804-227-3023.

Required Components:

1. New Spacer Plate (VBM1060)
2. Gasket (VBM1044) x 2
3. Transmission filter (replace if necessary) (TRN7090)
4. Transmission pan gasket (replace if stock gasket cannot be reused) (TRN7090)
5. DEXRON® VI transmission fluid (replace any old/spilled/lost fluid during level check)

Note: Inspect received parts for shipping damage. Do not install damaged parts. Request replacement of damaged parts.

Required Tools:

1. 13mm socket with appropriate ratchet and torque wrench
2. 10mm socket with appropriate ratchet and torque wrench
3. 7mm socket with appropriate ratchet and torque wrench
4. Fluid removal/recovery system if fluid is going to be reused

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Removal and Installation Procedure

Disconnect the battery from the vehicle prior to performing this procedure.

Warning: When the transmission is at operating temperatures, take necessary precautions when removing the pan to avoid being burned by draining fluid.

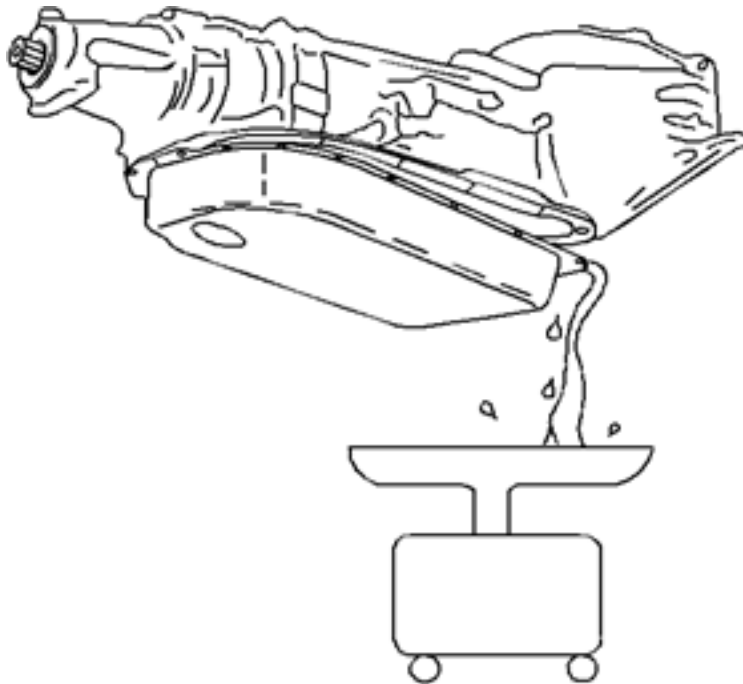


Figure 1

1. Raise and support the vehicle.

NOTE: The fluid can be reused after this procedure unless it smells burnt or is discolored. If a recovery system is available, remove and store the fluid. Remove the pan bolts and skip to step 7.

2. On some vehicles an exhaust heat shield may need to be removed to access the pan bolts. Remove this if necessary.
3. Place a drain pan under the transmission oil pan.
4. Remove the oil pan bolts from the front and sides of the pan only.
5. Loosen the rear oil pan bolts approximately 4 turns.
6. Lightly tap the oil pan with a rubber mallet in order to loosen the pan to allow the fluid to drain.

NOTE: Using a fluid evacuator through the dipstick tube or port, is also an acceptable manner to drain and potentially recycle the transmission fluid if it is acceptable for reuse.

