



# Technical Service Information

CONDITION	POSSIBLE CAUSE	RESOLUTION
Converter clutch does not engage.	<ol style="list-style-type: none"> <li>1. Converter clutch solenoid is not being energized electrically. Wires to solenoid shorted or an open circuit. Transmission case connector not seated. Open or short circuit inside of solenoid. Malfunctioning engine coolant temperature sensor. Malfunctioning throttle position sensor. Malfunctioning manifold absolute pressure sensor. Vacuum line disconnected from the MAP sensor.</li> <li>2. Circuit continuity: 3-4 solenoid wire pin 52 should read approximately 20 ohm resistance.</li> <li>3. Brake switch malfunction.</li> <li>4. Malfunctioning EEC-IV processor.</li> <li>5. Converter clutch solenoid is being energized electronically but foreign material on solenoid valve is preventing valve closure.</li> <li>6. Converter clutch shuttle valve stuck in unlock position (against plug) or too high a load spring.</li> <li>7. Converter clutch shift valve stuck in downshift position.</li> <li>8. Torque converter internal malfunction preventing lock-up piston application.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform EEC-IV diagnostic check — key on — engine off.①</li> <li>2. Check circuit continuity with break-out box, Tool No. T83L-50, and volt ohm meter. Check power pin No. 57 (red lead) and 3-4 pin 52 (black lead).</li> <li>3. Perform EEC-IV Diagnostic Check — Engine running.①</li> <li>4. Run diagnostic check on processor.①</li> <li>5. Remove transmission oil pan. Remove valve body. Remove solenoid and check operation of solenoid. Clean if necessary.</li> <li>6. Remove valve body. Check operation of converter clutch shuttle valve. Remove any contamination. Spring load should be approximately 2.0 lbs. at 0.512 inch.</li> <li>7. Remove valve body. Check operation of converter clutch shift valve. Remove any contamination. Be sure valve moves freely.</li> <li>8. Remove transmission. Replace converter.</li> </ol>
Converter clutch always engaged even at zero road speed. (Symptom: Vehicle will move only when the engine is accelerated to a high RPM and transmission selector level is placed into (D).)	<ol style="list-style-type: none"> <li>1. Converter clutch shift valve stuck in lock position.</li> <li>2. Converter clutch shuttle valve stuck in locked position.</li> <li>3. Lock-up piston in torque converter will not disengage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove transmission valve body. Check to see that converter clutch shift valve moves freely.①</li> <li>2. Remove valve body. Check converter clutch shuttle valve for ease of movement.</li> <li>3. Remove transmission. Replace converter.</li> </ol>
Converter clutch will not disengage on coastdown.	<ol style="list-style-type: none"> <li>1. Malfunctioning throttle position sensor (should unlock at closed throttle).</li> <li>2. Converter clutch solenoid sticking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform EEC-IV Diagnostic Check — key on — engine off.</li> <li>2. Remove valve body. Check operation of solenoid. Replace if required.</li> </ol>

①Refer to the Emission Diagnosis Engine/Electronics Manual — EEC Quick Test procedures\*.  
 \*This manual can be purchased as a separate item.



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	ACTION
Slow initial engagement.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Damaged or improperly adjusted manual linkage.</li> <li>3. Contaminated fluid.</li> <li>4. Improper clutch and band application, or low main control pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Service or adjust manual linkage.</li> <li>3. Perform fluid condition check.</li> <li>4. Perform control pressure test.</li> </ol>
Rough initial engagement in either forward or reverse.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. High engine idle.</li> <li>3. Automatic choke on (warm temp.).</li> <li>4. Looseness in the driveshaft. U-joints or engine mounts.</li> <li>5. Improper clutch or band application, or oil control pressure.</li> <li>6. Sticking or dirty valve body.</li> <li>7. Converter clutch not disengaging.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Adjust idle to specification.</li> <li>3. Service as required.</li> <li>4. Service as required.</li> <li>5. Perform control pressure test.</li> <li>6. Clean, service or replace valve body.</li> <li>7. Check converter clutch engagement/disengagement.</li> </ol>
Harsh engagements — (warm engine).	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Engine curb idle speed too high.</li> <li>3. Valve body bolts — loose/too tight.</li> <li>4. Valve body dirty/sticking valves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Check engine curb idle speed.</li> <li>3. Tighten to specification.</li> <li>4. Determine source of contamination. Service as required.</li> </ol>
No/delayed forward engagement (reverse OK).	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Manual linkage — misadjusted/damaged.</li> <li>3. Low main control pressure (leakage). Forward clutch center support seal rings leaking.</li> <li>4. Forward clutch assembly burnt/damaged/leaking. Check ball in cylinder/leaking piston seal rings.</li> <li>5. Valve body bolts — loose/too tight.</li> <li>6. Valve body dirty/sticking valves.</li> <li>7. Transmission filter plugged.</li> <li>8. Pump damaged, leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Check and adjust or service as required.</li> <li>3. Control pressure test, note results.</li> <li>4. Perform air pressure test.</li> <li>5. Tighten to specification.</li> <li>6. Determine source of contamination. Service as required.</li> <li>7. Replace filter.</li> <li>8. Visually inspect pump gear. Replace pump if necessary.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION (Cont'd.)

CONDITION	POSSIBLE CAUSE	ACTION
No/delayed reverse engagement (forward OK).	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Manual linkage misadjusted/damaged.</li> <li>3. Low main control pressure in reverse.</li> <li>4. Reverse clutch assembly burnt/worn/leaking check ball in piston/leaking piston seal rings.</li> <li>5. Valve body bolts loose/too tight.</li> <li>6. Valve body dirty/sticking valves.</li> <li>7. Transmission filter plugged.</li> <li>8. Pump damaged.</li> <li>9. Low/reverse servo piston seal cut/leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Check and adjust or service as required.</li> <li>3. Control pressure test.</li> <li>4. Perform air pressure test.</li> <li>5. Tighten to specification.</li> <li>6. Determine source of contamination. Service as required.</li> <li>7. Replace filter.</li> <li>8. Visually inspect pump gears. Replace pump if necessary.</li> <li>9. Perform air pressure test. Check and replace piston seal. Check and replace low/reverse band.</li> </ol>
No engagement or drive in forward (any position) or reverse.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Low main control pressure.</li> <li>3. Mechanical damage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Control pressure test.</li> <li>3. Check splines on turbine, input shaft and O/D carrier, O/D one-way clutch, center shaft, forward clutch, forward carrier and output shaft. Replace if necessary.</li> </ol>
No engagement/drive in D or D (2 and 1 OK)	<ol style="list-style-type: none"> <li>1. Manual linkage misadjusted.</li> <li>2. Rear one-way clutch damaged.</li> <li>3. Dirty/contaminated transmission fluid.</li> <li>4. Overdrive one-way clutch damage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust manual linkage.</li> <li>2. Replace rear one-way clutch.</li> <li>3. Clean transmission and valve body.</li> <li>4. Repair or replace.</li> </ol>
Vehicle creeping in neutral.	<ol style="list-style-type: none"> <li>1. Forward clutch failing to disengage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean transmission.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE SOURCE	ACTION
No/delayed reverse engagement and/or no engine braking in manual low (1).	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Linkage out of adjustment.</li> <li>3. Low reverse servo piston seal leaking.</li> <li>4. Low reverse band burnt or worn.</li> <li>5. Overdrive clutch, overdrive one-way clutch damaged.</li> <li>6. Polished, glazed low/reverse band or drum.</li> <li>7. Rear one-way clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Service or adjust linkage.</li> <li>3. Check and replace piston seal.</li> <li>4. Perform air pressure test.</li> <li>5. Replace as required.</li> <li>6. Service or replace as required.</li> <li>7. Replace.</li> </ol>
No engine braking in manual second gear.	<ol style="list-style-type: none"> <li>1. Intermediate band out of adjustment.</li> <li>2. Improper band or clutch application, or oil pressure control system.</li> <li>3. Intermediate servo leaking.</li> <li>4. Overdrive clutch, O/D one-way clutch damaged.</li> <li>5. Glazed band.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust intermediate band.</li> <li>2. Perform control pressure test.</li> <li>3. Perform air pressure test of intermediate servo for leakage. Service as required.</li> <li>4. Replace as required.</li> <li>5. Service or replace as required.</li> </ol>
Forward engagement slips/shudders/chatters.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Manual linkage misadjusted/damaged.</li> <li>3. Low main control pressure.</li> <li>4. Valve body bolts — loose/too tight.</li> <li>5. Valve body dirty/sticking valves.</li> <li>6. Forward clutch piston ball check not seating/leaking.</li> <li>7. Forward clutch piston seals cut/worn.</li> <li>8. O/D one-way clutch damaged.</li> <li>9. Rear one-way clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Check and adjust or service as required.</li> <li>3. Control pressure test.</li> <li>4. Tighten to specification.</li> <li>5. Determine source of contamination. Service as required.</li> <li>6. Replace forward clutch piston. Service transmission as required.</li> <li>7. Replace seal and service clutch as required.</li> <li>8. Replace as required.</li> <li>9. Determine cause of condition. Service as required.</li> </ol>



## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE SOURCE	ACTION
Reverse shudder/chatters/slips.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Low main control pressure in reverse.</li> <li>3. Low-reverse servo leaking.</li> <li>4. O/D and/or rear one-way clutch damaged.</li> <li>5. O/D and/or rear reverse-high clutch drum bushing damaged.</li> <li>6. O/D and/or rear reverse-high clutch center support seal rings/ ring grooves worn/damaged.</li> <li>7. O/D and/or rear reverse-high clutch piston seals cut/worn.</li> <li>8. Low-reverse servo piston damaged/worn.</li> <li>9. Low-reverse band out of adjustment or damaged.</li> <li>10. Looseness in the driveshaft, U-joints or engine mounts.</li> <li>11. Low/reverse servo piston/seals or bores damaged.</li> <li>12. Contamination blockage in cooler lines, in-tank radiator or auxiliary cooler.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Control pressure test.</li> <li>3. Air pressure test. Visually inspect seal rings and piston bore.</li> <li>4. Determine cause of condition. Service as required.</li> <li>5. Determine cause of condition. Service as required.</li> <li>6. Determine cause of condition. Service as required.</li> <li>7. Determine cause of condition. Service as required.</li> <li>8. Service as required.</li> <li>9. Adjust and inspect low-reverse band.</li> <li>10. Service as required.</li> <li>11. Perform air pressure check.</li> <li>12. Perform transmission fluid cooler flow check.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
<ul style="list-style-type: none"> <li>No drive, slips or chatters in first gear in <b>D</b>. All other gears normal.</li> </ul>	<ol style="list-style-type: none"> <li>Damaged or worn rear one-way clutch.</li> </ol>	<ol style="list-style-type: none"> <li>Service or replace rear one-way clutch.</li> </ol>
<ul style="list-style-type: none"> <li>No drive, slips or chatters in second gear.</li> </ul>	<ol style="list-style-type: none"> <li>Intermediate band out of adjustment.</li> <li>Improper band or clutch application, or control pressure.</li> <li>Damaged or worn intermediate servo piston and/or internal leaks.</li> <li>Dirty or sticking valve body.</li> <li>Polished, glazed intermediate band or drum.</li> </ol>	<ol style="list-style-type: none"> <li>Adjust intermediate band.</li> <li>Perform control pressure test.</li> <li>Perform air pressure test.</li> <li>Clean, service or replace valve body.</li> <li>Replace or service as required.</li> </ol>
<ul style="list-style-type: none"> <li>Starts up in 2nd or 3rd.</li> </ul>	<ol style="list-style-type: none"> <li>Improper band and/or clutch application, or oil pressure control system.</li> <li>Damaged or worn governor. Sticking governor.</li> <li>Valve body loose.</li> <li>Dirty or sticking valve body.</li> <li>Cross leaks between valve body and case mating surface.</li> </ol>	<ol style="list-style-type: none"> <li>Perform control pressure test.</li> <li>Perform governor check. Replace or service governor, clean screen.</li> <li>Tighten to specification.</li> <li>Clean, service or replace valve body.</li> <li>Service or replace valve body and or case as required.</li> </ol>
<ul style="list-style-type: none"> <li>Shift points incorrect.</li> </ul>	<ol style="list-style-type: none"> <li>Improper fluid level.</li> <li>Vacuum line damaged, clogged or leaks.</li> <li>Improper operation of EGR system.</li> <li>Improper speedometer gear installed.</li> <li>Improper clutch or band application, or oil pressure control system.</li> <li>Damaged or worn governor.</li> <li>Vacuum diaphragm bent, sticking or leaks.</li> <li>Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>Perform fluid level check.</li> <li>Perform vacuum supply test.</li> <li>Service or replace as required.</li> <li>Replace gear.</li> <li>Perform shift test and control pressure test.</li> <li>Service or replace governor — clean screen.</li> <li>Service or replace as required.</li> <li>Clean, service or replace valve body.</li> </ol>
<ul style="list-style-type: none"> <li>All upshifts harsh/delayed or no upshifts.</li> </ul>	<ol style="list-style-type: none"> <li>Improper fluid level.</li> <li>Manual linkage — misadjusted damaged.</li> <li>Governor sticking.</li> <li>Main control pressure too high.</li> <li>Valve body bolts — loose/too tight.</li> <li>Valve body dirty/sticking valves.</li> <li>Vacuum leak to diaphragm unit.</li> <li>Vacuum diaphragm bent, sticking, leaks.</li> </ol>	<ol style="list-style-type: none"> <li>Perform fluid level check.</li> <li>Check and adjust or service as required.</li> <li>Perform governor test. Service as required.</li> <li>Control pressure test. Service as required.</li> <li>Tighten to specification.</li> <li>Determine source of contamination. Service as required.</li> <li>Perform vacuum supply and diaphragm test. Check vacuum lines to diaphragm unit. Service as required.</li> <li>Check diaphragm unit. Service as required.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
Mushy/early all upshifts pile up/ upshifts	<ol style="list-style-type: none"> <li>1. Low main control pressure.</li> <li>2. Valve body bolts loose/too tight.</li> <li>3. Valve body or throttle control valve sticking.</li> <li>4. Governor valve sticking.</li> <li>5. Kickdown linkage misadjusted, sticking or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Control pressure test. Note results.</li> <li>2. Tighten to specification.</li> <li>3. Determine source of contamination. Service as required.</li> <li>4. Perform governor test. Repair as required.</li> <li>5. Adjust linkage, service as required.</li> </ol>
No 1-2 upshift.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Kickdown system damaged.</li> <li>3. Manual linkage — misadjusted damaged.</li> <li>4. Governor valve sticking.</li> <li>5. Intermediate band out of adjustment.</li> <li>6. Vacuum leak to diaphragm unit.</li> <li>7. Vacuum diaphragm bent, sticking, leaks.</li> <li>8. Valve body bolts — loose/too tight.</li> <li>9. Valve body dirty/sticking valves.</li> <li>10. Intermediate band and/or servo assembly burnt.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Replace damaged parts.</li> <li>3. Check and adjust or service as required.</li> <li>4. Perform governor test. Service as required.</li> <li>5. Adjust intermediate band.</li> <li>6. Check vacuum lines to diaphragm. Service as required.</li> <li>7. Check diaphragm unit. Service as necessary.</li> <li>8. Tighten to specification.</li> <li>9. Determine source of contamination. Service as required.</li> <li>10. Perform air pressure test.</li> </ol>
Rough/harsh/delayed 1-2 upshift.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Poor engine performance.</li> <li>3. Kickdown linkage misadjusted.</li> <li>4. Intermediate band out of adjustment.</li> <li>5. Main control pressure too high.</li> <li>6. Governor valve sticking.</li> <li>7. Damaged intermediate servo.</li> <li>8. Engine vacuum leak.</li> <li>9. Valve body bolts — loose/too tight.</li> <li>10. Valve body dirty/sticking valves.</li> <li>11. Vacuum leak to diaphragm unit.</li> <li>12. Vacuum diaphragm bent, sticking, leaks.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Tune engine.</li> <li>3. Adjust linkage.</li> <li>4. Adjust intermediate band.</li> <li>5. Control pressure test. Note results.</li> <li>6. Perform governor test. Service as required.</li> <li>7. Air pressure check intermediate servo.</li> <li>8. Check engine vacuum lines. Check vacuum diaphragm unit. Perform vacuum supply and diaphragm test. Service as necessary.</li> <li>9. Tighten to specifications.</li> <li>10. Determine source of contamination. Service as required.</li> <li>11. Check vacuum lines to diaphragm unit. Service as required.</li> <li>12. Check diaphragm unit. Service as necessary.</li> </ol>



## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
Mush/early/soft/slipping 1-2 upshift.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Main regulator or throttle valve stuck.</li> <li>3. Incorrect engine performance.</li> <li>4. Intermediate band out of adjustment.</li> <li>5. Low main control pressure.</li> <li>6. Valve body bolts loose/too tight.</li> <li>7. Valve body dirty/sticking valves.</li> <li>8. Governor valve sticking.</li> <li>9. Damaged intermediate servo or band.</li> <li>10. Polished, glazed intermediate band or drum.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Service as required.</li> <li>3. Tune engine as required.</li> <li>4. Adjust intermediate band.</li> <li>5. Control pressure test. Note results.</li> <li>6. Tighten to specification.</li> <li>7. Determine source of contamination. Service as required.</li> <li>8. Perform governor test. Service as required.</li> <li>9. Perform air pressure test. Service as required.</li> <li>10. Service or replace as required.</li> </ol>
No 2-3 upshift.	<ol style="list-style-type: none"> <li>1. Low fluid level.</li> <li>2. Kickdown system damaged.</li> <li>3. Low main control pressure to reverse-high clutch.</li> <li>4. Valve body bolts — loose/too tight.</li> <li>5. Valve body dirty/sticking valves.</li> <li>6. Reverse/high clutch assembly burnt/worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Replace damaged parts.</li> <li>3. Control pressure test. Note results.</li> <li>4. Tighten to specification.</li> <li>5. Determine source of contamination, then service as required.</li> <li>6. Determine cause of condition. Service as required.</li> </ol>
Harsh/delayed 2-3 upshift.	<ol style="list-style-type: none"> <li>1. Incorrect engine performance.</li> <li>2. Engine vacuum leak.</li> <li>3. Kickdown system damaged.</li> <li>4. Damaged or worn intermediate servo release and reverse-high clutch piston check ball.</li> <li>5. Valve body bolts — loose/too tight.</li> <li>6. Valve body dirty/sticking valves.</li> <li>7. Vacuum diaphragm bent, sticking, leaks.</li> <li>8. Throttle valve stuck.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine tune-up.</li> <li>2. Check engine vacuum lines. Check vacuum diaphragm unit. Perform vacuum supply and diaphragm test. Service as necessary.</li> <li>3. Replace damaged parts.</li> <li>4. Air pressure test the intermediate servo apply and release the reverse-high clutch piston check ball. Service as required.</li> <li>5. Tighten to specification.</li> <li>6. Determine source of condition. Service as required.</li> <li>7. Check diaphragm. Replace as necessary.</li> <li>8. Service as required.</li> </ol>





# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
Soft/early/mushy 2-3 upshift.	<ol style="list-style-type: none"> <li>1. Kickdown system damaged.</li> <li>2. Valve body bolts loose/too tight.</li> <li>3. Valve body dirty/sticking valves.</li> <li>4. Vacuum diaphragm or TV control rod bent, sticking, leaks.</li> <li>5. Throttle valve stuck.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged parts.</li> <li>2. Tighten to specification.</li> <li>3. Determine source of contamination. Service as required.</li> <li>4. Check diaphragm and rod. Replace as necessary.</li> <li>5. Service as required.</li> </ol>
Erratic shifts.	<ol style="list-style-type: none"> <li>1. Poor engine performance.</li> <li>2. Vacuum line damaged.</li> <li>3. Valve body bolts — loose/too tight.</li> <li>4. Valve body dirty/sticking valves.</li> <li>5. Governor valve stuck.</li> <li>6. Output shaft collector body seal rings damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine tune-up.</li> <li>2. Service as required.</li> <li>3. Tighten to specification.</li> <li>4. Air pressure test, note results. Determine source of contamination. Service as required.</li> <li>5. Perform governor test. Service as required.</li> <li>6. Service as required.</li> </ol>
Shifts 1-3 in $\textcircled{D}$ or D.	<ol style="list-style-type: none"> <li>1. Intermediate band out of adjustment.</li> <li>2. Damaged intermediate servo and/or internal leaks.</li> <li>3. Improper band or clutch application, or oil pressure control system.</li> <li>4. Polished glazed band or drum.</li> <li>5. Dirty/sticky valve body, or governor.</li> <li>6. Governor valve stuck.</li> <li>7. Kickdown system out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust band.</li> <li>2. Perform air pressure test. Service front servo and/or internal leaks.</li> <li>3. Perform control pressure test.</li> <li>4. Service or replace band or drum.</li> <li>5. Clean, service or replace valve body or governor.</li> <li>6. Perform governor test. Service as required.</li> <li>7. Adjust kickdown system.</li> </ol>
Engine over-speeds on 2-3 shift.	<ol style="list-style-type: none"> <li>1. Kickdown system damaged.</li> <li>2. Improper band or clutch application, or oil pressure control system.</li> <li>3. Damaged or worn reverse high clutch and/or intermediate servo piston.</li> <li>4. Intermediate servo piston seals cut, leaking.</li> <li>5. Dirty or sticking valve body.</li> <li>6. Throttle valve stuck.</li> <li>7. Damaged vacuum diaphragm.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged parts.</li> <li>2. Perform control pressure test.</li> <li>3. Perform air pressure test. Service as required.</li> <li>4. Replace seals. Check for leaks.</li> <li>5. Clean, service or replace valve body.</li> <li>6. Service as required.</li> <li>7. Replace vacuum diaphragm.</li> </ol>



