



**SERVICE DATA**  
**TRIMMER/BRUSHCUTTER**  
**ECHO: SRM-236 SRM-236ES**  
**SRM-236TES**  
 (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.

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## 1 SERVICE INFORMATION

## 1-1 Specifications

Models			SRM-236 (L)	SRM-236ES (L)	SRM-236 (U)	SRM-236ES (U)
Dimensions*	Length	mm (in)	1770 (69.7)		1775 (69.9)	
	Width	mm (in)	340 (13.4)		710 (28.0)	
	Height	mm (in)	330 (13.0)		395 (15.6)	425 (16.7)
Dry weight*		kg (lb)	5.48 (12.1)	5.40 (11.9)	5.96 (13.1)	5.88 (13.0)
Engine	Type		YAMABIKO, air-cooled, two-stroke, single cylinder			
	Rotation		Anticlockwise as viewed from the output end			
	Displacement	cm <sup>3</sup> (in <sup>3</sup> )	21.2 (1.294)			
	Bore	mm (in)	32.2 (1.268)			
	Stroke	mm (in)	26.0 (1.024)			
	Compression ratio		6.9			
Carburettor	Type		Diaphragm, horizontal-draught			
	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		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**	Type		Premixed two-stroke fuel			
	Mixture ratio		50 : 1 (2%)			
	Petrol		Minimum 89 octane			
	Two-stroke engine oil		ISO-L-EGD (ISO/CD13738), JASO FC/FD			
	Tank capacity	L (U.S.fl.oz.)	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 OD - ID	mm (in)	25.0 - 22.0 (0.98 - 0.87)			
	(Main pipe) Length	mm (in)	1500 (59.1)			
Gear case	Reduction ratio		1.36			
	Gear tooth		Spiral bevel gear			
	Lubrication		Lithium based grease or ECHO XTended Protection™ Lubricant			
Cutter	Type		Nylon line cutter F4		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		Anticlockwise as viewed from top			

OD: Outer diameter. ID: Inner diameter.

\* Without shoulder harness and standard cutter.

\*\* Refer to Operator's manual.

1-1 Specifications (continued)

Models		SRM-236TES (L)	SRM-236TES (U)
Dimensions*	Length	mm (in)	1777 (70.0)
	Width	mm (in)	340 (13.4)
	Height	mm (in)	329 (13.0)
Dry weight*		kg (lb)	5.57 (12.3)
Engine	Type	YAMABIKO, air-cooled, two-stroke, single cylinder	
	Rotation	Anticlockwise as viewed from the output end	
	Displacement	cm <sup>3</sup> (in <sup>3</sup> )	21.2 (1.294)
	Bore	mm (in)	32.2 (1.268)
	Stroke	mm (in)	26.0 (1.024)
	Compression ratio		6.9
Carburettor	Type	Diaphragm, horizontal-draught	
	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	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**	Type	Premixed two-stroke fuel	
	Mixture ratio	50 : 1 (2%)	
	Petrol	Minimum 89 octane	
	Two-stroke engine oil	ISO-L-EGD (ISO/CD13738), JASO FC/FD	
	Tank capacity	L (U.S.fl.oz.)	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 or ECHO XTended Protection™ Lubricant	
Cutter	Type	Nylon line cutter F4	
	Fastener type, size	mm	Left-hand thread nut, M10 x 1.25 pitch
	Cutting rotation	Anticlockwise as viewed from top	

OD: Outer diameter. ID: Inner diameter.

\* Without shoulder harness and standard cutter.

\*\* Refer to Operator's manual.

