

DHC-2 **Beaver 1.5m**



INSTRUCTION MANUAL

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 or towerhobbies.com and click on the support or resources 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:
WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

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

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

AGE RECOMMENDATION: Not for children under 14 years. This is not a toy.

Safety Precautions and Warnings

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries.
- Always keep aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep transmitter powered on while aircraft is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Always ensure failsafe is properly set before flying.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.

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Specifications

- Wingspan: 59.5" (1510mm)
- Length: 38.5" (980mm)
- Flying Weight: 1360-1470g

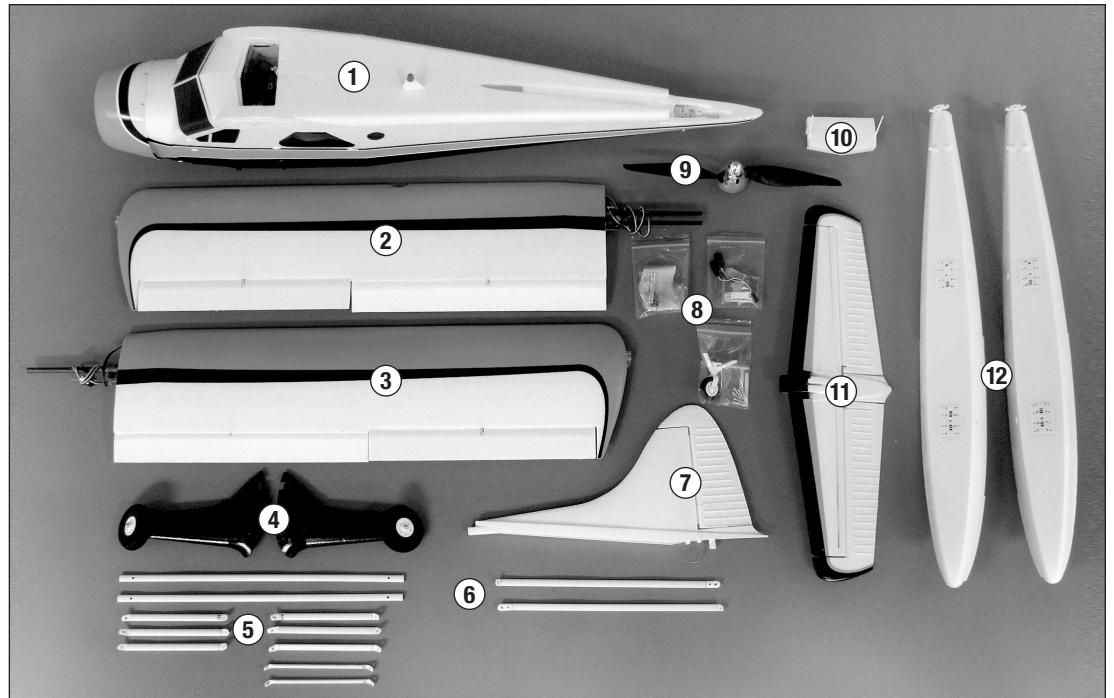
Components

- Motor: 4011-850Kv (TOWA137516)
- ESC: 40A, EC3 (TOWA137517)
- Servos: 9g, Sub-Micro (5) (TOWA137519)
- Propeller: 12 x 6 (TOWA137508)
- Transmitter: 6+ Channel (not included)
- Receiver: Spektrum™ AR637T (SPMAR637T) recommended (not included)
- Battery: 2200mAh 3S 11.1V 30C (SPMX22003S30, not included)

Box Contents

Before assembly, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact Horizon Hobby product support.

1. Fuselage
2. Left Wing
3. Right Wing
4. Main Landing Gear
5. Float Brackets
6. Wing Struts
7. Vertical Stabilizer
8. Hardware
9. Propeller/Spinner Assembly
10. Top Hatch
11. Horizontal Stabilizer
12. Floats

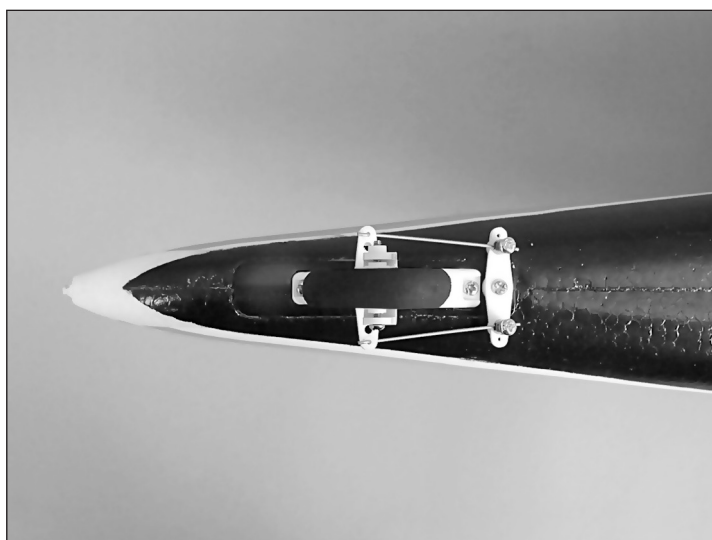


Assembly

The Tower DHC-2 Beaver may be assembled with either the conventional landing gear or the included floats. If installing the conventional landing gear, complete the following two steps, then skip ahead to the Horizontal Tail Installation section. If installing the floats, skip ahead to the Floats Installation section.

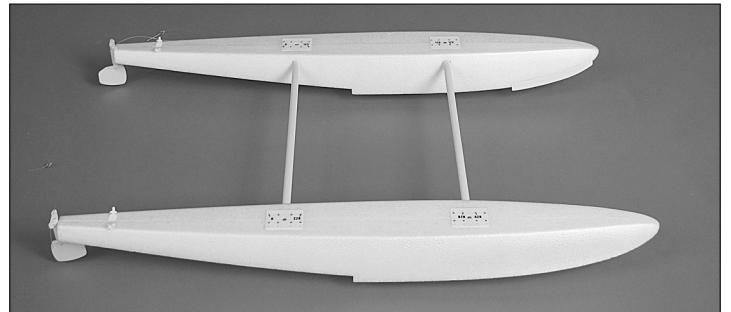
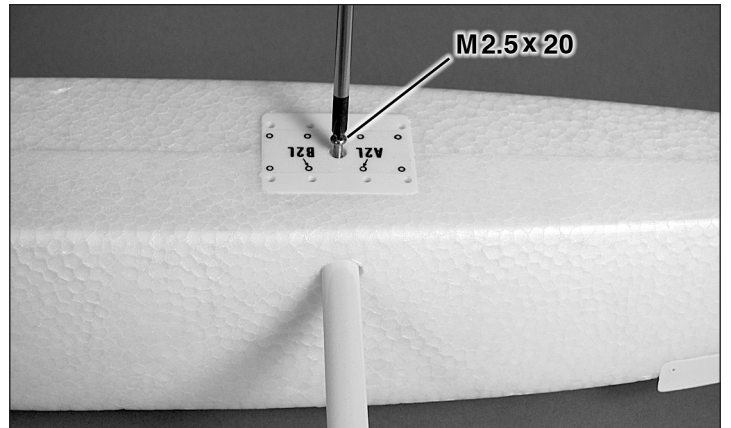
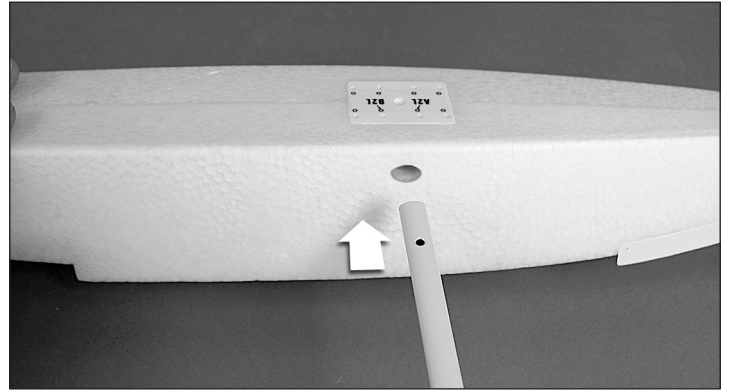
Landing Gear Installation

1. Use a #2 Phillips screwdriver to fasten both main landing gears to the fuselage with three M3x16 screws in each side.
2. Mount the tail gear with two M2.5x8 screws, then fasten the pushrod wires as shown. Make sure the tail wheel is perpendicular with the steering arm and tighten the screws.

