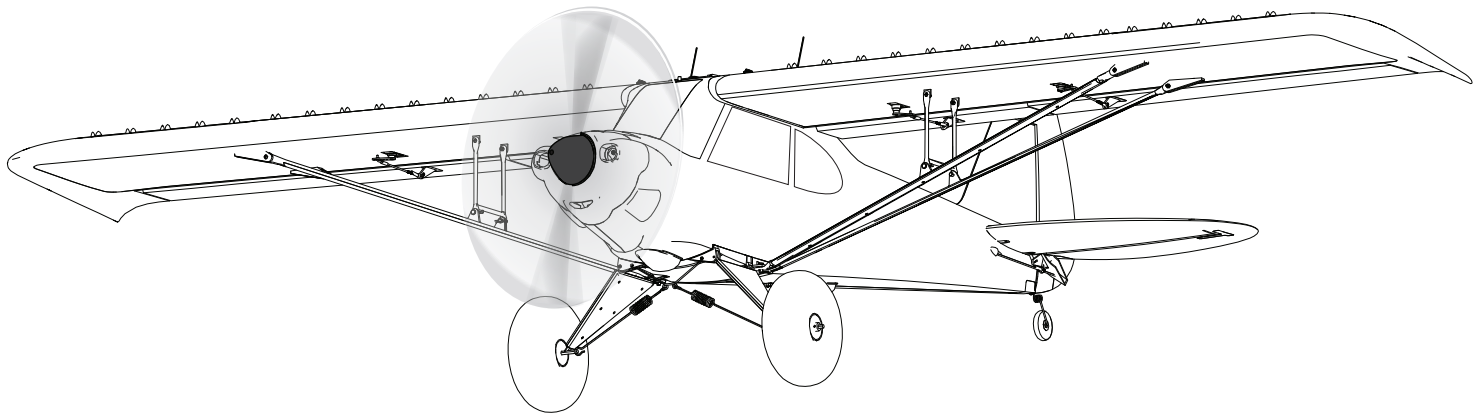


HORIZON[®]
H O B B Y

E-flite[®]
ADVANCING ELECTRIC FLIGHT

Carbon-Z[®] Cub SS



Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manuale di Istruzioni

SAFE[®] 

SAFE[®] Select Technology, Optional Flight Envelope Protection

Plug-N-Play[®]

Bind-N-Fly[®]
BASIC

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.

14+ 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.

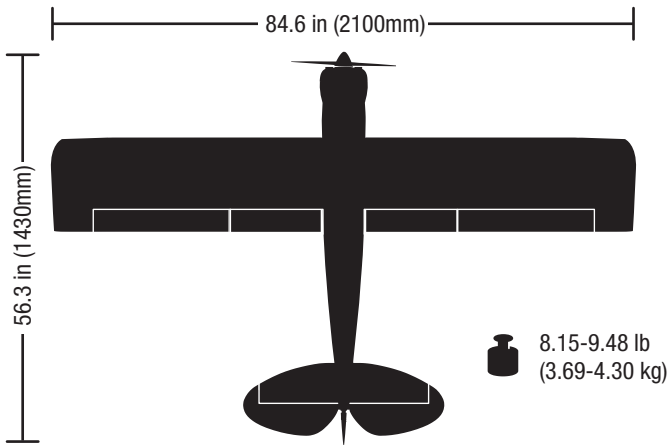
 **WARNING AGAINST COUNTERFEIT PRODUCTS:** If you ever need to replace your Spektrum receiver found in a Horizon Hobby product, always purchase from Horizon Hobby, LLC or a Horizon Hobby authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM or Spektrum technology.

Quick Start Information			
Transmitter Setup	1. Blank (Acro) Model		
	2. Wing Type: 1 Aileron, 1 Flap		
	3. Servo Reversing: Gear Reversed, All Others Normal		
	4. Travel Adjust (All Surfaces): 100%		
Dual Rates*		High Rate	Low Rate
	Aileron	▲ = 50mm ▼ = 45mm	▲ = 35mm ▼ = 30mm
	Elevator	▲ = 42mm ▼ = 42mm	▲ = 30mm ▼ = 30mm
	Rudder	▶ = 65mm ◀ = 65mm	▶ = 50mm ◀ = 50mm
Flap Travel	Take-off ▼ = 20mm	Landing ▼ = 35mm	
EXPO (Soft center)		High Rate	Low Rate
	Aileron	10%	5%
	Elevator	10%	5%
	Rudder	10%	5%
Center of Gravity (CG)	105-120mm back from the leading edge, measured at the wing root		
Flight Timer Setting	4 minutes		

* The dual rates values given are intended for first time pilots through intermediate level pilots. For advanced settings options, see the *Dual Rates and Control Throws* section of the manual.

Specifications

	BNP BASIC	PNP PLUG-N-PLAY
Motor: BL50-525Kv (EFLM7450)	Included	Included
ESC: Avian 60-Amp Smart ESC (SPMXAE1060B)	Installed	Installed
Servos: (4) 26g Digital MG Mini Servo (EFLR7145) (2) 13g Digital MG Micro Servo (EFLR7155)	Installed	Installed
Receiver: Spektrum™ AR637TA 6-Channel AS3X/SAFE Telemetry Receiver (SPMAR637T)	Installed	Required to Complete
Recommended Battery: 4000mAh 22.2V 6S 50C Li-Po (SPMX40006S50)	Required to Complete	Required to Complete
Recommended Battery Charger: 6-cell Li-Po battery balancing charger	Required to Complete	Required to Complete
Recommended Transmitter: Full-Range 2.4GHz with Spektrum™ DSM2®/DSMX® technology with programmable mixing and adjustable dual rates	Required to Complete	Required to Complete



Box Contents

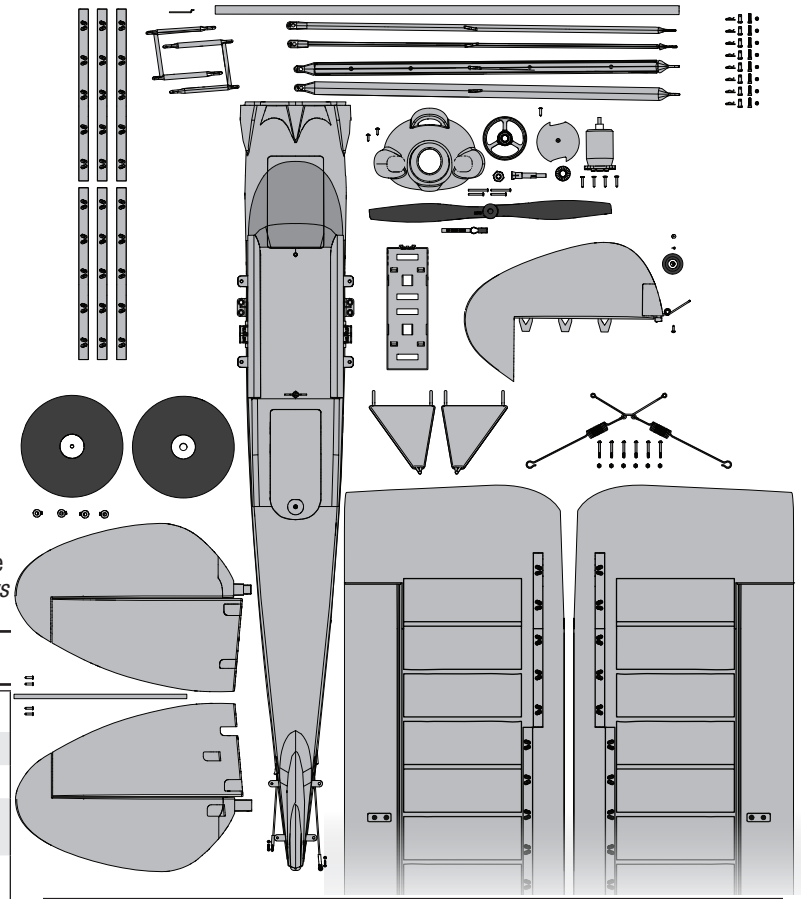


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Tools Required

- 1.5mm Hex wrench
- 4mm Wrench /Socket
- 2mm Hex wrench
- Needle nose pliers
- 2.5mm Hex wrench
- Adjustable wrench

If you own this product, you may be required to register with the FAA. For up-to-date information on how to register with the FAA, please visit <https://registermyuas.faa.gov/>. For additional assistance on regulations and guidance on UAS usage, visit knowbeforeyoufly.org/.

Preflight

1	Remove and inspect contents.
2	Read this instruction manual thoroughly.
3	Charge the flight battery.
4	Fully assemble the aircraft.
5	Install the flight battery in the aircraft (once it has been fully charged).
6	Check the Center of Gravity (CG).
7	Bind the aircraft to your transmitter.

8	Make sure all linkages move freely.
9	Perform the control direction test with the transmitter.
10	Adjust the flight controls and transmitter as needed.
11	Perform a radio system range test.
12	Find a safe open area to fly.
13	Plan flight for flying field conditions.

Transmitter Setup (BNF)

IMPORTANT: After you set up your model, always rebind the transmitter and receiver to set the desired failsafe positions.

If your transmitter allows it, enable the throttle cut feature. Always engage throttle cut before approaching the aircraft.

Dual Rates

Low rate is recommended for the initial flights.

NOTICE: To ensure AS3X[®] technology functions properly, do not lower rate values below 50%. If lower rates are desired, manually adjust the position of the pushrods on the servo arm.

NOTICE: If oscillation occurs at high speed, refer to the Troubleshooting Guide for more information.

Expo

After first flights, you may adjust expo in your transmitter.

† Some of the terminology and function locations used in the iX12, iX20 programming may be slightly different than other Spektrum AirWare™ radios. The names given in parenthesis correspond to the iX12, iX20 programming terminology. Consult your transmitter manual for specific information about programming your transmitter.

