

**HORIZON**<sup>®</sup>  
H O B B Y

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

# CONVERGENCE<sup>™</sup> VTOL



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

**Bind-N-Fly<sup>®</sup> BASIC** **Plug-N-Play<sup>®</sup>**

**NOTICE**

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit [www.horizonhobby.com](http://www.horizonhobby.com) 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 technology.

## 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.

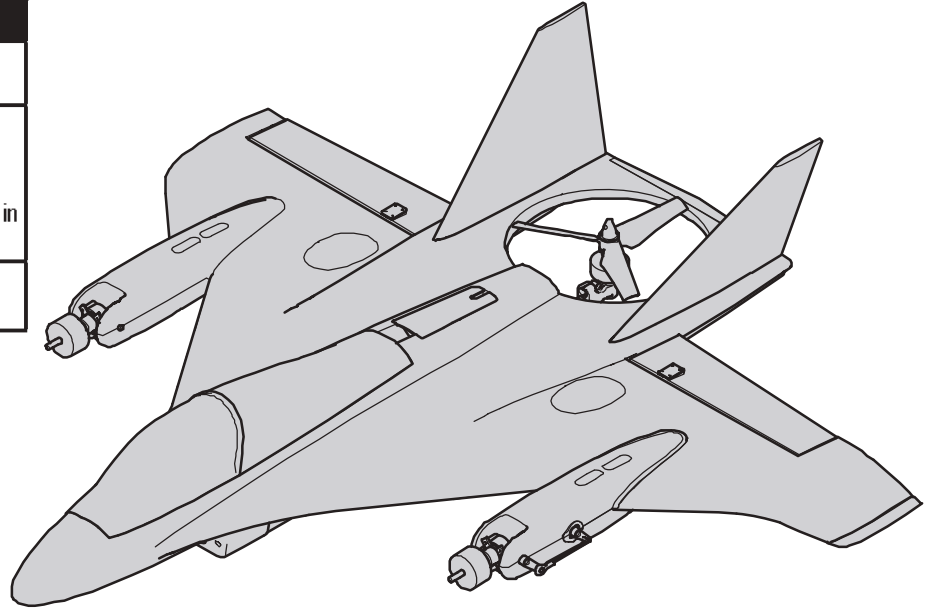
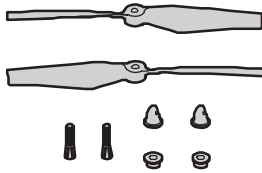
- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away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

# Box Contents

## Quick Start Information

<b>Transmitter Setup</b>	Set up your transmitter using the transmitter setup table
<b>Center of Gravity (CG)</b>	154-168 mm from the front of the FPV camera mount, as shown in the <i>Center of Gravity</i> section (CG must be set with the motor nacelles in the multirotor flight, upright position)
<b>Flight Timer Setting</b>	6 minutes



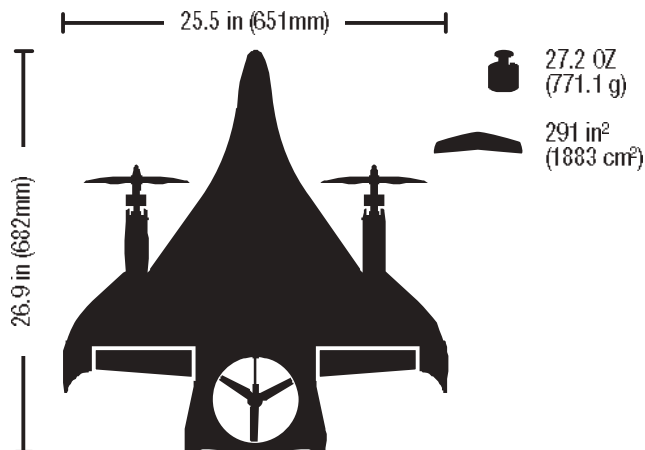
## Specifications

		<b>BNP</b> BASIC	<b>PNP</b> PLUS-IN-FLY
	<b>Motors:</b> (2) 2210-1450Kv Main Motors (1) 2730 - 1550Kv Tail Motor	Installed	Installed
	<b>ESC:</b> (3) 20 AMP Brushless ESCs	Installed	Installed
	(2) 9 g Elevon Servos (2) 9 g, Metal Gear Nacelle Servos	Installed	Installed
	<b>Receiver:</b> Spektrum Quad Race Serial Receiver w/Diversity (SPM4648)	Installed	Required
	<b>Recommended Battery:</b> 11.1V 3S 2200mAh 30C Li-Po (EFLB22003S30)	Required	Required
	<b>Recommended Battery Charger:</b> 3-cell Li-Po battery balancing charger	Required	Required
	<b>Recommended Transmitter:</b> Full-Range 6 channel 2.4GHz with Spektrum™ DSMX® technology	Required	Required

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To receive product updates, special offers and more, register your product at [www.e-fliterc.com](http://www.e-fliterc.com)



**As of this printing, you are required to register with the FAA if you own this product.**  
 For up-to-date information on how to register with the FAA, please visit <https://registermyuas.faa.gov/>.  
 For additional assistance on regulations and guidance on UAS usage, visit [knowbeforeyoufly.org/](http://knowbeforeyoufly.org/).

## Preflight

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

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

## Transmitter Setup

The Convergence™ aircraft requires a transmitter with a minimum of 6 channels and 2 open two-position switches.

Flight Modes are controlled by channel 5.

The transition from vertical flight to forward flight is controlled by channel 6.

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

### Expo

After the first few flights, you may adjust expo up or down in your transmitter to better suit your flying style.

### Computerized Transmitter Setup

(DXe\*, DX6e, DX6, DX7 (Gen2), DX8 (Gen2), DX9, DX18 and DX20)

Start all transmitter programming with a blank ACRO model (perform a model reset), then name the model.

