

GENERAL DESCRIPTION

Starting/Charging Systems

1. General Description S179001

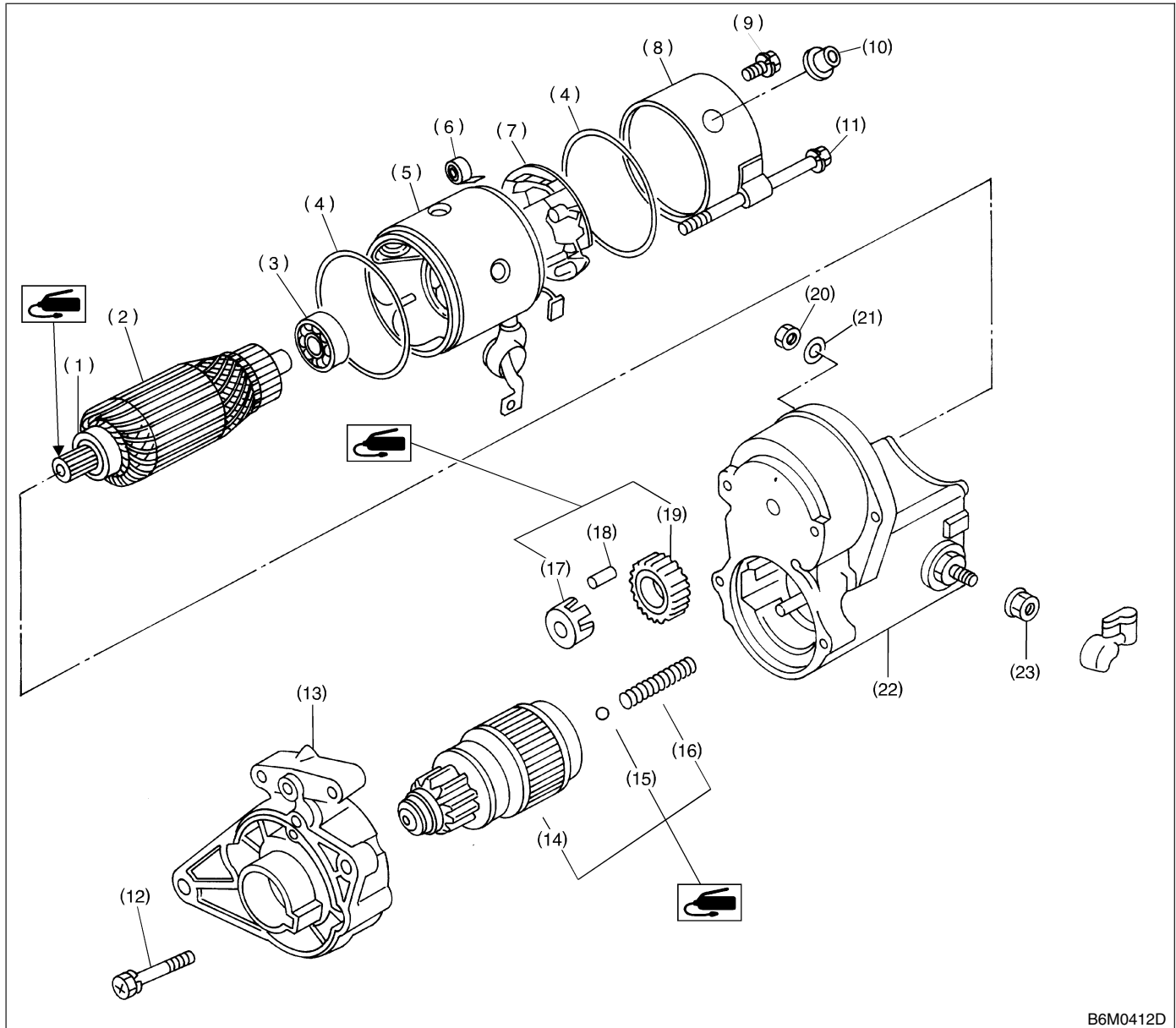
A: SPECIFICATIONS S179001E49

Item		Designation		
		MT	AT	
Starter	Type	Reduction type		
	Model	TN128000-8311	TN128000-8321	
	Manufacturer	NIPPONDENSO TENNESSEE		
	Voltage and output	12 V — 1.0 kW	12 V — 1.4 kW	
	Direction of rotation	Counterclockwise (when observed from pinion)		
	Number of pinion teeth	8	9	
	No-load characteristics	Voltage	11 V	
		Current	90 A or less	
		Rotating speed	3,000 rpm or more	2,900 rpm or more
	Load characteristics	Voltage	8 V	
		Current	280 A or less	370 A or less
		Torque	9.8 N·m (1.0 kgf-m, 7.2 ft-lb)	13.7 N·m (1.4 kgf-m, 10.1 ft-lb)
		Rotating speed	900 rpm or more	880 rpm or more
	Lock characteristics	Voltage	5 V	
		Current	800 A or less	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	LR190-742		
	Manufacturer	HITACHI AUTOMOTIVE PRODUCTS		
	Voltage and output	12 V — 90 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 — 39 A or more 2,500 rpm — 66 A or more 5,000 rpm — 85 A or more		
	Regulated voltage	14.5 ^{+0.3} / _{-0.4} V [20°C (68°F)]		
Battery	Reserve capacity	amps min.	90	110
	Cold cranking	amp.	430	490