* **Flap programming values may vary slightly. For your initial flights use the recommended flap travel settings provided in the Flaps section and adjust the flap travel to your preference on subsequent flights.**

Computerized Transmitter Setup (DX6i, DX6e [†] , DX6 [†] , DX7, DX7S, DX8, DX9, DX10t, DX18, DX20, iX12, iX20, NX6, NX8 and NX10)	
Start all transmitter programming with a blank ACRO model (do a model reset), then name the model.	
Set Aileron, Elevator and Rudder Dual Rates to:	HIGH 100% LOW 70%
Set Servo Travel to:	100%
Set Throttle Cut to	-130%
DX6i	1. Go to the SETUP LIST MENU
	2. Set MODEL TYPE: ACRO
	3. Go to ADJUST LIST MENU
	4. Set FLAPS: Norm ↑100 Flap Elev 0 LAND ↓100 Flap ↓Elev 15
DX7S DX8	1. Go to the SYSTEM SETUP
	2. Set MODEL TYPE: AIRPLANE
	3. Set WING TYPE: 1 AIL 1 FLAP
	4. Go to the FUNCTION LIST
	5. Set FLAP SYSTEM: Choose Flap NORM: 0% FLAP* MID: 50% FLAP* 6% Elevator LAND: 100% FLAP* 15% Elevator SPEED 2.0S: SWITCH = FLAP
DX6e[†] DX6 (Gen2)[†] DX7 (Gen2) DX8 (Gen2) DX9 DX10t DX18 DX20 iX12[†] iX20[†] NX6 NX8 NX10	1. Go to the SYSTEM SETUP (Model Utilities) [†]
	2. Set MODEL TYPE: AIRPLANE
	3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type) [†] : WING: 1 AIL 1 FLAP
	4. Go to the FUNCTION LIST (Model Adjust) [†]
	5. Set FLAP SYSTEM: SELECT SWITCH D: POS 0: 0% FLAP* POS 1: 40% FLAP* 6% Elevator POS 2: 100% FLAP* 15% Elevator SPEED 2.0

Model Assembly

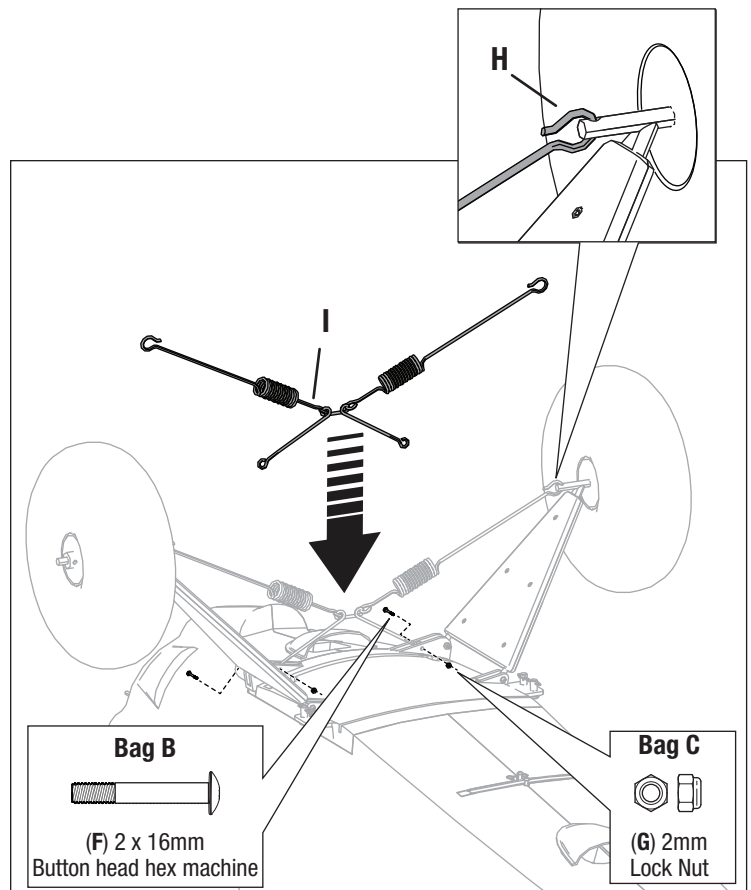
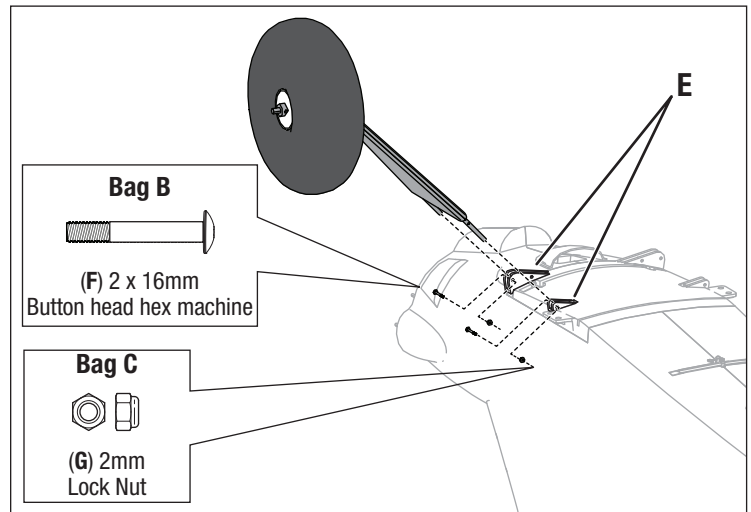
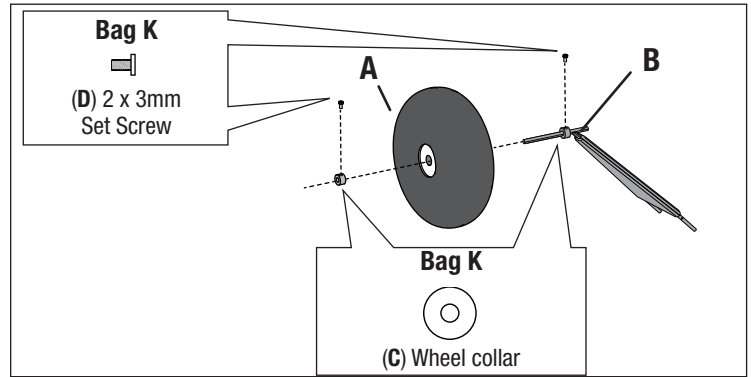
Required Adhesives:



Thread Lock

Landing Gear Installation

1. Install a tundra tire (A) on the strut (B) using 2 wheel collars (C) as shown. Ensure the set screws (D) are aligned with the flat spots on the strut. Apply threadlock and tighten. Repeat tire installation for the opposite strut.
2. Insert the legs of the strut assembly into the landing gear brackets (E) located on the bottom of the fuselage.
3. Align the holes of the strut legs with the holes of the landing gear bracket. Secure the landing gear into place using 2 screws (F) and 2 nuts (G). Repeat installation for opposite strut.
4. Connect both hooks (H) to the holes located on the strut behind the tire.
5. Align the bottom of the landing gear suspension spring (I) to the second hole of the front landing bracket. Secure it into place with the screw (F) and nut (G). Repeat installation for opposite strut.



Model Assembly (Continued)

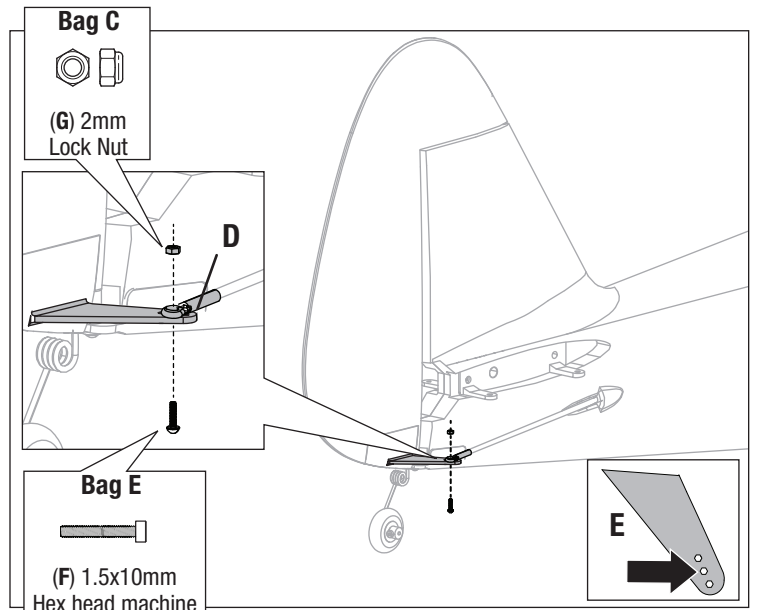
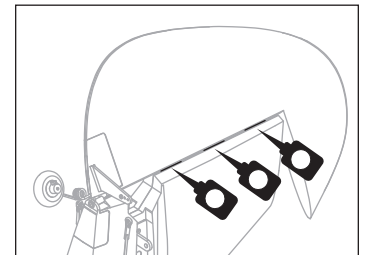
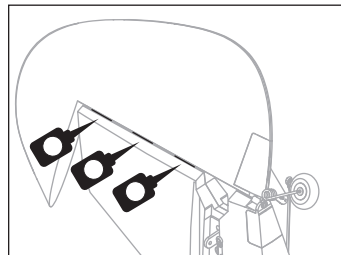
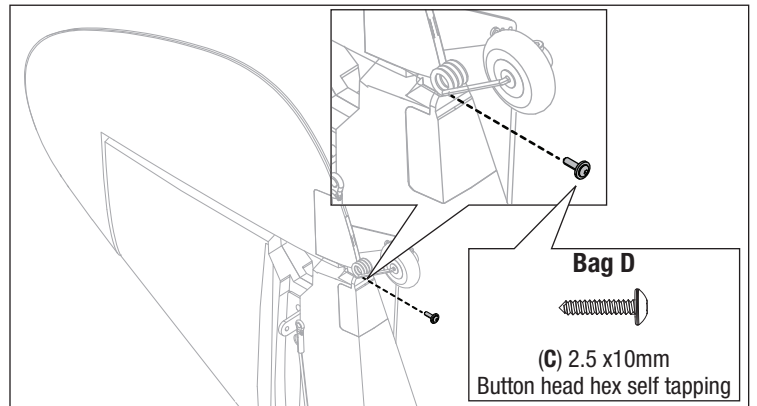
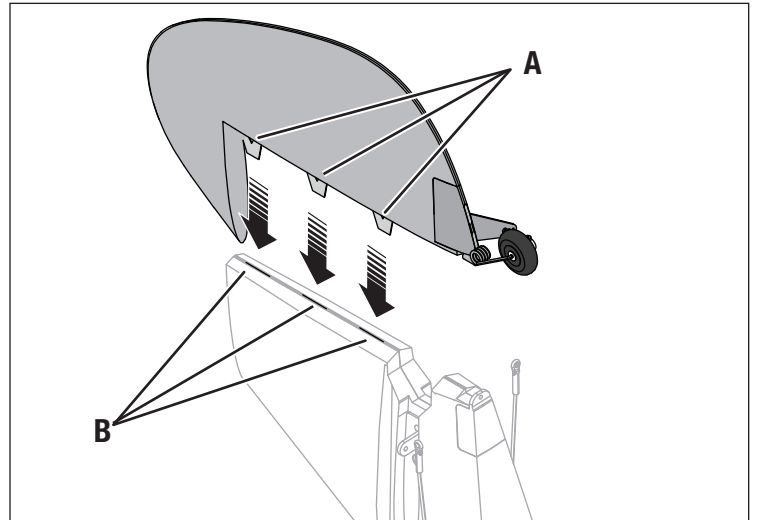
Required Adhesives:



Thin CA

Rudder Installation

1. Slide the rudder's CA hinges (A) into the hinge slots (B) of the vertical fin.
2. Install the screw (C) in the rudder mount. Do not over tighten, the rudder should move smoothly.
3. Rest the aircraft on its nose, holding the tail up so the thin CA (cyanoacrylate adhesive) will flow into the slots.
4. Bend the hinges by turning the rudder left, then carefully apply thin CA to each hinge in the right side of each slot. Repeat this process for the left side of the rudder. Apply 4-5 drops on each hinge on each side.
5. Connect the ball link (D) to the rudder control horn's middle hole (E) using a screw (F) and nut (G). Ensure the rudder servo arm is in the correct position, then adjust the ball link on the linkage to center the rudder.



