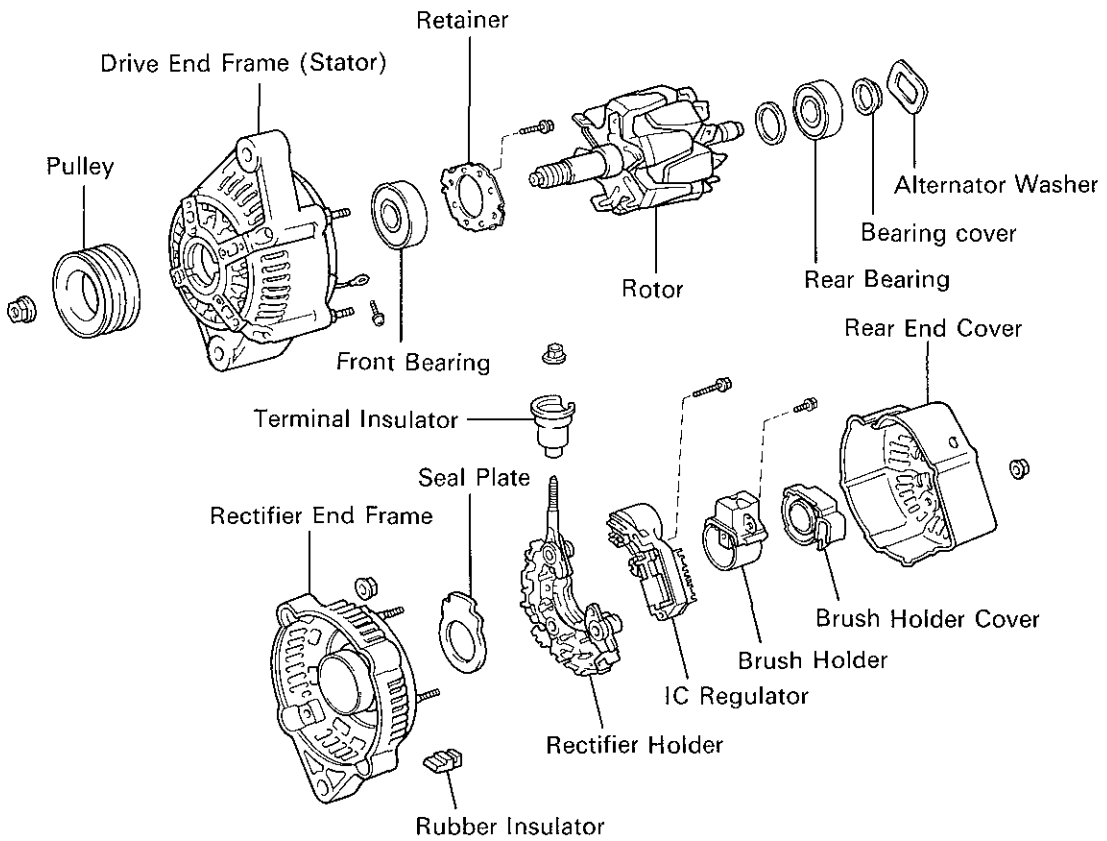
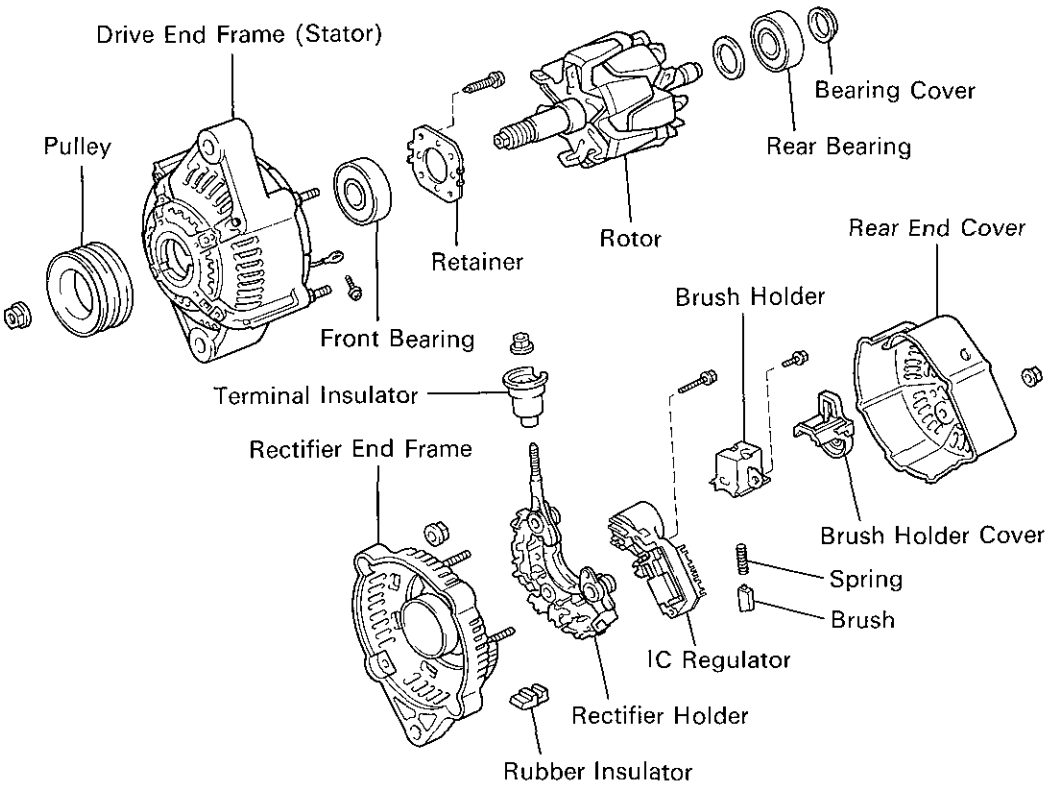
ALTERNATOR