## 1-2 Technical data

Models	SRM-236		SRM-236* <sup>1</sup>		SRM-236TES
	Serial number 37013302 and before		Serial number 37013303 and after		
	SRM-236ES		SRM-236ES* <sup>1</sup>		
	Serial number 37006656 and before		Serial number 37006657 and after		
Engine					
Idling speed	r/min	2,500 - 3,500			
Wide open throttle speed	r/min	9,000 - 10,000*		9,500 - 10,500*	
		10,700 - 11,700**			
Clutch engagement speed	r/min	3,750	3,900		
Engagement Minimum <sup>†</sup>	r/min	3,500	3,800		
Compression pressure	MPa (kgf/cm <sup>2</sup> ) (psi)	0.9 (9.1) (130)			
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		
Carburettor					
Throttle adjust screw initial setting	turn out* <sup>2</sup>	5 1/4			
L mixture needle initial setting	turn out	3 1/4			
H mixture needle initial setting	turn out	1 1/8			
Test Pressure, minimum	MPa (kgf/cm <sup>2</sup> ) (psi)	0.05 (0.5) (7.0)			
Metering lever height	mm (in)	0.1 - 0.25 (0.004 - 0.01) lower than diaphragm seat			

BTDC: Before top dead centre.

\* With Nylon line cutter and shield.

\*\* With 3-tooth blade (230 mm).

† If clutch engagement speed is lower than service limit speed, replace clutch assembly with new one.

\*<sup>1</sup> Clutch assembly changed to the same parts used on SRM-236TES.

\*<sup>2</sup> Turn Throttle adjust screw (TAS) clockwise until its head touches boss. Then turn TAS anticlockwise.

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	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	Carburettor	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

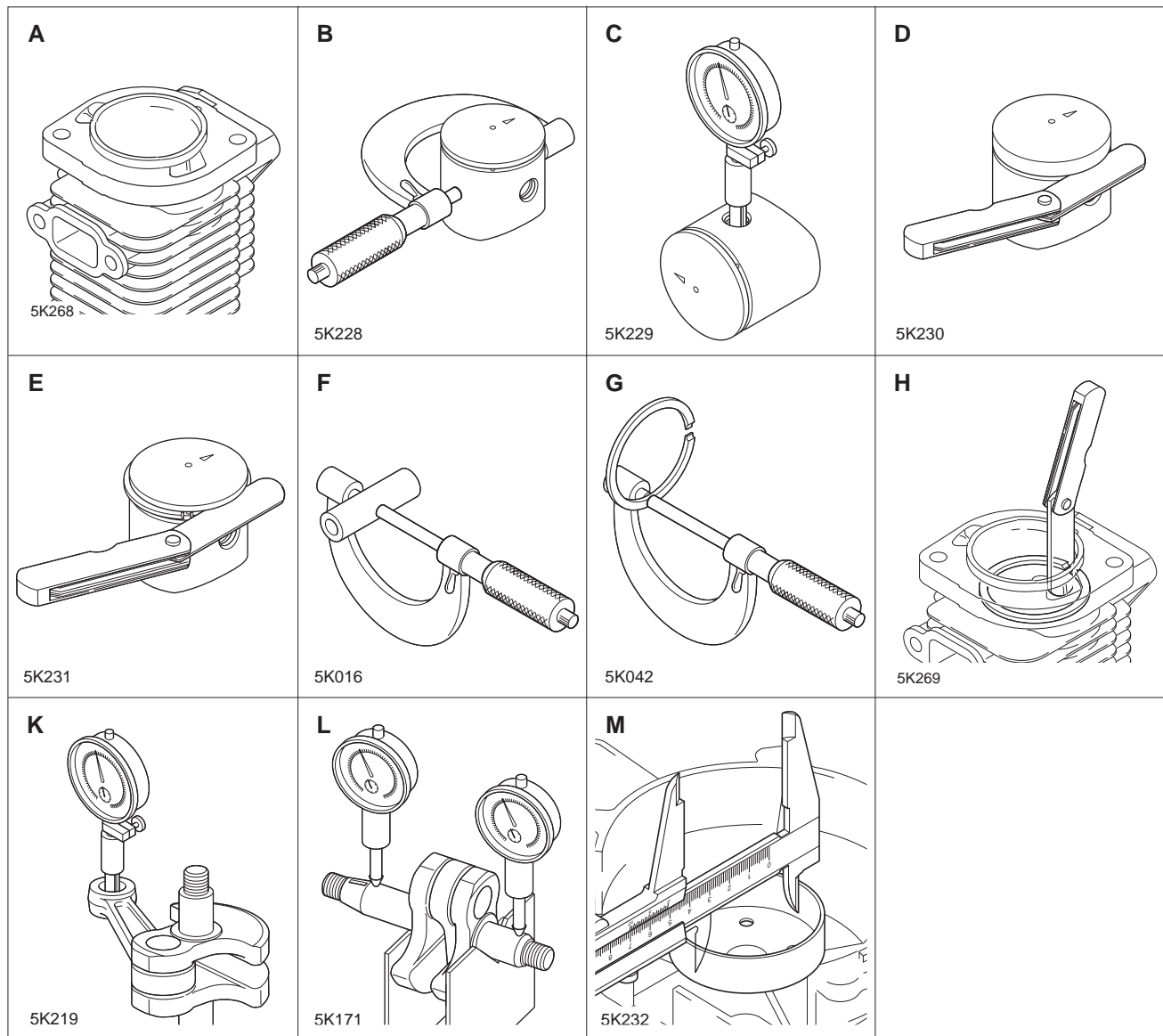
\* Apply thread locking sealant. (See below)

