SERVICE DATA

CHAIN SAW

ECHO: CS-355T

(Serial number : C23411000001 - C23411999999)
(Serial number : C23512000001 - C23512999999)
(Serial number : C23613000001 - C23613999999)
(Serial number : C33414000001 - C33414999999)
(Serial number : C67415000001 - C67415999999)
(Serial number : C85015000001 - C85015999999)

shindaiwa: 358Ts

(Serial number : C35813000001 - C35813999999)
(Serial number : C35714000001 - C35714999999)
(Serial number : C67515000001 - C67515999999)
(Serial number : C85115000001 - C85115999999)

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. **00-36H-03**
REVISED: 20210101
ISSUED: 201207

1 SERVICE INFORMATION

1-1 Specifications

Dimensions*	Length	mm(in)	287 (11.3)
	Width	mm(in)	244 (9.6)
	Height	mm(in)	220 (8.7)
Dry weight*		kg(lb)	3.5 (7.7)
Engine	Type		YAMABIKO, air-cooled, two-stroke, single cylinder
	Rotation		Clockwise as viewed from the output end
	Displacement	$cm^3(in^3)$	35.8 (2.184)
	Bore	mm(in)	39.0 (1.535)
	Stroke	mm(in)	30.0 (1.181)
	Compression ratio		7.1
Carburetor	Type		Diaphragm horizontal-draft, with separated purge bulb
	Model		WALBRO WT-1049
	Venturi size-Throttle bore	mm(in)	13.5 - 15.85 (0.531 - 0.624)
Ignition	Type		CDI (Capacitor discharge ignition) system Digital Magneto with stop holding function
	Spark plug		NGK BPM8Y (S/N 13 and 15 series: NGK BPMR8Y)
Exhaust	Muffler type		Spark arrester muffler
Starter	Type		i-15
	Rope diameter x length	mm(in)	3.5 x 900 (0.14 x 35.4)
Fuel	Type		Premixed 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 (U.S.fl.oz.)	0.33 (11.2)
Clutch	Type		Centrifugal, 3-shoe slide with 3-tension spring
Guide bar / Saw chain lubrication type			Adjustable automatic oil pump
Oil	Tank capacity	L (U.S.fl.oz.)	0.243 (8.2)
Auto oiler	Type		Clutch related type
Sprocket	Type		Spur
	Number of teeth		6
	Pitch	in	3/8

* Without guide bar and saw chain.

Cutting devices					
Guide bar	Part No.		12A0ES3745	14A0ES3752	16A0ES3757
	Called length	in	12	14	16
	Gauge	in	0.050		
Saw chain	Type		Oregon 91PXL		
	Number of drive links		45	52	57
	Pitch	in	3/8		
	Gauge	in	0.050		

1-2 Technical data

Engine				
Compression pressure			MPa (kgf/cm^2) (psi)	1.03 (10.5) (149)
Clutch engagement speed			RPM	4,300
Engagement Minimum†			RPM	3,600
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	970 - 1,010
Pole shoe air gaps			mm(in)	0.3 - 0.4 (0.012 - 0.016)
Ignition timing	at 3,000 RPM		°BTDC	6
	at 8,000 RPM		°BTDC	34
Chain oil discharge volume at 7,000 RPM			mL/min (US.fl.oz./min)	Adjustable: 1.5 - 13 (0.05 - 0.43) (Factory set: 7 mL/min)
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
Limiter cap / plug				Limiter cap P/N P003000010
Tool to adjust mixture needles				Screwdriver 2 mm
Carburetor adjustment				**Felt air filter** / **Nylon air filter**
Serial number prefix				**CS-355T** ·C23411 ·C23512 ·C23613 ·C33414 ·C67415 **358Ts** ·C35813 ·C35714 ·C67515 / **CS-355T** ·C85015 **358Ts** ·C85115
1) Initial setting	H mixture needle		turn out	2 5/8 / 3 3/4
	L mixture needle		turn out	2 5/8
	Throttle adjust screw		turn in*1	1 3/8
Engine warm-up	Idle - WOT : Total		sec.	5 - 10 : 100
2) Find idle maximum speed				Adjust L mixture needle to maximum idle speed*2
3) Set idle maximum speed w/ TAS			RPM	3,800
4) Set idle speed by turning L mixture needle CCW			RPM	2,800
5) Confirm H mixture needle position before WOT setting			RPM	Turn H mixture needle CCW to confirm engine speed decreases less than 13,000 - 13,300
6) WOT setting			RPM	Turn H mixture needle CW in 1/2 turn increments with the engine at idle, then accelerate to WOT and check engine speed. The final engine speed should be over 13,800
7) Verify final engine speed with standard equipment			RPM	Idle: 2,700 - 3,300 WOT: 13,800 - 14,300

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 chain starts to rotate during adjustment process step 2), decrease engine speed by turning TAS CCW until chain stops and then redo step 2). Repeat this until chain no longer rotates after the adjustment step 2).

