

General Description

STARTING/CHARGING SYSTEMS

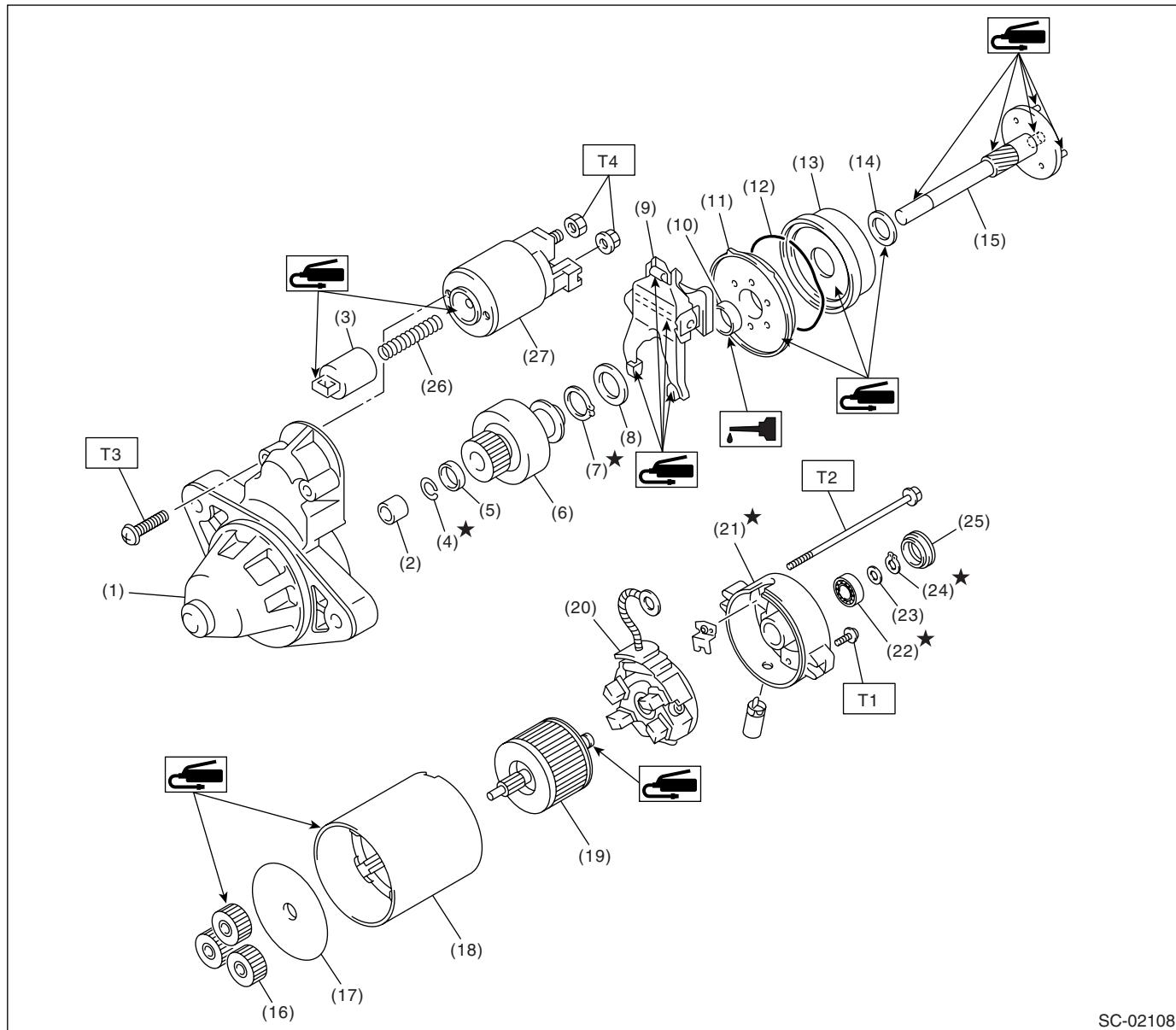
1. General Description

A: SPECIFICATION

Item	Specification	
Vehicle model	AT	
Starter	Type	Reduction type
	Model	428000-2290
	Manufacturer	DENSO
	Voltage and output	12 V — 1.4 kW
	Revolving direction	Counterclockwise (when observed from pinion)
	Number of pinion teeth	9
	No-load characteristics	Voltage 11 V
		Current 90 A or less
		Rotating speed More than 1,720 rpm
	Load characteristics	Voltage 8 V
		Current 370 A
		Torque 12.78 N·m (1.30 kgf-m, 9.4 ft-lb) or more
	Lock characteristics	Rotating speed More than 850 rpm
		Voltage 3 V
		Current 900 A or less
		Torque 15.42 N·m (1.57 kgf-m, 11.3 ft-lb) or more
Generator	Type	Rotating-field three-phase type, voltage regulator built-in type, with load response control system
	Model	A003TG0591
	Manufacturer	MITSUBISHI ELECTRIC
	Voltage and output	12 V — 110 A
	Polarity on ground side	Negative
	Revolving direction	Clockwise (when observed from pulley side)
	Armature connection	3-phase Y-type
	Output current	1,500 rpm — 50 A or more
		2,500 rpm — 91 A or more
		5,000 rpm — 105 A or more
Battery	Specified voltage	14.1 — 14.8 V [20°C (68°F)]
	Type and capacity	12 V — 52 AH (75D23L)

