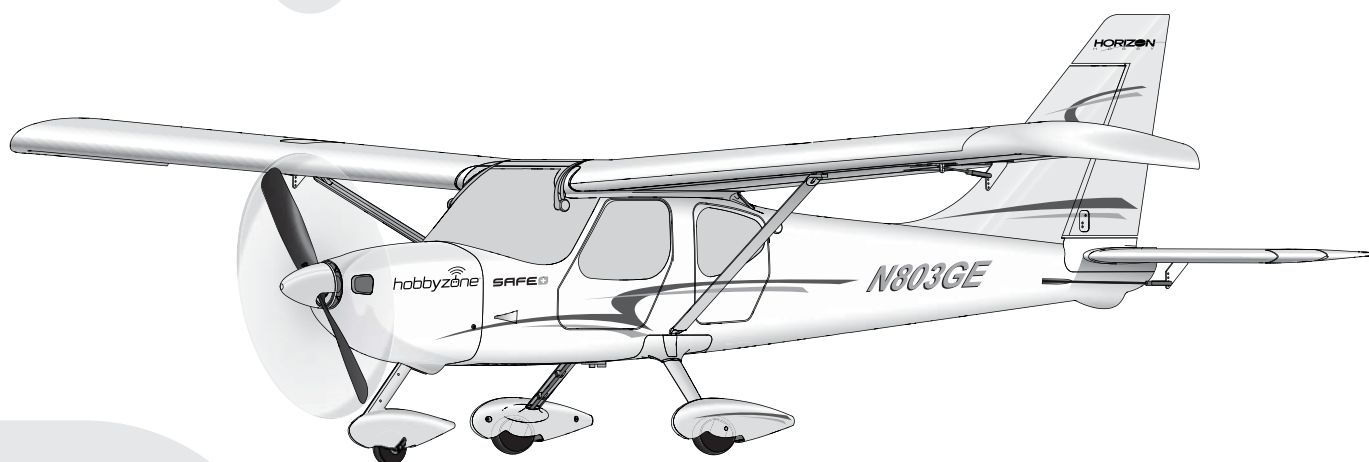# Sportsman® S+

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

SAFE®+

RTF READY-TO-FLY

BNF™ Bind-N-Fly® Ready to fly, redefined.

hobbyzone®

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 and click on the support 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:

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

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

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.

⚠ **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.**

⚠ **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.

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.

Charging Warnings

⚠ **CAUTION:** All instructions and warnings must be followed exactly. Mishandling of Li-Po batteries can result in a fire, personal injury, and/or property damage.

- **Never leave charging batteries unattended.**
- **Never charge batteries overnight.**
- By handling, charging or using the included Li-Po battery, you assume all risks associated with lithium batteries.
- If at any time the battery begins to balloon or swell, discontinue use immediately. If charging or discharging, discontinue and disconnect. Continuing to use, charge or discharge a battery that is ballooning or swelling can result in fire.
- Always store the battery at room temperature in a dry area for best results.
- Always transport or temporarily store the battery in a temperature range of 40–120º F (5–49º C). Do not store battery or aircraft in a car or direct sun-

light. If stored in a hot car, the battery can be damaged or even catch fire.
- Always charge batteries away from flammable materials.
- Always inspect the battery before charging and never charge dead or damaged batteries.
- Always disconnect the battery after charging, and let the charger cool between charges.
- Always constantly monitor the temperature of the battery pack while charging.
- ONLY USE A CHARGER SPECIFICALLY DESIGNED TO CHARGE LI-PO BATTERIES. Failure to charge the battery with a compatible charger may cause fire resulting in personal injury and/or property damage.
- Never discharge Li-Po cells to below 3V under load.
- Never cover warning labels with hook and loop strips.
- Never charge batteries outside recommended levels.
- Never attempt to dismantle or alter the charger.
- Never allow minors under the age of 14 to charge battery packs.
- Never charge batteries in extremely hot or cold places (recommended between 40–120° F or 5–49° C) or place in direct sunlight.
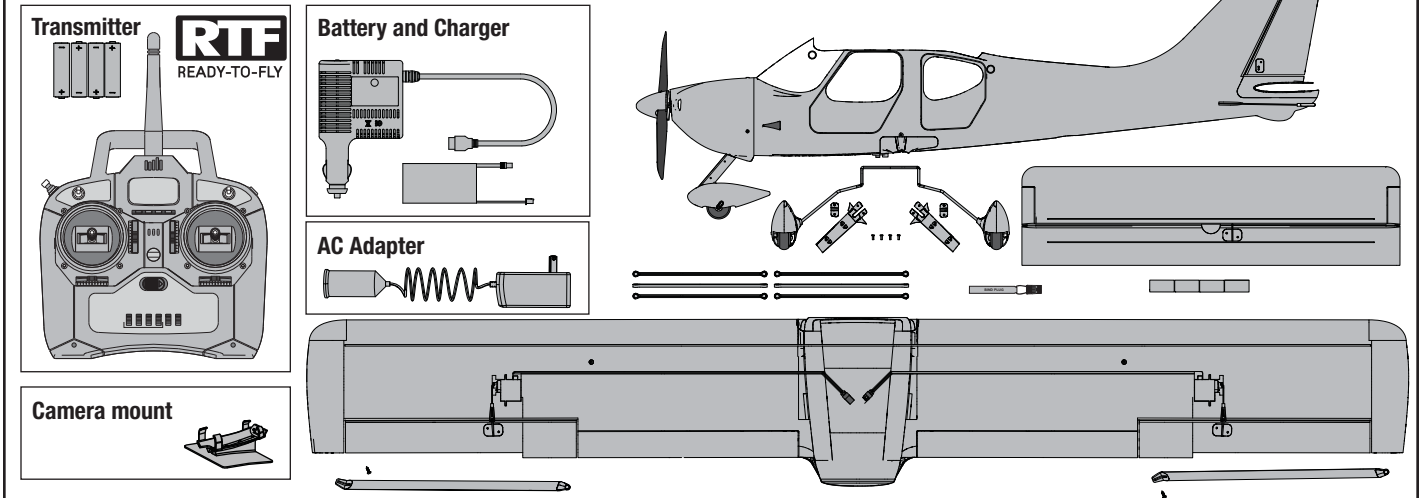
Included in the Box

Transmitter

READY-TO-FLY

Battery and Charger

AC Adapter

Camera mount

Table of Contents

Specifications

		RTF READY-TO-FLY	BNF
	Motor: 480 Brushless outrunner, 960Kv (PKZ4416)	Installed	Installed
	ESC: 18A (PKZ1814)	Installed	Installed
	Servos: (1) PKZ1060 Elevator (2) Ailerons (PKZ1060) (1) Rudder and nose steering (PKZ1090)	Installed	Installed
	Receiver: (SPMA3172)	Installed	Installed
	Battery: 3S 1300mAh Li-Po (EFLB13003S20)	Included	Included
	Battery Charger: DC powered 3S balancing fast charger (HBZ1003B)	Included	Included
	AC Adapter: (EFLA109)	Included	Included
	Transmitter: Spektrum™ DX4e with full range DSMX® technology	Included	Required to Complete

54.6 inch (1390mm)

35.75 inch (908mm)

2.1 Lbs (950 g)
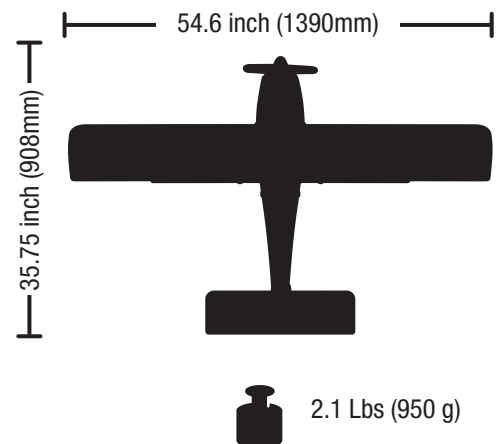
For more information and to register your product online, visit www.hobbyzonerc.com

Charging the Flight Battery

⚠ **CAUTION:** When connecting the battery to the battery charger, make sure the connectors are aligned as shown. Failure to connect the battery properly could cause the terminals to short and result in fire, personal injury and/or property damage.

Charger Specifications
- Input power: 10–14V
- Max output voltage: 11.1V
- Fixed charge current: 1.3A
- Balances and charges 3S Li-Po cells with a minimum capacity of 1250mAh

This charger may be connected to the AC adapter (included with your model).

Flashing (Charging)

Solid (Charged)

1 hour

1

2
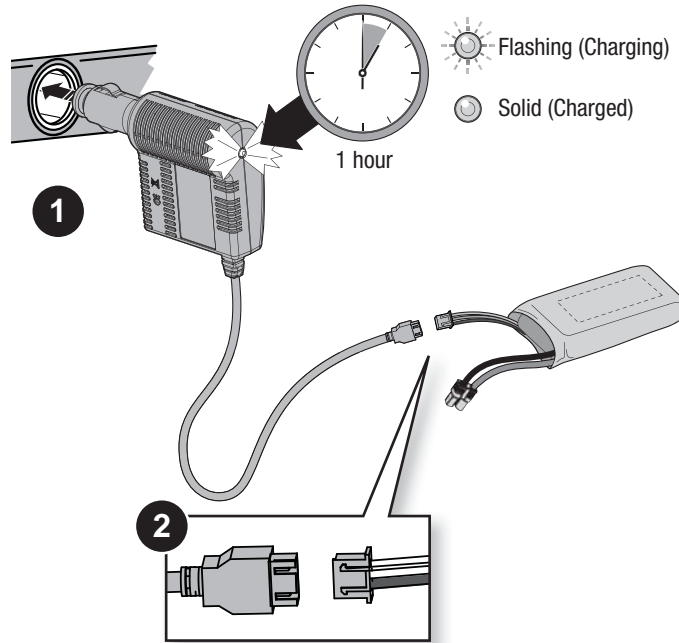
RTF READY-TO-FLY Transmitter

Installing the Transmitter Batteries

Your Spektrum DX4e comes pre bound to the aircraft.

Remove the battery cover, install the four included batteries (noting proper polarity) and reinstall the battery cover.

Low Battery Alarm
When the battery voltage drops below 4.7 volts, an alarm sounds and the voltage LEDs flash. The batteries must be replaced immediately. If this happens while flying, land your aircraft as soon and as safely as possible.

⚠ **CAUTION:** If using rechargeable batteries, charge only rechargeable batteries. Charging non-rechargeable batteries may cause the batteries to burst, resulting in injury to persons and/or damage to property.

⚠ **WARNING:** Do not pick up the transmitter by the antenna. Do not alter or put weight on the antenna. Damage to antenna parts can decrease transmitter signal strength, which can result in loss of model control, injury or property damage.

*(HP)= Holding Pattern
*(AL) = AutoLand
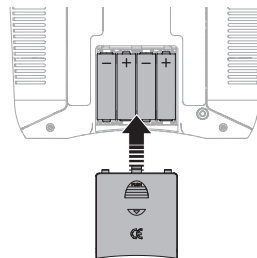
For more information on the transmitter, go to www.horizonhobby.com/products/SPMR4400 and click on the support tab for the Spektrum DX4e to download the instruction manual.

Mode 2 shown

SAFE Plus Mode Switch

Bind/HP*/AL* Button

Throttle Trim

Throttle/Rudder

Rudder Trim

Hi / Low Rate Switch

Elevator Trim

Elevator/ Aileron

Aileron Trim

Power Switch

BNF Transmitter Setup

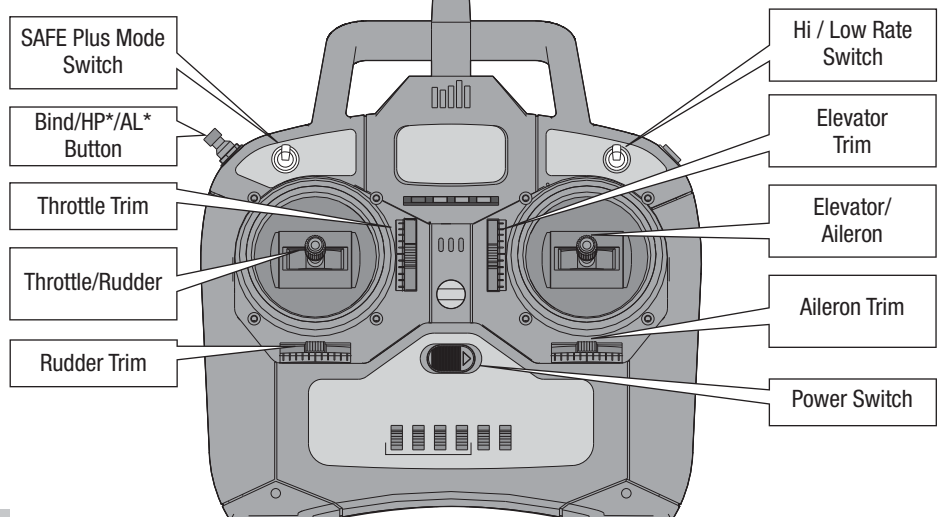**IMPORTANT:** The included receiver has been programmed for operation specifically in this aircraft. The programming in this receiver cannot be changed by the user.

