

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

Special Tools

J 34730-1A Fuel Pressure Gauge

For regional tools refer to Special Tools

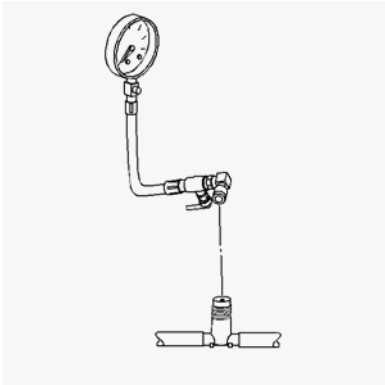
Warning: Refer to Gasoline/Gasoline Vapors Warning.

Warning: Remove the fuel tank cap and relieve the fuel system pressure before servicing the fuel system in order to reduce the risk of personal injury. After you relieve the fuel system pressure, a small amount of fuel may be released when servicing the fuel lines, the fuel injection pump, or the connections. In order to reduce the risk of personal injury, cover the fuel system components with a shop towel before disconnection. This will catch any fuel that may leak out. Place the towel in an approved container when the disconnection is complete.

1. If the fuel system requires repair, prevent fuel spillage by removing the fuel pump fuse. Refer to Electrical Center Identification Views.
2. Remove the engine cover, if required.
3. Loosen the fuel fill cap in order to relieve the fuel tank vapor pressure.
4. Remove the fuel rail service port cap.

Warning: Wrap a shop towel around the fuel pressure connection in order to reduce the risk of fire and personal injury. The towel will absorb any fuel leakage that occurs during the connection of the fuel pressure gauge. Place the towel in an approved container when the connection of the fuel pressure gauge is complete.

5. Wrap a shop towel around the fuel rail service port.



6. Connect the J 34730-1A fuel pressure gauge (4) to the fuel rail service port.
7. Place the hose into an approved gasoline container.
8. Open the valve in order to bleed any fuel from the fuel rail.
9. Close the valve.
10. Remove the hose from the approved gasoline container.

Caution: Clean all of the following areas before performing any disconnections in order to avoid possible contamination in the system:

- The fuel pipe connections
- The hose connections
- The areas surrounding the connections

Note: If relieving the fuel pressure for the fuel pressure gauge installation and removal, it is NOT necessary to proceed with the following steps.

11. Disconnect the J 34730-1A fuel pressure gauge (4) from the fuel rail service port.
12. Remove the shop towel from around the fuel rail service port, and place in an approved gasoline container.
13. Install the fuel rail service port cap.
14. Install the engine cover, if required.
15. Tighten the fuel fill cap.

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

Warning: Refer to Gasoline/Gasoline Vapors Warning.

Warning: Refer to Relieving Fuel Pressure Warning.

1. If the fuel system requires repair, prevent fuel spillage by removing the fuel pump fuse. Refer to Electrical Center Identification Views.
2. Loosen the fuel fill cap in order to relieve the fuel tank vapor pressure.
3. Remove the engine cover, if required.
4. Remove the fuel rail service port cap.
5. Wrap a shop towel around the fuel rail service port and using a small flat-bladed tool, depress (open) the fuel rail test port valve.
6. Remove the shop towel from around the fuel rail service port, and place in an approved gasoline container.
7. Install the fuel rail service port cap.
8. Install the engine cover, if required.
9. Tighten the fuel fill cap.

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

Note: If the fuel filter is plugged, the fuel tank should be inspected internally and cleaned if necessary.

1. Drain the fuel tank. Refer to Fuel Tank Draining.
2. Remove the fuel pump module assembly. Refer to Fuel Tank Fuel Pump Module Replacement.
3. Inspect the fuel pump module strainer. Replace the pump module assembly if the fuel strainer is contaminated.

Note: When flushing the fuel tank, handle the fuel and water mixture as a hazardous material. Handle the fuel and water in accordance with all applicable local, state, and federal laws and regulations.

4. Flush the fuel tank with hot water.
5. Pour the water out of the fuel sender assembly opening in the fuel tank. Rock the fuel tank in order to be sure that the removal of the water from the fuel tank is complete.
6. Allow the tank to dry completely before reassembly.
7. Disconnect the fuel feed pipe at the engine fuel rail. Refer to Fuel Feed Front Pipe Replacement.

Note: Only use oil-free compressed air to blow out the fuel pipes.

8. Clean the fuel pipes by applying air pressure in the opposite direction of the fuel flow.
9. Connect the fuel feed pipe to the engine fuel rail. Refer to Fuel Feed Front Pipe Replacement.
10. Install the fuel pump module assembly. Refer to Fuel Tank Fuel Pump Module Replacement.

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

[Removal Procedure](#)

Warning: Refer to Gasoline/Gasoline Vapors Warning.

The following procedure covers the disassembly and the inspection of the complete fuel supply system. If the fuel system is contaminated, the fuel system can be cleaned. You can usually determine the extent of the fuel system contamination during the disassembly.

1. Inspect the fuel system for contamination of the in-line fuel filter. Replace the filter after cleaning the fuel lines if the filter is plugged or contaminated.
2. Remove the fuel module assembly. Refer to Fuel Pump Cycle Control Module Replacement.
3. Locate the tank in a suitable work area away from any heat, any flame, or any other source of ignition.
4. Inspect the fuel sender strainer. Replace the fuel tank module if the strainer is contaminated.

Note: When flushing the fuel tank, handle the fuel and water mixture as a hazardous material. Handle the fuel and water in accordance with all applicable local, state, and federal laws and regulations.

5. Flush the fuel tank with running hot water for at least five minutes. Pour the water out of the fuel sender assembly opening. Rock the tank in order to ensure that the removal of the water from the tank is complete.
6. Refer to Plastic Collar Quick Connect Fitting Service in order to disconnect the following quick connect fittings from the fuel rail:

- The feed hose/pipe
- The return hose/pipe
- Remove the fuel injectors and fuel rail. Refer to Fuel Injector Replacement.
- Use compressed air in order to apply air pressure to the fuel lines in the opposite direction from the normal fuel flow.
- Clean and inspect the fuel injectors and fuel rail.

[Installation Procedure](#)

1. Install the fuel injectors and fuel rail. Refer to Fuel Injector Replacement.
2. Install the fuel module assembly. Refer to Fuel Pump Cycle Control Module Replacement.
3. Refer to Plastic Collar Quick Connect Fitting Service in order to connect the following quick connect fittings to the fuel rail:

- The feed hose/pipe
- The return hose/pipe

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Removal Procedure](#)

Warning: Refer to Gasoline/Gasoline Vapors Warning.

The following procedure covers the disassembly and the inspection of the complete fuel supply system. If the fuel system is contaminated, the fuel system can be cleaned. You can usually determine the extent of the fuel system contamination during the disassembly.

1. Remove the fuel pump module. Refer to Fuel Tank Fuel Pump Module Replacement.
2. Locate the tank in a suitable work area away from any heat, any flame, or any other source of ignition.
3. Inspect the fuel sender strainer. Replace the fuel tank module if the strainer is contaminated.

Note: When flushing the fuel tank, handle the fuel and water mixture as a hazardous material. Handle the fuel and water in accordance with all applicable local, state, and federal laws and regulations.

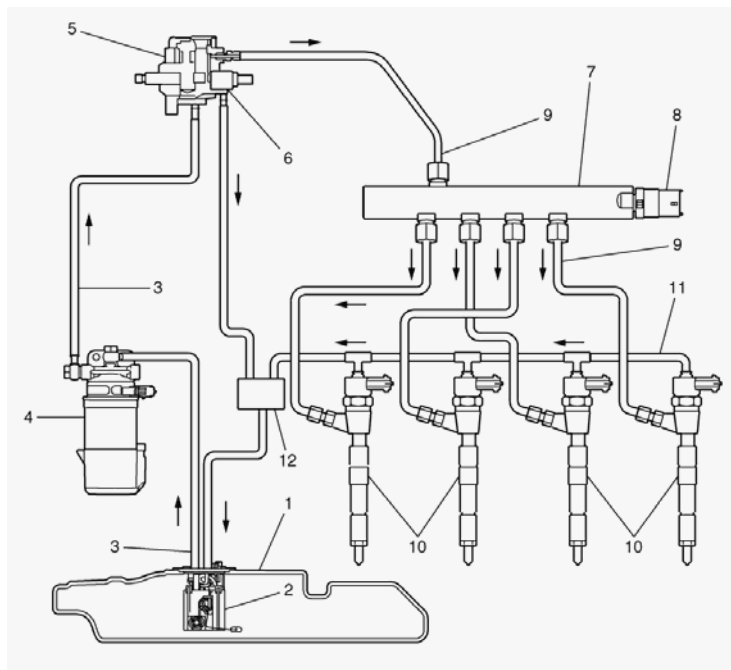
4. Flush the fuel tank with running hot water for at least five minutes. Pour the water out of the fuel sender assembly opening. Rock the tank in order to ensure that the removal of the water from the tank is complete.
5. Disconnect the fuel feed line from the fuel rail. Refer to Plastic Collar Quick Connect Fitting Service.
6. Remove the fuel rail and injectors. Refer to Fuel Injection Fuel Rail Assembly Replacement.
7. Use compressed air in order to apply air pressure to the fuel lines in the opposite direction from the normal fuel flow.
8. Clean and inspect the fuel rail and injectors.

[Installation Procedure](#)

1. Install the fuel rail and injectors. Refer to Fuel Injection Fuel Rail Assembly Replacement.
2. Install the fuel pump module. Refer to Fuel Tank Fuel Pump Module Replacement.
3. Connect the fuel feed line to the fuel rail. Refer to Plastic Collar Quick Connect Fitting Service.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



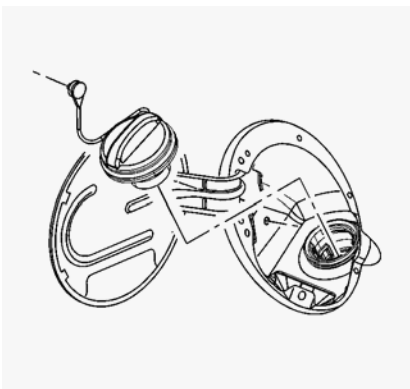
- (1) Fuel Tank
- (2) Fuel Pump Module
- (3) Fuel Lines
- (4) Fuel Conditioning Module
- (5) High Pressure Fuel Injection Pump
- (6) Fuel Pressure Regulator
- (7) Fuel Rail Assembly
- (8) Fuel Pressure Sensor
- (9) High Pressure Pipe
- (10) Fuel Injectors
- (11) Fuel Return Hoses/Pipes
- (12) Return Fuel Container

The fuel tank (1) stores the fuel supply. An electric fuel pump module (2) mounted in the tank provides low pressure fuel to the injection pump. The engine control module (ECM) controls the fuel pump operation. Fuel is drawn through a strainer filter at the bottom of the fuel pump, through the rear fuel lines to the fuel conditioning module (4). The fuel conditioning module is mounted on the left frame rail near the transmission. The fuel conditioning module consists of a fuel filter/water separator, fuel heater, fuel temperature sensor, and a water in fuel sensor. Fuel flows out of the fuel conditioning module through the front fuel lines to the high pressure fuel injection pump (5). The belt driven fuel injection pump is mounted on the lower left corner of the engine block. High pressure fuel is supplied through the metal high pressure fuel line to the fuel rail assembly (7). Then through the metal fuel injector lines to the injectors (9). Fuel pressure is controlled by the ECM and fuel pressure regulator (6). Excess fuel is delivered to the high pressure pump and injectors to lubricate and cool the components. The excess fuel then returns to the fuel tank through the return lines (11). The fuel injection pump also supplies low pressure to the injector return lines to ensure proper injector operation.

Fuel Tank

The fuel tank (7) stores the fuel supply. The fuel tank is held in place by 2 metal straps that attach to the frame. The fuel tank is molded from high density polyethylene.

Fuel Filler Cap



The fuel filler cap has a torque-limiting device that prevents the cap from being over tightened. To install , turn the cap clockwise until you hear audible clicks. This indicates that the cap is fully seated.

Fuel Sender Assembly

The fuel tank module (8) is located inside of the fuel tank. The fuel tank module consists of the following major components:

- The fuel level sensor
- The fuel pump and reservoir assembly
- The fuel strainer

Fuel Level Sensor

The fuel level sensor consists of a float, a wire float arm, and a ceramic resistor card. The position of the float arm indicates the fuel level. The fuel level sensor contains a variable resistor which changes resistance in correspondence with the amount of fuel in the fuel tank. The engine control module (ECM) sends the fuel level information to the instrument panel cluster (IPC). This information is used for the instrument panel (I/P) fuel gauge and the low fuel warning indicator. The ECM also monitors the fuel level input for various diagnostics.

Fuel Pump

The fuel pump (8) is mounted in the primary fuel tank module reservoir. The fuel pump is an electric pump. Fuel is pumped to the mechanical fuel injection pump at a specified flow and pressure. The control module controls the electric fuel pump operation through a fuel pump relay.

Fuel Strainer

The fuel strainer attaches to the lower end of the fuel sender. The fuel strainer is made of woven plastic. The functions of the fuel strainer are to filter contaminants and to wick fuel. The fuel strainer is self-cleaning and normally requires no maintenance. Fuel stoppage at this point indicates that the fuel tank contains an abnormal amount of sediment.

Fuel Conditioning Module

The fuel filter assembly (9) is located on the left frame rail . The paper filter element traps particles in the fuel that may damage the fuel injection system.

- Fuel Filter/Water Separator
- Fuel Heater
- Fuel Temperature Sensor
- Water in Fuel Sensor

Fuel Filter/Water Separator

The paper filter element traps particles in the fuel that may damage the fuel injection system and is designed to allow trapped water particles to settle to the bottom of the filter assembly.

Fuel Heater

The fuel heater located in the fuel conditioning module is controlled by the engine control module (ECM). When the temperature of the fuel is below the calibrated level the ECM will command the fuel heater relay ON. With the relay ON battery voltage is supplied to the fuel heater to assist in cold weather operation.

Fuel Temperature Sensor

The fuel temperature sensor is a thermistor that is located in the fuel conditioning module The ECM monitors the fuel temperature sensor signal circuit in order to calculate the temperature of the fuel entering the fuel injection pump.

Water in Fuel Sensor

The water in fuel sensor is a 3 wire sensor the monitors the presence of diesel and water. When water is present the ECM detects low voltage on the signal circuit and sends a serial data message to the instrument panel cluster to display the WATER IN FUEL SERVICE REQUIRED message.

Fuel Feed and Return Pipes

The fuel feed pipe carries fuel from the fuel tank to the fuel filter/heater element housing. The fuel return pipe carries fuel from the fuel rail assemblies back to the fuel tank. The fuel pipes consist of 2 sections:

- The rear fuel pipe assemblies are located from the top of the fuel tank to the chassis fuel pipes. The rear fuel pipes are constructed of steel with sections of rubber hose covered with braiding.
- The chassis fuel pipes are located under the vehicle and connect the rear fuel pipes to the fuel rail pipes. These pipes are constructed of steel with sections of rubber hose covered with braiding.

Quick-Connect Fittings

Quick-connect fittings provide a simplified means of installing and connecting fuel system components. The fittings consist of a unique female connector and a compatible male pipe end. O-rings, located inside the female connector, provide the fuel seal. Integral locking tabs inside the female connector hold the fittings together.

Fuel Pipe O-Rings

O-rings seal the connections in the fuel system. Fuel system O-ring seals are made of special material. Service the O-ring seals with the correct service part.

Fuel System Description

Fuel Injection Pump

The fuel injection pump (1) is a mechanical high pressure pump. The fuel injection pump is located on the lower left side of the engine. Fuel is pumped to the fuel rail (3) at a specified pressure. Fuel pressure is regulated by the fuel pressure regulator which is located on the inlet side of the fuel injection pump, controlled by the engine control module (ECM). Excess fuel from the fuel injection pump returns to the fuel tank through the fuel return pipe.

Fuel Pressure Regulator

The engine control module (ECM) controls the fuel rail pressure using a pulse width modulated fuel rail pressure regulator. The fuel pressure regulator is located on the inlet of the fuel injection pump and meters the amount of fuel that enters the fuel injection pump. The ECM varies the pulse width modulated voltage to the fuel pressure regulator to control the fuel rail pressure.

Fuel Pressure Sensor

The fuel rail pressure sensor is located in the front of the fuel rail assembly. The fuel rail pressure sensor provides the engine control module (ECM) an indication of the actual fuel rail pressure. The ECM uses this information to regulate the fuel pressure, by commanding the fuel pressure regulator to obtain the desired fuel pressure.

Fuel Rail Assembly

The fuel rail assembly (3) attaches to the cylinder head. The fuel rail assembly distributes pressurized fuel to the fuel injectors through the fuel lines.

Fuel Injectors

The fuel injectors are located above each cylinder and deliver fuel directly into the cylinder. Each injector has a high pressure fuel pipe from the fuel rail and a return line.

The engine control module (ECM) provides both a high side and low side driver to operate the fuel injector.

Fuel Return Lines

Fuel is returned to the fuel tank from the fuel injectors, high pressure fuel pump, and fuel rail.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Fuel System Overview](#)

The main fuel system is a returnless on-demand design. The fuel pressure regulator is a part of the fuel pump module, eliminating the need for a return pipe from the engine. A returnless fuel system reduces the internal temperature of the fuel tank by not returning hot fuel from the engine to the fuel tank. Reducing the internal temperature of the fuel tank results in lower evaporative emissions.

An electric turbine-style fuel pump is attached to the fuel pump module inside the fuel tank. The fuel pump supplies high pressure fuel through the fuel feed pipe to the fuel injection system. The fuel pump provides fuel at a higher rate of flow than is needed by the fuel injection system. The fuel pressure regulator, a part of the fuel pump module, maintains the correct fuel pressure to the fuel injection system. The fuel pump module contains a reverse flow check valve. The check valve and the fuel pressure regulator maintain fuel pressure in the fuel feed pipe and the fuel rail in order to prevent long cranking times.

[E 100 Flex Fuel Description](#)

This E 100 flex fuel vehicle no longer use an alcohol sensor to determine and adjust for the alcohol content of the fuel in the tank. Instead, the vehicle calculates the alcohol content of the fuel through measured adjustments.

The ethanol calculation occurs with the engine running after a refueling event has been detected via a measured change in the fuel level sender output. The virtual flex fuel sensor algorithm temporarily closes the canister purge valve for a few seconds and monitors information from the closed loop fuel trim system to calculate the ethanol content. This logic executes several times until the ethanol calculation is deemed to be stable. This may take several minutes under low fuel flow conditions such as idle, or a shorter time during higher fuel flow, off idle conditions.

Air-fuel ratios and the corresponding ethanol percentage are updated following each purge off sequence. The fuel alcohol content percentage value can be read on a scan tool using the Fuel Alcohol Content parameter.

When an E 100 compatible vehicles ECM is replaced, or if the learned alcohol content has been reset with a scan tool, the fuel system will need to contain ASTM gasoline with 22% or less ethanol content.

A minimum of 11 liters (3 gallons) must be put in the tank in order for the vehicle to recognize a refueling event. It is not necessary to turn the ignition OFF in order to have the refueling event recognized, however local safety regulations should be followed.

After the refueling event, the system registers the amount of fuel that was added, relative to the amount that was in the tank. Reading fuel trim and heated oxygen sensor activity, the system determines if the fuel added was either ASTM Gasoline (E 22) or ASTM Ethanol E 100. Based on that determination, the system adjusts to the expected alcohol mix in the fuel tank, and then the fuel trim and heated oxygen sensor activity fine tunes the adjustments. The system must remain in closed loop in order for this adjustment to occur. Numerous short trips after switching from gasoline to E 100, or E 100 to gasoline, can result in driveability symptoms due to the inability of the system to adjust for fuel composition by not attaining closed loop operation.

[Gasoline \(E 22\) and Ethanol \(E 100\)](#)

The gasoline available is considered to be E 22, which means that the gasoline has 22% ethanol and 78% gasoline. E 100 that is available means that it has 93% ethanol and 7% water.

[Switching Between Gasoline \(E 22\) and Ethanol \(E 100\)](#)

No special precautions need to be taken when switching back and forth between gasoline (E 22) and ethanol E 100 other than refueling events must be 11 liters (3 gallons) or greater, and the vehicle must remain in closed loop long enough, usually by the time the engine has maintained full operating temperature, to calculate the composition of the new blend in the tank.

[Flex Fuel Cold Start Auxiliary System](#)

During cold days 4°C (40°F) or colder, when the alcohol content in the fuel tank as determined by the engine control module (ECM) is approximately E 100, the cold start system is enabled injecting gasoline in the intake manifold, helping the engine to a fast start.

Under the hood is a small gasoline reservoir. You fill it up at the gas station with gasoline (E 22) by way of a separate fuel cap that is a part of the underhood gasoline reservoir. There is a small electric fuel pump attached onto the bottom of this reservoir of gasoline. A small fuel hose is connected to the output of that small electric cold start pump. The gasoline that the pump pushes through the small fuel hose leads to a cold start fuel injector (solenoid valve), and another fuel hose from this cold start fuel injector (solenoid valve) to a "nozzle" mounted in the intake manifold. The "nozzle" is located on the intake manifold somewhere centrally located, so that whatever amount of injected gasoline is distributed evenly into all the intake ports of the manifold.

When the ECM measures cold engine temperature and determines the engine is cranking, it energizes both the cold start relay (cold start fuel pump), and the cold start fuel injector (solenoid valve) to allow gasoline to the intake manifold. Once the ECM has determined the engine has started and the RPM is above approximately 600, the ECM will turn off the cold start relay (cold start fuel pump), and the cold start fuel injector (solenoid valve).

The purpose of the cold start fuel injector (solenoid valve) is to close the fuel hose between the engine and the gasoline reservoir. If the solenoid did not close the fuel hose, engine vacuum would draw the gasoline from the reservoir into the engine until the reservoir is empty, and create a vacuum leak.

[Fuel Tank](#)

The fuel tank stores the fuel supply. The fuel tank is located in the rear of the vehicle. The fuel tank is held in place by 2 metal straps that are attached to the underbody. The fuel tank is molded from high-density polyethylene.

[Fuel Filler Cap](#)

Note: If a fuel tank filler cap requires replacement, use only a fuel tank filler cap with the same features. Failure to use the correct fuel tank filler cap can result in a serious malfunction of the fuel and Evaporative Emission (EVAP) system.

The fuel fill pipe has a tethered fuel filler cap. A torque-limiting device prevents the cap from being overtightened. To install the cap, turn the cap clockwise until the cap clicks audibly. This indicates that the cap is correctly torqued and fully seated. A fuel filler cap that is not fully seated may cause a malfunction in the emission system.

[Fuel Pump Module](#)

The fuel pump module consists of the following major components:

- The fuel level sensor
- The fuel pump
- The fuel strainer

- The fuel pressure regulator
- The fuel filter

Fuel Level Sensor

The fuel level sensor consists of a float, a wire float arm, and a ceramic resistor card. The position of the float arm indicates the fuel level. The fuel level sensor contains a variable resistor which changes resistance in correspondence with the position of the float arm. The ECM sends the fuel level information via the serial data circuit to the instrument panel cluster. This information is used for the instrument panel cluster fuel gauge and the low fuel warning indicator, if applicable. The ECM also monitors the fuel level input for various diagnostics.

Fuel Pump

The fuel pump is mounted in the fuel pump module reservoir. The fuel pump is an electric high-pressure pump. Fuel is pumped to the fuel injection system at specified rates of flow and pressure. The fuel pump delivers a constant flow of fuel to the engine even during low fuel conditions and aggressive vehicle maneuvers. The ECM controls the electric fuel pump operation through a fuel pump relay. The fuel pump flex pipe acts to dampen the fuel pulses and noise generated by the fuel pump.

