

# GP22R MANUAL



**MADE IN CHINA**

**[WWW.CRRCPRO.COM](http://WWW.CRRCPRO.COM)**

Thank you for using our engine! We hope that you will enjoy it and have many fun and safe flying experiences with its use. In order to maintain its performance and safety when you are using it, please read the detailed instructions fully before operating this engine.



**● Specifications:**

Type	2 Cycle Gasoline Engine for airplane use only
Displacement (cc)	22 cc
Bore	1.26in (32mm)
Stroke	1.06in (27mm)
Total Weight	697g (exclude Ignition and muffler)
Carburetor	Walbro (Diaphragm & Butterfly Valve)
Maximum Output	2.6HP @ 8800 RPM
Typical RPM Range	1700RPM ~8800RPM
Ignition	Auto advanced DC-CDI
Ignition Power	DC4.8V-8.4V NiMH, LiPo or LiFe pack
Gasoline/Oil Mix	25~40:1
Recommended Propellers	16x6, 16x8, 17x6 ,17x8 2-Blades propeller

**● Warnings!**

- 1.Warning! This gasoline engine is strictly intended for model aircraft usage only, please do not use in the other untested applications.
- 2.Warning! This engine is not a toy! Serious injury and/or death can occur from its misuse! READ and become familiar with this entire instruction manual. Learn the Engine's applications, limitations ,and possible hazards.
- 3.Please place your safety and the safety of others paramount while operating. CRRCPRO will not be held responsible for any safety issues or accidents involving this engine.

**● Safety Tips!**

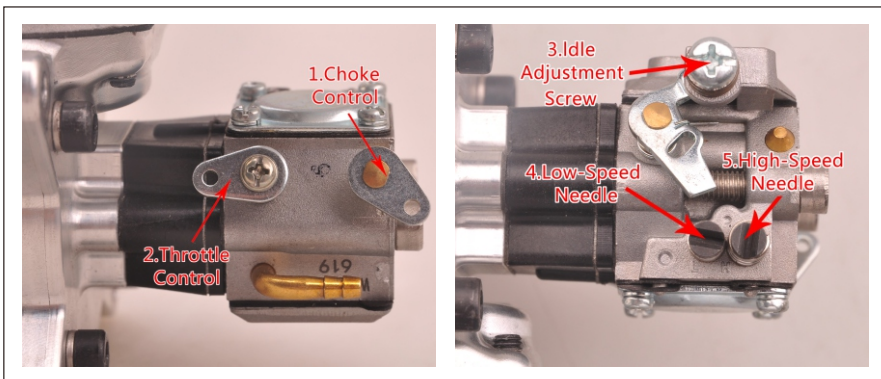
1. During the break-in period, it is recommended that the engine be installed on the aircraft or a test stand
2. Mount the engine correctly, please make sure all components including the propeller and the engine mount are secure and tight.
3. Keep the surface of the engine clean to ensure proper heat dissipation. Ensure proper cooling/ventilation around the cylinder with adequate air exhaust.
4. Use an approved propeller and spinner
5. Please ensure that the propeller balanced, as an imbalanced prop robs power.
6. The ignition module can get hot during operation, ensure appropriate cooling.
7. Use the correct battery, Switch and regulator (if applicable) for your ignition
8. Use a fuel tank and fuel line (Tygon) suitable for gasoline operation.

9. Use the correct fuel mix for break in (25:1) (gas and oil)
10. After engine break, the recommended mix is (40:1) (gas and oil)
11. Adequate filtering of your fuel ensures reliable operation
12. Use a pre-flight check list before flying your model. See section on recommended pilot's check list
13. Secure your model properly when starting
14. Do not use your fingers or hand to start your engine, recommended to use a starter
15. Adjust your carburetor correctly (Please do not adjust the carburetor needle position if you're a beginner)
16. Ensure that your spark plug is in good condition and is correctly tightened. Ensure that your ignition cap is securely mounted. Make sure that your ignition wires are not frayed and appropriately secured
17. Remember that when the engine is running every one must stay behind the line of the rotating propeller; never to the side or the front!
18. Do not allow any part of your body to come in contact with rotating propeller.
19. Do not wear loose clothing and watch your radio neck straps. These can get caught in the moving propeller
20. Do not operate this engine if you are under the influence of any drugs, alcohol or medication that could affect your ability to use the engine properly.

