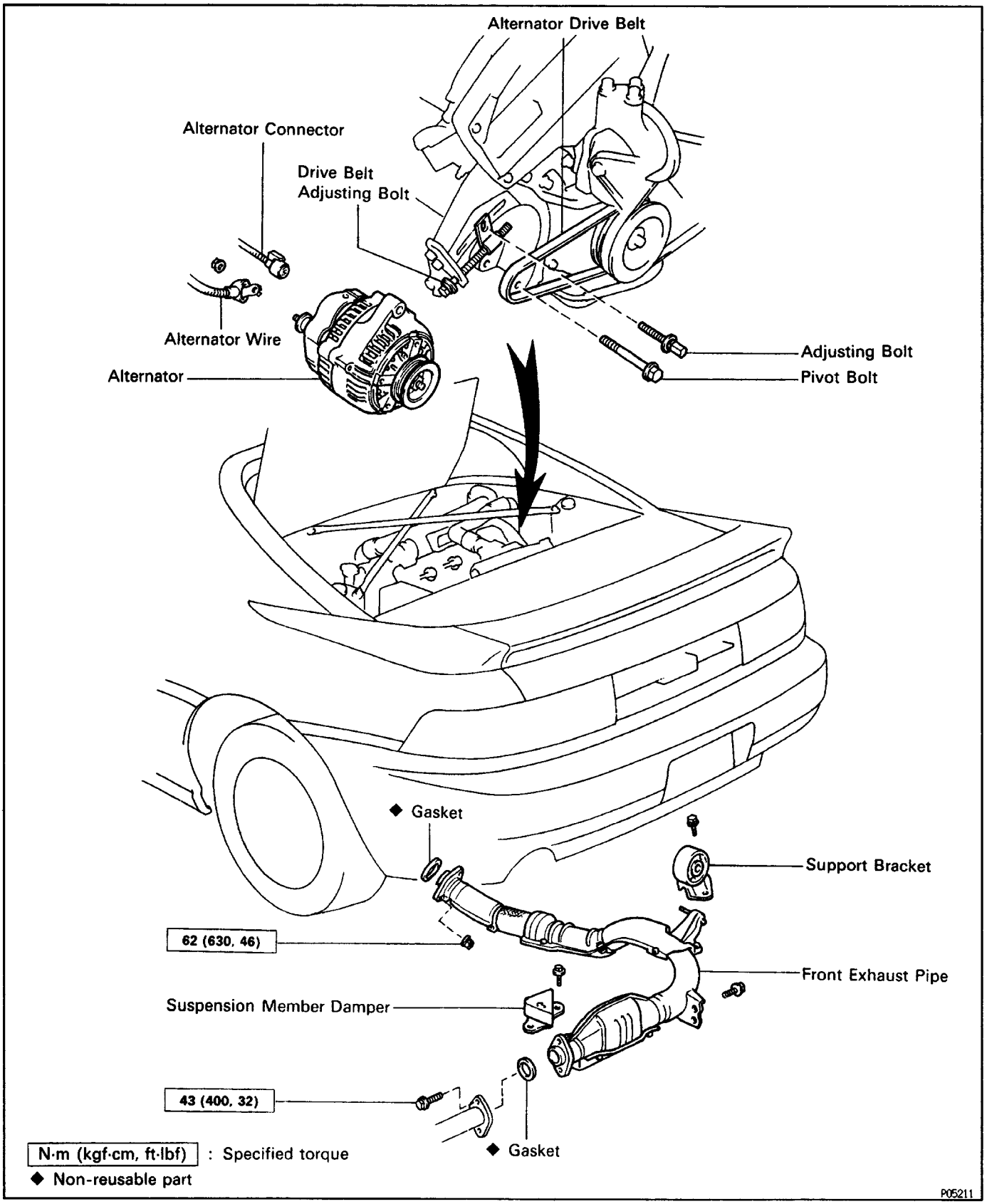
ALTERNATOR

CH016–02

COMPONENTS FOR REMOVAL AND INSTALLATION (3S–GTE)



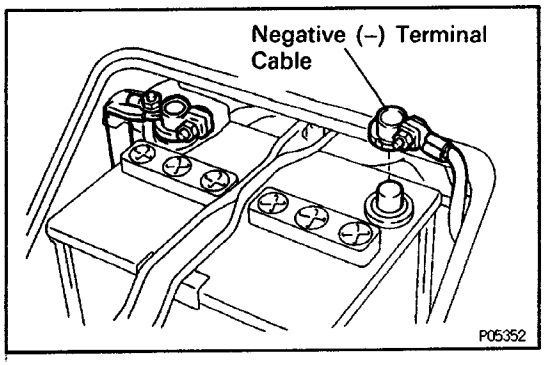
CH02F–01

REMOVAL ALTERNATOR (3S–GTE)

(See Components for Removal and Installation)

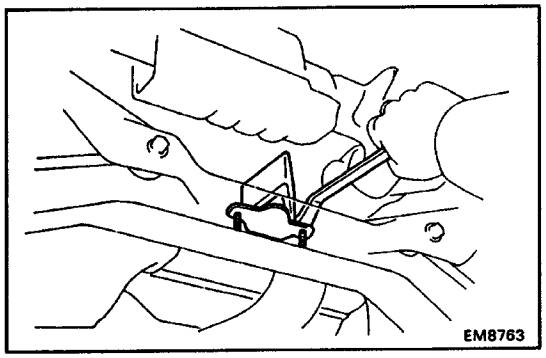
1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

CAUTION: Turn the ignition switch to 'LOCK'. Disconnect the negative terminal from the battery. Wait at least 20 seconds before proceeding with work.

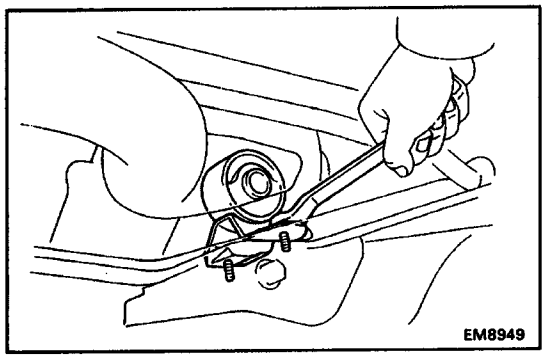


2. REMOVE FRONT EXHAUST PIPE

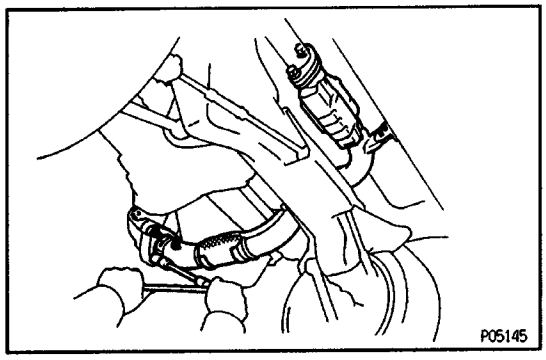
(a) Remove the two bolts and damper.



(b) Remove the two bolts and support bracket.

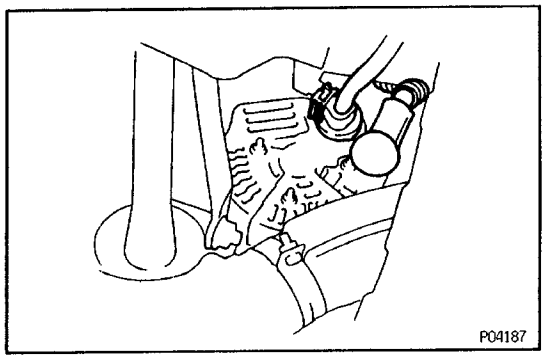


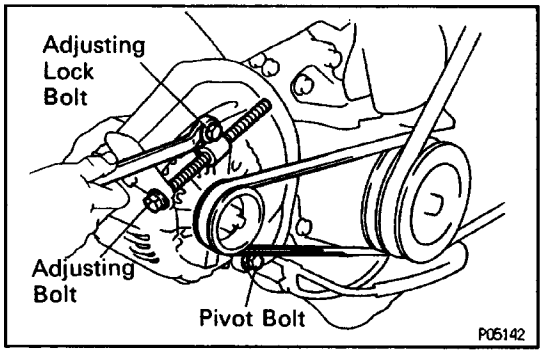
(c) Remove the two bolts holding the front exhaust pipe to the tailpipe bracket.
(d) Remove the two bolts holding the front exhaust pipe to the tailpipe.
(e) Using a 14 mm deep socket wrench, remove the three nuts.
(f) Disconnect the front exhaust pipe from the TWC and tailpipe.
(g) Remove the two gaskets.



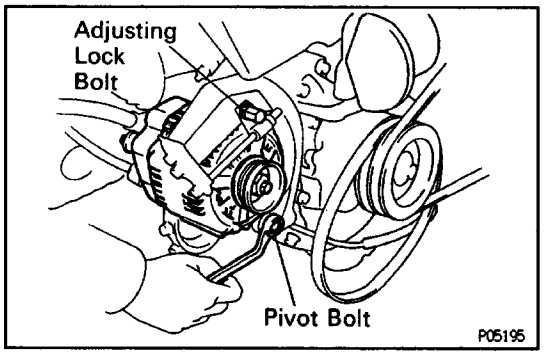
3. REMOVE ALTERNATOR

(a) Disconnect the alternator connector.
(b) Remove the nut, and disconnect the alternator wire.

