



SERVICE DATA

POWER BLOWER

ECHO: PB-255ES ES-255ES

shindaiwa: EBS256S

(Serial number : 37000001 and after)

(Serial number : 38000001 and after)

ECHO: PB-251

(Serial number : 37000001 and after)

INTRODUCTION

We are constantly working on technical improvement of our products. For this reason, technical data, equipment and design are subject to change without notice. All specifications and directions in this SERVICE DATA are based on the latest product information available at the time of publication.

SERVICE MANUAL Ref. No. 403-16 (Model: PB-251) contains lots of information for servicing these models.

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Reference No. **21-25F-02**

REVISED: 201907

ISSUED: 200801



1 SERVICE INFORMATION

1-1 Specifications

Model		PB-251	PB-255ES	ES-255ES EBS256S	
Dimensions*	Length	mm (in)	340 (13.4)		
	Width	mm (in)	265 (10.4)	260 (10.2)	
	Height	mm (in)	350 (13.8)		
Dry weight**	kg (lb)	4.5 (9.9)	4.8 (10.6)	5.8 (12.8)	
Engine	Type	YAMABIKO, air-cooled, two-stroke, single cylinder			
	Rotation	Counterclockwise as viewed from the output end			
	Displacement	cm ³ (in ³)	25.4 (1.550)		
	Bore	mm (in)	34.0 (1.339)		
	Stroke	mm (in)	28.0 (1.102)		
	Compression ratio		7.0		
Carburetor	Type	Diaphragm, horizontal-draft, with purge bulb			
	Model	ZAMA RB-K85 / RB-K90			
	Venturi size-Throttle bore	mm (in)	9.0 - 9.0 (0.35 - 0.35)		
Ignition	Type	CDI (Capacitor discharge ignition) system Variable Slope Timing (VST) : Slope advance ignition system combined with electronic speed governor			
	Spark plug	NGK BPMR8Y			
Exhaust	Muffler type	Spark arrester muffler with catalyst			
Starter	Type	Automatic rewind	ES (Effortless-Start) / S (Soft-start)		
	Rope diameter x length	mm (in)	3.0 x 815 (0.12 x 32.1)		
Fuel* ¹	Type* ²	Mixed two-stroke fuel			
	Mixture ratio	50 : 1 (2%)			
	Gasoline	Minimum 89 octane			
	Two-stroke air cooled engine oil	ISO-L-EGD (ISO/CD13738), JASO FC/FD			
	Tank capacity	L (U.S.fl.oz.)	Full tank capacity: 0.47 (15.9) Usable capacity: 0.44 (14.9)		
Blower	Fan type	Centrifugal, single stage			
	Blower pipe type	Fan head nozzle		Fan head nozzle, Vacuum	
	Max. air volume (with pipes)	m ³ /min (cfm)	8.5 (300)	10 (323)	
	Max. air velocity (with pipes)	m/s (mph)	71 (159)	85.3 (191)	84.9 (190)
	Nozzle outlet diameter	mm (in)	31 x 115.5 (1.2 x 4.5)		

*Without blower pipes **With blower pipes

*¹ Refer to Operator's manual

*² Premixed alkylate fuel for 2-stroke can be used.

1-2 Technical data

Engine			
Compression pressure	MPa (kgf/cm ²) (psi)	0.87 (8.9) (126)	
Ignition system			
Spark plug gap	mm(in)	0.6 - 0.7 (0.024 - 0.028)	
Spark test	Tester gap w/ spark plug	mm(in)	4.0 (0.16)
	Tester gap w/o spark plug	mm(in)	6.0 (0.24)
Secondary coil resistance	kΩ	2.5 - 3.2	
Pole shoe air gaps	mm(in)	0.3 - 0.4 (0.012 - 0.016)	
Ignition timing	at 1,000 r/min	°BTDC	7
	at 3,000 r/min	°BTDC	18
	at 7,000 r/min	°BTDC	31
Carburetor			
Test Pressure, minimum	MPa (kgf/cm ²) (psi)	0.05 (0.5) (7.0)	
Metering lever height	mm(in)	0.1 - 0.25 (0.004 - 0.010) lower than diaphragm seat	
Limiter cap / plug		Limiter plug: P005-001270	
Tool to adjust mixture needles		Screwdriver 2.5 mm	

