

General Description

STARTING/CHARGING SYSTEMS

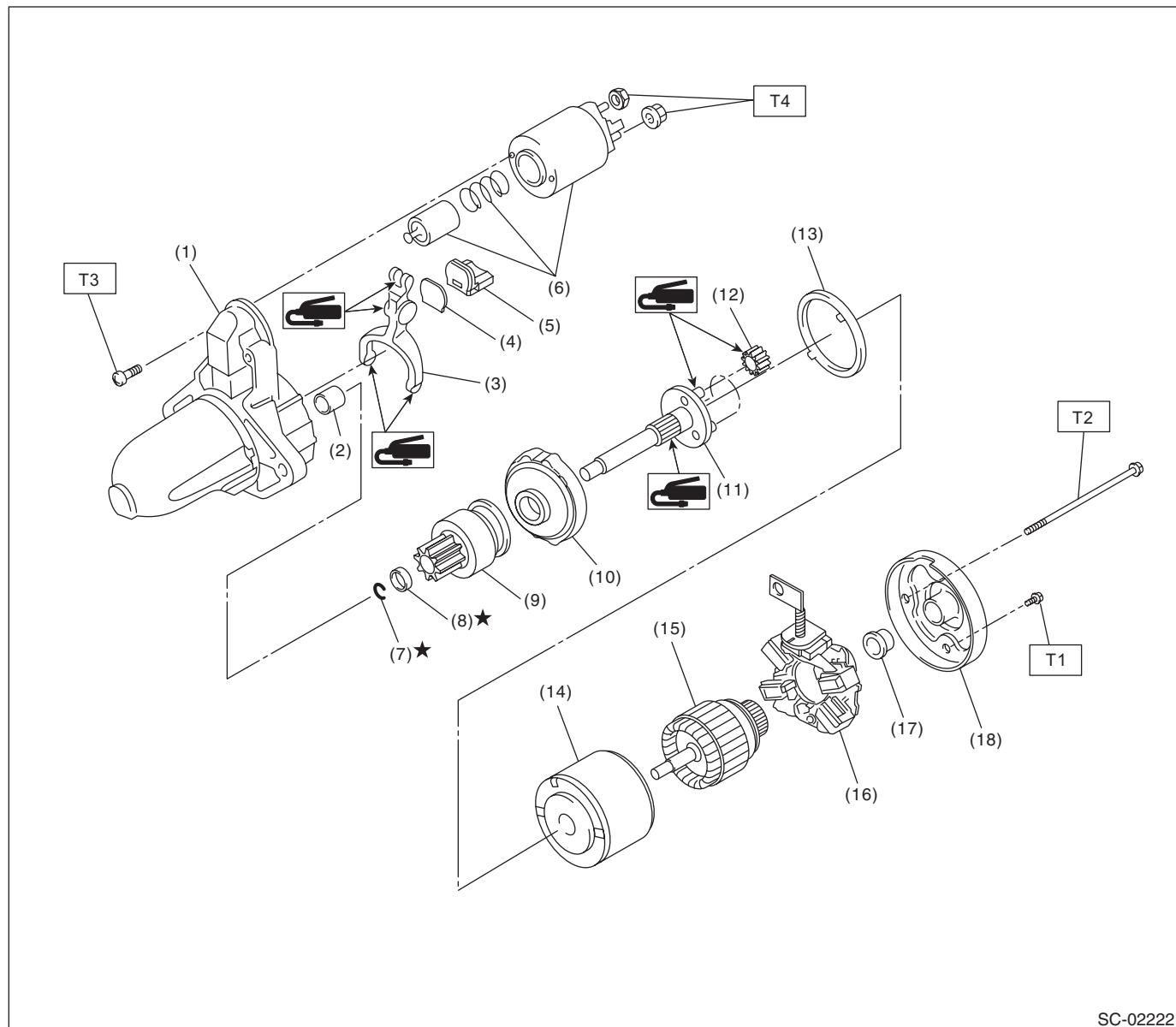
1. General Description

A: SPECIFICATION

Item		Specifications				
Vehicle model		Non-turbo model		Turbo model		
		CVT	MT			
Starter	Type	Reduction type				
	Model	M000T38571	M000T33176	M000T20176		
	Manufacturer	Mitsubishi Electric				
	Voltage and output	12 V — 1.2 kW	12 V — 1.0 kW	12 V — 1.4 kW		
	Direction of rotation	Counterclockwise (when observed from pinion)				
	Number of pinion teeth	9	8	9		
	No-load characteristics	Voltage	11 V			
		Current	90 A or less	95 A or less		
		Rotating speed	2,370 rpm or more	2,500 rpm or more		
	Load characteristics	Voltage	7.5 V	7.7 V		
		Current	300 A	400 A		
		Torque	10.65 N·m (1.1 kgf-m, 7.8 ft-lb) or more	8.84 N·m (0.9 kgf-m, 6.5 ft-lb) or more		
		Rotating speed	840 rpm or more	870 rpm or more		
