

[2009 Chevrolet Aveo](#) | [Aveo, Wave, G3, Barina \(VIN S/T\) Service Manual](#) | [Transmission](#) | [Clutch](#) | [Specifications](#) |

Document ID: 1310115

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Clutch Control Cable Mounting Nuts	13 N·m	115 lb in
Clutch Master Cylinder Nuts	22 N·m	16 lb ft
Clutch Pedal Shaft Nut	20 N·m	15 lb ft
Pressure Plate-to-Flywheel Bolts (Cable)	18 N·m	13 lb ft
Pressure Plate-to-Flywheel Bolts (Hydraulic)	15 N·m	11 lb ft
Release Arm Bolt and Nut	16 N·m	12 lb ft
Release Cylinder Bolts	20 N·m	15 lb ft

[2009 Chevrolet Aveo](#) | [Aveo, Wave, G3, Barina \(VIN S/T\) Service Manual](#) | [Transmission](#) | [Clutch](#) | [Specifications](#) |

Document ID: 1313438

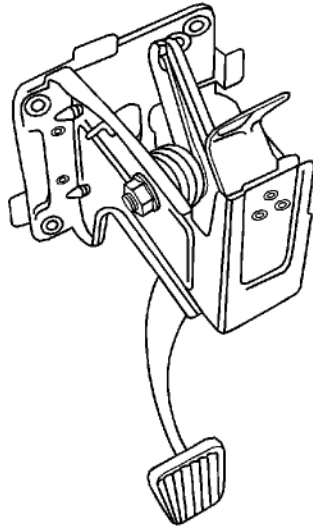
General Specifications

Application	Specification	
	Metric	English
Fluid (Hydraulic Clutch)	Common Use, Brake Fluid	
Inside Diameter (1.4L/1.5L SOHC/1.4L/1.6L DOHC Hydraulic Clutch)	145 mm	5.7 in
Inside Diameter (1.2L Cable Clutch)	127 mm	5.0 in
Outside Diameter	215 mm	8.5 in
Outside Diameter (1.2L Cable Clutch)	184 mm	7.2 in
Thickness	8.4 mm	0.331 in
Type	Single Dry Plate	

Clutch Pedal Replacement (Cable)

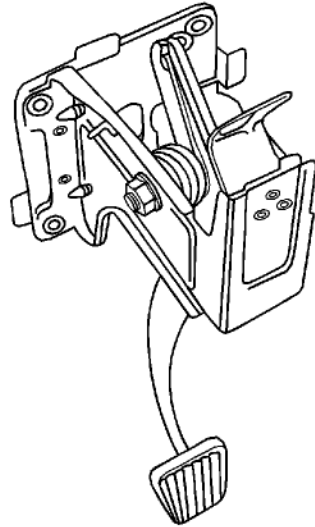
Removal Procedure

Warning: Refer to [Battery Disconnect Warning](#) in the Preface section.



1. Disconnect the clutch cable. Refer to [Clutch Cable Replacement](#).
2. Remove the clutch pedal bracket mounting bolts from the cowl.
3. Release the clutch pedal return spring.
4. Remove the clutch pedal shaft nut.
5. Remove the clutch pedal shaft.
6. Remove the clutch pedal from the mounting bracket.
7. Remove the clutch pedal mounting shaft bushings.
8. Remove the clutch pedal return spring.

Installation Procedure



Note: Be sure to coat the clutch pedal shaft, the bushings and the spring with grease.

1. Install the clutch pedal return spring.
2. Install the clutch pedal mounting shaft bushings.
3. Install the clutch pedal to the mounting bracket.

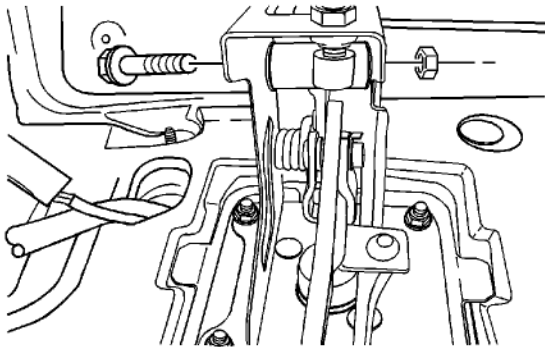
Caution: Refer to [Fastener Caution](#) in the Preface section.

4. Install the clutch pedal shaft.
5. Install the clutch pedal shaft nut and tighten to **20 N·m (15 lb ft)**.
6. Re-attach the clutch pedal return spring to the clutch pedal.
7. Install the clutch cable. Refer to [Clutch Cable Replacement](#).
8. Adjust the clutch cable. Refer to [Clutch Assembly Adjustment](#).

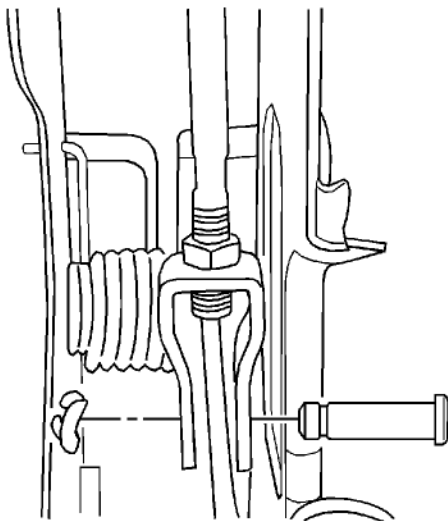
Clutch Pedal Replacement (Hydraulic)

Removal Procedure

Warning: Refer to [Battery Disconnect Warning](#) in the Preface section.



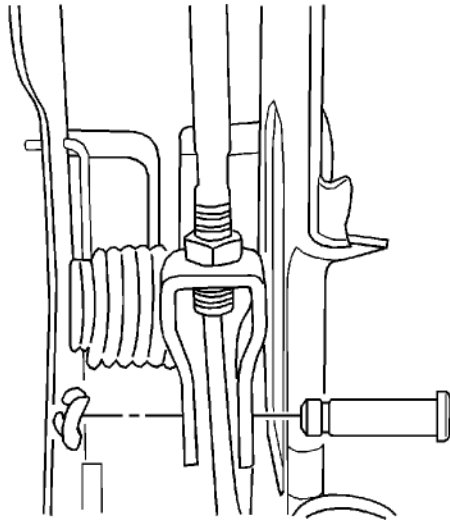
1. Disconnect the negative battery cable.
2. Disconnect the return spring from the clutch pedal.
3. Remove the nut, the washer, and the pedal mounting shaft.



