

2008 Scion xD

2008 TRANSMISSION Clutch - xD

2008 TRANSMISSION**Clutch - xD****CLUTCH SYSTEM****PROBLEM SYMPTOMS TABLE**

Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.

PROBLEM SYMPTOMS CHART

Symptom	Suspected Area	See
Clutch grabs/chatters	Engine mounting (Loose)	-
	Clutch disc assembly (Excessive runout)	<u>CLUTCH UNIT</u>
	Clutch disc assembly (Oily)	<u>CLUTCH UNIT</u>
	Clutch disc assembly (Worn out)	<u>CLUTCH UNIT</u>
	Clutch disc torsion spring (Damaged)	<u>CLUTCH UNIT</u>
	Clutch disc assembly (Glazed)	<u>CLUTCH UNIT</u>
	Diaphragm spring (Tip out of alignment)	<u>CLUTCH UNIT</u>
Clutch pedal spongy	Clutch line (Air in line)	-
	Master cylinder cup (Damaged)	<u>CLUTCH MASTER CYLINDER</u>
	Release cylinder rubber (Damaged)	<u>CLUTCH RELEASE CYLINDER</u>
Clutch noisy	Clutch release bearing assembly (Worn, dirty, or damaged)	<u>CLUTCH UNIT</u>
	Clutch disc torsion spring (Damaged)	<u>CLUTCH UNIT</u>
Clutch slips	Clutch pedal (Free play out of adjustment)	<u>CLUTCH PEDAL</u>
	Clutch disc assembly (Oily)	<u>CLUTCH UNIT</u>
	Clutch disc assembly (Worn out)	<u>CLUTCH UNIT</u>
	Diaphragm spring (Damaged)	<u>CLUTCH UNIT</u>
	Pressure plate (Distorted)	<u>CLUTCH UNIT</u>
	Flywheel sub-assembly (Distorted)	<u>CLUTCH UNIT</u>
	Clutch pedal (Free play out of adjustment)	<u>CLUTCH PEDAL</u>
Clutch does not disengage	Clutch line (Air in line)	-
	Master cylinder cup (Damaged)	<u>CLUTCH MASTER CYLINDER</u>
	Release cylinder rubber (Damaged)	<u>CLUTCH RELEASE CYLINDER</u>
	Clutch disc assembly (Out of line)	<u>CLUTCH UNIT</u>
	Clutch disc assembly (Runout excessive)	<u>CLUTCH UNIT</u>

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Clutch disc assembly (Lining broken)	<u>CLUTCH UNIT</u>
Clutch disc assembly (Dirty or burned)	<u>CLUTCH UNIT</u>
Clutch disc assembly (Oily)	<u>CLUTCH UNIT</u>
Clutch disc assembly (Lack of spline grease)	<u>CLUTCH UNIT</u>

BLEEDING

NOTE: Wash off clutch fluid immediately if it comes in contact with any painted surface.

HINT:

If any work is performed on the clutch system or if air in the clutch lines is suspected, bleed air from the clutch hydraulic system.

1. FILL BRAKE FLUID RESERVOIR**2. BLEED CLUTCH LINE**

- a. Remove the bleeder plug cap.
- b. Connect a vinyl tube to the bleeder plug.
- c. Depress the clutch pedal several times, and then loosen the bleeder plug while the pedal is depressed.
- d. When fluid no longer comes out, tighten the bleeder plug, and then release the clutch pedal.
- e. Repeat the previous 2 steps until all the air in the fluid is completely bled.
- f. Tighten the bleeder plug.

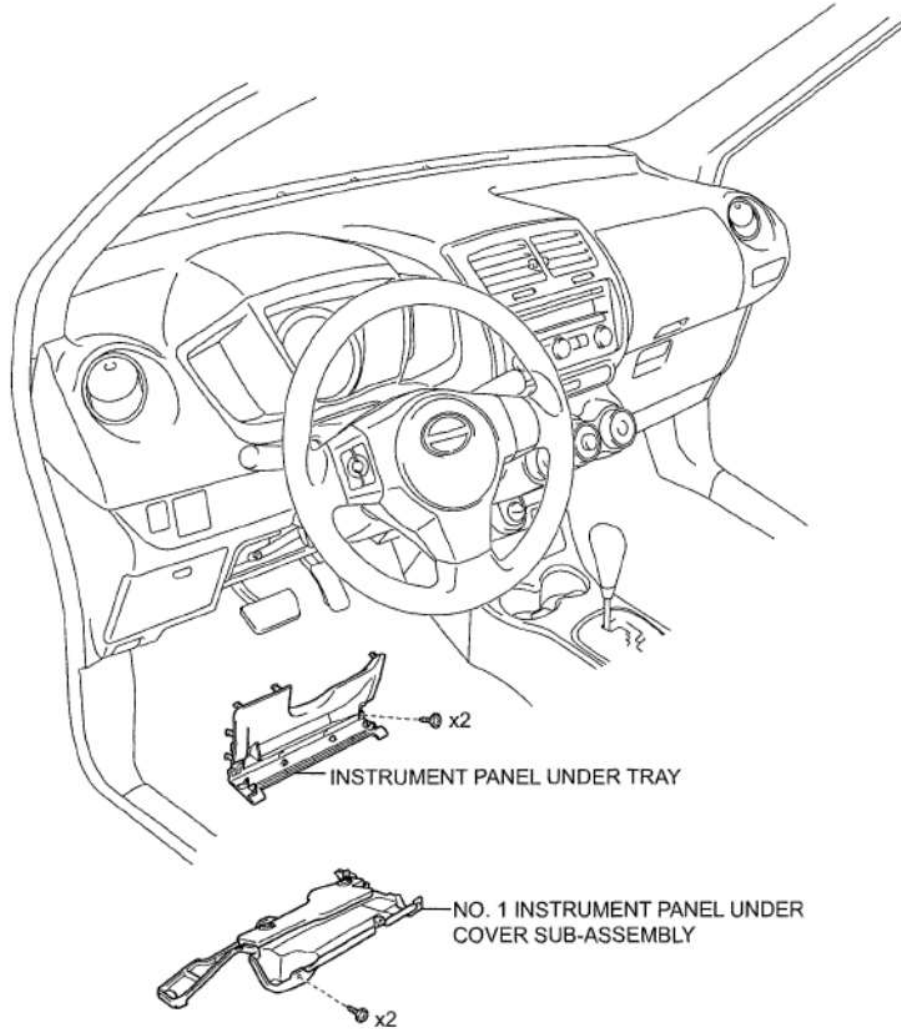
Torque: 8.3 N*m (85 kgf*cm, 73 in.*lbf)

- g. Install the bleeder plug cap.
- h. Check that all the air has been bled from the clutch line.

