

GM 6T30/40/45/50 (Gen. 1) Remanufactured Valve Body

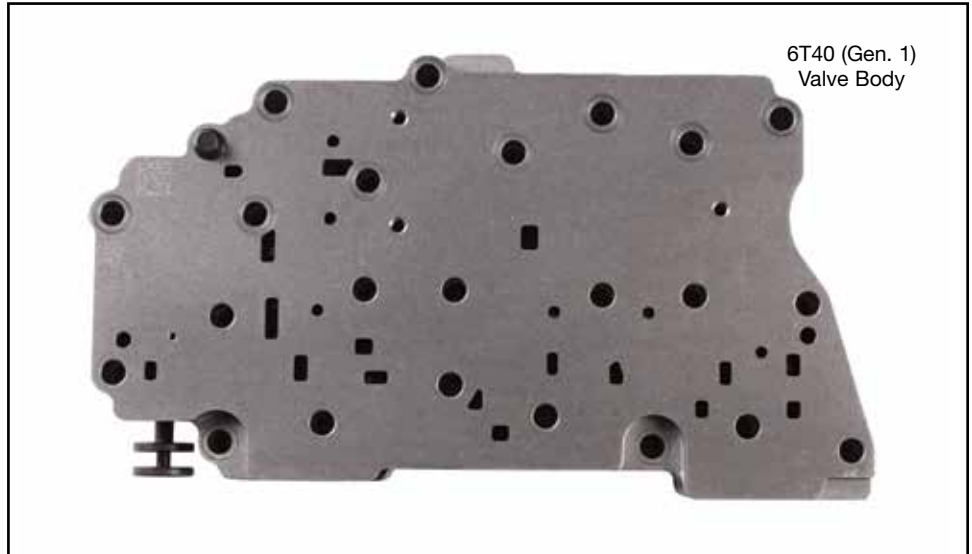
Channel plate and separator plate included.
Sold without transmission control module.

Part No.

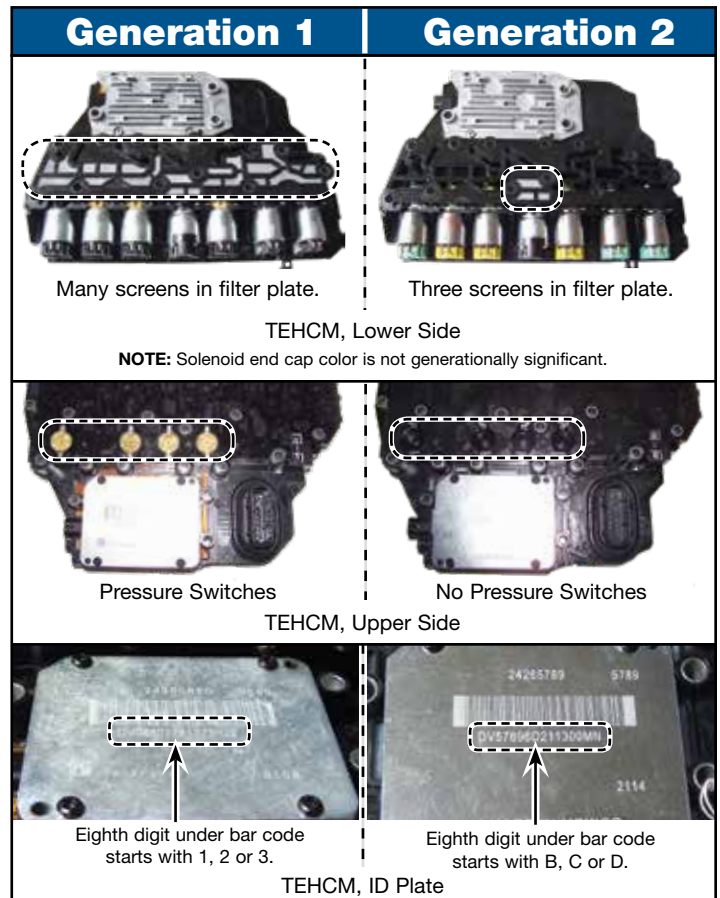
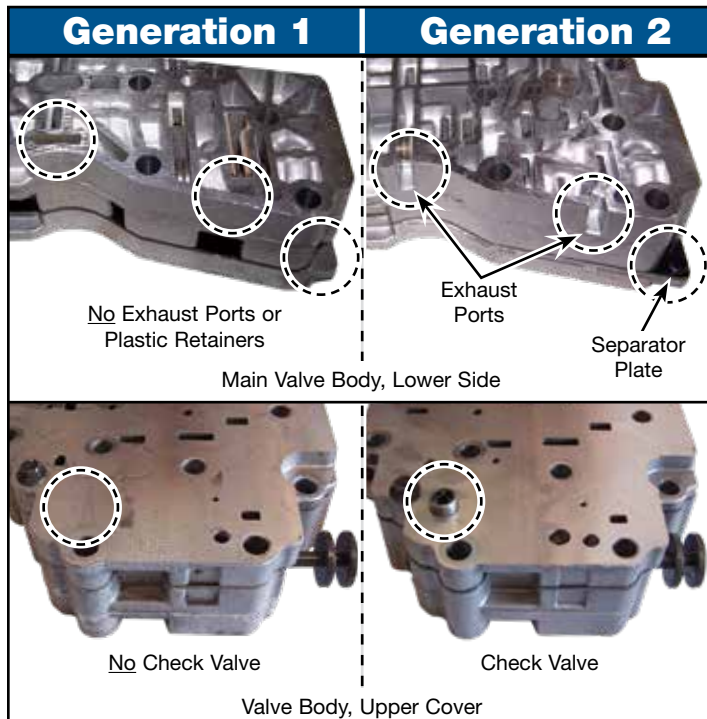
GM6T40-1