● **Disclaimer:**

We cannot control the safe operation of our products. We do not accept responsibility from injuries or damage to property resulting from the misuse and abuse of our products.

● **Carburetor settings:**



- 1. Choke Control**  
(the choke control should be used when the engine is cold)
  - 2. Throttle Control**
  - 3. Idle Adjustment Screw** (adjust the idle speed)
  - 4. (L) Low-speed Needle** (adjusts the fuel/air mixture at low speeds)
  - 5. (H) High-speed Needle** (adjusts the fuel/air mixture at high speeds)
- Each CRRCPRO Engine has been factory preset. However, higher elevations will influence the performance of the carburetor. To obtain optimum output of the engine, slight adjustment of the carburetor maybe necessary. For safety reasons do not make adjustment to the carburetor while the engine is running.
- Idle Adjustment**  
Turning the Idle Adjustment Screw (No.3) clockwise will increase the idle speed. Turning the Idle Screw counter-clockwise will decrease the idle speed.
- Low Speed Needle Adjustment**  
Turning the Low-speed Needle (No.4) clockwise will lean the fuel/air mixture at low speeds. Turning the Low-speed Needle (No.4) counterclockwise will richen the fuel/air mixture at low speeds. The default or factory setting of the Low-speed Needle is as follows: turn the needle clockwise to the fully stop/closed position and then turn back 1.5 turns
- High Speed Needle Adjustment**  
Turning the High-speed Needle (No.5) clockwise will lean the fuel/air mixture at high speeds. Turning the Low-speed Needle (No.5) counter-clockwise will richen the fuel/air mixture at high speeds. The default or factory setting of the High-speed Needle is as follows:  
turn the needle clockwise to the fully stop/closed position and then turn back 1.5 turns. It is recommended that the High-speed

Needle be adjusted by the use of a tachometer to obtain maximum speed. Smooth acceleration and deceleration is an indicator of proper engine performance.

**Engine Start (Recommend to use starter)**

If this is the first time of you to start the engine, please fill a little lubrication to the spark plug hole and turn the propeller assembly lightly to make the piston lubricated enough. If you start by right hand, please stand left front of the engine, contrariwise, please stand right front of engine.

**Note:** When hand starting the GP22R, use a thick glove or heavy duty starter stick to protect your hand.

1. The propeller should be installed on the drive washer so that it is at the one o'clock position and at the beginning of the compression stroke so that it is comfortable to flip it through compression.
2. Have someone help you hold the airplane while you start the engine.
3. Close the choke on the carburetor and open the throttle slightly from the idle position.
4. Switch on, or power your radio system and make sure you have control of the throttle visually at the carburetor. Also make sure that the reversing position of the servo is correct at the transmitter and that the throttle is at the minimum position.
5. Switch the ignition to ON. If you installed the optional TX activated gas engine kill switch properly between the manual on/off switch and the ignition, make sure that the TX switch assigned is in the on position. The LED should be illuminated red to indicate that the ignition is armed.
6. Flip the propeller counter clockwise several times briskly.
7. After you hear some initial firing sounds, move the choke lever to the OPEN position.
8. Set the throttle to a high idle. Set the propeller so that it's at the beginning of the compression stroke
9. Flip the propeller through compression rapidly. If this is done properly, the engine will start after several brisk flips of the propeller.
10. After starting, let the engine idle for 30 to 45 seconds. Open and close the throttle slowly until the engine runs smoothly at idle and at full throttle. Acceleration should also be smooth. If acceleration is not smooth adjustments to the carburetor may be necessary. (See Carburetor settings )
11. If your engine does not start, repeat steps 6 through 10.

**● Engine Break In**

Use a good quality 2 cycle engine oil

Use a fuel mixture of 20:1 or 25:1 (Bench running)

Use this fuel mixture for approximately 2-3 hours of run time, we suggest that you bench run the engine to become familiar with it operation. A high Octane unleaded fuel (98 Octane is ideal) is recommended. Do not run the engine at full throttle for more than ten seconds during this test stand break in as the engine will not be getting the normal cooling effect that you would get if the engine was in a model that was flying. The GP22R engine requires approximately 12-20 hours running time to complete the break in process. We recommend using a smaller propeller during the engine break in period.