COMPONENTS

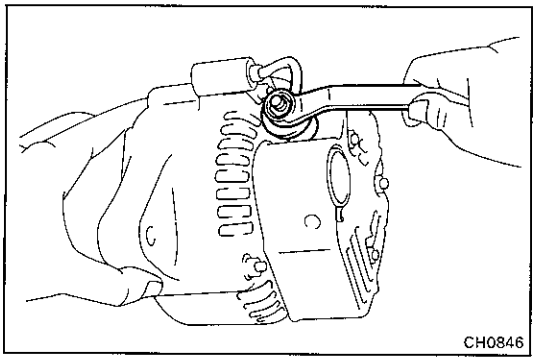
Type A



Type B



CH0857
CH0858



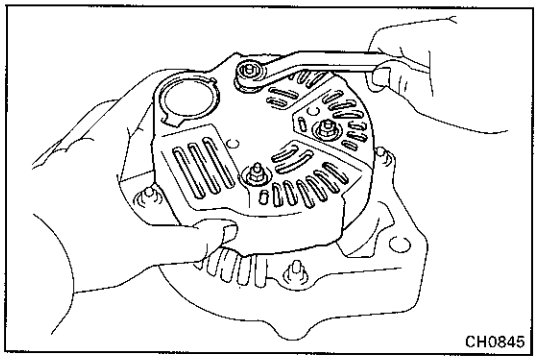
DISASSEMBLY OF ALTERNATOR

(See page CH-8)

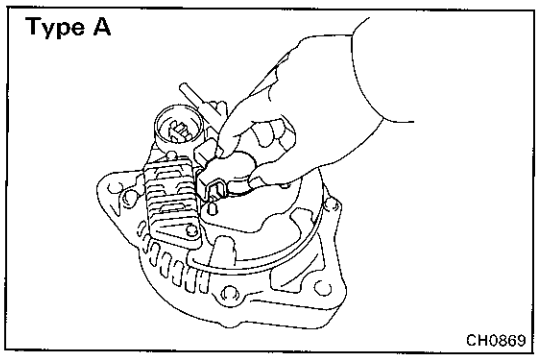
1. REMOVE REAR END COVER

(a) (PZJ, HZJ and HDJ)
Remove the nut, condenser lead wire and terminal insulator.

(b) (HZB and HDB)
Remove the nut and terminal insulator.

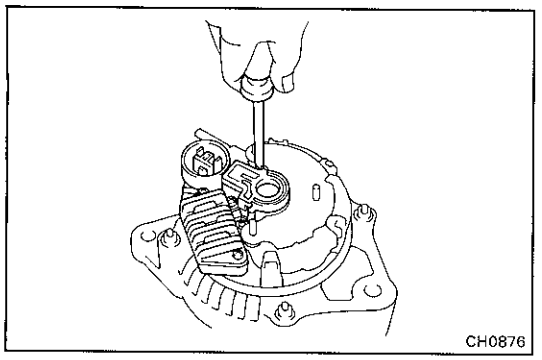


(c) Remove the three nuts and end cover.

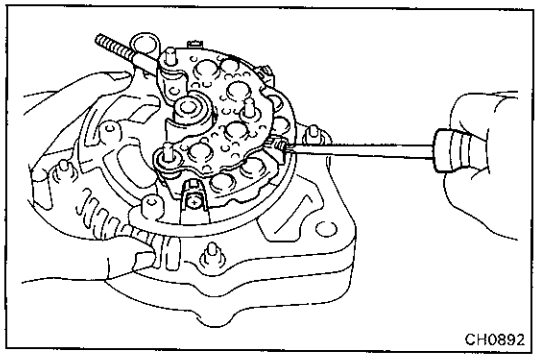


2. REMOVE BRUSH HOLDER AND IC REGULATOR

(a) (Type A)
Remove the brush holder cover from the brush holder.

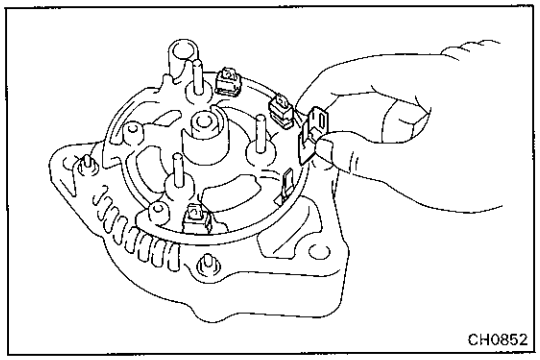


(b) Remove the five screws, brush holder, holder cover and IC regulator.

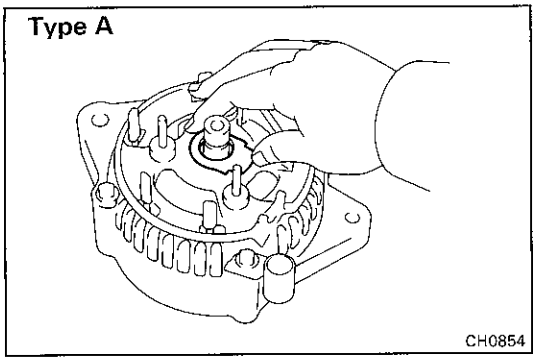


3. REMOVE RECTIFIER HOLDER

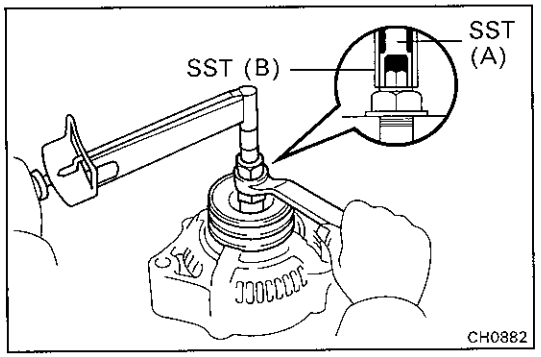
(a) Remove the four screws and rectifier holder.



