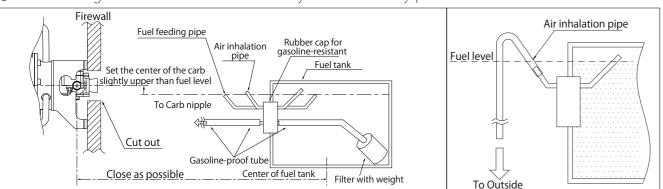
# (**SAITO**) FG-19R3 Instruction Manual

#### Specifications:

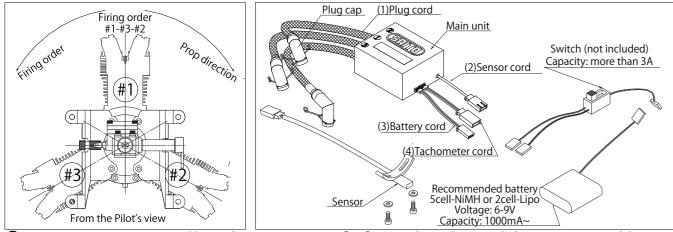
Bore	<b>ø</b> 22.4mm x 3	Stroke	16.2mm x 3	Disp.	19.18	сс		
Weight (Approx.)	Body: 950g / Mufflers: 60g / Ignition system: 195g				Applications Glow 2st 60		)/ 4st 90 class	
Practical speed	Approx.:1,800-10,000rpm				n GND	Approx.:9,000-10,000rpm		
Propeller	APC D13" x P9" ~D15" x P6"			Battor	Battery for ignition system		6-9V higher than 1,000mA (2C Lipo or 5C NiMH)	
Plug	1/4-32 SP-1 spark plug			Datter				
Standard accessories	<ul> <li>Limit gauge (0.1</li> <li>Spanner for tap</li> <li>Spark plug [SP-1</li> <li>Ignition system</li> </ul>	t) for tappet a pet adjusting ](Attached to (w/ sensor)	adjustment lock nut the engine)	1pc 1pc 3pcs 1set	pc • Hexagonal wrench 1.5mm 1pc pcs • Muffler set 1set			
Optional parts	<ul> <li>Filter with weight [G36-154]</li> <li>Rubber tube for gasoline(1m) [G36-155]</li> <li>Aluminum spinner nut [50-30]</li> <li>Tappet adjusting kit [30-161]</li> <li>Digital tachometer [G17-167]</li> </ul>							

#### 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 
   Morgans Cool Power 'Blue' Synthetic Lubricant etc.
- $\bullet$ 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.
- $\bullet$ 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.

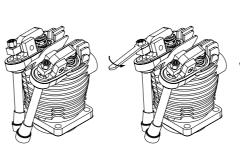
## 3. Needle reference position (Set After Break-in)

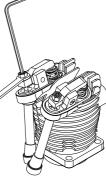
- Main needle: Applox. 1 turn open from full close
- Slow needle: Approx. 6 turns open from full close (Then throttle should be fully closed)
- Actually the best condition of the needles varies depending on the prop, temperature, humidity and so on. Please adjust seeing the engine performance during flight.

### 4. 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.

- 1. Remove the spark plug and rocker 2. Loosen the lock nut and adjust arm covers of Cylinder #1. Then turn the prop CCW by hand to place the piston at TDC of compression stroke.
  - the gap by hexagonal wrench until you get the correct gap (Right pic) for both of intake & exhaust.





## Note:

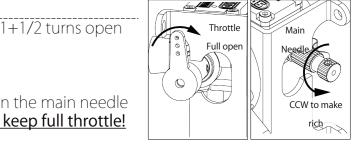
- •As it uses oil mixed fuel, plane sometimes may get dirty by exhaust.
- •Use reliable and well balanced prop, otherwise it cause abnormal vibration and may result in serious accident.
- •During operation, the screws all over the engine can be loosen by heat expansion of metal. Tighten them up occasionally.
- •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.

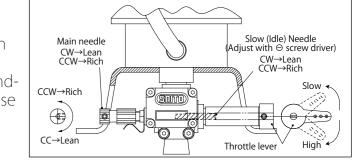
### Warranty:

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.

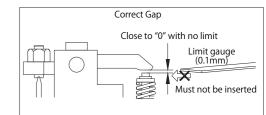
All specifications and models are subject to change without notice

