

General Description

STARTING/CHARGING SYSTEMS

1. General Description

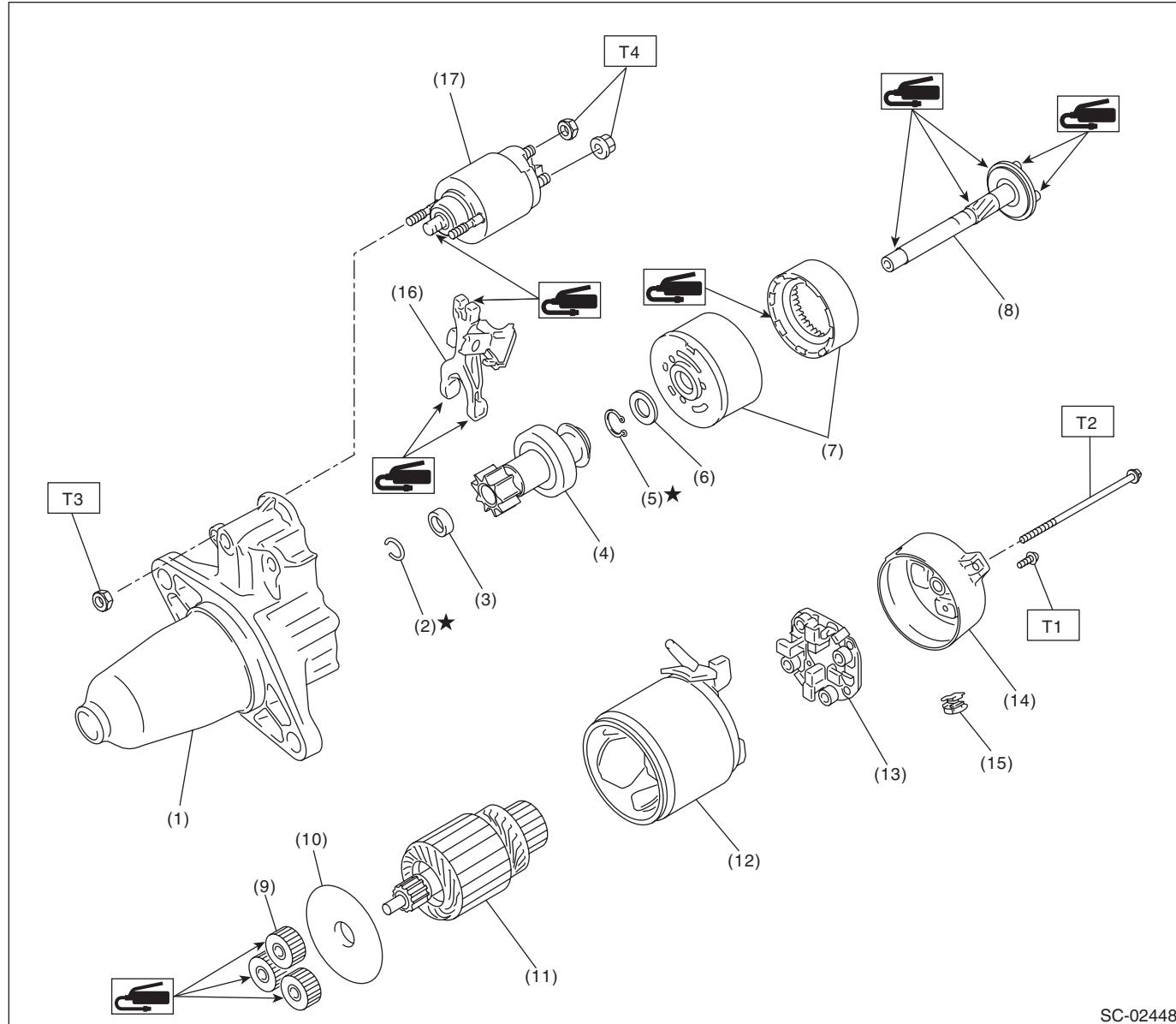
A: SPECIFICATION

Item		Specifications	
Vehicle model		6MT	5MT
Starter	Type	Reduction type	
	Model	428000-5760	
	Manufacturer	DENSO	
	Voltage and output	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
		Rotating speed	2,860 rpm or more
Load characteristics	Voltage	8 V	7.5 V
	Current	280 A	300 A
	Torque	9.3 N·m (0.9 kgf-m, 6.9 ft-lb) or more	8.84 N·m (0.9 kgf-m, 6.5 ft-lb) or more
	Rotating speed	860 rpm or more	870 rpm or more
Lock characteristics	Voltage	4 V	4 V
	Current	515 A or less	680 A or less
	Torque	16 N·m (1.6 kgf-m, 11.8 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	A3TG6591	
	Manufacturer	Mitsubishi Electric	
	Voltage and output	12 V — 110 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 — 91 A or more 5,000 rpm — 105 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	
Battery	Brush length	Standard	18.5 mm (0.728 in)
		Limit	5.0 mm (0.197 in)
	Type and capacity	12 V — 48 AH (55D23L)	
	CCA	356 A	

