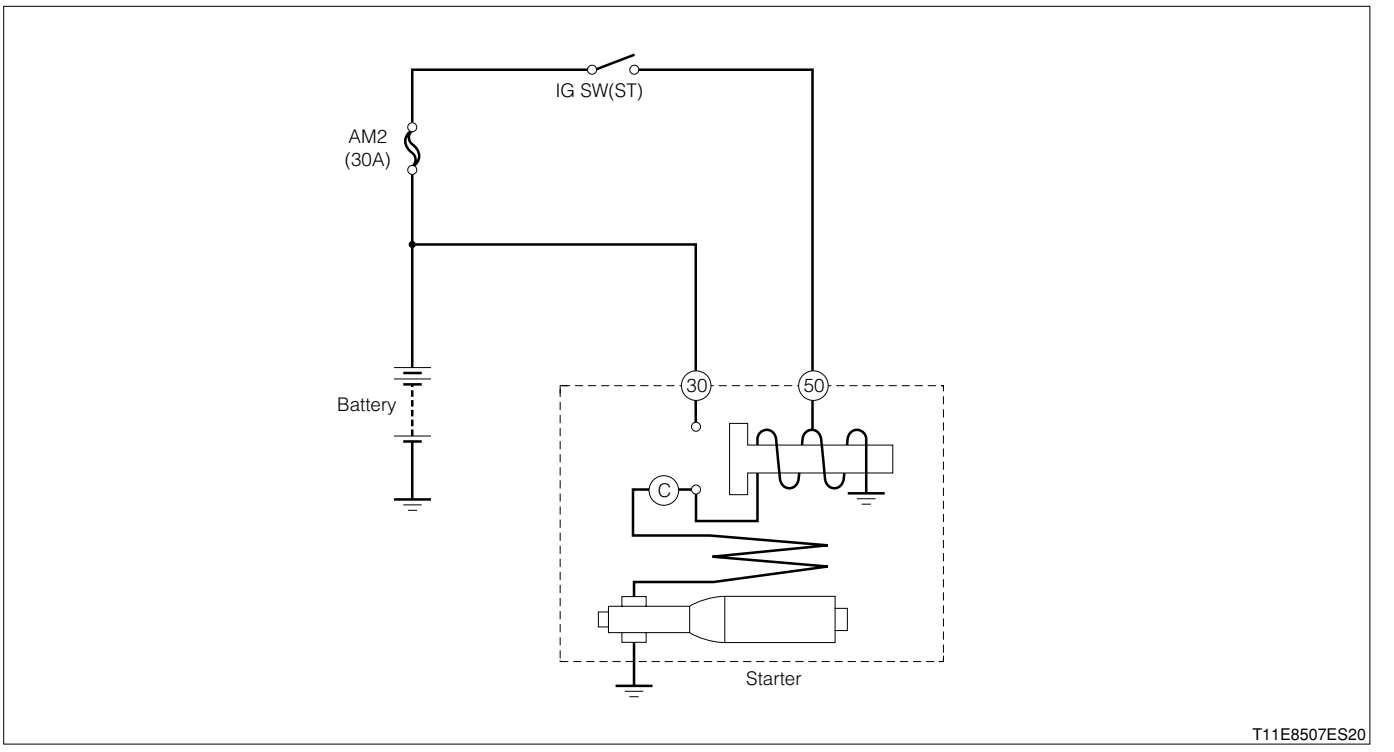
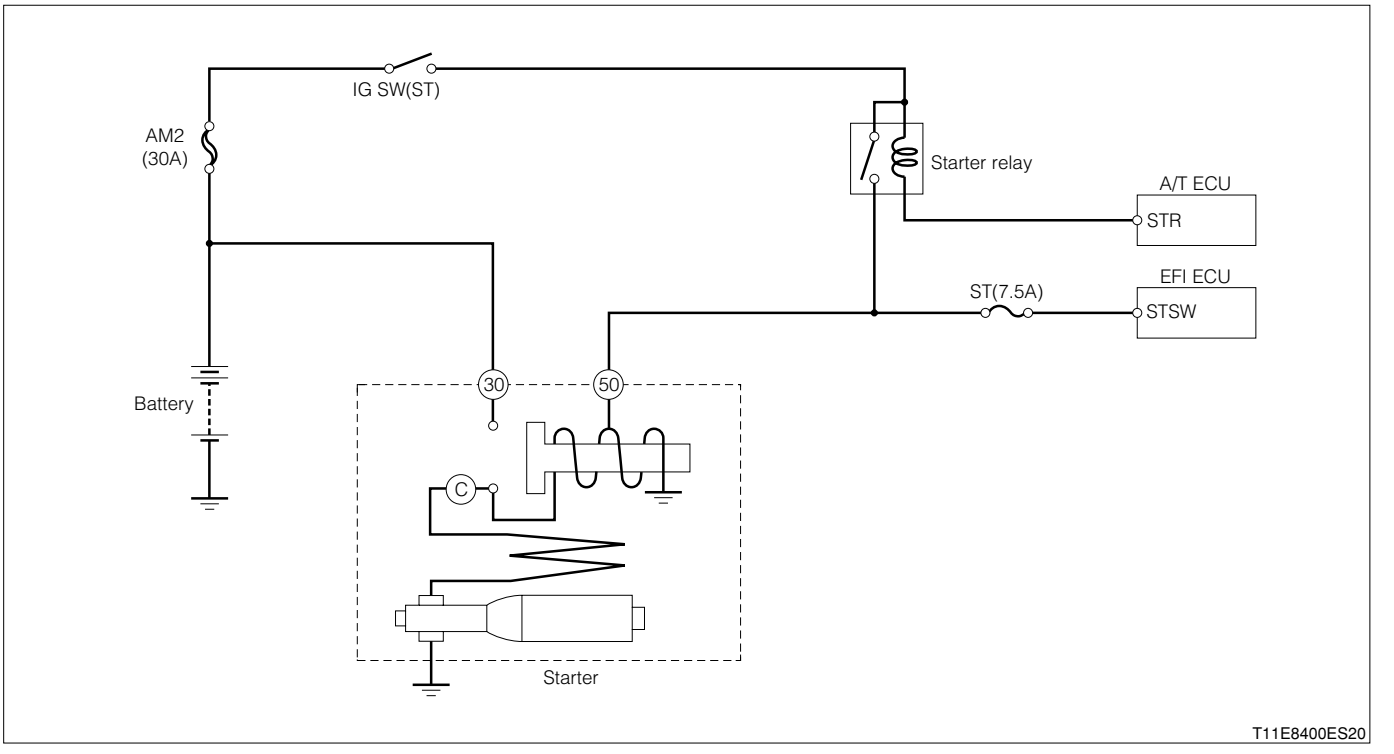
B11 STARTING SYSTEM/CHARGING SYSTEM