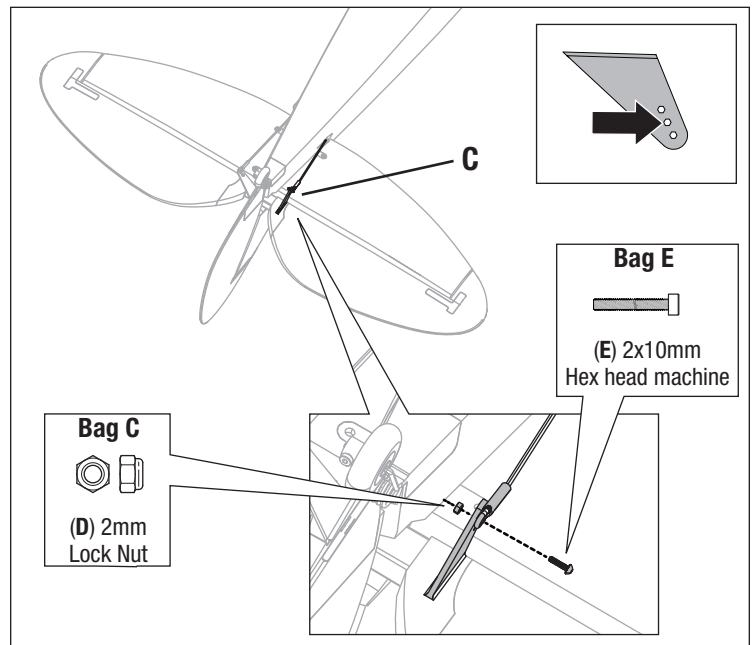
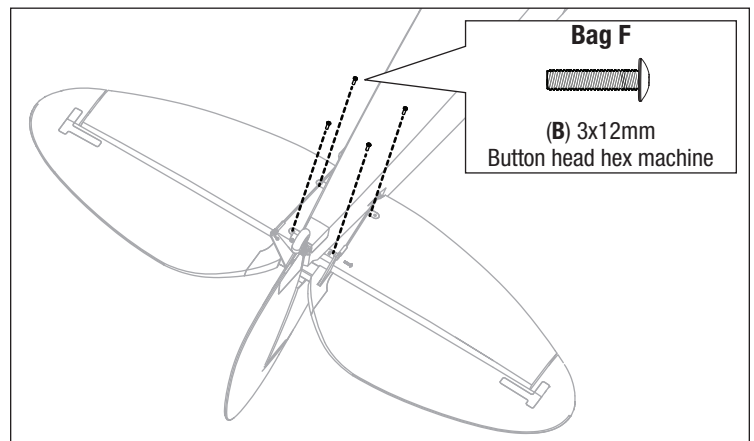
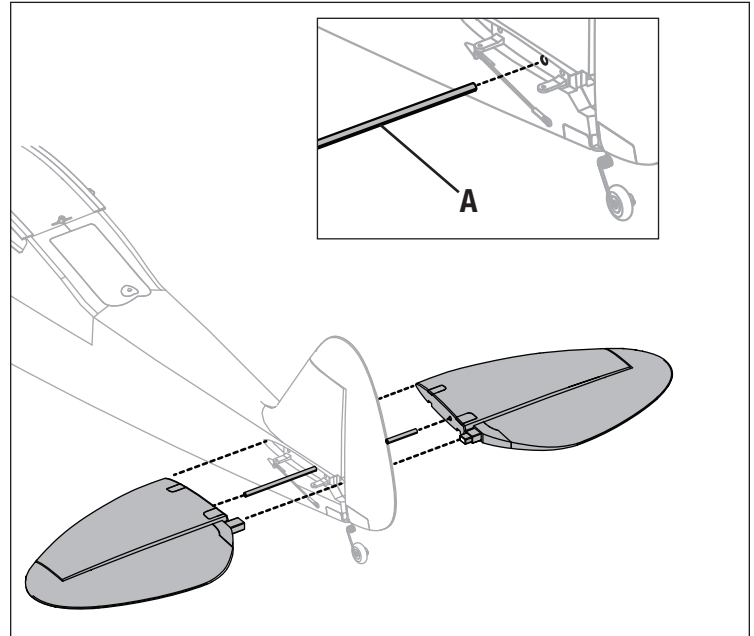
Model Assembly (Continued)

Horizontal Tail Installation

1. Slide the horizontal stabilizer rod (A) into the hole in the rear of the fuselage.
2. Install the 2 piece (left and right) horizontal stabilizer as shown. Ensure the control horn faces down.
3. Install 4 screws (B) in the front and rear holes in the bottom of the horizontal tail.
4. Attach the ball link (C) to the elevator control horn's middle hole using the included nut (D) and screw (E).
5. Ensure the elevator servo arm is in the correct position, then adjust the linkage to center the elevator.

When needed, disassemble in reverse order.

TIP: Use needle-nose pliers or ball link pliers (RV01005) to remove or install a link on a control horn.



Model Assembly (Continued)

Motor and Propeller Installation

1. Correctly align and connect the motor wire colors with the ESC wires.
2. Install the motor (A) with pre-installed X-mount (B) on the fuselage using 4 screws (C) and 4 lockwashers (D). Align the motor wires to face down and position them in the pocket below the motor location. Ensure that the wires are out of the way of the spinning motor.
3. Install the collet (E), and back plate (F) on the motor shaft (G).
4. Install the cowling (H) on the fuselage using 2 screws (I).
5. Install the spinner back plate (J), propeller (K) and nut (L) on the collet. Use a tool to tighten the nut.

IMPORTANT: The propeller size numbers (15 x 7) must face out from the motor for correct propeller operation. Ensure the nut holds the propeller tightly without damaging the propeller.

6. Install the spinner (M) on the collet using the screw (N).

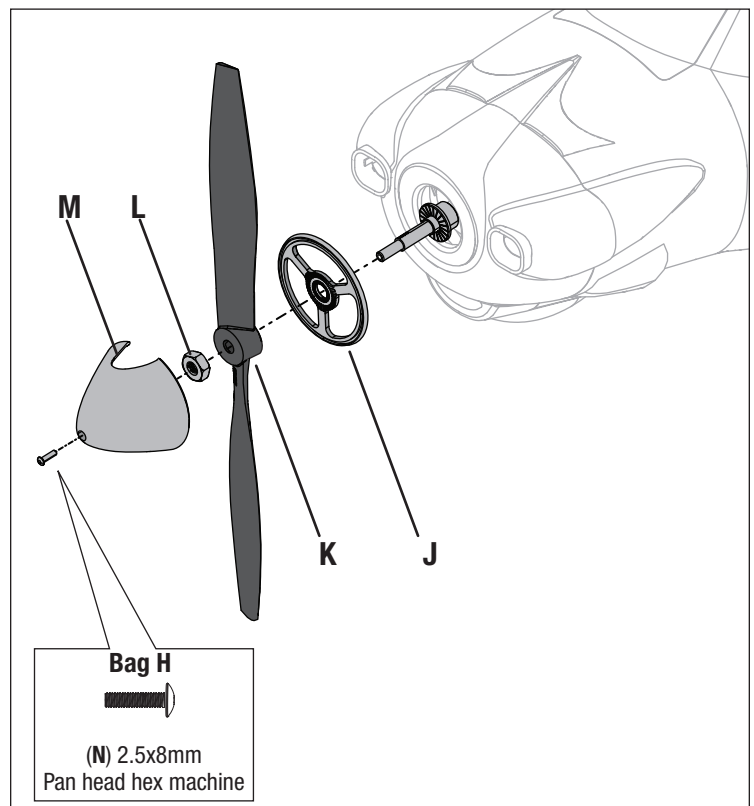
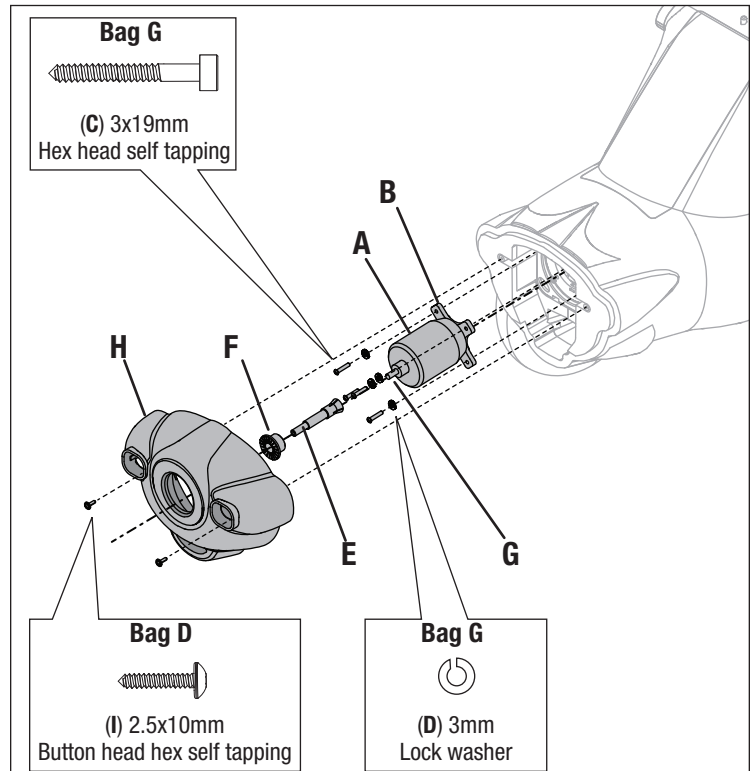
Disassemble in reverse order. Not all wiring shown.

NOTICE: If the propeller is not balanced, the aircraft may vibrate, causing the stabilization system to not operate correctly and/or decrease the life of the servos.

Horizon Hobby does not warrant replacement if the servos are used under extreme vibration or the stabilization system is used with an unbalanced propeller.

For more information, view the propeller balancing video at www.horizonhobby.com.

TIP: We recommend removal of the propeller before any radio system setup or transport of your aircraft.



Model Assembly (Continued)

Wing Installation

Before each flight, ensure all wing connectors and fasteners are secure. Assemble both wings using the following steps. (Only the right wing shown)

