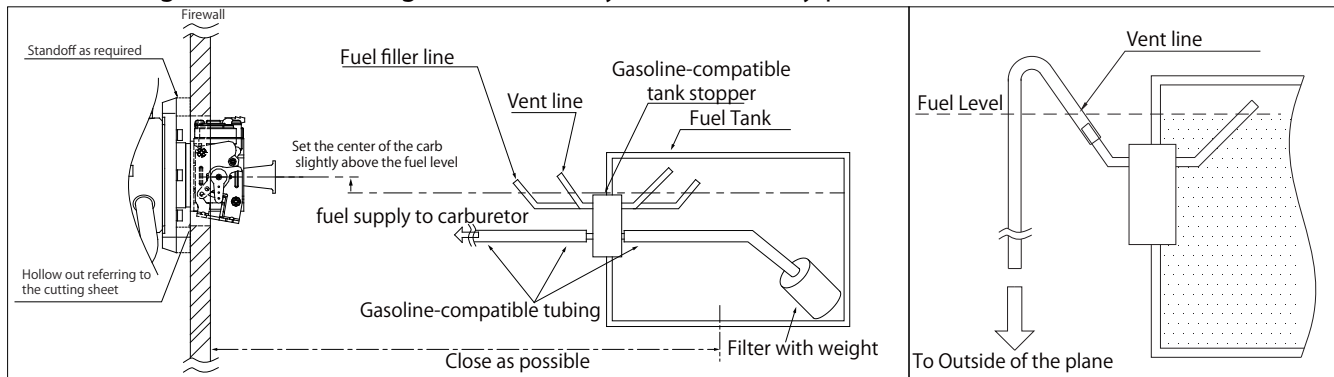


Specifications

Bore	Φ37.2mm	Stroke	27.6mm	Disp.	89.99cc	Applications	Gasoline 60-70cc class
Weight (Approx.)	Main body : 3,161g / Muffler : 157g / Ignition : 250g	RPM Range	Approx.1,300-7,000rpm	Max on ground	Approx. 6,000-6,500rpm		
Propeller	D24"~25" x P10"xP12"	Plug	CM-6	Battery for ignition system	Voltage:6-12V, greater than 1,000mA (2-3S Li-Po or 5S NiMH)		
Standard accessories	<ul style="list-style-type: none"> Limit gauge (0.1t) for tappet adjustment 1pc Spark plug[CM-6](Attached to the engine) 3pcs Ignition system (w/sensor) 1set Stand off mount 1set 	<ul style="list-style-type: none"> Spanner for tappet adjusting lock nut 1pc Muffler set 1set Muffler bracket 1set Anti-loosening nut 1pc 	<ul style="list-style-type: none"> Carburetor adjustment bar 1pc Choke bar 1pc Plug wrench 1pc Hexagonal wrench 1set 				
Optional parts	<ul style="list-style-type: none"> Filter with weight [G36-154] Aluminum spinner nut [57T-30] 	<ul style="list-style-type: none"> Durable tube for Gasoline (1m) [G36-155] Tappet adjusting kit [120S-161] 	<ul style="list-style-type: none"> Digital tachometer [G17-167] 				

1. Fuel

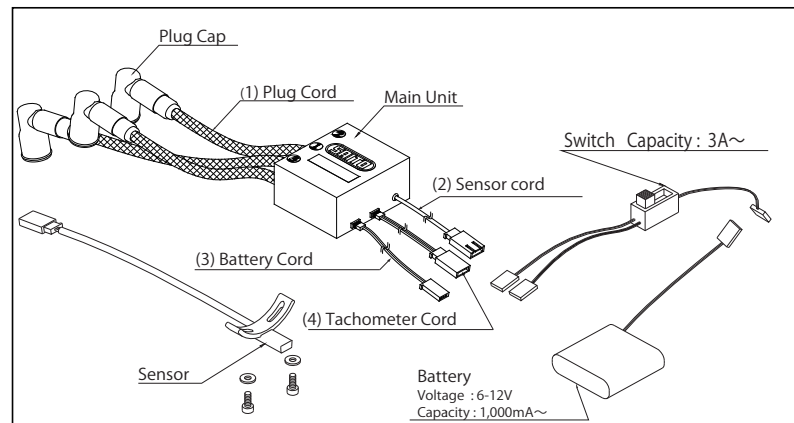
- The fuel is mixture of regular gasoline and high-quality 2-stroke engine oil.
- [Example of oil recommendation]
 - Klotz KL-200 Original Techniplate
 - Deluxe Materials PowerModel 2T-S etc.
- Be sure to use the mixture "gasoline : oil =15~20 : 1" by volume ratio. (Ex. 1000ml of gasoline should be mixed with more than 50ml of oil).
- During the break in process, use 15:1 mixed fuel to ensure the best lubrication for initial running.
- Any damage caused by the fuel used, in which the oil ratio is lower than 20:1 ratio, is not warranted.
- Do not use gasoline containing ethanol. It may cause not only power loss but also corrosion inside the engine.



