# Kindaiwa SERVICE DATA CHAIN SAW ECHO: CS-7310SX shindaiwa: 731sx

(Serial number : 38000001 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 product information available at the time of publication.

# CONTENTS

1 SERVICE INFORMATION	2
1-1 Specifications	2
1-2 Technical data	
1-3 Torque limits	4
1-4 Special maintenance materials	
1-5 Service Limits	6
1-6 Special tools	
2 SERVICE HINT	8
2-1 Replacing captive bar nut	8
2-2 Inspecting and Replacing tank vent	10
2-3 Testing crankcase and cylinder leakage	11
2-4 Replacing chain tensioner	13
2-5 Removing rear handle assembly	14
2-6 Installing rear handle assembly	16
2-7 Replacing fuel lines	
2-8 Replacing throttle cable and control parts	

REVISED:

Reference No. 01-73A-02

202105 ISSUED: 202007



Copyright(C)2020 YAMABIKO Corporation All rights reserved.

# **1 SERVICE INFORMATION**

# 1-1 Specifications

Dimensions	Length*	mm(in)	477 (18.8)
	Width	mm(in)	249 (9.8)
	Height	mm(in)	323 (12.7)
Dry weight*		kg(lb)	6.8 (15.0)
Engine	Туре		YAMABIKO, air-cooled, two-stroke, single cylinder
	Rotation		Clockwise as viewed from the output end
	Displacement	cm <sup>3</sup> (in <sup>3</sup> )	73.5 (4.485)
	Bore	mm(in)	51.0 (2.008)
	Stroke	mm(in)	36.0 (1.417)
	Compression ratio		6.8
Carburetor	Туре		Diaphragm, horizontal-draft
	Model		ZAMA Z011-120-060D-A YZ0010
	Venturi size-Throttle bore	mm(in)	17.9 - 20 (0.705 - 0.787)
Ignition	Туре		CDI (Capacitor discharge ignition) system, Digital Magneto
	Spark plug		NGK BPMR8Y-5
Exhaust	Muffler type		Spark arrester muffler
Starter	Туре		Automatic rewind
	Rope diameter x length	mm(in)	3.5 x 1000 (0.14 x 39.4)
Fuel	Type**		Mixed two-stroke fuel
	Mixture ratio		50 : 1 (2 %)
	Gasoline		Minimum 89 octane
	Two-stroke air cooled engi	ne oil	ISO-L-EGD (ISO/CD13738), JASO FC/FD
	Tank capacity	L (UK.fl.oz.)	0.8 (27.1)
Clutch	Туре		Centrifugal type, 3-shoe slide with 3-tension spring
Guide bar / S	Saw chain lubrication type		Adjustable automatic oiler
Oil	Tank capacity	L (UK.fl.oz.)	0.36 (12.2)
Auto oiler	Туре		Clutch driven type
Sprocket	Туре		Floating rim
	Number of teeth		7
	Pitch	in	3/8

\* Without guide bar and saw chain. \*\* Premixed alkylate fuel for 2-stroke can be used.

Cutting dev	vices						
Guide bar	Туре		U45R73-68AA	U50R73-72AA	U60R73-84AA	U70R73-92AA	
	Called length	cm	45	50	60	70	
	Gauge	in		0.0	)58		
Saw chain	Typo		Oregon 73LPX, 73EXL				
	Туре		Carlton A2LM				
	Number of drive	e links	68	72	84	92	
	Pitch	in	3/8				
	Gauge	in	0.058				

### 1-2 Technical data

Engine			
Compression pressure	MPa (kgf/	cm²) (psi)	0.77 (7.9) (112)
Clutch engagement spe	eed	r/min	4200
Ignition system			
Spark plug gap		mm(in)	0.4 - 0.5 (0.016 - 0.02)
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 resistar	се	kΩ	5.5 - 11.5
Pole shoe air gaps		mm(in)	0.3 - 0.4 (0.012 - 0.016)
Ignition timing	at 3000 r/min	°BTDC	8
	at 10000 r/min	°BTDC	24
Carburetor			
Test Pressure, minimur	n MPa (kgf/	cm²) (psi)	0.05 (0.5) (7.0)
Metering lever height		mm(in)	0 - 0.3 (0 - 0.01) lower than diaphragm seat
Limiter cap / plug			-
Tool to adjust mixture n	eedles		D-shaped tool (L) P/N X645-000032 (Carb. adjustment tool P/N Y089-000095)
Carburetor adjustment			
1) Initial setting	H mixture needle	turn out	1 5/8
	L mixture needle	turn out	1 1/2
	Throttle adjust screw	turn in* <sup>1</sup>	3
Engine warm-up	Idle - WOT : Total	sec.	5 - 10 : 120
2) Find idle maximum	speed		Adjust L mixture needle to maximum idle speed.*2
3) Set idle maximum s	peed w/ TAS	r/min	3700
4) Set idle speed by turn	ing L mixture needle CC	CW r/min	3000
5) Confirm H mixture r before WOT setting			Turn H mixture needle CCW to confirm engine speed decreses less than or equal to 12000 r/min.
6) WOT setting		r/min	Turn H mixture needle CW in 1/8 turn increment with the engne engine at idle, then accelerate to WOT and check engine speed. The final engine speed should fall within 12600 - 12800
7) Verify final engine s	peed with standard eq	uipment	Idle: 2700 - 3400
		r/min	WOT: 12600 - 12800
8) Verify clutch engage	ement speed		Confirm clutch engagement speed. If it is less than 1.25 times the idle speed, adjust the idle speed by turning TAS CCW.
Chain oil discharge volun	ne		Adjustable: 1.5 - 13 (0.05 - 0.46)
	mL/min(UK.	fl.oz./min)	(Factory set: 7 mL/min)

