

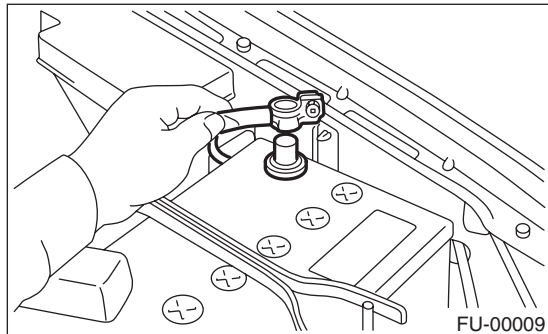
# Generator

## STARTING/CHARGING SYSTEMS

### 3. Generator

#### A: REMOVAL

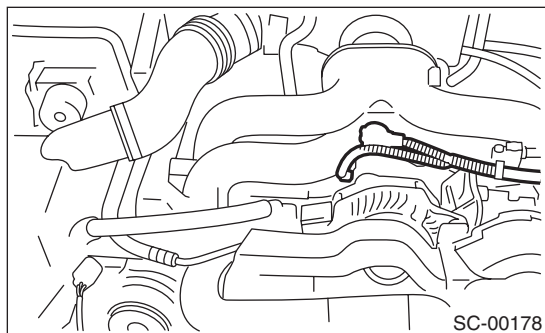
1) Disconnect the ground cable from the battery.



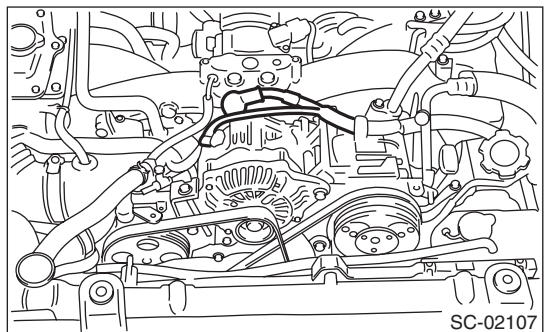
2) Remove the collector cover. (Turbo model)

3) Disconnect the connector and terminal from generator.

- Non-turbo model



- Turbo model

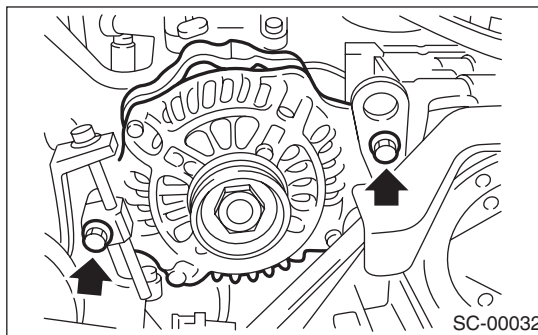


4) Remove the V-belt covers. (Non-turbo model)

5) Remove the front side V-belts.

<Ref. to ME(H4SO)-40, FRONT SIDE BELT, REMOVAL, V-belt.>

6) Remove the bolts which install the bracket to remove the generator.

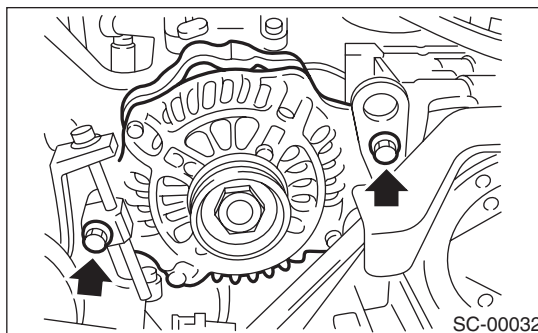


#### B: INSTALLATION

Install in the reverse order of removal.

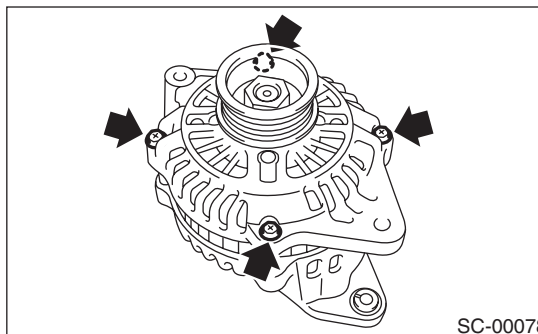
#### CAUTION:

