



AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E

CONDITION	POSSIBLE SOURCE	ACTION
● Oil Leak	<ol style="list-style-type: none">Side pan or bottom pan.<ul style="list-style-type: none">● Low bolt torque.● Damaged gasket or pan rail.● Distorted pan.● Engine or power steering fluid leaks may appear on transaxle.Fill tube or electrical bulkhead connectors.<ul style="list-style-type: none">● Loose fit/damaged case.● External seal damage/missing.Manual shaft.<ul style="list-style-type: none">● Damaged seal.Speedometer cover and servo covers.<ul style="list-style-type: none">● Damaged O-ring seal.Cooler fittings or pressure taps.<ul style="list-style-type: none">● Low torque, damaged threads.● Cooler line not fully snapped into fitting.Converter or converter seal.<ul style="list-style-type: none">● Damaged seal assembly, or garter spring missing.● Converter hub scored.● Weld seam leaking.Halfshaft seals.<ul style="list-style-type: none">● Damaged seal assembly, or garter spring missing.Speedometer cable or speed sensor.<ul style="list-style-type: none">● Damaged O-ring seal.Turbine speed sensor.<ul style="list-style-type: none">● Damaged O-ring seal.	<ol style="list-style-type: none">Service as required.Service as required.Replace seal.Replace O-ring seal.Service as required.Service as required.Replace seal.<ul style="list-style-type: none">● Inspect CV joint journal for damage.Replace O-ring seal.Replace O-ring seal.
Oil Venting or Foaming	<ol style="list-style-type: none">Oil level (venting).<ul style="list-style-type: none">● Transaxle overfilled.Transmission fluid.<ul style="list-style-type: none">● Contaminated with antifreeze or engine overheating.Bi-metallic element stuck open.Oil filter plugged/damaged.<ul style="list-style-type: none">● Damaged/missing seal.	<ol style="list-style-type: none">Drain and fill transaxle to proper level.Determine source of leak. Service as required.Replace element.Replace filter seal and filter.
High or Low Oil Pressure (Verify With Gauge)	<ol style="list-style-type: none">Oil level.<ul style="list-style-type: none">● Oil level too lowEPC solenoid.<ul style="list-style-type: none">● Inoperative/damaged.Pressure regulator valve or spring.<ul style="list-style-type: none">● Nicked scored bore or valve.● Damaged spring.Throttle Position Sensor misadjusted.	<ol style="list-style-type: none">Fill transaxle as necessary.Refer to Electrical System Diagnosis in this section.Determine source of damage. Service as required.Service as required.

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
High or Low Oil Pressure (Verify With Gauge) — Continued	5. Oil pump assembly. <ul style="list-style-type: none">● Ring stuck, seals damaged, vanes damaged.● Pump driveshaft broken or damaged.	5. Determine source of damage. Service as required.
No 1-2 Shift (First Gear Only)	1. EEC-IV processor. <ul style="list-style-type: none">● Damaged. 2. Shift solenoid 1. <ul style="list-style-type: none">● Wiring short/open. 3. Main regulator valve. <ul style="list-style-type: none">● Stuck, nicked or damaged. 4. 1-2 shift valve. <ul style="list-style-type: none">● Stuck, nicked or damaged. 5. Intermediate clutch shuttle valve. <ul style="list-style-type: none">● Stuck, nicked or damaged. 6. 1-2 capacity modulator valve. <ul style="list-style-type: none">● Stuck, nicked or damaged. 7. No. 10 check ball. <ul style="list-style-type: none">● Missing or damaged. 8. Control assembly. <ul style="list-style-type: none">● Bolts too loose or too tight. 9. Intermediate clutch tap plug loose/missing.	1. Refer to Electrical System Diagnosis in this section. 2. Refer to Electrical System Diagnosis in this section. 3. Determine source of contamination or damage. Service as required. 4. Determine source of contamination or damage. Service as required. 5. Determine source of contamination or damage. Service as required. 6. Determine source of contamination or damage. Service as required. 7. Replace check ball. 8. Tighten bolts to specification. 9. Service as required. 10. Determine source of contamination or damage. Service as required. 11. Determine source of contamination or damage. Service as required. 12. Determine source of contamination or damage. Service as required. 13. Inspect welds. Service as required.
	10. Driven sprocket support. <ul style="list-style-type: none">● Seals damaged/missing or holes blocked. 11. Intermediate clutch assembly. <ul style="list-style-type: none">● Clutch plates damaged/missing.<ul style="list-style-type: none">● Wave spring damaged/missing.● Piston or seals damaged.● Ball check assembly stuck/damaged or missing.● Clutch cylinder damaged. 12. Direct/intermediate clutch hub. <ul style="list-style-type: none">● Seals damaged/missing or holes blocked. 13. Front carrier damaged.	

