

General Description

STARTING/CHARGING SYSTEMS

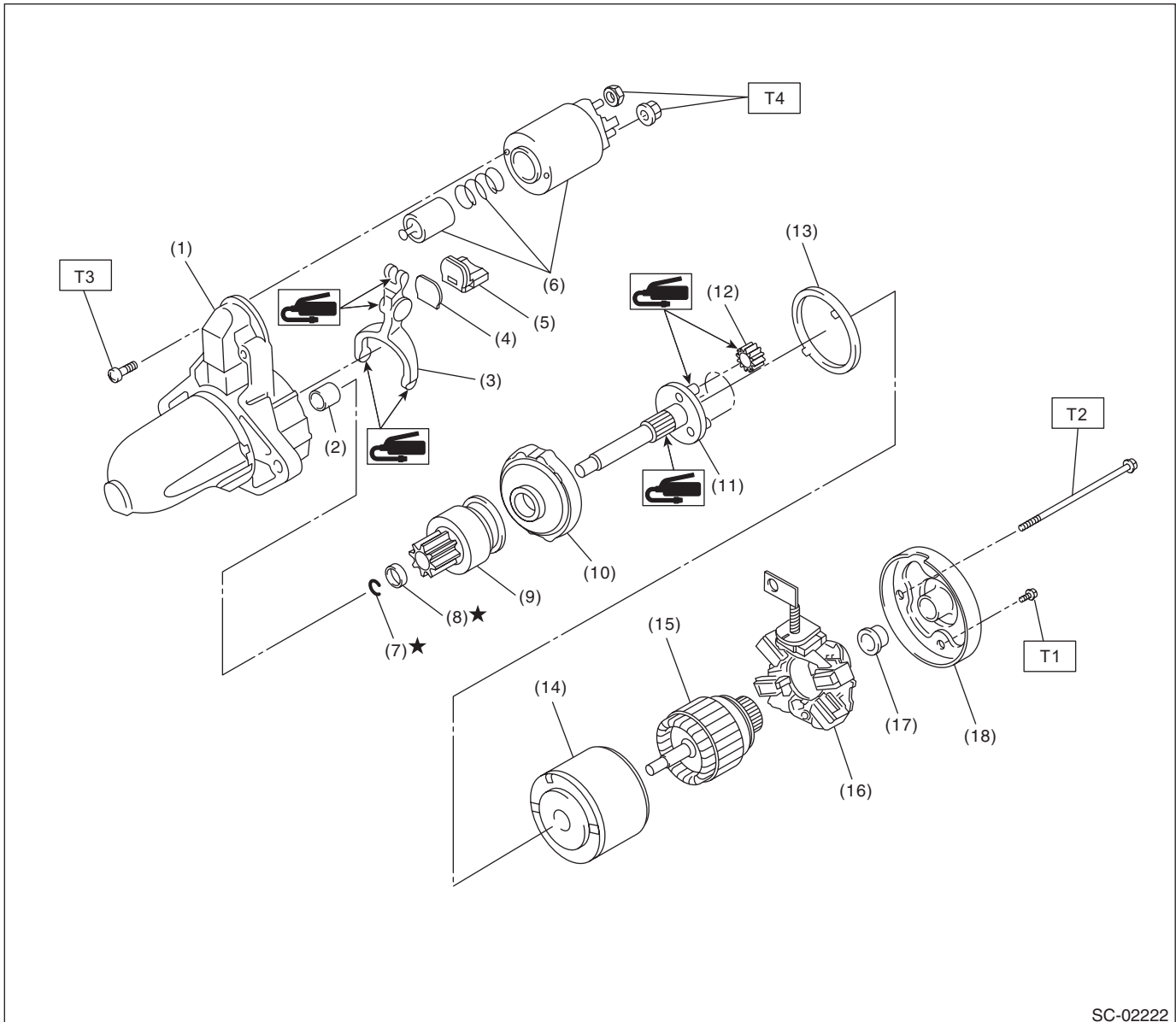
1. General Description

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 | 95 A or less |
| | | Rotating speed | 2,000 rpm or more | 2,500 rpm or more |
| | Load characteristics | Voltage | 7.7 V | 7.5 V |
| | | Current | 400 A | 300 A |
| | | Torque | 16.7 N·m (1.7 kgf-m, 12.3 ft-lb) or more | 8.84 N·m (0.9 kgf-m, 6.5 ft-lb) or more |
| | | Rotating speed | 710 rpm or more | 870 rpm or more |
| | Lock characteristics | Voltage | 3.5 V | 4 V |
| | | Current | 960 A or less | 680 A or less |
| | | Torque | 31 N·m (3.2 kgf-m, 22.9 ft-lb) or more | 17 N·m (1.7 kgf-m, 12.5 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



