

GTT70 Horizontally-opposed twin-Cylinder

2- Stroke RC Gasoline Engine

Owner's Operating Instruction Manual

Dear customer:

Thank you for purchasing our new Horizontally-opposed twin-cylinder 2-Stroke NGH GTT70 gasoline engine. Your new GTT70 engine has been developed by NGH engineers to offer all hobbyists a new 2-Stroke engine. You will be delighted with stability, fuel economy, plenty of power of your new GTT70 engine. We hope that you will enjoy with your new engine, and have many fun and safe flying experiences with its use.

Safety Instruction and WARNINGS!

Please read the instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

GTT70 engine is NGH R&D manufacturing precision products. It must be operated with caution and common sense and requires some basic mechanical ability. This product is not intended for use by children without direct adult supervision. Don't attempt disassembly, use with incompatible components or augment product in any way without the approval of our company. It is to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Age Recommendation: RC engine is not a toy! Not for children under 15 years.

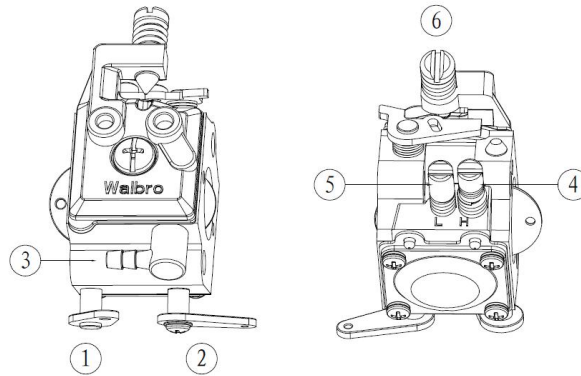
The engine is designed for use on a model radio control airplane. If it is used for any purpose, we cannot be responsible for its reliability of safety.

- NGH or their dealers aren't responsible for any loss, injury or damage resulting from the miss-use of RC engine.
- Keep away from the rotating propeller area while operating the engine.
- Do not wear loose clothing near the engine or the propeller.
- Do not operate the engine near loose material such as dirt, gravel, ropes, sand, etc.
- Always run your model engine in a well-ventilated area. Model engines produce possibly harmful carbon monoxide fumes.
- Always ensure that the propeller is securely attached to the engine shaft and all retaining fasteners are tightened properly before each flight.
- Always stand clear of and behind the propeller, ensure the face and body are far away from the propeller blade after trajectory. Never allow anyone, to be in front of or to the sides of the propeller when starting or running the engine.
- Always ensure that small parts in the children can't touch place to prevent children from swallowing parts;
- Always check the propeller nut tightening.
- Gasoline is extremely flammable. Be careful of any sparks from electrical contacts such as fuel pumps, battery charger, etc.
- Allow your engine stop and cool before touching or fueling. The running engine of the surface temperature is high, easy to cause burns and other personal injury.
- Be sure to check whether there are loose bolts before flying. When install a muffler, the muffler in the threads of the screw into the engine exhaust, until twist fixed, it is recommended to use screw glue (Such as LOCTITTE 242、243).
- Ensure the engine and muffler in aircraft fairing environment with cold air, make sure the engine cooling.

Product Specifications:

Type: Horizontally-opposed twin-cylinder 2-Stroke AIR Cooled gasoline engine (Only used for fixed-wing aircraft model)	
Bore: 37.3mm	Stroke: 32mm
Volume: 69.9cc (2x34.95cc)	Carburetor: Walbro WT978
Max Output: 7.9 HP/8300rpm	RPM Range: 1600-8000rpm
Ignition: NGH Automatic advancing angle ignition (RoHS and CE Certified; Rcexl Manufactured)	
Ignition Power: DC 4.8V - 8.4V 1000mAH	Spark plug type: CM6
Fuel: 90# Unleaded gasoline + Fully synthetic lubricants (Non-4-stroke lubricants)	Break-in fuel ratio: oil :Lubrication = 35:1
Recommended propeller: 23×8-10, 24x8-10 (Two blades)	Weight: engine 2070g, ignition 180g

Carburetor setup and adjustment:



NGH GTT70 horizontally-opposed twin-cylinder 2-stroke gasoline engine used Walbro WT carburetor, it has the perfect stability of idle speed and acceleration sensitivity.

