



"Little Wonder"



DIVISION OF SCHILLER-PFEIFFER, INCORPORATED

1028 STREET ROAD, P.O. BOX 38

SOUTHAMPTON, PA 18966

AREA CODE 215-357-5110

AREA CODE 215-464-5300

OPERATING INSTRUCTIONS FOR LITTLE WONDER PRODUCTS WITH ECHO MODELS SV-2A TWO CYCLE ENGINE AND SV-2AE TWO CYCLE ENGINE WITH CDI IGNITION

FUEL AND LUBRICATING OIL (engine only)

Your Little Wonder 2 cycle fuel powered product is equipped with an Echo Model SV-2A, or SV-2AE, two stroke, air cooled engine which requires a fuel mixture of gasoline and lubricating oil.

The approved fuel to oil ratio is 32 parts regular gasoline to 1 part of Echo approved oil, (32:1), or 20 parts regular gasoline to 1 part oil when using another reputable 2-cycle air cooled engine oil, (20:1). **USE ONLY REGULAR GASOLINE FOR MIXING.** Do not use unleaded gasoline. The oil and regular gasoline should be thoroughly mixed in a clean container. **DO NOT ATTEMPT TO MIX IN FUEL TANK.** Pour half the regular gasoline into the container, add the oil and shake to insure thorough mixing. Add the remainder of the regular gasoline and shake once again. The fuel tank capacity is 17.5 fluid ounces or 1.1 pints.

CAUTION

The clutch engagement speed is 3,000 RPM, approximately; therefore, the unit will function at fast idle.

(NOTE) Recoil starter: Use short pulls - only 1/2-2/3 of starter rope for starting. Always hold the unit firmly with both hands.

1 STARTING THE ENGINE COLD

- a. Be sure that the fuel tank is filled with the correct mixture of regular gasoline and 2 stroke oil.
- b. Switch the ground switch to the "START" position.
- c. With the choke completely closed, pull the starter rope three to five times with short pulls. This draws fuel into the firing chamber.
- d. Push the choke lever all the way up (To open choke completely.)
- e. Pull the recoil starter rope smoothly and quickly until the engine fires.
- f. If the engine stops, close the choke and pull on the starter rope twice; then open the choke, pull the starter rope until the engine starts and continues to run.

2. STARTING THE ENGINE HOT

- a. Switch the ground switch to the "START" position.
- b. Pull the recoil starter rope smoothly and quickly until the engine runs.
- c. Follow the procedure for starting a cold engine after the engine has been left stopped for half an hour or more.
- d. After starting the engine by using the choke, adjust the choke as soon as the first explosive roar is heard.
- e. If the engine does not fire after a few pulls, squeeze the throttle to fast idle and try again.
- f. If it still does not start, check the plug.
- g. In the event that the engine has run out of fuel, it may be necessary after refueling to pull the recoil starter 8-10 times in order that the fuel pump can prime the carburetor.

3. STOPPING THE ENGINE

The engine will normally be stopped by moving ground switch to the "STOP" position. In an emergency, should the switch fail to stop the engine, pull the choke to the closed position and the engine will stall.

STEPS TO BE TAKEN DURING OPERATION

- 1) After starting, idle the engine for 3-5 minutes for warm up.
- 2) After idling, gradually open the throttle and the unit will start to operate as the engine revolution reaches approximately 3,000 RPM.
- 3) The engine keeps on running even when unit has stopped due to an excessive load. In such cases, remove the load and allow time for the cutter to reach the specified revolution before resuming the job. In the event that the unit gets stuck due to an overload, reduce the engine speed to idle, remove the obstruction and resume the work by squeezing the throttle lever.

ECHO INCORPORATED

LITTLE WONDER PRODUCTS NINETY DAY LIMITED WARRANTY

Echo Incorporated, referred to hereafter as Echo, warrants to the original purchaser at resale that each new Little Wonder product shall be free from defects in material and workmanship for a period of ninety (90) days from the date of the original purchase. In the event of a defect in a Little Wonder product, Echo will repair and/or replace the defective part or parts free of charge.