WARNING: Reference Figures 1–5, or go to www.sonnax.com for identification guide to verify that a Gen. 1 valve body is required and being installed.



GM 6T30, 6T40, 6T45, 6T50 Series Identification Guide



Valve Body Installation Tips

1. Air Check

While valve body is out, air-check indicated circuits (**Figure 6**) using low, regulated air pressure. This will help you discover any issues prior to installing the remanufactured valve body.

2. TEHCM Replacement

The original vehicle TEHCM or replacement TEHCM must be programmed with the proper and latest software/calibrations. Reference OE instructions for proper procedures on updating, replacing and installing.

If reusing the original vehicle TEHCM it is highly recommended to replace all fluid pressure switch seals and laminated discs. These are prone to contamination and failure, resulting in pressure switch codes and a multitude of shift complaints. Reference Sonnax part number **144510-09K**.

3. Install remanufactured valve body & TEHCM into transmission

CAUTION: Ensure to correctly align manual valve with detent lever assembly while installing valve body.

- Remove and replace the filter plate on original TEHCM. The seals take a set and will leak if reused.
- Install valve body into case and secure with (2x) 53mm and (9x) 60 mm bolts until finger-tight (**Figure 8**).
- Tighten to 106 in-lb of torque in the indicated sequence (**Figure 10**).
- Install TEHCM to valve body with (12x) 105mm and (3x) 40.5mm bolts until finger tight (**Figure 7**).
- Tighten (12x) 105mm bolts to 106 in-lb torque in the indicated sequence (**Figure 11**).
- Tighten (3x) 40.5mm bolts to 71 in-lb torque in the indicated sequence (**Figure 11**).
- Reconnect the input speed sensor, output speed sensor and shift position switch connectors (**Figure 7**).