B: COMPONENT

1. STARTER



SC-02108

(1) Front bracket	(12) Wave washer	(23) Space ring
(2) Front bearing	(13) Internal gear	(24) Snap ring
(3) Plunger	(14) Washer	(25) End frame cover
(4) Snap ring	(15) Shaft	(26) Plunger spring
(5) Stopper	(16) Planetary gear	(27) Magnet switch
(6) Overrunning clutch	(17) Armature plate	
(7) Snap ring	(18) Yoke	
(8) Washer	(19) Armature	
(9) Lever	(20) Brush holder ASSY	
(10) Oilless bearing	(21) End frame	
(11) Shock absorber bearing	(22) Rear bearing	

Tightening torque: N·m (kgf·m, ft·lb)

T1: 1.4 (0.14, 1.03)

T2: 6 (0.6, 4.4)

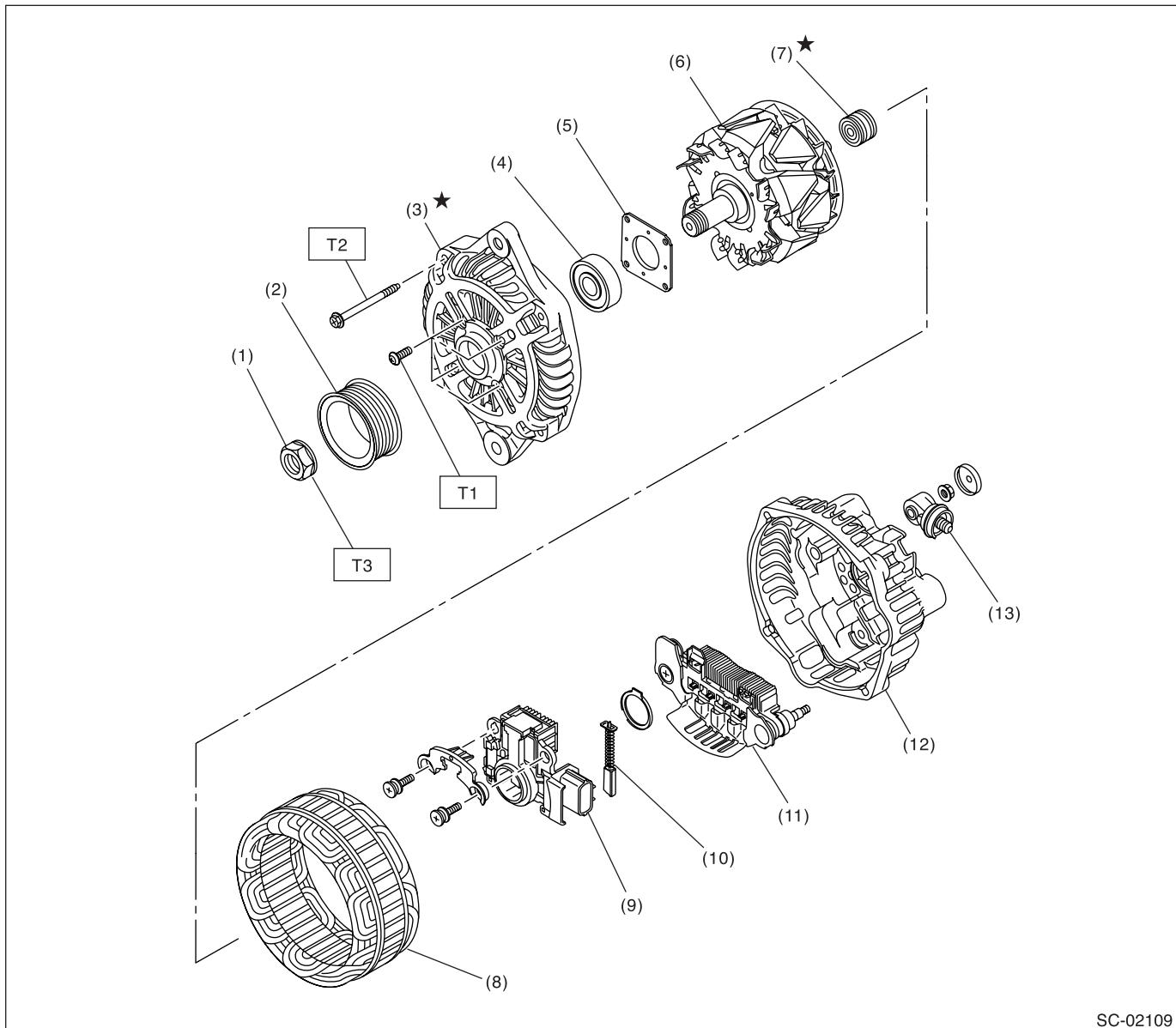
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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2. GENERATOR



SC-02109

- (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: 3.9 (0.4, 2.9)

T2: 4.6 (0.47, 3.4)

T3: 103 (10.5, 76)

C: CAUTION

- Wear work clothing, including a cap, protective goggles and protective shoes during operation.
- 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.
- Be careful not to burn yourself, because each part on the vehicle is hot after running.
- 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 battery.