# Technical Service Information

## DIAGNOSIS – AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
Rough/shudder 3-2 shift at closed throttle in D.	<ol style="list-style-type: none"> <li>1. Incorrect engine idle or performance.</li> <li>2. Improper kickdown linkage adjustment.</li> <li>3. Improper clutch or band application or oil pressure control system.</li> <li>4. Improper governor operation.</li> <li>5. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tune, and adjust engine idle.</li> <li>2. Service or adjust kickdown linkage.</li> <li>3. Perform control pressure test.</li> <li>4. Perform governor test. Service as required.</li> <li>5. Clean, service or replace valve body.</li> </ol>
No 3-4 upshift.	<ol style="list-style-type: none"> <li>1. 3-4 shift solenoid is not being energized electrically. Wires shorted or an open circuit.  Circuit continuity: 3-4 solenoid wire pin 52 should read approx. 20 ohm resistance.</li> <li>2. Trans. case connector and harness connector not seated.</li> <li>3. Malfunction of: <ul style="list-style-type: none"> <li>● EEC IV processor</li> <li>● Vacuum line disconnected from map sensor.</li> <li>● Map sensor.</li> <li>● Throttle position sensor.</li> <li>● Vehicle speed sensor.</li> </ul> </li> <li>4. Check O.D. band adjustment.</li> <li>5. Overdrive servo damaged or leaking.</li> <li>6. Polished or glazed overdrive band or drum.</li> <li>7. Contaminated or sticking 3-4 shift valve.</li> <li>8. Contaminated and sticking 3-4 solenoid.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform EEC IV diagnostic check – key on – engine off.  Check circuit continuity with breakout box tool no. T83L-50, and volt ohm meter.  Check power pin no. 57 (red lead) and 3-4 pin 52 (black lead).</li> <li>2. If not seated, check for contamination, clean and reconnect.  Perform EEC IV diagnostic check – key on – engine off.</li> <li>3. Perform EEC IV diagnostic check – key on – engine off.</li> <li>4. Reset band to 2.0 turns for 2.3, 2.9 and 3.0L or 3.5 turns for 4.0L applications.</li> <li>5. Check cover seal and piston assembly – replace if required.</li> <li>6. Service or replace.</li> <li>7. Clean or replace valve body. Check 3-4 shift valve for freedom of movement.</li> <li>8. Clean or replace 3-4 solenoid and filter sleeve assembly.</li> </ol>
Slipping 4 <sup>th</sup> Gear	<ol style="list-style-type: none"> <li>1. Check O.D. band adjustment.</li> <li>2. Overdrive servo damaged or leaking.</li> <li>3. Polished or glazed overdrive band or drum.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset band to 2.0 turns for 2.3, 2.9 and 3.0L, or 3.5 turns for 4.0L applications.</li> <li>2. Check cover seal and piston assembly – replace if required.</li> <li>3. Service or replace.</li> </ol>
Engine stall speed exceeded in (D), D or R.	<ol style="list-style-type: none"> <li>1. Vacuum system.</li> <li>2. Low main control pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and service vacuum system.</li> <li>2. Control pressure test. Check and clean valve body. Replace valve body gasket. Check or service pump.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION — (Cont'd.)

CONDITION	POSSIBLE CAUSE	RESOLUTION
Engine stall speed exceeded in R. OK in <b>(D)</b> , D, 2 and 1.	<ol style="list-style-type: none"> <li>1. Low/reverse servo/band damaged.</li> <li>2. Reverse and high clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine braking in 1. If not OK, check service or replace if required the low/reverse servo and band.</li> <li>2. If low/reverse servo OK, check and repair reverse and high clutch.</li> </ol>
Engine stall speed exceeded in <b>(D)</b> or D. OK in R.	<ol style="list-style-type: none"> <li>1. O/D one-way clutch or rear one-way clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine stall speeds in 2 and 1. If OK, repair O/D or rear one-way clutches. Clean transmission.</li> </ol>
1-2 upshift is above 64 km/h (40 mph) at moderate acceleration.	<ol style="list-style-type: none"> <li>1. Vacuum system.</li> <li>2. Main control pressure.</li> <li>3. Governor damaged or worn.</li> <li>4. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and service hoses and vacuum diaphragm if required.</li> <li>2. Control pressure test.</li> <li>3. Perform governor check. Replace or service governor.</li> <li>4. Clean, service or replace valve body.</li> </ol>



## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
Kickdown shift speeds too early.	<ol style="list-style-type: none"> <li>1. Kickdown system damaged.</li> <li>2. Main control pressure.</li> <li>3. Governor damaged or worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged parts.</li> <li>2. Perform control pressure test.</li> <li>3. Perform governor check. Replace or service governor.</li> </ol>
No kickdown into 2nd gear between 64-100 km/h (40-60 mph) in <b>D</b> or D.	<ol style="list-style-type: none"> <li>1. Kickdown system damaged.</li> <li>2. Main control pressure.</li> <li>3. Dirty or sticking valve body.</li> <li>4. Kickdown cable over adjusted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged parts.</li> <li>2. Perform control pressure test.</li> <li>3. Check kickdown valve. Clean or replace valve body.</li> <li>4. Adjust kickdown cable.</li> </ol>
No shift into 2nd gear with accelerator 3/4 depressed at 40 km/h (25 mph) in <b>D</b> or D.	<ol style="list-style-type: none"> <li>1. Main control pressure.</li> <li>2. Governor damaged or worn.</li> <li>3. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Control pressure test.</li> <li>2. Check governor.</li> <li>3. Clean or replace valve body.</li> </ol>
When moving selector from <b>D</b> or D to manual 1, at 86 km/h (55 mph) with accelerator released, no braking felt from downshift to 2nd gear.	<ol style="list-style-type: none"> <li>1. Main control pressure.</li> <li>2. Intermediate band out of adjustment.</li> <li>3. Overdrive clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform control pressure test.</li> <li>2. Adjust band. Check intermediate servo.</li> <li>3. Repair or replace overdrive clutch.</li> </ol>
When moving selector from <b>D</b> or D to manual 1, at 86 km/h (55 mph) with accelerator released, shift into 1st gear occurs over 72 km/h (45 mph).	<ol style="list-style-type: none"> <li>1. Main control pressure.</li> <li>2. Dirty or sticking valve body.</li> <li>3. Governor damaged or worn.</li> <li>4. Kickdown linkage misadjusted or stuck.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform main control pressure test.</li> <li>2. Clean or replace valve body.</li> <li>3. Perform governor check. Replace or service governor.</li> <li>4. Adjust or repair kickdown linkage.</li> </ol>
When moving selector from <b>D</b> or D to manual 1, at 86 km/h (55 mph) with accelerator released. First gear shift occurs under 24 km/h (15 mph)	<ol style="list-style-type: none"> <li>1. Main control pressure.</li> <li>2. Dirty or sticking valve body.</li> <li>3. Low/reverse servo damaged.</li> <li>4. Governor damaged or worn.</li> <li>5. Overdrive clutch damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform control pressure test.</li> <li>2. Clean or replace valve body.</li> <li>3. Check and service as required.</li> <li>4. Perform governor check. Replace or service governor.</li> <li>5. Repair or replace as required.</li> </ol>