B: COMPONENT

1. STARTER

- STI model



SC-02448

(1)	Starter housing ASSY	(9)	Pinion gear
(2)	Snap ring	(10)	Starter plate
(3)	Stopper	(11)	Armature
(4)	Overrunning clutch	(12)	Yoke ASSY
(5)	Snap ring	(13)	Brush holder ASSY
(6)	Washer	(14)	Starter cover ASSY
(7)	Internal gear ASSY	(15)	Drain duct
(8)	Shaft	(16)	Shift lever

(17) Magnet switch ASSY

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.4 (0.1, 1.0)

T2: 6 (0.6, 4.4)

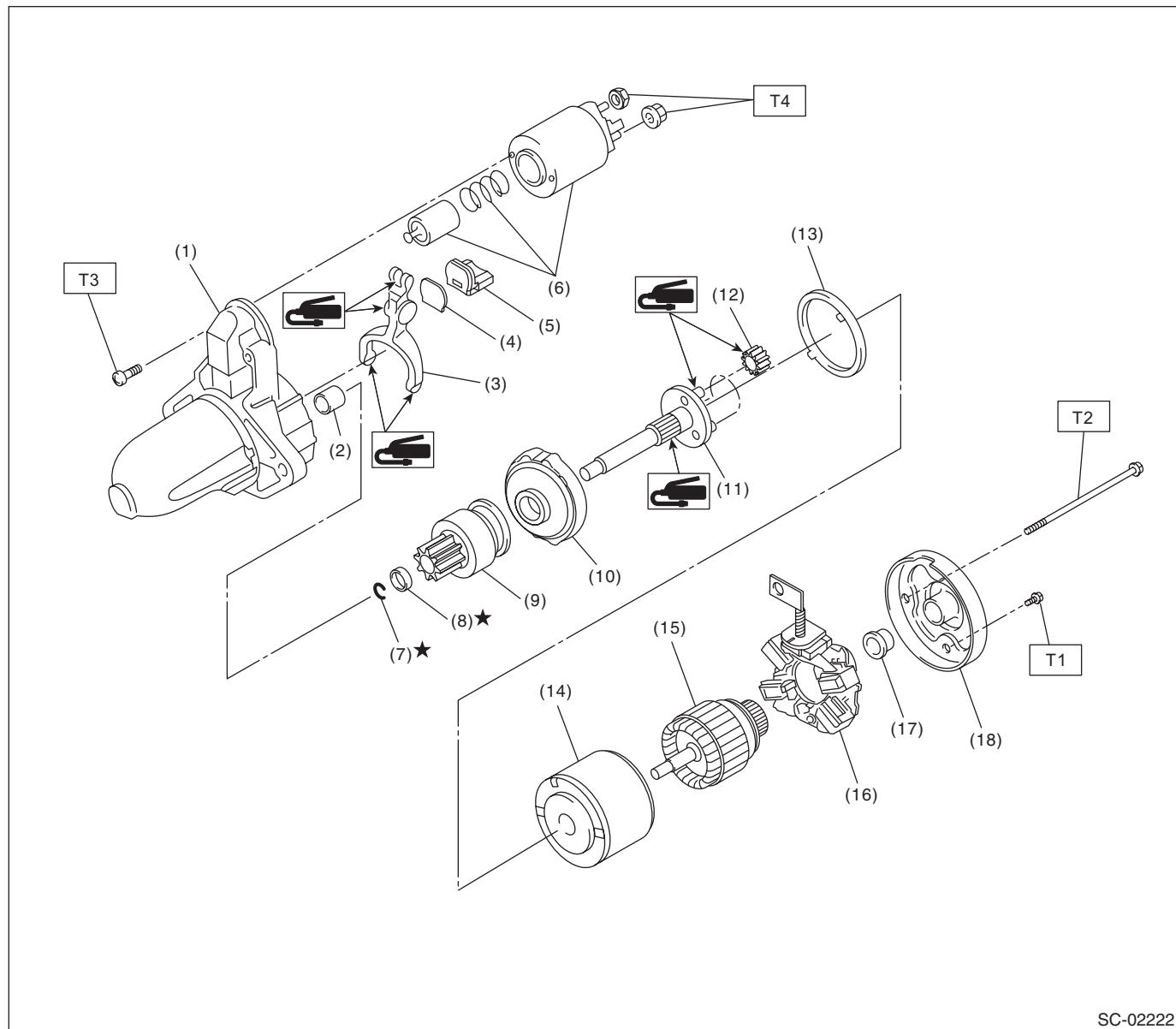
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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- Except for STI model



