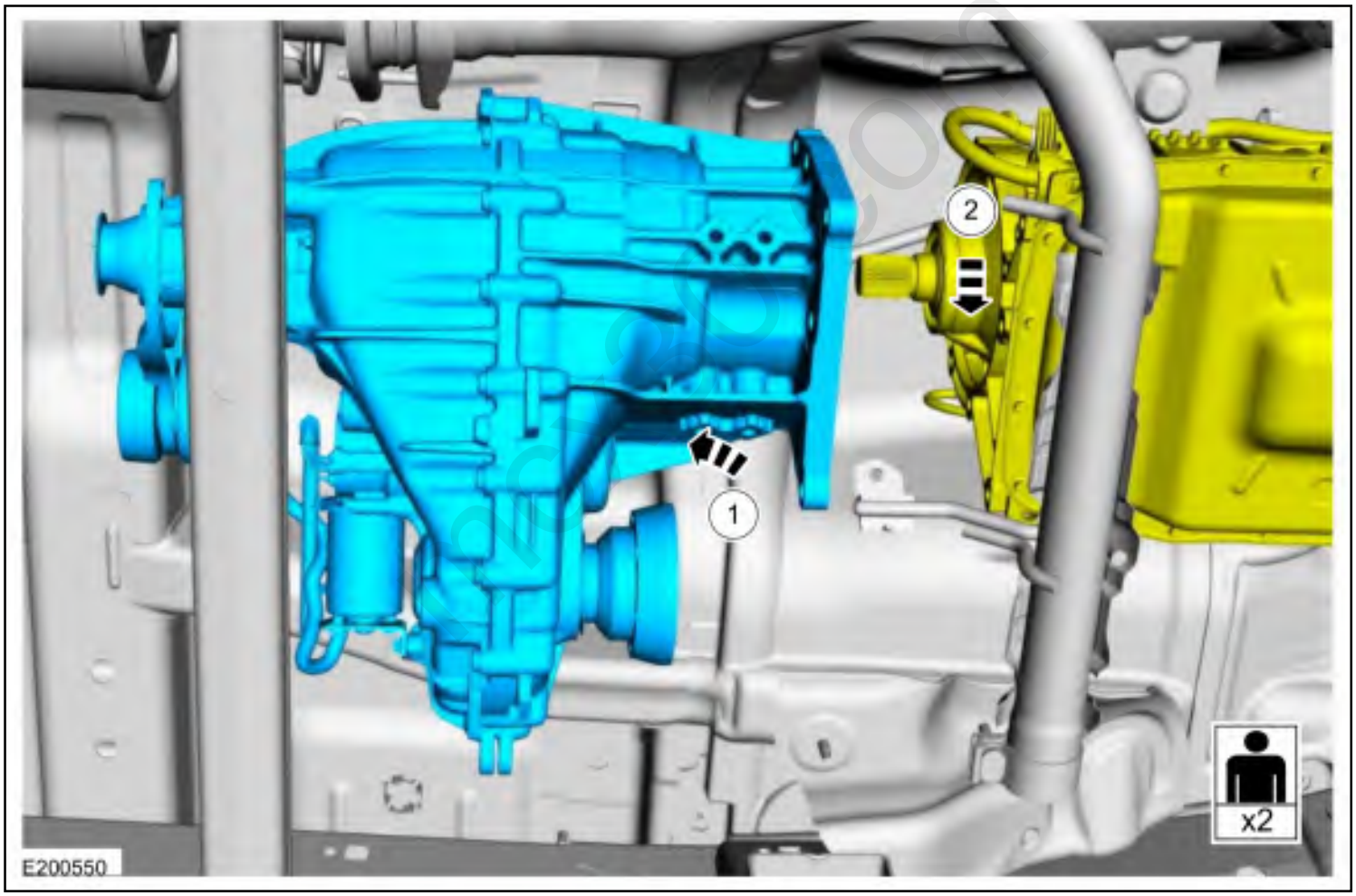
Transfer Case

Base Part Number: Base Part Number: 7251

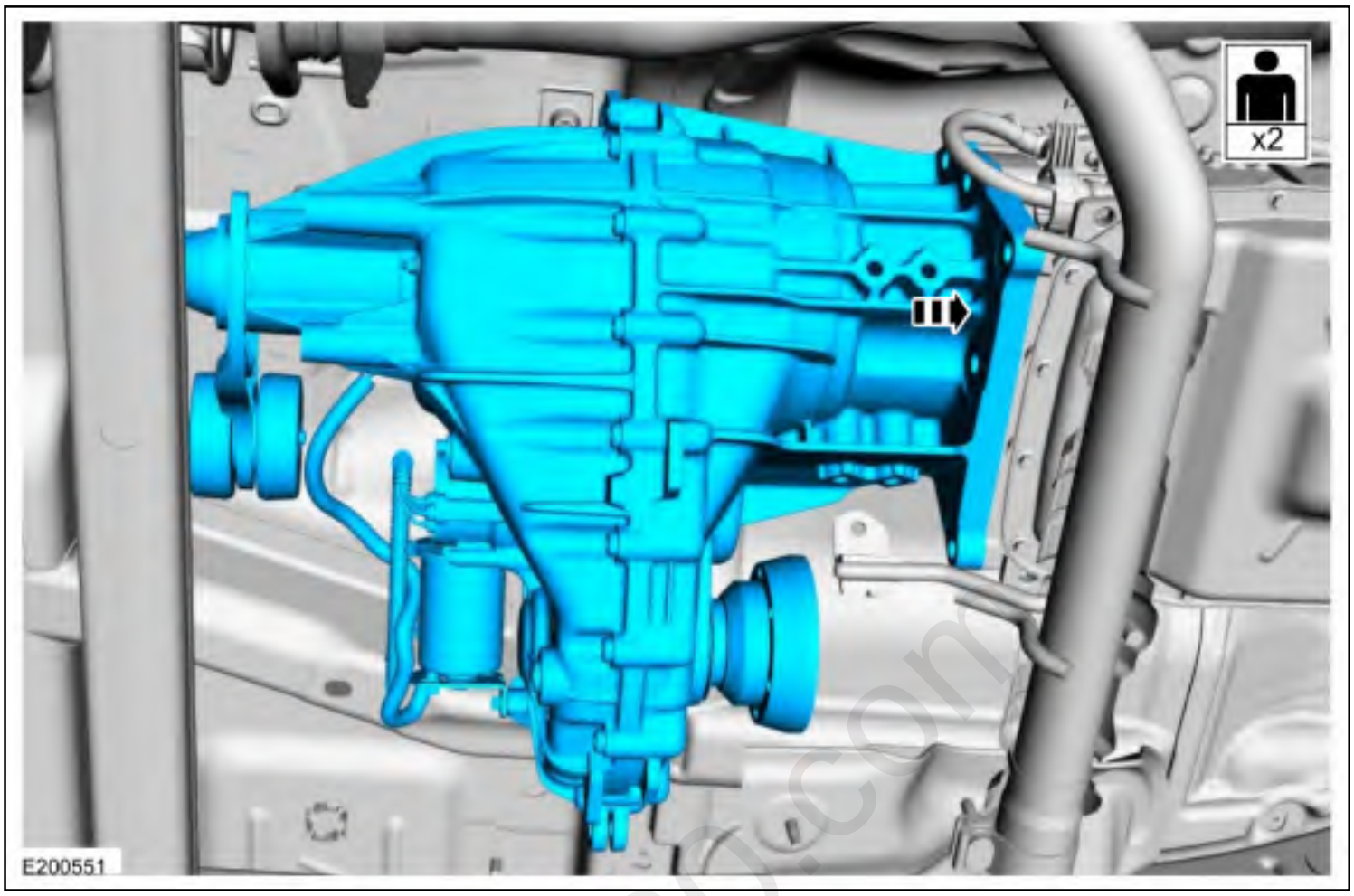
1. **NOTE:** *The help of an assistant will be required.*

   Position the transfer case on the crossmember. Lower the transmission approximately 25.4 mm (1 in).



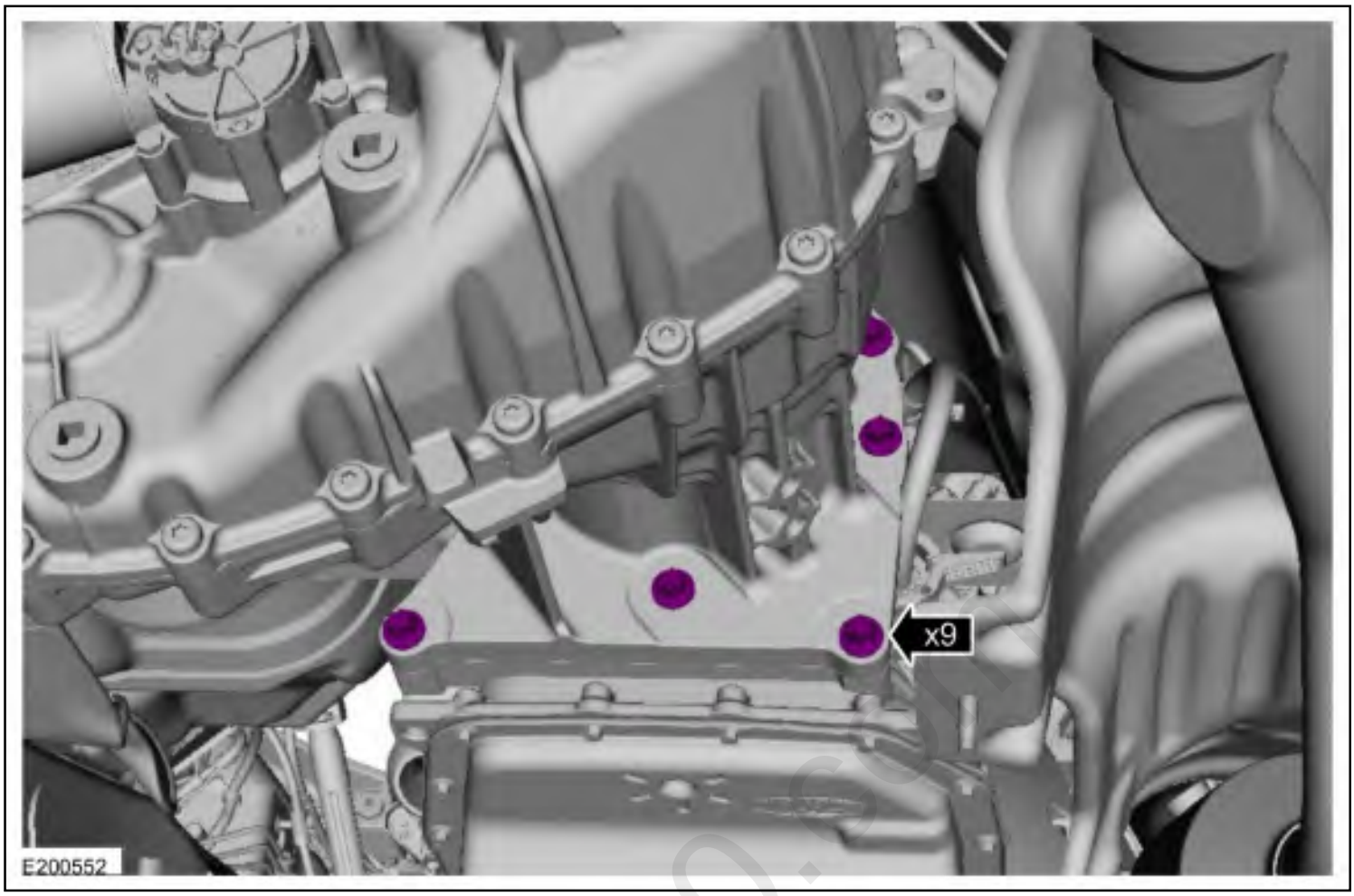
2. **NOTE:** *The help of an assistant will be required.*

   Position the transfer case to the transmission and onto the output shaft.



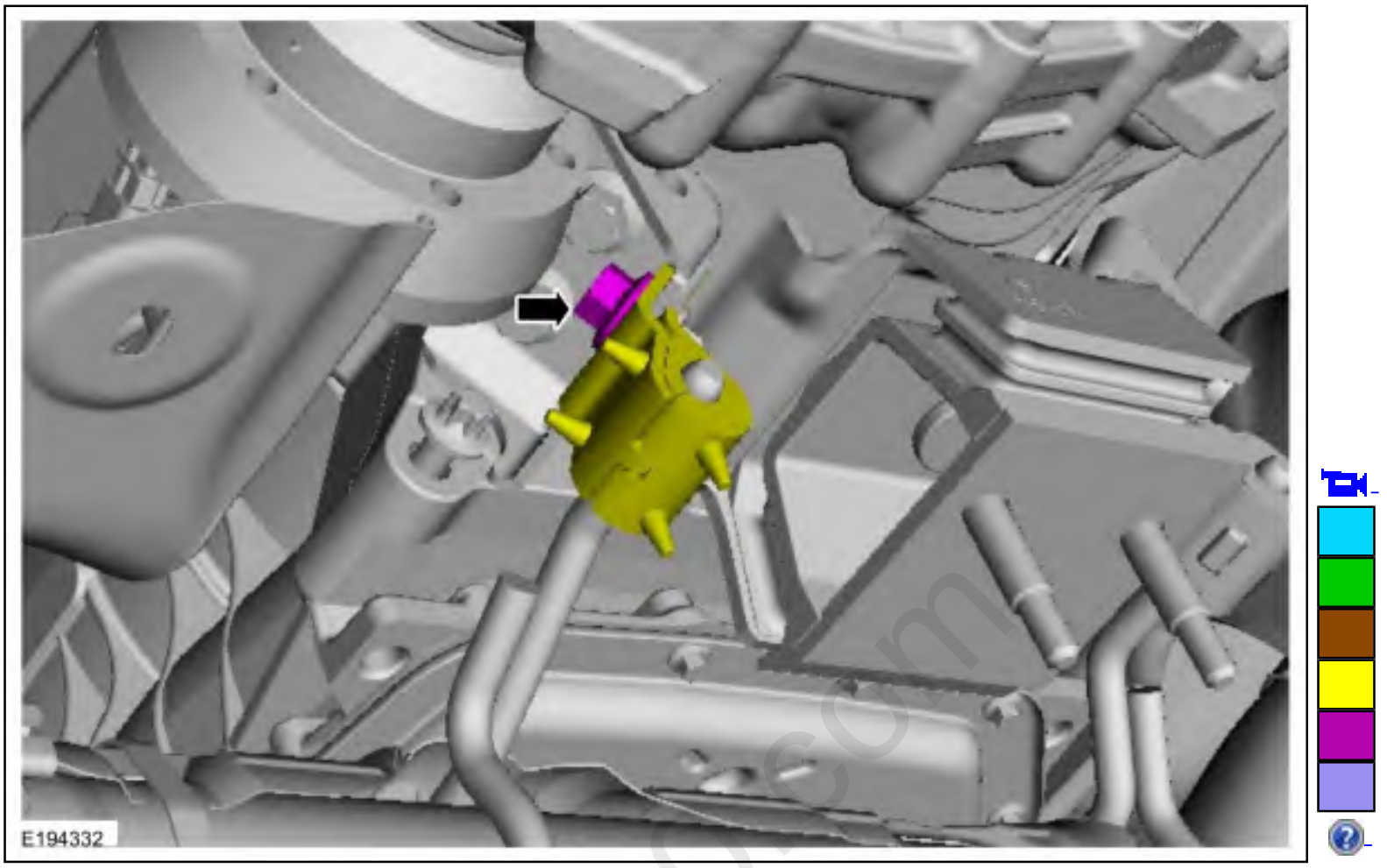
3. **NOTE:** *Do not reuse the old transfer case-to-transmission bolts.*

   Install new transfer case-to-transmission bolts.
   Torque: 168 lb.in (19 Nm)



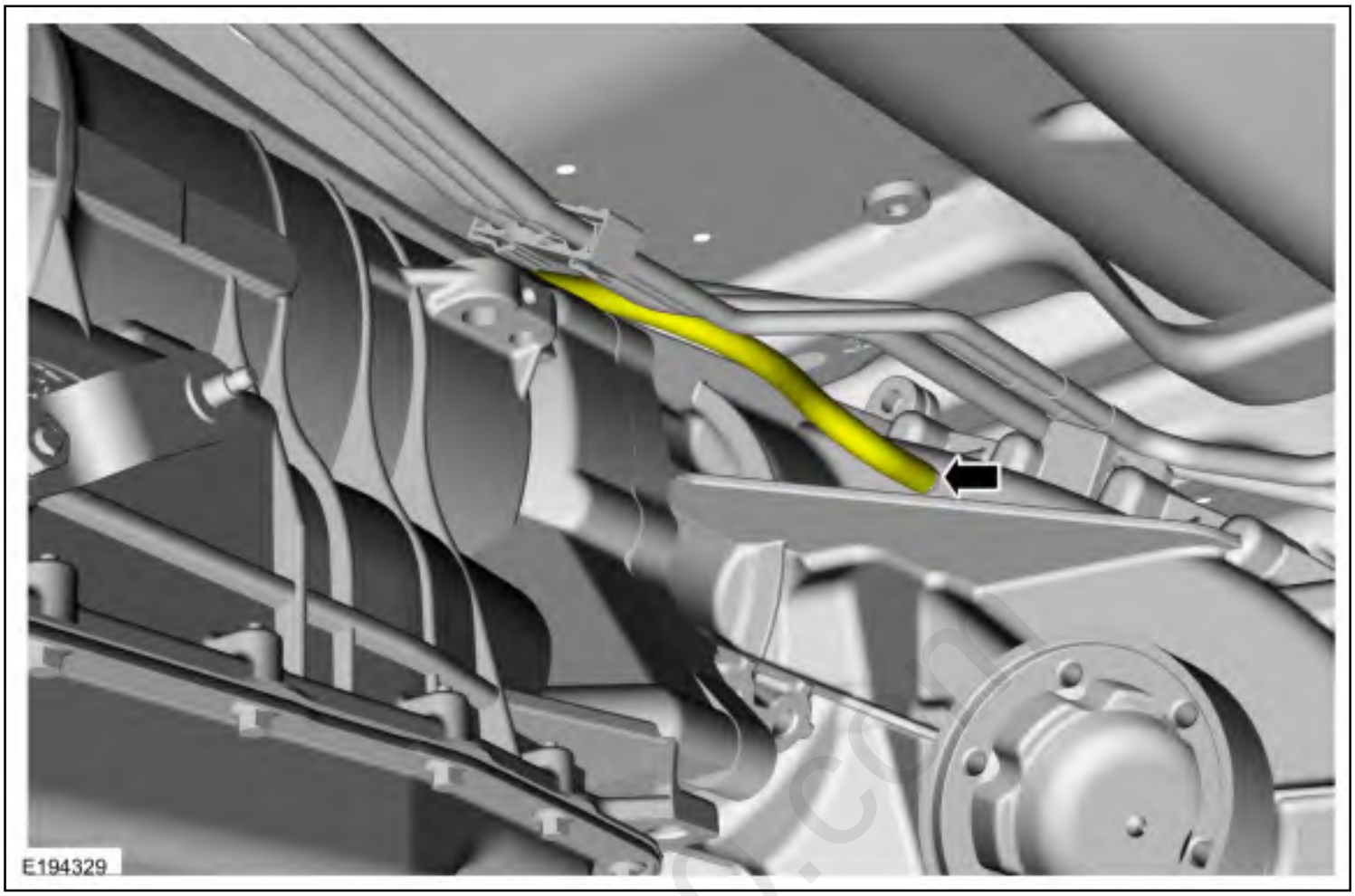
4. Refer to: Transmission Support Insulator (307-01A Automatic Transmission - 6-Speed Automatic Transmission - 6R80, Removal and Installation).
   Refer to: Transmission Support Insulator (307-01B Automatic Transmission - 10-Speed Automatic Transmission - 10R80, Removal and Installation).

5. Install the LH exhaust support bracket and bolt.
   Torque: 26 lb.ft (35 Nm)

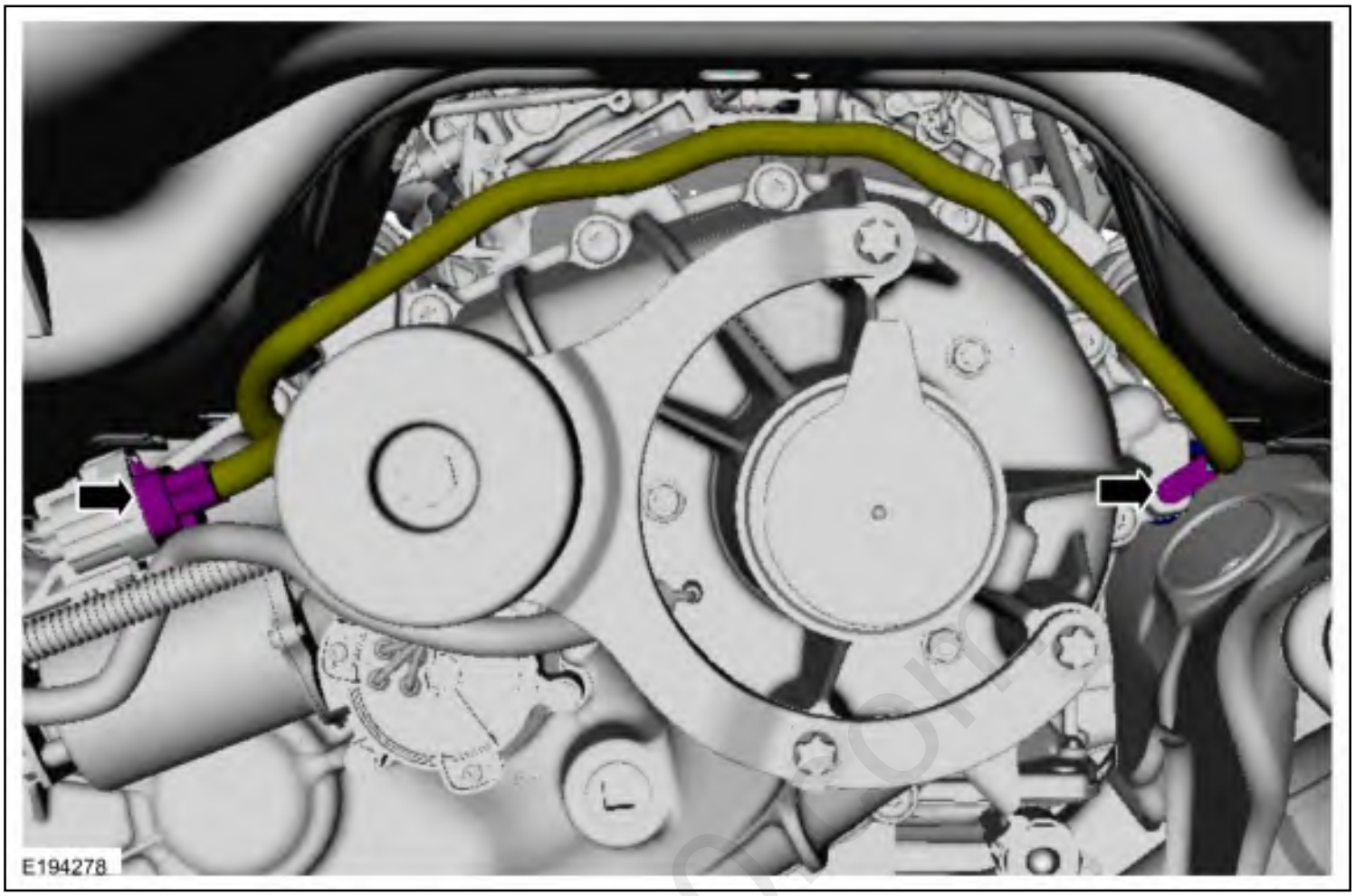


6. Install the transmission support crossmember.
   Refer to: Transmission Support Crossmember (502-02 Full Frame and Body Mounting, Removal and Installation).

7. Connect the vent hose to the transfer case.



8. Connect the shift motor electrical connector and attach the harness retainer clip to the transfer case.



9. **NOTE:** *Align the index marks made during removal.*

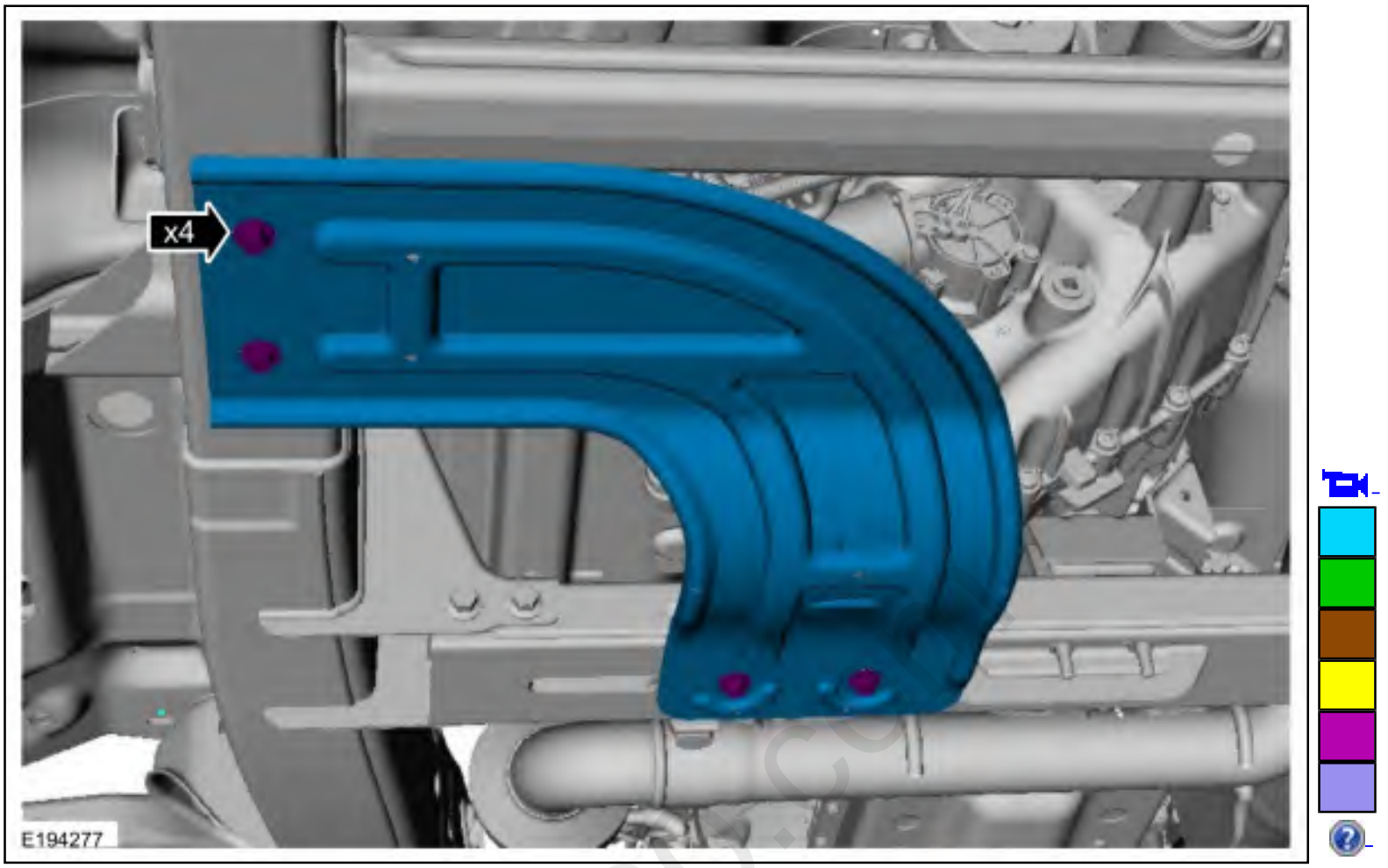
   Install the rear driveshaft.
   Refer to: Rear Driveshaft (205-01 Driveshaft, Removal and Installation).

10. **NOTE:** *Align the index marks made during removal.*

    Install the front driveshaft.
    Refer to: Front Driveshaft (205-01 Driveshaft, Removal and Installation).

11. Check the transfer case fluid level.
    Refer to: Transfer Case Draining and Filling (308-07B Transfer Case, General Procedures).

12. If equipped.
    Position the skid plate and install the skid plate bolts.
    Torque: 30 lb.ft (40 Nm)



Exhaust System

Overview

NOTICE: Do not use leaded fuel in a vehicle equipped with a catalytic converter. In a vehicle that is continually misfueled, the lead in the fuel will be deposited in the catalytic converter and completely blanket the catalyst. Lead reacts with platinum to "poison" the catalyst. Continuous use of leaded fuel can destroy the catalyst and render the catalytic converter useless. The addition of lead to the catalytic converter can also solidify the catalyst, causing excessive back pressure in the exhaust system and possibly causing engine damage.

NOTICE: Extremely high temperatures of 1,100°C (2,012°F) or above due to misfiring or an over-rich fuel/air mixture will cause the ceramic substrate to sinter or burn, destroying the catalytic converter. Do not continue to operate the vehicle if the engine is misfiring, there is a power loss or other unusual operating conditions, such as engine overheating and backfiring.

NOTICE: Do not use oil or grease-based lubricants on the isolators. These lubricants may cause deterioration of the rubber. This can lead to separation of the isolator from the exhaust hanger bracket during vehicle operation.

The exhaust system provides an exit for exhaust gases and reduces engine noise by passing exhaust gases through the catalytic converters and a muffler assembly. The catalytic converters also play a major role in reducing air pollutants.

- a exhaust Y-pipe dual catalytic converter.
- a intermediate pipe.
- a muffler inlet pipe.
- isolators installed on the body and muffler hangers.

The catalytic converter plays a major role in the emission control system by operating as a gas reactor. Its function is to speed the heat-producing chemical reaction of components in the exhaust gases to reduce air pollutants.

The catalyst material inside the catalytic converter consists of a ceramic substrate.

The catalytic converter is designed to provide a long life. No maintenance is necessary.