# Technical Service Information

## DIAGNOSIS — AUTOMATIC TRANSMISSION

CONDITION	POSSIBLE CAUSE	RESOLUTION
No forced downshifts.	<ol style="list-style-type: none"> <li>1. Kickdown cable damaged.</li> <li>2. Kickdown cable over adjusted.</li> <li>3. Damaged internal kickdown linkage.</li> <li>4. Improper clutch or band application, or oil pressure control system.</li> <li>5. Dirty or sticking governor.</li> <li>6. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged parts.</li> <li>2. Adjust kickdown cable.</li> <li>3. Service internal kickdown linkage.</li> <li>4. Perform control pressure test.</li> <li>5. Service or replace governor, clean screen.</li> <li>6. Clean, service, or replace valve body.</li> </ol>
Engine over-speeds on 3-2 downshift.	<ol style="list-style-type: none"> <li>1. Linkage out of adjustment.</li> <li>2. Intermediate band out of adjustment.</li> <li>3. Improper band or clutch application, and one way clutch, or oil pressure control system.</li> <li>4. Damaged or worn intermediate servo.</li> <li>5. Polished, glazed band or drum.</li> <li>6. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Service or adjust linkage.</li> <li>2. Adjust intermediate band.</li> <li>3. Perform control pressure test service clutch.</li> <li>4. Air pressure test check the intermediate servo. Service servo and or seals.</li> <li>5. Service or replace as required.</li> <li>6. Clean, service or replace valve body.</li> </ol>
Shift efforts high.	<ol style="list-style-type: none"> <li>1. Manual shaft linkage damaged/ misadjusted.</li> <li>2. Inner manual lever nut loose.</li> <li>3. Manual lever retainer pin damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and adjust or service as required.</li> <li>2. Tighten nut to specification.</li> <li>3. Adjust linkage and install pin.</li> </ol>
Transmission overheats.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Incorrect engine idle, or performance.</li> <li>3. Improper clutch or band application, or oil pressure control system.</li> <li>4. Restriction in cooler or lines.</li> <li>5. Seized converter one-way clutch.</li> <li>6. Dirty or sticking valve body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Tune, or adjust engine idle.</li> <li>3. Perform control pressure test.</li> <li>4. Service restriction.</li> <li>5. Replace one-way clutch.</li> <li>6. Clean, service or replace valve body.</li> </ol>
Transmission leaks.	<ol style="list-style-type: none"> <li>1. Case breather vent.</li> <li>2. Leakage at gasket, seals, etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the vent for free breathing. Repair as required.</li> <li>2. Remove all traces of lube on exposed surfaces of transmission. Check the vent for free breathing. Operate transmission at normal temperatures and perform fluid leakage check. Service as required.</li> </ol>
Poor vehicle acceleration.	<ol style="list-style-type: none"> <li>1. Poor engine performance.</li> <li>2. Torque converter one-way clutch slipping.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine tune up.</li> <li>2. Replace torque converter.</li> </ol>
Transmission noisy — valve resonance.  NOTE: Gauges may aggravate any hydraulic resonance. Remove gauge and check for resonance level.	<ol style="list-style-type: none"> <li>1. Improper fluid level.</li> <li>2. Linkage out of adjustment.</li> <li>3. Improper band or clutch application, or oil pressure control system.</li> <li>4. Cooler lines grounding.</li> <li>5. Dirty or sticking valve body.</li> <li>6. Internal leakage or pump cavitation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform fluid level check.</li> <li>2. Service or adjust linkage.</li> <li>3. Perform control pressure test.</li> <li>4. Free up cooler lines.</li> <li>5. Clean, service or replace valve body.</li> <li>6. Service as required.</li> </ol>
Engine stalls when shifting into forward or reverse.	<ol style="list-style-type: none"> <li>1. Low engine idle.</li> <li>2. Broken converter clutch shuttle valve spring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Verify that engine idle speeds are set to specifications.</li> <li>2. Replace converter clutch shuttle valve spring.</li> </ol>



## TRANSMISSION NOISY — OTHER THAN VALVE RESONANCE

TEST STEP		RESULT	ACTION TO TAKE
1	<b>VERIFY NOISE</b>  • Check for gear noise to verify if within normal range.	Noise within normal range <input checked="" type="radio"/>	Normal condition.
		Noise not within normal range <input type="radio"/>	GO to 2.
2	<b>LINKAGE CHECK</b>  • Check linkage for proper adjustment, wear or damage.	<input checked="" type="radio"/>	GO to 3.
		<input type="radio"/>	SERVICE, REPLACE and/or ADJUST linkage as required.
3	<b>FLUID CHECK</b>  • Check the fluid for proper level and/or contamination.①	Fluid level within cross-hatched area at operating temperature <input checked="" type="radio"/>	GO to 4.
		Fluid level beneath cross-hatched area <input type="radio"/>	ADD specified fluid to bring level within cross-hatched area at operating temperature.
		Fluid contaminated <input type="radio"/>	DISASSEMBLE, CLEAN and SERVICE transmission. FLUSH torque converter and cooler.
4	<b>STALL TEST</b>  • Perform the Stall Test as described under Stall Test in the Diagnosis and Testing portion of this section.	Noise stops <input checked="" type="radio"/>	GO to 5.
		Noise doesn't stop <input type="radio"/>	EXAMINE torque converter and pump. SERVICE or REPLACE as required. Also CHECK for loose torque converter to flywheel housing bolts or nuts.

①For definition of contamination, refer to Transmission Fluid Condition in the Diagnosis and Testing portion of this section.



## TRANSMISSION NOISY — OTHER THAN VALVE RESONANCE (Cont'd.)

TEST STEP		RESULT	ACTION TO TAKE
<b>5</b>	<b>NOISE CHECK</b>		
<ul style="list-style-type: none"> <li>Run transmission in all gears and check for noise.</li> </ul>		Noise doesn't stop in any gear	GO to 6.
		Noise stops in Low and R only	SERVICE forward planetary and/or one-way clutch.
		Noise stops in 2, HIGH and R only	SERVICE reverse planetary.
		HIGH only	SERVICE both planetaries.
<b>6</b>	<b>SPEEDOMETER GEAR</b>		
<ul style="list-style-type: none"> <li>Remove the speedometer gear and check for noise.</li> </ul>		Noise stops	REPLACE speedometer gear.
		Noise doesn't stop	CHECK extension housing bushing, seal or driveshaft. SERVICE or REPLACE as required.

## CLEANING AND INSPECTION

### Transmission Fluid Drain and Refill

Normal maintenance and lubrication requirements do not necessitate periodic automatic transmission fluid changes. If major service, such as a clutch band, bearing, etc., is required in the transmission, it will have to be removed for service. **At this time the converter, transmission cooler and cooler lines must be thoroughly flushed to remove any dirt.**

When used under continuous or severe conditions, the transmission should be drained and refilled with fluid as specified. Before adding fluid, be sure that the correct type will be used. If in doubt, check the Safety Standard Certification Label affixed to the left front door face panel or door pillar for the Transmission Code.

For A4LD Automatic Transmission (Code T), use fluid that meets Ford Specification, Motorcraft Mercon® Multi-Purpose Automatic Transmission Fluid XT-2-QDX or DDX (ESP-M2C 166-H) or equivalent.

**CAUTION: Use of a fluid other than specified above could result in transmission malfunction and/or failure.**

When filling a dry transmission and converter, refer to Specifications for capacity. Check the fluid level following the room temperature checking procedures.

Procedures for partial drain and refill, due to in-vehicle service operation, are as follows.

- Loosen the pan attaching bolts to drain the fluid from the transmission.
- When all fluid has drained from the transmission, remove and thoroughly clean the pan. Discard pan gasket.
- Place a new gasket on the pan, and install pan on transmission.
- Add 2.8 liters (3 quarts) of fluid to transmission through the filler tube.
- Check the fluid level following the room temperature checking procedures.

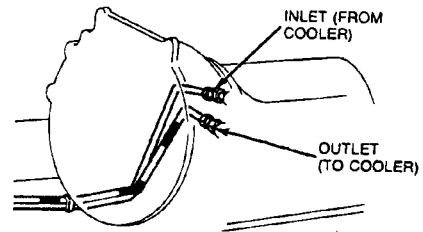
If it is necessary to perform a complete drain and refill, it will be necessary to remove the residual fluid from the cooler lines and flush cooler lines completely.

## Transmission Fluid Lines

When one or more of the fluid cooler steel tubes must be replaced, each replacement tube must be fabricated from the same size steel tubing as the original line.