Fuel Strainer

The fuel strainer is attached to the lower end of the fuel pump module. The fuel strainer is made of woven plastic. The functions of the fuel strainer are to filter contaminants and to wick away fuel. Normally, the fuel strainer does not require maintenance. Fuel stoppage at this point indicates that the fuel tank contains an abnormal amount of sediment or contamination.

Fuel Pressure Regulator

The fuel pressure regulator is contained in the fuel pump module near the fuel pump outlet. The fuel pressure regulator is a diaphragm relief valve. The diaphragm has fuel pressure on one side and regulator spring pressure on the other side. The fuel pressure regulator is not vacuum biased. Fuel pressure is controlled by a pressure balance across the regulator. The fuel system pressure is constant.

Fuel Feed Pipes

The fuel feed pipe carries fuel from the fuel tank to the fuel injection system. The fuel pipe consists of 3 sections:

- The rear fuel pump fuel feed hose runs from the top of the fuel tank to the chassis fuel pipe. The rear fuel hose is constructed of nylon.
- The fuel feed intermediate pipe is located under the vehicle and connects the rear fuel pump fuel feed hose to the front fuel pump fuel feed hose. The intermediate fuel pipe is constructed of a combination of nylon and steel pipes.
- The front fuel pump fuel feed hose connects the fuel feed intermediate pipe to the fuel rail. The front fuel hose contains the fuel pulse dampener and is constructed of a combination of nylon and steel pipes.

Nylon Fuel Pipes

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

Nylon pipes are constructed to withstand maximum fuel system pressure, exposure to fuel additives, and changes in temperature.

Heat resistant rubber hose or corrugated plastic conduit protect the sections of the pipes that are exposed to chafing, high temperature, or vibration.

Nylon fuel pipes are somewhat flexible and can be shaped around gradual turns under the vehicle. However, if nylon fuel pipes are forced into sharp bends, the pipes may kink and restrict the flow of fuel. Also, once exposed to fuel, nylon pipes may become stiffer and are more likely to kink if bent too far. Exercise special care when working on a vehicle with nylon fuel pipes.

Fuel Pulse Dampener

The fuel pulse dampener is a part of the front fuel pump fuel feed hose. The fuel pulse dampener is diaphragm-operated with fuel pump pressure on one side and with spring pressure on the other side. The function of the dampener is to dampen the fuel pump pressure pulsations.

Fuel Rail Assembly

The fuel rail assembly is attached to the cylinder head. The fuel rail assembly performs the following functions:

- Positions the injectors in the intake ports of the cylinder head
- Distributes fuel evenly to the injectors

Fuel Injectors

The fuel injector assembly is a solenoid device controlled by the ECM that meters pressurized fuel to a single engine cylinder. The ECM energizes the high-impedance, 12 Ω , injector solenoid to open a ball valve, normally closed. This allows fuel to flow into the top of the injector, past the ball valve, and through a director plate at the injector outlet. The director plate has machined holes that control the flow of fuel, generating a spray of finely atomized fuel at the injector tip. Fuel from the injector tip is directed at the intake valve, causing the fuel to become further atomized and vaporized before entering the combustion chamber. This fine atomization improves fuel economy and emissions. The fuel pressure regulator compensates for engine load by increasing fuel pressure as the engine vacuum drops.

Fuel Metering Modes of Operation

The ECM monitors voltages from several sensors in order to determine how much fuel to feed to the engine. The ECM controls the amount of fuel delivered to the engine by changing the fuel injector pulse width. The fuel is delivered under one of several modes.

Starting Mode

When the ECM detects reference pulses from the crankshaft position sensor, the ECM will enable the fuel pump. The fuel pump runs and builds up pressure in the fuel system. The ECM then monitors the manifold absolute pressure (MAP), intake air temperature (IAT), engine coolant temperature (ECT), and accelerator pedal position (APP) sensor signals in order to determine the required injector pulse width for starting.

Clear Flood Mode

If the engine is flooded with fuel during starting and will not start, the clear flood mode can be manually enabled. To enable Clear Flood Mode, press the accelerator to wide open throttle (WOT). The ECM will completely turn OFF the fuel injectors and will maintain this mode as long as the ECM detects a WOT condition with engine speed below a predetermined value.

Run Mode

The run mode has 2 conditions referred to as open loop and closed loop. When the engine is first started and the engine speed is above a predetermined RPM, the system begins open loop operation. The ECM ignores the signal from the heated oxygen sensor (HO2S). The engine ECM calculates the air/fuel ratio based on inputs from the engine coolant temperature (ECT), the manifold absolute pressure (MAP), and accelerator pedal position (APP) sensor. The system stays in open loop until meeting the following conditions:

- The heated oxygen sensor (HO2S) has varying voltage output, showing that the heated oxygen sensor (HO2S) is hot enough to operate properly.

- The ECT sensor is above a specified temperature.
- A specific amount of time has elapsed after starting the engine.

Specific values for the above conditions exist for each different engine, and are stored in the programmable read-only memory (EEPROM), which may be erased electrically. The system begins closed loop operation after reaching these values. In closed loop, the ECM calculates the air/fuel ratio, injector ON time, based upon the signal from various sensors, but mainly from the heated oxygen sensor (HO2S). This allows the air/fuel ratio to stay very close to 14.7:1.

Acceleration Mode

The ECM monitors the changes in the accelerator pedal position (APP) sensor, and the manifold absolute pressure (MAP) sensor signal in order to determine when the vehicle is being accelerated. The ECM will then increase the injector pulse width in order to provide more fuel for increased performance.

Deceleration Mode

The ECM monitors changes in accelerator pedal position (APP) sensor and manifold absolute pressure (MAP) sensor signals to determine when the vehicle is being decelerated. The ECM will then decrease injector pulse width or even turn OFF injectors for short periods to reduce exhaust emissions, and for better (engine braking) deceleration.

Battery Voltage Correction Mode

When the battery voltage is low, the ECM compensates for the weak spark delivered by the ignition system in the following ways:

- Increasing the amount of fuel delivered
- Increasing the idle RPM
- Increasing the ignition dwell time

Fuel Cutoff Mode

The ECM cuts OFF fuel from the fuel injectors when the following conditions are met in order to protect the powertrain from damage and improve driveability:

- The ignition is OFF. This prevents engine run-on.
- The ignition is ON but there is no ignition reference signal. This prevents flooding or backfiring.
- The engine speed is too high, above red line.
- The vehicle speed is too high, above rated tire speed.
- During an extended, high speed, closed throttle coast down, this reduces emissions and increases engine braking.
- During extended deceleration, in order to prevent damage to the catalytic converters.

Fuel Trim

The ECM controls the air/fuel metering system in order to provide the best possible combination of driveability, fuel economy, and emission control. The ECM monitors the heated oxygen sensor (HO2S) signal voltage while in closed loop and regulates the fuel delivery by adjusting the pulse width of the injectors based on this signal. The ideal fuel trim values are around 0% for both short and long term fuel trim. A positive fuel trim value indicates the ECM is adding fuel in order to compensate for a lean condition by increasing the pulse width. A negative fuel trim value indicates that the ECM is reducing the amount of fuel in order to compensate for a rich condition by decreasing the pulse width. A change made to the fuel delivery changes the long and short term fuel trim values. The short term fuel trim values change rapidly in response to the heated oxygen sensor (HO2S) signal voltage. These changes fine-tune the engine fueling. The long term fuel trim makes rough adjustments to fueling in order to recenter and restore control to short term fuel trim. A scan tool can be used to monitor the short and long term fuel trim values. The long term fuel trim diagnostic is based on an average of several of the long term speed load learn cells. The ECM selects the cells based on the engine speed and engine load. If the ECM detects an excessively lean or rich condition, the ECM will set a fuel trim diagnostic trouble code (DTC).

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Fuel System Overview](#)

The fuel system is a returnless on-demand design. The fuel pressure regulator is a part of the fuel sender assembly, eliminating the need for a return pipe from the engine. A returnless fuel system reduces the internal temperature of the fuel tank by not returning hot fuel from the engine to the fuel tank. Reducing the internal temperature of the fuel tank results in lower evaporative emissions.

The fuel tank stores the fuel supply. An electric turbine style fuel pump attaches to the fuel sender assembly inside the fuel tank. The fuel pump supplies high pressure fuel through the fuel filter contained in the fuel sender assembly and the fuel feed pipe to the Fuel Injection System. The fuel pump provides fuel at a higher rate of flow than is needed by the fuel injection system. The fuel pump also supplies fuel to a venturi pump located on the bottom of the fuel sender assembly. The function of the venturi pump is to fill the fuel sender assembly reservoir. The fuel pressure regulator, a part of the fuel sender assembly, maintains the correct fuel pressure to the fuel injection system. The fuel pump and sender assembly contains a reverse flow check valve. The check valve and the fuel pressure regulator maintain fuel pressure in the fuel feed pipe and the fuel rail in order to prevent long cranking times.

[Fuel Tank](#)

The fuel tank stores the fuel supply. The fuel tank is located towards the left rear of the vehicle. The fuel tank is held in place by 2 metal straps that attach to the underbody of the vehicle. The fuel tank is molded from high-density polyethylene.

[Fuel Fill Pipe](#)

The fuel fill pipe has a built-in restrictor in order to prevent refueling with leaded fuel.

[Fuel Filler Cap](#)

The fuel fill pipe has a tethered fuel filler cap. A torque-limiting device prevents the cap from being over-tightened. To install the cap, turn the cap clockwise until you hear audible clicks. This indicates that the cap is correctly torqued and fully seated.

[Fuel Tank Fuel Pump Module](#)

The primary fuel tank fuel pump module is located inside of the fuel tank. The fuel tank fuel pump module consists of the following major components:

- The fuel level sensor
- The fuel pump and reservoir assembly
- The pressure relief regulator valve
- The fuel strainer
- The fuel pump
- The venturi pump
- The fill limit vent valve
- The fuel filter

[Fuel Level Sensor](#)

The fuel level sensor consists of a float, a wire float arm, and a ceramic resistor card. The position of the float arm indicates the fuel level. The fuel level sensor contains a variable resistor which changes resistance in correspondence with the position of the float arm.

[Fuel Pump](#)

The fuel pump is mounted in the primary fuel tank fuel pump module reservoir. The fuel pump is an electric high-pressure pump. Fuel is pumped to the fuel injection system at a pressure that is controlled by the fuel pressure regulator. The fuel pump delivers a constant flow of fuel to the engine even during low fuel conditions and aggressive vehicle maneuvers.

[Fuel Pressure Regulator](#)

The fuel pressure regulator is part of the fuel tank fuel pump module and maintains a constant fuel pressure in the fuel line and fuel rail. Excess fuel delivered by the fuel pump is released back into the fuel tank.

[Fuel Strainer](#)

The fuel strainer attaches to the lower end of the fuel tank fuel pump module. The fuel strainer is made of woven plastic. The functions of the fuel strainer are to filter contaminants and to wick fuel. The fuel strainer normally requires no maintenance. Fuel stoppage at this point indicates that the fuel tank contains an abnormal amount of sediment or contamination.

[Fuel Filter](#)

The fuel filter is located in the fuel tank fuel pump module. The paper filter element traps particles in the fuel that may damage the fuel injection system. The filter housing is made to withstand maximum fuel system pressure, exposure to fuel additives, and changes in temperature.

[Nylon Fuel Pipes](#)

Warning: In order to reduce the risk of fire and personal injury observe the following items:

- Replace all nylon fuel pipes that are nicked, scratched or damaged during installation, do not attempt to repair the sections of the nylon fuel pipes
- Do not hammer directly on the fuel harness body clips when installing new fuel pipes. Damage to the nylon pipes may result in a fuel leak.
- Always cover nylon vapor pipes with a wet towel before using a torch near them. Also, never expose the vehicle to temperatures higher than 115°C (239°F) for more than one hour, or more than 90°C (194°F) for any extended period.
- Apply a few drops of clean engine oil to the male pipe ends before connecting fuel pipe fittings. This will ensure proper reconnection and prevent a possible fuel leak. (During normal operation, the O-rings located in the female connector will swell and may prevent proper reconnection if not lubricated.)

Nylon pipes are constructed to withstand maximum fuel system pressure, exposure to fuel additives, and changes in temperature.

Heat resistant rubber hose or corrugated plastic conduit protect the sections of the pipes that are exposed to chafing, high temperature, or vibration.

Nylon fuel pipes are somewhat flexible and can be formed around gradual turns under the vehicle. However, if nylon fuel pipes are forced into sharp bends, the pipes may kink and restrict the fuel flow. Also, once exposed to fuel, nylon pipes may become stiffer and are more likely to kink if bent too far. Take special care when working on a vehicle with nylon fuel pipes.

[Quick-Connect Fittings](#)

Quick-connect fittings provide a simplified means of installing and connecting fuel system components. The fittings consist of a unique female connector and a compatible male pipe end. O-rings, located inside the female connector, provide the fuel seal. Integral locking tabs inside the female connector hold the fittings together.

[Fuel Rail Assembly](#)

The fuel rail assembly attaches to the cylinder head and distributes fuel to the fuel injectors.

[Fuel Injectors](#)

The fuel injector assembly is a solenoid operated device, controlled by the engine control module (ECM), that meters pressurized fuel to a single engine cylinder. The ECM energizes the high-impedance (12 ohms) injector solenoid to open a normally closed ball valve. This allows fuel to flow into the top of the injector, past the ball valve, and through a director plate at the injector outlet. The director plate has a number of precision holes that control the fuel flow, generating a spray of finely atomized fuel at the injector tip. Fuel from the injector tip is directed at the intake valve, causing it to become further atomized and vaporized before entering the combustion chamber. An injector stuck partly open can cause a loss of pressure after engine shutdown. Consequently, long cranking times would be noticed on some engines.

[Fuel Metering Modes of Operation](#)

The ECM monitors voltages from several sensors in order to determine how much fuel to give the engine. The ECM controls the amount of fuel delivered to the engine by changing the fuel injector pulse width. The fuel is delivered under one of several modes.

[Starting Mode](#)

With the ignition switch in the ON position, before engaging the starter, the engine control module (ECM) energizes the fuel pump relay for 2 seconds allowing the fuel pump to build up pressure. The ECM first tests speed density, then switches to the mass air flow (MAF) sensor. The ECM also uses the engine coolant temperature (ECT), the throttle position (TP), and the manifold absolute pressure (MAP) sensors to determine the proper air/fuel ratio for starting. The ECM controls the amount of fuel delivered in the starting mode by changing the pulse width of the injectors. This is done by pulsing the injectors for very short times.

[Clear Flood Mode](#)

If the engine floods, clear the engine by pressing the accelerator pedal down to the floor and then crank the engine. When the throttle position (TP) sensor is at wide open throttle, the engine control module (ECM) reduces the injector pulse width in order to increase the air to fuel ratio. The ECM holds this injector rate as long as the throttle stays wide open and the engine speed is below a predetermined RPM. If the throttle is not held wide open, the ECM returns to the starting mode.

[Run Mode](#)

The run mode has 2 conditions called Open Loop and Closed Loop. When the engine is first started and the engine speed is above a predetermined RPM, the system begins Open Loop operation. The ECM ignores the signal from the heated oxygen sensor (HO2S). The ECM calculates the air/fuel ratio based on inputs from the engine coolant temperature (ECT), manifold absolute pressure (MAP), mass air flow (MAF), and throttle position sensors. The system stays in Open Loop until meeting the following conditions:

- Both HO2S have varying voltage output, showing that they are hot enough to operate properly. This depends upon the engine temperature.
- The ECT sensor is above a specified temperature.
- A specific amount of time has elapsed after starting the engine.

Specific values for the above conditions exist for each different engine, and are stored in the electrically erasable programmable read-only memory (EEPROM). The system begins Closed Loop operation after reaching these values. In Closed Loop, the ECM calculates the air/fuel ratio, injector ON time, based upon the signal from various sensors, but mainly from the HO2S. This allows the air/fuel ratio to stay very close to 14.7:1.

[Acceleration Mode](#)

When the driver pushes on the accelerator pedal, air flow into the cylinders increases rapidly. To prevent possible hesitation, the ECM increases the pulse width to the injectors to provide extra fuel during acceleration. This is also known as power enrichment. The ECM determines the amount of fuel required based upon throttle position, engine coolant temperature (ECT), manifold absolute pressure (MAP), mass air flow (MAF), and engine speed.

[Deceleration Mode](#)

When the driver releases the accelerator pedal, air flow into the engine is reduced. The ECM monitors the corresponding changes in throttle position, mass air flow (MAF), and manifold absolute pressure (MAP). The ECM shuts OFF fuel completely if the deceleration is very rapid, or for long periods, such as long, closed-throttle coast-down. The fuel shuts OFF in order to prevent damage to the catalytic converters.

[Battery Voltage Correction Mode](#)

When the battery voltage is low, the ECM compensates for the weak spark delivered by the ignition system in the following ways:

- Increasing the amount of fuel delivered
- Increasing the idle RPM
- Increasing the ignition dwell time

[Fuel Cutoff Mode](#)

The ECM cuts OFF fuel from the fuel injectors when the following conditions are met in order to protect the powertrain from damage and improve driveability:

- The ignition is OFF. This prevents engine run-on.
- The ignition is ON but there is no ignition reference signal. This prevents flooding or backfiring.
- The engine speed is too high, above red line.
- The vehicle speed is too high, above rated tire speed.
- During an extended, high speed, closed throttle coast down—This reduces emissions and increases engine braking.
- During extended deceleration, in order to prevent damage to the catalytic converters

[Short Term Fuel Trim](#)

The short term fuel trim values change rapidly in response to the heated oxygen sensor (HO2S) signal voltages. These changes "fine tune" the engine fueling. The ideal fuel trim values are around 0 percent. A positive fuel trim value indicates that the engine control module (ECM) is adding fuel in order to compensate for a lean condition. A negative fuel trim value indicates that the ECM is reducing the amount of fuel in order to compensate for a rich condition.

When the ECM determines that the short term fuel trim is out of the operating range, the following DTCs will set:

- DTC P0171 Bank 1 Too Lean
- DTC P0172 Bank 1 Too Rich

Long Term Fuel Trim

The long term fuel trim is a matrix of cells arranged by RPM and manifold absolute pressure (MAP). Each cell of the long term fuel trim is a register like the short term fuel trim. As the engine operating conditions change, the engine control module (ECM) will switch from cell to cell to determine what long term fuel trim factor to use in the base pulse width equation.

While in any given cell, the ECM also monitors the short term fuel trim. If the short term fuel trim is far enough from 0 percent, the ECM will change the long term fuel trim value. Once the long term fuel trim value is changed, it should force the short term fuel trim back toward 0 percent. If the mixture is still not correct, the short term fuel trim will continue to have a large deviation from the ideal 0 percent. In this case, the long term fuel trim value will continue to change until the short term fuel trim becomes balanced. Both the short term fuel trim and long term fuel trim have limits which vary by calibration. If the mixture is off enough so that long term fuel trim reaches the limit of its control and still cannot correct the condition, the short term fuel trim would also go to its limit of control in the same direction. If the mixture is still not corrected by both short term fuel trim and long term fuel trim at their extreme values, a fuel trim diagnostic trouble code (DTC) will likely result. When the ECM determines that the long term fuel trim is out of the operating range, the following DTCs will set:

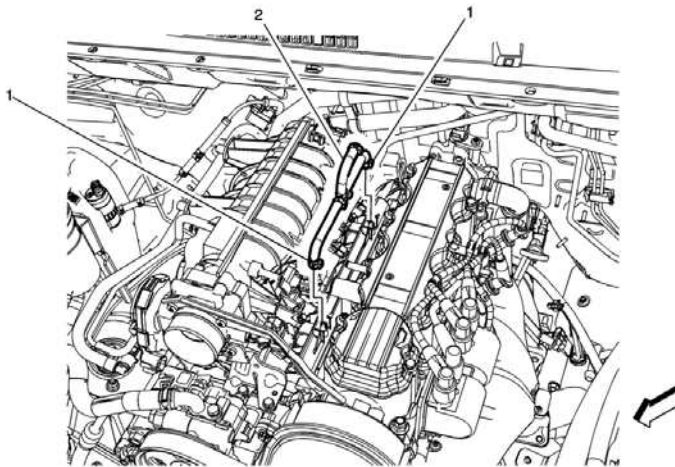
- DTC P0171 Bank 1 Too Lean
- DTC P0172 Bank 1 Too Rich

Under the conditions of power enrichment, the ECM sets the short term fuel trim to 0 percent until power enrichment is no longer in effect. This is done so the Closed Loop factor and the long term fuel trim will not try to correct for the power enrichment condition.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Cold Start Fuel Injector Hose Replacement

Callout

Component Name

Preliminary Procedure

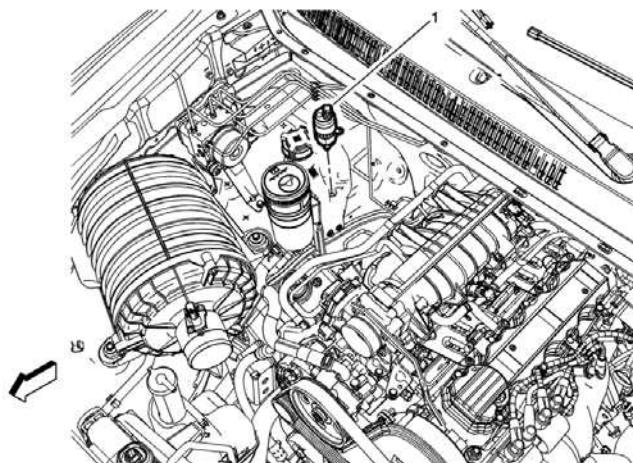
1. Remove the air cleaner outlet resonator. Refer to Air Cleaner Outlet Resonator Replacement.
2. Remove the cold start fuel feed valve. Refer to Cold Start Fuel Feed Valve Replacement.

1 Cold Start Fuel Injector Hose Clamps (Qty: 2)

2 Cold Start Fuel Injector Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Cold Start Fuel Pump Replacement

Callout

Component Name

Preliminary Procedure

Remove the cold start fuel feed hose. Refer to Cold Start Fuel Feed Hose Replacement.

Cold Start Fuel Pump

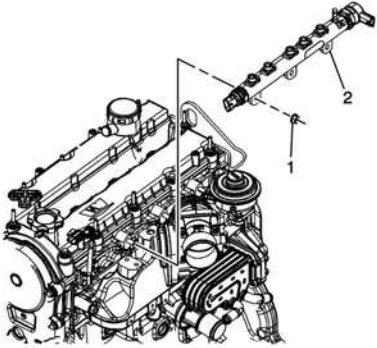
1

Procedure

Disconnect the electrical connector.

2013 Chevrolet Colorado

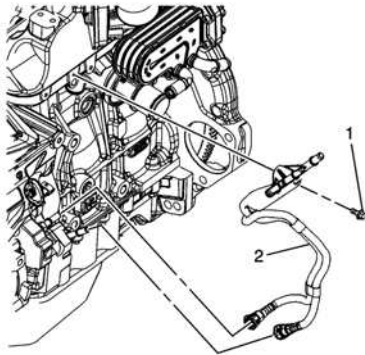
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



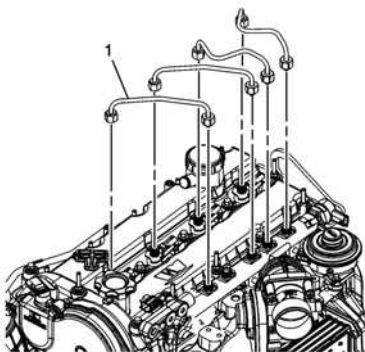
1. Install the fuel injector rail (2).

Caution: Refer to Fastener Caution.

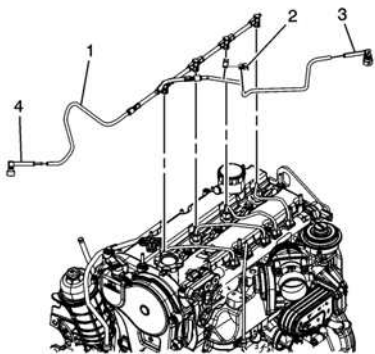
2. Install the fuel injector rail nuts (1) and tighten to **25 Y (18 lb ft)**.



