

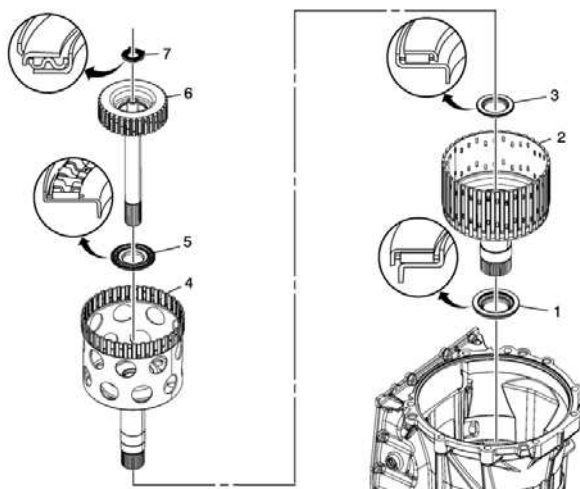
2013 Chevrolet Colorado

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

Table 1: [2-6 and 3-5 Reverse Clutch Hub, 1-2-3-4 Clutch Hub and 4-5-6 Clutch Hub Installation](#)

Table 2: [4-5-6 Clutch Assembly, Input Carrier and Input Sun Gear and 1-2-3-4 and 3-5 Reverse Clutch Installation](#)

[2-6 and 3-5 Reverse Clutch Hub, 1-2-3-4 Clutch Hub and 4-5-6 Clutch Hub Installation](#)

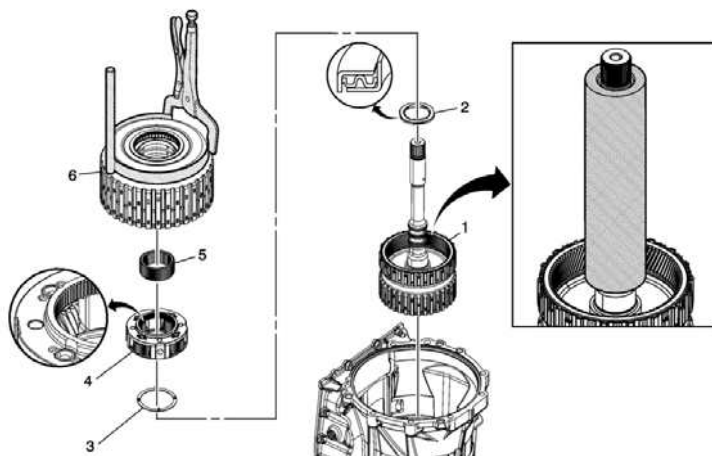


2-6 and 3-5 Reverse Clutch Hub, 1-2-3-4 Clutch Hub and 4-5-6 Clutch Hub Installation

Callout	Component Name
1	2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly
2	2-6 and 3-5 Reverse Clutch (with Output Carrier Outer Sun Gear Shaft) Hub Assembly
3	1-2-3-4 Clutch Hub Thrust Bearing Assembly
4	1-2-3-4 Clutch (with Output Carrier Inner Sun Gear Shaft) Hub Assembly
5	4-5-6 Clutch Hub Thrust Bearing Assembly
6	4-5-6 Clutch (with Output Carrier Shaft) Hub Assembly
7	Turbine Shaft Thrust Bearing Assembly

Note: Refer to 4-5-6 Clutch Dampener Overhaul for complete inspection – (6L50 Only).

[4-5-6 Clutch Assembly, Input Carrier and Input Sun Gear and 1-2-3-4 and 3-5 Reverse Clutch Installation](#)



4-5-6 Clutch Assembly, Input Carrier and Input Sun Gear and 1-2-3-4 and 3-5 Reverse Clutch Installation

Callout

Component Name

4–5–6 (with Turbine Shaft) Clutch Assembly

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

1

Apply *DT 36850* Transjel Lubricant to inner bore of *DT 48066-1A* Seal Sizer and install the sizer over the turbine shaft fluid seals. Size the seals for 5 minutes before installing the Torque Converter (with Fluid Pump) Housing Assembly.

Special Tools

- *DT 36850* Transjel Lubricant
- *DT 48066-1A* Seal Sizer

For equivalent regional tools, refer to Special Tools.

2

Input Sun Gear Thrust Bearing

Note: Thrust bearing snaps onto input carrier assembly.

3

Input Sun Gear Thrust Washer

4

Input Carrier Assembly

Note: The spline on the input carrier installs up into the 1–2–3–4 and 3–5 reverse clutch housing.

5

Input Sun Gear

1–2–3–4 and 3–5 Reverse Clutch Assembly

6

Note: Wiggle the *DT 47781* clutch assembly installer in order to align the 1–2–3–4 and 3–5 reverse clutch plates with the external splines of the 4–5–6 clutch assembly. To verify that the 1–2–3–4 and 3–5 reverse clutch assembly is fully installed, lift up on the turbine shaft. There should not be any noticeable slack.