	Lock characteristics	Voltage	4 V	3.5 V		
		Current	780 A or less	960 A or less		
		Torque	20 N·m (2.0 kgf-m, 14.8 ft-lb) or more	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	A2TX3381				
	Manufacturer	Mitsubishi Electric				
	Voltage and output	12 V — 130 A				
	Polarity on ground side	Negative				
	Direction of rotation	Clockwise (when observed from pulley side)				
	Stator connection	3-phase Δ type				
	Output current	1,500 rpm — 50 A or more 2,500 rpm — 111 A or more 5,000 rpm — 133 A or more				
		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 — 48 AH (55D 23L)				
	CCA	390A				

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)

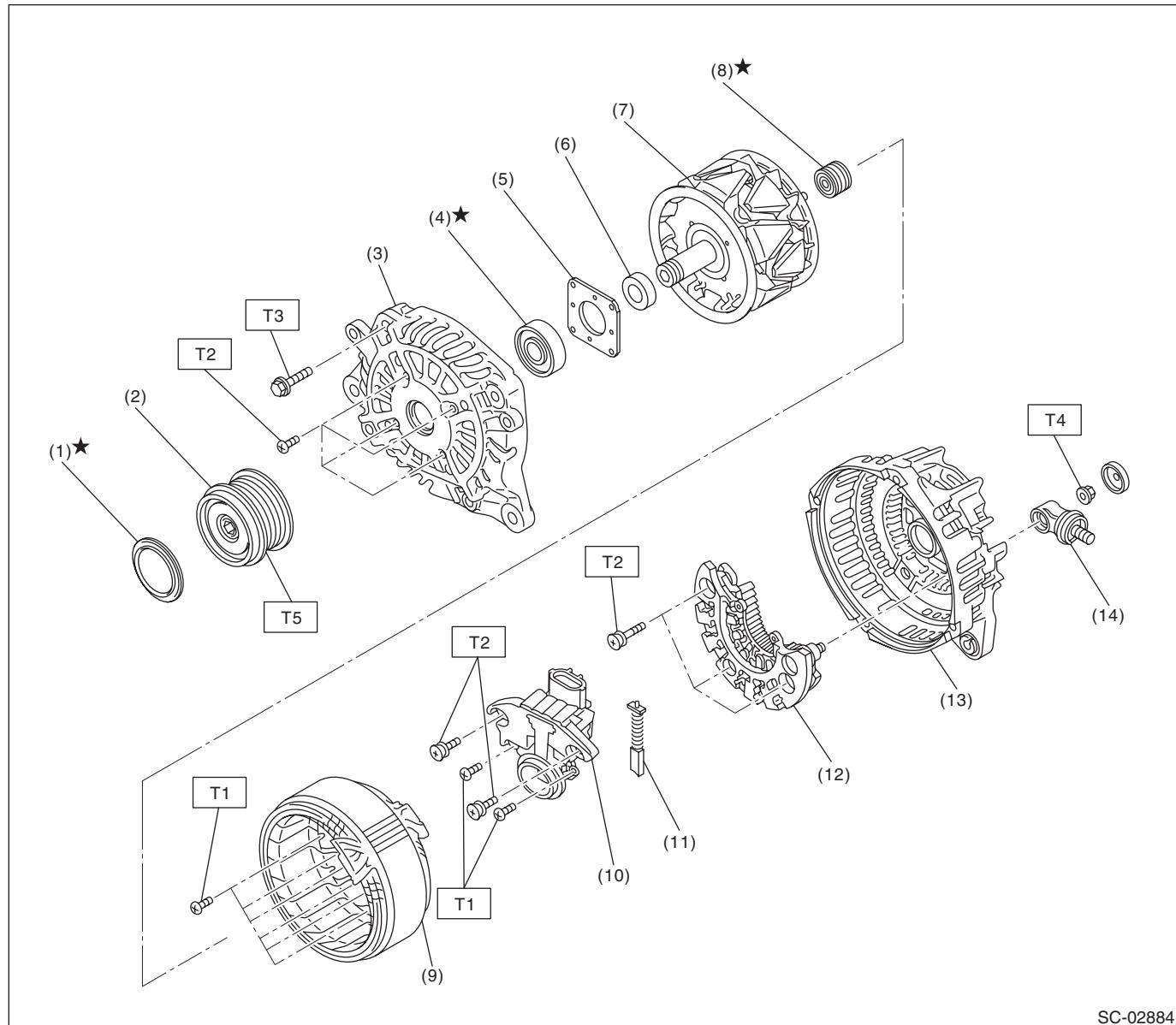
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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2. GENERATOR



