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2024 Ford Transit-350 Service and Repair Manual

Go to manual page

Sample

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Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

WARNING

Do not carry personal electronic devices such as cell phones, pagers or audio equipment of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

WARNING

When handling fuel, always observe fuel handling precautions and be prepared in the event of fuel spillage. Spilled fuel may be ignited by hot vehicle components or other ignition sources. Failure to follow these instructions may result in serious personal injury.

WARNING

Clean all fuel residue from the engine compartment. If not removed, fuel residue may ignite when the engine is returned to operation. Failure to follow this instruction may result in serious personal injury.

WARNING

Fuel may remain pressurized in some fuel lines after the Fuel System Pressure Release procedure. Wear safety gloves and a face shield when disconnecting pressure lines to avoid skin and eye contact. Failure to follow this instruction may result in serious personal injury.

NOTE

With the engine running, the FRP PID (parameter identification) value may be 48-70 kPa (7-10 psi) higher than a fuel pressure reading taken with a mechanical gauge.

Refer to Wiring Diagrams Cell 026for schematic and connector information.

Normal Operation and Fault Conditions Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition

Sample

PCM (powertrain control module) P018D:00	Fuel Pressure Sensor 'B' Circuit High: No Sub Type Information	Sets when the PCM (powertrain control module) detects the fuel pressure sensor circuit is open or shorted to voltage.
PCM (powertrain control module) P0192:00	Fuel Rail Pressure Sensor Circuit Low (Bank 1): No Sub Type Information	Sets when the PCM (powertrain control module) detects the FRP (fuel rail pressure) circuit is shorted to SIGRTN or ground. A FRP (fuel rail pressure) sensor PID (parameter identification) value during ignition ON, engine OFF, or ignition ON, engine running, less than 0.3 volt indicates a concern is present.
PCM (powertrain control module) P0193:00	Fuel Rail Pressure Sensor Circuit High (Bank 1): No Sub Type Information	Sets when the PCM (powertrain control module) detects the FRP (fuel rail pressure) circuit is open or shorted to voltage.

Possible Sources

- FRP (fuel rail pressure) sensor circuitry concern
- Low fuel level
- Fuel filter
- Fuel supply line
- Fuel pump module
- Fuel injection pump
- Low ambient temperature operation
- Fuel pressure sensor (9F972)
- FRP (fuel rail pressure) sensor (6B288)
- FRP (fuel rail pressure) temperature sensor (9G756)
- PCM (powertrain control module) (12A650)

Pinpoint Test Steps available in the on-line Workshop Manual.

Sample

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PCM (powertrain control module)	P00C6:00	Fuel Rail Pressure Too Low - Engine Cranking (Bank 1): No Sub Type Information	GO to Pinpoint Test HP
PCM (powertrain control module)	P053F:00	Cold Start Fuel Pressure Performance Bank 1: No Sub Type Information	GO to Pinpoint Test HP

Global Customer Symptom Code (GCSC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Global Customer Symptom Code Chart

Customer Symptom	Action
Start/Run/Move > Running > Smoke From Exhaust > Black	GO to Pinpoint Test HP
Driving Performance > Stalls/Quits > At Idle > Always	GO to Pinpoint Test HP
Driving Performance > Poor Fuel Economy > Combined > Unloaded	GO to Pinpoint Test HP

Pinpoint Tests

PINPOINT TEST HP : HIGH PRESSURE FUEL DELIVERY SYSTEM

NOTICE

Do not apply battery voltage across the fuel injection pump circuits. Damage to the fuel volume regulator solenoid may result.

Refer to Wiring Diagrams Cell 026for schematic and connector information.

