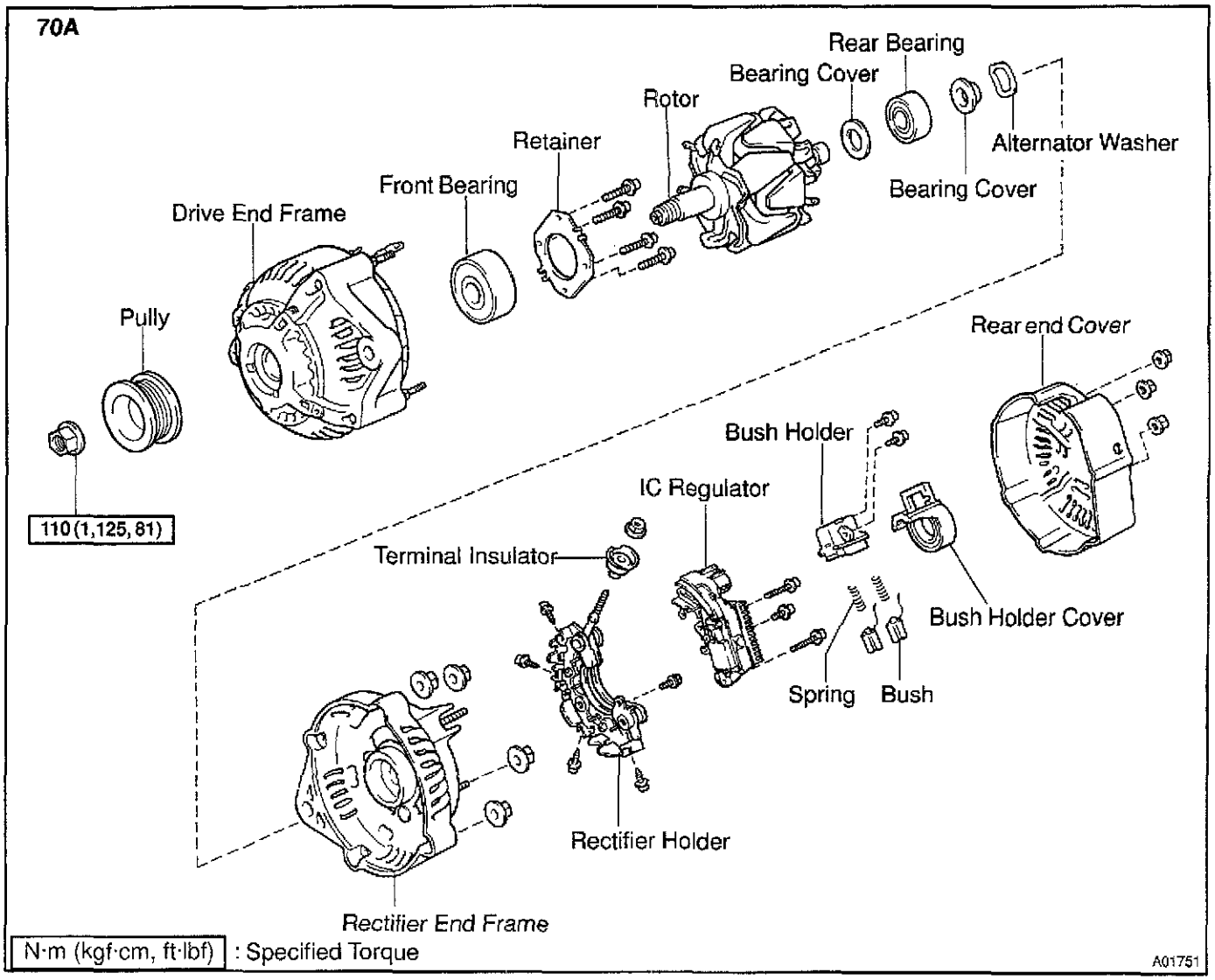
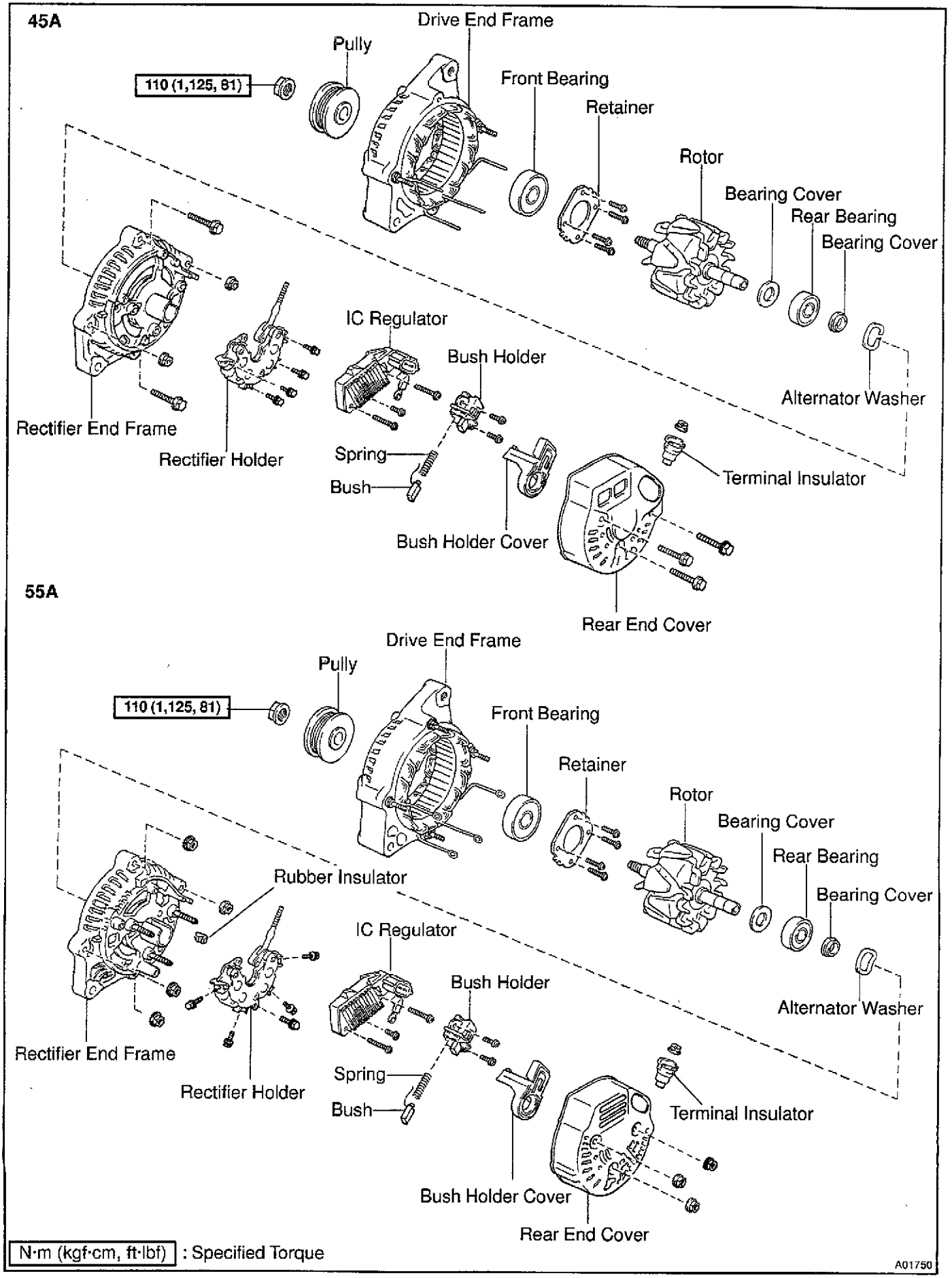
# ALTERNATOR