In the event of a malfunction or failure in a Little Wonder product simply deliver or send postage prepaid within the warranty period of ninety (90) days, the complete Little Wonder product to your nearest authorized Echo dealer. Echo reserves the right to inspect the claimed defective part or parts to determine if the defect or malfunction complained of is covered by this warranty. Upon confirmation that the malfunction or failure is the result of a defect covered by this warranty, Echo shall, within ninety (90) days after receipt of the product, at its option, repair and/or replace the defective part or parts free of charge.

Authorized Echo dealers are located throughout the United States and Canada to assure fast and efficient service to your Little Wonder product. If you do not know the location of an authorized Echo dealer, you can obtain such information by contacting Echo at the address listed below. Echo assumes no responsibility for any damage, defects, or costs resulting from repairs and/or modifications of an Echo product performed by any person who is not an authorized Echo servicing dealer or distributor.

This warranty shall only cover defects arising under normal usage. Echo assumes no responsibility whatsoever if the Little Wonder product shall fail during the warranty period by reason of:

1. Misuse, negligence, physical damage or accident.
2. Lack of maintenance as prescribed in the Owner's Manual.
3. Improper adjustments of ignition, timing and carburetors.
4. The use of fuels and lubricating oils not approved by Echo.
5. The use of parts or accessories not approved by Echo.
6. Operation of the unit with the air filter removed.
7. Operation at engine speeds in excess of Echo recommendations.
8. Repair by an unauthorized party during the warranty period.
9. Normal wear and tear.
10. Operation of the unit with an incorrect fuel/oil ratio

ECHO MAKES NO FURTHER EXPRESS WARRANTIES OR REPRESENTATIONS EXCEPT THOSE CONTAINED HEREIN. NO REPRESENTATIVE OR DEALER IS AUTHORIZED TO ASSUME ANY OTHER LIABILITY REGARDING LITTLE WONDER PRODUCTS. THE DURATION OF IMPLIED WARRANTIES GRANTED UNDER STATE LAW, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE DURATION OF THE EXPRESS WARRANTY GRANTED HEREUNDER. ECHO SHALL IN NO EVENT BE LIABLE FOR DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

To validate this warranty, the original purchaser must complete and return within ten (10) days of the date of purchase the warranty registration card supplied with each unit.

