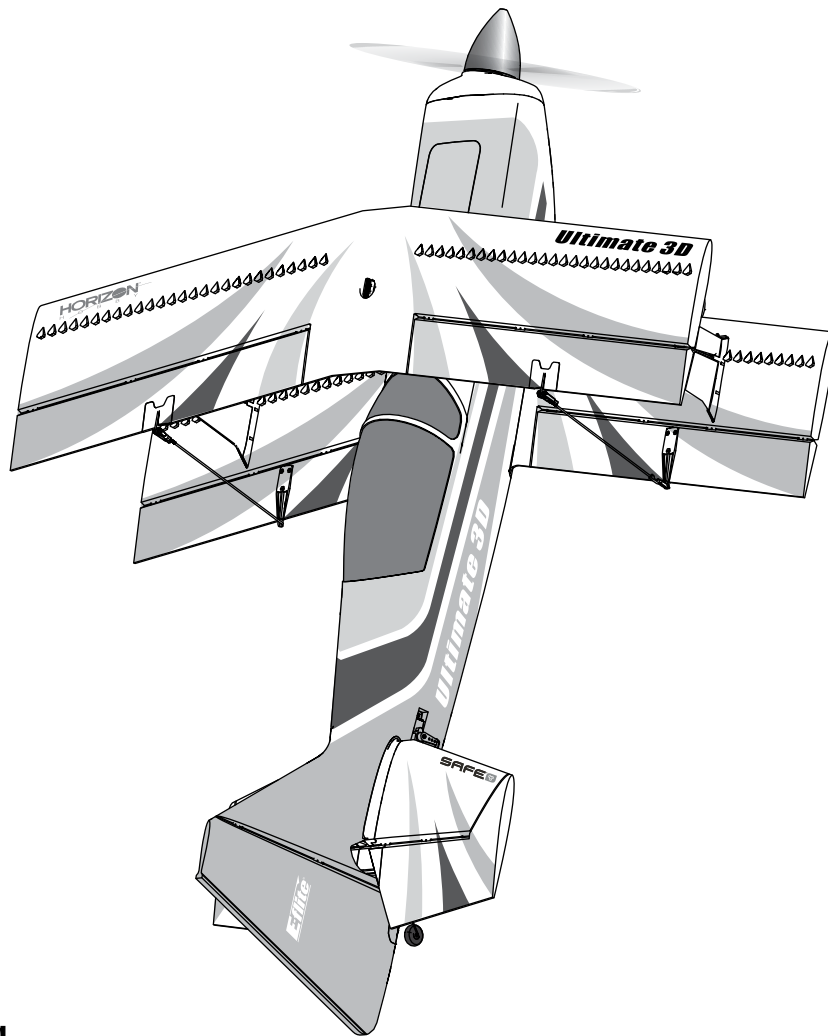


**HORIZON**<sup>®</sup>  
H O B B Y

**Eflite**<sup>®</sup>  
ADVANCING ELECTRIC FLIGHT

# *Ultimate 3D*



**Instruction Manual**  
**Bedienungsanleitung**  
**Manuel d'utilisation**  
**Manuale di Istruzioni**

**SAFE**<sup>®</sup> 

SAFE<sup>®</sup> Select Technology, Optional Flight Envelope Protection

**SMART**<sup>™</sup>  
TECHNOLOGY

**Plug-N-Play**<sup>®</sup>

**Bind-N-Fly**<sup>®</sup>  
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 [www.horizonhobby.com](http://www.horizonhobby.com) or [towerhobbies.com](http://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.

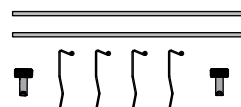
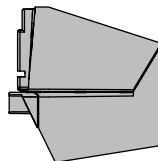
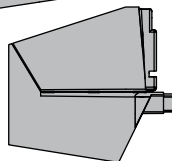
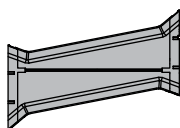
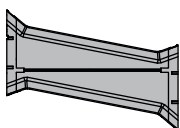
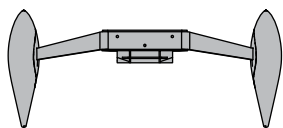
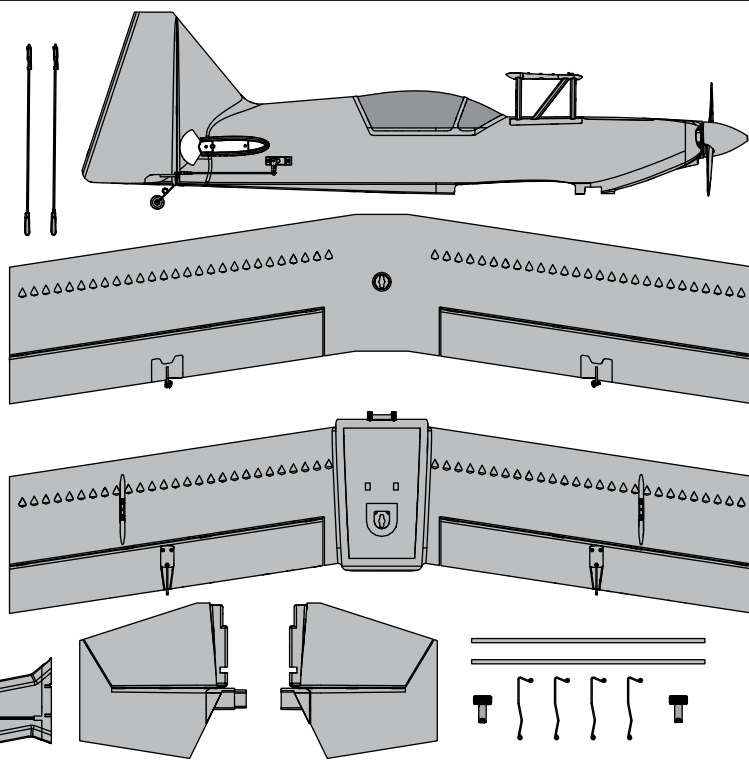
- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away 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.

## Box Contents

Quick Start Information			
Transmitter Setup	1. Blank (Acro) Model		
	2. Servo Reversing: Set all to normal		
	3. Travel Adjust (All Surfaces): 100%		
Dual Rates*		<b>High Rate</b>	<b>Low Rate</b>
	Aileron	▲ = 24mm ▼ = 24mm	▲ = 18mm ▼ = 18mm
	Elevator	▲ = 45mm ▼ = 45mm	▲ = 30mm ▼ = 30mm
	Rudder	▶ = 70mm ◀ = 70mm	▶ = 50mm ◀ = 50mm
EXPO (Soft center)		<b>High Rate</b>	<b>Low Rate</b>
	Aileron	10%	5%
	Elevator	10%	5%
	Rudder	10%	5%
Center of Gravity (CG)	89mm back from the leading edge at the center of the top wing		
Flight Timer Setting	3 minutes		



