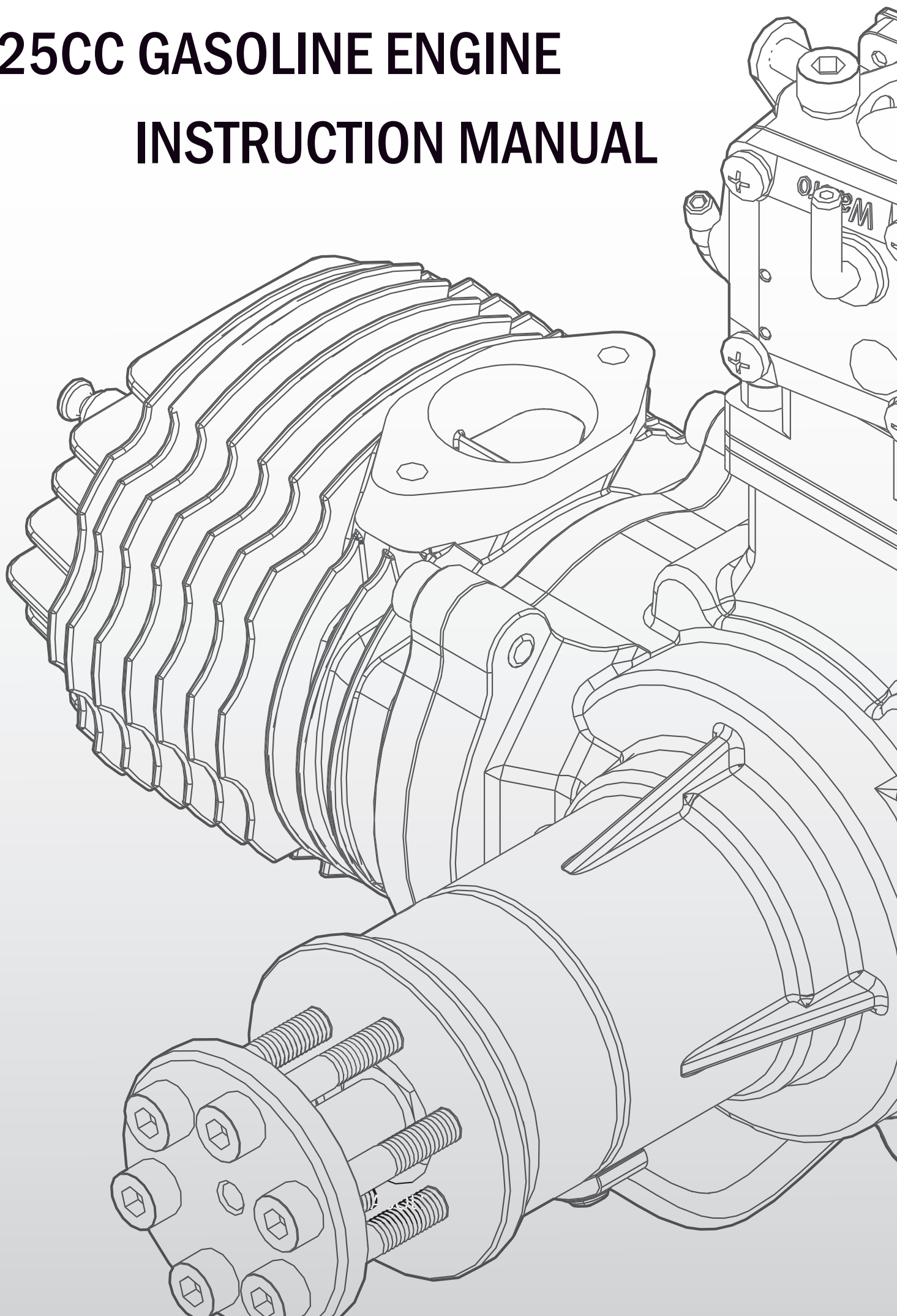


125CC GASOLINE ENGINE

INSTRUCTION MANUAL



SAFETY INSTRUCTIONS

Note: Before operating, read the instruction manual to become familiar with the features of the product.

Warning: We recommends operation of this item by children older than 14 years. This product is not a toy. Owners are responsible for the safe operation of the engine; use discretion at all times.

Beware: A rotating propeller is dangerous; do not touch or allow any object to make contact with propeller. Do not crouch over the engine while in operation.