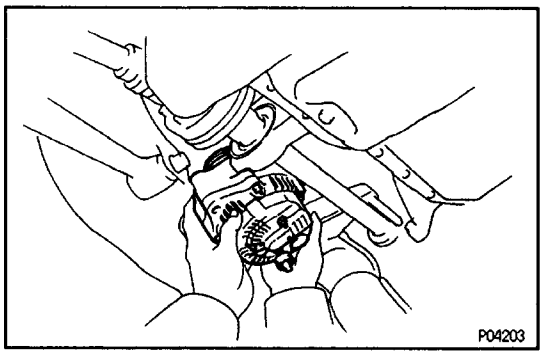




(c) Loosen the pivot bolt and adjusting lock bolt.
(d) Loosen the adjusting bolt, and disconnect the drive belt from the alternator.



(e) Remove the pivot bolt and adjusting lock bolt, and disconnect the alternator from the bracket.

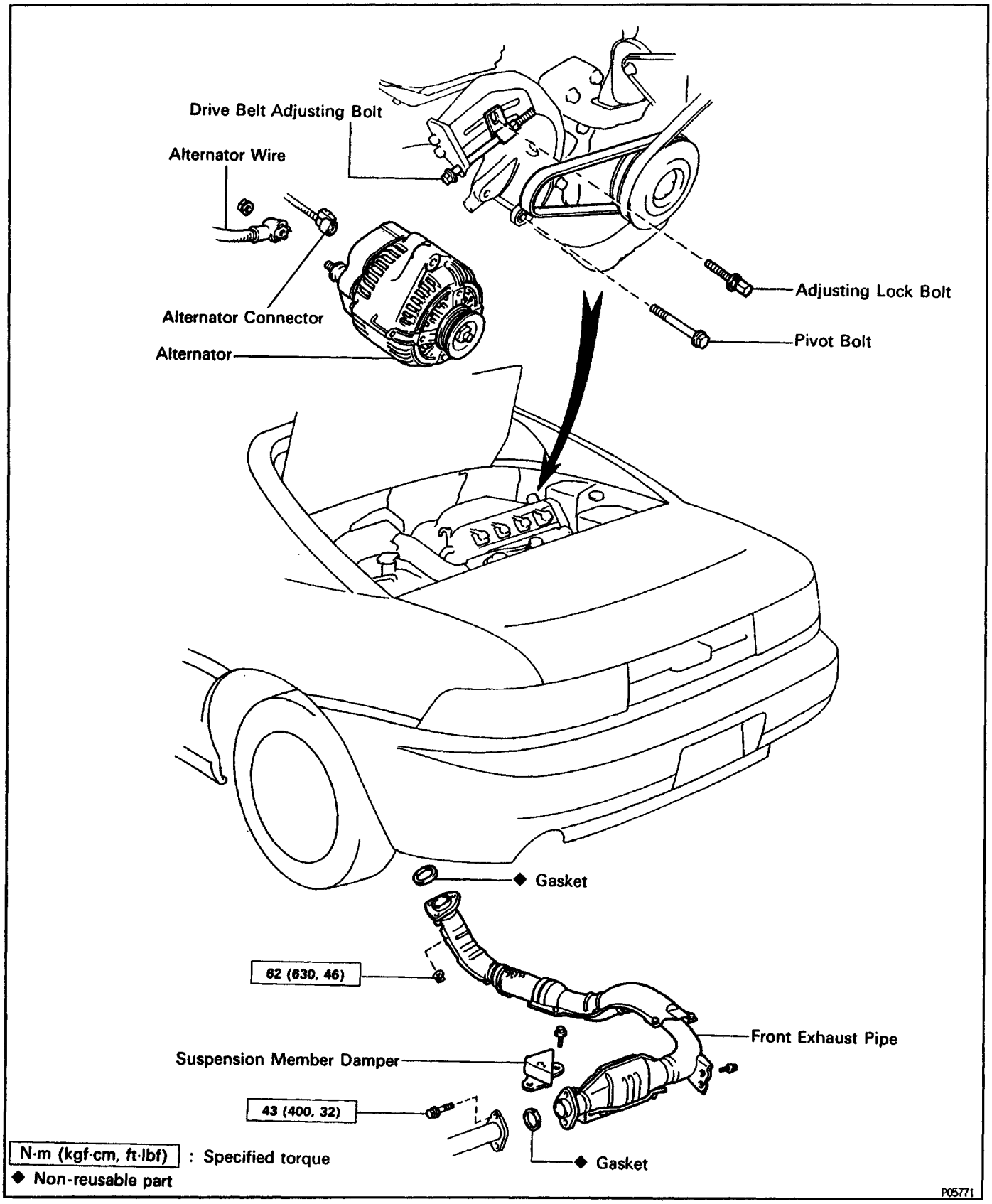


(f) Remove the alternator by passing it between the suspension crossmember and drive shaft.

HINT: Move front exhaust pipe to the left, and remove the alternator.

CH010–03

COMPONENTS FOR REMOVAL AND INSTALLATION (5S–FE)



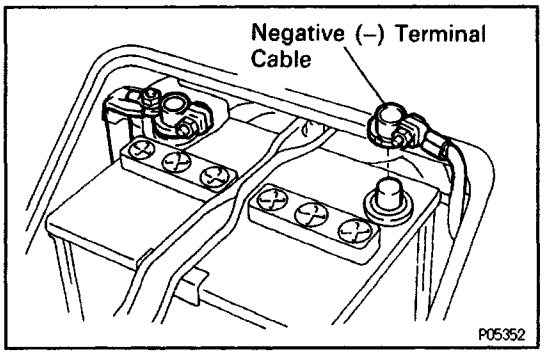
CH02G–01

REMOVAL ALTERNATOR (5S–FE)

(See Components for Removal and Installation)

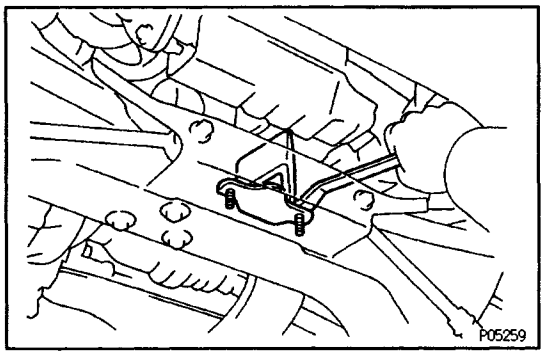
1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

CAUTION: Turn the ignition switch to "LOCK". Disconnect the negative terminal from the battery. Wait at least 20 seconds before proceeding with work.

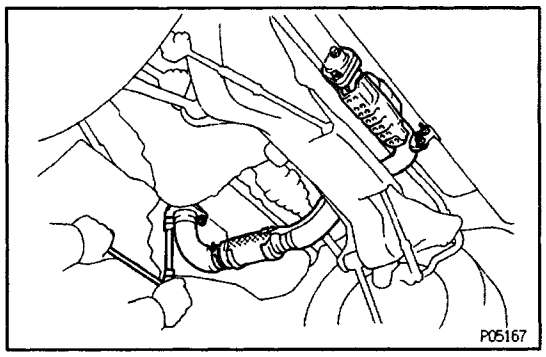


2. REMOVE EXHAUST PIPE

(a) (CALIF. only)
Remove the two bolts and damper.

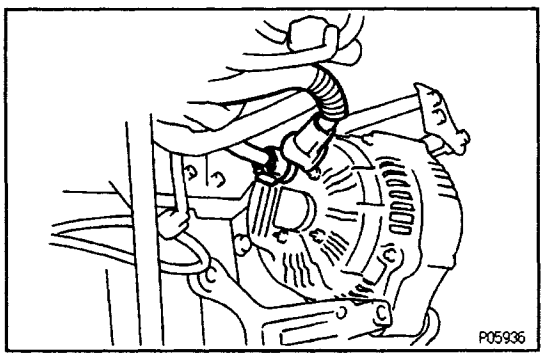


(b) Remove the two bolts holding the front exhaust pipe bracket to the tailpipe bracket.
(c) Remove the two bolts holding the front exhaust pipe to the tailpipe.
(d) Using a 14 mm deep socket wrench, remove the three nuts holding the front exhaust pipe to the TWC.
(e) Remove the front exhaust pipe.
(f) Remove the two gaskets.

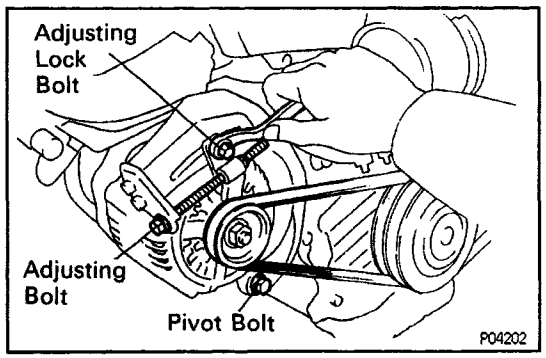


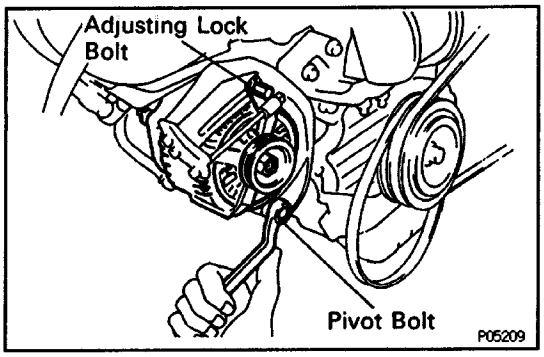
3. REMOVE ALTERNATOR

(a) Disconnect the alternator connector.
(b) Remove the nut, and disconnect the alternator wire.