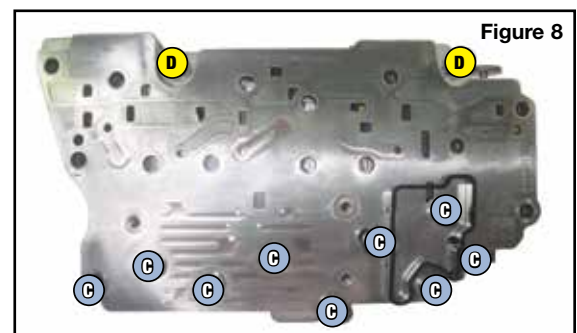
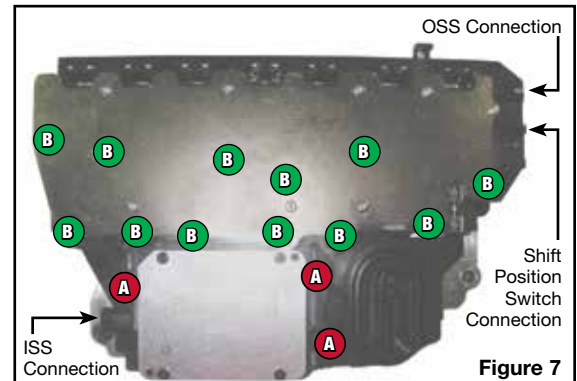
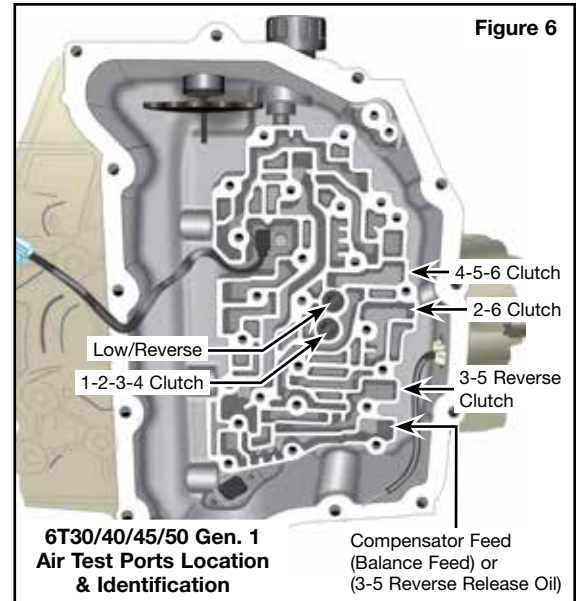
4. Install Main Control Cover onto Transmission Case

- Install transmission oil pan gasket and main control cover onto case.
- Inspect the 20-pin TEHCM connector seal and make sure that the 6T40 seal is on the inside of the main control cover to prevent fluid leaks.
- Install bolts (**Figure 12**). Torque to 106 in-lb.

5. Fluid Fill

NOTE: Use Dexron VI transmission fluid only. Ensure the transmission has enough fluid to safely start vehicle without damaging transmission.

- Park vehicle on level surface and start engine.
- Press brake pedal and move shift lever through each gear range, pausing for approximately 3 seconds in each range. Move shift lever back to Park.
- Allow engine to idle 500–800 RPM for at least 1 minute. Release brake pedal.
- Keep engine running and check fluid temperature (TFT) using the Driver Information Center or appropriate scan tool. Temperature must be between 185-203 F°.
- Vehicle must be level with engine running and shift lever in Park.
- While vehicle is idling, remove oil level set plug and allow fluid to drain. If no fluid comes out, add fluid until it drips out.



Removal Bolts

Figure 9

Bolt Color Code	Bolt Length	Quantity	Torque Specification
A	Red	3	71 in-lb
B	Green	12	106 in-lb
C	Blue	9	106 in-lb
D	Yellow	2	106 in-lb

5. Fluid Fill (continued)

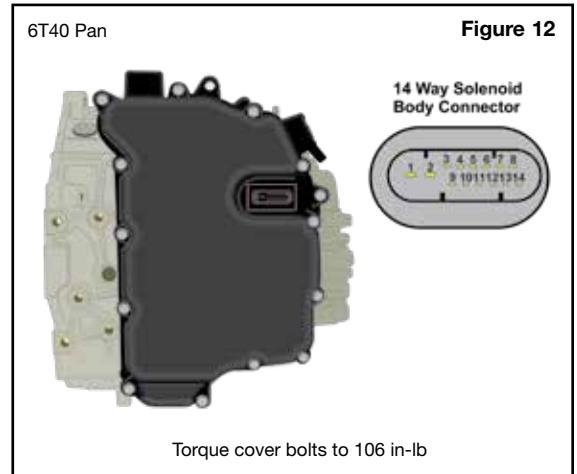
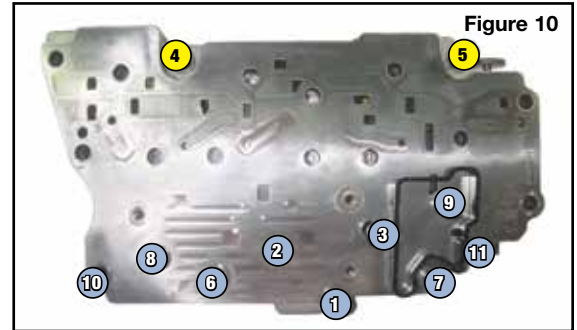
- g. Inspect fluid color, which should be red or dark brown. Excessive metal particles or burnt odor indicates internal transmission damage requiring additional service and cooler flushing or replacement.
- h. If fluid was changed, reset transmission oil life monitor if applicable.