Normal Operation and Fault Conditions Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition

Sample

		Diagnose any FRP (fuel rail pressure) and fuel volume regulator (FVR) circuit Diagnostic Trouble Codes (DTCs) first.
PCM (powertrain control module) P053F:00	Cold Start Fuel Pressure Performance Bank 1: No Sub Type Information	Sets when the PCM (powertrain control module) detects the fuel rail pressure falls outside a calibrated threshold limit for controlling split injection during a cold start. The PCM (powertrain control module) monitors fuel rail pressure to control split injection. Diagnose any FRP (fuel rail pressure) and fuel volume regulator (FVR) circuit Diagnostic Trouble Codes (DTCs) first. Various engine driveability symptoms, including no start, hard start, rough idle, and backfiring may occur as a result of this DTC (diagnostic trouble code) setting. This DTC (diagnostic trouble code) may be accompanied by other Diagnostic Trouble Codes (DTCs), particularly P0087, P0088, or P00C6. Freeze frame data is not applicable to the cold start emission reduction monitor. For additional information, refer to the Cold Start Emission Reduction Monitor description.

Possible Sources

- Fuel injection pump circuitry concern
- Low fuel level
- Fuel filter
- FRP (fuel rail pressure) sensor
- Fuel pump module
- Fuel injection pump (9350)
- PCM (powertrain control module) (12A650)

Pinpoint Test Steps available in the on-line Workshop Manual.

Sample

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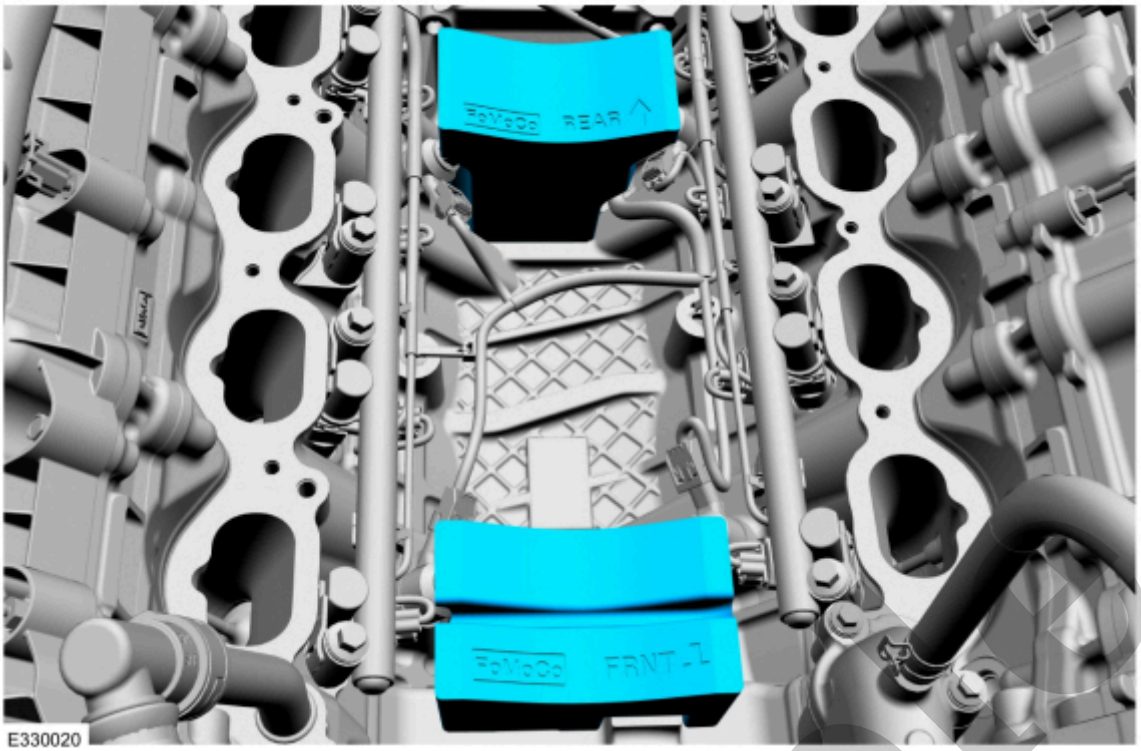


