SERVICE DATA

HEDGE TRIMMER

ECHO: HC-2810ESR

(Serial number : T94737000001 - T94737999999)
(Serial number : U20438000001 - U20438999999)
(Serial number : U63240000001 - U63240999999)

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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Caburetor Adjustment video

CLICK HERE

Reference No. **12-21T-D3**
REVISED:202211
ISSUED: 201702

1 SERVICE INFORMATION

1-1 Specifications

Dimensions	Length	mm(in)	1196 (47.1)
	Width	mm(in)	272 (10.7)
	Height	mm(in)	195 (7.7)
Dry weight		kg(lb)	5.2 (11.5)
Engine	Type		YAMABIKO, air-cooled, two-stroke, single cylinder
	Rotation		Clockwise 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		5.6
Carburetor	Type		Diaphragm, horizontal-draft, with purge bulb
	Model		ZAMA RB-Z011/67A
	Venturi size - Throttle bore	mm(in)	9.0 - 10.5 (0.354 - 0.413)
Ignition	Type		CDI (Capacitor discharge ignition) system Digital Magneto
	Spark plug		NGK BPMR8Y
Exhaust	Muffler type		Spark arrester muffler with catalyst
Starter	Type		ES-Start (effortless)
	Rope diameter x length	mm(in)	3.0 x 880 (0.12 x 34.6)
Fuel*	Type**		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: 0.39 (13.2) Usable capacity: 0.38 (12.8)
Clutch	Type		Centrifugal, 2-shoe slide
Handle	Type	Front	Loop with hand guard
		Rear	Grip with throttle trigger
Gear case	Reduction ratio		4.6
	Gear tooth		Spur
	Lubrication		Lithium based grease
Cutter	Type		Double reciprocating, Double edge blade
	Effective length	mm(in)	624 (24.6)
	Pitch	mm(in)	35 (1.38)
	Height	mm(in)	24 (0.94)
	Thickness	mm(in)	2.4 (0.094)
	Lubrication		Apply oil every 4 hours of use

* Refer to Operator's manual.

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

1-2 Technical data

Engine			
Compression pressure		MPa (kgf/cm^2) (psi)	0.7 (7.1) (101)
Clutch engagement speed		r/min	4700
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		Ω	940 - 980
Pole shoe air gaps		mm(in)	0.3 - 0.4 (0.012 - 0.016)
Ignition timing	at 3,300 r/min	°BTDC	13
	at 8,000 r/min	°BTDC	34
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 - 0.002) 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 (Carb. adjustment tool P/N: Y089-000094)
Carburetor adjustment			
1) Initial setting	H mixture needle	turn out	7/8
	L mixture needle	turn out	3
	Throttle adjust screw	turn out*[1]	7 1/8
Engine warm-up	Idle - WOT : Total	sec.	0 - 120 : 120
2) Find idle maximum speed			Adjust L mixture needle to maximum idle speed*[2]
3) Set idle maximum speed w/ TAS		r/min	4100
4) Set idle speed by turning L mixture needle CCW		r/min	3300
5) Find WOT maximum speed			Adjust H mixture needle to maximum WOT speed
6) WOT setting		r/min	Turn H mixture needle CCW to reduce WOT speed by : 100 - 150
7) Verify final engine speed with standard equipment		r/min	Idle: 2900 - 3700 WOT: 10000 - 12000
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.

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

*[1] Turn Throttle adjust screw (TAS) clockwise until its head touches boss. Then turn TAS counterclockwise.

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

1-3 Torque limits

Descriptions			Size	kgf•cm	N•m	in•lbf
Starter system	Starter pawl		M5*	30 - 45	3 - 4.5	26 - 39
	Starter case	Crankcase side	M4*	15 - 30	1.5 - 3	13 - 26
		Cylinder cover side	M4†	15 20	1.5 2	13 18
Ignition system	Magneto rotor (Flywheel)		LM6*	80 - 100	8 - 10	70 - 88
	Ignition coil		M4	35 - 50	3.5 - 5	30 - 44
	Spark plug		M14	130 - 170	13 - 17	115 - 150
Fuel system	Carburettor		M5	30 - 45	3 - 4.5	26 - 39
	Intake insulator		M5*	50 - 70	5 - 7	44 - 61
Clutch	Clutch shoe		M8	160 - 200	16 - 20	140 - 175
	Clutch drum assembly		M12*	170 - 250	17 - 25	150 - 220
Cylinder cover			M5*	25 - 45	2.5 - 4.5	22 - 39
Engine	Crankcase / Cylinder		M5*	60 - 90	6 - 9	53 - 79
	Muffler		M5*	70 - 90	7 - 9	61 - 79
	Muffler cover		M5*	25 - 45	2.5 - 4.5	22 - 39
	Engine mount on gear case		M6	80 - 120	8 - 12	70 - 105
Cutter	Cutter bolts		M5	60 - 80	6 - 8	53 - 70
	Cutter nut		M5	50 - 70	5 - 7	44 - 61
	Cutter support		M5	70 - 80	7 - 8	61 70
	Cutter assembly		M5	60 - 80	6 - 8	53 - 70
	Gear case cover		M5*	60 - 70	6 - 7	53 61
Handle	Rear handle		M4†	15 - 20	1.5 - 2	13 - 18
	Front handle		M6†	20 - 30	2 - 3	18 - 26
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 - 39
			M6	45 - 75	4.5 - 7.5	39 - 65
			M8	110 - 150	11 - 15	95 - 130