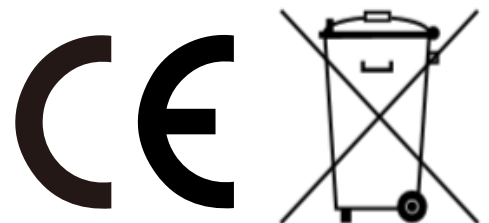
Caution: Model engines generate heat; do not touch any part of the engine until it has cooled, serious burns may result.

ENVIRONMENTAL CONCERNS:

This product must not be disposed with household waste. It is the user's responsibility to dispose of engine components with a designated recycling service. Recycling helps conserve natural resources and ensures a healthy environment. For more information concerning recycling, please contact your local city ordinance office, your waste management service, or the place of purchase.

DECLARATION OF CONFORMITY

This product complies with U.S. and EU directives regarding essential protection requirements of electromagnetic compatibility. A Declaration of Conformity is available.



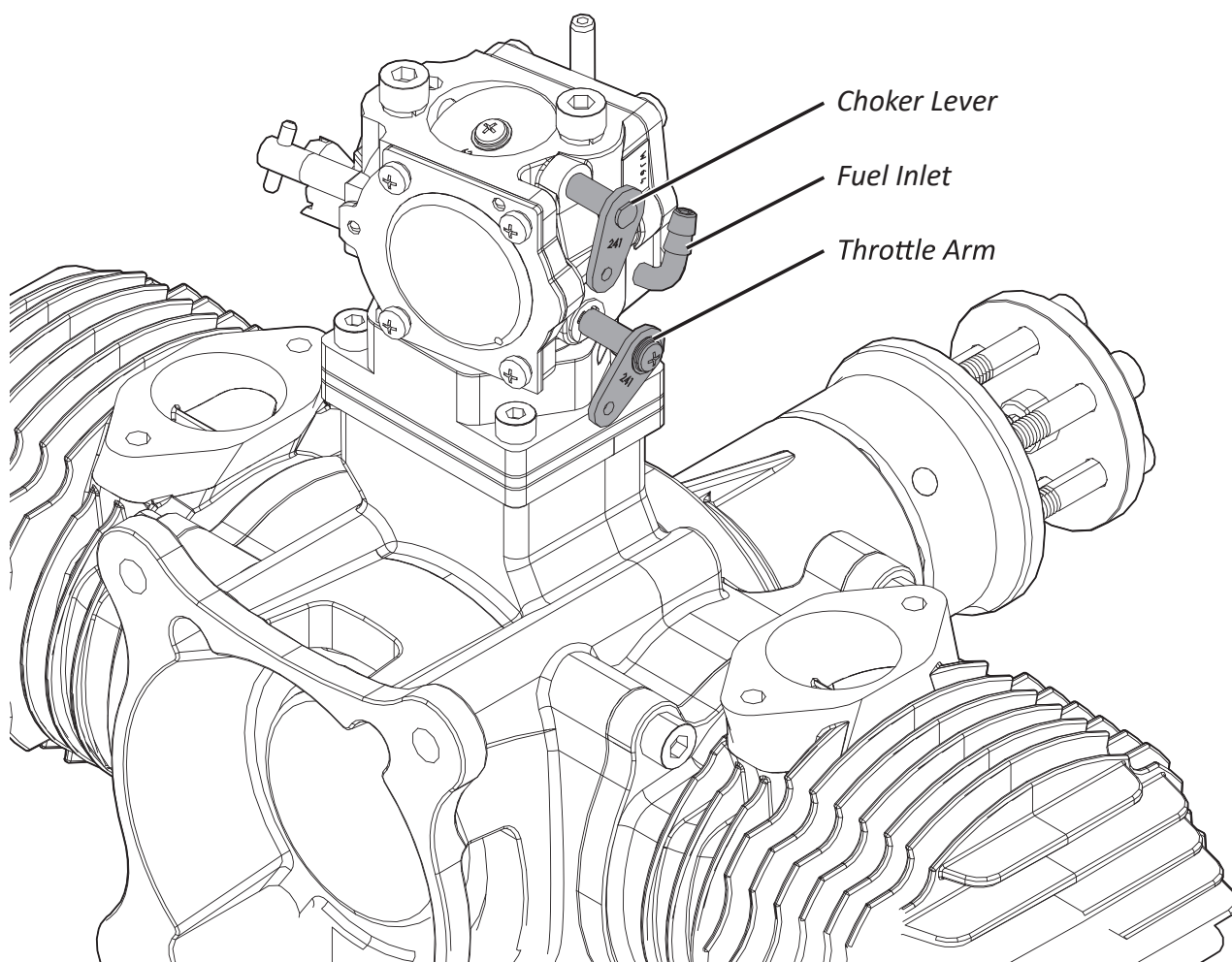
INTRODUCTION

Congratulations for purchasing one of our exciting 125Cc gas engine. The innovative gas engine series ensure a hassle-free experience without giving away anything in expected performance or durability. This manual will guide you through the simple steps to your success when carefully read and followed.

