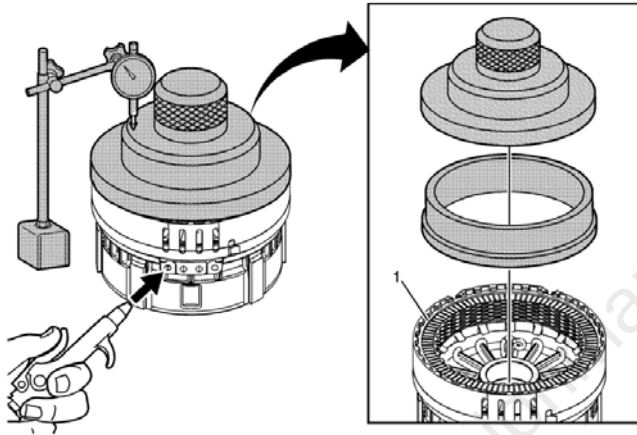


2013 Chevrolet Colorado

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



2-6 Clutch Backing Plate Retaining Ring Measurement

Callout

Component Name

Preliminary Procedures

1. Install *DT 47868-1* clutch pack travel weight and *DT-47868-4* travel weight adapter onto the 2-6 clutch backing plate.
2. Attach the *J 8001* dial indicator set to the *J 26900-13* magnetic base and zero out the dial indicator on the *DT 47868-1* clutch pack travel weight.

Special Tools

- *DT 47868-1* Clutch Pack Travel Weight
- *DT-47868-4* Clutch Travel Weight Adapter
- *GE 8001* Dial Indicator Set
- *GE 26900-13* Magnetic Base

For equivalent regional tools, refer to Special Tools.

2-6 Clutch Apply Passage

1

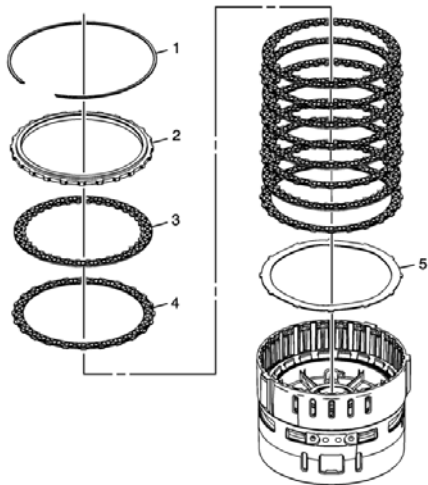
Note: Apply compressed air to the apply passage hole, at least 3 times and observe the dial indicator measurement each time. This action "fluffs" the clutch plates to ensure an accurate measurement. Refer to Clutch Backing Plate Retaining Ring Specifications.

2013 Chevrolet Colorado

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

- Table 1: [2-6 Clutch Plates Removal](#)
Table 2: [2-6 Clutch Piston Replacement](#)
Table 3: [2-6 Clutch Plates Installation](#)

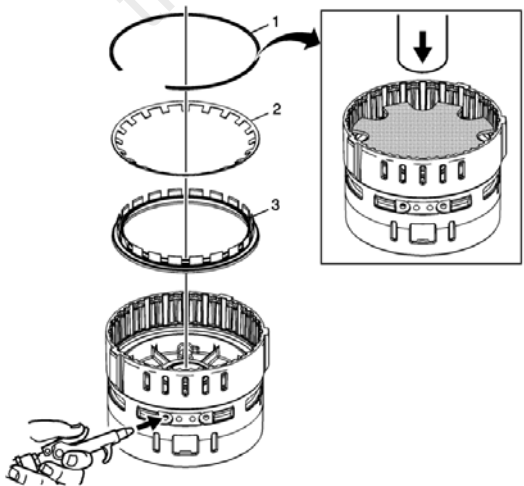
2-6 Clutch Plates Removal



2-6 Clutch Plates Removal

Callout	Component Name
1	2-6 Clutch Backing Plate Retaining Ring
2	2-6 Clutch Backing Plate
3	2-6 Clutch Plate Assembly (Qty: 5)
4	2-6 Clutch Plate (Qty: 5)
5	2-6 Clutch (Waved) Plate

2-6 Clutch Piston Replacement

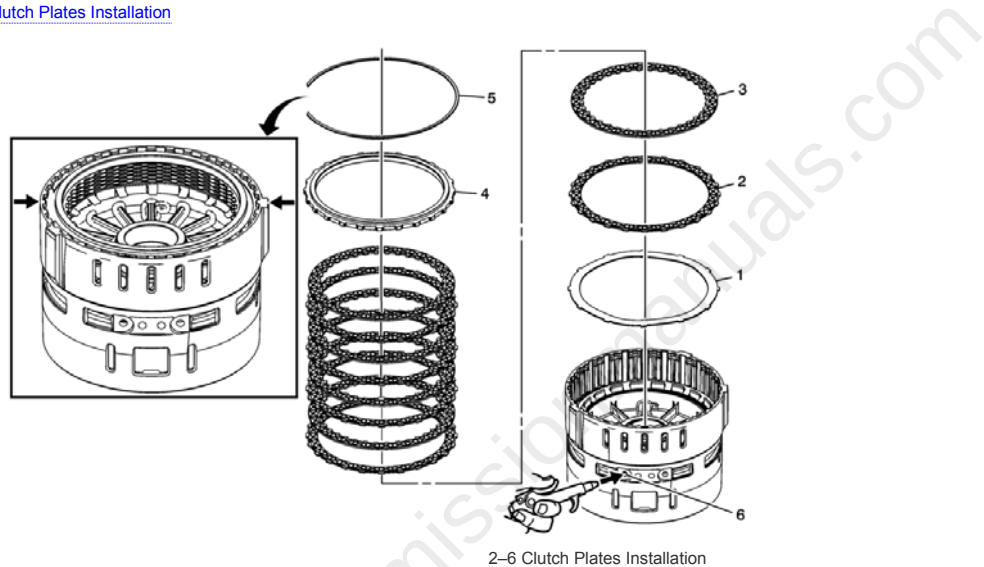


2-6 Clutch Piston Replacement

Callout	Component Name
---------	----------------

Callout	Component Name
	2-6 Clutch Spring Retaining Ring
	Note: Ensure the DT-48065 spring compressor is centered over the clutch spring.
1	Special Tool DT-48065 Clutch Spring Compressor For equivalent regional tools, refer to Special Tools.
	2-6 Clutch Spring
2	Caution: Ensure the spring tabs are facing down during installation and that the tabs fit between the teeth on the piston. Failure to do so may cause damage to the clutch assembly.
	2-6 Clutch Piston Assembly
3	Note: It may be necessary to apply air to the apply passage in order to unseat the piston.

2-6 Clutch Plates Installation

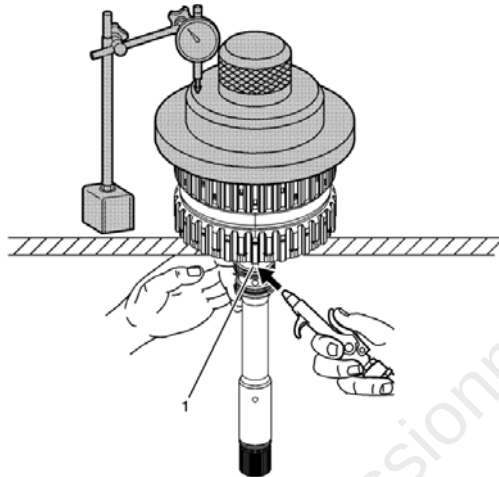


Callout	Component Name
1	2-6 Clutch (Waved) Plate
	2-6 Clutch Plates (Qty: 5)
2	Note: Alternate between steel and fiber clutch plates.
	2-6 Clutch Plate Assembly (Qty: 5)
3	Note: Alternate between steel and fiber clutch plates.
	2-6 Clutch Backing Plate
	2-6 Clutch Backing Plate Retaining Ring
	Caution: When installed, the open end of the snap ring must orient away from the slotted and scalloped areas of the center support assembly. Ideal orientation location should be at the 3 o'clock or 9 o'clock position of the center support, when facing the pan side of the case. Orienting the snap ring opening with either the scalloped or slotted areas of the center support may cause transmission damage.
5	Procedure Be sure to install the retaining ring gap at the 9 o'clock or 3 o'clock position, as indicated by the arrows.
	2-6 Clutch Apply Passage
6	Note: Apply air to verify proper installation of all 2-6 clutch components.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



4-5-6 Clutch Backing Plate Retaining Ring Measurement

Callout

Component Name

Preliminary Procedures

1. Install the clutch assembly into a hole in the workbench
2. Zero out the dial indicator on the *DT 47868-1* pack travel weight.

Special Tools

- *DT 47868-1* Pack Travel Weight
- *GE 8001* Dial Indicator Set
- *GE 26900-13* Magnetic Base

For equivalent regional tools, refer to Special Tools.

4-5-6 Clutch Apply Passage

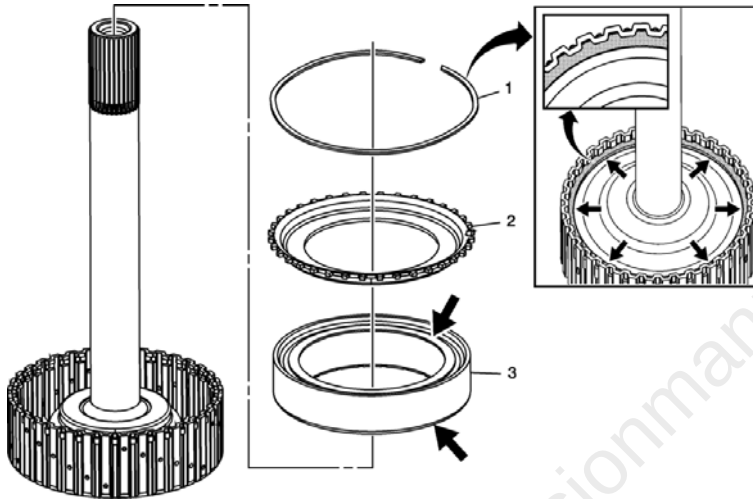
1

Note: While using one finger to block the top passage hole on the turbine shaft, apply compressed air to the opposite top passage hole, and observe the dial indicator measurement. Refer to Clutch Backing Plate Retaining Ring Specifications to determine the correct retainer.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



4-5-6 Clutch Dampener Overhaul

Callout

Component Name

- | | |
|---|---|
| 1 | 4-5-6 Clutch Dampener Retaining Ring
Caution: Ensure the retaining ring is fully seated when installed. Using a screwdriver, fully seat the retaining ring into the groove by pushing on the inside diameter around the whole circumference. If the retaining ring is not fully seated, transmission damage will result. |
| 2 | 4-5-6 Clutch Dampener Apply Plate
4-5-6 Clutch Dampener
Note: Dry and inspect the clutch dampener for the following conditions: |
| 3 | <ul style="list-style-type: none">• Pitting• Flaking• Delamination• Wear• Glazing• Cracking |

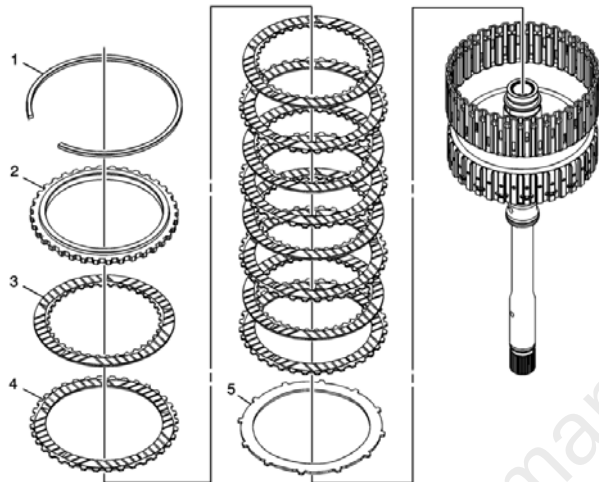
If any of these conditions are found, replace the dampener.

2013 Chevrolet Colorado

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

- Table 1: [4-5-6 Clutch Plates Removal](#)
- Table 2: [4-5-6 Clutch Piston Removal](#)
- Table 3: [Turbine Shaft Fluid Seal Ring Replacement](#)
- Table 4: [4-5-6 Clutch Piston Installation](#)
- Table 5: [4-5-6 Clutch Plates Installation](#)

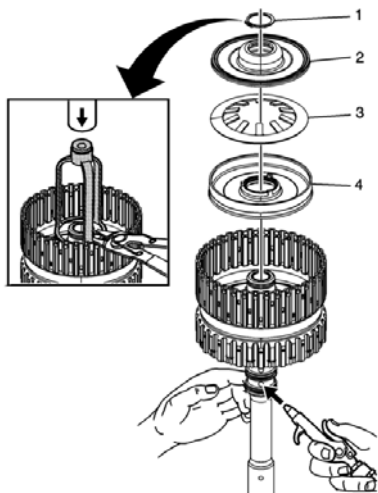
4-5-6 Clutch Plates Removal



4-5-6 Clutch Plates Removal

Callout	Component Name
1	4-5-6 Clutch Backing Plate Retaining Ring
2	4-5-6 Clutch Backing Plate
3	4-5-6 Clutch Plate Assembly (Qty: 5)
4	4-5-6 Clutch Plate (Qty: 5)
5	4-5-6 Clutch (Waved) Plate

4-5-6 Clutch Piston Removal



4-5-6 Clutch Piston Removal

Callout

Component Name

4-5-6 Clutch Piston Dam Retaining Ring

Caution: Use care when compressing the 4-5-6 clutch piston assembly, spring and dam assembly. Compressing the dam assembly too much may damage it.

1

Caution: Refer to Retaining Ring Reuse Caution.

Special Tool

DT 43074 Clutch Spring Compressor

For equivalent regional tools, refer to Special Tools.

2

4-5-6 Clutch Piston Dam Assembly

Note: It may be necessary to apply air pressure to remove the dam and piston.

3

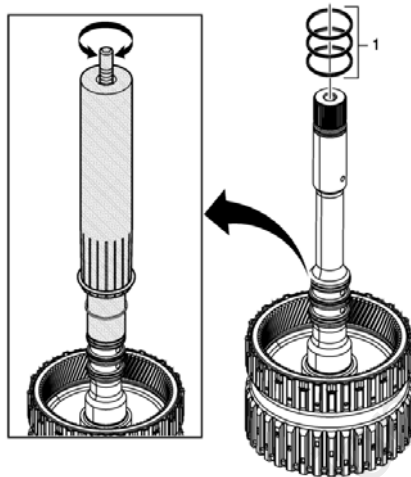
4-5-6 Clutch Spring

4

4-5-6 Clutch Piston Assembly

Note: It may be necessary to apply air pressure to remove the piston.

[Turbine Shaft Fluid Seal Ring Replacement](#)



Turbine Shaft Fluid Seal Ring Replacement

Callout

Component Name

Preliminary Procedures

1. Inspect the turbine shaft fluid passages and splines.
2. Clean any plugged passages.

Turbine Shaft Fluid Seal Ring (Qty: 3)

Caution: Do not use old seal rings. Install NEW seal rings. Reusing old seal rings may cause internal transmission leaks and transmission damage.

Procedure

1. Apply DT 36850 transjel lubricant to the seals.
2. Adjust the turn screw on DT-48066-3 seal protector and install the bottom seal ring first using DT-48066-2 seal pusher to push into place.
3. Seals must be sized before torque converter housing and fluid pump assembly installation, refer to 1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly Installation (6L45/6L50).

1

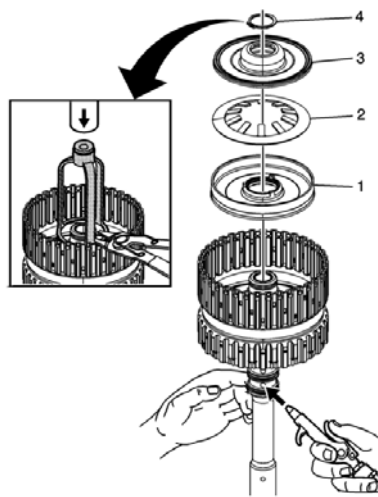
Note: Place your thumb at the bottom of each groove during seal installation to protect the seal from over-travel.

Special Tools

- DT 36850 Transjel Lubricant
- DT-48066-2 Seal Pusher
- DT-48066-3 Seal Protector

For equivalent regional tools, refer to Special Tools.

[4-5-6 Clutch Piston Installation](#)



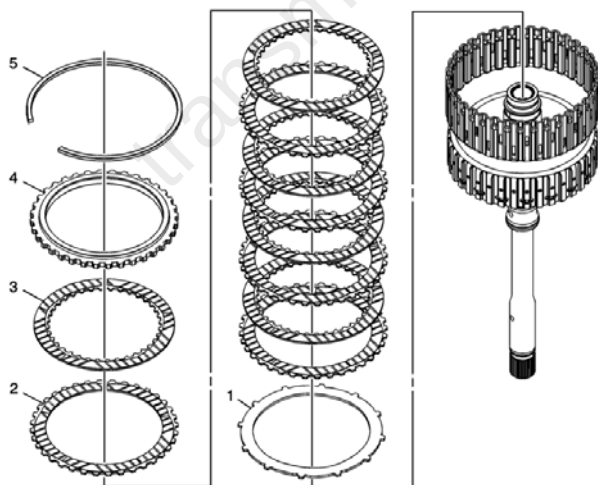
4-5-6 Clutch Piston Installation

Callout

Component Name

- | | |
|---|---|
| 1 | 4-5-6 Clutch Piston Assembly |
| 2 | 4-5-6 Clutch Spring
Caution: Ensure the spring tabs are facing up during installation. Failure to do so may cause damage to the clutch assembly. |
| 3 | 4-5-6 Clutch Piston Dam Assembly
Note: Lubricate the inner and outer sealing surfaces of the dam assembly with automatic transmission fluid (ATF) in order to ease installation into the piston. |
| 4 | 4-5-6 Clutch Piston Dam Retaining Ring
Caution: Use care when compressing the 4-5-6 clutch piston assembly, spring and dam assembly. Compressing the dam assembly too much may damage it.
Caution: Refer to Retaining Ring Reuse Caution.
Note: Apply air to verify proper installation of all 4-5-6 clutch components. Piston should apply and release smoothly.
Special Tool
DT 43074 Clutch Spring Compressor
For equivalent regional tools, refer to Special Tools. |

4-5-6 Clutch Plates Installation



4-5-6 Clutch Plates Installation

Callout

Component Name

- | | |
|---|--------------------------------------|
| 1 | 4-5-6 Clutch (Waved) Plate |
| 2 | 4-5-6 Clutch Plate (Qty: 5) |
| 3 | 4-5-6 Clutch Plate Assembly (Qty: 5) |

Callout

Component Name

4

4–5–6 Clutch Backing Plate

4–5–6 Clutch Backing Plate Retaining Ring

5

Note: After the retaining ring is installed, determine clutch piston travel in order to verify if the correct selective retaining ring is being used. Refer to 4-5-6 Clutch Backing Plate Retaining Ring Measurement.

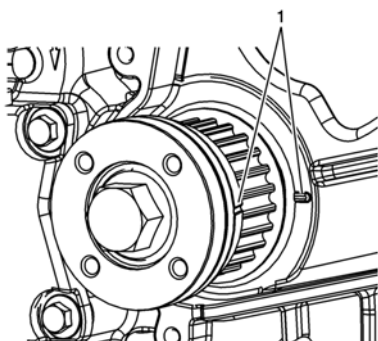
2013 Chevrolet Colorado

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

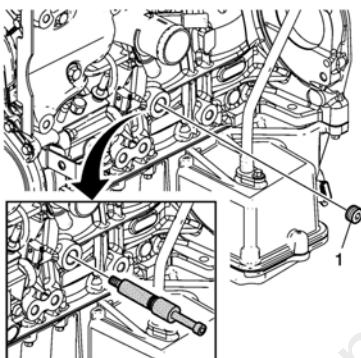
Special Tools

EN-50030 Crankshaft Locking Tool

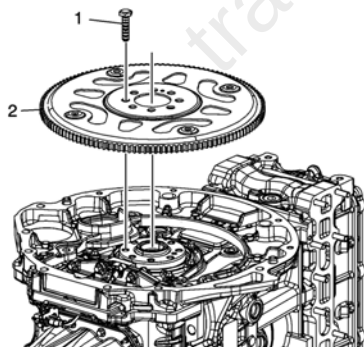
For equivalent regional tools, refer to Special Tools



1. Ensure that the timing mark on the crankshaft timing pulley (1) is aligned at 90 degrees ATDC with the mark on the front cover (1).



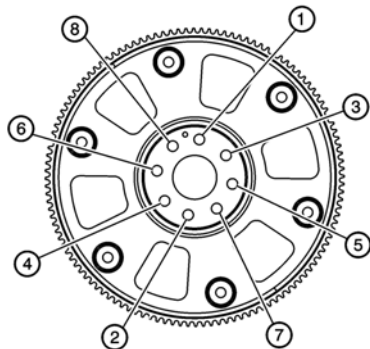
2. Remove the plug (1) and install the EN-50030 locking tool.



3. Install the flexplate (2).

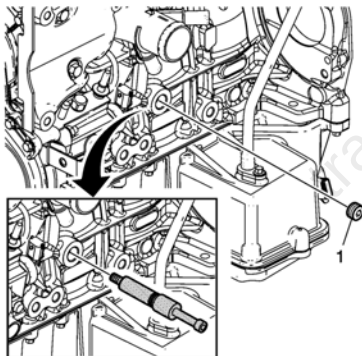
Caution: This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

4. Install the NEW flexplate bolts (1) and hand tighten.



Caution: Refer to Fastener Caution.

5. Tighten the NEW bolts in sequence to **50 Y (37 lb ft)**.
6. Loosen the flywheel bolts 90 degrees.
7. Tighten the NEW flywheel bolts in sequence to **25 Y (18 lb ft)**.
8. Tighten additional 60 degrees.
9. After each bolt is tightened, mark the head with a dot of brown paint as evidence of correct tightening.



10. Remove the *EN-50030* locking tool.
11. Install the block plug (1) and tighten to **79 Y (58 lb ft)**.

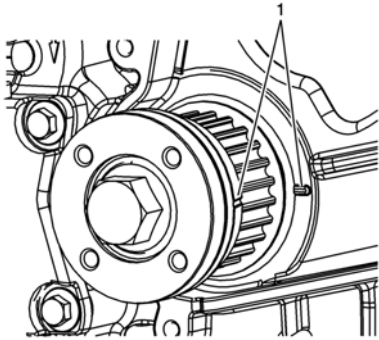
2013 Chevrolet Colorado

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

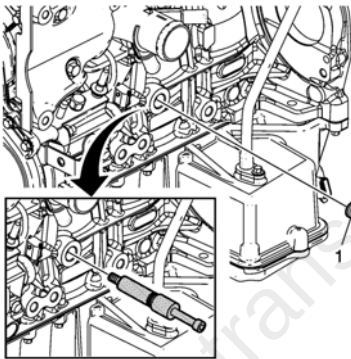
Special Tools

EN-50030 Crankshaft Locking Tool

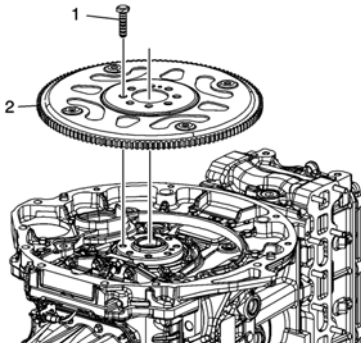
For equivalent regional tools, refer to Special Tools



1. Ensure that the timing mark on the crankshaft timing pulley (1) is aligned at 90 degrees ATDC with the mark on the front cover (1).



2. Remove the plug (1) and install the *EN-50030* locking tool .

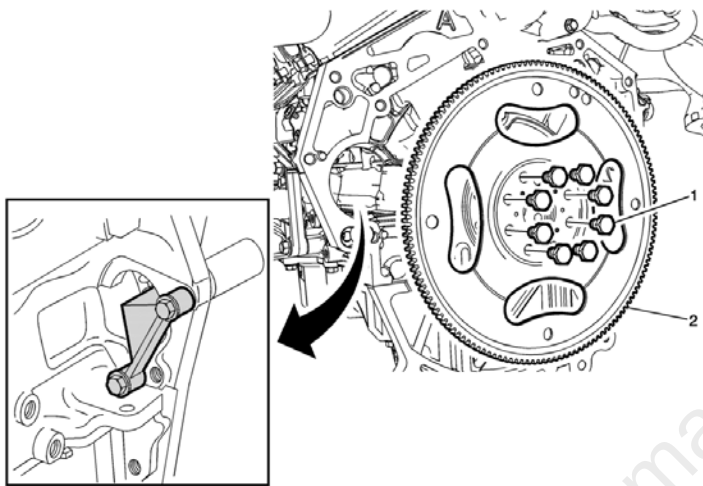


3. Remove the flexplate bolts (1) and flexplate (2).

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Automatic Transmission Flex Plate Replacement

Callout

Component Name

Procedure

Remove the transmission. Refer to Transmission Replacement.

Flexplate Fastener (Qty, 8)

Caution: Refer to Fastener Caution.

Procedure

1. Install the *EN 46106* tool through the starter mounting hole to secure crankshaft.
2. Remove the engine flexplate bolts and discard.
3. New bolts must be used whenever removing the flexplate.

Tighten

1

- 30 Y (22 lb ft)
- Tighten an additional 45 degrees using the *EN 45059* meter

Special Tools

- *EN 46106* Flywheel Holding Tool
- *EN 45059* Torque Angle Sensor Kit

For equivalent regional tools. refer to Special Tools

2

Flexplate

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

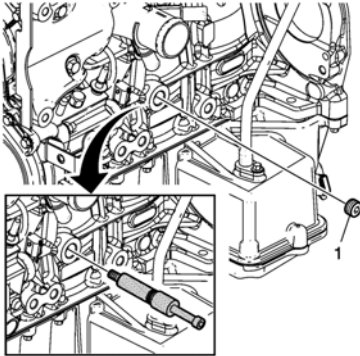
Special Tools

EN-50030 Crankshaft Locking Tool

For equivalent regional tools, refer to Special Tools.

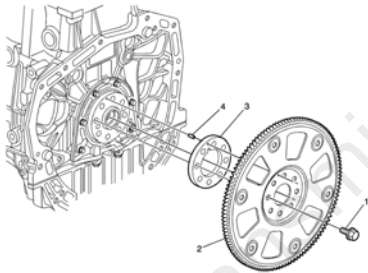
[Removal Procedure](#)

1. Remove the transmission. Refer to Transmission Replacement.



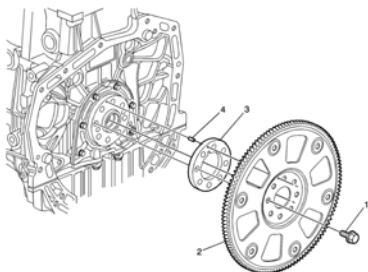
Note: Ensure the engine is at 90 degrees ATDC before installing the tool.

2. Remove the plug (1) and rotate the aligned tool EN-50030. Ensure the crankshaft is at 90 degrees ATDC before trying to install the crank locking tool.

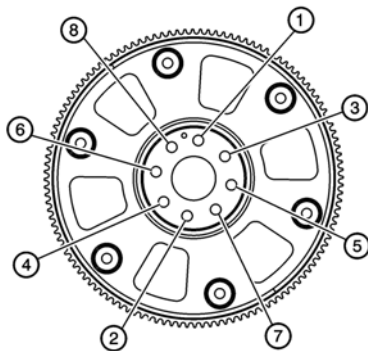


3. Remove the automatic transmission flex plate bolts (1).
4. Remove the flex plate (2), locating pin (4), and adapter plates (3).
5. For engine flywheel / automatic transmission flex plate cleaning and inspection. Refer to Engine Flywheel Cleaning and Inspection.

[Installation Procedure](#)

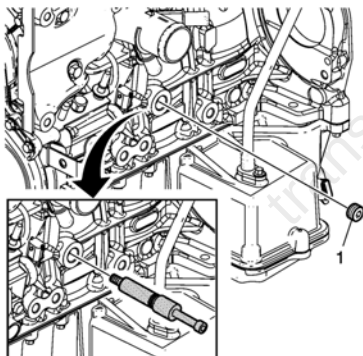


1. Install the automatic transmission flex plate (2) and bolts (1).



Caution: Refer to Fastener Caution.

2. Tighten the flex plate bolts in sequence to **50 Y (37 lb ft)**.
3. Loosen the flex plate bolts one at a time and then retighten in sequence to **25 Y (18 lb ft)** plus 60, 75, and 90 degrees respectively for bolts of 40, 50, 60 mm.
4. After each bolt is tightened, mark the head with a dot of brown paint as evidence of correct tightening.



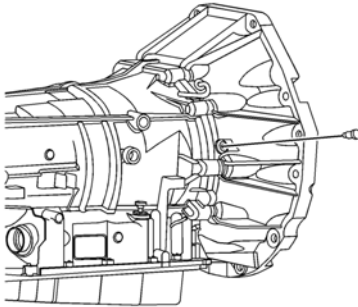
5. Remove the *EN-50030* Crank locking tool .
6. Install the block plug (1) and tighten to **79 Y (58 lb ft)**.
7. Install the transmission. Refer to Transmission Replacement.

2013 Chevrolet Colorado

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

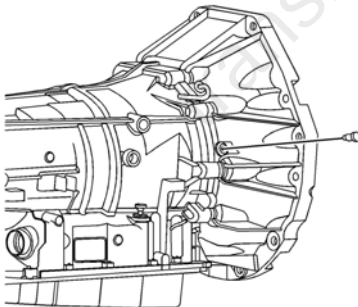
Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Clean the surrounding area of the oil pressure test plug.
3. Remove the oil pressure test plug.

Installation Procedure

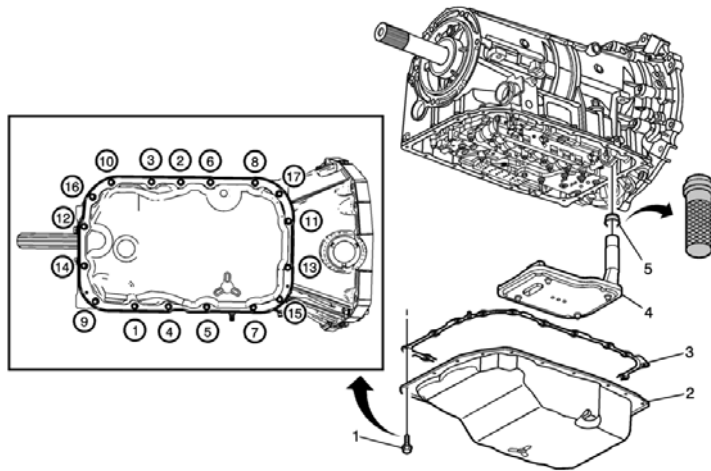


Caution: Refer to Fastener Caution.

1. Install the oil pressure test plug and tighten to **11 Y (97 lb in)**.
2. Check the transmission fluid level (fill if necessary). Refer to Transmission Fluid Level and Condition Check.
3. Lower the vehicle.

2013 Chevrolet Colorado

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



Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement

Callout

Component Name

Caution: Use Dexron VI transmission fluid only. Failure to use the proper fluid may result in transmission internal damage.

Preliminary Procedures

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Place a suitable drain pan under the transmission.

Transmission Fluid Pan Bolt (Qty: 17)

Caution: Refer to Fastener Caution.

- 1 **Note:** Tighten the bolts in the sequence shown.

Tighten

9 Y (80 lb in)

Transmission Fluid Pan Assembly

Procedure

- 2
 1. Check the condition of the draining fluid. Refer to Transmission Fluid Level and Condition Check.
 2. Fill the transmission with the proper fluid. Refer to Transmission General Specifications.
 3. Fill the transmission with the proper amount of transmission fluid. Refer to Fluid Capacity Specifications and Transmission Fluid Level and Condition Check.

Transmission Fluid Pan Gasket

- 3 **Note:** The fluid pan gasket is reusable. Inspect the gasket to determine if it may be reused.

NEW Fluid Filter Assembly

- 4 **Note:** Pull the fluid filter assembly straight out. Do not bend or twist the filter neck.

NEW Fluid Filter Seal Assembly

Caution: Do not damage the case sealing surface when removing the filter seal assembly.

Procedure

- 5
 1. Use a screwdriver or snap ring pliers to remove the filter seal.
 2. Use the DT-47848 installer and the J-42183 handle to install the filter seal.
 3. Lubricate the filter seal with transmission fluid before installing the filter.

Special Tools

- DT-47848 Seal Installer

Callout

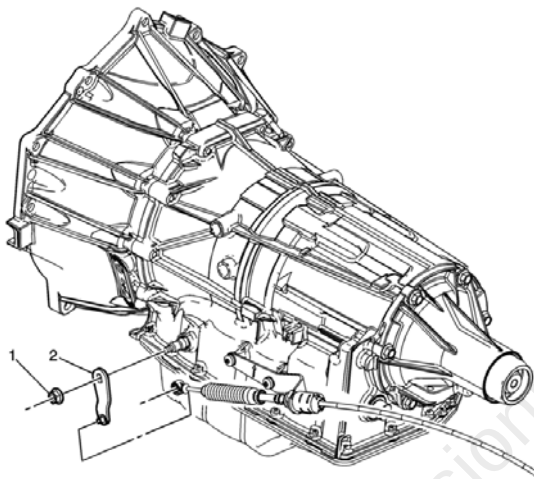
- *J-42183* Driver Handle

For equivalent regional tools, refer to Special Tools.

Component Name

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.

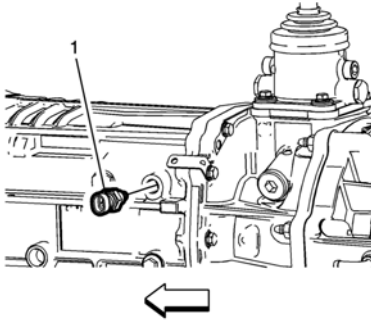
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

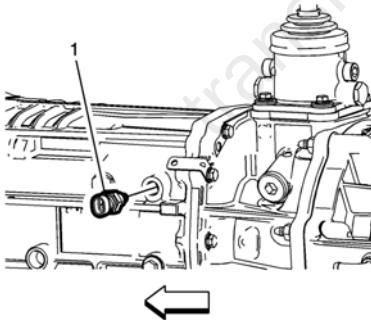
[Removal Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the electrical connector from the backup switch.



3. Remove the backup switch (1) from the transmission.

[Installation Procedure](#)



Caution: Refer to Component Fastener Tightening Caution.

1. Install the backup switch (1) to the transmission.
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:

Note: Proper bushing and corresponding mating shaft inspection should be performed before replacing the bushing, shaft, and in some cases, the component which houses the bushing. Thoroughly clean and dry the bushing and shaft surfaces before inspecting for damage.

Any of the following bushing conditions require replacement of the bushing and/or housing:

- Discoloration due to heat distress
- Misalignment or displacement of bushing as a result of spinning in housing
- Medium to heavy scoring that can be easily detected with fingernail. Light scoring is a normal condition.
- Debris embedded into the bushing lining material
- Obvious damage, including excessive and uneven wear
- Excessive polishing. Minor polishing of the bushing is an indication of normal wear and does not require replacement.

Any of the following conditions require replacement of the bushing's mating shaft:

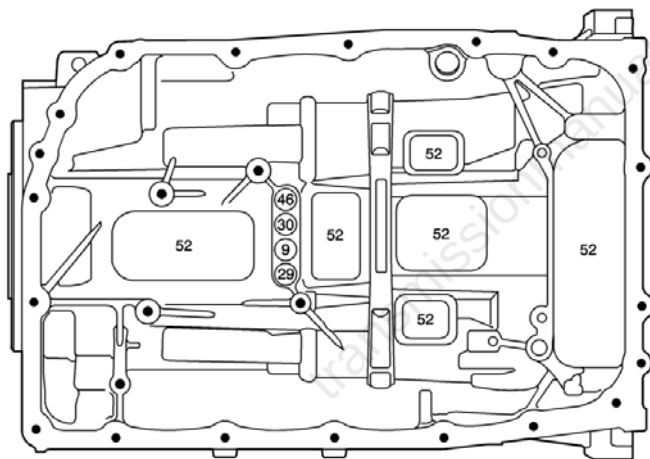
- Discoloration due to heat distress
- Rough surface finish that can be easily detected with finger
- Obvious shaft abnormalities, including warping or uneven surfaces
- Obvious damage or cracking

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

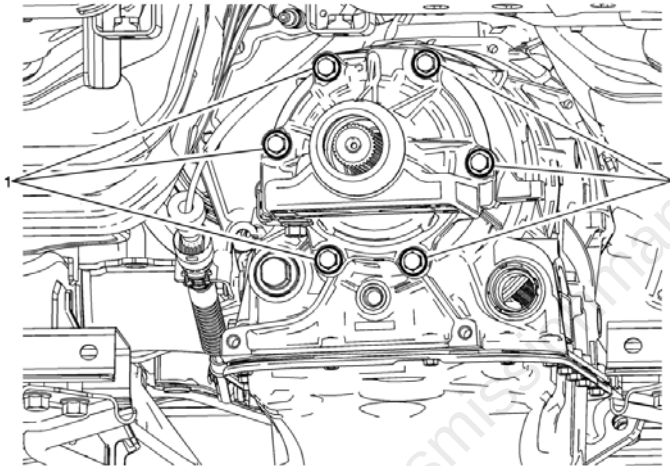
[Case- Top Channel Plate Side](#)



- (9) Center Lube
- (29) CBR1 (Manual 1st)
- (30) CBR (Reverse)
- (46) 26 Clutch
- (52) Void

2013 Chevrolet Colorado

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



Case Extension and Gasket Replacement

Callout

Component Name

Preliminary Procedures

1. Remove the transmission mount. Refer to Transmission Mount Replacement.
2. Remove the propeller shaft.

Extension Case Fastener (Qty: 6)

Caution: Refer to Fastener Caution.

1

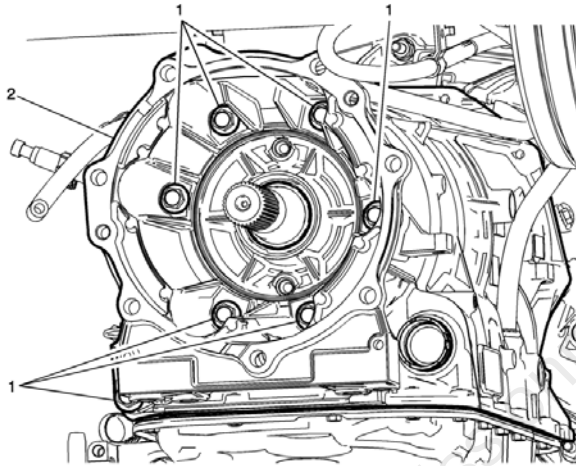
Tighten

55 Y (41 lb ft)

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Case Extension and Gasket Replacement

Callout

Component Name

Preliminary Procedures

1. Remove the transfer case. Refer to Transfer Case Replacement.
2. Remove the transmission mount. Refer to Transmission Mount Replacement.
3. Disconnect the vent hose from the extension case.
4. Use a suitable transmission jack to support the transmission.
5. Use a flat adaptor on the transmission jack to support the transmission resting on the fluid pan.

Extension Case Fasteners (Qty: 7)

Caution: Refer to Fastener Caution.

1

Tighten

55 Y (41 lb ft)

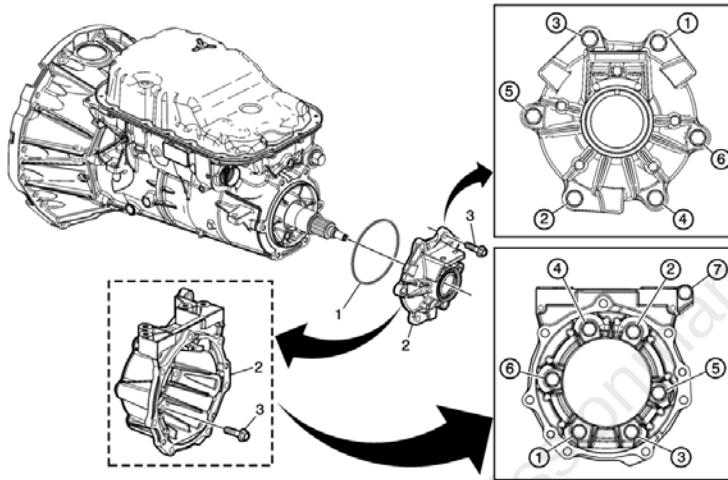
2

Extension Case

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Case Extension Assembly Installation

Callout

Component Name

- 1 NEW Case Extension Seal
- 2 Case Extension 2WD or Transfer Case Adapter 4WD
- Tip:** Optional AWD version uses same bolts and torque sequence.

Bolts M10 x 40

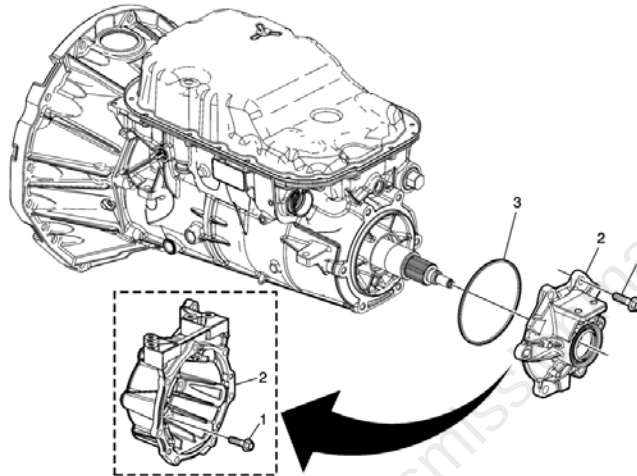
Caution: Refer to Fastener Caution.

Procedure

- 3
- Install Case Extension 2WD – Qty: 6 Bolts
 - Install Transfer Case Adapter 4WD – Qty: 7 Bolts
 - Tighten in sequence shown.
- Tighten**
55 Y (41 lb ft)

2013 Chevrolet Colorado

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



Case Extension Assembly Removal

Callout

Component Name

Bolt M10 x 40

1

- Case Extension 2WD – Qty: 6 Bolts
- Transfer Case Adapter 4WD – Qty: 7 Bolts

2

Case Extension 2WD or Transfer Case Adapter 4WD

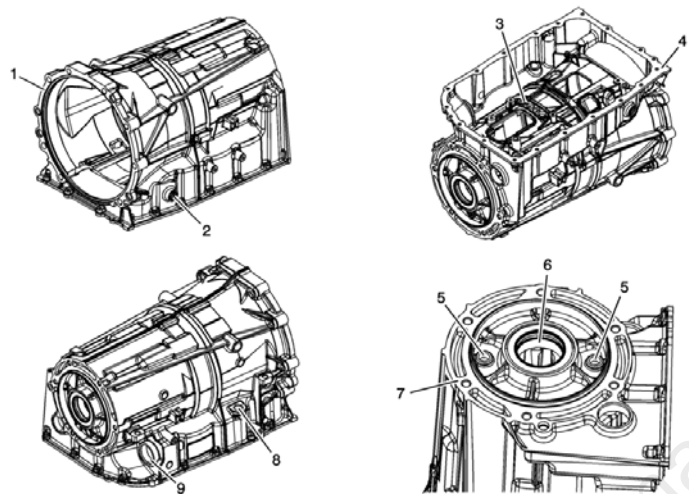
Tip: Also available as AWD option.

3

Case Extension Seal

2013 Chevrolet Colorado

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



Case Inspection

Callout	Component Name
Caution: After cleaning the transmission components, allow to air dry. Do not use cloth or paper towels in order to dry any transmission components. Lint from the towels can cause component failure. Caution: Do not reuse cleaning solvents. Previously used solvents may deposit sediment which may damage the component. Preliminary Procedures 1. Thoroughly clean the transmission case assembly, including case threads, with clean solvent. 2. Clean gasket sealing surfaces. Remove all residual gasket material. 3. Inspect all threaded holes. If necessary, repair any thread damage.	

1	Front Case Sealing Surface
2	Manual Shift Shaft Seal
3	Note: Refer to Manual Shift Shaft Seal Replacement.
4	Center Support Fluid Passage Seal Bores
5	Fluid Pan Sealing Surface
6	Case Plugs
7	Output Shaft Bushing or Bearing (model specific)
8	Rear Case Sealing Surface
9	Fill Tube Bore
10	Electrical Connector Passage Sleeve Bore

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

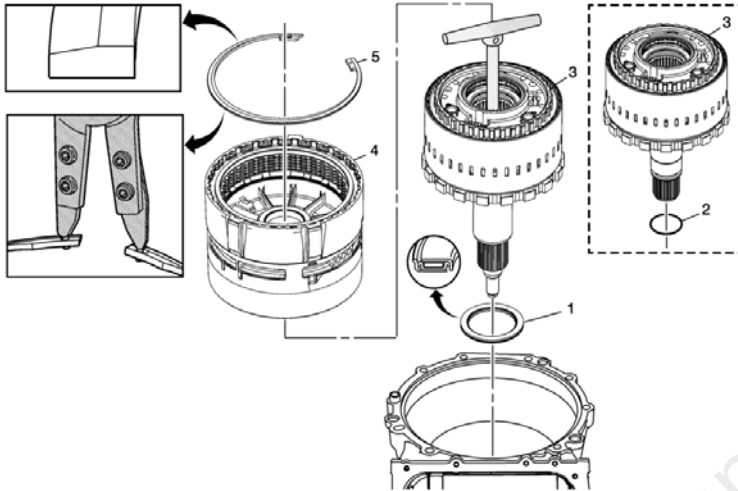
Some external leaks are caused by case porosity in non-pressurized areas. You can usually repair these leaks with the transmission in the vehicle.

1. Thoroughly clean the area to be repaired with a cleaning solvent. Air dry the area.

Warning: Epoxy adhesive may cause skin irritations and eye damage. Read and follow all information on the container label as provided by the manufacturer.

2. Using instructions from the manufacturer, mix a sufficient amount of an epoxy to make the repair.
3. While the transmission case is still hot, apply the epoxy. You can use a clean, dry soldering acid brush to clean the area and also to apply the epoxy cement. Make certain that the area to be repaired is fully covered.
4. Allow the epoxy cement to cure for three hours before starting the engine.
5. Repeat the fluid leak diagnosis procedures.

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

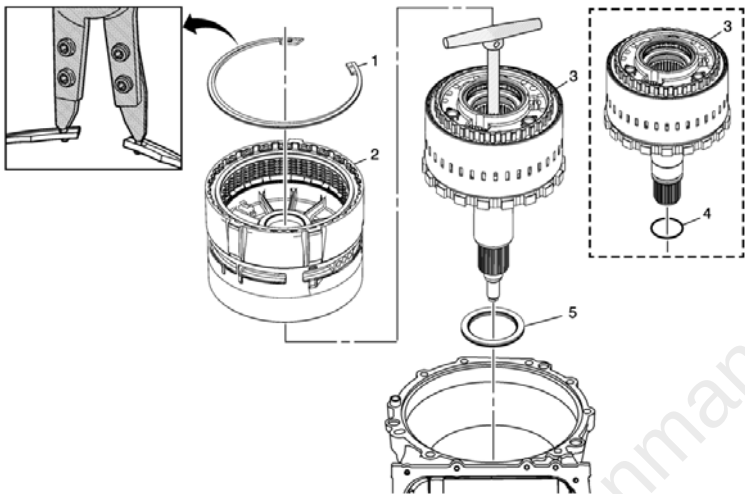


Center Support, Output Carrier and Output Shaft Installation

Callout	Component Name
1	Output Shaft Thrust Bearing Assembly
2	A/Trans Case O-Ring Seal – AWD Models if equipped Output Carrier Assembly and Output Shaft Assembly Caution: Apply automatic transmission fluid (ATF) to the inside diameter of the output shaft seal before installing the output shaft assembly into the case. Failure to lube the seal may cause the seal to roll during output shaft installation, which will result in transmission damage.
3	Caution: Ensure the DT 47786 is completely threaded into the output shaft assembly. Due to the weight of the assembly, incomplete threading may cause the assembly to break free from the DT 47786, causing component damage. Special Tool DT 47786 Output Carrier/Shaft Lifting Tool For equivalent regional tools, refer to Special Tools. Center Support Assembly Tip:
4	- When the center support assembly is properly installed, the fluid passages should align with the fluid passage seal bores in the case assembly. - It may be necessary to rotate the output shaft by hand in order to fully install the center support assembly. Center Support Retaining Ring Warning: Use care when removing or installing the retaining ring. Ensure the J 45126 is installed properly onto the retaining ring or bodily injury may occur.
5	Caution: Ensure the retaining ring is installed with the tapered side up, and in the 9 o'clock position from the pan side of the case. Failure to properly install the retaining ring will cause transmission damage. Special Tool DT 45126 Snap Ring Pliers For equivalent regional tools, refer to Special Tools.

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Center Support, Output Carrier and Output Shaft Removal

Callout

Component Name

Center Support Retaining Ring

Warning: Use care when removing or installing the retaining ring. Ensure the J 45126 is installed properly onto the retaining ring or bodily injury may occur.

1 **Tip:** To release tension on the retaining ring, place the retaining ring flat on the floor and step on it, then remove the tool.

Special Tool

DT 45126 Snap Ring Pliers

For equivalent regional tools, refer to Special Tools.

2 Center (with 2–6 Low and Reverse Clutch) Support Assembly

Output Carrier Assembly and Output Shaft Assembly

Caution: Ensure the DT 47786 is completely threaded into the output shaft assembly. Due to the weight of the assembly, incomplete threading may cause the assembly to break free from the DT 47786, causing component damage.

3 **Special Tool**

DT 47786 Output Carrier/Shaft Lifting Tool

For equivalent regional tools, refer to Special Tools.

4 A/Trans Case O-Ring Seal – AWD Models if equipped

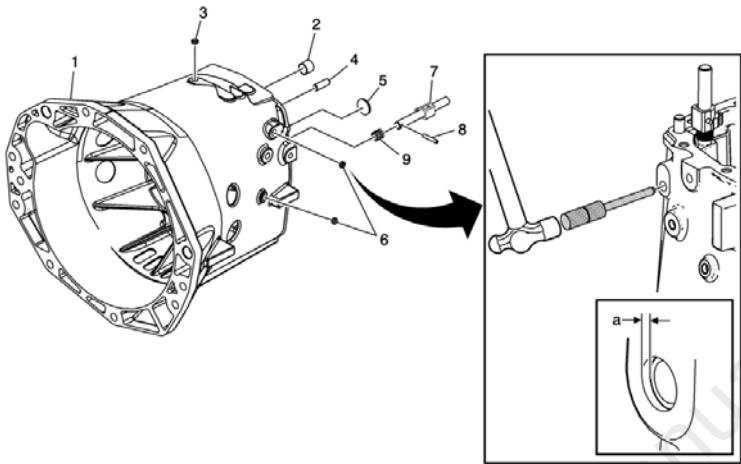
5 Output Shaft Thrust Bearing Assembly

2013 Chevrolet Colorado

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

- Table 1: [Clutch Housing](#)
Table 2: [Shift Shaft Interlocking Balls and Pin Cleaning and Inspection](#)

Clutch Housing



Clutch Housing

Callout

Component Name

Preliminary Procedure

Warning: Wear safety glasses to avoid injury when using compressed air or any cleaning solvent. Bodily injury may occur if fumes are inhaled or if skin is exposed to chemicals.

Clean the clutch housing (1) parts with a suitable solvent. Air dry all the parts.

Clutch Housing

Procedure

1. Inspect the clutch housing for the following conditions:

- Cracks
- Scratches
- Burrs
- Nicked mounting surfaces
- Damaged sealing surfaces
- Damaged bearing bores
- Inspect the machined mating surfaces for flatness. Check the mating surfaces with a straight edge.
- Use a fine mill file to dress minor scratches or burrs.
- If scratches, or grooves, or scoring, cannot be removed by hand with a soft stone or crocus cloth, replace the component.

Transmission Bushing – Shift Shaft

Procedure

Inspect the bushing for excessive wear. Replace worn bushings.

Clutch Housing Hole Plug

Transmission Locating Pin

Clutch Housing Hole Plug

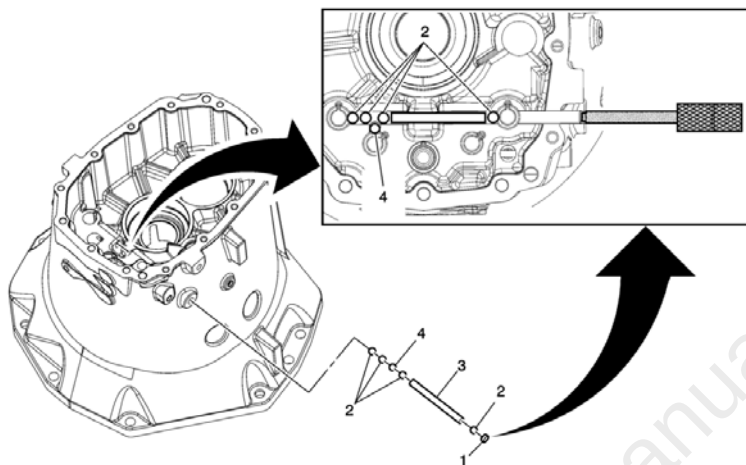
Clutch Housing Hole Plug

Special Tools

DT 50851 Front Housing Expansion Plug Installer

Callout	Component Name
	For equivalent regional tools, refer to Special Tools.
7	Reverse Interlock Shaft
8	Reverse Interlock Shaft Detent Pin
9	Reverse Interlock Shaft Detent Spring

Shift Shaft Interlocking Balls and Pin Cleaning and Inspection



Shift Shaft Interlocking Balls and Pin Cleaning and Inspection

Callout	Component Name
	Clutch Housing Hole Plug
	Note: When installing use a NEW plug.
1	Special Tools DT 50851 Front Housing Expansion Plug Installer For equivalent regional tools, refer to Special Tools. Shift Shaft Interlock Ball – 9.5 mm (Qty: 4) Note:
2	- Three balls – 9.5 mm align with the 3rd/4th yoke bar bore, and one 9.5 mm ball is located on the 5th/reverse yoke bar bore. - Be careful when removing the yoke bars. Interlock balls may drop into the bar bores. Keep a close watch on the interlock balls and their locations when disassembling and assembling. - Use the appropriate lubricant to hold balls in their bores in the proper location.
	Shift Shaft Interlock Pin
3	Procedure 1. Push the interlock pin to the opposite side in order the interlock balls drop from their bores. 2. Displace the interlock pin towards the removed plug hole and remove the pin through the housing hole.
	Shift Shaft Interlock Ball – 8.0 mm (Qty: 1)
	Note:
4	- This ball is located on the 1st/2nd yoke bar bore. The larger balls will not install into the smallest interlock bore. - Be careful when removing the yoke bars. Interlock balls may drop into the bar bores. Keep a close watch on the interlock balls and their locations when disassembling and assembling. - Use the appropriate lubricant to hold balls in their bores in the proper location.

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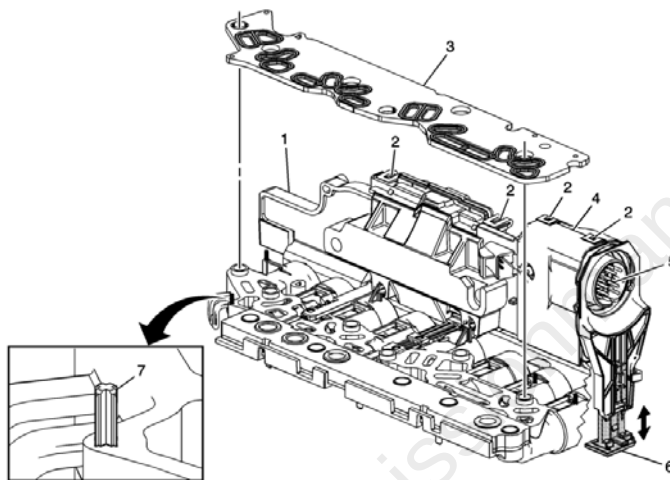
Submodel: | Engine Type: | Liters:
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During transmission manufacturing and assembly, small pieces of material may become dislodged. This may also happen after the transmission has been in operation for a period of time. Because the transmission control 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.

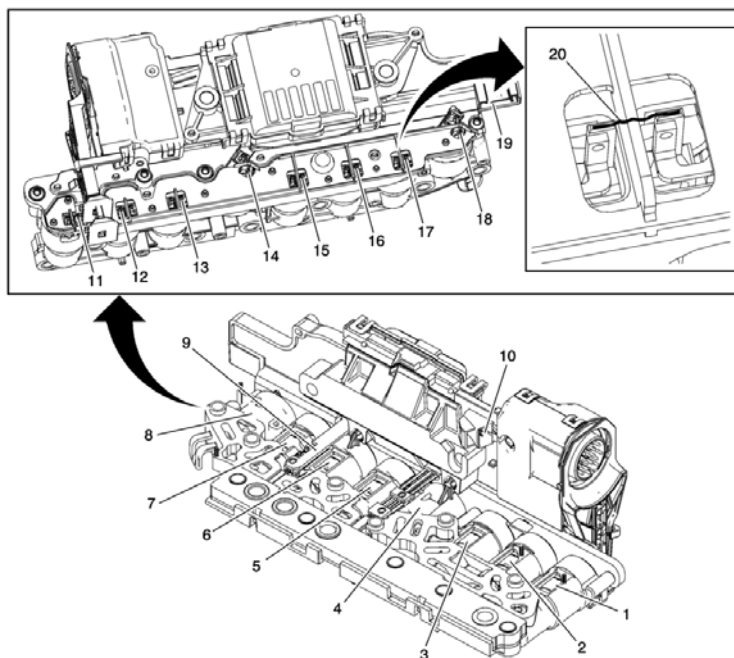
[Control Solenoid Valve Assembly Housing and Filter Plate](#)



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](#)

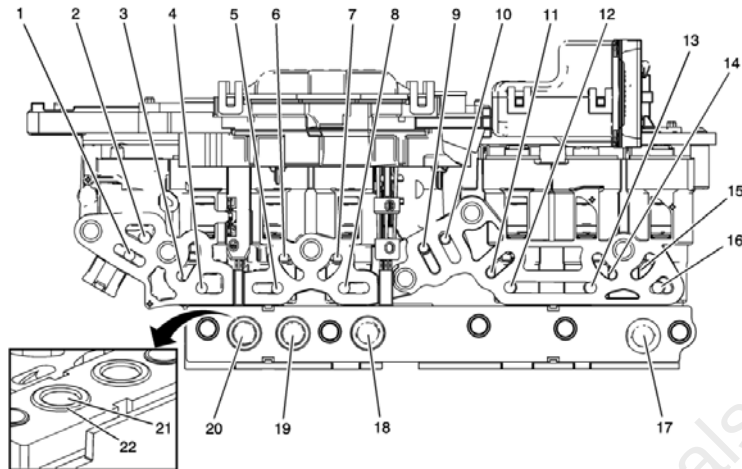


- (1) Pressure Control Solenoid 3 (PCS3)
- (2) Pressure Control Solenoid 4 (PCS4)
- (3) Pressure Control Solenoid 2 (PCS2)
- (4) Shift Solenoid 2 (SS2)
- (5) Torque Converter Clutch (TCC) Solenoid
- (6) Pressure Control Solenoid 5 (PCS5)
- (7) Pressure Control Solenoid 1 (PCS1)
- (8) Shift Solenoid 1 (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



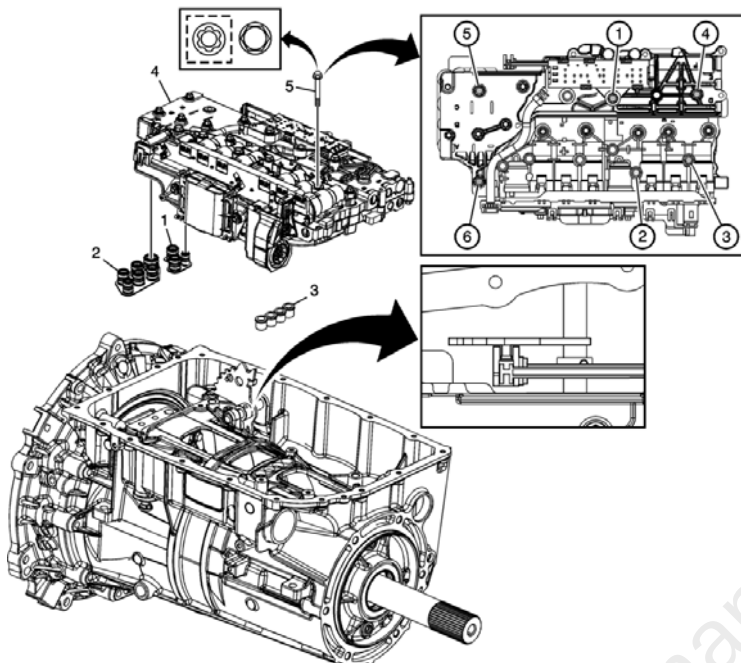
- (1) Shift Solenoid 1 Supply Port
- (2) Shift Solenoid 1 Control Port
- (3) Line Pressure Control Solenoid 1 Control Port
- (4) Line Pressure Control Solenoid 1 Supply Port
- (5) Pressure Control Solenoid 5 Supply Port
- (6) Pressure Control Solenoid 5 Control Port
- (7) TCC Pressure Control Solenoid 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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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.

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

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.

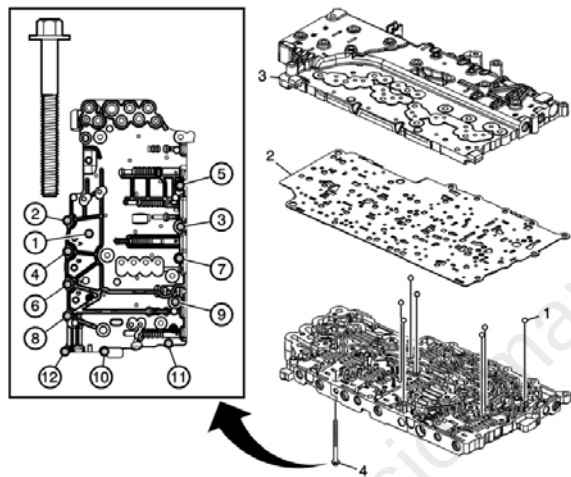
Component Name

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
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- Table 1: [Upper to Lower Control Valve Body Assembly Assemble](#)
- Table 2: [Filter Plate Installation](#)
- Table 3: [Control Solenoid Valve Assembly Installation](#)
- Table 4: [Manual Shift Shaft Position Switch Installation](#)
- Table 5: [Valve Body, Control Solenoid Torque Sequence](#)
- Table 6: [Control Solenoid Valve Assembly Contact Gap Inspection](#)
- Table 7: [Input and Output Speed Sensor Assembly Installation](#)

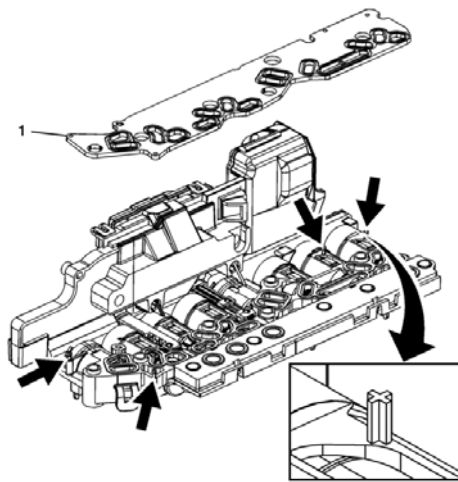
Upper to Lower Control Valve Body Assembly Assemble



Upper to Lower Control Valve Body Assembly Assemble

Callout	Component Name
	Control Valve Body Ball Check Valve (Qty: 7)
1	Caution: Do not use any type of grease or other material to hold the check ball valves in place during assembly. Grease will cause the valves to not operate properly, resulting in damage to the transmission. Note: Refer to Ball Check Valve Locations.
	Control Valve Body Spacer (w/Gasket) Plate Assembly
2	Caution: Do not use the old spacer plate. Install a NEW spacer plate. Reusing an old spacer plate may cause internal transmission leaks and transmission damage.
	Control Valve Lower Body Assembly
3	Note: Turn the valve body assembly over after installing to upper body.
	Bolt M5 x 36 (Qty: 12)
	Caution: Refer to Fastener Caution.
4	Procedure Tighten the bolts in the sequence shown. Tighten 8 Y (71 lb in).