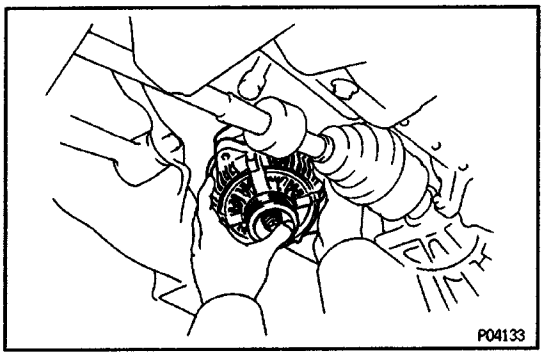


(c) Loosen the pivot bolt and adjusting lock bolt.
(d) Loosen the adjusting bolt, and disconnect the drive belt from the alternator.



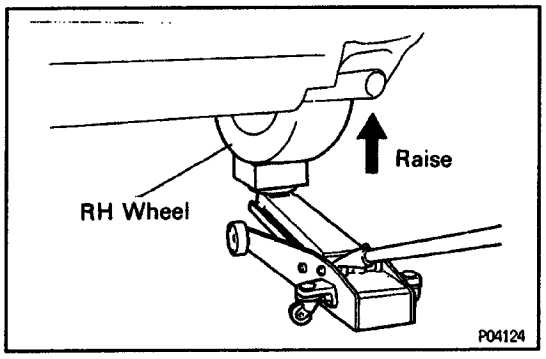


(e) Remove the pivot bolt and adjusting lock nut, and disconnect the alternator from the bracket.



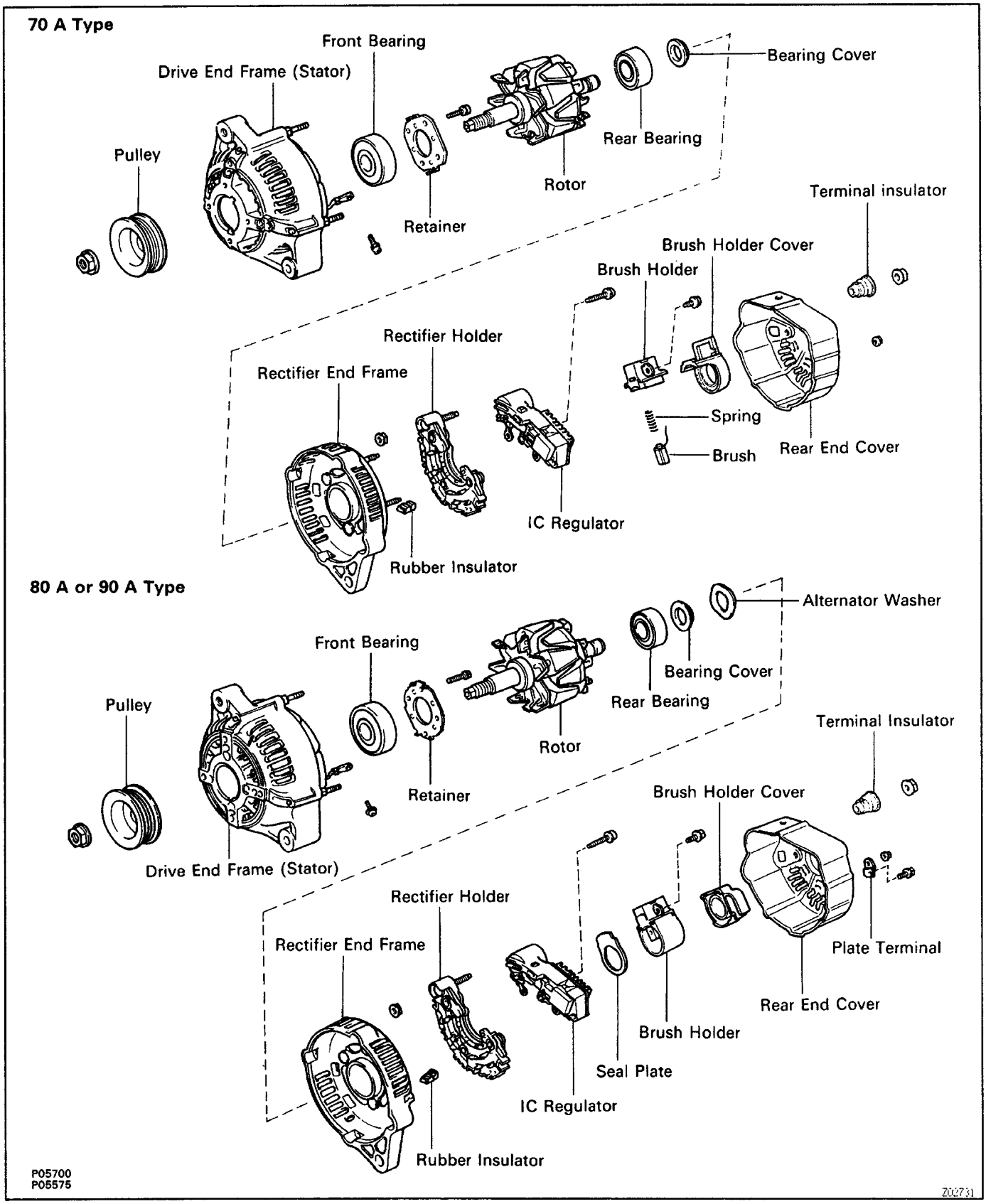
(f) Remove the alternator by passing it between the suspension crossmember and drive shaft.

NOTICE: Be careful not to damage the drive shaft boot.



HINT: (80 A or 90 A Type Alternator): Using a jack, raise the RH wheel as far as it will go.

COMPONENTS FOR DISASSEMBLY AND ASSEMBLY



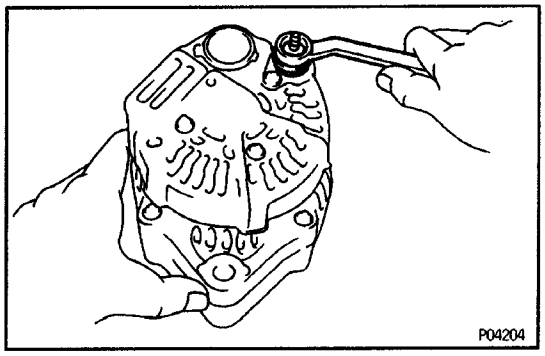
CH02H–01

ALTERNATOR DISASSEMBLY

(See Components for Disassembly and Assembly)

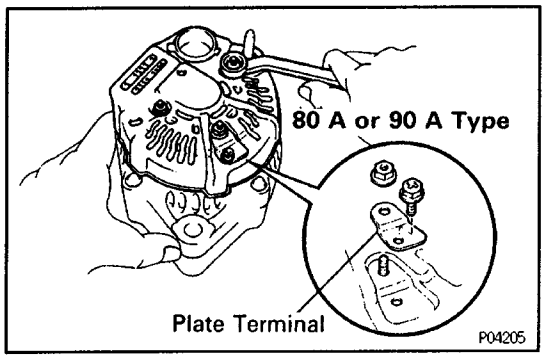
1. REMOVE REAR END COVER

(a) Remove the nut and terminal insulator.



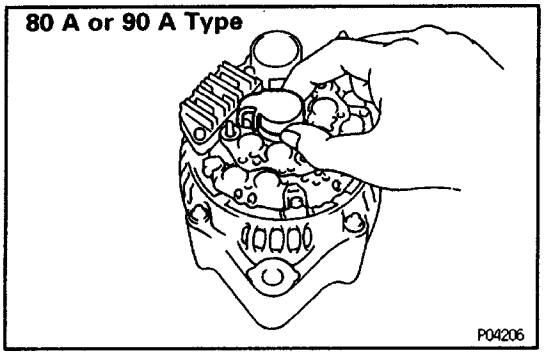
(b) (70 A Type)
Remove the three nuts and end cover.

(c) (80 A or 90 A Type)
Remove the bolt, three nuts, plate terminal and end cover.



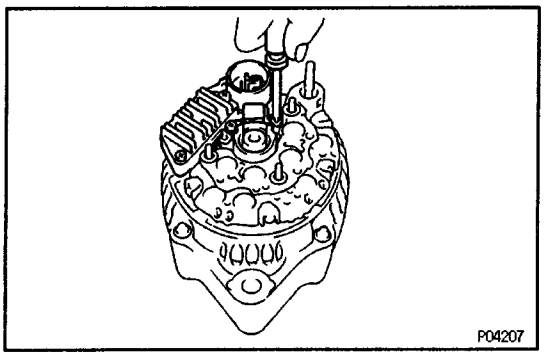
2. REMOVE BRUSH HOLDER AND IC REGULATOR

(a) (80 A or 90 A Type)
Remove the brush holder cover from the brush holder.

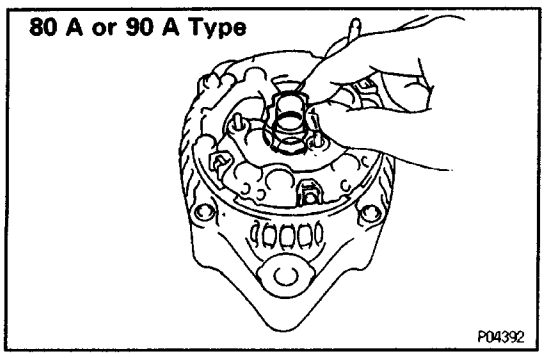


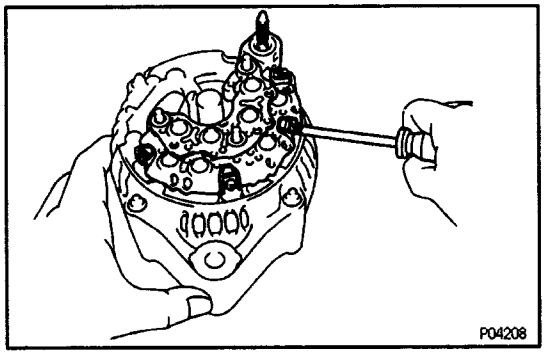
(b) Remove the five screws, brush holder and IC regulator.

