



SERVICE DATA

ENGINE CUT-OFF SAW

ECHO: CSG-7410ES

shindaiwa: EC741S

(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. **03-74B-00**
ISSUED : 201902



1 SERVICE INFORMATION**1-1 Specifications**

Dimensions*	Length	mm(in)	620 (24.4)
	Width	mm(in)	240 (9.4)
	Height	mm(in)	407 (16.0)
Dry weight*		kg(lb)	10.7 (23.6)
Engine	Type		YAMABIKO, air-cooled, two-stroke, single cylinder
	Rotation		Clockwise viewed from the output end
	Displacement	cm ³ (in ³)	73.5 (4.485)
	Bore	mm(in)	51.0 (2.008)
	Stroke	mm(in)	36.0 (1.417)
	Compression ratio		6.92
Carburetor	Type		Diaphragm horizontal-draft, Inner vent type
	Model		Walbro HAD-344
	Venturi size-Throttle bore	mm(in)	16.66 - 19.03 (0.656 - 0.749)
Ignition	Type		CDI (Capacitor discharge ignition) system Digital Magneto with stop holding function
	Spark plug		NGK BPMR7A
Exhaust	Muffler type		Spark arrester muffler
Starter	Type		ES (Effortless-Start) / S (Soft-start)
	Rope diameter x length	mm(in)	3.8 x 900 (0.15 x 35.4)
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 (UK.fl.oz.)	0.7 (23.7)
Clutch	Type		Centrifugal, 3 shoe slide with 3-tension spring
Cutter	Size	mm (in)	350 (14)
	Arbor	mm	20
Pulley	Blade speed reducing ratio		2.57
	Belt		6PJ-808
Air filter structure			Main filter: Honeycomb type
			Sub filter: Nonwoven fabric screen

* Without blade

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

1-2 Technical data

Engine					
Compression pressure		MPa (kgf/cm ²) (psi)		0.99 (10.1) (143)	
Clutch engagement speed		r/min		3,800	
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		1.5 - 2.5	
Pole shoe air gaps		mm(in)		0.3 - 0.4 (0.012 - 0.016)	
Ignition timing	at 2,700 r/min		°BTDC	18	
	at 9,000 r/min		°BTDC	30	
Carburetor					
Test Pressure, minimum		MPa (kgf/cm ²) (psi)		0.05 (0.5) (7.0)	
Metering lever height		mm(in)		Flush with diaphragm seat	
Tool to adjust mixture needles				D-shaped tool (L) P/N X645-000031	
Carburetor adjustment					
Fuel type				Mixed two-stroke fuel	Premixed alkylate fuel
Preparation				Remove cutter.	
1) Initial setting	H mixture needle	turn out		3 1/2	3 3/8
	L mixture needle	turn out		2	
	Throttle adjust screw	turn out* ¹		2 1/2	
Engine warm-up	Idle - WOT : Total	sec.		10 - 5 : 120	
2) Find idle maximum speed				Adjust L mixture needle to maximum idle speed* ²	
3) Set idle maximum speed w/ TAS		r/min		3,700	3,750
4) Set idle speed by turning Lmixture needle CCW					
				When carburetor or diaphragm is brand-new	When carburetor or diaphragm is brand-new
		r/min		2,800	2,800
				3,300	2,800
5) Verify final engine speed with standard equipment		r/min		Idle: 3,100 - 3,400	Idle: 2,600 - 3,000
6) 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 TAS clockwise until its head touches boss. Then turn TAS counterclockwise.

*² 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	M6	90 - 120	9 - 12	80 - 105	
	Starter case	M5**	30 - 45	3 - 4.5	26 - 40	
Ignition system	Magneto rotor (Flywheel)	M8	230 - 240	23 - 24	200 - 210	
	Ignition coil	M5**	50 - 70	5 - 7	45 - 60	
	Spark plug	M14	170 - 190	17 - 19	150 - 165	
Fuel system	Carburetor, Carburetor elbow	M5	30 - 45	3 - 4.5	26 - 40	
	Carburetor elbow	M5**	30 - 45	3 - 4.5	26 - 40	
Clutch	Clutch assembly	LM8	280 - 300	28 - 30	245 - 262	
	Clutch drum	LM8	150 - 170	15 - 17	130 - 150	
Engine	Crankcase	M5**	50 - 70	5 - 7	45 - 60	
	Cylinder	M6**	90 - 120	9 - 12	80 - 105	
	Intake insulator	M5**	30 - 45	3 - 4.5	26 - 40	
	Decompression valve	M10	120 - 150	12 - 15	105 - 130	
	Muffler	M6	150 - 170	15 - 17	130 - 150	
Others	Cylinder cover	M5**	30 - 60	3 - 6	26 - 52	
	Rear handle	Rear handle side	M5	40 - 60	4 - 6	35 - 52
		Crankcase side	M5	30 - 50	3 - 5	26 - 45
	Front handle		M6	50 - 70	5 - 7	45 - 60
			M5**	50 - 70	5 - 7	45 - 60
	Cutter arm cover	Clutch side	M5**	25 - 35	2.5 - 3.5	18 - 30
		Pulley side	M8	230 - 270	23 - 27	200 - 235
	Cutter cover plate	M5**	50 - 70	5 - 7	45 - 60	
	Pulley	M10*	200 - 230	20 - 23	175 - 200	
	Cutter guard stopper	M6	70 - 90	7 - 9	60 - 80	
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	

