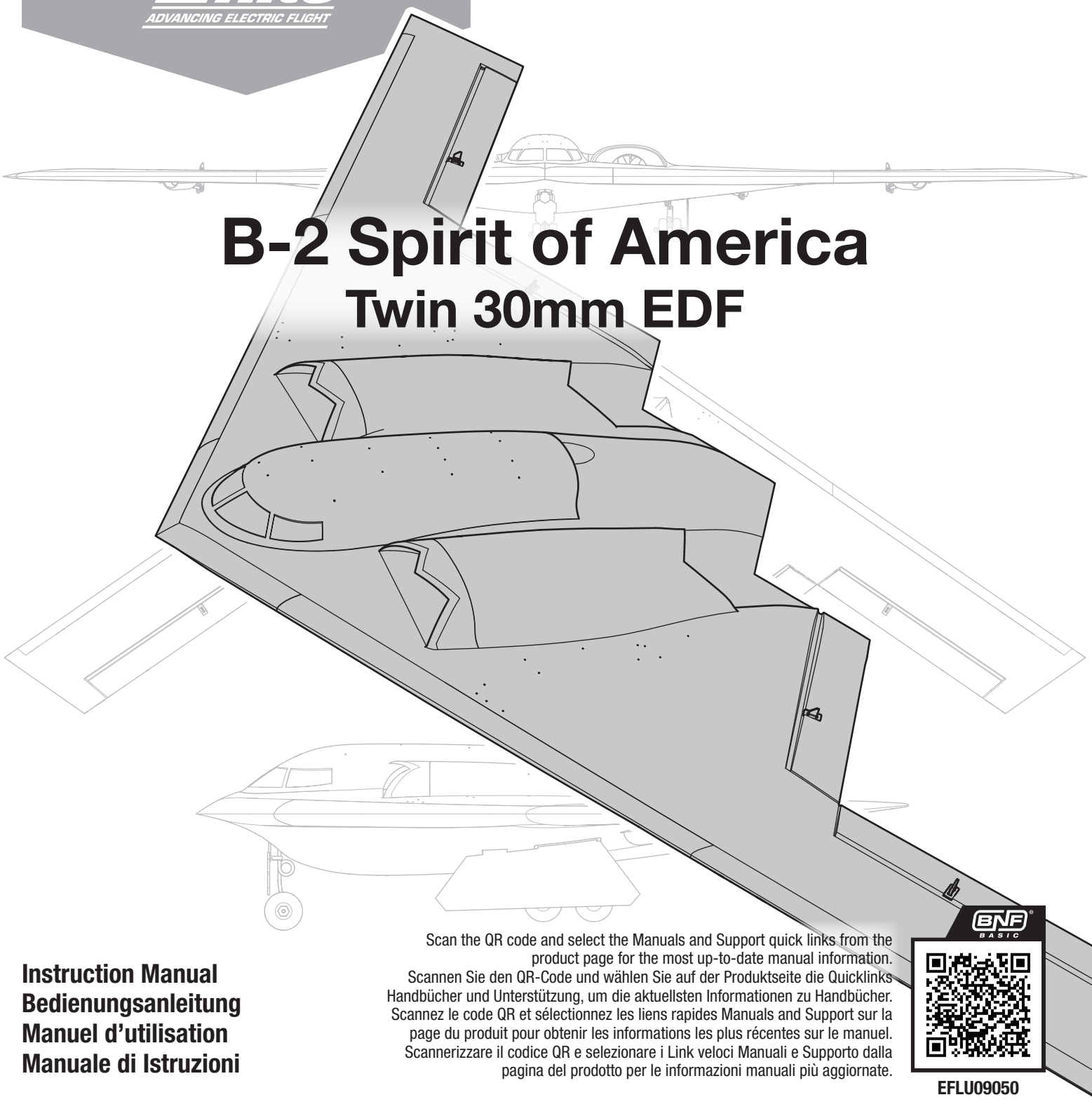
E-flite
ADVANCING ELECTRIC FLIGHT

B-2 Spirit of America
Twin 30mm EDF



Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manuale di Istruzioni

Scan the QR code and select the Manuals and Support quick links from the product page for the most up-to-date manual information.
Scannen Sie den QR-Code und wählen Sie auf der Produktseite die Quicklinks Handbücher und Unterstützung, um die aktuellsten Informationen zu Handbücher.
Scannez le code QR et sélectionnez les liens rapides Manuals and Support sur la page du produit pour obtenir les informations les plus récentes sur le manuel.
Scannerizzare il codice QR e selezionare i Link veloci Manuali e Supporto dalla pagina del prodotto per le informazioni manuali più aggiornate.

BNF BASIC

EFLU09050

620212.1
Updated 03/25

HORIZON HOBBY

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com or towerhobbies.com and click on the support or resources tab for this product.

MEANING OF SPECIAL LANGUAGE

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:
WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.
CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.
NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND little or no possibility of injury.

WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.
This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

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

Safety Precautions and Warnings

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

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

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.

Registration

Register your product today to join our mailing list and keep up to date with product updates, offers and E-flite® news.

Table of Contents

Specifications	
Wingspan	33.6” (853mm)
Weight	Without Battery: 7.7oz (217g) With Recommended 850mAh 3S Flight Battery: 10.1oz (287g)

Included Equipment	
Receiver/ESC	Spektrum™ Receiver/ESC Unit (SPMX-1037B)
Motor	0808-8800Kv, 8-Pole Brushless Motors (SPMX-1072B)
Fans	(2) 30mm Ducted Fan Unit, 6-blade (EFLU6558)
Servos	(5) A201 2.3g Long-Throw Linear Servo

Recommended Equipment	
Transmitter	NX7e+ 14 Channel Transmitter Only (SPMR7110)
Flight Battery	850mAh 3S 11.1V Smart G2 30C; IC2 (SPMX8503S30)
Battery Charger	S155 55W AC G2 Smart Charger (SPMXC2050)
Adapter	IC3 Battery / IC2 Device (SPMXCA320)

Optional Accessories	
SPMR8210	NX8+ 20 Channel DSMX Transmitter Only
SPMXC2060	Smart S250 AC Charger, 2x50W
SPMXC2080	Smart S1100 AC Charger, 1x100W
SPMXBC100	Smart LiPo Battery Checker & Servo Driver

Transmitter Setup

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

For the first flight, set the flight timer to 4 minutes when using a 3S 850mAh battery. Adjust the time after the initial flight.

