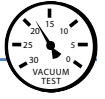




# Critical Wear Areas & Vacuum Test Locations



**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 are 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. 104520-14K or 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. 104520-12K**

### 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
- NOTE:** Test with .125" thick nut between shuttle valve and regulator valve.

Replace with **Sonnax Part Nos. 104740-46K or 104740-07K** Requires F-104520-TL7 & VB-FIX

### Clutch Select Valve #2

Shift complaints

### Compensator Feed Valve

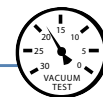
- Harsh shifts • Downshift clunk
- Bump/Flare shifts • Bind-up
- Burnt clutches • Overheated fluid

Replace with **Sonnax Part No. 104740-09K**

Click on Sonnax part numbers to see more information.



# 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 are noted for replacement.

## 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

**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

**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

**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

**Actuator Feed Limit Valve**

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

**Replace with Sonnax Part Nos. 104740-47K or 104740-12** Requires F-104740-TL12 & VB-FIX

**2-6 Clutch Regulator & Gain Valves**

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

**CBR1/4-5-6 Clutch Regulator Valve**

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

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

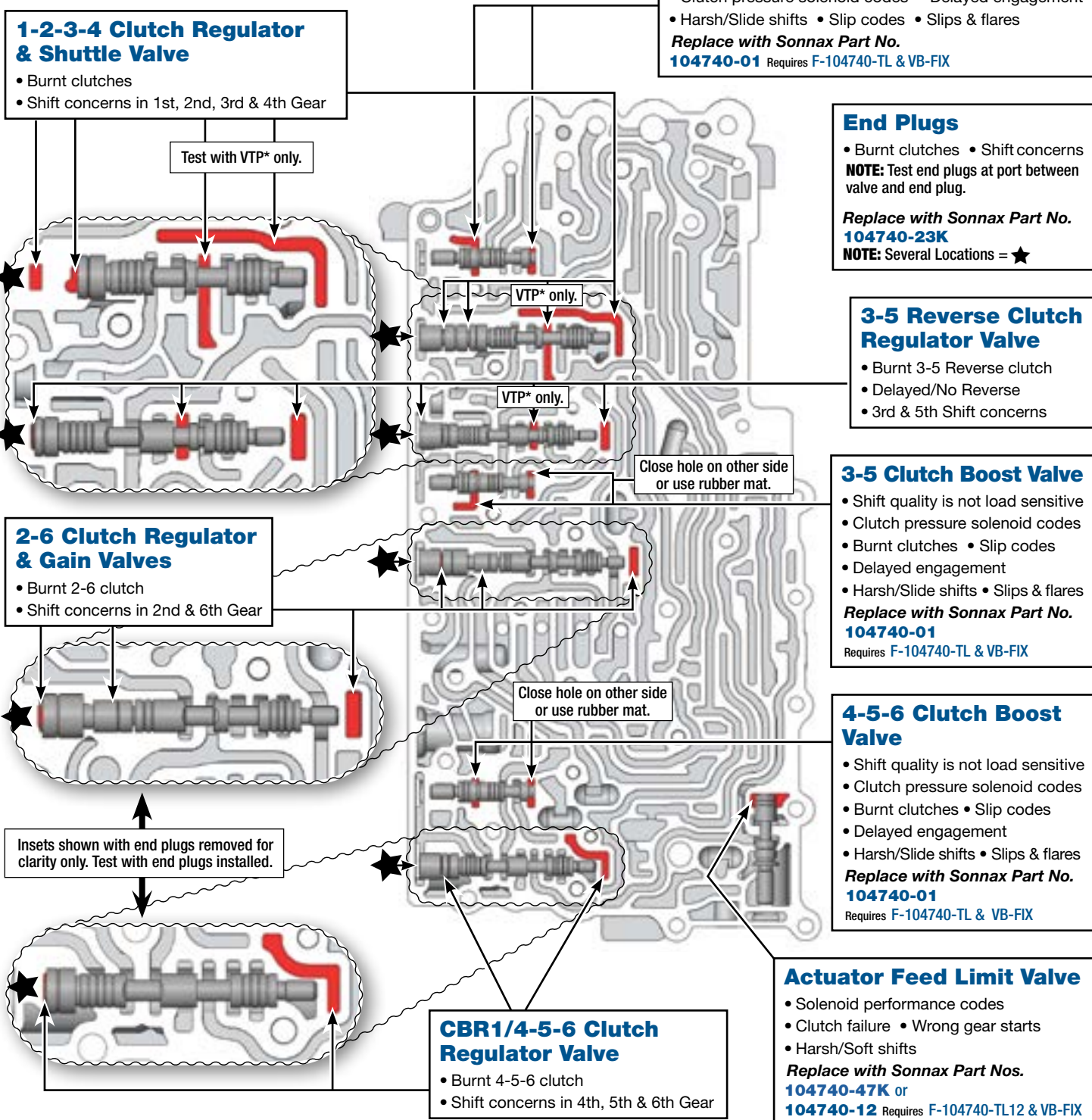
Test with VTP\* only.