- (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)

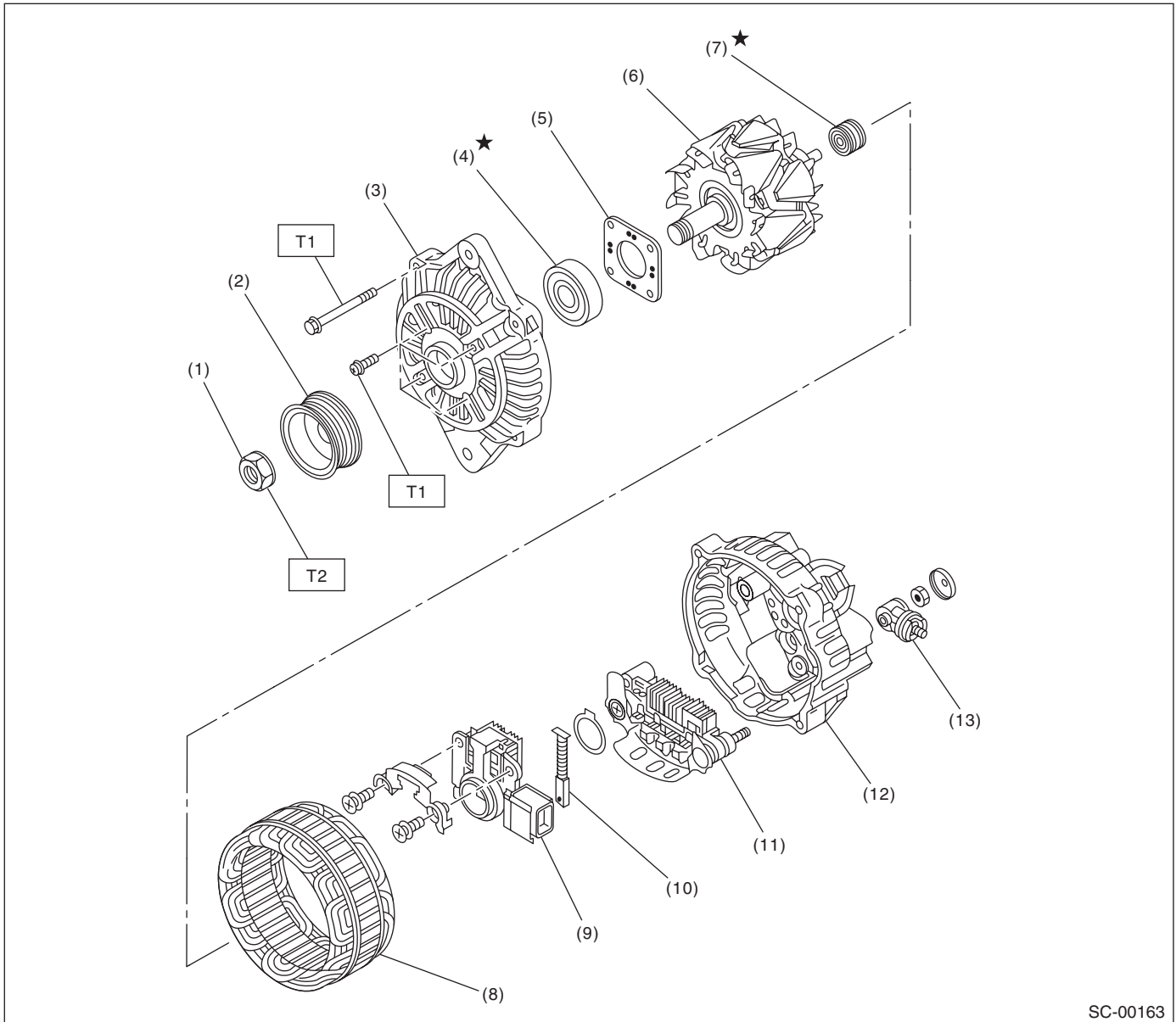
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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2. GENERATOR



