



SERVICE DATA

TRIMMER/BRUSHCUTTER

ECHO: SRM-236 SRM-236TES

(Serial number : 37000001 and after)

(Serial number : 38000001 and after)

SRM-236ES

(Serial number : 37000001 and after)

shindaiwa: T236TS

(Serial number : 38000001 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.

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Reference No. **10-21V-04**

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1 SERVICE INFORMATION

1-1 Specifications

Model		SRM-236 (L)	SRM-236ES (L)	SRM-236 (U)	SRM-236ES (U)	
Dimensions* ¹	Length	mm (in)		1770 (69.7)		
	Width	mm (in)		340 (13.4)		
	Height	mm (in)		710 (28.0)		
Dry weight* ²	kg (lb)		5.0 (11.0)	4.9 (10.8)	5.50 (12.1)	5.60 (12.3)
	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)	
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	mm (in)			25.0 - 22.0 (0.98 - 0.87)
	Length	mm (in)				1500 (59.1)
Gear case	Reduction ratio	1.36				
	Gear tooth	Spiral bevel gear				
	Lubrication	Lithium based grease				
Cutter	Type	Nylon line cutter F4 or SF400		Nylon line cutter F4 or SF400 3-tooth blade (230 mm)		
	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				

1-1 Specifications (continued)

Model			SRM-236TES (L), T236TS	SRM-236TES (U)
Dimensions* ¹	Length	mm (in)	1773 (69.8)	
	Width	mm (in)	340 (13.4)	708 (27.9)
	Height	mm (in)	329 (13.0)	481 (18.9)
Dry weight* ²		kg (lb)	5.1 (11.2)	5.6 (12.3)
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		ES (Effortless-Start)	
	Rope diameter x length	mm (in)	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 mm (in)	25.0 - 22.0 (0.98 - 0.87)	
		Length mm (in)	1500 (59.1)	
Gear case	Reduction ratio		1.62	
	Gear tooth		Spiral bevel gear	
	Lubrication		Lithium based grease	
Cutter	Type		Nylon line cutter F4 or SF400	
	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 cutting attachment and Blade fixture *² Without cutting attachment and Shield

*³ Refer to Operator's manual *⁴ Premixed alkylate fuel for 2-stroke can be used.

1-2 Technical data

Model	SRM-236	SRM-236* ¹	SRM-236TES T236TS
	Serial number 37013302 and before	Serial number 37013303 and after	
	SRM-236ES	SRM-236ES* ¹	
	Serial number 37006656 and before	Serial number 37006657 and after	
Engine			
Compression pressure	MPa (kgf/cm ²) (psi)	0.9 (9.1) (130)	
Clutch engagement speed	r/min	3,750	3,900
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)	
Primary coil resistance	Ω	320 - 420	
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 3,000 r/min	°BTDC	18
	at 8,000 r/min	°BTDC	34
	at 11,000 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	
Tool to adjust mixture needles		Screwdriver 2.5 mm P/N X603-000050	

BTDC: Before top dead center.

*¹ Clutch assembly changed to the same parts used on SRM-236TES.

1-2 Technical data (continued)

Model			SRM-236 SRM-236ES	S/N: 37013302 and before S/N: 37006656 and before
Carburetor adjustment				
Cutting head preparation	Nylon line cutter		F4	
	Line length (w/o shield)*1		180 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	3,700
4) Set idle speed by turning L mixture needle CCW			r/min	2,300
5) Set idle speed w/ TAS			r/min	3,000
6) Find WOT maximum speed			Adjust H mixture needle to maximum WOT speed	
7) WOT setting		turn	Turn H mixture needle CCW to decrease WOT speed by : 3/8	
8) Verify final engine speed with standard equipment			r/min	Idle: 2,500 - 3,500 WOT: 8,600 - 10,000
9) Verify clutch engagement speed			Confirm clutch engagement speed. If it is less than 1.25 times the idle speed, adjust the idle speed by turning TAS CCW.	

Model			SRM-236 SRM-236ES	S/N: 37013303 and after S/N: 37006657 and after	SRM-236TES T236TS	
Carburetor adjustment						
Cutting head preparation	Nylon line cutter		F4	SF400	F4	SF400
	Line length (w/o shield)*1		180 mm	185 mm	210 mm	220 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	4,100		
4) Set idle speed by turning L mixture needle CCW			r/min	3,000		
5) Find WOT maximum speed			Adjust H mixture needle to maximum WOT speed			
6) WOT setting		turn	Turn H mixture needle CCW to decrease WOT speed by : 3/8			
7) Verify final engine speed with standard equipment			r/min	Idle: 2,500 - 3,500 WOT: 8,600 - 10,000 WOT: 9,500 - 10,500		
8) Verify clutch engagement speed			Confirm clutch engagement speed. If it is less than 1.25 times the idle speed, adjust the idle speed by turning TAS CCW.			