(c) (70 A Type)
Remove the brush holder cover from the brush holder.



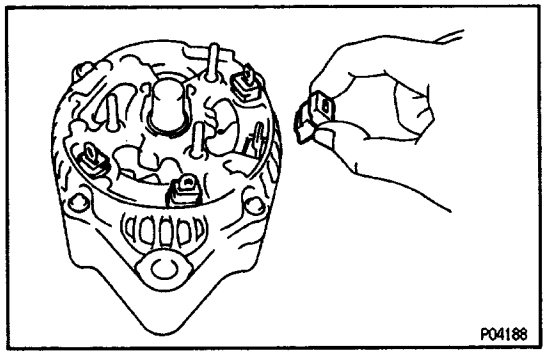
(d) (80 A or 90 A Type)
Remove the seal plate.



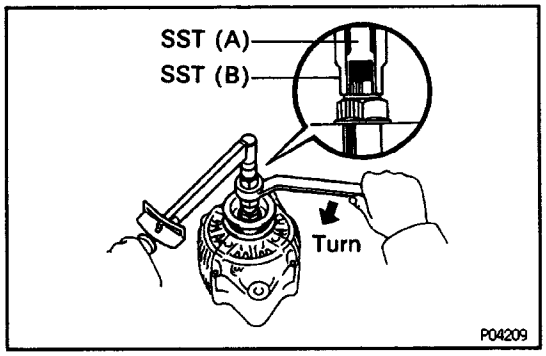


3. REMOVE RECTIFIER HOLDER

(a) Remove the four screws and rectifier holder.



(b) Remove the four rubber insulators.



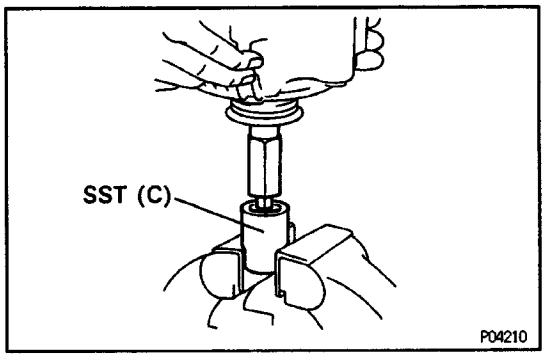
4. REMOVE PULLEY

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

SST 09820–63010

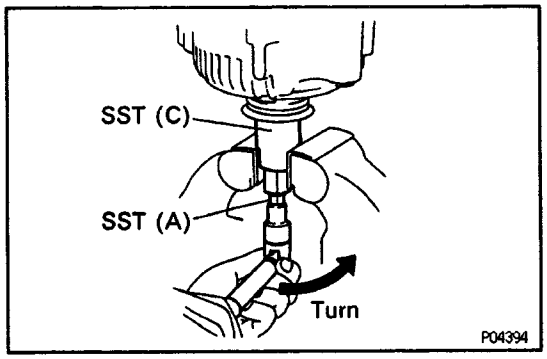
Torque: 39 N–m (400 kgf–cm, 29 ft–lbf)

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



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

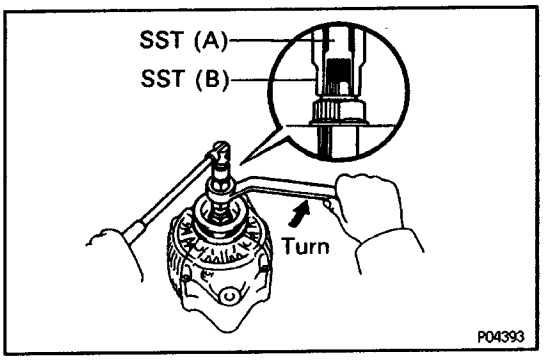
(d) Install the pulley nut to SST (C).



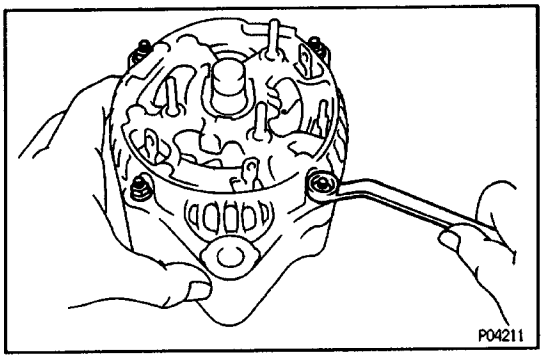
(e) To loosen the pulley nut, turn SST (A) in the direction shown in the illustration.

NOTICE: To prevent damage to the rotor shaft, do no1 loosen the pulley nut more than one–half of a turn.

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



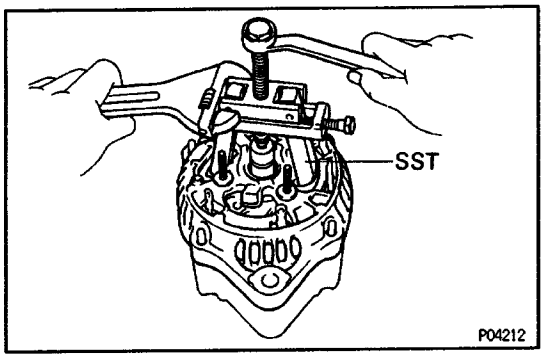
(g) Turn SST (B), and remove SST (A and B).
(h) Remove the pulley nut and pulley.

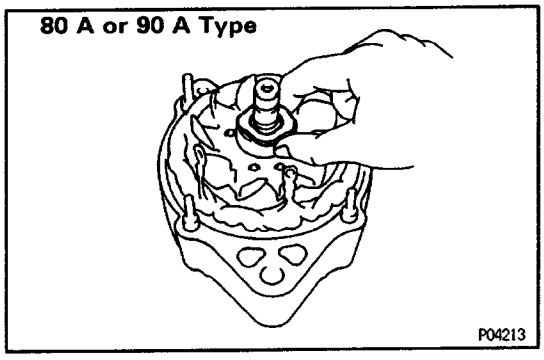


5. REMOVE RECTIFIER END FRAME

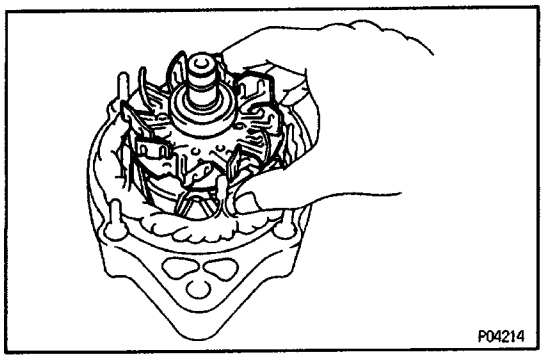
(a) Remove the four nuts.

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





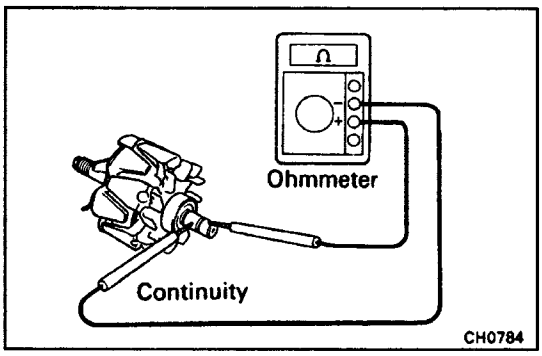
(c) (80 A or 90 A Type)
Remove the alternator washer.



6. REMOVE ROTOR FROM DRIVE END FRAME

ALTERNATOR INSPECTION AND REPAIR

Rotor

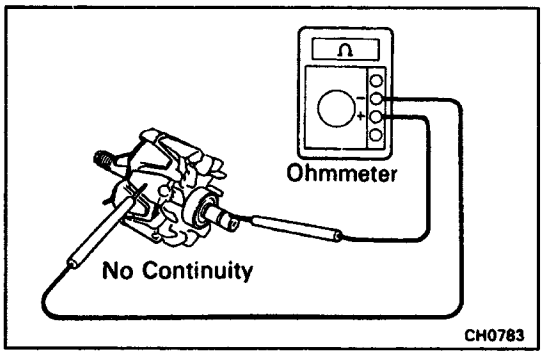


1. INSPECT ROTOR FOR OPEN CIRCUIT

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

Standard resistance (Cold): 2.8–3–00

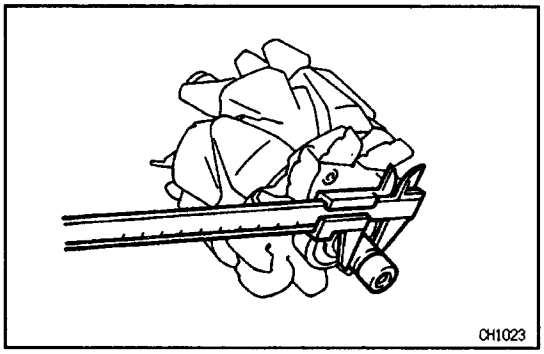
If there is no continuity, replace the rotor.



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.

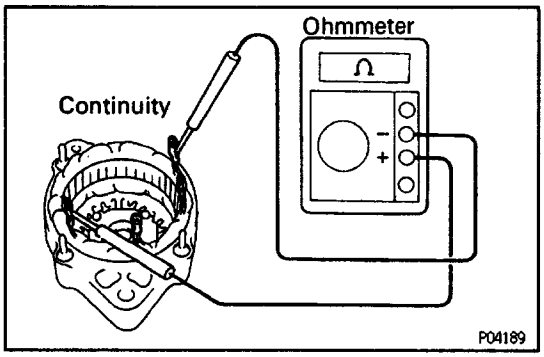
(b) Using a vernier caliper, measure the slip ring diameter.

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 minimum, replace the rotor.