VTP\* only.

VTP\* only.

Close hole on other side or use rubber mat.

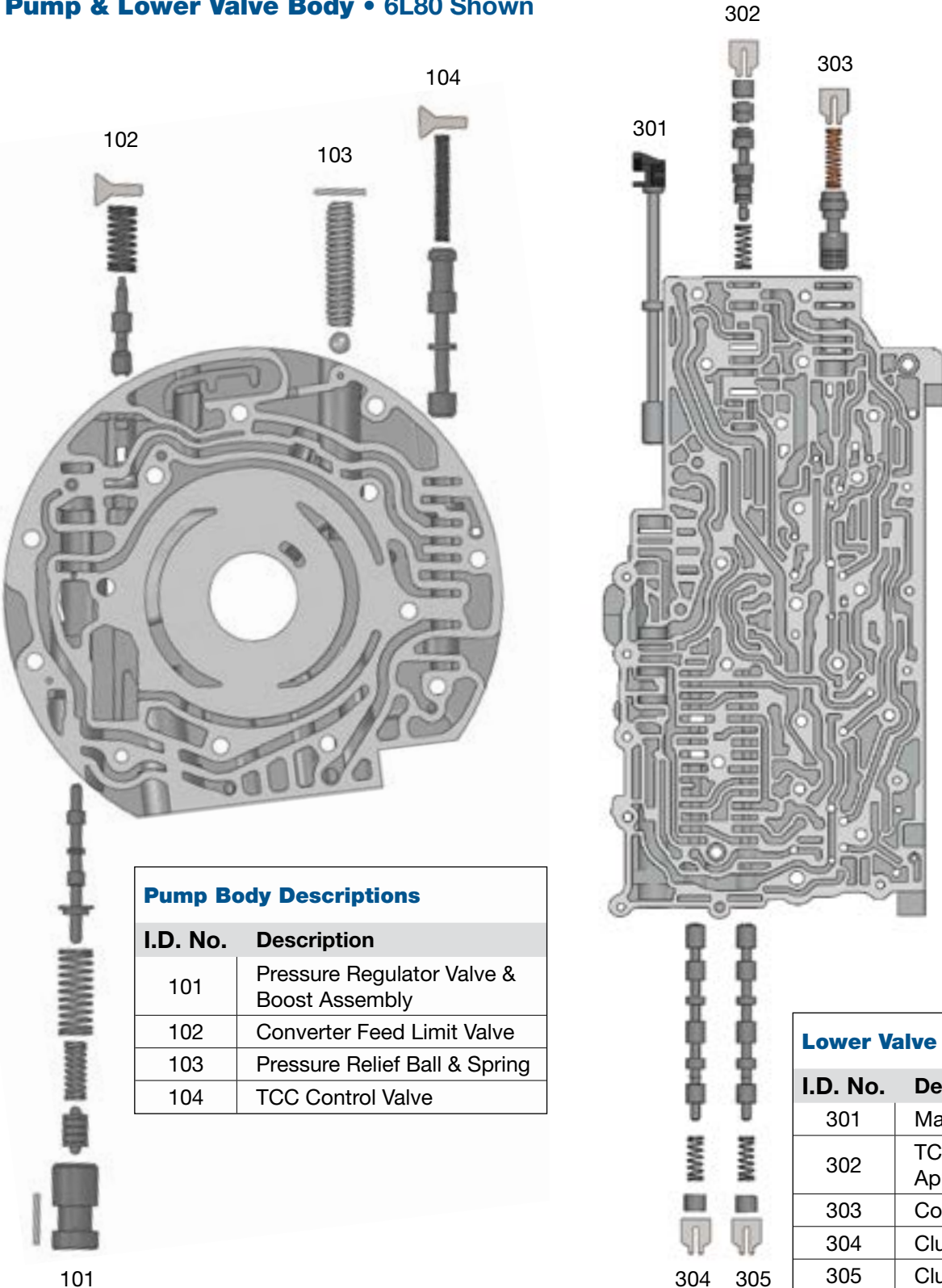
Close hole on other side or use rubber mat.



