

# SST & SERVICE SPECIFICATIONS

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**SST (SPECIAL SERVICE TOOL)****2T & 3T ENGINE TUNE-UP****Engine Oil**

Illustration	Tool No.	Tool Name
	09228-44010	Oil Filter Wrench

**Idle Speed & Idle Mixture Adjustment**

Illustration	Tool No.	Tool Name
	09243-00020	Idle Adjusting Screw Wrench

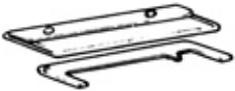
**2T-G ENGINE TUNE-UP****Engine Oil**

Illustration	Tool No.	Tool Name
	09228-44010	Oil Filter Wrench

**Valve Timing**

Illustration	Tool No.	Tool Name
	09248-27010	Valve Timing Adjusting Gauge

**Valve Clearance**

Illustration	Tool No.	Tool Name
	09248-27010	Valve Timing Adjusting Gauge

**Carburetor**

Illustration	Tool No.	Tool Name
	09240-27010	Float Level Gauge

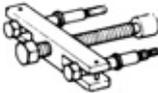
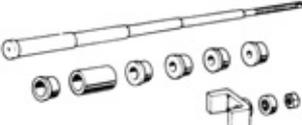
**Idle Speed & Idle Mixture Adjustment**

Illustration	Tool No.	Tool Name
	09243-00020	Idle Adjusting Screw Wrench

**2T & 3T ENGINE SERVICE****Cylinder Head**

Illustration	Tool No.	Tool Name
	09201-60011	Valve Stem Guide Remover & Replacer
	09202-43013	Valve Spring Compressor

**Timing Chain**

Illustration	Tool No.	Tool Name
	09213-31021	Crankshaft Pulley Puller
	09214-60010	Crankshaft Pulley & Gear Replacer
	09215-25010	Camshaft Bearing Remover & Replacer

**Timing Chain (Cont'd)**

Illustration	Tool No.	Tool Name
	09223-22010	Crankshaft Front Oil Seal Replcaer

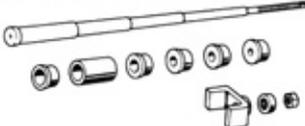
**Cylinder Block**

Illustration	Tool No.	Tool Name
	09221-25015	Piston Pin Remover & Replacer
	09250-10011	A Replacer Set
	09303-35011	Input Shaft Front Bearing Puller
	09304-12012	Input Shaft Front Bearing Replacer

**2T-G ENGINE SERVICE****Cylinder Head**

Illustration	Tool No.	Tool Name
	09201-60011	Valve Stem Guide Remover & Replacer
	09202-43013	Valve Spring Compressor
	09248-27010	Valve Timing Adjusting Gauge

**Timing Chain**

Illustration	Tool No.	Tool Name
	09213-31021	Crankshaft Pulley Puller
	09214-60010	Crankshaft Pulley & Gear Replacer
	09215-25010	Crankshaft Bearing Remover & Replacer
	09223-22010	Crankshaft Front Oil Seal Replacer

**COOLING SYSTEM****Water Pump**

Illustration	Tool No.	Tool Name
	09236-00100	Water Pump Overhaul Tool Set

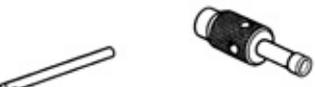
**Water Pump (With Temperature Controlled Coupling)**

Illustration	Tool No.	Tool Name
	09236-00100	Water Pump Overhaul Tool Set

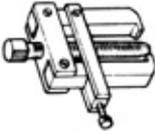
**FUEL SYSTEM****Carburetor**

Illustration	Tool No.	Tool Name
	09240-00014	Carburetor Adjusting Gauge Set
	09240-00020	Wire Gauge Set
	09243-00020	Idle Adjusting Screw Wrench
	09860-11011	Carburetor Driver Set

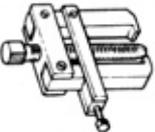
**Solex Carburetor**

Illustration	Tool No.	Tool Name
	09243-00020	Idle Adjusting Screw Wrench
	09860-11011	Carburetor Driver Set

**STARTING SYSTEM****Reduction Type Starter**

Illustration	Tool No.	Tool Name
	09285-76010	Injection Camshaft Bearing Cone Replacer
	09286-46011	Injection Pump Spline Shaft Puller

**CHARGING SYSTEM****Alternator**

Illustration	Tool No.	Tool Name
	09286-46011	Injection Pump Spline Shaft Puller
	09612-22010	Tilt Handle Bearing Replacer

## STANDARD BOLT TIGHTENING TORQUE

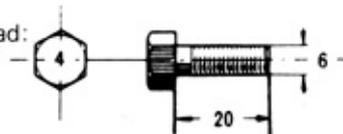
9 1 1 1 1 - 4 0 6 2 0

Part number

Length of bolt: 20 mm

Basic major diameter of thread: 6mm

Bolt head mark\*



\* Explanation of bolt head marks are as indicated in the following table.

### SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Basic diameter mm	Pitch mm	Torque limit kg-m (ft-lb)
4T	6	1	0.4 – 0.7 ( 3 – 5)
	8	1.25	1.0 – 1.6 ( 8 – 11)
	10	1.25	1.9 – 3.1 (14 – 22)
	10	1.5	1.8 – 3.0 (14 – 21)
	12	1.25 (ISO)	3.5 – 5.5 (26 – 39)
	12	1.5	3.5 – 5.5 (26 – 39)
	12	1.75	3.0 – 5.0 (22 – 36)
	13	1.5	4.5 – 7.0 (33 – 50)
	14	1.5	5.0 – 8.0 (37 – 57)
	14	2	4.7 – 7.7 (34 – 55)
	16	1.5	7.5 – 11.0 (55 – 79)
	16	2	7.1 – 10.6 (52 – 76)
	5T	6	1
8		1.25	1.5 – 2.2 (11 – 15)
10		1.25	3.0 – 4.5 (22 – 32)
10		1.5	2.7 – 4.2 (20 – 30)
12		1.25 (ISO)	5.0 – 8.0 (37 – 57)
12		1.5	5.0 – 7.0 (37 – 50)
12		1.75	4.8 – 6.8 (35 – 49)
13		1.5	6.5 – 9.0 (48 – 65)
14		1.5	7.5 – 11.0 (55 – 79)
14		2	7.0 – 10.5 (51 – 75)
16		1.5	12.0 – 17.0 (87 – 122)
16		2	11.5 – 16.5 (84 – 119)
6T		6	1
	8	1.25	1.5 – 2.2 (11 – 15)
	10	1.25	3.0 – 4.5 (22 – 32)
	10	1.5	2.7 – 4.2 (20 – 30)
	12	1.25 (ISO)	5.0 – 8.0 (37 – 57)
	12	1.5	5.0 – 7.0 (37 – 50)
	12	1.75	4.8 – 6.8 (35 – 49)

