

2008 Scion xD

2008 BRAKES Brake - xD

2008 BRAKES

Brake - xD

BRAKE SYSTEM**PRECAUTION****1. TROUBLESHOOTING PRECAUTION****NOTE:**

- Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with those having the same part number or equivalent.
- It is very important to keep parts and the area clean when repairing the brake system.
- If the vehicle is equipped with a mobile communication system, refer to the PRECAUTION in the INTRODUCTION section.
- Care must be taken when using magnets as they could affect the performance of the speed sensors.
- Since the brake line is classified as one of the critical safety related parts, be sure to disassemble the components if a brake fluid leak is found. If any abnormality is found, replace the component with a new one.
- When removing brake components, cover the brake tube connections to prevent foreign matter such as dust or dirt from entering the tubes.
- Do not damage or deform the brake tubes when removing or installing them.
- When installing a grommet onto the body, ensure that the brake tube passes through the center of the grommet.
- When installing a brake tube or flexible hose, ensure that they are free from twisting or bending.
- If the cap of the flexible hose does not match the groove on the bracket, twist the hose slightly to insert it.
- Flexible hoses must be free from absorber oil, grease, etc.
- When installing a brake tube into a plastic clamp, ensure that the brake tube is not loose or being pinched.
- Do not reuse a clip or plastic clamp removed from a flexible hose.
- After installing a brake tube and flexible hose, ensure that they do not interfere with any other components.
- Do not allow brake fluid to adhere to any painted surface such as the

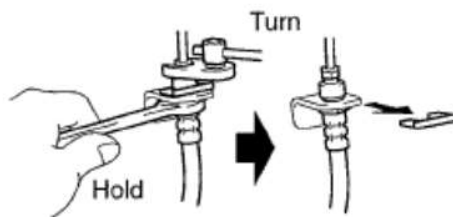
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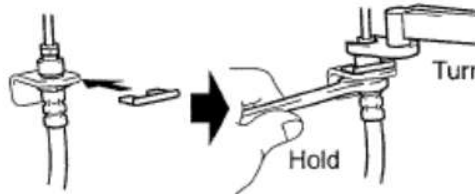
vehicle body. If brake fluid leaks onto any painted surface, immediately wash it off.

- **Disconnect and connect the flexible hose and brake tube:**
 - a. Hold the flexible hose with a wrench and disconnect the brake tube with a union nut wrench without deforming the tube.

Disconnecting:



Connecting:



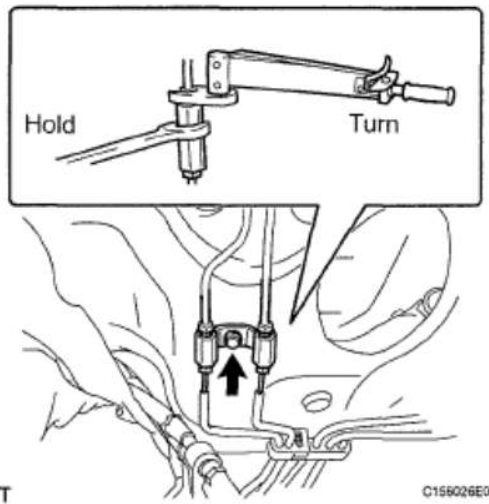
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Fig. 1: Disconnecting And Connecting Flexible Hose And Brake Tube

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

- b. Remove the clip.
 - c. Install a new clip.
 - d. Connect the brake tube with a union nut wrench without deforming the tube.
- **Connect the brake tube and way:**
 - a. Support the way to prevent deformation of the brake tube and connect the brake tube to the way with a union nut wrench.

2008 Scion xD**2008 BRAKES Brake - xD****Fig. 2: Connecting Brake Tube**

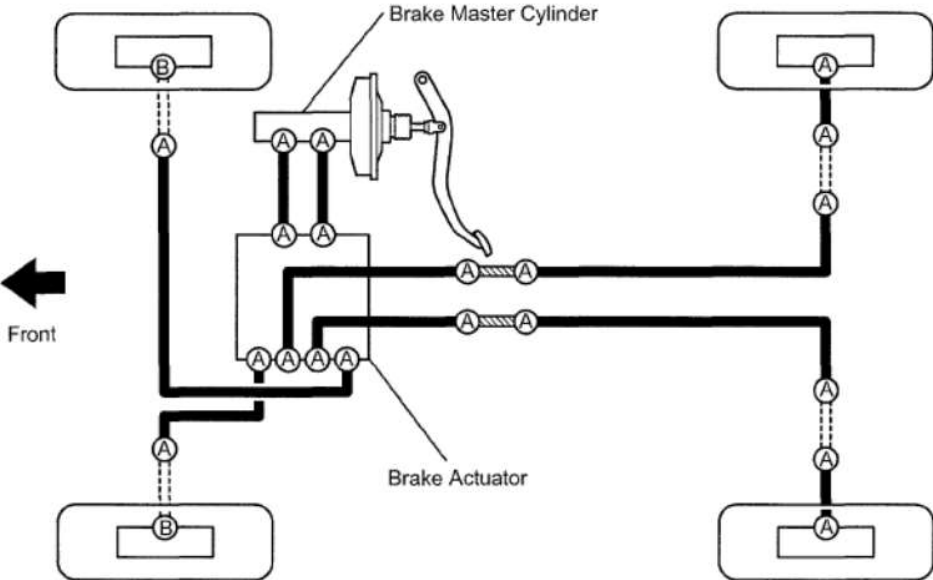
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- b. Support the way to prevent deformation of the brake tube and install the bolt to fix the way to the body.

SYSTEM DIAGRAM

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- : Brake Tube
- - - : Flexible Hose
- ▨ : Brake Tube Way

- Ⓐ : Union Nut

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

* 14 N*m (144 kgf*cm, 10 ft*lbf)
- Ⓑ : Union Bolt

30 N*m (310 kgf*cm, 22 ft*lbf)

* For use with union nut wrench

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Fig. 3: Brake System Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help you find the cause of the problem.

Check each part.

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If necessary, replace the applicable parts.

PROBLEM SYMPTOMS TABLE

Symptom	Suspected Area	See
Low pedal or spongy pedal	Fluid leakage in brake system	-
	Air in brake system	<u>BRAKE FLUID</u>
	Piston seal (Worn or damaged) (Front brake)	<u>FRONT BRAKE</u>
	Wheel cylinder cup (Damaged) (Rear brake)	<u>REAR BRAKE</u>
	Brake master cylinder (Faulty)	<u>BRAKE MASTER CYLINDER</u>
	Brake booster push rod (Adjustment necessary)	<u>BRAKE MASTER CYLINDER</u>
Brake drag	Brake pedal free play (Minimum)	<u>BRAKE PEDAL</u>
	Parking brake lever travel (Out of adjustment)	<u>PARKING BRAKE SYSTEM</u>
	Parking brake cable (Sticking)	<u>REMOVAL</u>
	Rear drum brake shoe clearance (Out of adjustment) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Cracked or distorted) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Cracked or distorted) (Rear brake)	<u>REAR BRAKE</u>
	Front disc brake piston (Stuck) (Front brake)	<u>FRONT BRAKE</u>
	Piston (Stuck) (Rear brake)	<u>REAR BRAKE</u>
	Front disc brake piston (Frozen) (Front brake)	<u>FRONT BRAKE</u>
	Piston (Frozen) (Rear brake)	<u>REAR BRAKE</u>
	Tension or return spring (Faulty) (Rear brake)	<u>REAR BRAKE</u>
	Booster system (Vacuum leakage)	<u>BRAKE BOOSTER</u>
	Brake master cylinder (Faulty)	<u>BRAKE MASTER CYLINDER</u>
Brake pull	Front disc brake piston (Stuck) (Front brake)	<u>FRONT BRAKE</u>
	Piston (Stuck) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Oily) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Oily) (Rear brake)	<u>REAR BRAKE</u>
	Front disc brake piston (Frozen) (Front brake)	<u>FRONT BRAKE</u>
	Piston (Frozen) (Rear brake)	<u>REAR BRAKE</u>
	Front disc (Scored) (Front brake)	<u>FRONT BRAKE</u>
	Rear brake drum (Scored) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Cracked or distorted) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Cracked or distorted) (Rear brake)	<u>REAR BRAKE</u>
	Fluid leakage in brake system	-
	Air in brake system	<u>BRAKE FLUID</u>
	Front disc brake piston (Stuck) (Front brake)	<u>FRONT BRAKE</u>
	Piston (Stuck) (Rear brake)	<u>REAR BRAKE</u>

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Hard pedal but braking inefficient	Pad (Cracked or distorted) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Cracked or distorted) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Oily) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Oily) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Glazed) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Glazed) (Rear brake)	<u>REAR BRAKE</u>
	Front disc (Scored) (Front brake)	<u>FRONT BRAKE</u>
	Rear brake drum (Scored) (Rear brake)	<u>REAR BRAKE</u>
	Booster system (Vacuum leakage)	<u>BRAKE BOOSTER</u>
Noise from brakes	Pad (Cracked or distorted) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Cracked or distorted) (Rear brake)	<u>REAR BRAKE</u>
	Installation bolt (Loose) (Front brake)	<u>FRONT BRAKE</u>
	Front disc (Scored) (Front brake)	<u>FRONT BRAKE</u>
	Rear brake drum (Scored) (Rear brake)	<u>REAR BRAKE</u>
	Pad support plate (Loose) (Front brake)	<u>FRONT BRAKE</u>
	Sliding pin (Worn) (Front brake)	<u>FRONT BRAKE</u>
	Pad (Dirty) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Dirty) (Rear brake)	<u>REAR BRAKE</u>
	Pad (Glazed) (Front brake)	<u>FRONT BRAKE</u>
	Brake shoe (Glazed) (Rear brake)	<u>REAR BRAKE</u>
	Tension or return spring (Faulty) (Rear brake)	<u>REAR BRAKE</u>
	Anti squeal shim (Damaged) (Front brake)	<u>FRONT BRAKE</u>
	Shoe hold down spring (Damaged) (Rear brake)	<u>REAR BRAKE</u>

BRAKE FLUID**ON-VEHICLE INSPECTION****1. INSPECT FLUID LEVEL IN RESERVOIR**

- a. Check the fluid level.

If the brake fluid level is low, check for leakage and inspect the disc brake pad. If necessary, refill the reservoir with brake fluid after repair and replacement.

Fluid:

SAE J1703 or FMVSS No. 116 DOT 3

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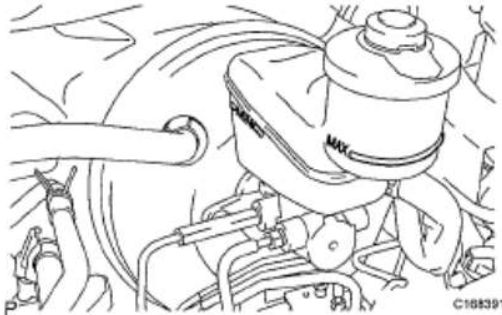


Fig. 4: Identifying Fluid Level In Reservoir
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

HINT:

If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the system.

1. REMOVE COWL TOP VENTILATOR LOUVER CENTER

- Slide the hood to cowl top seal as shown in the illustration.

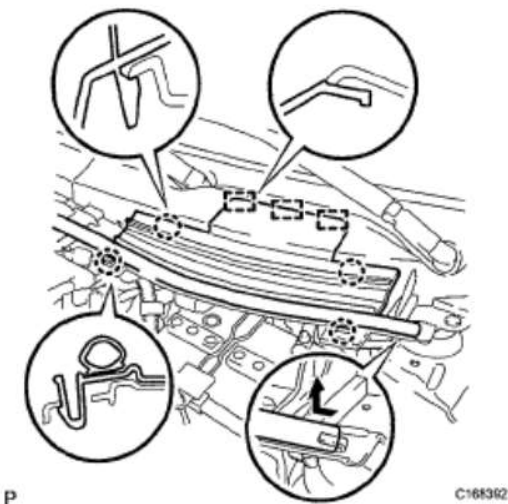


Fig. 5: Identifying Cowl Top Ventilator Louver Center Claws And Guides
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Disengage the 4 claws and 3 guides and remove the cowl top ventilator louver center.

2. FILL RESERVOIR WITH BRAKE FLUID

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- a. Fill the reservoir with brake fluid.

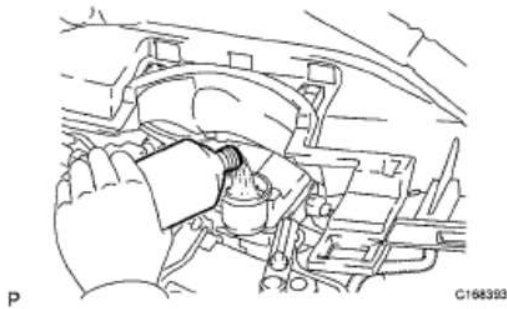
Fluid:**SAE J1703 or FMVSS No. 116 DOT3**

Fig. 6: Filling Reservoir With Brake Fluid
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. BLEED MASTER CYLINDER**HINT:**

If the master cylinder has been disassembled or if the reservoir becomes empty, bleed the air from the master cylinder.

- a. Using a union nut wrench, separate the brake tubes from the master cylinder.

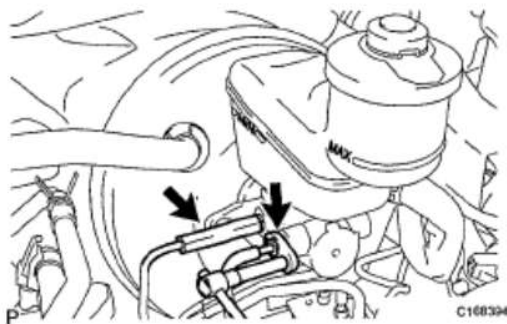


Fig. 7: Locating Brake Tubes
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Slowly depress the brake pedal and hold it there (Step).

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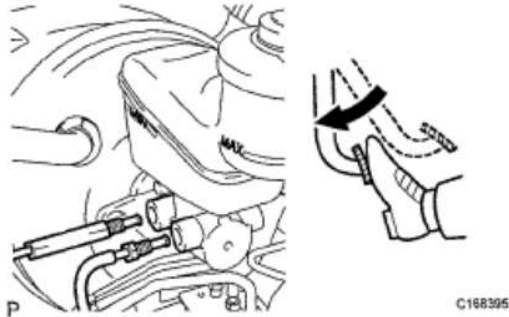


Fig. 8: Depressing Brake Pedal

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

- c. Block the outer holes with your fingers, and release the brake pedal (Step a).



Fig. 9: Releasing Brake Pedal

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

- d. Repeat Steps and a 3 or 4 times.
e. Using a union nut wrench, install the brake tubes into the master cylinder.

Torque: without union nut wrench

15 N*m (155 kgf*cm 511 ft.*lbf)

with union nut wrench

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

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 the union nut wrench is parallel to a torque wrench.

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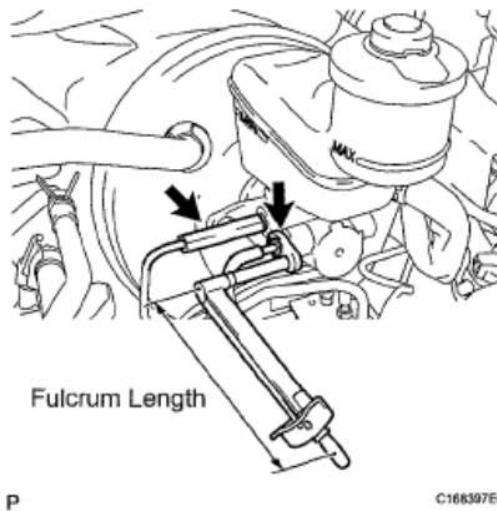


Fig. 10: Installing Brake Tubes Into Master Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. BLEED BRAKE LINE

- Connect a vinyl tube to the bleeder plug.

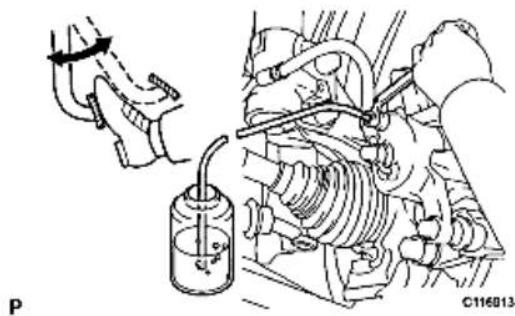


Fig. 11: Bleeding Brake Line
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Depress the brake pedal several times, then loosen the bleeder plug with the pedal depressed (Step C).
- At the point where the fluid stops coming out, tighten the bleeder plug, then release the brake pedal (Step D).
- Repeat Steps C and D until all the air in the fluid is completely bled out.
- Tighten the bleeder plug.

Torque: Front Brake

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

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Rear Brake**8.5 N*m (87 kgf*cm, 75 in.*lbf)**

- f. Repeat the above procedure to bleed the air out of the brake line for each wheel.

5. BLEED BRAKE ACTUATOR (w/ VSC)

NOTE: After bleeding the air from the brake system, if the height or feel of the brake pedal cannot be obtained, perform air bleeding of the brake actuator with the Techstream by following the procedure below.

- a. Depress the brake pedal more than 20 times with the engine off.
- b. Connect the Techstream to the DLC3, and turn the ignition switch ON.

NOTE: Do not start the engine.

- c. Select "Air Bleeding" on the Techstream.

HINT:

Refer to the tester operator's manual for further details.

- d. Bleed the air out of the brake line when Step 1: Increase appears on the Techstream display.

NOTE:

- Bleed the air by following the steps displayed on the Techstream.
- Make sure that the master cylinder reservoir tank does not become empty.

1. Connect the vinyl tube to either one of the bleeder plugs.
2. Depress the brake pedal several times, then loosen the bleeder plug connected to the vinyl tube with the pedal depressed (Step E).

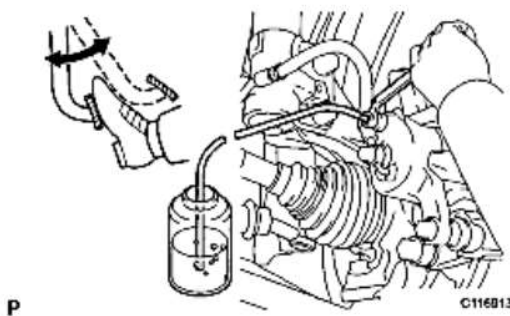


Fig. 12: Bleeding Brake Actuator (W/ VSC)

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

3. When fluid stops coming out, tighten the bleeder plug and release the brake pedal (Step F).
4. Repeat Steps E and F until all the air in the fluid is completely bled out.
5. Tighten the bleeder plug completely.

Torque: Front Brake

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

Rear Brake

8.5 N*m (87 kgf*cm, 75 in.*lbf)

6. Repeat the above procedure for each wheel to bleed the air out of the brake line.
- e. Bleed the air out of the suction line when Step 2: Inhalation appears on the Techstream display.

NOTE:

- **Bleed the air by following the steps displayed on the Techstream.**
- **Make sure that the master cylinder reservoir tank does not become empty.**

1. Connect the vinyl tube to the bleeder plug at the right front wheel or the right rear wheel and loosen the bleeder plug.
2. Operate the brake actuator to bleed the air using the Techstream (Step G).

NOTE: Release the brake pedal at this time.

HINT:

This operation stops automatically after 4 seconds.

3. Check if the operation has stopped by referring to the Techstream display and tighten the bleeder plug (Step H).
4. Repeat Steps G and H until all the air in the fluid is completely bled out.
5. Tighten the bleeder plug.

Torque: Front Brake

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

Rear Brake

8.5 N*m (87 kgf*cm, 75 in.*lbf)

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6. Repeat the above procedure for the other wheels to bleed the air out of the brake line.
- f. Bleed the air out of the pressure reduction line when Step 3: Decrease appears on the Techstream display.

NOTE:

- **Bleed the air by following the steps displayed on the Techstream.**
- **Make sure that the master cylinder reservoir tank does not become empty.**

1. Connect a vinyl tube to either one of the bleeder plugs.
2. Loosen the bleeder plug (Step I).
3. Using the Techstream, operate the brake actuator assembly, completely depress the brake pedal and hold it there (Step J).

NOTE:

- **During this procedure, the pedal will feel heavy, but completely depress it so that the brake fluid comes out of the bleeder plug.**
- **Hold the brake pedal depressed. Do not depress and release the pedal repeatedly.**

HINT:

- The operation stops automatically after 4 seconds. When performing this procedure continuously, set an interval of at least 20 seconds.
 - When the operation is complete, the brake pedal goes down slightly. This is a normal phenomenon caused when the solenoid opens.
4. Tighten the bleeder plug, then release the brake pedal (Step K).
 5. Repeat Steps I to K until all the air in the fluid is completely bled out.
 6. Tighten the bleeder plug.

Torque: Front Brake

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

Rear Brake

8.5 N*m (87 kgf*cm, 75 in.*lbf)

7. Repeat the above procedure for the other wheels to bleed the air out of the brake line.
- g. Bleed the air out of the brake line again when Step 4: Increase appears on the Techstream display.

NOTE:

- **Bleed the air by following the steps displayed on the**

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Techstream.

- **Make sure that the master cylinder reservoir tank does not become empty.**

1. Connect the vinyl tube to either one of the bleeder plugs.
2. Depress the brake pedal several times, then loosen the bleeder plug connected to the vinyl tube with the pedal depressed (Step L).
3. When fluid stops coming out, tighten the bleeder plug, then release the brake pedal (Step M).

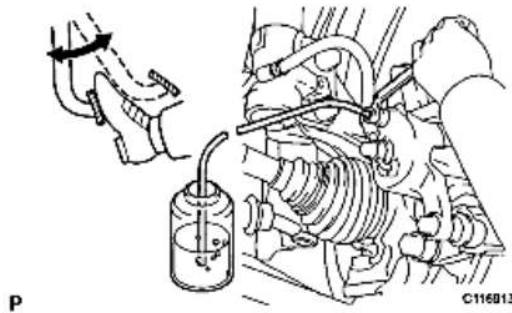


Fig. 13: Tightening Bleeder Plug

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

4. Repeat Steps L and M until all the air in the fluid is completely bled out.
5. Tighten the bleeder plug.

Torque: Front Brake

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

Rear Brake

8.5 N*m (87 kgf*cm, 75 in.*lbf)

6. Repeat the above procedure for the other wheels to bleed the air out of the brake line.
7. Make sure that the air bleeding is complete by referring to the Techstream display and turn off the Techstream.
8. Disconnect the Techstream from the DLC3.
9. Turn the ignition switch OFF.

