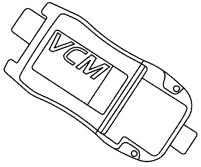


DIAGNOSIS AND TESTING

Diagnosis By Symptom

Special Tool(s)

 <p>ST2834-A</p>	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
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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

- Using the Symptom Index, select the Concern/Symptom that best describes the condition.
- Refer to the routine indicated in the Diagnosis by Symptom Index.
- Always begin diagnosis of a symptom with:
 - preliminary inspections.
 - verification of conditions.
 - checking the fluid levels.
 - carrying out other test procedures as directed.
- 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.
- 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
Engagement Concerns: <ul style="list-style-type: none"> No Forward in D or D ((D) cancelled) Only No Forward Only (All Positions) No Reverse Only Harsh Reverse Only Harsh Forward Only Harsh Manual 1st Gear Only Delayed/Soft Reverse Only Delayed/Soft Forward Only No Forward and No Reverse Harsh Forward and Harsh Reverse Delayed Forward and Delayed Reverse 	201A 201B 202 203 204A 204B 205 206 207 208 209
Shift Concerns: <ul style="list-style-type: none"> Some/All Shifts Missing (Automatic Mode Only) 	210

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

5R55S	Routines
<ul style="list-style-type: none"> • Timing Concern <ul style="list-style-type: none"> Early/Late (Some/All) 211 Erratic/Hunting (Some/All) 212 • Feel Concerns <ul style="list-style-type: none"> Soft/Slipping (Some/All) 213 Harsh (Some/All) 214 • No First Gear in Drive, Engages in a Higher Gear 215 • No First Gear in Manual 1st 216 • No Manual 2nd Gear 217 	
Torque Converter Clutch Operation Concerns:	
<ul style="list-style-type: none"> • Does Not Apply 240 • Always Applied/Stalls Vehicle 241 • Cycling/Shudder/Chatter 242 	
Other Concerns:	
<ul style="list-style-type: none"> • 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 (manual 2nd is ok) 284 • No 3rd, 4th and 5th gears 285 	

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

Possible Component	Reference/Action
201A — ROUTINE	
Powertrain Control System	

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"> PCM, vehicle wiring harnesses, pressure control solenoid B 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Main Control <ul style="list-style-type: none"> Screw not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Center Support <ul style="list-style-type: none"> Screw not tightened to specification Seal rings or bearing damaged Outside diameter of case bore damaged Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Planetary Assembly <ul style="list-style-type: none"> Planetary damage 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Low One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Engagement Concern: No Forward

Possible Component	Reference/Action
201B — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoid B 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D.

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

Possible Component	Reference/Action
	<ul style="list-style-type: none"> Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level Condition 	<ul style="list-style-type: none"> Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section. Carry out the fluid condition check. Refer to Preliminary Inspection in this section.
Main Control <ul style="list-style-type: none"> Screw not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Case <ul style="list-style-type: none"> Damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Engagement Concern: No Reverse

Possible Component	Reference/Action
202 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, Pressure Control Solenoid C (PC C), Shift Solenoid B (SSB) 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A and GO to Pinpoint Test D.

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

Possible Component	Reference/Action
	<ul style="list-style-type: none"> Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck or bore damage Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect or damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Drum Assembly <ul style="list-style-type: none"> One-way clutch damaged Bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Install a new drum assembly. Inspect for damage. Install a new drum assembly.
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter internal failure preventing engagement, piston release 	<ul style="list-style-type: none"> 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.

Engagement Concern: Harsh Reverse ONLY

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

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

Possible Component	Reference/Action
	<ul style="list-style-type: none"> Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, spring damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Reverse Drum Assembly <ul style="list-style-type: none"> One-way clutch damaged Bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Install a new drum assembly. Inspect for damage. Install a new drum assembly.

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

Possible Component	Reference/Action
204A — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoid A (PC A), pressure control solenoid C (PC C) 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Center Support <ul style="list-style-type: none"> Screw not tightened to specification Seal rings or bearing damage Outside diameter of case bore damage Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Engagement Concern: Harsh Manual 1st Gear ONLY

Possible Component	Reference/Action
204B — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoid B (PC B), Turbine Shaft Speed (TSS) sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM.

DIAGNOSIS AND TESTING (Continued)**Engagement Concern: Harsh Manual 1st Gear ONLY (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> • GO to Pinpoint Test D and GO to Pinpoint Test E. • Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.