■ 1KR
1 STARTING SYSTEM
1-1 SYSTEM DIAGRAM

M/T



A/T



2 STARTER

2-1 REMOVAL AND INSTALLATION

2-1-1 ARTICLES TO BE PREPARED

Instrument

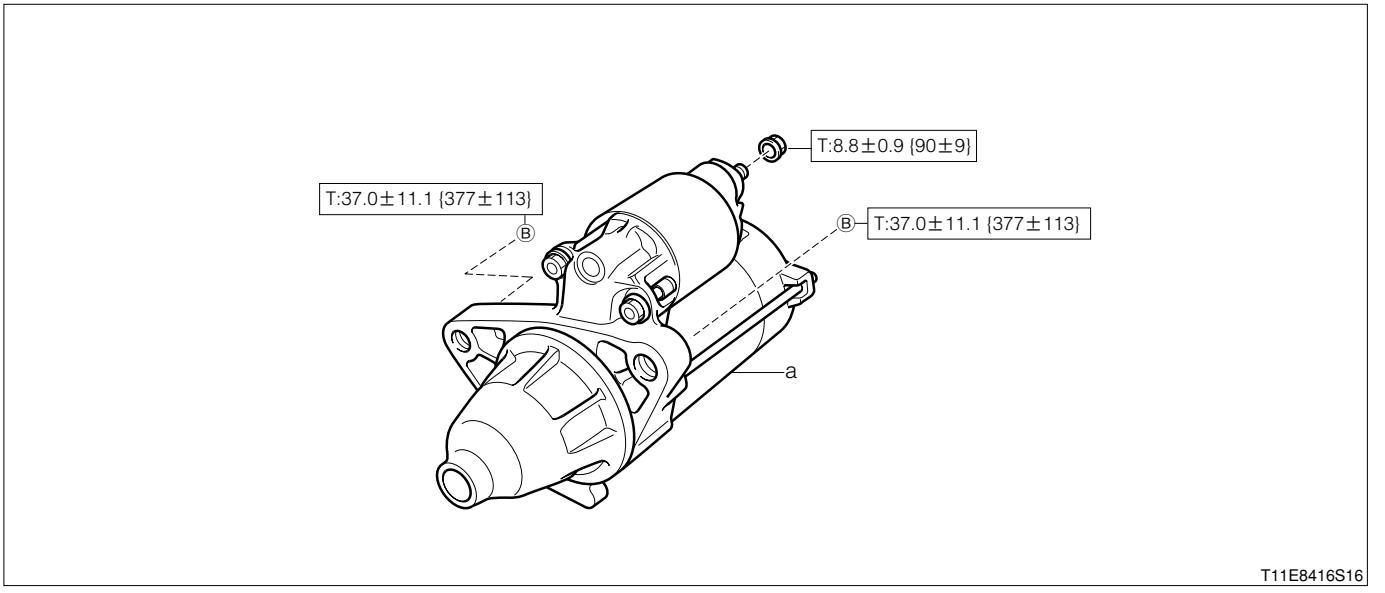
Torque wrench,Electrical Tester

2-1-2 OPERATION BEFORE REMOVAL

1.Disconnect the negative (-) terminal of the battery.

