



Critical Wear Areas & Vacuum Test Locations



NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts noted for replacement.

Pump Body • 6L80 Shown

Converter Feed Limit Valve

- High TCC slip RPM • Overheated converter
 - Codes P0218/P0741 • Inadequate lubrication
 - Excess converter pressure
- NOTE:** Must test with actuator feed limit (AFL) valve instead of converter limit valve. Position AFL valve so spool face and port face are flush as indicated.

Replace with **Sonnax Part No. 104520-11** Requires F-104520-TL11C & VB-FIX

Test using AFL Valve (#209)

Remove Converter Limit Valve

Flush

TCC Control Valve

- No lockup
 - Falling out of lockup hot
 - Lockup codes
- NOTE:** Test at valve port while plugging side port with thumb.

Plug Here

Pump Body 6L80 Shown

Pressure Regulator Valve

- Erratic/High/Low line pressure
 - Clutch slippage • Harsh shifts
 - Low/No cooler flow • Soft shifts
 - Overheated transmission • Converter concerns
- NOTE:** Block outboard as shown with .125" thick nut. Remove nut after testing.

Replace with **Sonnax Part Nos. 104520-03K 104520-07K** Requires F-104520-TL7C, VB-FIX & VB-06

Block with .125" nut

Boost Assembly

- Low line rise in Drive
 - Soft shifts • Burnt clutches
- NOTE:** Test both ports simultaneously.

Replace with **Sonnax Part No. 104520-01K**

Clutch Select Valve #3

Shift complaints

Lower Valve Body 6L80 Shown

TCC Regulator Apply Valve

- Code P0741/P0742 • Failsafe mode
 - Overheated fluid • High TCC slip RPM
 - Harsh shifts • Harsh TCC apply
 - Loss of fuel economy
- NOTE:** Test with .125" thick nut between shuttle valve and regulator valve.

Replace with **Sonnax Part No. 104740-07K** Requires F-104520-TL7 & VB-FIX

Clutch Select Valve #2

Shift complaints

Compensator Feed Valve

- Harsh shifts • Downshift clunk
 - Bump/Flare shifts • Bind-up
 - Burnt clutches • Overheated fluid
- Replace with **Sonnax Part No. 104740-09K**

Click on Sonnax part numbers to see more information.



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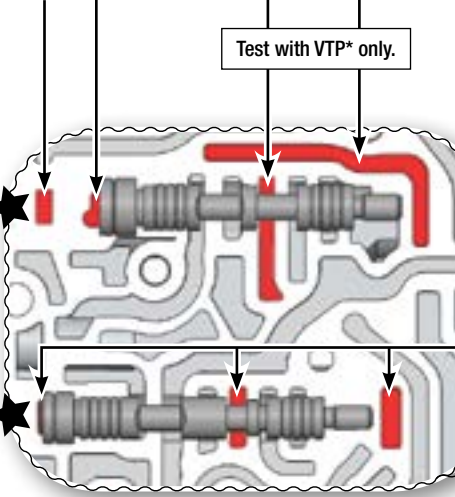
Upper Valve Body • 6L80 Shown

*NOTE: Use Vacuum Test Plate 104740-VTP for this location.

Click on Sonnax part numbers to see more information.

1-2-3-4 Clutch Regulator & Shuttle Valve

- Burnt clutches
- Shift concerns in 1st, 2nd, 3rd & 4th Gear



Test with VTP* only.

1-2-3-4 Clutch Boost Valve

- Shift quality is not load sensitive
- Burnt clutches
- Clutch pressure solenoid codes
- Delayed engagement
- Harsh/Slide shifts
- Slip codes
- Slips & flares

Replace with Sonnax Part No. 104740-01 Requires F-104740-TL & VB-FIX

End Plugs

- Burnt clutches
- Shift concerns

NOTE: Test end plugs at port between valve and end plug.

