



SERVICE DATA

CHAIN SAW CS-3500

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, illustrations and directions in this SERVICE DATA are based on the latest products information available at the time of publication.

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KIORITZ CORPORATION

Reference No. **01-34A-00**

ISSUED : 199909

1 SERVICE INFORMATION

1-1 Specifications

Dimensions	Length*	mm(in)	386 (15.2)			
	Width*	mm(in)	223 (8.78)			
	Height	mm(in)	258 (10.2)			
Dry weight*		kg(lb)	3.75 (8.27)			
Engine	Type		KIORITZ, air-cooled, two-stroke, single cylinder Two-piece casting, Ventilated piston			
	Rotation		Clockwise as viewed from the output end			
	Displacement	cm ³ (in ³)	34.0 (2.075)			
	Bore	mm(in)	38.0 (1.496)			
	Stroke	mm(in)	30.0 (1.181)			
	Compression ratio		6.5			
	Carburettor	Type		Diaphragm horizontal-draught		
Supplier and Model			Walbro WT-504			
Venturi size-Throttle bore		mm(in)	11.11 - 15.85 (7/16 - 5/8)			
Ignition	Type		CDI (Capacitor discharge ignition) system in a single integrated piece, with electronic timing advancer			
	Spark plug		BPMR7A, RCJ7Y			
Starter	Type		Automatic rewind			
	Rope diameter x length	mm(in)	3.0 x 890 (0.12 x 35.0)			
Fuel	Type		Premixed two-stroke fuel (Refer to operator's manual.)			
	Tank capacity	cm ³ (U.S.fl.oz.)	320 (10.8)			
Clutch	Type		Centrifugal, 3-shoe slide			
Guide bar /	Saw chain lubrication type		Automatic with volume adjuster			
	Tank capacity, oil	cm ³ (U.S.fl.oz.)	180 (6.09)			
Sprocket	Type		Spur			
	Number of teeth		6			
	Pitch	in	3/8 Low profile			
Guide bar	Type		30RC50-3/8	35RC50-3/8	40RC50-3/8	
	Called length	cm	30	35	40	
	Gauge	in	0.050			
Saw chain	Number of drive links		47	53	58	
	Pitch	in	3/8 Low profile			
	Gauge	in	0.050			

*Without guide bar and saw chain

1-2 Technical data

Engine		
Idling speed	rpm	2800 - 3200
Operating speed	rpm	8000 - 10000
High speed (No load full throttle)*	rpm	11500 - 12000
Clutch-in speed	rpm	4200 - 4800
Compression pressure	kgf/cm ² (psi)	7.7 (109)
Carburettor		
Idle speed screw initial setting	turn in	1 3/4
L needle initial setting	turns back	1 1/4
H needle initial setting	turns back	1 1/8
Test pressure	kgf/cm ² (psi)	0.5 (7.0)
Metering lever height	mm(in)	1.65 (0.065) lower than diaphragm seat
Ignition system		
Spark plug gap	mm(in)	0.6 - 0.7 (0.024 - 0.028)
Minimum secondary voltage at 1500 rpm	kV	18
Secondary coil resistance	kΩ	1.7 - 2.2
Pole shoe air gaps	mm(in)	0.30 - 0.40 (0.012 - 0.016)
Ignition timing	°BTDC	
	at 1500 rpm	26.5
	at 3000 rpm	26.5
	at 8000 rpm	25
Chain oil discharge volume at 7000 rpm	cm ³ /min(U.S.fl.oz./min)	1.5 - 13 (0.05 - 0.45) adjustable

BTDC: Before top dead center.

*With guide bar and saw chain.