2-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit:N·m{kgf·cm}

(2) Removal and installation procedures

▼ 1 a Starter Ay

2-1-4 POINTS OF REMOVAL

(1) Starter Ay

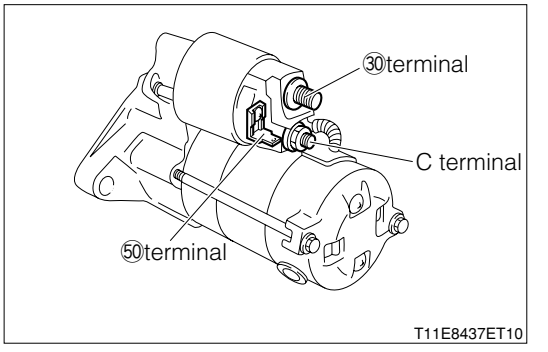
1.After removing the attaching bolts, take out the starter assembly from the engine compartment to the upper section of the vehicle.

2-1-5 INSPECTION

(1) Points to be observed and terminal positions

CAUTION

- Make sure to perform each check in a short length of time (Three to five seconds).



(2) Operation check

CAUTION

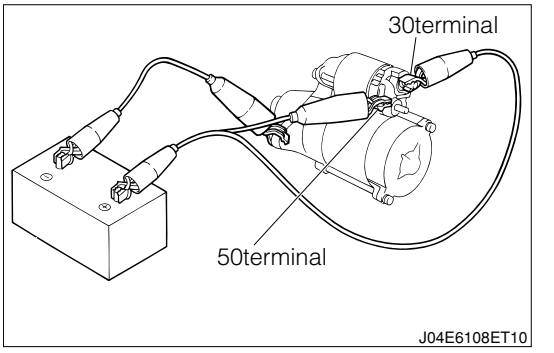
- A large current will flow during the test. Hence, be certain to employ a heavy lead wire.

1.Secure the starter with a vice etc.

2.Connect the cables as shown in the figure. (At this time, do no connect the wire for terminal ⑤⓪.)

3.Connect the terminal ⑤⓪ . Ensure that the pinion gear jumps out and turns.

4.Disconnect the terminal ⑤⓪ . Ensure that the pinion gear stops its turning and returns to the original position.



(3) No-load test

CAUTION

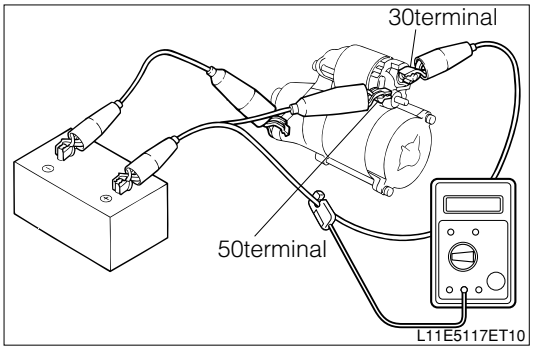
- A large current will flow during the test. Hence, be certain to employ a heavy lead wire.

1.Secure the starter with a vice etc.

2.Perform wiring to the cable and tester, as indicated in the figure. (At this time, do not connect the wire for the terminal ⑤⓪ .)

3.Connect the terminal ⑤⓪ . When the ammeter reading has stabilized, take the reading of the ammeter.

SPECIFIED VALUE: 50A or less(0.7kW type)
90A or less(1.0kW type)



2-1-6 OPERATION AFTER INSTALLATION

1.Connect the negative (-) terminal of the battery.