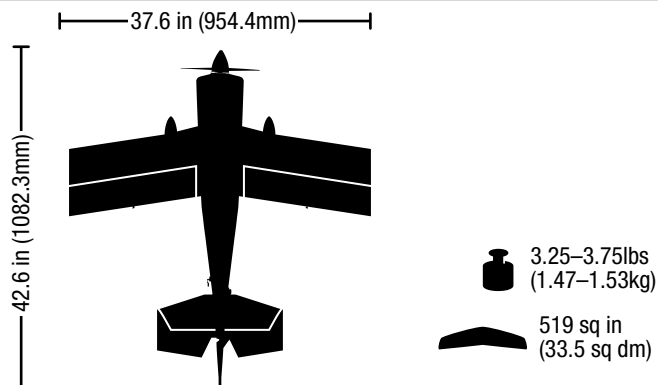
## Specifications

	<b>BNP</b> BASIC	<b>PNP</b> PLUG-N-PLAY
<b>Motor:</b> BL10 Brushless Outrunner (EFLM17552)	<b>Included</b>	<b>Included</b>
<b>ESC:</b> Smart 60-Amp ESC (SPMXAE1060)	<b>Installed</b>	<b>Installed</b>
<b>Servos:</b> (4) 9g Servos (SPMSA332)	<b>Installed</b>	<b>Installed</b>
<b>Receiver:</b> Spektrum™ AR637TA 6-Channel AS3X/SAFE Telemetry Receiver (SPMAR637T)	<b>Installed</b>	<b>Required to Complete</b>
<b>Recommended Battery:</b> 2200mAh 11.1v 3S 30C LiPo (SPMX22003S30) or 2200mAh 14.8v 4S 30C LiPo (SPMX22004S30)	<b>Required to Complete</b>	<b>Required to Complete</b>
<b>Recommended Battery Charger:</b> 3-4 cell Li-Po battery balancing charger	<b>Required to Complete</b>	<b>Required to Complete</b>
<b>Recommended Transmitter:</b> Full-Range 2.4GHz with Spektrum™ DSM2®/DSMX® technology with programmable mixing and adjustable dual rates	<b>Required to Complete</b>	<b>Required to Complete</b>

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RECEIVER BIND INFORMATION	
Channels	6
Frequency	2404 – 2476 MHz
Compatibility	DSM2 and DSMX



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/](http://knowbeforeyoufly.org/).

## Preflight

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

9	Make sure linkages move freely.
10	Perform the Control Direction Test with the transmitter.
11	Perform the AS3X Control Direction Test with the aircraft.
12	Adjust flight controls and transmitter.
13	Perform a radio system Range Test.
14	Find a safe open area to fly.
15	Plan flight for flying field conditions.

## Transmitter Setup

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

**IMPORTANT:** The included receiver has been programmed specifically for operation in this aircraft. If you desire to use the AR637T receiver in a different aircraft visit [spektrumrc.com](http://spektrumrc.com) for reprogramming instructions.

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.

### Transmitter Telemetry Setup

If the transmitter that you intend to use with this aircraft is not displaying telemetry data, visit [Spektrumrc.com](http://Spektrumrc.com) and update your firmware. With the latest firmware installed on your transmitter the telemetry option should now be functional on your transmitter.

<b>Computerized Transmitter Setup</b> (DXe, DX7, DX7S, DX8, DX8e, DX9, DX10t, DX18, DX20, iX12 and iX20)	
Start all transmitter programming with a blank ACRO model (perform a model reset), then name the model.	
Set Dual Rates to	HIGH 100% LOW 70%
Set Servo Travel to	100%
Set Throttle Cut to	-100%
DXe	Refer to <a href="http://spektrumrc.com">spektrumrc.com</a> for the appropriate download setup.
DX7S DX8	1. Go to the SYSTEM SETUP
	2. Set MODEL TYPE: AIRPLANE
DX7S DX8	3. Go to CHANNEL ASSIGN: CHANNEL INPUT CONFIG AUX2 Switch A SELECT GEAR: INH
	4. Go to Digital Switch Setup: Switch: Switch A Pos 0: -100 Pos 1: -100 <b>no motor reversing</b> Pos 1: 100 <b>motor reversing</b>
DX6e DX6 (Gen2) DX7 (Gen2) DX8e DX8 (Gen2) DX9 DX10t DX18 DX20 iX12	1. Go to the SYSTEM SETUP (Model Utilities) <sup>†</sup>
	2. Set MODEL TYPE: AIRPLANE
DX6e DX6 (Gen2) DX7 (Gen2) DX8e DX8 (Gen2) DX9 DX10t DX18 DX20 iX12	3. Go to CHANNEL ASSIGN: CHANNEL INPUT CONFIG AUX2 Switch A <b>Not available on DX6 or DX6e transmitters</b>
	4. Set AIRCRAFT TYPE (Model Setup, Aircraft Type) <sup>‡</sup> : WING: 1 AIL
DX6e DX6 (Gen2) DX7 (Gen2) DX8e DX8 (Gen2) DX9 DX10t DX18 DX20 iX12	5. Go to Digital Switch Setup: Switch: Switch A Pos 0: -100 Pos 1: -100 <b>no motor reversing</b> Pos 1: 100 <b>motor reversing</b>
	<b>Not available on DX6 or DX6e transmitters</b>

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

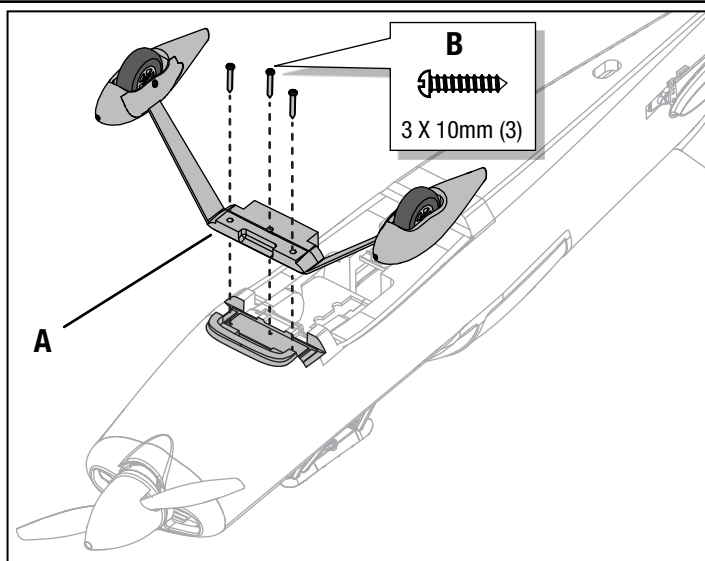
<sup>‡</sup> The settings provided above for the DX6 and DX6e do not allow for the use of a SAFE Select switch. To use a SAFE Select switch on these systems see the section below for transmitter setup and operation information.

## Model Assembly

### Landing Gear Installation

1. Install the landing gear assembly (A) on the fuselage and secure in place using 3 screws (B).

Disassemble in reverse order.