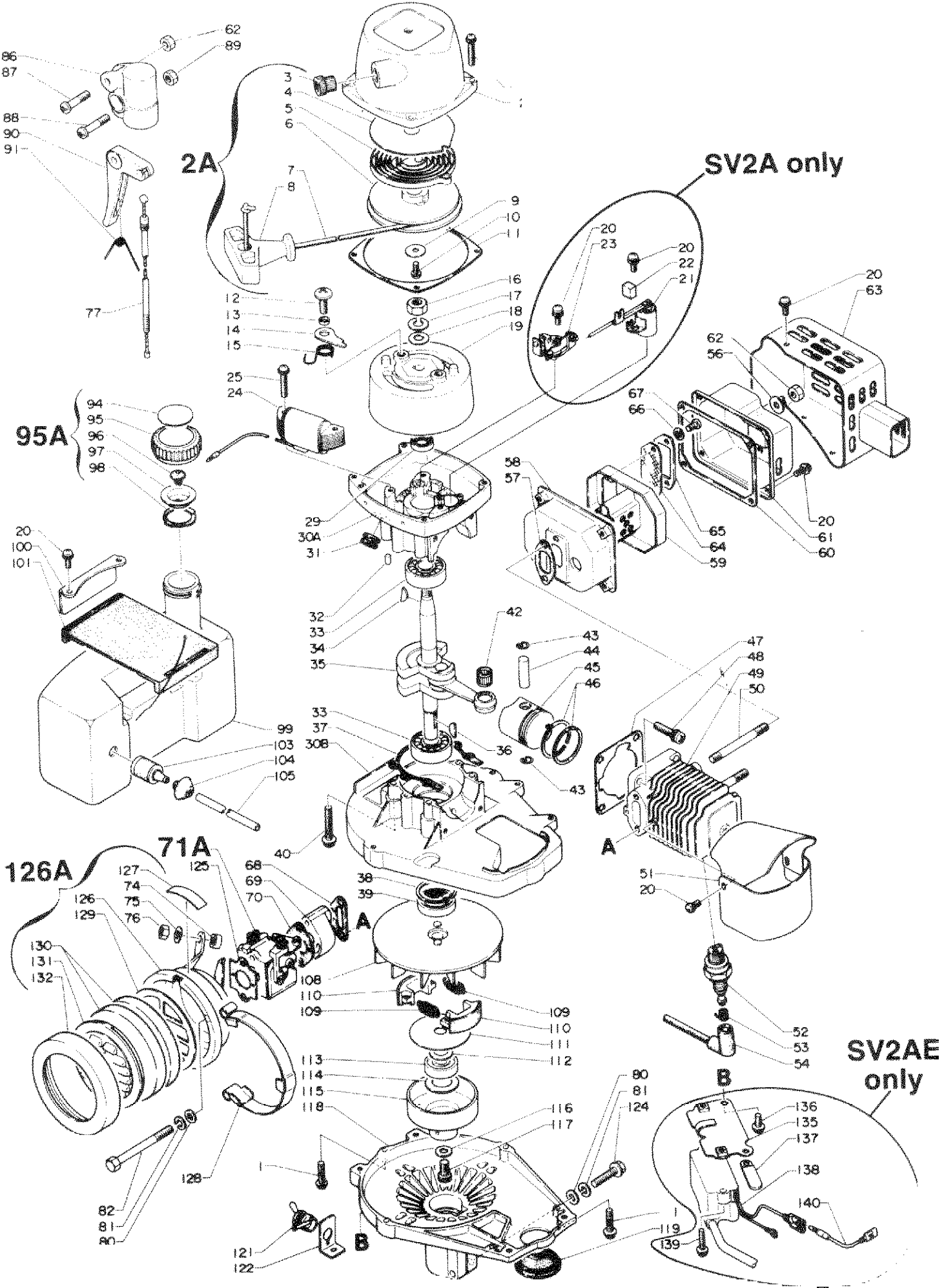
For additional information regarding this warranty or service of Little Wonder products, you may contact Echo Incorporated at 3150 MacArthur Boulevard, Northbrook, Illinois 60062. Or call Toll Free 800-323-1478, in Illinois call 312-498-1390.

INSTRUCTIONS FOR SAFE OPERATION

1. READ CARE AND SAFETY INSTRUCTIONS CAREFULLY.
2. For fuel mixture and engine operation, read engine manual carefully. BEFORE STARTING BE SURE STOP SWITCH IS IN START POSITION.
3. DO NOT RUN ENGINE IN AN ENCLOSED SPACE. THE EXHAUST FUMES CAN BE LETHAL.

CARE AND SAFETY

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. DRESS PROPERLY - Do not wear loose clothing or jewelry. They can be caught in moving parts. Use of sturdy gloves, non-skid footwear and safety glasses is recommended.
3. STAY ALERT - Watch what you are doing and use common sense. Do not operate unit when fatigued.
4. KEEP CHILDREN AND INCAPABLE PERSONS AWAY - Do not permit children to contact unit. Keep children a safe distance from work area. Never allow a person mentally ill, under influence of alcoholic drinks or drugs, or too young in age, to operate unit.
5. WARNING - Do not fuel, refuel or check fuel system when smoking or near an open fire. Do not run the engine when fueling or refueling. Stop engine when transporting from one place to another. Do not leave engine running unattended.
6. CAUTION — Do not start or run engine indoors as poisonous carbonmonoxides are emitted.
7. Do not use the unit when electric system causes spark outside the cylinder. Check spark plug from time to time. When checking, keep plug a safe distance from cylinder to avoid burning of evaporated fuel from cylinder.
8. MAINTAIN & EXAMINE ENGINE WITH CARE - Follow maintenance instructions and do not use if parts are defective or missing from engine.
9. STORE UNIT INDOORS - When not in use store unit indoors in a sheltered area (a dry place). The engine, as well as fuel, should not be stored in a house.
10. DO NOT ATTEMPT TO REPAIR ENGINE - Have repairs made by qualified dealer or repairman. See that only identical replacement parts are used.



