STARTING

SERVICE DATA

SS05Z–01

Pre–heating system	Light lighting time		
	Super glow type		Approx. 2.2 seconds
	Variable delay type		Approx. 5 seconds
Starter (2.0 kW)	Rated voltage and output power		12 V 2.0 kW
	No–load characteristics	Current	100 A or less at 11.5 V
		rpm	4,000 rpm or more
	Brush length	STD	15.0 mm (0.591 in.)
		Minimum	9.0 mm (0.354 in.)
	Brush spring installed load	STD	21.5 – 27.5 N (2.2 – 2.8 kgf, 4.9 – 6.2 lbf)
		Minimum	12.7 N (1.3 kgf, 2.9 lbf)
	Commutator		
	Diameter	STD	35.0 mm (1.378 in.)
		Minimum	34.0 mm (1.339 in.)
	Undercut depth	STD	0.7 mm (0.028 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.020 in.)
	Field frame		
	Shunt coil resistance	at 20°C (68°F)	1.5 – 1.9 Ω
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)
Starter (2.2 kW)	Rated voltage and output power		12 V 2.2 kW
	No–load characteristics	Current	120 A or less at 11.5 V
		rpm	4,000 rpm or more
	Brush length	STD	16.5 mm (0.650 in.)
		Minimum	9.0 mm (0.354 in.)
	Brush spring installed load	STD	26.5 – 32.3 N (2.7 – 3.3 kgf, 6.0 – 7.3 lbf)
		Minimum	17.6 N (1.8 kgf, 4.0 lbf)
	Commutator		
	Diameter	STD	35.0 mm (1.378 in.)
		Minimum	34.0 mm (1.339 in.)
	Undercut depth	STD	0.7 mm (0.028 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)
Starter (2.7 kW)	Rated voltage and output power		12 V 2.7 kW
	No–load characteristics	Current	180 A or less at 11.0 V
		rpm	3,500 rpm or more
	Brush length	STD	20.5 mm (0.807 in.)
		Minimum	11.0 mm (0.433 in.)
	Brush spring installed load	STD	34.3 – 42.1 N (3.5 – 4.3 kgf, 7.7 – 9.5 lbf)
		Minimum	18.6 N (1.9 kgf, 4.2 lbf)
	Commutator		
	Diameter	STD	36.0 mm (1.417 in.)
		Minimum	35.0 mm (1.378 in.)
	Undercut depth	STD	0.7 mm (0.028 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	1.6 mm (0.063 in.)

SS570-01

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Glow plug resistor x Intake manifold		34	350	25
Water temperature sensor x Cylinder block		17.5	178	13
Glow plug x Cylinder head		13	130	10
Terminal 30 nut, Terminal C nut x Terminal bolt	2.0 kW, 2.2 kW	17	173	13
	2.7 kW	30	306	22
End cover x Magnetic switch housing		3.6	37	32 in.·lbf
End cover x Brush holder	2.0 kW	3.8	39	34 in.·lbf
	2.7 kW	3.6	37	32 in.·lbf
Starter housing x Magnetic switch		9.3	95	82 in.·lbf
Starter housing x Filed frame	2.2 kW	12.7	130	9
End cover x Starter housing	2.0 kW, 2.7 kW	9.3	95	82 in.·lbf
Lead wire of field frame x Terminal C	2.0 kW, 2.2 kW	5.9	60	52 in.·lbf
	2.7 kW	24	245	18
Lead wire x Terminal 50 of magnetic switch		3.6	37	32 in.·lbf