[Filter Plate Installation](#)



Filter Plate Installation

Callout

Component Name

Filter Plate Assembly

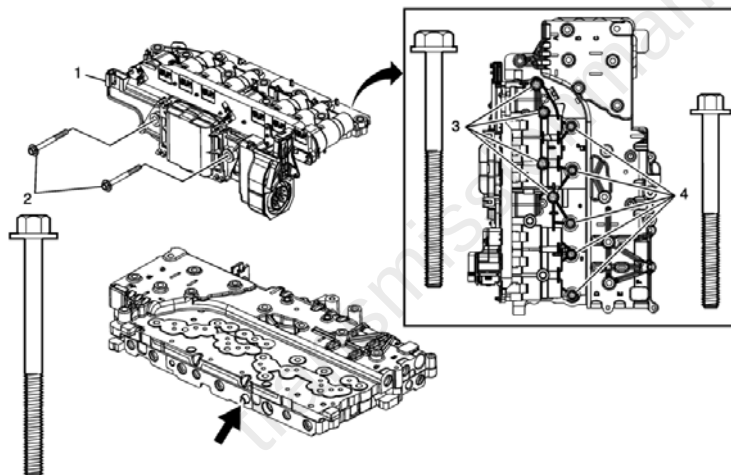
Caution: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal components, including the transmission control module (TCM), may result.

1

Caution: Discard the filter plate. Replace with a NEW filter plate. Reusing an old filter plate may cause damage to the control solenoid valve assembly.

Note: Use care when removing or installing the filter plate assembly. However, if a retaining tab is broken or missing, do not replace the control solenoid valve assembly. The filter plate assembly can still be adequately aligned.

[Control Solenoid Valve Assembly Installation](#)



Control Solenoid Valve Assembly Installation

Callout

Component Name

1 Control Solenoid (w/Body and TCM) Valve Assembly

Note: Note the locator pin on the control valve lower body assembly while aligning the control solenoid valve assembly.

2 Bolt M5 x 53 (Qty: 2)

Note: Hand tighten only.

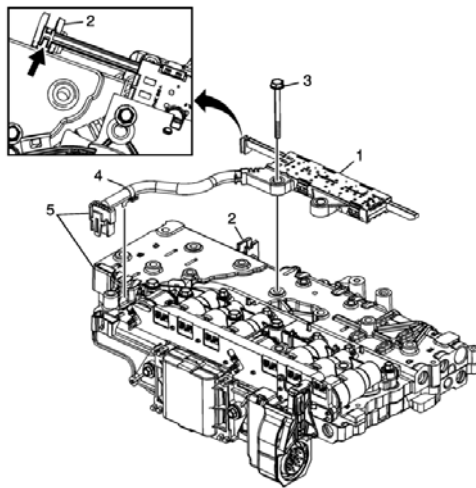
3 Bolt M5 x 55 (Qty: 4)

Note: Hand tighten only.

4 Bolt M5 x 45 (Qty: 5)

Note: Hand tighten only.

[Manual Shift Shaft Position Switch Installation](#)



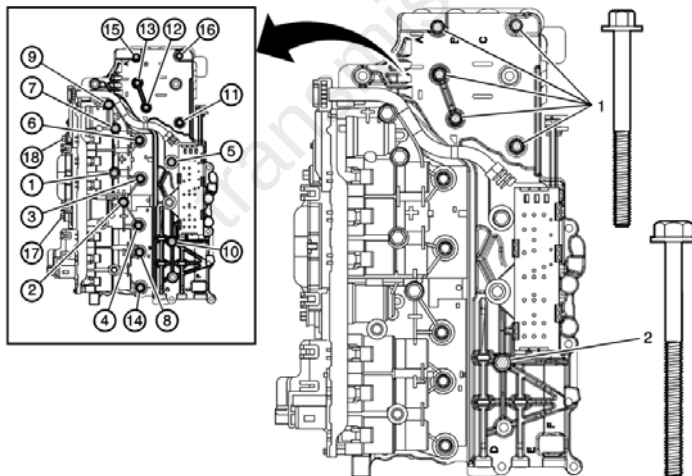
Manual Shift Shaft Position Switch Installation

Callout

Component Name

- 1 A/Trans Manual Shift Shaft Position Switch Assembly
- 2 Manual Valve Link
Note: Align the switch activator slide with the manual valve link.
- 3 Bolt M5 x 55
Note: Hand tighten only.
- 4 A/Trans Manual Shift Shaft Position Switch Harness Clip
Note: The wiring harness clip on the manual shift shaft position switch does not need to be replaced if damaged or missing. The clip functions only as a manufacturing assembly aid to keep the harness clear during an automated bolt installation process. If the clip is damaged, simply remove and discard.
- 5 A/Trans Manual Shift Shaft Position Switch Electrical Connector
Note: Connect and lock the manual shift shaft position switch electrical connector to the control solenoid valve assembly.

[Valve Body, Control Solenoid Torque Sequence](#)



Valve Body, Control Solenoid Torque Sequence

Callout

Component Name

Caution: Bolt torque sequencing is critical to the proper function of the control solenoid valve assembly. Failure to follow the required sequencing may result in transmission malfunction.

Preliminary Procedure

1. Hand tighten the last 6 bolts before final torque sequence.
2. The 2 "heat sink" bolts must be tightened last.

- 1 Bolts M5 x 45 (Qty: 5)

Callout

Component Name

Bolt M5 x 55

Caution: Refer to Fastener Caution.

Procedure

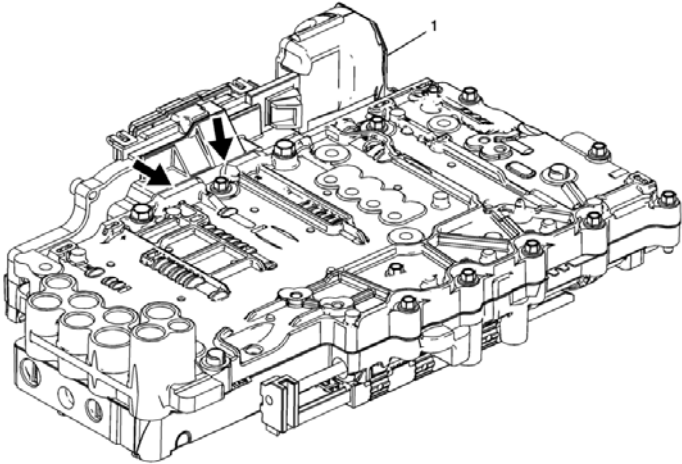
2

Tighten all 18 bolts in the sequence shown.

Tighten

8 Y (71 lb in).

[Control Solenoid Valve Assembly Contact Gap Inspection](#)



Control Solenoid Valve Assembly Contact Gap Inspection

Callout

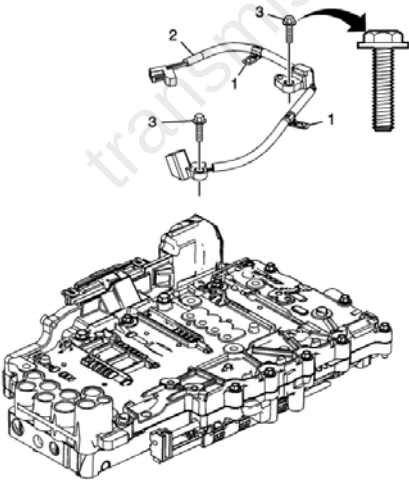
Component Name

Control Solenoid (w/Body and TCM) Valve Assembly

1

Note: Inspect the contact area between the "heat sink" area of the control solenoid valve assembly and the valve body. There should be no visible gap. If a gap exists, loosen all 18 bolts and retighten in the required sequence.

[Input and Output Speed Sensor Assembly Installation](#)



Input and Output Speed Sensor Assembly Installation

Callout

Component Name

A/Trans Input and Output Speed Sensor Wiring Harness Clip (Qty: 2)

1

Note: Inspect the 2 wiring harness clips for damage. Replace if damaged.

A/Trans Input and Output Speed Sensor Assembly

2

Bolt M6 x 20 (Qty: 2)

3

Caution: Refer to Fastener Caution.

Control Valve Body Assembly Assemble

Callout

Tighten

12 Y (106 lb in)

Component Name

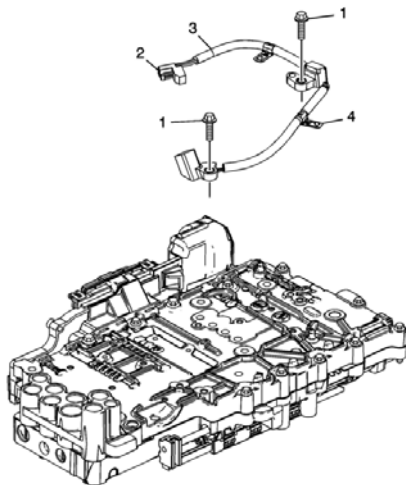
transmissionmanuals.com

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

- Table 1: [Input and Output Speed Sensor Assembly Removal](#)
- Table 2: [Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch Removal](#)
- Table 3: [Control Solenoid Valve Assembly Removal](#)
- Table 4: [Upper and Lower Valve Bodies Disassemble](#)

[Input and Output Speed Sensor Assembly Removal](#)



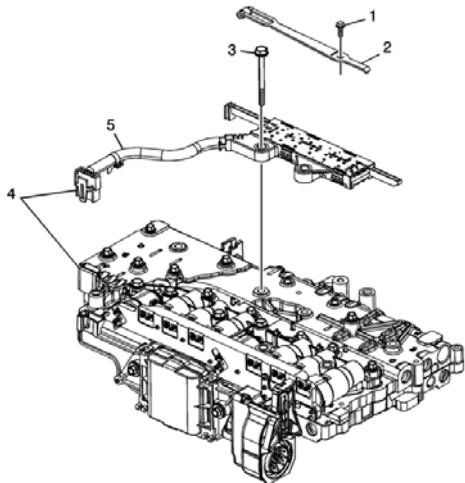
Input and Output Speed Sensor Assembly Removal

Callout

- | | Component Name |
|---|--|
| 1 | Bolt M6 x 20 (Qty: 2) |
| 2 | Speed Sensor Electrical Connector |
| 3 | A/Trans Input and Output Speed Sensor Assembly |
| 4 | A/Trans Input and Output Speed Sensor Wiring Harness Clip (Qty: 2) |

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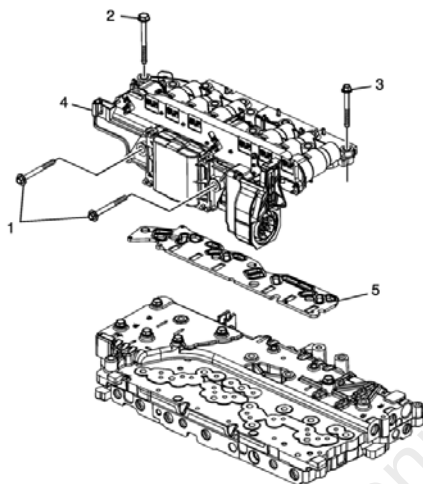
[Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch Removal](#)



Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch Removal

Callout	Component Name
1	Bolt M6 x 14.5
2	Manual Shaft Detent Assembly
3	Bolt M5 x 55
4	A/Trans Manual Shift Shaft Position Switch Assembly Electrical Connector
	Note: Release the connector lock before disconnecting.
5	A/Trans Manual Shift Shaft Position Switch Assembly

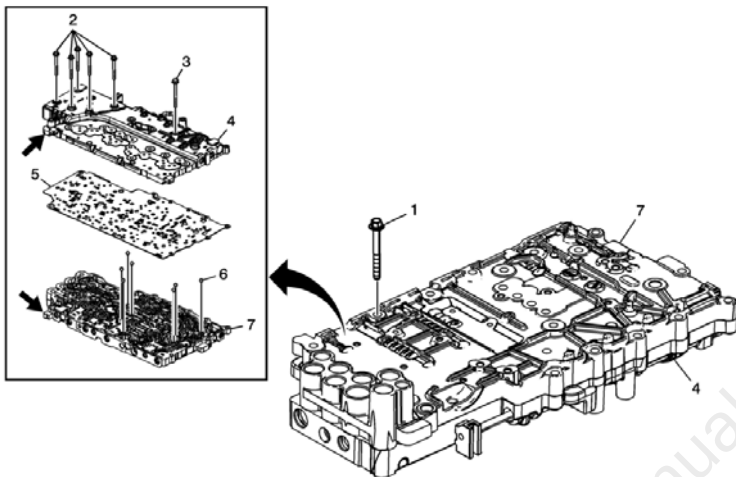
[Control Solenoid Valve Assembly Removal](#)



Control Solenoid Valve Assembly Removal

Callout	Component Name
1	Bolt M5 x 53 (Qty: 2)
2	Bolt M5 x 55 (Qty: 4)
3	Bolt M5 x 45 (Qty: 5)
	Control Solenoid (w/Body and TCM) Valve Assembly
4	Caution: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal components, including the transmission control module (TCM), may result.
	Filter Plate Assembly
5	Caution: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter plate to the control solenoid valve assembly, resulting in possible damage or contamination. Caution: Discard the filter plate. Replace with a NEW filter plate. Reusing an old filter plate may cause damage to the control solenoid valve assembly.

[Upper and Lower Valve Bodies Disassemble](#)



Upper and Lower Valve Bodies Disassemble

Callout

Component Name

1 Bolt M5 x 36 (Qty: 12)

2 Bolt M5 x 45 (Qty: 5)

3 Bolt M5 x 55

Control Valve Lower Body Assembly

Note:

4

- Separate the upper and lower valve bodies by carefully prying at the point indicated.
- Refer to Control Valve Lower Body Assembly Cleaning and Inspection.

Control Valve Body Spacer (w/Gasket) Plate Assembly

5

Caution: Do not use the old spacer plate. Install a NEW spacer plate. Reusing an old spacer plate may cause internal transmission leaks and transmission damage.

Control Valve Body Ball Check Valve (Qty: 7)

6

Note: Note the position of the ball check valves.

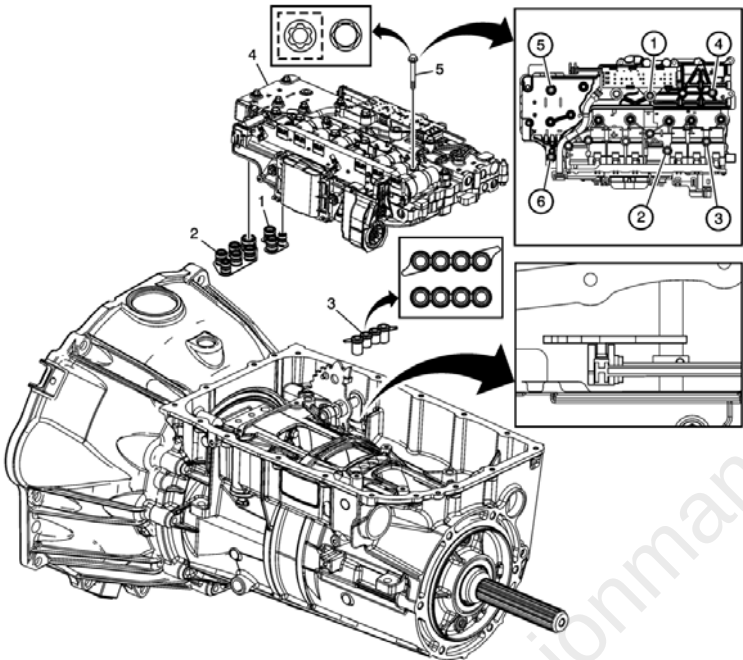
Control Valve Upper Body Assembly

7

Note: Refer to Control Valve Upper Body Assembly Cleaning and Inspection.

2013 Chevrolet Colorado

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

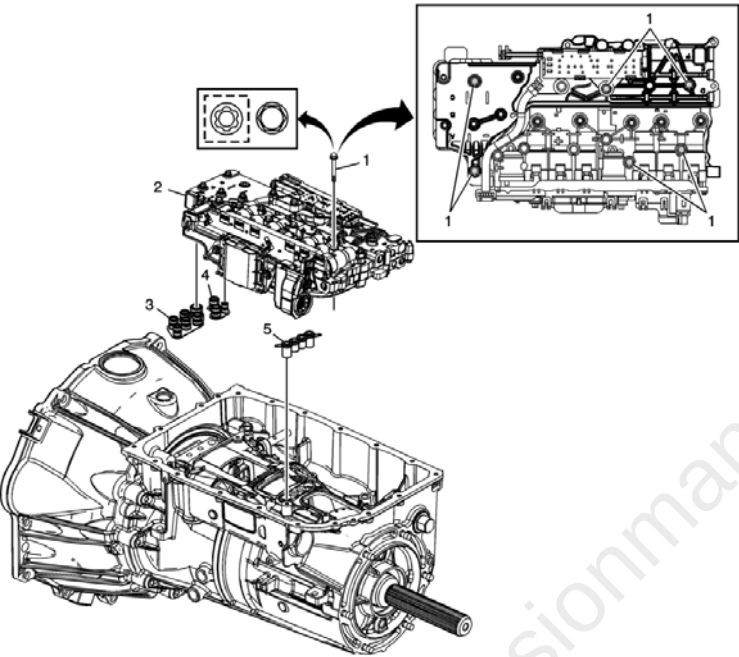


Control Valve Body Assembly Installation

Callout	Component Name
1	NEW Fluid Pump Seal Assembly
2	NEW Fluid Pump Seal Assembly
3	NEW Center Support Fluid Passage Seal Assembly
4	Note: There are two different designs for the Center Support Fluid Passage Seal. The design for 6L45/50 (MYA/MYB) models utilizes tabs. The design for 6L80/90 (MYC/MYD) models does not have tabs. 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. Note: Align the manual shift shaft position switch activator slide with the detent lever guide pin. Bolts M5 x 73 (Qty: 6) Caution: Refer to Fastener Caution. Procedure Tighten in the sequence shown.
5	Tighten 8 Y (71 lb in). Special Tool DT-48285 Valve Body Torx Plus Socket (if applicable) For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
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Control Valve Body Assembly Removal

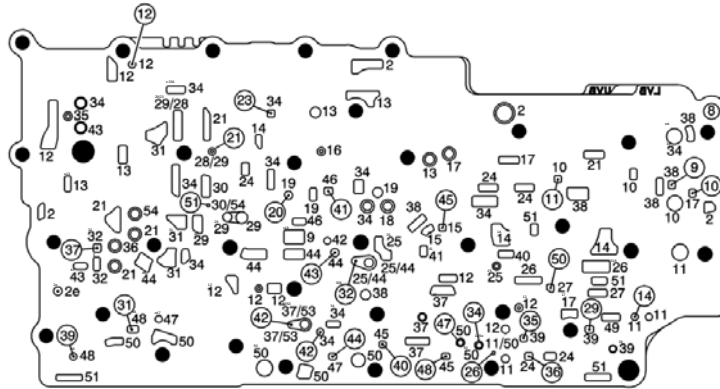
Callout	Component Name
	Bolt M5 x 73 (Qty: 6)
	Note: Do not remove all the bolts in the control valve body assembly. Remove only the bolts indicated.
1	Special Tool DT-48285 Valve Body Torx Plus Socket (if applicable) For equivalent regional tools, refer to Special Tools.
	Control Valve Body Assembly
2	Caution: Use care when handling the control valve body assembly. If dropped, damage to the internal components of the control solenoid valve assembly, including the transmission control module (TCM), may result.
	Fluid Pump Seal Assembly
3	Caution: Use care when removing the seal assemblies to avoid damaging the valve body seal bores. Caution: Refer to Seal Reuse Caution.
	Fluid Pump Seal Assembly
4	Caution: Use care when removing the seal assemblies to avoid damaging the valve body seal bores. Caution: Refer to Seal Reuse Caution.
	Center Support Fluid Passage Seal Assembly
5	Caution: Use care when removing the seal assemblies to avoid damaging the case seal bores. Caution: Refer to Seal Reuse Caution.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

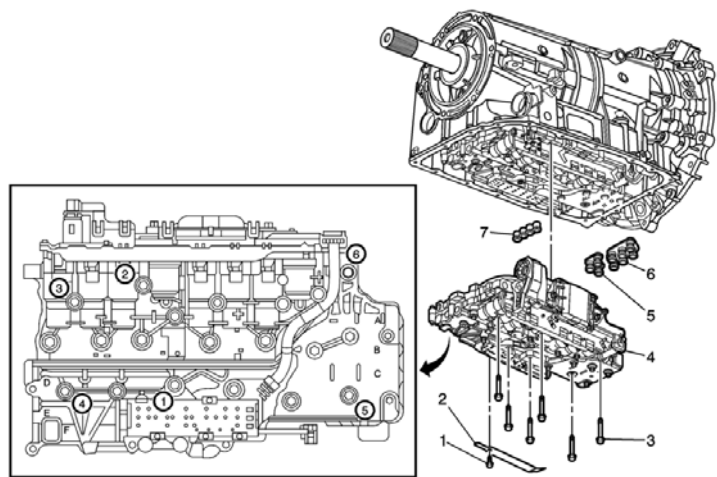
Control Valve Body Spacer Plate Assembly – Bottom Channel Plate Side



- (2) Line
- (8) Cooler Feed
- (9) Center Lube
- (10) Regulator Apply
- (11) Compensator Feed
- (12) Actuator Feed Limit
- (13) Reverse
- (14) 3-5 Reverse Clutch
- (15) 3-5 Reverse Clutch Feedback
- (16) CSV2 Enable
- (17) Solenoid 1
- (18) Solenoid 2
- (19) CSV3 Enable
- (21) Drive 1-6
- (24) 1-2-3-4 Clutch DFLT
- (25) 1-2-3-4 Clutch Feed
- (26) 1-2-3-4 Clutch
- (27) 1-2-3-4 Clutch Feedback
- (28) CBR1/CBR Feed
- (29) CBR1
- (30) CBR
- (31) CBR1/4-5-6 Clutch Feed
- (32) CBR1 Feedback
- (34) 4-5-6 Clutch
- (35) CSV2 Latch
- (36) Drive Brake
- (37) 3-5 Reverse Feed
- (38) PCS TCC
- (39) PCS 1-2-3-4 Clutch
- (40) PS4
- (41) PS1
- (42) PS3
- (43) PS5
- (44) 2-6 Clutch/1-2-3-4 CL Feed
- (45) PCS 3-5 Rev Clutch
- (46) 2-6 Clutch
- (47) PCS 2-6 Clutch
- (48) PCS CBR1/4-5-6 Clutch
- (49) PCS Line
- (50) Exhaust BF
- (51) Exhaust
- (53) 3-5 Rear Feed
- (54) 3-5 Clutch Reverse Feed

2013 Chevrolet Colorado

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



Control Valve Lower Body and Upper Body Replacement

Callout

Component Name

Preliminary Procedures

Remove the transmission electrical connector. Refer to Automatic Transmission Electrical Connector Passage Sleeve Replacement.

- 1

Manual Shaft Detent Bolt

Caution: Refer to Fastener Caution.

Tighten

12 Y (106 lb in)
- 2

Manual Shaft Detent Assembly

Control Valve Assembly Bolt (Qty: 6)

Procedure
- 3

- Do not remove all the bolts in the control valve body assembly. Remove only the bolts indicated.
 - Tighten in specified sequence.

Tighten

8 Y (71 lb in)
- 4

Control Valve Assembly

Fluid Pump Seal
- 5

Procedure

Discard seal and replace with new.

Fluid Pump Seal
- 6

Procedure

Discard seal and replace with new.

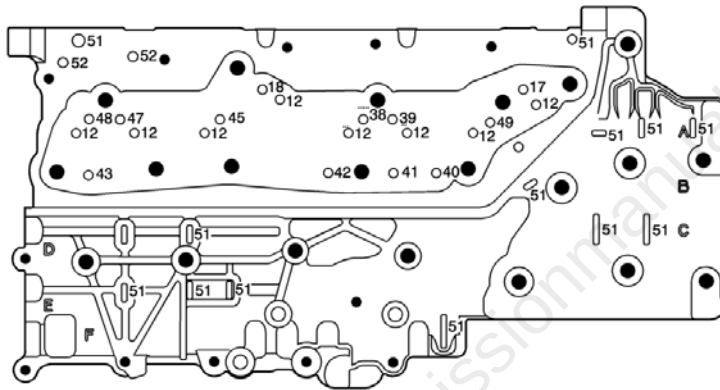
Center Support Fluid Passage Seal

Procedure
- 7

- Discard seal and replace with new.
 - It is recommended that transmission adaptive pressure (TAP) information be reset. Transmission performance may be affected as new TAP values are learned. Refer to Reset Transmission Adapts.
 - If replacing the control valve body assembly, remove the Control Solenoid Valve and Transmission Control Module Assembly Replacement and the Manual Shift Shaft Position Switch Replacement.

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

Control Valve Upper Body Assembly – Control Solenoid Valve Assembly Side

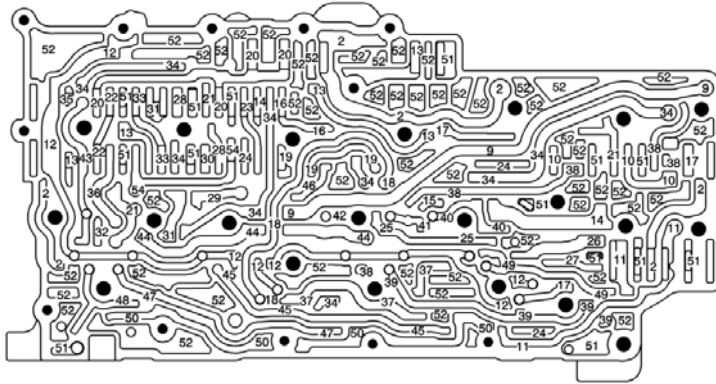


- | | |
|------|-----------------------|
| (12) | Actuator Feed Limit |
| (17) | Solenoid 1 |
| (18) | Solenoid 2 |
| (38) | PCS TCC |
| (39) | PCS 1-2-3-4 Clutch |
| (40) | PS4 |
| (41) | PS1 |
| (42) | PS3 |
| (43) | PS5 |
| (45) | PCS 3-5 Rev Clutch |
| (47) | PCS 2-6 Clutch |
| (48) | PCS CBR1/4-5-6 Clutch |
| (49) | PCS Line |
| (51) | Exhaust |
| (52) | Empty |

2013 Chevrolet Colorado

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

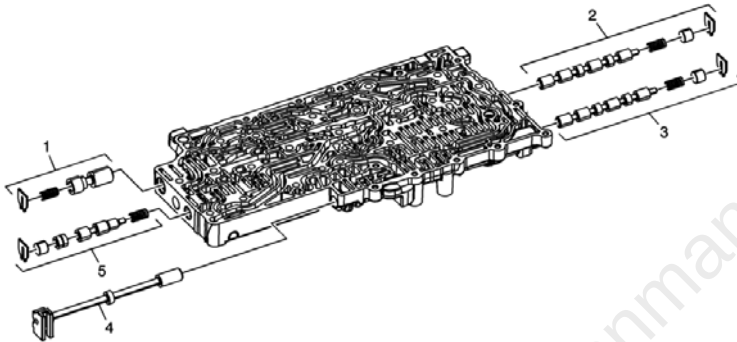
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- (2) Line
- (9) Center Lube
- (10) Regulator Apply
- (11) Compensator Feed
- (12) Actuator Feed Limit
- (13) Reverse
- (14) 3-5 Reverse Clutch
- (15) 3-5 Reverse Clutch Feedback
- (16) CSV2 Enable
- (17) Solenoid 1
- (18) Solenoid 2
- (19) CSV3 Enable
- (20) Drive
- (21) Drive 1–6
- (22) Drive Brake
- (23) 1-2-3-4 Clutch DFLT Feed
- (24) 1-2-3-4 Clutch DFLT
- (25) 1-2-3-4 Clutch Feed
- (26) 1-2-3-4 Clutch
- (27) 1-2-3-4 Clutch Feedback
- (28) CBR1/CBR Feed
- (29) CBR1
- (30) CBR
- (31) CBR1/4-5-6 Clutch Feed
- (32) CBR1 Feedback
- (33) 4-5-6 Clutch Feed
- (34) 4-5-6 Clutch
- (35) CSV2 Latch
- (36) Drive Brake
- (37) 3-5 Reverse Feed
- (38) PCS TCC
- (39) PCS 1-2-3-4 Clutch
- (40) PS4
- (41) PS1
- (42) PS3
- (43) PS5
- (44) 2-6 Clutch/1-2-3-4 CL Feed
- (45) PCS 3-5 Rev Clutch
- (46) 2-6 Clutch
- (47) PCS 2-6 Clutch
- (48) PCS CBR1/4-5-6 Clutch
- (49) PSC Line
- (50) Exhaust BF
- (51) Exhaust
- (52) Empty
- (54) 3-5 Clutch Reverse Feed

2013 Chevrolet Colorado

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



Control Valve Lower Body Assembly Cleaning and Inspection

Callout

Component Name

Warning: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.

Caution: After cleaning the transmission components, allow to air dry. Do not use cloth or paper towels in order to dry any transmission components. Lint from the towels can cause component failure.

Caution: Do not reuse cleaning solvents. Previously used solvents may deposit sediment which may damage the component.

Preliminary Procedure

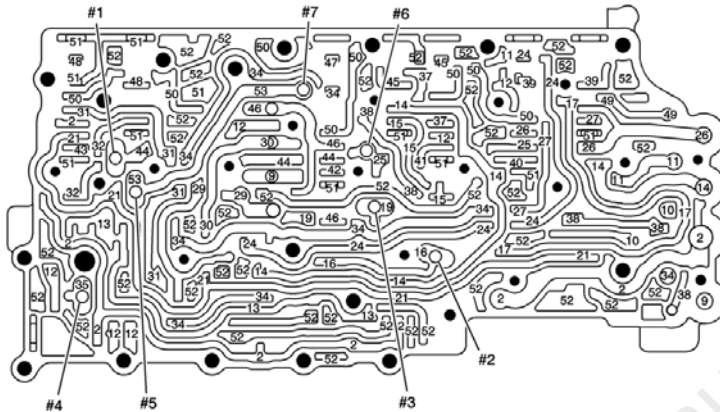
Clean and inspect all valve components and the valve body. The control valve lower body is replaceable only as an assembly.

- | | |
|---|--|
| 1 | Clutch Piston Dam Feed Regulator Valve Train |
| 2 | Clutch Select Solenoid Valve 3 Train |
| 3 | Clutch Select Solenoid Valve 2 Train |
| 4 | Manual Valve |
| 5 | TCC Regulator Apply Valve Train |

2013 Chevrolet Colorado

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

[Control Valve Upper Body Assembly – Bottom Channel Plate Side](#)



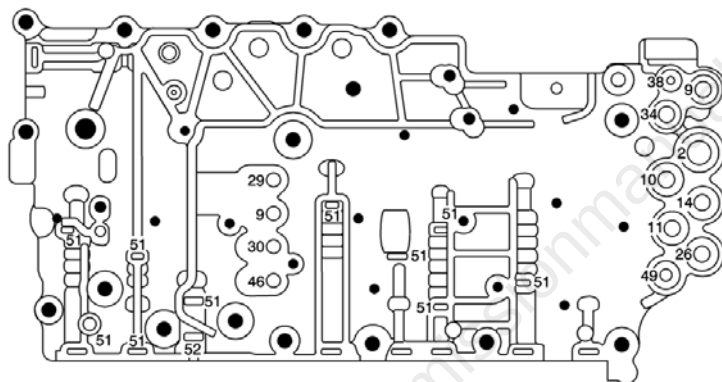
- (2) Line
- (9) Center Lube
- (10) Regulator Apply
- (11) Compensator Feed
- (12) Actuator Feed Limit
- (13) Reverse
- (14) 3-5 Reverse Clutch
- (15) 3-5 Reverse Clutch Feedback
- (16) CSV2 Enable
- (17) Solenoid 1
- (19) CSV3 Enable
- (21) Drive 1-6
- (24) 1-2-3-4 Clutch DFLT
- (25) 1-2-3-4 Clutch Feed
- (26) 1-2-3-4 Clutch
- (27) 1-2-3-4 Clutch Feedback
- (29) CBR1
- (30) CBR
- (31) CBR1/4-5-6 Clutch Feed
- (32) CBR1 Feedback
- (34) 4-5-6 Clutch
- (35) CSV2 Latch
- (37) 3-5 Reverse Feed
- (38) PCS TCC
- (39) PCS 1-2-3-4 Clutch
- (40) PS4
- (41) PS1
- (42) PS3
- (43) PS5
- (44) 2-6 Clutch/1-2-3-4CL Feed
- (45) PCS 3-5 Rev Clutch
- (46) 2-6 Clutch
- (47) PCS 2-6 Clutch
- (48) PCS CBR1/4-5-6 Clutch
- (49) PCS Line
- (50) Exhaust BF
- (51) Exhaust
- (52) Empty
- (53) 3-5 Rear Feed

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

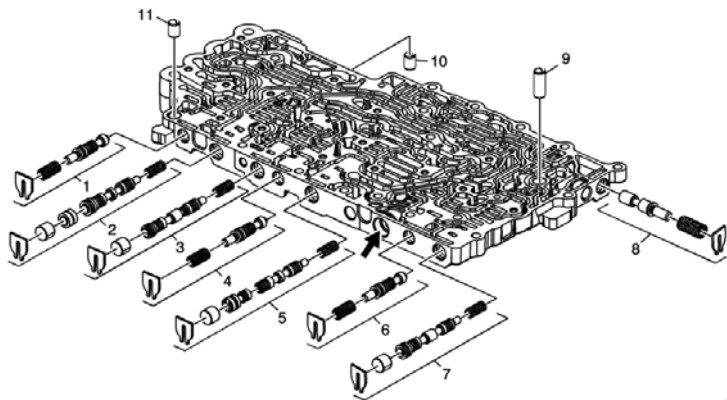
[Control Valve Upper Body Assembly – Case Side](#)



- (2) Line
- (9) Center Lube
- (10) Regulator Apply
- (11) Compensator Feed
- (14) 3-5 Reverse Clutch
- (26) 1-2-3-4 Clutch
- (29) CBR1
- (30) CBR
- (34) 4-5-6 Clutch
- (38) PCS TCC
- (46) 2-6 Clutch
- (49) PCS Line
- (51) Exhaust
- (52) Empty

2013 Chevrolet Colorado

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



Control Valve Upper Body Assembly Cleaning and Inspection

Callout	Component Name
---------	----------------

Warning: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.

Caution: Do not remove the exhaust backfill pressure relief retainer, spring, or ball valve (refer to arrow in above illustration for location). The retainer is set to a precise depth. Replacement of this retainer could cause internal transmission damage.

Caution: After cleaning the transmission components, allow to air dry. Do not use cloth or paper towels in order to dry any transmission components. Lint from the towels can cause component failure.

Caution: Do not reuse cleaning solvents. Previously used solvents may deposit sediment which may damage the component.

Preliminary Procedure

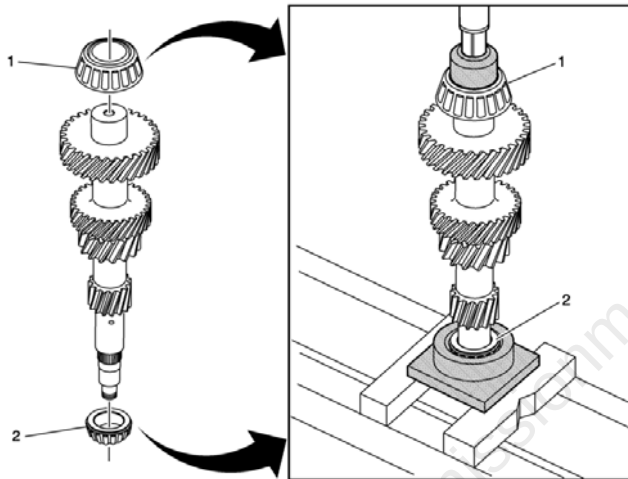
Clean and inspect all valve components, locating pins, and the valve body. The control valve upper body is replaceable only as an assembly.

- | | |
|----|--|
| 1 | Clutch Boost Valve Train |
| 2 | 1–2–3–4 Clutch Regulator Valve Train |
| 3 | 3–5 Reverse Clutch Regulator Valve Train |
| 4 | Clutch Boost Valve Train |
| 5 | 2–6 Clutch Regulator Valve Train |
| 6 | Clutch Boost Valve Train |
| 7 | CBR1/4–5–6 Clutch Regulator Valve Train |
| 8 | Actuator Feed Limit Valve Train |
| 9 | Control Valve Body Locator Pin |
| 10 | Control Valve Body Locator Pin |
| 11 | Control Valve Body Locator Pin |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Counter Gear Shaft Assembly

Callout

Component Name

Counter Gear Bearing Cone Assembly

Procedure

1. Using DT 50857 countershaft bearing cone installer, place the countershaft in the press, using the inner races of those two bearings as a base.
2. Press both bearings until they rest against the shaft stops.

Special Tools

DT 50857 Countershaft Bearing Cone Installer

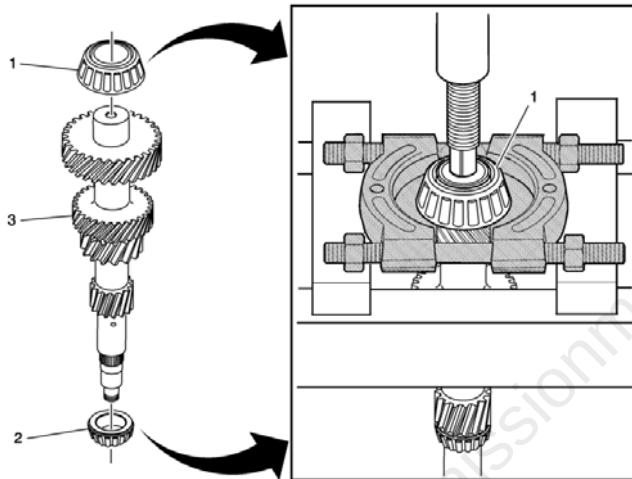
For equivalent regional tools, refer to Special Tools.

2. Counter Gear Rear Bearing Cone Assembly

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Counter Gear Shaft Disassemble

Callout

Component Name

Counter Gear Bearing Cone Assembly

Special Tools

1

DT 22912-B Split Plate Bearing Puller

For equivalent regional tools, refer to Special Tools.

Counter Gear Rear Bearing Cone Assembly

Special Tools

2

DT 22912-B Split Plate Bearing Puller

For equivalent regional tools, refer to Special Tools.

3

Counter Gear Shaft

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

Throttle Positions

Engine Braking

A condition where the engine is used to slow the vehicle by manually downshifting during a zero throttle coastdown.

Full Throttle Detent Downshift

A quick apply of the accelerator pedal to its full travel, forcing a downshift.

Heavy Throttle

Approximately 3/4 of accelerator pedal travel, 75 percent throttle position.

Light Throttle

Approximately 1/4 of accelerator pedal travel, 25 percent throttle position.

Medium Throttle

Approximately 1/2 of accelerator pedal travel, 50 percent throttle position.

Minimum Throttle

The least amount of throttle opening required for an upshift.

Wide Open Throttle (WOT)

Full travel of the accelerator pedal, 100 percent throttle position.

Zero Throttle Coastdown

A full release of the accelerator pedal while the vehicle is in motion and in drive range.

Shift Condition Definitions

Bump

A sudden and forceful apply of a clutch or a band.

Chuggle

A bucking or jerking. This condition may be most noticeable when the converter clutch is engaged. It is similar to the feel of towing a trailer.

Delayed

A condition where a shift is expected but does not occur for a period of time. This could be described as a clutch or band engagement that does not occur as quickly as expected during a part throttle or wide open throttle apply of the accelerator, or during manual downshifting to a lower range. This term is also defined as LATE or EXTENDED.

Double Bump – Double Feel

Two sudden and forceful applies of a clutch or a band.

Early

A condition where the shift occurs before the car has reached proper speed. This condition tends to labor the engine after the upshift.

End Bump

A firmer feel at the end of a shift than at the start of the shift. This is also defined as END FEEL or SLIP BUMP.

Firm

A noticeably quick apply of a clutch or band that is considered normal with a medium to heavy throttle. This apply should not be confused with HARSH or ROUGH.

Flare

A quick increase in engine RPM along with a momentary loss of torque. This most generally occurs during a shift. This condition is also defined as SLIPPING.

Harsh – Rough

A more noticeable apply of a clutch or band than FIRM. This condition is considered undesirable at any throttle position.

Hunting

A repeating quick series of upshifts and downshifts that causes a noticeable change in engine RPM, such as a 4–3–4 shift pattern. This condition is also defined as BUSYNESS.

Initial Feel

A distinctly firmer feel at the start of a shift than at the finish of the shift.

Late

A shift that occurs when the engine RPM is higher than normal for a given amount of throttle.

Shudder

A repeating jerking condition similar to CHUGGLE but more severe and rapid. This condition may be most noticeable during certain ranges of vehicle speed.

Slipping

A noticeable increase in engine RPM without a vehicle speed increase. A slip usually occurs during or after initial clutch or band apply.

Soft

A slow, almost unnoticeable clutch or band apply with very little shift feel.

Surge

A repeating engine related condition of acceleration and deceleration that is less intense than CHUGGLE.

Tie-Up

A condition where two opposing clutch and/or bands are attempting to apply at the same time causing the engine to labor with a noticeable loss of engine RPM.

Noise Conditions

Drive Link Noise

A whine or growl that increases or fades with vehicle speed, and is most noticeable under a light throttle acceleration. It may also be noticeable in PARK or NEUTRAL operating ranges with the vehicle stationary.

Final Drive Noise

A hum related to vehicle speed which is most noticeable under a light throttle acceleration.

Planetary Gear Noise

A whine related to vehicle speed, which is most noticeable in FIRST gear, SECOND gear, FOURTH gear or REVERSE. The condition may become less noticeable, or go away, after an upshift.

Pump Noise

A high pitched whine that increases in intensity with engine RPM. This condition may also be noticeable in all operating ranges with the vehicle stationary or moving.

Torque Converter Noise

A whine usually noticed when a vehicle is stopped, and the transmission is in DRIVE or REVERSE. The noise will increase with engine RPM.

Driver Shift Control

Driver shift control (DSC) allows the driver to change gears similar to a manual transmission.

Transmission Abbreviations

A/C

Air Conditioning

AC

Alternating Current

AT

Automatic Transmission

CCDIC

Climate Control Driver Information Center

DC

Direct Current

DIC

Driver Information Center

DLC

Diagnostic Link Connector

DMM

Digital Multimeter

DSC:

Driver Shift Control

DTC

Diagnostic Trouble Code

EBTCM

Electronic Brake/Traction Control Module

ECCC

Electronically-Controlled Capacity Clutch

ECT

Engine Coolant Temperature

EMI

Electromagnetic Interference

IAT

Intake Air Temperature

IGN

Ignition

IMS

Internal Mode Switch

ISS

Input Speed Sensor

MAP

Manifold Absolute Pressure

MIL

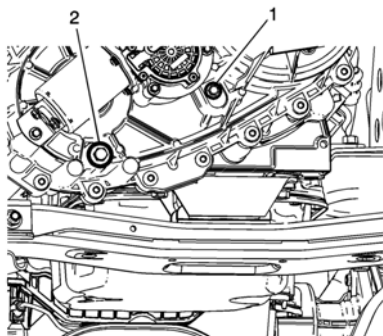
	Malfunction Indicator Lamp
NC	
	Normally Closed
NO	
	Normally Open
OBD	
	On Board Diagnostic
OSS	
	Output Speed Sensor
PC	
	Pressure Control
PCM	
	Powertrain Control Module
PCS	
	Pressure Control Solenoid
PS	
	Pressure Switch
PWM	
	Pulse Width Modulation
RPM	
	Revolutions Per Minute
SS	
	Shift Solenoid
STL	
	Service Transmission Lamp
TAP	
	Transmission Adaptive Pressure
TCC	
	Torque Converter Clutch
TFP	
	Transmission Fluid Pressure
TFT	
	Transmission Fluid Temperature
TP	
	Throttle Position
VSS	
	Vehicle Speed Sensor
WOT	
	Wide Open Throttle

2013 Chevrolet Colorado

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

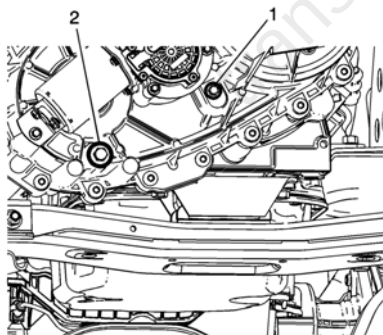
[Removal Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Remove the drain plug (2).

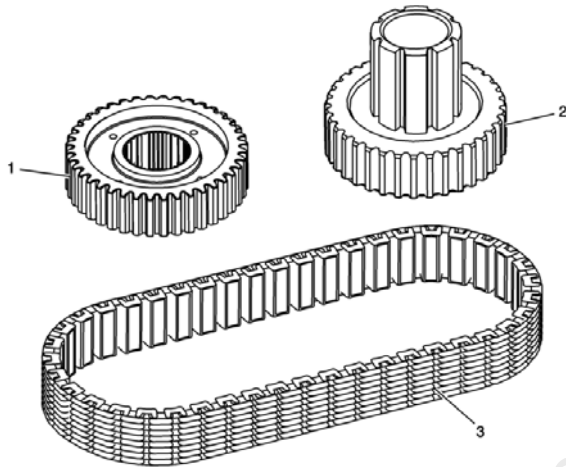
[Installation Procedure](#)



1. Install the drain plug (2).
2. Lower the vehicle.

2013 Chevrolet Colorado

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



Drive Chain, Drive Sprocket, and Driven Sprocket Cleaning and Inspection

Callout

Preliminary Procedure

- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.
- Replace any components if damage is found in this procedure. The sprockets must be replaced as a pair.
- Clean all components in cleaning solvent and air dry.

Component Name

Transfer Case Front Output Shaft Driven Sprocket

Note:

1

- Inspect for chipped teeth, excessively worn gear surfaces, and debris embedded in the root of the teeth.
- Witness marks at the location of the chain are to be considered normal.

Transfer Case Front Output Shaft Drive Sprocket

Note:

2

- Inspect for chipped teeth, excessively worn gear surfaces, and debris embedded in the root of the teeth.
- Witness marks at the location of the chain are to be considered normal.
- Inspect for wear to the drive sprocket bushings.

Transfer Case Front Output Shaft Drive Chain Assembly

3

Note: Inspect for loose link pins, binding or stiff links, debris embedded in the links, or worn teeth surfaces.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command OFF the normally-high C35R pressure control solenoid 2. At the same time the normally-low CBR1/C456 pressure control solenoid 3 is commanded ON to regulate 4-5-6 clutch apply.

[4-5-6 Clutch Applies](#)

CBR1/C456 Pressure Control Solenoid 3

The CBR1/C456 pressure control solenoid 3 (PCS) is commanded ON allowing actuator feed fluid to enter the PCS CBR1/456 clutch fluid circuit. PCS CBR1/456 clutch fluid is routed through orifice #39 to the CBR1/C456 clutch regulator valve and, through orifice #31 to the CBR1/C456 clutch boost valve.

CBR1/C456 Clutch Regulator Valve

PCS CBR1/456 clutch fluid moves the CBR1/C456 clutch regulator valve against CBR1/C456 clutch regulator valve spring force to allow line fluid to pass through the valve and enter the CBR1/456 clutch feed circuit. CBR1/456 clutch feed is then routed to the 4-5-6 clutch boost valve and clutch select valve 2.

4-5-6 Clutch Boost Valve

PCS CBR1/456 clutch fluid pressure acts on a differential area moving the CBR1/456 clutch boost valve against the CBR1/456 clutch boost valve spring. CBR1/456 clutch fluid passes through the valve and enters the CBR1/456 clutch feedback circuit. As PCS CBR1/456 clutch fluid pressure is increased to a given value, the CBR1/456 clutch boost valve opens the CBR1/456 clutch feedback circuit to exhaust. This results in the CBR1/456 clutch regulator valve moving to the full feed position, sending full line pressure to the clutch.

Clutch Select Valve 2

CBR1/456 clutch feed fluid passes through the clutch select valve 2 and enters the 456 clutch feed circuit. The 456 clutch feed fluid is routed to the clutch select valve 3 where it passes through the valve and enters the 456 clutch fluid circuit. The 456 clutch fluid is routed to the 4-5-6 clutch, the 2-6 clutch regulator gain valve and to the #3 ball check valve. The 456 clutch fluid seats the #3 ball check valve against solenoid 2 fluid passage and directed into the CSV3 enable fluid circuit where it is routed through orifice #20 and to clutch select valve 3.

4-5-6 Clutch

The 456 clutch fluid enters the 4-5-6 clutch housing to move the piston against spring force, combined with force from the compensator to apply the 4-5-6 clutch plates.

[3-5 Reverse Clutch Releases](#)

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded OFF, allowing PCS 35 reverse clutch fluid from the 3-5 reverse clutch boost valve and the 3-5 reverse clutch regulator valve to exhaust through the solenoid.

3-5 Reverse Clutch Boost Valve

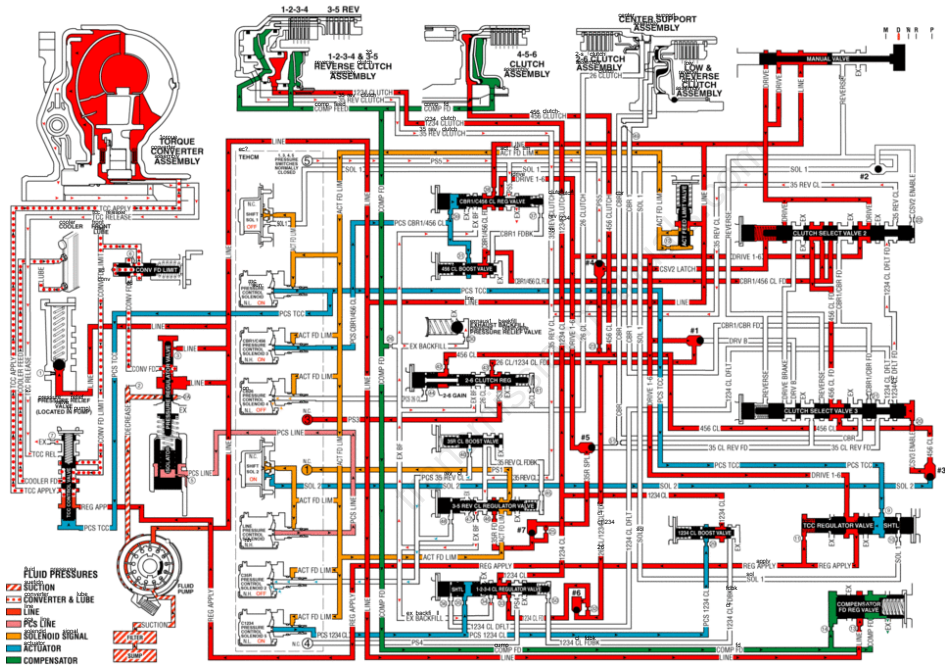
The 3-5 reverse boost valve spring force moves the valve to allow 35 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 35 reverse clutch fluid circuit and exhaust.

3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 35 reverse clutch fluid from the 3-5 reverse clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 35 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with force from the compensator move the 3-5 reverse clutch piston to release the 3-5 clutch plates and forces 35 reverse clutch fluid to exhaust from 1- 2-3-4 and 3-5 reverse clutch housing. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve and exhausted.



2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

If the transmission is in 4th, 5th or 6th gear during a transmission electrical component failure, the transmission will default to 5th gear. All solenoids will default to their normal state. If the torque converter clutch was applied, it will release. The transmission will stay in 5th gear default range until the ignition has been turned off or transmission shifted to reverse. When the vehicle is restarted, and shifted back into drive, the transmission will then operate in the 3rd gear default range. This default action will enable the vehicle to be safely driven to a service center.

[3-5 Reverse Clutch Applies](#)

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 defaults to ON, allowing actuator feed fluid to enter the pressure control solenoid (PCS) 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the PCS 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve, allowing the switch to close.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 and 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

Clutch Select Valve 3

Once the clutch select valve 3 is moved to the ON position in 4th gear, it will remain in this position throughout the 5th gear default range, until the ignition has been turned OFF. When the ignition is OFF, fluid will exhaust from the valve, thus when the vehicle is restarted, the transmission will then be in the 3rd gear default range.

[1-2-3-4 Clutch Releases or 2-6 Clutch Releases](#)

C1234 Pressure Control Solenoid 5

If the transmission was in 4th gear when an electrical condition commands a protection mode, the C1234 pressure control solenoid 5 defaults to the OFF position, allowing PCS 1234 clutch fluid from the 1-2-3-4 clutch, the 1-2-3-4 clutch regulator valve and 1- 2-3-4 clutch boost valve to exhaust.

2-6 CB26 Pressure Control Solenoid 4

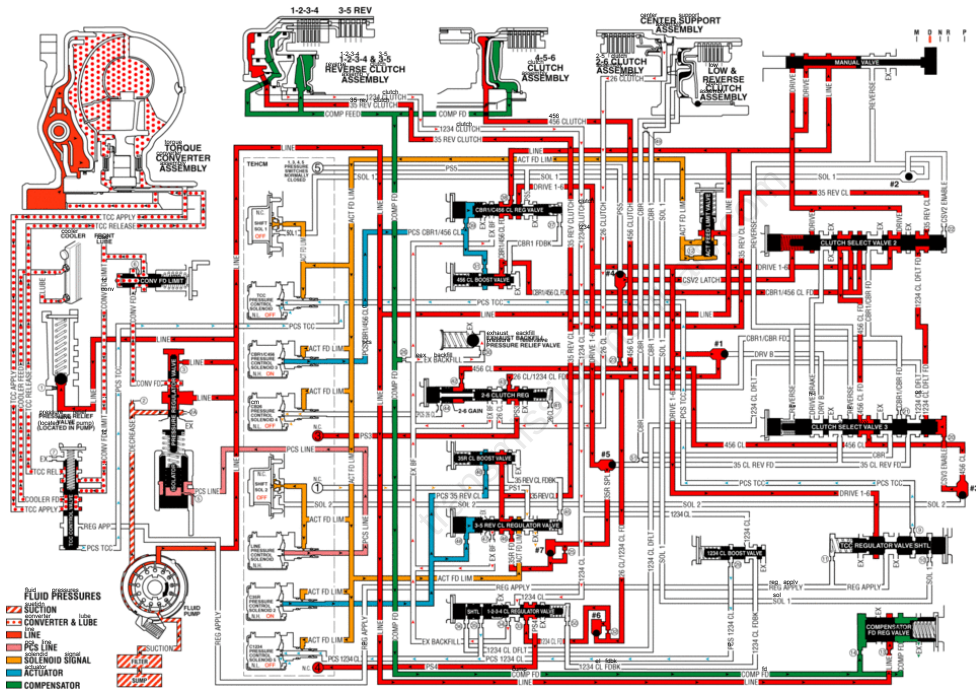
If the transmission was in 6th gear when an electrical condition commands a protection mode, the CB26 pressure control solenoid 4 defaults to the OFF position, allowing PCS 26 clutch fluid from the 2-6 clutch regulator valve, and the 2-6 clutch to exhaust.

[Torque Converter Clutch Releases](#)

TCC Pressure Control Solenoid

The torque converter clutch (TCC) pressure control solenoid will default to it's normal state, OFF. PCS TCC fluid will exhaust from the TCC control valve, and spring force will shuttle the valve to the off position. TCC apply fluid will then be routed to the cooler, and TCC release fluid will be routed to the torque converter for complete TCC release.

[Drive Range, Fifth Gear Default](#)



2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-high C35R pressure control solenoid 2. At the same time the normally-low C1234 pressure control solenoid 5 is commanded OFF.

[3-5 Reverse Clutch Applies](#)

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded ON, allowing actuator feed fluid to enter the PCS 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 35 reverse clutch fluid pressure acts on a differential area moving the PCS 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 35 reverse clutch fluid passes through the valve and enters the 35 reverse clutch feedback circuit. As PCS 35 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 35 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 35 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 35 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 35 reverse clutch feedback fluid. This allows 35 reverse feed to pass through the valve and enter the 35 reverse clutch circuit. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve allowing the switch to close.

Clutch Select Valve 2

The 35 reverse clutch fluid passes through the clutch select valve 2 and enters the 1234 clutch default feed fluid circuit. The 1234 clutch default feed fluid is then routed to the clutch select valve 3.

3-5 Reverse Clutch

The 35 reverse clutch fluid enters the 1-2-3-4 and 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

[1-2-3-4 Clutch Releases](#)

C1234 Pressure Control Solenoid 5

The C1234 pressure control solenoid 5 is commanded OFF, allowing PCS 1234 clutch fluid from the 1-2-3-4 clutch regulator valve and 1-2-3-4 clutch boost valve to exhaust.

1-2-3-4 Clutch Regulator Valve

The 1-2-3-4 clutch regulator valve spring force moves the valve to allow 1234 clutch feed fluid from the 1-2-3-4 clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 1234 clutch fluid enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted. Also, 1234 clutch regulator valve spring force moves the valve to allow 1234 clutch feed fluid to pass through the valve and enter the PS4 fluid circuit. PS4 fluid is then routed to pressure switch 4 and opens the normally-closed switch.

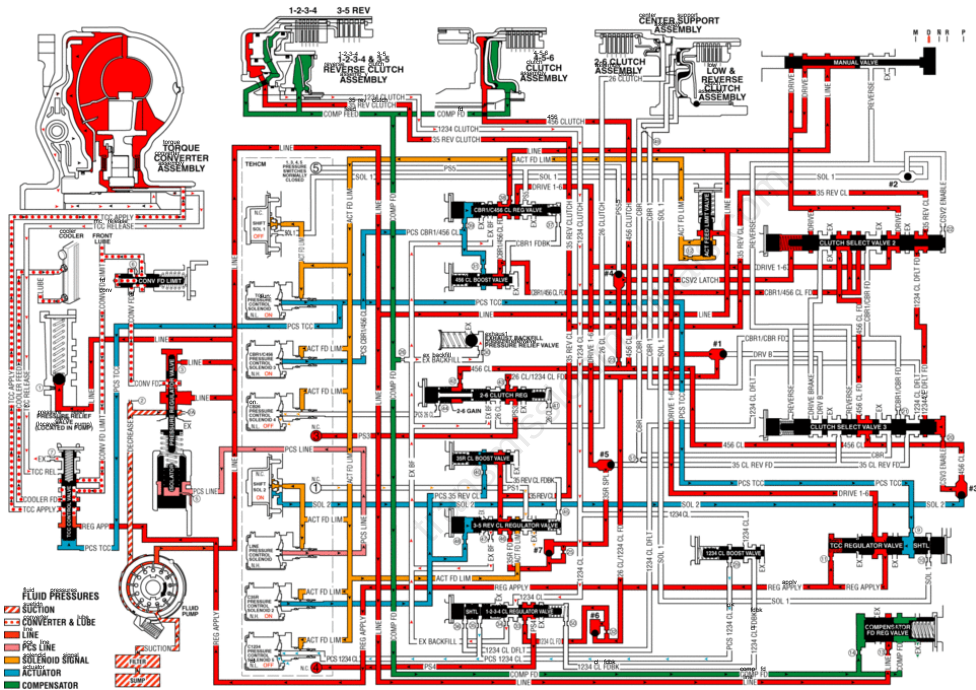
1-2-3-4 Clutch Boost Valve

The 1-2-3-4 clutch boost valve spring force moves the valve to allow 1234 clutch feedback fluid from the 1-2-3-4 clutch regulator valve to enter the 1234 clutch circuit and exhaust.

1-2-3-4 Clutch

The 1-2-3-4 clutch spring force combined with force from the compensator moves the 1-2-3-4 clutch piston to release the clutch plates and force 1234 clutch fluid from the 1-2-3-4 and 3-5 reverse clutch housing. The 1234 clutch fluid is routed through the 1-2-3-4 clutch regulator valve where it enters the exhaust backfill fluid circuit.

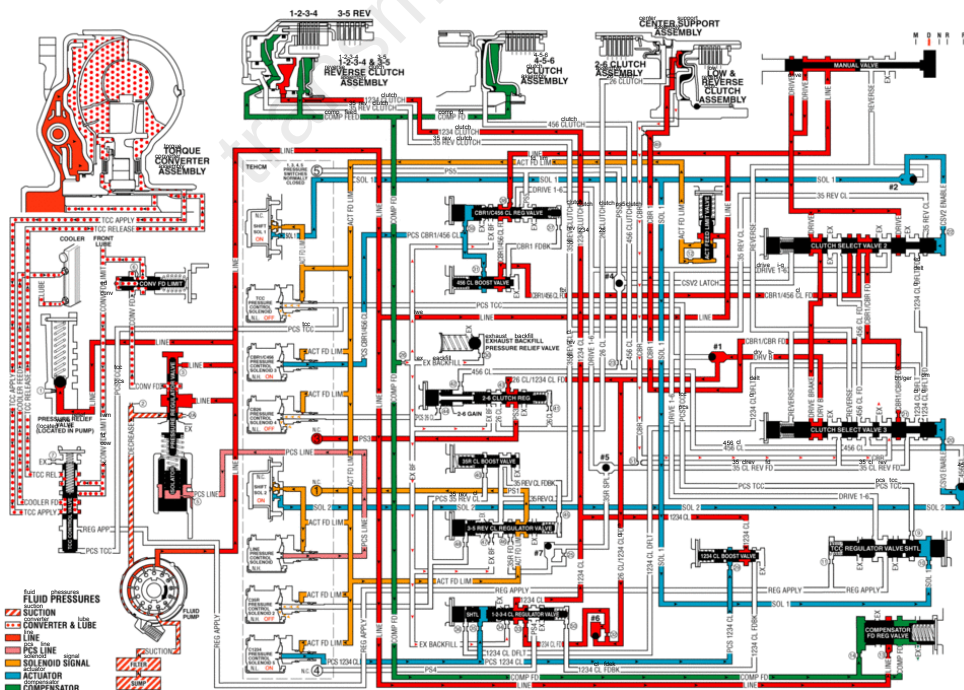
[Drive Range, Fifth Gear](#)



2013 Chevrolet Colorado

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

transmissionmanuals.com



2013 Chevrolet Colorado

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

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, throttle position sensor and other vehicle sensors to determine the precise moment to deenergize or "turn off" shift solenoid 1 and command OFF the normally-high CBR1/C456 pressure control solenoid 3.

Low & Reverse Clutch Releases

Shift Solenoid 1

When shift solenoid 1 is "turned OFF", CSV2 enable fluid from the clutch select valve 2 passes by the #2 ball check valve and enters the solenoid 1 fluid circuit. Solenoid 1 fluid from the #2 ball check valve and TCC regulator valve is then routed to the solenoid where it exhausts.

Clutch Select Valve 2

Clutch select valve 2 (CSV2) enable fluid is exhausted from the clutch select valve 2 and clutch select valve 2 spring force moves the valve to the released position. With clutch select valve 2 in the released position, drive fluid from the manual valve passes through the valve and enters the drive 1-6 fluid circuit. Drive 1-6 fluid then feeds all clutch regulator valves and the TCC regulator valve.

CBR1/C456 Pressure Control Solenoid 3

The CBR1/C456 pressure control solenoid 3 is commanded OFF allowing PCS CBR1/C456 fluid from the CBR1/C456 clutch regulator valve and 456 clutch boost valve to exhaust.

CBR1/C456 Clutch Regulator Valve

CBR1/C456 clutch regulator valve spring force moves the valve to exhaust the CBR1/456 clutch feed circuit and allow drive 1-6 fluid to enter the PS5 fluid circuit. PS5 fluid is then routed to the normally-closed pressure switch 5 and opens the switch. PS5 fluid is also routed to the #4 ball check valve and flows into the CSV2 latch fluid circuit.

#4 Ball Check Valve

PS5 fluid pressure seats the #4 ball check valve against the 456 clutch fluid circuit. PS5 fluid is then directed into the CSV2 latch fluid circuit and routed to the clutch select valve 2. CSV2 latch fluid combines with clutch select valve 2 spring force and holds the valve in this position during all 6 forward gear ranges.

#5 Ball Check Valve

Drive 1-6 fluid pressure seats the #5 ball check valve against the 35R clutch reverse feed fluid passage. Drive 1-6 fluid is then directed into the 35R supply fluid circuit which is routed to the #7 ball check valve and orifice #25.

