OMPHOBBY

EDGE 540

74" 30-38CC

Team Great Hobbies

BUILD GUIDE

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Introduction & Important Information

Welcome to the build of your OMP 74" Edge 540 from Great Hobbies! We have created this supplementary build guide, offering tips and best practices to ensure a successful assembly. Before you begin, please review the following important safety and equipment recommendations.

A Note on This Guide

Throughout this manual, you will see tips marked with . These are pro-tips, clarifications, and best practices from us to help you get the best results from your build.

THIS IS NOT A TOY!

Serious injury, destruction of property, or even death may result from the misuse of this product. OMPHOBBY is providing you with a high-quality model aircraft component kit, from which you will assemble a flying model. It is beyond our control to monitor the assembly process or your finished aircraft. OMPHOBBY and Great Hobbies will in no way accept or assume responsibility or liability for damages resulting from the use of this user-assembled product.

This aircraft must be flown in accordance with the MAAC/AMA safety code. We strongly recommend you join your national model aircraft association to be properly insured and to operate your model at sanctioned flying fields only.

A Note on Flutter

Flutter is a destructive phenomenon that can cause the complete loss of your aircraft and is not covered under warranty. Proper servo selection and linkage geometry are absolutely essential to prevent it, especially as the OMP 74" Edge has extremely large control surfaces that require powerful, high-quality servos. Inadequate, slow, or low-torque servos, or any "slop" in the linkages, can lead to flutter and the complete destruction of your model.

We recommend the OMG ST-36BF servo (36kg-cm/500 oz-in @ 7.4V) for this airframe, available through Great Hobbies. Other high-quality brands such as Savox and MKS also offer servos with appropriate torque and speed for this application. If you are not experienced in setting up slop-free linkages for a high-performance 3D aircraft, please seek assistance from an experienced builder. It is your responsibility to ensure the final airworthiness of your model.

*A Critical Note on Weight

This 30-38cc class of aircraft is one of the most weight-sensitive categories of aircraft size. This is because the equipment (servos, ignition units, arms) is often the same size and weight as those used on much larger 70cc-class planes.

For this reason, it is essential to be mindful of every gram you add. Optional items like dual receiver batteries, separate ignition batteries, smoke systems, or oversized fuel tanks can quickly make the aircraft heavy and sluggish. We suggest building light to ensure the best performance!

Required Tools

- Screwdriver/Hex Driver Set
- Hobby Knife
- Electric Drill & Drill Bits
- Rotary Tool (Such as a Dremel)
- Covering Iron
- Hobby Heat Gun
- Sandpaper (120-220 grit)
- Pliers
- Ruler or Measuring Tape
- Marker Pen
- Safety Gear - Eye and skin protection, especially when cutting fiberglass or using adhesives.
- Smartphone with Level App

Adhesives & Building Supplies

- 15-30 Minute Epoxy
- Thread-Locker (Blue/Medium Strength)
- Thin CA Glue
- Medium CA Glue
- Flexible Clear Adhesive - e.g., Goop, Gorilla Clear Bond, Clear Grip, Silicone
- Masking Tape
- Double-Sided Tape
- Velcro (Hook and Loop)
- Cleanup Rag, Cotton Swabs & Denatured Alcohol
- Vaseline, Grease or Light Oil

Specs	
Wingspan	73.5in (1867mm)
Length	70.8”
Flying Weight	10-11.5 lbs
Center of Gravity (CG)	120-135mm / 4 ¾ - 5 ¼ ”
Wing Incidence Angle	0°
Thrust Angle	0° Down 2° Right

*** A Note from Great Hobbies on Wingspan**

You may notice the official OMP manual may list the wingspan as 74" (1880mm) and the OMP website lists it as 75". However, as part of our testing, we have confirmed the true, physical wingspan of the aircraft is 73.5 inches, which you will also find listed on the aircraft's data plate. All setup and CG information in this guide is based on this verified 73.5" measurement.

Before You Begin: Covering Maintenance

Your aircraft has been on a long journey since it left the factory. Changes in weather and humidity may have caused the covering material to wrinkle. This is normal. Learning to remove these wrinkles is a necessary skill for maintaining your wood aircraft.

The basic tools required are a covering iron and a hobby heat gun.

Start by using the covering iron at a low-to-medium setting (approx. 220°F / 104°C) to seal all seams and edges of the covering scheme. This is CRITICAL on the leading edges of wings and stabilizers.

Once all edges are sealed, increase the iron's temperature (approx. 300°F / 149°C) or use a heat gun to shrink out any wrinkles in the open areas.

GO SLOWLY AND CAREFULLY to avoid over-shrinking or burning the covering. Let the heat do the work. This is a skill that takes practice.

***Always remove the canopy from the aircraft when using a heat gun to protect it from heat damage.**

Periodically repeat this process to keep your aircraft in top condition.

Required Equipment

Gas Setup (30-38cc)

- **Engine**
  - Desert Aircraft DA-35
  - Great Power GP-38
  - DLE 35RA
- **Propeller:** 20x8 Falcon Carbon (gas)
- **Fuel Tank:** KUZA 14 oz. fuel tank
- **Fuel Dot:** Most O-ring type or magnetic fuel dots will work
- **Fuel Vent:** KUZA aluminum fuel vent bulkhead fitting

*We recommend replacing the stock metal clunk with a KUZA felt/filter clunk. Additionally, we recommend a KUZA magnetic fuel dot. We also recommend the KUZA aluminum fuel tank vent for a cleaner install.

Electric (12S)

- Motor
  - Sunny Sky V3 X7015-215KV (30cc Equiv)
- ESC
  - Spektrum Avian 120-Amp Brushless Smart ESC 6S - 12S
  - Castle Creations HV-120 Edge ESC
- Battery
  - Two 6S 3300-4000 mAh batteries in series (12S)
- Propeller: Falcon 22x8 (electric)

Servos

- Qty. 4 Full size, metal gear hi-torque servos min 280-480oz-in (20-35kg-cm)
- Qty. 1 Throttle servo full size, metal gear hi-speed servo

*We recommend a minimum of 400 oz-in (~30 kg-cm) of torque, with a preference for 500 oz-in (36 kg-cm).

The OMG-ST-36BF is a perfect fit, as OMG 'ST' series servos come factory-programmed specifically for aircraft use. This servo is exceptionally fast for its high torque and is our recommendation for all flight control surfaces (aileron, elevator, and rudder).

For throttle, torque is less of a concern than speed. We suggest the OMG-R4-25BF, which is exceptionally fast (0.047 sec/60°) while still providing 330 oz-in (23.8 kg-cm) of torque @ 7.4V.

Servo Arms

- Qty. 2 1.5 inch single servo arms (tapped 2mm) for ailerons
- Qty. 1 1.5 inch single servo arm (tapped for 2mm) for elevator
- Qty. 1 3 inch double-sided arm (tapped for 2mm) for rudder
- Qty. 1 1 inch single servo arm (tapped for 2mm) for throttle

***Optional Rudder Push-Pull setup** (typically for electric setups to offset battery weight)

- **Remove** Qty. 1 3 inch double-sided arm (tapped for 2mm) for rudder
- **Add** Qty. 1 1.5 inch single servo arm (tapped for 2mm) for rudder

Servo Extensions

Almost all required servo extensions are included and pre-run for your convenience.

- Qty. 1 22-20 AWG 8 inch to throttle servo/ESC
- Qty. 1 22-20 AWG 6 or 8 inch to ignition cutoff (depending on routing)
- Qty. 2 22-20 AWG 6 inch for Rx to Aileron extensions

*For easier field assembly and to protect your receiver ports from repeated use, we suggest using additional short servo extensions for your wing connections.

*Due to the weight sensitivity of this aircraft class, we recommend powering your ignition directly from the receiver using a Tech-Aero Designs Ultra IBEC.

This device serves as both a battery eliminator circuit (BEC) and a remote ignition cutoff switch, saving the significant weight of a separate ignition battery. Many of us at Great Hobbies have used the Ultra IBEC for many years with great success.

Receiver Battery

- Qty. 1 or 2 2200-4000mah 2s LiPo (see note below regarding redundancy)

*We recommend running a High Voltage (HV) system, powered directly by a 2S LiPo (7.4V). This setup ensures you get the maximum performance (both speed and torque) from your servos and aircraft.

Receiver

- Qty. 1 Min 6 channel high quality receiver from your brand of choice.

*While not required, a power distribution unit or a "power-safe" receiver is a good choice for systems using high-output servos.

However, due to the extreme weight sensitivity of this aircraft class, you must carefully consider the trade-off. The added security of a heavier receiver or a second battery pack comes with a weight penalty that can impact flight performance.

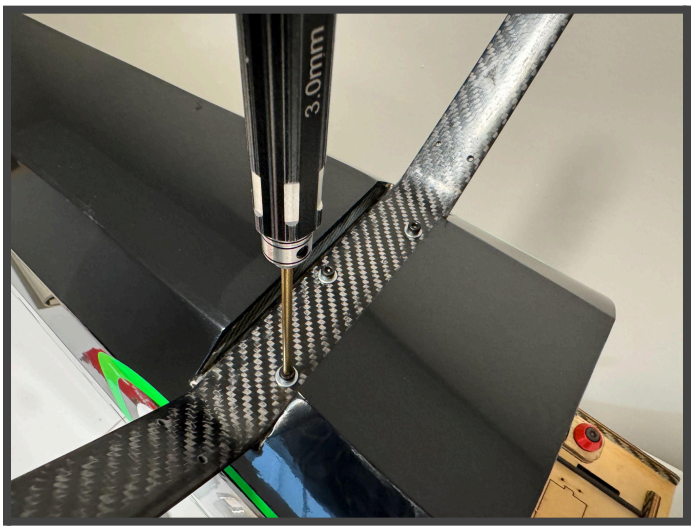
Assembly

Landing Gear

Main Landing Gear Installation

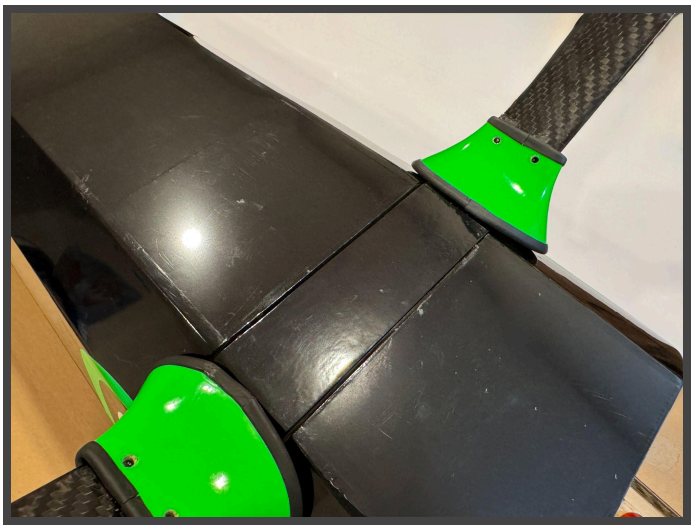
1. **Locate Parts:** Locate the carbon fiber main landing gear. Note that it is designed to sweep slightly forward when installed correctly.
2. **Fasten:** Locate the appropriate washers in the landing gear hardware bag. Using a 3mm hex driver and medium-strength thread-locking compound, fasten the landing gear to the fuselage's mounting plate using the included 4mm socket head cap screws.

*Although the screws come threaded into the landing gear block from the factory, the washers are in a separate bag labelled for the landing gear.



3. **Glue:** Locate the landing gear cover plate. For a cleaner and more permanent install, apply a small bead of Goop or clear adhesive to the exposed wood where it will contact the carbon fiber and fit it into its slot between the gear legs. Secure using masking tape until dry.
4. **Locate Parts:** Locate the painted landing gear cuffs (fairings), continue on the next page.

*Note: It is ***very important*** to ensure the landing gear plate is installed ***prior*** to installing the landing gear cuffs especially if using method 2 below. The landing gear plate is optional but cannot be installed after gluing the cuffs on.



Cuff Installation (Method 1: Stock)

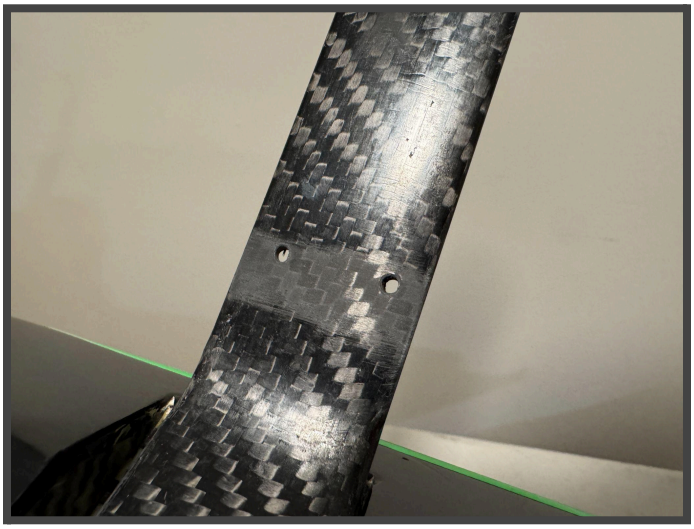
The stock method uses two small screws to secure each cuff.

