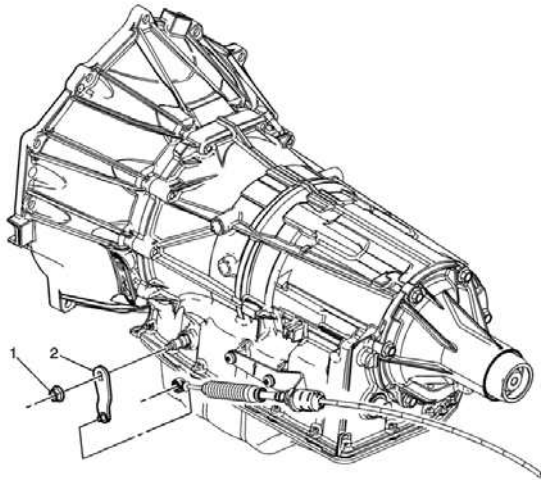


2013 Chevrolet Colorado

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



Automatic Transmission Range Selector Lever Replacement

Callout

Component Name

Preliminary Procedures

1. Apply the park brake.
2. Shift the transmission into neutral.
3. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
4. Disconnect the transmission range selector cable from the range selector cable lever ball stud.

Transmission Range Selector Cable Lever Nut

Warning: Hold the transmission range selector lever while removing or installing the lever retaining nut. Failure to hold the lever can cause damage to the transmission internal park system components which could allow the vehicle to roll when placed in the park position.

1

Caution: Refer to Fastener Caution.

Tighten

25 Y (18 lb ft)

2

Transmission Range Selector Cable Lever

2013 Chevrolet Colorado

Submodel: | **Engine Type:** | **Liters:**

Fuel Delivery: | **Fuel:**

The automatic transmission park lock control system is a safety device that prevents an inadvertent shift out of PARK. The driver must press the brake pedal before moving the park lever out of the PARK position. The system consists of the following components:

- The automatic transmission park lock solenoid (serviced as the automatic transmission shift lock actuator), is located within the floor shift control assembly.
- The body control module, which controls the voltage supply circuit of the park lock control solenoid.
- The engine control module.

The body control module controls the voltage to the park lock control solenoid through the park lock control solenoid controlled voltage circuit. The following conditions must be met before the body control module will supply voltage to the park lock solenoid:

- The ignition is in the ON position.
- The engine control module sends an input via GMLAN serial data to the body control module indicating the transmission is in the PARK position.
- The body control module determines the brake pedal is applied according the brake pedal position.

Since the park lock control solenoid is permanently grounded, the body control module supplies voltage to the automatic transmission park lock control solenoid, unlocking the park lever allowing the driver to move the park lever out of the PARK position as the solenoid energizes. When the brake pedal is not applied, the body control module turns the control voltage output of the park lock control solenoid OFF, de-energizing the park lock control solenoid. The de-energized solenoid mechanically locks the park lever in the PARK position.

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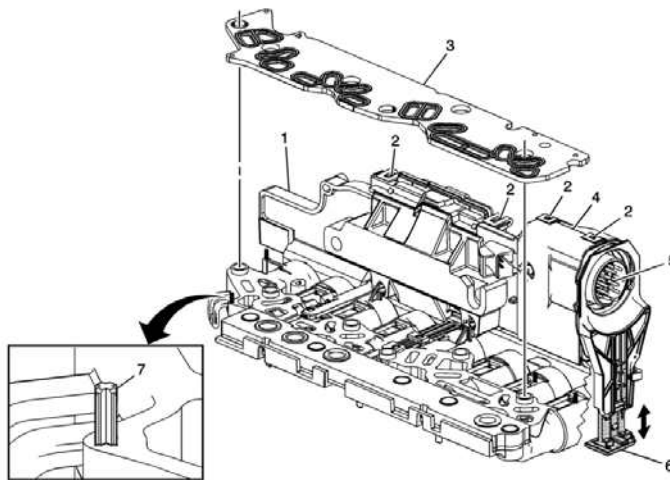
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

During transmission manufacturing and assembly, small pieces of material may become dislodged. This may also happen after the transmission has been in operation for a period of time. Because the transmission control solenoid valve assembly is continually immersed in transmission oil, material particles or slivers of metallic debris may become deposited on the control solenoid valve assembly. Often this material is very small and can be hard to see. For this reason, it is important that the control solenoid valve assembly be thoroughly inspected.

A thorough inspection of the control solenoid valve assembly should include the following:

- Clean inspection area – Like all transmission service work, cleanliness is very important. Be sure the area where you are inspecting is free of dust and dirt. Have non-glossy white or lightly colored paper down on the inspection surface. This will enhance the lighting and help to see particles that have come from the control solenoid valve assembly.
- Lighting – Good lighting is necessary for a thorough inspection. If shop lighting is limited, use natural light. A second source of lighting, such as a penlight, is helpful for close examination. A magnifying glass can also be helpful to see into difficult places.
- Cleaning – Clean shop air may be used for spot cleaning as long as the debris can be removed without it becoming lodged somewhere else. It is best to rinse or flush particles away with GM Brake Parts Cleaner. Do not use a cloth rag to wipe the control solenoid valve assembly, as it could leave lint behind.

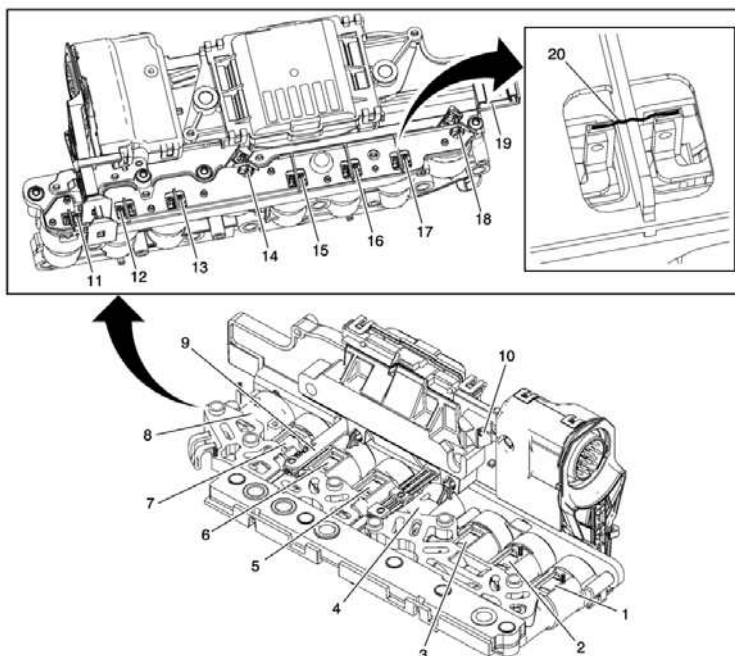
Control Solenoid Valve Assembly Housing and Filter Plate



Note: At the end of the inspection process where debris is found, it is required the transmission fluid and filter be replaced. Any time the control solenoid valve assembly has been removed, it is mandatory the filter plate assembly (3) be replaced.