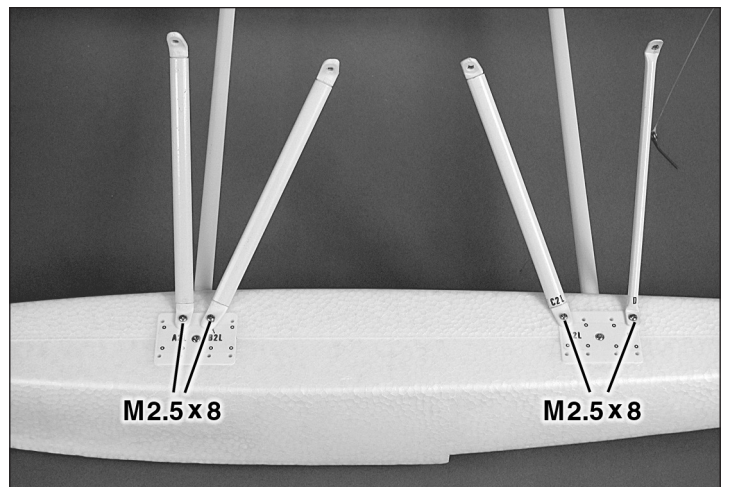


Floats Installation

1. Connect the floats to each other with the horizontal struts and four M2.5x20 machine-thread screws.



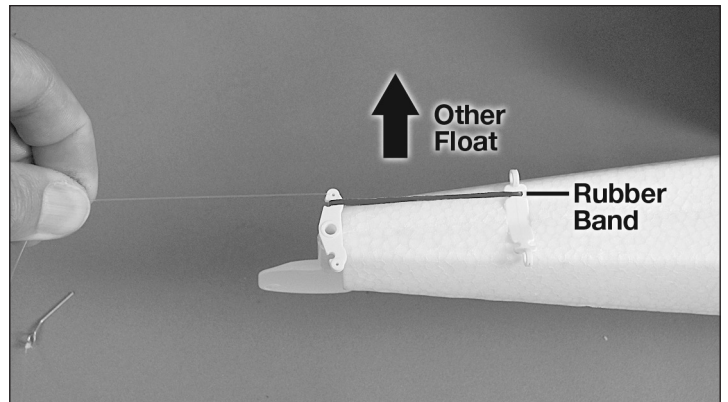
2. Use eight M2.5x8 screws to fasten the braces to the floats, matching the labels printed or molded into the end of each brace to the mount location on each float.



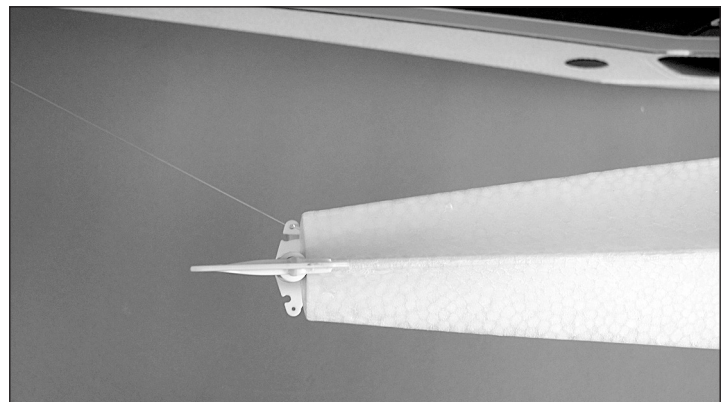
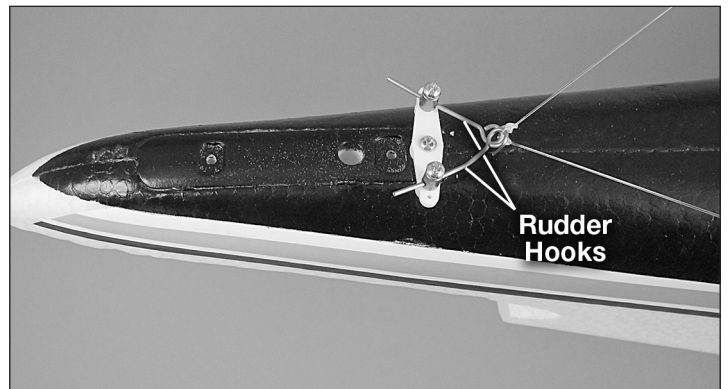
3. Fasten the float braces to the fuselage with one M3x16mm screw and two M2.5x8mm screws in each side of the fuselage. No screw is installed in the third strut at this time.



4. Connect a small rubber band to the inner side of each float and water rudder as shown.



5. Fasten the wire hooks on the end of each rudder line to the connectors in the steering arm. Adjust the tension in the lines to center the water rudders.

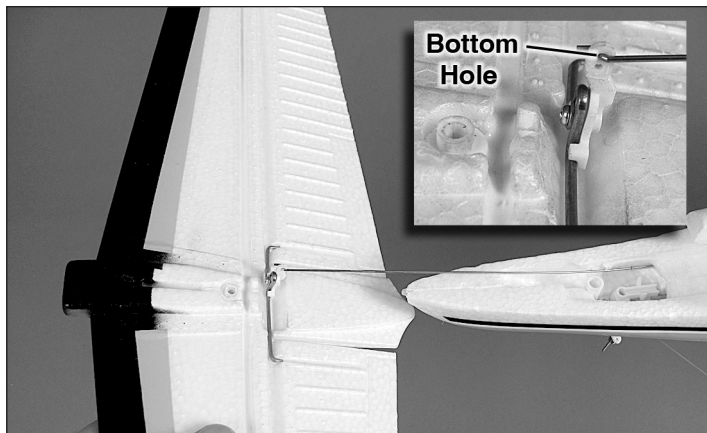


Horizontal Stabilizer Installation

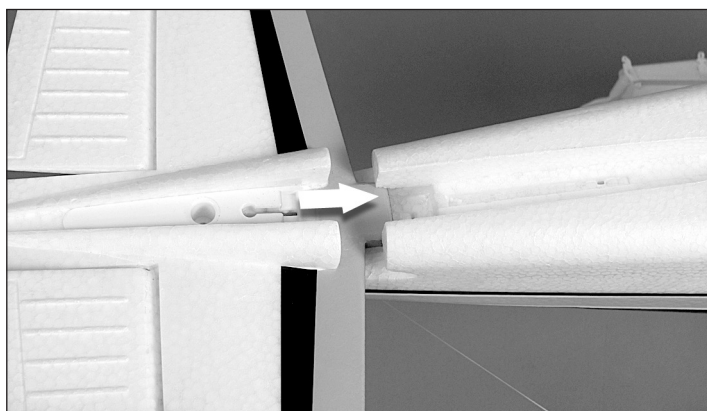
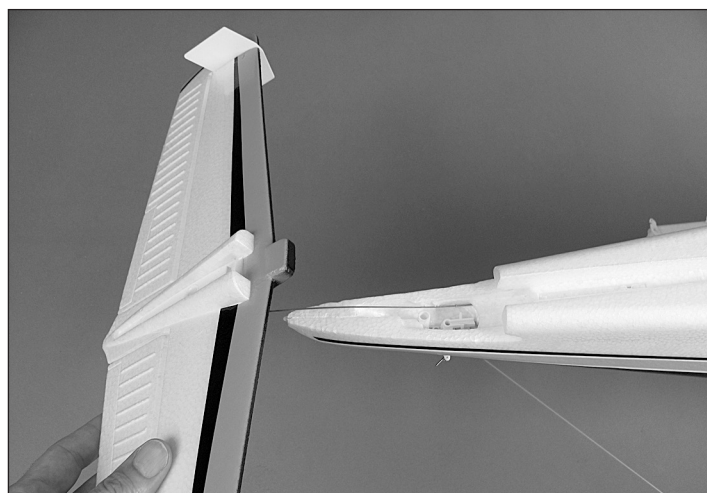
1. Fasten the fins to each end of the horizontal stabilizer (stab) with M2x6 screws.



