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.

Lower Valve Body • ZF6HP21, Generation 2, M-Shift Shown Here

Click on Sonnax part numbers to see more information.

Clutch A Latch Valve
- Burned A Clutch
- 4-5 Shift complaints

Clutch B Latch Valve
- Burned B Clutch
- 3rd or 5th Shift complaints

Clutch C Latch Valve
- Burned C Clutch
- 2nd or 6th Shift complaints

Clutch A Control Pressure Regulator Valve
- Delayed/Harsh forward engagement
- Flare/Neutral on 5-4 downshift
- No 4-5 shift
- VFS 1/A solenoid control code
Replace with Sonnax Part No. 95740-28K

End Plugs
Inconsistent shift quality
Replace with Sonnax Part No. 95740-30K

Vacuum test these plugs at the retainer slot. This checks both diameters of the plug.

Test 1: In Rest

Test 2: Test these ports after inserting test nut between control valve & plunger.

Test 2: Test these ports after inserting test nut into bottom of bore.

Solenoid Pressure Regulator Valve
- Soft Shifts, poor line rise
- High line pressure during stall test
- Loss of 1-2 or 4-5 upshift
- Delayed forward/reverse engagement
- 5-4 or 4-3 Flare
- Gear ratio codes

Test part after inserting test nut into bottom of bore.

Test 1: In Rest

Converter Release Regulator Valve
- Excessive TCC slip RPM & related codes
- Harsh lockup apply & release
- Harsh downshifts
- Converter overheat
Replace with Sonnax Part No. 95740-05K

Converter Release Regulator Valve Shown in Inverted position. Use Test End Plug

Solenoid Multiplex Valve
- EDS/Solenoid codes
- Shift complaints

Drive Enable Valve
No fail safe

Lubrication Control Valve
- Excessive cooler pressure (ruptured hoses or cooler)
- Bushing and/or planet overheat

Clutch A Control Pressure Regulator Valve
- Bumpy 1-2 upshift
- 2-1 Downshift flare or neutral
- EDS 5 control code
Replace with Sonnax Part No. 95740-28K

Clutch E Latch Valve
- Burned E Clutch
- 1-2 Shift complaints

Clutch E Control Pressure Regulator Valve
- Bumpy 1-2 upshift
- 2-1 Downshift flare or neutral
- EDS 5 control code
Replace with Sonnax Part No. 95740-28K

Bypass Clutch Control Regulator Valve
- Converter overheat & low release pressure
- Excessive TCC slip/cycling RPM
- Firm up/downshifts
- TCC related codes

Main Pressure Regulator Valve
- Delayed/No reverse
- Poor shift quality
- Slip forward/reverse
- Erratic or high/low line pressure
Replace with Sonnax Part No. 95740-29K

Converter Release Regulator Valve Shown in Inverted position. Use Test End Plug

End plugs
Inconsistent shift quality
Replace with Sonnax Part No. 95740-30K

Vacuum test these plugs at the retainer slot. This checks both diameters of the plug.

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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 • ZF6HP21, Generation 2, M-Shift Shown Here

Click on Sonnax part numbers to see more information.

OE accumulator pistons should be flush with the casting. It is common for the rubber insert to lose tension.
Each of these pistons can be vacuum tested from the exhaust hole on the opposite side of the casting.

Accumulator Pistons
- Firm up/downshifts & harsh engagement
- Erratic EDS solenoid control/EDS codes
Replace with Sonnax Part No. 95740-15K

Clutch C Regulator Valve
- 2nd/6th Soft complaints
- EDS 3 codes

Clutch D2 Regulator Valve
- 1st/2nd Shift complaints
- EDS 4 codes

Clutch C2 Latch Valve
- 2nd/6th Shift complaints
- EDS 3 codes

Clutch D1 Control Pressure Regulator Valve
- Bumpy 1-2 upshift
- 2-1 Downshift flare or neutral
- EDS 3 control codes

Clutch B Regulator Valve
- 3rd/5th Shift complaints
- EDS 2 codes

Clip on Sonnax part numbers to see more information.
OE Exploded View

Lower Valve Body • ZF6HP21, Generation 2, M-Shift Shown Here

NOTE: Depending upon vehicle application, the OE springs, checkballs and worm tracks may vary.

### Lower Valve Body Descriptions

<table>
<thead>
<tr>
<th>I.D. No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Parking Lock Valve in E-Shift</td>
</tr>
<tr>
<td>101</td>
<td>Manual Valve in M-Shift</td>
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<tr>
<td>102</td>
<td>Lubrication Control Valve</td>
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<tr>
<td>103</td>
<td>Converter Release Regulator Valve</td>
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<tr>
<td>104</td>
<td>Main Pressure Regulator Valve</td>
</tr>
<tr>
<td>105</td>
<td>Bypass Clutch Control Regulator Valve</td>
</tr>
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<td>106</td>
<td>Clutch E Control Regulator Valve</td>
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<td>107</td>
<td>Clutch E Latch Valve</td>
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<td>108</td>
<td>Clutch A Control Pressure Regulator Valve</td>
</tr>
<tr>
<td>109</td>
<td>Manual Valve in E-Shift</td>
</tr>
<tr>
<td>109</td>
<td>Empty in M-Shift</td>
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<tr>
<td>110</td>
<td>Solenoid Multiplex Valve</td>
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<tr>
<td>111</td>
<td>Drive Enable Valve</td>
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<tr>
<td>112</td>
<td>Clutch D1 Latch Valve</td>
</tr>
<tr>
<td>113</td>
<td>Solenoid Pressure Regulator Valve</td>
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<tr>
<td>114</td>
<td>Clutch C Latch Valve</td>
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<td>Clutch B Latch Valve</td>
</tr>
<tr>
<td>116</td>
<td>Clutch A Latch Valve</td>
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</tbody>
</table>
OE Exploded View

Upper Valve Body • ZF6HP21, Generation 2, M-Shift Shown Here

<table>
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<tr>
<th>I.D. No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>201</td>
<td>Clutch B Regulator Valve</td>
</tr>
<tr>
<td>202</td>
<td>Clutch D2 Regulator Valve</td>
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<tr>
<td>203</td>
<td>Clutch D2 Latch Valve</td>
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<tr>
<td>204</td>
<td>Clutch C Regulator Valve</td>
</tr>
<tr>
<td>205</td>
<td>Clutch D1 Control Pressure Valve</td>
</tr>
</tbody>
</table>

Accumulator
Pistons
Check Valve
E-Shift

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