SV-2A & SV-2AE

Key No.	Part Number	Description	Qty.	
1	900242 04020	Screw 4x20	9	
* 2A	177200 05920	Starter assy (WR) consisting of item 2 thru 8	1	
2	177209 05920	Case, starter (WR)	1	
3	177227 05330	Guide, rope	1	
4	177221 05020	Plate, starter	1	
5	177220 03930	Spring, rewind	1	
6	177206 05020	Drum, starter	1	
7	177226 03930	Rope, starter	1	
8	177228 11130	Grip, starter	1	
9	177214 04630	Washer	1	
10	900241 04010	Screw 4x10	1	
11	100615 04630	Gasket, starter	1	
12	177217 04630	Screw, pawl	2	
13	177247 04630	Spacer, ratchet	2	
14	177218 03930	Pawl, starter	2	
15	177234 04632	Spring, return	2	
16	900502 00008	Nut 8 (3N)	1	
17	900605 00008	Washer, spring 8	1	
18	100143 04630	Washer	1	
SV-2A ONLY	19	156200 04631	Flywheel	1
20	900242 04010	Screw	13	
21	156127 04521	Condenser	1	
SV-2A ONLY	22	156134 04630	Pad, lubrication	1
23	156101 04630	Points, breaker	1	
24	156126 04630	Coil, ignition	1	
25	900242 04025	Screw 4x25	2	
29	100212 04630	Oilseal	1	
SV-2A ONLY	30 A&B	100200 05020	Crankcase set	1
31	151112 04630	Bushing	1	
32	100215 03930	Pin, Dowel	2	
33	900810 36201	Bearing, ball 6201	2	
34	100142 00310	Key (M)	1	
35	100100 05331	Crankshaft assy	1	
36	610325 02730	Key, woodruff	1	
37	100242 04630	Gasket, crankcase	1	
38	900702 00032	Circlip (CR-32)	1	
39	100212 03930	Oilseal	1	
40	900242 05030	Screw 5x30	4	
42	175012 03930	Bearing, needle	1	
43	100015 04630	Circlip, piston pin	2	
44	100013 10210	Pin, piston	1	
45	100010 05330	Piston	1	
46	100011 05330	Ring, piston	2	
47	101010 04630	Gasket, cylinder base	1	
48	900242 05020	Screw 5x20	4	
49	101011 05020	Cylinder	1	
50	101014 05330	Stud, muffler	2	
51	101514 05920	Cover, cylinder (BLK)	1	
52	159010 00330	Plug, spark (BM-6A)	1	
53	159011 00510	Coil, spark plug cap	1	
54	159012 01620	Cap, spark plug	1	
56	900603 00005	Washer 5	2	
57	145510 05020	Gasket, muffler	1	
58	145806 05120	Muffler (A)	1	
59	145807 05120	Muffler (B)	1	
60	145866 05120	Gasket, muffler lid	1	
61	145861 05920	Lid, muffler	1	
62	433020 00830	Locknut 5	3	
63	145621 05921	Cover, muffler	1	
64	145862 05120	Screen, muffler (SAM)	1	
65	145863 05120	Holder, screen (SAM)	1	
66	900610 00004	Washer (TWA-4)	2	
67	900220 04008	Screw 4x8	2	
68	130010 05020	Gasket, carburetor	1	
69	130017 05020	Insulator	1	
70	130016 06430	Gasket, carburetor	1	
* 71A	123000 08430	Carburetor (WA-59) (see carburetor assembly parts breakdown)	1	