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
1-2 Shift Feels Harsh or Soft	<ol style="list-style-type: none"> 1. EPC solenoid. <ul style="list-style-type: none"> • Inoperative / damaged. 2. EEC-IV processor. <ul style="list-style-type: none"> • Inoperative. 3. Oil pressure. <ul style="list-style-type: none"> • High or low oil pressure. 4. Accumulator regulator valve and plunger. <ul style="list-style-type: none"> • Stuck, nicked or damaged. 5. No. 12 check ball. <ul style="list-style-type: none"> • Missing ball. 6. 1-2 capacity modulator valve. <ul style="list-style-type: none"> • Valve stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring missing or damaged. 7. 1-2 Accumulator assembly. <ul style="list-style-type: none"> • Piston stuck or damaged. <ul style="list-style-type: none"> • Seal damaged or missing. • Springs damaged or missing. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Refer to Electrical System Diagnosis in this section. 3. Perform control pressure test. Service as required. 4. Determine source of contamination or damage. Service as required. 5. Replace check ball. 6. Determine source of contamination or damage. Service as required. 7. Determine source of contamination or damage. Service as required.
1-2 Shift Speed High or Low	<ol style="list-style-type: none"> 1. Vehicle speed sensor. <ul style="list-style-type: none"> • Inoperative. 2. Speedometer gear. <ul style="list-style-type: none"> • Wrong or missing gear. 3. Control assembly: 1-2 shift valve and intermediate clutch shuttle valve. <ul style="list-style-type: none"> • Valve(s) stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring(s) missing or damaged. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Install correct speedometer driven gear. 3. Determine source of contamination or damage. Service as required.

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
No 2-3 Shift (1-2 Shift OK)	<ol style="list-style-type: none"> Shift solenoid No. 2 <ul style="list-style-type: none"> Inoperative. EEC-IV processor. <ul style="list-style-type: none"> Inoperative. Low/intermediate servo. <ul style="list-style-type: none"> Wrong apply rod (too long). Servo bore or piston damaged. Piston seals damaged/missing. Missing/broken return spring or retaining clip. Direct/intermediate clutch hub. <ul style="list-style-type: none"> Seals damaged or missing or holes blocked. Driven sprocket support. <ul style="list-style-type: none"> Seals damaged or missing or holes blocked. Direct one-way clutch assembly. <ul style="list-style-type: none"> Damaged cage/rollers/springs. Missing rollers. Misassembled on inner race. Control assembly. <ul style="list-style-type: none"> Bolts too loose or too tight. 2-3 shift valve. <ul style="list-style-type: none"> Valve stuck, nicked or damaged. No. 3 or No. 8 check ball(s) missing. Case servo release passage. <ul style="list-style-type: none"> Blocked. Servo release tube. <ul style="list-style-type: none"> Leaking. Improperly installed. Direct clutch assembly. <ul style="list-style-type: none"> Clutch plates damaged/missing. Piston or seals damaged. Ball check assembly stuck or missing. Cylinder damage. 1-2 shift valve <ul style="list-style-type: none"> Stuck, nicked or damaged. 	<ol style="list-style-type: none"> Refer to Electrical System Diagnosis in this section. Refer to Electrical System Diagnosis in this section. Install correct apply rod, if required. Determine source of contamination. Service as required. Determine source of contamination. Service as required. Determine source of contamination. Service as required. Disassemble and inspect. Service as required. Tighten to specification. Determine source of contamination. Service as required. Replace check ball. Determine source of blockage. Service as required. Service as required. Determine source of contamination or damage. Service as required. Determine source of contamination. Service as required.