Always remove fuel from the carburetor after flight. not doing so will result in rubber engine components deteriorating over time, causing loss of engine performance.

Methods: start the engine without connecting the fuel pipe until we run out of fuel in the carburetor.

Setup Carburetor:

As shown in figure

- ①—Choke. Close it before the first start the engine, and quickly rotating propeller, the fuel oil suction within the tank into the carburetor, when you start the engine should be open it.
- ②—The throttle control arm. Infinitely adjustable-speed device, control the turning speed of the engine.
- ③—Into the nozzle. Connect the oil tank and supply the fuel to engine.
- ④—High speed needle. After fully open the throttle control arm ②, adjust the high speed needle can get the best high speed.
- ⑤—Idling speed needle. Put ② return to the initial position, adjust the idling speed needle can obtain satisfactory low speed.
- ⑥—Idle mixture adjustment screw. Adjusting the fuel and air mixing ratio at idle, it actually control the initial position of ②, adjust ⑥ and ⑤ will obtain the better idling speed.

The factory setting status:

- ④—High speed needle. Fully closed (clockwise) before exiting(anticlockwise) 1.5-1.75 times;
- ⑤—Idle speed needle. Fully closed (clockwise) before exiting(anticlockwise) 1.5-1.75 times;
- ⑥—Idle mixture adjustment screw. The throttle control arm at the other end of the limit pawl near the screw cone about 1mm.

The initial setup of the engine is factory settings, the engine first start don't need to adjust.

Adjust Carburetor:

When the engine running, you want to adjust the carburetor, please adjust it based on factory settings:

In the process of adjusting the carburetor, please use a high-quality tachometer to determine your adjusted results, the tachometer you need to buy one.

First adjust the high speed needle: engine run time will be turned on at full throttle position, adjust the high needle and watch the change of the tachometer, make the engine rpm reach the max per minute. engine work in a stable high speed (**Please note:** Do not let the engine run boundary for a long time, this is a big damage for engine).

Adjust the idle speed needle: the throttle return to the idle position, adjust the idle needle and watch the change of the tachometer. let the engine run in a stable state of idle speed (advice 23 * 10 wooden double blade propeller idle speed at 1300rpm). when necessary and idle mixture adjustment screw joint adjustments to ensure the engine idle speed stability, smooth acceleration; if the engine is idling difficult to start (exclude CDI ignition power shortage, excessive fuel combustion chamber, spark plug problems and so on). this shows that air-fuel ratio (A / F) is low at idling, please adjust idle mixture adjustment screw, increase air ratio. or adjust idle needle to reduce the amount of fuel, A / F ratio to achieve appropriate proportion. (**Tip:** The larger engine propeller, the more perfect lower idle speed you will get.)

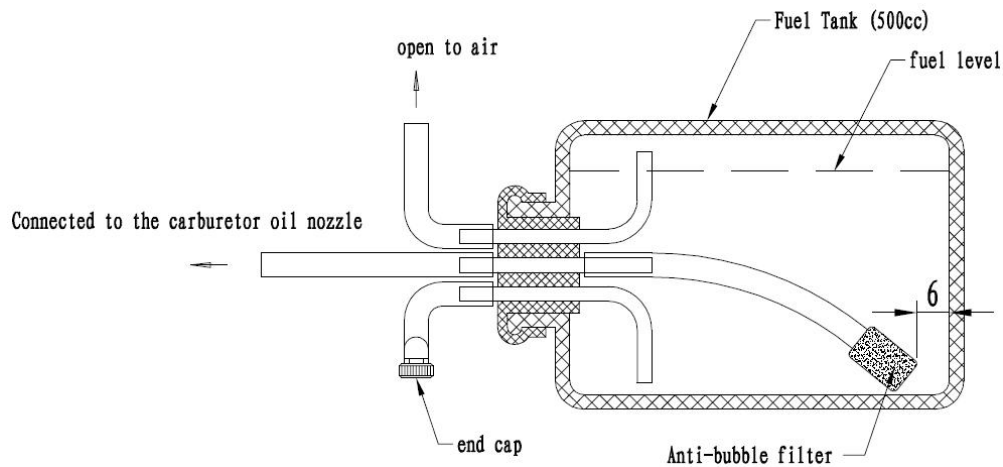
When the engine high speed and idle speed adjustment is completed, try to run the engine acceleration performance. first let the engine to run 10s at idling and the quickly move the throttle control arm at full throttle position, there will be the following three situations:

A. Engine speed is responsive and smooth transition to the highest speed, instructions for the adjustment of the engine is very good.

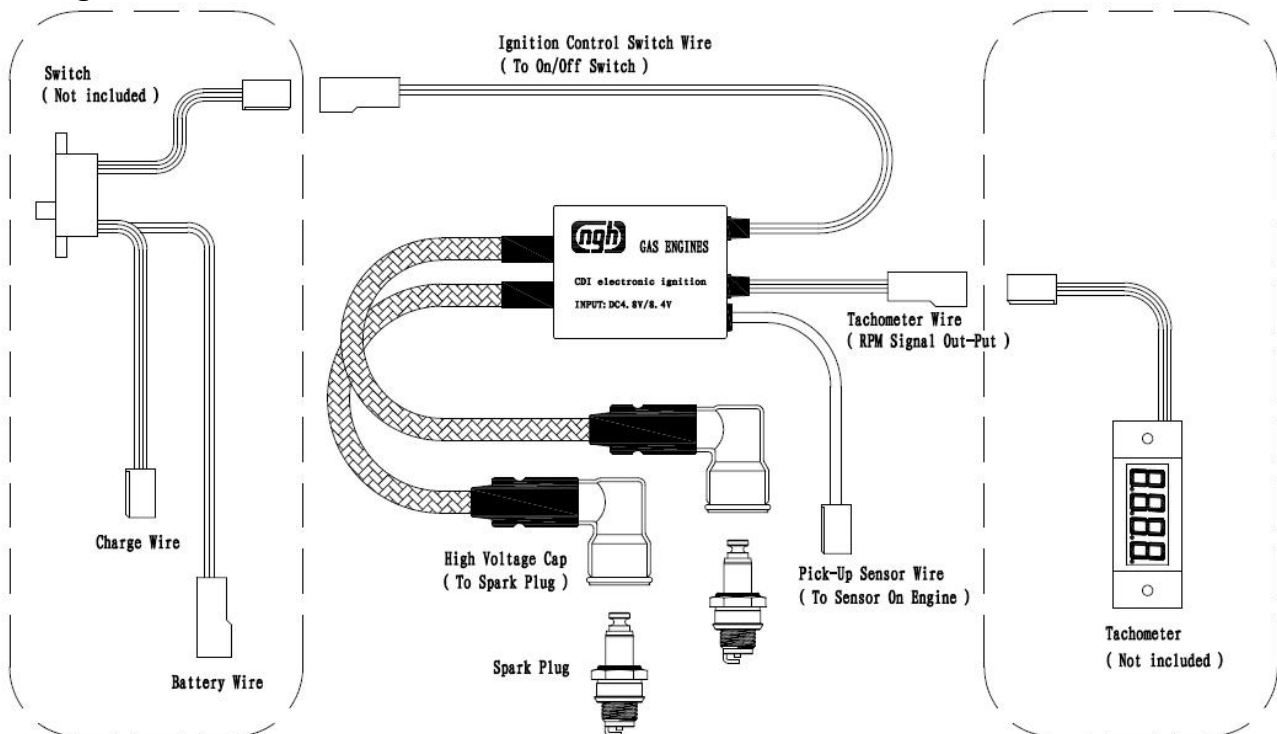
B. Engine acceleration has a cough performance, gradually transition to the highest speed. Illustrate the idle oil needle set relatively rich oil, the idle needle to make a small adjustment (clockwise rotation), and then try again, try to accelerate the reaction constant adjustment until the engine reaches your request.