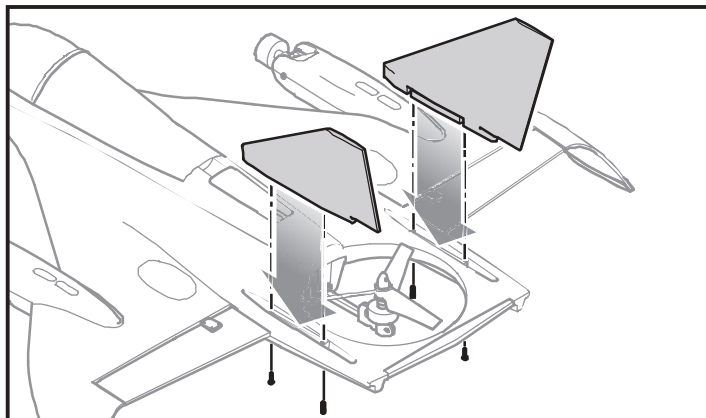
Set Expo values to	Elevator 25%
	Aileron 25%
	Rudder 0%
Set Servo Travel to	100%
DX6 (Gen2) DX7 (Gen2) DX8 (Gen2) DX9 DX18 DX20	1. Go to the SYSTEM SETUP
	2. Set MODEL TYPE: AIRPLANE
	3. Set AIRCRAFT TYPE: WING: NORMAL
	4. Set CHANNEL ASSIGN: (NEXT) CHANNEL INPUT CONFIG: GEAR: A AUX1: H

\* To download the DXe Convergence™ setup, visit [www.spektrumrc.com](http://www.spektrumrc.com).

## Model Assembly

### Install the Vertical Fins

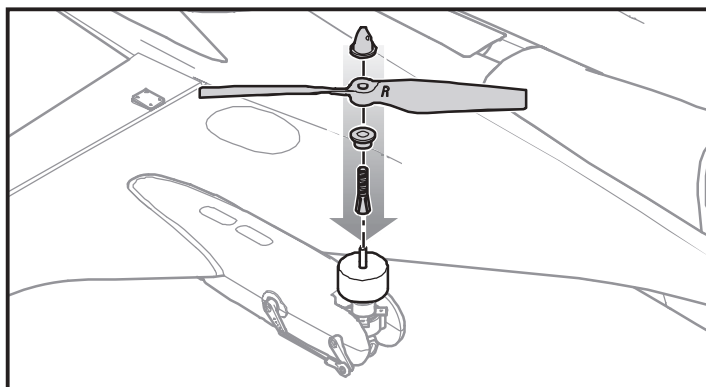
Install the vertical fins on the fuselage using two screws per side as shown.



### Install the Main Propellers

The main propellers are labelled near the hub with an "R" and an "L" to show on which side they should be installed.

1. Find the propeller collets, backplates and nuts.
2. Place a collet over the right side motor shaft as shown.
3. Slide a backplate over the collet.
4. Place the propeller marked "R" over the collet, with the "R" facing away from the motor.
5. Install the propeller nut on the collet. Use a small screwdriver or hex wrench through the hole in the propeller nut to tighten. Do not overtighten the propeller nut as damage to the propeller, nut or collet may occur.
6. Repeat steps 1-5 for the left motor using the propeller marked "L".



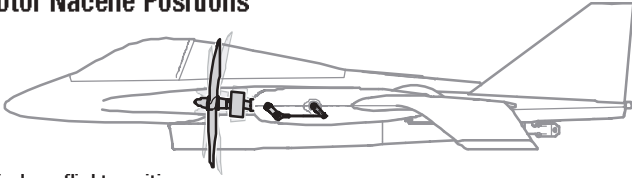
## Transmitter and Receiver Binding

This product requires an approved Spektrum™ DSM2®/DSMX® compatible transmitter. Visit [www.bndrftly.com](http://www.bndrftly.com) for a complete list of approved transmitters.

**IMPORTANT:** Before binding a transmitter, read the *Transmitter Setup* section to ensure that your transmitter is properly programmed for this aircraft.

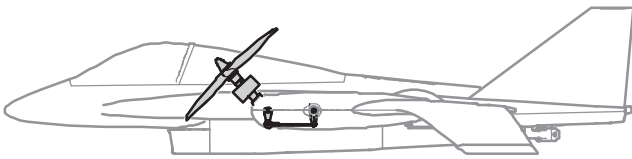
If you encounter problems, follow the binding instructions and refer to the transmitter troubleshooting guide for other instructions. If needed, contact the appropriate Horizon Product Support office.

### Motor Nacelle Positions

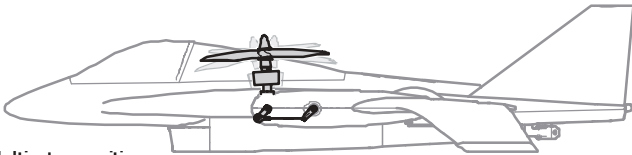


Airplane flight position

Motor position may vary slightly depending on aircraft orientation and current flight mode.



Transition position



Multirotor position

Motor position may vary slightly depending on aircraft orientation and current flight mode.

### Binding Procedure

**CAUTION:** When using a Futaba® transmitter with a Spektrum DSM2 module, you must reverse the throttle channel and rebind. Refer to your Spektrum module manual for binding and failsafe instructions. Refer to your Futaba transmitter manual for instructions on reversing the throttle channel.

1. Make sure the transmitter is powered off.
2. Center all trims and move the throttle stick to the lowest position.
3. Place the aircraft on a level surface. Connect the flight battery to the flight controller. The flight controller will produce a series of tones indicating it is initializing. The motor nacelles will rotate to the mid-transition point and then to the near-upright, multirotor position.  
**IMPORTANT:** The flight controller will not power the receiver on until the flight controller is fully initialized, indicated by the motor nacelles rotating to the multirotor position.  
When the nacelles reach the multirotor position the receiver is ready to bind.
4. Take 3 steps away from the aircraft/receiver and then power ON the transmitter in bind mode. Refer to your transmitter's manual for specific binding instructions.
5. The receiver is bound to the transmitter when the LED on the receiver glows solid orange.  
**IMPORTANT:** The flight controller will not arm the ESCs if the throttle is not in the lowest position and the throttle trim at or below center.
6. Power cycle the aircraft by unplugging and plugging in the flight battery to the flight controller. The flight controller will initialize again.  
**IMPORTANT:** The aircraft will not respond to transmitter input until the receiver is power cycled.

