

Kobuz-3 3.0m

Instruction Manual



The cooperation between Ceflix, PS-Models and CARF-Models is not new to our customers and where all these impressive airplanes are made is a very open secret... So it was a natural development that CARF-Models soon would also help distributing the smaller line of extremely powerful scale gliders as seen in Ceflix' and PS-Models product catalog. As a result the smaller line of gliders is now available at CARF-Models, too. It got the CARF treatment in terms of prefabrication and detail improvements and adjustments for the international markets and HERE IT IS: The CARF-Models Kobuz-3 3m! It introduces a performance never seen before.

CARF-MODELS 

Liability Exclusions & Safety Responsibility

You have acquired a kit, which can be assembled into a fully working R/C model when fitted out with suitable accessories, as described in the instruction manual with the kit. However, as manufacturers, we at CARF-Models are not in a position to influence the way you build and operate your model, and we have no control over the methods you use to install, operate and maintain the radio control system components. For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect application and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by binding law, the obligation of the CARF-Models company to pay compensation is excluded, regardless of the legal argument employed. This applies to personal injury, death, damage to buildings, loss of turnover and business, interruption of business or other direct and indirect consequent damages. In all circumstances our total liability is limited to the amount which you actually paid for this model.

BY OPERATING THIS MODEL YOU ASSUME FULL RESPONSIBILITY FOR YOUR ACTIONS!

It is important to understand that CARF-Models Ltd., is unable to monitor whether you follow the instructions contained in this instruction manual regarding the construction, operation and maintenance of the aircraft, nor whether you install and use the radio control system correctly. For this reason we at CARF-Models are unable to guarantee or provide a contractual agreement with any individual or company that the model you have made will function correctly and safely. You, as operator of the model, must rely upon your own expertise and judgement in acquiring and operating this model.

Personal safety

There are a couple of things that are good to keep in mind when you are assembling your CARF-Models Kobuz-3 3.0m. Some of them are common sense, but it doesn't hurt to be reminded. While you are working with tools and sharp implements, be aware of others around you and the environment you are working in. When cutting or sanding materials, always wear a face mask to avoid inhaling particles. Keep your work environment clean and tidy at all times. A clean workshop will enhance the experience. Protect all parts from scratches and dents. Use rubber matting on your bench, and be careful of components like screws getting between the part you are working on and the bench.

Assembly process

This manual is set to provide detailed pictures of the building steps. You may wish to change and do some things in a different order, which is fine provided you keep in mind that some things need to be done before some others. When planning out the installation of your components, always keep the centre of gravity location in mind. If you plan ahead you can avoid having to add weight to your model. It is far easier to remedy a nose heavy model than a tail heavy model. A few grams of lead at the rear is preferable to hundreds of grams in the nose! You will find that it is easiest to fit items that cannot be relocated, like aileron, elevator, rudder and throttle servos, before you do a preliminary C of G check. Receivers, ignition and batteries etc. can generally be relocated to suit your requirements.

Most of all, enjoy the process of creating your CARF Kobuz-3 3.0m, a job well done is always satisfying!

Kobuz-3 3.0m

Category - Gliders



About

This is a quick guide to the successful installation of RC and propulsion equipment into your new Kobuz-3 3.0m.

We do not have a lengthy manual to bore you with how to tighten a bolt or how to clean a surface before gluing and such. We will provide within this manual the specific details of rigging this airplane successfully for many hundreds of hours of competition flying.

All the equipment we provide is thoroughly tested in this airplane. We did so many flights with the help of nameful pilots, powerful engines to proof if the power is enough and servos to make sure to recommend the best working equipment for you - and that's what we do with this manual now. PLEASE do yourself a favor and do not modify any of the design until you have a considerable amount of flights on the airplane and have a feel for WHY you might want to change this or that, if anything. Please give us the chance to show you that our research and development has been serious and successful and the sophisticated final setup we came up with works better than anything else we tried. We tried a lot!

