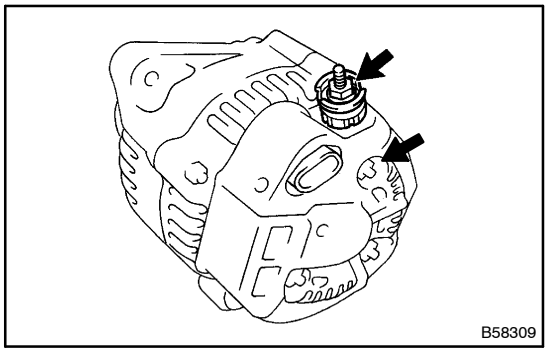
190M2–01

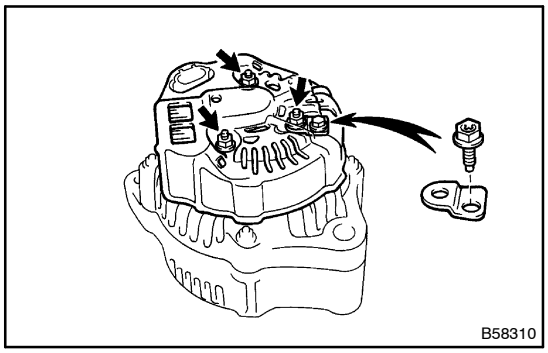
OVERHAUL



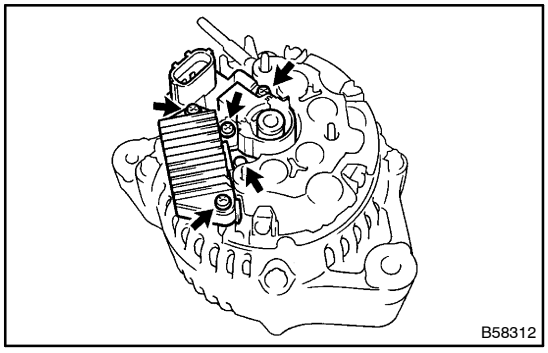
1. REMOVE REAR END COVER NO. 2

2. REMOVE REAR END COVER

(a) Remove the nut and terminal insulator.



(b) Remove the 3 nuts, bolt, plate terminal and rear end cover and brush holder cover.

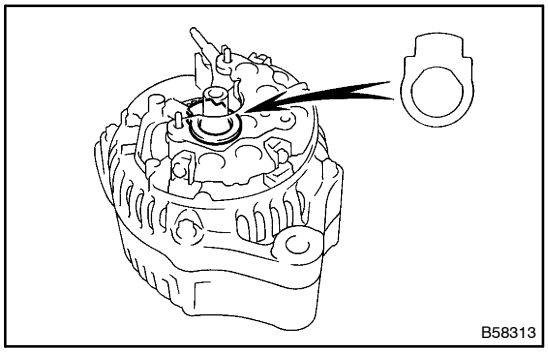


3. REMOVE GENERATOR BRUSH HOLDER ASSY

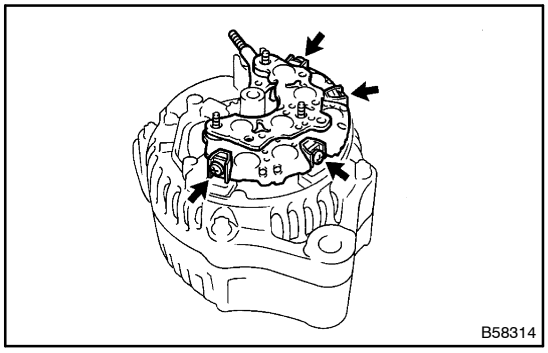
(a) Remove the 2 screws and brush holder.

4. REMOVE VOLTAGE REGULATOR

(a) Remove the 3 screws and voltage regulator.

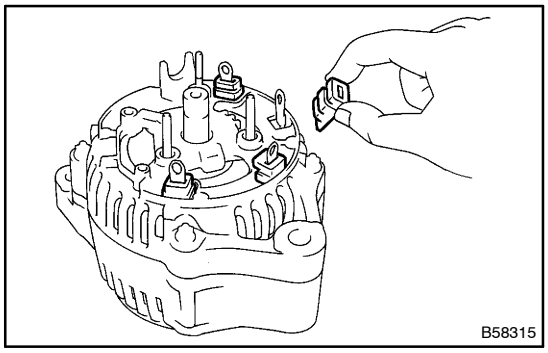


(b) Remove the plate seal from the rectifier end frame.