Telemetry Settings	
Rx V : Min Rx V	4.2V
Smart ESC : Low Voltage Alarm	3.4V
Smart Battery : Startup Volt Minimum	4.0V

Dual Rates

Conduct your first flights in low rate. For hand launching and landing, use high rate elevator.

NOTICE: To ensure AS3X technology functions properly, do not lower rate values below 50%. If less control deflection is desired, manually adjust the position of the pushrods on the control horns.

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

Exponential

After your first flights, adjust the exponential values in your transmitter to suit your flying style.

NX Series Transmitter Setup

1. Power ON your transmitter, click on scroll wheel, roll to **System Setup** and click the scroll wheel. Select ***YES***.
2. Go to **Model Select** and choose ***Add New Model*** near the bottom of the list. Select ***Airplane Model Type*** by choosing airplane image, select ***Create***.
3. Set **Model Name:** Input a name for your model file.
4. Go to **Aircraft Type** and scroll to the wing selection, choose **Wing:** ***Normal*** **Tail:** ***Normal***
5. Select **Main Screen**, Click the scroll wheel to enter the **Function List**.
6. Go to **D/R (Dual Rate) and Expo** menu to set **D/R** and **Expo**.
7. Set **Rates and Expo:** ***Aileron***
   Set **Switch:** ***Switch F***
   Set **High Rates:** ***100%*****, Expo** ***10%*** — **Low Rates:** ***70%*****, Expo** ***5%***
8. Set **Rates and Expo:** ***Elevator***
   Set **Switch:** ***Switch C***
   High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
9. Set **Rates and Expo:** ***Rudder***
   Set **Switch:** ***Switch G***
   High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
10. Set **Throttle Cut**; **Switch:** ***Switch H,*** **Position:** ***-100%***

DX Series Transmitter Setup

1. Power ON your transmitter, click on scroll wheel, roll to **System Setup** and click the scroll wheel. Select ***YES***.
2. Go to **Model Select** and choose ***Add New Model*** at the bottom of the list. The system asks if you want to create a new model, select ***Create***.
3. Set **Model Type:** Select ***Airplane Model Type*** by choosing the airplane. The system asks you to confirm model type, data will be reset. Select ***YES***.
4. Set **Model Name:** Input a name for your model file.
5. Go to **Aircraft Type** and scroll to the wing selection, choose **Wing:** ***Normal*** **Tail:** ***Normal***
6. Select **Main Screen**, Click the scroll wheel to enter the **Function List**.
7. Set **D/R (Dual Rate) and Expo:** ***Aileron***
   Set **Switch:** ***Switch F***
   Set **High Rates:** ***100%*****, Expo** ***10%*** — **Low Rates:** ***70%*****, Expo** ***5%***
8. Set **D/R (Dual Rate) and Expo:** ***Elevator***
   Set **Switch**: ***Switch C***
   High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
9. Set **D/R (Dual Rate) and Expo:** ***Rudder***
   Set **Switch**: ***Switch G***
   High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
10. Set **Throttle Cut**; **Switch:** ***Switch H,*** **Position:** ***-100%***

iX Series Transmitter Setup

1. Power ON your transmitter and begin once the Spektrum AirWare app is open. Select the orange pen icon in the screen's upper left corner, the system asks for permission to **Turn Off RF**, select ***PROCEED***.
2. Select the three dots in the upper right corner of the screen, select ***Add a New Model***.
3. Select **Model Option**, choose ***DEFAULT***, select ***Airplane***. The system asks if you want to create a new acro model, select ***Create***.
4. Select the last model on the list, n amed **Acro**. Tap on the word Acro and rename the file to a name of your choice.
5. Press and hold the back arrow icon in the upper left corner of the screen to return to the main screen.
6. Go to the **Model Setup** menu. Select **Aircraft Type**. The system asks for permission to **Turn Off RF**, select ***PROCEED***. Touch the screen to select wing. Select ***Normal***.
7. Press and hold the back arrow icon in the upper left corner of the screen to return to the main screen.
8. Go to the **Model Adjust** menu.
9. Set **Dual Rates and Expo:** Select ***Aileron***
   Set **Switch:** ***Switch F***
   Set **High Rates:** ***100%*****, Expo** ***10%*** — **Low Rates:** ***70%*****, Expo** ***5%***
10. Set **Dual Rates and Expo:** Select ***Elevator***
    Set **Switch:** ***Switch C***
    High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
11. Set **Dual Rates and Expo:** Select ***Rudder***
    Set **Switch:** ***Switch G***
    High Rates: ***100%,*** **Expo** ***10%*** — **Low Rates** ***70%,*** **Expo** ***5%***
12. Set **Throttle Cut**; **Switch:** ***Switch H,*** **Position:** ***-100%***