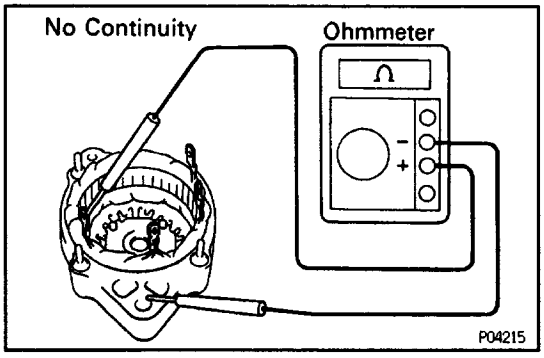
Stator (Drive End Frame)



1. INSPECT STATOR FOR OPEN CIRCUIT

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

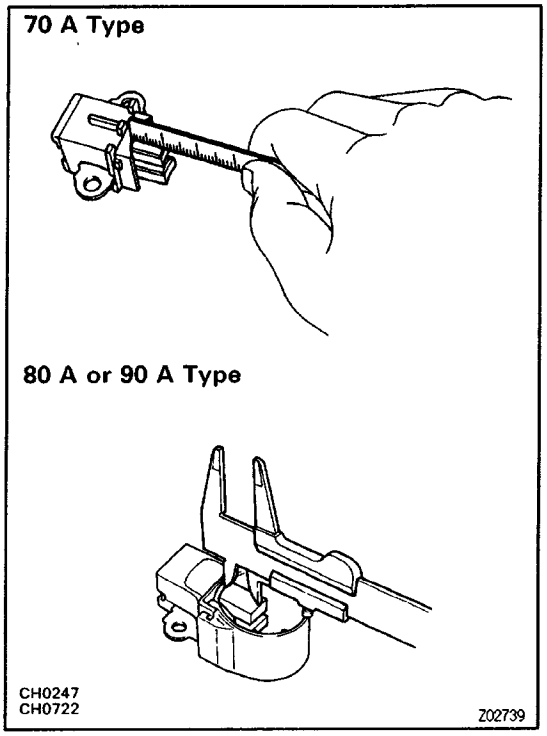
If there is no continuity, replace the drive end frame assembly.



2. INSPECT STATOR FOR GROUND

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

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



Brushes

1. INSPECT EXPOSED BRUSH LENGTH

Using a scale, measure the exposed brush length.

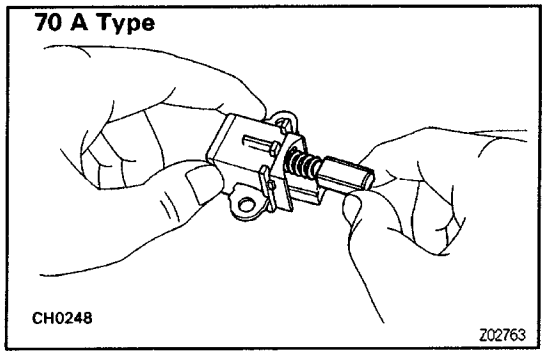
Standard exposed length:

10.5 mm (0.413 in.)

Minimum exposed length:

1.5 mm (0.059 in.)

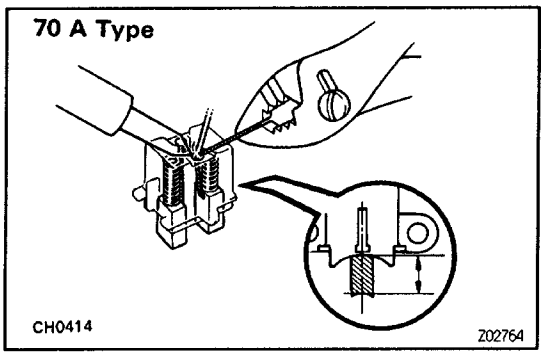
If the exposed length is less than minimum, replace the brushes (70 A type) or brush holder assembly (80 A or 90 A type).



2. IF NECESSARY, REPLACE BRUSHES

(a) Unsolder and remove the brush and spring.

(b) Run the wire of a new brush through the spring and 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.

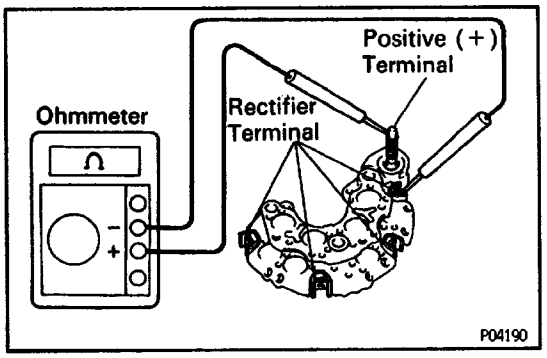
Exposed length:

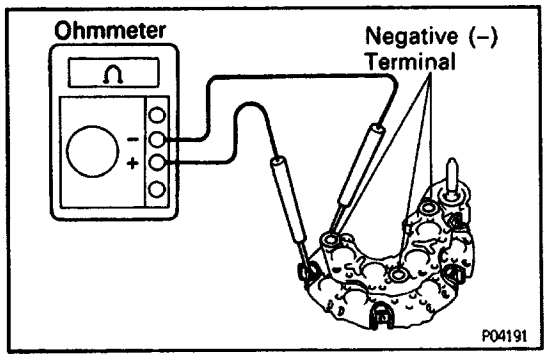
10.5 mm (0.413 in.)

(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.





Rectifiers (Rectifier Holder)

1. 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.

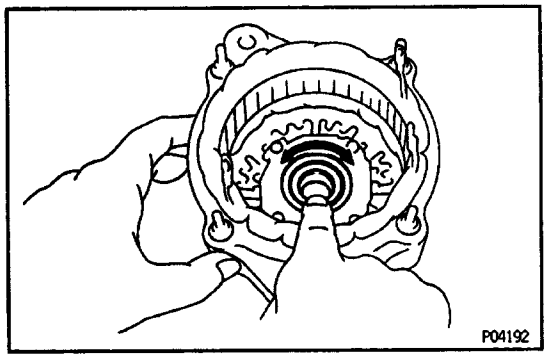
2. INSPECT NEGATIVE RECTIFIER

(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.

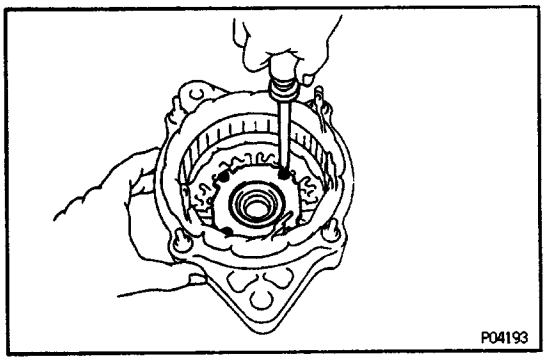
If continuity is not as specified, replace the rectifier holder.



Bearings

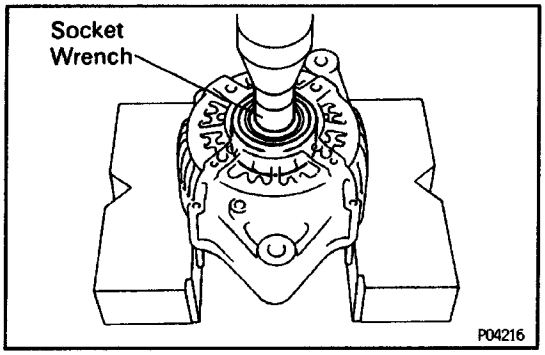
1. INSPECT FRONT BEARING

Check that the bearing is not rough or worn.

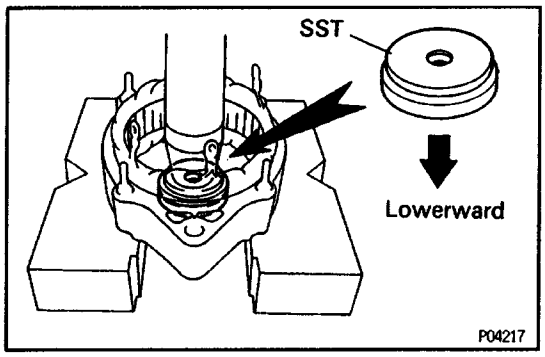


2. IF NECESSARY, REPLACE FRONT BEARING

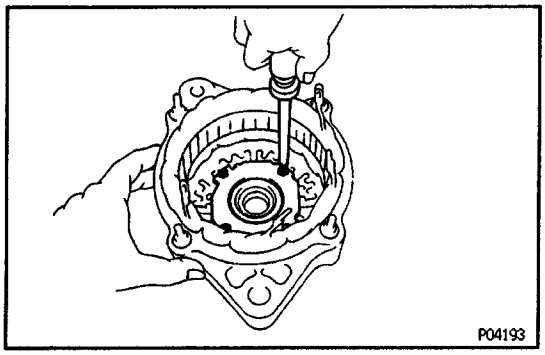
(a) Remove the four screws, bearing retainer and bearing



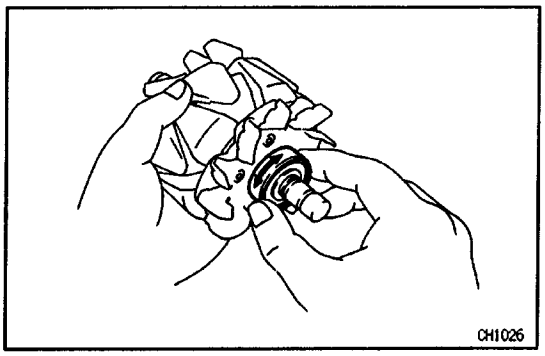
(b) Using a socket wrench and press, press out the bea–ring.