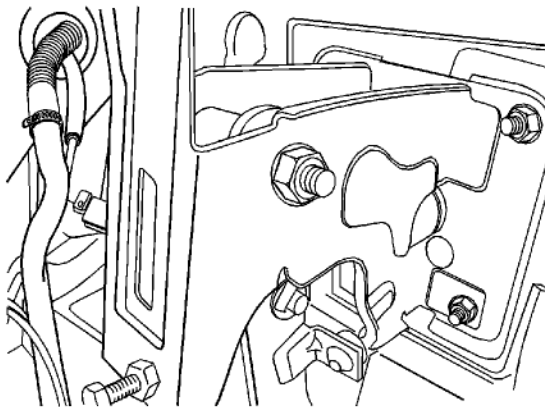
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4. Remove the locking clip and push rod fixing pin.
5. Remove the push rod from the clutch pedal.
6. Remove the clutch pedal.

Installation Procedure



1. Install the clutch pedal.
2. Coat the push rod with multi-purpose grease.
3. Install the push rod to the clutch pedal.
4. Install the locking clip and push rod fixing pin.



5. Coat the pedal mounting shaft with multi-purpose grease.

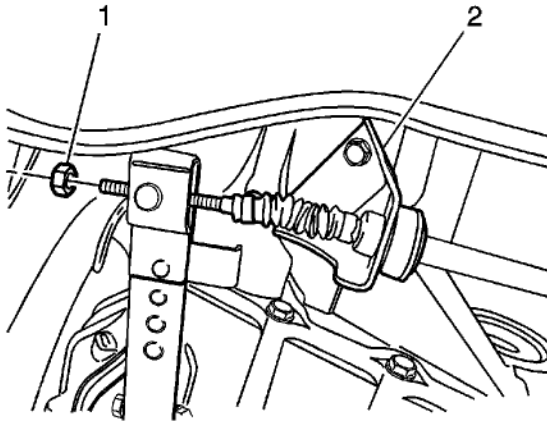
Caution: Refer to [Fastener Caution](#) in the Preface section.

6. Install the pedal mounting shaft, washer, and nut and tighten to **20 N·m (15 lb ft)**.
7. Connect the return spring to the clutch pedal.
8. Connect the negative battery cable.

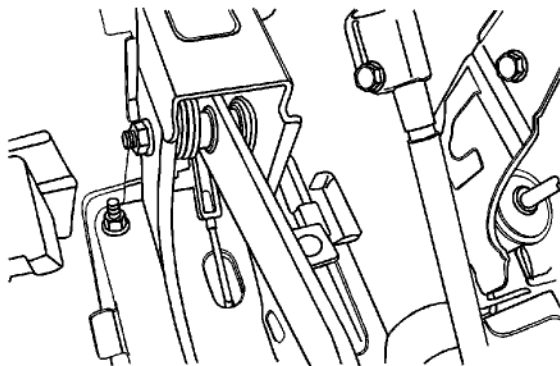
Clutch Cable Replacement

Removal Procedure

Warning: Refer to [Battery Disconnect Warning](#) in the Preface section.

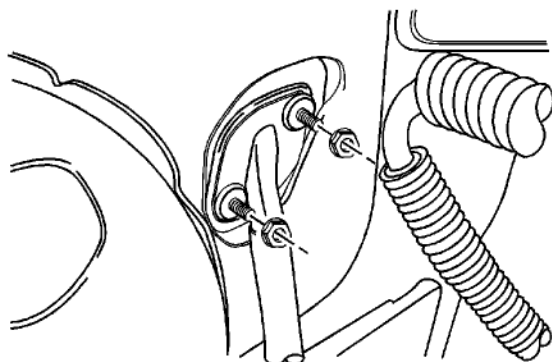


1. Disconnect the negative battery cable.
2. Remove the clutch control cable adjusting nut (1).
3. Remove the clutch control cable from the mounting bracket (2).



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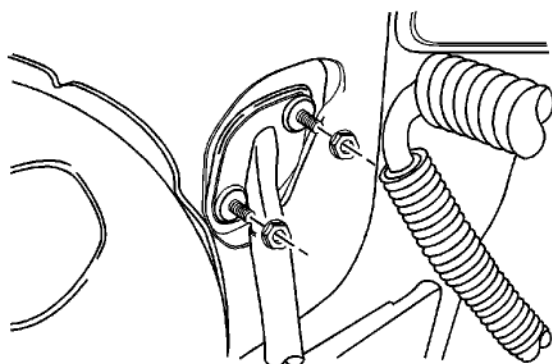
4. Disconnect the clutch control cable from the clutch pedal.
5. Remove the battery.



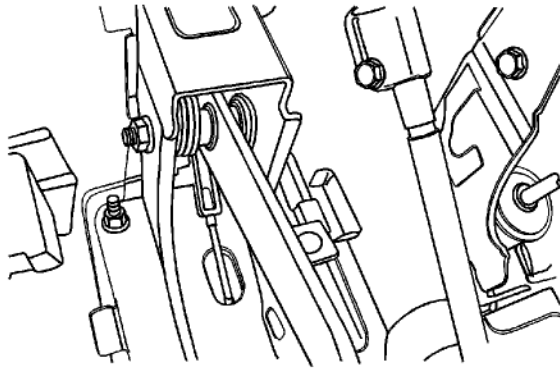
6. Remove the clutch control cable to cowl mounting nuts.
7. Remove the clutch control cable.

Installation Procedure

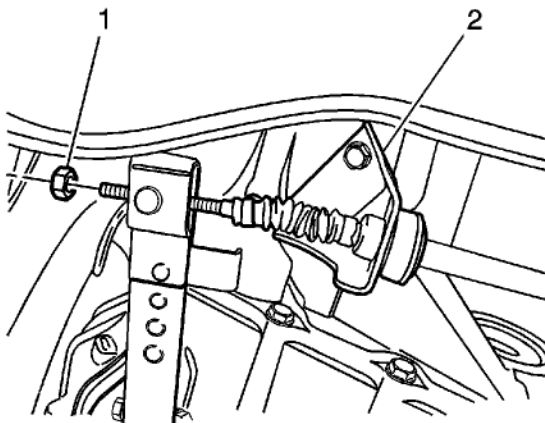
Caution: Refer to [Fastener Caution](#) in the Preface section.



1. Install the clutch control cable to cowl and install the clutch control cable mounting nuts and tighten to **13 N·m (115 lb in)**.