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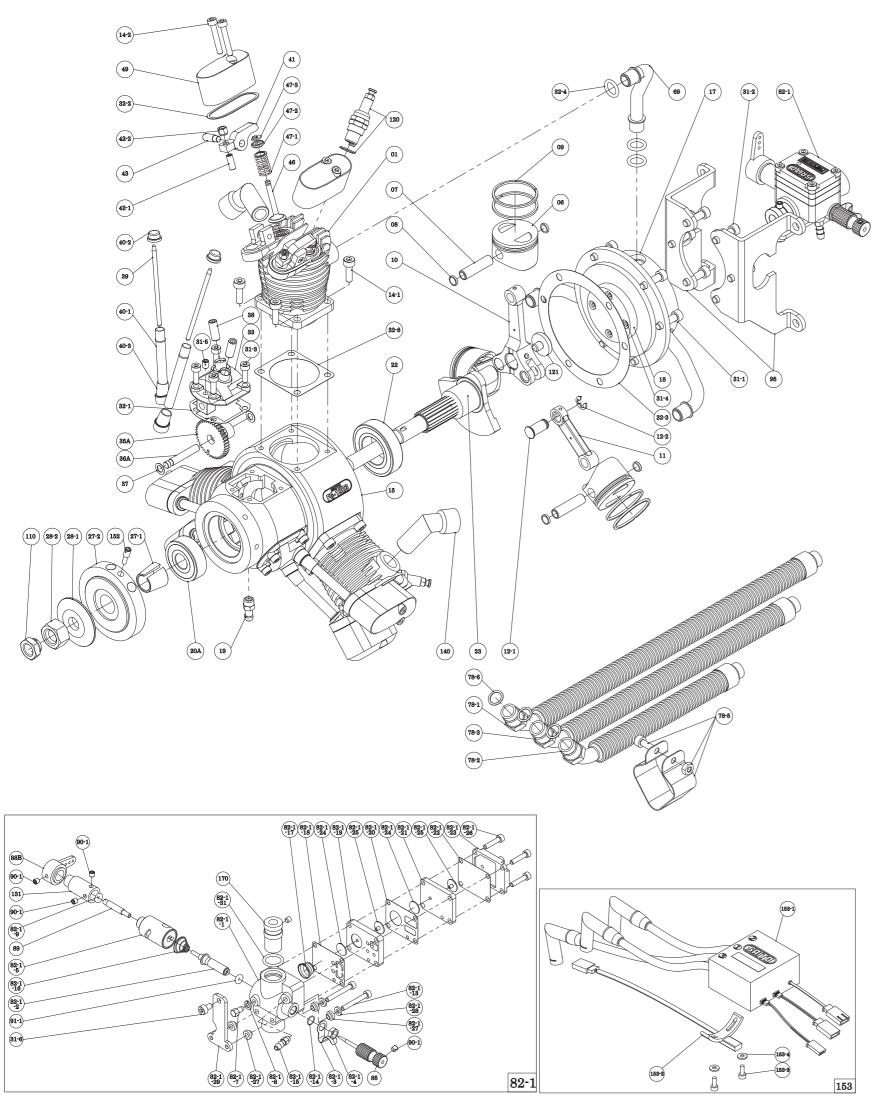




3. Once the gap is set, tighten the lock nut and attach the plug and covers. Then do the same adjustment for #3-#2 cylinder in order.



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 sightly and lose compression. Then adjust again.



No.	Item	Qty	No.	Item	Qty	
01	Cylinder		41	Rocker arm	6	
06	Piston		42	Rocker arm screw & Nut		
07	Piston pin		42	42-1,-2	- 6ea.	
08	Piston pin retainer		43	Rocker arm pin	6	
09	Piston ring		46	Valve	6	
10	Master rod		47	Valve spring & Keeper & Retainer		
11	Linked conrod		47	47-1,-2,-3	- 6ea.	
12	Conrod linkpin & E-ring	1set	49	Rocker arm cover	6	
12	12-1,-2	Iset	69	Intake pipe		
14	Cylinder screw set	2	78	Muffler complete	- 1set	
14	14-1,-2	- 3set	18	78-1,-2,-3,-5,-6		
15	Crankcase			Carburetor complete	1set	
17	Rear cover A (Intake manifold)			82-1-1,-1-2,-1-3,-1-4,-1-5,-1-7,-1-8,-1-9,-1-13,	last	
18	Rear cover B Breather nipple		82-1	-1-14, -1-15, -1-16, -1-17, -1-18, -1-19, -1-20, -1-21,		
19				-1-22, -1-23, -1-24, -1-25, -1-26, -1-27, -1-28, -1-29,	- 1set	
20	Front ball bearing			-1-31,31-6,85,88B,89,90-1,91-1,131,170	7	
22	Rear ball bearing Crankshaft		85	Main needle	1	
23			89	85,90-1	1	
од Тар	Taper collet & Drive flange	1	88B	Throttle lever	1	
27	27-1,-2	1ea.	880	88B,90-1	- 1	
Pro	Prop washer & Nut	1	89	Slow needle	1	
28	28-1,-2	1ea.		Engine mount set	1.	
0.1	Crankcase screw set		95	95-1,-2,-3,-4	1set	
31	31-1,-2,-3,-4,-5,-6	1set	110	Anti loosening nut	1	
32	Engine gasket set	1+	120	Spark plug	3	
	32-1,-2,-3,-4,-8	1set	121	Master rod retainer (Crank pin plug)	1	
33	Cam gear housing	3	131	Throttle valve extension adapter / set screw	1	
35	Cam gear		140	Muffler right angle adopter / nut	3	
36	Cam gear shaft		152	Screw-pin	1	
37	Steel washer set	3set	150	Electronic ignition system		
38	Tappet		153	153-1,-2,-3,-4	1set	
39	Pushrod			Pump assembly		
I 40 H	Pushrod cover & Rubber seal		160	82-1-17,-1-18,-1-19,-1-20,-1-21,-1-22,-1-23,	1set	
	40-1,-2,-3	6ea.		-1-24,-1-25,-1-26		

