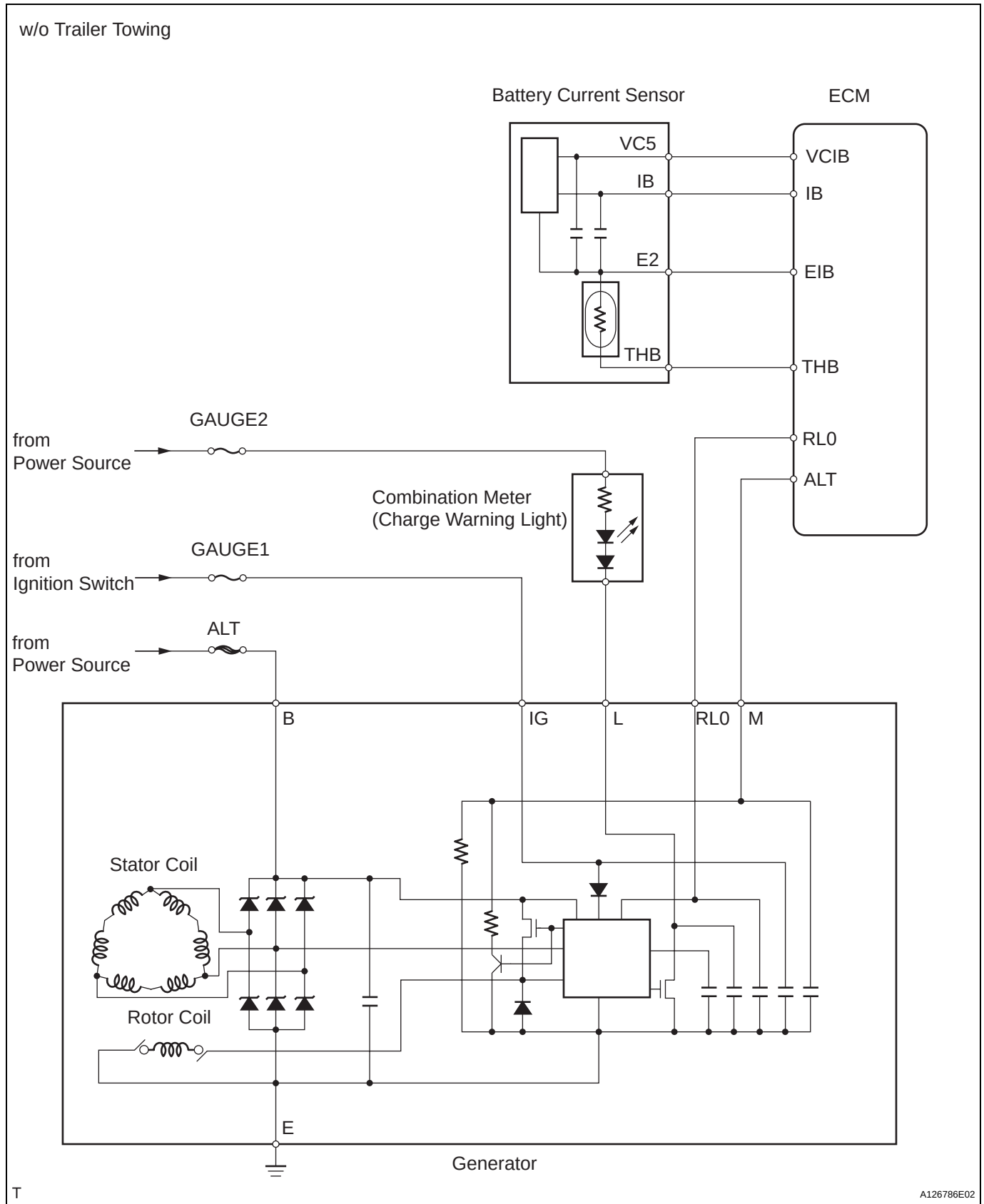
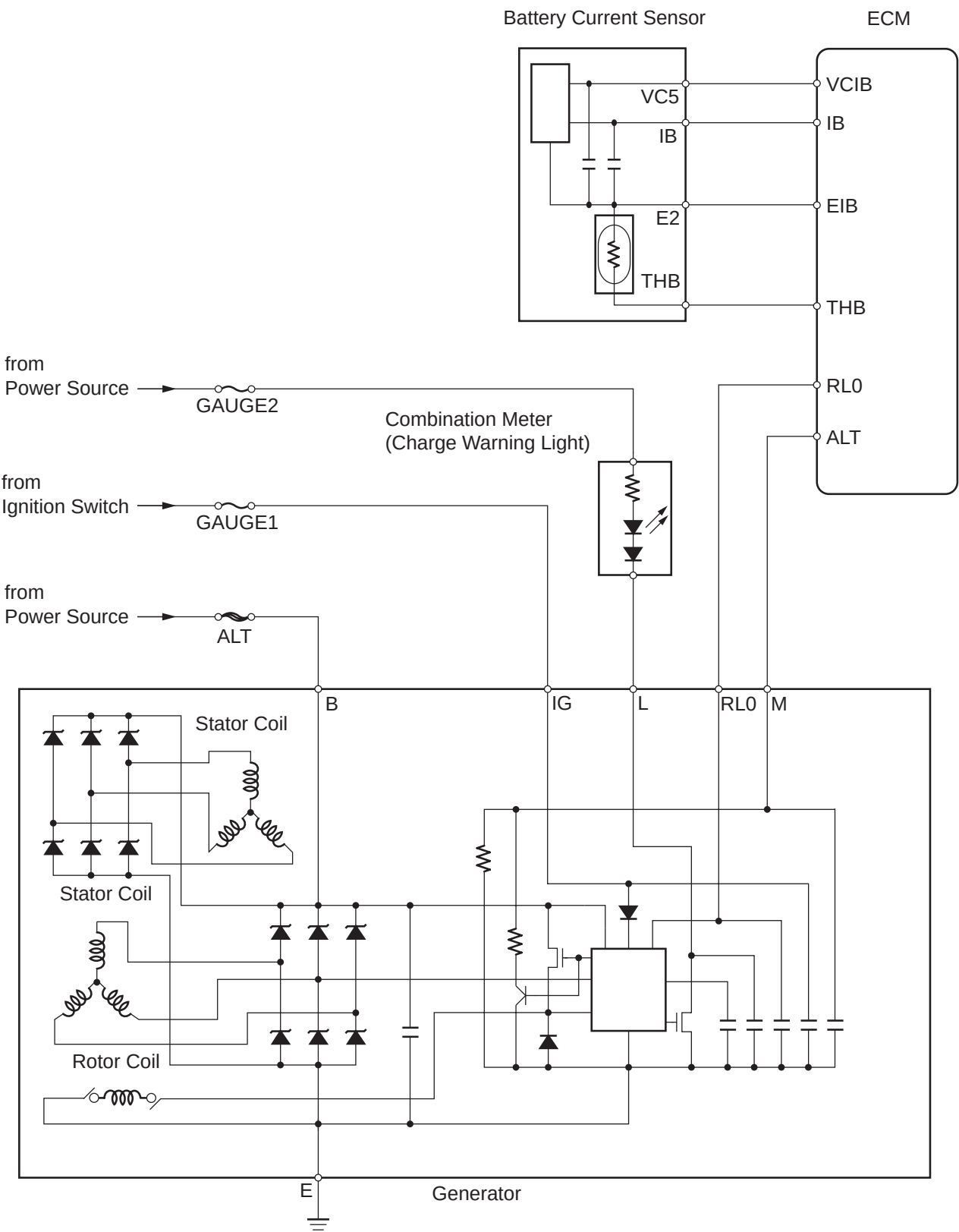


SYSTEM DIAGRAM



w/ Trailer Towing



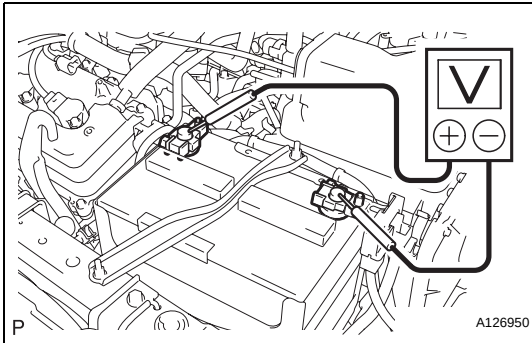
ON-VEHICLE INSPECTION

1. CHECK BATTERY CONDITION

NOTICE:

If the battery is weak or if the engine is difficult to start, perform the following procedures.

- (a) Check the battery for damage and deformation. If severe damage, deformation or leakage is found, replace the battery.



- (b) Check the electrolyte quantity of each cell.

