

2008 GENERAL INFORMATION

Fuel System - General Information - Mustang

SPECIFICATIONS

Material

Item	Specification	Fill Capacity
Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A	-

GENERAL SPECIFICATIONS

Item	Specification
Fuel tank capacity	60.56L (16 gal)
Key ON Engine OFF (KOEO)	240-485 kPa (35-70 psi)
Key ON Engine Running (KOER)	152-255 kPa (27-37 psi)

DESCRIPTION AND OPERATION

FUEL SYSTEM

The fuel system consists of the:

- fuel filter.
- fuel injectors.
- Fuel Pump (FP) module.
- fuel level sensor.
- fuel rail.
- fuel rail pressure and temperature sensor.
- saddle-type fuel tank.
- fuel tank filler cap.
- fuel tank filler pipe.
- Fuel Tank Pressure (FTP) sensor (part of the fuel vapor tube assembly).
- fuel tubes (liquid and vapor).
- Inertia Fuel Shutoff (IFS) switch.

The vehicle:

- utilizes an Electronic Returnless Fuel System (ERFS).

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- has a saddle-type fuel tank FP module has a fuel level sensor.
- has a FP module that supplies fuel under pressure to the fuel rail.
- is equipped with a sequential Multi-Port Fuel Injection (MFI) system.
- has fuel tubes (liquid and vapor) mounted on the underside of the vehicle in a bundle.
- has a Fuel Tank Pressure (FTP) sensor (part of the fuel vapor tube assembly).
- uses separately controlled fuel injectors for each cylinder. The fuel injectors are mounted to the intake manifold.
- fuel injectors are supplied with pressurized fuel from the FP module to the fuel rail.
- has a fuel rail which is equipped with a fuel rail pressure and temperature sensor.
- fuel injection rail pressure is controlled by the electronic FP module which is enabled by the PCM.
- has a one-fourth turn vented type fuel tank filler cap.
- has a fuel tank filler pipe assembly, which cannot be modified in any way and is serviced only by installation of a new fuel tank filler pipe assembly.
- has an IFS switch located in the driver side footwell that shuts off fuel in the event of a collision.

DIAGNOSTIC TESTS

FUEL SYSTEM

Special Tools

Illustration	Tool Name	Tool Number
 ST1137-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool	

Principles of Operation

NOTE: The following procedure diagnoses a slow to fill concern only. For all other concerns, refer to the [Introduction - Gasoline Engines](#) article.

The fuel tank filler pipe assembly is used to refuel the vehicle. The fuel tank inlet check valve prevents spit back of fuel during and after refueling. The fuel tank stores the fuel. The fuel tank contains a Fuel Pump (FP) module. The FP module consists of a fuel level sender and a FP. The fuel level sender sends a signal to the fuel gauge informing the driver of how much fuel is in the fuel tank. The FP provides fuel to the fuel tubes which supply the fuel rail.

During refueling, the fuel tank vents to the atmosphere through the vent and filler pipes, on vehicles without On-Board Refueling Vapor Recovery (ORVR) systems. In vehicles equipped with ORVR the fuel tank and filler pipe are designed so that when the vehicle is being refueled, fuel vapors in the fuel tank travel to the Evaporative Emission (EVAP) canister, which absorbs the fuel vapors and vents the pressure from the fuel tank

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during refueling.

Inspection and Verification

WARNING: 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: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

NOTE: Do not use incandescent lights when inspecting the fuel system. Use only fluorescent or LED lighting.

1. Verify the customer concern by refueling the vehicle and observe the fuel fill rate.
2. Inspect to determine if any of the following mechanical concerns apply.

VISUAL INSPECTION CHART

Mechanical
• Bent, kinked or damaged fuel tank filler pipe • Bent, kinked or damaged fuel tank filler pipe vent tube (if equipped) • Incorrect routing of the fuel tank filler pipe • Incorrect routing of the fuel tank filler pipe vent tube (if equipped) • Incorrect position of fuel tank filler pipe clamps • Incorrect position of fuel tank filler pipe vent tube clamps (if equipped) • Fuel tank mounted vapor tubes bent or damaged

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- Evaporative Emission (EVAP) system tubes or hoses bent or damaged
- Accident damage to the fuel tank
- Accident damage to the vehicle effecting the fuel tank filler pipe-to-body connection
- Unauthorized modifications and/or alterations to the vehicle
- EVAP system fresh air hose plugged (dirt, spider webbing)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

NOTE: **Make sure to use the latest scan tool software release.**

4. If the cause is not visually evident, connect the scan tool to the Data Link Connector (DLC).

NOTE: **The Vehicle Communication Module (VCM) LED prove out confirms power and ground from the DLC are provided to the VCM.**

5. If the scan tool does not communicate with the VCM:
 - check the VCM connection to the vehicle.
 - check the scan tool connection to the VCM.
 - refer to **MODULE COMMUNICATIONS NETWORK** article, No Power To The Scan Tool, to diagnose no power to the scan tool.
6. If the scan tool does not communicate with the vehicle:
 - verify the ignition key is in the ON position.
 - verify the scan tool operation with a known good vehicle.
 - refer to **MODULE COMMUNICATIONS NETWORK** article to diagnose no response from the PCM.
7. Carry out the network test.
 - If the scan tool responds with no communication for one or more modules, refer to **MODULE COMMUNICATIONS NETWORK** article.
 - If the network test passes, retrieve and record continuous memory DTCs.
8. Clear the continuous DTCs and carry out the self-test diagnostics for the EVAP system using the scan tool.
9. If the DTCs retrieved are related to the concern, go to Evaporative Emission System DTC Chart. For PCM-related DTCs, refer to the **Introduction - Gasoline Engines** article. For all other DTCs, refer to **MULTIFUNCTION ELECTRONIC MODULES** article.
10. If no DTCs related to the concern are retrieved, go to **Symptom Chart**.

