Hurricane 25e

Assembly Manual
Montageanleitung
Manuel d'assemblage
Manuale di montaggio

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

PLUG-N-PLAY®

E-flite®
ADVANCING ELECTRIC FLIGHT

Notice

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, Inc. For up-to-date product literature, visit 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 a 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 attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby, Inc. 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.

Additional Safety Precautions and Warnings

Age Recommendation: Not for children under 14 years. This is not a toy.

- 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.

Introduction

No fighter deserves more credit for saving Britain in its darkest hour than the Hawker Hurricane. It's simple construction allowed it to be manufactured in large numbers and it could be quickly repaired in the field using basic tools. And, despite being slower than the vaunted Spitfire, the Hurricane could out turn many of the enemy fighters it faced and bring its eight Browning machine guns to bear with devastating effect. This surprising maneuverability combined with its sheer numbers are two big reasons the humble Hurricane shot down more enemy aircraft in the Battle of Britain than any other Allied fighter.

Now you can experience the thrill of flying the Hurricane in this remarkably scale rendition constructed of tough Z-Foam™ material. The Plug-N-Play® version comes out of the box with a high-output brushless power system, digital metal-hybrid gear servos, and functional split flaps preinstalled. Even the authentic RAF No. 1 Squadron paint scheme and decals have been pre-applied. If you choose the Bind-N-Fly® version, you get all of this plus a Spektrum™ AR600 DSMX receiver preinstalled, as well as an E-flite 3S 3200 mAh 30C Li-Po battery and Li-Po charger.

All that is left to complete is a few minutes of final assembly. You also get the option of installing E-flite® 15-25 Electric Retracts (EFLG200- sold separately). Installation is simple, and when you're done, you will have a unique, scale warbird that will be the envy of the flying field!

Specifications

Wingspan:	53.5 in (1360mm)
Wing Area:	460 sq in (29.7 sq dm)
Length:	42.0 in (1060mm)
Weight with Battery:	4.50–4.65 lb (2.00–2.10 kg)
Weight w/o Battery:	3.90–4.05 lb (1.80–1.90 kg)

Table of Contents

Using the Manual

This manual is divided into sections to help make assembly easier to understand and to provide breaks between each major section. In addition, check boxes have been placed next to each step to keep track of its completion. Steps with a single circle (❍) are performed once, while steps with two or more circles (❍ ❍) indicate the step will require repeating, such as for a right or left wing panel, two servos, etc.

Remember to take your time and follow the directions.

Contents of Kit/Parts Layout

Replacement Parts

EFL297501	Fuselage
EFL297502	Wing Set
EFL297503	Hatch
EFL597504	Tail Set
EFL297505	Radiator
EFL297506	Wing Mounts
EFL297507	Air Scoop
EFL297508	Antenna
EFL297509	Landing Gear Covers
EFL297510	Main Landing Gear with 2.75-inch (70mm) wheels
EFL297511	Lens Package
EFL297512	Hardware Pack
EFL297513	Landing Gear Mounts
EFL297514	Spinner, 2.50-in (63.5mm), Black
EFL297515	Prop Hub
EFL297516	Tail wheel Assembly
EFL297517	Pushrod Set
EFL297518	Retract Cover Plate
EFLC3010	2–3S Li-Po Balancing Charger
EFLR7140	13 g Sub-Micro Servo

Hardware/Accessory Sizes

Main wheel diameter	3-in (76mm)
Tail wheel diameter	1.125-in (28mm)
Wing bolt	3mm x 15mm

Recommended Radio Equipment

You will need a minimum 5-channel transmitter for either the BNF or PNP versions of your model. We recommend the crystal-free, interference-free Spektrum™ DX6i 2.4GHz DSMX™ 6-channel system.

If you are assembling the PNP version, you can choose to purchase a complete radio system. If you are using an existing transmitter, just purchase the receiver separately.

Transmitter:

SPMR6610	DX6i DSMX 6CH Transmitter

Transmitter and Receiver:

SPM6610	DX6i DSMX 6CH Transmitter with AR6210 Receiver

6-Channel Receiver:

SPMAR600 receiver	AR600 6-channel DSMX

Replacement Power System

EFLM7300	BL25 25 BL Outrunner motor, 1000Kv
EFLB32003S30	3200mAh 3S 11.1V 30C Li-Po
EFLA1060	60-Amp Pro Switch-Mode BEC ESC
EFLP117570	11.75 x 7 propeller

Optional Accessories

EFLC3020	Celectra™ 200W DC Multi-Chemistry Battery Charger
EFLA110	Power Meter

Optional Retracts

EFLG200	15–25 Electric Retracts
EFL297519	Retract Wire Struts
EFLG304	25–46 Adjustable Axles (not for use with EFL297519)

Required Tools and Adhesives

Tools & Equipment

Balancing stand	Cut-off wheel
Epoxy brush	Drill bit: 3/16-inch (5mm)
Flat file	Mixing cup
Mixing stick	Open-end wrench: 3/4-inch
Paper towel	Petroleum jelly
Rotary tool	Phillips screwdriver: #1
Ruler	Vise grip
Hex wrench: 2.5mm	
Hobby knife with #11 blade	

Adhesives

30-minute epoxy	PAAPT39
Threadlock	PAAPT42

E-tips

During the course of building your model, we suggest you use a soft base for the building surface. Things like a foam stand, large piece of bedding foam or a thick bath towel will work well and help protect the model from damage during assembly. This is not shown in the instructions to provide the greatest detail in the photos.

E-tips

When referencing directions (up, down, left, right, top and bottom), these directions are in relationship to the pilot sitting in the cockpit of the aircraft unless noted otherwise.