SC-02222

(1)	Starter housing ASSY	(9)	Overrunning clutch	(17)	Sleeve bearing
(2)	Sleeve bearing	(10)	Internal gear ASSY	(18)	Starter cover ASSY
(3)	Shift lever	(11)	Shaft		
(4)	Plate	(12)	Pinion gear		
(5)	Seal rubber	(13)	Seal rubber		
(6)	Magnet switch ASSY	(14)	Yoke ASSY		
(7)	Snap ring	(15)	Armature ASSY		
(8)	Stopper	(16)	Brush holder ASSY		

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.4 (0.1, 1.0)

T2: 6 (0.6, 4.4)

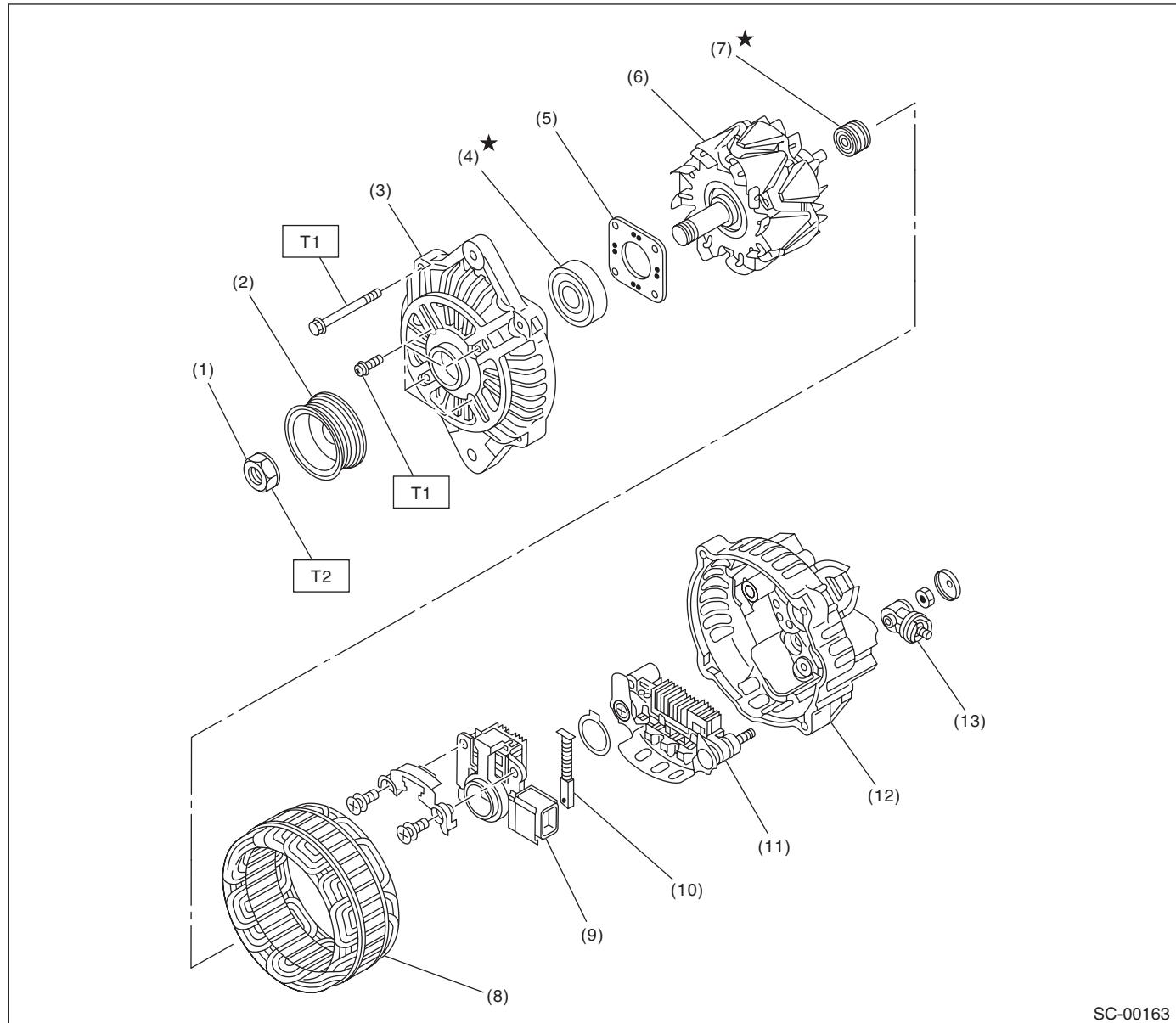
T3: 7.5 (0.8, 5.5)

