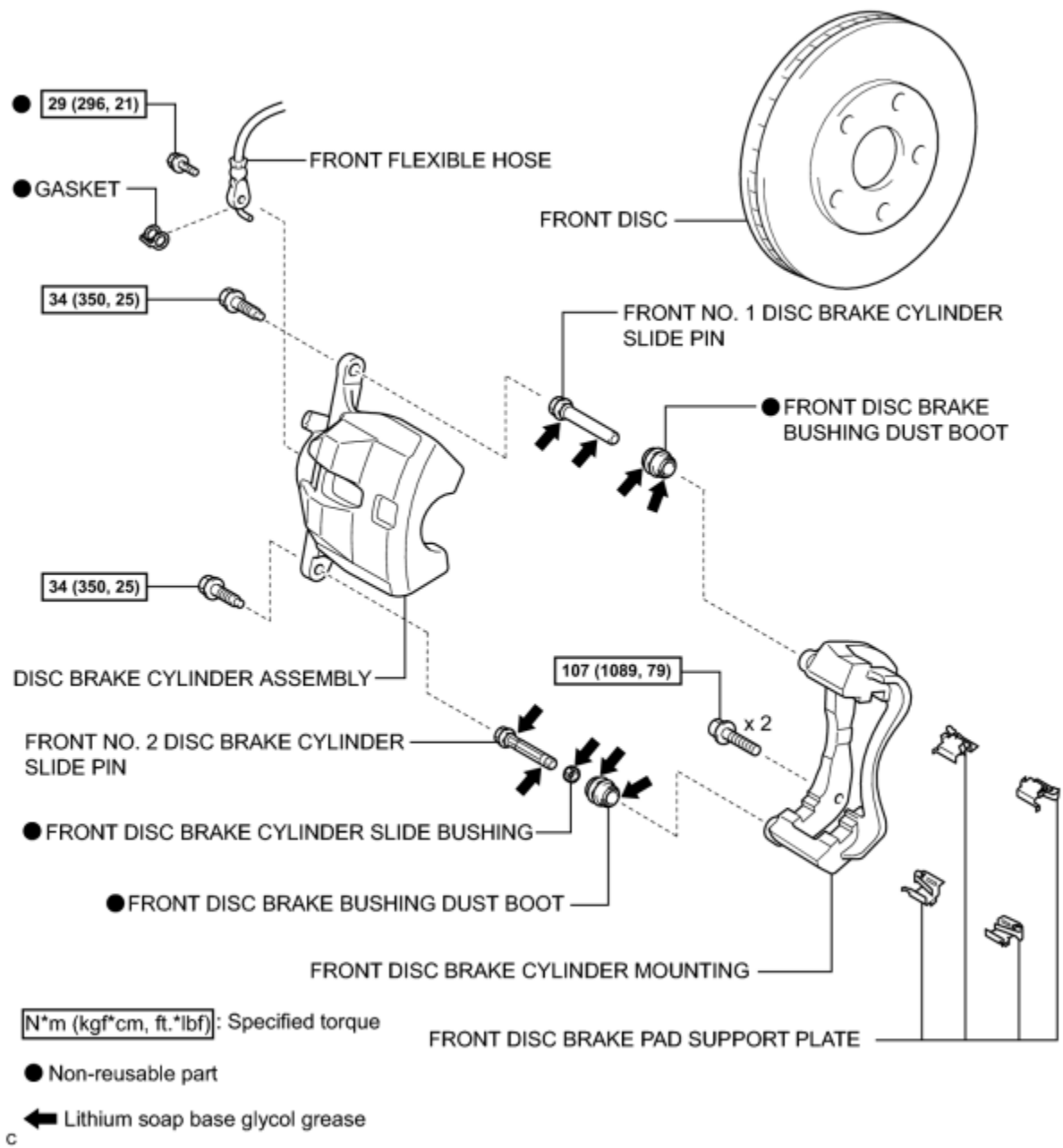


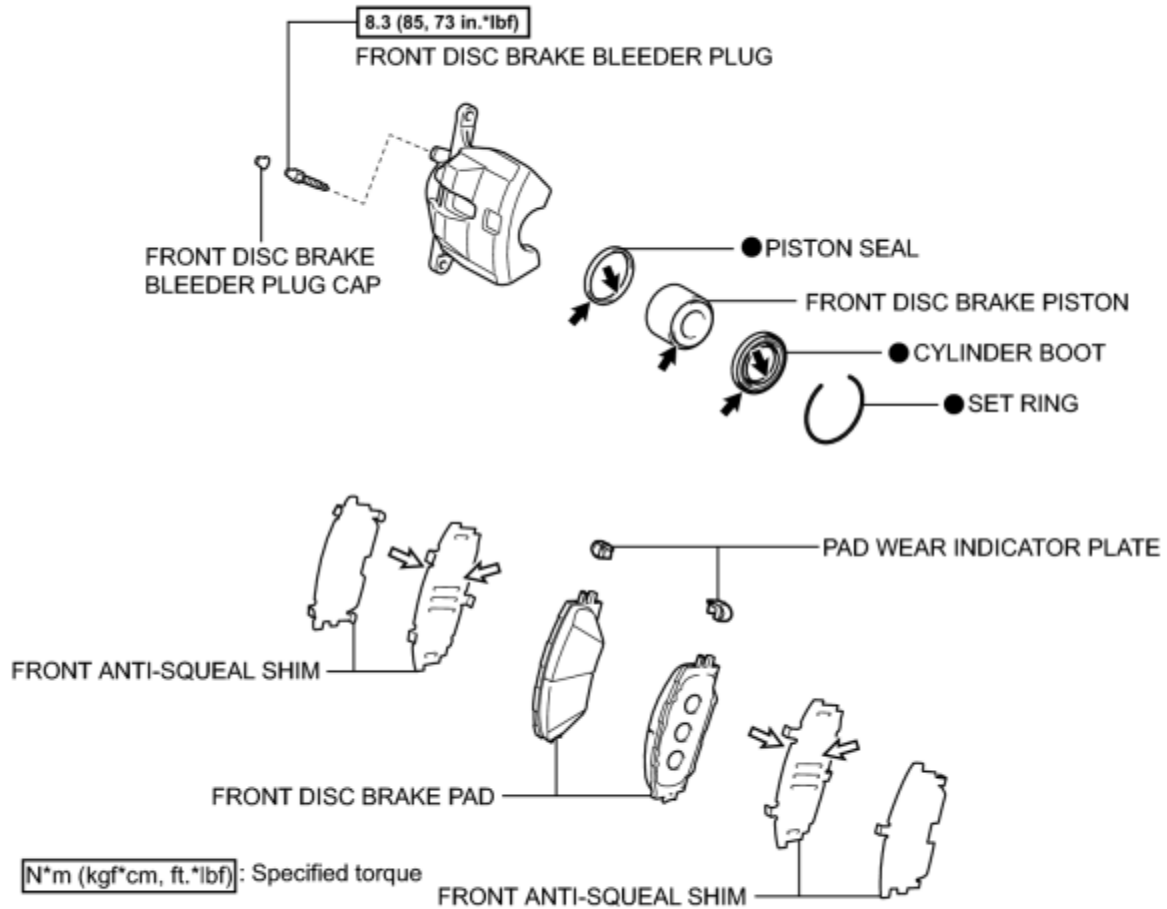
<b>Last Modified:</b> 5-25-2010	6.4 K	<b>From:</b> 200907
<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000002VIY00UX
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: COMPONENTS (2010 HS250H)		

## **COMPONENTS**

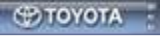
## **ILLUSTRATION**



# ILLUSTRATION



- Non-reusable part
- ◄ Lithium soap base glycol grease
- ◄ Disc brake grease



<b>Last Modified:</b> 5-25-2010	6.4 G	<b>From:</b> 200907
<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000000ORN02AX
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: INSPECTION (2010 HS250H)		

## INSPECTION

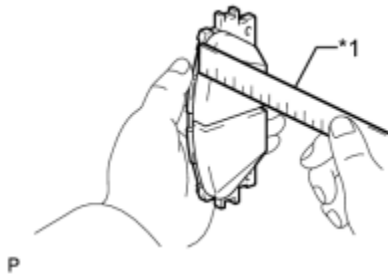
### 1. INSPECT BRAKE CYLINDER AND PISTON

(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.

<b>Text in Illustration</b>	Ruler
*1	



Standard thickness:

12.0 mm (0.472 in.)

Minimum thickness:

1.0 mm (0.0394 in.)

If the pad lining thickness is less than the minimum thickness, replace the disc brake pads.