Charging the Flight Battery - BNF

Required Parts

Charger — Motor battery

12V power supply or AC adapter

BATTERY WARNINGS

The Battery Charger included with your aircraft is designed to safely charge the Li-Po battery.

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

- By handling, charging or using the included Li-Po battery you assume all risks associated with lithium batteries.
- If at any time the battery begins to balloon or swell, discontinue use immediately. If charging or discharging, discontinue and disconnect. Continuing to use, charge or discharge a battery that is ballooning or swelling can result in fire.
- Always store the battery at room temperature in a dry area for best results.
- Always transport or temporarily store the battery in a temperature range of 40–120° F. Do not store battery or model in a car or direct sunlight. If stored in a hot car, the battery can be damaged or even catch fire.
- NEVER USE A Ni-Cd OR Ni-MH CHARGER. Failure to charge the battery with a compatible charger may cause fi re resulting in personal injury and/or property damage.
- Never discharge Li-Po cells to below 3V under load.
- Never cover warning labels with hook and loop strips.
- Never leave charging batteries unattended.
- Never charge batteries outside safe temperature range.
- Never charge damaged batteries.

Your model comes with a DC balancing charger and 3S Li-Po battery. You must charge the included Li-Po battery pack with a Li-Po specific charger only (such as the included charger). Never leave the battery and charger unattended during the charge process. Failure to follow the instructions properly could result in a fire. When charging, make certain the battery is on a heat-resistant surface. Charge the flight battery while assembling the aircraft. Install the fully charged battery to perform control tests and binding.

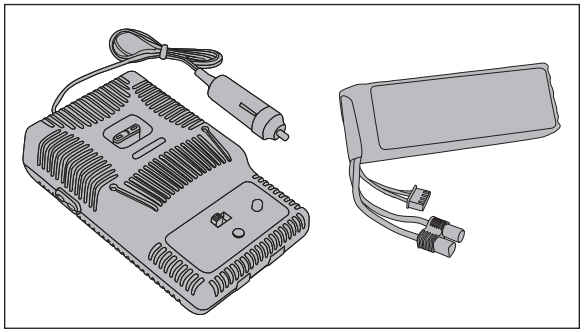
DC LI-PO BALANCING CHARGER FEATURES

- Charges 2- to 3-cell lithium polymer battery packs
- Variable charge rates from 300mAh to 2-amp
- Simple single push-button operation
- LED charge status indicator
- LED cell balance indicator
- Audible beeper indicates power and charge status
- 12V accessory outlet input cord Specifications
- Input power: 12V DC, 3-amp
- Charges 2- to 3-cell Li-Po packs with minimum capacity of 300mAh

The included 3S Li-Po battery pack features a balancing lead that allows you to safely charge your battery pack when used with the included Li-Po balancing charger.

NOTICE: Do not use a 6V power supply with this charger.

THE BATTERY CHARGING PROCESS



- 1. Charge only batteries that are cool to the touch and are not damaged. Look at the battery to make sure it is not damaged e.g., swollen, bent, broken or punctured.
- 2. Attach the input cord of the charger to the appropriate power supply (12V accessory outlet).
- 3. When the Li-Po charger has been correctly powered up, there will be an approximate 3-second delay, then an audible "beep" and the green (ready) LED will flash.
- 4. Turn the control on the Amps selector so the arrow points to the charging rate required for the Battery (see chart, for example a 3200mAh Li-Po battery will charge at 3.0 amps). DO NOT change the charge rate once the battery begins charging.
- 5. Move the cell selector switch to 2-cell or 3-cell for your battery.
- 6. Connect the Balancing Lead of the Battery to the 2-cell (it has 3 pins) or 3-cell (it has 4 pins) charger port.
- 7. The green and red LEDs may flash during the charging process, when the charger is balancing cells. Balancing prolongs the life of the battery.
- 8. When the battery is fully charged, there will be an audible beep for about 3 seconds, and the green LED will shine continuously.
- 9. Always unplug the battery from the charger immediately upon completion of charging.

⚠ ***CAUTION***: Overcharging a battery can cause a fire.

Note: Attempting to charge an over-discharged battery will cause the charger to repeatedly flash and beep, indicating an error has occurred.

⚠ ***CAUTION***: Only use a charger specifically designed to charge a Li-Po battery. Failure to do so could result in fire causing injury or property damage.

⚠ ***CAUTION***: Never exceed the recommended charge rate.

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 supply from the motor. Power to the motor pulses, showing that some battery power is reserved for flight control and safe landing. When the motor pulses, land the aircraft immediately and recharge the flight battery. Disconnect and remove the Li-Po battery from the aircraft after use to prevent trickle discharge. Fully charge your Li-Po battery before storing it. During storage make sure battery charge does not go below 3V per cell.

Propeller Removal and Installation - BNF/PNP

Required Parts

Fuselage assembly

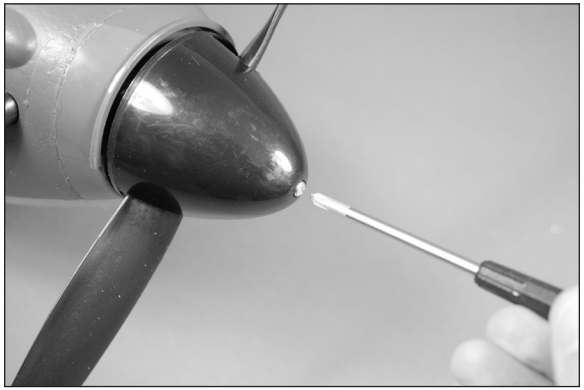
Required Tools and Adhesives

Phillips screwdriver: #1

Open-end wrench: 3/4-inch

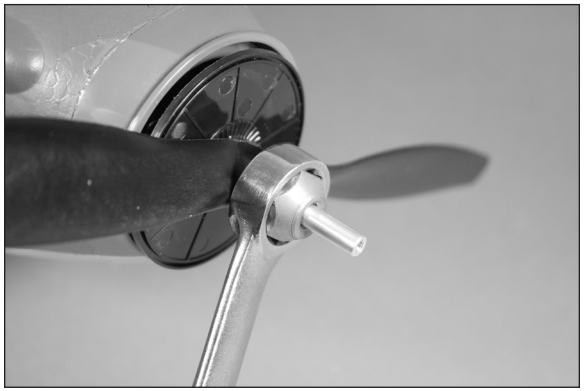
⚠ ***CAUTION***: We highly recommend removing the propeller before binding the receiver to make sure the motor does not start unexpectedly and cause personal injury. Use this section to replace the propeller if it becomes damaged and requires replacement.

