

## GENERAL DESCRIPTION

### STARTING/CHARGING SYSTEMS

## 1. General Description

### A: SPECIFICATIONS

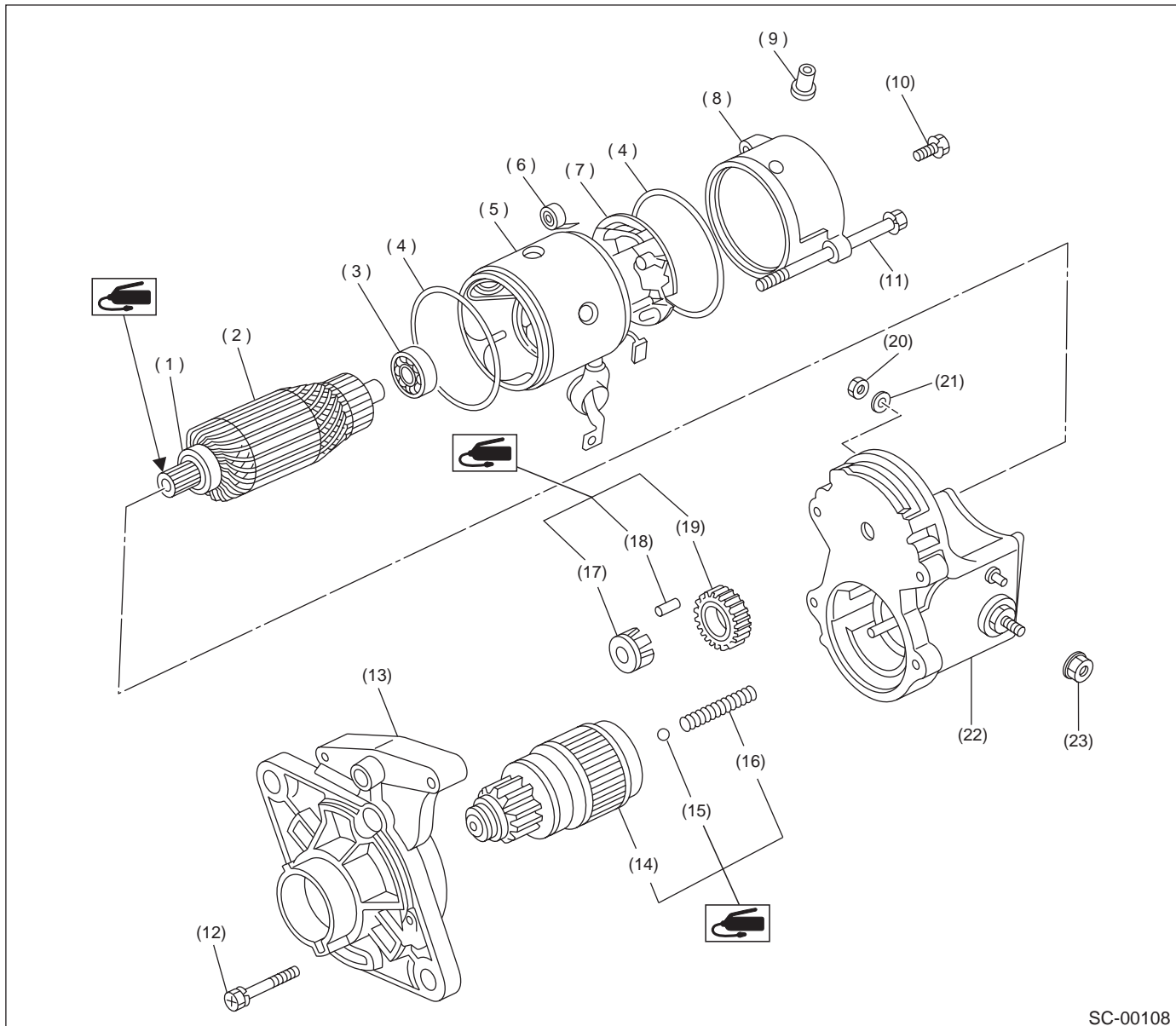
Item		Designation	
Starter	Type	Reduction type	
	Model	228000-7141	
	Manufacturer	NIPPONDENSO TENNESSEE	
	Voltage and output	12 V — 1.4 kW	
	Direction of rotation	Counterclockwise (when observed from pinion)	
	Number of pinion teeth	9	
	No-load characteristics	Voltage	11 V
		Current	90 A or less
		Rotating speed	2,900 rpm or more
	Load characteristics	Voltage	8 V
		Current	370 A or less
		Torque	13.7 N·m (1.4 kgf-m, 10.1 ft-lb)
		Rotating speed	880 rpm or more
	Lock characteristics	Voltage	5 V
Current		1,050 A or less	
Torque		27.5 N·m (2.8 kgf-m, 20.3 ft-lb) or more	
Generator	Type	Rotating-field three-phase type, Voltage regulator built-in type	
	Model	A003EB1870	
	Manufacturer	MITSUBISHI ELECTRIC	
	Voltage and output	12 V — 100 A	
	Polarity on ground side	Negative	
	Rotating direction	Clockwise (when observed from pulley side.)	
	Armature connection	3-phase Y-type	
	Output current	1,500 rpm — 43 A or more	
		2,500 rpm — 76 A or more	
		5,000 rpm — 100 A or more	
Regulated voltage	14.1 — 14.8 V [20°C (68°F)]		
Battery	Reserve capacity                      amps min.	110	
	Cold cranking                              amp.	490	