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
2-3 Shift Feels Harsh or Soft	<ol style="list-style-type: none"> 1. EPC solenoid. <ul style="list-style-type: none"> • Inoperative / damaged. 2. EEC-IV processor. <ul style="list-style-type: none"> • Inoperative. 3. Low or high oil pressure. 4. Low / intermediate servo. <ul style="list-style-type: none"> • Wrong apply rod length. <ul style="list-style-type: none"> • Piston, seal, springs rod or spring. 5. 2-3 servo regulator valve. <ul style="list-style-type: none"> • Stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring damaged. 6. Missing No. 9, No. 10 or No. 12 <ul style="list-style-type: none"> • Check Ball. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Refer to Electrical System Diagnosis in this section. 3. Perform control pressure test. Service as required. 4. Install correct apply rod, if required. Determine source of damage. Service as required. 5. Determine source of contamination or damage. Service as required. 6. Replace ball.
2-3 Shift Speed High or Low.	<ol style="list-style-type: none"> 1. Vehicle speed sensor. <ul style="list-style-type: none"> • Inoperative. 2. Speedometer gear. <ul style="list-style-type: none"> • Wrong or missing. 3. Control assembly; 1-2 shift valve 2-3 shift valve VFS erratic pressure <ul style="list-style-type: none"> • Valves stuck, nicked or damaged. <ul style="list-style-type: none"> • Shift solenoid damaged. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Install correct speedometer gear. 3. Determine source of contamination or damage. Service as required.
No 3-4 Shift (1-2 and 2-3 OK)	<ol style="list-style-type: none"> 1. Shift solenoid No. 3 <ul style="list-style-type: none"> • Wiring short / open. 2. EEC-IV processor <ul style="list-style-type: none"> • Inoperative. 3. Overdrive band assembly not holding. 4. Overdrive servo assembly. <ul style="list-style-type: none"> • Wrong apply rod (too long). <ul style="list-style-type: none"> • Servo bore or piston damaged. • Piston seals damaged or missing. <ul style="list-style-type: none"> • Missing or broken return spring or retaining clip. 5. Forward clutch assembly. <ul style="list-style-type: none"> • Damaged return springs / piston. 6. Control assembly bolts too loose or too tight. 7. 3-4 shift valve. <ul style="list-style-type: none"> • Valve stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring damaged. 8. 1-2 shift valve. <ul style="list-style-type: none"> • Valve stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring missing. 9. Forward clutch control valve. <ul style="list-style-type: none"> • Valve stuck, nicked or damaged. <ul style="list-style-type: none"> • Spring missing. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Refer to Electrical System Diagnosis in this section. 3. Perform air pressure test. Service as required. 4. Install correct apply rod, if required. Determine source of contamination or damage. Service as required. 5. Determine source of damage. Service as required. 6. Tighten bolts to specification. 7. Determine source of contamination or damage. Service as required. 8. Determine source of contamination or damage. Service as required. 9. Determine source of contamination. Service as required.

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
3-4 Shift Feels Harsh or Soft	<ol style="list-style-type: none"> 1. EPC solenoid. <ul style="list-style-type: none"> • Inoperative/damaged. 2. EEC-IV processor. <ul style="list-style-type: none"> • Inoperative. 3. Oil pressure too high or too low. 4. 3-4 Accumulator assembly. <ul style="list-style-type: none"> • Accumulator piston stuck or damaged. <ul style="list-style-type: none"> • Piston seal missing or damaged. • Springs missing or damaged. 5. No. 4 and/or No. 12 check ball. <ul style="list-style-type: none"> • Ball missing/damaged. 6. Accumulator regulator valve. <ul style="list-style-type: none"> • Stuck, nicked or damaged. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Refer to Electrical System Diagnosis in this section. 3. Perform control pressure test. 4. Determine source of damage or contamination. Service as required. 5. Replace ball. 6. Determine source of contamination. Service as required.
3-4 Shift Speed High or Low	<ol style="list-style-type: none"> 1. Vehicle speed sensor. <ul style="list-style-type: none"> • Damaged. 2. Speedometer gear. <ul style="list-style-type: none"> • Wrong/missing gear. 3. Control assembly: 1-2 shift valve and/or 3-4 shift valve. <ul style="list-style-type: none"> • Valves stuck, nicked or damaged. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Install correct speedometer gear. 3. Determine source of contamination or damage. Service as required.
No Converter Clutch Apply	<ol style="list-style-type: none"> 1. Transaxle electrical system or electronic engine control. <ul style="list-style-type: none"> • No lock-up signal. <ul style="list-style-type: none"> • By-pass solenoid damaged or inoperative. • Bulkhead connector damaged. • Pinched wires. 2. Turbine shaft. <ul style="list-style-type: none"> • Damaged or missing seals. 3. Bypass clutch control valve. <ul style="list-style-type: none"> • Bypass clutch control valve stuck. <ul style="list-style-type: none"> • Bypass plunger stuck. 4. Pump shaft. <ul style="list-style-type: none"> • Missing or damaged seals. <ul style="list-style-type: none"> • Missing or damaged cup plug. 5. Valve body pilot sleeve. <ul style="list-style-type: none"> • Damaged/misaligned. 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Service as required. 3. Determine source of contamination. Service as required. 4. Determine source of contamination or damage. Service as required. 5. Determine source of damage. Service as required.
Converter Clutch Does Not Release	<ol style="list-style-type: none"> 1. Electronic engine control or transmission electrical system. <ul style="list-style-type: none"> • No unlock signal. <ul style="list-style-type: none"> • Bypass solenoid damaged or inoperative. • Bulkhead connector wires damaged. 2. Bypass clutch control valve or plunger valve. <ul style="list-style-type: none"> • Valve stuck, nicked or damaged. 3. Solenoid filter plug (in main control). 	<ol style="list-style-type: none"> 1. Refer to Electrical System Diagnosis in this section. 2. Determine source of contamination. Service as required. 3. Solenoid filter plug (in main control).