Model	PB-251	PB-255ES	ES-255ES EBS256S
Carburetor adjustment			
1) Initial setting			
H mixture needle	turn out	7/8	
L mixture needle	turn out	4 1/8	
Throttle adjust screw	turn out*1	1 5/8	
Engine warm-up	Idle - WOT : Total	sec.	
		10 - 50 : 180	
2) Find idle maximum speed		Adjust L mixture needle to maximum idle speed	
3) Set idle maximum speed w/ TAS	r/min	3,500	3,400
4) Set idle speed by turning L mixture needle CCW	r/min	3,000	2,900
5) Find WOT maximum speed		Adjust H mixture needle to maximum WOT speed	
6) WOT setting	r/min	Turn H mixture needle CCW to decrease WOT speed by : 10 - 20	
7) Verify final engine speed with standard equipment	Idle:	2,800 - 3,400	2,700 - 3,300
	WOT:	7,200 - 7,500	
	r/min	6,000 - 6,500* 7,000 - 7,300**	

BTDC: Before top dead center **WOT:** Wide open throttle **CCW:** Counterclockwise **TAS:** Throttle adjust screw

*1 Turn TAS clockwise until its head touches boss. Then turn TAS counterclockwise.

* With vacuum pipe ** With fan head nozzle pipe

1-3 Torque limits

Descriptions	Size	kgf•cm	N•m	in•lbf	
Starter system	Starter pawl	M8*	130 - 150	13 - 15	115 - 130
	Starter case	M5	40 - 55	4.0 - 5.5	35 - 50
Ignition system	Ignition coil	M4	35 - 45	3.5 - 4.5	30 - 40
	Spark plug	M14	130 - 170	13 - 17	114 - 150
Fuel system	Carburetor insulator	M5	50 - 70	5 - 7	45 - 60
	Carburetor	M5	30 - 45	3 - 4.5	25 - 40
Engine	Crankcase	M5	70 - 110	7 - 11	60 - 95
	Cylinder	M5**	70 - 110	7 - 11	60 - 95
	Cylinder cover	M5	60 - 80	6 - 8	50 - 70
	Cylinder cover with lead	M5	40 - 60	4 - 6	35 - 50
	Engine mount	M4*	30 - 45	3 - 4.5	25 - 40
	Muffler	M5	70 - 80	7 - 8	60 - 70
	Muffler cover	M5*	30 - 45	3 - 4.5	25 - 40
Others	Outer fancase	M5 [†]	20 - 40	2 - 4	17 - 35
	Fan	M8	140 - 160	14 - 16	120 - 140
	Fan hub	M8*	160 - 200	16 - 20	140 - 175
Regular bolt, nut and screw		M3	6 - 10	0.6 - 1	5 - 9
		M4	15 - 25	1.5 - 2.5	13 - 22
		M5	25 - 45	2.5 - 4.5	22 - 40
		M6	45 - 75	4.5 - 7.5	40 - 65
		M8	110 - 150	11 - 15	95 - 130

* Apply thread locking sealant (See below)