Key No.	Part Number	Description	Qty.
74	178021 07330	Locknut	1
75	900602 00006	Washer 6	1
76	900502 00006	Nut 6 (3N)	1
77	178001 04520	Cable throttle	1
80	900600 00005	Washer 5	3
81	900605 00005	Washer, spring 5	3
82	130021 05020	Bolt	2
86	178024 06130	Bracket, throttle	1
87	178110 05330	Screw	1
88	900220 05025	Screw 5x25	1
89	900500 00005	Nut 5	1
90	178010 05330	Control, throttle	1
91	178043 05230	Spring, throttle return	1
94	890154 03930	Label, fuel mix	1
* 95A	131004 04520	Cap assy fuel, consisting of 94 thru 98	1
95	131017 04930	Cap fuel, (BLK)	1
96	-131314 00330	Valve, check	1
97	-131015 04520	Holder, check valve	1
98	-131016 04930	Gasket, fuel tank cap	1
99	131010 05920	Tank, fuel	1
100	131910 05020	Bracket, fuel tank	1
101	131924 05921	Cushion	1
103	131205 07320	Strainer, fuel	1
104	-132115 04920	Grommet	1
105	132007 05920	Pipe, fuel w/grommet	1
108	101500 05020	Fan assy, cooling	1
109	175018 05130	Spring, clutch	2
110	175009 05130	Shoe, clutch	2
111	175019 04630	Plate, clutch	1
112	175015 05020	Washer, clutch	1
113	900808 36000	Bearing, ball 6000	1
114	175044 04630	Washer, clutch	1
115	175010 04632	Drum, clutch	1
116	175014 04630	Washer, clutch	1
117	900105 06010	Bolt, h.s. 6x10	1
118	101511 05920	Cover, fan (WR)	1
119	159015 04630	Cover, plug cap	1
120	178121 04520	Clip	1
121	163400 02160	Switch, ignition	1
122	163810 05920	Bracket, switch	1
124	900115 05025	Bolt 5x25	1
125	130016 06230	Gasket, carburetor	1
126	130307 05922	Case, air cleaner	1
* 126A	130300 00761	Air cleaner assy, consisting of 125 thru 132	1
127	890158 00760	Label, caution	1
128	130425 00761	Holder, cover	1
129	130319 00760	Grid, air cleaner	1
130	130310 00760	Filter, air	2
131	130313 04620	Cover, air cleaner	1
132	130341 04620	Holder, air cleaner	1

SV-2AE ONLY

Key No.	Part Number	Description	Qty.
19	156800 06331	Flywheel	1
24	156627 09820	Coil, exciter	1
31	156114 06330	Bushing	1
135	159310 09820	Bracket, ignition coil	1
136	900242 05010	Screw 5 x10	1
137	159113 23630	Clip	1
138	156601 09820	C. D. Ignition module	1
139	900242 04018	Screw 4x18	2
140	162021 09820	Lead, ground	1

* INDICATES ASSEMBLY

SERVICE INFORMATION

Specifications

MODEL		SV-2A	SV-2AE
Dry Weight	kg (lb.)	3.2 (7.0)	3.2 (7.0)
Engine		KIORITZ, Air-cooled, two-stroke, single cylinder	
Rotation		Counterclockwise viewed from PTO	
Displacement	cc (cu. in.)	21.2 (1.294)	21.2 (1.294)
Bore x Stroke	mm (in.)	32.2 (1.268) x 26.0 (1.024)	32.2 (1.268) x 26.0 (1.024)
Compression ratio		6.5:1	6.5:1
Carburetor		WALBRO diaphragm, model WA type	
Ignition		mechanical breaker type	electronic ignition type CDI
Starter		automatic rewind type	
Fuel		Premixed two-stroke fuel	
Mixing ratio		20:1 or a ratio approved by KIORITZ/ECHO	
Gasoline		Regular type	
Oil		ECHO air-cooled two-stroke oil or approved equiv.	
Fuel tank capacity	ℓ (US. fl. oz.)	0.5 (16.9)	0.5 (16.9)
Clutch		Centrifugal type	
Exhaust system		Spark arrester type	
Air cleaner		Dual element	