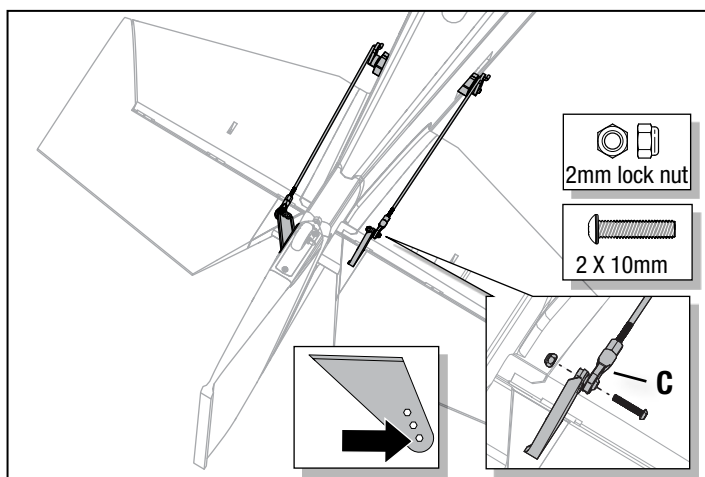
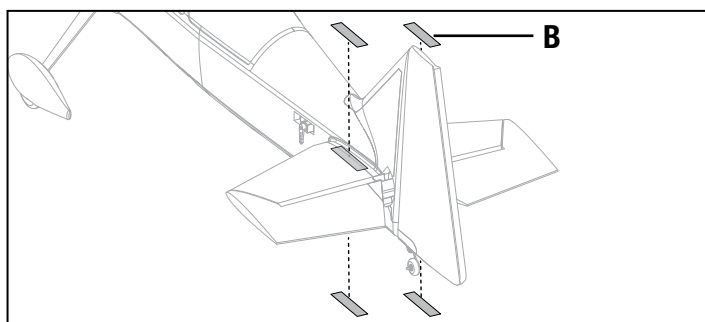
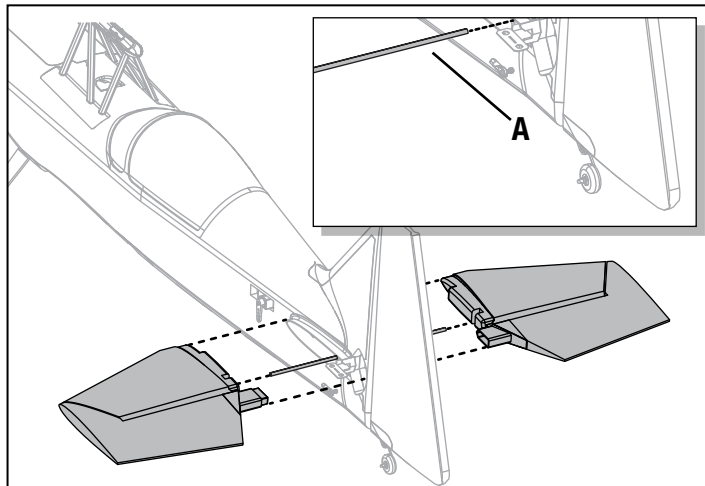


### Horizontal Stabilizer Installation

**IMPORTANT:** The Ultimate 3D includes two tail tubes to accommodate the use of a 3s or 4s battery. The lightweight composite tube is recommended to achieve correct CG when using a 3S battery. The metal tube is recommended to achieve correct CG when using a 4S battery.

1. Slide the horizontal tail tube (A) into the hole in the rear of the fuselage.
2. Install the 2 piece (left and right) horizontal tail as shown. Ensure the control horn faces down.
3. Secure the 2 piece horizontal tail in place with 4 pieces tape (B) included.
4. Attach the ball link (C) to the elevator control horn's outermost hole using the included nut and screw. Use a 4mm nut driver and 3mm hex wrench to tighten the nut and screw.
5. Ensure the elevator and rudder servo arms are in the correct position, then adjust the linkage to center them.

Disassemble in reverse order.



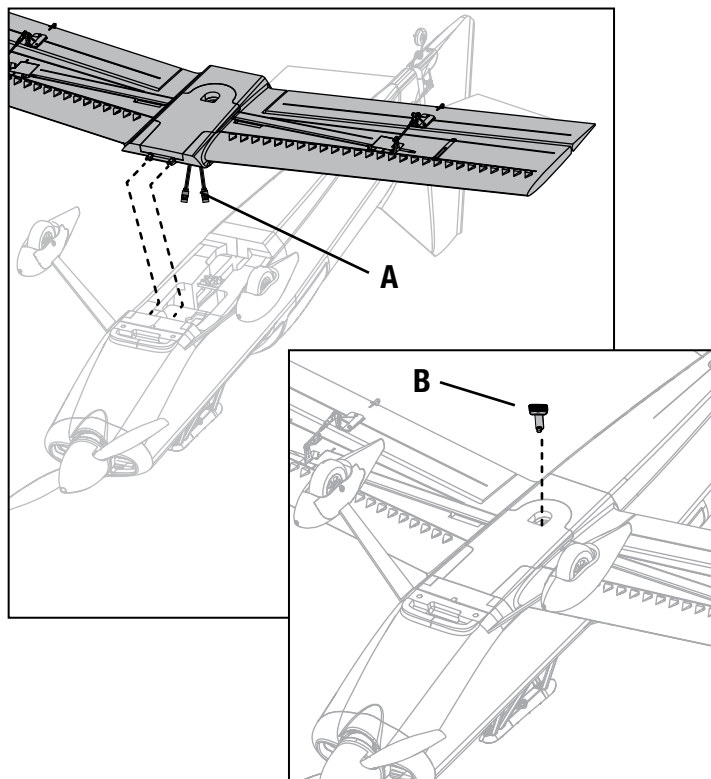
## Model Assembly *Continued*

### Wing Installation

#### Bottom Wing Installation

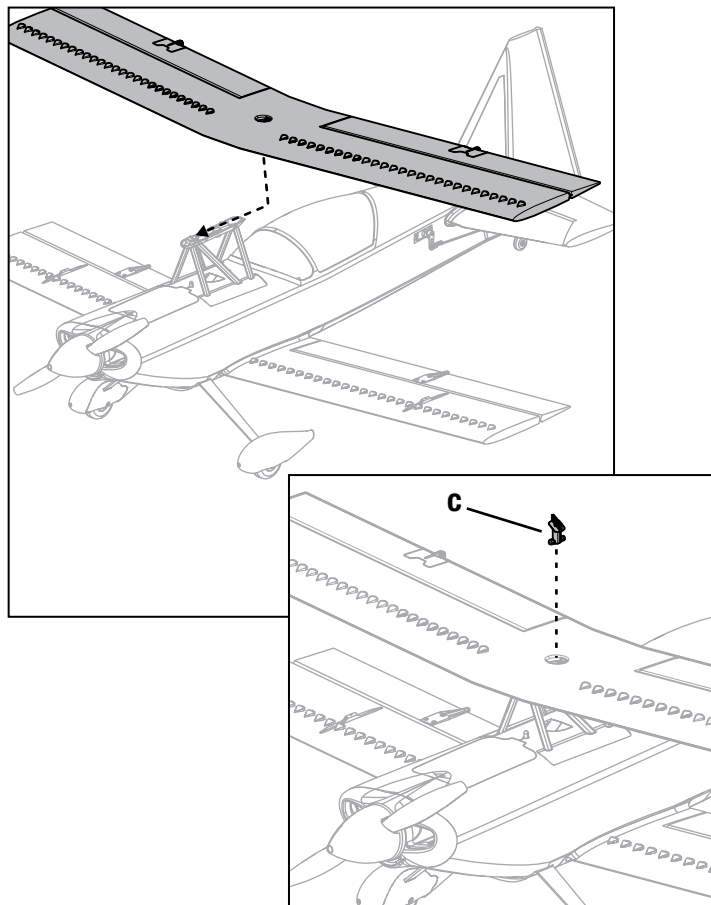
1. Connect the aileron servo connectors (A) to the aileron y-harness connectors in the fuselage.
2. Align the bottom wing mounting pins with the fuselage mounting plate to attach the bottom wing to the fuselage.
3. Secure the wing in place with the locking pin (B). Insert pin and turn 90 degrees to lock in place.

Disassemble in reverse order.



#### Top Wing Installation

1. Align the top wing with the center mouning post. Slide it into the latch as shown.
2. Secure the wing in place with the locking pin (C). Insert pin and turn 90 degrees to lock in place.

