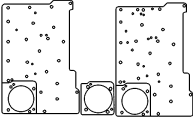
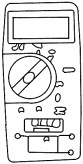
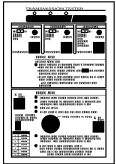
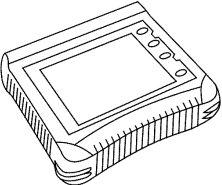



# DIAGNOSIS AND TESTING

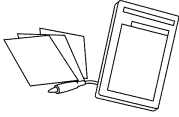
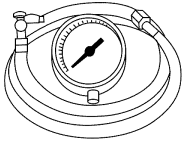
## Diagnosis By Symptom

### Special Tool(s)

 <p>ST2538-A</p>	<p>Air Test Plate, Transmission 307-433-01, 307-433-02, 307-433-03</p>
 <p>ST1137-A</p>	<p>73 III Automotive Meter 105-R0057 or equivalent</p>
 <p>ST1761-A</p>	<p>Trans Tester TR/MLP Overlay and Manual 007-00131 or equivalent</p>
 <p>ST2332-A</p>	<p>Worldwide Diagnostic System (WDS) Vehicle Communication module (VCM) with appropriate adapters, or equivalent diagnostic tool</p>
 <p>ST1632-A</p>	<p>MLP-TR Cable 418-F107 (007-00111) or equivalent</p>

(Continued)

### Special Tool(s)

 <p>ST1389-A</p>	<p>Transmission Tester 307-F016 (007-00130) or equivalent</p>
 <p>ST1565-A</p>	<p>Pressure Gauge, Transmission Fluid 307-004 (T57L-77820-A)</p>

The Diagnosis by Symptom Index gives the technician diagnostic information and direction, and suggests possible components, using a symptom as a starting point.

### Diagnosis by Symptom Index — Directions

1. Using the Symptom Index, select the Concern/Symptom that best describes the condition.
2. Refer to the routine indicated in the Diagnosis by Symptom Index.
3. Always begin diagnosis of a symptom with:
  - 1 Preliminary inspections.
  - 2 Verifications of condition.
  - 3 Checking the fluid levels.
  - 4 Carrying out other test procedures as directed.

**DIAGNOSIS AND TESTING (Continued)**

4. **NOTE:** Not all concerns and conditions with electrical components will set a diagnostic trouble code (DTC). Be aware that the components listed may still be the cause.

**NOTE:** When the battery is disconnected or a new battery is installed, certain transmission operating parameters can be lost. The powertrain control module (PCM) must relearn these parameters. During this learning process, you may experience slightly firm shifts, delayed or early shifts. This operation is considered normal and will not affect the function of the transmission. Normal operation will return once these parameters are stored by the PCM.

Begin with the ROUTINE, if indicated. Follow the reference or action statements. Always carry out the on-board diagnostic tests as necessary. Never skip steps. Repair as necessary.

5. These components are listed in the removal sequence and by most probable cause. All components listed must be inspected to make sure that the repairs are complete.

**Diagnosis by Symptom Index****Diagnosis by Symptom Index**

5R55S	Routines
<b>Engagement Concerns:</b>	
• No Forward in D or D ((D) cancelled) Only	201A
• No Forward Only (All Positions)	201B
• No Reverse Only	202
• Harsh Reverse Only	203
• Harsh Forward Only	204A
• Harsh Manual 1st Gear Only	204B
• Delayed/Soft Reverse Only	205
• Delayed/Soft Forward Only	206
• No Forward and No Reverse	207
• Harsh Forward and Harsh Reverse	208
• Delayed Forward and Delayed Reverse	209
<b>Shift Concerns:</b>	
• Some/All Shifts Missing (Automatic Mode Only)	210
• Timing Concern	
Early/Late (Some/All)	211
Erratic/Hunting (Some/All)	212
• Feel Concerns	
Soft/Slipping (Some/All)	213
Harsh (Some/All)	214
• No First Gear in Drive, Engages in a Higher Gear	215

**DIAGNOSIS AND TESTING (Continued)****Diagnosis by Symptom Index (Continued)**

<b>5R55S</b>	<b>Routines</b>
• No First Gear in Manual 1st	216
• No Manual 2nd Gear	217
<b>Torque Converter Clutch Operation Concerns:</b>	
• Does Not Apply	240
• Always Applied/Stalls Vehicle	241
• Cycling/Shudder/Chatter	242
<b>Other Concerns:</b>	
• Shift Lever Efforts High	251
• External Leaks	252
• Noise/Vibration — Forward or Reverse	254
• Engine Will Not Crank	255
• No Park Range	256
• Transmission Overheating	257
• No Engine Braking in Manual 2nd Position	258
• No Engine Braking in Manual 1st Position	259
• Fluid Venting or Foaming	261
• Vehicle Movement with Gear Selector in “N”	262
• Slips/Chatters in Manual 1st Gear	263
• Slips/Chatters in Manual 2nd Gear	264
• No Engine Braking in Manual 3rd Position	280
• No Engine Braking in Manual 4th (D (D) cancelled) Position	281
• Slips/Chatters in Manual 3rd Gear	282
• Engine Braking in ALL Gears	283
• No 2nd and 5th Gears	284
• No 3rd, 4th and 5th gears	285