DTC Chart

Evaporative Emission System DTC Chart

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EVAPORATIVE EMISSION SYSTEM DTC CHART

DTC	Description	Action
P0446	Evaporative Emission System Vent Control Circuit	Go to <u>Pinpoint Test A.</u>
P0451	Evaporative Emission System Pressure Sensor/Switch Range/Performance	Go to <u>Pinpoint Test A.</u>
P0452	Evaporative Emission System Pressure Sensor/Switch Low	Go to <u>Pinpoint Test A.</u>
P0453	Evaporative Emission System Pressure Sensor/Switch High	Go to <u>Pinpoint Test A.</u>
P0454	Evaporative Emission System Pressure Sensor/Switch Intermittent	Go to <u>Pinpoint Test A.</u>
P1443	Evaporative Emission System Control Valve (Low/No Flow)	Go to <u>Pinpoint Test A.</u>
P1450	Unable to Bleed up Fuel Tank Vacuum	Go to <u>Pinpoint Test A.</u>
P1451	Evaporative Emission System Vent Control Circuit	Go to <u>Pinpoint Test A.</u>
P260F	Emission System Monitoring Processor Performance	Go to <u>Pinpoint Test A.</u>

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• Slow to fill	• Fuel tank filler pipe • Fuel tank filler pipe vent tube, if equipped • Evaporative Emission (EVAP) system • Fuel tank inlet check valve (part of the fuel tank) • Fuel level vent valve, if equipped (part of the Fuel Pump (FP) module)	• Go to <u>Pinpoint Test A.</u>
• All other fuel system concerns	• Fuel system components	• REFER to the <u>Introduction - Gasoline Engines</u> article.

Pinpoint Test

Pinpoint Test A: Slow to Fill

Normal Operation

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 On-Board Refueling Vapor Recovery (ORVR) system.

This pinpoint test is intended to diagnose the following:

- Fuel tank filler pipe vent tube, if equipped

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- Fuel tank filler pipe
- Evaporative Emission (EVAP) system
- Fuel tank inlet check valve (part of the fuel tank)
- Fuel level vent valve, if equipped (part of the Fuel Pump (FP) module)

PINPOINT TEST A: SLOW TO FILL

A1 CARRY OUT INSPECTION AND VERIFICATION

- Carry out inspection and verification.
- **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 DTCs

- Connect the scan tool.
- Check the system for any of the following EVAP DTCs: P0446, P0451, P0452, P0453, P0454, P1443, P1450, P1451 and P260F.
- **Are any of these DTCs present?**
YES : REFER to **Introduction - Gasoline Engines** article to diagnosis the EVAP system.
NO : Go to A3.

A3 MONITOR THE FTP WHILE FILLING THE FUEL TANK

- Monitor the FTP reference value while filling the fuel tank. Refer to the Reference Valves in the **Introduction - Gasoline Engines** article.
- **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 **Introduction - Gasoline Engines** article.
- **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 AND LINES** article.
- Inspect the fuel tank filler pipe and fuel tank filler pipe vent tube (if equipped) for a blockage or restriction.

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- **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 restrictions. If the restriction cannot be repaired, INSTALL a new fuel tank. REFER to **FUEL TANK AND LINES** article.

NO : Go to A7.

A7 CHECK TO MAKE SURE THAT THE FUEL LEVEL VENT VALVE IS FUNCTIONING CORRECTLY

NOTE: **The fuel level vent valve, if equipped, is part of the FP module.**

- Remove the FP module. Refer to **FUEL TANK AND LINES** article.
- Inspect the fuel level vent valve for foreign material at the bottom drain hole.
- Invert the FP Watch for a movement and a click noise.
- **Was a movement/click noise witnessed?**

YES : Fuel level vent valve is OK. RETEST the system for normal operation.

NO : INSTALL a new FP module. REFER to **FUEL TANK AND LINES** article.

GENERAL PROCEDURES

FUEL SYSTEM PRESSURE RELEASE

WARNING: 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.

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WARNING: Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction

may result in serious personal injury.

NOTE: The Fuel Pump Driver Module (FPDM) is located in the spare tire stowage compartment.

- 1. Disconnect the FPDM electrical connector(s).

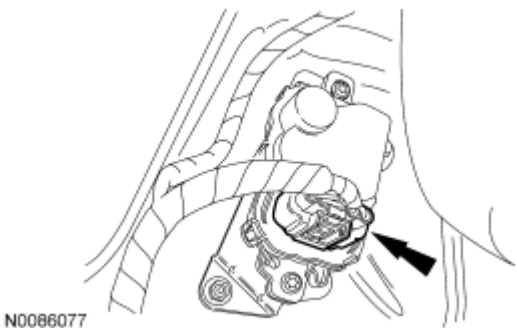


Fig. 1: Identifying FPDM Electrical Connector
Courtesy of FORD MOTOR CO.

- 2. Start the engine and allow it to idle until it stalls.
- 3. After the engine stalls, crank the engine for approximately 10 seconds to make sure the fuel injection supply manifold pressure has been released.
- 4. Turn the ignition switch to the OFF position.
- 5. When the fuel system service is complete, connect the FPDM electrical connector(s).