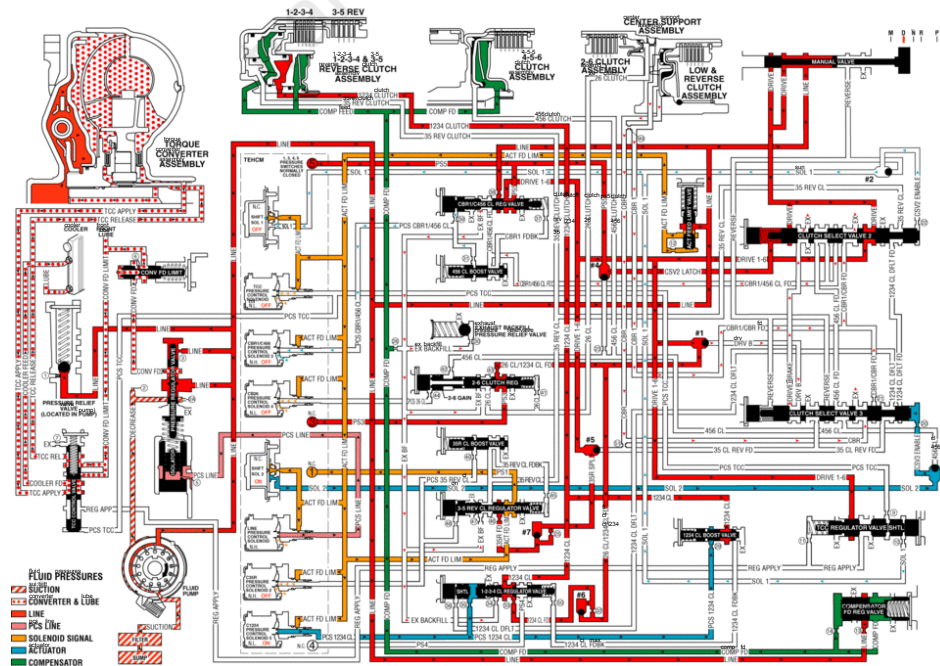
#7 Ball Check Valve

The 35R supply fluid seats the #7 ball check valve against the 35R feed fluid passage to force 35R supply fluid through orifice #25 before entering the 35R feed circuit. The 35R feed fluid is then routed to the 3-5 reverse clutch regulator valve.

Low and Reverse Clutch

Low and reverse clutch spring force moves the low and reverse clutch piston which forces clutch braking (CBR) and CBR1 fluid out of the center support. CBR fluid is routed to the clutch select valve 3 where it exhausts. CBR1 fluid is routed to the clutch select valve 2 where it exhausts. The low and reverse clutch is in the released position.

Drive Range, First Gear



2013 Chevrolet Colorado

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

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-low pressure control solenoid 4.

Second Clutch Applies

CB26 Pressure Control Solenoid 4

The CB26 pressure control solenoid 4 is commanded ON, allowing actuator feed limit fluid to enter the pressure control solenoid (PCS) 26 clutch fluid circuit. PCS 26 clutch fluid is then routed through orifice #44 to the 2-6 clutch regulator gain valve.

2-6 Clutch Regulator Gain Valve

The 2-6 clutch regulator gain valve allows the gain (valve input to output pressure magnification factor) of the 2-6 clutch regulator valve to be different for a 1-2 shift verses a 5-6 shift. For a 1-2 shift, PCS 26 clutch fluid pressure acts on a differential area resulting in the "high gain" pressure output.

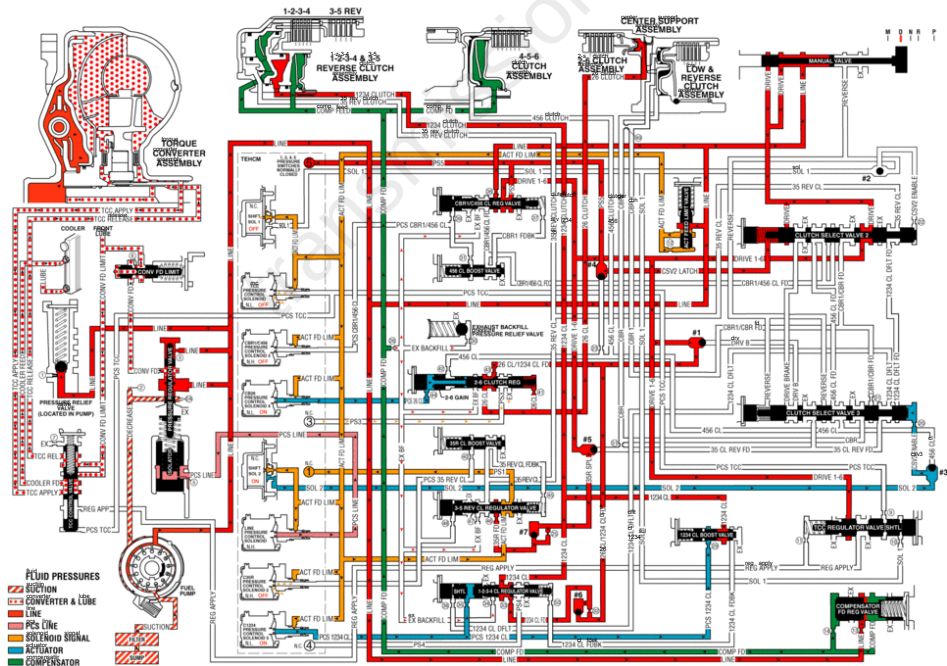
2-6 Clutch Regulator Valve

PCS 26 clutch fluid moves the 2-6 clutch regulator / gain valve assembly against the 2-6 clutch regulator valve spring force to allow 26 clutch/1234 clutch feed fluid to pass through the valve. The 26 clutch/1234 clutch feed fluid is routed into the 26 clutch fluid circuit where it passes through orifice #41 and then to the spring end of the 2-6 clutch regulator valve, and to the 2-6 clutch within the center support.

2-6 Clutch

The 26 clutch fluid from the 2-6 clutch regulator valve is routed through the center support and to the 2-6 clutch piston assembly. The 26 clutch fluid pressure moves the piston against 2-6 clutch spring force to apply the 2-6 clutch plates.

Drive Range, Second Gear



2013 Chevrolet Colorado

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

Fuel Delivery: | **Fuel:**

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-low CB26 pressure control solenoid 4 (PCS). At the same time the normally-high C35R pressure control solenoid 2 is commanded OFF.

2-6 Clutch Applies

CB26 Pressure Control Solenoid 4

The CB26 pressure control solenoid 4 is commanded ON, allowing actuator feed fluid to enter the PCS 26 clutch fluid circuit. PCS 26 fluid is routed through orifice #44 and then to the 2-6 clutch regulator gain valve.

2-6 Clutch Regulator Gain Valve

The 2-6 clutch regulator gain valve allows the gain (valve input to output pressure magnification factor) of the 2-6 clutch regulator valve to be different for a 1-2 shift verses a 5-6 shift. For a 5-6 shift PCS 26 clutch fluid pressure passes through the hollow valve and only acts on the 26 regulator valve area, resulting in the "low gain" pressure output.

2-6 Clutch Regulator Valve

PCS 26 clutch fluid moves the 2-6 clutch regulator/gain valve assembly against the 2-6 clutch regulator valve spring force to allow 26 clutch/1234 clutch feed fluid to pass through the valve. The 26 clutch/1234 clutch feed fluid is routed into the 26 clutch fluid circuit where it passes through orifice #41 and then to the spring end of the 2-6 clutch regulator valve, and to the 2-6 clutch within the center support.

2-6 Clutch

The 26 clutch fluid from the 2-6 clutch regulator valve is routed through the center support and to the 2-6 clutch piston assembly. The 26 clutch fluid pressure moves the piston against 2-6 clutch spring force to apply the 2-6 clutch plates.

3-5 Clutch Releases

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded OFF, allowing PCS 35 reverse clutch fluid from the 3-5 reverse clutch boost valve and the 3-5 reverse clutch regulator valve to exhaust through the solenoid.

3-5 Reverse Clutch Boost Valve

The 3-5 reverse boost valve spring force moves the valve to allow 35 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 35 reverse clutch circuit and exhaust.

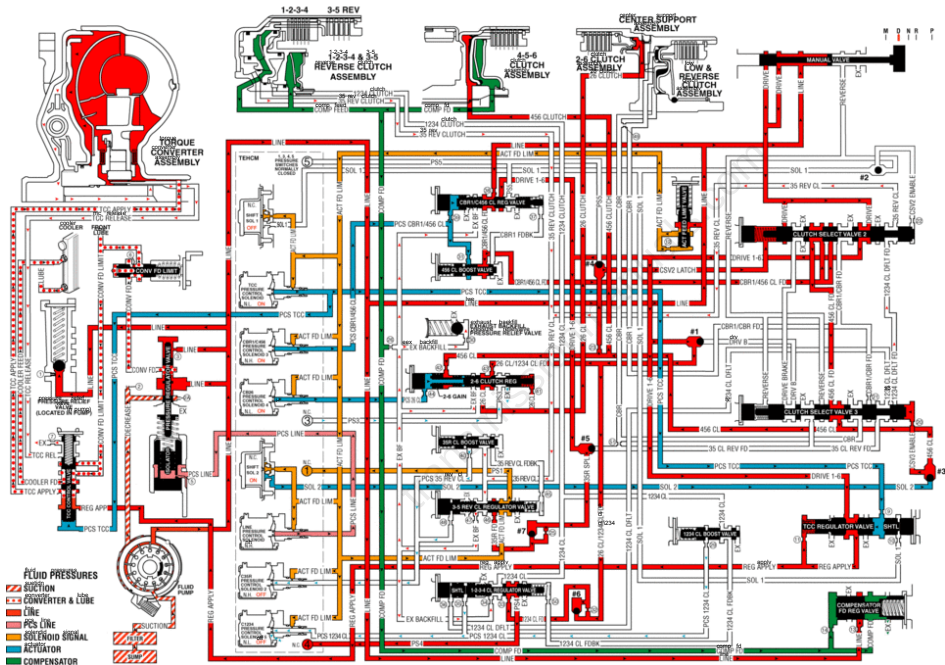
3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 35 reverse clutch fluid from the 3-5 reverse clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 35 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with force from the compensator move the 3-5 reverse clutch piston to release the 3-5 clutch plates and forces 35 reverse clutch fluid to exhaust from 1-2-3-4 and 3-5 reverse clutch housing. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve where it enters the exhaust backfill circuit.

Drive Range, Sixth Gear



2013 Chevrolet Colorado

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

If the transmission is in 1st, 2nd or 3rd gear during a transmission electrical component failure, the transmission will default to 3rd gear. All solenoids will default to their normal state. If the torque converter clutch was applied, it will release. This default action will enable the vehicle to be safely driven to a service center.

[1-2-3-4 Clutch Stays Applied](#)

Shift Solenoid 2

Shift solenoid 2 defaults to its normally-closed state (OFF), and SOL 2 fluid exhausts through the solenoid.

Clutch Select Valve 3

Solenoid 2 fluid pressure no longer holds the clutch select valve 3 open. When the valve moves back to the closed position, it opens the 1234 clutch default fluid circuit, and 1234 default fluid is routed to the 1-2-3-4 clutch regulator valve.

1-2-3-4 Clutch Regulator Valve

With the absence of PCS 1234 clutch fluid, due to the default state of the C1234 pressure control solenoid 5, the 1-2-3-4 regulator valve would close from spring force. However, the 1234 clutch default fluid enters behind the 1-2-3-4 regulator shuttle valve and keeps the valve in the open position.

1-2-3-4 Clutch

With the 1-2-3-4 clutch regulator valve still held in the open position, the 1-2-3-4 clutch will stay applied.

[3-5 Reverse Clutch Applied or Applies](#)

C35R Pressure Control Solenoid 2

The normal state for the C35R pressure control solenoid 2 is ON, therefore PCS 35 reverse clutch fluid will still be routed to the 3-5 reverse clutch regulator valve and the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve, allowing the switch to close.

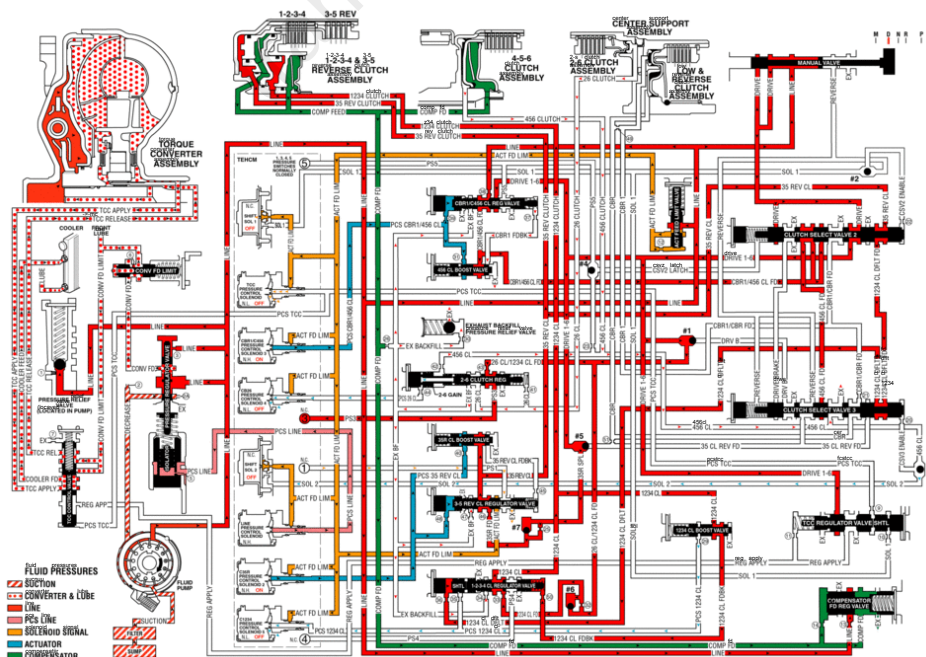
3-5 Reverse Clutch Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 and 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

[Drive Range, Third Gear Default](#)



As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command OFF the normally-low CB26 pressure control solenoid 4. At the same time the C35R pressure control solenoid 2 is also commanded ON to regulate 3-5 clutch apply.

3-5 Reverse Clutch Applies

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded ON allowing actuator feed fluid to enter the pressure control solenoid (PCS) 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 35 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 35 reverse clutch fluid passes through the valve and enters the 35 reverse clutch feedback circuit. As PCS 35 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 35 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 35 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 35 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 35 reverse clutch feedback fluid. This allows 35 reverse feed to pass through the valve and enter the 35 reverse clutch circuit. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve allowing the switch to close.

3-5 Reverse Clutch

The 35 reverse clutch fluid enters the 1-2-3-4 and 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

2-6 Clutch Releases

CB26 Pressure Control Solenoid 4

The CB26 pressure control solenoid 4 is commanded OFF allowing PCS 26 clutch fluid from the 2-6 clutch regulator valve to exhaust. The 26 clutch/1234 clutch feed fluid at the 2-6 clutch regulator valve passes through the valve and enters the PS3 fluid circuit. PS3 fluid is then routed to pressure switch 3 and opens the normally-closed switch.

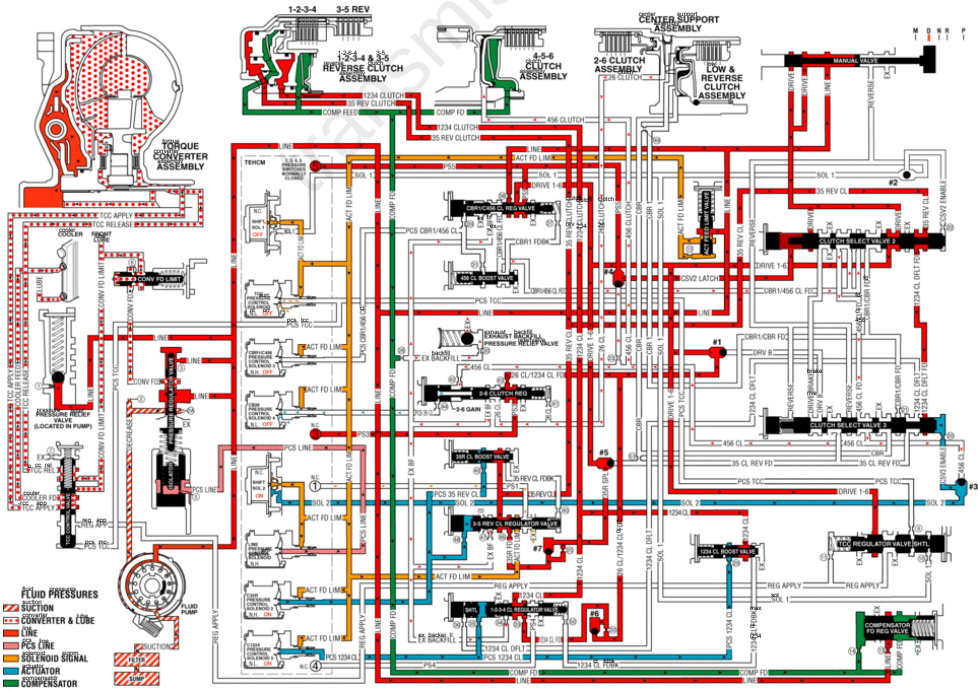
2-6 Clutch Regulator Valve

The 2-6 clutch regulator valve spring force moves the valve to allow 26 clutch fluid from the 2-6 clutch to pass through the valve and enter the exhaust backfill fluid circuit.

2-6 Clutch

The 2-6 clutch spring force moves the 2-6 clutch piston to release the 2-6 clutch plates and forces 26 clutch fluid to exhaust from the center support. The 26 clutch fluid is routed through the 2-6 clutch regulator valve where it enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

Drive Range, Third Gear



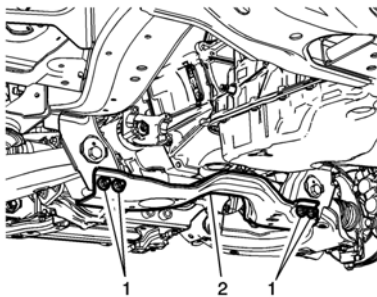
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

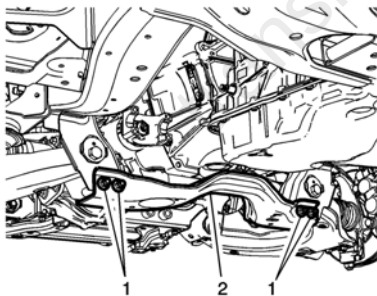
[Removal Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the rear shield, if equipped. Refer to Engine Protection Shield Replacement.
3. Support the front differential with a transmission jack stand.



4. Remove the 4 bolts and nuts (1) from the frame.
5. Remove the front crossmember (2).

[Installation Procedure](#)



1. Install the front crossmember (2).

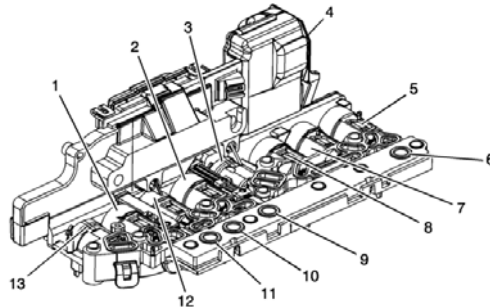
Caution: Refer to Fastener Caution.

2. Install 4 bolts in the frame and tighten to **56 Y (41 lb ft)**.
3. Install the rear shield, if equipped. Refer to Engine Protection Shield Replacement.
4. Remove the supports and lower the vehicle.

2013 Chevrolet Colorado

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

Control Solenoid (W/Body and TCM) Valve Assembly



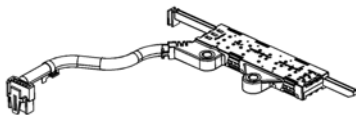
- (1) Line Pressure Control (PC) Solenoid
- (2) Torque Converter Clutch (TCC) Pressure Control (PC) Solenoid
- (3) Shift Solenoid (SS) 2
- (4) 16 Pin Connector
- (5) Pressure Control (PC) Solenoid 3
- (6) Transmission Fluid Pressure (TFP) Switch 5
- (7) Pressure Control (PC) Solenoid 4
- (8) Pressure Control (PC) Solenoid 2
- (9) Transmission Fluid Pressure (TFP) Switch 3
- (10) Transmission Fluid Pressure (TFP) Switch 1
- (11) Transmission Fluid Pressure (TFP) Switch 4
- (12) Pressure Control (PC) Solenoid 5
- (13) Shift Solenoid (SS) 1

The control solenoid (w/body and TCM) valve assembly contains the following components:

- Transmission control module (TCM)
- Clutch pressure control solenoids (Clutch PC Sol)
- Shift solenoids (SS)
- Line pressure control solenoid (Line PC Sol)
- Torque converter clutch pressure control solenoid (TCC PC Sol)
- Transmission fluid temperature sensor (TFT Sensor)
- TCM temperature sensor
- Power-up temperature sensor
- Transmission fluid pressure switches (TFP Sw)

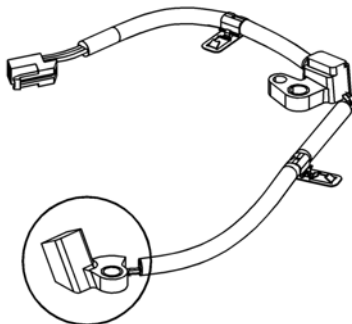
These components are not serviced separately. The control solenoid (w/body and TCM) valve assembly utilizes a lead-frame system to connect these components electrically to the TCM. No wires are used for these components. The control solenoid (w/body and TCM) valve assembly bolts directly to the lower and upper valve body assemblies inside the transmission. The control solenoid (w/body and TCM) valve assembly connects to the engine harness 16-way connector via a pass-thru sleeve.

Internal Mode Switch (IMS)



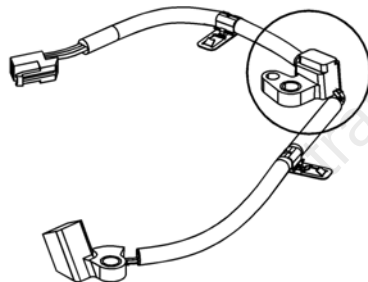
The transmission manual shift shaft switch assembly is a sliding contact switch attached to the manual shift shaft inside the transmission case. The five inputs to the TCM from the transmission manual shift shaft switch assembly indicate the transmission gear selector lever position. This information is used for engine controls as well as determining the transmission shift patterns. The state of each input is available for display on the scan tool. The five input parameters represented are Signal A, Signal B, Signal C, Signal P (Parity) and Signal N (P/N Start).

Input Speed Sensor (ISS)



The input speed sensor (ISS) is a hall-effect type sensor. The ISS mounts to the control valve upper body assembly and connects to the control solenoid valve assembly through a wire harness and connector. The sensor faces the 1-2-3-4 and 3-5-R clutch housing machined teeth surface. The sensor receives 8.3–9.3 volts on the ISS/OSS Supply Voltage circuit from the TCM. As the 1-2-3-4 and 3-5-R clutch housing rotates, the sensor produces a signal frequency based on the machined surface of the 1-2-3-4 and 3-5-R clutch housing. This signal is transmitted through the ISS signal circuit to the control solenoid valve assembly. The control solenoid valve assembly uses the ISS signal to determine line pressure, transmission shift patterns, torque converter clutch (TCC) slip speed and gear ratio.

Output Speed Sensor (OSS)



The output speed sensor (OSS) is a hall-effect type sensor. The OSS mounts to the control valve upper body assembly and connects to the control solenoid valve assembly through a wire harness and connector. The sensor faces the output shaft machined teeth surface. The sensor receives 8.3–9.3 volts on the ISS/OSS supply voltage circuit from the TCM. As the output shaft rotates, the sensor produces a signal frequency based on the machined surface of the output shaft. This signal is transmitted through the OSS signal circuit to the TCM. The TCM uses the OSS signal to determine line pressure, transmission shift patterns, torque converter clutch (TCC) slip speed and gear ratio.

2013 Chevrolet Colorado

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

If the vehicle is equipped with automatic transmission and a floor mounted console gear shift, it has an electronic park lock system (EPL). The EPL system purpose is to prevent the ignition key from being turned to the OFF position when the transmission is in any position other than PARK and the vehicle may still be moving. The EPL system consists of an ignition lock cylinder solenoid, and a park position switch that is located in the A/T shift lock control switch. The ignition lock cylinder solenoid contains a pin that is spring loaded to mechanically prevent the ignition key cylinder from being turned to the lock position when the vehicle transmission is not in the PARK position. If vehicle power is lost, and/or the transmission is not in the Park position the operator will not be able to turn the ignition key to the lock position and will not be able to remove the ignition key from the column.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

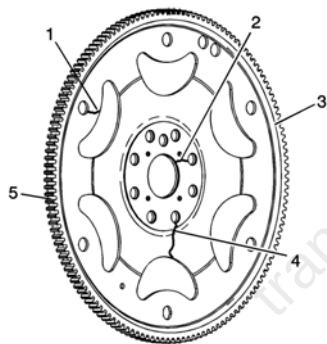
[Cleaning Procedure](#)

1. Clean the engine flywheel in solvent.

Warning: Refer to Safety Glasses Warning.

2. Dry the engine flywheel with compressed air.

[Inspection Procedure](#)



1. Inspect the engine flywheel for the following conditions:

- Stress cracks around the engine flywheel-to-torque converter mounting bolt hole locations (1) and/or engine flywheel-to-crankshaft (2, 4)

Note: Do not attempt to repair the welded areas that retain the ring gear to the engine flywheel plate. Install a new engine flywheel.

- Cracks at welded areas that retain the ring gear onto the engine flywheel (3)
- Damaged or missing ring gear teeth (5)
- Replace the engine flywheel as necessary.

2013 Chevrolet Colorado

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

Special Tools

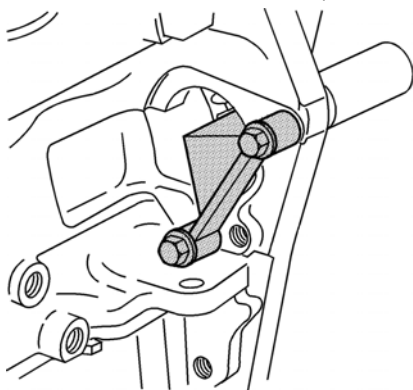
- EN 45059 Angle Meter
- EN 46106 Flywheel Holding Tool

For equivalent regional tools, refer to Special Tools.

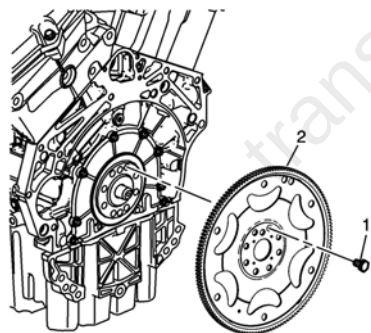
1. Place the engine flywheel in position on the crankshaft.

Caution: This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install 2 NEW bolts in location at the top and bottom of the engine flywheel bolt pattern allowing the engine flywheel to hang in position.



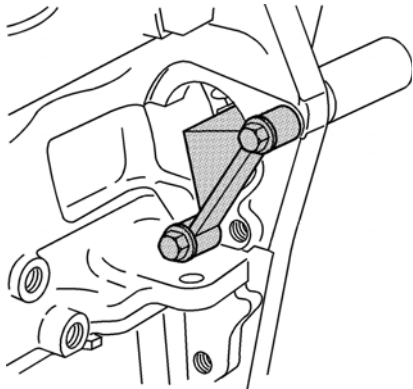
3. Install the EN 46106 tool.



Caution: Refer to Fastener Caution.

4. Install the remaining NEW engine flywheel bolts.

1. Tighten the NEW engine flywheel bolts to **30 Y (22 lb ft)**.
2. Tighten the NEW engine flywheel bolts an additional **45 degrees** using the EN 45059 meter.



5. Remove the *EN 46106* tool.

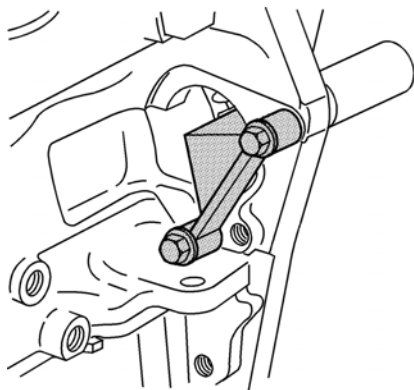
2013 Chevrolet Colorado

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

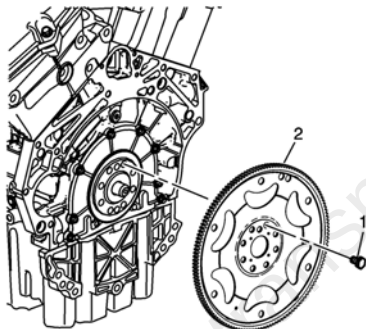
Special Tools

EN 46106 Flywheel Holding Tool

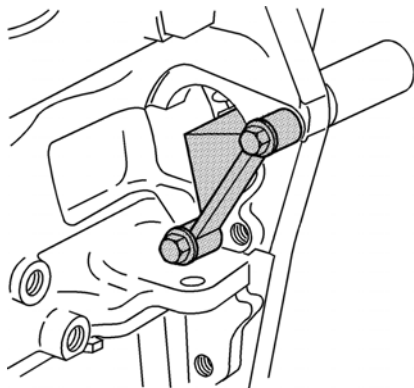
For equivalent regional tools, refer to Special Tools.



1. Install the EN 46106 tool through the starter mounting hole.



2. Remove the engine flywheel bolts and discard.
3. Remove the engine flywheel from the crankshaft.



4. Remove the EN 46106 tool .

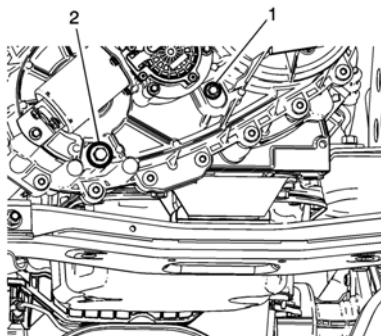
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

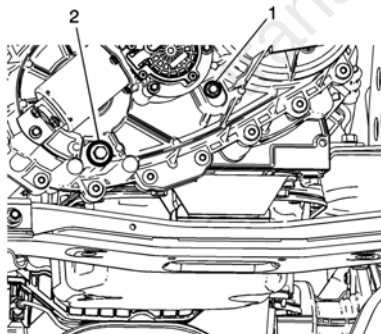
[Removal Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Remove the fill plug (1).

[Installation Procedure](#)

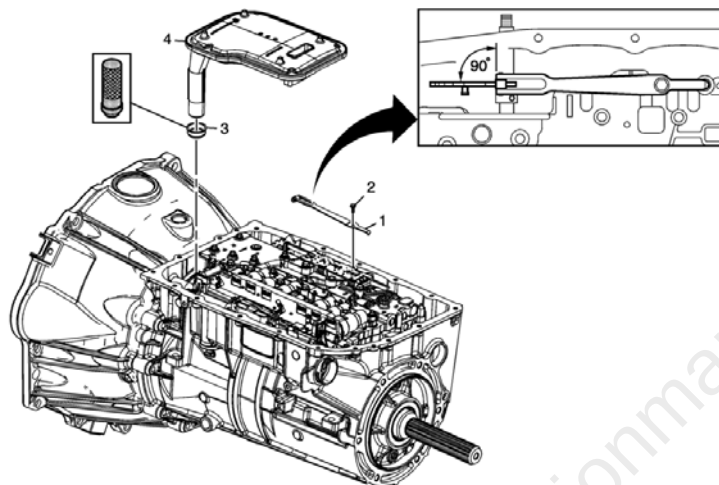


1. Install the fill plug (1).
2. Lower the vehicle.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fluid Filter and Manual Shift Detent Assembly Installation

Callout

Component Name

- | | |
|---|---|
| 1 | <p>Manual Shaft Detent Assembly</p> <p>Caution: Ensure the manual shaft detent assembly roller is centered over the manual shaft detent lever assembly. Failure to center the roller may cause hard or no shift lever operation.</p> |
| 2 | <p>Bolt M6 x 14.5</p> <p>Caution: Refer to Fastener Caution.</p> <p>Tighten</p> <p>12 Y (106 lb in).</p> <p>NEW Fluid Filter Seal Assembly</p> <p>Special Tools</p> |
| 3 | <ul style="list-style-type: none">• DT 47848 Seal Installer• EN 42183 Driver Handle <p>For equivalent regional tools, refer to Special Tools.</p> |
| 4 | <p>NEW Fluid Filter Assembly</p> |

2013 Chevrolet Colorado

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

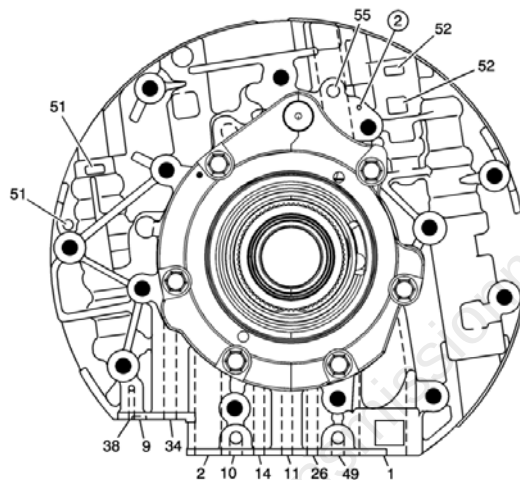
- Figure 1: Torque Converter Housing - Fluid Pump Cover Side
- Figure 2: Fluid Pump Cover - Torque Converter Housing Side
- Figure 3: Fluid Pump Cover - Case Side
- Figure 4: Case - Top Channel Plate Side
- Figure 5: Control Valve Upper Body Assembly - Case Side
- Figure 6: Control Valve Upper Body Assembly - Bottom Channel Plate Side
- Figure 7: Control Valve Lower Body Assembly - Control Solenoid Valve Assembly Side
- Figure 8: Control Valve Lower Body Assembly - Control Valve Upper Body Assembly Side
- Figure 9: Control Valve Body Spacer Plate Assembly - Bottom Channel Plate Side

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

Fluid Pump Cover – Case Side



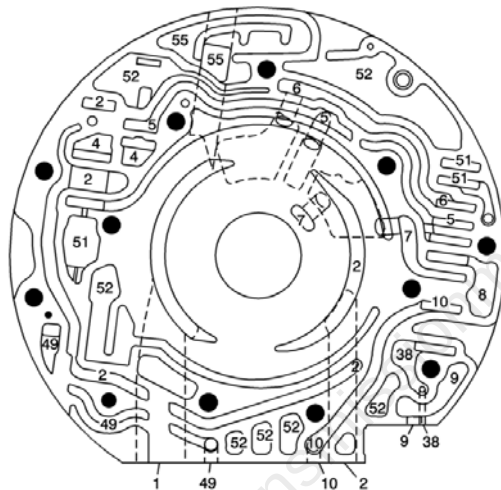
- (1) Suction
- (2) Line
- (9) Center Lube
- (10) Regulator Apply
- (11) Compensator Feed
- (14) 3-5 Reverse Clutch
- (26) 1-2-3-4 Clutch
- (34) 4-5-6 Clutch
- (38) PCS TCC
- (49) PSC Line
- (51) Exhaust
- (52) Empty
- (55) Ventilate

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Fluid Pump Cover– Torque Converter Housing Side](#)

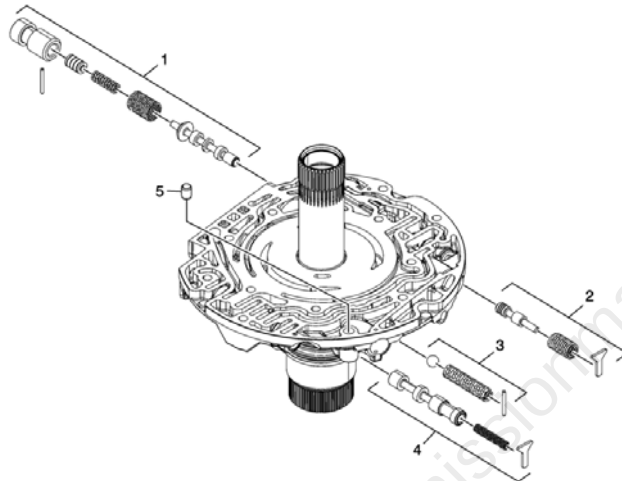


- (1) Suction
- (2) Line
- (4) Converter Feed
- (5) Converter Feed Limit
- (6) TCC Release
- (7) TCC Apply
- (8) Cooler Feed
- (9) Center Lube
- (10) Regulator Apply
- (38) PCS TCC
- (49) PCS Line
- (51) Exhaust
- (52) Void
- (55) Vent

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Fluid Pump Cover Cleaning and Inspection

Callout

Component Name

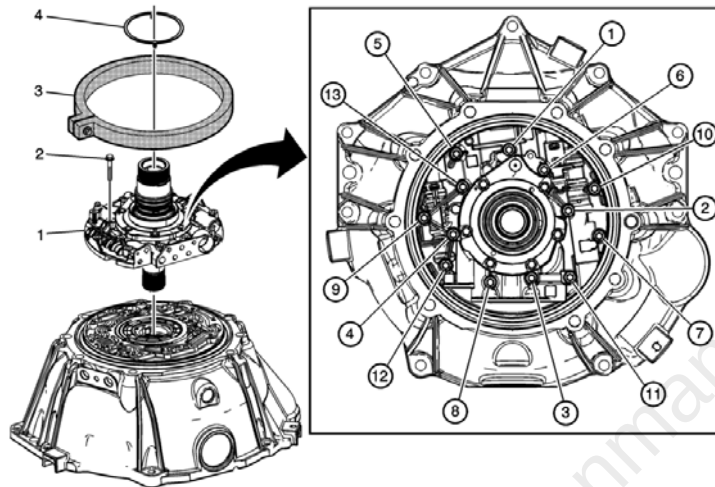
Warning: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.

Preliminary Procedure

Clean and inspect all components and machined surfaces.

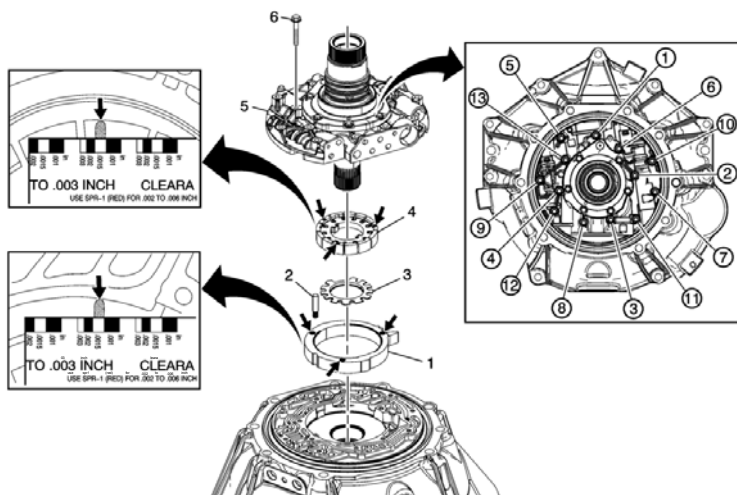
- | | |
|---|---------------------------------------|
| 1 | Pressure Regulator Valve Train |
| 2 | Converter Feed Limit Valve Train |
| 3 | Pressure Relief Ball Valve and Spring |
| 4 | TCC Control Valve and Spring |
| 5 | A/Trans Fluid Pump Locator Pin |

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



Fluid Pump Cover Installation

Callout	Component Name
1	Fluid Pump Cover Assembly
2	Fluid Pump Cover Bolts M6 x 40 (Qty: 13) Note: Hand tighten only. Alignment Tool and Bolt Caution: Refer to Fastener Caution.
	Procedure
	- Center the <i>DT 46664</i> pump cover alignment tool around the fluid pump cover assembly in the 9 o'clock position and tighten the alignment bolt. - Tighten the fluid pump cover bolts in the sequence shown.
	Tighten
	11 Y (97 lb in)
	Special Tools
	<i>DT 46664</i> Pump Cover Alignment Tool
	For equivalent regional tools, refer to Special Tools.
4	NEW 1–2–3–4 and 3–5 Reverse Clutch Housing Thrust Washer



Fluid Pump Selective Measurement

Callout

Component Name

Preliminary Procedures

1. Clean and inspect all components and machined surfaces.
2. After cleaning the transmission components, allow to air dry. Do not use cloth or paper towels in order to dry any transmission components.

Fluid Pump Slide

Procedure

1

1. Install an existing and/or undamaged pump slide.
2. Place gauging plastic in three locations on the pump slide surface facing the pump cover, up.

2

Fluid Pump Slide Pivot Pin

3

Fluid Pump Rotor Guide

Note: Align the rotor guide tabs to the notches on the bottom of the rotor.

Fluid Pump Rotor

Procedure

4

1. Install an existing and/or undamaged pump rotor.
2. Place gauging plastic in three locations on the pump rotor surface facing the pump cover, up.

5

Fluid Pump Cover Assembly

Fluid Pump Cover Bolts M6 x 40 (Qty: 13)

Caution: Refer to Fastener Caution.

Procedure

6

1. Hand tighten the bolts.
2. Tighten the fluid pump cover bolts in the sequence shown.
3. Remove the pump cover bolts and the pump cover.
4. Using the measuring device provided with the gauging plastic kit, measure the gauging plastic on the rotor and the slide, see inset drawings. Choose the correct selective rotor and or slide, based on the slide and rotor to fluid pump body end play specifications. Refer to Fluid Pump Selective Specifications.
5. Remove the gauging plastic and clean the rotor and slide surfaces.

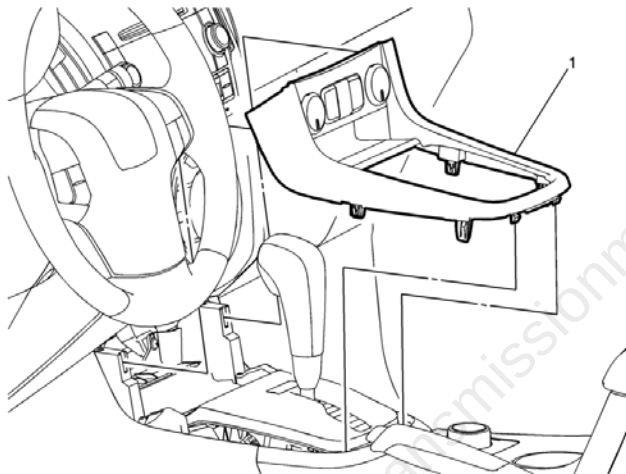
Tighten

11 Y (97 lb in)

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Front Floor Console Transmission Shift Opening Bezel Replacement

Callout

Component Name

Front Floor Console Transmission Shift Opening Bezel

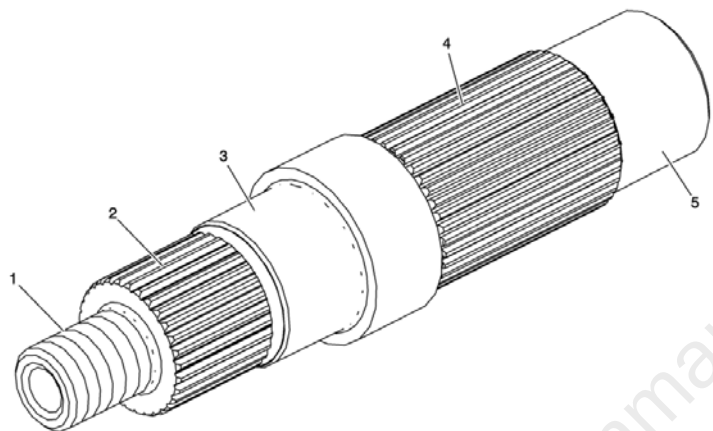
Procedure

1

1. Use a flat bladed plastic trim tool in order to release the 8 retainers securing the front floor console transmission shift opening bezel to the front floor console assembly.
2. Disconnect the electrical connections.

2013 Chevrolet Colorado

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



Front Output Shaft Cleaning and Inspection

Callout

Component Name

Preliminary Procedure

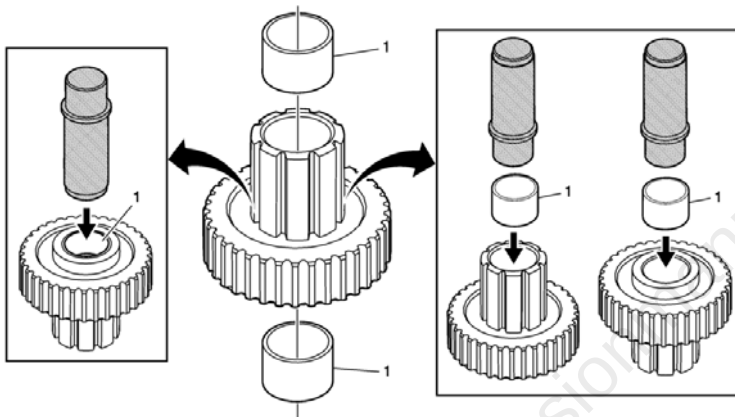
- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.
- Clean all components in cleaning solvent and air dry.

1	Transfer Case Front Output Shaft Flange Nut Threads Note: Inspect for excessive wear, or damage.
2	Transfer Case Front Output Shaft Flange Engagement Splines Note: Witness marks at the location of the front output shaft flange is normal.
3	Transfer Case Front Output Shaft Front Bearing Surface Note: Inspect for excessive wear, damage, or if the bearing has spun on the shaft.
4	Transfer Case Front Output Shaft Driven Sprocket Engagement Splines Note: Witness marks at the location of the front output shaft driven sprocket is normal.
5	Transfer Case Front Output Shaft Rear Bearing Surface Note: Inspect for excessive wear, damage, or if the bearing has spun on the shaft.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Front Output Shaft Drive Sprocket Bushing Replacement

Callout

Component Name

Preliminary Procedure

Ensure the bushings are installed squarely into the drive sprocket bore.

Front Output Shaft Drive Sprocket Bushing

Procedure

- Remove the bushings by pressing both out from the same side of the drive sprocket using the long end of the *DT 50316* bushing remover/installer.
- Install the bushings using the short end of the *DT 50316* bushing remover/installer.
- Press the bushings until the tool bottoms on the drive sprocket. The bushings are to be installed 0.04 in (1.0mm) below flush

Special Tools

DT 50316 Drive Sprocket Bushing Remover/Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

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

Removal Procedure

1. Remove the front propeller shaft. Refer to Front Propeller Shaft Replacement.
2. Remove the front output shaft flange. Refer to front output shaft flange removal in Transfer Case Disassemble.

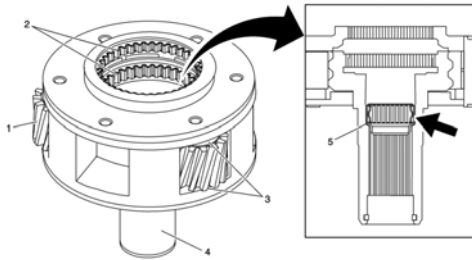
Installation Procedure

1. Install the front output shaft flange. Refer to front output shaft flange installation in Transfer Case Assemble.
2. Install the front propeller shaft. Refer to Front Propeller Shaft Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



High/Low Planetary Carrier Cleaning and Inspection

Callout

Component Name

Preliminary Procedure

- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.
- Clean all components in cleaning solvent and air dry. Do not spin the planetary gears with compressed air.
- The high/low planetary carrier is only serviced as an assembly.

Note: First design planetary carriers are a 6-pinion design. Second design planetary carriers are a 3-pinion design. When replacing a 6-pinion carrier with a 3-pinion design, the 3-pinion design planetary carrier internal gear must also be used. Refer to New Product Information.

Transfer Case High/Low Planetary Pinion Gear

Note:

1

- Inspect for broken, damaged, or debris embedded in the root of the teeth.
- Inspect for loose or binding gears with excessive end play.

2

Transfer Case Range Shift Sleeve Engagement Teeth

Note: Inspect the engagement teeth for chips or excessive wear.

3

Transfer Case High/Low Planetary Carrier Pinion Gear Thrust Washer

Note: Inspect for loose, binding gears or missing thrust washers which may create excessive end play.

4

Input Shaft Seal Surface

Note: Inspect for a worn, scored, or damaged surface.

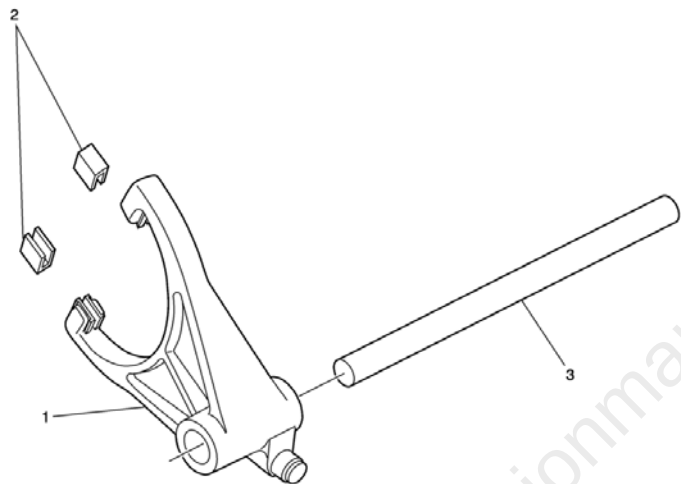
5

Pilot Bearing

Note: Inspect for a worn or missing bearings.

2013 Chevrolet Colorado

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



High/Low Shift Components Cleaning and Inspection

Callout
Preliminary Procedure

Component Name

- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.
- Clean all components in cleaning solvent and air dry.

Transfer Case High/Low Shift Fork

Note:

- 1
 - Inspect for cracks, broken areas, or other damage. The component must be replaced if damage is found.
 - Inspect the shift roller for binding or looseness.
 - Inspect the fork bushings for wear.
 - Inspect for loose fit pin to the fork. The pin is press fit into the fork

Transfer Case High/Low Shift Fork Pad

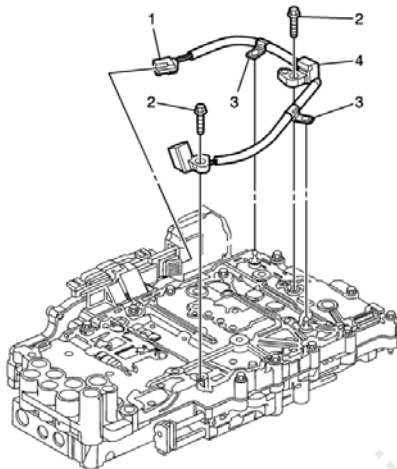
- 2
 - Note:** Inspect the pads for wear or cracking.

Transfer Case Shift Rail

3

2013 Chevrolet Colorado

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



Input and Output Speed Sensor Replacement

Callout

Preliminary Procedures

Component Name

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transmission fluid pan and filter. Refer to Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement.
3. Remove the upper and lower valve body assembly. Refer to Control Valve Lower Body and Upper Body Replacement.

- 1 Speed Sensor Electrical Connector
- Input and Output Speed Sensor Assembly Bolts (Qty: 2)

Caution: Refer to Fastener Caution.

- 2 **Tighten**
- 12 Y (106 lb in)

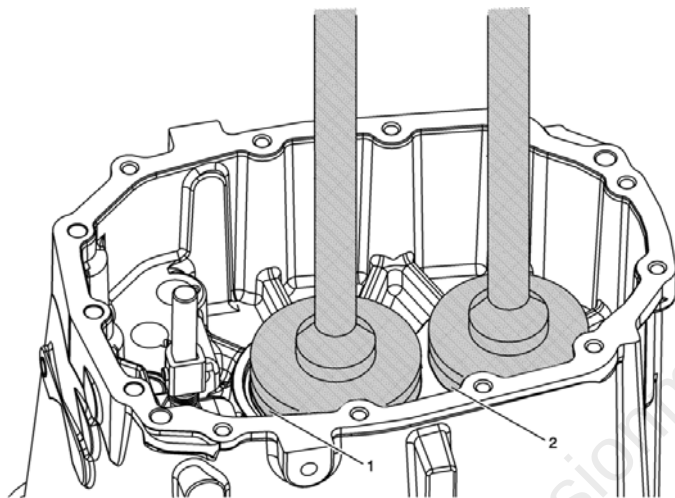
- 3 Input and Output Speed Sensor Assembly Clips (Qty: 2)
- Tip:** Inspect the wiring harness clips for damage replace if necessary.

- 4 Input and Output Speed Sensor Assembly

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Input Shaft and Counter Gear Shaft Bearing Race Installation

Callout

Component Name

Preliminary Procedure

Prior to installing the bearing races, carefully clean bearing race and bore.

Input Shaft Bearing Race

Special Tools

1

- DT 50850 Driver Handle
- DT 50852 Front Housing Bearing Race Installer

For equivalent regional tools, refer to Special Tools.

Counter Gear Bearing Race

Special Tools

2

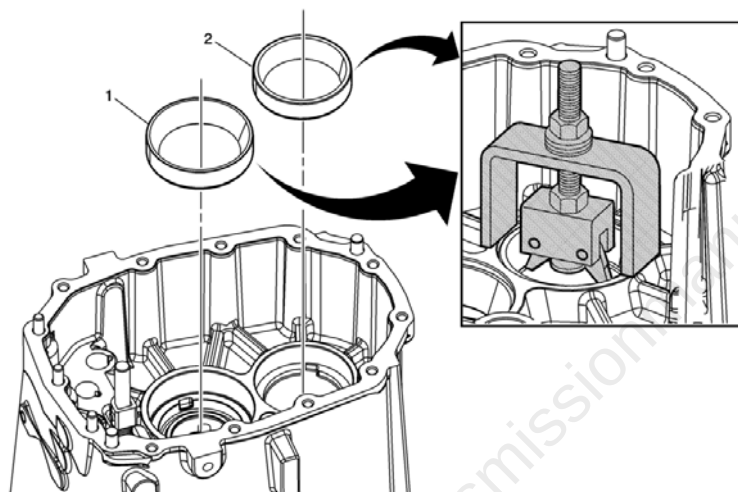
- DT 50850 Driver Handle
- DT 50856 Countershaft Bearing Race Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Input Shaft and Counter Gear Shaft Bearing Race Removal

Callout

Component Name

Input Shaft Bearing Race

Special Tools

1

DT 50862 Front Housing Bearing Race Puller

For equivalent regional tools, refer to Special Tools.

Counter Gear Bearing Race

Special Tools

2

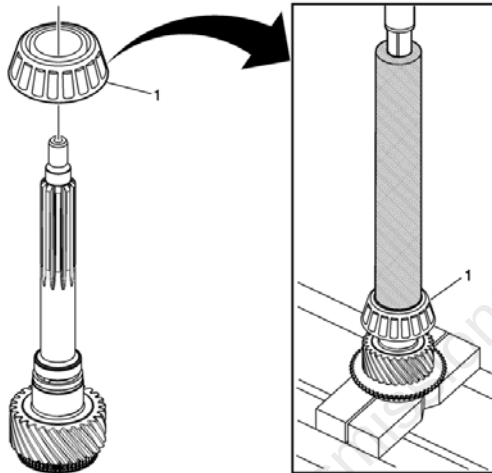
DT 50862 Front Housing Bearing Race Puller

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Input Shaft Assemble

Callout

Component Name

Input Shaft Bearing Cone Assembly

Procedure

1

1. With the synchronizer side down, place the input shaft on a base. Be careful not to damage the synchronizer cone.
2. Using the bearing inner race as a base, press the bearing assembly using *DT 50861* bearing cone installer , until the race shoulder rests against the shaft face.

Special Tools

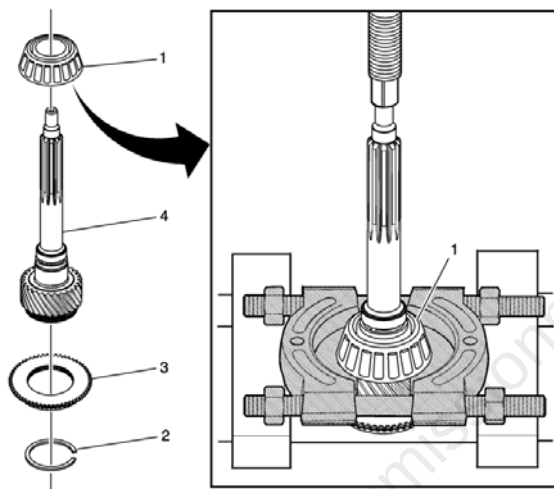
DT 50861 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Input Shaft Disassemble

Callout

Component Name

Input Shaft Bearing Cone Assembly

Special Tools

1

DT 22912-B Split Plate Bearing Puller

For equivalent regional tools, refer to Special Tools.

2

3rd and 4th Gear Synchronizer Retaining Ring

3

4th Gear Synchronizer Cone

4

Input Shaft

2013 Chevrolet Colorado

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

Removal Procedure

1. Remove the transfer case. Refer to Transfer Case Replacement.
2. Remove the input shaft seal from the transfer case. Refer to input shaft seal removal in Transfer Case Disassemble.

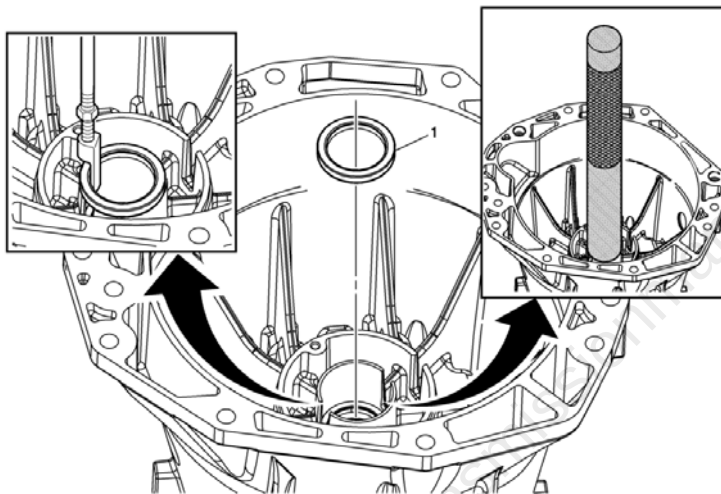
Installation Procedure

1. Install the input shaft seal. Refer to input shaft seal installation in Transfer Case Assemble.
2. Install the transfer case. Refer to Transfer Case Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Input Shaft Seal Replacement

Callout

Component Name

Input Shaft Seal

Note:

1

1. To remove use appropriate pry tool.
2. Install using DT 50848 bearing cone installer

Special Tools

DT 50848 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

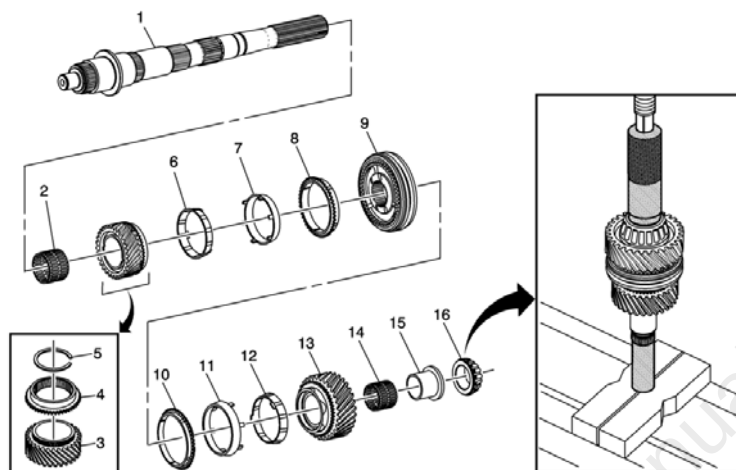
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

Table 1: [1st and 2nd Gear Installation](#)

Table 2: [3rd Gear Installation](#)

[1st and 2nd Gear Installation](#)



1st and 2nd Gear Installation

Callout

Component Name

- | | |
|----|--|
| 1 | Mainshaft Assembly – 2WD |
| 2 | 2nd Gear Bearing Assembly |
| 3 | 2nd Gear |
| 4 | 2nd Gear Synchronizer Ring |
| 5 | 2nd Gear Synchronizer Ring Retaining Ring |
| 6 | 1st Gear Synchronizer Inner Cone |
| 7 | 1st Gear Synchronizer Outer Cone |
| 8 | 1st and 2nd Gear Blocking Ring Assembly |
| 9 | 1st and 2nd Gear Synchronizer Hub and Sleeve |
| 10 | 1st and 2nd Gear Blocking Ring Assembly |
| 11 | 1st Gear Synchronizer Outer Cone |
| 12 | 1st Gear Synchronizer Inner Cone |
| 13 | 1st Gear |
| 14 | 1st Gear Bearing Assembly |
| 15 | 1st Gear Bushing |

Mainshaft Bearing Cone Assembly

Tip: Verify the pressing procedure was successful: Disengage the synchronizer and position it between the 3rd and 4th speed gears. In this condition, the gears should run free.

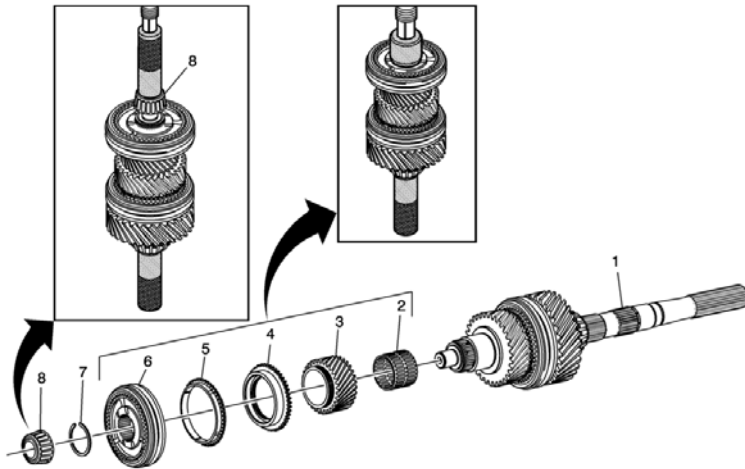
16

Special Tools

- DT 50860 Bearing Cone Installer
- DT 50861 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

3rd Gear Installation



3rd Gear Installation

Callout

Component Name

- | | |
|---|--|
| 1 | Mainshaft Assembly – 2WD |
| 2 | 3rd Gear Bearing Assembly |
| 3 | 3rd Gear |
| 4 | 3rd Gear Synchronizer Cone |
| 5 | 3rd Gear Synchronizer Ring |
| 6 | 3rd and 4th Gear Synchronizer Hub and Sleeve |

Procedure

- | | |
|---|--|
| 6 | <ol style="list-style-type: none"> 1. Install synchronizer chamfer side down. 2. Make sure to align the inserts over blocking ring tabs 3. Using DT 47928-1 rear seal installer |
|---|--|

Special Tools

DT 47928-1 Rear Seal Installer

For equivalent regional tools, refer to Special Tools.

- | | |
|---|--|
| 7 | 3rd and 4th Gear Synchronizer Retaining Ring |
|---|--|

Mainshaft Front Bearing Cone Assembly

Tip: Verify the pressing procedure was successful: Disengage the synchronizer and position it between the 3rd and 4th speed gears. In this condition, the gears should run free.