**HINT:**

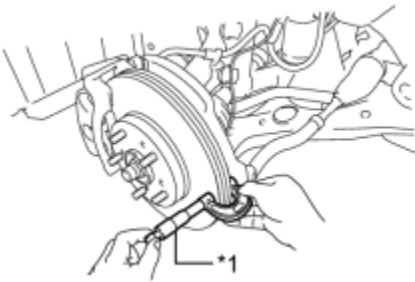
Be sure to check front disc thickness after replacing the brake pads with new ones.

### 3. INSPECT FRONT DISC BRAKE PAD SUPPORT PLATE

(a) Make sure that the front disc brake pad support plates have sufficient rebound, no deformation, cracks or wear, and that all rust and dirt are cleaned off. If necessary, replace the front disc brake pad support plates.

### 4. INSPECT DISC THICKNESS

(a) Using a micrometer, measure the disc thickness.



**Text in Illustration**

\*1

Micrometer

Standard thickness:

25.0 mm (0.984 in.)

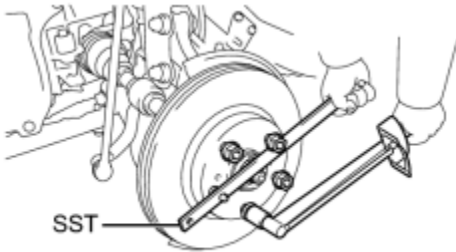
Minimum thickness:

22.0 mm (0.866 in.)

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

**5. INSPECT DISC RUNOUT**

(a) Inspect the front axle hub bearing looseness and front axle hub runout INFO.

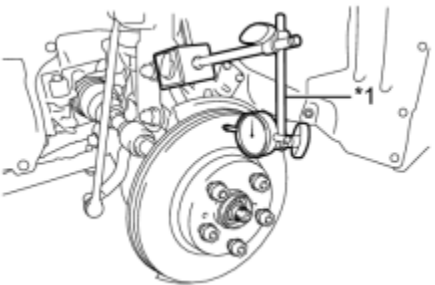


(b) Using SST to hold the disc, tighten the disc with the 5 nuts.

SST: 09330-00021

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

(c) Using a dial indicator, measure the disc runout 10 mm (0.394 in.) away from the outer edge of the front disc.



**Text in Illustration**

\*1

Dial Indicator

Maximum disc runout:

0.05 mm (0.00197 in.)

**NOTICE:**

Keep the magnet of the dial indicator away from the axle hub and speed sensor.

**HINT:**

If the runout exceeds the maximum value, change the installation position of the disc to minimize the runout. If the runout exceeds the maximum even when the installation position is changed, grind the disc. If the disc thickness is less than the minimum, replace the front disc.

(d) Remove the 5 nuts and front disc.



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<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000000P9Q029X
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: REMOVAL (2010 HS250H)		

## REMOVAL

### NOTICE:

When the brake pedal is first depressed after replacing the brake pads or pushing back the disc brake piston, DTC C1214 may be output. As there is no malfunction, clear the DTC.

### HINT:

- Use the same procedure for the LH side and RH side.
- The following procedure is for the LH side.

#### 1. DISABLE BRAKE CONTROL INFO

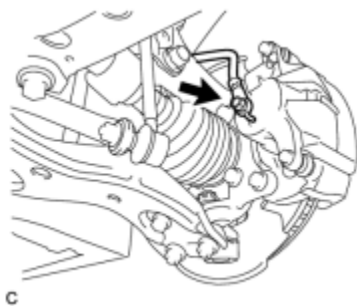
#### 2. REMOVE FRONT WHEEL

#### 3. DRAIN BRAKE FLUID

### NOTICE:

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

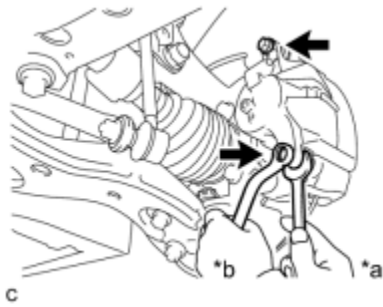
#### 4. SEPARATE FRONT FLEXIBLE HOSE



- (a) Remove the union bolt and gasket, and separate the front flexible hose from the disc brake cylinder assembly.

#### 5. REMOVE DISC BRAKE CYLINDER ASSEMBLY

- (a) Hold the front disc brake cylinder slide pin, and remove the 2 bolts and disc brake cylinder assembly.



