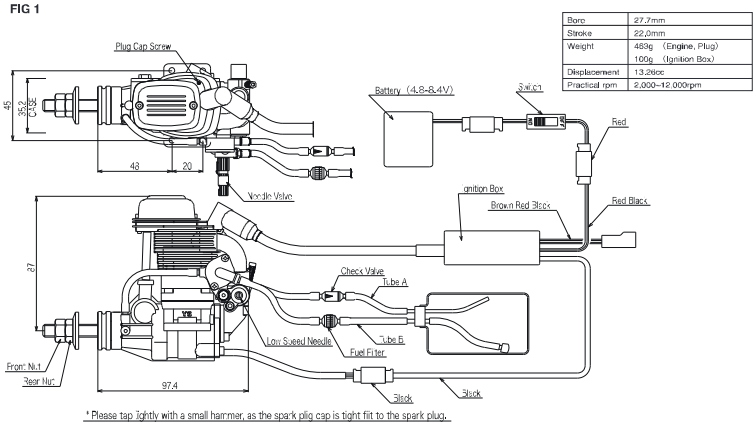
FIG 1



Bore	27.7mm
Stroke	22.0mm
Weight	460g (Engine, Plug) 100g (Ignition Box)
Displacement	13.26cc
Practical rpm	2,000~12,000rpm

* Please tap lightly with a small hammer, as the spark plug cap is tight fit to the spark plug.

Safety Instructions

In order to use the engine, please read through this instruction manual carefully. This is a complex,high-performance engine. If you have any difficulties to understand any part of this instruction manual, please contact the hobby shop from whom you purchased the engine, or contact us directly.

1. The propeller double locknut assembly supplied with the engine must be used when mounting the propeller.
2. Always use a good quality propeller and follow the manufacturer's instructions.
3. Choose a propeller size that will not allow the engine to exceed the maximum practical RPM in flight.
4. Always ensure that no people are in front of or beside the propeller while the engine is running.
5. To start the engine, set the throttle to the idle position and use an electric starter.
6. After starting the engine, always move behind the propeller to adjust the needle settings.
7. The engine becomes extremely hot both during and after engine runs. Do not touch the engine, exhaust header, muffler, or any parts attached to the engine while it runs or before it has cooled down.
8. If the engine runs incorrectly, DON'T FLY.
9. Do not use this engine for anything other than radio controlled air planes. Do not use it for radio controlled helicopters.
10. You have full responsibility while you operate the engine. Please be extra careful for your safety and the safety of others whenever you operate the engine.

Installation

Connect the engine to the tank and CDI system as in "Fig.1".
The battery and switch for the CDI unit is not supplied with the engine. The soft mount and fuel filter are optional.

1. Remove tube B from the filter; remove tube A from the check valve, then fill the tank. (CAUTION: If tank is filled or under pressure re move tube A first, then tube B. Fuel will eject if tube B is removed while the tank is pressurized.)
2. Always use a fuel filter. We recommend YS filter (6720). With this filter, you must remove the cloth portion of the filter and leave both the metal filter screens in place.
3. Because of the engine's pump system,the tank may be placed near the aircraft's C.G positron. The fuel level in the tank will not influence the engine.
4. Please pay consideration to avoid chafing of the ignition box's wires from vibration. Use the plastic "spiral wrap" supplied with the engine to wrap the shielded plug wire.
5. Please place the ignition box about 15cm away from the receiver. Some radio components may need to be over 30cm away from ignition components to avoid interference. Wrap the ignition box in foam rubber or other vibration absorbing material(in the same manner as the receiver is mounted), and fasten (e.g. using Velcro straps). Do not use the bracket holes to directly mount the ignition box to the aircraft.

Fuel

1. Use a good quality alcohol based model engine fuel containing 10% to 25% nitro, and oil content 10% to 25%. Do not use gasoline fuel.
2. When filling the tank, disconnect Tube A or Fuel Tube B (Fig.1) for filling, use a stopper on the Fuel Tube B to avoid flooding the engine.