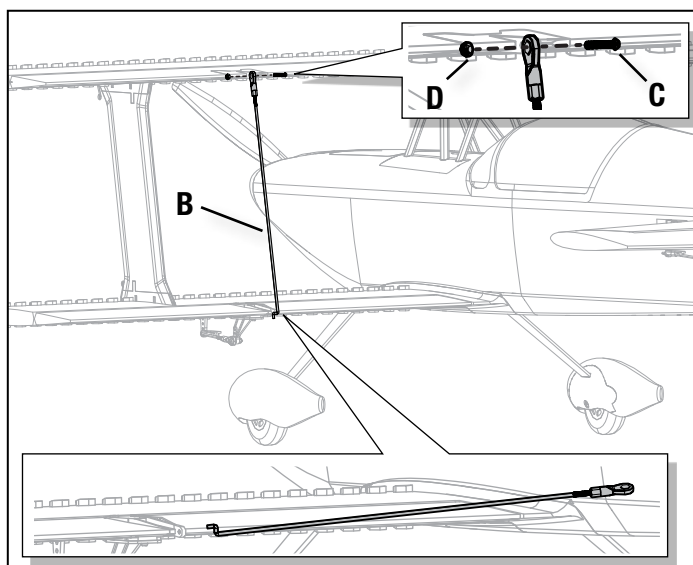
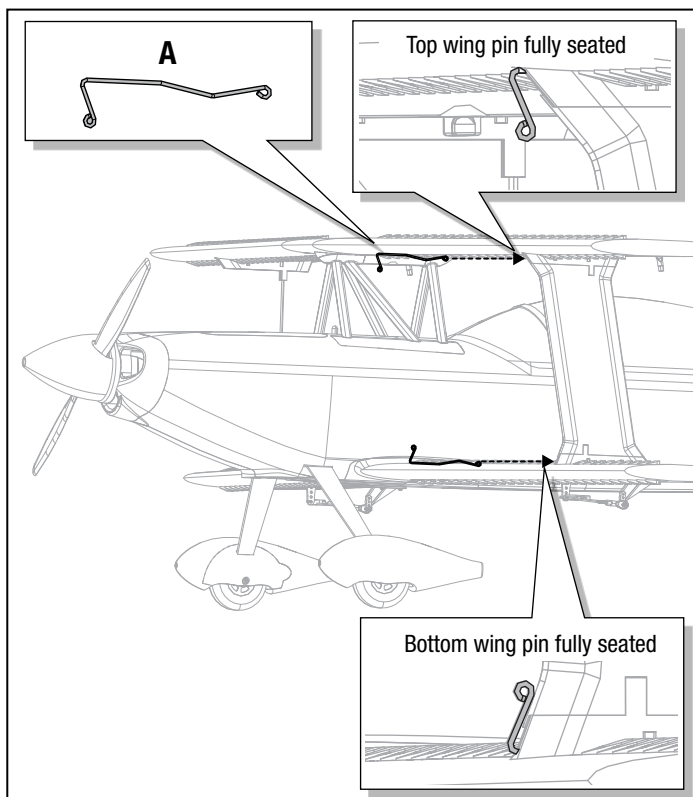
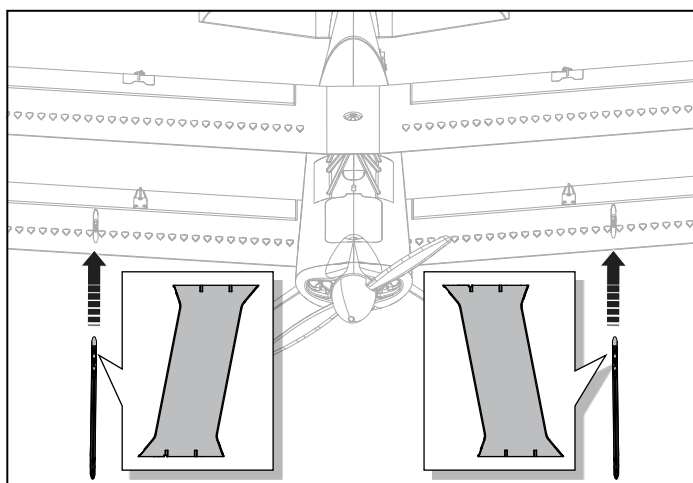


Continued 

## Model Assembly *Continued*

3. Slide the left and right wing strut in place, between the upper and lower wings as shown. Ensure that the arrow indicator on top of the strut is pointing forward and that the smooth side of the strut faces out.
4. Secure the wing struts to the top and bottom wing with the 4 included pins (A). Ensure that the wing pins are fully seated.
5. Link the upper and lower ailerons by installing the Z-bend end (B) to the lower wing's aileron control horn.
6. Center the lower aileron and adjust the ball link as needed so the top aileron is centered.
7. Secure the ball link end of the pushrod to the top wing control horn with the included screw (C) and nut (D).

Disassemble in reverse order.



## PNP Receiver Selection and Installation

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

### AR637T Installation

1. Before installing the bottom wing, position the aircraft so the bottom of the fuselage faces up. If the bottom wing has already been installed, remove the bottom wing to expose the receiver compartment.
2. Connect the appropriate control surfaces to their respective ports on the receiver using the table at the right.
3. Using double-sided servo tape, (not included) mount the receiver to the flat area behind the battery compartment, as shown. The receiver (A) should be mounted in the orientation shown, parallel to the length of the fuselage, with the label facing up and the servo ports facing the front of the aircraft. The orientation of the receiver is critical for all AS3X® and SAFE® technology setups.