SC-00163

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

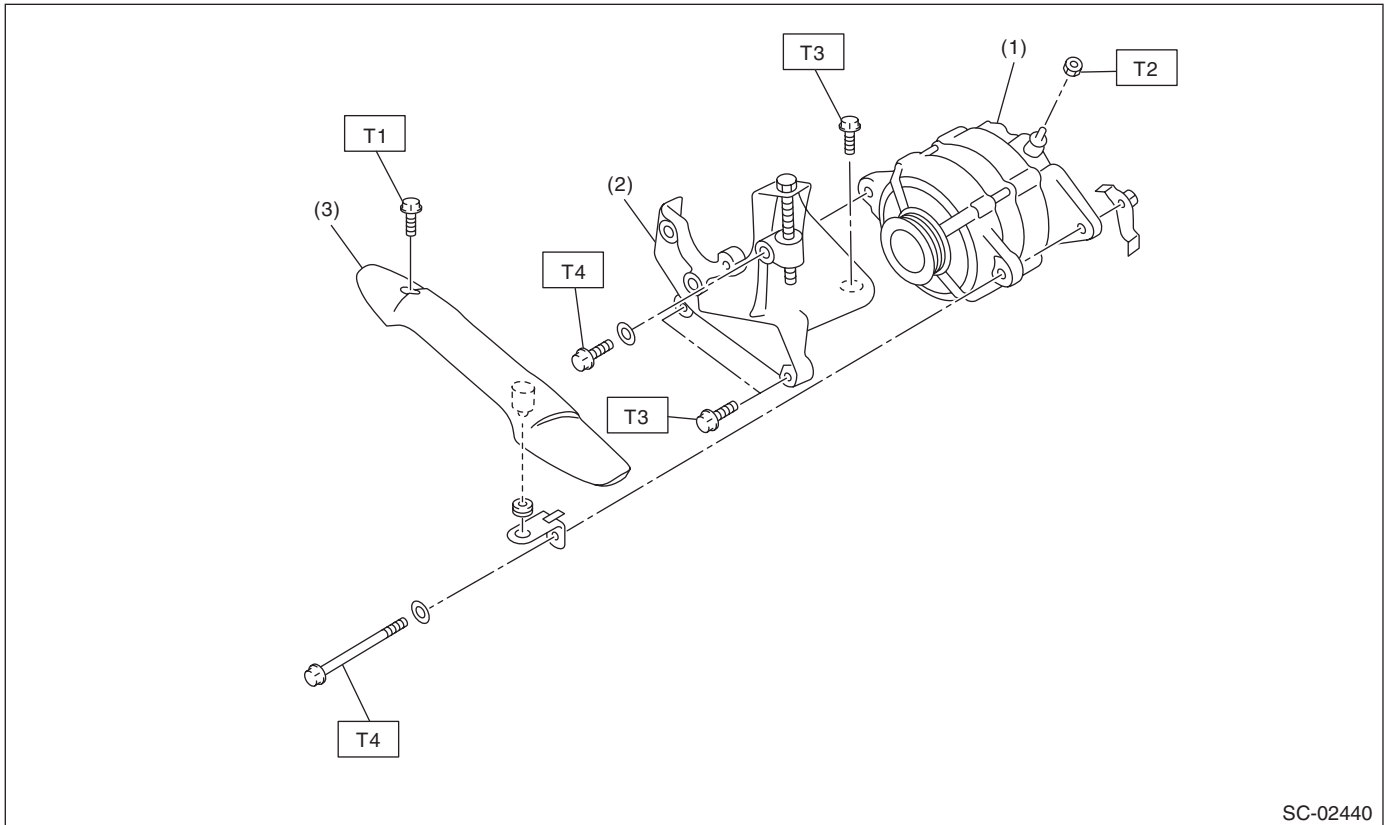
- (13) Terminals

Tightening torque: N·m (kgf-m, ft-lb)

T1: 4.7 (0.5, 3.5)

T2: 108 (11.0, 79.8)

3. GENERATOR BRACKET



SC-02440

- | | |
|---------------------------------|------------------|
| (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)

General Description

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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. |