**IMPORTANT:** After binding the receiver and transmitter for the first time, the transmitter must be powered on first, before the aircraft. Failure to power on the transmitter first will cause the receiver to automatically go into bind mode and requiring the transmitter and receiver to have to be re-bound.

## Control Horn and Servo Arm Settings

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

**CAUTION:** Do not change the length of the motor nacelle control linkages or their positions on the servo horns. Changing the linkages could cause a loss of control and possibly a crash. Crash damage is not covered under warranty.

	Control Horns	Servo Arms
Elevons		
Motor Nacelles		

## Battery Installation and ESC Arming

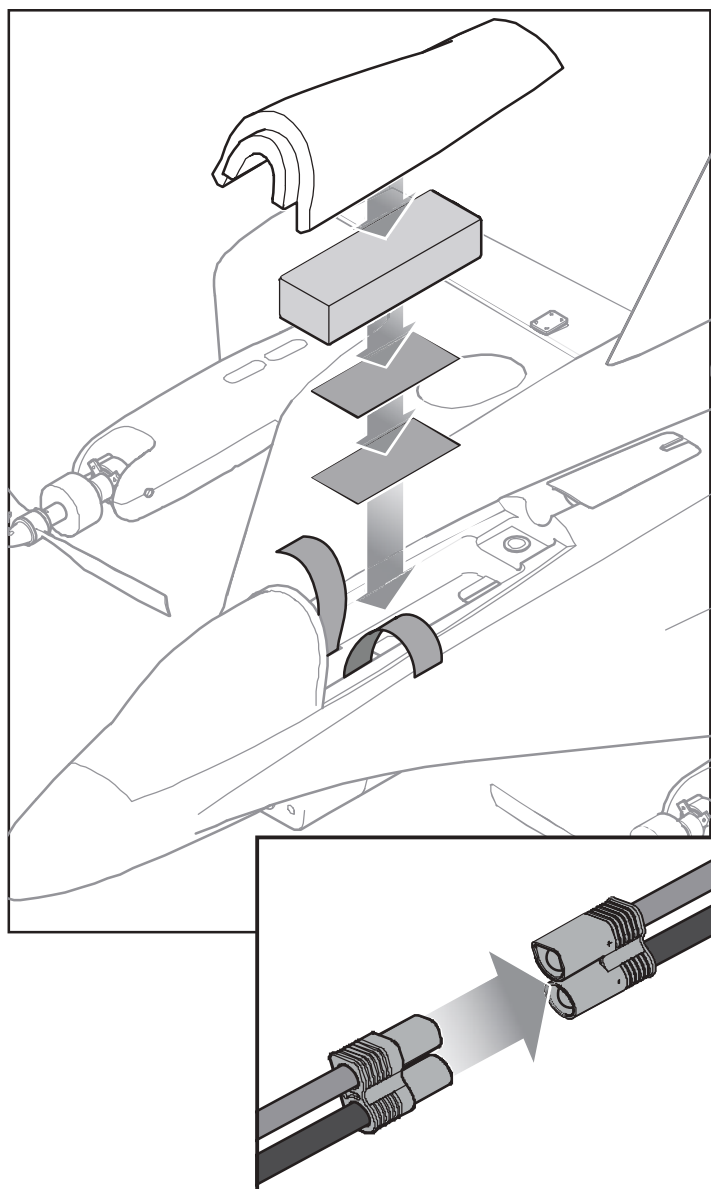
### Battery Selection

We recommend the E-flite® 2200mAh 11.1V 3S 30C Li-Po battery (EFLB22003S30). Refer to the *Optional Parts* list for other recommended batteries. If using a battery other than those listed, the battery should be within the range of capacity, dimensions and weight of the E-flite Li-Po battery packs to fit in the fuselage.

1. Lower the throttle and throttle trim to the lowest settings. Set the flight attitude switch to multirotor flight. Power on the transmitter and wait approximately 5 seconds.
2. Carefully lift the back of the battery hatch and pull back to remove it.
3. For added security, apply the loop side (soft side) of the optional hook and loop tape to the bottom of your battery and the hook side to the battery tray.
4. Install the fully charged battery in the battery compartment as shown. Secure using the hook and loop strap.
5. Connect the battery to the flight controller.
6. Keep the aircraft upright, immobile and away from wind or the system will not initialize.
  - The motor nacelles will rotate to the middle position briefly and then to the upright, multirotor flight position, indicating the flight controller has initialized and the ESCs are armed.

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

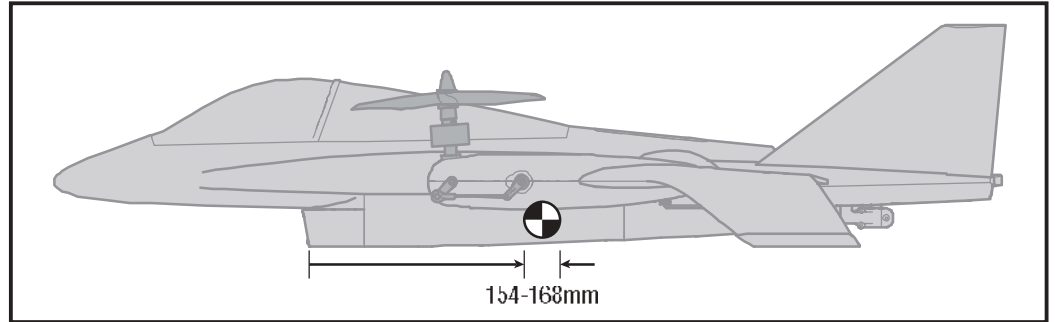
7. Reinstall the battery hatch.
8. Refer to the Center of Gravity section to ensure the model balances at the recommended CG.



## Center of Gravity (CG)

The CG location is within 154-168mm, measured from the bottom corner of the front of the FPV camera mount as shown in the illustration.

**CAUTION:** The main motor nacelles must be in the upright, multirotor flight position when checking the center of gravity. Failure to do so will give an incorrect center of gravity and may cause a crash. Crash damage is not covered under warranty.