**SPECIFIED TORQUE FOR STANDARD BOLTS (Cont'd)**

Class	Basic diameter mm	Pitch mm	Torque limit kg-m (ft-lb)
7T	6	1	0.8 – 1.2 ( 6 – 8)
	8	1.25	2.0 – 3.0 ( 15 – 21)
	10	1.25	4.0 – 5.5 ( 29 – 39)
	10	1.5	3.7 – 5.2 ( 27 – 37)
	12	1.25 (ISO)	7.5 – 10.5 ( 55 – 75)
	12	1.5	7.0 – 9.0 ( 51 – 65)
	12	1.75	6.0 – 8.5 ( 44 – 61)
	13	1.5	8.0 – 12.0 ( 58 – 86)
	14	1.5	10.0 – 15.0 ( 73 – 108)
	14	2	9.5 – 14.0 ( 69 – 101)
	16	1.5	15.0 – 23.0 (109 – 166)
	16	2	14.0 – 22.0 (102 – 159)

– Note –

**These torque specifications are applicable only for steel (female) threads. They do not apply to other types of material or if the tightening surface is subjected to heat or vibration.**

## 2T & 3T ENGINE TIGHTENING TORQUE FOR MAIN PARTS

Tightening parts	kg-m	ft-lb
Rocker arm support x Cylinder head x Cylinder block	8.5 – 9.5	61 – 68
Intake manifold x Cylinder head	1.8 – 2.5	13 – 18
Exhaust manifold x Cylinder head	3.0 – 4.5	22 – 32
Crankshaft bearing cap x Cylinder block	7.2 – 8.8	53 – 63
Connecting rod cap x Connecting rod	4.0 – 5.0	29 – 36
Crankshaft pulley x Crankshaft	6.5 – 8.5	47 – 61
Flywheel x Crankshaft	7.5 – 10.5	55 – 75
Camshaft timing sprocket x Camshaft	7.0 – 11.0	51 – 79
Spark plug x Cylinder head	1.5 – 2.1	11 – 15
Oil pan x Cylinder block	0.5 – 0.8	44 – 69 in.-lb
Exhaust manifold x Exhaust pipe	4.0 – 5.0	29 – 36

## 2T & 3T ENGINE SERVICE SPECIFICATIONS

### ENGINE TUNE-UP

[Except USA & Canada]

Drive belt tension	at 10 kg (22 lb)			
Fan – Alternator		8 – 12 mm		0.3 – 0.5 in.
Crank – Cooler compressor		11 – 14 mm		0.4 – 0.6 in.
Battery electrolyte specific gravity				
	at 20°C (68°F)	1.25 – 1.27		
Engine oil capacity				
TE, TA & TT series				
Dry refill	w/Oil filter	4.2 liters	4.4 US qt	3.7 Imp. qt
Drain & refill	w/Oil filter	3.8 liters	4.0 US qt	3.3 Imp. qt
	w/o Oil filter	3.3 liters	3.5 US qt	2.9 Imp. qt
Coolant capacity	w/Heater	8.0 liters	8.5 US qt	7.0 Imp. qt
Spark plug				
Type	ND	W16EP, W16EPR		
	NGK	BP5ES-L, BPR5ES		
Gap		0.7 – 0.8 mm		0.028 – 0.031 in.
Distributor				
Dwell angle		52°		
Rubbing block gap		0.4 – 0.5 mm		0.016 – 0.020 in.

## [Except USA &amp; Canada] (Cont'd)

Damping spring gap			0.1 – 0.4 mm	0.004 – 0.016 in.
Ignition timing	at Idle speed		10° BTDC	
Firing order			1-3-4-2	
Valve clearance	Hot	Intake	0.20 mm	0.008 in.
		Exhaust	0.33 mm	0.013 in.
	Cold	Intake	0.18 mm	0.007 in.
		Exhaust	0.30 mm	0.012 in.
Idle speed	at Neutral			
	2T	M/T	700 rpm	
		A/T	800 rpm	
	2T-B	M/T	800 rpm	
		3T	M/T	650 rpm
	A/T		750 rpm	
	3T-C	M/T	700 rpm	
		A/T	750 rpm	
Idle mixture speed	at Neutral			
	3T	M/T	700 rpm	
		A/T	800 rpm	
	3T-C	M/T	760 rpm	
		A/T	810 rpm	
CO concentration	at Idle speed		0.5 – 2.5%	
Intake manifold vacuum	at Idle speed			
	2T & 2T-B	M/T	More than 430 mmHg (16.9 in.Hg)	
	2T	A/T	More than 400 mmHg (15.7 in.Hg) (N range)	
	3T & 3T-C	M/T	More than 450 mmHg (17.7 in.Hg) (N range)	
A/T		More than 400 mmHg (15.7 in.Hg) (N range)		
Fast idle speed	2T & 3T		(a) New vehicle 2,300 rpm	
			(b) After 1,000 km 2,700 rpm	
	2T-B		(a) New vehicle 2,200 rpm	
			(b) After 1,000 km 2,500 rpm	
	3T-C	M/T	3,200 rpm	
		A/T	3,000 rpm	
Throttle positioner setting speed	2T		M/T	
			1,300 rpm	
	2T-B		M/T	
			1,200 rpm	
	3T-C			
			1,400 rpm	
3T	M/T	1,300 rpm		
	A/T	1,000 rpm		

**[Except USA & Canada] (Cont'd)**

Compression pressure	at 250 rpm			
	2T, 3T & 3T-C	STD	11.5 kg/cm <sup>2</sup>	163 psi
		Limit	9.0 kg/cm <sup>2</sup>	128 psi
	2T-B	STD	12.0 kg/cm <sup>2</sup>	170 psi
		Limit	10.0 kg/cm <sup>2</sup>	142 psi
Difference between each cylinder			Less than 1.0 kg/cm <sup>2</sup> (14 psi)	

