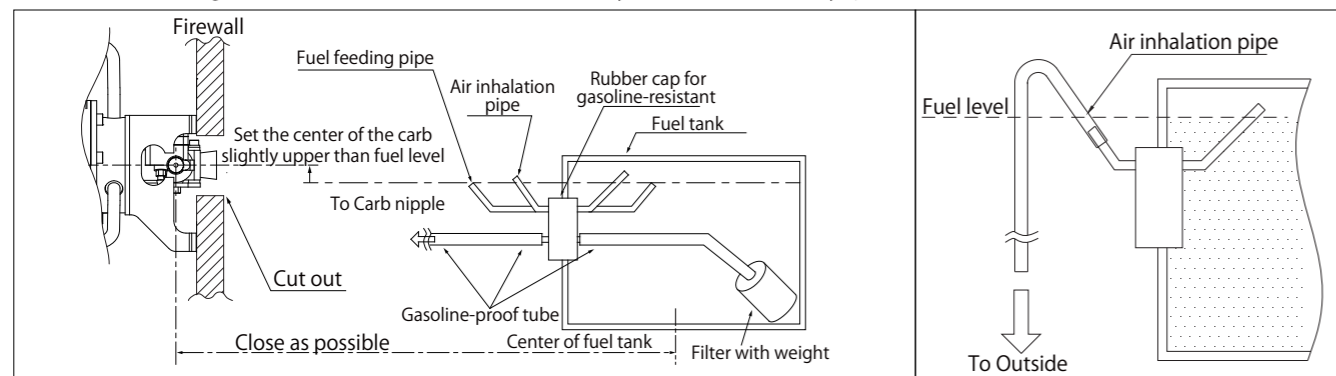


Specifications:

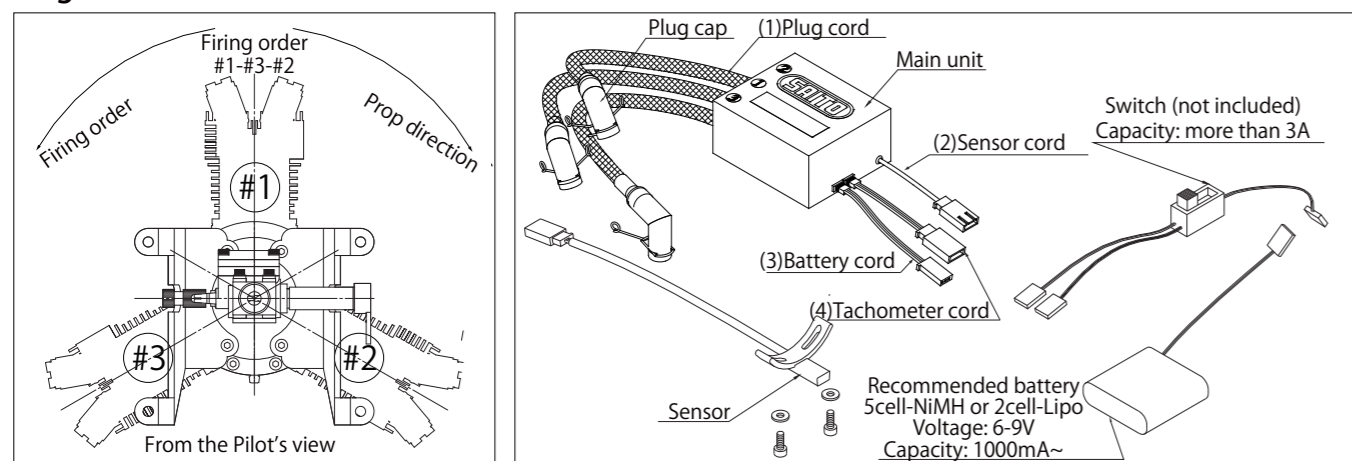
Bore	∅ 22.4mm x 3	Stroke	16.2mm x 3	Disp.	19.18cc
Weight (Approx.)	Body: 950g / Mufflers: 60g / Ignition system: 195g			Applications	Glow 2st 60/ 4st 90 class
Practical speed	Approx.:1,800-10,000rpm			Max on GND	Approx.:9,000-10,000rpm
Propeller	APC D13" x P9" ~D15" x P6"			Battery for ignition system	6-9V higher than 1,000mA (2C Lipo or 5C NiMH)
Plug	1/4-32 SP-1 spark plug				
Standard accessories	<ul style="list-style-type: none"> Limit gauge (0.1t) for tappet adjustment 1pc Spanner for tappet adjusting lock nut 1pc Spark plug [SP-1](Attached to the engine) 3pcs Ignition system (w/ sensor) 1set 		<ul style="list-style-type: none"> Plug wrench 1pc Hexagonal wrench 1.5mm 1pc Muffler set 1set 		
Optional parts	<ul style="list-style-type: none"> Filter with weight [G36-154] Rubber tube for gasoline(1m) [G36-155] Aluminum spinner nut [50-30] Tappet adjusting kit [30-161] Digital tachometer [G17-167] 				