Special Tool

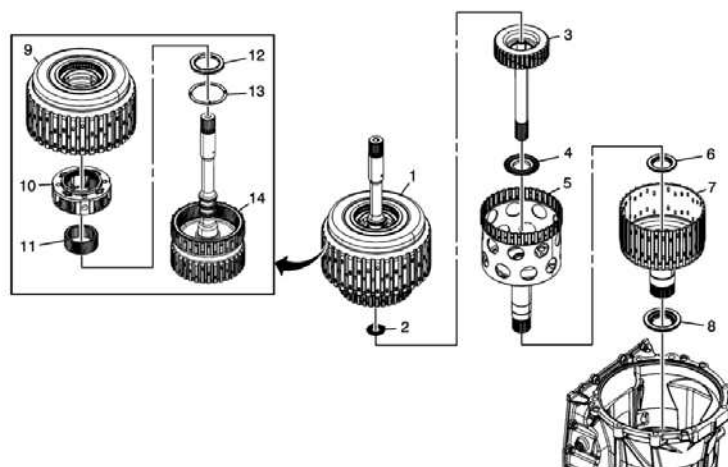
DT 47781 C1234 35R Clutch Assembly Installer

For equivalent regional tools, refer to Special Tools.

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1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly Removal

Callout

Component Name

- | | |
|----|--|
| 1 | 1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 (With Turbine Shaft) Clutch Assembly |
| 2 | Turbine Shaft Thrust Bearing Assembly |
| 3 | 4-5-6 Clutch (With Output Carrier Shaft and Dampener) Hub Assembly |
| 4 | 4-5-6 Clutch Hub Thrust Bearing Assembly |
| 5 | 1-2-3-4 Clutch (With Output Carrier Inner Sun Gear Shaft) Hub Assembly |
| 6 | 1-2-3-4 Clutch Hub Thrust Bearing Assembly |
| 7 | 2-6 and 3-5 Reverse Clutch (With Output Carrier Outer Sun Gear Shaft) Hub Assembly |
| 8 | 2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly |
| 9 | 1-2-3-4 and 3-5 Reverse Clutch Assembly |
| 10 | Input Carrier Assembly |
| 11 | Input Sun Gear |
| 12 | Input Sun Gear Thrust Bearing |
| 13 | Input Sun Gear Thrust Washer |
| 14 | 4-5-6 (With Turbine Shaft) Clutch Assembly |

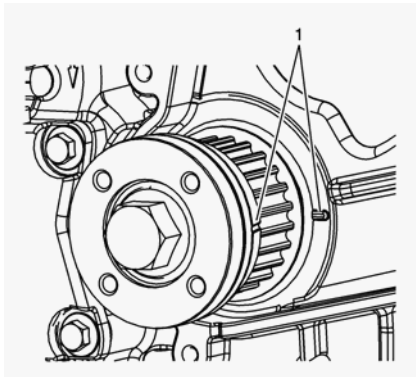
2013 Chevrolet Colorado

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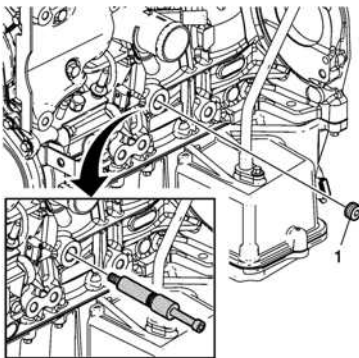
Special Tools

EN-50030 Crankshaft Locking Tool

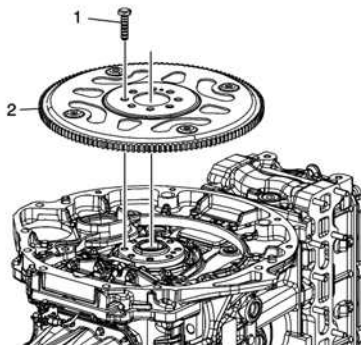
For equivalent regional tools, refer to Special Tools



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).



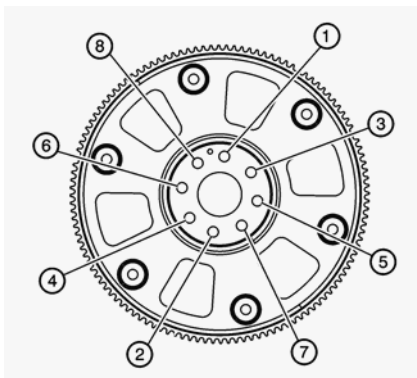
2. Remove the plug (1) and install the EN-50030 locking tool.



3. Install the flexplate (2).

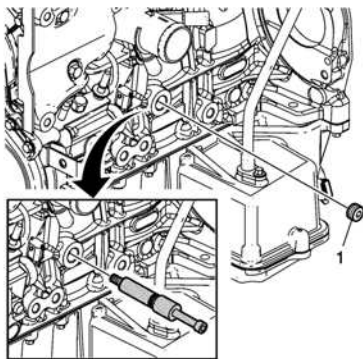
Caution: This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

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)**.

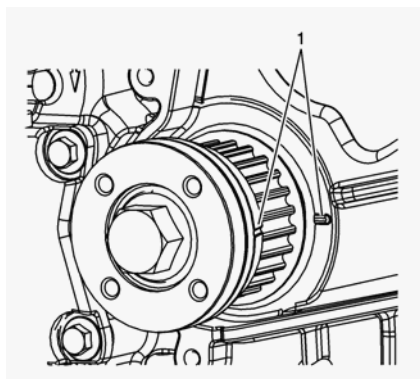
2013 Chevrolet Colorado

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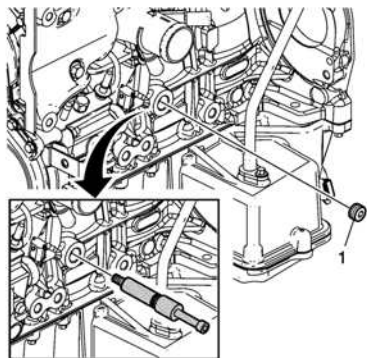
Special Tools

EN-50030 Crankshaft Locking Tool

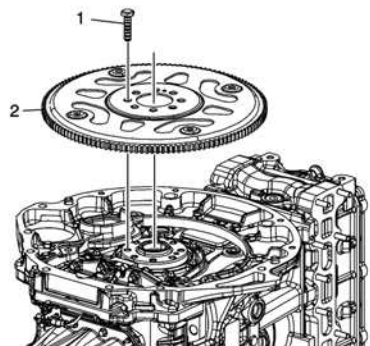
For equivalent regional tools, refer to Special Tools



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).