6. CHECK FLUID LEVEL IN RESERVOIR

- a. Check the fluid level and add fluid if necessary.

Fluid:

SAE J1703 or FMVSS No. 116 DOT3

2008 Scion xD**2008 BRAKES Brake - xD****7. INSTALL COWL TOP VENTILATOR LOUVER CENTER**

- a. Engage the 4 claws and 3 guides and install the cowl top ventilator louver center.

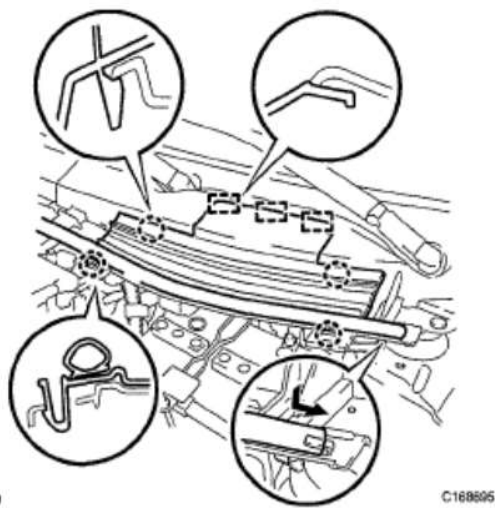


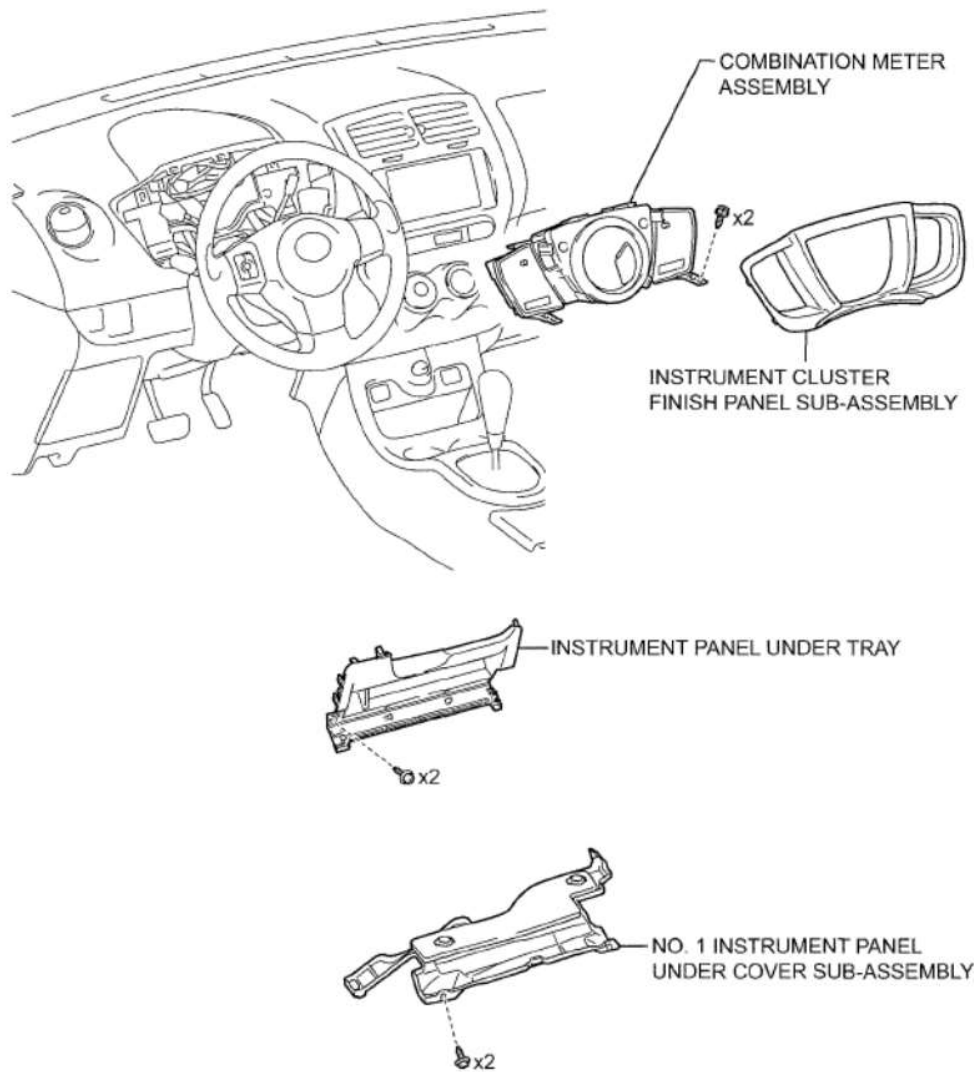
Fig. 14: Identifying Cowl Top Ventilator Louver Center Claws And Guides
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Slide the hood to cowl top seal as shown in the illustration.

BRAKE PEDAL**COMPONENTS**

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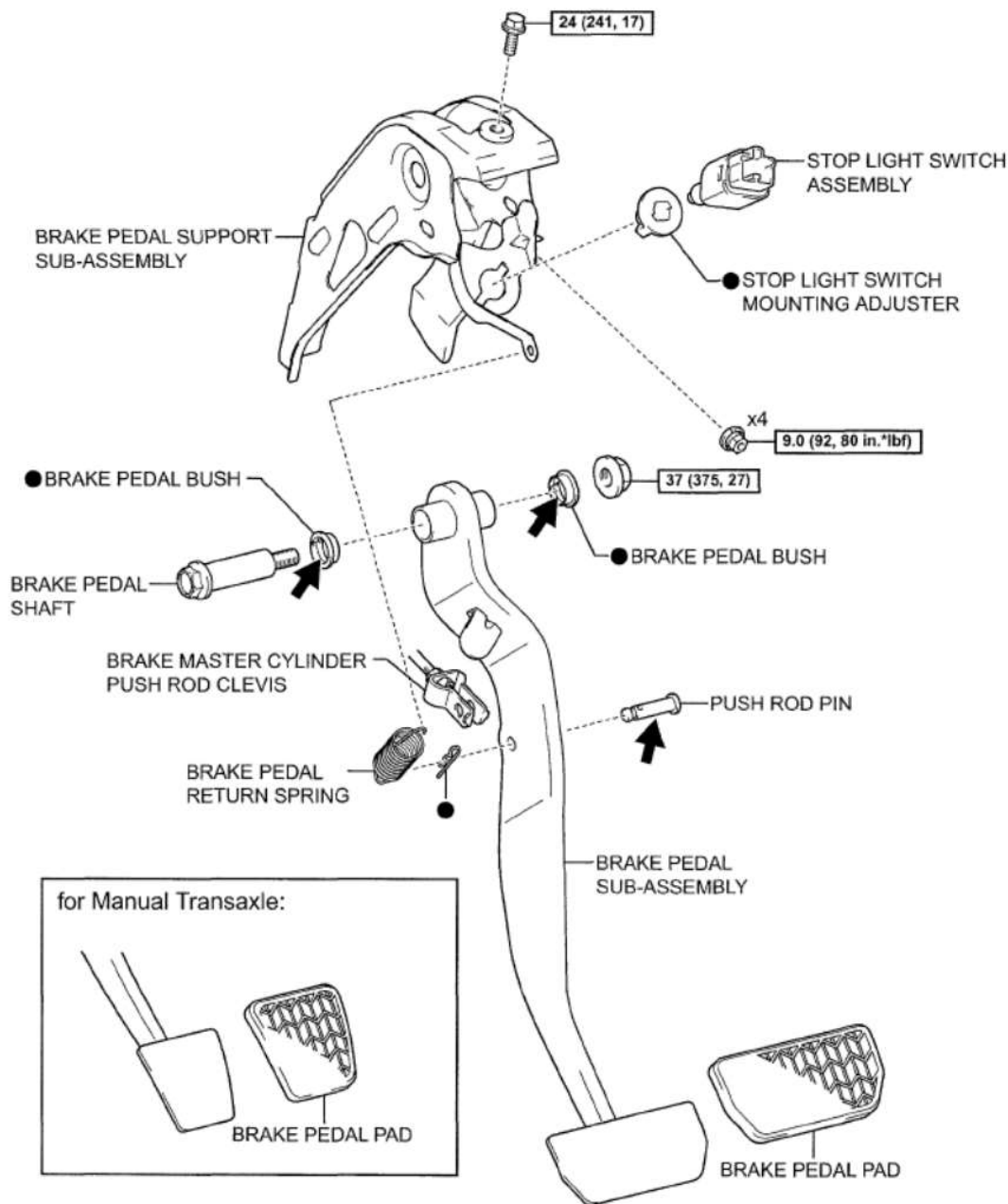
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Fig. 15: Identifying Brake Pedal Components (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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for Manual Transaxle:

BRAKE PEDAL PAD

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

● Non-reusable part

← Lithium soap base glycol grease

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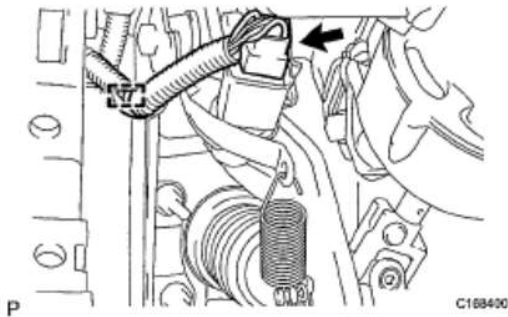
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Fig. 16: Identifying Brake Pedal Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

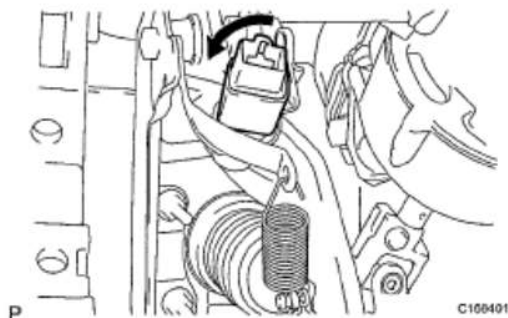
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1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** (See **REMOVAL**)
3. **REMOVE COMBINATION METER ASSEMBLY** (See **REMOVAL**)
4. **REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See **REMOVAL**)
5. **REMOVE INSTRUMENT PANEL UNDER TRAY** (See **REMOVAL**)
6. **REMOVE STOP LIGHT SWITCH ASSEMBLY**
 - a. Disconnect the connector from the stop light switch.

**Fig. 17: Locating Stop Light Switch Connector**

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

- b. Disengage the harness clamp from the pedal support.
- c. Turn the stop light switch counterclockwise and remove the stop light switch.

**Fig. 18: Removing Stop Light Switch**

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

7. **REMOVE STOP LIGHT SWITCH MOUNTING ADJUSTER**
 - a. Remove the stop light switch mounting adjuster from the pedal support.

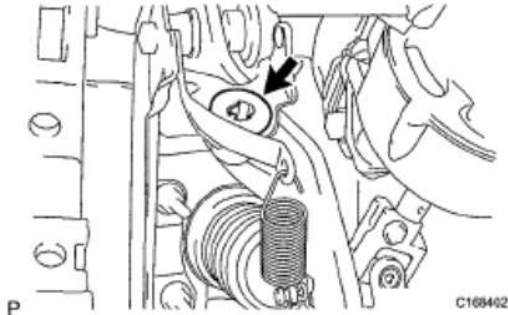
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Fig. 19: Locating Stop Light Switch Mounting Adjuster
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. SEPARATE BRAKE MASTER CYLINDER PUSH ROD CLEVIS

- a. Remove the brake pedal return spring.
- b. Remove the clip and the push rod pin and separate the push rod clevis from the brake pedal.

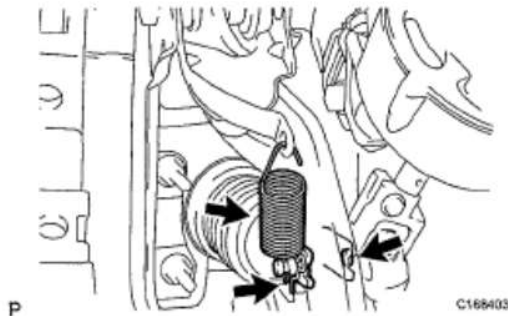


Fig. 20: Locating Brake Pedal Return Spring, Clip And Push Rod Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. REMOVE BRAKE PEDAL SUPPORT SUB-ASSEMBLY

- a. Remove the 4 nuts and bolt and remove the pedal support.

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Fig. 21: Locating Brake Pedal Support Nuts

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

10. REMOVE BRAKE PEDAL SUB-ASSEMBLY

- a. Remove the nut and brake pedal shaft and remove the brake pedal from the pedal support.

11. REMOVE BRAKE PEDAL BUSH

- a. Remove the 2 brake pedal bushes from the brake pedal.

12. REMOVE BRAKE PEDAL PAD

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

ADJUSTMENT

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

2. REMOVE INSTRUMENT PANEL UNDER TRAY (See REMOVAL)

3. INSPECT AND ADJUST BRAKE PEDAL

- a. Inspect the brake pedal height.

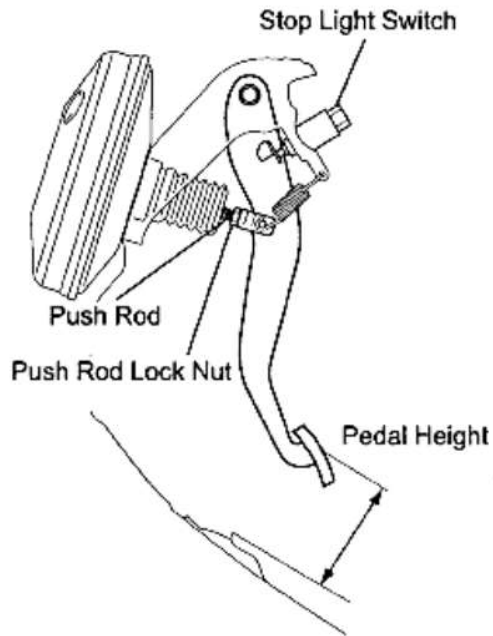
Pedal height from floor:

107.3 to 117.3 mm (4.22 to 4.62 in.)

If the pedal height is incorrect, adjust it.

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Fig. 22: Identifying Brake Pedal Height

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

- b. Adjust the brake pedal height.
 1. Disconnect the connector from the stop light switch.
 2. Turn the stop light switch counterclockwise and remove the stop light switch.
 3. Loosen the push rod lock nut.
 4. Adjust the pedal height by turning the pedal push rod.

Pedal height from floor:

107.3 to 117.3 mm (4.22 to 4.62 in.)

5. Tighten the push rod lock nut.

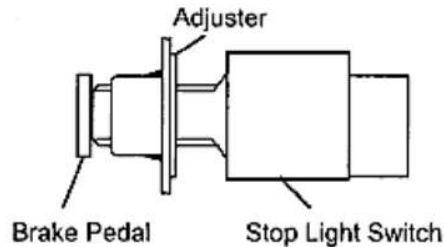
Torque: 26 N*m (265 kgf*cm, 19 ft.*lbf)

6. Insert the stop light switch into the adjuster until it just touches the brake pedal.

NOTE: Do not depress the brake pedal.

2008 Scion xD

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F049043E01

Fig. 23: Identifying Stop Light Switch, Adjuster And Brake Pedal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. Make a quarter turn clockwise to install the stop light switch.

NOTE: Do not depress the brake pedal.

HINT:

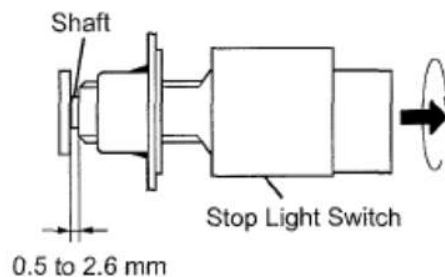
The turning torque for installing the stop light switch:

Torque: 1.5 N*m (15 kgf*cm, 13 in.*lbf) or less

8. Check the stop light switch clearance.

Stop light switch clearance:

0.5 to 2.6 mm (0.020 to 0.102 in.)



F049044E14

Fig. 24: Identifying Stop Light Switch Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. Connect the connector to the stop light switch.
- c. Inspect the brake pedal free play.
 1. Stop the engine and depress the brake pedal several times until there is no vacuum left in the booster.
 2. Push in the pedal until a slight resistance is felt. Measure the distance as shown.

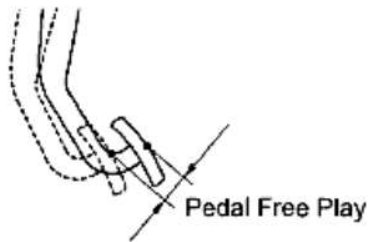
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Pedal free play:

1.0 to 6.0 mm (0.039 to 0.236 in.)

If incorrect, troubleshoot the brake system.



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Fig. 25: Identifying Brake Pedal Free Play

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

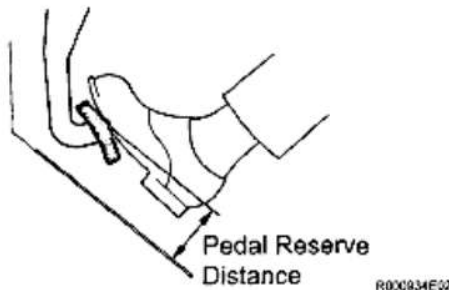
- d. Inspect the brake pedal reserve distance.
 1. Release the parking brake lever. With the engine running, depress the pedal and measure the pedal reserve distance as shown.

Pedal reserve distance from floor at 300 N (31 kgf, 67.4 lbf):

More than 81 mm (3.19 in.)

HINT:

Sound and resistance from the brake booster when the brake pedal is depressed without a vacuum does not indicate a problem. If incorrect, troubleshoot the brake system.



R000834E02

Fig. 26: Inspecting Brake Pedal Reserve Distance

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

4. **INSTALL INSTRUMENT PANEL UNDER TRAY** (See **INSTALLATION**)
5. **INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See **INSTALLATION**)

2008 Scion xD**2008 BRAKES Brake - xD****INSTALLATION****1. INSTALL BRAKE PEDAL PAD**

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

2. INSTALL BRAKE PEDAL BUSH

- a. Apply lithium soap base glycol grease to the 2 new bushes.
- b. Install the 2 bushes onto the brake pedal.

3. INSTALL BRAKE PEDAL SUB-ASSEMBLY

- a. Install the brake pedal onto the pedal support with the brake pedal shaft and nut.

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

4. INSTALL BRAKE PEDAL SUPPORT SUB-ASSEMBLY

- a. Install the pedal support with the bolt and 4 nuts.

Torque: Bolt

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

Nut

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

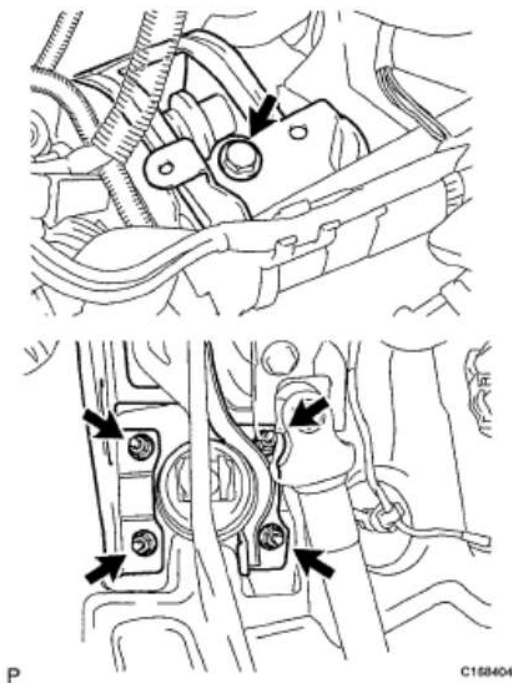


Fig. 27: Locating Brake Pedal Support Nuts

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

2008 Scion xD**2008 BRAKES Brake - xD****5. INSTALL BRAKE MASTER CYLINDER PUSH ROD CLEVIS**

- a. Apply lithium soap base glycol grease to the push rod pin.
- b. Install the push rod clevis with the push rod pin and a new clip.

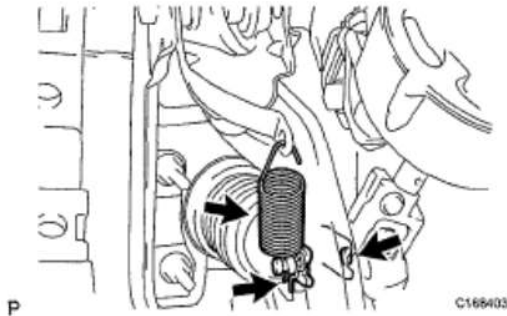


Fig. 28: Locating Brake Pedal Return Spring, Clip And Push Rod Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install the brake pedal return spring.

6. INSTALL STOP LIGHT SWITCH MOUNTING ADJUSTER

- a. Install a new stop light switch mounting adjuster onto the pedal support.

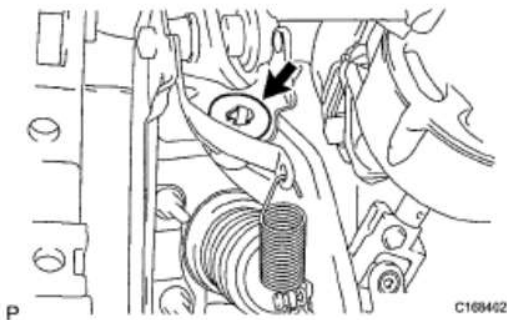


Fig. 29: Identifying Stop Light Switch Mounting Adjuster
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

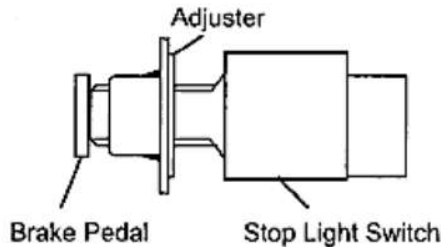
7. INSTALL STOP LIGHT SWITCH ASSEMBLY

- a. Insert the stop light switch into the adjuster until it just touches the brake pedal.