Engagement Concern: Delayed or Soft Reverse ONLY

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

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

Possible Component	Reference/Action
206 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoid B (PC B) 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D. Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> Low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, spring damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged. Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Center Support <ul style="list-style-type: none"> Screw not tightened to specification Seal rings or bearing damaged Outside diameter of case bore damaged Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction element damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Planetary Assembly <ul style="list-style-type: none"> Planetary damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Reverse Planetary Assembly <ul style="list-style-type: none"> Planetary damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Output Shaft <ul style="list-style-type: none"> Damage 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Torque Converter <ul style="list-style-type: none"> Damaged flexplate or adapter plate Damaged impeller hub Damaged turbine hub 	<ul style="list-style-type: none"> 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.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Engagement Concern: Harsh Forward and Harsh Reverse

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Contamination Valves, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Disassemble and clean. 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. Inspect for damage, repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Engagement Concern: Delayed Forward and Delayed Reverse

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

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

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

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

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

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

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

Shift Concern: Timing Concerns—Early/Late

Possible Component	Reference/Action
211— ROUTINE	
Powertrain Control System	

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

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

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

Possible Component	Reference/Action
212 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> • PCM, vehicle wiring harnesses, OSS sensor, IAT sensor 	<ul style="list-style-type: none"> • Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM and IAT. • GO to Pinpoint Test E. • Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> • Incorrect level • Condition 	<ul style="list-style-type: none"> • Adjust to the correct level. Refer to Transmission Fluid Level Check in this section. • Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.
Main Control <ul style="list-style-type: none"> • Screws not tightened to specification • Separator plate damaged • Contamination • Valve, springs damaged, misassembled, missing, stuck or bore damaged • Filter damaged, missing 	<ul style="list-style-type: none"> • Tighten to specification. • Inspect for damage. If damaged, install a new separator plate. • Disassemble and clean. • 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. • Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> • Servo retaining screws damaged • Seals (piston and cover) damaged 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary.

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

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

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

Possible Component	Reference/Action
213 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM, IAT and VSS. GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Some Shifts Soft/Slipping ONLY	<ul style="list-style-type: none"> If only some of the shifts are soft/slipping, determine which shift(s) is missing.

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

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

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

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

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

Possible Component	Reference/Action
214— ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM, IAT and VSS. GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Some Shifts Harsh ONLY	<ul style="list-style-type: none"> If only some of the shifts are harsh, determine which shift(s) is missing. Refer to the following routine(s) for further No Shift concerns: <ul style="list-style-type: none"> — Harsh 1-2 Shift, Routine 232 — Harsh 2-3 Shift, Routine 233 — Harsh 3-4 Shift, Routine 234 — Harsh 4-5 Shift, Routine 274 — Harsh 5-4 Shift, Routine 275 — Harsh 4-3 Shift, Routine 235 — Harsh 3-2 Shift, Routine 236 — Harsh 2-1 Shift, Routine 237
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck, or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Input Shaft <ul style="list-style-type: none"> Damaged 	<ul style="list-style-type: none"> Inspect for damage. Install new as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

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

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

Possible Component	Reference/Action
215 — ROUTINE	
Powertrain Control System	

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"> PCM, vehicle wiring harnesses, shift solenoids A, B, C, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A and GO to Pinpoint Test C. Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Low One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Engagement Concern: No 1st Gear in Manual 1 Position

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> • Separator plate damaged • Contamination • Valves, springs damaged, misassembled, missing, stuck or bore damaged • Filter damaged, missing 	<ul style="list-style-type: none"> • Inspect for damage. If damaged, install a new separator plate. • Disassemble and clean. • 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. • Inspect for damage, repair as necessary.
Overdrive Planetary Assembly <ul style="list-style-type: none"> • Planetary damaged 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> • Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary.
Low One-Way Clutch <ul style="list-style-type: none"> • Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary.

Shift Concern: No 2nd Gear in Manual 2 Position

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

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

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

Torque Converter Operation Concerns: Does Not Apply

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

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

Possible Component	Reference/Action
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter internal failure preventing engagement, piston application 	<ul style="list-style-type: none"> 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.

Torque Converter Operation Concern: Always Applied/Stalls Vehicle

Possible Component	Reference/Action
241 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, TCC solenoid 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A. Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Low One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly. 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter internal failure preventing engagement, piston release 	<ul style="list-style-type: none"> 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.

Torque Converter Operation Concern: Cycling/Shudder/Chatter

Possible Component	Reference/Action
242 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, TCC solenoid 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A.