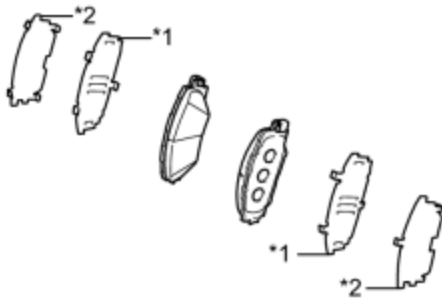
<b>Text in Illustration</b>	Hold
*a	
*b	Turn

## 6. REMOVE FRONT DISC BRAKE PAD

(a) Remove the 2 front disc brake pads from the front disc brake cylinder mounting.

## 7. REMOVE FRONT ANTI-SQUEAL SHIM

(a) Remove the front No. 1 anti-squeal shim and front No. 2 anti-squeal shim from each brake pad.



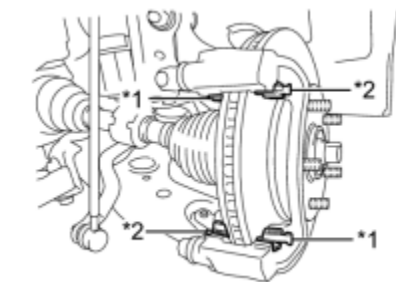
<b>Text in Illustration</b>	Front No. 1 Anti-squeal Shim
*1	
*2	Front No. 2 Anti-squeal Shim

c

(b) Remove the pad wear indicator plate from each front disc brake pad.

## 8. REMOVE FRONT DISC BRAKE PAD SUPPORT PLATE

(a) Remove the 2 front No. 1 disc brake pad support plates and 2 front No. 2 disc brake pad support plates from the front disc brake cylinder mounting.



c

<b>Text in Illustration</b>	Front No. 1 Disc Brake Pad Support Plate
*1	
*2	Front No. 2 Disc Brake Pad

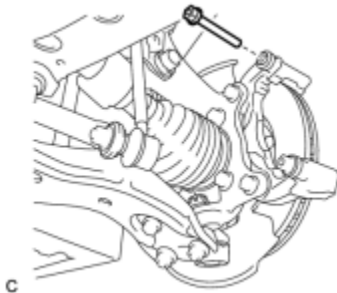


	Support Plate
--	---------------

**NOTICE:**

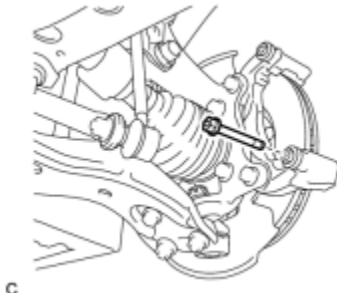
Each front disc brake pad support plate has a different shape. Be sure to put an identification mark on each front disc brake pad support plate so that it can be reinstalled to its original position.

**9. REMOVE FRONT NO. 1 DISC BRAKE CYLINDER SLIDE PIN**



(a) Remove the front No. 1 disc brake cylinder slide pin from the front disc brake cylinder mounting.

**10. REMOVE FRONT NO. 2 DISC BRAKE CYLINDER SLIDE PIN**

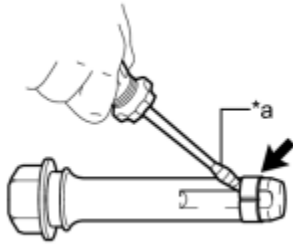


(a) Remove the front No. 2 disc brake cylinder slide pin from the front disc brake cylinder mounting.

**11. REMOVE FRONT DISC BRAKE CYLINDER SLIDE BUSHING**

(a) Using a screwdriver with its tip wrapped with vinyl tape, remove the front disc brake cylinder slide bushing from the front No. 2 disc brake cylinder slide pin.

<b>Text in Illustration</b>	Vinyl Tape
*a	

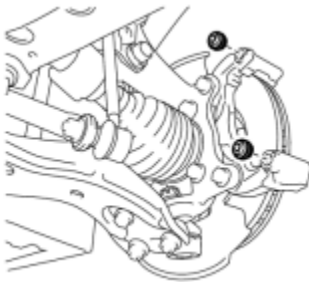


NOTICE:

Do not damage the front No. 2 disc brake cylinder slide pin.

c

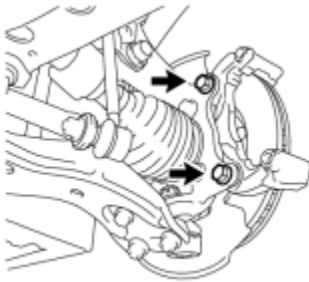
## 12. REMOVE FRONT DISC BRAKE BUSHING DUST BOOT



(a) Remove the 2 front disc brake bushing dust boots from the front disc brake cylinder mounting.

c

## 13. REMOVE FRONT DISC BRAKE CYLINDER MOUNTING



(a) Remove the 2 bolts and front disc brake cylinder mounting from the steering knuckle.