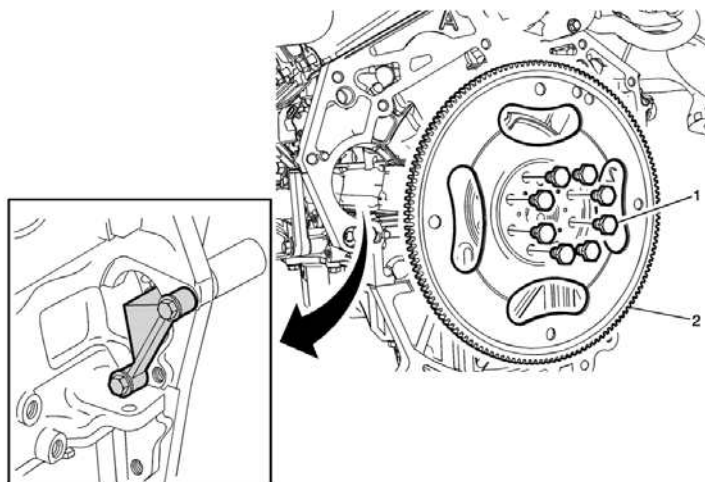
2. Remove the plug (1) and install the EN-50030 locking tool .



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

2013 Chevrolet Colorado

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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

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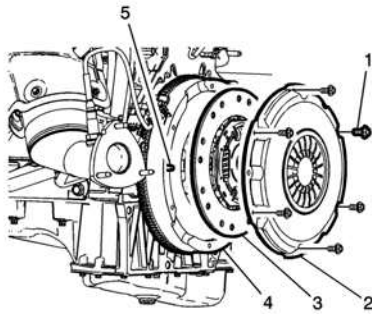
Special Tools

J-5824-A Clutch Alignment Tool

For equivalent regional tools, refer to Special Tools.

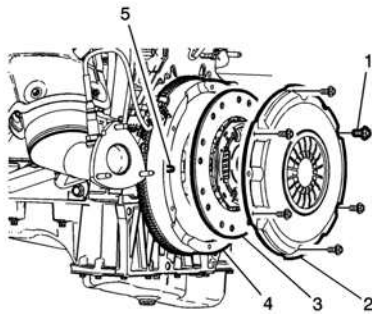
Removal Procedure

1. Remove the transmission. Refer to Transmission Replacement.

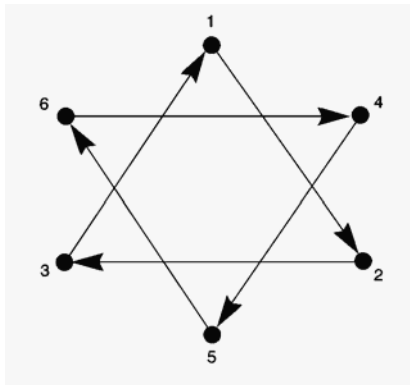


2. Remove the clutch pressure plate bolts (1).
Discard the bolts.
3. Remove the clutch pressure plate (2) and driven disc (3) from the dowel pins (4) on the flywheel (5).

Installation Procedure



1. Install the clutch pressure plate (2) and driven plate (3) to the dowel pins (4) on the flywheel (5).
2. Install the clutch pressure plate bolts (1) finger tight.
3. Using J-5824-A tool, align the clutch driven plate (3) to the clutch pilot bearing.



Caution: Refer to Fastener Caution.

Clutch Assembly Replacement (2.4L Gasoline/Flex)

4. Tighten the NEW clutch pressure plate bolts in the sequence shown to **40 Y (30 lb ft)**.
5. Install the transmission. Refer to Transmission Replacement.

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
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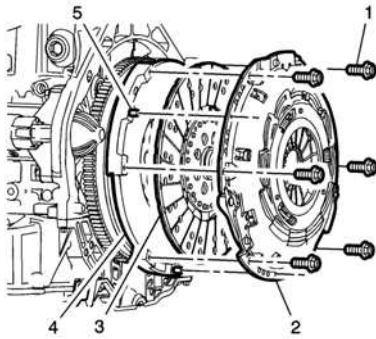
Special Tools

J-05824-A Clutch Alignment Arbor

For equivalent regional tools, refer to Special Tools.

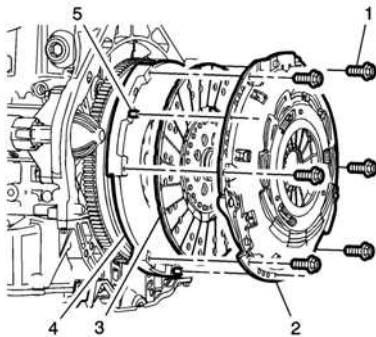
Removal Procedure

1. Remove the transmission. Refer to Transmission Replacement.

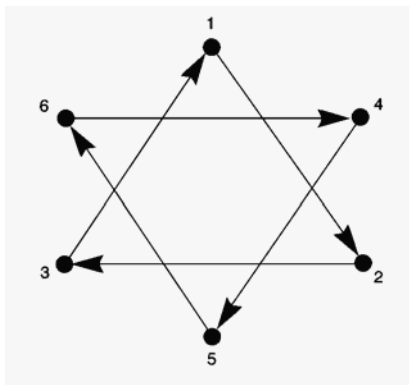


2. Remove the clutch pressure plate bolts (1).
Discard the bolts.
3. Remove the clutch pressure plate (2) and driven disc (3) from the dowel pins (4) on the flywheel (5).