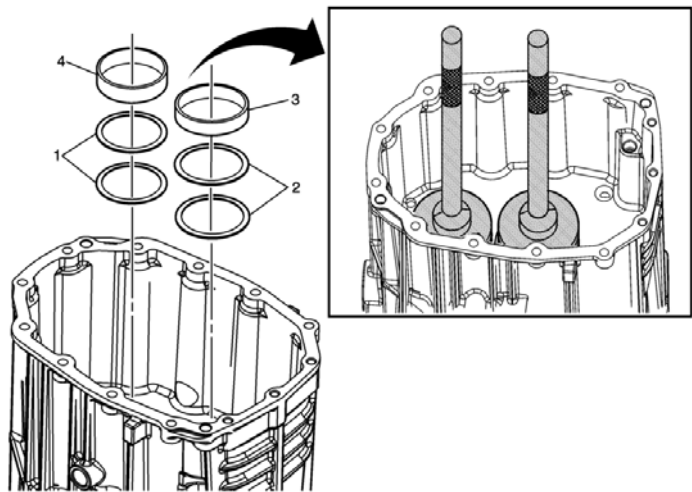
- | | |
|---|---------------|
| 8 | Special Tools |
|---|---------------|

- DT 50860 Bearing Cone Installer
- DT 50861 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

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



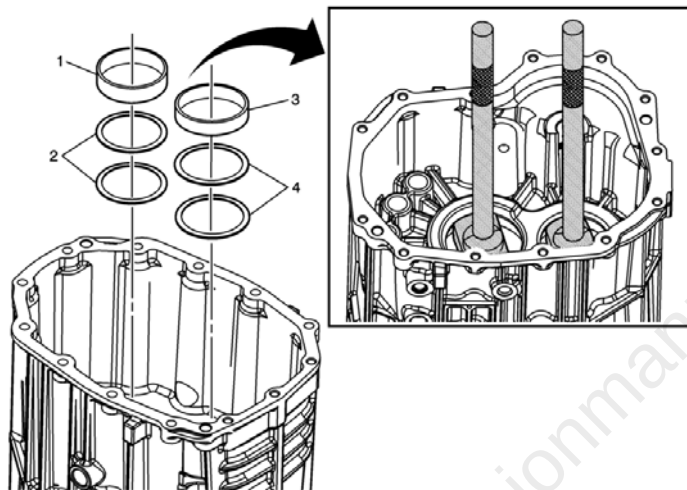
Main Shaft Bearing Race and Counter Gear Bearing Race Installation

Callout	Component Name
Preliminary Procedures	
1. Prior to installing the bearing race, carefully clean both bearing bore and race. 2. Prior to installing bearing shims perform the Main Shaft Bearing Shim and Counter Gear Bearing Shim Measurement procedure to determine correct shim.	
1	Counter Gear Bearing Shim (Qty: 2) Note: Prior to installing bearing shims perform the Main Shaft Bearing Shim and Counter Gear Bearing Shim Measurement procedure to determine correct shim.
2	Main Shaft Bearing Shim (Qty: 2) Note: Prior to installing bearing shims perform the Main Shaft Bearing Shim and Counter Gear Bearing Shim Measurement procedure to determine correct shim.
	Main Shaft Bearing Race Procedure Install the bearing race without any shim before adjusting the transmission end play.
3	Special Tools - DT 50850 Driver Handle - DT 50855 Mainshaft Bearing Race Installer For equivalent regional tools, refer to Special Tools Counter Gear Rear Bearing Race Procedure Install the bearing race without any shim before adjusting the transmission end play.
4	Special Tools - DT 50850 Driver Handle - DT 50856 Countershaft Bearing Race Installer For equivalent regional tools, refer to Special Tools

2013 Chevrolet Colorado

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Fuel Delivery: | Fuel:



Main Shaft Bearing Race and Counter Gear Bearing Race Removal

Callout

Component Name

Counter Gear Rear Bearing Race

Special Tools

1

- DT 50850 Driver Handle
- DT 50854 Countershaft Bearing Race Puller

For equivalent regional tools, refer to Special Tools.

2

Counter Gear Bearing Shim (Qty: 2)

Mainshaft Bearing Race

Special Tools

3

- DT 50850 Driver Handle
- DT 50853 Mainshaft Bearing Race Puller

For equivalent regional tools, refer to Special Tools.

4

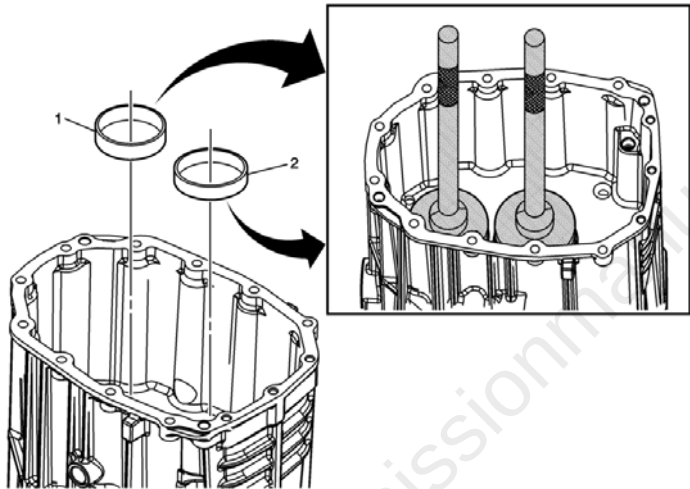
Mainshaft Bearing Shim (Qty: 2)

2013 Chevrolet Colorado

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

- Table 1: [Shim Measurement](#)
Table 2: [Install Mainshaft and Counter Shaft Assemblies](#)
Table 3: [Intermediate Case Installation](#)
Table 4: [Measure End Play to Determine Correct Shim](#)

Shim Measurement



Shim Measurement

Callout

Component Name

Preliminary Procedure

Do not install the shims – only the bearing races.

Mainshaft Bearing Race

Special Tools

1

- DT 50850 Driver Handle
- DT 50855 Mainshaft Bearing Race Installer

For equivalent regional tools, refer to Special Tools.

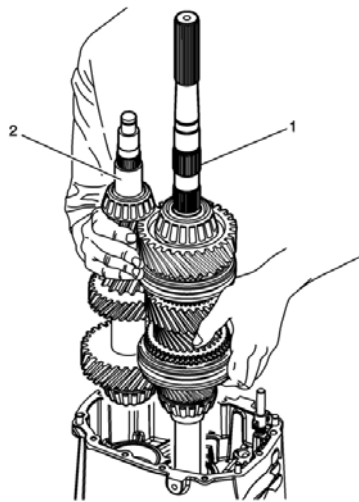
Counter Gear Rear Bearing Race

Special Tools

2

- DT 50850 Driver Handle
- DT 50855 Mainshaft Bearing Race Installer

For equivalent regional tools, refer to Special Tools.



Install Mainshaft and Counter Shaft Assemblies

Callout

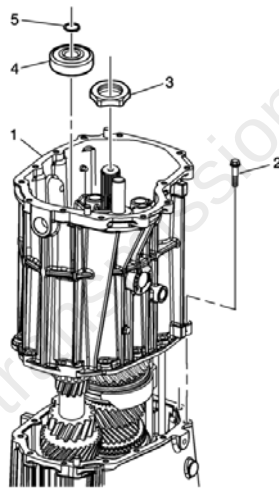
Component Name

Preliminary Procedure

Install the mainshaft and counter gear shaft assemblies as one unit.

- 1 Mainshaft Assembly
- 2 Counter Gear Shaft Assembly

[Intermediate Case Installation](#)



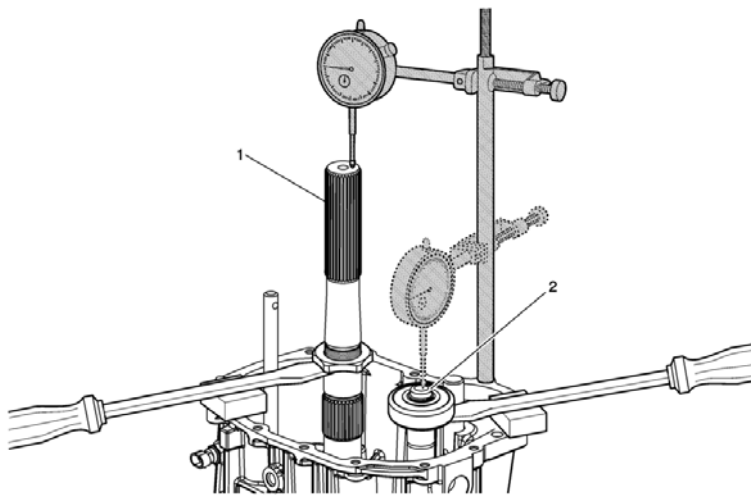
Intermediate Case Installation

Callout

Component Name

- 1 Transmission Intermediate Case
- Transmission Rear Case Bolt (Qty: 10)
- 2 **Tighten**
Tighten bolt to 22.5 Y (16.6 lb ft)
- Mainshaft Nut
- 3 **Procedure**
Only install the nut onto the shaft 2 or 3 threads.
- 4 Front Counter Gear Rear Bearing
- 5 Front Counter Gear Rear Bearing Retaining Ring.

[Measure End Play to Determine Correct Shim](#)



Measure End Play to Determine Correct Shim

Callout

Component Name

Preliminary Procedure

Rotate the mainshaft and counter gear shaft several times in both directions to ensure the bearings are seated into the bearing races.

Mainshaft

Procedure

1. Set up *GE 8001* dial indicator with *GE 25025-B* post and guide set, and zero out on top of the mainshaft.
2. Place a block of wood between the case and a pry bar.
3. Pry straight up on the mainshaft nut and record the measurement. Select appropriate shims to achieve the following specification.

Specification
0.060 mm–0.110 mm (0.002–0.004 in)

Special Tools

- *GE 25025-B* Dial Indicator Post and Guide Pin Set
- *GE 8001* Dial Indicator

For equivalent regional tools, refer to Special Tools.

Counter Gear Shaft

Procedure

1. Set up *GE 8001* dial indicator with *GE 25025-B* post and guide set, and zero out on top of the mainshaft.
2. Place a block of wood between the case and a pry bar.
3. Pry straight up on the front counter gear rear bearing and record the measurement. Select appropriate shims to achieve the following specification.

Specification
0.060 mm–0.110 mm (0.002–0.004 in)

4. Remove the mainshaft, counter gear shaft and intermediate case.
5. Install the specified shims, refer to *Mainshaft Bearing and Counter Gear Bearing Race Installation*.

Special Tools

- *GE 25025-B* Dial Indicator Post and Guide Pin Set
- *GE 8001* Dial Indicator

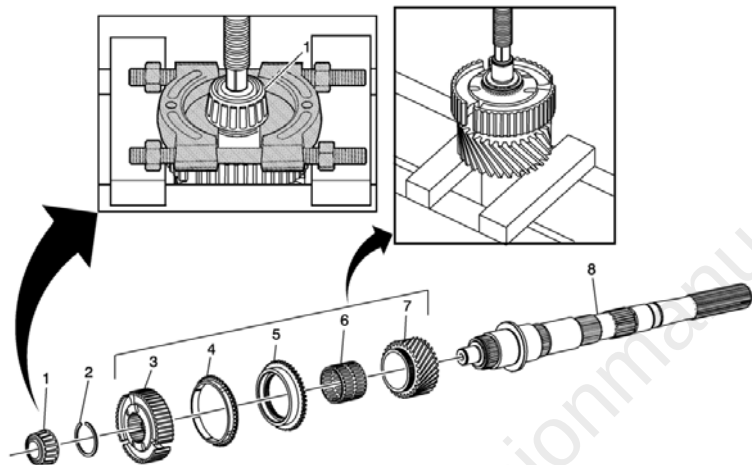
For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

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

Table 1: [Mainshaft Disassemble \(1 of 2\)](#)
Table 2: [Mainshaft Disassemble \(2 of 2\)](#)

Mainshaft Disassemble (1 of 2)



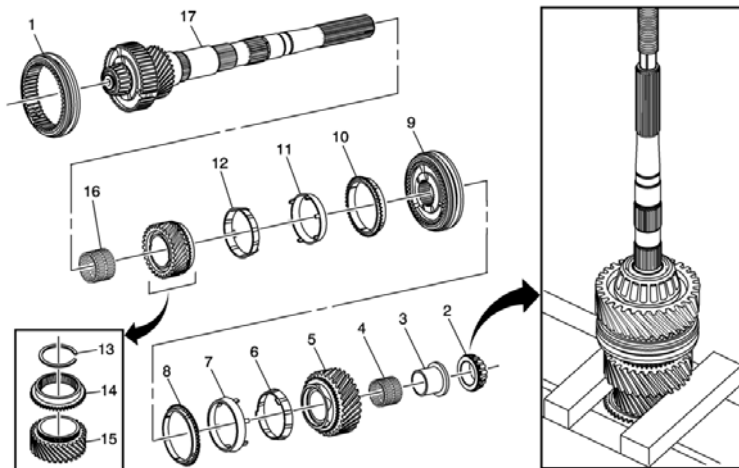
Mainshaft Disassemble (1 of 2)

Callout

Component Name

- | | |
|---|--|
| | Mainshaft Front Bearing Cone Assembly |
| | Special Tools |
| 1 | DT 22912-B Split Plate Bearing Puller |
| | For equivalent regional tools, refer to Special Tools. |
| 2 | 3rd and 4th Gear Synchronizer Retaining Ring |
| 3 | 3rd and 4th Gear Synchronizer Hub |
| 4 | 3rd Gear Synchronizer Ring |
| 5 | 3rd Gear Synchronizer Cone |
| 6 | 3rd Gear Bearing Assembly |
| 7 | 3rd Gear |
| 8 | Mainshaft Assembly – 2WD |
| | Tip: Use the same tools and procedure for the 4WD models. |

Mainshaft Disassemble (2 of 2)



Mainshaft Disassemble (2 of 2)

Callout

Component Name

- | | |
|----|--|
| 1 | 3rd and 4th Gear Synchronizer Sleeve
Tip: Spring and Insert may come out with the sleeve. |
| 2 | Mainshaft Bearing Cone Assembly |
| 3 | 1st Gear Bushing |
| 4 | 1st Gear Bearing Assembly |
| 5 | 1st Gear |
| 6 | 1st Gear Synchronizer Inner Cone |
| 7 | 1st Gear Synchronizer Outer Cone |
| 8 | 1st and 2nd Gear Blocking Ring Assembly |
| 9 | 1st and 2nd Gear Synchronizer Assembly
Tip: Try to keep the sleeve and hub together to avoid losing inserts. |
| 10 | 1st and 2nd Gear Blocking Ring Assembly |
| 11 | 1st Gear Synchronizer Outer Cone |
| 12 | 1st Gear Synchronizer Inner Cone |
| 13 | 2nd Gear Synchronizer Ring Retaining Ring |
| 14 | 2nd Gear Synchronizer Ring |
| 15 | 2nd Gear |
| 16 | 2nd Gear Bearing Assembly |
| 17 | Input Shaft Assembly |

2013 Chevrolet Colorado

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

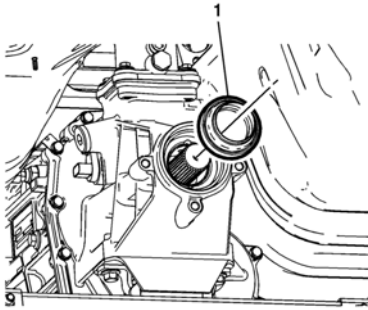
Special Tools

DT-47928 Rear Seal Installer

For equivalent regional tools, refer to Special Tools.

[Removal Procedure](#)

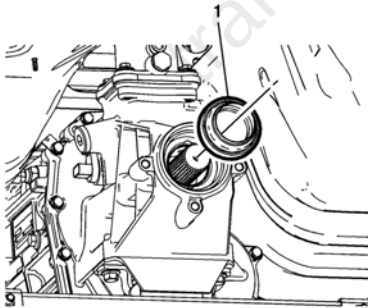
1. Remove the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement or Two-Piece Rear Propeller Shaft Replacement.



2. Using a suitable tool, remove the rear transmission housing oil seal (1) from the transmission housing.

[Installation Procedure](#)

1. Coat the NEW seal lip with the recommended fluid.



2. Using the DT-47928 Rear Seal Installer and a hammer, install the NEW rear transmission housing oil seal (1).
3. Check the transmission fluid level. Add if necessary. Refer to Transmission Fluid Level Inspection.
4. Install the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement or Two-Piece Rear Propeller Shaft Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

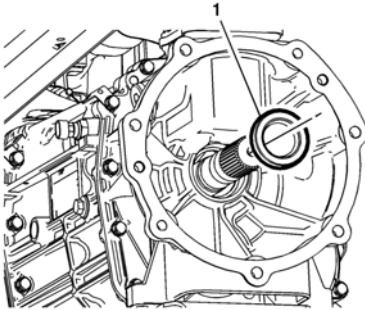
Special Tools

DT 50861 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

[Removal Procedure](#)

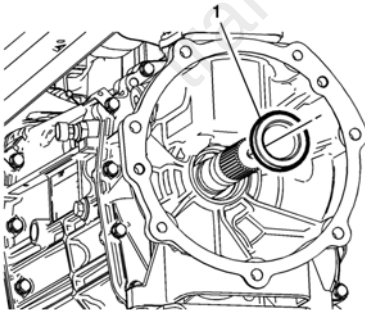
1. Remove the transfer case assembly. Refer to Transfer Case Replacement.



2. Install two self-tapping screws 180 degrees apart into the old seal, using pliers or an equivalent, remove the rear transmission housing oil seal (1) from the transmission housing.

[Installation Procedure](#)

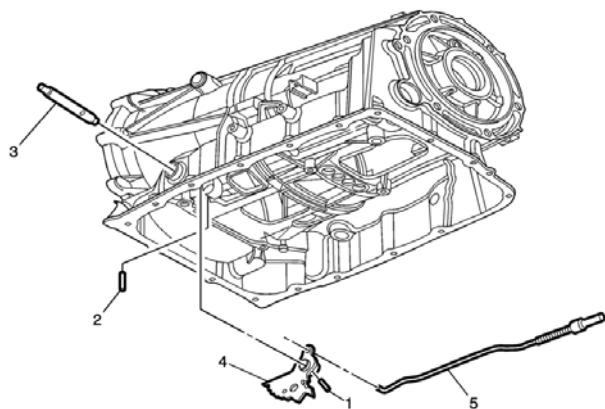
1. Coat the NEW seal lip with the recommended fluid.



2. Using the *DT 50861* installer and a hammer, install the NEW rear transmission housing oil seal (1).
3. Check the transmission fluid level. Add if necessary. Refer to Transmission Fluid Level Inspection.
4. Install the transfer case assembly. Refer to Transfer Case Replacement.

2013 Chevrolet Colorado

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



Manual Shift Detent Lever and Park Pawl Actuator Replacement

Callout

Component Name

Note: Do not remove the park pawl or park pawl spring. The park pawl and park pawl spring are not serviceable components.

Preliminary Procedures

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transmission fluid pan. Refer to Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement.
3. Remove the manual shaft detent assembly roller. Refer to Control Valve Lower Body and Upper Body Replacement.
4. If removal of the park pawl actuator guide is necessary, remove the case extension. Refer to Case Extension and Gasket Replacement.

Manual Shift Detent Lever Hub Pin

Note:

1

- Discard the pin. Replace with NEW pin.
- "Walk" the pin out using side cutters.

Manual Shift Shaft Pin

Note:

2

- Discard the pin. Replace with NEW pin.
- "Walk" the pin out using side cutters.

3

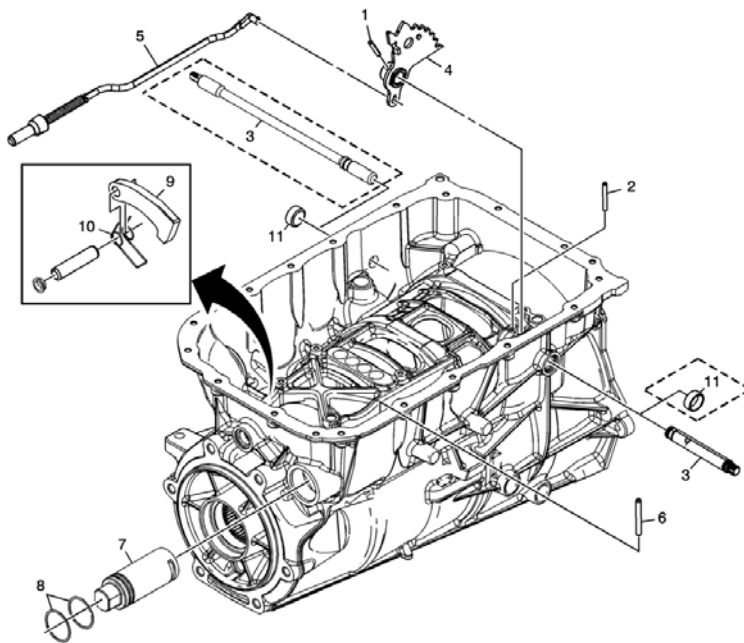
Manual Shift Shaft

4

Manual Shift Detent Lever Assembly

5

Park Pawl Actuator Assembly



Manual Shift Shaft and Parking System Components Overhaul

Callout

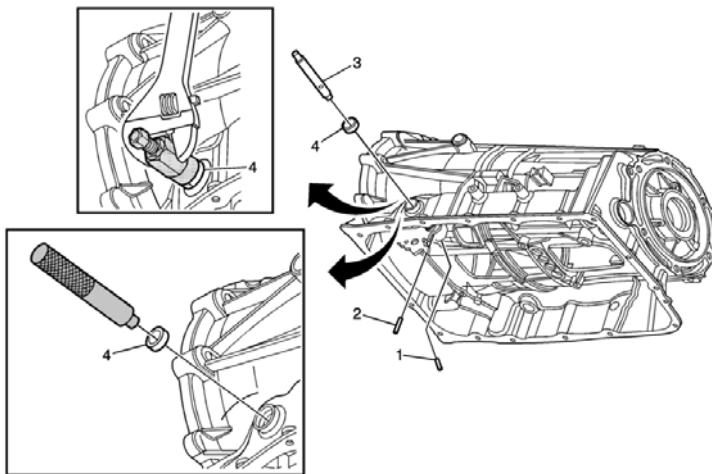
Component Name

- | | |
|----|---|
| 1 | Manual Shaft Detent Lever Hub Pin
Caution: Refer to Pin Reuse Caution. |
| 2 | Manual Shift Shaft Pin
Caution: Refer to Pin Reuse Caution. |
| 3 | Manual Shift Shaft
Caution: Ensure the manual shift shaft seal is replaced before installing the shaft. Installing the seal after the shaft may cause damage to the seal, resulting in fluid leaks and transmission damage.
Note: Refer to Manual Shift Shaft Seal Replacement. |
| 4 | Manual Shaft Detent Lever Assembly |
| 5 | Park Pawl Actuator Assembly |
| 6 | Park Pawl Actuator Guide Pin
Caution: Refer to Pin Reuse Caution.
Note: Use a large pair of side cutters to "walk" the pin out. |
| 7 | Park Pawl Actuator Guide |
| 8 | Park Pawl Actuator Guide (O-ring) Seals
Caution: Refer to Seal Reuse Caution. |
| 9 | Park Pawl
Note: Inspect for damage only. Do not remove. The park pawl is not a serviceable component. |
| 10 | Park Pawl Spring
Note: Inspect for damage only. Do not remove. The park pawl spring is not a serviceable component. |
| 11 | Manual Shift Shaft Hole Plug
Note: Press plug to seat. Ensure plug is installed evenly. |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Manual Shift Shaft and Seal Replacement

Callout

Component Name

Preliminary Procedures

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transmission fluid pan. Refer to Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement.
3. Remove the control valve body. Refer to Control Valve Lower Body and Upper Body Replacement.

Manual Shift Shaft Pin

Procedure

1

1. Discard the pin. Replace with NEW pin.
2. "Walk" the pin out using side cutters.

Manual Shaft Detent Lever Hub Pin

Procedure

2

1. Discard the pin. Replace with NEW pin.
2. "Walk" the pin out using side cutters.

Manual Shift Shaft

3

Tip: The manual shaft must be removed to replace the manual shaft seal.

Manual Shift Shaft Seal

Procedure

4

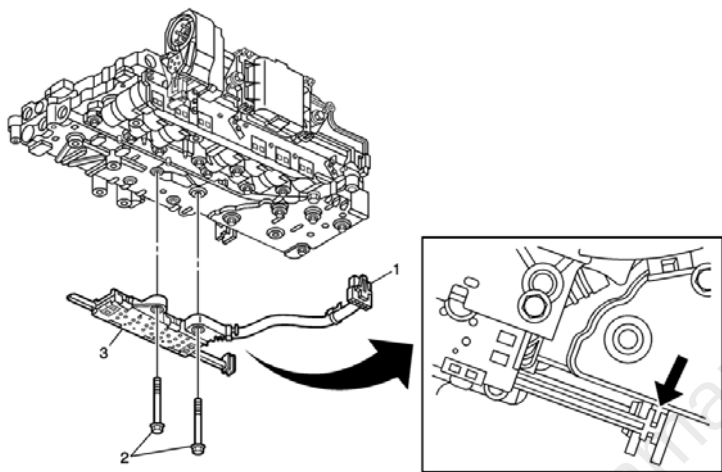
1. Use the J 45201 cooler line seal remover to remove the seal from the transmission case.
2. Use the DT 47770 seal installer to install the seal into the transmission case.

Special Tools

- DT 47770 Seal Installer
- J 45201 Cooler Line Seal Remover

2013 Chevrolet Colorado

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



Manual Shift Shaft Position Switch Replacement

Callout

Preliminary Procedures

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transmission fluid pan and filter. Refer to Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement.

Manual Shift Shaft Position Switch Assembly Electrical Connector

Note:

- 1
 - Release the connector lock before disconnecting. Engage the connector lock after connecting.
 - The wiring harness clip near the connector does not need to be replaced if broken or missing. The clip is used during manufacturing to keep the wire harness clear during an automated bolt installation process. If the clip is damaged, simply remove and discard.

Manual Shift Shaft Position Switch Assembly Bolts

Caution: Refer to Fastener Caution.

2

Tighten

12 Y (106 lb in)

Manual Shift Shaft Position Switch Assembly

3

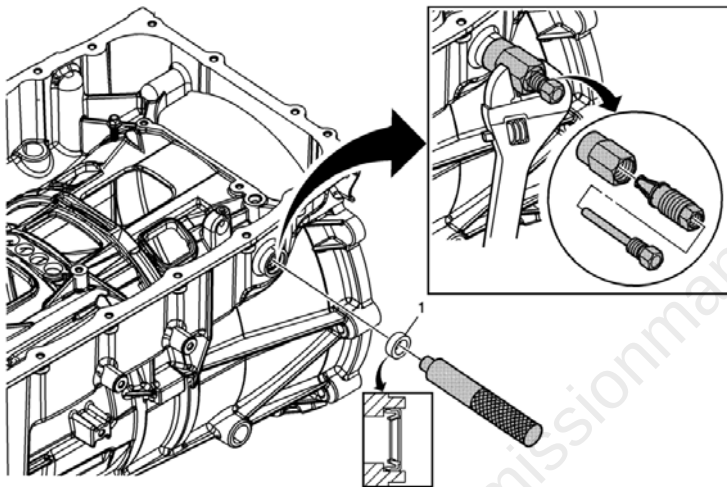
Procedure

Align the switch activator slide with the manual valve link.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Manual Shift Shaft Seal Replacement

Callout

Manual Shift Shaft Seal

Caution: Do not damage the case bore during removal of the manual shift shaft seal.

Caution: When installing the seal, ensure the seal lip is firmly seated against the case bore surface. Do not allow the seal lip to be crushed, or a leak may result.

Caution: Refer to Seal Reuse Caution.

1

Special Tools

- DT 47770 Seal Installer
- DT 45201 Cooler Line Seal Remover

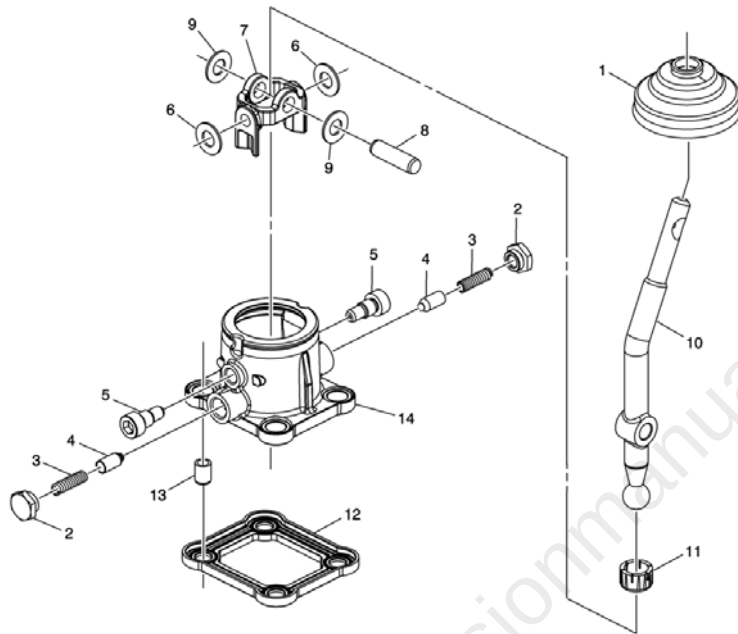
For equivalent regional tools, refer to Special Tools.

Component Procedure

2013 Chevrolet Colorado

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

[Control Lever Housing Cleaning and Inspection](#)



Control Lever Housing Cleaning and Inspection

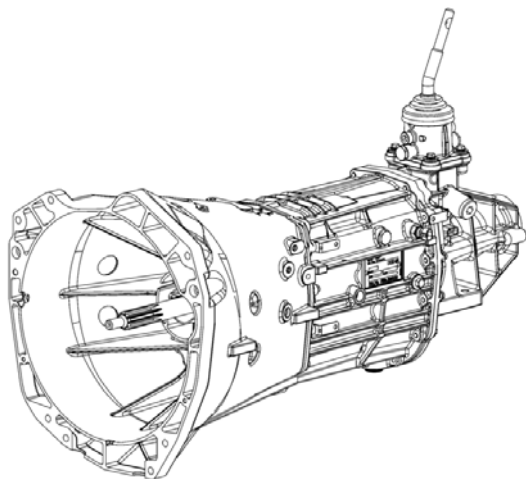
Callout

Component Name

- | | |
|----|---|
| 1 | M/Trans Control Lever Lower Boot |
| 2 | Shift Control Housing Plug |
| 3 | Shift Lever Spring |
| 4 | Shift Control Housing Locator Pin |
| 5 | M/Trans Control Lever Pin |
| 6 | Shift Control Housing Washer |
| 7 | Center Support |
| 8 | Select Lever Pivot Pin |
| 9 | Shift Control Housing Washer |
| 10 | M/Trans Control Lower Lever Assembly |
| 11 | M/Trans Control Lever Pivot Pin Bushing |
| 12 | M/Trans Control Lever Housing Gasket |
| 13 | M/Trans Control Base Bushing (Qty: 4) |
| 14 | M/Trans Control Lever Housing |

2013 Chevrolet Colorado

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

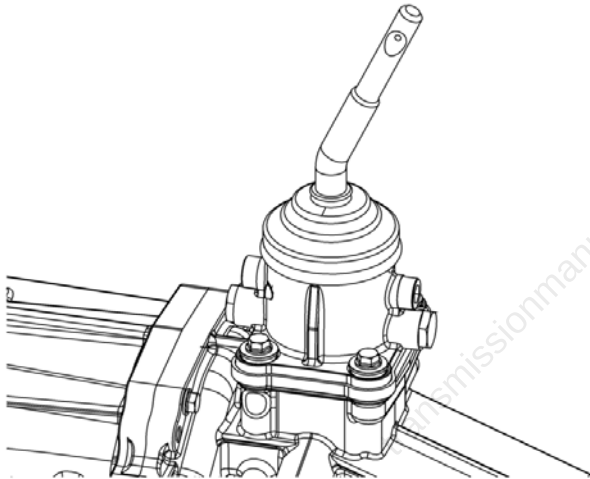


Manual transmissions are identified by the number of forward gears and the measured distance between the centerline of the output shaft and the counter gear.
The 5-speed manual transmission RPO: MYF, MYG, MYL< MYN incorporates the following features:

- An aluminum case
- Fully synchronized gearing with an enhanced synchronizer cone arrangement:
 - Triple-cone: FIRST, SECOND
 - Single-cone: THIRD, FOURTH, FIFTH, REVERSE
- An internal shift rail mechanism
- A direct transmission shift control mounted rearward of the transmission
- Tapered roller and sealed ball bearings supporting the mainshaft and countershaft
- Caged roller bearings under all speed gears

These features combine to yield a rugged, reliable system capable of handling input torques of 440 Y (324 lb ft).
The gear ratios are as follows:

Gear	MYF Ratio (:1)	MYL/MYN Ratio (:1)	MYG Ratio (:1)
FIRST	4.079	4.079	4.473
SECOND	2.289	2.289	2.458
THIRD	1.472	1.472	1.472
FOURTH	1.00	1.00	1.00
FIFTH	0.809	0.725	0.822
REVERSE	3.795	3.795	3.795



The shift control lever assembly is mounted to the rear case with a rubber isolation gasket. The cockpit of the vehicle is isolated from the driveline through the use of a shift control closeout boot which seals off the shift control and the driveline tunnel shift control opening.

[Reverse Lockout](#)

This transmission is equipped with a lock-out mechanism, which prohibits mis-shift from fifth gear to reverse gear.

2013 Chevrolet Colorado

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

When the gear selector is moved to the Neutral (N) position, the hydraulic and electrical system operation is identical to Park (P) range. However, if Neutral is selected after the vehicle was operating in Reverse (R), the normally high C35R pressure control solenoid 2 is commanded OFF and the following changes would occur in the hydraulic system:

3-5 Reverse Clutch Releases

Manual Valve

The manual valve is moved to the Neutral position and blocks line pressure from entering the reverse and drive fluid circuits. The reverse fluid from the #2 ball check valve and clutch select valve 3 is opened to an exhaust passage at the manual valve.

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded OFF allowing PCS 3-5 reverse clutch fluid from the 3-5 reverse clutch boost valve and 3-5 reverse clutch regulator valve to exhaust.

3-5 Reverse Clutch Boost Valve

The 3-5 reverse boost valve spring force moves the valve to allow 3-5 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 3-5 reverse clutch circuit and exhaust.

3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 3-5 reverse clutch fluid from the 3-5 reverse clutch and clutch select valve 2 to pass through the valve and enter the exhaust backfill fluid circuit. The 3-5 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

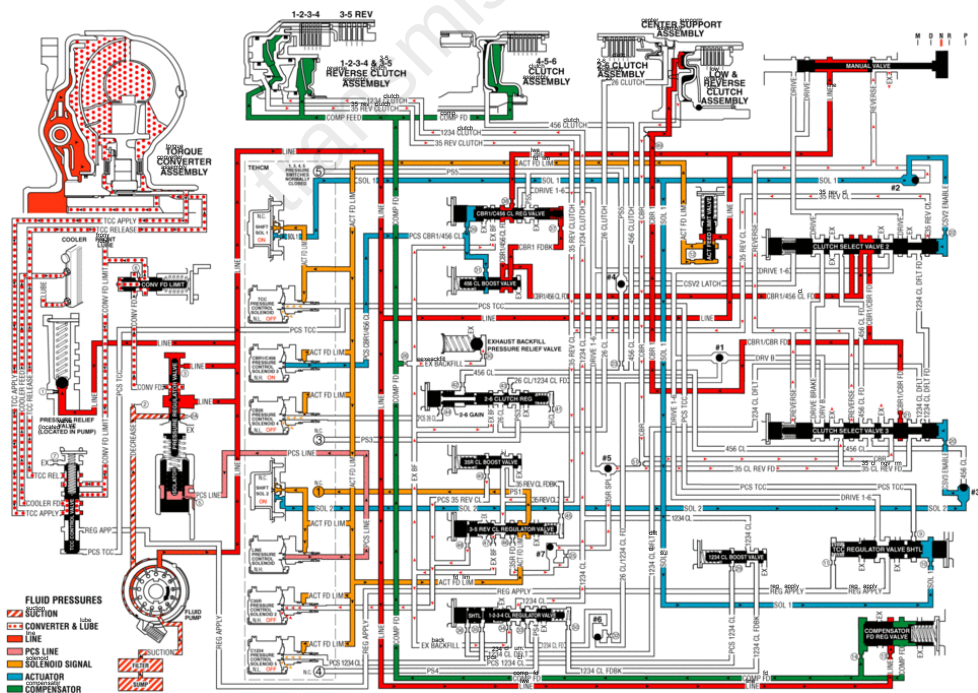
3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with a force from the compensator moves the 3-5 reverse clutch piston to release the 3-5 reverse clutch plates and force 3-5 reverse clutch fluid to exhaust from the 1-2-3-4 and 3-5 reverse clutch housing. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve allowing the 3-5 reverse clutch to release.

Clutch Select Valve 3

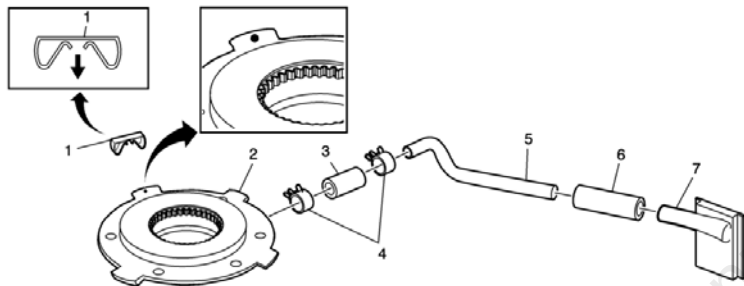
When reverse fluid exhausts through the manual valve, CSV3 enable fluid moves the valve against clutch select valve 3 spring force. The 3-5 reverse feed fluid is routed around #7 ball check valve and into the 3-5 reverse supply circuit. The 3-5 reverse supply fluid is routed around #5 ball check valve and into the 3-5 clutch reverse feed circuit and exhausts at the clutch select valve 3.

Neutral- Engine Running



2013 Chevrolet Colorado

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



Oil Pump Cleaning and Inspection

Callout

Component Name

Preliminary Procedure

- Inspect the oil pump assembly.
- Clean all components in cleaning solvent and air dry.

Oil Pump Position Retainer

1

Note: Install the retainer onto the flange that has a dimple on the face. The raised area of the retainer is to locate into the recess of the flange.

Oil Pump Assembly

2

Note: Replace the oil pump assembly if there is any sign of binding. Do not disassemble the oil pump. The oil pump is serviced as an assembly.

Oil Pump Suction Hose

3

Oil Pump Suction Hose Clamp

4

Oil Pump Suction Tube

5

Oil Pump Suction Hose

6

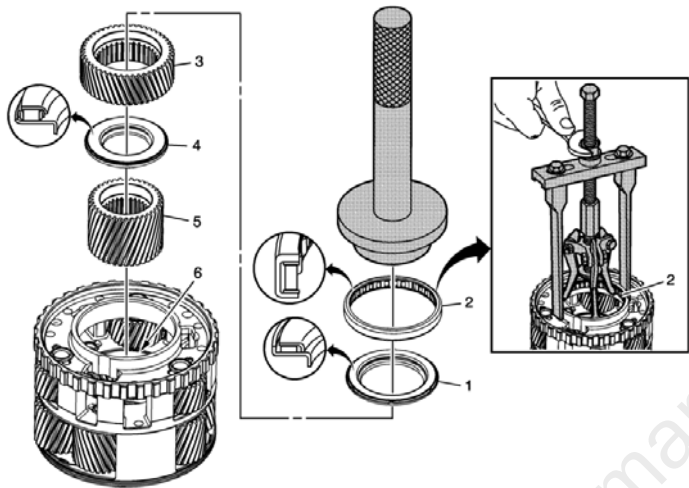
Oil Pump Pickup Hose Screen

7

Note: Replace the oil pump pickup hose screen if the screen cannot be cleaned and is embedded with debris.

2013 Chevrolet Colorado

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



Output Carrier Assembly Overhaul

Callout	Component Name
---------	----------------

1	Output Carrier Front Sun Gear Thrust Bearing Assembly
---	---

Center Support Roller Bearing

Caution: Do not reuse the center support roller bearing. Install a NEW center support roller bearing. Reusing an old bearing may result in damage to the output carrier.

Note: The thick side of the bearing shell faces up.

Special Tools

2	
---	--

- DT 47857 Bearing Installer
- DT 47865 Bearing Remover
- GE 8092 Driver Handle
- DT 45124 Removal Bridge

For equivalent regional tools, refer to Special Tools.

3	Output Carrier Front Sun Gear
---	-------------------------------

Caution: Install the gear chamfer side up. Failure to install the gear chamfer side up may result in transmission damage.

4	Output Carrier Front Sun Gear Rear Thrust Bearing Assembly
---	--

5	Output Carrier Rear Sun Gear
---	------------------------------

Caution: Install the gear chamfer side up. Failure to install the gear chamfer side up may result in transmission damage.

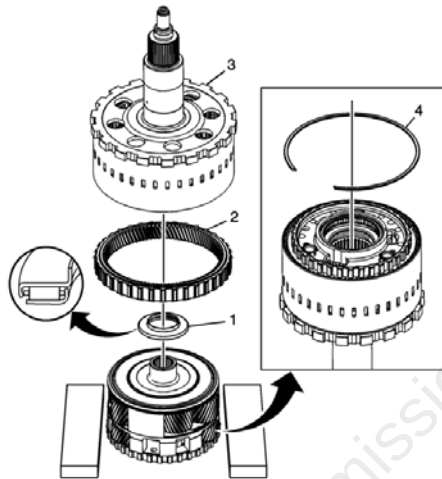
6	Output Carrier Rear Sun Gear Bearing Assembly
---	---

Note: Inspect for damage only. Do not remove. The bearing assembly is not a serviceable component.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Carrier to Output Shaft Assemble

Callout

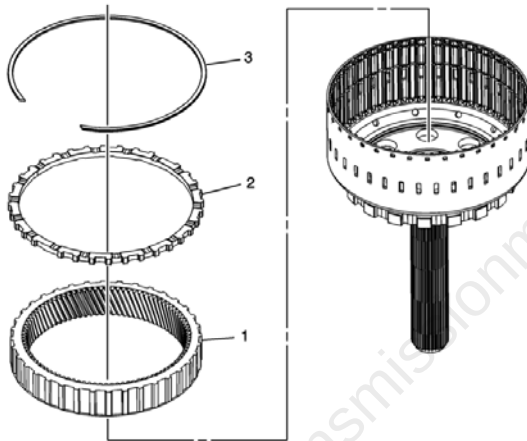
Component Name

- | | |
|---|---|
| 1 | Output Carrier Thrust Bearing Assembly |
| | Output Carrier Internal Front Gear |
| 2 | Caution: Install the gear flat side down. Failure to install the gear flat side down may result in transmission damage.
Note: Use 2 small blocks next to the output carrier assembly in order to keep the internal front gear engaged with the front pinion gears. |
| 3 | Output Shaft Assembly |
| | Output Carrier Internal Gear Retaining Ring |
| 4 | Note: Grasp the output shaft and carrier with both hands to turn over. |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Assemble

Callout

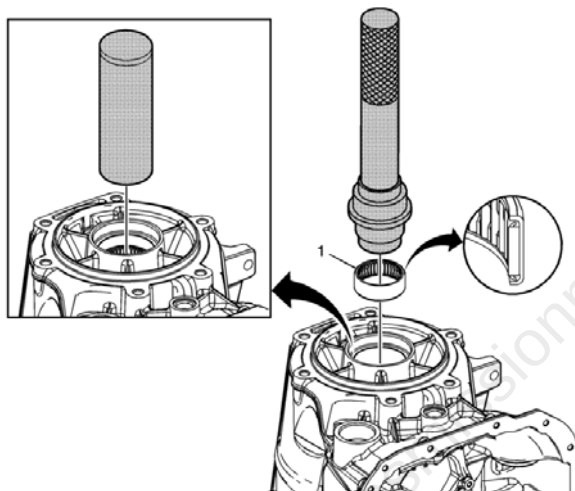
Component Name

- | | |
|---|--|
| 1 | Output Carrier Internal Rear Gear
Caution: Install the gear chamfer side down. Failure to install the gear chamfer side down may result in transmission damage. |
| 2 | Output Gear Internal Gear Spacer |
| 3 | Output Carrier Internal Gear Retaining Ring
Tip: Do not install the output carrier internal front gear and retaining ring yet. These components will be installed during assembly of the output carrier to the output shaft. |

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Bearing Replacement - Case

Callout

Component Name

Output Shaft Bearing Assembly

Note: Use *DT 35512* bearing installer to remove the bearing and *DT 48222* bearing installer and *GE 8092* driver handle to install the bearing.

Special Tools

1

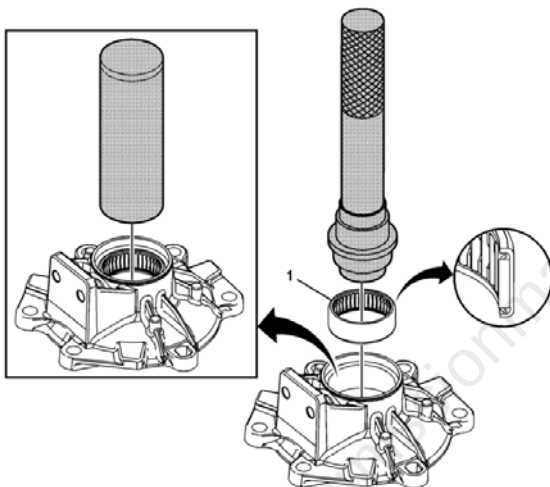
- *DT 48222* Bearing Installer
- *GE 8092* Driver Handle
- *DT 35512* Inner Pinion Bearing Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Bearing Replacement - Case Extension

Callout

Component Name

Output Shaft Bearing Assembly

Note: Use *J 35512* bearing installer to remove the bearing and *DT 48222* bearing installer and *J 8092* driver handle to install the bearing.

Special Tools

1

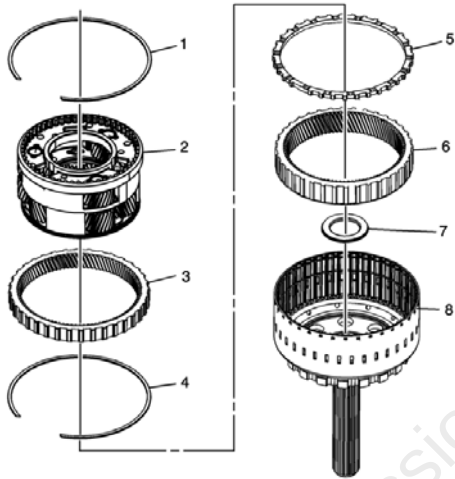
- *DT 48222* Bearing Installer
- *J 8092* Driver Handle
- *J 35512* Inner Pinion Bearing Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Disassemble

Callout

Component Name

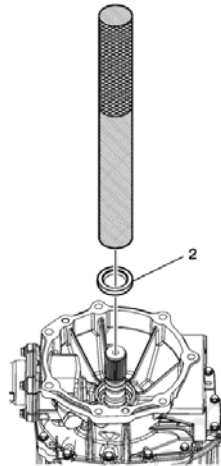
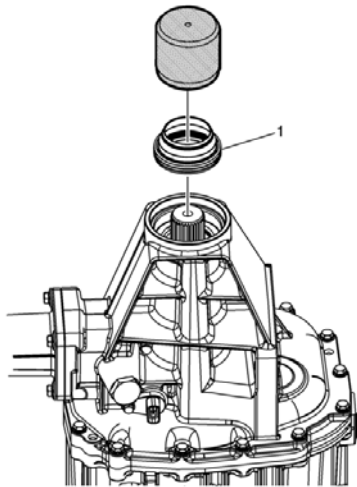
Tip: Inspect each component and replace as necessary.

- | | |
|---|---|
| 1 | Output Carrier Internal Gear Retaining Ring |
| 2 | Output Carrier Assembly |
| 3 | Output Carrier Internal Front Gear |
| 4 | Output Carrier Internal Gear Retaining Ring |
| 5 | Output Carrier Internal Gear Spacer |
| 6 | Output Carrier Internal Rear Gear |
| 7 | Output Carrier Thrust Bearing Assembly |
| 8 | Output Shaft Assembly |

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Fuel Delivery: | Fuel:



Output Shaft Seal Installation

Callout

Component Name

Output Shaft Seal (2x2)

Procedure

1. Replace with NEW oil seal.
2. Coat the NEW seal lips with the recommended lubricant.
3. Using *DT 47928-1* rear seal installer , install the seal.

Special Tools

DT 47928-1 Rear Seal Installer

For equivalent regional tools, refer to Special Tools.

Output Shaft Seal (4x4)

Procedure

1. Replace with a NEW oil seal.
2. Coat the NEW seal lips with the recommended lubricant.
3. Using *DT 50861* bearing cone installer , install the seal.

Special Tools

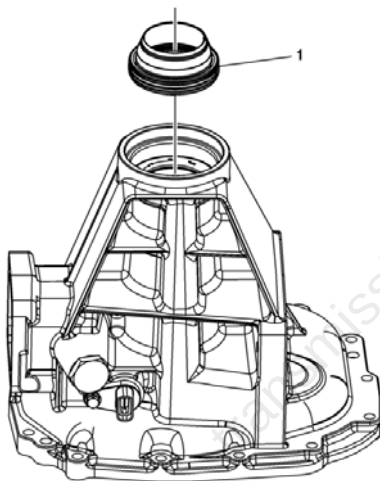
DT 50861 Bearing Cone Installer

For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Seal Removal

Callout

Component Name

1

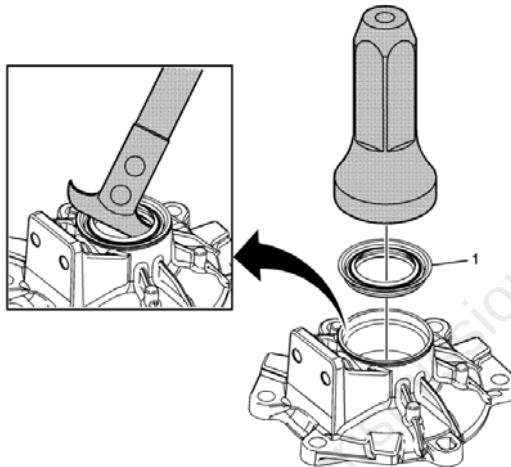
Output Shaft Seal

Tip: Use pry bar or screwdriver to remove the oil seal and discard. The seal is not reusable.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Seal Replacement

Callout

Output Shaft Seal Assembly

Special Tools

1

- EN 37212 Front Output Shaft Seal Installer
- EN 45000 Seal Remover

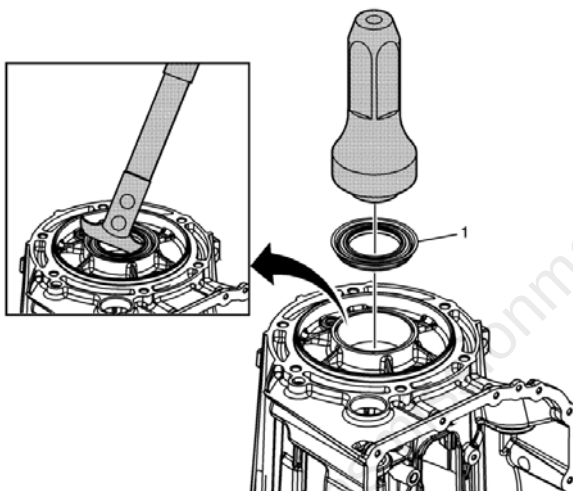
For equivalent regional tools, refer to Special Tools.

Component Name

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Output Shaft Seal Replacement

Callout

Component Name

Output Shaft Seal Assembly

Caution: Refer to Seal Reuse Caution.

Special Tool

1

- EN 37212 Front Output Shaft Seal Installer (6L50)
- DT 38693 Seal Installer (6L80)
- EN 45000 Seal Remover

For equivalent regional tools, refer to Special Tools.

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When the gear selector lever is in the Park (P) position, fluid is drawn into the pump through the transmission fluid filter assembly, from the transmission fluid pan assembly. Line pressure is then directed to the following valves:

Fluid Pressure Directed in Preparation for a Shift

Manual Valve

Mechanically controlled by the gear selector lever, the manual valve is in the Park (P) position and prevents line pressure from the pressure regulator valve from entering the reverse and drive circuits.

CBR1/C456 Pressure Control (PC) Solenoid 3

The CBR1/C456 pressure control solenoid (PCS) is energized (HIGH) allowing actuator feed limit fluid to enter the PCS CBR1/C456 CL fluid circuit. PCS CBR1/C456 CL fluid is then routed through orifice #31 to the 4-5-6 clutch boost valve and through orifice #39 to the CBR1/ C456 clutch regulator valve.

CBR1/C456 Clutch Regulator Valve

PCS CBR1/C456 CL fluid at the CBR1/C4-5-6 clutch regulator valve moves the valve against CBR1/C4-5-6 clutch regulator spring force and CBR1/FDBK fluid. This allows line pressure to pass through the valve and enter the CBR1/456CL FD circuit. CBR1/456CL FD is then routed to clutch select valve 2.

Shift Solenoid 1

Shift solenoid 1 is energized (ON) allowing actuator feed limit fluid to enter the solenoid 1 circuit. Solenoid 1 fluid is routed to the #2 ball check valve and through orifice #10 to the torque converter clutch (TCC) regulator valve and shuttle valve (SHTL).

TCC Regulator Valve and Shuttle Valve

Solenoid 1 fluid is routed to the TCC regulator valve and shuttle valve and moves the valve against TCC regulator valve spring force.

#2 Ball Check Valve

Solenoid 1 fluid seats the #2 ball check valve against the reverse fluid passage and fluid is forced through orifice #22 into the CSV2 enable fluid circuit.

Clutch Select Valve 2

CSV2 enable fluid is routed to the clutch select valve 2 and moves the valve against clutch select valve 2 spring force. This allows CBR1/456 CL FD fluid to pass through the valve and enter the CBR1/CBR FD circuit. CBR1/CBR FD fluid is then routed: to clutch select valve 3, into the CBR1 fluid circuit and, through orifice #49 where it enters the CBR fluid circuit and an exhaust passage at the clutch select valve 3 (this fluid is intended to keep the low and reverse clutch full of fluid but not pressurized). CBR1 fluid is then routed to the low & reverse clutch assembly in preparation for a shift into low or reverse gear.

Shift Solenoid 2

Shift solenoid 2 is energized (ON) allowing actuator feed limit fluid to enter the solenoid 2 fluid circuit and is then routed to the #3 ball check valve.

3-5 Reverse Clutch Regulator Valve

Actuator feed limit fluid is routed through the valve and into the PS1 fluid passage. PS1 fluid is then sent to the normally closed #1 pressure switch and opens the switch.

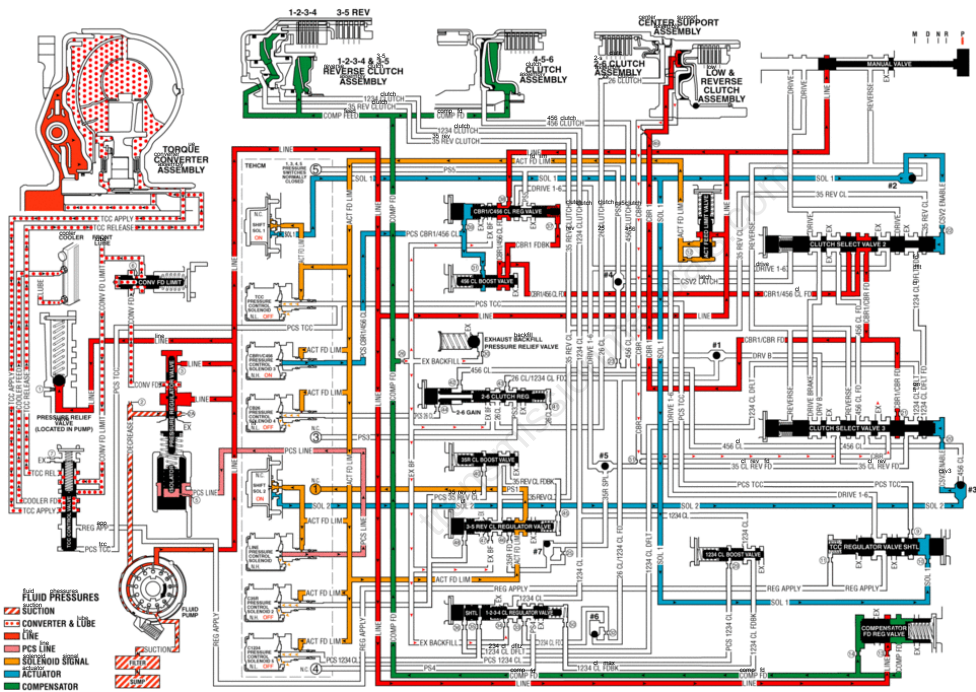
#3 Ball Check Valve

Solenoid 2 fluid seats the #3 ball check valve against 456 CL fluid passage and fluid is forced through orifice #20 into the CSV3 enable fluid circuit. CSV3 enable fluid is then routed to the clutch select valve 3.

Clutch Select Valve #3

CSV3 enable fluid moves the clutch select valve 3 against clutch select valve 3 spring force. CBR fluid at the clutch select valve 3 passes through the valve and exhausts.

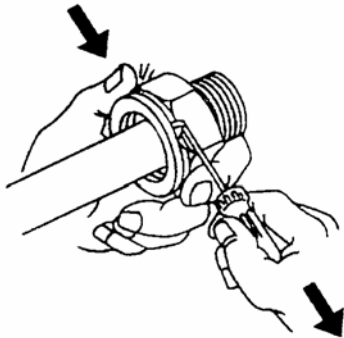
Park- Engine Running



2013 Chevrolet Colorado

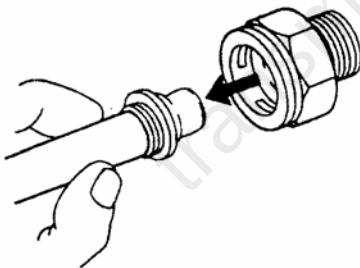
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)



Note: Perform the following procedure when removing the retaining rings and cooler lines from the quick connect fittings located on the radiator and/or the transmission.

1. Pull the plastic cap back from the quick connect fitting and down along the cooler line about 5 cm (2 in).
2. Using a bent-tip screwdriver, pull on one of the open ends of the retaining ring in order to rotate the retaining ring around the quick connect fitting until the retaining ring is out of position and can be completely removed.
3. Remove the retaining ring from the quick connect fitting.
4. Discard the retaining ring.

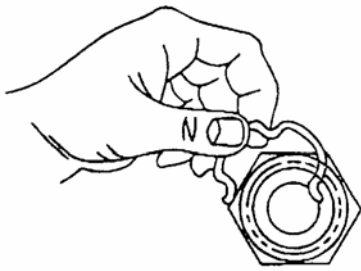


5. Pull the cooler line straight out from the quick connect fitting.

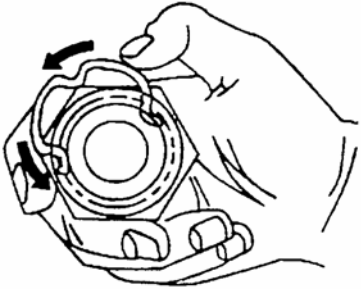
[Installation Procedure](#)

Note:

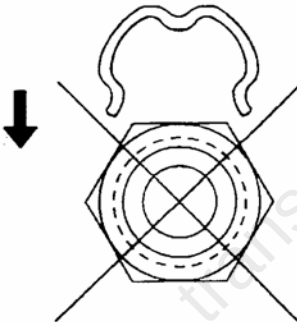
- Do not reuse any of the existing oil lines or oil line fittings if there is excessive corrosion.
 - Do not reuse any of the existing retaining rings that were removed from the existing quick connect fittings. Install new retaining rings.
 - Ensure the following procedures are performed when installing the new retaining rings onto the fittings.
1. Install a new retaining ring into the quick connect fitting using the following procedure:



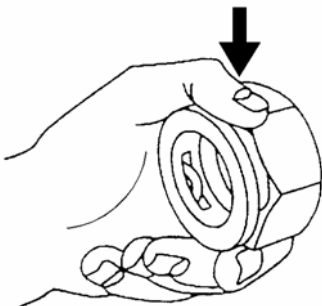
1. Hook one of the open ends of the retaining ring in one of the slots in the quick connect fitting.



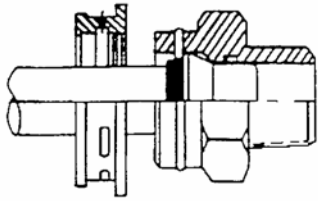
2. Rotate the retaining ring around the fitting until the retaining ring is positioned with all three ears through the three slots on the fitting.



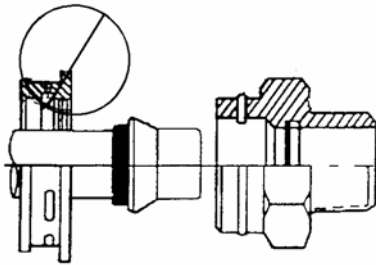
3. Do not install the new retaining ring onto the fitting by pushing the retaining ring.



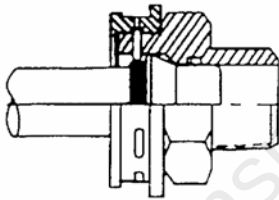
4. Ensure that the three retaining ring ears are seen from inside the fitting and that the retaining ring moves freely in the fitting slots.



2. Install the cooler line into the quick connect fitting.
3. Insert the cooler line end into the quick connect fitting until a click is either heard or felt.

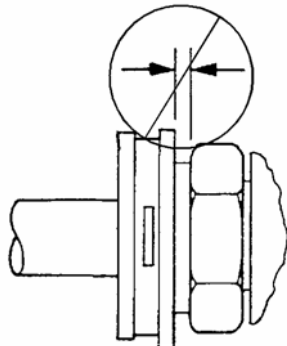


4. Do not use the plastic cap on the cooler line in order to install the cooler line into the fitting.
5. Pull back sharply on the cooler line in order to ensure that the cooler line is fastened into the quick connect fitting.

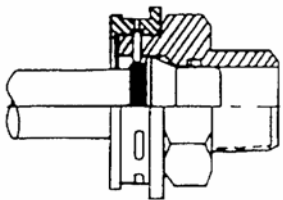


Note: Do not manually depress the retaining clip when installing the plastic cap.

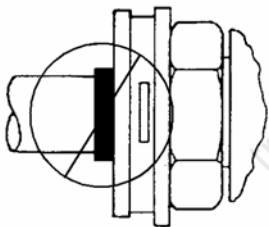
6. Position (snap) the plastic cap onto the fitting. Do not manually depress the retaining ring when installing the plastic cap onto the quick connect fitting.
7. Ensure that the plastic cap is fully seated against the fitting.



8. Ensure that no gap is present between the cap and the fitting.



9. Ensure that the yellow identification band on the tube is hidden within the quick connect fitting.

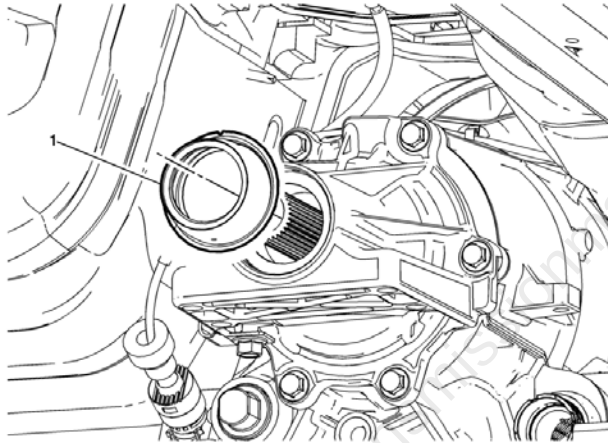


10. A hidden yellow identification band indicates proper joint seating.
11. Fill the transmission to the proper level with DEXRON® VI transmission fluid.

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Propeller Shaft Front Slip Yoke Oil Seal Replacement

Callout

Component Name

Preliminary Procedure

Remove the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement.

Propeller Shaft Front Slip Yoke Oil Seal

1

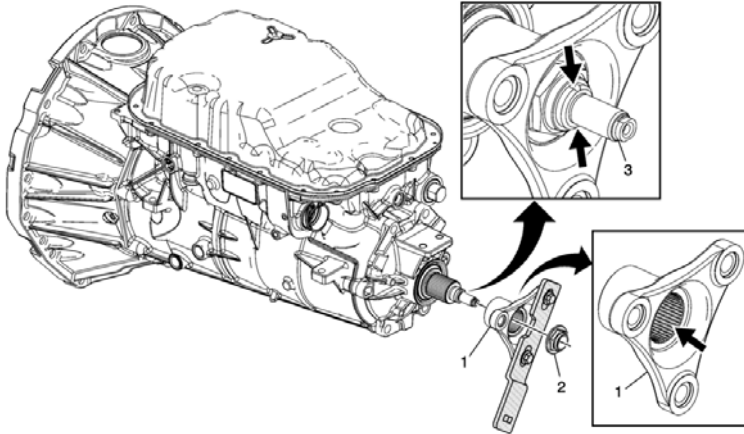
Procedure

Using a suitable seal puller, remove the seal.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Propeller Shaft Transmission Flange Installation

Callout

Component Name

Prop Shaft Trans Flange

Procedure

1. The output shaft splines must be thoroughly clean and dry before installing the flange.

Note:

- 1
 - When repairing low speed and garage shift clunk – except for moving the vehicle from the hoist, do not operate the vehicle above 5 mph at light throttle for 24 hours to allow the adhesive to cure.
 - If the replacement flange contains a pre-applied adhesive patch, then liquid adhesive is not required and the 24 hour cure time is not necessary.
2. Apply GM P/N 89021297 (Canadian P/N 10953488) across the width of the flange splines, install. However, if the replacement flange contains a pre-applied adhesive patch, then liquid adhesive is not required and the 24 hour cure time is not necessary.
3. Sufficient application of adhesive to every tooth on the flange will leave excess adhesive on the output shaft after installation. If no excess is observed, reapply adhesive.

NEW Front Prop Shaft Flange Nut

Caution: Refer to Fastener Caution.