To operate the SAFE Plus system in this aircraft, set up your optional DSM2/DSMX transmitter using the chart below.

- SAFE Plus Flight modes are selected using Channel 5 signal (high, middle, low)

IMPORTANT: A transmitter with a 2-position Channel 5 switch will only allow the use of position 0 or position 2 flight modes. If possible (refer to your transmitter manual), assign Channel 5 in your transmitter to a 3-position switch to operate all 3 flight modes.

Refer to your transmitter's manual for more information about transmitter setup.

Non Computerized Transmitter Setup (DX5e)		
Transmitter	**SAFE Plus mode switch**	**SAFE Plus Flight Modes Supported**
Throttle, Aileron, Elevator and Rudder in Normal Position		
DX5e (2pos switch)	CH 5 switch	2 Pos Flight Mode
DX5e (3pos switch)	CH 5 switch	3 Pos Flight Mode

Computerized Transmitter Setup (DX6i, DX6,DX7, DX7S, DX8, DX9, DX10t and DX18)		
Start all transmitter programming with a blank model (do a model reset), then name the model.		
Set Elevator, Aileron, and Rudder Rates to:	HIGH 100%	
	LOW 70%	
DX6 DX7 DX9 DX18	1. Go to the SYSTEM SETUP	
	2. Set MODEL TYPE: AIRPLANE	
	3. Go to CHANNEL ASSIGN: click NEXT to go to Channel Input Config: GEAR: B, AUX1: i	
	4. Go to the FUNCTION LIST	
	5. Go to SERVO SETUP: Reverse AUX1	
	Resulting in:	**Switch B** operates the 3 SAFE Plus modes (0 beginner/1 intermediate/2 experienced) **Button I** commands Traffic Pattern/Autoland when pressed

Hi/Low Rate Switch (Dual Rates)

The included DSM2/DSMX full range transmitter features dual rates to allow you to select the amount of travel that you want from the control surfaces.

Dual Rate	High Rate	Low Rate
Aileron	100%	70%
Elevator	100%	70%
Rudder	100%	70%

Transmitter and Receiver Binding

IMPORTANT: The included receiver has been programmed for operation only in this aircraft.

RTF
READY-TO-FLY

The included RTF transmitter should be bound to the aircraft at the factory, but if you need to re-bind, follow the binding procedure as shown.

BNF

You need to 'bind' your chosen Spektrum™ DSM2®/DSMX® technology equipped aircraft transmitter to the receiver for proper operation. Please refer to the optional parts list in this manual or visit www.bindnfly.com for a list of compatible transmitters.

Refer to your transmitter instructions for binding to a receiver.

Please visit www.bindnfly.com for a complete list of compatible transmitters.

* The throttle will not arm if the transmitter's throttle control is not put at the lowest position. If you encounter problems, follow the binding instructions and refer to the transmitter troubleshooting guide for other instructions. If needed, contact the appropriate Horizon Product Support office.

| ✓	Binding Procedure Reference Table	
1.	Make sure the transmitter is powered off.	
2.	Make sure the transmitter controls are neutral, the throttle and throttle trim are in the low position and the aircraft is immobile.	**BIND PLUG**
3.	Install a bind plug in the receiver bind port.	
4.	Connect the flight battery to the ESC. The ESC will produce a series of sounds. One long tone, then three short tones confirm that the LVC is set for the ESC.	
5.	The receiver LED will begin to flash rapidly.	
6.	Power on the transmitter while holding the transmitter bind button or switch. Refer to your transmitter's manual for binding button or switch instructions.	
7.	When the receiver binds to the transmitter, the orange bind light on the receiver will turn solid and the ESC will produce ascending tones. The tones indicate the ESC is armed, provided the throttle stick and throttle trim are low enough to trigger arming.	
8.	Remove the bind plug from the bind port.	
9.	Safely store the bind plug (some owners attach the bind plug to their transmitter using two-part loops and clips).	
The receiver should retain the binding instructions received from the transmitter until another binding is done.		
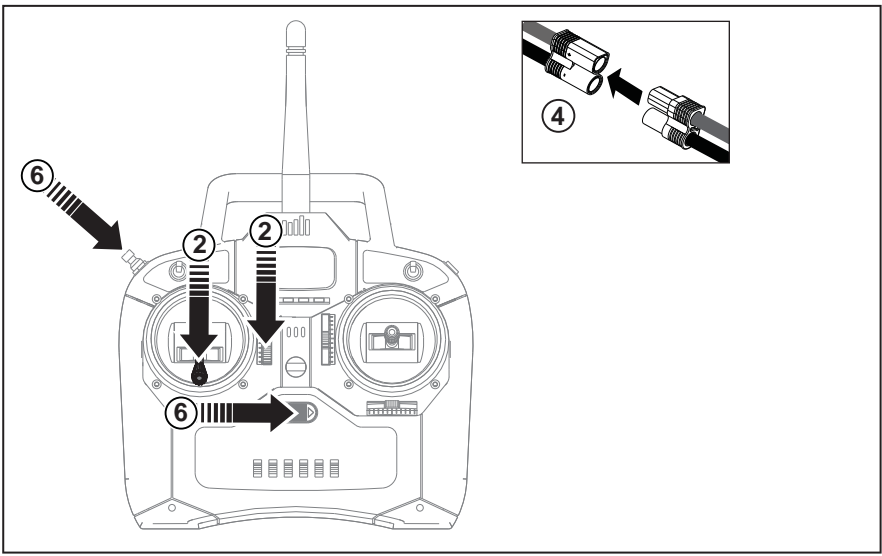
Assembly

Installing the Main Landing Gear

The nose gear is installed at the factory. Always ensure the steering linkage clevis on the rudder servo arm is correctly adjusted so the nose steers straight when the rudder control is at neutral.

1. Turn the model so you can see the bottom of the fuselage.

    - Install the left and right fairings (**A**) on the respective sides of the landing gear strut as shown.

    - Install the main landing gear by inserting the main gear strut (**B**) into the slot in the fuselage as shown.

2. Install the left and right plates (**C**) on the fuselage using 4 screws (**D**) as shown.

Disassemble in reverse order.
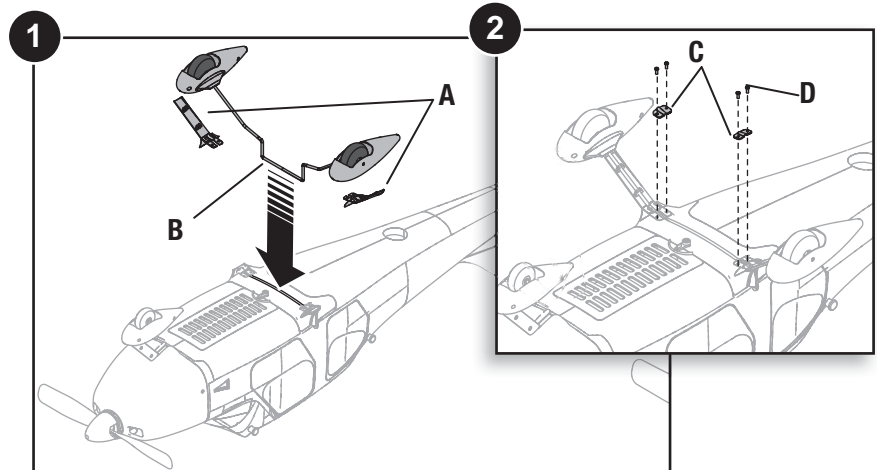
Installing the Tail

To install the tail onto the fuselage of your aircraft, start by following the 2 easy steps below:

1. Insert the tail into the slot on the fuselage. Center it by using the centering guides (**A**) located on the top side of the tail.

2. Once the tail is in place and centered, apply **4 pieces of tape** (included) to secure it into position, 2 on top and 2 on the bottom (**B**).
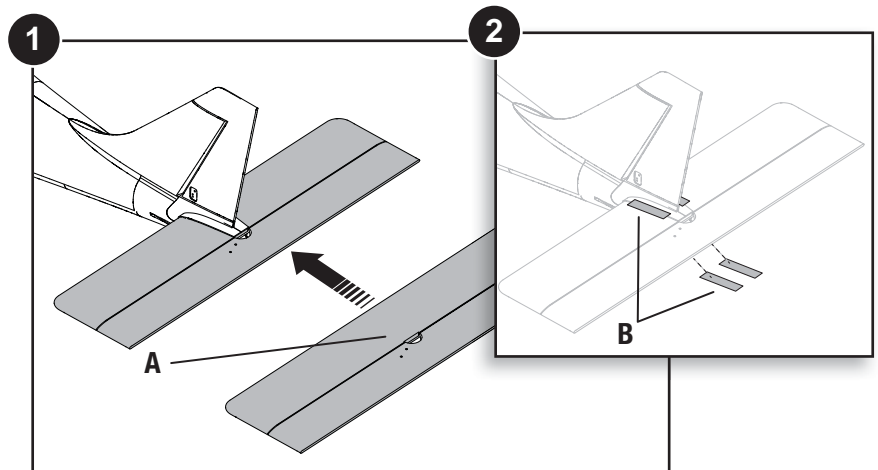
Attaching the Clevis to the Control Horn

Finish the installation of the tail by connecting the control rod with the clevis on the tail control horn under the elevator.

1. Open the clevis and put the pin in **the outermost hole (A)** of the control horn.

2. If needed, remove the clevis from the control horn.

    - Turn the clevis (as shown) on the control rod (also called a pushrod).
    - Close the clevis onto the control horn and slide the tube towards the horn to secure the clevis.
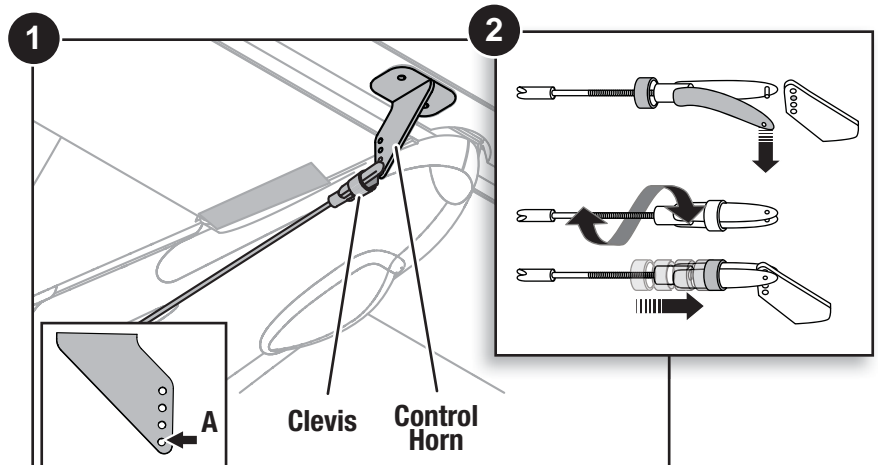
Installing the Wing

1. Connect the left and right struts (**A**) (marked L and R) to the respective sides of the wing (**B**) using the included screws (**C**). Leave the screws loose until the wing is installed on the fuselage and the ball ends are snapped into place.

   - Connect the aileron servo connectors to the included Y-harness (**D**) in the fuselage. The left and right servos can be connected to either side of the Y-harness. Ensure the Y-harness is connected to the AILE port of the receiver.

   - Install the wing on the fuselage.

   - Firmly press the strut sockets (**E**) onto the fuselage ball mounts (**F**) as shown.

   - Secure the struts to the wing using the screws (**C**).

⚠ **CAUTION:** DO NOT crush or otherwise damage the wiring when attaching the wing to the fuselage.

2. Install at least 3 rubber bands (**G**) on each front rod (6 total).

   - Install the rubber bands over the wing from a front rod to the rear rod on the opposite side of the fuselage as shown.

IMPORTANT: The rubber bands prevent wing damage from impact. Always replace worn or broken rubber bands.

Disassemble in reverse order.