**[For USA & Canada]**

Drive belt tension (w/Borroughs drive belt tension gauge No. BT-33-73F)				
	New belt (All)		125 ± 25 lb	
	Used belt (All)		80 ± 20 lb	
Battery electrolyte specific gravity	at 20°C (68°F)		1.25 – 1.27	
Engine oil capacity				
Dry fill			4.2 liters	4.4 US qt    3.7 Imp. qt
Drain & refill	w/Oil filter change		3.8 liters	4.0 US qt    3.3 Imp. qt
	w/o Oil filter change		3.3 liters	3.5 US qt    2.9 Imp. qt
Coolant capacity	w/Heater	M/T	8.0 liters	8.5 US qt    7.0 Imp. qt
		A/T	7.9 liters	8.4 US qt    7.0 Imp. qt
Spark plug				
Type	for U.S.A.	ND	W14EX-U11, W16EX-U11	
		NGK	BP5EA-11, BP5EA-L11	
	for Canada	ND	W16EPR, W16EXR-U, W14EXR-U	
		NGK	BPR5ES, BPR5EA-L, BPR5EA	
Gap	for U.S.A.		1.1 mm	0.043 in.
	for Canada		0.8 mm	0.031 in.
Distributor air gap			0.2 – 0.4 mm	0.008 – 0.016 in.
Ignition timing			10° BTDC @ Max. 950 rpm (w/Sub-vacuum advancer OFF)	
Firing order			1 – 3 – 4 – 2	
Valve clearance	Hot	Intake	0.20 mm	0.008 in.
		Exhaust	0.33 mm	0.013 in.
Idle mixture speed (w/Cooling fan OFF – Canada only)	M/T	w/o P.S	760 rpm	
		w/P.S	920 rpm	
	A/T	w/o P.S	810 rpm	
		w/P.S	920 rpm	

[For USA & Canada] (Cont'd)

Idle speed	M/T	w/o P.S	700 rpm
	(w/Cooling fan OFF – Canada only)	A/T	w/o P.S 750 rpm
		w/P.S	850 rpm
Fast idle speed	for Fed. & Canada	w/o P.S	3,000 rpm
		w/P.S	2,800 rpm
	for California	w/o P.S	2,800 rpm
		w/P.S	2,600 rpm
Intake manifold vacuum	at Idle speed		More than 450 mmHg (17.7 in.Hg)
Throttle positioner setting speed			
	for Federal	M/T	1,600 rpm
		A/T	1,300 rpm
	for California		1,400 rpm
Compression pressure		STD	More than 11.5 kg/cm <sup>2</sup> (163 psi)
		Limit	9.0 kg/cm <sup>2</sup> 128 psi
Difference between each cylinder			Less than 1.0 kg/cm <sup>2</sup> (14 psi)

**ENGINE**

**Cylinder Head**

Surface warpage		Limit	0.05 mm	0.002 in.
Maximum reface		Limit	0.2 mm	0.01 in.
Manifold mounting surface warpage		Limit	0.10 mm	0.004 in.
Valve seat		Contacting surface angle	45°	
		Contacting width	1.2 – 1.6 mm	0.05 – 0.06 in.
		Refacing angle	IN	30°, 45°, 60°
		EX	30°, 45°, 65°	

**Valve & Guide Bushing**

Valve				
Overall length	STD	IN & EX	109.0 mm	4.29 in.
	Limit	IN & EX	108.5 mm	4.27 in.
Face angle			44.5°	
Stem diameter		IN	7.970 – 7.985 mm	0.3138 – 0.3144 in.
		EX	7.965 – 7.980 mm	0.3136 – 0.3142 in.
Stem oil clearance	STD	IN	0.025 – 0.060 mm	0.0010 – 0.0024 in.
		EX	0.030 – 0.065 mm	0.0012 – 0.0026 in.
	Limit	IN	0.08 mm	0.003 in.
		EX	0.10 mm	0.004 in.

**Valve & Guide Bushing (Cont'd)**

Head edge thickness	Limit	IN	0.5 mm	0.02 in.
		EX	0.7 mm	0.03 in.
Guide bushing				
Inner diameter			8.01 – 8.03 mm	0.315 – 0.316 in.
Outer diameter		STD	13.04 – 13.05 mm	0.513 – 0.514 in.
		O/S 0.05	13.09 – 13.10 mm	0.515 – 0.516 in.
Replacing temperature (Cylinder head side)			80 – 100°C	176 – 212°F

**Valve Spring**

Free length			42.1 mm	1.66 in.
Installed length			37.7 mm	1.48 in.
Installed load		STD	26.3 kg	58.0 lb
		Limit	23.7 kg	52.2 lb
Squareness		Limit	1.9 mm	0.07 in.

**Valve Rocker Arm & Shaft**

Oil clearance		STD	0.01 – 0.05 mm	0.0004 – 0.0020 in.
		Limit	0.06 mm	0.0024 in.

**Manifold**

Installing surface warpage		Limit	0.3 mm	0.01 in.
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**Valve Lifter**

Oil clearance		STD	0.02 – 0.03 mm	0.0008 – 0.0012 in.
		Limit	0.1 mm	0.004 in.
Outer diameter		STD	22.178 – 22.199 mm	0.8731 – 0.8740 in.
		O/S 0.05	22.229 – 22.249 mm	0.8751 – 0.8759 in.

**Camshaft**

Circle runout		Limit	0.04 mm	0.002 in.
Thrust clearance		STD	0.07 – 0.15 mm	0.003 – 0.006 in.
		Limit	0.3 mm	0.01 in.
Oil clearance		STD	0.025 – 0.066 mm	0.0010 – 0.0026 in.
		Limit	0.1 mm	0.004 in.

**Camshaft (Cont'd)**

Journal diameter		No.1	46.459 – 46.475 mm	1.8291 – 1.8297 in.
		No.2	46.209 – 46.225 mm	1.8192 – 1.8199 in.
		No.3	45.959 – 45.975 mm	1.8094 – 1.8100 in.
		No.4	45.709 – 45.725 mm	1.7996 – 1.8002 in.
		No.5	45.459 – 45.475 mm	1.7897 – 1.7904 in.
Bearing type			STD, U/S (0.125, 0.250)	
Cam height	STD	IN	38.36 – 38.46 mm	1.510 – 1.514 in.
		EX	38.25 – 38.35 mm	1.506 – 1.510 in.
	Limit	IN	38.29 mm	1.507 in.
		EX	38.19 mm	1.504 in.

**Timing Chain Tensioner & Damper**

Tensioner plunger head thickness	Limit	12.5 mm	0.49 in.
Vibration damper thickness	Limit	5.0 mm	0.20 in.

**Timing Chain & Sprocket**

Chain slack	at 10 kg (22 lb)	Limit	13.5 mm	0.53 in.
Chain elongation	at 5 kg (11 lb)	Limit	291.4 mm	11.47 in.
Crankshaft sprocket wear		Limit	59.4 mm	2.34 in.
Camshaft sprocket wear		Limit	113.8 mm	4.48 in.

**Cylinder Block**

Warpage		Limit	0.05 mm	0.002 in.
Cylinder bore	Wear	STD	85.00 – 85.05 mm	3.346 – 3.348 in.
		Limit	0.2 mm	0.008 in.
Taper and out-of-round		Limit	0.02 mm	0.0008 in.
Difference between each cylinder			Less than 0.05 mm (0.002 in.)	
Lifter bore diameter		STD	22.200 – 22.221 mm	0.8740 – 0.8748 in.
		O/S 0.05	22.250 – 22.271 mm	0.8760 – 0.8768 in.