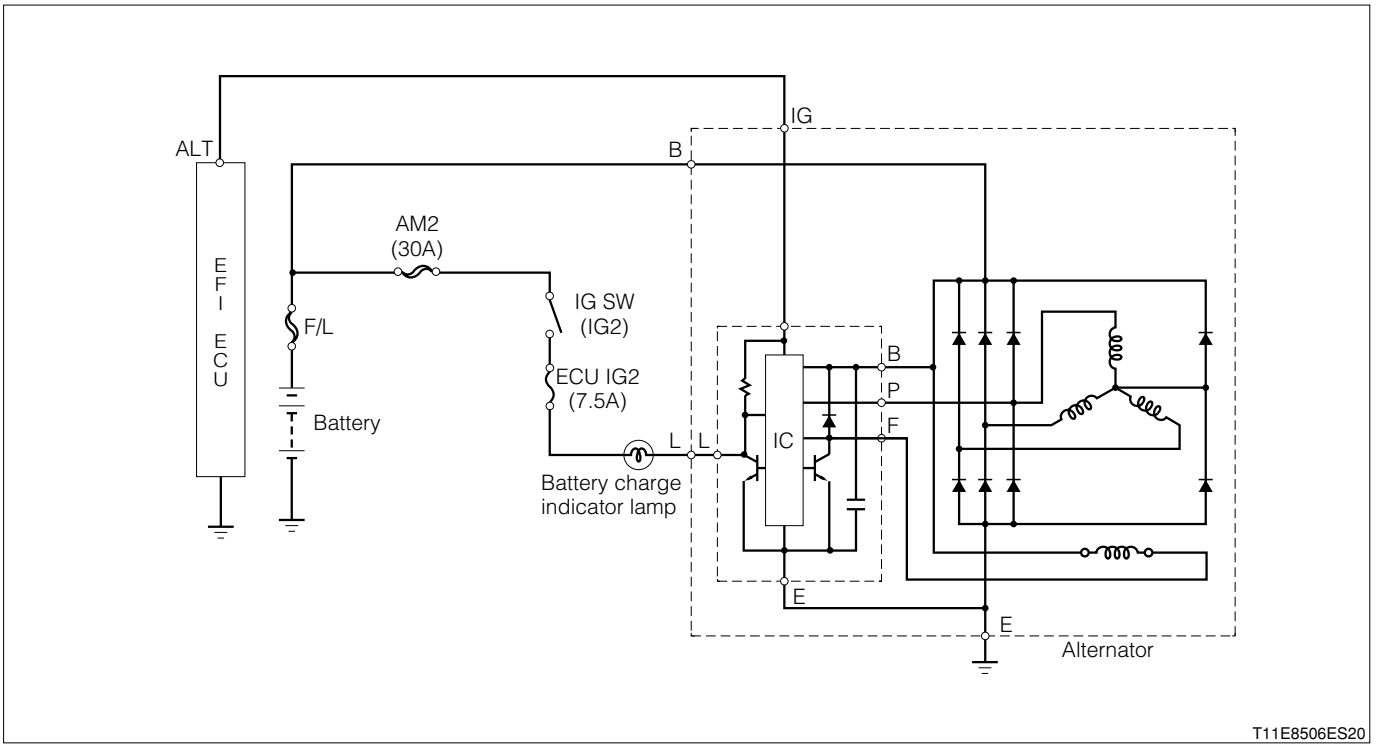
3 CHARGING SYSTEM

3-1 ARTICLES TO BE PREPARED

Instrument

Electrical Tester

3-2 SYSTEM DIAGRAM



3-3 IN-VEHICLE CHECK

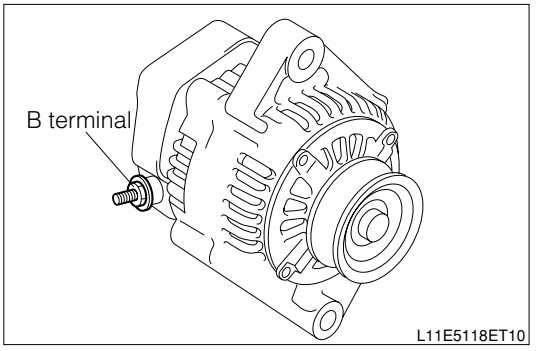
3-3-1 PRE-CHECK

1.After conducting the checks given below, carry out the in-vehicle check.
(1) Check the battery terminals for connecting state.
(2) Check the deflection amount of the V-belt.
Refer to Page B1-5.

(3) Check the fuse.
(4) Check the wiring.
(5) Check that the alternator emits abnormal noise while the engine is running.

3-3-2 NO-LOAD TEST

1.Connect a tester to the harness connected to the terminal B in the right figure.
2.Gradually raise the engine speed up to 2100 to 2300 rpm. Measure the current.
SPECIFIED VALUE: 10A or less (25°C)
3.Measure the battery voltage at this time.
SPECIFIED VALUE: 14.2 - 14.8V(25°C)



3-3-3 LOAD TEST

1. Under the conditions of the no-load test , turn ON the high beams of the headlamps and set the heater blower switch to the high position.
2. Gradually raise the engine speed up to 2000 rpm. Measure the current.
   SPECIFIED VALUE: 30A or more

NOTE

- It should be noted that the charging current may become smaller when the battery is in a fully charged state. Therefore, replace the present battery with a battery that has been discharged to some extent or increase the electrical load (Hazard lamps or defogger etc.) Carry out the measurement again.