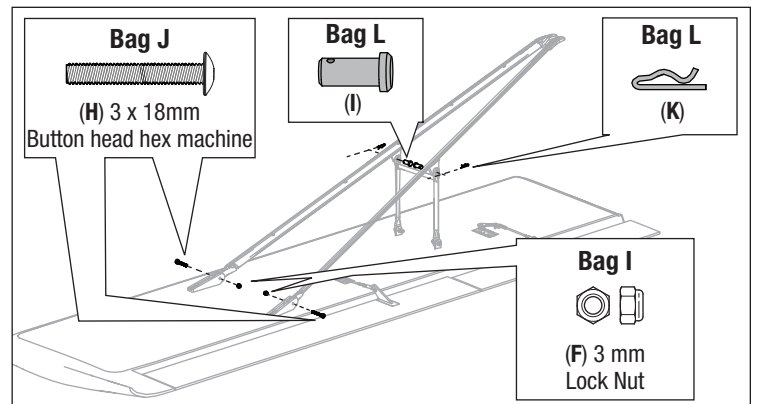
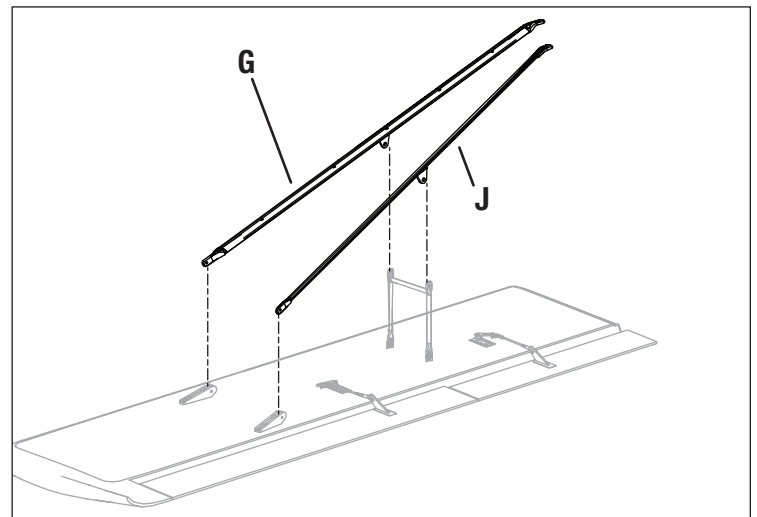
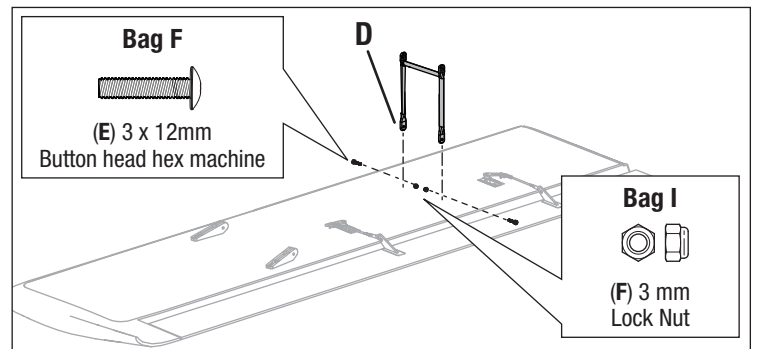
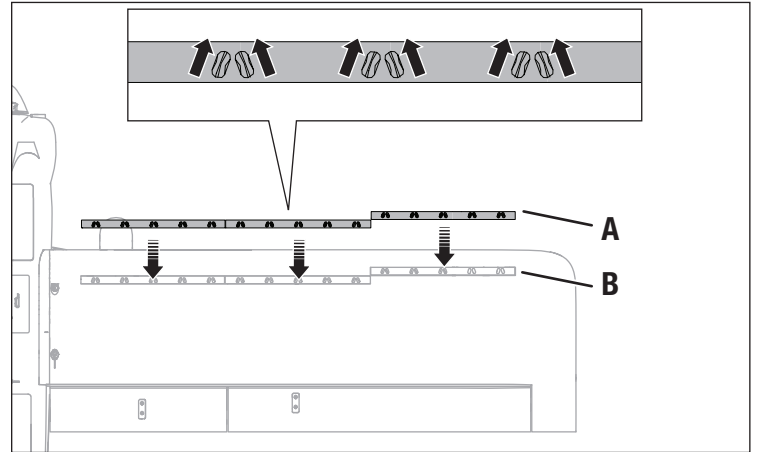
1. Install 6 vortex generators (A) in the wing channels (B) by using the installed double-sided tape.
2. Install the jury strut (D) on the wing mounts using 2 screws (E) and 2 lock nuts (F).

TIP: DO NOT overtighten lock nuts on the screws. Ensure the vertical brackets can pivot freely on the wing mounts.

3. Install the wide front strut (G) on the front strut mounts using a screw (H) and lock nut (F).
4. Install the narrow rear strut (J) on the rear strut mount using a screw (H) and lock nut (F).

TIP: DO NOT overtighten lock nuts on the screws. Ensure the struts can pivot freely in the strut mounts.

5. Attach the vertical bracket to the struts using 2 pins (I) and 2 R-clips (K).



Model Assembly (Continued)

Wing Installation (Continued)

1. Slide the wing tube (A) into the fuselage.
2. Install the left and right wing (B and C) onto the wing tube.
3. Connect the servo connectors (D) to the respective connectors on the fuselage (connectors are marked AIL or FLAP) and slide the wing into the slot of the fuselage.

NOTICE: Always put excess servo connector wire into the pocket of the wing to prevent pinching of wires or other damage.

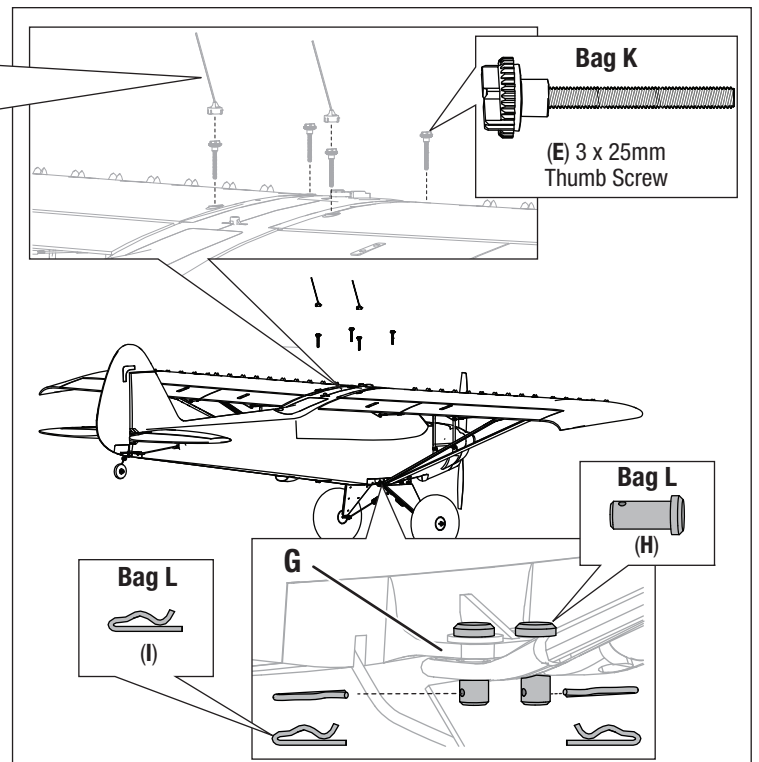
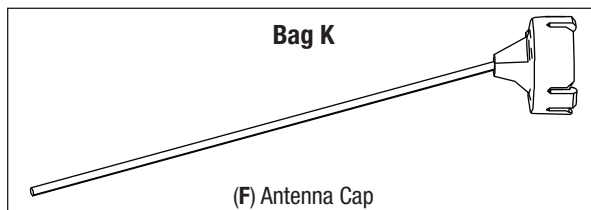
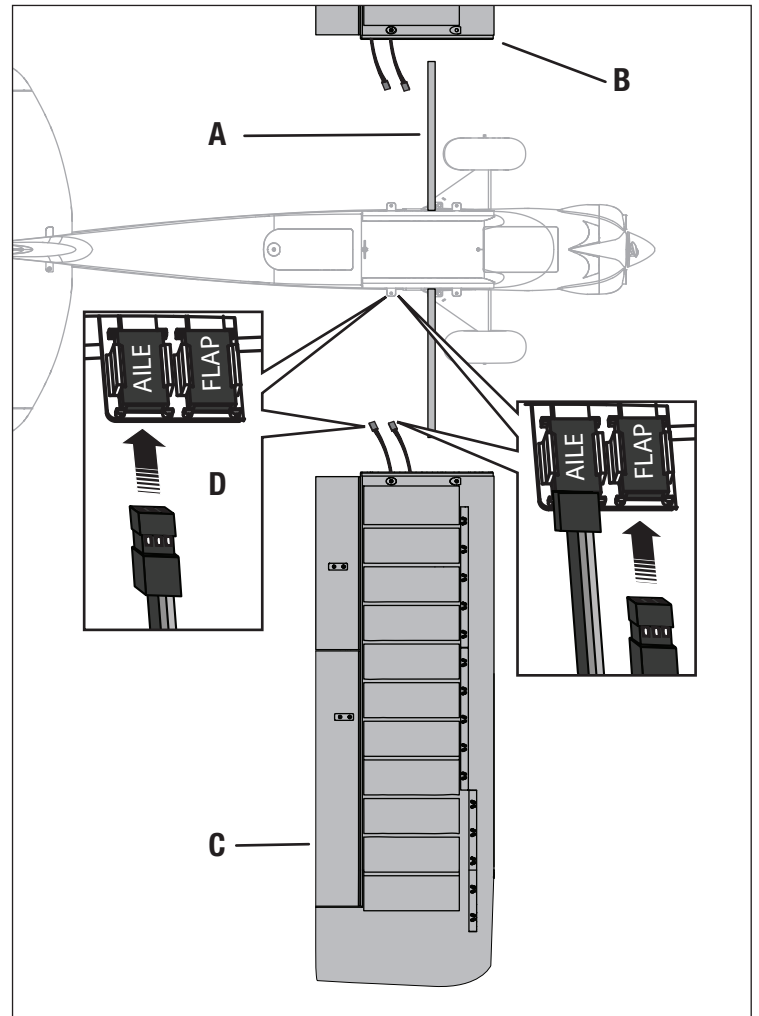
4. Secure the wings on the fuselage using 4 thumb screws (E) in the holes on the top of the wings.
5. Install the 2 antenna (F) on top of the two rear thumb screws by pressing them onto the thumb screw.
6. Connect the left and right wing struts to the fuselage mounts (G) using 4 pins (H) and 4 R-clips (I).

Removal

We recommend removing the wings from the fuselage for storage or transport of the aircraft.

TIP: Remove the jury strut pins and clips from the struts to pivot the brackets and struts down to the wings. Wing struts do not need to be disassembled to be removed.

NOTICE: Always secure loose parts after removal. DO NOT FLY if parts are missing or damage may result.



PNP Receiver Selection and Installation

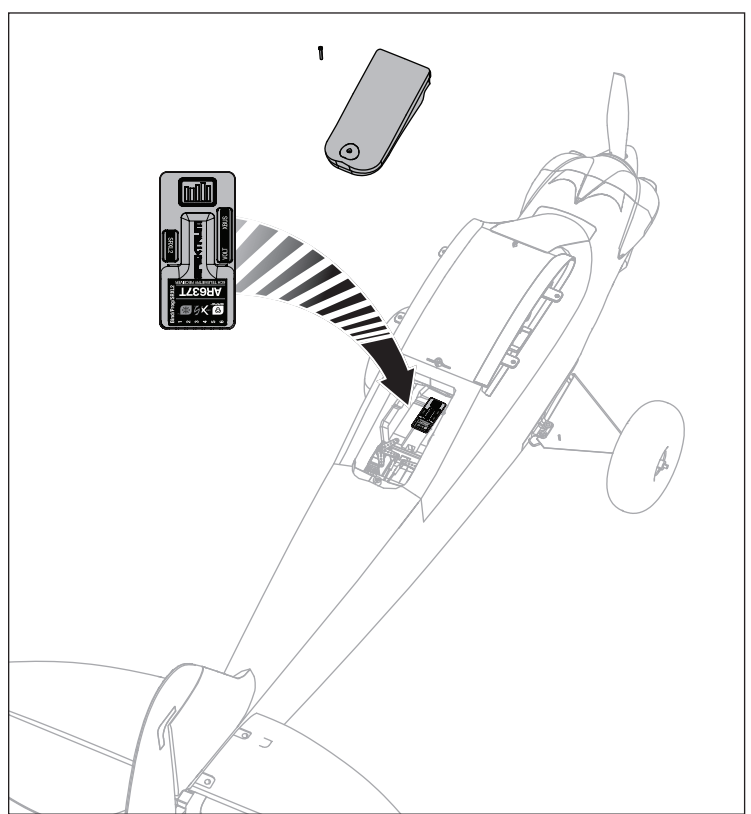
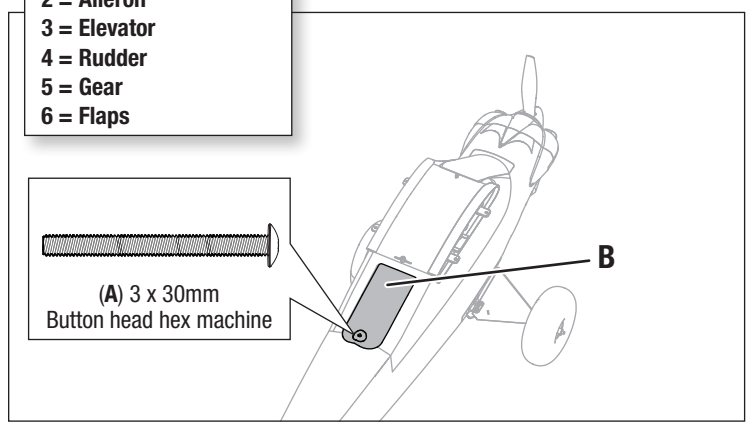
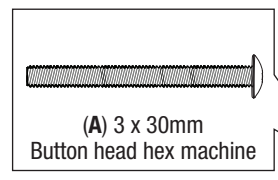
The recommended receiver for this aircraft is the Spektrum AR637T (SPMAR637T). If you choose to install a different receiver, ensure that it is at least a 6-channel full range (sport) receiver. Refer to the manual of your chosen receiver for correct installation and operation instructions.