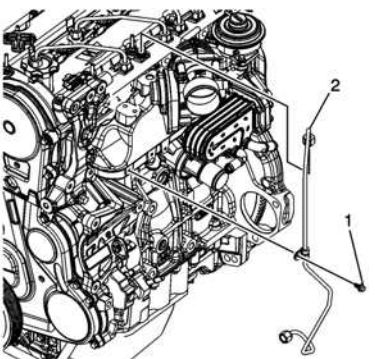
3. Install the fuel return line (2).
4. Install fuel return line bolt (1) and tighten to **5 Y (44 lb in)**.



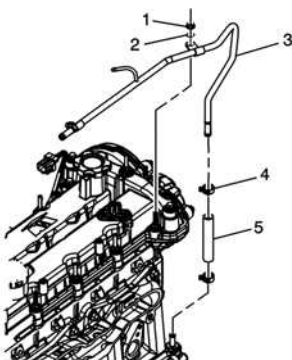
5. Install the fuel injector pipes (1) and tighten.
 1. Tighten the fuel injector lines at the fuel rail to **30 Y (22 lb ft)**.
 2. Tighten the fuel injector lines at the injector to **30 Y (22 lb ft)**.



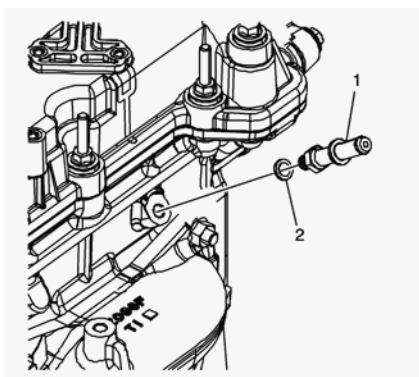
6. Install the injector backflow pipe (1), at each quick connect fitting (3-4). Attach the retaining clip (2).



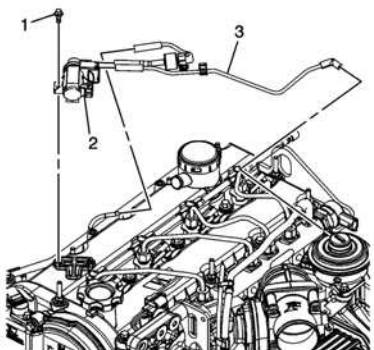
7. Install the fuel feed pipe (2) and tighten the fittings to **30 Y (22 lb ft)**.
8. Install the fuel feed pipe bolt (1) and tighten to **5 Y (44 lb in)**.



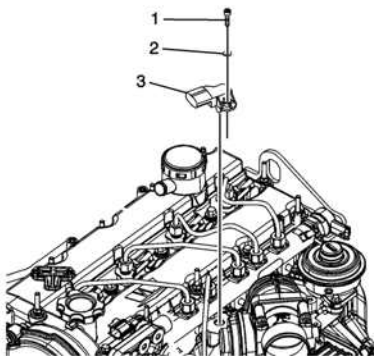
9. Install the vacuum hose (5) and clamps (4).
10. Install the vacuum line (3).
11. Install the vacuum line washer (2) and nut (1) and tighten to **5 Y (44 lb in)**.



12. Install the vacuum valve washer (2) and valve (1), and tighten to **11 Y (97 lb in)**.



13. Install the vacuum modulator (2) and connect the vacuum modulator line (3).
14. Install the vacuum modulator bolt (1) and tighten to **11 Y (97 lb in)**.



15. Install the baro sensor (3).
16. Install the baro sensor washer (2), bolt (1) and tighten to **12 Y (106 lb in)**.

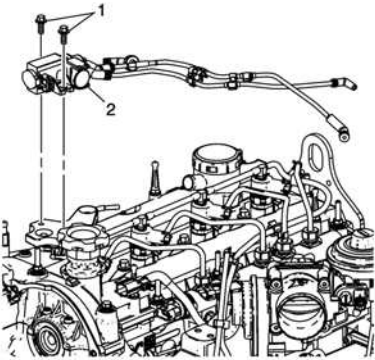
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

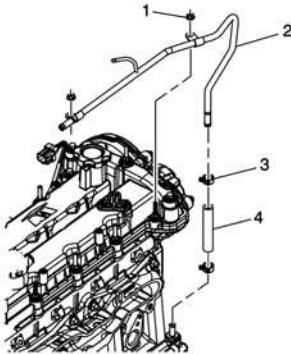
Special Tools

J 46363 Fuel Line Quick-Disconnect Release Tool

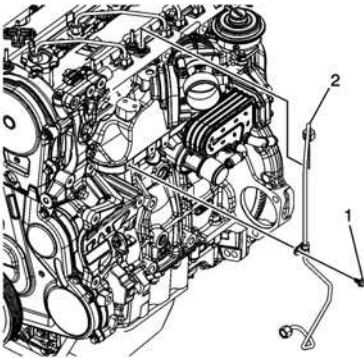
For equivalent regional tools, refer to Special Tools



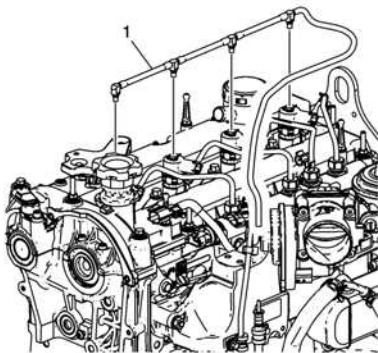
1. Remove the vacuum modulator bolts (1) and disconnect the vacuum modulator lines.
2. Remove the vacuum modulator (2).



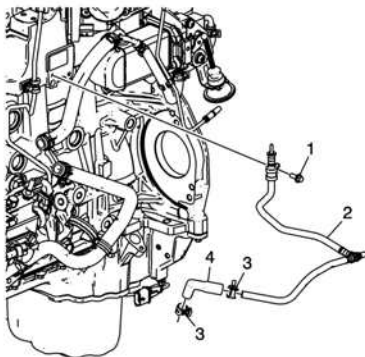
3. Remove the vacuum line nuts (1).
4. Disconnect the vacuum line hose clamps (3) from the hose (4) and pipe (2).
5. Remove the vacuum line (2).



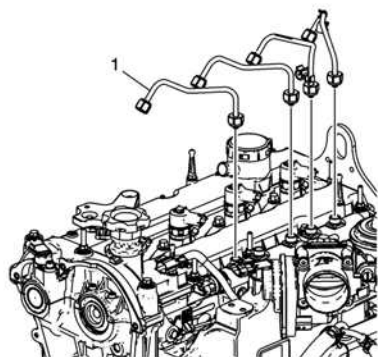
6. Remove the fuel feed pipe bolt (1) and pipe (2).



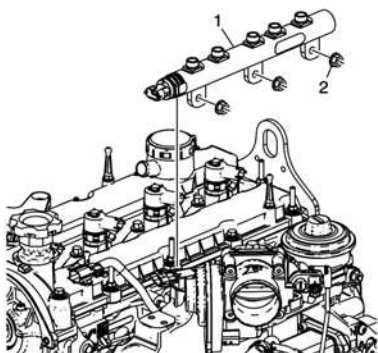
7. Disconnect the fuel return pipe quick connect fitting.
8. Release the pipe retaining clips and remove the pipe (1).



9. Disconnect the fuel injector hose clamps (3) at the fuel pump.
10. Remove the fuel injector return hose bolt (1) and hose (2).



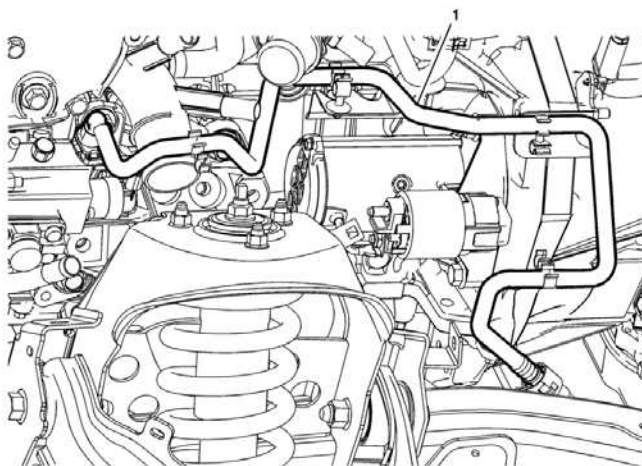
11. Remove the fuel injector pipes (1).



12. Remove the fuel injector rail nuts (2) and rail (1).

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Raise and properly support the vehicle. Refer to Lifting and Jacking the Vehicle.
3. Remove the left front wheel assembly. Refer to Tire and Wheel Removal and Installation.
4. Remove the engine lower front splash shield. Refer to Engine Lower Front Splash Shield Replacement.

Fuel Feed Pipe

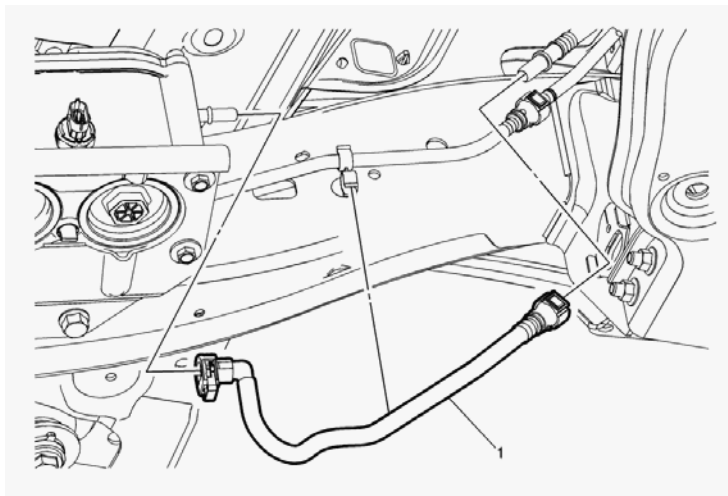
1

1. Disconnect the fuel line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel line from the fuel line brackets, if necessary, and remove the fuel line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Raise and properly support the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Feed Pipe

Procedure

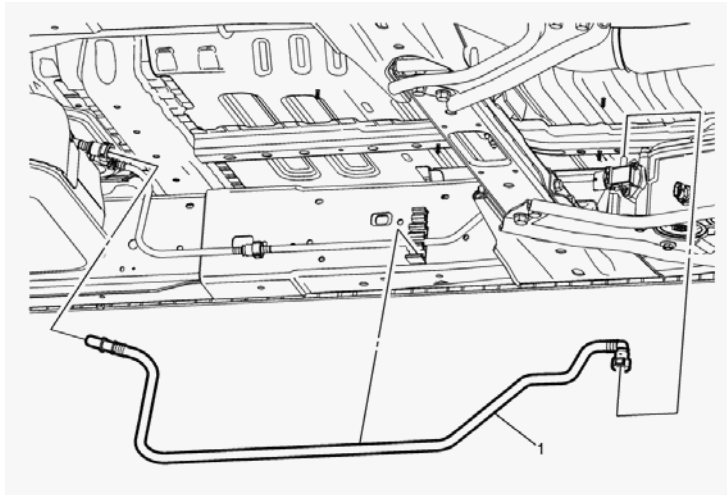
1

1. Disconnect the fuel line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel line from the fuel line brackets, if necessary, and remove the fuel line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Raise and properly support the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Feed Pipe

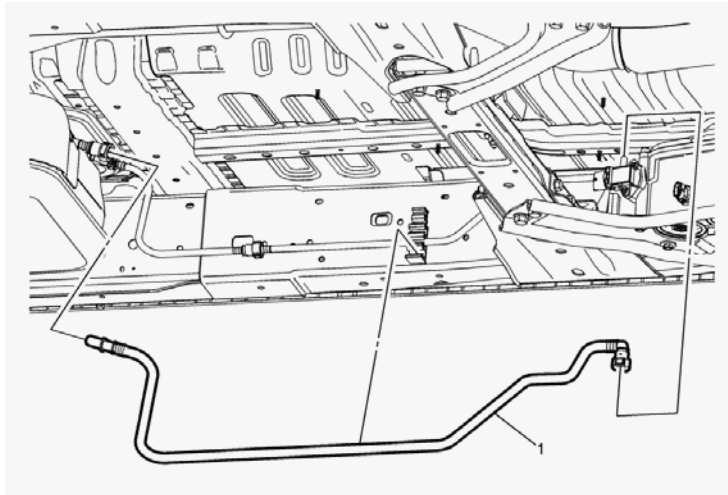
1

1. Disconnect the fuel line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel line from the fuel line brackets, if necessary, and remove the fuel line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Raise and properly support the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Feed Pipe

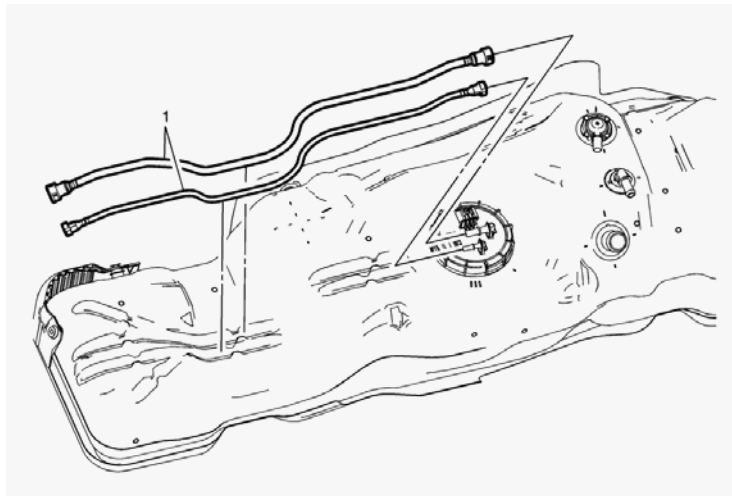
1

1. Disconnect the fuel line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel line from the fuel line brackets, if necessary, and remove the fuel line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Raise and properly support the vehicle. Refer to Lifting and Jacking the Vehicle.
3. Remove the fuel tank. Refer to Fuel Tank Replacement.

Fuel Feed and Return Pipes

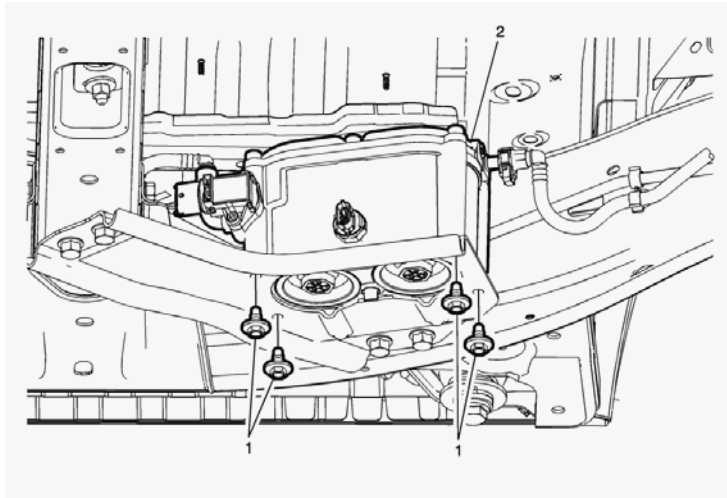
Procedure

1

1. Disconnect the fuel line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel line from the fuel line brackets, if necessary, and remove the fuel line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Filter Assembly Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine, for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
4. Disconnect the fuel filter feed and return pipes. Refer to Plastic Collar Quick Connect Fitting Service.

Fuel Filter Fasteners (Qty 4)

Caution: Refer to Fastener Caution.

1

Tighten

25 Y (18 lb ft)

Fuel Filter

2

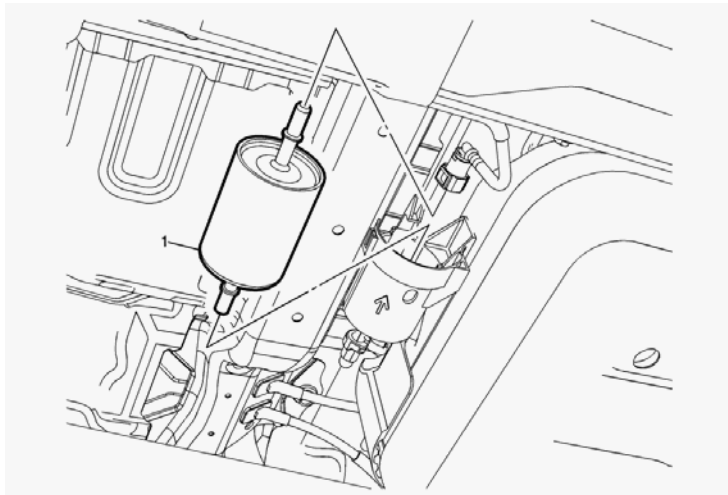
Procedure

Disconnect the fuel filter assembly wiring harness connectors.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Filter Replacement

Callout

Component Name

Preliminary Procedure

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
3. Disconnect the fuel lines from the fuel filter. Refer to Plastic Collar Quick Connect Fitting Service.

Fuel Filter

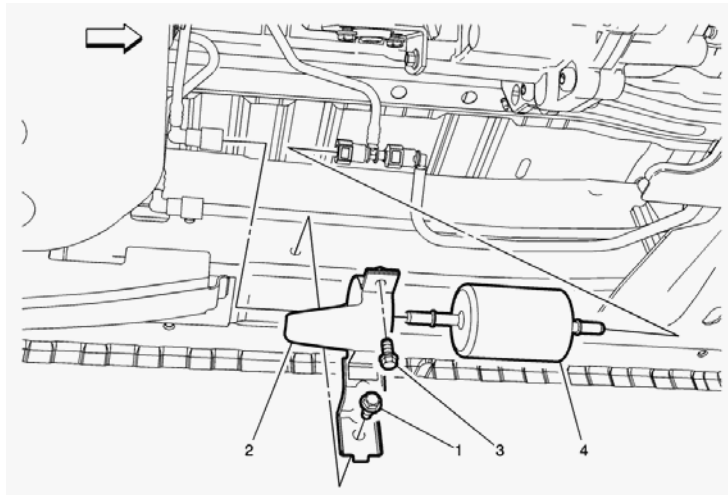
1

Procedure

Depress the fuel filter housing retaining feature and remove the fuel filter from the housing.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Filter Replacement

Callout

Component Name

Preliminary Procedure

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
3. Disconnect the fuel feed and return lines from the fuel filter. Refer to Plastic Collar Quick Connect Fitting Service.

Fuel Filter Bracket Fastener

Caution: Refer to Fastener Caution.

1

Tighten

22 Y (16 lb ft)

2

Fuel Filter Bracket

Fuel Filter Bracket Filter Fastener

3

Tighten

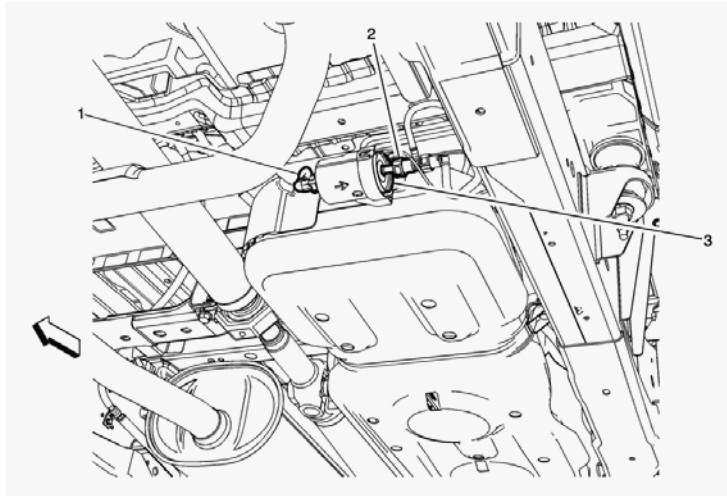
6 Y (53 lb in)

4

Fuel Filter

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Filter Replacement

Callout	Component Name
Preliminary Procedure	

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

Warning: Refer to Gasoline/Gasoline Vapors Warning.

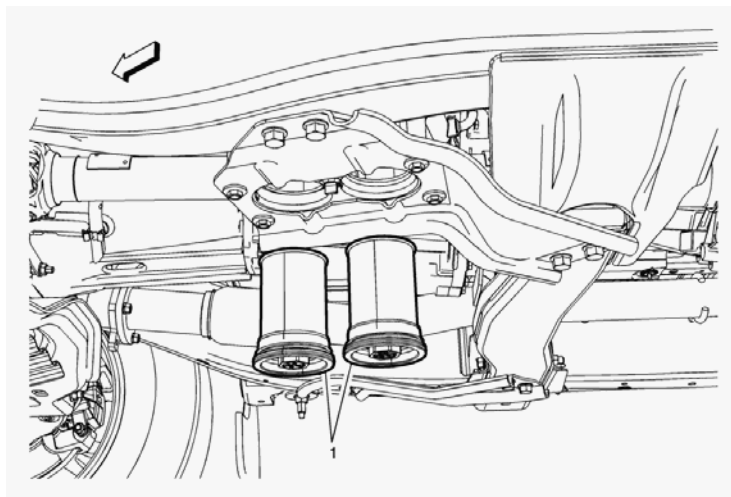
Caution: Refer to Fuel and Evaporative Emission Hose/Pipe Connection Cleaning Caution.

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.

	Fuel Feed Pipe
1	Procedure Disconnect the quick connect fitting. Refer to Plastic Collar Quick Connect Fitting Service.
	Fuel Return Pipe
2	Procedure Disconnect the quick connect fitting. Refer to Plastic Collar Quick Connect Fitting Service.
	Fuel Filter
3	Procedure Depress the tab on the housing and remove the fuel filter.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Filter Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine, for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Filter (Qty: 2)

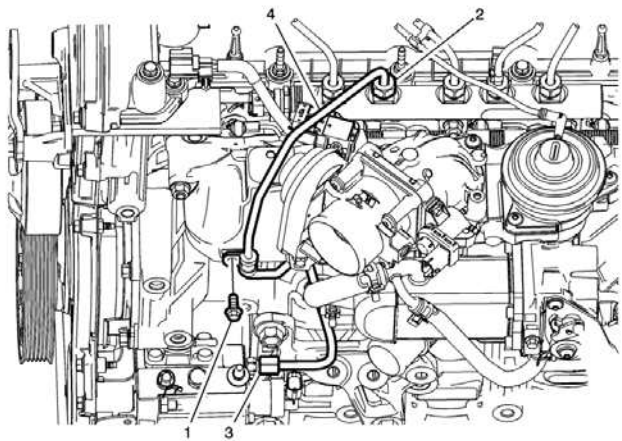
Caution: Refer to Component Fastener Tightening Caution.

