



SERVICE DATA

CHAIN SAW

ECHO: CS-4910

(Serial number : C8351500001 - C83515999999)

shindaiwa: 492

(Serial number : C8361500001 - C83615999999)

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. **01-50G-00**
Issued: 20200930



1 SERVICE INFORMATION

1-1 Specifications

Dimensions	Length*	mm(in)	395 (15.6)
	Width	mm(in)	250 (9.8)
	Height	mm(in)	290 (11.4)
Dry weight*		kg(lb)	4.7 (10.4)
Engine	Type	YAMABIKO, air-cooled, two-stroke, single cylinder	
	Rotation	Clockwise as viewed from the output end	
	Displacement	cm ³ (in ³)	50.2 (3.063)
	Bore	mm(in)	44.0 (1.732)
	Stroke	mm(in)	33.0 (1.299)
	Compression ratio	7.2	
Carburetor	Type	Diaphragm, horizontal-draft	
	Model	Walbro WT-1141	
	Venturi size-Throttle bore	mm(in)	13.5 - 15.85 (0.531 - 0.624)
Ignition	Type	CDI (Capacitor discharge ignition) system, Digital Magneto	
	Spark plug	NGK BPMR8Y	
Exhaust	Muffler type	Spark arrester muffler	
Starter	Type	Automatic rewind	
	Rope diameter x length	mm(in)	3.8 x 910 (0.15 x 35.8)
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 M345-FC/FD	
	Tank capacity	L (US.fl.oz.)	0.5 (16.9)
Clutch	Type	Centrifugal type	
Guide bar / Saw chain lubrication type			Adjustable automatic oiler
Oil	Tank capacity	L (US.fl.oz.)	0.28 (9.5)
Auto oiler	Type	Clutch driven type	
Sprocket	Type	Floating rim	
	Number of teeth	7	
	Pitch	in	0.325

* Without guide bar and saw chain.

Cutting devices					
Guide bar	Type	CS-4910	16F0AD3366	18F0AD3372	20F0AD3378
		492	S16F0AD3366	S18F0AD3372	S20F0AD3378
	Called length	in	16	18	20
	Gauge	in	0.050		
Saw chain	Type	OREGON 20BPX			
	Number of drive links		66	72	78
	Pitch	in	0.325		
	Gauge	in	0.050		

1-2 Technical data

Engine			
Compression pressure	MPa (kgf/cm ²) (psi)		0.95 (9.7) (138)
Clutch engagement speed	RPM		3,900
Engagement Minimum [†]	RPM		3,400
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 - 2.2
Pole shoe air gaps	mm(in)		0.3 - 0.4 (0.012 - 0.016)
Ignition timing	at 3,000 RPM	°BTDC	20
	at 8,000 RPM	°BTDC	32
	at 10,000 RPM	°BTDC	34
Carburetor			
Test Pressure, minimum	MPa (kgf/cm ²) (psi)		0.05 (0.5) (7.0)
Metering lever height	mm(in)		1.65 (0.06) lower than diaphragm seat
Limiting plug / cap			Limiting cap P003000010
Tool to adjust mixture needles			2.5mm Flat Blade Screwdriver P/N 91027
Carburetor adjustment			
1) Initial setting			
H mixture needle	turn out		3 5/8
L mixture needle	turn out		1 7/8
Throttle adjust screw	turn in* ¹		1 3/4
Engine warm-up	Idle - WOT : Total	sec.	5 - 5 : 100
2) Find idle maximum speed			Adjust L mixture needle to maximum idle speed* ²
3) Set idle maximum speed w/ TAS	RPM		3,500
4) Set idle speed by turning L mixture needle CCW	RPM		2,700
5) Confirm H mixture needle position before WOT setting			Turn H mixture needle CCW to confirm engine speed reduces less than 13,000 RPM
6) WOT setting			Turn H mixture needle CW in 1/8 turn increments with the engine at idle, then accelerate to WOT and check engine speed. The engine speed should fall within: 13,300 - 13,600
7) Verify final engine speed with standard equipment			Idle: 2,300 - 3,100 WOT: 13,000 - 14,000
Chain oil discharge volume	mL/min(US.fl.oz./min)		Adjustable: 3.0 - 16.5 (0.10 - 0.56) (Factory set: 7 mL/min)

BTDC: Before top dead center. WOT: Wide open throttle

CCW: Counterclockwise TAS: Throttle adjust screw

[†] If clutch engagement speed is lower than minimum clutch engagement speed, replace clutch assembly with new one.

*¹ Set Throttle adjust screw to the point that its tip just contacts throttle plate before initial setting.