2. Install the battery.
3. Connect the clutch control cable to the clutch pedal.

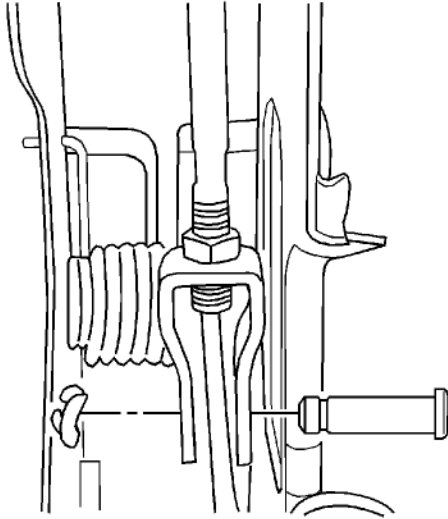


4. Install the clutch control cable to the mounting bracket (2).
5. Install the clutch control cable-adjusting nut (1).
6. Adjust the clutch control cable.

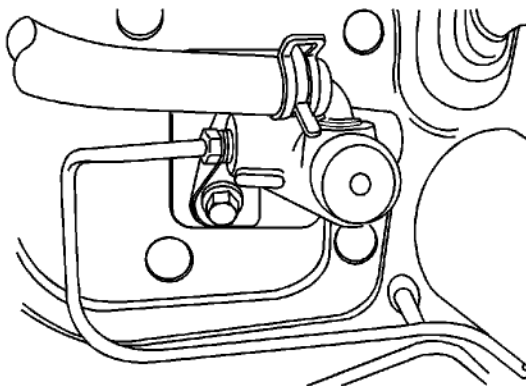
Clutch Master Cylinder Replacement

Removal Procedure

Before disconnecting the reservoir tank hose, remove the clutch/brake fluid from the reservoir tank.

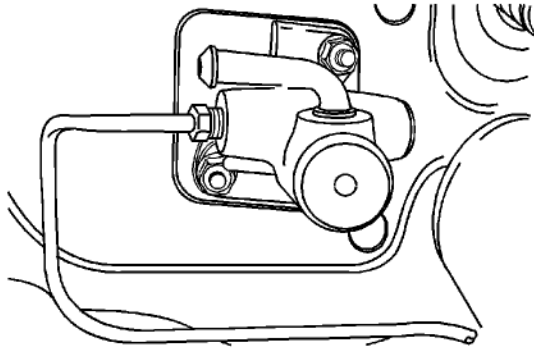


1. Remove the locking clip.
2. Remove the push rod fixing pin and push rod.

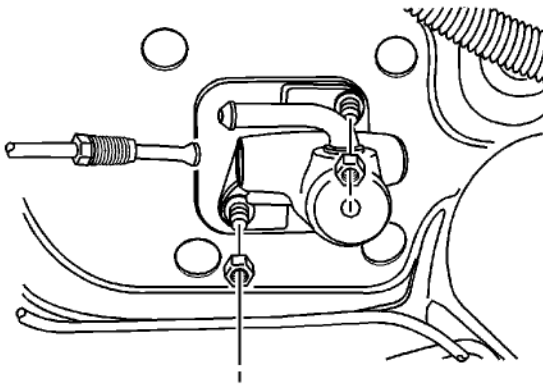


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3. Disconnect the hose clamp on the master cylinder.
4. Disconnect the master cylinder hose.



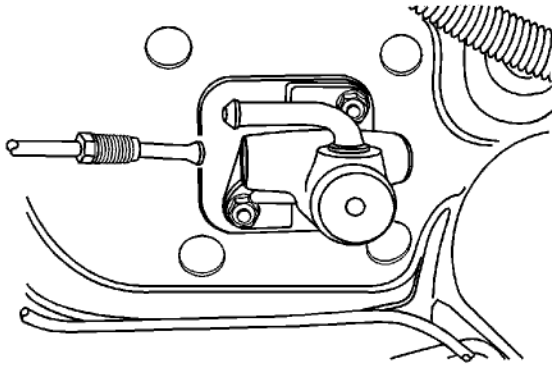
5. Remove the master cylinder pipe.



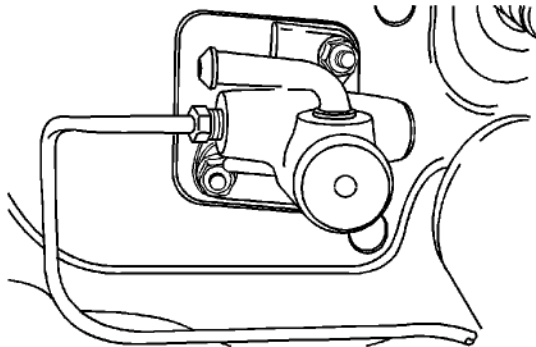
6. Remove the clutch master cylinder nuts.
7. Remove the clutch master cylinder.

Installation Procedure

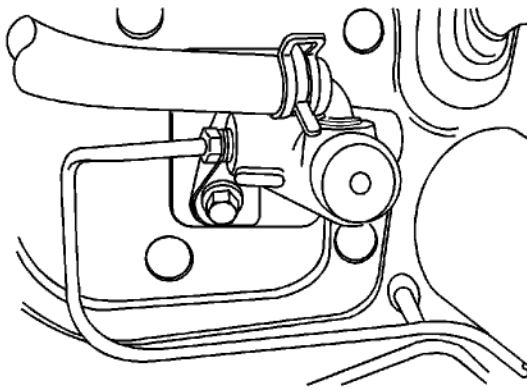
Caution: Refer to [Fastener Caution](#) in the Preface section.



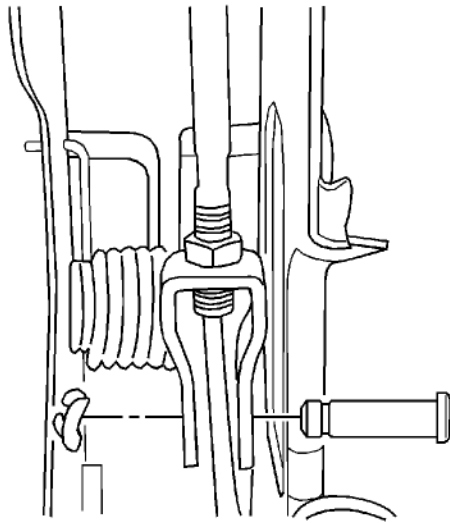
1. Install the clutch master cylinder.
2. Install the clutch master cylinder nuts and tighten to **22 N·m (16 lb ft)**.



3. Install the master cylinder pipe.



4. Connect the master cylinder hose.
5. Connect the hose clamp on the master cylinder.



6. Install the push rod fixing pin and push rod.
7. Install the locking clip.
8. Bleed the air.
9. Adjust the clutch pedal. Refer to [Clutch Pedal Free Travel Adjustment](#).
10. Fill the reservoir with clutch/brake fluid up to the MAX level.