1-3 Torque limits

Descriptions	Size	kgf•cm	N•m
Crankcase	M 5	70 - 110	7 - 10
Engine mount	M 5	70 - 110	7 - 10
Cylinder cover	M 4*	10 - 20	1.0 - 1.9
Intake bellows	M 5	30 - 45	3.0 - 4.4
Carburettor elbow	M 5*	20 - 40	2.0 - 3.9
Clutch hub	LM 8	300 - 400	30 - 39
Chain catcher	M 5*	20 - 40	2.0 - 3.9
Flywheel	M 8	200 - 240	20 - 23
Ignition coil (CDI module)	M 5**	30 - 45	3.0 - 4.4
Spark plug	M14	130 - 170	13 - 16
Starter pawl	M 5**	30 - 45	3.0 - 4.4
Starter case	M 4	15 - 25	1.5 - 2.4
Sprocket guard plate	M 4*	10 - 20	1.0 - 1.9
Muffler	M 5	50 - 75	4.9 - 7.3
Cushion Front handle	M 4**	10 - 15	1.0 - 1.4
Engine cover front	M 4*	20 - 40	2.0 - 3.9
Engine cover rear	M 4	15 - 25	1.5 - 2.4
Auto-oiler	M 4	15 - 25	1.5 - 2.4
Throttle latch	M10	6 - 10	0.6 - 0.9
Front handle	M 5*	15 - 25	1.5 - 2.4
Handle assembly	M 4	12 - 18	1.2 - 1.7
	M 5	20 - 35	2.0 - 3.4
	M 5*	20 - 40	2.0 - 3.9
Guide bar	M 6	90 - 110	9 - 10
Regular bolt, nut, and screw	M 3	6 - 10	0.6 - 0.9
	M 4	15 - 25	1.5 - 2.4
	M 5	25 - 45	2.5 - 4.4
	M 6	45 - 75	4.5 - 7.3