2. Connect the elevator pushrod to the bottom hole in the elevator horn as shown.

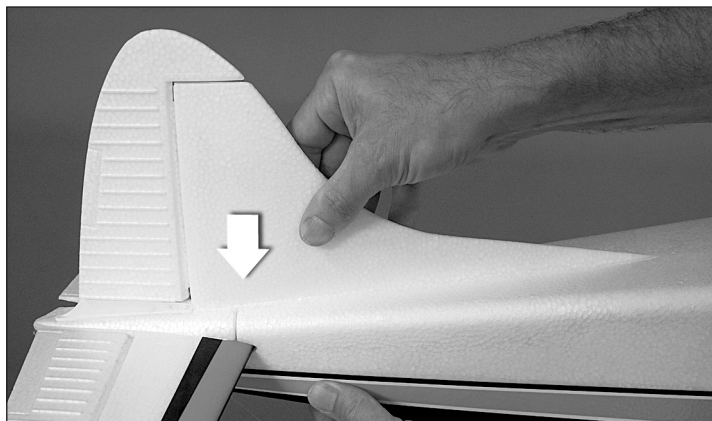
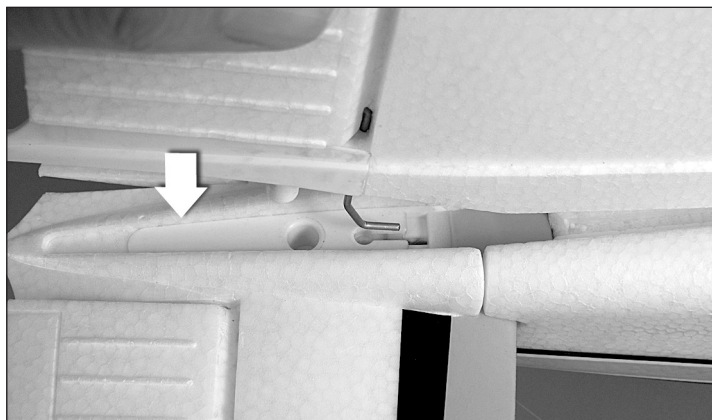
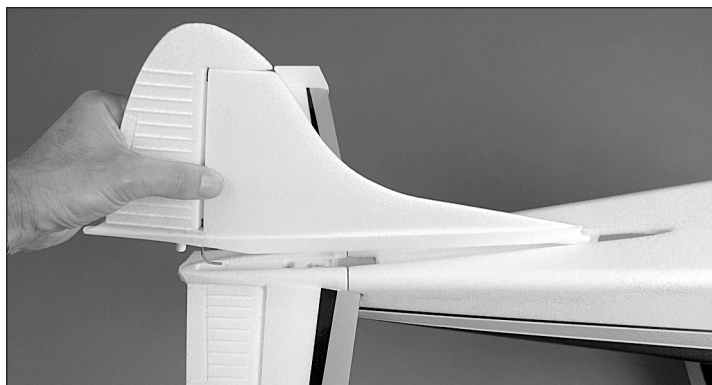


3. Rotate the stab upward and key it into the fuselage.

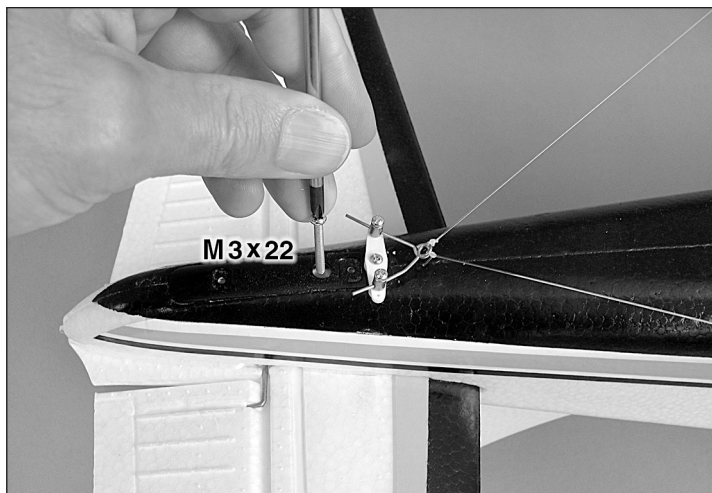


Vertical Stabilizer Installation

1. Key the rudder torque rod down into the receptacle while fitting the vertical stabilizer (fin) into the fuselage. Tightly press the assembly down into position.

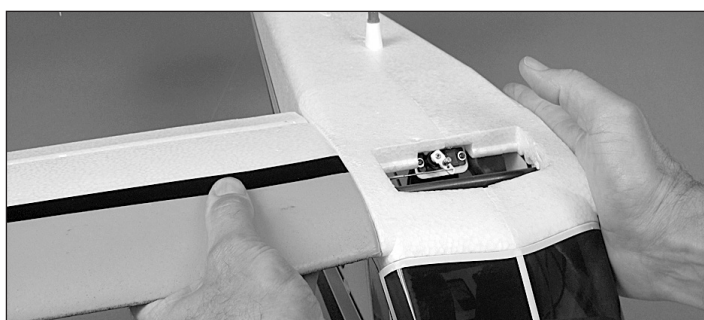
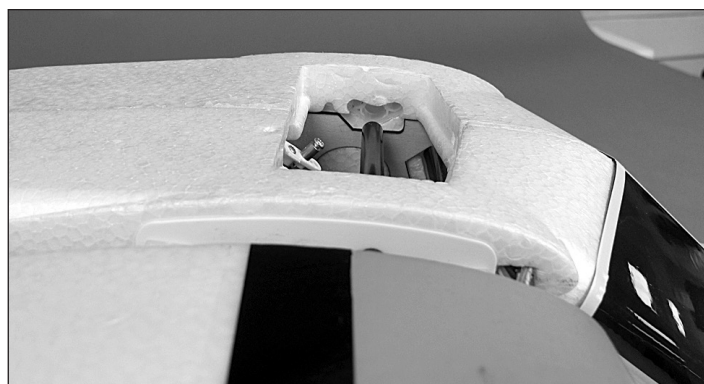
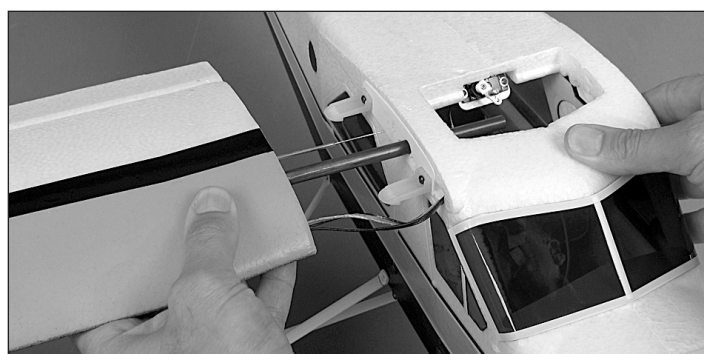
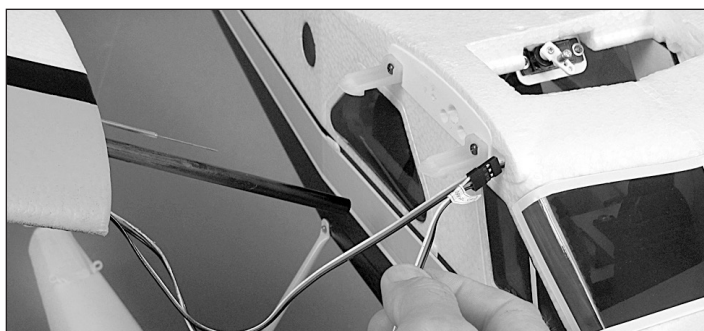
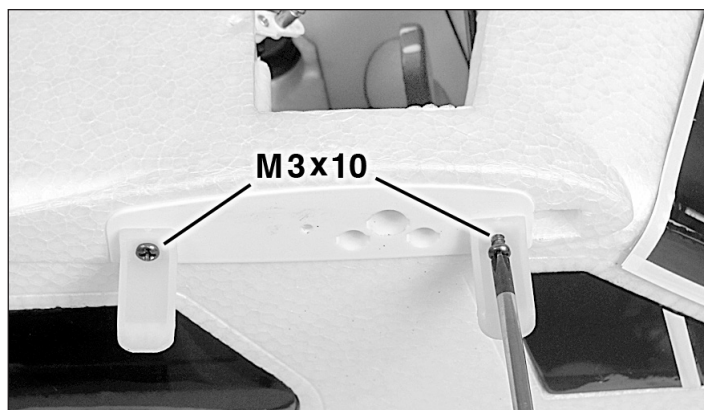