Procedure

Rotate the filters counter clockwise to remove.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

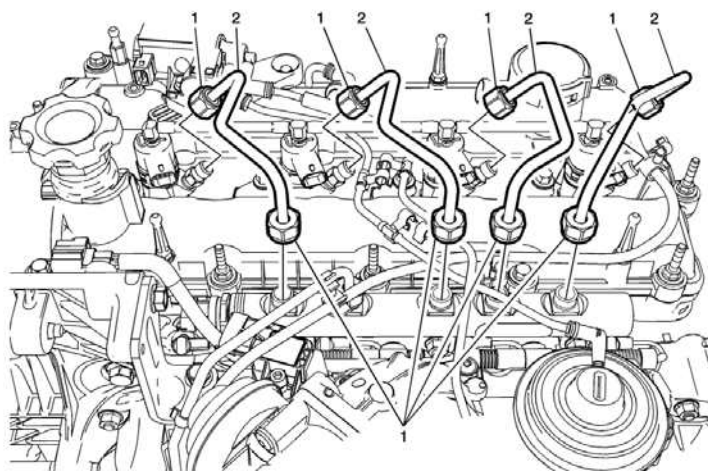


Fuel Injection Fuel Feed Pipe Replacement

Callout	Component Name
Preliminary Procedures	
- Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system. - Remove the engine cover. Refer to Intake Manifold Cover Replacement. - Remove the air conditioning compressor. Refer to Air Conditioning Compressor Replacement.	
1	Fuel Injection Fuel Feed Pipe Fastener
	Caution: Refer to Fastener Caution.
	Tighten 10 Y (89 lb in)
2	Fuel Injection Fuel Feed Pipe to Fuel Rail Fitting (Qty: 2)
	Caution: Refer to Fastener Caution.
	Tip: Fuel lines with a threaded fitting cannot be reused, but must be replaced with a new one. Tighten 24 Y (18 lb ft)
3	Fuel Injection Fuel Feed Pipe to Fuel Injection Pump Fitting (Qty:2)
	Caution: Refer to Fastener Caution.
	Tip: Fuel lines with a threaded fitting cannot be reused, but must be replaced with a new one. Tighten 28 Y (20 lb ft)
4	Fuel Injection Fuel Feed Pipe
	Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.
	Procedure - Prime the fuel system. Refer to Fuel System Priming. - With the engine running, check the fuel system for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Injection Fuel Feed Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the engine cover. Refer to Intake Manifold Cover Replacement.

Fuel Injection Fuel Feed Pipe Fitting (Qty: 8)

Caution: Refer to Fastener Caution.

Tip: Fuel lines with a threaded fitting cannot be reused, but must be replaced with a new one.

1

Tighten

- The fittings at the fuel rail to 24 Y (18 lb ft)
- The fittings at the injectors to 28 Y (20 lb ft)

Fuel Injection Fuel Feed Pipe (Qty: 8)

Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.

2

Procedure

1. Prime the fuel system. Refer to Fuel System Priming.
2. With the engine running, check the fuel system for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

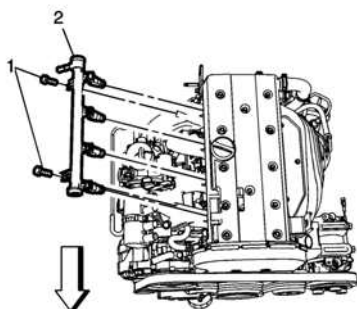
[Removal Procedure](#)

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

Warning: Refer to Gasoline/Gasoline Vapors Warning.

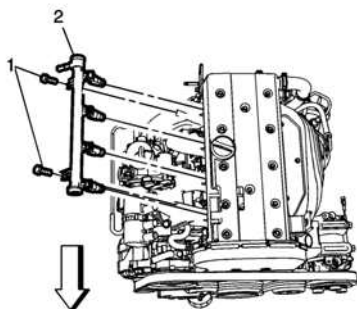
Caution: Refer to Fuel and Evaporative Emission Hose/Pipe Connection Cleaning Caution.

1. Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
4. Remove the fuel feed pipe from the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
5. Disconnect the fuel rail harness connectors.



6. Remove the fuel injection fuel rail bolts (1) from the intake.
7. Remove the fuel injection fuel rail (2) from the vehicle.

[Installation Procedure](#)



1. Install the fuel injection fuel rail (2) to the vehicle.
2. Install the fuel injection fuel rail bolts (1) to the intake and tighten to **8 Y(71 lb in)**.
3. Connect the fuel rail harness connectors.
4. Install the fuel feed pipe to the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
5. Install the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
6. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

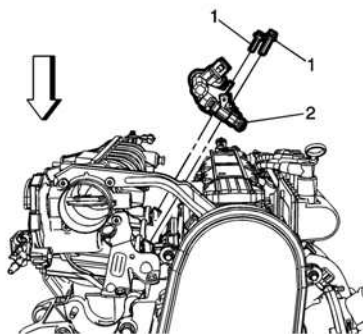
[Removal Procedure](#)

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

Warning: Refer to Gasoline/Gasoline Vapors Warning.

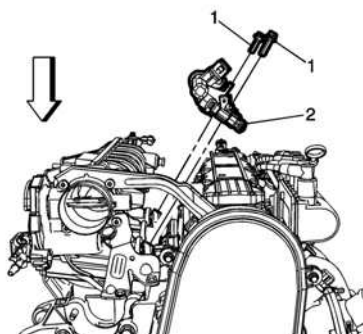
Caution: Refer to Fuel and Evaporative Emission Hose/Pipe Connection Cleaning Caution.

1. Remove the air cleaner outlet resonator. Refer to Air Cleaner Outlet Resonator Replacement.
2. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
3. Remove the fuel feed pipe from the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
4. Remove the positive crankcase ventilation hose. Refer to Positive Crankcase Ventilation Hose/Pipe/Tube Replacement
5. Remove the intake brackets from the intake.



6. Remove the fuel injection fuel rail bolts (1) from the intake.
7. Remove the fuel injection fuel rail (2) from the vehicle.

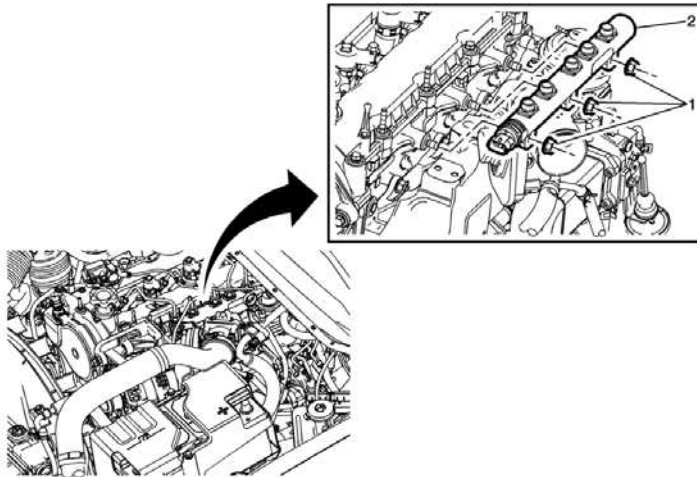
[Installation Procedure](#)



1. Install the fuel injection fuel rail (2) to the vehicle.
2. Install the fuel injection fuel rail bolts (1) to the intake and tighten to **8 Y(71 lb in)**.
3. Install the intake brackets to the intake.
4. Install the positive crankcase ventilation hose. Refer to Positive Crankcase Ventilation Hose/Pipe/Tube Replacement
5. Install the fuel feed pipe to the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
6. Install the air cleaner outlet resonator. Refer to Air Cleaner Outlet Resonator Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Injection Fuel Rail Assembly Replacement

Callout

Component Name

Preliminary Procedure

1. Remove intake manifold cover. Refer to Intake Manifold Cover Replacement.
2. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
3. Remove the fuel injection pipes. Refer to Fuel Injection Fuel Feed Pipe Replacement.

Fuel Injection Fuel Rail Assembly Fastener (Qty: 3)

Caution: Refer to Fastener Caution.

1

Tighten

25 Y (18 lb ft)

Fuel Injection Fuel Rail Assembly

Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.

Procedure

2

1. Disconnect the electrical connector.
2. Transfer parts as necessary.
3. Prime the fuel system. Refer to Fuel System Priming.
4. With the engine running, check the fuel system for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

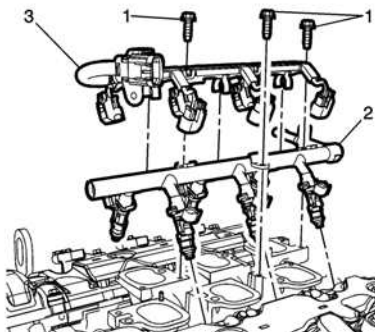
[Removal Procedure](#)

Warning: Refer to Relieving Fuel Pressure Warning.

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Remove the upper intake manifold. Refer to Upper Intake Manifold Replacement.
3. Disconnect the fuel feed pipe from the fuel injector rail. Refer to Metal Collar Quick Connect Fitting Service.

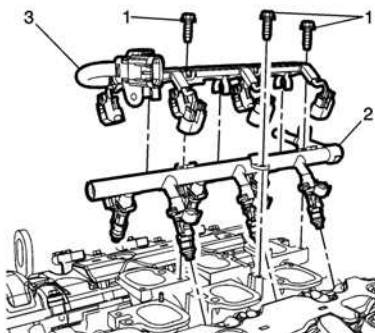
Warning: Refer to Safety Glasses and Compressed Air Warning.

4. Use compressed air in order to remove debris from the area where the fuel injectors enter the intake manifold.



5. Disconnect the fuel injector electrical wiring harness connectors (3).
6. Remove the fuel rail bolts (1).
7. Remove the fuel rail (2) with the fuel injectors.

[Installation Procedure](#)

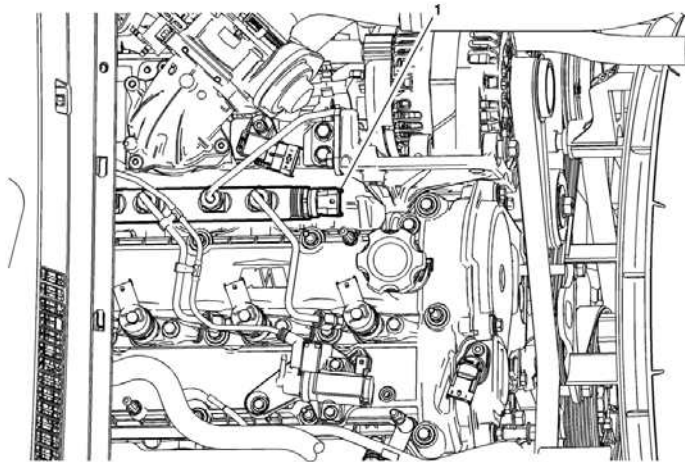


Caution: Refer to Fastener Caution.

1. Install the fuel rail and fuel injectors assembly (2).
2. Install the fuel rail bolts (1) and tighten to **10 Y (89 lb in)**.
3. Install the fuel injector electrical wiring harness connectors (3).
4. Connect the fuel feed pipe to the fuel rail. Refer to Metal Collar Quick Connect Fitting Service.
5. Install the upper intake manifold. Refer to Upper Intake Manifold Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Injection Fuel Rail Fuel Pressure Sensor Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the intake manifold cover. Refer to Intake Manifold Cover Replacement.

Fuel Pressure Sensor

Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.

Caution: Refer to Fastener Caution.

Procedure

1

1. Disconnect the electrical connector.
2. Ensure to replace fuel pressure sensor seal.
3. Transfer parts as needed.
4. Prime the fuel system before starting the engine. Refer to Fuel System Priming.
5. With the engine running, check the fuel system for leaks.

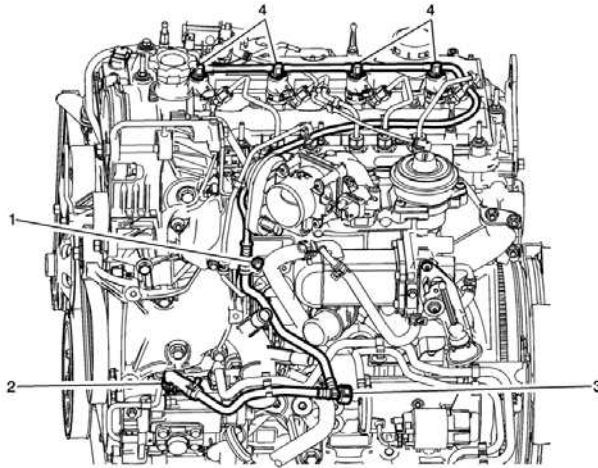
Tip: Fuel lines with a threaded fitting can not be reused, but must be replaced with a new one.

Tighten

35 Y (26 lb ft)

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Injection Fuel Return Pipe Replacement

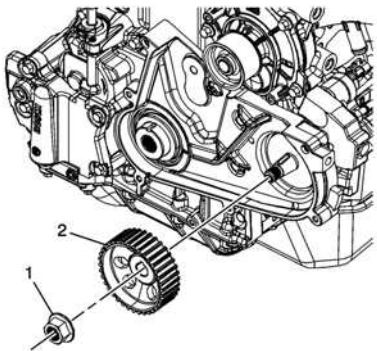
Callout	Component Name
Preliminary Procedure	
1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system. 2. Remove the engine cover. Refer to Intake Manifold Cover Replacement. 3. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.	
1	Fuel Injection Fuel Return Pipe Fastener
	Caution: Refer to Fastener Caution.
	Tighten 10 Y (89 lb in)
2	Fuel Injection Fuel Return Pipe Clamp
	Note: It is necessary to install a NEW fuel injection return pipe clamp when the return pipe is removed.
3	Fuel Return Line Plastic Quick Connect
	Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.
	Procedure
	1. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service. 2. Prime the fuel system. Refer to Fuel System Priming. 3. With the engine running, check the fuel system for leaks.
4	Fuel Injection Fuel Return Pipe Retainers

2013 Chevrolet Colorado

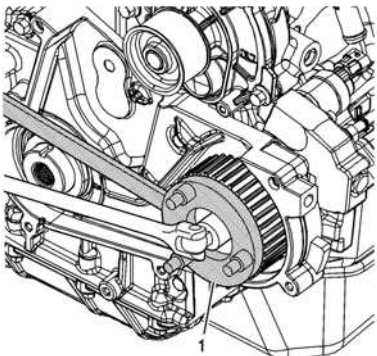
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Special Tools

EN-50025 Pulley Holding Wrench



1. Install the fuel injection pump drive pulley (2) and nut (1).



Caution: Refer to Fastener Caution.

2. Hold the fuel injection pump drive pulley with the EN-50025 wrench (1) and tighten the retaining nut to **88 Y (65 lb ft)**.

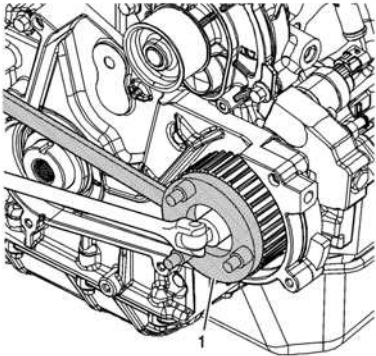
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

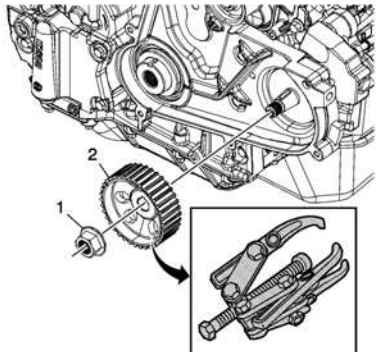
Special Tools

- EN-50025 Pulley Holding Wrench
- EN-50629 Injection Pump Sprocket Puller

For equivalent regional tools, refer to Special Tools



1. Hold the fuel injection pump drive pulley with the EN-50025 wrench (1) and loosen the retaining nut.



2. Remove the fuel injection pump drive pulley nut (1) and pulley (2) using the EN-50629 puller .

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

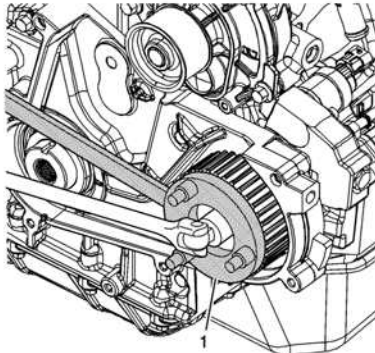
[Removal Procedure](#)

Special Tools

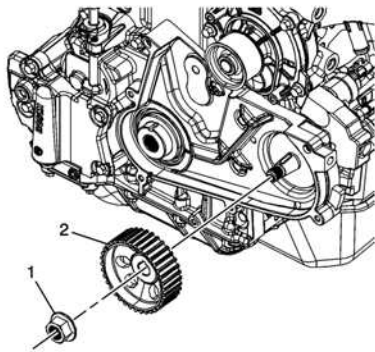
EN-50025 Pulley Holding Wrench

Refer to Special Tools

1. Remove the timing belt. Refer to Timing Belt Replacement

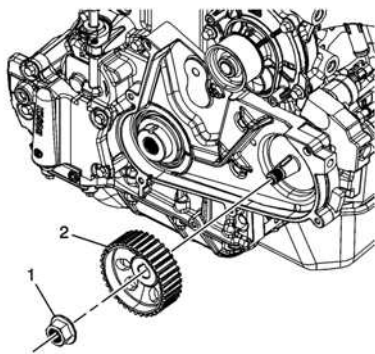


2. Hold the fuel injection pump drive pulley with the EN-50025 wrench (1) and loosen the retaining nut.



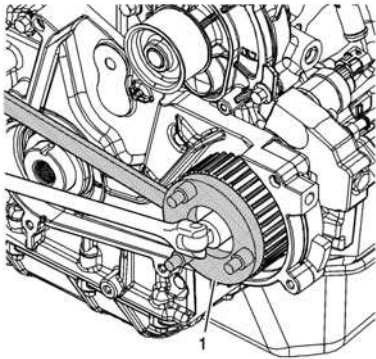
3. Remove the fuel injection pump drive pulley nut (1) and pulley (2).

[Installation Procedure](#)



1. Install the fuel injection pump drive pulley (2) and nut (1). Hand tight only.

Fuel Injection Pump Drive Pulley Replacement



Caution: Refer to Fastener Caution.

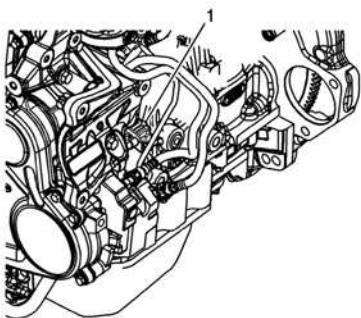
2. Hold the fuel injection pump drive pulley with the *EN-50025* wrench (1) and tighten the retaining nut to **88 Y (65 lb ft)**.
3. Install the timing belt. Refer to Timing Belt Replacement

2013 Chevrolet Colorado

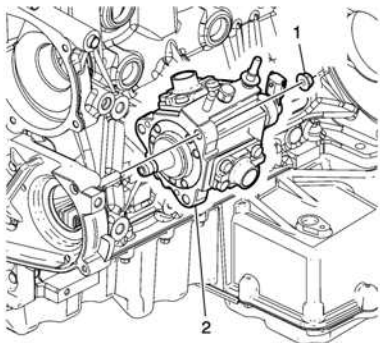
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Removal Procedure

1. Turn OFF the engine, for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove engine front cover. Refer to Engine Front Cover Replacement
3. Disconnect the fuel injection pump wiring harness from the engine wiring harness and the fuel Injection pump.

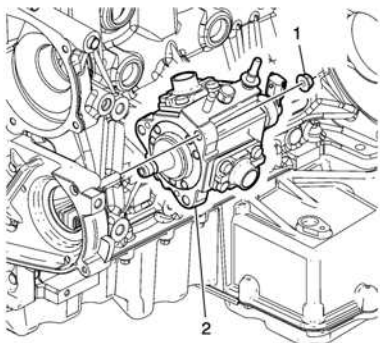


4. Disconnect the engine wiring harness (1) from the fuel injection pump.



5. Remove the three fuel injection nuts (1).
6. Remove the fuel injection pump (2) from the engine.

Installation Procedure



1. Position the fuel injection pump (2) to the engine.

Caution: Refer to Fastener Caution.

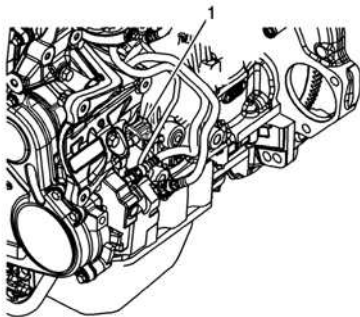
2. Install the fuel injection nuts (1) and tighten to **28 Y (20 lb ft)**.

Note: Fuel lines with a threaded fitting can not be reused, but must be replaced with a new one.

3. Install engine front cover. Refer to Engine Front Cover Replacement.
4. Connect the fuel feed pipe between the pump and fuel rail and tighten the fitting to **25 Y (18 lb ft)**
5. Connect the fuel feed and return pipes to the fuel injection pump. Refer to Plastic Collar Quick Connect Fitting Service.

Fuel Injection Pump Replacement

6. Connect the water return pipe to the water outlet.



7. Connect the engine wiring harness (1) to the fuel injection pump.
8. Prime the fuel system. Refer to Fuel System Priming

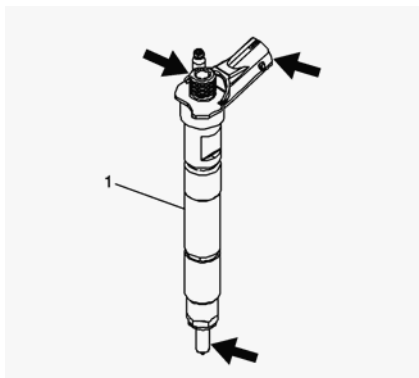
Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.

9. With the engine running, check the fuel system for leaks.

2013 Chevrolet Colorado

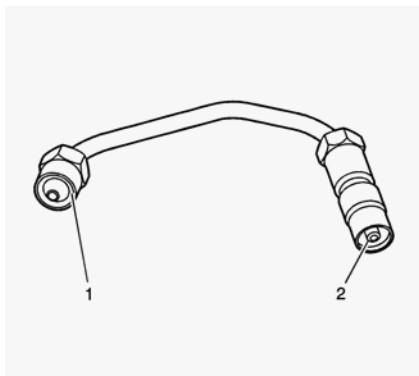
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Caution: The fuel injector must be cleaned with the proper cleaning equipment. DO NOT use abrasive cleaning methods, such as a metallic brush, to remove deposits. Cleaning an injector with improper tools will damage the fuel injector.

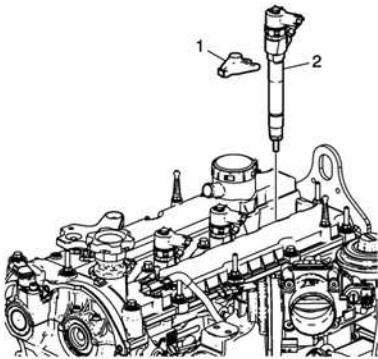
1. Use a soft bristle non-metallic brush and top engine cleaner, GM P/N 1052626 or equivalent, to remove any deposits from the fuel injector (1) nozzle tip and the copper washer sealing area before reinstallation.
2. Inspect the fuel injector nozzle tip for cracks, dents, or other damage.
3. Inspect the nozzle tip for any signs of discoloration



4. Clean the fuel injector high pressure line.
5. Inspect the fuel injector high pressure line for excessive corrosion or damage to the sealing surfaces (1, 2). Replace the line if any damage is found.

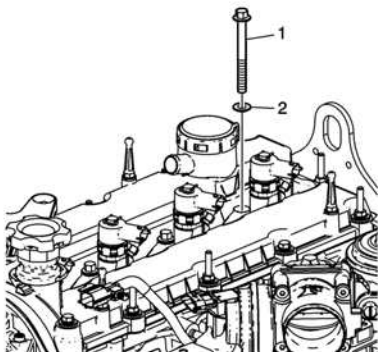
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Note: The unique fuel injector flow rates are programmed into the ECM according to cylinder location. Mark the fuel injectors for correct re-installation to the same cylinders. Failure to do so may result in a poor drive-ability condition.

1. Install the fuel injectors (2) and fuel injector brackets (1).

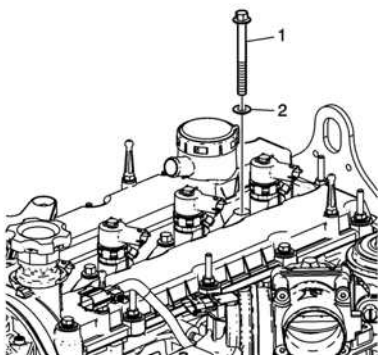


Caution: Refer to Fastener Caution.