Installation Procedure



1. Install the clutch pressure plate (2) and driven plate (3) to the dowel pins (4) on the flywheel (5).
2. Install the clutch pressure plate bolts (1) finger tight.
3. Using J-05824-A Clutch Alignment Arbor, align the clutch driven plate (3) to the clutch pilot bearing.



Clutch Assembly Replacement (2.5L and 2.8L Diesel)

Caution: Refer to Fastener Caution.

4. Tighten the NEW clutch pressure plate bolts in the sequence shown to **40 Y (30 lb ft)**.
5. Install the transmission. Refer to Transmission Replacement.

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Submodel: | Engine Type: | Liters:
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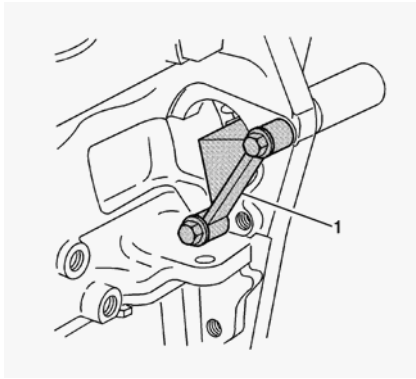
Special Tools

- EN 46106 Flywheel Holding Tool
- J 33169 Clutch Alignment Arbor

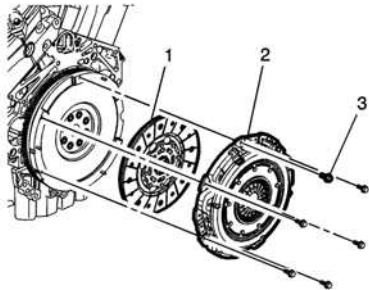
For equivalent regional tools, refer to Special Tools.

[Removal Procedure](#)

1. Remove the transmission assembly from the vehicle. Refer to Transmission Replacement.
2. Remove the starter assembly from the vehicle. Refer to Starter Replacement.

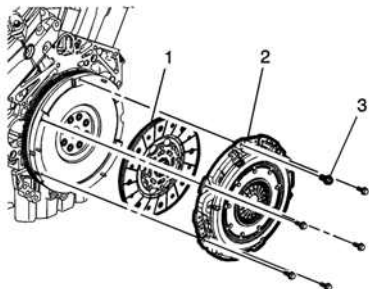


3. Install the EN 46106 tool (1) through the starter mounting hole.



4. Remove the clutch pressure plate bolts (3).
5. Remove the clutch pressure plate and the clutch driven plate disc.

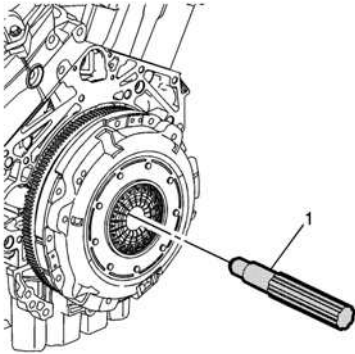
[Installation Procedure](#)



1. Install the clutch driven plate disc (1) and the clutch pressure plate (2) to the engine flywheel. Ensure to align the clutch pressure plate to the pins in the engine flywheel.

Clutch Assembly Replacement (3.6L Gasoline)

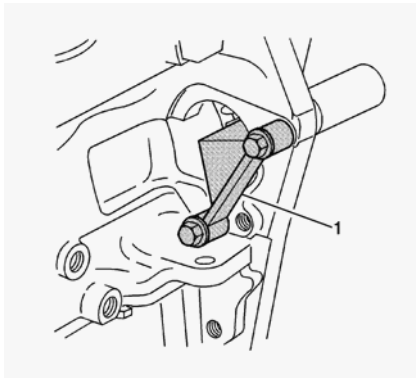
2. Loosely install the clutch pressure plate bolts.



3. Install the J 33169 arbor (1) through the clutch driven plate disc and into the end of the crankshaft in order to align the clutch driven plate disc.

Caution: Refer to Fastener Caution.

4. Tighten the clutch pressure plate bolts to **30 Y (22 lb ft)**.
5. Remove the J 33169 arbor (1).

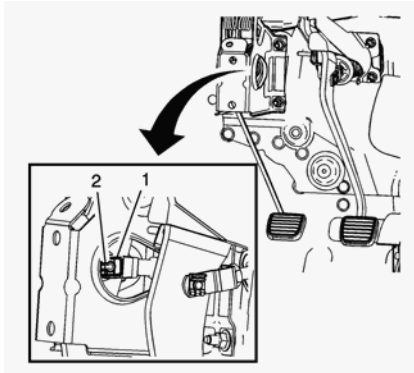


6. Remove the EN 46106 tool (1).
7. Install the starter assembly. Refer to Starter Replacement.
8. Install the transmission assembly. Refer to Transmission Replacement.