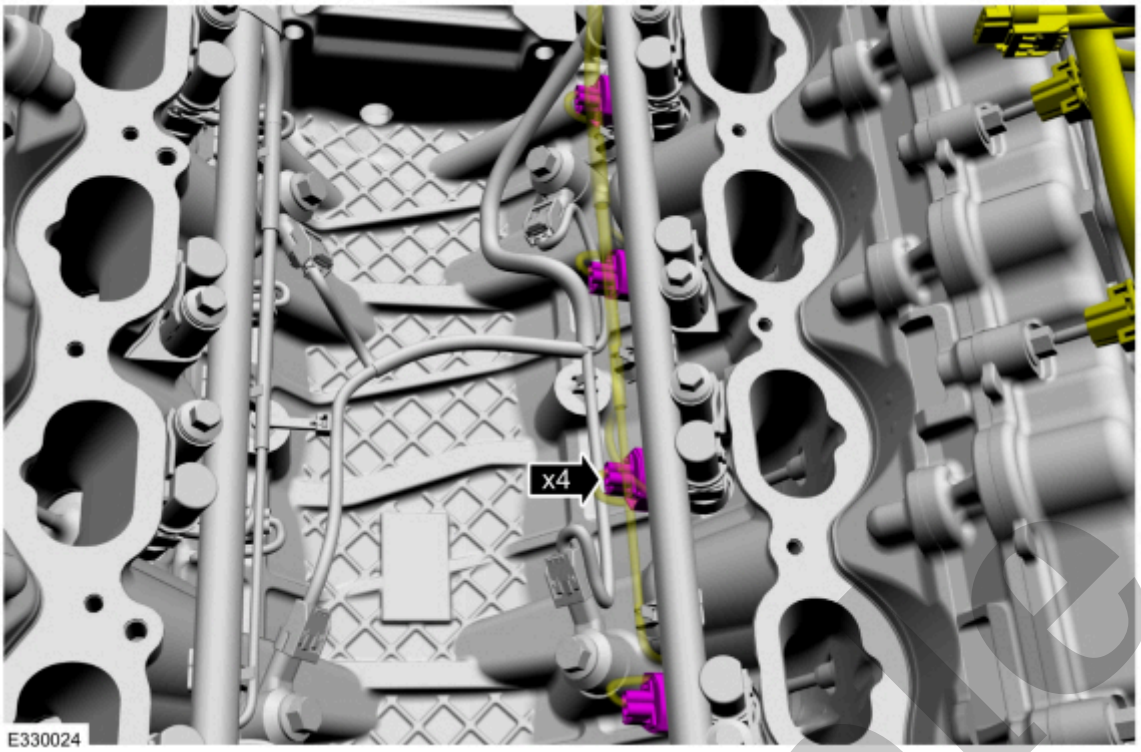
Click here to learn about symbols, color coding, and icons used in this manual.

4. **NOTICE**

   To release the fuel pressure in the high-pressure fuel tube, wrap the high-pressure fuel tube flare nuts with a shop towel to absorb any residual fuel pressure during the loosening of the high-pressure fuel tube flare nuts.

   Disconnect the high-pressure fuel tube flare nuts, then remove and discard the high-pressure fuel tube.

Sample



Click here to learn about symbols, color coding, and icons used in this manual.

