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

**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

**Boost Assembly**
- Low line rise in Drive
- Soft shifts
- Burnt clutches

**NOTE:** Test both ports simultaneously.

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

**TCC Control Valve**
- No lockup
- Falling out of lockup hot
- Lockup codes

**NOTE:** Test at valve port while plugging side port with thumb.

**Lower Valve Body • 6L80 Shown**

**Clutch Select Valve #3**
Shift complaints

**Clutch Select Valve #2**
Shift complaints

**Compensater Feed Valve**
- Harsh shifts
- Downshift clunk
- Bump/Flare shifts
- Bind-up
- Burnt clutches
- Overheated fluid

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

**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-TL7C & VB-FIX

**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 noted for replacement.

Upper Valve Body • 6L80 Shown

Click on Sonnax part numbers to see more information.

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 Clutch Boost Valve
- Shift quality is not load sensitive
- Clutch pressure solenoid codes
- Burnt clutches
- Delayed engagement
- Harsh/Slide shifts
- Slip codes
- Slips & flares
Replace with Sonnax Part No.
104740-01
Requires F-104740-TL & VB-FIX

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

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 No.
104740-12 Requires F-104740-TL12 & VB-FIX

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

Test with VTP* only.

2-6 Clutch Regulator & Gain Valves
- Burnt 2-6 clutch
- Shift concerns in 2nd & 6th Gear

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

CBR1/4-5-6 Clutch Regulator Valve
- Burnt 4-5-6 clutch
- Shift concerns in 4th, 5th & 6th Gear

Close hole on other side or use rubber mat.

3-5 Clutch Regulator & Shuttle Valve
- Burnt 3-5 clutch
- Shift concerns in 3rd & 5th Gear

Close hole on other side or use rubber mat.

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

Close hole on other side or use rubber mat.

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

Click on Sonnax part numbers to see more information.

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

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 No.
104740-12 Requires F-104740-TL12 & VB-FIX

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

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 No.
104740-12 Requires F-104740-TL12 & VB-FIX

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

Test with VTP* only.

2-6 Clutch Regulator & Gain Valves
- Burnt 2-6 clutch
- Shift concerns in 2nd & 6th Gear

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

CBR1/4-5-6 Clutch Regulator Valve
- Burnt 4-5-6 clutch
- Shift concerns in 4th, 5th & 6th Gear

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

<table>
<thead>
<tr>
<th>I.D. No.</th>
<th>Description</th>
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</thead>
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<td>101</td>
<td>Pressure Regulator Valve &amp; Boost Assembly</td>
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<td>102</td>
<td>Converter Feed Limit Valve</td>
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<tr>
<td>103</td>
<td>Pressure Relief Ball &amp; Spring</td>
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<td>104</td>
<td>TCC Control Valve</td>
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<table>
<thead>
<tr>
<th>I.D. No.</th>
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<tbody>
<tr>
<td>301</td>
<td>Manual Valve</td>
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<td>302</td>
<td>TCC Regulator Apply Valve</td>
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<td>303</td>
<td>Compensator Feed Valve</td>
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<tr>
<td>304</td>
<td>Clutch Select Valve #3</td>
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<tr>
<td>305</td>
<td>Clutch Select Valve #2</td>
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</table>
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

<table>
<thead>
<tr>
<th>I.D. No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>201</td>
<td>1-2-3-4 Clutch Boost Valve</td>
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<tr>
<td>202</td>
<td>1-2-3-4 Clutch Regulator &amp; Shuttle Valve</td>
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<tr>
<td>203</td>
<td>3-5 Reverse Clutch Regulator Valve</td>
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<tr>
<td>205</td>
<td>2-6 Clutch Regulator &amp; Gain Valves</td>
</tr>
<tr>
<td>206</td>
<td>Exhaust Backfill Pressure Relief Valve</td>
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<tr>
<td>207</td>
<td>4-5-6 Clutch Boost Valve</td>
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<tr>
<td>208</td>
<td>CBR1/4-5-6 Clutch Regulator Valve</td>
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<td>209</td>
<td>Actuator Feed Limit Valve</td>
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GM 6L45-6L90 Clutch & Solenoid Application Chart

<table>
<thead>
<tr>
<th>Gear Range</th>
<th>Shift Sol 1</th>
<th>Shift Sol 2</th>
<th>1-2-3-4 CL PC Sol 5 N.L.</th>
<th>2-6 CL PC Sol 2 N.L.</th>
<th>3-5 Rev. 4-5-6 CL PC Sol 3 N.H.</th>
<th>Low Rev. 2-6 Clutch</th>
<th>Low &amp; Rev. Clutch</th>
<th>Low Clutch Sprag</th>
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<tbody>
<tr>
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