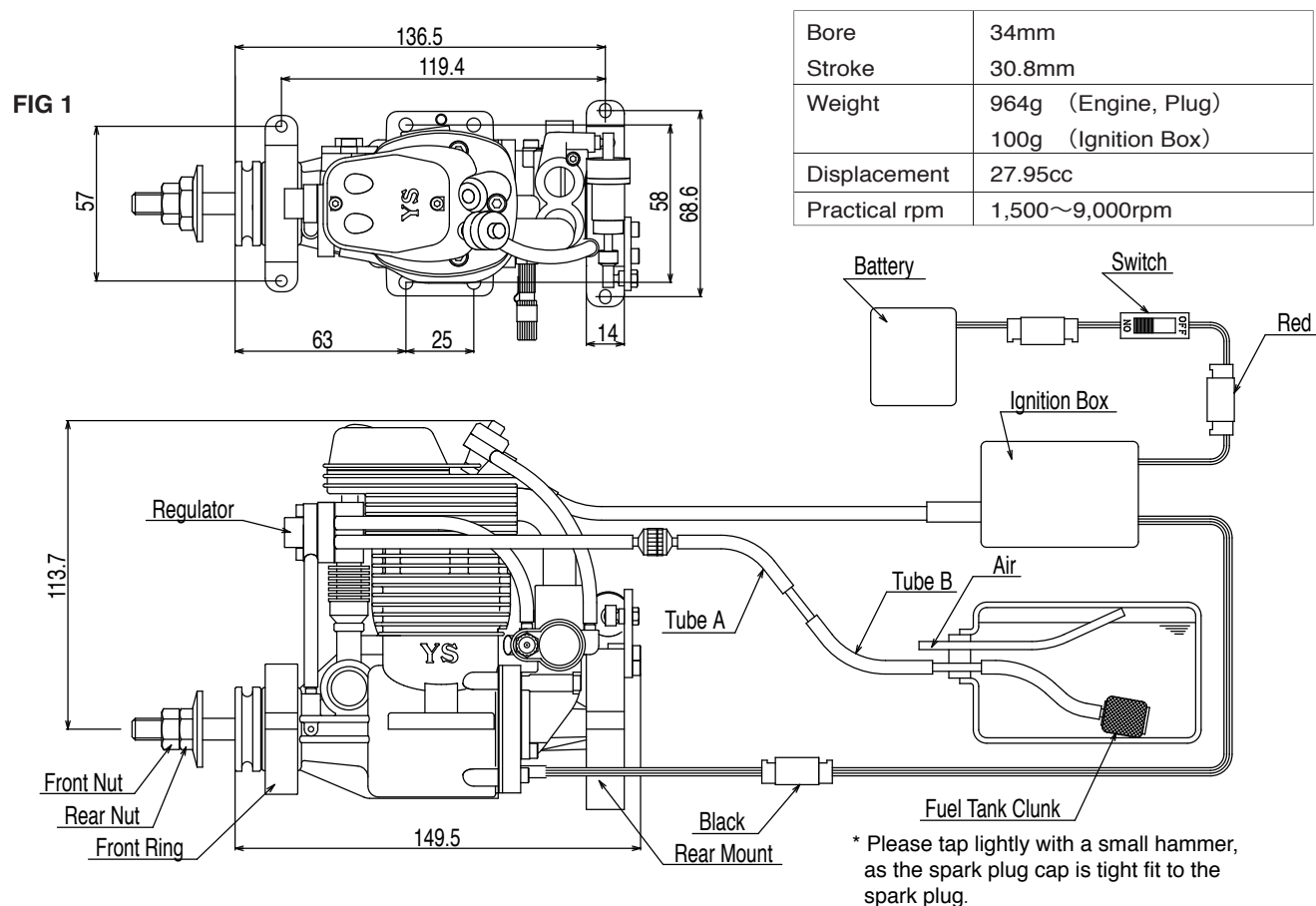


# DZ170cdi

## OPERATOR'S MANUAL



### Safety Instructions

In order for you to use of the engine, please read through this instruction manual carefully. This instruction manual uses special words, if you have any difficulties for understanding, please ask the hobby shop you purchased or contact us directory.