SC-02884

(1) Cap	(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: 2 (0.2, 1.5)

T2: 3.9 (0.4, 2.9)

T3: 4.4 (0.4, 3.2)

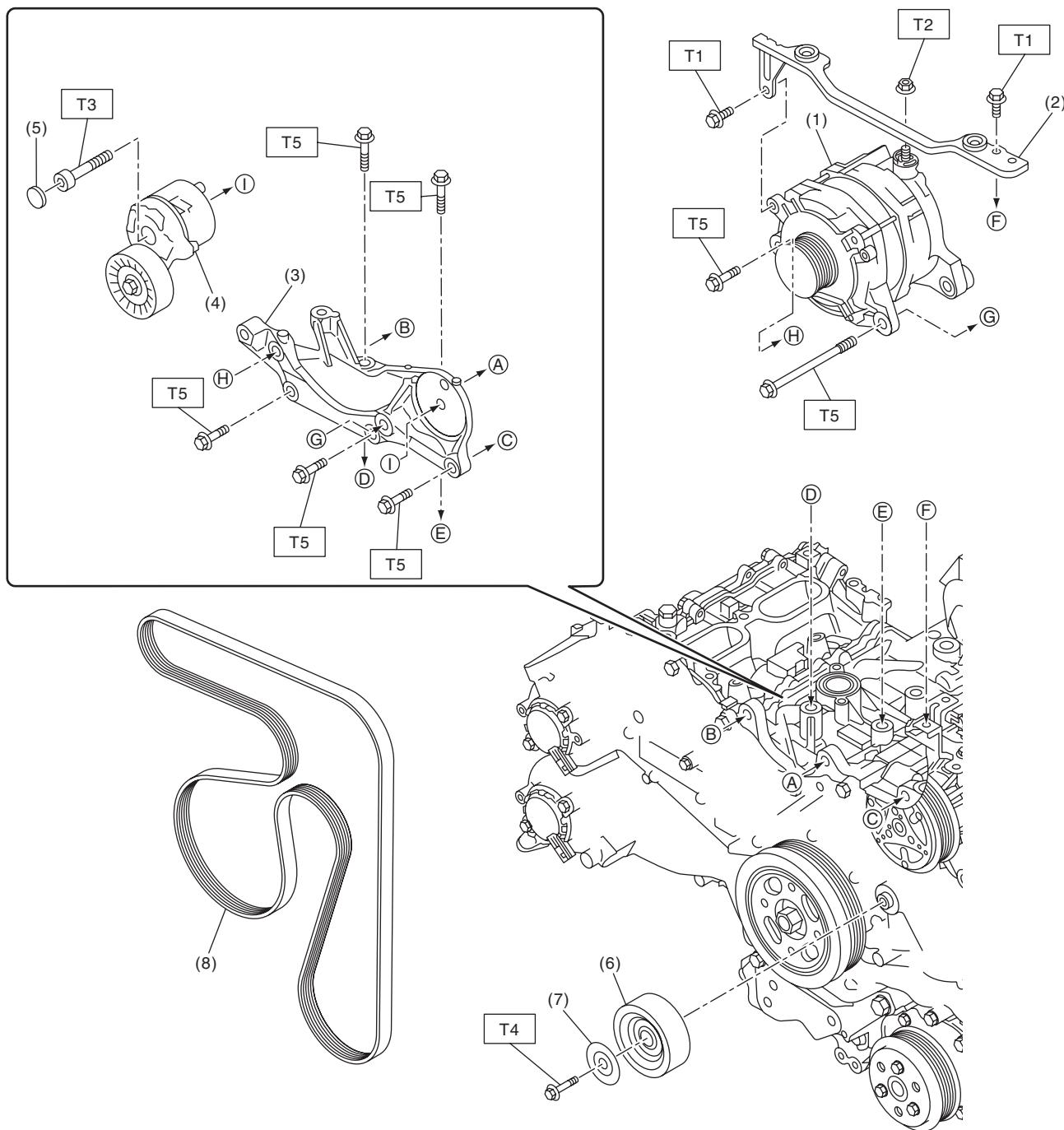
T4: 8.9 (0.9, 6.6)

