

General Description

STARTING/CHARGING SYSTEMS

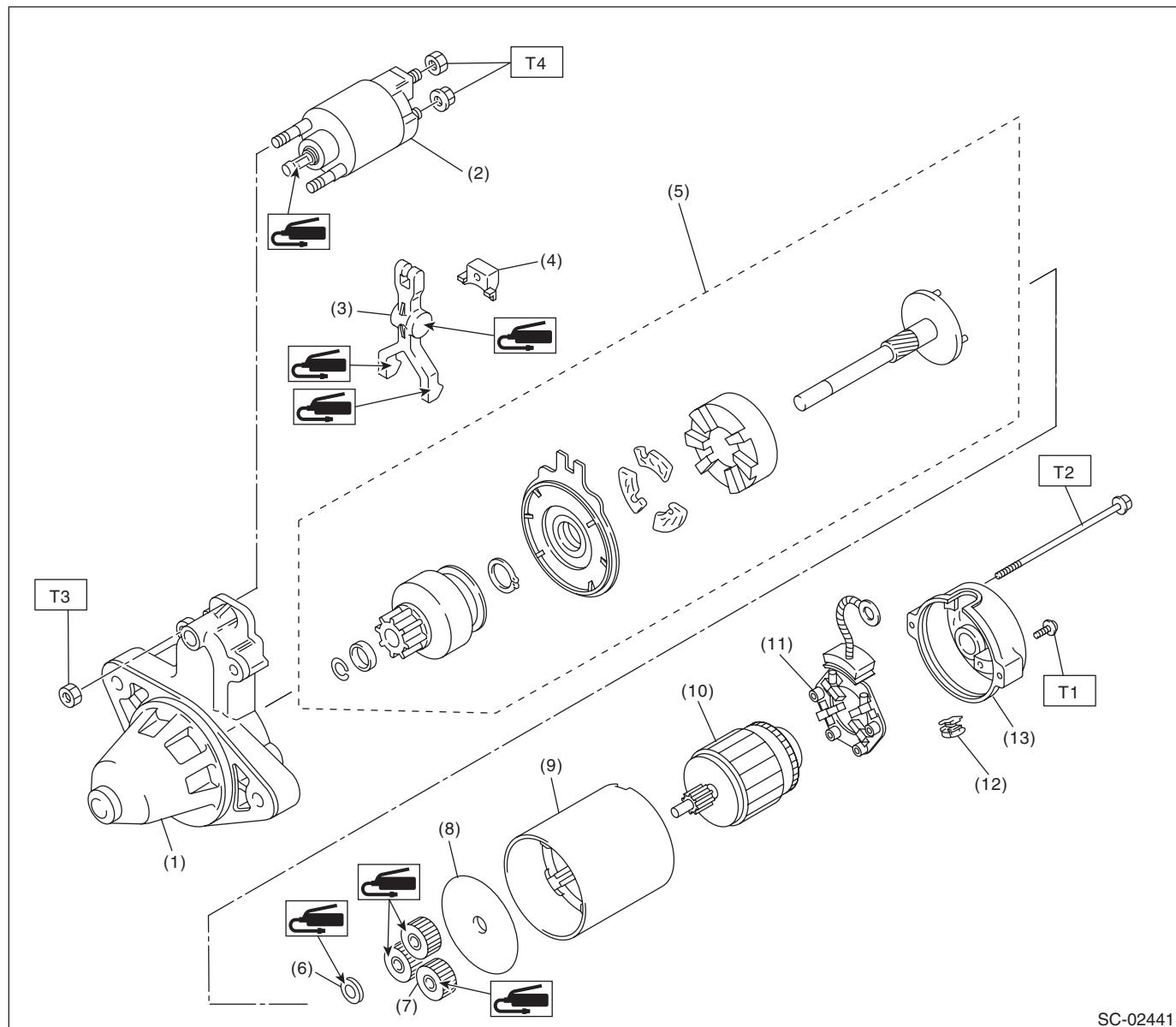
1. General Description

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 90 A or less
		Rotating speed 1,550 rpm or more
	Load characteristics	Voltage 8 V
		Current 370 A
		Torque 12.8 N·m (1.3 kgf-m, 9.4 ft-lb) or more
		Rotating speed 800 rpm or more
	Lock characteristics	Voltage 3 V
		Current 750 A or less
		Torque 19.0 N·m (1.9 kgf-m, 14.0 ft-lb) or more
Generator	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
	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 22.7 mm (0.894 in)
		Limit 22.1 mm (0.870 in)
	Brush length	Standard 22.5 mm (0.886 in)
		Limit 5.0 mm (0.197 in)
Battery	Type and capacity	12 V — 52 AH (75D 23L)