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

Possible Component	Reference/Action
	<ul style="list-style-type: none"> Repair as necessary. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Condition—contaminated, degraded 	<ul style="list-style-type: none"> 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. Refer to Transmission Fluid Cooler — Backflushing and Cleaning in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter internal leakage, clutch material damaged 	<ul style="list-style-type: none"> 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.

Other Concerns: Shift Lever Efforts High

Possible Component	Reference/Action
251 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test C. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Shift Cable, Digital TR Sensor <ul style="list-style-type: none"> Cable system or digital TR sensor damaged, misaligned 	<ul style="list-style-type: none"> Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification 	<ul style="list-style-type: none"> Tighten to specification.

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> • Separator plate damaged • Contamination • Valve/springs damaged, misassembled, missing, stuck or bore damaged • Filter damaged, missing 	<ul style="list-style-type: none"> • Inspect for damage. If damaged, install a new separator plate. • Disassemble and clean. • 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. • Inspect for damage, repair as necessary.
Case <ul style="list-style-type: none"> • Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged • Manual valve lever shaft retaining pin damaged 	<ul style="list-style-type: none"> • Inspect for damage. If damaged, install a new part. • Inspect for damage. If damaged, repair as necessary.

Other Concerns: External Leaks

Possible Component	Reference/Action
252 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> • OSS sensor, intermediate shaft speed, TSS sensor, digital TR sensor 	<ul style="list-style-type: none"> • 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.
Fluid <ul style="list-style-type: none"> • Incorrect level 	<ul style="list-style-type: none"> • Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.
Case <ul style="list-style-type: none"> • Case vent damaged • Output shaft flange damage 	<ul style="list-style-type: none"> • Inspect for damage. If damaged, repair as necessary. • Inspect for damage. If damaged, repair as necessary.
Seals/Gaskets <ul style="list-style-type: none"> • Leakage at gaskets, seals, cooler lines, torque converter studs, etc. 	<ul style="list-style-type: none"> • Refer to Leakage Inspection in this section for potential leak locations. • 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.
Vents <ul style="list-style-type: none"> • Fluid leakage through the vent system into the bellhousing 	<ul style="list-style-type: none"> • Incorrect fluid level may cause the transmission fluid to vent. If not already carried out verify and adjust the fluid to the correct level. Refer to Transmission Fluid Level Check in this section.

DIAGNOSIS AND TESTING (Continued)**Other Concerns: External Leaks (Continued)**

Possible Component	Reference/Action
	<ul style="list-style-type: none"> Verify the transmission operating temperature by monitoring the TFT while driving the vehicle for 32 km (20 miles) or 20 minutes. If the TFT exceeds 102°C (215°F) during the drive, refer to Routine No. 257 Transmission Overheating, Main Control, Thermostatic bypass valve. Remove all traces of fluid on exposed surfaces of the transmission. Check the vent for damage and obstructions. Verify that the vent is operating correctly by applying air through the vent tubes. If the vent is damage or obstructed, repair as necessary.

Other Concern: Noise/Vibration—Forward or Reverse

Possible Component	Reference/Action
254 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, TCC solenoid, pressure control solenoids A, B, C 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A and GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Shift Cable/Digital TR Sensor <ul style="list-style-type: none"> Cable or digital TR sensor damaged, misaligned 	<ul style="list-style-type: none"> Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck, or bore damaged, thermostatic bypass valve damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Fluid Pump Assembly <ul style="list-style-type: none"> Screws not tightened to specification Gasket damaged Porosity, cross leaks, ball missing, plugged hole Pump gears cracked and/or seized Flow control valves, springs or seals damaged, stuck or not assembled correctly 	<ul style="list-style-type: none"> Tighten screws to specification. Inspect for damage. If damaged, install a new gasket. Inspect for damage. If damaged, repair as necessary. Inspect for damage. Install a new pump. Inspect for damage. Install a new seal or flow control valve.
Low One-Way Clutch	

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Flexplate or Adapter Plate <ul style="list-style-type: none"> Damaged Nuts not tightened to specification Adapter plate not aligned correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Tighten to specification. Remove transmission and using special service tool and procedure in this section, align adapter plate.
Clutch Assemblies <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage, mislocation, poor seating. Install a new cylinder as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter hub damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Other Concern: Engine Will Not Crank

Possible Component	Reference/Action
255 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test C. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Shift Cable/Digital TR Sensor <ul style="list-style-type: none"> Cable or digital TR sensor damaged, misaligned 	<ul style="list-style-type: none"> Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.
Main Control/Park System/TR Sensor Alignment <ul style="list-style-type: none"> Detent spring, rooster comb, manual lever and TR sensor are not correctly aligned together 	<ul style="list-style-type: none"> 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.
Fluid Pump Assembly <ul style="list-style-type: none"> Screws not tightened to specification Gasket damaged 	<ul style="list-style-type: none"> Tighten screws to specification. Inspect for damage. If damaged, install a new gasket.