3. INSPECT BRAKE FLUID LEVEL IN RESERVOIR**CLUTCH PEDAL****COMPONENTS**

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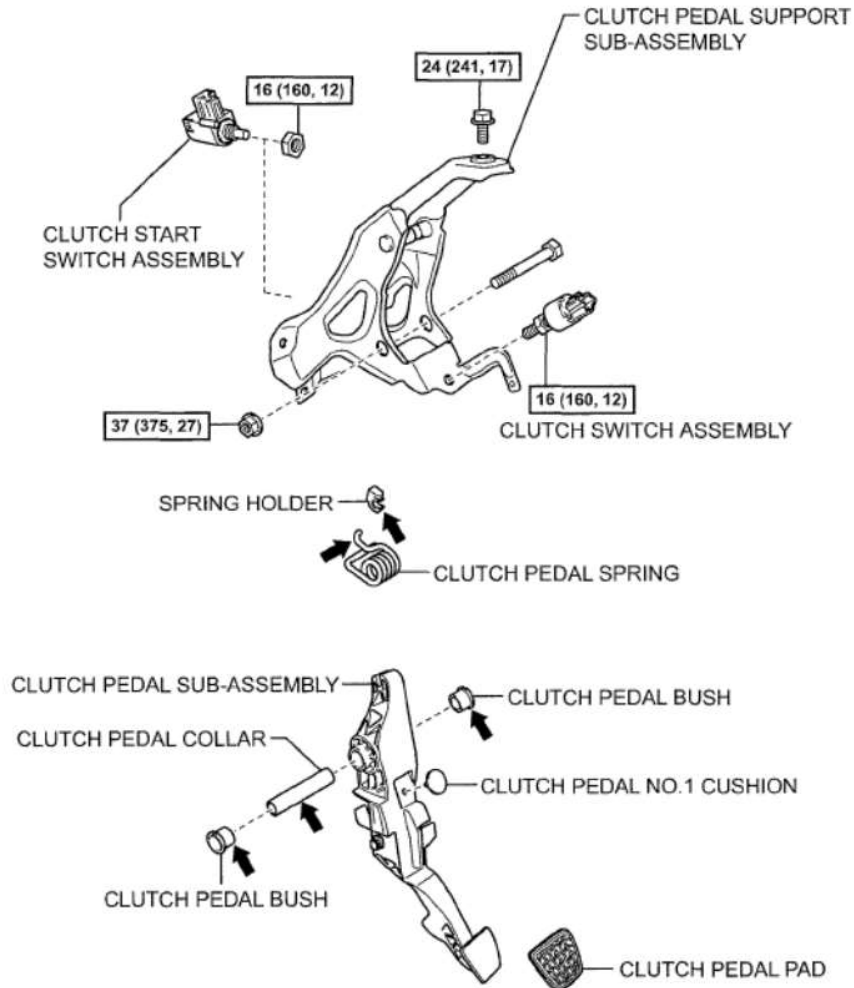


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Fig. 1: Identifying Clutch Pedal Components And Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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$\boxed{\text{N}^*\text{m (kgf}^*\text{cm, ft}^*\text{lb)}} : \text{Specified torque}$

← MP grease

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Fig. 2: Identifying Clutch Pedal Components And Torque Specifications (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

1. INSPECT AND ADJUST CLUTCH PEDAL SUB-ASSEMBLY

- a. Pull back the floor carpet.
- b. Check that the pedal height is correct.

Pedal height from floor:

133 to 143 mm (5.236 to 5.630 in.)

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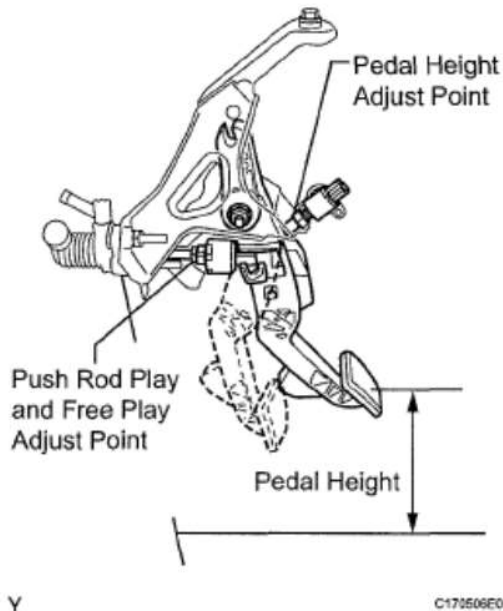


Fig. 3: Identifying Brake Pedal Height

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. If the pedal height is not as specified, adjust it as follows.
 1. Loosen the lock nut and turn the clutch switch until the correct height is obtained.
 2. Tighten the lock nut.

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

2. INSPECT AND ADJUST PEDAL FREE PLAY AND PUSH ROD PLAY

- a. Check that the pedal free play and push rod play are correct.
 1. Depress the pedal until clutch resistance begins to be felt.

Pedal free play:

5.0 to 15.0 mm (0.197 to 0.591 in.)

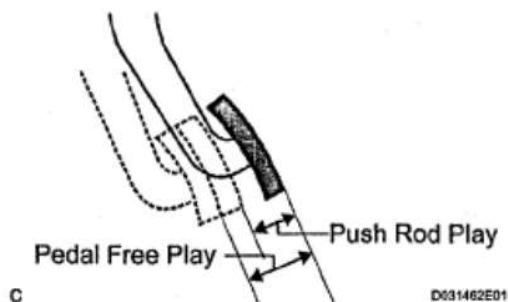


Fig. 4: Identifying Pedal Free Play

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Gently depress the pedal until the resistance begins to increase a little.

Push rod play at pedal top:

1.0 to 5.0 mm (0.039 to 0.197 in.)

- b. Adjust the pedal free play and push rod play.
 1. Loosen the lock nut and turn the push rod until the correct free play and push rod play are obtained.
 2. Tighten the lock nut.

Torque: 12 N*m (120 kgf*cm, 9 ft.*lbf)

3. After adjusting the pedal free play, check the pedal height.

3. INSPECT AND ADJUST CLUTCH RELEASE POINT

- a. Check the clutch release point.
 1. Pull the parking brake lever and install a wheel stoppers.
 2. Start the engine and run it at idle.
 3. Without depressing the clutch pedal, slowly move the shift lever into reverse until the gears come into contact.
 4. Gradually depress the clutch pedal and measure the stroke distance from the point that the gear noise stops (release point) up to the full stroke end position.

Standard distance:

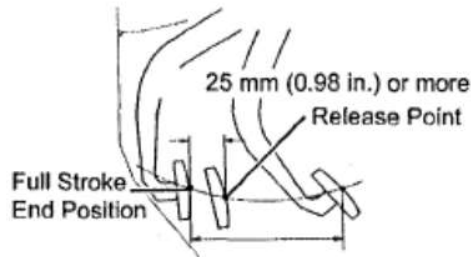
25 mm (0.98 in.) or more (From pedal stroke end position to release point)

If the distance is not as specified, perform the following operations.

- Check pedal height.
- Check push rod play and pedal free play.
- Bleed the clutch line.
- Check the clutch cover assembly and disc assembly.

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Fig. 5: Identifying Clutch Release Point

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE BRAKE BOOSTER ASSEMBLY

(See REMOVAL)

2. REMOVE CLUTCH RESERVOIR TUBE (See REMOVAL)

3. DISCONNECT CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE (See REMOVAL)

4. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See REMOVAL)

5. REMOVE INSTRUMENT PANEL UNDER TRAY (See REMOVAL)

6. REMOVE CLUTCH MASTER CYLINDER ASSEMBLY (See REMOVAL)

7. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See REMOVAL)

8. REMOVE COMBINATION METER ASSEMBLY (See REMOVAL)

9. REMOVE CLUTCH PEDAL SUPPORT SUB-ASSEMBLY

- a. Disconnect the wire harness clamp.
- b. Disconnect the clutch start switch connector.
- c. Disconnect the clutch switch connector.
- d. Remove the bolt and clutch pedal support.



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Fig. 6: Locating Bolt And Clutch Pedal Support

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 TRANSMISSION Clutch - xD****10. REMOVE CLUTCH START SWITCH ASSEMBLY**

- a. Remove the nut and clutch start switch.

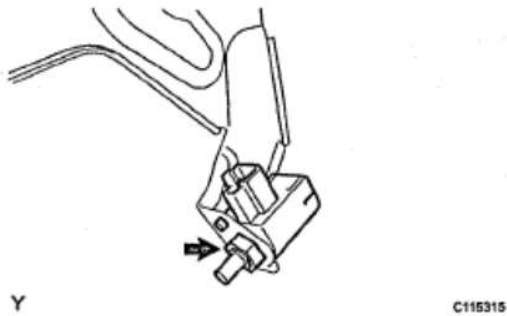


Fig. 7: Locating Nut And Clutch Start Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE CLUTCH SWITCH ASSEMBLY

- a. Loosen the lock nut and remove the clutch switch assembly.

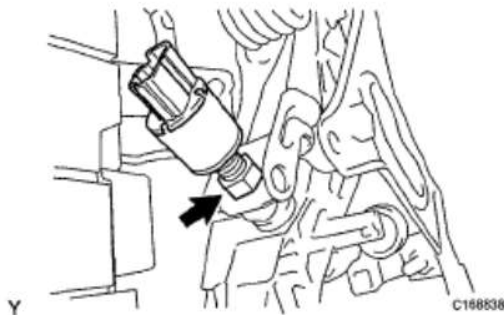


Fig. 8: Locating Lock Nut And Clutch Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE CLUTCH PEDAL SPRING

- a. While the clutch pedal is fully depressed, remove the clutch pedal spring.