* Tapping screw

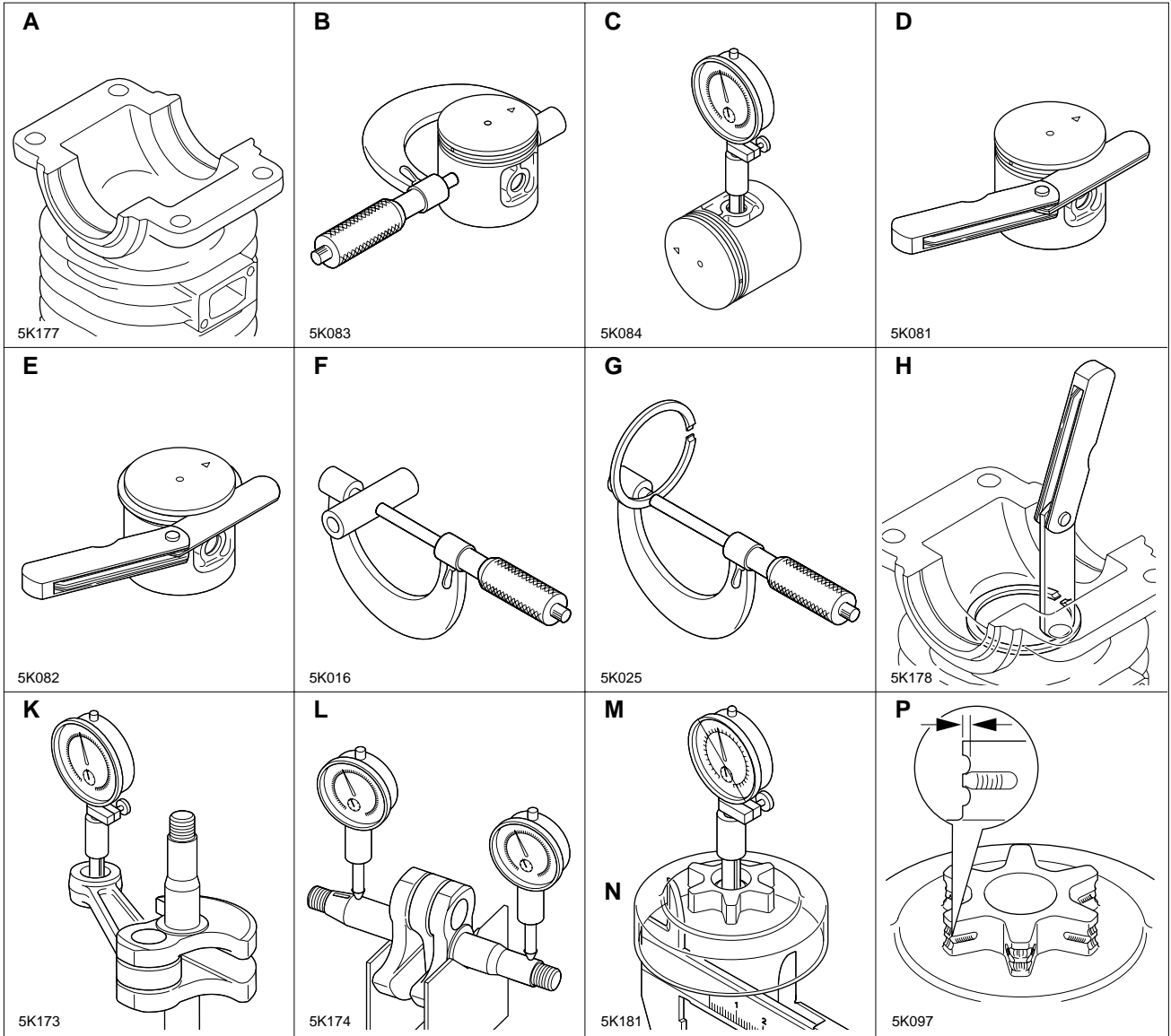
** Apply thread locking sealant

LM: Left-hand thread

1-4 Special repairing materials

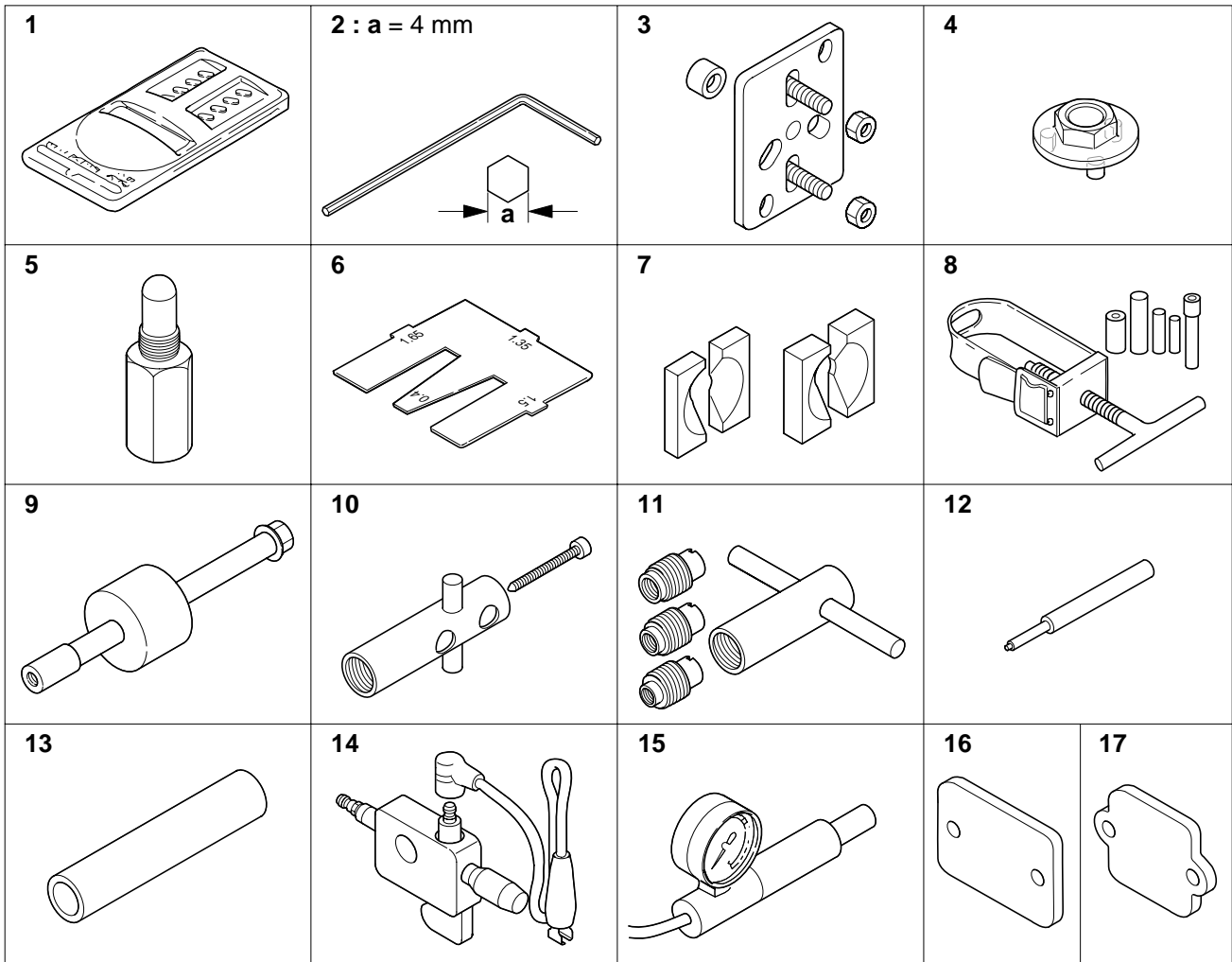
Material	Location	Remarks
Adhesive	Ball bearing outer / crankcase	Loctite #675, RC #75 or equivalent
Grease	Auto-oiler worm	Lithium based grease
	Clutch needle bearing	
	Cushion, inside	
	Oil seal lip	
	Rewind spring	
	Chain brake (metal contact part)	Molybdenum grease (approx. 1 gram)
Liquid gasket	Crankcase seams	Loctite #518 or equivalent
Thread locking sealant	Ignition coil screws	Loctite #222, ThreeBond #1342, #1344 or equivalent
	Starter pawl screws	
	Cushion screws (Front handle)	