2. Secure the horizontal and vertical stabilizers with the M3x22 screw.

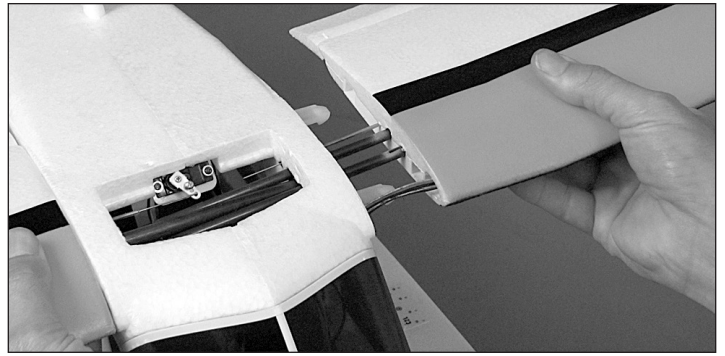


Wing Installation

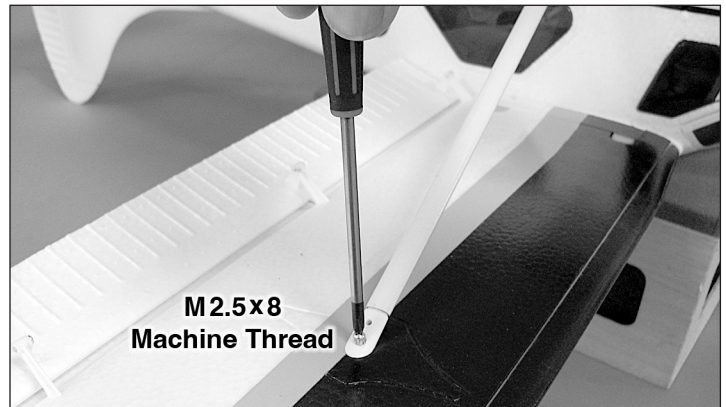
1. Fasten the wing clips to both sides of the fuselage with four M3x10 screws.
2. Guide the wires from the right wing into the fuselage, then slide the wing joiner tube and the flap pushrod wire through the corresponding holes. Also guide the flap pushrod wire into the screw-lock connector on the flap servo.
3. Guide the joiner tube through the hole in the left side of the fuselage, then tightly click the wing onto the wing clips.



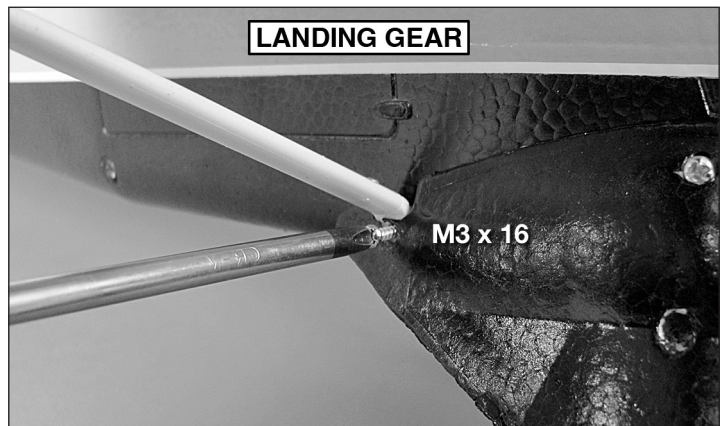
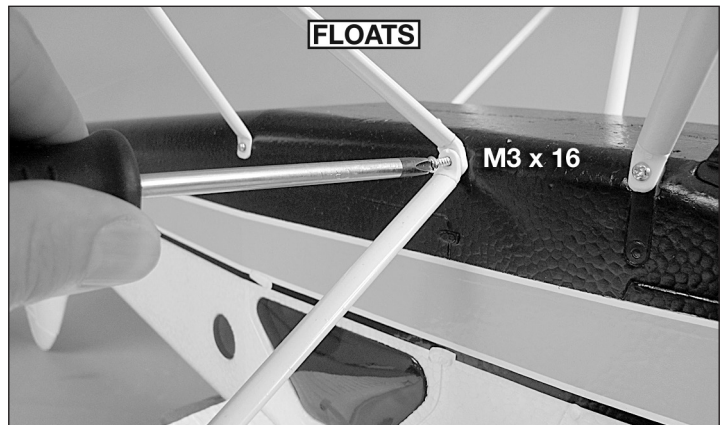
4. Mount the left wing the same way.



5. Mount the top of each wing strut to the wing with a M2.5x8 machine-thread screw.



6. Mount the bottom of each strut to the fuselage over the third float strut (or over the main landing gear) with a M3x16 screw.



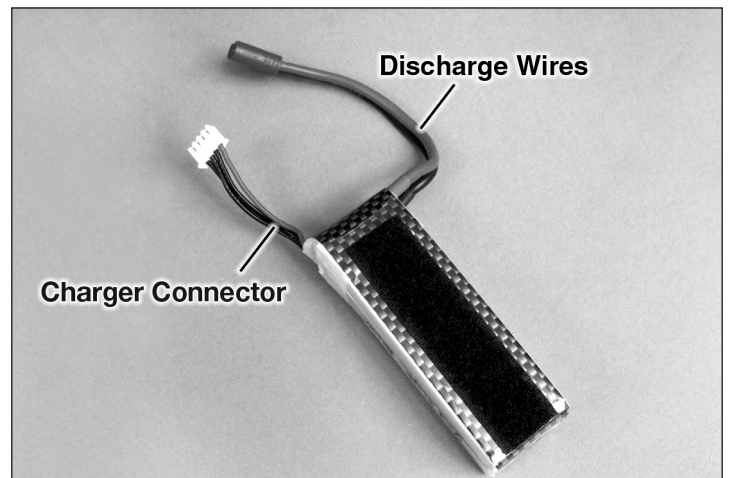
Receiver Installation

Install your receiver on the right side of the compartment in the front of the fuselage, opposite of the electronic speed control, connecting the servos according to the labels attached to the wires. Follow the receiver manual recommendations for setup.

Battery Installation

The flight battery is installed in the angled middle section of the front fuselage compartment and is held in place by the included adhesive back hook and loop material.

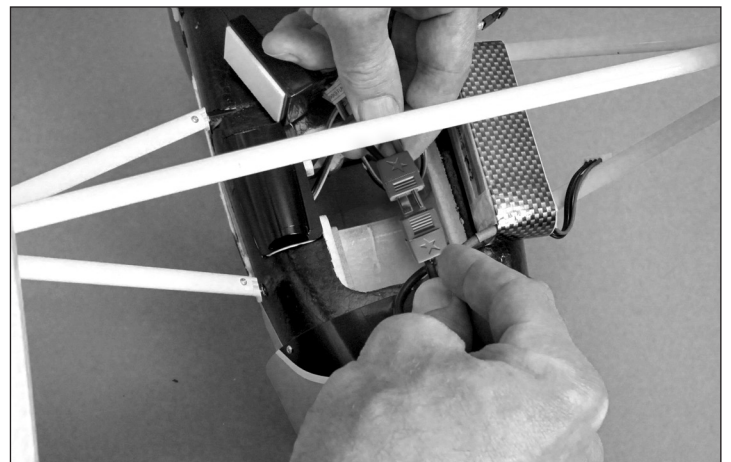
1. Cut two 1-inch (25mm) strips from the rough, "hook" side of the included adhesive back hook and loop material.
2. Apply the strips inside the fuselage where shown and press them down tightly to adhere.
3. Cut a 3-inch (76mm) strip from the soft, "loop" side and attach it to the battery



ESC Operation

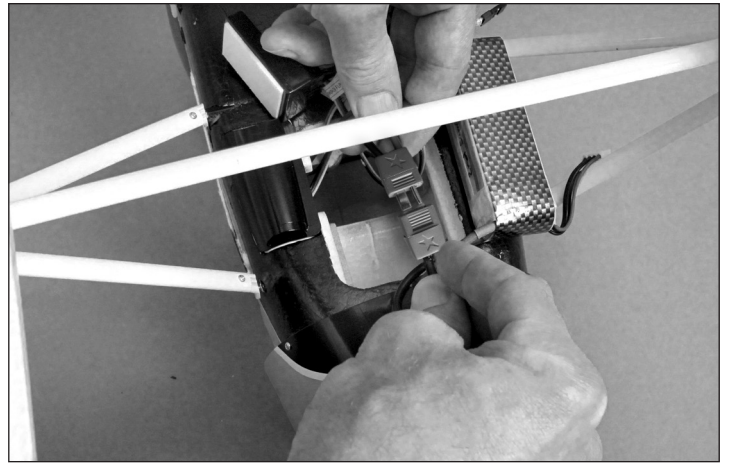
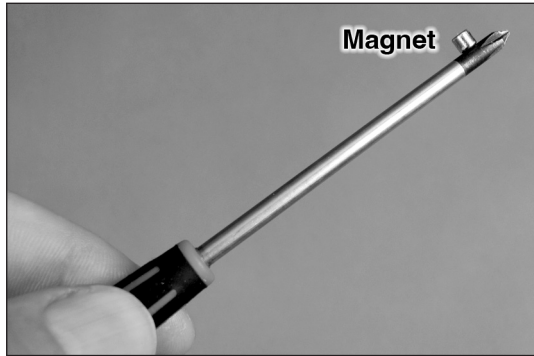
1. Move the throttle stick to the lowest position.
2. Connect battery pack to the ESC.

