

6F50, 6F55 Remanufactured Valve Body

Part Nos.

FD6F50E Fits '07-'09 units w/1.35 Ratio 3-5-R
Sold without transmission control module

FD6F50L Fits '09-later units w/1.83 Ratio 3-5-R
Sold without transmission control module

NOTE: Save your existing manual valve for reuse with our remanufactured valve body.



FD6F50E Late Valve Body

WARNING: Reference **Figures 1 & 2**, or go to www.sonnax.com for identification guide to verify the correct valve body is being installed as these different types look very similar.

CAUTION: The FD6F50L valve body is a 6 checkball design. OE transmissions built 2009–2011 with MERCON® LV listed on the dipstick require reprogramming to eliminate shift complaints. Per TSB 11-12-10, reprogram the PCM to the latest calibration using IDS release 73.04 and higher. This new calibration is not included in the VCM 2011.5 DVD. Calibration files may also be obtained at www.motorcraft.com.

For units without MERCON® LV listed on the dipstick – this procedure does not apply.

Figure 1

Figure 2



ID: FD6F50L **Early** Valve Body



ID: FD6F50L **Late** Valve Body

Valve Body Installation Tips

1. Air Check

While valve body is out, air-check indicated circuits (**Figure 3**) using low, regulated air pressure. This will help you discover any issues prior to installing the remanufactured valve body.

2. Install remanufactured valve body & transmission control module (solenoid body) into transmission.

- Install valve body into transmission using 10 (yellow) 62mm bolts (**Figure 4**). Hand tighten first, then tighten in indicated sequence to 106 in-lb.
- Install a new solenoid filter plate to the solenoid body (**Figure 5**).
- Install solenoid body onto valve body and secure with 11 bolts. Hand tighten, then tighten in the sequence shown to 106 in-lb (**Figure 6**).
- Reconnect transmission range sensor.
- Reconnect output speed sensor (OSS).
- Reconnect turbine shaft speed sensor (TSS).

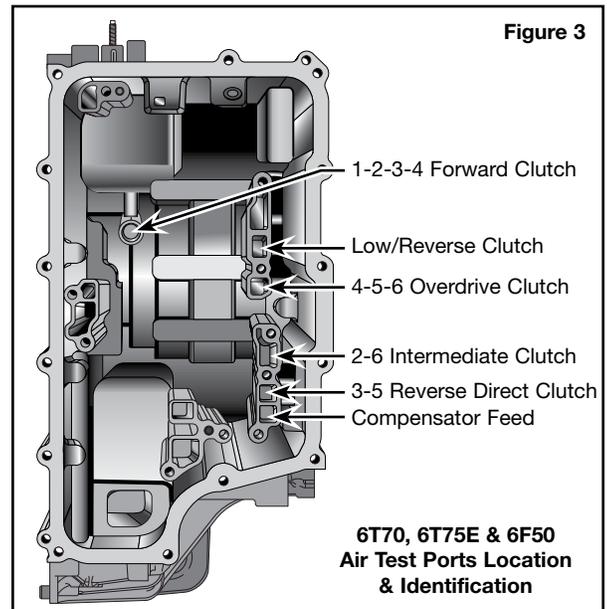


Figure 3

3. Install Main Control Cover onto Transmission Case

- Install transmission oil pan gasket and main control cover onto case.
- Inspect the 20-pin solenoid body connector seal and make sure that the seal is on the inside of the main control cover to prevent fluid leaks.
- Install bolts and studbolts (**Figure 7**). Torque in sequence noted to 106 in-lb.

4. Fluid Fill

- Fill transmission with appropriate transmission fluid to factory spec.
- Let engine run to warm up transmission fluid to approximately 185°.
- Move the range selector lever into each gear position and allow engagement for a minimum of ten seconds. Check the transmission fluid level by using the fluid level indication, and adjust as required.

If using the same solenoid body that came with the vehicle:

- Install scan tool and verify transmission fluid temp is correct. Perform fast adapt (battery disconnect will not suffice).
- Then skip to road test section.