Tip: Use a twisting motion to remove the strut socket from the fuselage ball mount.
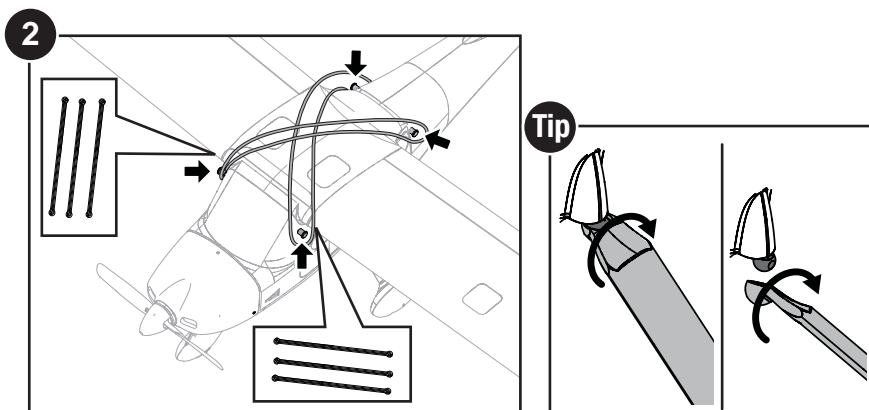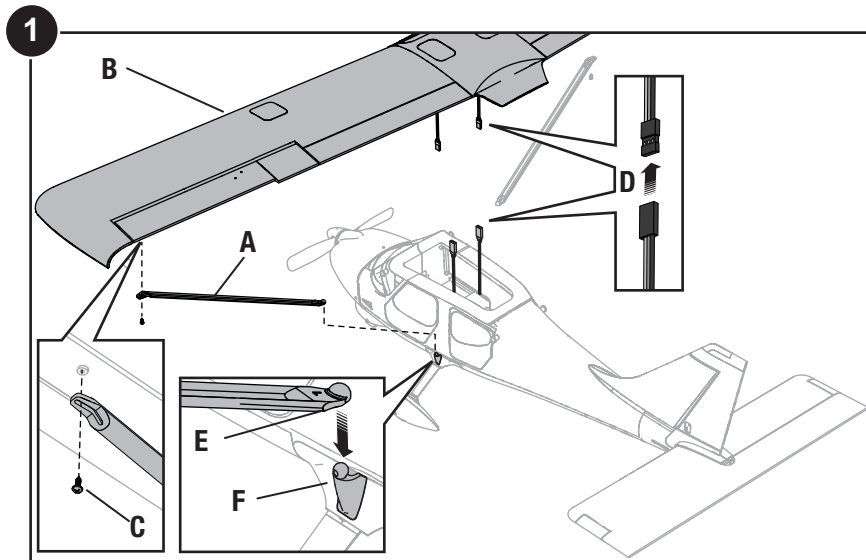
Control Surface Centering

For best performance when using SAFE Plus technology, it is important that excessive trim is not used. If the model requires excessive transmitter trim (4 or more clicks of trim per channel), return the transmitter trim to zero and adjust the linkages mechanically so that the control surfaces are in the flight trimmed position.

Before the first flights, or in the event of an accident, make sure the control surfaces (Rudder, Elevator and Ailerons) are centered (aligned) with the rest of the surface. If the control surfaces are not centered, centering can be achieved by following the steps below:

The aircraft needs to be in experienced mode before centering the control surfaces.

1. Ensure all trims are neutral.

2. Disconnect the clevis from the control horn and turn it either clockwise or counterclockwise to lengthen or shorten the linkage (see "Attaching the Clevis to the Control Horn", step 2).

Tip: Ensure the clevis is attached to the correct hole in the control horn (see the "Factory Settings for the Control Horns and Servo Arms" section in this manual).

TIP: Always ensure the nose gear steering linkage on the rudder servo arm is correctly adjusted so the model steers straight when the rudder control is at neutral.
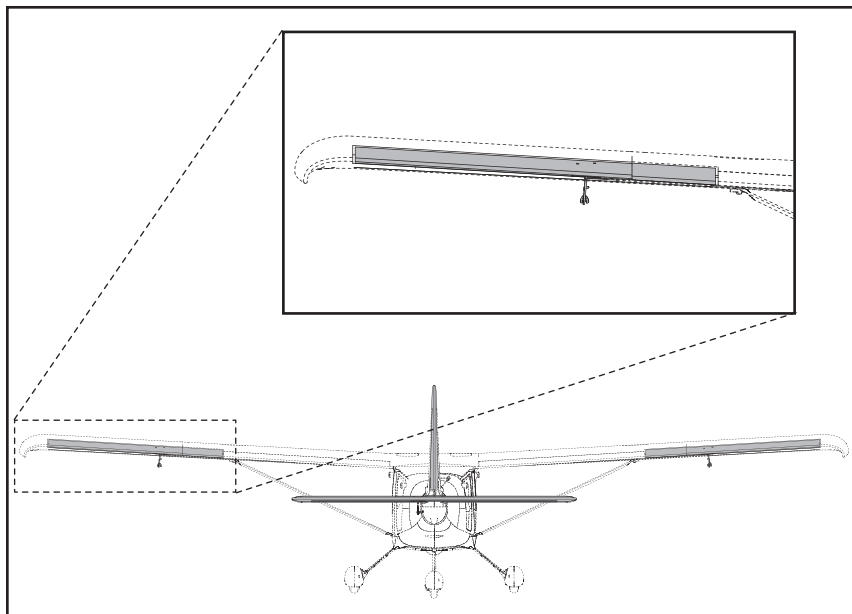
Optional Camera mount

The aircraft is included with a camera mount for the EFC™-721 720p HD Video Camera (EFLA801). Use the included double sided tape (**A**) to secure the bracket to the aircraft as shown.

E-flite® 720p HD video camera (EFLA801)
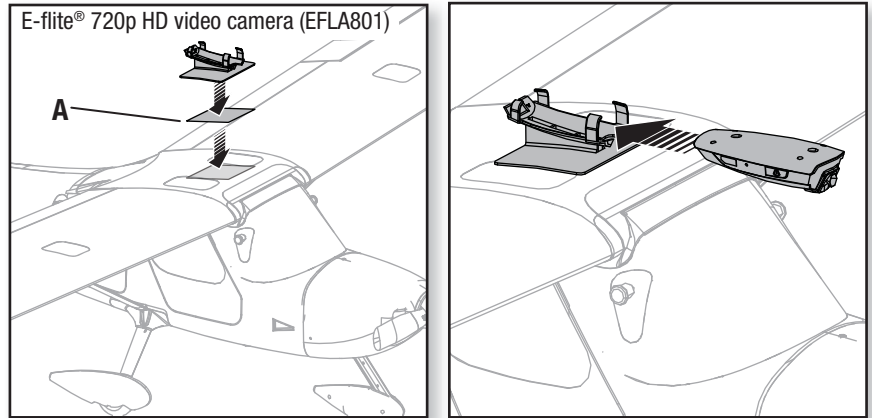
Center of Gravity (CG)

An aircraft with correct CG has its weight balanced on the center of the aircraft for safe, stable flight.

Verify the CG by supporting the aircraft 45mm (approximately 1.75 inches) back from the front edge of the wing, as shown.

Tip: Balance the aircraft on your fingertips near the fuselage under the wings.

- If the nose goes down, move the flight battery back until the aircraft balances.
- If the nose goes up, move the flight battery forward until the aircraft balances.

When flying with correct CG, the aircraft should climb gradually at full power and fly level at 50%–60% power with no elevator input.

When in intermediate and experience modes, if the aircraft CG is too far forward (nose heavy), up elevator is required to fly level at 50%–60% power. If the aircraft CG is too far aft (tail heavy), down elevator is required to fly level. In Beginner mode the aircraft is not effected. The SAFE Plus system controls the aircrafts attitude.

Adjust the battery position as needed.

45mm
1.75 inches back from the leading edge of the wing.
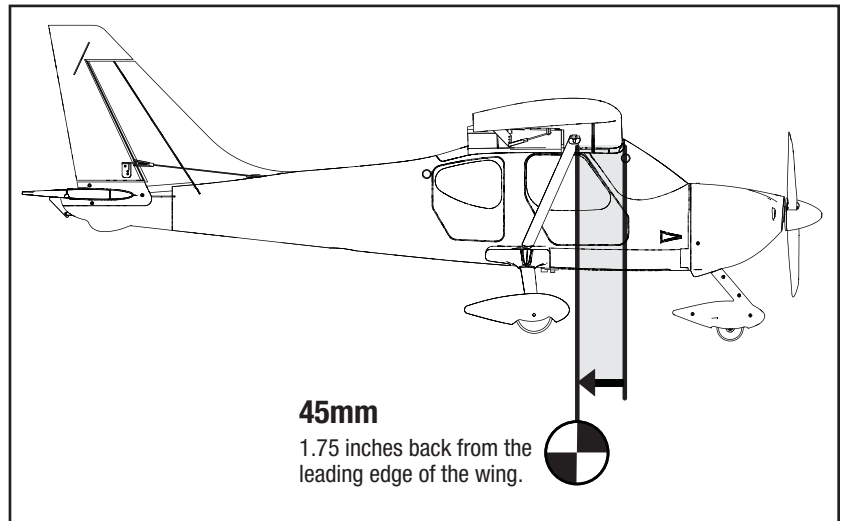
Factory Settings for the Control Horns and Servo Arms

The Illustration shows recommended hole settings in the servo arms and control horns.

	Elevator	Ailerons	Rudder
Arms			Nose Gear
Horns			

Installing the Flight Battery and Initializing GPS and Electronic Speed Control (ESC)

1. Place the aircraft upside down on a flat surface and turn the latch (**A**) to remove the battery hatch.

2. Lower the throttle and throttle trim, then power on the transmitter.

3. Center and secure the flight battery (**B**) in the battery compartment using the hook and loop strap (**C**) so that the aircraft has a balanced Center of Gravity (CG).

4. Connect the flight battery to the aircraft, re-install battery hatch and place aircraft upright on its landing gear at the desired landing touchdown point. **Keep immobile for 30+ seconds while it establishes GPS lock.**

IMPORTANT: Refer to Takeoff Procedure described later in this manual for further instructions about GPS Lock.

If you accidentally connect the battery while the throttle is fully opened, a musical tone will sound 5 seconds after GPS lock and the ESC will enter programming mode. Disconnect the battery immediately and go back to step 5.

⚠ **CAUTION:** Always disconnect the Li-Po flight battery from the aircraft receiver when not flying to avoid over-discharging the battery. Batteries discharged to a voltage lower than the lowest approved voltage may become damaged, resulting in loss of performance and potential fire when batteries are charged.

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

Battery Precautions for Flight

• Keep the aircraft close until you are familiar with the flight time.
• Do not fly to LVC (motors pulsing) repeatedly. This may result in battery damage.
• Always disconnect and remove the flight battery when finished flying.