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

### AR637T Port Assignments

**BND/PRG = BIND**

**1 = Throttle**

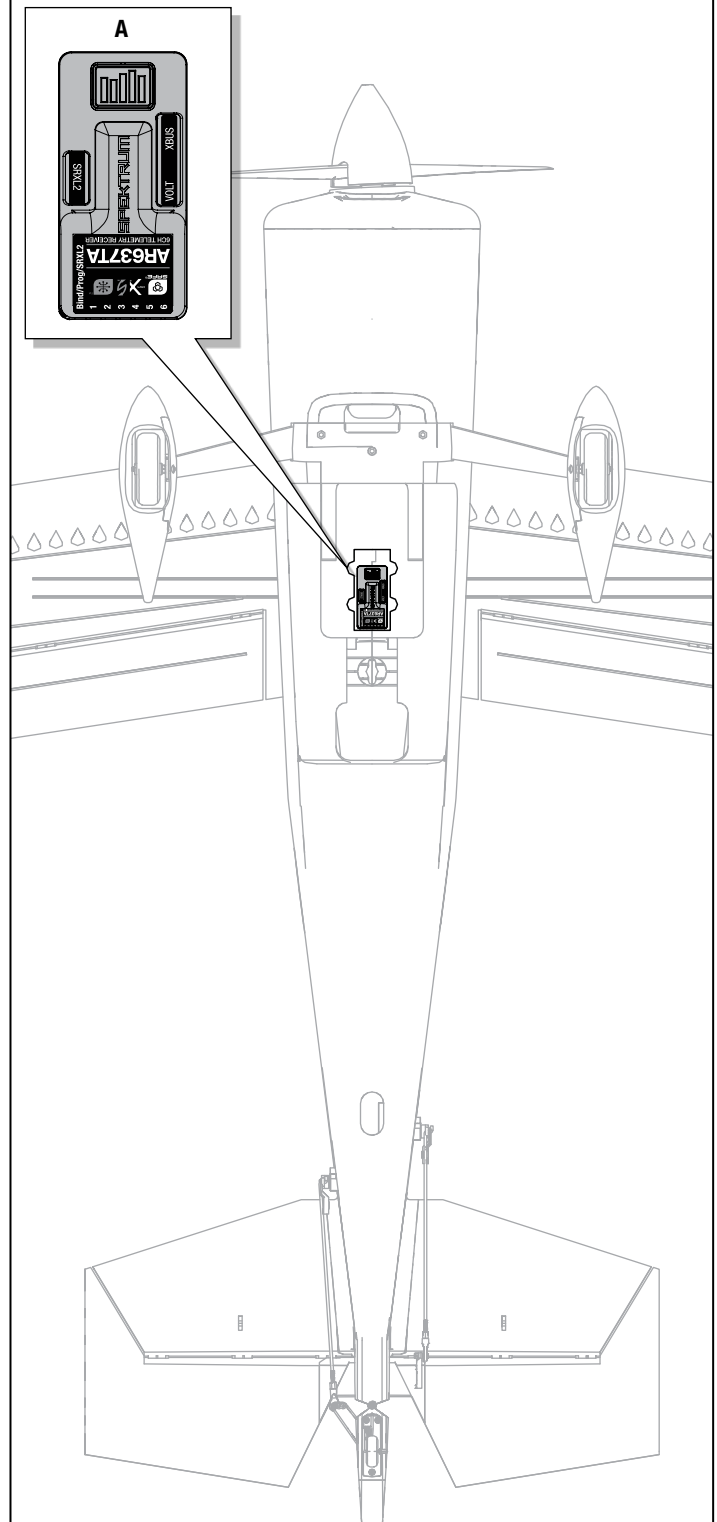
**2 = Aileron**

**3 = Elevator**

**4 = Rudder**

**5 = Open**

**6 = Open**





## Battery Installation and ESC Arming

### Battery Selection

We recommend the 2200mAh 14.8V 4S 30C Li-Po battery (SPMX22004S30). 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 Smart Li-Po battery packs to fit in the fuselage. Be sure the model balances at the recommended CG.

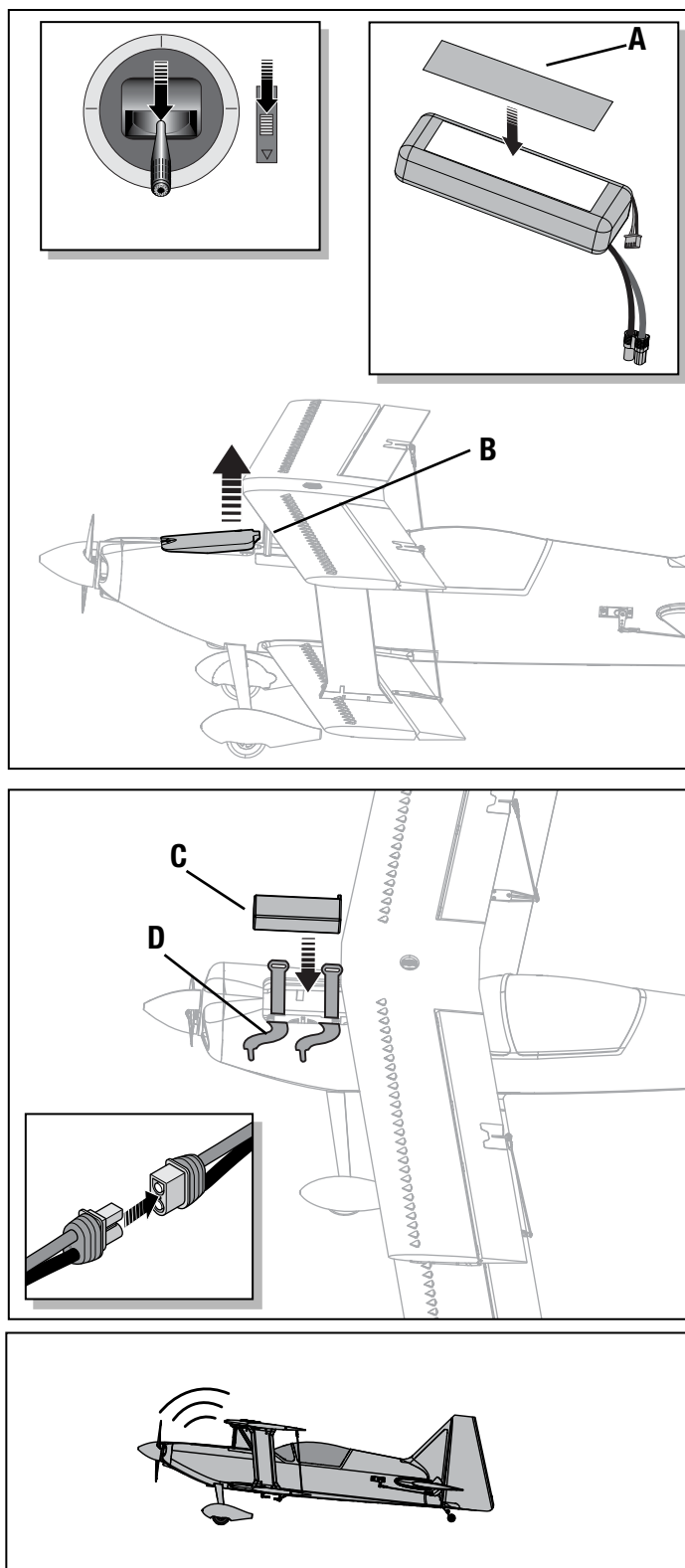
1. Lower the throttle to the lowest settings. Power on the Transmitter, then wait 5 seconds.
2. For added security apply the loop side (soft side) of the optional hook and loop tape (A) to the bottom of your battery and the hook side to the battery tray.
3. Press the battery latch button (B) to remove the battery hatch.
4. Install the fully charged battery (C) in the battery compartment as shown. See the Adjusting the Center of Gravity instructions for more information.
5. Make sure the flight battery is secured using the hook and loop straps (D).
6. Connect the battery to the ESC (the ESC is now armed).
  - The ESC will sound a series of tones.
  - An LED will light on the receiver.

If the ESC sounds a continuous beep after the flight battery is connected, recharge or replace the battery.

8. Reinstall the canopy hatch.

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

**WARNING:** If your transmitter supports it, always engage throttle cut before approaching the aircraft any time a battery is connected.



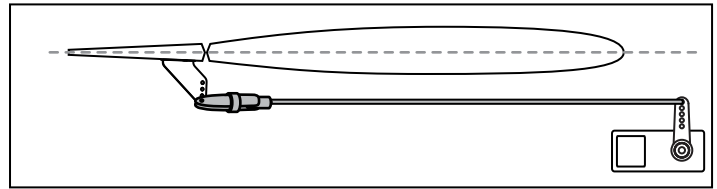
## Control Surface Centering and Adjusting a Ball Link

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

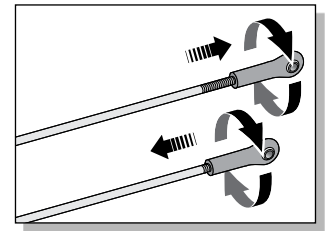
While SAFE is inactive, mechanically center the control surfaces.

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

After binding a transmitter to the airplane 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 Horn and Servo Arm Settings

The table to the right shows the factory settings for the control horns and servo arms. Fly the aircraft at factory settings before making changes.