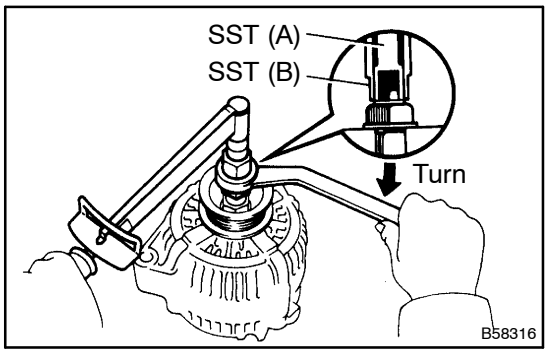


5. REMOVE GENERATOR HOLDER W/ RECTIFIER

(a) Remove the 4 screws and generator holder.



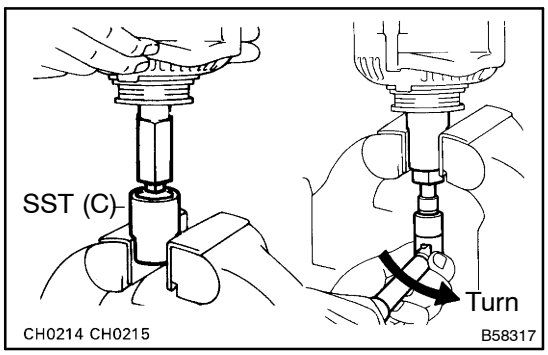
(b) Remove the 4 rubber insulators.



6. REMOVE GENERATOR PULLEY

(a) Hold SST (A) with a torque wrench, and tighten SST (B) clockwise to the specified torque.

(b) Check that SST (A) is secured to the rotor shaft.
SST 09820–63010



(c) As shown in the illustration, mount SST (C) in a vise, and attach the pulley nut to SST (C).

(d) To loosen the pulley nut, turn SST (A) in the direction shown in the illustration.

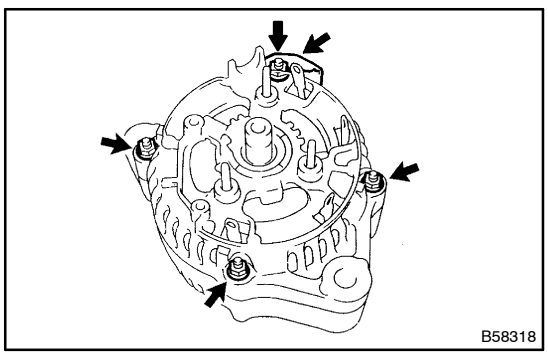
NOTICE:

To prevent damage to the rotor shaft, do not loosen the pulley nut more than one–half of a turn.

(e) Remove the generator from SST (C).

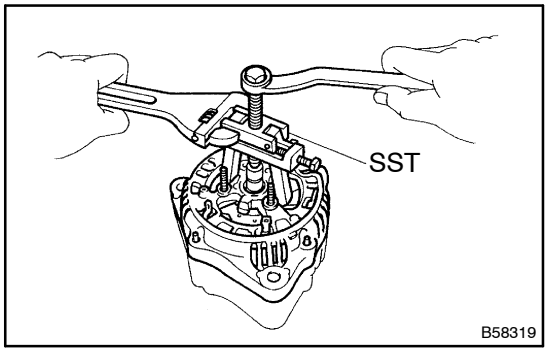
(f) Turn SST (B), and remove SST (A and B).

(g) Remove the pulley nut and pulley.

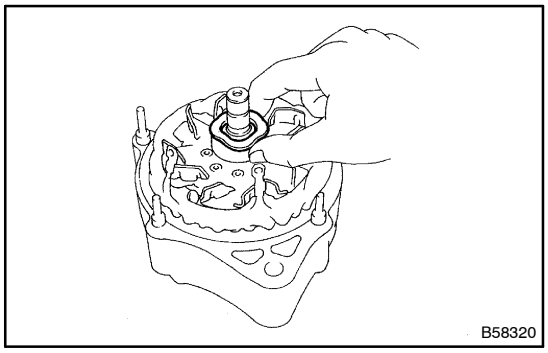


7. REMOVE RECTIFIER END FRAME

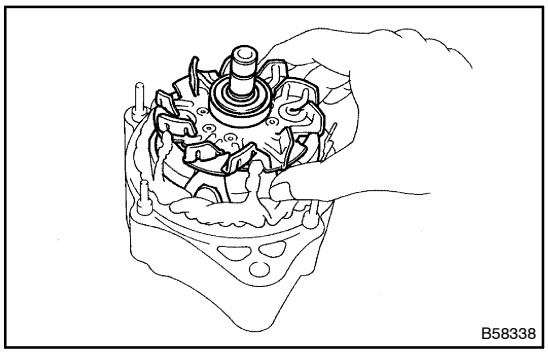
(a) Remove the 4 nuts and cord clip.