1 **A**

2 (Mode 2 transmitter shown)

3 **C** **B**

4 Keep immobile and out of the wind for 30+ seconds
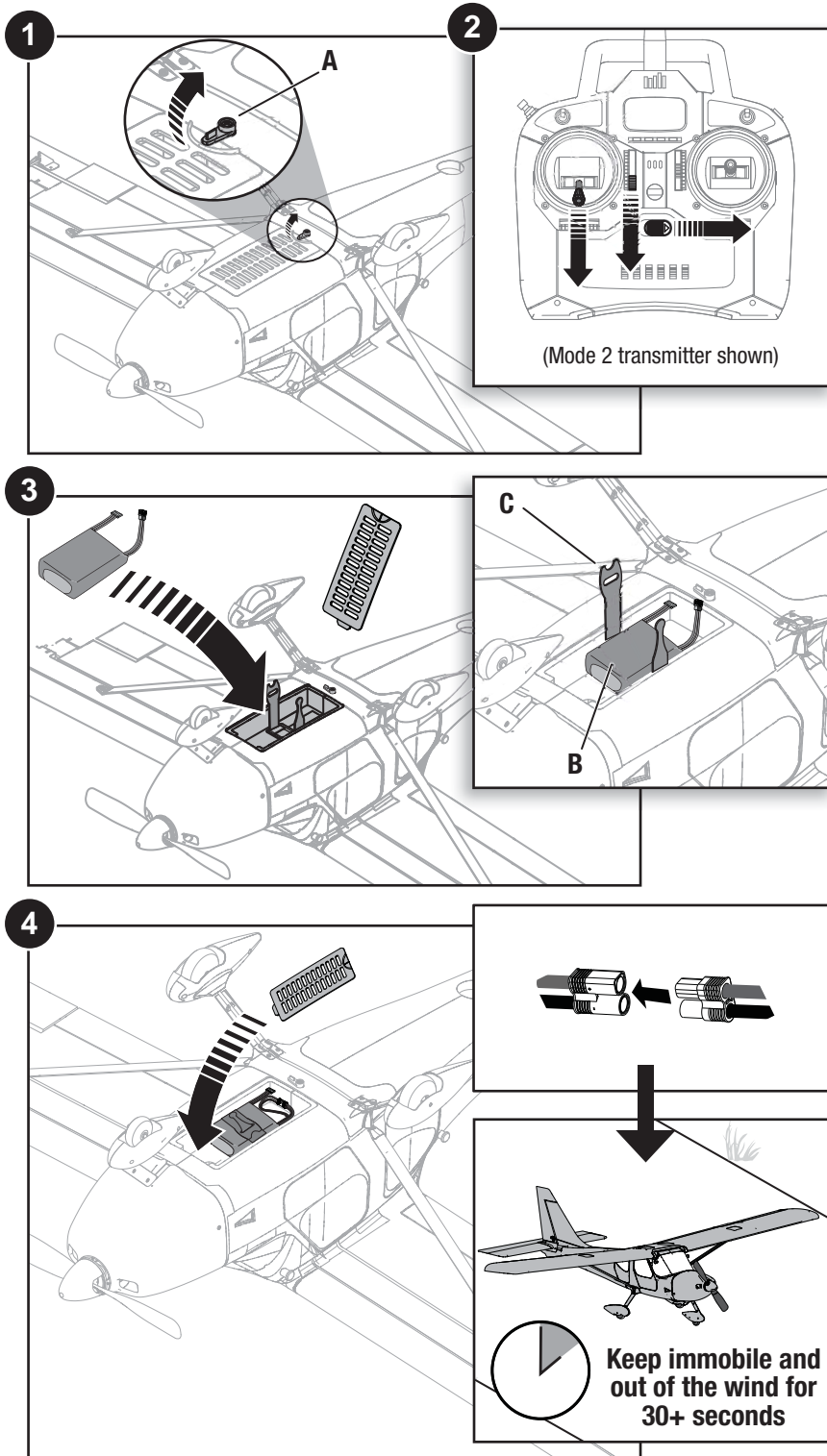
Control Direction Test

It is recommend that the control direction test is performed outdoors (so that the aircraft can establish GPS lock.), with the SAFE Plus flight mode switch set to **Experienced mode** (position 2).

To perform a control direction test indoors disable GPS as shown in the Deactivating GPS section found later in this manual before performing control direction test.

SAFE+
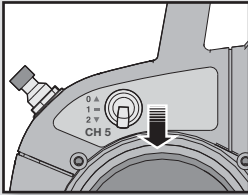
Experienced Mode

Keep the throttle at zero, and place the model on level ground away from obstacles.

Move the sticks on the transmitter* to ensure the aircraft responds as shown.

If your model does not respond as shown, DO NOT FLY! Refer to the Troubleshooting Guide in this manual for more information. If you need more assistance, contact the appropriate Horizon Hobby Product Support department.

If the aircraft responds as shown, move the SAFE Plus flight mode switch to **Beginner mode** (position 0) to prepare to fly.

SAFE+
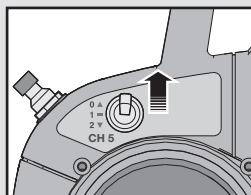
Beginner Mode

* Mode 2 transmitter shown. For Mode 1, Elevator control is on the LEFT stick and Throttle control is on the RIGHT stick.

Up Elevator (climb)

Down Elevator (descend)

Rudder Right

Rudder Left

Ailerons Right

Ailerons Left
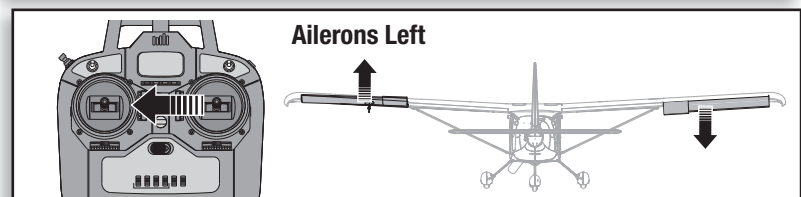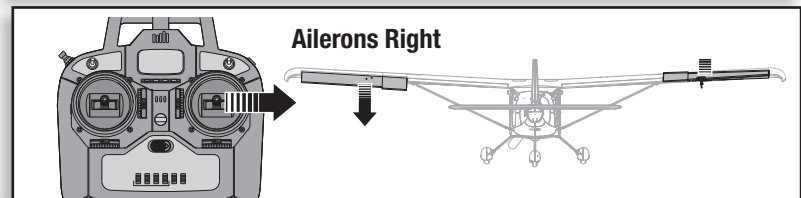
Flight Control

For smooth control of your aircraft, always make small corrections. All directions are described as if you were sitting in the aircraft.

When the aircraft's nose is pointing toward you, left aileron will bank and turn the aircraft left (your right while holding the transmitter).

- *Flying faster or slower:* When your aircraft is stable in the air, push the throttle stick up to make the aircraft go faster. Pull the throttle stick back to slow down. The aircraft will climb when the throttle is increased.
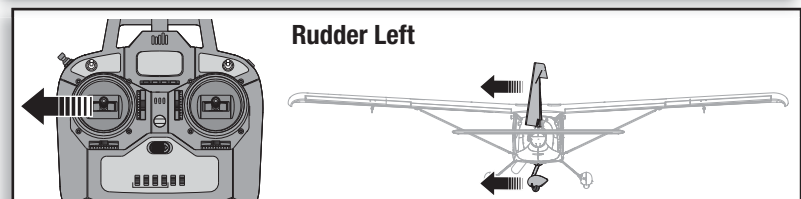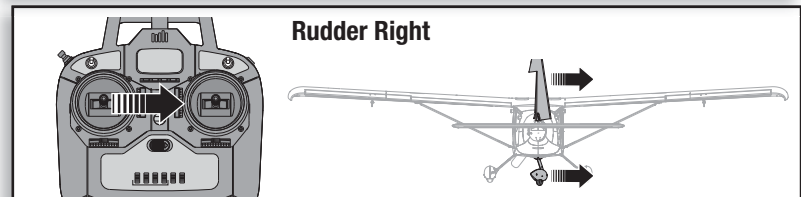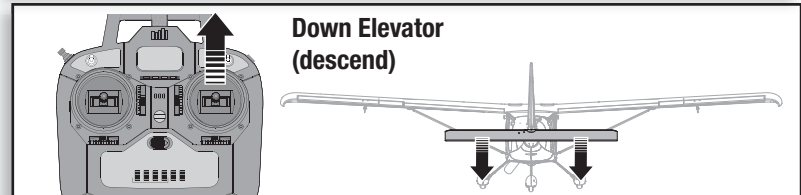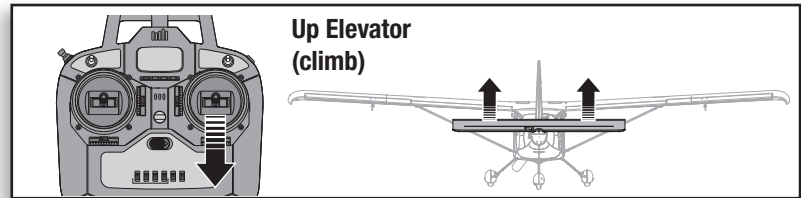- *Elevator up and down:* Push the elevator stick forward to make the aircraft go down. Pull the elevator stick back to go up.
- *Banking right and left:* Move the aileron stick right to make the aircraft turn or "bank" to the right. Move the aileron stick left to bank left.
- *Rudder left and right:* Push the rudder stick left or right to steer the aircraft while on the ground. In the air, aileron is used for turning left or right.

For first flights, set the flight mode switch to Beginner Mode (position 0).

IMPORTANT: Even though SAFE Plus technology is a very helpful tool, the aircraft still needs to be flown manually. If incorrect input is given at lower altitudes or at slower speeds, the aircraft can crash.

| Transmitter command		Aircraft Reaction
Mode 1	Mode 2	
Elevator	**Up Elevator Command**	
	Down Elevator Command	
Aileron	**Stick Right**	
	Stick Left	
Rudder	**Stick Right**	
	Stick Left	

Trimming the Aircraft

Manually Adjusting Trim

It is recommend that the SAFE Plus flight mode switch is set to **Experienced mode** (position 2) before manually adjusting trim.

Perform manual adjustment of trim before increasing the throttle above 25% or the control surfaces will move when the aircraft is moved.

Return any trim setting on the transmitter to neutral by pushing the trim slider to the middle position, then adjusting the clevis on that control surface to position it the same as it was with the trim slider offset.
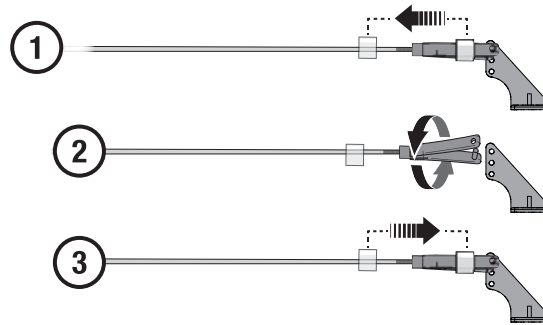
1. Remove the clevis from the control horn.
2. Turn the clevis (as shown) to lengthen or shorten the pushrod.
3. Close the clevis onto the control horn and slide the tube towards the horn to secure the clevis.

- -

Adjusting Trim in flight

If your aircraft does not fly straight and level at half throttle with the steering stick at center, fly into the wind and move the trim sliders.

	Aircraft drift	Required Trim
Elevator		

	Aircraft drift	Required Trim			Aircraft drift	Required Trim
Rudder				**Ailerons**		

Choose a Flying Field

In order to have the most success and to protect your property and aircraft, it is very important to select a place to fly that is very open. Consult local laws and ordinances before choosing a location to fly your aircraft.

The site should:
- Have a minimum of approximately 1300 feet (400m) of clear space in all directions.
- Stay clear of pedestrians.
- Stay free of trees, buildings, cars, power lines or any-thing that could entangle your aircraft or interfere with your line of sight.

Remember, your aircraft can reach significant speeds when flying and can cover ground quickly. Plan on flying in an area that gives you more space than you think you need, especially with first flights.

1300feet (400 m)

Wind 0–12 mph (0–19km/h)

Stand here

Fly in this area (upwind of pilot)
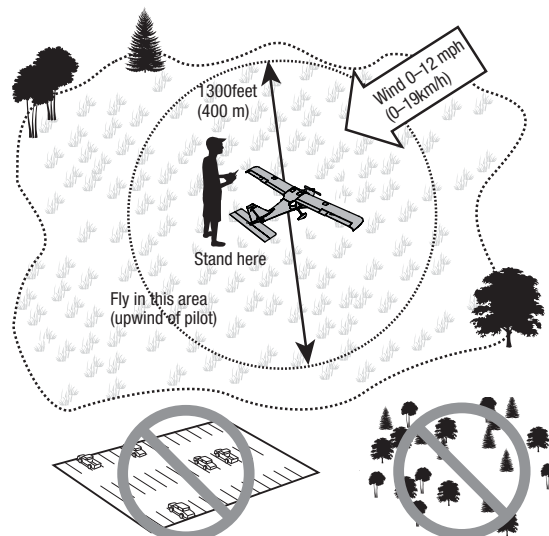
Range Test

Before each flying session, and especially with a new model, you should perform a range check. The DX4e incorporates a range testing system. Placing the transmitter in RANGE CHECK mode reduces the output power, allowing a range check.

1. Power on the transmitter for 5 seconds or more with the throttle stick and trim low. Plug in the aircraft battery and keep the aircraft immobile for 5 seconds.

2. Face the model with the transmitter in your normal flying position. **Push and hold the BIND/HP/AL button while toggling the HI/LO Rate switch four times.** The LEDs will flash and the alarm will sound. The system is in range check mode.

IMPORTANT: You must hold the BIND/HP/AL button during the entire range check process. Releasing the button will exit the range check mode.

3. With the system powered on and the model restrained on the ground*, stand 28 meters (90 feet) away from the model.

⚠ **CAUTION:** In some aircraft, when the model is placed on the ground, the antenna(s) can be within inches of the ground. Close proximity of the antenna(s) to the ground can reduce the effectiveness of the range check. If you experience issues during the range check, restrain the model on a non-conductive stand or table up to 2ft (60cm) above the ground, then range check the system again.