2. Install the fuel injector bracket bolts (1) with washers (2) and tighten to **32 Y (24 lb ft)**.

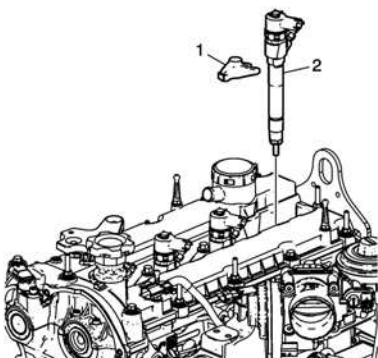
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Note: Clean debris from around the fuel injectors before removing them to prevent contamination into the cylinders.

1. Remove the fuel injector bracket bolts (1) and washers (2).



Note:

- Be sure that the drift punch does not contact the injector bracket bolt threads.
 - The unique fuel injector flow rates are programmed into the ECM according to cylinder location. Mark the fuel injectors for correct re-installation to the same cylinders. Failure to do so may result in a poor drive-ability condition.
2. Install a drift punch to the injector bracket bolt bore and pull towards the front of the engine to loosen the injector from the bore.
 3. Remove the fuel injector brackets (1) and fuel injectors (2).

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

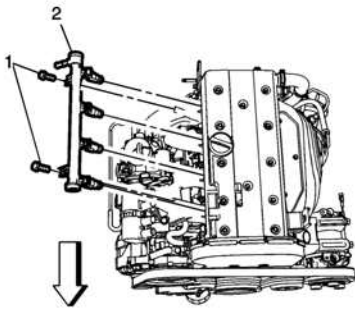
[Removal Procedure](#)

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

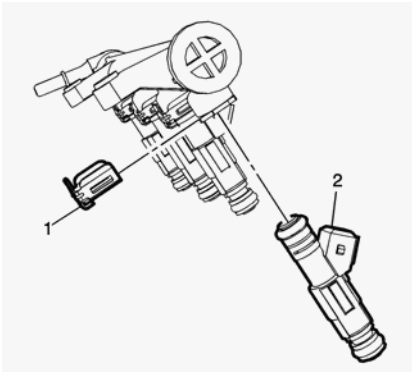
Warning: Refer to Gasoline/Gasoline Vapors Warning.

Caution: Refer to Fuel and Evaporative Emission Hose/Pipe Connection Cleaning Caution.

1. Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
2. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.
3. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
4. Remove the fuel feed pipe from the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
5. Disconnect the fuel rail harness connectors.

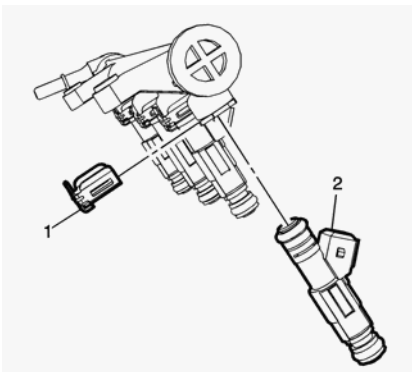


6. Remove the fuel injection fuel rail bolts (1) from the intake.
7. Remove the fuel injection fuel rail (2) from the vehicle.



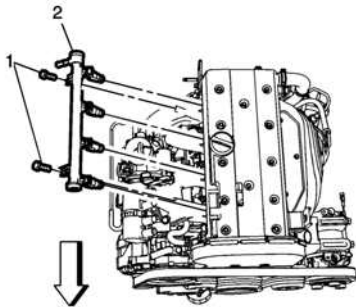
8. Remove the fuel injector clip (1) from the fuel rail.
9. Remove the fuel injector (2) from the fuel rail.

[Installation Procedure](#)



Fuel Injector Replacement (LE6)

1. Install the fuel injector (2) to the fuel rail.
2. Install the fuel injector clip (1) to the fuel rail.



3. Install the fuel injection fuel rail (2) to the vehicle.
4. Install the fuel injection fuel rail bolts (1) to the intake and tighten to **8 Y (71 lb in)**.
5. Connect the fuel rail harness connectors.
6. Install the fuel feed pipe to the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
7. Install the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
8. Connect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

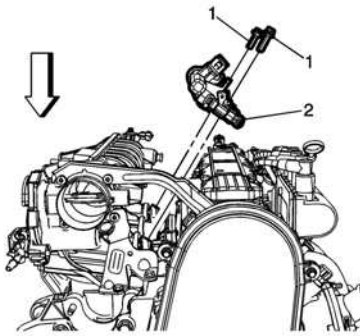
[Removal Procedure](#)

Warning: Refer to Fuel and Evaporative Emission Pipe Warning.

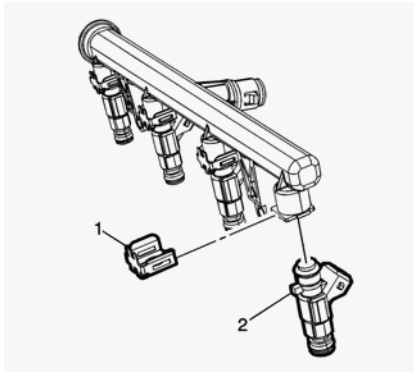
Warning: Refer to Gasoline/Gasoline Vapors Warning.

Caution: Refer to Fuel and Evaporative Emission Hose/Pipe Connection Cleaning Caution.

1. Remove the air cleaner outlet resonator. Refer to Air Cleaner Outlet Resonator Replacement.
2. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
3. Remove the fuel feed pipe from the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
4. Remove the positive crankcase ventilation hose. Refer to Positive Crankcase Ventilation Hose/Pipe/Tube Replacement
5. Remove the intake brackets from the intake.

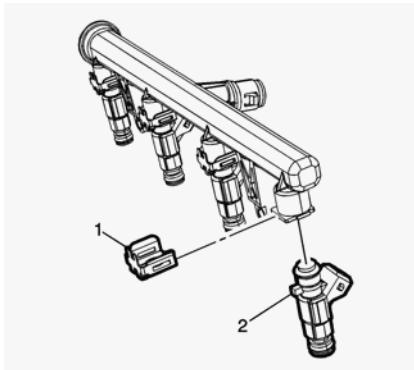


6. Remove the fuel injection fuel rail bolts (1) from the intake.
7. Remove the fuel injection fuel rail (2) from the vehicle.



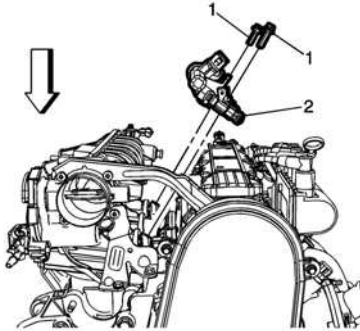
8. Remove the fuel injector clip (1) from the fuel rail.
9. Remove the fuel injector (2) from the fuel rail.

[Installation Procedure](#)



Fuel Injector Replacement (LP8)

1. Install NEW fuel injector upper and lower O-rings.
2. Install the fuel injector (2) to the fuel rail.
3. Install the fuel injector clip (1) to the fuel rail.



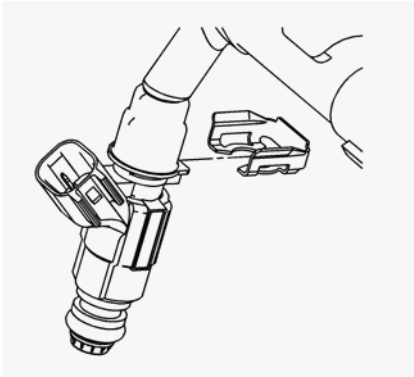
4. Install the fuel injection fuel rail (2) to the vehicle.
5. Install the fuel injection fuel rail bolts (1) to the intake and tighten to **8 Y (71 lb in)**.
6. Install the intake brackets to the intake.
7. Install the positive crankcase ventilation hose. Refer to Positive Crankcase Ventilation Hose/Pipe/Tube Replacement
8. Install the fuel feed pipe to the fuel injection fuel rail. Refer to Fuel Feed Pipe Replacement.
9. Install the air cleaner outlet resonator. Refer to Air Cleaner Outlet Resonator Replacement.

2013 Chevrolet Colorado

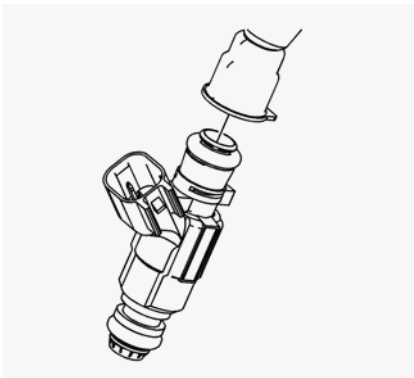
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

1. Remove the fuel injection fuel rail assembly. Refer to Fuel Injection Fuel Rail Assembly Replacement.



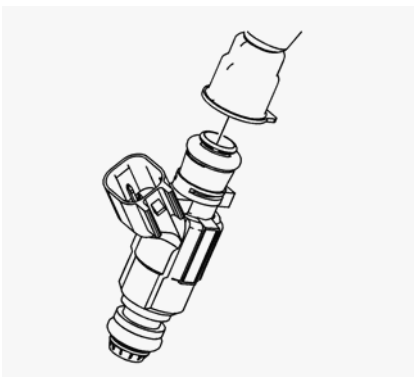
2. Remove the fuel injector retainer clip.



3. Remove the fuel injector.
4. Remove and discard the fuel injector seals.

[Installation Procedure](#)

1. Install NEW fuel injector seals.



2. Install the fuel injector.

Fuel Injector Replacement

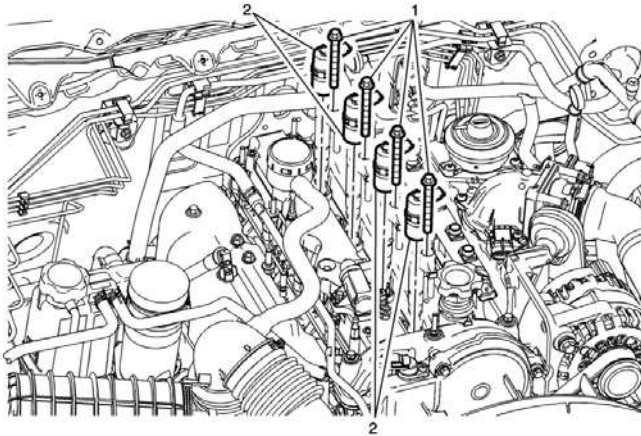


3. Install the fuel injector retainer clip.
4. Install the fuel injection fuel rail assembly. Refer to Fuel Injection Fuel Rail Assembly Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Injector Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the fuel injection feed pipe. Refer to Fuel Injection Fuel Feed Pipe Replacement.
3. Remove the fuel injection return pipe. Refer to Fuel Injection Fuel Return Pipe Replacement.
4. Remove the cowl front panel. Refer to Cowl Front Panel Replacement.

Fuel Injector Fastener (Qty: 4)

Caution: Refer to Fastener Caution.

1

Tighten

32 Y (24 lb ft)

Fuel Injector

Danger: High Pressure Lines deliver diesel fuel under extreme pressure from the injection pump to the fuel injectors. This may be as high as 1600 Bar (23,200 psi). Use extreme caution when inspecting for high pressure leaks. Fuel under this amount of pressure can penetrate skin causing personal injury, or death. Wear safety goggles and adequate clothing when servicing this fuel system.

Procedure

2

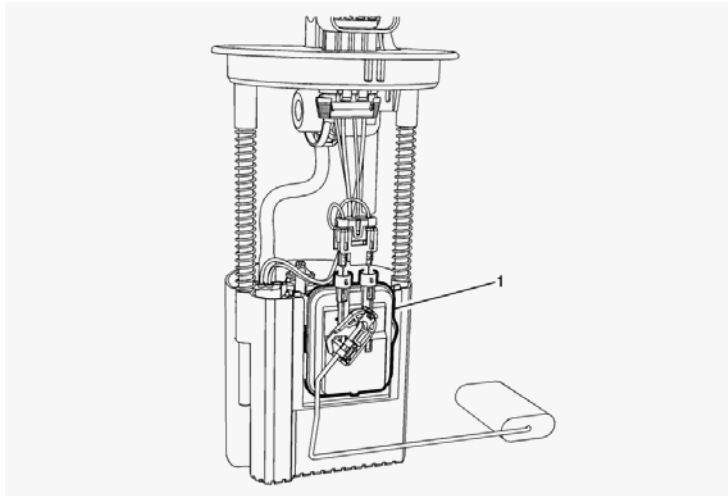
1. Disconnect the electrical connector.
2. Prime the fuel system. Refer to Fuel System Priming.
3. With the engine running, check the fuel system for leaks.
4. Set the fuel injector flow rate. Refer to Fuel Injector Flow Rate Programming.

Tip: Fuel lines with a threaded fitting can not be reused, but must be replaced with a new one.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Level Sensor Replacement

Callout

Component Name

Preliminary Procedure

Remove the fuel tank fuel pump module. Refer to Fuel Tank Fuel Pump Module Replacement.

Fuel Level Sensor

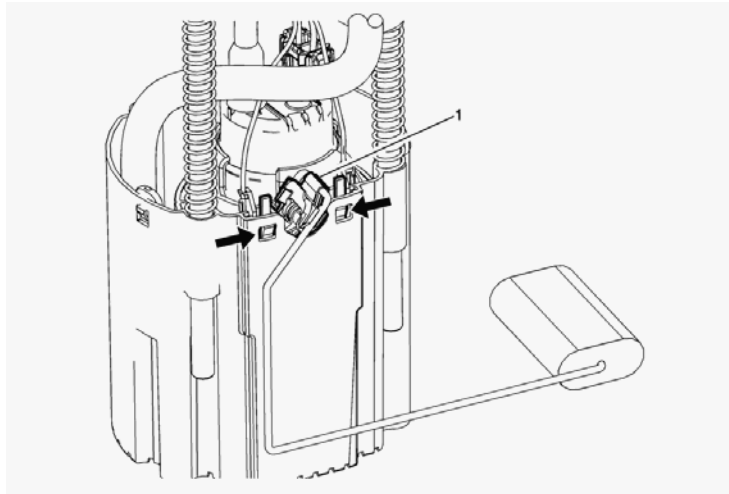
Procedure

1

1. Disconnect the electrical connector from the sensor.
2. Push the plastic tabs forward and simultaneously pull upwards.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Level Sensor Replacement

Callout

Component Name

Preliminary Procedure

Remove the fuel pump cycle control module. Refer to Fuel Pump Cycle Control Module Replacement.

Fuel Level Sensor

Procedure

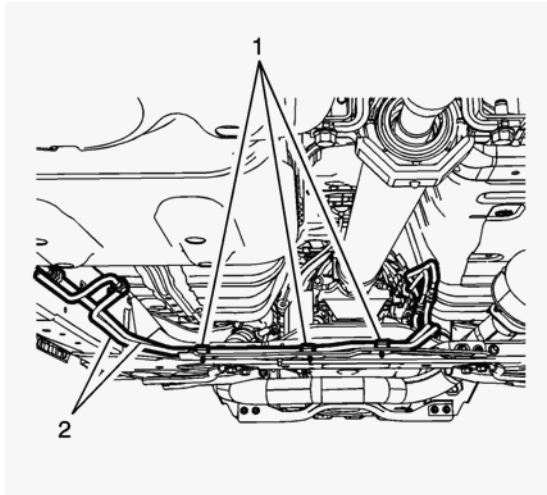
1

1. Disconnect the electrical connector from the fuel pump assembly.
2. Using a suitable tool, press inward on the tabs to release the fuel level sensor from the fuel pump assembly as indicated by the arrows.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Chassis

Callout

Component Name

Preliminary Procedure

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Line Clips (Qty 3)

1

Procedure

Disconnect the fuel feed pipe from the fuel and evap pipe retaining clips.

Fuel Feed Line

Procedure

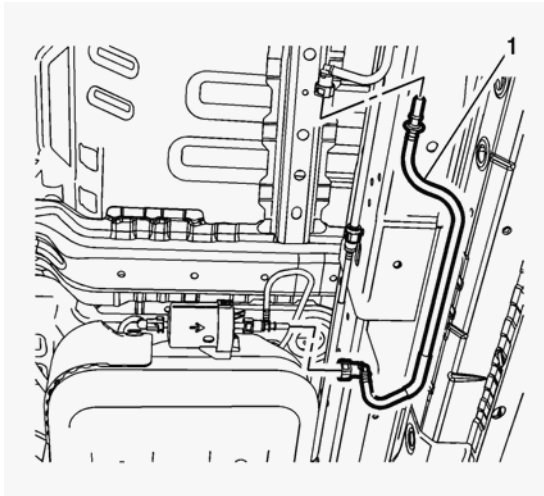
2

1. Disconnect the fuel feed line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel feed line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Chassis

Callout

Component Name

Preliminary Procedure

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Feed Line

Procedure

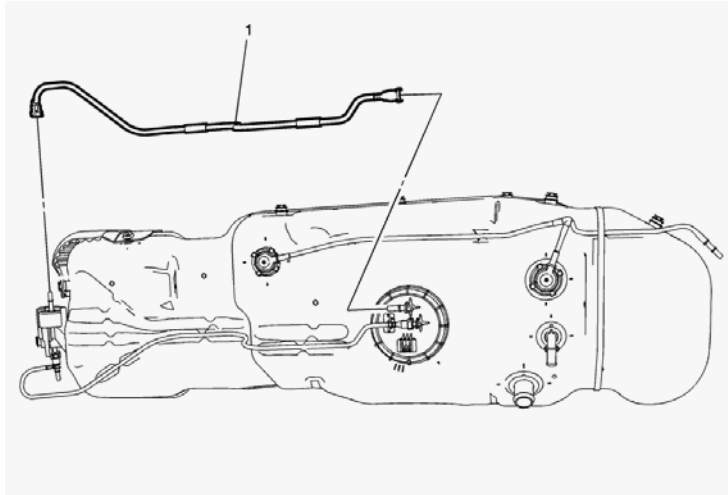
1.

1. Disconnect the fuel feed line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel feed line.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Filter to Tank

Callout

Component Name

Preliminary Procedure

Remove the fuel tank. Refer to Fuel Tank Replacement.

Fuel Feed and Return Pipes

Procedure

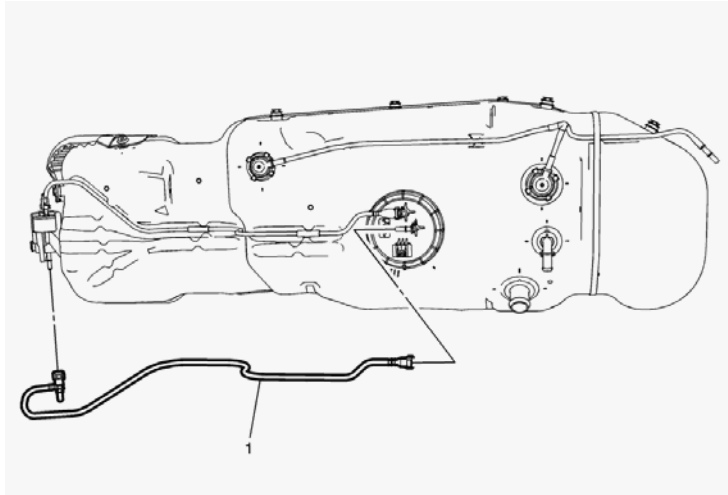
1

1. Disconnect the fuel feed line plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel feed line from the fuel tank.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Filter to Tank

Callout

Component Name

Preliminary Procedure

Remove the fuel tank. Refer to Fuel Tank Replacement.

Fuel Feed and Return Pipes

Procedure

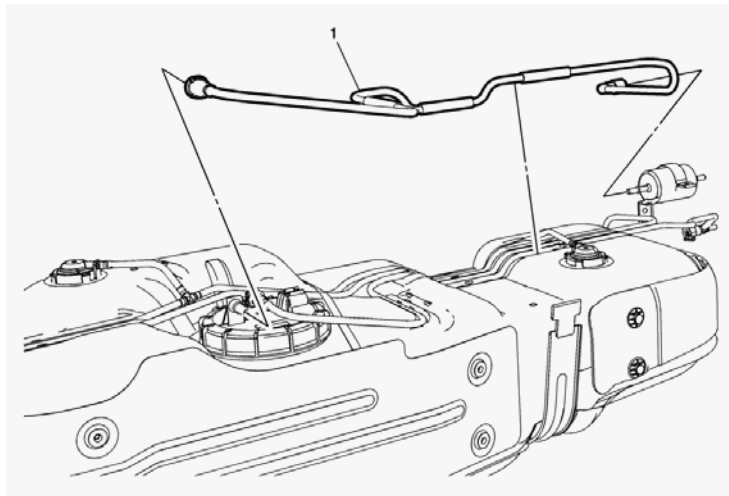
1

1. Disconnect the fuel return plastic collar quick connects. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel return line from the fuel tank.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Filter to Tank

Callout

Component Name

Preliminary Procedure

Remove the fuel tank. Refer to Fuel Tank Replacement.

Fuel Feed Line

Procedure

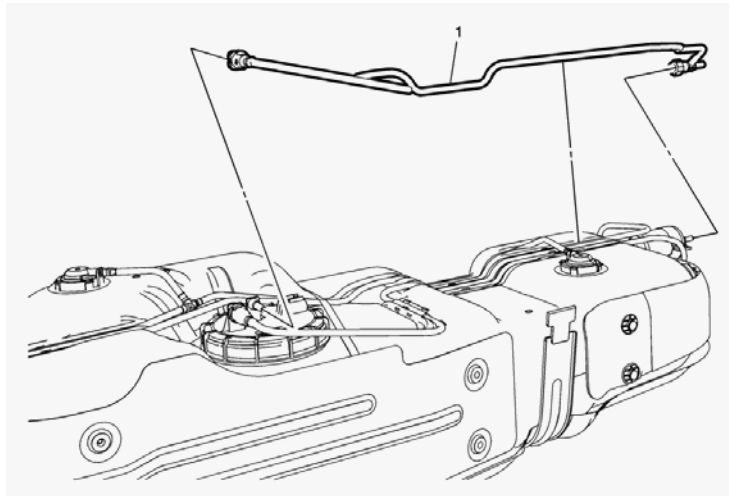
1

1. Disconnect the fuel feed line from the fuel tank fuel pump module and fuel filter. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel feed line from the fuel tank.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Line Replacement - Filter to Tank

Callout

Component Name

Preliminary Procedure

Remove the fuel tank. Refer to Fuel Tank Replacement.

Fuel Return Line

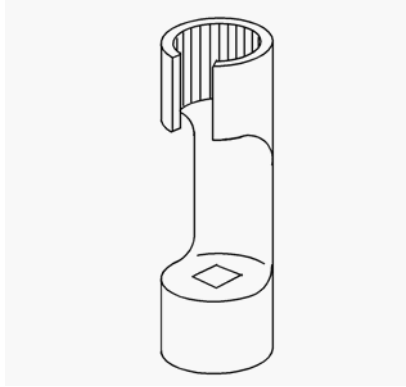
Procedure

1

1. Disconnect the fuel return line from the fuel tank fuel pump module and fuel filter. Refer to Plastic Collar Quick Connect Fitting Service.
2. Remove the fuel return line from the fuel tank.

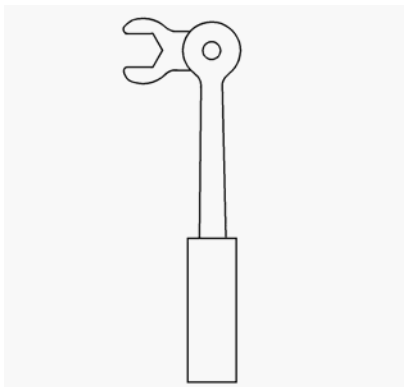
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

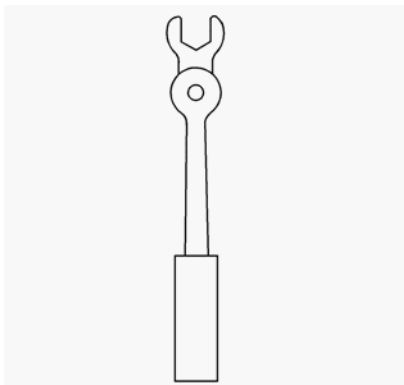


The torque of a fuel line fitting is critical to prevent fuel leaks in a high pressure direct injection fuel system. The preferred method is through the use of a flare nut socket. With the use of a flare nut socket, the torque wrench can be set to the listed torque specification. Refer to Fastener Tightening Specifications.