BTDC: Before top dead center. WOT: Wide open throttle CCW: Counterclockwise TAS: Throttle adjust screw

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

\*<sup>2</sup> 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

Descriptio	ons		Size	kg	f•c	m	1	۱•m	า	in	lb	f
Starter	Starter paw	ls	M5	90	-	110	9	-	11	80	-	95
system	Starter cent	ter shaft screw	M5	50	-	70	5	-	7	45	-	60
	Starter case	Э	M5	70	-	90	7	-	9	60	-	80
Ignition	Magneto ro	tor	M8	240	-	280	24	-	28	210	-	245
system	Ignition coil		M5	50	-	70	5	-	7	45	-	60
	Spark plug		M14	130	-	170	13	-	17	110	-	150
Fuel	Carburetor		M4	20	-	35	2	-	3.5	17	-	30
system	Intake bello	WS	M5 <sup>*</sup>	60	-	80	6	-	8	52	-	70
	Carburetor	case	M5**	70	-	90	7	-	9	60	-	80
	Carburetor	case cover	M5	40	-	60	4	-	6	35	-	52
Clutch	Clutch asse	embly	LM12	500	-	600	50	-	60	435	-	522
Engine	Crankcase		M5	70	-	90	7	-	9	60	-	80
	Cylinder		M5	70	-	100	7	-	10	60	-	87
	Muffler	Screws	M6	90	-	110	9	-	11	80	-	95
		Nuts	M6*	90	-	110	9	-	11	80	-	95
	Muffler plate		M4*	15	-	25	1.5	-	2.5	13	-	22
	Decompression valve		M10	70	-	100	7	-	10	60	-	87
Others	Auto-oiler		M4 <sup>*</sup>	25	-	35	2.5	-	3.5	22	-	30
	Compression Rear handle		M5***	30	-	45	3	-	4.5	26	-	40
	spring	Crankcase	M6 <sup>†</sup>	50	-	60	5	-	6	45	-	52
		Cylinder	M5	50	-	60	5	-	6	45	-	52
		Front handle	M6 <sup>†</sup>	50	-	60	5	-	6	45	-	52
	Spring holder		M5**	30	-	45	3	-	4.5	26	-	40
	Front handl	е	M5 x 16**	60	-	80	6	-	8	52	-	70
			M5 x 30*	50	-	70	5	-	7	45	-	60
	Spike	Crankcase side	M5*	90	-	110	9	-	11	80	-	95
		Sprocket side	M5*	70	-	90	7	-	9	60	-	80
	Brake lever	(Hand guard)	M5	50	-	70	5	-	7	45	-	60
	Brake band	Brake band		30	-	50	3	-	5	26	-	45
			M5*	50	-	70	5	-	7	45	-	60
	Brake cove	r	M5 <sup>**</sup>	30	-	40	3	-	4	26	-	35
	Chain catch	ner	M6	90	-	110	9	-	11	80	-	95
	Chain tensi	oner	M4*	20	-	30	2	-	3	17	-	26
	Sprocket gu	lard pieces	M4*	15	-	20	1.5	-	2	13	-	17
	Guide bar		M8	200	-	230	20	-	23	175	-	200
Regular bo	olt, nut and scre	W	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)

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

\*\*\* Precoated bolt: Replace new one when removing the bolt. Do not re-use.