**Diagnostic Routines****Engagement Concern: No Forward in D or D ((D) Cancelled) Only**

<b>Possible Component</b>	<b>Reference/Action</b>
<b>201A — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, pressure control solenoid B</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test D.</a></li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screw not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No Forward in D or D ((D) Cancelled) Only (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> <li>Seal rings or bearing damaged</li> <li>Outside diameter of case bore damaged</li> <li>Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Planetary Assembly</b> <ul style="list-style-type: none"> <li>Planetary damage</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: No Forward**

Possible Component	Reference/Action
<b>201B — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> <li>Condition</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>Carry out the fluid condition check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No Forward (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>• Damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: No Reverse**

Possible Component	Reference/Action
<b>202 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, Pressure Control Solenoid C (PC C), Shift Solenoid B (SSB)</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No Reverse (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Valves, springs damaged, misassembled, missing, stuck or bore damage</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect or damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Drum Assembly</b> <ul style="list-style-type: none"> <li>One-way clutch damaged</li> <li>Bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Install a new drum assembly.</li> <li>Inspect for damage. Install a new drum assembly.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter internal failure preventing engagement, piston release</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**Engagement Concern: Harsh Reverse ONLY**

Possible Component	Reference/Action
<b>203 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid C (PC C)</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Harsh Reverse ONLY (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, spring damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Drum Assembly</b> <ul style="list-style-type: none"> <li>One-way clutch damaged</li> <li>Bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Install a new drum assembly.</li> <li>Inspect for damage. Install a new drum assembly.</li> </ul>

**Engagement Concern: Harsh Forward ONLY**

Possible Component	Reference/Action
<b>204A — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid A (PC A), pressure control solenoid C (PC C)</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Harsh Forward ONLY (Continued)**

Possible Component	Reference/Action
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> <li>Seal rings or bearing damage</li> <li>Outside diameter of case bore damage</li> <li>Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: Harsh Manual 1st Gear ONLY**

Possible Component	Reference/Action
<b>204B — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid B (PC B), Turbine Shaft Speed (TSS) sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Delayed or Soft Reverse ONLY**

Possible Component	Reference/Action
<b>205 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid C (PC C)</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>GO to Pinpoint Test D.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect pressures</b> <ul style="list-style-type: none"> <li>Low pressure</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: Delayed/Soft Forward ONLY**

Possible Component	Reference/Action
<b>206 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoid B (PC B)</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Delayed/Soft Forward ONLY (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> <li>• <a href="#">GO to Pinpoint Test D.</a></li> <li>• Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• Low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves, spring damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged.</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>• Screw not tightened to specification</li> <li>• Seal rings or bearing damaged</li> <li>• Outside diameter of case bore damaged</li> <li>• Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction element damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: No Forward and No Reverse**

Possible Component	Reference/Action
<b>207 — ROUTINE</b>	
<b>Powertrain Control System</b>	

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No Forward and No Reverse (Continued)**

<b>Possible Component</b>	<b>Reference/Action</b>
<ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, pressure control solenoid B (PC B)</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test D.</a></li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Shift Cable/Digital TR Sensor</b> <ul style="list-style-type: none"> <li>• Cable system or digital transmission range (TR) sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten screws to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Input Shaft</b> <ul style="list-style-type: none"> <li>• Damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Gasket damaged</li> <li>• Porosity, cross leaks, ball missing, plugged hole</li> <li>• Pump gears cracked and/or seized</li> <li>• Flow control valves, springs, or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten screws to specification.</li> <li>• Inspect for damage. If damaged, install a new gasket.</li> <li>• Inspect for damage. If damaged, repair as necessary.</li> <li>• Inspect for damage. Install a new pump.</li> <li>• Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>• Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Shaft Assembly</b> <ul style="list-style-type: none"> <li>• Damaged. One-way clutch damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No Forward and No Reverse (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Planetary Assembly</b> <ul style="list-style-type: none"> <li>• Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Planetary Assembly</b> <ul style="list-style-type: none"> <li>• Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Output Shaft</b> <ul style="list-style-type: none"> <li>• Damage</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Torque Converter</b> <ul style="list-style-type: none"> <li>• Damaged flexplate or adapter plate</li> <li>• Damaged impeller hub</li> <li>• Damaged turbine hub</li> </ul>	<ul style="list-style-type: none"> <li>• Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: Harsh Forward and Harsh Reverse**

Possible Component	Reference/Action
<b>208 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, digital TR sensor, transmission fluid temperature (TFT) sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test C</a>.</li> <li>• Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to the correct level. For additional information, refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. For additional information, refer to Preliminary Inspection.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test, refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Harsh Forward and Harsh Reverse (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: Delayed Forward and Delayed Reverse**