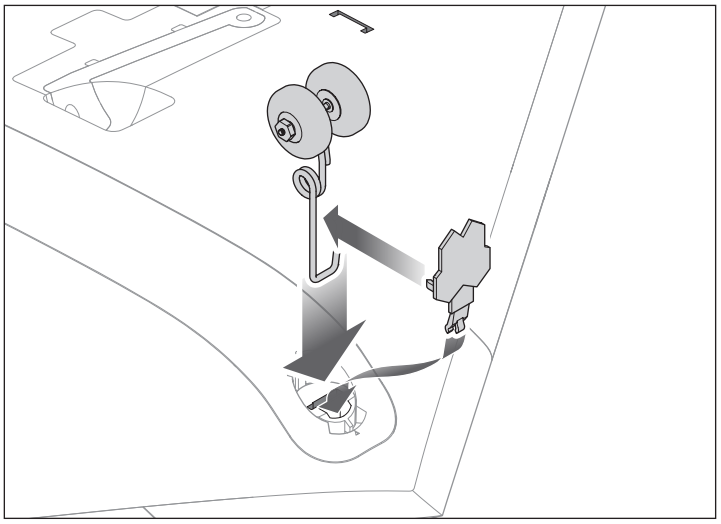
Optional Parts Assembly

Optional Landing Gear Installation

Nose Gear

1. Insert the nose gear wire into the slot as shown.

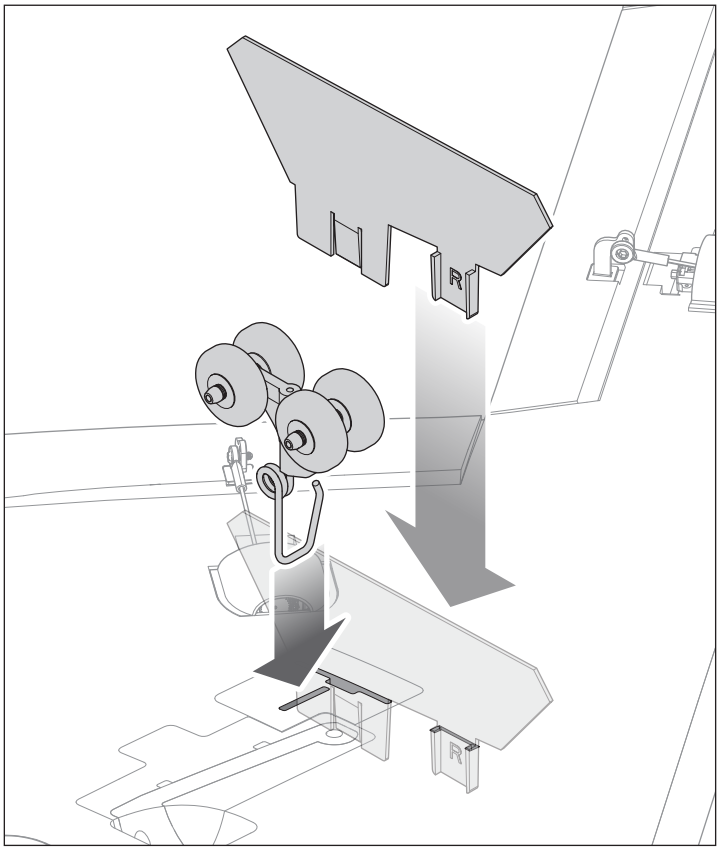
   IMPORTANT: The spring coil in the gear wire goes to the rear of the aircraft.
2. Snap the nose gear door clip onto the mount.



Main Gear

1. Insert the main gear doors into the slots in the bottom of the aircraft until they click in place. The doors are labelled “L” and “R” designating left and right. The doors are installed with the decals facing toward the corresponding wingtip.
2. Insert the main gear wire into the slot in the bottom of the aircraft as shown.

   IMPORTANT: The spring coil in the gear wire goes to the rear of the aircraft, and the hook-shaped bend at the top of the wire points toward the corresponding wingtip.

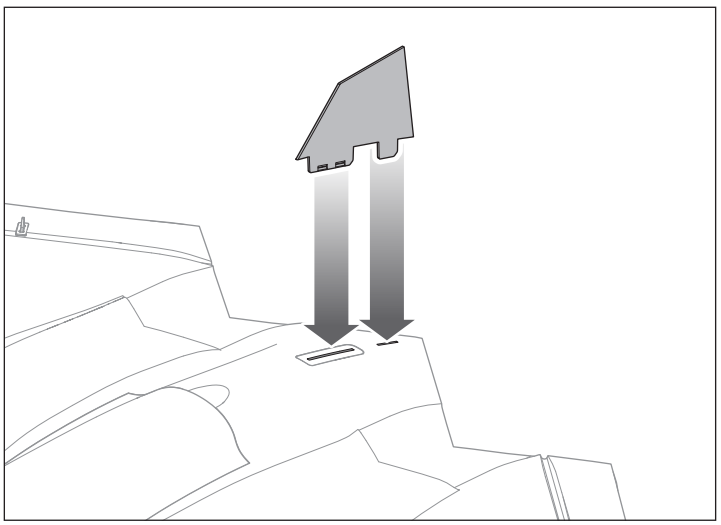


Optional Vertical Stabilizer Installation

The aircraft is capable of very scale-like flight without the use of the included vertical stabilizer. If more aerobatic maneuvers are desired, the vertical stabilizer is recommended.

NOTICE: Failure to install the vertical stablizer prior to attempting aerobatic maneuvers may cause a loss of control resulting in a crash.

Insert the vertical stabilizer into the slots in the top of the aircraft as shown. The stabilizer is held in place by friction.



Transmitter and Receiver Binding

General Binding Tips and Failsafe

- 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 stabilize the aircraft in a descending turn.
- If problems occur, refer to the troubleshooting guide or if needed, contact the appropriate Horizon Product Support office.

Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter. You need to 'bind' your chosen Spektrum™ DSM2/DSMX technology equipped aircraft transmitter to the receiver for proper operation.
Any full range Spektrum DSM2/DSMX transmitter can bind to the DSM2/DSMX receiver.

Binding Procedure
1. Refer to your transmitter's unique instructions for binding to a receiver.
2. Make sure the flight battery is disconnected from the aircraft.
3. Power off your transmitter.
4. Place the aircraft on a level surface away from wind.
5. Connect the flight battery in the aircraft. The receiver LED will begin to flash rapidly (typically after 5 seconds).
6. Make sure the transmitter controls are neutral and the throttle and throttle trim are in low position.
7. Put your transmitter into bind mode.
8. After 5 to 10 seconds, the receiver status LED will turn solid, indicating that the receiver is bound to the transmitter. If the LED does not turn solid, refer to the Troubleshooting Guide at the back of the manual.

For subsequent flights, power on the transmitter for 5 seconds before connecting the flight battery.

SAFE® Select Technology

This aircraft has two flight modes controlled by Channel 5, SAFE and AS3X. Switch A is the Spektrum default for channel 5. Position 0 is SAFE, Position 1 is AS3X only.
When flying in SAFE 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 pitch limits, but it will not go past those angles. When flying in SAFE mode, it is normal to hold the control stick deflected with moderate aileron input when flying through a turn. To fly smoothly with SAFE, 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.
Return the elevator and aileron controls to neutral before switching from SAFE mode to AS3X mode. If you do not neutralize controls when switching into AS3X mode, the control inputs used for SAFE mode will be excessive for AS3X mode and the aircraft will react immediately.

