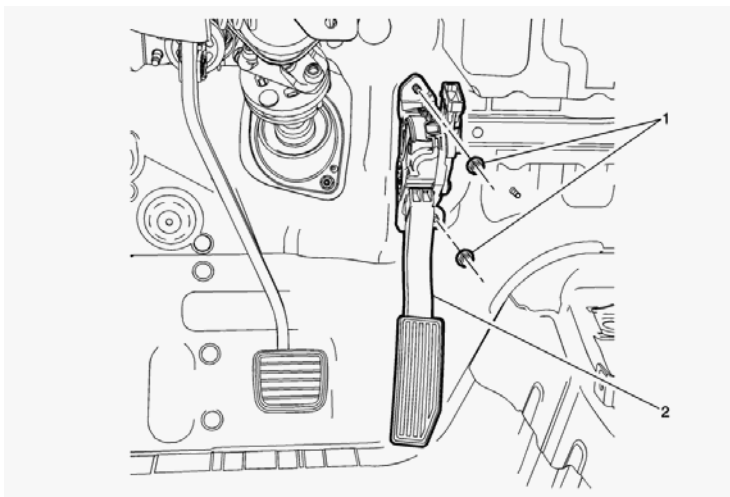


## 2013 Chevrolet Colorado

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



Accelerator Pedal with Position Sensor Assembly Replacement

### Callout

### Component Name

#### Preliminary Procedure

Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection.

Accelerator Pedal with Position Sensor Fastener (Qty: 2)

**Caution:** Refer to Fastener Caution.

1

#### Tighten

9 Y (80 lb in)

Accelerator Pedal with Position Sensor

2

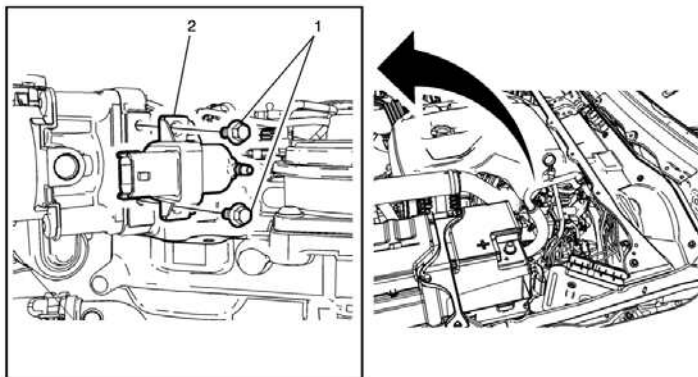
#### Procedure

Disconnect the electrical wiring harness connector from the accelerator pedal with position sensor.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



### Intake Manifold Tuning Vacuum Control Solenoid Valve Replacement

#### Callout

#### Component Name

#### Preliminary Procedure

Remove the engine cover. Refer to Intake Manifold Cover Replacement.

Intake Manifold Tuning Valve Fasteners (Qty: 2)

**Caution:** Refer to Fastener Caution.

1

#### Tighten

10 Y (89 lb in)

Intake Manifold Tuning Vacuum Control Solenoid

#### Procedure

2

1. Disconnect the vacuum hoses.
2. Disconnect the electrical connector.

# 2013 Chevrolet Colorado

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

## Description

The engine control module (ECM) learns the airflow through the throttle body to ensure the correct idle. The learned airflow values are stored within the ECM. These values are learned to adjust for production variation and will continuously learn during the life of the vehicle to compensate for reduced airflow due to throttle body coking. Anytime the throttle body airflow rate changes, for example due to cleaning or replacing, the values must be relearned.

An engine that had a heavily coked throttle body that has been cleaned or replaced may take several drive cycles to learn out the coking. To accelerate the process, the scan tool has the ability to reset all learned values back to zero. A new ECM will also have values set to zero.

The idle may be unstable or a DTC may set if the learned values do not match the actual airflow.