- 1. Use a #1 Phillips screwdriver to remove the 3mm x 8mm machine screw securing the spinner cone to the propeller nut.

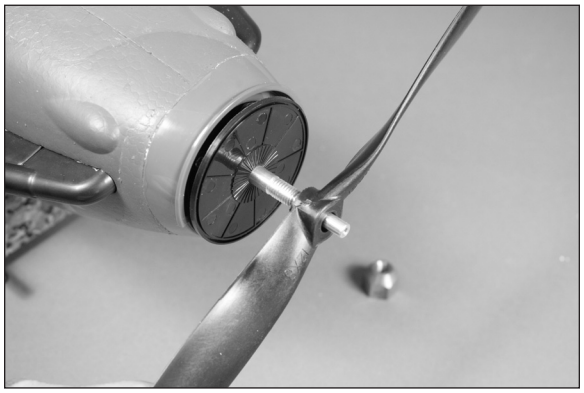


❍ 2. Remove the spinner cone by pulling the cone forward from the spinner backplate.

❍ 3. Use a 3/4-inch box wrench to remove the propeller nut from the motor adapter.



❍ 4. Remove the propeller from the motor adapter.



E-tips

We recommend removing the spinner backplate and propeller adapter during the binding process as they can come loose if the motor starts and could cause damage to your work surface or personal injury.

❍ 5. When installing the propeller, use only the recommended 11.75 x 7 propeller listed. Use of a different sized propeller will change the load on the motor, and could damage the motor or speed control. Make sure the numbering on the propeller faces to the front of the model as shown. Tighten the nut to ensure the propeller is secure.

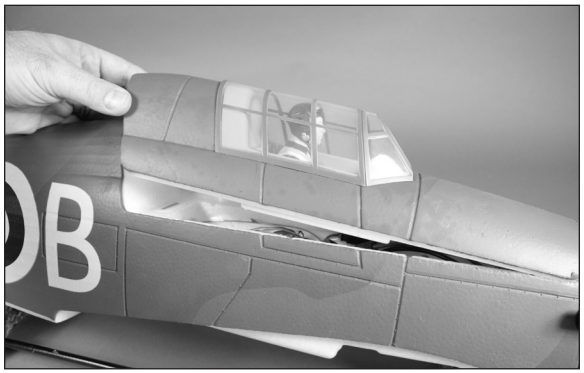
❍ 6. Place the spinner cone in position and secure it using the 3mm x 8mm machine screw and a #1 Phillips screwdriver. Make sure to position the spinner cone so it does not contact the propeller.

Battery Installation - BNF/PNP

Required Parts

Fuselage assembly Motor battery

❍ 1. Remove the canopy hatch from the fuselage by lifting the hatch at the rear. The canopy hatch attaches to the fuselage using a magnet at the rear and pins at the front.



❍ 2. Locate the motor battery. If you are building the BNF version of this model, we recommend the battery be charged before it is installed. Slide the battery under the hook and loop straps. Use the straps to secure the battery in the fuselage.

E-tips

Do not connect the lead from the battery to the speed control until instructed to do so.

Transmitter and Receiver Binding - BNF

Required Parts

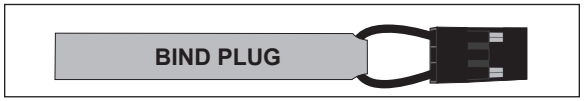
Fuselage assembly Transmitter
Bind plug

Binding is the process of programming the receiver of the control unit 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.

Note: Any JR® or Spektrum full range DSM2™/DSMX™ transmitter can bind to the Spektrum AR600 receiver. Please visit www.bindnfly.com for a complete list of compatible transmitters.

Note: When using a Futaba transmitter with a Spektrum DSM module, you must reverse the throttle channel.

BINDING PROCEDURE



- ❍ 1. Read transmitter instructions for binding to a receiver (location of transmitter's Bind control).
- ❍ 2. Make sure transmitter is powered off.
- ❍ 3. Move the transmitter controls to neutral (flight controls: rudder, elevators and ailerons) or to low positions (throttle, throttle trim, and flight control trims).*
- ❍ 4. Install a bind plug in the receiver's bind port.
- ❍ 5. Connect the flight battery to the ESC.
- ❍ 6. Power on the ESC switch. The receiver LED will begin to flash rapidly under the rear hatch.
- ❍ 7. Power on the transmitter while holding the transmitter bind button or switch. Refer to your transmitter's manual for binding button or switch instructions.
- ❍ 8. When the receiver binds to the transmitter, the light on the receiver will be solid and the ESC will produce a series of sounds. The series of sounds is a long tone, then 3 short tones that confirm the LVC is set for the ESC.
- ❍ 9. Remove the bind plug from the bind port in the receiver.
- ❍ 10. Safely store the bind plug (some owners attach the bind plug to their transmitter using two-part loops and clips).
- ❍ 11. The receiver should keep the binding to the transmitter until another binding is done.

  * The throttle will not arm if the transmitter's throttle control is not put at the lowest position.