(b) Remove the four rubber insulator.



(c) (Type A)
Remove the seal plate.



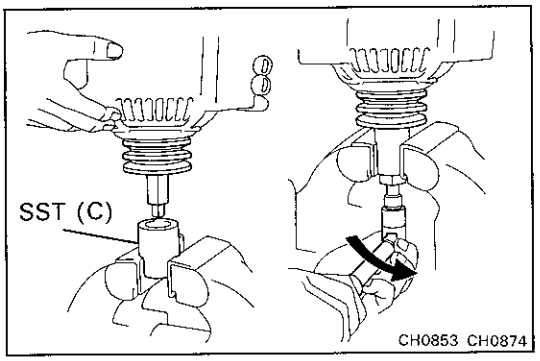
4. REMOVE PULLEY

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

SST 09820-63010

Torque: 400 kg-cm (29 ft-lb, 39 N·m)

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



(c) As shown in the illustration, mount SST (C) in a vise, and install the alternator to SST (C).

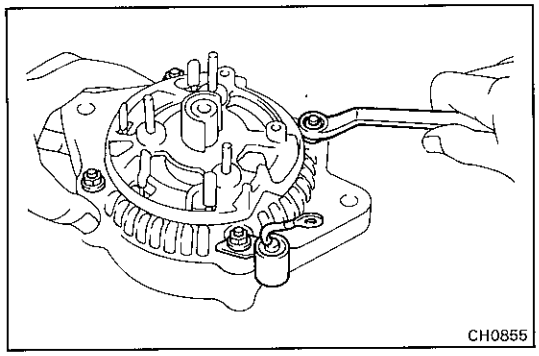
(d) To loosen the pulley nut, turn SST (A) in the direction shown in the illustration.

NOTICE: To prevent damage to the rotor shaft, do not loosen the pulley nut more that one-half of a turn.

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

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

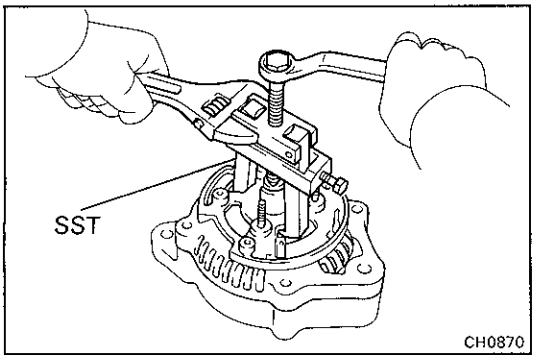
(g) Remove the pulley nut and pulley.



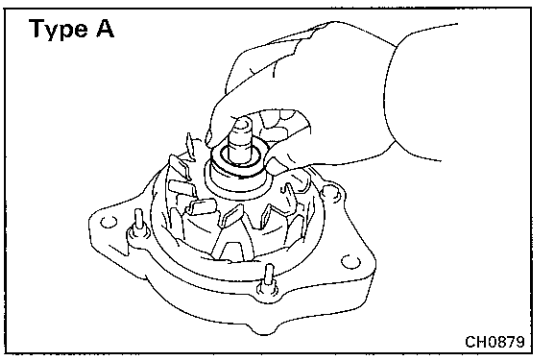
5. REMOVE RECTIFIER END FRAME

(a) (PZJ, HZJ and HDJ)
Remove the four nuts and condenser.

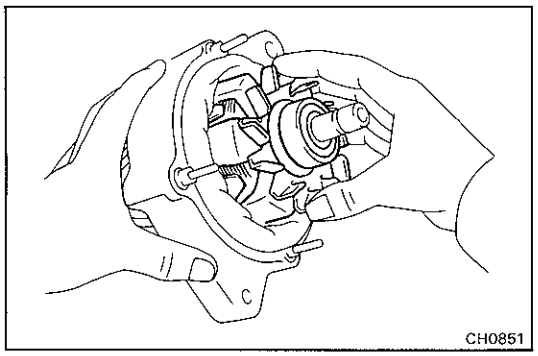
(b) (HZB and HDB)
Remove the four nuts.



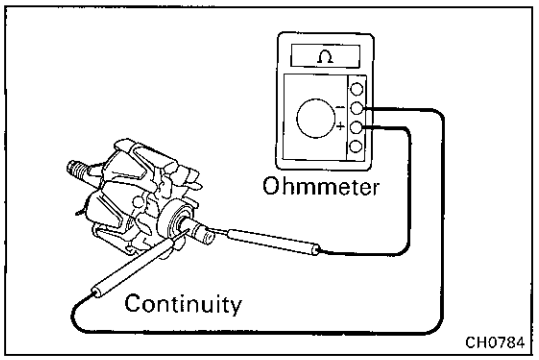
(c) Using SST, remove the rectifier end frame.
SST 09286-46011



(d) (Type A)
Remove the alternator washer.



