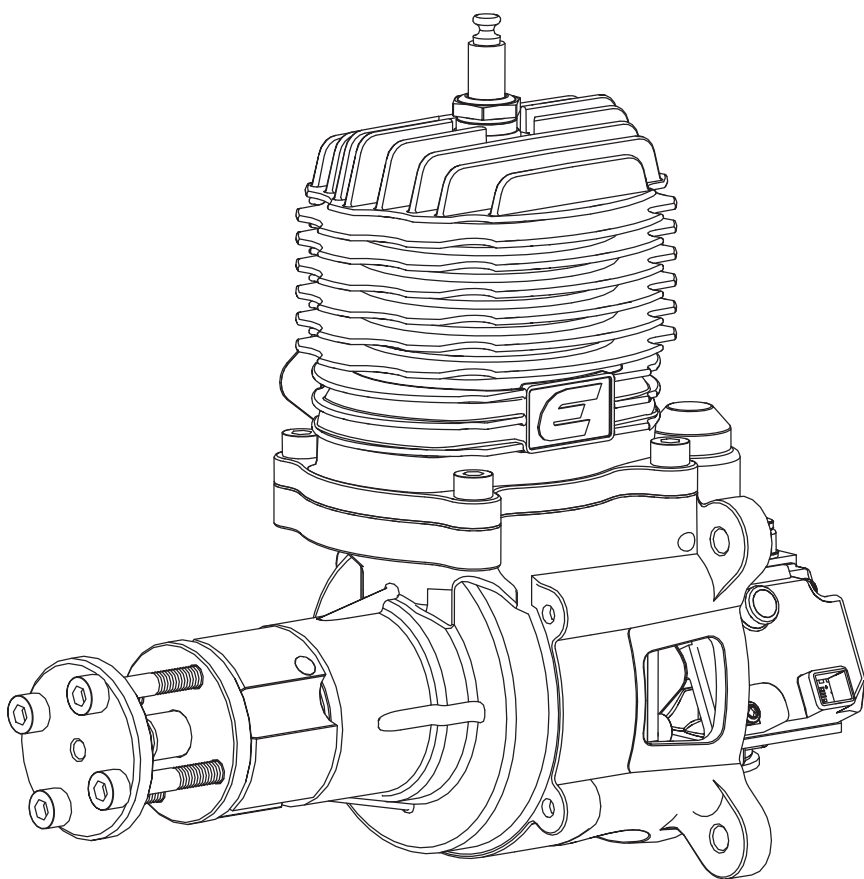




GAS/PETROL

62 GXI

Evolution® Gas Engines



### NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit [horizonhobby.com](http://horizonhobby.com) and click on the support tab for this product.

### MEANING OF SPECIAL LANGUAGE

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

**NOTICE:** Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

**CAUTION:** Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

**WARNING:** Procedures, which if not properly followed, create the probability of property damage, collateral damage, serious injury or death OR create a high probability of superficial injury.



**WARNING:** Read the ENTIRE 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.

This is a sophisticated hobby product and NOT a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential 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.



**CAUTION:** This product can become extremely hot when in use, which could lead to burns.

**Age Recommendation: Not for children under 14 years. This is not a toy.**

### Safety Warnings

Model engines produce a substantial amount of power, which can create unsafe situations if not used correctly. Always use common sense and observe all safety precautions when operating, handling or performing any procedure involving your engine. Failure to follow safety precautions could result in serious injury and property damage.

- Always ensure spectators, especially children, are at least 30 feet away when running the engine.
- Always ensure that the propeller is securely attached to the engine shaft and all retaining fasteners are tightened properly before EACH flight. Use of blue threadlock to tighten nuts is advisable.
- Always keep small parts out of the reach of children as they can be choking hazards.
- Always secure the airplane before powering the engine.
- Always keep your face and body away from the path of the propeller blades when starting or running your engine.
- Always stand behind the propeller when making carburetor adjustments.
- Always wear safety glasses or goggles when starting and running your engine.
- Always keep your fuel in a safe place away from sparks, heat or anything that can ignite.
- Always ensure the aircraft is secure and will not move once the engine is started.
- Always rebind your transmitter to your receiver(s) after setup and before first flight.
- Always ensure the throttle failsafe is set to low throttle in your transmitter.

- Always perform a range check prior to flight.
- Always use the throttle linkage to shut off the air or turn off the engine power switch to stop the engine.
- Never use hands, fingers, or any other body part to stop the propeller.
- Never throw any object into a propeller to stop it.
- Never run the engine in the vicinity of loose small objects, such as gravel or sand, to avoid the propeller uncontrollably throwing such materials.
- Never wear loose clothing or a loose neckstrap when operating your model engine as these items could become entangled in the propeller.
- Never have loose objects such as screwdrivers, pencils, etc. in your pockets when operating your model engine. These could fall into the propeller.
- Never allow fuel to come into contact with eyes or mouth. Gasoline and other fuels used in model engines are poisonous.
- Always ensure gasoline and fuel are stored in a clearly marked container away from the reach of children.

### Precautionary Guidelines

- Always mount the engine securely on a bench mount or high-quality engine mount.
- Always use the correct size and pitch of propeller for your engine. Refer to the Propeller Chart in this manual.
- Always confirm proper balance of your propeller prior to installation of the engine. Failure to do so could result in damage to the engine and/or airframe.
- Always utilize an electric starter to start your engine.
- Always discard any propeller that is nicked, scratched, cracked or damaged in any way.
- Always run your model engine in a well-ventilated area. Model engines can produce possibly harmful carbon monoxide fumes.
- Always store your fuel safely in a sealed, water-resistant container.
- Always store fuel in a cool, dry location. Do not allow fuel containers to come in direct contact with concrete, as the fuel may absorb moisture.
- Always responsibly discard fuel if there is condensation and/or water inside the fuel container.
- Never return unused fuel from the fuel tank back into the fuel container.
- Never attempt to repair or modify a propeller beyond its intended use.
- Never handle model engines, mufflers and/or tuned pipes until they have had time to cool. They can become extremely hot when in use.