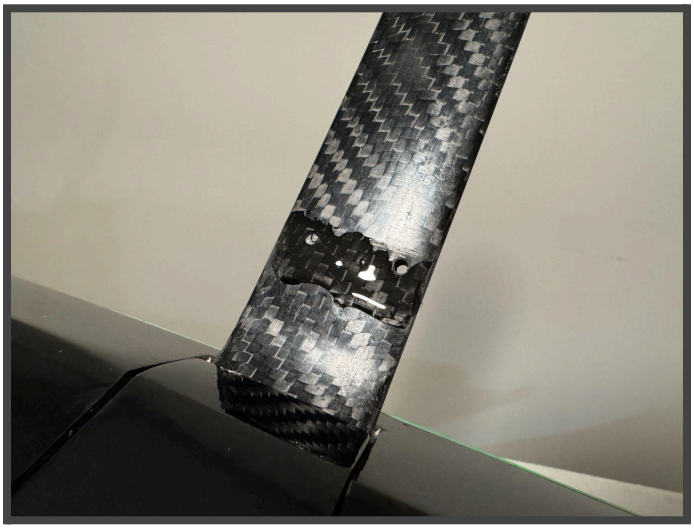
1. **Verify Fitment:** Slide the cuffs over the landing gear legs.
2. **Align:** Align cuffs so they are straight and look correct.
3. **Fasten:** Secure the cuffs using the provided screws from the landing gear hardware bag.

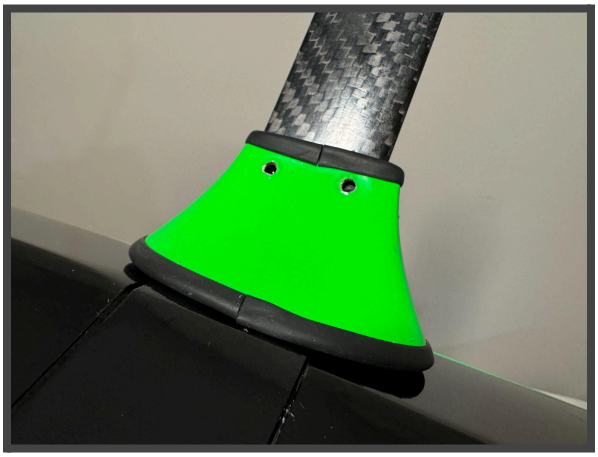
Cuff Installation (Method 2: Team Great Hobbies)

For a cleaner, more durable, and vibration-proof installation, we prefer an adhesive-only method. This eliminates the screw heads and prevents the screw holes from cracking the fiberglass cuff over time.

1. **Verify Fitment:** Slide the cuffs over the landing gear legs.
2. **Mark Position:** Use a piece of masking tape to mark the bottom (toward runway) edge of the cuff on the landing gear.
3. **Prepare Surface:** Remove the cuff and use 120-220 grit sandpaper to scuff the area on the gear leg *above* your tape line (closer to the fuselage). This gives the adhesive a rough surface to grip.
4. **Glue:** Apply a bead of flexible clear adhesive (like Goop or Gorilla Clear Bond to the scuffed area.
5. **Install Cuffs:** Slide the cuff into its final position and use masking tape to hold it securely in place until the adhesive is fully cured.







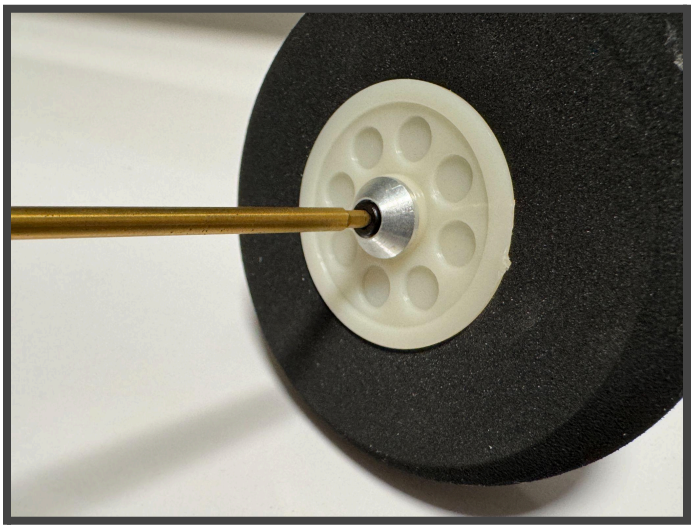
Main Wheel & Pant Installation

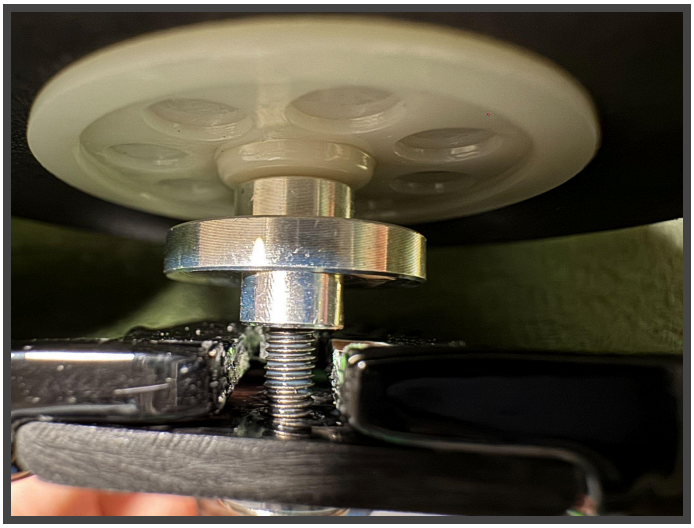
1. **Locate Parts:** Locate the wheel axles, wheels, wheel pants, and associated hardware.
2. **Secure Wheels to Axles:** Slide a wheel onto an axle. Apply medium-strength thread-locking compound to the 2.5mm socket head cap screw, and using a 2mm hex driver, fasten the wheel in place with the conical wheel retainer. Repeat for the other wheel.
3. **Mount Axle Assemblies:** Using a 2.5mm hex driver and the provided washers, apply medium-strength thread-locking compound to the 3mm landing gear axle screws. Push the screws through the back of the carbon fiber landing gear and thread them into the axle assemblies.

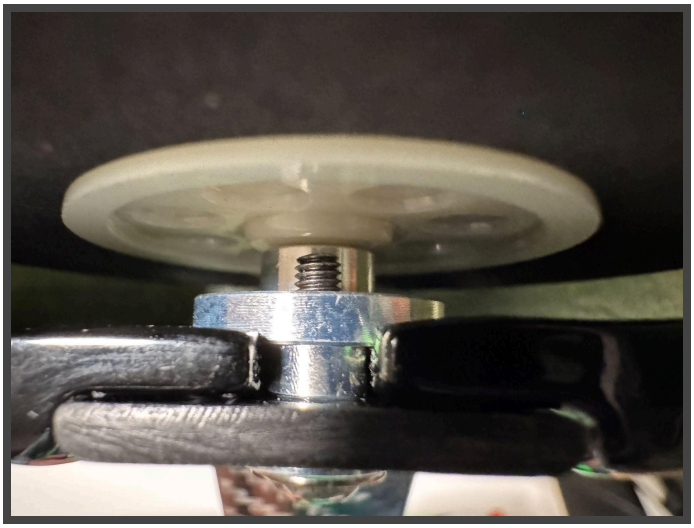
*Do not tighten the axles yet, leave a few millimeters of slop to allow the wheel pants to be installed.

4. **Install Wheel Pants:** Slide the wheel pant over the wheel and axle. Align the pant so its bottom edge is flush with the bottom of the landing gear leg. Begin to tighten the axle screws alternating between the top and bottom screws to ensure the pant clamps down evenly.

*The wheel pants are held on through the clamping force of the axle screws. Due to the wheel pants being painted fiberglass, the first time you tighten them down, the wheel pants may creak a bit. This is normal and is attributed to the paint between the axle mount and wheel pant rubbing. Continue to tighten the axles until the aluminum is contacting the carbon fiber viewed from the underside of the wheel pant.

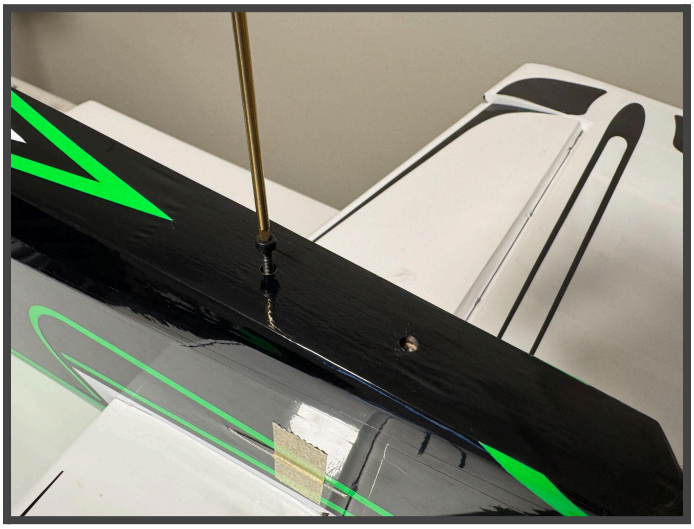


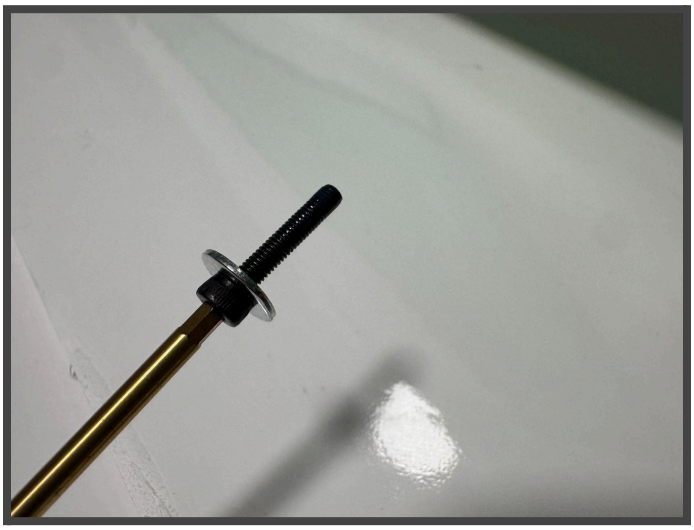




Tail Wheel Installation

1. **Locate Parts:** Locate the tail wheel assembly and M3 washers (in a labelled bag).
2. **Prepare Hardware:** Using a 2.5mm hex driver, remove the two M3 socket head cap screws that are pre-threaded into the bottom rear of the fuselage. Place one washer (from the tail wheel bag) onto each screw.
3. **Install:** Apply a drop of medium-strength thread-locker to the threads of each screw. Secure the tail wheel assembly to the fuselage and tighten the screws.





General Control Horn Installation

All control horns on this aircraft are installed using the same proven method. This process creates a strong, slop-free joint.

1. **Prepare Horn:** Begin by scuffing the root of the horn (the part that will be glued) and the alignment plate with 120-220 grit sandpaper. This cleans the horn and provides a rough surface for the epoxy to grab.
2. **Pre-assemble:** Screw the ball link onto the control horn with washers and tighten the bolt/nut. Insert the control horn completely into the slot.

*In some cases, your kit may only include enough washers to install on one side of each ball link. If so, we recommend prioritizing the servo arm ball link. Install the washer between the screw head and the plastic ball link (the assembly order should be: Screw Head -> Washer -> Ball Link -> Servo Arm -> Nut). This washer acts as a crucial failsafe. If the plastic link were to ever pop off the metal ball, the washer (being larger than the hole in the plastic link) will prevent the entire pushrod from detaching from the servo arm. Although this would result in a very loose linkage, it may give you just enough control authority to save the aircraft.

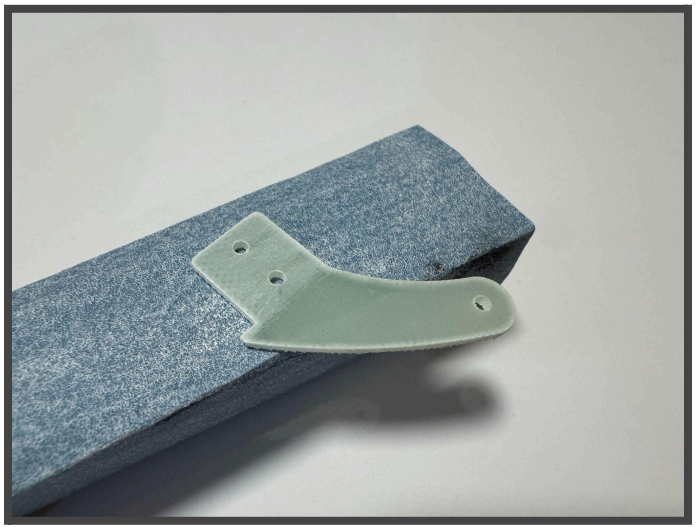
For a complete, professional installation, we recommend purchasing a small pack of M2 washers. This allows you to install this failsafe washer on all servo arm connections and to place washers on both sides of the control horns for a secure, slop-free setup.