DIAGNOSIS AND TESTING (Continued)**Other Concern: Engine Will Not Crank (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> Porosity, cross leaks, ball missing, plugged hole Pump gears cracked and/or seized Flow control valves, springs or seals damaged, stuck or not assembled correctly 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary. Inspect for damage. Install a new pump. Inspect for damage. Install a new seal or flow control valve.
Flexplate or Adapter Plate <ul style="list-style-type: none"> Damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Other Concern: No Park Range

Possible Component	Reference/Action
256 — ROUTINE	
Shift Cable/Digital TR Sensor <ul style="list-style-type: none"> Cable system or digital TR sensor damaged, misaligned 	<ul style="list-style-type: none"> Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.
Case <ul style="list-style-type: none"> Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged Manual valve lever shaft retaining pin damaged 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary. Inspect for damage. If damaged, repair as necessary.
Park System <ul style="list-style-type: none"> 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 External linkages/brackets damaged 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary. Inspect for damage. If damaged, repair as necessary.

Other Concern: Transmission Overheating

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Thermostatic bypass valve in the main control valve body assembly 	<ul style="list-style-type: none"> Verify correct thermal valve function, while monitoring the TFT. Drive the vehicle for about 32 km (20 miles) or 20 minutes. If the temperature exceeds 102°C (215°F) during the drive, install a new main control valve body assembly.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck or bore damaged, thermostatic bypass valve damaged Filter damaged, missing Thermostatic bypass valve damaged or malfunctioning 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary. If the verification procedure confirms the malfunction, install a new main control valve body assembly. If not malfunctioning, inspect for damage. If damaged, install a new main control valve body assembly.
Fluid Pump Assembly <ul style="list-style-type: none"> Screws not tightened to specification Gasket damaged Porosity, cross leaks, ball missing, plugged hole Pump gears cracked and/or seized Flow control valves, springs or seals damaged, stuck or not assembled correctly 	<ul style="list-style-type: none"> Tighten screws to specification. Inspect for damage. If damaged, install a new gasket. Inspect for damage. If damaged, repair as necessary. Inspect for damage. Install a new pump. Inspect for damage. Install a new seal or flow control valve.
Case <ul style="list-style-type: none"> Case vent damaged 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary.
Torque Converter Assembly <ul style="list-style-type: none"> Seized torque converter one-way clutch Excessive slip detected 	<ul style="list-style-type: none"> 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.
Other <ul style="list-style-type: none"> Restriction in the transmission cooling system Excessive trailer tow load Engine driveability concerns 	<ul style="list-style-type: none"> Refer to Section 307-02 for information and diagnosis of cooling system. Refer to the owner guide for specifications on trailer towing. Check engine. Refer to Section 303-00.

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

Possible Component	Reference/Action
280 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoids A, B, C, reverse pressure (RP) switch, pressure control solenoids A, B 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Coast Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Center Support <ul style="list-style-type: none"> Screw not tightened to specification Seals rings or bearing damaged Outside diameter of case bore damaged Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

Possible Component	Reference/Action
281 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid D, RP switch, pressure control solenoid B 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Filter damaged, missing Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage, repair as necessary. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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.
Coast Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Other Concerns: No Engine Braking in Manual 2nd Position

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

DIAGNOSIS AND TESTING (Continued)**Other Concerns: No Engine Braking in Manual 2nd Position (Continued)**

Possible Component	Reference/Action
<ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Other Concern: No Engine Braking in Manual 1st Position

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

Other Concerns: Fluid Venting/Foaming

Possible Component	Reference/Action
261 — ROUTINE	
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.

DIAGNOSIS AND TESTING (Continued)**Other Concerns: Fluid Venting/Foaming (Continued)**

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

Other Concern: Vehicle Movement with Gear Selector in N Position

Possible Component	Reference/Action
262 — ROUTINE	
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.
Shift Cable/Digital TR Sensor <ul style="list-style-type: none"> Cable system or digital TR sensor damaged, misaligned 	<ul style="list-style-type: none"> Inspect and repair as necessary. Refer to Transmission Range (TR) Sensor Adjustment in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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.
Clutch Assemblies <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn. Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage, mislocation, poor seating. Install a new cylinder as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Case	

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Manual control lever assembly damage, manual valve inner lever pin bent, manual valve inner lever damaged, spring rod damaged 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary.
<ul style="list-style-type: none"> Manual valve lever shaft retaining pin damaged 	<ul style="list-style-type: none"> Inspect for damage. If damaged, repair as necessary.