Check and adjust the V-belt tension. <Ref. to ME(H4SO)-41, INSPECTION, V-belt.> or <Ref. to ME(H4DOTC)-41, INSPECTION, V-belt.>



#### C: DISASSEMBLY

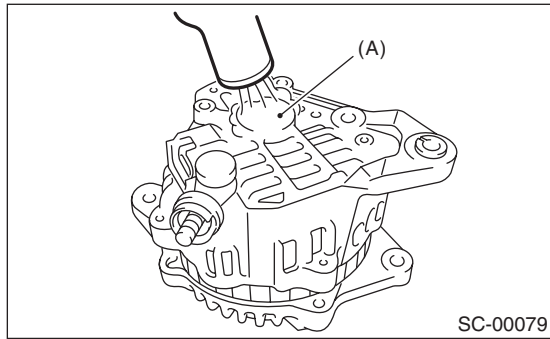
1) Remove the four through-bolts.



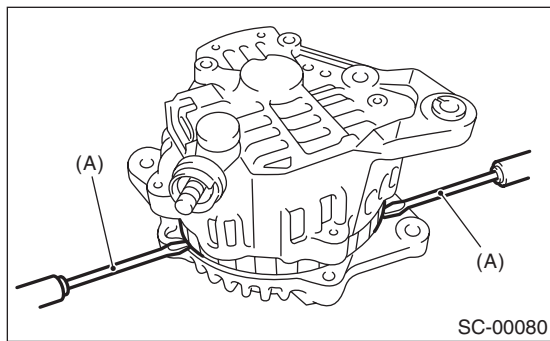
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2) Use a drier to heat the rear cover (A) portion to 50°C (122°F).

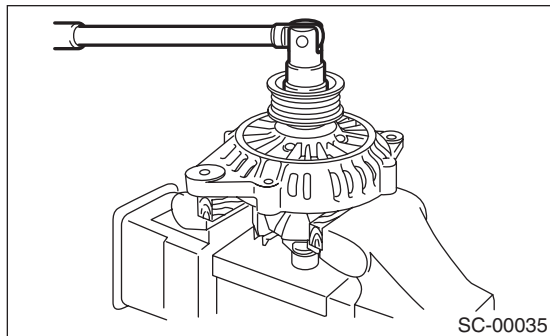


3) Insert the end of a flat tip screwdriver into the gap between stator core and front cover. Separate these to disassemble.



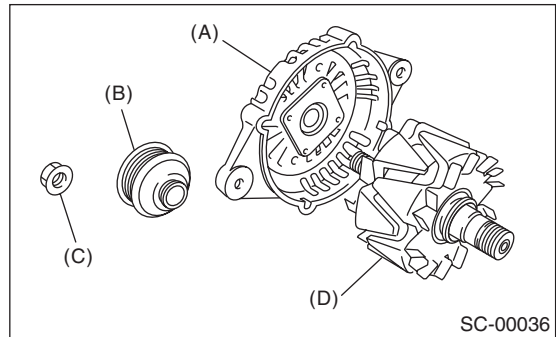
(A) Screwdriver

4) Using a vise, support the rotor and remove the pulley bolt.



### CAUTION:

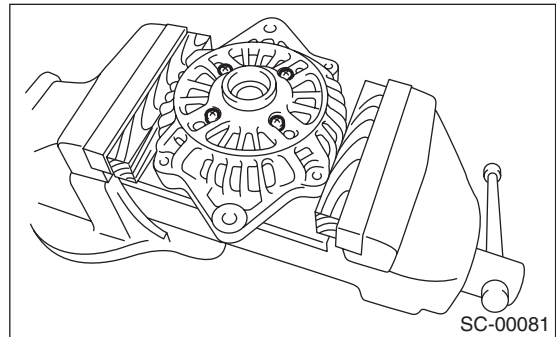
Insert the aluminum plate or wood piece into the contact surface of the vise while support the rotor in the vise to prevent damaging the rotor.



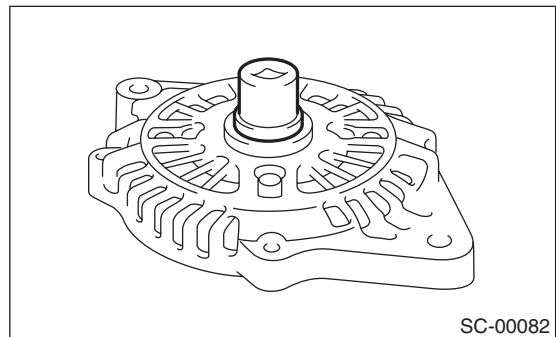
- (A) Front cover
- (B) Pulley
- (C) Nut
- (D) Rotor

5) Use the following procedures to remove the ball bearings.