4 ALTERNATOR

4-1 REMOVAL AND INSTALLATION

4-1-1 ARTICLES TO BE PREPARED

Instrument

Torque wrench

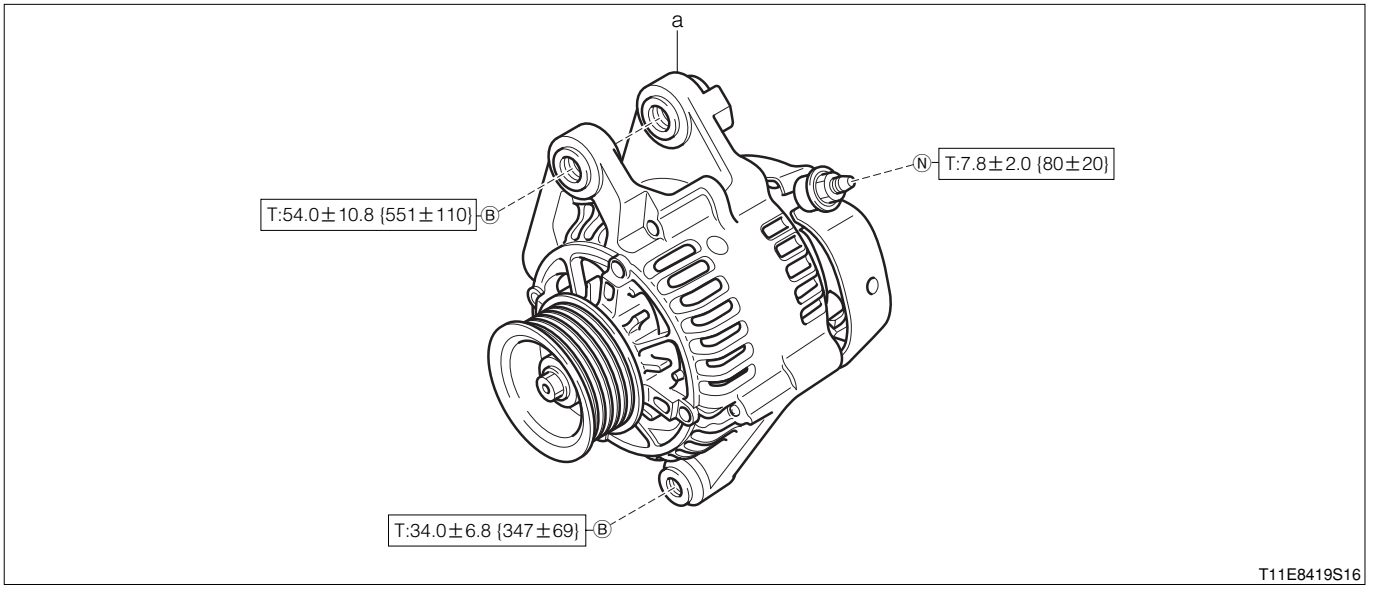
4-1-2 OPERATION BEFORE REMOVAL

1.Disconnect the negative (-) terminal of the battery.
2.Remove the front bamper cover.
Refer to Page I2-2.

3.Remove the V-ribbed belt.

4-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit:N·m{kgf·cm}

(2) Removal and installation procedures

1 a Alternator Ay

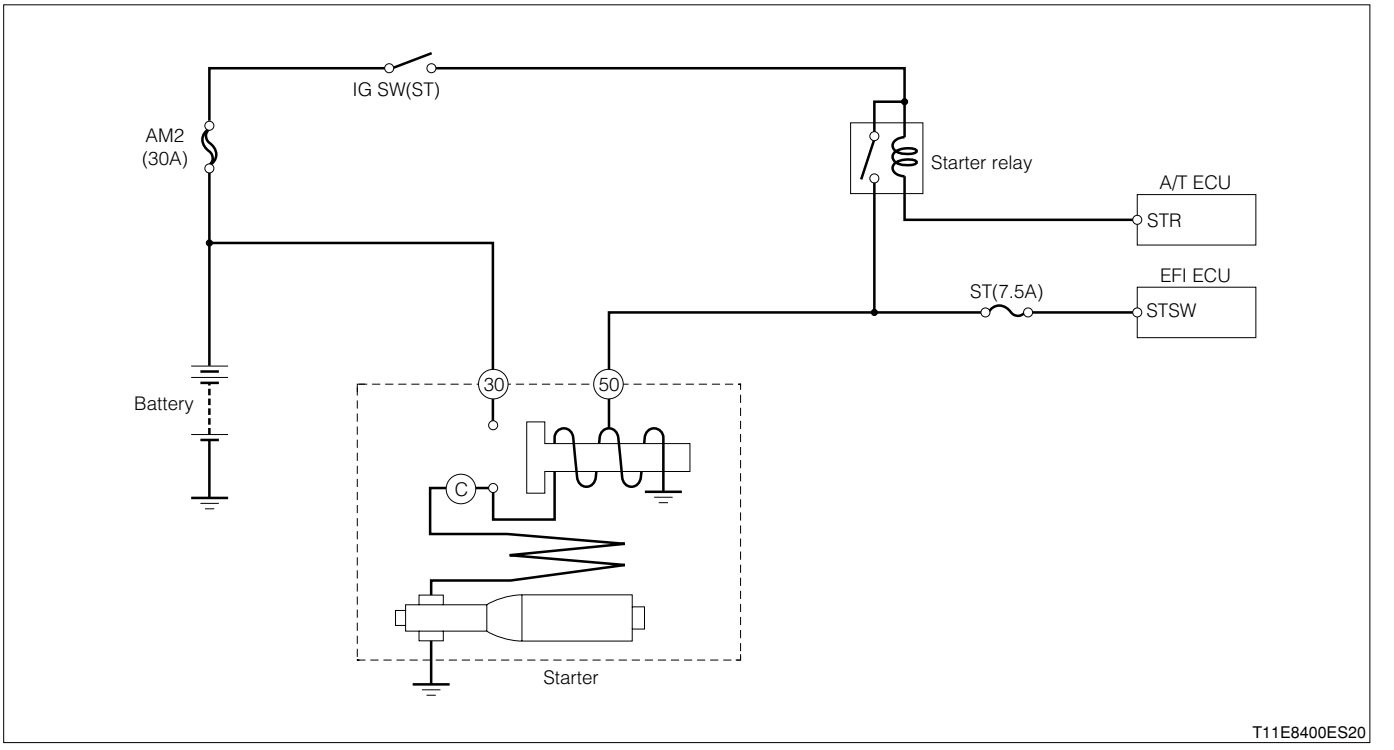
4-1-4 OPERATION AFTER INSTALLATION

1.Install the V-ribbed belt and adjust the tension.
Refer to Page B1-5.

2.Install the front bamper cover.
Refer to Page I2-2.

3.Install the negative (-) terminal of the battery.