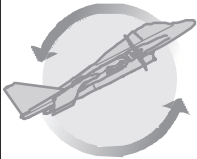
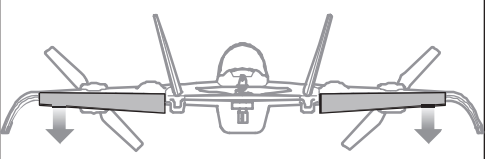
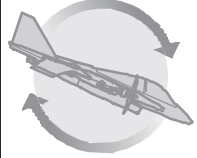
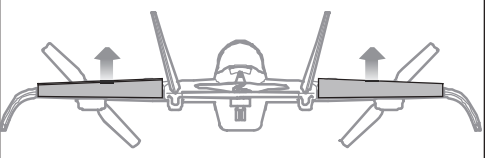
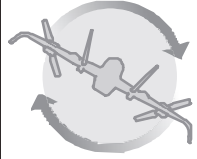
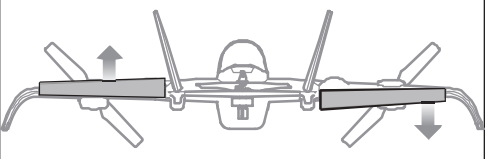
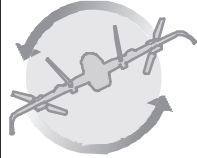

## Flight Control Direction Test

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

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

Set the transmitter switches to airplane flight, stability mode. Move the entire aircraft as shown in the table and ensure the control surfaces move in the direction indicated. If the control surfaces do not respond as shown, do not fly the aircraft. Contact Horizon Product Support.

Once the flight control system is active, control surfaces may move rapidly. This is normal.

Aircraft Movement	Elevon Reaction
	
	
	
	




# Understanding the Primary Flight Controls

The Convergence™ aircraft is capable of both forward, airplane flight and vertical, multirotor flight. It is important to understand how the primary flight controls function and how the aircraft reacts in both flight modes. Take a few minutes to familiarize yourself with the controls prior to attempting your first flight.