NOTE: It may take more than one key cycle to pressurize the fuel system.

- 6. Cycle the ignition key and wait 3 seconds to pressurize the fuel system. Check for leaks before starting the engine.
- 7. Start the vehicle and check the fuel system for leaks.

FUEL SYSTEM PRESSURE TEST

Special Tools

Illustration	Tool Name	Tool Number
	Fuel Pressure Test Kit	310-D009 (D95L-7211A)

WARNING: 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

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WARNING: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or 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.

All vehicles

1. Release the fuel system pressure. For additional information, refer to **Fuel System Pressure Release**.
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

4.0L SOHC vehicles

3. Disconnect the fuel jumper tube-to-fuel tube quick connect coupling. For additional information, refer to **Quick Connect Coupling**.
4. Install the Fuel Pressure Test Kit between the fuel jumper tube and the fuel tube.

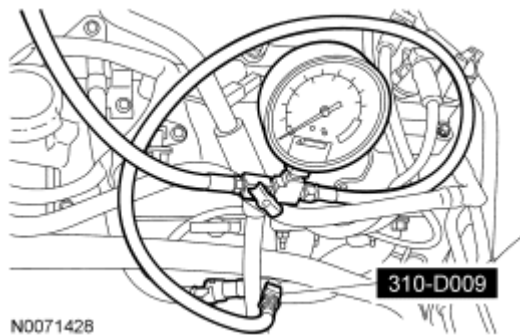


Fig. 2: Installing Fuel Pressure Test Kit Between Fuel Jumper Tube & Fuel Tube
Courtesy of FORD MOTOR CO.

4.6L (3V) vehicles

5. Disconnect the fuel jumper tube-to-fuel rail spring lock coupling. For additional information, refer to **Spring Lock Couplings**.
6. Install the Fuel Pressure Test Kit between the fuel jumper tube and the fuel rail.

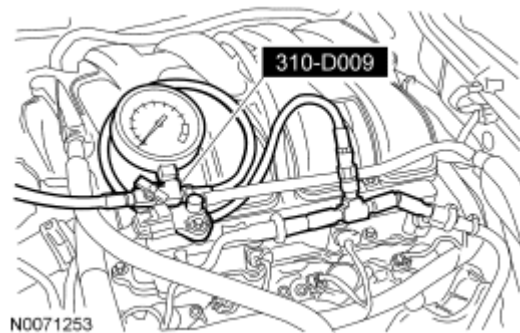


Fig. 3: Installing Fuel Pressure Test Kit Between Fuel Jumper Tube & Fuel Rail
Courtesy of FORD MOTOR CO.

5.4L (4V) vehicles

7. Remove the Air Cleaner (ACL) outlet pipe. For additional information, refer to **INTAKE AIR DISTRIBUTION AND FILTERING** article.
8. Disconnect the fuel jumper tube-to-fuel rail quick connect coupling. For additional information, refer to **Quick Connect Coupling**.

NOTE: Use a commercially available fuel test adapter (such as OTC® 18527).

9. Install the Fuel Pressure Test Kit and the fuel test adapter between the fuel jumper tube and the fuel rail.

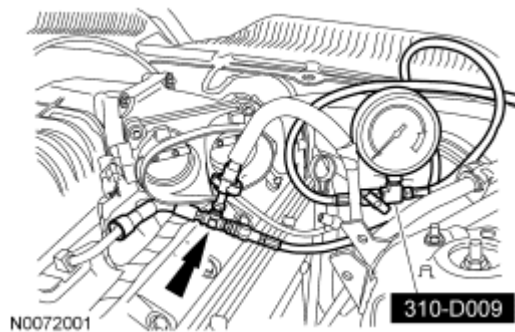


Fig. 4: Installing Fuel Pressure Test Kit & Fuel Test Adapter Between Fuel Jumper Tube & Fuel Rail

Courtesy of FORD MOTOR CO.

All vehicles

NOTE: The Fuel Pump Driver Module (FPDM) was previously disconnected in the Fuel System Pressure Release and must be reconnected to complete the Fuel System Pressure Test.

10. Connect the FPDM electrical connector(s).
11. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

NOTE: It may take more than one key cycle to pressurize the fuel system.

12. Cycle the ignition key and wait 3 seconds to pressurize the fuel system. Check for leaks before starting the engine.

NOTE: After completing the fuel system pressure test, open the drain valve on the Fuel Pressure Test Kit and release any residual fuel into a suitable container prior to removing the tool.

13. Test the fuel system pressure to make sure it is within the specified range. For additional information, refer to **SPECIFICATIONS**.

FUEL TANK DRAINING

Special Tools

Illustration	Tool Name	Tool Number
	Fuel Draining Hose	310-102

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 ST1134A	Fuel Storage Tanker	164-R3202 or equivalent
 ST1839-A	Socket, Fuel Tank Sender Unit	310-D006 (D90P-9275-A)

Material

Item	Specification
Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A

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WARNING: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or 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: Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure,

even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

WARNING: Remove the fuel filler cap slowly. The fuel system may be under pressure. If the fuel filler cap is venting vapor or if you hear a hissing sound, wait until it stops before completely removing the fuel filler cap. Otherwise, fuel may spray out. Failure to follow these instructions may result in serious personal injury.

1. Release the fuel system pressure. For additional information, refer to **Fuel System Pressure Release**.
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
3. Carefully turn the fuel tank filler cap counterclockwise approximately one-fourth turn until the thread disengages and position aside.