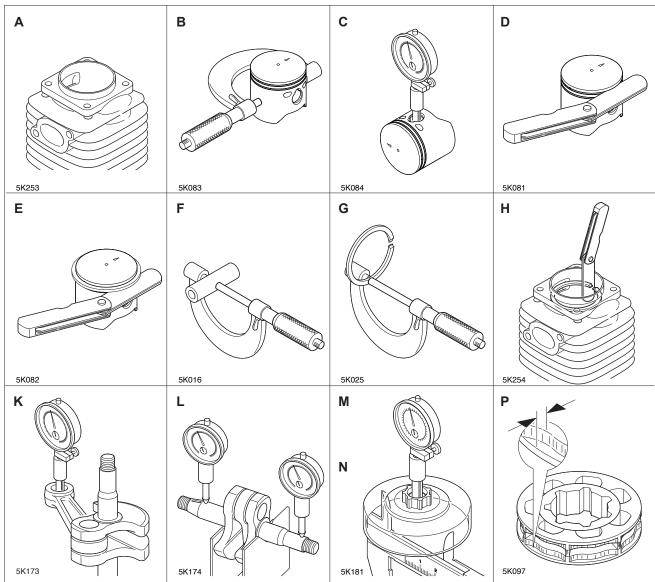
<sup>†</sup> Tapping screw

Material	Location	Remarks
Adhesive	Stud bolt	Loctite #675 or equivalent
	Cushion on Rear handle cover	Loctite #424 or equivalent
Thread locking sealant	Muffler nuts (Through Bolts)	ThreeBond #1344J or equivalent
	Spike	Lastita #675 or aquivalant
	Front handle M5 x 30	Loctite #675 or equivalent
	Auto-oiler	
	Intake bellows	
	Chain tensioner	
	Sprocket guard pieces	
	Brake band	ThreeBond #1324N or equivalent
	Carburetor case (Re-use*)	
	Brake cover (Re-use*)	
	Front handle M5 x 16 (Re-use*)	
	Spring holder (Re-use*)	
	Muffler plate	ThreeBond #1360 or equivalent
Grease	Clutch needle bearing	
	Recoil starter	Lithium based grease or ECHO XTended
	Worm gear	Protection <sup>TM</sup> Lubricant
	Oil seal inner lips	
	Chain brake (metal contact part)	Molybdenum grease (approx.1 gram)

## 1-4 Special maintenance materials

\* 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



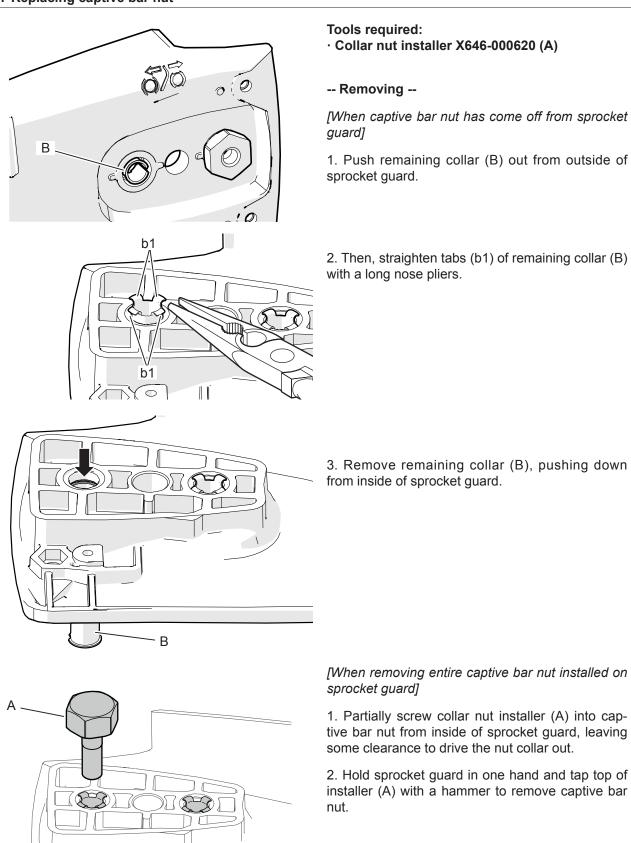
D	escription			mm (in)
Α	Cylinder bore		When plating is worn and	d aluminium can be seen
В	Piston outer diameter	Min.	50.89	(2.004)
С	Piston pin bore	Max.	12.030	(0.4736)
D	Piston ring groove	Max.	1.3	(0.051)
Е	Piston ring side clearance	Max.	0.15	(0.006)
F	Piston pin outer diameter	Min.	11.98	(0.4717)
G	Piston ring width	Min.	1.15	(0.045)
Н	Piston ring end gap	Max.	0.6	(0.02)
Κ	Con-rod small end bore	Max.	15.025	(0.5915)
L	Crankshaft run out	Max.	0.05	(0.002)
Μ	Sprocket bore	Max.	70.5	(2.78)
Ν	Clutch drum bore	Max.	14.07	(0.5539)
Ρ	Sprocket wear limit	Max.	0.5	(0.02)