Differences Between SAFE and AS3X Modes

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

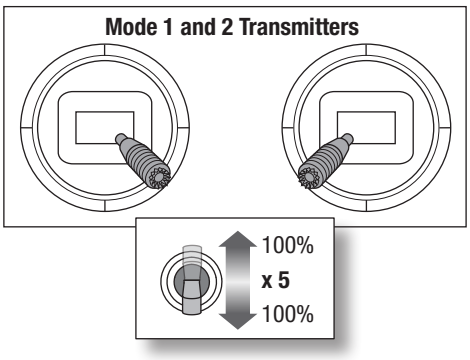
Control Input	SAFE Select	AS3X
Control stick is neutralized	Aircraft will self level	Aircraft will continue to fly at its present attitude
Holding a small amount of control	Aircraft will bank or pitch to a moderate angle and maintain the attitude	Aircraft will continue to roll or pitch slowly
Holding full control	Aircraft will bank or pitch to the predetermined limits and maintain the attitude	Aircraft will continue to roll or pitch rapidly

Disabling and Enabling SAFE Select

By default, the SAFE Select function of the aircraft is enabled and assigned to the gear channel switch (channel 5). If you do not wish to have access to SAFE Select while flying, you can choose to disable SAFE Select functionality. AS3X will still be active when SAFE Select is disabled.

IMPORTANT: Before attempting to disable or enable SAFE Select, ensure the aileron, elevator, rudder, throttle and gear channels are all on high rate with the travel set to 100%. Turn throttle hold OFF if it is programmed in the transmitter.

1. Power on the transmitter.
2. Power on the aircraft.
3. Hold both transmitter sticks to the inside bottom corners and toggle the Gear switch 5 times (1 toggle = full up and down). The control surfaces of the aircraft will move, indicating SAFE Select has been enabled or disabled.



Repeat the process to disable or enable or disable SAFE Select. The aircraft will cycle both ailerons up and down to indicate a change has been made.

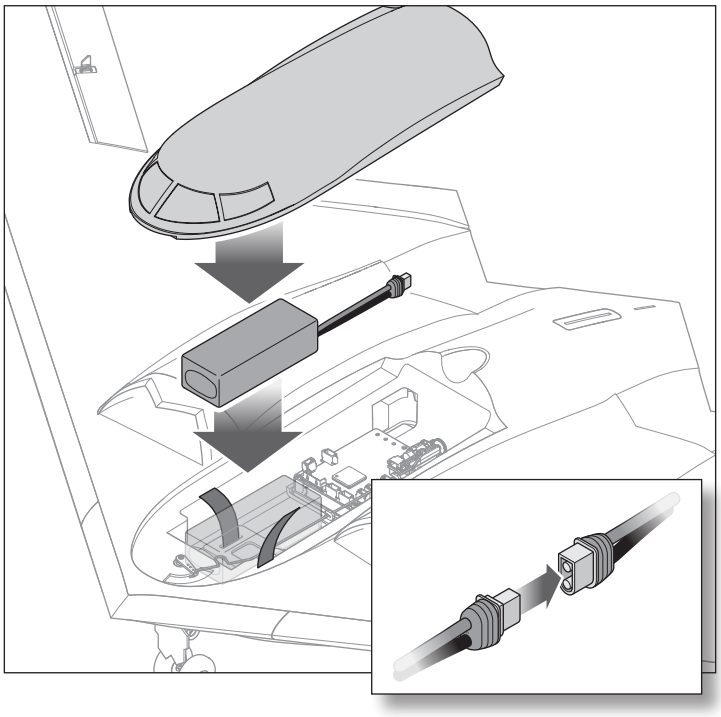
Flight Battery Installation and ESC Arming

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

We recommend the Spektrum 850mAh 3S 11.1V Smart G2 30C; IC2 Li-Po battery (SPMX8503S30). If using a battery other than the recommended, the battery should be within the range of capacity, dimensions and weight of the Spektrum Li-Po battery.

IMPORTANT: Always check the center of gravity (CG) of the model after installing the battery.

1. On your transmitter, lower the throttle and throttle trim to the lowest settings. Power on the transmitter, then wait 5 seconds.
2. Remove the fuselage battery hatch by lifting at the rear of the hatch.
3. Install a fully charged flight battery in the battery compartment, securing it in place with the pre-installed hook and loop strap.
4. Connect the battery power lead to the ESC IC2 connector.
   - The ESC will sound tones corresponding to the battery cell count.
   - An LED will light on the receiver.
   - If the ESC sounds a continuous double beep after the flight battery is connected, recharge or replace the battery.
5. The ESC is now armed.
6. Reinstall the canopy hatch by lowering the hatch into the opening in the fuselage until the magnets at both the front and rear of the hatch engage..



Low Voltage Cutoff (LVC)

When a Li-Po battery is discharged below 3V per cell, it will not hold a charge. The aircraft's ESC protects the flight battery from over-discharge using Low Voltage Cutoff (LVC). Once the battery discharges to 3V per cell, the LVC will reduce the power to the motor in order to leave adequate power to the receiver and servos to land the airplane.

When the motor power decreases, land the aircraft immediately and replace or recharge the flight battery.

Always disconnect and remove the Li-Po battery from the aircraft after each flight. Charge your Li-Po battery to about half capacity before storage. Make sure the battery charge does not fall below 3V per cell. Failure to unplug a connected battery will result in trickle discharge.

For your first flights, set your transmitter timer or a stopwatch to 4 minutes. Adjust your timer for longer or shorter flights once you have flown the model.

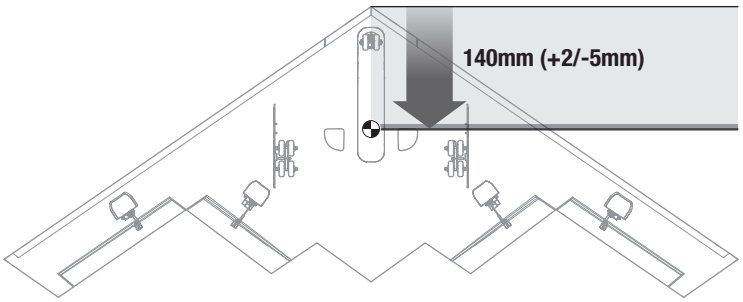
NOTICE: Repeated flying to LVC will damage the battery.