Sound insulators and shields, attached to the underbody, protect the vehicle from exhaust system heat and should be inspected at regular intervals to make sure they are not dented or out of position. If a sound insulator and shield is damaged or shows evidence of deterioration, install a new insulator and shield. The sound insulators and shields for the muffler, muffler pipe and catalytic converter pipe are installed separately.

Some exhaust fasteners must be discarded and new ones installed as indicated in the procedures. Discard any damaged or heavily corroded fasteners and install new ones as necessary. Some exhaust fasteners are of a prevailing torque design. Use only new fasteners with the same part number as the original. Tighten the fasteners to the specified torque during reassembly to make sure of correct retention of exhaust components.

Exhaust System

Symptom Chart(s)

Symptom Chart: Symptom Chart - Exhaust System

Verify the customer concern. Inspect the components of the exhaust system for obvious signs of damage or other mechanical concerns using the following chart.

Visual Inspection Chart - Mechanical

Mechanical
• Exhaust pipe pinched or crushed • Damaged muffler • Broken or damaged exhaust hanger brackets • Damaged catalytic converter • Loose or damaged heat shields

Verify the exhaust system is installed correctly, with clamps correctly located and tightened to specifications. If the fault is not visually evident, determine the symptom. GO to Symptom Chart below.

Symptom Chart

Condition	Possible Sources	Actions

Vehicle has low or no power — vehicle performance complaint	• Exhaust pipe pinched or crushed • Damaged catalytic converter • Loose obstruction in exhaust	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
	Restricted exhaust (possible frozen condensate in muffler)	CHECK drain holes for foreign material. PARK the vehicle inside to thaw. TEST the vehicle for normal operation. If the concern is still present, REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
Burning smell — usually occurs at idle, with possible traces of smoke	• Foreign material caught in exhaust system • Missing heat shields	INSPECT the exhaust system for foreign material or missing heat shields. REPAIR or INSTALL new components as necessary.
Odor — described as a sulfur or rotten egg smell	• Catalytic converter • Excessive sulfur content in fuel	At times, a slight sulfur smell is normal for catalytic converters. The cause is the sulfur content in the gasoline being used. ADVISE the customer no repair is required.
	• Rich fuel conditions • Misfire conditions	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
Visible rust on surface of exhaust pipes	Catalytic converter/exhaust system	Surface rust is a characteristic of materials used on exhaust systems. Exposure to heat or road salt may result in surface rust. INSPECT for perforations. If there are no perforations, the condition is normal.

Symptom Chart: Symptom Chart - NVH

Symptom Chart

Condition	Possible Sources	Actions
Rattle, squeaks or buzz type noise — from the bottom of the vehicle	Loose or damaged heat shield	INSPECT the exhaust system for loose or missing heat shields or foreign material trapped between the heat shields and the exhaust system components. If any heat shields are loose, INSTALL worm gear clamp 7L5Z-5A231-AA and tighten to 7 Nm. If the heat shields are missing or a rattle, noise or buzz condition persists, INSTALL a new heat shield or component as necessary.
	Loose or damaged exhaust isolators	VERIFY the exhaust isolators are correctly installed. INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary.
	Damaged exhaust isolator hanger bracket	INSPECT the exhaust system components for damage or broken hangers. INSTALL new components as necessary. CHECK for loose or damaged exhaust hanger brackets or fasteners. TIGHTEN the bolts to specification or INSTALL new components as necessary.

	Loose or damaged catalytic converter or muffler	MOVE the exhaust system to simulate the bouncing action of the vehicle, checking for exhaust-to-body contact while moving the exhaust system. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler, then the catalytic converter. DETERMINE if there are loose or broken baffles in the muffler or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary.
	Exhaust grounded to chassis	INSPECT for signs of exhaust components-to-body contact. REPAIR or INSTALL new components as necessary.
Drone or clunk type noise — from the bottom of the vehicle	Loose or damaged exhaust isolators	INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary.
	Exhaust grounded to chassis	INSPECT for signs of exhaust components-to-body contact. REPAIR or INSTALL new components as necessary.
Whistles, boom, hum or ticking type noise — noise tends to change as the engine warms. The noises are often accompanied by exhaust fumes	Exhaust system leak	INSPECT the entire exhaust system for leaks. CHECK for punctures, loose or damaged clamps/fasteners, gaskets, sensors or broken welds. EXAMINE the chassis for grayish-white or black exhaust soot, which indicates exhaust leakage at that point. To magnify a small leak, have an assistant hold a shop towel over the tail pipe outlet while listening for a leak. REPAIR or INSTALL new components as necessary.

	Catalytic converter	MOVE the exhaust system to simulate the bouncing action of the vehicle, checking for exhaust-to-body contact while moving the exhaust system. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler and the catalytic converter. DETERMINE if there are loose or broken baffles in the muffler, or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary.
	Exhaust muffler/resonator drain hole enlarged due to corrosion	CONFIRM the drain holes are the noise source. INSTALL new components as necessary.
Hissing or rushing noise — high frequency sound and the vehicle performance is unaffected	Exhaust system Exhaust flow through pipes	CHECK the exhaust system for leaks. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler and the catalytic converter. DETERMINE if there are loose or broken baffles in the muffler, or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary.
Pinging noise — occurs when exhaust system is hot, engine turned off	Catalytic converter/exhaust system	Cool down pinging is a result of the exhaust system expanding and contracting during heating and cooling. This is a normal condition.
Vibration — occurs at idle and at low speeds. Also accompanied by a clunk or buzz type noise	Loose or damaged exhaust isolator	INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary.
	Loose or damaged exhaust isolator hanger brackets	INSPECT the exhaust isolator hanger brackets for wear or damage. INSTALL or REPAIR as necessary.

	Exhaust system grounded to chassis	REPAIR or INSTALL new components as necessary.
Engine drumming noise — normally accompanied by vibration	Damaged or misaligned exhaust system	INSPECT the exhaust system for loose or damaged fasteners or isolators. REPAIR or INSTALL new components as necessary.
Sputter type noise — noise worse when cold, lessens or disappears when the vehicle is at operating temperature	Damaged or worn exhaust system	INSPECT the exhaust system for leaks or damage. REPAIR as necessary.
Thumping noise — from the bottom of the vehicle, worse during acceleration	Misaligned exhaust system	CHECK the exhaust system to chassis clearance. CHECK the exhaust system isolators for damage. REPAIR as necessary.
Engine vibration — is felt with increases and decreases in engine rpm	Strain on exhaust system isolators	REPAIR or INSTALL new components as necessary.
Drumming noise — occurs inside the vehicle during idle or high idle, hot or cold. Very low-frequency drumming is very rpm dependent	Exhaust system vibration excites the body resonances inducing interior noise	REPAIR or INSTALL new components as necessary.

Muffler and Tailpipe

Removal

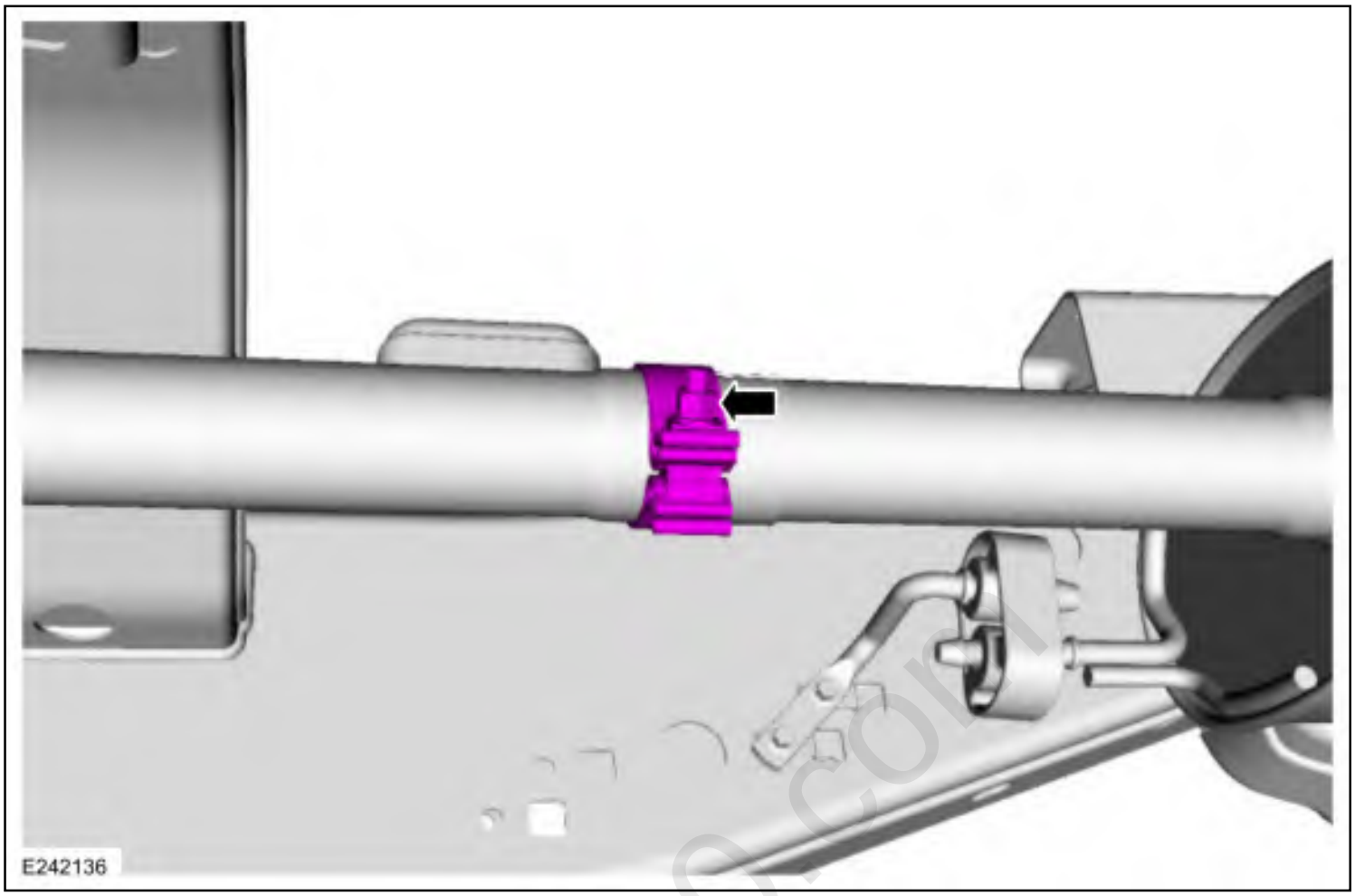
NOTE: *Muffler and tailpipe assemblies will vary in configuration with different wheelbases and powertrains. Typical application shown.*

NOTE: *Removal steps in this procedure may contain installation details.*

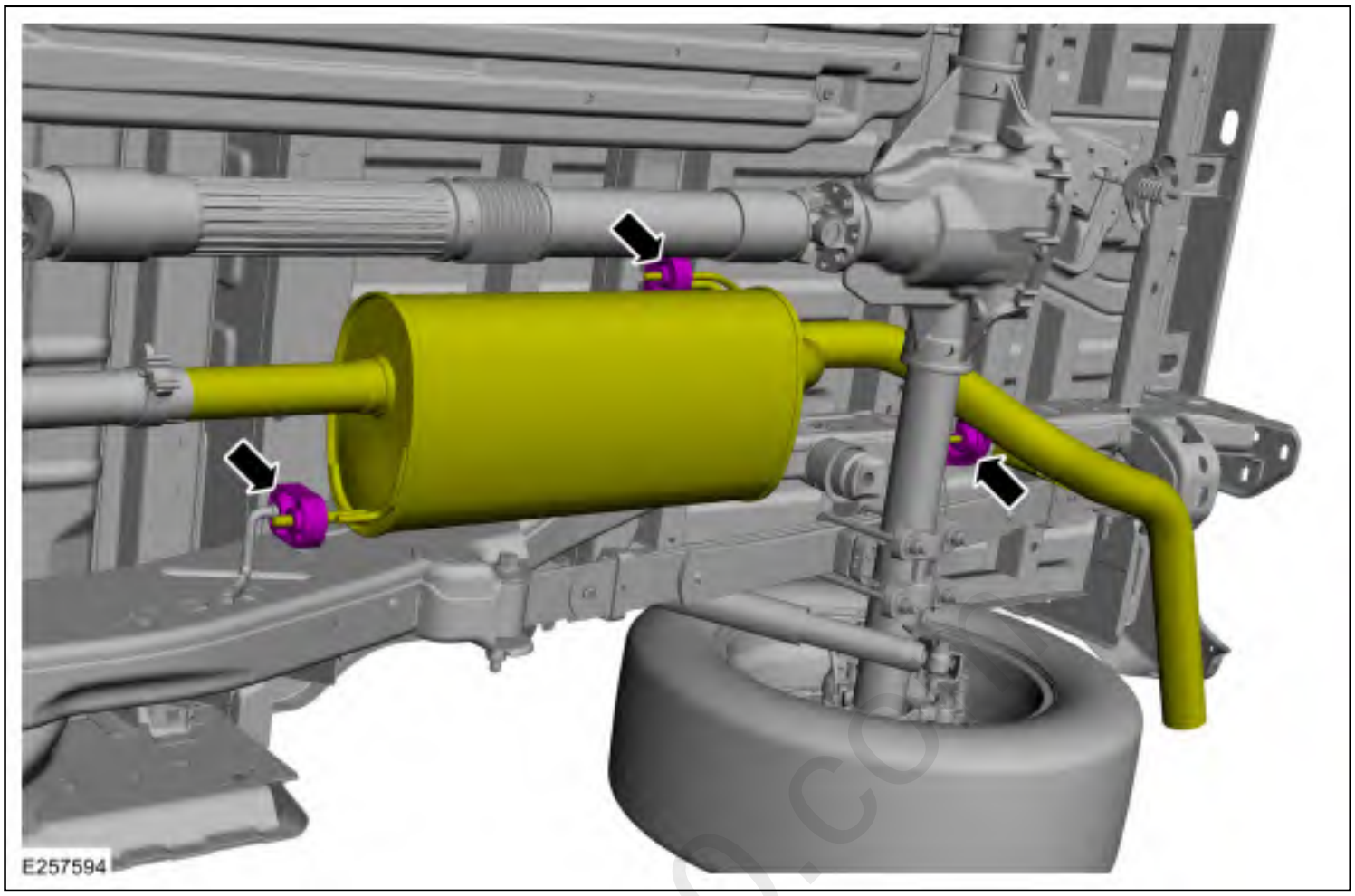
NOTE: *Clean all exhaust connections before reassembly.*

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).

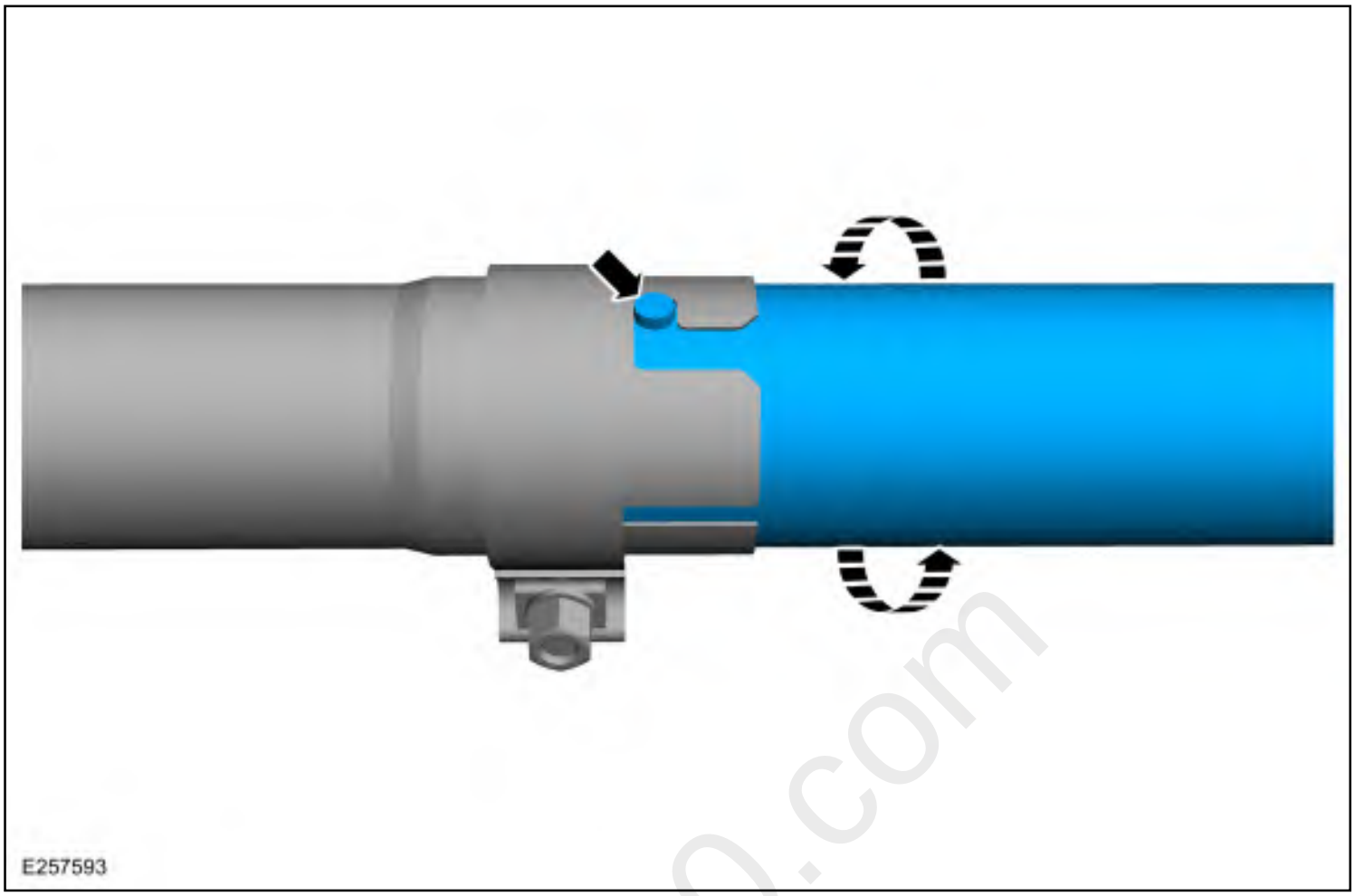
2. Loosen the clamp.
   Torque: 41 lb.ft (55 Nm)



3. Slide the muffler and tailpipe rearward out of the isolators.



4. Release the locator tab out of the muffler inlet pipe and remove the muffler and tailpipe.



Installation

1. To install, reverse removal procedure.
2. Check the exhaust system for leaks.

Catalytic Converter LH

Base Part Number: Base Part Number: 5E214

Removal

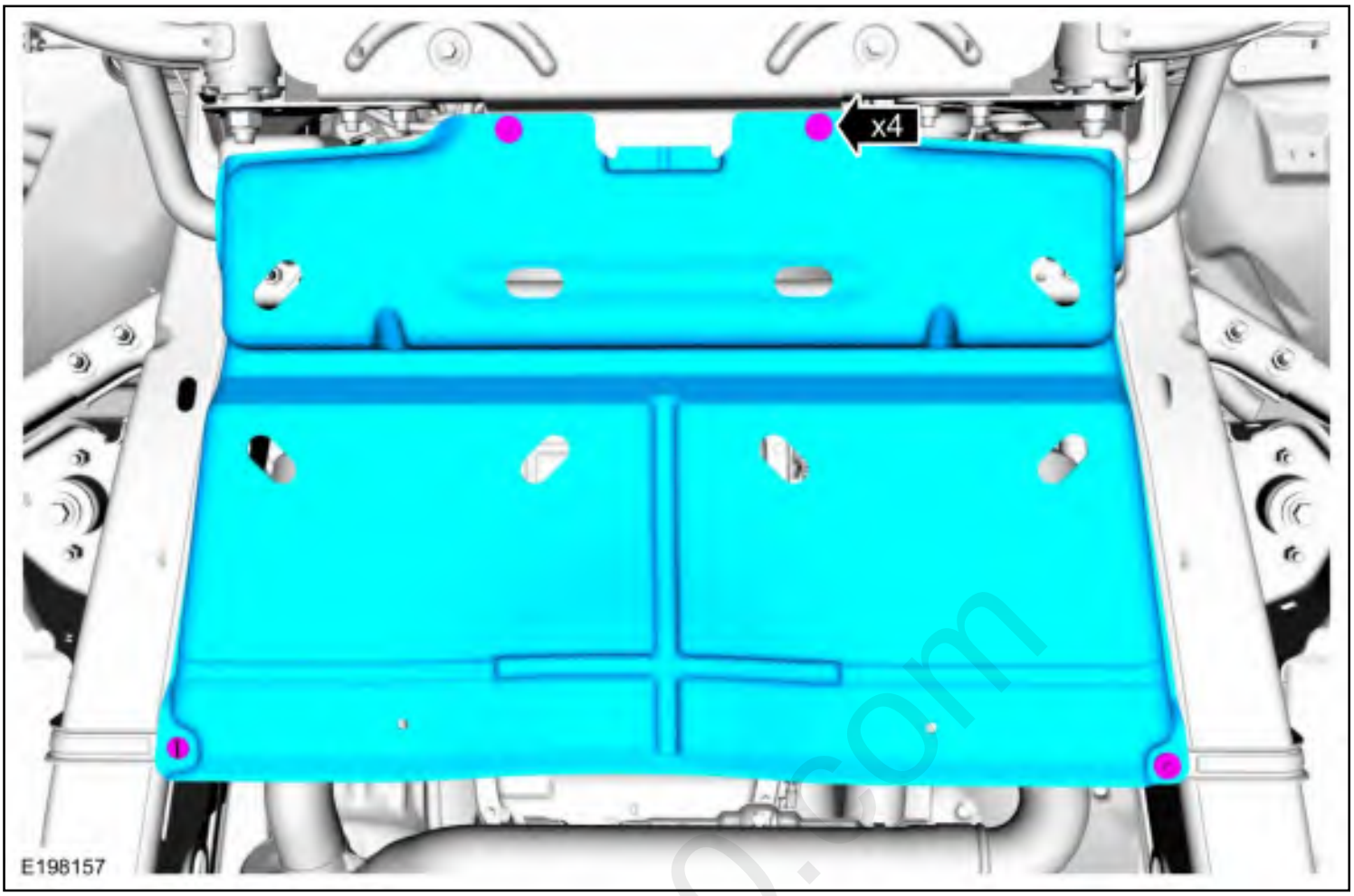
NOTE: *If the catalytic converter is not being replaced, the HO2S and the catalyst monitor sensor do not need to be removed from the catalytic converter. Disconnecting the electrical connectors is still necessary.*

NOTE: *The exhaust Y-pipe dual catalytic converter is a 2-piece assembly. The LH and RH converters can be serviced separately as needed.*

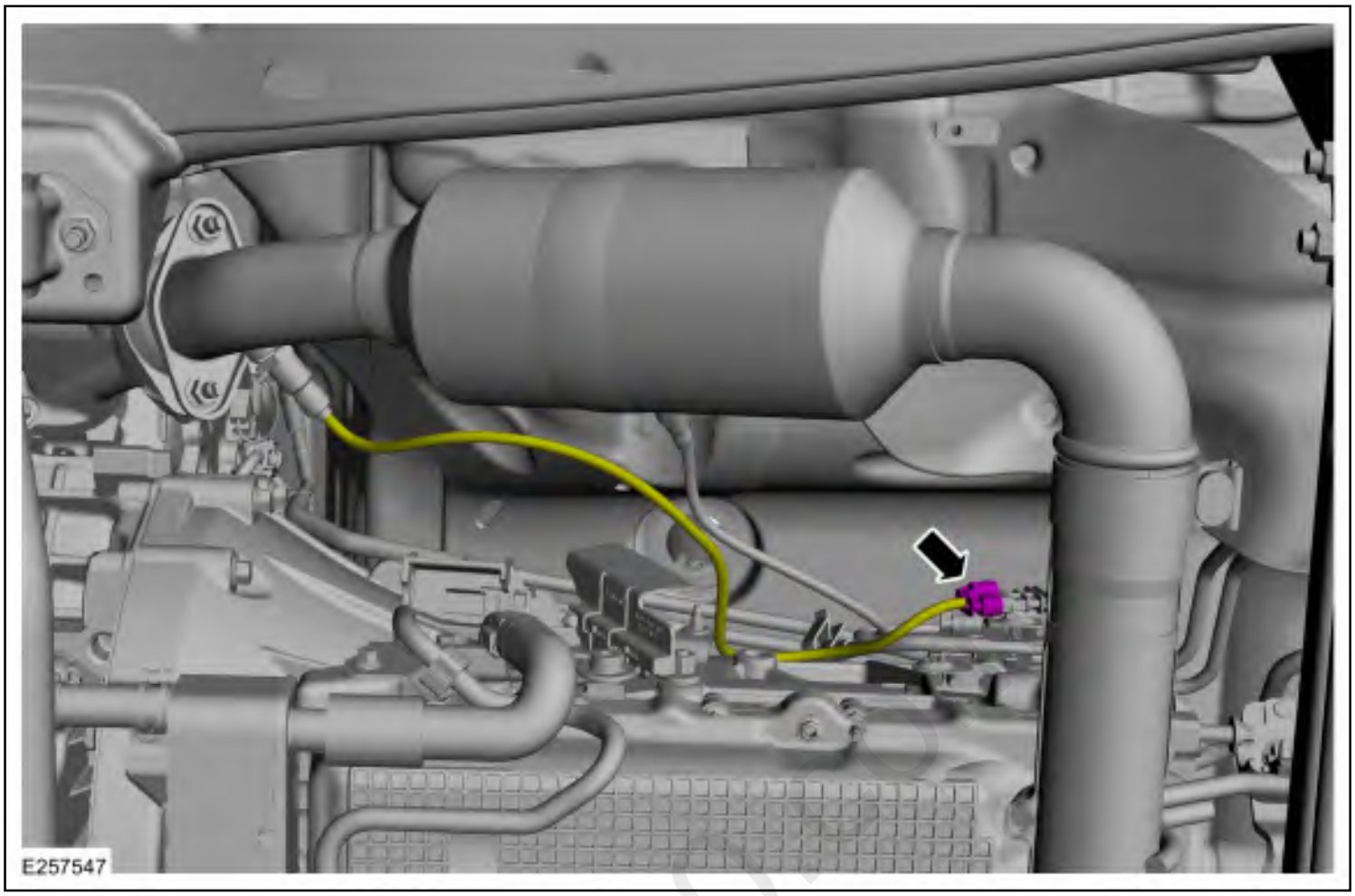
NOTE: *Clean all exhaust connections before reassembly.*

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).

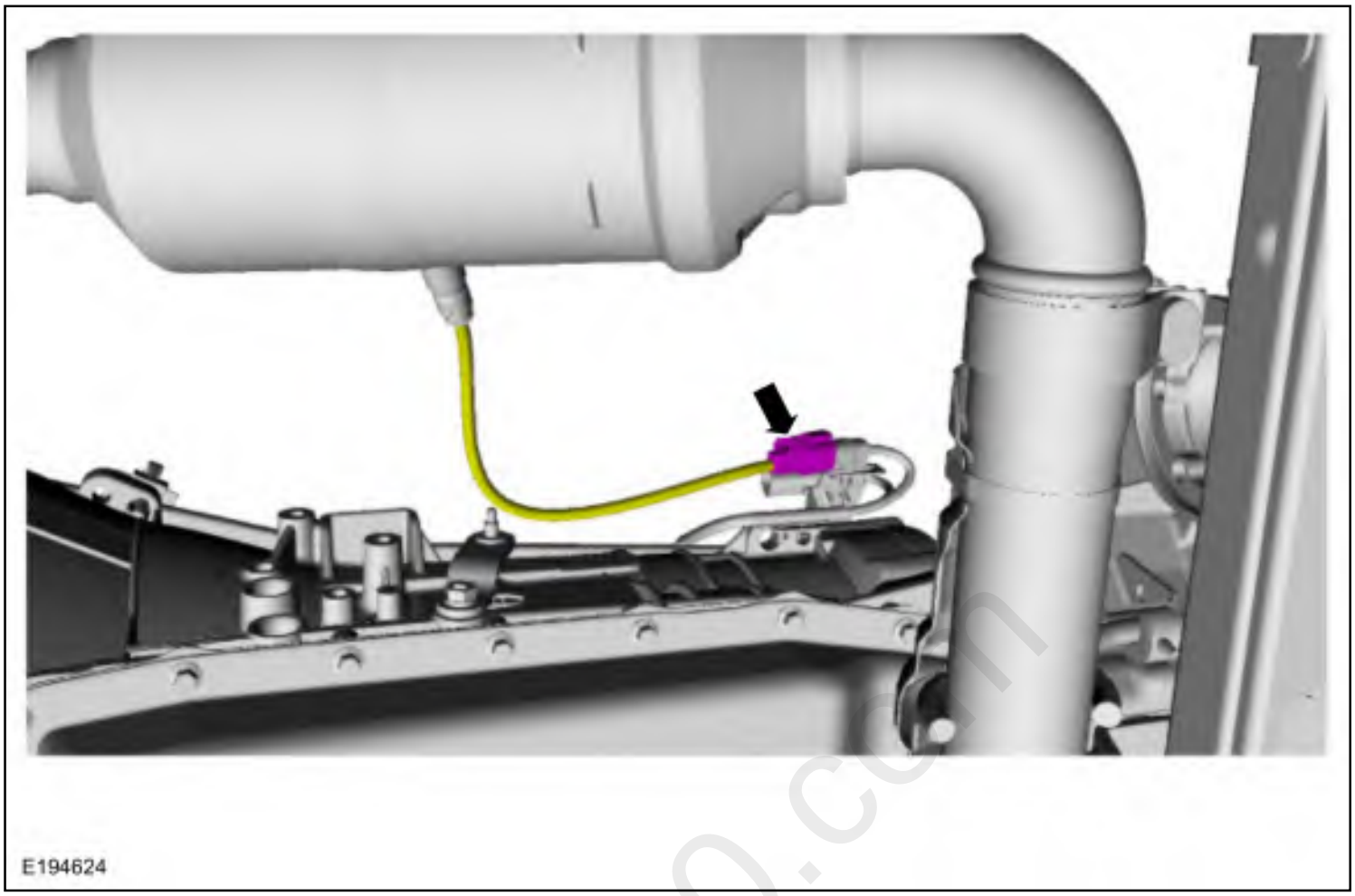
2. If equipped, remove the underbody shield.