The motor emits one low, long tone, the respective number of medium-length mid-tones indicating the battery cell count, followed by three rising tones to indicate the ESC is armed.



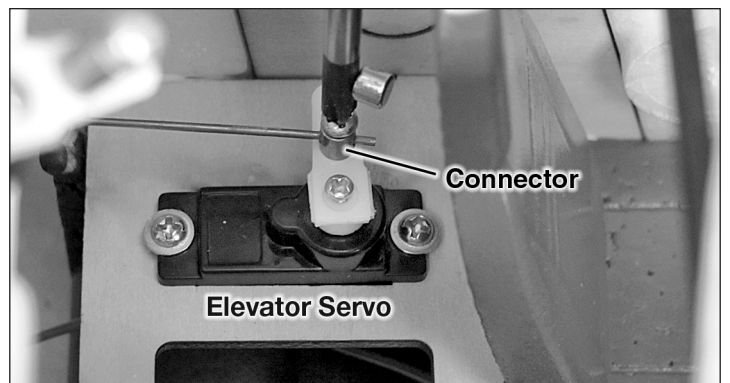
Connect the Rudder and Elevator

1. Power on the transmitter, fully lower the throttle stick, and center the trims.
2. Connect the battery to the ESC.

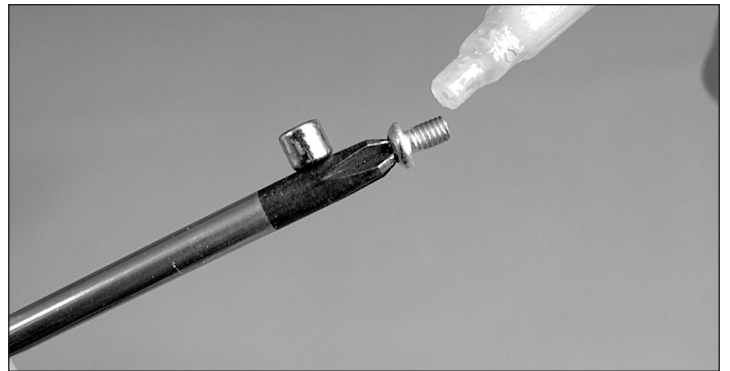


TIP: A magnetic screwdriver, or a small magnet stuck to a screw driver to make it magnetic, will be helpful for the next couple of steps.

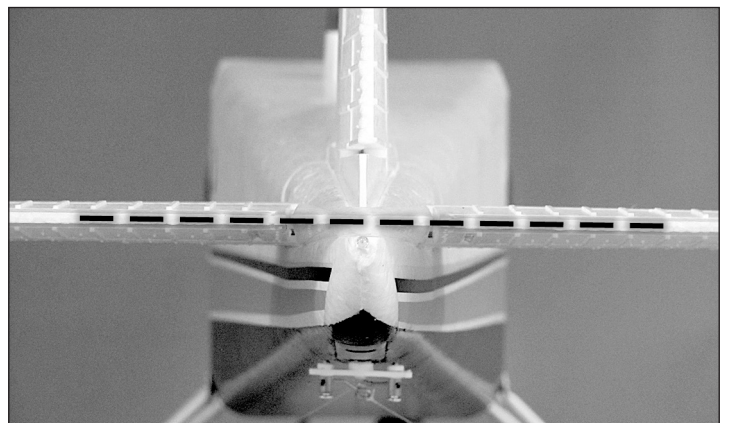
3. Remove the screw from the connector on the elevator servo arm.



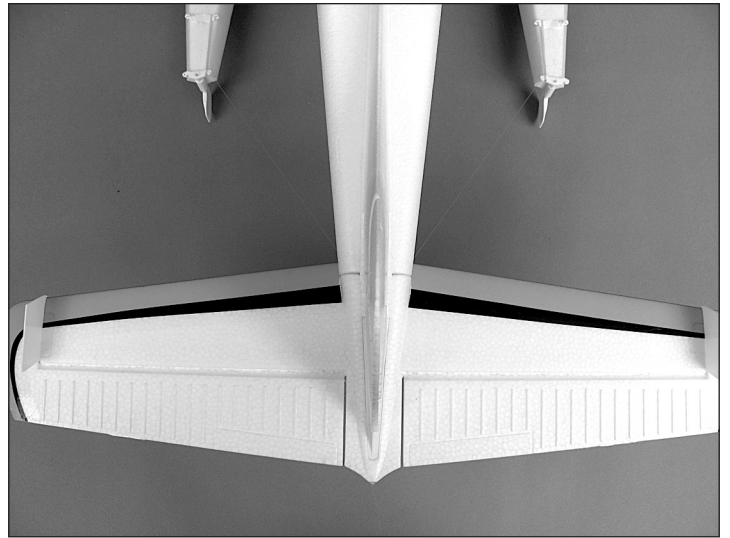
4. Lightly wet the threads of the screw with threadlocker.



5. Reinstall the screw, but do not tighten yet. With the transmitter and receiver on, center the elevator and tighten the screw to secure the pushrod.

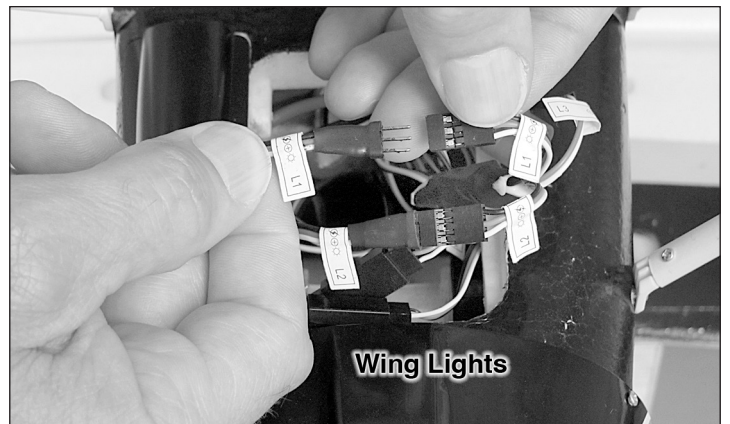


6. Repeat the same procedure for the rudder, making sure it is centered. Lock the pushrod in place on the servo arm with the screw and threadlocker.
7. Disconnect the battery and power off the transmitter.

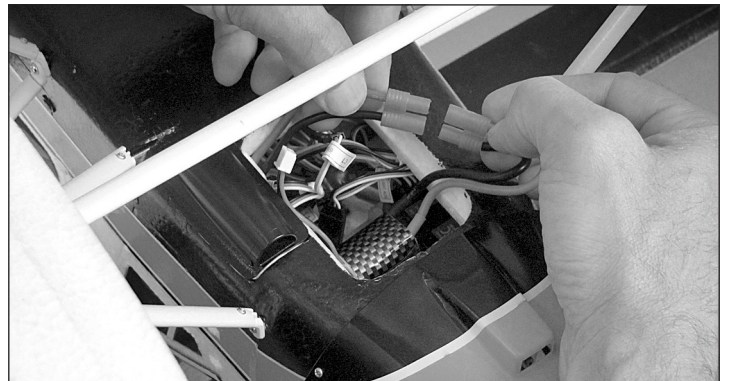


Connect the Lights, Flaps, and Ailerons

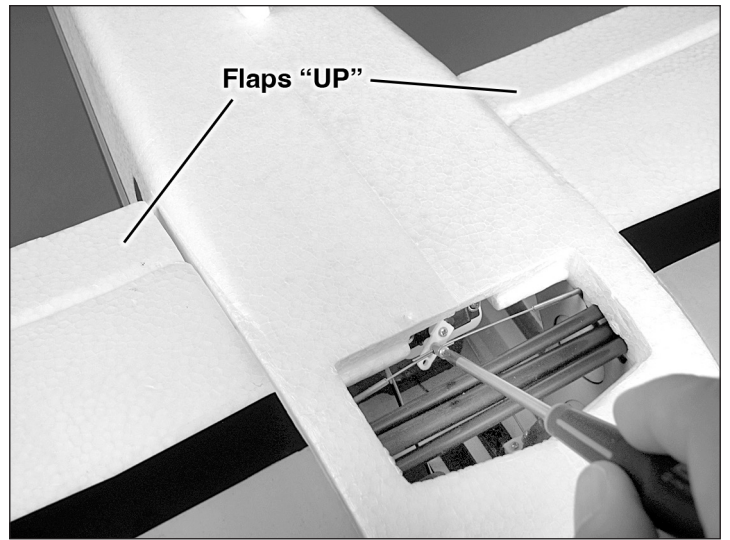
1. Connect the wing lighting wires and the aileron servo wires to the lighting aileron and flap wiring harnesses coming from the receiver.