## COMPONENTS

CH035-01

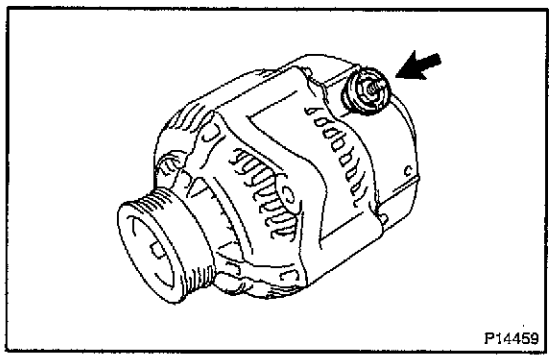



CH


45A
Drive End Frame
Pully
110 (1,125, 81)
Front Bearing
Retainer
Rotor
Bearing Cover
Rear Bearing
Bearing Cover
IC Regulator
Bush Holder
Alternator Washer
Rectifier End Frame
Rectifier Holder
Spring
Bush
Terminal Insulator
Bush Holder Cover
Rear End Cover
55A
Drive End Frame
Pully
110 (1,125, 81)
Front Bearing
Retainer
Rotor
Bearing Cover
Rear Bearing
Bearing Cover
Rubber Insulator
IC Regulator
Bush Holder
Alternator Washer
Rectifier End Frame
Rectifier Holder
Spring
Bush
Terminal Insulator
Bush Holder Cover
Rear End Cover
N·m (kgf·cm, ft·lbf) : Specified Torque
A01750

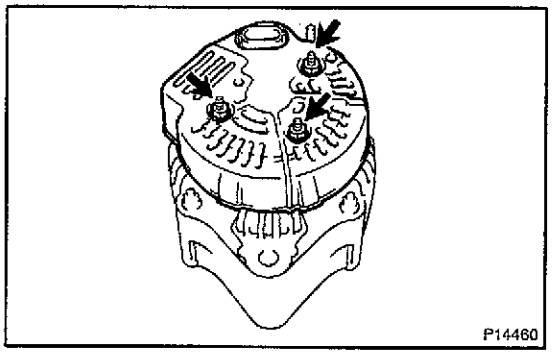
CH036-01

# DISASSEMBLY

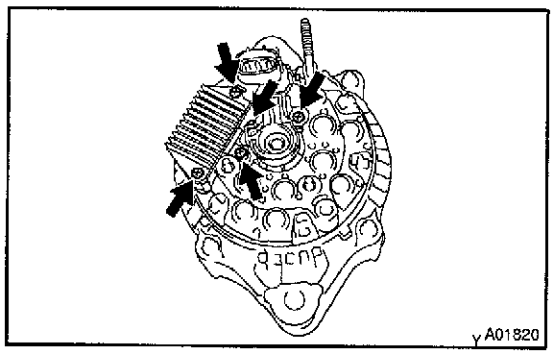

P14459

**1. REMOVE REAR END COVER**

(a) Remove the nut and terminal insulator.


P14460

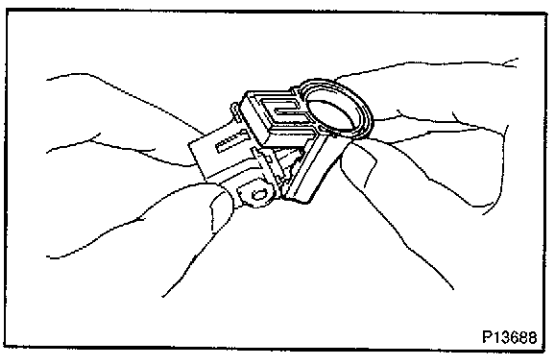
(b) Remove the 3 nuts, and end cover.