1-3 Torque limits

Descriptions		Size	kgf•cm	N•m	in•lbf
Starter system	Starter pawl	M5*	30 - 45	3 - 4.5	26 - 40
	Starter case	M4	15 - 25	1.5 - 2.5	13 - 22
Ignition system	Flywheel (Magneto)	M8	250 - 290	25 - 29	220 - 255
	Ignition coil	M5*	30 - 45	3 - 4.5	26 - 40
	Spark plug	M14	130 - 170	13 - 17	110 - 150
Fuel system	Carburetor	M5	20 - 30	2 - 3	17 - 26
	Intake bellows	M5	30 - 50	3 - 5	26 - 45
Clutch	Clutch hub	LM10	230 - 260	23 - 26	200 - 230
Engine	Crankcase	M5*	60 - 80	6 - 8	50 - 70
	Engine mount	M5	70 - 110	7 - 11	60 - 95
	Muffler	M5	70 - 100	7 - 10	60 - 90
	Muffler cover	M5	30 - 50	3 - 5	26 - 45
Other	Auto-oiler	M4	20 - 30	2 - 3	17 - 26
	Front handle	M4*	15 - 30	1.5 - 3	13 - 26
	Rear handle assembly	M4	15 - 30	1.5 - 3	13 - 26
	Harness fixture	M5	60 - 90	6 - 9	50 - 80
	Cap cover	M5	30 - 45	3 - 4.5	26 - 40
	Sprocket guard	M4	15 25	1.5 2.5	13 22
	Brake lever	M5	25 - 40	2.5 - 4	22 - 35
	Spike	M5	30 - 50	3 - 5	26 - 45
	Guide bar	M8	200 - 230	20 - 23	175 - 200
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