B: COMPONENT S179001A05

1. STARTER S179001A0501

● MT VEHICLES



B6M0412D

- (1) Front ball bearing
- (2) Armature
- (3) Rear ball bearing
- (4) O-ring
- (5) Yoke
- (6) Brush spring
- (7) Brush holder
- (8) End frame

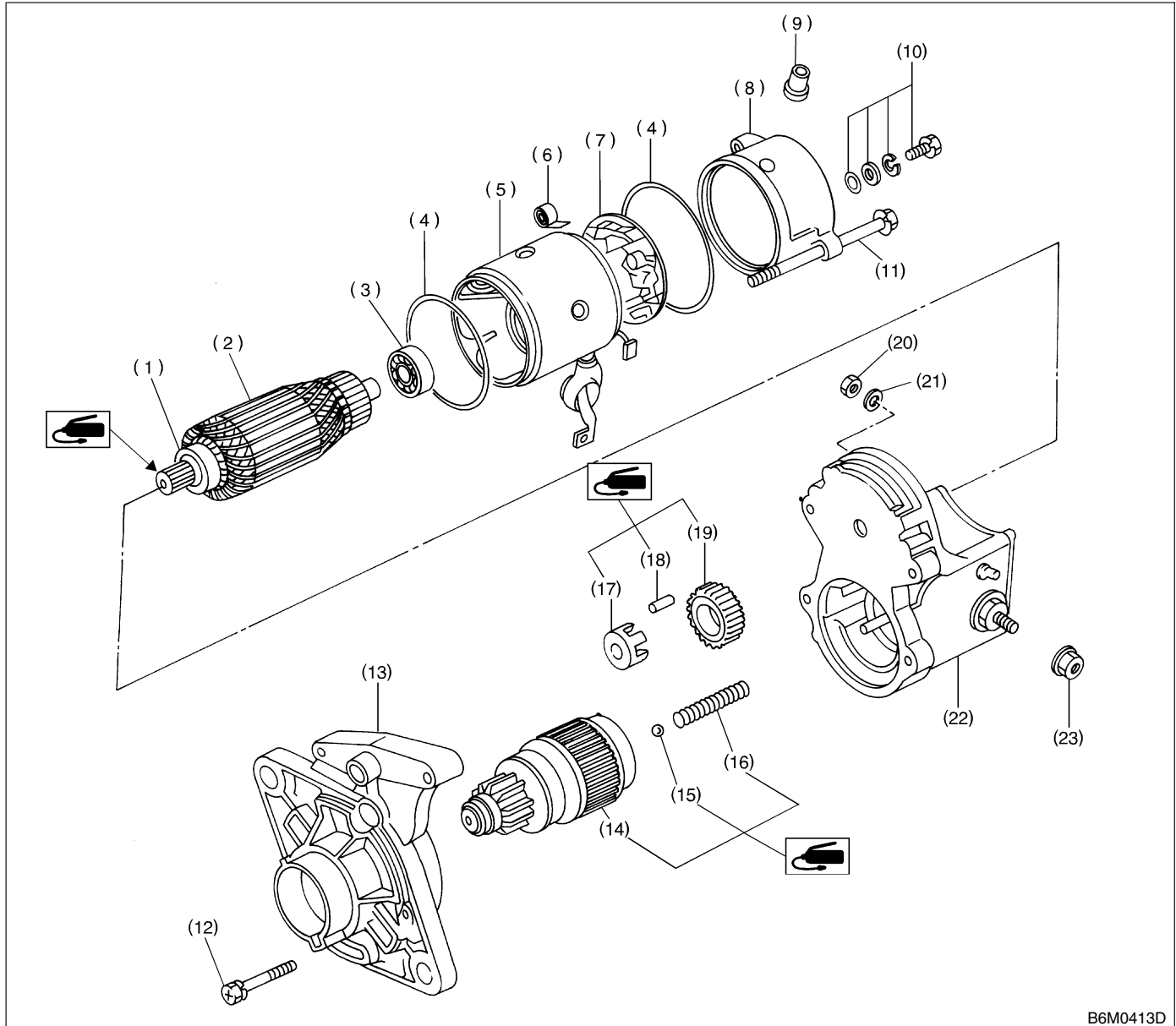
- (9) Screw & washer
- (10) Cover
- (11) Through bolt
- (12) Screw & washer
- (13) Starter housing
- (14) Overrunning clutch
- (15) Steel ball
- (16) Spring

- (17) Retainer
- (18) Roller
- (19) Idle gear
- (20) Nut
- (21) Spring washer
- (22) Magnetic switch
- (23) Nut