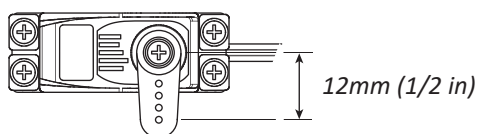
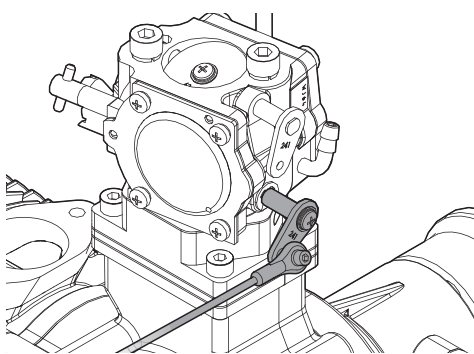
INSTALLING THE ENGINE

Secure the engine to the airplane firewall using either M6 or 1/4-20 bolts. Use spacers or standoffs as needed to set the correct firewall-propeller distance according to the airplane manufacturer's instructions. Refer to page 7 for mounting dimensions.

WARNING: Tighten all engine mounting screws before each flight. If you do not tighten the engine mounting screws, the screws may vibrate loose and cause the engine to separate from the fuselage.



CONNECTING THE THROTTLE LINKAGE

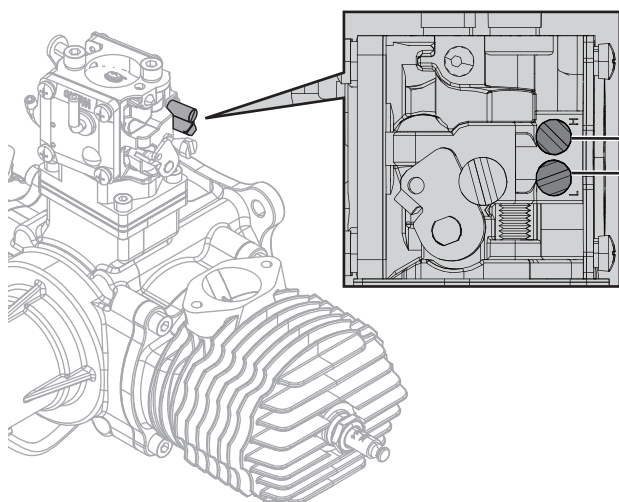


1. Use the provided ball-link to attach the throttle linkage to the throttle arm on the carburetor.
2. Power ON the transmitter and receiver. Move the throttle stick and throttle trim to center.
3. Place the servo arm on the throttle servo so the arm is perpendicular (90°) to the throttle linkage.
4. Ensure the throttle servo is moving in the appropriate direction. The throttle servo arm should move towards the fuselage when the throttle stick is moved to high throttle. If it doesn't, reverse the servo direction in your transmitter.
5. Move the throttle stick to low throttle on the transmitter. Reduce the throttle trim to its lowest setting.
6. Move the linkage connected to the carburetor to full-idle. On the servo arm, find the hole that is closest to 12mm (1/2 in) from the center of the arm. Mark the pushrod where it meets this hole.
7. Using pliers, bend the pushrod so there is a 90° bend at the mark.
8. Using a pushrod keeper, secure the pushrod in the servo arm.
9. Check that the throttle arm on the carburetor can travel fully open and fully closed (both have hard stops). Adjust your transmitter endpoints to ensure full travel.
10. If there is a large difference between the endpoints, adjust the endpoints and sub-trim to find a balance where the endpoints are within approximately 10% of each other.

CONNECTING THE ELECTRONIC IGNITION

The electronic ignition requires a voltage input of 6.0—8.4VDC. We recommend a 2S Li-Po battery. The maximum current draw at full throttle is 650mA, and average current draw is 325mA.

BASELINE NEEDLE SETTINGS



High Speed Needle

Low Speed Needle

The baseline needle settings for your engine are 1.5 turns out for the high-speed needle, and 1.75 turns out for the low-speed needle.