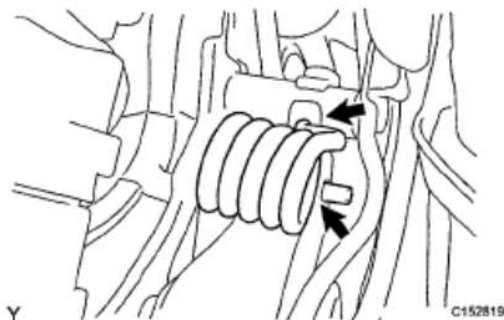


Fig. 9: Locating Clutch Pedal Spring

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. REMOVE SPRING HOLDER

- a. Remove the spring holder from the clutch pedal support.

14. REMOVE CLUTCH PEDAL SUB-ASSEMBLY

- a. Remove the bolt and the nut.



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Fig. 10: Locating Bolt And Nut

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

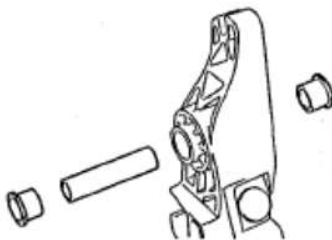
- b. Remove the clutch pedal from the clutch pedal support.

15. REMOVE CLUTCH PEDAL PAD

- a. Remove the clutch pedal pad from the clutch pedal.

16. REMOVE CLUTCH PEDAL BUSH

- a. Remove the 2 bushes from the clutch pedal.
- b. Remove the collar from the clutch pedal.



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Fig. 11: Identifying Bushes

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. REMOVE CLUTCH PEDAL NO.1 CUSHION

- a. Remove the clutch pedal No. 1 cushion from the clutch pedal.

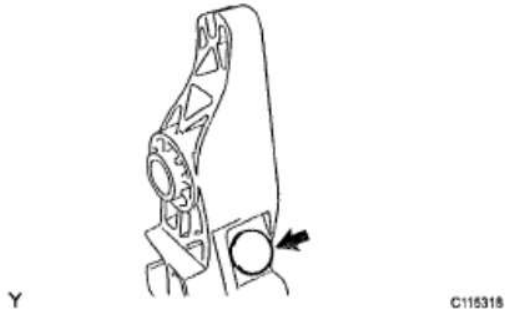
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Fig. 12: Locating Clutch Pedal No. 1 Cushion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION**1. INSTALL CLUTCH PEDAL NO.1 CUSHION**

- a. Install the clutch pedal No. 1 cushion onto the clutch pedal.

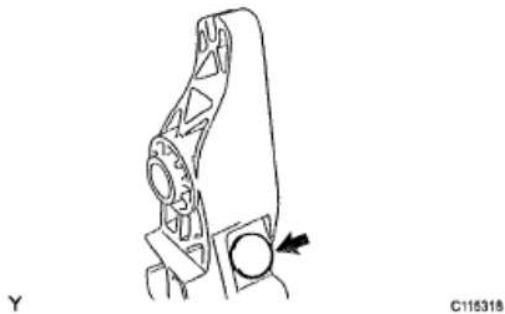


Fig. 13: Locating Clutch Pedal No. 1 Cushion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL CLUTCH PEDAL BUSH

- a. Apply MP grease to the 2 bushes and collar.

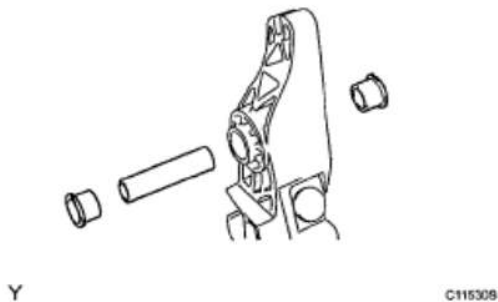


Fig. 14: Identifying Bushes And Collar
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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- b. Install the 2 bushes and collar onto the clutch pedal.

3. INSTALL CLUTCH PEDAL PAD

- a. Install the clutch pedal pad onto the clutch pedal.

4. INSTALL CLUTCH PEDAL SUB-ASSEMBLY

- a. Install the clutch pedal onto the clutch pedal support with the bolt and the nut.

Torque: 37 N*m (375 kgf*cm, 27 ft.*lbf)

HINT:

Install the bolt from the left side of the vehicle.



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Fig. 15: Locating Bolt And Nut

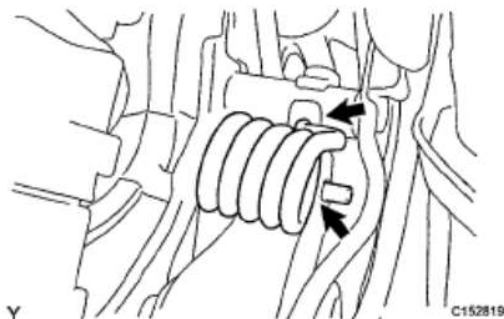
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL SPRING HOLDER

- a. Install the spring holder onto the clutch pedal support.

6. INSTALL CLUTCH PEDAL SPRING

- a. Apply MP grease to the contact surface of the spring holder, clutch pedal and spring.



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Fig. 16: Locating Clutch Pedal Spring

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the spring onto the clutch pedal and spring holder.

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- a. Install the clutch switch so that its end touches the clutch pedal cushion.

HINT:

Tighten the lock nut to the specified torque when adjusting the clutch pedal.

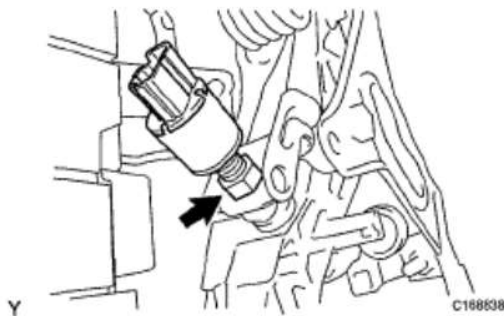


Fig. 17: Locating Lock Nut And Clutch Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. INSTALL CLUTCH START SWITCH ASSEMBLY

- a. Install the clutch start switch with the nut.

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

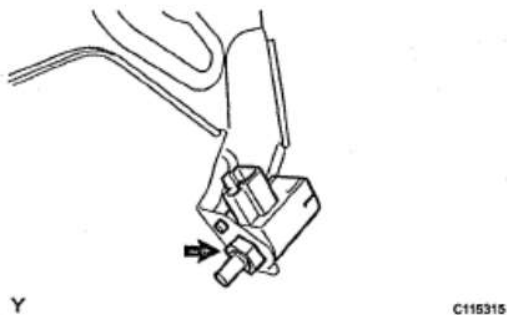


Fig. 18: Locating Nut And Clutch Start Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL CLUTCH PEDAL SUPPORT SUB-ASSEMBLY

- a. Install the clutch pedal support onto the vehicle with the bolt.