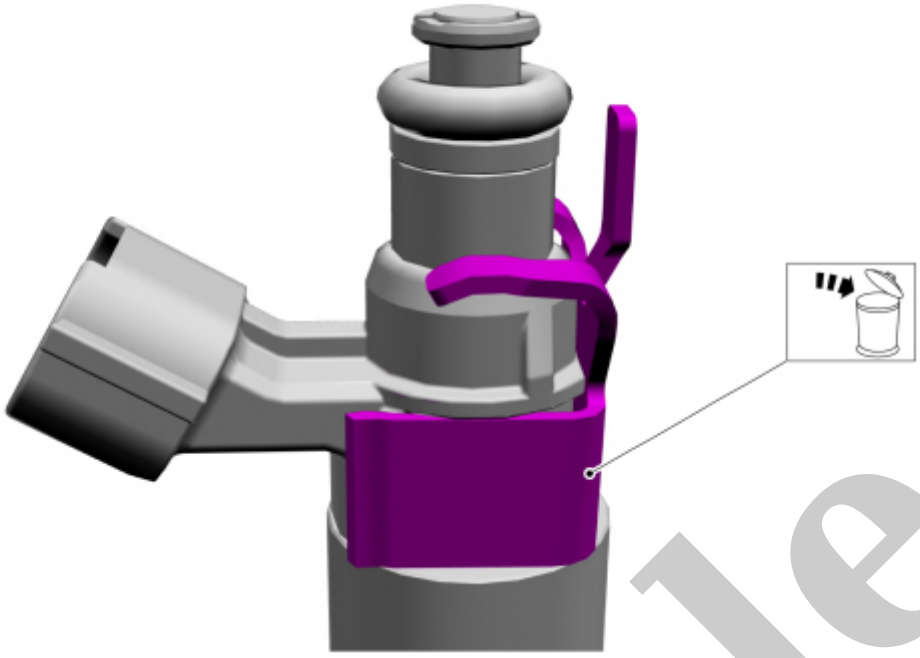
7. **NOTICE**

   Pull out the fuel rails in the direction of the fuel injector axis or damage may occur to the fuel injectors.

   1. Use compressed air and remove any dirt or foreign material from the cylinder head, block and general surrounding area of the fuel rail and injectors.
   2. Remove the fuel rail bolts, then remove the fuel rail.

   - When removing the fuel rails, the fuel injectors may remain in the cylinder heads and require the use of a Fuel Injector Remover tool to extract. Gently wiggling the injector by hand to break it loose may allow the injector to be removed by hand.
   - Should any of the fuel injectors remain in the head, then the fuel injector electrical connectors will need to be disconnected as the fuel rail is being removed.

Sample



Click here to learn about symbols, color coding, and icons used in this manual.

10. **NOTICE**

Use minimal force to remove the fuel injectors that remained in the cylinder head with the Fuel Injector Remover tool or damage to the fuel injector assembly may occur. Gently wiggling the injector by hand to break it loose may allow the injector to be removed by hand.

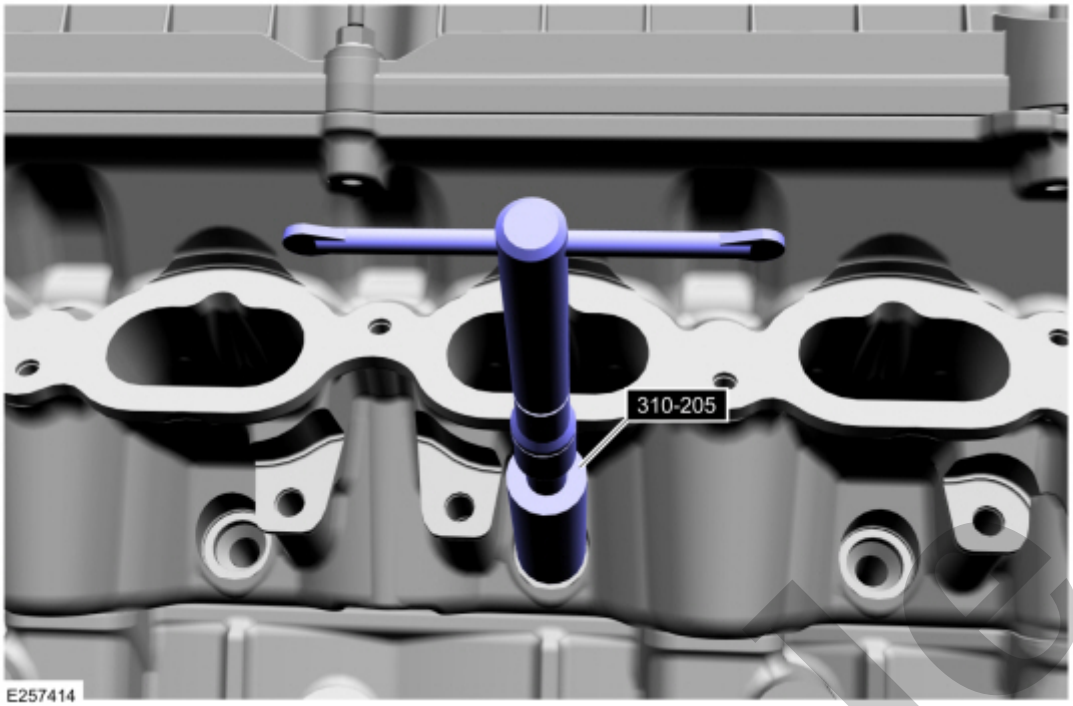
NOTE

Commercially available OTC 5028 8-1/2" long slide hammer may be substituted for 307-005 where there are clearance concerns.

