



SERVICE DATA

TRIMMER/BRUSHCUTTER

ECHO: SRM-237

(Serial number : U48238000001 - U48238999999)

ECHO: SRM-237TES

(Serial number : U48338000001 - U48338999999)
(Serial number : U64640000001 - U64640999999)

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.

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Reference No. 10-21W-F1
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1 SERVICE INFORMATION

1-1 Specifications

Model			SRM-237 (L)	SRM-237TES (L)	SRM-237 (U)	SRM-237TES (U)
Dimensions* ¹	Length	mm (in)	1771 (69.7)	1774 (69.8)	1771 (69.7)	1774 (69.8)
	Width	mm (in)	340 (13.4)		646 (25.4)	
	Height	mm (in)	333 (13.1)		536 (21.1)	
Dry weight* ²		kg (lb)	5.0 (11.0)	5.1 (11.2)	5.4 (11.9)	5.4 (11.9)
Engine	Type	YAMABIKO, air-cooled, two-stroke, single cylinder				
	Rotation	Counterclockwise as viewed from the output end				
	Displacement	cm ³ (in ³)	21.2 (1.294)			
	Bore	mm (in)	32.2 (1.268)			
	Stroke	mm (in)	26.0 (1.024)			
	Compression ratio	6.9				
Carburetor	Type	Diaphragm, horizontal-draft				
	Model	ZAMA RB-K113				
	Venturi size - Throttle bore	mm (in)	9.0 - 10.5 (0.354 - 0.413)			
Ignition	Type	CDI (Capacitor discharge ignition) system				
	Spark plug	NGK BPMR8Y				
Exhaust	Muffler type	Spark arrester muffler with catalyst				
Starter	Type		Automatic Rewind	ES (Effortless-Start)	Automatic Rewind	ES (Effortless-Start)
	Rope diameter x length	mm (in)	3.0 x 920 (0.12 x 36.2)	3.0 x 830 (0.12 x 32.7)	3.0 x 920 (0.12 x 36.2)	3.0 x 830 (0.12 x 32.7)
Fuel* ³	Type* ⁴	Mixed two-stroke fuel				
	Mixture ratio	50 : 1 (2%)				
	Gasoline	Minimum 89 octane				
	Two-stroke engine oil	ISO-L-EGD (ISO/CD13738), JASO FC/FD				
	Tank capacity	L (U.S.fl.oz.)	Full tank capacity: 0.44 (14.9) Usable capacity: 0.38 (12.8)			
Clutch	Type	Centrifugal, 2-shoe pivot				
Handle	Type	Front:	Crescent loop with cushion grip		U-handle with integrated control grip	
		Rear:	Integrated control grip with cushion			
Drive shaft	Type	Solid type with spline (10-tooth)				
	Diameter - Length	mm (in)	6.0 - 1538 (0.24 - 60.55)			
	Housing (Main pipe)	OD - ID	25.0 - 22.0 (0.98 - 0.87)			
		Length	1500 (59.1)			
Gear case	Reduction ratio	1.36		1.62		
	Gear tooth	Spiral bevel gear				
	Lubrication	Lithium based grease				
Cutter	Type	•Nylon line cutter SF400		•Nylon line cutter SF400 •3-tooth blade (230 mm)	•Nylon line cutter SF400	
	Arbor diameter for blade	mm (in)	25.4 (1.0)			
	Fastener type, size	mm	Left-hand thread nut, M10 x 1.25 pitch			
	Cutting rotation	Counterclockwise as viewed from top				

OD: Outer diameter. **ID:** Inner diameter.

*¹ Without Nylon line head *² Without Nylon line head and Shield *³ Refer to Operator's manual