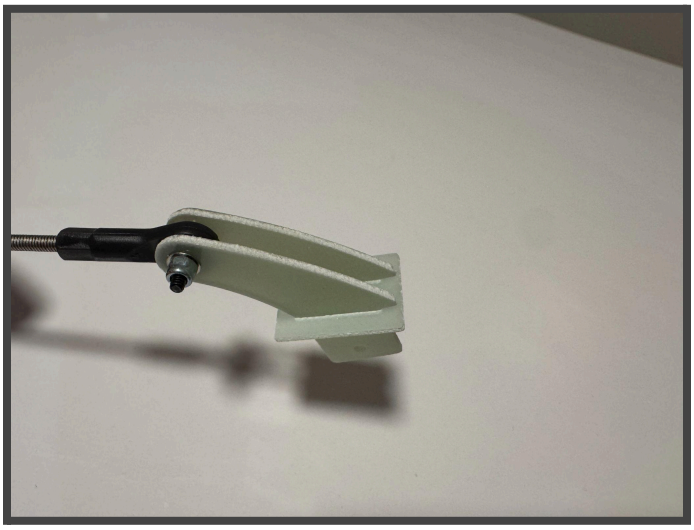
3. **Mask:** Test-fit the assembled horn in its slot. Once you are happy with the fit, place masking tape on the control surface around the base of the horn to catch any excess glue.
4. **Trim Slot Covering:** Use a sharp hobby knife to trim the covering from the pre-cut slot.

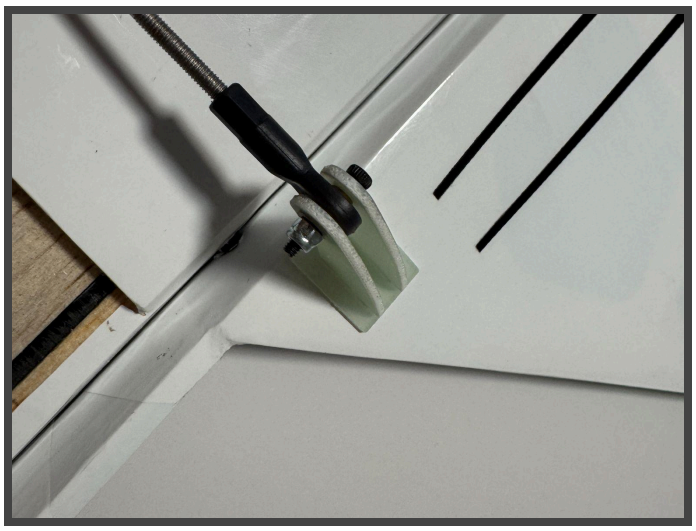
*It is recommended to install a brand new blade for this step. You want to use as little pressure as possible to avoid accidentally scoring the balsa sheeting below.

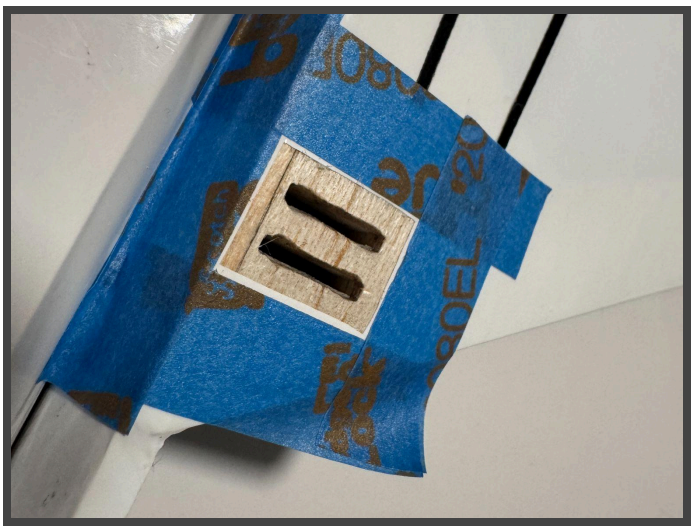
5. **Glue:** Mix a high-quality 15-30 minute epoxy. Apply a generous amount into the slot and onto the scuffed root of the horn.
6. **Install & Clean:** Insert the horn firmly, ensuring it is fully seated. Wipe away any excess epoxy, then carefully remove the masking tape *before* the epoxy cures.

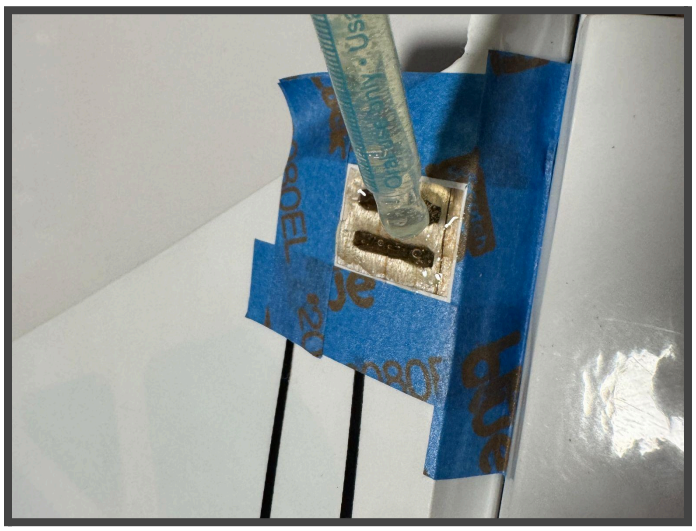
*For a custom look, you can paint match the control horns. The best time is after Step 2. Temporarily disassemble the horn, mask off the root (which must be bare for gluing), and paint. Once fully dry, reassemble and proceed with installation.

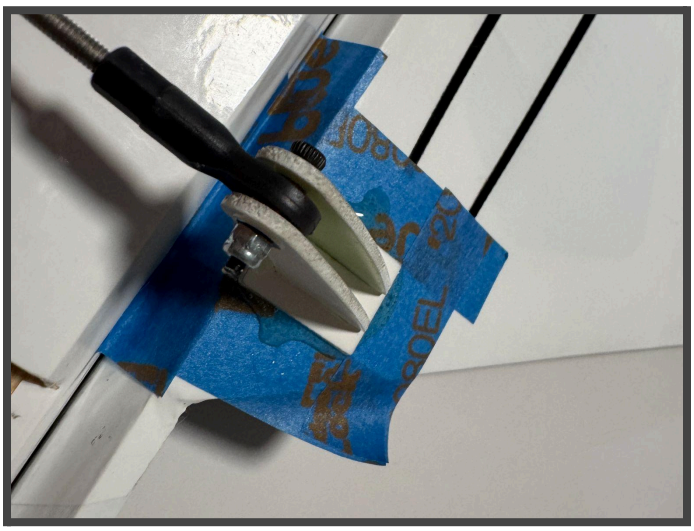












Rudder Control Horn Installation

The rudder control horn on this aircraft is installed using the same proven method. This process creates a strong, slop-free joint.

1. **Prepare Horn:** Begin by scuffing the center of the horn (the part that will be glued) and the alignment plates with 120-220 grit sandpaper. This cleans the horn and provides a rough surface for the epoxy to grab.

*This manual covers the standard pull-pull rudder installation using the included double horn. Your aircraft also has a pre-built mount in the tail for an optional, simpler push-pull system, which may be useful for electric setups needing tail weight. We recommend trying the pull-pull system first, especially for gas, before cutting the covering for the optional tail servo. If you do switch to push-pull, the linkage setup is identical to the elevator's, and the unused side of the double horn can be left on or cut off with a rotary tool.

2. **Pre-assemble:** Screw the ball link onto one side of the control with washers and tighten the bolt/nut just as you did with the elevator. Slide the alignment plate on, then slide the entire horn through the rudder. Slide the second alignment plate onto the arm then position everything and adjust as you would for final installation.

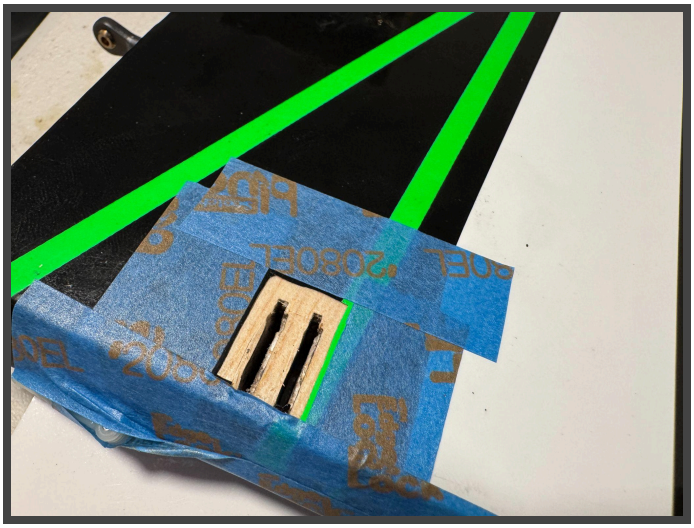
*Refer to the note above regarding M2 washers.

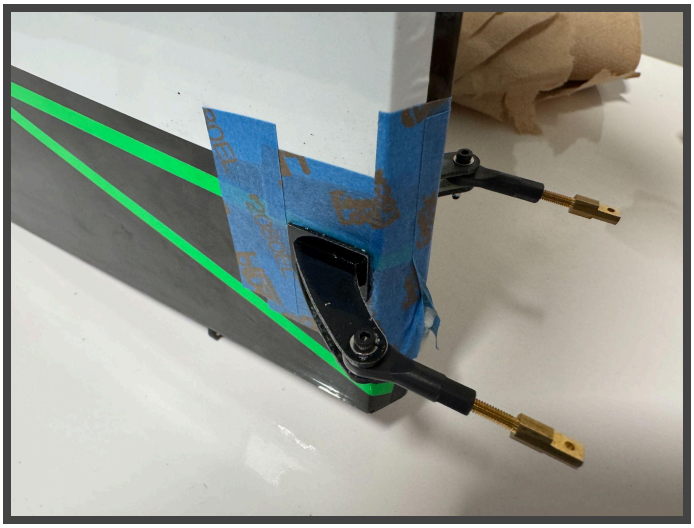
3. **Mask:** Once you are happy with the fit, place masking tape on the control surface around the base of the horn to catch any excess glue.
4. **Trim Slot Covering:** Use a sharp hobby knife to trim the covering from the pre-cut slot.

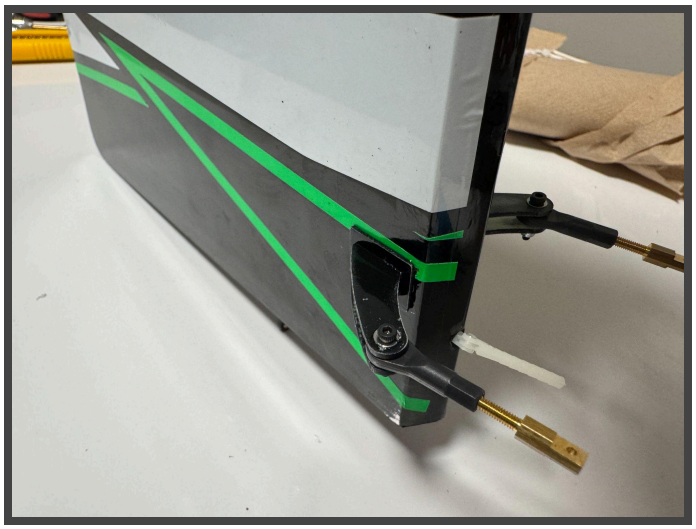
*It is recommended to install a brand new blade for this step. You want to use as little pressure as possible to avoid accidentally scoring the balsa sheeting below.

5. **Glue:** Mix a high-quality 15-30 minute epoxy. Apply a generous amount into the slot and onto the scuffed root of the horn.
6. **Install & Clean:** Insert the horn firmly, ensuring it is fully seated. Wipe away any excess epoxy, then carefully remove the masking tape *before* the epoxy cures.

*Paint matching the rudder control horns is not recommended as the horn must slide through the cutout into the opposite side. If you'd still like to paint match, paint the horns with a small brush during step 8 after cleaning the excess epoxy but before removing the masking tape.