Center of Gravity (CG)

CAUTION: Install the flight battery but do not connect it to the ESC while checking the CG. Personal injury may result.

The acceptable center of gravity (CG) location range is between 135-142mm back from the tip of the nose of the aircraft. The recommended CG location is 140mm back, approximately at the front edge of the finger holes in the bottom of the aircraft.

Adjust the CG by moving the flight battery forward or backward in the battery compartment.



Control Surface Direction Test

WARNING: Do not perform this or any other equipment test without turning on throttle cut. Serious injury or property damage could result from the motor starting inadvertently.

TIP: View the aircraft from the rear when checking the control directions.

1. Power on the transmitter.
2. Enable throttle cut.
3. Connect the battery.
4. Use the transmitter to operate the aileron, elevator and rudder controls.

Elevators

1. Pull the elevator stick back. All four control surfaces should move up, which will cause the aircraft to pitch up.
2. Push the elevator stick forward. All four control surfaces should move down, which will cause the aircraft to pitch down.

Ailerons

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

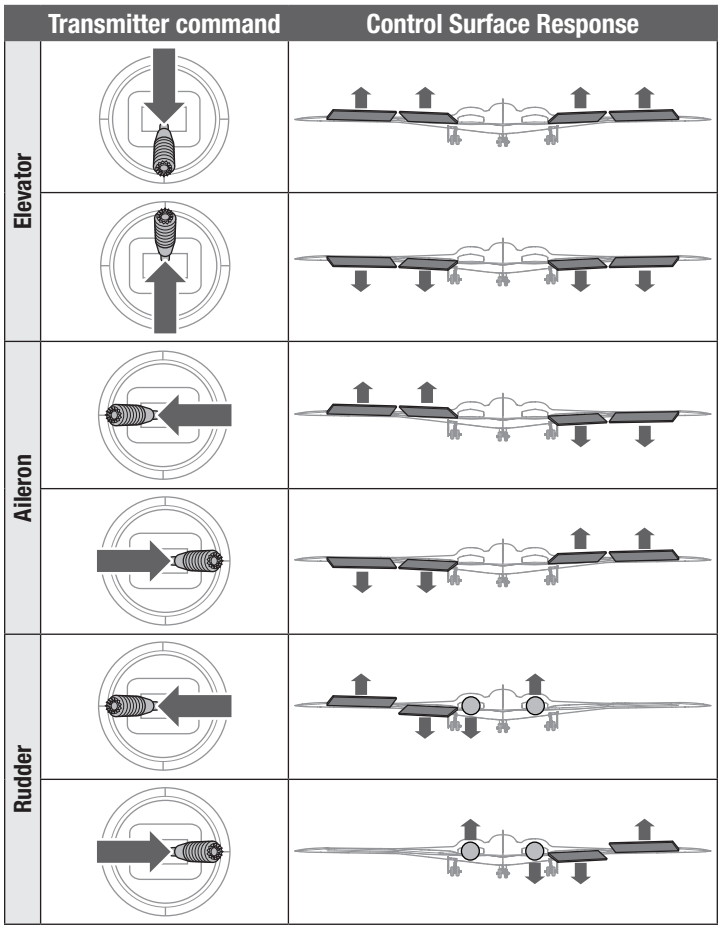
Rudder

1. Move the rudder stick to the left. The left outer control surface should move up and the inner control surface should move down, which will cause the aircraft to yaw left.
2. Move the rudder stick to the right. The right outer control surface should move up and the inner control surface should move down, which will cause the aircraft to yaw right.

IMPORTANT: The flight controller programming includes differential motor thrust. The motor on the rudder input side decreases rpm, while the motor opposite the rudder input increases rpm.

- Differential thrust is only active when above zero throttle.
- The level of differential thrust changes with the amount of rudder control input.

If the control surfaces do not respond as shown, DO NOT FLY. Refer to the Troubleshooting Guide for more information. If you need more assistance, contact the appropriate Horizon Hobby Product Support department.

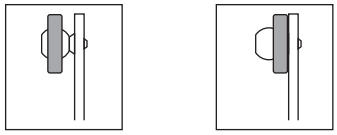


Control Surface Settings

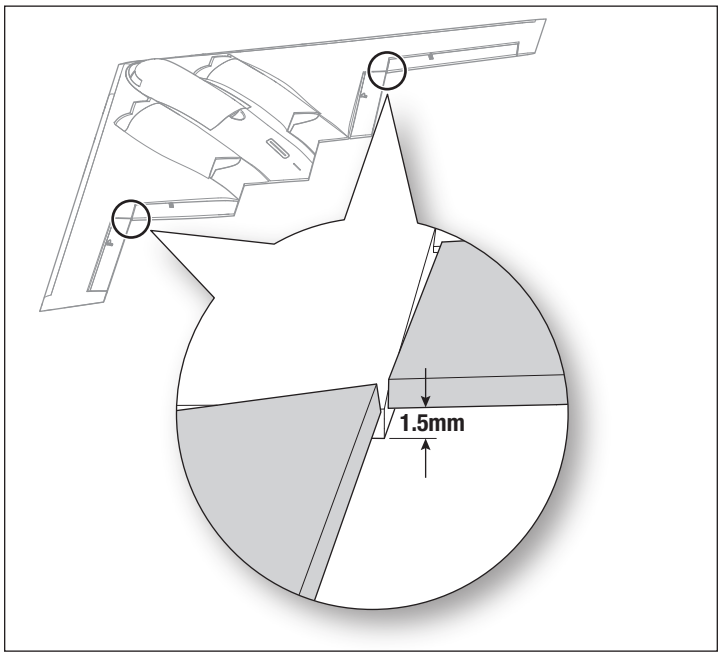
After transmitter setup, power ON the transmitter, set the trims and sub-trims to 0, enable throttle cut, then power ON the aircraft. Set the flight mode to AS3X, as described in the SAFE Select Technology section. Confirm the control surfaces are positioned as shown in the illustration.