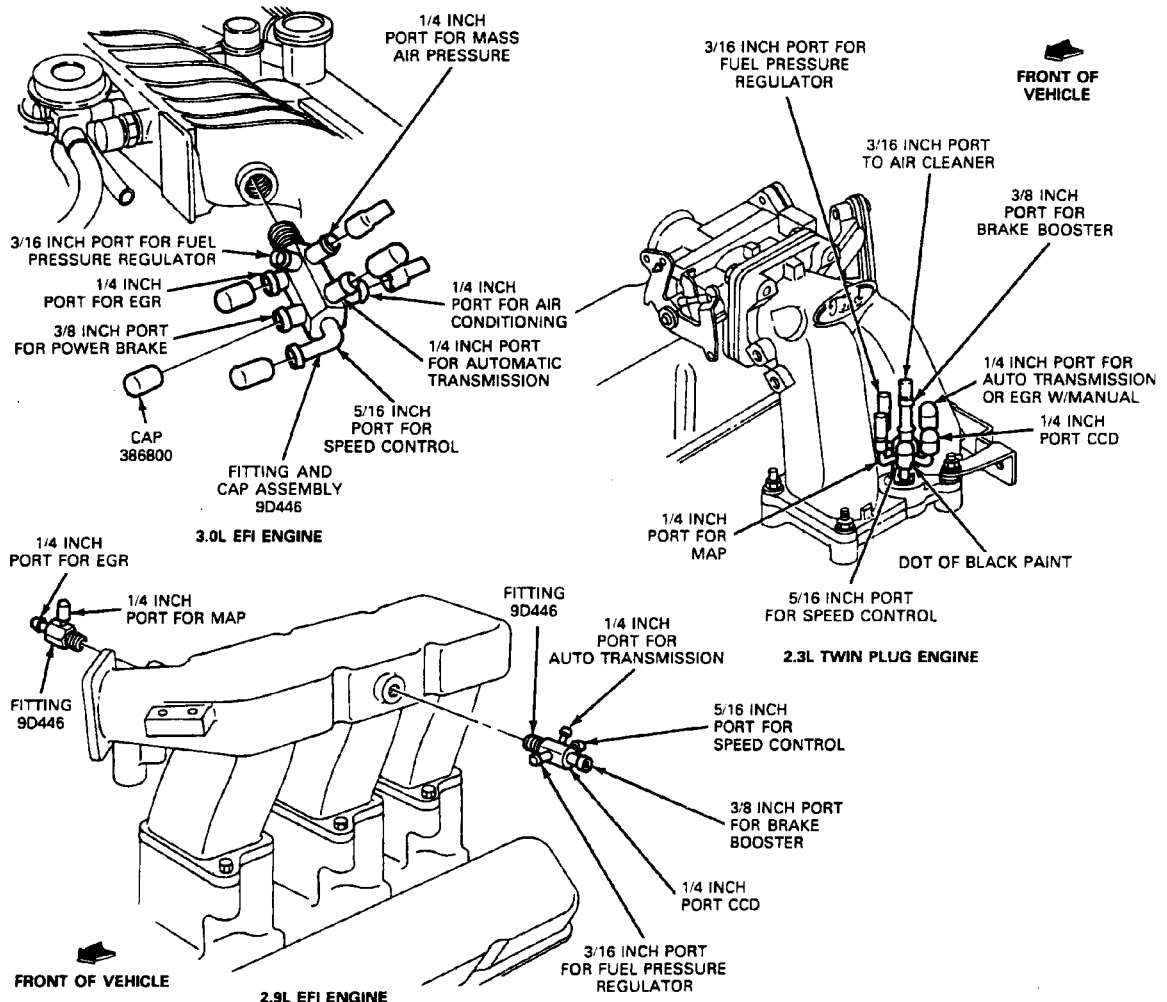
Using the old tube as a guide, bend the new tube as required. Add the necessary fittings, and install the tube. Make sure that the replacement tube has adequate clearance to other components, especially the exhaust system and parts having sharp edges.

After the fittings have been tightened, add fluid as needed, and check for fluid leaks.



## Vacuum Tubes

Refer to the following illustration for vacuum tube installation.





## Transmission

It is important to completely clean all transmission components, including converter, cooler, cooler lines, main control valve body, governor, all clutches, and all check balls after any transmission servicing that generates contamination. These contaminants are a major cause for recurring transmission troubles and must be removed from the system before the transmission is put back into service. The cleaning of debris from the direct clutch check ball is often omitted. This omission can lead to a repeat servicing of the transmission.

Clean the parts with suitable solvent and use moisture-free air to dry off all the parts and clean out fluid passages.

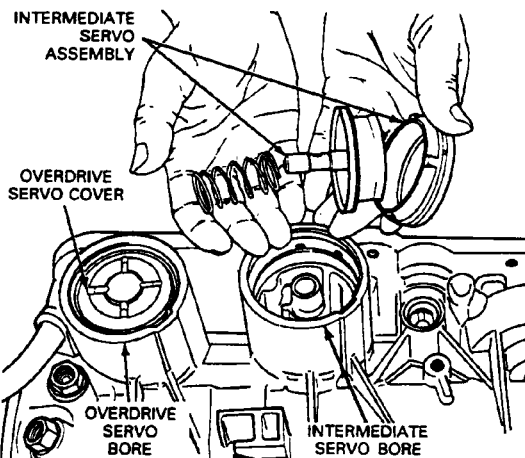
The composition clutch plates, bands and synthetic seals should not be cleaned in a vapor degreaser or with any type of detergent solution. To clean these parts, wipe them off with a lint-free cloth. New clutch plates or bands should be soaked in transmission fluid specified for that transmission type for fifteen minutes before being assembled.

## Control Valve Body

1. Clean all parts thoroughly in clean solvent, and blow dry with moisture-free compressed air.
2. Inspect all valve and plug bores for scores. Check all fluid passages for obstructions. Inspect the check valve for free movement. Inspect all mating surfaces for burrs or distortion. Inspect all plugs and valves for burrs or scores. Use crocus cloth to polish valves and plugs. Avoid rounding the sharp edges of the valves and plugs with the cloth.
3. Inspect all springs for distortion. Check all valves and plugs for free movement in their respective bores. Valves and plugs, when dry, must fall from their own weight in their respective bores.
4. Roll the manual valve on a flat surface to check for bent condition.

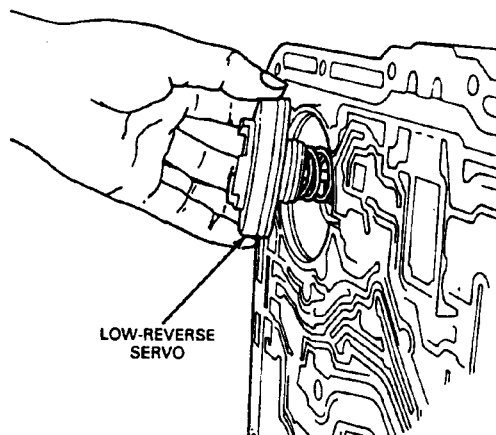
## Overdrive and Intermediate Servos

1. Inspect the servo bore for cracks, the servo piston for damage, and the piston bore and servo piston stem for scores. Check fluid passages for obstructions. Replace damaged seals.
  2. Check the servo spring and servo band strut(s) for distortion.
  3. Inspect the cover seal and gasket cover sealing surface for damage.
  4. Inspect the band lining for excessive wear and for proper bonding to the metal band.
- NOTE: Identify servo covers, pistons, and springs with a tag for proper identification.



## Low-Reverse Servo

1. Inspect the bore for scores.
2. Check the fluid passages for obstructions.
3. Inspect the band for distortion. Inspect the band ends for cracks.
4. Inspect the servo spring for distortion.
5. Inspect the band lining for excessive wear and for proper bonding to the metal band.
6. Replace damaged cover seal.
7. Replace piston seals if damaged.