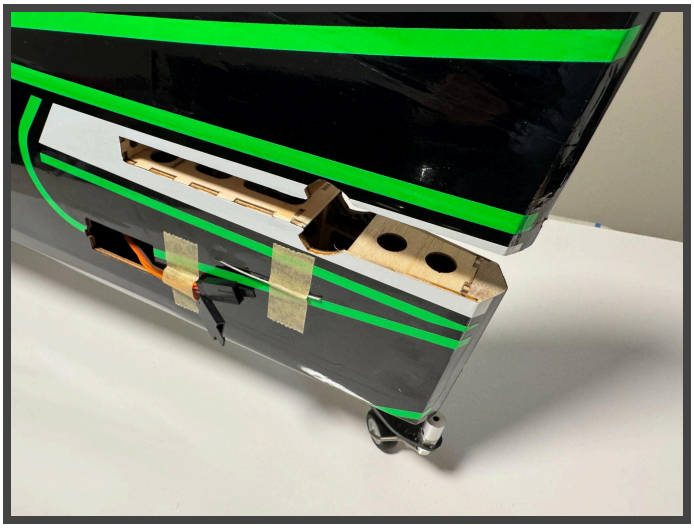
Horizontal Stabilizer Installation

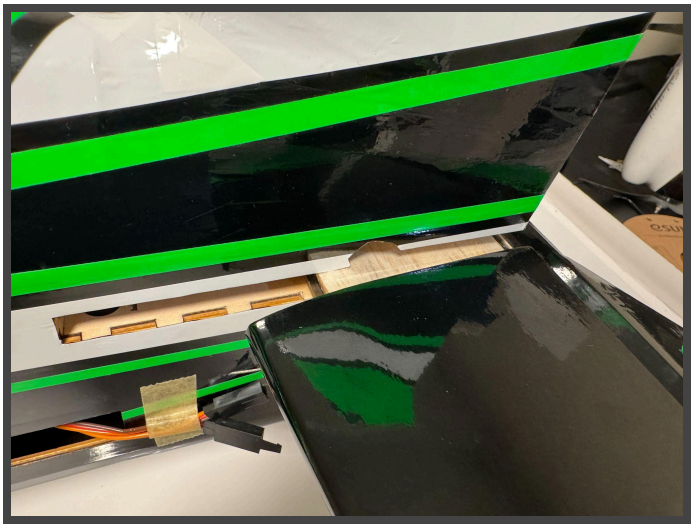
1. **Preparation:** Locate the horizontal stabilizer and the small balsa block. This balsa block is held in position with tape during shipping. Carefully remove it and set it aside.
2. **Verify Fitment:** Test fit the horizontal stabilizer assembly into the fuselage. Note how much force it takes to slide the stab all the way forward into the slot until it contacts the front of the cutout. Make sure your stab is correct side up.
3. **Glue:** Mix a high-quality 30 minute epoxy. Apply to the bare wood area of the stabilizer, top and bottom, and in the slot in the fuselage.
4. **Install:** Carefully slide the stabilizer into the slot, ensuring the correct orientation. Push it firmly forward until it is fully seated against the front of the cutout. Use a rag dampened with denatured alcohol to wipe away all excess epoxy, then allow it to cure.

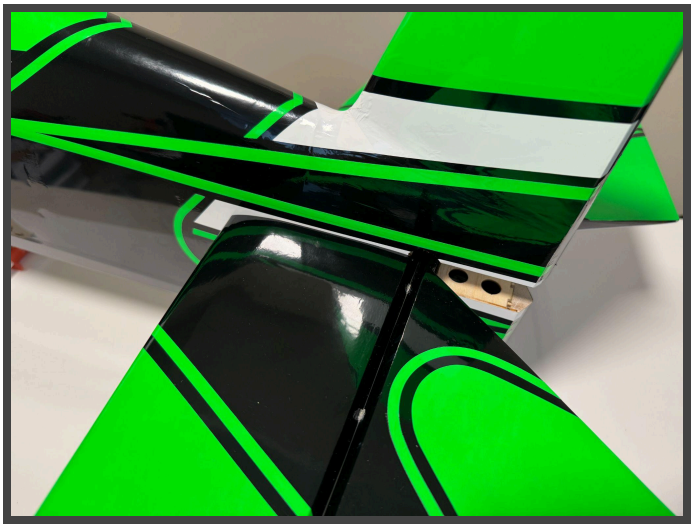
***Be aware of epoxy seepage behind the stabilizer *into* the elevator hinge. This will impede movement if left to dry and must be removed. A cotton swab such as a Q-Tip soaked in alcohol works well for cleaning.**

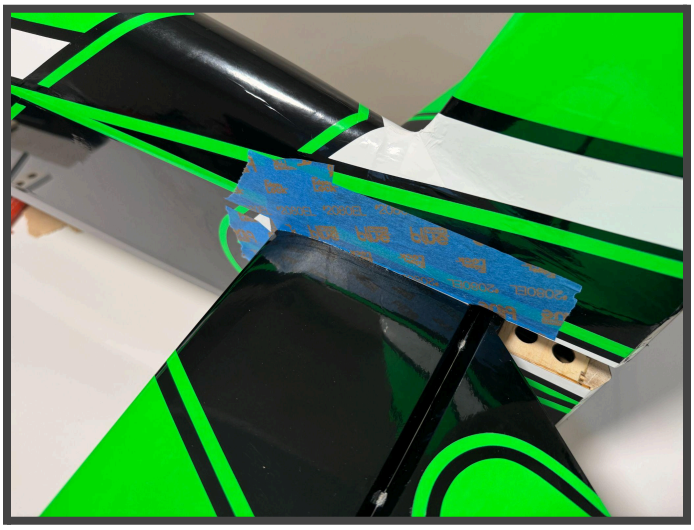
*For a clean, professional finish, we recommend masking the joint before gluing. Apply masking tape to the fuselage and the stabilizer root on both the top and bottom. ***Optional:*** Leave a small, consistent 1-2mm gap right at the joint. Apply a thin bead of 15-30 minute epoxy or a wicking-type thin CA glue into this gap. The tape will catch any excess. Wipe away any excess and remove the masking tape before the glue fully cures to reveal a perfect, clean seam.

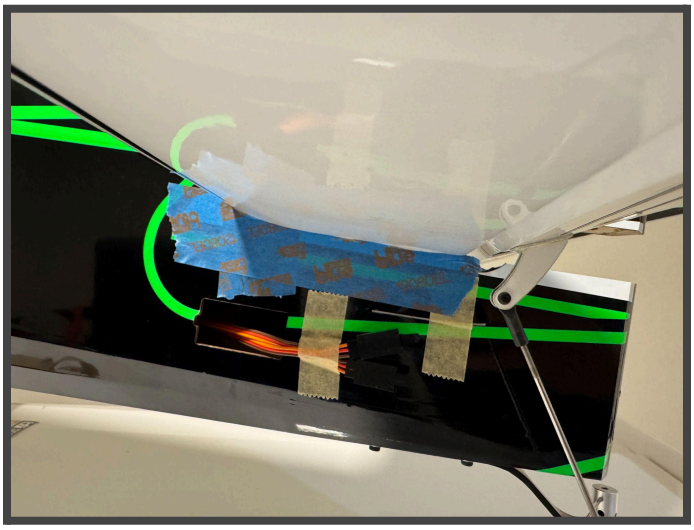
5. **Finish:** Locate the small balsa block you previously set aside. Slide this plate into the slot directly behind the stabilizer in its original position. Before applying glue, check for elevator clearance. Move the elevator to its full up-and-down travel to ensure it moves freely and does not rub against the plate. This plate is soft balsa and can be easily sanded if it requires any trimming for clearance. Once you are satisfied with the fit, glue the plate securely in place with thin CA by wicking it in the seam or epoxy by coating the bare balsa faces, similar to the stabilizer.









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Rudder Installation

1. **Verify Fitment:** Test fit the rudder, hinges, and tail wheel tiller arm together to ensure everything aligns.

*We recommend masking beside the hinge holes on both the rudder and the vertical stabilizer to help with an easy cleanup. Be careful to only mask each side of the hinge line and not allow masking tape to cross the hinge line. Crossing from one side to another *will* create a bigger headache than not masking in the first place. See pictures below.

2. **Glue:** Once you are happy with alignment, coat the inside of the hinge holes with 30-minute epoxy on both the vertical stabilizer and the rudder.

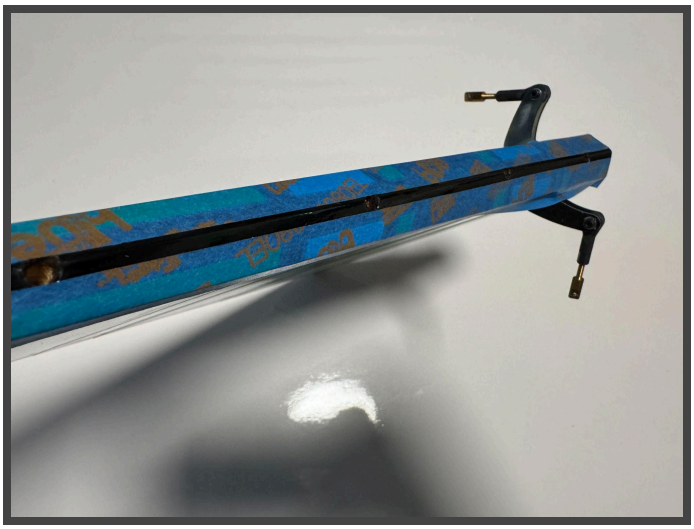
*Before installing, apply a small amount of Vaseline, grease, or light oil directly onto the hinge pin. This helps to prevent any seeping epoxy from seizing the hinge.

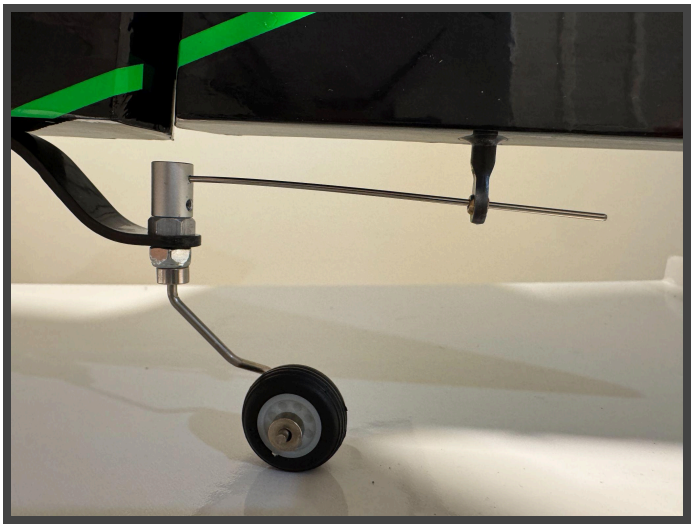
3. **More Glue:** Apply epoxy to the barbed hinge ends and insert them into the rudder.
4. **Install:** Carefully slide the rudder's hinges into the vertical fin. As you do this, simultaneously guide the tail wheel tiller arm into the pre-installed ball link at the bottom of the rudder.
5. **Verify Movement:** Once the rudder is fully seated, move it back and forth to ensure it swings freely as the glue begins to set.
6. **Set in Place:** Use masking tape to hold the rudder perfectly straight, ensuring the gap in the hinge line is no larger than 1-2mm while the epoxy cures.

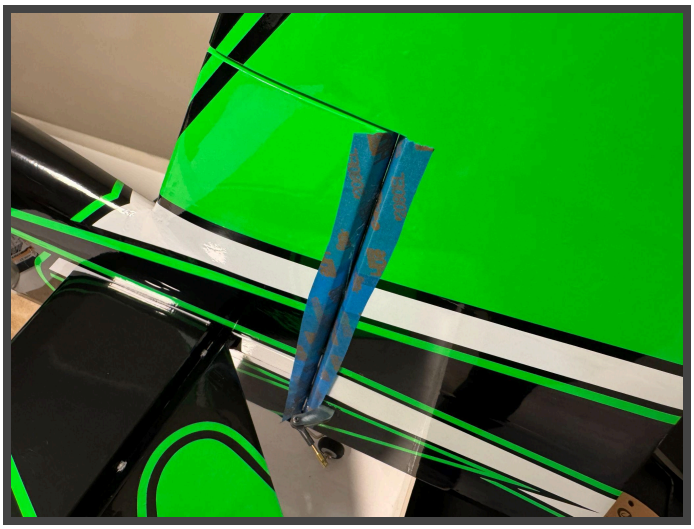
Do not forget the tiller arm!

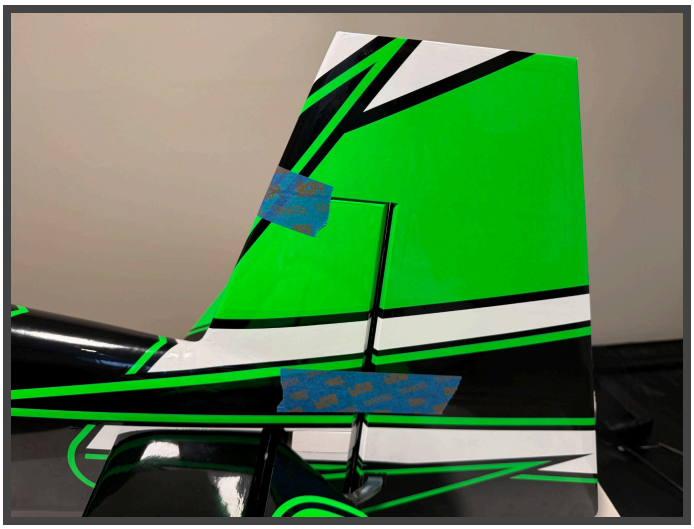
If you install the rudder before you realize the tiller arm was missed, **DO NOT** try to pull the epoxied rudder off. This will only remove epoxy and create a mess while the epoxy is already beginning to set.

The Fix: Let the epoxy fully cure. Then, simply unscrew the entire tail wheel assembly from the fuselage, connect the tiller arm to the rudder's ball link, and reinstall the tail wheel assembly using thread-locker.