## Conditions for Running the Throttle Learn Procedure

### Scan tool Idle Learn or Idle Learn Reset Procedure

- DTCs P0068, P0101, P0102, P0103, P0106, P0107, P0108, P0116, P0117, P0118, P0120, P0122, P0123, P0128, P0171, P0172, P0174, P0175, P0201–P0208, P0220, P0222, P0223, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271, P0273, P0274, P0276, P0277, P0279, P0280, P0282, P0283, P0300–P0308, P0351–P0358, P0496, P0601, P0604, P0606, P060D, P0641, P0651, P1516, P2101, P2119, P2120, P2122, P2123, P2125, P2127, P2128, P2135, P2138, or P2176 are not set.
- Ignition ON, engine OFF.
- The vehicle speed sensor (VSS) is 0 km/h (0 mph).

### Service Bay/On Road Learn Procedure

- DTCs P0068, P0101, P0102, P0103, P0106, P0107, P0108, P0116, P0117, P0118, P0120, P0122, P0123, P0128, P0171, P0172, P0174, P0175, P0201–P0208, P0220, P0222, P0223, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271, P0273, P0274, P0276, P0277, P0279, P0280, P0282, P0283, P0300–P0308, P0351–P0358, P0496, P0601, P0604, P0606, P060D, P0641, P0651, P1516, P2101, P2119, P2120, P2122, P2123, P2125, P2127, P2128, P2135, P2138, or P2176 are not set.
- The engine speed is between 450–4,000 RPM.
- The manifold absolute pressure (MAP) is greater than 5 kPa.
- The mass air flow (MAF) is greater than 2 g/s.
- The ignition voltage is greater than 10 volts.

## Throttle Learn

### Scan Tool Idle Learn or Idle Learn Reset Procedure – Performed after the throttle body is cleaned or replaced

1. Ignition ON, engine OFF, perform the Idle Learn or Idle Learn Reset in Configuration/Reset or Module Setup.
2. Engine idling, observe the scan tool Throttle Body Idle Airflow Compensation parameter. The Throttle Body Idle Airflow Compensation value should equal 0% and the engine should be idling at a normal idle speed.
3. Clear the DTCs and return to the diagnostic that referred you here.

### Service Bay/On Road Idle Learn Procedure – Performed after the ECM is programmed or replaced

**Note:** Do NOT perform this procedure if DTCs are set. Refer to Diagnostic Trouble Code (DTC) List - Vehicle.

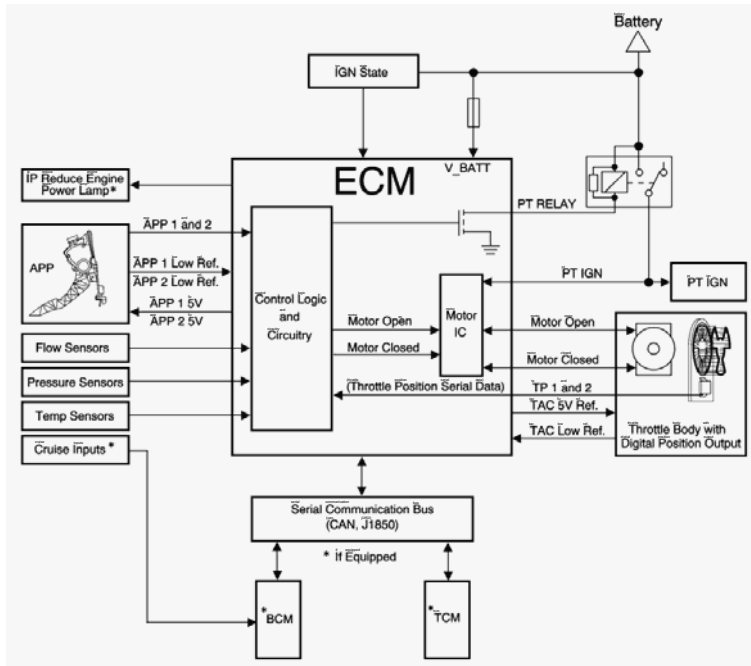
1. Engine idling for 3 minutes.
2. Observe the scan tool Desired Idle Speed and the actual Engine Speed parameters.
3. The ECM will start to learn the new idle cells and the Desired Idle Speed should start to decrease.
4. Ignition OFF for 60 seconds.
5. Start and idle the engine for 3 minutes.
6. After the 3 minute run time the engine should be idling normal.