Torque: 24 N*m (241 kgf*cm, 17 ft.*lbf)

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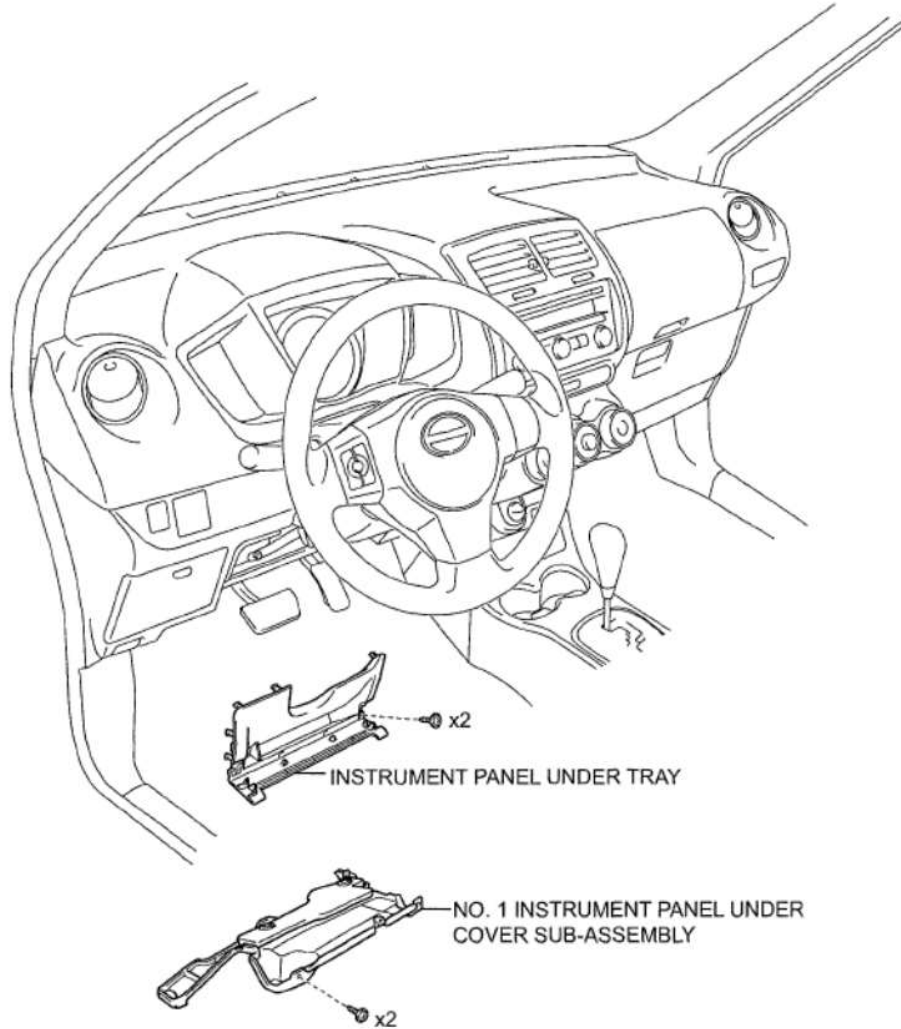


Fig. 19: Locating Bolt And Clutch Pedal Support
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the clutch switch connector.
 - c. Connect the clutch start switch connector.
 - d. Connect the wire harness clamp.
10. **INSTALL COMBINATION METER ASSEMBLY** (See INSTALLATION)
 11. **INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** (See INSTALLATION)
 12. **INSTALL CLUTCH MASTER CYLINDER ASSEMBLY** (See INSTALLATION)
 13. **CONNECT CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE** (See INSTALLATION)
 14. **INSTALL CLUTCH RESERVOIR TUBE** (See INSTALLATION)
 15. **INSTALL BRAKE BOOSTER ASSEMBLY**
 (See INSTALLATION)
 16. **INSPECT AND ADJUST CLUTCH PEDAL SUB-ASSEMBLY** (See ON-VEHICLE INSPECTION)
 17. **INSPECT CLUTCH START SWITCH ASSEMBLY** (See ON-VEHICLE INSPECTION)
 18. **INSTALL INSTRUMENT PANEL UNDER TRAY** (See INSTALLATION)
 19. **INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See INSTALLATION)

CLUTCH MASTER CYLINDER

COMPONENTS

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Fig. 20: Identifying Clutch Master Cylinder Components And Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

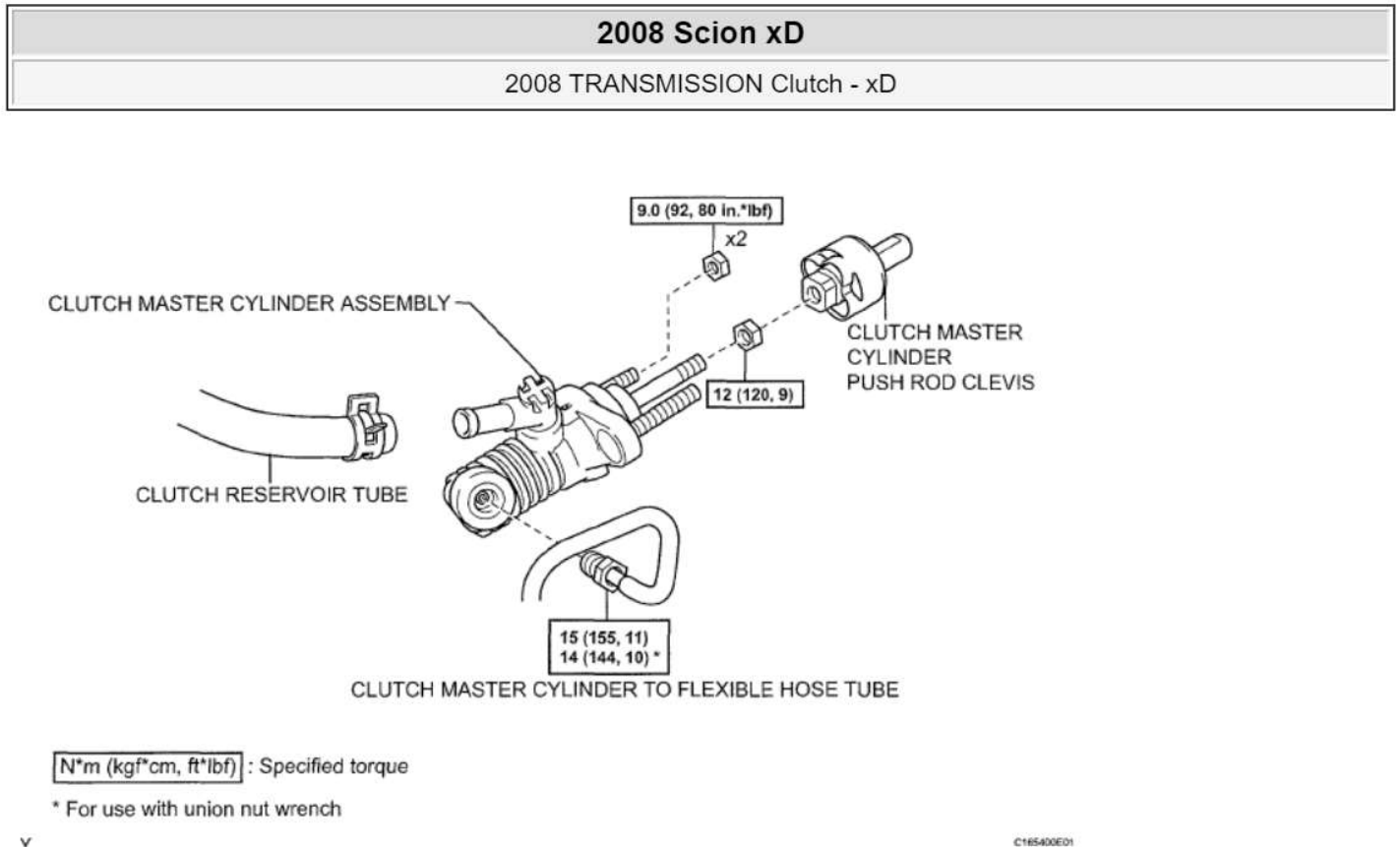


Fig. 21: Identifying Clutch Master Cylinder Components And Torque Specifications (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE BRAKE BOOSTER ASSEMBLY

(See **REMOVAL**)

2. REMOVE CLUTCH RESERVOIR TUBE

- Loosen the clip and remove the clutch reservoir tube from the clutch master cylinder assembly.

HINT:

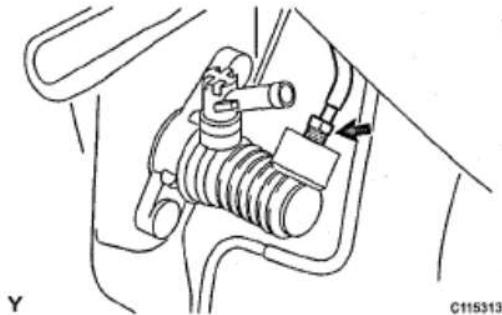
Use a container to collect the fluid.