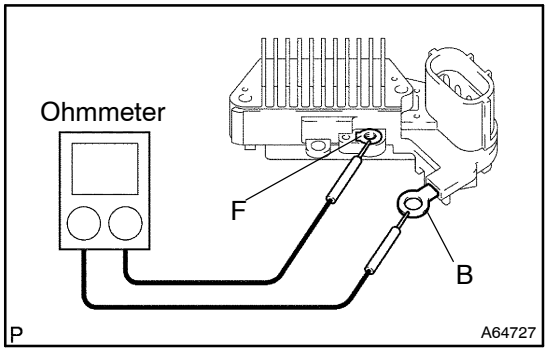
(b) Using SST, remove the rectifier end frame.
SST 09286–46011



(c) Remove the generator washer.



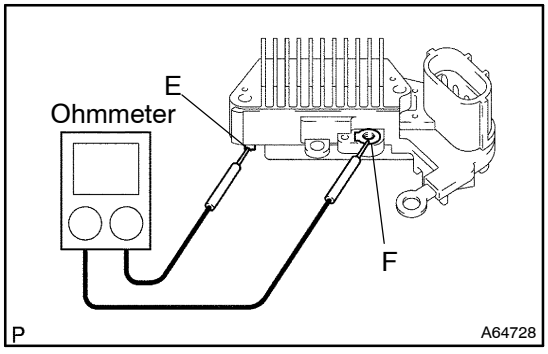
8. REMOVE GENERATOR ROTOR ASSY



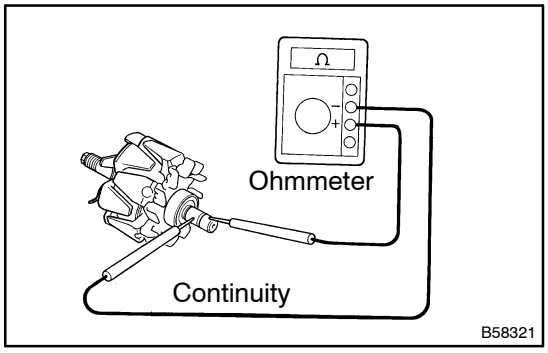
9. INSPECT VOLTAGE REGULATOR

(a) Using an ohmmeter, check the continuity between terminals F and B.
Standard:
When the positive and negative poles between terminals F and B are exchanged, there is continuity in one way but no continuity in another way.

If the continuity is not as specified, replace the regulator.



(b) Using an ohmmeter, check the continuity between terminals F and E.
Standard:
When the positive and negative poles between terminals F and E are exchanged, there is continuity in one way but no continuity in another way.



10. INSPECT GENERATOR ROTOR ASSY

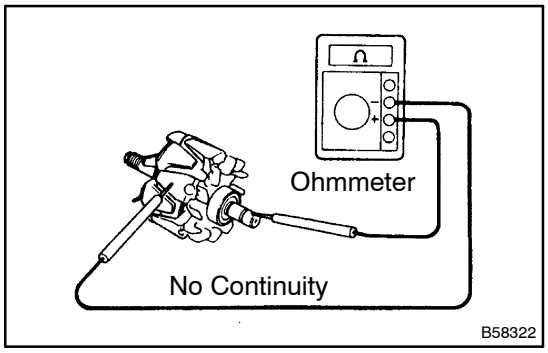
(a) Check the rotor for open circuit.

(1) Using an ohmmeter, check that there is continuity between the slip rings.

Standard resistance:

11.6 – 12.4 Ω at 20°C (68°F)

If there is no continuity, replace the rotor assy.