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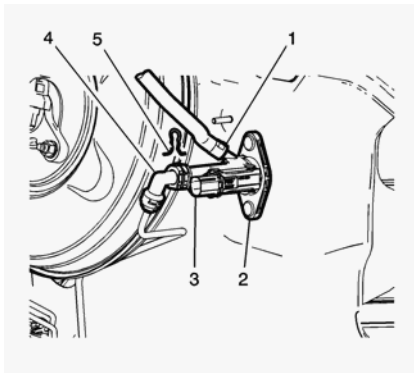
Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

[Removal Procedure](#)



Note: A new retainer (1) is required after removal.

1. Remove the retainer (1) from the clutch pedal pin.
2. Remove the push rod to clutch pedal pin (2).

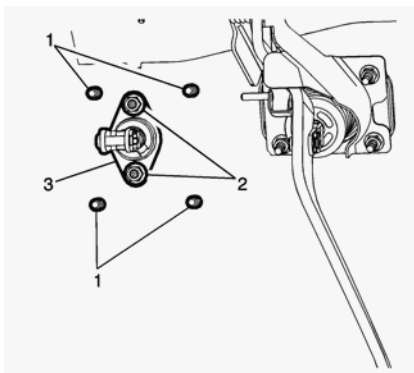


Note: Plug the fluid reservoir hose to prevent loss of fluid.

3. Disconnect the fluid reservoir hose (1) from the clutch master cylinder (2).
4. Disconnect the electrical connector (3) from the clutch master cylinder.
5. Remove the clutch actuator hose clip (5).

Note: Clutch pedal removal not required when removing clutch master cylinder. Clutch pedal not shown.

6. Disconnect the clutch actuator hose (4) from the clutch master cylinder.



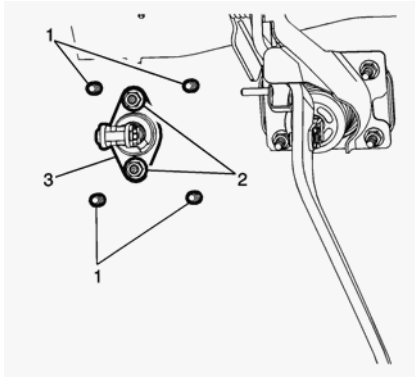
7. Remove the clutch master cylinder retaining nuts (2).
8. Remove the clutch master cylinder (3) from the vehicle.

[Installation Procedure](#)

Note: Clutch pedal removal not required when removing clutch master cylinder.

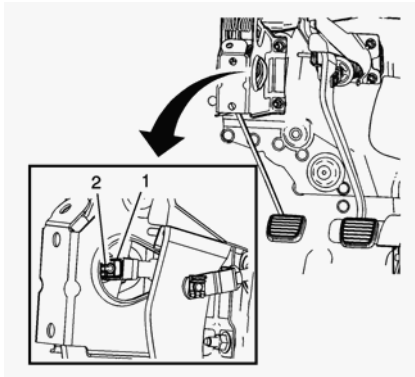
Clutch Master Cylinder Replacement

1. Install the clutch master cylinder in the vehicle.

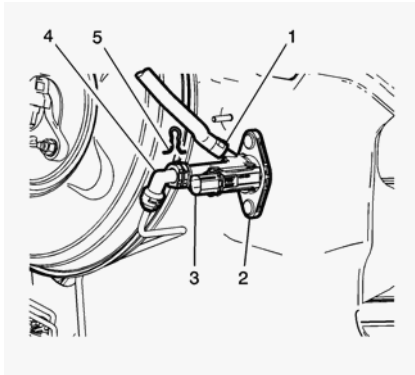


Caution: Refer to Fastener Caution.

2. Install the clutch master cylinder nuts (1) and tighten to **23 Y (17 lb ft)**.



3. Install the push rod to clutch pedal with pin (2).
4. Insert a new retainer (1) on the clutch pedal pin (2).

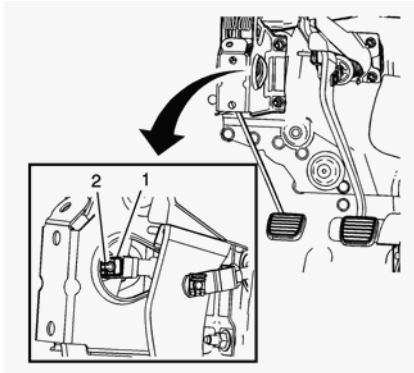


5. Install the clutch fluid reservoir hose (1) to the clutch master cylinder.
6. Connect the clutch actuator pipe (4) to the clutch master cylinder.
7. Install the clutch actuator pipe clip (5) to the clutch master cylinder.
8. Connect the electrical connector (3) to the clutch master cylinder.
9. Check for proper clutch pedal movement and operation.
10. Bleed the clutch hydraulic system. Refer to Hydraulic Clutch System Bleeding.

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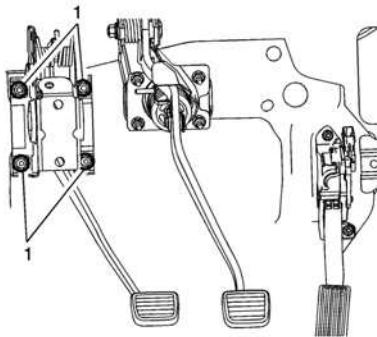
Submodel: | Engine Type: | Liters:
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[Removal Procedure](#)



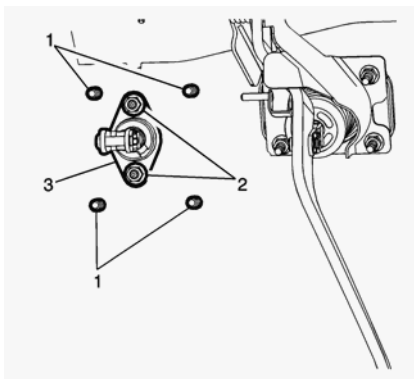
Note: A new retainer (3) is required after removal.