- (1) For maintenance-free batteries:

- If the electrolyte quantity is below the lower line, replace the battery.
- If the electrolyte quantity is above the lower line, check the battery voltage when cranking the engine. If the voltage is less than 9.6 V, recharge or replace the battery.

HINT:

Before checking the battery voltage, turn off all the electrical systems (headlights, blower motor, rear defogger, etc.).

- (2) For non-maintenance-free batteries:

If the electrolyte quantity is below the lower line, add distilled water to each cell. Then, recharge the battery and check the electrolyte's specific gravity.

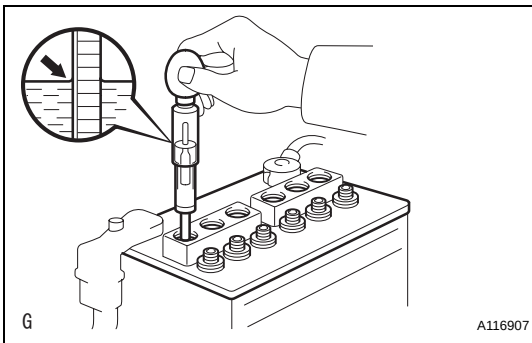
Standard specific gravity:

1.25 to 1.29 at 20°C (68°F)

If the electrolyte quantity is above the lower line, check the battery voltage when cranking the engine. If the voltage is less than 9.6 V, recharge or replace the battery.

HINT:

Before checking the battery voltage, turn off all the electrical systems (headlights, blower motor, rear defogger, etc.).



2. INSPECT BATTERY TERMINAL AND FUSE

- (a) Visually check the battery terminals.

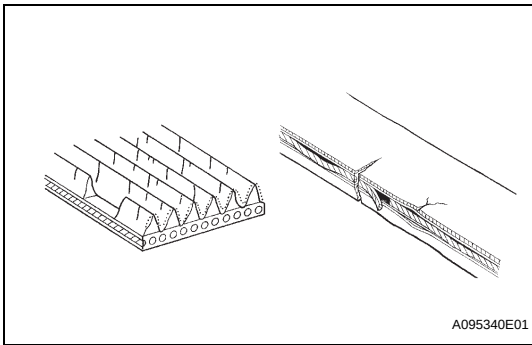
- (1) Check that the battery terminals are not loose or corroded.

- (b) Measure the resistance of the H-fuses and fuses.

Standard resistance:

Below 1 Ω

If the results are not as specified, replace the fuses as necessary.



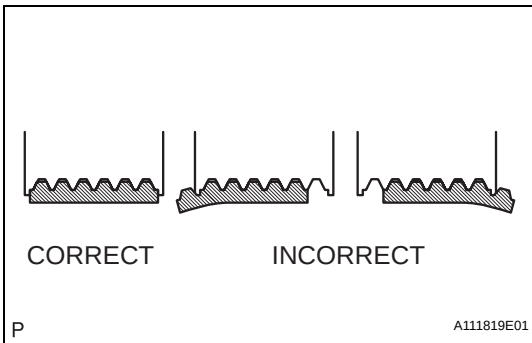
3. INSPECT V-RIBBED BELT

- (a) Visually check the belt for excessive wear, frayed cords, etc.

If any defects are found, replace the V-ribbed belt.

HINT:

Cracks on the rib side of the belt are considered acceptable. If the belt has chunks missing from the ribs, it should be replaced.



- (b) Check that the belt fits properly in the ribbed grooves.

HINT:

Confirm by hand that the belt has not slipped out of the grooves on the bottom of the pulley.

4. INSPECT GENERATOR WIRING

- (a) Visually check the generator wiring.

- (1) Check that the wiring is in good condition.

5. CHECK FOR ABNORMAL NOISES

- (a) Listen for abnormal noises from the generator.

- (1) Check that no abnormal noises are heard from the generator while the engine is running.

6. INSPECT CHARGE WARNING LIGHT CIRCUIT

- (a) Turn the ignition switch ON. Check that the charge warning light comes on.

- (b) Start the engine and check that the light goes off. If the light does not operate as specified, troubleshoot the charge warning light circuit.

7. INSPECT CHARGING CIRCUIT WITHOUT LOAD

- (a) Connect a voltmeter and ammeter to the charging circuit as follows.

- (1) Disconnect the wire from terminal B of the generator, then connect it to the negative (-) lead of the ammeter.
- (2) Connect the positive (+) lead of the ammeter to terminal B of the generator.
- (3) Connect the positive (+) lead of the voltmeter to terminal B of the generator.
- (4) Ground the negative (-) lead of the voltmeter.

- (b) Check the charging circuit.

- (1) Keep the engine speed at 2,000 rpm and check the reading on the ammeter and voltmeter.

Standard amperage:

10 A or less

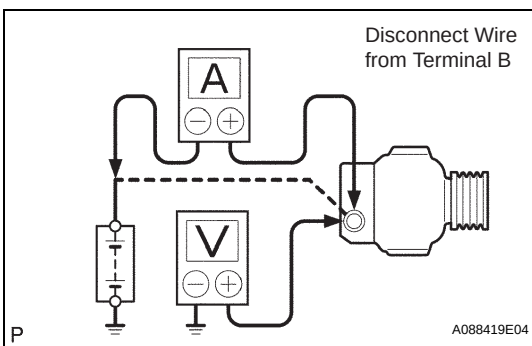
Standard voltage:

12.1 to 15.4 V

If the result is not as specified, replace the generator.

HINT:

If the battery is not fully charged, the ammeter reading will sometimes be more than the standard amperage.



8. INSPECT CHARGING CIRCUIT WITH LOAD

- (a) With the engine running at 2,000 rpm, turn the high beam headlights ON and turn the heater blower switch to the "HI" position.
- (b) Check the reading on the ammeter.

Standard amperage:**30 A or more**

If the ammeter reading is less than the standard amperage, repair the generator.

HINT:

If the battery is fully charged, the indication will sometimes be less than the standard amperage.

If this is the case, add more electrical load (operate the wipers, rear window defogger, etc.) and check the reading on the ammeter again.

REMOVAL

1. REMOVE RADIATOR ASSEMBLY

(a) Remove the radiator (see page [CO-36](#)).

2. REMOVE FRONT WHEEL RH

3. REMOVE ENGINE UNDER COVER REAR RH (See page [EM-21](#))

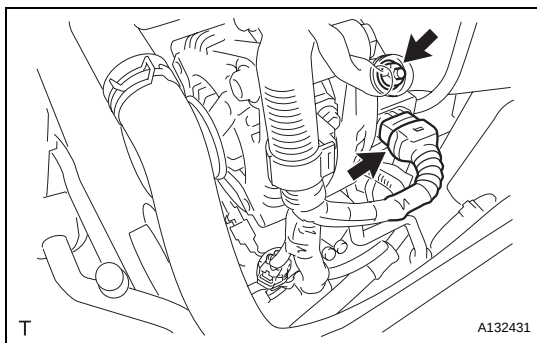
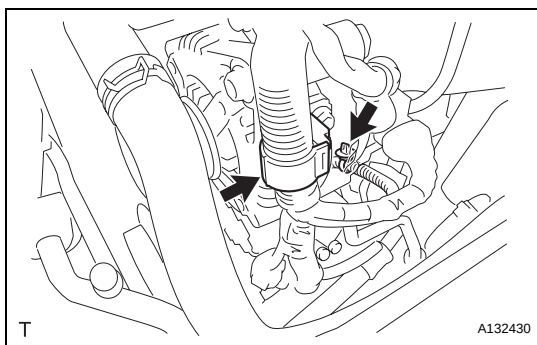
4. REMOVE FRONT SUSPENSION MEMBER REINFORCEMENT RH (See page [EM-7](#))

5. REMOVE RADIATOR RESERVOIR TANK (See page [CO-19](#))

6. REMOVE FAN AND GENERATOR V BELT (See page [EM-8](#))

7. REMOVE GENERATOR ASSEMBLY

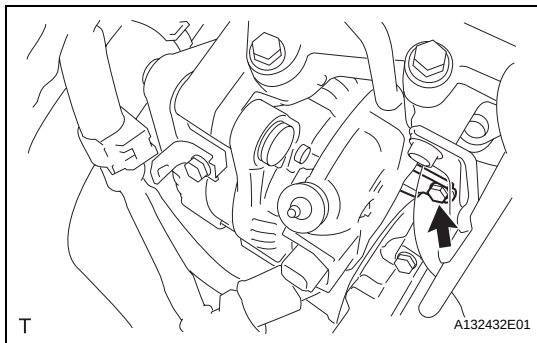
(a) Disconnect the 2 wire harness clamps.