## Introduction

Thank you for purchasing the exciting new Evolution® 62 GXI engine. A first in gasoline RC engines, the 62 GXI features a throttle body fuel injection system. No longer will you have to deal with needle valve settings and tuning your engine. The 62 GXI automatically manages fuel metering, letting you worry about more important things like flying! Mounting the 62 GXI is simple with the overall dimensions designed to fit current giant-scale offerings. Because its prop, muffler, and mounting dimensions match other popular 50cc and 60cc engines, the 62 GXI is a drop-in fit for many existing 50–60cc airframes.

### 62cc GXI Gas Engine Design

Building upon our proven small block gas engines, the 62 GXI takes ease of use and reliability to the next level.

- Step 1 *Start with a ‘clean sheet of paper’.* This is a completely new engine designed as a powerhouse with user-friendly qualities for 50–60cc airplanes. Making the engine powerful, reliable and easy to operate were key design considerations.
- Step 2 Design a new throttle body fuel injector system around this engine. Fuel injectors have never been used on gasoline RC engines, although they have become standard for other industries like the automobile industry. Bringing this technology to RC engines enables flyers to enjoy more flying time with less hassle.
- Step 3 Include an effective, wraparound style in-cowl muffler with the engine so flyers won’t have to source a muffler before they can fly.
- Step 4 Design operating accessories that enhance the gasoline engine experience.

- The construction and reliability of the fuel delivery system to the fuel injector is critical. Microscopic pieces of dirt will wreak havoc on the injection system. The included Sintered Plastic Filter Clunk (EVOA121) takes care of the dirt problem. **It is mandatory** to use the included filter to ensure trouble-free operation.
- The same holds true for air bubbles from the tank or any small leak in the fuel tubing; even small bubbles are simply not tolerated in this system. The included filter and tubing ensure no air bubbles affect the system.
- We found that popular gasoline fuel tubing has its weak points. Normal Tygon® tubing (the go-to choice for gasoline engines) does not withstand high temperatures well and tends to get stiff and brittle with use, and Neoprene tubing tends to swell with exposure to gasoline. Swelling will eventually lead to the fuel line slipping off if the line is not secured with a wire tie or similar. Viton® tubing withstands not only the high temperatures, but its durability is much greater than that of either Tygon or Neoprene. The added bonus is that it fits and holds well to the fuel fittings without any need for additional wire or tie-wrap keepers. We recommend you purchase Viton tubing for optimal performance.

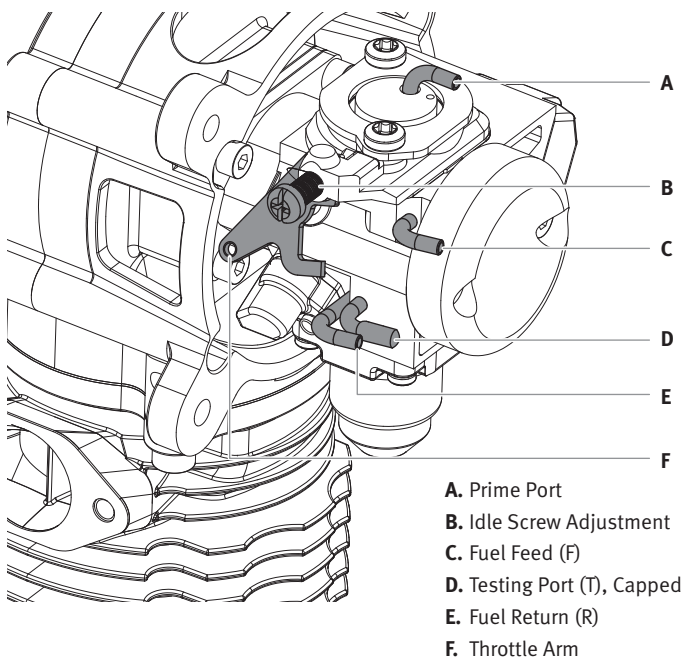
## Included Content

### Engine

EVO M6	Wraparound Inverted In-Cowl Muffler
EVO G620328	Exhaust Mount Bolts with Gasket M5 x 16
EVO G33350	Spark Plug (CM6)
EVO A107	Evolution/Spektrum™ Telemetry RPM Adapter Cable
EVO A121	Sintered Plastic Filter Clunk

### Optional Items

EVO A100	Optical Electronic Ignition Kill Switch
EVO A108	Locking Fuel Can Cap
EVO X1001Q	Evolution Synthetic 2-Cycle Oil
HAN155	Ultra Fuel Pump
HAN156	Tachometer



## Installing the Engine

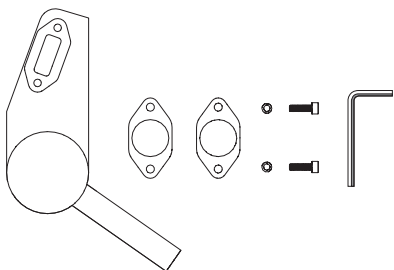
Secure the engine to the airplane firewall using either M6 or 1/4–20 bolts. Use spacers or standoffs as needed to set the correct firewall-propeller distance according to the airplane manufacturer's instructions.

