

General Description

STARTING/CHARGING SYSTEMS

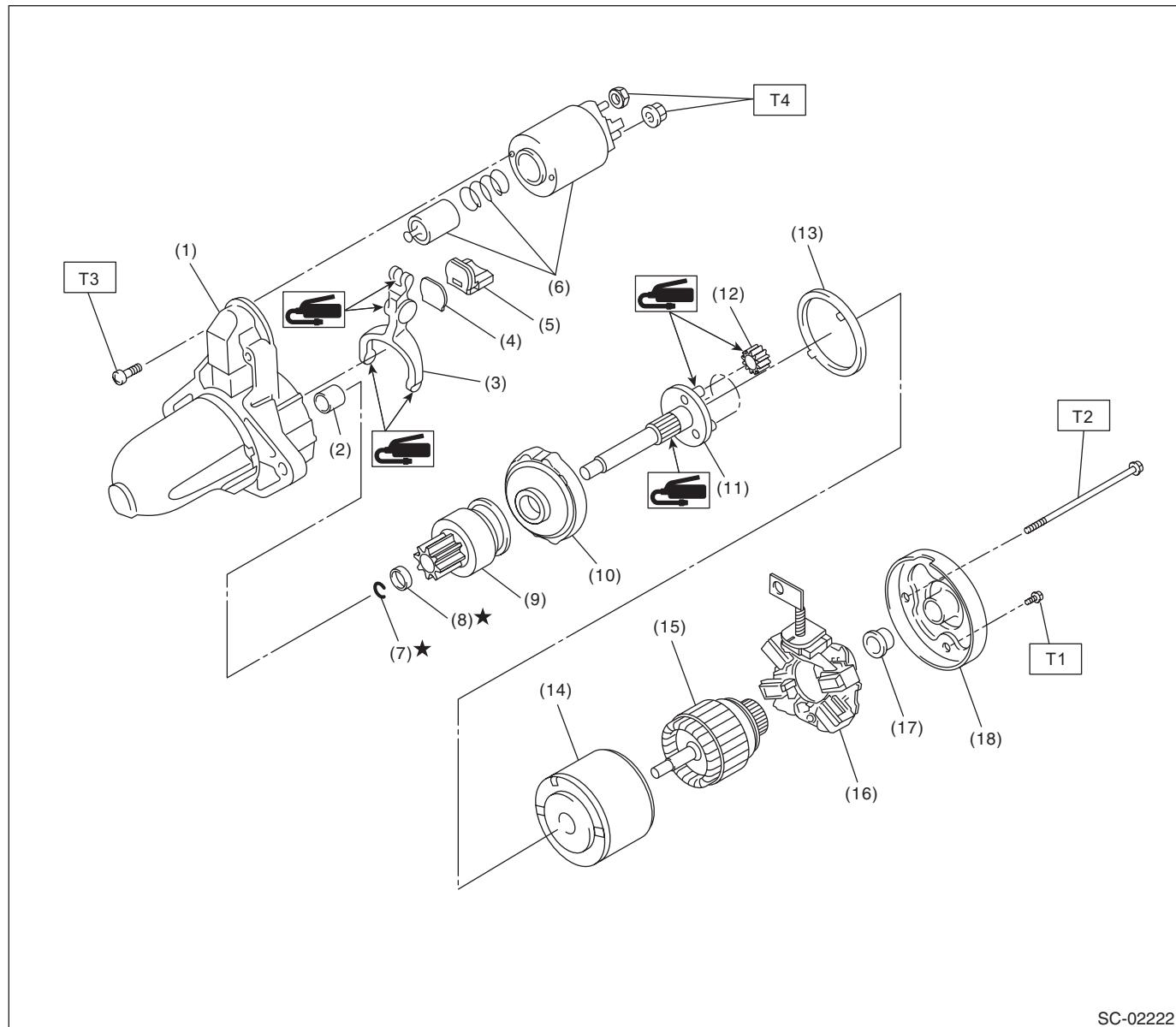
1. General Description

A: SPECIFICATION

Item		Specifications	
Starter	Type	Reduction type	
	Vehicle model	AT	MT
	Model	M000T20175	M000T30475
	Manufacturer	Mitsubishi Electric	
	Voltage and output	12 V — 1.4 kW	12 V — 1.0 kW
	Direction of rotation	Counterclockwise (when observed from pinion)	
	Number of pinion teeth	9	8
	Armature commutator runout	Standard	0.05 mm (0.0020 in)
		Limit	0.10 mm (0.0039 in)
	Armature depth of segment mold	Standard	0.5 mm (0.020 in)
	Brush length	Standard	12.3 mm (0.484 in)
		Limit	7.0 mm (0.276 in)
	Brush spring force	Standard	15.9 — 19.5 N (1.62 — 1.99 kgf, 3.57 — 4.38 lbf)
		Limit	2.5 N (0.25 kgf, 0.56 lbf)
	No-load characteristics	Voltage	11 V
		Current	90 A or less
		Rotating speed	2,000 rpm or more
	Load characteristics	Voltage	7.7 V
		Current	400 A
		Torque	16.7 N·m (1.7 kgf-m, 12.3 ft-lb) or more
		Rotating speed	710 rpm or more
	Lock characteristics	Voltage	3.5 V
		Current	960 A or less
		Torque	31 N·m (3.2 kgf-m, 22.9 ft-lb) or more
Generator	Type	Rotating-field three-phase type, voltage regulator built-in type, with load response control system	
	Model	A2TG1891	
	Manufacturer	Mitsubishi Electric	
	Voltage and output	12 V — 90 A	
	Polarity on ground side	Negative	
	Direction of rotation	Clockwise (when observed from pulley side)	
	Stator connection	3-phase Y-type	
	Output current	1,500 rpm — 40 A or more	
		2,500 rpm — 74 A or more	
		5,000 rpm — 84 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	18.5 mm (0.728 in)
		Limit	5.0 mm (0.197 in)
Battery	Type and capacity	12 V — 52 AH (65D 23L)	12 V — 48 AH (55D 23L)