To adjust the settings, screw the needles in by rotating them clockwise. They will seat gently— do not force them, this could damage the needles or carburetor body. Open the needles the number of turns listed above.

FUEL

This engine requires a mix of 32:1 gas to oil ratio for break-in and normal operation.

To properly mix the fuel, add 4.0 oz of high quality 2-stroke oil to one gallon (or 32 mL of oil to one liter) of 87–93 octane fuel.

We tested primarily with Red Line two-stroke oil. Other high-quality two-stroke oils will also work well. Mixtures as rich as 25:1 are acceptable.

ENGINE BREAK-IN

Your engine has been test run at the factory but not fine tuned. It needs to be broken-in to ensure long life of all components. This engine features a ringed-piston design, which requires a specific break-in procedure to ensure a tight seal between the piston ring and cylinder. For this to be accomplished, this process requires repeated heating and cooling cycles. The ring needs to seat itself with the cylinder walls for it to develop a good seal.

Perform the break-in process with the engine mounted on your airplane. There is no need to bench-run the engine prior to mounting it on your airplane.

Use a lightly loaded break-in prop to begin your break-in process (26 x 10)

Use the recommended fuel with a 32:1 gas to oil ratio.

- **First tank of fuel:** Run the engine on the ground for its first tank of fuel and DO NOT exceed 4000 RPM. Cycle the throttle between idle and half throttle every minute.
- **Second tank of fuel:** Do not run at full throttle on the ground for more than 30 seconds at a time. Fly the airplane and avoid extended periods of heating the engine. Be sure to mix in some cooling dives and lower-throttle flying.
- **Third tank of fuel:** Fly the engine at high throttle settings for longer periods of time, up to one minute. This will help the piston ring and cylinder to expand and contract, helping the breaking-in process.
- **Fourth tank of fuel:** Select one of the recommended propellers for normal operation and mount it on your engine. Continue to break-in the engine in flight. Use high throttle settings for extended periods of time. Monitor cylinder head temperatures to avoid overheating.

STARTING AND RUNNING THE ENGINE

It is critical to the proper operation of your 125Cc engine that you use the included filteren clunk. Fuel should be filtered in your fueling system before it enters your model. Failure to properly filter the fuel before it reaches your engine can introduce contamination into the fuel system.

1. Power ON the radio system but leave the engine power system OFF.
 2. Close the choke valve on the carburetor.
 3. Move the throttle trim to the center position and keep the throttle stick at idle.
 4. Power ON the engine power system.
 5. Rotate the propeller until it is against compression. Flip the propeller through compression until the engine fires.
 6. Open choke valve on the carburetor and repeat step 5 until the engine starts.
 7. Let the engine run at high idle for 30 seconds to stabilize the temperatures.
 8. Lower the throttle trim to your desired idle setting.
- If the engine doesn't start quickly*
9. If the engine appears not to have any fuel, repeat the priming procedure in step 2—5.

TROUBLESHOOTING GUIDE

If the engine does not start:

- Check and use a new spark plug if needed. Remove the spark plug and reinstall it into the ignition plug cap. With the engine power system ON, move the sensor magnet past the sensor quickly (by flipping prop or manually moving the sensor past the magnet). You should be able to either see the spark or hear the clicking of the spark plug firing. The engine RPM needs to exceed 180 RPM before the ignition system will fire the spark plug. Make sure to rapidly move the magnet past the sensor when checking for proper operation.
- Check fuel lines for damage or kinks. If any of the lines are restricted, the fuel system will likely not operate. Clean and intact lines are essential for the system to operate properly.
- Check for proper mechanical function by turning the engine over.
- Check that the carburetor is correctly installed and that all gaskets are intact and undamaged.
- Check that the vent line is attached and free from any bends or blockages.

If the engine runs erratically:

- Check for fuel systems problems. Are there any holes in the fuel lines (including the clunk line inside the fuel tank) or other possible sources of air leaks?
- Ensure the ignition system is working properly and the ignition system battery is charged