4. Move the transmitter rudder, elevator, aileron and throttle controls to ensure they operate smoothly at 28 meters (90 feet).

5. If control issues exist, do not attempt to fly. Refer to the contact table at the end of the this manual to contact Horizon Hobby product support. Also, see the Spektrum website for more information.

Keep immobile and out of the wind for 5 seconds

28 meters (90 feet)
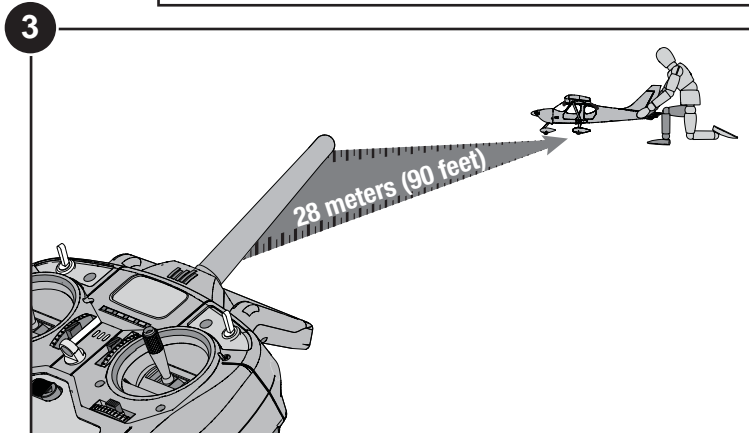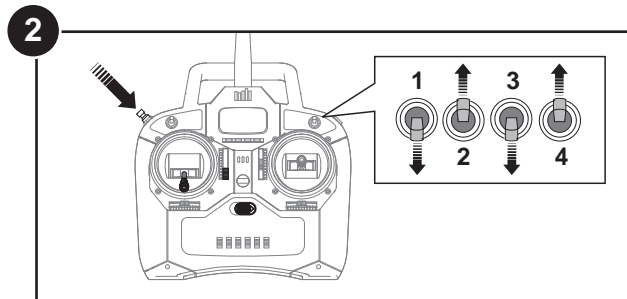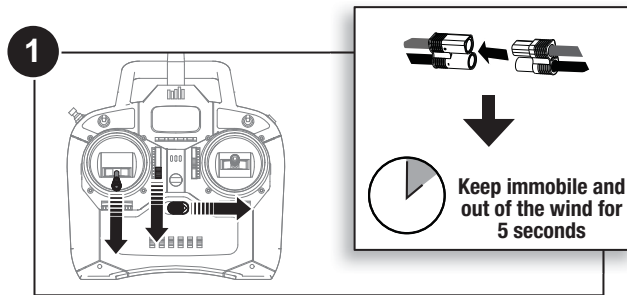
⚠ **CAUTION:** While holding the aircraft during the Range Test, always keep body parts and loose items away from the propeller. Failure to do so could cause personal injury.

IMPORTANT: Before first flight perform the Compass Calibration Procedure.

Preflight Checklist	✓
1. Find a safe and open area.	
2. Charge flight battery.	
3. Install fully charged flight battery in aircraft.	
4. Make sure linkages move freely.	
5. Perform Control Direction Test.	
6. Perform SAFE Plus Control Direction Test.	
7. Perform a Range Check	
8. Plan flight for flying field conditions.	
9. Set a flight timer for 8-10 Min.	
10. Have fun!	

Flying

## SAFE⊕ Technology Flight Modes

Beginner Mode:

- Below approx. 33 feet (10m), pitch (nose up and down) and roll (wing tips up and down) angles are limited to help you keep the aircraft airborne.

- Above approx. 33 feet (10m), pitch and roll control are increased slightly.

- At any time release both sticks to activate Panic Recovery mode for self-leveling.
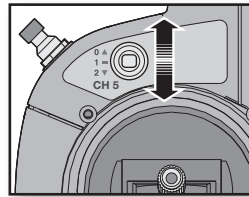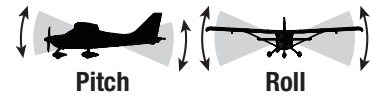
Intermediate Mode:

- Same as beginner mode, with greater pitch control above approx. 33 feet (10m). Above 33 feet (10m) no self leveling is present.

- Below 33 feet, self-leveling is present.
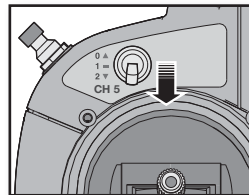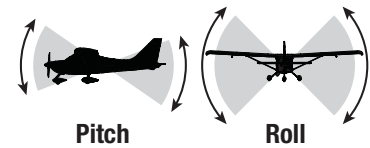
Experienced Mode:

- Unlimited Flight Envelope.

- At any time switch to beginner mode and release the control sticks for self-leveling.

Pitch   **Roll**

Beginner Mode
(Switch Position 0)

Pitch   **Roll**
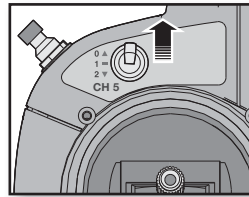
Intermediate Mode
(Switch Position 1)

Pitch   **Roll**

Experienced Mode
(Switch Position 2)
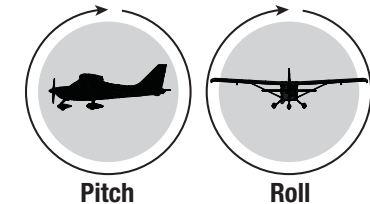
NOTICE: If the aircraft is upside down when the self leveling is applied, sufficient altitude is required for the aircraft to return to straight and level flight.

Important: If at any time you experience no throttle response after power up and the ailerons are deflected full right, the aircraft is indicating a compass error. Disconnect flight battery and perform the compass calibration procedure

Compass Calibration Procedure

For best performance, compass calibration should be performed before first flight and whenever the aircraft is flown at a new location.

1. Power on receiver and set the model on the ground on its wheels.

2. With the transmitter trims centered, power ON the transmitter while holding the transmitter sticks as show until the ESC sounds to enter compass calibration mode.

3. **Wings on:** The ESC will sound and the ailerons will move up and down continuously, indicating that compass calibration is activated.
   Wings off: The visible blue and red LEDs on the receiver will flash alternately indicating that compass calibration is activated.
   Once in calibration mode, the throttle is not active and the transmitter sticks can be released. The transmitter must remain powered on.

4. In calibration mode, rotate the plane once for each position shown in the illustration.

5. Set the model back on the ground on it its wheels, then wait 3 seconds and turn off the transmitter.

6. Wait 3 seconds, then disconnect the flight battery.
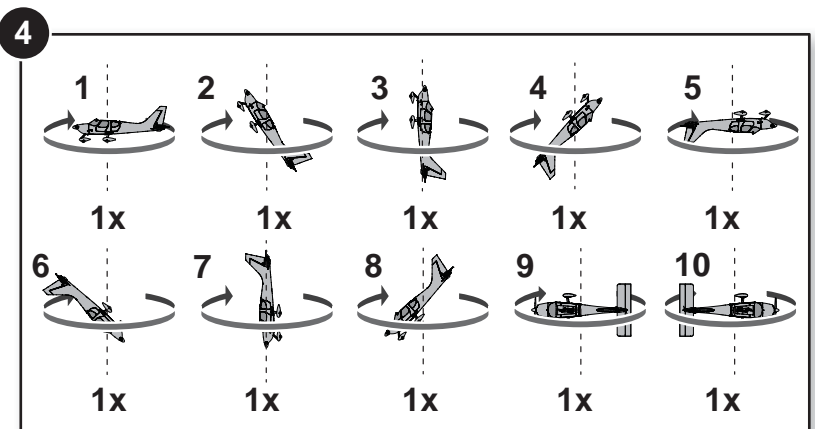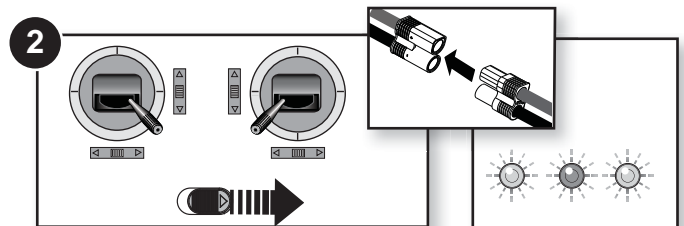
For further information regarding compass calibration, view the video on the Sportsman S+ product page at horizonhobby.com

Takeoff procedure/Initiating GPS lock

We recommend starting your aircraft is in beginner mode and taking off from the ground for your first few flights.

Locate a flying area free of obstacles (trees, buildings, etc.) with a radius of approximately 650 feet (200m).

Notice: Virtual Fence is present in all flight modes.

Virtual Fence: Park (default)
VF Park uses GPS to establish an approximately 650 ft (200m) flying radius for the aircraft. The aircraft will avoid flying outside this boundary.
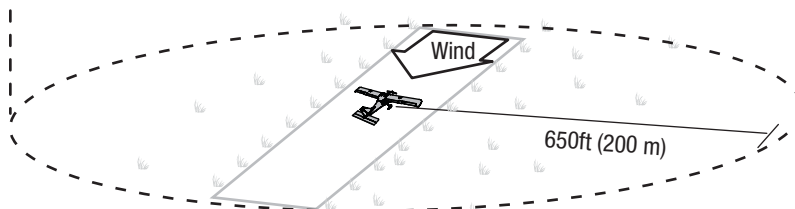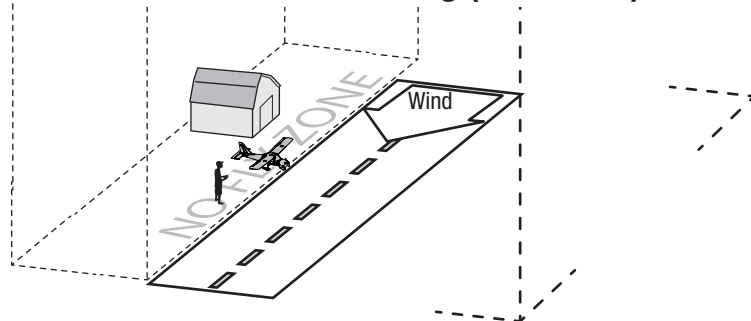
1. Power on the aircraft and place the aircraft on its landing gear in the center of this flying area facing into the wind. Allow several seconds for the aircraft's VF Park feature to establish GPS lock. When finished, the aircraft will sound several ascending tones.

2. With the aircraft facing **into the wind**, securely hold the aircraft and throttle up to 100%, then back down to 0%. 90% throttle sets the heading/takeoff/landing direction for the aircraft, which will be used by the aircraft for the AutoLand feature.

3. Once the takeoff/landing direction has been set for the aircraft, slowly advance the throttle to 100% and takeoff.

Virtual Fence: Airfield
Like VF Park, VF Airfield uses GPS to establish an approximately 1300 x 650 ft (400 x 200m) flying perimeter with no ceiling for the aircraft, with the added feature of a "No Fly Zone". Flight over the "No Fly Zone" (pit area or behind the pilot) will be avoided by the aircraft.

1. Place the aircraft on its landing gear on the edge of the runway perpendicular to the runway center line **(see illustration A)**.

2. Power on the aircraft and allow several seconds for the aircraft's VF Airfield feature to establish GPS lock for the edge of the No Fly Zone. When finished, the aircraft will sound several ascending tones.

3. Position the aircraft to the center of the runway **facing into the wind** (see illustration B). If taxing the aircraft to the center point of the runway, **DO NOT raise the throttle above 90%.**

4. Once the aircraft is centered on the runway, advance the throttle to 100% and takeoff. 90% throttle sets the heading/takeoff/landing direction for the aircraft, which will be used by the aircraft for the AutoLand feature. (see illustration B)

Activating VF Airfield
The factory default setting for the aircraft is VF Park. To change to the VF Airfield option, power up the aircraft while holding the transmitter sticks as shown in the illustration to the right.

VF Airfield remains active until it is manually deactivated, switching the aircraft back to VF Park.

Virtual Fence: Park Setting (VF Park) (Default)

Wind

650ft (200 m)

Virtual Fence: Airfield Setting (VF Airfield)

Wind

NO FLY ZONE

A NO FLY ZONE

B Wind

NO FLY ZONE

Activate VF Airfield
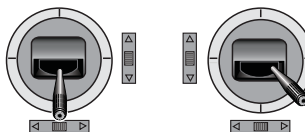
Deactivate VF Airfield
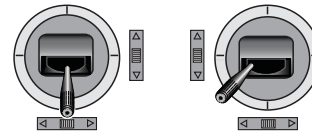
Mode 2 transmitter shown

Takeoff

Ensure that the aircraft is in Beginner Mode (Switch Position 0) for your first flights.