*⁴ Premixed alkylate fuel for 2-stroke can be used

1-2 Technical data

Engine			
Compression pressure	MPa (kgf/cm ²) (psi)	0.9 (9.1) (130)	
Clutch engagement speed	r/min	4300	
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	2.7 - 3.3	
Pole shoe air gaps	mm(in)	0.3 - 0.4 (0.012 - 0.016)	
Ignition timing	at 3000 r/min	°BTDC	18
	at 8000 r/min	°BTDC	34
	at 11000 r/min	°BTDC	14
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 - 0.01) lower than diaphragm seat	
Limiter cap / plug		Limiter plug P/N P005-001270	
Tool to adjust mixture needles		Screwdriver 2.5 mm P/N X603-000050	
Carburetor adjustment			
Model		SRM-237	SRM-237TES
Cutting head preparation	Nylon line cutter	SF400 with 2.4mm BLACK DIAMOND	
	Line length* ¹	175 mm	210 mm
1) Initial setting	H mixture needle	turn out	1 1/8
	L mixture needle	turn out	3 1/4
	Throttle adjust screw	turn out* ²	5 1/4
Engine warm-up	Idle - WOT : Total	sec.	10 - 50 : 180
2) Find idle maximum speed			Adjust L mixture needle to maximum idle speed* ³
3) Set idle maximum speed w/ TAS		r/min	4100
4) Set idle speed by turning L mixture needle CCW		r/min	3000
5) Find WOT maximum speed		r/min	Adjust H mixture needle to maximum WOT speed
6) WOT setting		r/min	Turn H mixture needle CCW to reduce WOT speed by : 3/8
7) Verify final engine speed with standard equipment			Idle: 2500 - 3500
			WOT: 8200 - 9200*
			WOT: 10700 - 11700**
8) Verify clutch engagement speed			WOT: 9300 - 10300*
			Confirm clutch engagement speed. If it is less than 1.25 times the idle speed, adjust the idle speed by turning TAS CCW.

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

* With Nylon line cutter ** With 3-tooth blade

*¹ From eyelet on nylon head

*² Turn TAS clockwise until its head touches boss. Then turn TAS counterclockwise.

*³ If clutch engages during adjustment process 2), reduce engine speed by turning TAS CCW until clutch disengages and then redo 2).

1-3 Torque limits

Descriptions		Size	kgf·cm	N·m	in·lbf
Starter system	Starter pawl assembly	M8	80 - 100	8 - 10	70 - 90
	Starter case	M4*	30 - 45	3 - 4.5	25 - 40
Ignition system	Magneto rotor (Flywheel)	M8	160 - 200	16 - 20	140 - 175
	Ignition coil	M4	35 - 50	3.5 - 5	30 - 44
	Fan cover	M4	30 - 45	3 - 4.5	25 - 40
	Spark plug	M14	130 - 170	13 - 17	112 - 150
Fuel system	Carburetor	M5	30 - 45	3 - 4.5	25 - 40
	Intake insulator	M5*	35 - 45	3.5 - 4.5	30 - 40
	Fuel tank with stand	M5*	40 - 60	4 - 6	35 - 55
Cylinder cover	Fan cover side	M5	25 - 45	2.5 - 4.5	22 - 40
	Starter side [†]	M5	30 - 40	3 - 4	25 - 35
Engine	Crankcase	M5	70 - 110	7 - 11	60 - 95
	Cylinder	M5	70 - 110	7 - 11	60 - 95
	Muffler	M5*	90 - 110	9 - 11	80 - 95
	Exhaust guide	M4	15 - 30	1.5 - 3	13 - 25
	Muffler cover Fan cover side	M5*	25 - 45	2.5 - 4.5	22 - 40
	Starter side [†]	M5	30 - 40	3 - 4	25 - 35
Other	Cutter fastener	LM10	280 - 320	28 - 32	245 - 280
	Handle fixture (Only U handle) See NOTE below	M5**	30 - 40	3 - 4	26 - 35
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

LM: Left hand thread. [†] Tapping screw

* Apply thread locking sealant. (See below)