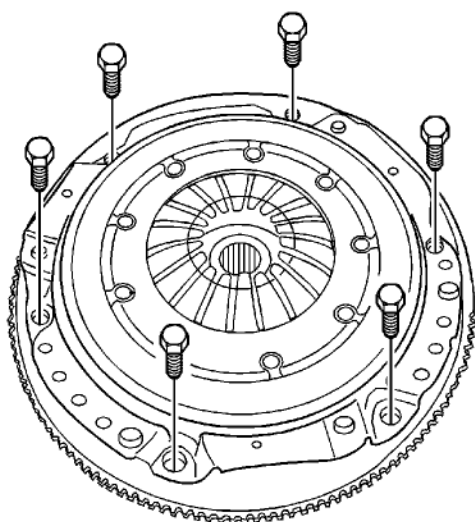
Clutch, Pressure Plate, and Pilot Bearing Replacement

Special Tools

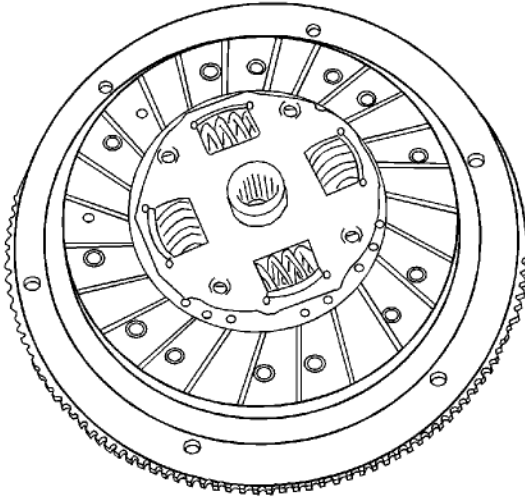
[DT 46551](#) (DW210-010) Clutch Center Guide

Removal Procedure

Warning: Refer to [Battery Disconnect Warning](#) in the Preface section.



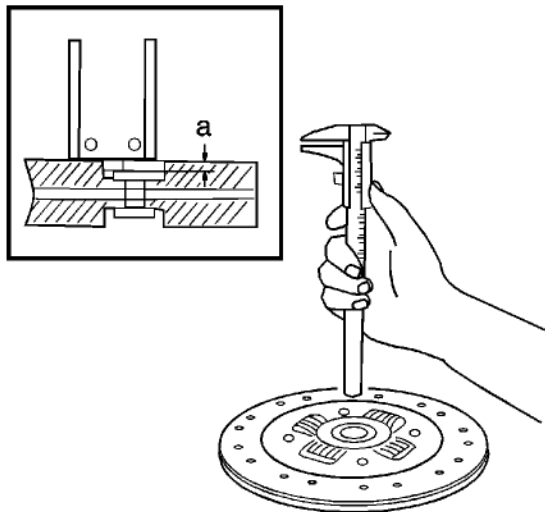
1. Disconnect the negative battery cable.
2. Remove the transaxle from the vehicle. Refer [Transmission Replacement](#) for the D16 transaxle, or [Transmission Replacement](#) for the Y4M transaxle.
3. Remove the pressure plate bolts and the pressure plate.



Note: Support the pressure plate when you remove the last bolt.

4. Remove the clutch disc from the flywheel

Inspection Procedure



Warning: Refer to [Safety Glasses Warning](#) in the Preface section.

Visual Inspection of Clutch Disc

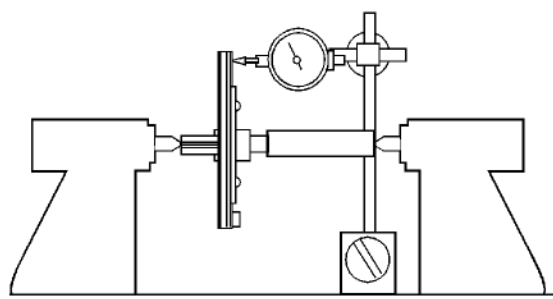
1. Inspect the worn or oily contamination on the clutch surface.
2. Inspect the damaged or weakened torsion spring.
3. Inspect for a warped or bent clutch disc. After inspection, replace the clutch disc, if necessary.

Clutch Disc Inspection

1. Measure the rivet head depth from the clutch disc surface.
2. Replace the clutch disc if the measured value is below the limit.

Specification

The rivet head depth standard is 1.2 mm (0.047 in), limit is 0.5 mm (0.020 in).

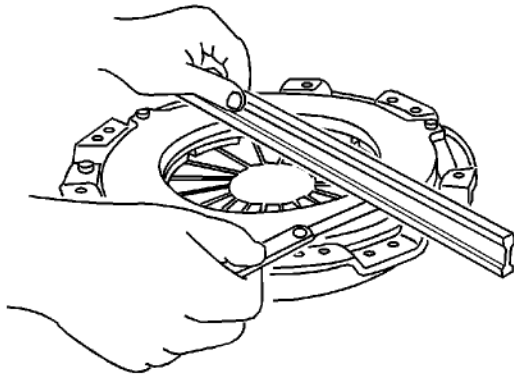


Clutch Disc Runout in Rotational Direction Inspection

1. Measure runout using the dial gage.
2. If runout exceeds the limit, replace the clutch disc.

Specification

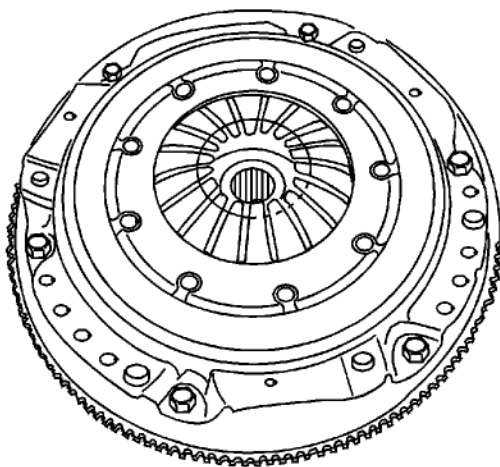
The disc runout limit in rotational direction - periphery - is 0.7 mm (0.028 in).



Visual Inspection of the Pressure Plate

1. Inspect for a worn diaphragm spring finger.
2. Inspect for a worn or cracked pressure plate surface.
3. Inspect for the polluted face by the oil. After inspection, replace the pressure plate if necessary.

Installation Procedure



1. Coat the spline on the clutch disc with multi-purpose grease.

2. Align the pressure plate and the clutch disc onto the flywheel using [DT 46551](#) .

Caution: Refer to [Fastener Caution](#) in the Preface section.

