

3. Generator

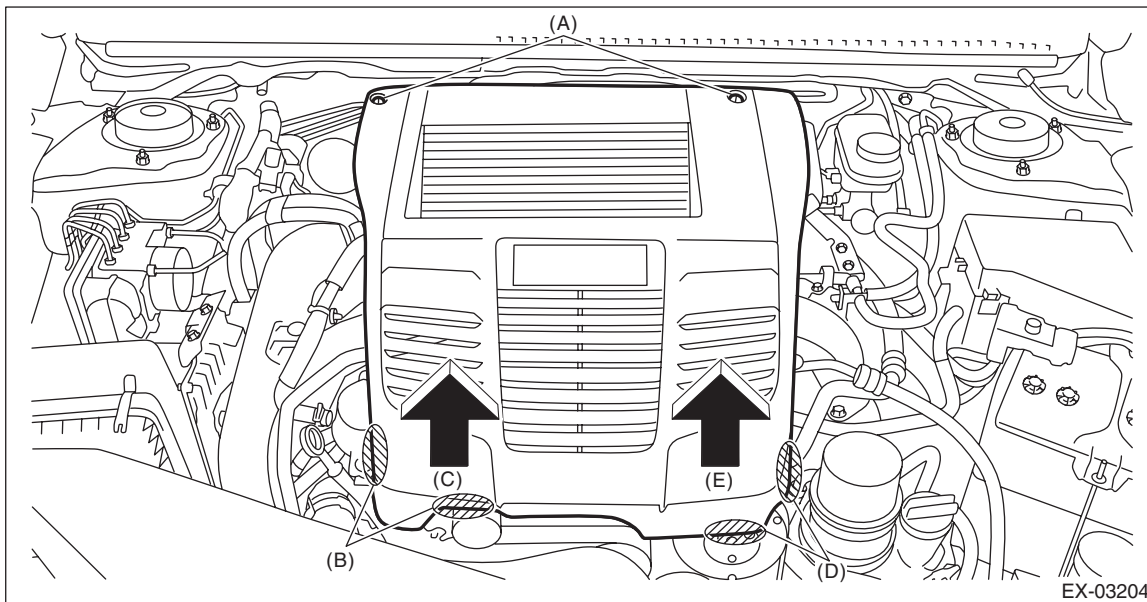
A: REMOVAL

1) Remove the collector cover.

(1) Remove the clips (A).

(2) Hold the shaded area (B) by hand and carefully pull the RH side (C) upward.

(3) Hold the shaded area (D) by hand and carefully pull the LH side (E) upward.

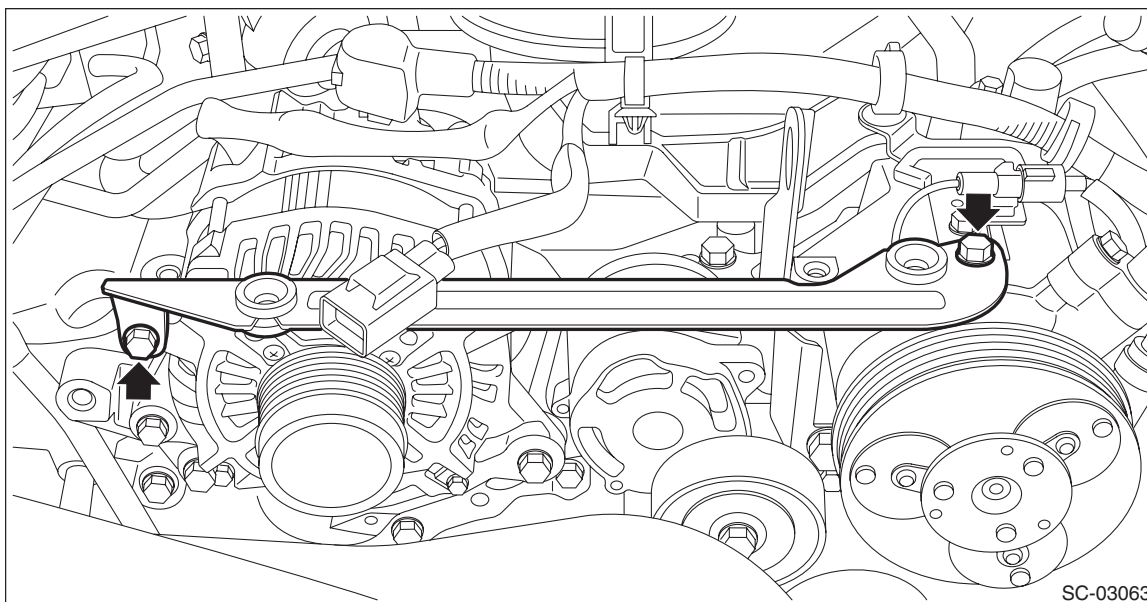


2) Disconnect the ground terminal from battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>

3) Remove the brake booster vacuum pump. <Ref. to BR-81, REMOVAL, Brake Vacuum Pump.>

4) Remove the V-belts. <Ref. to ME(w/o STI)-78, V-BELT, REMOVAL, V-belt.>

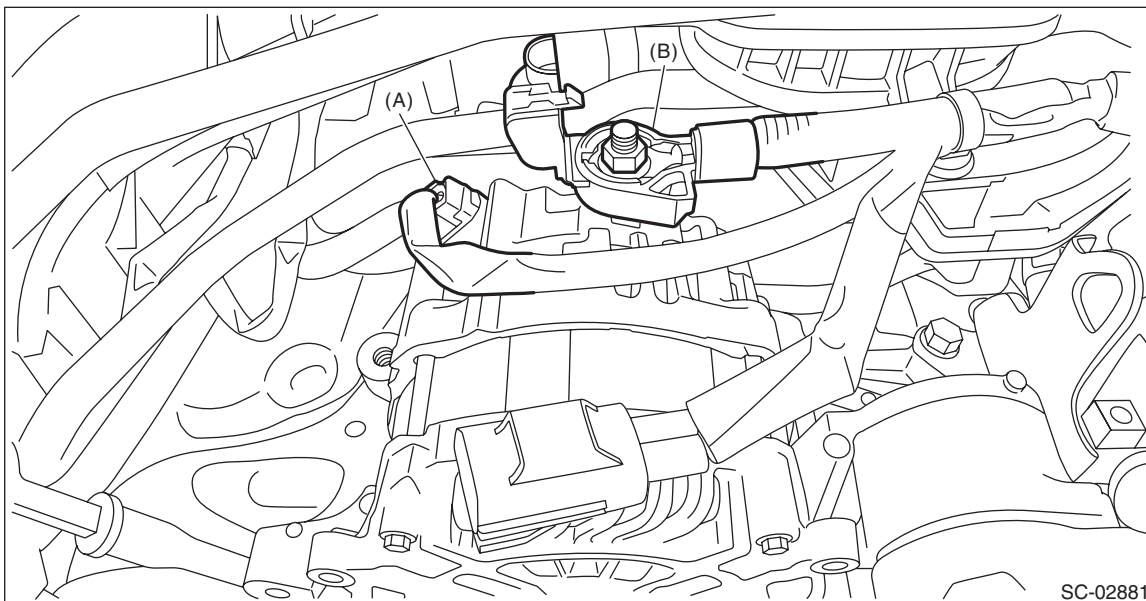
5) Remove the collector cover bracket.



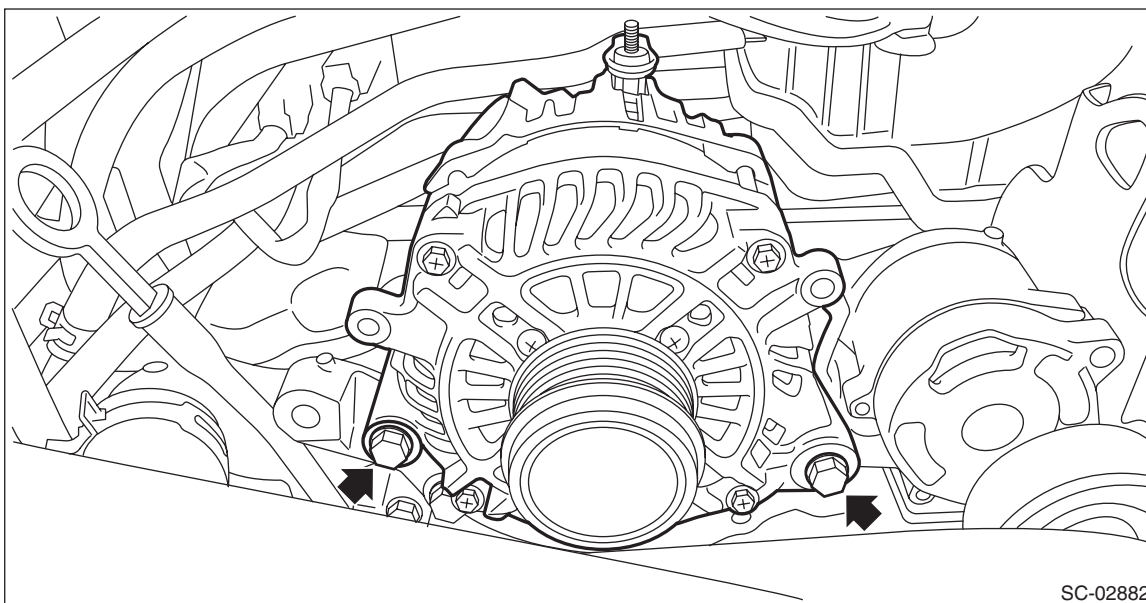
Generator

STARTING/CHARGING SYSTEMS

6) Disconnect the connector (A) and terminal (B) from the generator.