If a crows foot is used to torque the fuel lines, then special attention to the position of the crows foot in relation to the torque wrench is required.

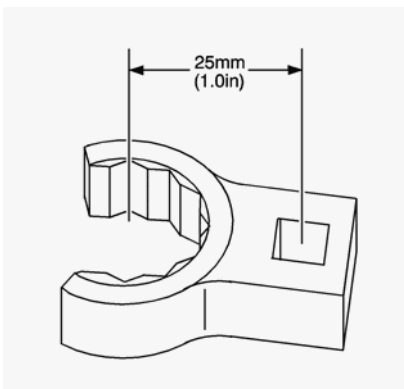


- If the crows foot is kept perpendicular (90 degrees) to the torque wrench during the entire tightening procedure, then the torque wrench can be set to the listed torque specification. Refer to Fastener Tightening Specifications.

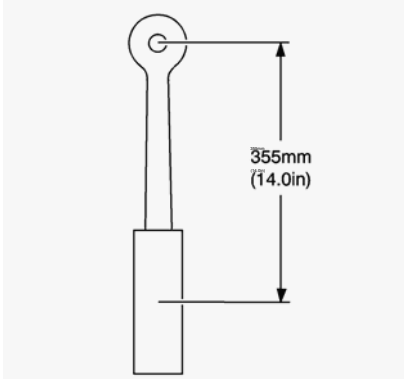


- If the crows foot is positioned straight with the torque wrench, then the torque setting needs to be corrected to compensate for the increased leverage.
- If the crows foot is held at any position other than 90 degrees or inline to the wrench, more complex corrections of the torque setting are required, and therefore, positioning the crows foot in this manner is not recommended.

If it is necessary to position a crows foot in line with the torque wrench, the procedure for adjusting the torque specification is as follows:



1. Measure the distance between the center of the crows foot wrench end to the center of the square drive hole.



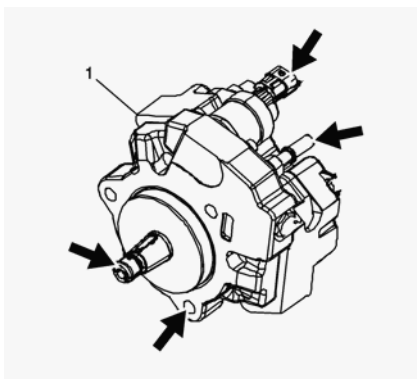
2. Measure the length of the torque wrench from the center of the square drive to the center of the handle.
3. Divide the measurement of the crows foot length by the torque wrench length. This figure is the percentage of additional torque, over the torque wrench setting, that will be applied to the fitting.
4. Subtract the results of step 3 from the number 1. This figure is the percentage of the listed torque specification that the torque wrench should be set to.
5. Multiply the results of step 4 by the listed torque setting. Refer to Fastener Tightening Specifications. This figure is the proper setting the torque wrench should be set at when using a crows foot in line with the torque wrench.

Example

1. Crows foot measurement = 25 mm (1.0 in)
2. Torque wrench measurement = 355 mm (14.0 in)
3. $25 \text{ mm} / 355 \text{ mm} (1.0 \text{ in} / 14.0 \text{ in}) = 0.07$, or 7 %
4. $1 - 0.07 = 0.93$, or 93 %
5. $0.93 \times 41 \text{ Y} (30 \text{ lb ft}) = 38 \text{ Y} (28 \text{ lb ft})$

2013 Chevrolet Colorado

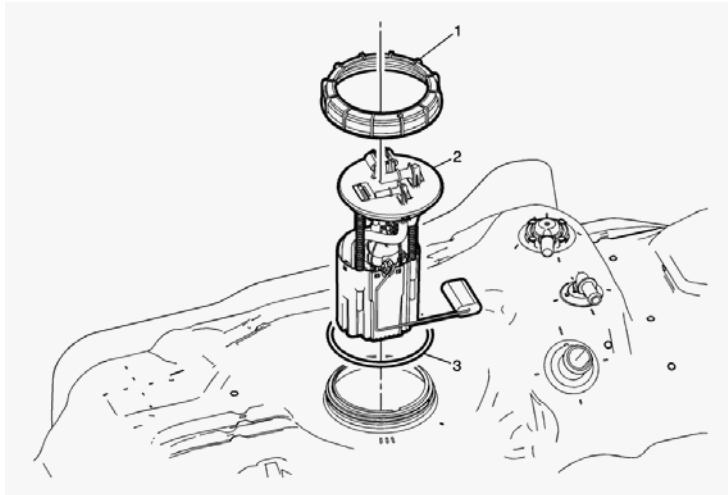
Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**



1. Remove the fuel injection pump (1) adapter bolts.
2. Remove the fuel injection pump adapter.
3. Remove the O-ring from the fuel injection pump and discard.
4. Remove the O-ring from the fuel injection pump adapter and discard.
5. Clean the fuel injection pump adapter mating surfaces.
6. Clean the fuel injection pump mating surfaces.
7. Inspect the fuel injection pump and adapter for damage.
8. Replace component if any damage is found.
9. Install a new O-ring onto fuel injection pump.
10. Install a new O-ring onto fuel injection pump adapter.
11. Lubricate the O-rings with engine oil.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Pump Cycle Control Module Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the fuel tank. Refer to Fuel Tank Replacement.
3. Remove the fuel feed pipe. Refer to Fuel Feed Pipe Replacement.
4. Remove the fuel return pipe. Refer to Fuel Return Pipe Replacement.
5. Disconnect the electrical wiring harness connector from the fuel pump module.

Fuel Pump Cycle Control Module Lock Ring

Procedure

1

Using the CH-38879-B wrench , remove the cam lock ring by turning counterclockwise.

Special Tools

CH-38879-B Fuel Pump Lock Ring Tool

For equivalent regional tools, refer to Special Tools.

Fuel Pump Cycle Control Module

2

Procedure

Partially lift the fuel pump cycle control module and disconnect the vapor hose (1). Refer to Plastic Collar Quick Connect Fitting Service, then remove the pump.

O-Ring Seal

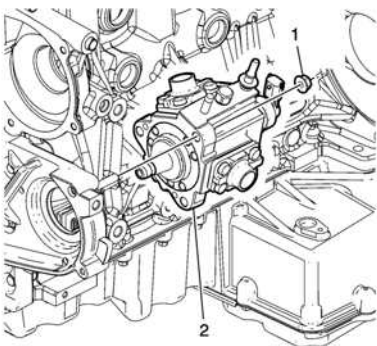
Procedure

3

1. Replace the O-ring.
2. Allow the engine to run and check for leaks.

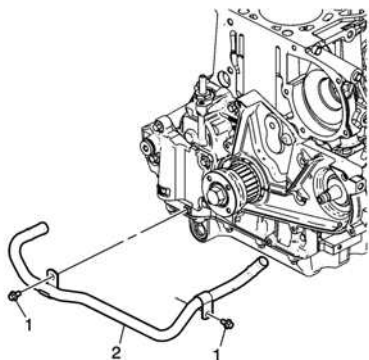
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Caution: Refer to Fastener Caution.

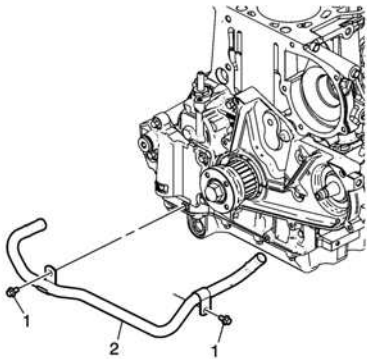
1. Install the fuel pump (2) and pump nuts (1). Tighten the nuts to **25 Y (18 lb ft)**.



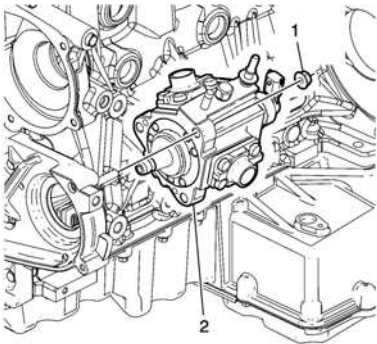
2. Install the engine oil cooler pipe (2) and engine oil cooler inlet pipe bolts (1). Tighten the bolts to **15 Y (11 lb ft)**.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



1. Remove the engine oil cooler inlet pipe bolts (1) and engine oil cooler pipe (2).



2. Remove the fuel pump nuts (1) and pump (2).



2013 Chevrolet Colorado

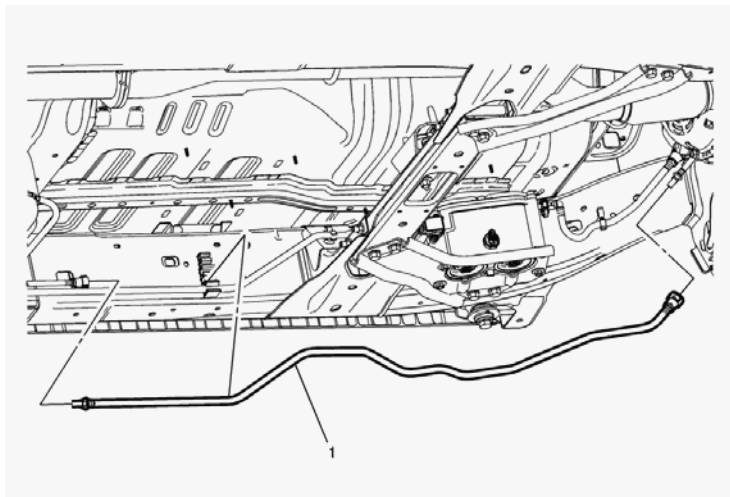
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Warning: The fuel rail stop bracket must be installed onto the engine assembly. The stop bracket serves as a protective shield for the fuel rail in the event of a vehicle frontal crash. If the fuel rail stop bracket is not installed and the vehicle is involved in a frontal crash, fuel could be sprayed possibly causing a fire and personal injury from burns.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

Component Name

Preliminary Procedure

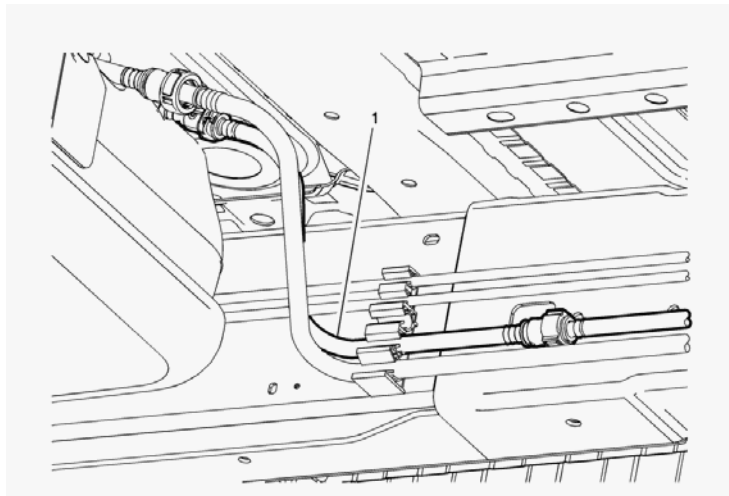
1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.

1

Fuel Return Pipe

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

Component Name

Preliminary Procedure

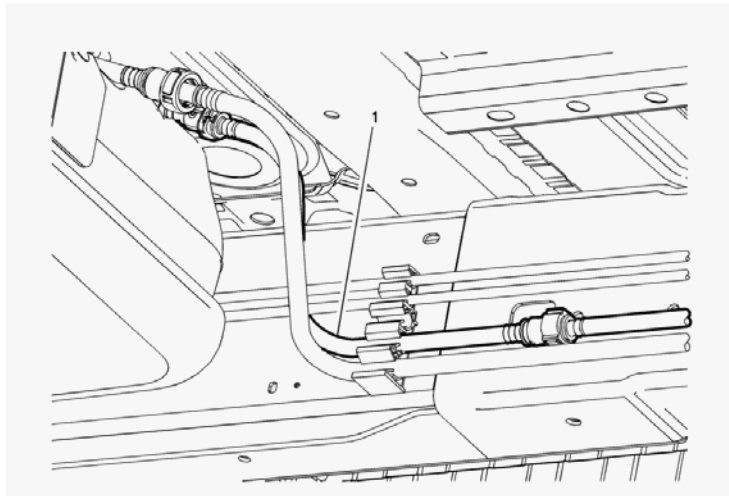
1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.

1

Fuel Return Pipe

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.

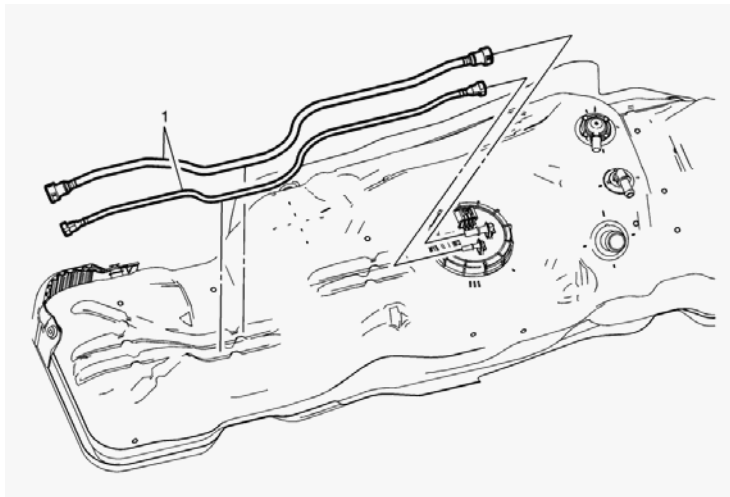
1

Fuel Return Pipe

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

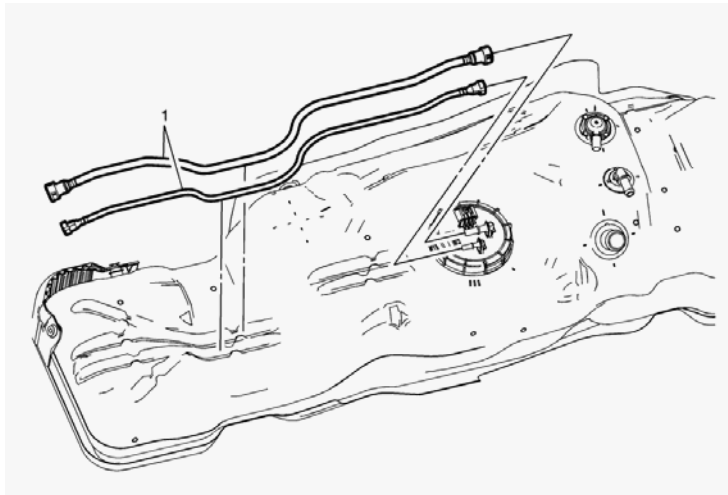
Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the fuel tank. Refer to Fuel Tank Replacement.
3. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

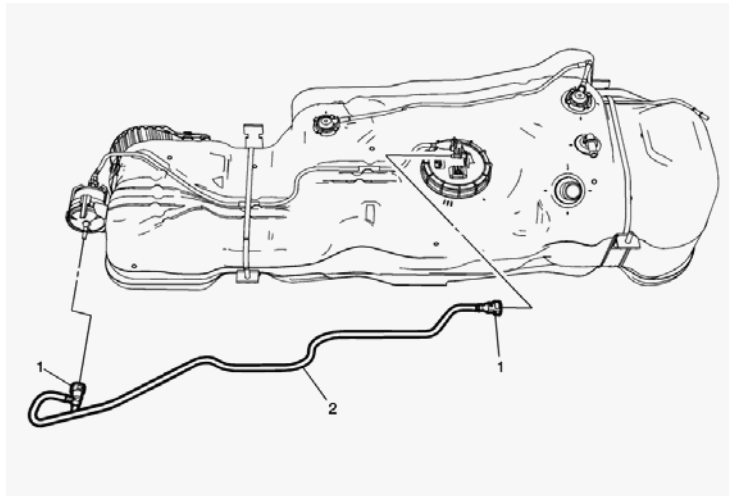
Component Name

Preliminary Procedure

1. Turn OFF the engine for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Remove the fuel tank. Refer to Fuel Tank Replacement.
3. Disconnect the plastic connector. Refer to Plastic Collar Quick Connect Fitting Service.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Return Pipe Replacement

Callout

Component Name

Preliminary Procedure

1. Revile the fuel system pressure. Refer to Fuel Pressure Relief.
2. Remove the fuel tank. Refer to Fuel Tank Replacement.

Quick Connect Fittings (Qty: 2)

1

Procedure

Disconnect the fuel return pipe quick connect fittings. Refer to Plastic Collar Quick Connect Fitting Service.

2

Fuel Return Pipe

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Priming Procedure

The electric fuel pump in the fuel tank is used to prime the complete fuel system utilizing the following procedure:

1. Turn ON the Ignition, with the engine OFF.
2. Wait **10 - 30 seconds** for the system to prime.
3. Turn the ignition to the start position.
4. Repeat steps 1 through 3 if the engine does not start.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

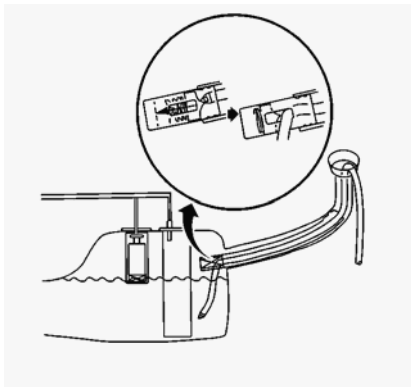
Fuel Delivery: | Fuel:

Warning: Refer to Gasoline/Gasoline Vapors Warning.

Warning: Never drain or store fuel in an open container. Always use an approved fuel storage container in order to reduce the chance of fire or explosion.

Warning: Place a dry chemical (Class B) fire extinguisher nearby before performing any on-vehicle service procedures. Failure to follow these precautions may result in personal injury.

1. Remove the fuel filler cap.



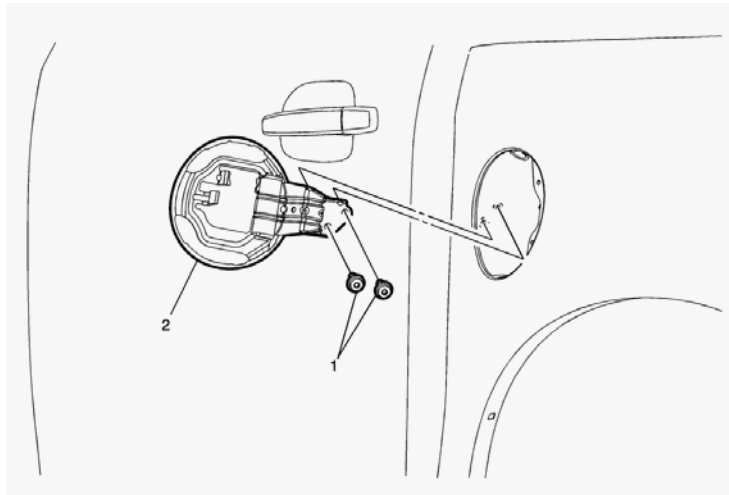
Note: Lubricate a suitable hose to aid in hose insertion and removal.

2. Insert the hose into the fuel tank until the hose reaches the bottom of the fuel tank.
3. Use an air operated pump device in order to drain the fuel into an approved gasoline container.
4. Simultaneously twist and pull in order to remove the hose from the fuel tank.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Door Replacement

Callout

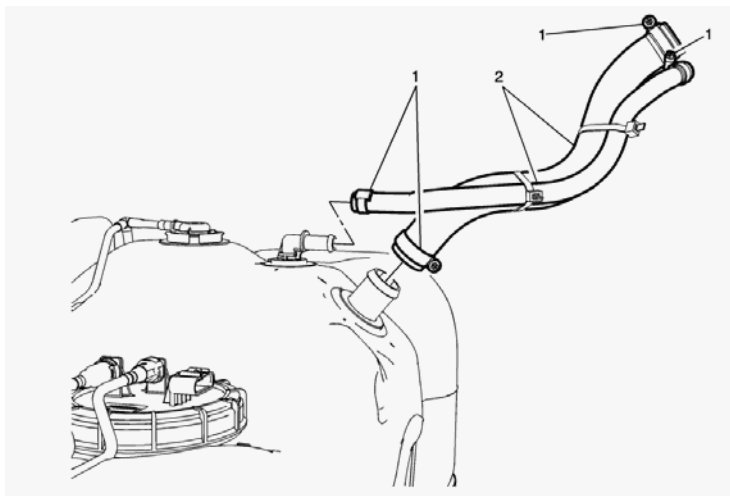
Component Name

- 1 Fuel Tank Filler Door Screw (Qty: 2)
Caution: Refer to Fastener Caution.
Tighten
6 Y (53 lb in)
- 2 Fuel Tank Filler Door
Procedure
Disconnect the tether from the fuel filler door.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Hose Replacement

Callout

Component Name

Preliminary Procedure

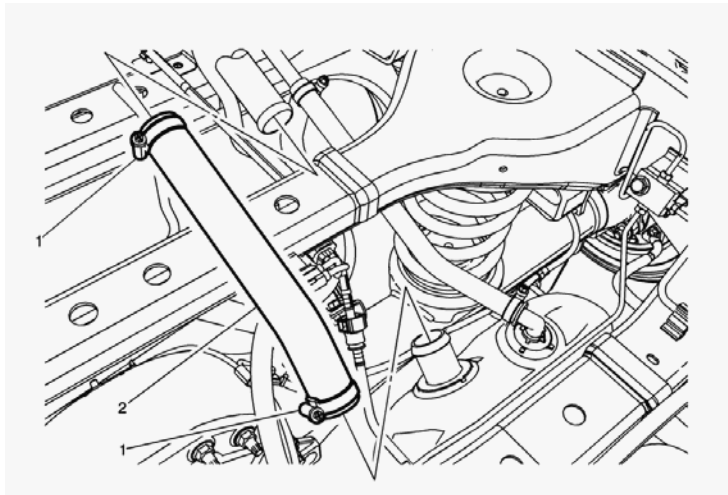
1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.
3. Lower the fuel tank enough to remove the fuel tank filler hose. Refer to Fuel Tank Replacement.

1 Fuel Filler Tube Clamps (Qty: 4)

2 Fuel Tank Filler Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Filler Hose Replacement

Callout

Component Name

Warning: Do not allow smoking or the use of open flames in the area where work on the fuel or EVAP system is taking place. Anytime work is being done on the fuel system, disconnect the negative battery cable, except for those tests where battery voltage is required.

Preliminary Procedure

1. Drain the fuel system. Refer to Fuel Tank Draining
2. Raise and Support the vehicle. Refer to Lifting and Jacking the Vehicle.

Fuel Tank Filler Hose Clamps (Qty: 2)

1

Caution: Refer to Fastener Caution.