**Piston & Piston Ring**

Piston diameter	STD	84.94 – 84.99 mm	3.344 – 3.346 in.
	O/S 0.50	85.44 – 85.49 mm	3.364 – 3.366 in.
	O/S 0.75	85.69 – 85.74 mm	3.374 – 3.376 in.
	O/S 1.00	85.94 – 85.99 mm	3.383 – 3.385 in.

**Piston & Piston Ring (Cont'd)**

Piston oil clearance			0.05 – 0.07 mm	0.002 – 0.003 in.
Piston ring end gap	No.1	2T series	0.15 – 0.28 mm	0.006 – 0.011 in.
		3T series	0.10 – 0.25 mm	0.004 – 0.010 in.
	No.2	2T series	0.20 – 0.33 mm	0.008 – 0.013 in.
		3T series	0.15 – 0.30 mm	0.006 – 0.012 in.
	Oil	2T series	0.20 – 0.70 mm	0.008 – 0.028 in.
		3T series	0.20 – 0.70 mm	0.008 – 0.028 in.
Piston ring to ring groove clearance	No.1		0.020 – 0.060 mm	0.0008 – 0.0024 in.
	No.2		0.015 – 0.055 mm	0.0006 – 0.0022 in.
	Oil		0.015 – 0.060 mm	0.0006 – 0.0024 in.
Piston pin instaling temperature			Normal temperature	

**Connecting Rod & Bearing**

Runout	Limit	0.05 mm	0.002 in.
Twist	Limit	0.05 mm	0.002 in.
Thrust clearance	STD	0.16 – 0.26 mm	0.006 – 0.010 in.
	Limit	0.3 mm	0.012 in.
Bearing oil clearance	STD	0.024 – 0.048 mm	0.0009 – 0.0019 in.
	Limit	0.08 mm	0.003 in.
Bearing type		STD, U/S (0.05, 0.25, 0.50)	

**Crankshaft**

Circle runout	Limit	0.06 mm	0.002 in.	
Thrust clearance	STD	0.02 – 0.22 mm	0.001 – 0.009 in.	
	Limit	0.3 mm	0.01 in.	
Main journal	Diameter	STD	57.976 – 58.000 mm	2.2825 – 2.2835 in.
		U/S 0.05	57.93 – 57.95 mm	2.2807 – 2.2814 in.
	U/S finished diameter	U/S 0.25	57.73 – 57.75 mm	2.2728 – 2.2736 in.
		U/S 0.50	57.48 – 57.50 mm	2.2630 – 2.2637 in.
Taper and out-of-round	Limit	0.01 mm	0.0004 in.	
Oil clearance	STD	0.024 – 0.048 mm	0.0009 – 0.0019 in.	
	Limit	0.10 mm	0.004 in.	
Bearing type		STD, U/S (0.05, 0.25, 0.50)		

**Crankshaft (Cont'd)**

Crank pin journal			
Diameter	STD	47.976 – 48.000 mm	1.8888 – 1.8898 in.
	U/S 0.05	47.93 – 47.95 mm	1.887 – 1.888 in.
U/S finished diameter	U/S 0.25	47.73 – 47.75 mm	1.879 – 1.880 in.
	U/S 0.50	47.48 – 47.50 mm	1.869 – 1.870 in.
Taper and out-of-round	Limit	0.01 mm	0.0004 in.
Oil clearance	STD	0.024 – 0.048 mm	0.0009 – 0.0019 in.
	Limit	0.08 mm	0.003 in.
Bearing type	STD, U/S (0.05, 0.25, 0.50)		
Thrust washer thickness	STD	2.440 – 2.490 mm	0.0961 – 0.0980 in.
	O/S 0.125	2.503 – 2.553 mm	0.0985 – 0.1005 in.
	O/S 0.250	2.585 – 2.615 mm	0.1018 – 0.1030 in.

**Flywheel**

Runout	Limit	0.1 mm	0.004 in.
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**LUBRICATION SYSTEM****Oil Pump**

Tip clearance	STD	0.04 – 0.16 mm	0.0016 – 0.0063 in.
	Limit	0.25 mm	0.010 in.
Side clearance	STD	0.03 – 0.09 mm	0.0012 – 0.0035 in.
	Limit	0.15 mm	0.006 in.
Body clearance	STD	0.10 – 0.16 mm	0.0039 – 0.0063 in.
	Limit	0.25 mm	0.010 in.

**COOLING SYSTEM****Water Pump**

Bearing installing temperature	80°C	176°F
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**Radiator**

Radiator cap relief valve opening pressure	STD	0.75 – 1.05 kg/cm <sup>2</sup>	10.7 – 14.9 psi
	Limit	0.6 kg/cm <sup>2</sup>	8.5 psi

**Thermostat**

Valve opening temperature	Low temp. type		High temp. type	
	Start to open at	82°C	180°F	88°C
Fully opens at	95°C	203°F	100°C	212°F
Valve opening travel	8 mm	0.3 in.	8 mm	0.3 in.
Identification mark	82 punch mark or Blue painting mark		88 punch mark or Red painting mark	

**FUEL SYSTEM****Carburetor****[Except USA & Canada]**

Engine type	2T	2T-B	3T	3T-C
Part number	21100-26830 21100-26840 21100-26880 21100-26890 21100-2A010	21001-26100 (21100-26850) (21100-26860) 21001-26110 (21100-2A020) (21100-2A030)	21100-28060 21100-28070 21100-28140	21100-28120 21100-28130
Accelerating pump stroke	5 mm (0.20 in.)	3 mm (0.12 in.)	5 mm (0.20 in.)	←
Float level				
Raised position	4 mm (0.16 in.)	←	6.5 mm (0.26 in.)	4.5 mm (0.18 in.)
Lowered position	1.2 mm (0.05 in.)	←	←	←
Throttle valve closed angle				
Primary	7°	←	←	←
Secondary	20°	←	←	←
Throttle valve fully opened angle				
Primary	90°	←	←	←
Secondary	80°	90°	80°	←
Secondary touch angle	50 + 7°	←	←	50 + 7°
Kick-up				
Secondary throttle valve to body clearance (Pprimary throttle valve fully opened)	0.2 mm (0.008 in.)	←	←	←
Fast idle angle	15 + 7°	8.5 + 7°	17 + 7°	15 + 7°
Unloader angle	27 + 20°	None	27 + 20°	27 + 20°
Choke valve fully closed angle	20°	←	←	←
Throttle positioner set angle				
M/T	9 + 7°	5.5 + 7°	10 + 7°	10 + 7°
A/T	None	←	10 + 7°	10 + 7°
Choke breaker	19 + 20°	None	20 + 20°	19 + 2°

