



SERVICE DATA

CHAIN SAW

ECHO: CS-271T with catalyst

(Serial number : C26411000001-C26411999999)

(Serial number : C26312000001-C26312999999)

(Serial number : C26513000001-C26513999999)

(Serial number : C32814000001-C32814999999)

(Serial number : C67115000001-C67115999999)

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.

ECHO SERVICE MANUAL Ord. 401-37 (Model : CS-271T) contains lots of information for servicing this model.

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Reference No. **00-27C-01**

REVISED : 201702

ISSUED: 201305

1 SERVICE INFORMATION

1-1 Specifications

Dimensions	Length*	mm(in)	257 (10.12)
	Width	mm(in)	233 (9.17)
	Height	mm(in)	210 (8.27)
Dry weight*		kg(lb)	3.0 (6.6)
Engine	Type	YAMABIKO, air-cooled, two-stroke, single cylinder	
	Rotation	Clockwise as viewed from the output end	
	Displacement	cm ³ (in ³)	26.9 (1.641)
	Bore	mm(in)	35.0 (1.378)
	Stroke	mm(in)	28.0 (1.102)
	Compression ratio	7.1	
Carburetor	Type	Diaphragm horizontal-draft	
	Model	Walbro WT-1072	
	Venturi size-Throttle bore	mm(in)	11.11-14.3 (0.437-0.563)
Ignition	Type	CDI (Capacitor discharge ignition) system	
	Spark plug	NGK BPM8Y (S/N 13 and 15 series: BPMP8Y)	
Starter	Type	Automatic rewind starter	
	Rope diameter x length	mm(in)	3.5 x 700 (0.14 x 27.6)
Fuel	Type	Premixed two-stroke fuel	
	Mixture ratio	50 : 1 (2 %)	
	Gasoline	Minimum 89 octane gasoline	
	Two-stroke air cooled engine oil	ISO-L-EGD (ISO/CD13738), JASO M345-FC/FD	
	Tank capacity	L (U.S.fl.oz.)	0.24 (8.1)
Exhaust	Muffler type	Spark arrester muffler with catalyst	
Clutch	Type	Centrifugal type, 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.)	0.16 (5.4)
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.	12A0CD3745	12A4CD3745
	Called length	in	12
	Gauge	in	0.050
Saw chain	Type	OREGON 91PX / 91VG	OREGON 90PX
	Number of drive links	45	
	Pitch	in	3/8
	Gauge	in	0.050

1-2 Technical data

Engine			
Compression pressure	MPa (kgf/cm ²) (psi)		1.00 (10.2) (145)
Clutch engagement speed	RPM		4,400
Engagement Minimum [†]	RPM		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	Ω		930 - 970
Pole shoe air gaps	mm(in)		0.3 - 0.4 (0.012 - 0.016)
Ignition timing	at 3,000 RPM	°BTDC	15
	at 8,000 RPM	°BTDC	31
	at 10,000 RPM	°BTDC	31
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 P003-000010
Tool to adjust mixture needles			Screwdriver 2 mm
Carburetor adjustment			
1) Initial setting	H mixture needle	turn out	3 1/2
	L mixture needle	turn out	2
	Throttle adjust screw	turn in* ¹	1 1/8
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	3,600
4) Set idle speed by turning L mixture needle CCW		RPM	2,900
5) Set idle speed by turning TAS		RPM	3,200
6) Confirm H mixture needle position before WOT setting		RPM	Turn H mixture needle CCW to confirm engine speed decreases less than 12,500
7) WOT setting		RPM	Turn H mixture needle CW in 1/8 turn increments with the engine at idle, then accelerate to WOT and check engine speed. The final engine speed should fall within: 12,900 - 13,100
8) Verify final engine speed with standard equipment		RPM	Idle: 2,900 - 3,500 WOT: 12,600 - 13,400
Chain oil discharge volume	mL/min(UK.fl.oz./min)		Adjustable: 1.5 - 13 (0.05 - 0.46) (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