3. DISCONNECT CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE

- Using a union nut wrench, disconnect the flexible hose tube.

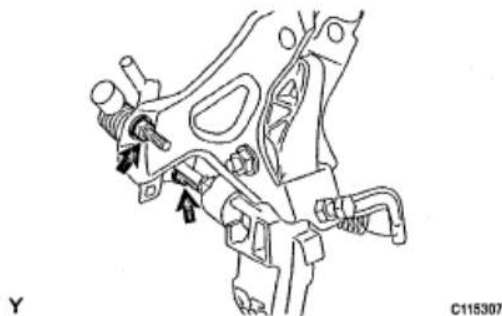
HINT:

Use a container to collect the fluid.

2008 Scion xD**2008 TRANSMISSION Clutch - xD****Fig. 22: Locating Flexible Hose Tube**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

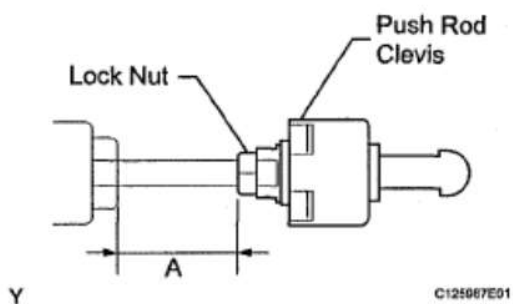
4. **REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See **REMOVAL**)
5. **REMOVE INSTRUMENT PANEL UNDER TRAY** (See **REMOVAL**)
6. **REMOVE CLUTCH MASTER CYLINDER ASSEMBLY**
 - a. Remove the 2 nuts and the clutch master cylinder.

**Fig. 23: Locating Nuts And Clutch Master Cylinder**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. REMOVE CLUTCH MASTER CYLINDER PUSH ROD CLEVIS

- a. Measure the dimension A as shown in the illustration before loosening the lock nut.

**Fig. 24: Identifying Lock Nut Dimension**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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- b. Loosen the lock nut and remove the push rod clevis.
- c. Remove the lock nut.

INSTALLATION

1. INSTALL CLUTCH MASTER CYLINDER PUSH ROD CLEVIS

- a. Install the lock nut onto the push rod.
- b. Install the push rod clevis.
- c. Tighten the lock nut and check the dimension A is same as the dimension A that has been measured.

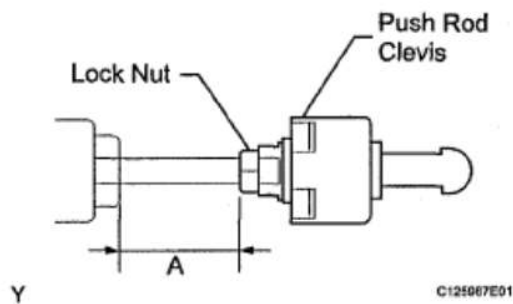


Fig. 25: Identifying Lock Nut Dimension
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL CLUTCH MASTER CYLINDER ASSEMBLY

- a. Install the clutch master cylinder with the 2 nuts.

Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf)

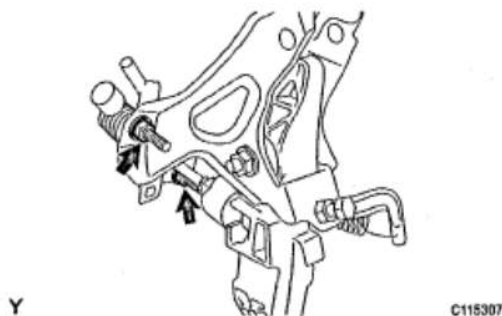


Fig. 26: Locating Nuts And Clutch Master Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. CONNECT CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE

- a. Using a union nut wrench, connect the flexible hose tube.

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Torque: without union nut wrench

15 N*m (155 kgf*cm, 11 ft.*lbf)

with union nut wrench

14 N*m (144 kgf*cm, 10 ft.*lbf)

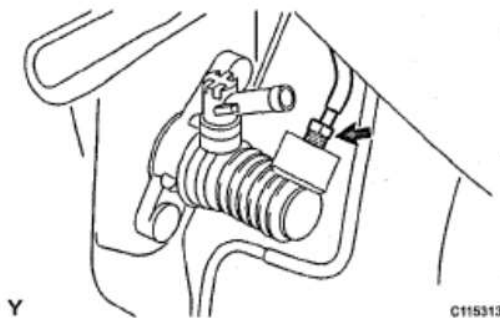


Fig. 27: Locating Flexible Hose Tube

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 22 mm (0.866 in.) (See REPAIR INSTRUCTION).
- This torque value is effective when union nut wrench is parallel to a torque wrench.

4. INSTALL CLUTCH RESERVOIR TUBE

- a. Connect the clutch reservoir tube with the clip to the clutch master cylinder assembly.

5. INSTALL BRAKE BOOSTER ASSEMBLY

(See INSTALLATION)

6. INSPECT AND ADJUST CLUTCH PEDAL SUB-ASSEMBLY (See ON-VEHICLE INSPECTION)

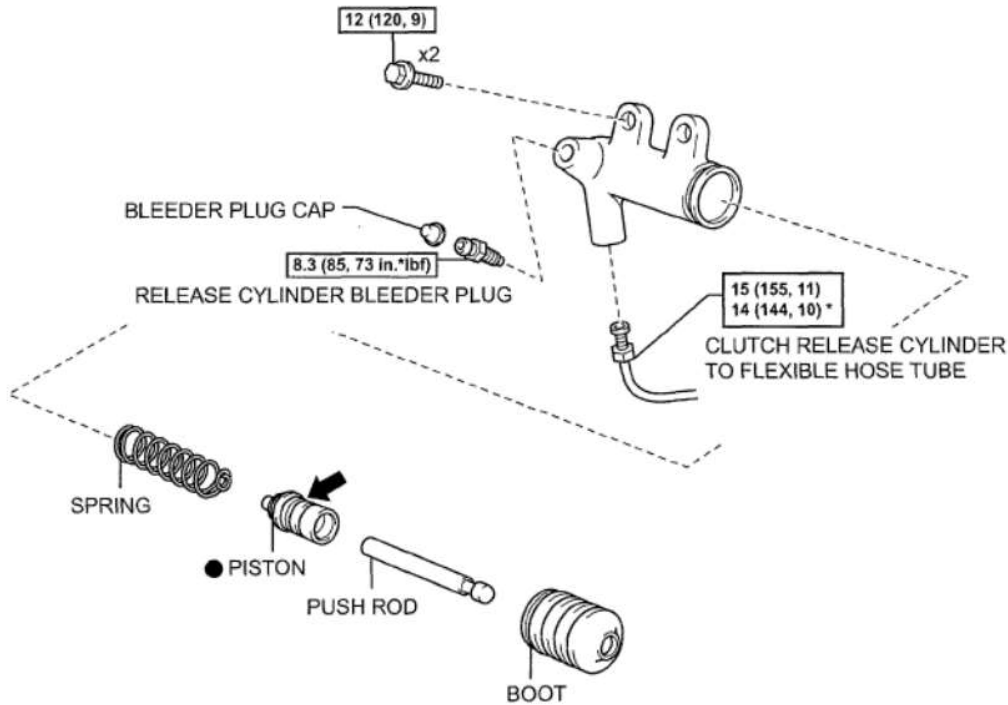
7. INSTALL INSTRUMENT PANEL UNDER TRAY (See INSTALLATION)

8. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See INSTALLATION)

CLUTCH RELEASE CYLINDER

COMPONENTS

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[N*m (kgf*cm, ft*lbf)] : Specified torque * For use with union nut wrench

● Non-reusable part ← Lithium soap base glycol grease

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Fig. 28: Identifying Clutch Release Cylinder Components And Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **DRAIN BRAKE FLUID**
2. **DISCONNECT CLUTCH RELEASE CYLINDER TO FLEXIBLE HOSE TUBE**
 - a. Using a union nut wrench, disconnect the flexible hose tube.