NOTE: When removing the Fuel Draining Hose, the fitting on the end of the hose can become detained by the safety valve. Carefully remove the hose using a gentle agitating motion to avoid detaching the hose from the fitting.

NOTE: The Fuel Draining Hose must be inserted into the fuel tank filler pipe until the fitting on the end of the hose enters into the fuel tank, opening the safety valve.

4. Insert the Fuel Draining Hose into the fuel tank filler pipe.

NOTE: This step will remove approximately one-eighth tank of fuel from a completely full fuel tank and the majority of any residual fuel from the fuel tank filler pipe. Also the fuel in the fuel tank will be below the Fuel Pump (FP) module mounting flange for FP module removal without fuel spillage.

5. Attach the Fuel Storage Tanker to the Fuel Draining Hose and remove approximately one-eighth tank of fuel (from a completely full tank), lowering the fuel level below the FP module mounting flange.
6. Remove the rear seat cushion. For additional information, refer to **SEATING** article.
7. Remove the FP module and fuel level sensor access covers and position aside.

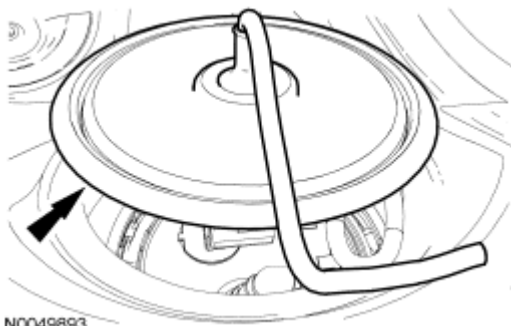


Fig. 5: Locating FP Module Access Cover

Courtesy of FORD MOTOR CO.

NOTE: Clean the FP module connections, couplings, flange surfaces and the immediate surrounding area of any dirt or foreign material.

8. Disconnect the FP module electrical connector.

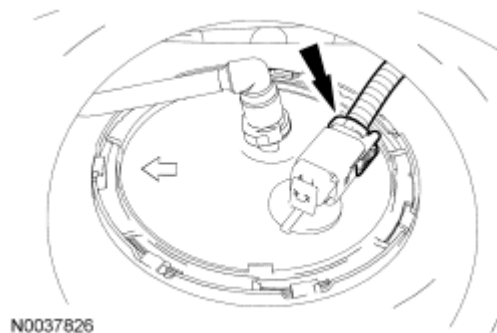


Fig. 6: Locating FP Module Electrical Connector

Courtesy of FORD MOTOR CO.

NOTE: Place absorbent pads in the general work area in case of fuel spillage.

9. Disconnect the rear fuel tube-to-FP module quick connect coupling.

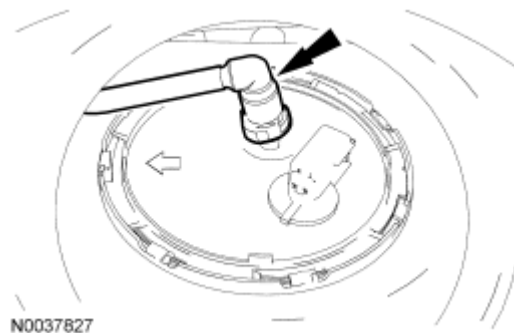


Fig. 7: Locating Quick Connect Coupling On FP Module

Courtesy of FORD MOTOR CO.

NOTE: Carefully install the Fuel Tank Sender Unit Socket to avoid damage to the Fuel Pump (FP) module when removing the lock ring.

NOTE: When installing the FP module, install a new lock ring and O-ring seal.

10. Install the Fuel Tank Sender Unit Socket and remove the FP module lock ring.

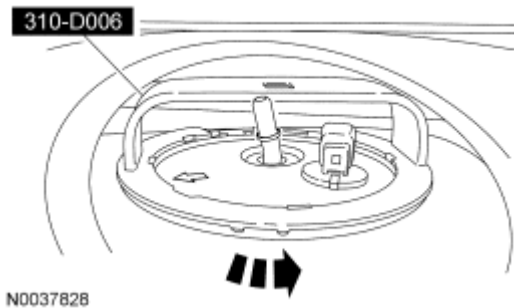


Fig. 8: Identifying Special Tool For FP Module Retaining Lock Ring
Courtesy of FORD MOTOR CO.

NOTE: The Fuel Pump (FP) module must be handled carefully to avoid damage to the float arm.

11. Position the FP module aside. Using the Fuel Storage Tanker, completely drain the remaining fuel from the LH saddle of the fuel tank.

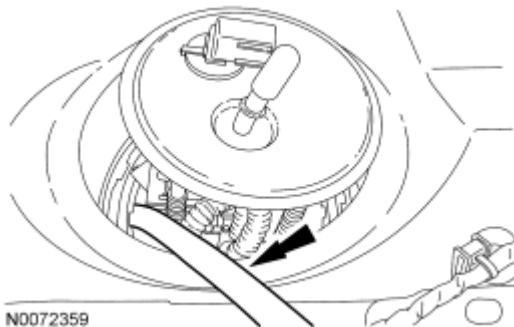


Fig. 9: Completely Drain Remaining Fuel From LH Saddle Of Fuel Tank Using Fuel Storage Tanker
Courtesy of FORD MOTOR CO.