B: COMPONENT

1. STARTER



SC-02222

- (1) Starter housing ASSY
- (2) Sleeve bearing
- (3) Shift lever
- (4) Plate
- (5) Seal rubber
- (6) Magnet switch ASSY
- (7) Snap ring
- (8) Stopper

- (9) Overrunning clutch
- (10) Internal gear ASSY
- (11) Shaft
- (12) Pinion gear
- (13) Seal rubber
- (14) Yoke ASSY
- (15) Armature ASSY
- (16) Brush holder ASSY

- (17) Sleeve bearing
- (18) Starter cover ASSY

Tightening torque:N·m (kgf·m, ft·lb)

T1: 1.4 (0.1, 1.0)

T2: 6 (0.6, 4.4)

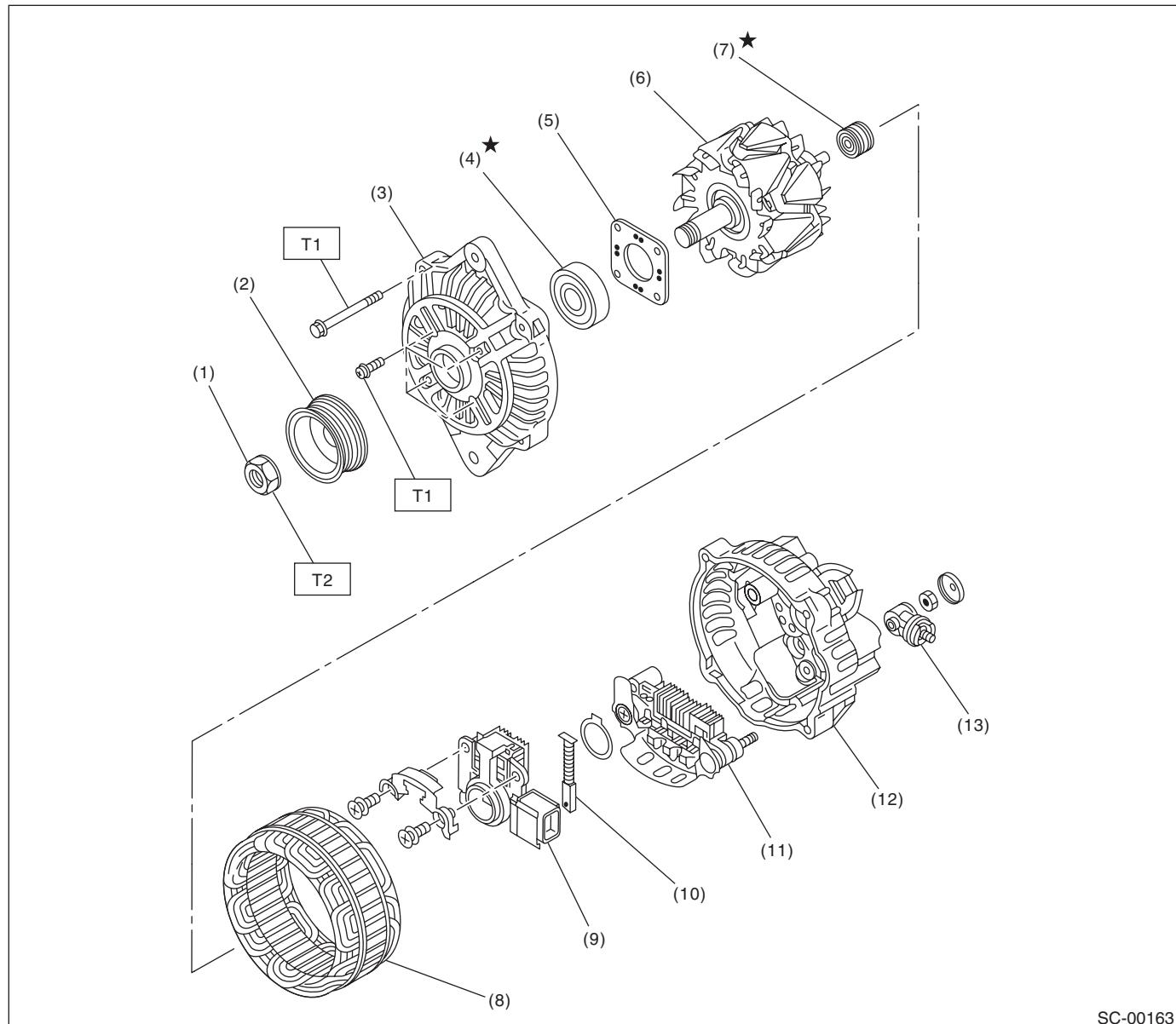
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