NOTE: Do not depress the brake pedal.

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2008 BRAKES Brake - xD



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Fig. 30: Identifying Stop Light Switch, Adjuster And Brake Pedal
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Make a quarter turn clockwise to install the stop light switch.

NOTE: Do not depress the brake pedal.

HINT:

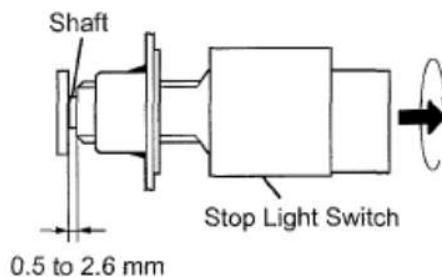
The turning torque for installing the stop light switch:

Torque: 1.5 N*m (15 kgf*cm, 13 in.*lbf) or less

- c. Check the stop light switch clearance.

Stop light switch clearance:

0.5 to 2.6 mm (0.020 to 0.102 in.)



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Fig. 31: Identifying Stop Light Switch Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Engage the harness clamp to the pedal support.

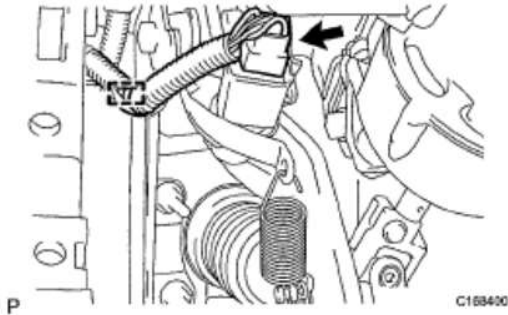
2008 Scion xD**2008 BRAKES Brake - xD**

Fig. 32: Locating Stop Light Switch Connector

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

- e. Connect the connector to the stop light switch.
8. **INSTALL COMBINATION METER ASSEMBLY** (See INSTALLATION)
9. **INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** (See INSTALLATION)
10. **INSPECT AND ADJUST BRAKE PEDAL** (See ADJUSTMENT)
11. **INSTALL INSTRUMENT PANEL UNDER TRAY** (See INSTALLATION)
12. **INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See INSTALLATION)
13. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

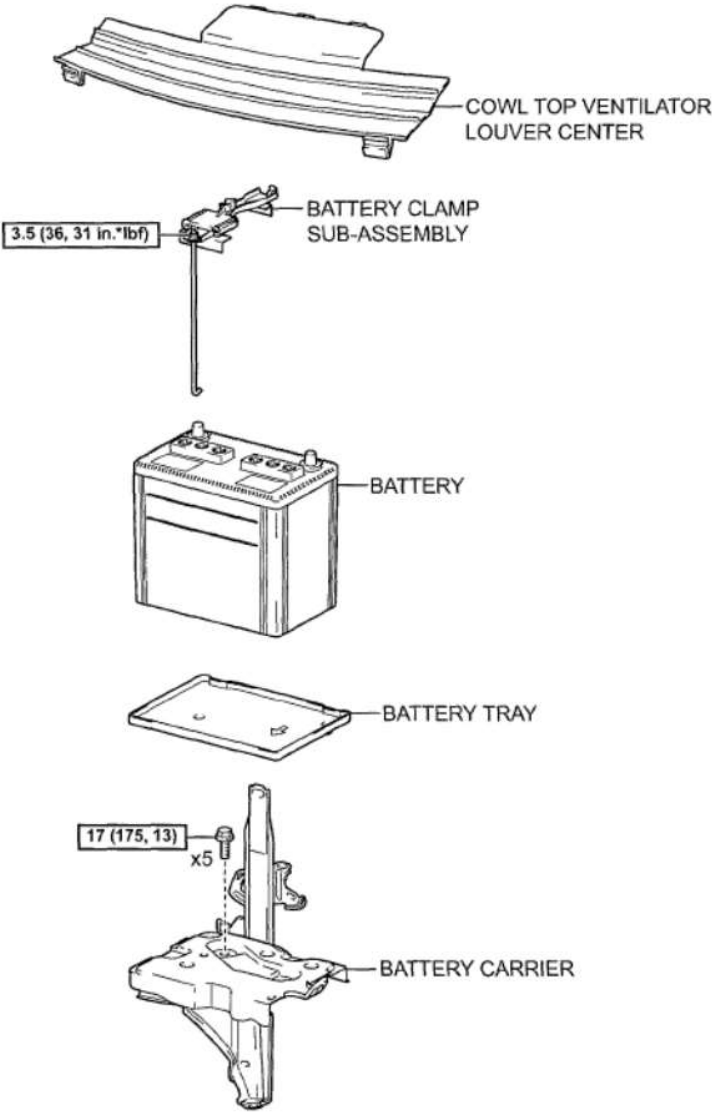
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

BRAKE MASTER CYLINDER

COMPONENTS

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

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Fig. 33: Identifying Brake Master Cylinder Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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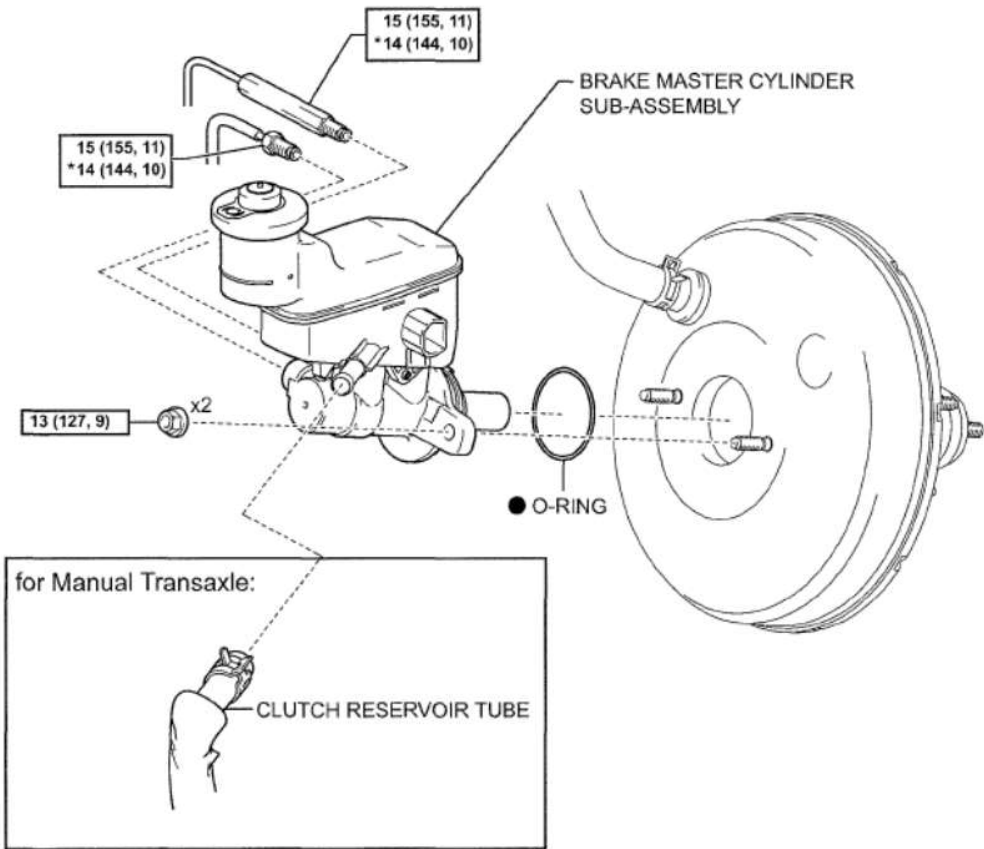


Fig. 34: Identifying Brake Master Cylinder Components With Torque Specifications (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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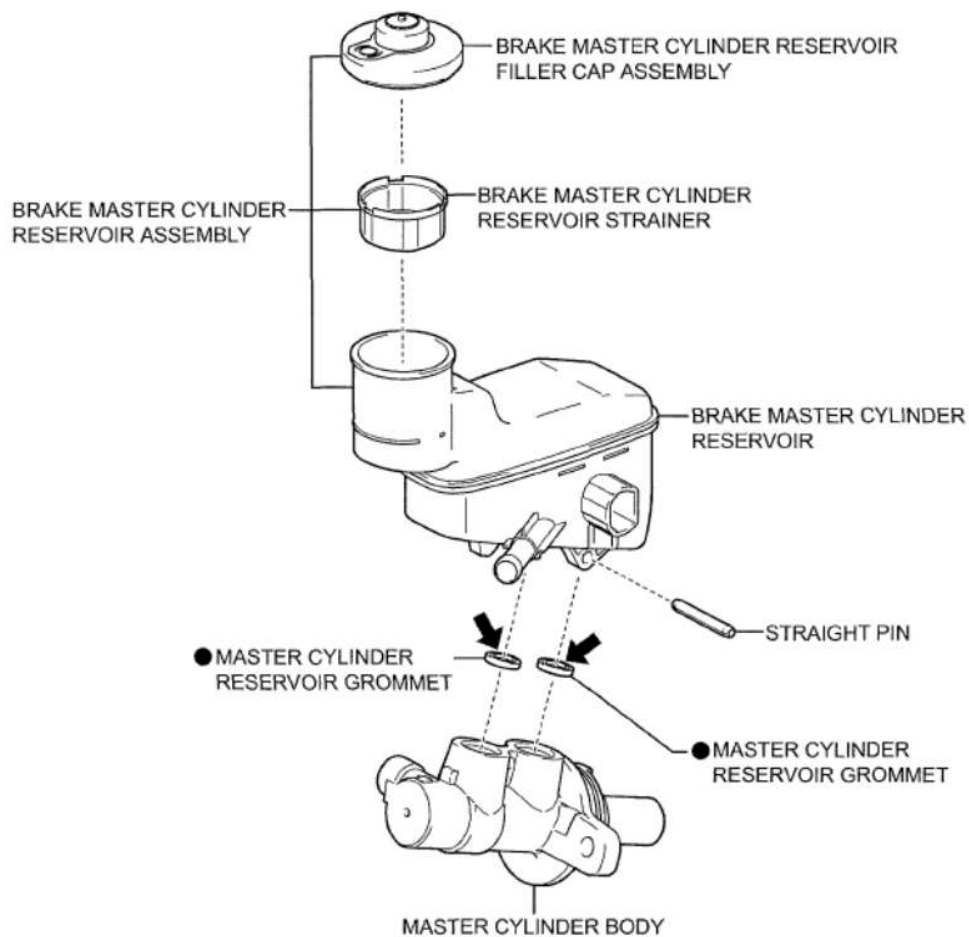


Fig. 35: Identifying Brake Master Cylinder Components With Torque Specification (3 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. DRAIN BRAKE FLUID

NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

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2. **REMOVE COWL TOP VENTILATOR LOUVER CENTER** (See **REPLACEMENT**)
3. **REMOVE BATTERY** (See **REMOVAL**)
4. **REMOVE BATTERY TRAY**
5. **REMOVE BATTERY CARRIER** (See **REMOVAL**)
6. **DISCONNECT CLUTCH RESERVOIR TUBE (for Manual Transaxle)**
 - a. Slide the clip and disconnect the clutch reservoir tube.

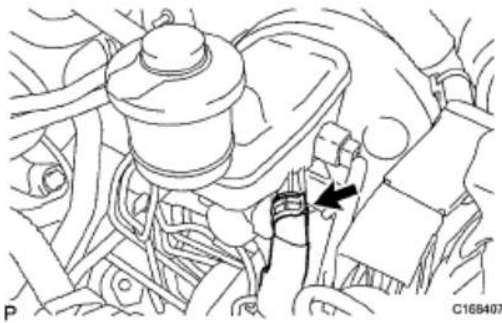


Fig. 36: Locating Clutch Reservoir Tube Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY**
 - a. Disconnect the brake fluid level warning switch connector.

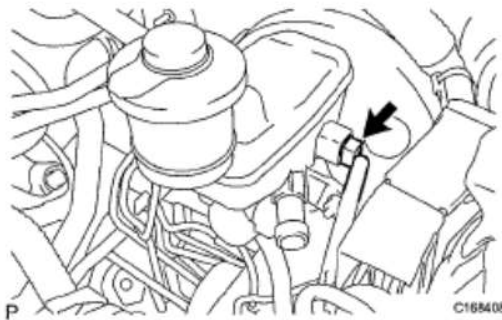


Fig. 37: Locating Brake Fluid Level Warning Switch Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a union nut wrench, separate the 2 brake tubes from the brake master cylinder sub-assembly.

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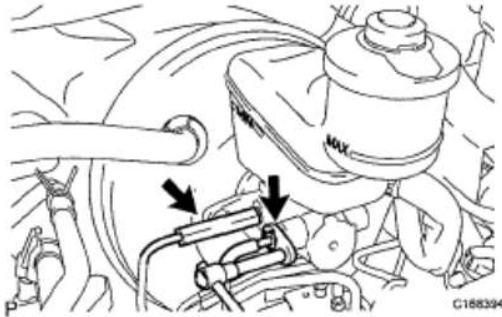
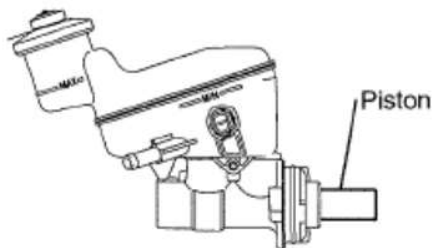
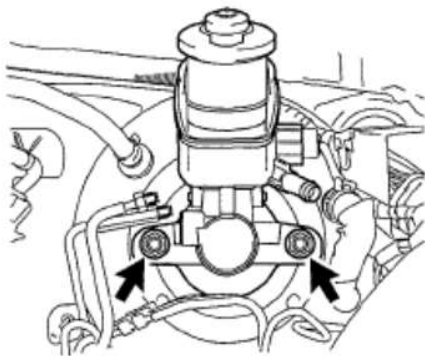


Fig. 38: Locating Brake Tubes

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

- c. Remove the 2 nuts and remove the brake master cylinder sub-assembly.



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Fig. 39: Locating Brake Master Cylinder Nuts

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

- d. Remove the O-ring from the brake master cylinder sub-assembly.

NOTE:

- The master cylinder requires careful handling. Do not allow the master cylinder to receive any impact, such as from being dropped. Do not reuse a master cylinder that has been dropped.
- Do not strike or pinch the master cylinder piston, and do not cause any damage to the master cylinder piston by any other

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means.

- Make sure to release the vacuum from the brake booster before removing the master cylinder from the brake booster.
- When installing the brake master cylinder sub-assembly onto the brake booster, or when removing the brake master cylinder sub-assembly from the brake booster, make sure that the brake master cylinder sub-assembly is kept horizontal or its tip faces downward (the piston faces upward) to prevent the master cylinder piston from falling off.
- Do not allow any foreign objects to contaminate the master cylinder piston. If a foreign object gets on the piston, remove it by using a piece of cloth and then apply an even layer of lithium soap based glycol grease around the circumference (sliding part) of the piston.
- Do not use any other type of grease or fluid.

DISASSEMBLY

1. REMOVE BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY
2. REMOVE BRAKE MASTER CYLINDER RESERVOIR STRAINER
3. REMOVE BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY
 - a. Fix the brake master cylinder in a vise between aluminum plates.

NOTE: Do not overtighten the vise.

- b. Using a pin punch and a hammer, tap out the straight pin and remove the brake master cylinder reservoir.

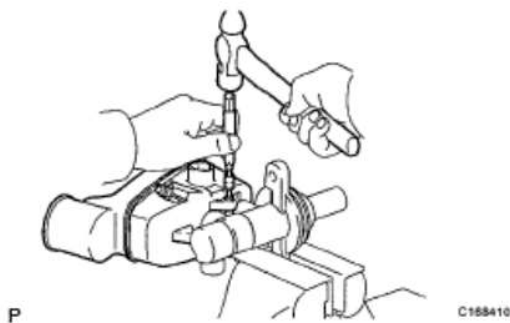


Fig. 40: Tapping Out Straight Pin

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

4. REMOVE MASTER CYLINDER RESERVOIR GROMMET
 - a. Remove the 2 grommets from the master cylinder reservoir.

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REASSEMBLY**1. INSTALL MASTER CYLINDER RESERVOIR GROMMET**

- a. Apply lithium soap base glycol grease to 2 new grommets.
- b. Install the 2 grommets onto the brake master cylinder reservoir.

2. INSTALL BRAKE MASTER CYLINDER RESERVOIR ASSEMBLY

- a. Install the brake master cylinder reservoir to the master cylinder body.
- b. Fix the brake master cylinder in a vise between aluminum plates.

NOTE: Do not overtighten the vise.

- c. Using a pin punch and a hammer, tap in the straight pin.

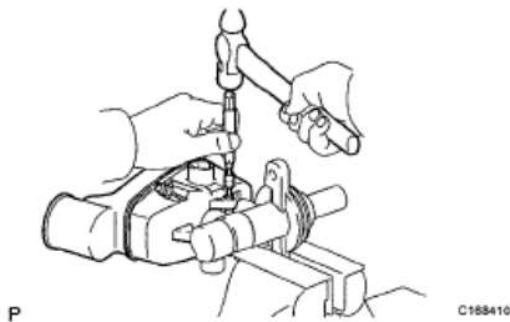


Fig. 41: Tapping In Straight Pin

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

3. INSTALL BRAKE MASTER CYLINDER RESERVOIR STRAINER**4. INSTALL BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSEMBLY****INSTALLATION****1. INSPECT AND ADJUST BRAKE BOOSTER PUSH ROD**

NOTE: Make the adjustment with no vacuum in the brake booster. (Depress the brake pedal several times with the engine stopped.)

HINT:

- Adjustment of the brake booster push rod is required when the brake master cylinder sub-assembly is replaced with a new one.
 - Adjustment is not necessary when the removed brake master cylinder sub-assembly is reused and the brake booster assembly is replaced with a new one.
- a. Apply chalk to the tip of the accessory tool.

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HINT:

An accessory tool is enclosed with a new brake master cylinder sub-assembly.

- b. Place the accessory tool on the brake booster assembly.

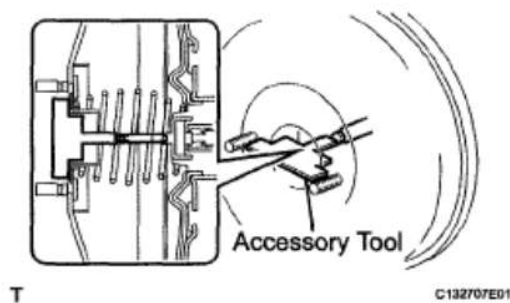


Fig. 42: Placing Accessory Tool On Brake Booster Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Measure the clearance between the brake booster push rod and accessory tool.

Standard clearance:

0 mm (0 in.)

HINT:

Adjust the clearance in the following cases:

- If there is a clearance between the accessory tool and the shell of the brake booster (floating accessory tool), the push rod is protruding too far.
 - If the chalk does not stick on the tip of the brake booster push rod, the push rod protrusion is insufficient.
- d. If the clearance is not as specified, adjust the push rod length by holding the rod using SST and turning the tip of the rod using a socket driver (7 mm (0.28 in.)).

SST 09737-00020

HINT:

Check the push rod clearance again after adjustment.

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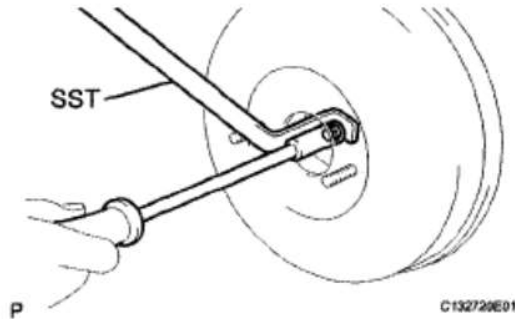


Fig. 43: Adjusting Push Rod Length

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

2. INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY

- Install a new O-ring onto the brake master cylinder sub-assembly.
- Install the brake master cylinder sub-assembly and wire harness clamp bracket with the 2 nuts.

Torque: 13 N*m (127 kgf*cm, 9 ft.*lbf)

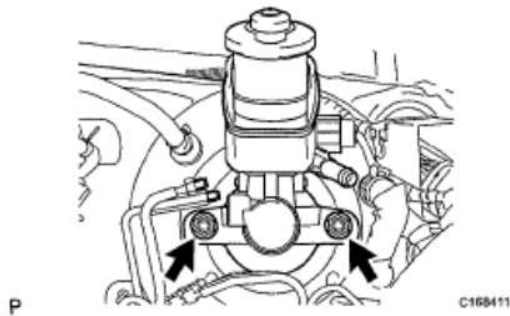


Fig. 44: Locating Brake Master Cylinder Nuts

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

- Using a union nut wrench, install the 2 brake tubes onto the brake master cylinder sub-assembly.

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)

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).

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- This torque value is effective when the union nut wrench is parallel to a torque wrench.

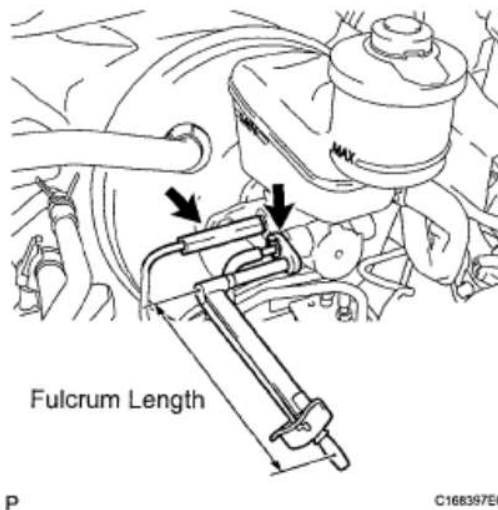


Fig. 45: Installing Brake Tubes Onto Brake Master Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Connect the brake fluid level warning switch connector.

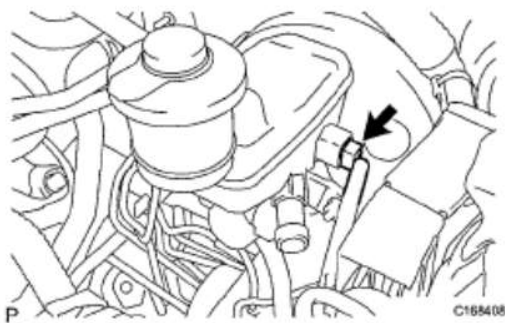


Fig. 46: Locating Brake Fluid Level Warning Switch Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. CONNECT CLUTCH RESERVOIR TUBE (for Manual Transaxle)

- Connect the clutch reservoir tube with the clip.