Replace with Sonnax Part No. 104740-23K

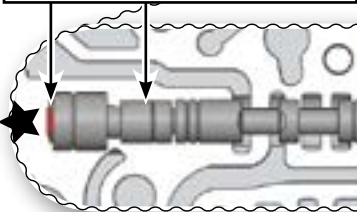
NOTE: Several Locations = ★

3-5 Reverse Clutch Regulator Valve

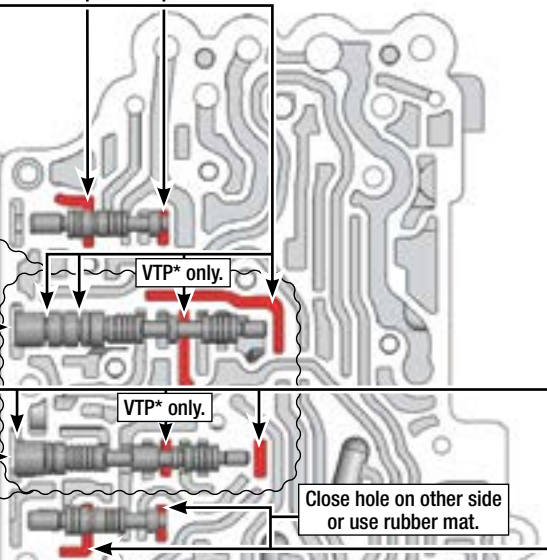
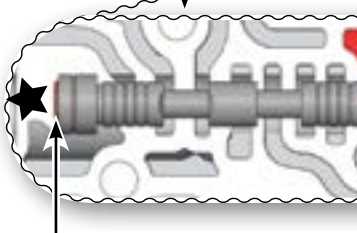
- Burnt 3-5 Reverse clutch
- Delayed/No Reverse
- 3rd & 5th Shift concerns

2-6 Clutch Regulator & Gain Valves

- Burnt 2-6 clutch
- Shift concerns in 2nd & 6th Gear



Insets shown with end plugs removed for clarity only. Test with end plugs installed.



VTP* only.

VTP* only.

Close hole on other side or use rubber mat.

3-5 Clutch Boost Valve

- Shift quality is not load sensitive
- Clutch pressure solenoid codes
- Burnt clutches
- Slip codes
- Delayed engagement
- Harsh/Slide shifts
- Slips & flares

Replace with Sonnax Part No. 104740-01

Requires F-104740-TL & VB-FIX

Close hole on other side or use rubber mat.

4-5-6 Clutch Boost Valve

- Shift quality is not load sensitive
- Clutch pressure solenoid codes
- Burnt clutches
- Slip codes
- Delayed engagement
- Harsh/Slide shifts
- Slips & flares

Replace with Sonnax Part No. 104740-01

Requires F-104740-TL & VB-FIX

CBR1/4-5-6 Clutch Regulator Valve

- Burnt 4-5-6 clutch
- Shift concerns in 4th, 5th & 6th Gear

Actuator Feed Limit Valve

- Solenoid performance codes
- Clutch failure
- Wrong gear starts
- Harsh/Soft shifts