Procedure

1. The output shaft threads must be thoroughly clean and dry before installing the nut.
2. Apply liquid adhesive across the width of the nut threads, prior to tightening and staking. Refer to Adhesives, Fluids, Lubricants, and Sealers. However, if the replacement nut contains a pre-applied adhesive patch, then liquid adhesive is not required.

Tighten

55 Y (41 lb ft)

Special Tools

DT 45012 Holding Fixture

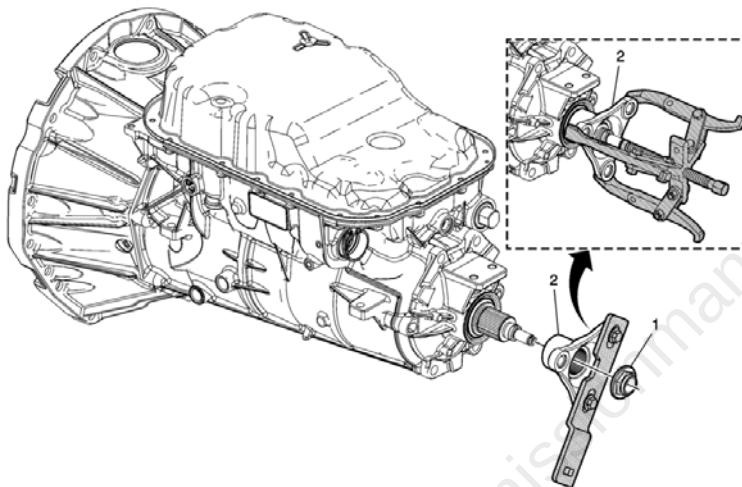
For equivalent regional tools, refer to Special Tools.

Output Shaft

- 3 **Caution:** Stake the flange nut onto the output shaft. Use the two staking grooves on the shaft to locate the staking points. Failure to stake the flange nut may result in damage to the transmission.

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Propeller Shaft Transmission Flange Removal

Callout

Component Name

Front Prop Shaft Flange Nut

Caution: Do not reuse the flange nut. Reusing the flange nut may cause damage to the transmission.

Tip: If the prop shaft transmission flange is not easily removed with J 45012 holding fixture use DT 38416-B harmonic balancer remover to remove the flange.

1

Special Tool

- DT 38416-B Harmonic Balancer Remover
- J 45012 Holding Fixture

For equivalent regional tools, refer to Special Tools.

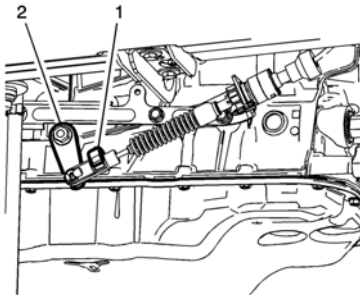
2

Prop Shaft Trans Flange

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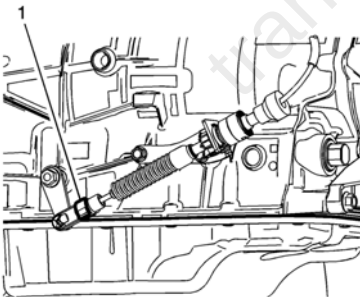
1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Unlock the range selector lever cable adjustment clip (1).
3. Ensure that the transmission manual shaft lever (2) is in the park (P) position.
4. Lower the vehicle.
5. Ensure that the transmission control shift lever is in the park (P) position.
6. Raise the vehicle.

Caution: Refer to Fastener Caution.

7. Hold the selector lever on transmission to eliminate any play.

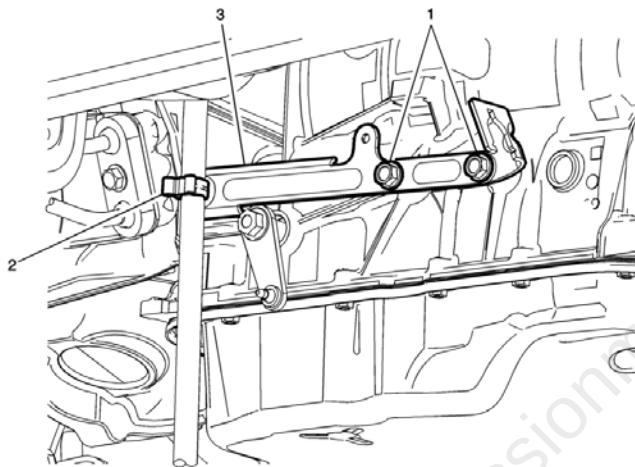


8. Lock the range selector lever cable adjustment clip (1).
9. Inspect the operation of the starting system with the shift lever in each position. The engine should only crank when the lever is in the PARK or NEUTRAL position.

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Range Selector Lever Cable Bracket 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. Remove the transmission range selector cable from the range selector cable bracket. Refer to Range Selector Lever Cable Replacement.

Transmission Range Selector Cable Bracket Bolt (Qty: 2)

Caution: Refer to Fastener Caution.

1

Tighten

25 Y (18 lb ft)

2

Drain Tube Retainer

3

Transmission Range Selector Cable Bracket

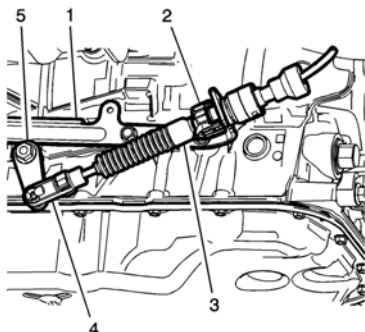
2013 Chevrolet Colorado

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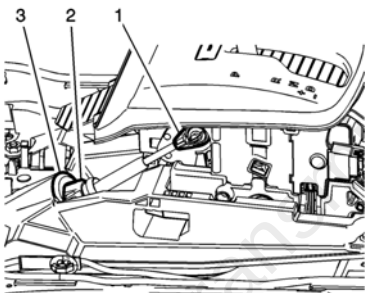
Fuel Delivery: | Fuel:

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.

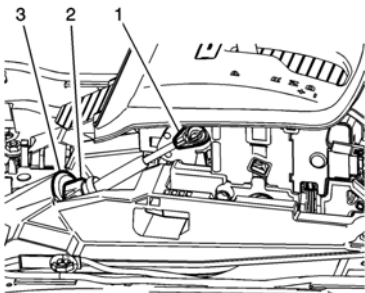


2. Using a flat bladed tool, remove the automatic transmission range selector cable terminal (4) from the automatic transmission range selector lever (5).
3. Pull the locking clip (2) in order to release the range selector lever cable (3) from the cable bracket (1).
4. Remove the automatic transmission range selector cable (3) from the automatic transmission range selector cable bracket (1).
5. Lower the vehicle.
6. Using wheel chocks, block the tires.
7. Remove the front floor console.
8. Remove the transmission control from the vehicle. Refer to Transmission Control Replacement.



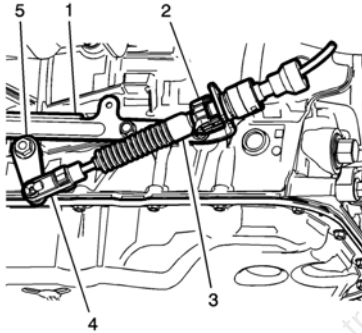
9. Using a flat bladed tool, disconnect the cable terminal (1) from the transmission control shift pin.
10. Compress the two retaining tabs (2) and remove the automatic transmission range selector cable from the transmission control.

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 end (1) to the transmission control shift pin.
4. Install the transmission control in the vehicle. Refer to Transmission Control Replacement.
5. Install the front floor console.
6. Raise the vehicle.



7. Properly route and position the automatic transmission range selector cable (3) to the transmission shift cable bracket (1).
8. Install the automatic transmission range selector cable terminal (4) to the transmission control shift lever pin (5).
9. Install the automatic transmission range selector cable retainer (2) to the transmission cable bracket (1).
10. Adjust the automatic transmission range selector cable. Refer to Range Selector Lever Cable Adjustment.

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



Component Name

Warning: Wear safety glasses to avoid injury when using compressed air or any cleaning solvent. Bodily injury may occur if fumes are inhaled or if skin is exposed to chemicals.

Clean the transmission rear case assembly (1) with a suitable solvent. Air dry all the parts.

1. Inspect the rear case for the following conditions:

- Cracks

Replace the rear case if cracks are found.

- Scratches
- Burrs
- Nicked mounting surfaces
- Damaged sealing surfaces
- Damaged bearing bores

- Inspect the machined mating surfaces for flatness. Check the mating surfaces with a straight edge.
- Inspect the bushing for excessive wear. Replace worn bushings.
- Use a fine mill file to dress minor scratches or burrs.
- If scratches, or grooves or scoring cannot be removed by hand with a soft stone or crocus cloth, replace the component.

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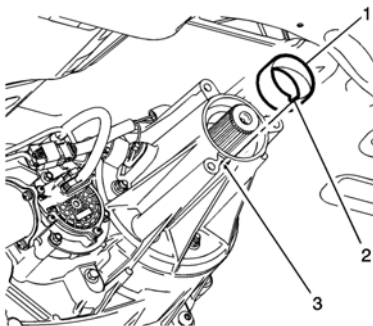
Special Tools

DT-50575 Transfer Case Rear Bushing Remover and Installer

For equivalent regional tools, refer to Special Tools.

[Removal Procedure](#)

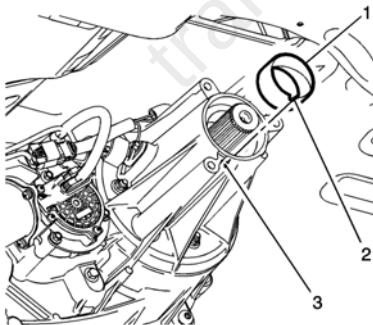
1. Remove the rear output shaft seal. Refer to Rear Output Shaft Seal Replacement.



Note: Only replace the rear output shaft bushing if it is worn or scored.

2. Install the finger section of DT-50575 remover and installer in front of the bushing (1).
3. Install the tube and forcing tube assembly into the finger section. Ensure the forcing screw is backed out.
4. Using a wrench on the forcing screw, remove the bushing.

[Installation Procedure](#)

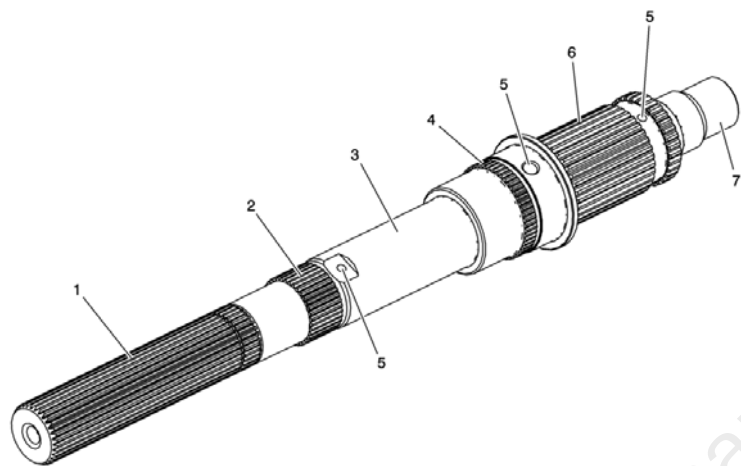


Note: The notched area of the bushing (2) should face the rear output shaft seal and be aligned with the rib of the transfer case.

1. Using DT-50575 remover and installer, install the bushing.
2. Install the rear output shaft seal. Refer to Rear Output Shaft Seal Replacement.

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



Rear Output Shaft Cleaning and Inspection

Callout	Component Name
Preliminary Procedure	
- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated. - Clean all components in cleaning solvent and air dry.	
1	Transfer Case Rear Output Shaft Splines Note: Witness marks at the location of the yoke are normal.
2	Transfer Case Rear Output Shaft Speed Sensor Reluctor Wheel Engagement Splines Note: Witness marks at the location of speed sensor reluctor wheel is normal.
3	Transfer Case Front Output Shaft Drive Sprocket Bearing Surface Note: Inspect for scoring, brinelling, pitting, or excessive wear.
4	Transfer Case Oil Pump Assembly Engagement Splines Note: Witness marks at the location of the oil pump is normal.
5	Oil Galleries Note: Inspect for dirt, debris, or a restriction.
6	Transfer Case Range Shift Sleeve Engagement Splines Note: Witness marks at the location of the range shift sleeve is normal.
7	Transfer Case Input Shaft Pilot Bearing Surface Note: Inspect for scoring, brinelling, pitting, or excessive wear.

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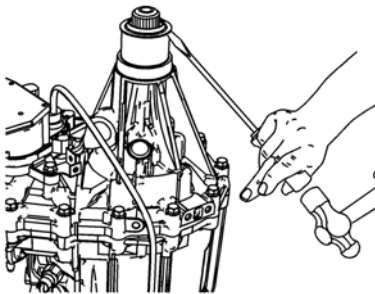
Special Tools

J-38869 Rear Extension Seal Installer

For equivalent regional tools, refer to Special Tools.

Removal Procedure

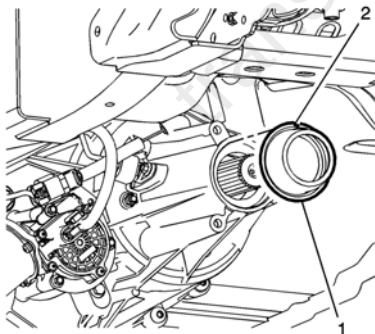
1. Remove the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement for one piece propeller shaft, or Two-Piece Rear Propeller Shaft Replacement for two piece propeller shaft.



Caution: Refer to Transfer Case Seal Removal Caution.

2. Using a suitable seal remover, remove the rear output shaft seal from the transfer case.

Installation Procedure



Note: The drain hole of the seal (1) should be aligned with the transfer case rib.

1. Using the J-38869 rear extension seal installer and a hammer, install the rear output shaft seal into the transfer case.
2. Inspect the transfer case fluid level.

Note: Ensure the seal surface of the propeller shaft yoke is clean and free from rust or scoring prior to installation.

3. Install the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement for one piece propeller shaft, or Two-Piece Rear Propeller Shaft Replacement for two piece propeller shaft.

2013 Chevrolet Colorado

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

The Reset Transmission Adapts is a procedure for automatic transmissions in which the shift pressure learn values of each individual clutch is reset to zero or a base calibrated value, in the transmission control module (TCM).

Once the transmission adapts are set to zero or a calibrated value, the vehicle is then road test under various drive cycle events for the TCM to relearn shift pressure values for the best possible shift feel in all gear ranges.

The Reset Transmission Adapts procedure must be performed when one of the following repairs have been made to the transmission. Failure to perform the procedure after one of the following repairs may result in poor transmission performance, DTCs being set, or customer dissatisfaction.

- Transmission internal service, repair or overhaul
- Valve body repair or replacement
- Control solenoid valve assembly replacement
- Any service/repair in response to a shift quality concern

1. Install any components or connectors that have been removed or replaced during diagnosis.
2. Perform any adjustments, programming or setup procedures that are required when a component or module is removed or replaced.
3. Clear the DTCs.
4. Ignition OFF, all vehicle systems OFF, this may take up to 2 minutes.

Note: Do not cycle or turn the ignition switch OFF until directed to do so below.

5. Ignition ON, engine running, with a scan tool Reset Transmission Adapts.
6. Perform the Road Test.
7. Ignition OFF for 2 minutes.

2013 Chevrolet Colorado

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

When the gear selector lever is moved to the Reverse (R) position (from the Park position) the normally high C35R pressure control solenoid 2 is commanded ON and the following changes occur in the transmission's hydraulic and electrical systems:

[Fluid Pressure Directed in Preparation for a Shift](#)

Manual Valve

With the manual valve in the reverse position, line pressure is directed into the reverse fluid circuit to the #2 ball check valve and clutch select valve 3.

#2 Ball Check Valve

Reverse fluid seats the #2 ball check valve against the solenoid 1 fluid passage and fluid is forced through orifice #22 into the CSV2 enable circuit.

Clutch Select Valve 2

CSV2 enable fluid, present at the valve from Park position, continues to hold the clutch select valve 2 against clutch select valve 2 spring force.

[Low and Reverse Clutch Applies](#)

Clutch Select Valve 3

Reverse fluid from the manual valve is routed to clutch select valve 3 to combine with clutch select valve 3 spring force to keep the valve in the off position. This allows reverse fluid to pass through the valve and enter the 3-5 clutch reverse feed circuit. The 3-5 clutch reverse feed fluid from the clutch select valve 3 is also routed to #5 ball check valve. CBR1/CBR FD fluid is also directed through the clutch select valve 3 to the low and reverse clutch assembly.

Low and Reverse Clutch

CBR and CBR1 fluid pressures are routed to both the inner and outer areas of the low and reverse clutch piston to hold the piston against spring force and hold the low and reverse clutch plates. The clutch was already applied in Park, but is applied with more holding capacity in Reverse (both piston areas are pressurized).

#5 Ball Check Valve

The 3-5 clutch reverse feed fluid seats #5 ball check valve against the drive 1-6 circuit allowing 3-5 clutch reverse feed fluid to enter the 3-5 reverse supply circuit. The 3-5 reverse supply fluid is then routed to #7 ball check valve and through orifice #25 where it enters the 3-5 reverse feed circuit. The 3-5 reverse feed passes through orifice #46 and then is routed to the 3-5 reverse clutch regulator valve.

[3-5 Reverse Clutch Applies](#)

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is energized (HIGH) allowing actuator feed limit fluid to enter the PCS 3-5 reverse clutch circuit. PCS 3-5 reverse clutch fluid is then routed through orifice #48 to the 3-5 reverse clutch regulator valve and through orifice #40 to the 3-5 reverse boost valve.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch and the 3-5 reverse boost valve. PS1 fluid from pressure switch 1 exhausts through the valve allowing the switch to close.

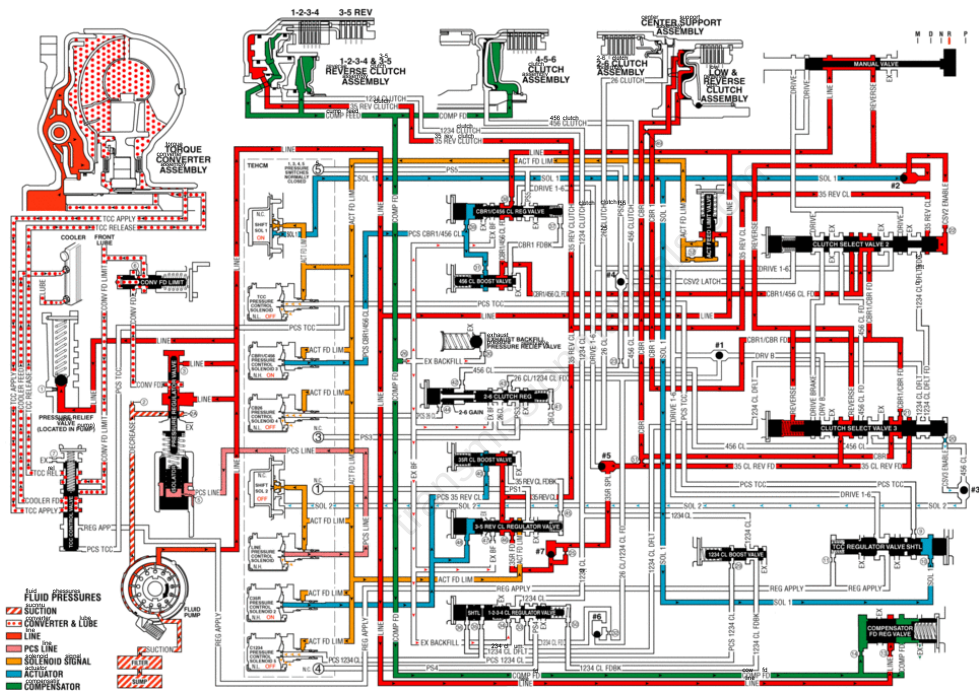
3-5 Reverse Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 clutch reverse feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 and reverse clutch housing to move the piston against spring force and compensator feed fluid to apply the 3-5 reverse clutch plates.

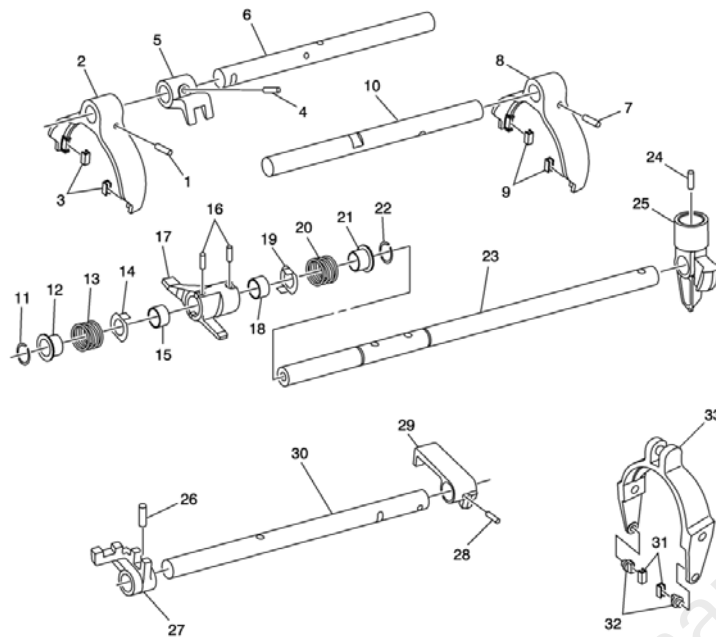
[Reverse](#)



2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Shift Shaft and Shift Fork Cleaning and Inspection

Callout

Component Name

1	Shift Fork Retaining Pin
2	3rd and 4th Shift Fork
3	3rd and 4th Shift Fork Insert
4	3rd and 4th Shift Block Pin
5	3rd and 4th Shift Block
6	3rd and 4th Shift Shaft
7	Shift Fork Retaining Pin
8	1st and 2nd Shift Fork
9	1st and 2nd Shift Fork Insert
10	1st and 2nd Shift Shaft
11	Shift Shaft Retainer Ring
12	Center Support
13	Shift Control Shaft Lower Spring
14	Transmission Washer
15	Shift Shaft Bushing
16	Shift Shaft Block Pin
17	Shift Shaft Block
18	Shift Shaft Bushing
19	Transmission Washer

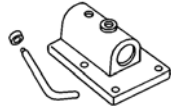
Callout**Component Name**

20	Shift Control Shaft Lower Spring
21	Center Support
22	Shift Shaft Retaining Ring
23	Shift Shaft
24	Shift Shaft Detent Pin Assembly
25	Shift Shaft Detent Lever
26	5th and Reverse Shift Block Pin
27	5th and Reverse Shift Block
28	5th and Reverse Shift Fork Pin
29	5th and Reverse Shift Link Lever
30	5th and Reverse Shift Rail
31	5th and Reverse Shift Fork Insert – Outer
32	5th and Reverse Shift Fork Insert – Inner
33	5th and Reverse Shift Fork

2013 Chevrolet Colorado

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

Illustration



Tool Number/Description

DT 3289-20

J 3289-20

KM 113-2-A

Holding Fixture



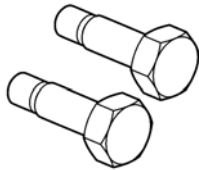
DT 08614-A

J 08614-A

KM 210-3

7-0004805

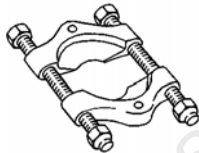
Pinion Flange Holder and Remover



DT 08614-20

J 08614-20

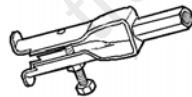
Flange Retaining Bolts



DT 22912-B

J 22912-B

Split Plate Bearing Puller



DT 29369-1

J 29369-1

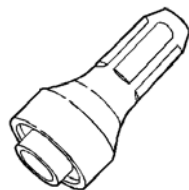
Bushing and Bearing Remover



DT 36842

J 36842

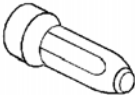
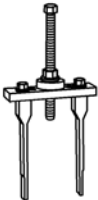
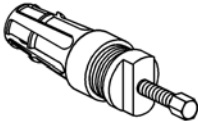
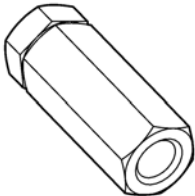
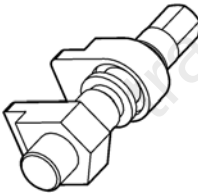
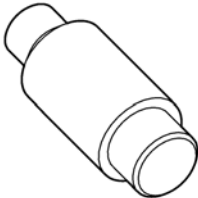
Transaxle Holding Fixture



DT 38869

J 38869

Rear Extension Seal Installer

Illustration	Tool Number/Description
	DT 42738 J 42738 Seal Installer
	DT 45124 J 45124 Removal Bridge
	DT 45342-1 J 45342-1 Press Tube
	DT 45380 J 45380 Transfer Case Rear Bushing Remover and Installer
	DT 49308 Stud Remover and Installer
	DT 50228 Transfer Case Housing Separator
	DT 50314 Input Shaft Pilot Bearing and Actuator Shaft Seal Installer
	DT 50315 Puller Hardware Kit

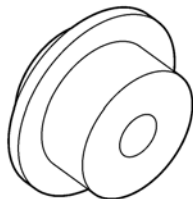
Illustration

Tool Number/Description



DT 50316

Drive Sprocket Bushing Remover and Installer



DT 50633

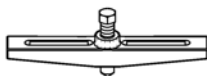
Bearing Installer



GE 8092

J 8092

Driver Handle



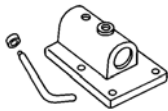
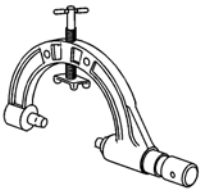
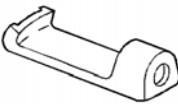
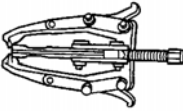
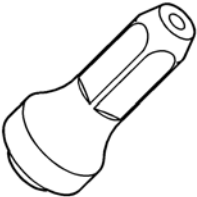
GE 8433-1

J 8433-1

Puller Bar

2013 Chevrolet Colorado

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

Illustration	Tool Number/Description
	DT 3289-20 J 3289-20 Holding Fixture Base Assembly
	DT 8763-B J 8763-B Holding Fixture
	DT 23129 J 23129 Universal Seal Remover
	DT 35512 J 35512 Inner Pinion Bearing Installer
	DT 36850 Transjel Lubricant
	DT 38416-B J 38416-B Harmonic Balancer Remover
	DT 38693 J 38693 Seal Installer

Illustration

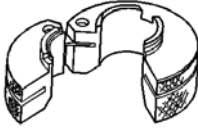
Tool Number/Description



DT 38734

J 38734

Intermediate Spring Compressor Adapter



DT 41623-B

J 41623-B

KM 41623-B

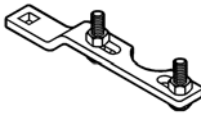
Cooler Quick Connect Tool



DT 43074

J 43074

Clutch Spring Compressor



DT 45012

J 45012

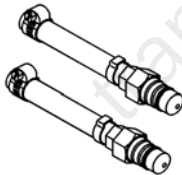
Holding Fixture



DT 45096

J 45096

Transmission Oil Cooling System Flush and Flow Test Tool



DT 45096-30

J 45096-30

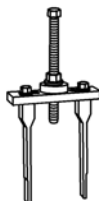
Transmission Cooler Flush Adapter



DT 45096-40

J 45096-40

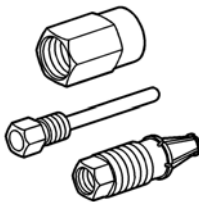
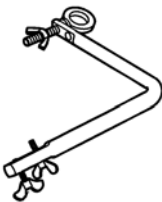
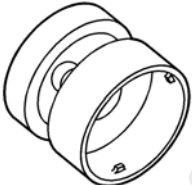
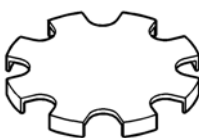
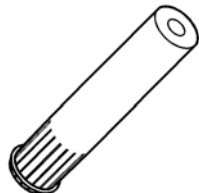
Transflow Oil Fill Adapter



DT 45124

J 45124

Remover Bridge

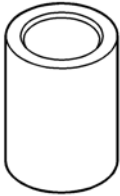
Illustration	Tool Number/Description
	DT 45126 J 45126 Snap Ring Pliers
	DT 45201 J 45201 Cooler Line Seal Remover
	DT 46664 J 46664 Pump Cover Alignment Tool
	DT 47605 Holding Fixture Adapter
	DT 47715 Electrical Connector Passage Sleeve Remover/Installer
	DT 47731 1/2 Inch Quick Connect Release Tool
	DT 47761 Clutch Spring Compressor
	DT 47768-1 Seal Protector

Illustration

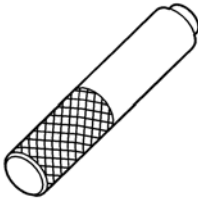
Tool Number/Description



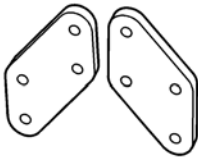
DT 47768-2
Seal Pusher



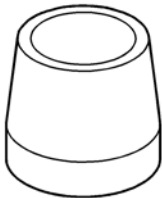
DT 47768-3
Seal Sizer



DT 47770
Seal Installer



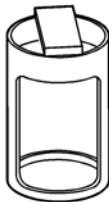
DT 47773
Snap Ring Pliers Adapter Set



DT 47778-1
Low Clutch Sprag Retaining Ring Cone



DT 47778-2
Low Clutch Sprag Retaining Ring Pusher



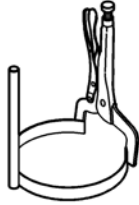
DT 47779
Clutch Spring Compressor



DT 47780
Low Clutch Sprag Seal Cone

Illustration

Tool Number/Description



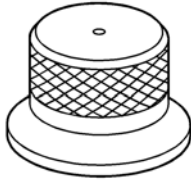
DT 47781

C1234 and 35R Clutch Assembly Installer



DT 47782-1

Retaining Ring Cone



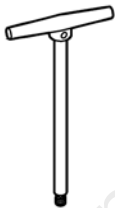
DT 47782-2

Retaining Ring Installer



DT 47784

Transmission Fluid Fill Pan Adapter



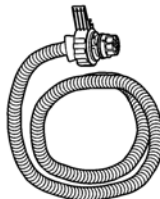
DT 47786

Output Carrier/Shaft Lifting Tool



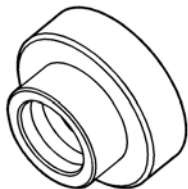
DT 47825

Control Solenoid Test Plate



DT 47825-10

Jumper Harness

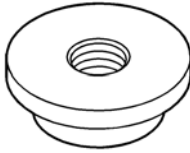


DT 47848

Seal Installer

Illustration

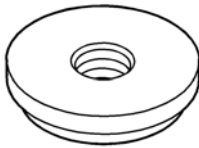
Tool Number/Description



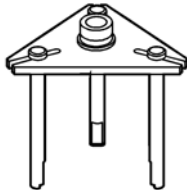
DT 47857
Bearing Installer



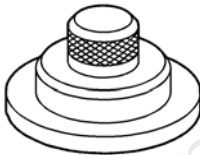
DT 47865
Bearing Remover



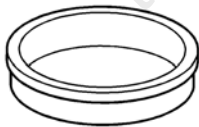
DT 47866
Bearing Installer



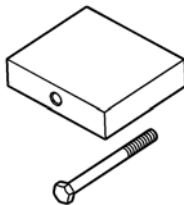
DT 47867
Adjustable Clutch Spring Compressor



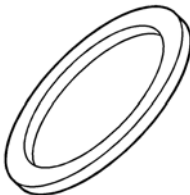
DT 47868-1
Pack Travel Weight



DT 47868-4
Clutch Travel Weight Adapter



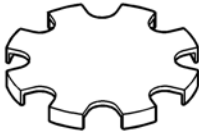
DT 47868-2
Magnetic Base Adapter



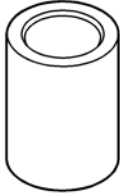
DT-47868-3
Clutch Travel Weight Adapter

Illustration

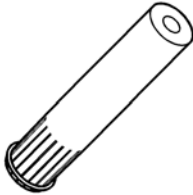
Tool Number/Description



DT 48065
Clutch Spring Compressor



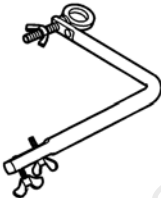
DT 48066-1A
Seal Sizer



DT 48066-2
Seal Pusher



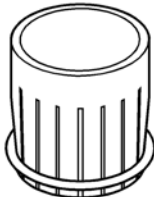
DT 48066-3
Seal Protector



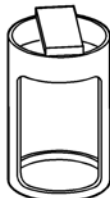
DT 48067
Holding Fixture Adapter



DT 48068-1
Low Clutch Sprag Retaining Ring Cone



DT 48068-2
Low Clutch Sprag Retaining Ring Pusher



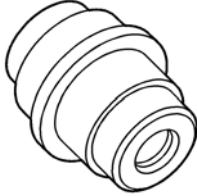
DT 48069
Clutch Spring Compressor

Illustration

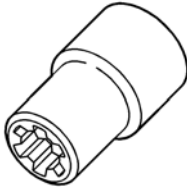
Tool Number/Description



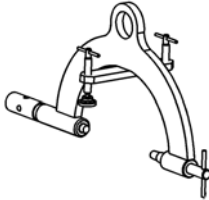
DT 48070
Low Clutch Sprag Seal Cone



DT 48222
Bearing Installer



DT 48285
Valve Body Torx Plus Socket



DT-48989
Holding Fixture



DT-49122
Low Clutch Spring Compressor Adapter



DT 49291
Clutch Travel Air Passage Plug Kit

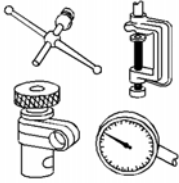


EN 28467-700
EN 47649
X-0206951
Engine Bridge Tool



GE 6125-B
J 6125-B
Slide Hammer

Illustration



Tool Number/Description

GE 8001

J 8001

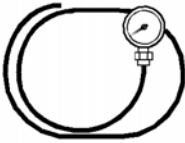
Dial Indicator Set



GE 8092

J 8092

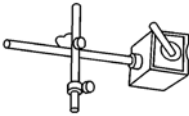
Driver Handle



GE 21867

J 21867

Pressure Gauge



GE 26900-13

J 26900-13

Magnetic Base



EL 38522

J 38522

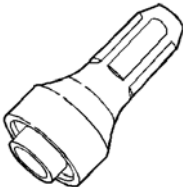
Variable Signal Generator



EN 37212

J 37212

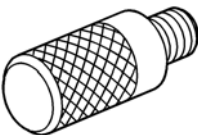
Front Output Shaft Seal Installer



EN 38869

J 38869

Output Shaft Seal Installer



EN 42183

J 42183

Driver Handle

Illustration



Tool Number/Description

EN 45000

J 45000

Seal Remover

2013 Chevrolet Colorado

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

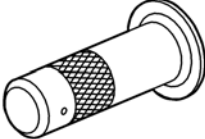
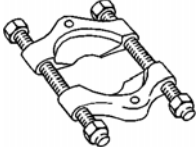
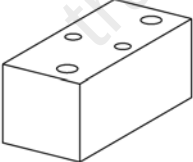
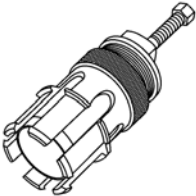
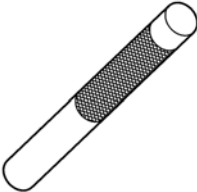
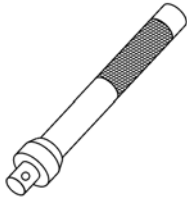
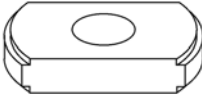
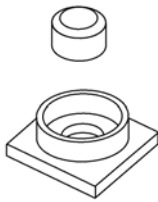
Illustration	Tool Number/Description
	DT-0307994 Driver-Automatic Transmission Torque Converter Seal
	DT-22912-B J-22912-B 6-9604356 Split Plate Bearing Puller
	DT-47928-1 Rear Seal Installer
	DT-50315 Puller Hardware Kit
	DT-50461 Mainshaft Lock Wrench Mounting Block
	DT-50575 Extension Housing Bushing Remover/Installer
	DT-50848 Input Shaft Bearing Cone Installer

Illustration	Tool Number/Description
	DT-50849 3-0207891 Permaglide Bushing Installer
	DT-50850 M-840911-A Driver Handle
	DT-50851 Front Housing Expansion Plug Installer
	DT-50852 Front Housing Bearing Race Installer
	DT-50853 Mainshaft Bearing Race Puller
	DT-50854 Countershaft Bearing Race Puller
	DT-50855 3-0207887 Mainshaft Bearing Race Installer
	DT-50856 3-0207886 Countershaft Bearing Race Installer

Illustration

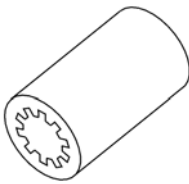


Tool Number/Description

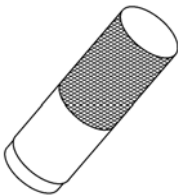
DT-50857
Countershaft Bearing Cone Installer



DT-50858
54mm Special Wrench



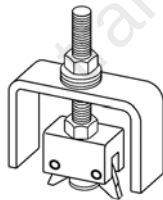
DT-50859
Input Shaft Spline Socket



DT-50860
Bearing Cone Installer



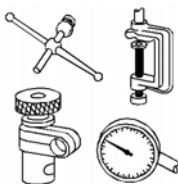
DT-50861
3-0207944
Bearing Cone Installer



DT-50862
T-9907690
Front Housing Bearing Race Puller

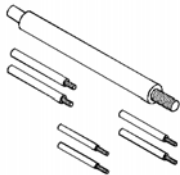
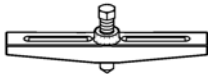


EN-28467-700
EN-47649
X-0206951
Engine Bridge Tool



GE-8001
J-8001
Dial Indicator Set

Illustration



Tool Number/Description

GE-8433-1

J-8433-1

Puller Bar

GE-25025-B

DT-25025-B

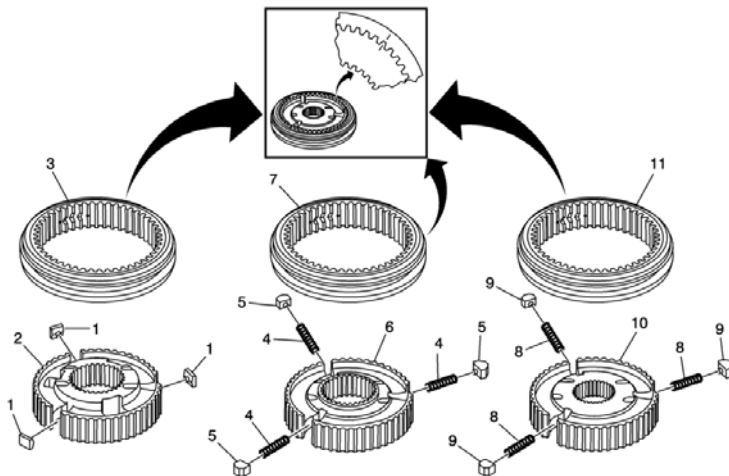
J-25025-B

Dial Indicator Post and Guide Pin Set

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Synchronizers Assembly

Callout

Preliminary Procedure

1. Synchronizer components are not interchangeable. Keep all the synchronizer components separate. The synchronizer hubs and the sliding sleeves are a selected assembly. Keep the hubs and the sliding sleeves together as originally assembled.
2. Match up the marks on the synchronizer hub and on the sleeve. This will help you to reinstall the parts in the same position.
3. When repairing synchronizer assemblies, do not replace a single part only. Always replace the assembly. If it would be necessary to replace one synchronizer ring, always replace the synchronizer ring set.
4. Grooves on the inside splines of sleeves should match the grooves for the inserts on the hubs.

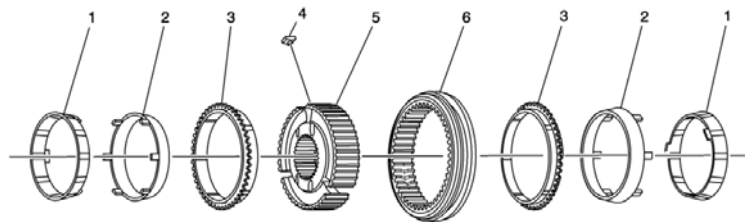
- | | |
|----|--|
| 1 | 1st and 2nd Gear Synchronizer Insert |
| 2 | 1st and 2nd Gear Synchronizer Hub
Tip: Hub should be facing up as shown above. |
| 3 | 1st and 2nd Gear Synchronizer Sleeve
Tip: Assemble with chamfer side up. |
| 4 | 3rd and 4th Gear Synchronizer Spring |
| 5 | 3rd and 4th Gear Synchronizer Insert |
| 6 | 3rd and 4th Gear Synchronizer Hub
Tip: Hub should be facing up as shown above. |
| 7 | 3rd and 4th Gear Synchronizer Sleeve
Tip: Assemble with chamfer side up. |
| 8 | 5th and Reverse Gear Synchronizer Spring |
| 9 | 5th and Reverse Gear Synchronizer Insert |
| 10 | 5th and Reverse Gear Synchronizer Hub
Tip: Hub should be facing up as shown above. |
| 11 | 5th and Reverse Gear Synchronizer Sleeve
Tip: Assemble with chamfer side up. |

2013 Chevrolet Colorado

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

- Table 1: [1st and 2nd Gear Synchronizer Components](#)
Table 2: [3rd and 4th Gear Synchronizer Components](#)
Table 3: [5th and Reverse Gear Synchronizer Components](#)

1st and 2nd Gear Synchronizer Components



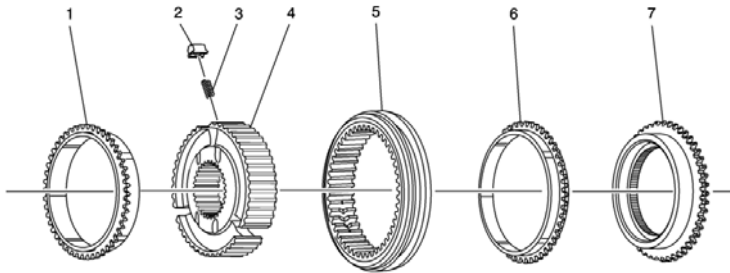
1st and 2nd Gear Synchronizer Components

Callout	Component Name
Preliminary Procedures	
- When you service the synchronizers, retain them in the order that they are removed. Mark the parts to ensure the correct position for inspection and assembly. - Clean all the synchronizer parts in a suitable solvent. Air dry all the synchronizer parts. - Inspect the synchronizer parts for the following conditions: - Burrs - Cracks - Hicks - Chamfer for excessive wear - Free movement for the clutching sleeves on their hubs - Worn or damaged clutch teeth - Distorted teeth - Warping - Worn grooves - Wear on external splines - When repairing synchronizer assemblies, do not replace a single part only. Always replace the assembly. If it would be necessary to replace one synchronizer ring, always replace the synchronizer ring set. - Correct the cause, such as, but not limited to the following conditions: - Engine related vibrations - Driving at a low speed in a high gear - Defective vibration damper or crankshaft	
1	1st Gear Synchronizer Inner Cone
2	1st Gear Synchronizer Outer Cone
3	1st and 2nd Gear Blocking Ring Assembly
4	1st and 2nd Gear Synchronizer Insert
5	1st and 2nd Gear Synchronizer Hub

Callout**Component Name**

6

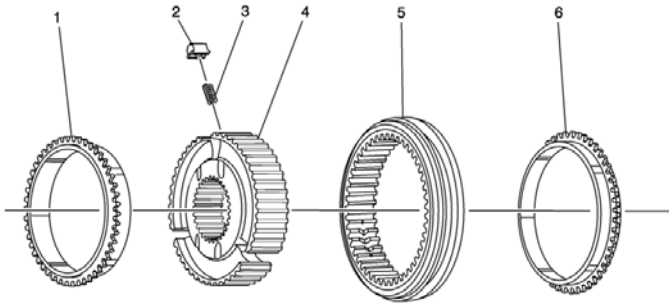
1st and 2nd Gear Synchronizer Sleeve

[3rd and 4th Gear Synchronizer Components](#)**3rd and 4th Gear Synchronizer Components****Callout****Component Name****Preliminary Procedures**

1. When you service the synchronizers, retain them in the order that they are removed. Mark the parts to ensure the correct position for inspection and assembly.
2. Clean all the synchronizer parts in a suitable solvent. Air dry all the synchronizer parts.
3. Inspect the synchronizer parts for the following conditions:
 - Burrs
 - Cracks
 - Hicks
 - Chamfer for excessive wear
 - Free movement for the clutching sleeves on their hubs
 - Worn or damaged clutch teeth
 - Distorted teeth
 - Warping
 - Worn grooves
 - Wear on external splines
- When repairing synchronizer assemblies, do not replace a single part only. Always replace the assembly. If it would be necessary to replace one synchronizer ring, always replace the synchronizer ring set.
- Correct the cause, such as, but not limited to the following conditions:
 - Engine related vibrations
 - Driving at a low speed in a high gear
 - Defective vibration damper or crankshaft

- | | |
|---|--------------------------------------|
| 1 | 4th Gear Synchronizer Ring |
| 2 | 3rd and 4th Gear Synchronizer Insert |
| 3 | 3rd and 4th Gear Synchronizer Spring |
| 4 | 3rd and 4th Gear Synchronizer Hub |
| 5 | 3rd and 4th Gear Synchronizer Sleeve |
| 6 | 3rd Gear Synchronizer Ring |
| 7 | 3rd Gear Synchronizer Cone |

[5th and Reverse Gear Synchronizer Components](#)



5th and Reverse Gear Synchronizer Components

Callout

Component Name

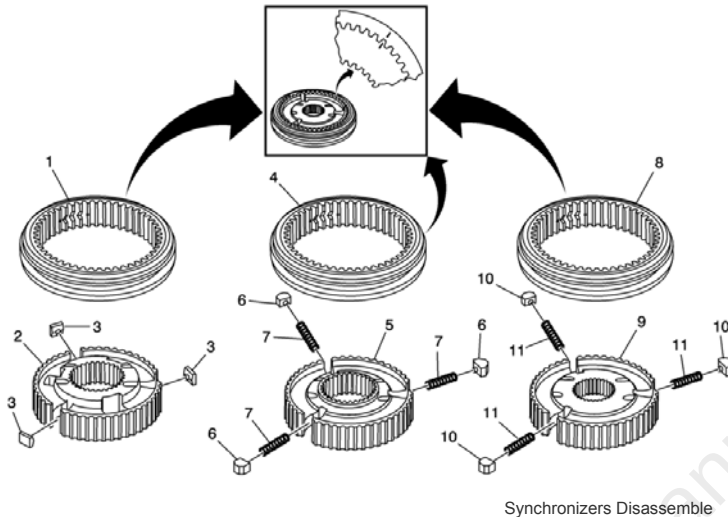
Preliminary Procedures

1. When you service the synchronizers, retain them in the order that they are removed. Mark the parts to ensure the correct position for inspection and assembly.
2. Clean all the synchronizer parts in a suitable solvent. Air dry all the synchronizer parts.
3. Inspect the synchronizer parts for the following conditions:
 - Burrs
 - Cracks
 - Hicks
 - Chamfer for excessive wear
 - Free movement for the clutching sleeves on their hubs
 - Worn or damaged clutch teeth
 - Distorted teeth
 - Warping
 - Worn grooves
 - Wear on external splines
- When repairing synchronizer assemblies, do not replace a single part only. Always replace the assembly. If it would be necessary to replace one synchronizer ring, always replace the synchronizer ring set.
- Correct the cause, such as, but not limited to the following conditions:
 - Engine related vibrations
 - Driving at a low speed in a high gear
 - Defective vibration damper or crankshaft

- | | |
|---|--|
| 1 | 5th Gear Blocking Ring |
| 2 | 5th and Reverse Gear Synchronizer Insert |
| 3 | 5th and Reverse Gear Synchronizer Spring |
| 4 | 5th and Reverse Gear Synchronizer Hub |
| 5 | 5th and Reverse Gear Synchronizer Sleeve |
| 6 | Reverse Gear Blocking Ring |

2013 Chevrolet Colorado

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



Callout

Preliminary Procedures

1. Synchronizer components are not interchangeable. Keep all the synchronizer components separate. The synchronizer hubs and the sliding sleeves are a selected assembly. Keep the hubs and the sliding sleeves together as originally assembled.
2. Mark on the synchronizer hub and on the sleeve. This will help you to reinstall the parts in the same position.
3. If you are servicing this transmission for a shifting concern such as clash, hop out of gear, or block-out in a particular gear, the following hardware must be replaced as a set for the gear in question. Adjoining gears do not need to be serviced unless necessary:

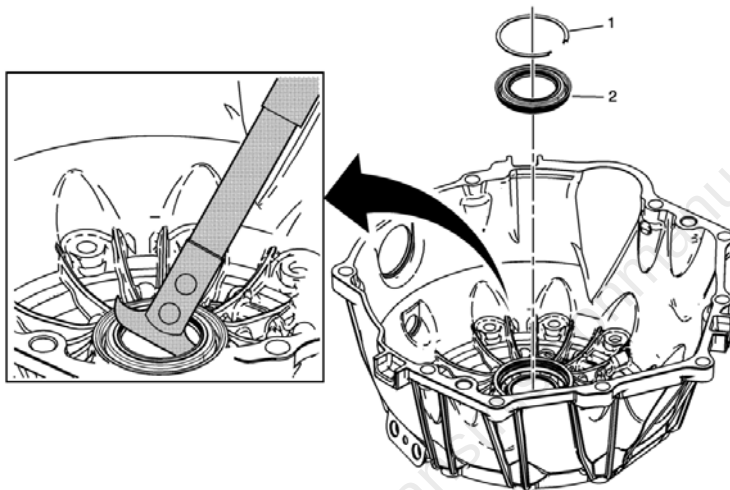
- Main gear in question – for example 1st, 2nd
- Synchronizer Assembly
- Blocker Ring Assembly
- Shift Fork Inserts

1	1st and 2nd Gear Synchronizer Sleeve
2	1st and 2nd Gear Synchronizer Hub
3	1st and 2nd Gear Synchronizer Insert
4	3rd and 4th Gear Synchronizer Sleeve
5	3rd and 4th Gear Synchronizer Hub
6	3rd and 4th Gear Synchronizer Insert
7	3rd and 4th Gear Synchronizer Spring
8	5th and Reverse Gear Synchronizer Sleeve
9	5th and Reverse Gear Synchronizer Hub
10	5th and Reverse Gear Synchronizer Insert
11	5th and Reverse Gear Synchronizer Spring

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Torque Converter Fluid Seal Replacement

Callout

1 Torque Converter Fluid Seal Retaining Ring

Torque Converter Fluid Seal Assembly

Note: The seal can be installed by hand.

2 **Special Tool**

EN 45000 Seal Remover

For equivalent regional tools, refer to Special Tools.

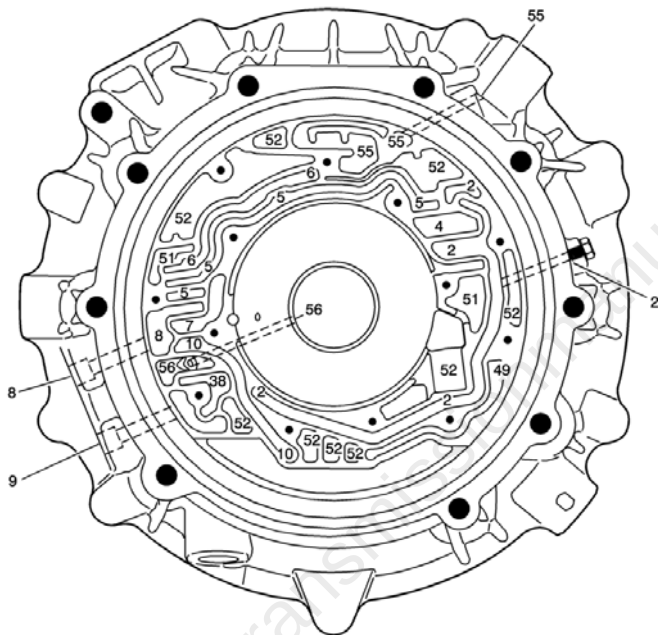
Component Name

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

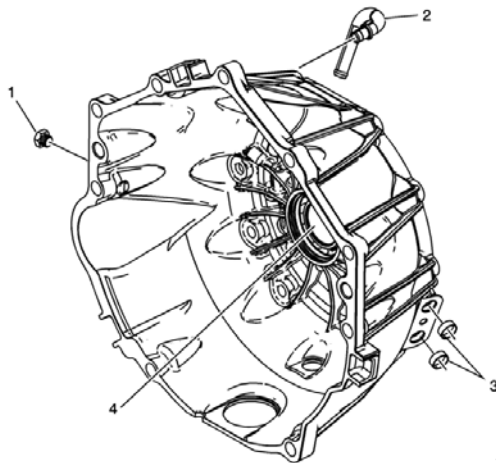
Torque Converter Housing– Fluid Pump Cover Side



- (2) Line
- (4) Converter Feed
- (5) Converter Feed Limit
- (6) TCC Release
- (7) TCC Apply
- (8) Cooler Feed
- (9) Center Lube
- (10) Regulator Apply
- (38) PCS TCC
- (49) PCS Line
- (51) Exhaust
- (52) Void
- (55) Vent
- (56) Torque Converter Seal Drainback

2013 Chevrolet Colorado

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

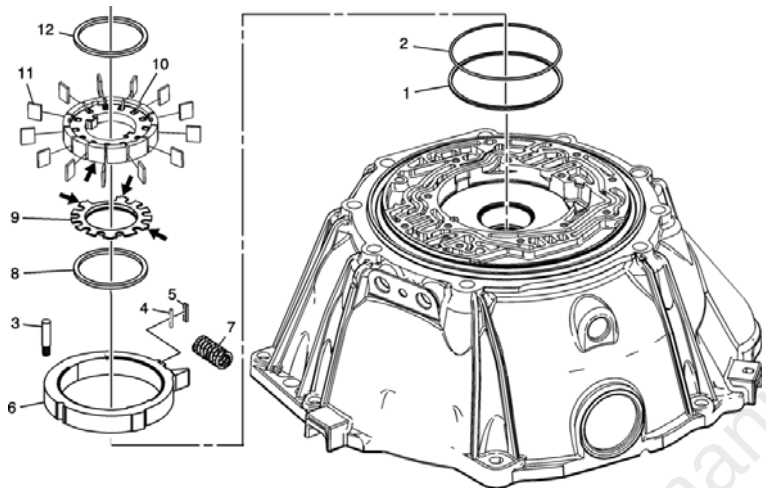


Torque Converter Housing Cleaning and Inspection

Callout	Component Name
Preliminary Procedures	
1.	Thoroughly clean the torque converter housing assembly, including threads, with clean solvent.
2.	Clean sealing surfaces.
3.	Inspect all threaded holes. If necessary, repair any thread damage.
	Line Pressure Test Hole Plug
	Caution: Use care when tightening the line pressure test hole plug. Do not use a socket extension, which could cause side-loading and potentially crack the transmission case assembly.
1	Caution: Refer to Fastener Caution.
	Tighten
	11 Y (97 lb in)
2	A/Trans Vent Pipe
	Trans Fluid Cooler Pipe Fitting Seal
3	Caution: Refer to Seal Reuse Caution.
	Note: Refer to Transmission Fluid Cooler Pipe Seal Replacement.
4	Torque Converter Bushing

2013 Chevrolet Colorado

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

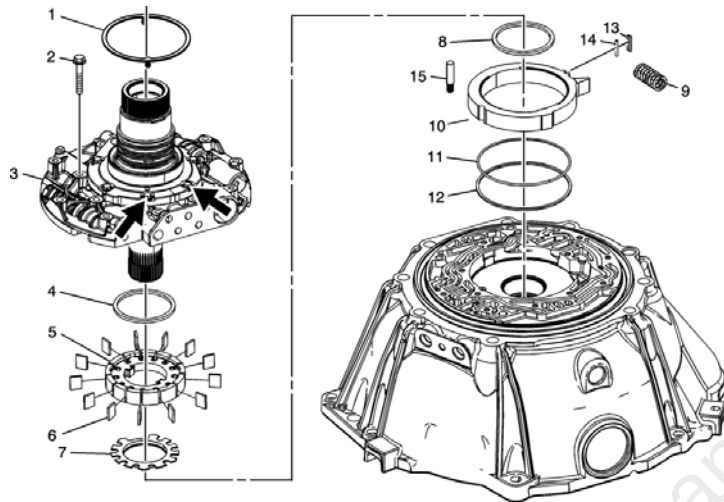


Torque Converter Housing with Fluid Pump Assemble

Callout	Component Name
1	Fluid Pump Slide Fluid Seal Ring
2	Fluid Pump Slide (O-Ring) Seal
3	Fluid Pump Slide Pivot Pin
4	Fluid Pump Slide Seal Support
5	Slide Seal
6	Fluid Pump Slide
7	Fluid Pump Slide Outer Spring
8	Fluid Pump Vane Ring
9	Fluid Pump Rotor Guide
10	Fluid Pump Rotor
11	Fluid Pump Vanes (Qty: 13)
12	Fluid Pump Vane Ring

2013 Chevrolet Colorado

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



Torque Converter Housing with Fluid Pump Disassemble

Callout

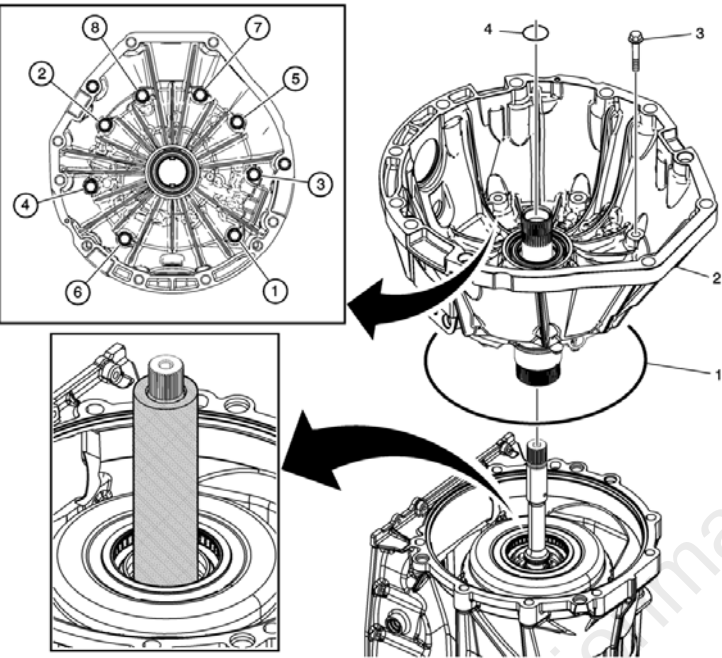
Component Name

Caution: Do not loosen or remove the 6 bolts securing the clutch support to the pump cover assembly. These bolts have been installed and torqued only after specific clutch support rotational requirements have been met. If the clutch support is not installed properly, damage to the transmission will occur.

- | | |
|----|--|
| 1 | 1-2-3-4 and 3-5 Reverse Clutch Housing Thrust Washer |
| 2 | Bolt M6 x 40 (Qty: 13) |
| 3 | Fluid Pump Cover Assembly |
| 4 | Fluid Pump Vane Ring |
| 5 | Fluid Pump Rotor |
| 6 | Fluid Pump Vanes (Qty: 13) |
| 7 | Fluid Pump Rotor Guide |
| 8 | Fluid Pump Vane Ring |
| 9 | Fluid Pump Slide Outer Spring |
| 10 | Fluid Pump Slide |
| 11 | Fluid Pump Slide (O-Ring) Seal |
| 12 | Fluid Pump Slide Fluid Seal Ring |
| 13 | Fluid Pump Slide Seal |
| 14 | Fluid Pump Slide Seal Support |
| 15 | Fluid Pump Slide Pivot Pin |

2013 Chevrolet Colorado

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



Torque Converter Housing with Fluid Pump Installation

Callout

Component Name

Caution: The new turbine shaft fluid seal rings must be sized prior to torque converter housing assembly, or damage to the seals will result.

Procedure

If the turbine shaft fluid seals have not been sized prior to torque converter housing installation refer to 1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly Installation.

- 1 NEW Fluid Pump Seal

Torque Converter (with Fluid Pump) Housing Assembly – Model Dependent

Caution: Ensure the turbine shaft (O-ring) seal is not installed prior to installing the torque converter housing assembly. The seal may become cut or damaged during installation of the torque converter housing assembly.

Procedure

- 2 Remove the DT 48066-1A seal sizer prior to torque converter housing installation.

Special Tools

DT 48066-1A Seal Sizer

For equivalent regional tools, refer to Special Tools.

Bolts M8 x 1.25 x 50 (Qty: 8)

Caution: Refer to Fastener Caution.

Procedure

- 3 Tighten in sequence shown.

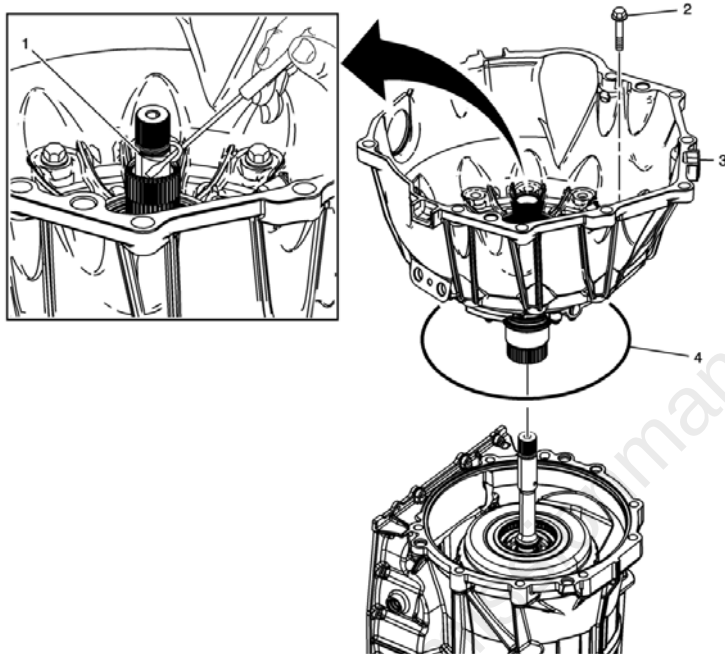
Tighten

31 Y (23 lb ft)

- 4 NEW Turbine Shaft (O-Ring) Seal

2013 Chevrolet Colorado

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



Torque Converter Housing with Fluid Pump Removal

Callout

Component Name

Caution: The valve body assembly must be removed prior to removing the torque converter (with fluid pump) housing assembly. Failure to ensure this will cause severe damage to both fluid pump seal assemblies. Also, the load of the valve body pushing on the seals, which in turn push on the pump, may prevent proper pump installation into the case. Refer to control valve body assembly removal.

- | | |
|---|---|
| 1 | Turbine Shaft (O-ring) Seal |
| | Bolt |
| | Note: |
| 2 | <ul style="list-style-type: none">• 6L50 Bolt M8 x 1.25 x 50 (Qty: 8)• 6L80 Bolt M10 x 1.5 x 50 (Qty: 9) |
| 3 | Torque Converter (With Fluid Pump) Housing Assembly |
| 4 | Fluid Pump Seal |

2013 Chevrolet Colorado

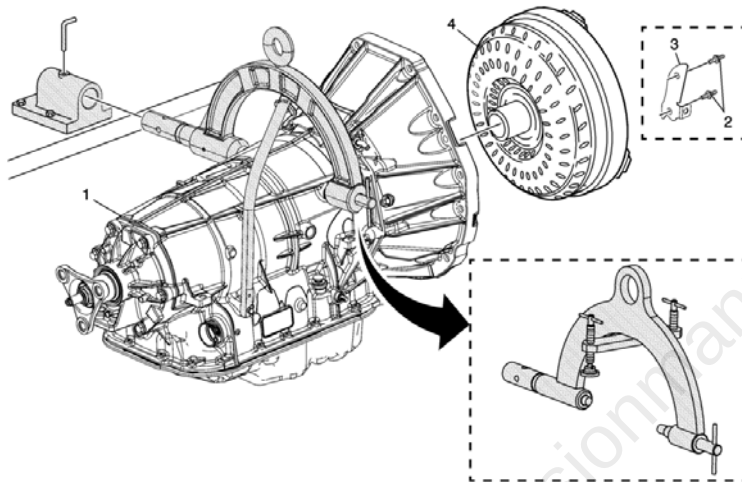
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

Caution: The bolts used to install the torque converter housing and the low and reverse clutch housing to the transmission case are similar in size and color. The low and reverse clutch housing bolts are, however, shorter than the torque converter housing bolts. Installing torque converter housing bolts into the low and reverse clutch housing may damage the transmission case. To help avoid torque converter housing bolts from being installed into the low and reverse clutch housing and vice versa, store the bolts separately. These bolts must be installed into their correct locations to help avoid transmission case damage.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Torque Converter Installation and Holding Fixture Removal

Callout

Procedure

Preliminary Procedure

Rotate the transmission so that the fluid pan assembly is down.