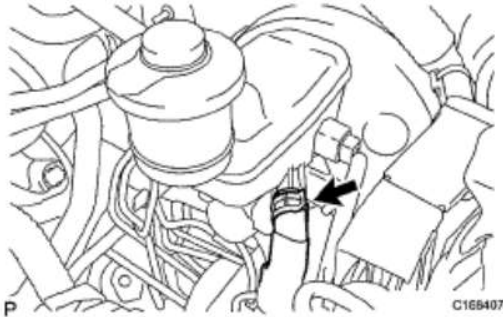
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Fig. 47: Locating Clutch Reservoir Tube Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

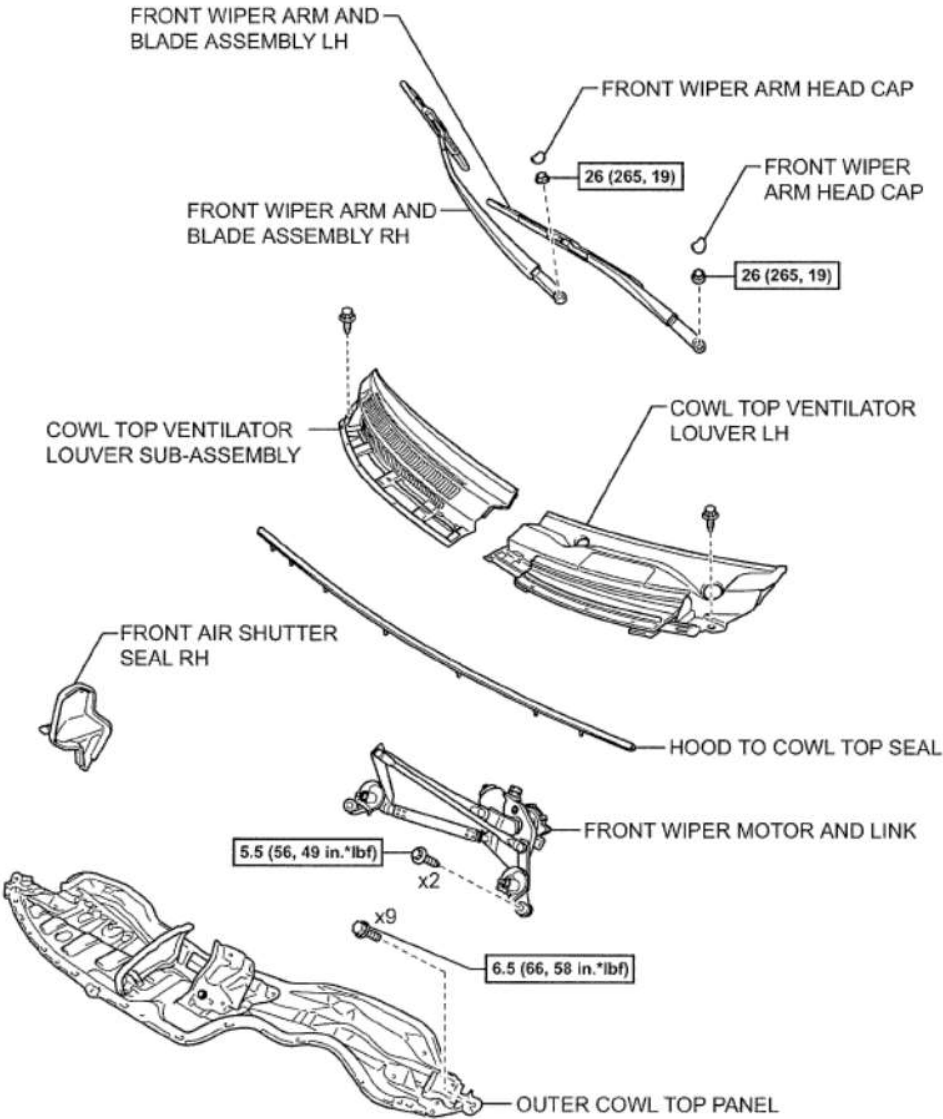
4. **INSTALL BATTERY CARRIER** (See INSTALLATION)
5. **INSTALL BATTERY TRAY**
6. **INSTALL BATTERY** (See INSTALLATION)
7. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
8. **BLEED MASTER CYLINDER** (See REPLACEMENT)
9. **BLEED BRAKE LINE** (See REPLACEMENT)
10. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
11. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
12. **INSPECT FOR BRAKE FLUID LEAK**
13. **INSTALL COWL TOP VENTILATOR LOUVER CENTER** (See REPLACEMENT)

BRAKE BOOSTER

COMPONENTS

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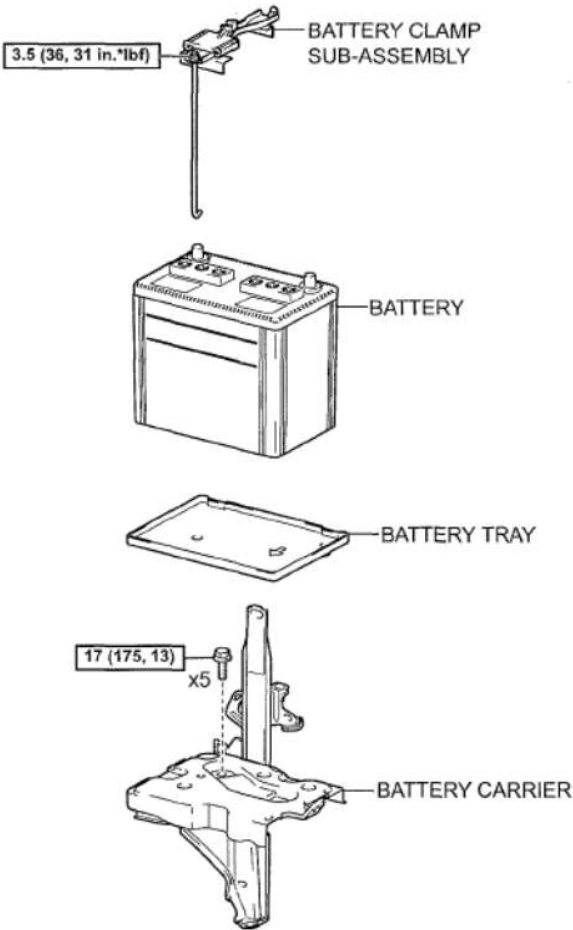
N*m (kgf*cm, ft*lbf) : Specified torque

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Fig. 48: Identifying Brake Booster Components With Torque Specifications (1 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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Fig. 49: Identifying Brake Booster Components With Torque Specifications (2 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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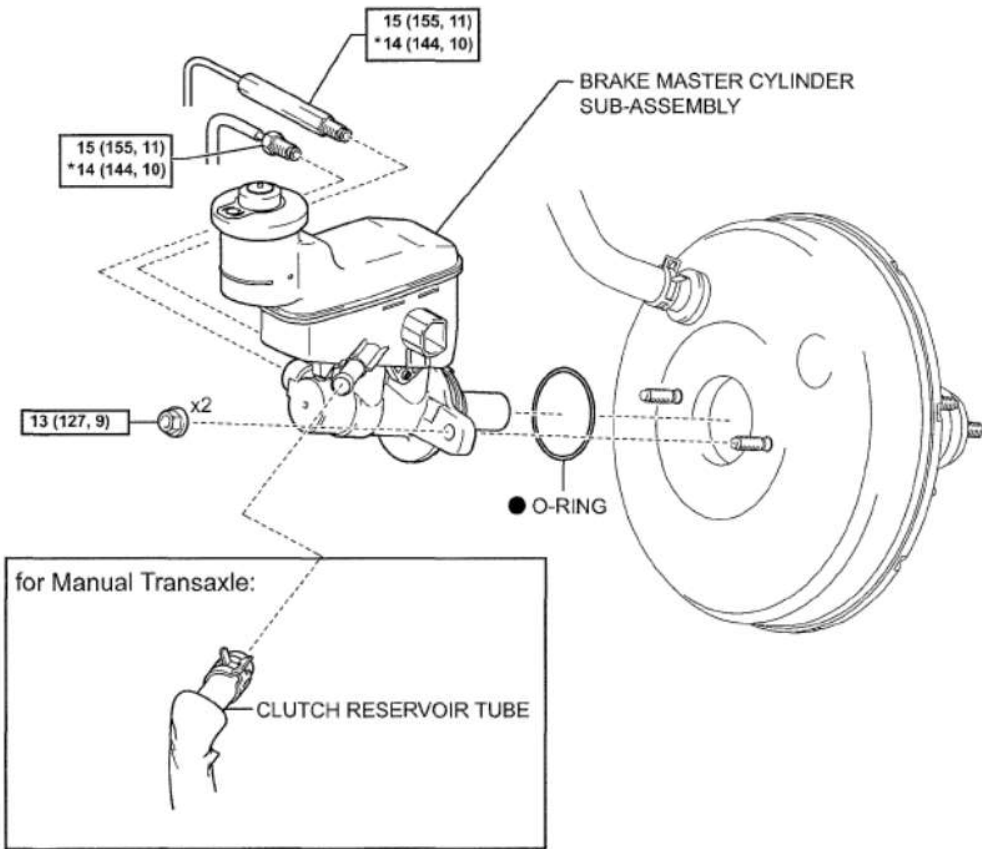
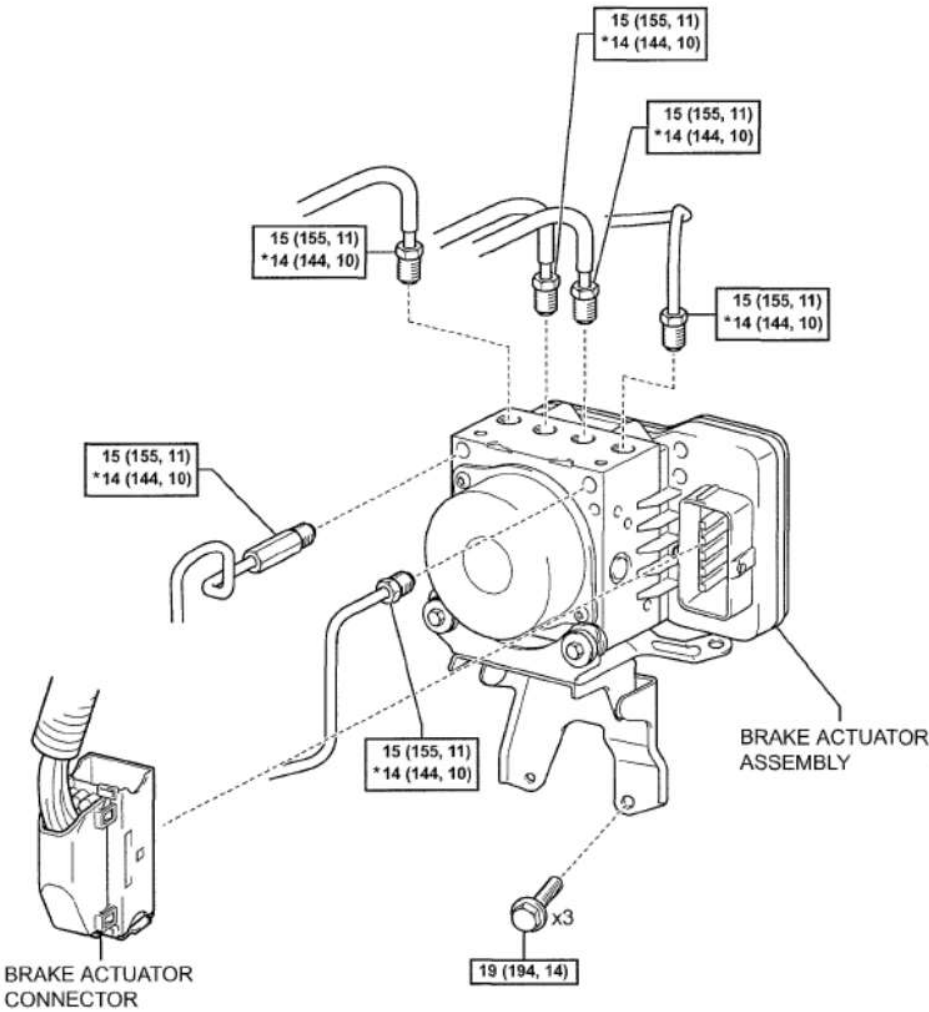


Fig. 50: Identifying Brake Booster Components With Torque Specifications (3 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2008 BRAKES Brake - xD

w/o VSC:



N·m (kgf·cm, ft·lbf) : Specified torque

* For use with union nut wrench

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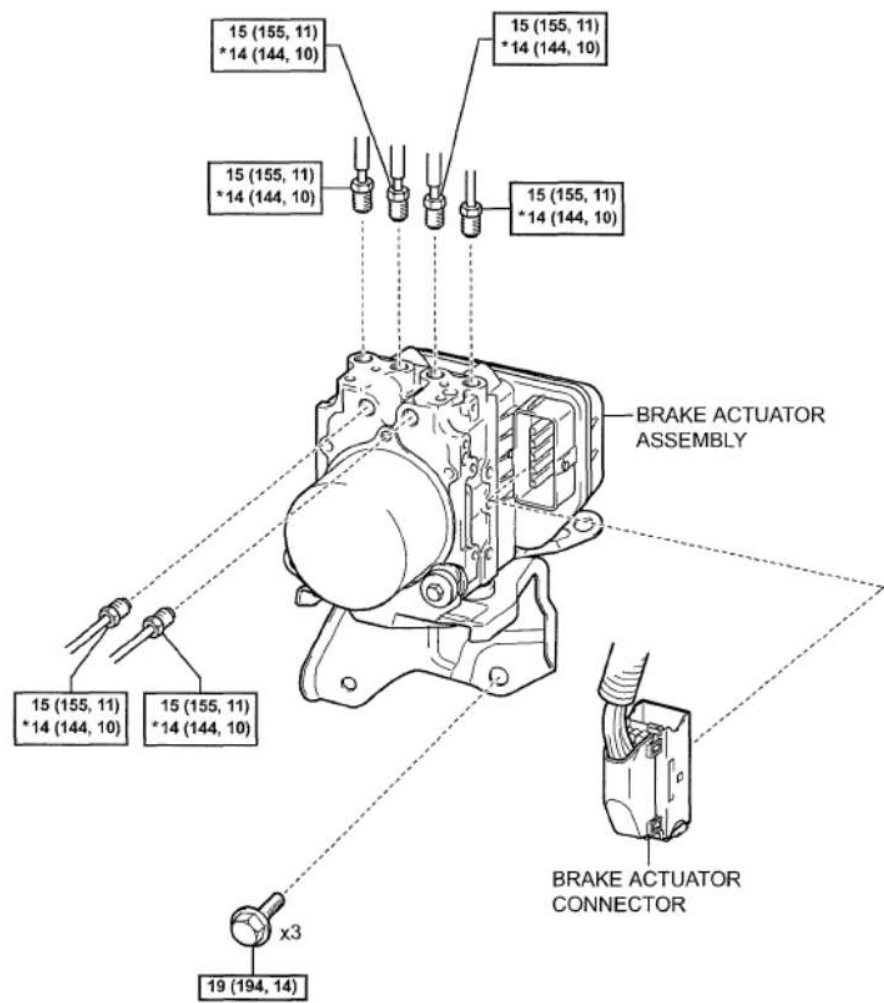
C16B413E01

Fig. 51: Identifying Brake Booster Components With Torque Specifications (4 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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w/ VSC:



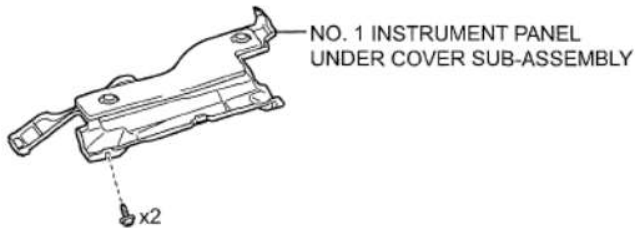
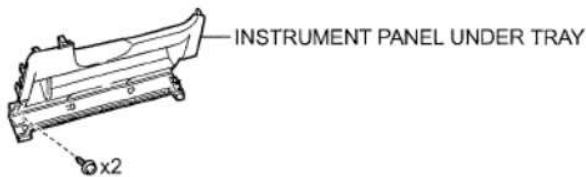
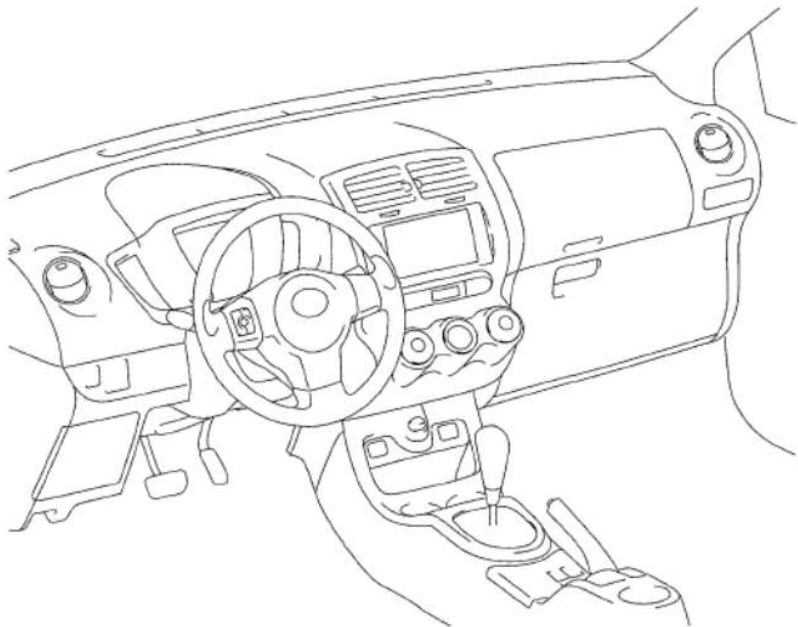
N*m (kgf*cm, ft*lb) : Specified torque

* For use with union nut wrench

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Fig. 52: Identifying Brake Booster Components With Torque Specifications (5 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Fig. 53: Identifying Brake Booster Components With Torque Specification (6 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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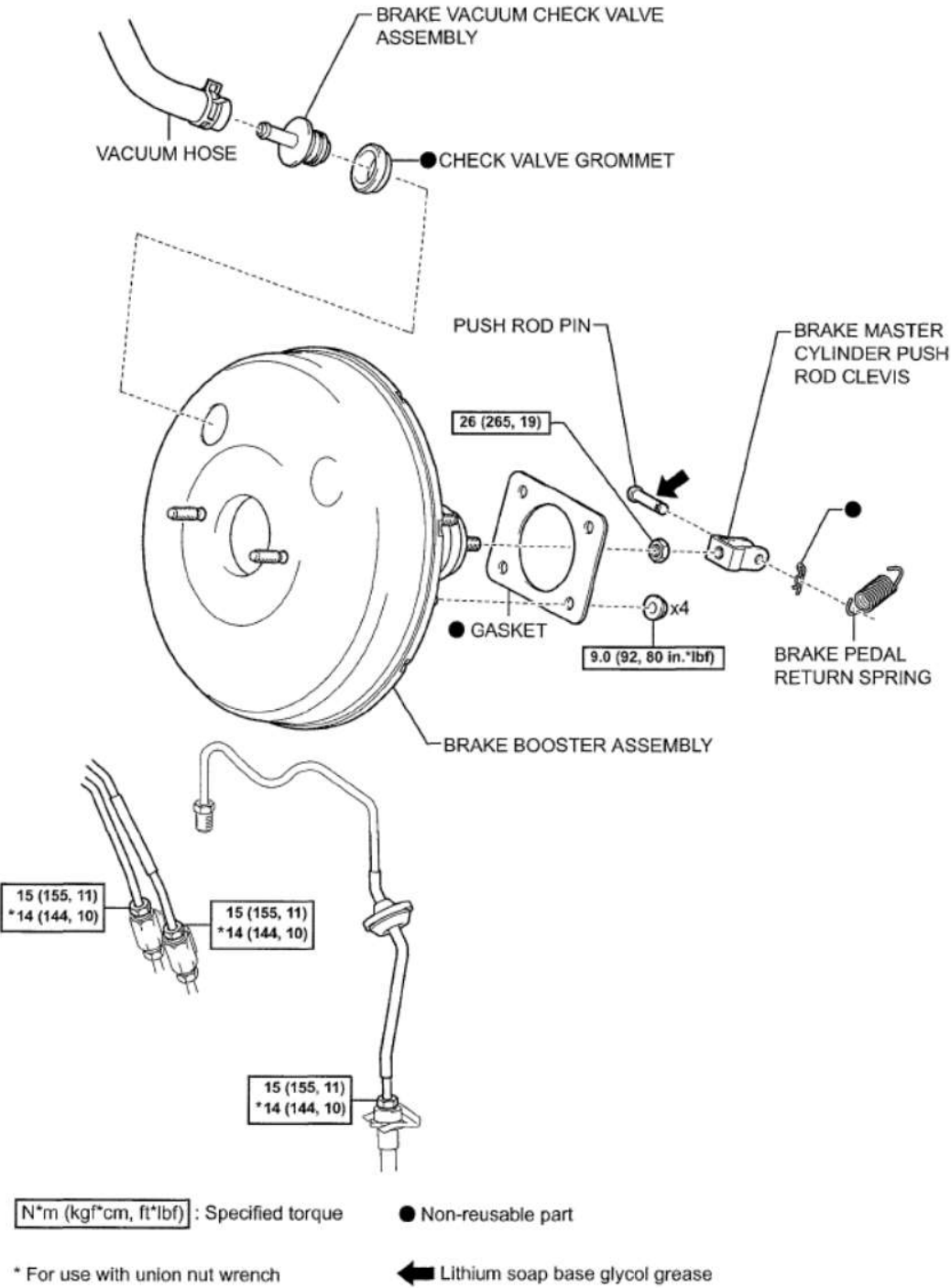


Fig. 54: Identifying Brake Booster Components With Torque Specifications (7 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

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2008 BRAKES Brake - xD

1. INSPECT BRAKE BOOSTER

a. Check the air tightness.

