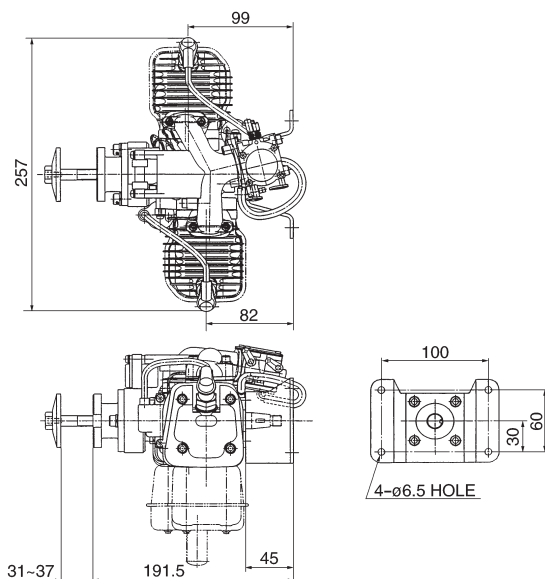


OWNER'S MANUAL

MODEL: G800BPU/ G800BPU-1



⚠ WARNING ⚠

- Do not modify any parts of the engine.
- This engine is designed to be used for Radio controlled products.
- In case, any modifications made by customers, KYODO Outdoor Power Products shall not bear any responsibilities from the damage caused by such modifications.
- Keep ignition system well maintained.

⚠ 警告 ⚠

- この製品はラジオコントロール飛行機用に設計されています。
- 改造、組み替えされて使用された場合当社は一切の責任を負いません。
- 特に電装品は常に点検、整備しご使用ください。

⚠ WARNING ⚠

The engine exhaust gas from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

⚠ AVERTISSEMENT ⚠

Les échappements du moteur de ce produit contiennent des produits chimiques connus par l'Etat de Californie comme étant responsables de cancers, d'anomalies congénitales et d'autres atteintes à l'appareil reproducteur.

⚠ ADVERTENCIA ⚠

Los gases de escape del motor de este producto contienen sustancias químicas conocidas por el Estado de California como causantes de cáncer, malformaciones en recién nacidos y otros problemas de reproducción.

1. Safety Precautions

- This manual describes the engine. For its mounting and control, see the instruction manual for a radio controlled airplane.
- This engine is designed for use on the radio controlled airplane. If it is used for any other purpose, we cannot be responsible for its reliability and/or safety.
- Use genuine parts for replacement.
- Check the propeller every time. If it is damaged, replace it with a new one.
- If the propeller hits something while the engine is in operation, immediately stop the engine and check it.
- Start the engine on flat and firm surface to avoid occurring a serious injury.
- Never modify the engine, especially the ignition system, and rotor.
- Check the flywheel. If it is damaged, replace it with a new one.
- When mixing the fuel, or operating the engine, carry it out in a well-ventilated place.

2. Mounting

1. Make sure that the engine is mounted on the aircraft grade plywood with more than 9mm of thickness or a mount of equivalent strength and is firmly fixed with 4 bolts.

[NOTE]

- Be sure to set flat washers or metal plate on the reverse side of the mount to prevent bolts from sinking into the mount. Before flying the aircraft, be sure to check for loose bolts.
- Since this engine is equipped with a float-less carburetor with a diaphragm pump, the position of fuel tank can be freely selected.

3. Propeller

1. Recommended propeller size.

The recommended propeller sizes are as shown in the table below.

Diameter x Pitch (in.)
26 x 8~10, 24 x 10~12, 22 x 12~14

This engine produces the maximum output when the engine is running at about 10,000rpm. Be sure to use a propeller which produces approximately 7,000 ~ 10,000rpm while the aircraft is flying. When using a propeller of small diameter, a light weight propeller is not suitable.

2. There are two types of propeller mounting bolts; L=45 and L=50. Select the proper type of bolt depending on the thickness of propeller used and the use of the spinner.

[NOTE]

- When mounting a thin propeller, cut off the end of bolt or add a flat washer.
- When mounting the spinner, set a pin on the hub with more than 3 mm of diameter, thus preventing slipping.
- Propeller bolt tightening torque: 250~300kg-c

4. Fuel

1. Mix gasoline (octane over 90) and high grade 2 stroke engine oil (mixing use type; F3C grade or ISO-L-EGC grade) at mixing ratio 25~40:1.
2. The mixing ratio is according to the oil recommendation.