1. Inspect the control solenoid valve assembly housing (1) for damage, cracks, or parting seam (4) separation. Inspect all housing lock tabs (2). Any defect will need to be evaluated for critical operation. Ensure all screws along the control solenoid valve assembly housing are present. Remove and closely examine the filter plate assembly (3) for sediment or debris attached to the screen. If sediment or debris is found on the filter screen, be sure to inspect the solenoid supply or control ports that correspond to location of the debris on the filter plate screen. Inspect the filter plate gasket for proper sealing. If poor sealing is found, be sure to inspect the affected solenoid fluid port entrance and exit for sediment or debris deposits. Thoroughly flush the solenoid cavity with GM Brake Parts Cleaner and replace the filter plate assembly (3). It is not necessary to remove all clutch plate soot from the entire surface of the control solenoid valve assembly housing. Inspect the control solenoid valve assembly filter plate retaining tabs (7). Broken or missing tabs do not require the control solenoid valve assembly be replaced. The filter plate can still be adequately aligned using the bolt hole sleeves. Early design control solenoid valve assembly use four filter plate retaining tabs (7).
2. Examine the 16-way connector (5) cavity for material that could make contact between the electrical pins. Also, look for bent or loose connector pins and ensure the connector lock (6) is functioning and is in good condition.

Control Solenoid Valve Assembly Inspection — Solenoids, Sensors, and Contacts



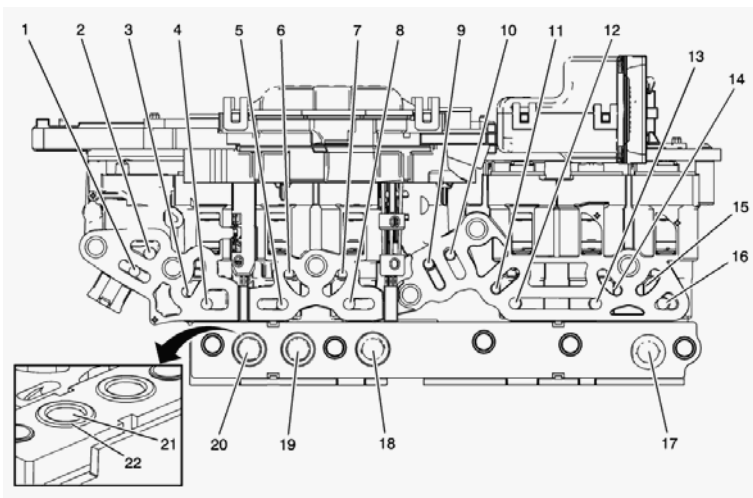
- (1) Pressure Control Solenoid 3 (PCS3)
- (2) Pressure Control Solenoid 4 (PCS4)
- (3) Pressure Control Solenoid 2 (PCS2)
- (4) Shift Solenoid 2 (SS2)
- (5) Torque Converter Clutch (TCC) Solenoid
- (6) Pressure Control Solenoid 5 (PCS5)
- (7) Pressure Control Solenoid 1 (PCS1)
- (8) Shift Solenoid 1 (SS1)
- (9) Transmission Fluid Temperature (TFT) Sensor
- (10) Input Speed Sensor/Output Speed Sensor (ISS/OSS) Connector
- (11) Pressure Control Solenoid 3 (PCS3) Contact Lead
- (12) Pressure Control Solenoid 4 (PCS4) Contact Lead
- (13) Pressure Control Solenoid 2 (PCS2) Contact Lead
- (14) Shift Solenoid 2 (SS2) Contact Lead
- (15) Torque Converter Clutch (TCC) Solenoid Contact Lead
- (16) Pressure Control Solenoid 5 (PCS5) Contact Lead
- (17) Pressure Control Solenoid 1 (PCS1) Contact Lead
- (18) Shift Solenoid 1 (SS1) Contact Lead
- (19) Internal Mode Switch (IMS) Connector
- (20) Metallic Slivers, Debris or Sediment

1. With the filter plate removed, the control solenoid valve assemblies (1–8) can be inspected. Closely examine the solenoid electrical contact lead solder connections (11–18). Look for material that could make contact between the electrical leads. This is where material particles, metallic slivers, debris or sediment (20) can collect. Carefully inspect all sixteen solenoid electrical contact leads (11–18) for build up of material that could form an electrical short. Inspect the solenoid contact leads (11–18) for terminal separation or weak solder joints. Thoroughly flush away all debris with GM Brake Parts Cleaner.
2. Inspect the transmission fluid temperature (TFT) sensor (9), the input speed sensor/output speed sensor (ISS/OSS) connector (10), and the internal mode switch (IMS) connector (19). Look inside the connector cavities for material that could make contact between the electrical pins. Also look for bent or loose electrical pins. If the TFT sensor (9) is heavily coated with clutch soot, rinse with GM Brake Parts Cleaner.
3. Check the resistance of the solenoids at room temperature and verify with the following table. If the resistance is not within the expected range, carefully inspect the solenoid contact leads.

Solenoid Resistance

Solenoid Name	Illustration Number of Solenoid Lead	Expected Resistance (Ohms)
Pressure Control Solenoid 3 (PCS3)	11	4.5–5.5 Ω
Pressure Control Solenoid 4 (PCS4)	12	4.5–5.5 Ω
Pressure Control Solenoid 2 (PCS2)	13	4.5–5.5 Ω
Shift Solenoid 2 (SS2)	14	23.5–24.5 Ω
Torque Converter Clutch (TCC) Solenoid	15	4.5–5.5 Ω
Pressure Control Solenoid 5 (PCS5)	16	4.5–5.5 Ω
Pressure Control Solenoid 1 (PCS1)	17	4.5–5.5 Ω
Shift Solenoid 1 (SS1)	18	23.5–24.5 Ω