1. Start the engine and stop it after 1 or 2 minutes. Depress the brake pedal several times slowly.

HINT:

- If the pedal can be depressed to the floor on the 1st time, but cannot be depressed as far on the 2nd or 3rd times, the booster is airtight. If not, inspect the vacuum check valve.
- If the vacuum check valve is normal, replace the brake booster assembly.

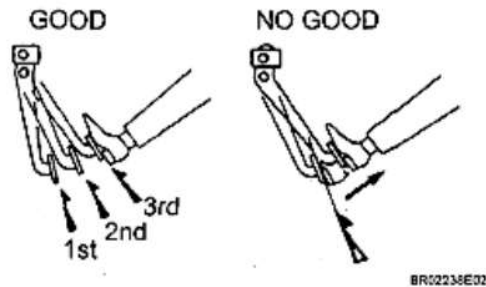


Fig. 55: Identifying Proper Depressing Position Of Brake Pedal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

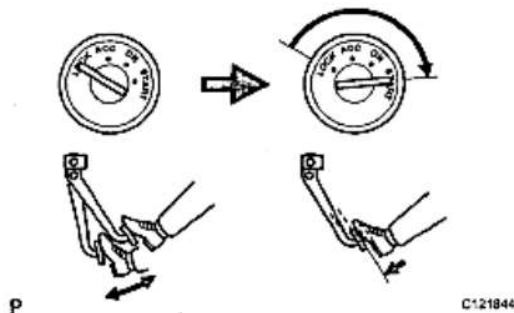
2. Depress the brake pedal while the engine is running, and stop the engine with the pedal depressed.

HINT:

- If there is no change in the pedal reserve distance after holding the pedal for 30 seconds, the booster is airtight. If not, inspect the vacuum check valve.
- If the vacuum check valve is normal, replace the brake booster assembly.

b. Check the operation.

1. Depress the brake pedal several times with the engine stopped and check that there is no change in the pedal reserve distance.



2008 Scion xD**2008 BRAKES Brake - xD****Fig. 56: Depressing Brake Pedal**

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

2. Depress the brake pedal and start the engine.

HINT:

- If the pedal goes down slightly, the operation is normal. If not, inspect the vacuum check valve.
- If the vacuum check valve is normal, replace the brake booster assembly.

REMOVAL**1. DRAIN BRAKE FLUID**

NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

2. REMOVE FRONT WIPER ARM HEAD CAP (See REMOVAL)
3. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See REMOVAL)
4. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See REMOVAL)
5. REMOVE HOOD TO COWL TOP SEAL (See REMOVAL)
6. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See REMOVAL)
7. REMOVE COWL TOP VENTILATOR LOUVER LH (See REMOVAL)
8. REMOVE FRONT WIPER MOTOR AND LINK (See REMOVAL)
9. REMOVE FRONT AIR SHUTTER SEAL RH (See REMOVAL)
10. REMOVE OUTER COWL TOP PANEL (See REMOVAL)
11. REMOVE BATTERY (See REMOVAL)
12. REMOVE BATTERY TRAY
13. REMOVE BATTERY CARRIER (See REMOVAL)
14. DISCONNECT CLUTCH RESERVOIR TUBE (for Manual Transaxle) (See REMOVAL)
15. REMOVE BRAKE MASTER CYLINDER SUB-ASSEMBLY (See REMOVAL)
16. REMOVE BRAKE ACTUATOR ASSEMBLY (w/o VSC) (See REMOVAL)
17. REMOVE BRAKE ACTUATOR ASSEMBLY (w/ VSC) (See REMOVAL)
18. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See REMOVAL)
19. REMOVE INSTRUMENT PANEL UNDER TRAY (See REMOVAL)
20. SEPARATE BRAKE MASTER CYLINDER PUSH ROD CLEVIS (See ADJUSTMENT)
21. REMOVE BRAKE BOOSTER ASSEMBLY
 - a. Using a union nut wrench, separate the brake tube while holding the flexible hose with a wrench.
 - b. Remove the grommet and remove the brake tube.

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2008 BRAKES Brake - xD

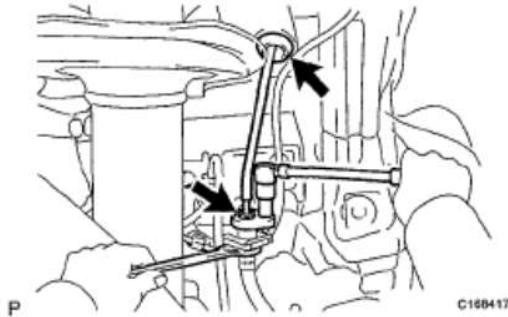


Fig. 57: Removing Brake Tube

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

- c. Using a union nut wrench, separate the brake tubes while holding the brake tube way with a wrench.

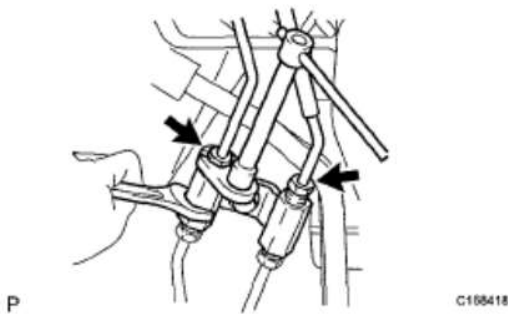


Fig. 58: Removing Brake Tubes

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

- d. Slide the clip and disconnect the vacuum hose from the check valve.

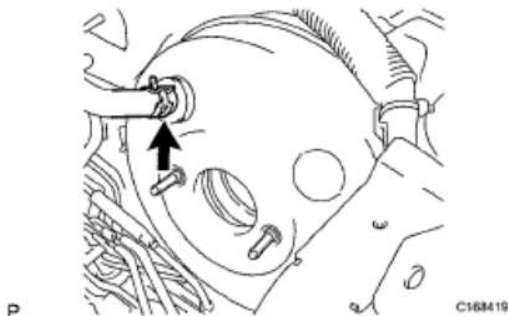


Fig. 59: Locating Vacuum Hose Clip

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

- e. Remove the 4 nuts and remove the brake booster assembly.

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2008 BRAKES Brake - xD

NOTE: Do not damage the brake tubes.

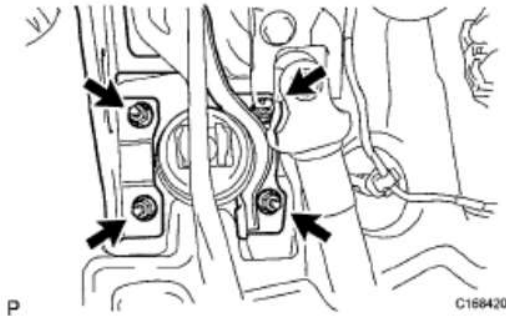


Fig. 60: Locating Brake Booster Assembly Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Remove the gasket from the brake booster assembly.
- g. Loosen the push rod lock nut and remove the push rod clevis.
- 22. **REMOVE BRAKE VACUUM CHECK VALVE ASSEMBLY**
 - a. Remove the vacuum check valve from the brake booster assembly.

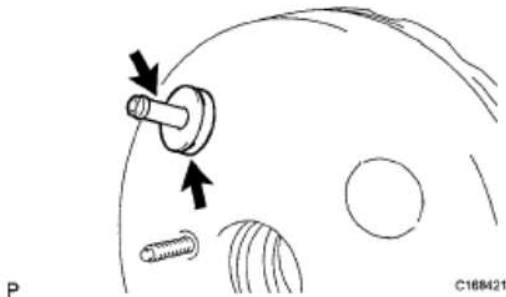


Fig. 61: Locating Brake Vacuum Check Valve
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the grommet from the brake booster assembly.

INSPECTION

1. INSPECT BRAKE VACUUM CHECK VALVE ASSEMBLY

- a. Check that there is ventilation from the booster to the engine, and no ventilation from the engine to the booster.

If the results are not as specified, replace the vacuum check valve.

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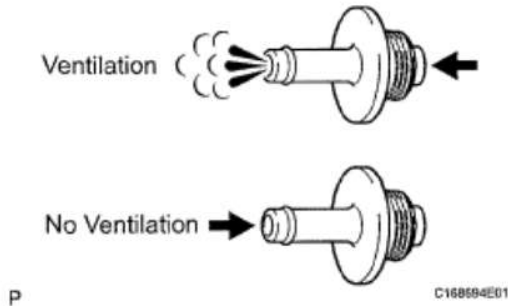


Fig. 62: Inspecting Brake Vacuum Check Valve Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL BRAKE VACUUM CHECK VALVE ASSEMBLY

- a. Install a new grommet onto the brake booster assembly.
- b. Install the vacuum check valve onto the brake booster assembly.

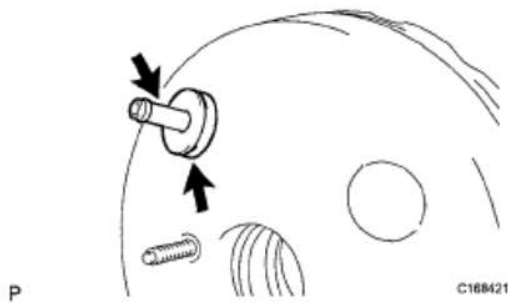


Fig. 63: Locating Brake Vacuum Check Valve
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL BRAKE BOOSTER ASSEMBLY

- a. Provisionally install the push rod clevis onto the brake booster assembly.

HINT:

Tighten the push rod lock nut when adjusting the brake pedal height.

- b. Install a new gasket onto the brake booster assembly.
- c. Install the brake booster assembly with the 4 nuts.

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

NOTE: Do not damage the brake tubes.

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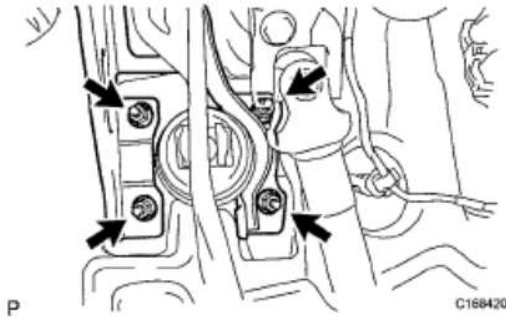


Fig. 64: Locating Brake Booster Assembly Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Connect the vacuum hose to the vacuum check valve with the clip.

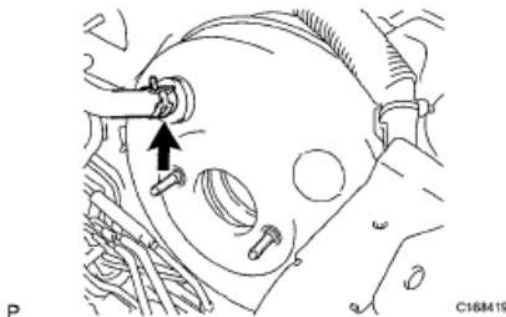


Fig. 65: Locating Vacuum Hose Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Using a union nut wrench, install the brake tubes onto the brake tube way while holding the brake tube way with a wrench.

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)

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 the union nut wrench is parallel to a torque wrench.

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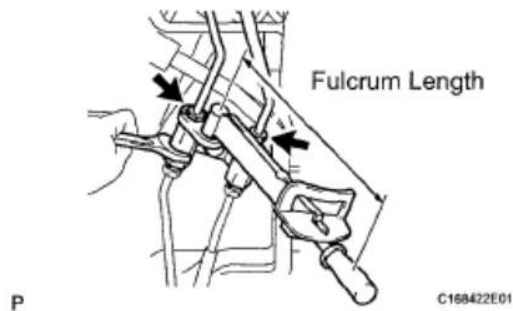


Fig. 66: Installing Brake Tubes

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

- f. Using a union nut wrench, install the 2 brake tubes onto the flexible hose while holding the flexible hose with a wrench.

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)

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 the union nut wrench is parallel to a torque wrench.

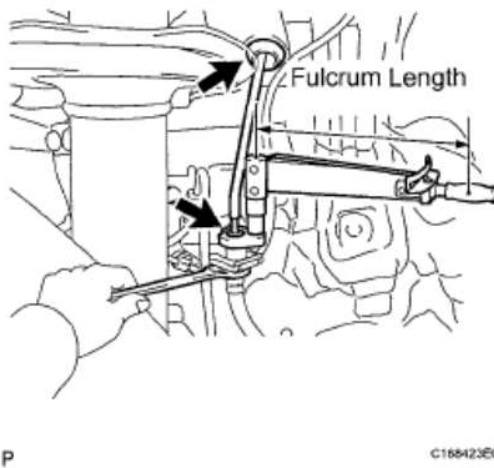


Fig. 67: Installing Brake Tubes

2008 Scion xD**2008 BRAKES Brake - xD**

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

3. **INSTALL BRAKE MASTER CYLINDER PUSH ROD CLEVIS** (See INSTALLATION)
4. **INSTALL BRAKE ACTUATOR ASSEMBLY (w/o VSC)** (See INSTALLATION)
5. **INSTALL BRAKE ACTUATOR ASSEMBLY (w/ VSC)** (See INSTALLATION)
6. **INSTALL BRAKE MASTER CYLINDER SUB-ASSEMBLY** (See INSTALLATION)
7. **CONNECT CLUTCH RESERVOIR TUBE (for Manual Transaxle)** (See INSTALLATION)
8. **INSTALL BATTERY CARRIER** (See INSTALLATION)
9. **INSTALL BATTERY TRAY**
10. **INSTALL BATTERY** (See INSTALLATION)
11. **INSTALL OUTER COWL TOP PANEL** (See INSTALLATION)
12. **INSTALL FRONT AIR SHUTTER SEAL RH** (See INSTALLATION)
13. **INSTALL FRONT WIPER MOTOR AND LINK** (See INSTALLATION)
14. **INSTALL COWL TOP VENTILATOR LOUVER LH** (See INSTALLATION)
15. **INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY** (See INSTALLATION)
16. **INSTALL HOOD TO COWL TOP SEAL** (See INSTALLATION)
17. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See INSTALLATION)
18. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See INSTALLATION)
19. **INSTALL FRONT WIPER ARM HEAD CAP** (See INSTALLATION)
20. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
21. **BLEED MASTER CYLINDER** (See REPLACEMENT)
22. **BLEED BRAKE LINE** (See REPLACEMENT)
23. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
24. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
25. **INSPECT FOR BRAKE FLUID LEAK**
26. **INSPECT AND ADJUST BRAKE PEDAL** (See ADJUSTMENT)
27. **INSTALL INSTRUMENT PANEL UNDER TRAY** (See INSTALLATION)
28. **INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See INSTALLATION)

FRONT BRAKE

COMPONENTS

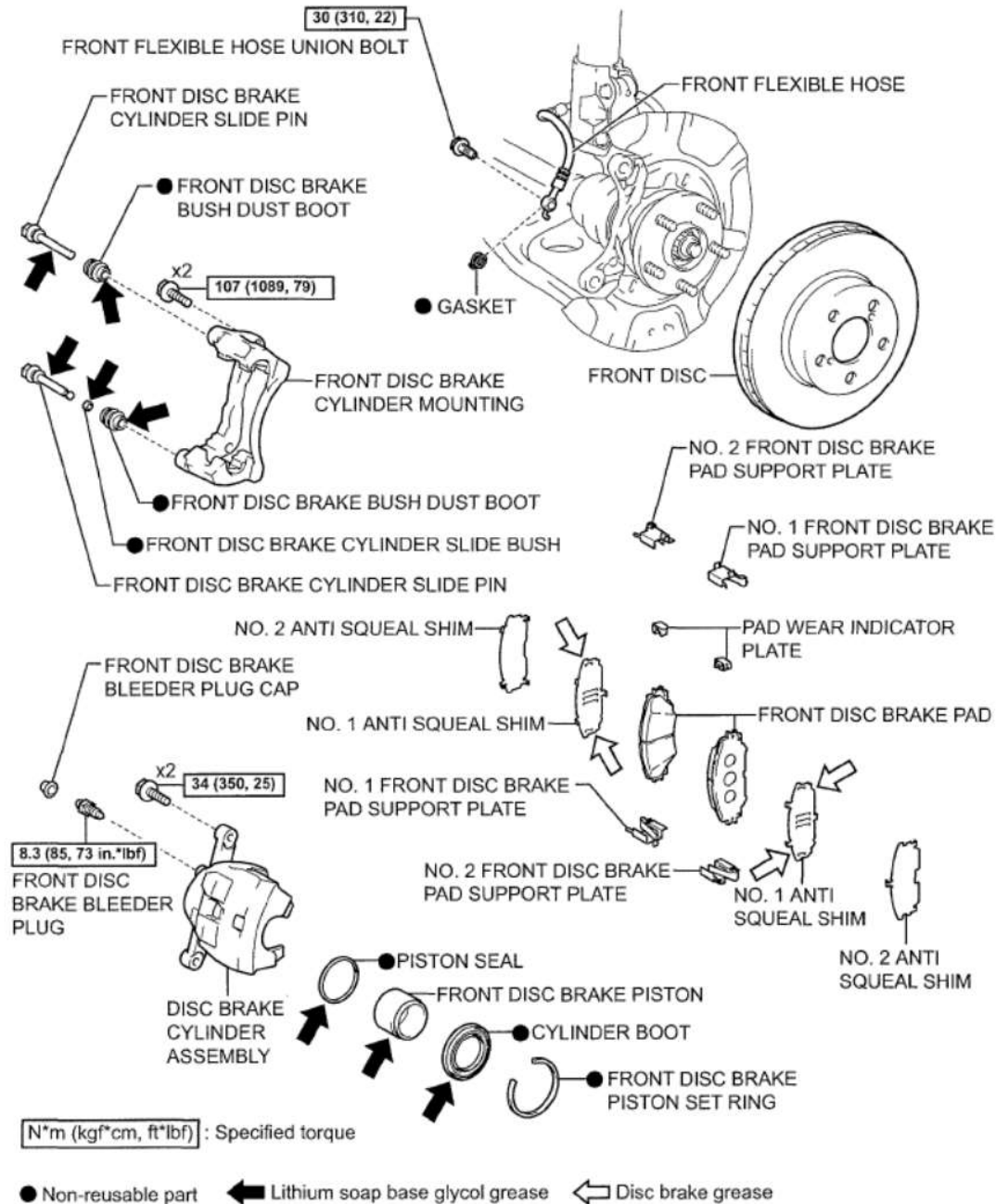
2008 Scion xD**2008 BRAKES Brake - xD**

Fig. 68: Identifying Front Brake Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE FRONT WHEEL
2. DRAIN BRAKE FLUID

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NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

3. DISCONNECT FRONT FLEXIBLE HOSE

- a. Remove the union bolt and gasket and separate the flexible hose from the disc brake cylinder.

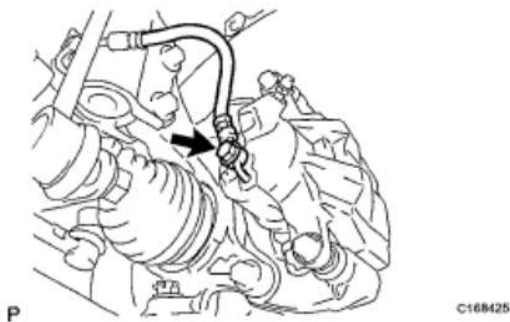


Fig. 69: Locating Front Flexible Hose Union Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE DISC BRAKE CYLINDER ASSEMBLY

- a. Hold the slide pin with a wrench, remove the 2 bolts and remove the disc brake cylinder.

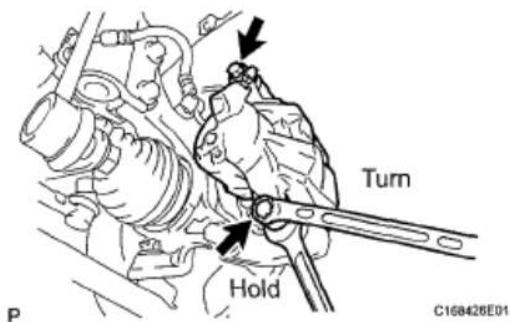


Fig. 70: Removing Disc Brake Cylinder Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. REMOVE FRONT DISC BRAKE PAD

- a. Remove the 2 disc brake pads from the disc brake cylinder mounting.

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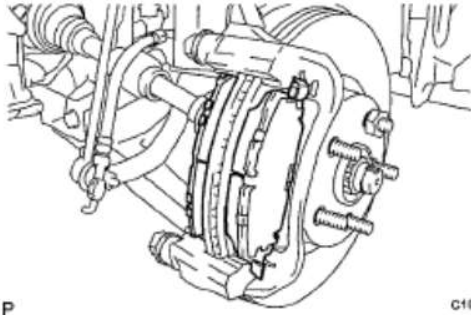


Fig. 71: Identifying Front Disc Brake Pads

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

6. REMOVE FRONT ANTI SQUEAL SHIM

- Remove the No. 1 anti squeal shim and No. 2 anti squeal shim from each brake pad.
- Remove the pad wear indicator plate from each brake pad.

7. REMOVE FRONT DISC BRAKE PAD SUPPORT PLATE

- Remove the 4 disc brake pad support plates from the disc brake cylinder mounting.

NOTE: Each pad support plate has a differential shape. Be sure to put an identification mark on each pad support plate so that they can be installed in their original position.

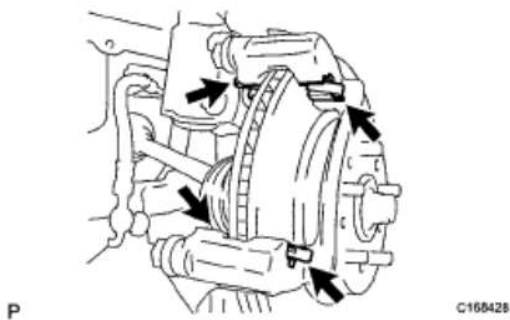


Fig. 72: Locating Disc Brake Pad Support Plates

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

8. REMOVE FRONT DISC BRAKE CYLINDER SLIDE PIN

- Remove the slide pin (upper) and slide pin (lower) from the disc brake cylinder mounting.