6. REMOVE ROTOR FROM DRIVE END FRAME



INSPECTION AND REPAIR OF ALTERNATOR

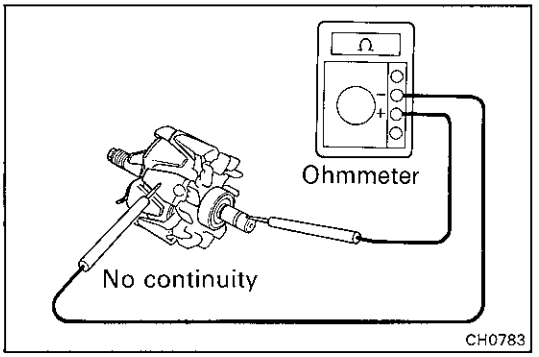
Rotor

1. INSPECT ROTOR FOR OPEN CIRCUIT

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

Standard resistance (cold): 12 V Type 2.7 – 3.1 Ω
24 V Type 1.0 – 1.4 Ω

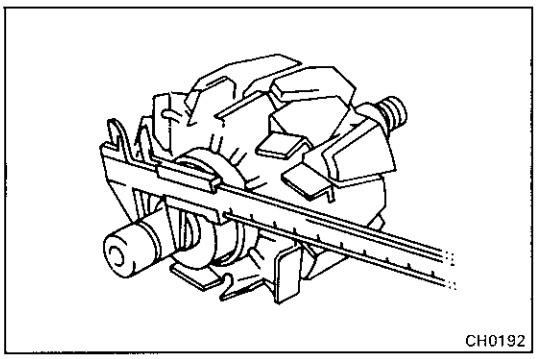
If there is no continuity, replace the rotor.



2. INSPECT ROTOR FOR GROUND

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

If there is continuity, replace the rotor.



3. INSPECT SLIP RINGS

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

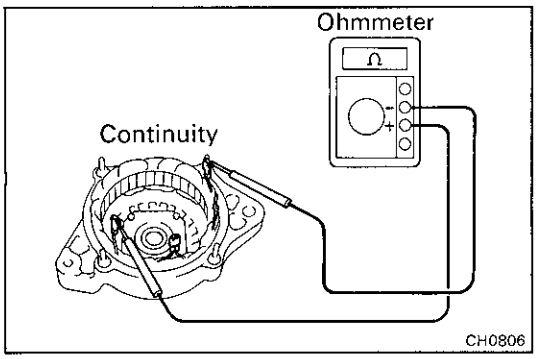
If rough or scored, replace the rotor.

(b) Using vernier calipers, measure the slip ring diameters.

Standard diameter: 14.2 – 14.4 mm (0.559 – 0.567 in.)

Minimum diameter: 12.8 mm (0.504 in.)

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

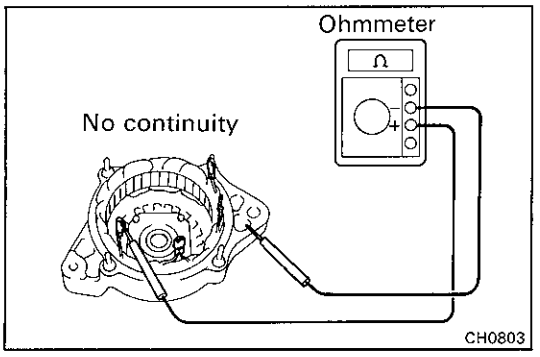


Stator (Drive End Frame)

1. INSPECT STATOR FOR OPEN CIRCUIT

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

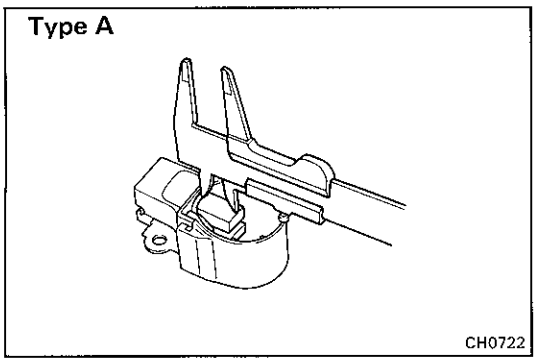
If there is no continuity, replace the drive end frame assembly.



2. INSPECT STATOR FOR GROUND

Using an ohmmeter, check that there is no continuity between the coil leads and drive end frame.

If there is continuity, replace the drive end frame assembly.



Brushes

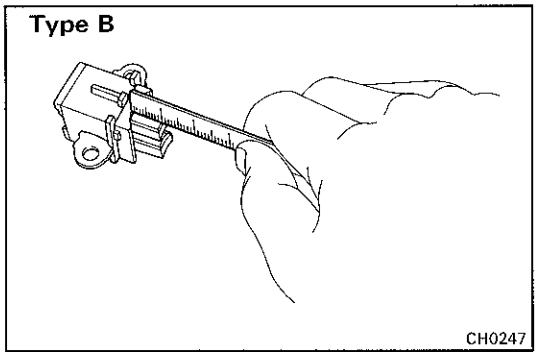
1. **INSPECT EXPOSED BRUSH LENGTH**

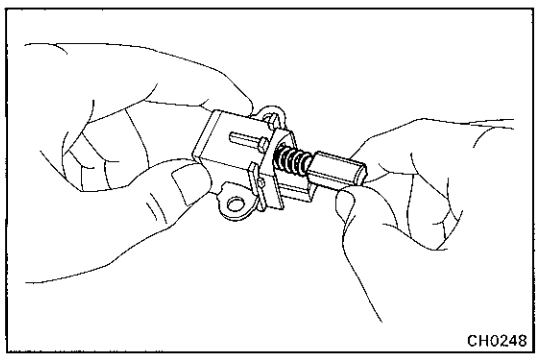
Using vernier calipers or scale, measure the exposed brush length.

Standard exposed length: 10.5 mm (0.413 in.)

Minimum exposed length: 1.5 mm (0.059 in.)

If the exposed length is less than minimum, replace the brushes and brush holder assembly (Type A) or brushes (Type B).

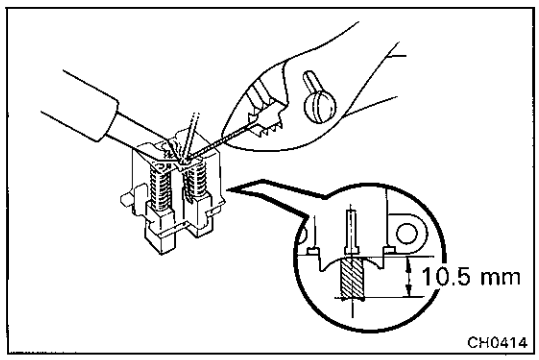




2. **(Type B)**
IF NECESSARY, REPLACE BRUSHES

(a) Unsolder and remove the brush and spring.