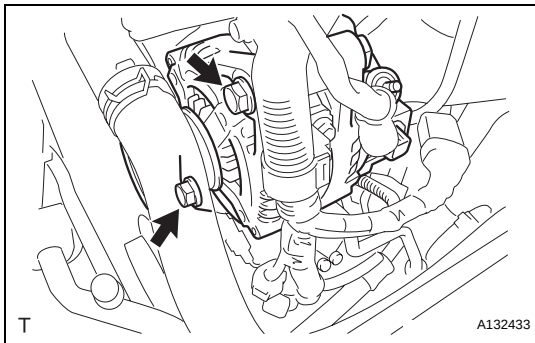
(b) Remove the terminal cap.

(c) Remove the nut and disconnect the generator wire from terminal B.

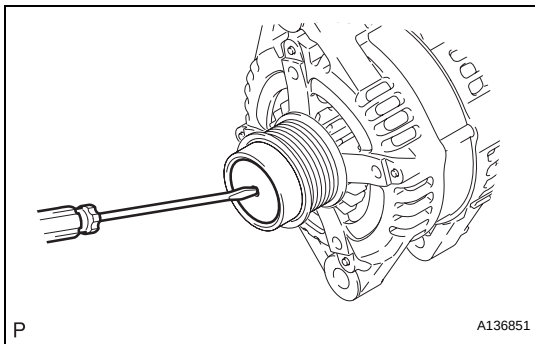
(d) Disconnect the generator connector from the generator.



(e) Remove the bolt from the cylinder block.



(f) Remove the 2 bolts and generator.



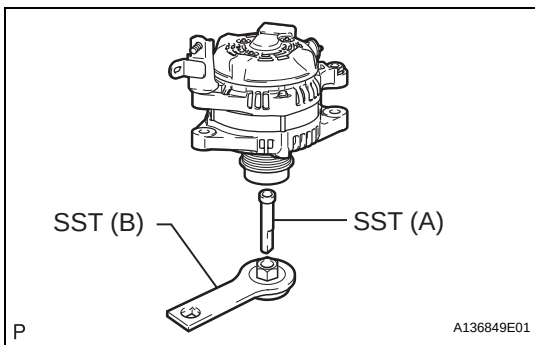
DISASSEMBLY

1. REMOVE GENERATOR PULLEY WITH CLUTCH

- (a) Using a screwdriver, puncture the center of the cap and pry it off the pulley.

NOTICE:

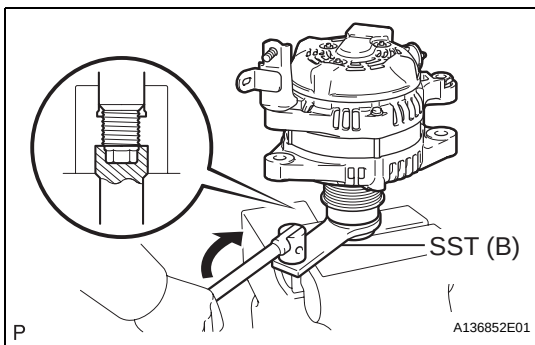
Do not reuse the cap.



- (b) Install SST to the pulley as shown in the illustration.

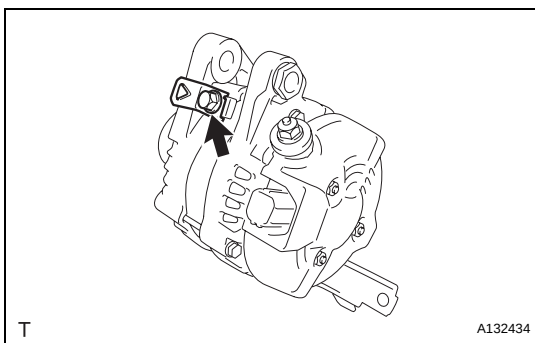
SST 09820-63020

- (c) Mount SST (A) in a vise.



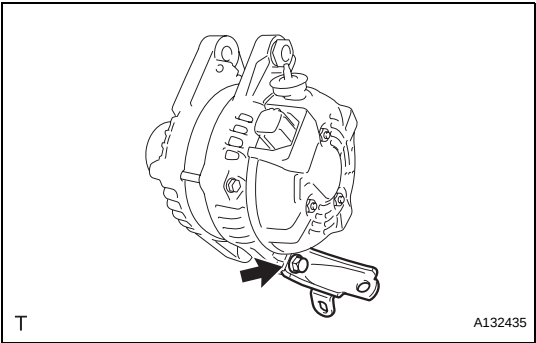
- (d) Turn SST (B) clockwise to loosen the pulley.

- (e) Remove the pulley.

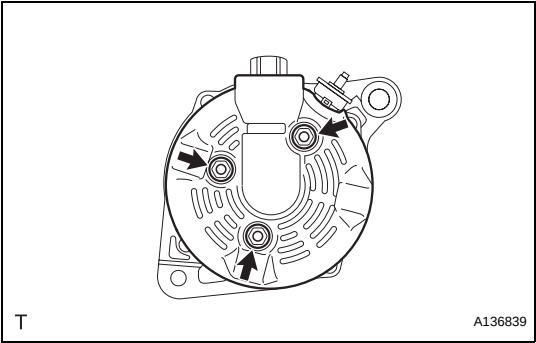


2. REMOVE GENERATOR BRUSH HOLDER ASSEMBLY

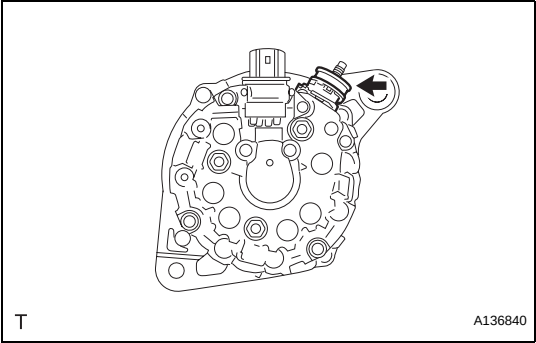
- (a) Remove the bolt and wire harness clamp stay.



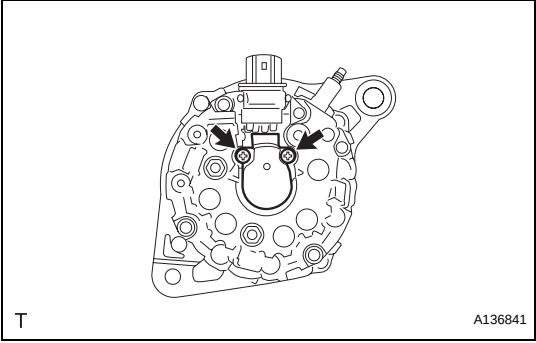
(b) Remove the bolt and bracket.



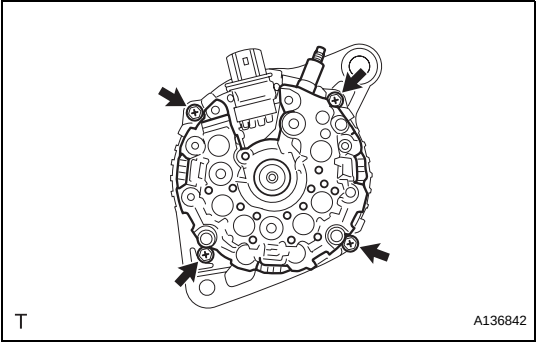
(c) Remove the 3 nuts and generator rear end cover.



(d) Remove the terminal insulator.

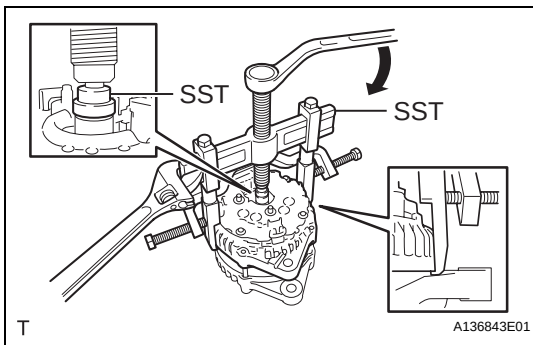


(e) Remove the 2 screws and generator brush holder.



3. REMOVE GENERATOR ROTOR ASSEMBLY

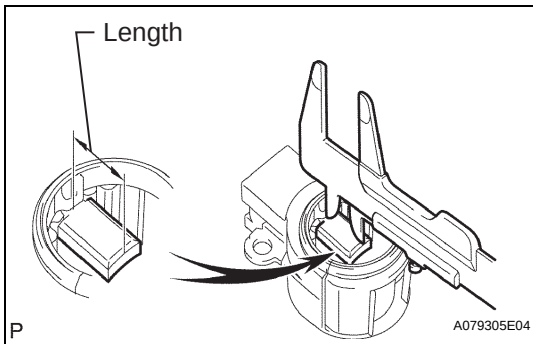
(a) Remove the 4 bolts.



