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SERVICE DATA

ENGINE CUT-OFF SAW

CSG-680

(Serial number : 36000001 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 products information available at the time of publication.

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Reference No. **03-67A-00**
ISSUED: 200412

KIORITZ CORPORATION

1 SERVICE INFORMATION

1-1 Specifications

Dimensions	Length*	mm(in)	740 (29.1)
	Width	mm(in)	250 (9.8)
	Height	mm(in)	385 (15.4)
Dry weight*		kg(lb)	11.5 (25.3)
Engine	Type		KIORITZ, air-cooled, two-stroke, single cylinder Ventilated piston, Semi-automatic decompression
	Rotation		Clockwise as viewed from the output end
	Displacement	$cm^3(in^3)$	66.7 (4.070)
	Bore	mm(in)	50.0 (1.969)
	Stroke	mm(in)	34.0 (1.339)
	Compression ratio		7.6
Carburettor	Type		Diaphragm horizontal-draught, Inner vent type
	Model		Walbro HDA-216 with vibration sensitive governor
	Venturi size-Throttle bore	mm(in)	15.08 - 19.03 (0.594 - 0.749)
Ignition	Type		CDI (Capacitor discharge ignition) system with electronic timing advancer
	Spark plug		BPMR-7A
Starter	Type		Automatic rewind
	Rope diameter x length	mm(in)	4.0 x 900 (0.16 x 35.4)
Fuel	Type		Premixed two-stroke fuel
	Mixture ratio		50 : 1 (2%)
	Petrol		Minimum 89 octane petrol (RON)
	Two-stroke air cooled engine oil		ISO-L-EGD (ISO/CD13738), JASO FC
	Tank capacity	L (U.S.fl.oz.)	0.65 (22.0)
Clutch	Type		Centrifugal, 3-shoe slide
Cutter	Size	mm (in)	355 (14)
	Arbor	mm	20, 22 with collar
Pulley	Blade speed reducing ratio		2.29
	Belt		BANDO 6PJ887
3 - Air filter structure			Sponge filter : Available absorbing two-stroke oil
			Bellows type paper element
			Nylon mech screen

* Without blade.

1-2 Technical data

Engine			
Idling speed		r/min	2200 - 2800
Operating speed*		r/min	8000
High speed (No load full throttle)*		r/min	8500 - 10500
Clutch engagement speed*		r/min	3600 - 4000
Compression pressure		MPa (kgf/cm^2) (psi)	0.9 (9.0) (125)
Ignition system			
Spark plug gap		mm(in)	0.6 - 0.7 (0.024 - 0.028)
Minimum secondary voltage at 1200 r/min		kV	14
Secondary coil resistance		kΩ	1.7 - 2.2
Pole shoe air gaps		mm(in)	0.30 - 0.40 (0.012 - 0.016)
Ignition timing	at 1200 r/min	°BTDC	10
	at 3000 r/min	°BTDC	14.5
	at 10000 r/min	°BTDC	25
Carburettor			
Idle adjust screw initial setting		turn in**	2
L mixture needle initial setting		turns back	1 7/8
H mixture needle initial setting		turns back	1 1/4
Test Pressure, minimum		MPa (kgf/cm^2) (psi)	0.05 (0.5) (7.0)
Metering lever height		mm(in)	Flush with diaphragm seat

BTDC: Before top dead centre.
* With 14” standard blade
** Set idle adjust screw to contact throttle plate before initial setting