Ground Launch

Once you have finished step four from the Takeoff Procedure section, use the following illustration.

Ensure the aircraft is launched into the wind to when the throttle is advanced above 90% for the first time to properly set the systems landing heading.

IMPORTANT: Set a flight timer for approximately 8–10 minutes. The included battery (when fully charged) has been designed to provide this range of flight time.

Wind 0–12 mph (0–19km/h)

Slowly advance the throttle stick. No additional stick inputs required.

30 ft (10 m)
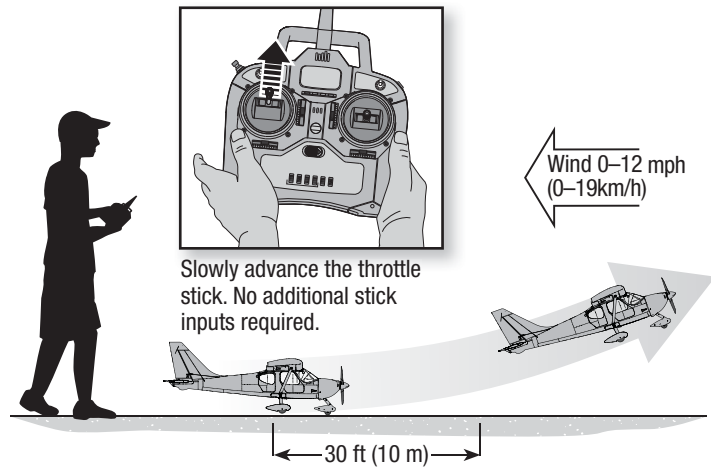
Hand Launch

Once you have finished step four from the Takeoff procedure section, use the following steps.

Ensure the aircraft is launched into the wind to when the throttle is advanced above 90% for the first time to properly set the systems landing heading.

1. Steadily grip the aircraft under the fuselage, behind the rear landing gear.

2. Slowly advance the throttle to 100%.

3. Throw the aircraft slightly nose up and directly into the wind.

Wind 0–12 mph (0–19km/h)

Slowly advance the throttle. No additional stick inputs are required.
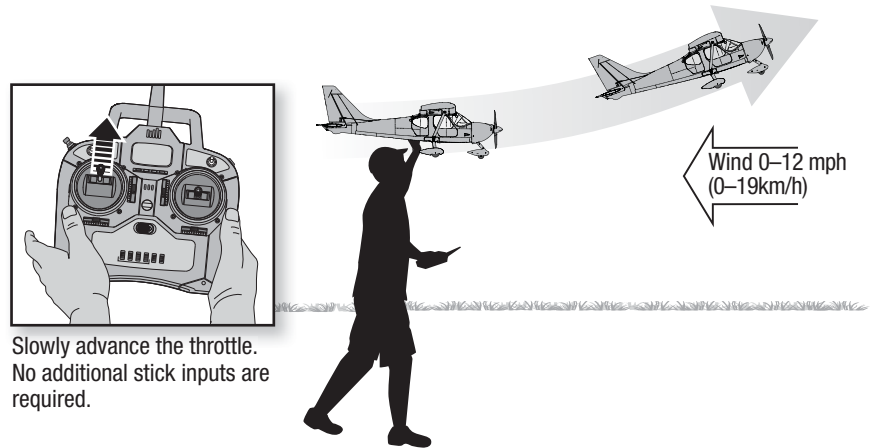
In flight

⚠ **CAUTION:** Keep aircraft away from magnetic sources such as cameras, camera mounts, speakers ect. These may interfere with the GPS system and loss of control may result.

1. Let the aircraft climb at full throttle, into the wind, until the aircraft gets about 300 feet (91m) above the ground, then decrease the throttle to half (50%).

2. Make small and gentle stick movements to see how the aircraft responds.

When properly trimmed, your aircraft's wing design causes a climb at full throttle without use of elevator.

Full throttle   **50% throttle**   **Reduced throttle**

Flying with the nose pointed toward you is one of the hardest things to do when learning to fly. Practice flying in large circles high off the ground.

If you lose orientation of the aircraft, release both sticks and the aircraft will return to level flight. If in Intermediate or Experienced Mode, switch to Beginner Mode and then release both sticks.

In flight *continued*

Deactivating GPS in Flight

If at anytime you experience the GPS system malfunctioning while in flight, deactivate it to regain full manual control.

Deactivate the GPS in flight by holding the HP/AL button down for at least 3 seconds, then remain holding the HP/AL button while toggling the mode switch at least 5 times from position 0 to 2 and back , as shown.

Once the GPS has been deactivated the aircraft will be in full manual control in SAFE mode. We recommend flipping back to Beginner mode once GPS is deactivated. The GPS system will remain off until the aircraft is landed and the flight battery is unplugged and reconnected.
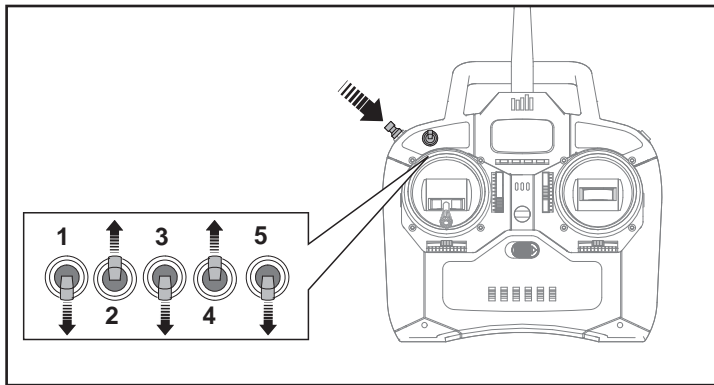
Holding Pattern (HP) Feature

If at anytime the aircraft seems too far away, press and release the HP/AL button on the transmitter.

The aircraft will maneuver to an altitude of approximately 120 feet (36m) and begin to fly a circular pattern at half throttle at the center point of the takeoff center line.

When the aircraft is in HP, it flies fully autonomously. The transmitter sticks have no control.

NOTICE: As a safety precaution, the Holding Pattern feature will not function when your aircraft is below an altitude of aprox. 20ft (6m).

To deactivate HP and regain control, press and release the HP/AL button again. Changing flight modes will also deactivate HP.

**GPS ?** **IMPORTANT**: When the HP feature is activated, the aircraft will immediately respond to the command. If your aircraft does not respond immediately, GPS signal may have been lost. Release both transmitter sticks and slowly reduce throttle to gently glide the aircraft to the ground.

If Virtual Fence: Airfield is activated in your aircraft, the aircraft will fly to approximately 120 feet (36m) and begin to fly a circular pattern at half throttle in front of the runway.
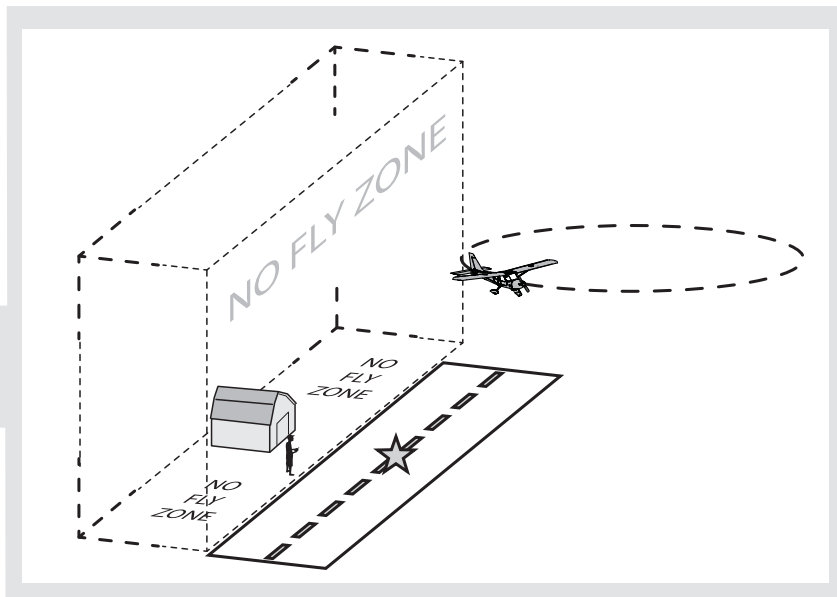
Failsafe

If at anytime the aircraft loses radio connection, the aircraft will activate HP until it re-establishes radio connection. If radio connection is not regained, the aircraft will land near the takeoff location.

Press and release to activate Return to home

NO FLY ZONE

Low Voltage Cutoff (LVC)

LVC is a mechanism built into your ESC to protect the battery from over-discharge. When the battery charge is too low, LVC limits power supplied to the motor. The aircraft will begin to slow and you will hear the motor pulse. When the motor power decreases, land the aircraft immediately and recharge the flight battery.

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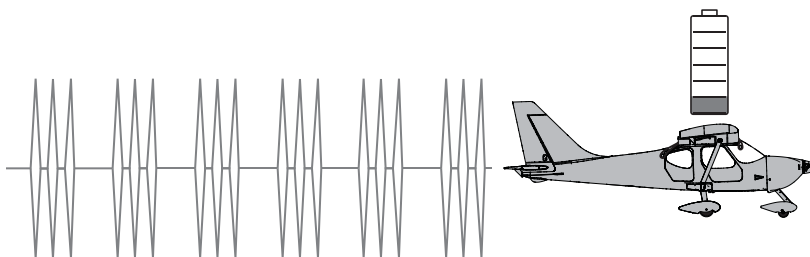
NOTICE: Repeated flying to LVC will damage the battery.

Landing

AutoLand feature
When you are finished flying or your flight timer has signaled, press and hold the HP/AL button on the transmitter for 3 seconds. The aircraft will instantly turn to align itself for an upwind approach.

Once activated the aircraft will maneuver to an altitude of approx. 65 ft (20m), approx. 490 ft (150m) downwind from the takeoff point. Then turn into the wind and begin the final landing approach. The aircraft will land into the wind near your takeoff point and come to a complete stop.

At anytime you can abort a landing by pressing and releasing the HP/AL button (changing flight modes will also abort a landing).

GPS ?
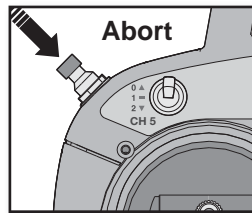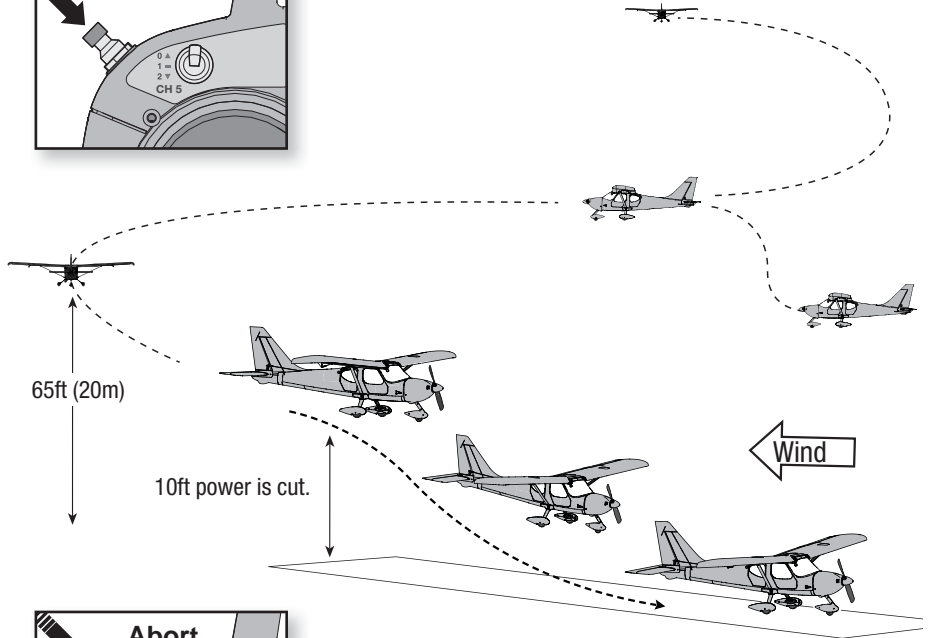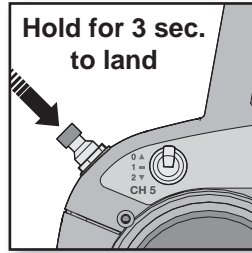
IMPORTANT: When the AutoLand feature is activated the aircraft will immediately respond to the command. If your aircraft does not respond immediately, GPS signal may have been lost. Release both transmitter sticks and slowly reduce throttle to gently glide the aircraft to the ground.