Servo Installation

Rudder Servo Installation

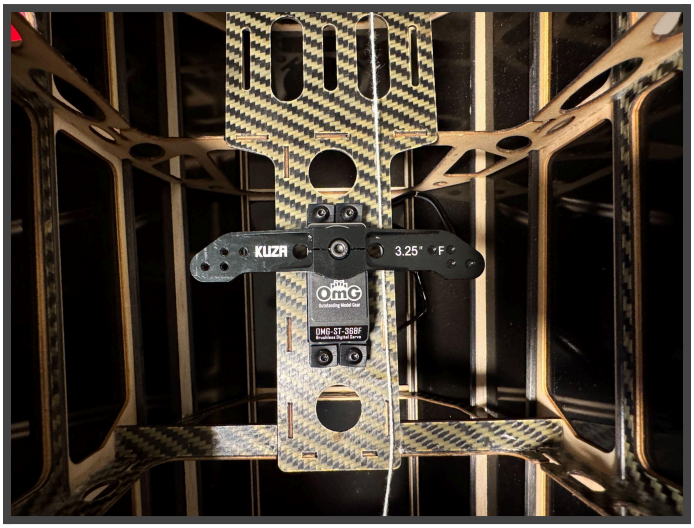
1. **Locate Servo Tray:** Locate the pre-cut rudder servo tray in the fuselage, positioned aft of the wing tube.
2. **Install Servo:** Using the included rubber grommets and eyelets, install your rudder servo into the tray. The servo can be mounted facing either direction.

*Most servos come with philips head servo screws. We recommend switching all servo screws to a hex head screw with integrated washer such as the KUZA 2.3X15mm Socket Head Servo Screw available through Great Hobbies.

3. **Center Servo:** Center the servo using a servo tester or your transmitter and receiver.

*Using a servo tester like the Spektrum XBC100 Smart LiPo Battery Checker & Servo Driver is the preferred method. If using your transmitter and receiver, ensure you have a brand new fresh model created to alleviate any accidental trims or subtrims.

4. **Install Servo Arm:** Install your double-sided servo arm. Ensure the arm is perfectly centered (90 degrees to the servo case).



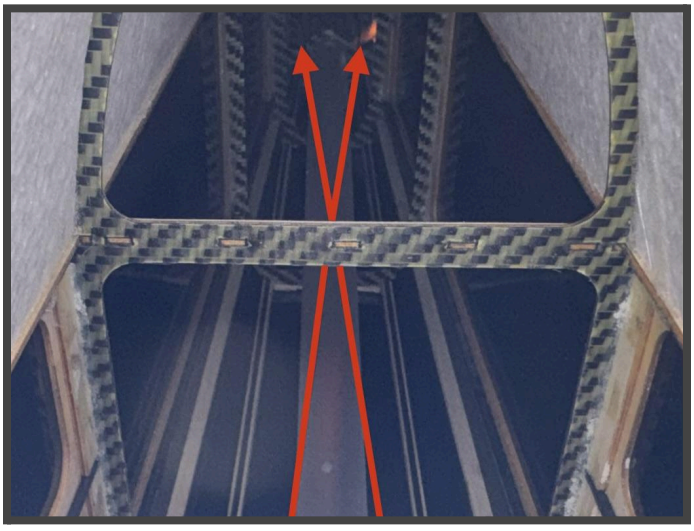
Pull-Pull Cable Setup

1. **Check Cable Path:** The pull-pull cables are pre-run from the factory. Look inside the fuselage and confirm that the two cables cross each other once to form an "X" shape. This is essential for correct geometry. The cable exits at the rear of the fuselage are pre-cut.
2. **Assemble Cable Ends:** Locate the hardware for the cable ends. Screw metal cable ends into the nylon ball links.
3. **Attach to Servo Arm:** Attach the cable end assemblies to the servo arm. The typical hardware sequence is: Bolt -> Washer -> Ball Link -> Servo Arm -> Nylon Locking Nut.

*Do not apply thread-locker to nylon locking nuts. They are designed to provide the necessary locking force and the chemicals in thread-locker can degrade the nylon insert.

4. **Attach to Rudder Horns:** Attach the other two cable end assemblies to the control horns you installed on the rudder.
5. **Crimp Servo End:** With the rudder servo and rudder both perfectly centered, rig the servo-end cables. Thread the cable through the metal crimp sleeve and then through the cable end. Use as little cable as possible to allow for extra on the tail. Use pliers to crimp the sleeve flat. Add one drop of thin CA glue to the crimp sleeve to lock it in place.
6. **Crimp Rudder End:** Repeat the crimping process on the rudder horn side.
7. **Tension the System:** Adjust the final tension by spinning the metal cable ends into or out of the nylon ball links.

We want the cables to be just taut, with no slack, but they do not need to be "banjo string" tight. Overtightening only serves to wear out your components and rob the servo of torque and resolution.

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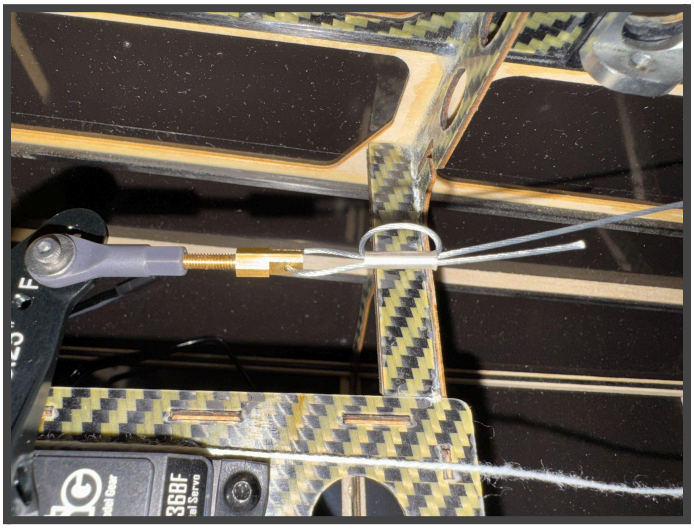
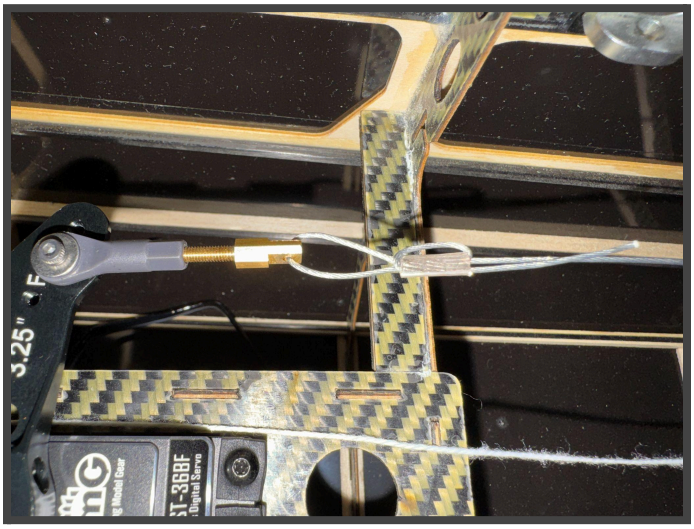
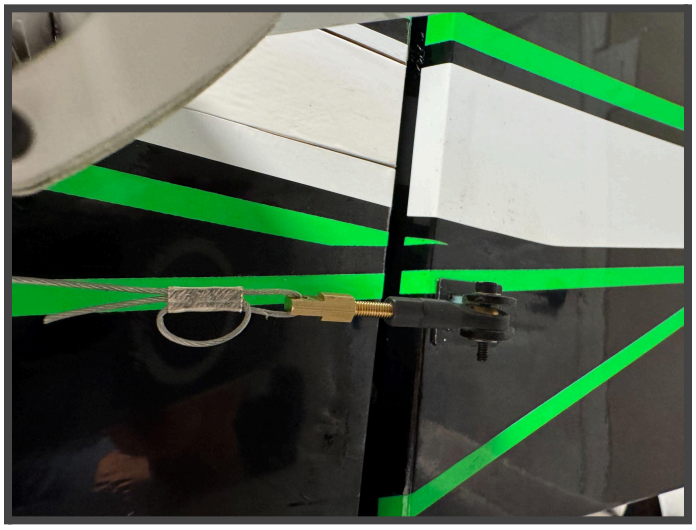






Elevator Servo Installation

The elevators use a push-pull linkage, with one servo and a connector between the elevator halves. There is both a cutout directly opposite the factory cutout for another servo and the same horn slots on the right elevator for a second set of horns. The stock setup with one very high quality single servo is far better than using two cheaper servos. Additionally, the weight sensitivity of this size aircraft is something to consider.

1. **Locate Extensions:** The fuselage comes with two pre-installed locking servo extensions routed to the tail. One is for the elevator servo, and the other is for the optional tail-mounted rudder servo.
2. **Prepare Extensions:** Since we are using the internal pull-pull rudder, the optional tail rudder extension is not needed. We recommend removing it from the fuselage to save weight.

*__*Optional Push-Pull Rudder:*__ If you have decided against the rudder pull-pull setup from earlier and would like to use the rear-mounted servo, the installation is identical to the elevator steps you are about to complete. You will use the dedicated servo bay in the tail and the second pre-run locking extension for this purpose.

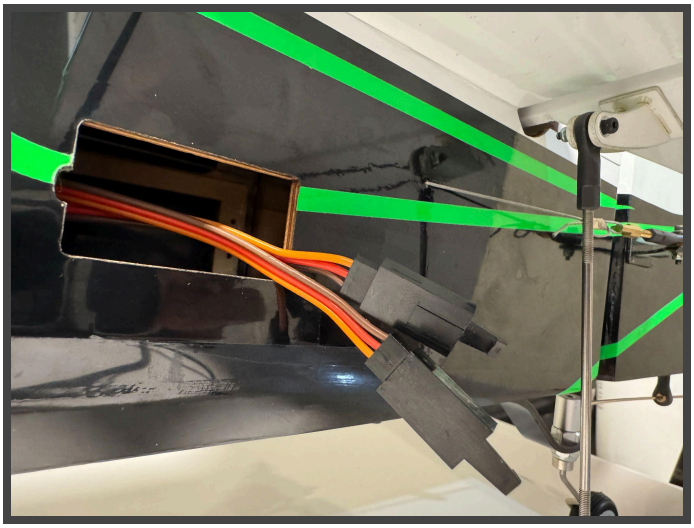
3. **Install Servo:** Prepare your elevator servo with its rubber grommets and eyelets. Connect it to the locking extension, then mount the servo into the bay using its hardware.

*Most servos come with philips head servo screws. We recommend switching all servo screws to a hex head screw with integrated washer such as the KUZA 2.3X15mm Socket Head Servo Screw available through Great Hobbies.

4. **Pull Extension:** Locate the pull-string inside the fuselage. This string is tied to both pre-installed servo extensions. Ensure the servo(s) is/are connected, gently pull the string and extension out into the fuselage.
5. **Center Servo:** Center the servo using a servo tester or your transmitter and receiver.

*Using a servo tester like the Spektrum XBC100 Smart LiPo Battery Checker & Servo Driver is the preferred method. If using your transmitter and receiver, ensure you have a brand new fresh model created to alleviate any accidental trims or subtrims.

6. **Install Arm & Linkage:** Install your servo arm. Assemble the elevator pushrod and connect it to the servo arm and the control horn.
7. **Adjust Linkage:** With the servo centered, twist the pushrod (turnbuckle) to adjust its length. Adjust it until the elevator control surface is perfectly neutral (flat) and the servo arm is at a 90-degree angle to the servo case.

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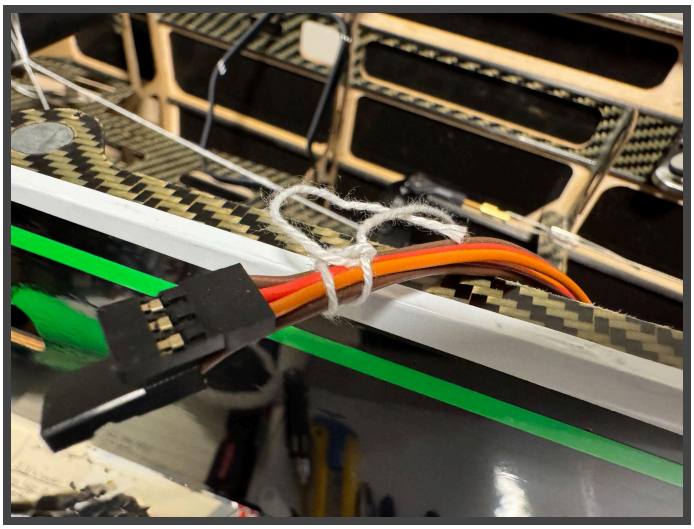
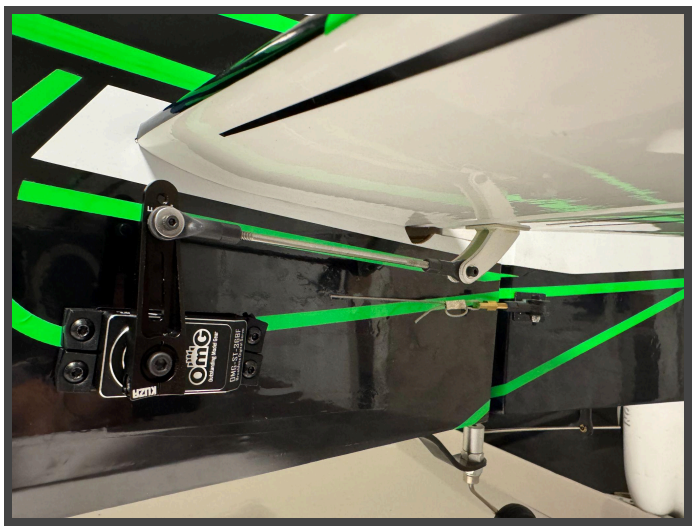




Aileron Servo Installation

The ailerons use the same linkage setup as the elevator. There is one servo per wing panel.