Other Concern: Slips/Chatters in Manual 1st Position

Possible Component	Reference/Action
263 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoids A, B 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level Condition 	<ul style="list-style-type: none"> Adjust fluid to the correct level. Refer to Transmission Fluid Level Check in this section. Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Fluid Pump Assembly <ul style="list-style-type: none"> Screws not tightened to specification Gasket damaged Porosity, cross leaks, ball missing, plugged hole Pump gears cracked and/or seized Flow control valves, springs, or seals damaged, stuck or not assembled correctly 	<ul style="list-style-type: none"> Tighten screws to specification. Inspect for damage. If damaged, install a new gasket. Inspect for damage. If damaged, repair as necessary. Inspect for damage. Install a new pump. Inspect for damage. Install a new seal or flow control valve.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

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

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

Other Concern: Slips/Chatters in Manual 2nd Position

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

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

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

Other Concern: Slip/Chatters in Manual 3rd Position

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.
Low One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Other Concern: Engine Braking in ALL Gears

Possible Component	Reference/Action
283 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid D 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Torque Converter Assembly <ul style="list-style-type: none"> Torque converter internal failure preventing engagement, piston release 	<ul style="list-style-type: none"> 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.

Other Concern: No 2nd and 5th Gears (Manual 2nd is Ok)

Possible Component	Reference/Action
284 — ROUTINE	
Hydraulic/Mechanical	<ul style="list-style-type: none"> Verify that Manual 2 is present and functions correctly. If Manual 2 is not operating correctly go to Shift Concerns: Routine 210 - Some/All Shifts Missing (Automatic Mode) and continue diagnosis. If Manual 2 is operating correctly continue with this routine.
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, pressure control solenoids B, C 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.

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

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

Shift Concern: Harsh 1-2 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: Harsh 2-3 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Filter damaged, missing 	<ul style="list-style-type: none"> Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Shift Concern: Harsh 3-4 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> • Separator plate damaged • Contamination • Valve/springs damaged, misassembled, missing, stuck or bore damaged • Filter damaged, missing 	<ul style="list-style-type: none"> • Inspect for damage. If damaged, install a new separator. • Disassemble and clean. • 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. • Inspect for damage, repair as necessary.
Center Support <ul style="list-style-type: none"> • Screws not tightened to specification • Seal rings or bearing damaged • Outside diameter of case bore damaged • Support damaged or leaking 	<ul style="list-style-type: none"> • Tighten to specification. • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> • Seals, piston damaged • Check ball damaged, missing, not seating, off location • Friction elements damaged or worn • Return springs damaged 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary. • Inspect for mislocation, poor seating, damage. Install a new cylinder. • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> • Seals (piston and cover) damaged 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary.

Shift Concerns: Harsh 4-5 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seal (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: Harsh 5-4 Shift

Possible Component	Reference/Action
275 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid C, TSS sensor, digital TR sensor, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. 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. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

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

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

Shift Concern: Harsh 4-3 Shift

Possible Component	Reference/Action
235 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid A, digital TR sensor, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test C and GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at Line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves, springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

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

Shift Concern: Harsh 3-2 Shift

Possible Component	Reference/Action
236 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid B, TSS sensor, intermediate shaft speed sensor, digital TR sensor, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. 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. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

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

Shift Concern: Harsh 2-1 Shift

Possible Component	Reference/Action
237 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift control solenoid C, pressure control solenoid B, TSS sensor, digital TR sensor, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. 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. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct Clutch One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

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

Possible Component	Reference/Action
220 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor, VSS input 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM and VSS. GO to Pinpoint Test A, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Planetary Assembly <ul style="list-style-type: none"> Planetary damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Shift Concern: No 2-3 Shift

Possible Component	Reference/Action
221 — ROUTINE	
Powertrain Control System	

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid B, TCC solenoid, pressure control solenoid A, OSS sensor, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball, damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: No 3-4 Shift

Possible Component	Reference/Action
222 — ROUTINE	
Powertrain Control System	

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid C, OSS sensor, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Center Support <ul style="list-style-type: none"> Screws not tightened to specification Seal rings or bearing damaged Outside diameter of case bore damaged Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder.