Transmission Case Assembly

Special Tools

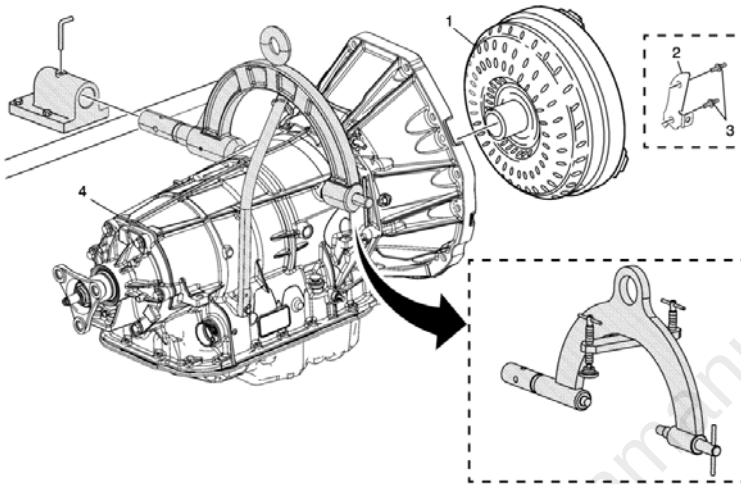
- 1
 - DT 48067 Holding Fixture Adapter
 - DT-48989 Holding Fixture
 - DT 3289-20 Holding Fixture Base Assembly
 - DT 8763-B Holding Fixture

For equivalent regional tools, refer to Special Tools.
- 2 Transmission Cover Bolt
- 3 Transmission Converter Cover
- 4 Torque Converter Assembly

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Torque Converter Removal and Holding Fixture Installation

Callout

- 1 Torque Converter Assembly
- 2 Transmission Converter Cover
- 3 Transmission Cover Bolt
- 4 Transmission Case Assembly

Component Name

Tighten

12 Y (106 lb in)

Procedure

1. Rotate the transmission so that the converter housing is up and secure with locking pin.
2. Allow any remaining transmission fluid to drain from the case extension.
3. Some transmission cases will not have the boss to enable the use of *DT-48989* holding fixture.

4 Special Tools

- *DT 48067* Holding Fixture Adapter
- *DT-48989* Holding Fixture
- *DT 3289-20* Holding Fixture Base Assembly
- *DT 8763-B* Holding Fixture

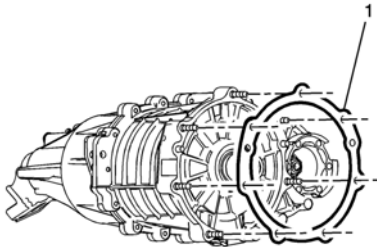
For equivalent regional tools, refer to Special Tools.

2013 Chevrolet Colorado

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

Removal Procedure

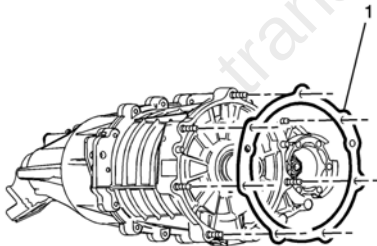
1. Remove the transfer case from the vehicle. Refer to Transfer Case Replacement.



2. Remove the transfer case extension housing gasket (1) from the transfer case.

Installation Procedure

1. Clean the gasket mating surfaces.



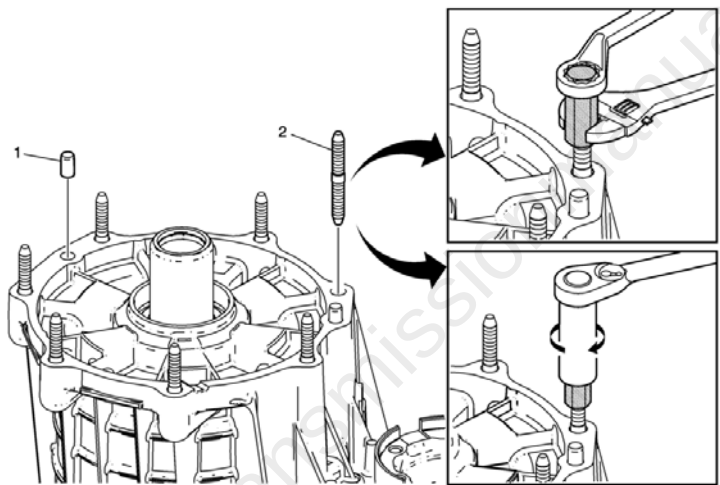
2. Install a New transfer case extension housing gasket (1) on the transfer case.
3. Install transfer case in the vehicle. Refer to Transfer Case Replacement.

2013 Chevrolet Colorado

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

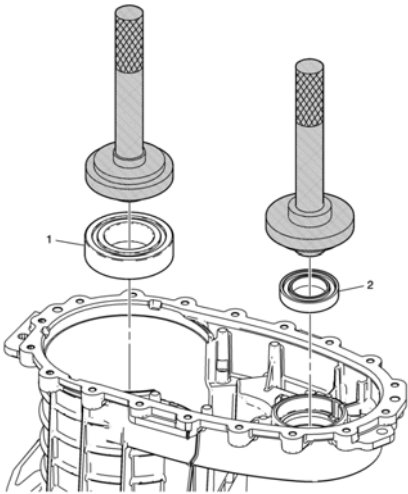
Table 1:	Transfer Case Stud Installation
Table 2:	Input Shaft Bearing and Front Output Shaft Front Bearing Installation
Table 3:	Front Output Shaft Flange Installation
Table 4:	High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Installation
Table 5:	Shift Cam Assembly Installation
Table 6:	High/Low Shift Fork, Oil Pump Assembly, and Rear Output Shaft Installation
Table 7:	Drive Chain and Sprockets Installation
Table 8:	Two/Four Wheel Drive Synchronizer Hub and Two/Four Shift Fork Installation
Table 9:	Rear Output Shaft Rear Bearing Installation
Table 10:	Front Output Shaft Rear Bearing Installation
Table 11:	Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Installation
Table 12:	Transfer Case Rear Half Installation
Table 13:	Rear Output Shaft Seal and Bushing Installation
Table 14:	Input Shaft Seal Installation
Table 15:	Oil Fill and Drain Plug, Vent Hose Connector, Two/Four Wheel Drive Actuator, and Speed Sensor Installation
Table 16:	Transfer Case Holding Fixture Removal
Table 17:	Transfer Case Vibration Dampener Installation
Table 18:	Transfer Case Shield Installation

Transfer Case Stud Installation



Transfer Case Stud Installation

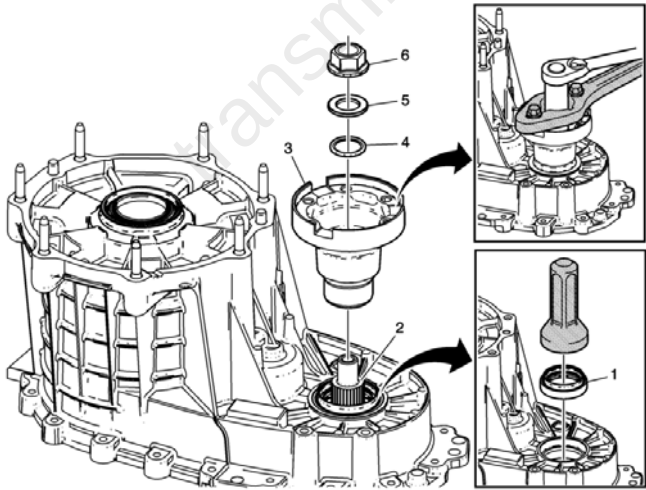
Callout	Component Name
1	Transfer Case Stud – Transmission Interface Transfer Case Stud Caution: Refer to Fastener Caution. Note: Apply sealant P/N 12346004 (10953480 Canadian) to the stud threads before installation. Apply threadlock only to the threads on the end of the stud that will be installed into the transfer case front half.
2	Procedure 1. Install <i>DT 49308</i> installer onto the stud. 2. Rotate the bolt until it contacts the top of the stud. 3. Install a deep socket over both the head of the bolt and the long nut and tighten the stud to specification. 4. Loosen the long nut and remove the tool from the stud. 5. Inspect the studs for the proper installation height. A properly installed stud should protrude from the face of the case 40 mm (1.58 in). Tighten 12 Y (106 lb in) Special Tools <i>DT 49308</i> Stud Installer For equivalent regional tools, refer to Special Tools.



Input Shaft Bearing and Front Output Shaft Front Bearing Installation

Callout	Component Name
	Input Shaft Bearing
	Note: Use the large end of the tool to install the bearing.
	Special Tools
1	- DT 50633 Bearing Installer - GE 8092 Driver Handle For equivalent regional tools, refer to Special Tools.
	Front Output Shaft Front Bearing
	Note: Use the small end of the tool to install the bearing.
	Special Tools
2	- DT 50633 Bearing Installer - GE 8092 Driver Handle For equivalent regional tools, refer to Special Tools.

Front Output Shaft Flange Installation



Front Output Shaft Flange Installation

Callout	Component Name
	Front Output Shaft Seal
	Special Tools
1	- J 42738 Seal Installer - DT 08814-20 Flange Retaining Bolt For equivalent regional tools, refer to Special Tools.

Callout	Component Name
---------	----------------

- | | |
|---|----------------------------------|
| 2 | Front Output Shaft |
| 3 | Front Output Shaft Flange |
| 4 | Front Output Shaft Flange Seal |
| 5 | Front Output Shaft Flange Washer |
| | Front Output Shaft Flange Nut |

Note:

- Apply threadlock P/N 89021297 (Canadian 10953488) to the threads of the nut.
- Use the *J 08614-A* holder and remover to hold the flange while tightening the nut.

- | | |
|---|----------------|
| 6 | Tighten |
|---|----------------|

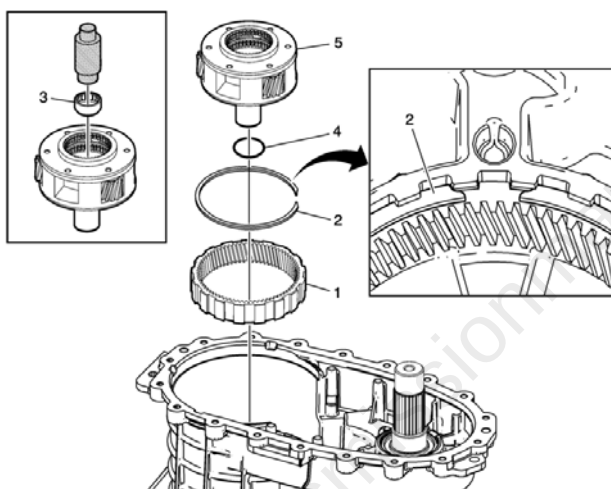
145 Y (107 lb ft)

Special Tools

J 08614-A Pinion Flange Holder and Remover

For equivalent regional tools, refer to Special Tools.

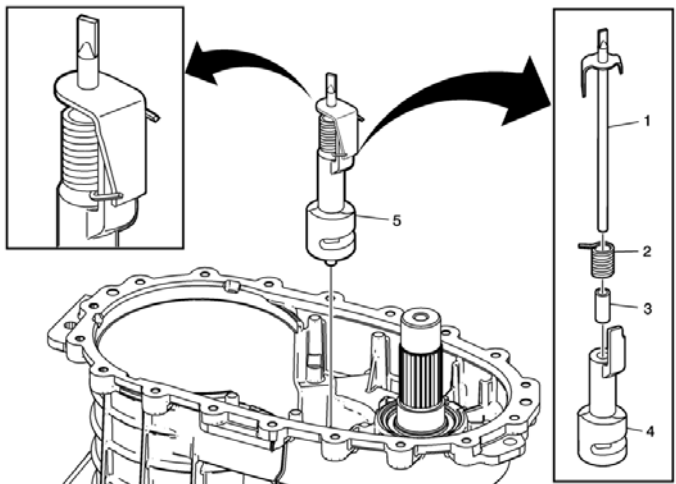
[High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Installation](#)



High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Installation

Callout	Component Name
---------	----------------

- | | |
|---|--|
| | Planetary Carrier Internal Gear |
| 1 | Note: First design planetary carriers are a 6-pinion design. Second design planetary carriers are a 3-pinion design. When replacing a 6-pinion carrier with a 3-pinion design, the 3-pinion design planetary carrier internal gear must also be used. Refer to New Product Information. |
| 2 | High/Low Internal Gear Retaining Ring |
| | Note: Install the retaining ring so the ring ends are accessible for service. |
| | Input Shaft Pilot Bearing |
| | Note: Apply sealant P/N 89021297 (Canadian 10953588) to the outer diameter of the bearing. |
| 3 | Special Tools |
| | <i>DT 50314</i> Input Shaft Pilot Bearing Remover/Installer |
| | For equivalent regional tools, refer to Special Tools. |
| 4 | Input Shaft O-ring Seal |
| | High/Low Planetary Carrier Assembly |
| 5 | Note: First design planetary carriers are a 6-pinion design. Second design planetary carriers are a 3-pinion design. When replacing a 6-pinion carrier with a 3-pinion design, the 3-pinion design planetary carrier internal gear must also be used. Refer to New Product Information. |



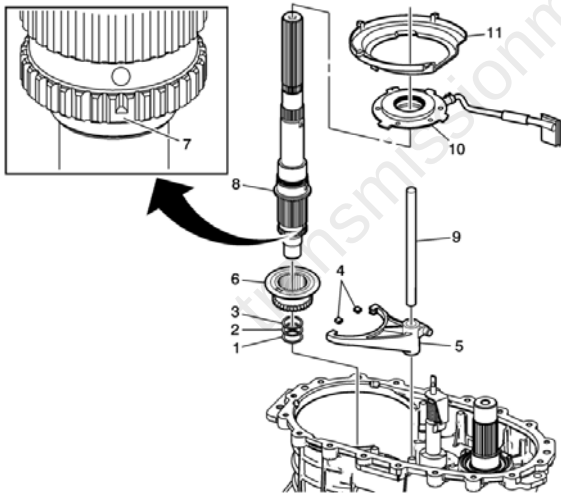
Shift Cam Assembly Installation

Callout

Component Name

- 1 Shift Detent Lever Shaft
- 2 High/Low Shift Fork Shaft Detent Spring
Note: Ensure the spring tabs are installed in the correct orientation.
- 3 Shift Detent Lever Spacer
- 4 Shift Cam
- 5 Shift Cam Assembly

[High/Low Shift Fork, Oil Pump Assembly, and Rear Output Shaft Installation](#)



High/Low Shift Fork, Oil Pump Assembly, and Rear Output Shaft Installation

Callout

Component Name

- 1 Planetary Carrier Sun Gear Thrust Washer
- 2 Input Shaft Thrust Bearing
Note: Apply lubricant to the bearing.
- 3 Planetary Carrier Sun Gear Thrust Washer
- 4 High/Low Shift Fork Pads
- 5 High/Low Shift Fork
- 6 Range Shift Sleeve
Note: Assemble and install the range shift sleeve and high/low drive shift fork as an assembly.
- 7 Rear Output Shaft Spline Alignment

Callout

Component Name

- 8
- Rear Output Shaft

Note:

 - Note the orientation of the rear output shaft external splines to the range shift sleeve internal splines.
 - Use care when installing the rear output shaft to properly align the input end of the shaft through both the planetary carrier sun gear thrust washers and the input shaft thrust bearing.

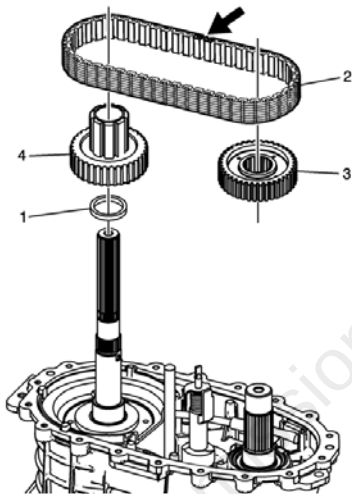
9 Shift Rail

Oil Pump Assembly

10 **Note:** Inspect for proper orientation of the oil pump retaining clip onto the oil pump. Refer to Oil Pump Cleaning and Inspection.

11 Support Bracket

[Drive Chain and Sprockets Installation](#)



Drive Chain and Sprockets Installation

Callout

Component Name

- 1
- Front Output Shaft Drive Sprocket Thrust Washer

Front Output Shaft Drive Chain Assembly

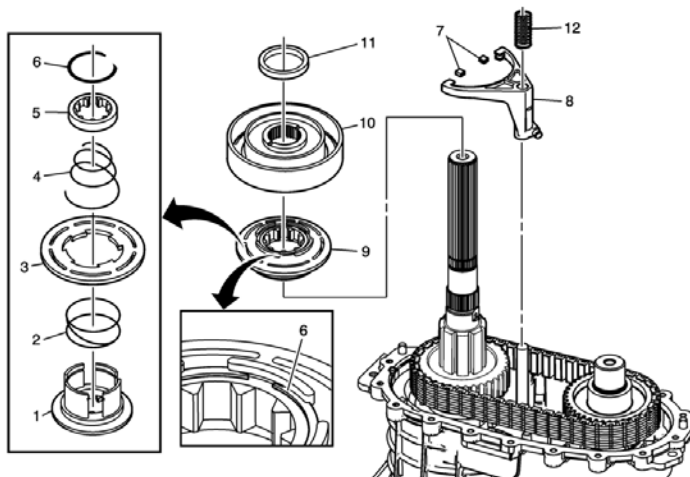
Procedure

- 2
1. Install the drive chain, driven sprocket, and drive sprocket as an assembly.
 2. Note the orientation of the blue chain links to the sprockets. The blue chain links should be positioned facing upward and away from the case half.

3 Front Output Shaft Driven Sprocket

4 Front Output Shaft Drive Sprocket

[Two/Four Wheel Drive Synchronizer Hub and Two/Four Shift Fork Installation](#)



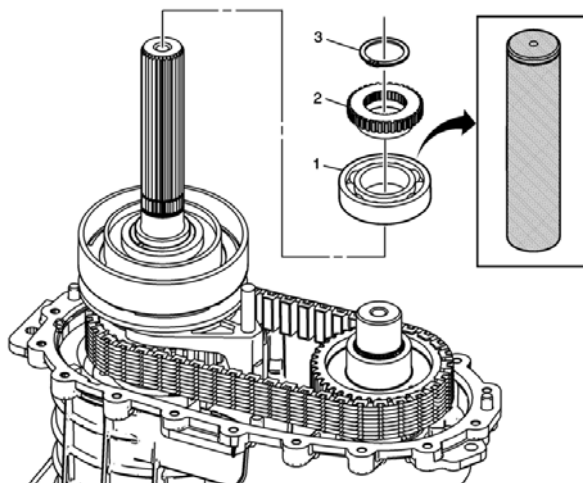
Two/Four Wheel Drive Synchronizer Hub and Two/Four Shift Fork Installation

Callout

Component Name

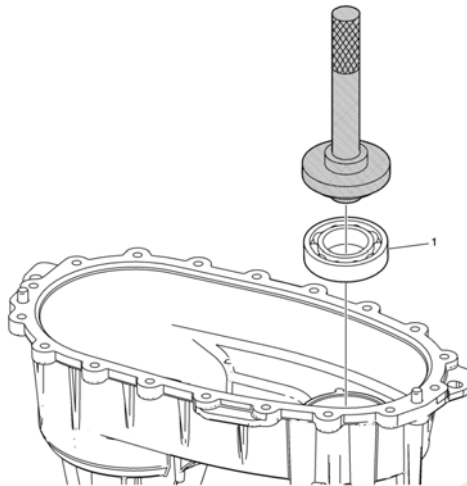
- | | |
|----|---|
| 1 | Two/Four Wheel Drive Clutch Coil Housing |
| 2 | Two/Four Wheel Drive Synchronizer Hub Outer Spring |
| 3 | Four Wheel Drive Armature Plate |
| 4 | Two/Four Wheel Drive Synchronizer Hub Inner Spring |
| 5 | Synchronizer Collar |
| | Lockup Retaining Ring |
| 6 | Note: Ensure the ends of the retaining ring are to be positioned as indicated (6). The ends of the ring should NOT be positioned into an open area of the housing. |
| 7 | Two/Four Shift Fork Pads |
| 8 | Two/Four Shift Fork |
| | Two/Four Wheel Drive Lockup Assembly |
| 9 | Note: Assemble the synchronizer/lockup assembly to the shift fork and install both components at the same time, positioning the lockup assembly onto the rear output shaft and the fork onto the shift rail. |
| 10 | Two/Four Wheel Drive Synchronizer Hub |
| 11 | Rear Output Shaft Bearing Spacer |
| 12 | Shift Fork Spring |

[Rear Output Shaft Rear Bearing Installation](#)



Callout	Component Name
	Rear Output Shaft Rear Bearing
	Special Tools
1	<i>J 45342-1</i> Bearing Installer
	For equivalent regional tools, refer to Special Tools.
2	Rear Output Shaft Speed Sensor Reluctor Wheel
	Note: The raised area of the reluctor wheel should face the bearing.
3	Vehicle Speed Sensor Reluctor Wheel Retaining Ring

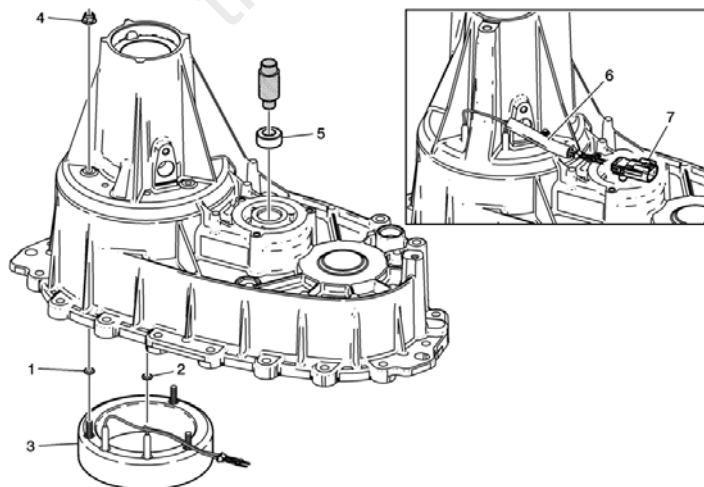
[Front Output Shaft Rear Bearing Installation](#)



Front Output Shaft Rear Bearing Installation

Callout	Component Name
	Front Output Shaft Rear Bearing
	Note: Use the small end of the tool to install the bearing.
	Special Tools
1	<i>DT 50633</i> Bearing Installer <i>GE 8092</i> Driver Handle
	For equivalent regional tools, refer to Special Tools.

[Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Installation](#)

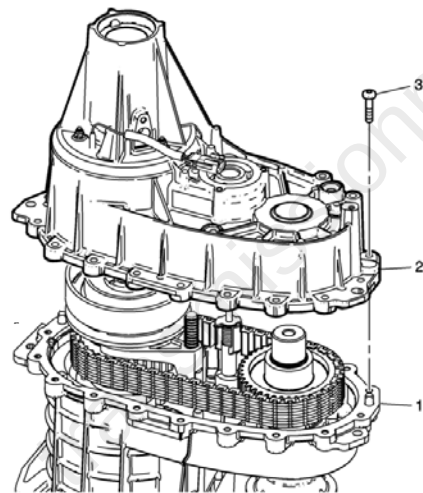


Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Installation

Callout	Component Name
---------	----------------

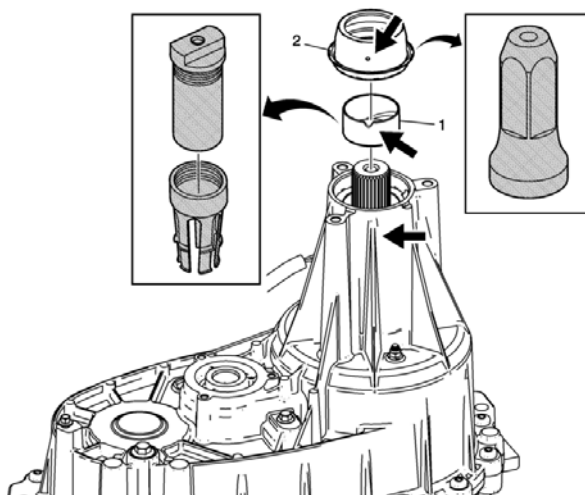
Callout	Component Name
1	Two/Four Wheel Drive Clutch Coil Stud O-ring Seal
2	Two/Four Wheel Drive Clutch Coil Wire O-ring Seal
3	Two/Four Wheel Drive Clutch Coil Assembly Note: Carefully slide the wires through the holes in the case to avoid damage to the wire coating.
4	Two/Four Wheel Drive Clutch Coil Nut Note: Tighten the nuts evenly to ensure the coil is installed and seated properly to the rear case. Tighten 12 Y (106 lb in)
5	Cam Shaft Detent Lever Seal Note: The metal face of the seal should be positioned towards the installer tool. Special Tools <i>DT 50314</i> Input Shaft Pilot Bearing Installer For equivalent regional tools, refer to Special Tools.
6	Synchronizer Coil Wiring Harness Conduit Note: Slide the conduit over the synchronizer coil wires to install it.
7	Synchronizer Coil Wiring Harness Connector Assembly Note: Insert the wires into the connector and install the connector wire retaining clip.

Transfer Case Rear Half Installation



Transfer Case Rear Half Installation

Callout	Component Name
	Transfer Case Front Half Caution: Apply the proper amount of sealant to the flange when assembling the transfer case. Excessive amounts of sealant can plug the oil pump screen, resulting in internal component failure.
1	Procedure • Ensure both sealing surfaces of the front and rear case halves are free of dirt, oil and cleaning solvent. • Apply a 3.5–4.0 mm (0.14–0.16 in) bead of sealant P/N 12346286 (Canadian 10953472) to the sealing service of the front case half.
2	Transfer Case Rear Half Transfer Case Half Bolt (Qty: 18)
3	Tighten 37 Y (27 lb ft)



Rear Output Shaft Seal and Bushing Installation

Callout

Component Name

Rear Output Shaft Bushing

Note: The notched area of the bushing should face the rear seal and be aligned with the rib of the case.

1

Special Tools

J 45380 Transfer Case Rear Bushing Remover and Installer

For equivalent regional tools, refer to Special Tools.

Rear Output Shaft Seal

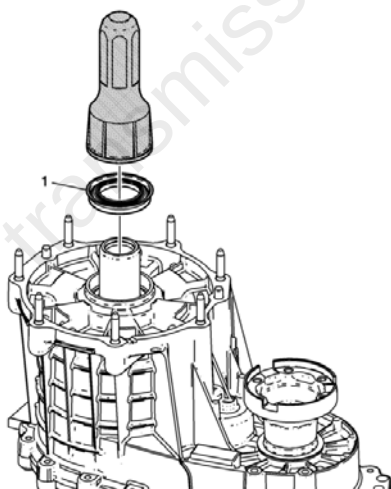
Note: The drain hole of the seal should be aligned with the rib of the case.

2

Special Tools

J 38869 Rear Extension Seal Installer

For equivalent regional tools, refer to Special Tools.



Input Shaft Seal Installation

Callout

Component Name

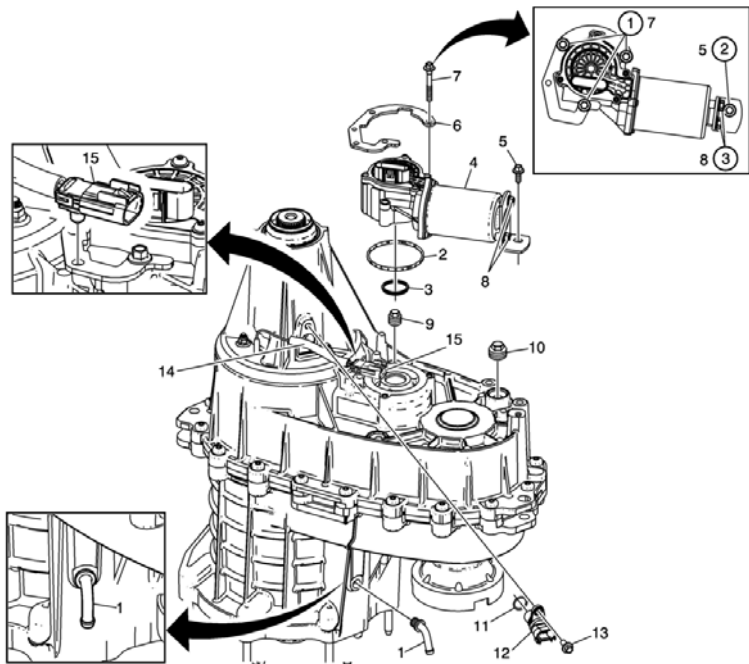
Input Shaft Seal

1

Special Tools

J 42738 Seal Installer

For equivalent regional tools, refer to Special Tools.



Oil Fill and Drain Plug, Vent Hose Connector, Two/Four Wheel Drive Actuator, and Speed Sensor Installation

Callout

Component Name

Vent Hose Connector

Note:

1

- Apply sealant P/N 12346004 (Canadian 10953480) to the hose connector before installation.
- Apply the sealant only to the end of the connector that installs into the case.

2

Two/Four Wheel Drive Actuator Outer O-ring Seal

3

Two/Four Wheel Drive Actuator Inner O-ring Seal

4

Two/Four Wheel Drive Actuator Assembly

Two/Four Wheel Drive Actuator Bolt

Procedure

Tighten in the sequence shown.

5

Note: Motor nuts and bolts have a specific tightening sequence, tighten bolts 7 before tightening bolt 5, then tighten the bracket nuts (8 Nm 70 lb in) last, as required

Tighten

12 Y (106 lb in)

6

Actuator Motor Bracket

Two/Four Wheel Drive Actuator Motor Bracket Bolt

7

Tighten

12 Y (106 lb in)

Bracket nuts

8

Tighten

8 Y (70 lb in)

Oil Fill Plug

Note:

9

- Apply sealant and install the fill plug ONLY after the correct type and quantity of fluid has been added to the assembly. Refer to Adhesives, Fluids, Lubricants, and Sealers.
- Apply sealant P/N 12346004 (Canadian 10953480) to the fill plug threads.

Tighten

15 Y (11 lb ft)

Oil Drain Plug

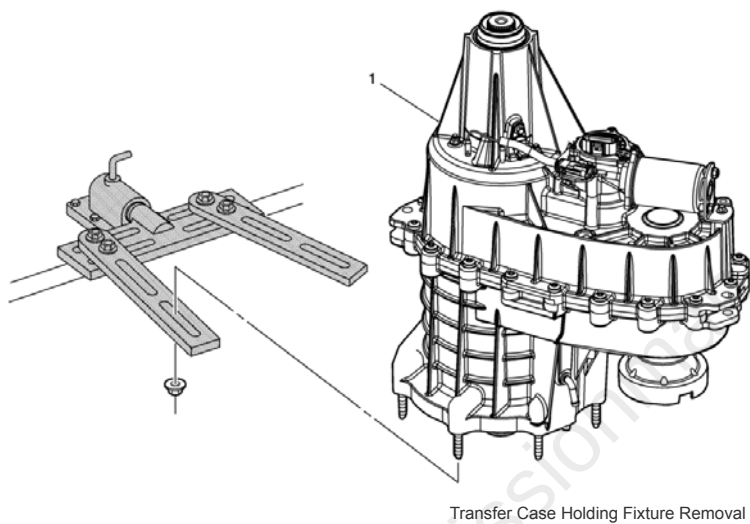
10

Note: Apply sealant PN 12346004 (Canadian 10953480) to the drain plug threads.

Tighten

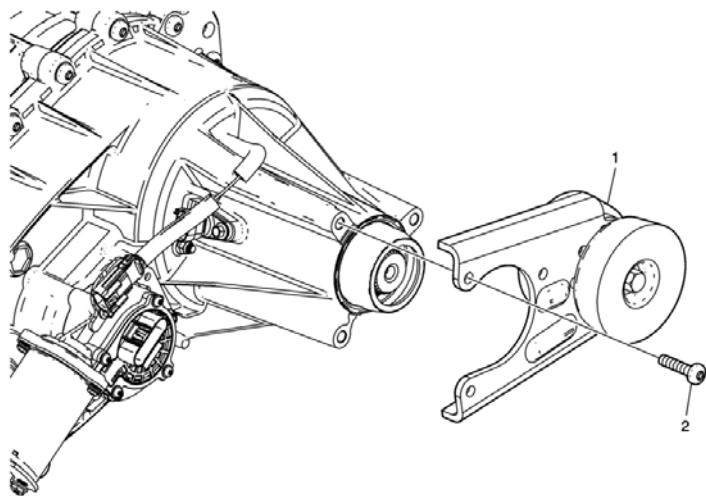
Callout	Component Name
	30 Y (22 lb ft)
11	Speed Sensor O-ring Seal
	Note: The speed sensor O-ring seal is reusable. Inspect the O-ring seal for damage and replace as required.
12	Rear Output Shaft Speed Sensor
	Speed Sensor Bolt
13	Tighten
	12 Y (106 lb in)
14	Synchronizer Coil Wiring Harness Conduit
	Note: Slide the conduit over the synchronizer coil wires to install it.
15	Electrical Connector
	Note: Install the electrical retainer into the hole in the actuator motor bracket.

Transfer Case Holding Fixture Removal



Callout	Component Name
	Transfer Case
	Special Tools
1	- J 3289-20 Holding Fixture Base Assembly - J 36842 Case Holding Fixture
	For equivalent regional tools, refer to Special Tools.

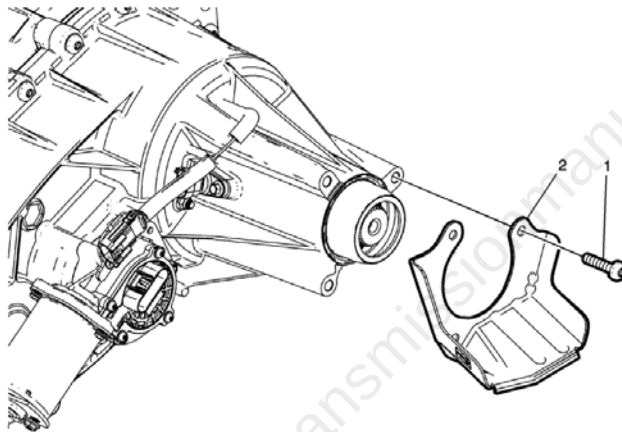
Transfer Case Vibration Dampener Installation



Transfer Case Vibration Dampener Installation

Callout	Component Name
1	Transfer Case Vibration Dampener - Model Dependent
	Transfer Case Vibration Dampener Bolt - Model Dependent
2	Tighten
	25 Y (18 lb ft)

[Transfer Case Shield Installation](#)



Transfer Case Shield Installation

Callout	Component Name
1	Transfer Case Shield - Model Dependent
	Transfer Case Shield Bolt - Model Dependent
2	Tighten
	25 Y (18 lb ft)

2013 Chevrolet Colorado

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

General Description

The American Axle Manufacturing (AAM) transfer cases, with broadcast codes – NQV is a 2-speed, part-time 4WD, electric-shift design. A 6-pinion or 3-pinion planetary carrier assembly provides high and low operating ranges. The planetary sun gear and annulus gear arrangement creates a 2.62-to-1 low-range gear reduction ratio. When in 4WD mode, torque is distributed front-to-rear based on vehicle conditions. Refer to New Product Information for additional information on the 6-pinion to 3-pinion planetary design change.

The case halves are a die-cast aluminum design. A double-row ball bearing supports the input shaft. Single row ball bearings support the front and rear output shafts. A needle roller bearing is located internal to the input shaft gear and supports the front of the rear output shaft. A gerotor type oil pump transfers fluid from the sump through the rear output shaft oil galleries to the gears and the bearings. The transfer case requires DEXRON®VI fluid, which is red in color. Refer to Adhesives, Fluids, Lubricants, and Sealers.

The transfer case features a 4 mode shift control rotary switch located on either the center floor shift console or instrument panel. When the ignition is in the RUN position, the transfer case shift control module monitors the transfer case shift control switch to determine if the driver desires a new mode/range position. At a turn of the transfer case shift control switch, the lamp of the new desired position will begin flashing to inform the driver that the transfer case shift control module has received the request for a new mode/range position. The lamp continues to flash until all shifting criteria has been met and the new mode/range position has been engaged. Once the new mode/range position is fully active, the switch indicator for the new position will remain ON constantly. In the event that the transfer case shift control module cannot or will not complete the shift, the indicator switch light flashes and returns the transfer case to the previously selected position.

The transfer case provides the driver with 4 manual mode/range positions:

- 2H - 2 Wheel Drive high range
- 4H - 4 Wheel Drive high range
- 4L - 4 Wheel Drive low range with a 2.62:1 gear ratio reduction
- NEUTRAL

2H to 4H

Turn the knob to the Four-Wheel High position. This can be done at any speed up to 120 km/h (75 mph), and the front axle will lock automatically. The transfer case will then change from 2H mode to 4H mode. The front and rear propeller shafts will then be mechanically coupled together and the front axle shafts coupled to the front propeller shaft.

2H or 4H to 4L

To shift from Two-Wheel High or Four-Wheel High to Four-Wheel Low, the vehicle must be stopped or moving less than 5 km/h (3 mph) with the transmission in N (Neutral) for an automatic transmission or the clutch pedal fully depressed for a manual transmission. The preferred method for shifting into Four-Wheel Low is to have your vehicle moving 1.6 to 3.2 km/h (1 to 2 mph). Rotate the shift control switch to the Four-Wheel Low position. You must wait for the Four-Wheel Low indicator light to stop flashing and stay on before shifting the transmission into gear or releasing the clutch pedal. If the Four-Wheel Low position is selected when the vehicle is in gear and/or moving faster than 5 km/h (3 mph), the Four-Wheel Low indicator light will flash for 30 seconds and will not complete the shift.

4H to 2H

Rotate the shift control switch to the Two-Wheel High position. This can be done at any speed up to 120 km/h (75 mph), and the front axle will unlock automatically. It is normal to hear and feel the vehicle's transfer case shift into Two-Wheel High. If you shift with the vehicle stopped, the indicator light may still flash. It may be necessary to shift the transmission momentarily into R (Reverse) and D (Drive), for an automatic transmission, or R (Reverse) and 1 (First) for a manual transmission to have the light stop flashing.

4L to 2H or 4H

To shift from Four-Wheel Low to Two-Wheel High or Four-Wheel High, the vehicle must be stopped or moving less than 5 km/h (3 mph) with the transmission in N (Neutral) for an automatic transmission or the clutch pedal pressed for a manual transmission. The preferred method for shifting out of Four-Wheel Low is to have your vehicle moving 1.6 to 3.2 km/h (1 to 2 mph). Rotate the shift control switch to the Two-Wheel High or Four-Wheel High position. You must wait for the Two-Wheel High or Four-Wheel High indicator light to stop flashing and stay on before shifting the transmission into gear or releasing the clutch pedal. If the Two-Wheel High or Four-Wheel High position is selected when the vehicle is in gear and/or moving faster than 5 km/h (3 mph), the Two-Wheel High or Four-Wheel High indicator light will flash for 30 seconds and will not complete the shift.

2H, 4H, or 4L to Neutral

Use N (Neutral) when you plan to tow the vehicle. To shift the transfer case into N (Neutral) do the following:

1. Set the parking brake.
2. Start the vehicle.
3. Press the regular brake pedal and shift the transmission in N (Neutral), or press in the clutch pedal for vehicles with a manual transmission.
4. Shift the transfer case to Two-Wheel High.
5. Rotate the shift control switch clockwise past Four-Wheel Low to N (Neutral). Hold the switch in the neutral setting for at least 20 seconds or wait until the red neutral indicator light illuminates. The neutral red indicator light will come on when the transfer case shift to neutral is complete. Upon releasing the shift control switch from the neutral setting, the switch will rotate to the Four-Wheel Low setting. The transfer case will remain in neutral with the red neutral Indicator light illuminated until a new setting is selected.
6. Press and hold the regular brake pedal and shift the transmission to R (Reverse) for one second, then shift the transmission to D (Drive) for one second, or 1 (First) for vehicles with manual transmission and let out the clutch to insure the transfer case is in Neutral. If the transfer case is not in Neutral, repeat this procedure starting at Step 3.
7. Turn the engine off by turning the key to ACC/ACCESSORY.
8. Place the transmission shift lever in P (Park), or 1 (First) for vehicles that have a manual transmission
9. Turn the ignition to LOCK/OFF.

Note: This neutral setting is a 2WD neutral, meaning the front and rear outputs of the transfer case are not engaged and should be treated as though in 2H. With a disengaged front axle, there is no power flow to the front wheels, thus allowing towing with the front wheels off the ground or flat towing without driveline binding.

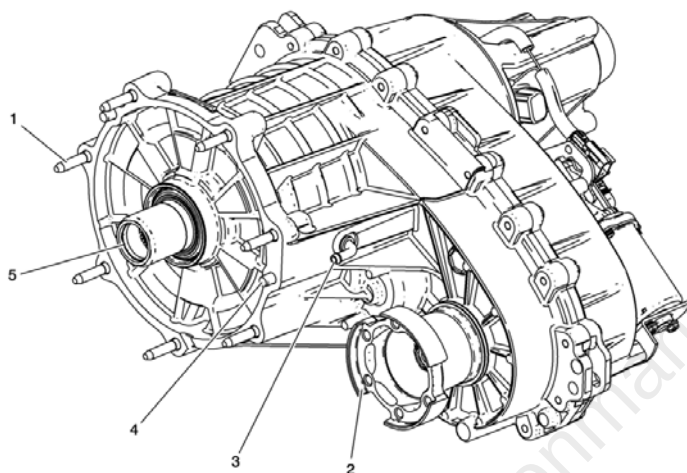
Once these conditions have been met, rotate the rotary switch clockwise past 4L to N (Neutral) and hold for 20 seconds. When the system completes the shift to neutral, the red neutral amp will illuminate. A shift to the neutral position allows the vehicle to be towed without rotating the transmission output shaft. In the neutral position, the rear propeller shaft rotates the transfer case rear output shaft, in turn rotating the oil pump, thus providing constant lubrication during towing. This

neutral position is a 2WD Neutral, meaning the front and rear outputs of the transfer case are not engaged as though in 2HI. With a disengaged front axle, there is no power flow to the front wheels, thus allowing towing with the front wheels off the ground or flat towing without driveline binding

Build Variations

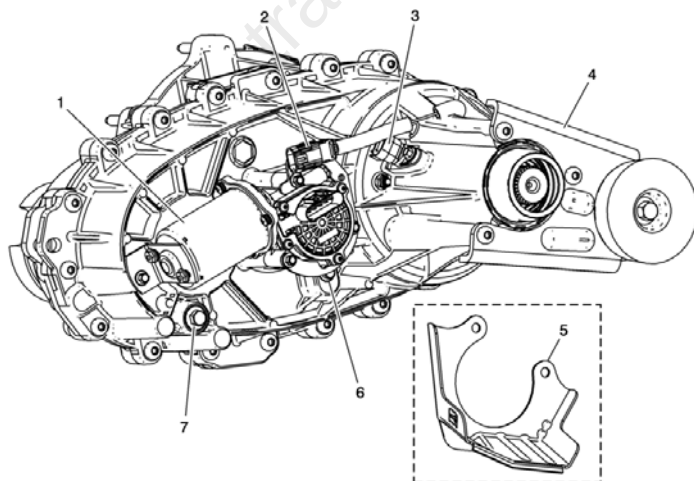
Broadcast Code	Other	Engine	Transmission	Axle Ratio
NQV	w/damper	LWH (2.8L Diesel)	MYB (6 speed AT)	3.42
NQV	—	LY7 (3.6L Gasoline)	MYB (6 speed AT)	3.42
NQV	w/damper	LWH (2.8L Diesel)	MYN (5 speed MT)	3.73
NQV	—	LY7 (3.6L Gasoline)	MYF (5 speed MT)	3.73
NQV	w/damper	LVN (2.5L Diesel)	MYL (5 speed MT)	4.10
NQV	w/rear shield	LE6 (2.4L Family II Gasoline)	MYG (5 speed MT)	4.56

External Components



- (1) Transfer Case-to-Transmission Adapter Studs
- (2) Front Output Flange
- (3) Vent Hose Connector
- (4) Transfer Case-to-Adapter Locating Pins
- (5) Input shaft

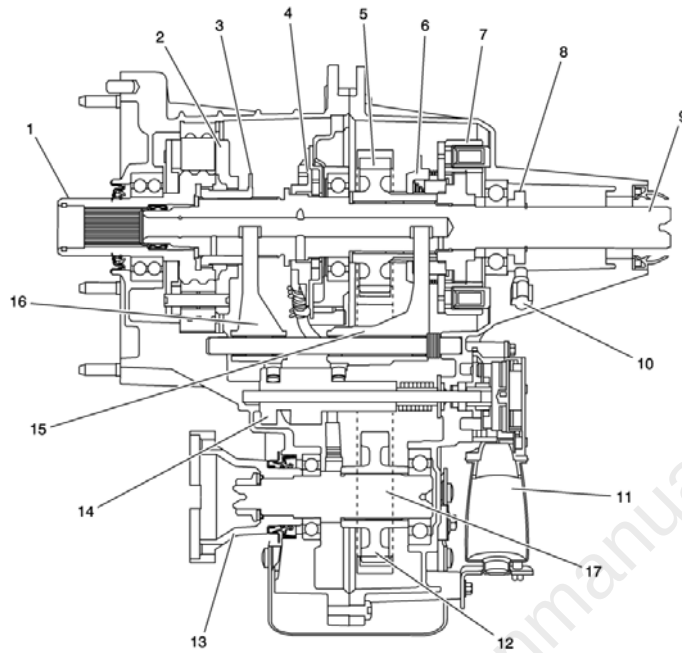
External Components



- (1) Actuator Motor
- (2) Synchronizer Coil Electrical Harness Connector
- (3) Vehicle Speed Sensor
- (4) Damper (LVN/LWH Diesel engines – MYB/MYL/MYN transmission applications)
- (5) Shield (LE6 engine – MYG transmission applications)
- (6) Oil Fill Plug

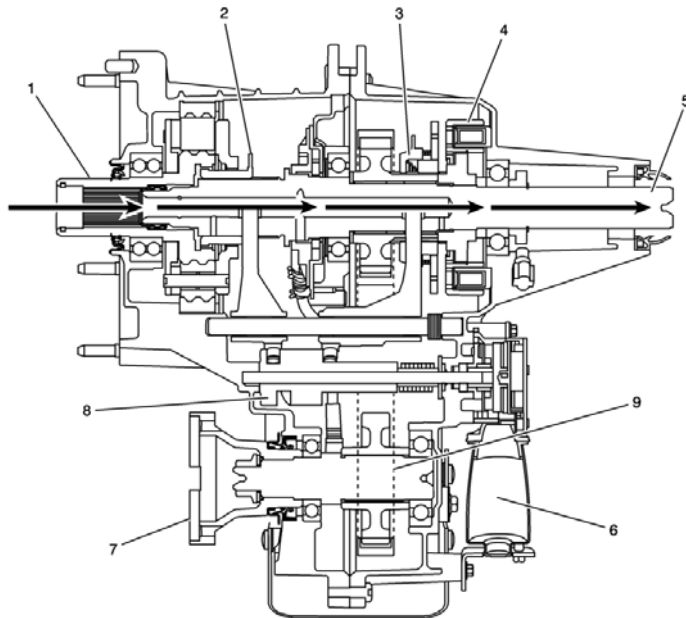
(7) Oil Drain Plug

[Internal Components](#)



- (1) Input Shaft
- (2) Planetary Assembly
- (3) H/L Range Shift Sleeve
- (4) Oil Pump
- (5) Drive Sprocket
- (6) 2/4 Lock-up Collar Assembly
- (7) Synchronizer Coil
- (8) Reluctor Wheel
- (9) Rear Output Shaft
- (10) Vehicle Speed Sensor
- (11) Actuator Motor
- (12) Driven Sprocket
- (13) Front Output Flange
- (14) Shift Cam
- (15) 2/4 Shift Fork
- (16) H/L Shift Fork
- (17) Drive Chain

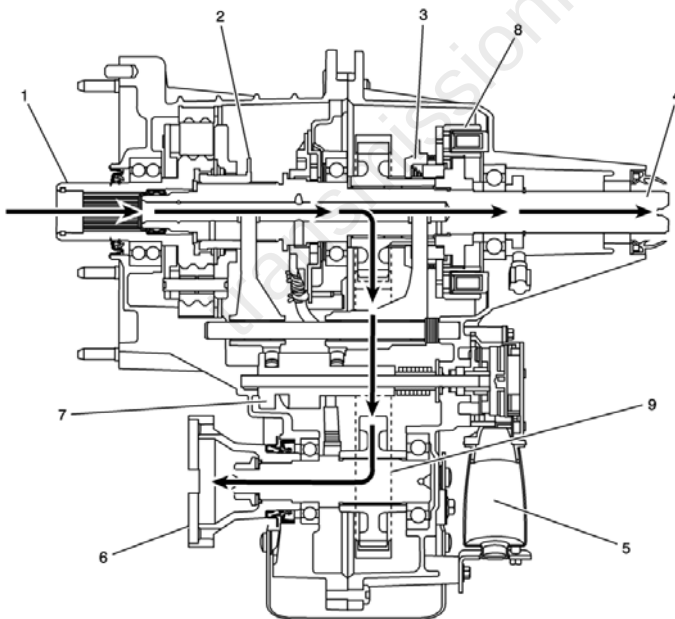
[2H Power Flow](#)



With the transfer case in the 2H mode:

- The input shaft (1) is rotating.
- The actuator motor (6) has rotated the shift cam (8) to the 2H position
- The H/L shift fork and range shift sleeve (2) are in the 2H position with the teeth of the range shift sleeve engaged into the teeth of the input shaft.
- The 2/4 shift fork and lockup collar assembly (3) are in the 2H position with the splines of the collar assembly engaged to the splines of the drive sprocket.
- The synchronizer coil (4) is not energized.
- The rear output shaft (5) is rotating.
- The front output shaft (7) and chain (9) are not rotating.

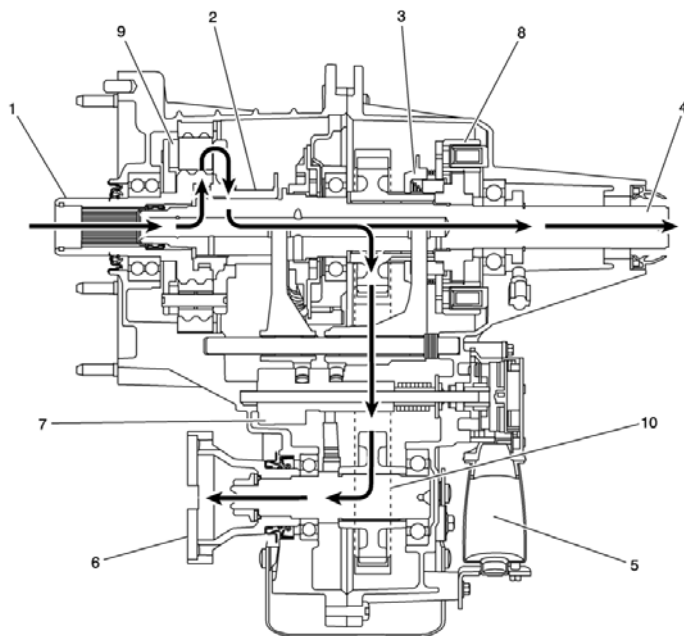
[4H Power Flow](#)



With the transfer case in the 4H mode:

- The input shaft (1) is rotating.
- The actuator motor (5) has rotated the shift cam (7) to the 4H position.
- The H/L shift fork and range shift sleeve (2) are in the 4H position with the teeth of the range shift sleeve engaged into the input shaft.
- The 2/4 shift fork and lockup collar assembly (3) are in the 4H position with the splines of the collar engaged to the splines of the lockup hub.
- The synchronizer coil (8) is energized only until the shift has been completed.
- The rear output shaft (4), chain (9), and front output shaft (6) are rotating.

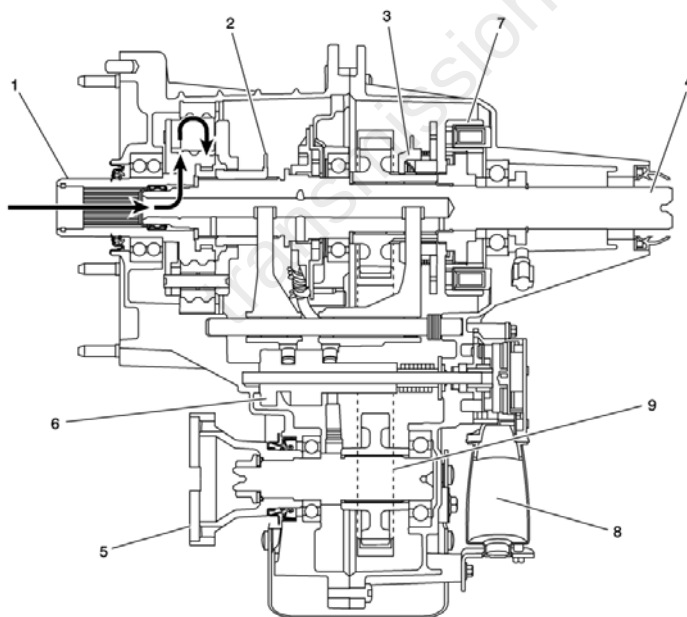
[4L Power Flow](#)



With the transfer case in the 4H mode:

- The input shaft (1) is rotating.
- The actuator motor (5) has rotated the shift cam (7) to the 4L position.
- The H/L shift fork and range shift sleeve (2) are in the 4L position with the teeth of the range shift sleeve engaged into the planetary assembly (9).
- The 2/4 shift fork and lockup collar assembly (3) are in the 2H position with the splines of the collar engaged to the splines of the lockup hub.
- The synchronizer coil (8) is energized only until the shift has been completed.
- The rear output shaft (4), planetary (9), chain (10), and front output shaft (6) are rotating.

NEUTRAL Power Flow



With the transfer case in the Neutral mode:

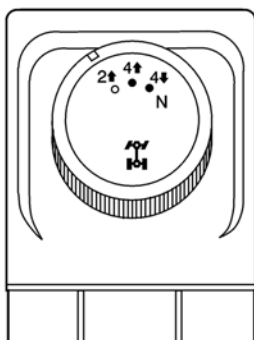
- The input shaft (1) is rotating.
- The actuator motor (6) has rotated the shift cam (8) to the neutral position.
- The H/L shift fork and range shift sleeve (2) are in the neutral position with the teeth of the range shift sleeve not engaged into the planetary or to the input shaft.
- The 2/4 shift fork and lockup collar assembly (3) are in a 2HI position with the splines of the collar assembly engaged to the splines of the drive sprocket.
- The synchronizer coil (4) is not energized.
- The rear output shaft (5), chain (9) and front output shaft (7) are not rotating.

View the list of major electrical components that make up the four wheel drive (4WD) transfer case system below.

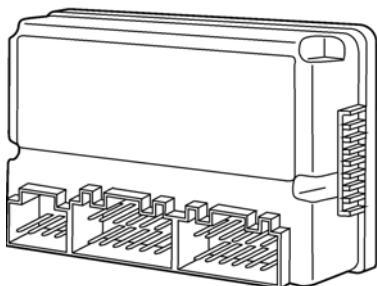


Service 4WD

The Service 4WD message is a display within the drivers information center (DIC). This message is used to inform the driver that a transfer case system condition has occurred. The Service 4WD message is controlled by the transfer case shift control module via GM LAN.

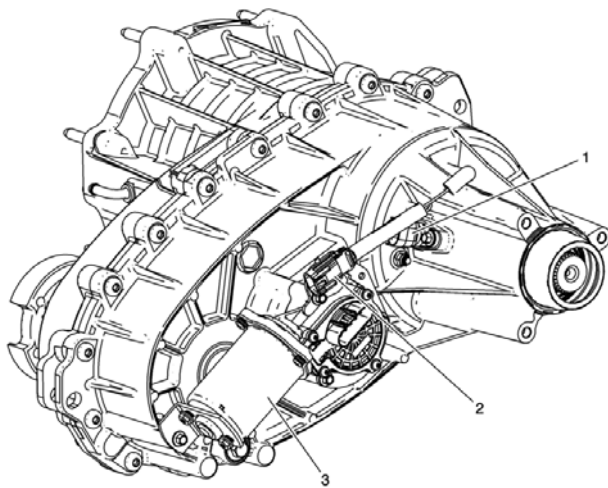


The 4WD system features a position shift control switch located on either the center floor shift console or instrument panel. When the ignition key is in the RUN position, the TCCM monitors the transfer case shift control switch to determine if the driver desires a new mode/range position. When either 2HI, 4HI, or 4L position is requested by rotating the switch, the corresponding LED of the new desired position will begin flashing to inform the driver that the TCCM has received a request for a new mode/range position. The LED continues to flash until all shifting criteria have been met and the new mode/range position is engaged. Once the new mode/range position is fully active, the switch indicator LED for the new position will remain ON constantly. To request the neutral position, the transfer case shift control switch is designed to be manually held in the neutral position for at least 10 seconds. If the switch is not manually held in the neutral position, the internal spring will return the switch to the 4L position when released. There is no flashing LED for the neutral position. When the criteria is met for a shift to neutral and the shift has been completed, the letter "N" will be illuminated red in color.



The transfer case is controlled by a GM LAN compliant transfer case control module (TCCM). The TCCM monitors various vehicle sensors and the driver's input, and controls the transfer case motor/actuator and front axle actuator accordingly. Refer to Control Module References and Transfer Case Shift Control Module Scan Tool Information

The vehicle speed sensor (VSS) is digital frequency voltage input to the Engine Control Module (ECM). The ECM sends this information to the transfer case control module (TCCM) via the GM LAN serial data bus. Refer to cell link TBD.

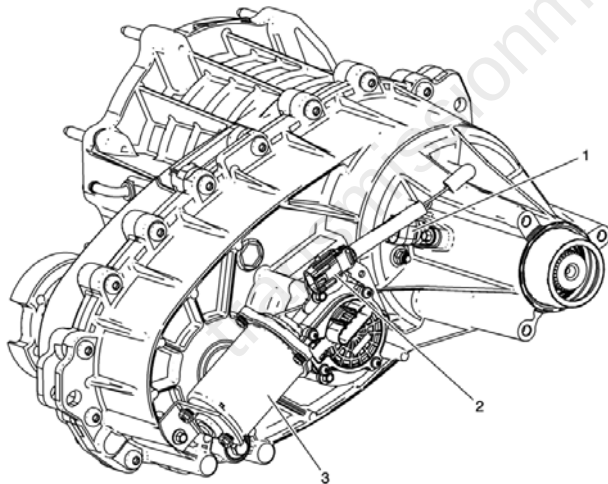


The transfer case two/four wheel drive actuator motor (3) is a bi-directional, permanent magnet, DC motor. The motor is commanded when either control motor circuit A or control motor circuit B is energized. The circuit ground is provided through the transfer case control module (TCCM) via the opposing control motor circuit. The actuator motor, through a series of gears, rotates the transfer case shift detent lever shaft, which moves the transfer case shift cam and transfer case high/low shift forks to shift the transfer case to the following modes or ranges:

- 2H
- 4H
- 4L
- Neutral

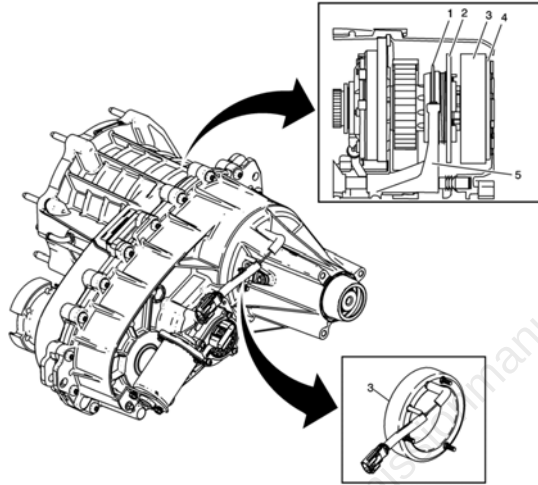
The actuator motor incremental sensor is a voltage input to the TCCM. The incremental sensor is an integral part of the transfer case actuator motor and cannot be replaced independently.

[Vehicle Speed Sensor](#)



There is a Vehicle Speed Sensor (VSS) (1) is mounted to the transfer case on the rear output shaft. The VSS is a pulse modulated (PM) generator. The PM generator produces a digital voltage between 0-5 volts. The digital voltage signal frequency increases as vehicle speed increases. The VSS is an input to the Engine Control Module (ECM). The ECM sends this information to the TCCM via the GM LAN serial data bus. The VSS is external to the transfer case and can be serviced separately.

[Synchronizer Coil](#)



When either 4HI or 4LO mode is requested, the TCCM sends a 12-volt signal to the two/four wheel drive clutch coil (4) via the clutch coil control circuit. The clutch coil is energized creating a magnetic field. The electro-magnetic field causes the armature plate (2) of the two/four wheel drive lockup assembly (1) to be drawn towards the two/four wheel drive synchronizer hub (3). As the two parts move closer to each other, the lockup assembly (1) begins to rotate. Once the rotational speeds of the lockup assembly and the synchronizer hub are equal, the two/four wheel drive shift fork (5) continues to move until the components are mechanically coupled in 4WD. When the coupling of the lockup assembly and synchronizer hub are complete, the TCCM will then command the front axle actuator to engage. With the vehicle in either the 4HI or 4LO mode, the front axle actuator remains in 4WD position until a new range is selected. At that point, the 12 volt signal to the two/four wheel drive clutch coil is turned off. The clutch coil circuit is controlled by the TCCM high and low side drivers. Both circuits must be activated to engage the system.

Front Drive Axle

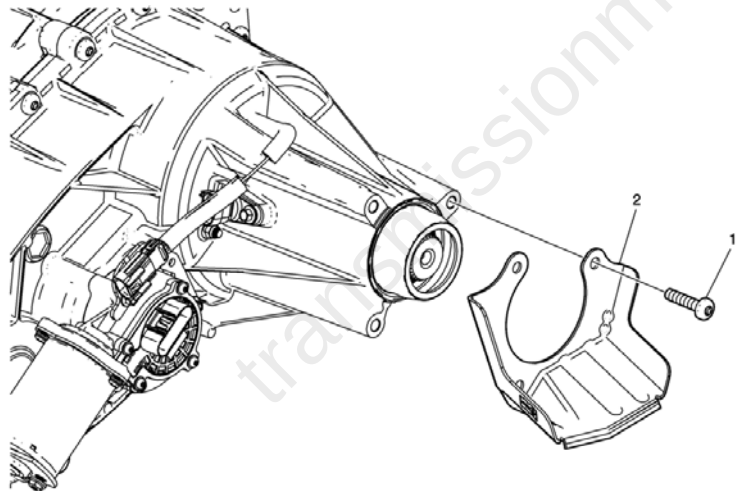
The front axle actuator is commanded by the TCCM to engage (4WD) or disengage (2WD) the front axle. With the vehicle in 4HI or 4LO mode, the front axle actuator remains in the 4WD position until a new range is selected. Refer to Transfer Case Control Schematics and Front Drive Axle Description and Operation.