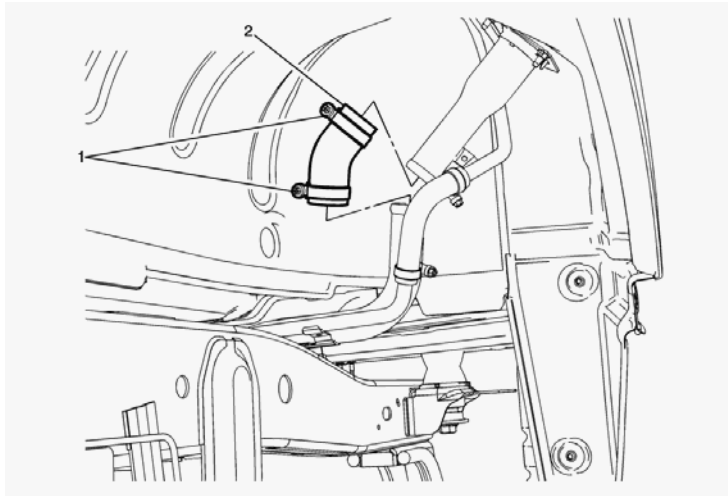
2

Fuel Tank Filler Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Hose Replacement

Callout

Component Name

Warning: Do not allow smoking or the use of open flames in the area where work on the fuel or EVAP system is taking place. Anytime work is being done on the fuel system, disconnect the negative battery cable, except for those tests where battery voltage is required.

Preliminary Procedure

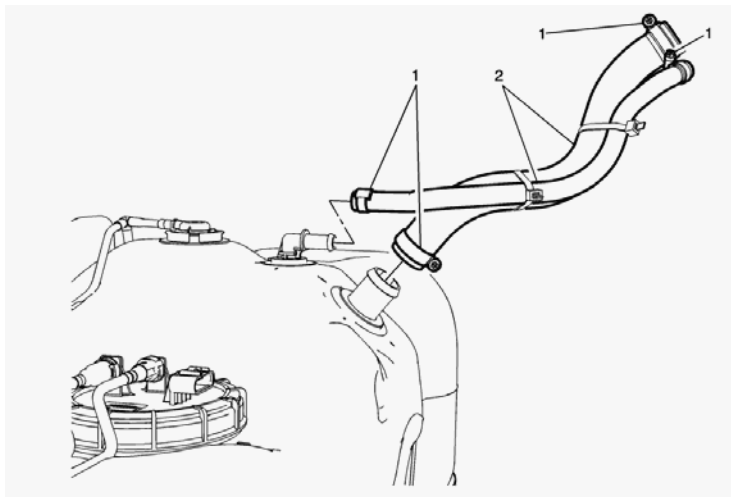
Remove the rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.

- | | |
|---|--|
| 1 | Fuel Tank Filler Hose Clamps (Qty: 2) |
| | Caution: Refer to Fastener Caution. |
| 2 | Fuel Tank Filler Hose |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Hose Replacement

Callout

Component Name

Preliminary Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.
3. Lower the fuel tank enough to remove the fuel tank filler hose. Refer to Fuel Tank Replacement.

1 Fuel Filler Tube Clamps (Qty: 4)

Fuel Tank Filler Hose

2 **Procedure**

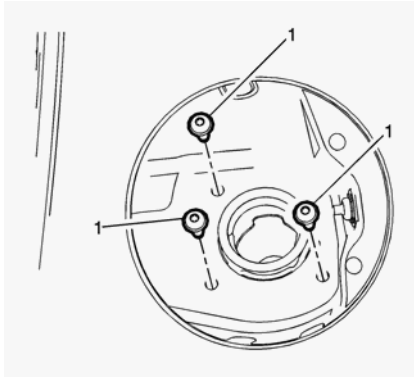
Separate the fuel tank filler hose from the fuel tank vent hose.

2013 Chevrolet Colorado

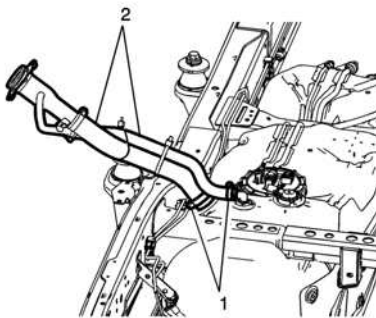
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

1. Drain the fuel below the fuel fill neck. Refer to Fuel Tank Draining.

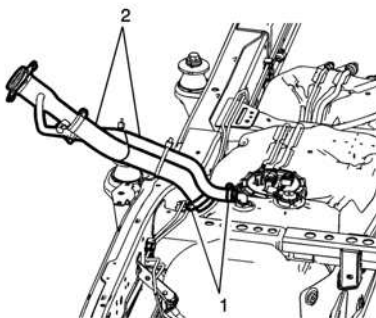


2. Remove the fuel tank filler pipe housing fasteners (1).
3. Remove the rear wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement.



4. Loosen the fuel tank filler pipe assembly hose clamps (1) at the fuel tank.
5. Remove the fuel tank filler pipe assembly (2) from the vehicle.

[Installation Procedure](#)

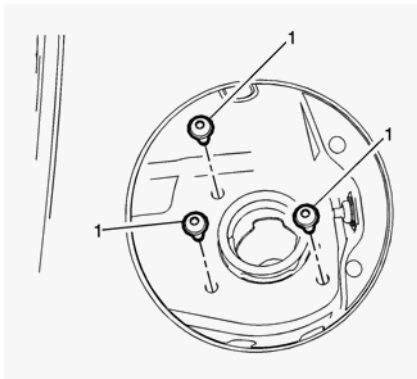


1. Install the fuel tank filler pipe assembly (2) to the vehicle.

Caution: Refer to Fastener Caution.

2. Tighten the fuel tank filler pipe assembly hose clamps at the fuel tank (1) to **6 Y(53 lb in)**.

Fuel Tank Filler Pipe Replacement (Pickup)



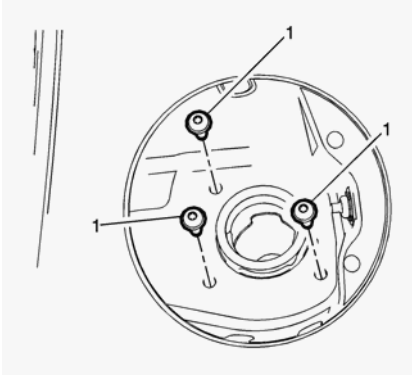
3. Tighten the filler housing fasteners (1) to **10 Y (89 lb in)**
4. Install the rear wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement.

2013 Chevrolet Colorado

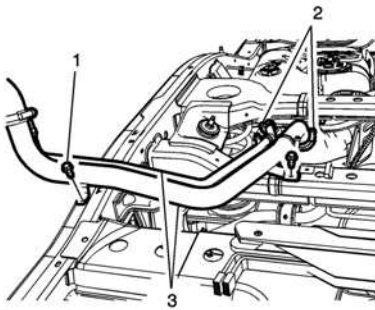
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

1. Drain the fuel below the fuel fill neck. Refer to Fuel Tank Draining.

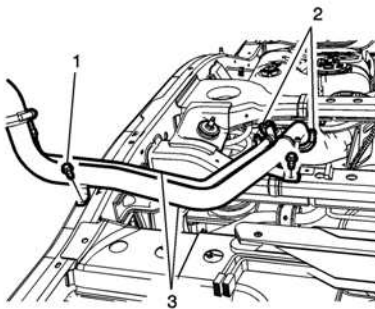


2. Remove the filler housing fasteners (1).
3. Remove the rear wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement.



4. Remove the fuel tank filler pipe fasteners (1).
5. Loosen the fuel filler pipe assembly hose clamps (2) at the fuel tank.
6. Remove the fuel filler pipe assembly (3) from the vehicle.

[Installation Procedure](#)

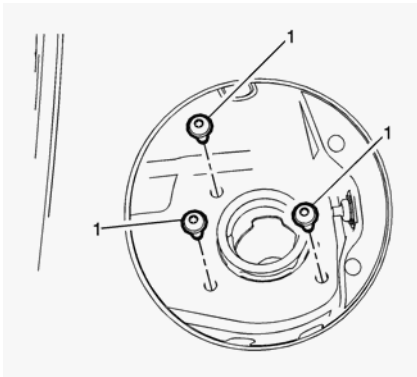


1. Install the fuel filler pipe assembly (3) to the vehicle.

Caution: Refer to Fastener Caution.

2. Install the fuel tank filler pipe fasteners (1) and tighten to **10 Y (89 lb in)**.
3. Tighten the fuel filler hose clamps (2) to **6 Y (53 lb in)**.

Fuel Tank Filler Pipe Replacement (SUV)



4. Tighten the filler housing fasteners (1) to **10 Y (89 lb in)**
5. Install the rear wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement.
6. Fill the fuel to the previous level.

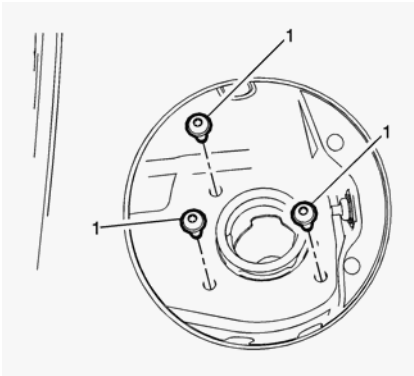
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

Warning: Do not allow smoking or the use of open flames in the area where work on the fuel or EVAP system is taking place. Anytime work is being done on the fuel system, disconnect the negative battery cable, except for those tests where battery voltage is required.

1. Drain the fuel below the fuel fill neck. Refer to Fuel Tank Draining.



2. Remove the filler housing fasteners (1).
3. Remove the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.



4. Loosen the fuel filler tube clamps (1).
5. Remove the fuel tank filler pipe assembly from the fuel filler and vent hoses (2).

[Installation Procedure](#)

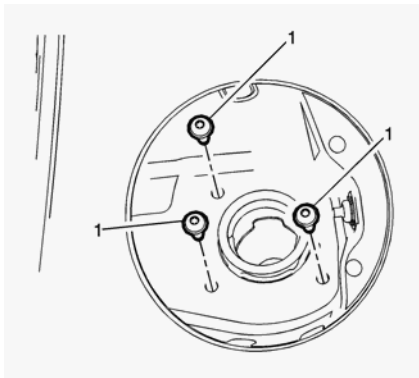


1. Install the fuel tank filler pipe assembly to the fuel filler and vent hoses (2).

Caution: Refer to Fastener Caution.

2. Tighten the hose clamps (1) to **6 Y(53 lb in)**.

Fuel Tank Filler Pipe Replacement

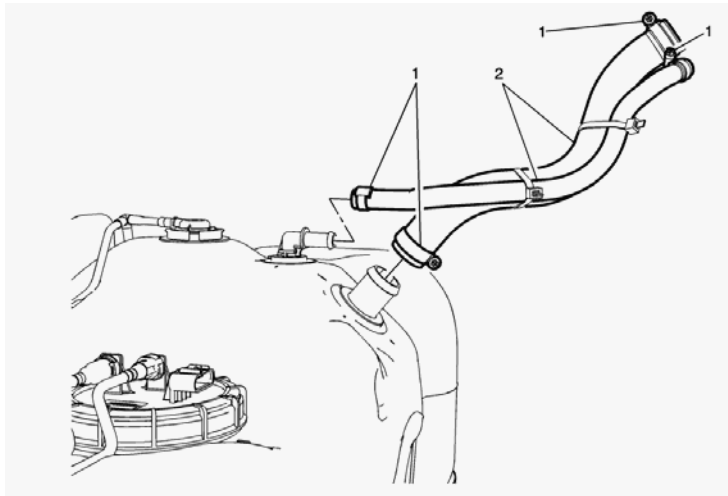


3. Install the fuel tank filler pipe housing fasteners (1) and tighten to **10 Y (89 lb in)**.
4. Install the rear wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement.
5. Fill the fuel to the previous level.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Vent Hose Replacement

Callout

Component Name

Preliminary Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.
3. Lower the fuel tank enough to disconnect the fuel tank filler vent hose. Refer to Fuel Tank Replacement.

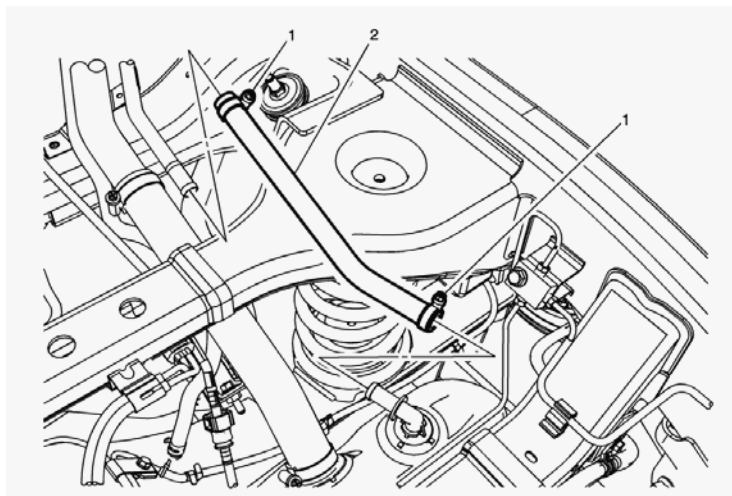
1 Fuel Tank Filler Vent Hose Clamps (Qty: 2)

2 Fuel Tank Filler Vent Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Filler Vent Hose Replacement

Callout

Component Name

Warning: Do not allow smoking or the use of open flames in the area where work on the fuel or EVAP system is taking place. Anytime work is being done on the fuel system, disconnect the negative battery cable, except for those tests where battery voltage is required.

Preliminary Procedure

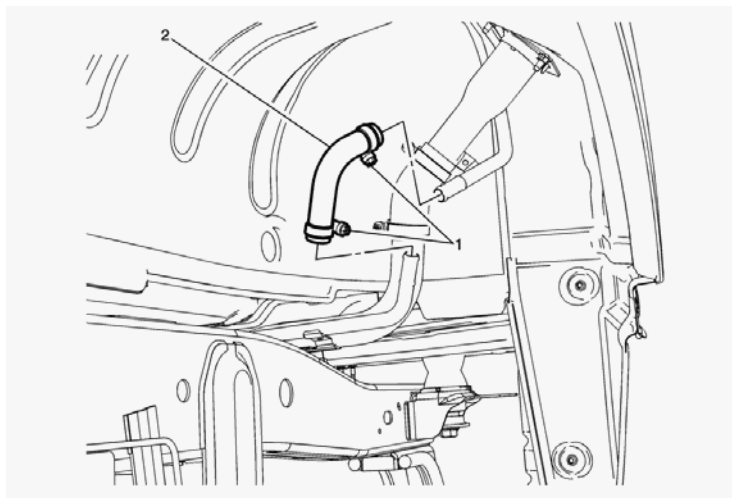
1. Drain the fuel system to below the filler neck. Refer to Fuel Tank Draining
2. Raise and Support the vehicle. Refer to Lifting and Jacking the Vehicle.

1 Fuel Tank Filler Vent Hose Clamps (Qty: 2)
Caution: Refer to Fastener Caution.

2 Fuel Tank Filler Vent Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Filler Vent Hose Replacement

Callout

Component Name

Warning: Do not allow smoking or the use of open flames in the area where work on the fuel or EVAP system is taking place. Anytime work is being done on the fuel system, disconnect the negative battery cable, except for those tests where battery voltage is required.

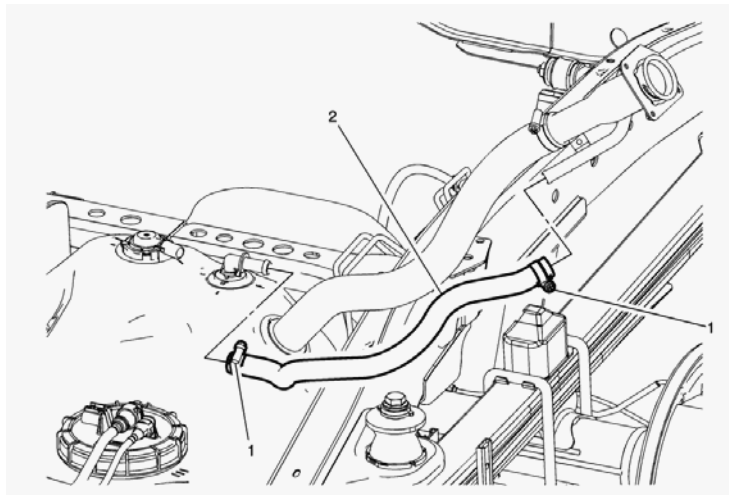
Preliminary Procedure

Remove the rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.

- | | |
|---|--|
| 1 | Fuel Tank Filler Vent Hose Clamps (Qty: 2) |
| | Caution: Refer to Fastener Caution. |
| 2 | Fuel Tank Filler Vent Hose |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Filler Vent Hose Replacement

Callout

Component Name

Fuel Tank Filler Vent Hose Clamps (Qty: 2)

Caution: Refer to Fastener Caution.

1

Tighten

6 Y (53 lb in)

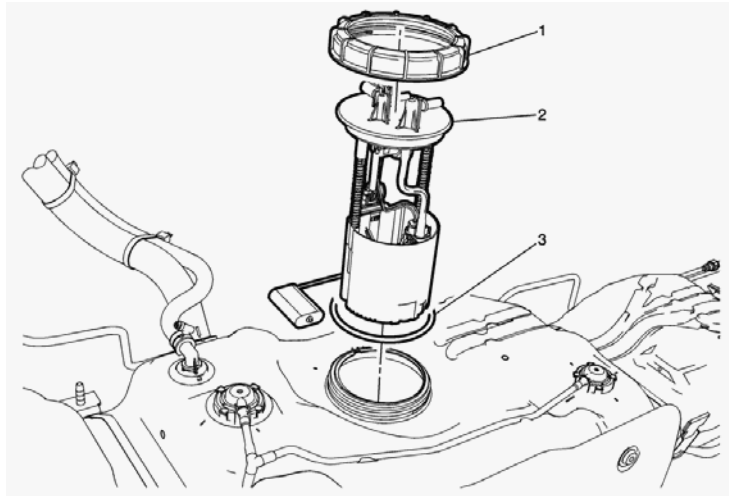
2

Fuel Tank Filler Vent Hose

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Fuel Pump Module Replacement

Callout

Component Name

Preliminary Procedure

1. Remove the fuel tank. Refer to Fuel Tank Replacement.
2. Disconnect the electrical wiring harness connector from the fuel tank fuel pump module.

Fuel Tank Fuel Pump Module Lock Ring

Procedure

1

Using the *CH 38879-B* fuel pump lock ring tool., remove the cam lock ring by turning counterclockwise.

Special Tools

CH 38879-B Fuel Pump Lock Ring Tool.

For equivalent regional tools, refer to Special Tools.

2

Fuel Tank Fuel Pump Module

O-Ring Seal

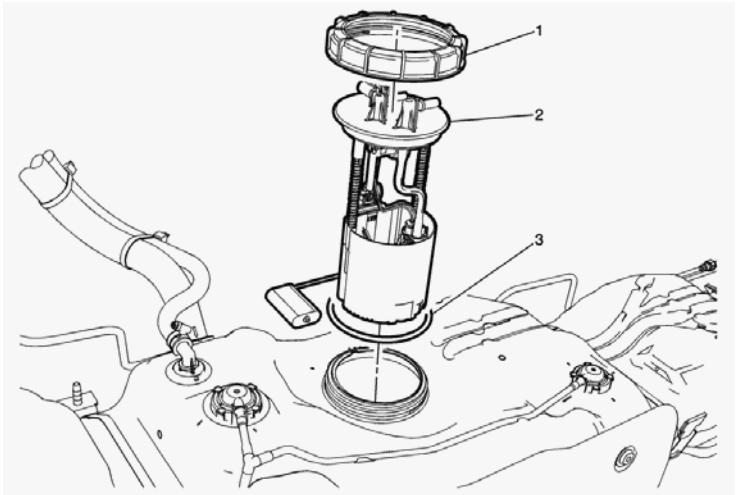
Procedure

3

1. Replace the O-ring seal.
2. Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



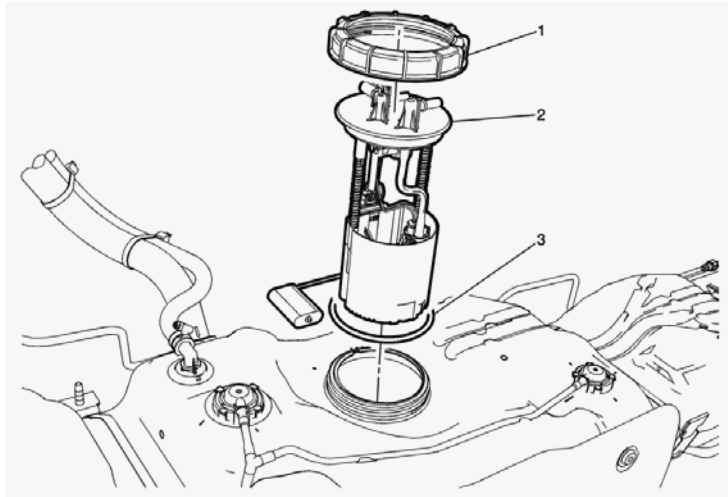
Fuel Tank Fuel Pump Module Replacement

Callout	Component Name
Preliminary Procedure	
1. Remove the fuel tank. Refer to Fuel Tank Replacement. 2. Remove the fuel feed and return lines from the fuel tank. Refer to Fuel Line Replacement - Filter to Tank. 3. Disconnect the electrical wiring harness connector from the fuel pump module.	
	Fuel Tank Fuel Pump Module Lock Ring
	Caution: Refer to Fastener Caution.
	Procedure
	Using the <i>CH-38879-B</i> fuel pump lock ring tool, remove the cam lock ring by turning counterclockwise.
1	Tighten
	70 Y (52 lb ft)
	Special Tools
	<i>CH-38879-B</i> Fuel Pump Lock Ring Tool
	For equivalent regional tools, refer to Special Tools.
	O-Ring Seal
2	Procedure
	Replace the O-ring seal.
	Fuel Tank Fuel Pump Module
3	Procedure
	Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Fuel Pump Module Replacement

Callout

Component Name

Preliminary Procedure

1. Remove the fuel tank. Refer to Fuel Tank Replacement.
2. Remove the fuel feed and return lines from the fuel tank. Refer to Fuel Line Replacement - Filter to Tank.
3. Disconnect the electrical wiring harness connector from the fuel pump module.

Fuel Tank Fuel Pump Module Lock Ring

Caution: Refer to Fastener Caution.

Procedure

Using the *CH-38879-B* fuel pump lock ring tool, remove the cam lock ring by turning counterclockwise.

1

Tighten

70 Y (52 lb ft)

Special Tools

CH-38879-B Fuel Pump Lock Ring Tool

For equivalent regional tools, refer to Special Tools.

O-Ring Seal

2

Procedure

Replace the O-ring seal.

Fuel Tank Fuel Pump Module

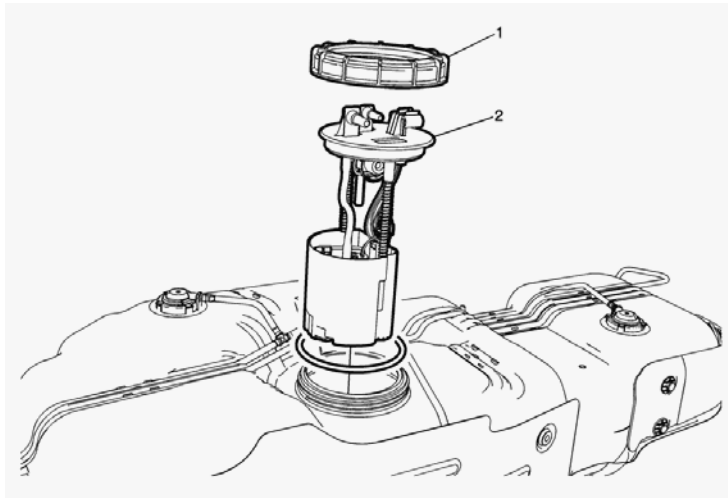
3

Procedure

Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Fuel Pump Module Replacement

Callout

Component Name

Preliminary Procedure

1. Remove the fuel tank. Refer to Fuel Tank Replacement.
2. Remove the fuel feed and return lines from the fuel tank. Refer to Fuel Line Replacement - Filter to Tank.
3. Disconnect the electrical wiring harness connector from the fuel pump module.

Fuel Tank Fuel Pump Module Lock Ring

Caution: Refer to Fastener Caution.