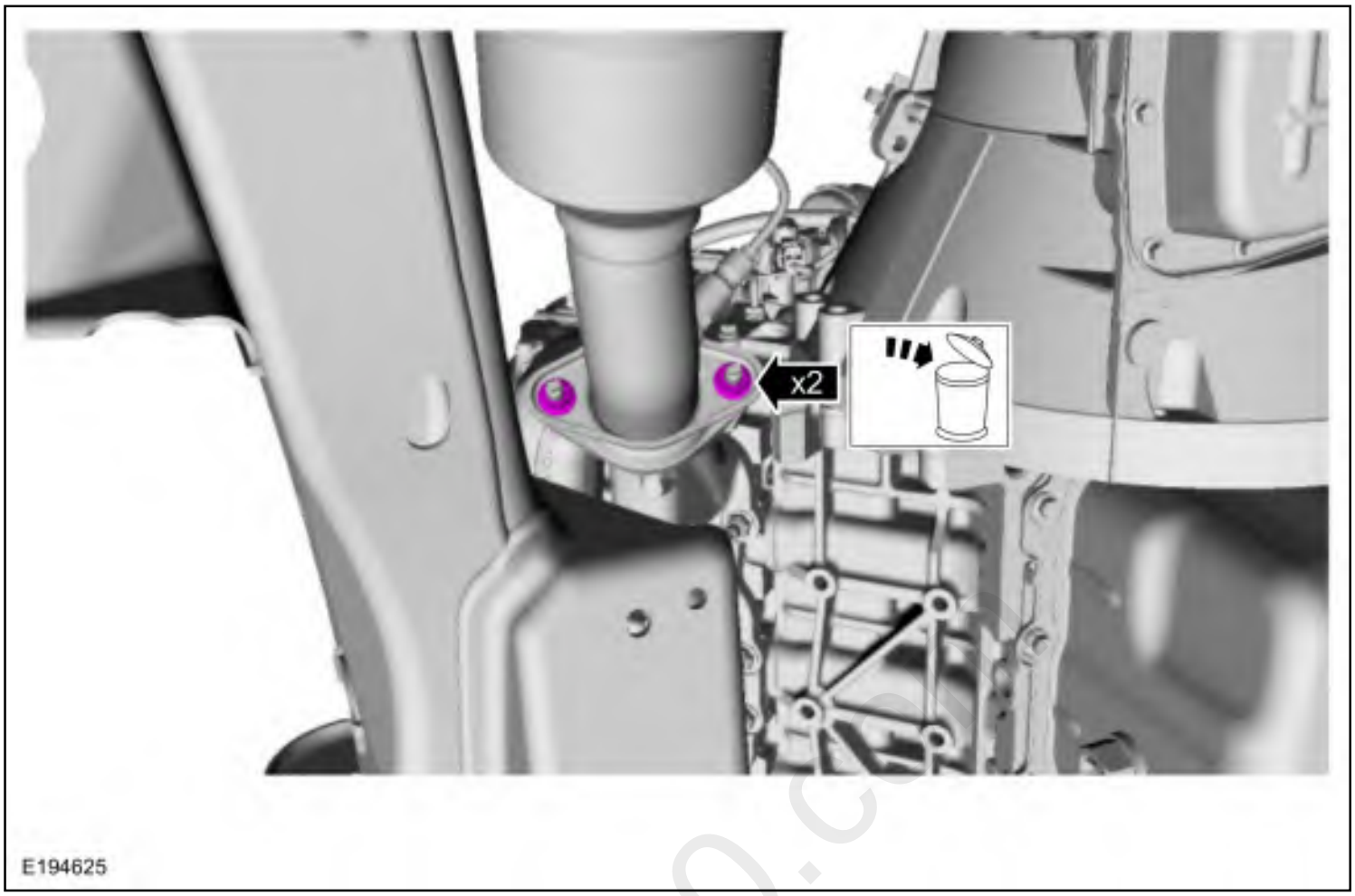
3. Disconnect the HO2S electrical connector.



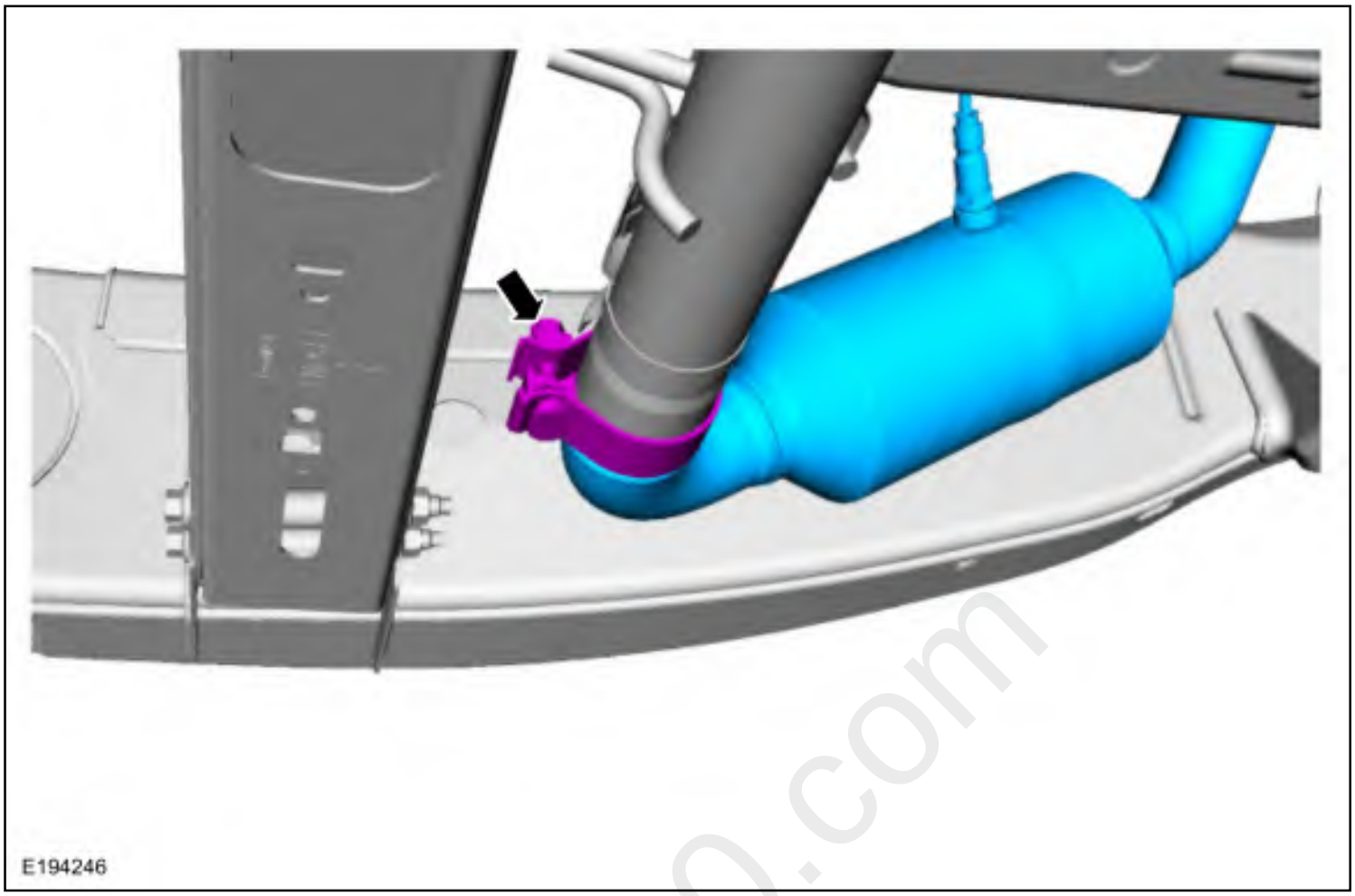
4. Disconnect the HO2S electrical connector.



5. Remove the LH catalytic converter nuts and discard.



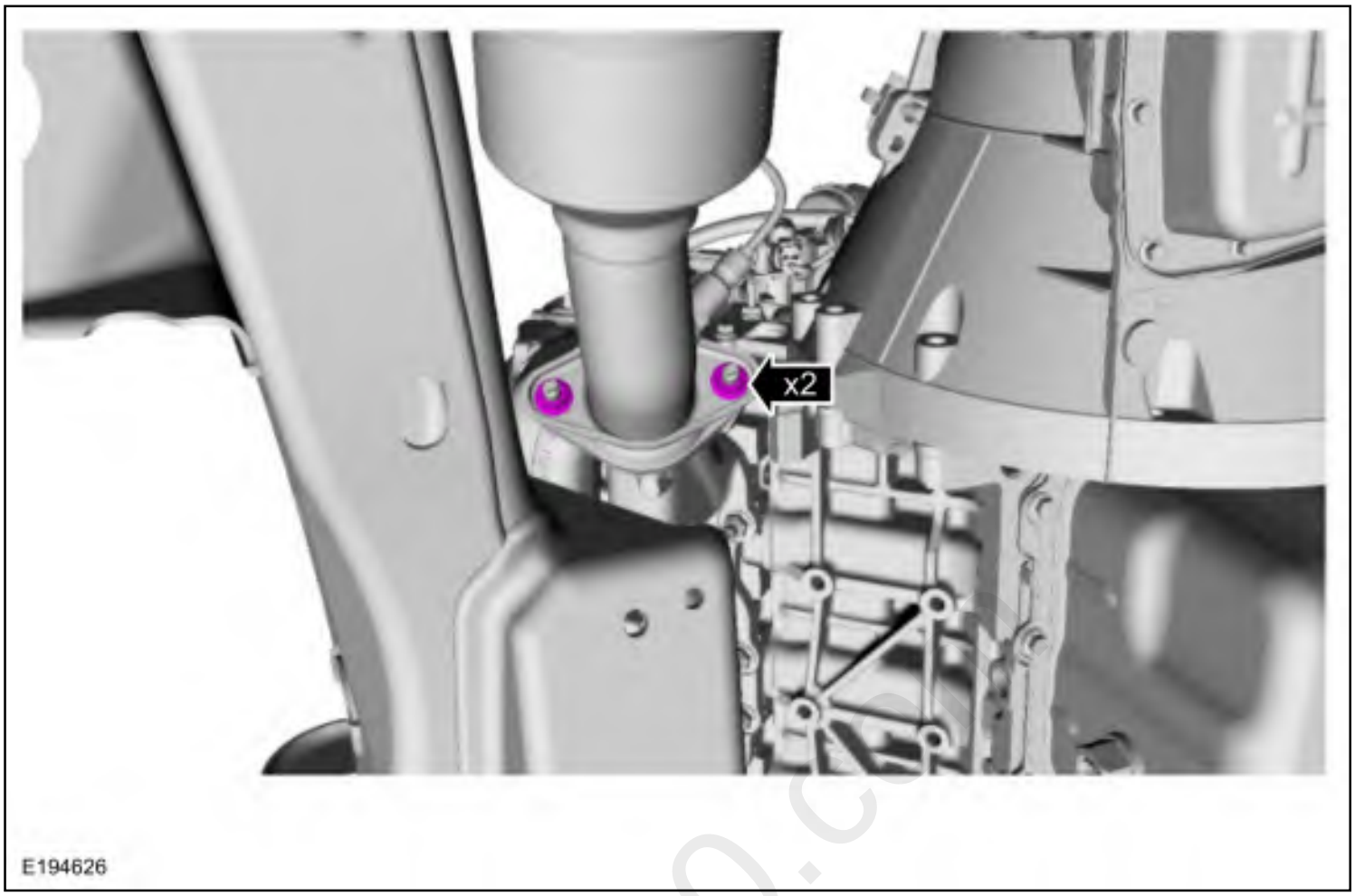
6. Loosen the clamp and remove the LH catalytic converter.



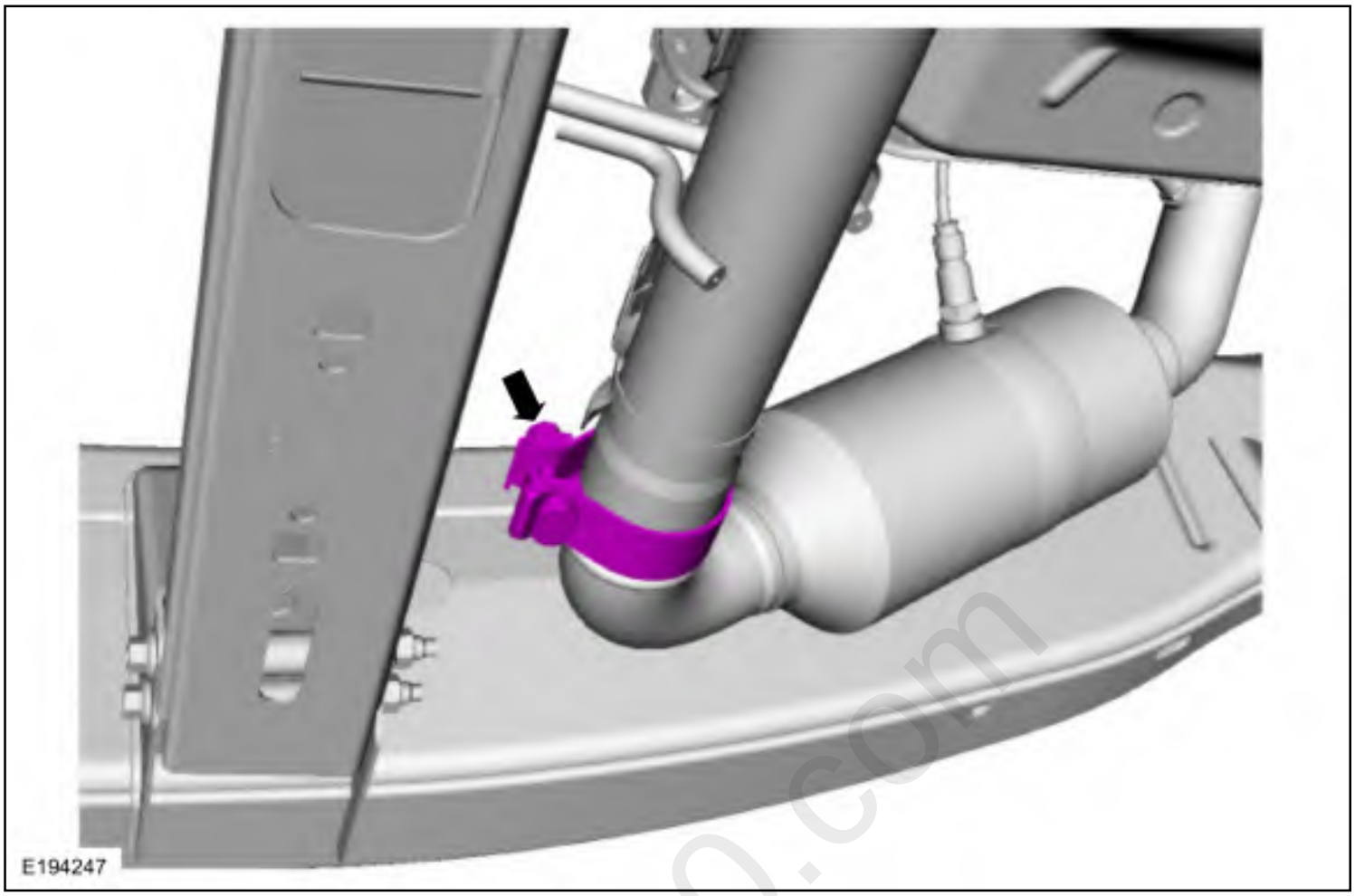
Installation

1. **NOTE:** *Evenly tighten the LH catalytic converter nuts.*

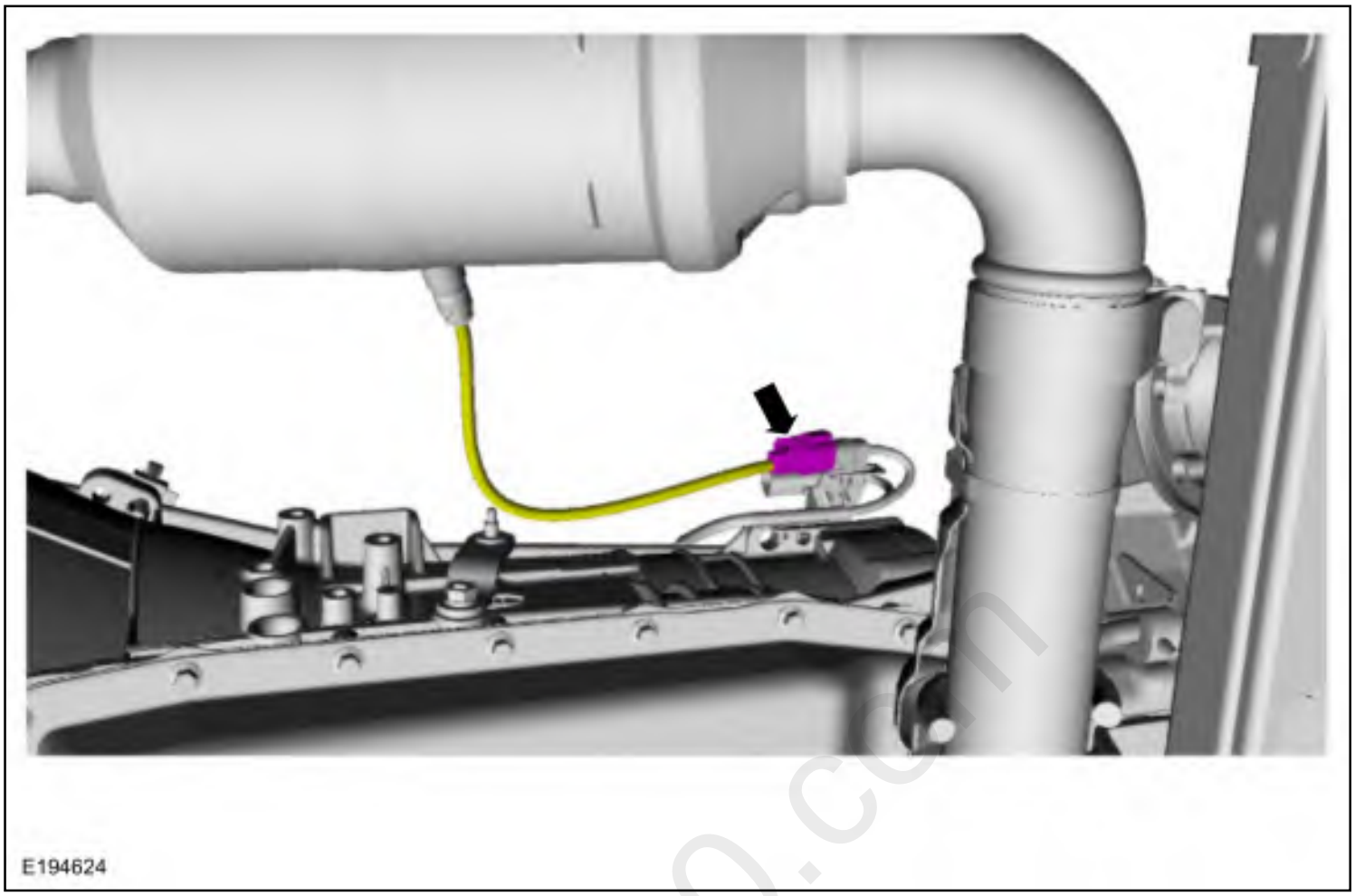
   Position the LH catalytic converter in vehicle with a new gasket. Install the new LH catalytic converter nuts.
   Torque: 30 lb.ft (40 Nm)



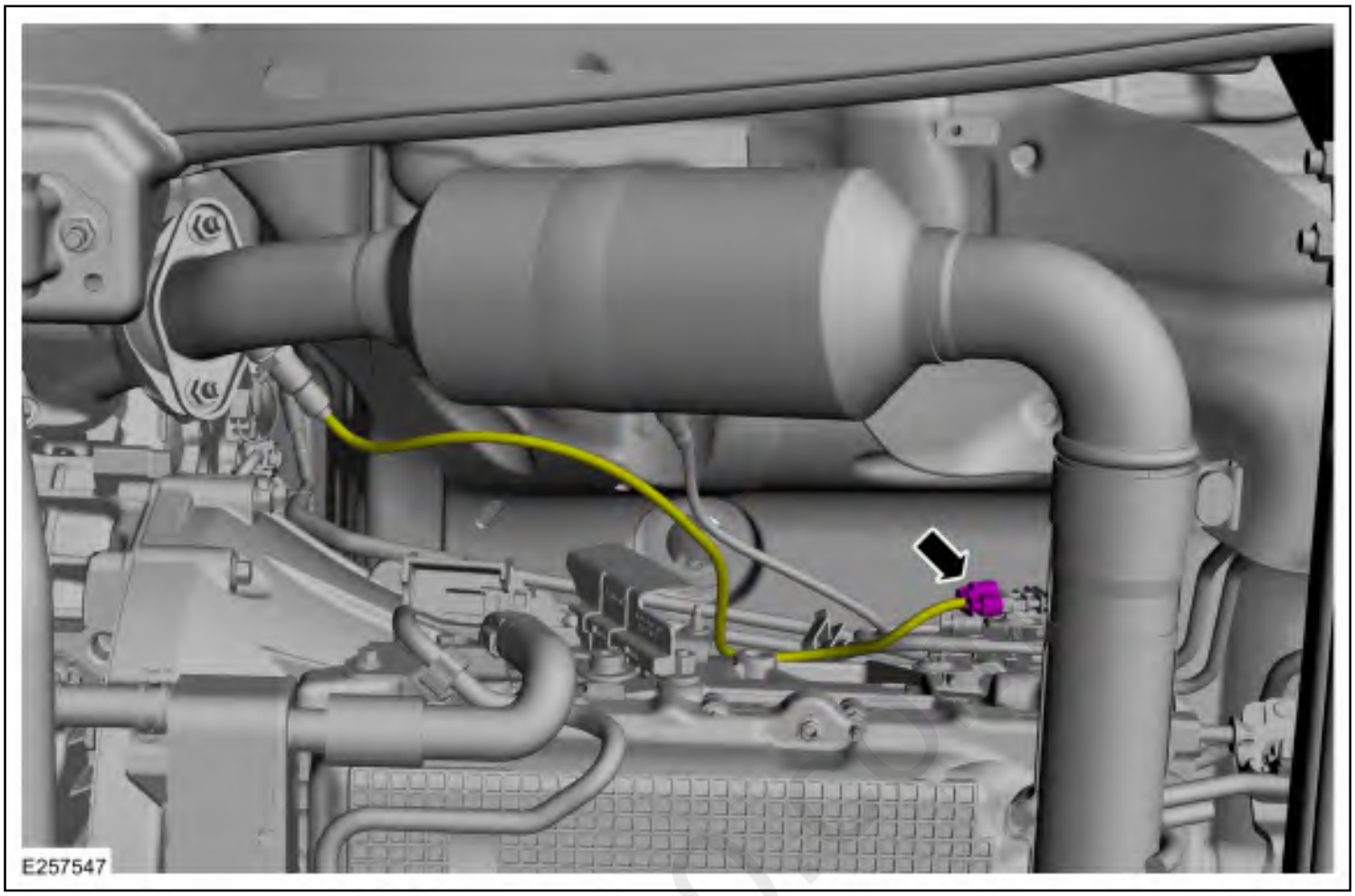
2. Tighten the clamp.
   Torque: 41 lb.ft (55 Nm)



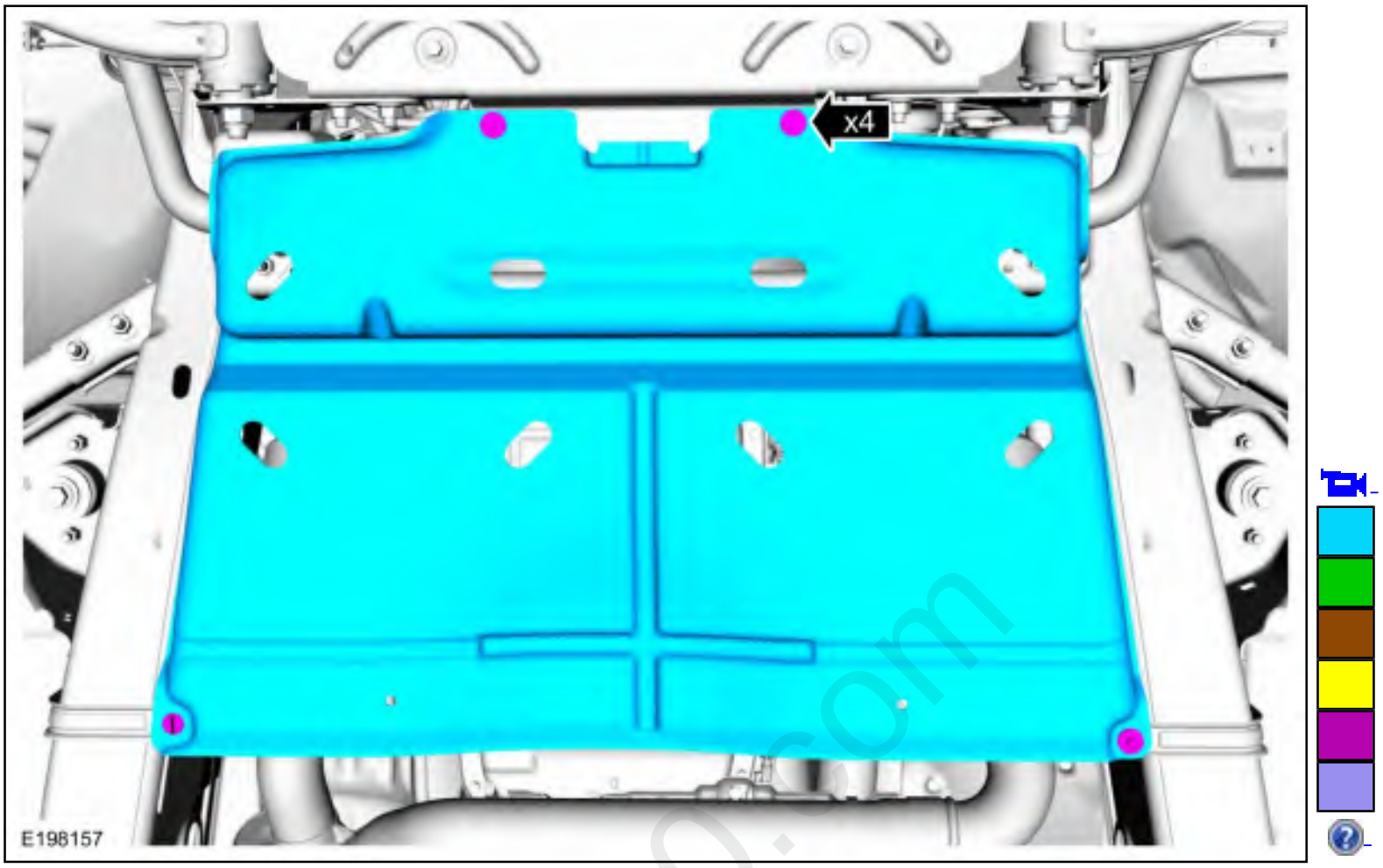
3. Connect the HO2S electrical connector.