1-3 Torque limits

Descriptions			Size	kgf•cm	N•m	in•lbf
Starter system	Starter pawl		M5	70 - 110	7 - 11	60 - 95
	Starter center shaft screw		M5**	70 - 110	7 - 11	60 - 95
	Starter case		M5	30 - 45	3.0 - 4.5	25 - 40
Ignition system	Magneto rotor (Flywheel)		M8	230 - 270	23 - 27	200 - 235
	Ignition coil		M4	30 - 50	3.0 - 5.0	25 - 45
	Spark plug		M14	150 - 170	15 - 17	130 - 150
Fuel system	Carburettor		M5	(20 - 40)	(2 - 4)	(17 - 35)
	Carburettor case		M5	50 - 70	5 - 7	45 - 60
Clutch	Clutch hub		LM10	450 - 550	45 - 55	390 - 480
	Clutch shoe		M4	35 - 50	3.5 - 5.0	30 - 45
Engine	Crankcase		M5	70 - 110	7 - 11	60 - 95
	Cylinder		M5	70 - 110	7 - 11	60 - 95
	Decompression valve		M10	60 - 80	6 - 8	50 - 70
	Cylinder cover		M5	30 - 50	3 - 5	25 - 35
	Muffler		M5	70 - 110	7 - 11	60 - 95
	Muffler bracket		M5	35 - 50	3.5 - 5.0	30 - 45
	Muffler lid		M4	35 - 50	3.5 - 5.0	30 - 45
Others	Cushion	Front handle	M5	70 - 110	7 - 11	60 - 95
		Crankcase	M5	35 - 50	3.5 - 5.0	30 - 45
	Front handle		M5**	70 - 110	7 - 11	60 - 95
	Ignition switch		M10	10 - 30	1 - 3	9 - 25
	Guide bar		M8	200 - 230	20 - 23	175 - 200
Regular bolt, nut and screw			M3	6 - 10	0.6 - 1.0	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
			M8	110 - 150	11 - 15	95 - 130

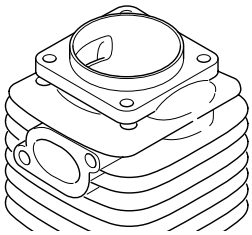
LM: Left-hand thread
* Tapping screw
**Thread locking sealant (See below)

1-4 Special repairing materials

Material	Location	Remarks
Adhesive	Guide bar stud	Loctite #675 or equivalent
	Starter center shaft screw	Loctite #222, ThreeBond 1342 or equivalent
	Brake cover	
	Front handle nut	
Grease	Idle adjuster screw	Lithium based grease or ECHO LUBE™
	Cushion plate	
	Rubber cushion, inside	
	Choke knob	
	Rewind spring	
	Oil seal inner lips	
	Starter center shaft	

1-5 Service Limits

A



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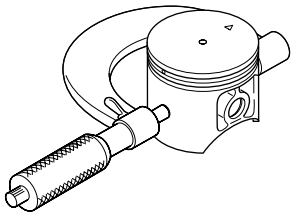

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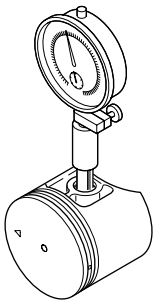

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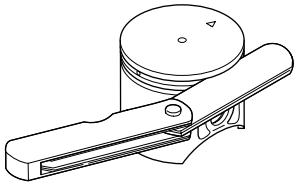

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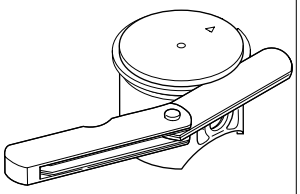

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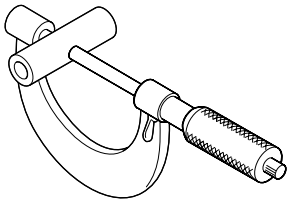

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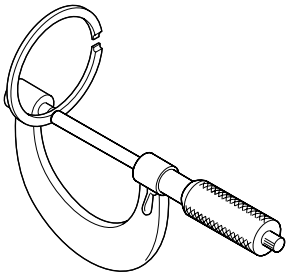

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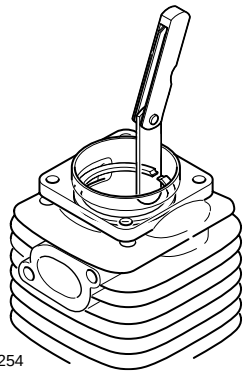

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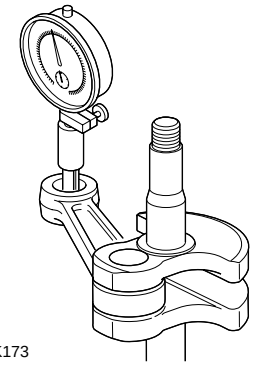

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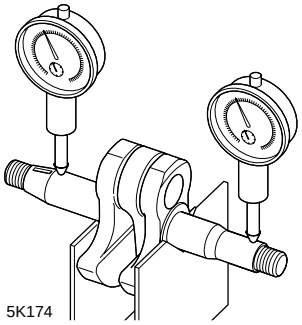