(b) Run the wire of the brush through the hole in the brush holder, and insert the spring and brush into the brush holder.



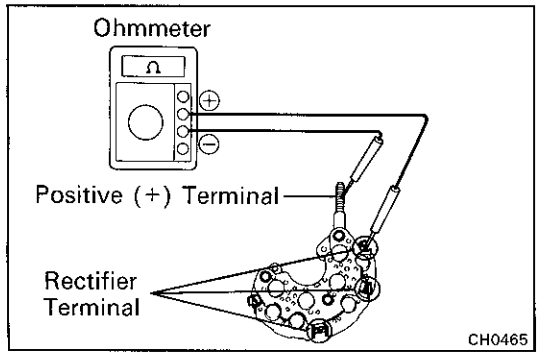
(c) Solder the brush wire to the brush holder at the exposed length.

Exposed length: 10.5 mm (0.413 in.)

(d) Check that the brush moves smoothly in the brush holder.

(e) Cut off the excess wire.

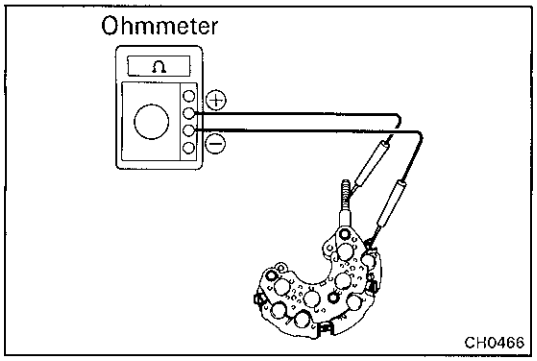
(f) Apply insulation paint to the soldered point.



Rectifiers (Rectifier Holder)

1. **INSPECT POSITIVE SIDE RECTIFIER**

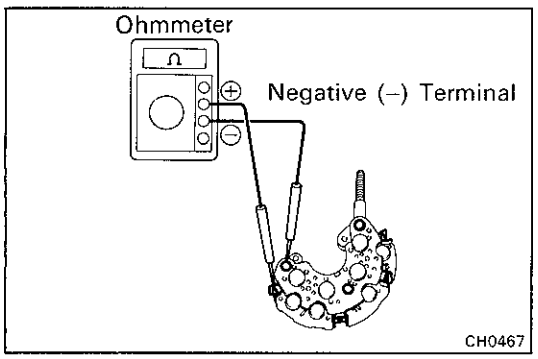
(a) Using an ohmmeter, connect one tester probe to the positive (+) terminal and the other to each rectifier terminal.



(b) Reverse the polarity of the tester probes and repeat step (a).

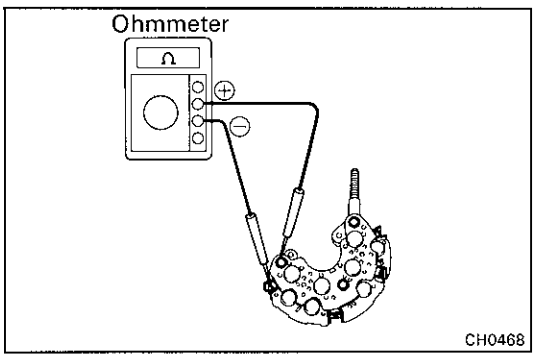
(c) Check that one shows continuity and the other shows no continuity.

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



2. INSPECT NEGATIVE SIDE RECTIFIER

(a) Connect one tester probe to each rectifier terminal and the other to each rectifier negative (–) terminal.

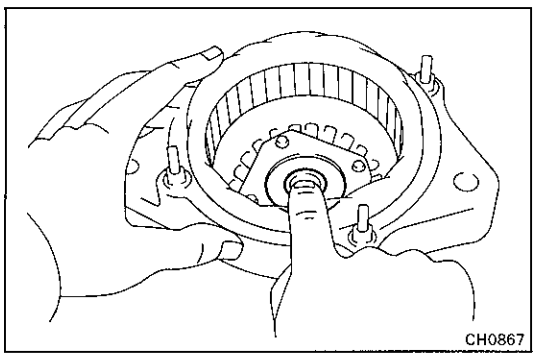


(b) Reverse the polarity of the tester probes.

(c) Check that one shows continuity and the other shows no continuity.

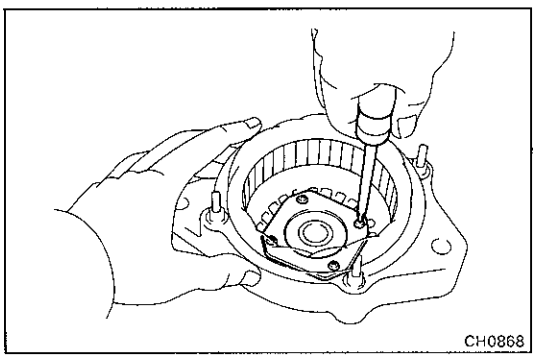
If continuity is not as specified, replace the rectifier holder.

Bearings



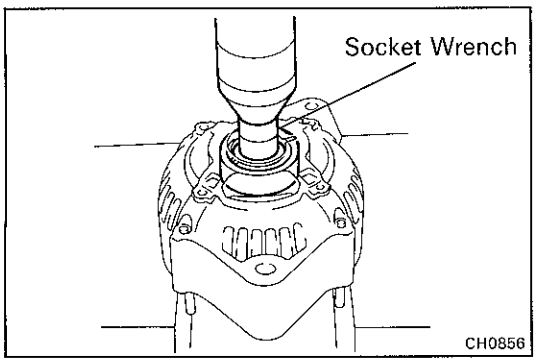
1. INSPECT FRONT BEARING

Check that the bearing is not rough or worn.

