

General Description

STARTING/CHARGING SYSTEMS

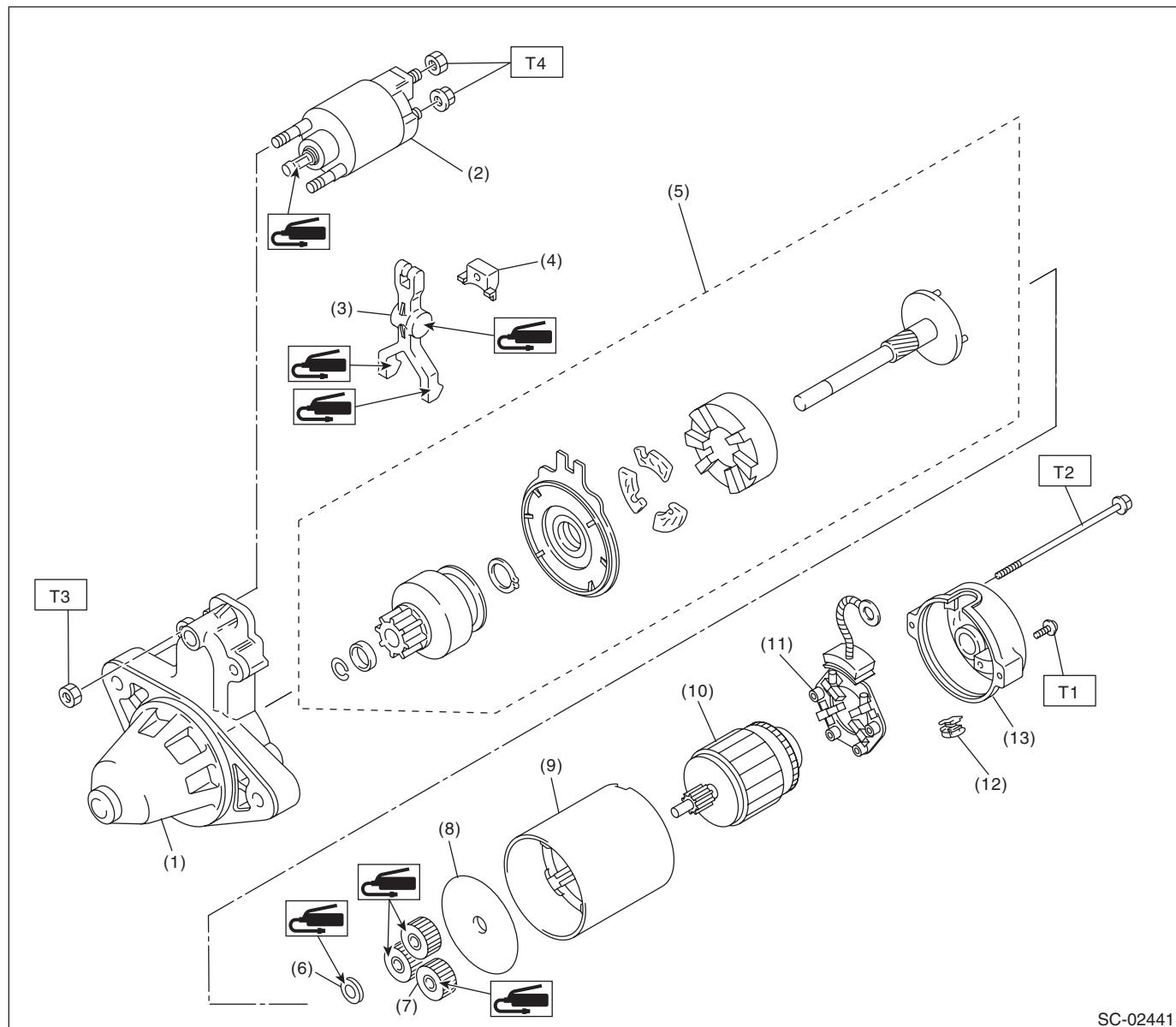
1. General Description

A: SPECIFICATION

Item		Specifications
Vehicle model		AT
Starter	Type	Reduction type
	Model	428000-5250
	Manufacturer	DENSO
	Voltage and output	12 V — 1.6 kW
	Direction of rotation	Counterclockwise (when observed from pinion)
	Number of pinion teeth	9
	No-load characteristics	Voltage
		11 V
		Current
	Load characteristics	90 A or less
		Rotating speed
		1,550 rpm or more
		Voltage
	Lock characteristics	8 V
		Current
		370 A
		Torque
	Lock characteristics	12.8 N·m (1.3 kgf-m, 9.4 ft-lb) or more
		Rotating speed
		800 rpm or more
		Voltage
Generator	Generator	3 V
		Current
		750 A or less
		Torque
		19.0 N·m (1.9 kgf-m, 14.0 ft-lb) or more
	Type	Rotating-field three-phase type, voltage regulator built-in type, with load response control system
	Model	A3TJ3591
	Manufacturer	Mitsubishi Electric
	Voltage and output	12 V — 130 A
	Polarity on ground side	Negative
Battery	Battery	Direction of rotation
		Clockwise (when observed from pulley side)
		Armature connection
		3-phase Δ type
		Output current
		1,500 rpm — 55 A or more
		2,500 rpm — 108 A or more
		5,000 rpm — 127 A or more
		Regulated voltage
		14.1 — 14.8 V [20°C (68°F)]
	Rotor slip ring outer diameter	Standard
		Limit
	Brush length	Standard
		Limit
	Type and capacity	12 V — 52 AH (75D 23L)
	CCA	490A

