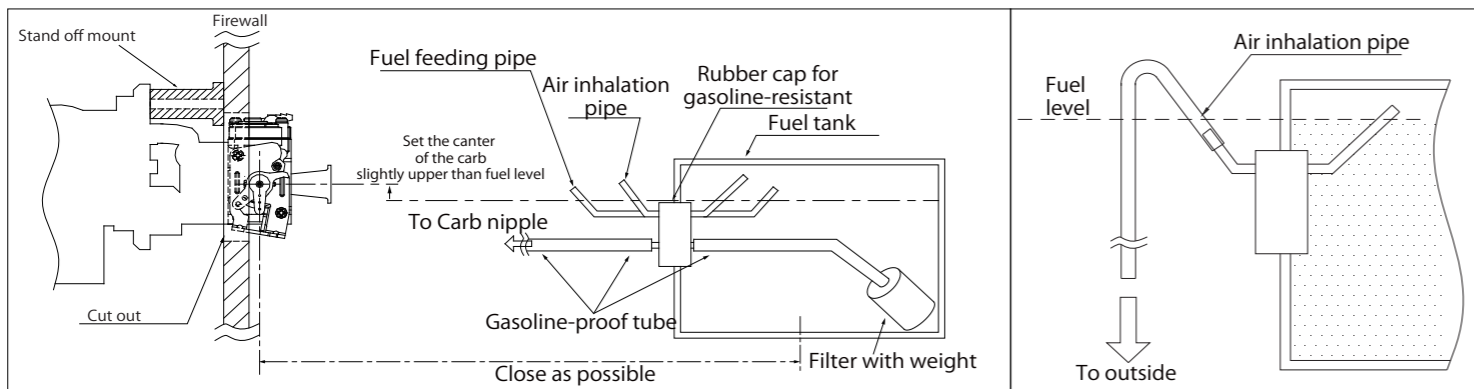


**Specifications**

Bore	Φ37.2mm x 2	Stroke	28mm x 2	Disp.	60.9cc	Applications	Gasoline 50cc class
Weight (Approx.)	Main body : 2,090g / Muffler : 100g / Ignition : 170g			Practical speed	Approx. 1,500-7,400rpm	Max on ground	Approx. 6,200-7,400rpm
Propeller	D21"~23" x P10"xP11	Plug	CM-6	Battery for ignition system	Voltage: 6-9V, higher than 1,000mA (2C Lipo or 5C NiMH)		
Standard accessories	<ul style="list-style-type: none"> <li>Limit gauge (0.1t) for tappet adjustment 1pc</li> <li>Spark plug[CM-6](Attached to the engine) 2pcs</li> <li>Ignition system (w/sensor) 1set</li> <li>Stand off mount 1set</li> </ul>	<ul style="list-style-type: none"> <li>Spanner for tappet adjusting lock nut 1pc</li> <li>Muffler set 1set</li> <li>Muffler bracket 1set</li> <li>Anti-loosening nut 1pc</li> </ul>	<ul style="list-style-type: none"> <li>Carburetor adjustment bar 1pc</li> <li>Choke bar 1pc</li> <li>Plug wrench 1pc</li> <li>Hexagonal wrench 1set</li> </ul>				
Optional parts	<ul style="list-style-type: none"> <li>Filter with weight [G36-154]</li> <li>Aluminum spinner nut [57T-30]</li> </ul>	<ul style="list-style-type: none"> <li>Durable tube for Gasoline (1m) [G36-155]</li> <li>Tappet adjusting kit [120S-161]</li> </ul>	<ul style="list-style-type: none"> <li>Digital tachometer [G17-167]</li> </ul>				