We have seen a lot of equipment, hardware problems and failures during our testing. What you hold in your hands now is the result of all this hard work. Every detail has a reason. If it isn't exactly what you would have used, please give us the benefit of the doubt, and consider that we might have ALSO been trying to use something else instead which hasn't been working reliably or safely. We do not intend to save cost by providing a cheap solution in hardware and equipment. We are ONLY driven by our test results.

What do you need???

This is list of required products to complete your Kobuz-3 3.0m KIT. This list only is a recommendation of what to equip your airplane with. There is no reason similar products from other brands cannot be used in this plane.

There are many ways and products on the market you can use with the Kobuz-3 3.0m.

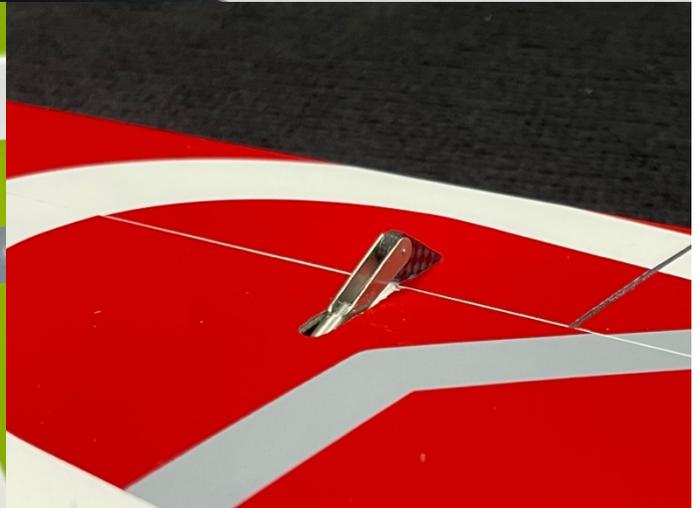
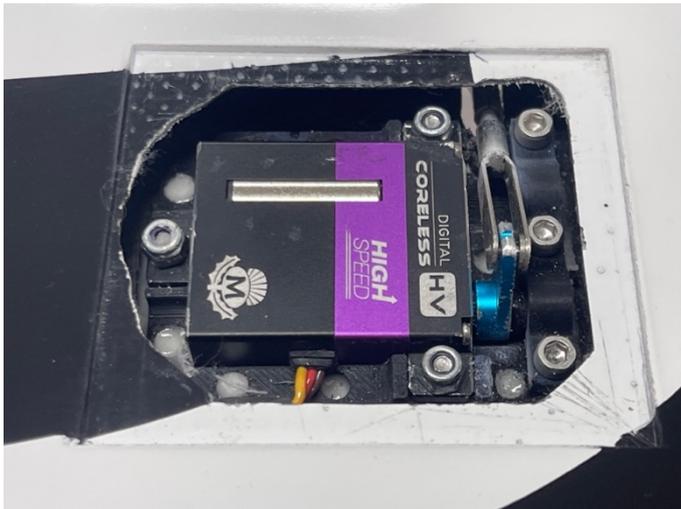
Amount	Required	Possible Accessories
1x	Engine (45-70N)	Xicoy X-45 / X70 /JetsMunt M70-XBL
1x	Fuel Tank	Included in CARF Turbine Installation Kit
1x	Turbine Clamp	Custom Turbine (request at CARF)
4x	flap, elevator, rudder servo	Mac Gregor MGB 5216HV
2x	aileron servo	Mac Gregor MGB 2711WHV
2x	Servo Arm short	CARF Servo Arm 25T 16-28mm
1x	Gyro / RX	Jeti Assist Receiver / Cortex Pro / Igyro
1x	RX Battery	Lipo 2s 2200 - 3000mAh
1x	Turbine Battery	Lipo / Life 3s 1600 - 3000mAh
-	Servo Wire	Powerbox Servo Wire Maxi
-	JR Connectors	JR Connectors