1. Fuel

- The fuel is mixture of commercial regular gasoline and reliable oil for 2-stroke engines.
- [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).
- In Break-in process, please use 15:1 mixed fuel to ensure the best lubrication for initial run.
- 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 ethanol mixed. It may cause not only power loss but also corrosion inside the engine.



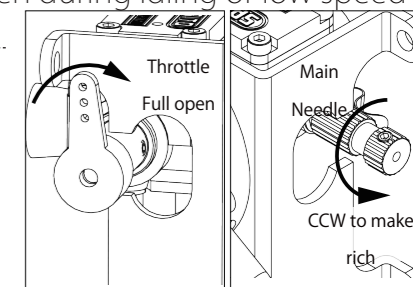
2. Ignition



- 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 from ① cord deeply into the plug of #1 cylinder. Connect other caps and plugs in the same way.
- (2) Sensor cord (Gray cord with exclusive connector)
 - 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. (6-9V, 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 (black/red/white cord)
 - Connect the digital tachometer (Option). Otherwise the connector is normally vacant.

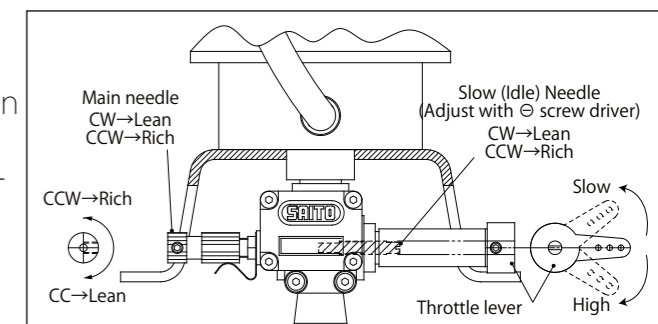
3. Break-in MOST IMPORTANT!!

- Prop-recommendation : APC-14x6 for Break-in.
- Use 15:1 oil mixed fuel for Break-in.
- Never make the fuel mixture lean during Break-in. It could cause seizure even during idling or low speed running.
- Before start the engine, open the main needle Approx. 1+1/2 turns open from full close.
- Start the engine with a starter.
- Run for about 10 seconds in low speed to warm up.
- Open throttle gradually up to full, in the meantime open the main needle some turns until just before engine stops. **Make sure to keep full throttle!**
- Run in this very rich condition for 2 tanks.