4. Connect the HO2S electrical connector.



5. If equipped, install the underbody shield.
   Torque: 71 lb.in (8 Nm)



6. Check the exhaust system for leaks.

Muffler Inlet Pipe

Removal

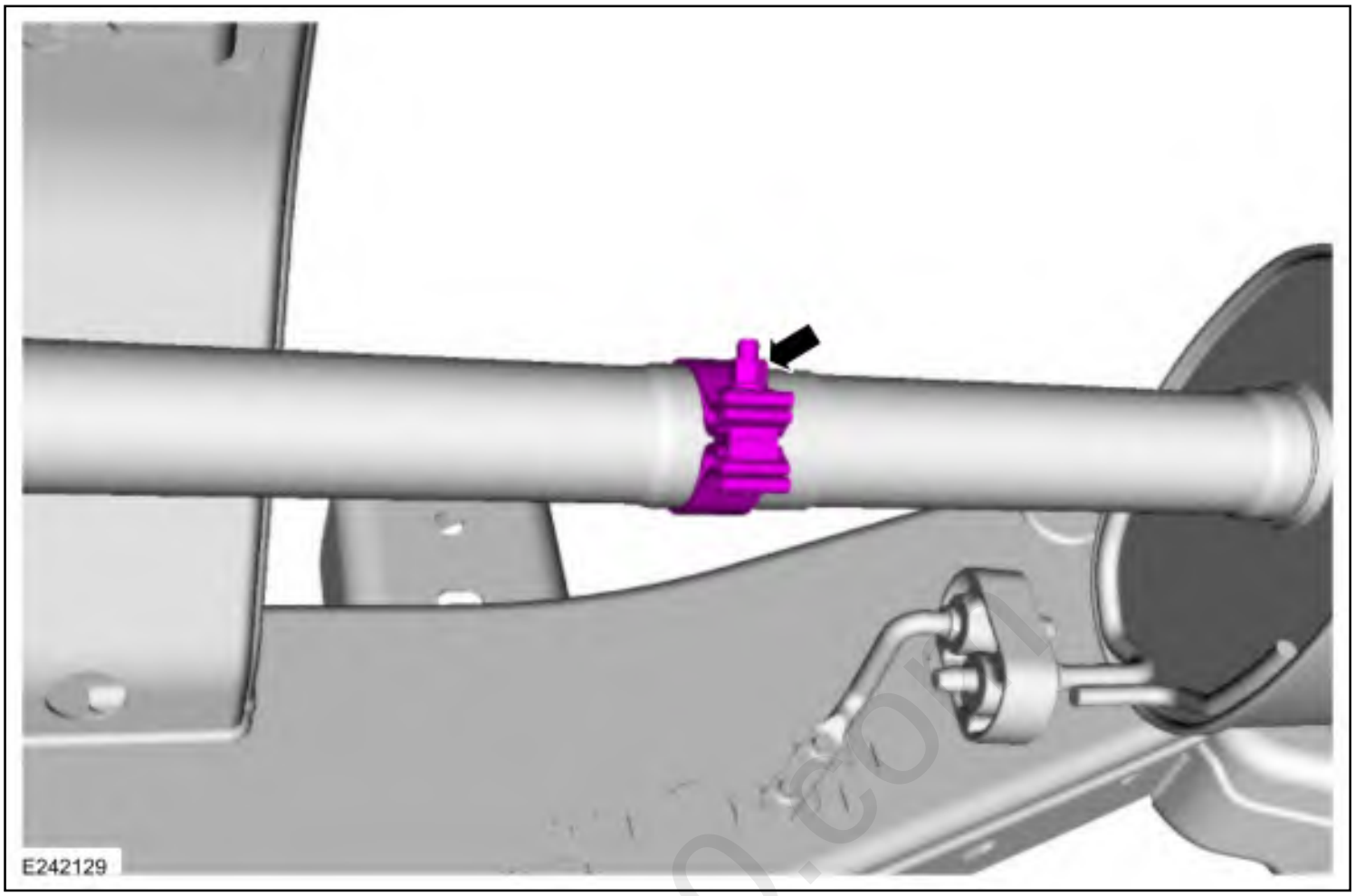
NOTE: *Muffler inlet pipes will vary in configuration with different wheelbases and powertrains. Typical application shown.*

NOTE: *Removal steps in this procedure may contain installation details.*

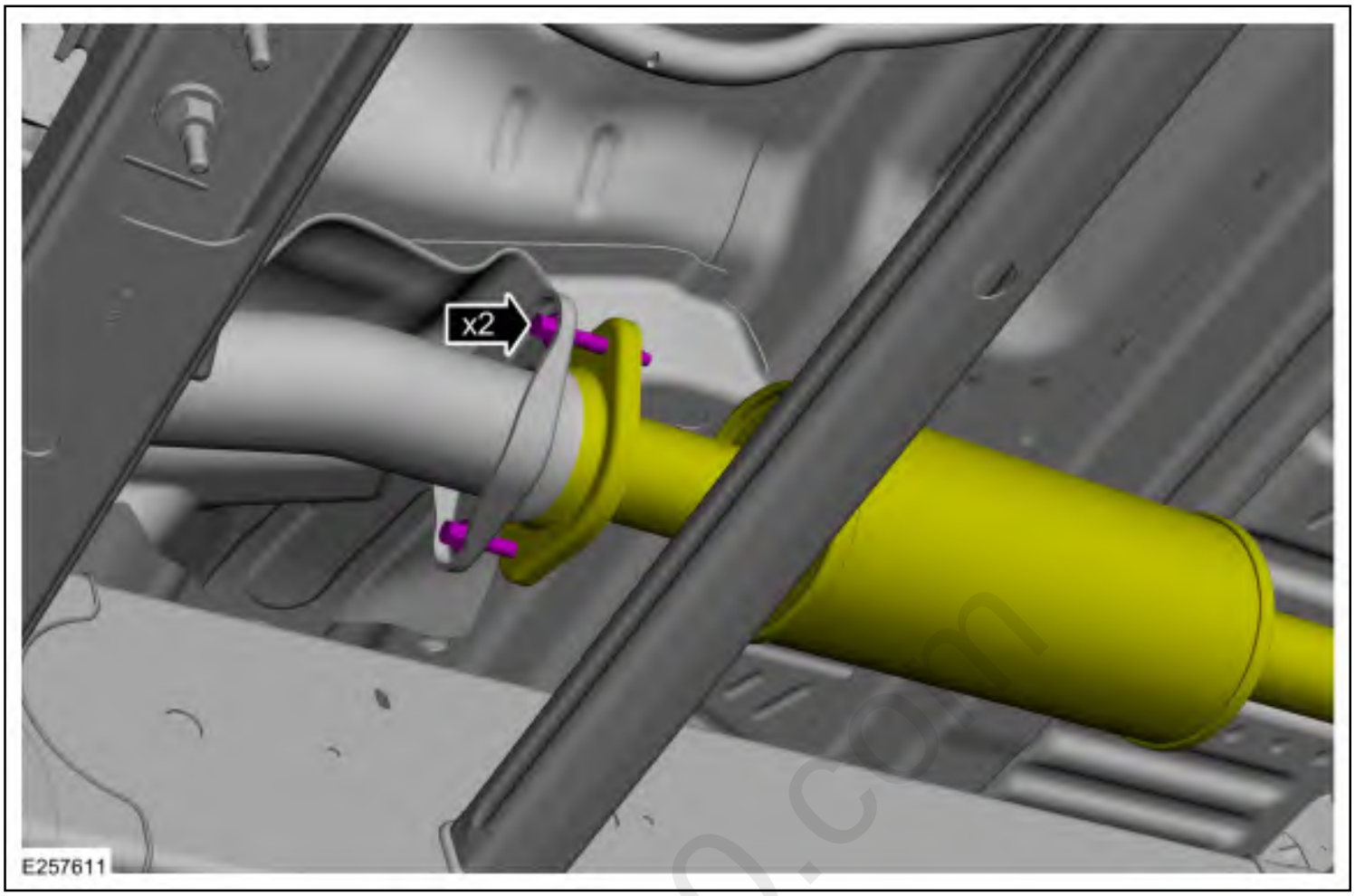
NOTE: *Clean all exhaust connections before reassembly.*

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).

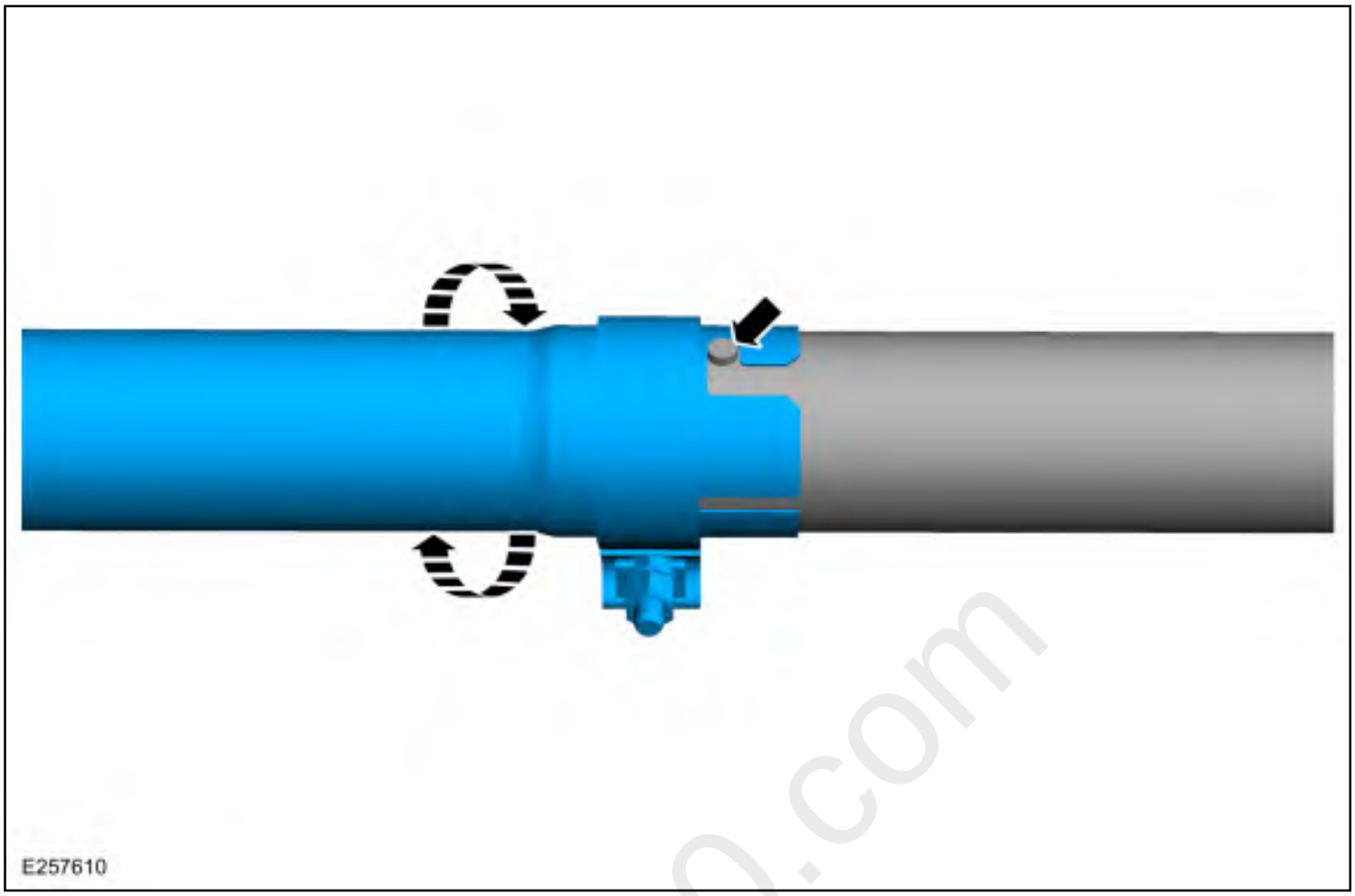
2. Loosen the clamp.
   Torque: 41 lb.ft (55 Nm)



3. Remove the bolts and the muffler inlet pipe.
   Torque: 30 lb.ft (40 Nm)



4. During removal, the locator tab needs to be released out of the muffler inlet pipe.



Installation

1. To install, reverse removal procedure.
2. Check the exhaust system for leaks.

Catalytic Converter RH

Base Part Number: Base Part Number: 5G218

Removal

NOTE: *If the catalytic converter is not being replaced, the HO2S and the catalyst monitor sensor do not need to be removed from the catalytic converter. Disconnecting the electrical connectors is still necessary.*

NOTE: *The exhaust Y-pipe dual catalytic converter is a 2-piece assembly. The LH and RH converters can be serviced separately as needed.*

NOTE: *Clean all exhaust connections before reassembly.*

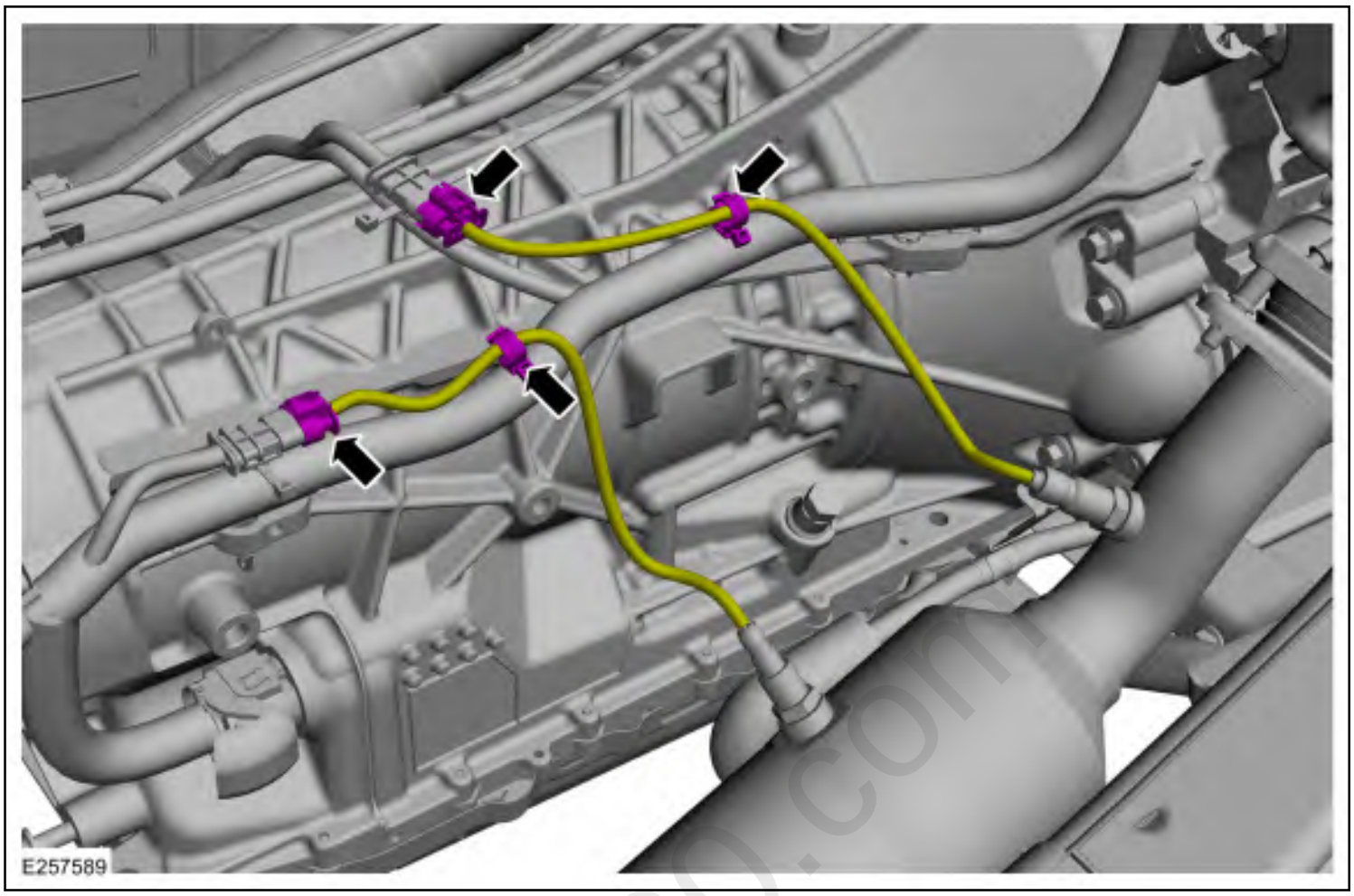
1. With the vehicle in NEUTRAL, position it on a hoist.
   Refer to: Jacking and Lifting - Overview (100-02 Jacking and Lifting, Description and Operation).

2. Remove the LH catalytic converter.
   Refer to: Catalytic Converter LH (309-00 Exhaust System - 5.0L 32V Ti-VCT) .

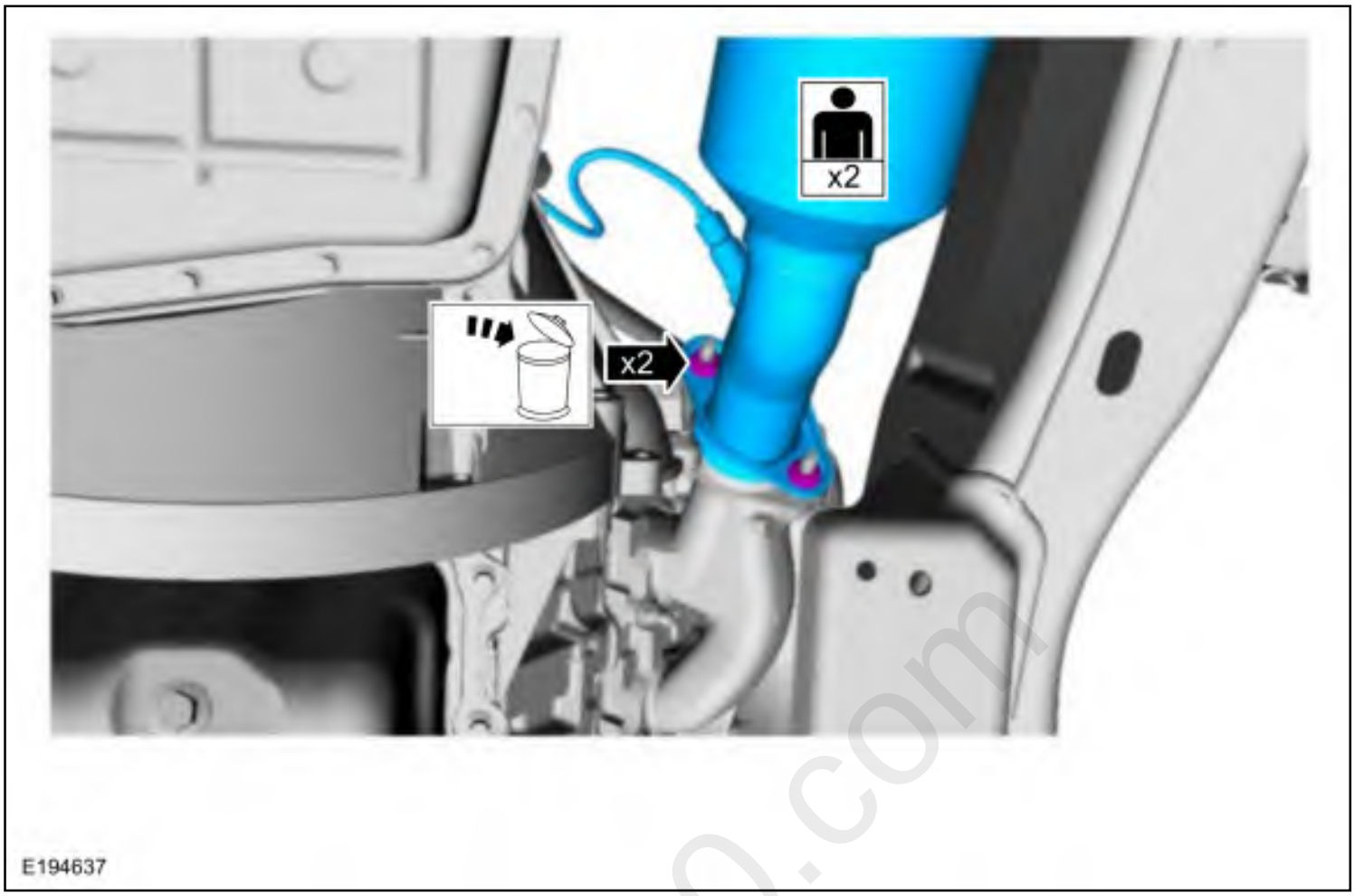
3. Remove the muffler inlet pipe.
   Refer to: Muffler Inlet Pipe (309-00 Exhaust System - 5.0L 32V Ti-VCT) .

4. Remove the transmission support insulator.
   Refer to: Transmission Support Insulator (307-01A Automatic Transmission - 6-Speed Automatic Transmission - 6R80, Removal and Installation).

5. Remove the retainers and disconnect the electrical connectors.



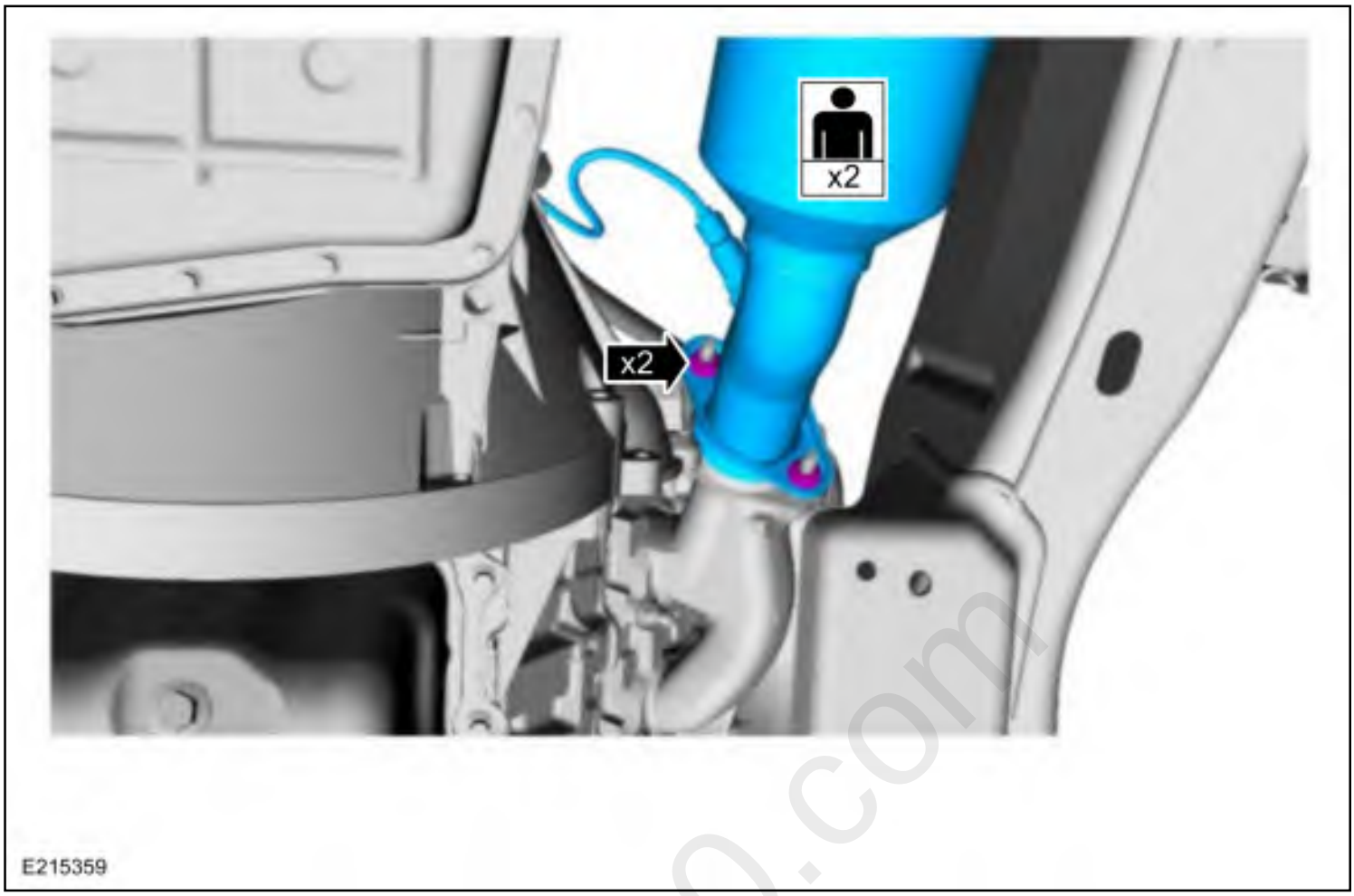
6. Remove the RH catalytic converter nuts and discard. Remove the RH catalytic converter.



Installation

1. **NOTE:** *Loosely install the new RH catalytic converter nuts. Do not tighten at this time.*

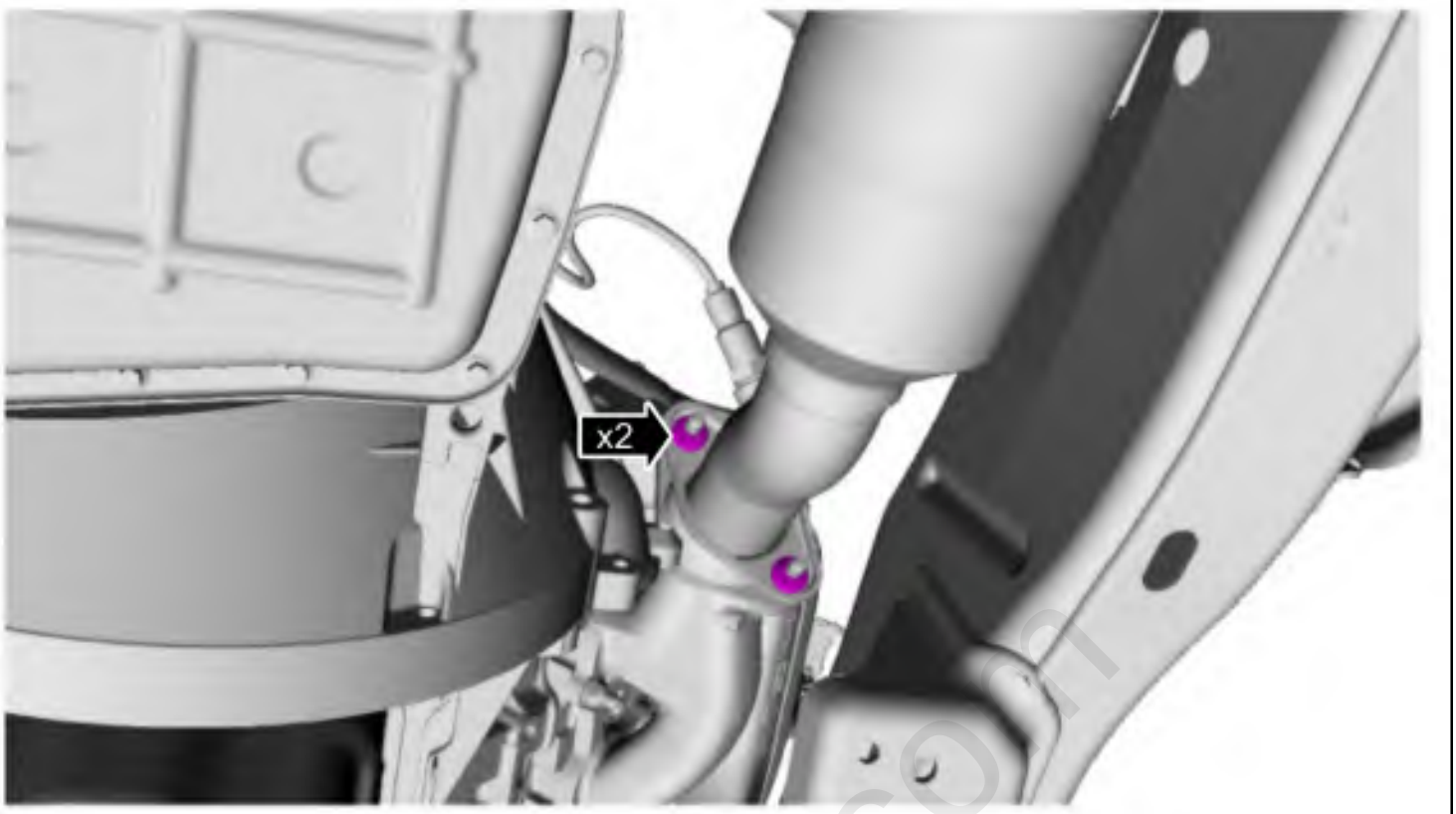
   Position the RH catalytic converter in the vehicle. Loosely install the new RH catalytic converter nuts.



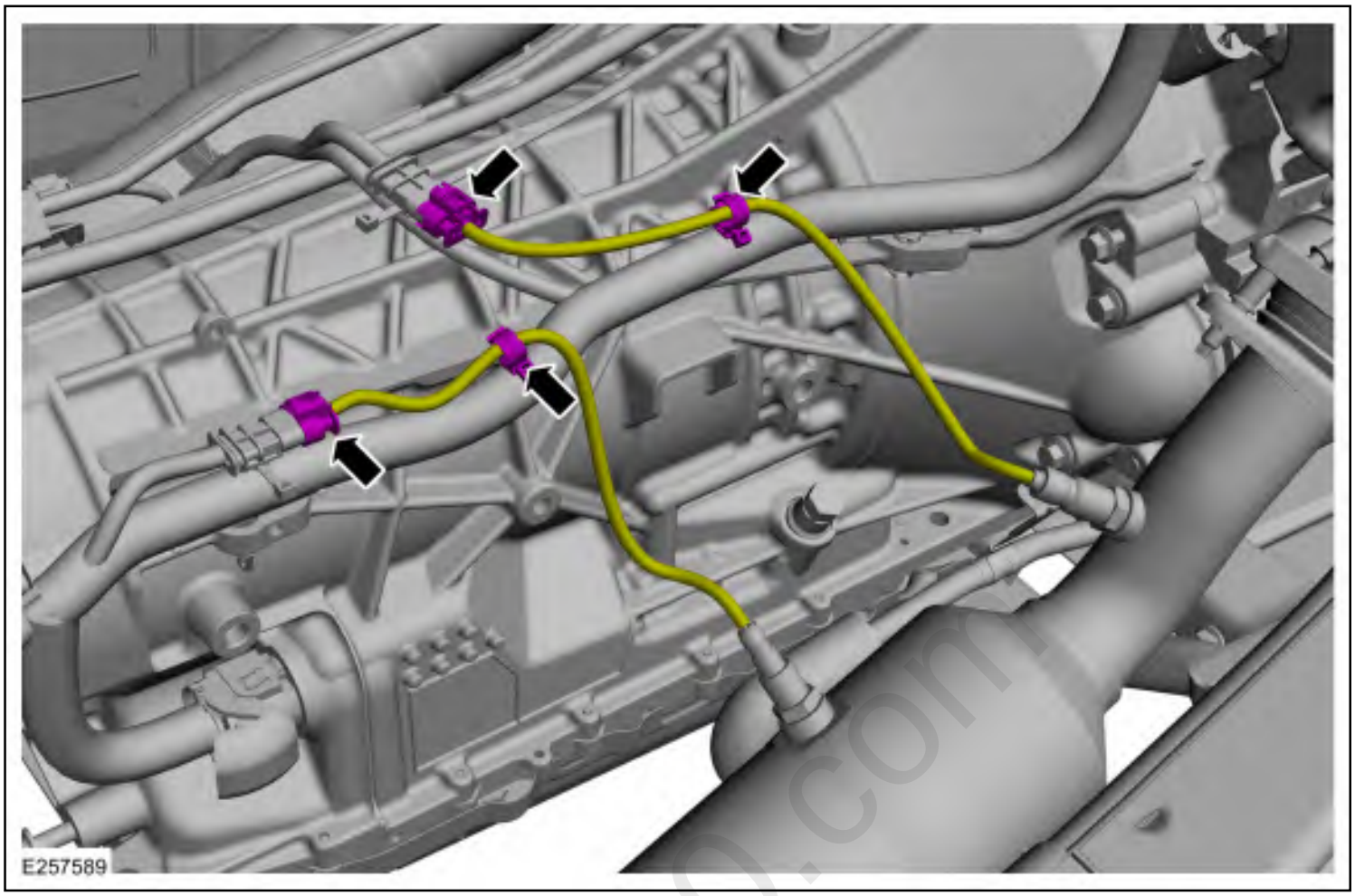
2. Install the transmission support insulator.
   Refer to: Transmission Support Insulator (307-01A Automatic Transmission - 6-Speed Automatic Transmission - 6R80, Removal and Installation).