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

Stabilizer Installation - BNF/PNP

Required Parts

Fuselage assembly Stabilizer assembly

Required Tools and Adhesives

30-minute epoxy Mixing stick
Mixing cup Epoxy brush
Petroleum jelly Paper towel
Denatured alcohol

E-tips

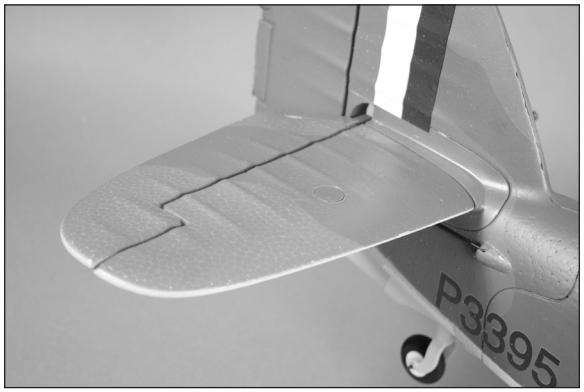
Before installing the stabilizer, we highly recommend test fitting all parts before mixing epoxy. If the epoxy begins to cure before parts are assembled, it will be difficult to re-use items where epoxy has been applied.

E-tips

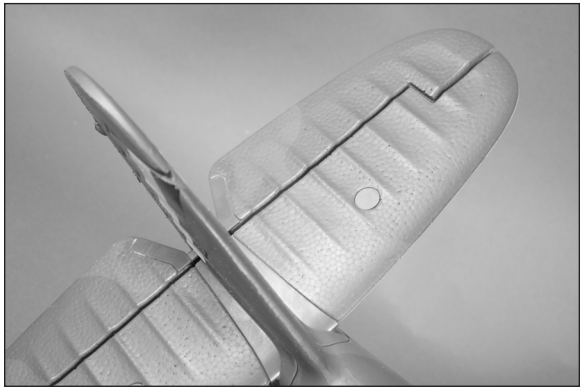
When installing the stabilizer, make sure to glue tube ONLY to the stabilizer. This will allow easy removal of the tube if the stabilizer becomes damaged and requires replacement.

- ❍ 1. Separate the stabilizer halves, leaving the tube in one of the stabilizer halves.

❍ 2. Fit the stabilizer half to the fuselage by sliding the tube into position. The stabilizer will fit tightly in the plastic fairing.



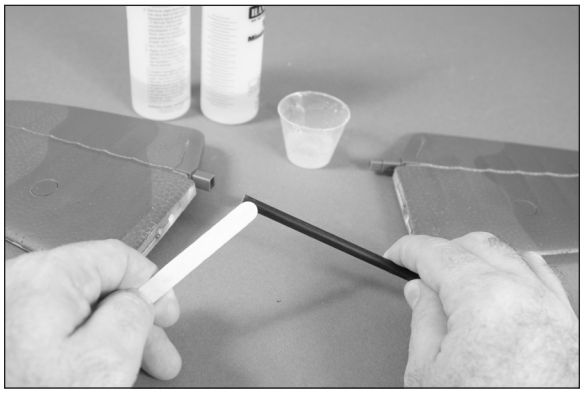
❍ 3. Fit the other stabilizer half into position. Both halves will fit tightly in the fairing when installed. If not, check to make sure there is nothing from preventing them from seating fully.



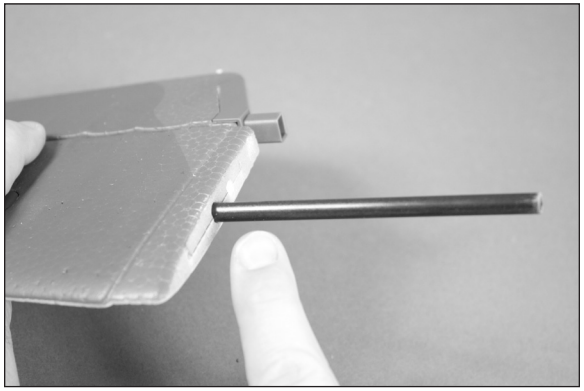
E-tips

Follow the procedure listed to apply the epoxy that will secure the tube in the stabilizer halves. This will allow you to remove the tube and stabilizer pieces from the fuselage if the stabilizer becomes damaged.

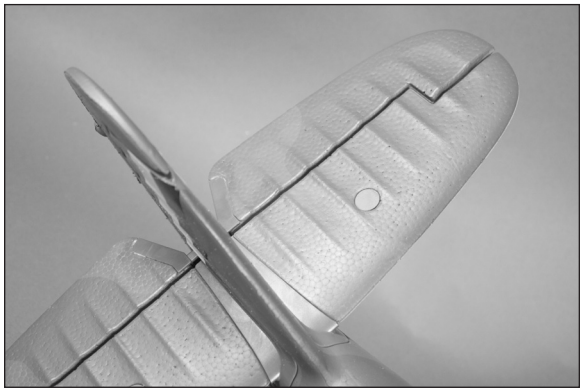
❍ 4. Remove the stabilizers from the fuselage, and the tube from both stabilizer halves. Apply a small amount of 30-minute epoxy to the end of the stabilizer tube and to the tube socket.



❍ 5. Slide the tube into the stabilizer half. Use a paper towel soaked with denatured alcohol to remove any excess epoxy. Apply a small amount of petroleum jelly to the first .50-inch (13mm) of the tube exposed outside of the stabilizer.



❍ 6. Slide the stabilizer in position as shown in step 2. Apply a small amount of epoxy to the end of the stabilizer tube and in the stabilizer as shown in step 4. Slide the remaining stabilizer into position.