**[For USA & Canada]**

Part number	for Federal	21100–28080	
	for California	21100–28090	
	for Canada	21100–28100	
	for Federal w/HAC	21100–28110	
Accelerating pump stroke		5.0 mm	0.197 in.
Float level	Raised position	6.5 mm	0.256 in.
	Lowered position	1.2 mm	0.047 in.
Choke valve fully closed angle		20°	
Throttle valve closed angle (from horizontal plane)	Primary	7°	
	Secondary	20°	
Throttle valve fully opened angle (from horizontal plane)	Primary	90°	
	Secondary	80°	
Secondary touch angle (from horizontal plane)		57°	
Kick-up			
Secondary throttle valve to body clearance		0.15 mm	0.006 in.
Primary throttle opening angle (from bore)		64 – 90°	
Unloader angle (from horizontal plane)		47°	
Fast idle angle (from horizontal plane)		24°	
Throttle positioner angle (from horizontal plane) (except Canada)		17° for Federal 16.5° for California	
Choke opener angle (from horizontal plane)		85° for U.S.A. 77° for Canada	
Choke breaker angle (from horizontal plane)		40° for Federal & Canada 42° for California	
Idle mixture adjusting screw preset position		Screw out 3 turns	

**STARTING SYSTEM****Starter****[Except USA & Canada]**

Motor type		Conventional type	
Rating voltage and output power		12V – 0.8 kw, 12V – 1.0 kw	
No-load characteristic	at 11V		
	Current	Less than 50A	
	Revolution	More than 5,000 rpm	
Armature shaft			
Outer diameter		12.43 – 12.44 mm	0.489 – 0.490 in.
Bushing bore		12.475 – 12.505 mm	0.4911 – 0.4923 in.

**[Except USA & Canada] (Cont'd)**

Bushing to shaft clearance	STD	0.035 – 0.077 mm	0.0014 – 0.0030 in.
	Limit	0.2 mm	0.01 in.
Thrust clearance	Limit	1.0 mm	0.04 in.
Commutator			
Outer diameter	STD	32.7 mm	1.29 in.
	Limit	31 mm	1.2 in.
Runout	Limit	0.3 mm	0.012 in.
Mica depth	STD	0.4 – 0.8 mm	0.02 – 0.03 in.
	Limit	0.2 mm	0.01 in.
Brush length	0.8 kw	STD	16 mm
		Limit	10 mm
	1.0 kw	STD	19 mm
		Limit	10 mm
Pinion end to stop collar clearance		0.1 – 4.0 mm	0.004 – 0.157 in.
Moving stud length (Reference only)		34 mm	1.3 in.

**[For USA & Canada]**

Rating output power			12V, 1.0 kw	12V, 1.4 kw
No-load characteristic	at 11.5 V	Current	Less than 90 A	Less than 90 A
		Revolution	More than 3,000 rpm	More than 3,500 rpm
Commutator				
Outer diameter	STD	30 mm	1.2 in.	←
	Limit	29 mm	1.1 in.	←
Mica depth	STD	0.45 – 0.75 mm		←
	Limit	0.2 mm	0.008 in.	←
Brush length	STD	13.5 mm	0.53 in.	14.5 mm 0.57 in.
	Limit	10 mm	0.4 in.	←
Spring installed load	STD	1,445 – 1,955 g		1,785 – 2,415 g
	Limit	3.2 – 4.3 lb		3.9 – 5.3 lb
		1,200 g	2.6 lb	←

**IGNITION SYSTEM****Distributor****[Except USA & Canada]**

Rubbing block	0.45 mm	0.018 in.				
Dwell angle	52°					
Damping spring gap	0.1 – 0.4 mm	0.004 – 0.016 in.				
Governor shaft thrust clearance	0.15 – 0.50 mm	0.006 – 0.020 in.				
Distributor advance angle (Parts No.)	Governor		Vacuum			
	Dis. rpm	Advance angle	mmHg	in. Hg	Advance angle	
for 2T (19100–26162)	500 ± 177	Advance begins	90 ± 15	3.5 ± 0.6	Advance begins	
	876	2.1 ± 1.0°	126 ± 5	5.0 ± 0.2	37 ± 1.1°	
	1,400	6.2 ± 1.0°	228 ± 8	9.0 ± 0.3	10.5 ± 0.9°	
	2,700	10.0 ± 1.0°	280 ± 4	11.0 ± 0.2	13.0 ± 1.0°	
	3,000	9.9 ± 1.0°				
for 2T-B (19100–26163)	500 ± 88	Advance begins	84 ± 22	3.3 ± 0.9	Advance begins	
	1,000 ± 22	7.0 ± 0.9°	146 ± 8	5.7 ± 0.3	3.7 ± 0.9°	
	1,800	10.0 ± 1.0°	220 ± 4	8.7 ± 0.2	7.0 ± 1.0°	
	3,000	9.6 ± 1.0°				
for 3T (19100–26210)	500 ± 180	Advance begins	110 ± 17	4.3 ± 0.7	Advance begins	
	800	1.6 ± 1.0°	160	6.3	4.1 ± 1.4°	
	1,400	6.2 ± 1.0°	200	7.9	6.8 ± 1.3°	
	2,700	10.0 ± 1.0°	240	9.5	9.0 ± 1.3°	
	3,000	9.9 ± 1.0°	280	11.0	10.9 ± 1.2°	
for 3T-C (19100–28070)	700 ± 91	Advance begins	Main			
	1,200	5.5 ± 1.0°	70 ± 20	2.8 ± 0.8	Advance begins	
	3,000	5.0 ± 1.0°	152 ± 4	6.0 ± 0.2	5.4 ± 1.1°	
			270 ± 5	10.6 ± 0.2	10.0 ± 1.0°	
				Sub		
	3,000	5.0 ± 1.0°	200 ± 38	7.9 ± 1.5	Advance begins	
			300 ± 13	11.8 ± 0.5	4.0 ± 1.0°	

**[For USA & Canada]**

Air gap	0.2 – 0.4 mm	0.008 – 0.016 in.
Governor shaft thrust clearance	0.15 – 0.50 mm	0.006 – 0.020 in.