*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 assembly	M6	90 - 120	9 - 12	80 - 105	
	Starter case	M4	20 - 30	2 - 3	18 - 25	
Ignition system	Magneto rotor (Flywheel)	M8	150 - 170	15 - 17	130 - 150	
	Ignition coil	M4**	30 45	3 4.5	25 40	
	Spark plug	M14	130 - 170	13 - 17	113 - 150	
Fuel system	Carburetor	M5	20 - 30	2 - 3	18 - 25	
	Carburetor elbow	M4	20 - 30	2 - 3	18 - 25	
	Intake insulator	M4	20 - 30	2 - 3	18 - 20	
Clutch	Clutch assembly	LM10	280 - 300	28 - 30	245 - 265	
	Clutch drum	LM8	150 - 170	15 - 17	130 - 150	
Engine	Crankcase	M5 x 35	70 - 90	7 - 9	60 - 80	
		M5 x 18	50 - 70	5 - 7	45 - 60	
	Muffler	M5**	70 - 90	7 - 9	60 - 80	
	Cylinder	M5**	70 - 90	7 - 9	60 - 80	
	Cylinder cover	M5**	25 - 35	2.5 - 3.5	22 - 30	
	Decompression assembly	M10	60 - 80	6 - 8	52 - 70	
Others	Auto-oiler	M4**	20 - 35	2 - 3.5	18 - 30	
	Oiler cover	M4**	30 - 45	3 - 4.5	25 - 40	
	Front handle		M5	40 - 55	4 - 5.5	35 - 48
		On cushion	M4	30 - 45	3 - 4.5	25 - 40
	Rear handle assembly	M5	40 - 55	4 - 5.5	35 - 48	
	Rear handle lid	M4	20 - 30	2 - 3	18 - 25	
	Brake lever	Clutch side	M5*	40 - 60	4 - 6	35 - 52
		Starter side	M5**	50 - 70	5 - 7	45 - 60
	Brake cover	M4**	10 - 20	1 - 2	9 - 18	
	Chain catcher	M5	50 - 70	5 - 7	45 - 60	
	Spike	M5**	50 - 70	5 - 7	45 - 60	
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 special repairing materials (See next page)

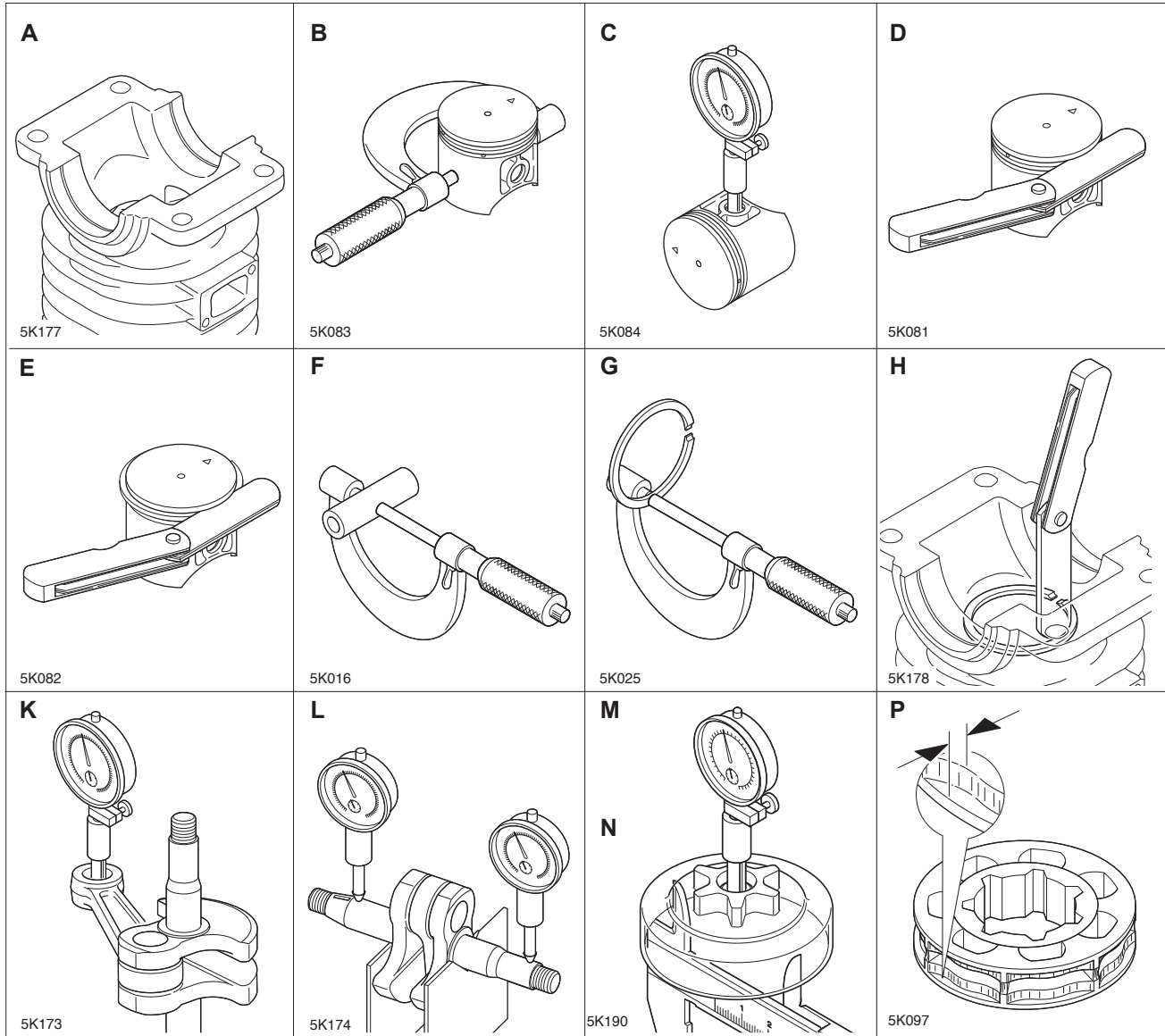
** Pre-coated bolt: If the coat is peeled off, replace new one or apply thread locking sealant. (See next page)