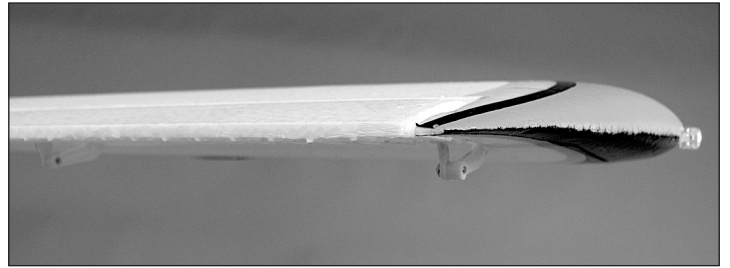
2. Turn on the transmitter and install and connect the battery. Then install and secure the hatch.



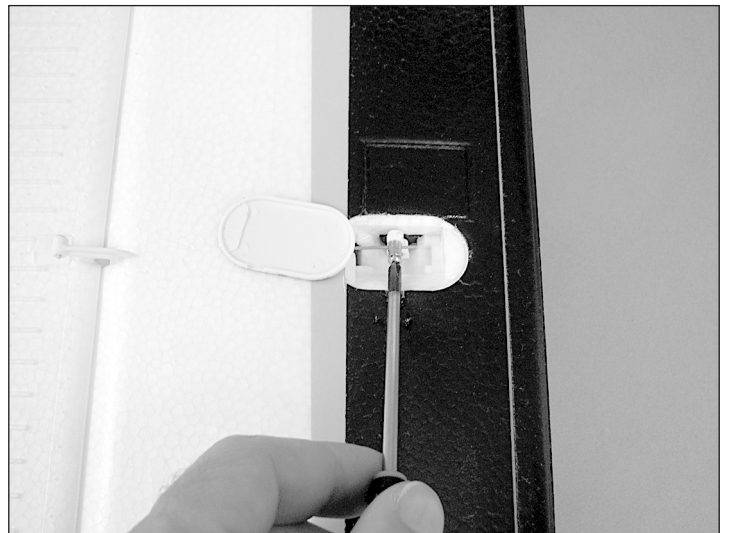
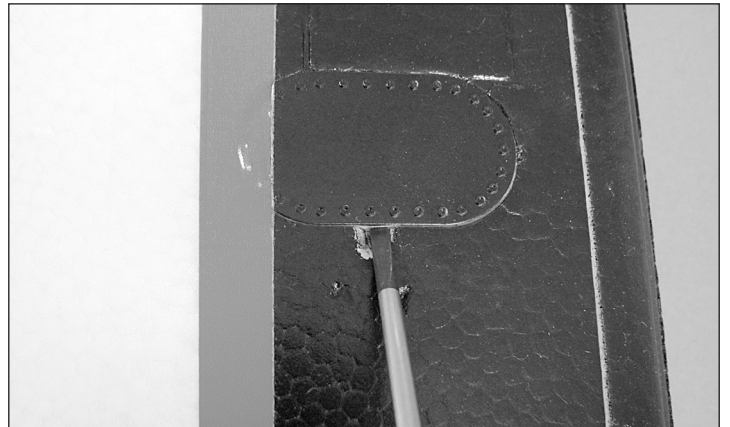
3. Move the dial or switch on your transmitter that controls the flaps to the “up” position, rotating the flap servo arm clockwise. Remove the screw in the flap servo arm, wet the threads with threadlock, and then reinstall and tighten the screw so the flaps will be in their fully retracted (“up”) position.



4. With the system still on, make sure the ailerons are centered and aligned with the wing tips. If necessary, apply a few clicks of aileron trim to get the ailerons centered.



TIP: If more than a few clicks of trim are required, or if you cannot get both ailerons neutralized, a small screwdriver may be used to pop off one or both aileron servo covers to access the pushrods. Adjust the pushrods in the connectors to get the ailerons centered. When finished, replace the cover, press into position, and hold in place with tape or a dab of glue.



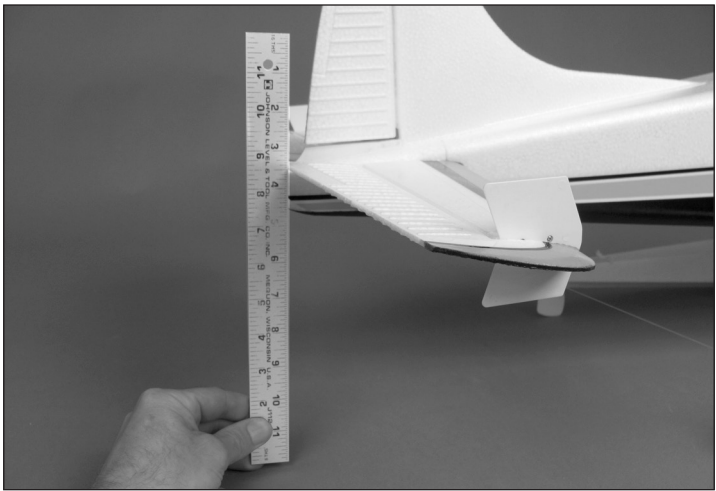
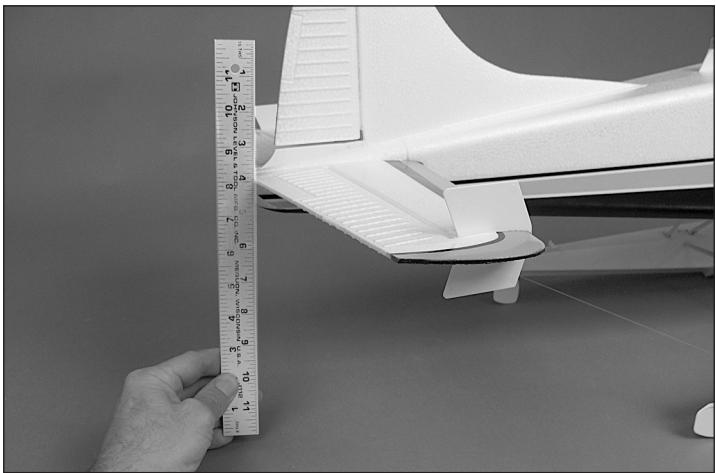
Control Throws

Because the servos and pushrods are factory installed the control throws should be correct. Because of the effect the control throws have on a model, it's always a good idea to confirm they are correct.

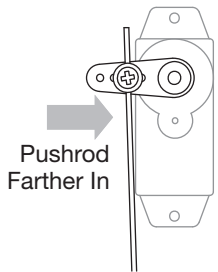
- 1. Confirm the controls respond in the correct direction according to control inputs from the transmitter. If necessary, use the servo reversing program in your transmitter to change the servo direction of any controls that are moving the wrong way.
- 2. If the aircraft is configured with the conventional landing gear, prop up the back of the fuselage so the wings and stab are level.
- 3. Measure and set the control throws according to the measurements below. Measure the throws at the widest part (front-to-back) of each surface.

Recommended Control Throws				
	High Rate		Low Rate	
	Up	Down	Up	Down
Elevator	11mm	11mm	8mm	8mm
Ailerons	13mm	13mm	10mm	10mm
Rudder	32mm	32mm	22mm	22mm
Flap		11mm		

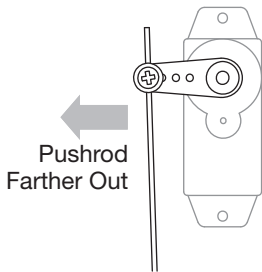
If any of the control throws require adjustment use the programming in your transmitter to increase or decrease the throws accordingly. If the programming isn't enough or if your radio doesn't have adjustable throws, the pushrod connectors on the servo arms can be relocated in different holes inward or outward to increase or decrease the throw—moving the pushrods inward on the servo arms decreases the throw and moving the pushrods outward on the servo arms increases the throw.