**[For USA & Canada] (Cont'd)**

Distributor advance angle (Part No.)	Governor		Vacuum			
	Dis. rpm	Advance angle	mmHg	in. Hg	Advance angle	
for Federal (19100-28030)	700	Advance begins	Main			
	955	1.9°	70	2.8	Advance begins	
	1,300	5.0°	164	6.5	9.2°	
	3,000	9.0°	240	9.5	15.0°	
				Sub		
				200	7.9	Advance begins
			300	11.8	4.0°	
for California (19100-28040)	700	Advance begins	Main			
	955	1.9°	70	2.8	Advance begins	
	1,300	5.0°	136	5.4	7.6°	
	2,800	8.0°	180	7.1	12.0°	
	3,000	7.8°	Sub			
				200	7.9	Advance begins
			300	11.8	4.0°	
for Canada (19110-28050)	700	Advance begins	Main			
	955	1.9°	70	2.8	Advance begins	
	1,300	5.0°	162	6.4	7.0°	
	3,000	9.0°	230	9.1	11.5°	
				Sub		
				200	7.9	Advance begins
			300	11.8	4.0°	

**Ignition Coil****[Except USA & Canada]**

Primary coil resistance	1.3 – 1.5 Ω
Secondary coil resistance	7.2 – 9.8 kΩ
External resistor resistance	1.3 – 1.7 Ω
Insulation resistance w/500V megohm meter	More than 100 MΩ

**[For USA & Canada]**

	Federal & Canada	California
Primary coil resistance	0.4 – 0.5 Ω	0.8 – 1.0 Ω
Secondary coil resistance	8.5 – 11.5 kΩ	11.5 – 15.5 kΩ
Insulation resistance w/500V megohm meter	More than 10 MΩ	←

**Hight Tension Cord**

Resistance	Limit	Less than 25 k $\Omega$ /m
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**Spark Plug****[Except USA & Canada]**

Type	ND	W16EP, W16EPR
	NGK	BP5ES-L, BPR5ES
Gap		0.7 – 0.8 mm                      0.028 – 0.031 in.

**[For USA & Canada]**

Type	for U.S.A.	ND	W14EX-U11, W16EX-U11
		NGK	BP5EA-11, BP5EA-L11
	for Canada	ND	W16EPR, W16EXR-U, W14EXR-U
		NGK	BPR5ES, BPR5EA-L, BPR5EA
Gap	for U.S.A.		1.1 mm                      0.043 in.
	for Canada		0.8 mm                      0.031 in.

**CHARGING SYSTEM (Except ALTERNATOR WITH IC REGULATOR)****Alternator**

Maximum output current		12V, 40A, 45A, 50A, 55A
Rotor coil resistance		3.9 – 4.1 $\Omega$
Brush exposed length	STD	12.5 mm                      0.49 in.
	Limit	5.5 mm                      0.22 in.

**Alternator Regulator**

Regulating voltage		13.8 – 14.8 V (50A)
	Add on type	14.0 – 14.7 V (55A)

**CHARGING SYSTEM (For ALTERNATOR WITH IC REGULATOR)****Alternator with IC Regulator**

Rating output		12V, 55A
Rotor coil resistance		2.8 – 3.0 $\Omega$
Brush exposed length	STD	16.5 mm                      0.65 in.
	Limit	5.5 mm                      0.22 in.

**Alternator Regulator**

Regulating voltage	at 25°C (77°F)	14.0 – 14.7 V
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**Charge Warning Relay**

Actuating voltage	7.0 – 9.0 V
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## 2T-G ENGINE TIGHTENING TORQUE FOR MAIN PARTS

Tightening parts	kg-m	ft-lb
Cylinder head x Cylinder block	7.2 – 8.8	53 – 63
Intake manifold x Cylinder head	1.6 – 2.2	12 – 15
Exhaust manifold x Cylinder head	3.5 – 4.5	26 – 32
Crankshaft bearing cap x Cylinder block	7.2 – 8.8	53 – 63
Connecting rod cap x Connecting rod	4.0 – 5.0	29 – 36
Crankshaft pulley x Crankshaft	6.0 – 7.0	44 – 50
Flywheel x Crankshaft	8.2 – 8.8	60 – 63
Camshaft sprocket x Camshaft	7.0 – 8.0	51 – 57
Camshaft bearing cap x Cylinder head	1.2 – 1.8	9 – 13
Distributor drive gear x Pump drive shaft	6.0 – 7.0	44 – 50
Pump drive shaft thrust plate x Cylinder block	1.5 – 2.1	11 – 15
Chain tensioner No.2 x Cylinder head	3.0 – 4.0	22 – 28
Chain vibration damper No.3 x Cylinder head	1.5 – 2.1	11 – 15
Spark plug x Cylinder head	1.4 – 2.0	11 – 14
Oil pan x Cylinder block	0.4 – 0.8	3 – 5

## 2T-G ENGINE SERVICE SPECIFICATIONS

### ENGINE TUNE-UP

Drive belt tension	at 10 kg (22 lb)			
Fan – Alternator	New	6 – 8 mm	0.2 – 0.3 in.	
		8 – 12 mm	0.3 – 0.5 in.	
A/C compressor –Crankshaft	Used	11 – 14 mm	0.4 – 0.6 in.	
Battery electrolyte specific gravity	at 20°C (68°F)	1.25 – 1.27		
Engine oil capacity				
TE, TA series				
Dry refill	w/ Oil filter	4.5 liters	4.8 US qt	4.0 Imp. qt
Drain & refill	w/ Oil filter	3.8 liters	4.0 US qt	3.3 Imp. qt
	w/o Oil filter	3.2 liters	3.4 US qt	2.8 Imp. qt
Coolant capacity	w/Heater			
TE series		8.7 liters	9.2 US qt	7.7 Imp. qt
TA series		8.5 liters	9.0 US qt	7.5 Imp. qt
Spark plug				
Type	ND	W20EXR-U		
	NGK	BPR6EA, BPR6EY		

**ENGINE TUNE-UP (Cont'd)**

Gap			0.7 – 0.8 mm	0.028 – 0.031 in.
Distributor				
Dwell angle			52°	
Rubbing block gap			0.4 – 0.5 mm	0.016 – 0.020 in.
Damping spring gap			0.1 – 0.4 mm	0.004 – 0.016 in.
Ignition timing			12° BTDC/1,000 rpm	
Firing order			1-3-4-2	
Valve clearance	Cold	Intake	0.29 ± 0.05 mm	0.011 ± 0.002 in.
		Exhaust	0.34 ± 0.05 mm	0.013 ± 0.002 in.
Initial idle speed			1,000 ± 50 rpm	
CO concentration		at Idle speed	1.0 – 1.5 %	
Intake manifold vacuum		at Idle speed	More than 385 mm Hg (15.2 in. Hg)	
Front and rear difference (Idle to 2,000 rpm)			Below 10 mm Hg (0.4 in. Hg)	
Compression pressure		STD	11.6 kg/cm <sup>2</sup>	165 psi
		Limit	10.0 kg/cm <sup>2</sup>	142 psi
Difference between each cylinder			Less than 1.0 kg/cm <sup>2</sup> (14 psi)	

**ENGINE****Cylinder Head**

Surface warpage		Limit	0.05 mm	0.002 in.
Maximum reface		Limit	0.2 mm	0.008 in.
Valve seat				
Contacting surface angle			45°	
Contacting width			1.2 – 1.6 mm	0.05 – 0.06 in.
Refacing angle			30°, 45°, 60°	
Valve lifter bore		Black	37.951 – 37.957 mm	1.4941 – 1.4944 in.
		Blue	37.957 – 37.963 mm	1.4944 – 1.4946 in.
		Yellow	37.963 – 37.969 mm	1.4946 – 1.4948 in.
		Red	37.969 – 37.975 mm	1.4948 – 1.4951 in.