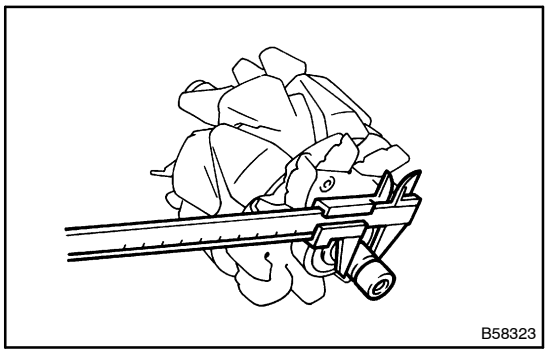
(b) Check the rotor for ground.

(1) Using an ohmmeter, check that there is no continuity between the slip ring and rotor.

Standard resistance:

10 MΩ or more at 20°C (68°F)

If there is continuity, replace the rotor assy.



(c) Check that the slip rings are not rough or scored.

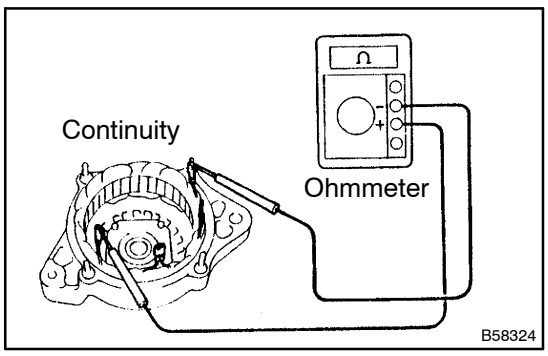
If rough or scored, replace the rotor.

(d) Using vernier calipers, measure the slip ring diameter.

Diameter:

Standard	14.2 – 14.4 mm (0.559 – 0.567 in.)
Minimum	12.8 mm (0.504 in.)

If the diameter is less than the minimum, replace the rotor assy.

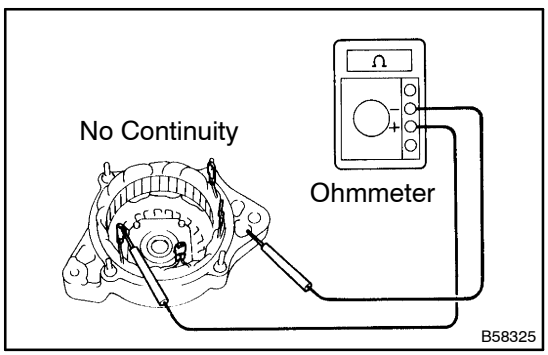


11. INSPECT DRIVE END FRAME

(a) Check the starter for open circuit.

(1) Using an ohmmeter, check that there is continuity between the coil leads.

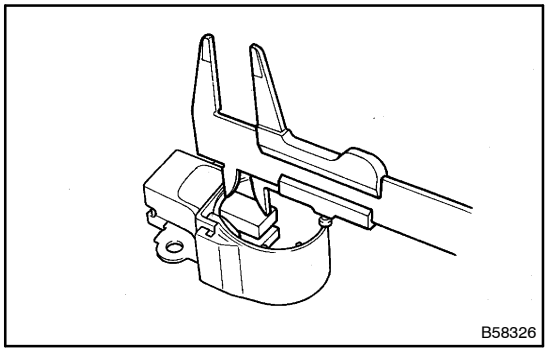
If there is no continuity, replace the drive end frame.



(b) Check the starter for ground.

(1) Using an ohmmeter, check that there is no continuity between the coil lead and drive end frame.

If there is continuity, replace the drive end frame.

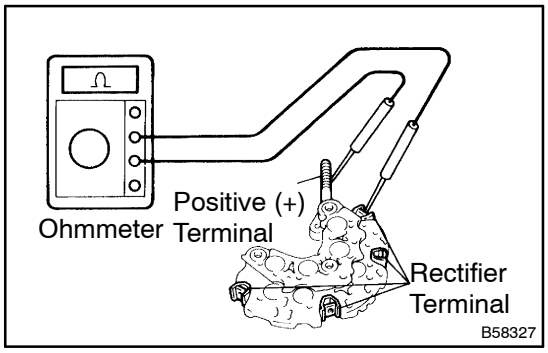


12. INSPECT GENERATOR BRUSH HOLDER ASSY

(a) Using vernier calipers, measure the exposed brush length.

Standard exposed length:
9.5 – 11.5 mm (0.374 – 0.453 in.)
Minimum exposed length: 1.5 mm (0.059 in.)