AR637T Installation

1. Remove the screw (A) and radio hatch (B) from the top of the fuselage.
2. Attach the appropriate control surfaces servo leads to their respective ports on the receiver using the table at the right.
3. Using double-sided servo tape, mount the receiver on the receiver platform. The receiver should be mounted parallel to the length of the fuselage, with the label facing up and the servo ports facing the rear of the aircraft, as shown. The orientation of the receiver is critical for all AS3X® and SAFE® technology setups.

CAUTION: Incorrect installation of the receiver could cause a crash.

- 1 = Throttle
- 2 = Aileron
- 3 = Elevator
- 4 = Rudder
- 5 = Gear
- 6 = Flaps



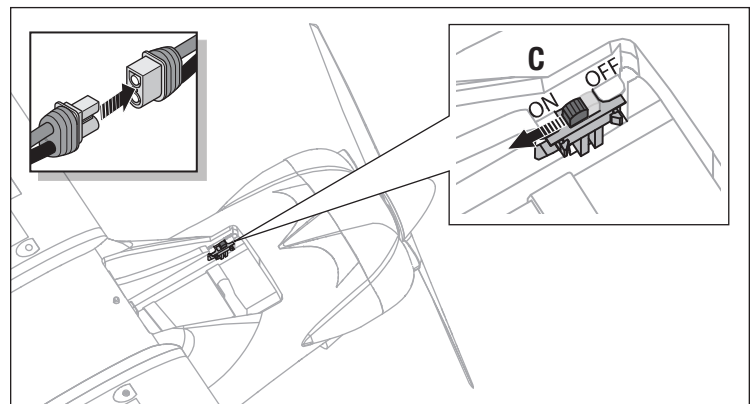
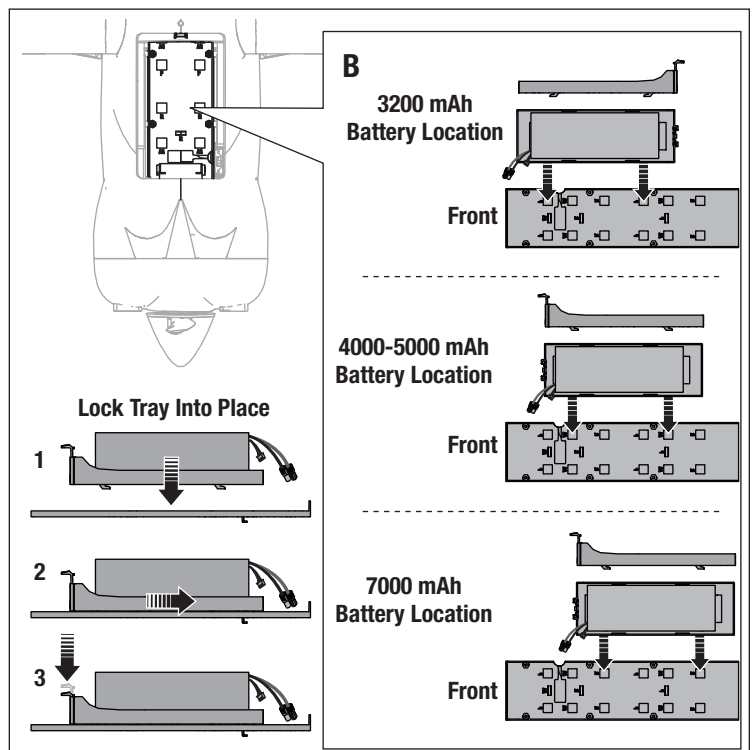
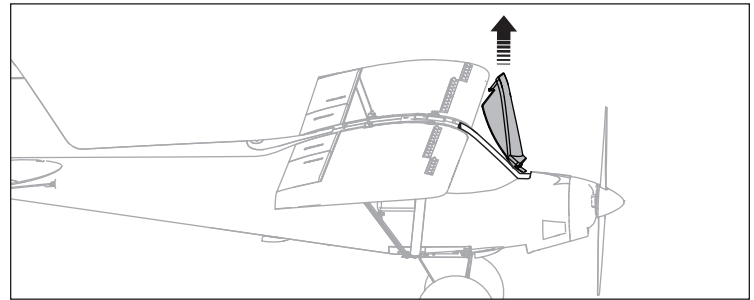
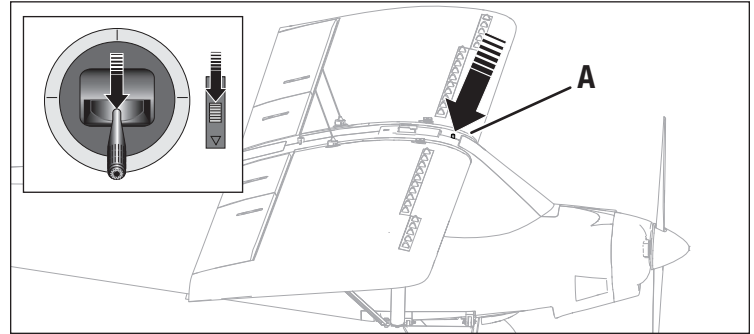
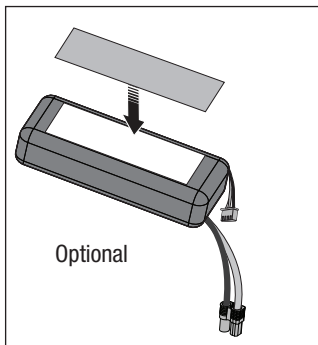
Battery Installation and ESC Arming

Battery Selection

The Spektrum 4000mAh 22.2V 6S 50C Li-Po battery (SPMX40006S50) is recommended. Refer to the Optional Parts List for other recommended batteries. If using a battery other than those listed, the battery should be within the range of capacity, dimensions and weight of the Spektrum Li-Po battery pack. Be sure the model balances at the recommended CG before flying.

1. Lower the throttle and throttle trim to the lowest settings. Power on the transmitter, then wait five seconds.
2. Press the latch button (A) to lift the rear edge of the canopy hatch, then pull the hatch up and back from the fuselage.
3. Use the included hook and loop straps to secure your battery to the battery tray.
4. Install the battery tray into the battery compartment by aligning the battery tray hooks into the slots in the base of the battery compartment that best suits your battery size and weight. The battery compartment has multiple positions to lock the battery tray into (B) as shown. Once in place, press down on the lock tab to lock the tray into place. Adjust as needed to acquire proper CG. **See the Adjusting the Center of Gravity instructions for more information.**
5. Proceed to the binding section if the receiver is not bound.
6. Connect the battery to the ESC.
7. Power ON the ESC switch (C) located on the left side of the battery compartment. (The ESC is now armed).
8. Keep the aircraft immobile, away from wind, upright and on a flat surface until the system initializes.
 - The ESC will produce a series of sounds. Six flat tones followed immediately by two ascending tones.
 - An LED will light on the receiver.
9. Reinstall the canopy hatch.

CAUTION: Always keep hands away from the propeller. When armed, the motor will turn the propeller in response to any throttle movement.



Transmitter and Receiver Binding / Enabling and Disabling SAFE Select

General Binding Tips

- The included receiver has been specifically programmed for operation of this aircraft. Refer to the receiver manual for correct setup if the receiver is replaced.
- Keep away from large metal objects while binding.
- Do not point the transmitter's antenna directly at the receiver while binding.
- The orange LED on the receiver will flash rapidly when the receiver enters bind mode.
- Once bound, the receiver will retain its bind settings for that transmitter until you re-bind.
- If the receiver loses transmitter communication, the failsafe will activate. Failsafe moves the throttle channel to low throttle. Pitch and roll channels move to actively level the aircraft in flight.
- If problems occur, refer to the troubleshooting guide or if needed, contact the appropriate Horizon Product Support office.

SAFE Select Technology, Optional Flight Envelope Protection

The BNF Basic version of this airplane includes SAFE Select technology, enabling you to choose the level of flight protection. SAFE mode includes angle limits and automatic self leveling. AS3X mode provides a direct response to the control sticks. SAFE Select is enabled or disabled during the bind process.

With SAFE Select disabled the aircraft is always in AS3X mode. With SAFE Select enabled the aircraft will be in SAFE Select mode all the time, or you can assign a switch to toggle between SAFE Select and AS3X modes.

Thanks to SAFE Select technology, this aircraft can be configured for full-time SAFE mode, full-time AS3X mode, or mode selection can be assigned to a switch.

IMPORTANT: Before binding, read the transmitter setup section in this manual and complete the transmitter setup table to ensure your transmitter is properly programmed for this aircraft.

IMPORTANT: Move the transmitter flight controls (rudder, elevators, and ailerons) and the throttle trim to neutral. Move the throttle to low before and during binding.

You can use either the **bind button** on the receiver case **OR** the conventional **bind plug** to complete the binding and SAFE Select process.

When using the auxiliary BEC from an ESC installed in the bind port of the receiver, unplug it to use bind plug.

Using Bind Button

SAFE Select Enabled

SAFE Select Enabled: The control surfaces cycle back and forth **twice** with a slight pause at neutral position every time the receiver is powered on.

Using Bind Plug

SAFE Select Enabled

SAFE Select Enabled: The control surfaces cycle back and forth **twice** with a slight pause at neutral position every time the receiver is powered on.

SAFE Select Disabled

SAFE Select Disabled: The control surfaces cycle back and forth **once** every time the receiver is powered on.

SAFE Select Disabled

SAFE Select Disabled: The control surfaces cycle back and forth **once** every time the receiver is powered on.

*Failsafe

If the receiver loses transmitter communication, the failsafe will activate. When activated, failsafe moves the throttle channel to its preset failsafe position (low throttle) that was set during binding. All other channels move collectively and actively to place the aircraft in a slow descending turn.

SAFE® Select Switch Designation

Once SAFE Select is enabled, you can choose to fly in SAFE mode full-time, or assign a switch. Any switch on any channel between 5 and 9 can be used on your transmitter.

TIP: If model has a reversing ESC feature, aux2 is not available for safe select.

If the aircraft is bound with SAFE Select disabled, the aircraft will be in AS3X mode exclusively.

CAUTION: Keep all body parts well clear of the propeller and keep the aircraft securely restrained in case of accidental throttle activation.

IMPORTANT: To be able to assign a switch, first verify:

- The aircraft was bound with SAFE Select enabled.
- Your choice for the SAFE Select switch is assigned to a channel between 5 and 9 (Gear, Aux1-4), and travel is set at 100% in each direction.
- The aileron, elevator, rudder and throttle direction are set to normal, not reverse.
- The aileron, elevator, rudder and throttle are set to 100% travel. If dual rates are in use, the switches need to be in the 100% position.