\*\* 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

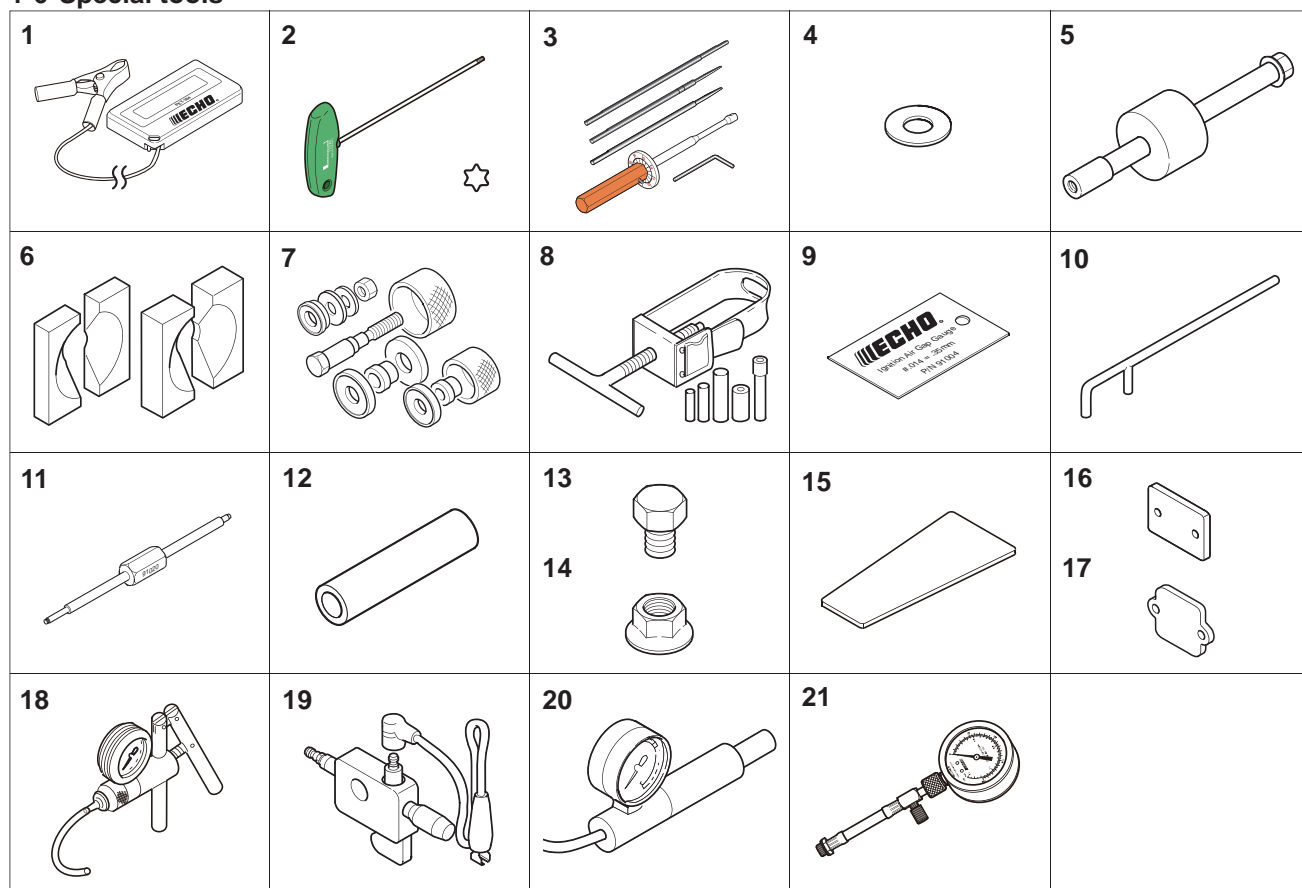
Material	Location	Remarks
Grease	Drive shaft	Lithium based grease or ECHO XTended Protection™ Lubricant
	Gear case	
	Rewind spring	
	Starter centre post	
	Oil seal inner lips	
Thread locking sealant	Starter case	Loctite #242, Three Bond #1324 or equivalent
	Muffler	
	Muffler cover	
	Fuel tank	
	Intake insulator	Loctite #675 or equivalent