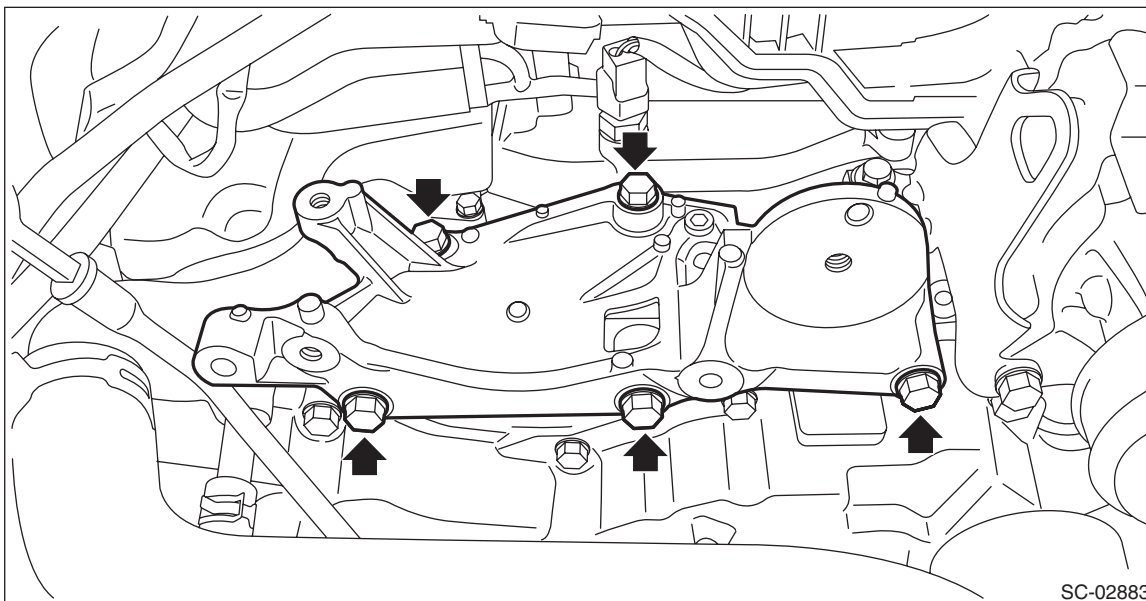


7) Remove the generator from the generator bracket.



8) Remove the V-belt tensioner. <Ref. to ME(w/o STI)-79, V-BELT TENSIONER ASSEMBLY, REMOVAL, V-belt.>

9) Remove the generator bracket from the engine.

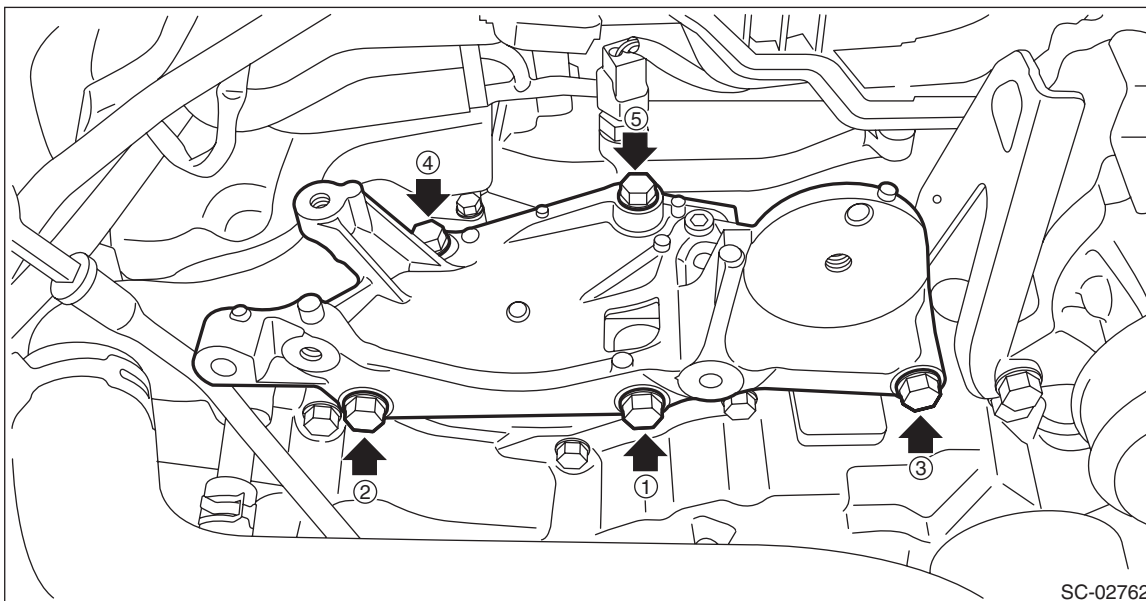


B: INSTALLATION

1) Temporarily install the generator bracket to the engine and tighten the bolts in the numerical order.

Tightening torque:

36 N·m (3.7 kgf-m, 26.6 ft-lb)



2) Install the V-belt tensioner. <Ref. to ME(w/o STI)-82, V-BELT TENSIONER ASSEMBLY, INSTALLATION, V-belt.>

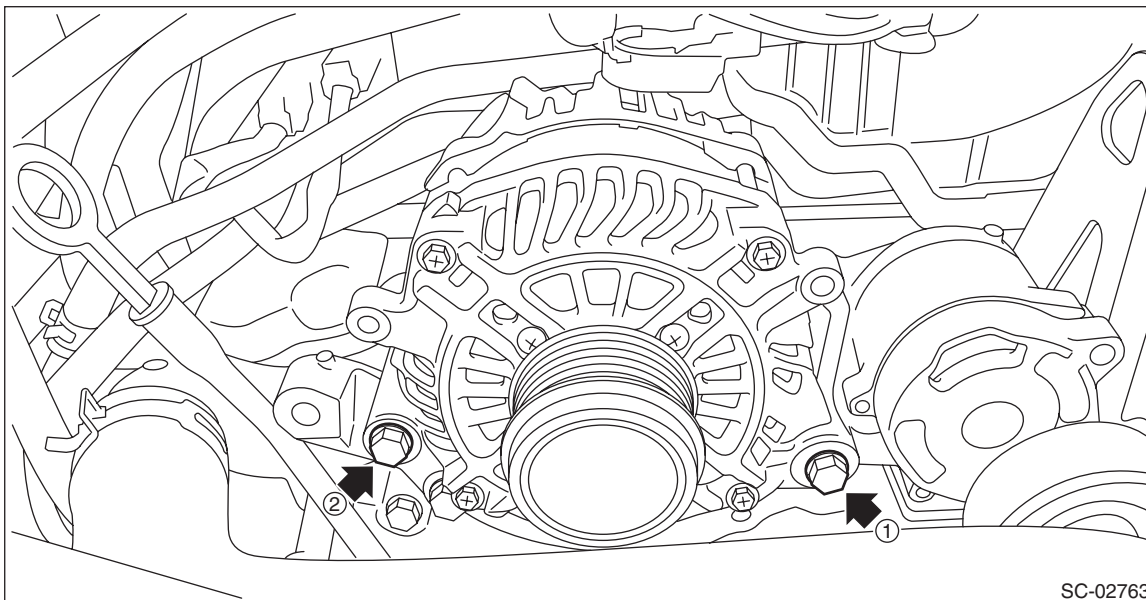
Generator

STARTING/CHARGING SYSTEMS

- 3) Temporarily install the generator bracket to the generator and tighten the bolts in the numerical order.

Tightening torque:

25 N·m (2.5 kgf-m, 18.4 ft-lb)

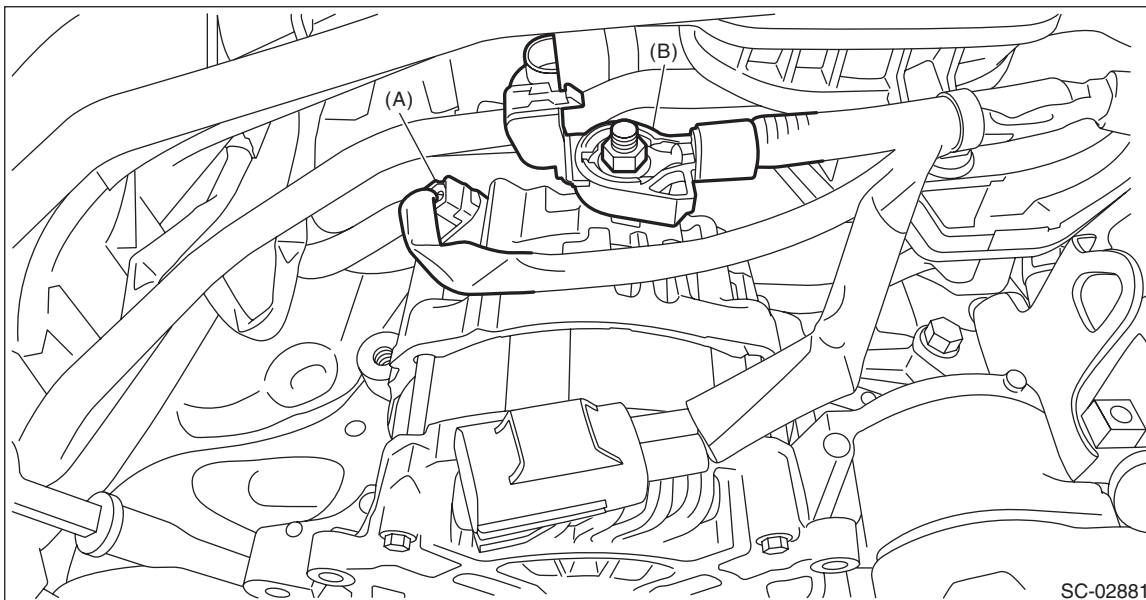


SC-02763

- 4) Connect the connector (A) and terminal (B) to the generator.

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)

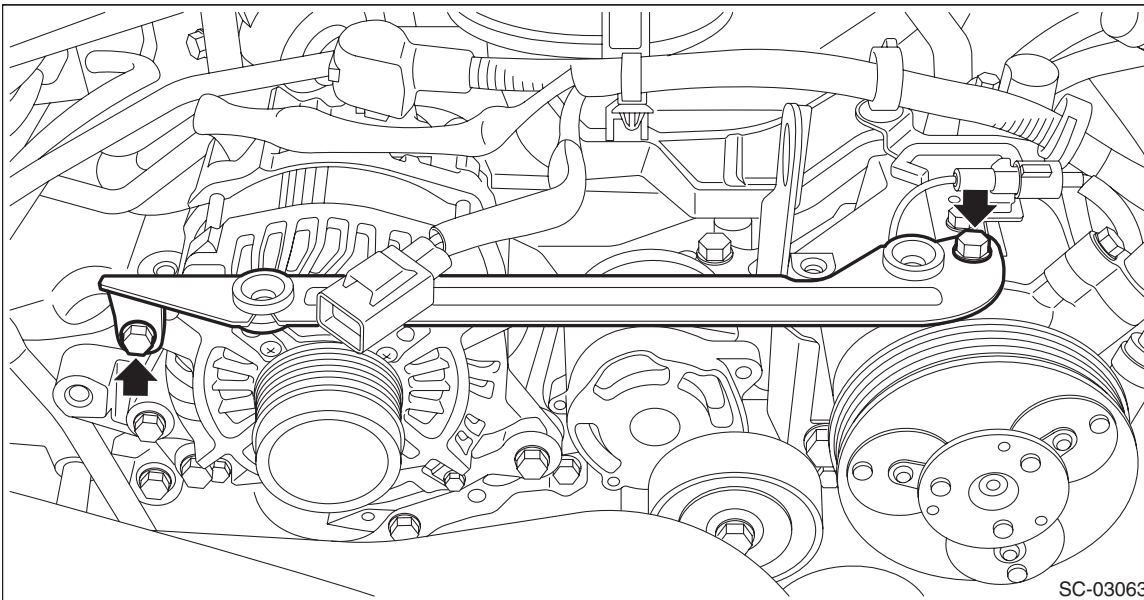


SC-02881

5) Install the collector cover bracket.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