**Note:** During the drive cycle the check engine light may come on with idle speed DTCs. If idle speed codes are set, clear codes so the ECM can continue to learn.

- If the engine idle speed has not been learned the vehicle will need to be driven at speeds above 70 km/h (44 mph) with several decelerations and extended idles.
- After the drive cycle, the engine should be idling normally.
- If the engine idle speed has not been learned, turn OFF the ignition for 60 seconds and repeat step 6.
- Once the engine speed has returned to normal, clear DTCs and return to the diagnostic that referred you here.

## 2013 Chevrolet Colorado

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



The engine control module (ECM) is the control center for the throttle actuator control (TAC) system. The ECM determines the driver's intent based on input from the accelerator pedal position sensors, then calculates the appropriate throttle response based on the throttle position sensors. The ECM achieves throttle positioning by providing a pulse width modulated voltage to the throttle actuator motor. The throttle blade is spring loaded in both directions, and the default position is slightly open.

### Modes Of Operation

#### Normal Mode

During the operation of the TAC system, several modes, or functions, are considered normal. The following modes may be entered during normal operations:

- Minimum pedal value—At key-up, the ECM updates the learned minimum pedal value.
- Minimum throttle position values—At key-up, the ECM updates the learned minimum throttle position value. In order to learn the minimum throttle position value, the throttle blade is moved to the Closed position.
- Ice break mode—If the throttle blade is not able to reach a predetermined minimum throttle position, the ice break mode is entered. During the ice break mode, the ECM commands the maximum pulse width several times to the throttle actuator motor in the closing direction.
- Battery saver mode—After a predetermined time without engine speed, the ECM commands the battery saver mode. During the battery saver mode, the TAC module removes the voltage from the motor control circuits, which removes the current draw used to maintain the idle position and allows the throttle to return to the spring loaded default position.

#### Reduced Engine Power Mode

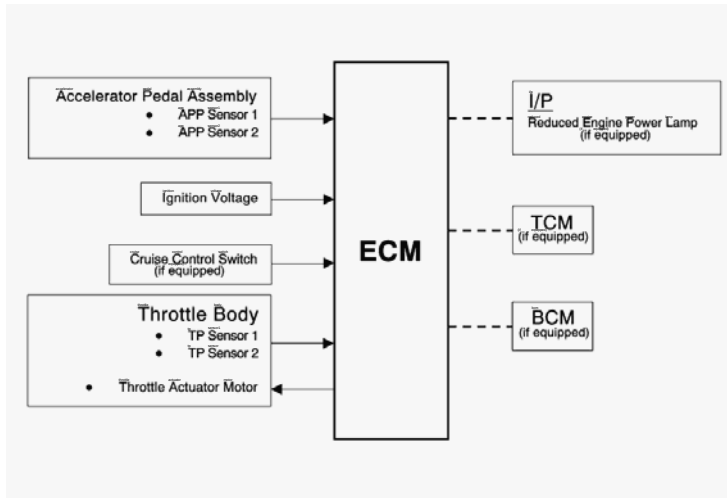
When the ECM detects a condition with the TAC system, the ECM may enter a reduced engine power mode. Reduced engine power may cause one or more of the following conditions:

- Acceleration limiting—The ECM will continue to use the accelerator pedal for throttle control, however, the vehicle acceleration is limited.
- Limited throttle mode—The ECM will continue to use the accelerator pedal for throttle control, however, the maximum throttle opening is limited.
- Throttle default mode—The ECM will turn OFF the throttle actuator motor, and the throttle will return to the spring loaded default position.
- Forced idle mode—The ECM will perform the following actions:
  - Limit engine speed to the idle position
  - Ignore the accelerator pedal input.
- Engine shutdown mode—The ECM will disable fuel and de-energize the throttle actuator.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



The engine control module (ECM) is the control center for the throttle actuator control (TAC) system. The ECM determines the driver's intent based on input from the accelerator pedal position sensors, then calculates the appropriate throttle response based on the throttle position sensors. The ECM achieves throttle positioning by providing a pulse width modulated voltage to the throttle actuator motor. The throttle blade is spring loaded in both directions, and the default position is slightly open.