AUTOMATIC TRANSAXLE DIAGNOSIS — AXQD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
4-3 Downshifts Harsh	<ol style="list-style-type: none"> Overdrive servo assembly. <ul style="list-style-type: none"> Incorrect servo apply rod length. <ul style="list-style-type: none"> Damaged servo piston or seal. Damaged or missing springs. No converter clutch release. 	<ol style="list-style-type: none"> Install correct apply rod, if required. Determine source of contamination or damage. Service as required. Refer to Electrical System Diagnosis in this section.
3-2 Downshift Harsh	<ol style="list-style-type: none"> Transaxle electrical system. High or low pressure. Low/intermediate servo assembly. <ul style="list-style-type: none"> Damaged or missing springs. <ul style="list-style-type: none"> Incorrect servo apply rod length. 3-2 Shift timing. <ul style="list-style-type: none"> Valve stuck, nicked or damaged. No. 5 check ball. <ul style="list-style-type: none"> Ball missing. Intermediate clutch return spring retaining ring out of position. Backout valve <ul style="list-style-type: none"> Valve stuck, nicked or damaged. 	<ol style="list-style-type: none"> Refer to Electrical System Diagnosis in this section. Refer to control pressure test. Install correct apply rod, if required. Determine source of contamination or damage. Service as required. Determine source of contamination. Service as required. Replace check ball. Service as required. Service as required.
3-1, 2-1 Downshift Harsh	<ol style="list-style-type: none"> Low/intermediate servo assembly. <ul style="list-style-type: none"> Damaged servo piston or seal. <ul style="list-style-type: none"> Damaged or missing springs. <ul style="list-style-type: none"> Incorrect servo apply rod length. High or low pressure. No. 9 check ball. <ul style="list-style-type: none"> Ball missing (3-1 only). 	<ol style="list-style-type: none"> Install correct apply rod, if required. Determine source of damage. Service as required. Refer to control pressure test. Replace check ball.
No Drive in Drive Range and No Reverse in Reverse Range	<ol style="list-style-type: none"> Oil level low. Oil pressure. <ul style="list-style-type: none"> Pressure too low. Manual linkage. <ul style="list-style-type: none"> Misadjusted, disconnected, damaged, broken, bent. 	<ol style="list-style-type: none"> Service as required. Perform control pressure test. Service as required. Service as required. Refer to Section 17-02.