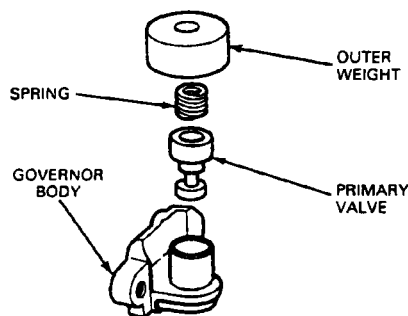
## Extension Housing

1. Inspect housing for cracks. Inspect gasket surface for burrs or warpage.

2. Inspect bushing for scores or wear. Replace if required.
3. Inspect the rear seal for hardness, cracks, or wear. If the seal shows wear or deterioration, replace the seal.
4. Inspect the seal counterbore and remove all burrs and scores with crocus cloth.
5. Check vent for obstructions.

### Governor

1. Inspect the governor valves and bore for scores. Minor scores may be removed from the valves with crocus cloth. Replace the governor if the valves or body is deeply scored.
2. Check for free movement of the valve in the bore. The valve should slide freely of its own weight in the bore when dry. Inspect fluid passages in the valve body and collector body for obstructions. **All fluid passages must be clean.**
3. Inspect the mating surfaces of the governor body and collector body for burrs and distortion. Mating surfaces must be smooth and flat.



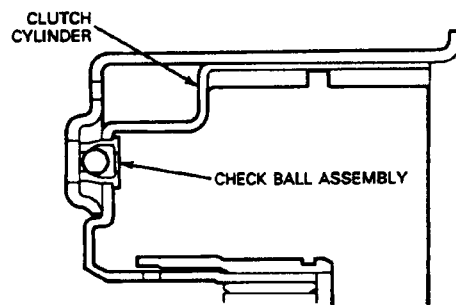
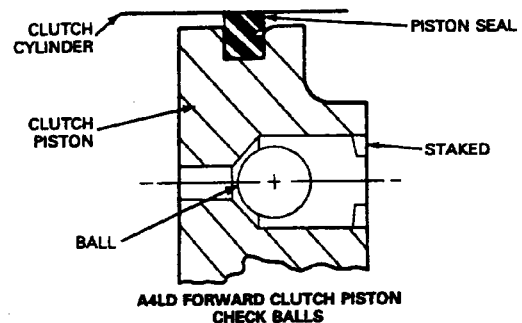
### Pump

1. Inspect mating surfaces of pump body and case for burrs.
2. Inspect the drive and driven gear bearing surface for scores and check gear teeth for burrs.
3. Inspect the front pump seal for cuts or nicks, and pump bushing for scoring.
4. Check fluid passages for obstructions.
5. If any parts are found damaged or worn, replace the pump as a unit. Minor burrs and scores may be removed with crocus cloth.

### Reverse-High and Overdrive Clutches

1. Inspect the drum band surface, bushing, and thrust surfaces for scores. Minor scores may be removed with crocus cloth. **Badly scored parts must be replaced.**
2. Inspect the clutch piston bore and the piston inner and outer bearing surfaces for scores.
3. Check the fluid passages for obstructions. All fluid passages must be clean and free of obstructions.
4. Inspect the clutch plates for wear, scoring, and fit on the clutch hub serrations. Replace all plates that are badly scored, worn, or do not fit freely in the hub serrations.
5. Inspect the clutch pressure plate for scores on the clutch plate bearing surface. Check the clutch release spring for distortion.
6. The clutch cylinders have check balls. Inspect the check balls for freedom of movement and proper seating.

### Forward Clutch



1. Inspect the clutch cylinder thrust surfaces, piston bore, and clutch plate serrations for scores or burrs. Minor scores or burrs may be removed with crocus cloth. Replace clutch cylinder if it is badly scored or damaged.

2. Check fluid pressure in the clutch cylinder for obstructions. Clean out all fluid passages. Inspect clutch piston for scores and replace if necessary. Inspect the piston check ball for freedom of movement and proper seating.
3. Check clutch release springs for distortion and cracks. Replace springs if they are distorted or cracked.
4. Inspect composition clutch plates, steel clutch plates, and clutch pressure plate for worn or scored bearing surface. Replace all parts that are deeply scored.
5. Check clutch plates for flatness and fit on the clutch hub serrations. Discard any plate that does not slide freely on the serrations or that is not flat.
6. Check clutch hub thrust surfaces for scores and clutch hub splines for wear.
7. Check input shaft for damaged or worn splines. Replace shaft if the splines are excessively worn. Inspect bushing in stator support for scores.

### Overdrive One-Way Clutch and Planetary Rear One-Way Clutch

1. Inspect outer and inner races for scores or damaged surface areas where rollers contact races.
2. Inspect rollers and springs for excessive wear or damage.
3. Inspect spring and roller cage for bent or damaged spring retainers.

### Converter and Fluid Cooler

When internal wear or damage has occurred in the transmission, metal particles, clutch plate material, or band material may have been carried into the converter and oil cooler. These contaminants are a major cause of recurring transmission troubles and **MUST** be removed from the system before the transmission is put back into service.

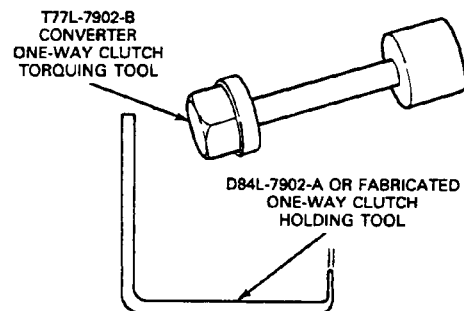
Whenever a transmission has been disassembled to replace worn or damaged parts or because the valve body sticks from foreign material, the converter, oil cooler and oil cooler lines **MUST** be cleaned and flushed by using the Rotunda Torque Converter Cleaner (model 014-00028) or equivalent. Under **NO** circumstances should an attempt be made to clean converters by hand agitation with solvent.

The lack of a drain plug in the A4LD converter increases the amount of residual flushing solvent retained in the converter after cleaning. This retained solvent is not acceptable and a method of diluting it is required. The following procedure is to be used after removal of the A4LD torque converter from the cleaning equipment.

1. **Thoroughly drain** remaining solvent through the converter hub.
2. Add 1.9L (2.0 U.S. quarts) of clean transmission fluid to the converter. Agitate by hand.
3. **Thoroughly drain** solution through the converter hub.

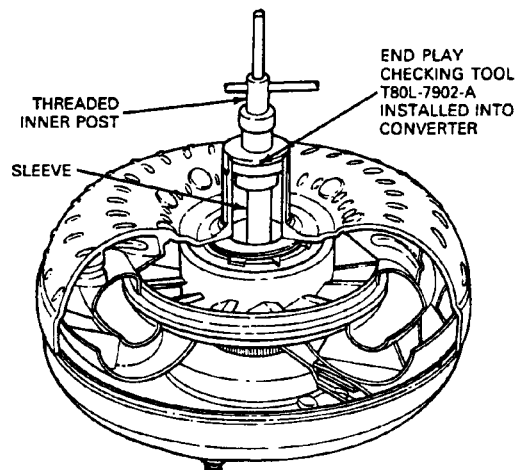
### Converter End Play and One-Way Clutch Check

The Converter One-Way Clutch Torquing Tool T77L-7902-B and D84L-7902-A One-Way Clutch Holding Tool or an equivalent fabricated holding tool are used to check the converter one-way clutch.