Using the special tools, remove any of the fuel injectors that remained in the cylinder head.

Use Special Service Tool : 307-005 (T59L-100-B) Slide Hammer , 310-206 Remover, Fuel Injector

Sample



Click here to learn about symbols, color coding, and icons used in this manual.

12. 1. Remove and discard the fuel injector O-ring seals.

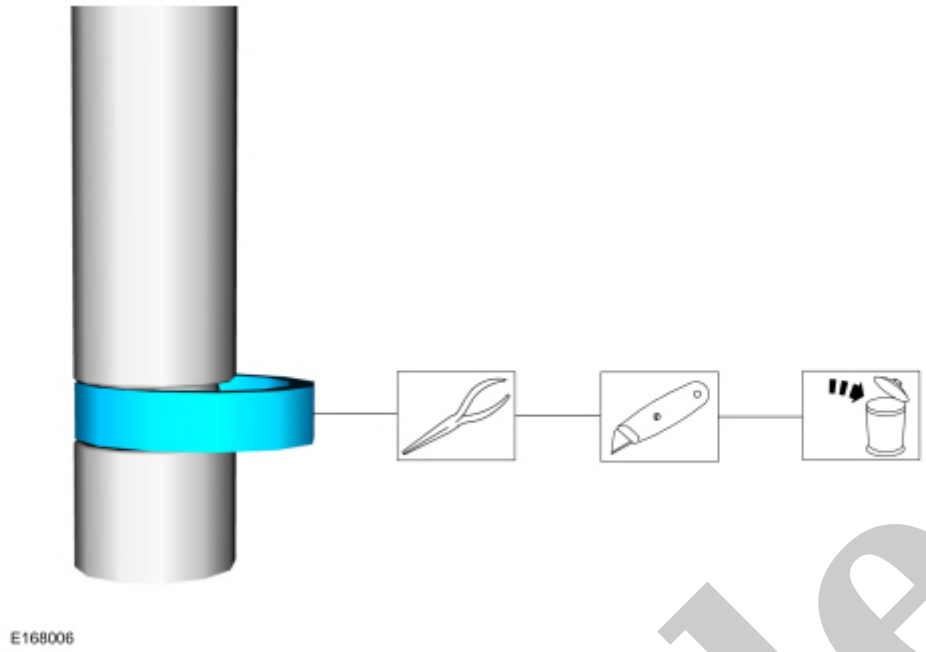
    2. **NOTE**

       Note the correct orientation of the fuel injector support rings for correct installation of the new fuel injector support rings.

       Remove and discard the fuel injector support rings.

    3. Inspect the inlet stopper, if it is damaged or comes off then discard the inlet stopper. The inlet stopper is not needed for proper function. Ensure that any debris from the inlet stopper are removed. If the inlet stopper is intact and undamaged do not remove the inlet stopper from the fuel injector.

Sample



Click here to learn about symbols, color coding, and icons used in this manual.

Installation

1. **NOTICE**

   Do not lubricate the new lower Teflon® fuel injector seals.

   1. Install the Teflon® Seal Guide onto the fuel injector tip.

      Use Special Service Tool : 310-207 Installer, Fuel Injector Seal Assembly

   2. **NOTICE**

      Once the Teflon® seal is installed on the Teflon® Seal Guide, it should immediately be installed onto the fuel injector to avoid excessive expansion of the Teflon® seal.

      NOTE

      Make sure that new lower fuel injector Teflon® seals are installed.

      Install the new Teflon® seals onto the Teflon® Seal Guide, using the Pusher Tool, slide the Teflon® seals along the Teflon® Seal Guide.

Sample