Possible Component	Reference/Action
<b>209 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test B.</a></li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> <li>Condition</li> </ul>	<ul style="list-style-type: none"> <li>Adjust to the correct level. For additional information, refer to Transmission Fluid Level Check in this section.</li> <li>Carry out Fluid Condition Check. For additional information, refer to Preliminary Inspection.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test, refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves and springs damaged, misassembled, missing, stuck or bore damaged</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Delayed Forward and Delayed Reverse (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> <li>Pump gears cracked and/or seized</li> <li>Flow control valves, springs, or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. Install a new pump.</li> <li>Inspect for damage. Install a new seal or flow control valve.</li> </ul>

**Shift Concern: Some/All Shifts Missing (Automatic Mode Only)**

Possible Component	Reference/Action
<b>210 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, B, C, torque converter clutch (TCC) solenoid, pressure control solenoids A, B, C, output shaft speed (OSS) sensor, digital TR sensor, intake air temperature (IAT) sensor, vehicle speed sensor (VSS) input</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM, IAT and VSS.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Some Shifts Missing ONLY</b>	<ul style="list-style-type: none"> <li>If only some shifts are missing, determine which shift(s) is missing.</li> <li>Refer to the following routine(s) for further No Shift concerns: <ul style="list-style-type: none"> <li>No 1-2 Shift, Routine 220</li> <li>No 2-3 Shift, Routine 221</li> <li>No 3-4 Shift, Routine 222</li> <li>No 4-5 Shift, Routine 270</li> <li>No 5-4 Shift, Routine 271</li> <li>No 4-3 Shift, Routine 223</li> <li>No 3-2 Shift, Routine 224</li> <li>No 2-1 Shift, Routine 225</li> </ul> </li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> <li>Condition</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level, refer to the in this section.</li> <li>Carry out Fluid Condition Check. For additional information, refer to Preliminary Inspection in this section.</li> </ul>
<b>Shift Cable/Digital TR Sensor</b> <ul style="list-style-type: none"> <li>Cable system or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Incorrect Pressures</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Some/All Shifts Missing (Automatic Mode Only) (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> <li>Pump gears cracked and/or seized</li> <li>Flow control valves, springs, or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. Install a new pump.</li> <li>Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> <li>Seal rings or bearing damaged</li> <li>Outside diameter of case bore damaged</li> <li>Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Timing Concerns—Early/Late**

Possible Component	Reference/Action
<b>211— ROUTINE</b>	
<b>Powertrain Control System</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Timing Concerns—Early/Late (Continued)**

<b>Possible Component</b>	<b>Reference/Action</b>
<ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, OSS sensor, IAT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM and IAT.</li> <li>• <a href="#">GO to Pinpoint Test E.</a></li> <li>• Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Some Shifts Early/Late ONLY</b>	<ul style="list-style-type: none"> <li>• If only some shifts are early/late, determine which shift(s) is missing.</li> <li>• Refer to the following routine(s) for further No Shift concerns: <ul style="list-style-type: none"> <li>— Soft/Slipping 1-2 Shift, Routine 226</li> <li>— Soft/Slipping 2-3 Shift, Routine 227</li> <li>— Soft/Slipping 3-4 Shift, Routine 228</li> <li>— Soft/Slipping 4-5 Shift, Routine 272</li> <li>— Soft/Slipping 5-4 Shift, Routine 273</li> <li>— Soft/Slipping 4-3 Shift, Routine 229</li> <li>— Soft/Slipping 3-2 Shift, Routine 230</li> <li>— Soft/Slipping 2-1 Shift, Routine 221</li> </ul> </li> </ul>
<b>Fluid</b>	
<ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Main Control</b>	
<ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b>	
<ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b>	
<ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Timing Concerns—Erratic/Hunting (Some/All)**

Possible Component	Reference/Action
<b>212 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, OSS sensor, IAT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM and IAT.</li> <li>• <a href="#">GO to Pinpoint Test E.</a></li> <li>• Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Timing Concerns—Erratic/Hunting (Some/All) (Continued)**