3. **NOTE:** *Evenly tighten the RH catalytic converter nuts.*

   Tighten the RH catalytic converter nuts.
   Torque: 30 lb.ft (40 Nm)



4. Install the retainers and connect the electrical connectors.



5. Install the LH catalytic converter.
   Refer to: Catalytic Converter LH (309-00 Exhaust System - 5.0L 32V Ti-VCT) .

6. Install the muffler inlet pipe.
   Refer to: Muffler Inlet Pipe (309-00 Exhaust System - 5.0L 32V Ti-VCT) .

7. Check the exhaust system for leaks.

Specifications

General Specifications

Item	Specification
Fuel Pressure	
Engine running - 5.0L 32V Ti-VCT (Low pressure side).	51–87 psi (350–600 kPa)
Fuel Tank Capacity	
Standard Fuel Tank Regular and Super Cab.	23 gal (87 L)
Standard Fuel Tank Crew Cab.	26 gal (98 L)
Optional long wheel base Fuel Tank.	36 gal (136 L)

Fuel System

Symptom Chart(s)

Symptom Chart: Fuel System

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).
for information regarding Ford-specific diagnostic practices.

NOTE: *The following procedure diagnoses a slow to fill concern only. For all other concerns, refer to Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.*

Symptom Chart

Condition	Possible Sources	Actions
Slow to fill	• Fuel tank filler pipe • Fuel tank filler pipe vent tube, if equipped • EVAPsystem • Fuel tank inlet check valve (part of the fuel tank) • Fuel level vent valve (part of the fuel tank)	REFER to GO to Pinpoint Test A
All other fuel system concerns	Fuel system components	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Diagnostic Routine(s)

Slow to Fill

Normal Operation and Fault Conditions

Under normal operation, fuel should flow at a steady rate through the fuel tank filler pipe into the fuel tank. As fuel enters the fuel tank air is vented through the filler pipe or the ORVR system.

PINPOINT TEST A : SLOW TO FILL

A1 CHECK COMPONENTS FOR SIGNS OF DAMAGE

- Visually inspect the following components for signs of damage:
  - Fuel tank filler pipe
  - Fuel tank filler pipe vent tube, if equipped
  - EVAP system
  - Fuel tank inlet check valve (part of the fuel tank)
  - Fuel level vent valve (part of the fuel tank)

Was the cause of the concern found?

Yes	REPAIR or INSTALL new components to correct the concern.
No	GO to A2

A2 CHECK THE SYSTEM FOR ANY EVAP (EVAPORATIVE EMISSION) DTC'S

- Connect the scan tool.
- Check the system for any EVAP DTC's.

Are any DTC's present?

Yes	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.
No	GO to A3

A3 MONITOR THE FTP WHILE FILLING THE FUEL TANK

- Monitor the Fuel Tank Pressure (FTP) reference value while filling the fuel tank. Refer to the Reference Values in the Powertrain Control/Emissions Diagnosis (PC/ED) manual. Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Is FTP within specification?

Yes	GO to A5
No	GO to A4

A4 MONITOR THE FTP WHILE FILLING THE FUEL TANK WITH THE EVAP SYSTEM DISCONNECTED

- Disconnect the fuel tank-to-EVAP canister quick connect coupling at the EVAP canister.
- Monitor the FTP reference value while filling the fuel tank. Refer to Powertrain Control/ Emissions Diagnosis (PC/ED) manual.

Is FTP within specification?

Yes	INSPECT the EVAP system for blockage or restrictions. REPAIR the blockage or restriction. If the blockage or restriction cannot be repaired, INSTALL new EVAP system components.
No	GO to A5

A5 CHECK THE FUEL TANK FILLER PIPE ASSEMBLY FOR BLOCKAGE OR RESTRICTION

- Remove the fuel tank filler pipe assembly.
  REFER to: Fuel Tank Filler Pipe (310-01D Fuel Tank and Lines - 5.0L 32V Ti-VCT, Removal and Installation).

- Inspect the fuel tank filler pipe and fuel tank filler pipe vent tube (if equipped) for a blockage or restriction.

Is the fuel tank filler pipe or fuel tank filler pipe vent tube (if equipped) blocked or restricted?

Yes	If possible, REPAIR the blockage or restriction. If the blockage or restriction cannot be repaired, INSTALL a new fuel tank filler pipe or fuel tank filler pipe vent tube.
No	GO to A6

A6 CHECK THE FUEL TANK INLET CHECK VALVE

- Inspect the fuel tank inlet check valve for restriction or sticking.

Is the fuel tank inlet check valve restricted or sticking?

Yes	If possible, REPAIR the restriction. If the restriction cannot be repaired, INSTALL a new fuel tank. REFER to: Fuel Tank (310-01D Fuel Tank and Lines - 5.0L 32V Ti-VCT, Removal and Installation).
No	INSTALL a new fuel tank.

Information not available at this time.

Quick Release Coupling

Disconnect

NOTICE: When reusing liquid or vapor tube connections, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

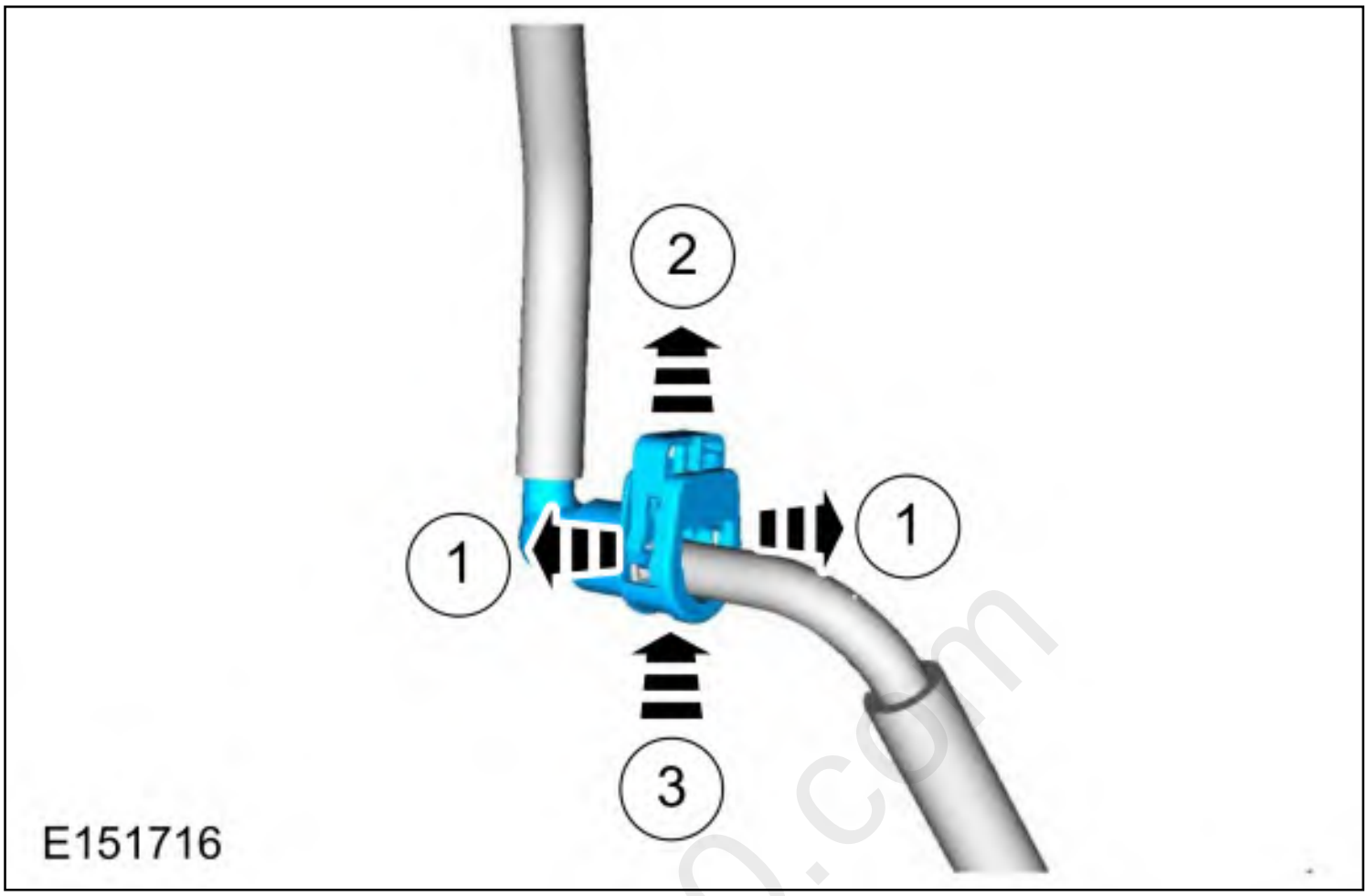
NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: ***Type 1***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.



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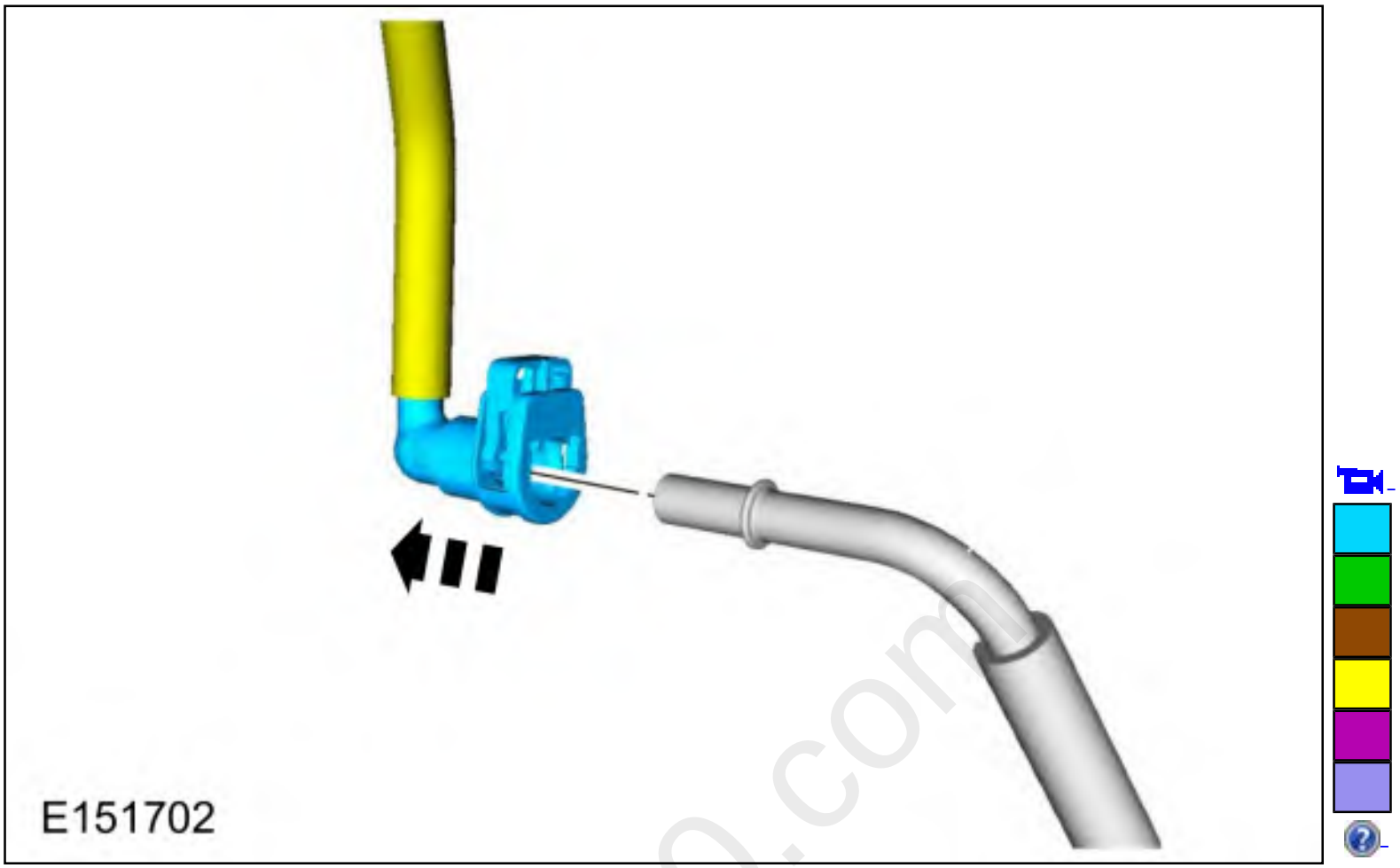
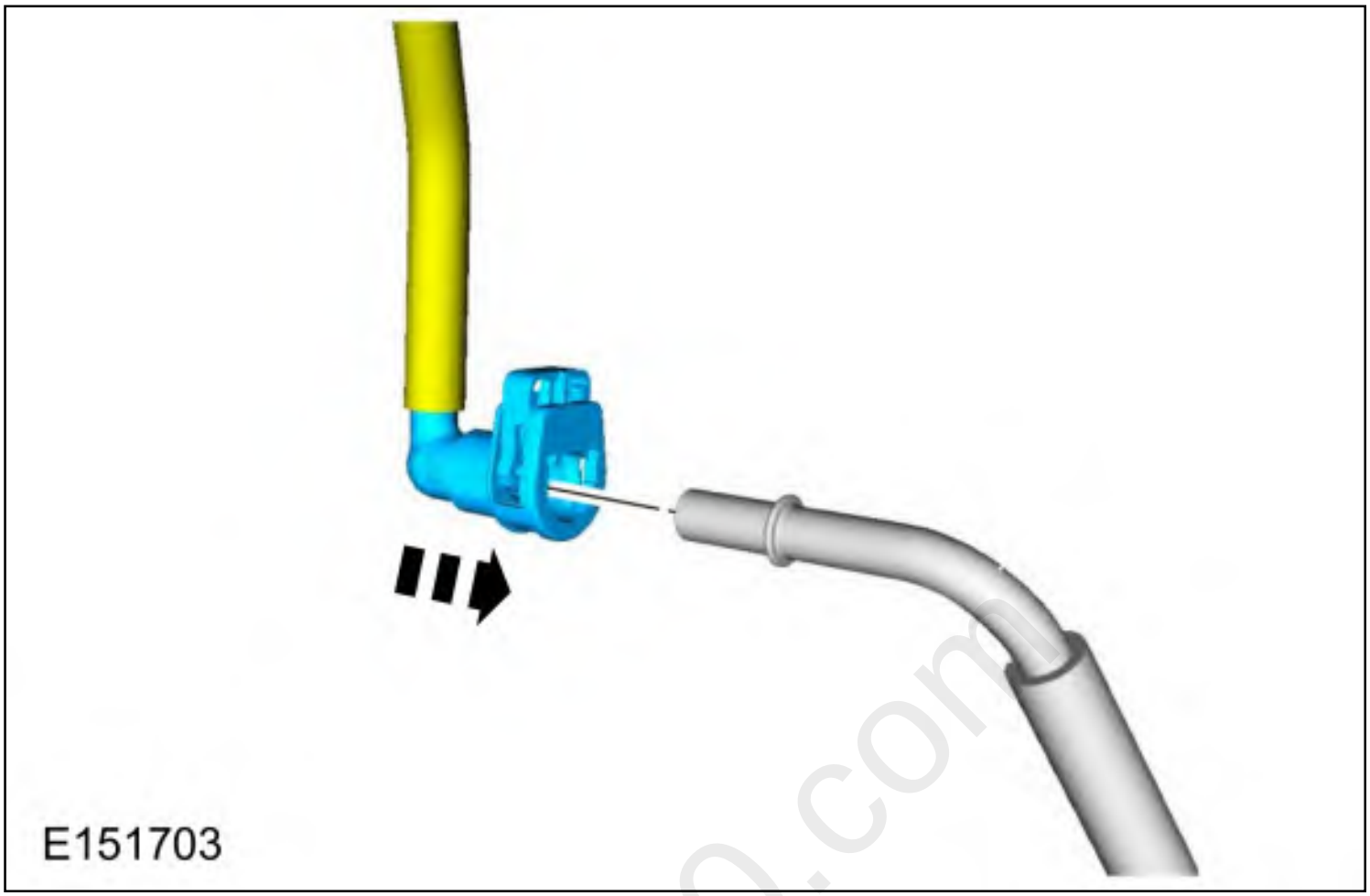


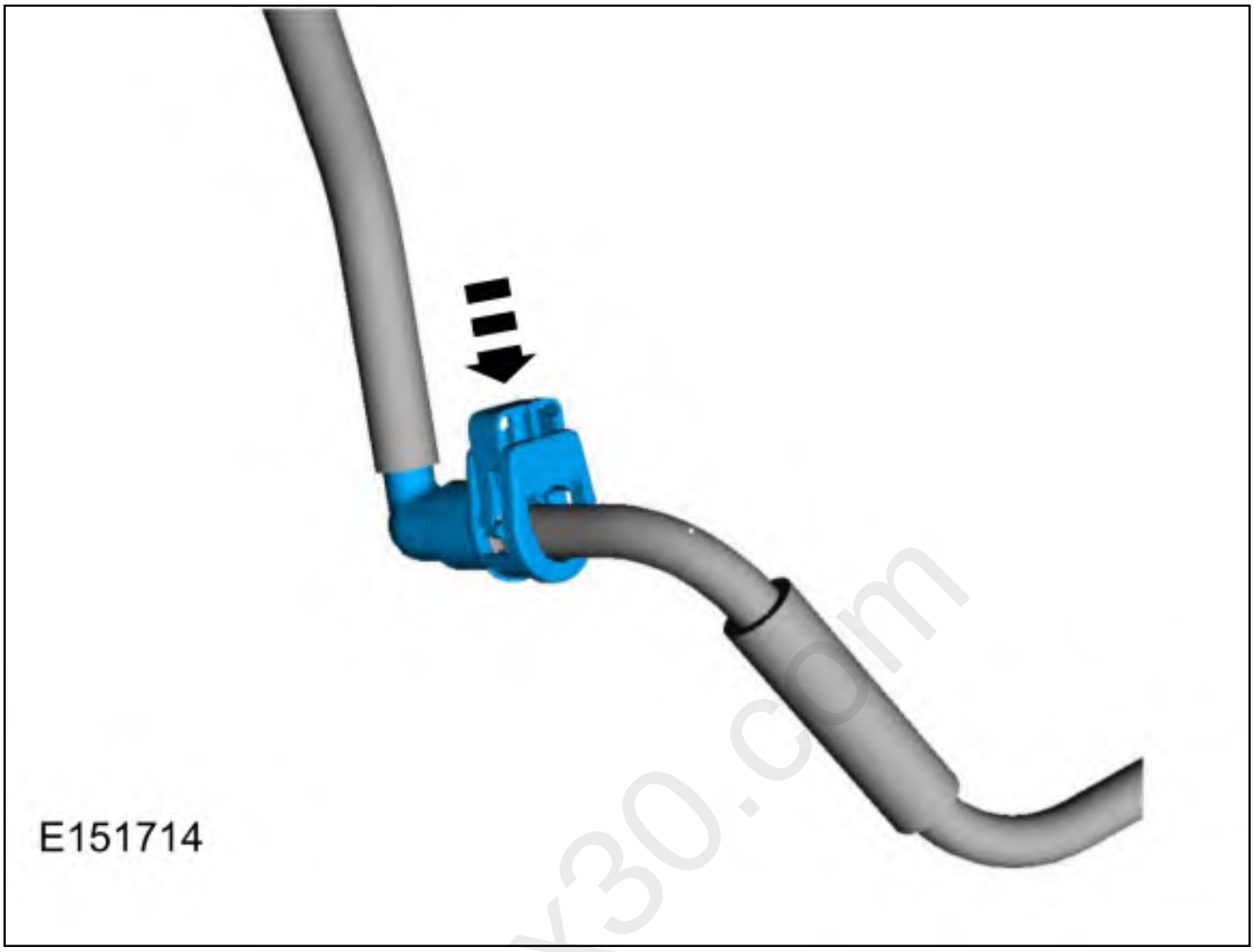
Connect

1. Push the quick release coupling onto the tube.



2. **NOTE:** *Make sure the retainer clip is fully seated and locked onto the tube by pulling on the quick connect coupling.*

   Press the retainer clip into the quick connect coupling body until flush and the tabs are locked in place.



3. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid or vapor tube connections, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

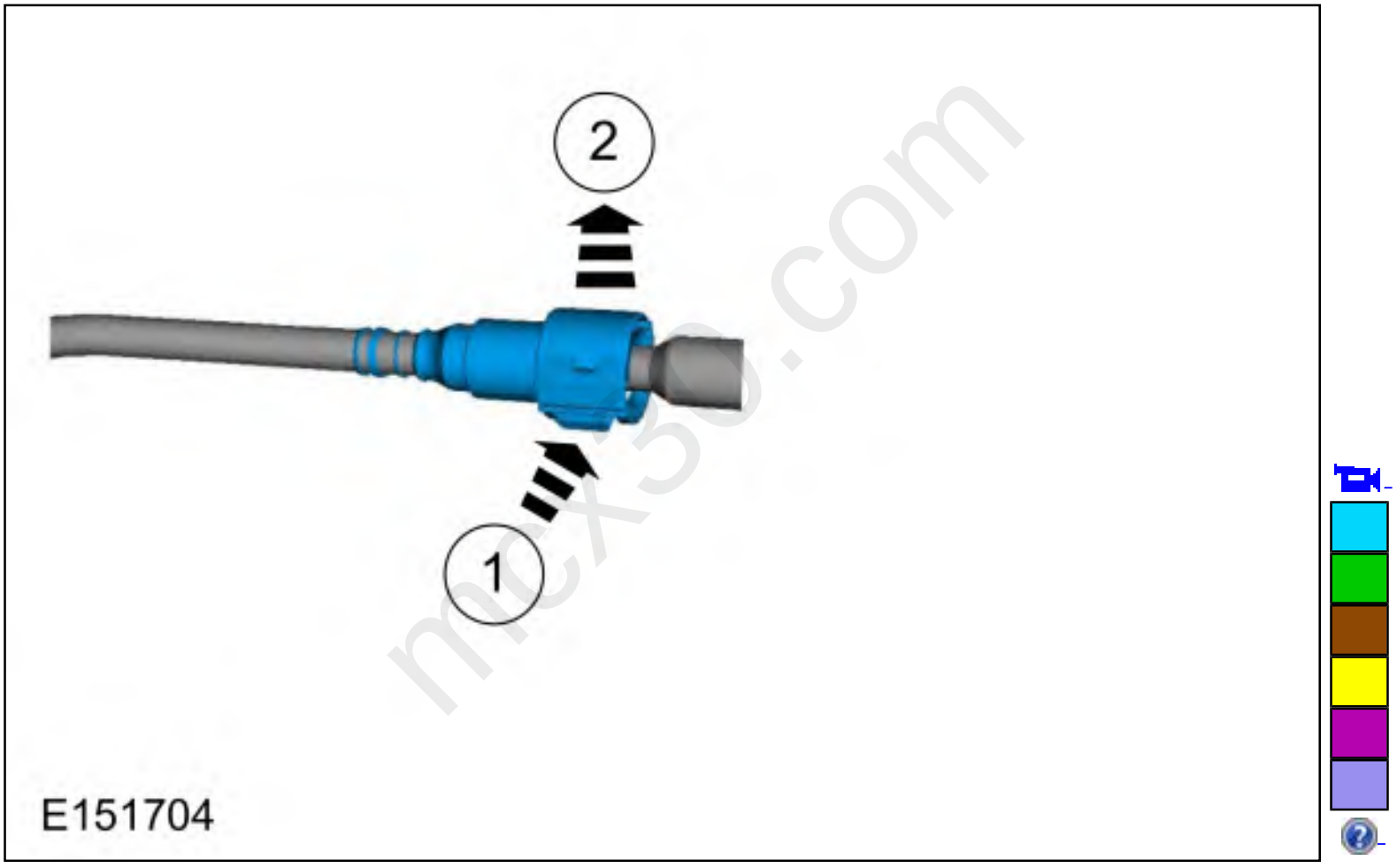
NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: ***Type 2***

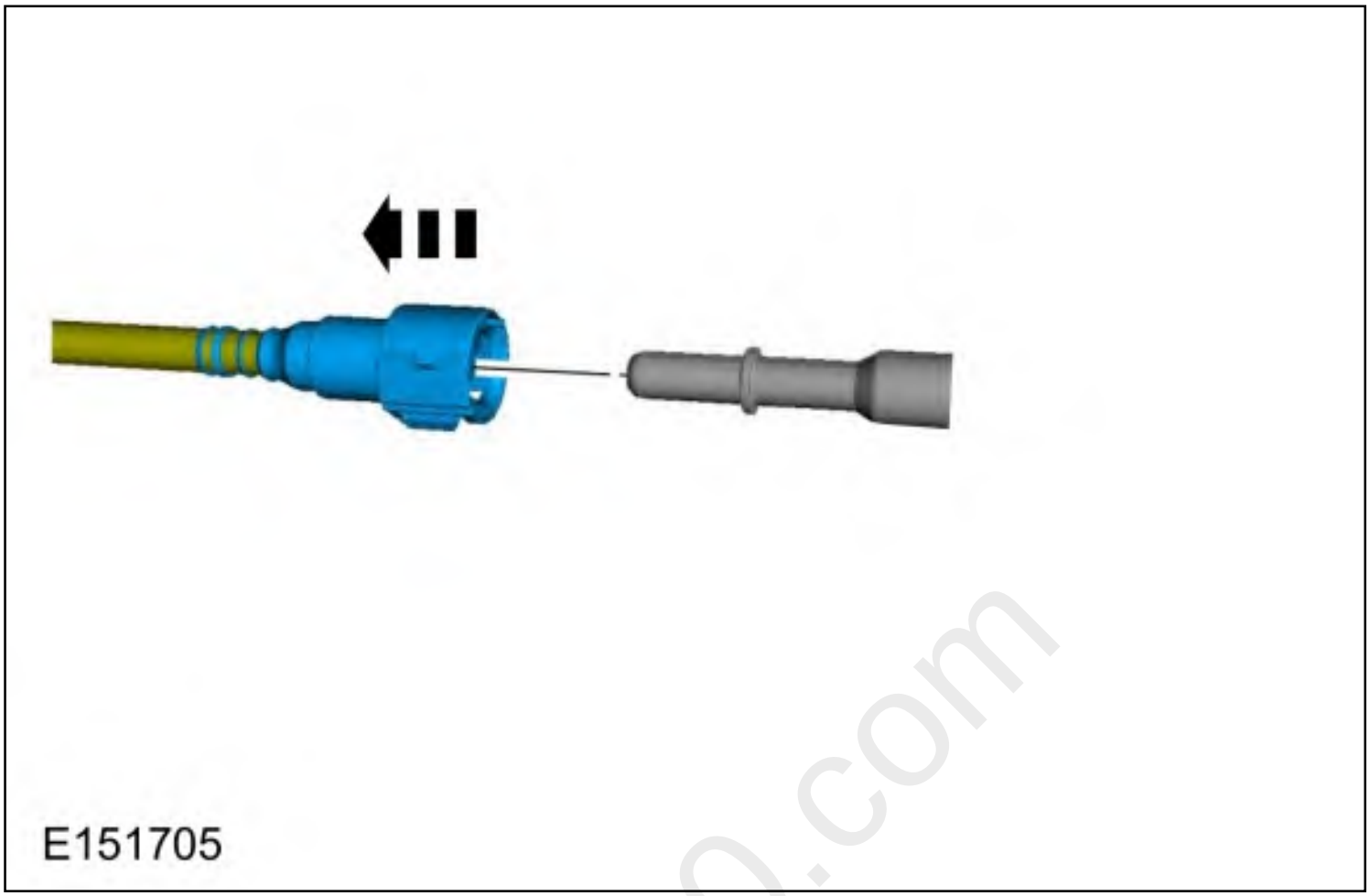
1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.

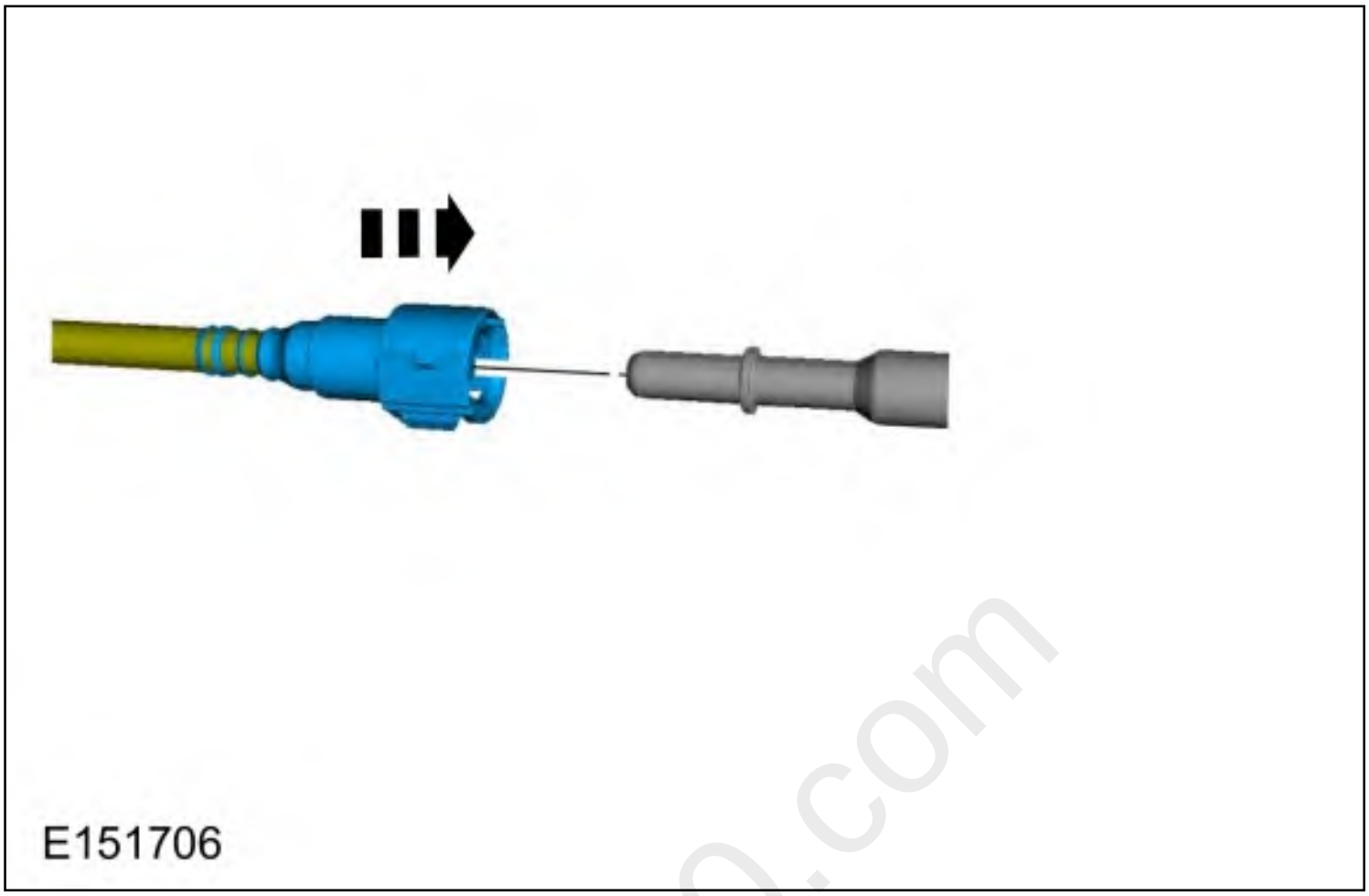


4.