**NOTICE:** If control throws are changed from the factory settings, the AR637T gain values may need to be adjusted. Refer to the Spektrum AR637T manual for adjustment of gain values.

After flying, you may choose to adjust the linkage positions for the desired control response. See the table to the right.

	Horns	Arms
Elevator		
Ailerons		
Rudder		

More control throw	Less control throw

## Binding

### 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.

### General Binding Tips

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 the pilot with 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.

A bind plug extension has been provided in BNF models. It will be labeled and located in the battery compartment for easy access.

#### 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.

#### SAFE Select Disabled

**SAFE Select Disabled:** The control surfaces cycle back and forth **once** 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.

#### \*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.

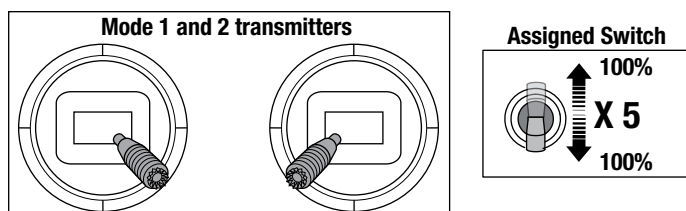
**TIP:** If a SAFE Select switch is desired for your 6 function aircraft, and you are using a 6 channel transmitter, the SAFE Select switch channel will have to be shared with either channel 5 or 6 of the transmitter.

## Assigning a Switch

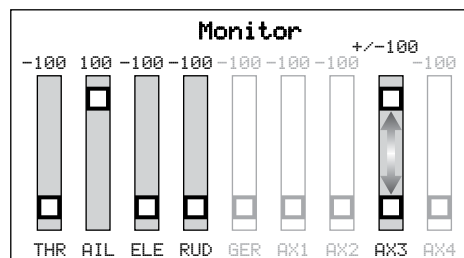
1. Power on the transmitter.
2. Power on the aircraft.
3. Hold both transmitter sticks to the inside bottom corners, and toggle the desired switch 5 times quickly (1 toggle = full up and down).
4. The control surfaces of the aircraft will move, indicating the switch has been selected.

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](http://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](http://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 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

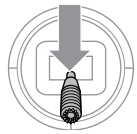
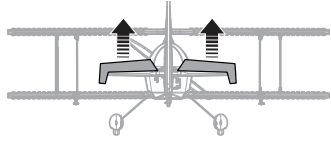

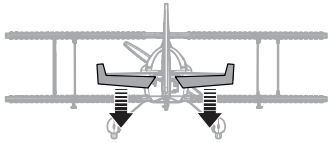
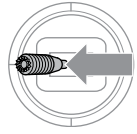
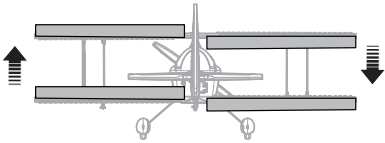
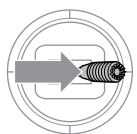
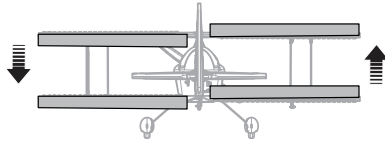
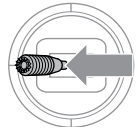
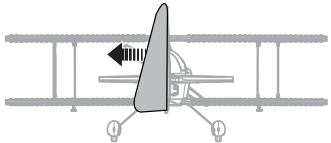
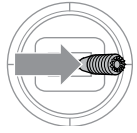
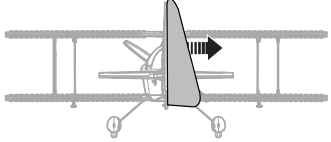
1. Pull the elevator stick back. The elevators should move up, which will cause the aircraft to pitch up.
2. Push the elevator stick forward. The elevators should move down, which will cause the aircraft to pitch down.

### Ailerons

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

	Transmitter command	Control Surface Response
Elevator		
		
Aileron		
		
Rudder		
		

## AS3X Control Direction Test

This test ensures that the AS3X® control system is functioning properly. Assemble the aircraft and bind your transmitter to the receiver before performing this test.

1. Raise the throttle just above 25%, then lower the throttle to activate AS3X.

**CAUTION:** Keep all body parts, hair and loose clothing away from a moving propeller, as these items could become entangled.

2. Move the entire aircraft as shown and ensure the control surfaces move in the direction indicated in the graphic. If the control surfaces do not respond as shown, do not fly the aircraft. Refer to the receiver manual for more information.

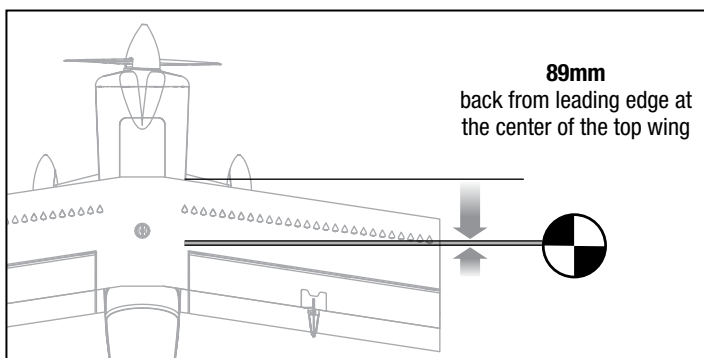
Once the AS3X system is active, control surfaces may move rapidly. This is normal. AS3X remains active until the battery is disconnected.

	Aircraft movement	AS3X Reaction
Elevator		
Aileron		
Rudder		

## 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 (SPMX22004S30) installed in the center of the battery tray.

**CAUTION:** Install the battery but do not arm the ESC while checking the CG. Personal injury may result.

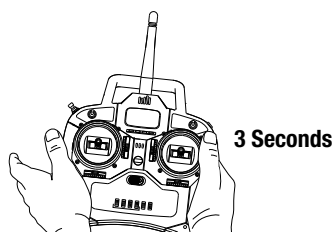


## In-Flight Trimming

During your first flight, trim the aircraft for level flight at 3/4 throttle. Make small trim adjustments with your transmitter's trim switches to achieve straight and level flight.

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.

### Range Check your Radio System

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

### 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 may see oscillation (the aircraft rocks back and forth on one axis due to overcontrol). If oscillation occurs, refer to the Troubleshooting Guide for more information.

### Takeoff

Place the aircraft in position for takeoff (facing into the wind). Select low rates for first takeoff and gradually increase the throttle to 3/4 to full and steer with the rudder. Pull back gently on the elevator and climb to a comfortable altitude.

### Flying

For your first flights with the recommended battery pack (SPMX22004S30), set your transmitter timer or a stopwatch to 3 minutes. After four minutes, land the aircraft. Adjust your timer for longer or shorter flights once you have flown the model.

Fly the aircraft and trim it for level flight in Precision Mode at 3/4 throttle. After landing, adjust the linkages mechanically to account for trim changes and then reset the trims to neutral. Ensure the aircraft will fly straight and level with no trim or sub-trim.

### Landing

To land the aircraft, fly the aircraft down to the ground using 1/4 –1/3 throttle to allow for enough energy for a proper flare. The aircraft is easiest to land doing a wheel landing (two point), where the aircraft touches down on the main landing gear first while the tailwheel is still off the ground. The aircraft can also be landed in a three-point attitude, where all three wheels touch down at the same time. When the aircraft touches down, reduce back pressure on the elevator stick to prevent the plane from becoming airborne again.

If landing on grass, it is best to hold full up elevator after touchdown and when taxiing to prevent nosing over.

