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## 1991 FORD Escort Clipper OEM Service and Repair Workshop Manual

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TR_CRANK	Transmission Range Input Allowing Engine Start	Transmission range sensor input allowing engine to start
TR_GEAR_ENGED	Transmission Gear Engaged	Transmission gear engaged
TR_NEU2_RAW	Transmission Range Selector - Neutral Sensor 2 Raw Value	Transmission range selector - neutral sensor 2 raw value
TR_PARK_STAT	Transmission Park Position Sensor Status	Transmission park position sensor status
TR_PWL_NOTPARK	Transmission Park Pawl Control Has Not Been Moved To The Park Position Since It Was Last In The Manual Park Override Position	Transmission park pawl control has not been moved to the park position since it was last in the manual park override position
TR_QF	Transmission Range Sensor Quality Factor	Transmission range sensor fault status
TRAILER_CON	Trailer Connected	Trailer connected
TRAN_RAT	Gear Ratio Measured	Measured transmission gear ratio
TRANS_CLT_STAT	Transmission Clutch Engagement Status Including Neutral Idle Status	Transmission clutch engagement status including neutral idle status
TRANS_PMP_CMD	Electric Transmission Fluid Pump Control Duty Cycle - Commanded	Auxiliary transmission fluid pump control duty cycle - commanded
TRANS_PMP_Hz	Electric Transmission Fluid Pump Control Feedback Frequency - Measured	Auxiliary transmission fluid pump control feedback frequency - measured
TRANS_PMP_MEAS	Electric Transmission Fluid Pump Control Feedback Duty Cycle - Measured	Auxiliary transmission fluid pump control feedback duty cycle - measured
TRANS_VOLT_A	Transmission Supply Voltage Control State	Transmission actuator supply voltage A control state
TRANS_VOLT_B	Actuator Supply Voltage -B- Control State	Transmission actuator supply voltage B control state

## Preliminary Inspection

<b>307-01A Automatic Transmission - 10-Speed Automatic Transmission - 10R80</b>	<b>2022 F-150</b>
<b>Diagnosis and Testing</b>	<b>Procedure revision date: 05/11/2022</b>

### Preliminary Inspection

#### Overview

The preliminary inspection is part of Automatic Transmission Diagnosis. The preliminary inspection is used to find obvious causes of transmission concerns.

To correctly diagnose a concern, first understand the customer concern or condition. Customer contact may be required to understand the conditions, including when the concern occurs.

#### Underhood Inspection

1. Look for missing or damaged air induction components.
2. Inspect the wire harness for proper routing, especially near the rear of the cylinder heads. Make sure the harness is not chafed or pinched.
3. Inspect the transmission fluid cooler for proper mounting and check for any missing air deflectors.

#### Under Vehicle Inspection

1. With the vehicle in NEUTRAL, position it on a hoist.  
REFER to: [Jacking and Lifting - Overview](#)(100-02 Jacking and Lifting, Description and Operation).
2. Place the selector lever in D.
3. Inspect the transmission case for evidence of leaks.
4. Inspect the transmission fluid cooler lines for proper routing, pinches, or kinks.

Prior to installing the transmission, flush and clean the transmission fluid cooler(s) and the transmission fluid cooler tubes and hoses.

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Sample

Most performance based automatic transmission diagnostic trouble codes (DTCs) require the fault to be detected multiple times before setting a DTC (diagnostic trouble code) . In many instances the fault must be detected consecutively a predetermined number of times (up to five). Carrying out the shift point road test as detailed below increases the likelihood that a DTC (diagnostic trouble code) will set if a fault is present in the system.

1. Bring the engine and transmission up to normal operating temperature.
2. Operate the vehicle with the selector lever in the D position.
3. From a stop, accelerate the vehicle to 100 km/h (62 mph) with the shifts occurring at approximately 2000 rpm. Stay in 10th gear for 30 seconds or until the TCC (torque converter clutch) applies. Repeat this two times.
4. From a stop, accelerate the vehicle to 100 km/h (62 mph) with the shifts occurring at approximately 3000 rpm. Stay in 10th gear for 30 seconds or until the TCC (torque converter clutch) applies. Repeat this two times.
5. If the transmission fails to upshift/downshift,  
REFER to: [Diagnosis By Symptom](#)(307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).

#### Shift Speed Chart

Shift	Speed
1-2	15 mph ( 24 km/h)
2-3	20 mph ( 32 km/h)
3-4	27 mph ( 43 km/h)
4-5	32 mph ( 51 km/h)
5-6	37 mph ( 60 km/h)
6-7	42 mph ( 68 km/h)
7-8	48 mph ( 77 km/h)
8-9	52 mph ( 84 km/h)
9-10	60 mph ( 97 km/h)

## Special Testing Procedures

<b>307-01A Automatic Transmission - 10-Speed Automatic Transmission - 10R80</b>	<b>2022 F-150</b>
<b>Diagnosis and Testing</b>	<b>Procedure revision date: 06/3/2022</b>