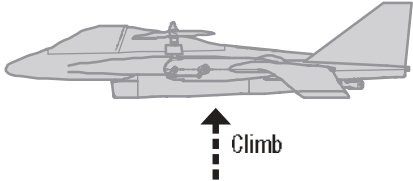
## Multirotor Flight

**Throttle**

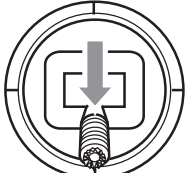


Throttle up

Left side view

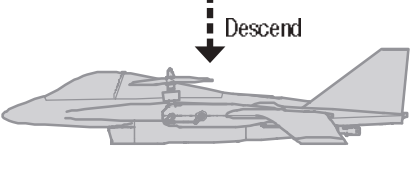


Climb




Throttle down

Left side view



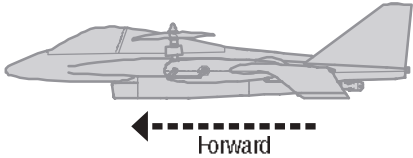
Descend

**Elevator**

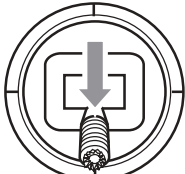


Elevator down

Left side view

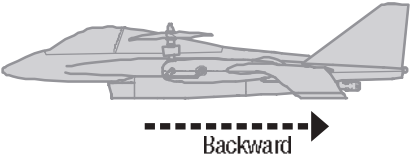


Forward



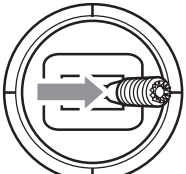
Elevator up

Left side view



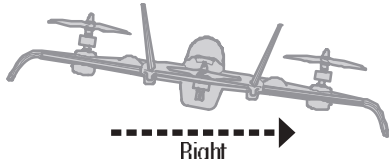
Backward

**Aileron**

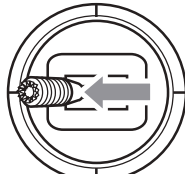


Aileron right

Rear view

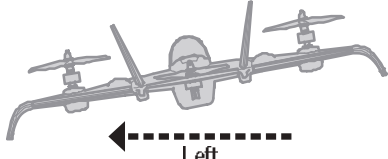


Right



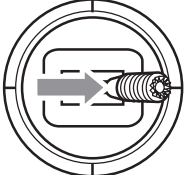
Aileron left

Rear view



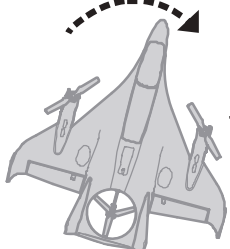
Left

**Rudder**

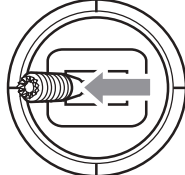


Rudder right

Top view

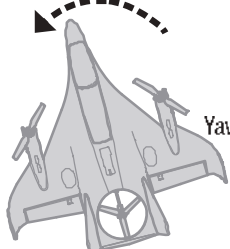


Yaw right



Rudder left


Top view



Yaw left

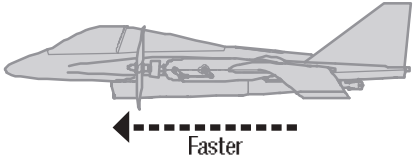
## Airplane Flight

**Throttle**

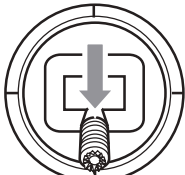


Throttle up

Left side view

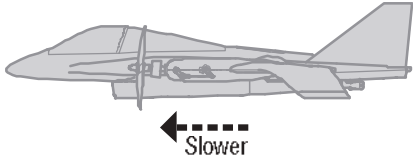


Faster



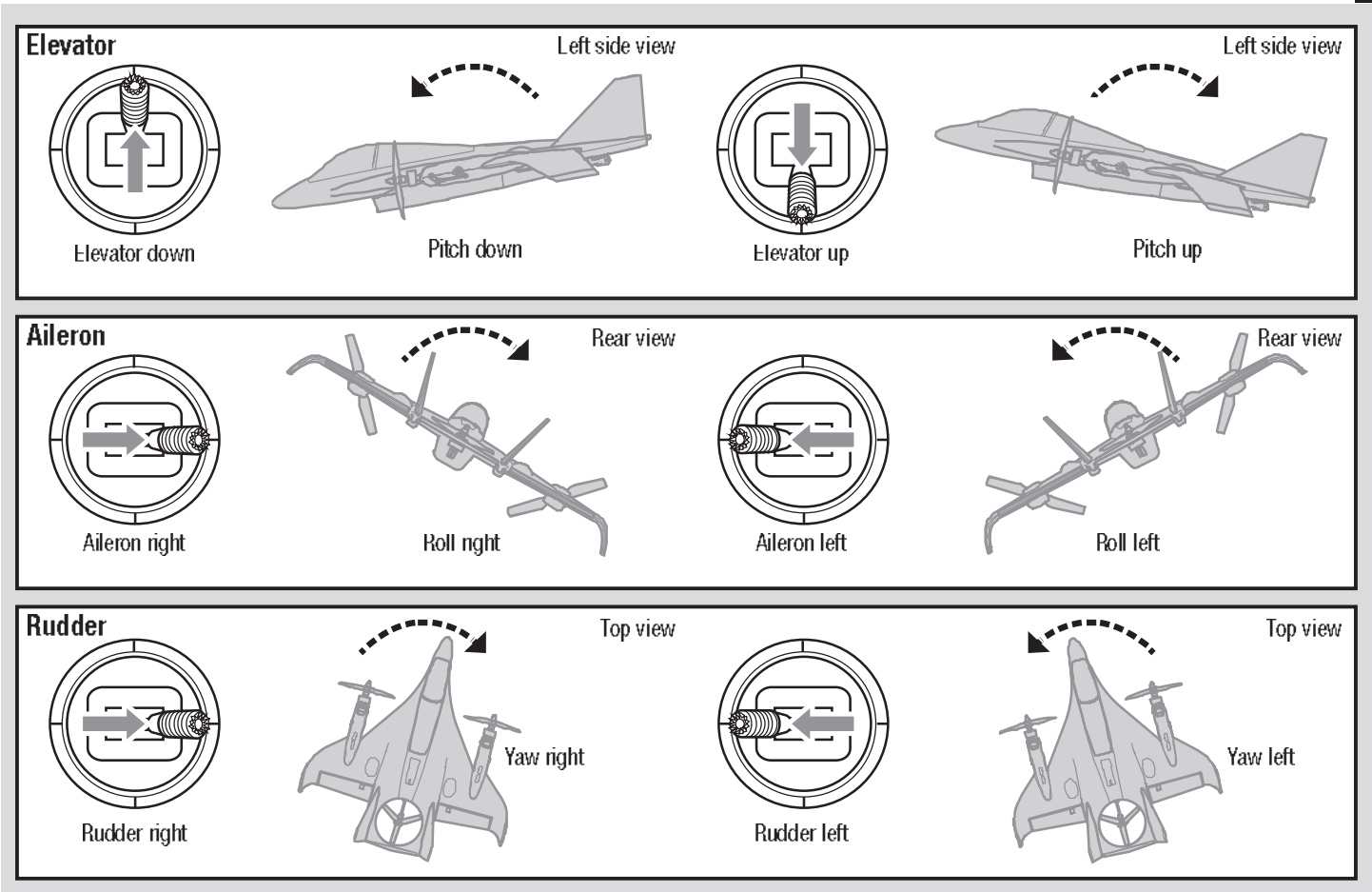
Throttle down

Left side view



Slower





## Flight Conditions

Stability and Acro Flight Modes are available in both airplane flight and multirotor flight. The basic function of each mode is the same regardless of what realm of flight is active.

### Stability Mode

Stability Mode limits the bank and pitch angle of the aircraft. The aircraft will self-level if you release the transmitter sticks.

### Acro Mode

Acro Mode removes the bank angle limits and will not self-level the aircraft if you release the transmitter sticks. Acro Mode is intended for experienced pilots who are comfortable flying the aircraft in any orientation.

The following table gives the switch positions and a brief description of the possible flight conditions available.

	<b>Multirotor Flight</b> (Switch H, Position 1)	<b>Airplane Flight</b> (Switch H, Position 0)
<b>Stability Mode</b> (Switch A, Position 0)	<ul style="list-style-type: none"> <li>Limited bank angle</li> <li>Very little pitch change</li> <li>Forward and backward flight is achieved through angling of the main motor nacelles</li> <li>Self-levelling</li> <li>Elevons inactive</li> <li>Tail motor runs</li> <li>Use this condition for all takeoffs and landings</li> </ul>	<ul style="list-style-type: none"> <li>Limited bank angle</li> <li>Self-levelling</li> <li>Elevons active</li> <li>Tail motor does not run</li> <li>Do not attempt to land or takeoff in this condition</li> </ul>
<b>Acro Mode</b> (Switch A, Position 1)	<ul style="list-style-type: none"> <li>Unlimited bank and pitch angles</li> <li>Does not self-level</li> <li>Elevons inactive</li> <li>Tail motor runs</li> <li>Do not attempt to land or takeoff in this condition if you are an inexperienced pilot</li> </ul>	<ul style="list-style-type: none"> <li>Unlimited bank and pitch angles</li> <li>Does not self-level</li> <li>Elevons active</li> <li>Tail motor does not run</li> <li>Do not attempt to land or takeoff in this condition</li> </ul>

## Flying Your Aircraft

Consult local laws and ordinances before choosing a flying location.

### Range Check your Radio System

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

### Just Before Flight

Once the flight control system is active, you will normally see the control surfaces react to aircraft movement.

For your first flights with the recommended battery pack (EFLB22003S30), set your transmitter timer or a stopwatch to 6 minutes.

**NOTICE:** Never fly the aircraft without first setting and activating a timer.

After 6 minutes, land the aircraft. Adjust your timer for longer or shorter flights depending on your preference and battery usage.