Possible Component	Reference/Action
<b>Further Diagnosis</b> <ul style="list-style-type: none"> <li>For further diagnosis for timing issues, refer to Reference/Action</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the following routine(s) for specific diagnosis: <ul style="list-style-type: none"> <li>No 1-2 Shift, Routine 220</li> <li>No 2-3 Shift, Routine 221</li> <li>No 3-4 Shift, Routine 222</li> <li>No 4-5 Shift, Routine 270</li> <li>No 5-4 Shift, Routine 271</li> <li>No 4-3 Shift, Routine 223</li> <li>No 3-2 Shift, Routine 224</li> <li>No 2-1 Shift, Routine 225</li> <li>Soft/Slip 1-2 Shift, Routine 226</li> <li>Soft/Slip 2-3 Shift, Routine 227</li> <li>Soft/Slip 3-4 Shift, Routine 228</li> <li>Soft/Slip 4-5 Shift, Routine 272</li> <li>Soft/Slip 5-4 Shift, Routine 273</li> <li>Soft/Slip 4-3 Shift, Routine 229</li> <li>Soft/Slip 3-2 Shift, Routine 230</li> <li>Soft/Slip 2-1 Shift, Routine 231</li> <li>Harsh 1-2 Shift, Routine 232</li> <li>Harsh 2-3 Shift, Routine 233</li> <li>Harsh 3-4 Shift, Routine 234</li> <li>Harsh 4-5 Shift, Routine 274</li> <li>Harsh 5-4 Shift, Routine 275</li> <li>Harsh 4-3 Shift, Routine 235</li> <li>Harsh 3-2 Shift, Routine 236</li> <li>Harsh 2-1 Shift, Routine 237</li> </ul> </li> </ul>

**Engagement Concern: Feel—Soft/Slipping (Some/All)**

Possible Component	Reference/Action
<b>213 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, B, C, pressure control solenoids A, B, C, D, intermediate shaft speed sensor, TFT sensor, IAT sensor, VSS input</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM, IAT and VSS.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Some Shifts Soft/Slipping ONLY</b>	<ul style="list-style-type: none"> <li>If only some of the shifts are soft/slipping, determine which shift(s) is missing.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Feel—Soft/Slipping (Some/All) (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> <li>• Refer to the following routine(s) for further Soft/Slipping concerns:               <ul style="list-style-type: none"> <li>— Soft/Slipping 1-2 Shift, Routine 226</li> <li>— Soft/Slipping 2-3 Shift, Routine 227</li> <li>— Soft/Slipping 3-4 Shift, Routine 228</li> <li>— Soft/Slipping 4-5 Shift, Routine 272</li> <li>— Soft/Slipping 5-4 Shift, Routine 273</li> <li>— Soft/Slipping 4-3 Shift, Routine 229</li> <li>— Soft/Slipping 3-2 Shift, Routine 230</li> <li>— Soft/Slipping 2-1 Shift, Routine 231</li> </ul> </li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps.</li> <li>• Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Gasket damaged</li> <li>• Porosity, cross leaks, ball missing, plugged hole</li> <li>• Pump gears cracked and/or seized</li> <li>• Flow control valves, springs, or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten screws to specification.</li> <li>• Inspect for damage. If damaged, install a new gasket.</li> <li>• Inspect for damage. If damaged, repair as necessary.</li> <li>• Inspect for damage. Install a new pump.</li> <li>• Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Coast Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>• Screw not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: Feel—Soft/Slipping (Some/All) (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Seal rings or bearings damaged</li> <li>• Outside diameter of case bore damage</li> <li>• Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>• Damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>• Torque converter internal failure preventing engagement, piston release</li> </ul>	<ul style="list-style-type: none"> <li>• Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Feel—Harsh (Some/All)**

Possible Component	Reference/Action
<b>214— ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, B, C, pressure control solenoids A, B, C, D, intermediate shaft speed sensor, digital TR sensor, TFT sensor, IAT sensor, VSS input</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM, IAT and VSS.</li> <li>GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test D and GO to Pinpoint Test E.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Some Shifts Harsh ONLY</b>	<ul style="list-style-type: none"> <li>If only some of the shifts are harsh, determine which shift(s) is missing.</li> <li>Refer to the following routine(s) for further No Shift concerns: <ul style="list-style-type: none"> <li>— Harsh 1-2 Shift, Routine 232</li> <li>— Harsh 2-3 Shift, Routine 233</li> <li>— Harsh 3-4 Shift, Routine 234</li> <li>— Harsh 4-5 Shift, Routine 274</li> <li>— Harsh 5-4 Shift, Routine 275</li> <li>— Harsh 4-3 Shift, Routine 235</li> <li>— Harsh 3-2 Shift, Routine 236</li> <li>— Harsh 2-1 Shift, Routine 237</li> </ul> </li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust to the correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test, refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck, or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Input Shaft</b> <ul style="list-style-type: none"> <li>Damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Install new as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Feel—Harsh (Some/All) (Continued)**

Possible Component	Reference/Action
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Shaft Assembly</b> <ul style="list-style-type: none"> <li>Center shaft assembly damaged</li> <li>One-way clutch damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Output Shaft</b> <ul style="list-style-type: none"> <li>Damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Install new as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 1st and 2nd Gear in Drive, Engages in a Higher Gear**

Possible Component	Reference/Action
<b>215 — ROUTINE</b>	
<b>Powertrain Control System</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 1st and 2nd Gear in Drive, Engages in a Higher Gear (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, Shift Solenoids A, B, C, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test C</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Engagement Concern: No 1st Gear in Manual 1 Position**

Possible Component	Reference/Action
<b>216 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, Shift Solenoids A, B, Pressure Control Solenoids B, C</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Engagement Concern: No 1st Gear in Manual 1 Position (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 2nd Gear in Manual 2 Position**