(c) Using SST and a press, press in a new bearing.
SST 09608–20012 (09608–00030)

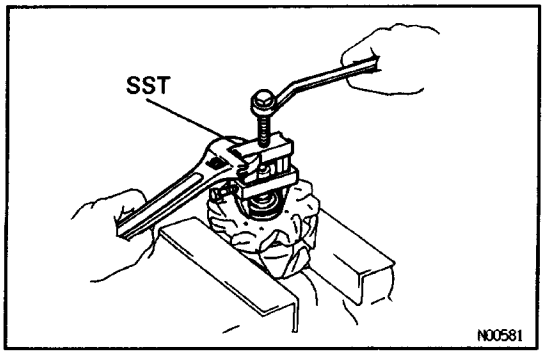


(d) Install the bearing retainer with the four screws.



3. INSPECT REAR BEARING

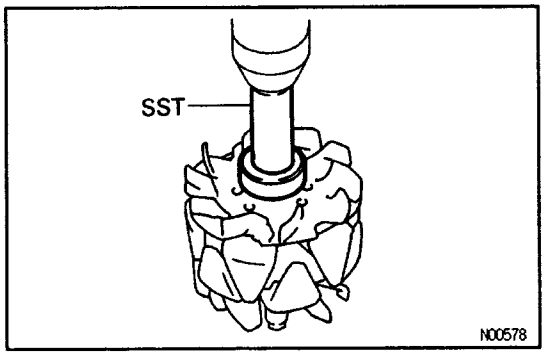
Check that the bearing is not rough or worn.



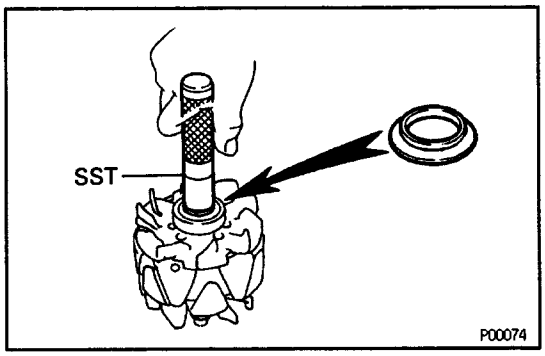
4. IF NECESSARY, REPLACE REAR BEARING

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

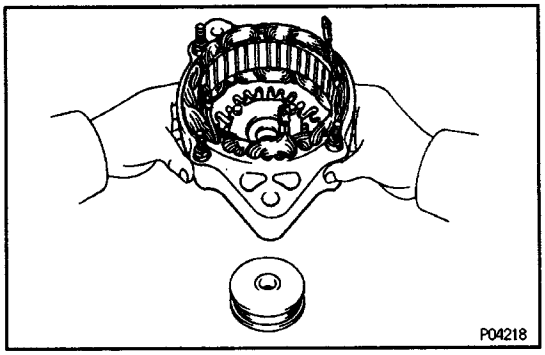
NOTICE: Be careful not to damage the fan.



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



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

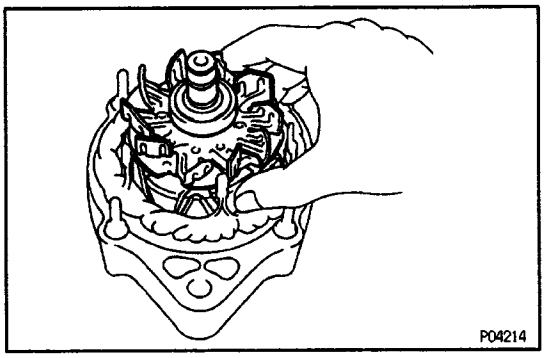


CH02J–0

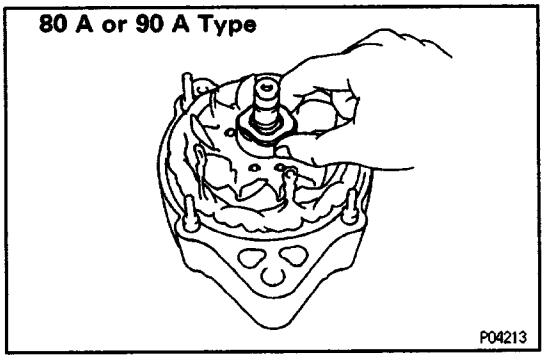
ALTERNATOR ASSEMBLY

(See Components for Disassembly and Assembly)

1. PLACE RECTIFIER END FRAME ON PULLEY

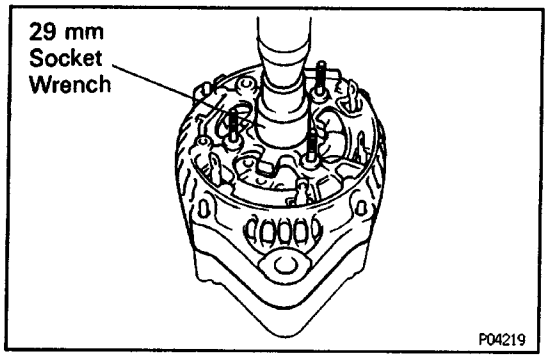


2. INSTALL ROTOR TO DRIVE END FRAME

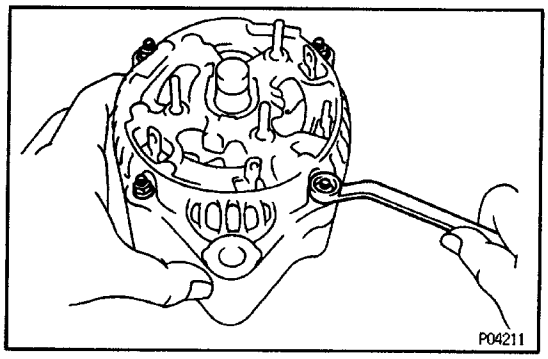


3. INSTALL RECTIFIER END FRAME

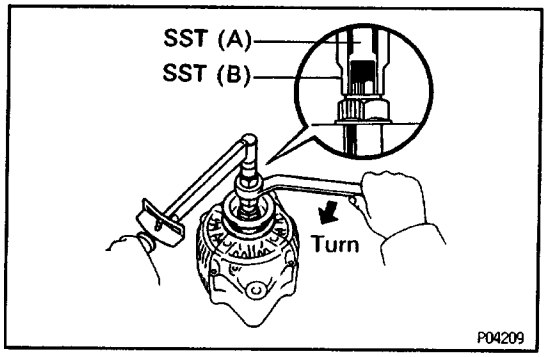
(a) (80 A or 90 A Type)
Place the thrust washer on the rotor.



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



(c) Install the four nuts.



4. INSTALL PULLEY

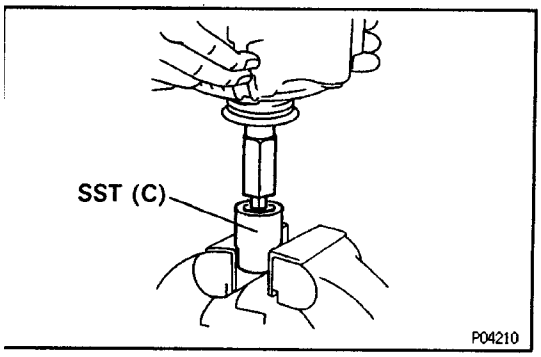
(a) Install the pulley to the rotor shaft by tightening the pulley nut by hand.

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

SST 09820–63010

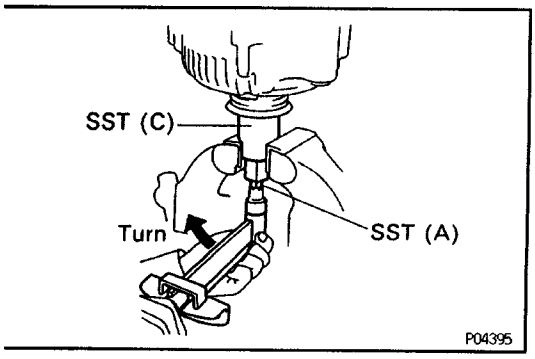
Torque: 39 N–m (400 kgf–cm, 29 ft–lbf)

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



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

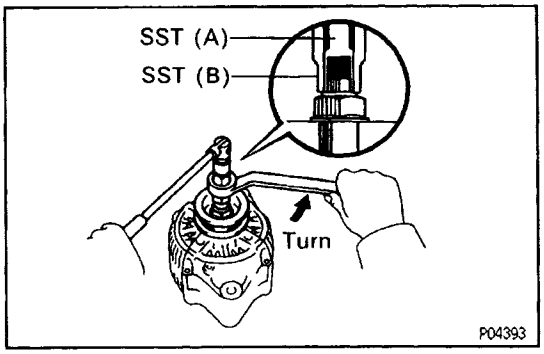
(e) Install the pulley nut to SST (C).



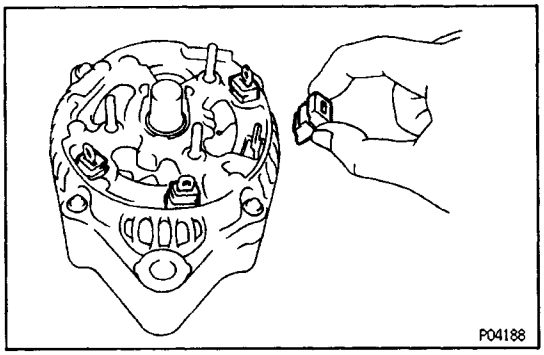
(f) To torque the pulley nut turn SST (A) in the direction shown in the illustration.