HINT:

Use a container to collect the fluid.

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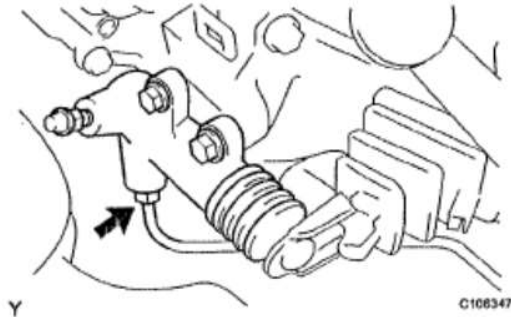


Fig. 29: Locating Flexible Hose Tube

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE CLUTCH RELEASE CYLINDER ASSEMBLY

- a. Remove the 2 bolts and the clutch release cylinder.

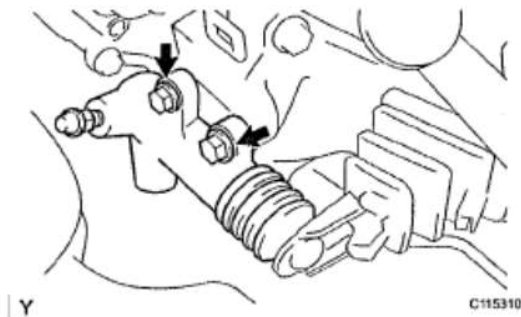


Fig. 30: Locating Bolts And Clutch Release Cylinder

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. REMOVE CLUTCH RELEASE CYLINDER KIT

- a. Remove the boot from the cylinder body.
- b. Remove the push rod from the cylinder body.
- c. Remove the piston from the cylinder body.

NOTE: Do not damage the inside of the cylinder body.

- d. Remove the spring from the cylinder body.
- e. Remove the bleeder plug cap from the bleeder plug.

2. REMOVE RELEASE CYLINDER BLEEDER PLUG

REASSEMBLY

1. INSTALL RELEASE CYLINDER BLEEDER PLUG

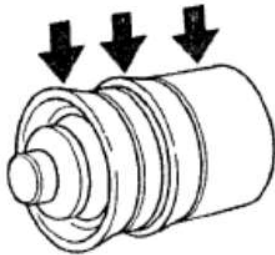
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Torque: 8.3 N*m (85 kgf*cm, 73 in.*lbf)

2. INSTALL CLUTCH RELEASE CYLINDER KIT

- a. Install the bleeder plug cap onto the bleeder plug.
- b. Install the spring onto the cylinder body.
- c. Coat a new piston with lithium soap base glycol grease, as shown in the illustration.



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Fig. 31: Identifying Piston

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Install the piston onto the cylinder body.

NOTE: Do not damage the inside of the cylinder body.

- e. Install the push rod onto the cylinder body.
- f. Install the boot onto the cylinder body.

INSTALLATION

1. INSTALL CLUTCH RELEASE CYLINDER ASSEMBLY

- a. Install the clutch release cylinder with the 2 bolts.

Torque: 12 N*m (120 kgf*cm, 9 ft.*lbf)

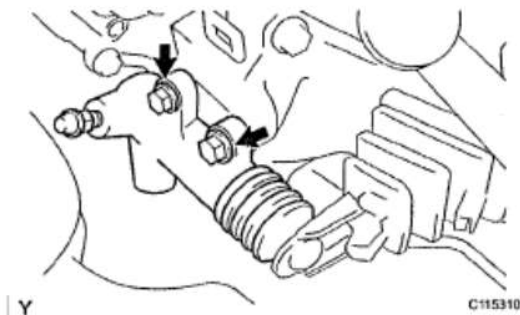


Fig. 32: Locating Bolts And Clutch Release Cylinder

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 TRANSMISSION Clutch - xD****2. CONNECT CLUTCH RELEASE CYLINDER TO FLEXIBLE HOSE TUBE**

- a. Using a union nut wrench, connect the flexible hose tube.

Torque: without union nut wrench

15 N*m (155 kgf*cm, 11 ft.*lbf)

with union nut wrench

14 N*m (144 kgf*cm, 10 ft.*lbf)

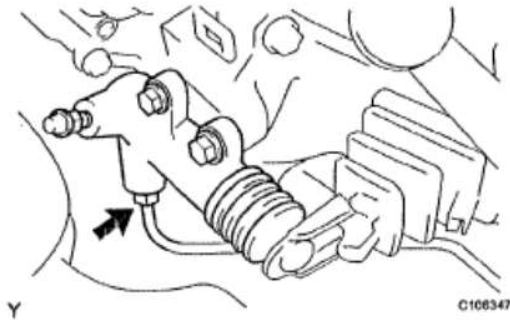


Fig. 33: Locating Flexible Hose Tube

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- This torque value can be obtained by using a torque wrench with a fulcrum length of 300 mm (11.8 in.) and a union nut wrench with a fulcrum length of 22 mm (0.866 in.) (See REPAIR INSTRUCTION).
- This torque value is effective when union nut wrench is parallel to a torque wrench.

3. BLEED CLUTCH PIPE LINE

- a. Fill the brake reservoir tank with brake fluid and bleed the clutch system.

Torque: 8.3 N*m (85 kgf*cm, 73 in.*lbf)

4. INSPECT FOR CLUTCH FLUID LEAK**CLUTCH UNIT****COMPONENTS**

2008 Scion xD
2008 TRANSMISSION Clutch - xD

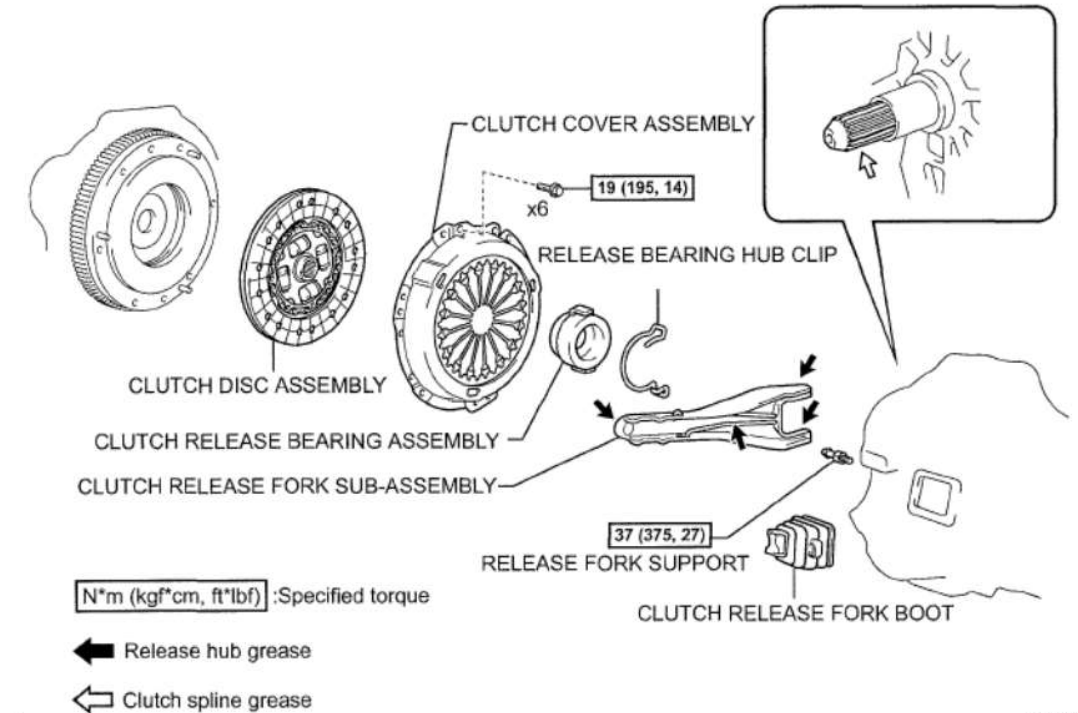


Fig. 34: Identifying Clutch Unit Components And Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE MANUAL TRANSAXLE ASSEMBLY

(See **REMOVAL**)

2. REMOVE CLUTCH RELEASE FORK SUB-ASSEMBLY

- Remove the clutch release fork with the clutch release bearing from the manual transaxle.