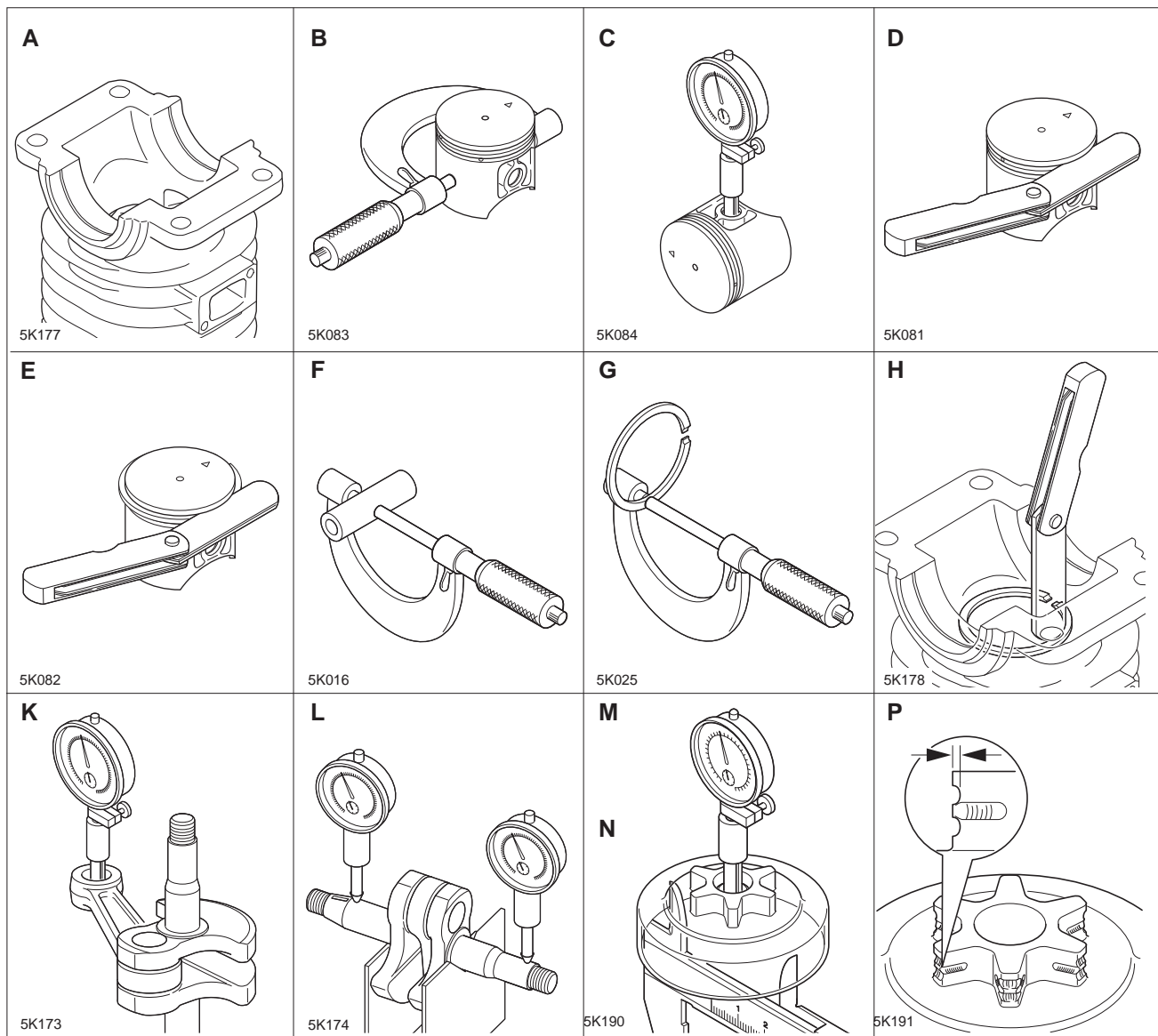
Descriptions		Size	kgf•cm	N•m	in•lbf
Starter system	Starter pawl assembly	M5*	30 - 45	3 - 4.5	25 - 40
	Starter case	M4	10 - 20	1 - 2	9 - 18
Ignition system	Magneto rotor (Flywheel)	M8	250 - 290	25 - 29	220 - 255
	Ignition coil	M5*	30 - 45	3 - 4.5	25 - 40
	ON-OFF switch	M3*	3 - 5	0.3 - 0.5	3 - 4
	Spark plug	M14	130 - 170	13 - 17	113 - 150
Fuel system	Carburetor	M5	30 - 45	3 - 4.5	25 - 40
	Intake bellows	M4	35 - 50	3.5 - 5	30 - 45
Clutch	Clutch hub	LM10	230 - 260	23 - 26	200 - 230
Engine	Crankcase	M5*	55 - 95	5.5 - 9.5	48 - 85
	Engine mount	M5	70 - 110	7 - 11	60 - 95
	Dust cover	M4	10 - 20	1 - 2	9 - 18
	Eye plate	M4	10 - 20	1 - 2	9 - 18
	Muffler	M5	70 - 100	7 - 10	60 - 90
	Muffler cover	M4	10 - 20	1 - 2	9 - 18
Others	Exhaust guide	M4	15 - 25	1.5 - 2.5	13 - 22
	Auto-oiler	M4	20 - 30	2 - 3	18 - 25
	Rear handle	M4	20 - 30	2 - 3	18 - 25
	Front handle	M5	20 - 40	2 - 4	18 - 35
	Top handle	M4	10 - 20	1 - 2	9 - 18
	Top handle assembly	M4	20 - 30	2 - 3	18 - 25
	Cushion	M4	10 - 20	1 - 2	9 - 18
	Brake cover	M4	10 - 20	1 - 2	9 - 18
	Sprocket guard plate	M5	20 - 40	2 - 4	18 - 35
	Brake lever (Hand guard)	M5	25 - 45	2.5 - 4.5	22 - 40
	Chain catcher	M5	20 - 40	2 - 4	18 - 35
	Bolt (at guide bar mount)	M4	20 - 40	2 - 4	18 - 35
	Regular bolt, nut, and screw		M3	6 - 10	0.6 - 1
		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