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

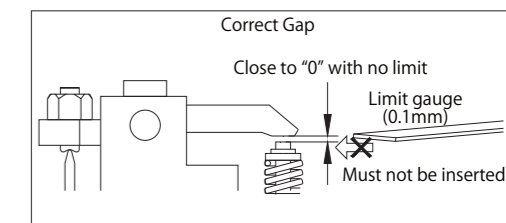
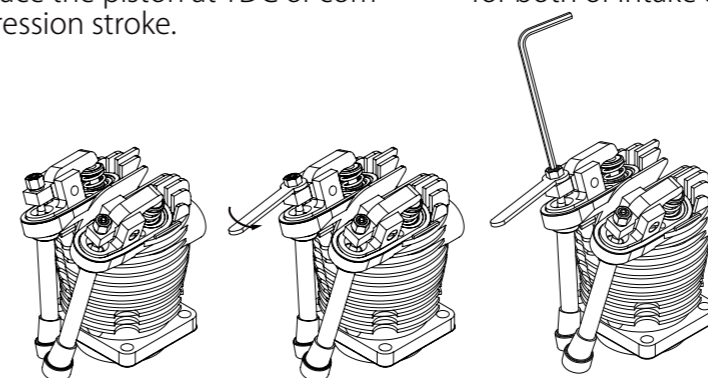
- Main needle : Approx. 1 turn open from full close
- Slow needle : Approx. 7~8 turns open from full close (Then throttle should be fully closed)
- Actually the best condition of the needles varies depending on the prop, temperature, humidity and so on. Please adjust seeing the engine performance during 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. **Please tighten up the screws holding cylinders etc, before adjustment.**

- Remove the spark plug and rocker arm covers of Cylinder #1. Then turn the prop CCW by hand to place the piston at TDC of compression stroke.
- Loosen the lock nut and adjust the gap by hexagonal wrench until you get the correct gap (Right pic) for both of intake & exhaust.
- Once the gap is set, tighten the lock nut and attach the plug and covers. Then do the same adjustment for #3-#2 cylinder in order.



- 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.

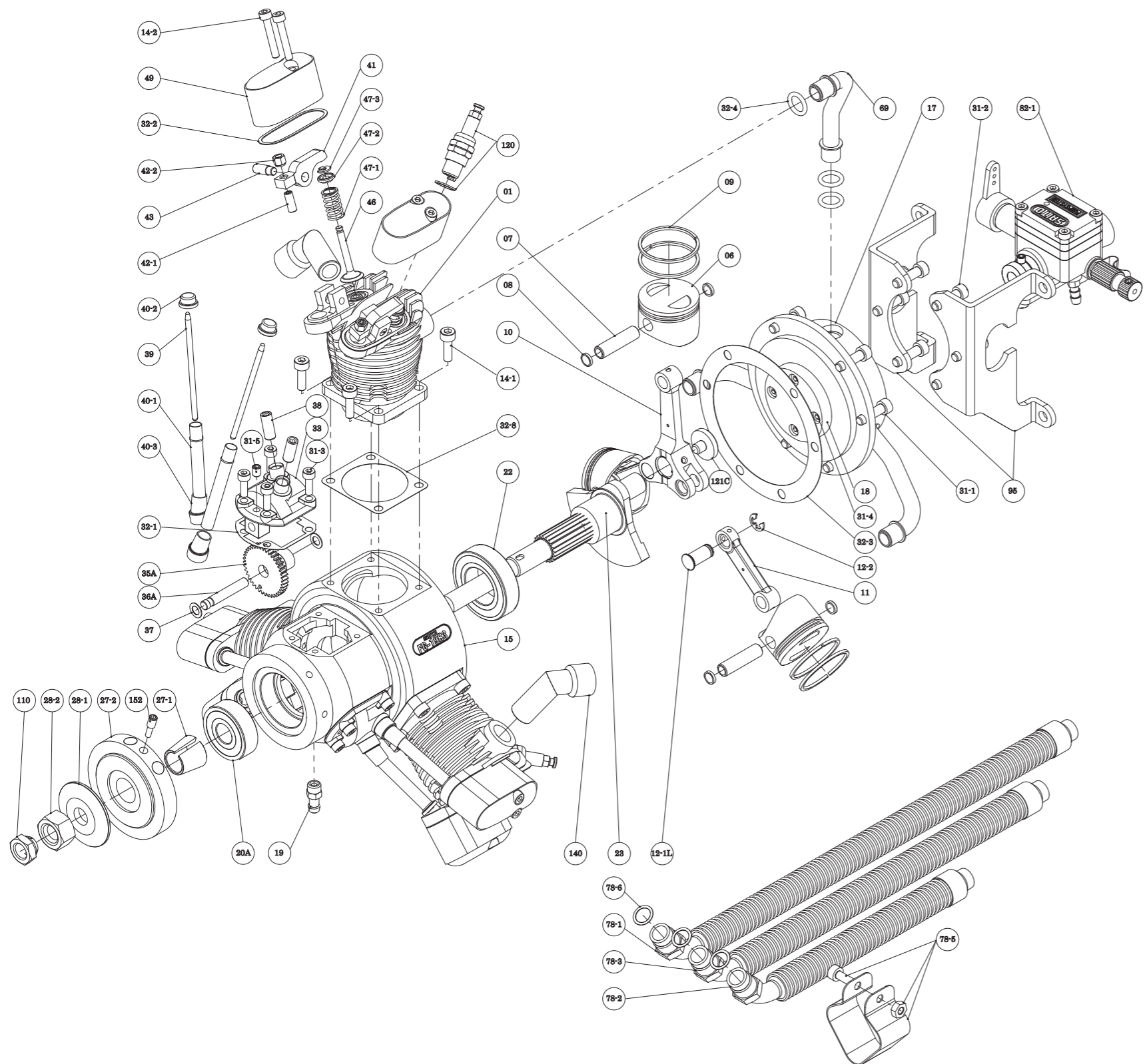
Note:

- As it uses oil mixed fuel, plane sometimes may get dirty by exhaust.
- Use reliable and well balanced prop, otherwise it 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 bought 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	6
10	Master rod	1
11	Linked conrod	2
12	Conrod linkpin & E-ring 12-1L,-2	1set
14	Cylinder screw set 14-1,-2	3set
15	Crankcase	1
17	Rear cover A (Intake manifold)	1
18	Rear cover B	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	1ea.
28	Prop washer & Nut 28-1,-2	1ea.
31	Crankcase screw set 31-1,-2,-3,-4,-5,-6	1set
32	Engine gasket set 32-1,-2,-3,-4,-8	1set
33	Cam gear housing	3
35	Cam gear	3
36	Cam gear shaft	3
37	Steel washer set	3set
38	Tappet	6
39	Pushrod	6
40	Pushrod cover & Rubber seal 40-1,-2,-3	6ea.

No.	Item	Qty
41	Rocker arm	6
42	Rocker arm screw & Nut 42-1,-2	6ea.
43	Rocker arm pin	6
46	Valve	6
47	Valve spring & Keeper & Retainer 47-1,-2,-3	6ea.
49	Rocker arm cover	6
69	Intake pipe	3
78	Muffler complete 78-1,-2,-3,-5,-6	1set
	Carburetor complete	1set
82-1	82-1-1,-1-2,-1-3,-1-4,-1-5,-1-7,-1-8,-1-9,-1-13, -1-14,-1-15,-1-16,-1-17,-1-18,-1-19,-1-20,-1-21, -1-22,-1-23,-1-24,-1-25,-1-26,-1-27,-1-28,-1-29, -1-31,31-6,85,88B,89,90-1,91-1,131,170	1set
85	Main needle 85,90-1	1
88B	Throttle lever 88B,90-1	1
89	Slow needle	1
95	Engine mount set 95-1,-2,-3,-4	1set
110	Anti loosening nut	1
120	Spark plug	3
121C	Master rod retainer (Crank pin plug)	1
131	Throttle valve extension adapter / set screw	1
140	Muffler right angle adopter / nut	3
152	Screw-pin	1
153	Electronic ignition system 153-1,-2,-3,-4	1set
160	Pump assembly 82-1-17,-1-18,-1-19,-1-20,-1-21,-1-22,-1-23, -1-24,-1-25,-1-26	1set