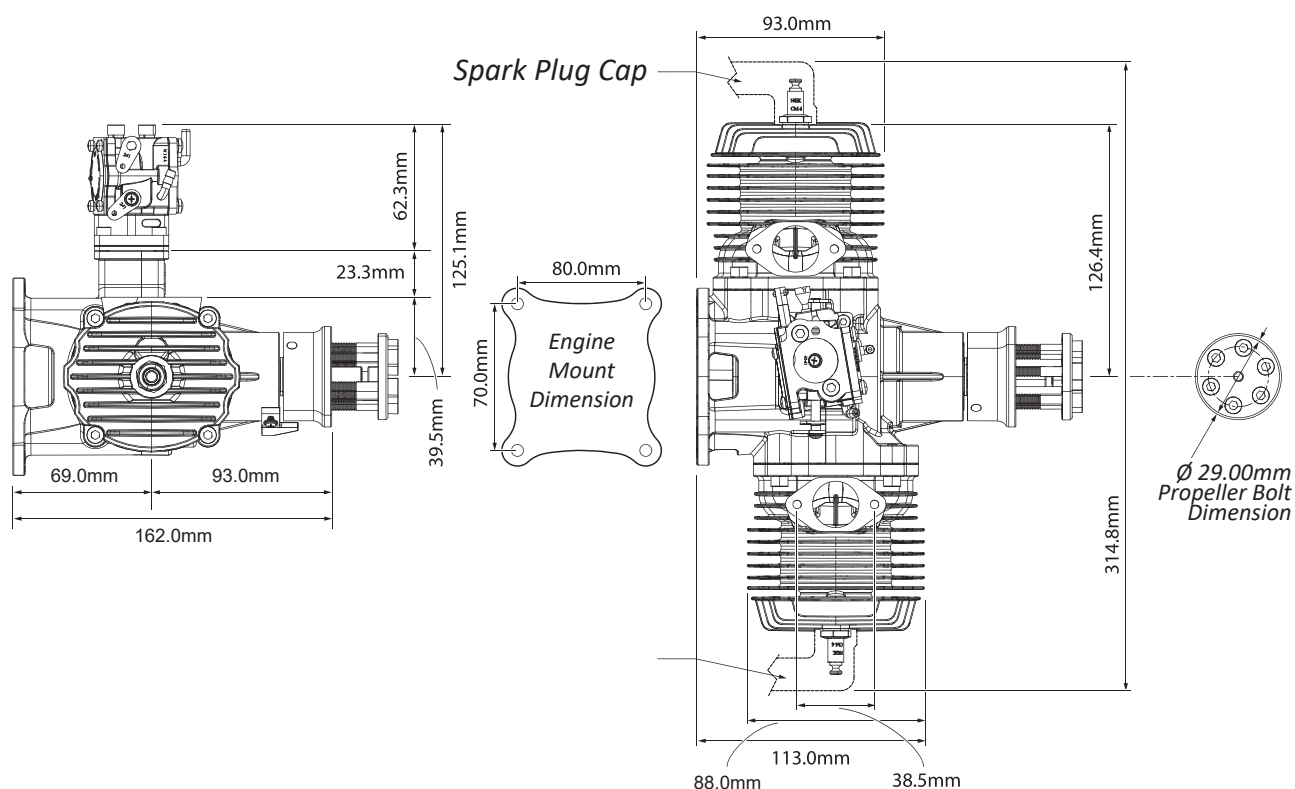
If you suspect the engine is flooded:

1. Remove the spark plug. expel the excess fuel.
2. Cover the cylinder head with a cloth or paper towel and turn the propeller over to
3. Replace the spark plug and try starting again.

If the engine cannot be turned over easily:

- A possible cause is the piston is seized in the cylinder: loosen and unscrew the muffler bolts. Visually inspect the piston and cylinder through the exhaust port. If there are excessive/deep scratches or grooves in the piston, please contact Tomahawk Aviation Customer Support for more information. Repair of a seized piston/cylinder is mechanical and should not be attempted.