# 1-6 Special tools

	special tools				-
1			3		5 MEELHU. O
6			8	9	10
=					
11		14	15		
18		19	20		
Key					
INCEY	Part Number	Description		Reference	
1	Part Number 897802-33330	Description Tachometer PET-1000R	R Measuring engine	Reference speed to adjust carbu	retor
-			Measuring engine Removing and ins	speed to adjust carbu	retor
1	897802-33330	Tachometer PET-1000R	0 0	speed to adjust carbu talling Torx bolts	retor
1 2	897802-33330 X602-000340	Tachometer PET-1000R Torx wrench (T27)	Removing and inst	speed to adjust carbu talling Torx bolts system	retor
1 2 3	897802-33330 X602-000340 897800-79931	Tachometer PET-1000R Torx wrench (T27) Spark tester	Removing and inst Checking ignition	speed to adjust carbu talling Torx bolts system to rotor (flywheel)	retor
1 2 3 4	897802-33330 X602-000340 897800-79931 Y089-000111	Tachometer PET-1000R Torx wrench (T27) Spark tester Puller	Removing and insi Checking ignition s Removing magnet Adjusting pole sho	speed to adjust carbu talling Torx bolts system to rotor (flywheel)	
1 2 3 4 5	897802-33330 X602-000340 897800-79931 Y089-000111 91004	Tachometer PET-1000R Torx wrench (T27) Spark tester Puller Module air gap gauge	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor	speed to adjust carbu talling Torx bolts system to rotor (flywheel) be air gaps	je
1 2 3 4 5 6	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133	Tachometer PET-1000R Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi	speed to adjust carbu talling Torx bolts system to rotor (flywheel) be air gaps and crankcase leakag talling clutch assembly	je
1 2 3 4 5 6 7	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi Making appropriate s Measuring cylinde	speed to adjust carbu talling Torx bolts system o rotor (flywheel) e air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression	je / ssembly and warm gear
1 2 3 4 5 6 7 8 9 10	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830	Tachometer PET-1000R Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi Making appropriate g Measuring cylinde Making piston stea	speed to adjust carbu talling Torx bolts system to rotor (flywheel) te air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst	je / ssembly and warm gear all piston/ring
1 2 3 4 5 6 7 8 9 10 11	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi Making appropriate g Measuring cylinde Making piston stea Plugging exhaust p	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase /	je / ssembly and warm gear all piston/ring cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug	Removing and insi         Removing ignition s         Removing magnet         Adjusting pole shot         Testing carburetor         Removing and insi         Making appropriate g         Measuring cylinde         Making piston steat         Plugging exhaust p         Plugging intake pc	speed to adjust carbu talling Torx bolts system o rotor (flywheel) e air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / ort to test crankcase /	je / ssembly and warm gear all piston/ring cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate	Removing and insi         Checking ignition s         Removing magnet         Adjusting pole sho         Testing carburetor         Removing and insi         Making appropriate g         Measuring cylinde         Making piston steat         Plugging exhaust p         Plugging intake pc	speed to adjust carbu talling Torx bolts system to rotor (flywheel) te air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / cont to test crankcase / cont to	je / ssembly and warm gear all piston/ring cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131 X646-000620	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer	Removing and insi         Removing ignition is         Removing magnet         Adjusting pole shot         Testing carburetor         Removing and insi         Making appropriate g         Making piston steat         Plugging exhaust p         Plugging intake pc         Install collar nuts in	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / o to to test crankcase / o to to test crankcase / o to to test crankcase / o	je v ssembly and warm gear all piston/ring cylinder leakages cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131 X646-000620 91149	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer Pressure / vacuum tester	Removing and insi         Removing ignition s         Removing magnet         Adjusting pole shot         Testing carburetor         Removing and insi         Making appropriate g         Measuring cylinde         Making piston steat         Plugging exhaust p         Plugging intake pc         Install collar nuts in         Testing tank vent a	speed to adjust carbu talling Torx bolts system o rotor (flywheel) e air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / ort to test crankcase / ort to test crankcase / o n sproket guard and crankcase leakage	je ssembly and warm gear call piston/ring cylinder leakages cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131 X646-000620 91149 897701-14732	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer Pressure / vacuum tester Bearing tool	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi Making appropriate g Measuring cylinde Making piston stea Plugging exhaust p Plugging intake po Install collar nuts in Testing tank vent a Removing and insi	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakage talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / on to test crankcase / on test / on test crankcase / on test / on test / on test /	je ssembly and warm gear call piston/ring cylinder leakages cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131 X646-000620 91149 897701-14732 897702-30131	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer Pressure / vacuum tester Bearing tool Piston pin tool	Removing and insi Checking ignition s Removing magnet Adjusting pole sho Testing carburetor Removing and insi Making appropriate g Measuring cylinde Making piston stea Plugging exhaust p Plugging intake po Install collar nuts in Testing tank vent a Removing and insi	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / of to sproket guard and crankcase leakage talling ball bearings on talling piston pin	je ssembly and warm gear call piston/ring cylinder leakages cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897826-16131 X646-000620 91149 897701-14732 897702-30131 Y089-000095	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer Pressure Jate Collar nut installer Pressure Jool Piston pin tool Carburetor adjustment too	Removing and insi         Checking ignition s         Removing magnet         Adjusting pole sho         Testing carburetor         Removing and insi         Making appropriate g         Measuring cylinde         Making piston stea         Plugging exhaust p         Plugging intake pc         Install collar nuts in         Testing tank vent a         Removing and insi         Removing and insi         Removing and insi         Adjusting carburet	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / of to sproket guard and crankcase leakage talling ball bearings on talling piston pin	je ssembly and warm gear call piston/ring cylinder leakages cylinder leakages cylinder leakages
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	897802-33330 X602-000340 897800-79931 Y089-000111 91004 897803-30133 X640-000570 X648-000150 91037 897719-02830 91041 897826-16131 897827-16131 X646-000620 91149 897701-14732 897702-30131	Tachometer PET-1000F Torx wrench (T27) Spark tester Puller Module air gap gauge Pressure tester Clutch tool Oiler gap adjuster Compression gauge Piston holder Pressure rubber plug Pressure rubber plug Pressure plate Collar nut installer Pressure / vacuum tester Bearing tool Piston pin tool	Removing and insi         Checking ignition is         Checking ignition is         Removing magnet         Adjusting pole shot         Testing carburetor         Removing and insi         Making appropriate g         Making piston steat         Plugging exhaust p         Plugging intake pc         Install collar nuts in         Testing tank vent at         Removing and insi         Adjusting carburet         Installing oil seals	speed to adjust carbu talling Torx bolts system to rotor (flywheel) the air gaps and crankcase leakag talling clutch assembly gap between auto-oliler a r compression ady to remove and inst port to test crankcase / of to sproket guard and crankcase leakage talling ball bearings on talling piston pin	je ssembly and warm gear call piston/ring cylinder leakages cylinder leakages cylinder leakages