A01820

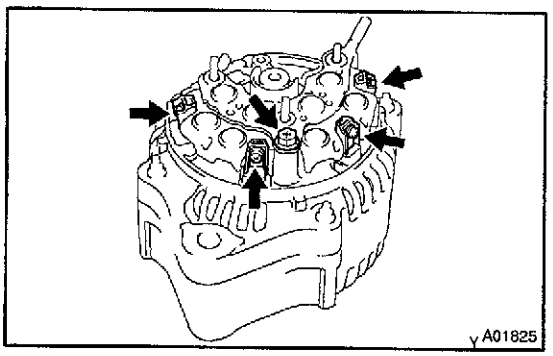
**2. REMOVE BRUSH HOLDER AND IC REGULATOR**

(a) Remove the 5 screws, brush holder and IC regulator.

CH

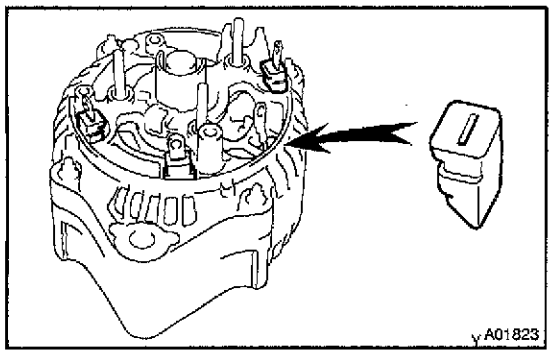

P13688

(b) Remove the brush holder cover from the brush holder.

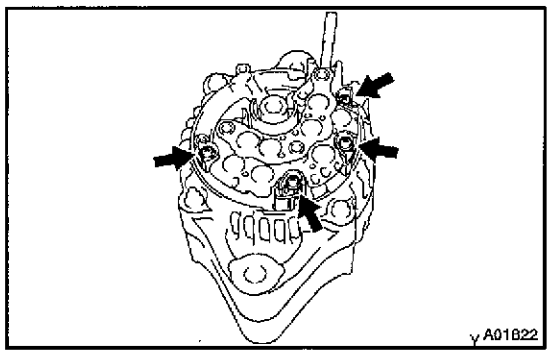

A01825

**3. 55A:, 70:A**
**REMOVE RECTIFIER HOLDER**

(a) Remove the 4 screws and the bolts.

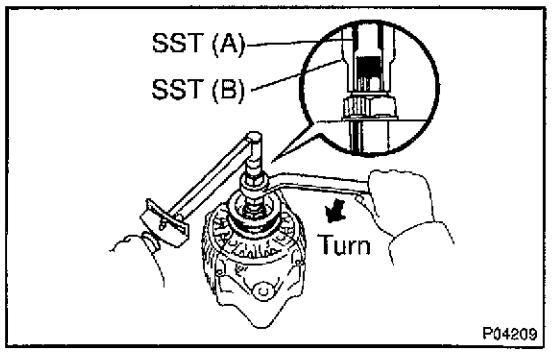



(b) 55A:
Remove the 4 rubber insulators.



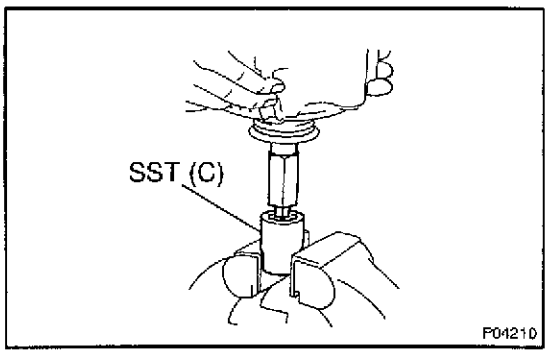

**4. 45A:**
**REMOVE RECTIFIER HOLDER**

(a) Remove the 4 screws.
(b) Using needle–nose pliers, straighten the stator lead wire.
(c) Remove the rectifier holder.

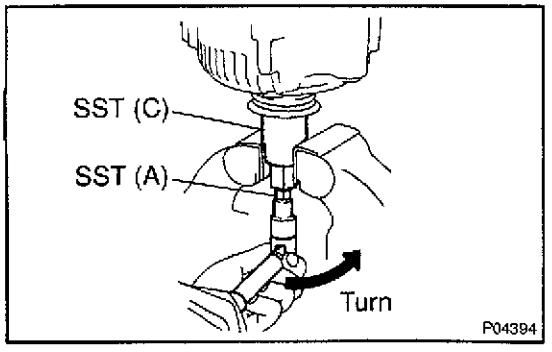



**5. REMOVE PULLEY**

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



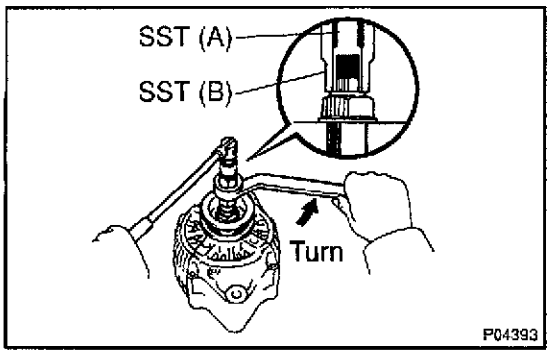

(c) Mount SST (C) in a vise.
(d) Install SST (B) into SST (C), and attach the pulley nut to SST (C).



