

## GT9-Pro 2-Stroke RC Gasoline Engines

### Owner's Operating Instruction Manual

#### Dear customer:

Thank you for purchasing our new NGH GT9-Pro gasoline engine. Professional GT9 engine has been developed by NGH engineers to offer all hobbyists of small gasoline engine. You will be delighted with fuel economy, reliability and power of your GT9-Pro. 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.

GT9 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.

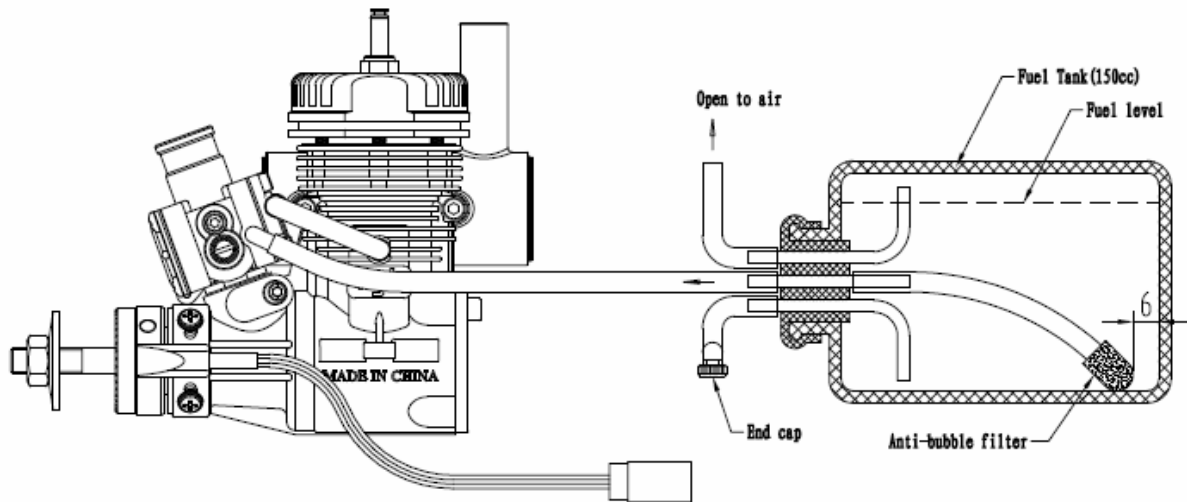
- NGH or their dealers aren't responsible for any loss, injury or damage resulting from the miss-use of RC engine.
- Keep away from the rotating propeller area while operating the engine.
- Do not wear loose clothing near the engine or the propeller.
- Do not operate the engine near loose material such 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.
- Ensure the engine and muffler in aircraft fairing environment with cold air, make sure the engine cooling.

#### Product Specifications:

Type: 2-Stroke AIR Cooled Gasoline Engine (Only used for fixed-wing aircraft model)	
Volume: 9.0cc	Bore: 23.3mm
Stroke: 21mm	Carburetor: NGH 20G-Pro Carburetor
Mix Output: 1.2 HP/13000rpm	RPM Range: 2000-13500rpm
Ignition: NGH automatic advancing angle ignition (RoHS and CE Certified; Rcexl Manufactured)	
Ignition Power: DC 4.8V - 8.4V 1000mAH	Spark plug type: 1/4 * 32
Fuel: standard 90 octane gasoline + FD 2-stroke oil	Mixing ratio: gasoline : oil = 20:1
Recommended propeller: 11×6、11x7、12×6 (Two blades)	Weight: engine 435g、ignition 100g

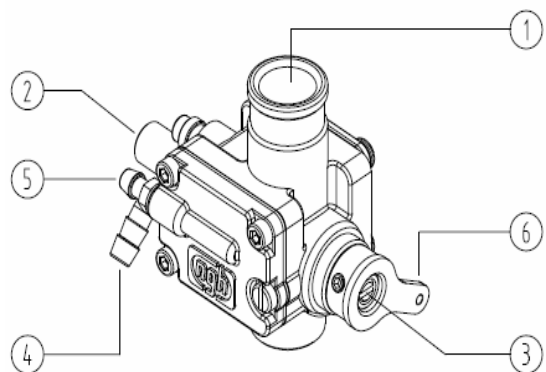
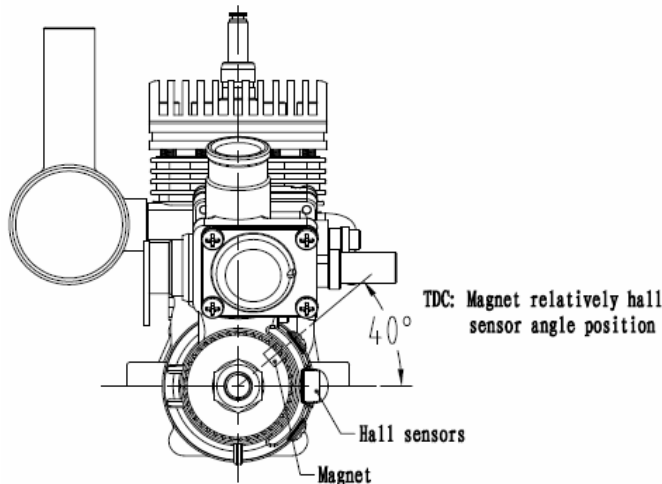
#### Engine connection:

Engine fuel system installation schematic diagram



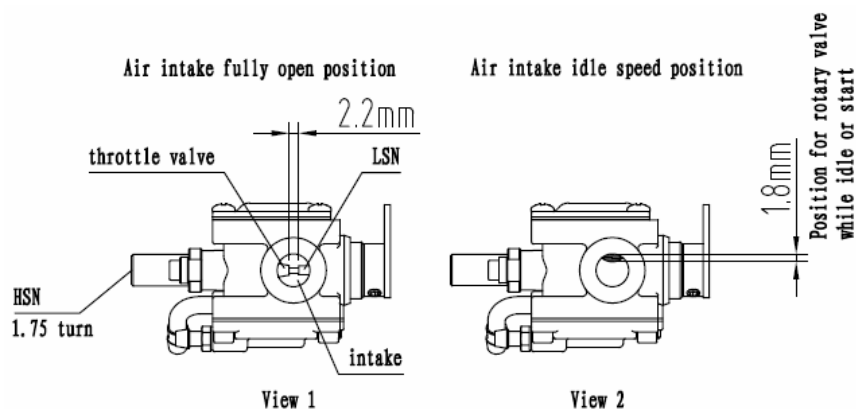
Following the above pictures, connect the engine, carburetor and oil tank, etc. It is strongly recommended to use high temperature resistance, gasoline soft tube and its bore diameter is 2 mm. The tube connects with oil nozzle if necessary uses clamp, let the oil tank farther from the engine and you can wrap the tank with a sponge to prevent the occurrence of air bubbles.

Must pay attention when install the propeller blade mat of the magnet relative to the Angle of the top dead center position, difference between 180 degrees wrong position can cause engine does not work.



### Carburetor:

- ①—Air inlet;      ②—High speed needle(HSN);      ③—Low speed needle(LSN);      ④—Inlet nozzle;  
⑤—Suction nozzle;      ⑥—Throttle control arm



### Carburetor initial setup:

High speed needle: Completely closed before exiting 1.75 turns; Low speed needle: According the initial setup factory ;  
Idling start time the air inlet: According the “View 2”

## Install the CDI ignition spark plug cap

The hexagon of spark plug and plug cap need align and then push down the spark plug cap and clockwise rotation it.

## Starting the engine:

1. According the engine connection method, install the engine on RC airplane. Made the carburetor initial setup and connect the electronic ignition, 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. Through the motor starter 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 in "View 2" position, power on the electronic igniter, then start the engine using the motor starter, the engine will begin to work, the fans will adjust the carburetor according to your own need: Firstly please adjust the high-speed, the high-speed oil needle will along the clockwise from the oil-rich state to the inferior state transition, make the engine work in the stable state of high speed (please note: do not let the engine run boundary for a long time, this is a big damage for engine). Secondly adjust the idle speed, to control the air inlet 1.2mm which showed in "View 2" (about one 5), adjust the idle speed oil needle along the clockwise or counterclockwise direction, make the engine work in the stable state of idle speed (11\* 6 proposed APC propeller idle speed 2000 RPM).

**Engine Failure Removal:** If the engine is difficult to start, please check: whether the electric circuit and oil line of engine is trouble, whether the electronic ignition works or idle is rough or its power supply is adequate, whether the SG spark gap of spark plug is between 0.6mm and 0.7mm, whether the engine leaks air etc.

**Engine Break-in:** Please use the high quality synthetic oils, gasoline and machine oil's mixing ratio is 20:1 or achieves higher 25:1, Recommend smaller size propeller, Keep medium speed running for 15 minutes (no more than 4000rpm) after started engine, then high speed running (9000 rpm) 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.

**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 faring. **Reference data:** To ensure adequate cooling, exit area is 3-5times bigger than entrance area.

**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 90% once the gas 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, or it'll cause the rubber of carburetor aging to affect the engine performance. So please clean the carbon deposition on the spark plug and keep the gap from 0.6mm to 0.7mm between the electrodes. If it's difficult to start the engine, idle is rough or stall in the high-speed operation, 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 is operated with long time and low speed, it will cause the spark plug fouling. Always check the oil system to make oil proof and gas proof.

**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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