- (b) Using SST, remove the generator rectifier end frame.

SST 09950-40011 (09951-04020, 09952-04010, 09953-04020, 09954-04010, 09955-04071, 09957-04010, 09958-04011)

- (c) Remove the washer.
(d) Remove the generator rotor.



INSPECTION

1. INSPECT GENERATOR BRUSH HOLDER ASSEMBLY

- (a) Using a vernier caliper, measure the brush length.

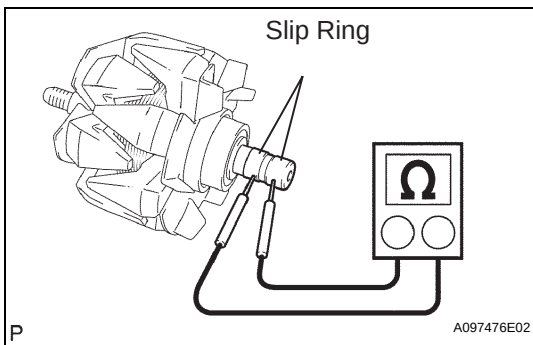
Standard length:

9.5 to 11.5 mm (0.374 to 0.453 in.)

Minimum length:

4.5 mm (0.177 in.)

If the brush length is less than the minimum, replace the generator brush holder assembly.



2. INSPECT GENERATOR ROTOR ASSEMBLY

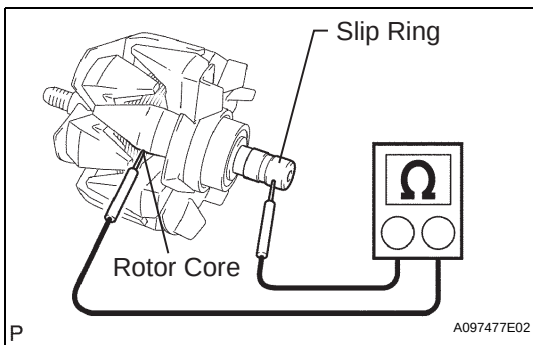
- (a) Check the resistance.

- (1) Measure the resistance between the slip rings.

Standard resistance:

2.3 to 2.7 Ω at 20°C (68°F)

If the result is not as specified, replace the generator rotor assembly.

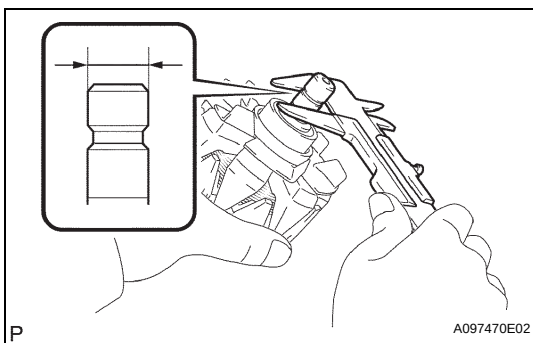


- (2) Measure the resistance between the slip ring and rotor core.

Standard resistance:

1 M Ω or higher

If the result is not as specified, replace the generator rotor assembly.



- (b) Check the slip ring diameter.

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

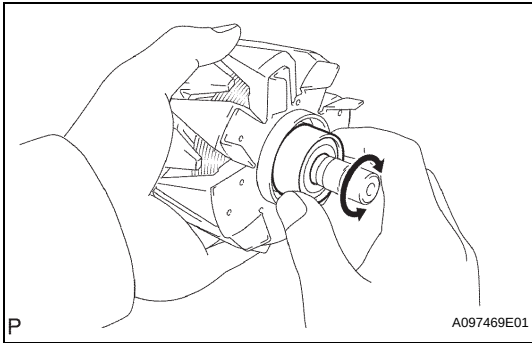
Standard diameter:

14.2 to 14.4 mm (0.559 to 0.567 in.)

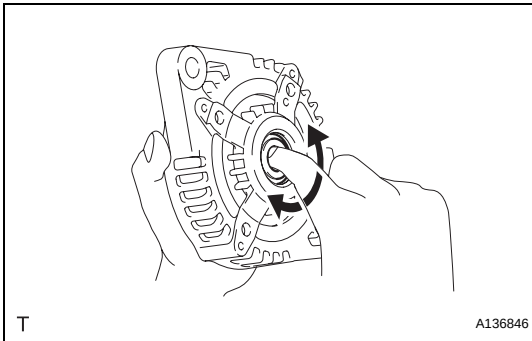
Minimum diameter:

14 mm (0.551 in.)

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

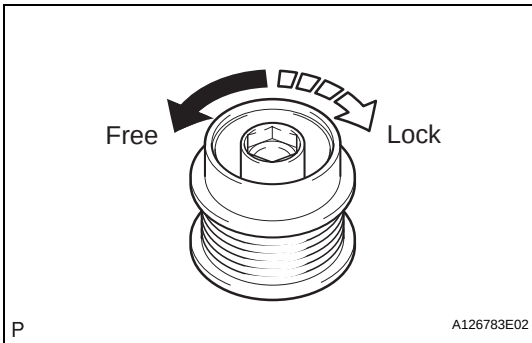


- (c) Check the appearance.
- (1) Check that the bearing is not rough or worn.
- OK:**
The bearing rotates smoothly.
 If the result is not as specified, replace the generator rotor assembly.



3. INSPECT GENERATOR DRIVE END FRAME BEARING

- (a) Check that the bearing is not rough or worn.
- OK:**
The bearing rotates smoothly.
 If the bearing does not rotate smoothly, replace the bearing.



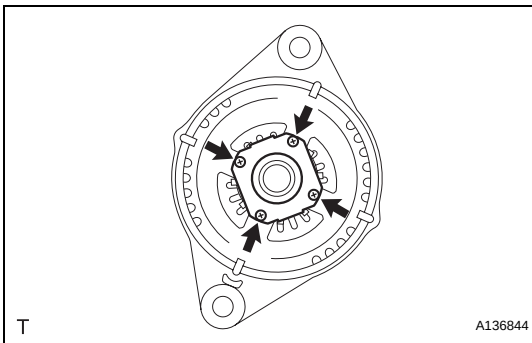
4. INSPECT GENERATOR PULLEY WITH CLUTCH

- (a) Hold the center of the pulley, and confirm that the outer ring turns counterclockwise and does not turn clockwise.
- If the result is not as specified, replace the generator pulley with clutch.

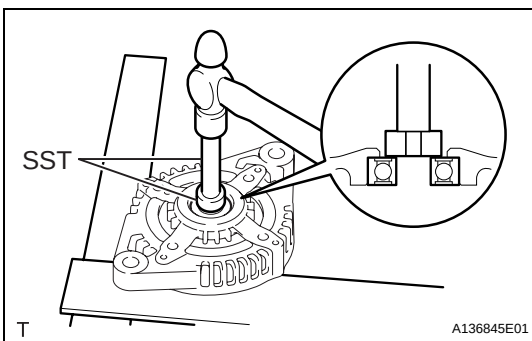
REPLACEMENT

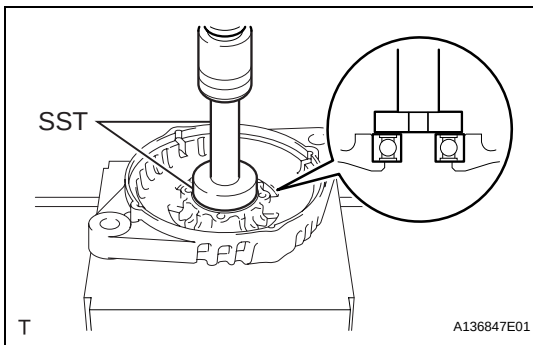
1. REPLACE GENERATOR DRIVE END FRAME BEARING

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

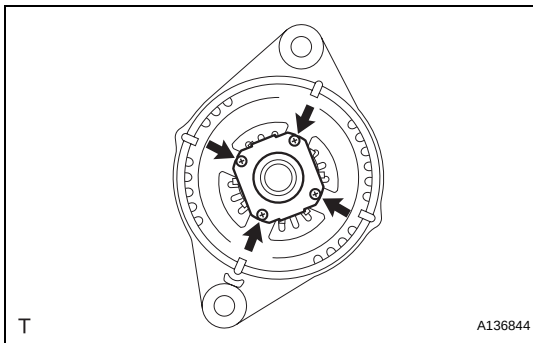


- (b) Using SST and a hammer, tap out the bearing.
- SST 09950-60010 (09951-00250), 09950-70010 (09951-07100)**