See your transmitter manual for more information about assigning a switch to a channel.

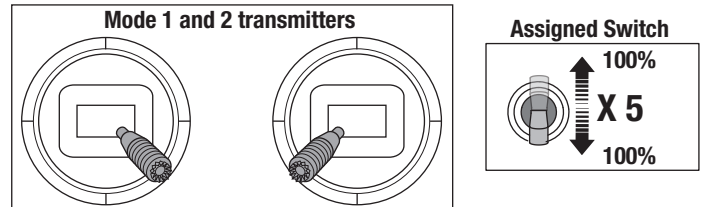
TIP: If a SAFE Select switch is desired for your 6 function aircraft, and you are using a 6 channel transmitter, the SAFE Select switch channel will have to be shared with either channel 5 or 6 of the transmitter. This does not apply to the NX6. Please refer to your NX6 instruction manual for further details.

Assigning a Switch

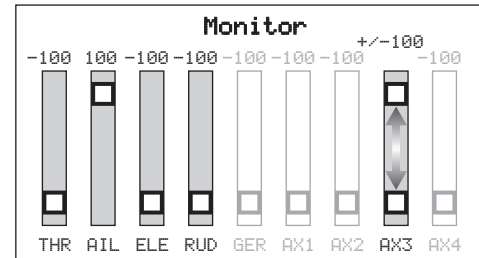
1. Power on the transmitter.
2. Power on the aircraft.
3. Hold both transmitter sticks to the inside bottom corners, and toggle the desired switch 5 times quickly (1 toggle = full up and down).
4. The control surfaces of the aircraft will move, indicating the switch has been selected.

Repeat the process to assign a different switch or to deactivate the current switch.

SAFE Select Switch Assignment Stick Positions



TIP: Use the channel monitor to verify channel movement.



This example of the channel monitor shows the stick positions for assigning a switch, the switch selection on Aux3, and +/- 100% travel on the switch.

Smart Technology™ Telemetry

This aircraft includes Spektrum Smart Technology in the ESC and receiver, which can provide telemetry information like battery voltage and ESC temperature. To take advantage of Smart Technology, you will need a compatible transmitter. A firmware update for your transmitter may be required.

To access all of the available features of Smart Technology, use Spektrum Smart batteries to power this aircraft. In addition to ESC data, Spektrum Smart batteries can communicate detailed battery data through the Smart Technology system.

To View Smart Telemetry:

1. Begin with the transmitter bound to the receiver
2. Power on the transmitter.
3. Power on the aircraft.
4. The Smart Logo appears under the battery logo on the home page. A signal bar appears in the top left corner of the screen.*
5. Scroll past the servo monitor to view Smart technology screens.

* If the transmitter that you intend to use with this aircraft is not displaying telemetry data, visit spektrumrc.com and update your firmware. With the latest firmware installed on your transmitter the telemetry option should now be functional on your transmitter.

For more information about compatible transmitters, firmware updates, and how to use the Smart Technology on your transmitter, visit spektrumrc.com.

ESC Status

RPM:	0		
Volts:	0.0V		
Motor:	0.0A	0% Output	
Throttle:	0%		
Fet Temp:	0.0C		
BEC:	0.0C	0.0A	0.0V

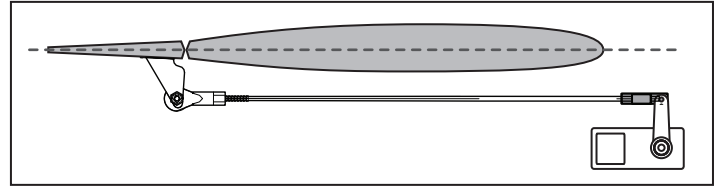
Control Surface Centering and Adjusting a Ball Link

IMPORTANT: Perform the Control Direction Test before performing control surface centering.

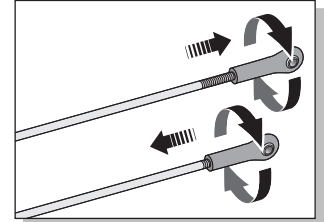
While SAFE is inactive, mechanically center the control surfaces.

IMPORTANT: Correct operation of the SAFE system requires sub-trim and trim at 0.

After binding a transmitter to the airplane's receiver, set the trims and sub-trims to 0, ensure the servo arms are in the correct positions, then adjust the linkages to center the control surfaces.



- Turn the linkage clockwise or counterclockwise until the control surface is centered.
- Attach the linkage to the servo arm or control horn after adjustment



Control Direction Test

Switch on the transmitter and connect the battery. Use the transmitter to operate the aileron, elevator and rudder controls. View the aircraft from the rear when checking the control directions.

Elevator

1. Pull the elevator stick back. The elevators should move up, which will cause the aircraft to pitch up.
2. Push the elevator stick forward. The elevators should move down, which will cause the aircraft to pitch down.

Ailerons

1. Move the aileron stick to the left. The left aileron should move up and the right aileron down, which will cause the aircraft to bank left.
2. Move the aileron stick to the right. The right aileron should move up and the left aileron down, which will cause the aircraft to bank right.

Rudder

1. Move the rudder stick to the left. The rudder should move to the left, which will cause the aircraft to yaw left.
2. Move the rudder stick to the right. The rudder should move to the right, which will cause the aircraft to yaw right.

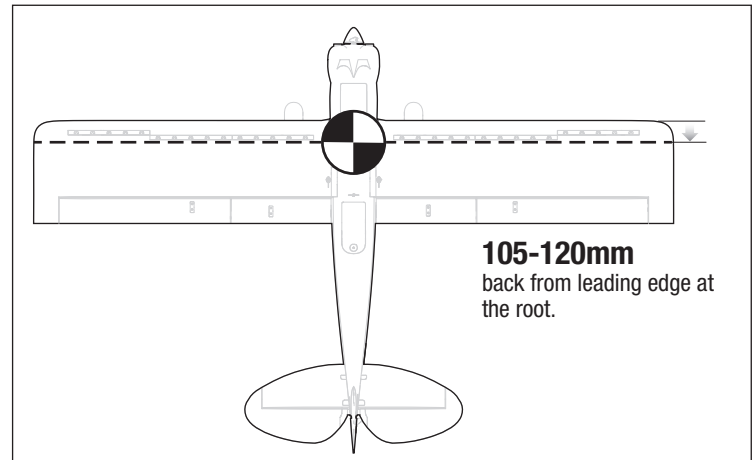
Flaps

1. Move your flap control switch down to the "half flaps" position.
2. Confirm that the wing flaps move down.
3. Move flap control switch to the "full flaps" position.
4. Confirm the flaps move farther down than in step two.

	Transmitter command	Control Surface Response
Elevator		
Aileron		
Rudder		
Flaps		

Center of Gravity (CG)

The CG location is measured from the leading edge of the wing at the root. This CG location has been determined with the recommended Li-Po battery (SPMX40006S50) installed in the middle of the battery compartment.



Control Horn and Servo Arm Settings

The table to the right shows the factory settings for the control horns and servo arms. These settings, in conjunction with the low rate transmitter settings, are intended for the first time pilot through the intermediate level pilot to help ensure a successful flight.

Fly the aircraft at these factory settings before making changes. After flying, or for advanced level pilots you may choose to adjust the linkage positions to increase control response.

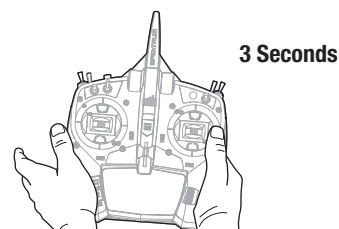
	Factory Settings	
	Control Horns	Servo Arms
Aileron		
Elevator		
Rudder		
Flaps		

In Flight Trimming

During your first flight, trim the aircraft for level flight at 3/4 throttle with flaps and gear up. Make small trim adjustments with your transmitter's trim switches to straighten the aircraft's flight path.

After adjusting trim do not touch the control sticks for 3 seconds. This allows the receiver to learn the correct settings to optimize AS3X performance.

Failure to do so could affect flight performance.



Flying Tips and Repairs

Consult local laws and ordinances before choosing a flying location.

Flying Field

Always choose a wide-open space for flying your aircraft. It is ideal for you to fly at a sanctioned flying field. If you are not flying at an approved site, always avoid flying near houses, trees, wires and buildings. You should also be careful to avoid flying in areas where there are many people, such as busy parks, schoolyards, or soccer fields.

Range Check your Radio System

Before you fly, range check the radio system. Refer to your specific transmitter instruction manual for range test information.

Understanding Oscillation

Once the AS3X system is active (after advancing the throttle for the first time), you will normally see the control surfaces react to aircraft movement. In some flight conditions, you will see oscillation. If oscillation occurs, decrease airspeed. If oscillation persists, refer to the Troubleshooting Guide for more information.

Takeoff

Place the aircraft in position for takeoff (facing into the wind). Set your transmitter in low rate and gradually increase the throttle to $\frac{3}{4}$ to full and steer with the rudder. Pull back gently on the elevator and climb to a comfortable altitude.

Flying

Fly the airplane and trim it for level flight at $\frac{3}{4}$ throttle. After landing, adjust the linkages mechanically to account for trim changes, then reset the trims to neutral. Ensure the aircraft will fly straight and level with no trim or sub-trim.

TIP If using more than 8 clicks of flight trim, mechanically adjust the linkage so less trim is needed, or AS3X operation may be affected.

Landing

For your first flights and with the recommended battery pack (SPMX40006S50), set your transmitter timer or a stopwatch to 7 minutes. Adjust your timer for longer or shorter flights once you have flown the model. When the motor pulses, land the aircraft immediately and recharge the flight battery. It is not recommended to fly the battery to LVC.

Make sure to land into the wind. Fly the aircraft to approximately 36 inches (90 cm) or less above the runway, using a small amount of throttle for the entire descent. Keep the throttle on until the aircraft is ready to flare. During flare, keep the wings level and the aircraft pointed into the wind. Gently lower the throttle while pulling back on the elevator to bring the aircraft down on its wheels.

NOTICE: If a crash is imminent, reduce the throttle and trim fully. Failure to do so could result in extra damage to the airframe, as well as damage to the ESC and motor.

NOTICE: After any impact, always ensure the receiver is secure in the fuselage. If you replace the receiver, install the new receiver in the same orientation as the original receiver or damage may result.

NOTICE: Crash damage is not covered under warranty.

Flaps

When using flaps, takeoffs and landings are shorter. When taking off, the tail will come off the ground quicker for better rudder control during the takeoff roll.

During landing, the flaps allow a landing approach to be steeper with the ability to use more throttle. Flaps make the plane come in at a slower airspeed and make it easier to flare and settle in for a smooth landing.

When deploying the flaps, slow the aircraft down to $\frac{1}{4}$ throttle. If the flaps are deployed when the aircraft is at a higher speed, the aircraft will pitch up. Set your down elevator to flap compensation according to the Transmitter Setup Chart to reduce the pitch up tendency.

NOTICE: When using flaps with this airplane, down elevator to flap mixing is required. Failure to do so may result in loss of control or a crash.

Water Takeoff and Landing Using the Optional Float Set

Only use the floats if you are comfortable flying your aircraft and have repeatedly taken off, flown and landed with success. Flying off water poses a higher risk to the airplane because the electronics can fail if fully immersed in water.