Main Gear Installation - BNF/PNP

Required Parts

Wing panel (right and left)
Landing gear assembly (right and left)
Landing gear door (right and left)
Landing gear mount cover (right and left)
2.5mm x12mm self-tapping screw (8)

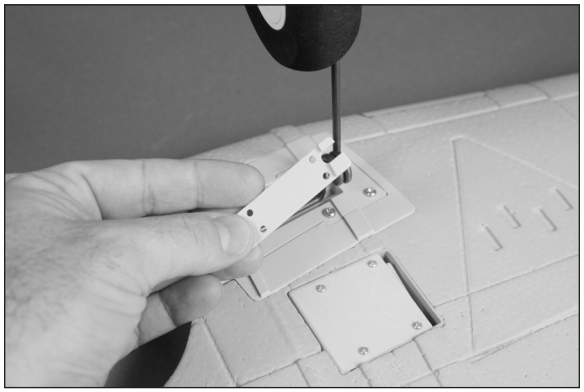
Required Tools and Adhesives

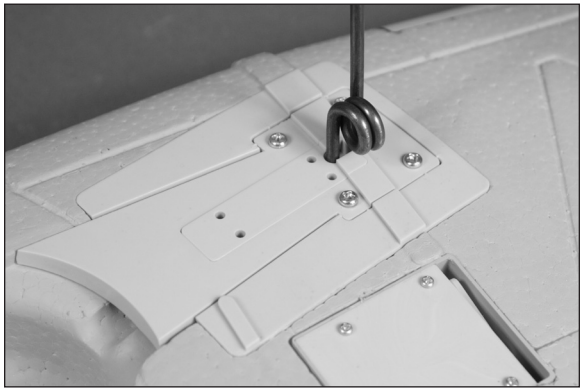
Phillips screwdriver: #1

If you will be installing the optional retract, skip to the Optional Retract Installation section of the manual on Page 10. The retracts can be installed now, or later in the life of your model.

❍❍ 1. Locate the main landing gear assembly. Fit the assembly into the wing panel. The coil on the spring will face to the rear of the wing, and the wheel will face toward the middle of the wing.

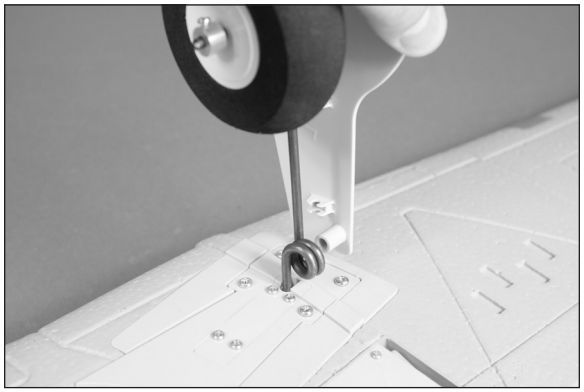
❍❍ 2. Fit the landing gear mount cover in position. Note the narrow side of the opening faces to the front of the wing.

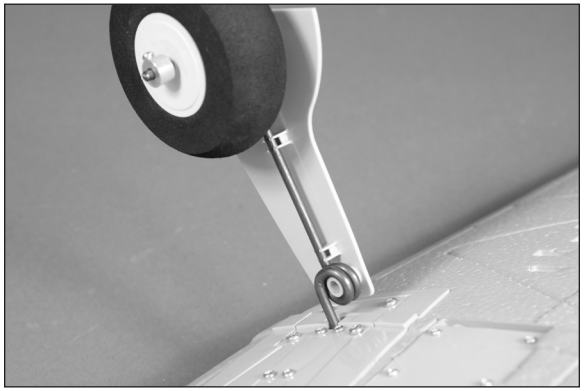




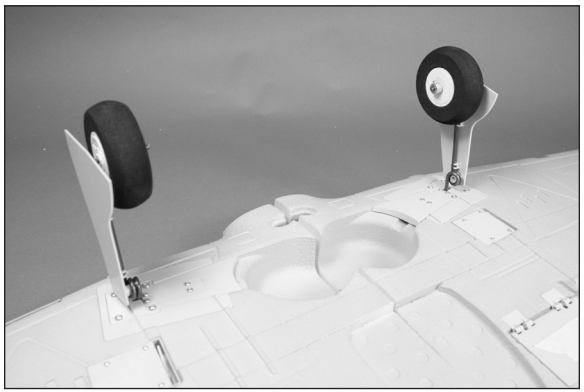
❍❍ 3. Use four 2.5mm x 12mm self-tapping screws to secure the landing gear mount cover. Use a #1 Phillips screwdriver to tighten the screws.

❍❍ 4. Snap the landing gear door to the strut. Note that the protrusion on the door fits into the coil of the strut to keep the door from rotating.





❍ 5. Repeat steps 1 through 4 to install the remaining landing gear assembly.



Optional Retract Installation - BNF/PNP

Required Parts (included with model)

Wing panel (right and left)
Landing gear door (right and left)
Landing gear mount cover (right and left)
Wheel (2) (removed from fixed gear)
3mm wheel collar with screw (2) (removed from fixed gear)
3mm x 25mm machine screw (8) (removed from fixed gear mount)
Transmitter
Receiver battery
Receiver

Required Optional Parts

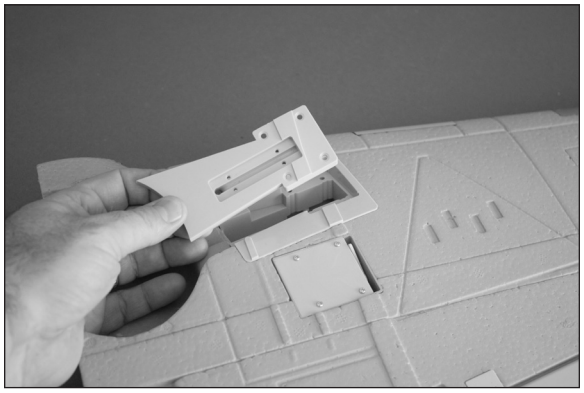
Retract wire strut (right and left)
Retract cover plate (right and left)
Retract assembly
12-inch (305mm) servo extension (2)

Required Tools and Adhesives

Rotary tool
Cut-off wheel
Vise grip
Phillips screwdriver: #1
Flat file
Hex wrench: 2.5mm
Threadlock
Hobby knife with #11 blade
Drill bit: 3/16-inch (5mm)

Note: We offer a set of pre-bent wire struts designed specifically for the Hurricane that bolt directly into the retract units and have all of the angles preground so it is as simple as installing the fixed landing gear for those who would prefer. Please order part number EFL297519.