NOTE: Inspect the surfaces of the FP module flange and fuel tank O-ring seal contact surfaces. Do not polish or adjust the O-ring seal contact area of the fuel tank flange or the fuel tank. Install a new FP module or fuel tank if the O-ring seal contact area is bent, scratched or corroded.

NOTE: To install, apply clean engine oil to the O-ring seal.

12. Remove and discard the FP module O-ring seal.

NOTE: Clean the fuel level sensor connections, flange surfaces and the immediate surrounding area of any dirt or foreign material.

13. Disconnect the fuel level sensor electrical connector.

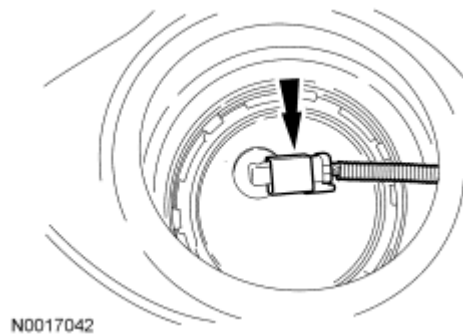


Fig. 10: Locating Fuel Level Sensor Electrical Connector
Courtesy of FORD MOTOR CO.

- NOTE:** Carefully install the Fuel Tank Sender Unit Socket to avoid damage to the fuel level sensor when removing the lock ring.
- NOTE:** When installing the fuel level sensor, install a new lock ring and O-ring seal.

14. Install the Fuel Tank Sender Unit Socket and remove the fuel level sensor lock ring.

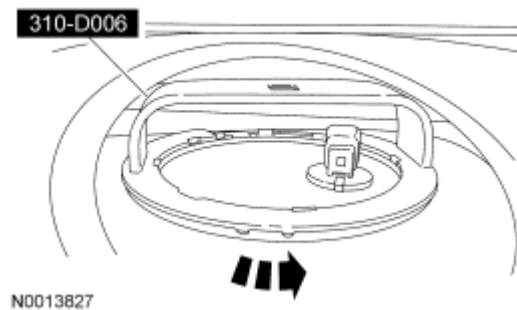


Fig. 11: Removing Fuel Level Sensor Retaining Lock Ring Using Special Tool 310-D006
Courtesy of FORD MOTOR CO.

- NOTE:** The fuel level sensor must be handled carefully to avoid damage to the float arm.
15. Position the fuel level sensor aside. Using the Fuel Storage Tanker, completely drain the RH saddle of the fuel tank.

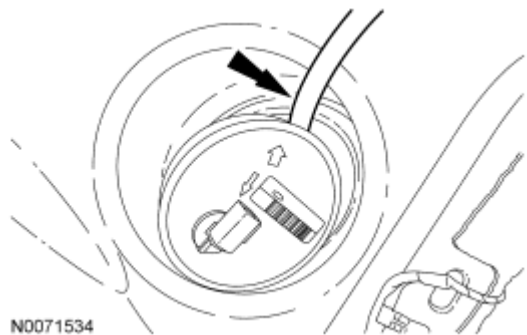


Fig. 12: Completely Drain RH Saddle Of Fuel Tank Using Fuel Storage Tanker
Courtesy of FORD MOTOR CO.

NOTE: Inspect the surfaces of the fuel level sensor flange and fuel tank O-ring seal contact surfaces. Do not polish or adjust the O-ring seal contact area of the fuel tank flange or the fuel tank. Install a new fuel level sensor or fuel tank if the O-ring seal contact area is bent, scratched or corroded.

NOTE: To install, apply clean engine oil to the O-ring seal.

16. Remove and discard the fuel level sensor O-ring seal.

SPRING LOCK COUPLINGS

Special Tools

Illustration	Tool Name	Tool Number
ST1399-A	Spring Lock Coupling Disconnect Tool	310-S039 (T90T-9550-S) or equivalent

Material

Item	Specification
Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A

Disconnect

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NOTE: When reusing liquid or vapor 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 can occur. Apply clean engine oil to the end of the tube before inserting the tube into the connector.

NOTE: 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 can occur. Always install plugs to any open orifices to tubes.

1. If servicing a liquid fuel tube spring lock coupling, release the fuel system pressure. For additional information, refer to **Fuel System Pressure Release**.
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
3. If equipped, remove the fuel tube safety clip.

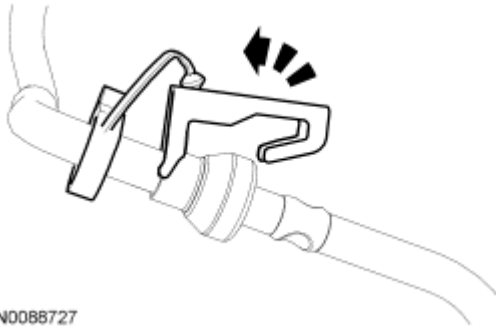


Fig. 13: Removing Fuel Tube Safety Clip
Courtesy of FORD MOTOR CO.

4. Install the Spring Lock Coupling Disconnect Tool on the tube and push into the spring lock coupling to release.

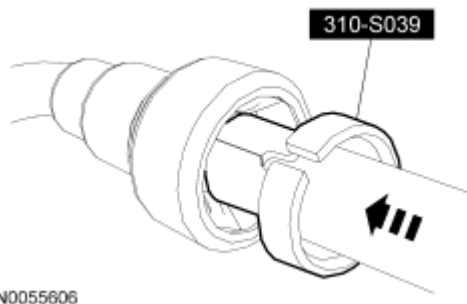


Fig. 14: Installing Special Tool (310-S039) On Tube And Pushing Into Spring Lock Coupling To Release
Courtesy of FORD MOTOR CO.