Control Solenoid Valve Assembly Supply and Control Fluid Inspection



- (1) Shift Solenoid 1 Supply Port
- (2) Shift Solenoid 1 Control Port
- (3) Line Pressure Control Solenoid 1 Control Port
- (4) Line Pressure Control Solenoid 1 Supply Port
- (5) Pressure Control Solenoid 5 Supply Port
- (6) Pressure Control Solenoid 5 Control Port
- (7) TCC Pressure Control Solenoid Control Port
- (8) TCC Pressure Control Solenoid Supply Port
- (9) Shift Solenoid 2 Supply Port
- (10) Shift Solenoid 2 Control Port
- (11) Pressure Control Solenoid 2 Control Port
- (12) Pressure Control Solenoid 2 Supply Port
- (13) Pressure Control Solenoid 4 Supply Port
- (14) Pressure Control Solenoid 4 Control Port
- (15) Pressure Control Solenoid 3 Control Port
- (16) Pressure Control Solenoid 3 Supply Port
- (17) Transmission Fluid Pressure (TFP) Switch 5
- (18) Transmission Fluid Pressure (TFP) Switch 3
- (19) Transmission Fluid Pressure (TFP) Switch 1
- (20) Transmission Fluid Pressure (TFP) Switch 4
- (21) TFP Switch Membrane
- (22) TFP Switch Gasket

1. With the filter plate removed, the control solenoid valve fluid supply and control ports (1–16) can be inspected. Solenoid openings are identified in the illustration. Inspect the following supply and control opening for material particles, metallic slivers, debris, or sediment. Look into solenoid fluid supply openings 1, 4, 5, 8, 9, 12, 13, and 16. Look inside the solenoid fluid control ports 2, 3, 6, 7, 10, 11, 14 and 15. If sediment or debris is found in any one of these port openings, look for holes or tears in the filter plate screen. The filter plate gasket may be leaking caused by a torn gasket, poor sealing, or a deformed plate. As necessary, thoroughly flush away all debris in the supply and control fluid ports with GM Brake Parts Cleaner.
2. Inspect the four transmission fluid pressure (TFP) switches (17–20) for trapped debris or sediment. Any sediment or debris found under a switch membrane requires the control solenoid valve assembly to be replaced. Check all TFP switch membranes (21) for cracks, cuts or pin holes. Ensure all TFP switch gaskets (22) are secure and are not deformed, torn, or improperly seated. As necessary, thoroughly rinse debris and sediment from the top of the switches. It is not necessary to remove the clutch plate soot from the entire surface of the control solenoid valve assembly housing.

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The following service procedures require either a programming or a setup event be performed for a complete repair. The transmission control module (TCM) is part of the control solenoid (w/body and TCM) valve assembly, and is not serviced separately.

[Transmission Control Module \(TCM\) Replacement](#)

If the TCM is replaced, the following procedures must be performed:

1. TCM Reprogramming
2. The Reset Transmission Adapts — Refer to Reset Transmission Adapts

[TCM Reprogramming](#)

1. If the TCM needs to be reprogrammed, refer to Service Programming System (SPS).
2. Perform the Reset Transmission Adapts — Refer to Reset Transmission Adapts.

Note: After programming, perform the following to avoid future misdiagnosis:

1. Turn the ignition OFF for 30 seconds.
2. Turn the ignition ON with the engine OFF.
3. Use the scan tool in order to retrieve history DTCs from all modules.
4. Clear all history DTCs.

[Setup for Component Replacement](#)

The replacement of some components will require a setup procedure for complete repair.

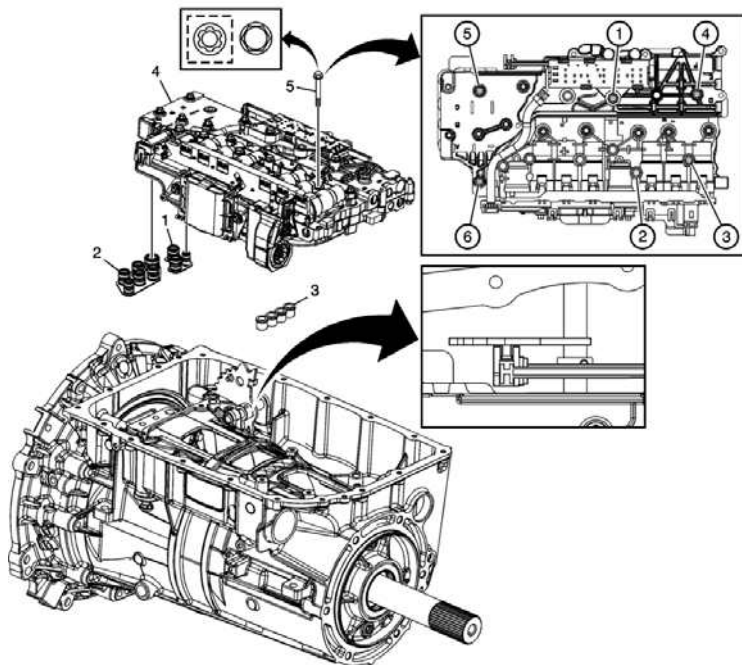
If any of the following components are replaced, the Reset Transmission Adapts procedure must be performed:

- Transmission replacement
- Any internal transmission repair
- Any speed sensor

Refer to Reset Transmission Adapts.

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Control Solenoid Valve and Transmission Control Module Assembly Replacement

Callout

Component Name

Preliminary Procedure

Remove the control valve body assembly. Refer to Control Valve Lower Body and Upper Body Replacement.

- 1 NEW Fluid Pump Seal Assembly
- 2 NEW Fluid Pump Seal Assembly
- 3 NEW Center Support Fluid Passage Seal Assembly

Control Valve Body Assembly

Caution: The control valve body assembly needs to be lowered into place vertically, with no lateral movement. Lateral movement can damage the pass through connector pins and/or the oil transfer seals.

- 4 **Note:**

- Note the lengths of the bolts when removed for correct positioning during installation.
- Align the manual shift shaft position switch activator slide with the detent lever guide pin.

Bolt M5 x 73 (Qty: 6)

Caution: Refer to Fastener Caution.

Procedure

1. Tighten in the sequence shown.
2. If a NEW TCM has been installed into the vehicle, the NEW module needs to be reprogrammed. Refer to Control Solenoid Valve and Transmission Control Module Assembly Programming and Setup.
3. Perform the Reset Transmission Adapts. Refer to Reset Transmission Adapts.

Note: The Service Fast Learn Adapts procedure must be performed when one of the following repairs have been made to the vehicle. Failure to perform the procedure after one of the following repairs may result in poor transmission performance, as well as transmission DTCs being set:

- Transmission internal service/overhaul
- Valve body repair or replacement
- Control solenoid valve assembly replacement

Control Solenoid Valve and Transmission Control Module Assembly Replacement

Callout

- TCM software/calibration update
- Any service in response to a shift quality concern

Tighten

8 Y (71 lb in)

Special Tools

DT-48285 Valve Body TORX Plus Socket (if applicable)

For equivalent regional tools, refer to Special Tools.