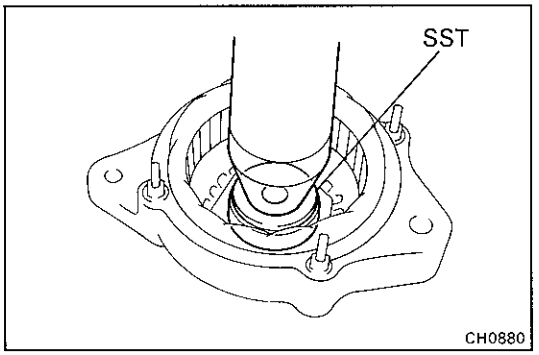


2. IF NECESSARY, REPLACE FRONT BEARING

(a) Remove the four screws, and bearing retainer.

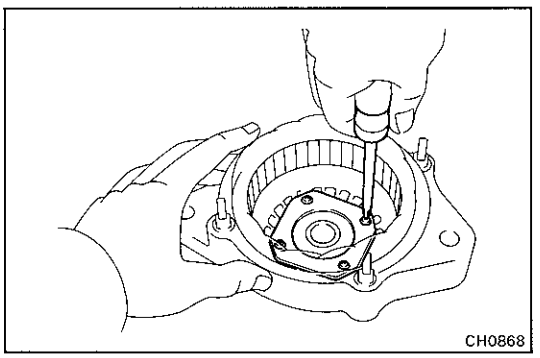


(b) Using a press and socket wrench, press out the front bearing.

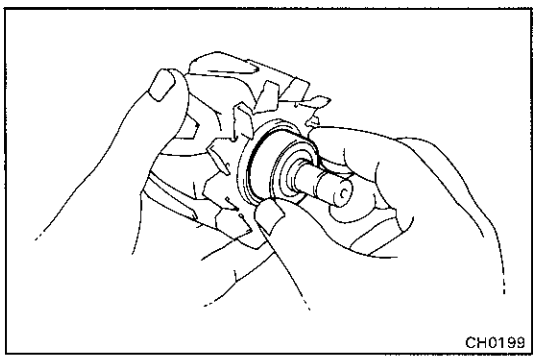


(c) Using SST and a press, press in a new bearing.

SST 09608-20012 (09608-00030)

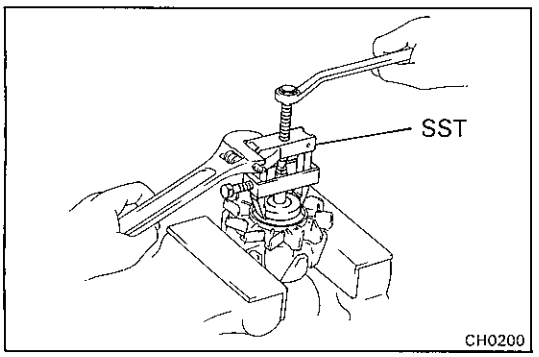


(d) Install the bearing retainer with the four screws.



3. INSPECT REAR BEARING

Check that the bearing is not rough or worn.

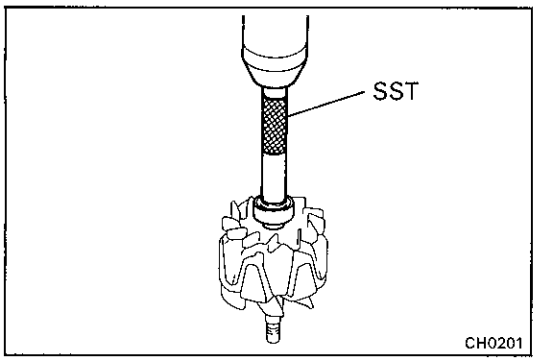


4. IF NECESSARY, REPLACE REAR BEARING

(a) Using SST, remove the bearing cover and bearing.

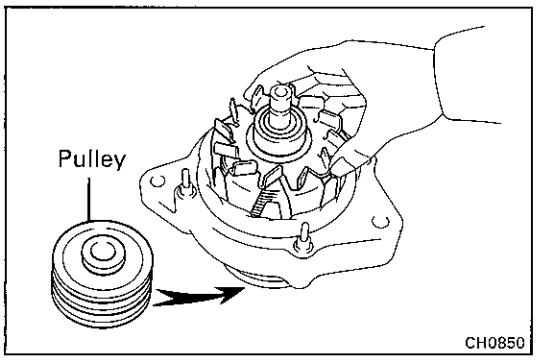
SST 09820-00021

NOTICE: Be careful not to damage the fan.



(b) Using SST and a press, press in a new bearing and bearing cover.

SST 09285-76010



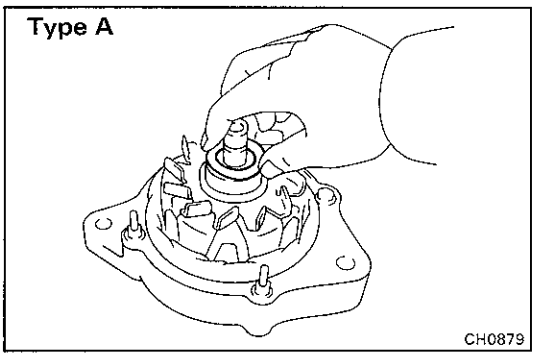
ASSEMBLY OF ALTERNATOR

(See page CH-8)

1. INSTALL ROTOR TO DRIVE END FRAME

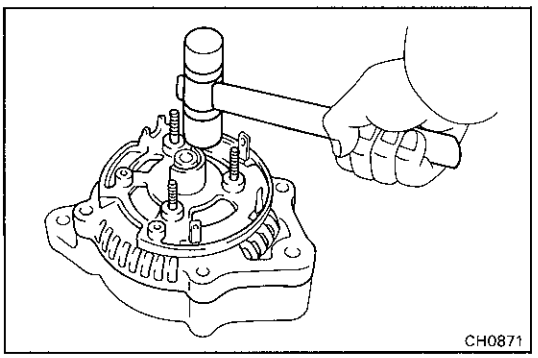
(a) Place the rectifier end frame on the pulley.