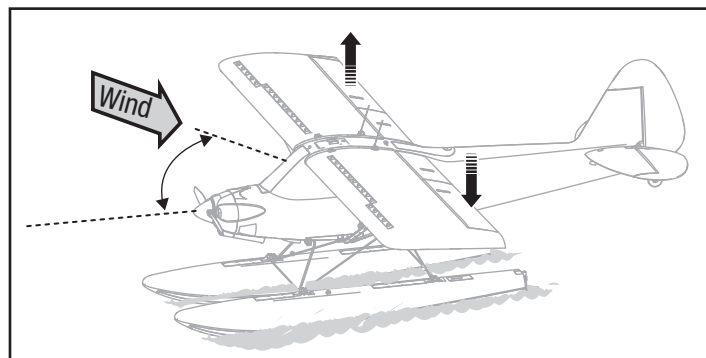
Always ensure the optional floats (EFLA5600 (floats) and EFL12419 (float Struts), sold separately) are secure on the fuselage and that the float rudder linkage is correctly connected and moves freely before putting the aircraft in water.

To take off from water, steer with the rudder to face into the wind and slowly increase the throttle. Keep the wings level on takeoff. Hold a small amount ($\frac{1}{4}$ – $\frac{1}{3}$) of up elevator and the aircraft will lift off once flying speed is reached. Avoid rapidly increasing the throttle as torque from the motor may cause the aircraft to roll to the left when on water.

To land this aircraft on water, fly the aircraft to a couple of feet off the surface of the water. Reduce throttle and add up elevator to flare the aircraft. When taxiing, you must use throttle to move the aircraft forward, but steer with the rudder stick. The stick will turn both the aircraft rudder and a small rudder attached to the left float.

Avoid taxiing cross wind if there is a breeze, as this can cause the aircraft to flip over if wind gets under the upwind wing. Taxi 45 degrees into the direction of the wind (not perpendicular to the wind) and use aileron to hold the upwind wing down. The aircraft will naturally try to face into the wind when taxiing.

Always fully dry the aircraft after landing on water.



NOTICE: When you are finished flying, never leave the airplane in direct sunlight or a hot, enclosed area such as a car. Doing so can damage the foam.

Repairs

Thanks to the Z-Foam™ material in this aircraft, repairs to the foam can be made using virtually any adhesive (hot glue, regular CA, epoxy, etc). When parts are not repairable, see the Replacement Parts List for ordering by item number. For a listing of all replacement and optional parts, refer to the list at the end of this manual.

NOTICE: Use of CA accelerant on your aircraft can damage paint. DO NOT handle the aircraft until accelerant fully dries.

Post Flight

1	Disconnect the flight battery from the ESC (Required for Safety and battery life).
2	Power OFF the transmitter.
3	Remove the flight battery from the aircraft.
4	Recharge the flight battery.

5	Repair or replace all damaged parts.
6	Store the flight battery apart from the aircraft and monitor the battery charge.
7	Make note of the flight conditions and flight plan results, planning for future flights.

Optional Tow Release Installation

This aircraft is designed to tow 2-3 meter sailplanes. Refer to your sailplane manual for tow line instructions.

Installation

1. Remove the screw (A) and radio hatch (B) from the top of the fuselage.
2. Install a 13g tow release servo (C) (EFLR7155, sold separately) inside the fuselage using 2 screws (D).
3. Insert the servo connector in the GEAR port of the receiver.
4. Operate the GEAR channel on your transmitter so you see the servo arm move up (GEAR Switch position 1) and down (GEAR switch position 0).

IMPORTANT: In your transmitter, the GEAR channel (Channel 5) servo direction servo must be set to NORMAL with servo travel at 100% for correct operation of the tow release.

5. Move the servo arm down using the GEAR switch.
6. Remove the screw (E) and servo arm (F) from the servo. (figure 1)
7. Install the Z-bend of the tow release pin (G) (included with the aircraft) in the innermost hole of the arm from the bottom of the servo arm. (figure 2)
8. Install the tow release pin in the tow release housing (H) that is molded into the top portion of the fuselage.
9. Attach the servo arm to the servo using the screw so the center of the servo arm points to the 7 o'clock position. (figure 3)
10. Install the radio hatch on the fuselage reusing the screw.

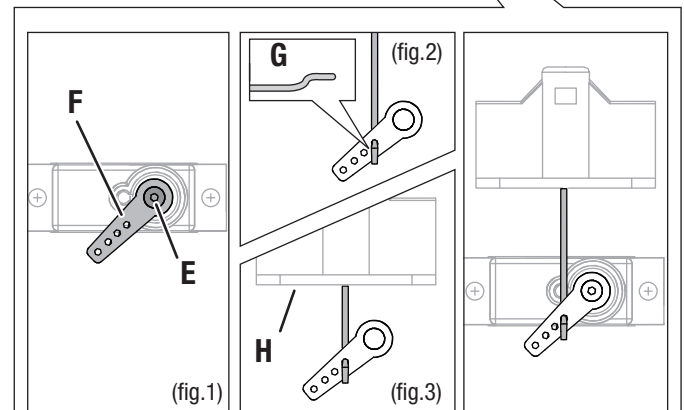
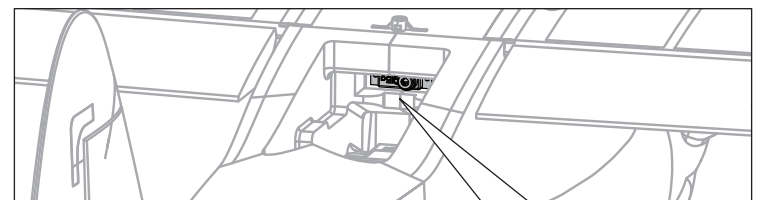
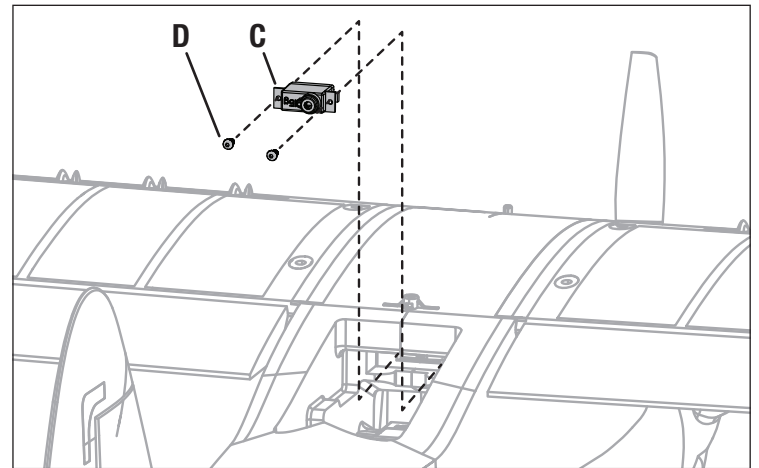
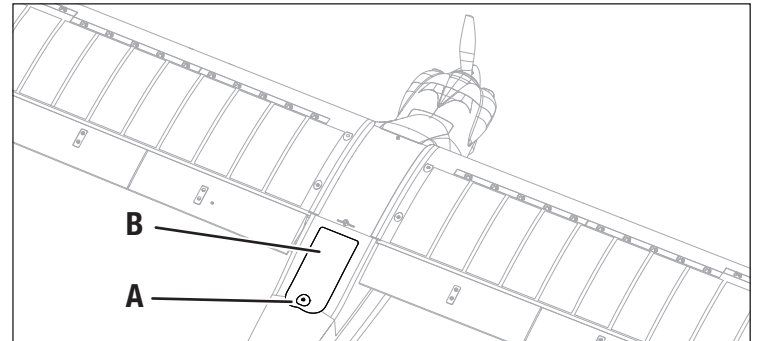
Operation

Operate the GEAR channel on your transmitter to ensure the pin retracts below the slot in the housing. If the pin does not retract appropriately, adjust the servo arm mechanically.

1. Retract the pin.
2. Insert a tow line loop into the housing slot and over the pin.
3. Extend the pin to hold the tow line.

Always put the tension on a tow line and cycle the release before aero-towing a sailplane.

NOTICE: When using a 6 channel transmitter, a SAFE Select Switch and Tow Hook Release cannot be used together, as both use Channel 5



Optional BNF advanced receiver setup

With the basic transmitter setup, the ailerons and flaps will operate separately. For increased aileron authority, the AR637T receiver included in the BNF version may be configured so the flaps can operate as both flaps and ailerons.

Servo Plug Order Change

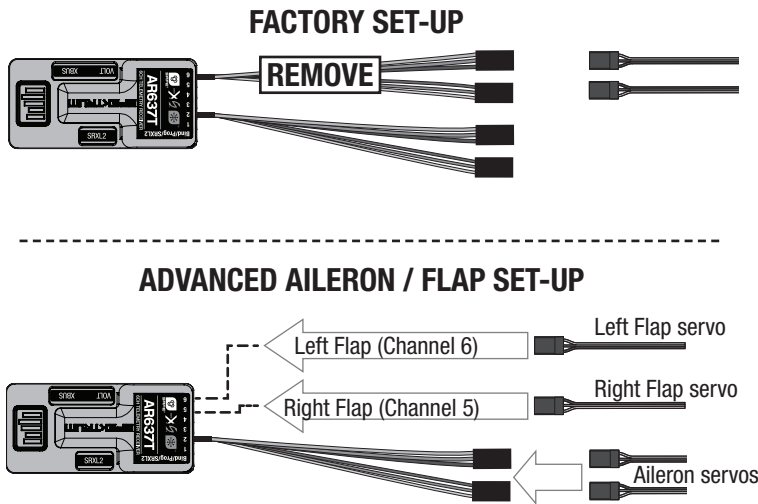
1. Remove the Y-harness plugged into the Ch-6 port on the AR637T, and unplug the servo leads from the Y-harness.
2. Insert the two flap servo leads into the receiver ports; RIGHT flap into Ch-5 and LEFT flap into Ch-6. We recommend labeling the wires to help identify the correct ports when mounting the wing.

CAUTION: Connecting servos to the wrong port on the receiver could cause a crash.

IMPORTANT: A 7-channel or higher transmitter is required for the advanced BNF receiver setup plus the ability to select between AS3X and SAFE with SAFE Select. If using a 6 channel transmitter with the advanced receiver setup a selectable channel for the safe select is not available.

With the following advanced Transmitter Setup, the Full span aileron feature will be assigned to switch A.

1 = Throttle	4 = Rudder
2 = Y-harness: Ailerons	5 = Right flap
3 = Elevator	6 = Left flap



Advanced Transmitter Setup	
Start all transmitter programming with a blank ACRO model (perform a model reset), then name the model.	
Set Aileron, Elevator and Rudder Dual Rates to:	HIGH 100% LOW 70%
Expo	HIGH 10% LOW 5%
Set Throttle Cut to	Select desired switch to assigned value. (-130% is default)

Advanced Transmitter Setup	
DX6e, DX6G2 DX7G2, DX8G2, DX8e DX9, DX18, DX20, iX12 iX20 NX6 NX8 NX10	1. Go to the System Setup / Model Setup
	2. Set MODEL TYPE: AIRPLANE
	3. Set Model Setup, Aircraft Type: WING: 1 AIL 1 FLAP
	4. Set Channel Assign: Channel Input Config: Gear > INH Return to main menu.
	5. Go to the Functions List / Model Adjust
	6. Set FLAP SYSTEM: SELECT SWITCH D:
	POS 0: FLAP* ELEVATOR 0% 0%
	POS 1: -40% 6%
	POS 2: -100% 15%
	SPEED 2.0
7. Set MIXING: P-MIX 1 Select: NORMAL Set Flap > Gear to read FLP > GER RATE: -100%# -100%# OFFSET: 0% Switch: ON	
8. Set MIXING: P-MIX 2 Select: NORMAL Set Aileron > Gear to read AIL > GER RATE: +100%# +100%# OFFSET: 0% TRIM: INH 0 1 Switch: A	
9. Set MIXING: P-MIX 3 Select: NORMAL Set Aileron > Flap to read AIL > FLP RATE: +100%# +100%# OFFSET: 0% TRIM: INH 0 1 Switch: A	
10. Servo Setup: Reversing: Gear Travel: Gear: L 100# Flap: Down 100# R (-)140# Up (-)140# Absolute Travel: (Not available on 6 and 6e) Move switch "A" to ON. Gear: R 1# Flap: Up 1# L 1760# Down 1760#	
CAUTION: It is necessary to set ABSOLUTE TRAVEL limits. The use of flap and full span ailerons could cause servo over travel.	