1. Remove the retainer (1) from the clutch pedal pin.
2. Remove the push rod to clutch pedal pin (2).



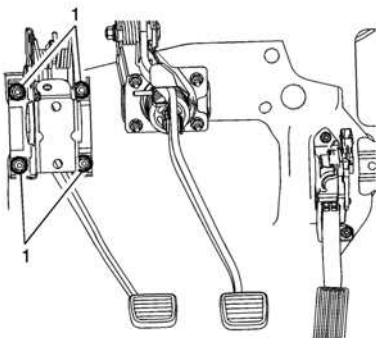
3. Remove the 4 nuts (1) securing the clutch pedal assembly to the cowl.
4. Remove the clutch pedal assembly from the vehicle.

[Installation Procedure](#)



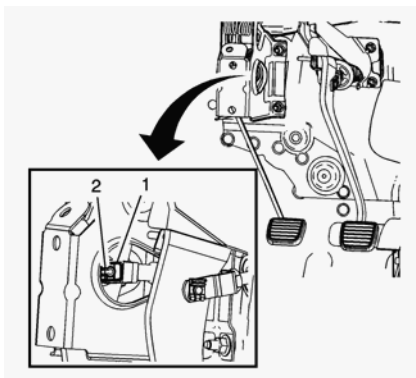
1. Position the clutch pedal assembly over the studs (1).

Clutch Pedal Replacement



Caution: Refer to Fastener Caution.

2. Install the clutch pedal assembly nuts (1) and tighten to **23 Y (17 lb ft)**.

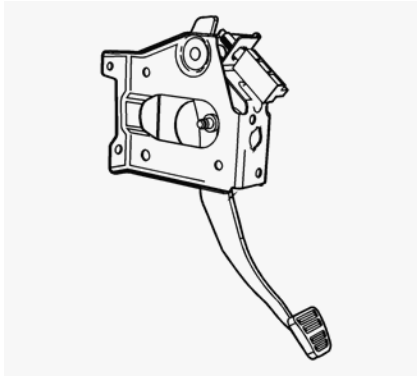


3. Install the push rod to clutch pedal pin (2).
4. Insert a new retainer (1) into the clutch master cylinder push rod.
5. Check for proper clutch pedal movement and operation.

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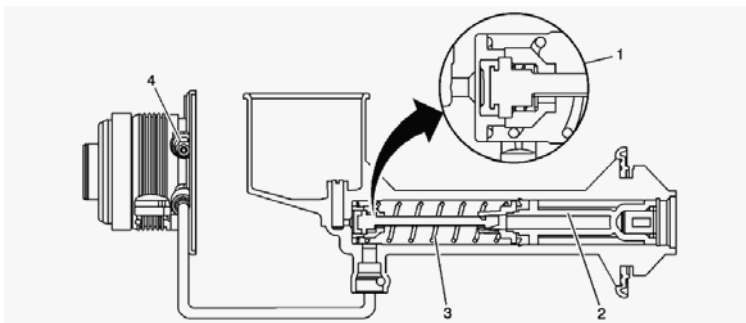
Submodel: | Engine Type: | Liters:
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[Clutch System Components](#) [Clutch Pedal](#)



The clutch pedal, mounted on the engine cowl, is designed to compress the clutch hydraulic fluid with little driver effort. The pedal swivels on bushings. The clutch master cylinder pushrod connects to a pin on the pedal. A spring, located inside of the clutch master cylinder, returns the pedal to the correct position after depressing.

[Clutch Master Cylinder](#)



The reservoir, which is part of the master cylinder, supplies the fluid at the front of the master cylinder through the center feed port (1). The center feed port allows the flow of fluid from the reservoir to the cylinder when the pedal is in the complete returned position. The master cylinder uses a spring (3) to return the piston (2) to the clutch engagement position. When the clutch pedal is depressed, the piston moves forward in the cylinder, compressing the fluid. The compressed fluid travels through a hose to the clutch actuator cylinder. A bleeder screw (4) is located at the clutch actuator cylinder for bleeding the hydraulic system.

[Clutch Actuator Cylinder and Release Bearing](#)



The clutch control actuator cylinder disengages the clutch, using the pressurized fluid from the clutch master cylinder. The clutch control actuator cylinder is fastened to the front of the transmission. The clutch release bearing is attached to the control actuator cylinder. The control actuator cylinder has a piston, which has seals that slide on the housing assembly. There is a spring between the piston and the housing to keep the piston at the extended position, allowing the release bearing to be in constant contact with the pressure plate fingers. The movement of the piston, by the pressurized fluid, pushes the release bearing against the tips of the clutch pressure plate fingers, to disengage the clutch.

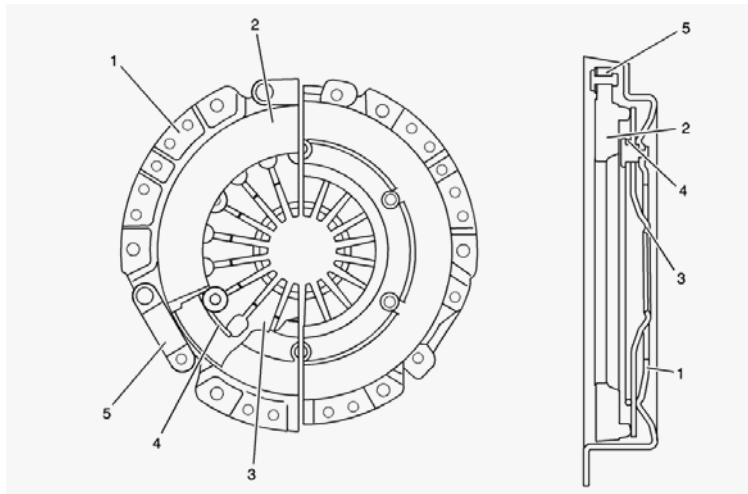
As the clutch wears, the piston, or release bearing, moves towards the transmission. The piston is at the furthest position from the transmission with a new clutch.