2013 Chevrolet Colorado

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

Table 1:	Transfer Case Shield Removal
Table 2:	Transfer Case Vibration Dampener Removal
Table 3:	Transfer Case Holding Fixture Installation
Table 4:	Oil Fill and Drain Plug, Vent Hose Connector, Two/Four Wheel Drive Actuator, and Speed Sensor Removal
Table 5:	Input Shaft Seal Removal
Table 6:	Rear Output Shaft Seal and Bushing Removal
Table 7:	Transfer Case Rear Half Removal
Table 8:	Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Removal
Table 9:	Front Output Shaft Rear Bearing Removal
Table 10:	Shift Cam Assembly Removal
Table 11:	Rear Output Shaft Rear Bearing Removal
Table 12:	Two/Four Wheel Drive Synchronizer Hub and High/Low Shift Fork Removal
Table 13:	Drive Chain and Sprockets, Oil Pump Assembly, and Rear Output Shaft Removal
Table 14:	High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Removal
Table 15:	Front Output Shaft Flange Removal
Table 16:	Input Shaft Bearing and Front Output Shaft Front Bearing Removal
Table 17:	Transfer Case Stud Removal

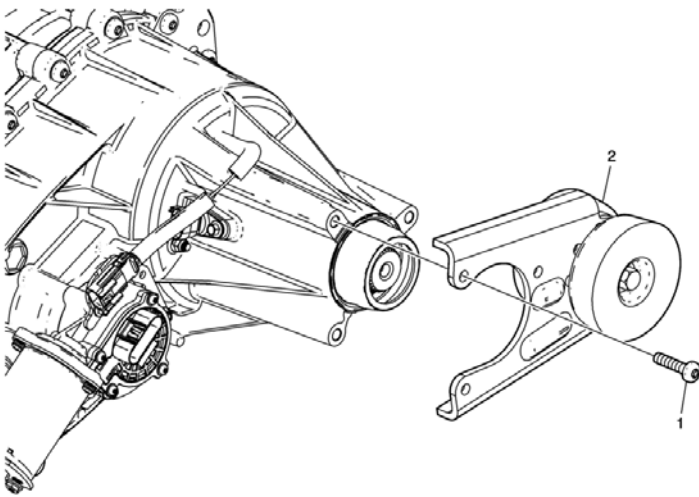
[Transfer Case Shield Removal](#)



Transfer Case Shield Removal

Callout	Component Name
1	Transfer Case Shield Bolt - Model Dependent
2	Transfer Case Shield - Model Dependent

[Transfer Case Vibration Dampener Removal](#)



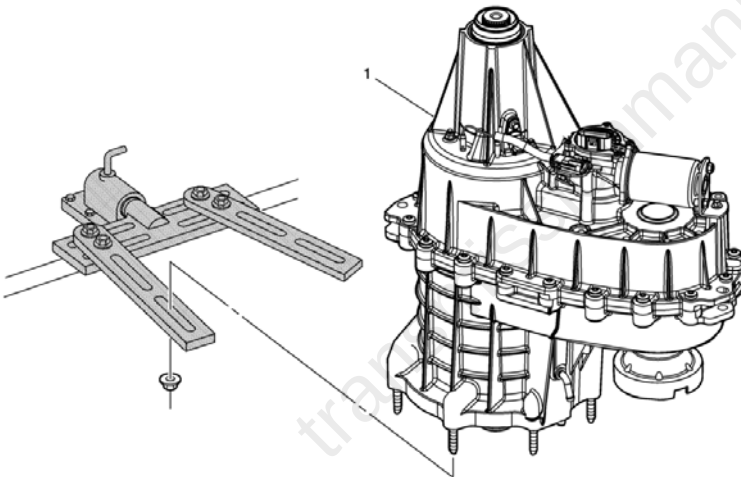
Transfer Case Vibration Dampener Removal

Callout

Component Name

- | | |
|---|---|
| 1 | Transfer Case Vibration Dampener Bolt - Model Dependent |
| 2 | Transfer Case Vibration Dampener - Model Dependent. |

[Transfer Case Holding Fixture Installation](#)



Transfer Case Holding Fixture Installation

Callout

Component Name

Transfer Case

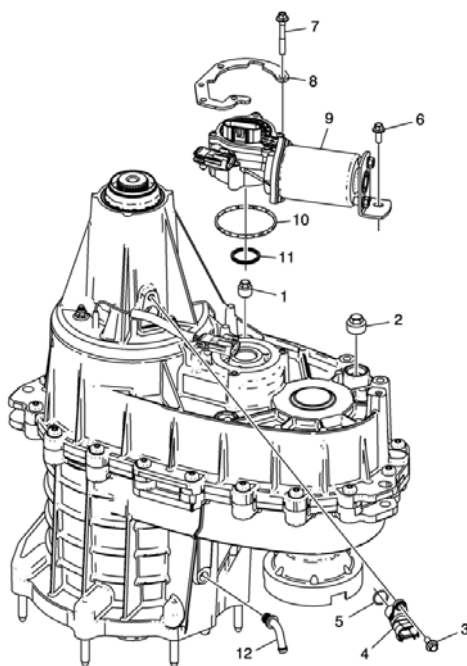
Procedure

- | | |
|---|--|
| 1 | <ol style="list-style-type: none"> 1. Always secure with the pivot pin after rotating. 2. The transfer case can be rotated 360 degrees to facilitate repair. 3. Use four M10 x 1.5 mm nuts to retain the assembly to the fixture. |
|---|--|

Special Tools

- J 3289-20 Holding Fixture Base Assembly
- J 36842 Case Holding Fixture

For equivalent regional tools, refer to Special Tools.

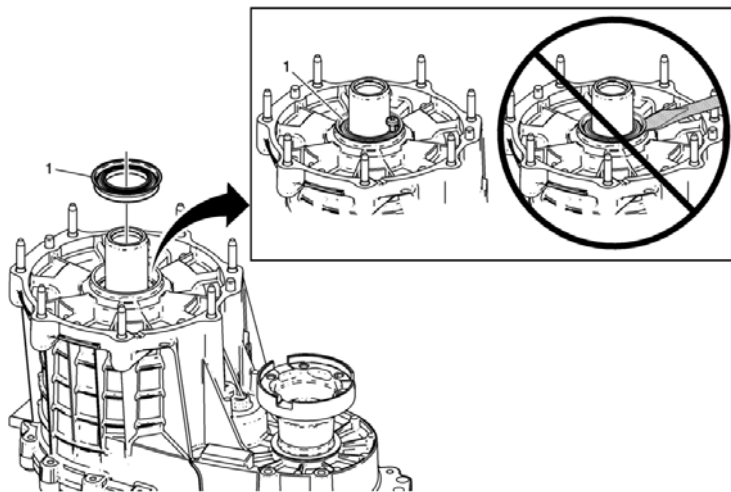


Oil Fill and Drain Plug, Vent Hose Connector, Two/Four Wheel Drive Actuator, and Speed Sensor Removal

Callout

Component Name

- | | |
|----|--|
| 1 | Oil Fill Plug |
| 2 | Oil Drain Plug |
| 3 | Speed Sensor Bolt |
| 4 | Rear Output Shaft Speed Sensor |
| 5 | Speed Sensor O-ring Seal |
| | Note: The speed sensor O-ring seal is reusable. Inspect the O-ring seal for damage and replace as required. |
| 6 | Two/Four Wheel Drive Actuator Bolt |
| 7 | Two/Four Wheel Drive Actuator Motor Bracket Bolt |
| 8 | Actuator Motor Bracket |
| 9 | Two/Four Wheel Drive Actuator Assembly |
| 10 | Two/Four Wheel Drive Actuator Outer O-ring Seal |
| 11 | Two/Four Wheel Drive Actuator Inner O-ring Seal |
| | Vent Hose Connector |
| 12 | Note: Remove ONLY if vent hose connector replacement is required. |



Input Shaft Seal Removal

Callout

Component Name

Input Shaft Seal

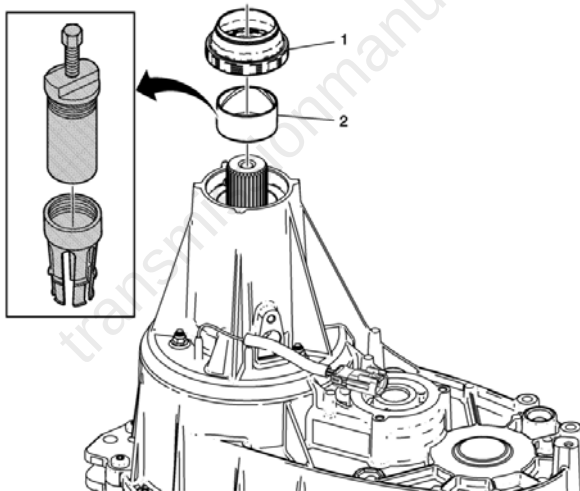
Caution: Refer to Machined Surface Damage Caution.

1

Procedure

1. Drill a pilot hole, as required, and insert a self-tapping screw into the body of the seal.
2. Use pliers or a slide hammer type tool to remove the seal from the bore.

[Rear Output Shaft Seal and Bushing Removal](#)



Rear Output Shaft Seal and Bushing Removal

Callout

Component Name

Rear Output Shaft Seal

Caution: Refer to Transfer Case Seal Removal Caution.

1

Rear Output Shaft Bushing

Procedure

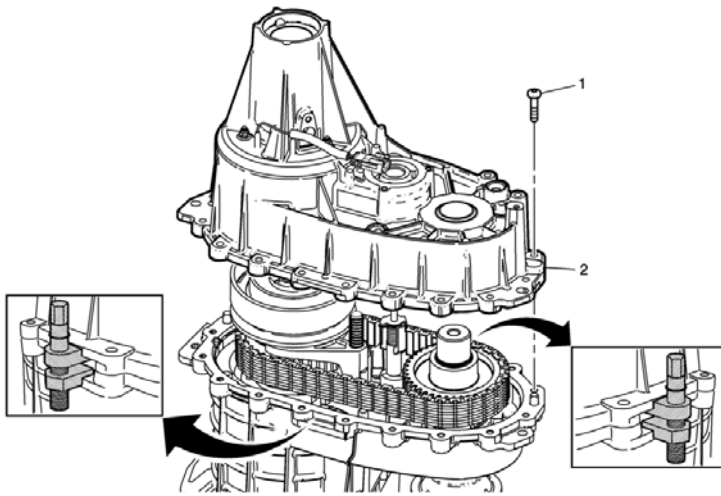
2

1. Only remove the bushing if faulty. Refer to Transfer Case Rear Half Cleaning and Inspection.
2. Install the finger section of the J 45380 remover/installer into the bushing.
3. Install the forcing tube assembly into the finger section. Ensure the forcing screw is backed out.
4. Using a wrench on the forcing screw, remove the bushing.

Special Tools

J 45380 Transfer Case Rear Bushing Remover and Installer

For equivalent regional tools, refer to Special Tools.



Transfer Case Rear Half Removal

Callout

1 Transfer Case Half Bolt (Qty: 18)

Transfer Case Rear Half

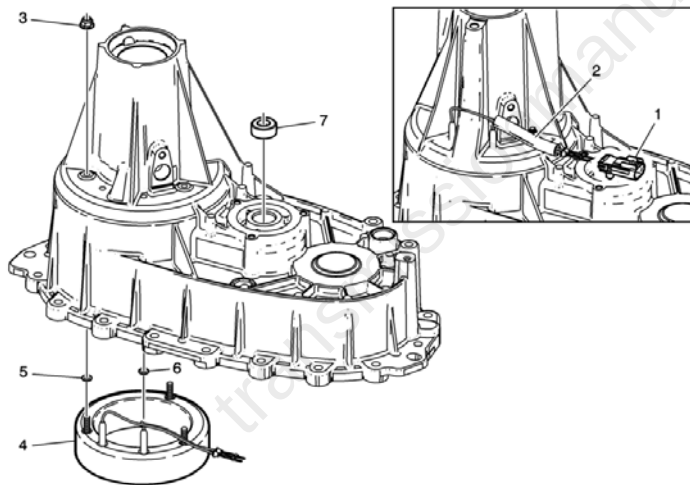
Special Tools

2 DT 50228 Case Splitter

For equivalent regional tools, refer to Special Tools.

Component Name

Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Removal



Two/Four Wheel Drive Clutch Coil and Cam Shaft Detent Lever Seal Removal

Callout

- 1 Synchronizer Coil Wiring Harness Connector Assembly
Note: Remove the connector wire retaining clip and separate the wires from the connector.
- 2 Synchronizer Coil Wiring Harness Conduit
Note: Slide the conduit over the synchronizer coil wires to remove it.
- 3 Two/Four Wheel Drive Clutch Coil Nut
- 4 Two/Four Wheel Drive Clutch Coil Assembly
Note: Carefully slide the wires through the holes in the case to avoid damage to the wire coating.
- 5 Two/Four Wheel Drive Clutch Coil Stud O-ring Seals.
Note: Replace as required.
- 6 Two/Four Wheel Drive Clutch Coil Stud Wire O-ring Seals.
Note: Replace as required.

Component Name

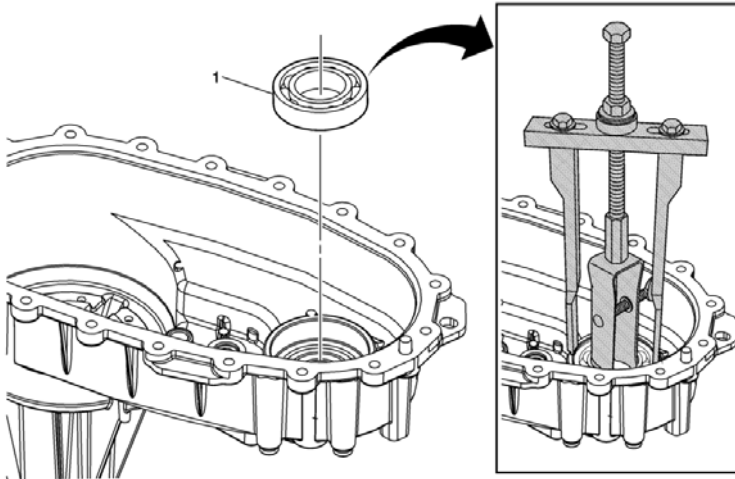
Callout

Component Name

7

Cam Shaft Detent Lever Seal

Front Output Shaft Rear Bearing Removal



Front Output Shaft Rear Bearing Removal

Callout

Component Name

Front Output Shaft Rear Bearing

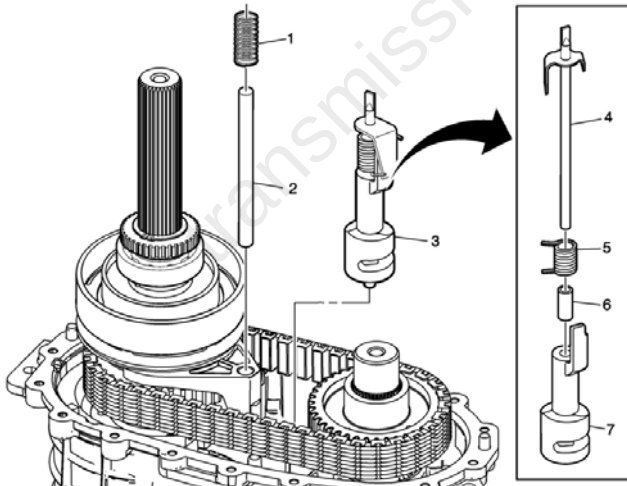
Special Tools

1

- J 29369-1 Bushing and Bearing Remover
- J 45124 Removal Bridge

For equivalent regional tools, refer to Special Tools.

Shift Cam Assembly Removal



Shift Cam Assembly Removal

Callout

Component Name

1

Shift Fork Spring

2

Shift Rail

3

Shift Cam Assembly

4

Shift Detent Lever Shaft

5

High/Low Shift Fork Shaft Detent Spring

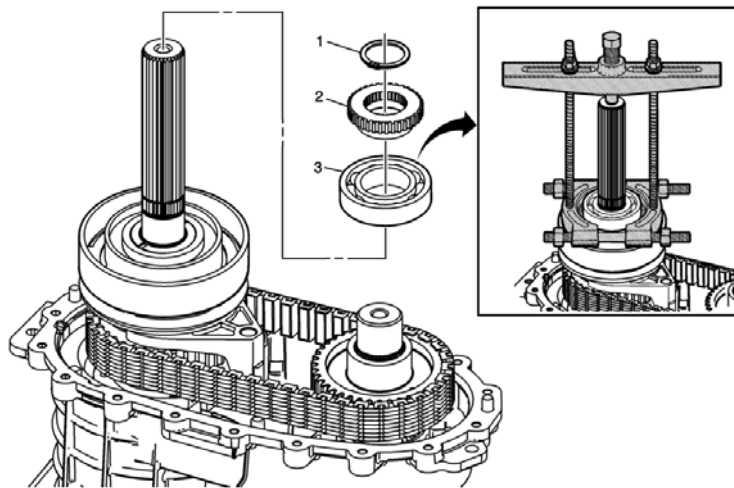
Note: Orientation of the spring tabs for reassembly.

Callout

Component Name

- | | |
|---|---------------------------|
| 6 | Shift Detent Lever Spacer |
| 7 | Shift Cam |

Rear Output Shaft Rear Bearing Removal



Rear Output Shaft Rear Bearing Removal

Callout

Component Name

- | | |
|---|--|
| 1 | Speed Sensor Reluctor Wheel Retaining Ring |
| 2 | Speed Sensor Reluctor Wheel |

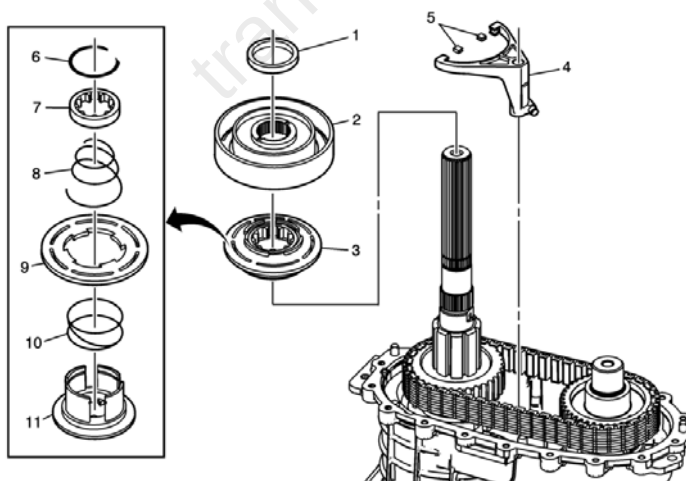
Rear Output Shaft Rear Bearing

Special Tools

- | | |
|---|---|
| 3 | <ul style="list-style-type: none"> • J 8433 Two Jaw Puller • J 22912 Split Plate Bearing Puller • DT 50315 Puller Hardware Kit |
|---|---|

For equivalent regional tools, refer to Special Tools.

Two/Four Wheel Drive Synchronizer Hub and High/Low Shift Fork Removal



Two/Four Wheel Drive Synchronizer Hub and High/Low Shift Fork Removal

Callout

Component Name

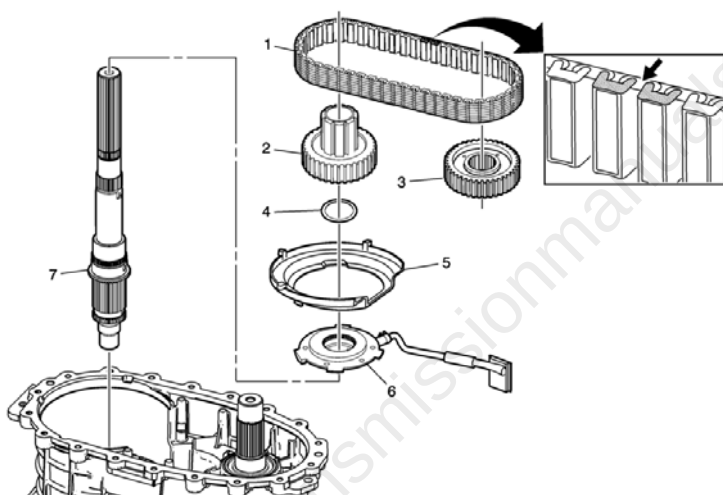
- | | |
|---|---------------------------------------|
| 1 | Rear Output Shaft Bearing Spacer |
| 2 | Two/Four Wheel Drive Synchronizer Hub |

Callout

Component Name

- | | |
|----|---|
| 3 | Two/Four Wheel Drive Lockup Assembly |
| | Note: Remove the two/four shift fork and the two/four wheel drive lockup from the shift rail as an assembly. |
| 4 | Two/Four Shift Fork |
| 5 | Two/Four Shift Fork Pads |
| 6 | Lockup Retaining Ring |
| 7 | Synchronizer Collar |
| 8 | Two/Four Wheel Drive Synchronizer Hub Inner Spring |
| 9 | Four Wheel Drive Armature Plate |
| 10 | Two/Four Wheel Drive Synchronizer Hub Outer Spring |
| 11 | Two/Four Wheel Drive Clutch Coil Housing |

Drive Chain and Sprockets, Oil Pump Assembly, and Rear Output Shaft Removal



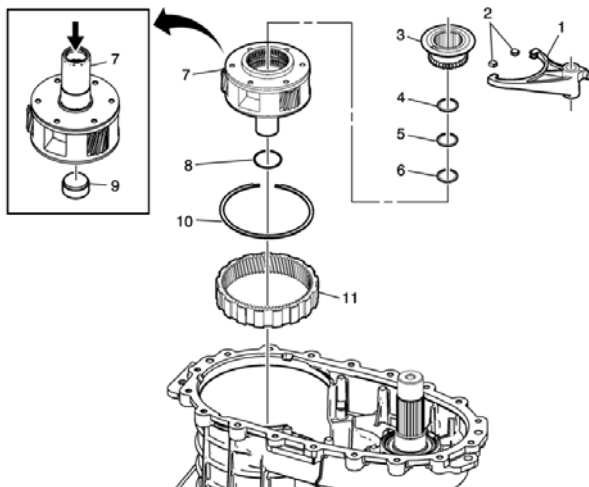
Drive Chain and Sprockets, Oil Pump Assembly, and Rear Output Shaft Removal

Callout

Component Name

- | | |
|---|--|
| 1 | Front Output Shaft Drive Chain Assembly |
| | Note: Note the orientation of the blue links to the sprockets for reassembly. |
| 2 | Front Output Shaft Drive Sprocket |
| 3 | Front Output Shaft Driven Sprocket |
| 4 | Front Output Shaft Drive Sprocket Thrust Washer |
| 5 | Support Bracket |
| 6 | Oil Pump Assembly |
| 7 | Rear Output Shaft |
| | Note: Note the orientation of the rear output shaft to the range shift sleeve to aid in reassembly. |

High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Removal



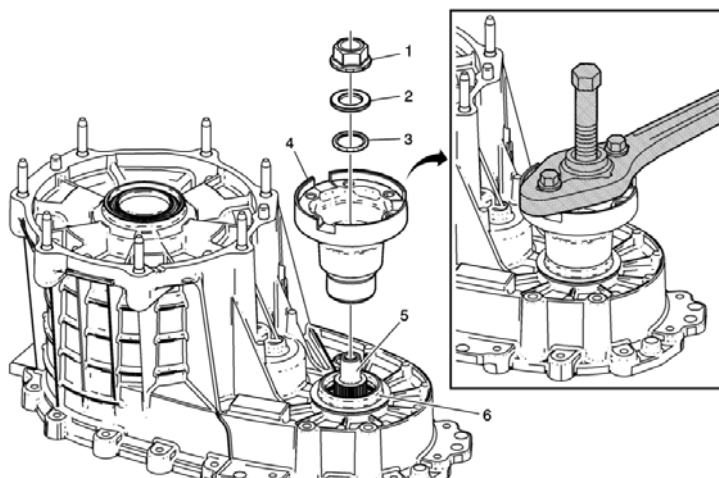
High/Low Planetary Carrier Assembly, Front Output Shaft, and Planetary Carrier Internal Gear Removal

Callout

Component Name

- 1 High/Low Wheel Drive Shift Fork
Note: Remove the shift fork and range shift sleeve as an assembly.
- 2 High/Low Drive Shift Fork Pads
- 3 Range Shift Sleeve
- 4 Planetary Carrier Sun Gear Thrust Washer
- 5 Input Shaft Thrust Bearing
- 6 Planetary Carrier Sun Gear Thrust Washer
- 7 High/Low Planetary Carrier Assembly
Note: First design planetary carriers are a 6-pinion design. Second design planetary carriers are a 3-pinion design. When replacing a 6-pinion carrier with a 3-pinion design, the 3-pinion design planetary carrier internal gear must also be used. Refer to New Product Information.
- 8 Input Shaft O-ring Seal
- 9 Input Shaft Pilot Bearing
- 10 High/Low Internal Gear Retaining Ring
- 11 Planetary Carrier Internal Gear
Note: First design planetary carriers are a 6-pinion design. Second design planetary carriers are a 3-pinion design. When replacing a 6-pinion carrier with a 3-pinion design, the 3-pinion design planetary carrier internal gear must also be used. Refer to New Product Information.

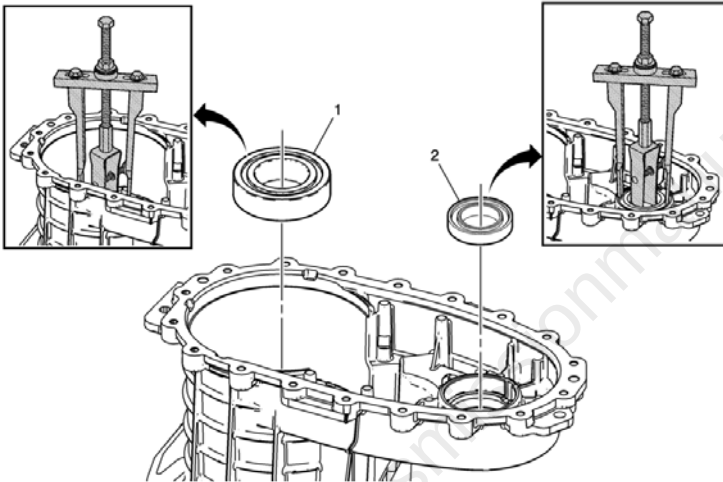
Front Output Shaft Flange Removal



Front Output Shaft Flange Removal

Callout	Component Name
1	Front Output Shaft Flange Nut
2	Front Output Shaft Flange Washer
3	Front Output Shaft O-ring Seal
	Front Output Shaft Flange
Special Tools	
4	• J 08614-A Pinion Flange Holder and Remover • DT 08614-20 Flange Retaining Bolts For equivalent regional tools, refer to Special Tools.
5	Front Output Shaft
6	Front Output Shaft Seal

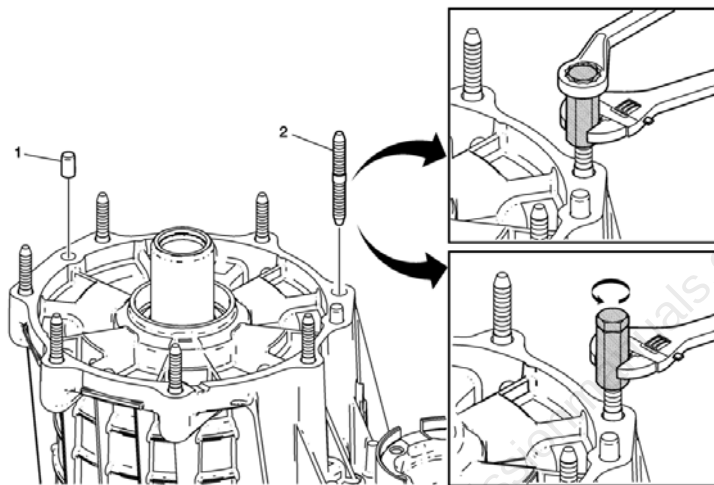
Input Shaft Bearing and Front Output Shaft Front Bearing Removal



Input Shaft Bearing and Front Output Shaft Front Bearing Removal

Callout	Component Name
	Input Shaft Bearing
Special Tools	
1	• J 29369-1 Bushing and Bearing Remover • J 45124 Removal Bridge For equivalent regional tools, refer to Special Tools. Front Output Shaft Front Bearing
Special Tools	
2	• J 29369-1 Bushing and Bearing Remover • J 45124 Removal Bridge For equivalent regional tools, refer to Special Tools.

Transfer Case Stud Removal



Transfer Case Stud Removal

Callout

Component Name

1

Transfer Case Stud – Transmission Interface

Note: Remove the studs as required.

Transfer Case Stud

Special Tools

2

DT 49308 Stud Installer

For equivalent regional tools, refer to Special Tools.

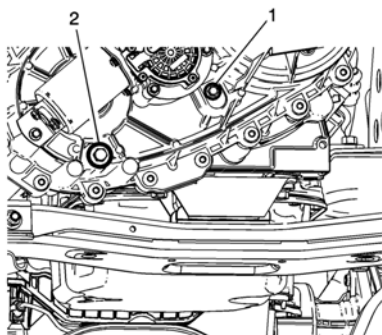
2013 Chevrolet Colorado

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

[Removal Procedure](#)

Note: When performing the following service procedures, use only hand tools to remove and install the fill or drain plugs.

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.

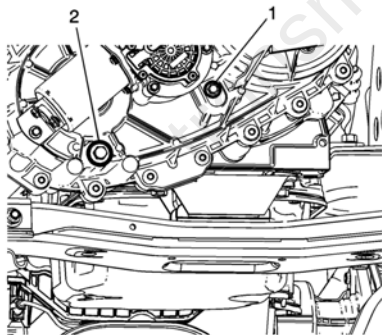


2. Remove the fill plug (1) from the transfer case.

Note: When draining the transfer case, make sure that an approved drain pan is used.

3. Remove the drain plug (2) from the transfer case.

[Installation Procedure](#)

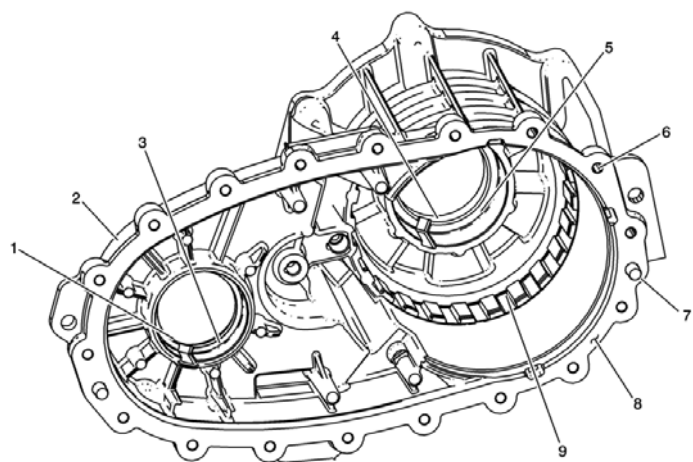


Caution: Refer to Fastener Caution.

1. Apply pipe sealant to the threads on the drain plug (2).
2. Install the drain plug in the transfer case and tighten the drain plug to **30 Y (22 lb ft)**.
3. Fill the transfer case to the bottom of the fill hole with the proper fluid. Refer to Adhesives, Fluids, Lubricants, and Sealers.
4. Apply pipe sealant to the threads on the fill plug (1).
5. Install the fill plug and tighten to **12 Y (106 lb in)**.
6. Lower the vehicle.

2013 Chevrolet Colorado

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



Transfer Case Front Half Cleaning and Inspection

Callout	Component Name
Preliminary Procedure	

- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.
- Clean the front case half in cleaning solvent and air dry.
- Remove any sealant from the sealing surface.

1	Front output shaft seal bore for damage Note: Inspect for cracks, broken areas, or other damage.
2	Transfer Case Front Half Note: Inspect for cracks, broken areas, or other damage. The component must be replaced if damage is found.
3	Transfer Case Front Output Shaft Front Bearing Bore Note: Replace the front case half assembly if a bearing has spun or if cracks or other damage are detected.
4	Transfer Case Input Shaft Seal Bore Note: Inspect for cracks, broken areas, or other damage. The component must be replaced if damage is found.
5	Transfer Case Input Shaft Bearing Bore Note: Replace the front case half assembly if a bearing has spun or if cracks or other damage are detected.
6	Transfer Case Threaded Bolt Holes Note: Repair any damaged threads.
7	Transfer Case Locating pins (Qty: 2) Note: Repair or replace loose, missing, or damaged locating pins.
8	Case Sealing Surface Note: Repair small scratches or nicks with a soft stone.
9	Planetary Carrier Internal Gear Teeth Note: Inspect for cracks, broken areas, or other damage. The component must be replaced if damage is found.

2013 Chevrolet Colorado

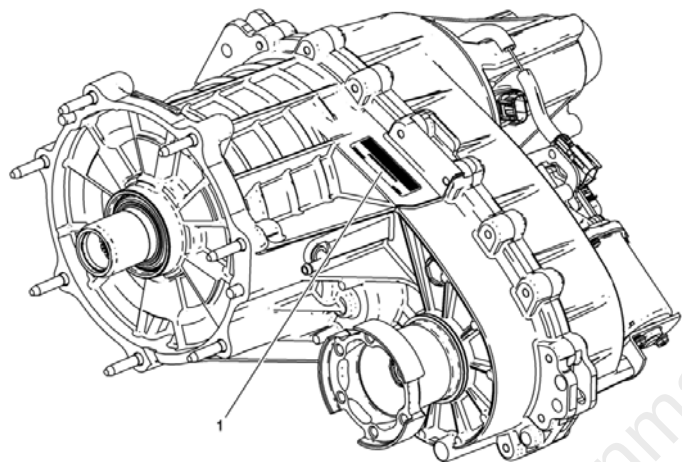
Submodel: | **Engine Type:** | **Liters:**
Fuel Delivery: | **Fuel:**

Using a Scan Tool

1. Ignition ON, engine OFF.
2. On the scan tool, under Transfer Case Control Module, select Configuration/Reset Functions.
3. Select the Range Actuator Learn procedure.
4. When the Range Actuator Learn procedure is initiated you should hear the motor engage, indicating a successful learn procedure.

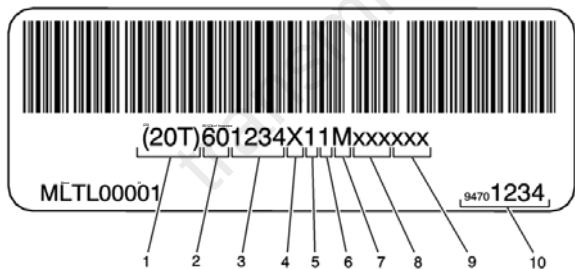
2013 Chevrolet Colorado

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



The transfer case identification label (1) is located on the top of the front case half.

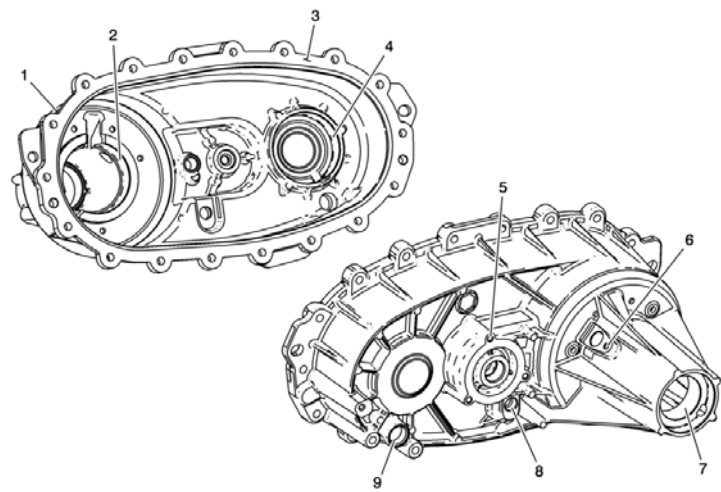
[Bar Code](#)



- (1) Data Identifier
- (2) Component Identifier
- (3) Last 4 digits of GM Part Number
- (4) Supplier Identifier
- (5) Line ID
- (6) Shift
- (7) Year or Production
- (8) Julian Date
- (9) Serial Number
- (10) GM Part Number

2013 Chevrolet Colorado

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



Transfer Case Rear Half Cleaning and Inspection

Callout	Component Name
Preliminary Procedure	
- Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated. - Clean the rear case half in cleaning solvent and air dry. - Remove any sealant from the sealing surface.	
1	Transfer Case Rear Case Half Assembly Note: Inspect for cracks, broken areas, or other damage. The component must be replaced if damage is found.
2	Transfer Case Rear Output Shaft Rear Bearing Bore Note: Replace the rear case half assembly if a bearing has spun or if cracks or other damage are detected.
3	Case Sealing Surface Note: Repair small scratches or nicks with a soft stone.
4	Transfer Case Front Output Shaft Rear Bearing Bore Note: Replace the rear case half assembly if a bearing has spun or if cracks or other damage are detected.
5	Actuator Motor Bolt Hole Threads
6	Vehicle Speed Sensor Bolt Hole Threads Note: Repair or replace the rear case half assembly if the speed sensor bolt hole threads are damaged.
7	Transfer Case Rear Output Shaft Rear Bushing Note: Replace the bushing if worn or scored.
8	Oil Fill Plug Threads
9	Oil Drain Plug Threads

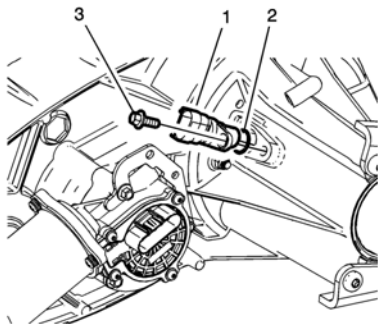
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

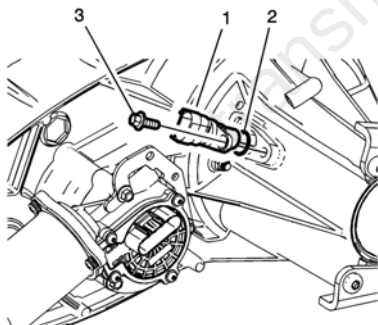
[Removal Procedure](#)

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.

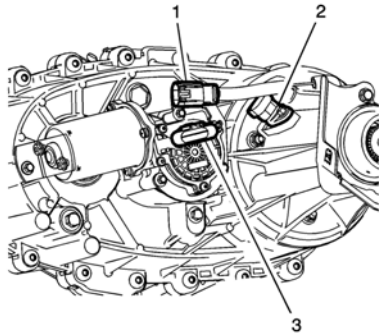
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

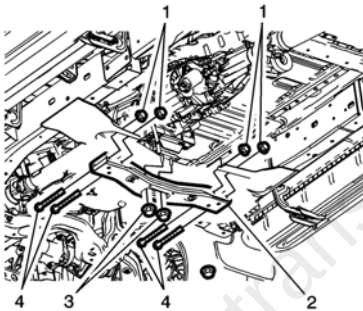
Fuel Delivery: | Fuel:

Removal Procedure

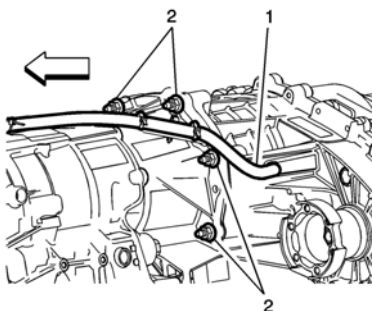
1. Remove the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement for one piece propeller shaft, or Two-Piece Rear Propeller Shaft Replacement for two piece propeller shaft.
2. Remove the front propeller shaft. Refer to Front Propeller Shaft Replacement.



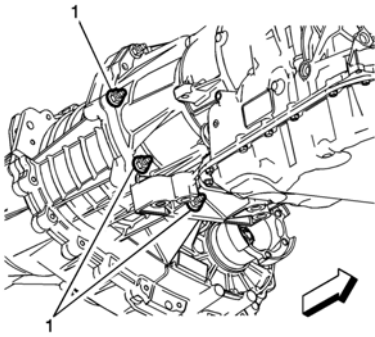
3. Disconnect the engine wiring harness electrical connectors from the following:
 - The clutch coil assembly (1)
 - The rear output shaft speed sensor (2)
 - The actuator motor (3)
- Position the Transmission wiring harness aside.



- Remove the transmission support crossmember (2). Refer to Transmission Support Crossmember Replacement.
- Remove the transmission mount. Refer to Transmission Mount Replacement for the 6L45/6L50/6L80/6L90 transmission or Transmission Rear Mount Replacement for the Eaton 5-speed transmission.
- Using a suitable transmission jack, support the transfer case.

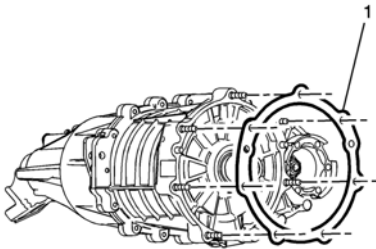


- Disconnect the vent hose (1) from the transfer case.
- Lower the transfer case to gain access to the top fasteners and remove the four left upper transfer case fasteners (2) from the transmission extension housing.

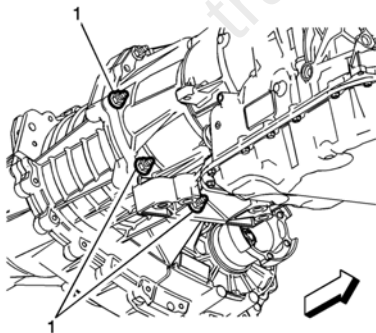


- Remove the three lower right side fasteners (1) from the transmission extension housing.
- Install the transmission mount. Refer to Transmission Mount Replacement for the 6L45/6L50/6L80/6L90 transmission or Transmission Rear Mount Replacement for the Eaton 5-speed transmission.
- To support the transmission assembly, install the transmission support crossmember. Refer to Transmission Support Crossmember Replacement.
- With the aid of an assistant, carefully lower the transfer case from the vehicle.

[Installation Procedure](#)

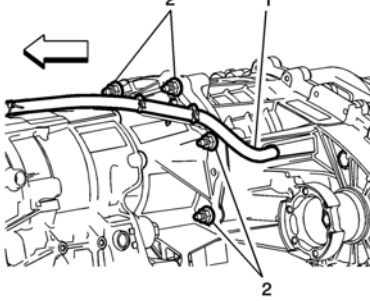


1. Install a New transfer case extension housing gasket (1) on the transfer case.
2. With the aid of an assistant, carefully raise the transfer case to the transfer case extension housing, aligning the splines.
3. Install the 7 nuts on the transmission extension housing hand tight.
4. Remove the transmission support crossmember, Refer to Transmission Support Crossmember Replacement.
5. To gain access to the lower fastener, remove the transmission mount. Refer to Transmission Mount Replacement for the 6L45/6L50/6L80/6L90 transmission or Transmission Rear Mount Replacement for the Eaton 5-speed transmission.

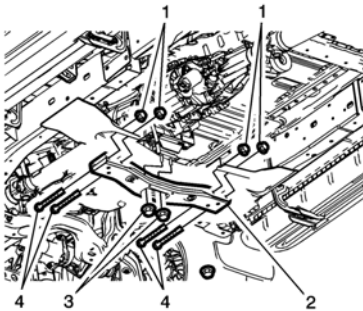


Caution: Refer to Fastener Caution.

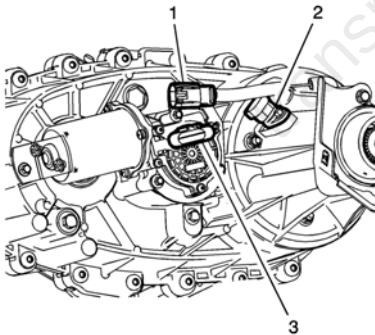
6. Install the three lower right side fasteners (1) on the transmission extension housing and tighten to **50 Y (37 lb ft)**.



7. Install the four left upper transfer case fasteners (2) on the transmission extension housing and tighten to **50 Y (37 lb ft)**.
8. Connect the vent hose (1) from the transfer case.



9. Install the transmission mount. Refer to Transmission Mount Replacement for the 6L45/6L50/6L80/6L90 transmission or Transmission Rear Mount Replacement for the Eaton 5-speed transmission.
10. Install the transmission support crossmember (2). Refer to Transmission Support Crossmember Replacement.
11. Position the transmission wiring harness (3) to the transfer case assembly.



12. Connect the engine wiring harness electrical connectors to the following:

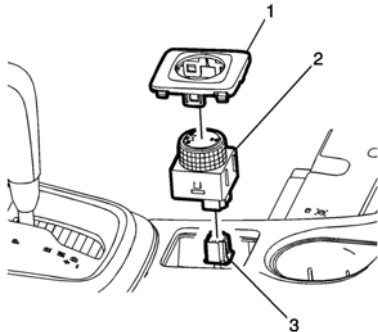
- The clutch coil assembly (1)
- The rear output shaft speed sensor (2)
- The actuator motor (3)
- Install the front propeller shaft. Refer to Front Propeller Shaft Replacement.
- Install the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement for one piece propeller shaft, or Two-Piece Rear Propeller Shaft Replacement for two piece propeller shaft.
- Fill the transfer case with fluid, if previously drained or lost from component replacement. Refer to Approximate Fluid Capacities.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

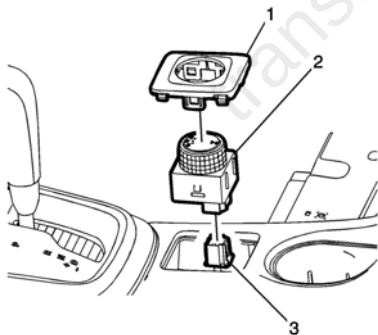
Fuel Delivery: | Fuel:

[Removal Procedure](#)



1. Using a flat bladed trim tool, remove the transfer case selector switch trim bezel (1) and switch assembly.
2. Disconnect the electrical connector (3) from the transfer case selector switch (2).
3. Remove the transfer case selector switch (2) from the transfer case selector switch trim bezel (1).

[Installation Procedure](#)

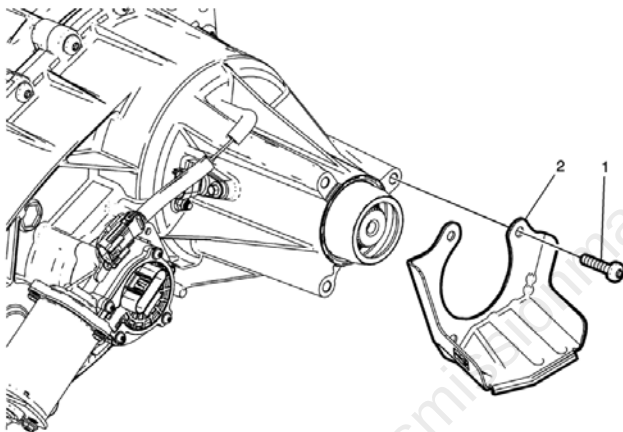


1. Install the transfer case selector switch (2) to the transfer case selector switch trim bezel (1).
2. Connect the electrical connector (3) from the transfer case selector switch (2).
3. Install the transfer case selector switch and transfer case selector switch trim bezel into the floor console.
4. Verify correct operation of the transfer case selector switch.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Transfer Case Shield Replacement

Callout

Component Name

Preliminary Procedure

Remove the two-piece rear propeller shaft, if necessary. Refer to Two-Piece Rear Propeller Shaft Replacement.

Transfer Case Shield Bolt – Model Dependent

Caution: Refer to Fastener Caution.

1

Tighten

25 Y (18 lb ft)

2

Transfer Case Shield – Model Dependent

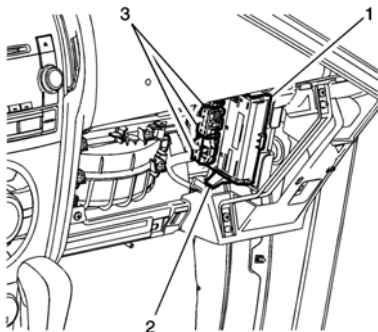
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

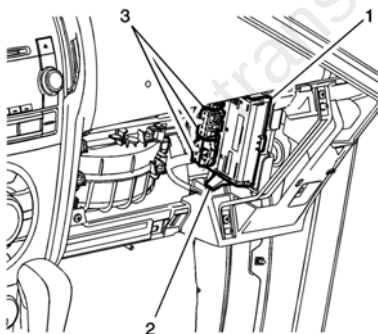
[Removal Procedure](#)

1. Remove the instrument lower panel.



2. Disconnect the electrical connectors (3) from the transfer case control module (TCCM).
3. Press the retaining tab (2) downward to release the TCCM.
4. Remove the TCCM from the vehicle.

[Installation Procedure](#)



1. Press the retaining tab (2) downward, then install the TCCM.
2. Connect the electrical connectors (3) to the TCCM.
3. Install the instrument lower panel.
4. Reprogram the TCCM. Refer to Control Module References.

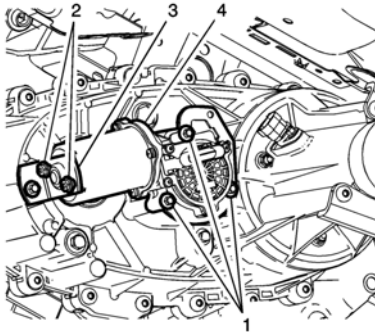
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

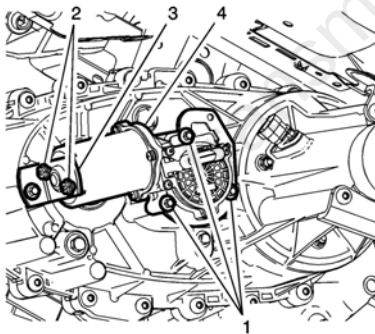
Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Disconnect the electrical connector from the actuator motor.



3. Remove the four actuator motor fasteners (1).
4. Remove the actuator motor (4) from the transfer case.
5. Remove the actuator motor bracket fasteners (2).
6. Remove the bracket (3) from the actuator motor (4).

Installation Procedure



1. Position the bracket (3) on the actuator motor (4).

Caution: Refer to Fastener Caution.

2. Install the bracket fasteners (2) and tighten to **8 Y (70 lb in)**.
3. Install the actuator motor (4) on the transfer case.
4. Install the actuator motor fasteners (1) and tighten to **12 Y (106 lb in)**.
5. Connect the electrical connector to the actuator motor.
6. Lower the vehicle.
7. Verify correct operation of the actuator motor.
8. Reprogram the transfer case control module. Refer to Control Module References.

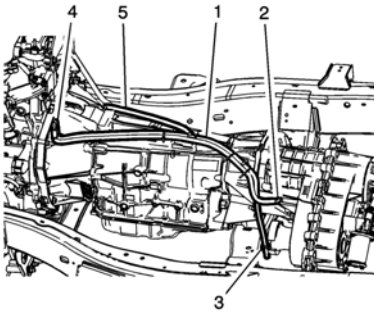
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Removal Procedure](#)

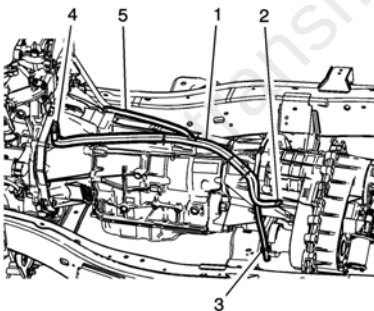
1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Disconnect the transfer case vent hose assembly (1) from the following:

- The transfer case vent pipe (2)
- The transmission crossmember (3)
- The engine compartment bracket (4)
- The transmission vent pipe (5)
- Remove the wire ties and separate the transfer case vent hose from the transmission vent hose.

[Installation Procedure](#)



Important: Ensure the vent hoses are free of kinks and routed clear of sharp objects.

1. Install the wire ties to attach the transfer case vent hose to the transmission vent hose.
2. Connect the transfer case vent hose assembly (1) to the following:

- The transfer case vent pipe (2)
- The transmission crossmember (3)
- The engine compartment bracket (4)
- The transmission vent pipe (5)
- Lower the vehicle.

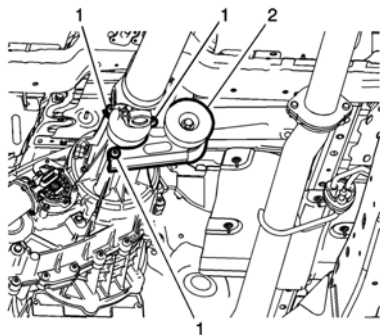
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

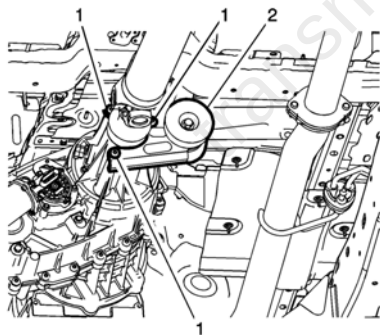
[Removal Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



2. Remove the vibration dampener fasteners (1).
3. Remove the vibration dampener (2) from the transfer case.

[Installation Procedure](#)



1. Position the vibration dampener (2) on the transfer case.

Caution: Refer to Fastener Caution.

2. Install the vibration dampener fasteners (1) and tighten to **25 Y (18 lb ft)**.
3. Lower the vehicle.

2013 Chevrolet Colorado

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

The Hydra-Matic® 6-Speed RWD transmission utilizes a line pressure control system during upshifts to compensate for the normal wear of transmission components. As the apply components within the transmission wear or change over time, shift time (the time required to apply a clutch) increase or decreases. In order to compensate for these changes, the transmission control module (TCM) adjusts the pressure commands to the various PC solenoids, to maintain the originally calibrated shift timing. The automatic adjusting process is referred to as “adaptive learning” and it is used to ensure consistent shift feel plus increase transmission durability. The TCM monitors the A/T input speed sensor (ISS) and the A/T output speed sensor (OSS) during commanded shifts to determine if a shift is occurring too fast (harsh) or too slow (soft) and adjusts the corresponding pressure control (PC) solenoid signal to maintain the set shift feel.

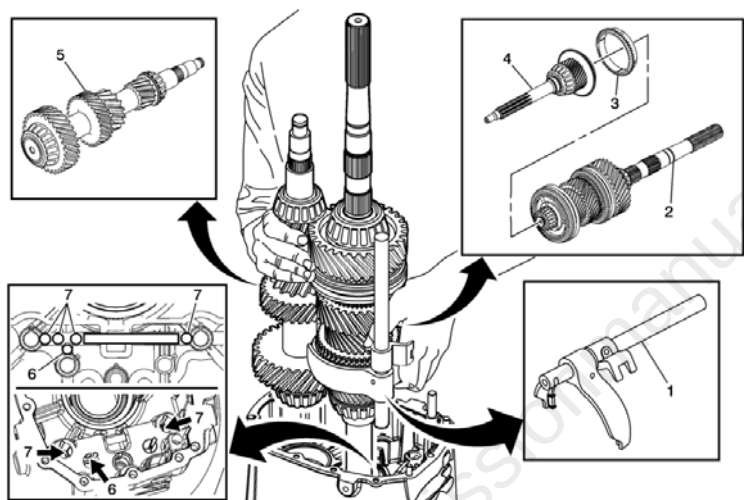
The purpose of the adapt function is to automatically compensate the shift quality for the various vehicle shift control systems. The adapt function is a continuous process that will help to maintain optimal shift quality throughout the life of the vehicle.

2013 Chevrolet Colorado

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

Table 1:	Mainshaft, Input Shaft and Counter Gear Shaft Installation
Table 2:	Shift Shafts and Forks Installation
Table 3:	Intermediate Case Installation
Table 4:	5th Gear, and 5th Counter Gear Installation
Table 5:	5th and Reverse Shift Fork Installation
Table 6:	Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Installation
Table 7:	Mainshaft Nut and Front Counter Gear Rear Bearing Installation
Table 8:	Output Shaft Sleeve Installation
Table 9:	Rear Case and Shift Lever Housing Installation
Table 10:	Drain and Fill Plug Installation

Mainshaft, Input Shaft and Counter Gear Shaft Installation



Mainshaft, Input Shaft and Counter Gear Shaft Installation

Callout	Component Name
---------	----------------

Preliminary Procedure

All the following components must be installed at the same time.

- | | |
|---|---|
| 1 | 3rd and 4th Shift Shaft and Fork Assembly |
| 2 | Mainshaft Assembly |
| 3 | 4th Gear Synchronizer Ring |
| 4 | Input Shaft Assembly |
| 5 | Counter Gear Shaft Assembly |

Shift Shaft Interlocking Ball – 8.0 mm (Qty: 1)

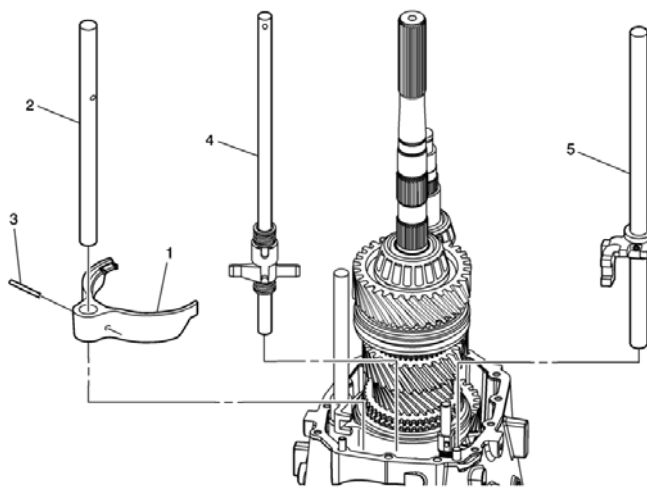
Tip:

- | | |
|---|--|
| 6 | <ul style="list-style-type: none">• This 8.0 mm ball is located on the 1st/2nd yoke bar bore.• Use the appropriate lubricant to hold ball in the proper location. |
|---|--|

Shift Shaft Interlocking Balls – 9.5 mm (Qty: 4)

Tip:

- | | |
|---|--|
| 7 | <ul style="list-style-type: none">• See locations of the four 9.5 mm balls shown above.• Use the appropriate lubricant to hold ball in the proper location. |
|---|--|



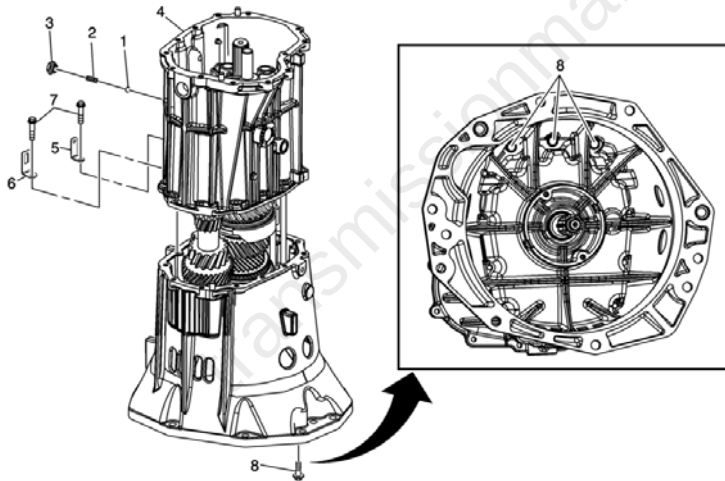
Shift Shafts and Forks Installation

Callout

- | | |
|---|-------------------------------------|
| 1 | 1st and 2nd Shift Fork |
| 2 | 1st and 2nd Shift Shaft |
| 3 | Shift Fork Retaining Pin |
| 4 | Shift Shaft Assembly |
| 5 | 5th and Reverse Shift Rail Assembly |

Component Name

[Intermediate Case Installation](#)



Intermediate Case Installation

Callout

- | | |
|---|--|
| 1 | Shift Shaft Detent Ball |
| 2 | Shift Detent Ball Spring |
| | Shift Shaft Detent Plug |
| 3 | Caution: Refer to Fastener Caution. |
| | Tighten |
| | 13 Y (115 lb in) |
| 4 | Transmission Intermediate Case |
| 5 | Transmission Wiring Harness Bracket Assembly |
| 6 | Transmission Bracket |

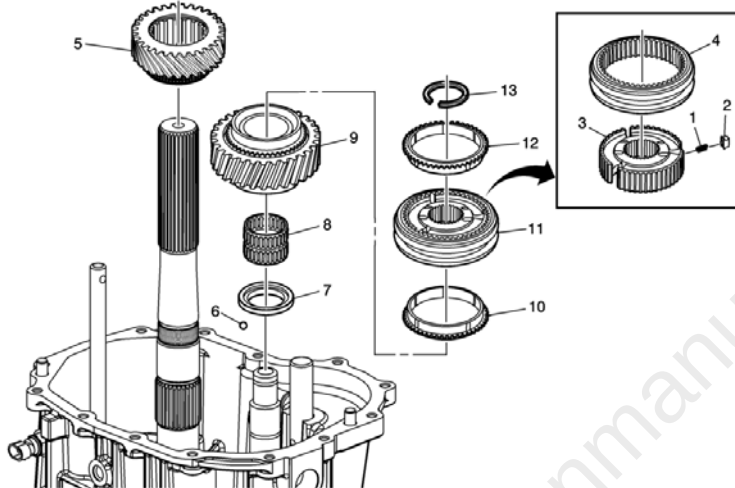
Component Name

Callout

Component Name

- 7 Transmission Case Bolt (Qty: 10)
Tighten
 22.5 Y (16.6 lb ft)
- 8 Transmission Intermediate Case Bolt (Qty: 3)
Tighten
 22.5 Y (16.6 lb ft)

5th Gear, and 5th Counter Gear Installation



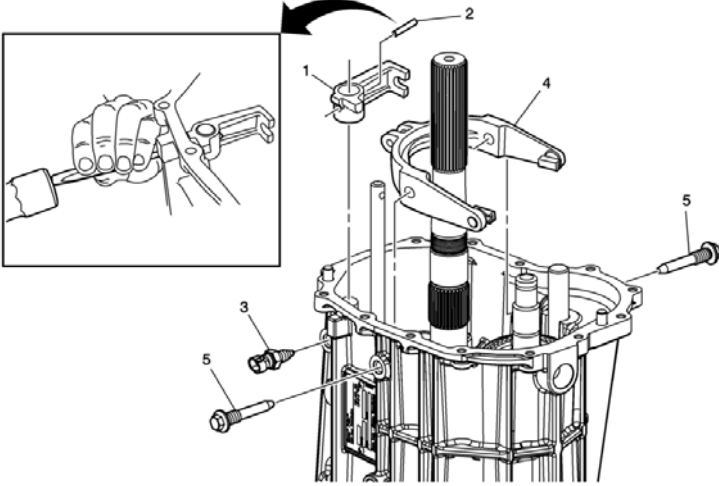
5th Gear, and 5th Counter Gear Installation

Callout

Component Name

- 1 5th and Reverse Gear Synchronizer Spring
- 2 5th and Reverse Gear Synchronizer Insert
- 3 5th and Reverse Gear Synchronizer Hub
- 4 5th and Reverse Gear Synchronizer Sleeve
- 5 5th Gear
- 6 5th Gear Thrust Washer Anti-Rotation Bail
- 7 Counter Gear Thrust Washer
- 8 Counter Gear Thrust Bearing Assembly
- 9 5th Counter Gear
- 10 5th Gear Blocking Ring
- 11 5th and Reverse Gear Synchronizer Hub and Sleeve
- 12 Reverse Gear Blocking Ring
- 13 5th and Reverse Gear Synchronizer Retaining Ring

5th and Reverse Shift Fork Installation



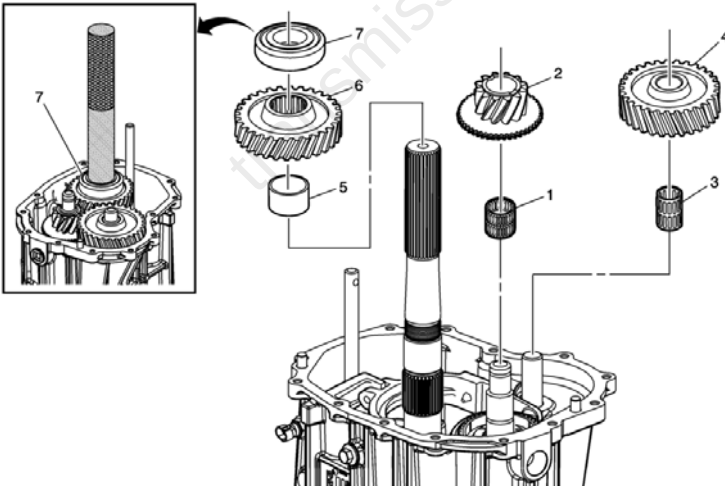
5th and Reverse Shift Fork Installation

Callout

Component Name

- 1 5th and Reverse Shift Link Lever
- 2 5th and Reverse Shift Fork Pin
Tip: Use a punch to install.
- 3 Park/Neutral Position and Backup Lamp Switch Assembly
- 4 5th and Reverse Shift Fork
- 5 Shift Fork Bolt (Qty: 2)
Tighten
17 Y (12.5 lb ft)
- 5 **Tighten**
22.5 Y (16.6 lb ft)

[Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Installation](#)



Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Installation

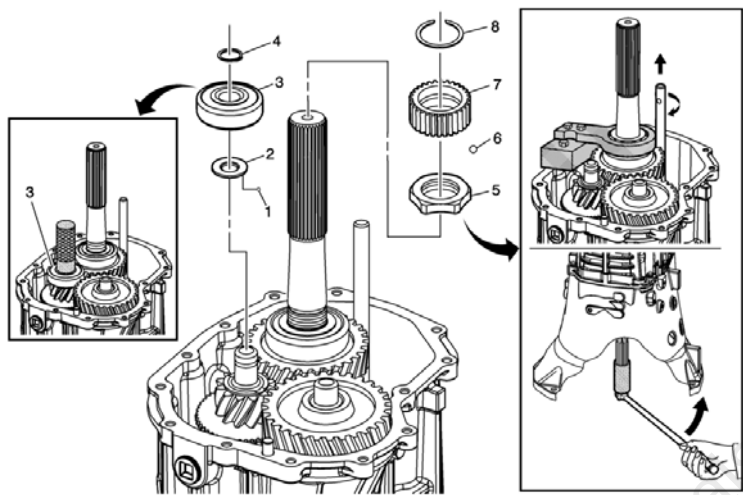
Callout

Component Name

- 1 Reverse Gear Bearing Assembly
- 2 5th Gear Synchronizer and Reverse Gear Assembly
- 3 Reverse Idler Gear Thrust Bearing Assembly
- 4 Reverse Idler Gear
- 5 Mainshaft Bushing

Callout	Component Name
6	Reverse Gear
	Mainshaft Bearing Assembly
7	Special Tools DT 50861 Bearing Cone Installer For equivalent regional tools, refer to Special Tools.