- If using Reman or new solenoid body, the PCM must be reflashed with a new solenoid body strategy and identification data file. Reference OE material for proper procedure.

Solenoid Body Identification & Strategy

The solenoid body strategy is a file programmed into the PCM to control the various solenoids to prevent shift concerns. The original solenoid body tag on the transmission case indicates the solenoid strategy and solenoid body ID (**Figure 8**). These must match the numbers on the lead frame on solenoid pack (**Figure 9**).

Anytime a new solenoid body is installed, a new strategy file is downloaded into the PCM with a scan tool. A replacement tag (**Figure 10**) must be placed on the case as well.

NOTE: The solenoid strategy is always 13 numeric digit. The solenoid body ID is a combination of numeric digits and any letters A-F.

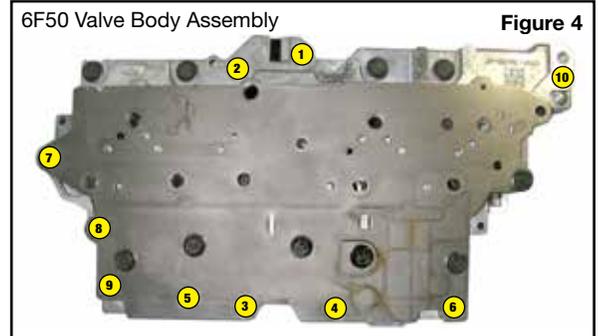


Figure 4



Figure 5

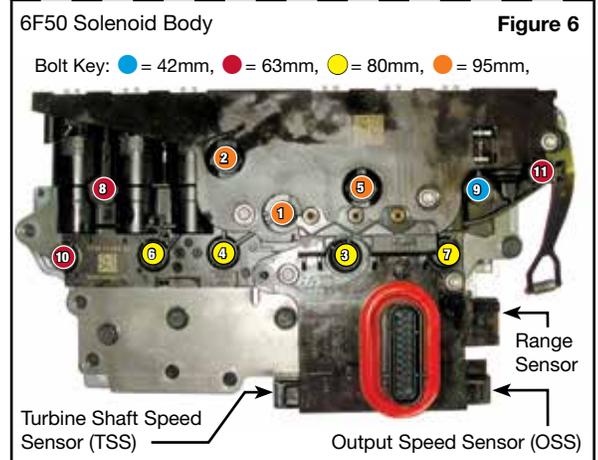


Figure 6

Bolt Key: ● = 42mm, ● = 63mm, ● = 80mm, ● = 95mm,

Identifying Main Control Cover Bolts & Tightening Sequence

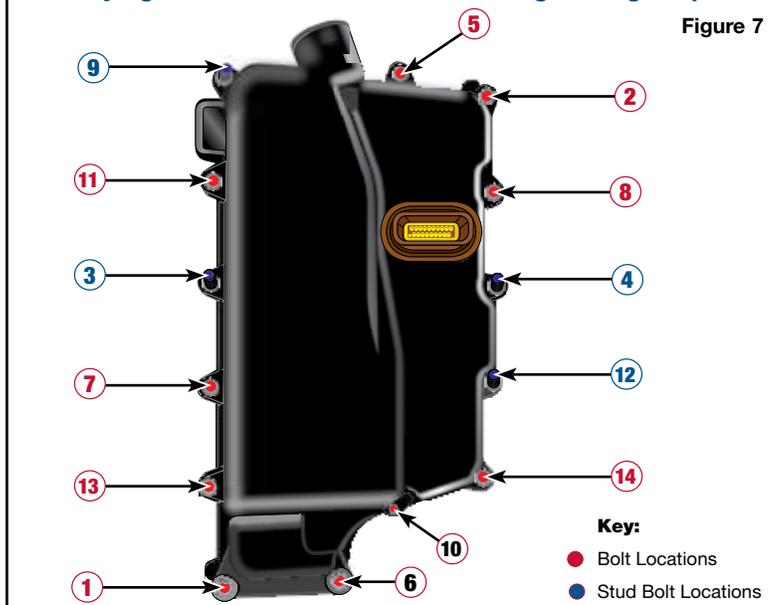


Figure 7



Figure 8

Identification: The original solenoid body tag on transmission case will look like this.