■ K3
1 STARTING SYSTEM
1-1 SYSTEM DIAGRAM



2 STARTER

2-1 REMOVAL AND INSTALLATION

2-1-1 ARTICLES TO BE PREPARED

Instrument

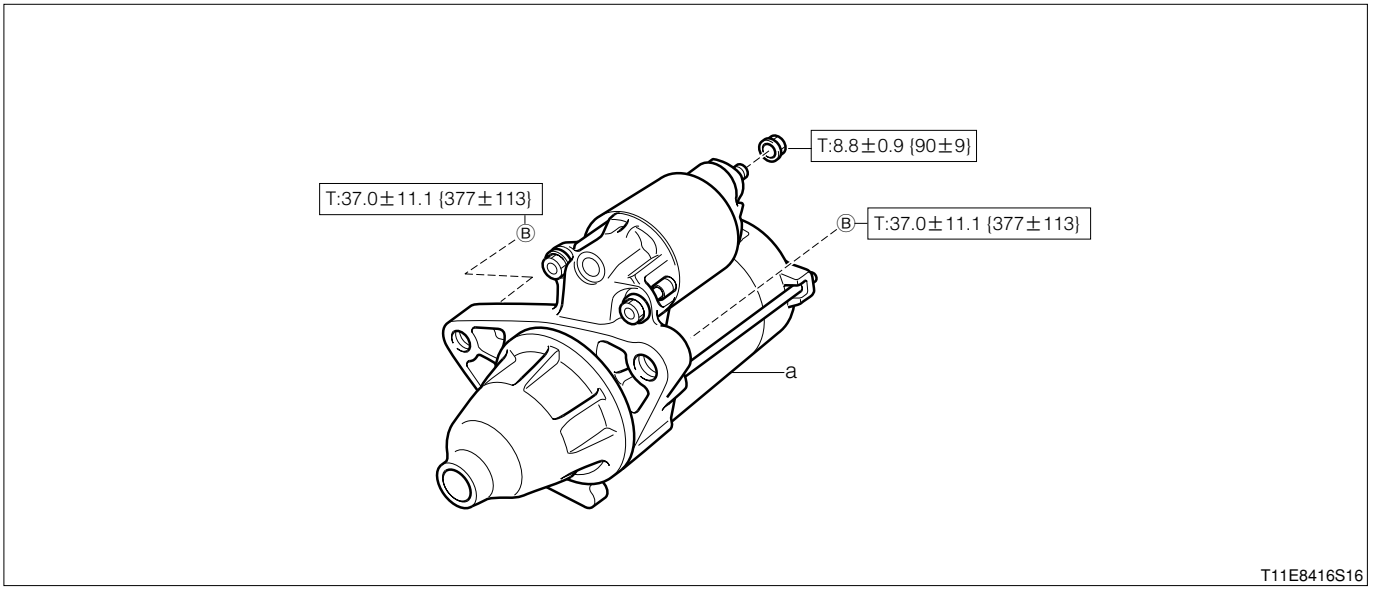
Torque wrench,Electrical Tester

2-1-2 OPERATION BEFORE REMOVAL

1.Remove the negative (-) terminal of the battery.

2-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit:N·m{kgf·cm}

(2) Removal and installation procedures

▼ 1 a Starter Ay

2-1-4 POINTS OF REMOVAL

(1) Starter Ay

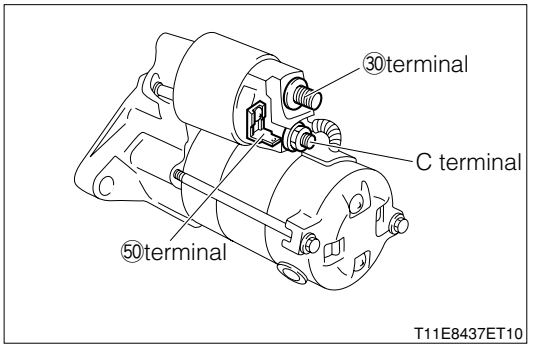
1.After removing the attaching bolts, take out the starter assembly from the engine compartment to the upper section of the vehicle.

2-1-5 INSPECTION

(1) Points to be observed and terminal positions

CAUTION

- Make sure to perform each check in a short length of time (Three to five seconds).



(2) Operation check

CAUTION

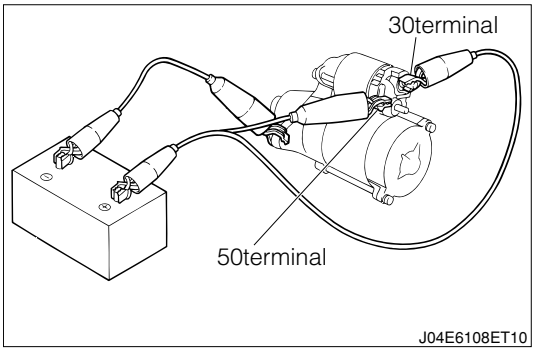
- A large current will flow during the test. Hence, be certain to employ a heavy lead wire.

1.Secure the starter with a vice etc.

2.Perform wiring to the cable, as indicated in the figure. (At this time, do not connect the wire for the terminal ⑤⓪ .)

3.Connect the terminal ⑤⓪ . Ensure that the pinion gear jumps out and turns.

4.Disconnect the terminal ⑤⓪ . Ensure that the pinion gear stops its turning and returns to the original position.