[NOTE]

- Gasoline may contain maximum of 10% Ethanol (grain alcohol) or up to 15% MTBE (Methyl tertiary-butyl ether). Gasoline containing Methanol (Wood Alcohol) is NOT approved.
- Gasoline is very flammable. Avoid smoking, bringing any fires near the fuel.
- To prevent all possible problems on fueling system, make sure to use the fuel filter which has more than 300 mesh or equivalent and gasoline proof rubber pipe or equivalent. Incorrect fuel filter use may cause engine troubles like carburetor's fuel passage stuffing or piston surface scuffing etc.

5. Operation

1. Avoid starting engine by hand flipping propeller as it may cause injury. Make sure to start by using built-in spring starter or large size electric starter with reduction gear (available on the market) .
2. Make sure to put on thick glove when starting engine.

How to Start the Engine

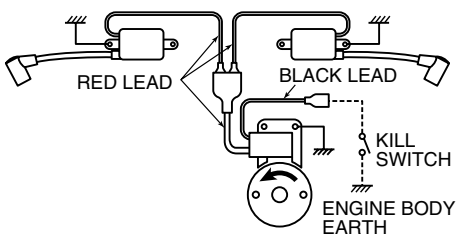
1. Fill the fuel tank with the fuel.
2. Close the choke valve and open the throttle valve approximately 1/3 ~ 1/2 of the full open position.
3. Rotate the propeller counterclockwise until the piston passes over its top dead point. Then rotate it clockwise for 1/2 ~ 3/4 revolution to wind up the spring, and release the propeller. Repeat this several times until the initial firing sound is heard.
4. Upon hearing the initial firing, open the choke valve and set the throttle to the idle or slightly open position. Take the same procedure as mentioned above step 3, and the engine will start.

[NOTE]

- Be sure to keep holding propeller firmly by other hand while winding up the spring for starter.
- Be sure to open the choke when the engine first fires.
- When the choke is opened, be sure to close the throttle valve to a position near the idle position before starting the engine (If the engine is started while the throttle wide open it will develop a high level of power and thrust which can be very dangerous).

How to Stop the Engine

For stopping the engine, the black lead wire from the coil should be grounded to the engine body, or the throttle valve should be closed completely.



6. Carburetor Adjustment

The carburetor is provided with 3 adjust screws which are set to the best (approximately) positions at the factory, but they may need a little adjustment depending on the temperature, atmospheric pressure (altitude), etc. of the area where the engine is used. Start the engine without making any adjustments. Make readjustments only when the engine shows any mal-functioning.

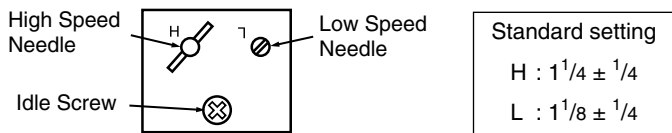
[NOTE]

Be sure to stop the engine before starting the adjustment, thus ensuring safety.

Idle Screw: Turning this screw clockwise increases the idling R.P.M. Turning it counterclockwise decreases the idling R.P.M

Low Speed Needle: This is the fuel adjust screw (not the air screw). Turning this needle clockwise makes the mixture gas leaner and turning it counterclockwise makes it richer.

High Speed Needle: Turning this needle clockwise makes the mixture gas leaner and turning it counterclockwise richer. Set this needle at a position which is $1/8 \sim 1/4$ open from the maximum R.P.M. position while the airplane is on ground.



[NOTE]

1. Do not tighten the High and Low Speed needles too firmly.
2. Ensure the engine is fully warmed up before use. When the engine has just started and is not fully warmed up there may be insufficient acceleration from low speed operation and the engine may stop.

7. Engine Break-in

No specific break-in is required. The engine is gradually breaking in as it is used and the output will increase also increased gradually.

8. Maintenance

This engine is used for power source for radio controlled airplane so you are strictly requested to check engine and relative parts of airplane.

1) Daily check (before starting)

- Leakage, damage, crack
- Muffler fixing bolts (torque, crack)
- Propeller hub (transformation, fixing bolts/nut)
(P/N:2629-51410 or 2629-91510, 3544-11510 and 1100-43231)
- Rotor (transformation, play, airgap)

2) Every 25 hours check

- Spark plug (gap, cleaning)
- Cylinder (abrasion)
- Piston/Ring (abrasion)
- Bearing (Gritty)

According to the checks, replace any part if necessary.