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

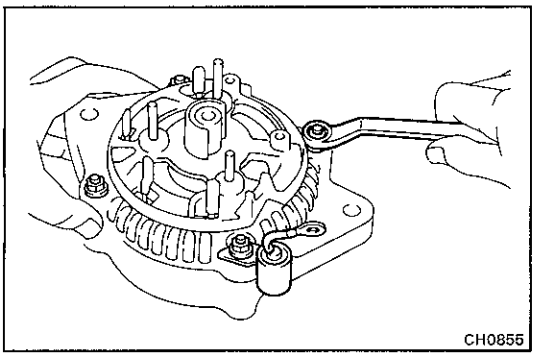


2. INSTALL RECTIFIER END FRAME

(a) (Type A)
Place the alternator washer on the rotor.

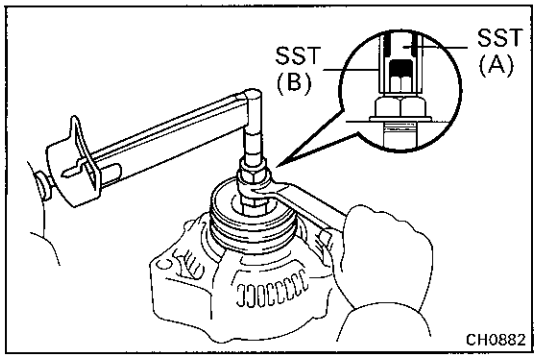


(b) Using a plastic-faced hammer, lightly tap in the end frame.



(c) (PZJ, HZJ and HDJ)
Install the codenser and four nuts.

(d) (HZB and HDB)
Install the four nuts.



3. INSTALL PULLEY

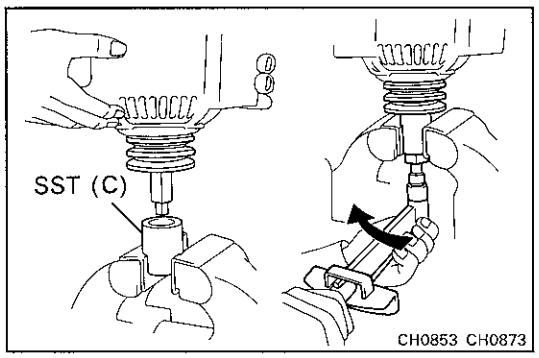
(a) Install the pulley to the rotor shaft by tightening the pulley nut by hand.

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

SST 09820-63010

Torque: 400 kg-cm (29 ft-lb, 39 N·m)

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



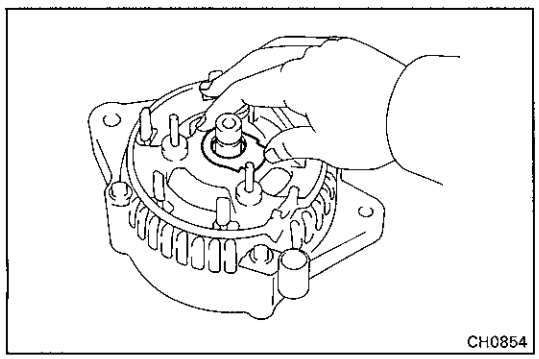
(d) As shown in the illustration, mount SST (C) in a vise, and install the alternator to SST (C).

(e) To torque the pulley nut, turn SST (A) in the direction shown in the illustration.

Torque: 1,125 kg-cm (81 ft-lb, 110 N·m)

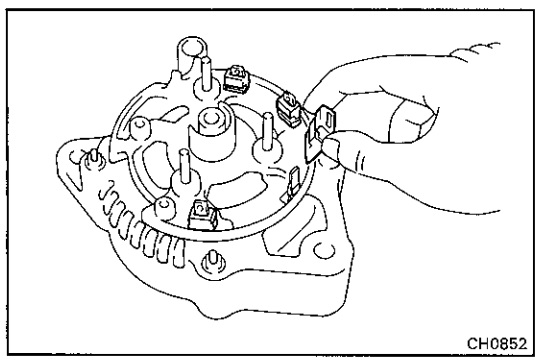
(f) Remove the alternator from SST (C).

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

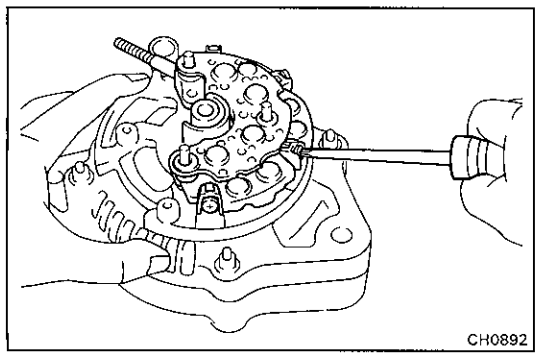


4. INSTALL RECTIFIER HOLDER

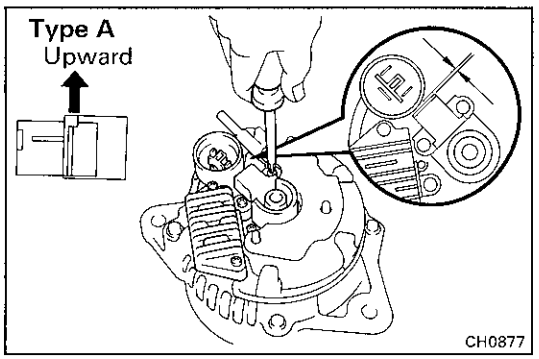
(a) (Type A)
Place the seal plate on the rectifier end frame.