Less Control Throw



More Control Throw

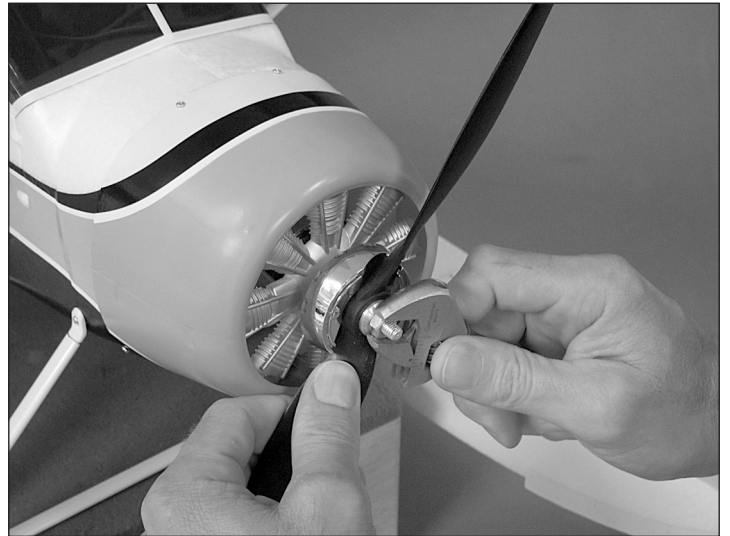


Propeller and Spinner Installation

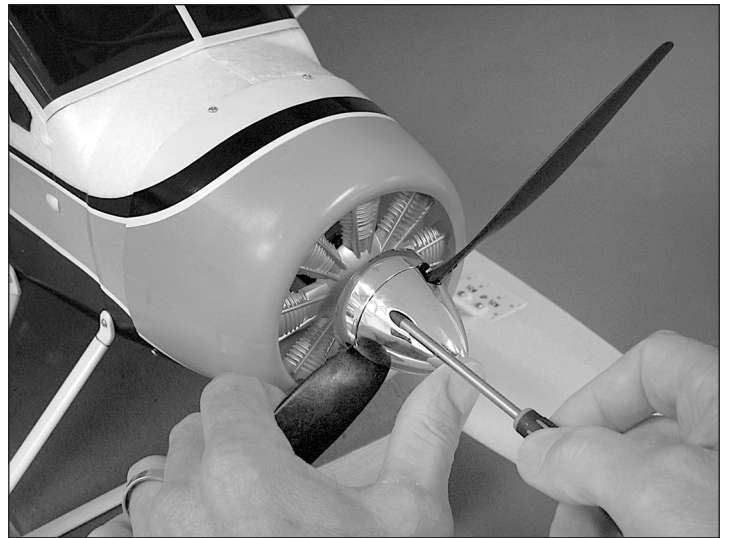
Failure to follow these safety precautions may result in severe injury to yourself and others.

- Wear safety glasses whenever in the proximity of a spinning propeller.
- Do not operate the motor in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.
- Keep spectators as well as your own face and body out of the plane of rotation of the propeller.
- Never connect the battery to the ESC while indoors with the propeller installed.
- Always remove the propeller when testing or making repairs to the model.
- Always stay behind the arc of the propeller when handling the model.
- Always assume the motor may start unexpectedly when the flight battery is connected.
- Always remain outside the arc of the propeller when installing and/or removing the flight battery.
- Keep all loose clothing, long hair or any other loose objects such as pencils or screwdrivers that may fall out pockets away from the propeller.

1. Secure the backplate, propeller, washer and nut. Make sure the assembly is secure to the aircraft.



2. Tighten the two Phillips head screws to the spinner.



Center Of Gravity (CG)

Same as the control throws, the center of gravity has a great effect on how every model flies.

- If the model is tail heavy it may be unstable and respond too quickly to the controls.
- If the model is nose heavy it may be too stable and not respond fast enough.

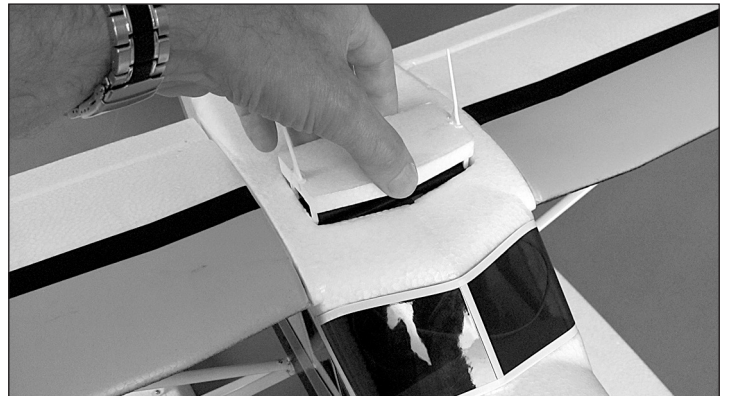
Either case may possibly cause a crash.

IMPORTANT: Do not overlook this important procedure.

1. Mark the forward and aft C.G. limits on both sides of the bottom of the wing 2 and 2-1/2in (51mm and 64mm) back from the leading edge where shown—using narrow strips of tape will allow you to feel the marks when lifting the model with your fingertips to balance.



2. Install the battery, battery hatch and cabin hatch. At this point the Beaver must be in ready-to-fly condition with everything attached and installed including the floats or wheels and battery and propeller.



3. Lift the model by your fingers between the lines indicating the balance range. As long as the Beaver sits level with your fingers on the forward or aft lines or anywhere between the lines it is properly balanced and ready to fly. If you have to move your fingertips outside the lines the Beaver is out of balance and should not be flown. If necessary, add squares of stick-on lead to the nose or tail to get the Beaver to balance within the specified range.



Before Every Flight

To help avoid flight accidents, ground inspections should be performed prior to every flight.

- Ensure all screws are secure, the servo arms and horns are properly connected and the wing is properly secured.
- Install the recommended battery (not included), adjusting the placement to ensure the center of gravity is correct, as recommended in the manual.
- Ensure both the flight battery and the transmitter battery are undamaged and fully charged.
- Ensure the transmitter throttle stick is at the lowest position prior to powering on the aircraft.
- After the aircraft is powered on, perform a control surface check to ensure both proper travel and the surfaces return to neutral when the transmitter sticks are returned to neutral.
- With all body parts and loose items away from the propeller and the aircraft securely held, gently push the throttle up to check for correct rotation of the propeller.
- For inexperienced pilots, always seek assistance from an experienced pilot.

Flying Tips

When powering the aircraft on, make sure the throttle stick is in the minimum (0%) position. Always power on the transmitter before plugging the battery into the plane.

The aircraft flies mostly the same as any similar, high-wing airplane, but you may find that the roll rate is a little slower. This suits the Beaver well as it is a scale-like, STOL (Short TakeOff and Landing) craft. Just give yourself more time and altitude before trying your first full roll.

Flying With Flaps

The only peculiarity arises when the flaps are extended—if you extend the flaps too soon before the Beaver has lost enough flying speed the nose will pitch up. Avoid this by making sure you have given the Beaver enough time to slow after cutting the throttle. You can also roll in the flaps gradually. If you have a computer radio you could also mix in some down elevator with flaps. Once the Beaver reaches “equilibrium” and has initiated a gliding descent the nose will resume a normal, downward glide angle. Similarly, when powering up the throttle with the flaps extended the nose will pitch up. Be prepared to counter with down elevator.

Flying From Water

Taken verbatim from our flight log book... “Flying the Beaver from water with floats can be described with many adjectives including astonishing, easy, fun, smooth, remarkable, etc.”

Unless weather conditions are poor, you should have no trouble flying the Beaver from either rough or calm water. The water rudders direct the Beaver well and they don't have to be perfectly centered to be effective (so don't spend an exorbitant amount of time on the work bench working on them!). The Beaver turns more tightly at idle speeds, so if you need to do a U-turn throttle back to bring the Beaver around. At higher speeds during a takeoff run the water rudders have the correct amount of effectiveness to steer the Beaver on its intended path. Takeoffs can be long and graceful or short and steep—either way the floats handle the water well. If the winds are really high the Beaver can still be flown from water, but avoid turning it directly across the wind. The wind can get under the wing and flip the aircraft over. In the air, the only effect of the floats is that the Beaver flies slightly slower.

Power Consumption

Flying “normally” (using half-throttle for general cruising and full-throttle only when required) the Beaver consumes about 200mAh/minute for recommended flight times of about 7 minutes with an 1800mAh battery and about 8.5 minutes with a 2100mAh battery. Flying more aggressively using higher throttle settings, the current draw increases closer to 260mAh/minute for recommended flight times of 5.5 minutes with an 1800mAh battery and 6.5 minutes with a 2100mAh battery.

To find out for yourself how long you can fly, set your timer to a conservative 5 minutes. Fly until the timer sounds, then land. Use a charger with a digital display to find out how much capacity it took to recharge the battery (indicating how much capacity was used). To avoid over discharging your LiPos use only 80% of your battery's capacity, so multiply your battery's capacity by .8 to find out how much you have available. Compare the capacity used to 80% of your battery's capacity and adjust your flight time accordingly.

For example: If you're using the recommended 1800mAh battery, your target capacity to use for a flight is 1440mAh (1800mAh x .8 = 1440mAh). If you fly for five minutes and it takes 1000mAh to recharge your battery, you still have 440mAh to go before you should land, so adjust your timer to increase your flight time accordingly until you reach your 1440mAh target. (You could also divide 1000mAh by five minutes to figure a current consumption rate of 200mAh/minute. Divide 1440mAh by 200mAh/minute to conclude that you can fly for 7.2 minutes [7 min. 12 sec.]—but round down to 7 minutes.)

