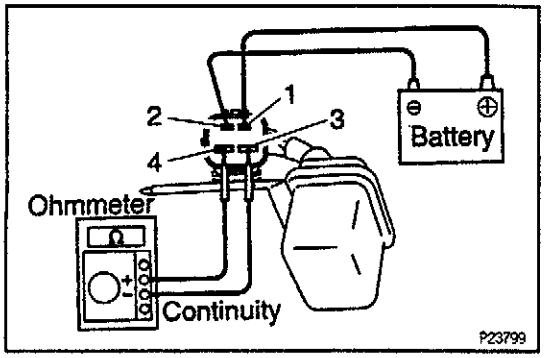


B. Inspect relay operation

(a) Apply battery voltage across terminals 1 and 2.

(b) Using an ohmmeter, check that there is continuity between terminals 3 and 4.

If operation is not as specified, replace the relay.

4. REINSTALL STARTER RELAY

ST

SERVICE SPECIFICATIONS

SERVICE DATA

ST015-11

Pre-heating system	Light lighting time		
	Super glow type/3B for BB	at 20°C (68°F)	2.4 seconds
	Fixed delay type/3B for BU		15 – 19.5 seconds
	14B	at 0°C (32°F)	Approx. 5 seconds
Starter	Rated voltage and output power		12 V 2.5 kW
			24 V 4.5 kW
	No-load characteristics	Current (2.5 kW)	180 A or less at 11.0 V
		(4.5 kW)	90 A or less at 23.0 V
		rpm	3,500 rpm or more
	Brush length	STD	20.5 – 21.0 mm (0.807 – 0.827 in.)
		Minimum	13.5 mm (0.531 in.)
	Spring installed load		32 – 38 N (3.3 – 3.9 kgf, 7.3 – 8.5 lbf)
	Commutator		
	Diameter	STD	36 mm (1.42 in.)
		Minimum	35 mm (1.38 in.)
	Undercut depth	STD	0.7 – 0.9 mm (0.028 – 0.035 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.0020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	1.6 mm (0.0063 in.)

TORQUE SPECIFICATIONS

ST016-0W

Part tightened	N-m	kgf-cm	ft-lbf
Glow plug resistor x Intake manifold (3B for BB)	34	350	25
Water temperature sensor x Water outlet housing (3B for BB, 14B)	17.5	178	13
Glow plug x Cylinder head (3B)	12.5	127	9
Intake shutter x Intake manifold (14B)	21	214	15
Intake shutter x Intake heater (14B)	75	76	66 in.-lbf
End cover x Starter housing	9.3	95	82 in.-lbf
Lead wire x Terminal C	21	215	16
Lead wire x Terminal 50	3.6	41	32 in.-lbf
Terminal nut x Terminal 30 of starter	30	305	22
Terminal nut x Terminal C of starter	30	305	22
Magnetic switch end cover x Magnetic switch	3.6	37	32 in.-lbf