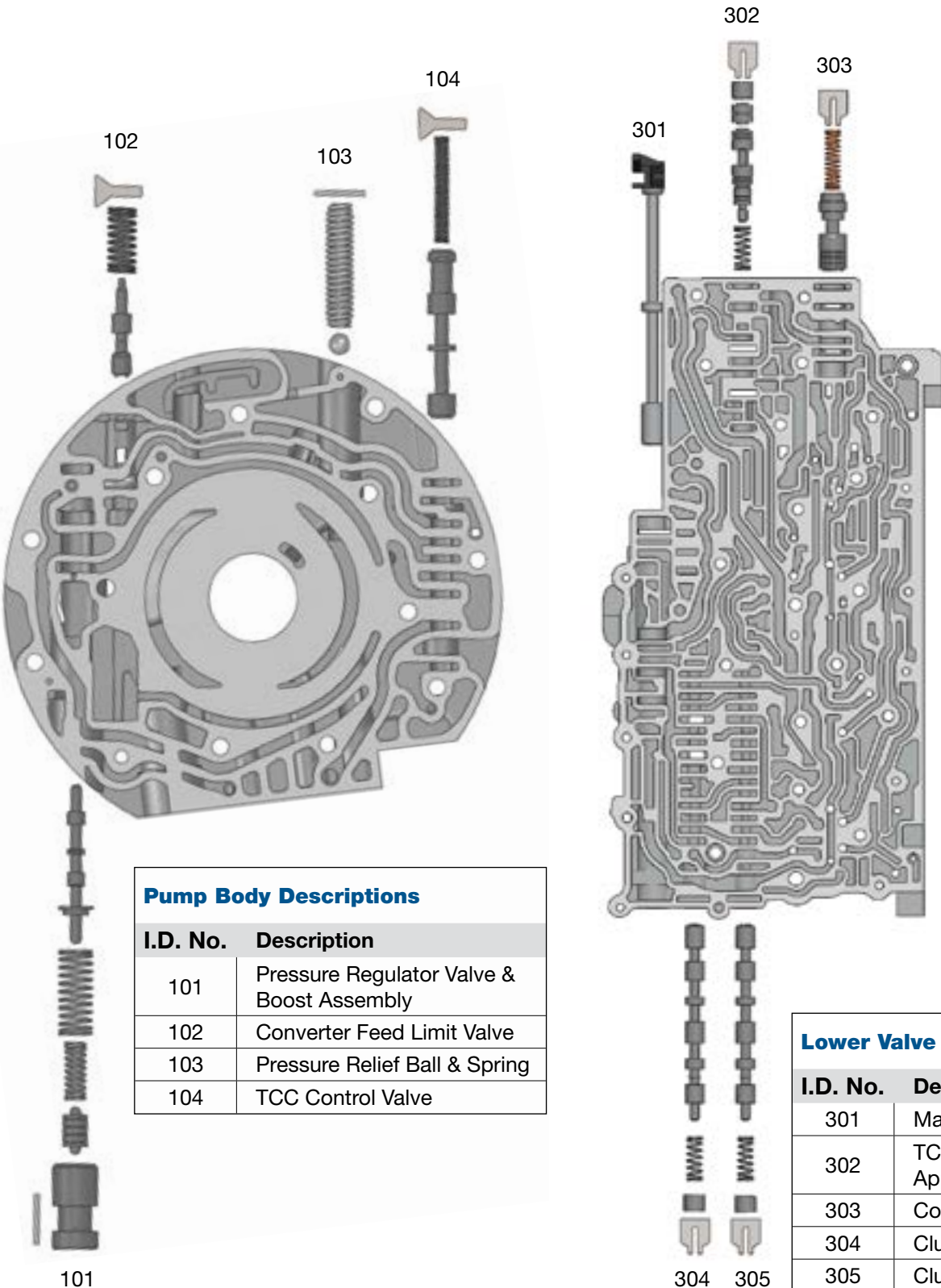
Replace with Sonnax Part No. 104740-12 Requires F-104740-TL12 & VB-FIX



OE Exploded View

NOTE: Depending upon vehicle application, the OE springs shown may not be present.

Pump & Lower Valve Body • 6L80 Shown



Pump Body Descriptions	
I.D. No.	Description
101	Pressure Regulator Valve & Boost Assembly
102	Converter Feed Limit Valve
103	Pressure Relief Ball & Spring
104	TCC Control Valve

Lower Valve Body Descriptions	
I.D. No.	Description
301	Manual Valve
302	TCC Regulator Apply Valve
303	Compensator Feed Valve
304	Clutch Select Valve #3
305	Clutch Select Valve #2