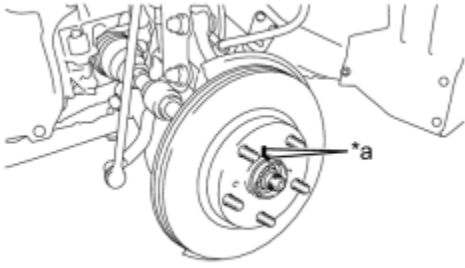
c

## 14. REMOVE FRONT DISC

(a) Remove the front disc.

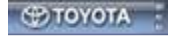
<b>Text in Illustration</b>	Matchmark
*a	

HINT:



Put matchmarks on the disc and the axle hub.

c

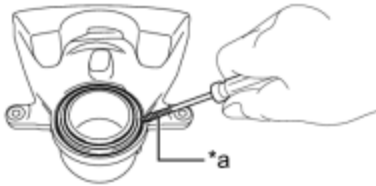


<b>Last Modified:</b> 5-25-2010	6.4 A	<b>From:</b> 200907
<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000000ORP029X
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: DISASSEMBLY (2010 HS250H)		

## DISASSEMBLY

### 1. REMOVE CYLINDER BOOT

(a) Using a screwdriver with its tip wrapped with vinyl tape, remove the set ring and cylinder boot from the disc brake cylinder assembly.



#### Text in Illustration

\*a

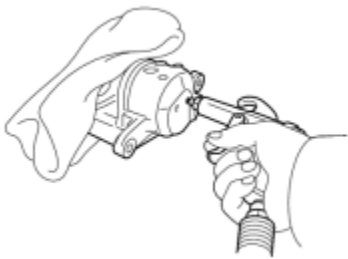
Vinyl Tape

c

#### NOTICE:

Be careful not to damage the brake piston or cylinder.

### 2. REMOVE FRONT DISC BRAKE PISTON



c

(a) Place a piece of cloth between the front disc brake piston and disc brake cylinder assembly.

(b) Apply compressed air to remove the front disc brake piston from the disc brake cylinder assembly.

#### CAUTION:

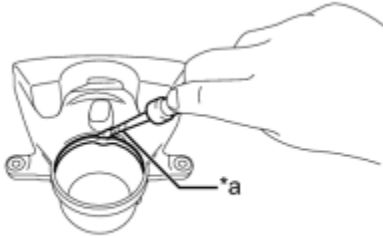
Do not place your fingers in front of the piston when using compressed air.

#### NOTICE:

Do not allow any brake fluid to spatter.

### 3. REMOVE PISTON SEAL

(a) Using a screwdriver with its tip wrapped with vinyl tape, remove the piston seal from the disc brake cylinder assembly.



#### **Text in Illustration**

\*a

Vinyl Tape

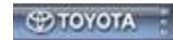
c

#### **NOTICE:**

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

### 4. REMOVE FRONT DISC BRAKE BLEEDER PLUG CAP

### 5. REMOVE FRONT DISC BRAKE BLEEDER PLUG



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<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000000ORQ029X
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: REASSEMBLY (2010 HS250H)		

## REASSEMBLY

### 1. TEMPORARILY TIGHTEN FRONT DISC BRAKE BLEEDER PLUG

#### HINT:

Fully tighten the front disc brake bleeder plug after bleeding any air left in the system.

### 2. INSTALL FRONT DISC BRAKE BLEEDER PLUG CAP


### 3. INSTALL PISTON SEAL

(a) Apply a light layer of lithium soap base glycol grease to the entire circumference of a new piston seal.



c

#### Text in Illustration

	Lithium Soap Base Glycol Grease
---	---------------------------------

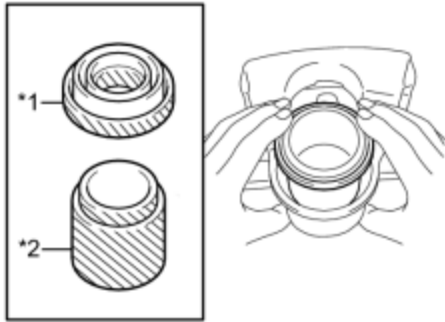
(b) Install the piston seal to the disc brake cylinder assembly.