(3) No-load test

CAUTION

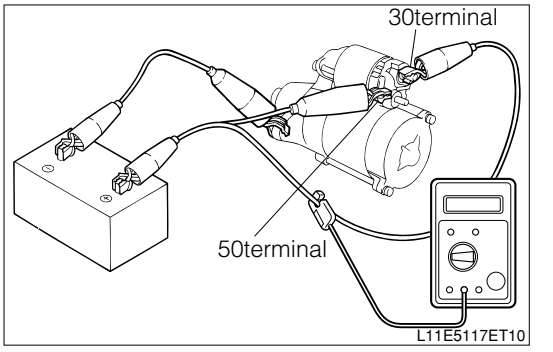
- A large current will flow during the test. Hence, be certain to employ a heavy lead wire.

1.Secure the starter with a vice etc.

2.Perform wiring to the cable and tester, as indicated in the figure. (At this time, do not connect the wire for the terminal ⑤⓪ .)

3.Connect the terminal ⑤⓪ . When the ammeter reading has stabilized, take the reading of the ammeter.

SPECIFIED VALUE: 50A or less(0.8kW type)
90A or less(1.0kW type)



2-1-6 OPERATION AFTER INSTALLATION

1.Install the negative (-) terminal of the battery.

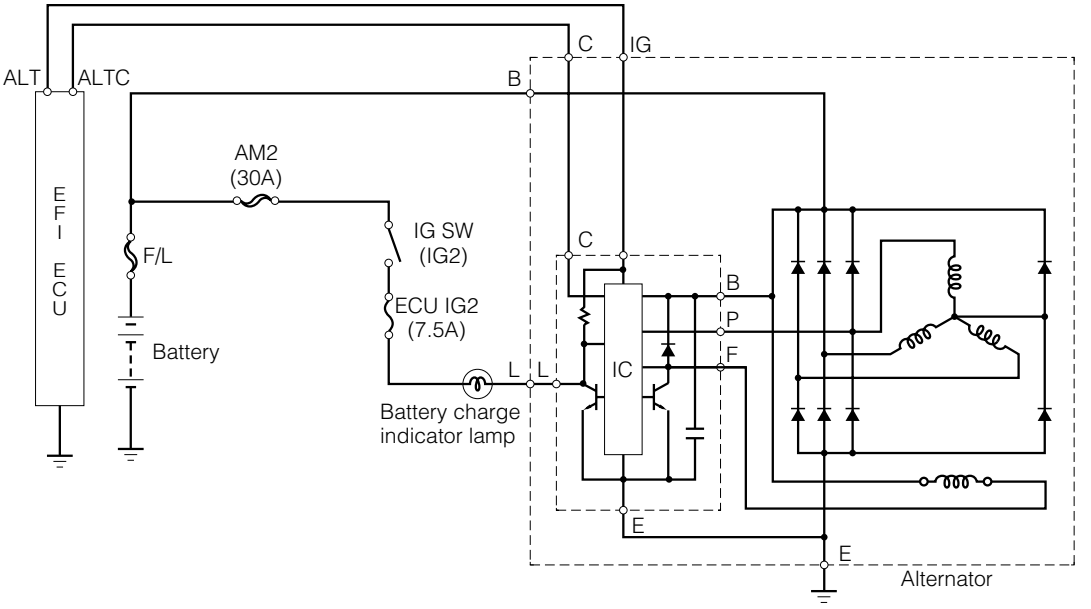
3 CHARGING SYSTEM

3-1 ARTICLES TO BE PREPARED

Instrument

Electrical Tester

3-2 SYSTEM DIAGRAM



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3-3 IN-VEHICLE CHECK

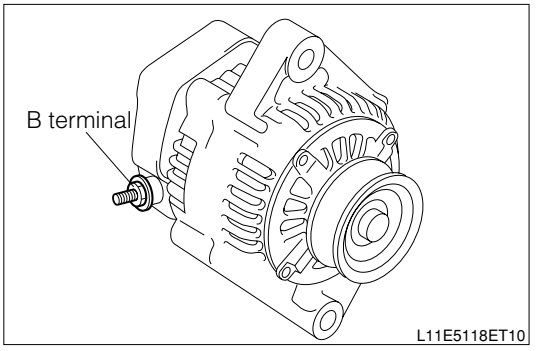
3-3-1 PRE-CHECK

1.After conducting the checks given below, carry out the in-vehicle check.
(1) Check the battery terminals for connecting state.
(2) Check the deflection amount of the V-ribbed belt.
Refer to Page B1-22.

(3) Check the fuse.
(4) Check the wiring.
(5) Check that the alternator emits abnormal noise while the engine is running.

3-3-2 NO-LOAD TEST

1.Connect a tester to the harness connected to the terminal B in the right figure.
2.Gradually raise the engine speed up to 2100 to 2300 rpm. Measure the current.
SPECIFIED VALUE: 10A or less (25°C)
3.Measure the battery voltage at this time.
SPECIFIED VALUE: 14.2 - 14.8V(25°C)



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3-3-3 LOAD TEST

1. Under the conditions of the no-load test , turn ON the high beams of the headlamps and set the heater blower switch to the high position.
2. Gradually raise the engine speed up to 2000 rpm. Measure the current.
   SPECIFIED VALUE: 30A or more

NOTE

- It should be noted that the charging current may become smaller when the battery is in a fully charged state. Therefore, replace the present battery with a battery that has been discharged to some extent or increase the electrical load (Hazard lamps or defogger etc.) Carry out the measurement again.