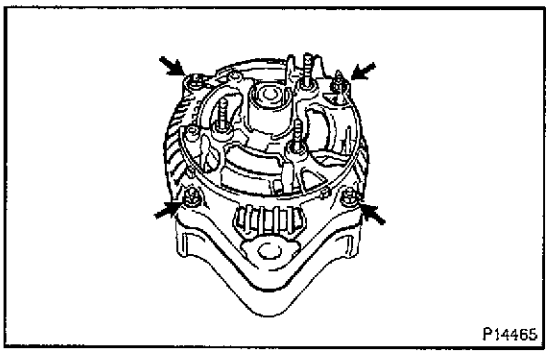

(e) To loosen the pulley nut, turn SST (A) in the direction shown in the illustration.

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

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

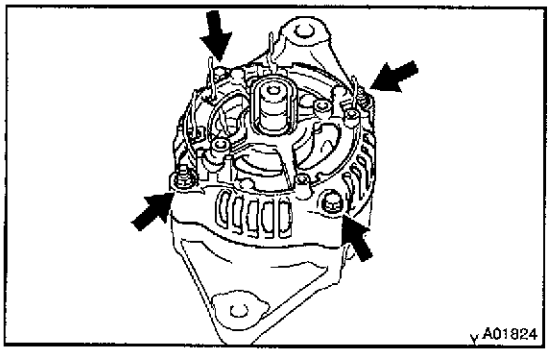



(g) Turn SST (B) and remove SST (A and B).
(h) Remove the pulley nut and pulley.

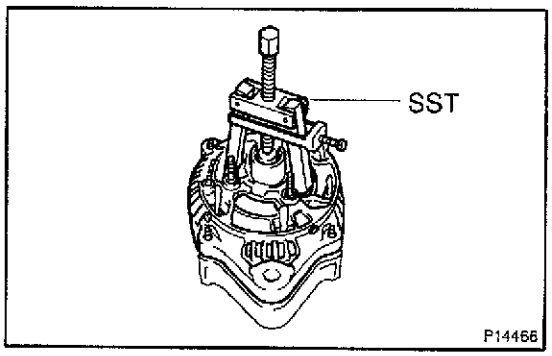



**6. REMOVE RECTIFIER END FRAME**

(a) 55A:, 70A:
Remove the 4 nuts.




(b) 45A:
Remove the 2 nuts and 2 bolts.




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

**7. REMOVE ROTOR FROM DRIVE END FRAME**

CH

CH037-01

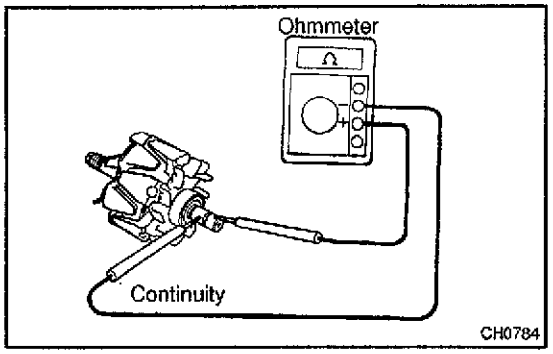
# INSPECTION

## 1. INSPECT ROTOR FOR OPEN CIRCUIT

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

**Standard resistance (Cold):**
**45A: 2.1 – 2.5 Ω**
**55A: 2.7 – 3.1 Ω**
**70A: 2.1 – 2.5 Ω**

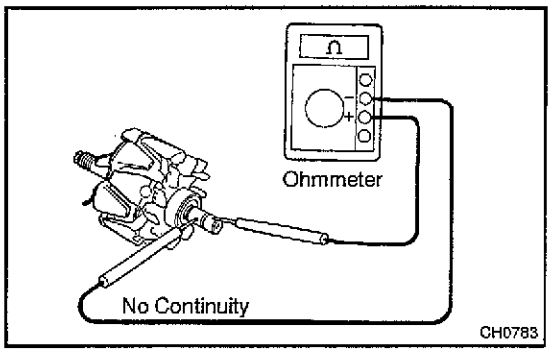
If there is no continuity, replace the rotor.




## 2. INSPECT ROTOR FOR GROUND

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

If there is continuity, replace the rotor.




## 3. INSPECT SLIP RINGS

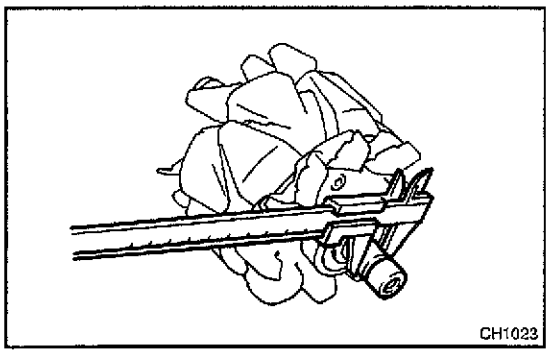
(a) Check that the slip rings are not rough or scored.

If rough or scored, replace the rotor.

(b) Using a vernier caliper, measure the slip ring diameter.

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

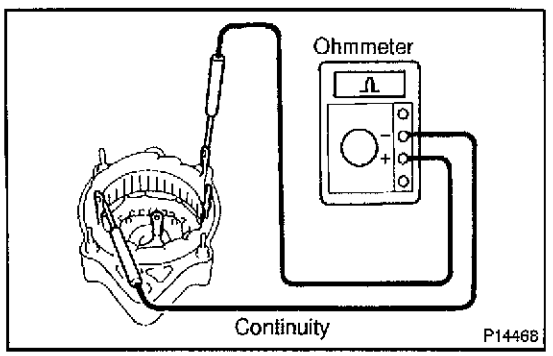
If the diameter is less than the minimum, replace the rotor.