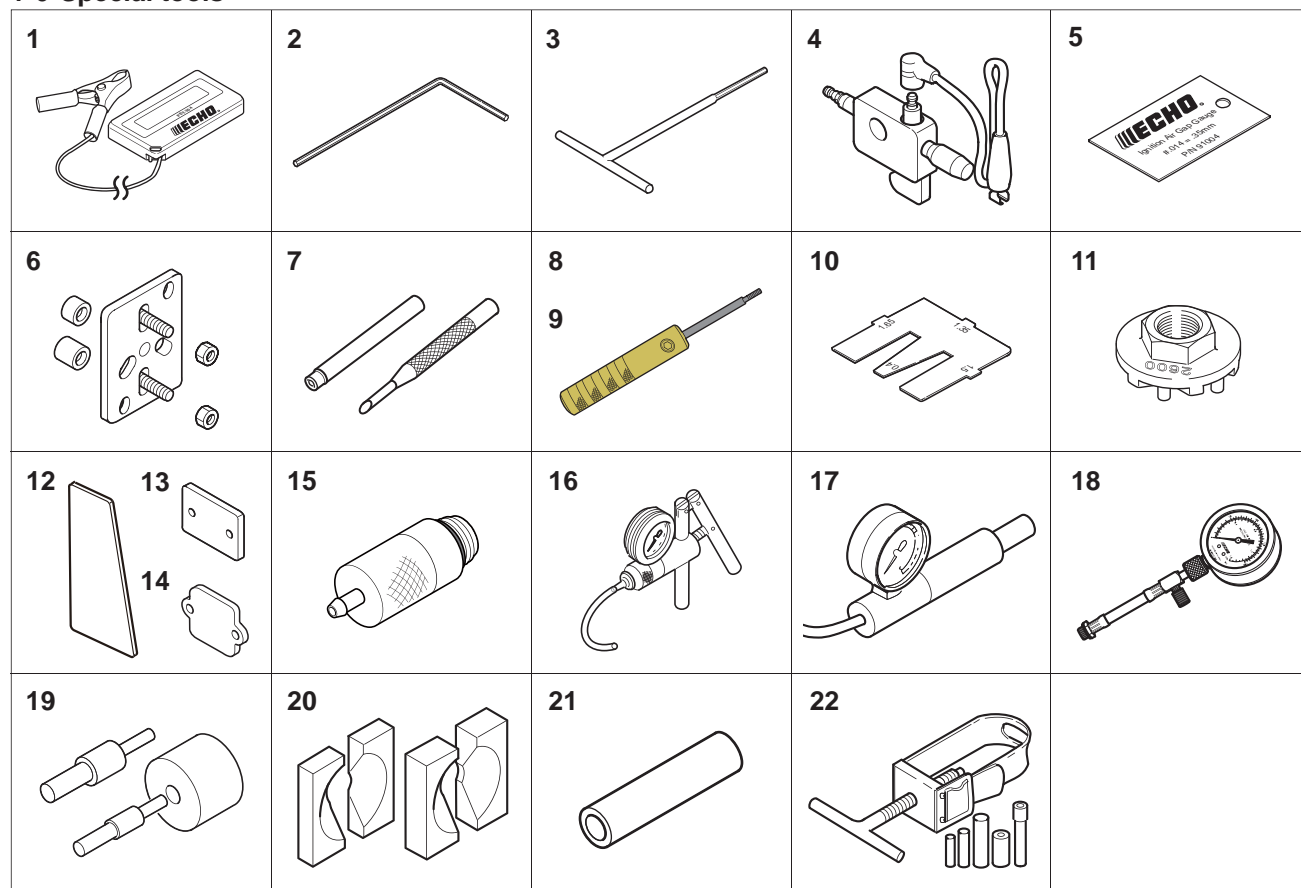
Material	Location	Remarks
Adhesive	Ball bearing outer / crankcase	Loctite #675 or equivalent
Liquid gasket	Crankcase seam part	ThreeBond 1207D
Thread locking sealant	Starter pawl	Loctite #222, ThreeBond #1342 or equivalent
	Ignition coil	
	ON-OFF switch	Loctite #242, ThreeBond #1324 or equivalent
Grease	Clutch needle bearing	Lithium based grease or ECHO XTended Protection™ Lubricant
	Rear handle cushion	
	Collar	
	Starter grip rope guide	
	Oil seal lip	
	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.	34.91 (1.374)
C	Piston pin bore	Max.	8.075 (0.3179)
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.	12.00 (0.4724)
L	Crankshaft runout	Max.	0.02 (0.001)
M	Sprocket bore	Max.	12.80 (0.5039)
N	Clutch drum bore	Max.	55.5 (2.19)
P	Sprocket wear limit	Max.	0.5 (0.02)