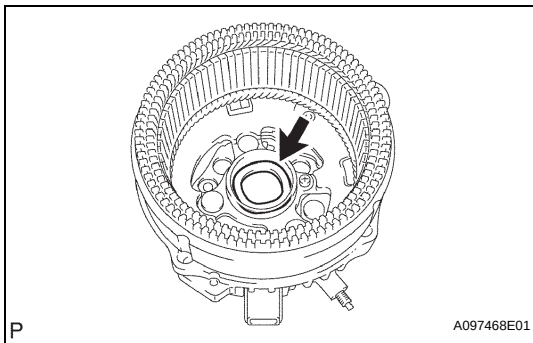




- (c) Using SST and a press, press in a new bearing.
SST 09950-60010 (09951-00250), 09950-70010 (09951-07100)



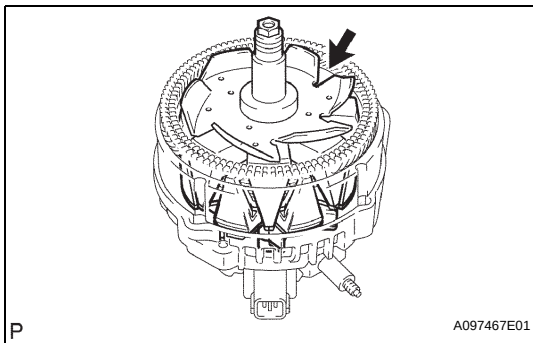
- (d) Install the bearing retainer with the 4 screws.
Torque: 2.3 N*m (23 kgf*cm, 20 in.*lbf)



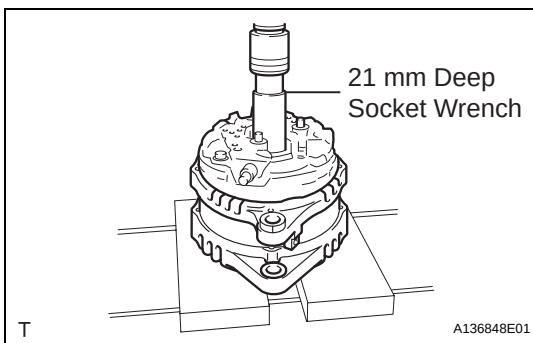
REASSEMBLY

1. INSTALL GENERATOR ROTOR ASSEMBLY

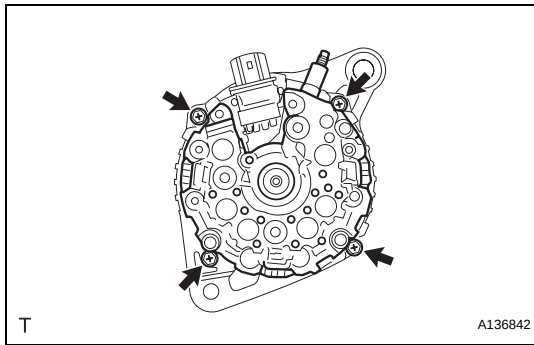
- (a) Install the washer onto the generator rectifier end frame.



- (b) Install the generator rotor onto the generator rectifier end frame.

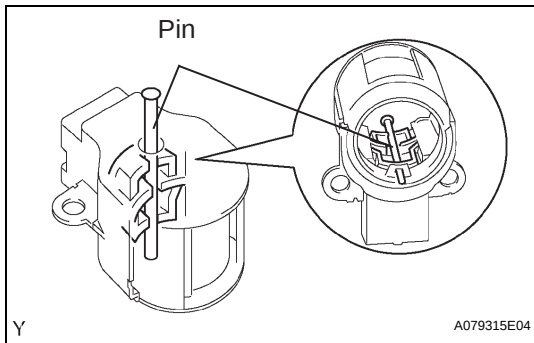


- (c) Using a 21 mm deep socket wrench and press, slowly push the generator drive end frame onto the generator rectifier frame.

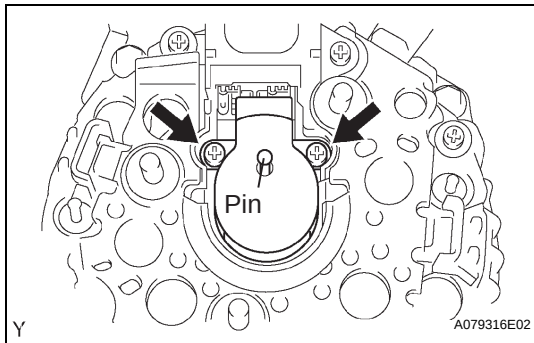


- (d) Install the 4 bolts.
Torque: 5.8 N*m (59 kgf*cm, 51 in.*lbf)

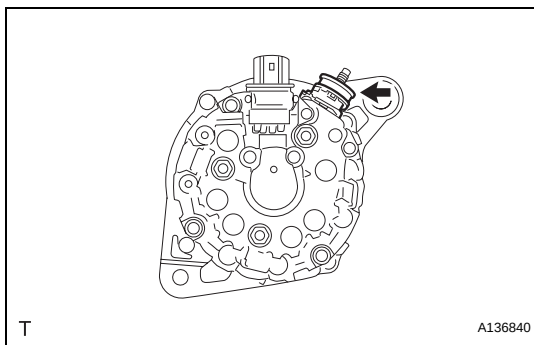
2. INSTALL GENERATOR BRUSH HOLDER ASSEMBLY



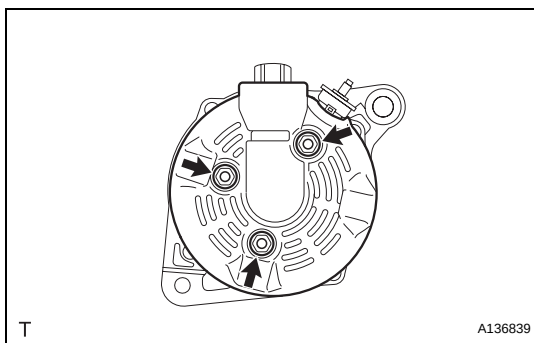
- (a) While pushing the 2 brushes into the generator brush holder, insert a ϕ 1.0 mm (0.039 in.) pin into the generator brush holder.



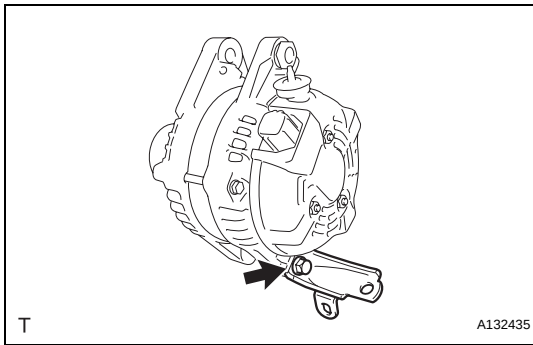
- (b) Install the generator brush holder with the 2 screws.
Torque: 1.8 N*m (18 kgf*cm, 16 in.*lbf)
 (c) Pull the pin out of the generator brush holder.



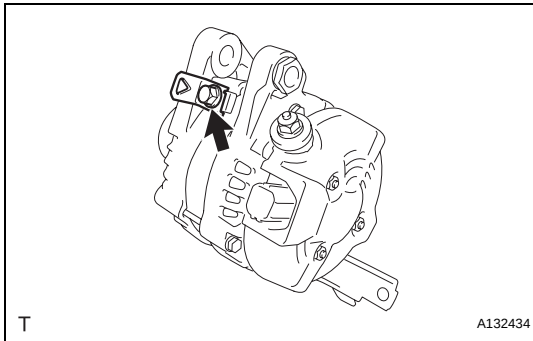
- (d) Install the terminal insulator onto the generator rectifier end frame.



- (e) Install the generator rear end cover with the 3 nuts.
Torque: 4.6 N*m (47 kgf*cm, 41 in.*lbf)



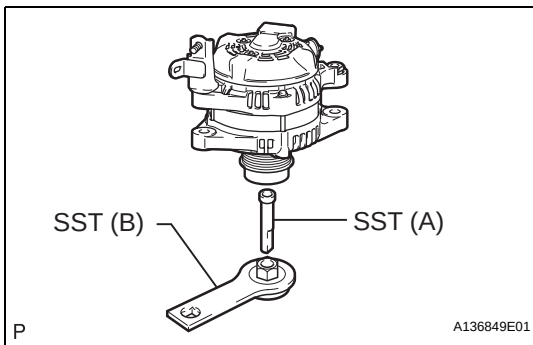
- (f) Install the bracket with the bolt.
Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)



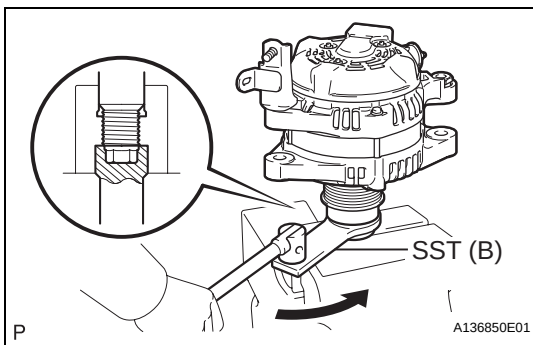
- (g) Install the wire harness clamp stay.
Torque: 8.4 N*m (86 kgf*cm, 74 in.*lbf)

3. INSTALL GENERATOR PULLEY WITH CLUTCH

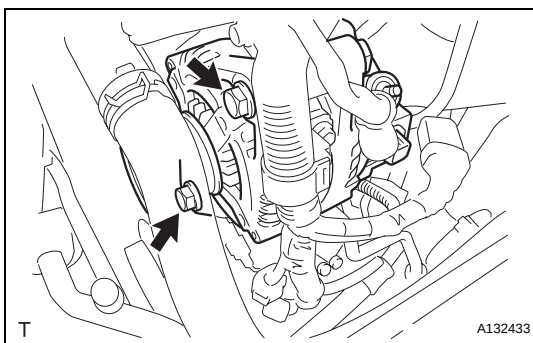
- (a) Install the pulley by hand.



