



Great Power Model Engines

www.gp-engine.com.tw

GP 123

Displacement: 123C.C

Output: 13hp

Bore: 46.5mm

Weight: 2300g

RPM Range: 1000~7200

Recommend Gasoline Octane Number: 89~92 (R+M)/2)

Warranty: 2 years

About Us:

GP (Great Power) Model Engine was created by Fergus (Fergie) Lin, one of the most experienced model pilots in Asia. He has competed in several international model airplane competitions, such as Futaba XFC and F-3A world cup. Fergus began flying at age 6 with his father Masa Lin, an avid modeler with over 40 years' experience building and flying model airplanes. The father and son team have won every competition in Taiwan. After graduating from university, Fergus began to seriously consider his career options. He decided to combine his knowledge of designing and his passion for giant scale aircraft leading to the development of GP Model engines.

About the Engines:

All major components of GP engines are manufactured in Taiwan. The pistons, rings and cylinders are manufactured in the same factories in Taiwan that make many of the same parts for companies such as Yamaha®, Honda®, Suzuki® and Rotax®. The Bearings are German made FAG bearings, and the ignition is a genuine RCexel™ unit. Each engine is hand built in Taiwan to very precise tolerances and quality control. We are sure that our quality and performance will be as good as, if not better than, engines made in Germany or the United States.

GP engines were designed by pilots and built by pilots, so we know what pilots want.

Introduction

Thank you for purchasing your GP 123. GP Engines are designed to provide the highest levels of performance and reliability for giant scale modeling. Everyone on the GP design team are experienced engineers and pilots. We have used the latest manufacturing technology in all of our engines to ensure that your engine achieves peak performance and reliability. The proven reliability of the RCexcel™ electronic ignition system ensures easy starting, good throttle response, and peak performance.

WARNING!

This engine is not a toy; it can cause serious injury and or death to yourself or others. Please read the entire manual before operating your engine. GP model engines are not responsible for any injury or loss resulting from the misuse of this product.

Safety Instructions

- 1. You alone are responsible for the safe operation of your engine.**
- 2. Never operate the motor or fly alone.**
- 3. Keep away from the propeller while operating the motor. Do not wear loose clothing or transmitter neck strap while near the engine.**
- 4. Always wear eye protection when starting the engine.**
- 5. Balance the propeller correctly, preferably both blade and hub balancing. An out of balance propeller causes damage to engine, airframe and electronics.**

- 6. Always operate the engine in open areas, ensure that there is no debris or loose items on the ground close to the model; they can be sucked up by the engine and cause serious injury,**
- 7. This motor can stop at any time for any reason. Do not fly your plane in a way that can cause damage or harm if the engine does stop.**
- 8. Never stand or allow anyone else stand in front of or beside the propeller, always stand behind the propeller**
- 9. Never use a damaged, modified or repaired propeller. Always use the right size propeller.**
- 10. Check that the propeller bolts are tight before every flight. They should always be tightened in a diagonal pattern. If a bolt is damaged replace the complete set of 6 bolts.**
- 11. Use the correct voltage battery or regulator for your ignition system. The voltage should be 4.8-8.4v for 123 engines. Ensure that the polarity is correct before connecting.**
- 12. When running the engine, secure the engine properly. These engines can develop tremendous thrust.**
- 13. When starting the engine wear a thick glove and rotate the propeller with firm pressure**
- 14. Never adjust your engine while it is running.**
- 15. Don't put anything into rotation propeller. (Finger, grass, objects.....etc.....)**
- 16. Do not operate this engine if you are under the influence of any drugs, alcohol or medication that could affect your judgment.**
- 17. Do not touch ignition system when it is switched on, it generates very high voltages.**

18. Keep children away. All spectators should be at least 30 feet away from the engine when running.

Motor Installation

- . Use high grade 1/4in (5mm/6mm) bolts with washers and locknuts on the rear of the fire wall. Make sure your firewall is structurally sound.**
- . The engine mount must be flat so that the engine casing is not stressed or twisted when fastened to the bulkhead.**
- . Use a high quality servo for throttle; this will ensure accurate and reliable throttle operation.**
- . Use a high quality servo linkage. Be sure that the idle screw is removed so the butterfly can close all the way to kill the engine if needed. **Do not use all metallic servo linkages. This can cause radio interference.****
- . Do not remove the throttle return spring. This will cause damage to the brass butterfly.**
- . The use of a 32oz fuel tank for the GP123 is recommend. The tank must be vented. Vent should be routed to the outside of the aircraft, preferably at the bottom of the cowl.**
- . Cooling is critical to motor performance and longevity. Allow a free flow of air into the front of the cowl, it is vital that the airflow passes through the cylinder head fins and does not bypass them and take an easy route to the exit. Sometimes it is necessary to build baffles to direct air to the cylinders. A proper cooling system is vital for the engine. Allow and opening at least 2.5 times larger than the inlet area near the rear or bottom of the cowl for the hot air to escape.**