B: COMPONENT

1. STARTER



SC-02441

- | | |
|-----------------------------|------------------------|
| (1) Starter housing | (8) Starter plate |
| (2) Magnet switch ASSY | (9) Yoke |
| (3) Shift lever | (10) Armature |
| (4) Starter seal | (11) Brush holder ASSY |
| (5) Overrunning clutch ASSY | (12) Drain duct |
| (6) Washer | (13) Starter cover |
| (7) Planetary gear | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.4 (0.1, 1.0)

T2: 6 (0.6, 4.4)

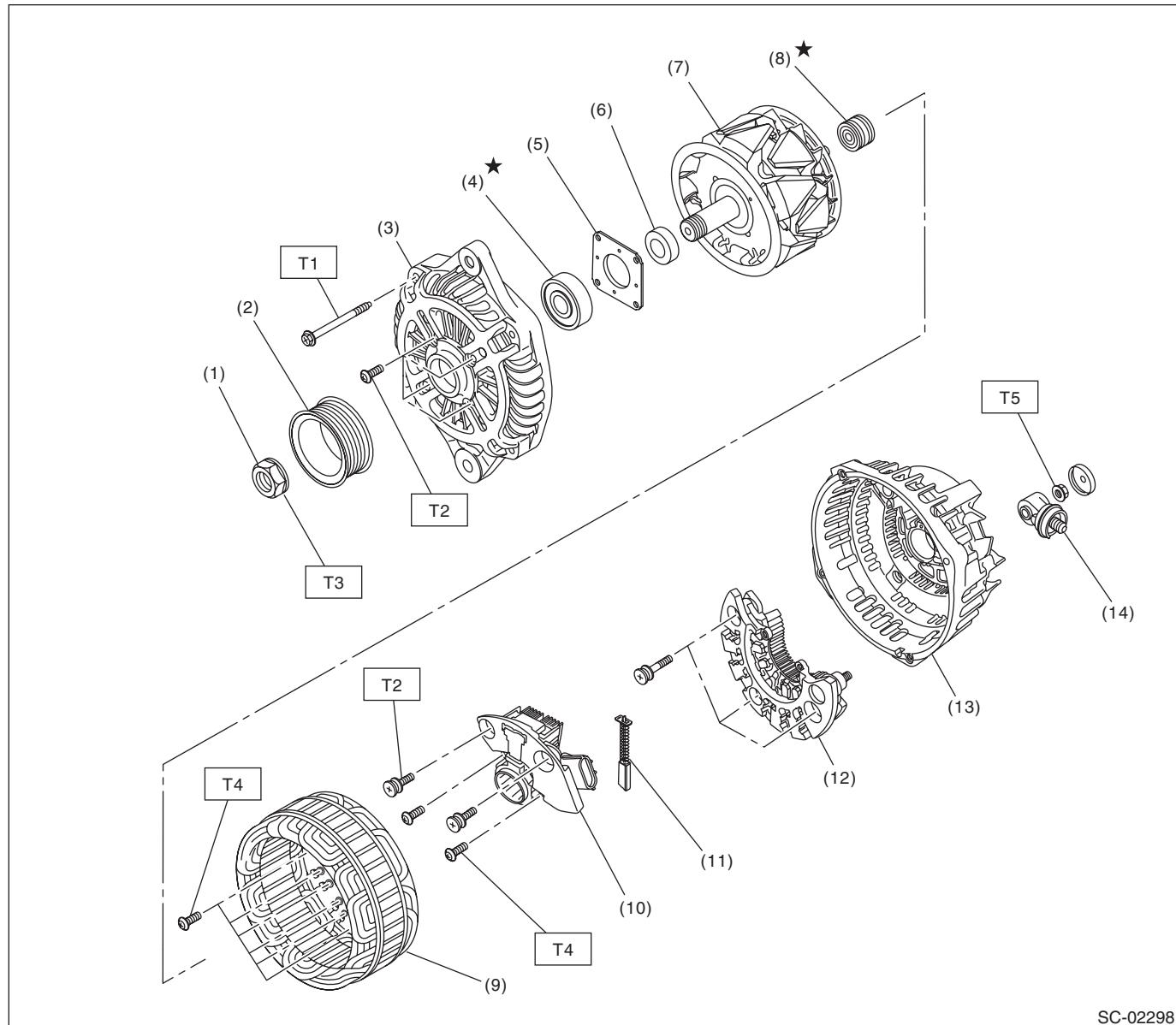
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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2. GENERATOR



SC-02298

- | | |
|----------------------|-------------------|
| (1) Pulley nut | (8) Bearing |
| (2) Pulley | (9) Stator coil |
| (3) Front cover | (10) IC regulator |
| (4) Ball bearing | (11) Brush |
| (5) Bearing retainer | (12) Rectifier |
| (6) Spacer | (13) Rear cover |
| (7) Rotor | (14) Terminal B |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 4.4 (0.4, 3.2)

T2: 3.9 (0.4, 2.9)

T3: 117.5 (12.0, 86.7)

T4: 2 (0.2, 1.5)

T5: 8.9 (0.9, 6.6)

C: CAUTION

- Prior to starting work, pay special attention to the following:
 1. Always wear work clothes, a work cap, and protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
 2. Protect the vehicle using a seat cover, fender cover, etc.
 3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
- Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
- Keep the removed parts in order and protect them from dust and dirt.
- All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
- Bolts, nuts and washers should be replaced with new parts as required.
- Be sure to tighten the fasteners including bolts and nuts to the specified torque.

D: PREPARATION TOOL

1. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and current.