LM: Left hand thread † Tapping screw

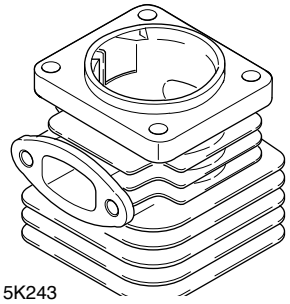
* Apply thread locking sealant. (See below)

1-4 Special maintenance materials

Material	Location	Remarks
Grease	Gear case	EPNOC AP2 (Lithium based grease) P/N X695-000060
	Rewind spring	
	Starter center post	
	Oil seal inner lips	
Thread locking sealant	Cylinder cover	Loctite #222, ThreeBond #1342 or equivalent
	Magneto rotor (Flywheel)	
	Intake insulator	
	Muffler	ThreeBond #1360 or equivalent
	Muffler cover	
	Clutch drum assembly	
	Starter case (Crankcase side)	
	Gear case lid	

1-5 Service limits

A



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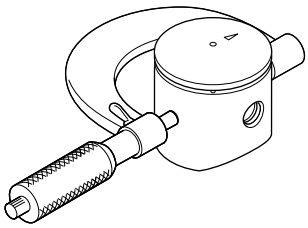

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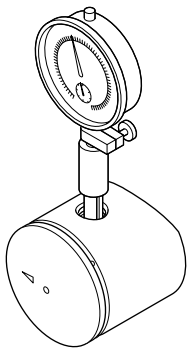

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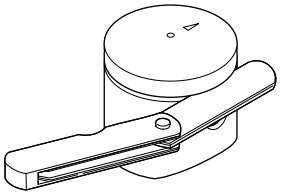

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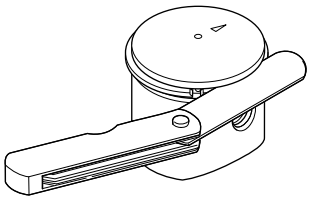

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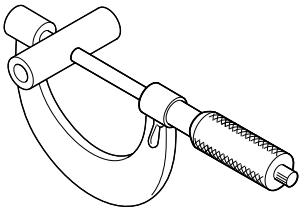

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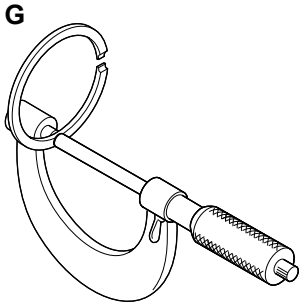

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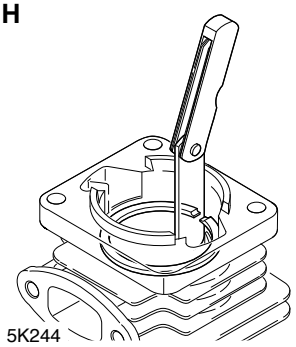

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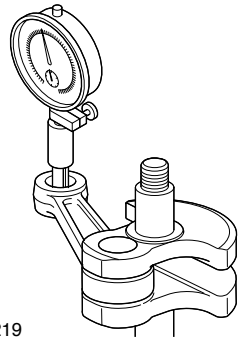

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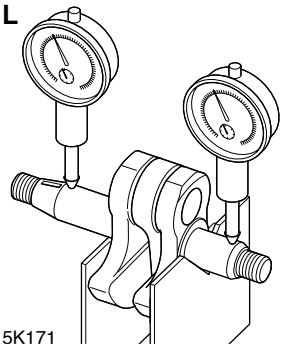

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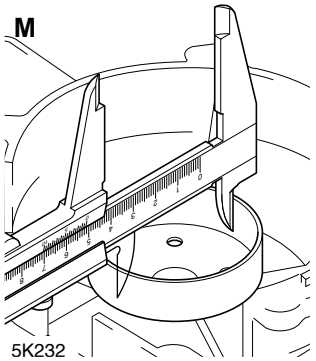