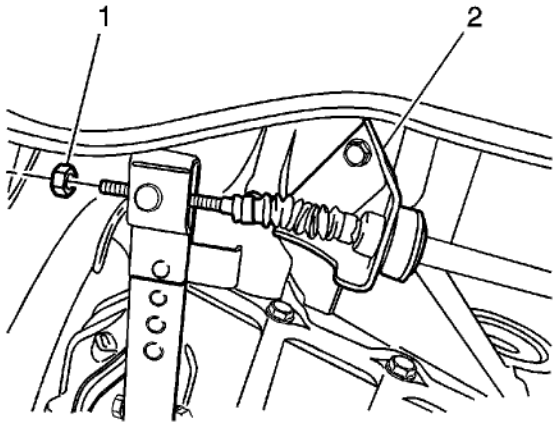
3. Install the pressure plate bolts.

Tighten

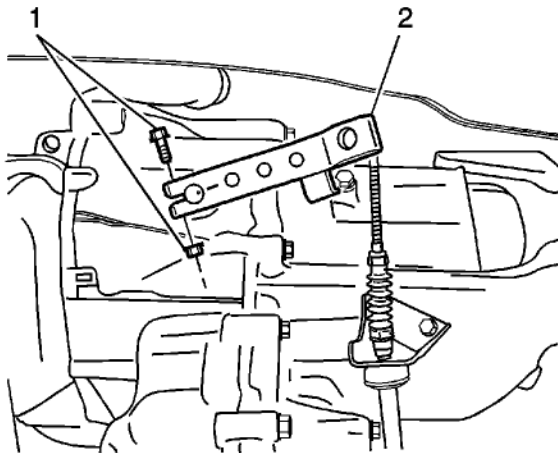
- For the hydraulic clutch type, tighten the bolts to 15 N·m (11 lb ft).
 - For the cable clutch type, tighten the bolts to 18 N·m (13 lb ft).
4. Remove [DT 46551](#) from the clutch assembly.
 5. Install the transaxle into the vehicle. Refer to [Transmission Replacement](#) for the D16 transaxle or [Transmission Replacement](#) for the Y4M transaxle.
 6. Connect the negative battery cable.

Clutch Release Arm Replacement

Removal Procedure



1. Mark the clutch release arm location to the release shaft position.
2. Remove the adjusting nut (1) for the clutch cable.
3. Remove the clutch control cable (2) from the release arm.

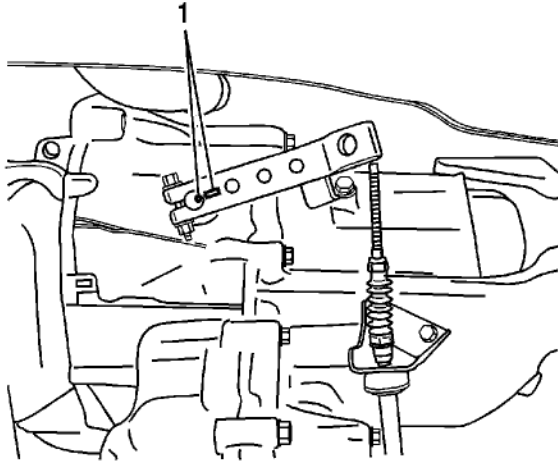


4. Remove the clutch release arm retaining bolt and nut (1).
5. Remove the release arm (2).

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Installation Procedure

Caution: Refer to [Fastener Caution](#) in the Preface section.



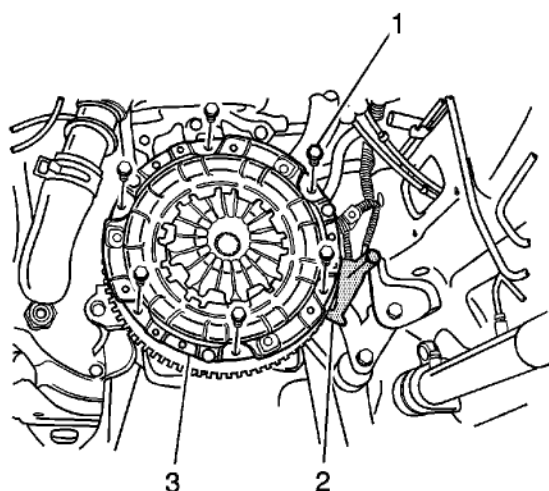
1. Install the release arm to the release shaft and align to the marked position (1).
2. Install the release arm bolt and nut and tighten to **16 N·m (12 lb ft)**.
3. Install the clutch control cable to the release arm and install the clutch control cable adjusting nut.
4. Adjust the clutch cable. Refer to [Clutch Assembly Adjustment](#).

Clutch Pilot Bearing Replacement

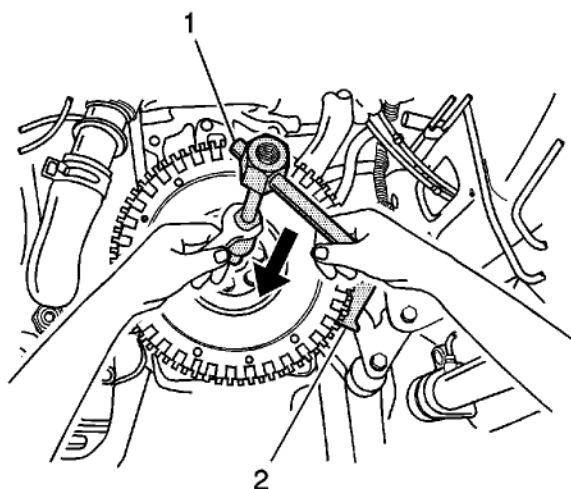
Special Tools

- [J 23907](#) (09917-58010) Input Shaft Bearing Remover
- [J 35271](#) (09924-17810) Flywheel Holder
- [09925-98210](#) Input Shaft Bearing Installer

Removal Procedure



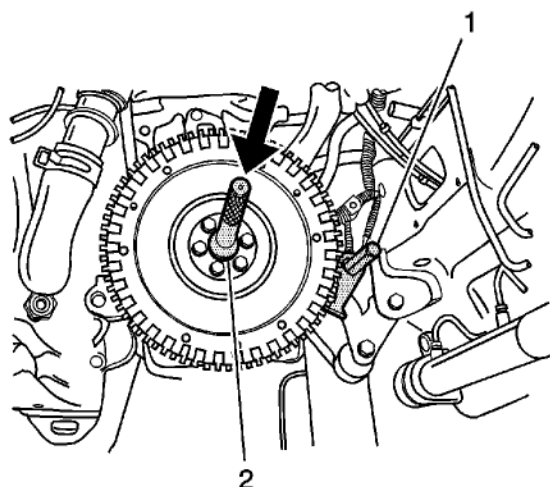
1. Remove the transaxle from the vehicle. Refer to [Transmission Replacement](#) for the D16 transaxle or [Transmission Replacement](#) for the Y4M transaxle.
2. Install [J 35271](#) (2) to the flywheel.
3. Remove the pressure plate and the clutch disc. Refer to [Clutch, Pressure Plate, and Pilot Bearing Replacement](#).