LM: Left-hand thread

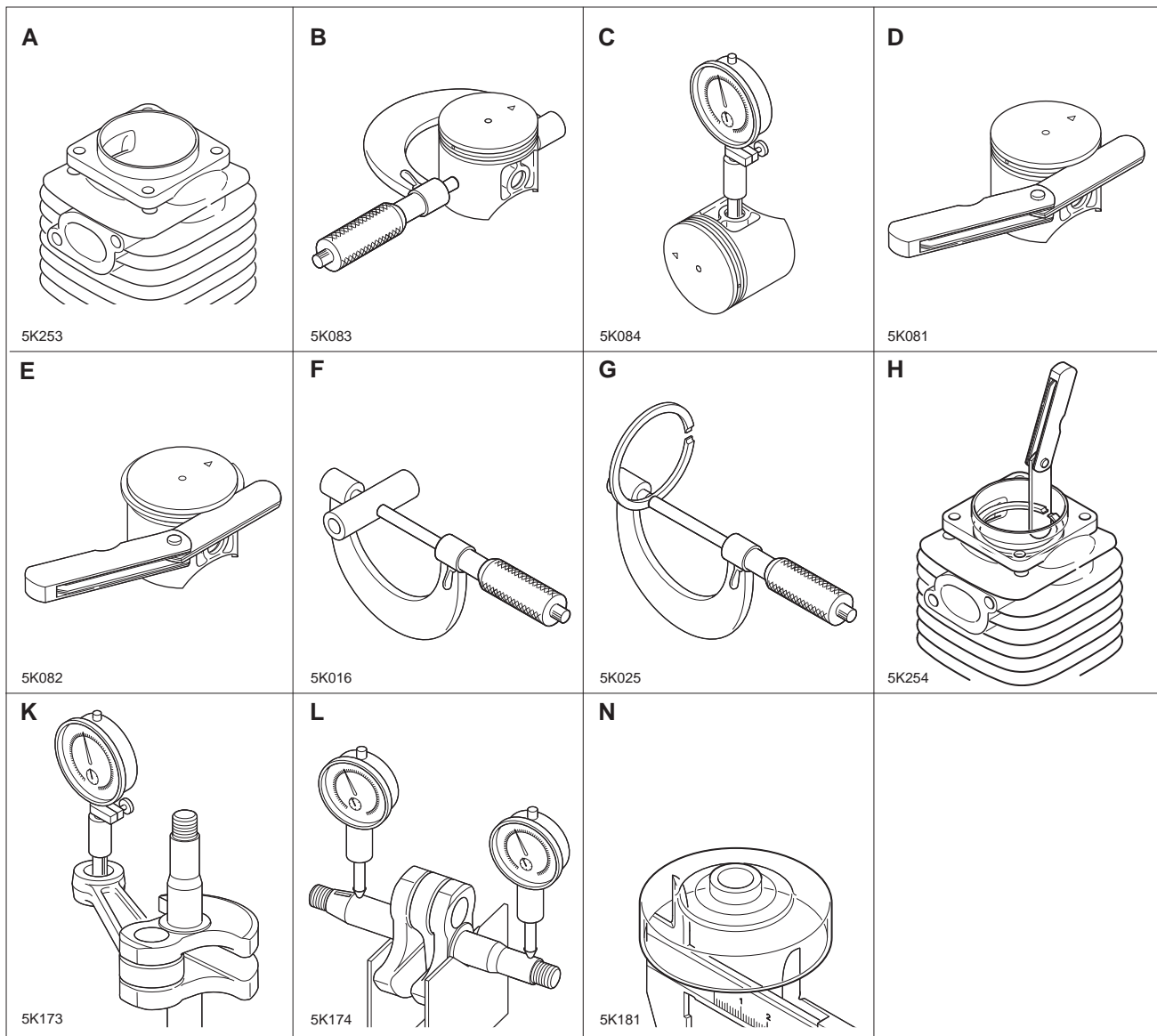
* Apply thread locking sealant (See blow).

** Precoat bolt: If the coat is peeled off, replace new one or apply ThreeBond #1344 or equivalent.
If old thread locking sealant is left in threads, correct torque may not be secured.
In case old thread locking sealant is left, remove it.