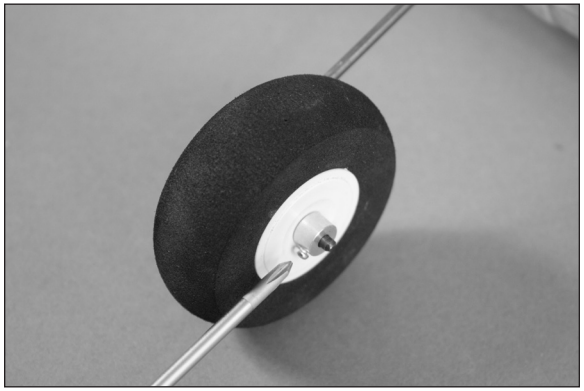
❍❍ 1. Use a #1 Phillips screwdriver to remove the four 3mm x 25mm machine screws that secure the fixed gear adapter in the wing. Remove the adapter from the wing.



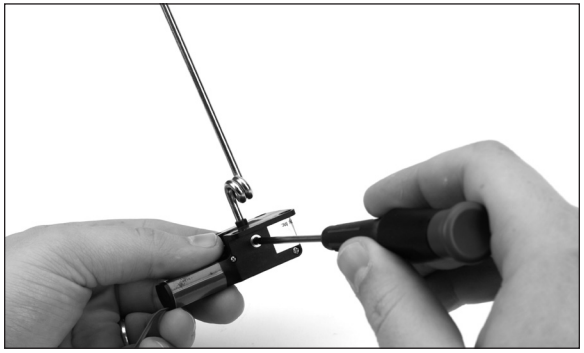
E-tips

If you are upgrading from fixed gear to retracts, you can remove the complete assembly with the same four screws. Set the fixed gear aside just in case you have a retract failure. You can always reinstall the fixed gear to keep your model flying.

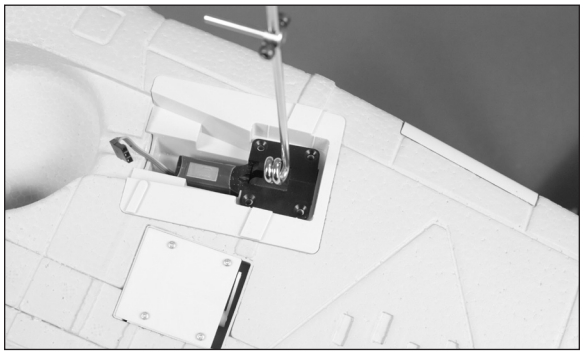
❍❍ 2. Use a #1 Phillips screwdriver to loosen the 3mm x 4mm machine screw that secures the wheel collar. Remove the wheel and wheel collar at this time.



❍❍ 3. Use the radio system to move the landing gear to the down position. Loosen the setscrew in the retract unit so that the gear strut can be removed from the retract unit. Push the trunnion through the retract assembly and reinstall in reverse orientation so that the setscrew will be opposite the pre-ground flat spot on the gear strut. Position the axle so it is $4^{5}/_{16}$-inch (109mm) as shown. Lightly tighten the screws in the axle with a 2.5mm hex wrench at this time, as it will require positioning in the following steps.



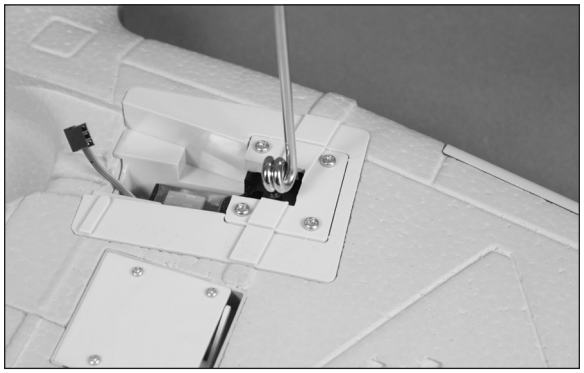
❍❍ 4. Place the retract mechanism in the wing. Check that the holes align with those in the gear pocket. Note that installing two screws lightly diagonally from one another will align the retract unit perfectly.



E-tips

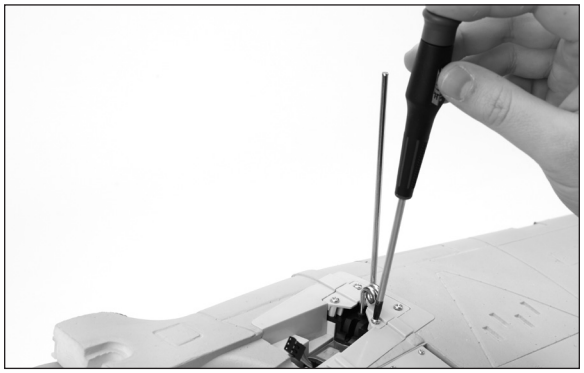
Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

❍❍ 5. Position the gear strut in the retract unit so that the coil is parallel with the centerline of the fuselage. An excellent visual cue for this is to align the coil with the rib under the coil. The gear strut should orient towards the wing tip with the coil facing towards the root.