Warning: Wear safety glasses in order to avoid eye damage.

4. Remove the transmission input shaft bearing from the crankshaft using [J 23907](#) (1).

Installation Procedure



1. Install the input shaft bearing using [09925-98210](#) (2) and [J 35271](#) (1).
2. Install the pressure plate and the clutch disc. Refer to [Clutch, Pressure Plate, and Pilot Bearing Replacement](#).
3. Remove [J 35271](#) (1) from the flywheel.
4. Install the transaxle to the vehicle. Refer to [Transmission Replacement](#) for the D16 transaxle

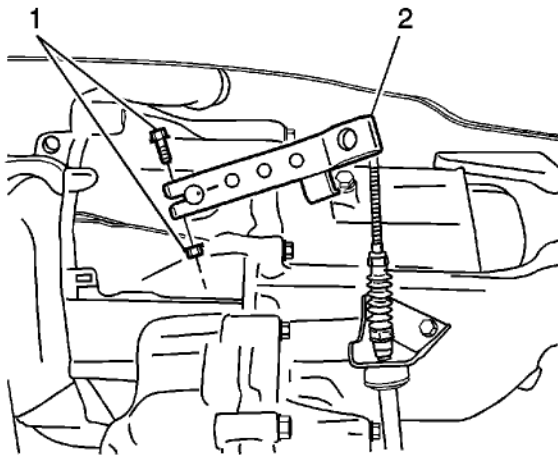
or [Transmission Replacement](#) for the Y4M transaxle.

Release Bearing Replacement

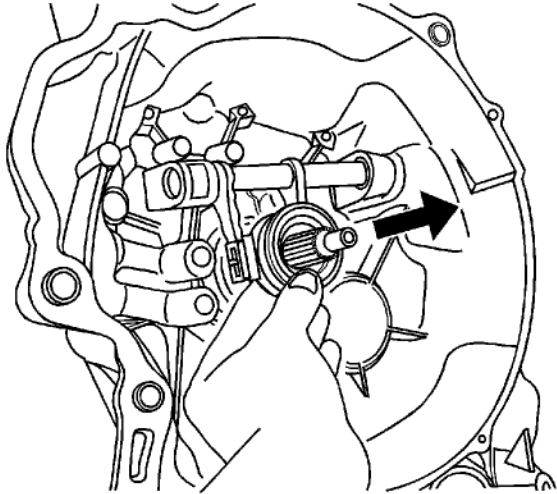
Special Tools

- [DT 47513](#) (DW210-030) Bushing Joint Pipe
- [DT 47514](#) (DW210-040) Bushing Remover/Installer
- [J 2619-01](#) (09930-30102) Sliding Shaft
- [09943-88211](#) Bushing, Bearing Installer

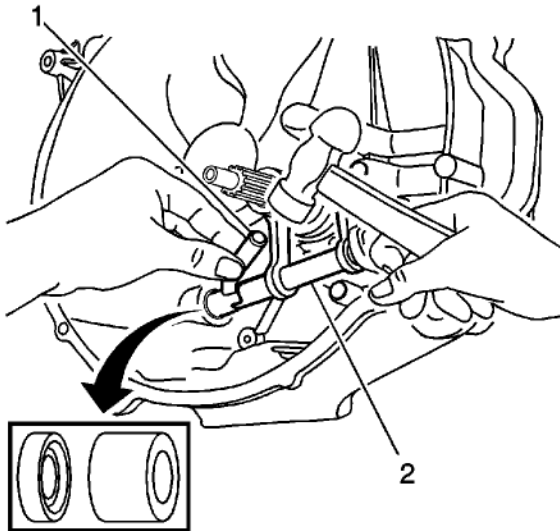
Removal Procedure



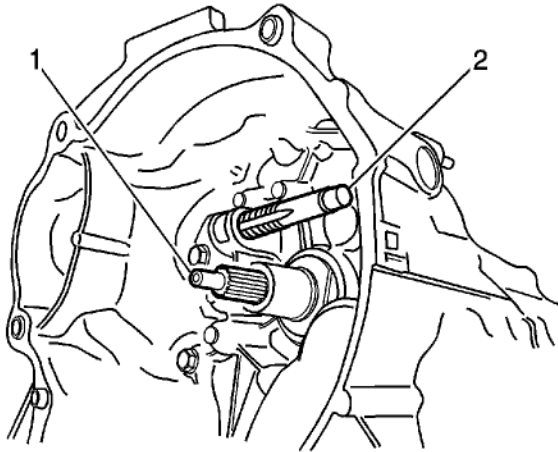
1. Remove the transaxle from the vehicle. Refer to [Transmission Replacement](#) for the D16 transaxle or [Transmission Replacement](#) for the Y4M transaxle.
2. Remove the release arm (2). Refer to [Clutch Release Arm Replacement](#).



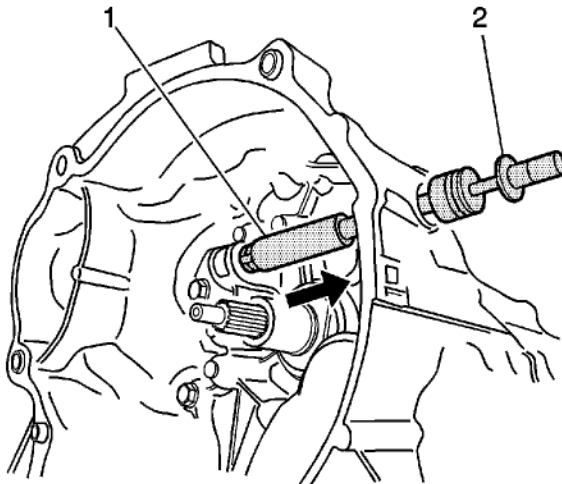
3. Remove the release bearing.



4. Remove the release shaft and bushing.
5. Remove the No. 2 bushing and the seal using [DT 47514](#) (1) and a hammer.
6. Remove the release shaft (2).