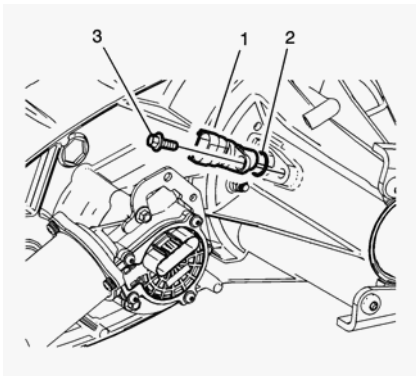
Component Name

2013 Chevrolet Colorado

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

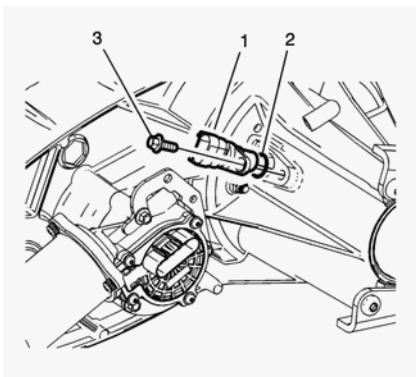
[Removal Procedure](#)

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the electrical connector from the speed sensor.



3. Remove the speed sensor (1) and the O-ring (2) from the transfer case.

[Installation Procedure](#)



Caution: Refer to Fastener Caution.

1. Install the new speed sensor (1) into the transfer case with a new O-ring seal (2). Tighten the speed sensor to **12 Y (106 lb in)**.
2. Install the electrical connector to the speed sensor.
3. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

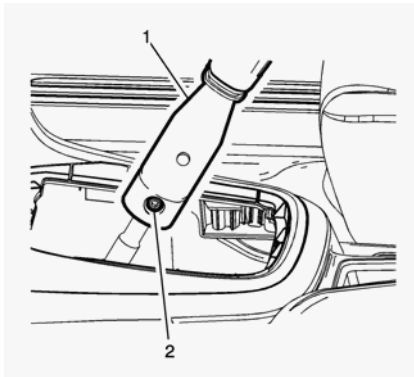
2013 Chevrolet Colorado

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

[Removal Procedure](#)



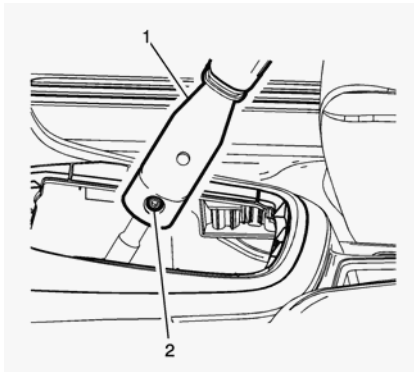
1. Using a flat bladed trim tool, carefully release the four retaining tabs on each side of the boot (1) in order to disengage the boot retainers (2) from the floor console (3).
2. Pull the boot upward to access the control lever set screw.



3. Remove the set screw (2) from the shift lever (1).
4. Remove the shift lever assembly from the transmission control lever.
5. Remove the shift lever boot from the control lever.

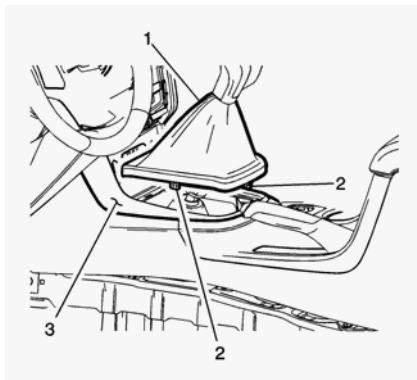
[Installation Procedure](#)

1. Install the shift lever boot to the control lever.



2. Install the control lever and boot assembly to the transmission control lever, aligning the set screw (2) threaded hole with the flat on the transmission control lever.
 3. Apply threadlock to the shift lever set screw threads. Refer to Adhesives, Fluids, Lubricants, and Sealers.
- Caution:** Refer to Fastener Caution.
4. Install the shift lever set screw and tighten to **25 Y (18 lb ft)**.

Transmission Control Lever Boot Replacement (With Console)

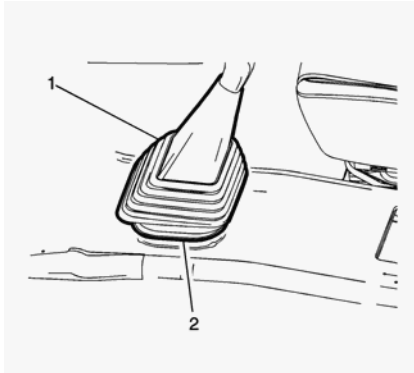


5. Position the boot tabs (2) flat on the console opening.
6. Push downward on all four sides of the boot (1) in order to engage the boot retainers (2) with the floor console (3).

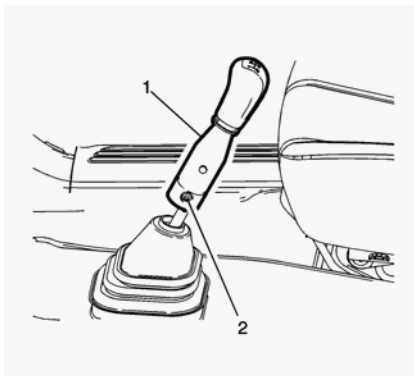
2013 Chevrolet Colorado

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

[Removal Procedure](#)



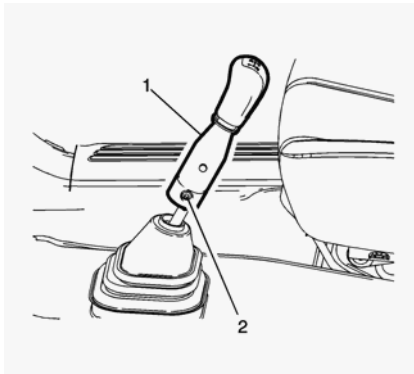
1. Carefully pull the shift boot (1) sideways, then upward to release the boot from the floor panel retaining flange (2).
2. Pull the boot upward to access the control lever set screw.



3. Remove the set screw (2) from the shift lever (1).
4. Remove the shift lever assembly from the transmission control lever.
5. If necessary, remove the shift lever boot from the control lever.

[Installation Procedure](#)

1. If removed, install the shift lever boot to the control lever.

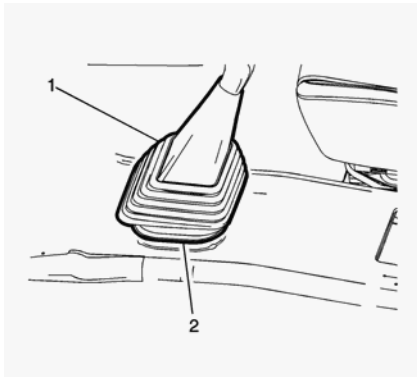


2. Install the control lever and boot assembly to the transmission control lever, aligning the set screw (2) threaded hole with the flat on the transmission control lever.
3. Apply threadlock to the shift lever set screw threads. Refer to Adhesives, Fluids, Lubricants, and Sealers.