WOT: Wide open throttle **CCW:** Counterclockwise **TAS:** Throttle adjust screw

*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), decrease 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	
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

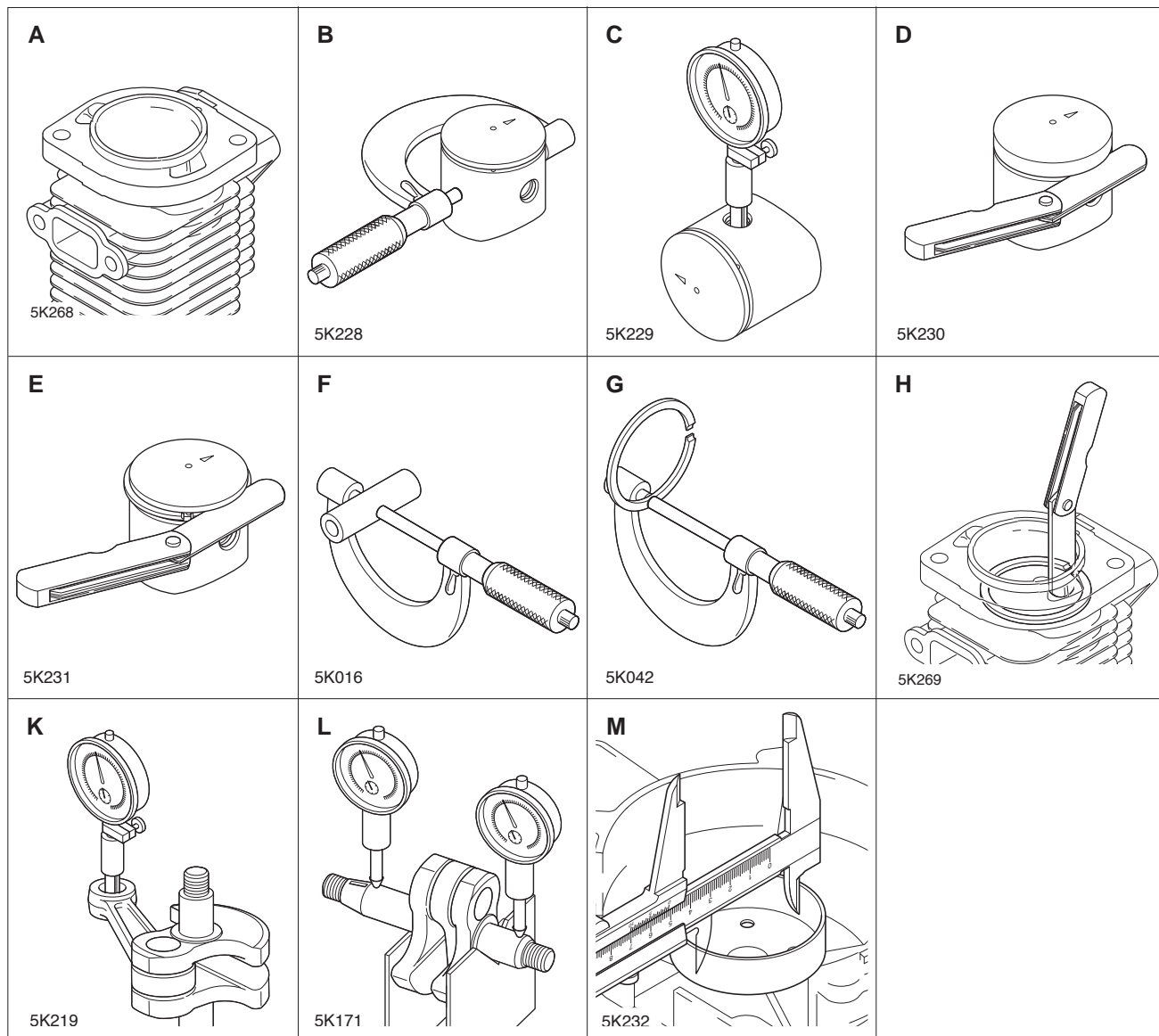
* Apply thread locking sealant. (See below)