1-4 Special repairing materials

Material	Location	Remarks
Adhesive	Cushions (inside of crankcase)	Loctite® #424 or equivalent
Thread locking sealant	Cylinder (Re-use*)	ThreeBond #1324N or equivalent
	Auto-oiler (Re-use*)	
	Oiler cover (Re-use*)	
	Brake cover (Re-use*)	
	Ignition coil (Re-use*)	
	Brake lever (Clutch side)	
	Brake lever (Starter side) (Re-use*)	ThreeBond #1327 or equivalent
	Spike (Re-use*)	
	Muffler (Re-use*)	
	Cylinder cover (Re-use*)	ThreeBond #1344J or equivalent
Grease	Auto-oiler worm	Lithium based grease or ECHO XTended Protection™ Lubricant
	Needle bearing, clutch	
	Compression spring, brake band	
	Choke rod	
	Oil seal inner lips	
	Chain brake (metal contact part)	
	Throttle rod	

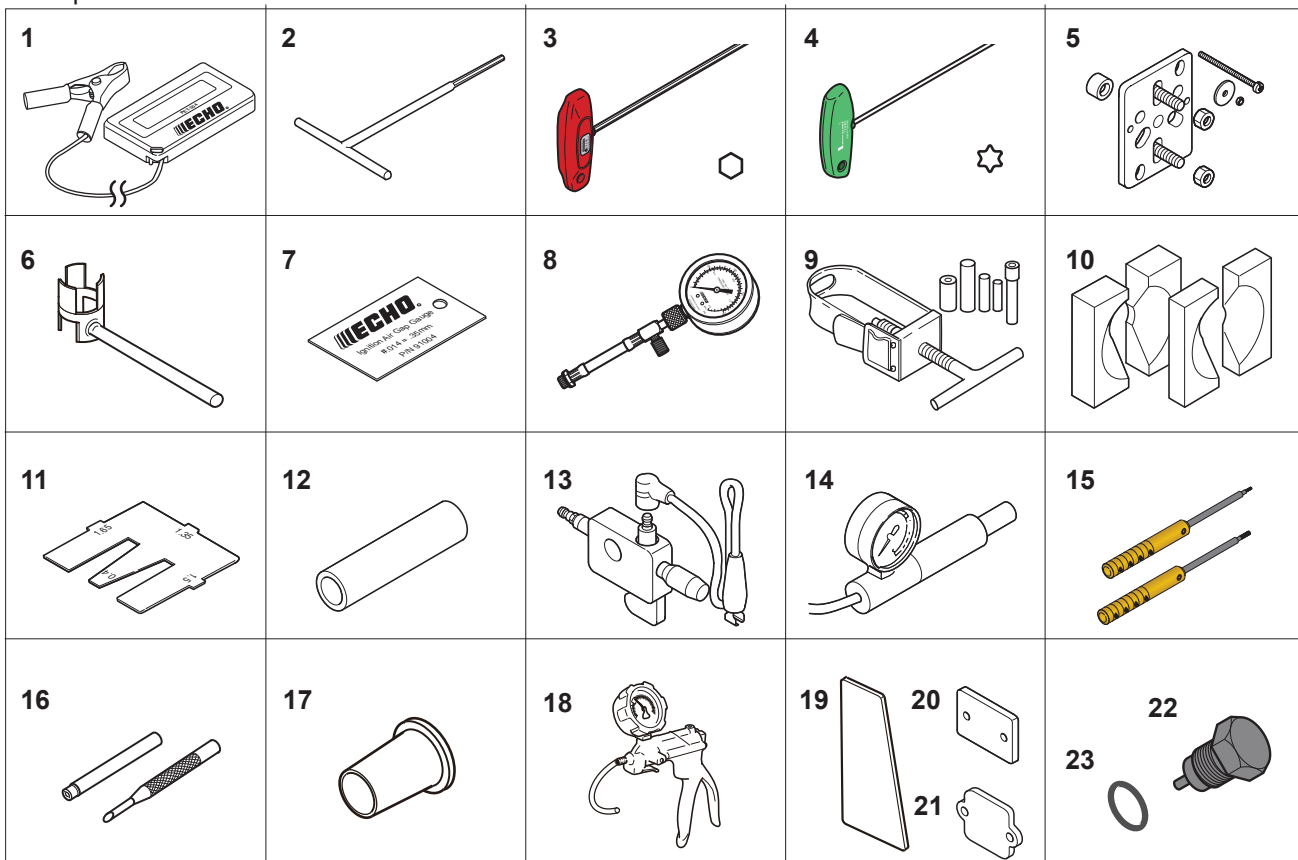
* If old thread locking sealant is left in threads, correct torque may not be secured. In case old thread locking sealant is left, remove it.