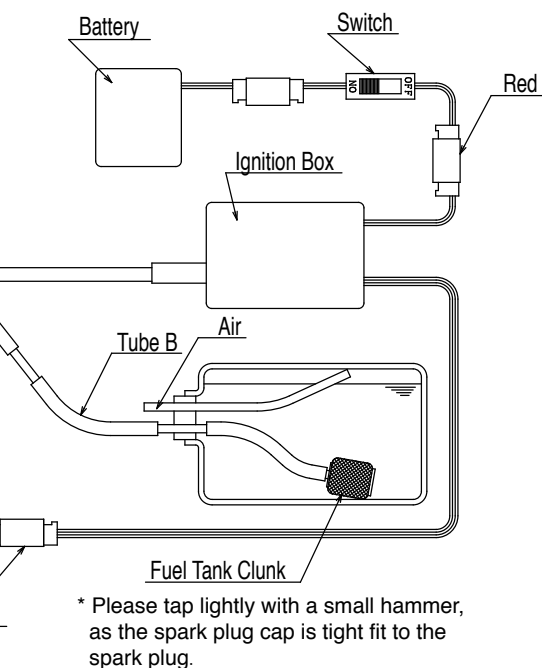
1. Mount the propeller must use propeller nut supply with the engine.
2. Select a good quality propeller and follow instruction by manufactures.
3. Select a propeller size not increases practical rpm in the air.
4. Be sure not people standing front and sides of propeller while running.
5. Use electric starter to start the engine with idle position of the carburetor.
6. After start the engine, move behind of propeller and well adjust needle setting before you fly.
7. It becomes extreme high temperature while and after engine runs. Do not touch engine, exhaust header, muffler, and any parts attached to the engine while engine runs or before cool it down.
8. Ignition system develops extreme high voltage so please careful when you operate. It is very dangerous to modify the ignition systems by your self.
9. Sparking noise may cause shorten the range of receiver. Please range check with motor running on the ground before you fly. If there are range problem, DON'T FLY!
10. If engine runs not correctly, DON'T FLY!
11. Do not use this engine other than radio controlled airplanes. Can not use for radio controlled helicopters.
12. You have full responsibility while you operate the engine. Please be extra care for safety when never you operate the engine.

### Installation

Connect the engine to the tank and CDI wiring as shown in "Fig.1" Battery and switch for CDI unit is not supplied of the engine set. Soft mount and fuel filter are option.

1. The recommended fuel tank size is 500cc to 700cc (18 to 24 oz). A standard clunk type fuel tank may be used. If this type of tank is used, you must use the special clunk supplied with the engine. Please note that with this clunk, all of the fuel cannot be used from the tank. As soon as any part of the clunk becomes exposed, the engine will stop due to air entering the fuel pump.

Bore	34mm
Stroke	30.8mm
Weight	964g (Engine, Plug) 100g (Ignition Box)
Displacement	27.95cc
Practical rpm	1,500~9,000rpm



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 this pump system, fuel level of the tank will not influence of engine runs, you can place fuel tank near C.G. position.
4. Please consider avoid cutting ignition wires by vibration when you do wiring. Use plastic "spiral wrap" supplied the engine set to wrap the shielded plug wire and timing sensor wire.
5. Please place receiver and ignition box about 15cm apart. Some of the radio needs to be apart them over 30cm to avoid radio interference. Wrap the ignition box in foam rubber or other vibration absorbing material, same manner of receiver, and fasten. Do not use bracket holes on the box for fasten directory to the airplane.

### Fuel

1. Use a good quality alcohol based model engine fuel containing 0% to 25% nitro, and oil content 5% to 25%. You can not use gasoline fuel.
2. When you filling the tank, disconnects Fuel Tube "A", or Fuel Tube "B" see "Fig.1" from connecting tube to filling. If you use "T" nipple on the fuel line to filling, use fuel stopper on the Fuel Tube "A" see "Fig.1" to avoid fuel in to the engine.

### Propeller

1. Due to the high output power of the DZ170CDI engine, it is supplied with a double locknut system for added safety. Mount the propeller and tighten the rear nut. Next, tighten the front nut. The rear nut has an offset shoulder so the front nut will secure itself to the rear nut.
2. Please retighten propeller nut periodically.
3. Select a propeller that will allow the engine to run at maximum speed between 7,000 to 8,000 rpm range.
4. We recommend sizes 18X11-12 to 19X10-11. Other prop sizes may be used as long as the correct rpm range.

### High Speed Needle Valve Adjustment

1. An electric starter is mandatory for starting this engine.

2. When the needle valve is turned clockwise, the mixture is leaner. When it is turned counter-clockwise, the mixture is richer. A good starting position for the high speed needle valve is 2 turns open from the fully closed position.
3. Check ignition switch off first and turn the engine by electric starter with full open throttle to get fuel from tank to carburetor.
4. Close the carburetor to the idle position, turn on ignition switch and start the engine by electric starter. Warm up the engine with little higher than idle rpm.
5. Brake-in the engine one or two tanks of fuel on the ground with good rich mixture setting before you adjust for best high speed needle position.
6. To achieve best high speed needle valve position by gradually turn needle valve clockwise till rpm drops with fully opened throttle. The position right before rpm becoming drops is the peak position (highest RPM). Then the needle valve should be opened approximately 1/4 turns from highest RPM.