**1. Fuel**

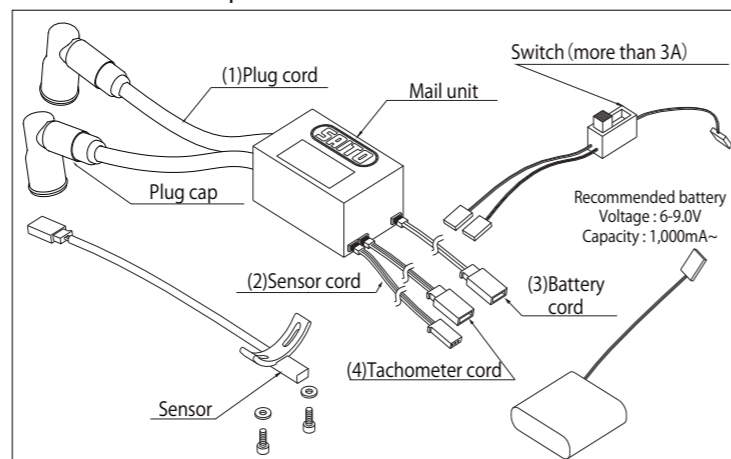
- The fuel is mixture of commercial regular gasoline and reliable oil for 2-stroke engines.
- [Example of oil recommendation]
- Klotz KL-200 Original Techniplate • Morgans Cool Power 'Blue' Synthetic Lubricant etc.
- Be sure to use the mixture "gasoline : oil = 15~20 : 1" by volume ratio. (Ex. 1000ml of gasoline should be mixed with more than 50ml of oil).
- In Break-in process, 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**

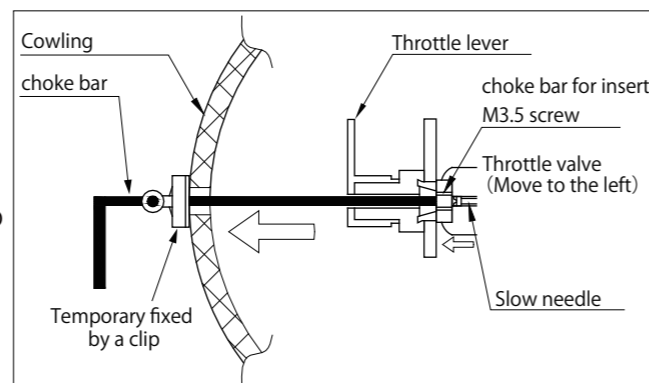
●Ignition arrangement- Place the main unit as far from other electrical devices as possible.

- (1) Plug cord (meshed high tension cord)  
2 cords compatible for left/right cylinder. Insert the caps deeply into plugs to make sure they won't come off.
- (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. (6-8.4V, 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.



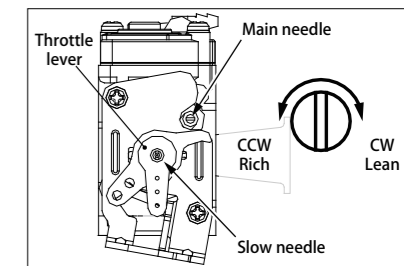
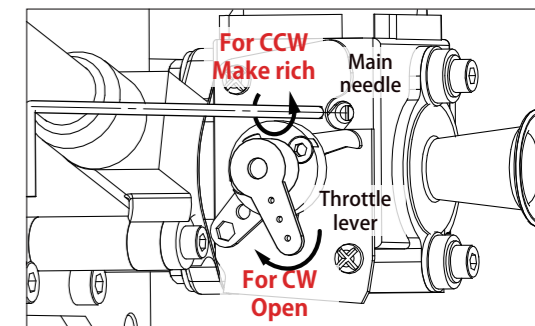
**3. Method of choke (No need when you use starter)**

- In advance, make a thin hole on the cowling to insert the choke bar / slow needle adjustment bar.
- When choke, 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.
- Fully close the throttle and pull the choke bar and fix it with a clip or clamp as shown in the fig so that it may not go back to the previous position.
- Grasp the prop by hand and turn it to 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.



**4. Break-in MOST IMPORTANT!!**

- Prop-recommendation : APC-22x10 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. 3 turns open from full close.
- Start the engine (using a starter is recommended for safe).
- Run for about 10 seconds in low speed to warm up.
- Open throttle gradually up to over half open, in the meantime open the main needle some turns. Continue to open the main needle until the speed drop and gets dull, where the throttle opened over half.
- If it cannot make rich by opening by main needle (rpm doesn't drop), then open slow needle too.
- Run in this very rich condition for 2 tanks.