### Modes Of Operation

#### Normal Mode

During the operation of the TAC system, several modes, or functions, are considered normal. The following modes may be entered during normal operations:

- Minimum pedal value—At key-up, the ECM updates the learned minimum pedal value.
- Minimum throttle position values—At key-up, the ECM updates the learned minimum throttle position value. In order to learn the minimum throttle position value, the throttle blade is moved to the Closed position.
- Ice break mode—If the throttle blade is not able to reach a predetermined minimum throttle position, the ice break mode is entered. During the ice break mode, the ECM commands the maximum pulse width several times to the throttle actuator motor in the closing direction.
- Minimum pedal value—At key-up, the ECM updates the learned minimum pedal value.
- Battery saver mode—After a predetermined time without engine RPM, the ECM commands the Battery Saver mode. During the Battery Saver mode, the TAC module removes the voltage from the motor control circuits, which removes the current draw used to maintain the idle position and allows the throttle to return to the spring loaded default position.

#### Reduced Engine Power Mode

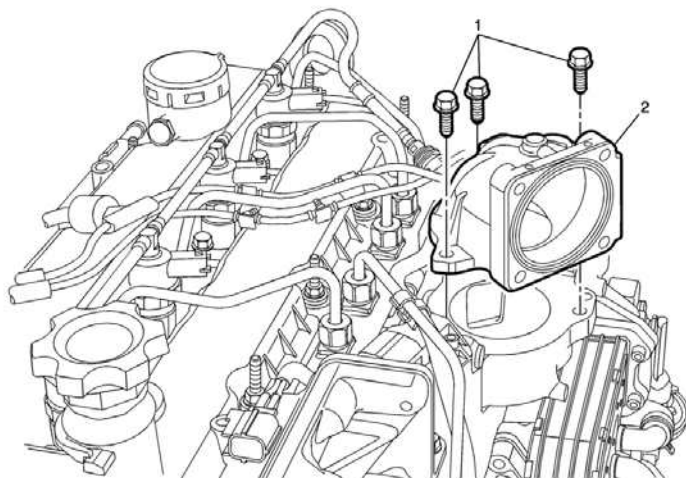
When the ECM detects a condition with the TAC system, the ECM may enter a reduced engine power mode. Reduced engine power may cause one or more of the following conditions:

- Acceleration limiting—The ECM will continue to use the accelerator pedal for throttle control, however, the vehicle acceleration is limited.
- Limited throttle mode—The ECM will continue to use the accelerator pedal for throttle control, however, the maximum throttle opening is limited.
- Throttle default mode—The ECM will turn OFF the throttle actuator motor, and the throttle will return to the spring loaded default position.
- Forced idle mode—The ECM will perform the following actions:
  - Limit engine speed to idle positioning the throttle position, or by controlling the fuel and spark if the throttle is turned OFF.
  - Ignore the accelerator pedal input.
- Engine shutdown mode—The ECM will disable fuel and de-energize the throttle actuator.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Throttle Body Adapter Replacement

### Callout

### Component Name

### Preliminary Procedure

Remove the throttle body. Refer to Throttle Body Assembly Replacement.

Throttle Body Adapter Fastener (Qty: 3)

**Caution:** Refer to Fastener Caution.

1

### Tighten

10Y (89 lb in)