1. **Prep Servo:** Prepare your aileron servos with their rubber grommets and eyelets.
2. **Locate Pull String:** Both wing panels come with a pre-installed string to assist in pulling the servo wire through. You may need tweezers to access the string. Most servos feature a cable that will reach into the fuselage on this aircraft.

*We recommend using a short extension inside the fuselage between your receiver and the aileron servo. This prevents unnecessary wear on your receiver/pins from repeatedly connecting and disconnecting the wings, as well as the added benefit of some convenience. Ensure that you **use servo extension clips/locks** to prevent them from disconnecting in flight.

3. **Pull Extension:** Locate the pull-string inside the servo bay. Tie this string to the servo wire. Gently pull the string from the wing root to guide the wire through the wing and out of the wing root. Remove the grommet, thread the servo wire through and reinstall the grommet.
4. **Servo Mounting:** Mount the servo into the bay using its hardware.

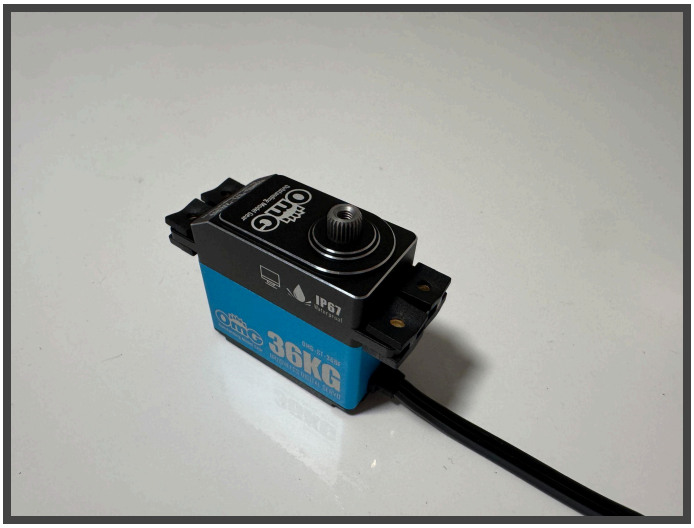
*Most servos come with philips head servo screws. We recommend switching all servo screws to a hex head screw with integrated washer such as the KUZA 2.3X15mm Socket Head Servo Screw available through Great Hobbies.

5. **Center Servo:** Center the servo using a servo tester or your transmitter and receiver.

***Pay careful attention to your geometry**. The servo arm should be parallel to the hinge line when the servo and surface are at neutral. The control linkage will be “crooked” at the neutral position and become “straight” at full deflection. This is to minimize side loading of the horns at full deflection.

*Using a servo tester like the Spektrum XBC100 Smart LiPo Battery Checker & Servo Driver is the preferred method. If using your transmitter and receiver, ensure you have a brand new fresh model created to alleviate any accidental trims or subtrims.

6. **Install Arm & Linkage:** Install your servo arm. Assemble the aileron pushrod and connect it to the servo arm and the control horn.
7. **Adjust Linkage:** With the servo centered, twist the pushrod (turnbuckle) to adjust its length. Adjust it until the aileron control surface is perfectly neutral (flat) and the servo arm is at a 90-degree angle to the servo case.
8. **Repeat:** Complete steps 1-7 for the other wing panel.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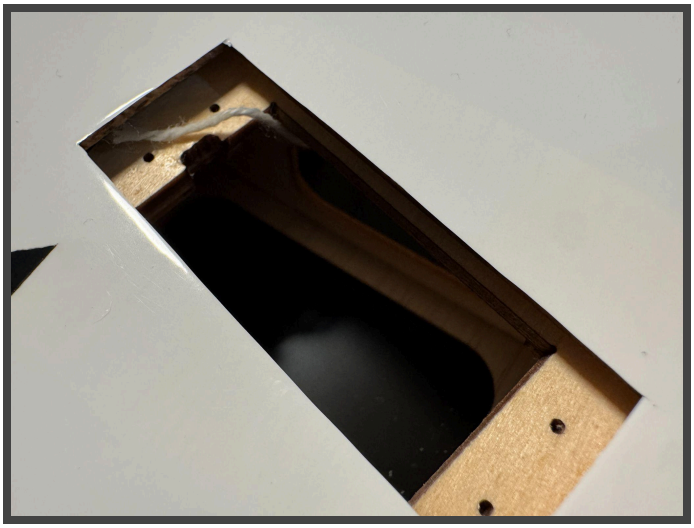
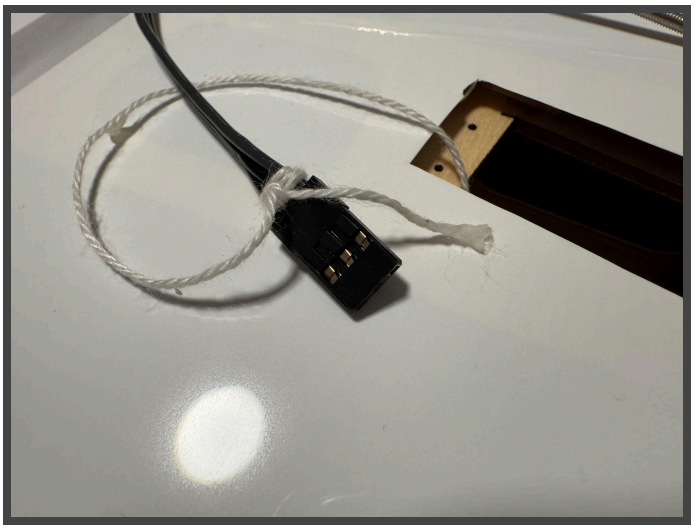
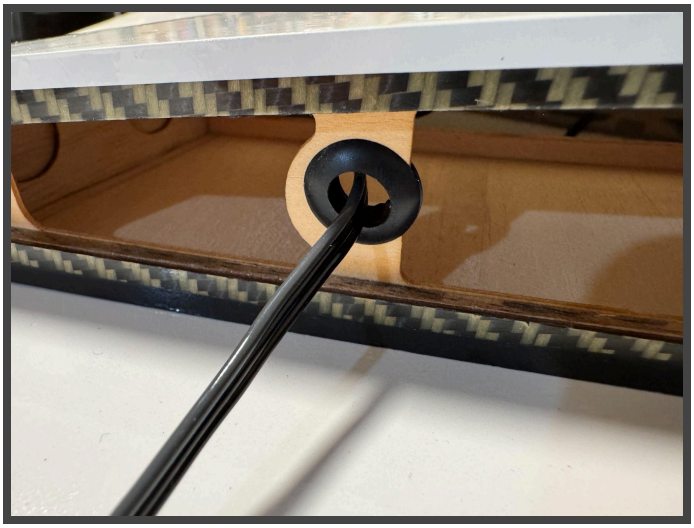
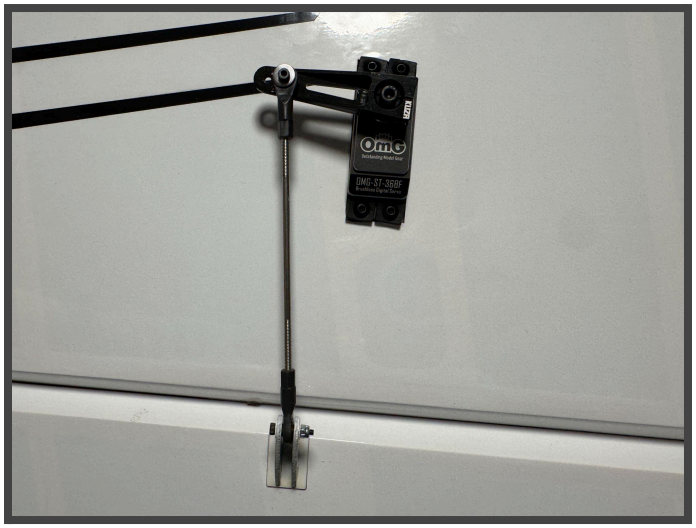




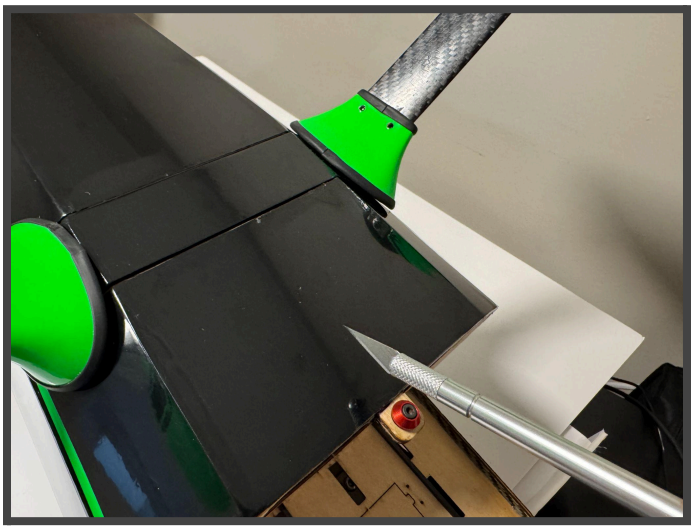


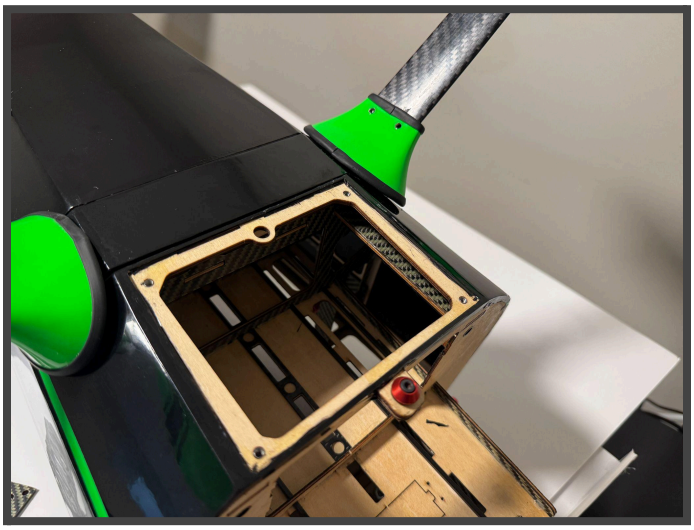


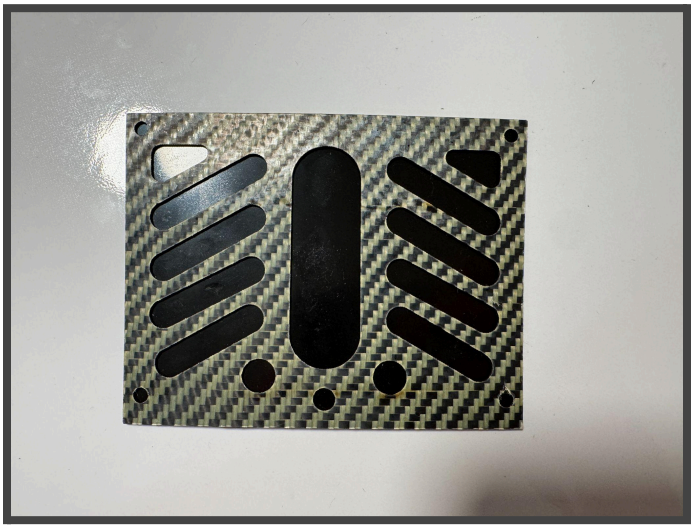
Power Plant Installation

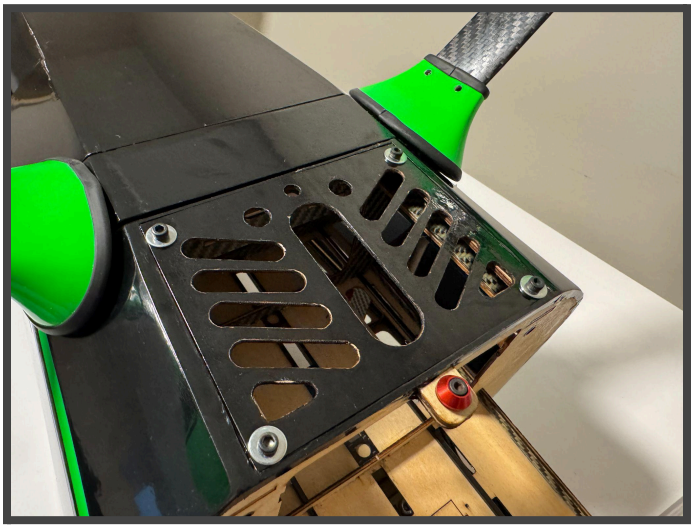
Cooling & Airflow (Gas & Electric)

As a rule of thumb, you want your air *exit* area to be at least **two times larger** than your air *inlet* area. To achieve this, you must open the air exit on the bottom of the fuselage. Use a hobby knife to remove the wood plate below the motor box, then cut and remove the covering directly behind the cowl on the bottom of the fuselage. The included vented plate can then be installed here using the pre-installed blind nuts.