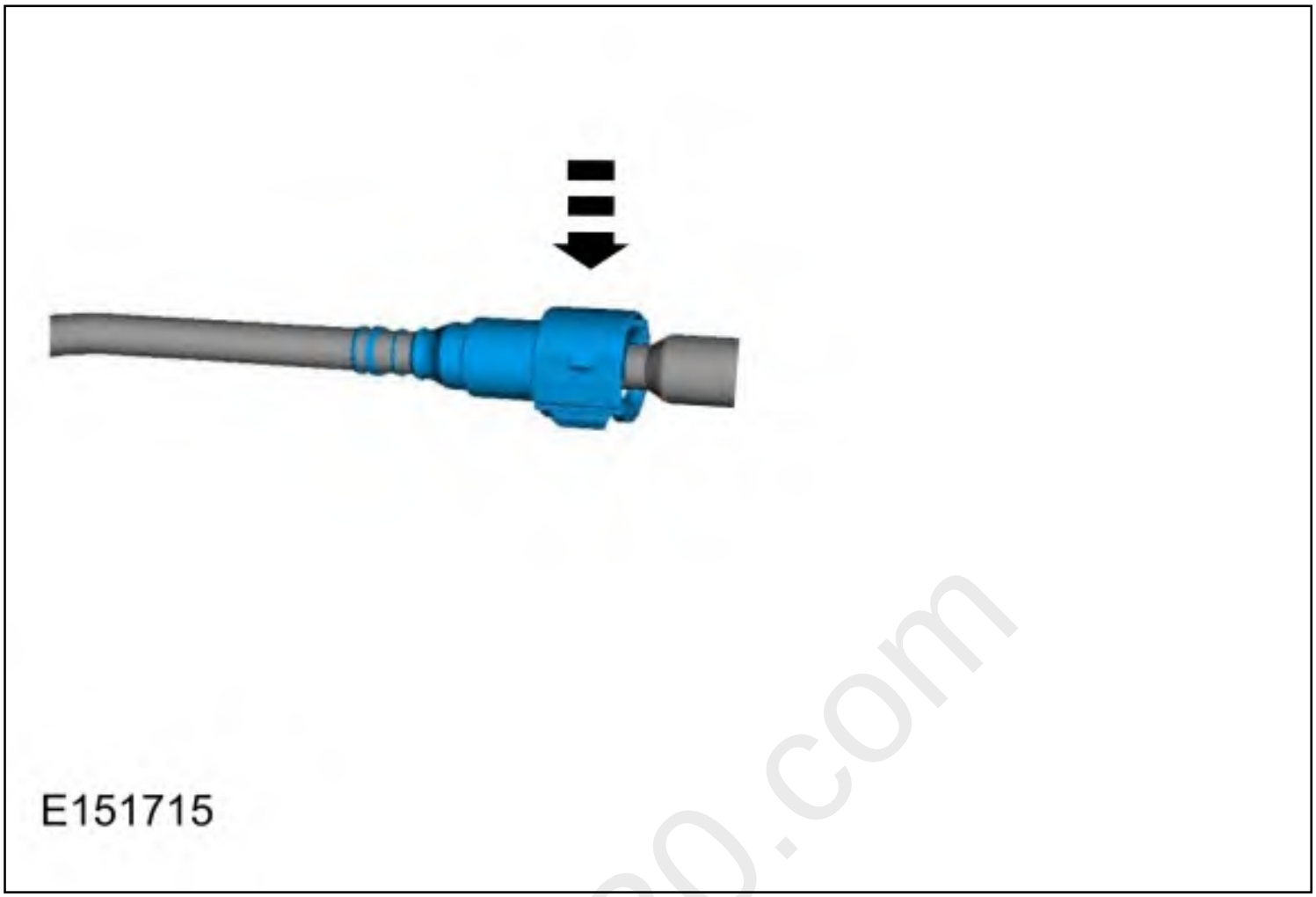


Connect

1.



2.



3. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid or vapor tube connections, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

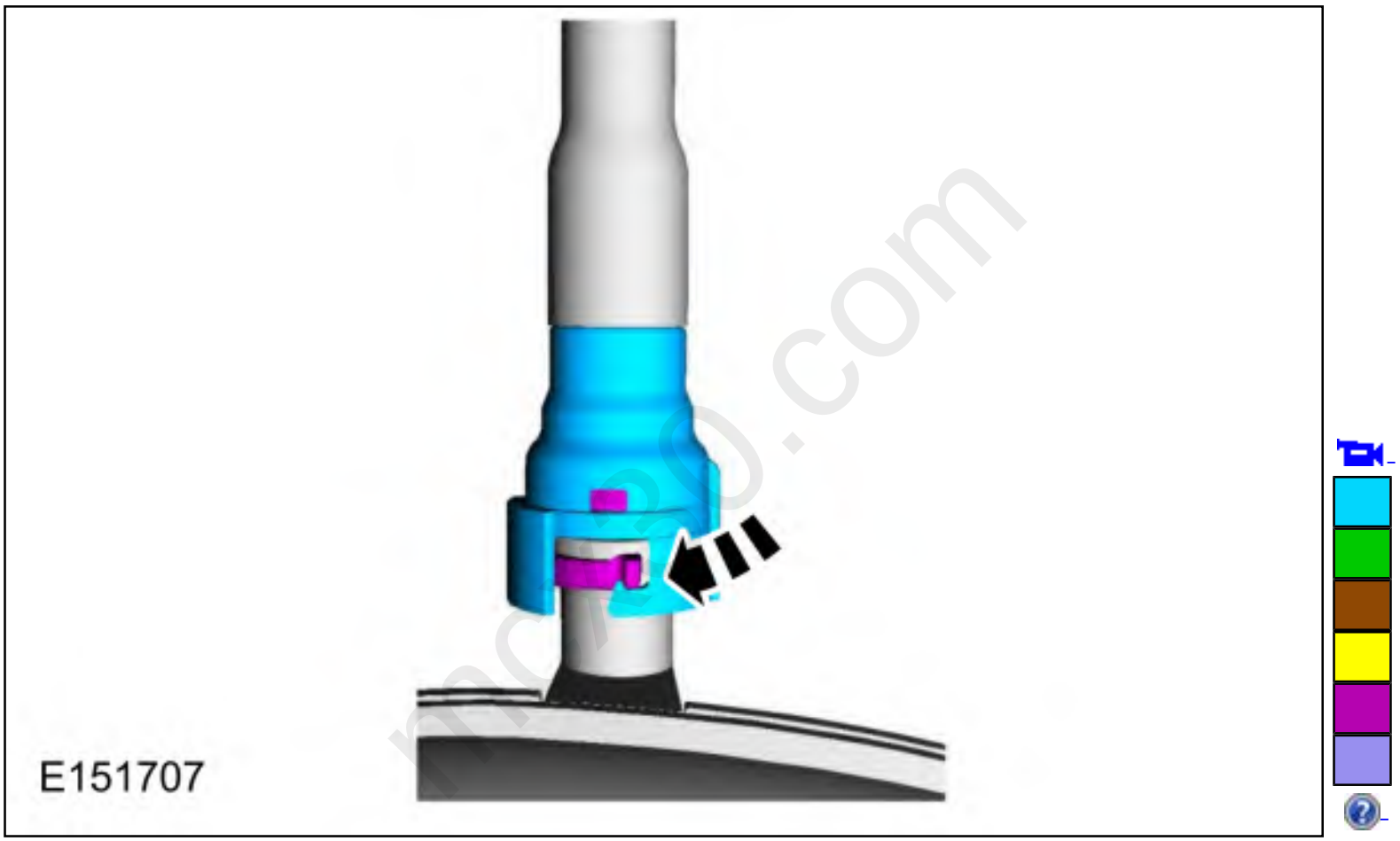
NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: ***Type 3***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

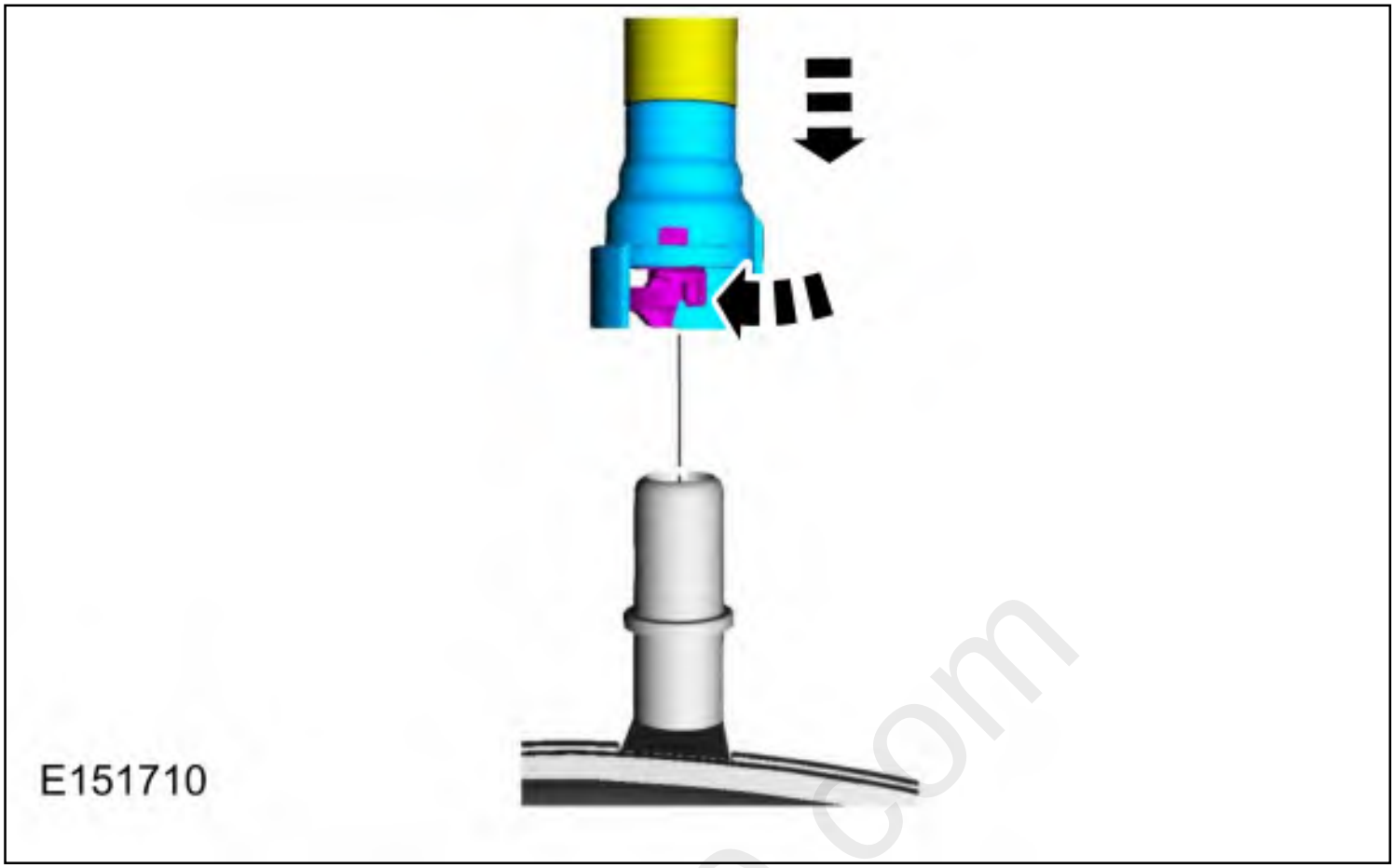
2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.

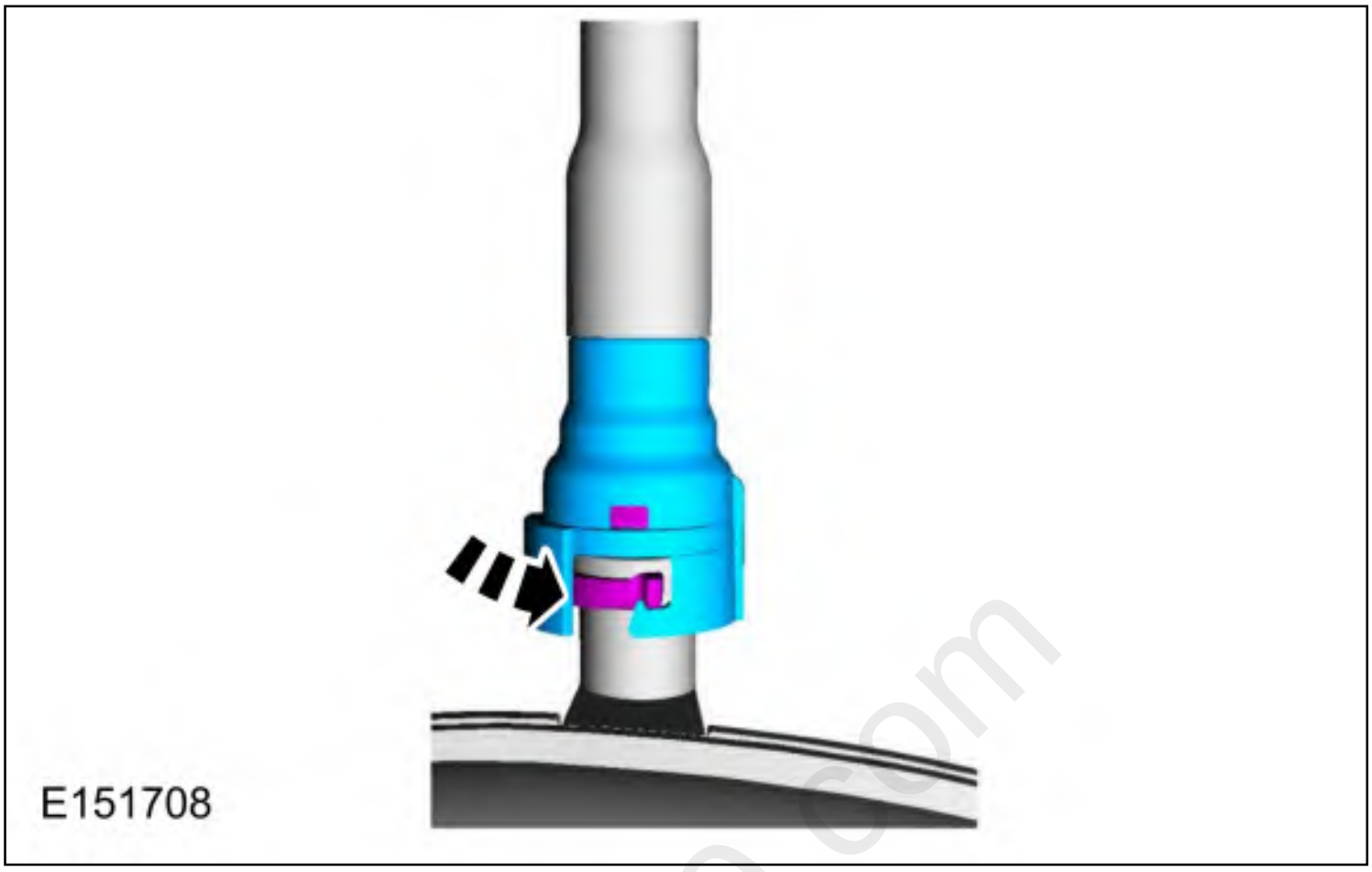


Connect

1.



2.



3. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid or vapor tube connections, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

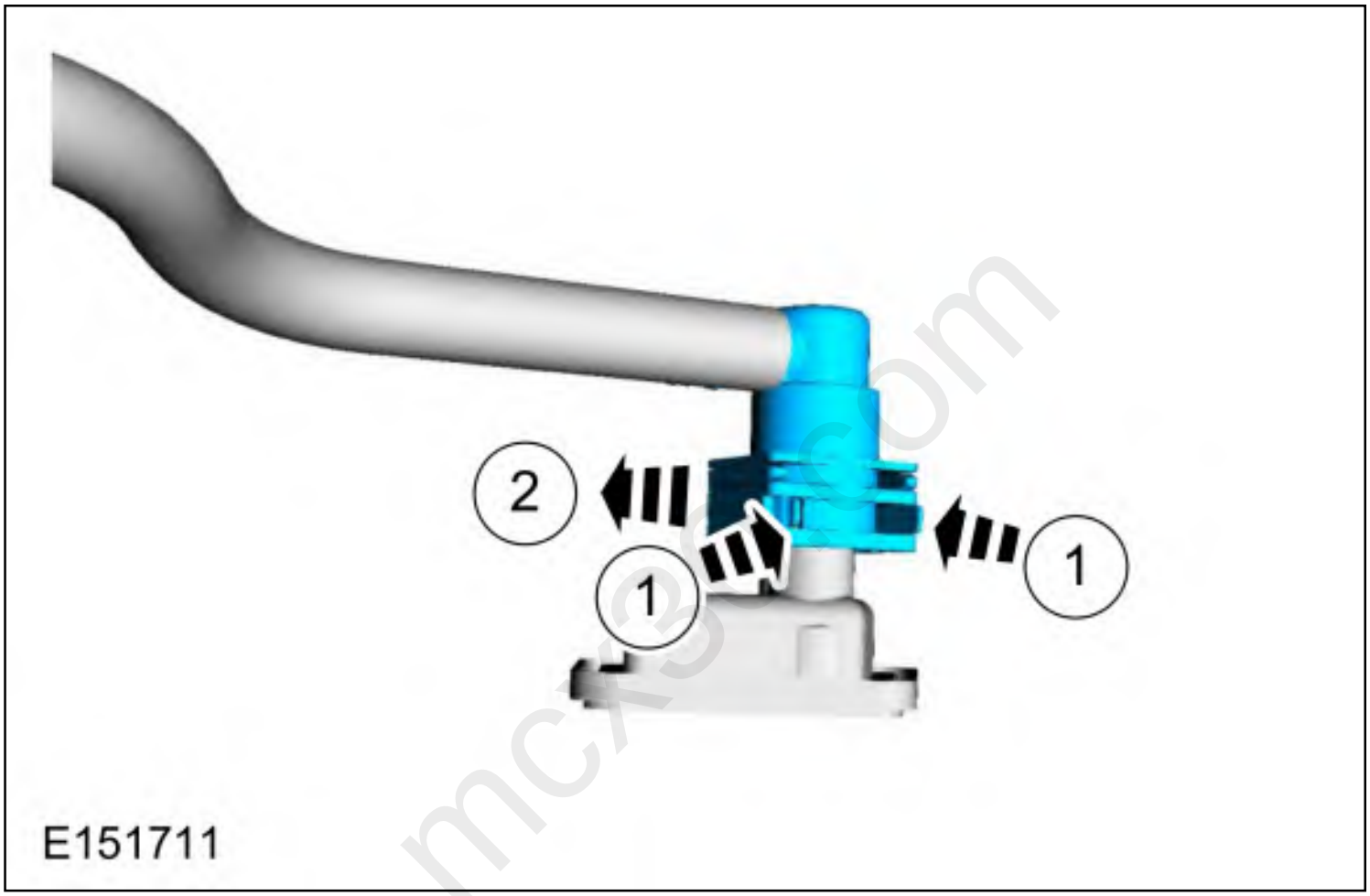
NOTE: ***Type 4***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-

VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.



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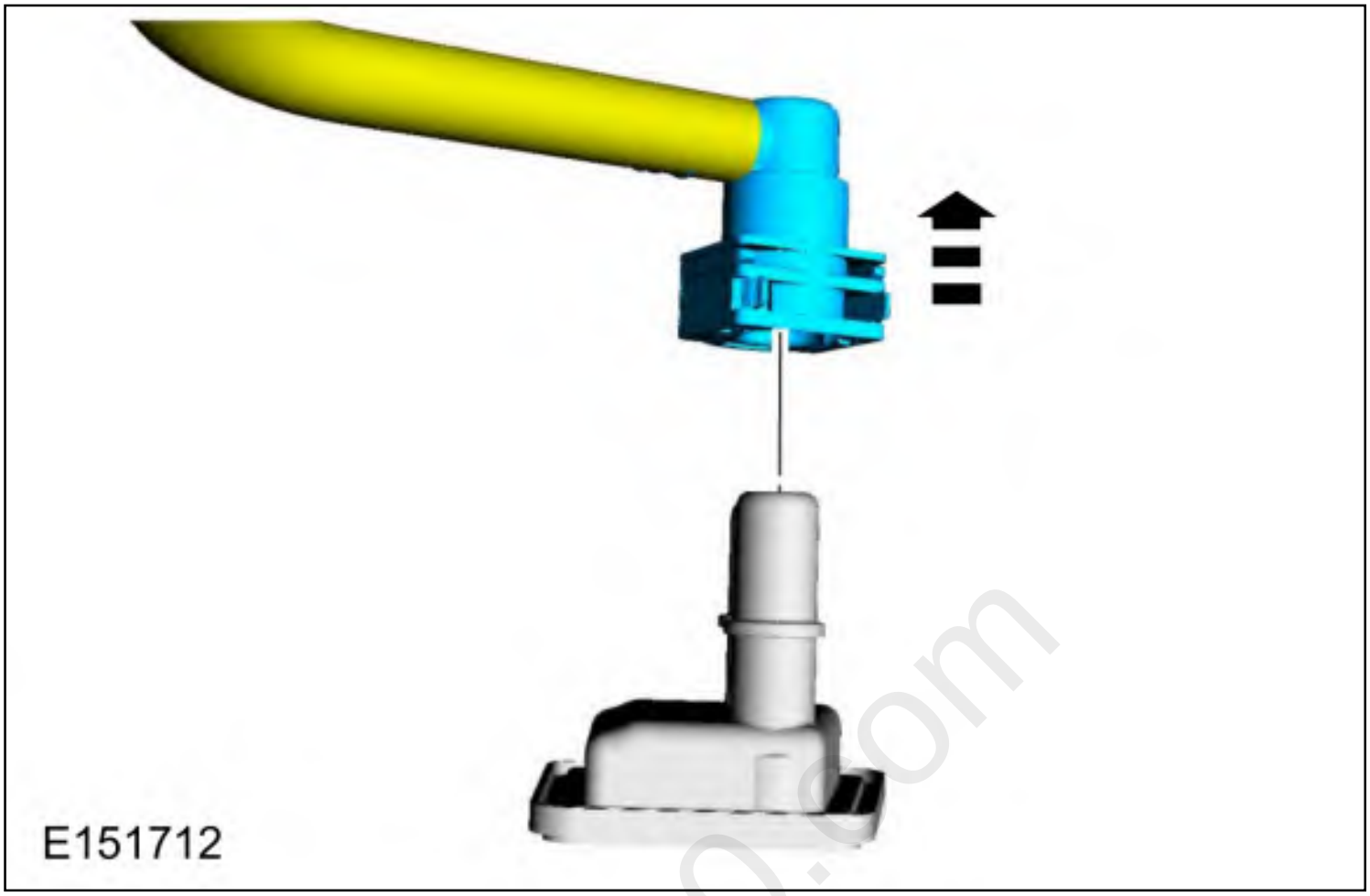
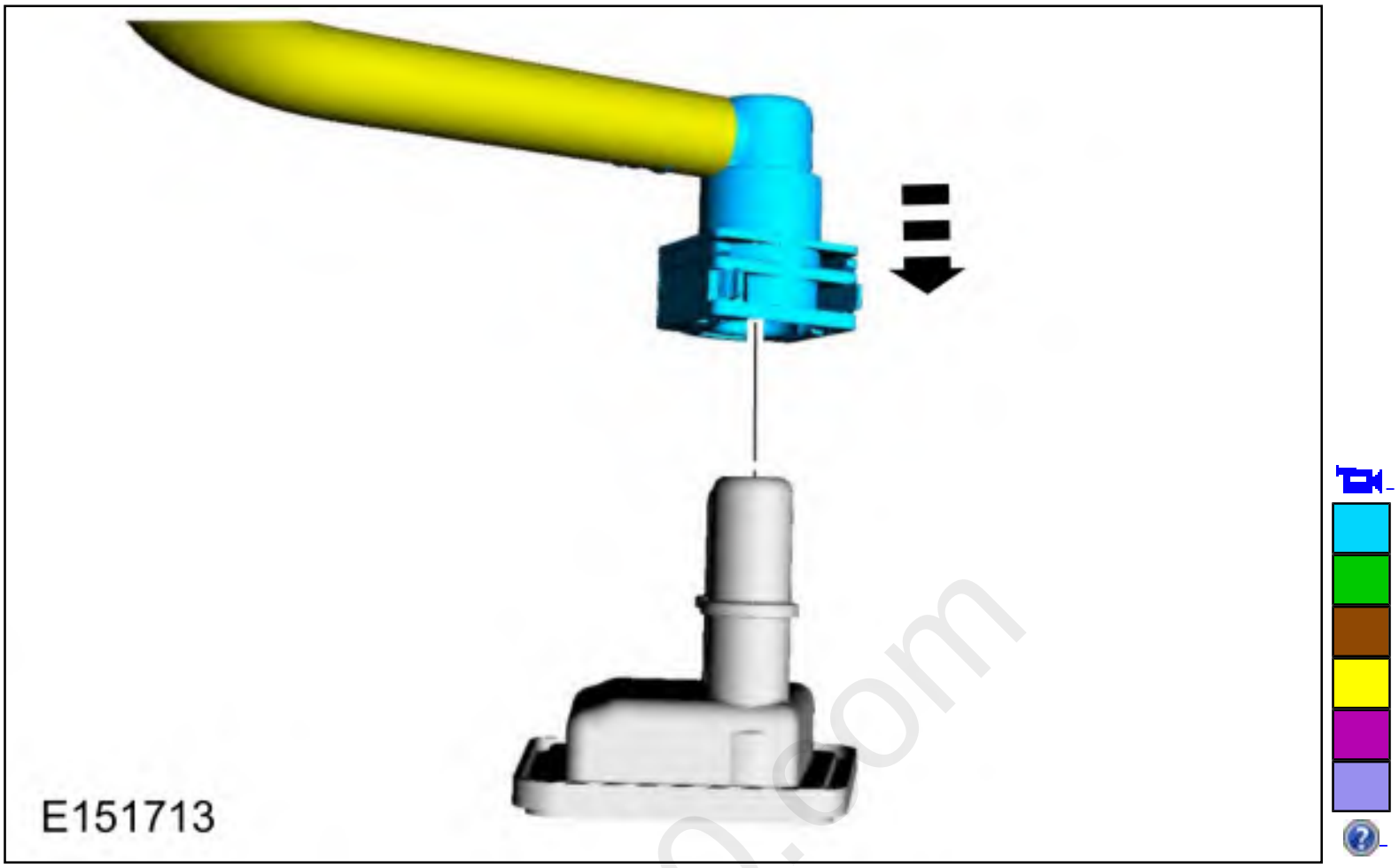


Connect

1.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

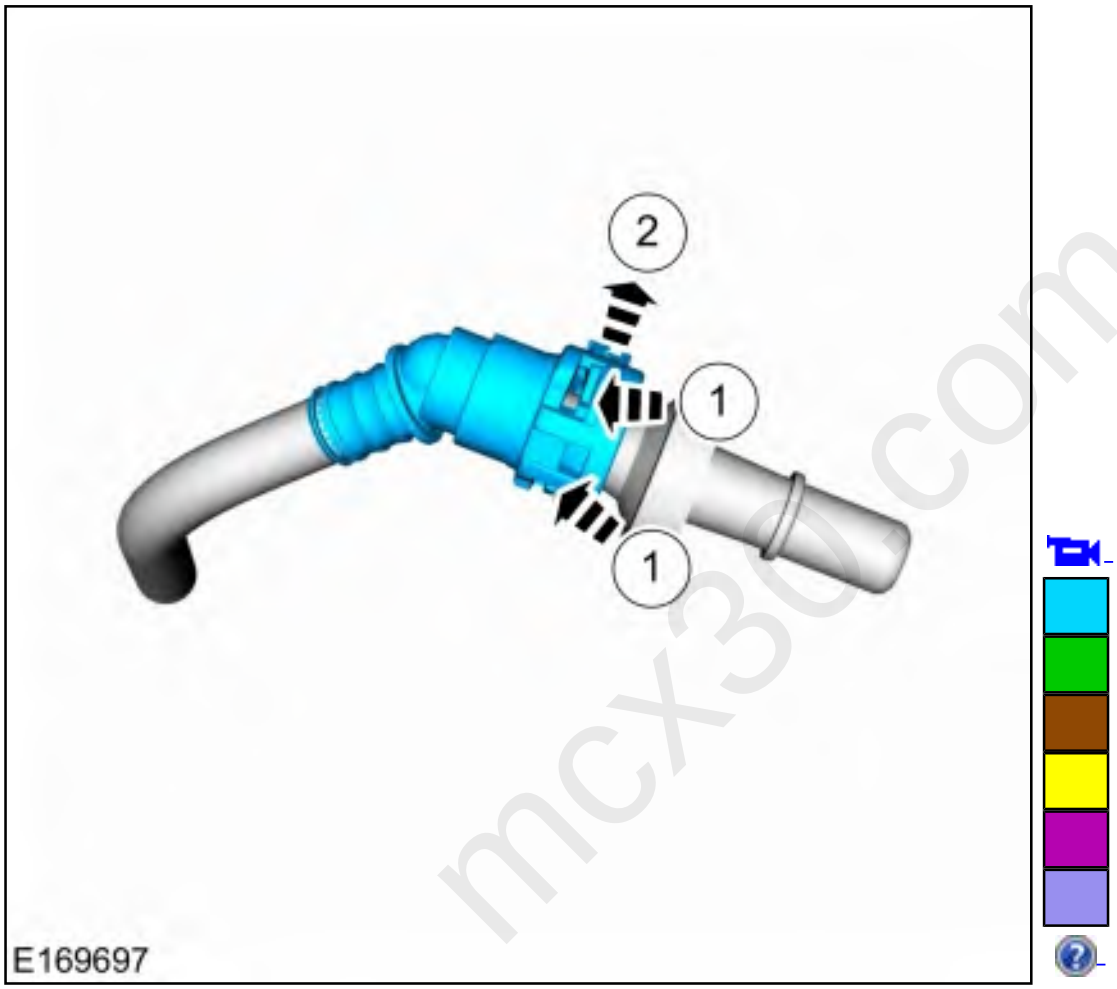
NOTE: ***Type 5***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.

Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.



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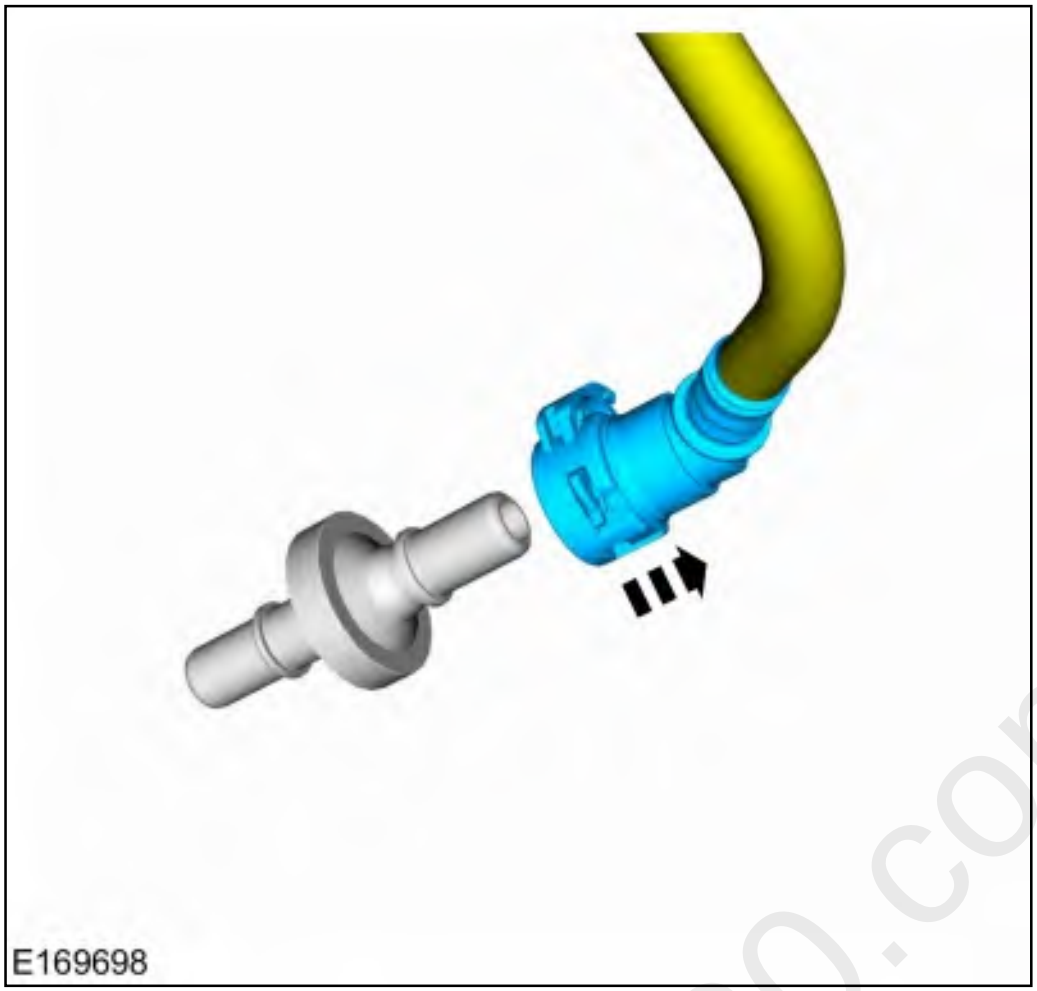
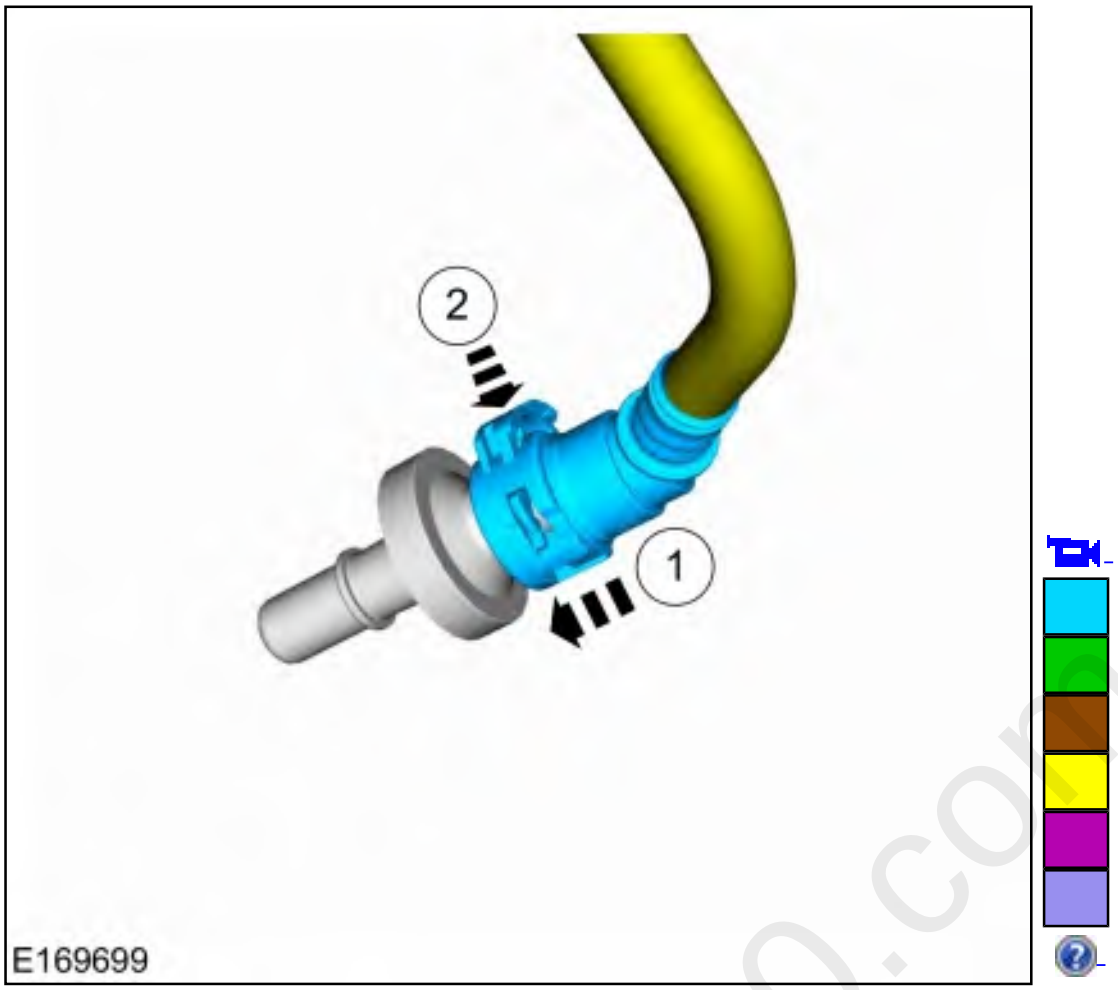


Connect

1.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

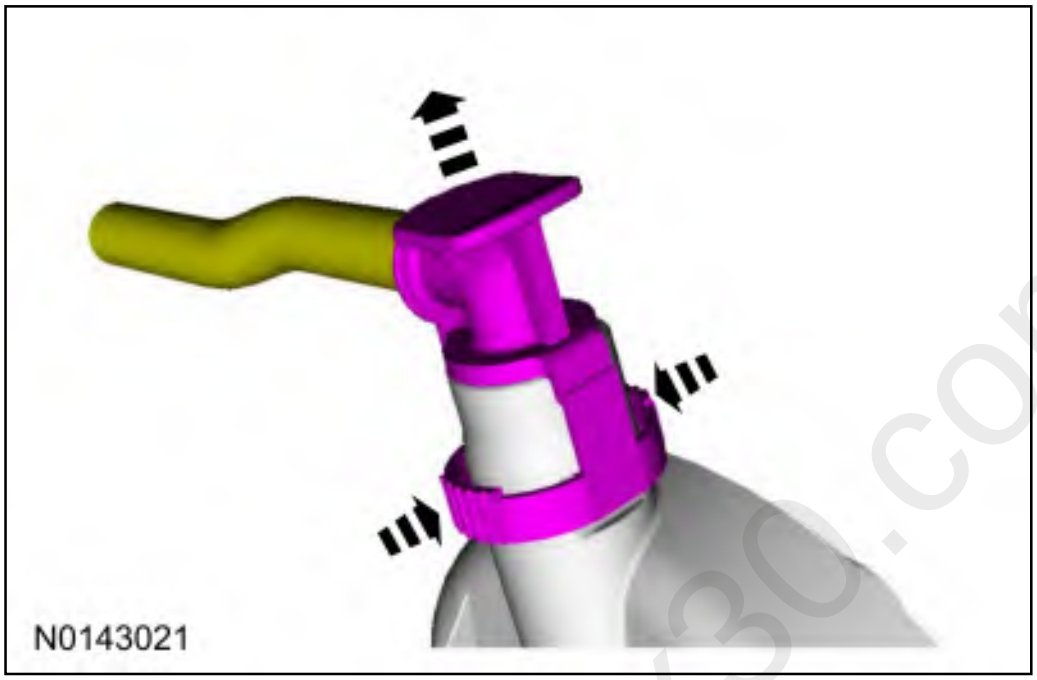
NOTE: ***Type 6***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.

Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3. Press the tabs of the rear retainer clip and pull it to the outward position.



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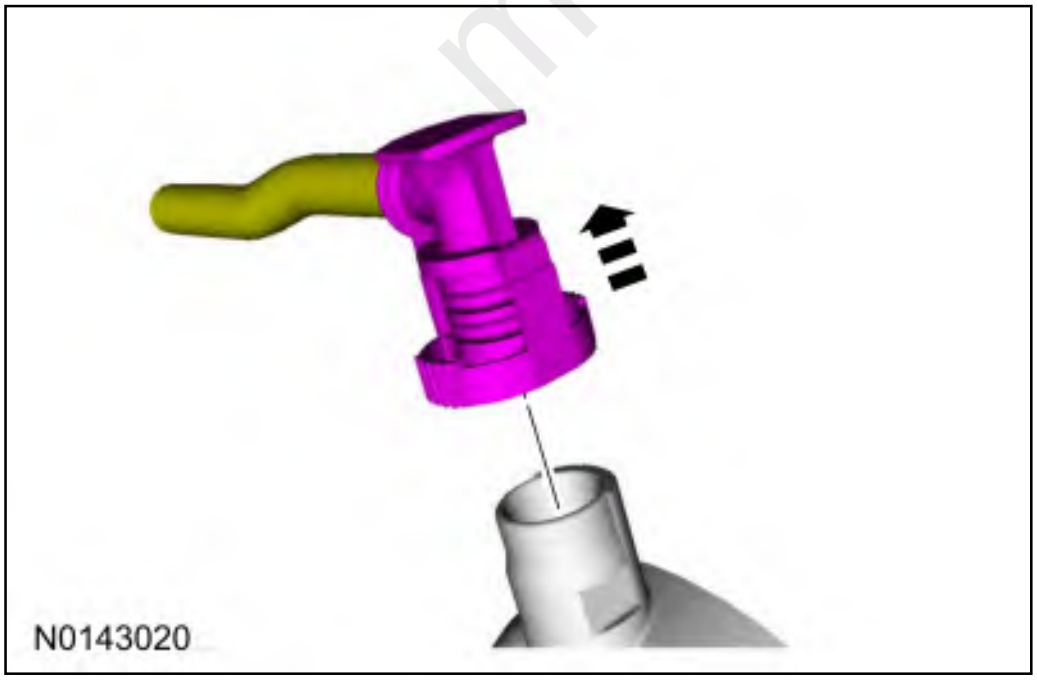
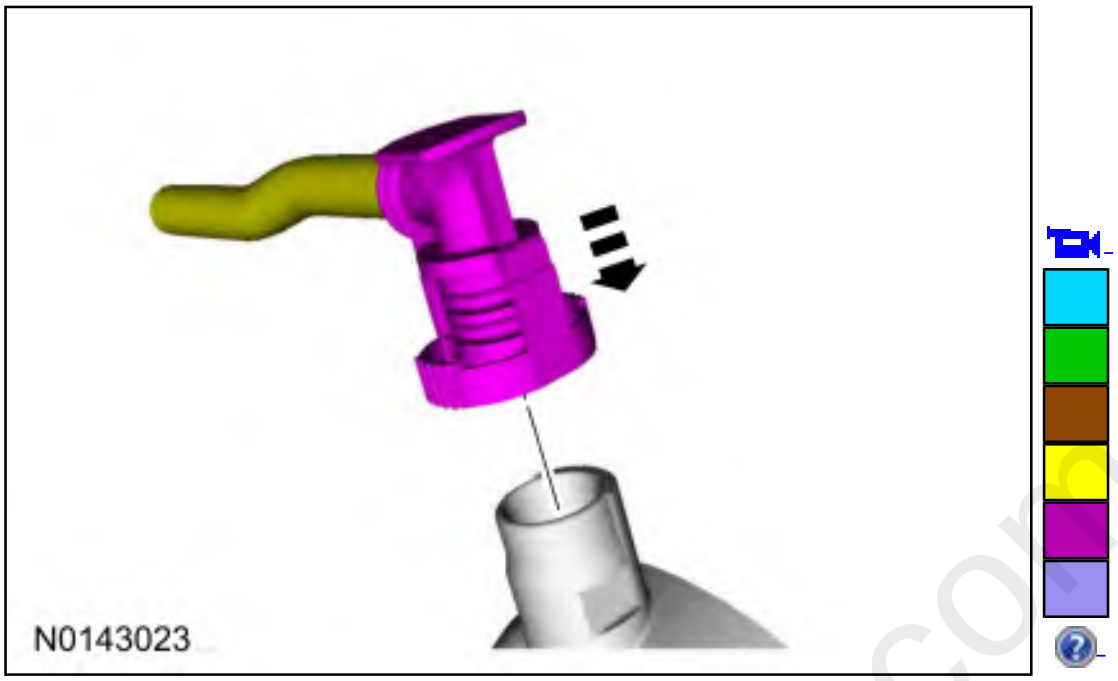


Connect

1. Pull on the quick connect coupling to make sure it is securely fastened.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

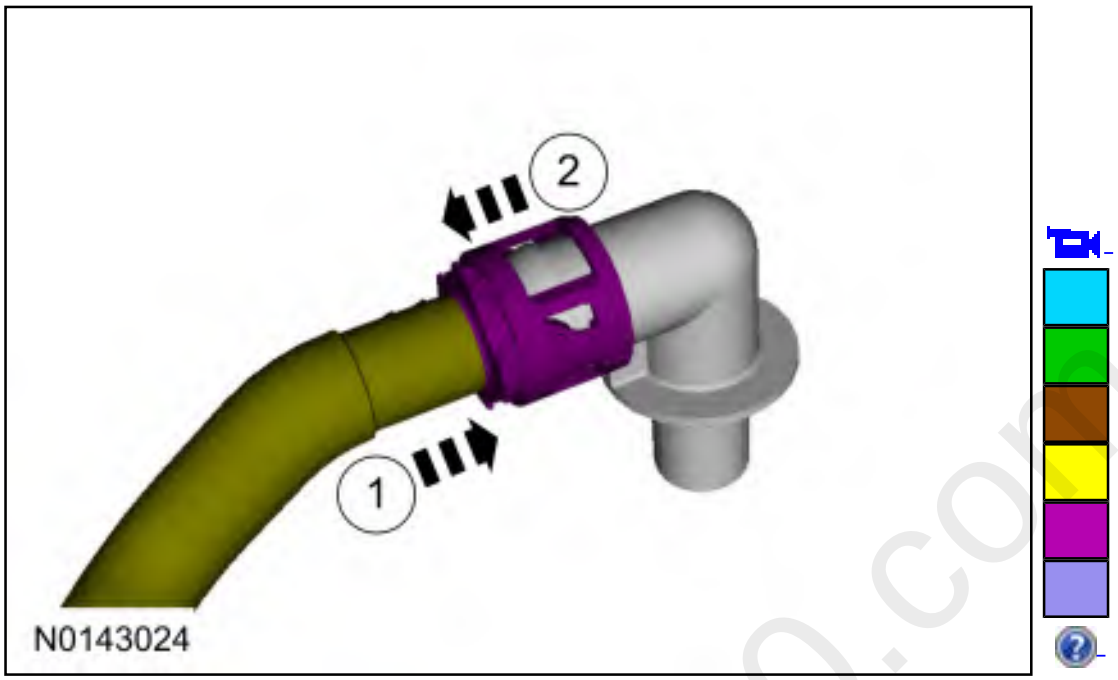
NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: ***Type 7***

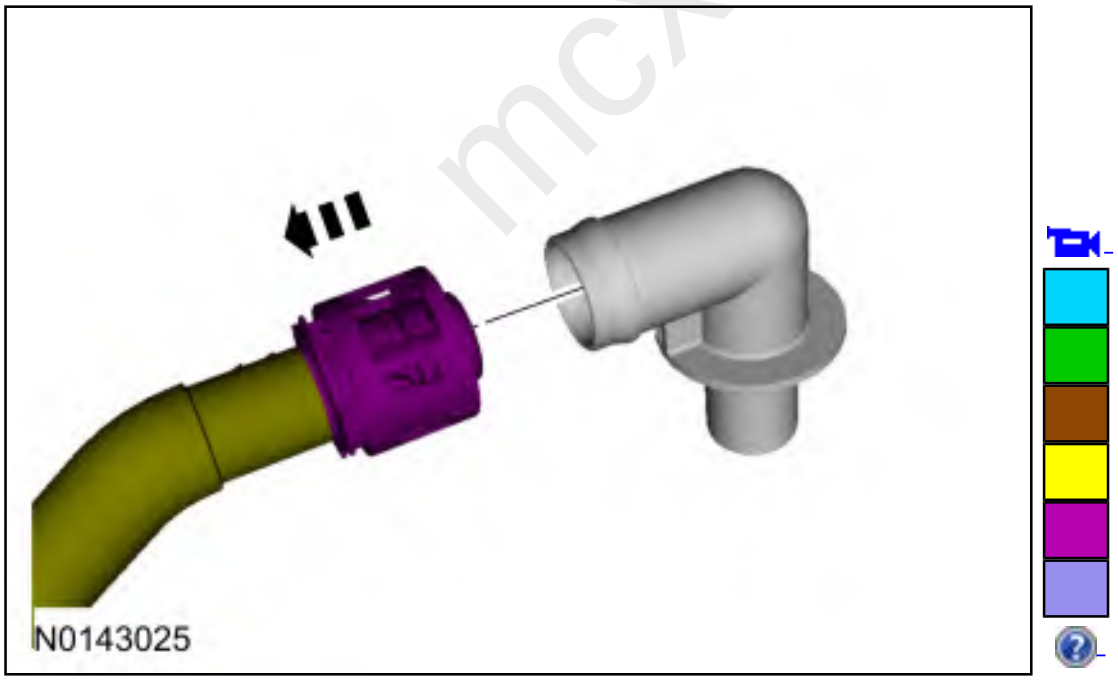
1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.

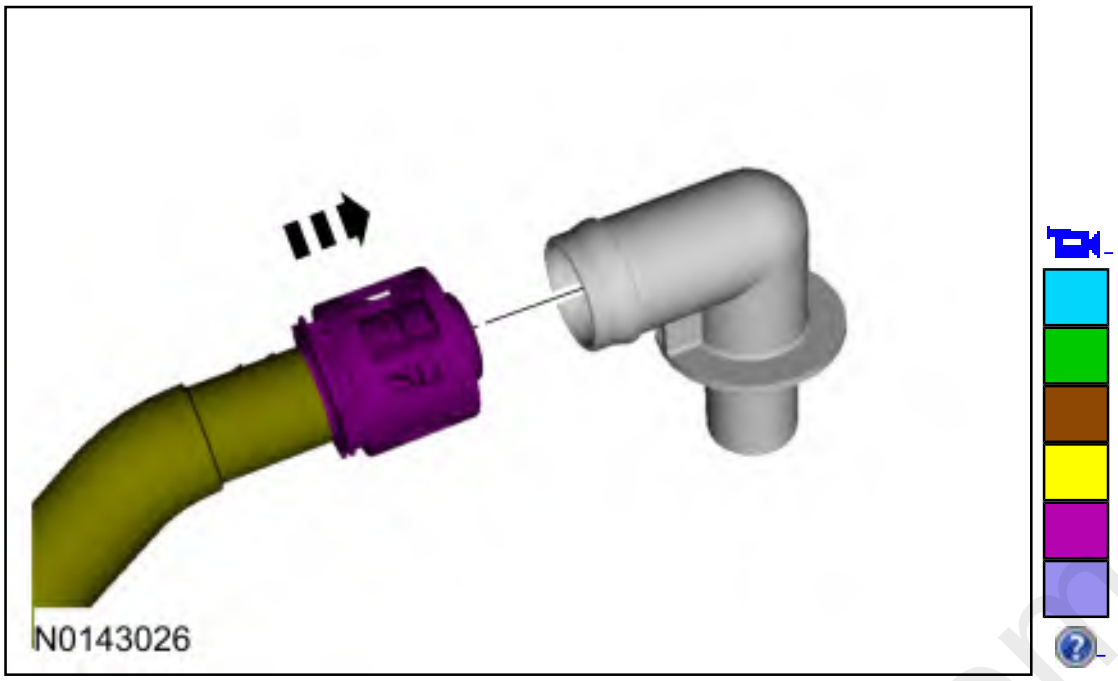


4.



Connect

1. Pull on the quick connect coupling to make sure it is securely fastened.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

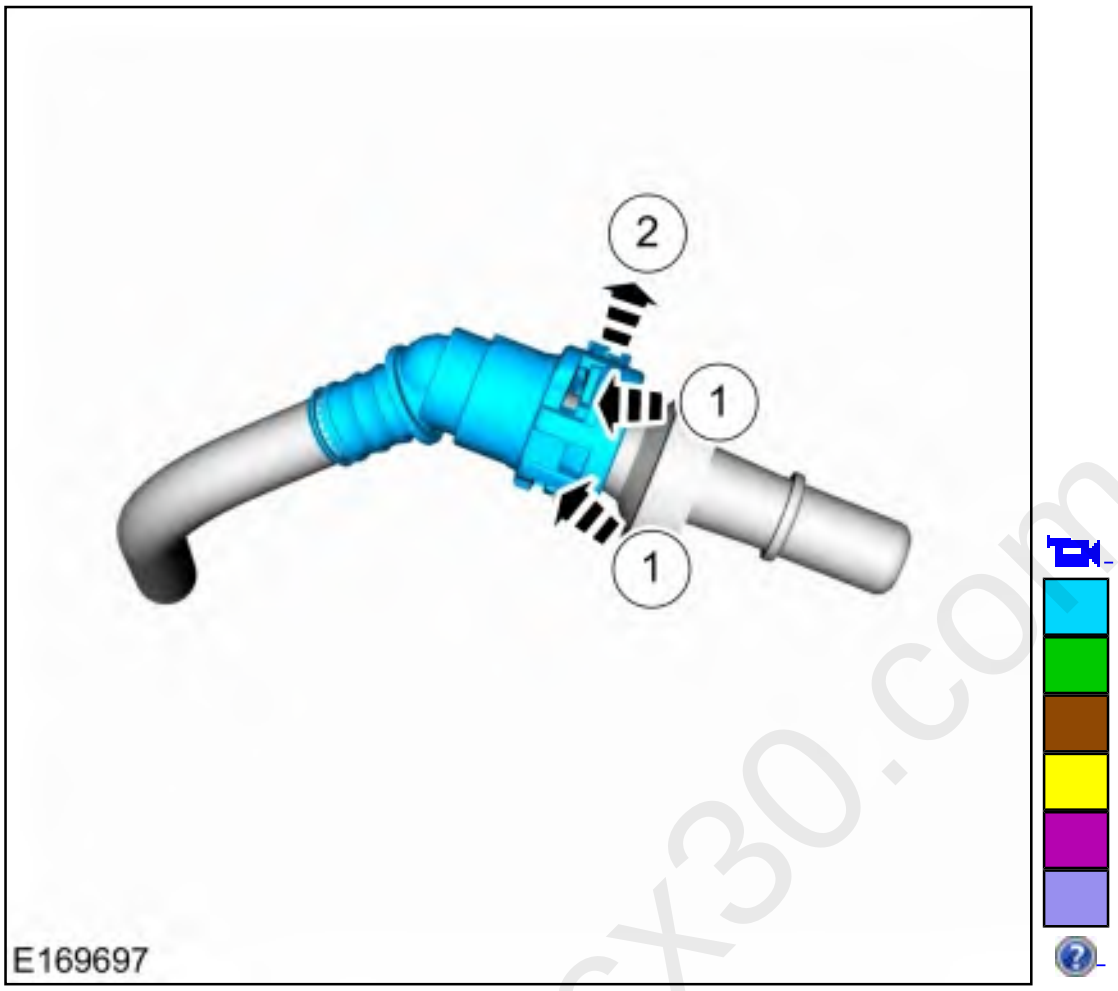
NOTE: ***Type 8***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

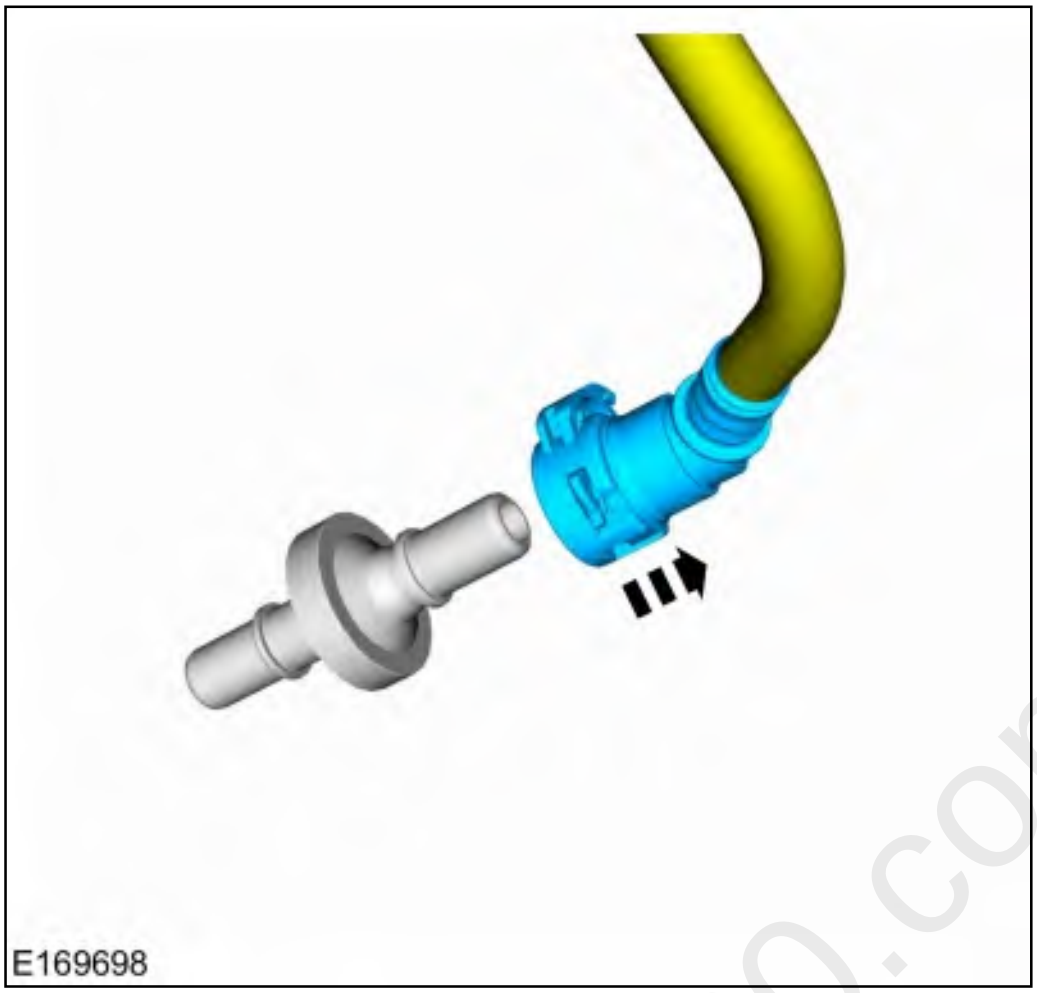
2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General

Procedures).