**Valve & Guide Bushing**

Valve				
Overall length	STD	IN	106.2 mm	4.18 in.
		EX	105.1 mm	4.14 in.

**Valve & Guide Bushing (Cont'd)**

	Limit	IN	105.7 mm	4.16 in.
		EX	104.6 mm	4.12 in.
Face angle			44.5°	
Stem diameter		IN	8.460 – 8.475 mm	0.3331 – 0.3337 in.
		EX	8.455 – 8.470 mm	0.3329 – 0.3335 in.
Stem oil clearance	STD	IN	0.025 – 0.055 mm	0.0010 – 0.0022 in.
		EX	0.030 – 0.060 mm	0.0012 – 0.0024 in.
	Limit	IN	0.08 mm	0.003 in.
		EX	0.10 mm	0.004 in.
Head edge thickness	Limit	IN	0.8 mm	0.03 in.
		EX	1.2 mm	0.05 mm
Guide bushing				
Inner diameter			8.500 – 8.515 mm	0.3346 – 0.3352 in.
Outer diameter		STD	14.02 – 14.03 mm	0.5520 – 0.5524 in.
Replacing temperature (Cylinder head side)			110 – 130°C	230 – 266°F

**Valve Spring**

Free length		Inner	45.9 mm	1.81 in.
		Outer	47.4 mm	1.87 in.
Installed length		Inner	36.5 mm	1.44 in.
		Outer	39.0 mm	1.54 in.
Installed load	STD	Inner	7.3 kg	16.1 lb
		Outer	23.7 kg	52.3 lb
	Limit	Inner	6.7 kg	14.8 lb
		Outer	21.8 kg	48.1 lb
Squareness	Limit	Inner & Outer	1.6 mm	0.06 in.

**Valve Lifter**

Oil clearance	STD		0.02 – 0.03 mm	0.0008 – 0.0012 in.
	Limit		0.1 mm	0.004 in.
Outer diameter		Black	37.925 – 37.931 mm	1.4931 – 1.4933 in.
		Blue	37.931 – 37.937 mm	1.4933 – 1.4936 in.
		Yellow	37.937 – 37.943 mm	1.4936 – 1.4938 in.
		Red	37.943 – 37.949 mm	1.4938 – 1.4941 in.

**Camshaft**

Circle runout		Limit	0.04 mm	0.002 in.
Thrust clearance		STD	0.15 – 0.35 mm	0.006 – 0.014 in.
		Limit	0.4 mm	0.02 in.
Oil clearance		STD	0.025 – 0.062 mm	0.0010 – 0.0024 in.
		Limit	0.15 mm	0.006 in.
Journal diameter		STD	31.954 – 31.970 mm	1.2580 – 1.2587 in.
Cam height	STD	IN & EX	46.37 – 46.47 mm	1.826 – 1.830 in.
	Limit	IN & EX	46.0 mm	1.81 in.

**Manifold**

Installing surface warpage	Limit	IN & EX	0.1 mm	0.004 in.
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**Timing Chain & Sprocket**

Chain elongation	No.1 (at 5 kg)	Limit	291.4 mm	11.47 in.
	No.2 (17-links)	Limit	147.0 mm	5.79 in.
Crankshaft sprocket wear		Limit	60.0 mm	2.36 in.
Pump drive shaft sprocket wear		Limit	114.5 mm	4.51 in.
Camshaft drive sprocket wear		Limit	78.2 mm	3.08 in.
Camshaft timing sprocket wear		Limit	78.2 mm	3.08 in.

**Timing Chain Tensioner & Vibration Damper**

No.1 tensioner thickness		Limit	12.5 mm	0.49 in.
No.1 damper thickness		Limit	5.0 mm	0.20 in.
No.2 damper thickness		Limit	5.5 mm	0.22 in.
No.3 damper thickness		Limit	6.5 mm	0.26 in.
Tensioner slipper thickness		Limit	7.5 mm	0.30 in.

**Pump Drive Shaft**

Thrust clearance		STD	0.07 – 0.15 mm	0.003 – 0.006 in.
		Limit	0.3 mm	0.01 in.
Journal diameter	Outer	No.1	46.459 – 46.475 mm	1.8291 – 1.8297 in.
		No.2	46.209 – 46.225 mm	1.8192 – 1.8199 in.
	Inner	No.1	46.500 – 46.525 mm	1.8307 – 1.8317 in.
		No.2	46.250 – 46.275 mm	1.8209 – 1.8218 in.
Oil clearance		STD	0.025 – 0.066 mm	0.0010 – 0.0026 in.
		Limit	0.08 mm	0.003 in.

**Cylinder Block**

Warpage	Limit	0.05 mm	0.002 in.
Cylinder bore			
Diameter	STD	85.00 – 85.05 mm	3.346 – 3.348 in.
Wear	Limit	0.2 mm	0.008 in.
Taper and out-of-round	Limit	0.02 mm	0.0008 in.
Difference between each cylinder		Less than 0.05 mm (0.002 in.)	

**Piston & Piston Ring**

Piston diameter	STD	84.94 – 84.99 mm	3.3441 – 3.3461 in.
	O/S 0.25	85.19 – 85.24 mm	3.3539 – 3.3559 in.
	O/S 0.50	85.44 – 85.49 mm	3.3638 – 3.3657 in.
	O/S 0.75	85.69 – 85.74 mm	3.3736 – 3.3756 in.
	O/S 1.00	85.94 – 85.99 mm	3.3835 – 3.3854 in.
Piston oil clearance		0.05 – 0.07 mm	0.002 – 0.003 in.
Piston ring end gap	No.1	0.25 – 0.53 mm	0.010 – 0.021 in.
	No.2	0.18 – 0.46 mm	0.007 – 0.018 in.
	Oil	0.15 – 0.44 mm	0.006 – 0.017 in.
Piston ring to ring groove clearance	No.1	0.02 – 0.06 mm	0.0008 – 0.0024 in.
	No.2	0.015 – 0.055 mm	0.0006 – 0.0022 in.
	Oil	0.015 – 0.060 mm	0.0006 – 0.0024 in.
Piston pin installing temperature		Normal temperature	

**Connecting Rod & Bearing**

Thrust clearance	STD	0.16 – 0.26 mm	0.006 – 0.010 in.
	Limit	0.3 mm	0.012 in.
Bearing oil clearance	STD	0.024 – 0.048 mm	0.0009 – 0.0019 in.
	Limit	0.08 mm	0.003 in.
Bearing type		STD, U/S (0.05, 0.25, 0.50)	

**Crankshaft**

Circle runout	Limit	0.06 mm	0.002 in.
Thrust clearance	STD	0.02 – 0.22 mm	0.001 – 0.009 in.
	Limit	0.3 mm	0.01 in.
Main journal			
	Diameter	STD	57.976 – 58.000 mm
U/S finished diameter	U/S 0.05	57.94 – 57.95 mm	2.2811 – 2.2815 in.
	U/S 0.25	57.74 – 57.75 mm	2.2732 – 2.2736 in.
	U/S 0.50	57.49 – 57.50 mm	2.2634 – 2.2636 in.