Electric Power Installation

While this guide provides a detailed, photo-driven build for a gasoline engine, the OMP 74" Edge is also an outstanding electric aircraft. The stock OMP manual provides some guidance for installing the electric motor and ESC, which we have summarized here for your convenience.

Motor Installation

1. **Assemble Mount:** Following the OMP manual, assemble your motor, its X-mount, and the included aluminum standoffs. Make sure to use a medium thread-locker for all bolts threading into metal.
2. **Mount Motor:** Secure the entire motor assembly to the firewall.

*If your motor did not come with mounting guidance or you cannot find a mounting template, you can use the X-mount included with your motor as a guide to mark where you need to drill. Ensure the center of the mount is centered on the laser-etched alignment lines on the firewall.

ESC Installation

1. **Location:** The underside of the motor box is the most convenient place to mount the ESC, as it provides excellent access to cooling air.
2. **Secure ESC:** Attach your ESC to the motor box using high-quality double-sided tape and secure it with cable ties.
3. **Wire Management:** Neatly bundle and tie the wires from the ESC and motor using a fastening strap or zip tie. Ensure the wires cannot rub on the motor casing or chafe on edges.

Engine Installation

This section details the installation of a DLE 35RA. The process will be fundamentally the same for other single-cylinder engines like the DA-35 or GP-38.

Engine Mounting

1. **Locate Hardware:** Locate the “Hardware for gasoline engine” bag.
2. **Drill Guide:** Your kit includes a plywood drilling template to prepare the firewall. The template is marked “DLE 30” and is for the DLE 30 *only*. *See important note below.*

*__Important on the Drill Guide:__ The DLE30, 35RA, DA-35 and GP38 do ***NOT*** share the same mounting pattern. *Auxiliary connections, fuel line connections, and throttle linkages may also be in different locations.* We have included the dimensional drawings and a printable template for each engine at the end of this manual.

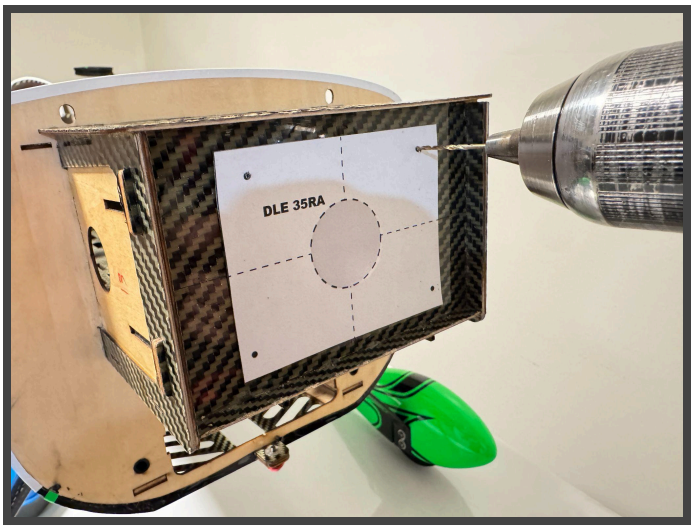
3. **Mark Holes:** Hold or tape the template to the firewall, using the laser-etched alignment lines to ensure it is perfectly centered. Mark the four mounting holes for your standoffs.
4. **Drill:** Drill the four engine mounting holes.

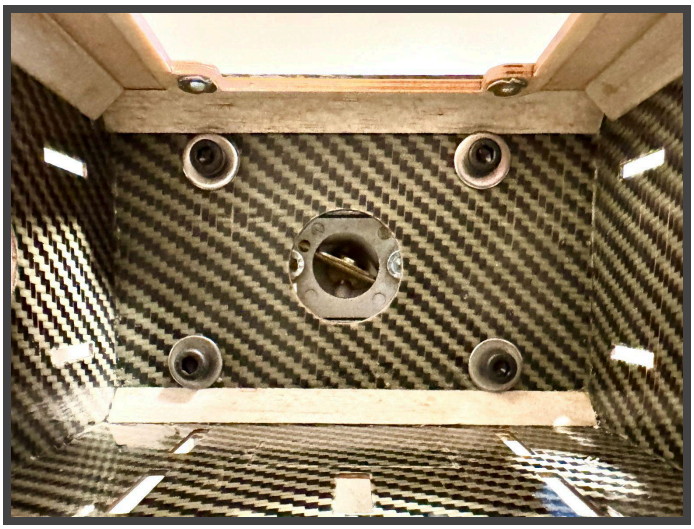
*Always drill a small pilot hole (1/16” or 2mm) first, then follow with the final size bit. This prevents the bit from "walking" and ensures an accurate, clean hole.

5. **Adjustment:** You ***may*** need to enlarge the generic center hole in the firewall to provide clearance for the carburetor or throttle linkage. Check fitment prior to making this modification. We recommend a Dremel-type rotary tool for this job.
6. **Mounting:** Mount the engine using the standoffs and bolts included with your engine. Always use a medium thread-locking compound for engine related hardware.

*It is critical to use the largest diameter washers possible on the back side of the firewall. This distributes the engine's load and prevents the bolts from pulling through the wood. We typically use “fender” washers. Ensure the washer is able to lay flat against the back of the firewall. The washer may be trimmed if gussets and other structural pieces prevent this. Apply medium-strength thread-locker to all bolts securing the engine to the firewall.


Hardwares for 74" Edge gasoline engine
74吋刀锋汽油机五金配件
Hardwares for 74" Edge Motor
74吋刀锋电机五金配件


DLE 35RA

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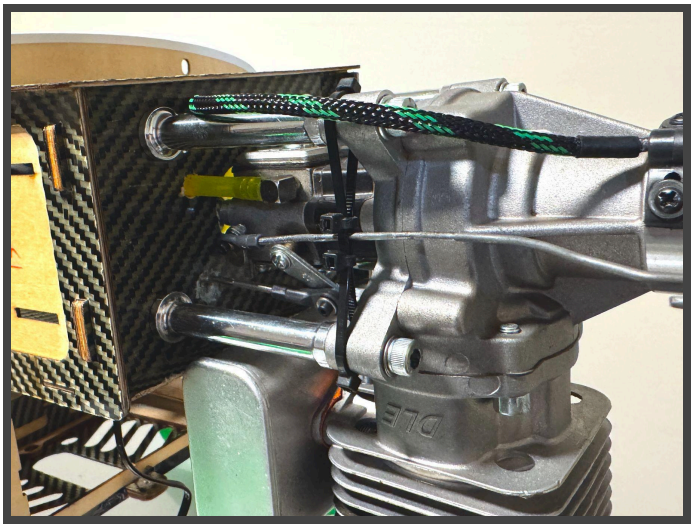


Fuel Tank Installation

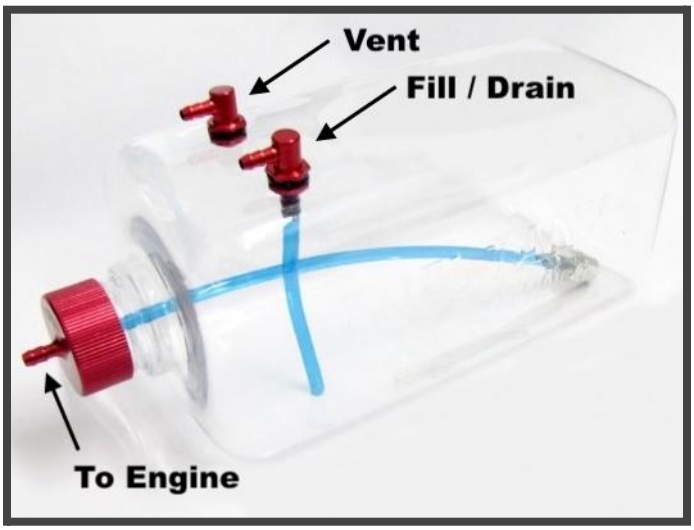
1. **Locate Parts:** For plumbing your gas setup, we recommend the KUZA 14 oz. fuel tank, high-quality Tygon (or VITON) fuel line, a fuel dot and a vent. You will also need double sided tape, vibration dampening foam such as Du-Bro R/C Foam Rubber - 1/4" (DUB513), two or three velcro straps.
2. **Plumb System:** Your gasoline fuel system will have three primary lines:
    - Main fuel clunk line running to the carburetor
    - Fill/drain line running to your fuel dot
    - Vent line

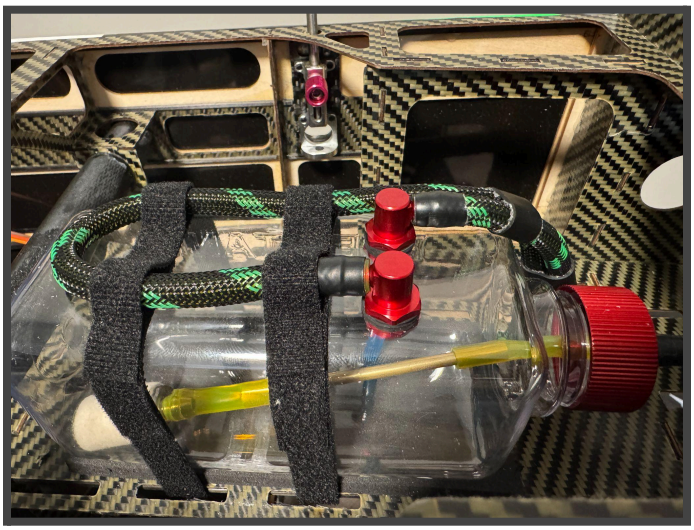
*We recommend replacing the stock metal clunk with a KUZA felt/filter clunk. The felt clunk also doubles as a large fuel filter and eliminates the need for an inline fuel filter, simplifying your fuel system.

3. **Secure Lines:** Prevent large sections of fuel line from 'flopping' around by securing them with zipties or velcro. It is also generally a good idea to secure fuel lines on barbs and fittings.

*Although high-quality fuel tubing grabs barbed connections well, we strongly recommend using small zip ties or wire ties on all fuel line connections.

4. **Vent Line:** It is critical to install the vent line with a loop inside the fuselage before it exits the bottom of the cowl. This loop helps prevent fuel from siphoning out during flight. The vent exits the airplane on the bottom of the cowl.
5. **Mount Tank:** Secure the fuel tank to the fuselage tray using double sided tape, vibration dampening foam on the bottom of the tank and two or three strong Velcro straps. Typically, the fuel tank is located at the rear of the front tray, as close to the Center of Gravity or wing tube as possible. This minimizes CG shift as the fuel is burned.





Cowl Mounting and Trimming

Take your time and test fit very often.

1. **Mark for Cutting:** Temporarily slide the cowl onto the fuselage as far as it will go until you hit your first obstacle. This will give you an idea of where to start. You will need to mark all areas that require an opening for your engine (spark plug, muffler outlet, etc).
2. **Cut Openings:** Carefully cut out the marked openings.

*We find the cleanest and most controlled way to cut the fiberglass cowl is with a Dremel-type rotary tool using a sanding drum attachment. ***Go slowly and remove small amounts of material at a time, test-fitting often.***

3. **Mounting Holes:**
    - Once all engine cuts are complete and with the cowl removed, mark the three mounting holes using masking tape as shown below.
    - Install the cowl again.
    - Place your spinner backplate on the crankshaft against the prop drive.
    - The cowl must be installed so that the inner cowl ring is making contact with the bulkhead on the aircraft.

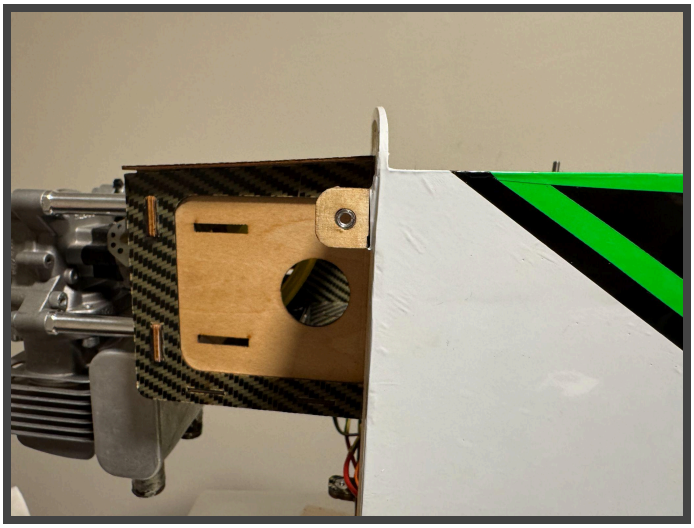
*If the cowl is placed forward of the bulkhead and does not make contact, the screw holes we are going to drill will crack and become enlarged over time. You are looking for a consistent gap (approx. 1.5-2mm) between the spinner backplate and the front of the cowl. If this is not the case, the engine standoffs may need to be shorter or longer.