☛ Refer to end of the manual for a full-size firewall template cutout.



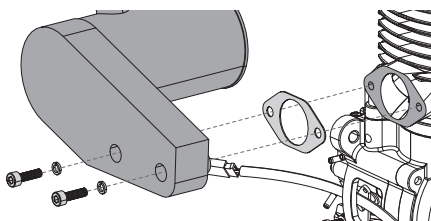
**WARNING:** Tighten all engine mounting screws before each flight. If you do not tighten the engine mounting screws, the screws may vibrate loose and cause the engine to separate from the fuselage.

## Installing the Muffler



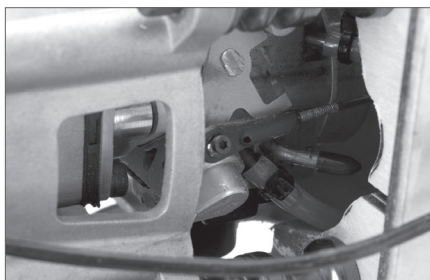
⚡ The muffler mounting accessory package includes mounting screws (2), lock washers (2), muffler gaskets (2) and an L-wrench.

⚡ We suggest using high-temperature RTV as a locking agent on the muffler screws to keep them tight.



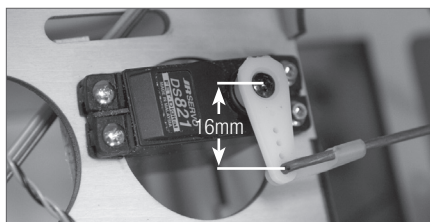
1. Put a lock washer on each of the muffler screws. Push the muffler screws through the muffler.
2. Place the muffler gasket over the muffler mounting screws.
3. Align the muffler gasket with the exhaust opening and the muffler mounting screws.
4. Tighten the muffler screws.

## Connecting the Throttle Linkage



1. Use a 3mm ball-link to attach the throttle linkage to the throttle arm on the throttle body.
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 engine when the throttle stick is moved to low throttle. If it doesn't, reverse the servo direction in your transmitter. If you use servo reversing, you will need to rebind your transmitter to the receiver for failsafe to function properly.
5. Move the throttle stick to low throttle on the transmitter. Reduce the throttle trim to its lowest setting.

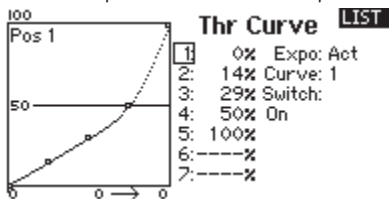
6. Move the linkage connected to the throttle body to full-idle (forward). On the servo arm, find the hole that is closest to 16mm (5/8 in) from the center of the arm. Mark the pushrod where it meets this hole.



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 throttle body 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 approximately within 10% of each other.

## Throttle Curve Setup

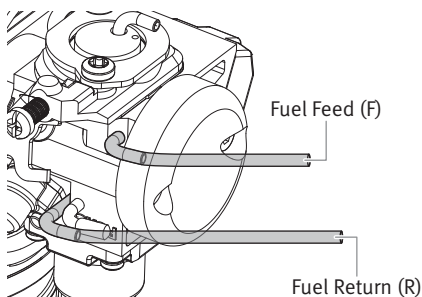
The engine's throttle body flapper valve provides non-linear engine response to throttle changes (greater power increase between low throttle to 50% than 50% to full throttle). We recommend using the Throttle Curve feature on your transmitter to provide a more linear response.



Using these Throttle Curve settings, shown from a Spektrum™ DX18 transmitter screen shot, with a properly setup throttle linkage will provide a very linear feel to the throttle.

1. Ensure you have set up the throttle linkage as described in the Connecting the Throttle Linkage section. It is very important that the low throttle and high throttle endpoint travel of your servo be as close to even as possible (i.e. Low throttle, trim closed -100%, high throttle 100%). A variation of as much as 10% between these two values is tolerable.
2. Enter the numbers from the diagram into your transmitter's Throttle Curve menu and activate exponential (if applicable).
3. Once the engine is started and running correctly, check the feel of the throttle response. Adjust it to your liking through your transmitter's programming screen.

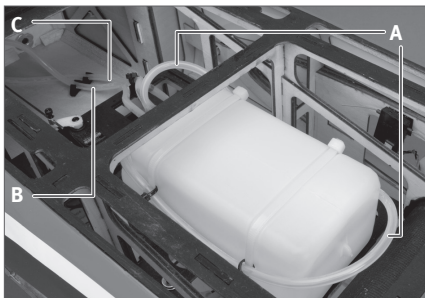
## Attaching the Fuel Lines



Refer to the Fuel Delivery System section for information on plumbing the fuel tank. This system uses a new setup and requires special attention when setting up the fuel tank.

1. Connect the medium diameter Viton fuel tubing to the fuel tank supply line and the fuel tubing connector on the throttle body labeled "F".
2. Connect the medium diameter Viton fuel tubing to the vent line. Run this fuel line either around the back of the tank or make a loop on top of the tank to create an "anti-siphoning" loop. Take the other end of the fuel line and route it outside the airplane fuselage.

3. Connect the medium diameter Viton fuel tubing to the return port on the throttle body labeled "R". Connect the other end of this line to a tee. Connect one end of the tee to the fueling line in the tank and the other end to the aircraft fuel inlet wherever you feel is most appropriate. We recommend you use an external fuel dot in order to fuel the airplane without needing to remove any hatches or cowl.