General Description

STARTING/CHARGING SYSTEMS

2. GENERATOR



- (1) Pulley nut
- (2) Pulley
- (3) Front cover
- (4) Ball bearing
- (5) Bearing retainer
- (6) Rotor

- (7) Bearing
- (8) Stator coil
- (9) IC regulator with brush
- (10) Brush
- (11) Rectifier
- (12) Rear cover

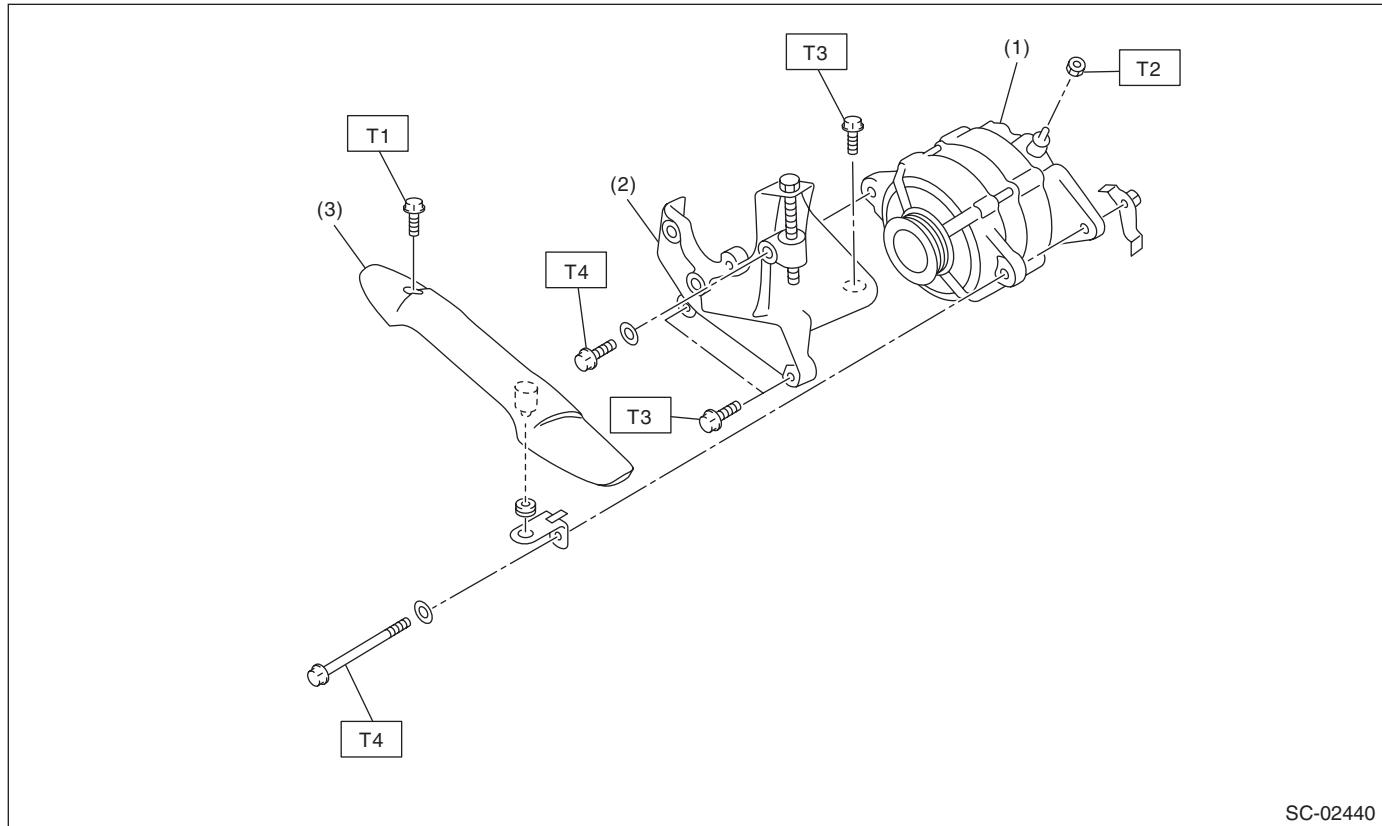
- (13) Terminals

Tightening torque:N·m (kgf-m, ft-lb)

T1: 4.7 (0.5, 3.5)

T2: 108 (11.0, 79.8)

3. GENERATOR BRACKET



(1) Generator

(3) V-belt cover

(2) Power steering pump bracket

Tightening torque:N·m (kgf·m, ft·lb)

T1: 13 (1.3, 9.6)

T2: 16 (1.6, 11.8)

T3: 22 (2.2, 16.2)

T4: 25 (2.5, 18.4)

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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.