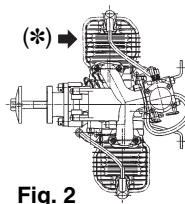
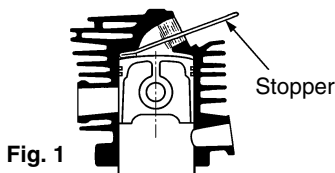
9. Servicing

The engine can be disassembled or reassembled without any specific difficulties, but be careful of the following matters;

- a. For disassembling, the special tools shown in the parts list are required in addition to the general tools. Be sure to use a new gasket when the crankcase and cylinder have been disassembled and reassembled.

b. Disassembling rotor

1. Disassemble the spring starter.
2. Put the stopper (P/N.2670-96220) into a sparkplug hole (Fig.1) of the cylinder(*) which is located closer to the rotor than other cylinder when viewed from intake manifold side (Fig.2).



3. Turn the rotor counterclockwise until piston touches the stopper.
4. Unscrew the rotor nut.
5. Remove the rotor by using the puller (P/N: 577409701).
Do not hit the crankshaft end by metal hammer, that may cause the crankshaft to be bent out of alignment.

c. Assembling crankcase

1. Apply grease on the oil seal lips and oil on the bearing.
2. Assemble the crankshaft with a new gasket.
3. When both front and rear crankcases are tightened, the portion of gasket protruding on the cylinder mount surface should be cut off with a knife until the gasket becomes flush with the cylinder mounted surface.

d. Assembling piston

Before assembling the piston, apply the oil on the small end bearing and piston, and set the piston ensuring that the arrow mark on the top of piston is directed toward the direction of exhaust port.

e. Re-assembling cylinder and intake manifold

1. Coat the oil on the inner surface of cylinder.
2. The piston is provided with a knock pin which stops the piston ring from turning. Set the split section of piston ring at the knock pin and assemble the cylinder ensuring not to break the piston ring.
3. Keep cylinder bolts unfastened before installing the intake manifold to the cylinder.
4. Fixing the intake manifold to the intake port of each cylinder.
5. Then, tighten cylinder bolts.

f. Assembling rotor

Make sure to put lock tight (Medium strength type: TreeBond 1322N, LOCTITE 242,243, PACER ZAP Z-42) on the rotor fixing nut (P/N:1100-43231).

g. Recommended tightening torque for bolts/nuts

Be sure to follow the recommended tightening torque for bolts/nuts in assembling at each part.

- | | |
|----------------------------|-------------------|
| 1. Rotor nut (M10) | : 250 ~ 300 kg-cm |
| 2. Crankcase bolt (M5) | : 50 ~ 90 kg-cm |
| 3. Cylinder bolt (M5) | : 50 ~ 90 kg-cm |
| 4. Engine mount bolt (M6) | : 80 ~ 120 kg-cm |
| 5. Propeller hub bolt (M6) | : 80 ~ 120 kg-cm |
| 6. Source coil bolt (M4) | : 15 ~ 20 kg-cm |

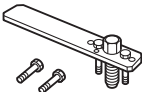
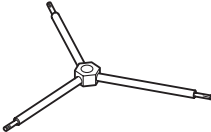
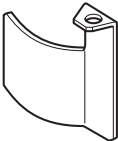
h. Adjusting air gap of coil.

The air gap of coil should be adjusted to 0.3 mm (0.01") by thickness gage (P/N: 2750-96240).

i. Adjusting ignition time.

This engine with the point-less C.D.I. type requires no adjustments of ignition time.

10. Special Tools

	Part Name	Part No.	External Appearance	Usage
1	Puller Assy	577409701		To remove rotor.
2	Piston Stopper	2670-96220		To hold crankshaft when disassembling/assembling the rotor.
3	Hex Wrench	3304-97611		For socket screw of 4mm, 5mm and 6mm.
4	Air Gap Gauge	2750-96240		To set ignition coil.