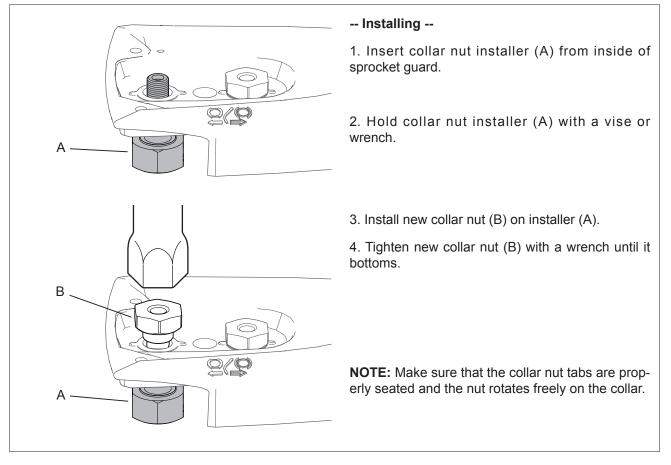
#### 2 SERVICE HINT

#### 2-1 Replacing captive bar nut

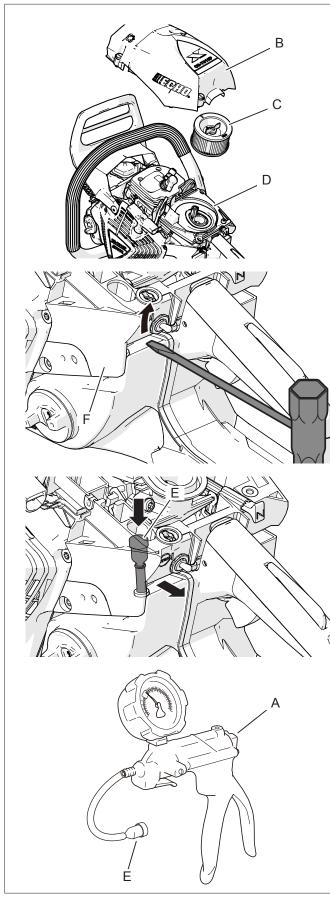


# CS-7310SX, 731sx

# 2-1 Replacing captive bar nut (continued)



#### 2-2 Inspecting and Replacing tank vent



**NOTE:** Tank vent prevents a vacuum from forming in fuel tank when fuel in fuel tank is being consumed. When pressure in fuel tank becomes too high, tank vent release the pressure.

#### **Tools required:**

#### · Pressure/vacuum tester 91149 (A)

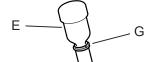
- 1. Remove cylinder cover (B).
- 2. Remove air filter (C).