When powering down, always unplug the battery from the plane before turning the transmitter OFF.

It's also a great idea to use a LiPo battery checker (HCAP0275) to check the battery before each flight (to make sure you haven't inadvertently grabbed a discharged battery) and to check the battery after flight to make sure you haven't over discharged your battery by flying too long. A safe, conservative, minimum voltage is 3.65V – 3.7V per cell right after a flight.

One final note about flying your model. Have a goal or flight plan in mind for every flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve your skills (though it is never a bad idea!), but more importantly so you do not surprise yourself by impulsively attempting a maneuver and suddenly finding that you've run out of time, altitude or airspeed. Every maneuver should be deliberate, not impulsive. For example, if you're going to do a loop, check your altitude, mind the wind direction (anticipating rudder corrections that will be required to maintain heading), remember to throttle back at the top, and make certain you are on the desired rates (high/low rates). A flight plan greatly reduces the chances of crashing your model just because of poor planning and impulsive moves. Remember to think.

Repairs

Parts damaged beyond repair can be purchased separately. Often parts can be repaired and you can get your Beaver back into the air with a little glue and ingenuity.

The Beaver is made from injection-molded EPO (expanded polyolefin) foam which can be glued with just about anything. Most people use regular CA. With CA no clamping is required, but some prefer softer, more flexible adhesives such as white glue or canopy glue. These will require clamps or tape to hold the parts together while the glue dries.

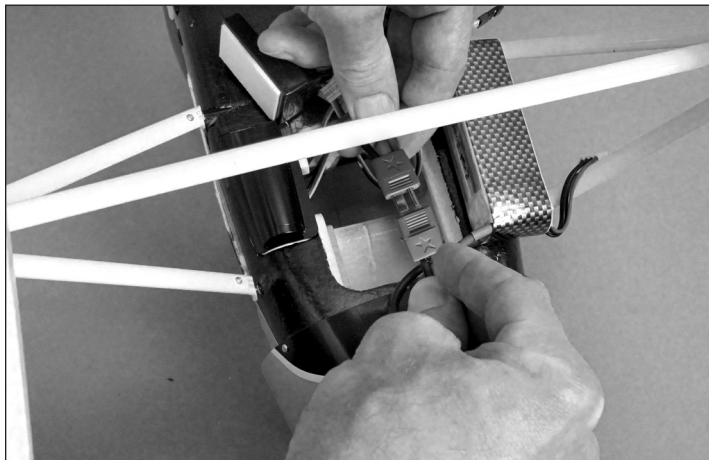
Electronic Speed Control Calibration

CAUTION: Remove the spinner and propeller before performing the electronic speed control calibration procedure. Failure to remove the propeller may cause serious injury in the event of accidental motor startup.

IMPORTANT: Because different transmitters have different throttle ranges, calibrate throttle range before flying.

To set the throttle range

1. Move the throttle stick to the highest position.
2. Connect battery to the ESC. The motor will emit one low, long tone to indicate startup, then the respective number of medium-length mid-tones to indicate the battery cell count. The motor sounds 2 long tones (B—B—), which means the highest position of the throttle range is recognized by the ESC.
3. Move the throttle stick to the lowest position within 2 seconds of the tones. The ESC recognizes the low throttle position and exits the throttle range calibrating process.



Troubleshooting

Problem	Possible Cause	Solution
Aircraft will not respond to the throttle but responds to other controls	ESC is not armed	Lower throttle stick and throttle trim to lowest settings
	Throttle channel is reversed	Reverse throttle channel on the transmitter
Extra propeller noise or vibration	Damaged spinner, propeller, motor or mount	Replace damaged parts
	Loose propeller and spinner parts	Tighten parts for propeller adapter, propeller and spinner
	Propellor installed backwards	Remove and install the propeller correctly
Reduced flight time or aircraft is underpowered	Flight battery charge is low	Completely recharge flight battery
	Propeller installed backwards	Remove and install the propeller correctly
	Flight battery damaged	Replace the flight battery and follow flight battery instructions
Control surface does not move, or is slow to respond to control inputs	Control surface, control horn, linkage or servo damage	Replace or repair damaged parts and adjust controls
	Wire damaged or connections loose	Do a check of connections for loose wiring
Controls reversed	Channels are reversed in the transmitter	Do the control direction test and adjust controls for aircraft and transmitter
Motor loses power or pulses then loses power	Damage to motor or battery	Do a check of batteries, transmitter, receiver, ESC, motor and wiring for damage and replace as needed
	ESC uses default soft Low Voltage Cutoff (LVC)	Land aircraft immediately and recharge the flight battery
LED on receiver flashes slowly	Power loss to the receiver	Check connection from the ESC to the receiver
		Check servos for damage
		Check linkages for binding

Replacement Parts

Part #	Description
TOWA137501	Fuselage: DHC-2 Beaver 1.5m
TOWA137502	Wing Set: DHC-2 Beaver 1.5m
TOWA137503	Horizontal Stabilizer: DHC-2 Beaver 1.5m
TOWA137504	Vertical Stabilizer: DHC-2 Beaver 1.5m
TOWA137505	Main Landing Gear: DHC-2 Beaver 1.5m
TOWA137506	Tailwheel Assembly: DHC-2 Beaver 1.5m
TOWA137507	Cowling: DHC-2 Beaver 1.5m
TOWA137508	Propeller, 12 x 6: DHC-2 Beaver 1.5m
TOWA137509	Spinner: DHC-2 Beaver 1.5m
TOWA137510	Propeller Adapter: DHC-2 Beaver 1.5m
TOWA137511	Float Set: DHC-2 Beaver 1.5m
TOWA137512	Float Brackets: DHC-2 Beaver 1.5m
TOWA137513	Water Rudders: DHC-2 Beaver 1.5m
TOWA137514	Wing Retainers: DHC-2 Beaver 1.5m
TOWA137515	Hatch Set: DHC-2 Beaver 1.5m
TOWA137516	4011-850Kv Motor: DHC-2 Beaver 1.5m
TOWA137517	40A ESC, EC3: DHC-2 Beaver 1.5m
TOWA137518	Wheel Set: DHC-2 Beaver 1.5m
TOWA137519	9g Sub-Micro Servo: DHC-2 Beaver 1.5m

Part #	Description
TOWA137520	Wing Strut Set: DHC-2 Beaver 1.5m
TOWA137521	Decal Set: DHC-2 Beaver 1.5m
TOWA137522	Servo Arm Set: DHC-2 Beaver 1.5m
TOWA137523	Screw Set: DHC-2 Beaver 1.5m
TOWA137524	Light Set: DHC-2 Beaver 1.5m
TOWA137525	Elevator Control Horn: DHC-2 Beaver 1.5m

Recommended Parts

Part #	Description
SPMAR637T	AR637T 6CH SAFE and AS3X TelemRX
SPMR8200	NX8 8 Ch DSMX Transmitter Only
SPMX22003S30	2200mAh 3S 11.1V Smart 30C; IC3
SPMXC2080	Smart S1100 AC Charger, 1x100W

Optional Parts

Part #	Description
ONXP22003S40	2200mAh 3S 11.1V 40C, EC3, LED

Important Federal Aviation Administration (FAA) Information

Use the QR code below to learn more about the Recreational UAS Safety Test (TRUST), as was introduced by the 2018 FAA Reauthorization Bill. This free test is required by the FAA for all recreational flyers in the United States. The completed certificate must be presented upon request by any FAA or law enforcement official.



Recreational UAS Safety Test

If your model aircraft weighs more than .55lbs or 250 grams, you are required by the FAA to register as a recreational flyer and apply your registration number to the outside of your aircraft. To learn more about registering with the FAA, use the QR code below.



FAA DroneZone

AMA National Model Aircraft Safety Code

Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

- I will not fly a model aircraft in a careless or reckless manner.
- I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.
- I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.
- I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.
- I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.
- I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.
- I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.
- I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.
- I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.
- I will use an established safety line to separate all model aircraft operations from spectators and bystanders.

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 at 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, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or 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, 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. 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.

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.

10/15


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/	2904 Research Rd Champaign, IL 61822
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	

FCC Information

Supplier's Declaration of Conformity

Tower DHC-2 Beaver 1.5m (TOWA1375)

 This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference

to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Horizon Hobby, LLC
2904 Research Road
Champaign, IL 61822
Email: compliance@horizonhobby.com
Web: HorizonHobby.com

IC Information

IC: CAN ICES-3 (B)/NMB-3(B)

This Class B digital apparatus complies with Canadian ICES-003.



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