T4: 10 (1.0, 7.4)

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2. GENERATOR



- (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)

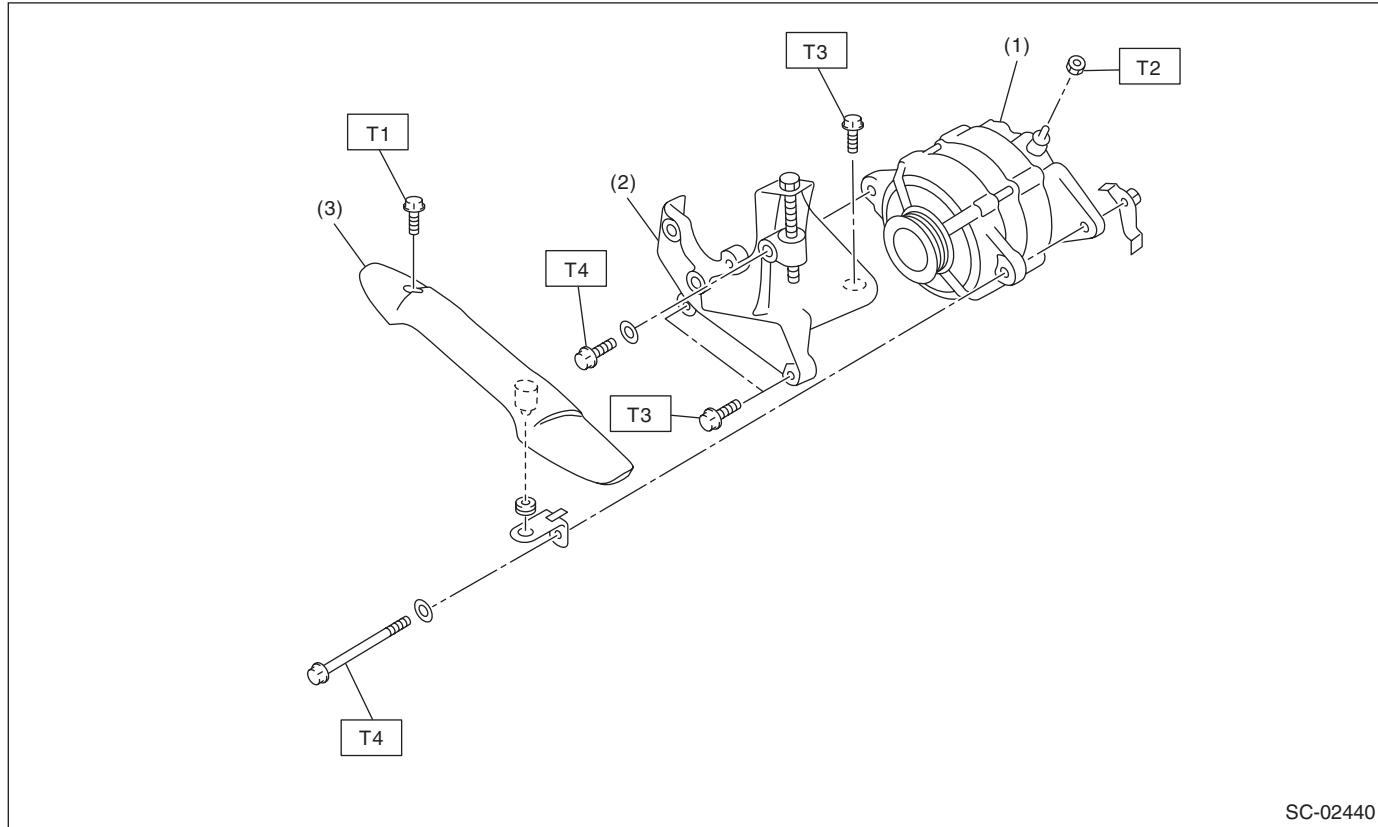
T1: 4.7 (0.5, 3.5)

T2: 108 (11.0, 79.8)

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3. GENERATOR BRACKET



(1) Generator

(3) V-belt cover

Tightening torque: N·m (kgf·m, ft-lb)

(2) Power steering pump bracket

T1: 13 (1.3, 9.6)

T2: 16 (1.6, 11.8)

T3: 22 (2.2, 16.2)

T4: 25 (2.5, 18.4)

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.