Technical Data

MODEL		SV-2A	SV-2AE
Spark plug gap	mm (in.)	0.6-0.7 (0.024-0.028)	0.6-0.7 (0.024-0.028)
Pole core gap	mm (in.)	0.3-0.4 (0.012-0.016)	0.3-0.4 (0.012-0.016)
Ignition timing	BTDC	30 BTDC	30 BTDC
Primary coil resistance	Ω	.5-.6Ω	.0.2Ω
Secondary coil resistance	kΩ	5-6kΩ	1.5-3kΩ
Excitor coil resistance	Ω	—	120-200kΩ
Minimum secondary voltage	kV	14kV	15kV
High speed needle (H needle)		1 turn open ± ¼ turn	1 turn open ± ¼ turn
Idle mixture needle (L needle)		1 turn open ± ¼ turn	1 turn open ± ¼ turn
Idle speed adjusting screw		2 (Turn until it lightly touches throttle shaft and forward 2 turns)	
Idling speed	rpm	2700-3000	2500-3000
Operating speed	rpm	5000-8000	5000-8000
Compression pressure	kg/cm ² (psi)	6.0 (85)	6.0 (85)
Contact breaker gap	mm (in.)	.3-.4 (.012-.016)	
Condensor capacity		.18-.22uF	

WARNING: For SV-2AE only — When testing for spark, use proper testing equipment only. Failure to do so may cause permanent damage to CDI Module.

ADJUSTING THE CARBURETOR

The carburetor has been adjusted at the factory for optimum performance. Should the carburetor require adjusting, this adjustment should be done by a qualified servicing dealer or mechanic.

To adjust the carburetor, proceed as follows:

- Low-speed needle valve (L) $1 \pm \frac{1}{4}$ turn
- High-speed needle valve (H) $1 \pm \frac{1}{4}$ turn

Turn the corresponding adjusting screw lightly clockwise to fully closed position and return the screw by the number of turns indicated above.

Lower the throttle lever and idle the engine for 3-5 minutes to cool it off. Then, stop the engine by depressing the stop button.

Stop button and the engine are connected by a grounding lead wire, to ensure the functioning of the stop button. If the stop button doesn't work properly, check the grounding wire connection.

STORING

If unit is to be stored for a long period of time, drain fuel completely from tank. Fuel stored under the most ideal conditions may start to go stale in 30 days. Stale fuel has a high gum content which can clog carburetor and restrict the fuel flow.

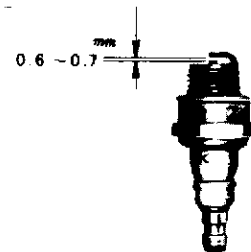
Start engine and allow to run until it stops. Choke and restart engine to make sure all fuel has been used from the carburetor. This prevents formation of gum deposits. Remove the spark plug. Pour about a teaspoonful of clean oil through the spark plug hole into the combustion chamber. Pull the starter handle slowly at least twice. This will coat the interior of the combustion chamber with oil. Clean, gap, and replace spark plug.

IGNITION SPARK PLUG

Clean or replace the plug if fouled with oily black deposits. Replace the plug if the center electrode is rounded at the end, or if the ground electrode is worn. Adjust the gap 0.6-0.7mm (.024-.028"). CAUTION — Do not over tighten the plug. Correct torque = 18-22 lbs. ft.