(b) Install the four rubber insulators on the lead wires.



(c) Install the rectifier holder with the four screws.

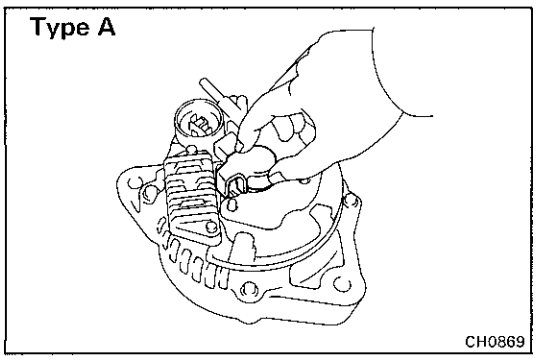


5. **INSTALL IC REGULATOR AND BRUSH HOLDER (Type A)**

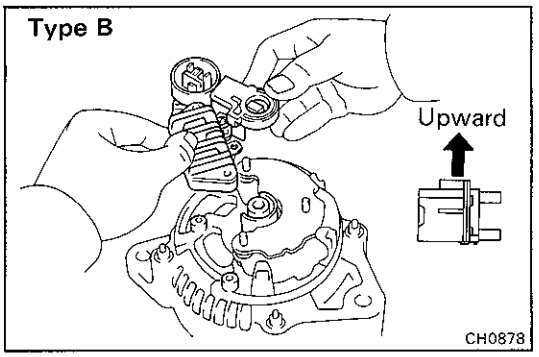
(a) Place on the IC regulator and brush holder on the rectifier end frame.

NOTICE: Be careful about the holder installation direction.

(b) Install the five screws until there is a clearance of approx. 1.1 mm (0.043 in.) between the brush holder and connector.



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

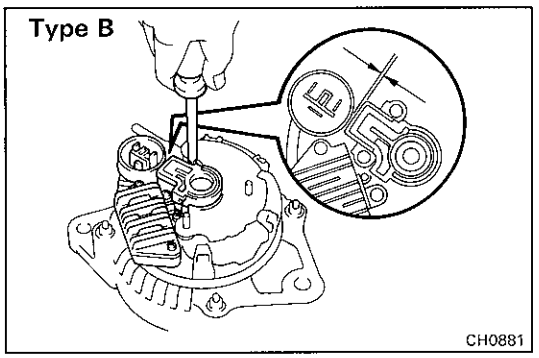


(Type B)

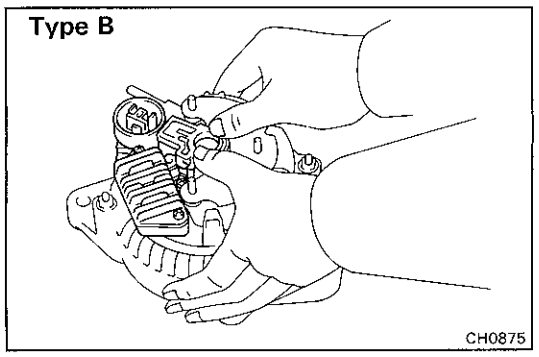
(a) Install the brush holder cover to the brush holder.

NOTICE: Be careful about the holder installation direction.

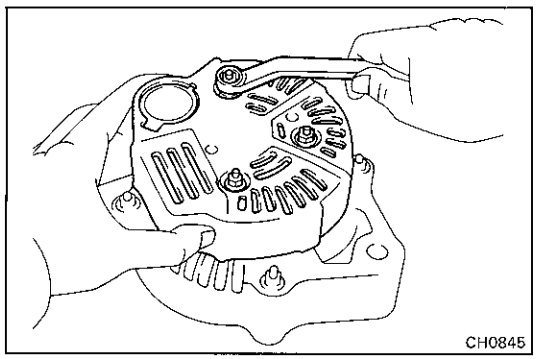
(b) Place the IC regulator together with the brush holder horizontally on the rectifier end frame.



(c) Install the five screws until there is a clearance of approx. 1.1 mm (0.043 in.) between the brush holder and connector.

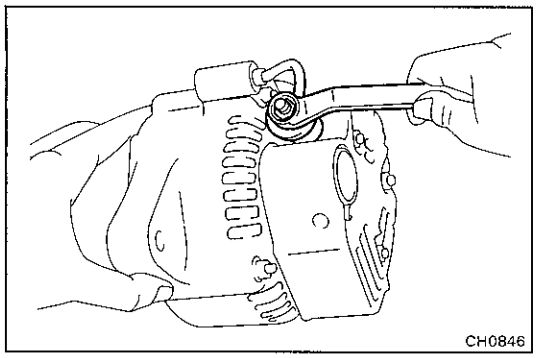


(d) Fit the brush holder cover.



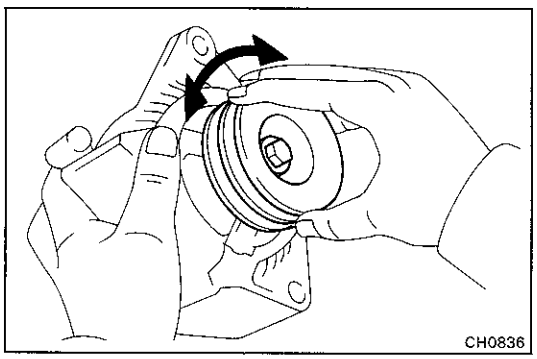
6. INSTALL REAR END COVER

(a) Install the rear end cover with the three nuts.



(b) (PZJ, HZJ and HDJ)
Install the terminal insulator, condenser lead wire with nut.

(c) (HZB and HDB)
Install the terminal insulator with the nut.



7. CHECK THAT ROTOR ROTATES SMOOTHLY