### Takeoff

**NOTICE:** All takeoffs and landings must be done in multirotor flight. Attempting to land in airplane flight will damage the motors and nacelles possibly causing a crash. Crash damage is not covered under warranty.

Place the aircraft on a flat, level surface with the tail facing you. Set your transmitter to multirotor flight and stability mode.

**Tip:** Stability mode is highly recommended for the first few takeoffs and landings, until you become familiar with how the aircraft reacts to control inputs.

Check that the motor nacelles are in the fully upright position before applying throttle. Gradually increase the throttle until the model is approximately 2 ft. (600mm) off the ground. Avoid forcing the aircraft into the air.

### Hovering and Multirotor Flight

Making small corrections on the transmitter, try to hold the aircraft in one spot. If flying in calm winds, the model should require almost no corrective inputs. After moving the aileron/elevator stick and returning it to center the model should level itself. The model may continue to move due to inertia. Move the stick in the opposite direction to stop the movement.

After you become comfortable hovering, you can progress into flying the model to different locations, keeping the tail pointed towards you at all times. You can also ascend and descend using the throttle stick.

Once you are comfortable with these maneuvers, you can attempt flying with the tail in different orientations. It is important to keep in mind that the flight control inputs will rotate with the aircraft, so always try to picture the control inputs relative to the nose of the aircraft. For example, forward will always drop the nose of the aircraft, causing the aircraft to move forward.

**NOTICE:** Do not attempt to fly backwards at a high rate of speed. While the aircraft is capable of flying backwards while in multirotor mode, the aircraft becomes more unstable as backward speed increases due to airflow over the fixed wings.

### Transitioning In Flight

**To transition to airplane flight from multirotor flight,** change the flight attitude switch on your transmitter to the airplane flight position. The throttle will increase slightly and the motor nacelles will rotate forward in three stages to the airplane flight position. The elevons become active. It is normal to have some slight oscillations in pitch as the aircraft transitions into airplane flight. While in airplane flight mode the main motors use differential thrust to provide yaw control and the tail motor does not run.

**To transition to multirotor flight from airplane flight,** reduce the airspeed, change the flight attitude switch on your transmitter to the multirotor flight position and stability mode for landing. The throttle will increase slightly and the motor nacelles will rotate to the vertical position. The tail motor will power on and the elevons will go to neutral. While in multirotor flight the elevons do not move. All pitch, roll and yaw control is accomplished by differential thrust and angling of the motors.

**NOTICE:** Do not transition to multirotor flight at low throttle or lower the throttle immediately after transitioning to multirotor flight. Doing so will cause a rapid loss of altitude and possibly a crash.

### Airplane Flight

Fly the aircraft and trim it for level flight per the *Trimming Your Aircraft* section. The Convergence flies in a very similar manner to any other fixed-wing aircraft. It is capable of a wide range of aerobatic maneuvers including loops, rolls and spins. Additionally, the differential thrust of the motors allows for unique spinning and tumbling maneuvers.

### Landing

**NOTICE:** All takeoffs and landings must be done in multirotor mode. Attempting to land in airplane mode will damage the motors and rotation mechanisms possibly causing a crash. Crash damage is not covered under warranty.

Transition the aircraft into multirotor flight and bring it into a low hover. Slowly lower the throttle to descend to a soft landing.

**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 ESCs, motors and motor nacelles.

**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)

The average flight time with a mixture of multirotor and airplane flight using the recommended flight battery is approximately 6 minutes.

The flight controller protects the flight battery from over-discharge using Low Voltage Cutoff (LVC). When the flight battery is drained to LVC the flight controller will automatically transition the motors into stability mode, multirotor flight. The remaining battery will last less than a minute, so land the aircraft as soon as possible.

There will be no visual indication if you are flying in stability mode, multirotor flight when the battery reaches LVC. In this flight condition the motors will slowly lose power until the ESCs cutoff. If you begin to notice the motors dropping in power, land immediately and re-charge the flight battery.

After landing disconnect and remove the Li-Po battery from the aircraft 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 may damage the battery.

**Tip:** Monitor your aircraft battery's voltage before and after flying by using a Li-Po Cell Voltage Checker (EFLA111, sold separately).

### Repairs

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

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

## In Flight Trimming

Familiarize yourself with the *Flying Your Aircraft* section prior to trimming your aircraft. Trimming should be done in calm wind conditions and with a fully charged transmitter and flight battery.

1. During your first Airplane Flight, trim the aircraft for level flight at approximately 3/4 throttle.
2. Make small trim adjustments with your transmitter's trim switches to straighten the aircraft's flight path.
3. When the aircraft maintains straight and level flight, land the aircraft in multi-rotor mode.
4. Set the flight mode back to airplane mode. Take note of the neutral position of the control surfaces.

5. Adjust the control linkages mechanically to compensate for the amount of trim entered.
6. Re-center the trims on the transmitter. **The transmitter trims should always be centered for best flight performance.**
7. Fly the aircraft again to check the changes made.
8. Repeat the trimming process until the aircraft will maintain reasonable straight and level forward flight.

When the initial trimming process is done, the aircraft should not require large amounts of trimming on subsequent flights. If large amounts of trim are needed to hold straight and level flight on later flights, land the aircraft and check the control surfaces for damage or binding.

## Post Flight

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

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

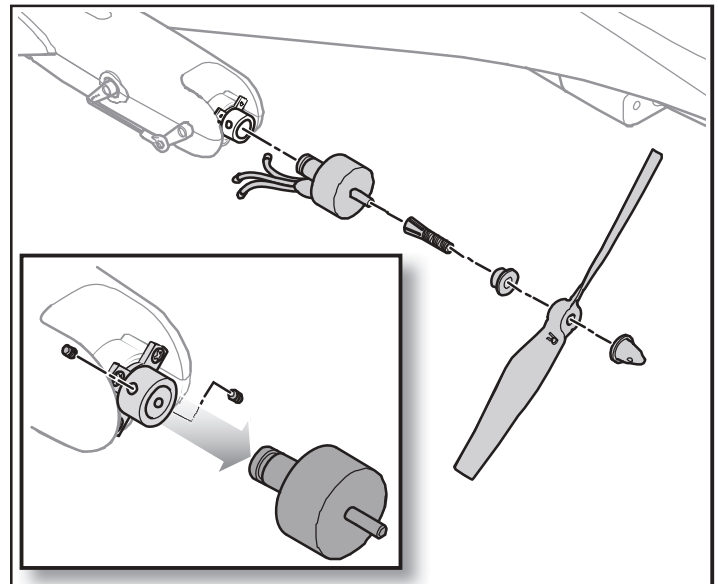
## Motor Service

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

### Main Motor Removal

1. Pull the base of the rubber motor wire boot out of the nacelle slot.
2. Disconnect the motor wires from the ESC.
3. Remove the spinner nut from the collet shaft.
4. Remove the propeller, collet backplate and collet from the motor shaft.
5. Loosen both set screws on the motor mount.
6. Pull the motor from the motor mount.