Caution: Refer to Fastener Caution.

4. Install the shift lever set screw and tighten to **25 Y (18 lb ft)**.

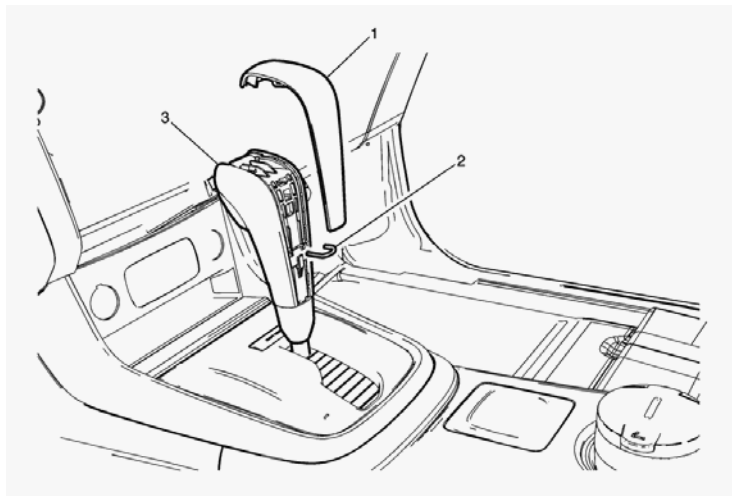
Transmission Control Lever Boot Replacement (Without Console)



5. Carefully pull the shift boot (1) sideways, then downward to secure the boot to the floor panel retaining flange (2).

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Fuel Delivery: | Fuel:



Transmission Control Lever Knob Replacement

Callout

Component Name

Note: Replace the transmission control lever knob with a NEW transmission control lever knob.

- | | |
|---|---|
| | Transmission Control Lever Knob Cover |
| 1 | Procedure
Use a flat-bladed plastic trim tool in order to release the cover from the shift knob base. |
| | Transmission Control Lever Knob Retaining Clip |
| 2 | Procedure
Use a flat-bladed plastic trim tool in order to remove the clip from the shift knob. |
| 3 | Transmission Control Lever Knob |

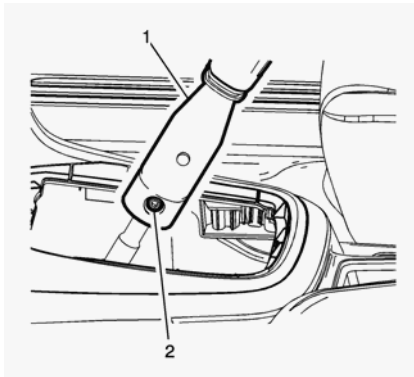
2013 Chevrolet Colorado

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

[Removal Procedure](#)



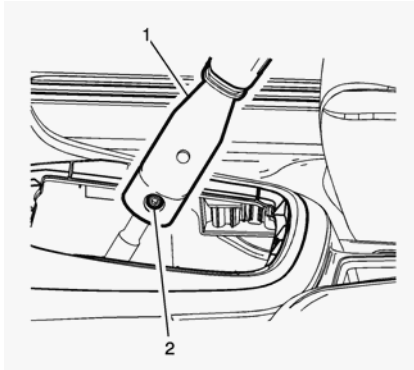
1. Using a flat bladed trim tool, carefully release the four retaining tabs on each side of the boot (1) in order to disengage the boot retainers (2) from the floor console (3).
2. Pull the boot upward to access the control lever set screw.



3. Remove the set screw (2) from the shift lever (1).
4. Remove the shift lever assembly from the transmission control lever.
5. If necessary, remove the shift lever boot from the control lever.

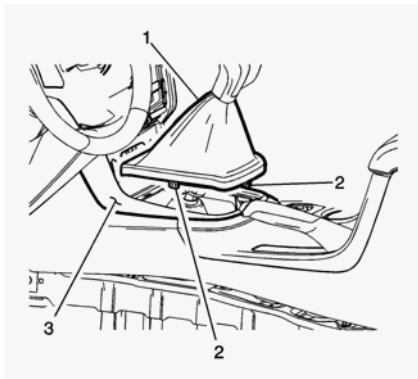
[Installation Procedure](#)

1. If removed, install the shift lever boot to the control lever.



2. Install the control lever and boot assembly to the transmission control lever, aligning the set screw (2) threaded hole with the flat on the transmission control lever.
 3. Apply threadlock to the shift lever set screw threads. Refer to Adhesives, Fluids, Lubricants, and Sealers.
- Caution:** Refer to Fastener Caution.
4. Install the shift lever set screw and tighten to **25 Y (18 lb ft)**.

Transmission Control Lever Replacement (With Console)

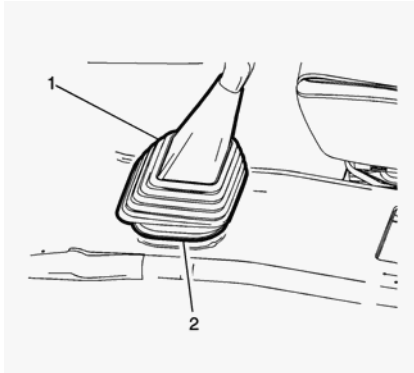


5. Position the boot tabs (2) flat on the console opening.
6. Push downward on all four sides of the boot (1) in order to engage the boot retainers (2) with the floor console (3).

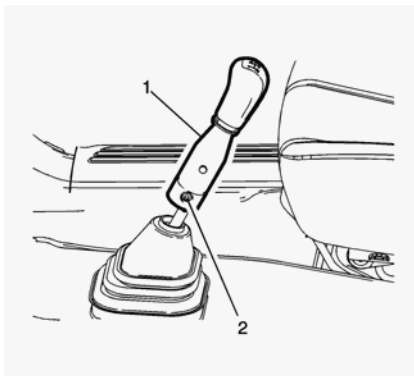
2013 Chevrolet Colorado

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

[Removal Procedure](#)



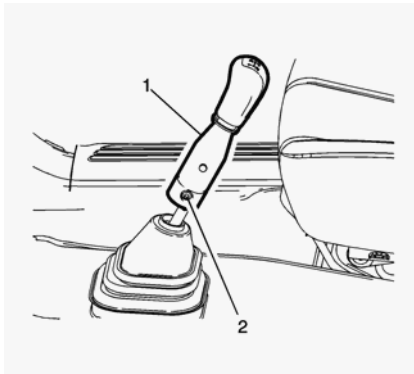
1. Carefully pull the shift boot (1) sideways, then upward to release the boot from the floor panel retaining flange (2).
2. Pull the boot upward to access the control lever set screw.