Build Description

Wing

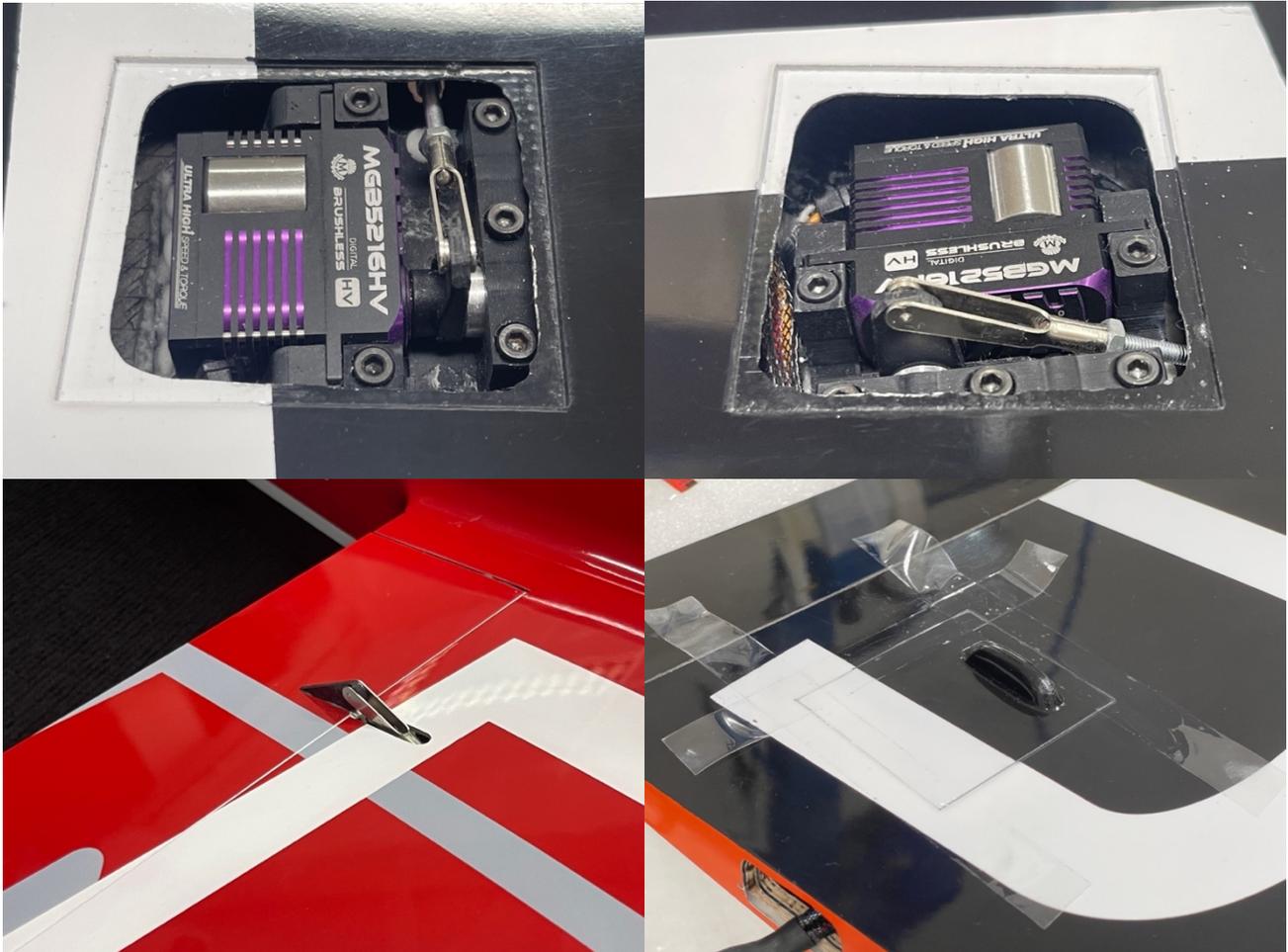
Aileron Servo Installation:

- The servos need to be installed with a matching servo frame
- In the pictures shown servo frames come with the mac gregor servo set available as an accessory at CARF-Models
- The in the hardware included linkage needs to be hinged at 10mm of a short servo arm
- The servo frame needs to be alligned and glued into the wing
- The slot where the linkage goes through should be 25mm long and about 5mm wide