6) Install the V-belts. <Ref. to ME(w/o STI)-81, V-BELT, INSTALLATION, V-belt.>

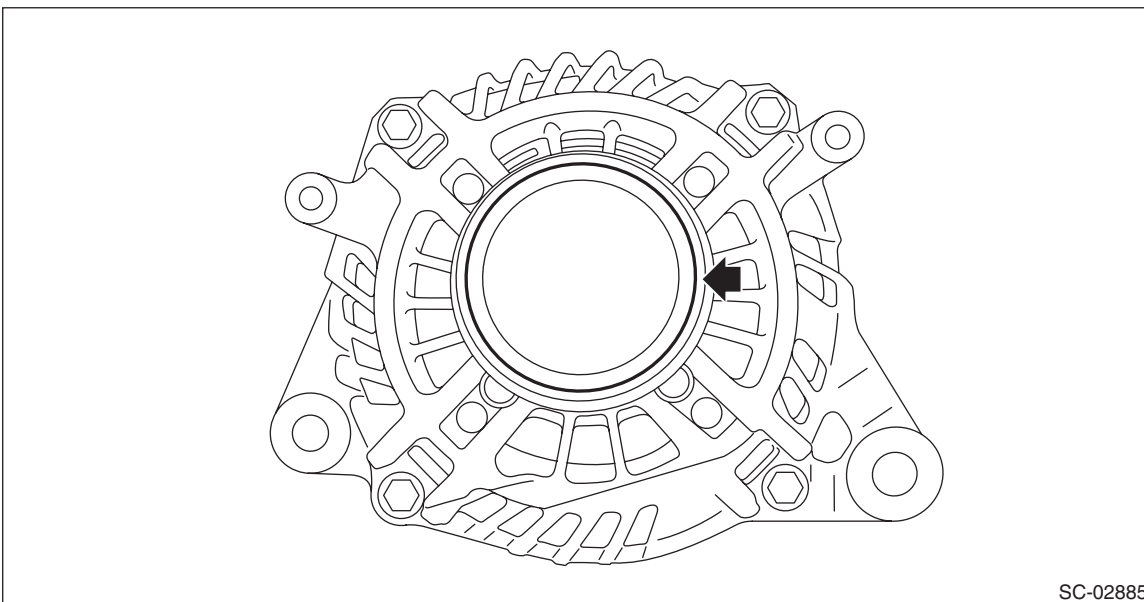
7) Install the brake booster vacuum pump. <Ref. to BR-82, INSTALLATION, Brake Vacuum Pump.>

8) Connect the ground terminal to battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>

9) Install the collector cover.

C: DISASSEMBLY

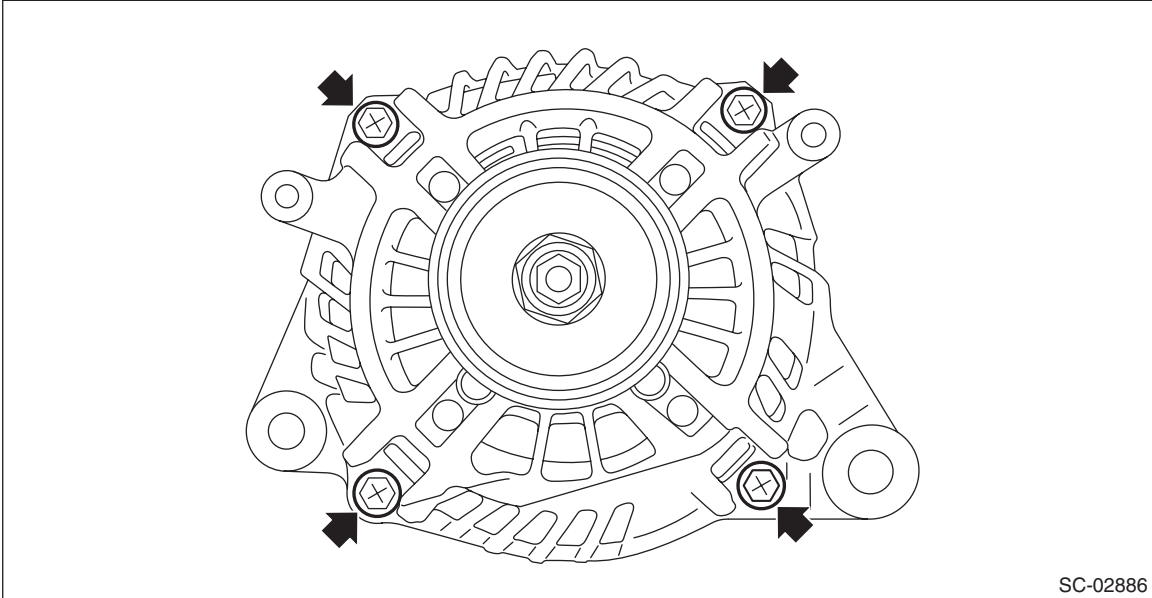
1) Remove the cap from the generator.



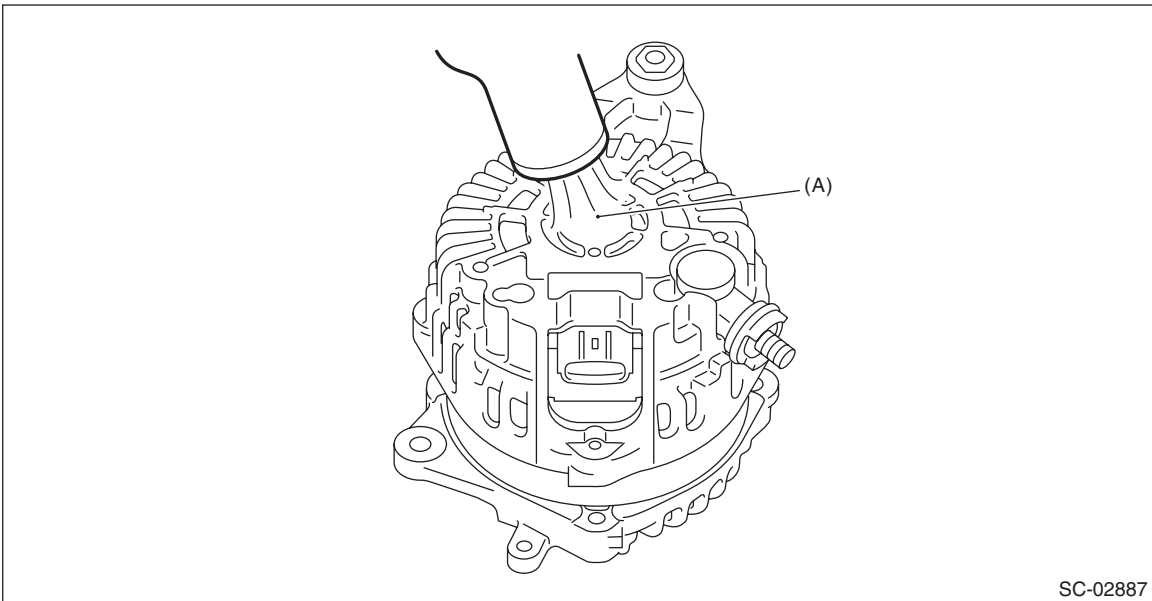
Generator

STARTING/CHARGING SYSTEMS

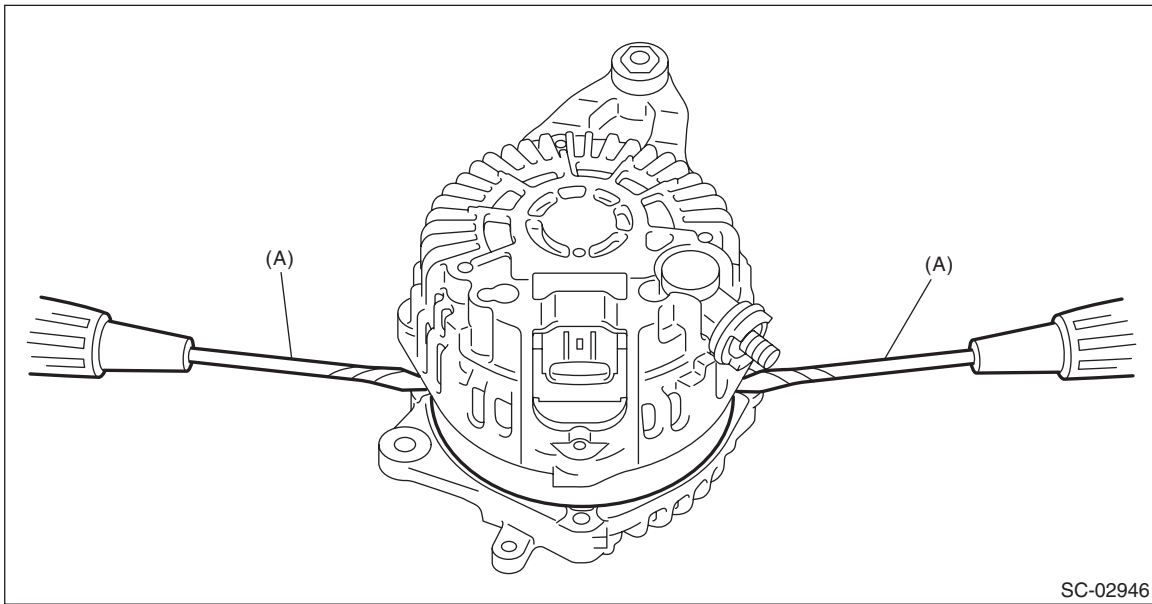
2) Remove the four through bolts.



3) Use a drier to heat the rear cover (A) portion to 50 — 60°C (122 — 140°F).



4) Insert a flat tip screwdriver or similar tool wrapped with protective tape into the gap between stator core and the front cover to disassemble.