Throttle Body Adapter

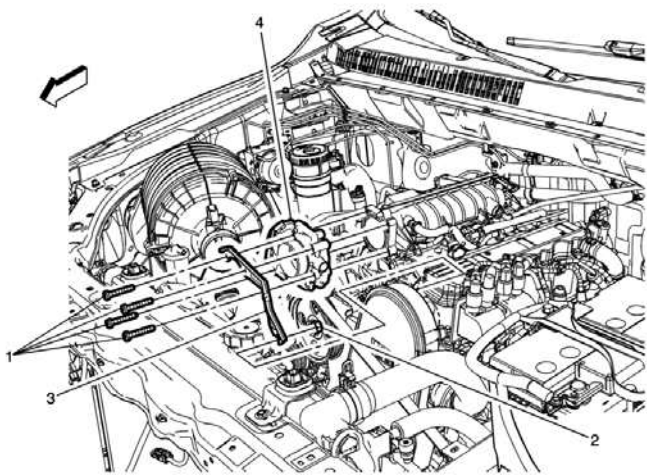
### Procedure

2

1. Ensure to install NEW throttle body adapter gasket.
2. Transfer parts as needed.

# 2013 Chevrolet Colorado

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

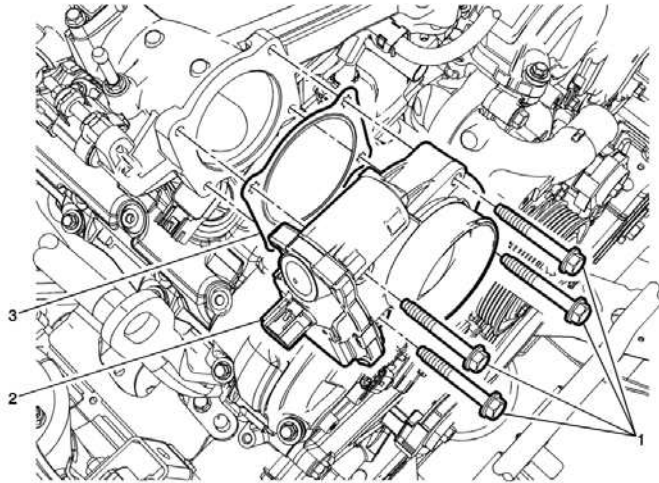


Throttle Body Assembly Replacement

| Callout                                                                           | Component Name                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b>                                                      |                                                                                                                                                                                                                                           |
| Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement. |                                                                                                                                                                                                                                           |
| Throttle Body Bolts (Qty: 4)                                                      |                                                                                                                                                                                                                                           |
| 1                                                                                 | <b>Caution:</b> Refer to Fastener Caution.<br><b>Tighten</b><br>10 Y(89 lb in)                                                                                                                                                            |
| Throttle Body Bracket Nut                                                         |                                                                                                                                                                                                                                           |
| 2                                                                                 | <b>Tighten</b><br>10 Y(89 lb in)                                                                                                                                                                                                          |
| 3                                                                                 | Throttle Body Bracket<br><br>Throttle Body Assembly                                                                                                                                                                                       |
| <b>Procedure</b>                                                                  |                                                                                                                                                                                                                                           |
| 4                                                                                 | <ol style="list-style-type: none"><li>1. Disconnect the throttle body harness electrical connector.</li><li>2. Install a NEW throttle body seal.</li><li>3. Perform the throttle learn procedure. Refer to Throttle/Idle Learn.</li></ol> |

## 2013 Chevrolet Colorado

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



Throttle Body Assembly Replacement

### Callout

### Component Name

#### Preliminary Procedure

Remove the air cleaner outlet duct from the throttle body assembly. Refer to Air Cleaner Outlet Duct Replacement.

Throttle Body Assembly Fastener (Qty: 4)

**Caution:** Refer to Fastener Caution.

1

#### Tighten

10 Y (89 lb in)

Throttle Body Assembly

2

#### Procedure

Disconnect the wiring harness electrical connector from the throttle body assembly.

3

Throttle Body Gasket

## 2013 Chevrolet Colorado

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

---

1. Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.

**Warning:** Turn OFF the ignition before inserting fingers into the throttle bore. Unexpected movement of the throttle blade could cause personal injury.

**Caution:** Do not insert any tools into the throttle body bore in order to avoid damage to the throttle valve plate.

2. Inspect the throttle body bore and the throttle valve plate for deposits. You will need to open the throttle valve in order to inspect all surfaces.

**Caution:** Do not use any solvent that contains Methyl Ethyl Ketone (MEK). This solvent may damage fuel system components.