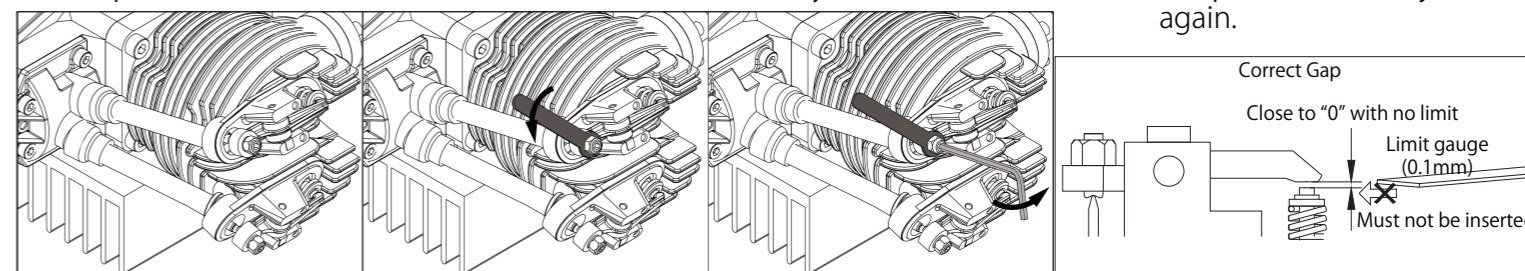
**5. Needle reference position (Set After Break-in)**

- Main needle : Approx. 2.5~3 turns from full close
- Slow needle : Approx. 4~5 turns from full 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 seeing the engine performance during flight.

**6. 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 up the screws around cylinders etc.

1. Remove the spark plug and rocker arm covers of a 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 (Right pic) for both of intake & exhaust.
3. Once the gap is set, tighten the lock nut and attach the plug and covers. Then do the same adjustment for the other cylinder.
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.