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
No Drive in Drive Range and No Reverse in Reverse Range — (Continued)	<p>4. Halfshaft.</p> <ul style="list-style-type: none"> • Damaged splines. <ul style="list-style-type: none"> • Disengaged from transaxle. <p>5. Oil filter.</p> <ul style="list-style-type: none"> • Damaged/missing O-rings. <ul style="list-style-type: none"> • Plugged. <p>6. Oil pump assembly.</p> <ul style="list-style-type: none"> • Oil pump worn or damaged. <ul style="list-style-type: none"> • Oil pump drive shaft damaged. <p>7. Drive chain assembly.</p> <ul style="list-style-type: none"> • Damaged/broken. <p>8. Drive sprocket.</p> <ul style="list-style-type: none"> • Sprocket shaft to converter turbine spline damaged. <p>9. Driven sprocket.</p> <ul style="list-style-type: none"> • Sprocket shaft to direct/intermediate clutch hub damaged. <p>10. Forward clutch assembly.</p> <ul style="list-style-type: none"> • Burned or missing clutch plates. <ul style="list-style-type: none"> • Damaged piston seals or pistons. <ul style="list-style-type: none"> • Forward clutch ball check assembly missing or damaged. • Driven sprocket support seals damaged/missing or holes blocked. • Direct intermediate clutch hub seals damaged/missing or holes blocked. <p>11. Gearset.</p> <ul style="list-style-type: none"> • Front sun. <ul style="list-style-type: none"> • Front/rear carriers <ul style="list-style-type: none"> • Ring gear. <ul style="list-style-type: none"> • Final drive assembly. <p>12. Low one-way clutch.</p> <ul style="list-style-type: none"> • Clutch as two way rotation. <p>13. Output shaft.</p> <ul style="list-style-type: none"> • Damaged splines/misassembled with axles. 	<p>4. Refer to Section 15-22.</p> <p>5. Service or replace as required.</p> <p>6. Determine source of damage. Service as required.</p> <p>7. Determine source of damage. Service as required.</p> <p>8. Determine source of damage. Service as required.</p> <p>9. Determine source of damage. Service as required.</p> <p>10. Determine source of contamination or damage. Service as required.</p> <p>11. Service as required.</p> <p>12. Service as required.</p> <p>13. Determine source of damage. Service as required.</p>
No Drive — Reverse OK	<p>1. 2-3 Servo regulator valve stuck.</p> <p>2. Low/intermediate band assembly.</p> <ul style="list-style-type: none"> • Burned. <ul style="list-style-type: none"> • Broken ends. <p>3. Low/intermediate servo assembly.</p> <ul style="list-style-type: none"> • Wrong apply rod (too short). <ul style="list-style-type: none"> • Piston/seal/rod damaged. <p>4. Low/intermediate servo oil tubes.</p> <ul style="list-style-type: none"> • Damaged (leaking oil). <ul style="list-style-type: none"> • Damaged case bores. 	<p>1. Service as required.</p> <p>2. Determine source of damage. Service as required.</p> <p>3. Install correct apply rod, if required. Determine source of contamination. Service as required.</p> <p>4. Service as required.</p>

AUTOMATIC TRANSAXLE DIAGNOSIS — AXOD-E (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
No Reverse — Drive OK	<ol style="list-style-type: none"> Reverse clutch. <ul style="list-style-type: none"> Burned or missing plates. Reverse apply tube. <ul style="list-style-type: none"> Leaking. Improperly installed. 	<ol style="list-style-type: none"> Determine source of damage. Service as required. Service as required.
No Park Range	<ol style="list-style-type: none"> Damaged park mechanism. <ul style="list-style-type: none"> Chipped or broken parking pawl or park gear. Broken park pawl return spring. Bent or broken actuating rod. Manual linkage misadjusted. 	<ol style="list-style-type: none"> Determine source of damage. Service as required.
Harsh Neutral to Reverse or Harsh Neutral to Drive	<ol style="list-style-type: none"> Oil pressure too high or too low. Engagement control valve. <ul style="list-style-type: none"> Valve stuck, nicked or damaged. No. 3 check ball. <ul style="list-style-type: none"> Ball missing. No. 1 check ball. <ul style="list-style-type: none"> Ball missing / damaged (harsh reverse). Neutral-drive accumulator assembly. <ul style="list-style-type: none"> Accumulator piston stuck. <ul style="list-style-type: none"> Accumulator seal damaged or missing. Accumulator springs damaged or missing. Low/intermediate servo assembly. <ul style="list-style-type: none"> Damaged or missing spring. Incorrect servo apply rod length. 	<ol style="list-style-type: none"> Perform control pressure test. Determine source on contamination. Service as required. Replace check ball. Replace check ball. Determine source of contamination. Service as required. Install correct apply rod, if required. Determine source of contamination or damage. Service as required.
Transaxle Overheats	<ol style="list-style-type: none"> Excessive tow loads Improper fluid level. Incorrect engine idle or performance. Restriction in cooler or lines. Dirty or sticking valve body. Seized converter one-way clutch. Improper clutch or band application, or oil pressure control system. 	<ol style="list-style-type: none"> Check Owner's Manual for tow restriction. Perform fluid level check. Refer to Engine Diagnosis. Service restriction. Clean, service or replace valve body. Replace converter. Perform control pressure test.
Transaxle Fluid Leaks	<ol style="list-style-type: none"> Improper fluid level. Leakage at gaskets, seals, etc. 	<ol style="list-style-type: none"> Perform fluid level check. Remove all traces of lubrication on exposed surfaces of transaxle. Check the vent for free-breathing. Operate transaxle at normal temperatures and inspect for leakage. Service as required.