C. Rapid throttle when the engine suddenly stopped running, this shows that the idle needle set relatively lean oil, the idle needle to make a small adjustment (anticlockwise rotation), and then try again, try to accelerate the reaction constant adjustment until the engine reaches your request.

The Fuel Tank Connecting



CDI igniter connection



Starting the engine:

According to the engine connection method, install the engine on RC airplane and lock propellers. ensure that installed on the back of RC planes of firewall is used metal flat washer or ratchet nut to prevent bolt in plywood.

1. Made the carburetor initial setup and connect the spark plug, electronic ignition and sensors, put the fuel into the oil tank, connect the power and radio control equipment.
2. Will power off the electronic igniter at this time, make the carburetor inlet port in a fully closed position. rapidly rotating propeller engine make the fuel in the tank inhalation of carburetor, please pay attention to the suction of fuel should not be too much, otherwise will drown the spark plug, the engine start difficult.
3. Please open the carburetor throttle air inlet, power on the electronic igniter, then start the engine using the motor starter (or start bar), the engine will begin to work, the fans will adjust the carburetor according to your own need. according to the above steps you can adjust the carburetor adjustment.

Warning: Make sure all bystanders, especially children, at least 30 feet away from rotating engine.

Engine Break-in:

Please use the high quality synthetic oils, gasoline and machine oil's mixing ratio is 35:1.

NGH is recommended to use smaller size propellers at first break-in and follow-up about 10 times in flight. keep medium speed running for 15 minutes (no more than 4000rpm) after started engine, then high speed running for 3 minutes, again medium speed running for 5 minutes, high speed running for 3 minutes, reciprocating 3-5 times complete break-in. breaking in engine carefully will increase its life. please make sure the engine got the complete break-in before you use the larger load propeller.

(Note: Not recommended to use 24 * 10 inches above the propeller)

Engine cooling:

If your engine is installed in the fairing, there must be air entering to cool the engine and ensure enough air flowing in the fairing.

Reference data: outlet area should be 3-5 times than the entrance area to ensure adequate cooling.

Engine Failure Removal:

If the engine is difficult to start, idle speed and high speed unstable. please check: whether the electric circuit and oil line of engine is trouble, whether the engine leaks air, whether the electronic ignition works or its power supply is adequate, whether the spark plug flame out. if necessary, replace with a new spark plug.

Engine Maintenance:

To reduce the fuel consumption, extend engine's life, please adjust the engine's highest speed and make engine run in the output maximum speed of 95% once the gas pedal full opened. if the load is large (propeller's diameter and pitches are big), the fuel must be adequate. if the load is small, the speed will be high while the fuel consumption will be less. please make sure to empty the carburetor after each flight, otherwise it'll cause the rubber of fuel pump aging to affect the engine performance. please clean the carbon deposition on the spark plug and keep the gap from 0.7mm to 0.8mm between the electrodes. if it's difficult to start the engine, idle speed unstable or when high speed operation flameout, please replace the spark plugs; please clean the engine surface after used each time, it can make the engine get better cooling. the carburetor may be blocked seriously if you use different brands or types of lubricating oil together, you need select a better fuel filter. if the engine low speed work for a long time, can lead to spark plug carbon deposition; regularly check the fuel system, make sure do not leak fuel, do not leak air.

Engine Guarantee:

If the NGH engine has performance defects caused by the defects of process, material and manufacturing, we certify that: change for free within one year and guarantee within two years since the date you purchased. please note the guarantee is only for the original purchaser, not including: normal wear for engine; damage caused by the failure of maintenance; damage for engine over speed operation caused by using small propeller; bearing rust; crash; use inappropriate fuel; damage caused by foreign bodies; damage caused by unreasonable installation or operating environment; damage caused by improper dismantle; damage caused by any modification.

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