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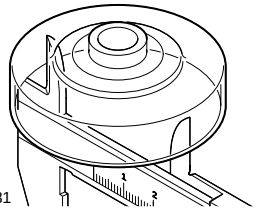

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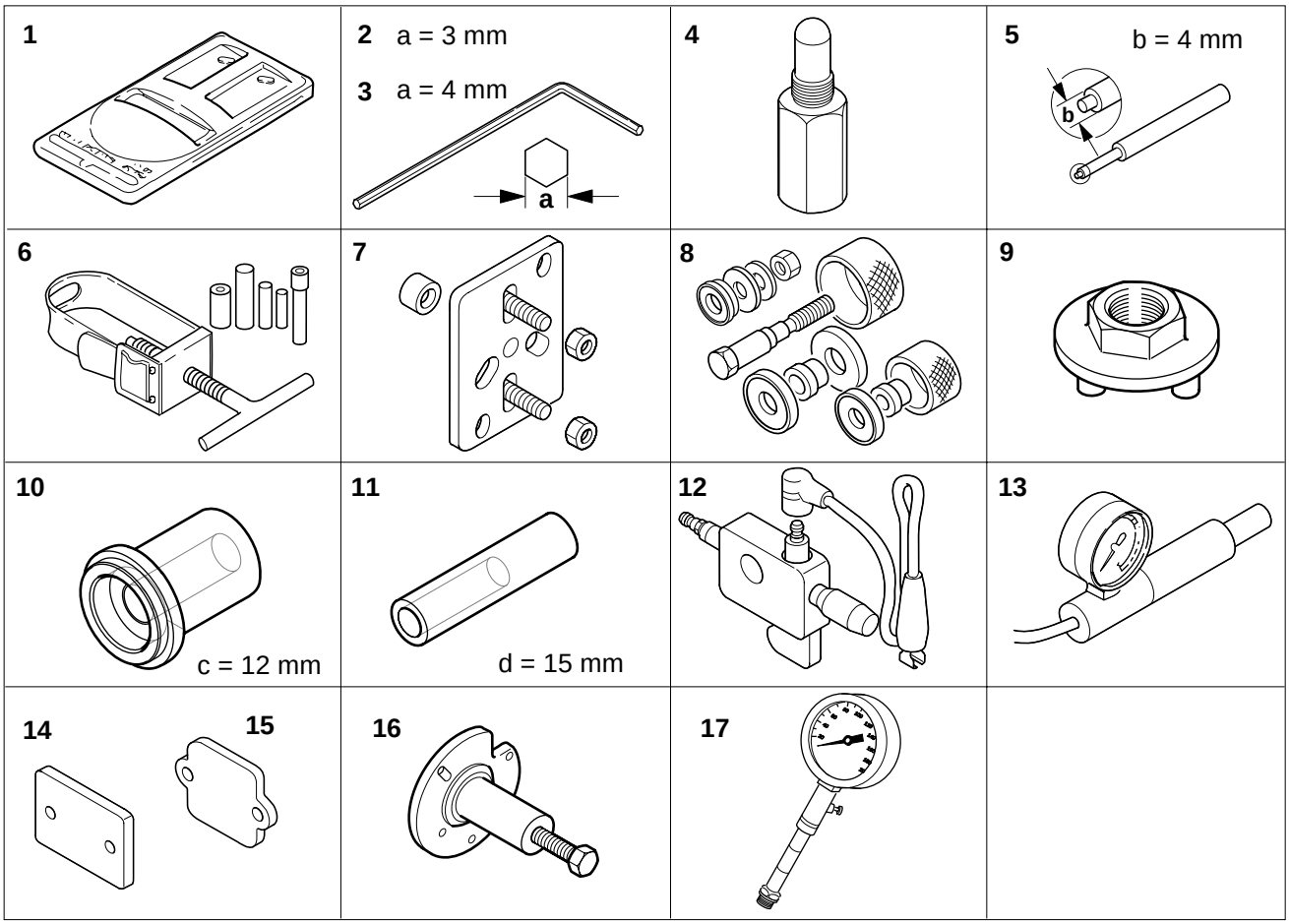
Description				mm (in)
A	Cylinder bore			When plating is worn and aluminium can be seen
B	Piston outer diameter		Min.	49.90 (1.965)
C	Piston pin bore		Max.	12.025 (0.4734)
D	Piston ring groove		Max.	1.3 (0.051)
E	Piston ring side clearance	1st	Max.	0.15 (0.006)
		2nd	Max.	0.1 (0.004)
F	Piston pin outer diameter		Min.	11.980 (0.4717)
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.	16.025 (0.6309)
L	Crankshaft runout		Max.	0.05 (0.002)
N	Clutch drum bore		Max.	79.0 (3.11)