The control surfaces should be 1.5mm (no more than the thickness of the trailing edge of the control surface) **UP** from center, as shown in the illustration. Mechanically adjust the control surfaces by adjusting the ball links on the servo linkages.

To adjust the ball links, carefully pry the link from the ball attached to the control horn. Turn the ball link on the pushrod to change the length of the linkage between the servo arm and the control horn. Re-install the ball link to the ball on the control horn, making sure it is centered on the ball. The link should "snap" onto the ball. Do not push the link past the center of the ball.

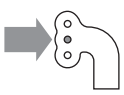


Correct **Incorrect**



Control Horn Settings

The table to the right shows the factory location settings for the linkage connections to the control horns. These settings, in conjunction with the low rate transmitter settings, are intended for the first time electric ducted fan (EDF) jet pilot through the intermediate level pilot to help ensure a successful flight.

	Horns
All Control Surfaces	

AS3X Control Response Test

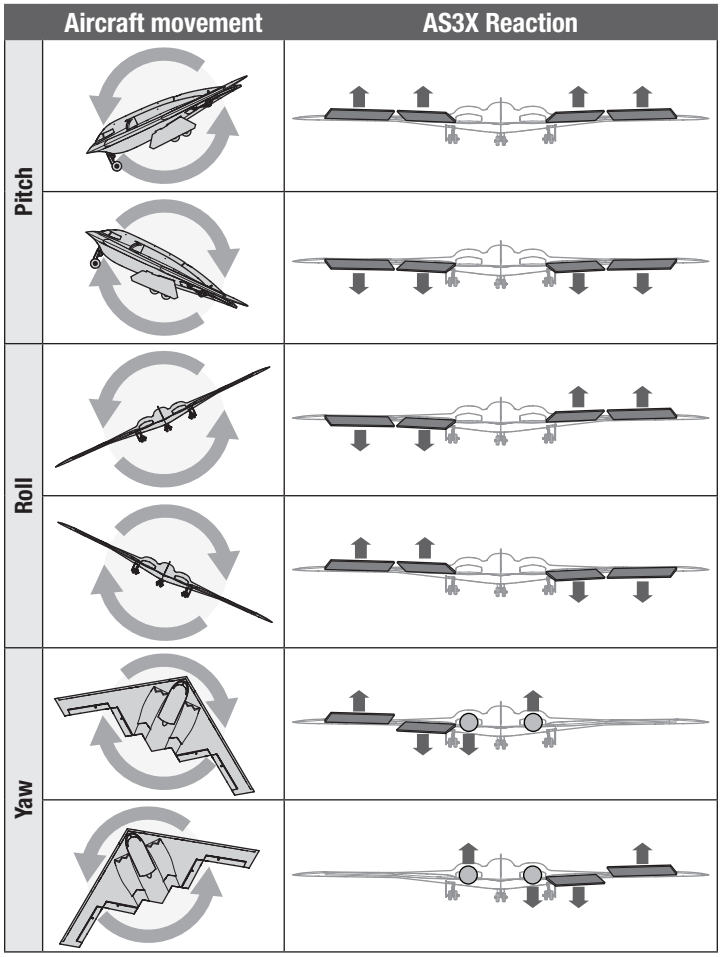
This test ensures that the AS3X control system is functioning properly. Assemble the aircraft and bind your transmitter to the receiver before performing this test.

1. Raise the throttle to any setting above 25%, then lower the throttle to activate AS3X technology.

CAUTION: Keep all body parts, hair and loose clothing away from the 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.

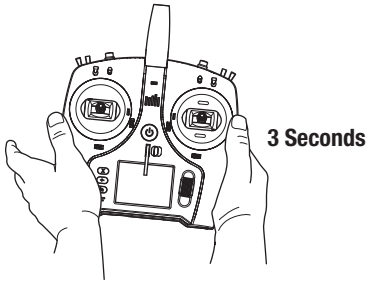


In Flight Trimming

During your first flight, trim the aircraft for level flight at 3/4 throttle in AS3X mode. Make small trim adjustments with your transmitter's trim switches to straighten the aircraft's flight path.

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

Failure to do so could affect flight performance.



Hand Launch Assist

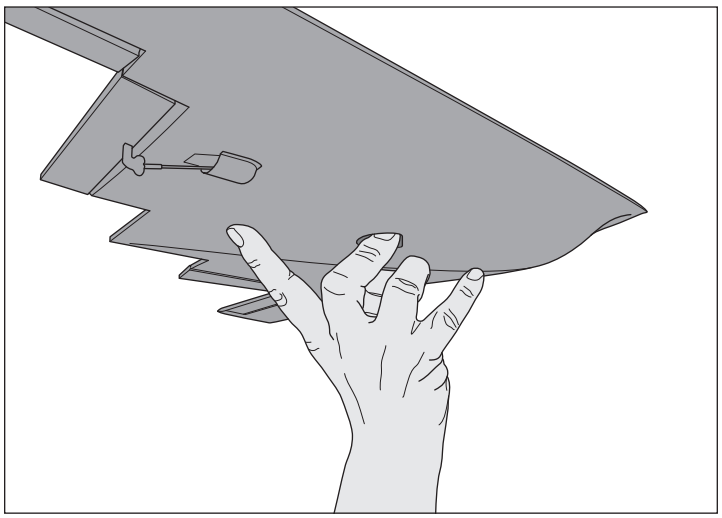
NOTICE: We recommend hand launching in SAFE Mode, into the wind at 100% power.

Hand launch assist is only available in SAFE flight mode. The flight controller senses the force of the launch and automatically enables the hand launch assist feature. When active, the flight controller adds up elevator resulting in the aircraft climbing at a higher angle for a few seconds. The aircraft returns to standard SAFE mode shortly after launch.

Hold the aircraft using the finger holes on the bottom of the wing, between the landing gear mounts, as shown.

Increase the throttle to 100%. Using an overhand throw, launch the aircraft directly into the wind with the wings and nose level.

TIP: Follow through with your hand launch by pointing your fingers at the airplane after the throw. Avoid an arcing throw which can pull the nose down at release.