T5: 108 (11.0, 79.8)

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3. GENERATOR BRACKET



SC-02932

(1)	Generator	(6)	Idler pulley
(2)	Collector cover bracket	(7)	Idler pulley cover
(3)	Generator bracket	(8)	V-belt
(4)	V-belt tensioner ASSY		
(5)	Cap		

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 16 (1.6, 11.8)

T3: 25 (2.5, 18.4)

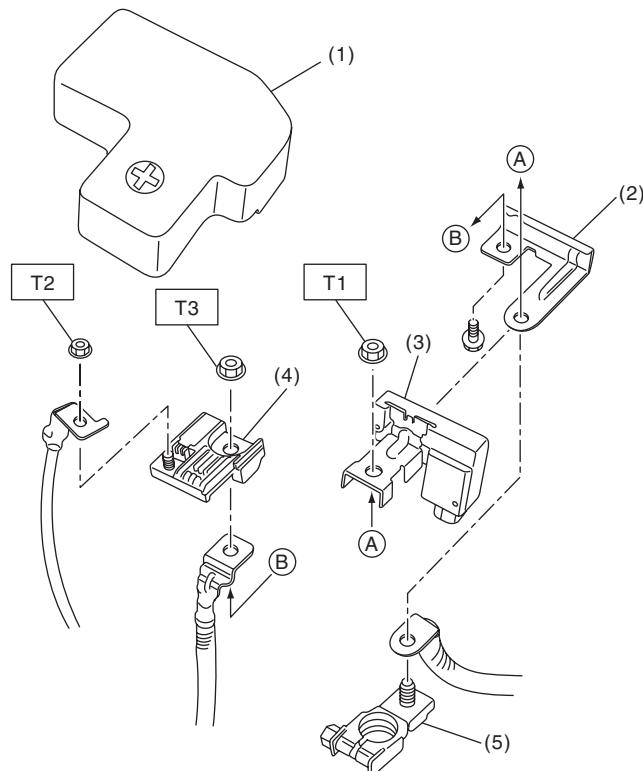
T4: 36 (3.7, 26.6)

T5: <Ref. to SC(H4DO)-43, INSTALLATION, Generator.>

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4. BATTERY CURRENT & TEMPERATURE SENSOR



SC-02815

- (1) Terminal boot
- (2) Terminal bracket
- (3) Battery current & temperature sensor

- (4) Slow blow fuse
- (5) Terminal base

Tightening torque: N·m (kgf·m, ft-lb)

T1: 7.5 (0.8, 5.5)

T2: 9 (0.9, 6.6)

T3: 14 (1.4, 10.3)

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.