- A. Tank Vent Tube  
B. Fuel to EFI Unit  
C. Return Line from EFI and Tank Fill Tube

## Attaching the Propeller and Spinner



◆ Refer to the Propeller Drilling section for instructions on how to properly drill a propeller.

1. Remove the 4 propeller screws from the prop driver.
2. Insert the 4 screws through the front prop washer, followed by the propeller, spinner backplate, rear prop washer and finally thread them into the prop driver.

3. Begin to tighten all 4 screws until they are all hand-tight.
4. Tighten all screws with the included 4mm L-wrench in a clockwise circle until all screws are tight.
5. Install the spinner cone. Make sure the spinner cone is not touching the propeller. Trim the propeller opening if necessary.
6. Tighten the spinner screw to secure the spinner cone.

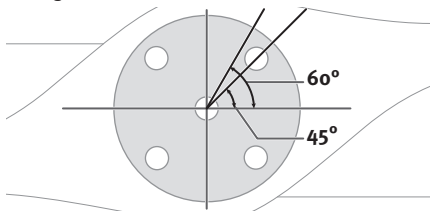
### Recommended Propellers

22 x 10–24 x 10 (a Falcon 23 x 9 has tested to be the best performer with this engine, although the performance is very good throughout the recommended range).

## Propeller Drilling

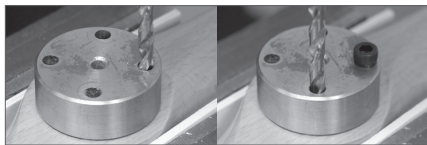
Use a manufacturer's drill guide to drill four holes in the propeller. The guide ensures that the propeller bolts align with the driver and do not cross-thread. If you do not have a drill guide, use one of the propeller washers from the engine; however, this method is not recommended and may result in poor fitment and damage to the propeller washer. If using a propeller washer, follow the same instructions as below. Using a drill press is also highly recommended, but not required.

1. If your propeller has a 10mm (0.39 in) center hole, move to Step 2. If not, use a propeller reamer to widen the center hole to 10mm.
2. Place the drill guide into the propeller center hole.
3. Align the bolt pattern where it is convenient when mounted on the engine. See below for the best alignment. This will orient the propeller so that it is in a comfortable position to hand-start when up against compression. It is best to check this on your engine first.



4. While using a secure method to hold the propeller and drill guide (we recommend a vise), drill the first hole (order does not matter). Drill carefully and take your time.

The more precisely you drill the propeller, the better the fitment of the bolts. If drilling a carbon fiber propeller, pull the bit out every few seconds to clear the hole of any material and allow the bit to cool. Drilling through carbon fiber is tough on drill bits and takes longer to complete than wood or plastic.



5. Before drilling any more holes, take a propeller bolt and place it in the newly created hole. This will help keep the drill guide aligned and keep it from rotating when drilling the other holes.
6. Drill the rest of the holes.
7. Remove the drill guide.
8. If desired, take a chamfering tool and carefully cut a chamfer in each hole on each side of the propeller.



## Connecting the System Wiring Harness Assembly

The battery voltage required is 8.4V (2S Li-Po battery). **Do not use a voltage regulator.**

We recommend a 2S Li-Po battery (such as the Spektrum Li-Po Receiver Pack 2000mAh (SPMB2000LP)) as we have done extensive testing with this pack. The maximum current draw at full throttle is 650mA, and our more typical average has been between 300–350mA.

### The assembly consists of:

- Ignition module with battery connector, ignition sensor connector, tachometer readout connector and spark plug connector
- Ignition sensor (already attached to your engine)
- Sensor magnet (already installed in the prop drive hub of your engine)
- EFI (Electronic Fuel Injection) module, wiring harness with power and RPM pickup connectors
- Switch to power EFI and ignition module (not included)
- 2S Li-Po battery (not included)

### Mounting Your Electronic Ignition

- You can mount the unit in any orientation and place that is convenient for your installation. You can also mount it to the firewall or under the engine firewall extension if your airplane is so equipped. Keep in mind that it should be mounted away from the heat of the muffler.
- Secure the ignition module to your chosen location with foam padding to provide vibration isolation. We typically mount it conveniently with tie wraps after wrapping the ignition in lightweight 1/4-inch foam rubber. You can also use the mounting ears on the ignition to secure it to your aircraft using screws.
- You may need to route both the spark plug connector wire and the ignition sensor wire through the firewall, so be sure to plan ahead and provide adequately sized holes that will allow you to pull either the ignition sensor connector or the spark plug cap connector through the holes for later ignition removal.
- Mount a good quality radio receiver type switch (EVOA112) between the EFI/ignition unit and the battery. Mount this switch in a convenient place on the outer fuselage close to the front of the airplane to make it easy to turn the system on and off. Being able to easily shut off the engine power supply is an important safety consideration.
- The input side of this switch should be connected to your battery used for the engine power system. The output side of this switch should connect directly to the EFI wiring harness labeled “Power”.
- Connect the ignition sensor wire to the ignition module. The sensor wire will only fit into one of the connectors so you cannot connect it wrong.
- Connect the ignition module tachometer output to the EFI wiring harness connector labeled “Tach in”.
- Connect the red power lead from the ignition module into the wiring harness lead labeled “Ign Power”.
- For added security and controllability, add an additional radio-operated kill switch (such as the Optical Ignition Kill Switch EVOA100) between the engine system battery and the input side of the ON/OFF switch.
- If desired, you can connect either the separately available tachometer readout or the included Evolution/Spektrum Telemetry Adapter Cable (EVOA107) to the connector labeled “Telemetry” on the EFI wiring harness. Plug the other end of the adapter cable into the Spektrum telemetry module’s rpm input port.
- Connect the spark plug connector to the spark plug. This spark plug connector utilizes a locking snap ring to ensure a solid connection. Push it straight onto the spark plug to secure.
- Make sure you charge your ignition battery. You are now ready to operate your electronic fuel injection equipped engine.