## 1-5 Service limits



Description		mm (in)
A	Cylinder bore	When plating is worn and aluminium 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	G310-000050	Tachometer PET-304	Measuring engine speed to adjust carburettor
2	X602-000340	Torx wrench (T27)	Removing and installing bolt
3	Y089-000094	Carburettor adjustment tool	Adjusting carburettor
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 cankshaft
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	91139	Pressure / vacuum tester	Testing crankcase / cylinder leakages
19	897800-79931	Spark tester	Checking ignition system
20	897803-30133	Pressure tester	Testing carburettor and crankcase leakages
21	91037	Compression gauge	Measuring cylinder compression



**2 CARBURETTOR ADJUSTMENT PROCEDURE****2-1 General adjustment rules**

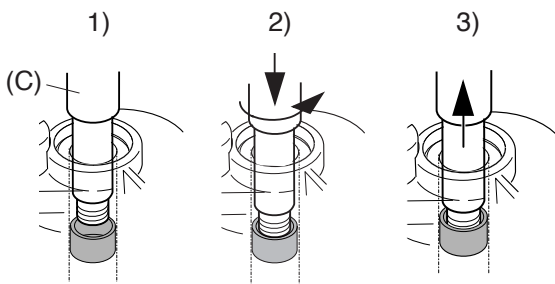
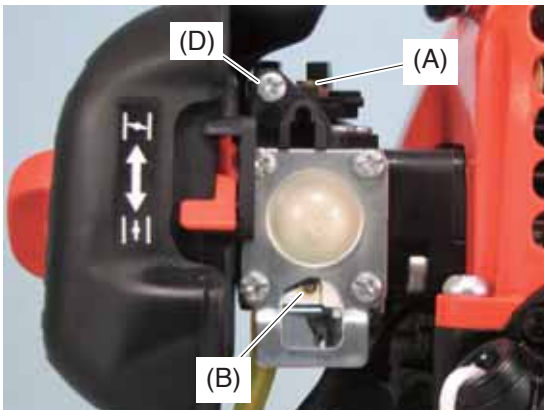
A. Before starting the unit for adjustment, check the following items.

1. The correct spark plug must be clean and properly gapped.
2. The air filter element must be clean and properly installed.
3. The muffler exhaust port must be clear of carbon.
4. The fuel lines, tank vent and fuel filter are in good condition and clear of debris.
5. The fuel is fresh ( > 89 octane : RON ) and properly mixed at 50 : 1 with "ISO L-EGD" or "JASO FC/FD" 2-stroke oil.
6. Remove shield from gear case, and install nylon line cutter if 3-tooth blade is installed. Extend nylon line cutter and cut nylon line cutter length to 145 mm (5.7 inches) for proper engine loading. For SRM-236TES, remove shield from gear case, extend and cut nylon line cutter length to 165 mm (6.5 inches).