3. Remove the set screw (2) from the shift lever (1).
4. Remove the shift lever assembly from the transmission control lever.
5. If necessary, remove the shift lever boot from the control lever.

[Installation Procedure](#)

1. If removed, install the shift lever boot to the control lever.



2. Install the control lever and boot assembly to the transmission control lever, aligning the set screw (2) threaded hole with the flat on the transmission control lever.
3. Apply threadlock to the shift lever set screw threads. Refer to Adhesives, Fluids, Lubricants, and Sealers.

Caution: Refer to Fastener Caution.

4. Install the shift lever set screw and tighten to **25 Y (18 lb ft)**.

Transmission Control Lever Replacement (Without Console)



5. Carefully pull the shift boot (1) sideways, then downward to secure the boot to the floor panel retaining flange (2).

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

Table 1: [Scan Tool Data Parameters](#)

Table 2: [Scan Tool Output Controls](#)

The Transmission Control Module Scan Tool Data List contains all transmission related parameters that are available on the scan tool. The list is arranged in alphabetical order. A given parameter may appear in any one of the data lists, and in some cases may appear more than once, or in more than one data list in order to group certain related parameters together.

The values below represent a typical display recorded from a properly functioning system.

Only the parameters listed below are used/referenced in this manual for diagnosis. If a scan tool displays other parameters, those values are not recommended by General Motors for use in diagnosis.

If all values are within the expected value described below, refer to Symptoms - Automatic Transmission for diagnosis.

The scan tool values from a properly functioning transmission may be used for comparison with the transmission you are diagnosing. The values below represent a typical display recorded from a properly functioning system.

Scan Tool Data Parameters

Parameter	System State	Expected Value	Description
<i>Operating Conditions:</i> Engine at idle with the upper radiator hose hot and in closed loop operation, closed throttle, transmission in Park, accessories OFF, brake pedal not applied.			
1-2 Shift Time	Varies	Seconds	This parameter displays the actual time of the last adaptable 1-2 shift. The shift time is based on the gear ratio change after the commanded 1-2 shift.
2-3 Shift Time	Varies	Seconds	This parameter displays the actual time of the last adaptable 2-3 shift. The shift time is based on the gear ratio change after the commanded 2-3 shift.
3-4 Shift Time	Varies	Seconds	This parameter displays the actual time of the last adaptable 3-4 shift. The shift time is based on the gear ratio change after the commanded 3-4 shift.
4-5 Shift Time	Varies	Seconds	This parameter displays the actual time of the last adaptable 4-5 shift. The actual shift time is obtained by measuring the time required for the input shaft to decelerate from the previous ratio to the current ratio.
5-6 Shift Time	Varies	Seconds	This parameter displays the actual time of the last 5-6 shift. The shift time is based on the gear ratio change after the commanded 5-6 shift.
Brake Switch	Released	Applied/Released	This parameter displays the status of the brake switch circuit input. Applied indicates a zero voltage input, brake pedal applied. Released indicates a voltage input, brake pedal released. The scan tool displays Applied or Released.
Calc. Throttle Position	Varies	%	This parameter displays a calculated value, which is determined by the accelerator pedal position and the actual throttle position, used to optimize transmission controls. It represents the driver's intended request for torque or acceleration. The range is 0-100 percent, where 0 percent represents an idle or coast request and 100 percent represents a request for wide open throttle (WOT).
Commanded Gear	1	1, 2, 3, 4 or 1, 2, 3, 4, 5 or Park/Neutral, Reverse, 1, 2, 3, 4, 5	This parameter displays the current commanded state of the shift solenoid valves. The scan tool displays 1, 2, 3, 4 or 5
Driver Shift Control	Inactive	Active/Inactive	This parameter displays Active or Inactive. The scan tool displays Active when the gear selector is in the sport (S) position, which enables TAP shift. The scan tool displays Inactive when the gear selector is not in the S position, TAP shift disabled.
Driver Shift Request	None	Upshift/ Downshift/ None/ Invalid	This parameter displays the current request from the TAP Shift System. This parameter will display up shift, downshift or invalid depending on the amount of voltage measured at the remote shift

Parameter	System State	Expected Value	Description
			selector input and also will display none when there is no request.
ECT	Varies	°C (°F)	This parameter displays the input signal from the engine coolant temperature (ECT) sensor. ECT is high at 151°C (304°F) when the signal voltage is low (0 V). ECT is low at -40°C (-40°F) when the signal voltage is high (5 V).
Engine Speed	Varies	RPM	This parameter displays the rotational speed of the engine expressed as revolutions per minute.
Engine Torque	Varies	Y (lb ft)	This parameter displays a calculated value based on engine load, throttle position, mass air flow, and other engine inputs. This parameter is accurate to within 20 Y 15 lb ft of actual measured engine torque.
Gear Ratio	Varies	Ratio	This parameter displays the actual transmission gear ratio. The scan tool displays the gear ratio calculated from the automatic transmission input shaft speed sensor (AT ISS) and the automatic transmission output shaft speed sensor (AT OSS) inputs.
High Side Driver 1	Enabled	Enabled/Disabled	This parameter displays the High Side Driver 1 status on the scan tool. When the High Side Driver 1 is commanded OFF this displays Disabled, when the High Side Driver 1 is commanded ON this displays Enabled.
High Side Driver 1 CKT Status	OK or Indeterminate	OK, Open/Short to Volts, Short to GND, Indeterminate	This parameter displays the High Side Driver 1 circuit status on the scan tool. If the voltage is low when the solenoid is commanded OFF, the scan tool will display Open/Short to GND. If the voltage is high when the solenoid is commanded ON, the scan tool will display Short to Volts. If no circuit fault is present the scan tool will display OK.
Ignition Voltage	12 to 14 volts	Volts	This parameter displays the system voltage measured at the ignition feed.
IMS	Park	Park-Drive 1, Open, Invalid	This parameter displays PARK, PARK/REVERSE, REVERSE, REVERSE/NEUTRAL, NEUTRAL, NEUTRAL/DRIVE 4, DRIVE 4, DRIVE 4/DRIVE 3, DRIVE 3, DRIVE 3/DRIVE 2, DRIVE 2, DRIVE 2/DRIVE 1, DRIVE 1 or INVALID. The IMS Range display represents a decoded status of the four inputs from the IMS. The combination of IMS inputs are used to determine what position the manual valve is in at any time.
IMS A/B/C/P	LOW/HI/LOW	HI or LOW	This parameter displays the status of the four A/B/C/P inputs from the automatic transmission internal mode switch. HI indicates an ignition voltage signal and LOW indicates a 0 voltage signal. The scan tool will display HI/LOW, HI/LOW, HI/LOW, HI/LOW.
ISS/OSS Supply Voltage	OK	OK, Out of Range	This parameter displays OK, Out of Range.
Last Shift Time	Varies	Seconds	This parameter displays the actual time of the last up shift. This value is only accurate if the shift was adaptable.
PC Sol. 2 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts.
PC Sol. 2 Pressure Comm	No	Yes/No	This parameter displays Yes or No. Yes, solenoid pressure is commanded. No, solenoid pressure is not commanded.
PC Sol. 3 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts.
PC Sol. 3 Pressure Comm	Yes	Yes/No	This parameter displays Yes or No. Yes, solenoid pressure is commanded. No, solenoid pressure is not commanded.
PC Sol. 4 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts.