7. Thread the tap (M16 x 1.51) (2) into the bushing.

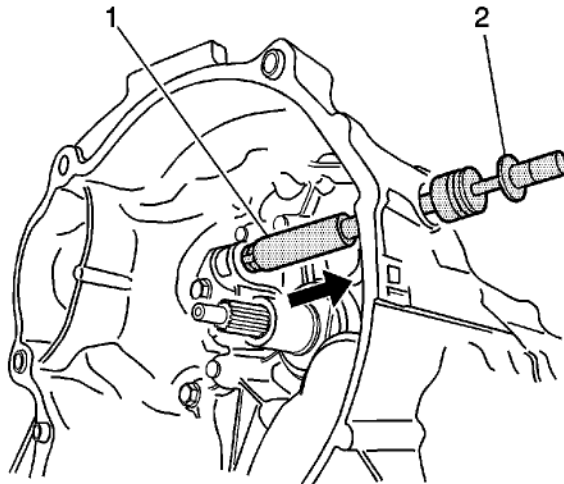


8. Connect [J 2619-01](#) (2) to the end of [DT 47513](#) (1).
9. Remove the bushing by pulling.

Release Bearing and Shaft Inspection

Bearing Inspection

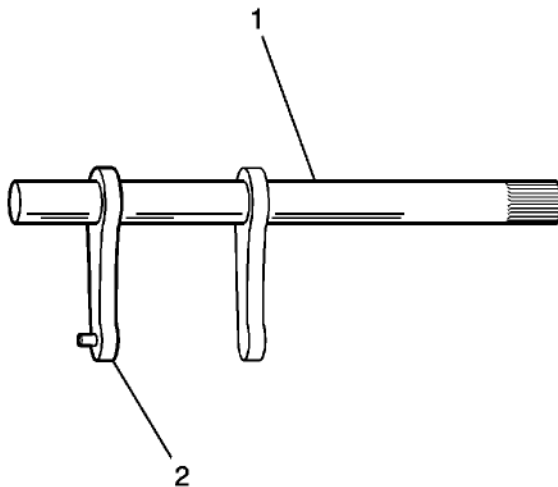
Perform the following release bearing inspection:



1. Inspect for noisy, worn and damaged release bearing.
2. Inspect for a grabbing rotation of release bearing.
3. Replace the release bearing if necessary.

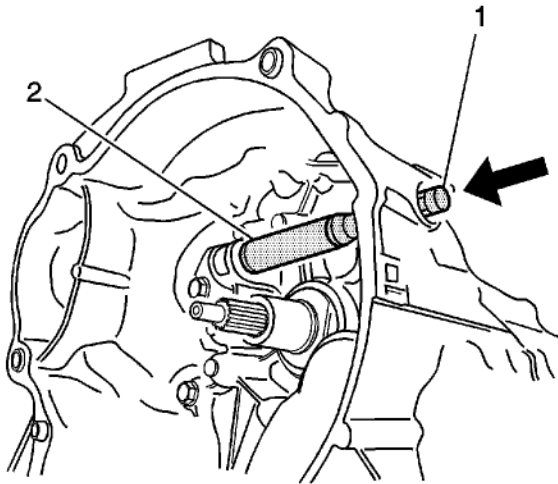
Shaft Inspection

Perform the following release bearing shaft inspection:

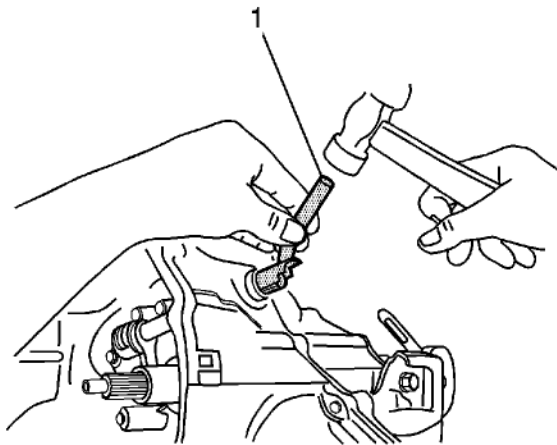


1. Inspect for a warped shaft (1).
2. Inspect for a worn fork (2).
3. Replace the shaft if necessary.

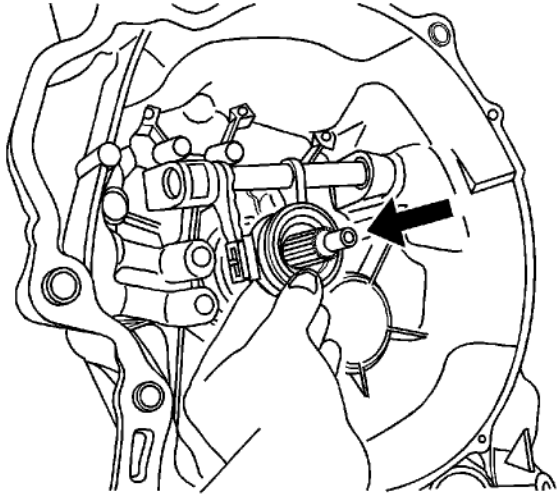
Installation Procedure



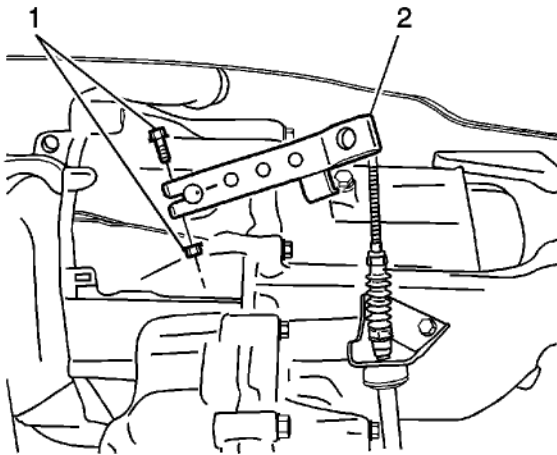
1. Install the release shaft No. 1 bushing using [DT 47513](#) (2), [09943-88211](#) (1) and a hammer.



2. Install the release shaft.
3. Coat the release shaft and bushing with grease.
4. Install the release shaft No. 2 bushing and seal using [DT 47514](#) (1) and a hammer.



5. Coat the spline of the transaxle input shaft with multipurpose grease.
6. Coat the release bearing bore of the release shaft with multi-purpose grease.
7. Install the release bearing.