2. Ignition

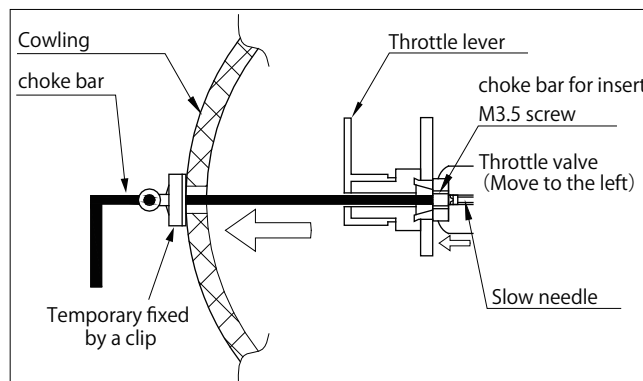
●Ignition arrangement- Place the main unit as far from other electrical devices as possible.

- (1) Plug cord (meshed high tension cord)
Insert the plug cap of (1) Plug cord deeply into the plug of #1 cylinder to make sure it will not come off. The other caps and plugs should be installed by the same way. (Refer to cylinder # on the reverse side)
- (2) Sensor cord
Connect with the cord from the sensor attached to the engine.
- (3) Battery cord (black / red cord)
Use a fully charged battery that has adequate spec. (6-12V, more than 1000mA is recommended.). Between the battery and main unit, make sure to set a heavy duty switch whose capacity is higher than 3A.
- (4)Tachometer cord
Connect the digital tachometer (Option). Otherwise the connector is normally vacant.



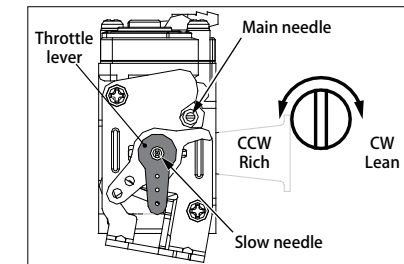
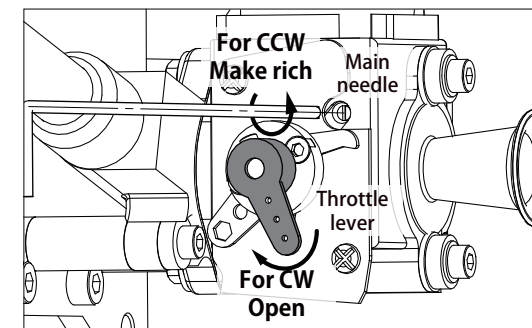
3. Method of choke (No need when you use starter)

- In advance, make a thin hole on the cowling to insert the choke bar / slow needle adjustment bar.
- During choking, be sure to turn off the switch of the ignition system.
- As shown in the fig, pass the choke bar (with M3.5 thread on its tip) through the hole on the cowling. Then turn the bar to insert into the M3.5 internal thread at the center of the throttle lever.
- Pull the choke bar and fix it with a clip or clamp with full throttle as shown in the fig so that it may not go back to the previous position.
- Grasp the prop by hand and turn it in the direction of normal operation (CCW) for several times, until the carburetor generates hissing-like sound. After hearing this sound for about 5 times, quickly flick the prop approximately 10 times.
- After that, remove the choke bar. After that, power on the ignition system and flick the prop quickly to start the engine. If the engine doesn't start, repeat the choking procedure.



3. Break-in MOST IMPORTANT!!

- Prop-recommendation : APC-24"x12" for break in.
- Use 15:1 fuel:oil ratio for break in.
- Never make the fuel mixture lean during break in.**
It could cause seizure even during idling or low-speed running.
- Before starting the engine, open the main needle **Approx. 3 turns** and the slow needle **Approx. 5 turns CCW** each from full close.
- Start the engine (using a starter is recommended for safety).
- Run for about 5 seconds at low speed to warm up.
- Open throttle gradually up to over half open, in the meantime turn the main needle CCW. Continue to turn the main needle CCW until the RPM declines, keeping the throttle opened over half.
- Then **turn the slow needle CCW to make mixture much richer.**
- Run in this very rich condition for 2 tanks.