Parameter	System State	Expected Value	Description
PC Sol. 4 Pressure Comm	No	Yes/No	This parameter displays Yes or No. Yes, solenoid pressure is commanded. No, solenoid pressure is not commanded.
PC Sol. 5 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts.
PC Sol. 5 Pressure Comm	No	Yes/No	This parameter displays Yes or No. Yes, solenoid pressure is commanded. No, solenoid pressure is not commanded.
Shift Sol. 1 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts, or Indeterminate.
Shift Solenoid 1	ON	On/Off	This parameter displays the commanded state of the reverse, 1st shift solenoid valve (S1). The scan tool displays On/Off.
Shift Sol. 2 CKT Status	OK or Indeterminate	OK, Open/Short to GND, Short to Volts, Indeterminate	This parameter displays OK, Open/Short to GND, Short to Volts, or Indeterminate.
Shift Solenoid 2	ON	On/Off	This parameter displays the commanded state of the 2–3, 3–4 shift solenoid valve (S2). The scan tool displays On/Off.
TCC PC Sol. Pressure Comm	No	Yes/No	This parameter displays Yes or No. Yes, solenoid pressure is commanded. No, solenoid pressure is not commanded.
TCC Slip Speed	Varies	RPM	This parameter displays the difference between transmission input speed and engine speed. A negative value indicates that the engine speed is less than the input speed, deceleration. A positive value indicates that the engine speed is greater than the input speed, acceleration. A value of zero indicates that the engine speed is equal to the input speed, TCC applied.
TCM Temperature	Varies	°C (°F)	This parameter displays results in °C (°F).
TFP Switch 1	HI	HI/LOW	This parameter displays the state of the first clutch oil pressure switch. The scan tool displays HI/LOW.
TFP Switch 3	LOW	HI/LOW	This parameter displays state of the 3rd clutch oil pressure switch. The scan tool displays HI/LOW.
TFP Switch 4	LOW	HI/LOW	This parameter displays state of the 4th clutch oil pressure switch. The scan tool displays HI/LOW.
TFP Switch 5	LOW	HI/LOW	This parameter displays state of the fifth clutch oil pressure switch. The scan tool displays HI/LOW.
Tow/Haul Mode (If equipped)	Inactive	Active/Inactive	This parameter displays ACTIVE when the transmission is operating in the tow/haul mode. In this mode the transmission control module (TCM) extends the length of time between upshifts and elevates transmission line pressure. Shift quality and TCC scheduling are also affected during tow/haul mode operation. The scan tool displays ACTIVE or INACTIVE.
Trans. Fluid Temp.	Varies	°C (°F)	This parameter displays the input signal of the transmission fluid temperature sensor. Transmission fluid temperature is high 151°C (304°F) when signal voltage is low, 0 V, and transmission fluid temperature is low –40°C (–40°F) when signal voltage is high, 5 V.
Transmission ISS	Varies	RPM	This parameter displays the rotational speed of the transmission input shaft. The scan tool displays input shaft speed is revolutions per minute.
Transmission OSS	0	RPM	This parameter displays the rotational speed of the transmission output shaft expressed as revolutions per minute.

Scan Tool Output Controls

Output Control	Description
High Side Driver 1	- The TCM commands the driver for the solenoid voltage supply ON and OFF. - When the ignition is ON, and the engine is OFF, there are no limits to this control. - High side drivers may not be commanded ON and OFF with the scan tool if the engine is running.
Line PC Solenoid	- The scan tool is used to request pressure in increments of 200 kPa (30 psi) from 200–2000 kPa (30–290 psi). The TCM will then command the line PC solenoid to achieve the requested increment. - When the ignition is ON, and the engine is OFF, the pressure request may be controlled within calibrated limits. There is a limit to the output control of 200 kPa (290 psi) when the engine is OFF. If the request is above specified amount, the message "Request override current out of range" will display. - When the engine is running, the following control limits apply: - When the transmission range is Park or Neutral, the pressure request may be controlled within calibrated limits. The engine speed must be less than 1,500 RPM. If the engine speed is greater than 1,500 RPM, the message "TR in park/neutral and engine speed over 1,500 RPM" appears on the scan tool display. - When the transmission range is not Park or Neutral, the requested pressure can only be controlled equal to or greater than the pressure determined by the TCM. The TCM does not allow a pressure to be selected that may cause damage to the transmission. If the requested pressure is less than allowed by the TCM, the message "Requested pressure for the Line PC Solenoid is too low" appears on the scan tool display. - Transmission range DTCs must not be active. If a transmission range DTC is active, the message "Engine running with transmission DTC present" appears on the scan tool display.
PC Solenoid 2 Command	- The TCM commands the pressure control solenoid in order to apply or release the clutches. - When the ignition is ON, and the engine is OFF, there are no limits to this control. The solenoid remains ON until commanded OFF, and vice versa. When the output control is exited, the solenoid state is determined by the TCM.
PC Solenoid 3 Command	- When the engine is running, the following control limits apply: - The transmission range must be in Park or Neutral. If the transmission range is not Park or Neutral, the message "Engine running and transmission range is not Park/Neutral" appears on the scan tool display. - The solenoid remains ON until commanded OFF, and vice versa. When the output control is exited, the solenoid state is determined by the TCM.
PC Solenoid 4 Command	Transmission range DTCs must not be active. If a transmission range DTC is active, the message "Engine running with transmission DTC present" appears on the scan tool display.
PC Solenoid 5 Command	Transmission range DTCs must not be active. If a transmission range DTC is active, the message "Engine running with transmission DTC present" appears on the scan tool display.
Service Clean Procedure	- The scan tool is used to start and stop the transmission cleaning procedure algorithm. - The following control limits apply: - The engine must be running. The message "Engine not Running" will appear on the scan tool if this control is attempted without the engine running. - There cannot be active transmission DTCs. The message "Transmission Fault present" will appear on the scan tool if this control is attempted with transmission DTCs active. - The transmission range must be Park or Neutral. The message "Transmission not in PARK or NEUTRAL" will appear on the scan tool if this control is attempted with the transmission in any range other than Park or Neutral. - The vehicle speed cannot exceed 8 km/h (5 mph). The message "Vehicle Speed too high" will appear on the scan tool if this control is attempted with a vehicle speed greater than 8 km/h (5 mph). - The engine speed cannot exceed 2500 RPM. The message "Engine Speed too high" will appear on the scan tool if this control is attempted with an engine speed greater than 2500 RPM. - The transmission oil temperature must be at a normal operating temperature. The message "Transmission oil temperature out of range" will appear on the scan tool if this control is attempted without a transmission oil temperature between 70–110°C (158–230°F).
Reset Transmission Adapts	- The scan tool is used to start and stop the transmission Fast Learn Adapt algorithm. - The following control limits apply: - The engine must be running. The message "Engine not Running" will appear on the scan tool if this control is attempted without the engine running. - There cannot be active transmission DTCs. The message "Transmission Fault present" will appear on the scan tool if this control is attempted with transmission DTCs active.
Shift Solenoid 1	- The TCM commands Shift Solenoid 1 and Shift Solenoid 2 ON and OFF. - When the ignition is ON, and the engine is OFF, there are no limits to this control. The solenoid remains ON until commanded OFF, and vice versa. When the output control is exited, the solenoid