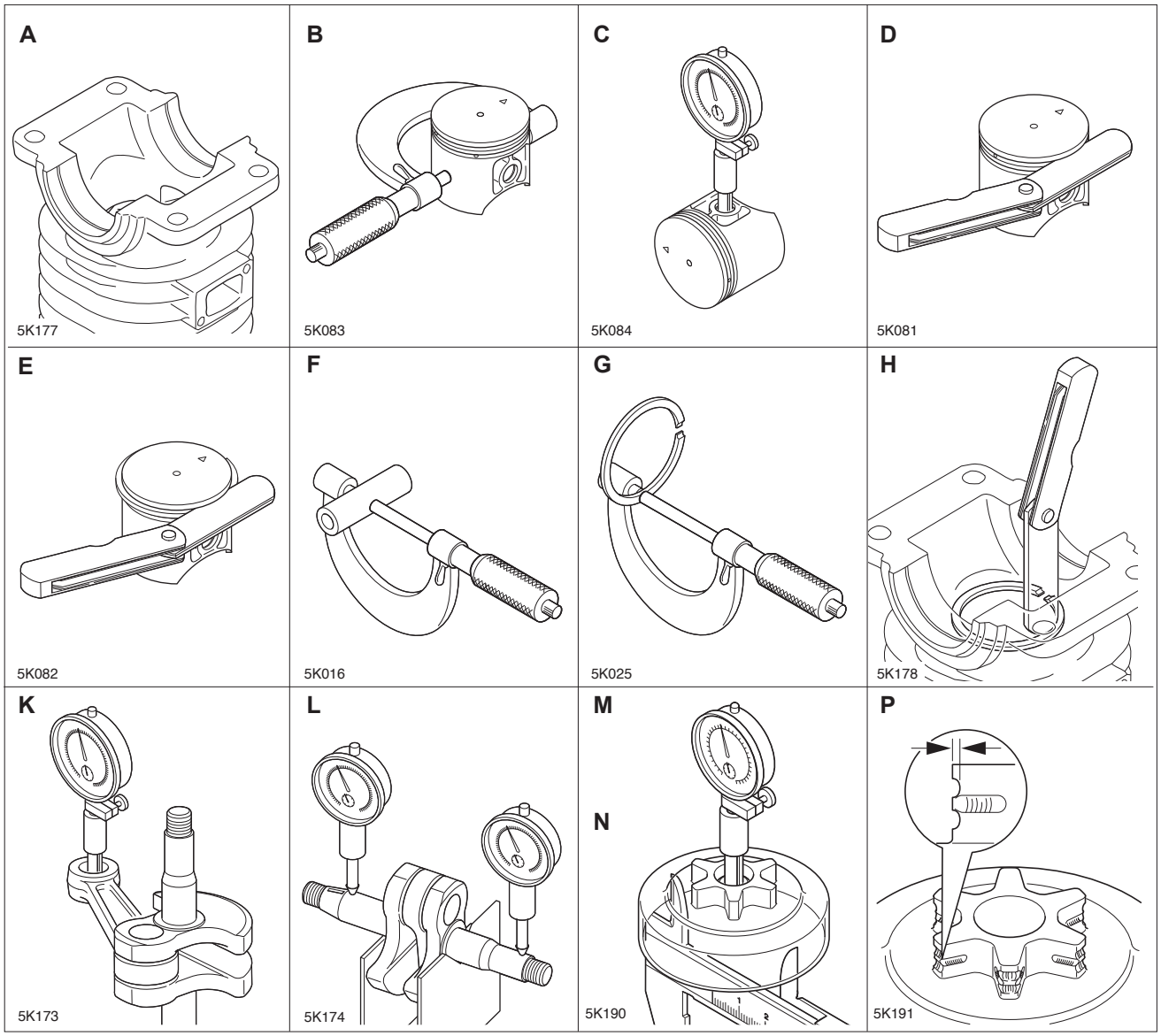
LM: Left-hand thread

*Apply special repairing materials

1-4 Special repairing materials

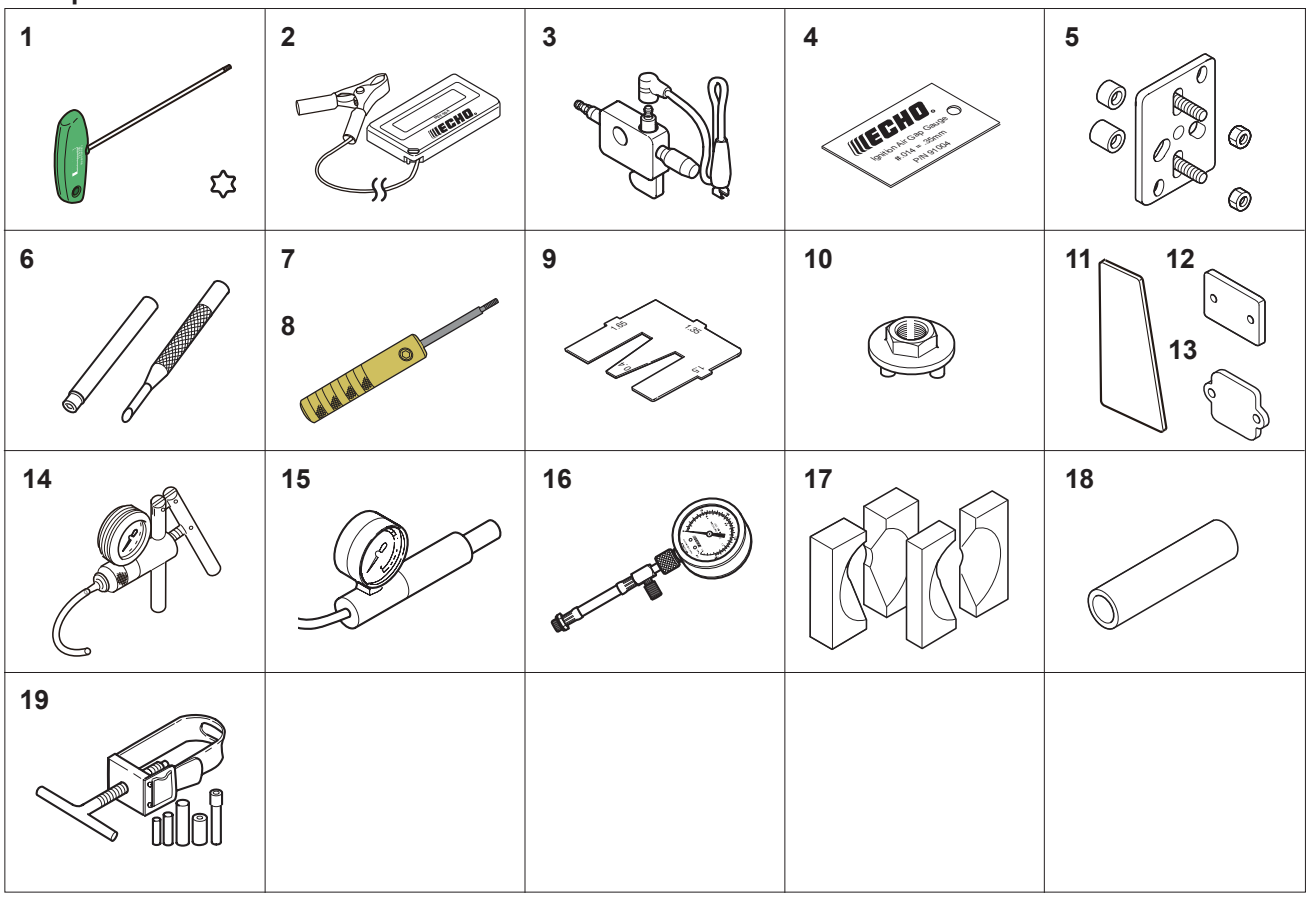
Material	Location	Remarks
Adhesive	Ball bearing outer / crankcase	Loctite® #675 or equivalent
	Stud bolt	
Liquid gasket	Crankcase seam part	ThreeBond 1207D (P/N X686-000000)
Thread locking sealant	Starter pawl	Loctite® #222, ThreeBond #1342 or equivalent
	Ignition coil	
Grease	Clutch needle bearing	Lithium based grease or ECHO XTended Protection ™ Lubricant
	Starter center shaft	
	Chain brake (metal contact part)	Molybdenum grease (approx.1 gram)