# OE Exploded View

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

## Pump & Lower Valve Body • 6L80 Shown



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

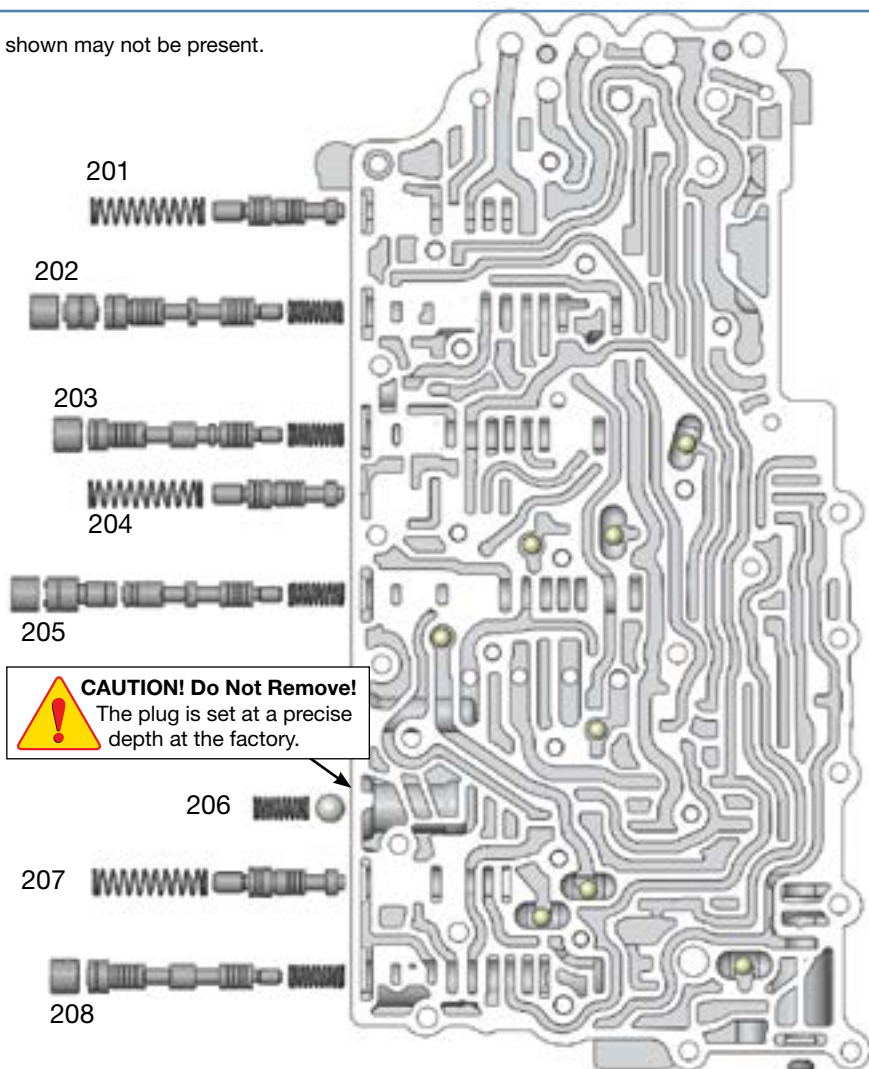
<b>Lower Valve Body Descriptions</b>	
<b>I.D. No.</b>	<b>Description</b>
301	Manual Valve
302	TCC Regulator Apply Valve
303	Compensator Feed Valve
304	Clutch Select Valve #3
305	Clutch Select Valve #2

# 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.