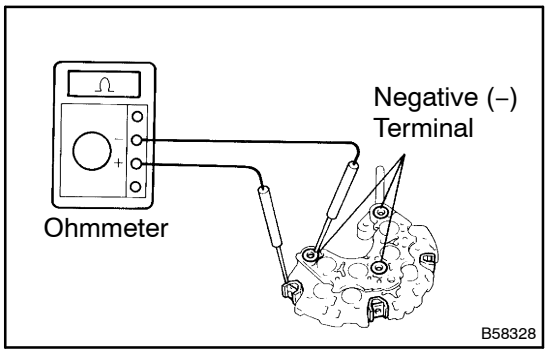
If the exposed length is less than the minimum, replace the brush holder assy.



13. INSPECT GENERATOR BRUSH HOLDER ASSY

(a) Check the positive (+) rectifier.
  (1) Using an ohmmeter, connect one tester probe to the positive (+) terminal and the other to each rectifier terminal.
  (2) Reverse the polarity of the tester probes and repeat step (1).
  (3) Check that one shows continuity and the other shows no continuity.

If the continuity is not as specified, replace the rectifier holder.



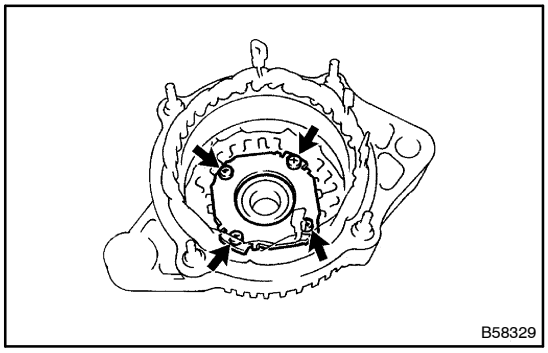
(b) Check the negative (–) rectifier.
  (1) Using an ohmmeter, connect one tester probe to each negative (–) terminal and the other to each rectifier terminal.
  (2) Reverse the polarity of the tester probes and repeat step (1).
  (3) Check that one shows continuity and the other shows no continuity.

If the continuity is not as specified, replace the rectifier holder.

14. INSPECT BEARING

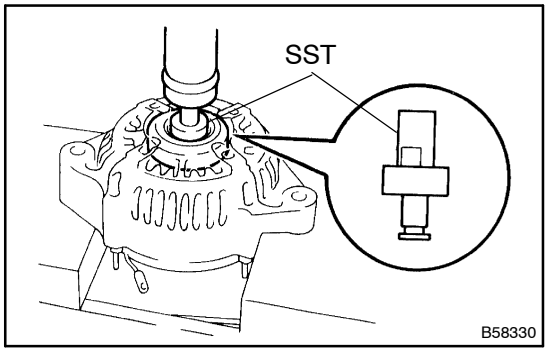
(a) Check that the bearing is not rough or worn.

If necessary, replace the bearing.

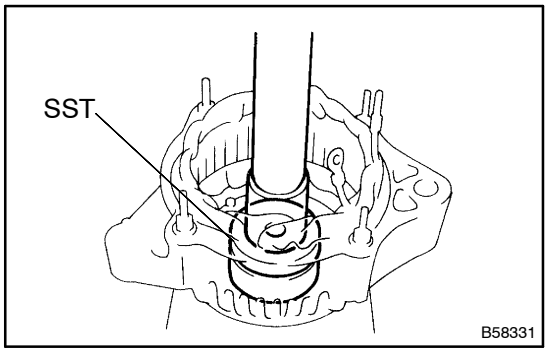


15. REMOVE BEARING (FRONT)

(a) Remove the 4 screws and bearing retainer.



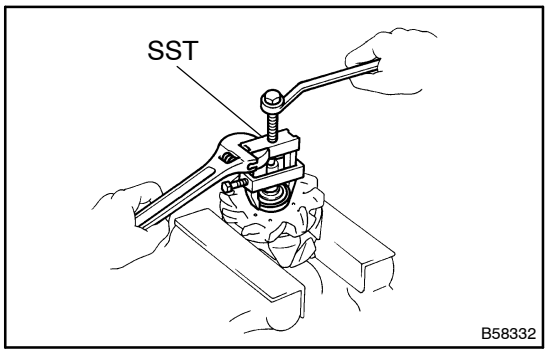
(b) Using SST and a press, press out the bearing.
SST 09950–60010, 09950–70010



16. INSTALL BEARING (FRONT)

(a) Using SST and a press, press in a new bearing.
Torque: 2.9 N·m (30 kgf·cm, 26 in.·lbf)