7. Remove the remaining oil pan bolts. **Reference Figure 2.**

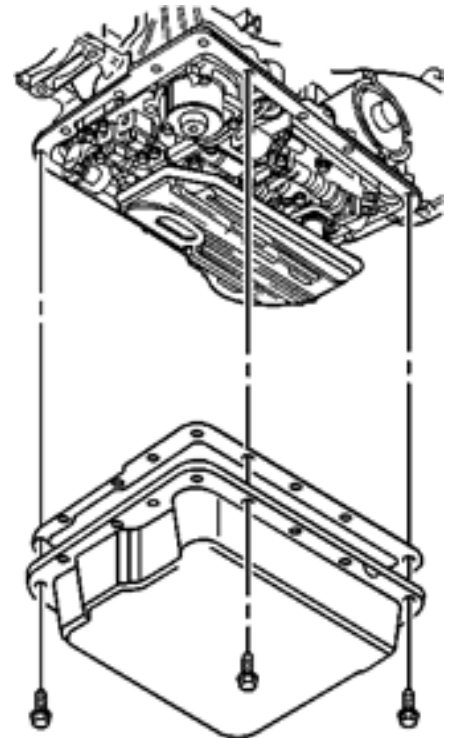


Figure 2

8. Remove the oil pan and gasket. **Reference Figure 3.**

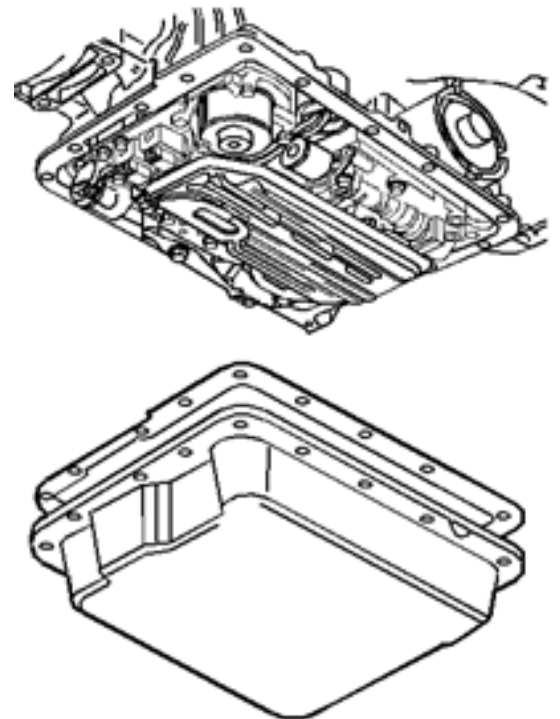


Figure 3

9. Grasp filter firmly while pulling down with a twisting motion in order to remove the filter. **Reference Figure 4.**

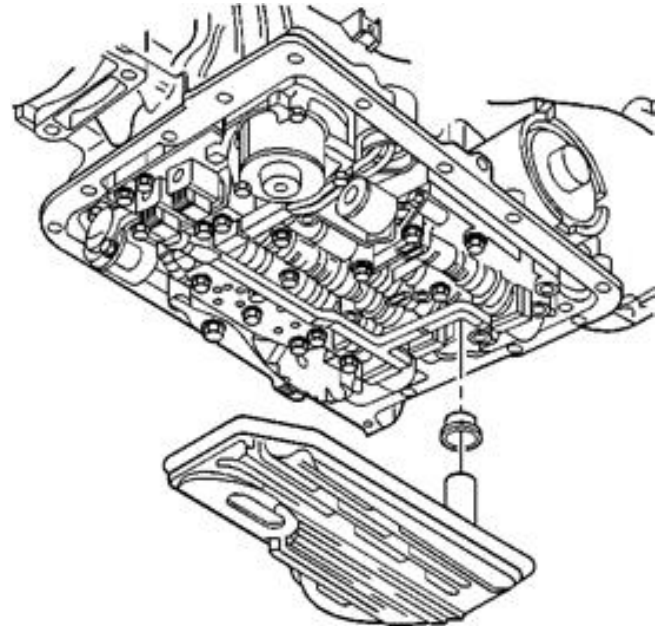


Figure 4

10. Inspect the fluid color.
11. If the filter is going to be replaced, remove the filter seal. The filter seal may be stuck in the pump; if necessary, carefully use pliers or another suitable tool to remove the seal. **Reference Figure 5.**
12. Discard the seal.
13. Clean the transmission case and the oil pan gasket surfaces with solvent, and air dry. You must remove all traces of the old gasket material.