5. Separate the spring lock coupling from the tube fitting.

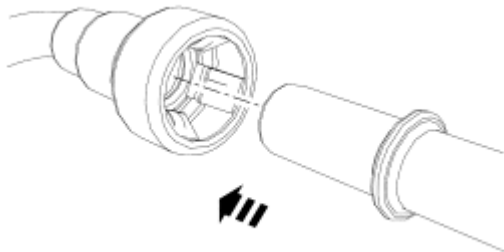
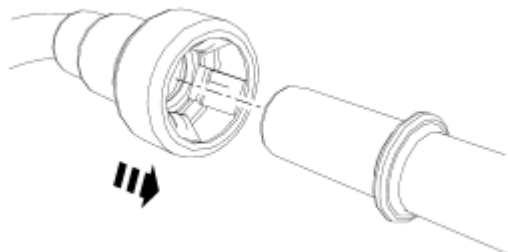


Fig. 15: Separating Spring Lock Coupling From Tube
Courtesy of FORD MOTOR CO.

NOTE: Lubricate the tube fitting with clean engine oil.

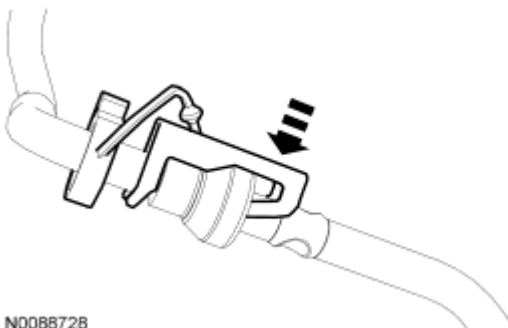
1. Align and push the spring lock coupling onto the tube fitting until fully seated.



N0055608

Fig. 16: Aligning & Pushing Spring Lock Coupling Onto Tube Until You Hear A Click
Courtesy of FORD MOTOR CO.

2. Pull on the coupling to make sure it is fully engaged.
3. If equipped, install the fuel tube safety clip.



N0088728

Fig. 17: Installing Fuel Tube Safety Clip
Courtesy of FORD MOTOR CO.

4. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

QUICK CONNECT COUPLING

Material

Item	Specification
Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A

2008 Ford Mustang

2008 GENERAL INFORMATION Fuel System - General Information - Mustang

Disconnect - Type I

WARNING: 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: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or 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: Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

NOTE: When reusing liquid or vapor 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 can occur. Apply clean engine oil to the end of the tube before inserting the tube into the connector.

NOTE: 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 can occur. Always install blanking plugs to any open orifices or tubes.

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

1. If servicing a liquid fuel tube, release the fuel system pressure. For additional information, refer to **Fuel System Pressure Release**.
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
3. Depress the retainer clip and disconnect the quick connect coupling from the tube.

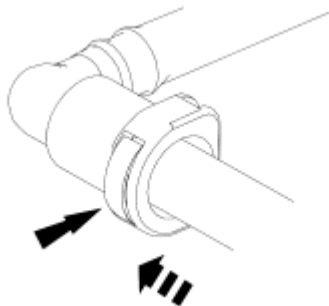


Fig. 18: Locating Fuel Tube Quick Connect Coupling Button
Courtesy of FORD MOTOR CO.

Connect - Type I

NOTE: Apply clean engine oil to O-ring seals.

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

1. Install the quick connect coupling onto the tube until it is fully seated.



Fig. 19: Installing Quick Connect Coupling Onto Tube
Courtesy of FORD MOTOR CO.

2. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

Disconnect - Type II

WARNING: 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: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

NOTE: When reusing liquid or vapor 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 can occur. Apply clean engine oil to the end of the tube before inserting the tube into the connector.

NOTE: 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 can occur. Always install blanking plugs to any open orifices or tubes.

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

1. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
2. Release the retainer clip on the quick connect coupling.

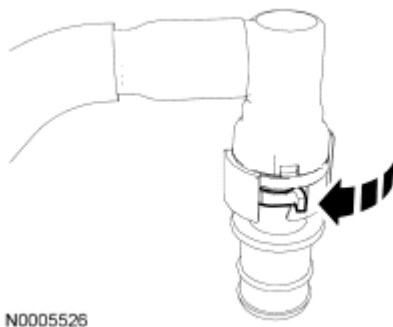


Fig. 20: Positioning Locking Tab Into Unlatched Position
Courtesy of FORD MOTOR CO.

3. Disconnect the quick connect coupling from the fitting.

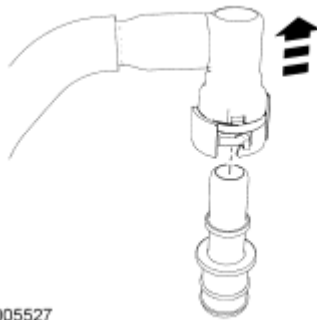


Fig. 21: Identifying Quick Connect Coupling
Courtesy of FORD MOTOR CO.

Connect - Type II

NOTE: Apply clean engine oil to O-ring seals.

1. Release the retainer clip and install the quick connect coupling onto the fitting until fully seated.

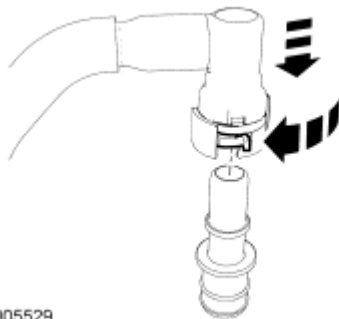


Fig. 22: Identifying Quick Connect Coupling
Courtesy of FORD MOTOR CO.