(b) Install the bearing retainer with the 4 screws.
Torque 2.9 N·m (30 kgf·cm, 26 in.·lbf)
SST 09950–60010, 09950–70010

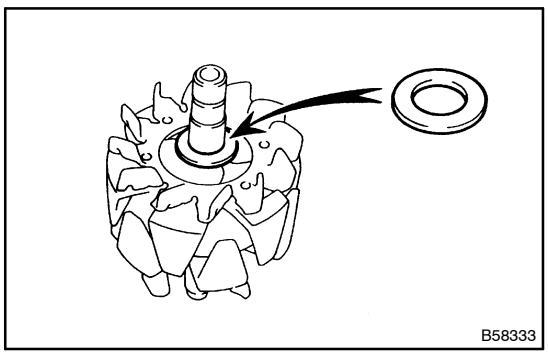


17. REMOVE BEARING (REAR)

(a) Using SST, remove the bearing cover (outside) and bearing.
SST 09820–00021, 09820–00030, 09825–76010

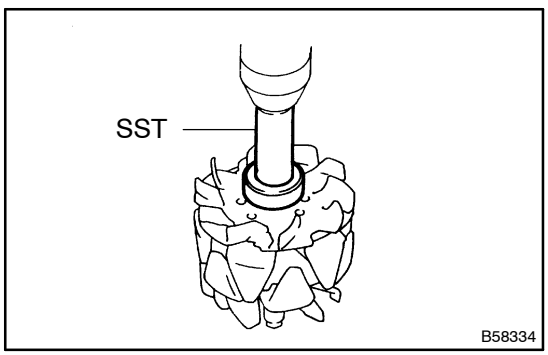
NOTICE:
Be careful not to damage the fan.

(b) Remove the bearing cover (inside).

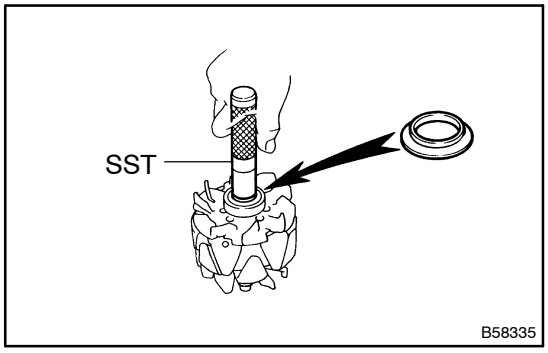


18. INSTALL BEARING (REAR)

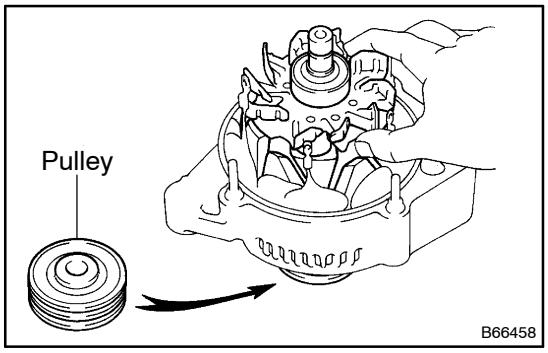
(a) Place the bearing cover (inside) on the rotor.



(b) Using SST and a press, press in a new bearing.
SST 09820–00031



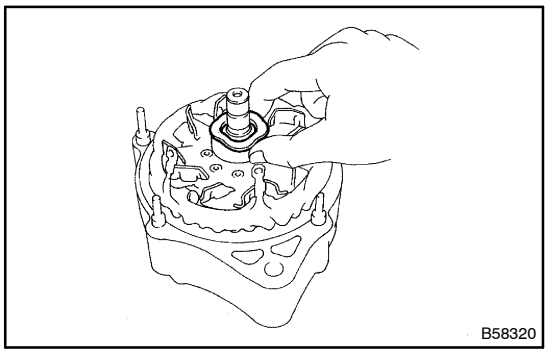
(c) Using SST, push in the bearing cover (outside).
SST 09285–76010



19. INSTALL GENERATOR ROTOR ASSY

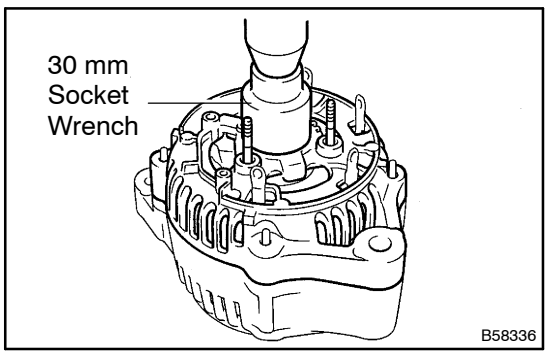
(a) Place drive end frame on pulley.