Mainshaft Nut and Front Counter Gear Rear Bearing Installation



Mainshaft Nut and Front Counter Gear Rear Bearing Installation

Callout	Component Name
1	Reverse Gear Thrust Washer Locating Ball
2	Reverse Gear Thrust Washer
	Front Counter Gear Rear Bearing Assembly
3	Special Tools DT 50860 Bearing Cone Installer For equivalent regional tools, refer to Special Tools.
4	Front Counter Gear Rear Bearing Retaining Ring
	Mainshaft Nut
	Procedure

- Attach *DT 50461* mainshaft lock wrench mounting block and *DT 50858* 54 mm special wrench to the intermediate case.
 - Place the transmission in first gear by rotating the shift shaft clockwise and towards the rear of the transmission.
 - Using *DT 50859* input shaft spline socket rotate the input shaft counterclockwise to tighten the mainshaft nut to the correct specification.
- Specification**
 V6-MYF, Diesel MYL/MYN: 54–66 Y (40–49 lb ft)
 4 cylinder MYG: 49–60 Y (36–44 lb ft)
- Use a punch to peen the mainshaft nut to the machine groove on the output shaft.

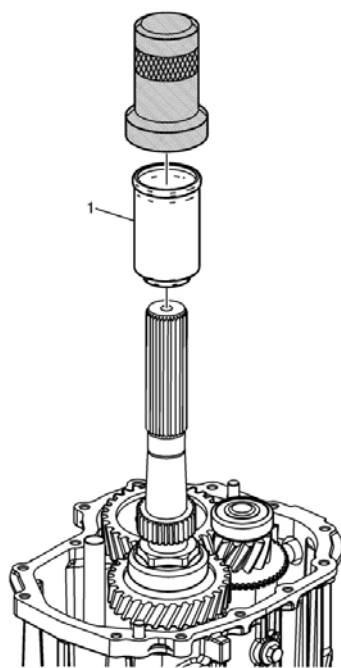
Special Tools

- DT 50858 54 mm Special Wrench
- DT 50859 Input Shaft Spline Socket
- DT 50461 Mainshaft Lock Wrench Mounting Block

For equivalent regional tools, refer to Special Tools.

6	Anti-Rotation Ball
7	Speed Sensor Rotor – 2WD
8	Mainshaft Retaining Ring – Speed Sensor Rotor – 2WD

Output Shaft Sleeve Installation



Output Shaft Sleeve Installation

Callout

Output Shaft Sleeve

Special Tools

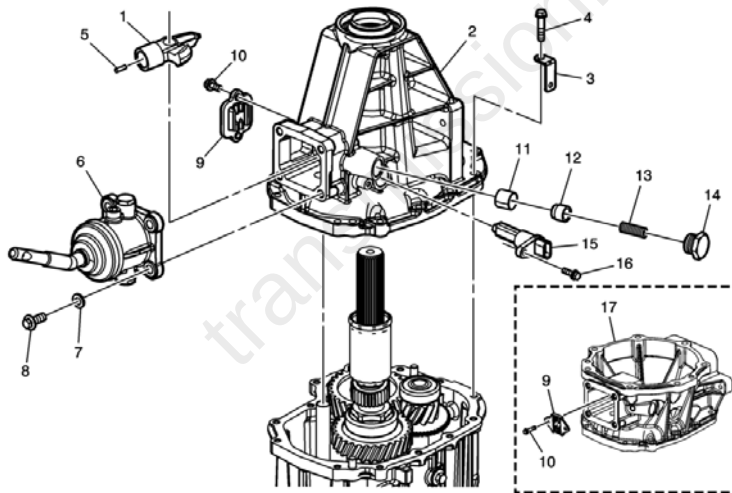
1

DT-0307994 Output Shaft Sleeve Installer

For equivalent regional tools, refer to Special Tools.

Component Name

[Rear Case and Shift Lever Housing Installation](#)



Rear Case and Shift Lever Housing Installation

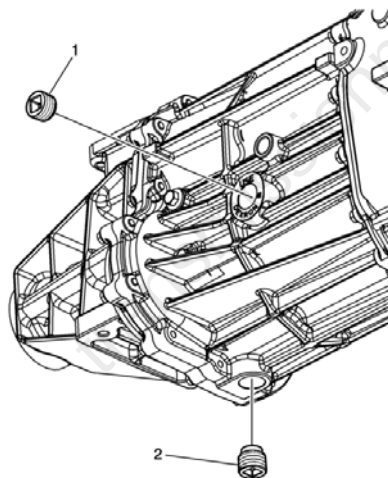
Callout

- | | |
|---|---|
| 1 | Shift Shaft Detent Lever |
| 2 | Transmission Rear Case Assembly – 2WD |
| 3 | Transmission Wiring Harness Bracket Assembly |
| 4 | Transmission Case Bolt |
| 5 | Shift Shaft Detent Pin Assembly |
| 6 | M/Trans Control Lever Housing Assembly |
| 7 | M/Trans Control Lever Housing Washer (Qty: 4) |

Component Name

Callout	Component Name
8	M/Trans Control Lever Housing Bolt (Qty: 4)
9	Shift Guide Detent Plate
10	Transmission Bolt
11	Shift Shaft Detent
12	Shift Shaft Detent Cam
13	Manual Shift Detent Lever Spring
14	Transmission Case Plug
15	Vehicle Speed Sensor
16	Transmission Case Bolt
17	Transmission Rear Case Assembly – 4WD

Drain and Fill Plug Installation



Drain and Fill Plug Installation

Callout	Component Name
1	Transmission Oil Fill Plug
2	Transmission Oil Drain Plug

2013 Chevrolet Colorado

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

Fuel Delivery: | **Fuel:**

The mechanical components of the 6-Speed RWD are as follows:

- A torque converter with an electronically controlled capacity clutch (ECCC). ECCC was developed to reduce the possibility of noise, vibration, or chuggle caused by TCC apply. In a torque converter with ECCC, the pressure plate does not always fully lock to the torque converter cover. Instead, the pressure plate maintains a small amount of slippage. In RWD 6-Speed transmissions, this slippage can range from 0–50 RPM. Full lockup (0 RPM slip) is still available on some applications. TCC may apply in 2nd, 3rd, 4th, 5th, or 6th gears. The specific TCC apply points and the amount of clutch slippage are determined by a number of operating conditions, including throttle position, vehicle speed, gear, as well as specific vehicle application. Transmission fluid temperature will also affect TCC apply points.
- Vane-type fluid pump assembly
- 1–2–3–4 and 3–5 Reverse clutch assembly
- Input sun gear and carrier assembly
- 4–5–6 clutch assembly with turbine shaft
- 4–5–6 clutch hub assembly
- 1–2–3–4 clutch hub assembly
- 2–6 and 3–5 reverse clutch hub assembly
- Center support assembly, with 2–6 clutch assembly, and low and Reverse clutch assembly
- Low clutch sprag assembly
- A double planetary output carrier assembly
- Output shaft assembly
- Control valve body assembly

The electrical components of the 6-Speed RWD are as follows:

- Input and output speed sensor assembly
- Manual shift shaft position switch
- Control solenoid valve assembly, which contains the following components:
 - Transmission control module (TCM)
 - 5 variable bleed line pressure control (PC) solenoids
 - Transmission fluid pressure (TFP) switch assembly
 - Torque converter clutch (TCC) pressure control solenoid
 - 2 shift solenoids

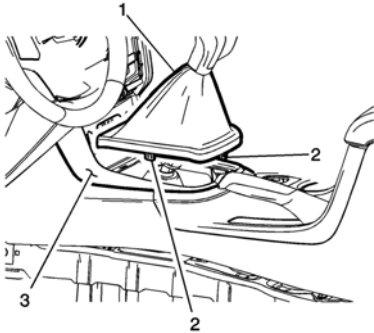
For more information, refer to Electronic Component Description.

2013 Chevrolet Colorado

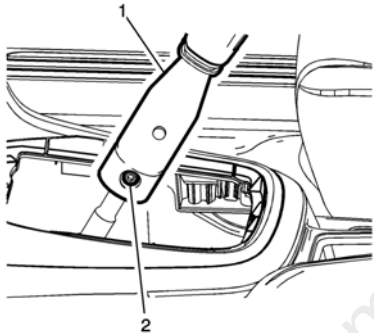
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Removal Procedure](#)



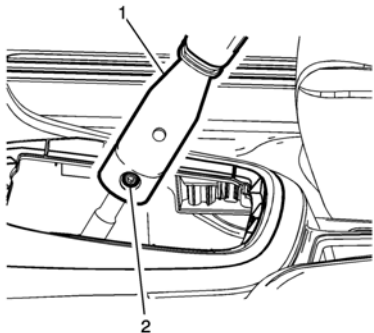
1. Using a flat bladed trim tool, carefully release the four retaining tabs on each side of the boot (1) in order to disengage the boot retainers (2) from the floor console (3).
2. Pull the boot upward to access the control lever set screw.



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](#)

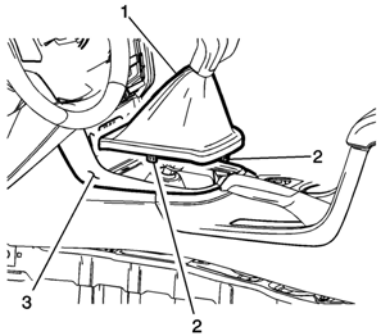
1. Install the shift lever boot to the control lever.



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)**.



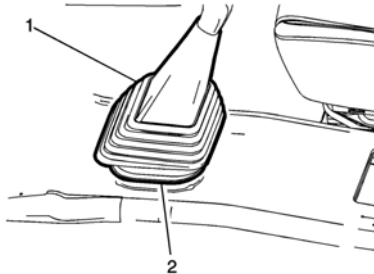
5. Position the boot tabs (2) flat on the console opening.
6. Push downward on all four sides of the boot (1) in order to engage the boot retainers (2) with the floor console (3).

2013 Chevrolet Colorado

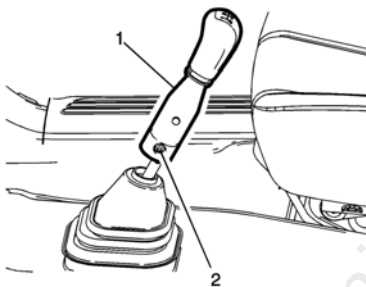
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Removal Procedure](#)



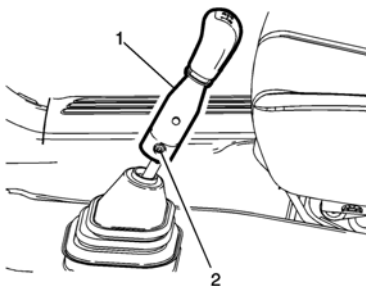
1. Carefully pull the shift boot (1) sideways, then upward to release the boot from the floor panel retaining flange (2).
2. Pull the boot upward to access the control lever set screw.



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](#)

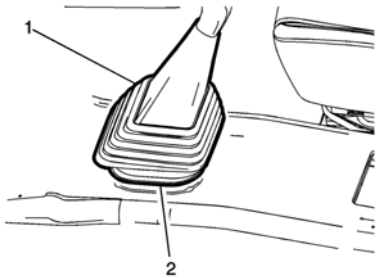
1. If removed, install the shift lever boot to the control lever.



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)**.

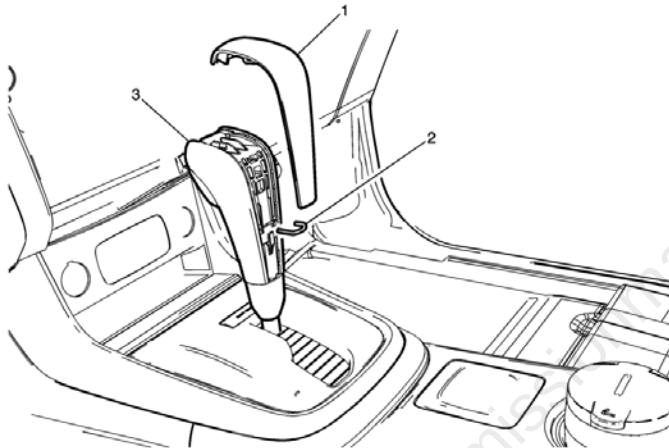


5. Carefully pull the shift boot (1) sideways, then downward to secure the boot to the floor panel retaining flange (2).

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

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.

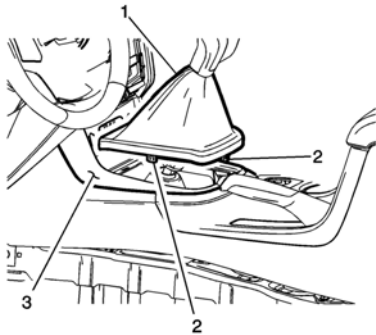
3 Transmission Control Lever Knob

2013 Chevrolet Colorado

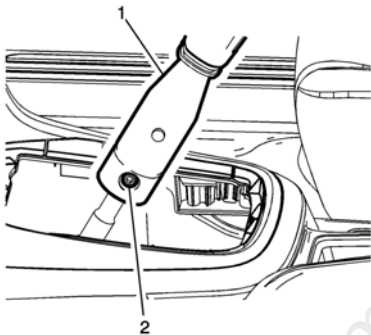
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

[Removal Procedure](#)



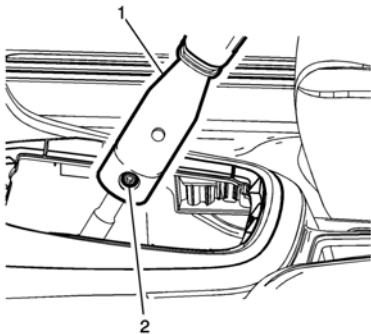
1. Using a flat bladed trim tool, carefully release the four retaining tabs on each side of the boot (1) in order to disengage the boot retainers (2) from the floor console (3).
2. Pull the boot upward to access the control lever set screw.



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](#)

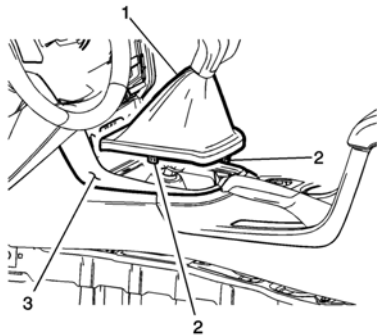
1. If removed, install the shift lever boot to the control lever.



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)**.

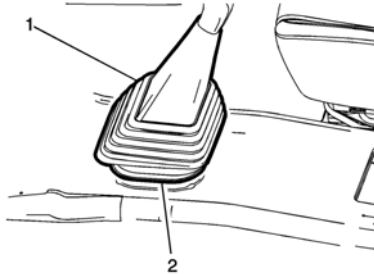


5. Position the boot tabs (2) flat on the console opening.
6. Push downward on all four sides of the boot (1) in order to engage the boot retainers (2) with the floor console (3).

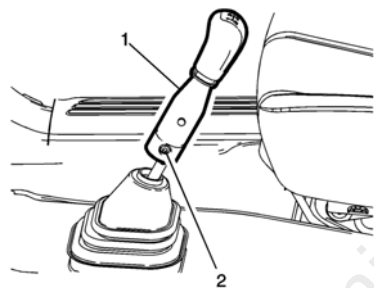
2013 Chevrolet Colorado

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

[Removal Procedure](#)



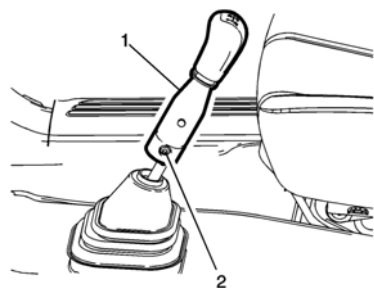
1. Carefully pull the shift boot (1) sideways, then upward to release the boot from the floor panel retaining flange (2).
2. Pull the boot upward to access the control lever set screw.



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](#)

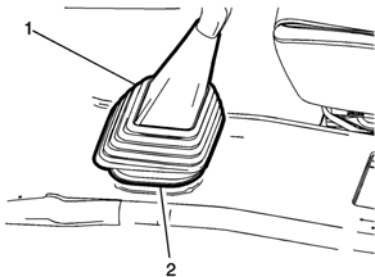
1. If removed, install the shift lever boot to the control lever.



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)**.



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

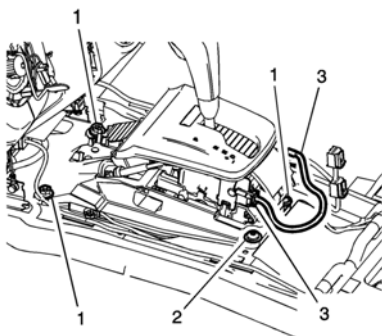
2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

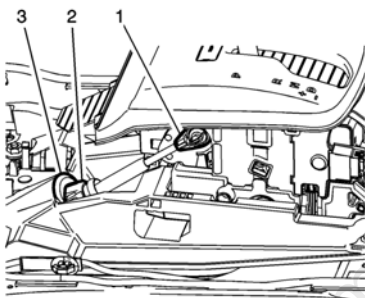
Fuel Delivery: | Fuel:

[Removal Procedure](#)

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

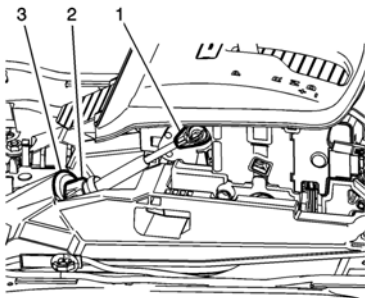


2. Disconnect 2 electrical connectors (3) from the transmission control assembly.
3. Remove the 2 transmission control nuts (1).
4. Remove the 2 transmission control bolts (2).

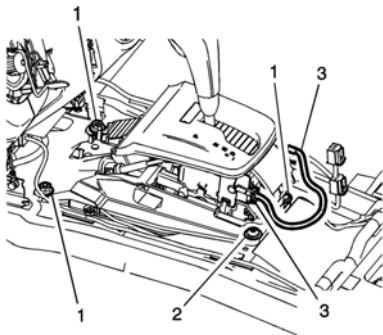


5. Using a flat bladed tool, disconnect the cable terminal (1) from the transmission control shift pin.
6. Compress the two retaining tabs (2) and remove the automatic transmission range selector cable from the transmission control.
7. Disengage the automatic transmission range selector cable grommet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



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:

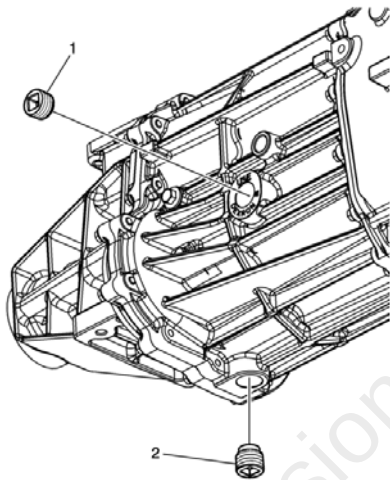
- Transmission damage may occur when control valve assembly springs and other parts are mistakenly interchanged. Interchanging parts can be avoided by observing the following precautions:
 - Tag each part immediately when removed.
 - Use J 33163 Valve Tray Set to organize parts and to simplify correct 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 .

2013 Chevrolet Colorado

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

Table 1:	Drain Fluids and Mount to Holding Fixture
Table 2:	Rear Case and Shift Lever Housing Removal
Table 3:	Output Shaft Sleeve Removal
Table 4:	Mainshaft Nut and Front Counter Gear Rear Bearing Removal
Table 5:	Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Removal
Table 6:	5th and Reverse Shift Fork Removal
Table 7:	5th Gear, and 5th Counter Gear Removal
Table 8:	Intermediate Case Removal
Table 9:	Shift Shafts and Forks Removal
Table 10:	Mainshaft, Input Shaft and Counter Gear Shaft Removal

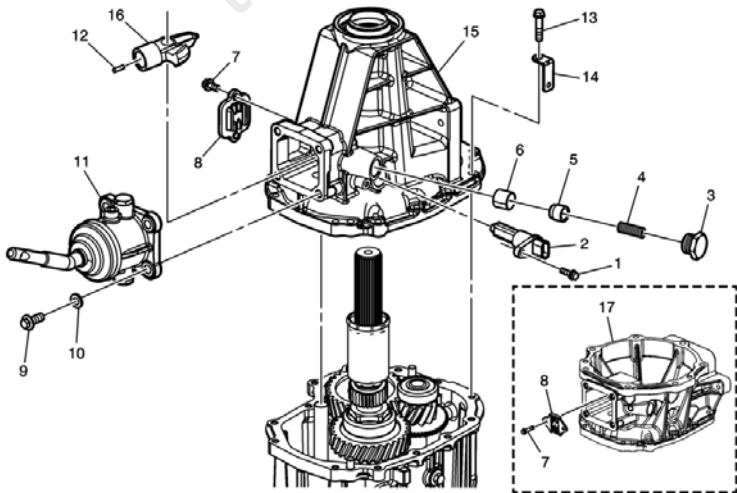
[Drain Fluids and Mount to Holding Fixture](#)



Drain Fluids and Mount to Holding Fixture

Callout	Component Name
1	Transmission Oil Fill Plug
2	Transmission Oil Drain Plug

[Rear Case and Shift Lever Housing Removal](#)



Callout

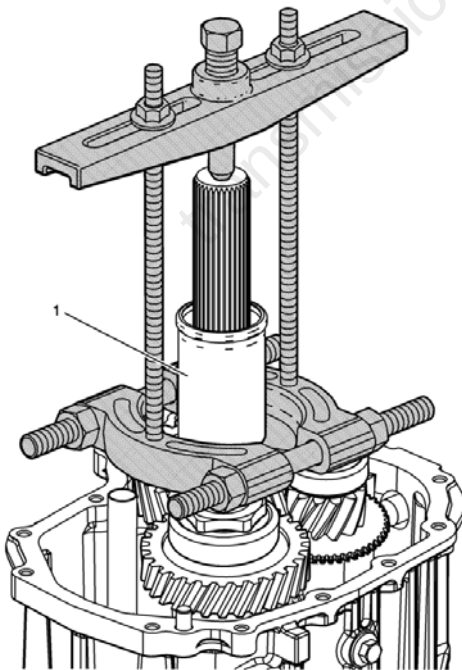
Component Name

Preliminary Procedure

Place shifter in 1st gear before you begin.

- | | |
|----|---|
| 1 | Transmission Case Bolt |
| 2 | Vehicle Speed Sensor |
| 3 | Transmission Case Plug |
| 4 | Manual Shift Detent Lever Spring |
| 5 | Shift Shaft Detent Cam |
| 6 | Shift Shaft Detent |
| 7 | Transmission Bolt |
| 8 | Shift Guide Detent Plate |
| 9 | M/Trans Control Lever Housing Bolt (Qty: 4) |
| 10 | M/Trans Control Lever Housing Washer (Qty: 4) |
| 11 | M/Trans Control Lever Housing Assembly |
| 12 | Shift Shaft Detent Pin Assembly |
| 13 | Transmission Case Bolt |
| 14 | Transmission Wiring Harness Bracket Assembly |
| 15 | Transmission Rear Case Assembly – 2WD |
| 16 | Shift Shaft Detent Lever |
| 17 | Transmission Rear Case Assembly – 4WD |

Shaft Sleeve Removal



Output Shaft Sleeve Removal

Callout

Component Name

Output Shaft Sleeve

Special Tools

1

- DT-22912-B Rear Pinion and Axle Bearing Remover

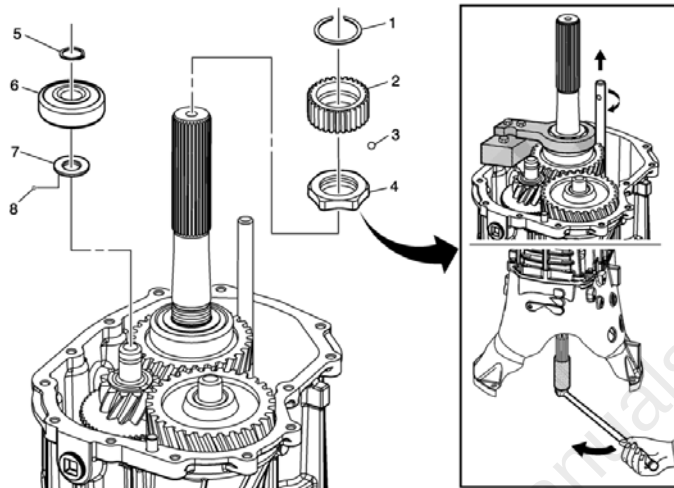
Callout

- DT-50315 Hardware Kit
- GE-8433-1 Two Jaw Puller

For equivalent regional tools, refer to Special Tools.

Component Name

Mainshaft Nut and Front Counter Gear Rear Bearing Removal



Mainshaft Nut and Front Counter Gear Rear Bearing Removal

Callout

- 1 Mainshaft Retaining Ring – Speed Sensor Rotor – 2WD
- 2 Speed Sensor Rotor
- 3 Anti-Rotation Ball

Mainshaft Nut

Procedure

1. Attach DT 50461 mainshaft lock wrench mounting block and DT 50858 54 mm special wrench to the intermediate case.
2. Place the transmission in first gear by rotating the shift shaft clockwise and towards the rear of the transmission.
3. Using DT 50859 input shaft spline socket rotate the input shaft clockwise to loosen the mainshaft nut.

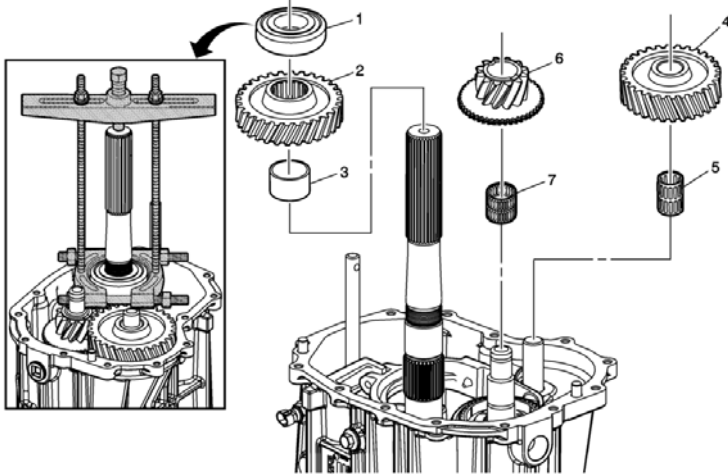
Special Tools

- DT 50461 Mainshaft Lock Wrench Mounting Block
- DT 50858 54 mm Special Wrench
- DT 50859 Input Shaft Spline Socket

For equivalent regional tools, refer to Special Tools.

- 5 Front Counter Gear Rear Bearing Retaining Ring
- 6 Front Counter Gear Rear Bearing Assembly
- 7 Reverse Gear Thrust Washer
- 8 Reverse Gear Thrust Washer Locating Ball

Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Removal



Reverse Gear, 5th Gear Synchronizer and Reverse Gear Assembly, and Reverse Idler Gear Removal

Callout

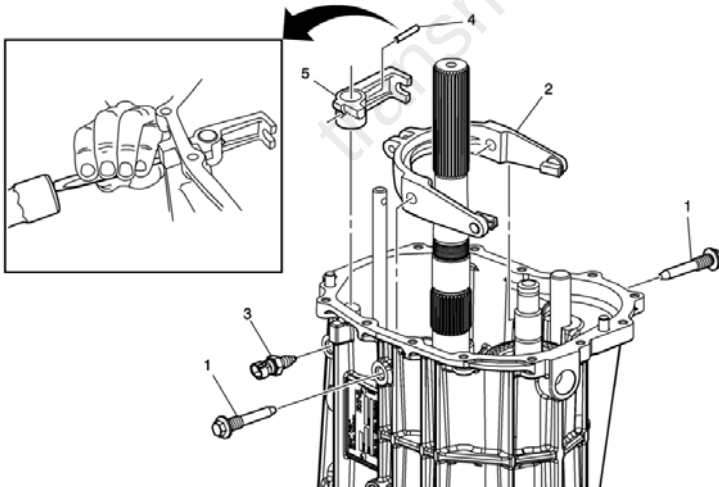
Component Name

Mainshaft Bearing Assembly

Special Tools

- | | |
|---|---|
| 1 | <ul style="list-style-type: none"> • DT 22912-B Split Plate Bearing Puller • DT 50315 Puller Hardware Kit • GE 8433-1 Puller Bar <p>For equivalent regional tools, refer to Special Tools.</p> |
| 2 | Reverse Gear |
| 3 | Mainshaft Bushing |
| 4 | Reverse Idler Gear |
| 5 | Reverse Idler Gear Thrust Bearing Assembly |
| 6 | 5th Gear Synchronizer and Reverse Gear Assembly |
| 7 | Reverse Gear Bearing Assembly |

5th and Reverse Shift Fork Removal



5th and Reverse Shift Fork Removal

Callout

Component Name

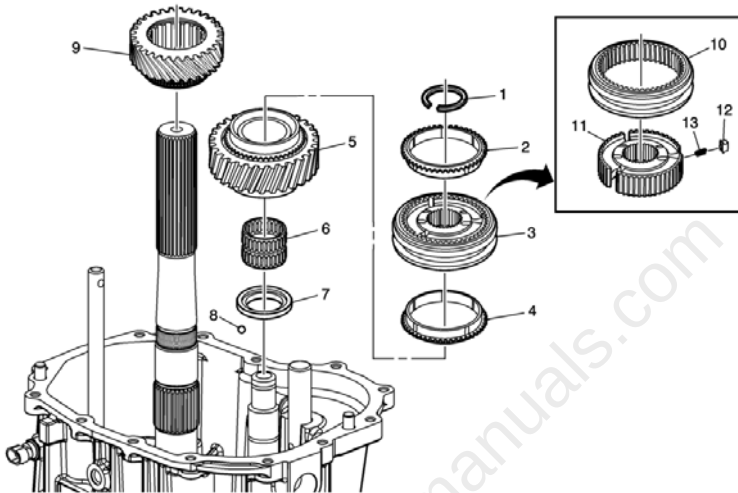
- | | |
|---|---|
| 1 | Shift Fork Bolt |
| 2 | 5th and Reverse Shift Fork |
| 3 | Park/Neutral Position and Backup Lamp Switch Assembly |

Callout

Component Name

- | | |
|---|----------------------------------|
| 4 | 5th and Reverse Shift Fork Pin |
| 5 | 5th and Reverse Shift Link Lever |

5th Gear, and 5th Counter Gear Removal



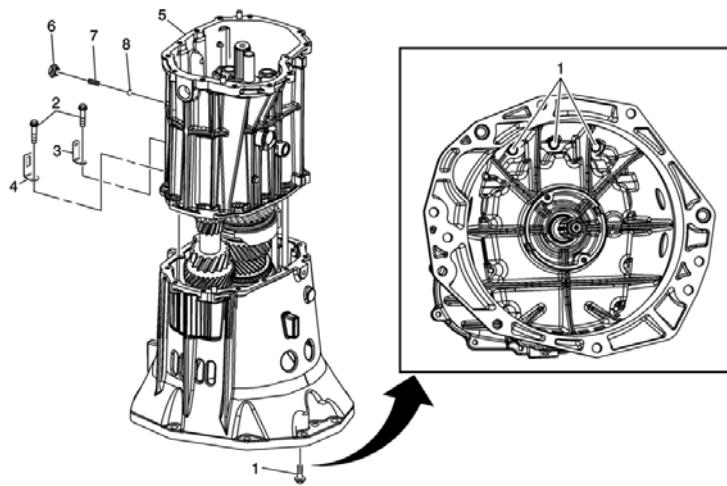
5th Gear, and 5th Counter Gear Removal

Callout

Component Name

- | | |
|----|--|
| 1 | 5th and Reverse Gear Synchronizer Retaining Ring |
| 2 | Reverse Gear Blocking Ring |
| 3 | 5th and Reverse Gear Synchronizer Hub and Sleeve |
| 4 | 5th Gear Blocking Ring |
| 5 | 5th Counter Gear |
| 6 | Counter Gear Thrust Bearing Assembly |
| 7 | Counter Gear Thrust Washer |
| 8 | 5th Gear Thrust Washer Anti-Rotation Ball |
| 9 | 5th Gear |
| 10 | 5th and Reverse Gear Synchronizer Sleeve |
| 11 | 5th and Reverse Gear Synchronizer Hub |
| 12 | 5th and Reverse Gear Synchronizer Insert |
| 13 | 5th and Reverse Gear Synchronizer Spring |

Intermediate Case Removal



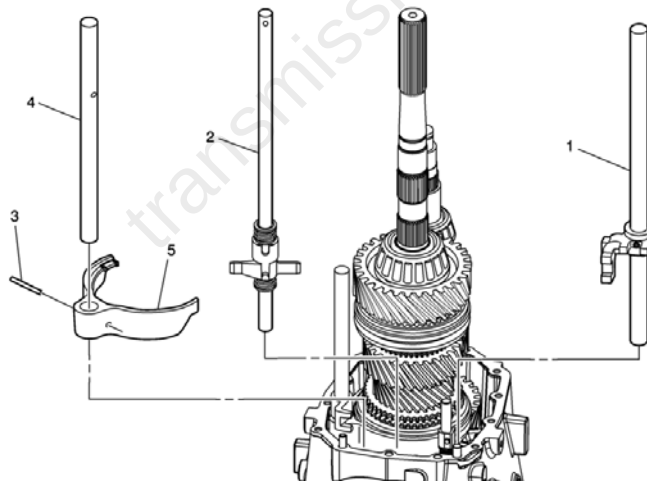
Intermediate Case Removal

Callout

Component Name

- | | |
|---|--|
| 1 | Transmission Intermediate Case Bolt (Qty: 3) |
| 2 | Transmission Rear Case Bolt (Qty: 10) |
| 3 | Transmission Wiring Harness Bracket Assembly |
| 4 | Transmission Bracket |
| 5 | Transmission Intermediate Case |
| 6 | Shift Shaft Detent Plug |
| 7 | Shift Detent Ball Spring |
| 8 | Shift Shaft Detent Ball |

[Shift Shafts and Forks Removal](#)



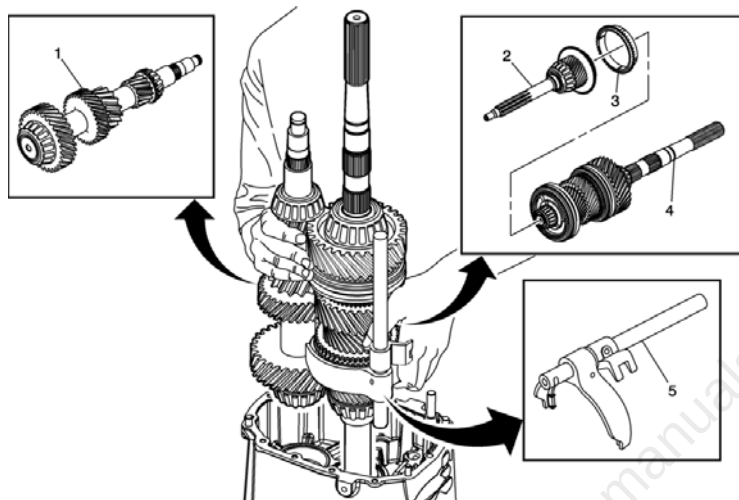
Shift Shafts and Forks Removal

Callout

Component Name

- | | |
|---|-------------------------------------|
| 1 | 5th and Reverse Shift Rail Assembly |
| 2 | Shift Shaft Assembly |
| 3 | Shift Fork Retaining Pin |
| 4 | 1st and 2nd Shift Shaft |
| 5 | 1st and 2nd Shift Fork |

[Mainshaft, Input Shaft and Counter Gear Shaft Removal](#)



Mainshaft, Input Shaft and Counter Gear Shaft Removal

Callout

Component Name

Preliminary Procedure

All the following components must be removed at the same time.

- | | |
|---|---|
| 1 | Counter Gear Shaft Assembly |
| 2 | Input Shaft Assembly |
| 3 | 4th Gear Synchronizer Ring |
| 4 | Mainshaft Assembly |
| 5 | 3rd and 4th Shift Shaft and Fork Assembly |
- Tip:** Be careful when removing the yoke bars. Interlock balls may drop into the bar bores. Keep close watch on the interlock balls when disassembling and assembling the transmission.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

GM studies indicate that plugged or restricted transmission oil coolers and pipes cause insufficient transmission lubrication and elevated operating temperatures which can lead to premature transmission failure. Many repeat repair cases could have been prevented by following published procedures for transmission oil cooler flushing and flow checking. This procedure includes flow checking and flushing the auxiliary transmission oil cooler, if equipped.

Note: Use the J 45096 flush and flow test tool or equivalent to flush and flow test the transmission oil cooler and the oil cooler pipes after the transaxle is removed for repairs.

Only GM Goodwrench DEXRON®VI automatic transmission fluid should be used when doing a repair on a GM transmission.

Time allowance for performing the cooler flow checking and flushing procedure has been included in the appropriate labor time guide operations since the 1987 model year. The service procedure steps for oil cooler flushing and flow testing are as follows:

Cooler Flow Check and Flushing Steps

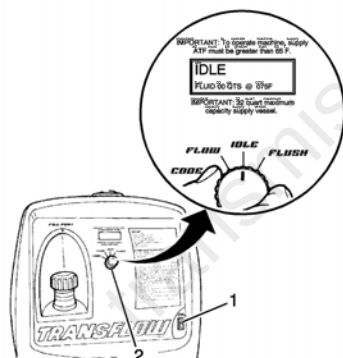
1. Machine Set-up
2. Determine Minimum Flow Rate
3. Back Flush
4. Forward Flush
5. Flow Test
6. Code Recording Procedure
7. Clean-up

Special Tools

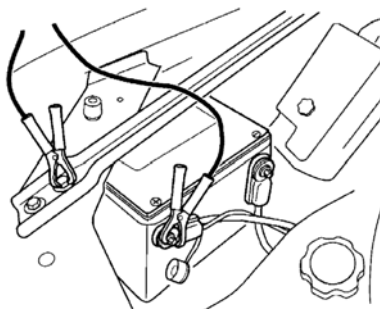
- DT 45096 Transmission Oil Cooling System Flush and Flow Test Tool
- DT 45096-30 Transmission Cooler Flush Adapter
- Shop air supply with water/oil filters, regulator and pressure gauge — minimum 90 psi
- Eye protection
- Rubber gloves

For equivalent regional tools, refer to Special Tools.

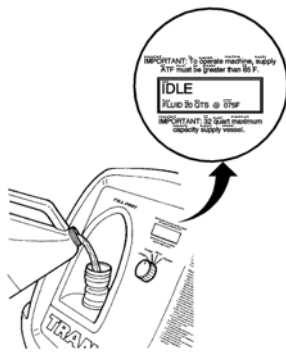
Machine Set-up



1. Verify that the main power switch (1) is in the OFF position.
2. Place the main function switch (2) in the IDLE position.

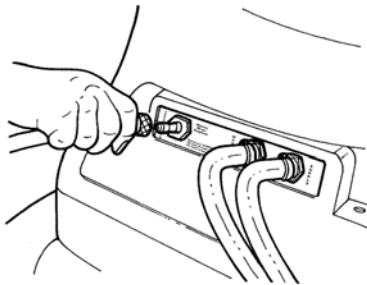


3. Connect DT 45096 flush and flow test tool to the vehicle 12V DC power source by connecting the red battery clip to the positive, +, battery post on the vehicle and connect the negative lead to a known good chassis ground.
4. Turn the main power switch to the ON position.



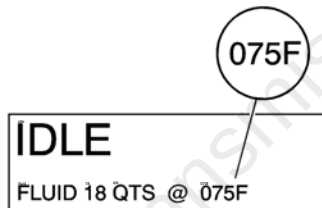
Caution: Do not overfill the supply vessel. Damage to the unit may result. To verify the fluid level, view the LCD screen display while filling the unit, to ensure the fluid level does not exceed 30 L (32 qt).

5. Fill the supply tank with Dexron®VI through the fill port.
6. Reinstall and tighten the fill cap.

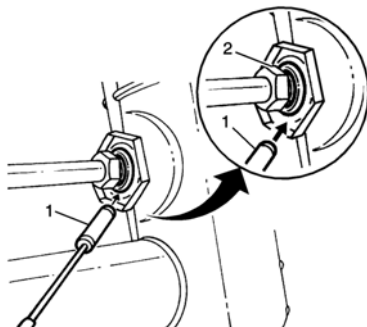


7. Connect a shop air supply hose to the quick-disconnect on the rear panel marked SUPPLY AIR.

[Determine Minimum Flow Rate](#)



1. From the machine display, identify the temperature of the automatic transmission fluid that is stored in the supply vessel of DT 45096 flush and flow test tool .



2. Determine whether the transmission oil cooler is steel or aluminum by using a magnet (1) at the cooler flange (2) at the radiator.
3. Refer to the table below. Using the temperature from step 1, locate on either the Steel MINIMUM Flow Rate table or the Aluminum MINIMUM Flow Rate table the minimum flow rate in gallons per minutes (GPM). Record the minimum flow rate in GPMs and the supply fluid temperature for further

reference.
Example

- Fluid temperature: 75°F
- Cooler type: Steel

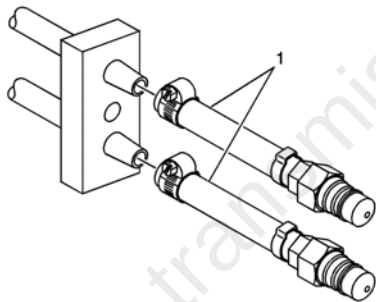
The MINIMUM flow rate for this example would be 0.8 GPM.

4. Inspect transmission oil cooler lines for damage or kinks that could cause restricted oil flow. Repair as needed and refer to the appropriate GM service manual procedures.

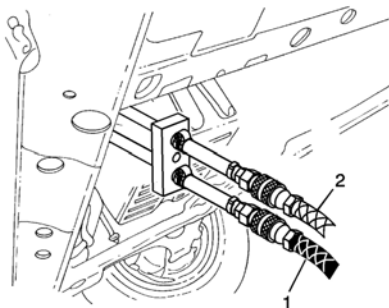
Minimum Flow Rate in Gallons Per Minute (gpm)

Temperature Range	Steel	Aluminum
65 – 66°F	0.6 gpm	0.5 gpm
67 – 70°F	0.7 gpm	0.6 gpm
71 – 75°F	0.8 gpm	0.7 gpm
76 – 80°F	0.9 gpm	0.8 gpm
81 – 84°F	1.0 gpm	0.9 gpm
85 – 89°F	1.1 gpm	1.0 gpm
90 – 94°F	1.2 gpm	1.1 gpm
95 – 98°F	1.3 gpm	1.2 gpm
99 – 103°F	1.4 gpm	1.3 gpm
104 – 108°F	1.5 gpm	1.4 gpm
109 – 112°F	1.6 gpm	1.5 gpm
113 – 117°F	1.7 gpm	1.6 gpm
118 – 120°F	1.8 gpm	1.7 gpm

Back Flush Procedure



1. Connect the DT 45096-30 cooler flush adapter (1) to the vehicle transmission oil cooler supply and return lines at the transmission.

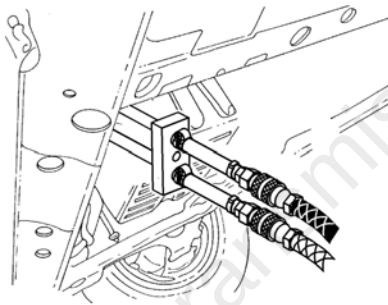


2. Connect the black supply hose (1) to the return line, bottom connector of the transmission, and the clear waste hose (2) to the feed line, top connector of the transmission, to the vehicle cooler lines. This is the reverse flow – backflush direction.

- Turn the main function switch to the FLUSH position. Allow the machine to operate for 30 seconds.

4. Turn the main function switch to the IDLE position and allow the supply vessel pressure to dissipate.

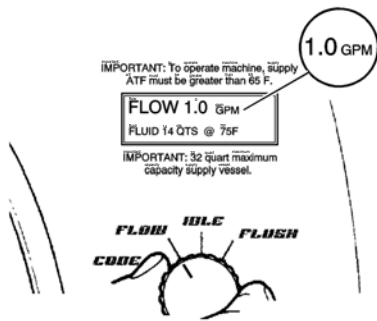
Forward Flush



1. Disconnect the supply and waste hoses from the vehicle cooler lines. Reverse the supply and waste hoses to provide a normal flow direction.

2. Turn the main function switch to the FLUSH position and allow machine to operate for 30 seconds.

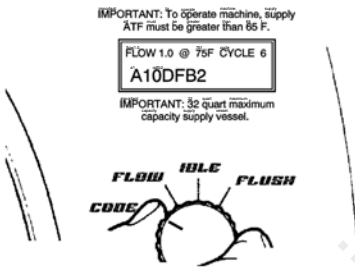
Flow Test



Note: If the flow rate is less than 0.5 gpm, the LCD displays an error message. Refer to the Troubleshooting section of the operation manual.

1. Turn the main function switch to the FLOW position and allow the oil to flow for 15 seconds. Observe and note the flow rate; this is the TESTED flow rate.
 2. Compare the TESTED flow rate to the MINIMUM flow rate information previously recorded.
- If the TESTED flow rate is equal to or greater than the MINIMUM flow rate recorded, the oil cooling system is functioning properly. Perform Code Recording Procedure.
 - If the TESTED flow rate is less than the MINIMUM flow rate previously recorded, repeat the back flush and forward flush procedures.
 - If the TESTED flow rate is less than the MINIMUM flow rate after the second test, perform Code Recording Procedure.
1. Replace the transmission oil cooler.
 2. Reconnect supply and waste hoses to the cooler lines in the normal flow direction. Perform Flow Test.
 3. Perform Code Recording Procedure.

[Code Recording Procedure](#)

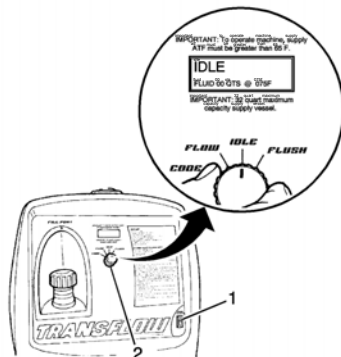


1. Turn the main function switch to the CODE position.

Note:

- If power is interrupted prior to the recording of the seven-character code, the code will be lost and the flow rate test will need to be repeated.
 - The flow test must run for a minimum of 8–10 seconds and be above 0.5 GPM for a code to be generated.
2. Record TESTED flow rate, temperature, cycle and seven-character flow code information on repair order.

[Clean-up](#)

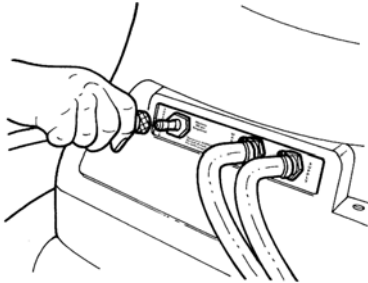


1. Turn the main function switch (2) to the IDLE position and allow the supply vessel pressure to dissipate.
2. Turn the main power switch (1) to the OFF position.

Note: A small amount of water may drain from the bottom of the unit when the air supply is disconnected. This is a normal operation of the built-in water

separator.

3. Disconnect the supply and waste hoses and the 12-volt power source from the vehicle.



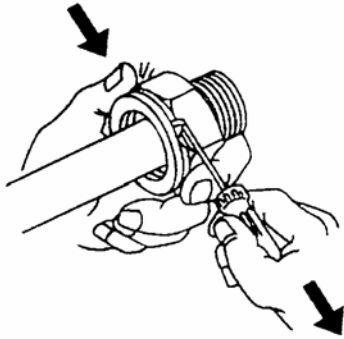
4. Disconnect the air supply hose from *J 45096* flush and flow test tool .
5. Dispose of the waste ATF in accordance with all applicable federal, state, and local requirements.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

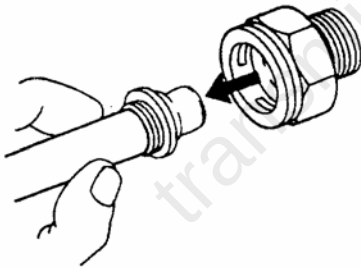
Fuel Delivery: | Fuel:

[Removal Procedure](#)



Note: Perform the following procedure when removing the retaining rings and cooler lines from the quick connect fittings located on the radiator and/or the transmission.

1. Pull the plastic cap back from the quick connect fitting and down along the cooler line about 5 cm (2 in).
2. Using a bent-tip screwdriver, pull on one of the open ends of the retaining ring in order to rotate the retaining ring around the quick connect fitting until the retaining ring is out of position and can be completely removed.
3. Remove the retaining ring from the quick connect fitting.
4. Discard the retaining ring.

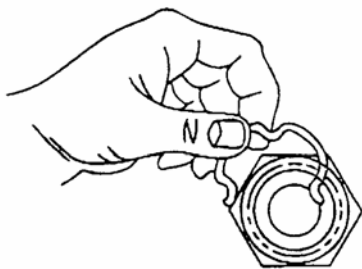


5. Pull the cooler line straight out from the quick connect fitting.

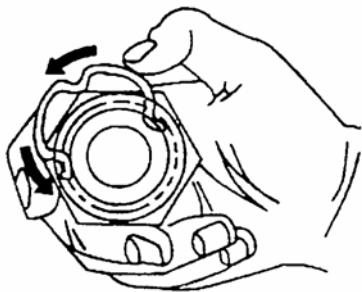
[Installation Procedure](#)

Note:

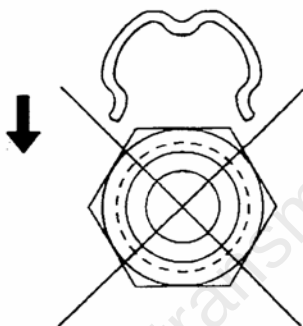
- Do not reuse any of the existing oil lines or oil line fittings if there is excessive corrosion.
 - Do not reuse any of the existing retaining rings that were removed from the existing quick connect fittings. Install new retaining rings.
 - Ensure the following procedures are performed when installing the new retaining rings onto the fittings.
1. Install a new retaining ring into the quick connect fitting using the following procedure:



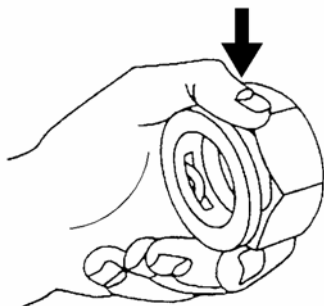
1. Hook one of the open ends of the retaining ring in one of the slots in the quick connect fitting.



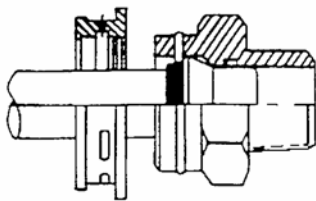
2. Rotate the retaining ring around the fitting until the retaining ring is positioned with all three ears through the three slots on the fitting.



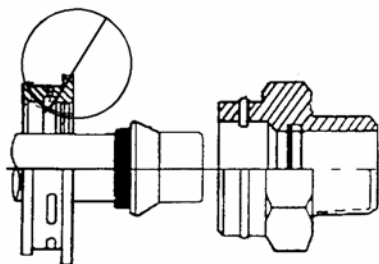
3. Do not install the new retaining ring onto the fitting by pushing the retaining ring.



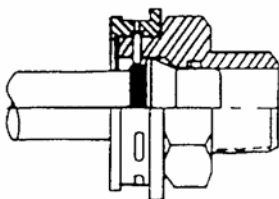
4. Ensure that the three retaining ring ears are seen from inside the fitting and that the retaining ring moves freely in the fitting slots.



2. Install the cooler line into the quick connect fitting.
3. Insert the cooler line end into the quick connect fitting until a click is either heard or felt.

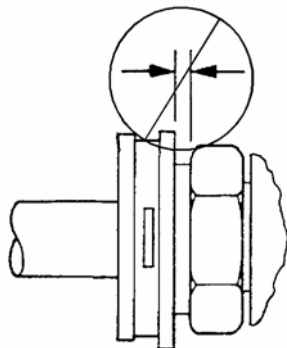


4. Do not use the plastic cap on the cooler line in order to install the cooler line into the fitting.
5. Pull back sharply on the cooler line in order to ensure that the cooler line is fastened into the quick connect fitting.

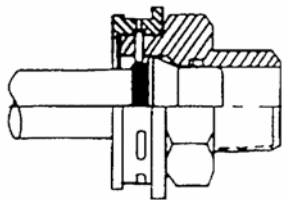


Note: Do not manually depress the retaining clip when installing the plastic cap.

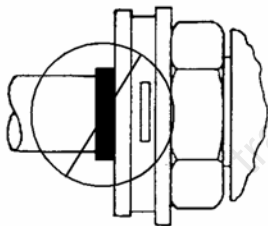
6. Position (snap) the plastic cap onto the fitting. Do not manually depress the retaining ring when installing the plastic cap onto the quick connect fitting.
7. Ensure that the plastic cap is fully seated against the fitting.



8. Ensure that no gap is present between the cap and the fitting.



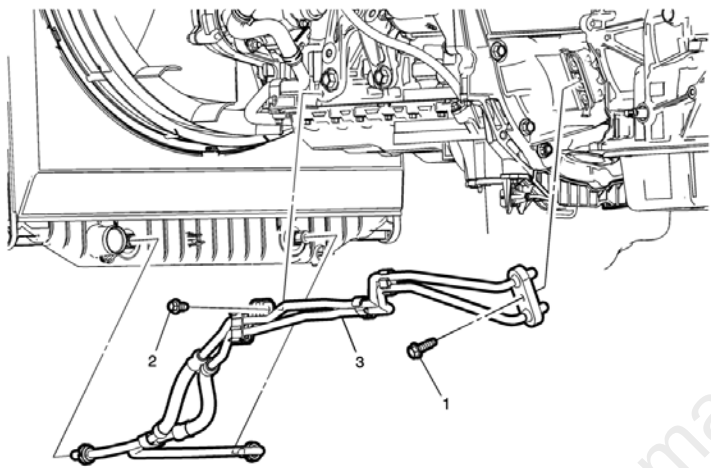
9. Ensure that the yellow identification band on the tube is hidden within the quick connect fitting.



10. A hidden yellow identification band indicates proper joint seating.
11. Fill the transmission to the proper level with DEXRON® VI transmission fluid.

2013 Chevrolet Colorado

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



Transmission Fluid Cooler Inlet and Outlet Pipe Replacement

Callout

Component Name

Preliminary Procedures

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the engine protection shield . Refer to Engine Protection Shield Replacement.
3. Place a drain pan under the transmission fluid cooler inlet and outlet pipes.

Transmission Fluid Cooler Inlet and Outlet Pipe Fastener

Caution: Refer to Fastener Caution.

- 1 **Note:** Remove and DISCARD the old sealing washer and replace with a NEW sealing washer.

Tighten

22 Y (16 lb ft)

- 2 Transmission Fluid Cooler Inlet and Outlet Pipe Bracket Fastener

Transmission Fluid Cooler Inlet and Outlet Pipe Assembly

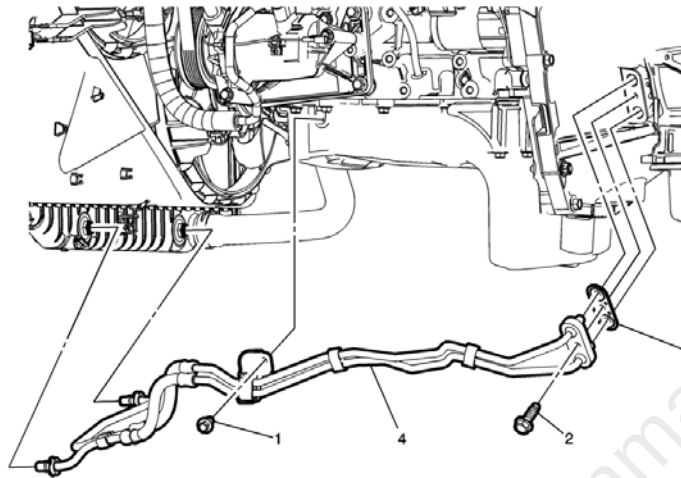
Procedures

- 3
 1. Disconnect the transmission fluid cooler inlet and outlet pipes from the quick-connect fittings at the radiator. Refer to Transmission Fluid Cooler Hose/Pipe Quick-Connect Fitting Disconnection and Connection.
 2. Discard seals and replace with new seals.
 3. Check the transmission fluid level and fill the transmission to the proper level. Refer to Fluid Capacity Specifications.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Transmission Fluid Cooler Inlet and Outlet Pipe Replacement

Callout

Component Name

Preliminary Procedures

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the engine protection shield . Refer to Engine Protection Shield Replacement.
3. Place a drain pan under the transmission fluid cooler inlet and outlet pipes.

- 1 Transmission Fluid Cooler Inlet and Outlet Pipe Bracket Fastener

Transmission Fluid Cooler Inlet and Outlet Pipe Fastener

Caution: Refer to Fastener Caution.

- 2 **Note:** Remove and DISCARD the old sealing washer and replace with a NEW sealing washer.

Tighten

22 Y (16 lb ft)

- 3 Transmission Fluid Cooler Inlet and Outlet Pipe Seal

Transmission Fluid Cooler Inlet and Outlet Pipe Assembly

Procedures

- 4
1. Disconnect the transmission fluid cooler inlet and outlet pipes from the quick-connect fittings at the radiator. Refer to Transmission Fluid Cooler Hose/Pipe Quick-Connect Fitting Disconnection and Connection.
 2. Discard seals and replace with new seals.
 3. Check the transmission fluid level and fill the transmission to the proper level. Refer to Fluid Capacity Specifications.

2013 Chevrolet Colorado

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

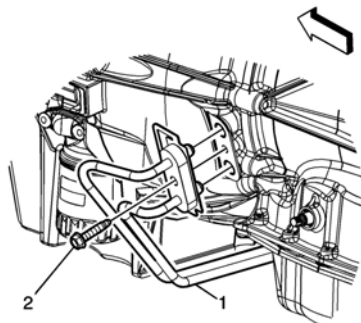
Special Tools

- DT-45201 Cooler Line Seal Remover
- DT-47770 Seal Installer

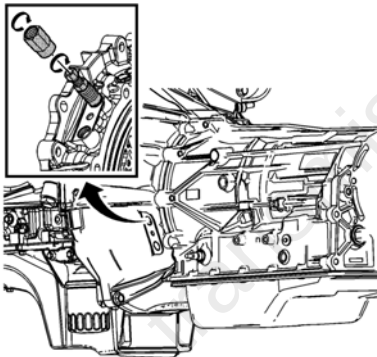
For equivalent regional tools, refer to Special Tools.

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the left catalytic converter. Refer to Catalytic Converter Replacement.

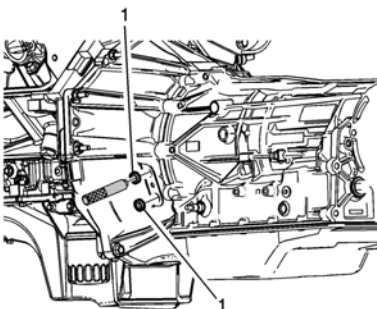


3. Remove the transmission fluid cooler inlet and outlet pipe bolt (2) from the transmission.
4. Remove the transmission fluid cooler pipes from the transmission.

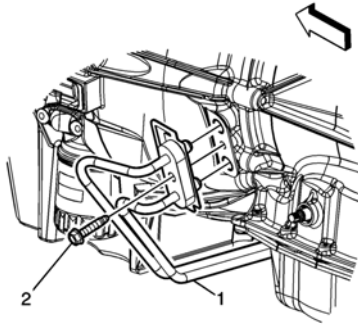


5. Using DT-45201 remover, remove the transmission fluid cooler pipe seals from the transmission.

Installation Procedure



1. Using DT-47770 installer, install the transmission fluid cooler pipe seals (1) in the transmission.



2. Install transmission fluid cooler pipes (1) the to the transmission.

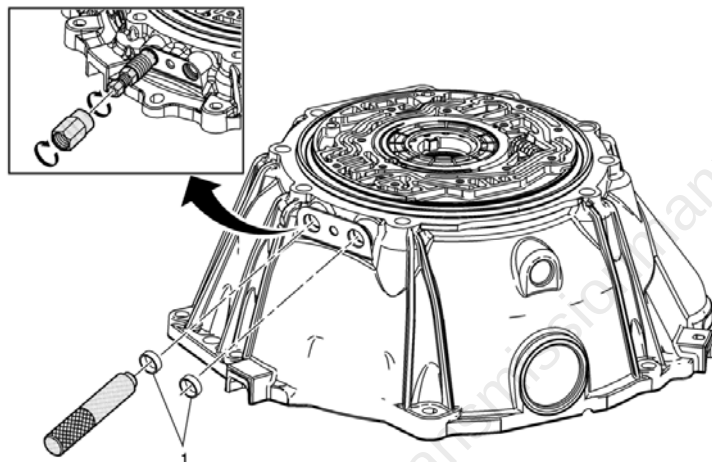
Caution: Refer to Fastener Caution.

3. Install the transmission fluid cooler inlet and outlet pipe pipe bolt (2) to the transmission and tighten to **22 Y (16 lb ft)**.
4. Install the left catalytic converter. Refer to Catalytic Converter Replacement.
5. Lower the vehicle.
6. Check the transmission fluid level.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:



Transmission Fluid Cooler Pipe Seal Replacement

Callout

Component Name

Trans Fluid Cooler Pipe Fitting Seals (Qty: 2)

Special Tools

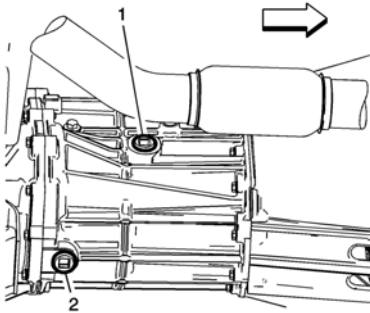
1

- DT 47770 Seal Installer
- DT 45201 Cooler Line Seal Remover

For equivalent regional tools, refer to Special Tools.

[Draining Procedure](#)

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Clean away all dirt and debris from the transmission fluid drain plug area.
3. Position an appropriate container under the transmission.



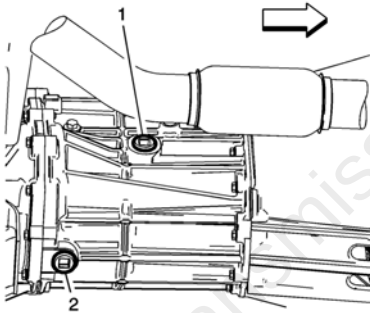
4. Remove the transmission fluid drain plug (2).
Allow the transmission fluid to drain into the container.

Caution: Refer to Component Fastener Tightening Caution.

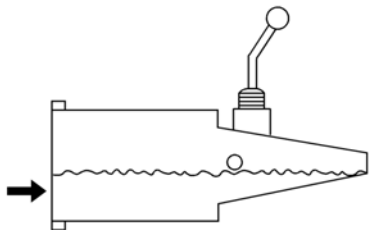
5. Install the transmission fluid drain plug and tighten to **44 Y (32 lb ft)**.
6. Remove the container used to catch the used transmission fluid from under the vehicle.

[Filling Procedure](#)

1. Clean away all dirt and debris from the transmission fluid fill plug area.



2. Remove the transmission fluid fill plug (1).



3. Fill the transmission to just below the bottom of the fill plug hole with the recommended fluid. Refer to Adhesives, Fluids, Lubricants, and Sealers.
4. Install the transmission fluid fill plug and tighten to **44 Y (32 lb ft)**.
5. Lower the vehicle.