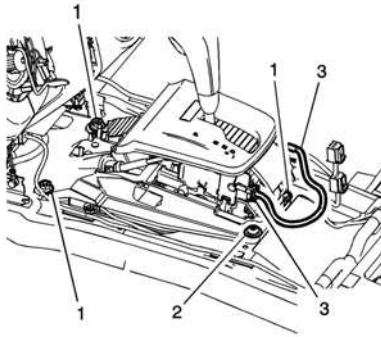
Output Control	Description
Shift Solenoid 2	state is determined by the TCM. • When the engine is running, the following control limits apply: ◦ The transmission range must be in Park or Neutral. If the transmission range is not Park or Neutral, the message "Engine running and transmission range is not Park/Neutral" appears on the scan tool display. ◦ The solenoid remains ON until commanded OFF, and vice versa. When the output control is exited, the solenoid state is determined by the TCM. ◦ Transmission range DTCs must not be active. If a transmission range DTC is active, the message "Engine running with transmission DTC present" appears on the scan tool display.
TCC PC Solenoid Command	• The transmission control module (TCM) commands the torque converter clutch pressure control (TCC PC) solenoid pressure in order to apply and release the TCC. • When the ignition is ON, and the engine is OFF, there are no limits to this control. The solenoid remains ON until commanded OFF and vice versa. • When the engine is running, the following control limits apply: ◦ If the transmission range is Park, and the transmission is in hot mode, the TCC PC solenoid may not be commanded OFF. If the solenoid is requested OFF, the message "TCC OFF command disabled in Hot Mode" appears on the scan tool display. ◦ The TCC PC solenoid may not be commanded OFF for more than a calibrated amount of time. If the solenoid is commanded OFF, for a certain amount of time, the message "TCC OFF time has been exceeded" appears on the scan tool display.

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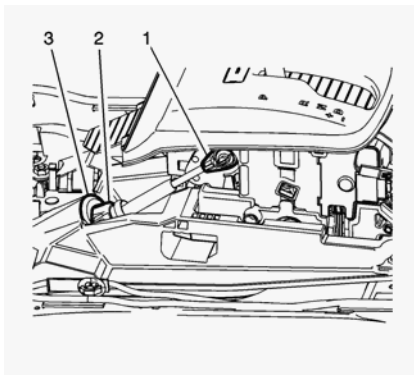
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)

1. Remove the front floor console. Refer to Front Floor Console Replacement.

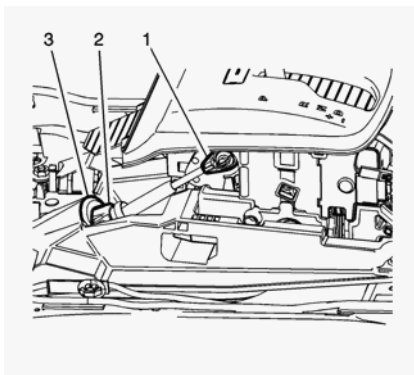


2. Disconnect 2 electrical connectors (3) from the transmission control assembly.
3. Remove the 2 transmission control nuts (1).
4. Remove the 2 transmission control bolts (2).



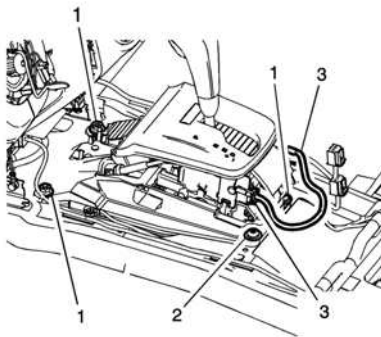
5. Using a flat bladed tool, disconnect the cable terminal (1) from the transmission control shift pin.
6. Compress the two retaining tabs (2) and remove the automatic transmission range selector cable from the transmission control.
7. Disengage the automatic transmission range selector cable grommet (3) to the transmission control assembly.
8. Remove the transmission control from the vehicle.

[Installation Procedure](#)



1. Install the automatic transmission range selector cable grommet (3) to the transmission control assembly.
2. Securely seat the cable retainer (2) in the transmission control assembly.
3. Connect the cable terminal (1) to the transmission control shift pin.

Transmission Control Replacement



4. Connect 2 electrical connectors (3) to the transmission control assembly.

Caution: Refer to Fastener Caution.

5. Install the 2 transmission control nuts (1).
6. Install the 2 transmission control bolts (1).
7. Install the front floor console. Refer to Front Floor Console Replacement.
8. Adjust the automatic transmission range selector cable. Refer to Range Selector Lever Cable Adjustment.

2013 Chevrolet Colorado

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

Caution:

- Transmission damage may occur when control valve assembly springs and other parts are mistakenly interchanged. Interchanging parts can be avoided by observing the following precautions:
 - Tag each part immediately when removed.
 - Use J 33163 Valve Tray Set to organize parts and to simplify correct valve body reassembly.
- Protect control valve assembly parts from damage by observing the following precautions:
 - Handle all valves carefully.
 - Protect control valve assembly parts during removal, cleaning, inspection, and assembly.
 - Keep the parts in a clean container until the parts are installed.
- When a valve is installed dry, the weight of the valve is sufficient to move the valve through the valve bore. If a valve does not move freely, the transmission may be damaged .