**● Engine Cooling**

A proper cooling system is vital for any engine. An air cooled engine requires an appropriately sized air intake. Also to keep this air cooling process working the incoming air must be exhausted. Further, the exhaust air outlet should be four times (4X) the size of the cool air intake.

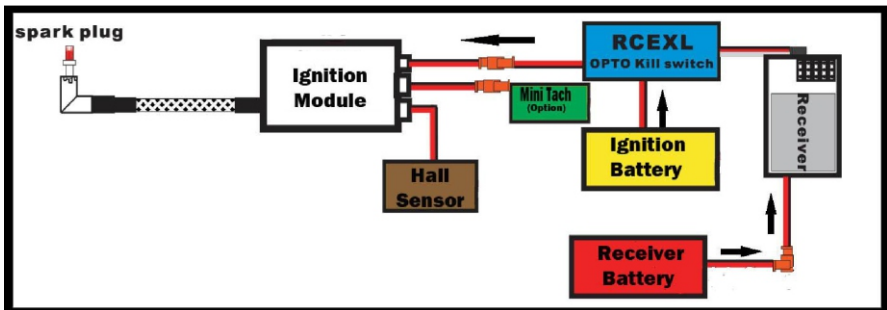
Example:

- . 10 square inches of air intake area would require
- . 40 square inches of exhaust air outlet area

It is up to you to insure that the air flows freely to, over, and away from, the hot cylinder(s) and muffler(s).

**● DC-CDI details:**

The DC-CDI module is a Micro Controller Type Electronic Ignition Module with Auto Advanced Timing. Please observe the following operational requirements:



**● Pilots check list**

We strongly recommend checking the following items regularly for your own safety before starting!

1. Check the propeller bolts for tightness
2. Check that the spinner is firmly attached
3. Check the propeller for possible damage
4. Check to be sure you have the throttle position at idle
5. Check all batteries
6. Check servo functions
7. Check to see that the ignition switch is OFF
8. Check pressure (6-8 bar) system of retract (if applicable)
9. Check all linkages for play
10. Check your wheels for possible damage and easy running
11. Check the wing mounting for tight fit and proper attachment
12. Check the canopy for tight fit and proper attachment
13. When starting the engine one person (minimum) has to hold the airplane

**● Trouble Shooting**

Problem	Solution
The engine is flooded (the crankshaft housing is filled with fuel).	Remove the spark plug; turn the engine to a position where the fuel runs out.
The engine starts after being choked but then stops soon after.	The low needle on the carburetor is probably too lean. Go back to the recommended settings and adjust your carburetor from there. This problem may also indicate a dirty carburetor or faulty ignition.
The engine runs rough and is vibrating strongly.	Balance the propeller. Check the ignition timing. Check your plumbing for air/fuel leaks. Check your spark plug for carbon and check the spark plug gap. Check the motor mount to be sure it is rigid. Check to make sure the engine is mounted on a level surface so that the crankcase is free of tension. Check the engine and propeller bolts.
The engine doesn't reach a normal RPM at full throttle.	Check the carburetor settings. Check to see if the propeller is too large. Verify that you have the correct muffler system. Check to see if the engine is overheating. Check the ignition timing. Check the spark plug for defect. Verify you have the correct gasoline, oil, and have mixed them with the correct ratio.

You can order any spare parts under the direction of this form easily from our distributor or local hobby shop.

Name	Part NO.
Spark Plug	CM6
Cylinder	22030+M4120X4
Piston Ring	22050
Piston	22060
Piston Pin+Piston Pin Retainer	22250+22090X2
Needle Bearing	22080
Crankshaft	22070
Propeller Washer+Propeller Drive Hub	22150+22130+M8010
Bearing+Bearing spacer set	22110+22120+22140
Hall Sensor	22160+M3045*2
Ignition	
Crankcase Front	22170+22180+M4150X4
Carburetor Heat Block+Reed Valve Assembly	22200
Gasket	22040+22190+22230+22210
Carburetor Complete	22240+M5500*2
Muffler	22010
Muffler gasket	22020+M4150X2
Engine Mount Stand Offs	22260X4+M5200X8+M5 washer
Woodruff Key	22100

We hope that you enjoy using your GP22R engine. Please check the website for updates to this instruction manual. Thank you for purchasing CRRCpro Engine