3. Clean the throttle body bore and the throttle valve plate using a clean shop towel with all purpose parts cleaner or an equivalent product.
4. Install the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
5. Perform the throttle learn procedure. Refer to Q38 Throttle Body: Throttle/Idle Learn.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

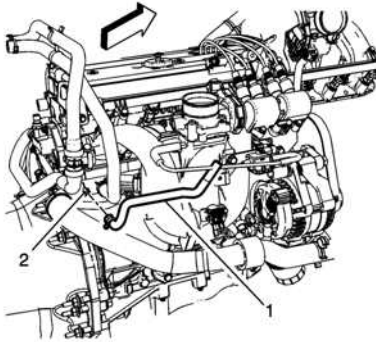
### Special Tools

BO-38185 Hose Clamp Pliers

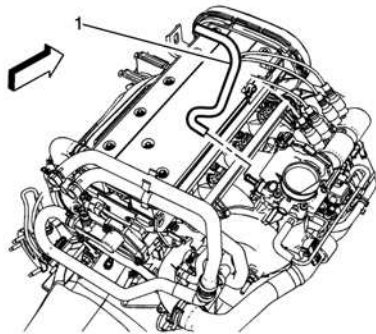
For equivalent regional tools, refer to Special Tools.

### Removal Procedure

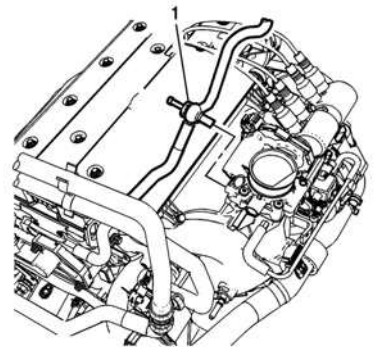
1. Remove the air cleaner assembly. Refer to Air Cleaner Assembly Replacement.
2. Remove the throttle body assembly. Refer to Throttle Body Assembly Replacement.
3. Drain the cooling system. Refer to Cooling System Draining and Filling.



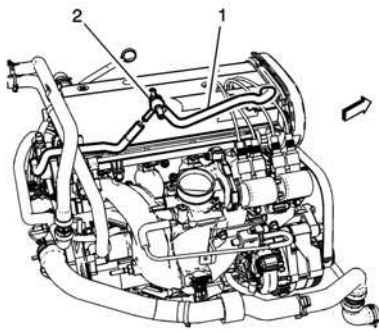
4. Remove the throttle body outlet hose (1) using the BO-38185 pliers from the radiator outlet hose fitting (2).



5. Remove the PCV pipe (1) from the vacuum source manifold fitting on the intake manifold.

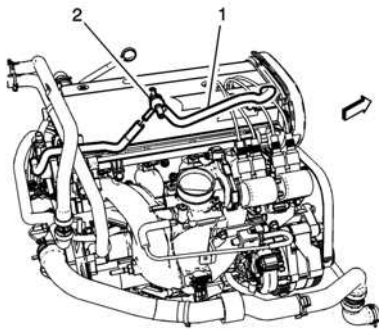


6. Remove the fastener (1) holding the vacuum source manifold fitting to the intake manifold.

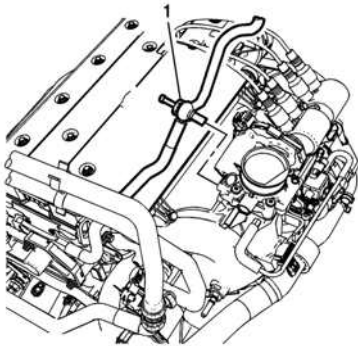


7. Remove the throttle body outlet hose (1) from the vacuum source manifold fitting (2).
8. Remove the throttle body outlet hose from the engine compartment.

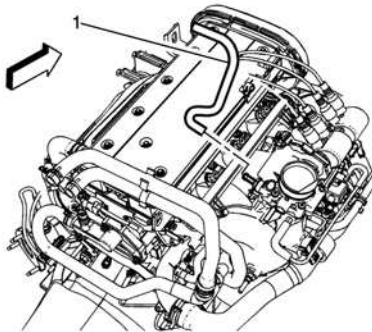
#### [Installation Procedure](#)



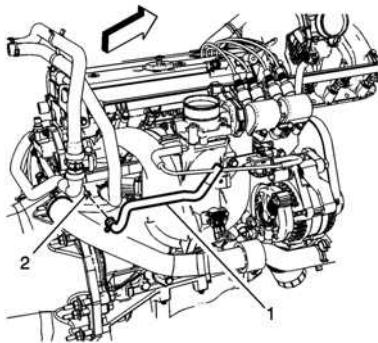
1. Install the throttle body outlet hose (1) onto the vacuum source manifold fitting (2).