The clutch control actuator cylinder has a bleeder, for bleeding the air out of the hydraulic system.

Ball bearings enable the release bearing to turn, while applying pressure to the pressure plate fingers. Using an angular contact style bearing allows the release

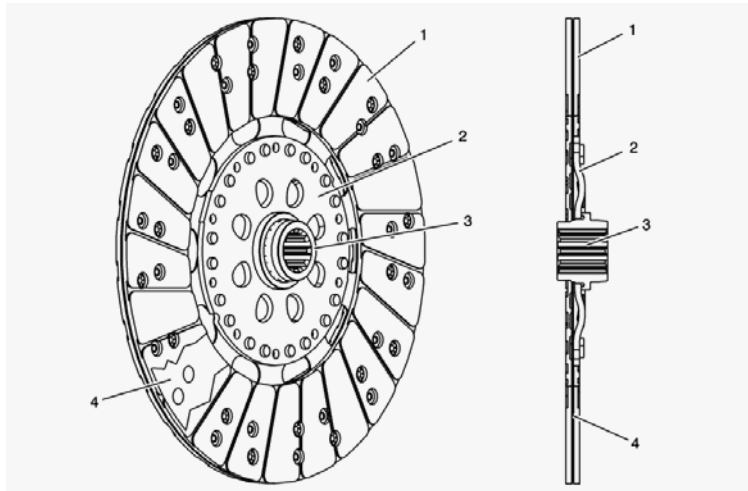
bearing to be in constant contact with the pressure plate fingers.

[Pressure Plate Assembly](#)



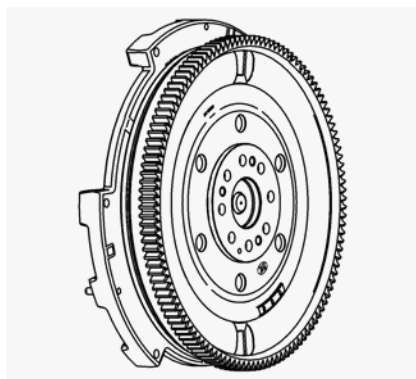
The diaphragm spring clutch consists of a pressure plate (2), a diaphragm spring (3), a pivot ring (4), drive straps (5), and a cover (1). When the release bearing contacts the tips of the diaphragm spring fingers, it moves them toward the dual mass flywheel. The outside diameter of the diaphragm spring pivots on a pivot ring inside the cover. This action lifts the pressure plate off the dual mass flywheel through the drive straps, which connect the cover to the pressure plate. As the clutch wears, there is an increase in pedal effort.

[Clutch Disc](#)



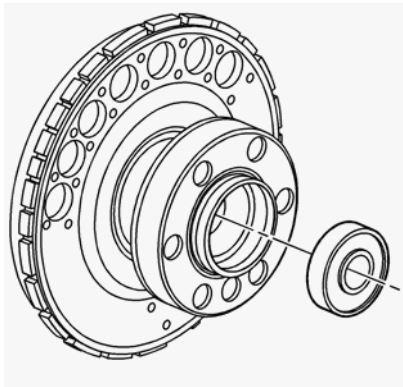
The clutch disc, or driven member, is a critical component in the service life of the clutch system. The disc provides smooth engagement and dampens engine vibrations. Mounted to the transmission input shaft, between the dual mass flywheel and the clutch pressure plate, the disc slides on the input shaft forward and backward. The disc is splined to the input shaft and cannot rotate without rotating the input shaft. The critical component of the clutch disc is the hub flange (3). The hub flange (3) is press fit into a retainer plate (2) and splined to fit the input shaft. Friction material (1) is riveted to numerous components, called marcells, or cushion segments (4). Waves in marcells soften engagement.

[Dual Mass Flywheel](#)



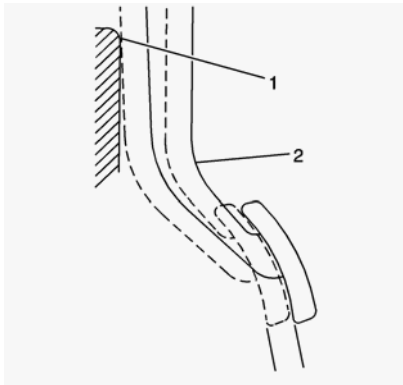
Bolted to the end of the crankshaft, the dual mass flywheel provides the mounting surface for the clutch. During engagement, the disc is clamped against the dual mass flywheel by the pressure plate. The dual mass flywheel acts as a heat sink, dissipating heat and moving it away from the clutch pressure plate and disc friction material. The dual mass flywheel must provide a smooth, flat surface in order for the clutch to operate properly.