Possible Component	Reference/Action
<b>217 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, B, C, pressure control solenoid B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps.</li> <li>Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification.</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install a new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 2nd Gear in Manual 2 Position (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Seals (piston and cover) damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Torque Converter Operation Concerns: Does Not Apply**

Possible Component	Reference/Action
<b>240 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, TCC solenoid, TFT sensor and engine coolant temperature (ECT) sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test B</a>.</li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> <li>Pump gears cracked and/or seized</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. Install a new pump.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Torque Converter Operation Concerns: Does Not Apply (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Flow control valves, springs or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter internal failure preventing engagement, piston application</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**Torque Converter Operation Concern: Always Applied/Stalls Vehicle**

Possible Component	Reference/Action
<b>241 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, TCC solenoid</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A.</a></li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly.</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter internal failure preventing engagement, piston release</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**Torque Converter Operation Concern: Cycling/Shudder/Chatter**

Possible Component	Reference/Action
<b>242 — ROUTINE</b>	
<b>Powertrain Control System</b>	

**DIAGNOSIS AND TESTING (Continued)****Torque Converter Operation Concern: Cycling/Shudder/Chatter (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, TCC solenoid</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. For additional information, refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><b>GO to Pinpoint Test A.</b></li> <li>Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Condition—contaminated, degraded</li> </ul>	<ul style="list-style-type: none"> <li>Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section. If contaminated, locate source of contamination. If burnt, inspect mechanical bands, clutches. Repair as necessary. Change fluid. Carry out drain and refill procedure. Refer to Transmission Fluid Drain and Refill — Without Torque Converter Drain Plug in this section. Carry out fluid cooler and torque converter cleaning procedure. For additional information, refer to Transmission Fluid Cooler — Backflushing and Cleaning in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. <b>DO NOT</b> stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter internal leakage, clutch material damaged</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**Other Concerns: Shift Lever Efforts High**

Possible Component	Reference/Action
<b>251 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><b>GO to Pinpoint Test C.</b></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Shift Cable, Digital TR sensor</b>	

**DIAGNOSIS AND TESTING (Continued)****Other Concerns: Shift Lever Efforts High (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Cable system or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged</li> <li>Manual valve lever shaft retaining pin damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, install a new part.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>

**Other Concerns: External Leaks**

Possible Component	Reference/Action
<b>252 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>OSS sensor, intermediate shaft speed, TSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for leakage. If areas around sensor show signs of leakage, install a new sensor O-ring seal. If area behind digital TR sensor shows signs of a leak, a new manual lever shaft seal may need to be installed.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Case vent damaged</li> <li>Output shaft flange damage</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>
<b>Seals/Gaskets</b> <ul style="list-style-type: none"> <li>Leakage at gaskets, seals, cooler lines, torque converter studs, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Leakage Inspection in this section for potential leak locations.</li> <li>Remove all traces of lubricant on exposed surfaces of the transmission. Check vent for free breathing. Operate the vehicle at normal temperatures and carry out leak check test, refer to Leakage Inspection in this section. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Noise/Vibration—Forward or Reverse**

Possible Component	Reference/Action
<b>254 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, TCC solenoid, pressure control solenoids A, B, C</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Shift Cable/Digital TR Sensor</b> <ul style="list-style-type: none"> <li>• Cable or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves/springs damaged, misassembled, missing, stuck, or bore damaged, thermostatic bypass valve damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. <b>DO NOT</b> stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Gasket damaged</li> <li>• Porosity, cross leaks, ball missing, plugged hole</li> <li>• Pump gears cracked and/or seized</li> <li>• Flow control valves, springs or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten screws to specification.</li> <li>• Inspect for damage. If damaged, install a new gasket.</li> <li>• Inspect for damage. If damaged, repair as necessary.</li> <li>• Inspect for damage. Install a new pump.</li> <li>• Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Flexplate or Adapter Plate</b> <ul style="list-style-type: none"> <li>• Damaged</li> <li>• Nuts not tightened to specification</li> <li>• Adapter plate not aligned correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Tighten to specification.</li> <li>• Remove transmission and using special service tool and procedure in this section, align adapter plate.</li> </ul>
<b>Clutch Assemblies</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn.</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage, mislocation, poor seating. Install a new cylinder as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Noise/Vibration—Forward or Reverse (Continued)**

Possible Component	Reference/Action
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter hub damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Other Concern: Engine Will Not Crank**