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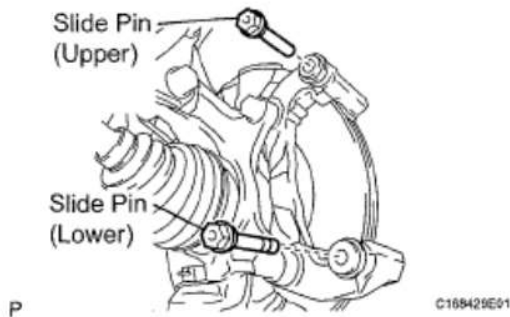


Fig. 73: Identifying Front Disc Brake Cylinder Slide Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. REMOVE FRONT DISC BRAKE CYLINDER SLIDE BUSH

- Using a screwdriver with its tip wrapped in protective tape, remove the slide bush from the slide pin (lower).

NOTE: Be careful not to damage the slide pin.

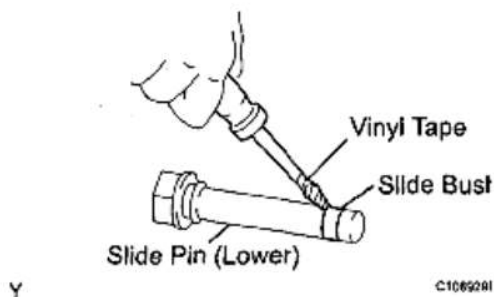


Fig. 74: Removing Slide Bush From Slide Pin (Lower)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE FRONT DISC BRAKE BUSH DUST BOOT

- Remove the 2 dust boots from the disc brake cylinder mounting.

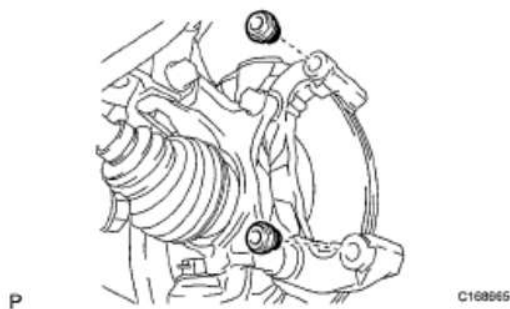


Fig. 75: Identifying Dust Boots
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 BRAKES Brake - xD****11. REMOVE FRONT DISC BRAKE CYLINDER MOUNTING**

- a. Remove the 2 bolts and remove the disc brake cylinder mounting from the steering knuckle.

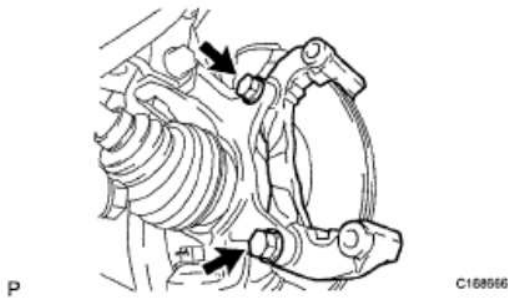


Fig. 76: Locating Disc Brake Cylinder Mounting Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE FRONT DISC

- a. Place matchmarks on the disc and axle hub and remove the disc.

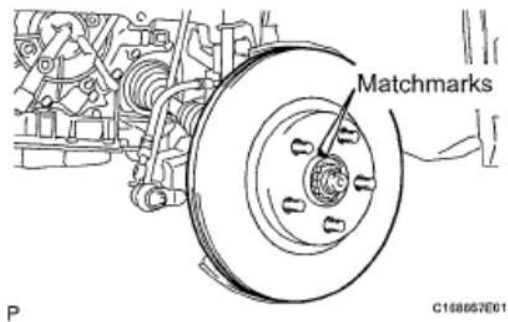


Fig. 77: Identifying Matchmarks On Disc And Axle Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

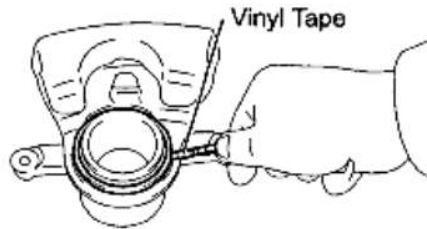
DISASSEMBLY**1. REMOVE CYLINDER BOOT**

- a. Using a screwdriver with its tip wrapped in protective tape, remove the set ring and cylinder boot from the disc brake cylinder.

NOTE: Be careful not to damage the brake piston or cylinder.

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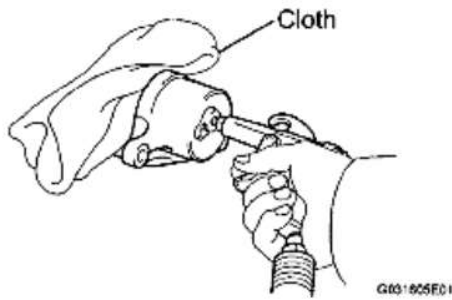
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Fig. 78: Removing Set Ring And Cylinder Boot From Disc Brake Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. REMOVE FRONT DISC BRAKE PISTON

- a. Place a piece of cloth between the piston and disc brake cylinder.



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Fig. 79: Removing Front Disc Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Apply compressed air to remove the piston from the disc brake cylinder.

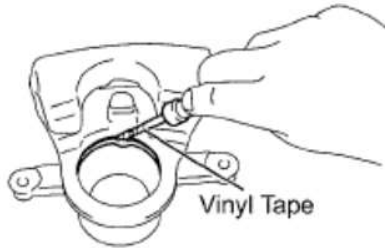
CAUTION: Do not place your fingers in front of the piston when applying compressed air.

NOTE: Do not spatter the brake fluid.

3. REMOVE PISTON SEAL

- a. Using a screwdriver with its tip wrapped in protective tape, remove the piston seal from the disc brake cylinder.

NOTE: Do not damage the inner surface or piston seal groove of the cylinder.

2008 Scion xD**2008 BRAKES Brake - xD**

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Fig. 80: Removing Piston Seal

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

4. **REMOVE FRONT DISC BRAKE BLEEDER PLUG CAP**
5. **REMOVE FRONT DISC BRAKE BLEEDER PLUG**

INSPECTION**1. INSPECT BRAKE CYLINDER AND PISTON**

- a. Check the cylinder bore and piston for rust and scoring.

If necessary, replace the disc brake cylinder and piston.

2. INSPECT PAD LINING THICKNESS

- a. Using a ruler, measure the pad lining thickness.

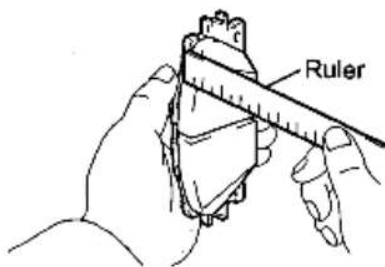
Standard thickness:

12.0 mm (0.472 in.)

Minimum thickness:

1.0 mm (0.039 in.)

If the pad lining thickness is equal to or less than the minimum thickness, replace the disc brake pad kit.



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2008 BRAKES Brake - xD

Fig. 81: Measuring Pad Lining Thickness

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

3. INSPECT FRONT DISC BRAKE PAD SUPPORT PLATE

- a. Make sure that the disc brake pad supports have sufficient rebound, that there is no deformation, cracking or wear, and that all rust and dirt are removed.

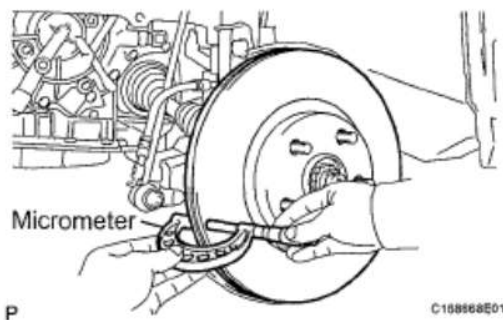
If necessary, replace the disc brake pad support plate.

4. INSPECT DISC THICKNESS

- a. Using a micrometer, measure the disc thickness.

Standard thickness:**22.0 mm (0.866 in.)****Minimum thickness:****19.0 mm (0.748 in.)**

If the disc thickness is less than the minimum, replace the front disc.

**Fig. 82: Measuring Disc Thickness**

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

5. INSPECT DISC RUNOUT

- a. Check the bearing play in the axial direction and check for the axle hub runout (See **ON-VEHICLE INSPECTION**).
- b. Using SST to hold the disc, tighten the disc with the hub nuts.

SST 09330-00021**Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)****HINT:**

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2008 BRAKES Brake - xD

Use the SST to hold the disc while tightening the nuts.

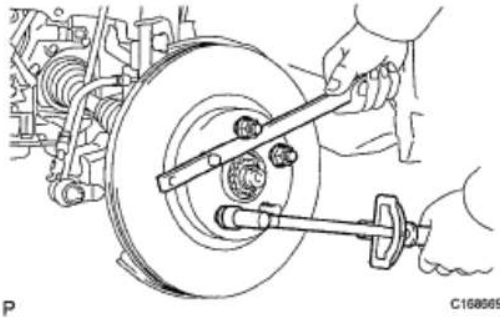


Fig. 83: Tightening Disc With Hub Nuts

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

- c. Using a dial indicator, measure the disc runout 10 mm (0.39 in.) away from the outer edge of the front disc.

Maximum disc runout:

0.05 mm (0.0020 in.)

If the runout exceeds the maximum value, change the installation positions of the disc and axle to make the minimum runout. If the runout exceeds the maximum even when the installation positions are changed, grind the disc. If the disc thickness is less than the minimum, replace the front disc.

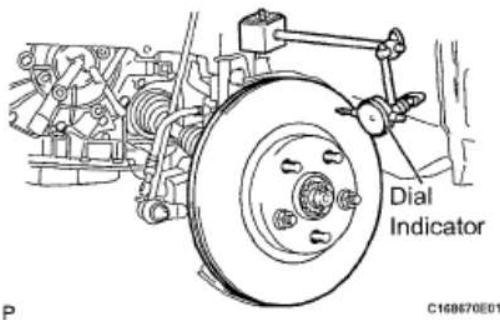


Fig. 84: Measuring Disc Runout

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

- d. Remove the hub nuts and front disc.

REASSEMBLY

1. TEMPORARILY TIGHTEN FRONT DISC BRAKE BLEEDER PLUG
2. INSTALL FRONT DISC BRAKE BLEEDER PLUG CAP
3. INSTALL PISTON SEAL

2008 Scion xD**2008 BRAKES Brake - xD**

- a. Apply lithium soap base glycol grease to a new piston seal.
- b. Install the piston seal onto the disc brake cylinder.

NOTE: Securely install the piston seal into the groove of the disc brake cylinder.

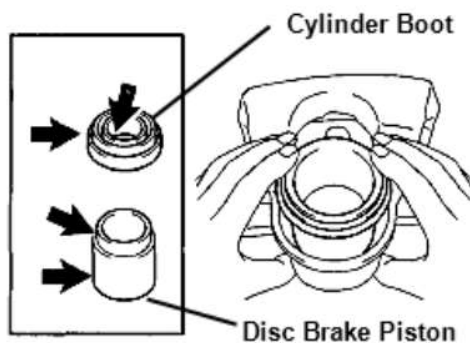
4. INSTALL FRONT DISC BRAKE PISTON

- a. Apply lithium soap base glycol grease to the piston and a new cylinder boot.
- b. Install the cylinder boot onto the piston.

NOTE: Securely install the cylinder boot into the groove of the piston.

- c. Install the piston into the disc brake cylinder.

NOTE: Do not forcibly install the piston into the disc brake cylinder.



← Lithium soap base glycol grease

Fig. 85: Installing Front Disc Brake Piston

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

5. INSTALL CYLINDER BOOT

- a. Install the cylinder boot into the disc brake cylinder.

NOTE: Securely install the cylinder boot into the groove of the disc brake cylinder.

- b. Using a screwdriver, install a new set ring.

NOTE:

- Securely install the set ring into the groove of the cylinder boot.
- Do not damage the cylinder boot.

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2008 BRAKES Brake - xD

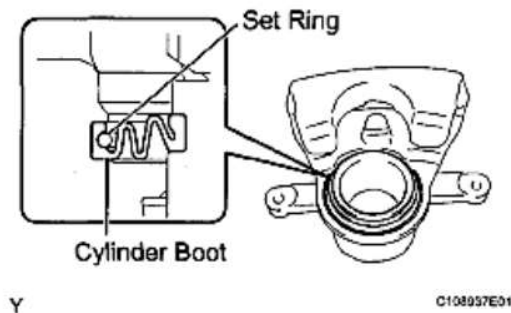


Fig. 86: Identifying Cylinder Boot And Set Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL FRONT DISC

- Align the matchmarks of the disc and axle hub and install the disc.

NOTE: When replacing the disc, select the position that gives the minimum disc runout.

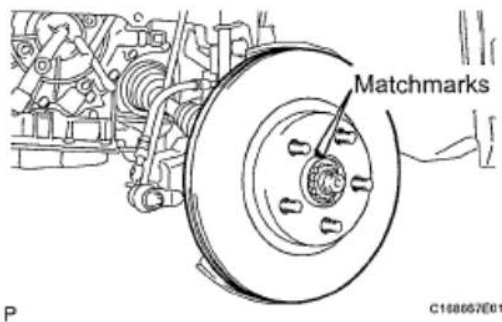


Fig. 87: Identifying Matchmarks On Disc And Axle Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL FRONT DISC BRAKE CYLINDER MOUNTING

- Install the disc brake cylinder mounting onto the steering knuckle with the 2 bolts.

Torque: 107 N*m (1089 kgf*cm, 79 ft.*lbf)

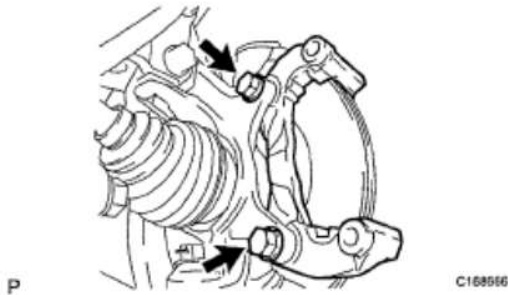
2008 Scion xD**2008 BRAKES Brake - xD**

Fig. 88: Locating Disc Brake Cylinder Mounting Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSTALL FRONT DISC BRAKE BUSH DUST BOOT

- a. Apply lithium soap base glycol grease to 2 new dust boots.



Fig. 89: Locating Dust Boots
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the 2 dust boots onto the disc brake cylinder mounting.

4. INSTALL FRONT DISC BRAKE CYLINDER SLIDE BUSH

- a. Apply lithium soap base glycol grease to the slide pins and a new slide bush, as shown in the illustration.

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2008 BRAKES Brake - xD

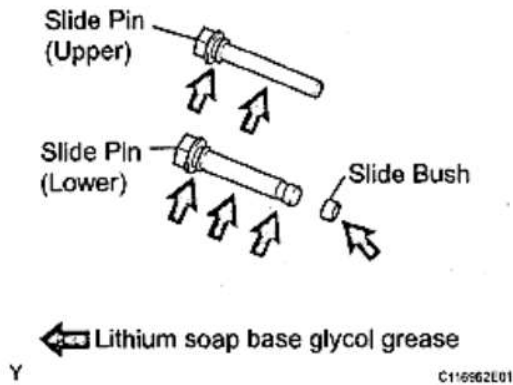


Fig. 90: Identifying Lithium Soap Base Glycol Grease Applying Area Of Slide Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the slide bush onto the slide pin (lower).

5. INSTALL FRONT DISC BRAKE CYLINDER SLIDE PIN

- a. Install the slide pin (upper) and slide pin (lower) onto the cylinder mounting.

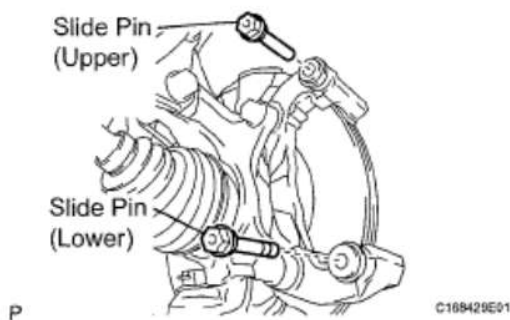


Fig. 91: Identifying Front Disc Brake Cylinder Slide Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. INSTALL FRONT DISC BRAKE PAD SUPPORT PLATE

- a. Install the 4 disc brake pad support plates onto the disc brake cylinder mounting.

NOTE: Be sure to install each pad support plate in the correct position and direction.

2008 Scion xD

2008 BRAKES Brake - xD

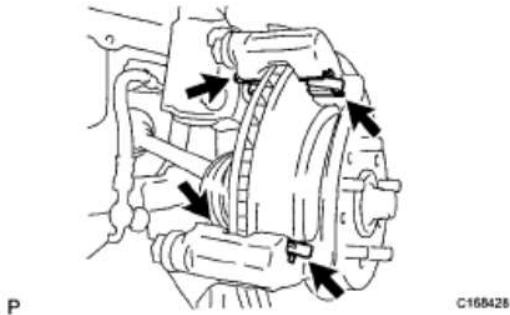


Fig. 92: Locating Disc Brake Pad Support Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. INSTALL FRONT ANTI SQUEAL SHIM

- Install the pad wear indicator plates onto the upper side of the brake pads.
- Apply disc brake grease to both sides of each No. 1 anti squeal shim.

NOTE:

- When replacing worn pads, the anti squeal shims must be replaced together with the pads.
- Install the shims in the correct positions and directions.
- Apply disc brake grease to the area that contacts the anti squeal shims.
- Disc brake grease can come out slightly from the area where the anti squeal shim is installed.
- Make sure that disc brake grease is not applied onto the lining surface.



Fig. 93: Identifying Disc Brake Grease Applying Area
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Install the 4 anti squeal shims onto each brake pad.

2008 Scion xD**2008 BRAKES Brake - xD****8. INSTALL FRONT DISC BRAKE PAD**

- a. Install the 2 disc brake pads onto the disc brake cylinder mounting.

NOTE: There should be no oil or grease on the friction surfaces of the disc brake pads or the front disc.

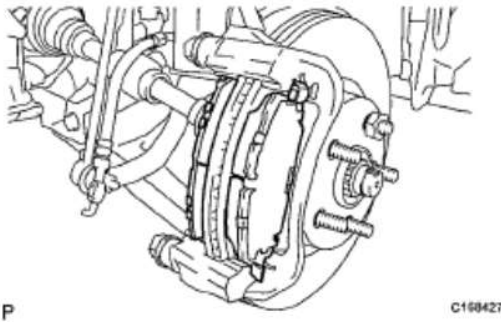


Fig. 94: Identifying Front Disc Brake Pads
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL DISC BRAKE CYLINDER ASSEMBLY

- a. Hold the slide pin with a wrench and install the disc brake cylinder onto the disc brake cylinder mounting with the 2 bolts.

Torque: 34 N*m (350 kgf*cm, 25 ft.*lbf)

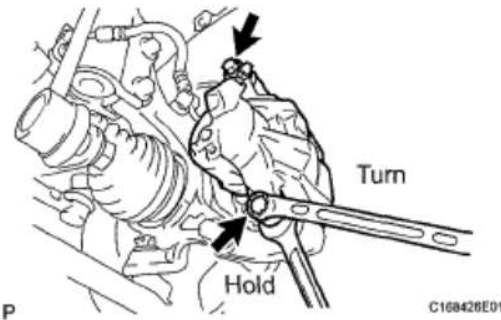


Fig. 95: Installing Disc Brake Cylinder Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. CONNECT FRONT FLEXIBLE HOSE

- a. Connect the flexible hose with the union bolt and a new gasket.

Torque: 30 N*m (310 kgf*cm, 22 ft.*lbf)

HINT:

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Install the flexible hose lock securely into the lock hole in the disc brake cylinder.

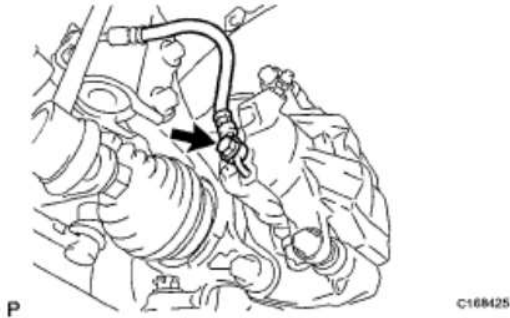


Fig. 96: Locating Front Flexible Hose Union Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
12. **BLEED MASTER CYLINDER** (See REPLACEMENT)
13. **BLEED BRAKE LINE** (See REPLACEMENT)
14. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
15. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
16. **INSPECT FOR BRAKE FLUID LEAK**
17. **INSTALL FRONT WHEEL**

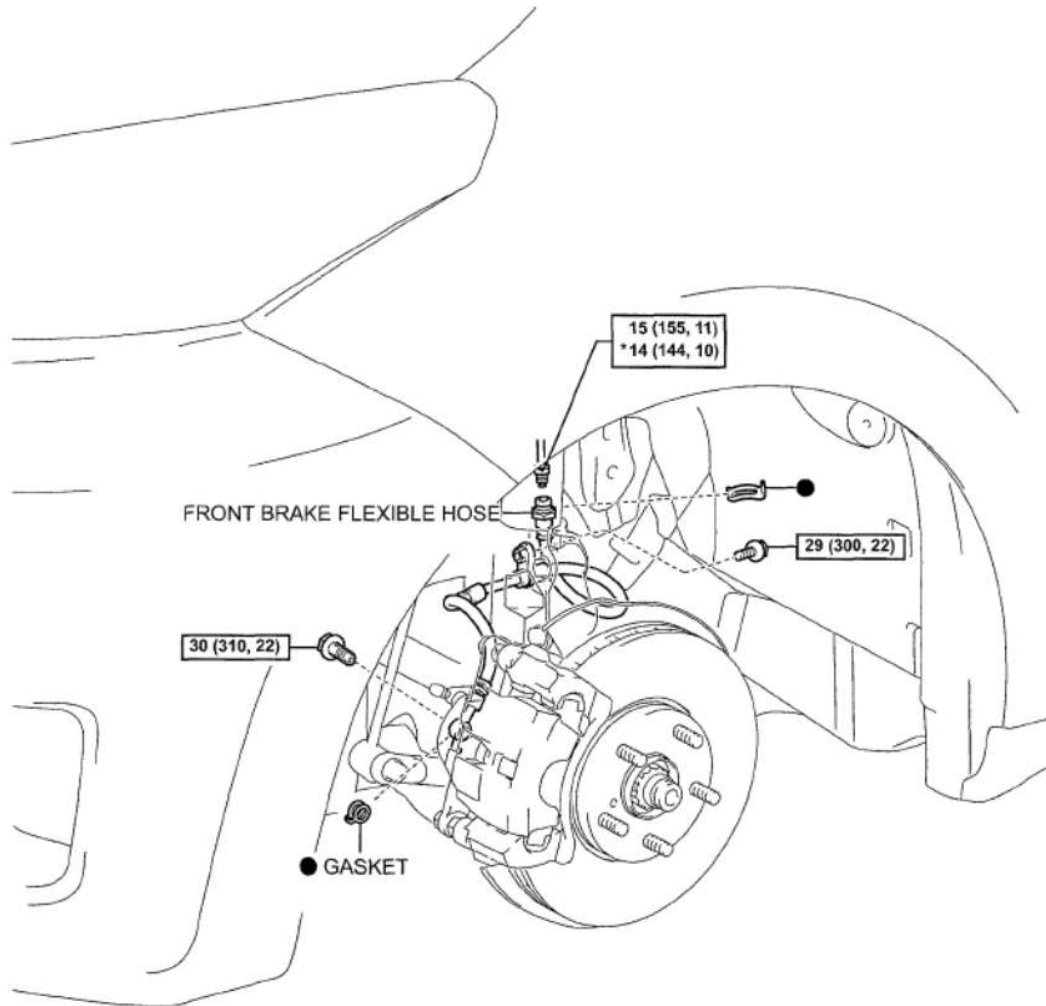
Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)

FRONT BRAKE FLEXIBLE HOSE

COMPONENTS

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

* For use with union nut wrench

● Non-reusable part

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Fig. 97: Identifying Front Brake Flexible Hose Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE FRONT WHEEL
2. DRAIN BRAKE FLUID

NOTE: Immediately wash off any brake fluid that comes into contact with any

2008 Scion xD**2008 BRAKES Brake - xD**

printed surfaces.