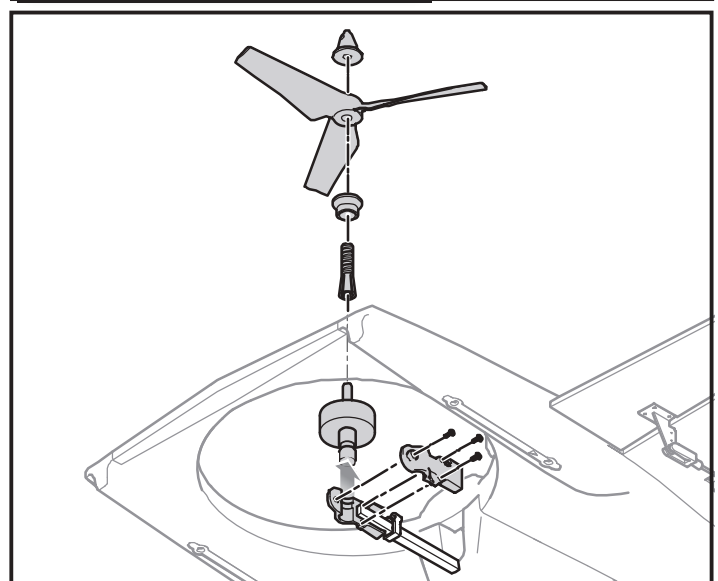
Assembly is the reverse of the removal process.



### Tail Motor Removal

1. Slide the wire clip fully to the rear of the tailboom.
2. Disconnect the tail motor wires from the ESC.
3. Remove the spinner nut from the collet shaft.
4. Remove the propeller, collet backplate and collet from the motor shaft.
5. Remove 3 screws from the tail motor mount and remove the left half of the motor mount.
6. Remove the tail motor from the mount and carefully remove the motor wires from the plastic wire clip.

Assembly is the reverse of the removal process.



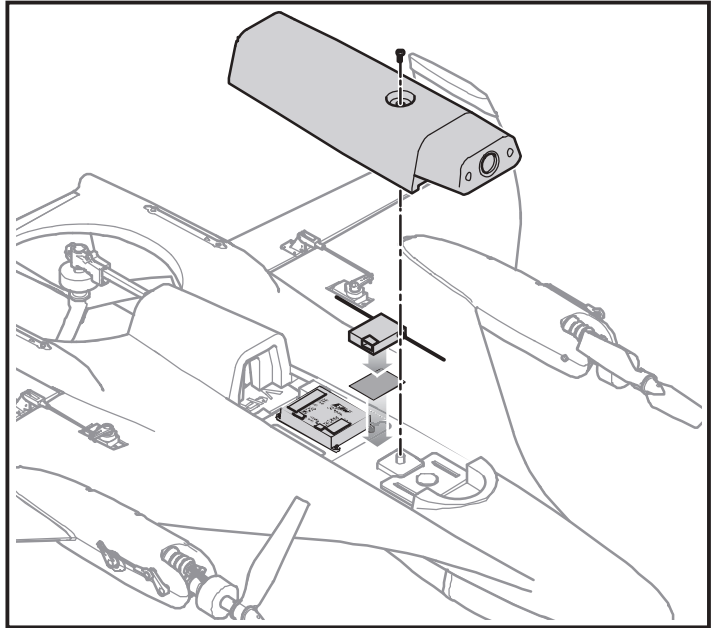
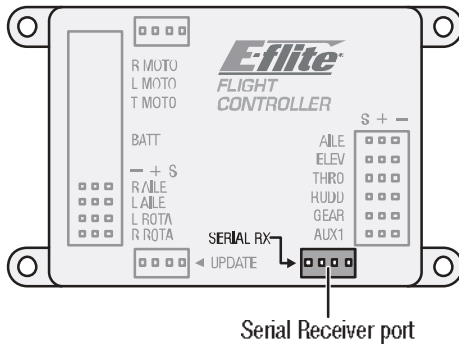
## PNP Receiver Selection and Installation

The Convergence aircraft is capable of using either the Spektrum™ DSMX® serial receiver (SPM4648), included in the BNF aircraft, or a standard 6-channel full range (sport) receiver. Refer to your receiver manual for correct installation and operation instructions.

### Installation of a DSMX serial receiver

1. Remove the bottom cover from the fuselage.
2. Mount the receiver to the fuselage as shown using double-sided servo tape or hook and loop material.
3. Attach the serial receiver lead to the receiver and to the flight control board as shown below.
4. Replace the bottom fuselage cover.