#### NOTICE:

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


### 4. INSTALL FRONT DISC BRAKE PISTON

(a) Apply a light layer of lithium soap base glycol grease to the entire circumference of a new cylinder boot.



c

**Text in Illustration**

*1	Cylinder Boot
*2	Front Disc Brake Piston
	Lithium Soap Base Glycol Grease

(b) Install the cylinder boot to the front disc brake piston.

(c) Apply a light layer of lithium soap base glycol grease to the contact surfaces of the front disc brake piston, and install it to the disc brake cylinder assembly.

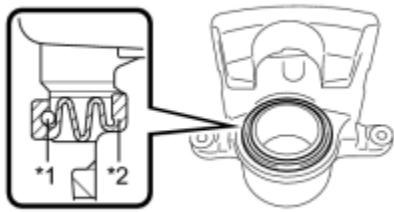
**NOTICE:**

Do not install the piston forcibly in the disc brake cylinder assembly.

**5. INSTALL CYLINDER BOOT**

(a) Install the cylinder boot to the disc brake cylinder assembly.

<b>Text in Illustration</b>	Set Ring
-----------------------------	----------



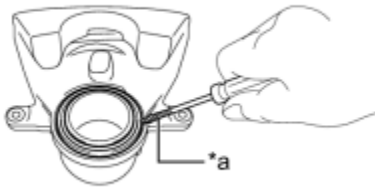
c

*1	
*2	Cylinder Boot

**NOTICE:**

Securely install the cylinder boot to the groove of the disc brake cylinder assembly and front disc brake piston.

(b) Using a screwdriver with its tip wrapped with vinyl tape, install a new set ring.



c

<b>Text in Illustration</b>	
*a	Vinyl Tape

**NOTICE:**

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





<b>Last Modified:</b> 5-25-2010	6.4 A	<b>From:</b> 200907
<b>Model Year:</b> 2010	<b>Model:</b> HS250H	<b>Doc ID:</b> RM000000P9P029X
<b>Title:</b> BRAKE (FRONT): FRONT BRAKE: INSTALLATION (2010 HS250H)		

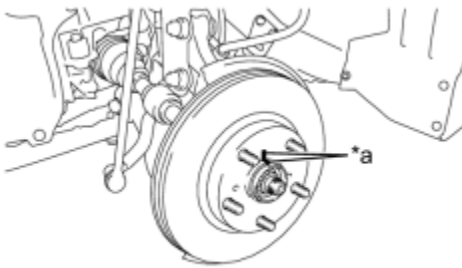
## INSTALLATION

### HINT:

- Use the same procedure for the LH side and RH side.
- The following procedure is for the LH side.

### 1. INSTALL FRONT DISC

(a) Align the matchmarks of the disc and axle hub, and install the disc.



#### Text in Illustration

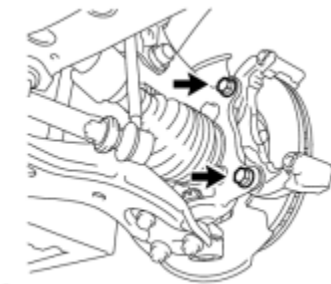
\*a

Matchmark

### NOTICE:

When replacing the disc with a new one, select the installation position where the front disc has minimal runout.

### 2. INSTALL FRONT DISC BRAKE CYLINDER MOUNTING

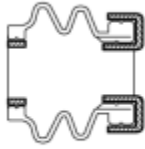


(a) Install the front disc brake cylinder mounting to the steering knuckle with the 2 bolts.

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

### 3. INSTALL FRONT DISC BRAKE BUSHING DUST BOOT

(a) Apply a light layer of lithium soap base glycol grease to the entire circumference of 2 new front disc brake bushing dust boots.



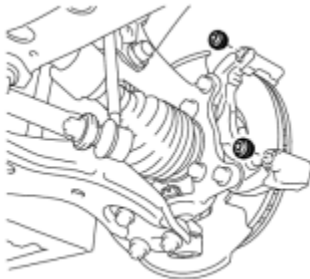
c

### Text in Illustration

	Lithium Soap Base Glycol Grease
---	---------------------------------

### HINT:

Apply at least 0.3 g (0.01 oz.) of lithium soap base glycol grease to each front disc brake bushing dust boot.