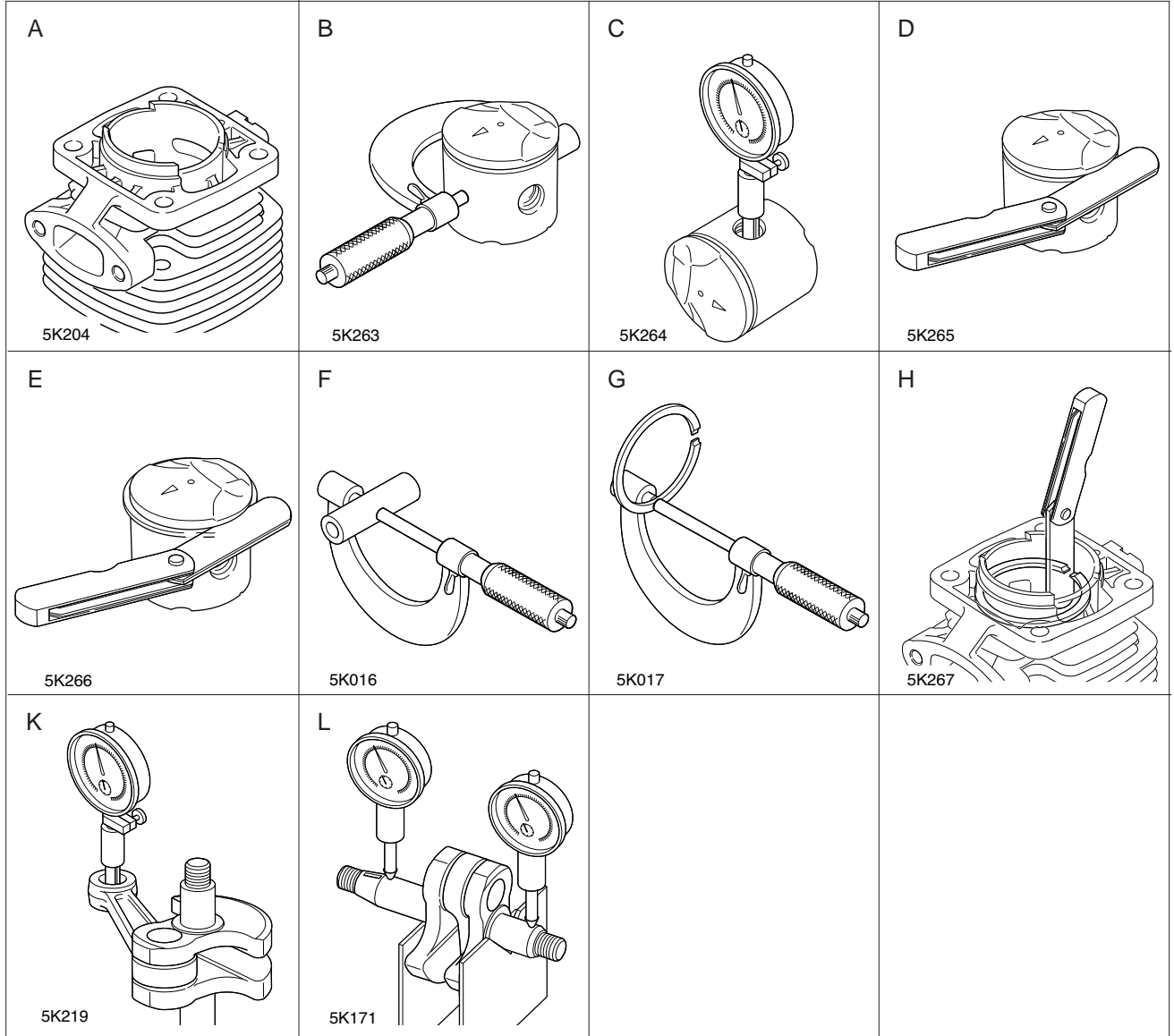
** The torque differences among four bolts should not exceed 20 kgf•cm (N•m, 17in•lbf) on one cylinder or crankcase.

[†] Tapping screw

1-4 Special repairing materials

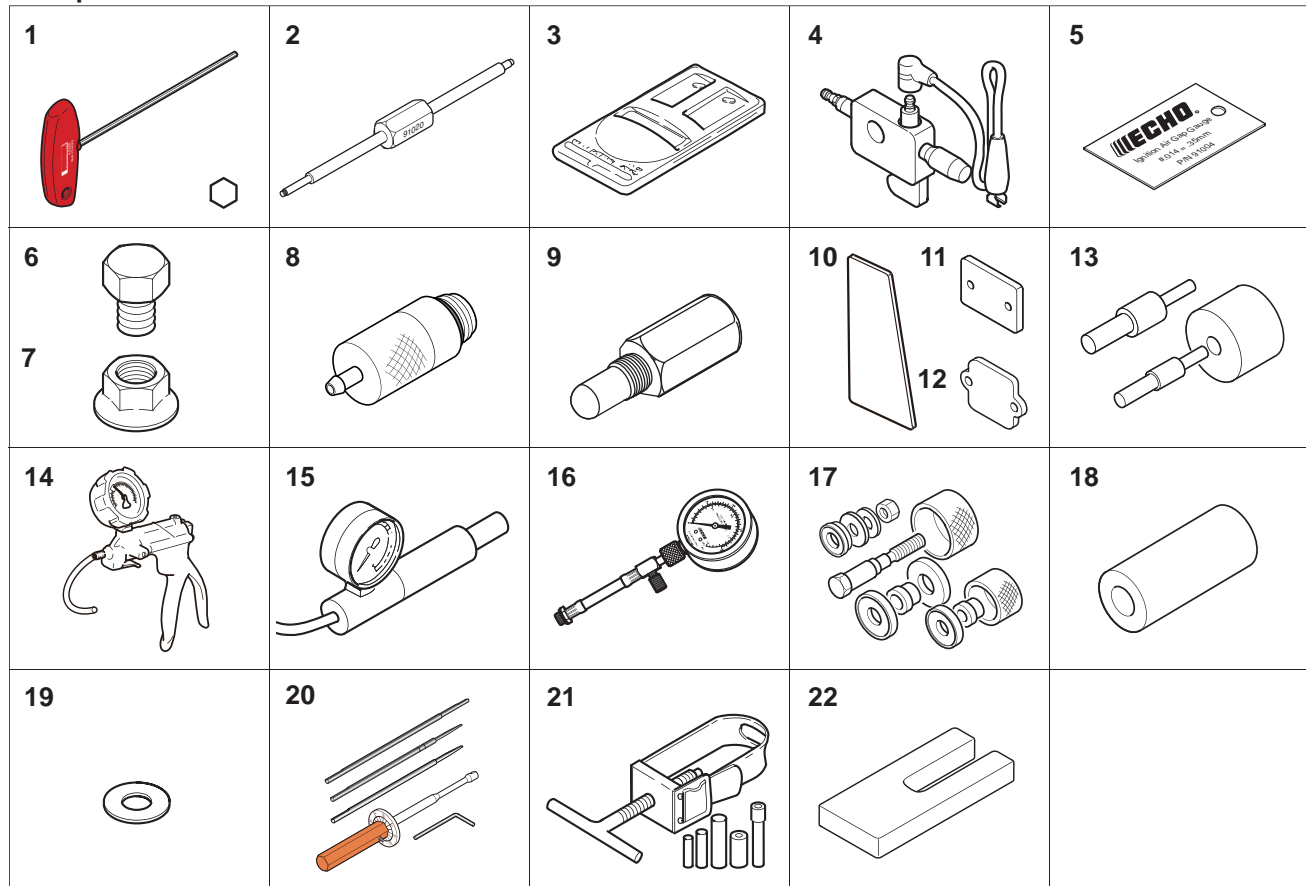
Material	Location	Remarks
Thread locking sealant	Engine mount	Loctite #242, ThreeBond #1324 or equivalent
	Fun hub	
	Starter pawl	Loctite #222, ThreeBond #1342 or equivalent
	Muffler cover	
Grease	Rewind spring	EPNOC AP2 (Lithium based grease) P/N X695-000060
	Starter center shaft	