Propeller

1. Due to the high power coutput of the FZ80 engine, it is supplied with a double locknut system for added safety. Mount the propeler and tighten the rear nut, followed by the front nut. The rear nut has an offset shoulder that the recess of the front nut will secure itself against.
2. Please check and retighten propeller locknut periodically.
3. Select a propeller that will allow the engine to run at a maximum of between 8,000 to 12,000 RPM.
4. We recommend sizes 13x7, 13x8, 14x6,14x7, 15x6. Other propeller sizes may be used as long as the correct RPM range is maintained.

High Speed Needle Valve Adjustment

1. An electric starter is mandatory for this engine.
2. Turning the needle valve clockwise leans the mixture. Turning it couner-clockwise richens the mixture. A good starting position for the high speed needle valve is 2 turns open from the fully closed postion.
3. To prime the engie, check that the ignition is switched OFF before turning the engine over with an electric starter (throttle fully open)
4. Close the carburetor to the idle position, turn ignition ON and start the engine with an electric starter. Run the engine at a high idle RPM to warm it up.
5. Brake-in the engine with one or two tanks of fuel on the ground, with good rich mixture setting adjusting for the best high speed needle position.
6. To achieve best high speed needle valve position, run the engine with the throttle fully opened. Gradually turn the needle valve clockwise untill the RPM beginns to drop. The position of the needle valve corresponding to the maximum engine RPM is referred to as the peak position. Turn the needle valve counter-clockwose approximately 1/4 turns from the peak position.

Break in

To maximize engine performance and increase durability, please follow this break-in procedure:

1. Use the same size (or slighlly smaller) propeller than you intend to use in flying.
2. The needle valve should be set so that the engine is running at a rich setting. Run the engine approximately 20 minutes with this setting.
3. Mount the engine to the model and fly ten times with this setting. This concludes the break-in procedure, it is advisable to always use a slighlly rich setting to keep the moving parts lubricated, even after the break-in period .

Battery for CDI Unit

Use 4.8~8.4V Ni-Cd ,Ni-MH or Li-Po battery with a capacity of around 700mAh. This will be sufficient for 5-10 minutes flights.

Idling adjustment

This engine is equipped with a new low speed needle valve to adjust the mixture from low to mid throttle. This needle valve is located on the side of the throttle barrel opposite the throttle arm (Fig.1).

1. Open the low speed needle to 1 turns from fully closed position.
2. The low speed needle valve should be set after the high speed nee dle valve has been adjusted. Close the throttle gradually to a idle (approximately 2500rpm). Let it idle for 20 to 30 seconds and then slowly advance the throttle. The adjustment is satisfactory at low speed if transition is smooth at this time.
3. If the engine is running rough on Idle, the low speed mixture is rich. If the engine starts to speed up and dies on idle or starts to detonate, when advancing the throttle, the mixture is lean. Turn the low speed needle valve clockwise to richen and counterclockwise for a leaner mixture (note that the direction of the low speed needle valve is opposite the high speed needle valve). Adjustments to the low speed needle valve should be 1/8 to 1/4 of a turn increment at a time to achieve smooth throttle response.

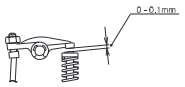
Spark Plug

Use spark plug supplied with the engine. The plug gap should be 0,30mm (0,013") - 0,45mm (0,018"). If plug gap become over 0,5mm (0,020") , the engine will misfire. If the gap exceeds 0,45mm, tap the element with a hammer reduce to the gap.

Tappets Adjustment

1. Tappet clearance is pre-set at the factory.
2. Clearance adjustment may need after one hour of running time due to initial wear. After adjustment, tappet clearance should be checked during normal maintenance after every 10 hours of running to main tain maximum performance.
3. Clearance adjustment should be done when the engine is cool.
4. The proper clearance setting is between 0mm (0.000") and 0.1mm (0.004"). The adjustment is achieved by loosening the locknut ("Fig.2") and turning the adjustment screw. The engine must be at top cead center on the compression stroke before any adjustments are made. This engine runs best with the valves set at a tight setting. If the valves are set too loose, power will be affected.

Fig2



Cam Gear Timing

If for some reason you have to disassemble your engine, please follow these important steps on reassembling the cam gear.

1. Remove the carburetor and back plate assembly. Notice the impression mark or dot opposite the rod journal on the crankshaft.
2. This mark is to point straight down or lined up with the outer case seam line at the bottom and hold crankshaft securely.
3. Reinstall the cam with the dot facing you. After you fully installing cam and then check dot should be pointing straight down will give you right timing.