## Fuel

This engine requires a mix of 32:1 gas to oil lubricant ratio for break-in and a mix of 40:1 gas/oil ratio for normal operation in order to last a long time.

The needle bearing at the bottom end of the conrod depends upon this lube ratio to operate properly.

Do not go leaner than a 32:1 gas/oil ratio for the first gallon of fuel. After this you may decrease the oil content to a 40:1 gas/oil ratio if desired. Do not go leaner than a 40:1 gas/oil ratio or the warranty on your engine will be voided.

To properly mix the fuel, for a mix of 32:1 gas to oil, add 4.0 oz of good quality 2-stroke oil to one gallon (or 31 mL of oil to one liter) of 87–93 octane fuel. (EVOX1001Q Evolution 2-stroke oil is recommended) We prefer to add the oil first to our fuel container and to add the gasoline second. This helps to ensure a good mixture of the oil with the fuel at the outset.

We have tested our own Evolution 2-stroke oil, Valvoline, Shell, RedLine and Husqvarna oils. Other quality 2-stroke oils should work as well.

## Fuel Delivery System

It is very important to properly construct your fuel supply system to avoid operating problems. Our experience has shown that many seemingly engine related operating problems are in fact fuel delivery problems, not engine related problems.

### Fuel Filtering

Because of the incredibly small passages in the injection system, even the smallest impurities introduced into the fuel delivery system can cause issues. For that reason, filtration of the fuel is mandatory in a few different spots in the system:

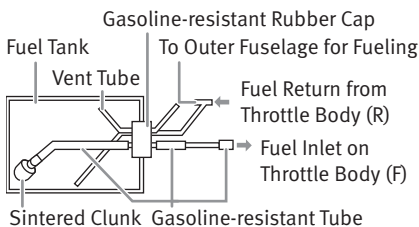
1. Between the fuel jug and the airplane fuel tank.
2. Within the fuel tank itself (with the included Sintered Plastic Filter Clunk (EVOA121)).

### Tank Choice and Construction

Choose a tank with at least 24 oz (700mL) capacity. A 24 oz tank will yield 12 minutes of flying time. This engine has a fuel consumption rate of about 2.2 oz/min (65 mL/min) at full throttle.

- Ensure you use a tank stopper made for use with gasoline and/or smoke oil.
- The EFI system *requires* a three-line tank system; one for the line to the carburetor fuel feed port with the sintered plastic filter clunk attached internally, one for the vent line from the tank to the outside of the airplane, and one serving double duty to fuel/defuel the tank, and act as a return line from the throttle body. A “T” fitting (like the one included with the Hangar 9® Fuel Filler with “T” Fitting and Overflow Fitting

(HAN116)) is used to connect the fueling tube to the return line.



- Ensure you use the provided Viton tubing in all the plumbing of the tank, externally and internally.
- Ensure you use the included sintered plastic filter clunk inside the fuel tank.
- Ensure there is a good seal system for the dedicated fueling/defueling line. We highly recommend the HAN116 Fuel Filler Assembly for its sleek look and ease of use when installed on your airplane. This Fuel Filler package also includes the “T” fitting required for the tank system as outlined above.

## Engine Fuel Injection System in Operation

The 62 GXI features an adaptive algorithm that will “learn” the best settings for your environment and flying conditions every time you run the engine. When the engine is shipped from the factory, it is loaded with base settings that will enable you to run the engine in any environment. As the engine runs, the adaptive algorithm fine-tunes the settings for your environment. Every time you power off the EFI, it resets back to the default settings.

## Engine Break-in

Your new engine needs to be broken-in to ensure a long life of all the components. This engine features a piston ring design, which requires a specific break-in procedure to ensure a tight seal between the piston ring and liner. 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.

### Important considerations during break-in

- 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 (22 x 10 or 23 x 9). This provides less load and high RPM that, when matched with the heat of the engine, will break in the engine properly. We do NOT

recommend using a 24 x 10 propeller during the first gallon of fuel, as this propeller is highly loaded and would put undue stress on the engine during break-in.

- Use the proper recommended fuel with a 32:1 gas to oil ratio for the first gallon of operation.

## Break-in process

- **First tank of fuel:** Run the engine on the ground for its first tank of fuel and DO NOT go above half throttle. 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 cool-down dives and lower-throttle flying.
- **Third tank of fuel:** Fly the engine at high throttle setting for extended periods of time. 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.

Fly the airplane through the first gallon of fuel, then you can change the fuel mixture to 40:1 for continued operation.

## Telemetry

Telemetry is a huge asset to help you take care of your engine. The EFI/ignition module is even capable of communicating with Spektrum telemetry systems directly so you won't have to add an additional RPM sensor. You will need to connect the Evolution Ignition Telemetry Adapter (EVOA107) between the "Telemetry" connector on the EFI wiring harness and the RPM port on your Spektrum telemetry module in order to utilize this feature. Telemetry systems other than Spektrum may require a dedicated RPM sensor.

We recommend using the Spektrum DSMX Full Range Aircraft Telemetry Module (SPM9548) in conjunction with the included adapter. This system allows you to see real-time RPM and temperature readings from the engine.

The temperature sensor should be wrapped around the base of the spark plug on the cylinder head with the thermistor facing towards the front of the engine. Using telemetry gives you an accurate representation of actual temperature and rpm figures during use, and warnings can be set to go off if your engine is getting too hot.