1-5 Service Limits



Description			mm (in)
A	Cylinder bore		When plating is worn and aluminum can be seen
B	Piston outer diameter	Min.	38. 87 (1.530)
C	Piston pin bore	Max.	8. 035 (0.3163)
D	Piston ring groove	Max.	1. 3 (0.051)
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. 15 (0.045)
H	Piston ring end gap	Max.	0. 5 (0.02)
K	Con-rod small end bore	Max.	11. 025 (0.4341)
L	Crankshaft runout	Max.	0. 05 (0.002)
M	Sprocket bore	Max.	12. 80 (0.5039)
N	Clutch drum bore	Max.	60. 5 (2.38)
P	Sprocket wear limit	Max.	0. 5 (0.02)

1-6 Special tools



Key	Part Number	Description	Reference
1	X602000340	Torx wrench (T27)	Removing and installing torx bolt
2	G310000050	Tachometer PET-304	Measuring engine speed to adjust carburetor
3	89780079931	Spark tester	Checking ignition system
4	91004	Module air gap gauge	Adjusting pole shoe air gaps
5	Y089000110	Puller	Removing magneto rotor (flywheel) and crankcase
6	500-500	Welch plug tool (Walbro)	Removing and installing welch plug
7	91075	Limiter cap removal tool	Removing limiter cap (Left hand thread 2.5 mm)
8	91076	Limiter cap removal tool	Removing limiter cap (Left hand thread 3.0 mm)
9	89756319830	Metering lever gauge	Measuring metering lever height on caburetor
10	89750516133	Clutch tool	Removing and installing clutch assembly
11	91041	Pressure rubber plug	Plugging exhaust port to test crankcase/cylinder leakages
12	89782616131	Pressure rubber plug	Plugging intake port to test crankcase/cylinder leakages
13	89782716131	Pressure plate	Plugging intake port to test crankcase/cylinder leakages
14	91139	Pressure/vacuum tester	Testing crankcase / cylinder leakages
15	89780330133	Pressure tester	Testing carburetor and crankcase leakage
16	91037	Compression gauge	Measuring cylinder compression
17	89770102830	Bearing wedge	Removing ball bearings on crankshaft
18	89772621430	Oil seal tool	Installing oil seal (starter side) and clutch plate
19	89770230131	Piston pin tool	Removing and installing piston pin