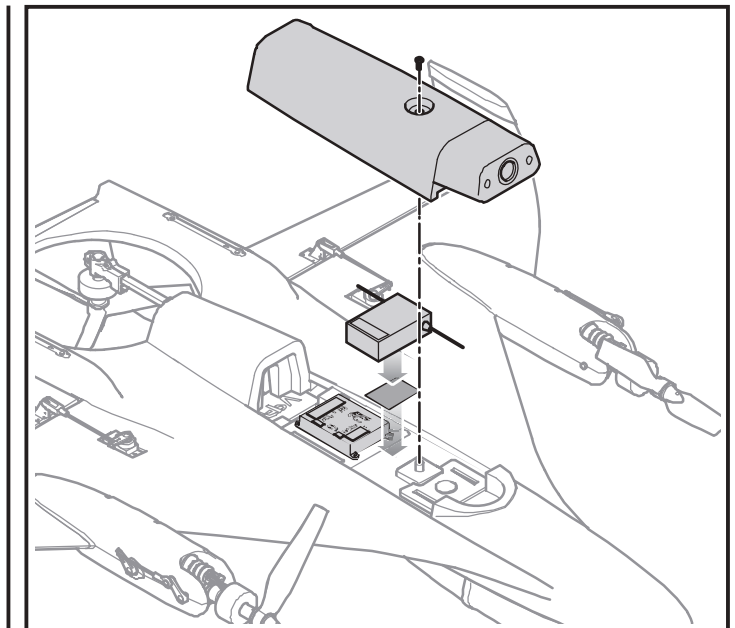
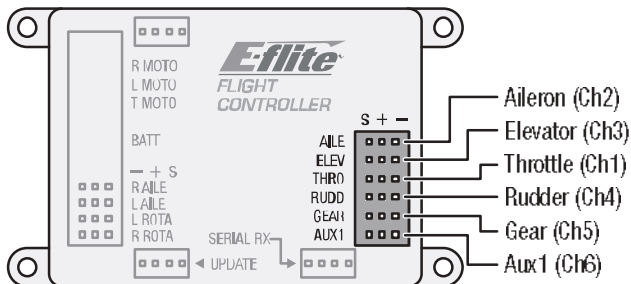
### Flight Controller Connection



### Installation of a standard sport receiver

1. Remove the bottom cover from the fuselage.
2. Mount the receiver to the fuselage as shown using double-sided servo tape or hook and loop material.
3. Connect the individual channel jumpers from the flight controller to the corresponding channels on the receiver as shown below.
4. Replace the bottom fuselage cover.

### Flight Controller Connections



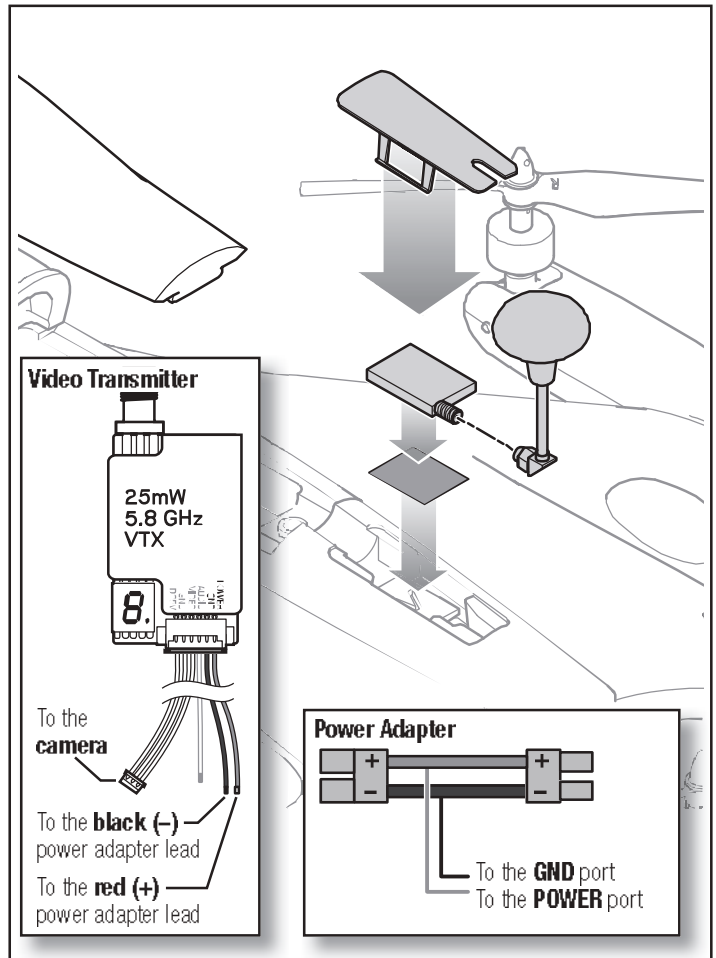
## FPV System Installation

### Items required for FPV installation:

- Camera, 650TVL CCD FPV Camera NTSC (SPMVC650)
- Video transmitter with the power output appropriate for your region
- Antenna, RHCP Omni Right Angle Connector (SPMVX5802)
- Power adapter, Air Telemetry Flight Pack Voltage Sensor: EC3 (SPMA9556)
- Spektrum 4.3 inch Video Monitor with Headset (SPMVM430C)

### Installation of a video transmitter

1. Remove the video transmitter hatch by lifting at the front and pulling straight up.
2. Remove the battery hatch.
3. Connect the lead from the power adapter to the video transmitter harness.
  - a. Cut the micro connector from the power adapter leaving enough wire length from the adapter to reach from the battery compartment to the video transmitter.
  - b. Solder the wire from the power adapter to the video transmitter harness power and ground leads, noting proper polarity. The red wire from the adapter connects to the "power" port, and the black wire from the adapter connects to the "gnd" port from the harness. Be sure to properly insulate the wire connections using heat shrink tubing.
4. Connect the power adapter EC3 plug to the power lead from the flight controller.
5. Remove the bottom fuselage cover.
6. Thread the video camera connector from the FPV compartment, through the fuselage and to the front of the bottom compartment.
7. Attach the video transmitter antenna to the video transmitter.
8. Mount the video transmitter to the mounting plate provided in the fuselage using either double sided foam tape or self-adhesive hook and loop material. The video transmitter must be oriented so the antenna exits at the rear of the compartment, through the slot in the hatch.
9. Replace the video transmitter hatch by gently pushing in on the sides and pressing the hatch straight down into the fuselage.



### Installation of an FPV camera:

1. Remove the bottom cover from the fuselage if not already removed.
2. Connect the video camera lead to the video camera.
3. Align the camera lens with the opening in the camera mount and slide the camera body into the camera mount as shown. The pins on the sides of the camera body align with the holes in the sides of the mount and will snap into the holes when the camera is fully seated in the mount.
4. Replace the bottom cover to the fuselage.