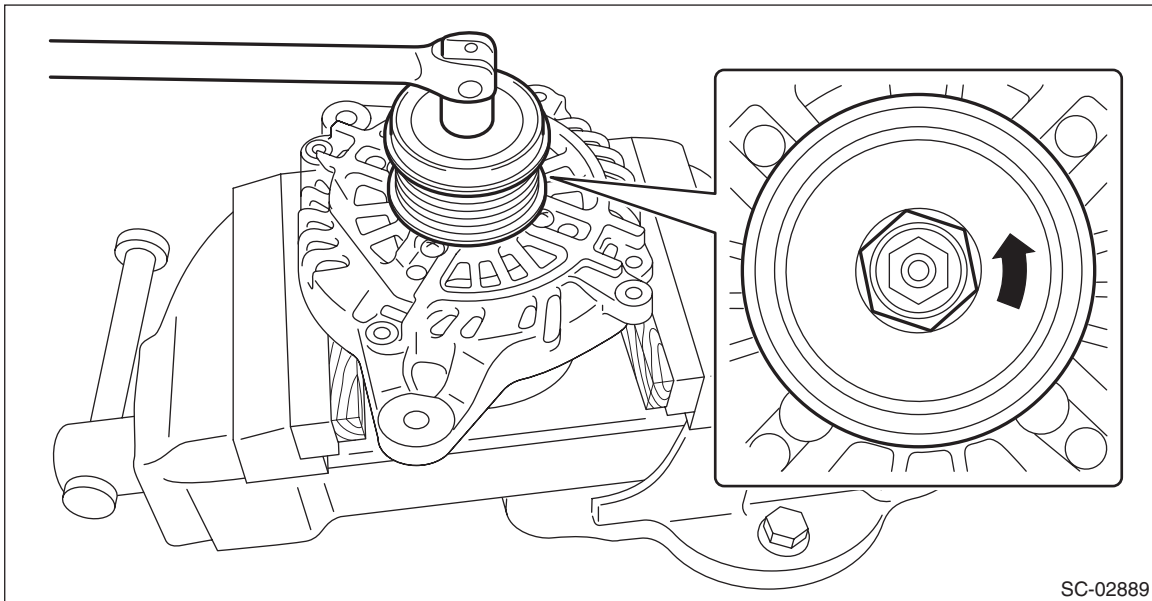


(A) Flat tip screwdriver

5) Hold the rotor on a vise and remove the pulley.

CAUTION:

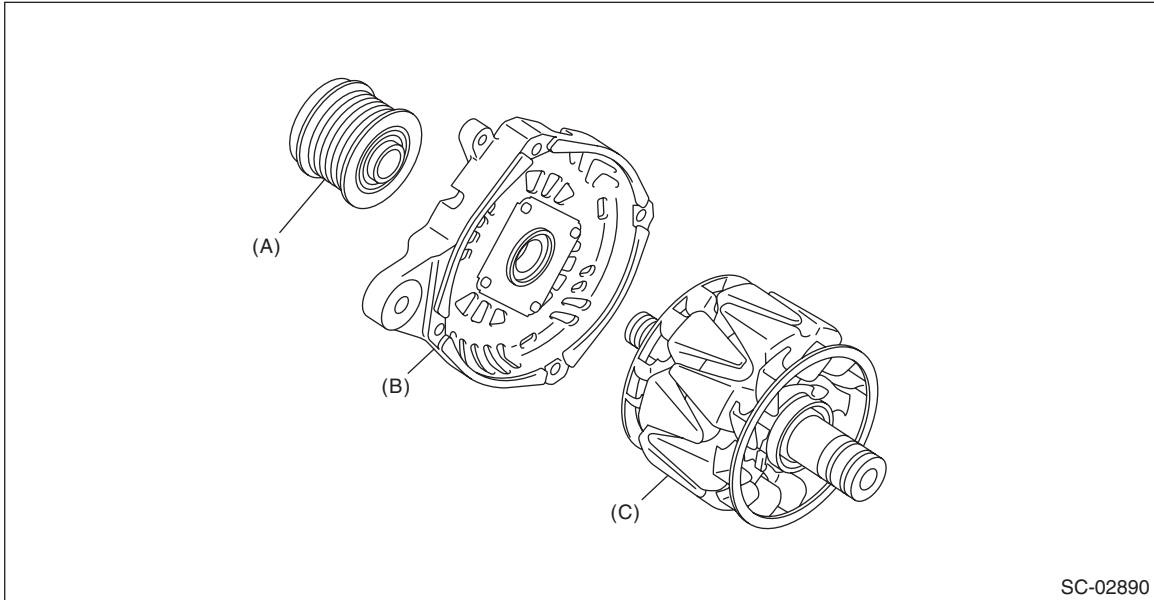
When holding the rotor with a vise, place aluminum plates or wooden pieces on the vise jaws to prevent rotor from damage.



Generator

STARTING/CHARGING SYSTEMS

6) Remove the rotor from the front cover.

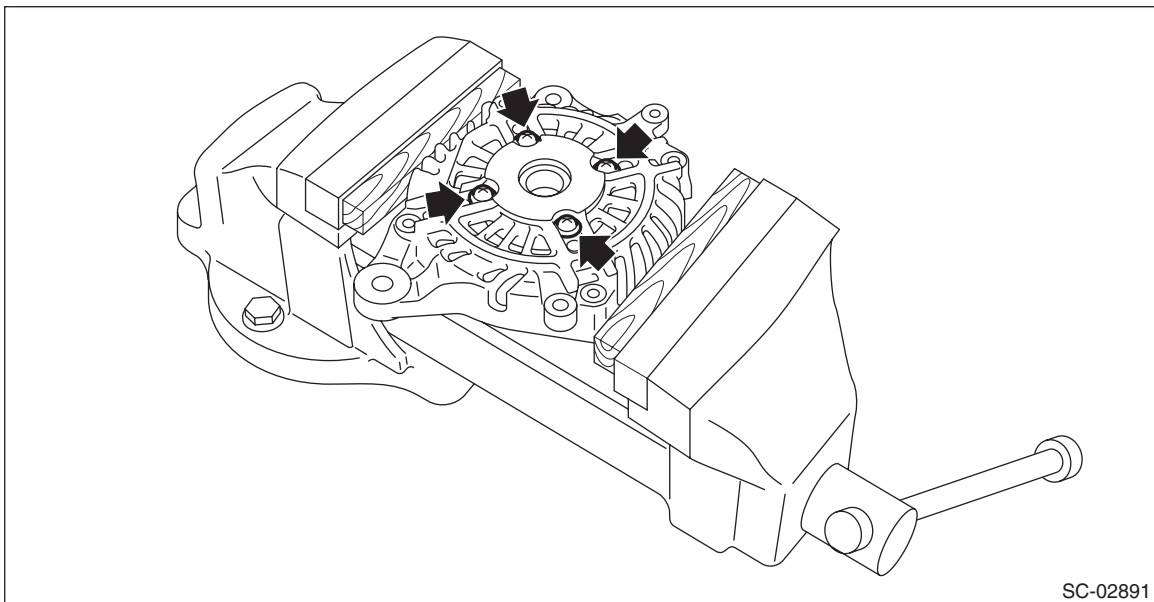


(A) Pulley

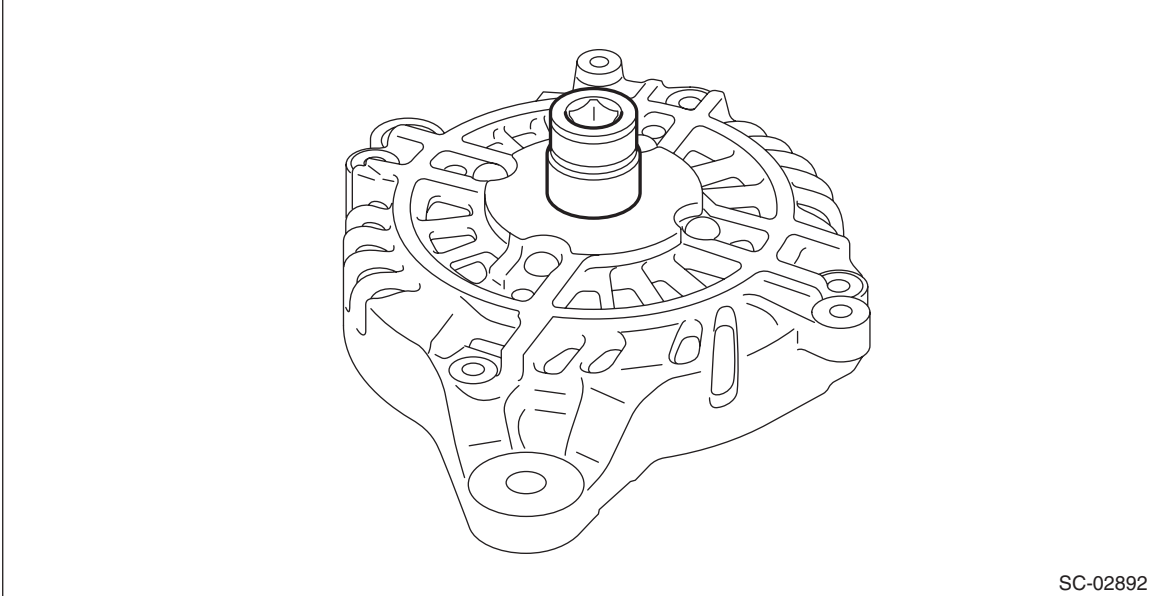
(B) Front cover

(C) Rotor

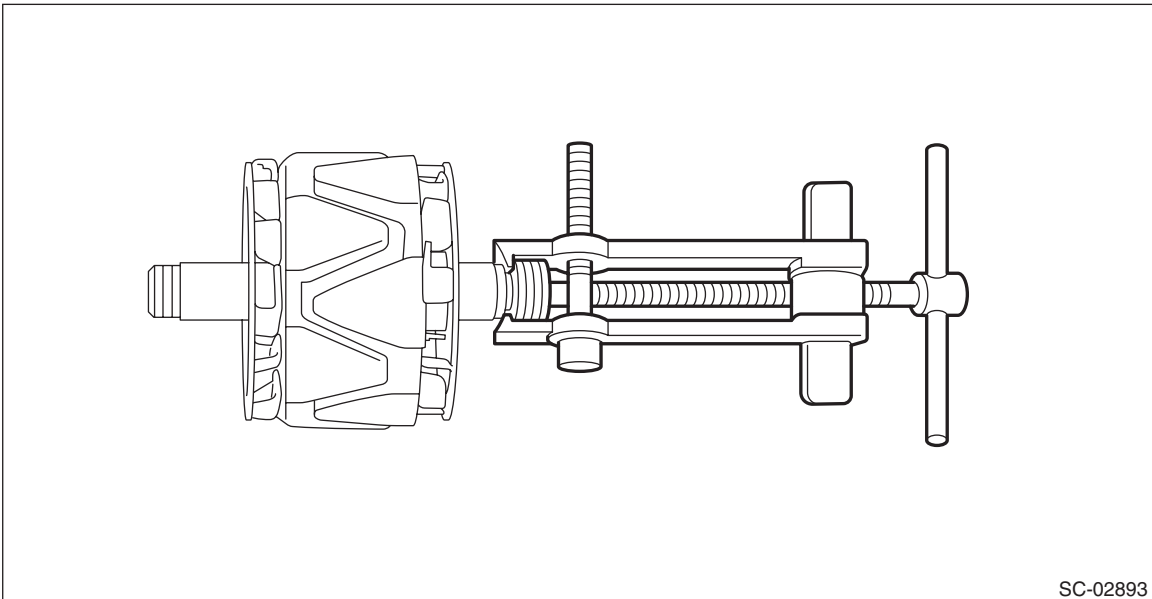
7) Use the following procedures to remove the ball bearings.
(1) Remove the bolt, and then detach the bearing retainer.