Possible Component	Reference/Action
<b>255 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test C.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Shift Cable/Digital TR Sensor</b> <ul style="list-style-type: none"> <li>Cable or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Main Control/Park System/TR Sensor Alignment</b> <ul style="list-style-type: none"> <li>Detent spring, rooster comb, manual lever and TR sensor are not correctly aligned together</li> </ul>	<ul style="list-style-type: none"> <li>Disconnect TR sensor electrical connector. Remove outer manual lever nut. Loosen TR sensor screws. Loosen detent spring screw. Move manual lever through all gear ranges. Place manual lever into the NEUTRAL position. Tighten the detent spring screw to correct specification. Install TR sensor alignment tool. Tighten the TR sensor screws alternating sequence until correct tightening specification is obtained. Remove tool. Install outer manual lever and nut. Tighten nut to correct specification. Install TR sensor connector. Verify that the vehicle will start in PARK and NEUTRAL. Verify that the reverse backup lamps illuminate in REVERSE.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> <li>Pump gears cracked and/or seized</li> <li>Flow control valves, springs or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. Install a new pump.</li> <li>Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Flexplate or Adapter Plate</b> <ul style="list-style-type: none"> <li>Damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Other Concern: No Park Range**

Possible Component	Reference/Action
<b>256 — ROUTINE</b>	
<b>Shift Cable/Digital TR sensor</b>	

**DIAGNOSIS AND TESTING (Continued)****Other Concern: No Park Range (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Cable system or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged</li> <li>Manual valve lever shaft retaining pin damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>
<b>Park System</b> <ul style="list-style-type: none"> <li>Park gear, parking pawl, parking pawl return spring, park or guide plate, parking actuating rod, parking pawl shaft, manual lever, manual lever detent spring damaged or misassembled</li> <li>External linkages/brackets damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>

**Other Concern: Transmission Overheating**

Possible Component	Reference/Action
<b>257 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, TCC solenoid, pressure control solenoids A, B, C, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged, thermostatic bypass valve damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b>	

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Transmission Overheating (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> <li>Pump gears cracked and/or seized</li> <li>Flow control valves, springs or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> <li>Inspect for damage. Install a new pump.</li> <li>Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Case vent damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Seized torque converter one-way clutch</li> <li>Excessive slip detected</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>
<b>Other</b> <ul style="list-style-type: none"> <li>Restriction in the transmission cooling system</li> <li>Excessive trailer tow load</li> <li>Engine driveability concerns</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Section 307-02 for information and diagnosis of cooling system.</li> <li>Refer to the owner guide for specifications on trailer towing.</li> <li>Check engine. Refer to Section 303-00.</li> </ul>

**Other Concern: No Engine Braking in Manual 3rd Position**

Possible Component	Reference/Action
<b>280 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, B, C, reverse pressure (RP) switch, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Other Concern: No Engine Braking in Manual 3rd Position (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Coast Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> <li>Seals rings or bearing damaged</li> <li>Outside diameter of case bore damaged</li> <li>Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Other Concern: No Engine Braking in Manual 4th (D (D) Cancelled) Position**

Possible Component	Reference/Action
<b>281 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid D, RP switch, pressure control solenoid B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage, repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: No Engine Braking in Manual 4th (D (D) Cancelled) Position (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> </ul>
<b>Coast Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Other Concerns: No Engine Braking in Manual 2nd Position**

Possible Component	Reference/Action
<b>258 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, C, D, pressure control solenoid A</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: No Engine Braking in Manual 1st Position**

Possible Component	Reference/Action
<b>259 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoids A, C, D, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to the correct level, refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Other Concerns: Fluid Venting/Foaming**

Possible Component	Reference/Action
<b>261 — ROUTINE</b>	
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> <li>Condition</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Gasket damaged</li> <li>Porosity, cross leaks, ball missing, plugged hole</li> </ul>	<ul style="list-style-type: none"> <li>Tighten screws to specification.</li> <li>Inspect for damage. If damaged, install a new gasket.</li> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>Case vent damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. If damaged, repair as necessary.</li> </ul>
<b>Other</b> <ul style="list-style-type: none"> <li>Transmission overheating</li> </ul>	<ul style="list-style-type: none"> <li>Refer to 257 routine in this section.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Vehicle Movement with Gear Selector in N Position**

Possible Component	Reference/Action
<b>262 — ROUTINE</b>	
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Shift Cable/Digital TR sensor</b> <ul style="list-style-type: none"> <li>• Cable system or digital TR sensor damaged, misaligned</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and repair as necessary. For additional information, refer to Transmission Range (TR) Sensor Adjustment in this section.</li> </ul>
<b>Incorrect pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> </ul>
<b>Clutch Assemblies</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn.</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage, mislocation, poor seating. Install a new cylinder as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Case</b> <ul style="list-style-type: none"> <li>• Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged</li> <li>• Manual valve lever shaft retaining pin damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. If damaged, repair as necessary.</li> <li>• Inspect for damage. If damaged, repair as necessary.</li> </ul>

**Other Concern: Slips/Chatters in Manual 1st Position**

Possible Component	Reference/Action
<b>263 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test D.</a></li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Slips/Chatters in Manual 1st Position (Continued)**