Torque: 110 N–m (1,125 kgf–cm, 81 ft–lbf)

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

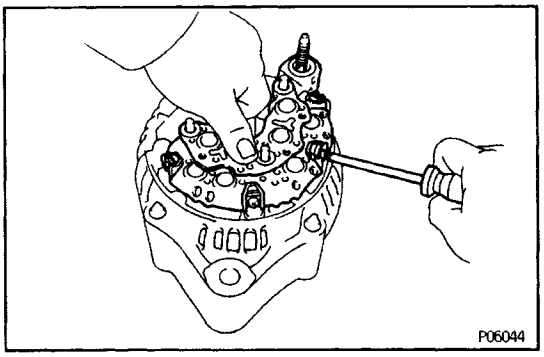


(h) Turn SST (B) and remove SST (A and B).

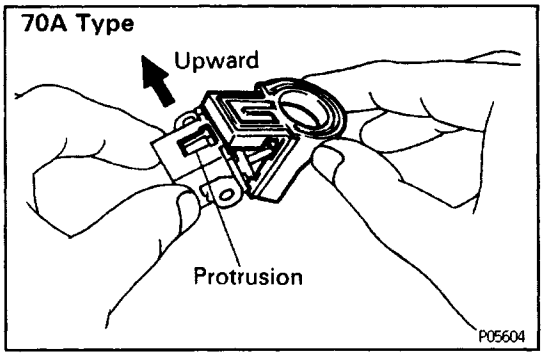


5. INSTALL RECTIFIER HOLDER

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



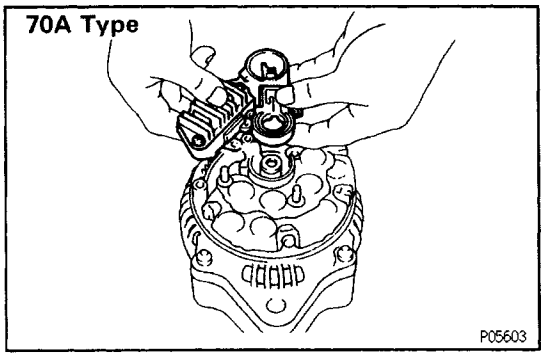
(b) Install the rectifier holder while pushing it with the four screws.



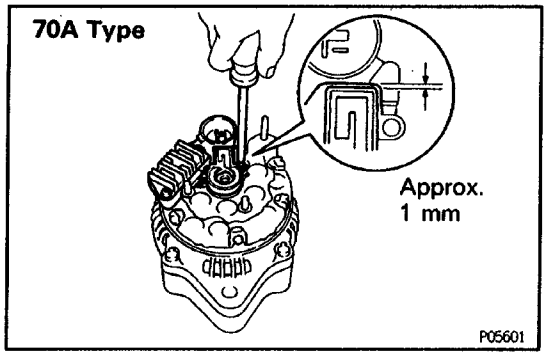
6. INSTALL IC REGULATOR AND BRUSH HOLDER (70 A Type)

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

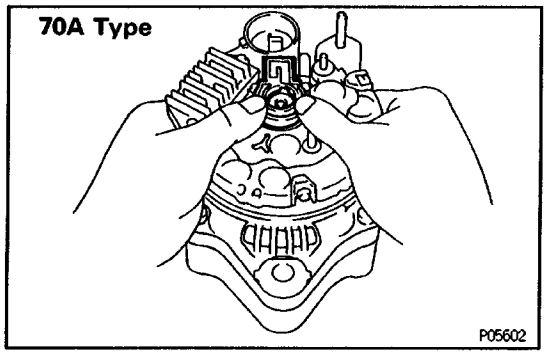
NOTICE: Be careful of the holder installation direction.



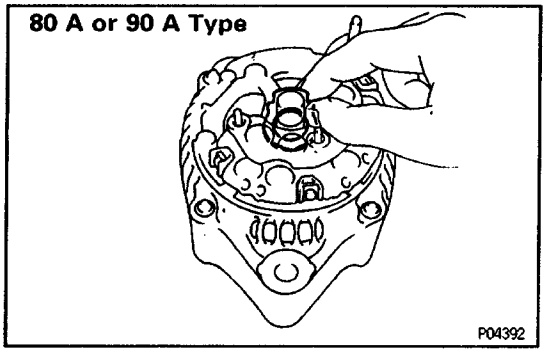
(b) Place the IC regulator together with the brush holder horizontally on the rectifier end frame.



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

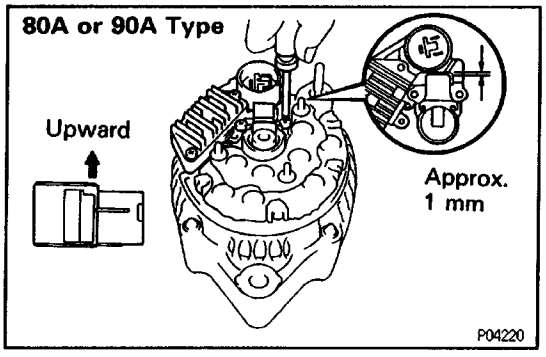


(d) Fit the brush holder cover.



(80 A or 90 A Type)

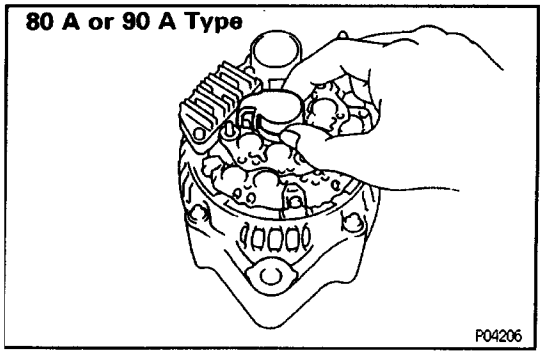
(a) Place the seal plate on the rectifier end frame.



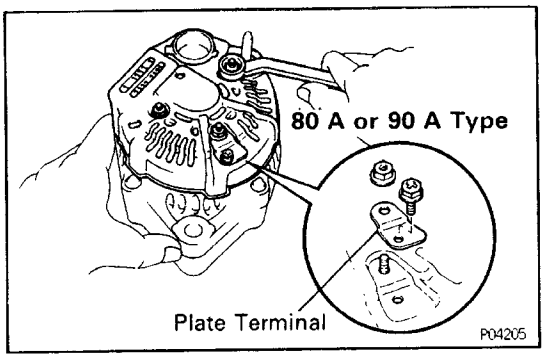
(b) Place the IC regulator and brush holder on the rectifier end frame.

NOTICE: Be careful of the holder installation direction.

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

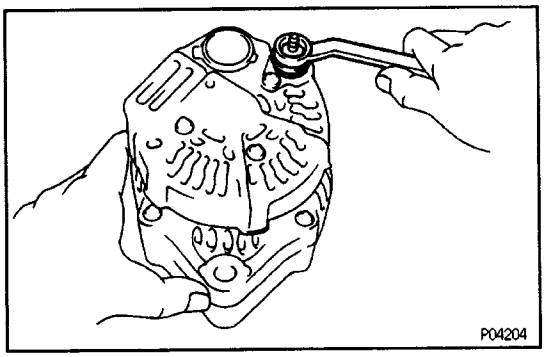


(d) Place the brush holder cover on the brush holder.

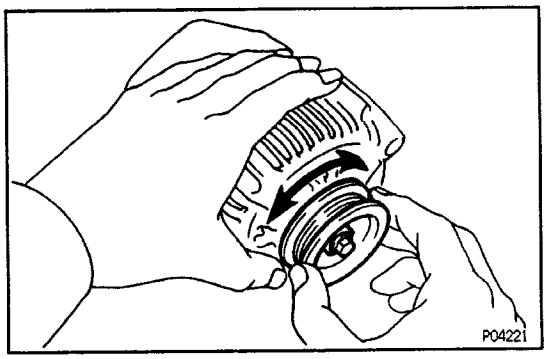


7. INSTALL REAR END COVER

(a) (70 A Type)
Install the end cover with the three nuts.
(b) (80 A or 90 A Type)
Install the end cover and plate terminal with the three nuts and bolt.



(c) Install the terminal insulator with the nut.



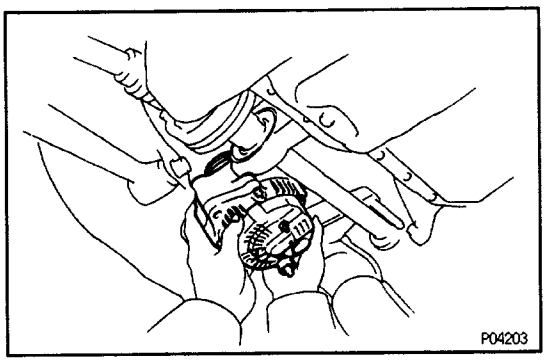
8. CHECK THAT ROTOR ROTATES SMOOTHLY

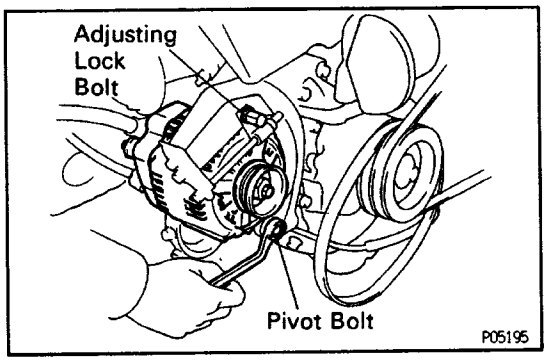
ALTERNATOR INSTALLATION (3S–GTE)

(See Components for Removal and Installation)

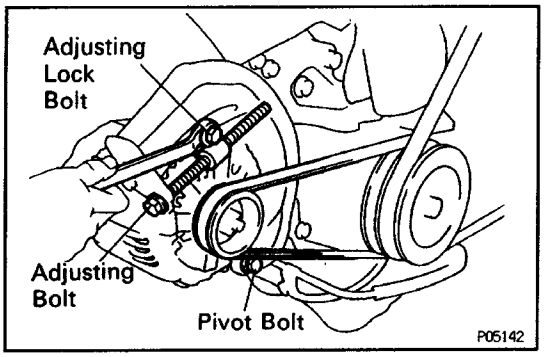
1. INSTALL ALTERNATOR

(a) Pass the alternator between the suspension cross member and drive shaft.