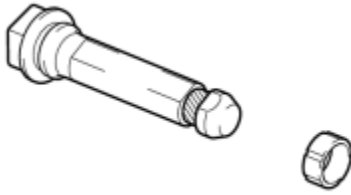


c

(b) Install the 2 front disc brake bushing dust boots to the front disc brake cylinder mounting.

## 4. INSTALL FRONT DISC BRAKE CYLINDER SLIDE BUSHING

(a) Apply a light layer of lithium soap base glycol grease to the contact surface of the front No. 2 disc brake cylinder slide pin.



c

**Text in Illustration**

	Lithium Soap Base Glycol Grease
---	---------------------------------

(b) Install a new front disc brake cylinder slide bushing to the front No. 2 disc brake cylinder slide pin.

**5. INSTALL FRONT NO. 2 DISC BRAKE CYLINDER SLIDE PIN**

(a) Apply a light layer of lithium soap base glycol grease to the sliding part and the seal surface of the front No. 2 disc brake cylinder slide pin.

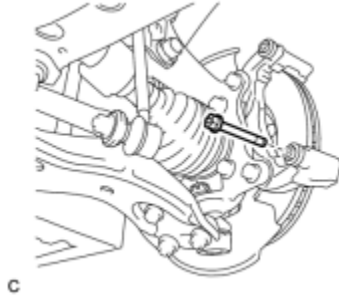


c

**Text in Illustration**

	Lithium Soap Base Glycol Grease
---	---------------------------------

(b) Install the front No. 2 disc brake cylinder slide pin to the front disc brake cylinder mounting.



(c) Push the front No. 2 disc brake cylinder slide pin into the front disc brake bushing dust boot to align them.

#### 6. INSTALL FRONT NO. 1 DISC BRAKE CYLINDER SLIDE PIN

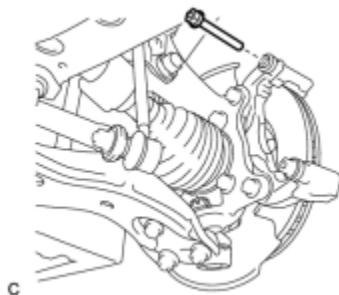
(a) Apply a light layer of lithium soap base glycol grease to the sliding part and the seal surface of the front No. 1 disc brake cylinder slide pin.



c

#### Text in Illustration

	Lithium Soap Base Glycol Grease
--	---------------------------------

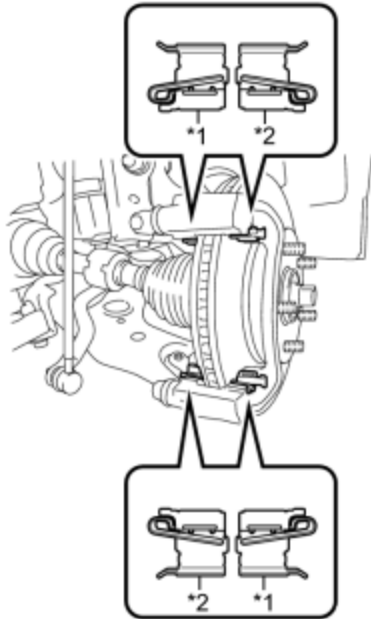


(b) Install the front No. 1 disc brake cylinder slide pin to the front disc brake cylinder mounting.

(c) Push the front No. 1 disc brake cylinder slide pin into the front disc brake bushing dust boot

to align them.

## 7. INSTALL FRONT DISC BRAKE PAD SUPPORT PLATE



(a) Install the 2 front No. 1 disc brake pad support plates and 2 front No. 2 disc brake pad support plates to the front disc brake cylinder mounting.

<b>Text in Illustration</b>	
*1	Front No. 1 Disc Brake Pad Support Plate
*2	Front No. 2 Disc Brake Pad Support Plate

NOTICE:

Be sure to install each front disc brake pad support plate in the correct position and direction.

## 8. INSTALL FRONT ANTI-SQUEAL SHIM

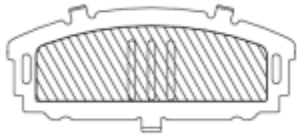


(a) Install the pad wear indicator plate to each front disc brake pad.

NOTICE:

Install each pad wear indicator plate in the correct position and direction.