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

2. Apply retainer clip into the latched position.

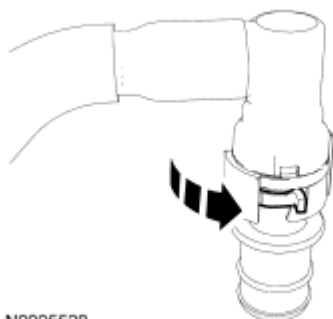


Fig. 23: Positioning Locking Tab Into Latched Position

Courtesy of FORD MOTOR CO.

3. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

Disconnect - Type III

WARNING: 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: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or 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: Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

NOTE: When reusing liquid or vapor 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 can occur. Apply clean engine oil to the end of the tube before inserting the tube into the connector.

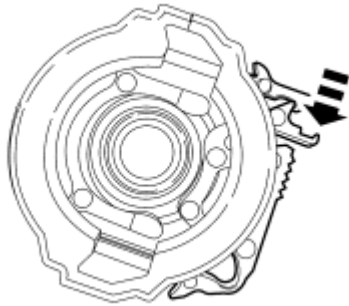
NOTE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage can occur. Always install blanking plugs to any open orifices or tubes.

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

1. If servicing a liquid fuel tube, release the fuel system pressure. For additional information, refer to **Fuel**

System Pressure Release.

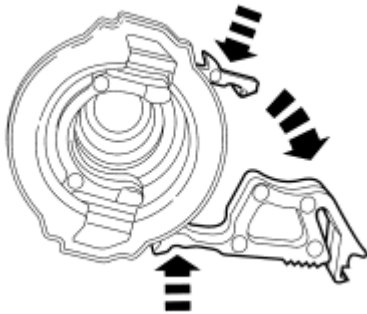
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
3. Release the quick connect coupling primary retainer clip.



A0088905

Fig. 24: Locating Quick Connect Coupling Primary Lock Tab
Courtesy of FORD MOTOR CO.

4. Rotate the primary retainer clip to the fully opened position and squeeze the secondary locking tabs to release the retainer clip.



A0088906

Fig. 25: Identifying Primary Locking Tab Opened Position
Courtesy of FORD MOTOR CO.

5. Position the retainer clip to the outward position and disconnect the quick connect coupling from the tube.



A0089136

Fig. 26: Disconnecting Quick Connect Coupling From Tube

Courtesy of FORD MOTOR CO.

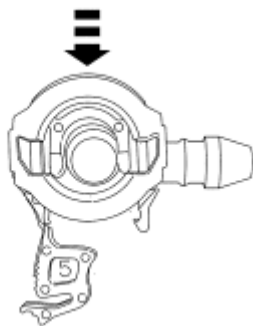
Connect - Type III

NOTE: Apply clean engine oil to O-ring seals.

1. Install the quick connect coupling onto the tube until fully seated.

NOTE: Make sure the retainer clip clicks into place when installing.

2. Depress the retainer clip until it is flush with the quick connect coupling housing.

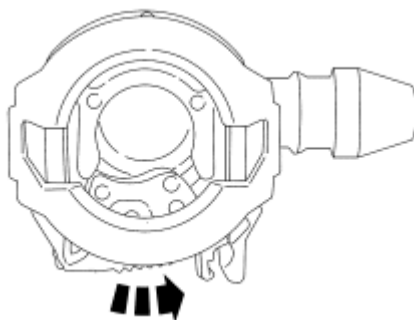


N0013892

Fig. 27: Depressing Retainer Clip
Courtesy of FORD MOTOR CO.

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

3. Rotate the primary locking tab on the retainer clip to the closed position.



N0013893

Fig. 28: Rotating Primary Locking Tab On Retainer Clip
Courtesy of FORD MOTOR CO.

4. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

2008 Ford Mustang

2008 GENERAL INFORMATION Fuel System - General Information - Mustang

Disconnect - Type IV

WARNING: 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: Always disconnect the battery ground cable at the battery when working on an evaporative emission (EVAP) system or fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

NOTE: When reusing liquid or vapor 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 can occur. Apply clean engine oil to the end of the tube before inserting the tube into the connector.

NOTE: 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 can occur. Always install blanking plugs to any open orifices or tubes.

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

1. If servicing a liquid fuel tube quick connect coupling, release the fuel system pressure. For additional information, refer to **Fuel System Pressure Release**.
2. Disconnect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.
3. Depress the legs of the retainer clip and position the clip in an outward position.

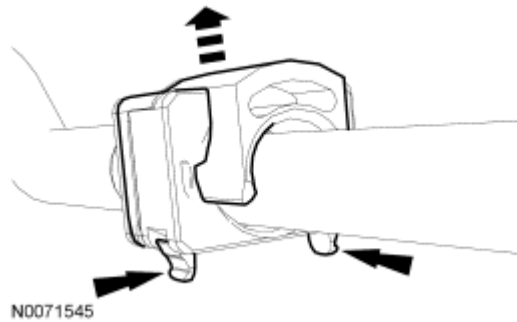


Fig. 29: Depressing Legs Of Retainer Clip & Positioning Clip In An Outward Position
Courtesy of FORD MOTOR CO.