- (2) Firmly attach an appropriate tool (such as a correct size socket wrench) to the bearing inner race.



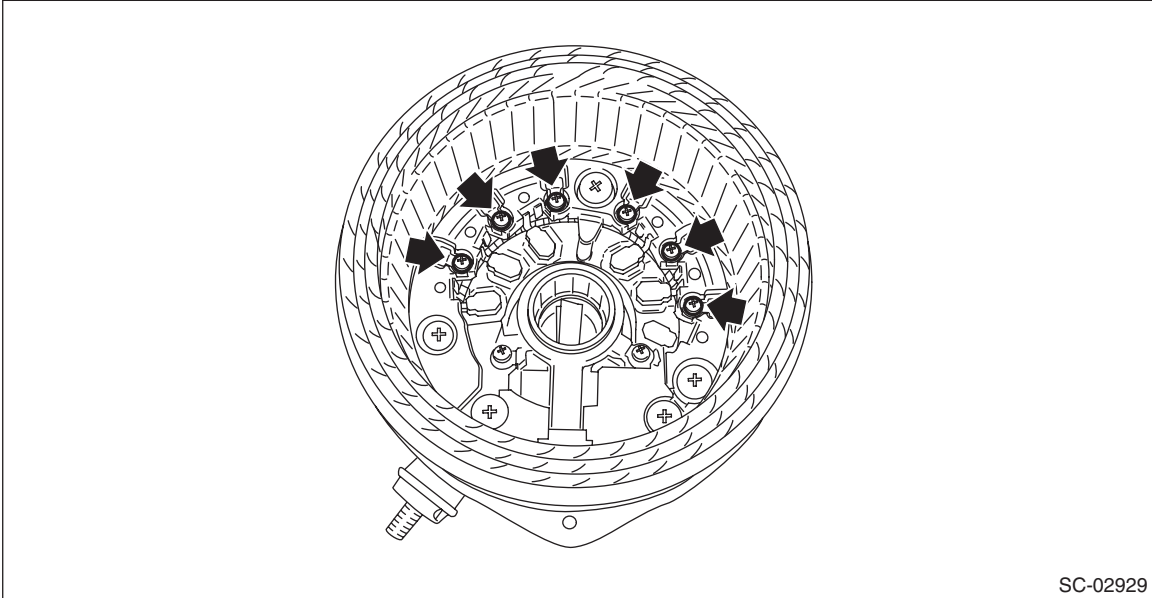
- (3) Use the press to push the ball bearings out from the front cover.
8) Using the bearing puller, remove the bearings from the rotor.



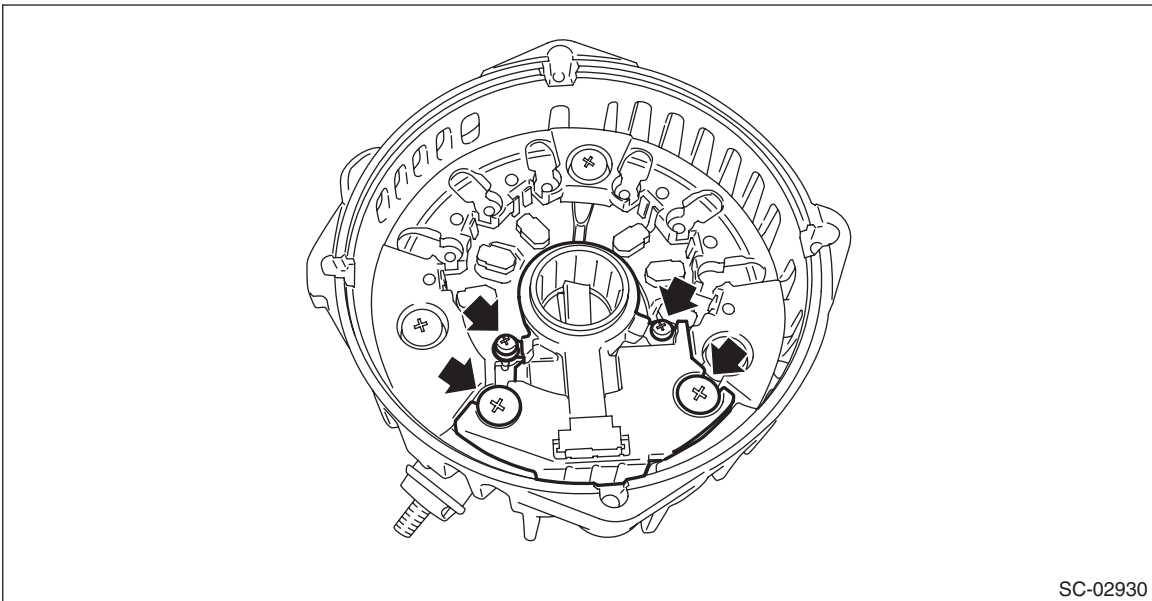
Generator

STARTING/CHARGING SYSTEMS

- 9) Remove six bolts which connect the rectifier and stator coil, then remove the stator coil.

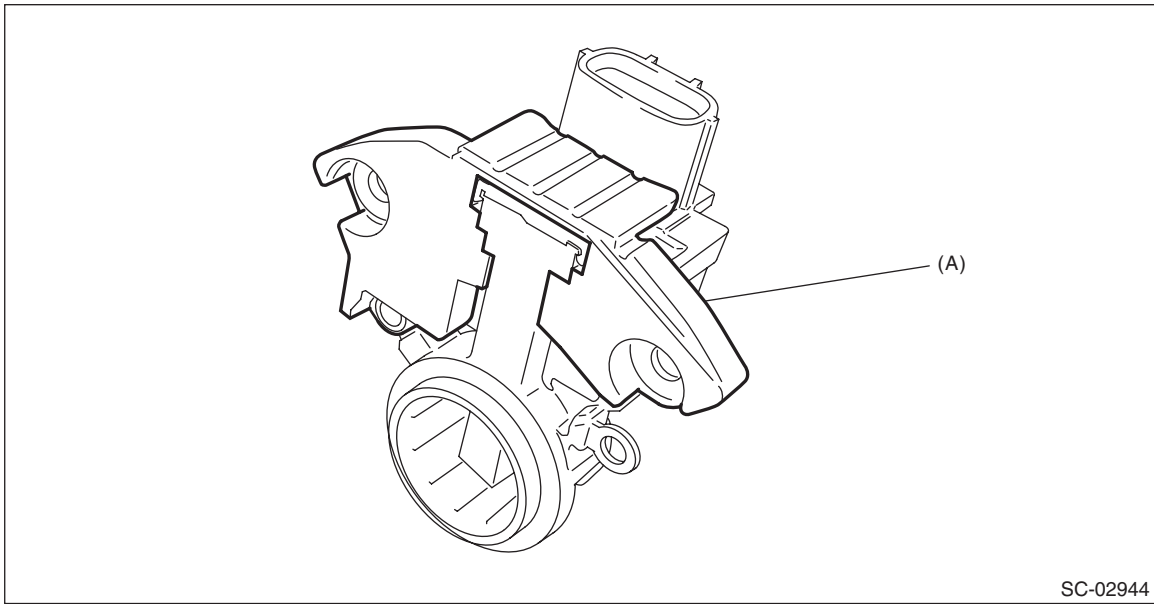


- 10) Remove four screws which secure the IC regulator to the rear cover, then remove the IC regulator.



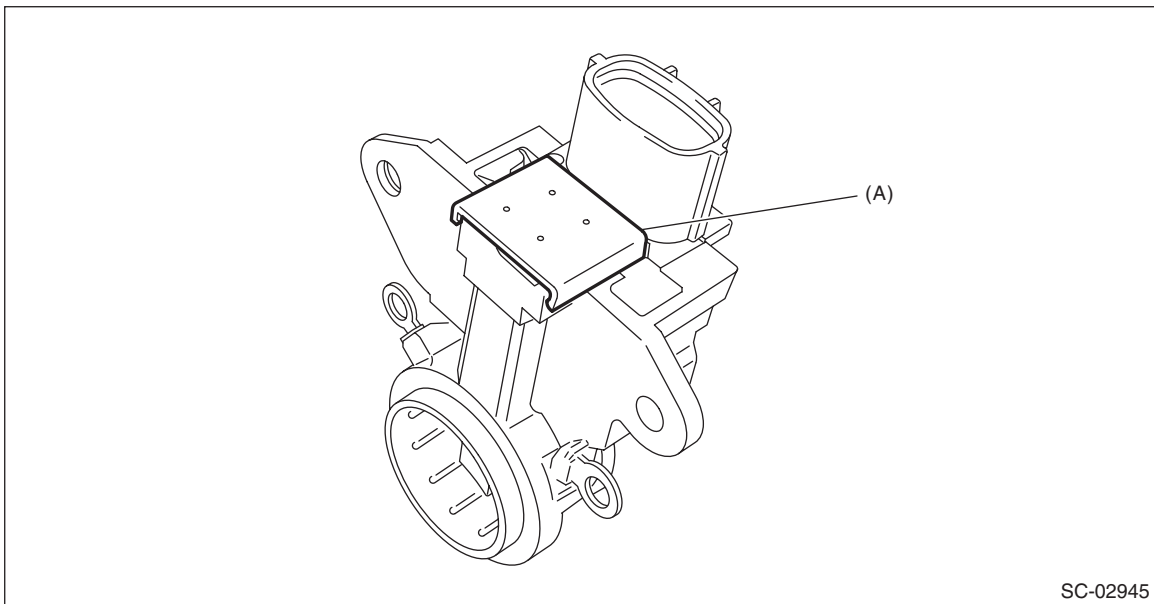
11) Use the following procedures to remove the brush.