[Pilot Bearing/Bushing](#)



A pilot bearing, or bushing, is located in the end of the crankshaft. The pilot bearing supports the end of the input shaft and centers the disc on the dual mass flywheel. The pilot bearing is a sintered bronze bushing. A small, and relatively inexpensive component, the pilot bearing or bushing should always be replaced during clutch installation. The variety of conditions caused by a worn or defective bearing or bushing is not worth the risk of having to remove the bell housing and transmission to replace this small part.

[Clutch Pedal Reserve](#)



In order for the clutch to be completely disengaged and allow proper shifting of the transmission, clutch pedal reserve is required. Clutch pedal reserve is the movement of the pedal from the down stop, or the floor (1), to where the clutch begins transmitting torque (2); it should be a minimum of 25 mm (1 in). Inspect for clutch pedal reserve by depressing the clutch pedal. Allow the clutch disc to quit spinning, and let up on the clutch pedal while listening for the clutch disc to start spinning. The distance the pedal moved from the floor, before the clutch disc started to spin, is the pedal reserve.

In order to determine if the clutch is properly releasing and the hydraulic system is functioning properly:

1. Depress the clutch pedal fully to disengage the clutch.
2. Shift into a low gear, either 1st or REVERSE.
3. Slowly shift out of the gear, only to disengage the synchronizer sleeve from the speed gear engagement teeth.
4. Let up on the pedal, to engage the clutch.
5. Depress the clutch pedal and shift back into gear.

If the clutch pedal is releasing properly, you should be able to engage the gear without grinding after 4–5 seconds, which is the time for the clutch disc to quit spinning.

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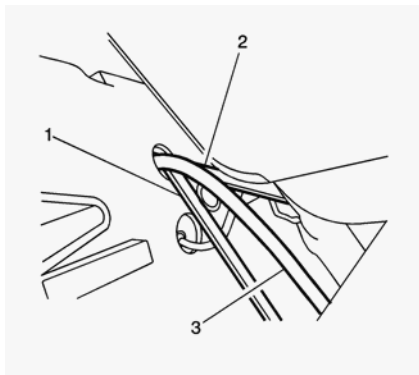
Submodel: | Engine Type: | Liters:

Fuel Delivery: | Fuel:

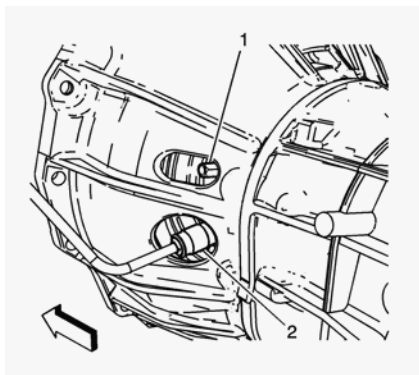
Caution: DO NOT use fluid which has been bled from a hydraulic clutch system, in order to fill the clutch master cylinder reservoir, due to the possibility that the fluid may be aerated, have too much moisture content, or be contaminated and may cause system or vehicle damage.

Perform the hydraulic clutch bleeding procedure with the aid of an assistant.

1. Ensure the reservoir is filled to the fill line with new hydraulic fluid. Add fluid if required from a clean sealed container. Refer to Sealers and Lubricants for the correct hydraulic fluid type.
2. Stroke the clutch pedal from the up stop to the down stop position at least 15 times.



3. Use a box wrench (1) to hold the housing of the bleed valve, and another wrench (2) to loosen the bleeder. Connect an appropriate hose (3) with a receiver for containing the fluid.



4. With the pedal in the down stop position. Open the bleeder valve (1) to release the trapped air.
5. Close the bleeder valve (1) and slowly return the clutch pedal to the up stop position.
6. Open the bleeder valve (1) and slowly depress the clutch pedal from the up stop to the down stop position until fluid escapes through the bleeder.
7. Close the bleeder valve (1).
8. Return the clutch pedal to the up stop position.
9. Depress the clutch pedal from the up stop to the down stop position.
10. Open the bleeder valve (1) in order to purge the air from the system.
11. Close the bleeder valve (1).

Note: Always make sure that the clutch fluid reservoir remains filled with new clean hydraulic fluid.

12. Repeat steps 7–10 until all the air is out of the clutch system.

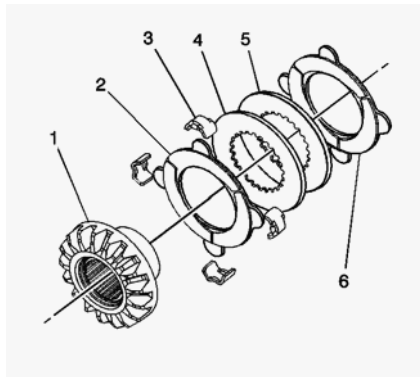
Caution: Refer to Component Fastener Tightening Caution.

13. Tighten the bleed valve to **8 Y (71 lb in)**.

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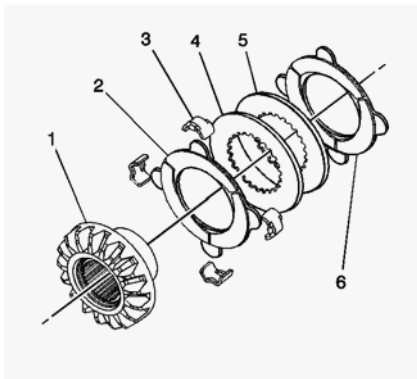
1. Install the clutch discs and the splined discs (2), (4) and 96) on the locking differential side gear (1).
2. Install the guide clips (3).

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[Disassemble Locking Differential Clutch Disc Assembly](#)



1. Remove the guide clips (3).
2. Remove the clutch discs and the splined discs (2, 4–6) from the locking differential side gear (1).