B. Adjustment with limiter plugs on carburettor.

Start and run engine for 3 minute alternating engine speed between WOT for 50 seconds and idle for 10 seconds. Adjust idle engine speed to 3,000 +/- 100 r/min by turning Throttle adjust screw. If engine does not run correctly after this adjustment, proceed to the next step 2-2.

**IMPORTANT :** After adjusting carburettor according to the steps 2-2 and 2-3, the limiter plug(s) must be installed in L and H mixture needle(s) hole(s) to comply with Emission Directive.

**2-2 Initial setting Throttle adjust screw, L mixture needle and H mixture needle**

Tools Required : Small screwdriver with 2.5 mm blade, P/N G310-000050 Tachometer PET-304, P/N 91020 Limiter plug tool with 2.5 mm left-hand thread.

Parts Required : (2) Limiter plug P/N P005-001270

1. Remove plugs from L mixture needle hole (A) and H mixture needle hole (B) using limiter plug tool (C) as follows.

1) Put limiter plug tool (C) on limiter plug in mixture needle hole.

(2)Screw limiter plug tool anticlockwise 2 turns into limiter plug pushing the tool against the plug to engage tool threads.

(3)Pull out limiter plug tool, with the limiter plug, from mixture needle hole.

4) Repeat plug removal procedure for the other mixture needle.

**NOTE :** If the plug is damaged and left in the hole, use a needle or pin-shaped tool to remove deformed plug pieces.

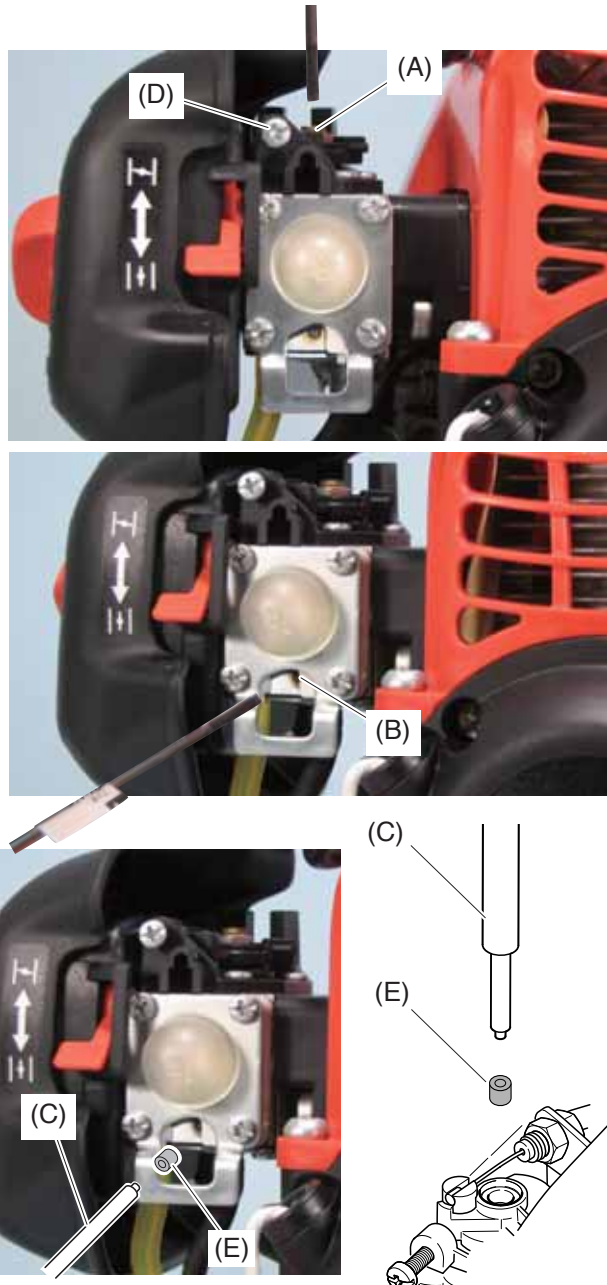
2. Turn L mixture needle (A) clockwise until lightly seated. Then turn it anticlockwise 3 1/4 turns. Turn H mixture needle (B) clockwise until lightly seated. Then turn it anticlockwise 1 1/8 turns.