3. Remove carburetor case cover (D) with two bolts.

4. Carefully pry up carburetor case (F) from top of fuel tank with a large flathead screwdriver.

5. Then, push tank vent (E) down and out towards the throttle trigger and push the vent through.

6. Remove tank vent (E) and clip (G) from tank vent line, taking care not to lose clip (G).



7. Connect tank vent (E) to pressure/vacuum tester (A).

8. Apply pressure approx. 50kPa (0.5 kgf/cm<sup>2</sup>) (7 psi).

9. Make sure the pressure is stable in range of 10 - 40 kPa (0.1 - 0.4 kgf/cm<sup>2</sup>) (1.4 - 5.7 psi).

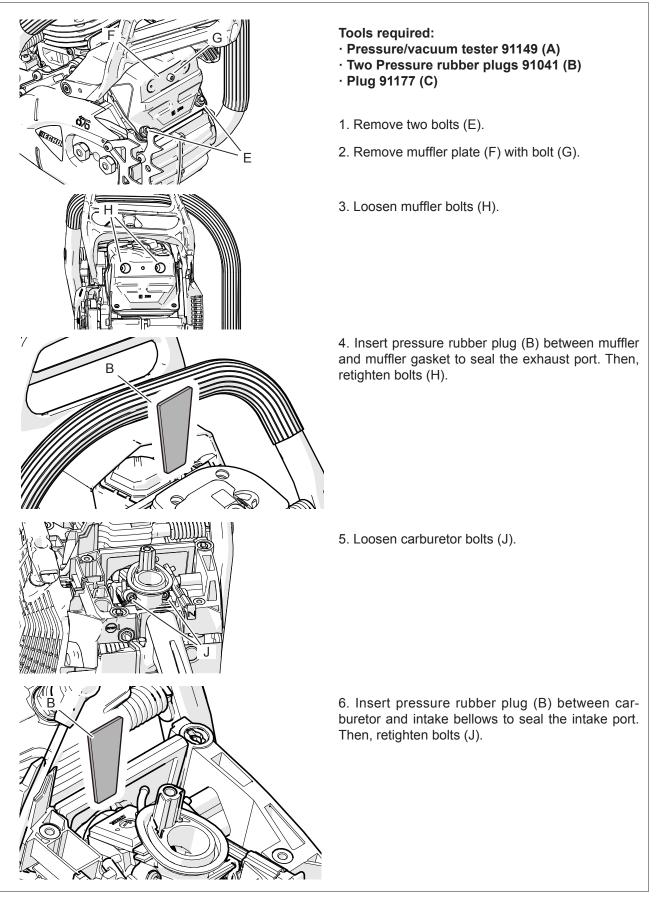
10. If it is not in the range, gently clean tank vent with compressed air or replace with new one.

**NOTE:** Do not disassemble valves in tank vent. Damage to valves will occur.

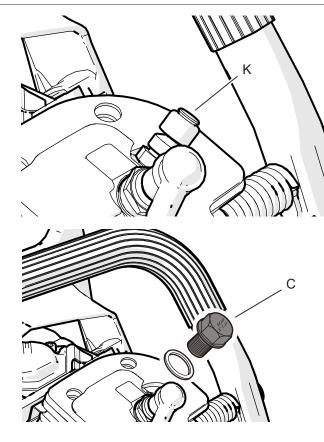
11. Apply negative pressure 20 kPa (0.2 kgf/cm<sup>2</sup>) (3 psi).

12. Tank vent should pass air freely without holding any pressure. If it does not, replace with new one.

# 2-3 Testing crankcase and cylinder leakage



2-3 Testing crankcase and cylinder leakage (continued)



7. Remove decompression valve (K).

8. Install plug (C) with one washer into the decompression valve hole.

9. Pull out pulse line (D) from carburetor.

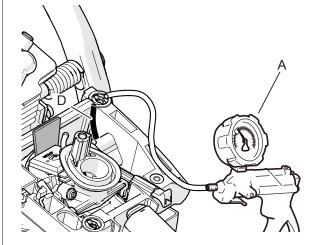
10. Connect pulse line (D) and pressure/vacuum tester (A) using suitable pipe (inner dia. 4 mm).

11. Apply negative pressure approx. 30 kPa (0.3 kgf/cm2) (4.4 psi) by pressure/vacuum tester (A) and leave for 30 seconds.

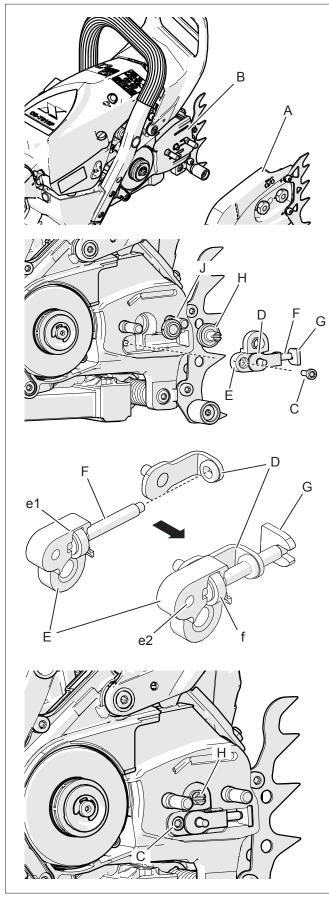
12. If the reading drops, leakage may occur from oil seal. Inspect oil seal for damage or wear.

13. Then, apply pressure approx. 50 kPa (0.5 kgf/ cm2) (7.3 psi) by pressure/vacuum tester (A) and leave for 30 seconds.

14. If the reading drops, leakage may occur from crankcase seam or oil seal. Use soapy water to locate the leakage.



#### 2-4 Replacing chain tensioner



#### -- Removing --

- 1. Remove sprocket guard (A).
- 2. Remove sprocket guard plate (B).

3. Remove bolt (C).

4. Remove chain tensioner (D) with collar (E), tensioner screw (F) and shaft guide (G).

5. Remove worm gear (H) and collar (J).

6. Check the removed parts for damage or wear. Replace with new one(s) as required.

#### -- Installing --

1. Apply lithium based grease to worm gear (H) and collar (J).

2. Install collar (J) and worm gear (H) on crank-case.

3. Install tensioner screw (F) into groove (e1) of collar (E).

4. Screw chain tensioner (D) to tensioner screw (F) by turning gear (f) of tensioner screw (F), not to cover bolt hole (e2) of collar (E) with chain tensioner (D).