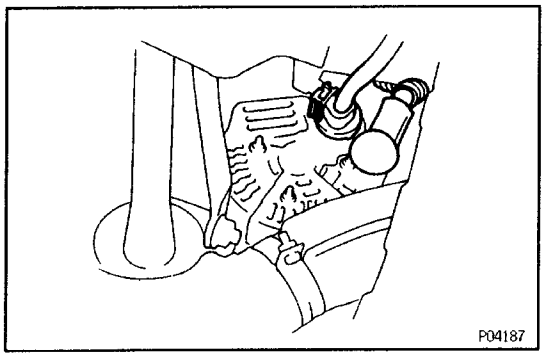




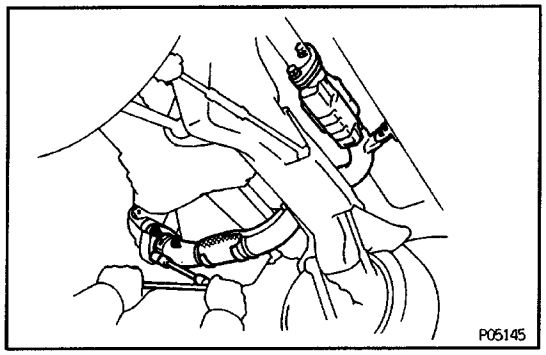
(b) Mount the alternator on the alternator bracket with the pivot bolt and adjusting lock bolt. Do not tighten the bolts yet.



(c) Install the drive belt with the adjusting bolt.
(d) Adjust the drive belt with the adjusting bolt.
(See steps 5 to 7 in On–Vehicle Inspection)
(e) Tighten the Adjusting lock bolt and pivot bolt.

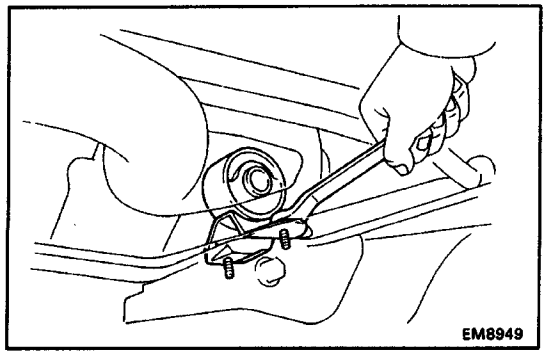


(f) Connect the alternator connector.
(g) Connect the alternator wire with the nut.

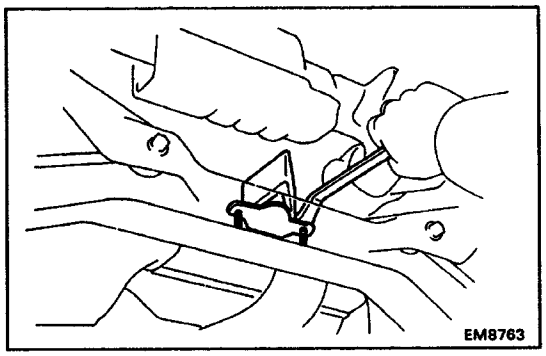


2. INSTALL FRONT EXHAUST PIPE

(a) Place two new gaskets to the front and rear of the front exhaust pipe.
(b) Using a 14 mm deep socket wrench, install the front exhaust pipe with three new nuts.
Torque: 62 N–m (630 kgf–cm. 46 ft–lbf)
(c) Install the two bolts holding the front exhaust pipe to the tailpipe.
Torque: 43 N–m (440 kgf–cm, 32 ft–lbf)
(d) Install the two bolts holding the front exhaust pipe bracket to the tailpipe bracket.
Torque: 19 N–m (190 kgf–cm, 14 ft–lbf)



(e) Install the support bracket with the two bolts.
Torque: 21 N–m (210 kgf–cm, 15 ft–lbf)



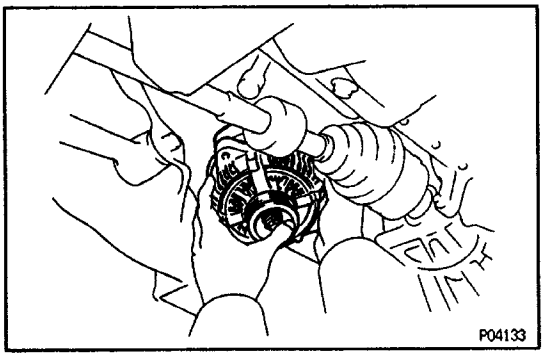
(f) install the damper with the two bolts.
Torque: 21 N–m (210 kgf–cm, 15 ft–lbf)

3. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY
4. PERFORM ON–VEHICLE INSPECTION
(See steps 5 to 7 in On–Vehicle Inspection)

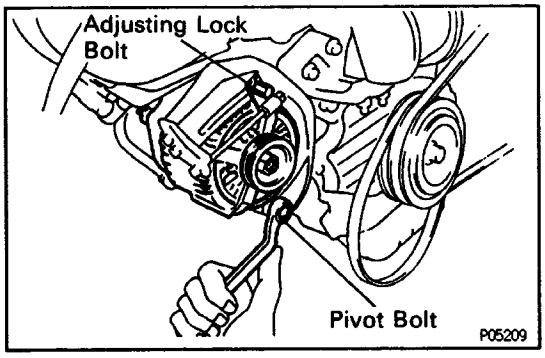
Gb1L–01

ALTERNATOR INSTALLATION (5S– FE)

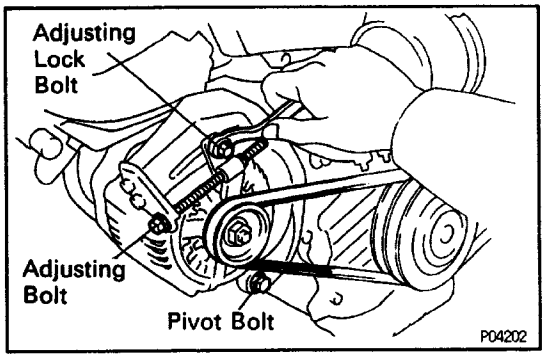
(See Components for Removal and Installation)
1. INSTALL ALTERNATOR



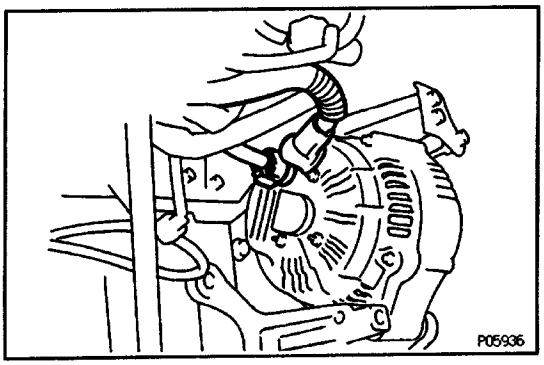
(a) Pass the alternator between the suspension cross–member and drive shaft.



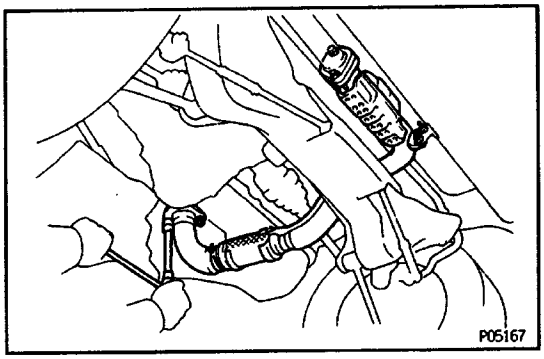
(b) Mount the alternator on the alternator bracke with the pivot bolt and adjusting lock bolt. Do not tighten the bolts yet.



(c) Install the drive belt with the adjusting bolt.
(d) Adjust the drive belt with the adjusting bolt.
(See step 3 in On–Vehicle Inspection)
(e) Tighten the adjusting lock bolt and pivot bolt.



(f) Connect the alternator connector.
(g) Connect the alternator wire with the nut.



2. INSTALL FRONT EXHAUST PIPE

(a) Place two new gaskets to the front and rear of the front exhaust pipe.
(b) Using a 14 mm deep socket wrench, install the front exhaust pipe with three new nuts.

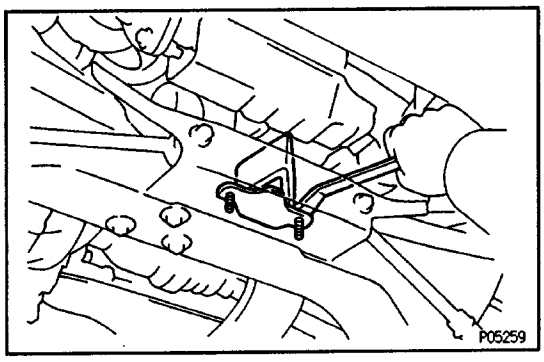
Torque: 62 N–m (630 kgf–cm, 46 ft–lbf)

(c) Install the two bolts holding the front exhaust pipe to the tailpipe.

Torque: 43 N–m (440 kgf–cm, 32 ft–lbf)

(d) Install the two bolts holding the front exhaust pipe bracket to the tailpipe bracket.

Torque: 19 N–m (190 kgf–cm, 14 ft–lbf)



(e) (CALIF. only)
Install the damper with the two bolts.

Torque: 21 N–m (210 kgf–cm, 15 ft–lbf)

3. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY

4. PERFORM ON–VEHICLE INSPECTION

(See steps 5 to 7 in On–Vehicle Inspection)