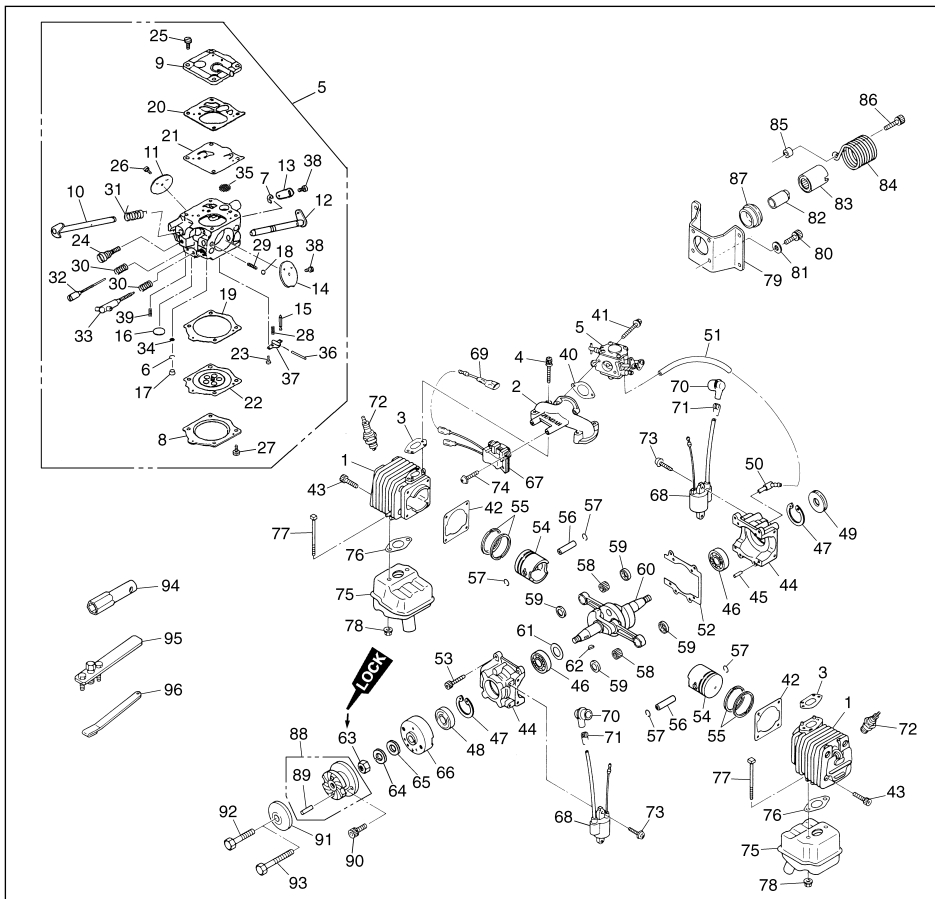
11. Specifications

Model	G800BPU · G800BPU-1
Type	Air cooled two stroke cycle opposed cylinder type gasoline engine
Displacement	79.9cc (4.88cu. in)
Bore x Stroke x Number of cylinder.....	40.5mm x 31mm x 2 (1.60 in x 1.22 in x 2)
Compression ratio	8.1 : 1
Maximum output	5.52kW/10000rpm [4.41kW/10000rpm with Muffler]
Operating engine speed	1800 ~ 10000rpm
Weight	3.5kg (7.9lbs) with mufflers & spring starter
Ignition system	CDI type flywheel magneto
Carburetor	WALBRO WJ-64
Fuel	Gasoline oil mixture 25 ~ 40 : 1
Spark plug	CHAMPION RCJ-7Y
Recommended propeller sizes (inch)	26 x 8 ~ 10, 24 x 10 ~ 12, 22 x 12 ~ 14

Specifications are subject to change without notice.