CAUTION

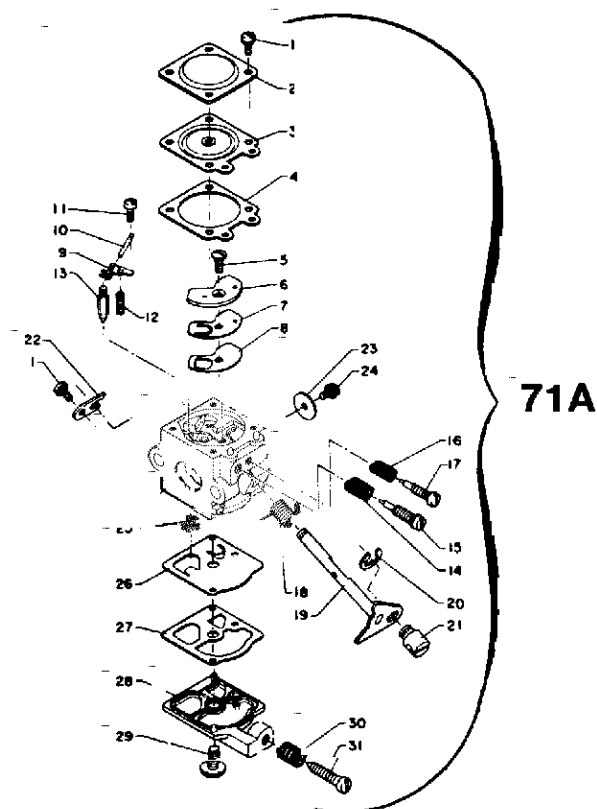
DO NOT ATTEMPT TO REMOVE THE PLUG FROM A HOT ALUMINUM CYLINDER HEAD IN ORDER TO AVOID POSSIBLE DAMAGE TO THE THREADS.



AIR FILTER

The performance, lubrication and temperature of the two stroke engine is seriously affected by a choked air filter. It is strongly recommended, therefore, that the filter should be cleaned every time the unit is used. Dust and dry dirt are readily removed from the filter element which can be washed in kerosene if necessary to remove oil accumulation.

Carburetor assembly SV-2A & SV-2AE



Key No.	Part Number	Description	Qty.
71A	123000 08430	Carburetor (WA-59) consisting of 1 thru 31	1
1	-123144 03930	Screw	5
2	-123142 03930	Cover, m. diaphragm	1
3	-123141 03930	Diaphragm, metering	1
4	-123140 03930	Gasket, m. diaphragm	1
5	-123167 05230	Screw, circuit plate	1
6	-123166 03930	Plate, circuit	1
7	-123165 03930	Diaphragm, circuit	1
8	-123164 03930	Gasket, circuit plate	1
9	-123123 03930	Lever, metering	1
10	-123138 03930	Pin, metering lever	1
11	-123139 03930	Screw, m. lever pin	1
12	-123122 03930	Spring, meter. lever	1
13	-123137 03930	Valve, inlet needle	1
14	-123119 03930	Spring, needle	1
15	-123120 06530	Needle, high speed	1
16	-123121 03930	Spring, needle	1
17	-123118 04420	Needle, idle	1
18	-123113 03930	Spring, throttle return	1
19	-123117 05020	Shaft, throttle	1
20	-123127 10630	Retaining, spring	1
21	-123172 04320	Swivel	1
22	-123127 03930	Clip, throttle shaft	1
23	-123116 05230	Valve, throttle	1
24	-123114 03930	Screw, throttle valve	1
25	-123126 03930	screen, inlet	1
26	-123112 03930	Diaphragm, fuel pump	1
27	-123125 03930	Gasket, fuel pump	1
28	-123124 05020	Cover, fuel pump	1
29	-123110 03930	Screw, pump cover	1
30	-123133 11130	Spring, idle adjust	1
31	-123134 06530	Screw, idle adjust	1