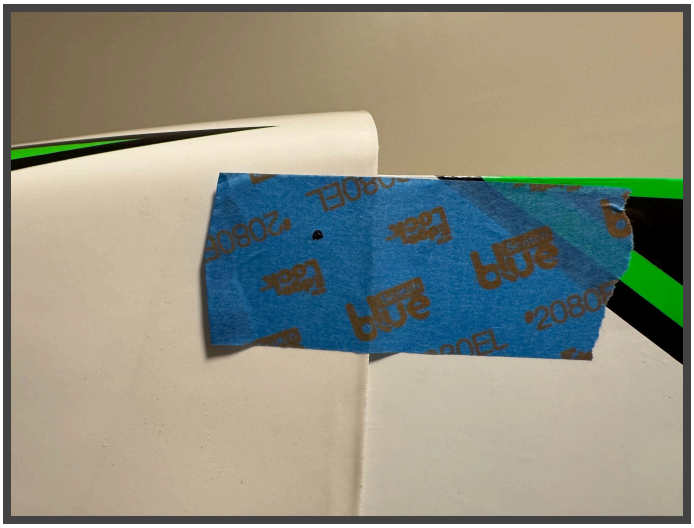
- Once you are satisfied with the alignment, tape the cowl securely in place.
- Place the marked masking tape of the cowl and mark or drill the three mounting holes: two on the sides and one on the bottom.

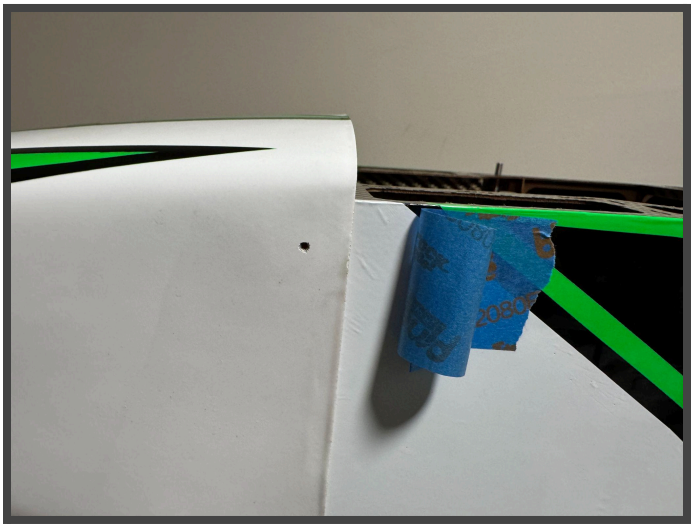
*Be cautious when drilling. The cowl mounting blind nuts are pre-installed and drilling the cowl while installed can very easily destroy the blind nuts. It is recommended to mark the cowl, remove, drill then reinstall rather than drilling in place.

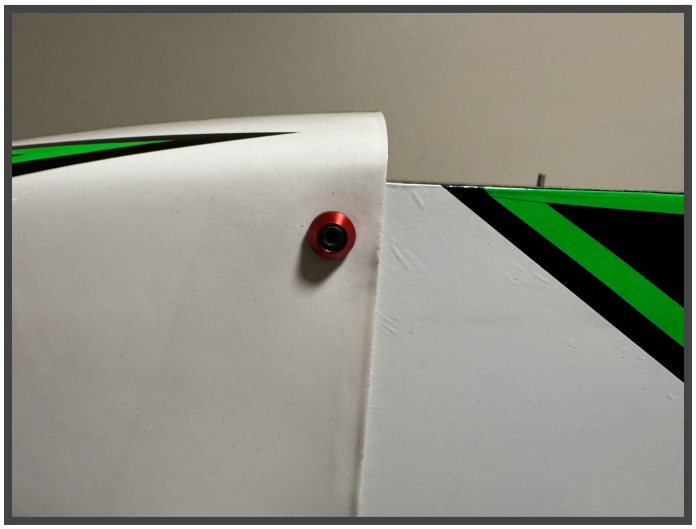
4. **Secure Cowl:** Fasten the cowl to the fuselage using the three provided mounting screws.

*It is essential to use the included hardware in the correct order: place the rubber flat washer against the painted cowl first, followed by the aluminum anodized washer, and then the screw. This setup prevents vibration from loosening the screws and protects the cowl's paint.









Final Setup, CG & Control Surface Rates

SFG (Side Force Generator) Installation

Your kit includes SFGs that mount to the wingtips.

- **Check Aileron Clearance:** Place the included color matched spacers between the wingtip and the SFG. This is a critical step to provide clearance for full aileron movement.
- **Assemble Hardware:** Use the included thumb screws and washers to secure the SFGs to the wingtips.

Why Install SFGs?

We highly recommend trying out the SFGs. Their primary effect is to reduce unwanted rolling motions during 3D flight, which makes harriers, knife-edge, and other basic 3D maneuvers significantly easier and more stable. They also provide more side area which allows the rudder to become more authoritative as it has more area to ‘fly’ on.

- **Primary Benefit (Rudder Authority):** The SFGs add significant vertical side area. This gives the rudder a larger surface to "fly" against, creating more side lift and dramatically increasing its authority.
- **Secondary Benefit (Stability):** They can reduce unwanted rolling (wing rock) during high-alpha maneuvers, making harriers and elevators much more stable and locked-in.
- **The Trade-off (Ailerons & Inertia):** While SFGs do reduce lateral (spanwise) flow over the wing, any minor aerodynamic benefit to the ailerons is negated by the added weight at the wingtips. This added weight increases rotational inertia, making high-speed maneuvers like rolls, snaps, and tumbles feel 'softer' by being slightly slower overall and taking longer to stop rotating.

Ultimately, we recommend trying the plane both with and without the SFGs to see which feel you prefer.

CG (Center of Gravity)

The recommended CG (Center of Gravity) range for the OMP 74" Edge is 120mm to 135mm (approx. 4.75" to 5.25"), measured from the leading edge of the wing at the root. This is a wide range that allows you to fine-tune the aircraft's flight characteristics to your personal preference.

While this 120-135mm range is ideal, advanced pilots may experiment with CG values slightly outside these recommendations. Be aware that doing so can drastically alter flight characteristics. If you choose to experiment, exercise extreme caution and make only very small (e.g., 1/8" or 3mm) changes between flights.

Center of Gravity	
Use Case	**Recommended Range**
Maiden & Precision Flight	120mm/125mm
Aggressive 3D	130mm/135mm
**Max Recommended Range 120mm-135mm (approx. 4.75" - 5.25")*	

The CG is the one of the most important settings for a safe flight. It dictates the aircraft's stability.

- Extreme Forward CG (Nose-Heavy):
    - Aerodynamics: The CG is far in front of the center of lift, forcing the tail to produce significant downforce to keep the nose up. This makes the plane excessively stable.
    - Flight Effects: The plane will feel "heavy" and sluggish on the elevator. It will resist pitching up, stall at a higher airspeed, and be very difficult to flare for landing, often running out of elevator authority and resulting in fast, hard landings.
- Aft CG (Tail-Heavy):
    - Aerodynamics: The CG is behind or too close to the center of lift, making the plane longitudinally unstable. The tail has little to no stabilizing downforce.
    - Flight Effects: The plane will be extremely "pitchy" and hypersensitive to elevator control. It will want to tumble or "snap" with no warning and can enter an unrecoverable stall or spin, often on its very first takeoff. An aft-CG plane may only fly once.

Control Surface Throw & Expo

These settings are the recommended starting points. We suggest setting these up on a 2- or 3-position switch on your transmitter. "Low Rate" is intended for precision, sport flying, and landing. "High Rate" is for aggressive aerobatics and 3D.

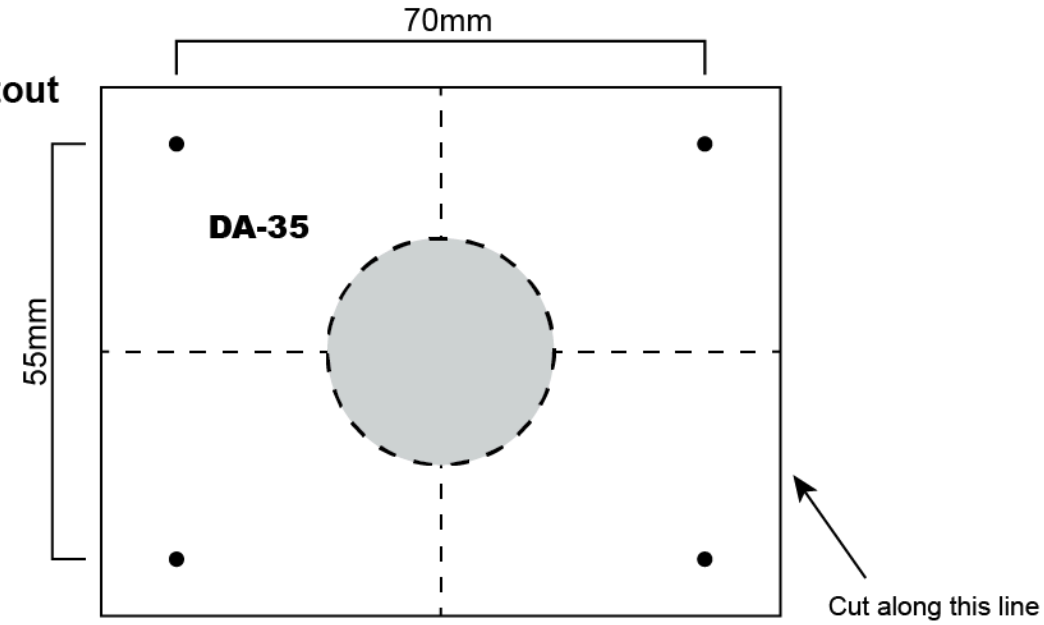
Surface	Rate	Throw (Degrees)	Expo
Aileron	LOW	15° - 20°	40% - 45%
	HIGH	38° - 40°	60% - 75%
Elevator	LOW	15° - 25°	20% - 30%
	HIGH	45° - 55°	55% - 70%
Rudder	LOW	20°	40% - 50%
	HIGH	45° - 50°	60% - 90%

*We find the most accurate way to measure control throws is with a digital angle meter or a "level" app on your smartphone. Place your phone on the control surface at its widest point, center it then, move the stick to measure the full deflection.

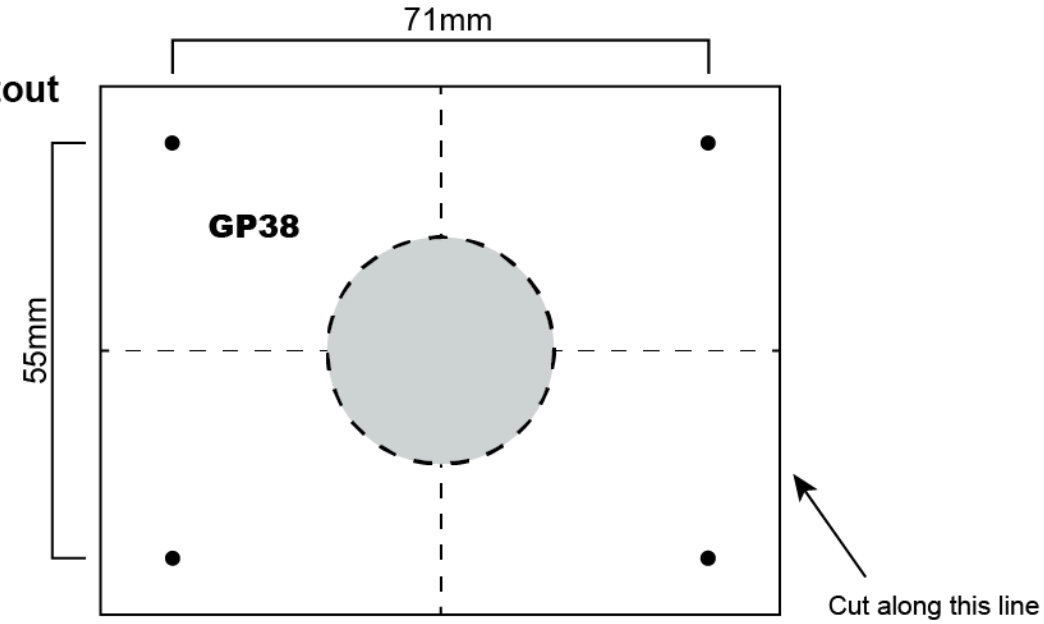
*Exponential (Expo) "softens" the feel of the sticks around the center. A setting of 40% expo does *not* reduce your total throw; it just means you have to move the stick 40% of the way before you get 40% of the control surface movement. This makes small, precision corrections much easier without making the plane feel "twitchy."

Rudder Expo is especially important. The rudder is extremely sensitive in high-alpha/post-stall (3D) flight. If you experience wing rock during harriers, try adding more expo to the rudder (even as high as 75-90%) before dismissing it as a poor flight trait. This can often solve the issue by smoothing out your small corrections.

DA-35 Mounting Dimensions & Cutout



GP38 Mounting Dimensions & Cutout



DLE 35RA Mounting Dimensions & Cutout