The temperature range should be 190–240°F (87–115°C) on average. Set your maximum temperature warning to go off if the engine exceeds 270°F (132°C). If your engine is continually near this peak temperature or higher, immediately decrease throttle to bring the temperature down.

If this continues to occur, land the airplane and investigate getting more effective cooling to the engine. Often this is accomplished by adding baffling that directs the intake air more directly over the engine. Or you can increase the hot air exhaust area from the cowl. It is not good for the engine to run at temperatures this high and could cause damage if not attended to.

## Starting and Running the Engine

It is critical to the proper operation of your 62 GXI that you use the included filtered clunk. Fuel should also be filtered in your fueling system before it enters your model. Failure to properly filter the fuel before it reaches your engine will have a negative impact on the engine's performance and reliability.

1. Power ON the radio system but leave the engine power system OFF.
2. On the first flight of the day, press the primer bulb 10 times. There is no need to worry about flooding the engine. If the primer bulb is pressed too many times, it will only return the extra fuel to the fuel tank.
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 counterclockwise until it is against compression. Flip the propeller through compression until it starts.
6. Let the engine run at high idle for 30 seconds to stabilize the temperatures.
7. Lower the throttle trim to your desired idle setting.

### **If the engine doesn't start quickly**

1. Check to make sure fuel is moving through the EFI by pressing the primer bulb and watching the fuel lines.
  2. If the engine appears not to have any fuel, repeat the priming procedure in step 2.
- Repeat 1–4 of Starting and Running the Engine.

## Troubleshooting Guide

### If the Engine Does Not Start

- Check and use a new spark plug if needed. Check by removing the spark plug from the cylinder. 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 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 EFI system to operate properly.
- Check for proper mechanical function by turning the engine over.
- Check that the throttle body is correctly installed and that all gaskets between the EFI unit and engine are intact and undamaged.
- With the engine power system ON, move the ignition sensor past the magnet (as outlined above) and listen for the EFI unit to click. If you do not hear a clicking (the spark plug not firing) coming from the EFI unit, charge your engine power system battery.
- Check that the vent line is attached and free from any bends or blockages.

### If the engine runs erratic

- 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 spark system is working properly and the engine power system battery is charged.

### Mechanical Faults

If the engine cannot be turned over easily:

- The most likely cause is the engine is flooded and by turning the engine over you are trying to compress the fuel, not air.
  1. Remove the spark plug.
  2. Cover the cylinder head with a cloth or paper towel and turn the propeller over to expel all the excess fuel.
  3. Replace the spark plug and try starting again.
- A possible cause is the piston in the cylinder is seized: 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 Horizon Hobby Customer Support for more information. Repair of a seized piston/cylinder is mechanical and should not be attempted.

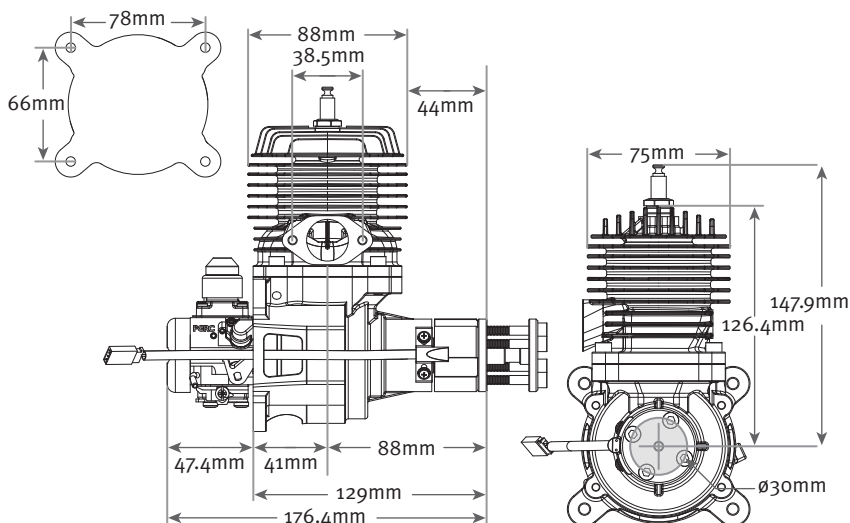
Mechanical repairs must ALWAYS be completed by an authorized Horizon Hobby service center.

### Maintenance

After each flying session, fully drain the fuel from the tank.

If you need additional help or have any questions, please call Horizon's Support Team. Horizon has trained technicians who are qualified to answer your engine questions.

## 62 GXI Evolution Engines Specifications



Disp	62cc	Weight	
Bore	46.0mm	Engine Only	53.8 oz
Stroke	37.0mm	Muffler	8.2 oz
Cylinder	Ringed	Ignition	4.6 oz
Propeller	23 x 9 @ 7300 rpm	Total	66.6 oz