- (b) Install SST to the pulley as shown in the illustration.
SST 09820-63020



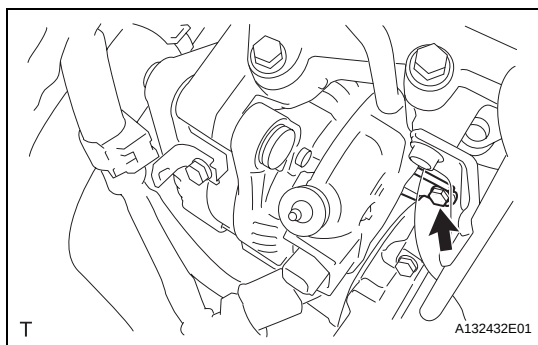
- (c) Turn SST (B) counterclockwise to tighten the pulley.
Torque: 111 N*m (1125 kgf*cm, 81 ft.*lbf)
 (d) Install a new cap to the pulley.
 (e) Check that the generator pulley rotates smoothly.



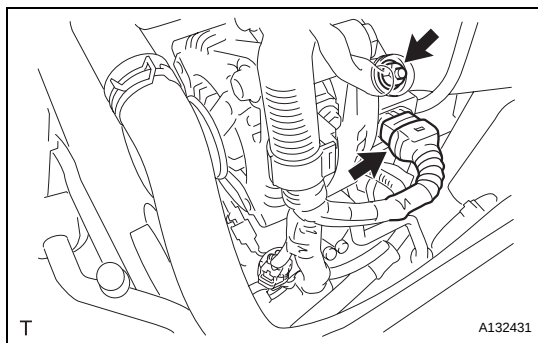
INSTALLATION

1. INSTALL GENERATOR ASSEMBLY

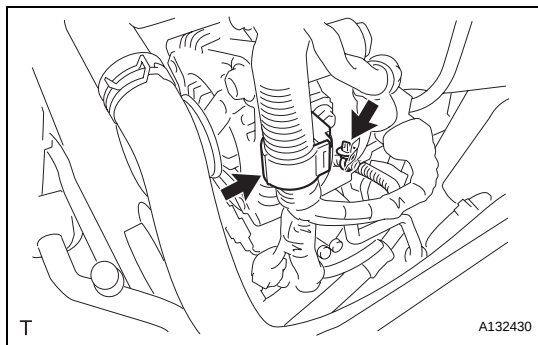
- (a) Install the generator with the 2 bolts.
Torque: 43 N*m (438 kgf*cm, 32 ft.*lbf)



- (b) Install the bolt to the cylinder block.
Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)



- (c) Connect the generator connector to the generator.
 (d) Connect the generator wire with the nut.
Torque: 9.8 N*m (100 kgf*cm, 88 in.*lbf)
 (e) Install the terminal cap.



- (f) Connect the 2 wire harness clamps.

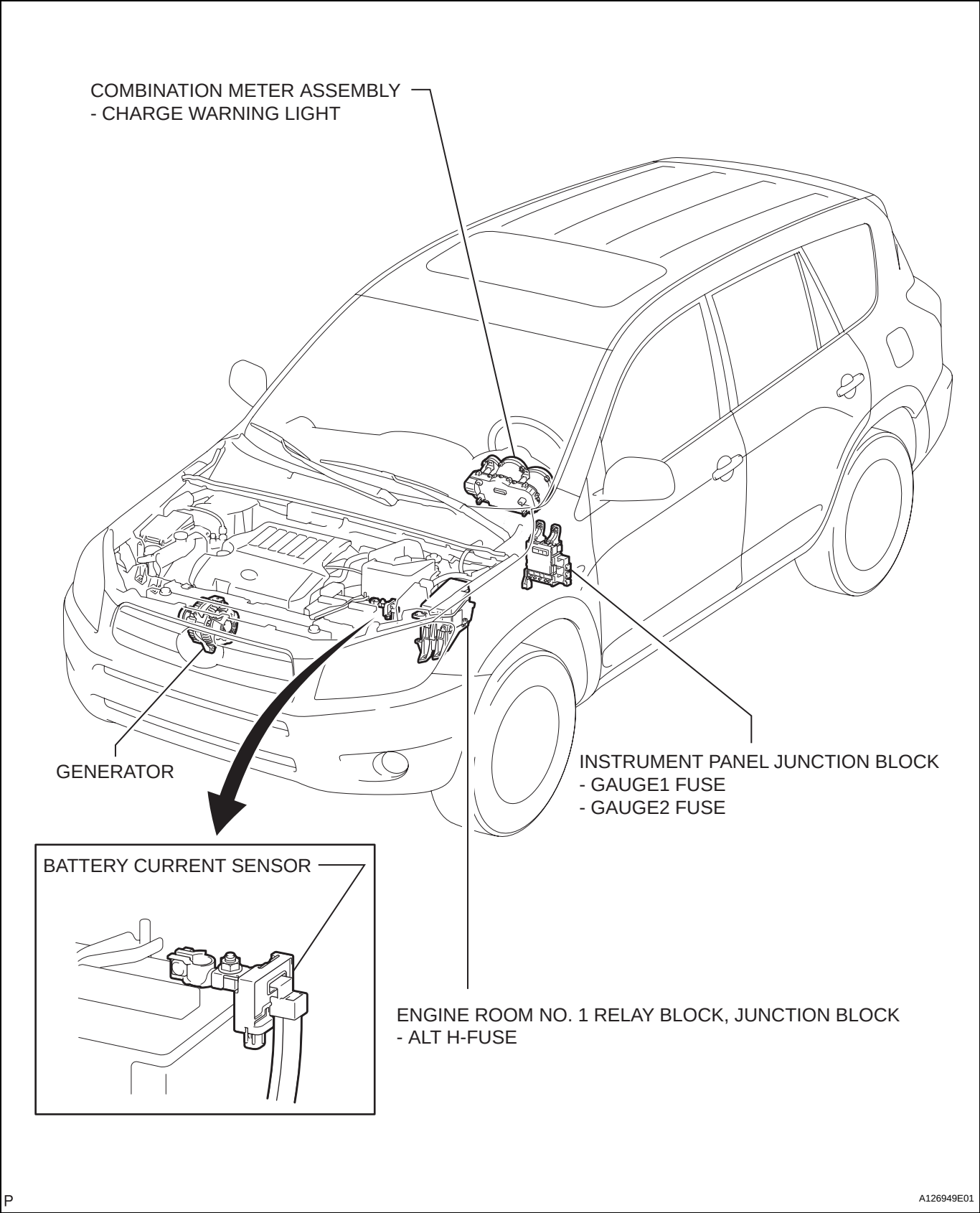
2. **INSTALL FAN AND GENERATOR V BELT** (See page [EM-8](#))
3. **INSTALL RADIATOR RESERVOIR TANK** (See page [CO-21](#))
4. **INSTALL FRONT SUSPENSION MEMBER REINFORCEMENT RH** (See page [EM-9](#))
5. **INSTALL ENGINE UNDER COVER REAR RH** (See page [EM-41](#))
6. **INSTALL FRONT WHEEL RH**
7. **INSTALL RADIATOR ASSEMBLY**
 - (a) Install the radiator (see page [CO-40](#)).