3. Turn Throttle adjust screw (D) clockwise until its head touches boss. Then turn Throttle adjust screw (D) anticlockwise 5 1/4 turns.

**NOTE :** The initial carburettor settings for Throttle adjust screw, L and H mixture needles are intended to start and run the engine before final carburettor adjustments are made to conform the unit to meet Emission Directive. Actual turns required for engine operation may vary.



2-3 Adjusting carburettor



SRM-236TES: Remove shield and cut trimmer head line lengths to 210 mm.

SRM-236, SRM-236ES: Remove shield, and install nylon line cutter if 3-tooth blade is installed. Cut trimmer head line lengths to 180 mm.

1. Start and warm engine for 1 minute alternating engine speed between WOT for 50 seconds and idle for 10 seconds.

2. After stabilizing engine idle speed, adjust L mixture needle (A) to reach maximum idle speed using 2.5 mm blade screwdriver.

3. Set Idle speed by turning Throttle adjust screw (D) as below.

SRM-236 (S/N 37013302 and before) and SRM-236ES (S/N 37006656 and before) : 3,700 r/min

SRM-236TES, SRM-236 (S/N 37013303 and after) and SRM-236ES (S/N 37006656 and after) : 4,100 r/min

4. Turn L mixture needle anticlockwise to reduce engine idle speed to :

SRM-236 (S/N 37013302 and before) and SRM-236ES (S/N 37006656 and before) : 2,300 r/min

SRM-236TES, SRM-236 (S/N 37013303 and after) and SRM-236ES (S/N 37006656 and after) : 3,000 r/min

5. SRM-236 (S/N 37013302 and before) and SRM-236ES (S/N 37006656 and before) :

Turn Throttle adjust screw (D) clockwise to increase idle engine speed to set idle at 3,000 r/min. The idle speed range is 2,900 - 3,100 r/min.

**NOTE** : Engine speed must be allowed to stabilize a minimum of 20 seconds after each adjustment of L mixture needle to assure accurate tachometer readings.

6. Pull throttle trigger to WOT, and after stabilizing engine WOT speed, adjust H mixture needle (B) to reach maximum WOT engine speed.(max. approx. 8,000 r/min) Then turn H mixture needle (B) anticlockwise by 3/8.

7. SRM-236TES: Stop engine and reinstall shield with knife. Restart engine and verify engine idle speed range from 2,500 to 3,500 r/min, and WOT engine speed range from 9,500 to 10,500 r/min.

SRM-236, SRM-236ES (L): Stop engine and reinstall shield with knife. Restart engine and verify engine idle speed range from 2,500 to 3,500 r/min, and WOT engine speed range from 9,000 to 10,000 r/min.

SRM-236, SRM-236ES (U): When blade was installed, reinstall shield and the blade after stopping engine. Restart engine and verify engine idle speed range from 2,500 to 3,500 r/min, and WOT engine speed range from 10,700 to 11,700 r/min.

Make sure the nylon line cutter does not rotate when engine is at idle. Engine should start and accelerate smoothly.

8. After adjusting carburettor, insert and secure new plug(s) (E) P005-001270 in the needle holes per the Emission Directive using limiter plug tool 91020 (C).

**NOTE** : WOT and idle speed in field operation may vary from final adjustment specifications due to changing ambient conditions, fuel, and engine loads. Safe engine speed variances should be within the WOT and Idle speed ranges listed in Section 1-2, otherwise the carburettor should be readjusted.