Flap Servo Installation:

- The servos need to be installed with a matching servo frame
- In the pictures shown servo frames come with the mac gregor servo set available as an accessory at CARF-Models
- The in the hardware included linkage needs to be hinged at 16mm of a short servo arm
- The servo frame needs to be aligned and glued into the wing
- The slot where the linkage goes through should be 25mm long and about 5mm wide



Wing Connector:

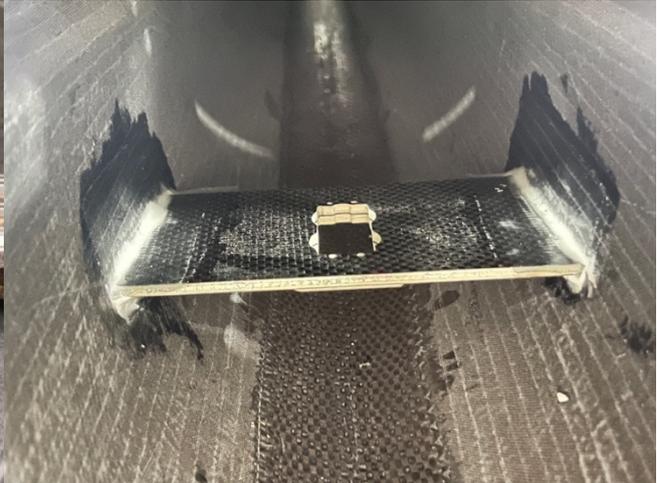
- This is an example of how to install the wing connector
- It should be installed after 30mm behind the wingtube



Stab

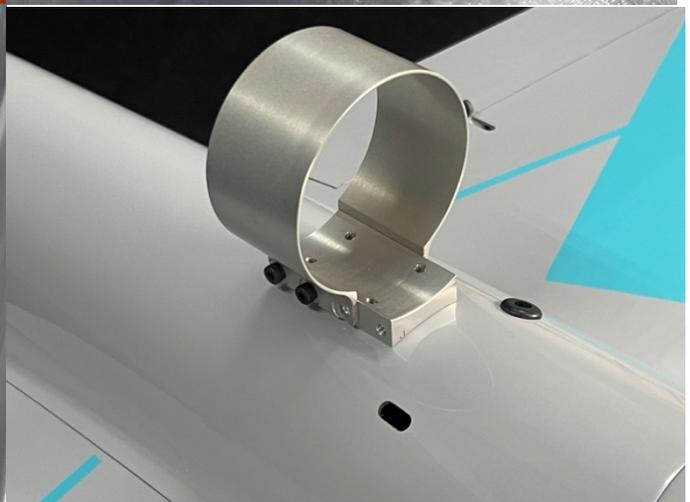
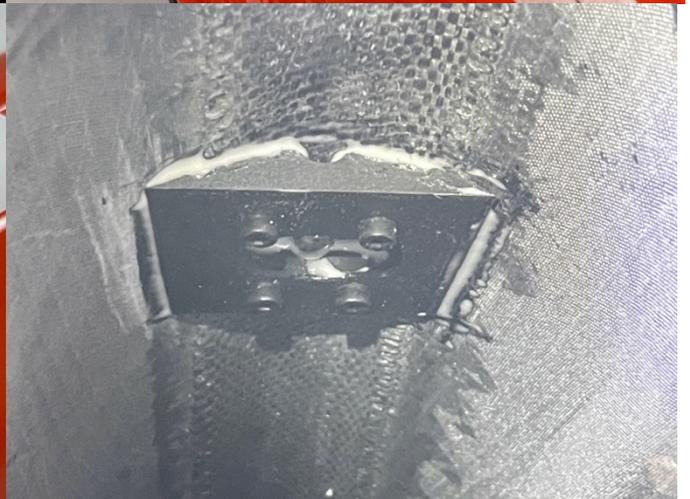
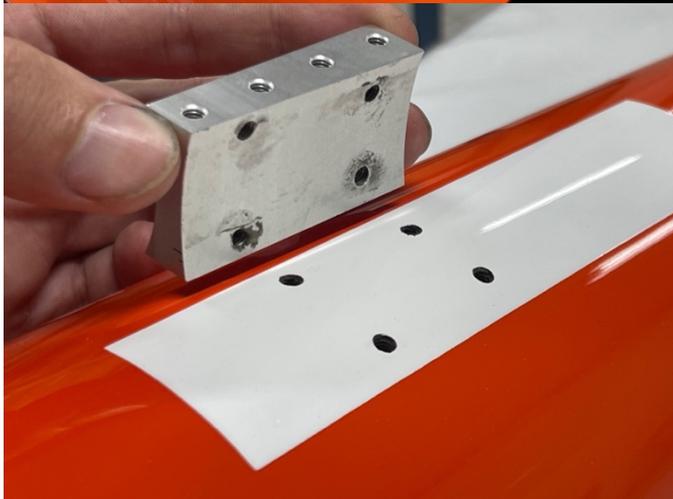
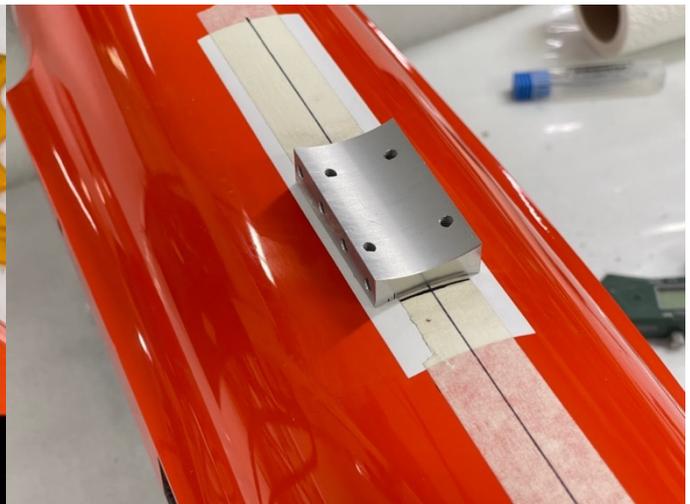
Stab Servo Installation:

- The wood/carbon mounting plate needs to be positioned inside the fuselage by using the elevator linkage rod
- The length of the elevator linkage rod should be 945mm from the clevis to the ball link
- After the mounting plate has been installed by using resin and fiberglass, you can install the elevator servo



Turbine Installation:

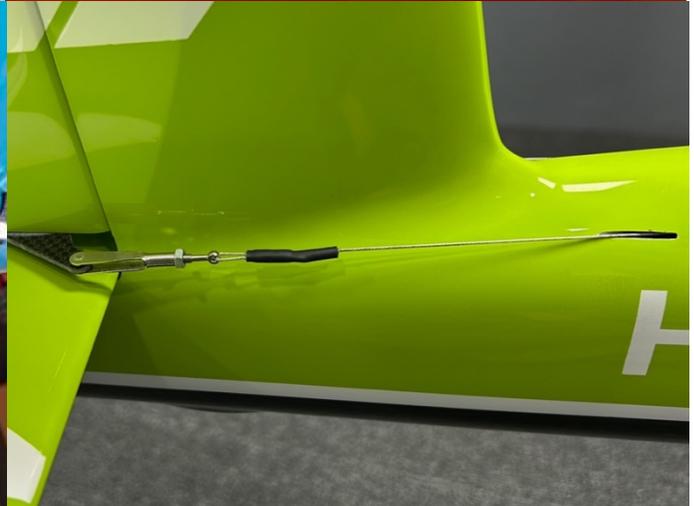
- Place some tape on the carbon mounting surface between the mounting point to protect the paint from cracking during the process
- Use the measurements from picture one to drill the four holes for the aluminium turbine mounting block
- After you have drilled the four holes you'll need to install the 3d print mounting parts from inside the fuselage by using resin and fibreglas
- Next you should drill the holes for your turbine ecu wire and fuel line which can be different from the pictures
- Then you will need to install your turbine with the aluminium clamp