3.

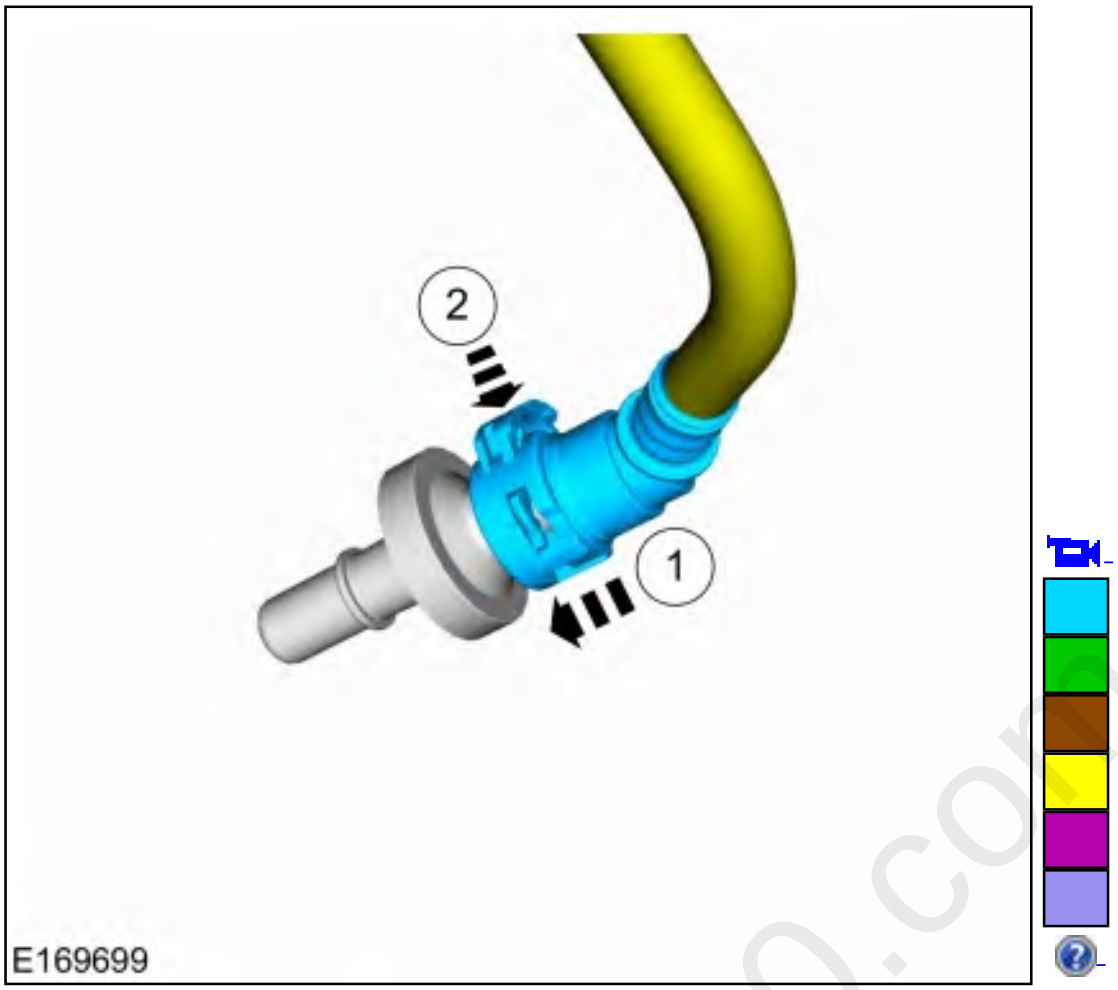


4.



Connect

1.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

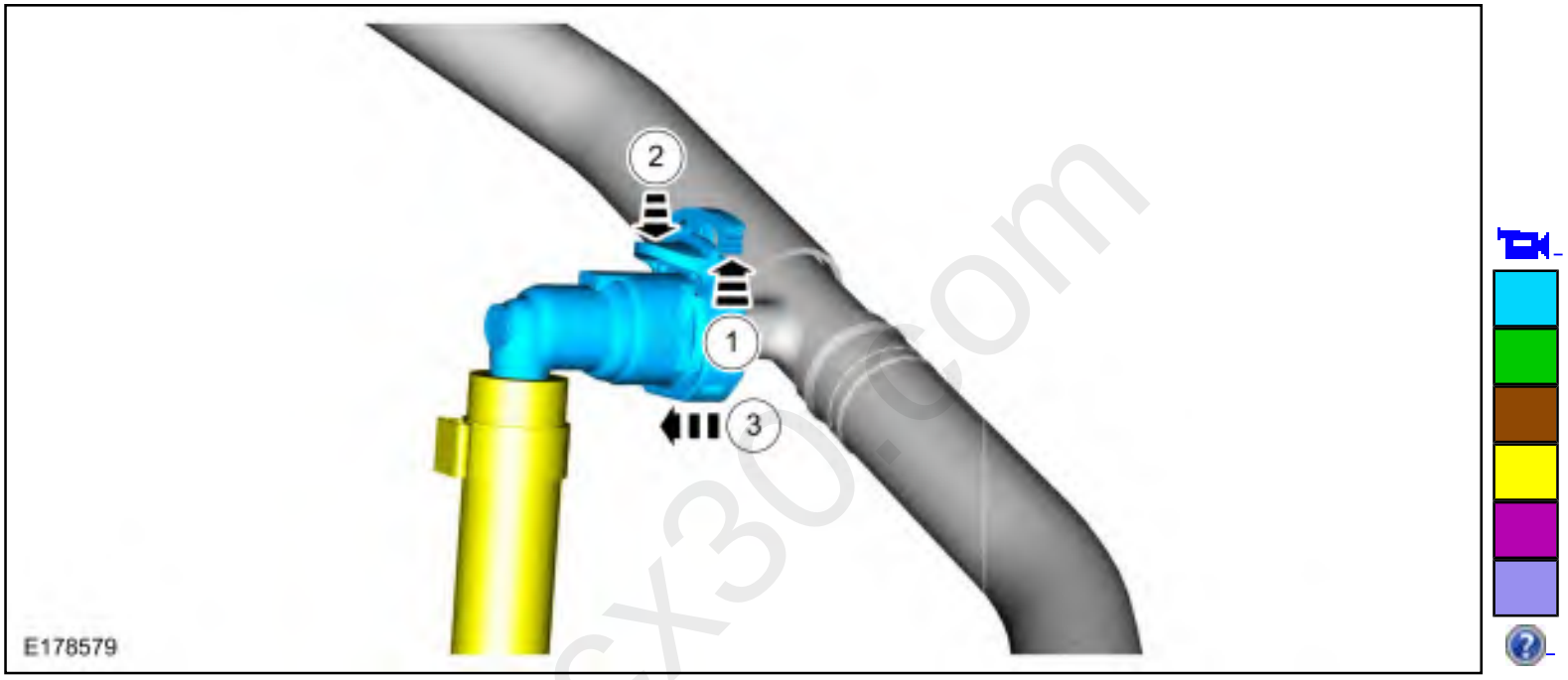
NOTE: ***Type 9***

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure.

Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

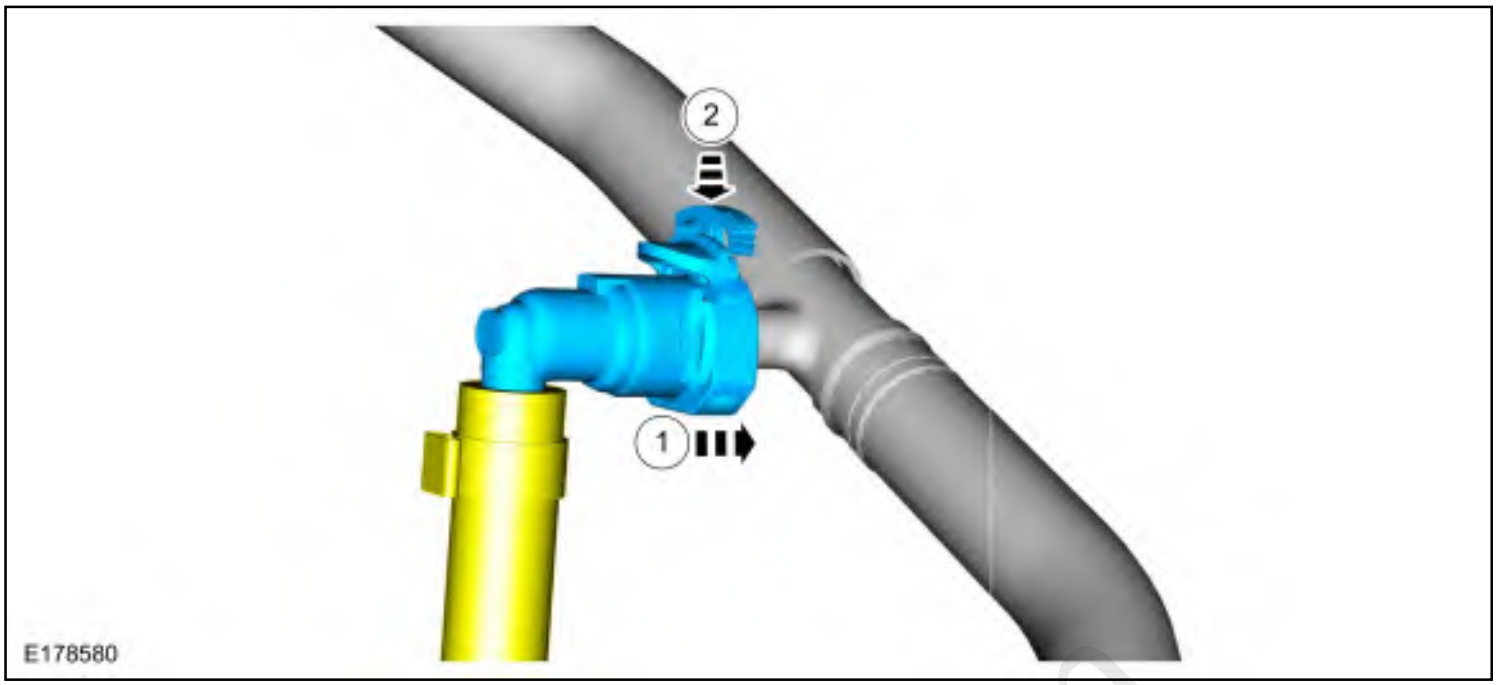
    1. Release the secondary locking tab.
    2. Depress the primary locking tab.
    3. Separate the quick release coupling from the tube.



Connect

1. Push the quick release coupling onto the tube.
2. **NOTE:** *Pull on the quick release coupling and the fitting to make sure it is securely fastened.*

   Lock the secondary locking tab.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

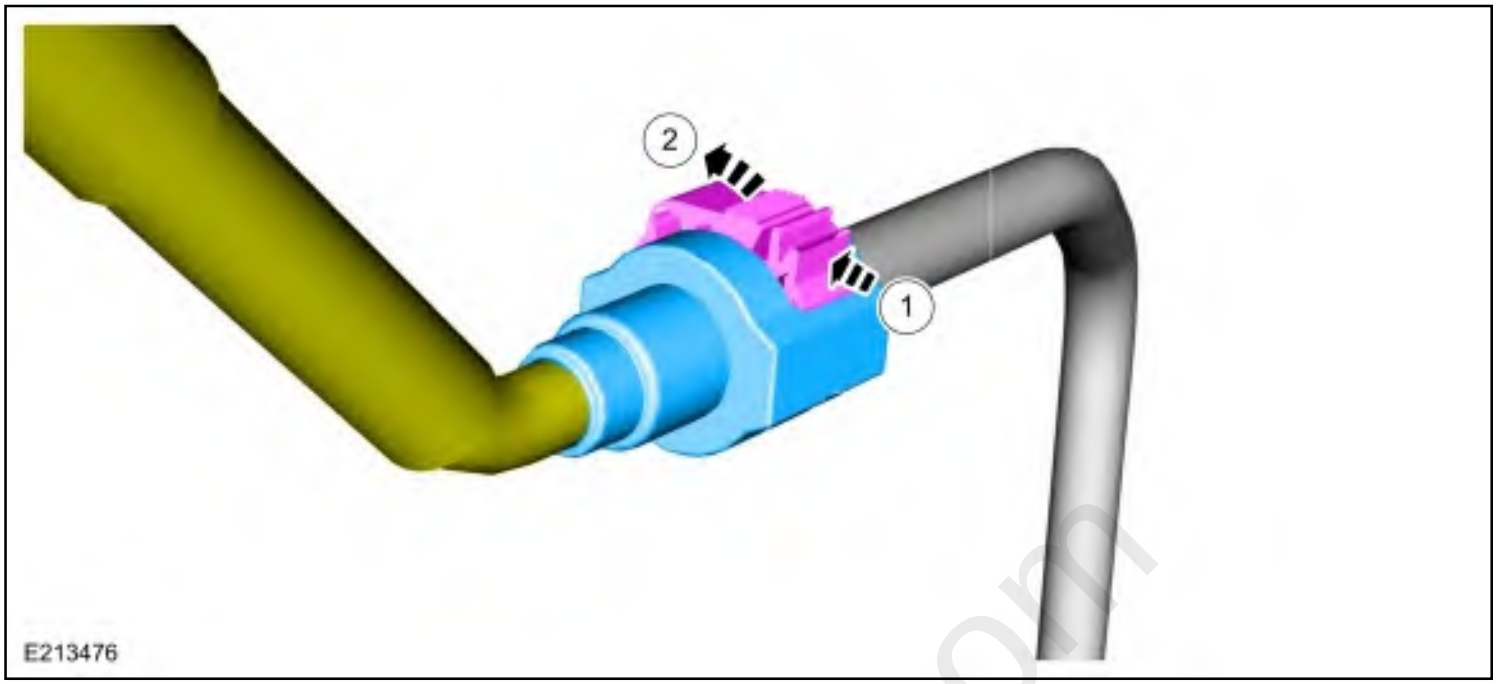
NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: ***Type 10***

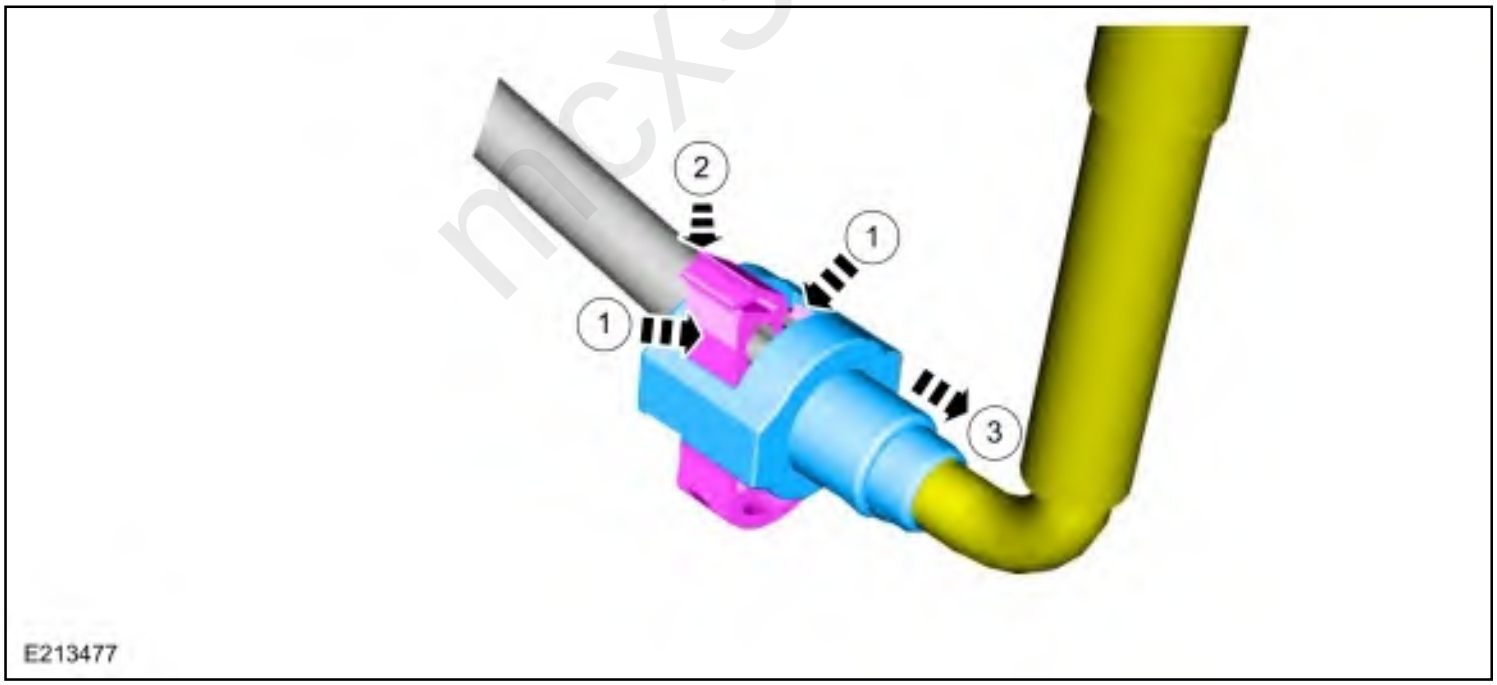
1. If servicing a liquid fuel tube quick release coupling, release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

1. Push on the locking tab.
2. Lift the clip.



1. Depress the tabs inward.
2. Push the clip downward.
3. Separate the quick release coupling from the fuel line.

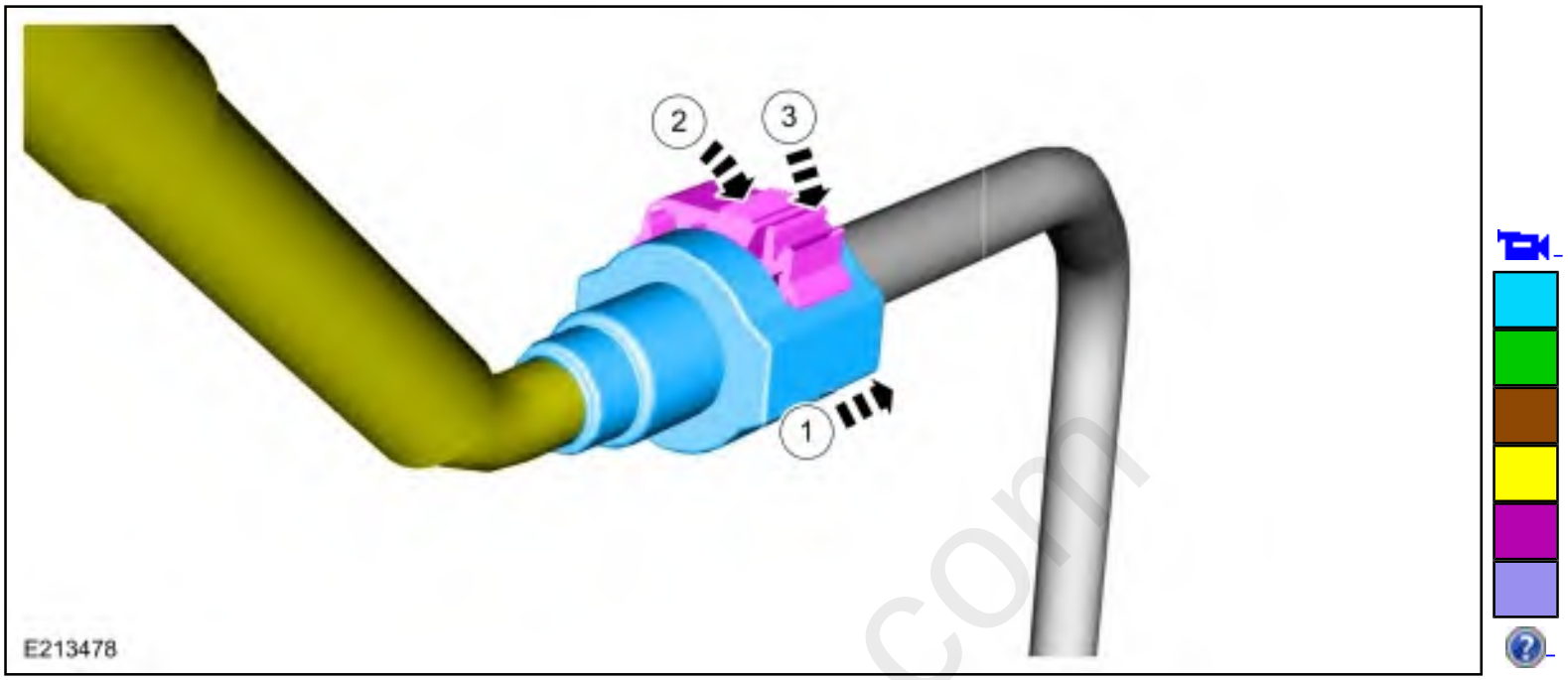


Connect

1. Push the quick release coupling onto the tube.

2. Push the clip down into the quick release coupling.
3. **NOTE:** *Pull on the quick release coupling and the fitting to make sure it is securely fastened.*

   Snap the locking tab into place.



2. Connect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

Fuel System Pressure Check

Special Tool(s) / General Equipment

	310-D009 (D95L-7211-A) Fuel Pressure Test Kit

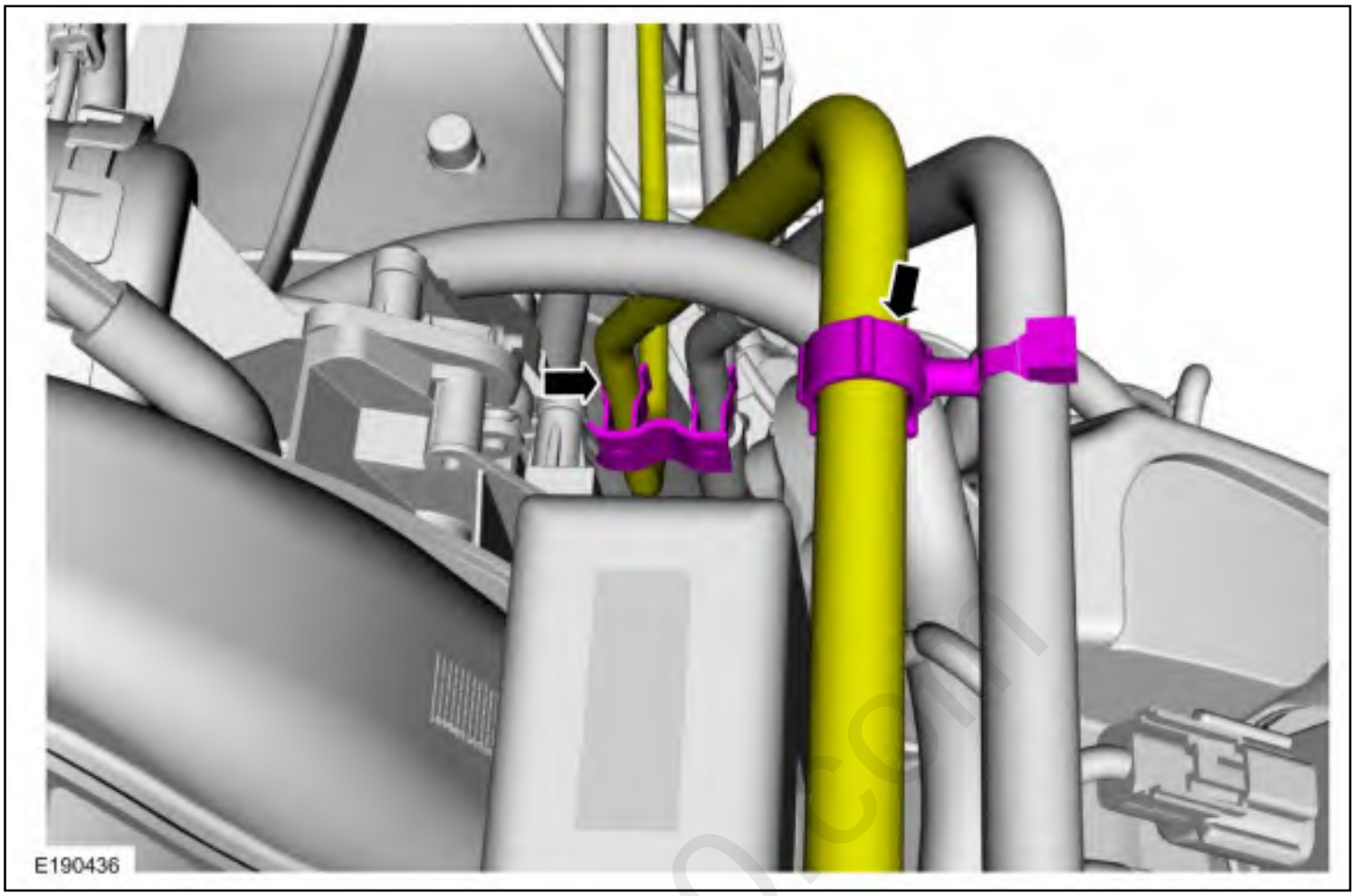
Check

NOTE: *This Fuel System Pressure Check is for the low pressure side of the system.*

1. Release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

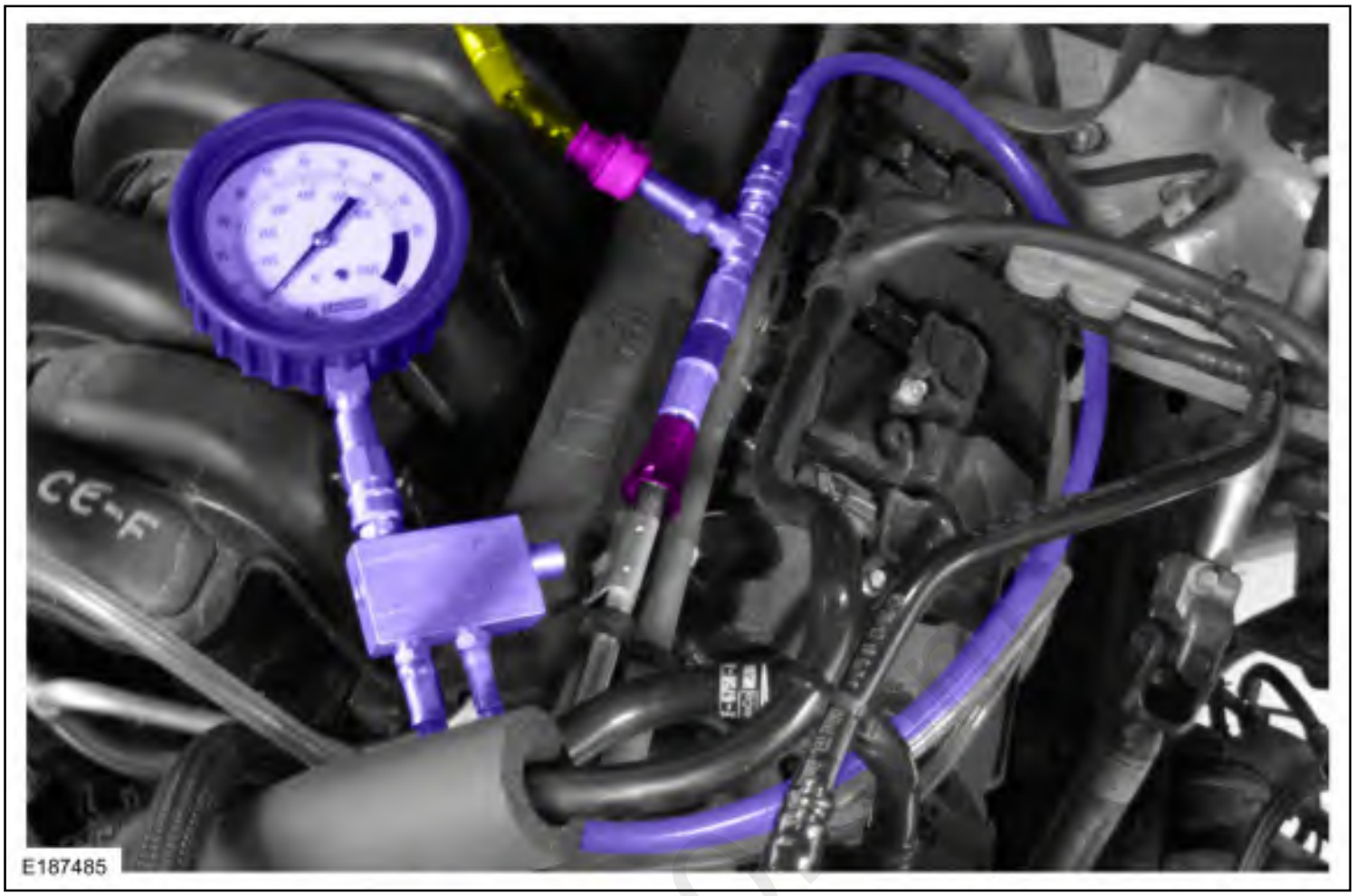
2. Disconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

   - Release fuel jumper tube from the bell housing bracket.
   - Release the fuel jumper tube from the retainer.



4. Disconnect the fuel jumper tube-to-fuel rail quick release coupling.
   Refer to: Quick Release Coupling (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

5. Install the Fuel Pressure Test Kit between the fuel jumper tube and the fuel rail.
   Use Special Service Tool: 310-D009 (D95L-7211-A) Fuel Pressure Test Kit.



6. **NOTE:** *The Fuel Pump (FP) control module electrical connector was previously disconnected to release the fuel system pressure and must be reconnected to test the fuel system pressure.*

   Reconnect the Fuel Pump (FP) control module electrical connector.

7. Reconnect the battery ground cable.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

8. **NOTE:** *Carry out a Key ON Engine OFF (KOEO) visual inspection for fuel leaks prior to completing the fuel system pressure test.*

   Test the fuel system pressure to make sure it is within the specified range. For additional information, refer to Specifications in this section.

9. After completion of the fuel system pressure test, disconnect the battery ground cable, open the drain valve on the Fuel Pressure Test Kit and release any residual fluid into an appropriate container.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

10. Remove the Fuel Pressure Test Kit by reversing the installation steps.