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Starting/Charging Systems

• AT VEHICLES



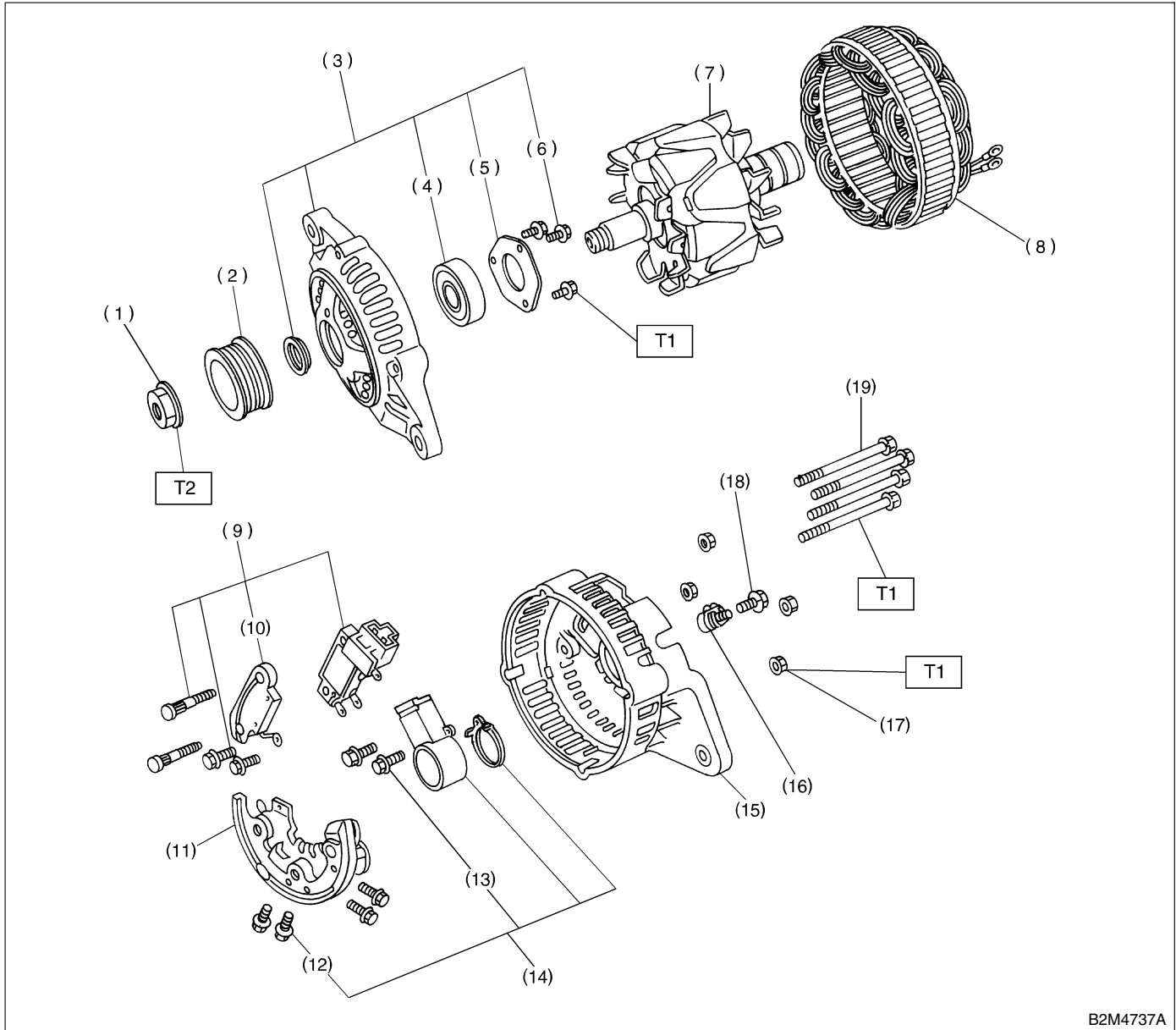
B6M0413D

- (1) Front ball bearing
- (2) Armature
- (3) Rear ball bearing
- (4) O-ring
- (5) Yoke
- (6) Brush spring
- (7) Brush holder
- (8) End frame

- (9) Cover
- (10) Screw & washer
- (11) Through-bolt
- (12) Screw & washer
- (13) Starter housing
- (14) Overrunning clutch
- (15) Steel ball
- (16) Spring

- (17) Retainer
- (18) Roller
- (19) Idle gear
- (20) Nut
- (21) Spring washer
- (22) Magnetic switch
- (23) Nut

2. GENERATOR S179001A0502



B2M4737A

- (1) Pulley nut
- (2) Pulley
- (3) Front cover ASSY
- (4) Ball bearing
- (5) Bearing retainer
- (6) Screw
- (7) Rotor
- (8) Stator coil

- (9) IC regulator ASSY
- (10) Condenser
- (11) Diode ASSY
- (12) Bolt
- (13) Bolt
- (14) Brush holder ASSY
- (15) Rear cover
- (16) BAT. terminal

- (17) Nut
- (18) Bolt
- (19) Through-bolt

Tightening torque: N·m (kgf·m, ft·lb)

T1: 3.1 (0.32, 2.3)

T2: 63.7 (6.5, 47.0)

C: CAUTION S179001A03

- 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.