Fin

Rudder Servo Installation:

- First you will need to install the rudder servo mount in the top fuselage just behind the canopy opening
- Use resin and fiberglass to install the wood/carbon servo mounting plate
- The in the hardware included linkage wires with M3 clevis needs to be hinged at 16mm of a double servo arm



Fuel Tank Installation:

- First you should preassemble the fuel tank tray with some resin
- Now add some double sided tape between the fuel tank tray and the fuel tank and put a stripe of welcro all around
- After you completed this step you should place the fuel tank tray directly in front of the elevator servo mount, but just as far as the rear fuel inlet can go before touching the wing spar
- Right at this sweetspot the fuel tank tray needs to be installed with resin and micro
- In the openings in the lower formers of the fuel tank tray you can fit the servo wires



Main Wheel Installation:

- Install the 3d printed main wheel parts with resin and mirco at the position as shown in the pictures



Power distribution, Gyro and Gear Controller Installation

- The rc board included in the turbine installation kit is slightly different from the original rc board
- Anyways, the rc board needs to be installed with resin and mirco in the front of the fuselage
- Onto the rc board you should install the turbine pump, ecu, valve, receiver, gyro and all the way in the front the batteries

Center of Gravity & Batteries

- The center of gravity is at 88mm behind the leading edge, innermost rootrip

Final Settings

Servo arm lengths:

Ailerons approx. 11–13 mm
Flaps approx. 15–17 mm
Elevator approx. 18–20 mm
Rudder approx. 15–17 mm

These values are rough guidelines and depend on the maximum servo travel.

Control surface deflections at neutral position (optionally in degrees):

Ailerons +25 mm / -23 mm (measured at inner edge) $\approx +27^\circ / -25^\circ$
Flaps +20 mm / -15 mm (measured at inner edge) $\approx +17^\circ / -13^\circ$
Elevator +18 mm / -18 mm (measured at center) $\approx +13^\circ / -13^\circ$
Rudder +80 mm / -80 mm (measured at bottom)

These control deflections must also be set identically in the *Thermal* and *Speed* flight modes.

Thermal setting:

Flaps -6 mm (measured at inner edge)
Ailerons matched to flaps $\approx -4^\circ$ (same as flaps)

Speed setting:

Flaps +3 mm (measured at inner edge)
Ailerons matched to flaps $\approx +2^\circ$ (same as flaps)

Landing configuration (Butterfly):

Flaps -65 mm (measured at inner edge) $\approx -62^\circ$
Ailerons +25 mm (measured at inner edge) $\approx +30^\circ$
Elevator -4.5 mm (measured at center) $\approx -4.5^\circ$

The maximum \pm control surface deflections of all surfaces must be achieved with nearly 150% servo travel, ensuring optimal lever ratios at the control surfaces. In addition, all linkages must be completely free of play. Only this guarantees safe operation and minimizes the risk of control surface flutter at higher airspeeds. This must be checked before every flight.

Center of gravity: 87–89 mm (measured at the wing root at the fuselage, from the leading edge)
Incidence angle (EWD): 0.3° – 0.5° (the fuselage wing fairing fits perfectly)
Expo: approx. 25–50% on ailerons, flaps, elevator, and rudder (depending on pilot preference)

Disclaimer:

We cannot accept liability for any damage or consequential damage caused by products originating from our company, as we have no control over their proper use or operation.

Thank you for being a loyal customer, for choosing a fine and technologically very sophisticated aircraft over many other, maybe simpler built choices on the market. We are sure you will enjoy every minute of building and flying your dream glider and taking the Kobuz-3 3.0m to its limits.

We hope you have enjoyed assembling your CARF-Models Kobuz-3 3.0m and you have many years of happy flying with it. If you have found yourself in difficulty and need some assistance, your sales rep is only an email away. Please contact your rep and they will endeavour to assist you, and get you back on track. Alternatively you can contact us via the emails below. We also welcome your feedback, please contact us if you would like to see something added or altered. We are always looking to improve our products and the information we supply.

www.carf-models.com

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