IMPORTANT: As a safety precaution, the AutoLand feature cannot initiate when your aircraft is below an altitude of aprox. 20ft (6m).

NOTICE: The AutoLand feature does not possess the ability to avoid obstacles. Ensure that your flying location is free of obstacles (trees, buildings, etc) before you start flying.

⚠ **CAUTION:** Never catch a flying aircraft in your hands. Doing so could cause personal injury and damage to the aircraft.

NOTICE: When finished flying, never keep the aircraft in the sun. Do not store the aircraft in a hot, enclosed area such as a car. Doing so can damage the foam.

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.

| Post Flight Checklist	✓
1. Disconnect flight battery from aircraft (Required for Safety)	
2. Remove flight battery from aircraft	
3. Power off transmitter	
4. Recharge flight battery	
5. Repair or replace all damaged parts	
6. Store flight battery apart from aircraft and monitor the battery charge	
7. Make note of flight conditions and flight plan results, planning for future flights	

Hold for 3 sec. to land

65ft (20m)

10ft power is cut.

Wind

Abort

⚠ **WARNING:** Always decrease throttle at propeller strike.
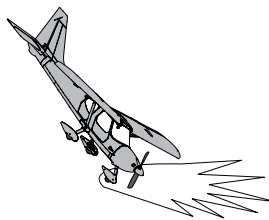
NOTICE: Crash damage is not covered under warranty.

Assisting the AutoLand feature
No stick inputs are required when AutoLand is activated. However, stick inputs can be used at anytime durring auto-land to avoid an obstacle or lengthen the landing.

Aileron stick
Use the aileron stick to steer left or right to avoid an obstacle or make slight heading adsjutments when on final approach. When aileron is given, the throttle will automatically advance slightly. Release the aileron stick and the system will take over full control.

Throttle stick
Use the throttle stick to set a throttle max point. When elevator stick input is given, the throttle will go to the max point.

Elevator stick
Up elevator – Allows the aircraft to stretch its approach by gaining altitude. When up elevator is applied the throttle increases to the throttle max point that you have established with the throttle stick.

Down elevator – Allows the aircraft to stretch its approach without gaining or losing altitude. When down elevator is applied the throttle increases to the throttle max point that you have established with the throttle stick without gaining or losing altitude.

Example: When landing into a headwind set the throttle stick to approximately 3/4 power. When the elevator stick is moved to extend the landing approach the power will only prgress to 3/4 power. Set to a higher throttle point in stronger wind or lower throttle point in low wind.

As soon as the right stick is centered the system will take over full control again.

Deactivating GPS

Out of the box the aircraft's GPS feature is activated. However, you may choose to deactivate the GPS system to perform a control direction test indoors or to simply enjoy the aircraft without GPS features.

IMPORTANT: When the GPS feature is deactivated, the aircraft's Holding Pattern, AutoLand and Virtual fence features will not function.

To deactivate the GPS system, ensure that your transmitter is bound the aircraft and powered on.

1. Remove the wing to have full visibility of the reciever.

2. Connect a flight battery and place aircraft straight and level on it landing gear.

3. When the recievers blue and red LEDs blink rapidly (indicating GPS initiation), hold full right aileron stick and quickly toggle the dual rate switch rapidly 4 times.

4. Within 3 seconds the red LED goes off and the blue LED will blink slow indicating GPS is OFF.

To reactivate the GPS feature simply disconnect and then reconnect power from the aircraft and the GPS sysetm will be active.

1

2

Keep immobile and out of the wind for 5 seconds

3

1 2 3 4
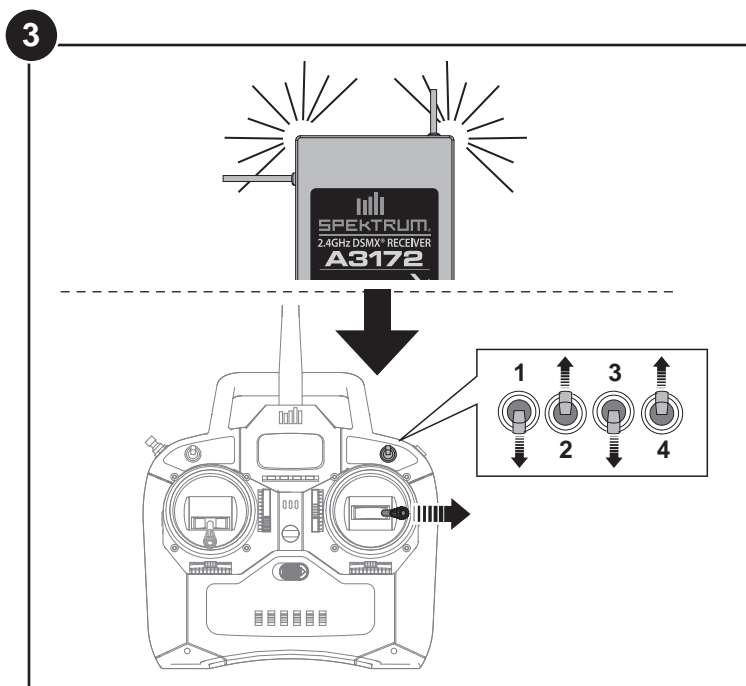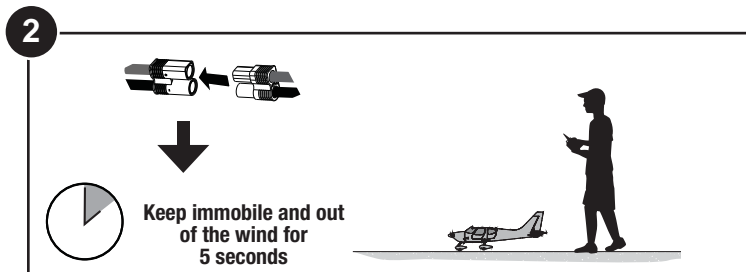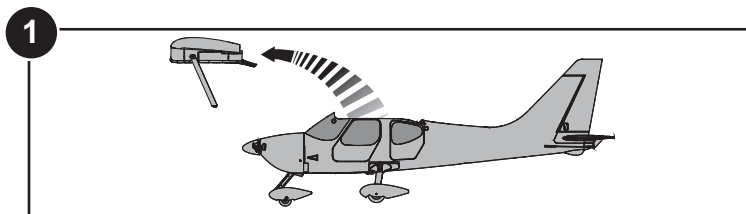
Service and Repairs

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

Thanks to the Z-Foam™ material in your aircraft, repairs to the foam can be made using virtually any adhesive (hot glue, regular CA [cyanoacrylate adhesive], epoxy, etc).

NOTICE: Crash damage is not covered under warranty.

When parts are not repairable, see the Replacement Parts List for ordering by item number.

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

GPS

GPS
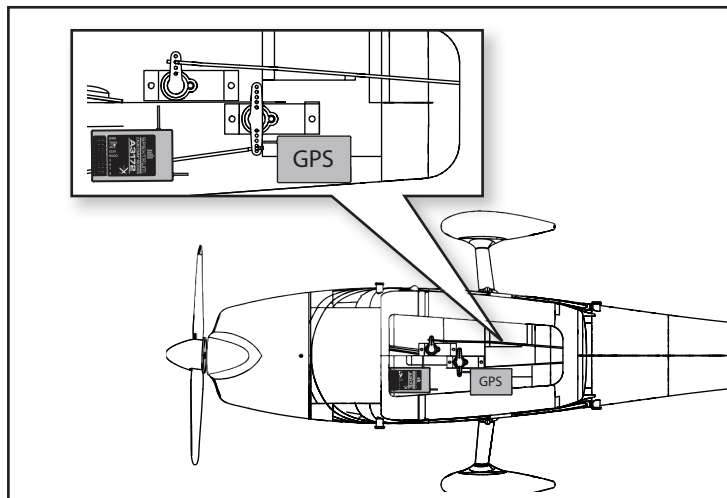
Service of Power Components

⚠ **CAUTION:** Always disconnect the flight battery from the model before removing the propeller.

Disassembly

1. Remove the screw (**A**) and the spinner (**B**) from the hex nut (**C**).

2. Remove the hex nut, propeller (**D**) and plate (**E**) from the collet (**F**). A tool may be required to remove the hex nut.

3. Carefully remove the 3 screws (**G**) and the cowling (**H**) from the fuselage. Paint may hold the cowling on the fuselage.

4. Remove the back plate (**I**) and the collet from the motor (**J**).

5. Remove the 4 screws (**K**) from the motor mount (**L**).

6. Disconnect the motor connectors from the ESC connectors.

7. Remove the 4 screws (**M**) and 4 washers (**N**) from the motor mount and motor.

8. Assemble in reverse order.

Assembly Tips

• Correctly align and connect the motor wire colors with the ESC wires.
• The propeller size numbers (9 x 6) must face out from the motor for correct propeller operation.
• A tool is required to tighten the hex nut on the collet.
• Ensure the spinner is fully connected to the spinner back plate for safe operation.
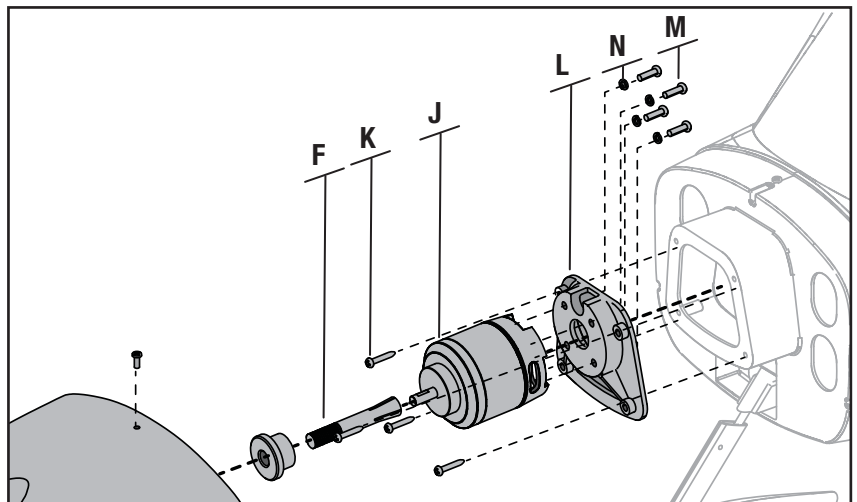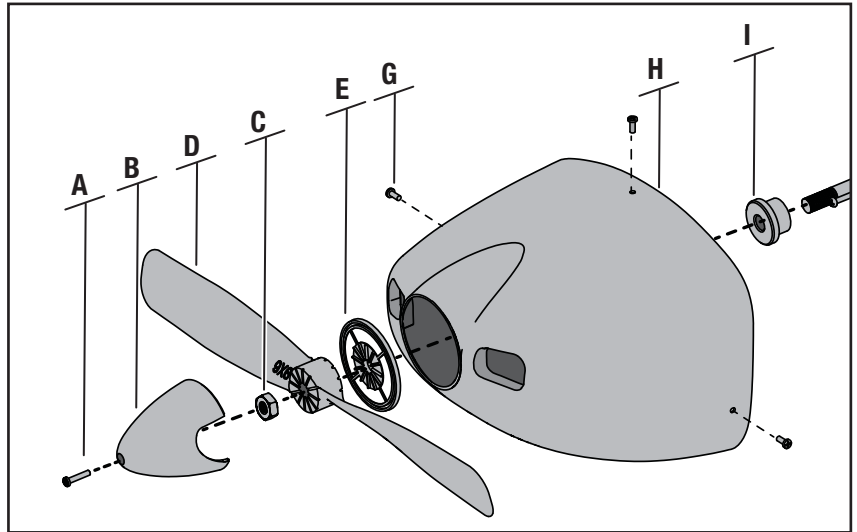
Nose Gear Service

1. Remove the spinner, propeller and cowling for access to the nose gear (as shown in the "Service of Power Components" section of this manual).

2. Loosen the nose gear screw (**A**) in the steering arm (**B**) and remove the strut (**C**). The steering arm may be loose in the steering mount (**D**) after the strut is removed, even if the servo linkage (**E**) is connected. For safe steering, ensure the linkage is kept in the same hole as it was delivered from the factory.

3. Assemble in reverse order. Install the strut with the flat spot facing forward. Fully tighten the nose gear screw against the flat surface of the nose gear strut.