### Sub Needle Valve

The sub needle valve is preset 1/4 turn open from fully closed position at factory. The small amount of fuel through this needle valve to crank case is for cooling in the crank case. When the sub needle valve is turned counter-clockwise, the amount of fuel, in to the crank case more. When the sub needle valve is turned clockwise, the amount of fuel, in to the crank case fewer. If the sub needle valve is fully closed, all fuel in to combustion chamber. If you open more than 1/4 turn on sub needle valve, will decrease power. This sub needle valve is not for adjusting idle mixture.

### Brake-in

1. Starting the engine with high speed needle valve 2 turns open from the fully closed position and idle position on carburetor.
2. After start the engine, increases rpm gradually by operates throttle control up and down. Do not suddenly open throttle to fully open position.
3. If mixture is too rich and miss firing, turn clockwise high speed needle valve to leaner mixture.
4. Brake-in the engine one or two tanks (600cc or 20oz. tank) of fuel on the ground with richest possible mixture setting.

### Battery for CDI Unit

Use 4.8V Ni-Cd or Ni-MH batteries capacity around 700mAh. You can get over 5 (five) 10 minutes flights. If you use Li-ion or Li-Po battery, use voltage regulator to reduce voltage under 6V. Do not use over 6V even short period of time. We are not recommended to share with receiver battery for CDI power supply.

### Idling adjustment

1. To get 1500rpm to 2000rpm idling.
2. When the regulator is turned counter-clockwise, the idle mixture is leaner. When the regulator is turned clockwise, the idle mixture is richer. Adjust regulator by turn 45 degree at a time.
3. If idle mixture is too rich, gradually rpm drops and stops after continuous idling. If engine stops when you change attitude of airplane on the ground also too rich on idle mixture. If mixture is too lean on idle, rpm is go up and down and not keep stable when you make continuous idle.

### Spark Plug

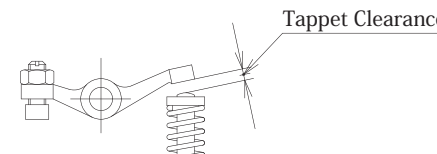
Use spark plug supply with the engine. Plug gap is 0.35mm (0.014") to 0.45mm (0.018"). If plug gap become over 0.5mm (0.020") will cause miss firing the engine. If gap becomes over 0.45mm, tap the element by hammer to adjust the gap of the plug.

### Tappets Adjustment

1. Tappet clearance is preset at the factory.
2. Clearance adjustment may need after first one hour running time due to initial wear. After first adjustment, clearance should be checked as normal maintenance for every 10 hours running for maintain maximum performance.

3. Clearance adjustment should be done when the engine is cool.
4. The proper clearance should be set at 0mm (0.000") to 0.1mm (0.004"). The adjustment is achieved by loosening the lock nut see "Fig.2" and turning the adjustment screw see "Fig.2". The engine must be at top dead 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.

### Operation of YS Super Mount (Option)

1. It is held by 4 screws, 2 on the front ring and 2 on the rear soft mount. There are two different height of spacer we provide.  
A set spacer (MN110S) : 10mm thickness  
B set spacer (MN111S) : 4mm thickness
2. Please be sure not to hit any part of the fuselage by the engine after it installed.
3. If damper oil is leaked, refill TAMIYA damper silicon oil #600. Damper is a consumption parts, please exchange if you find worn or some defect.

### Cleaning

This engine is using silicon gaskets, "O" rings etc. 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.

### Engine Cooling

Be sure to secure cooling air for engine cooling. If it is not enough cooling air for the engine causes heat up the regulator and carburetor to make vaporized or percolates the fuel and will get deteriorations of engine performance or stop the engine. Please read carefully below for provision.

1. Please open air intakes and outlets as big as possible.
2. Take off cowling when you make long engine adjustment included idle adjustment. When air temperature is high, it may heat up the regulator and carburetor to make vaporized or percolate the fuel even without cowling. If it happens, wait till engine well cooling down before you restart and adjust.