Procedure

Using the *CH-38879-B* fuel pump lock ring tool, remove the cam lock ring by turning counterclockwise.

1

Tighten

70 Y (52 lb ft)

Special Tools

CH-38879-B Fuel Pump Lock Ring Tool

For equivalent regional tools, refer to Special Tools.

Fuel Tank Fuel Pump Module

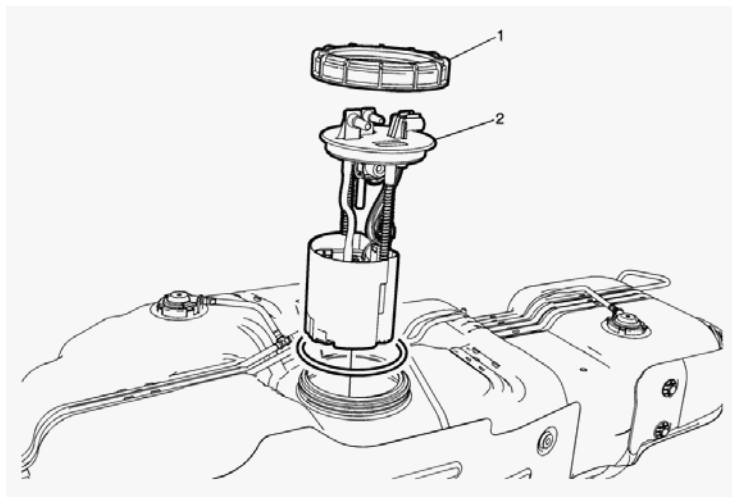
Procedure

2

1. Install a NEW fuel tank fuel pump module O-ring.
2. Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Fuel Pump Module Replacement

Callout

Component Name

Preliminary Procedure

1. Remove the fuel tank. Refer to Fuel Tank Replacement.
2. Remove the fuel feed and return lines from the fuel tank. Refer to Fuel Line Replacement - Filter to Tank.
3. Disconnect the electrical wiring harness connector from the fuel pump module.

Fuel Tank Fuel Pump Module Lock Ring

Caution: Refer to Fastener Caution.

Procedure

Using the *CH-38879-B* fuel pump lock ring tool, remove the cam lock ring by turning counterclockwise.

1

Tighten

70 Y (52 lb ft)

Special Tools

CH-38879-B Fuel Pump Lock Ring Tool

For equivalent regional tools, refer to Special Tools.

Fuel Tank Fuel Pump Module

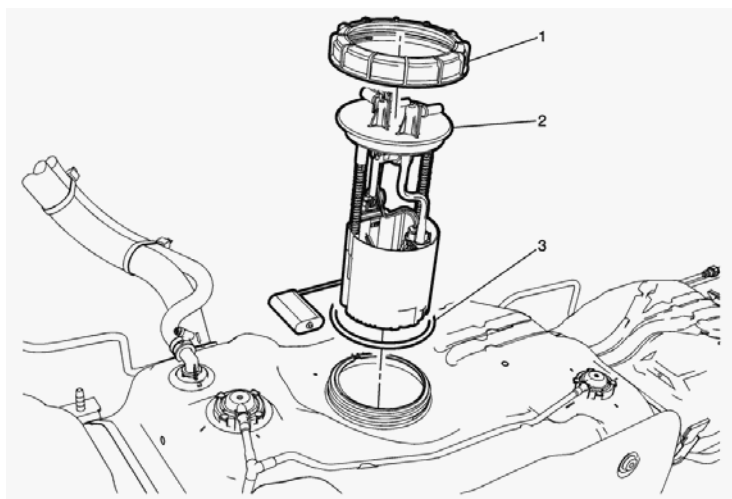
Procedure

2

1. Install a NEW fuel tank fuel pump module O-ring.
2. Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Fuel Tank Fuel Pump Module Replacement

Callout

Component Name

Preliminary Procedure

1. Remove the fuel tank. Refer to Fuel Tank Replacement.
2. Disconnect the electrical wiring harness connector from the fuel tank fuel pump module.

Fuel Tank Fuel Pump Module Lock Ring

Procedure

- 1 Using the *CH 38879-B* fuel pump lock ring tool., remove the cam lock ring by turning counterclockwise.

Special Tools

CH 38879-B Fuel Pump Lock Ring Tool.

For equivalent regional tools, refer to Special Tools.

- 2 Fuel Tank Fuel Pump Module

O-Ring Seal

Procedure

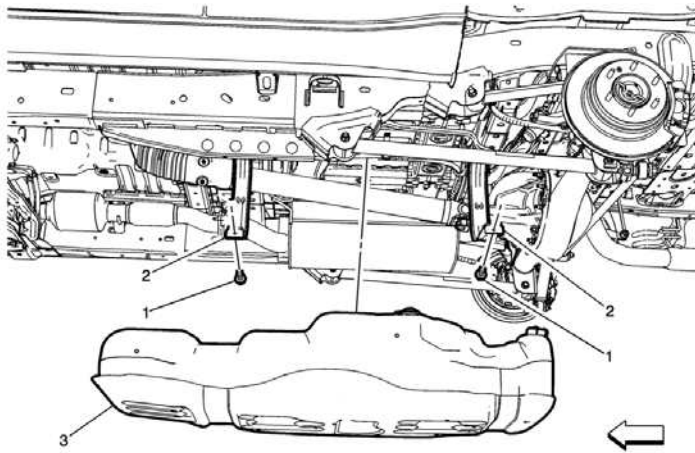
- 3

1. Replace the O-ring seal.
2. Allow the engine to run and check for leaks.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Replacement

Callout	Component Name
Preliminary Procedure	
	1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief. 2. Drain the fuel tank. Refer to Fuel Tank Draining. 3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 4. Disconnect the fuel tank filler and vent pipes from the fuel tank. 5. Disconnect the fuel tank fuel feed and return pipes from the fuel filter. Refer to Plastic Collar Quick Connect Fitting Service. 6. Disconnect the evaporative emission purge and vent pipes from the Intermediate and fuel tank vent pipes. Refer to Plastic Collar Quick Connect Fitting Service. 7. Support the fuel tank.
	Fuel Tank Strap Fastener
1	Caution: Refer to Fastener Caution. Tighten 32 Y (24 lb ft)
2	Fuel Tank Strap
	Fuel Tank
3	1. Carefully lower the fuel tank. 2. If replacing the fuel tank transfer the following components: Fuel Tank Fuel Pump Module Replacement Evaporative Emission Pipe Replacement

2013 Chevrolet Colorado

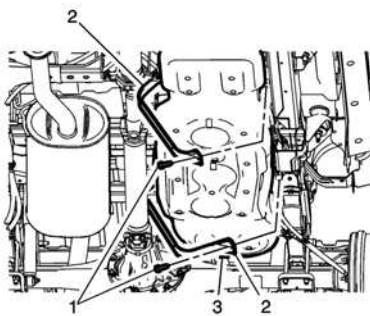
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

1. Relieve the fuel system pressure. Refer to Fuel Pressure Relief.
2. Drain the fuel tank. Refer to Fuel Tank Draining.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
4. Remove the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.



5. Loosen the fuel tank filler hose clamps (1) and disconnect the fuel tank filler and vent hoses from the fuel tank filler pipe (2).
6. Disconnect the fuel feed and evaporative emission pipe at the fuel filter. Refer to Fuel Feed and Evaporative Emission Pipe Replacement.
7. Disconnect the evaporative emission canister vent pipe. Refer to Evaporative Emission Canister Vent Pipe Replacement.
8. Remove the propeller shaft strap.
9. Remove the fuel filter ground harness.
10. Position an adjustable jack under the fuel tank for support.

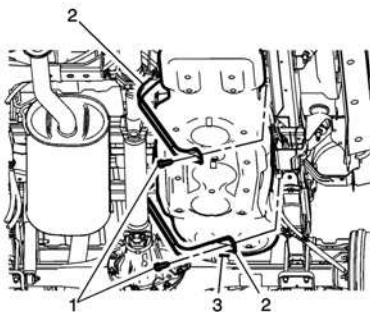


Caution: Do not bend the fuel tank straps. Bending the fuel tank straps may damage the straps.

11. Remove the fuel tank strap bolts (1).
12. Remove the fuel tank straps (2).
13. With the aid of an assistant, carefully lower the fuel tank until the fuel pump electrical connections can be accessed.
14. Disconnect the fuel tank module electrical wiring harness connector from the fuel tank.
15. Completely lower the fuel tank and place the fuel tank in a suitable work area.
16. If the fuel tank is not being replaced, proceed to the installation procedure.
17. Disconnect the fuel feed and return lines from the fuel tank. Refer to Fuel Feed Pipe Replacement and Fuel Return Pipe Replacement.
18. Remove the fuel filler and vent tubes from the fuel tank. Refer to Fuel Tank Filler Vent Hose Replacement.
19. Remove the fuel tank fuel pump module. Refer to Fuel Tank Fuel Pump Module Replacement.

[Installation Procedure](#)

1. If the fuel tank is not being replaced, proceed to Step 5.
2. Install the fuel tank fuel pump module. Refer to Fuel Tank Fuel Pump Module Replacement.
3. Install the fuel filler and vent tubes to the fuel tank. Refer to Fuel Tank Filler Vent Hose Replacement.
4. Connect the fuel feed and return lines to the fuel tank. Refer to Fuel Feed Pipe Replacement and Fuel Return Pipe Replacement.
5. With the aid of an assistant, place the fuel tank onto the jack and support the fuel tank.
6. Partially raise the fuel tank until the electrical connections can be made.
7. Connect the fuel tank module (2) electrical connector to the fuel tank.



8. Install the fuel tank straps.
9. Install the fuel tank front strap bolts.

Caution: Refer to Fastener Caution.

10. Tighten the fuel tank strap bolts to **32 Y (24 lb ft)**.
11. Install the fuel filter ground harness.
12. Install the propeller shaft strap.
13. Connect the evaporative emission canister vent pipe. Refer to Evaporative Emission Canister Vent Pipe Replacement.
14. Connect the fuel feed and evaporative emission pipe at the fuel filter. Refer to Fuel Feed and Evaporative Emission Pipe Replacement.
15. Lower the vehicle only enough to gain access to the fuel tank through the wheelhouse.



16. Connect the fuel tank filler and vent hoses to the fuel tank filler pipe (2) and tighten the fuel tank filler hose clamps (1).
17. Install the left rear wheelhouse liner. Refer to Rear Wheelhouse Liner Replacement.
18. Lower the vehicle.
19. Refill the fuel tank.
20. Install the fuel fill cap.
21. Inspect for leaks.

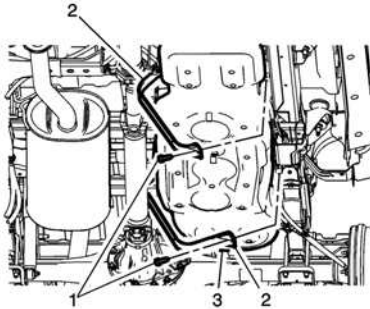
1. Turn ON the ignition, with the engine OFF for 10 seconds.
 2. Turn OFF the ignition for 10 seconds.
 3. Turn ON the ignition, with the engine OFF.
 4. Inspect for fuel leaks.
22. Prime the fuel system.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Removal Procedure

1. Turn OFF the engine, for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Drain the fuel tank. Refer to Fuel Tank Draining.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
4. Position an adjustable jack under the fuel tank for support.

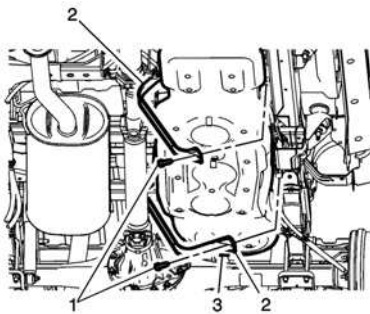


Caution: Do not bend the fuel tank straps. Bending the fuel tank straps may damage the straps.

5. Remove the fuel tank strap bolts(1).
6. Remove the fuel tank straps(2).
7. With the aid of an assistant, carefully lower the fuel tank until the electrical connections can be accessed.
8. Disconnect the fuel tank module electrical connector from the fuel tank.
9. Disconnect the fuel feed line at the fuel tank. Refer to Plastic Collar Quick Connect Fitting Service.
10. Disconnect the fuel return line at the fuel tank. Refer to Fuel Return Pipe Replacement.
11. Completely lower the fuel tank and place the fuel tank in a suitable work area.
12. If the fuel tank is not being replaced, proceed go to the Installation Procedure.

Installation Procedure

1. With the aid of an assistant, place the fuel tank onto the jack and support the fuel tank.
2. Partially raise the fuel tank until the electrical connections can be made.
3. Connect the fuel feed line at the fuel tank. Refer to Plastic Collar Quick Connect Fitting Service.
4. Connect the fuel tank module (2) electrical connector to the fuel tank.
5. Connect the fuel return line at the fuel tank. Refer to Fuel Return Pipe Replacement.



6. Install the fuel tank straps.
7. Install the fuel tank front strap bolts.

Caution: Refer to Fastener Caution.

8. Tighten the fuel tank strap bolts to **32 Y (24 lb ft)**.
9. Lower the vehicle only enough to gain access to the fuel tank through the wheelhouse.
10. Reconnect the fuel fill hose and vent pipe at the tank.
11. Lower the vehicle.
12. Refill the fuel tank.

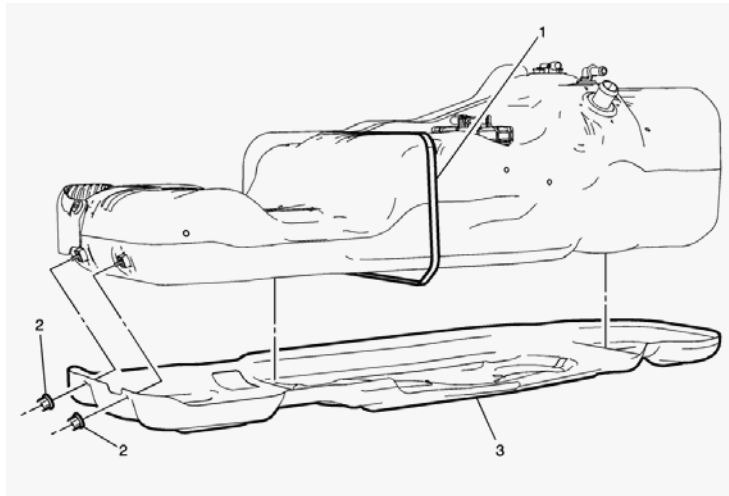
Fuel Tank Replacement

13. Install the fuel fill cap.
14. Inspect for leaks.
 1. Turn ON the ignition, with the engine OFF for 10 seconds.
 2. Turn OFF the ignition for 10 seconds.
 3. Turn ON the ignition, with the engine OFF.
 4. Inspect for fuel leaks.
15. Prime the fuel system.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fuel Tank Shield Replacement

Callout

Component Name

Preliminary Procedures

Remove the fuel tank. Refer to Fuel Tank Replacement.

- | | |
|---|--|
| 1 | Fuel Tank Shield Assembly Strap |
| 2 | Fuel Tank Shield Retainers (Qty: 2) |
| | Caution: Refer to Fastener Caution. |
| 3 | Fuel Tank Shield |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Caution: Tighten the strap fasteners by steps, alternating between the fasteners, until the specified torque is reached. A failure to tighten the strap fasteners as specified will cause the bottom of the tank to flex upward. This will result in the fuel gauge indicating that there is fuel remaining in the tank when the tank is empty.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Note:

- Do not interchange any components from the vehicle lock cylinder and the service lock cylinder. Interchanging components could cause service lock cylinder to not function properly.
- All lock cylinders for side milled keys have right and left tumblers. The location of the tooth of the tumbler determines whether it is right or left. Illustrations in this procedure show the right tumblers on the top and the left tumblers on the bottom. All tumblers in this kit are marked 1, 11, 2, 12, 3, 13, 4, and 14. The first number (1 or 11) represents the cut depth. Tumblers 1, 2, 3, 4 are for the right. Tumblers 11, 12, 13, 14 are for the left.

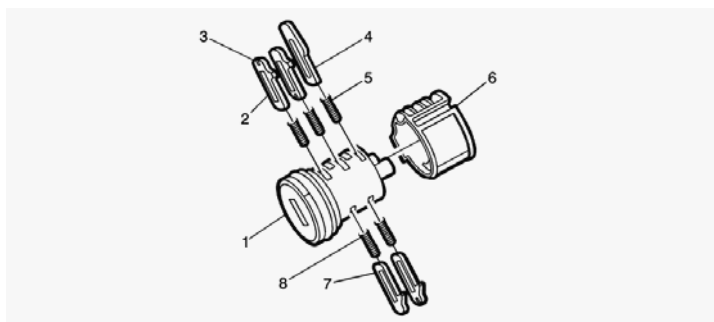
The door lock cylinder uses 4 of the 8 cut positions. The tumbler positions are staggered from side to side, 2 on one side and 2 on the other, they are not self-retaining, and are not snap in.

[Determining the Key Code](#)

CROSS REFERENCE		VEHICLE TUMBLER LOCATION	
LETTER AND NUMBER	NUMBER	TUMBLER POSITION	TUMBLER REQUIRED
L1	11	5	
R1	1	7	
L2	12	6	
R2	2	8	
L3	13		
R3	3		
L4	14		
R4	4		

There are two different style markings used on the tumblers. Markings can either be numbers only, or a combination of a letter and number. The CROSS REFERENCE chart, shown below, lists both marking styles in identical pairs. Tumblers marked L1 and 11 are identical.

One way of determining which tumbler to place in each tumbler slot on the key cylinder can be determined by disassembling the vehicle lock cylinder, and looking at the markings on each tumbler. As you remove each tumbler from the vehicle lock cylinder, write its marking identification in the proper position location under TUMBLER REQUIRED column in the VEHICLE TUMBLER LOCATION chart shown below. For example, if you remove the tumbler from position 1 and it is marked 12, write 12 under tumbler required next to tumbler position 1. Repeat this process for the remaining tumblers. If the tumblers you remove are marked with a letter and a number, you should go back and write the number only marking that cross references with the tumblers as this kit only includes tumblers with number markings. For example, if the tumbler you remove from position 1 is marked L1, you should go back and write 11 next to it. This will help you select the correct tumbler during the assembly process.

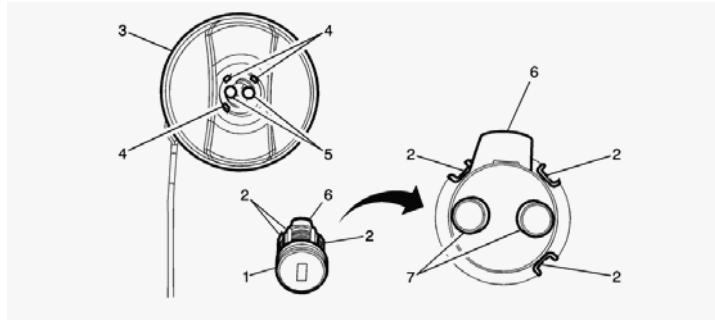


Note: Once the cylinder is installed in the gas cap it cannot be removed.

- Lightly lubricate the tumbler pockets in the lock cylinder (1) using the supplied grease.
- Hold the lock cylinder (1) so the side with the 2 tumbler spring pockets nearest to the front of the lock cylinder faces up.
- Insert the tumbler springs (8) into the 2 spring pockets. This side uses left tumblers. The left side tumblers included in this kit are marked as 11, 12, 13, and 14.
- Install the tumbler (7) for key cut position five in the slot nearest to the front of the lock cylinder. Install the remaining tumbler, key cut position 7, following the key code and same process. Press the tumblers in place until they are secure.
- Check the correct loading of the tumblers by inserting the key into the cylinder. All tumblers should be flush with the lock cylinder body.
- Hold the tumblers in place and remove the key.
- Turn the cylinder so the side with the 2 empty tumbler spring wells faces up. This side uses right tumblers. The right side tumblers included in this kit are marked as 1, 2, 3 and 4.
- Insert the tumbler springs (2) into the 2 spring pockets.
- Install the tumbler (3) for key cut position 2 in the slot nearest to the front of the lock cylinder. Install the remaining tumblers, key cut position 8, following the key code and same process. Press the tumblers in place until they are secure.
- Check the correct loading of the tumblers by inserting the key into the cylinder. All tumblers should be flush with the lock cylinder body.
- Lightly lubricate the cylinder body diameter and tumbler surfaces and a small amount in the head of the cylinder using the supplied grease.
- Insert the lock cylinder (1) into the cylinder case (6), the tab of the sleeve must be oriented to the head cylinder side. Rotate the sleeve until the tab matches with the slot.

Key and Lock Cylinder Coding (Fuel Tank Filler Cap Lock)

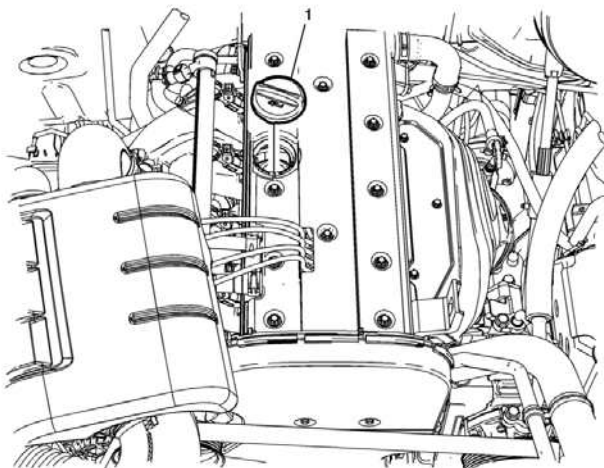
13. Remove the key.
14. Insert the tumbler retainer spring (5) into the pocket and the tumbler retainer (4) over the spring. Make sure the tumbler retainer is properly seated and cannot pull out.



15. To insert the cylinder (1) into the cap (3) hold the cylinder and cap as shown.
16. Align the slots (2) and post (7) on the cylinder with the tabs (4) and the holes (5) in the cap.
17. Push down on the tumbler retainer (6) and push the cylinder (1) all the way into the cap (6).
18. Insert the key and function the lock three times.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:



Oil Filler Cap Replacement

Callout

Component Name

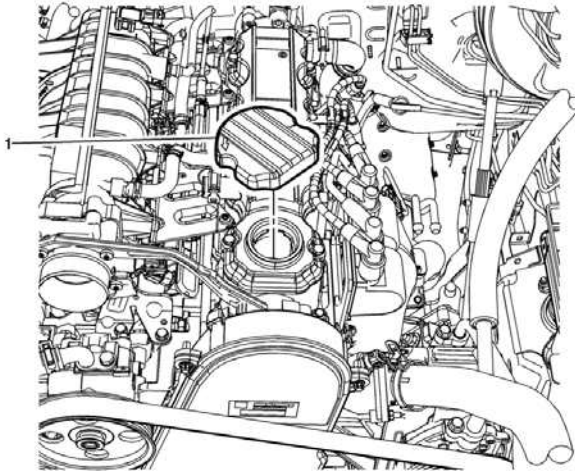
1

Oil Fill Cap

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Oil Filler Cap Replacement

Callout

Component Name

1

Oil Fill Cap

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Warning: Remove the fuel tank cap and relieve the fuel system pressure before servicing the fuel system in order to reduce the risk of personal injury. After you relieve the fuel system pressure, a small amount of fuel may be released when servicing the fuel lines, the fuel injection pump, or the connections. In order to reduce the risk of personal injury, cover the fuel system components with a shop towel before disconnection. This will catch any fuel that may leak out. Place the towel in an approved container when the disconnection is complete.

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

1. Turn OFF the engine, for 30 seconds before proceeding. This will purge the fuel pressure from the complete fuel system.
2. Turn the water-in-fuel drain screw counterclockwise.
3. Drain off water completely.
4. When finished, turn the drain screw clockwise until tightened.
5. Prime the fuel system. Refer to Fuel System Priming.