3. REMOVE FRONT BRAKE FLEXIBLE HOSE

- a. Using a union nut wrench, separate the brake tube while holding the flexible hose with a wrench.

NOTE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting position.



Fig. 98: Removing Front Brake Flexible Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the clip.
- c. Remove the bolt and separate the flexible hose and speed sensor.
- d. Remove the union bolt and gasket and remove the flexible hose from the disc brake cylinder.

INSTALLATION**1. INSTALL FRONT BRAKE FLEXIBLE HOSE**

- a. Install the flexible hose with the union bolt and a new gasket.

Torque: 30 N*m (310 kgf*cm, 22 ft.*lbf)

HINT:

Install the flexible hose lock securely into the lock hole in the disc brake cylinder.

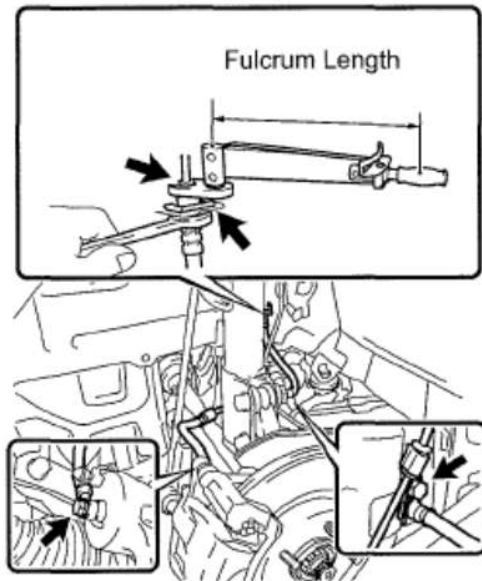
- b. Install the flexible hose and speed sensor with the bolt.

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Torque: 29 N*m (300 kgf*cm, 22 ft.*lbf)

NOTE: Install the flexible hose and speed sensor without twisting them.



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Fig. 99: Installing Front Brake Flexible Hose

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

- c. Install the flexible hose with a new clip.
- d. Using a union nut wrench, install the brake tube to the flexible hose while holding the flexible hose with a wrench.

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)

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 the union nut wrench is parallel to a torque wrench.

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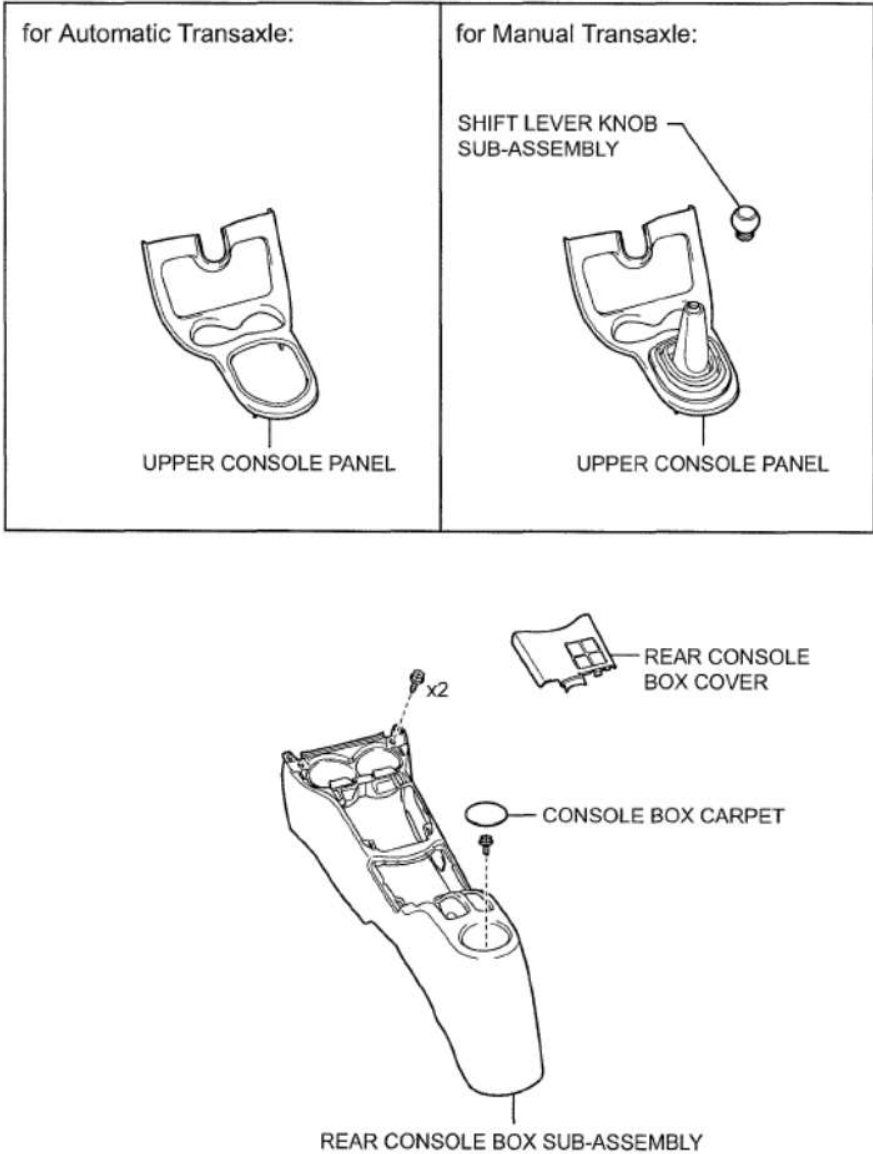
2. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
3. **BLEED MASTER CYLINDER** (See REPLACEMENT)
4. **BLEED BRAKE LINE** (See REPLACEMENT)
5. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
6. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
7. **INSPECT FOR BRAKE FLUID LEAK**
8. **INSTALL FRONT WHEEL**

Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)

REAR BRAKE**COMPONENTS**

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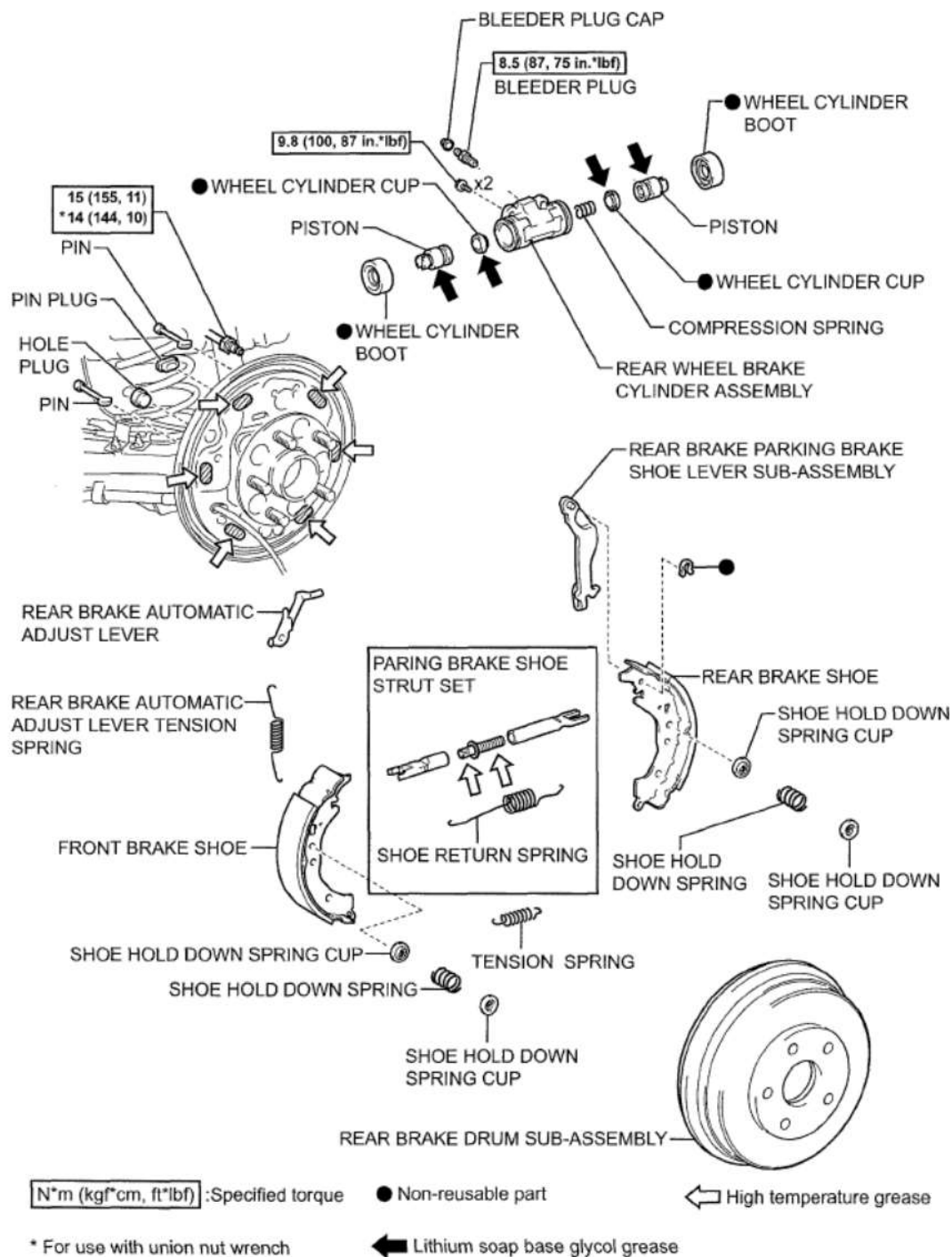


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Fig. 100: Identifying Rear Brake Components With Torque Specification (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Fig. 101: Identifying Rear Brake Components With Torque Specifications (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

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1. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle)** (See **REMOVAL**)
2. **REMOVE UPPER CONSOLE PANEL** (See **REMOVAL**)
3. **REMOVE REAR CONSOLE BOX COVER** (See **REMOVAL**)
4. **REMOVE CONSOLE BOX CARPET** (See **REMOVAL**)
5. **REMOVE REAR CONSOLE BOX SUB-ASSEMBLY** (See **REMOVAL**)
6. **REMOVE REAR WHEEL**
7. **DRAIN BRAKE FLUID**

NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

8. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY

- a. Release the parking brake and remove the rear brake drum.

If the rear brake drum cannot be removed easily, perform the following procedure.

- b. Remove the hole plug and insert a screwdriver through the hole into the backing plate, and hold the automatic adjust lever away from the adjuster.
- c. Using another screwdriver, contract the brake shoe by turning the adjusting bolt.

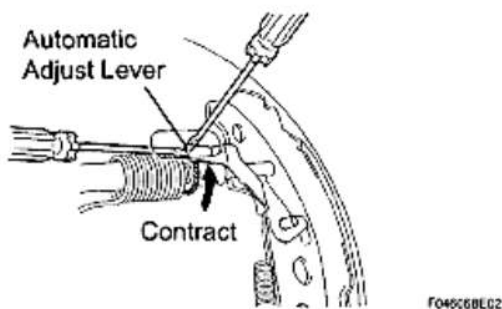


Fig. 102: Contracting Brake Shoe

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

DISASSEMBLY**1. REMOVE REAR BRAKE SHOE KIT**

- a. Using SST, separate the shoe return spring from the front brake shoe.

SST 09921-00010

NOTE: Do not damage the wheel cylinder boot.

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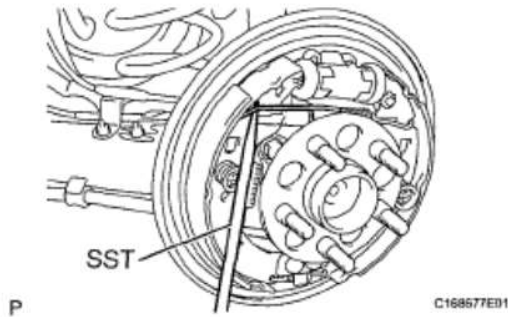


Fig. 103: Separating Shoe Return Spring From Front Brake Shoe
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using SST, remove the shoe hold down spring cup, shoe hold down spring, pin and front brake shoe.

SST 09718-00011

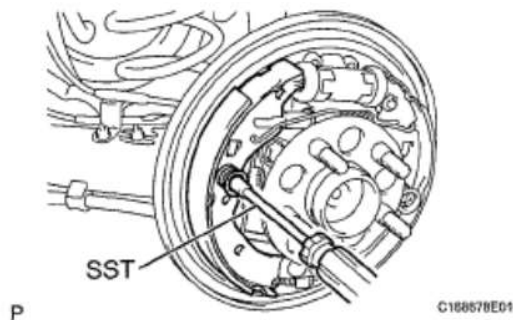


Fig. 104: Removing Shoe Hold Down Spring Cup And Shoe Hold Down Spring
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Remove the tension spring.

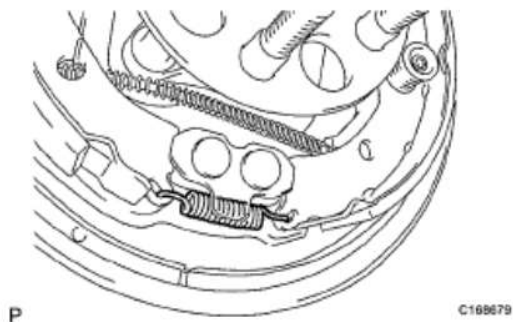


Fig. 105: Identifying Tension Spring
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Remove the shoe return spring from the rear brake shoe and remove the parking brake shoe strut

2008 Scion xD

2008 BRAKES Brake - xD

set.

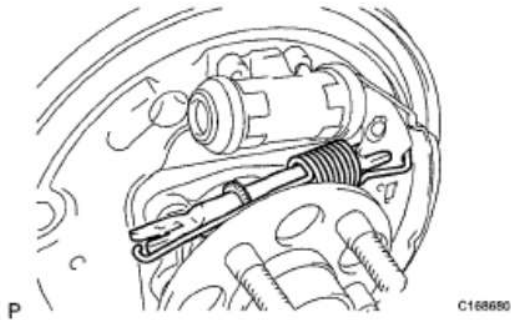


Fig. 106: Identifying Shoe Return Spring And Rear Brake Shoe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Using SST, remove the shoe hold down spring cup, shoe hold down spring, pin and rear brake shoe.

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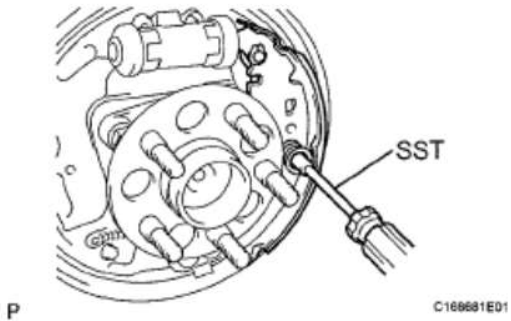


Fig. 107: Removing Shoe Hold Down Spring Cup And Shoe Hold Down Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Using needle-nose pliers, separate the parking brake cable.

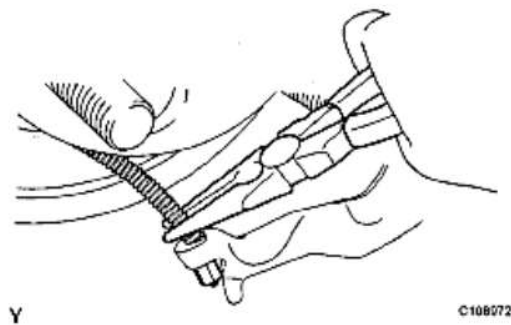


Fig. 108: Separating Parking Brake Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 BRAKES Brake - xD****2. REMOVE REAR BRAKE AUTOMATIC ADJUST LEVER**

- a. Remove the automatic adjust lever tension spring and remove the automatic adjust lever.



Fig. 109: Identifying Automatic Adjust Lever Tension Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE REAR BRAKE PARKING BRAKE SHOE LEVER SUB-ASSEMBLY

- a. Using a screwdriver, remove the C-washer and remove the parking brake shoe lever.



Fig. 110: Locating Parking Brake Shoe Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE REAR WHEEL BRAKE CYLINDER ASSEMBLY

- a. Using a union nut wrench, separate the brake tube from the rear wheel brake cylinder.

HINT:

Use a container to catch the brake fluid.

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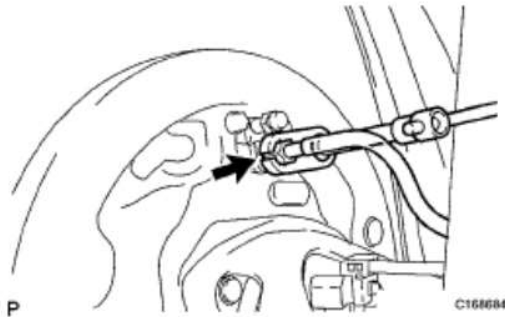


Fig. 111: Separating Brake Tube From Rear Wheel Brake Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the bleeder plug cap.
- c. Remove the bleeder plug.
- d. Remove the 2 bolts and remove the rear wheel brake cylinder.

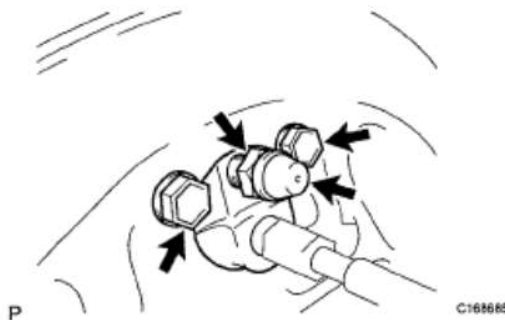


Fig. 112: Locating Rear Wheel Brake Cylinder Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. REMOVE REAR WHEEL CYLINDER KIT

- a. Remove the 2 wheel cylinder boots from the wheel brake cylinder.
- b. Remove the 2 pistons.
- c. Remove the compression spring.
- d. Remove the wheel cylinder cup from each piston.

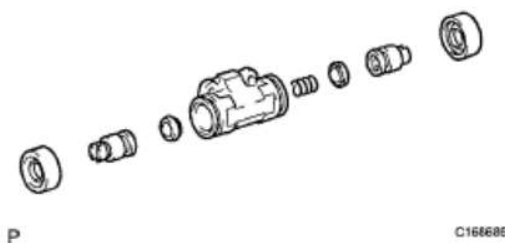


Fig. 113: Identifying Wheel Cylinder Boots, Pistons And Wheel Cylinder Cup

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

INSPECTION**1. INSPECT REAR BRAKE DRUM INSIDE DIAMETER**

- a. Using a brake drum gauge or the equivalent, measure the inside diameter of the brake drum.

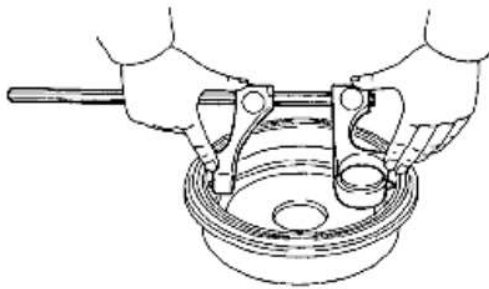
Standard inside diameter:

228.6 mm (9.000 in.)

Maximum inside diameter:

229.6 mm (9.039 in.)

If the inside diameter is greater than the maximum, replace the brake drum.



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Fig. 114: Measuring Inside Diameter Of Brake Drum

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

2. INSPECT REAR BRAKE SHOE LINING THICKNESS

- a. Using a ruler, measure the thickness of the shoe lining.

Standard thickness:

5.0 mm (0.197 in.)

Minimum thickness:

1.0 mm (0.039 in.)

If the lining thickness is equal to or less than the minimum value, or if there is any severe or uneven wear, replace the brake shoe.

NOTE: If the brake shoes need replacing, they must be replaced as a set.

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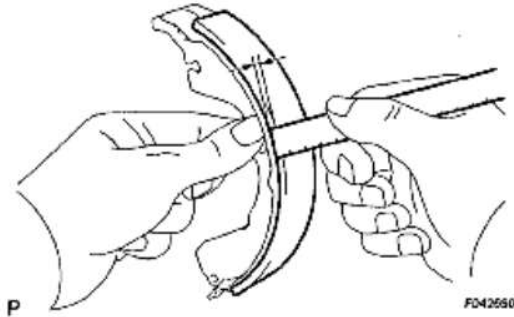


Fig. 115: Measuring Thickness Of Shoe Lining
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSPECT REAR BRAKE DRUM AND REAR BRAKE SHOE LINING FOR PROPER CONTACT

- a. Apply chalk to the inside surface of the drum, then grind the brake shoe lining so that they fit together properly.