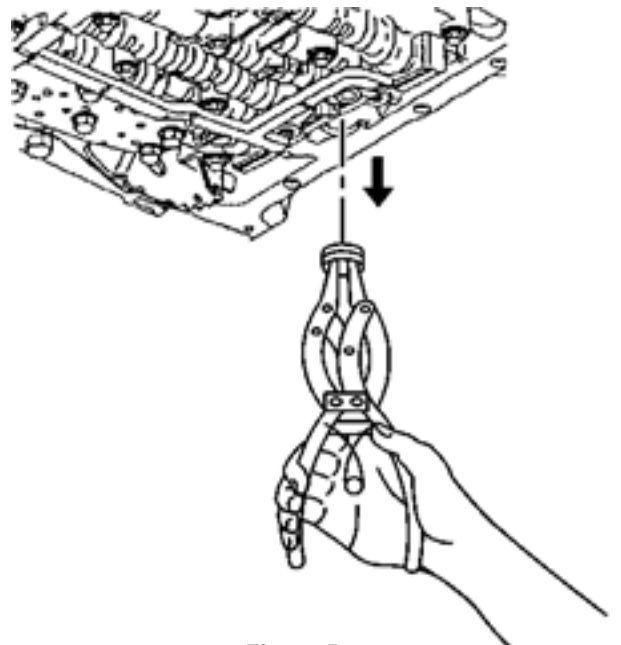


Figure 5

GEN 3 Valve Body Reference Diagram

REAR
Driveshaft Side



FRONT
Engine Side

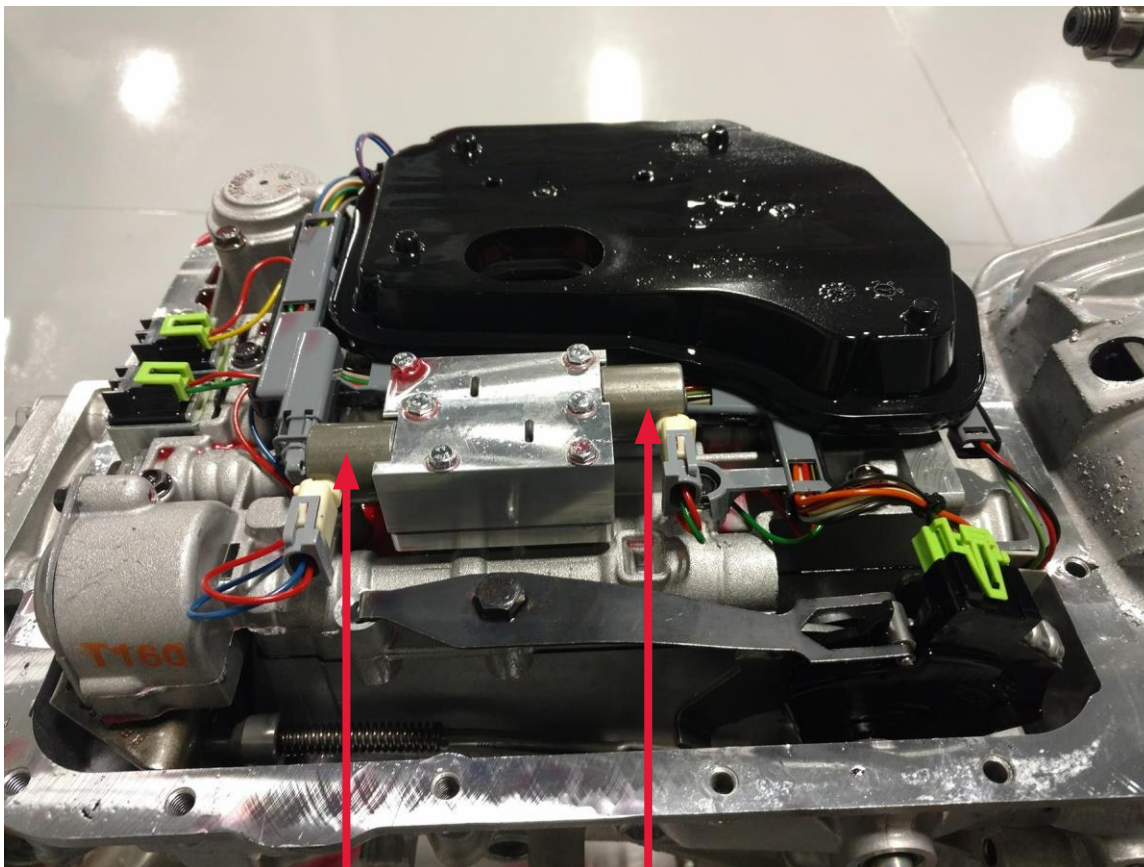


Figure 6

Forward Clutch
Solenoid

Reverse Clutch
Solenoid

Note: The transmission displayed in Figure 6 is on a stand in the upside down position.