† Some of the terminology and function locations used in the iX12, iX20 programming may be slightly different than other Spektrum AirWare™ radios. The names given in parenthesis correspond to the iX12, iX20 programming terminology. Consult your transmitter manual for specific information about programming your transmitter.

* Flap programming values may vary slightly. For your initial flights use the recommended flap travel settings provided in the Flaps section and adjust the flap travel to your preference on subsequent flights.

TRAVEL, SUBTRIM and ABSOLUTE TRAVEL varies slightly per aircraft and will need to be finely tuned for your specific aircraft.

• ABSOLUTE TRAVEL in SERVO SETUP is set to limit your flap servos from over travel.

Troubleshooting Guide AS3X

Problem	Possible Cause	Solution
Oscillation	Damaged propeller or spinner	Replace propeller or spinner
	Imbalanced propeller	Balance the propeller.
	Motor vibration	Replace parts or correctly align all parts and tighten fasteners as needed
	Loose receiver	Align and secure receiver in fuselage
	Loose aircraft controls	Tighten or otherwise secure parts (servo, arm, linkage, horn and control surface)
	Worn parts	Replace worn parts (especially propeller, spinner or servo)
	Irregular servo movement	Replace servo
Inconsistent flight performance	Trim is not at neutral	If you adjust trim more than 8 clicks, adjust the clevis to remove trim
	Sub-Trim is not at neutral	No Sub-Trim is allowed. Adjust the servo linkage
	Aircraft was not kept immobile for 5 seconds after battery connection	With the throttle stick in lowest position. Disconnect battery, then reconnect battery and keep the aircraft still for 5 seconds
Incorrect response to the AS3X Control Direction Test	Incorrect direction settings in the receiver, which can cause a crash	DO NOT fly. Correct the direction settings (refer to the receiver manual), then fly

Troubleshooting Guide

Problem	Possible Cause	Solution
Aircraft will not respond to throttle but responds to other controls	Throttle not at idle and/or throttle trim too high	Reset controls with throttle stick and throttle trim at lowest setting
	Throttle servo travel is lower than 100%	Make sure throttle servo travel is 100% or greater
	Throttle channel is reversed	Reverse throttle channel on transmitter
	Motor disconnected from ESC	Make sure motor is connected to the ESC
Extra propeller noise or extra vibration	Damaged propeller and spinner, collet or motor	Replace damaged parts
	Propeller is out of balance	Balance or replace propeller
	Prop nut is too loose	Tighten the prop nut
Reduced flight time or aircraft underpowered	Flight battery charge is low	Completely recharge flight battery
	Propeller installed backwards	Install propeller with numbers facing forward
	Flight battery damaged	Replace flight battery and follow flight battery instructions
	Flight conditions may be too cold	Make sure battery is warm before use
	Battery capacity too low for flight conditions	Replace battery or use a larger capacity battery
Aircraft will not enter bind mode or initialize	Aircraft receiver is not level.	Raise tail wheel to make the fuselage close to level and hold steady until aircraft enters bind mode or initializes.
Aircraft will not Bind (during binding) to transmitter	Transmitter too near aircraft during binding process	Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt binding again
	The bind plug is not installed correctly in the bind port	Install bind plug in bind port and bind the aircraft to the transmitter
	Flight battery/transmitter battery charge is too low	Replace/recharge batteries
	Bind switch or button not held long enough during bind process	Power off transmitter and repeat bind process. Hold transmitter bind button or switch until receiver is bound
Motor turning the wrong direction	Wires may be incorrectly connected to ESC.	Change any two of the wires to the motor. Or use Forward programming to change direction of motor.

Problem	Possible Cause	Solution
Aircraft will not connect (after binding) to transmitter	Transmitter too near aircraft during connecting process	Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt connecting again
	Bind plug left installed in bind port	Rebind transmitter to the aircraft and remove the bind plug before cycling power
	Aircraft bound to different model memory (ModelMatch™ radios only)	Select correct model memory on transmitter
	Flight battery/Transmitter battery charge is too low	Replace/recharge batteries
	Transmitter may have been bound to a different aircraft using different DSM protocol	Bind aircraft to transmitter
Control surface does not move	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 wires and connections, connect or replace as needed
	Transmitter is not bound correctly or the incorrect airplanes was selected	Re-bind or select correct airplanes in transmitter
	Flight battery charge is low	Fully recharge flight battery
	BEC (Battery Elimination Circuit) of the ESC is damaged	Replace ESC
Controls reversed	Transmitter settings are reversed	Perform the Control Direction Test and adjust the controls on transmitter appropriately
Motor power pulses then motor loses power	ESC uses default soft Low Voltage Cutoff (LVC)	Recharge flight battery or replace battery that is no longer performing
	Weather conditions might be too cold	Postpone flight until weather is warmer
	Battery is old, worn out, or damaged	Replace battery
	Battery C rating might be too small	Use recommended battery

Replacement Parts

Part #	Description
EFLM74501	Motor Shaft: BL50 Outrunner
EFL1025018	Motor Mount Set: Carbon-Z
EFL1045004	Stab Set: Carbon-Z Cub
EFL1045009	Wing & Stab Tube: Carbon-Z Cub
EFL1045010	Strut Set w/Hardware: Carbon-Z Cub
EFL1045011	Pushrod Set: Carbon-Z Cub
EFL1045013	Prop Shaft: Carbon-Z Cub
EFL1045014	Hardware Pack w/Ctrl Horns: Carbon-Z Cub
EFL1045025	Strut Pins and Clips: Carbon-Z Cub
EFL12401	Fuselage: Carbon-Z Cub SS
EFL12402	Wing Left: Carbon-Z Cub SS
EFL12403	Wing Right: Carbon-Z Cub SS
EFL12405	Rudder/Gear: Carbon-Z Cub SS
EFL12406	Cowling: Carbon-Z Cub SS
EFL12407	Hatches: Carbon-Z Cub SS
EFL12408	Landing Gear: Carbon-Z Cub SS
EFL12412	Tundra Tires: Carbon-Z Cub SS
EFL12415	Decal Set: Carbon-Z Cub SS
EFL12421	Vortex Generator: Carbon-Z Cub SS
EFL12422	Wing Screws-Antenna t: Carbon-Z Cub SS
EFL12423	Tailwheel: Carbon-Z Cub SS
EFL12424	Spinner Orange: Carbon-Z Cub SS
SPMXAE1060B	Avian 60-Amp Brushless Smart ESC
EFL12425	Battery Tray
EFLM7450	"BL50 BL Outrunner Motor, 525Kv"
EFLP1570E	15 x 7 Electric Propeller
EFLR7145	26g Digital MG Mini Servo
EFLR7155	13g Digital Sub-Micro Servo
SPMAR637T	AR637T 6 CH AS3X Telemetry RX

Recommended Parts

Part #	Description
SPMX50004S30	14.8V 5000mAh 4S 30C Smart LiPo Battery, IC5
SPMX40006S50	22.2V 4000mAh 6S 50C Smart LiPo Battery, IC5
SPMX50006S50	22.2V 4000mAh 6S 30C Smart LiPo Battery, IC5
SPMX50006S30	18.5V 5000mAh 5S 30C Smart LiPo Battery, IC5
SPMX70006S30	22.2V 7000mAh 6S 30C Smart LiPo Battery, IC5
SPMR6650	DX6e 6 Channel transmitter Only
SPMXC1080	Spektrum Smart S1100 AC Charger 1x100W
SPMXC1000	Smart S1200DC Charger, 1X200W

Optional Parts

Part #	Description
EFL12419	Float Strut Set: Carbon-Z CUB SS
EFLA5600	Carbon-Z Float Set
APC17080E	Electric Propeller, 17 x 8E
SPMXC1010	Smart S2100 AC Charger, 2x100W
EFL1045023	Camera Mount: C-Z Cub
EFL12419	Float Strut Set: Carbon-Z Cub SS
EFLA56000	Carbon-Z Float Set
EFLB44006S30	22.2V 4400mAh 6S 30C LiPo, 10AWG: EC5
EFLM4060A	Power 60 BL Outrunner Motor, 400Kv
SPMR6750	DX6 Transmitter Only MD2 G3
SPMR8000	DX8 Transmitter Only MD2
SPMR8105	DX8e 8CH Transmitter Only
SPMR9910	DX9 Black Transmitter Only MD2
SPMR12000	iX12 12 Channel Transmitter Only
SPMR20100	iX20 20 Channel Transmitter Only
SPMR6775	NX6 6 Channel Transmitter Only
SPMR8200	NX8 8 Channel Transmitter Only
SPMR10100	NX10 10 Channel Transmitter Only

AMA National Model Aircraft Safety Code

Academy of Model Aeronautics 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.

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	
European Union	Horizon Technischer Service	service@horizonhobby.de	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

FCC Information

FCC ID: BRWTIARLGTNG1

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and/or antenna and your body (excluding fingers, hands, wrists, ankles and feet). This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Supplier's Declaration of Conformity

EFL Carbon-Z Carbon Cub SS BNF Basic and PNP (EFL124500, EFL12475)

FC 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 Rd.,
Champaign, IL 61822
Email: compliance@horizonhobby.com
Web: HorizonHobby.com

IC Information

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

IC: 6157A-TIARLGTNG1

This device contains license-exempt transmitter(s)/receivers(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following 2 conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Compliance Information for the European Union

CE EU Compliance Statement:

EFL Carbon-Z Carbon Cub SS BNF Basic (EFL124500); Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: EU Radio Equipment Directive 2014/53/EU, RoHS 2 Directive 2011/65/EU, RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863

EFL Carbon-Z Carbon Cub SS PNP (EFL12475); Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: EU EMC Directive 2014/30/EU, RoHS 2 Directive 2011/65/EU, RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863

The full text of the EU declaration of conformity is available at the following internet address: <https://www.horizonhobby.com/content/support-render-compliance>.

Wireless Frequency Range and Wireless Output Power:

2402 – 2478 MHz
19.95dBm

WEEE NOTICE:



This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE). This label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

EU Manufacturer of Record:

Horizon Hobby, LLC
2904 Research Road
Champaign, IL 61822 USA

EU Importer of Record:

Horizon Hobby, GmbH
Hanskampring 9
22885 Barsbüttel Germany

Australia/New Zealand:





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US 8,672,726. US 9,056,667. US 9,753,457. US 10,078,329. US 9,930,567. US 10,419,970. US 10,849,013. US 8,201,776

<http://www.e-fliterc.com/>