Once on the ground, avoid sharp turns until the plane has slowed enough to prevent scraping the wingtips.

## SAFE® Select Flying Tips

When flying in SAFE Select mode the aircraft will return to level flight any time the aileron and elevator controls are at neutral. Applying aileron or elevator control will cause the airplane to bank, climb or dive. The amount the stick is moved will determine the attitude the airplane flies. Holding full control will push the aircraft to the pre-determined bank and roll limits, but it will not go past those angles.

When flying with SAFE Select, it is normal to hold the control stick deflected with moderate aileron input when flying through a turn. To fly smoothly with SAFE Select, avoid making frequent control changes and don't attempt to correct for minor deviations. Holding deliberate control inputs will command the aircraft to fly at a specific angle, and the model will make all corrections to maintain that flight attitude.

When flying with SAFE Select, throttle will make the aircraft climb or descend. Full throttle will cause the aircraft to pitch up and climb slightly. Mid throttle will keep the airplane flying level. Low throttle will cause the airplane to descend slightly nose-down.

Return the elevator and aileron controls to neutral before switching from SAFE Select mode to AS3X mode. If you do not neutralize controls when switching into AS3X mode, the control inputs used for SAFE Select mode will be excessive for AS3X mode and the aircraft will react immediately.

**WARNING:** Always decrease throttle at propeller strike.

**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.

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

### Low Voltage Cutoff (LVC)

When a Li-Po battery is discharged below 3V per cell, it will not hold a charge. The ESC protects the flight battery from over-discharge using Low Voltage Cutoff (LVC). Before the battery charge decreases too much, LVC removes power supplied to the motor. Disconnect and remove the Li-Po battery from the aircraft after use to prevent trickle discharge. Charge your Li-Po battery to about half capacity before storage. During storage, make sure the battery charge does not fall below 3V per cell. LVC does not prevent the battery from over-discharge during storage.

**NOTICE:** Repeated flying to LVC will damage the battery.

**Tip:** Monitor your aircraft battery's voltage before and after flying by using a Li-Po Cell Voltage Checker (SPMXBC100, sold separately).

### Repairs

Thanks to the EPO 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.

## Differences between SAFE Select and AS3X modes

This section is generally accurate but does not take into account flight speed, battery charge status, and other limiting factors.

		SAFE Select	AS3X
Control Input	Control stick is neutralized	Aircraft will self level	Aircraft will continue to fly at its present attitude
	Holding a small amount of control	Aircraft will bank or pitch to a moderate angle and maintain the attitude	Aircraft will continue to pitch or roll slowly
	Holding full control	Aircraft will bank or pitch to the predetermined limits and maintain the attitude	Aircraft will continue to roll or pitch rapidly
	Throttle	Full throttle: Climb Neutral: Level flight Low throttle: Descend nose-down	Throttle will not affect flight response.

## Thrust Reversing (optional)

The Ultimate 3D is equipped with the Avian 60 amp SMART ESC with reversing. Reversing the motor can be helpful when taxiing or for shortening ground roll after a landing.

Simply assign a switch to channel 7 (aux2) of your transmitter. Flip the switch to reverse the direction of the motor. *(The SRXL connection of the SMART ESC to the AR637TA receiver allows the ESC to receive combined input from both channel 7 and channel 1 (throttle).)*

**IMPORTANT:** The motor will draw more current when spinning the propeller in the reverse direction as the propeller is less efficient and creates more drag which can reduce flight time.

**IMPORTANT:** Thrust reversing requires a Spektrum receiver with SMART throttle such as the AR637TA and a spektrum transmitter with a minimum of 7 channels. The Avian ESC is also backwards compatible with receivers that only provide a PWM output.

## 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.

## Motor Service

**CAUTION:** Always disconnect the flight battery before performing motor service.

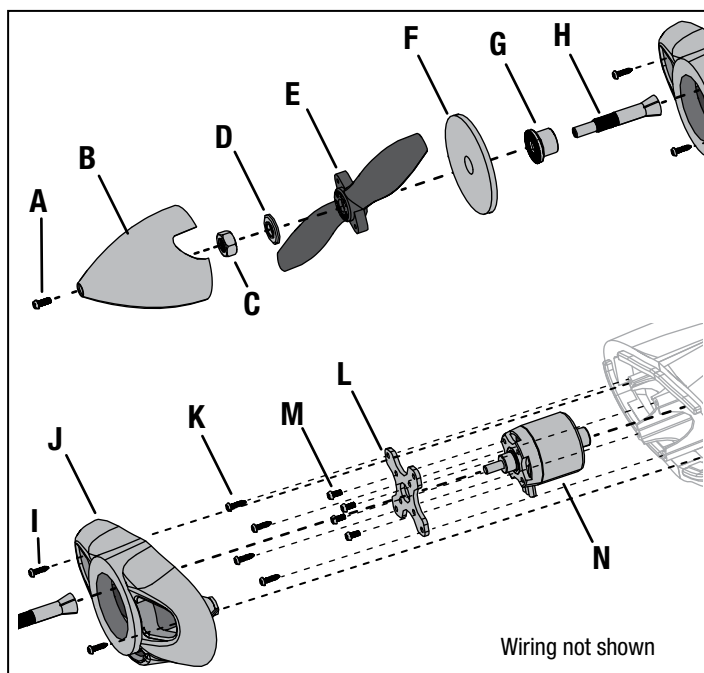
### Disassembly

1. Remove the screw (A), Spinner (B), Propeller nut (C) and washer (D).
2. Remove the propeller (E), spinner backplate (F) backplate (G), and collet (H) from the motor shaft.
3. Pull to remove 2 screws (I) from the cowling (J), and remove the cowling.
4. Remove the 4 screws (K) from the motor mount (L), and remove the motor and motor mount from the fuselage.
5. Disconnect the motor wires from the ESC wires.
6. Remove the 4 screws (M) and motor (N) from the motor mount.

### Assembly

Assemble in reverse order.

- Correctly align and connect the motor wire colors with the ESC wires.
- Tighten the prop nut by using a wrench



## Troubleshooting Guide AS3X

Problem	Possible Cause	Solution
Oscillation	Damaged propeller or spinner	Replace propeller or spinner
	Imbalanced propeller	Balance the propeller. For more information, view John Redman's propeller balancing video at <a href="http://www.horizonhobby.com">www.horizonhobby.com</a>
	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 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
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
EFL108006	Cowl: Ultimate 2
EFL108009	Strut Set: Ultimate 2
EFL108010	Strut Wire Clips (4): Ultimate
EFL108011	Pushrod Set: Ultimate 2
EFL108013	Wing Thumb Screws: Ultimate 2
EFL108016	Motor Mount: Ultimate 2
EFL108017	Prop Adapter: Ultimate 2
EFL165501	Painted Fuselage: Ultimate 3D
EFL165502	Top Wing Set: Ultimate 3D
EFL165503	Bottom Wing Set: Ultimate 3D
EFL165504	Horiz Stab Set: Ultimate 3D
EFL165505	Rudder: Ultimate 3D
EFL165507	Landing Gear Set: Ultimate 3D
EFL165512	Control Horn Set: Ultimate 3D
EFL165514	Decal Sheet: Ultimate 3D
EFL165515	Spinner w/ Screw: Ultimate 3
EFL165516	Stab Joiner Set: Ultimate 3D
EFL165517	Battery Hatch: Ultimate 3D
EFLM108019	Motor Shaft: Ultimate 2
EFLM17552	BL10 Motor 800KV: Turbo Timber
EFLP11606E	11.6 X 6 Propeller : Ultimate 3
SPMAR637T	AR637T 6CH SAFE and AS3X TelemRX
SPMSA332	9g servo MG
SPMXAE1060	Avian 60Amp Brushless Smart ESC 6S