CHARGING SYSTEM

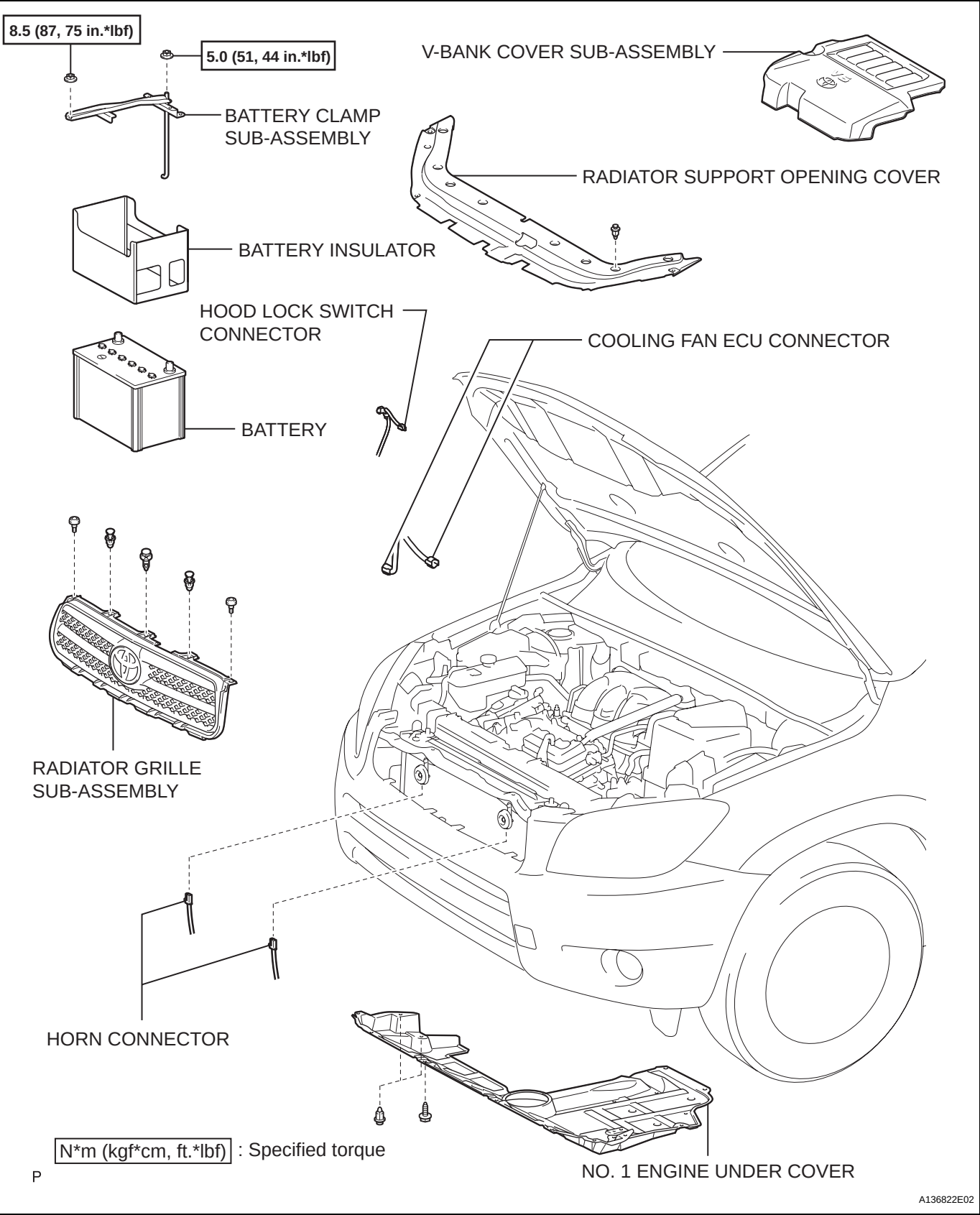
PRECAUTION

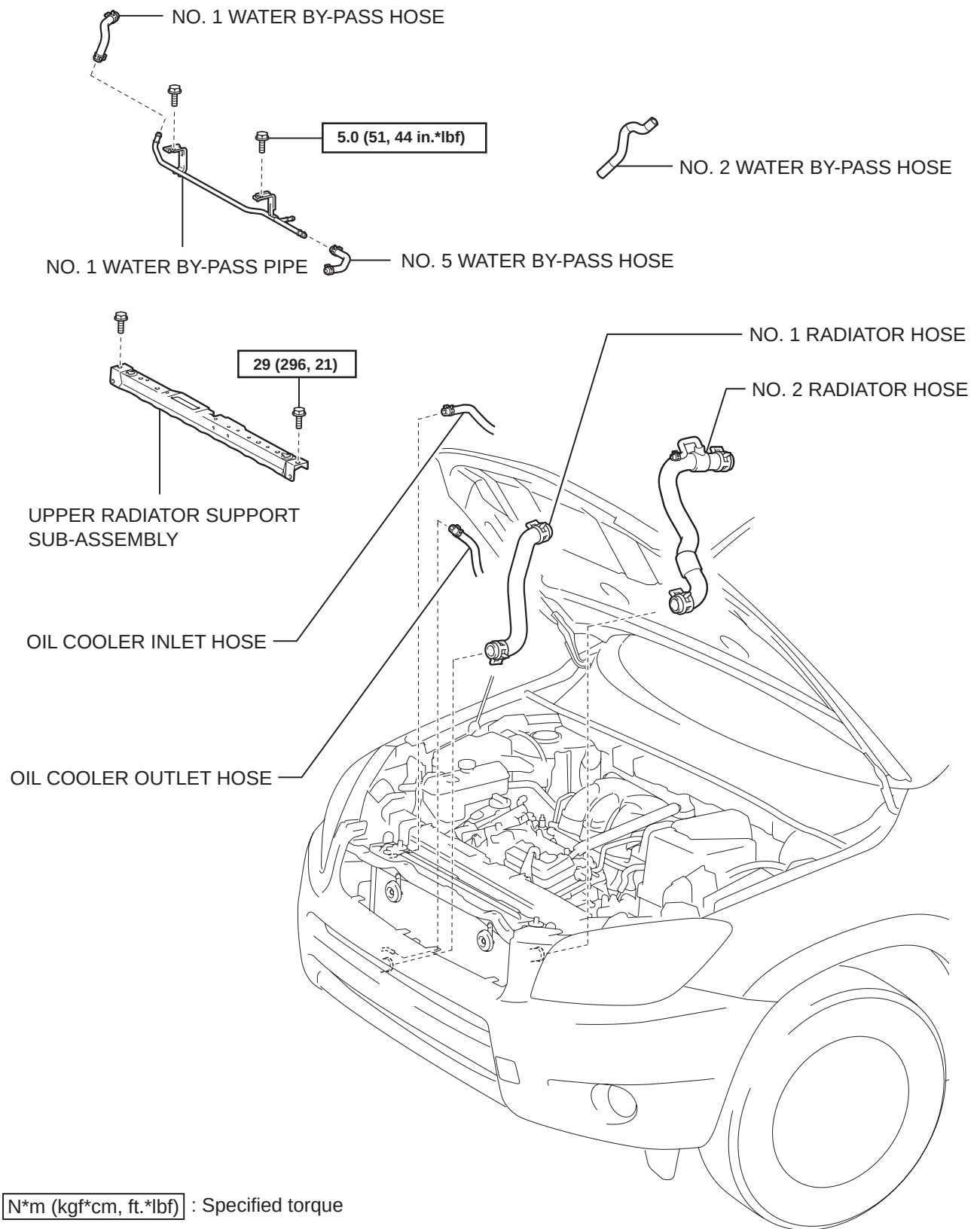
1. Check that the battery cables are connected to the correct terminals.
2. Disconnect the battery cables if a quick charge is given to the battery.
3. Do not perform tests with a high voltage insulation resistance tester.
4. Never disconnect the battery while the engine is running.
5. Check that the charging cable is tightly connected onto terminal B of the generator and the fuse box.
6. Do not check whether the generator generates current or not while terminal F is connected to the other terminals.