(b) Install the rotor to the drive end frame.

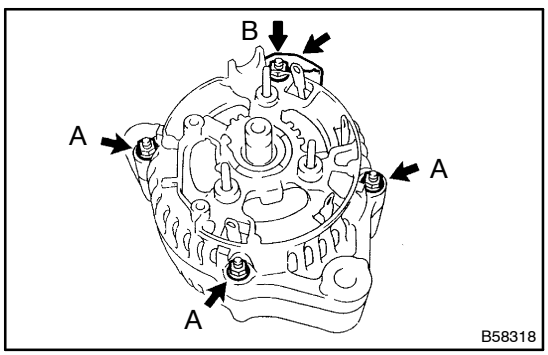


20. INSTALL RECTIFIER END FRAME

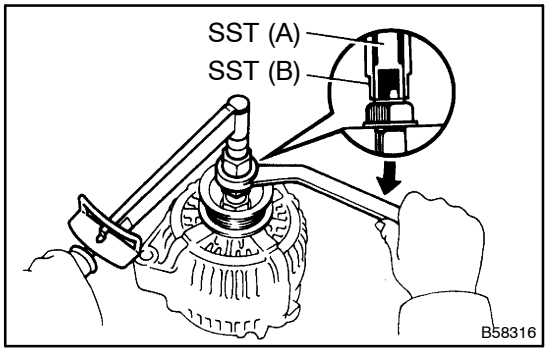
(a) Place the generator washer on the rotor.



(b) Using a 30 mm socket wrench and press, slowly press in the rectifier end frame.



(c) Install the cord clip and 4 nuts.
Torque:
4.5 N·m (46 kgf·cm, 40 in.·lbf) for A
5.4 N·m (55 kgf·cm, 48 in.·lbf) for B

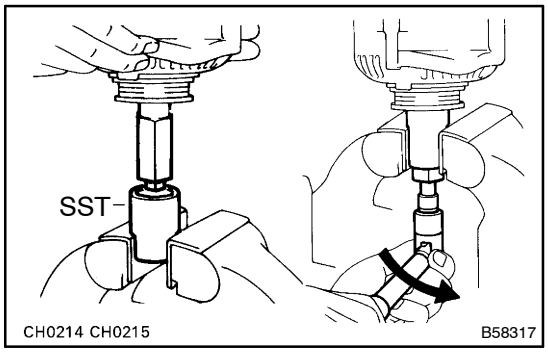


21. INSTALL GENERATOR PULLEY

(a) Install the pulley to the rotor shaft by tightening the pulley nut by hand.

(b) Hold SST (A) with a torque wrench, and tighten SST (B) clockwise to the specified torque.
SST 09820–63010
Torque 39 N·m (400 kgf·cm, 29 ft·lbf)

(c) Check that SST (A) is secured to the pulley shaft.

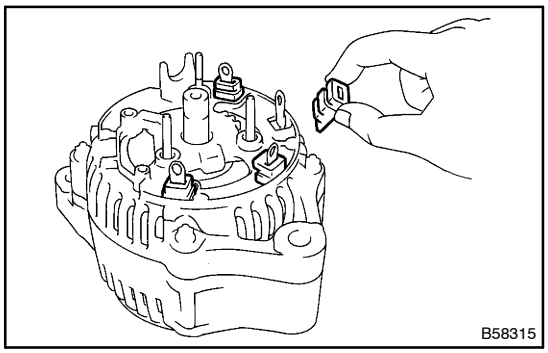


(d) As shown in the illustration, mount SST (C) in a vise and attach the pulley nut to SST (C).

(e) To torque the pulley nut, turn SST (A) in the direction shown in the illustration.
Torque 110.5 N·m (1,125 kgf·cm, 81 ft·lbf)

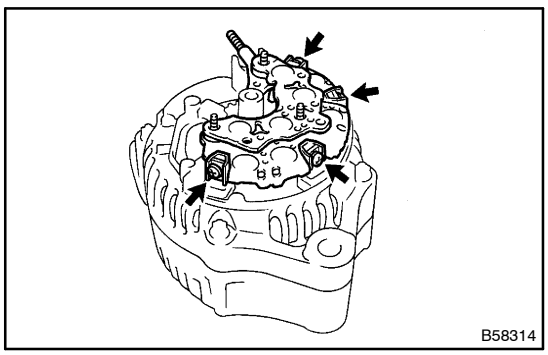
(f) Remove the generator from SST (C).