(1) Remove the bolt, and then detach the bearing retainer.



(2) Firmly install the appropriate tool (such as the right size of socket wrench) to the bearing inner race.

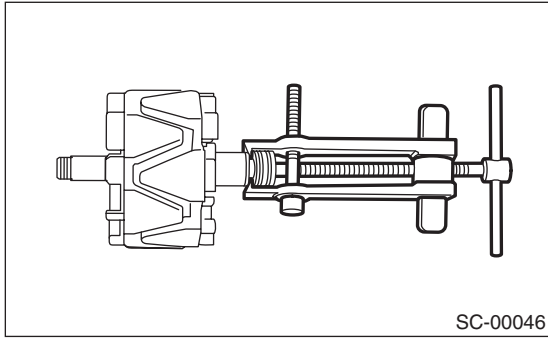


(3) Use the press to push the ball bearings from the front cover.

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## STARTING/CHARGING SYSTEMS

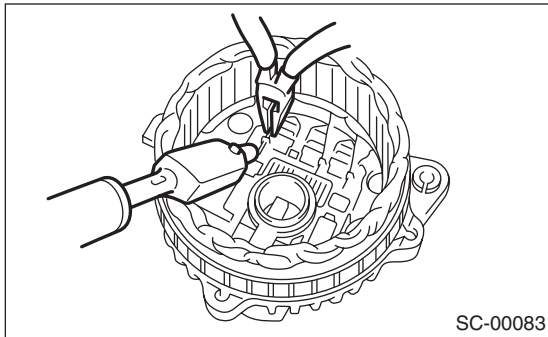
6) Using the bearing puller, remove the bearings from the rotor.



7) Disconnect the connection between the rectifier and stator coil, then remove the stator coil.

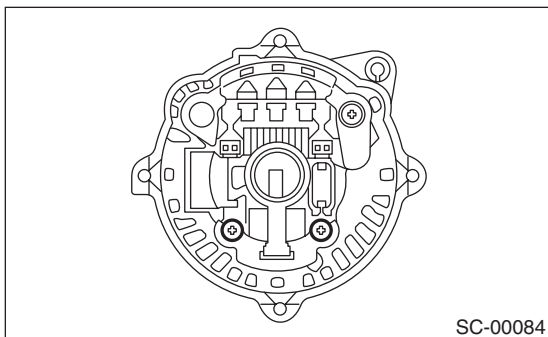
### CAUTION:

Do not touch it with 180 to 270 W solder on its terminals for more than 5 seconds consecutively, because the rectifier cannot withstand so much heat.

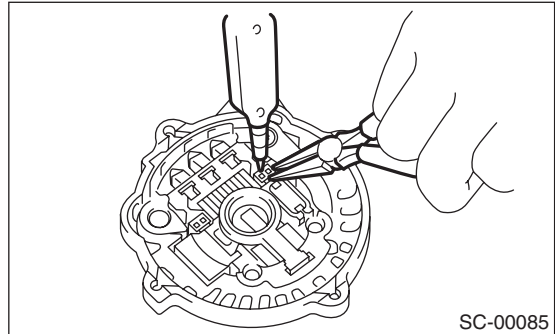


8) Use the following procedures to remove the IC regulator.

(1) Remove the screws which secure IC regulator to the rear cover.

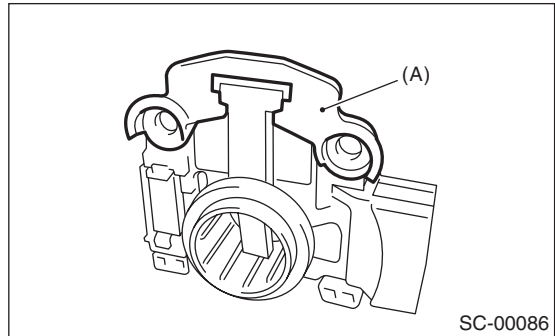


(2) Disconnect the connection between the IC regulator and rectifier, then remove the IC regulator.