Transmission Diagnostic Tips

This remanufactured valve body has been through a rigorous inspection and rebuild process, then a comprehensive, functional hydraulic and electronic test to ensure it meets OE performance and quality. It is designed to eliminate many pressure-, shift- and converter-related complaints, but will not correct complaints that stem from other areas of the transmission.

The following are common areas of failure or root causes for symptoms that could be attributed to valve body issues that should also be examined or addressed during your transmission build. Solenoid and clutch apply chart (Figure 13) is provided for additional aid in diagnosing problems.

- Shifter won't move out of Park: Replace 15 amp fuse labeled "RT T/SIG" located in under-hood fuse box.
- Harsh 4-5 shift: Reflash all on-board computer systems with latest calibration update.
- DTC P0713/P06AE set after TEHCM replacement: Incorrect generation TEHCM installed for application.
- P0218 transmission fluid overtemperature: Overfilling of transmission fluid.
- Pulse or surge at 30-50 mph: Update software calibration has been released to address this condition.
- Harsh firm or flare sag on upshifts above 30 mph: Update software calibration has been released to address this condition.
- P0723 output speed sensor code: Check OSS, if no problems, reflash TCM with the updated TCM calculation strategy.
- No 3rd, 5th, Reverse Gears: 3-5R clutch snap ring popped out of groove.
- Hard shifts and/or DTC P0776: Broken 3-5R wave plate.
- Transmission slippage, noise, possible P0776, P0796, P2714, P2723: Low line pressure due to pump damage or wear.



6. Service Fast Learn Adapts

- a. The fast learn adapt procedure must be performed after installation of this remanufactured valve body. Reference OE information for specific processes and procedures for particular vehicle serviced.
- b. Service Fast Learn Adapts is a procedure in which a series of tests are run to all the TCM to learn individual clutch characteristics. The TCM uses this data for clutch control during shifts. An appropriate scan tool provides initiation of the procedure.
- c. Fast learn process/adaptive reset will not function if transmission temperature is not between 185-203F.
- d. Fast learn process will abort if transmission fluid temperature increases to 230F or above.

Solenoid & Clutch Apply Chart

Figure 13

Range/Gear	Shift Solenoid	1-2-3-4 CL PC Sol 5 N.L.	2-6 CL PC Sol 4 N.L.	3-5 Rev. CL PC Sol 2 N.H.	Low Rev. 4-5-6 CL PC Sol 3 N.H.	4-5-6 Clutch	3-5 Reverse Clutch	2-6 Clutch	Low & Rev. CL (OVC)	Low & Rev. Clutch	1-2-3-4 Clutch
Park	On	Off	Off	Off	On					Applied*	
Reverse	On	Off	Off	On	On		Applied			Applied	
Neutral	On	Off	Off	Off	On					Applied*	
Drive	1st Braking	On	On	Off	Off	On			Holding†	Applied	Applied
	1st	Off	On	Off	Off	Off			Holding		Applied
	2nd	Off	On	On	Off	Off		Applied			Applied
	3rd	Off	On	Off	On	Off		Applied			Applied
	4th	Off	On	Off	Off	On	Applied				Applied
	5th	Off	Off	Off	On	On	Applied	Applied			
6th	Off	Off	On	Off	On	Applied		Applied			

NOTE: For shift solenoids, "ON" = solenoid energized (pressurized), "OFF" = solenoid de-energized (no pressure). For pressure control (PC) solenoids, "ON" = pressurized, "OFF" = no pressure. *Applied with no load. †Holding but ineffective.