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FRONT
Engine Side



REAR
Driveshaft Side

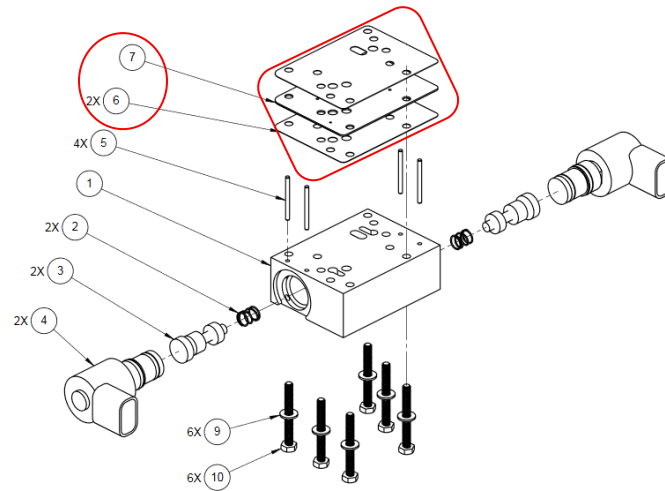


Figure 7

14. Disconnect forward and reverse solenoid connectors from the internal transmission harness.

Reference Figure 6

15. Using a 7mm socket, remove the six M4 x 35mm hex bolts(10) and washers(9) holding the top block(1) to the bottom block(8).

16. Remove the assembled top block with solenoids and the gasket (6) / spacer (7) / gasket (6) stack.

Reference Figure 7

Note: Use care when handling the top blocks. When the solenoid is pressed into the block, spring tension is relieved and the pins (5) can drop out.

17. Discard spacer (7) and both gaskets (6).

18. Using the new gaskets and new spacer provided, align the gasket (6) / spacer (7) / gasket (6) stack with the holes on the top block.

Reference Figure 7.

19. Align the solenoid block on the gasket stack. **Reference Figure 7.**

Note: use care when handling the top blocks. When the solenoid is pressed into the block, spring tension is relieved and the pins (5) can drop out.

20. Torque the six M4 x 35mm hex bolts to 2.3 ft-lb (3.1 Nm).

21. Reconnect forward and reverse solenoid connectors.

- 22. Coat the new filter seal with automatic transmission fluid.
- 23. Install the new filter seal into the transmission case. Tap the seal into place using a suitable size socket. **Reference Figure 8.**
- 24. Install the new filter into the case. Pre-soaking the internal filter media is recommended to prevent pump starvation during the next start up.

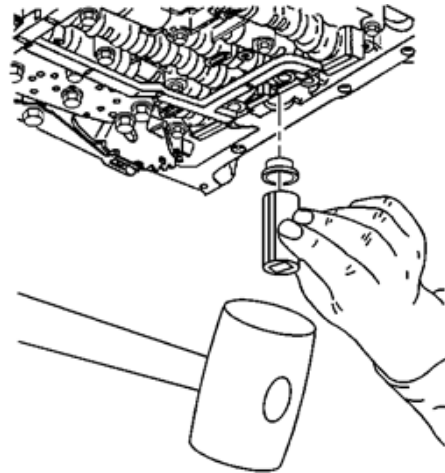


Figure 8

- 25. Thoroughly clean out the inside of the pan and the magnets of any foreign debris. Ensure the pan is dry without any traces of water, brake cleaner, or other cleaning solutions before reinstalling in the following steps.
- 26. If there are two magnets inside the pan, remove and discard the magnet closest to the rear of the vehicle as shown in the red box of **Figure 9**. Center the remaining magnet in the forward magnet target in the pan (Green Box # 1).