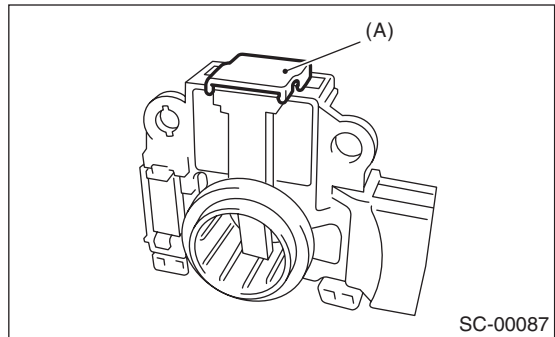
9) Use the following procedures to remove the brush.

(1) Remove the cover A.



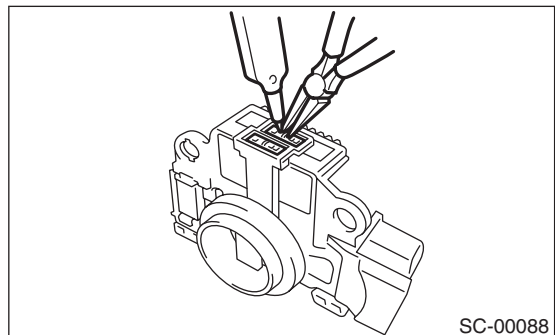
(A) Cover A

(2) Remove the cover B.



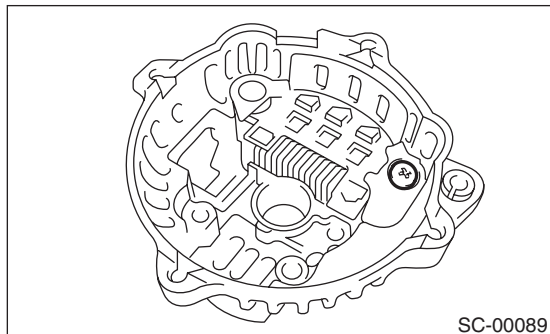
(A) Cover B

(3) Disconnect the connection and remove the brush.

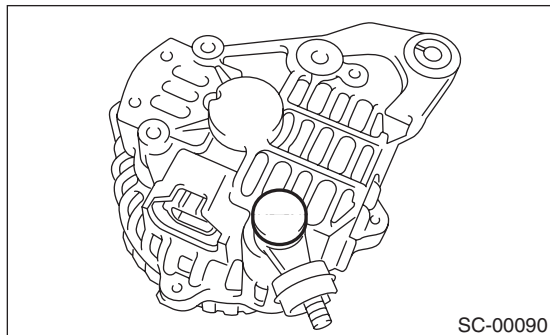


10) Use the following procedures to remove the rectifier.

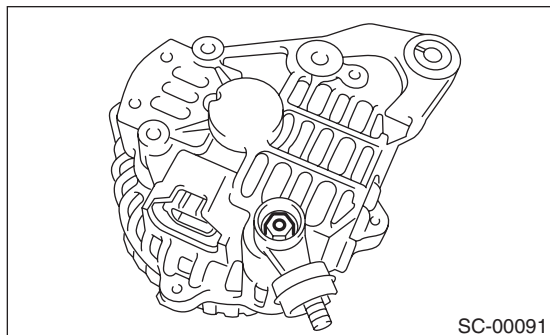
(1) Remove the bolts which secure the rectifier.



(2) Remove the cover on the terminal B.



(3) Remove the nuts of the terminal B, then remove the rectifier.



## D: ASSEMBLY

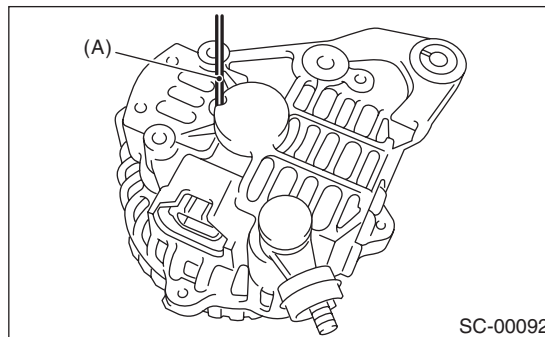
Assemble in the reverse order of disassembly.

1) Pull-out of the brush

Before assembling, push the brush into the brush holder. Then pass a wire through the hole (dia. 1 mm (0.0394 in), Length: 4 to 5 cm (1.6 to 2.0 in) and fasten at that position.

### CAUTION:

**After re-assembling, remove the wire.**



(A) Wire

2) Install the ball bearings.