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

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

Shift Concern: No 5-4 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> • TC switch 	<ul style="list-style-type: none"> • For TC switch diagnosis, refer to Section 307-05.
Incorrect Pressures <ul style="list-style-type: none"> • High/low pressures 	<ul style="list-style-type: none"> • Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> • Screws not tightened to specification • Separator plate damaged • Contamination • Valves/springs damaged, misassembled, missing, stuck or bore damaged • Filter damaged, missing 	<ul style="list-style-type: none"> • Tighten to specification. • Inspect for damage. If damaged, install a new separator plate. • Disassemble and clean. • 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. • Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> • Servo retaining screws damaged • Seals (piston and cover) damaged 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary.
Overdrive Band <ul style="list-style-type: none"> • Band damaged • Servo worn or damaged • Not adjusted correctly 	<ul style="list-style-type: none"> • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary. • Inspect for damage. Repair as necessary.

Shift Concern: No 4-3 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Valves/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> 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. Inspect for damage, repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: No 3-2 Shift

Possible Component	Reference/Action
224 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, OSS sensor, digital TR sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test C, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Overdrive Band	

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Forward Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged Bronze seal ring or bearing damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: No 2-1 Shift

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

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

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

Shift Concern: Soft/Slipping 1-2 Shift

Possible Component	Reference/Action
226 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid C, pressure control solenoid B, TFT sensor, VSS input 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test B and GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Fluid <ul style="list-style-type: none"> Incorrect level Condition 	<ul style="list-style-type: none"> Adjust fluid to correct level. Refer to Transmission Fluid Level Check in this section. Carry out Fluid Condition Check. Refer to Preliminary Inspection in this section.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Overdrive Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

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

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

Shift Concern: Soft/Slipping 2-3 Shift

Possible Component	Reference/Action
227 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid A, intermediate shaft speed sensor, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test B, GO to Pinpoint Test D and GO to Pinpoint Test E. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valve/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

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

Possible Component	Reference/Action
228 — ROUTINE	
Powertrain Control System <ul style="list-style-type: none"> PCM, vehicle wiring harnesses, shift solenoid A, pressure control solenoid C, TFT sensor 	<ul style="list-style-type: none"> Carry out on-board diagnostic tests. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual for diagnosis and testing of the PCM. GO to Pinpoint Test A, GO to Pinpoint Test B and GO to Pinpoint Test D. Repair as required. Clear DTCs, road test and rerun on-board diagnostic test.
Incorrect Pressures <ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck or bore damaged 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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.
Center Support <ul style="list-style-type: none"> Screw not tightened to specification Seal rings or bearing damaged Outside diameter of case bore damaged Support damaged or leaking 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: Soft/Slipping 4-5 Shift

Possible Component	Reference/Action
272 — ROUTINE	
Powertrain Control System	

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

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

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

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> High/low pressures 	<ul style="list-style-type: none"> Check pressure at line and PC C taps. Carry out Line Pressure Test. Refer to Special Testing Procedures in this section.
Main Control <ul style="list-style-type: none"> Screws not tightened to specification Separator plate damaged Contamination Valves/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> Tighten to specification. Inspect for damage. If damaged, install a new separator plate. Disassemble and clean. 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. Inspect for damage, repair as necessary.
Direct Clutch Assembly <ul style="list-style-type: none"> Seals, piston damaged Check ball damaged, missing, not seating, off location Friction elements damaged or worn Return springs damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for mislocation, poor seating, damage. Install a new cylinder. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Direct One-Way Clutch <ul style="list-style-type: none"> Worn, damaged or assembled incorrectly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary.

Shift Concern: Feel — Soft/Slipping 4-3 Shift

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

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

Possible Component	Reference/Action
<ul style="list-style-type: none"> Valves/springs damaged, misassembled, missing, stuck or bore damaged Filter damaged, missing 	<ul style="list-style-type: none"> 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. Inspect for damage, repair as necessary.
Intermediate Servo <ul style="list-style-type: none"> Servo retaining screws damaged Seals (piston and cover) damaged 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.
Intermediate Band <ul style="list-style-type: none"> Band damaged Servo worn or damaged Not adjusted correctly 	<ul style="list-style-type: none"> Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary. Inspect for damage. Repair as necessary.

Shift Concern: Soft/Slipping 3-2 Shift

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

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

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

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

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