(1) Remove the cover A.



(A) Cover A

(2) Remove the cover B.

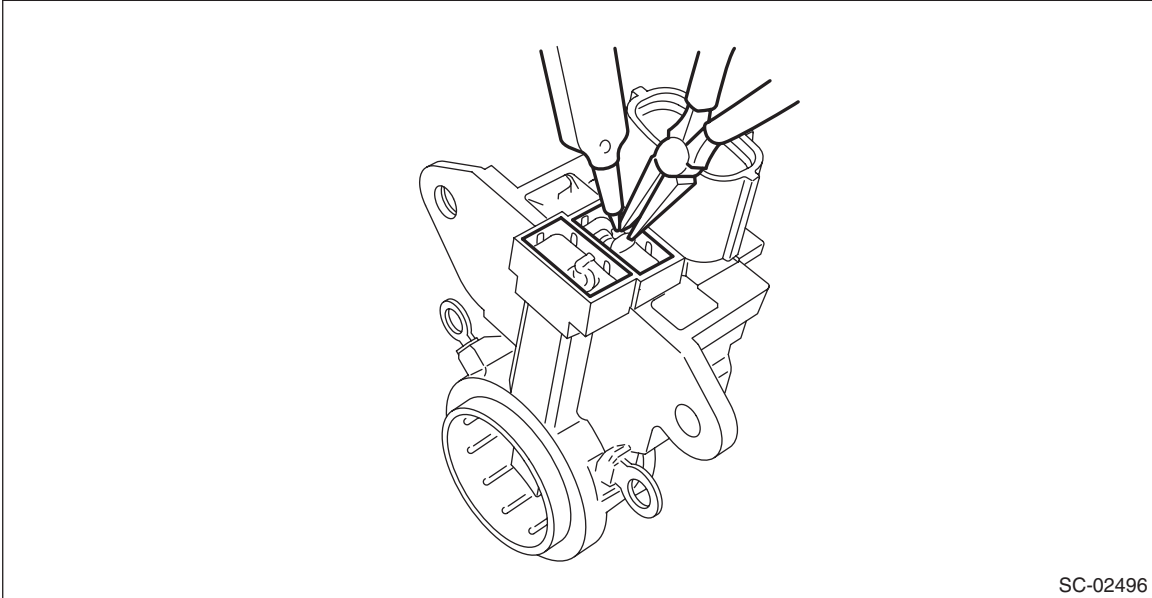


(A) Cover B

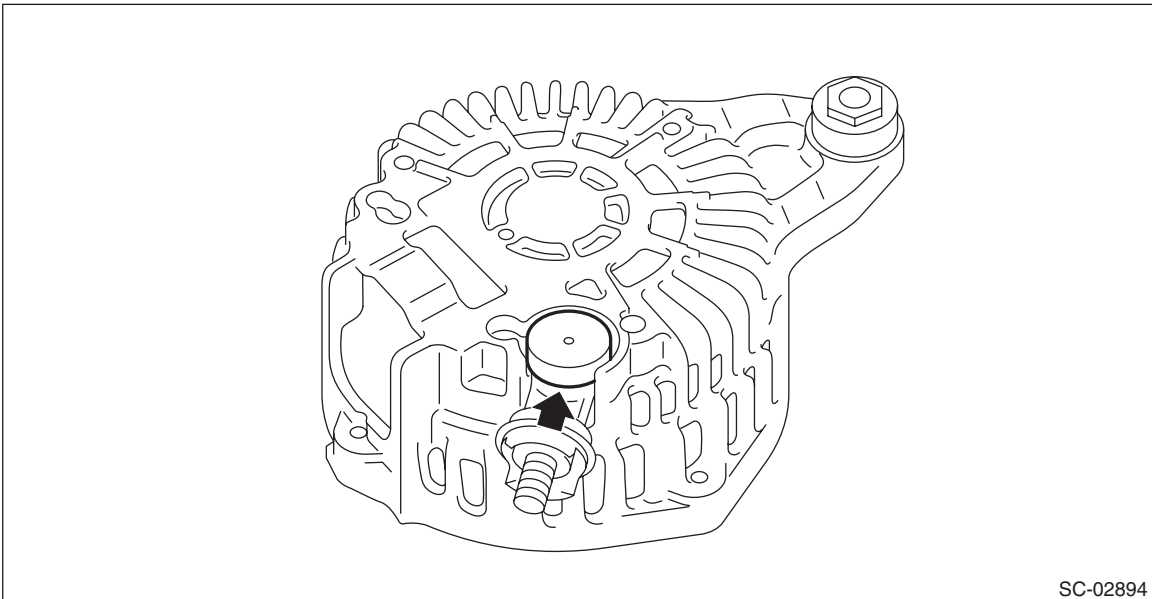
Generator

STARTING/CHARGING SYSTEMS

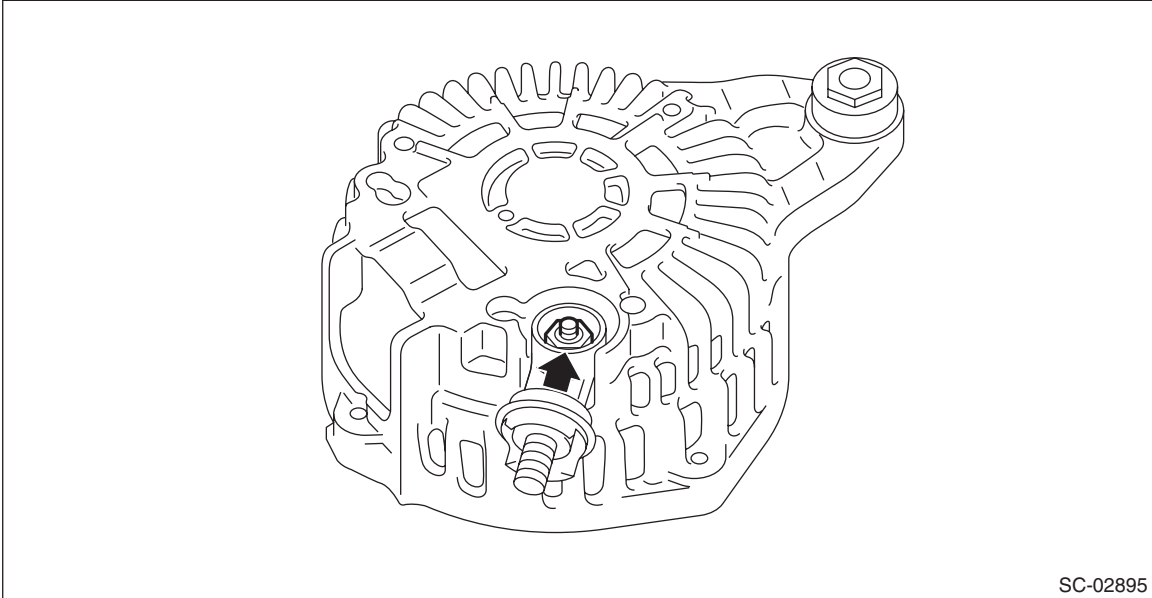
- (3) Disconnect the connection and remove the brush.



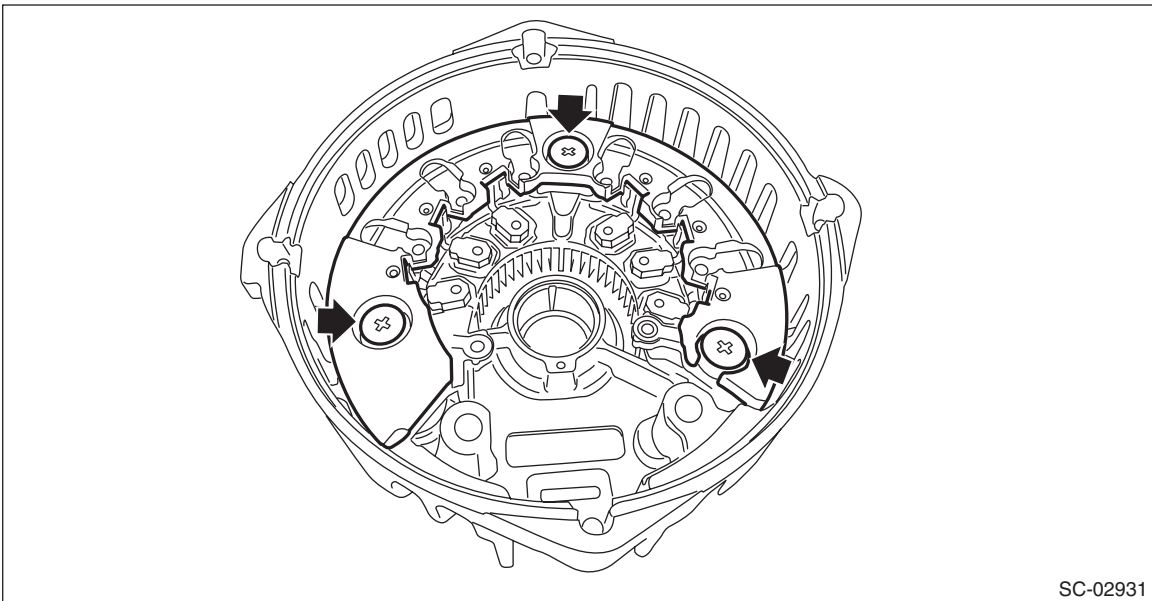
- 12) Remove the rectifier as follows.
(1) Remove the cover on terminal B.



- (2) Remove the nut on terminal B.



- (3) Remove the bolts which secure the rectifier, and remove the rectifier.



Generator

STARTING/CHARGING SYSTEMS

D: ASSEMBLY

Assemble in the reverse order of disassembly.

NOTE:

- Refer to component for tightening torque of each part. <Ref. to SC(w/o STI)-4, GENERATOR, COMPONENT, General Description.>

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

1) Assembling the rear cover and rectifier

Remove old silicone grease on the mating surface of rear cover and rectifier and apply new silicone grease.