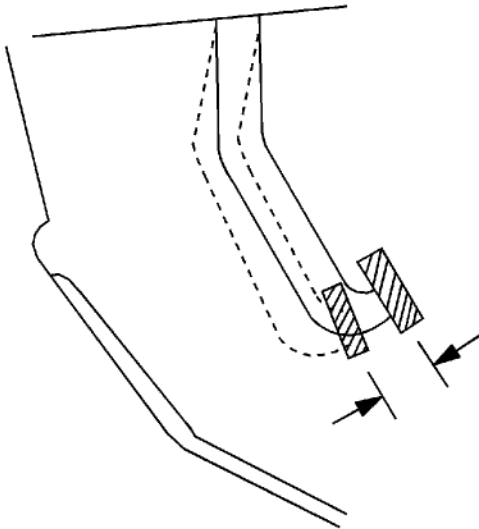
8. Install the release arm (2). Refer to [Clutch Release Arm Replacement](#)

Caution: Refer to [Fastener Caution](#) in the Preface section.

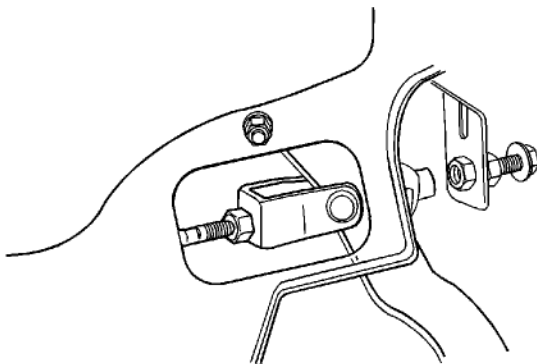
9. Install the release arm bolt and nut (1) and tighten to **16 N·m (12 lb ft)**.
10. Install the transaxle to the vehicle. Refer to [Transmission Replacement](#) for the D16 transaxle or [Transmission Replacement](#) for the Y4M transaxle.

Clutch Pedal Free Travel Adjustment (Hydraulic)

Adjustment Procedure



1. Determine the clutch pedal play. Depress the clutch pedal lightly with your hand and measure the distance when you feel resistance.

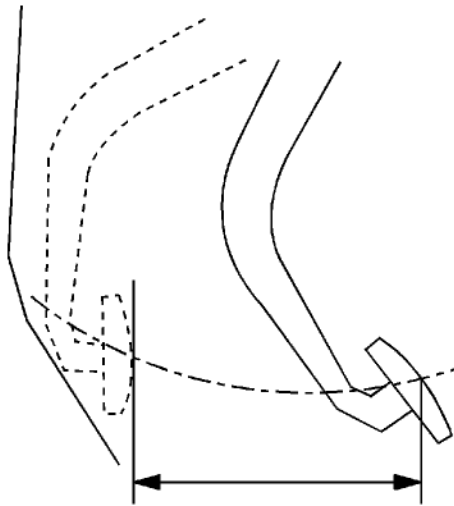


2. Adjust the clutch pedal play. Loosen the locknut and turn the pushrod.
3. Tighten the locknut after adjustment.

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Specification

The clutch pedal play is 10-12 mm (0.4-0.5 in).

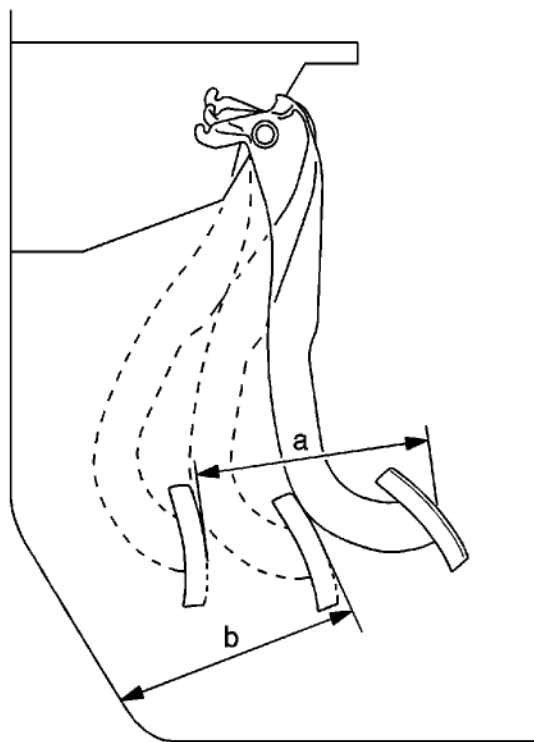


4. Measure the clutch pedal travel. Press the clutch pedal all the way to the floor. Measure from the starting position to the ending position.
5. Adjust the clutch pedal travel. Loosen the locknut and turn the bolt.
6. Tighten the locknut after adjustment.

Specification

The clutch pedal travel is 120-125 mm (4.7-4.9 in).

Clutch Pedal Free Travel Adjustment (Cable)



This cable type of clutch engagement/disengagement system is designed to have no free travel in the clutch pedal. Adjust the clutch cable adjusting nut until the below specifications are met:

Specifications

- Clutch pedal travel for disengagement (a): Pedal Travel 120-130 mm (4.7-5.1 in)
- Clearance between clutch pedal and floor just before clutch engagement (b): Clearance between pedal and floor just before clutch connection 50-60 mm (1.9-2.3 in)

Warning: When performing this check, the vehicle could move suddenly. Personal injury or property damage may result. Make sure there is enough room around the vehicle, in case the vehicle does move. Do not use the accelerator pedal, and be ready to turn OFF the engine immediately if it starts.

After starting the engine, Inspect if the clearance between pedal and floor is within specified range. If the clutch adjustments cannot be obtained, Inspect for interference of the clutch pedal. If no interference or obstructions are found, the clutch cable may be worn and require replacement.

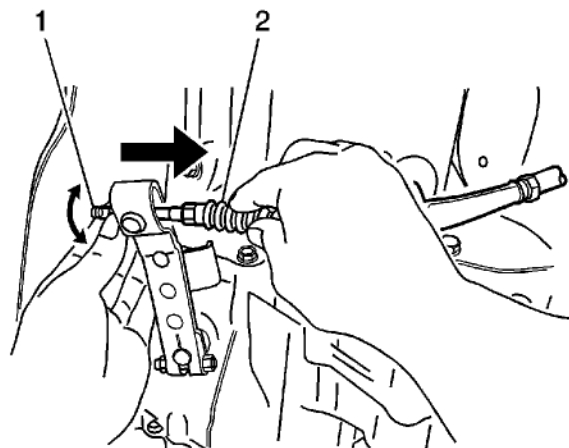
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Clutch Cable Inspection

Inspect the clutch cable and replace it if any of the following conditions exists:

- Excessively worn cable
- Loose cable
- Bent or distorted cable
- Damaged boot
- Worn end

Clutch Assembly Adjustment



If clutch engagement/disengagement is difficult or operating unsmooth, adjust the clutch cable by adjusting clutch cable adjustment nut (1) until the desired free travel is obtained. Refer to [Clutch Pedal Free Travel Adjustment](#) .