### Propeller Specifications

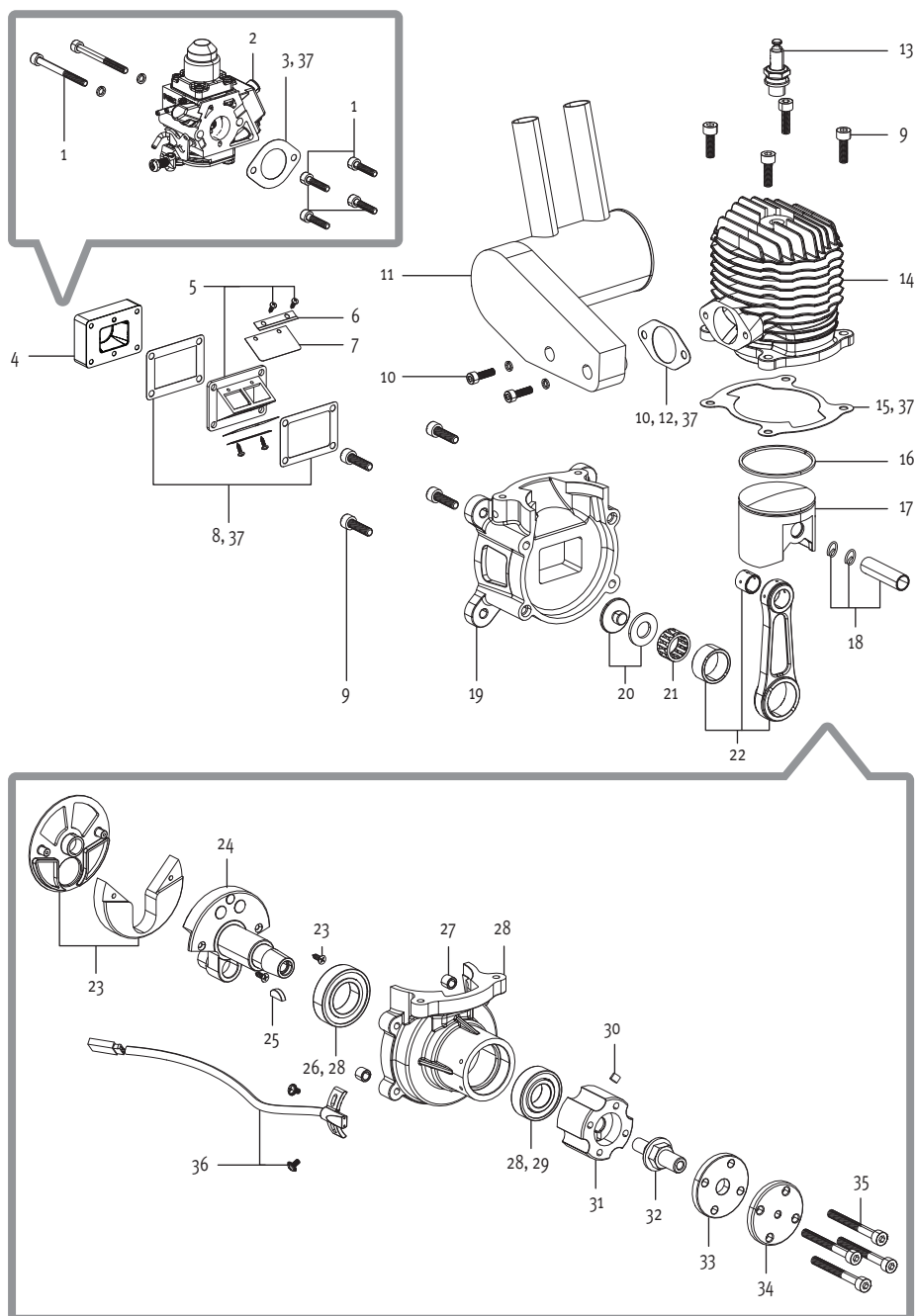
Propeller		RPM Low	RPM High
Xoar (wood)	22 x 10	6950	7200
Xoar (wood)	23 x 8	6900	7200
Mejzlik (CF)	23 x 8	6950	7100
Mejzlik (CF)	23 x 10	7000	7150
Mejzlik (CF)	24 x 10	6400	6600
Falcon (CF)	23 x 9	7250	7400
Falcon (CF)	23 x 10	6900	7200

### Parts List

#	Description	Part
1	Carb Mounting Bolt Set	EVOG620841
2	Throttle Body EFI	EVOG62400
3	Carb Gasket (2)	EVOG620842
4	Carb Mounting Block	EVOG620840
5	Plastic Reed Cage	EVOG620835
6	Reed Mount Strap (2)	EVOG620836
7	Intake Reeds (2)	EVOG620837

#	Description	Part
8	Reed Cage Gasket Set	EVOG620834
9	Crankcase Bolt Set	EVOG620326
10	Exhaust Mount Bolts with Gasket M5 x 16	EVOG620328
11	Wraparound In-Cowl Muffler	EVOM6
12	Exhaust Flange Gasket (2)	EVOG620327
13	Spark Plug 33GX (CM6)	EVOG33350
14	Cylinder Head	EVOG620329
15	Cylinder Gasket	EVOG620325
16	Piston Ring	EVOG620424
17	Piston	EVOG620423
18	Piston Pin with Clips	EVOG620421
19	Rear Crankcase	EVOG620531
20	Conrod Retaining Screw	EVOG620219
21	Lower Conrod Bearing	EVOG620218
22	Conrod Assembly	EVOG620216
23	Crankshaft Stuffer Assembly	EVOG620114
24	Crankshaft	EVOG620112
25	Woodruff Key (2)	EVOG620111
26	Rear (Main) Crankshaft Bearing	EVOG620509
27	Crankcase Alignment Keys (2)	EVOG620510
28	Front Crankcase with Bearings	EVOG620507
29	Front Crankshaft Bearing	EVOG620508
30	Ignition Pickup Magnet	EVOG620706
31	Prop Driver with Key	EVOG620705
32	Prop Drive Retaining Bolt	EVOG620704
33	Rear Prop Washer	EVOG620702
34	Front Prop Washer	EVOG620701
35	Prop Bolt Set (4) M5 x 45	EVOG620703
36	Ignition Sensor and Mount Set	EVOG620601
37	Engine Gasket Set 62GXI	EVOG620850
	Evolution/Spektrum™ Telemetry RPM Adapter Cable	EVOA107
	Medium Diameter Viton Tubing (1 meter)	EVOA117
	Sintered Plastic Filter Clunk	EVOA121

## Exploded View





## 2-YEAR LIMITED WARRANTY

**What this Warranty Covers** - Horizon Hobby, LLC (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship for a period of 2 years from the date of purchase.