SPECIFICATIONS



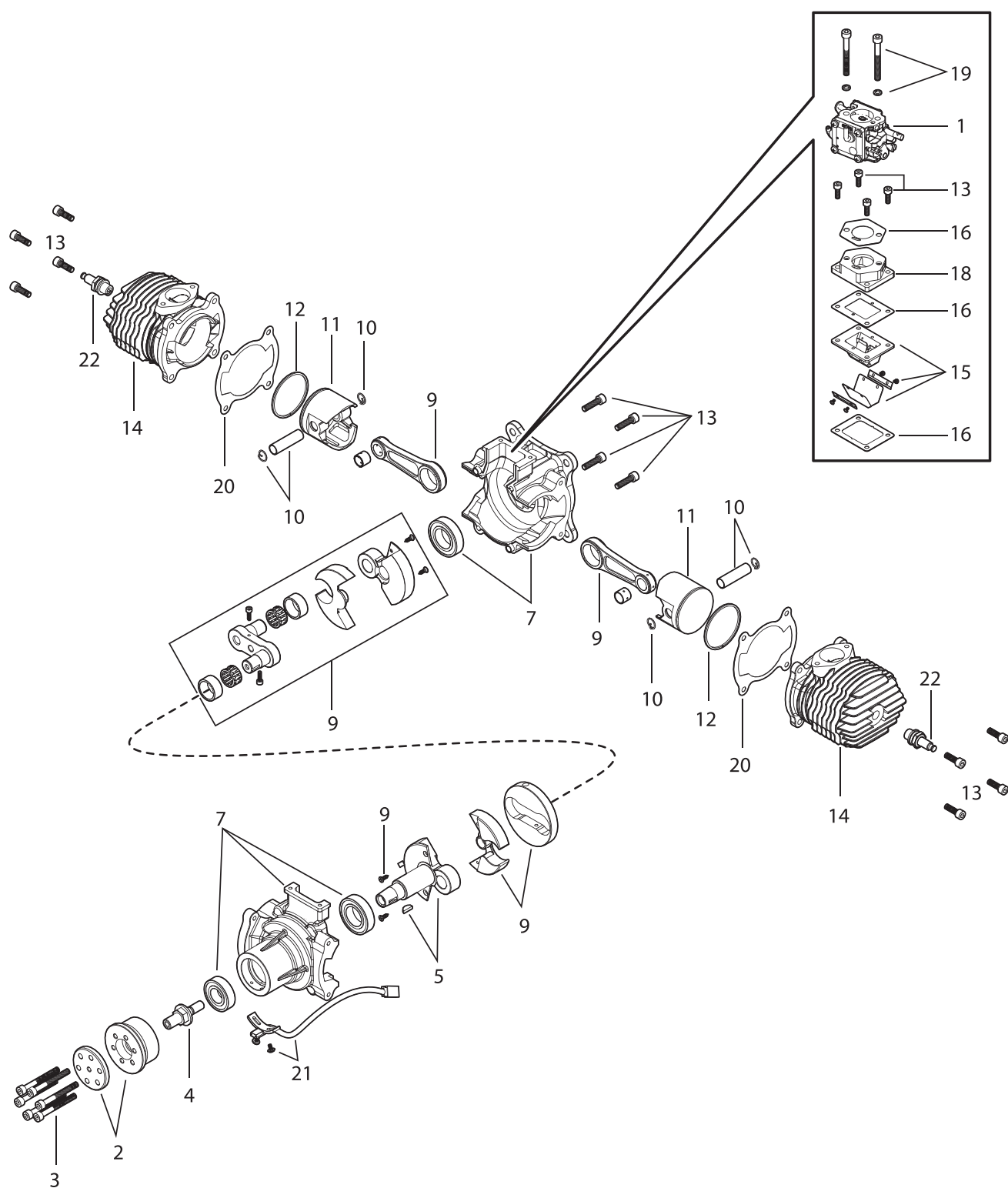
Disp	123cc (7,63 cu in)
Bore	46.0 mm (1.80 in)
Stroke	37.0 mm (1.50 in)
Cylinder	Nikasil plated Aluminum
Plug Type	CM-6
Engine Weight	2682 g (94.6 oz)
Muffler Threads	M5
Baseline Needle Settings	1.5 H 1.75 L

PROPELLER SPECIFICATIONS

The best propeller for your application depends on the airplane and your flying style. Suggested propellers include:

26 x 10"
 26 x 12"
 27 x 10"
 27 x 11"
 28 x 10"
 29 x 9"

EXPLODED VIEW



PARTS LIST

#	Description
1	Walbro Carburetor 125
2	Prop Washer & Screws 125
3	Prop Bolt Set (4) M5 x 45 125
4	Prop Driver Ret Bolt 125
5	Prop Driver with Key 125
6	Ignition System 125
7	Crankcase (Fr & Rr) with bearings 125
8	Crankcase Align Key (2) 125
9	Crankshaft Assem with Conrods 125
10	Piston Pin with Clips 125
11	Piston 125
12	Piston Ring 125
13	Crankcase & Cylinder Bolt Set 125
14	Cylinder Head 125
15	Reed Cage & Screws 125
16	Carb & Reed Cage Gasket Set 125
17	Intake Reeds & Straps 125
18	Carburetor Mounting Block Set 125
19	Carburetor Mounting Bolt Set 125
20	Full Engine Gasket Set 125
21	Ignition Sensor & Mount 125
22	Spark Plug CM6