Possible Component	Reference/Action
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Fluid Pump Assembly</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Gasket damaged</li> <li>• Porosity, cross leaks, ball missing, plugged hole</li> <li>• Pump gears cracked and/or seized</li> <li>• Flow control valves, springs, or seals damaged, stuck or not assembled correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten screws to specification.</li> <li>• Inspect for damage. If damaged, install a new gasket.</li> <li>• Inspect for damage. If damaged, repair as necessary.</li> <li>• Inspect for damage. Install a new pump.</li> <li>• Inspect for damage. Install a new seal or flow control valve.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Reverse Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Slips/Chatters in Manual 2nd Position**

Possible Component	Reference/Action
<b>264 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test D.</a></li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>• Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Other Concern: Slip/Chatters in Manual 3rd Position**

Possible Component	Reference/Action
<b>282 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test D.</a></li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Slip/Chatters in Manual 3rd Position (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>• Incorrect level</li> <li>• Condition</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>• Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-way Clutch</b> <ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Low One-Way Clutch</b> <ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Other Concern: Engine Braking in ALL Gears**

Possible Component	Reference/Action
<b>283 — ROUTINE</b>	
<b>Powertrain Control System</b>	

**DIAGNOSIS AND TESTING (Continued)****Other Concern: Engine Braking in ALL Gears (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid D</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Torque Converter Assembly</b> <ul style="list-style-type: none"> <li>Torque converter internal failure preventing engagement, piston release</li> </ul>	<ul style="list-style-type: none"> <li>Remove the transmission. Inspect for damage. Refer to Torque Converter in this section. If the torque converter fails to pass the criteria or is damaged, install a new or remanufactured torque converter.</li> </ul>

**Other Concern: No 2nd and 5th Gears**

Possible Component	Reference/Action
<b>284 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoids B, C</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>

**Other Concern: No 3rd, 4th and 5th Gears**

Possible Component	Reference/Action
<b>285 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, pressure control solenoids A, B</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test D.</a></li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b>	



**DIAGNOSIS AND TESTING (Continued)****Other Concern: No 3rd, 4th and 5th Gears (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 1-2 Shift**

Possible Component	Reference/Action
<b>232 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoids B, TSS sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 2-3 Shift**

Possible Component	Reference/Action
<b>233 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift control solenoid B, pressure control solenoids A, TSS sensor, intermediate shaft speed sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 2-3 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b>	
<ul style="list-style-type: none"> <li>• Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 3-4 Shift**

Possible Component	Reference/Action
<b>234 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift control solenoid A, pressure control solenoids C, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Seal rings or bearing damaged</li> <li>• Outside diameter of case bore damaged</li> <li>• Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concerns: Harsh 4-5 Shift**

Possible Component	Reference/Action
<b>274 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, TSS sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seal (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 5-4 Shift**

Possible Component	Reference/Action
<b>275 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid C, TSS sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 5-4 Shift (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 4-3 Shift**

Possible Component	Reference/Action
<b>235 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid A, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 4-3 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves, springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 3-2 Shift**

Possible Component	Reference/Action
<b>236 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid B, TSS sensor, intermediate shaft speed sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 3-2 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Harsh 2-1 Shift**

Possible Component	Reference/Action
<b>237 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid B, TSS sensor, digital TR sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Harsh 2-1 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 1-2 Shift**

Possible Component	Reference/Action
<b>220 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor, VSS input</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM and VSS.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> </ul>	<ul style="list-style-type: none"> <li>Adjust to correct level. Refer to Transmission Fluid Level Check in this section.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps.</li> <li>Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 1-2 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Planetary Assembly</b> <ul style="list-style-type: none"> <li>Planetary damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 2-3 Shift**

Possible Component	Reference/Action
<b>221 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid B, TCC solenoid, pressure control solenoid A, OSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball, damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 2-3 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 3-4 Shift**

Possible Component	Reference/Action
<b>222 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid C, OSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Seal rings or bearing damaged</li> <li>• Outside diameter of case bore damaged</li> <li>• Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 3-4 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>• Seals, piston damaged</li> <li>• Check ball damaged, missing, not seating, off location</li> <li>• Friction elements damaged or worn</li> <li>• Return springs damaged</li> <li>• Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> </ul>

**Shift Concern: No 4-5 Shift**

Possible Component	Reference/Action
<b>270 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor</li> <li>• Transmission control (TC) switch</li> <li>• TC switch</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> <li>• For TC switch diagnosis, refer to Section 307-05.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 4-5 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 5-4 Shift**

Possible Component	Reference/Action
<b>271 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>• PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid C, OSS sensor, digital TR sensor</li> <li>• TC switch</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li>• <a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>• Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> <li>• For TC switch diagnosis, refer to Section 307-05.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>• High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>• Screws not tightened to specification</li> <li>• Separator plate damaged</li> <li>• Contamination</li> <li>• Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten to specification.</li> <li>• Inspect for damage. If damaged, install a new separator plate.</li> <li>• Disassemble and clean.</li> <li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>• Servo retaining screws damaged</li> <li>• Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>• Band damaged</li> <li>• Servo worn or damaged</li> <li>• Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> <li>• Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 4-3 Shift**