Flying Tips and Repairs

Consult local laws and ordinances before choosing a flying location.
Always choose a wide-open space for flying. Due to the higher speeds of this aircraft, it does require more room to fly than average foam models. It is ideal for you to fly at a designated flying field. If you are not flying at an approved site, always avoid flying near houses, trees, wires and buildings. You should also be careful to avoid flying in areas where there are many people, such as busy parks, schoolyards, or soccer fields.

Range Check your Radio System

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

Oscillation

Once the AS3X system is active (after advancing the throttle for the first time), the control surfaces will react to aircraft movement. In some flight conditions oscillation may occur (the aircraft rocks back and forth on one axis due to overcontrol). If oscillation occurs, refer to the Troubleshooting Guide for more information.

Takeoff

The aircraft may be hand launched using the finger holes in the bottom of the fuselage for grip, or if the optional landing gear is installed, launched from a paved surface.

If hand launching, see the Hand Launch Assist section for information on using the assist function of the flight controller.

If launching from a paved surface, place the aircraft in position for takeoff, facing into the wind. Gradually increase the throttle to full and steer with the nose wheel, using the rudder stick. Allow the model to accelerate to flying speed, then pull back gently on the elevator and climb to a comfortable altitude.

Landing

For your first few flights with the recommended battery pack (SPMX8503S30), either monitor the flight pack voltage through the transmitter telemetry, or set your transmitter timer or a stopwatch to 4 minutes, then land. Adjust your timer for longer or shorter flights once you have flown the model. **If at any time the motors pulse, land the aircraft immediately and recharge the flight battery.** See the Low Voltage Cutoff (LVC) section for more details on maximizing battery health and run time.
Turn the aircraft into the wind and reduce the throttle. Use the throttle during the landing approach to control the rate of descent. Keep the wings level and the aircraft pointed into the wind. As you approach the threshold of the runway and approximately 1 meter altitude, decrease the throttle and begin your flare by easing back on the elevator. Continue back pressure on the elevator to bring the aircraft down gently on the runway.

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. Power to the motor pulses, showing that some battery power is reserved for flight control and safe landing.
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 battery checker (SPMXBC100, sold separately).

Repairs

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 .

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

Post Flight

Disconnect the flight battery from the ESC.
Power OFF the transmitter.
Remove the flight battery from the aircraft.
Recharge the flight battery.

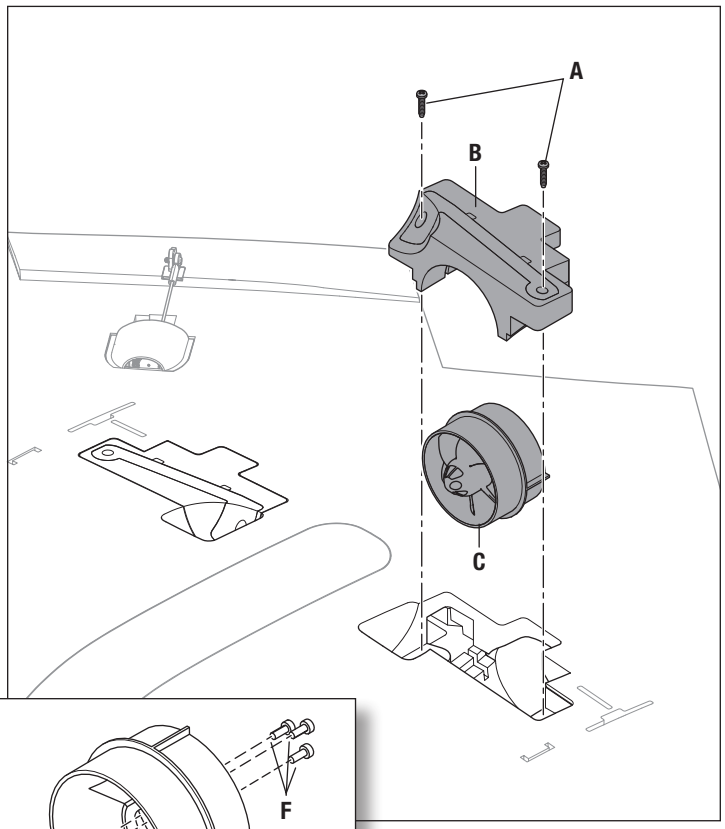
Repair or replace all damaged parts.
Store the flight battery apart from the aircraft and monitor the battery charge.
Make note of the flight conditions and flight plan results, planning for future flights.

Maintenance

CAUTION: Always disconnect the flight battery before performing service on any of the aircraft components.

Fan Units and Motors

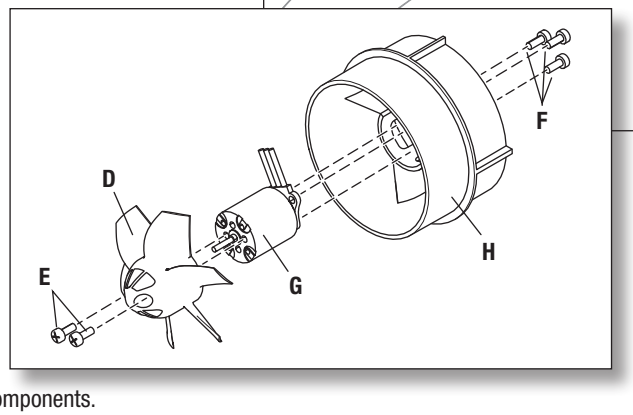
1. Remove the optional landing gear, if installed.
2. Remove the two screws (**A**) from the fan unit cover (**B**) and lift the cover out of the fuselage.
3. Disconnect the motor lead connector from the ESC motor lead.
4. Pull the fan unit (**C**) out of the fuselage.



5. Remove the fan (**D**) by removing two screws (**E**) from the motor.
6. Remove three screws (**F**) to remove the motor (**G**) from the fan shroud (**H**).

Assemble in reverse order.

- Correctly align and connect the motor wire colors with the ESC wires.
- Ensure the tabs on the outside of the fan shroud are correctly aligned; one tab points to the wingtip, one tab points to the center of the aircraft, and one tab points toward the top of the wing.
- Ensure the front of the rotor is installed facing the nose of the aircraft.
- Ensure no wiring is pinched by any of the power components.