** The torque differences among four bolts should not exceed 20 kgf•cm (2N•m, 17in•lbf) on one cylinder or crankcase.

1-4 Special repairing materials

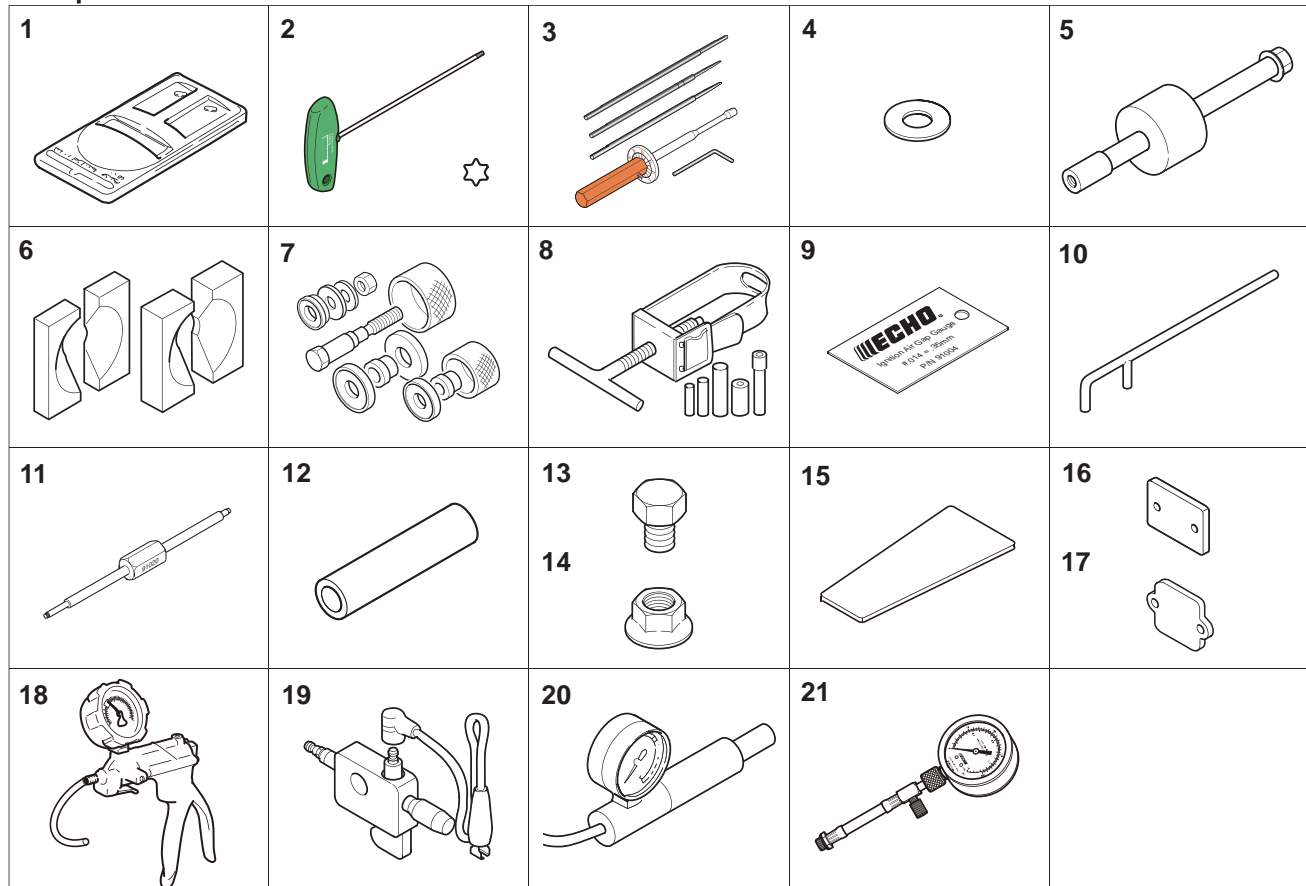
Material	Location	Remarks
Grease	Drive shaft	EPNOC AP2 (Lithium based grease) P/N X695-000060
	Gear case	
	Rewind spring	
	Starter center post	
	Oil seal inner lips	
Thread locking sealant	Starter case	Loctite #242, Three Bond #1324 or equivalent
	Muffler	
	Muffler cover	
	Fuel tank	
	Intake insulator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

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