4 ALTERNATOR

4-1 REMOVAL AND INSTALLATION

4-1-1 ARTICLES TO BE PREPARED

Instrument

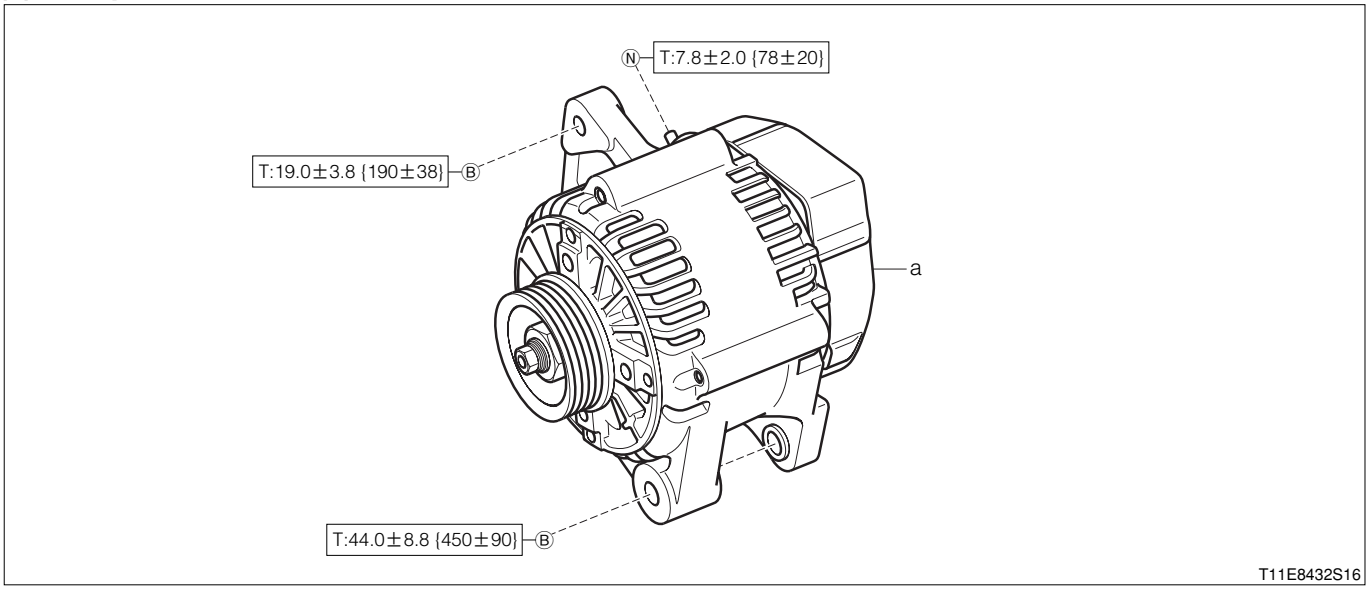
Torque wrench

4-1-2 OPERATION BEFORE REMOVAL

1.Disconnect the negative (-) terminal of the battery.
2.Remove the disc wheel. (Front RH)
3.Remove the engine under cover RH.
4.Remove the V-ribbed belt.

4-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit:N·m{kgf·cm}

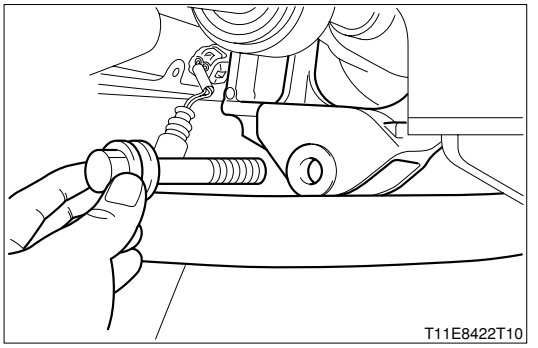
(2) Removal and installation procedures

▼ ▲ 1 a Alternator Ay

4-1-4 POINTS OF REMOVAL

(1) Alternator Ay

1.Disconnect the alternator assembly.
2.Remove the attaching bolts of the alternator assembly.
3.Remove the bolts of the exhaust front pipe Ay.
4.Remove the attaching bolts of the rear engine mounting bracket, while pressing down the exhaust front pipe Ay.
5.Remove the alternator Ay after passing it between the front side member Ay and the RH drive shaft Ay.



4-1-5 POINTS OF INSTALLATION

(1) Alternator Ay

1. Install the alternator assembly after passing it through the front side member and the drive shaft. Tighten the attaching bolts temporally.
2. Install the attaching bolts of the rear engine mounting bracket.
   TIGHTENING TORQUE: 120±18 N·m{1224±183kgf·cm}

3. Install the bolts of the exhaust front pipe Ay.
   TIGHTENING TORQUE: 46.6±7.3 N·m{475±74kgf·cm}

4. Install the connector of the alternator assembly.

4-1-6 OPERATION AFTER INSTALLATION

1. Install the V-ribbed belt and adjust the tension.
   Refer to Page B1-21.

2. Install the engine under cover RH.
3. Install the disc wheel. (Front RH)
4. Install the negative terminal of the battery.