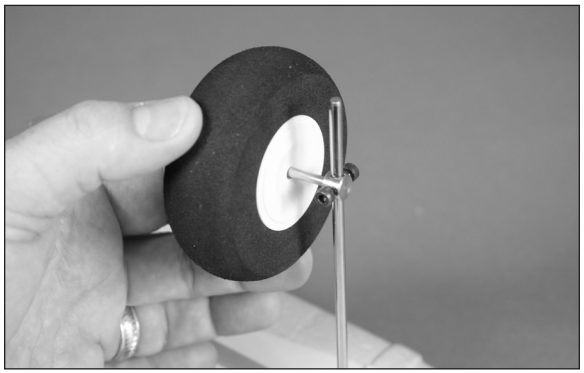


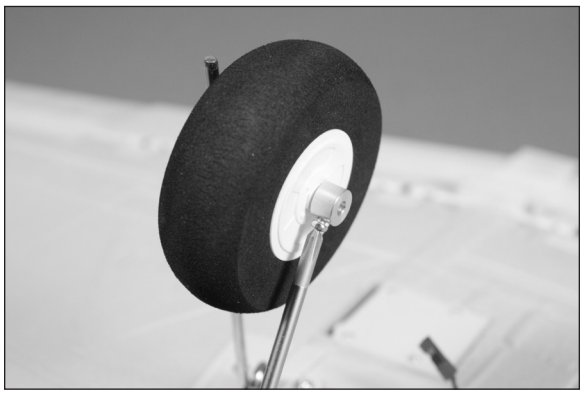
❍❍ 6. Mark this angle and remove the gear strut from the retract unit and use a flat file to grind a flat spot on the gear strut to so that it can not rotate when the setscrew has been tightened. It is absolutely critical that this is aligned properly, and it may take some adjustment to arrive at the correct angle. Take your time and ensure that this is perfect. Reinsert the strut into the retract unit and tighten the setscrew in the unit to lock the strut into place.

❍❍ 7. Use the four 3mm x 25mm screws removed in step 1 and the retract cover plate to secure the retract in the wing. Use a #1 Phillips scewdriver to tighten the screws.

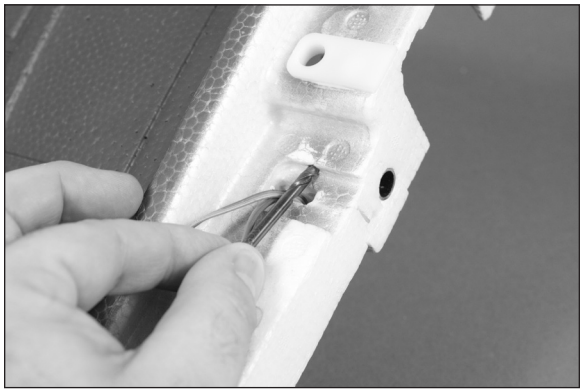


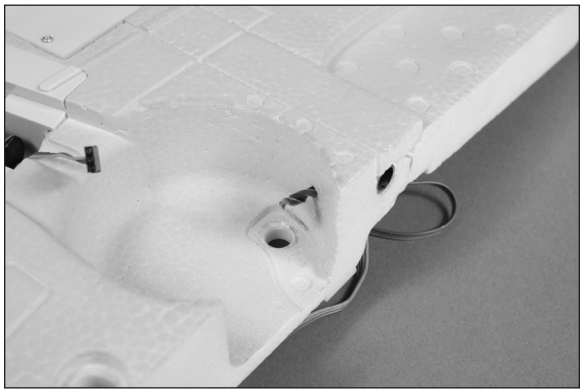
❍❍ 8. Slide the wheel removed from the fixed gear onto the axle. Use the wheel collar removed in step 2 to secure the wheel to the axle. Use a #1 Phillips screwdriver to tighten the screw.



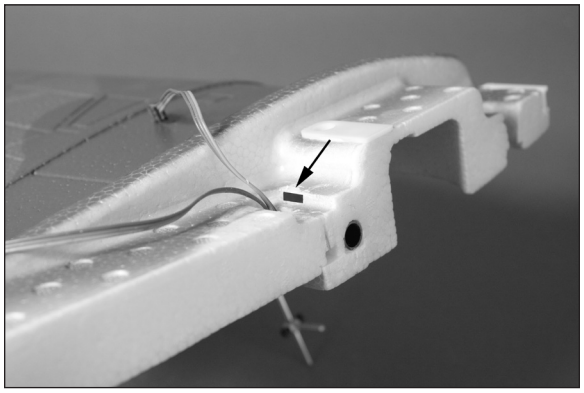


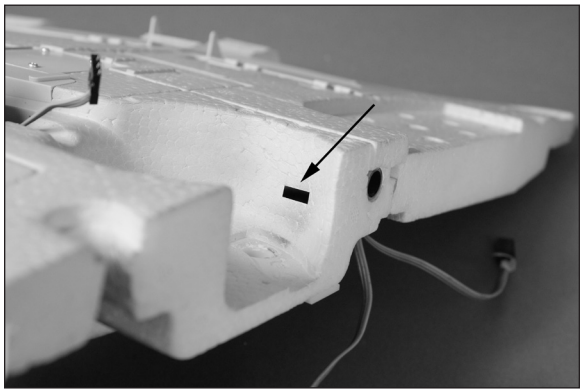
❍❍ 9. Use a 3/16-inch (5mm) drill bit to drill a hole near the aileron and flap servo leads into the wheel well opening.