## 4. INSPECT STATOR FOR OPEN CIRCUIT

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

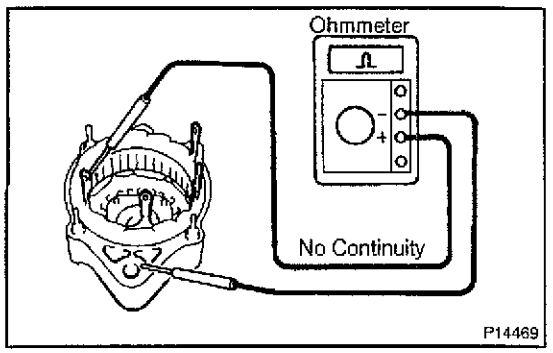
If there is no continuity, replace the drive end frame assembly.



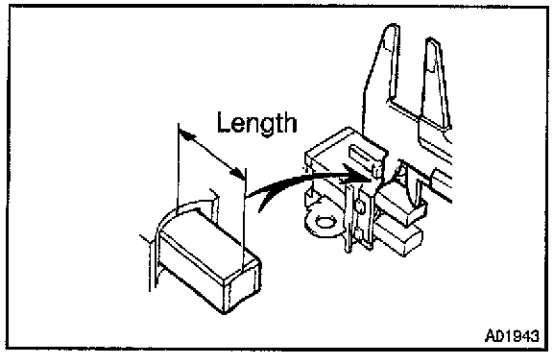

## 5. INSPECT STATOR FOR GROUND

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 assembly.




CH

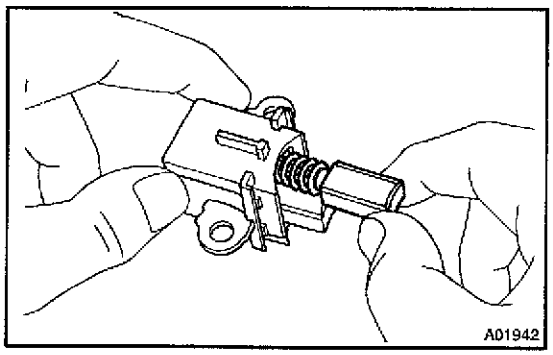



### 6. INSPECT EXPOSED BRUSH LENGTH

Using vernier calipers, measure the exposed brush length.

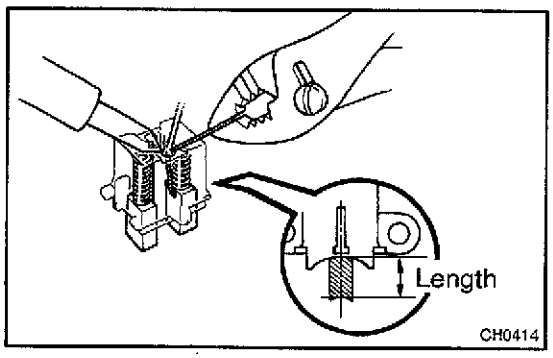
**Standard exposed length:**
**10.5 mm (0.413 in.)**
**Minimum exposed length:**
**1.5 mm (0.059 in.)**

If the exposed length is less than the minimum, replace the brushes.

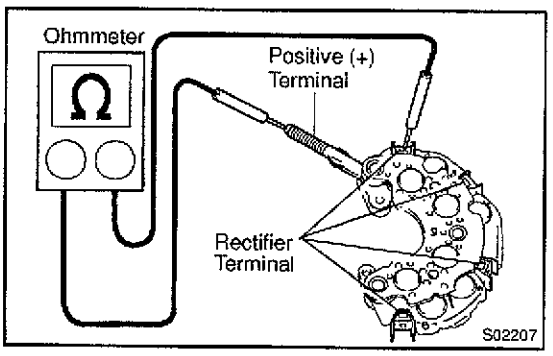



### 7. IF NECESSARY, REPLACE BRUSHES

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



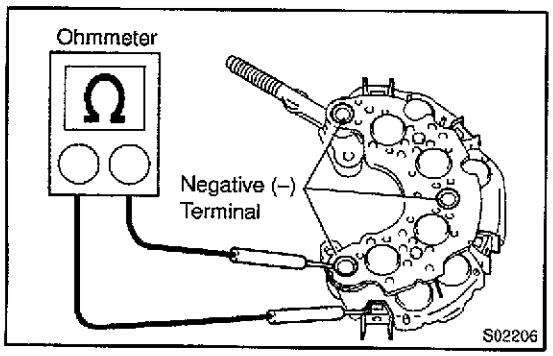

(c) Solder the brush wire to the brush holder at specified exposed length.
**Exposed length:**
**10.5 mm (0.413 in.)**
(d) Check that the brush moves smoothly in the brush holder.
(e) Cut off the excess wire.
(f) Apply insulation paint to the soldered area.




### 8. INSPECT POSITIVE 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.

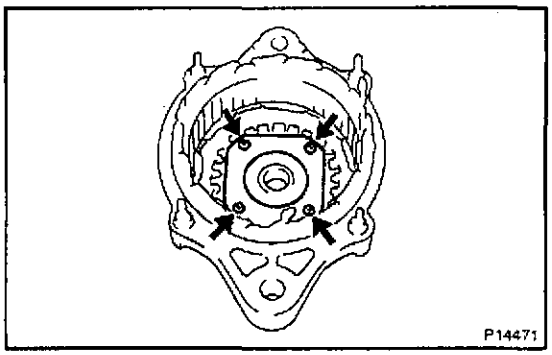
If continuity is not as specified, replace the rectifier holder.