3. REMOVE CLUTCH RELEASE FORK BOOT

4. REMOVE CLUTCH RELEASE BEARING ASSEMBLY

- Remove the clutch release bearing from the clutch release fork.

5. REMOVE RELEASE BEARING HUB CLIP

6. REMOVE RELEASE FORK SUPPORT

- Remove the release fork support from the manual transaxle.

7. REMOVE CLUTCH COVER ASSEMBLY

- Put the matchmarks on the clutch cover assembly and the flywheel.

2008 Scion xD

2008 TRANSMISSION Clutch - xD

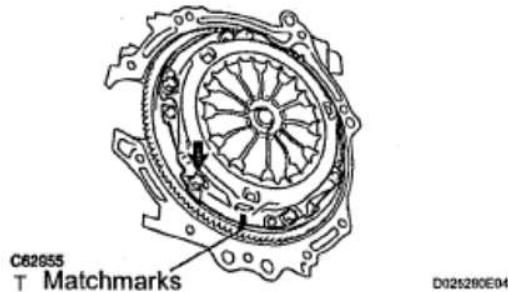


Fig. 35: Identifying Matchmarks On Clutch Cover Assembly And Flywheel
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Loosen each set bolt one turn at a time until the spring tension is released.
- c. Remove the set bolts and pull off the clutch cover.

NOTE: Do not drop the clutch disc.

8. REMOVE CLUTCH DISC ASSEMBLY

INSPECTION

1. INSPECT CLUTCH DISC ASSEMBLY

- a. Using vernier calipers, measure the rivet head depth.

Minimum rivet depth:

0.3 mm (0.012 in.)

If necessary, replace the clutch disc assembly.

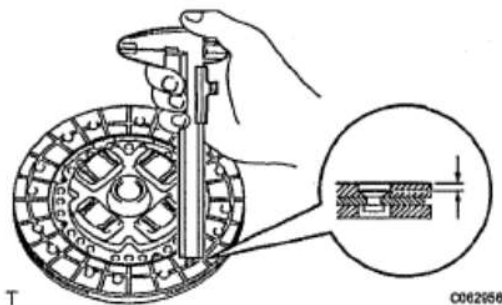


Fig. 36: Measuring Rivet Head Depth
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the clutch disc assembly onto the transaxle assembly.

2008 Scion xD**2008 TRANSMISSION Clutch - xD**

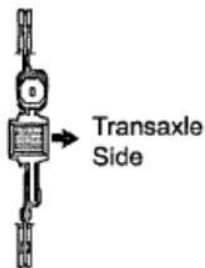
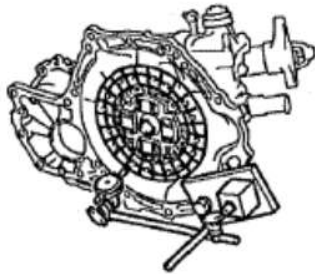
NOTE: Insert the clutch disc assembly in the correct direction.

- c. Using a dial gauge, measure the clutch disc assembly runout.

Maximum runout:

0.8 mm (0.031 in.)

If necessary, replace the clutch disc assembly.



D025257E05

Fig. 37: Measuring Clutch Disc Assembly Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSPECT CLUTCH COVER ASSEMBLY

- a. Using vernier calipers, measure the depth and width of the diaphragm spring wear.

Maximum:

A (Depth): 0.5 mm (0.020 in.)

B (Width): 6.0 mm (0.236 in.)

If necessary, replace the clutch cover assembly.

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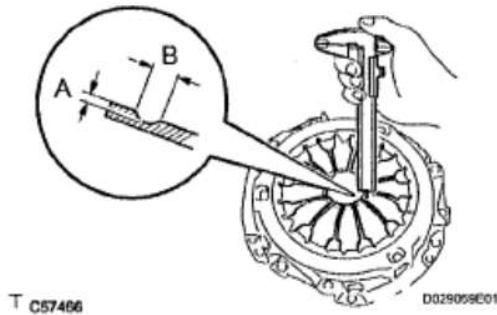


Fig. 38: Measuring Depth And Width Of Diaphragm Spring Wear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSPECT FLYWHEEL SUB-ASSEMBLY

- Using a dial gauge, check the flywheel sub-assembly runout.

Maximum runout:

0.1 mm (0.004 in.)

If necessary, replace the flywheel sub-assembly.

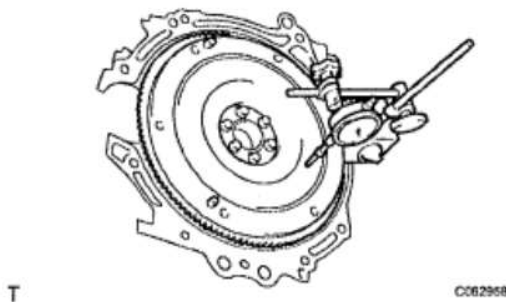


Fig. 39: Checking Flywheel Sub-Assembly Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSPECT CLUTCH RELEASE BEARING ASSEMBLY

- Check that the clutch release bearing assembly moves smoothly without abnormal resistance by turning the sliding parts of the clutch release bearing assembly (contact surfaces with the clutch cover) while applying force in the axial direction.
- Inspect the clutch release bearing assembly for damage and wear.

HINT:

If necessary, replace the release bearing assembly.

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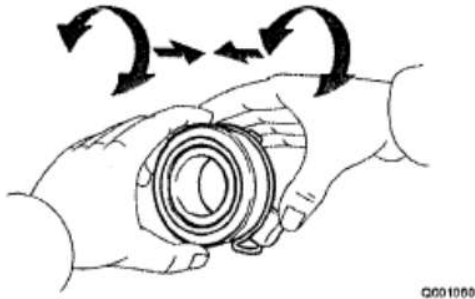


Fig. 40: Inspecting Clutch Release Bearing Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL CLUTCH DISC ASSEMBLY

- Insert SST into the clutch disc assembly, then insert them both into the flywheel sub-assembly.

SST 09301-00110

NOTE: Insert clutch disc assembly in the correct direction.

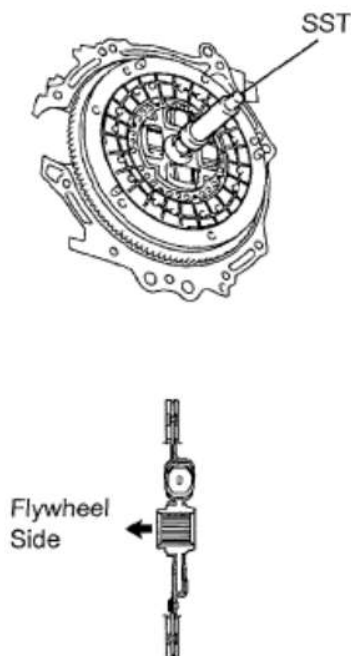


Fig. 41: Inserting SST Into Clutch Disc Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL CLUTCH COVER ASSEMBLY

2008 Scion xD

2008 TRANSMISSION Clutch - xD

- Align the matchmark on the clutch cover assembly with that on the flywheel sub-assembly.
- Following the procedures shown in the illustration, tighten the 6 bolts in order, starting with the bolt located near the knock pin at the top.

Torque: 19 N*m (195 kgf*cm, 14 ft.*lbf)

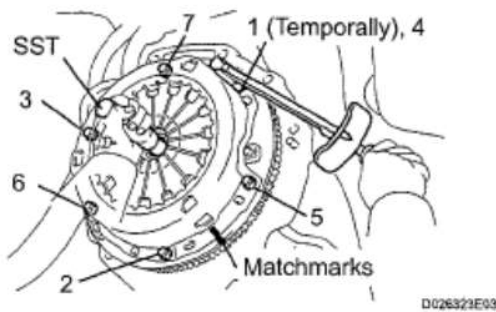


Fig. 42: Identifying Matchmark On Clutch Cover Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- Following the order in the illustration, tighten the bolts evenly one at a time.
- Move SST up and down, right and left lightly after checking that the disc is in the center, and tighten the bolts.