### Special Testing Procedures

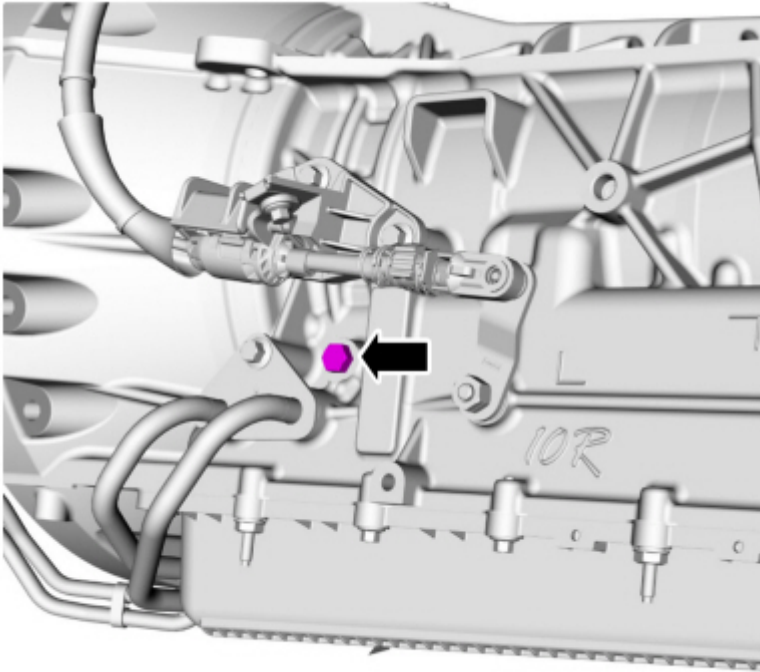
#### Line Pressure Test

**This test verifies the line pressure is within specification.**

1. If available, refer to the Transmission Line Pressure Test general procedure to access the line pressure tap.

REFER to: [Transmission Line Pressure Test](#)(307-01A Automatic Transmission - 10-Speed Automatic Transmission - 10R80, General Procedures).

2. If equipped, remove the heat shield.
  1. Remove the 2 bolts. Torque: 10 Nm (88 lb-in)
  2. Remove the push pin and the heat shield.



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4. Start the engine and check the line pressure.
5. Using a diagnostic scan tool, monitor and compare the PID (parameter identification) LINEDSD# to actual measured pressure. Actual measured pressure should be within 10 PSI (69 kPa) of PID (parameter identification) LINEDSD#. Raise engine RPM to 2000 RPM and verify LPC operation by monitoring LINE pressure while commanding LINEDSD# up and down.
6. If the line pressure is not within specification, use the scan tool to carry out the LPC Line Pressure Cycling located in the Transmission Accelerated Main Control Break In Routine application. After completing the LPC Line Pressure Cycling Routine, recheck the line pressure. If the line pressure is still not within specification, see the Line Pressure Diagnosis Chart for possible sources.
7. When the pressure tests are complete, install the line pressure tap plug.
  - Tighten to 11 Nm (97 lb-in).

#### Line Pressure Diagnosis Chart

Test Results	Possible Source
HIGH at IDLE	<ul style="list-style-type: none"> <li>• Wiring harnesses</li> <li>• LPC (line pressure control) solenoid</li> <li>• LPC (line pressure control) valve</li> </ul>

- Transmission fluid is clean and free of excessive contamination
- Normal/expected vehicle performance at cruising speed
- Poor engine idle quality. The engine may even stall
- Very poor acceleration/Lack of power
- Very low stall RPM: <1500 RPM. Perform test procedure below:
  1. Apply the parking brake.
  2. Connect the scan tool. Navigate to Datalogger: PCM (powertrain control module)
  3. Monitor the PID (parameter identification) s: APP (%), RPM, LOAD (%) and GEAR\_CMD
  4. Start the engine.
  5. Place the transmission in reverse.
  6. Start datalogger recording.
  7. With the brake pedal firmly applied, press the accelerator pedal to 100% for 2-3 seconds until engine RPM (revolutions per minute) stabilizes. Release the accelerator pedal.
  8. Place the transmission in neutral.
  9. Press the accelerator pedal to maintain 1500 RPM (revolutions per minute) for 10 seconds to allow the torque converter to cool. Release the accelerator pedal.
  10. Place the transmission in drive.
  11. With the brake pedal firmly applied, press the accelerator pedal to 100% for 2-3 seconds until engine RPM (revolutions per minute) stabilizes. Release the accelerator pedal.
  12. Place the transmission in neutral.
  13. Press the accelerator pedal to maintain 1500 RPM (revolutions per minute) for 10 seconds to allow the torque converter to cool. Release the accelerator pedal.
  14. Turn the engine off.
  15. Review the recording. A properly functioning stator one-way clutch should fall within the following parameters:
    - APP = 100%
    - RPM > 1500



9	Lube
10	To cooler
11	From cooler
12	Line pressure tap

1. Using a high volume rubber tipped blow gun, apply air pressure to the suspect clutch port for 2-3 seconds.
2. While applying air pressure, a dull thud on clutches A and B would indicate the clutch piston is applied.
3. While applying air pressure, a hissing noise may indicate a leak in the hydraulic passages.
4. While applying air pressure, cross leakage in the hydraulic circuit between the C, D, E and F rotating clutch seals is expected.

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	<p>Installation).</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p>
TCC (torque converter clutch) damper missing or damaged.	<p>DISASSEMBLE, CLEAN and INSPECT the TCC (torque converter clutch) damper. If the damper is missing or damaged, INSTALL a new main control valve body.</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p>
Converter feed blow-off valve missing or damaged	<p>DISASSEMBLE, CLEAN and INSPECT the converter feed blow-off valve. If the valve is missing or damaged, INSTALL a new main control valve body.</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p>
CONV FD, MDA-TCC, APPLY, REL hydraulic circuit blocked or leaking	<p>DISASSEMBLE and INSPECT the main control valve body and separator plate passages for debris, blockage and leaks. CLEAN as necessary.</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p> <p>REFER to: <a href="#">Main Control Valve Body</a> (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and</p>