Possible Component	Reference/Action
<b>223 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid A, B, pressure control solenoid A, OSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 3-2 Shift**

Possible Component	Reference/Action
<b>224 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 3-2 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: No 2-1 Shift**

Possible Component	Reference/Action
<b>225 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test C</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: No 2-1 Shift (Continued)**

Possible Component	Reference/Action
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Forward Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> <li>Bronze seal ring or bearing damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Soft/Slipping 1-2 Shift**

Possible Component	Reference/Action
<b>226 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, TFT sensor, VSS input</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Fluid</b> <ul style="list-style-type: none"> <li>Incorrect level</li> <li>Condition</li> </ul>	<ul style="list-style-type: none"> <li>Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.</li> <li>Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.</li> </ul>
<b>Incorrect Pressures</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Soft/Slipping 1-2 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Soft/Slipping 2-3 Shift**

Possible Component	Reference/Action
<b>227 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid A, intermediate shaft speed sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> </ul>



**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Soft/Slipping 2-3 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Valve/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Soft/Slipping 3-4 Shift**

Possible Component	Reference/Action
<b>228 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid C, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> </ul>
<b>Center Support</b> <ul style="list-style-type: none"> <li>Screw not tightened to specification</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Soft/Slipping 3-4 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>Seal rings or bearing damaged</li> <li>Outside diameter of case bore damaged</li> <li>Support damaged or leaking</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Soft/Slipping 4-5 Shift**

Possible Component	Reference/Action
<b>272 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Soft/Slipping 4-5 Shift (Continued)**

Possible Component	Reference/Action
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Feel — Soft/Slipping 5-4 Shift**

Possible Component	Reference/Action
<b>273 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid C, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Direct Clutch Assembly</b> <ul style="list-style-type: none"> <li>Seals, piston damaged</li> <li>Check ball damaged, missing, not seating, off location</li> <li>Friction elements damaged or worn</li> <li>Return springs damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for mislocation, poor seating, damage. Install a new cylinder.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Feel — Soft/Slipping 4-3 Shift**

Possible Component	Reference/Action
<b>229 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid A, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Intermediate Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Intermediate Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Soft/Slipping 3-2 Shift**

Possible Component	Reference/Action
<b>230 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, intermediate shaft speed sensor, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a>, <a href="#">GO to Pinpoint Test D</a> and <a href="#">GO to Pinpoint Test E</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b>	

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Soft/Slipping 3-2 Shift (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> <li>Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>Filter damaged, missing</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> <li>If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>Inspect for damage, repair as necessary.</li> </ul>
<b>Overdrive Servo</b> <ul style="list-style-type: none"> <li>Servo retaining screws damaged</li> <li>Seals (piston and cover) damaged</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Overdrive Band</b> <ul style="list-style-type: none"> <li>Band damaged</li> <li>Servo worn or damaged</li> <li>Not adjusted correctly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> <li>Inspect for damage. Repair as necessary.</li> </ul>
<b>Direct One-Way Clutch</b> <ul style="list-style-type: none"> <li>Worn, damaged or assembled incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Inspect for damage. Repair as necessary.</li> </ul>

**Shift Concern: Feel — Soft/Slipping 2-1 Shift**

Possible Component	Reference/Action
<b>231 — ROUTINE</b>	
<b>Powertrain Control System</b> <ul style="list-style-type: none"> <li>PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, TFT sensor</li> </ul>	<ul style="list-style-type: none"> <li>Carry out on-board diagnostic tests. Refer to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> for diagnosis and testing of the PCM.</li> <li><a href="#">GO to Pinpoint Test A</a>, <a href="#">GO to Pinpoint Test B</a> and <a href="#">GO to Pinpoint Test D</a>.</li> <li>Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.</li> </ul>
<b>Incorrect Pressures</b> <ul style="list-style-type: none"> <li>High/low pressures</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.</li> </ul>
<b>Main Control</b> <ul style="list-style-type: none"> <li>Screws not tightened to specification</li> <li>Separator plate damaged</li> <li>Contamination</li> </ul>	<ul style="list-style-type: none"> <li>Tighten to specification.</li> <li>Inspect for damage. If damaged, install a new separator plate.</li> <li>Disassemble and clean.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Shift Concern: Feel — Soft/Slipping 2-1 Shift (Continued)**

<b>Possible Component</b>	<b>Reference/Action</b>
<ul style="list-style-type: none"><li>• Valves/springs damaged, misassembled, missing, stuck or bore damaged</li> <li>• Filter damaged, missing</li></ul>	<ul style="list-style-type: none"><li>• If damaged or parts are missing, install new main control assembly. If misassembled, reassemble correctly. DO NOT stone, file or sand valves. This will remove the anodized finish and may result in further main control or transmission damage.</li> <li>• Inspect for damage, repair as necessary.</li></ul>