4. Disconnect the quick connect coupling from the tube.

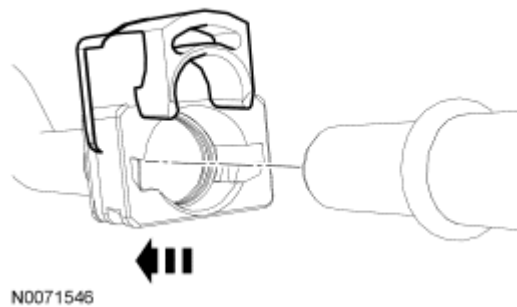


Fig. 30: Disconnecting Quick Connect Coupling From Tube
Courtesy of FORD MOTOR CO.

Connect - Type IV

NOTE: Apply clean engine oil to the end of the tube and quick connect coupling O-ring seals.

1. Install the quick connect coupling onto the tube until fully seated.

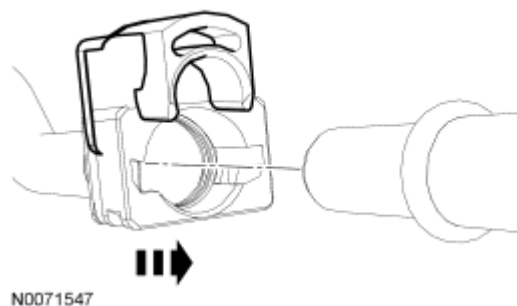
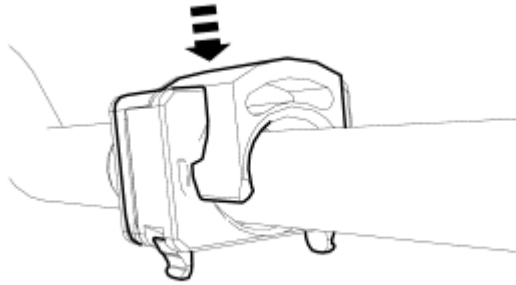


Fig. 31: Installing Quick Connect Coupling Onto Tube Until Fully Seated
Courtesy of FORD MOTOR CO.

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

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



N0071548

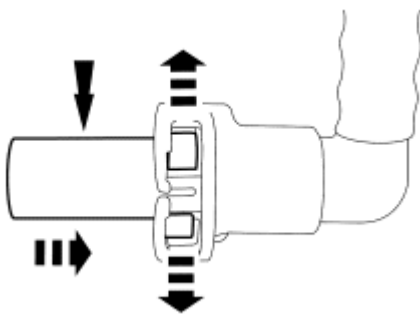
Fig. 32: Pressing Retainer Clip Into Quick Connect Coupling Body
Courtesy of FORD MOTOR CO.

3. Connect the battery ground cable. For additional information, refer to **BATTERY, MOUNTING AND CABLES** article.

QUICK CONNECT COUPLING RETAINER CLIP

Removal

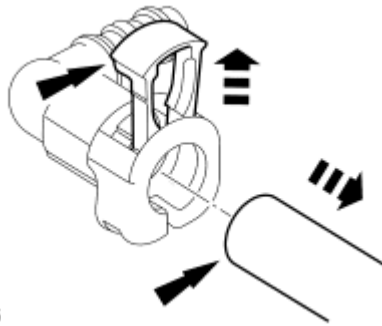
1. Insert the tool that is supplied with the new replacement retainer clip into the quick connect coupling body until it engages and spreads the retainer legs.



N0011764

Fig. 33: Inserting Tool With New Replacement Retainer Clip Into Quick Connect Coupling Body
Courtesy of FORD MOTOR CO.

2. Grasp the retainer clip under the lip on each side, pull outward and remove while simultaneously removing the tool from the quick connect coupling body.
 - The legs of the retainer clip may catch on the quick connect coupling body just prior to removal. To complete removal, slightly open the legs of the retainer clip.



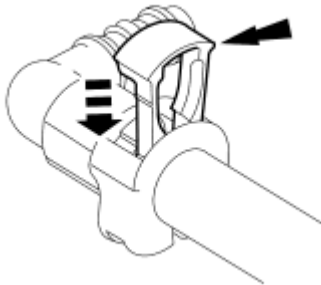
N0011765

Fig. 34: Removing Tool From Quick Connect Coupling Body
Courtesy of FORD MOTOR CO.

3. Discard the quick connect coupling retainer clip.

Installation

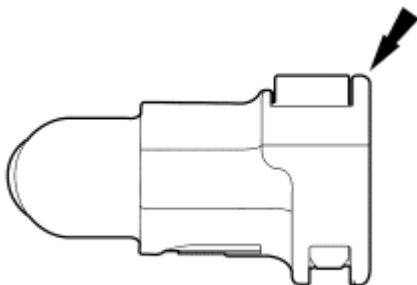
1. Install the tool into the quick connect coupling body.
2. Insert the legs of the new retainer clip into the windows on the body of the quick connect coupling body.



N0011779

Fig. 35: Inserting Legs Of New Retainer Clip Into Windows On Body Of Quick Connect Coupling Body
Courtesy of FORD MOTOR CO.

3. Push the retainer clip straight into the quick connect coupling body until it is flush with the top lip and the side of the connector body.



N0011780

Fig. 36: Pushing Retainer Clip Straight Into Quick Connect Coupling Body

Courtesy of FORD MOTOR CO.

NOTE: If the retainer clip is properly installed, the tool should be locked into the quick connect coupling body and can only be removed when the center of the retaining clip is depressed.

4. Push down the center of the retainer clip and remove the tool. During release, the retainer clip should remain in the quick connect coupler body.