If the contact between the drum and the shoe lining is improper, repair it using a brake shoe grinder or replace the brake shoe assembly.

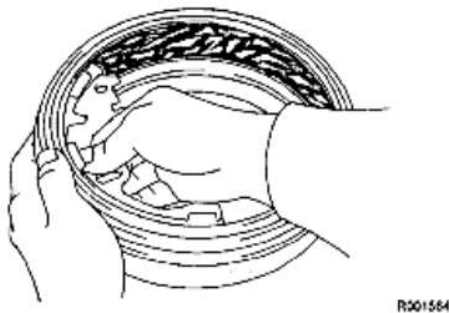


Fig. 116: Applying Chalk To Inside Surface Of Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSPECT REAR WHEEL BRAKE CYLINDER

Check the cylinder bore and piston for rust and scoring.

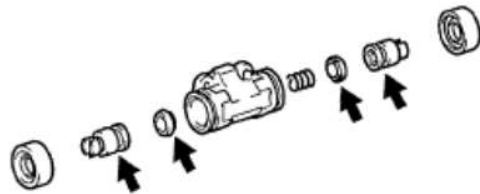
REASSEMBLY

1. INSTALL REAR WHEEL CYLINDER KIT

- a. Apply lithium soap base glycol grease to 2 new wheel cylinder cups and the 2 pistons.
- b. Install the wheel cylinder cup onto each piston.

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← Lithium soap base glycol grease

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Fig. 117: Identifying Lithium Soap Base Glycol Grease Applying Area Of Wheel Cylinder Cups And Pistons

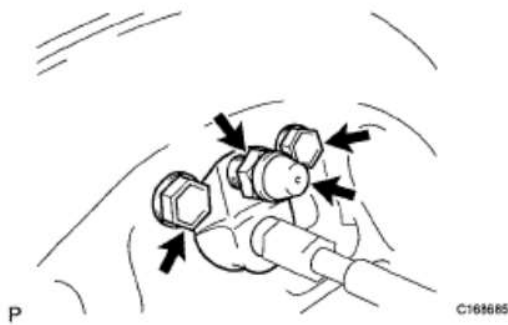
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install the compression spring and 2 pistons onto the wheel brake cylinder.
- d. Install 2 new wheel cylinder boots onto the wheel brake cylinder.

2. INSTALL REAR WHEEL BRAKE CYLINDER ASSEMBLY

- a. Install the wheel brake cylinder with the 2 bolts.

Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)



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Fig. 118: Locating Rear Wheel Brake Cylinder Bolts

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

- b. Provisionally install the bleeder plug.
- c. Install the bleeder plug cap.
- d. Using a union nut wrench, install the brake tube.

Torque: without union nut wrench

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

with union nut wrench

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

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 the union nut wrench is parallel to a torque wrench.

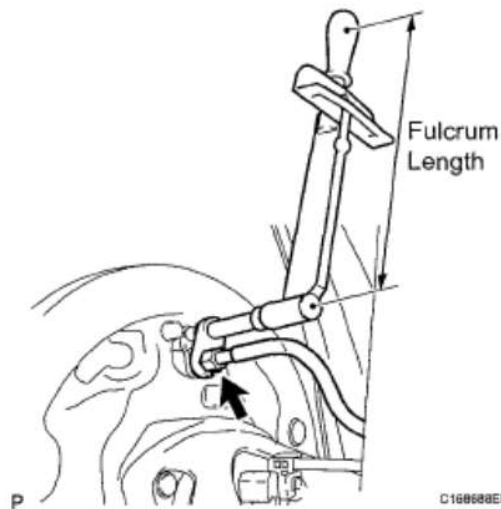


Fig. 119: Installing Brake Tube

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

3. INSTALL REAR BRAKE PARKING BRAKE SHOE LEVER SUB-ASSEMBLY

- Using needle-nose pliers, install the parking brake shoe lever with a new C-washer.

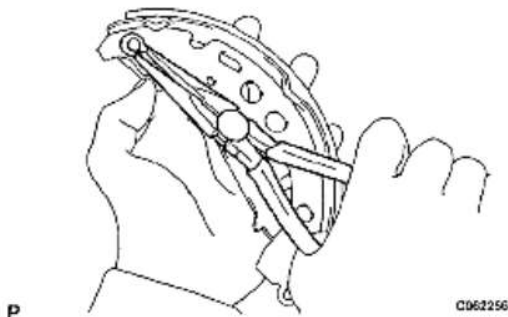


Fig. 120: Installing Parking Brake Shoe Lever With C-Washer

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

4. INSTALL REAR BRAKE AUTOMATIC ADJUST LEVER

- Install the automatic adjust lever and automatic adjust lever tension spring onto the front brake

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shoe.



Fig. 121: Identifying Automatic Adjust Lever Tension Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL REAR BRAKE SHOE KIT

- a. Apply high temperature grease to the surface of the backing plate which is in contact with the shoe.

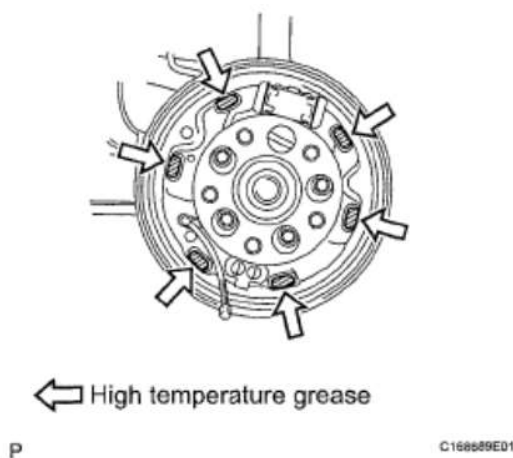
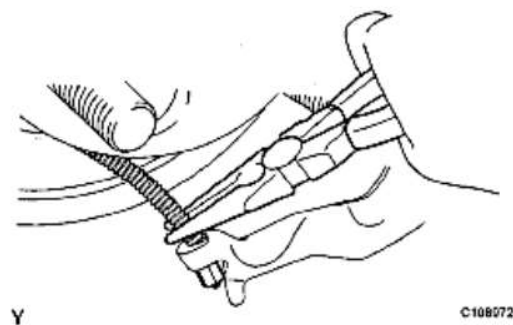


Fig. 122: Identifying High Temperature Grease Applying Area
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using needle-nose pliers, install the parking brake cable onto the parking brake shoe lever.



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Fig. 123: Installing Parking Brake Cable Onto Parking Brake Shoe Lever
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using SST, install the rear brake shoe, pin, shoe hold down spring and shoe hold down spring cup.

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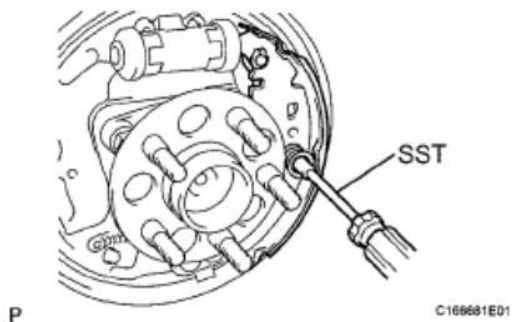


Fig. 124: Installing Rear Brake Shoe
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Apply high temperature grease to the adjusting bolt.

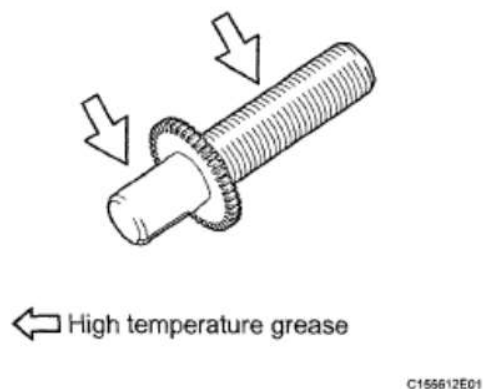


Fig. 125: Identifying High Temperature Grease Applying Area Of Adjusting Bolt
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Install the parking brake shoe strut set as shown in the illustration.

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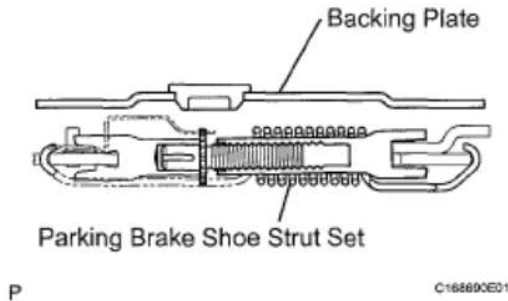


Fig. 126: Identifying Parking Brake Shoe Strut Set
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Using SST, install the front brake shoe, pin, shoe hold down spring and shoe hold down spring cup.

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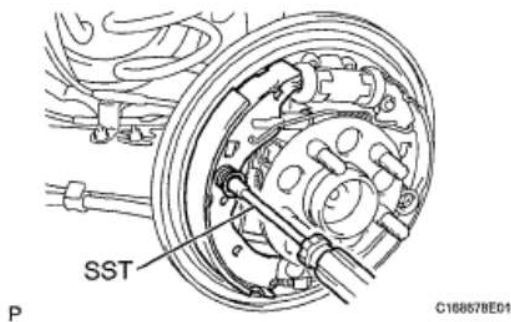


Fig. 127: Installing Front Brake Shoe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- g. Using needle-nose pliers, install the tension spring onto the front brake shoe and rear brake shoe.

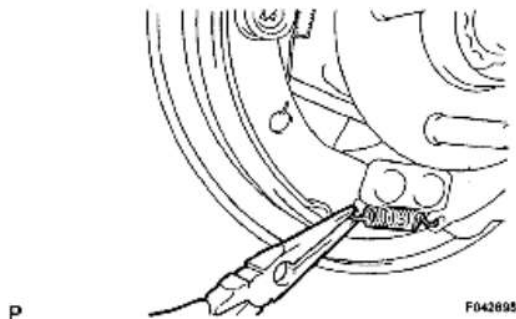


Fig. 128: Installing Tension Spring Onto Front Brake Shoe And Rear Brake Shoe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- h. Using SST, install the shoe return spring onto the front brake shoe.

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NOTE: Do not damage the wheel cylinder boot.

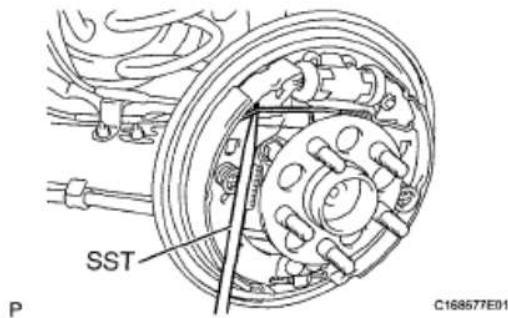


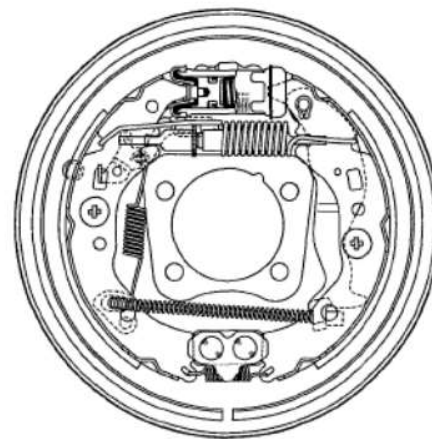
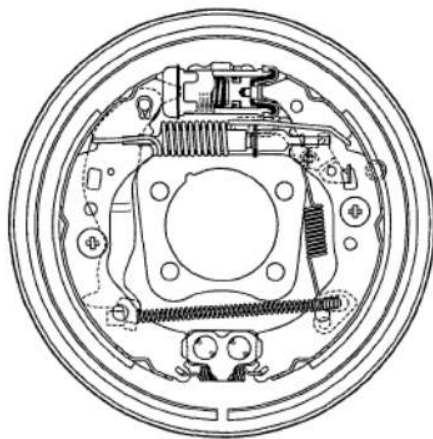
Fig. 129: Installing Shoe Return Spring Onto Front Brake Shoe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. CHECK REAR DRUM BRAKE INSTALLATION

- Check that each part is installed properly.

for RH Side:

for LH Side:



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Fig. 130: Identifying Rear Drum Brake Installation Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Measure the brake drum inner diameter and the diameter of the brake shoes. Check that the difference between the diameters is equal to the specified shoe clearance.

Shoe clearance:

0.6 mm (0.024 in.)

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NOTE: There should be no oil or grease adhering to the friction surfaces of the shoe lining or the drum.

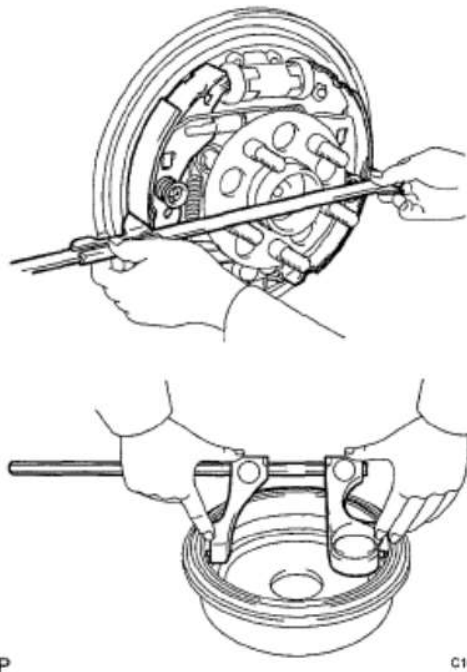


Fig. 131: Measuring Brake Drum Inner Diameter And Brake Shoes Diameter
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL REAR BRAKE DRUM SUB-ASSEMBLY**
2. **ADJUST REAR DRUM BRAKE SHOE CLEARANCE**
 - a. Provisionally install the hub nuts.
 - b. Remove the hole plug, and turn the adjuster to expand the shoe until the drum locks.

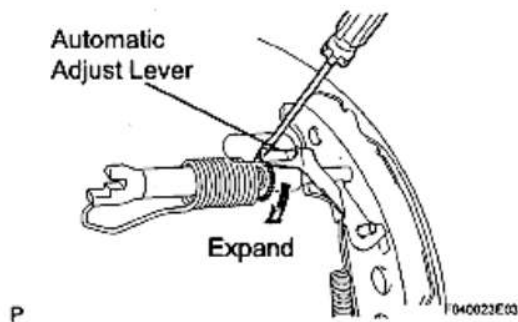


Fig. 132: Expanding Brake Shoe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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- c. Using a screwdriver, release the adjuster 11 notches.
- d. Install the hole plug.
- 3. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
- 4. **BLEED MASTER CYLINDER** (See REPLACEMENT)
- 5. **BLEED BRAKE LINE** (See REPLACEMENT)
- 6. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
- 7. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
- 8. **INSPECT FOR BRAKE FLUID LEAK**
- 9. **INSTALL REAR WHEEL**

Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)

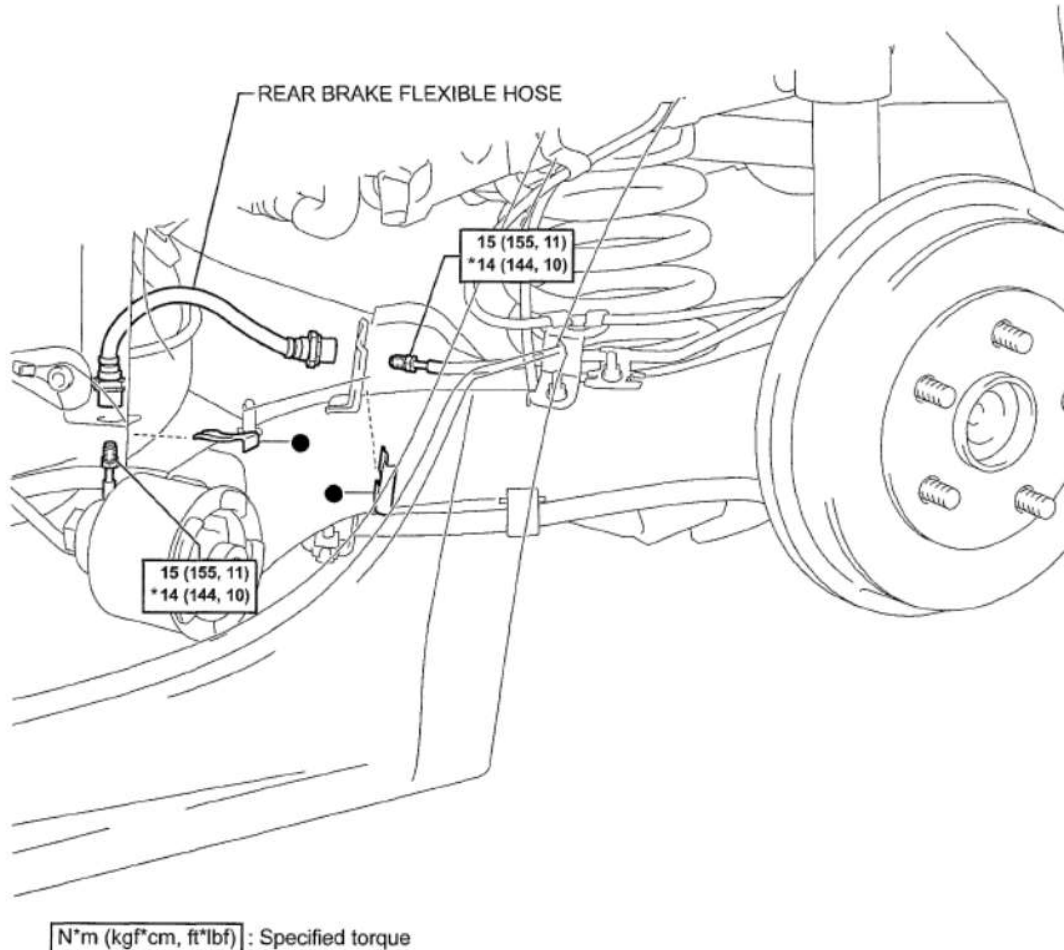
- 10. **INSPECT PARKING BRAKE LEVER TRAVEL** (See ADJUSTMENT)
- 11. **ADJUST PARKING BRAKE LEVER TRAVEL** (See ADJUSTMENT)
- 12. **INSTALL REAR CONSOLE BOX SUB-ASSEMBLY** (See INSTALLATION)
- 13. **INSTALL CONSOLE BOX CARPET** (See INSTALLATION)
- 14. **INSTALL REAR CONSOLE BOX COVER** (See INSTALLATION)
- 15. **INSTALL UPPER CONSOLE PANEL** (See INSTALLATION)
- 16. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle)** (See INSTALLATION)

REAR BRAKE FLEXIBLE HOSE

COMPONENTS

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Fig. 133: Identifying Rear Brake Flexible Hose Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE REAR WHEEL
2. DRAIN BRAKE FLUID

NOTE: Immediately wash off any brake fluid that comes into contact with any painted surfaces.

3. REMOVE REAR BRAKE FLEXIBLE HOSE
 - a. Using a union nut wrench, separate the brake tubes while holding the flexible hose with a wrench.

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NOTE:

- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting position.

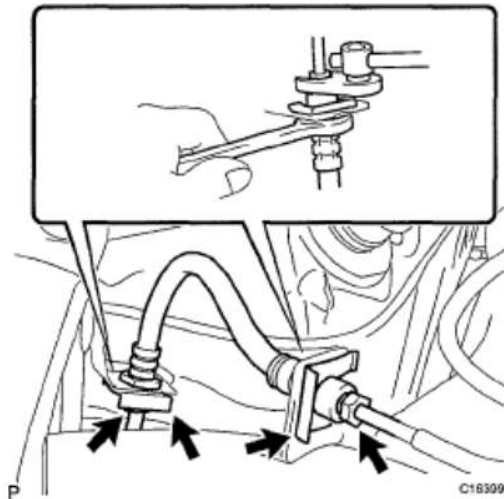


Fig. 134: Removing Rear Brake Flexible Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Remove the 2 clips and flexible hose from the axle beam.

INSTALLATION

1. INSTALL REAR BRAKE FLEXIBLE HOSE

- Install the flexible hose with 2 new clips onto the axle beam.
- Using a union nut wrench, install the 2 brake tubes onto the flexible hose while holding the flexible hose with a wrench.

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)

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 the union nut wrench is

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parallel to a torque wrench.

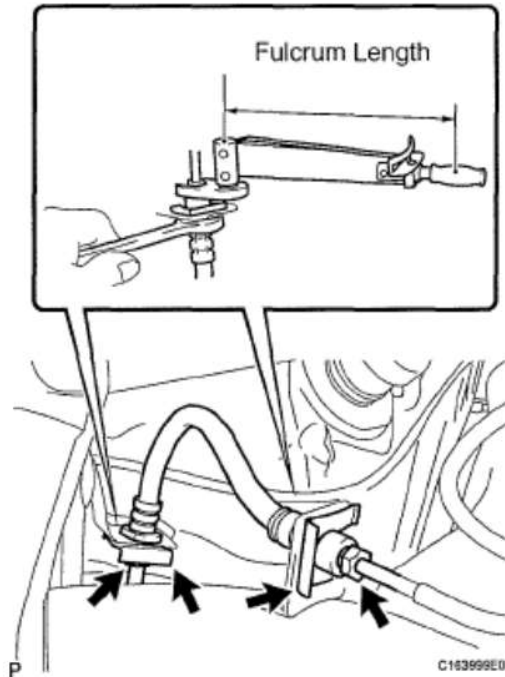


Fig. 135: Installing Rear Brake Flexible Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **FILL RESERVOIR WITH BRAKE FLUID** (See REPLACEMENT)
3. **BLEED MASTER CYLINDER** (See REPLACEMENT)
4. **BLEED BRAKE LINE** (See REPLACEMENT)
5. **BLEED BRAKE ACTUATOR (w/ VSC)** (See REPLACEMENT)
6. **CHECK FLUID LEVEL IN RESERVOIR** (See REPLACEMENT)
7. **INSPECT FOR BRAKE FLUID LEAK**
8. **INSTALL REAR WHEEL**

Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)