Cleaning

This engine uses silicon rubber in many parts. Please use methanol or model engine fuel for cleaning. Do not use Kerosene, Gasoline, Machine oil, Automobile parts cleaner or house hold lubricants to clean. It will harm silicon parts.

Rusting provision

Do not leave fuel in the engine after the final flight of the day. When you store the engine long period of time, a few drops (about 1cc) of lubricant oil must be put into the engine from carburetor and clank several times. Do not use Automobile engine oil.

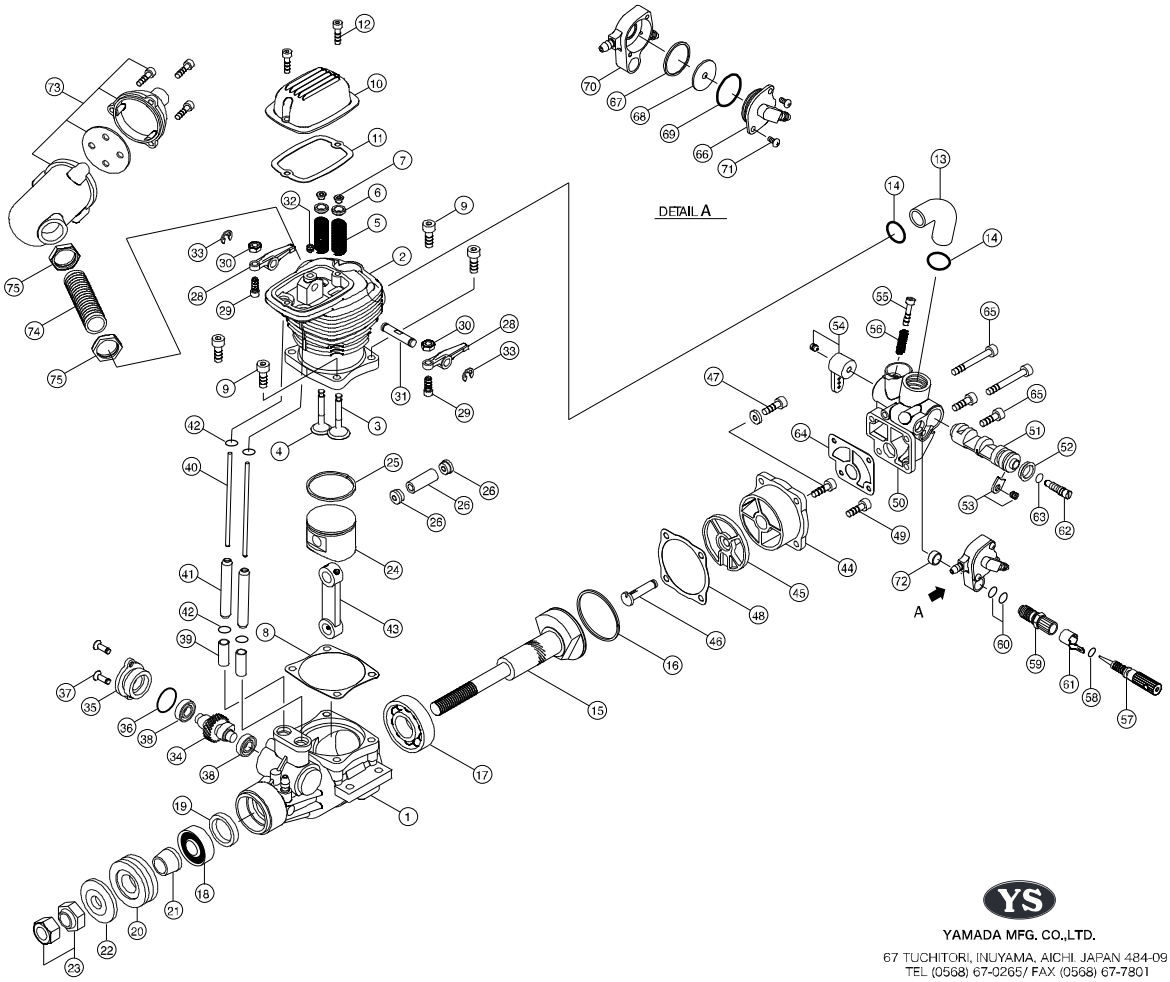
Parts and Repair Service

If you can not find repair parts from hobby shops, you can order parts directly to our factory. We also do repair your engine at our factory.
If you need repair service, please make detailed of states and send it together with the engine.