### Rusting provision

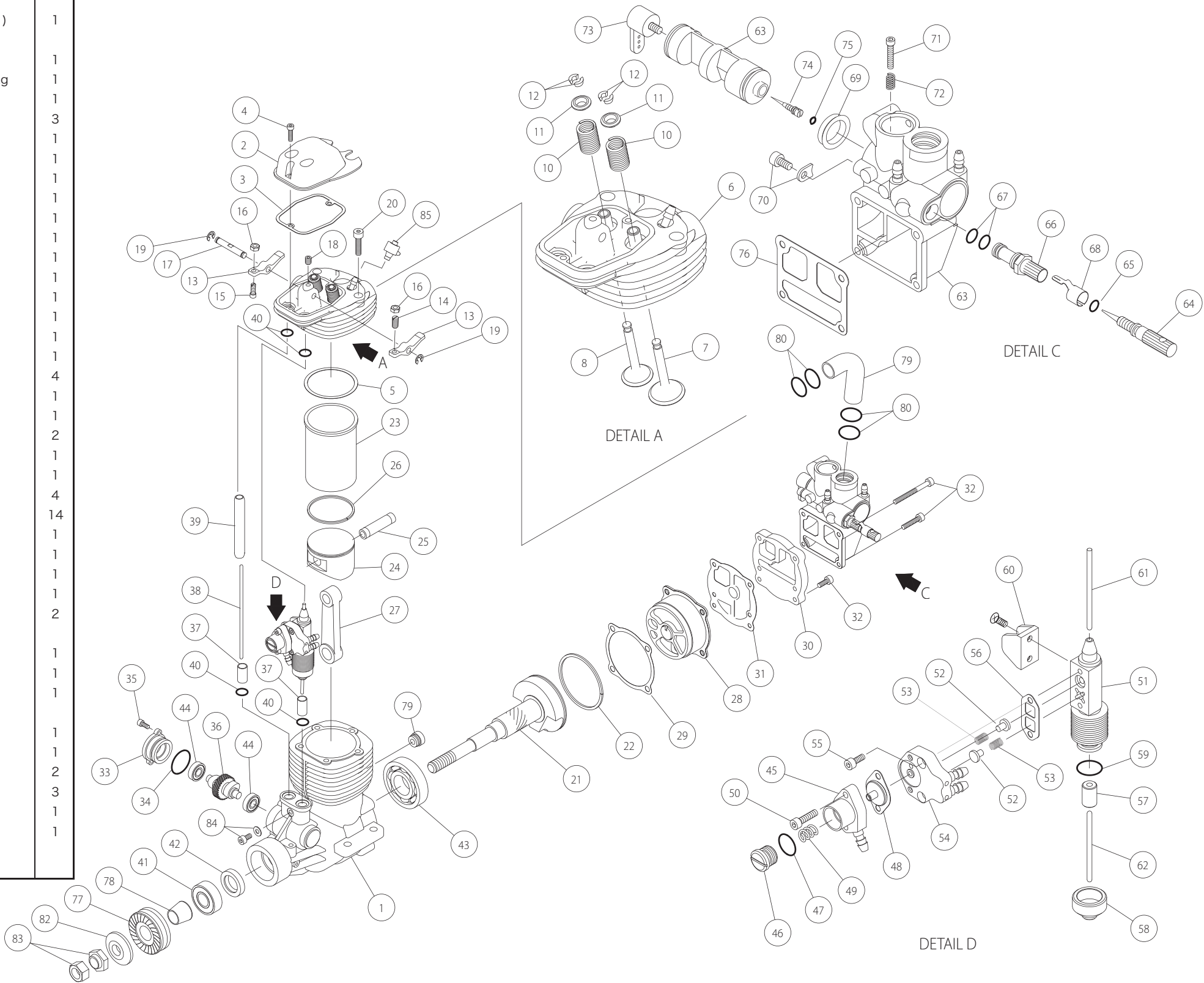
Do not leave fuel in the engine after you finished for day. If you store the engine long period of time, few drops (about 1cc) of model engine lubricant oil from carburetor and clunk several times. Do not use Automobile engine oil. They will not mix together with alcohol.