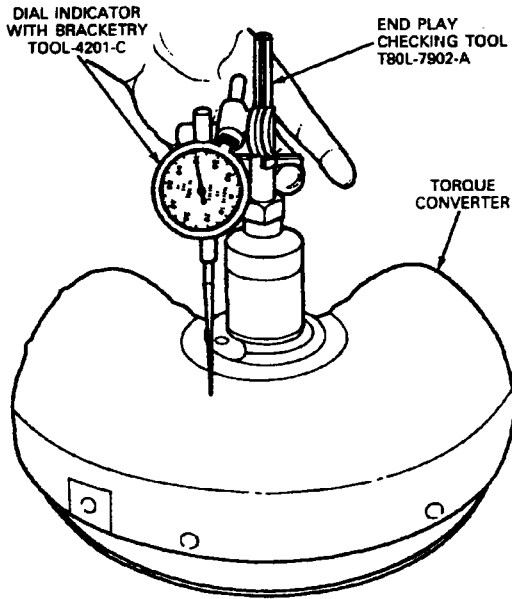
### End Play Check

1. Insert Torque Converter End Play Checking Tool, T80L-7902-A or equivalent into the converter impeller hub, until it bottoms.



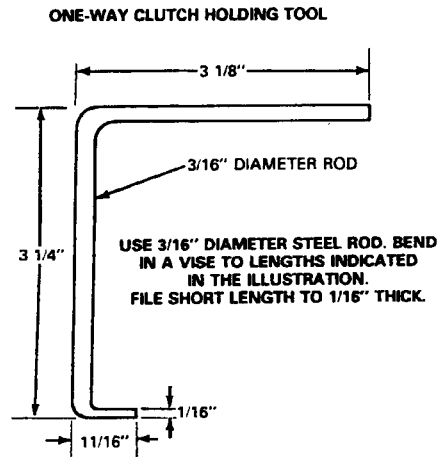
2. Expand sleeve in the turbine spline by tightening the threaded inner post until the tool is securely locked in the spline.

3. Attach Dial Indicator with Bracketry TOOL-4201-C or equivalent to the Torque Converter End Play Checking Tool T80L-7902-A or equivalent. Position the indicator button on the converter impeller housing, and set the dial face at 0 (zero).
4. Lift tool upward as far as it will go and note indicator reading. The indicator reading is the total end play which the turbine and stator share. Replace the converter unit if the total end play exceeds the limits. Refer to Specifications.
5. Loosen threaded inner post to free tool, and remove the tool from the converter.

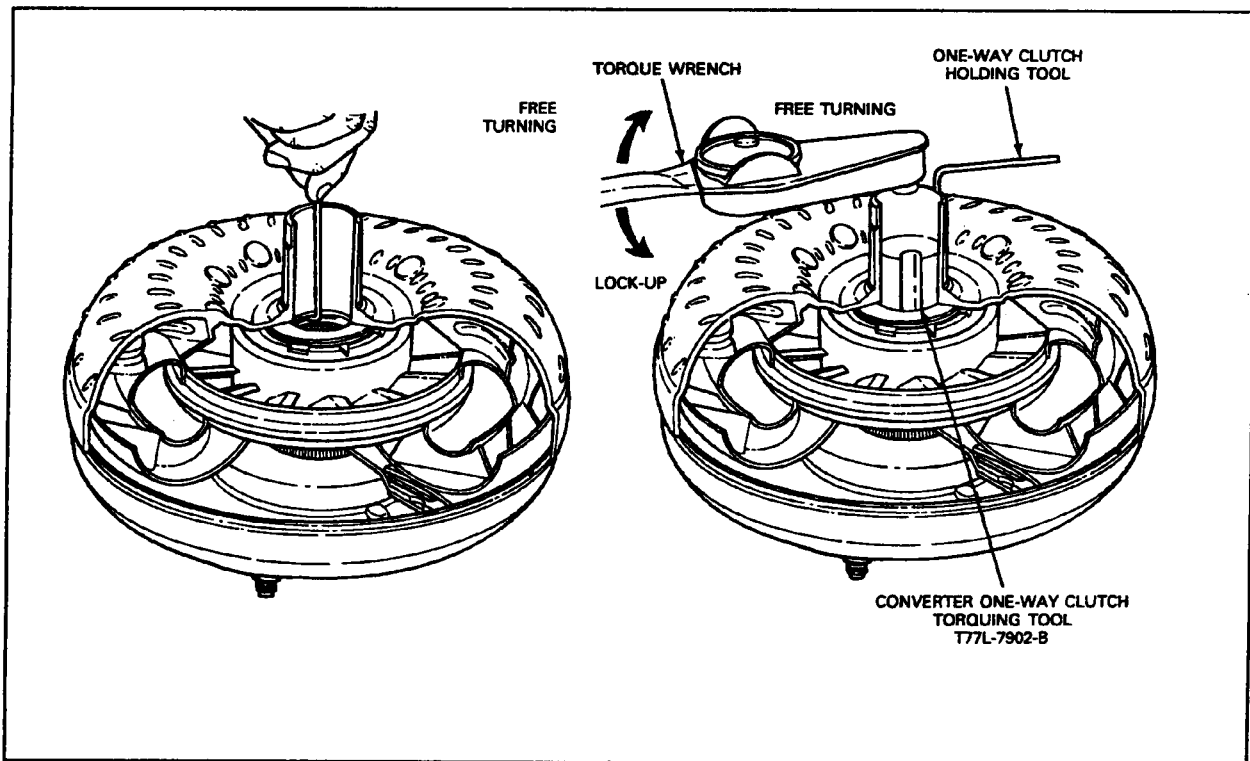


### Converter One-Way Clutch Check

1. Use One-Way Clutch Holding Tool, D84L-7902-A or equivalent or fabricate a one-way clutch holding tool as shown below.

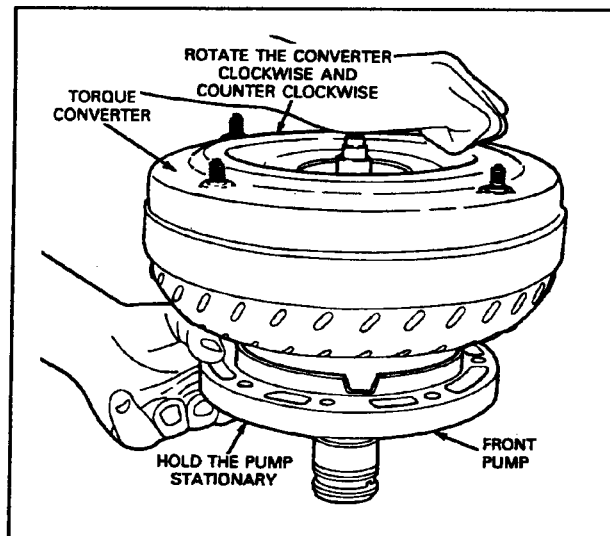


2. Insert one-way clutch holding tool in one of the grooves in the stator thrust washer.
3. Insert the Converter One-Way Clutch Torquing Tool, T77L-7902-B in the converter impeller hub so as to engage the one-way clutch inner race.
4. Attach a torque wrench to the one-way clutch torquing tool. With the one-way clutch holding tool held stationary, turn torque wrench counterclockwise. The converter one-way clutch should lockup and hold a 14 N-m (10 ft-lb) torque. The converter one-way clutch should rotate freely in a clockwise direction. Try the one-way clutch for lockup and hold in at least five different locations around the converter.
5. If the one-way clutch fails to lockup and hold at 14 N-m (10 ft-lb) torque, replace the torque converter.



### Stator To Impeller Interference Check

1. Position front pump assembly on a bench with spline end of the stator shaft pointing up.
2. Mount a converter on the pump with splines on the one-way clutch inner race engaging the mating splines of the stator support. The impeller hub will then engage the pump drive gear.
3. Hold pump stationary and try to rotate the torque converter both clockwise and counterclockwise. The converter should rotate freely without any signs of interference or scraping within the converter assembly.
4. If there is an indication of scraping, the trailing edges of the stator blades may be interfering with the leading edges of the impeller blades. In such cases, replace the converter.



### Pinion Carriers

Individual parts of the planet carriers are not serviceable.