12. Parts List

G800BPU, G800BPU-1



G800BPU, G800BPU-1

Index No.	Parts No.	Description	Q' ty /unit	Index No.	Parts No.	Description	Q' ty /unit
1	T2080-12110	Cylinder	2	50	2670-21250	• Elbow	1
2	T2080-14110	Manifold	1	51	1065-81100	• Pipe	1
3	577 46 07-01	Gasket, inlet	2	52	2898-21310	Gasket, crankcase	1
4	3310-72150	Bolt	4	53	01252-30520	Bolt	4
5	2898-81000	Carburetor assy, WJ-64	1	54	T2002-41110	Piston	2
6	3304-81441	• Ring	1	55	8488C41200	Ring, piston	4
7	1148-81390	• Ring	1	56	2850-41310	Pin, piston	2
8	2898-81120	• Cover	1	57	1300-41320	Snap ring	4
9	2898-81130	• Cover	1	58	2850-41410	Bearing	2
10	2898-81150	• Shaft	1	59	2850-41510	Thrust washer	4
11	2898-81340	• Valve	1	60	2898-42000	Crankshaft comp	1
12	2898-81170	• Shaft	1	61	1300-42410	Shim	0~2
13	2898-81440	• Lever	1	62	1000-43240	Key	1
14	2898-81180	• Valve	1	63	1100-43231	Nut	1
15	3310-81311	• Valve	1	64	01641-21016	Washer	1
16	2898-81450	• Plug	1	65	0290-21025	Washer	1
17	3360-81440	• Plug	1	66	1490-71110	Rotor	1
18	2898-81220	• Ball	1	67	2629-71210	Source coil	1
19	2898-81240	• Gasket	1	68	2629-71311	Ignition coil	2
20	2898-81230	• Gasket	1	69	2898-71510	Cord	1
21	2898-81260	• Diaphragm	1	70	2850-72110	Cap, plug	2
22	2898-81270	• Diaphragm	1	71	1400-72121	Spring	2
23	3310-81240	• Screw	1	72	1630-73110	Spark plug	2
24	2898-81330	• Screw	1	73	0263-30414	Screw	4
25	2898-81140	• Screw	4	74	0260-30422	Screw	2
26	1492-81560	• Screw	1	75	2898-15110	Muffler	2
27	3310-81351	• Screw	4	76	T2100-15210	Gasket, muffler	2
28	2898-81370	• Spring	1	77	3356-15220	Bolt	4
29	2898-81350	• Spring	1	78	2850-15230	Nut	4
30	1491-81160	• Spring	2	79	2898-74110	Mount	1
31	2898-81390	• Spring	1	80	01252-30614	Bolt	3
32	2898-81420	• Needle	1	81	3310-71150	Washer	4
33	2898-81410	• Needle	1	*82	2699-75110	Boss	1
34	1282-81560	• Screen	1	*83	2699-75200	Clutch comp	1
35	3306-81380	• Screen	1	*84	2699-75310	Spring	1
36	7620-81610	• Pin	1	*85	2699-75320	Collar	1
37	2898-81250	• Lever	1	*86	01252-30625	Bolt	1
38	2880-81470	• Screw	2	*87	2699-75410	Pad	1
39	3356-81430	• Plug	1	88	2628-51101	Hub, propeller comp	1
40	2898-14131	Gasket, carburetor	1	*89	04025-00312	• Pin, spring	2
41	01252-30550	Bolt	2	90	3544-11510	Bolt	2
42	2898-14210	Gasket, cylinder	2	91	2629-51310	Hub, washer	1
43	01252-30520	Bolt	8	92	2629-51410	Bolt	1
44	2898-21001	Crankcase assy (No.45~51)	1	93	2629-91510	Bolt	1
45	2629-21130	• Pin	4	94	1110-91320	Socket	1
46	06030-06202	• Bearing	2	95	577409701	Puller assy (Optional)	1
47	04065-03515	• Snap ring	2	96	2670-96220	Stopper (Optional)	1
48	06034-06202	• Bearing	1				
49	1400-21220	• Oil seal	1				

*: Without for G800BPU-1.

13. Warranty

WARRANTY TERMS

1) Scope of Application

This engine manufactured by Husqvarna Zenoah Co., Ltd. (herein after “Zenoah”). And sold to the user directly or through distributor/manufacturer, shall entitle to be covered by this warranty.

2) Limits of Warranty

Zenoah warrants that;

1. The quality disclosed in the specifications.
2. The engine which shall be considered defective by Zenoah, caused by material or production fault.

3) Limits of Compensation

1. Zenoah compensates such quality, material and production faults by repairing or replacing through distributor/manufacture.
2. Zenoah shall not compensate any other accompanied or benefit losses caused to user and distributor/manufacture by such faults and through repairing or replacing.

4) Term of Warranty

Three (3) months after purchased by end- user subject to 12 months from produced month.

5) Exempt from Warranty

Zenoah shall not warrant this engine even if the fault has been caused during the period of terms of Warranty, in case that.

1. Any faults, failures caused from neglect of proper operation and maintenance described in OWNER'S MANUAL.
2. Any modification not approved by Zenoah.
3. Normal abrasion and deterioration.
4. Consuming parts.
5. Using any parts which have not been certified by Zenoah.
6. Add-on or modified use.



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