CAUTION:

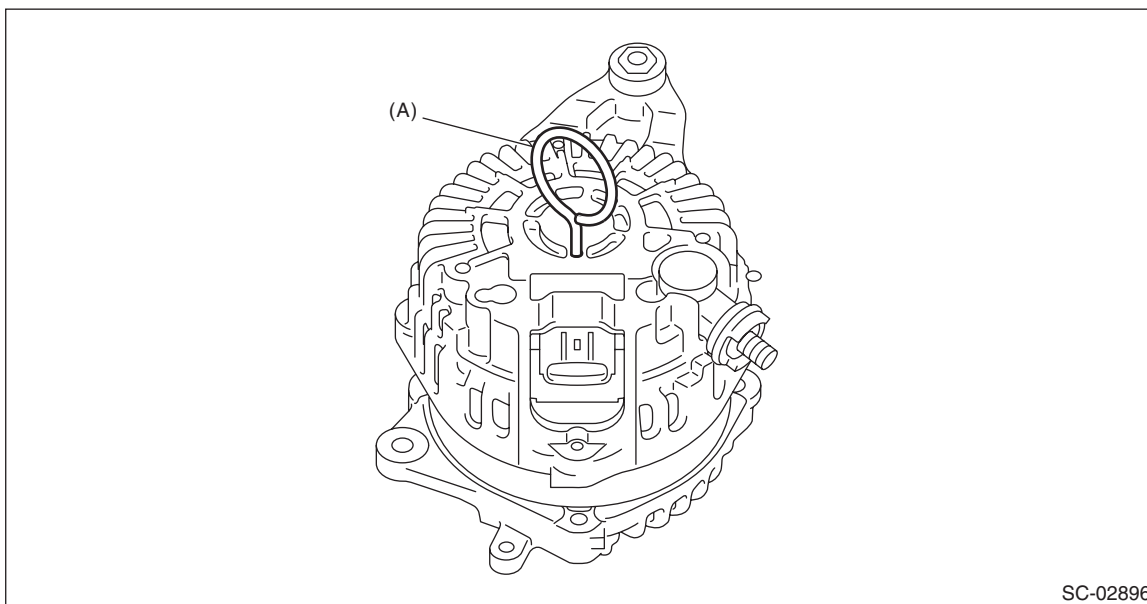
Do not apply silicone grease to the attachment threads of rectifier.

2) Push of the brush

Before assembling the front and rear parts, press the brush down into the brush holder, then fix the brush in that position by inserting a [1 mm (0.0394 in) dia., 40 — 50 mm (1.5748 — 1.9685 in) long] wire through the hole as shown in the figure.

CAUTION:

After assembling, remove the wire.



(A) Wire

3) Install the ball bearings.

- (1) Set the ball bearings in the front cover, then securely install an appropriate tool (such as a socket wrench of proper size) to the bearing outer race.
- (2) Using a press to press the ball bearings into the specified location.
- (3) Install the bearing retainer.

4) Install the bearings.

CAUTION:

Do not apply grease to the bearings. If there is any oil on the bearing box, remove it completely.

- (1) Use a press to install the bearings to the rotor shaft.
- (2) Heat the bearing box in rear cover at 50 to 60°C (122 to 140°F), and then press the bearing into rear cover.

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. Never use a mega tester or equivalent for this test.

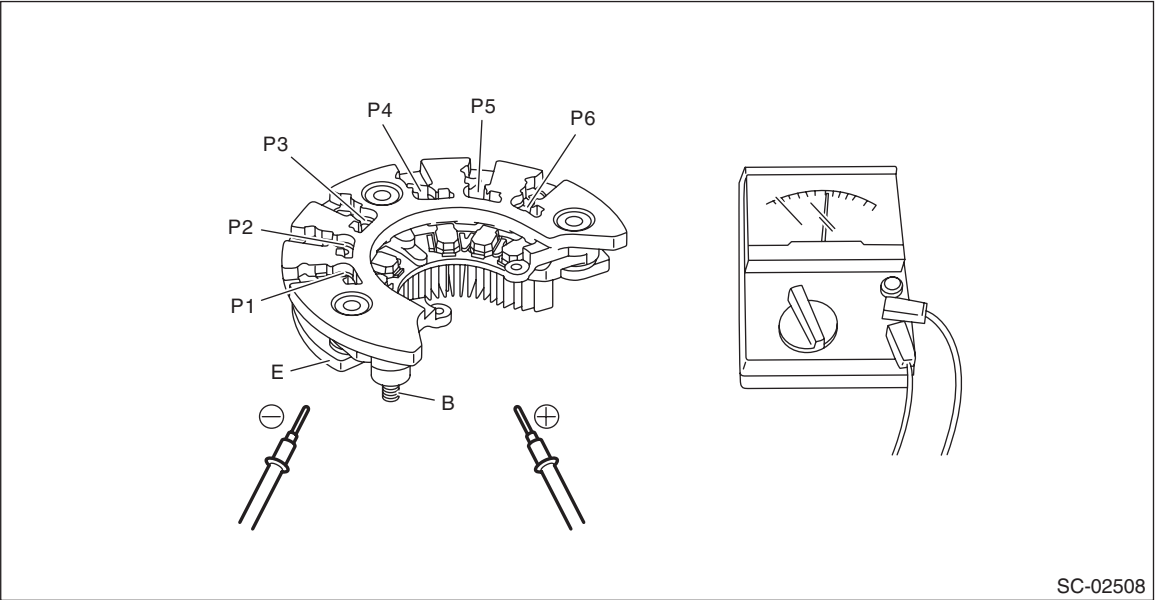
1) Check for continuity between the diode lead and terminal E or B. If continuity is not as shown in the table, replace the rectifier.

- At analog type tester

Tester lead		Continuity
-lead	+lead	
E	P1, P2, P3, P4, P5, P6	Yes
B		No
P1, P2, P3, P4, P5, P6	E	No
	B	Yes

- At digital type tester

Tester lead		Continuity
-lead	+lead	
E	P1, P2, P3, P4, P5, P6	No
B		Yes
P1, P2, P3, P4, P5, P6	E	Yes
	B	No



Generator

STARTING/CHARGING SYSTEMS

2. ROTOR

1) Slip ring surface

Inspect the slip rings for contamination or any roughness on 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 if the slip ring is worn.

Slip ring outer diameter:

Standard

22.7 mm (0.894 in)

Limit

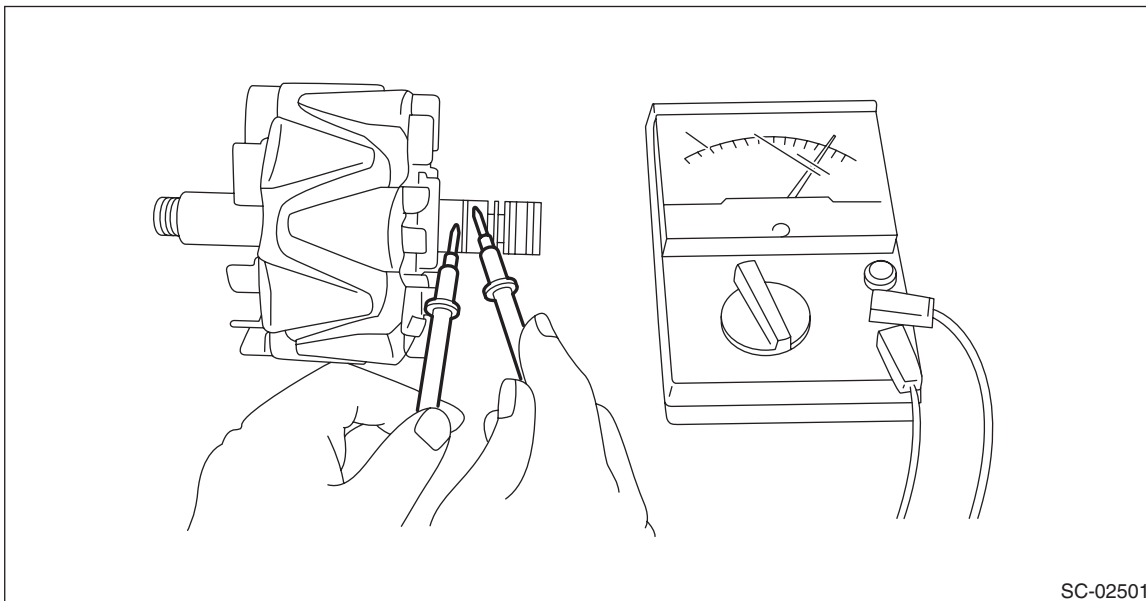
22.1 mm (0.870 in)

3) Continuity test

Using a circuit tester, check the resistance between slip rings. If the resistance is not within the standard, replace the rotor.

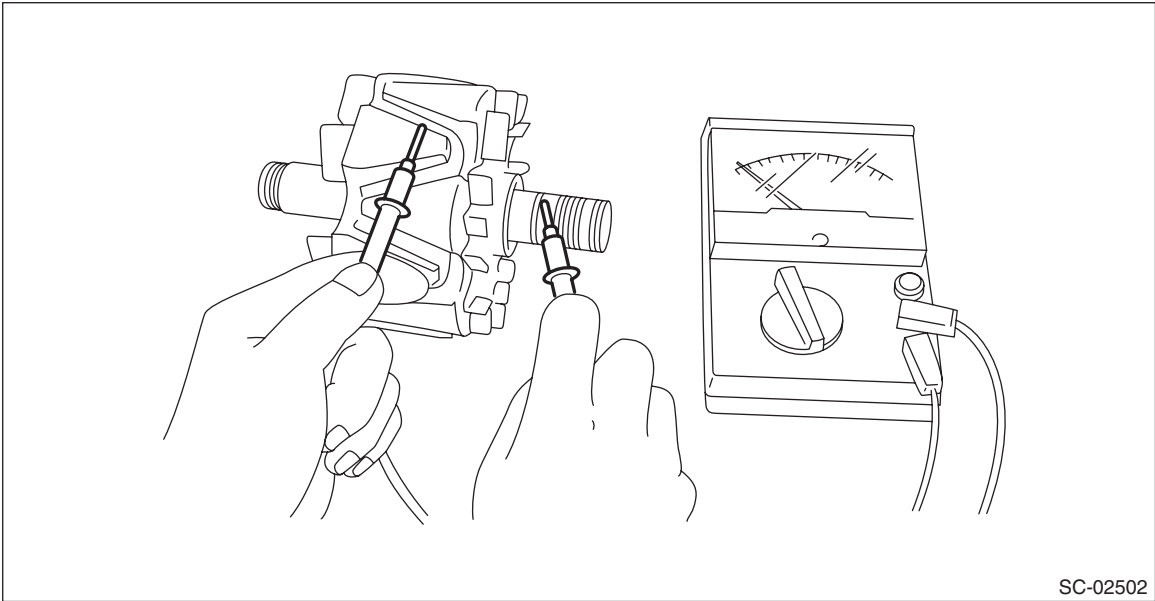
Standard:

Approx. 2.0 — 2.4 Ω



SC-02501

4) Insulation test
Check the continuity between slip ring and rotor core or shaft. If there is continuity, replace the rotor because the rotor coil is grounded.