(g) Turn SST (B) and remove SST (A and B).

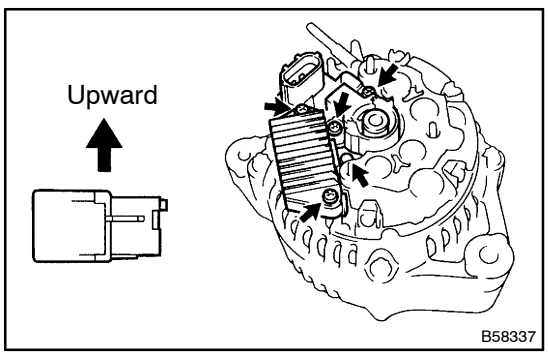


22. INSTALL GENERATOR HOLDER W/ RECTIFIER

(a) Install the 4 rubber insulators on the lead wires.



(b) Install the rectifier holder while pushing it with the 4 screws.
Torque 2.94 N·m (30 kgf·cm, 26 in.·lbf)



23. INSTALL VOLTAGE REGULATOR

(a) Install the voltage regulator with the 3 screws.
Torque 2.0 N·m (20 kgf·cm, 18 in.·lbf)

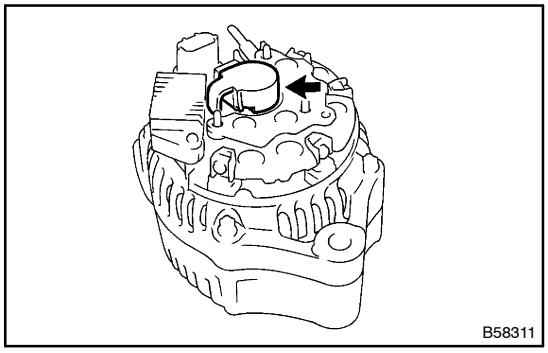
24. INSTALL GENERATOR BRUSH HOLDER ASSY

(a) Place the plate seal on the rectifier end frame.

(b) Install the brush holder with the 2 screws.
Torque: 2.0 N·m (20 kgf·cm, 18 in.·lbf)

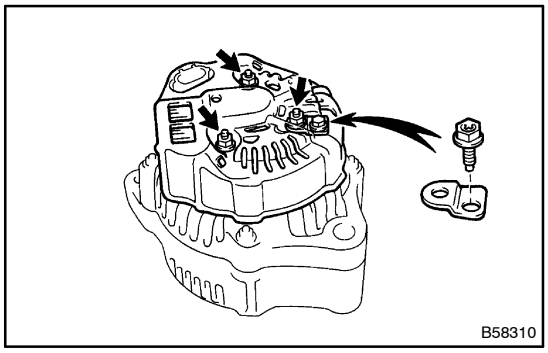
NOTICE:

Be careful of the holder installation direction.

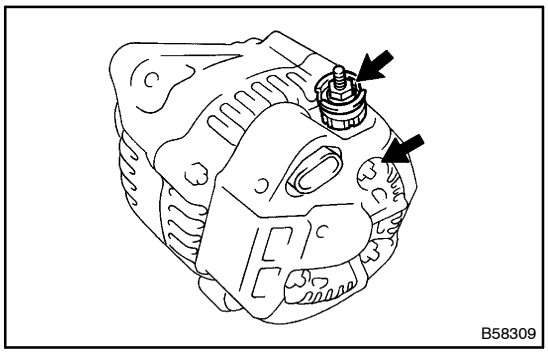


25. INSTALL REAR END COVER

(a) Place the brush holder cover on the brush holder.



(b) Install the rear end cover and plate terminal with the 2 nuts and bolt.
Torque:
3.85 N·m (39 kgf·cm, 34 in.·lbf) for bolt
4.4 N·m (45 kgf·cm, 39 in.·lbf) for nut



(c) Install the terminal insulator with the nut.
Torque: 4.1 N·m (42 kgf·cm, 36 in.·lbf)

26. INSTALL REAR END COVER NO. 2

(a) Install the generator rear end cover with the 2 nuts.

27. INSPECT GENERATOR ASSY

(a) Check that the pulley rotates smoothly.