### Parts and Repair Service

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

NO.	品番	品名	数
1	F8001	Crankcase	1
2	F2002	Valve Cover	1
3	F1203	Valve Cover Gasket	1
4	F1204	Valve Cover Screw Set	2
5	F8005	Head Gasket	1
E1206A Head Assembly			
6	E1206	Cylinder Head	1
7	F1407	Intake Valve	1
8	F1408	Exhaust Valve	1
9	F8009	Intake Valve Spring	1
10	F8010	Exhaust Valve Spring	1
11	F1410	Spring Retainer set	2
12	F1411	Valve Spring Retainer Clips	4
13	F1212	Rocker Arm Set	2
14	F2013	Intake Tappet Adjusting Screw	1
15	F2014	Exhaust Tappet Adjusting Screw	1
16	F1214	Tappet Adjusting Lock Nuts	2
17	F1215	Rocker Arm Shaft	1
18	F1216	Rocker Arm Shaft Screw	1
19	F1217	E Ring Set	2
20	F1518	Head bolt set	5
21	E1209	Crankshaft	1
22	F1475	Crankshaft Ring	1
23	F8023	Cylinder Liner	1
24	E1224	Piston	1
25	F8025	Wrist Pin	1
26	F4026	Piston Ring	1
27	F8027	Connecting Rod	1
28	E1226A	Back Plate Assy.	
29	F1230	Back Plate Gasket	1
30	E2132	Carburetor Insulator	1
31	E2192	Insulator Gasket	1
32	F2133	Back Plate Screw Set	6
33	F1232	Cam Gear Cover	1
34	F1233	Cam Gear Cover O Ring	1
35	F1234	Cam gear cover screw set	2
36	F2036	Cam Gear	1
37	E1236	Cam Followers	2
38	F2040	Ehaust Push Rod	1
39	F2041	Push Rod Cover	1
40	F1239	Push Rod O rings	4
41	F1240	Front Bearing	1
42	F9122	Front Bearing Oil Seal	1
43	F1341	Rear Bearing	1
44	F1242	Cam Gear Bearing Set	2
F8048A Pump Assembly			
45	F2047	Regulator Body	1
46	F1245	Regulator Adjusting Screw	1
47	F1246	Regulator Adjusting Screw O ring	1
48	F2050	Diaphram	1
49	F2051	Regulator Spring	1
50	F2052	Regulator screw set	2
51	F8054	Fuel Pump Body	1
52	F2054	Pump Valve	2
53	F8056	Pump Valve Spring	2
54	F2056	Pump Plate	1
55	F2057	Pump Screws	2
56	F2058	Pump Gasket	1
57	F8060	Plunger	1
58	F2187	Pump Insulator	1
59	F2188	Insulator O ring	1
60	F2059	Pump Bracket	1
61	F2190	Upper Push Rod	1
62	F2191	Lower Push Rod	1

E1263A Carburetor Assembly	
63 E1263 Carburetor Body ( with Throttle )	1
F1545S Needle Valve Assembly	
64 F1545 High Speed Needle Valve	1
65 F1546 High Speed Needle Valve O ring	1
66 F1555 High Speed Needle Seat	1
67 F1556 Needle Valve Seat Oring Set	3
68 F1557 Needle Valve Detent	1
69 F1483 Throttle Barrel Seal	1
70 R6124 Throttle Barrel Retainer	1
71 F1258 Throttle Stop Screw	1
72 F1259 Throttle Stop Spring	1
73 F1260S Throttle Arm Set	1
74 E1274 Sub Needle	1
75 E1275 Sub Needle O ring	1
76 F2073 Carburetor Gasket	1
77 F1564 Drive Washer	1
78 F1565 Drive Washer Retainer	1
79 F8081 Intake Pipe	1
80 F1269 Intake Pipe O ring	4
81 F8083 Wrist Pin Access Plug	1
82 F1266 Propeller Washer	1
83 F2267 Propeller Nut Set 13	2
84 F2084 Wrist Pin Access Screw	1
85 F4088 Check Valve	1
E1273S Gasket Set	4
E1276S O ring Set	14
F2083 Fuel Tank Clunk	1
F8089 Tube Holder	1
E2595 Ignition Plug	1
E0010 Ignition Box	1
E2594 Spiral Wrappings	2
M0020 Nose Ring Assembly	
M0021 Nose Ring Case	1
M0022 Inner Ring	1
M0022 Inner Rubber	1
M2030 Rear Mount Assembly	
M2031 Rear Mount	1
M0032 Rear Mount Arm	1
M0033 Arm Screws	2
M0040 Rear Mount Screws	3
M0060 Oil Dumper	1
M0070 Ball Support	1



### Warranty

We strictly inspect each process of production from parts to final assemble for keep good quality. If a performance deteriorates or part fails due to a manufacturing error under normal usage will repair no charge with in 1 year starting from the date of purchase. Warranty will not cover normal wear. Even with in 1 year warranty term, improper disassemble or assemble, under improper usage, any modification will avoid this warranty and there will be normal charge for parts and labors.



YAMADA MFG. CO.,LTD.

67 TUCHITORI, INUYAMA, AICHI, JAPAN 484-0917  
TEL (0568) 67-0265/ FAX (0568) 67-7801