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)

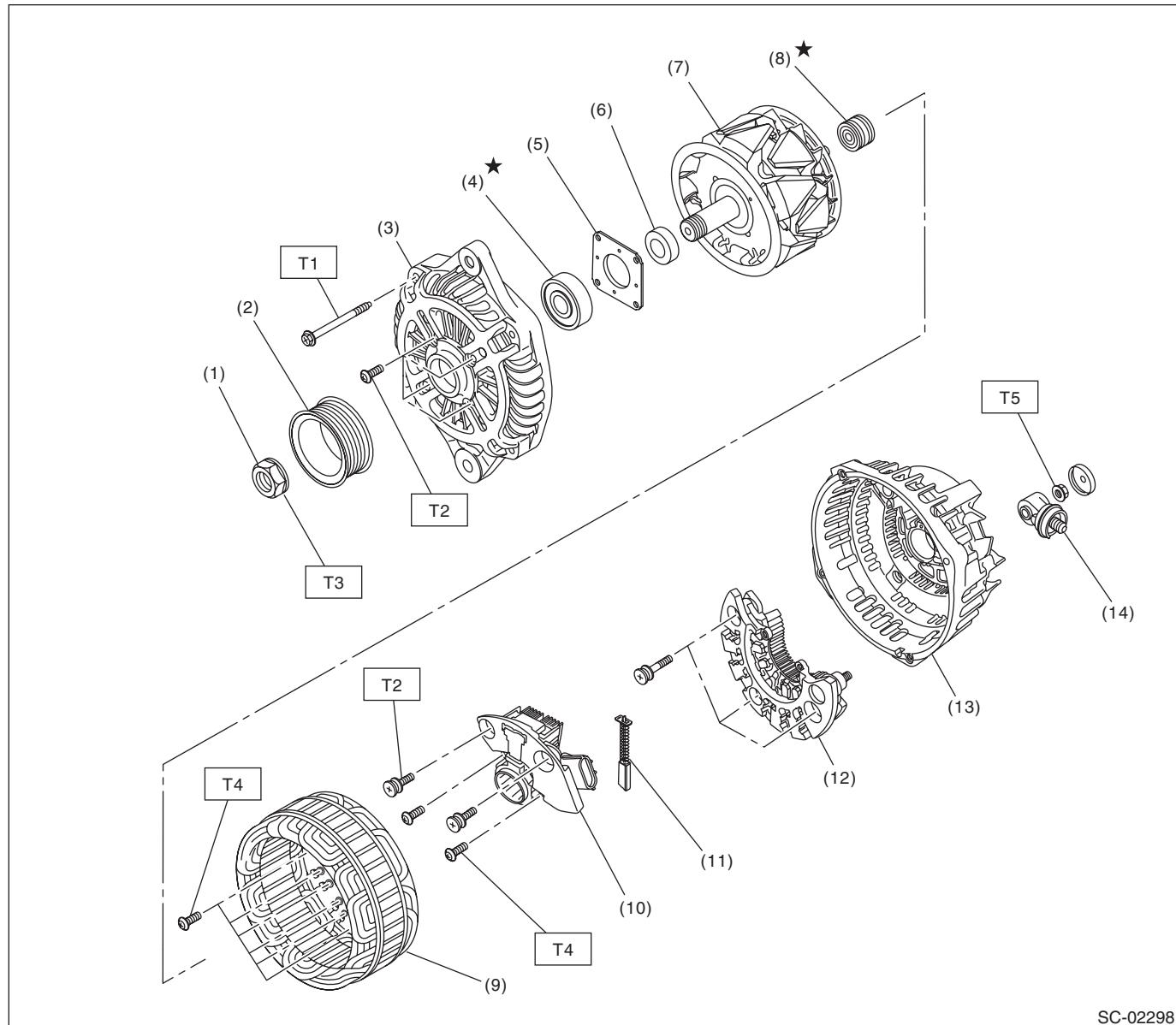
T3: 7.5 (0.8, 5.5)

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

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from the battery.

D: PREPARATION TOOL

1. GENERAL TOOL

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