1-6 Special tools



	Key	Part Number	Reference
1	897801-33330	Tachometer PET-1000	Measuring engine speed to adjust carburettor
2	895612-79920	L-hex wrench (3 mm)	Removing and installing hex. socket bolt (M4)
3	895610-79920	L-hex wrench (4 mm)	Removing and installing hex. socket bolt (M4)
4	897537-30130	Piston stopper	Locking crankshaft rotation
5	897724-01361	Spring pin tool (4 mm)	Removing and installing spring pin (4 mm dia)
6	897702-30131	Piston pin tool	Removing and installing piston pin
7	897501-03938	Puller	Removing magneto rotor
8	897701-14732	Bearing tool	Removing and installing ball bearings on crankcase
9	897505-16133	Clutch tool	Removing and installing clutch assembly
10	897727-19830	Oil seal tool	Installing clutch side oil seal
11	897726-21430	Oil seal tool	Installing starter side oil seal
12	897800-79931	Spark tester	Checking ignition system
13	897803-30132	Pressure tester	Testing carburettor and crankcase leakage
14	897826-16131	Pressure rubber plug	Plugging intake port to test crankcase / cylinder leakages
15	897827-16131	Pressure plate	Plugging intake port to test crankcase / cylinder leakages
16	897502-19830	Crankcase tool	Separating crankcase
17	91007	Compression guage	Measuring cylinder compression

2 EMISSION ADJUSTMENT GUIDE

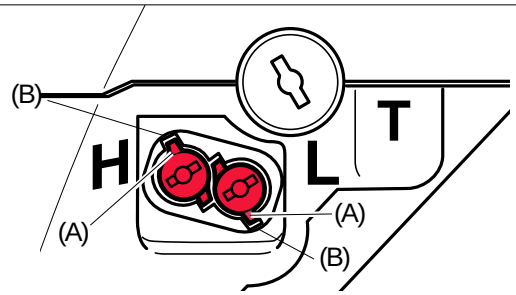
2-1 General adjusting rules

Before starting the unit for adjustment, check the following items.

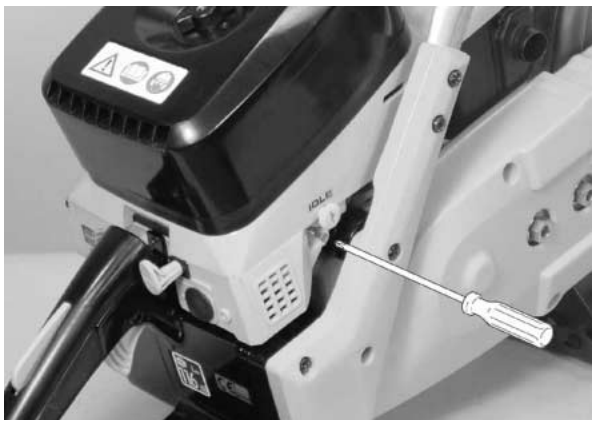
1. The correct spark plug must be clean and properly gapped.
2. The air filter element must be clean and properly installed.
3. The muffler exhaust port must be clear of carbon.
4. The fuel lines, tank vent and fuel filter are in good condition and clear of debris.
5. The fuel is fresh (> 89 octane : RON) and properly mixed at 50 : 1 with “ISO L-EGD” 2-stroke oil.
6. The recommended 14” standard blade must be installed to the power head, and properly tensioned.

NOTE : Make sure of proper installation of standard blade when adjusting carburettor, or serious engine damage will occur due to overspeeding.