**NOTE:** Make sure chain tensioner (D) is screwed to tensioner screw (F) more than 3 screw threads.

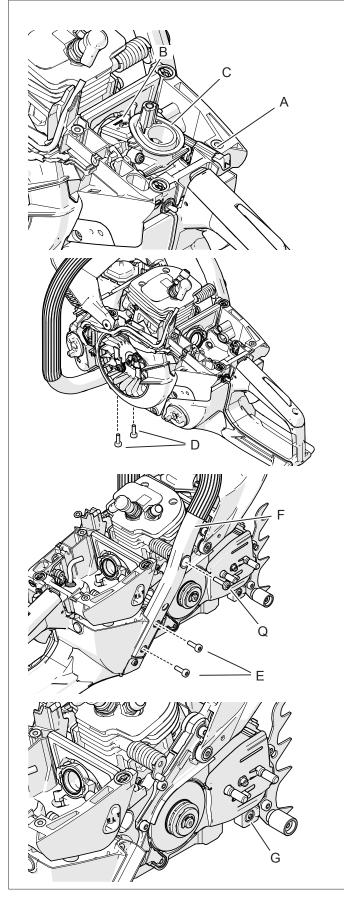
5. Put shaft guide (G) on tensioner screw (F).

6. Install the assembled chanin tensioner on crankcase as shown.

7. Turn worm gear (H) to confirm engagement of the gears.

8. Tighten bolt (C).

#### 2-5 Removing rear handle assembly



1. Remove sprocket guard and starter assembly.

2. Remove cylinder cover, air filter and carburetor case cover.

3. Remove choke (A).

4. Pull out fuel line and pulse line from carburetor (B).

5. Disconnect throttle cable from carburetor (B).

6. Remove carburetor (B) and carburetor elbow (C) with two bolts.

7. Remove pre-coated bolts (D).

**NOTE:** When retighten pre-coated bolts (D), replace new ones or apply thread locking sealant ThreeBond #1324N.

8. Remove pre-coated bolts (E) and bolt (Q).

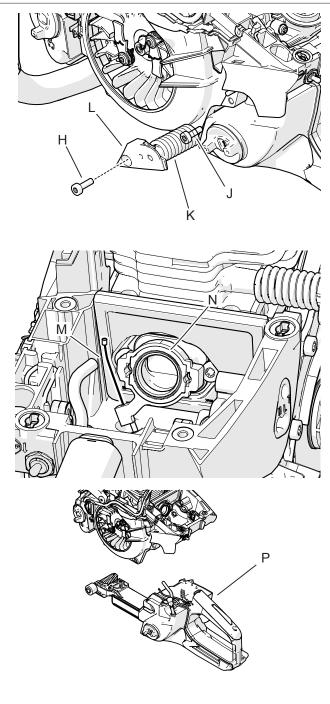
**NOTE:** When retighten pre-coated bolts (E), replace new ones or apply thread locking sealant ThreeBond #1324N.

9 Then, remove front handle (F) from the unit.

10 Remove bolt (G).

**15** 

2-5 Removing rear handle assembly (continued)



11. Remove pre-coated bolt (H).

12. Loosen pre-coated bolt (J). Then, remove spring holder (L) with spring (K) and bolt (J).

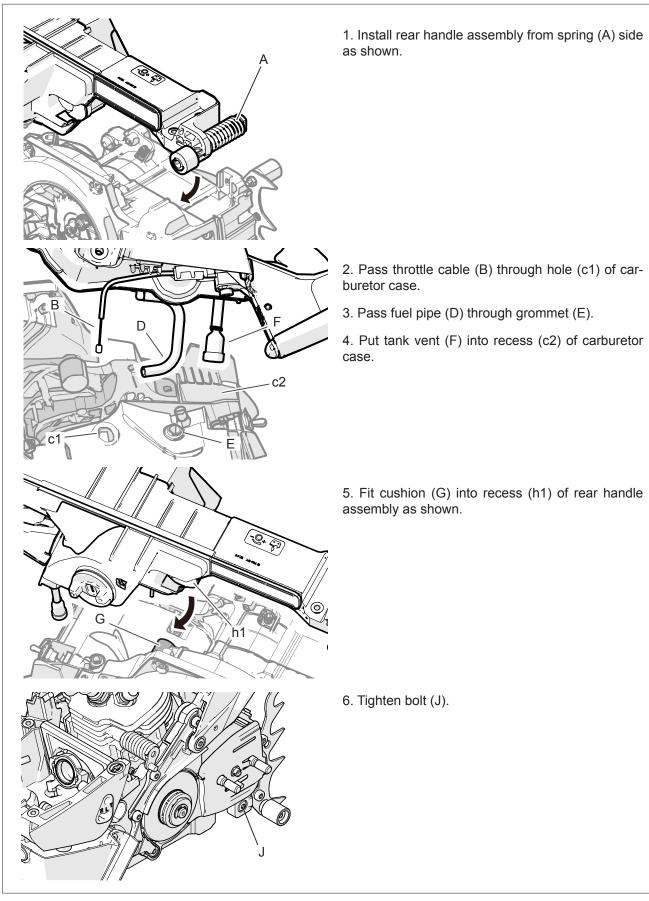
13. Remove throttle cable (M) from intake bellows holder (N).