Engine Break In

- **We test every engine before shipping to ensure that the operation meets our strict performance and quality requirements.**
- **Before the first run please don't adjust the ignition sensor, or high or low speed needles on the carburetor; your new engine should start very easy. However if you like to check the timing it should be at 28~30 degree TDC.**
- **We strongly recommend using high quality 2 stroke oil such as Redline Racing oil in a ratio of 40:1 with premium quality gasoline.**
- **For break in, a mineral based two stroke oil is recommended in a ratio of 32:1. After break in, fully synthetic oil is recommended.**
- **The recommended props for the GP123 is 28*8, 28*10, 29*9**
- **We consider the engine full broken in after 4 gallons of fuel.**
- **The temperature, humidity range, and air density will influence the maximum RPM.**

All of our data was tested in 80F

Humidity: 76%

Air density: 0.0704 lbm/ft³

Be aware that in colder climates the air will have a higher density and it may be necessary to richer the main needle slightly to achieve maximum rpm.

Starting procedure

1. Check that the prop bolts are tight and secure.
2. Make sure the area is free of any kind of debris.
3. Switch on radio system and confirm that all controls work correctly and in correct direction. Ensure that you have the throttle cut switch set to fully close the throttle and stop the engine. After setting up, confirm that it will really work by stopping the engine using it.
4. Engine must only be started with throttle in the idle position
5. Close the choke completely.
6. Have someone with eye protection firmly hold the plane. It requires two people at least to start the engine.
7. Turn on the ignition. **ALWAYS BE PREPARED FOR THE ENGINE TO START AT ANYTIME!**
8. Flip to propeller until the engine fires or runs for a few seconds. Normally this needs 3 -5 flips of the propeller but more will be required if the engine has sat for a while or is new.
9. Open the choke completely and flip the engine until it starts. Normally requires 3-6 flips of the propeller to start the engine.
10. Slowly open the throttle to a low idle and allow the engine to warm for 30 seconds, progressively open the throttle to full power and hold for 15 seconds to confirm that the engine can maintain full power. Throttle back and set idle to a low rpm so that the aircraft will stand still when released.
11. We strongly recommend that you follow our process to start your engine each time.

Trouble shooting

Problem

1. Engine will not start

- **Check your battery for your ignition system, A low battery will cause the engine to not start**
- **Check the fuel system for clogs, jams, or bad fuel line**
- **Make sure to flip the prop with authority**
- **If fuel is dripping for the carburetor the engine is flooded.**
- **Check to spark plugs to see if they are fouled.**

2. If the engine is flooded

- **Turn off ignition system, ensure choke is open and open the throttle fully, flip the prop about 10 times. Close throttle to ideal position and follow starting procedure**

3. If the engine stops soon after starting, even though the starting procedure was followed.

- **The low needle is probably too lean. Rich the L needle about 1/8 turn (counter clockwise)**

4. If the engine does not reach a normal RPM at full throttle

- **Check your battery for your ignition system, a low battery will cause low RPM**
- **Check if the carburetor is set correctly. If you adjust the High speed needle always richen the mixture (counter clockwise) first, if this reduces the max RPM then lean the mixture (clockwise). Only adjust 1/8 of a turn at a time until you find the peak performance.**

- If you use a larger or high pitch diameter propeller then recommended the RPM will be reduced.
- Check to see if your gasoline and oil mixture is correct.

Factory Needle Setting for GP-123:

H:1 1/2

L: 1 3/4

:Please note this is a starting point. An engine severely out of tune will cause damage

Warranty

All GP engine have a 2 year warranty from the date of purchase.

- In case of a defect during the warranty, please contact local dealer or us directly.

This warranty does not cover the following:

- Any modification or addition to engine is not recommended and will void your warranty immediately.
- Damage due to miss-use or crash is not covered.
- The warranty will not cover the shipping expenses to and from GP engines for warranty service

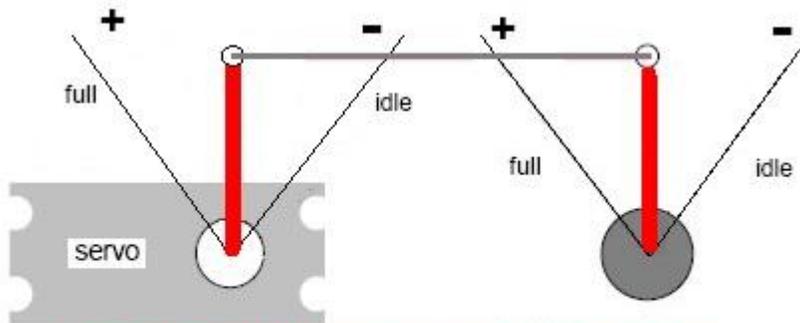
Service

We strive to support our engines and supply spares as quickly as possible. We offer full rebuilds and repair service. For details please contact a GP Dealer or you can contact with GP engine factory Manager Fergus Lin directly by E-Mail: t_c_lin@yahoo.com.tw

Us service www.aviatorplusrc.com/rcaviation

Fly Safe and enjoy your new engine!

Here is a diagram of correct Throttle linkage set up



Set-up at half throttle, servo arm same length as carb arm
High and Low ATV/End-Points should be as close as possible to the same number