## Recommended Parts

Part #	Description
SPMR8000	DX8 Transmitter Only MD2
SPMR9910	DX9 Black Transmitter Only MD2
SPMX22003S100	2200mAh 3S 11.1V Smart 100C; IC3
SPMX22003S30	2200mAh 3S 11.1V Smart 30C; IC3
SPMX22003S50	2200mAh 3S 11.1V Smart 50C; IC3
SPMX22004S100	2200mAh 4S 14.8V Smart 100C; IC3
SPMX22004S30	2200mAh 4S 14.8V Smart 30C; IC3
SPMX22004S50	2200mAh 4S 14.8V Smart 50C; IC3
SPMXC1010	Smart S2100 AC Charger, 2X100W
SPMXCA507	IC3 Batt to IC5 Device 4 10AWG

## Optional Parts

Part #	Description
SPMXBC100	LiPo Cell Voltage Checker
SPM6716	Spektrum DSMR Transmitter Case
SPM6722	Spektrum Single Aircraft TX Case
SPMA9574	Aircraft Telemetry Airspeed Indicator
SPMA9589	Aircraft Telemetry Altitude and Variometer Sensor
SPMAR9350	AR9350 9 Channel AS3X RX
SPMR12000	iX12 12 Channel Transmitter Only
SPMR9910	DX9 Black Transmitter Only MD2
SPMXBC100	SMART Battery & Servo Tester
SPMXC1000	Smart S1200 DC Charger, 1x200W
SPMXC10201	30A 540W Power Supply

# AMA National Model Aircraft Safety Code

Effective January 1, 2014

## A. GENERAL

A model aircraft is a non-human-carrying aircraft capable of sustained flight in the atmosphere. 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 any additional rules specific to the flying site.

1. Model aircraft will not be flown:
  - (a) In a careless or reckless manner.
  - (b) At a location where model aircraft activities are prohibited.
2. Model aircraft pilots will:
  - (a) Yield the right of way to all man carrying aircraft.
  - (b) See and avoid all aircraft and a spotter must be used when appropriate. (AMA Document #540-D.)
  - (c) Not fly higher than approximately 400 feet above ground level within three (3) miles of an airport, without notifying the airport operator.
  - (d) Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
  - (e) Not exceed a takeoff weight, including fuel, of 55 pounds unless in compliance with the AMA Large Model Aircraft program. (AMA Document 520-A.)
  - (f) Ensure the aircraft is identified with the name and address or AMA number of the owner on the inside or affixed to the outside of the model aircraft. (This does not apply to model aircraft flown indoors.)
  - (g) Not operate aircraft with metal-blade propellers or with gaseous boosts except for helicopters operated under the provisions of AMA Document #555.
  - (h) Not operate model aircraft while under the influence of alcohol or while using any drug which could adversely affect the pilot's ability to safely control the model.
  - (i) Not operate model aircraft carrying pyrotechnic devices which explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.  
Exceptions:
    - Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight.
    - Rocket motors (using solid propellant) up to a G-series size may be used provided they remain attached to the model during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code but may not be launched from model aircraft.
    - Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Team AMA Program Document (AMA Document #718).
  - (j) Not operate a turbine-powered aircraft, unless in compliance with the AMA turbine regulations. (AMA Document #510-A).
3. Model aircraft will not be flown in AMA sanctioned events, air shows or model demonstrations unless:
  - (a) The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
  - (b) An inexperienced pilot is assisted by an experienced pilot.
4. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

## B. RADIO CONTROL

1. All pilots shall avoid flying directly over unprotected people, vessels, vehicles or structures and shall avoid endangerment of life and property of others.
2. A successful radio equipment ground-range check in accordance with manufacturer's recommendations will be completed before the first flight of a new or repaired model aircraft.
3. At all flying sites a safety line(s) must be established in front of which all flying takes place (AMA Document #706.)
  - (a) Only personnel associated with flying the model aircraft are allowed at or in front of the safety line.
  - (b) At air shows or demonstrations, a straight safety line must be established.
  - (c) An area away from the safety line must be maintained for spectators.
  - (d) Intentional flying behind the safety line is prohibited.
4. RC model aircraft must use the radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
5. RC model aircraft will not operate within three (3) miles of any pre-existing flying site without a frequency-management agreement (AMA Documents #922 and #923.)
6. With the exception of events flown under official AMA Competition Regulations, excluding takeoff and landing, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and the pilot's helper(s) located at the flight line.
7. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.
8. RC night flying requires a lighting system providing the pilot with a clear view of the model's attitude and orientation at all times. Hand-held illumination systems are inadequate for night flying operations.
9. The pilot of a RC model aircraft shall:
  - (a) Maintain control during the entire flight, maintaining visual contact without enhancement other than by corrective lenses prescribed for the pilot.
  - (b) Fly using the assistance of a camera or First-Person View (FPV) only in accordance with the procedures outlined in AMA Document #550.
  - (c) Fly using the assistance of autopilot or stabilization system only in accordance with the procedures outlined in AMA Document #560.

Please see your local or regional modeling association's guidelines for proper, safe operation of your model aircraft.

## 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, or (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](http://www.horizonhobby.com), submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

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

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

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

**Non-Warranty Service** – Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website [http://www.horizonhobby.com/content/service-center\\_render-service-center](http://www.horizonhobby.com/content/service-center_render-service-center).

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

10/2015


## Contact Information

Country of Purchase	Horizon Hobby	Phone Number/Email Address	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	<a href="http://servicecenter.horizonhobby.com/RequestForm/">servicecenter.horizonhobby.com/ RequestForm/</a>	2904 Research Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	<a href="mailto:productsupport@horizonhobby.com">productsupport@horizonhobby.com</a> 877-504-0233	
	Sales	<a href="mailto:websales@horizonhobby.com">websales@horizonhobby.com</a> 800-338-4639	
European Union	Horizon Technischer Service Sales: Horizon Hobby GmbH	<a href="mailto:service@horizonhobby.eu">service@horizonhobby.eu</a> +49 (0) 4121 2655 100	Hanskampring 9 D 22885 Barsbüttel, Germany

## FCC Information


**FCC Information:**  
**FCC ID: BRWTIARLGTNG1**


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.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

**Supplier's Declaration of Conformity**  
**EFL Ultimate 3D BNF Basic and PNP (EFL16550 and EFL16575)**

 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](mailto:compliance@horizonhobby.com)  
**Web:** [HorizonHobby.com](http://HorizonHobby.com)

## IC Information

**CAN ICES-3 (B)/NMB-3(B)**  
**IC: 6157A-TIARLGTNG1**

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

## Compliance Information for the European Union

 **EU Compliance Statement:**  
**EFL Ultimate 3D BNF Basic (EFL16550)**

Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the RED and EMC Directives.

A copy of the EU Declaration of Conformity is available online at:  
<http://www.horizonhobby.com/content/support-render-compliance>.

**Frequency Band:** 2404-2476 MHz  
**Max EIRP:** 3dBm

**EFL Ultimate 3D PNP (EFL16575)**

Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.

A copy of the EU Declaration of Conformity is available online at:  
<http://www.horizonhobby.com/content/support-render-compliance>.

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



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



**E328**



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