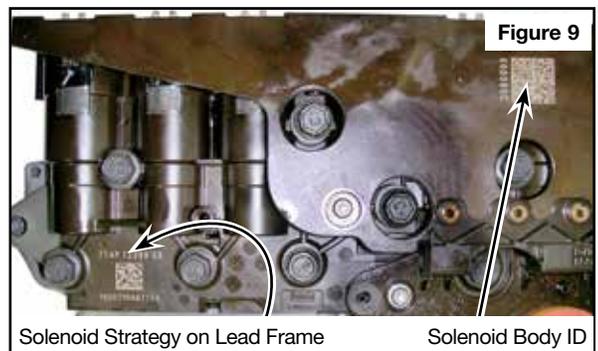


Figure 9

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. clutch apply chart (Figure 11) and solenoid apply chart (Figure 12) are provided for additional aid in diagnosing problems.

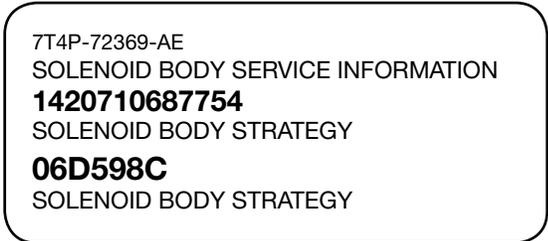
- No 3rd Gear, P0796: compensator ball in back cover stuck open.
- No Reverse: internal mode switch not indexed properly during valve body install.
- DTC P0751, Harsh, Slips and /or No Forward Engagement: a broken orifice restrictor cup plug (under valve body) for the forward clutch circuit.
- No 4th, 5th, or 6th Gear: overdrive clutch snap ring popped out of drum.
- No Reverse, 3rd or 5th Gear: intermediate sun shell failure
- Harsh Engagements, No Upshift, No Reverse, Multiple Codes: faulty ISS and OSS

5. Road Test

- Bring transmission to normal operating temperature.
- With engine running and brake applied, move selector lever through gears in the following order, pausing in each gear for 4 seconds: N, R, N, D, R, D, N. Repeat this pattern 2 times. If any engagements feel soft or harsh, repeat procedure.
- Drive vehicle and accelerate at moderate throttle so upshifts occur at 2,000 RPM up to 50mph and brake moderately to a stop. Repeat this pattern 2 times.
- Drive vehicle and accelerate at moderate throttle so upshifts occur at 3,000 RPM up to 50mph and brake moderately to a stop. Repeat this pattern 2 times.
- Repeat step 5b.

Replacement Tag Example

Figure 10



Clutch Apply Chart

Figure 11

Gear		3-5-R Direct Clutch	4-5-6 Overdrive Clutch	1-2-3-4 Forward Clutch (Brake)	Low/Reverse Clutch (Brake)	2-6 Intermediate Clutch (Brake)	One-Way
Drive	1st			X	X		X
	2nd			X		X	Overrunning
	3rd	X		X			Overrunning
	4th		X	X			Overrunning
	5th	X	X				Overrunning
	6th		X			X	Overrunning
Reverse		X			X		

Solenoid Apply Chart

Figure 12

PCM Commanded Gear	Shift Solenoid					TCC (VFS) NL
	SSA (VFS) NL	SSB (VFS) NH	SSC (VFS) NL	SSD (VFS) NH	SSE (on/off) NC	
Park		X			X	
Reverse					X	
Neutral		X		*	X*	
Drive	1st	X	X		*	X*
	2nd	X	X	X	X	
	3rd	X			X	
	4th	X	X			
	5th					
	6th		X	X		
Low	X	X		*	X*	

KEY: X = Solenoid Electrically Energized * = Modulating