1-5 Service limits



Description		mm (in)	
A	Cylinder bore	When plating is worn and aluminum can be seen	
B	Piston outer diameter	Min.	37.90 (1.492)
C	Piston pin bore	Max.	8.030 (0.3161)
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.	11.025 (0.4341)
L	Crankshaft runout	Max.	0.05 (0.002)
M	Sprocket bore	Max.	13.08 (0.5150)
N	Clutch drum bore	Max.	61.0 (2.40)
P	Sprocket wear limit	Max.	0.5 (0.02)

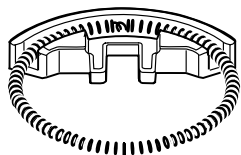
1-6 Special tools



Key	Part Number	Description	Used for:
1		Tachometer	Adjusting carburettor
2	895610-79920	L-hex. wrench(4 mm)	Removing and installing hex. socket bolt (M5)
3	897501-03938	Puller	Removing flywheel and auto-oiler
4	897505-16133	Clutch tool	Removing and installing clutch assembly
5	897537-30130	Piston stopper	Locking crankshaft rotation
6	897563-19830	Metering lever gauge	Measuring metering lever height on carburettor
7	897701-02830	Bearing wedge	Removing ball bearing from crankshaft
8	897702-30131	Piston pin tool	Removing and installing piston pin (Use 8 mm dia. adapter)
9	897603-23030	PTO shaft puller	Removing plug on auto-oiler assembly {Use with bolt (M5-M8) in Puller 897501-03938}
10	897708-19834	Worm remover	Removing worm of auto-oiler
11	897708-37532	Worm inserter	Installing worm of auto-oiler
12	897724-01361	Spring pin tool	Removing and installing spring pin (4 mm or 5/32 in dia.)
13	897726-09130	Oil seal tool	Installing ball bearing on crankshaft
14	897800-79931	Spark tester	Checking ignition system
15	897803-30130	Pressure tester	Testing carburettor and crankcase leakages
16	897826-16131	Pressure plug	Plugging intake / exhaust port to test crankcase / cylinder leakages
17	897827-16131	Pressure plate	Plugging intake port to test crank case / cylinder leakages

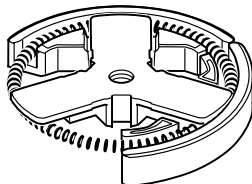
2 SERVICE HINT

2-1 Assembling clutch

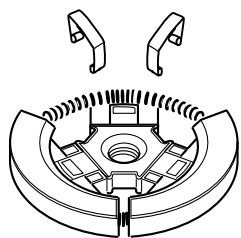


1. Hook both ends of clutch spring together and install it into the groove of a clutch shoe.

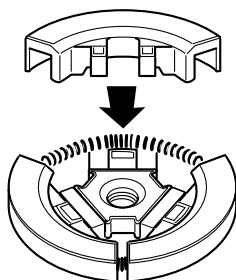
(Note: The hooks should be located at the centre of shoe groove.)



2. Install clutch hub and the second shoe.

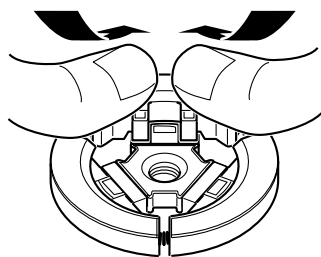


3. Turn over the assembling clutch and install 2 flat springs.

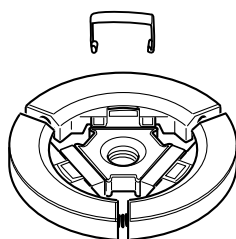


4. Place the third shoe on top of clutch hub and clutch spring as shown.

(Note: Shoe groove should be located along clutch spring.)



5. Using thumbs, push down forward the third shoe as stretching clutch spring on flat and solid surface until the shoe is engaged correctly with clutch hub.



6. Install the last flat spring.