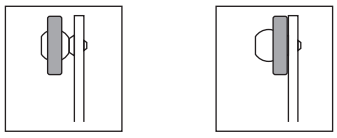


Servos

1. Remove the ball link (**A**) from the surface control horn by carefully prying the clevis from the ball.
2. Carefully pull the servo cover (**B**) from the wing.
3. Remove two screws (**C**) holding the servo in the wing.
4. Disconnect the servo connector from the servo board.
5. Remove the pushrod from the servo horn.

Assemble in reverse order.

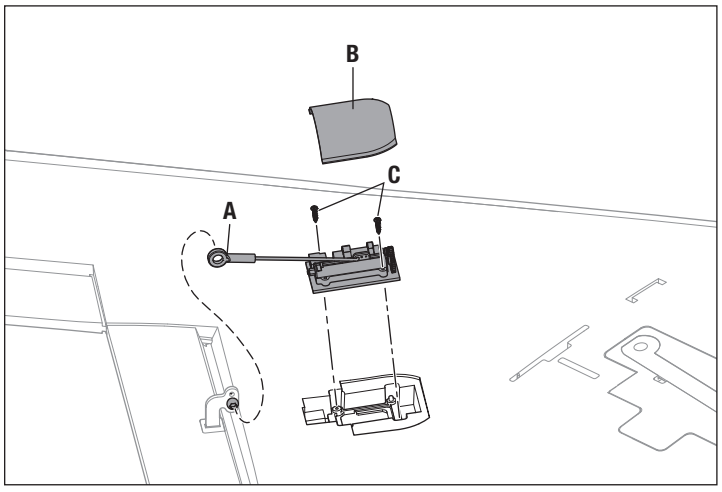
- Snap the ball link onto the ball. Do not push the link past the center of the ball.



Correct

Incorrect

- Use thin clear double-sided tape or a few drops of contact adhesive to re-attach the servo cover to the wing after the servo is installed.



Troubleshooting Guide AS3X

Problem	Possible Cause	Solution
Oscillation	Damaged rotor	Replace the rotor
	Imbalanced rotor	Balance the rotor
	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 rotor noise or extra vibration	Damaged rotor or motor	Replace damaged parts
	Rotor is out of balance	Balance or replace rotor
	Rotor bolts loose	Tighten the rotor bolts
Reduced flight time or aircraft underpowered	Flight battery charge is low	Completely recharge flight battery
	Flight battery damaged	Replace flight battery and follow flight battery instructions
	Flight conditions 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
	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
	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 low	Use recommended battery

Replacement Parts

Part #	Description
EFL-2793	Fuselage: B-2 Spirit of America Twin 30mm EDF
EFL-2794	Nose Gear Steering Assembly: B-2 Spirit of America Twin 30mm EDF
EFL-2795	Vertical Stabilizer: B-2 Spirit of America Twin 30mm EDF
EFL-2796	Landing Gear Set: B-2 Spirit of America Twin 30mm EDF
EFL-2797	Hatch: B-2 Spirit of America Twin 30mm EDF
EFL-2798	EDF Covers: B-2 Spirit of America Twin 30mm EDF
EFL-2799	Pushrod Set: B-2 Spirit of America Twin 30mm EDF
EFL-2800	Control Horn Set: B-2 Spirit of America Twin 30mm EDF
EFL-2801	Decal Sheet: B-2 Spirit of America Twin 30mm EDF
EFLDF30R	6-Blade Rotor, 30mm
EFLU6558	Ducted Fan Unit, 6-blade
SPMSA201	A201 2.3g Long-Throw Linear Servo
SPMX-1037B	Receiver/ESC Unit: B-2 Spirit Twin 30mm EDF
SPMX-1072B	Brushless Motor: 0808-8800Kv 8-pole

Recommended Parts

Part #	Description
SPMX8503S30	850mAh 3S 11.1V Smart G2 30C; IC2
SPMXC2050	S155 55W AC G2 Smart Charger
SPMR7110	NX7e+ 14 Channel Transmitter Only
SPMXCA320	Adapter: IC3 Battery / IC2 Device; 6

Optional Parts

Part #	Description
SPMR8210	NX8+ 20 Channel DSMX Transmitter Only
SPMXC2060	Smart S250 AC Charger, 2x50W
SPMXC2080	Smart S1100 AC Charger, 1x100W
SPMXBC100	Smart LiPo Battery Checker & Servo Driver

Important Federal Aviation Administration (FAA) Information

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

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

According to FAA regulation, all unmanned aircraft flying in United States airspace are required to either fly within an FAA-Recognized Identification Area (FRIA) or continually transmit an FAA-registered remote identification from a Remote ID broadcast module, such as the Spektrum™ Sky™ Remote ID module (SPMA9500). Use the QR code to learn more about the FAA Remote ID regulations.

AMA National Model Aircraft Safety Code

Effective January 1, 2018

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

As an AMA member I agree:

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

Limited Warranty

What this Warranty Covers

Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase.

What is Not Covered

This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at www.horizonhobby.com, submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services

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

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

Warranty Requirements

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

Non-Warranty Service

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

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

10/15

Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	2904 Research Rd Champaign, IL 61822
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	
European Union	Horizon Technischer Service	service@horizonhobby.eu	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

FCC Information

Contains FCC ID: BRWWACO1T

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

Supplier's Declaration of Conformity

B-2 Spirit of America Twin 30mm EDF BNF Basic (EFLU09050)

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

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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

IC Information

Contains: CAN ICES-3 (B)/NMB-3(B)
Contains IC: 6157A-WACO1T

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

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

Compliance Information for the European Union

EU Compliance Statement

B-2 Spirit of America Twin 30mm EDF BNF Basic (EFLU09050): Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: EU Radio Equipment Directive 2014/53/EU, RoHS 2 Directive 2011/65/EU, RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863.

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

Wireless Frequency Range and Wireless Output Power:
2402–2478 MHz
1.43dBm

EU Manufacturer of Record:
Horizon Hobby, LLC
2904 Research Road
Champaign, IL 61822 USA

EU Importer of Record:
Horizon Hobby, GmbH
Hanskampring 9
22885 Barsbüttel Germany

WEEE NOTICE:

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

E328