(b) Apply disc brake grease to both sides of each front No. 1 anti-squeal shim as shown in the illustration.



c

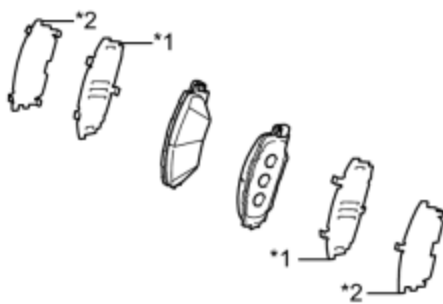
**Text in Illustration**

	Disc Brake Grease
---	-------------------

**NOTICE:**

- When replacing worn pads, the front anti-squeal shims must be replaced together with the pads.
- Apply disc brake grease to the area that contacts the anti-squeal shims.

(c) Install the front No. 1 anti-squeal shim and front No. 2 anti-squeal shim to each front disc brake pad.



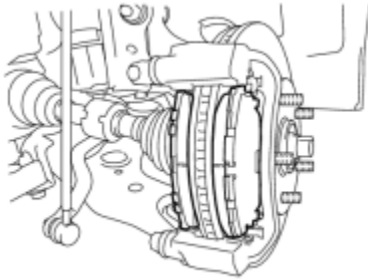
c

<b>Text in Illustration</b>	
*1	Front No. 1 Anti-squeal Shim
*2	Front No. 2 Anti-squeal Shim

**NOTICE:**

- Install the shims in the correct positions and directions.
- Disc brake grease can seep 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.

**9. INSTALL FRONT DISC BRAKE PAD**



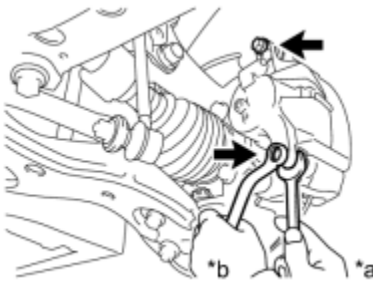
c

(a) Install the 2 front disc brake pads to the front disc brake cylinder mounting.

NOTICE:

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

### 10. INSTALL DISC BRAKE CYLINDER ASSEMBLY



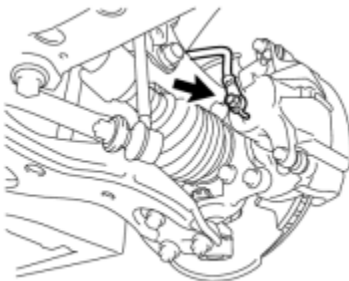
c

(a) Hold the front disc brake cylinder slide pin, and install the disc brake cylinder assembly to the front disc brake cylinder mounting with the 2 bolts.

<b>Text in Illustration</b>	
*a	Hold
*b	Turn

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

### 11. CONNECT FRONT FLEXIBLE HOSE



c

(a) Connect the front flexible hose to the disc brake cylinder assembly with a new union bolt and a new gasket.

Torque: **29 N·m (296 kgf·cm, 21ft·lbf)**

HINT:

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

### 12. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

HINT:

Perform this step only when the Techstream cannot prohibit brake control.

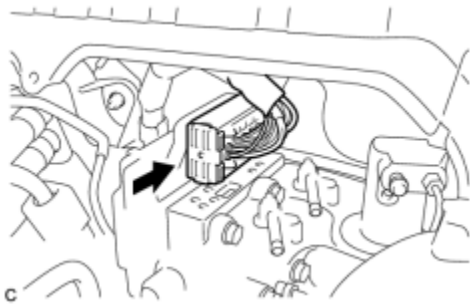
(a) Disconnect the cable from the negative (-) battery terminal INFO.

### 13. CONNECT CONNECTOR

#### HINT:

Perform the following step only when the Techstream cannot prohibit brake control.

- (a) Connect the connector to the brake booster with master cylinder assembly.



#### NOTICE:

- Make sure that the connector can be connected smoothly. Do not allow water, oil or dirt to enter.
- Make sure that the connector lock is locked securely.

### 14. CONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

#### HINT:

Perform this step only when the Techstream cannot prohibit brake control.

- (a) Connect the cable to the negative (-) battery terminal INFO.

### 15. BLEED BRAKE LINE INFO

### 16. PERFORM INITIALIZATION AND CALIBRATION OF LINEAR SOLENOID VALVE

#### HINT:

If the brake control has been disabled, make sure to perform initialization and calibration of the linear solenoid valve INFO.

### 17. INSTALL FRONT WHEEL

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