1-5 Service limits



Description			mm (in)
A	Cylinder bore		When plating is worn and aluminium can be seen
B	Piston outer diameter	Min.	33.91 (1.335)
C	Piston pin bore	Max.	8.035 (0.3163)
D	Piston ring groove	Max.	1.3 (0.051)
E	Piston ring side clearance	Max.	0.1 (0.004)
F	Piston pin outer diameter	Min.	7.980 (0.3142)
G	Piston ring width	Min.	1.15 (0.045)
H	Piston ring end gap	Max.	0.5 (0.02)
K	Con-rod small end bore	Max.	12.000 (0.4724)
L	Crankshaft runout	Max.	0.03 (0.001)

1-6 Special tools



Key	Part Number	Description	Reference
1	X602-000360	T-hex. wrench 4 mm	Removing and installing hex. head bolt
2	91020	Limiter plug tool	Removing and installing limiter plug
3	897802-33330	Tachometer PET-1000R	Measuring engine speed to adjust carburetor
4	897800-79931	Spark tester	Checking ignition system
5	91004	Module air gap gauge	Adjusting pole shoe air gaps
6	900100-08008	Bolt	Removing magneto rotor (flywheel)
7	V265-000200	Flange nut	Removing magneto rotor (flywheel)
8	A131-000150	Pressure connector	Testing crankcase and cylinder leakage
9	X644-000020	Piston stopper	Locking crankshaft rotation
10	91041	Pressure rubber plug	Plugging exhaust port to test crankcase / cylinder leakages
11	897826-16131	Pressure rubber plug	Plugging intake port to test crankcase / cylinder leakages
12	897827-16131	Pressure plate	Plugging intake port to test crankcase / cylinder leakages
13	897705-11520	Bearing tool	Replacing needle bearing on con-rod small end
14	91149	Pressure/vacuum tester	Testing crankcase / cylinder leakages
15	897803-30133	Pressure tester	Testing carburetor and crankcase leakage
16	91037	Compression gauge	Measuring cylinder compression
17	897701-14732	Bearing tool	Removing and installing ball bearings on crankcase
18	897726-16431	Oil seal tool	Installing crankcase oil seals
19	363018-00310	Washer	Installing crankcase oil seal (t: 1.0 mm)
20	Y089-000094	Carburetor adjustment tool	Adjusting carburetor
21	897702-30131	Piston pin tool	Removing and installing piston pin
22	897719-02830	Piston holder	Making piston steady to remove and install piston/ring