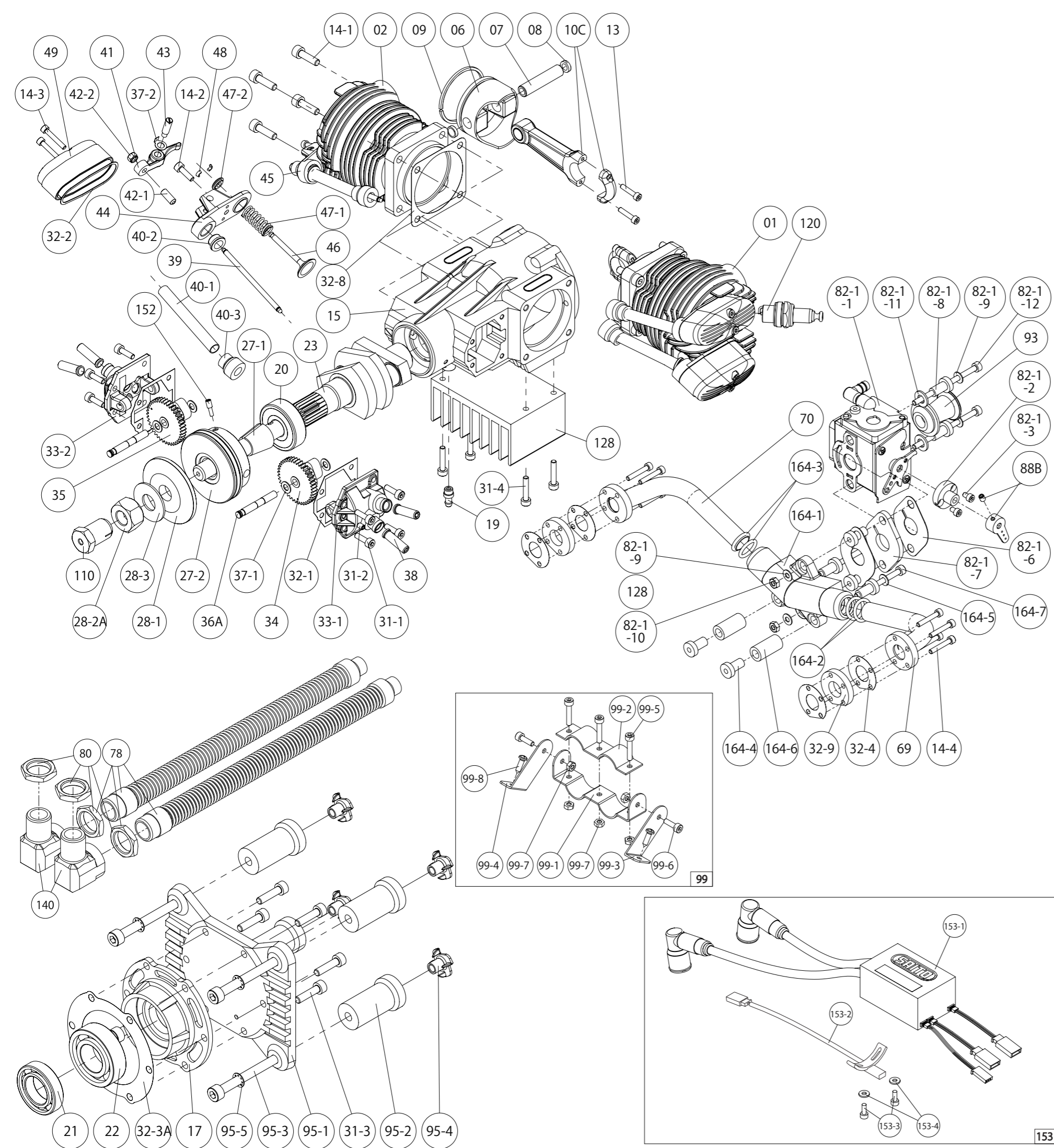
**Note:**

- As 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	No.	Item	Qty
01	Cylinder (Left)	1	42	Rocker arm screw & Nut	1set
02	Cylinder (Right)	1	42-1,-2		
06	Piston	2	43	Rocker arm screw & Nut	4
07	Piston pin	2	44	Rocker arm bracket, left	2
08	Piston pin retainer	4	45	Rocker arm bracket, right	2
09	Piston ring	2	46	Valve set (吸気 & 排気)	4
10	Connecting rod (conrod)	2	47	Valve spring & Keeper & Retainer	1set
13	Conrod screw	4	47-1,-2,48		
14	Cylinder screw set	1set	48	Cotter (Valve spring retainer rock)	4
14-1,-2,-3,-4			49	Rocker arm cover	4
15	Crankcase	1	69	Intake pipe, left	1
17	Rear cover	1	70	Intake pipe, right	1
19	Breather nipple	1	78	Muffler complete	2
20	Front ball bearing	1	80	Muffler nut	4
21	Main ball bearing	1		Carburetor complete	1set
22	Rear ball bearing	1	82-1	82-1-1,-1-2,-1-3,-1-6,-1-7,-1-8,-1-9,-1-10,-1-11,-1-12,88,93	
23	Crankshaft	1	83-1	Carburetor body, assembly	1set
27	Taper collet & Drive flange	1set	82-1-1,-1-2,-1-3,88		
27-1,-2			88	Throttle lever	1
28	Prop washer & Nut	1set	90	Carburetor screw & spring set	1set
28-1,-2,-3			90	82-1-9,-1-10,-1-11,-1-12	
31	Crankcase screw set	1set	91	Carburetor gasket set	1set
31-1,-2,-3,-4			91	82-1-6,-1-7,-1-8	
32	Engine gasket set	1set	93	Intake velocity stack	1
32-1,-2,-3,-4,-8,-9			95	Engine mount set	1set
33-1	Cam gear housing	1	95-1,-2,-3,-4,-5		
33-2	Cam gear housing (right)	1	99	Muffler bracket	1set
34	Cam gear, left	1	99-1,-2,-3,-4,-5,-6,-7,-8		
35	Cam gear, right	1	110	Anti loosening nut	1
36	Cam gear shaft	1	120	Spark plug (NGK CM-6)	2
37	Steel washer set	1set	128	Heat sink	1
37-1,-2			140	Muffler right angle adapter	2
38	Tappet (valve lifter)	4	152	Screw pin for drive flange	1
39	Pushrod	4	153	Electronic ignition system	1set
40	Pushrod cover & Rubber seal	1set	153-1,-2,-3,-4		
40-1,-2,-3			164	Intake manifold assembly	1set
41	Rocker arm	4	164-1,-2,-3,-4,-5,-6,-7		