(1) Set the ball bearings in the front cover, then firmly install the appropriate tool (such as the right size of socket wrench) to the bearing outer race.

(2) Using a press to press the ball bearings into the specified positions.

(3) Install the bearing retainer.

3) Using a press to install the bearings (rear side) to the rotor shaft.

4) Heat the bearing box inside the rear cover to [50 to 60° C (122 to 140° F)] and push the rear bearings into the rear cover.

### CAUTION:

**Do not apply grease to the rear bearings. If oil adheres to the bearing box, completely wipe it away.**

5) After re-assembling, manually turn the pulley to check that the rotor rotates smoothly.

### E: INSPECTION

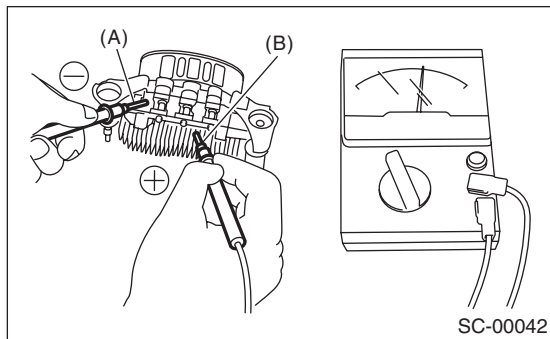
#### 1. DIODE

##### CAUTION:

**There is the possibility of damaging the diodes if a mega-tester (used to measure high voltages) or a similar measuring instrument is used. Therefore, absolutely never use in this test.**

##### 1) Check the positive diode

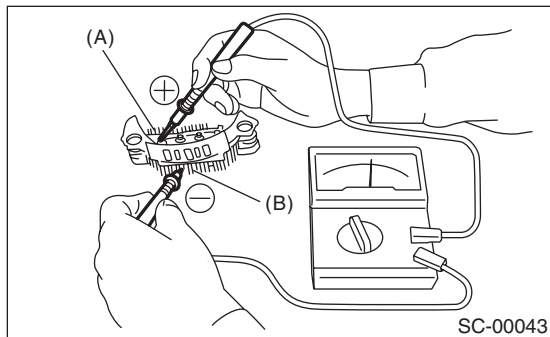
Check the continuity between the diode lead and positive side heat sink. If resistance is  $1 \Omega$  or less only in the direction from the diode lead to the heat sink, the positive diode is normal.



- (A) Diode lead
- (B) Heat sink (Positive side)

##### 2) Check negative diode

Check the continuity between the diode lead and negative side heat sink. If resistance is  $1 \Omega$  or less only in the direction from the heat sink to the diode lead, the negative diode is normal.



- (A) Diode lead
- (B) Heat sink (Negative side)

#### 2. ROTOR

##### 1) Slip ring surface

Check that there is no dirt on the slip ring or roughness in the sliding surface. Repair the slip ring surface using a lathe or sand paper.

##### 2) Slip ring outer diameter

Measure the slip ring outer diameter. Replace the rotor assembly if the slip ring is worn.

##### **Slip ring outer diameter:**

###### **Standard:**

**22.7 mm (0.894 in)**

###### **Tolerance limit value:**

**22.1 mm (0.870 in)**

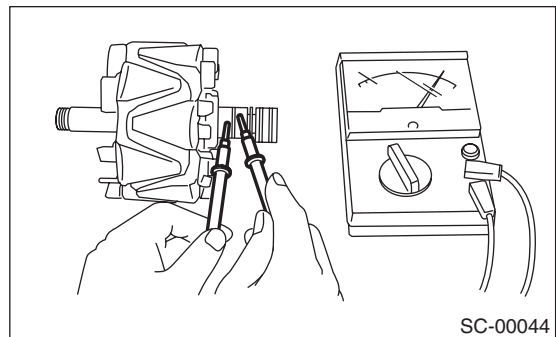
##### 3) Continuity test

Using a circuit tester, check the resistance between slip rings.

Replace the rotor assembly if the resistance is not within the specified value.