1-4 Special repairing materials

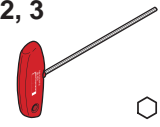
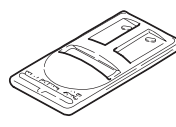
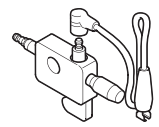

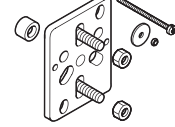
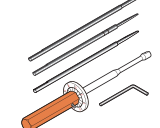
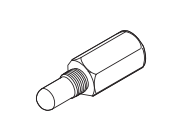
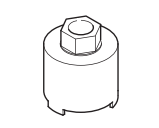
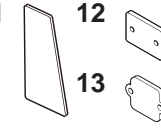
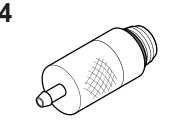

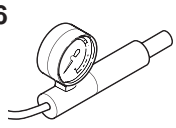
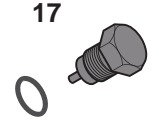
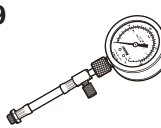
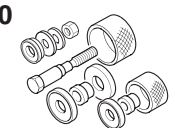


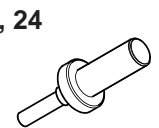
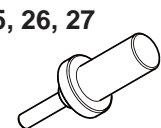
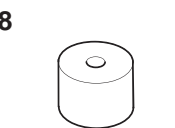
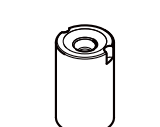
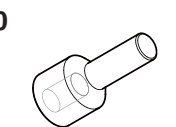
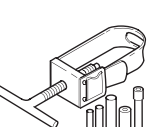
Material	Location	Remarks
Lubricant	Starter pawl	ThreeBond #1816B or equivalent
Thread locking sealant	Pulley	ThreeBond #1377B or equivalent
	Cutter cover nut	
	Starter center nut	Loctite #263 or equivalent
Grease	Starter center shaft	EPNOC AP2 (Lithium based grease) P/N X695-000060
	Main air filter groove	
	Handle cushion inside	
	Oil seal inner lips	

1-5 Service limits



Description		mm (in)	
A	Cylinder bore	When plating is worn and aluminum can be seen	
B	Piston outer diameter	Min.	50.89 (2.004)
C	Piston pin bore	Max.	12.030 (0.4736)
D	Piston ring groove	Max.	1.6 (0.063)
E	Piston ring side clearance	Max.	0.15 (0.006)
F	Piston pin outer diameter	Min.	11.98 (0.4717)
G	Piston ring width	Min.	1.45 (0.057)
H	Piston ring end gap	Max.	0.6 (0.02)
K	Con-rod small end bore	Max.	15.025 (0.5915)
L	Crankshaft runout	Max.	0.03 (0.0012)
N	Clutch drum bore	Max.	79.5 (3.13)

1-6 Special tools

1, 2, 3		4		5		6		7	
8		9		10		11		12	
15		16		17		19		14	
21		22		23, 24		25, 26, 27		28	
29		30		31					

Key	Part Number	Description	Reference
1	X602-000350	T-hex. wrench (3 mm)	Removing and installing hex. head bolt (M4)
2	X602-000360	T-hex. wrench (4 mm)	Removing and installing hex. head bolt (M5)
3	X602-000230	T-hex. wrench (5 mm)	Removing and installing hex. head bolt (M6)
4	897802-33330	Tachometer PET-1000R	Measuring engine speed to adjust carburetor
5	897800-79931	Spark tester	Checking ignition system
6	91004	Module air gap gauge	Adjusting pole shoe air gaps
7	Y089-000111	Puller	Removing magneto rotor (flywheel) and crankcase
8	Y089-000094	Carburetor adjustment tool	Adjusting carburetor
9	X644-000020	Piston stopper	Locking crankshaft rotation (Fits 14 mm threads)
10	X640-000560	Clutch tool	Removing clutch assembly
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	A131-000150	Pressure connector	Testing crankcase and cylinder leakage
15	91149	Pressure/Vacuum tester	Testing crankcase / cylinder leakages
16	897803-30133	Pressure tester	Testing carburetor and crankcase leakage
17	101115-37531	Plug	Testing crankcase / cylinder leakages
18	900720-00009	O-ring	Testing crankcase / cylinder leakages
19	91037	Compression gauge	Measuring cylinder compression
20	897701-14732	Bearing tool	Removing and installing ball bearings on crankcase
21	897726-21430	Oil seal tool	Installing oil seal
22	X646-000590	Collar oil seal tool	Set oil seal collect position
23	X646-000060	Rod oil seal	Installing oil seal for crankcase
24	22182-96460	Rod oil seal	Installing oil seal for crankcase
25	X646-000081	Rod bearing	Installing bearing for crankcase
26	X646-000050	Rod bearing	Installing bearing for crankcase
27	22160-96440	Rod bearing	Installing bearing for crankcase
28	22169-96410	Holder	Seat for oilseal / bearing / gearshaft
29	X643-000020	Holder	Seat for oilseal / bearing
30	X646-000100	Rod bearing	Installing bearing for crankcase (Engine cutter)
31	897702-30131	Piston pin tool	Removing and installing piston pin