### 9. INSPECT NEGATIVE RECTIFIER

(a) Using an ohmmeter, connect one tester probe to each negative (–) 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.

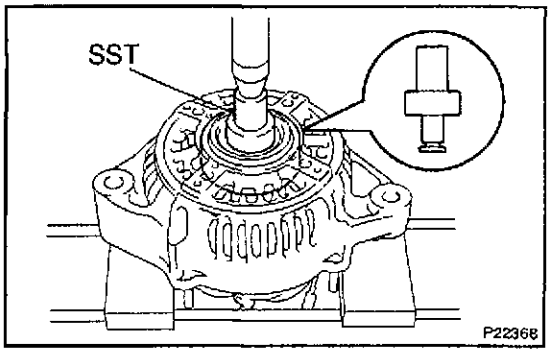



**10. INSPECT FRONT BEARING**

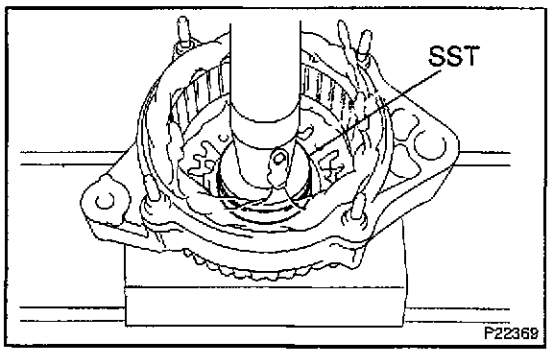
Check that the bearing is not rough or worn.

**11. IF NECESSARY, REPLACE FRONT BEARING**

(a) Remove the 4 screws, bearing retainer and bearing.

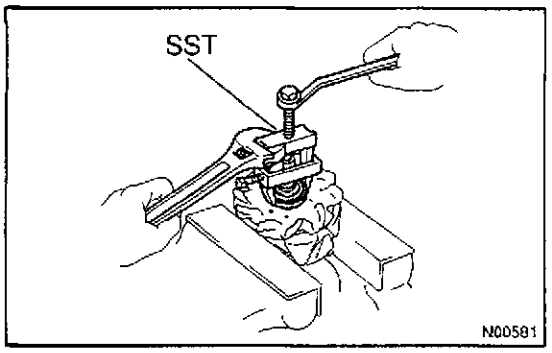



(b) Using SST and press, press out the bearing.
SST 09950–60010 (09951–00260, 09952–06010)




(c) Using SST and a press, press in a new bearing.
SST 09950–60010 (09951–00500)

(d) Install the bearing retainer with the 4 screws.
**Torque: 2.5 N.m (27 kgf·cm, 23 in. lbf)**



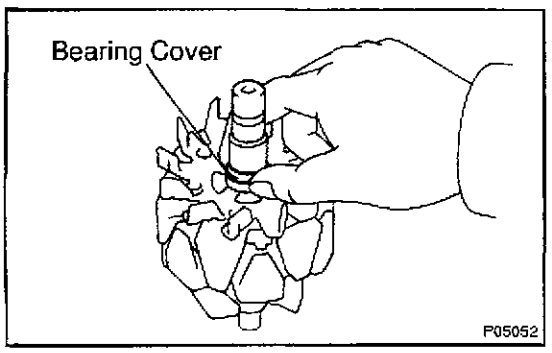

**12. INSPECT REAR BEARING**

Check that the bearing is not rough or worn.

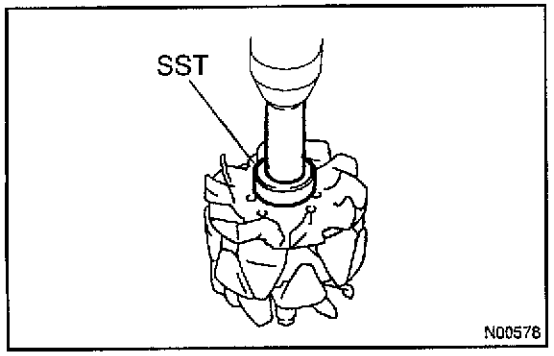
**13. IF NECESSARY, REPLACE REAR BEARING**

(a) Using SST, remove the bearing covers and bearing.
SST 09820–00021

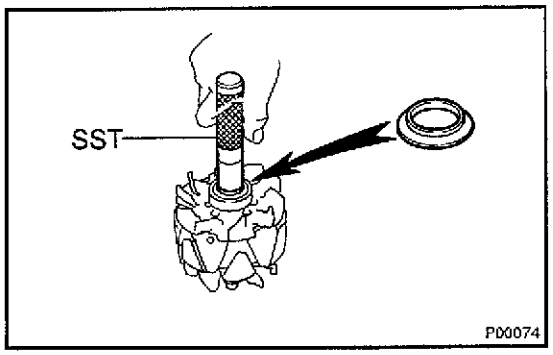
**NOTICE:**
**Be careful not to damage the fan.**




(b) Place the bearing cover on the rotor.