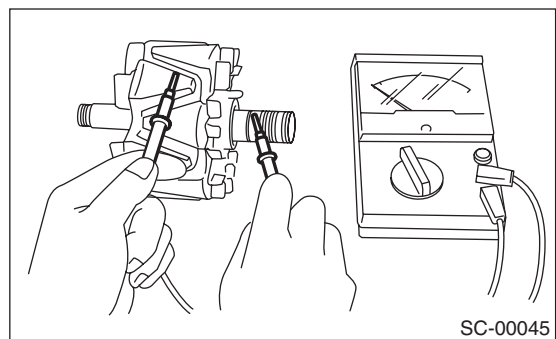
##### **Specified resistance:**

**Approximately 1.8 — 2.2  $\Omega$**



##### 4) Insulation test

Check the continuity between the slip ring and the rotor core or shaft. If the resistance is  $1 \Omega$  or less, replace the rotor assembly because the rotor coil is grounded.



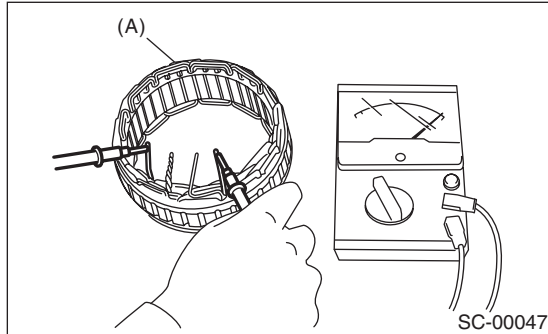
##### 5) Ball bearings (rear side)

Check the rear ball bearings. If there is any noise, or the rotor does not rotate smoothly, replace.

### 3. STATOR

#### 1) Continuity test

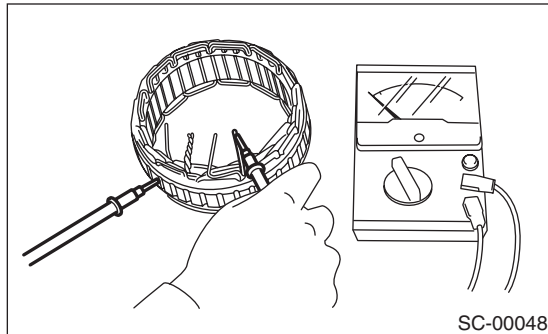
Inspect the continuity between the stator coil lead wire terminals. If the resistance is 1 M $\Omega$  or more, replace the stator assembly because the lead wire is damaged.



(A) Stator

#### 2) Insulation test

Inspect the continuity between the stator coil stator core and lead wire terminals. If the resistance is 1  $\Omega$  or less, replace the stator assembly because the stator coil is grounded.



### 4. BRUSH

1) Measure the length of each brush. Replace the brush if wear exceeds service limits. There is a service limit mark (A) on each brush.

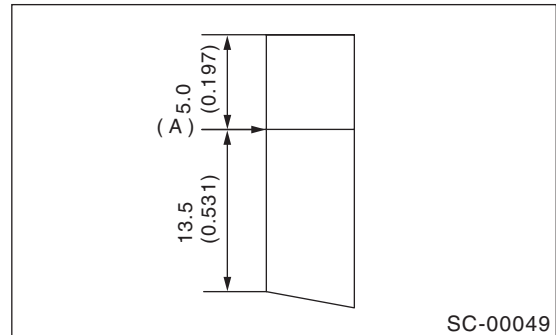
#### Brush length:

##### Standard:

18.5 mm (0.728 in)

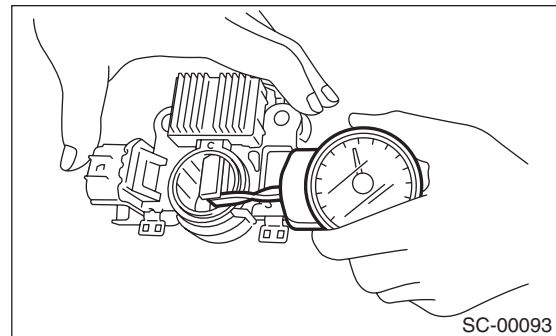
##### Service limit:

5.0 mm (0.197 in)



2) Check that there is appropriate pressure on the brush spring.

Use a spring pressure indicator to push the brush into the brush holder until the leading end protrudes 2 mm (0.08 in). Then, measure the brush spring pressure. If the pressure is 2.2 N (0.224 kgf, 7.91 oz) or less, replace the brush spring with a new part. 4.8 — 6.0 N (0.489 — 0.612 kgf, 17.26 — 21.60 oz) pressure is required for the new spring.



### 5. BEARINGS (FRONT SIDE)

Check the front ball bearings. Replace the ball bearings if there is resistance in the rotation, or if there is noise.