** Pre-coated bolt: If the coat is peeled off, replace new one or apply thread locking sealant. (See below)

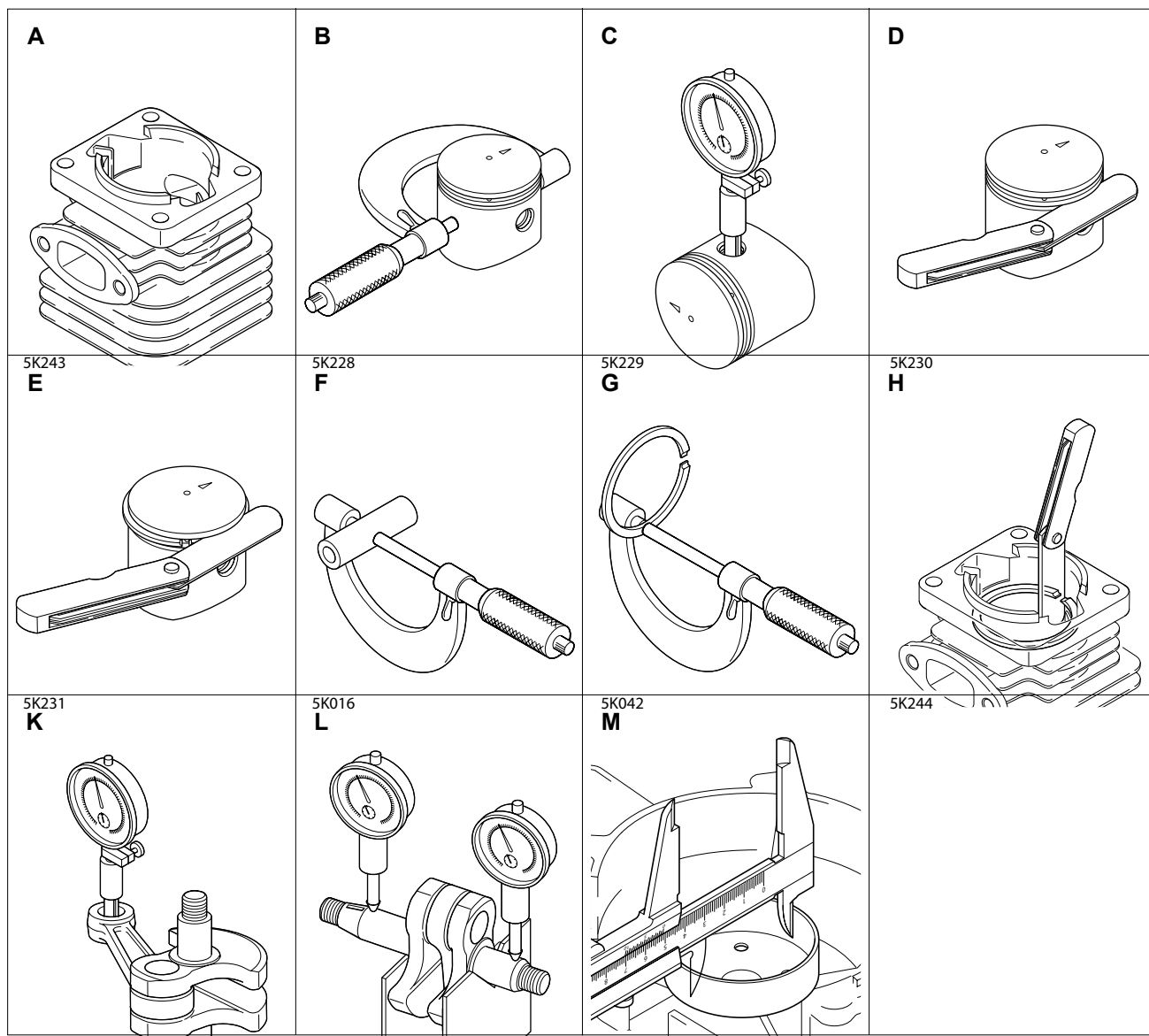
NOTE: After tightening the bolts, turn the bolts counterclockwise 1 1/2 turns.

1-4 Special maintenance materials

Material	Location	Remarks
Grease	Drive shaft	EPNOC AP2 (Lithium based grease) P/N X695-000060
	Gear case	
	Rewind spring	
	Starter center post	
	Oil seal inner lips	
Thread locking sealant	Starter case	Loctite #242, Three Bond #1324 or equivalent
	Muffler	
	Muffler cover	
	Fuel tank	
	Handle fixture (re-use*)	ThreeBond #1344J or equivalent
	Intake insulator	Loctite #675 or equivalent