1-6 Special tools



Key	Part Number	Description	Reference
1	G310-000050	Tachometer PET-304	Measuring engine speed to adjust carburetor
2	X605-000180	L-hex wrench (3 mm)	Removing and installing hex. socket bolts (M4)
3	897559-02831	T-hex wrench (4 mm)	Removing and installing hex. socket bolts (M5)
4	897800-79931	Spark tester	Checking ignition system
5	91004	Module air gap gauge	Adjusting pole shoe air gaps
6	Y089-000110	Puller	Removing magneto rotor
7	500-500	Welch plug tool (Walbro)	Removing and installing welch plug
8	91075	Limiter cap removal tool	Removing limiter cap (Left hand thread 2.5 mm)
9	91076	Limiter cap removal tool	Removing limiter cap (Left hand thread 3.0 mm)
10	897563-19830	Metering lever gauge	Measuring metering lever height on carburetor
11	X640-000011	Clutch tool	Removing and installing clutch assembly
12	91041	Pressure rubber plug	Plugging exhaust port to test crankcase / cylinder leakages
13	897826-16131	Pressure rubber plug	Plugging intake port to test crankcase / cylinder leakages
14	897827-16131	Pressure plate	Plugging intake port to test crankcase / cylinder leakages
15	A131-000150	Pressure connector	Testing crankcase and cylinder leakage
16	91139	Pressure / vacuum tester	Testing crankcase / cylinder leakages
17	897803-30133	Pressure tester	Testing carburetor and crankcase leakages
18	91037	Compression gauge	Measuring cylinder compression
19	897705-11520	Bearing tool	Replacing needle bearing on con-rod small end
20	897701-02830	Bearing wedge	Removing ball bearings on crankshaft
21	897726-09130	Oil seal tool	Installing crankcase oil seals
22	897702-30131	Piston pin tool	Removing and installing piston pin