2-2 Presetting idle adjust screw, L mixture needle and H mixture needle



1. Turn L and H mixture needles out anticlockwise to rich stop, and meet limiter cap tab (A) with locating slot (B).



2. Screw 2.5 mm wood screw into the center of the L limiter cap.

NOTE : Screw the wood screw in until it lightly contacts L mixture needle in the cap.

3. Pull the wood screw with limiter cap using pliers.

4. Repeat Step 2 and Step 3 for H limiter cap removal.

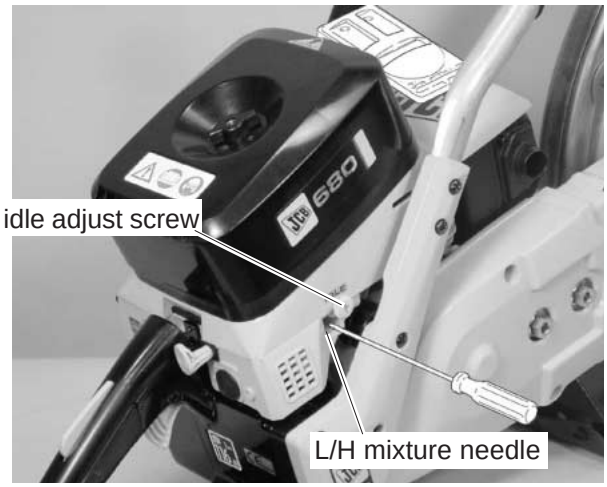
5. Turn L and H mixture needle clockwise lightly seated. and then turn out both needles following turns.

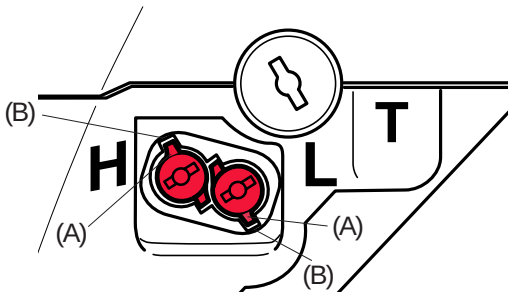
L needle : 1 7/8, H needle : 1 1/4

NOTE : If needles are forced during seating, damage to carburettor may occur.

6. Turn idle adjust screw anticlockwise and set the screw until the tip to just contact throttle plate. Then turn idle adjust screw 2 turns clockwise.

2-3 Adjusting carburettor





1. Start engine and warm it up well for 2 -3 minutes with cycle of 5 seconds at WOT (Wide Open Throttle) and 10 seconds at idling.

2. Using 2.5 mm wide blade screw driver, adjust L mixture needle to obtain maximum idle speed.

3. Set idle speed to the range of 3,300 to 3,600 r/min by turning idle adjust screw.

4. Turn L mixture needle anticlockwise to reduce engine idle speed 1,000 r/min to set idle speed in the range of 2,300 to 2,600 r/min.

NOTE : Engine speed must be allowed to stabilize a minimum of 20 seconds after each adjustment of L mixture needle to assure accurate tachometer readings.

5. Turn H mixture needle anticlockwise at WOT until engine speed drops less than 8,500 r/min.

6. Adjust WOT engine speed in the range of 9,000 to 10,000 r/min by turning H mixture needle clockwise.

NOTE : Do not run engine high speed without load longer than 5 seconds, or engine damage may occur.

7. If the engine speed at WOT is above 10,500 r/min, adjust H mixture needle anticlockwise and set maximum engine speed at less than 10,500 r/min.

8. After adjusting carburettor, put the limiter cap on the tip of 2.5 mm wood screw and install the caps on L and H mixture needles.

NOTE : Align the limiter caps tabs (A) with locating slots (B) in extended housing of carburettor.

9. Tap the respective limiter caps in as shown.

10. Start engine again and make it sure engine runs at idle speed in the range of 2,200 to 2,800 r/min and at WOT speed in the range of 8,500 to 10,500 r/min. Also make it sure chain would not turn at engine idle speed and suitable acceleration.

NOTE : Initial carburettor setting (Idle adjust screw, L and H mixture needles) shown here is to start the engine after restoration or carburettor change. Idle adjust screw, L and H needles turn for designated engine revolution through procedures indicated here may vary. As long as idle and WOT engine speed is set in given range, variance would be ignorable.