5) Bearing
Check the bearings. If there is any noise, or the rotor does not rotate smoothly, replace the bearings.

3. STATOR COIL

1) Continuity test
Inspect the continuity between the stator coil terminals. If continuity is not as shown in the table, replace the stator coil.

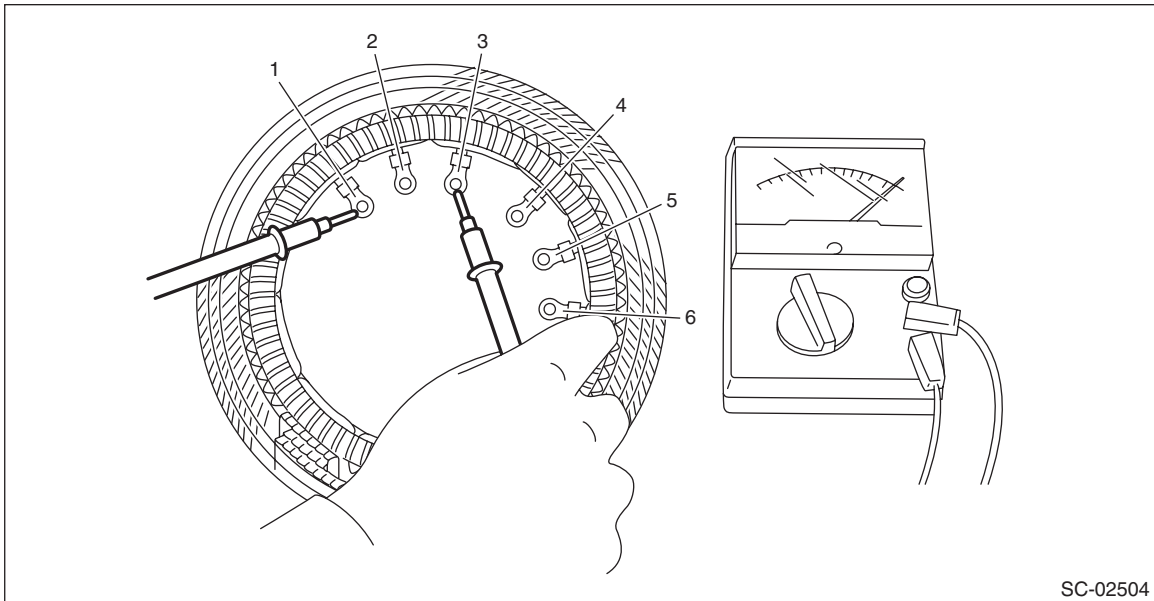
(A)						
1	2	3	4	5	6	
○	—	○				
○	—	—	○			
	○	—	○			
			○	—	○	
			○	—	—	○
				○	—	○

SC-02503

(A) Terminals

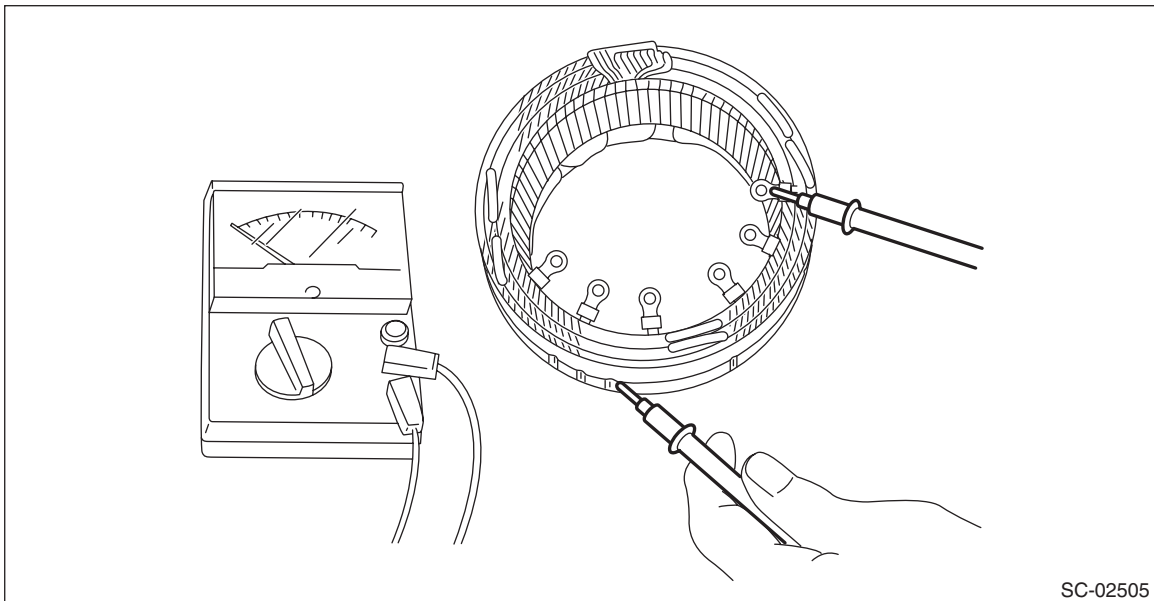
Generator

STARTING/CHARGING SYSTEMS



2) Insulation test

Inspect the continuity between the stator coil stator core and lead wire terminals. If there is continuity, replace the stator coil 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.

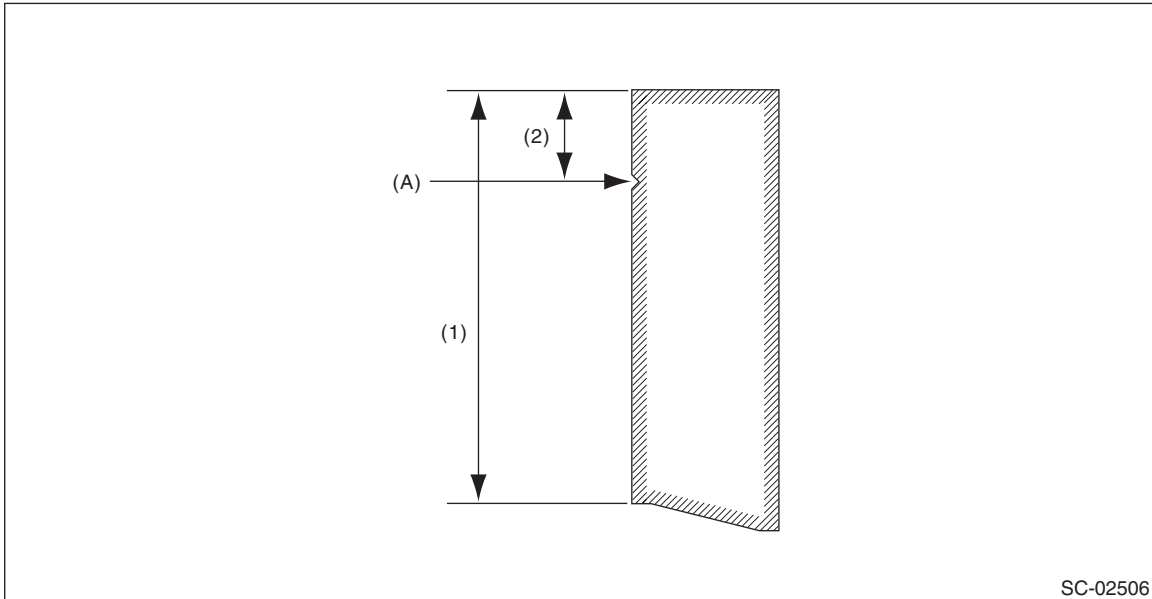
Brush length:

Standard (1)

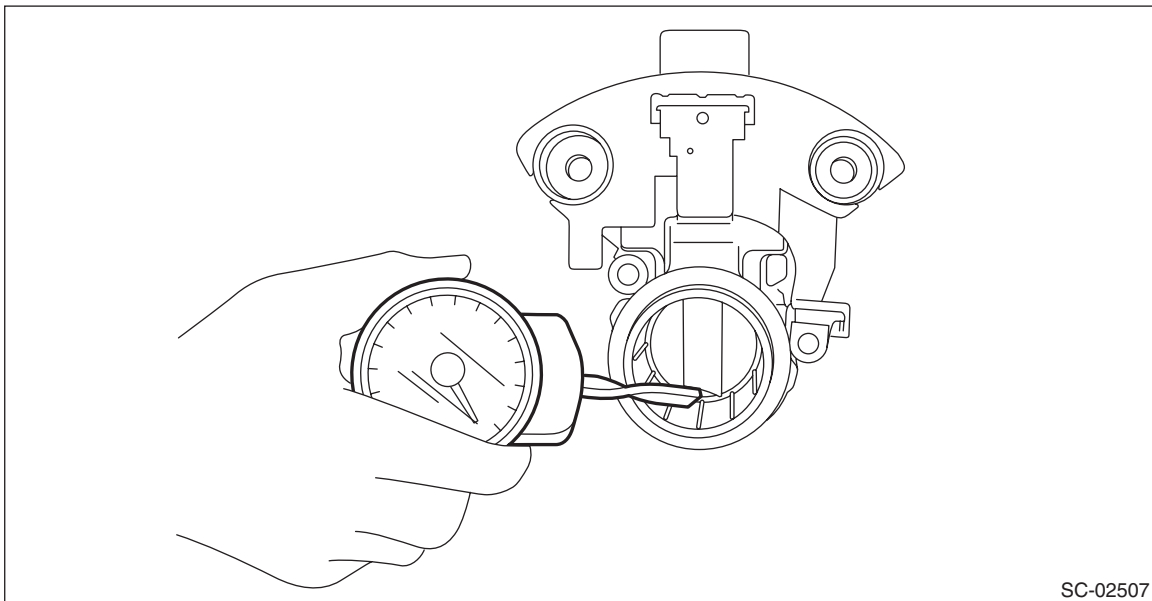
22.5 mm (0.886 in)

Limit (2)

5.0 mm (0.197 in)



2) Check that there is appropriate pressure on the brush spring. Using a spring pressure indicator, push the brush into the brush holder until its tip protrudes 2 mm (0.0787 in). Then measure the pressure of brush spring. If the pressure is 1.7 N (173 gf, 6.11 ozf) or less, replace the brush spring. 4.1 — 5.3 N (418 — 540 gf, 14.75 — 19.06 ozf) pressure is required on the new spring.



5. BALL BEARING

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