**Crankshaft (Cont'd)**

Taper and out-of-round	Limit	0.01 mm	0.0004 in.
Oil clearance	STD	0.032 – 0.056 mm	0.0013 – 0.0022 in.
	Limit	0.10 mm	0.004 in.
Bearing type		STD, U/S (0.05, 0.25, 0.50)	
Crank pin journal			
Diameter	STD	47.976 – 48.000 mm	1.8888 – 1.8898 in.
	U/S 0.05	47.94 – 47.95 mm	1.8874 – 1.8878 in.
U/S finished diameter	U/S 0.25	47.74 – 47.75 mm	1.8795 – 1.8799 in.
	U/S 0.50	47.49 – 47.50 mm	1.8697 – 1.8701 in.
Taper and out-of-round	Limit	0.01 mm	0.0004 in.
Oil clearance	STD	0.024 – 0.048 mm	0.0009 – 0.0018 in.
	Limit	0.08 mm	0.003 in.
Bearing type		STD, U/S (0.05, 0.25, 0.50)	
Thrust washer thickness	STD	2.440 – 2.490 mm	0.0961 – 0.0980 in.
	O/S 0.125	2.503 – 2.553 mm	0.0985 – 0.1005 in.
	O/S 0.250	2.565 – 2.615 mm	0.1010 – 0.1030 in.

**Flywheel**

Runout	Limit	0.1 mm	0.04 in.
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**LUBRICATION SYSTEM****Oil Pump**

Tip clearance	STD	0.04 – 0.16 mm	0.002 – 0.006 in.
	Limit	0.25 mm	0.010 in.
Side clearance	STD	0.03 – 0.09 mm	0.001 – 0.004 in.
	Limit	0.15 mm	0.006 in.
Body clearance	STD	0.10 – 0.16 mm	0.004 – 0.006 in.
	Limit	0.25 mm	0.010 in.

**COOLING SYSTEM****Water Pump**

Bearing installing temperature	More than 80°C (176°F)
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**Radiator**

Radiator cap relief valve opening pressure			
	STD	0.75 – 1.05 kg/cm <sup>2</sup>	10.7 – 14.9 psi
	Limit	0.6 kg/cm <sup>2</sup>	8.5 psi

**Thermostat**

Valve opening temperature	Low temp. type		High temp. type	
	Start to open at	82°C	180°F	88°C
Fully opens at	95°C	203°F	100°C	212°F
Valve opening travel	8 mm	0.3 in.	8 mm	0.3 in.
Identification mark	82 punch mark or Blue painting mark		88 punch mark or Red painting mark	

**FUEL SYSTEM****Carburetor**

Parts number	21100-88243 21100-88244	Mikuni Solex	40 PHH-4
Float position			
Float level (Use SST) (From carburetor body upper surface)	20 – 21 mm		0.79 – 0.83 in.
Float level adjustment	1.8 mm		0.07 in. (One turn with float level adjust screw)
Accelerating pump discharging time		1.1 – 1.7 second	
Idle mixture adjusting screw preset position		Screw out 2 turn	

**STARTING SYSTEM****Starter**

Motor type	Conventional type		
Rating voltage and output power	12 V – 0.8 kw, 12 V – 1.0 kw		
No-load characteristic at 11V			
	Current	Less than 50 A	
	Revolution	More than 5,000 rpm	
Armature shaft			
Outer diameter	12.43 – 12.44 mm		0.489 – 0.490 in.
Bushing bore	12.475 – 12.505 mm		0.4911 – 0.4923 in.

**Starter (Cont'd)**

Bushing to shaft clearance	STD	0.035 – 0.077 mm	0.0014 – 0.0030 in.
	Limit	0.2 mm	0.01 in.
Thrust clearance	Limit	1.0 mm	0.04 in.
Commutator			
	Outer diameter	STD	32.7 mm 1.29 in.
	Limit	31 mm	1.2 in.
Runout	Limit	0.3 mm	0.012 in.
Mica depth	STD	0.4 – 0.8 mm	0.02 – 0.03 in.
	Limit	0.2 mm	0.008 in.
Brush length	0.8 kw	STD	16 mm 0.6 in.
		Limit	10 mm 0.4 in.
	1.0 kw	STD	19 mm 0.7 in.
		Limit	10 mm 0.4 in.
Pinion end to stop collar clearance		0.1 – 4.0 mm	0.004 – 0.157 in.
Moving stud length (Reference only)		34 mm	1.3 in.

**IGNITION SYSTEM****Distributor**

Rubbing block		0.4 – 0.5 mm	0.016 – 0.020 in.		
Dwell angle		52°			
Damping spring gap		0.1 – 0.4 mm	0.004 – 0.016 in.		
Governor shaft thrust clearance		0.15 – 0.50 mm	0.006 – 0.020 in.		
Distributor advance angle (Parts No.)	Governor		Vacuum		
	Dis. rpm	Advance angle	mm Hg	in. Hg	Advance angle
(19100 – 88224)	580 ± 87	Advance begins	60 ± 27	2.36 ± 1.06	Advance begins
	900 ± 45	6.5 ± 1.0°	150 ± 4	5.91 ± 0.16	4.0 ± 1.0°
	2,000	10.5 ± 1.0°			
	3,000	10.2 ± 1.0°			

**Ignition Coil**

Primary coil resistance		1.3 – 1.6 Ω
Secondary coil resistance		10.2 – 13.8 kΩ
External resistor resistance		1.3 – 1.5 Ω
Insulation resistance	w/500 V megohm meter	More than 100 MΩ

**High Tension Cord**

Resistance	Limit	Less than 25 kΩ
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**Spark Plug**

Type	ND	W20EXR-U	
	NGK	BPR6EA, BPR6EY	
Gap		0.7 – 0.8 mm	0.028 – 0.031 in.

**CHARGING SYSTEM****Alternator**

Maximum output current		12V, 40A, 45A, 50A, 55A	
Brush exposed length	STD	12.5 mm	0.49 in.
	Limit	5.5 mm	0.22 in.
Rotor coil resistance		3.9 – 4.1 $\Omega$	

**Alternator Regulator**

Regulating voltage	13.8 – 14.8 V
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