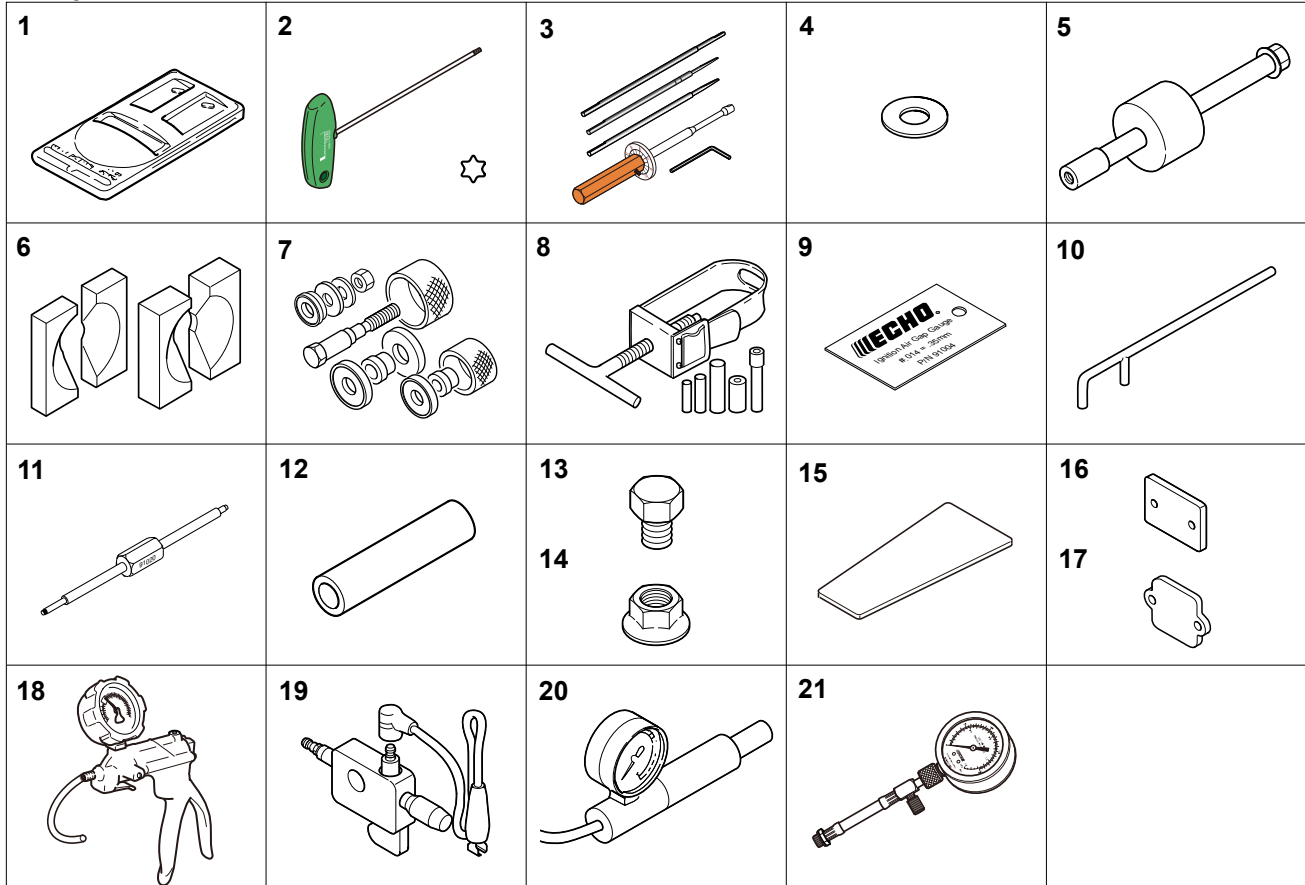
* Remove old thread locking sealant completely. If old thread locking sealant is left in threads, correct torque may not be secured.

1-5 Service limits



Description		mm (in)
A	Cylinder bore	When plating is worn and aluminum can be seen
B	Piston outer diameter	Min. 32.10 (1.264)
C	Piston pin bore	Max. 8.030 (0.3161)
D	Piston ring groove	Max. 1.6 (0.063)
E	Piston ring side clearance	Max. 0.1 (0.004)
F	Piston pin outer diameter	Min. 7.97 (0.3138)
G	Piston ring width	Min. 1.45 (0.057)
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)
M	Clutch drum bore	Max. 51.5 (2.03)

1-6 Special tools



Key	Part Number	Description	Reference
1	897802-33330	Tachometer PET-1000R	Measuring engine speed to adjust carburetor
2	X602-000340	Torx wrench (T27)	Removing and installing bolt
3	Y089-000094	Carburetor adjustment tool	Adjusting carburetor
4	363018-00310	Washer	Installing crankcase oil seal (starter side)
5	P021-044870	PTO shaft puller	Removing PTO shaft
6	897701-02830	Bearing wedge	Removing ball bearings on crankshaft
7	897701-14732	Bearing tool	Removing and installing ball bearings on crankcase
8	897702-30131	Piston pin tool	Removing and installing piston pin
9	91004	Module air gap gauge	Adjusting pole shoe air gaps
10	897712-04630	2-pin wrench	Removing and installing pawl carrier
11	91020	Limiter plug tool	Removing and installing plug
12	897726-09130	Oil seal tool	Installing oil seals
13	900100-08008	Bolt	Removing magneto rotor (flywheel), crankshaft from crankcase
14	V265-000200	Flange nut	Removing magneto rotor (flywheel)
15	91041	Pressure rubber plug	Plugging exhaust port to test crankcase / cylinder leakages
16	897826-16131	Pressure rubber plug	Plugging intake port to test crankcase / cylinder leakages
17	897827-16131	Pressure plate	Plugging intake port to test crankcase / cylinder leakages
18	91149	Pressure / vacuum tester	Testing crankcase / cylinder leakages
19	897800-79931	Spark tester	Checking ignition system
20	897803-30133	Pressure tester	Testing carburetor and crankcase leakages
21	91037	Compression gauge	Measuring cylinder compression