1-5 Service Limits



Description		mm (in)	
A	Cylinder bore	When plating is worn and aluminum can be seen	
B	Piston outer diameter	Min.	43.96 (1.731)
C	Piston pin bore	Max.	11.030 (0.4343)
D	Piston ring groove	Max.	1.3 (0.051)
E	Piston ring side clearance	Max.	0.15 (0.006)
F	Piston pin outer diameter	Min.	10.98 (0.4323)
G	Piston ring width	Min.	1.15 (0.045)
H	Piston ring end gap	Max.	0.5 (0.02)
K	Con-rod small end bore	Max.	15.025 (0.5915)
L	Crankshaft runout	Max.	0.05 (0.002)
M	Sprocket bore	Max.	13.07 (0.5146)
N	Clutch drum bore	Max.	72.5 (2.85)
P	Sprocket wear limit	Max.	0.5 (0.02)

1-6 Special tools



Key	Part Number	Description	Reference
1	G310000050	PET 304 Tachometer	Measuring engine speed to adjust Carburetor
2	91044	Hex T Handle Driver(4 mm)	Removing and installing hex. socket bolt (M5)
3	91045	Hex T Handle Driver (5 mm)	Removing and installing hex. socket bolt (M6)
4	91160	T-27 Torx Driver	Removing and installing torx bolt
5	91134	Flywheel Puller	Removing magneto rotor (flywheel) and crankcase
6	X640000370	Clutch spanner	Removing and installing clutch assembly
7	91004	Ignition Air Gap Gauge	Adjusting pole shoe air gaps
8	91147	Compression gauge	Measuring cylinder compression
9	89770230131	Piston pin tool	Removing and installing piston pin
10	89770102830	Bearing wedge	Removing ball bearings on crankshaft
11	89756319830	Metering lever gauge	Measuring metering lever height on Carburetor
12	X646000360	Oil seal tool	Installing oil seals and clutch plate
13	PET4000EC	PET-4000 Spark Checker	Checking ignition system
14	89780330133	Standard Pressure Tester	Testing Carburetor and crankcase leakage
15	91077	Limiters Cap Removal Kit	Removing and installing Limiters caps
16	500500	Walbro Welch Plug Tool Kit	Removing and installing welch plug
17	X646-000150	Collar oil seal tool	Set oil seal collect position
18	91149	Pressure/Vacuum Pump	Testing crankcase / cylinder leakages
19	91041	Pressure rubber plug	Plugging exhaust port to test crankcase/cylinder leakages
20	89782616131	Pressure rubber plug	Plugging intake port to test crankcase/cylinder leakages
21	89782716131	Pressure plate	Plugging intake port to test crankcase/cylinder leakages
22	10111537531	Plug	Testing crankcase / cylinder leakages
23	90072000009	O-ring	Testing crankcase / cylinder leakages