(c) Using SST and a press, press in a new bearing.
SST 09820–00030

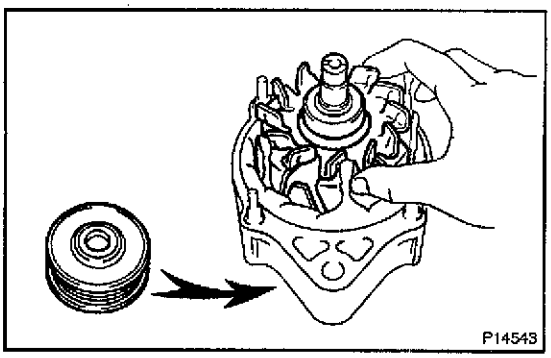


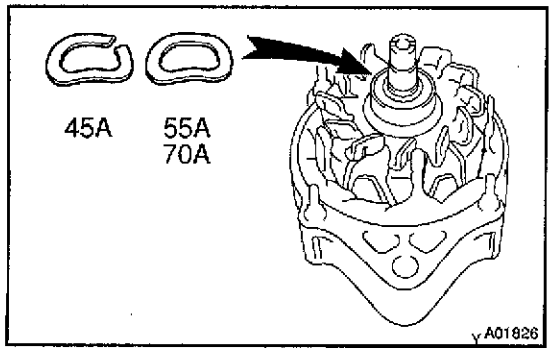

(d) Using SST, push in the bearing cover.
SST 09285–76010

CH098-01

# REASSEMBLY

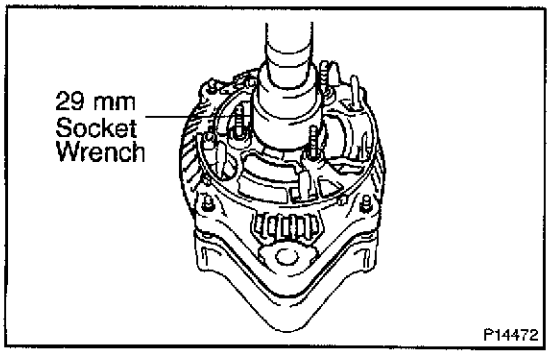
1. **PLACE DRIVE END FRAME ON PULLEY**
2. **INSTALL ROTOR TO DRIVE END FRAME**




3. **INSTALL RECTIFIER END FRAME**

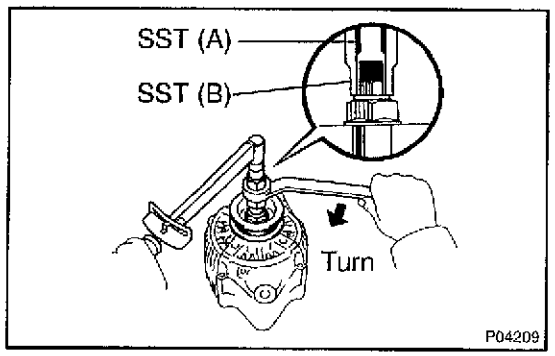
(a) Place the alternator washer on the rotor.




(b) Using a 29 mm socket wrench and press, slowly press in the rectifier end frame.

(c) 55A:, 70A:
Install the 4 nuts.
**Torque: 4.5 N·m (46 kgf·cm, 40 in.·lbf)**

(d) 45A:
Install the 2 nut and 2 bolts.
**Torque: 4.5 N·m (46 kgf·cm, 40 in.·lbf)**

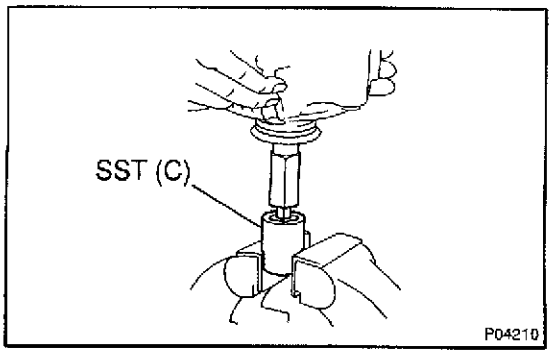



4. **INSTALL PULLEY**

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

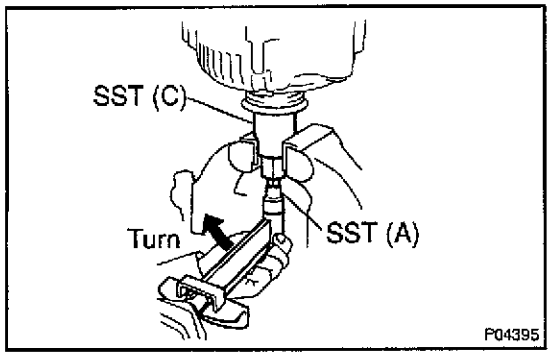
(b) Hold SST (A) with a torque wrench, and tighten SST (B) clockwise to the specified torque.
SST 09820–63010
**Torque:39 N·m (400 kgf·cm, 29 ft·lbf)**

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



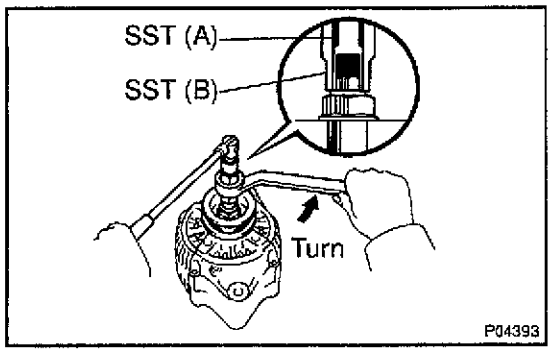

(d) Mount SST (C) in a vise.

(e) Install SST (B) into (C), and attach the pulley nut to SST (C).