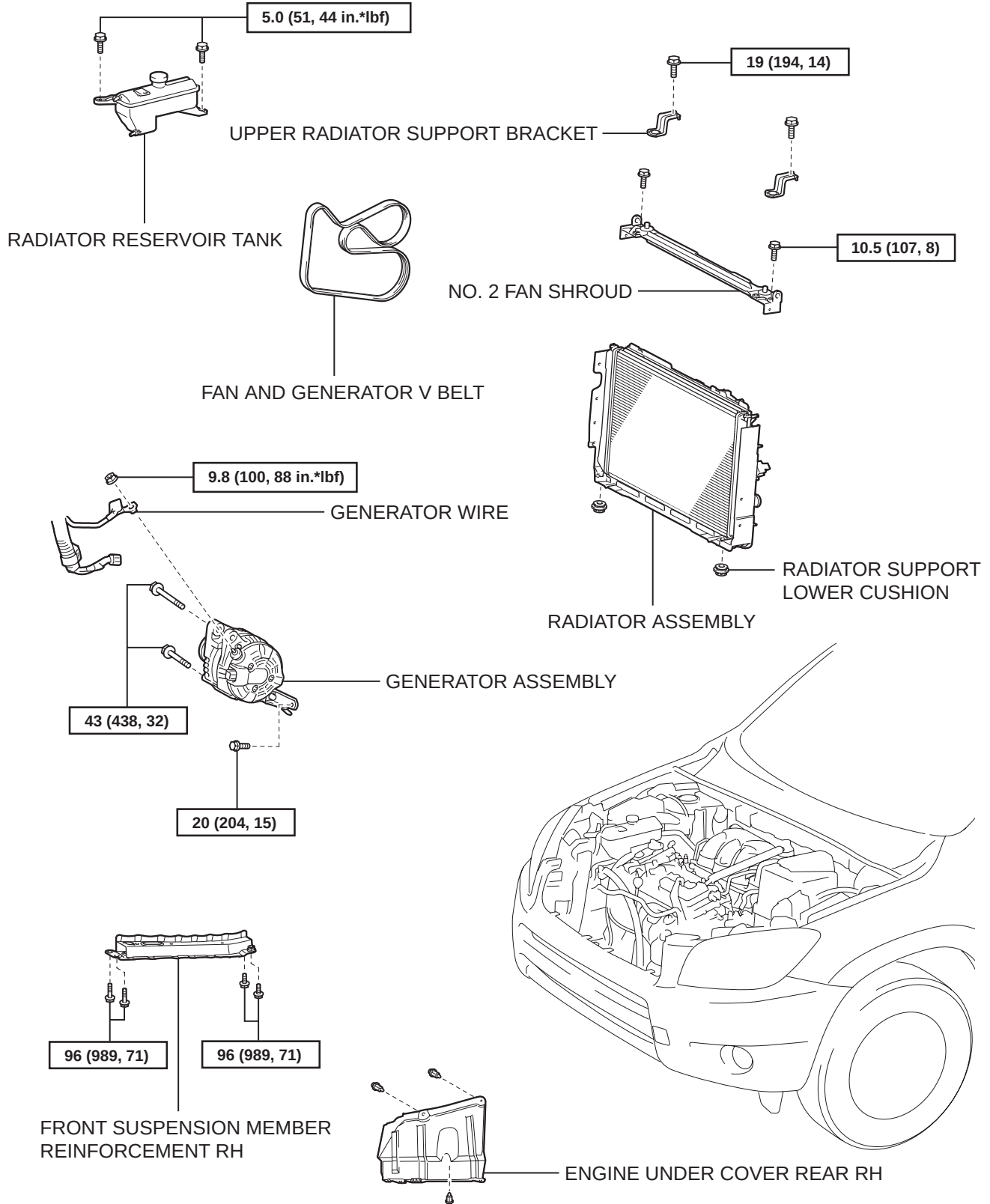
PARTS LOCATION



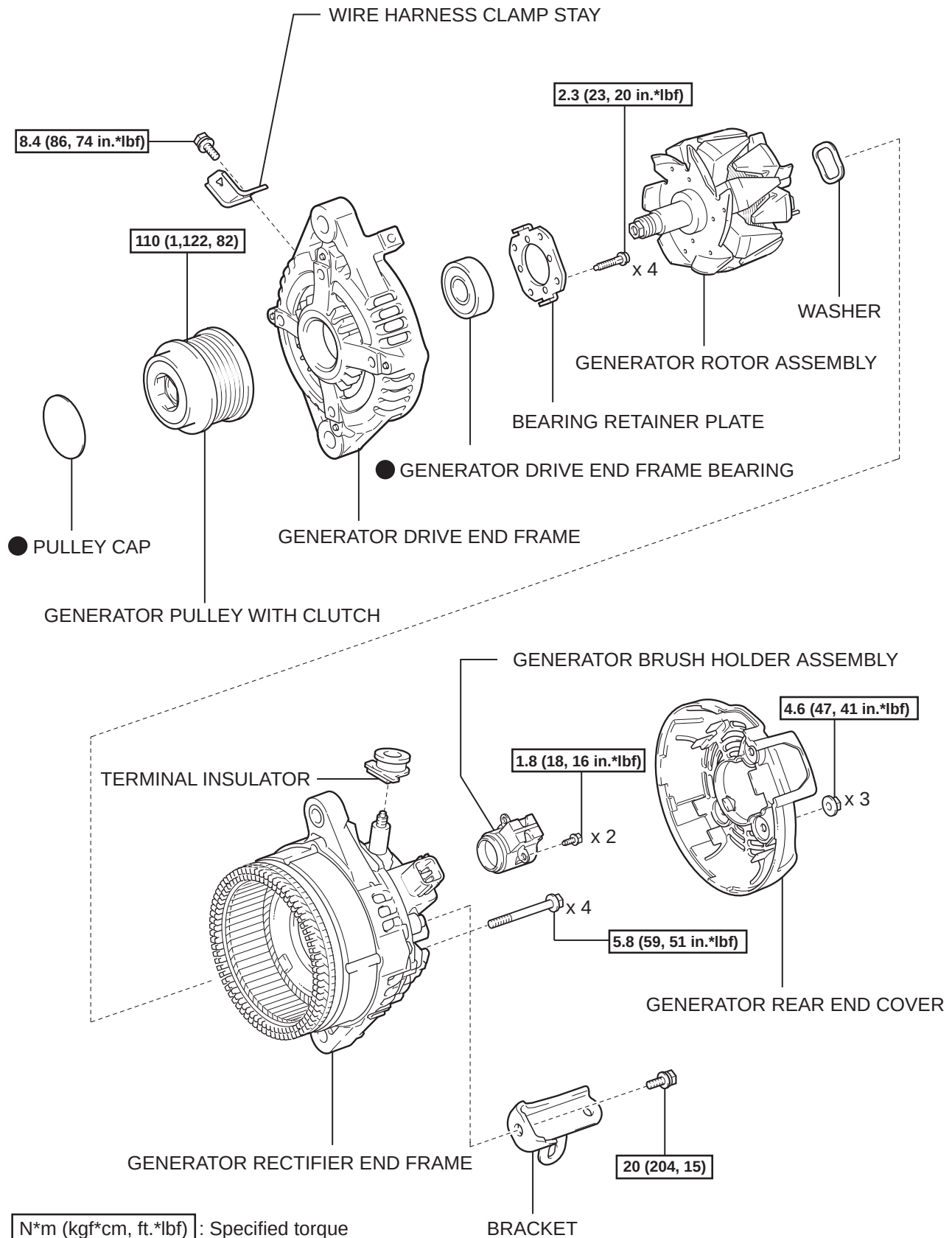
GENERATOR
COMPONENTS







N*m (kgf*cm, ft.*lbf) : Specified torque



BATTERY CURRENT SENSOR

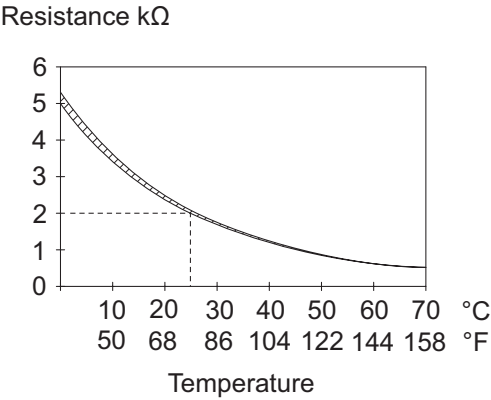
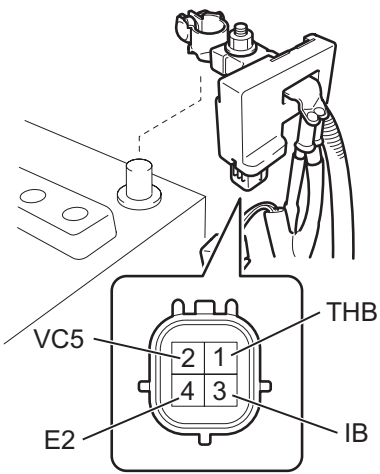
ON-VEHICLE INSPECTION

1. **INSPECT BATTERY CURRENT SENSOR ASSEMBLY**
(a) Measure the resistance of the sensor.

Standard resistance

Tester Connection	Condition	Specified Condition
2 (VC5) - 4 (E2)	Always	3 to 10 kΩ
2 (VC5) - 3 (IB)	Always	Below 0.5 kΩ
3 (IB) - 4 (E2)	Always	3 to 10 kΩ
1 (THB) - 4 (E2)	20 to 30°C (68 to 86°F)	1.5 to 2.5 kΩ

HINT:
Tester connection 1 (THB) - 4 (E2):
As the temperature increases, the resistance decreases (see graph).
If the result is not as specified, replace the sensor assembly.



A132490E01