**What is Not Covered** - This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, or (vi) Product not compliant with applicable technical regulations. OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

**Purchaser's Remedy** - Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

**Limitation of Liability** - HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return

the Product immediately in new and unused condition to the place of purchase.

**Law** - These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

## WARRANTY SERVICES

**Questions, Assistance, and Services** - Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at [www.horizonhobby.com](http://www.horizonhobby.com), submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

**Inspection or Services** - If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at [http://www.horizonhobby.com/content/\\_service-center\\_render-service-center](http://www.horizonhobby.com/content/_service-center_render-service-center). If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

**NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.**

**Warranty Requirements - For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date.** Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

**Non-Warranty Service - Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost.** By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for

service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website [http://www.horizonhobby.com/content/\\_service-center\\_render-service-center](http://www.horizonhobby.com/content/_service-center_render-service-center).

**ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.**

## Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	www.quickbase.com/db/bghjzey8c?a=GenNewRecord 888-959-2305	
	Sales	sales@horizonhobby.com 888-959-2305	
United Kingdom	Service/Parts/ Sales: Horizon Hobby Limited	sales@horizonhobby.co.uk +44 (0) 1279 641 097	Units 1-4, Ployters Rd Staple Tye, Harlow, Essex, CM18 7NS, United Kingdom
Germany	Horizon Technischer Service	service@horizonhobby.de	Christian-Junge-Straße 1 25337 Elmshorn, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	
France	Service/Parts/ Sales: Horizon Hobby SAS	infofrance@horizonhobby.com +33 (0) 1 60 18 34 90	11 Rue Georges Charpak 77127 Lieusaint, France
China	Service/Parts/ Sales: Horizon Hobby – China	info@horizonhobby.com.cn +86 (021) 5180 9868	Room 506, No. 97 Changshou Rd. Shanghai, China 200060

## Compliance Information for the European Union

### **CE Declaration of Conformity** (in accordance with ISO/IEC 17050-1)

No. HH2014053006

Product(s): EVO Engines 62GXI w/SureFire.31

Item Number(s): EVOE62GXI

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European EMC Directive 2004/108/EC:

**EN55022:2010 + AC:2011**

**EN55024:2010**

Signed for and on behalf of:

Horizon Hobby, LLC

Champaign, IL USA

May 30, 2014



Robert Peak

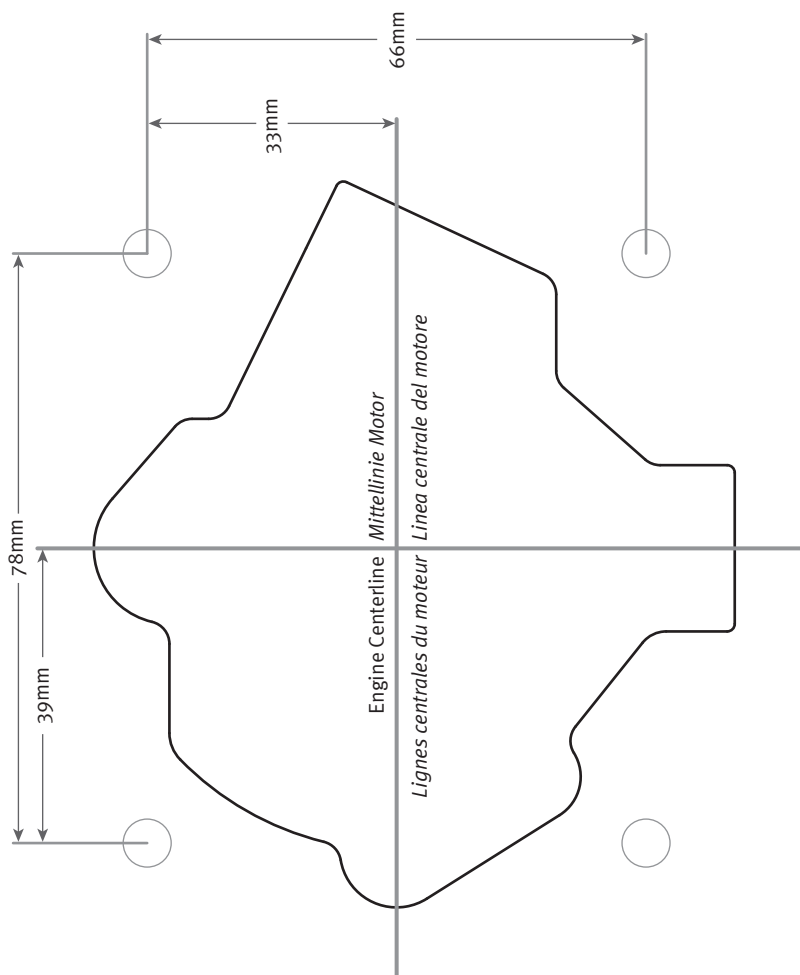
Chief Financial Officer, Horizon Hobby, LLC



#### **Instructions for disposal of WEEE by users in the European Union**

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collections point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Full-size Firewall Template Cutout  
*Maßstabgetreue Darstellung des Motorspantausschnitts*  
*Gabarit échelle 1 d'installation du moteur*  
*Sagoma in dimensioni reali dell'ordinata motore*





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