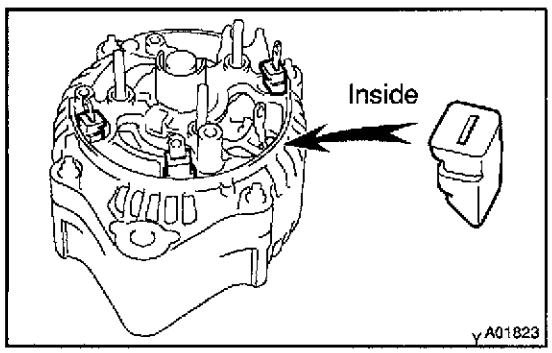



(f) To torque the pulley nut, turn SST (A) in the direction shown in the illustration.
**Torque:110 N·m (1,125 kgf·cm, 81 ft·lbf)**

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



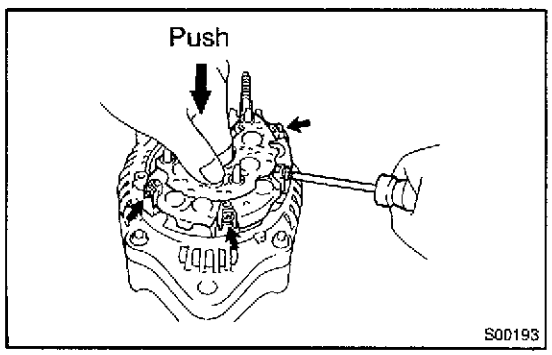

(h) Turn SST (B), and remove SST (A and B).



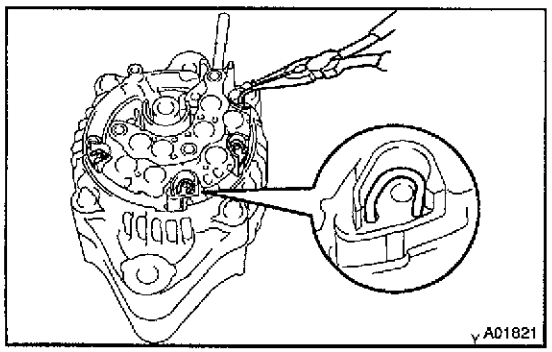

**5. 55A:, 70A:**
**INSTALL RECTIFIER HOLDER**

(a) 55A:
Install the 4 rubber insulators on the lead wires.

**NOTICE:**
**Be careful of the rubber insulators installation direction.**



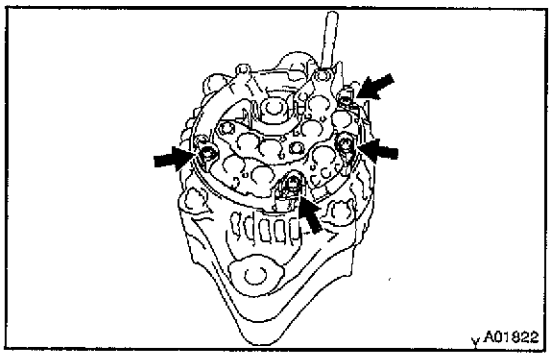

(b) Install the rectifier holder with the 4 screws.
**Torque:2.0 N·m (20 kgf·cm, 17.4 in.·lbf)**



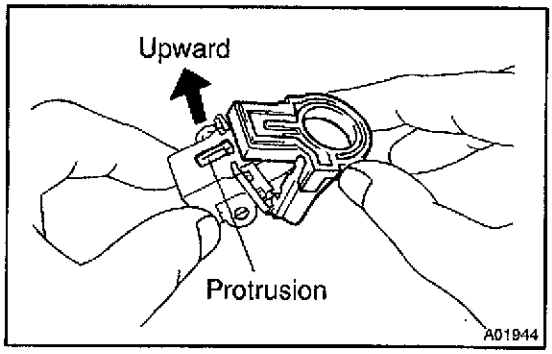

**6. 45A:**
**INSTALL RECTIFIER HOLDER**

(a) Install the rectifier holder.

(b) Bend the 4 stator lead wires as shown in the illustration.




(c) Install the 4 screws.
**Torque:2.0 N·m (20 kgf·cm, 17.4 in.·lbf)**

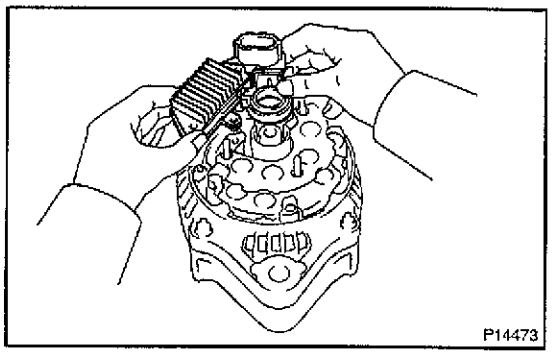



**7. INSTALL IC REGULATOR AND BRUSH HOLDER**

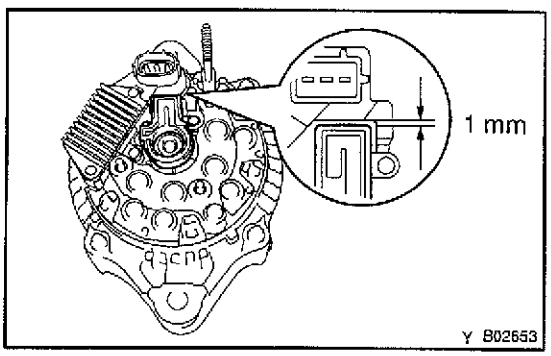
(a) Install the brush holder cover to the brush holder.

**NOTICE:**

**Be careful of the holder installation direction.**




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




(c) Install the 5 screws until there is a clearance of approx. 1 mm (0.04 in.) between the brush holder and connector.

(d) **2.0 N·m (20 kgf·cm, 17.4 in.·lbf)**

(e) 55A:, 70A:
Install the bolt the rectifier holder to rectifier end frame.
**Torque:3.9 N·m (40 kgf·cm, 35 in.·lbf)**

**8. INSTALL REAR END COVER**

(a) Install the end cover with the 3 nuts.
**Torque:4.5 N·m (46 kgf·cm, 40 in.·lbf)**

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