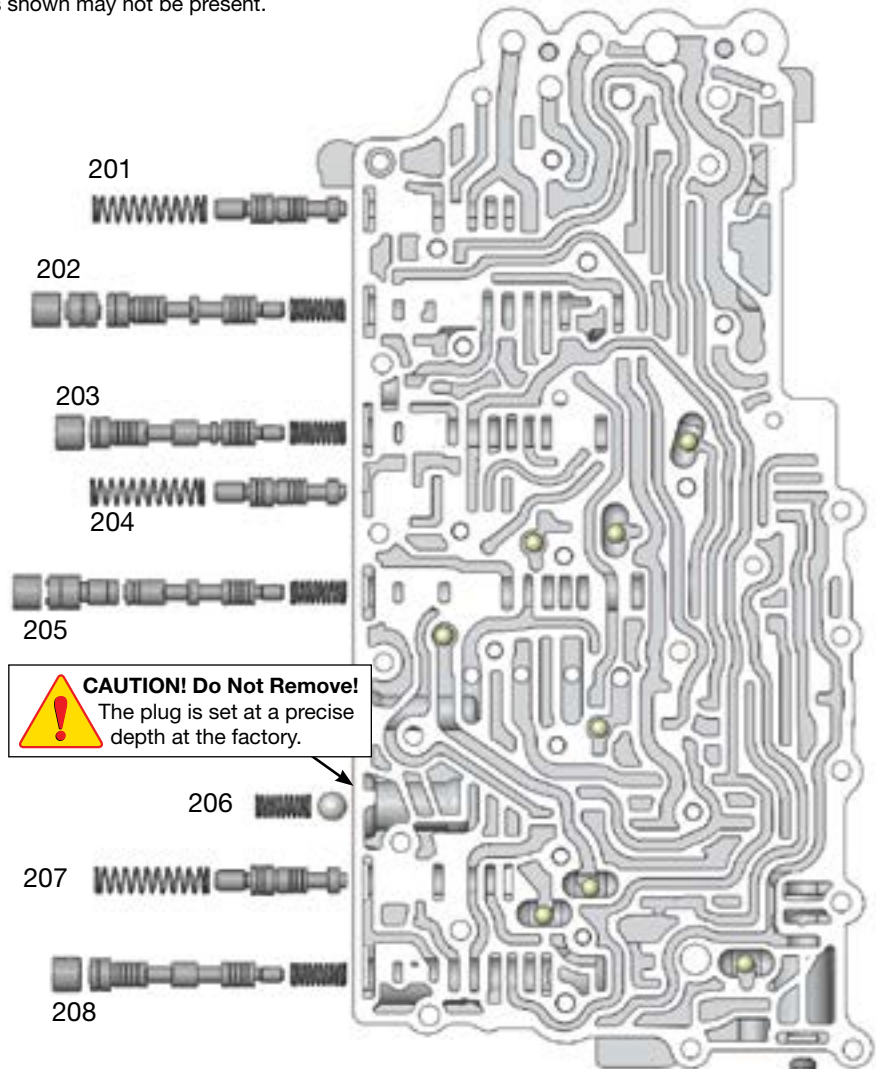


OE Exploded View

NOTE: Depending upon vehicle application, the OE springs shown may not be present.

Upper Valve Body • 6L80 Shown

Upper Valve Body Descriptions	
I.D. No.	Description
201	1-2-3-4 Clutch Boost Valve
202	1-2-3-4 Clutch Regulator & Shuttle Valve
203	3-5 Reverse Clutch Regulator Valve
204	3-5 Reverse Clutch Boost Valve
205	2-6 Clutch Regulator & Gain Valves
206	Exhaust Backfill Pressure Relief Valve
207	4-5-6 Clutch Boost Valve
208	CBR1/4-5-6 Clutch Regulator Valve
209	Actuator Feed Limit Valve



GM 6L45-6L90 Clutch & Solenoid Application Chart

Gear Range	Shift Sol 1	Shift Sol 2	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.	1-2-3-4 Clutch	3-5 Rev. Clutch	4-5-6 Clutch	2-6 Clutch	Low & Rev. Clutch	Low Clutch Sprag
Park	ON	ON	OFF	OFF	OFF	ON					Applied*	
Reverse	ON	OFF	OFF	OFF	ON	ON		Applied			Applied	
Neutral	ON	ON	OFF	OFF	OFF	ON					Applied*	
D-1st Braking	ON	ON	ON	OFF	OFF	ON	Applied				Applied	Holding
D-1st	OFF	ON	ON	OFF	OFF	OFF	Applied					Holding
D-2nd	OFF	ON	ON	ON	OFF	OFF	Applied			Applied		
D-3rd	OFF	ON	ON	OFF	ON	OFF	Applied	Applied				
D-4th	OFF	ON	ON	OFF	OFF	ON	Applied		Applied			
D-5th	OFF	ON	OFF	OFF	ON	ON		Applied	Applied			
D-6th	OFF	ON	OFF	ON	OFF	ON			Applied	Applied		

Notes:
 For shift solenoids 1 and 2, "ON" = Solenoid Energized (Pressurized), "OFF" = Solenoid De-energized (No Pressure).
 For pressure control (PC) solenoids, "ON" = Pressurized, "OFF" = No Pressure.
 * = Applied with No Load.