14. Remove rear handle assembly (P) carefully.

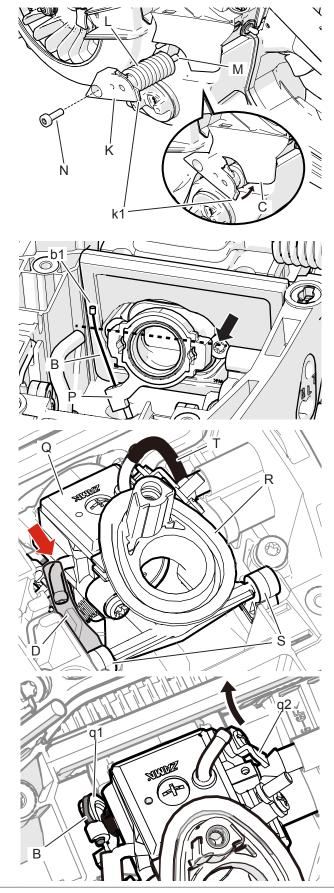
**NOTE:** When replacing fuel lines, refer to "2-7 Replacing fuel lines".

**NOTE:** When replacing throttle cable, refer to "2-8 Replacing throttle cable and control parts".

## 2-6 Installing rear handle assembly



2-6 Installing rear handle assembly (continued)



7. Install assembled spring holder (K), spring (L) and bolt (M), hooking spring holder tab (k1) to carburetor case (C) as shown.

8. Tighten bolt (M) and pre-coated bolt (N).

**NOTE:** When retighten pre-coated bolt (N), replace new one or apply thread locking sealant Three-Bond #1324N or equivalent.

9. Install throttle cable (B) into groove of intake bellows holder (P).

**NOTE:** Throttle cable sleeve may be disconnected from the throttle cable guide if throttle cable end (b1) is below the line in the illustration. Refer to "2-5 Replacing throttle cable and control parts.

10. Install carburetor (Q) and carburetor elbow (R).

11. Connect fuel line (D) and pulse line (T).

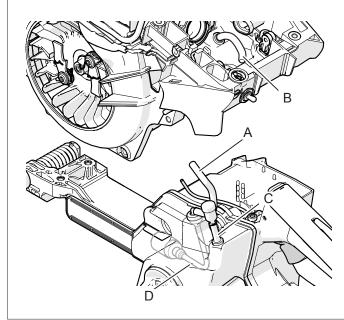
**NOTE:** Make sure fuel line (D) is inserted to the rounded corner of carburetor nipple as shown.

**NOTE:** Make sure the bosses of carburetor elbow (R) are inserted to each cushion (S) as shown.

12. Install throttle cable (B) to throttle lever (q1), holding throttle lever (q2) forward.

13. Squeeze the throttle trigger to confirm operation of throttle cable (B).

#### 2-7 Replacing fuel lines



1. Remove rear handle from the unit. (Refer to "2-5 Removing rear handle)

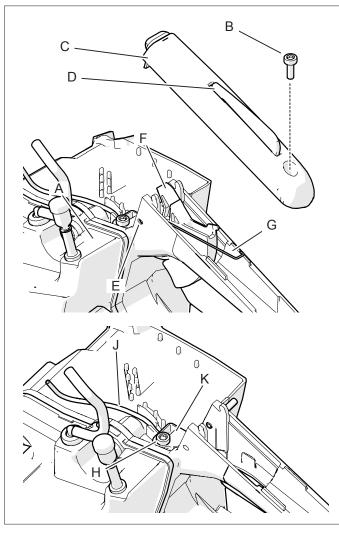
2. Inspect fuel line (A) and replace with new one if defective.

3. Inspect pulse line (B) and replace with new one if defective.

4. Inspect tank vent line (C) and replace with new one if defective.

5. Inspect fuel line (D) and replace with new one if defective.

#### 2-8 Replacing throttle cable and control parts



When throttle cable inner wire does not move smoothly, disconnect throttle cable from carburetor and apply lubricating oil to the inner wire. If it is still hard to move, replace throttle cable.

#### -- Removing --

1. Remove rear handle assembly from the unit (Refer to "2-5 Removing rear handle assembly").

2. Remove bolt (B) and then remove rear handle lid (C) and throttle lockout (D).

3. Push out spring pin (E).

4. Remove throttle trigger (F) with torsion spring (G). Inspect and replace with new one(s) as required.

5. Remove bolt (H) and then remove throttle cable (J) with throttle cable guide (K).

6. Inspect and replace throttle cable (J) with new one as required.

2-8 Replacing throttle cable and control parts (continued)