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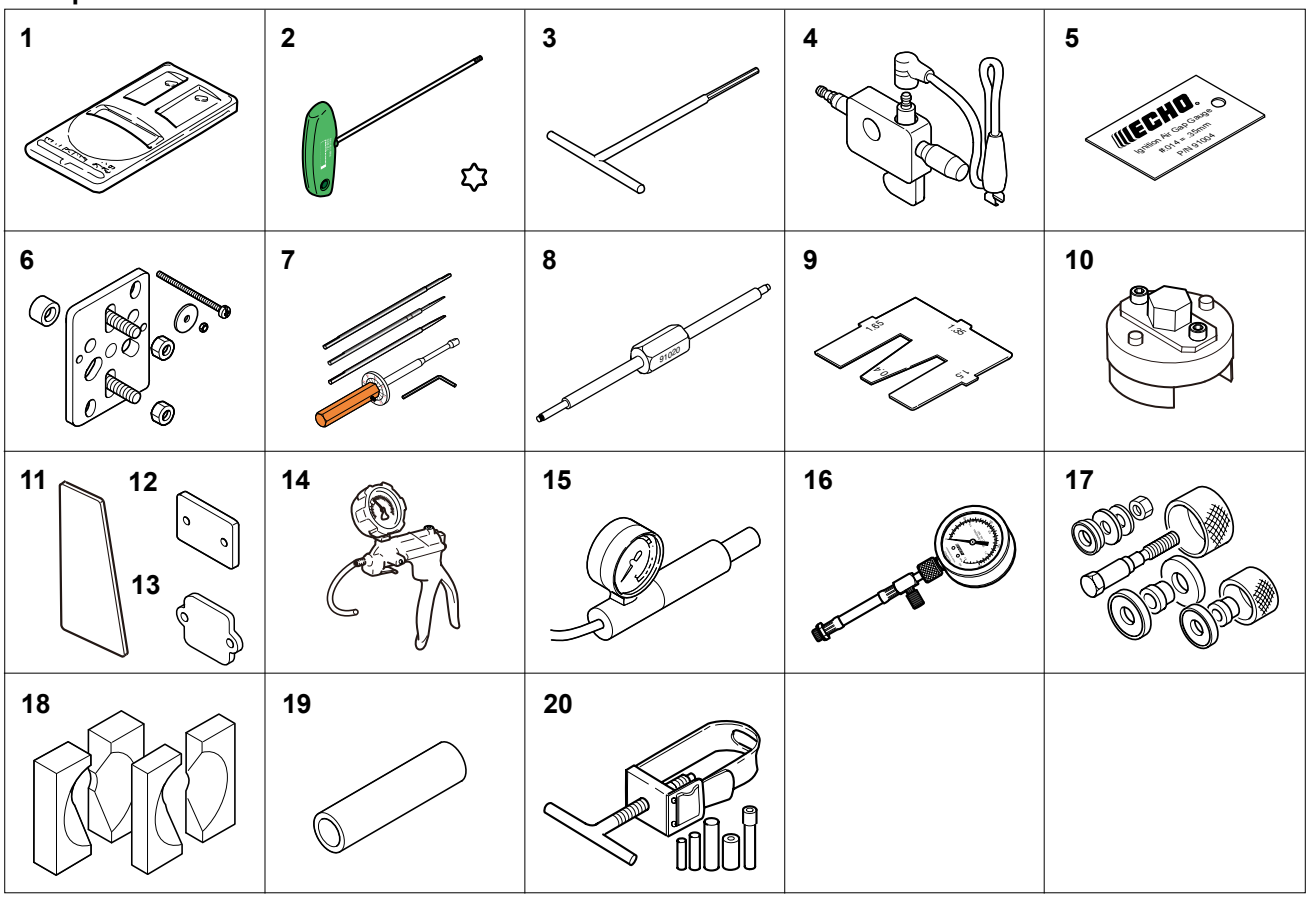
	Description		mm (in)
A	Cylinder bore		When plating is worn and aluminium can be seen
B	Piston outer diameter	Min.	32. 10 (1.264)
C	Piston pin bore	Max.	8. 030 (0.3161)
D	Piston ring groove	Max.	1. 6 (0.063)
E	Piston ring side clearance	Max.	0. 1 (0.004)
F	Piston pin outer diameter	Min.	7. 98 (0.3142)
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. 025 (0.4734)
L	Crankshaft runout	Max.	0. 02 (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 torx bolt
3	897559-02831	T-hex. wrench (4 mm)	Removing and installing hex. socket bolt (M5)
4	897800-79931	Spark tester	Checking ignition system
5	91004	Module air gap gauge	Adjusting pole shoe air gaps
6	Y089-000111	Puller	Removing magneto rotor (flywheel) and crankcase
7	Y089-000094	Carburetor adjustment tool	Adjusting caburetor
8	91020	Limiter plug tool	Removing and installing limiter plug
9	897563-19830	Metering lever gauge	Measuring metering lever height on carburettor
10	X600-000130	Clutch spanner	Removing and installing clutch drum
11	91041	Pressure rubber plug	Plugging exhaust port to test crankcase/cylinder leakages
12	897826-16131	Pressure rubber plug	Plugging intake port to test crankcase/cylinder leakages
13	897827-16131	Pressure plate	Plugging intake port to test crankcase/cylinder leakages
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	897701-02830	Bearing wedge	Removing ball bearings on crankshaft
19	897726-09130	Oil seal tool	Installing oil seals and clutch plate
20	897702-30131	Piston pin tool	Removing and installing piston pin