Always ensure the steering linkage clevis on the rudder servo arm is correctly adjusted so the model steers straight when the rudder control is at neutral.
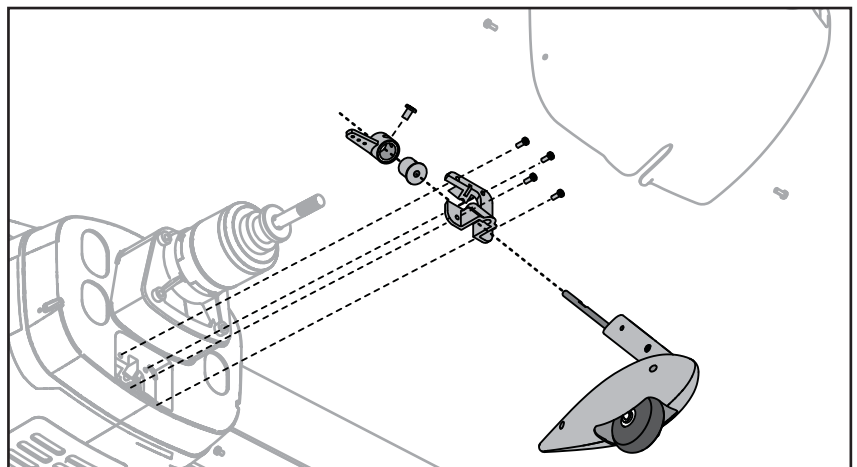
Trouble Shooting Guide

Problem	Possible Cause	Solution
After power up, aircraft has no throttle response and ailerons are deflected full right.	Compass error	Disconnect flight battery and perform the compass calibration procedure.
Unit does not operate	There is no link between the transmitter and receiver	Re-Bind the system following directions in this manual
	No GPS lock. (or operating indoor without disabling GPS)	Move to outside and power on aircraft or disable GPS in the aircraft
	Transmitter AA batteries are depleted or installed incorrectly as indicated by a dim or unlit LED on the transmitter or the low battery alarm	Check polarity installation or replace with fresh AA batteries
	No electrical connection	Push connectors together until they are secure
	Flight battery is not charged	Fully charge the battery
	Crash has damaged the radio inside the fuselage	Replace the fuselage or receiver
Aircraft keeps turning in one direction	Rudder or rudder trim is not adjusted correctly	Adjust stick trims, then land and manually adjust aileron and/or rudder linkages so no transmitter trim is required
	Aileron or aileron trim is not adjusted correctly	Adjust stick trims or manually adjust aileron positions
Aircraft turns when on the ground, but flies straight in the air	Nose gear linkage is out of adjustment	Adjust the nose gear steering linkage on the rudder servo arm so the model steers straight on the ground when the rudder control is at neutral
Aircraft does not land on heading set on initial takeoff	Compass is out of calibration	Calibrate the compass using the "Compass Calibration Procedure" located in this manual
GPS Function not operating properly	The compass has been exposed to a magnetic source.	Deactivate GPS system while in flight and land the aircraft. Remove any possible magnetic sources such as cameras, camera mounts, speakers ect. Unplug and reconnect flight battery to reactivate GPS system for next flight. Perform compass calibration before flying again.
Aircraft is difficult to control	Wing or tail is damaged	Replace damaged part
	Damaged propeller	Land immediately and replace damaged propeller
	Center of Gravity is behind the recommended location	Shift battery forward, do not fly until correct Center of Gravity location is achieved
Aircraft nose rises steeply at half throttle	Wind is too gusty or strong	Postpone flying until the wind calms down
	Elevator is trimmed 'up' too much	If trim must adjusted more than 4 clicks when pushing the trim button, adjust push rod length
	Battery is not installed in the correct position.	Move forward approximately 1/2"
Aircraft will not climb	Battery is not fully charged	Fully charge battery before flying
	Elevator may be trimmed 'down'	Adjust elevator trim 'up'
	Propeller damaged or installed incorrectly	Land immediately, replace or install propeller correctly
Aircraft is difficult to launch in the wind	Launching the aircraft down wind or into a cross wind	Always launch the aircraft directly into the wind
Flight time is too short	Battery is not fully charged	Recharge battery
	Flying at full throttle for the entire flight	Fly at just above half throttle to increase flying time
	Wind speed too fast for safe flight	Fly on a calmer day
	Propeller damaged	Replace propeller
Aircraft vibrates	Propeller, spinner or motor damaged	Tighten or replace parts
Rudder, ailerons or elevator do not move freely	Damaged or blocked push rods or hinges	Repair damage or blockage
Aircraft will not Bind (during binding) to transmitter	Transmitter is too near aircraft during binding process	Move powered transmitter a few feet from aircraft, disconnect and reconnect battery to aircraft
	Aircraft or transmitter is too near a large metal object, wireless source or another transmitter	Move the aircraft and transmitter to another location and attempt binding again
	Bind plug is not installed correctly	Install bind plug and bind aircraft to transmitter
	Flight battery/Transmitter battery charge is too low	Replace/recharge batteries
Aircraft will not connect (after binding) to transmitter	Transmitter is too near aircraft during connecting process	Move powered transmitter a few feet from aircraft, disconnect and reconnect battery to aircraft
	Aircraft or transmitter is too near a large metal object, wireless source or another transmitter	Move the aircraft and transmitter to another location and attempt connecting again
	Bind plug is left installed	Rebind transmitter to aircraft and remove bind plug before cycling power
	Aircraft battery/Transmitter battery charge is too low	Replace/recharge batteries
	Transmitter may have been bound to a different model (using different DSM Protocol)	Bind aircraft to transmitter

Problem	Possible Cause	Solution
After being properly adjusted, aileron and/or rudder are not in neutral position when battery is plugged in	Model was moved during initial power on	Unplug flight battery and reconnect, keeping model immobile for at least 5 seconds

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 wit 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, (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.

Contact Information

| Country of Purchase	Horizon Hobby	Phone Number/Email Address	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	www.quickbase.com/db/bghj7ey8c?a=GenNewRecord 888-959-2305	
	Sales	sales@horizonhobby.com 888-959-2305	
United Kingdom	Service/Parts/Sales: Horizon Hobby Limited	sales@horizonhobby.co.uk +44 (0) 1279 641 097	Units 1–4 , Ployters Rd, Staple Tye Harlow, Essex, CM18 7NS, United Kingdom
Germany	Horizon Technischer Service Sales: Horizon Hobby GmbH	service@horizonhobby.de +49 (0) 4121 2655 100	Christian-Junge-Straße 1 25337 Elmshorn, Germany
France	Service/Parts/Sales: Horizon Hobby SAS	infofrance@horizonhobby.com +33 (0) 1 60 18 34 90	11 Rue Georges Charpak 77127 Lieusaint, France
China	Service/Parts/Sales: Horizon Hobby – China	info@horizonhobby.com.cn +86 (021) 5180 9868	Room 506, No. 97 Changshou Rd. Shanghai, China 200060

FCC Information

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.

Antenna Separation Distance
When operating your transmitter, please be sure to maintain a separation distance of at least 5 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.
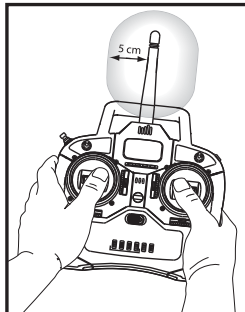
This illustration show the approximate 5 cm RF exposure area and typical hand placement when operating your transmitter.

IC Information
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.

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.

Compliance Information for the European Union

HBZ Glasair SAFE BNF (HBZ8480)
EU Compliance Statement: Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the R&TTE, EMC and LVD Directives.

HBZ Glasair SAFE RTF (HBZ8400)
EU Compliance Statement: Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the R&TTE, EMC and LVD Directives.

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

Replacement Parts • Ersatzteile • Pièces de rechange • Pezzi di ricambio

Part # I Nummer Numéro I Codice	Description	Beschreibung	Description	Descrizione
HBZ8402	Decal Sheet: Glasair	Hobbyzone Glasair : Dekorbogen	Planche de décoration: Glasair	Set adesivi: Glasair
HBZ7606	Landing Gear Set: Glasair	Hobbyzone Glasair : Fahrwerksset	Train d'atterrissage : Glasair	Set carrello: Glasair
HBZ7608	Spinner: Glasair	Hobbyzone Glasair : Spinner	Cône : Glasair	Ogiva: Glasair
HBZ7618	Prop Adapter: Glasair	Hobbyzone Glasair : Propeller Adapter	Adaptateur d'hélice : Glasair	Adattatore elica: Glasair
PKZ1019	9x6 Propeller	Parkzone P-51 Luftschraube BL 9x6	Hélice 9x6	Elica 9x6
HBZ8420	Wing: Glasair	Hobbyzone Glasair : Tragfläche	Aile : Glasair	Ala: Glasair
HBZ7127	Rubber bands (3)	Hobbzone weiße Gummibänder(6)	Bandes caoutchouc (3)	Elastici (3)
HBZ7622	Wing Struts: Glasair	Hobbyzone Glasair : Tragflächenstreben	Haubans d'ailes : Glasair	Montanti ala: Glasair
HBZ8424	Pushrod Set: Glasair	Hobbyzone Glasair : Gestänge	Tringleries: Glasair	Set comandi: Glasair
HBZ7625	Horizontal Stab: Glasair	Hobbyzone Glasair : Höhenleitwerk	Stabilisateur : Glasair	Stab orizzontale: Glasair
HBZ7626	Cowl: Glasair	Hobbyzone Glasair : Motorhaube	Capot : Glasair	Capottina: Glasair
HBZ7628	Motor Mount: Glasair	Hobbyzone Glasair : Motorhalter	Support moteur : Glasair	Supporto motore: Glasair
SPMA3172	Receiver: Glasair	Hobbyzone Glasair : Empfänger	Récepteur: Glasair	Ricevitore: Glasair
HBZ8467	Bare Fuselage: Glasair	Hobbyzone Glasair : Rumpf o. Einbauten	Fuselage nu: Glasair	Fusoliera nuda: Glasair
HBZ1003B	3-Cell DC Balancing Li-Po Charger	Hobbyzone 3S Lipo Balance Lader	Chargeur équilibreur LI-Po DC 3S	Caricabatterie per 3 celle LiPo con bilanciatore
EFLB13003S20	1300mAh 3S 11.1V 20C Li-Po, 16 AWG EC3 Battery	Parkzone 11.1V 1300mAh LiPo Bat m.EC3	Batterie LI-Po 11.1V 3S 1300mA 20C, prise EC3	Batteria 1300mAh 3S 11.1V 20C Li-Po, 16 AWG EC3
PKZ1060	Mini Servo (3W) with Arms, Short Lead (Ailerons and Elevators)	Parkzone Mini Servo, 3 adrig, kurzes Kabel	Mini Servo (3 fils) avec bras, câbles courts (ailerons et profondeur)	Mini Servo (3W) con bracci, connettori corti (alettoni ed elevatore)
PKZ1090	DSV130M 3-Wire Digital Servo Metal Gear (Rudder and nose steering)	Parkzone DSV130 Digitalservo MG	DSV130M Servo digital (3 fils), à pignons métal (dérive et roulette de nez)	DSV130M servo digitale a 3 fili con ingran. metallo (timone e carrello anter
PKZ1814	18A Brushless ESC	Parkzone 18A Regler	Contrôleur brushless 18A	18A Brushless ESC
EFLA109	AC Power Supply	Hobbyzone Netzteil	Alimentation secteur	Alimentatore AC (220V)
PKZ4416	480 Brushless Outrunner Motor, 960Kv	Parkzone Bl Außenläufer 960kV : T28	Moteur brushless 480 à cage tournante, 960Kv	480 Motore brushless a cassa rotante, 960Kv

Optional Parts • Optionale Bauteile • Pièces optionnelles • Pezzi opzionali

Part # I Nummer Numéro I Codice	Description	Beschreibung	Description	Descrizione
EFLA801	EFC-721 720p HD Video Camera	EFC-721 720p HD Video Kamera	Caméra HD EFC-721 720p	EFC-721 720p HD Videocamera
HBZ6513	Alligator Clip: 12V Lighter Adapter	Krokodilklemmen: 12 V Zigarettenanzünder	Adaptateur 12V allume cigare/pinces croco	Pinze tipo coccodrillo: adattatore 12V per presa accendisigari
HBZ1009	1.5A AC Power Supply	Hobbyzone 1.5A Netzteil	Alimentation secteur 1.5A	1.5A AC Alimentatore
SPMP610	SPM Neck Strap	Spektrum Sendergurt	Sangle de cou SPM	SPM Cinghia per collo

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AVIATION

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