2. Install the vacuum source manifold fitting (1) onto the intake manifold.



3. Install the PCV pipe (1) from the vacuum source manifold fitting into the intake manifold.



4. Install the throttle body outlet hose (1) onto the radiator outlet hose fitting (2).
5. Install the throttle body assembly. Refer to Throttle Body Assembly Replacement.
6. Install the air cleaner assembly. Refer to Air Cleaner Assembly Replacement.
7. Fill the cooling system. Refer to Cooling System Draining and Filling.
8. Start the engine and check for coolant leaks.

## 2013 Chevrolet Colorado

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

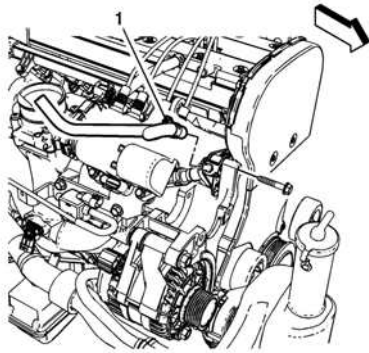
### Special Tools

BO-38185 Hose Clamp Pliers

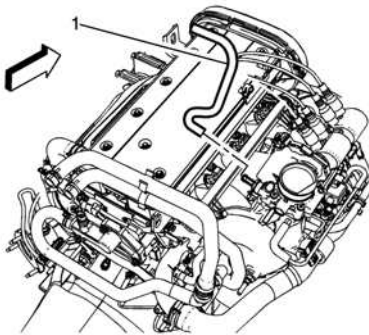
For equivalent regional tools, refer to Special Tools.

### Removal Procedure

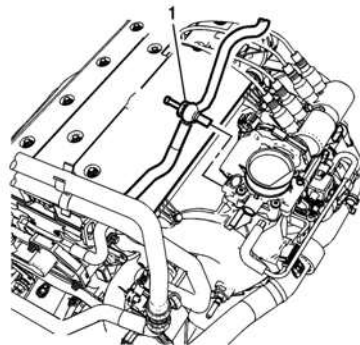
1. Remove the air cleaner assembly. Refer to Air Cleaner Assembly Replacement.
2. Remove the throttle body assembly. Refer to Throttle Body Assembly Replacement.
3. Drain the cooling system. Refer to Cooling System Draining and Filling.



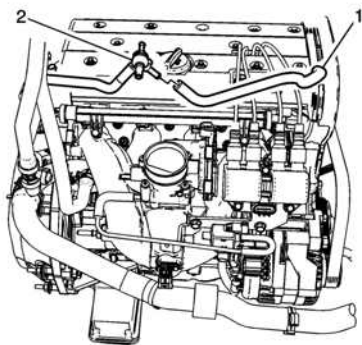
4. Remove the throttle body outlet hose (1) using the BO-38185 pliers from the engine cooling water outlet adapter.



5. Remove the PCV pipe (1) from the vacuum source manifold fitting on the intake manifold.

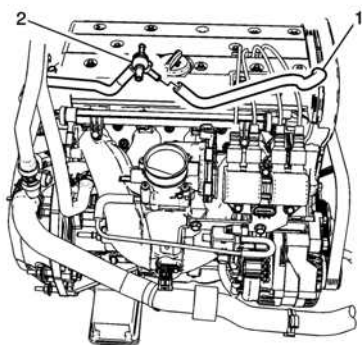


6. Remove the fastener (1) holding the vacuum source manifold fitting to the intake manifold.

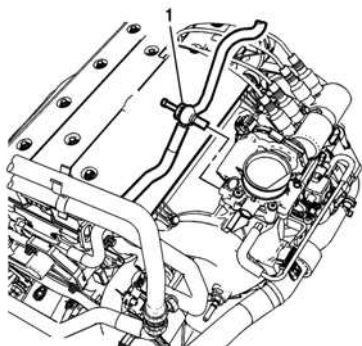


7. Remove the throttle body outlet hose (1) from the tee connector (2).
8. Remove the throttle body outlet hose from the engine compartment.