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### B: COMPONENT

#### 1. STARTER



SC-00108

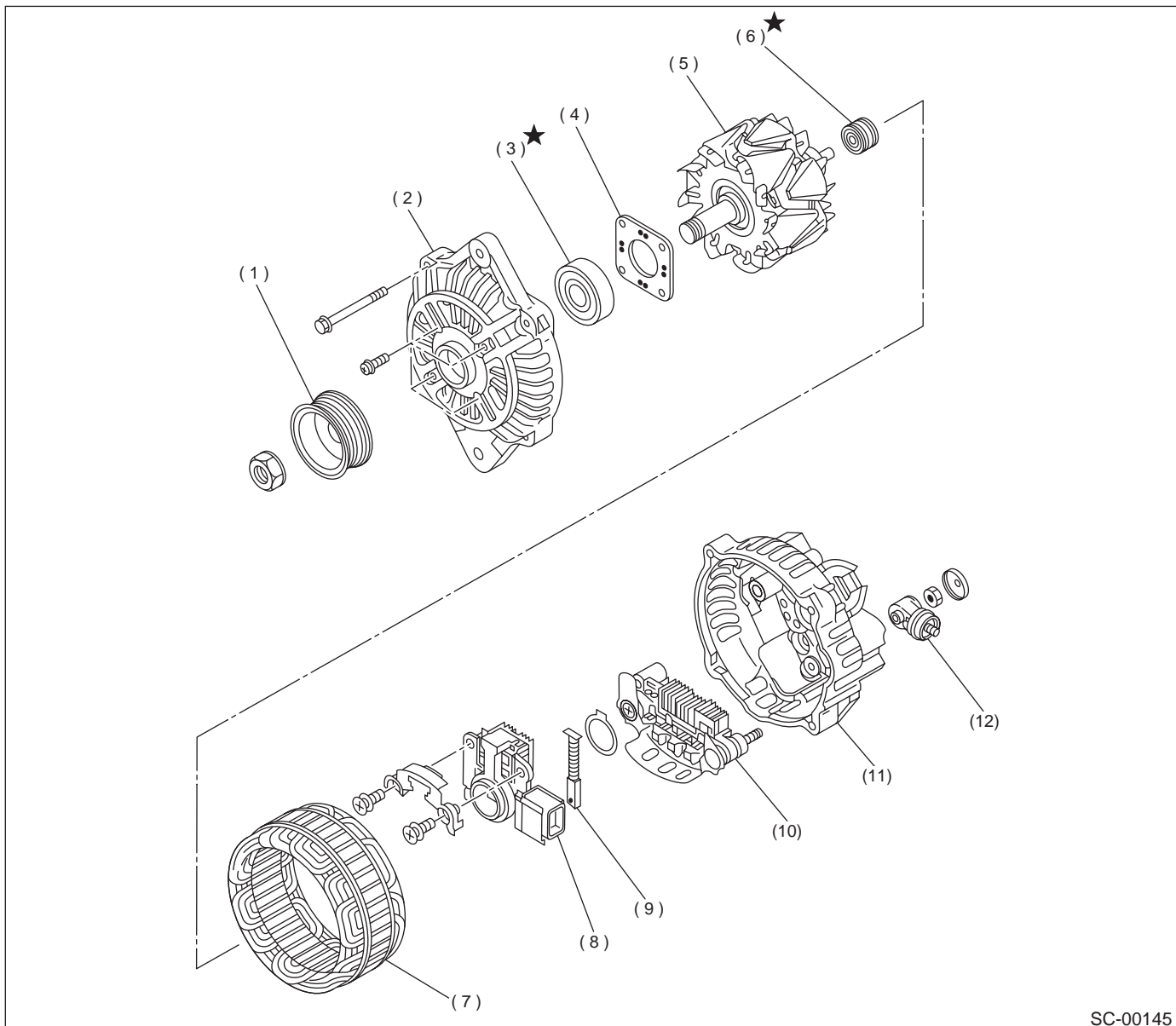
- |                        |                         |                      |
|------------------------|-------------------------|----------------------|
| (1) Front ball bearing | (9) Cover               | (17) Retainer        |
| (2) Armature           | (10) Screw              | (18) Roller          |
| (3) Rear ball bearing  | (11) Through-bolt       | (19) Idle gear       |
| (4) O-ring             | (12) Screw & washer     | (20) Nut             |
| (5) Yoke               | (13) Starter housing    | (21) Spring washer   |
| (6) Brush spring       | (14) Overrunning clutch | (22) Magnetic switch |
| (7) Brush holder       | (15) Steel ball         | (23) Nut             |
| (8) End frame          | (16) Spring             |                      |

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#### 2. GENERATOR



SC-00145

- (1) Pulley
- (2) Front cover
- (3) Ball bearing
- (4) Bearing retainer

- (5) Rotor
- (6) Bearing
- (7) Stator coil
- (8) IC regulator with brush

- (9) Brush
- (10) Rectifier
- (11) Rear cover
- (12) Terminal

**SC(H6DO)-4**

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### **C: CAUTION**

- Wear working 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 or dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.
- Be careful not to burn your hands, because each part in the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect ground cable from battery.