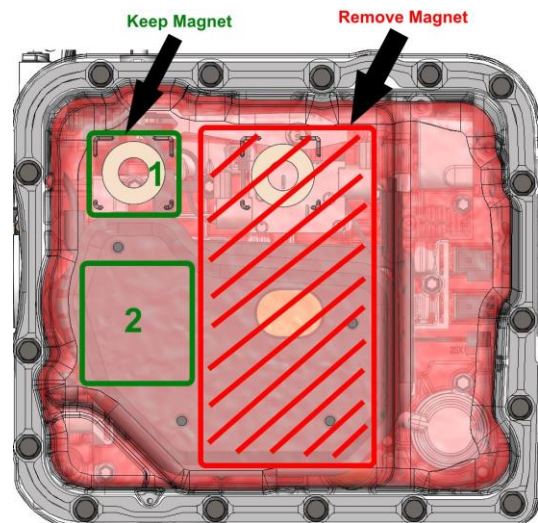


Figure 9

If an aftermarket pan with a drain plug is being used be sure to locate the magnet in the second green area as shown in **Figure 9**. It is critical to not plug the filter intake, get stuck under the filter feet, or be within close proximity of any of the electronics in the valvebody.

- 27. Install the oil pan and a new gasket. **Reference Figure 10.**

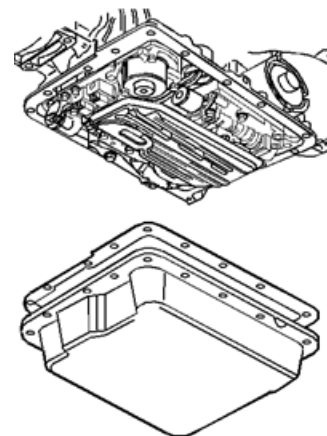


Figure 10

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28. Install the oil pan bolts and tighten alternately and evenly to 11Nm (97lbin). **Reference Figure 11.**
29. If previously removed, reinstall the exhaust heat shield.
30. Lower the vehicle.
31. Fill the transmission to the proper level with DEXRON®VI transmission fluid. Refer to Transmission Fluid Level and Condition Check and Fluid Capacity Specifications.
32. Check the COLD fluid level reading for initial fill only.
33. Inspect the oil pan gasket for leaks.
34. Test drive vehicle and verify proper transmission operation. **Reference the installation check list on page 2 of your Quick Reference Guide.**
35. Check fluid level when transmission is at operating temperature.

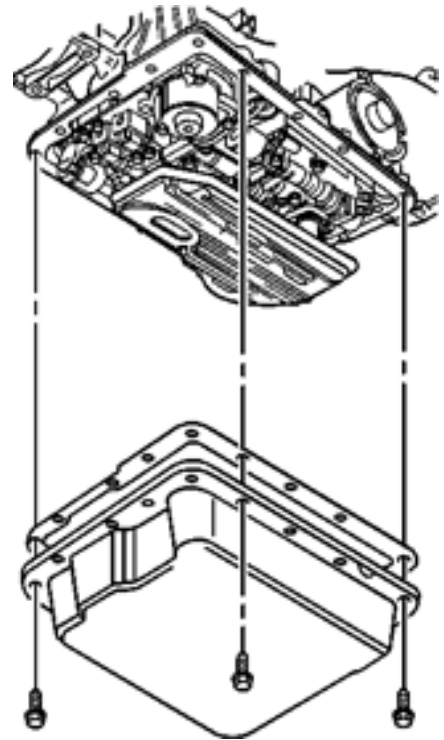


Figure 11

TECHNICIAN NOTES:

To properly check fluid level:

1. Start the engine and operate the vehicle for 15 minutes or until the transmission fluid reaches an operating temperature of 82 - 93°C (180 - 200°F) .
2. Park the vehicle on a level surface.
3. With your foot on the brake, move the shift lever through each gear range. Pause for about 3 seconds in each range, ending in NEUTRAL.
4. Apply the parking brake and let the engine idle for 3 minutes.
5. Remove the transmission fluid level indicator. Wipe the indicator clean. Insert the indicator fully into the tube.
6. Wait 3 seconds and remove the indicator.
7. Read both sides of the indicator. The fluid must be within the hot cross-hatched area using the lowest level reading.