SST 09301-00110

3. INSPECT AND ADJUST CLUTCH COVER ASSEMBLY

- Using a dial indicator with a roller instrument, check the diaphragm spring tip alignment.

Maximum non-alignment:

0.5 mm (0.020 in.)

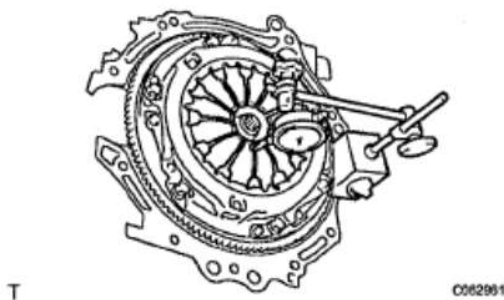


Fig. 43: Checking Diaphragm Spring Tip Alignment
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD

2008 TRANSMISSION Clutch - xD

- b. If the alignment is not as specified, using SST, adjust the diaphragm spring tip alignment.

SST 09333-00013

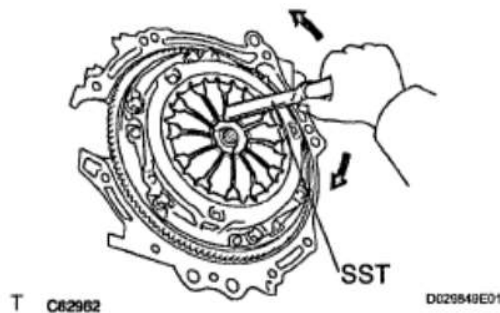


Fig. 44: Adjusting Diaphragm Spring Tip Alignment
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSTALL RELEASE FORK SUPPORT

- a. Install the release fork support onto the transaxle assembly.

Torque: 37 N*m (375 kgf*cm, 27 ft.*lbf)

5. INSTALL CLUTCH RELEASE FORK BOOT

6. INSTALL RELEASE BEARING HUB CLIP

7. INSTALL CLUTCH RELEASE FORK SUB-ASSEMBLY

- a. Apply release hub grease to the contact surfaces of the release fork and release bearing assembly, release fork and push rod, and release fork and fork support.

Sealant:

Toyota Genuine Release Hub Grease or equivalent

- b. Install the release fork onto the release bearing assembly.

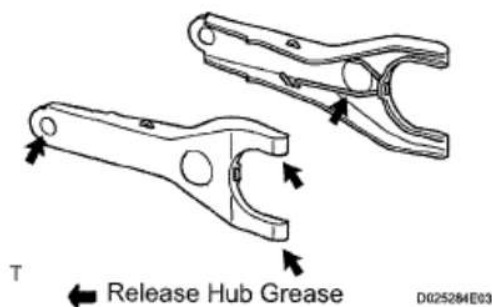


Fig. 45: Locating Release Fork Grease Area
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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8. INSTALL CLUTCH RELEASE BEARING ASSEMBLY

- Apply clutch spline grease to the input shaft spline.

Sealant:

Toyota Genuine Clutch Spline Grease or equivalent

- Install the clutch release bearing with release fork onto the transaxle assembly.

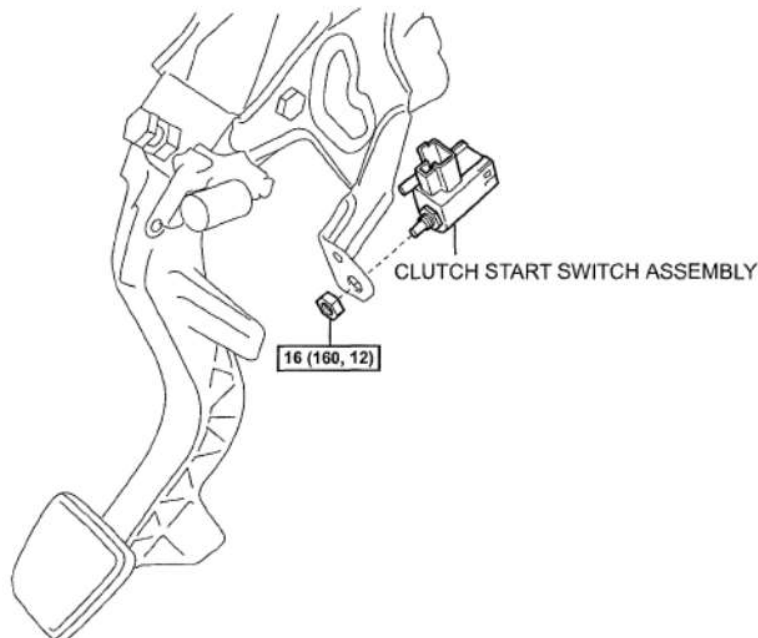
NOTE: After the installation, move the fork forward and backward to check that the release bearing slides smoothly.

9. INSTALL MANUAL TRANSAXLE ASSEMBLY

(See INSTALLATION)

CLUTCH PEDAL SWITCH

COMPONENTS



N*m (kgf*cm, ft*lb) :Specified torque

C116833E02

Fig. 46: Identifying Clutch Pedal Switch Components And Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 TRANSMISSION Clutch - xD****ON-VEHICLE INSPECTION****1. CHECK CLUTCH START SYSTEM**

- a. Check that the engine does not start when the clutch pedal is released.
- b. Check that the engine starts when the clutch pedal is fully depressed.

If necessary, replace the clutch start switch assembly.



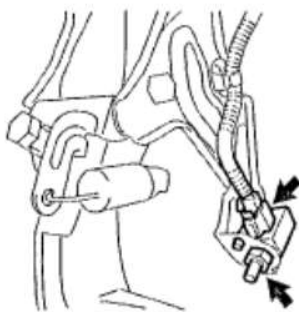
Y

C110311

Fig. 47: Identifying Clutch Start Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL**1. REMOVE CLUTCH START SWITCH ASSEMBLY**

- a. Disconnect the clutch start switch connector.



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C116855

Fig. 48: Locating Nut And Clutch Start Switch

2008 Scion xD

2008 TRANSMISSION Clutch - xD

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the nut and clutch start switch from the bracket.

INSPECTION

1. INSPECT CLUTCH START SWITCH ASSEMBLY

- a. Check the resistance between the terminals when the switch is ON and OFF.

Standard resistance

STANDARD RESISTANCE CHART

Tester Condition	Switch Condition	Specified Condition
1-2	ON (pushed in)	Below 1 ohms
1-2	OFF (released)	10 kohms or higher

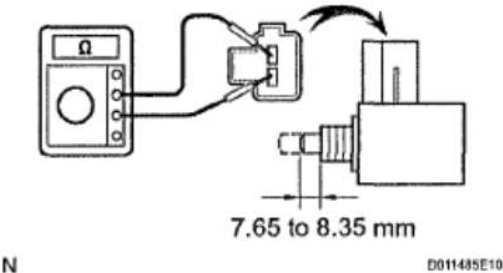


Fig. 49: Inspecting Clutch Start Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL CLUTCH START SWITCH ASSEMBLY

- a. Install the clutch start switch with the nut.

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

NOTE: Insert the protrusion of the clutch start switch into the hole in the clutch pedal support.

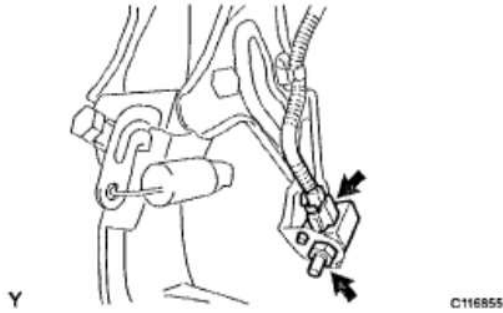
2008 Scion xD**2008 TRANSMISSION Clutch - xD**

Fig. 50: Locating Nut And Clutch Start Switch

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Connect the clutch start switch connector.

2. INSPECT CLUTCH START SWITCH ASSEMBLY (See ON-VEHICLE INSPECTION)