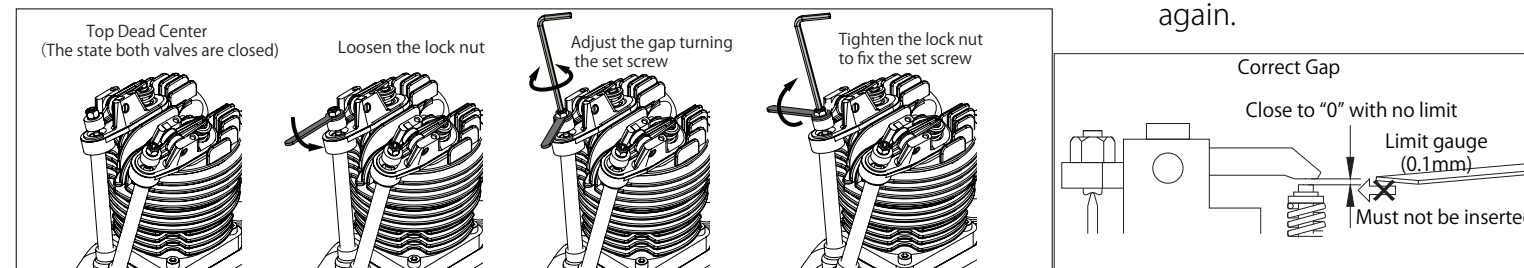
4. Needle reference position (Set After Break-in)

- Main needle : Approx.2.5~3 turns from fully close
- Slow needle : Approx.4-1/2~5 turns from fully close (Then throttle should be fully closed)
- Actually the best condition of the needle varies depending on the prop, temperature, humidity and so on. Please adjust based on the engine performance during flight.

5. Tappet adjustment

The valve clearance should be checked and adjusted after Break-in and every after 2 hours while the engine is cold. Before adjusting tappet gaps, tighten the screws around cylinders etc.

1. Remove the spark plug and rocker arm covers of #1 cylinder. Then turn the prop CCW by hand to place the piston at TDC of compression stroke.
2. Loosen the lock nut and adjust the gap by hexagonal wrench until you get the correct gap (below pic) for both of intake & exhaust.
3. Once the gap is set, tighten the lock nut and attach the plug and covers. Do the same adjustment for the #3-#2 cylinders in order.
4. Turn the prop by hand to check if the compression is enough. If the gap is less than 0, the valve is always opened slightly and lose compression. Then adjust again.



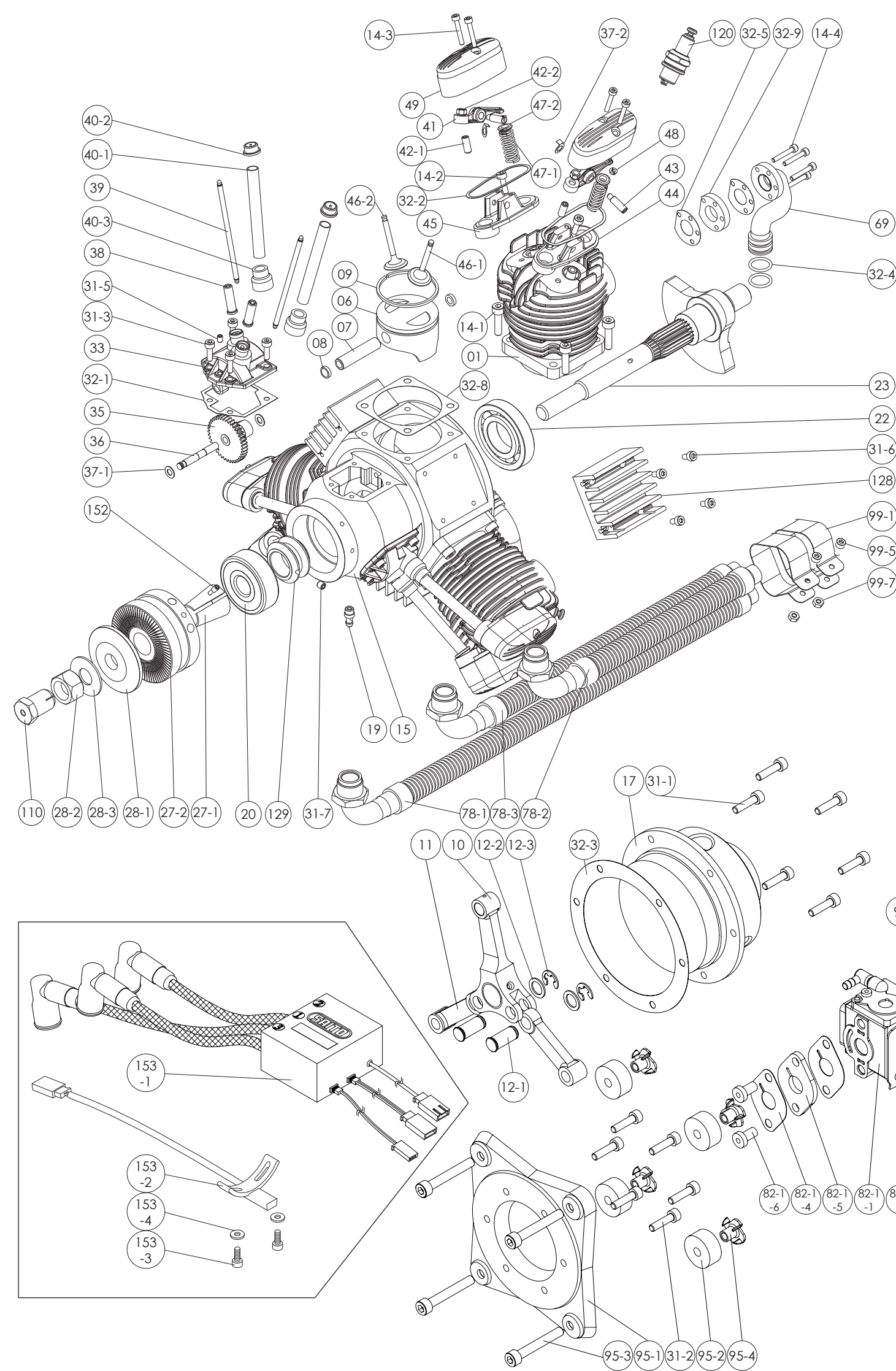
Note:

- As the fuel contains oil, the exhaust will produce some residue on the airplane.
- Use reliable and well balanced prop, otherwise it can cause abnormal vibration and may result in serious accident.
- During operation, the screws all over the engine can be loosen by heat expansion of metal. Tighten them up occasionally.
- When the exhaust valve gets dull by carbon or sludge especially in cold atmosphere, remove the rocker cover and apply some anti-rust spray to the exhaust valve to help the valve to move smoothly.
- All responsibilities for the use of the engine, and other obligations and responsibilities based on laws, regulations, etc. are borne by the purchaser and the user, and SAITO SEISAKUSHO CO., LTD. is exempt from any responsibilities.

Warranty:

- If there is any deficiency from the factory concerning manufacture, please consult the shop or distributor you purchased from, so that our company will repair them with responsibility. Any failure or trouble caused by unnecessary disassembly, modification, or other uses than those provided in the instruction manual is not subject to the warranty.

All specifications and models are subject to change without notice.



No.	Item	Qty
01	Cylinder	3
06	Piston	3
07	Piston pin	3
08	Piston pin retainer	6
09	Piston ring	3
10	Master rod	1
11	Linked conrod	2
12	Conrod linkpin & E-ring	2ea.
14	Cylinder screw set 14-1,-2,-3,-4	1set
15	Crankcase	1
17	Rear cover A (Intake manifold)	1
19	Breather nipple	1
20	Front ball bearing	1
22	Rear ball bearing	1
23	Crankshaft	1
27	Taper collet & Drive flange 27-1,-2	1set
28	Prop washer & Nut 28-1,-2,-3	1set
31	Crankcase screw set 31-1,-2,-3,-5,-6,-7	1set
32	Engine gasket set 32-1,-2,-3,-4,-5,-8,-9	1set
33	Cam gear housing	3
35	Cam gear	3
36	Cam gear shaft	3
37	Steel washer set 37-1,-2	1set
38	Tappet	6
39	Pushrod	6

No.	Item	Qty
40	Pushrod cover & Rubber seal 40-1,-2,-3	1set
41	Rocker arm	6
42	Rocker arm screw & Nut 42-1,-2	1set
43	Rocker arm pin	6
44	Rocker arm bracket L	3
45	Rocker arm bracket R	3
46	Valve (In & Ex) 46-1,-2	3ea.
47	Valve spring & Keeper & Retainer 47-1,-2,48	1set
48	Valve retainer (Cotter)	6
49	Rocker arm cover	6
69	Intake pipe	3
78	Flexible exhaust pipe 78-1,-2,-3	3
82-1	Carburetor complete 82-1-1,-1-2,-1-3,-1-4,-1-5,-1-6 -1-7,-1-8,-1-9	1set
88	Throttle lever	1
93	Air funnel	1
95	Engine mount set 95-1,-2,-3,-4	1set
99	Muffler bracket set 99-1,-5,-7	2set
110	Anti loosening nut	1
120	Spark plug (NGK CM-6)	3
128	Heat sink	3
129	Lubrication adopter	1
152	Screw-pin	1
153	Electronic ignition system 153-1,-2,-3,-4	1set