Warranty

Strict quality control is implemented by our factory in all phases, from parts manufacturing to final assembly.
If performance deteriorates or a part fails due to a manufacturing error, YS engine will repair or replace the engine at no charge in the period of one year from date of purchase. Warranty does not cover normal maintenance.
Incorrectly assembled or abused, under improper usage, any modification will void this warranty and there will be a normal charge for parts and labor.

NO.	Item No.	NAME	QTY
1	G8001	Crank case	1
	G8002S	Cylinder head assembly	
2	G8002	Cylinder head with liner	1
3	F5103	Intake valve	1
4	F5104	Exhaust valve	1
5	F5105	Valve spring set	2
6	F9106	Spring retainer set	2
7	F9107	Valve spring collar	4
8	G7008	Cylinder head O ring	1
9	F5110	Head bolt set	4
10	F5111	Valve cover	1
11	F5112	Valve cover gasket	1
12	F5113	Valve cover screws	2
13	F5114	Intake pipe	1
14	F5115	Intake O rings	2
15	G8015	Crankshaft	1
16	G1016	Crankshaft ring	1
17	G1017	Rear bearing	1
18	F9118	Front bearing	1
19	F5119	Front bearing seal	1
20	F5120	Drive washer	1
21	F9121	Drive washer retainer	1
22	F1266	Prop washer	1
23	F2267	Prop nut set	2
24	G8024	Piston	1
25	G1025	Piston ring	1
26	G7026	Wrist pin	1
28	F5128	Rocker arm set	2
29	F1213	Valve adjuster set	2
30	F1214	Adjuster nut set	2
31	F5131	Rocker arm shaft	1
32	F5132	Rocker arm screw	1
33	11217	E ring clip set	2
34	F5134	Cam gear	1
35	F5135	Cam cover	1
36	F9136	Cam cover O-ring	1
37	F5137	Cam gear cover screws	2
38	F9138	Cam bearing set	2
39	F5139	Cam follower set	2
40	F5140	Push rod set	2
41	G1041	Push rod cover set	2
42	F5142	Push rod cover O ring	4
43	G8043	Crankcase	1
	G4044A	Back plate assembly	
44	G4044	Back plate	1
45	G4045	Disc valve	1
46	G1046	Disc valve pin	1
47	G1047	Disc valve set screw	1
48	F5148	Back plate gasket	1
49	F9150	Back plate screws	2
50	G8050	Carburetor body	1
51	G8051	Throttle barrel	1
52	F9153	Throttole barrel seal	1
53	R6124	Thruttle barrel retainer	1
54	F1260S	Throttle arm set	1
55	F1258	Throttle stop screw	1
56	F1259	Throttle stop spring	1
	G1057S	Needle valve set	
57	F5158	Needle valve	1
58	F1546	Needle O ring	1
59	G1059	Needle socket	1
60	G1060	Needle socket O ring	2
61	F1557	Needle cotterl	1
62	F9186	Low speed needle	1
63	F5187	Low speed needle O ring	1
64	F5164	Carburetor gasket	1
65	F9165	Carburetor screws	4
	G1066A	Regulator assembly	
66	S1036	Regulator body A	1
67	S1038	Diaphram	1
68	S1049	Regulator valve	1
69	S1041	Regulator valve O ring	1
70	G1070	Regulator body B	1
71	G1071	Regulator set screws	2
72	G1072	Regulator spacer	1
	F5173S	Muffler set	
73	F5173A	Muffler assembly	1
74	F5174	Exhaust pipe	1
75	F5175	Rock nuts	2
	F1272	Check valve	1
	G1080	Gasket set	3
	G1081	O ring set	13
	E0030	Ignition box 70	1
	L2595	Ignition plug	1



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YAMADA MFG. CO.,LTD.
67 TUCHITORI, INUYAMA, AICHI JAPAN 484-0917
TEL (0568) 67-0265/ FAX (0568) 67-7801
http://www.yspower.co.jp
Visit our web site for parts & repair.