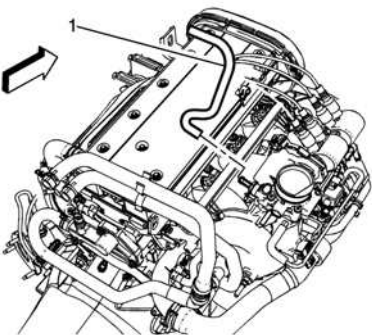
#### [Installation Procedure](#)



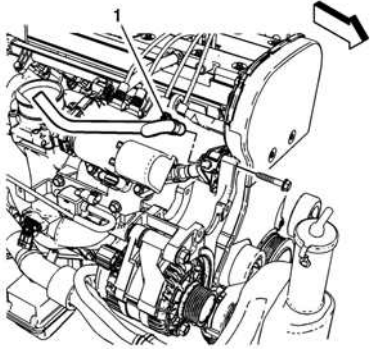
1. Install the throttle body outlet hose (1) onto the vacuum source manifold fitting (2).



2. Install the vacuum source manifold fitting (1) onto the intake manifold.



3. Install the PCV pipe (1) from the vacuum source manifold fitting into the intake manifold.



4. Install the throttle body outlet hose (1) onto the engine coolant outlet adapter.
5. Install the throttle body assembly. Refer to Throttle Body Assembly Replacement.
6. Install the air cleaner assembly. Refer to Air Cleaner Assembly Replacement.
7. Fill the cooling system. Refer to Cooling System Draining and Filling.
8. Start the engine and check for coolant leaks.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

---

**Warning:** Refer to Safety Glasses Warning.

1. Remove the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
2. Fully open the throttle valve in order to inspect the throttle body bore and the throttle valve plate for any deposits.

**Caution:** Do not subject a throttle body assembly which contains the following components to an immersion cleaner or a strong solvent:

- Throttle position (TP) sensor
- Idle air control (IAC) valve
- Sealed throttle shaft bearings

The cleaners will damage the electric components or sensors.

The cleaners will damage some of these components that contain seals or O-rings.

Solvents can wash away or break down the grease used on non-serviceable throttle shaft bearings.

Never use a wire brush or scraper to clean the throttle body. A wire brush or sharp tools may damage the throttle body components.

Do not use a cleaner that contains methyl ethyl ketone. This extremely strong solvent may damage components and is not necessary for this type of cleaning.

3. Use a clean shop towel and an approved GM engine cleaner. Clean the throttle body bore and the throttle valve plate.

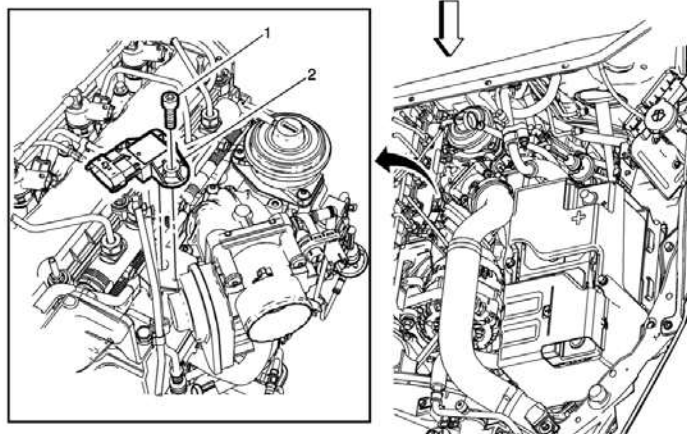
If necessary, use a parts cleaning brush in order to remove heavy deposits.

4. Install the air cleaner outlet duct. Refer to Air Cleaner Outlet Duct Replacement.
5. Perform the Throttle/Idle Learn procedure. Refer to Q38 Throttle Body: Throttle/Idle Learn.

## 2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Throttle Inlet Absolute Pressure Sensor Replacement

### Callout

### Component Name

### Preliminary Procedure

Remove the intake manifold cover. Refer to Intake Manifold Cover Replacement.

Throttle Inlet Pressure Sensor Fasteners (Qty 2)

**Caution:** Refer to Fastener Caution.

1

### Tighten

10 Y (89 lb in)

Throttle Inlet Pressure Sensor

2

### Procedure

Disconnect the electrical connector.