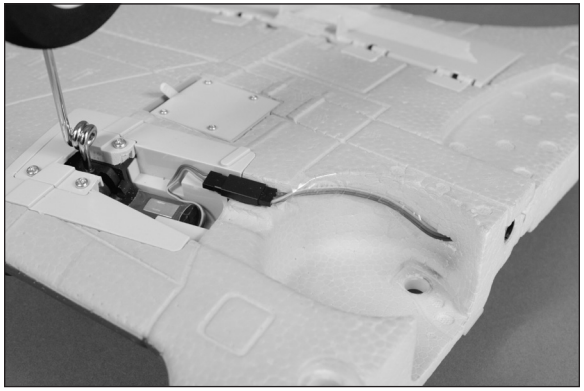


❍❍ 10. Use a hobby knife to open the hole drilled in the previous step to fit a servo extension through. Make the hole just big enough for the extension to avoid weakening the wing.





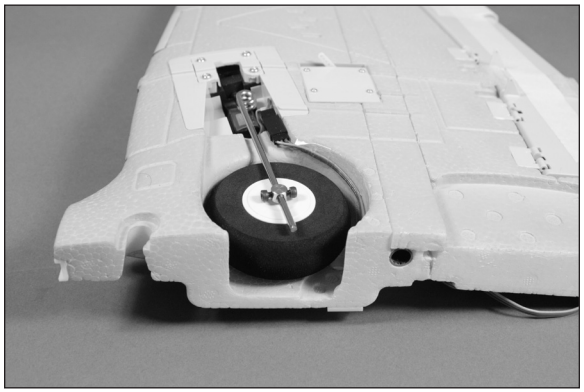
❍❍ 11. Secure a 12-inch (305mm) servo lead to the retract lead. Use two-sided tape to secure the plug in the locations shown. Route the lead through the hole made in the wing and use clear tape to secure it so it does not interfere with the operation of the retract.



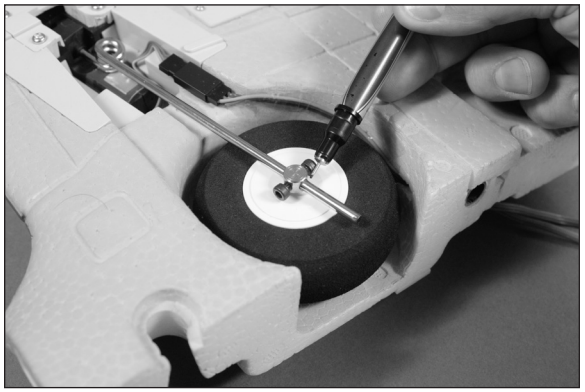
E-tips

The next steps are to position the wheel. If the wheel is not positioned correctly, it can bind and cause premature damage to the retract mechanism.

❍❍ 12. Use the transmitter to retract the gear. Check that the wheel is centered in the wheel well. Adjust the axle as necessary using a 2.5mm hex wrench.



❍❍ 13. Use a felt-tipped pen to mark the edge of the axle so the excess wire can be removed from the main gear wire.



❍❍ 14. Extend the landing gear and align the axle so that it is perpendicular to the centerline of the airplane. This will align the axle so that the wheel does not have any angle and will cause the airplane to roll straight. Tighten the screws on the axle enough to leave a mark on the retract strut. Remove the axle and extend the gear. Use a file to make a flat on the wire for the screws to tighten to. This will keep the axle from rotating when flying from grass runways or during rough landings.

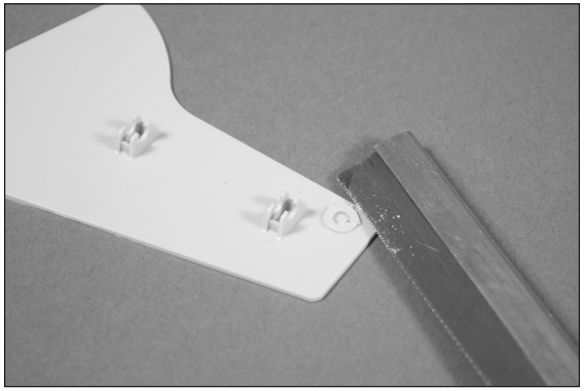
❍❍ 15. Use a rotary tool and cut-off wheel to trim the axle at the mark made in step 12. Use vise grips to hold the wire and to act as a heat-sink. This will keep the heat from cutting the wire from transferring back to the retract mechanism, which could melt the plastic.

E-tips

Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

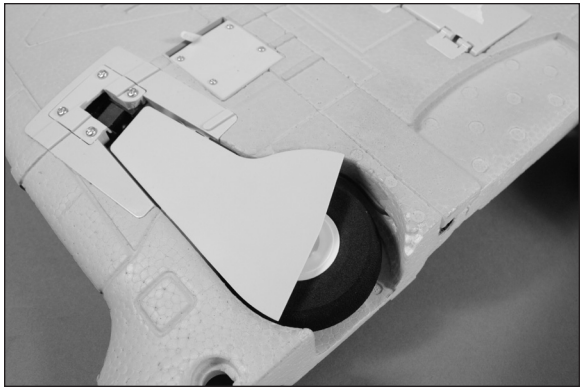
❍❍ 16. Position the axle back on the wire and tighten the screws using a 2.5mm hex wrench. Check the operation of the gear using the radio system. Make any minor adjustments necessary to make sure the wheel does not bind in the wheel well during the operation of the retract.

❍❍ 17. Use a razor saw to remove the alignment pin from the landing gear door.



Note: Do not remove alignment pin if using EFL297519.

❍❍ 18. Place a small drop of silicone adhesive on the gear door where it snaps onto the main gear wire. Snap the gear door into position. With the retract up, position the door so it does not interfere with the opening for the retract. Allow the adhesive to fully cure before operating the retracts.



❍ 19. Repeat steps 1 through 18 to install the remaining retract assembly.

Flap Linkage Installation - BNF/PNP

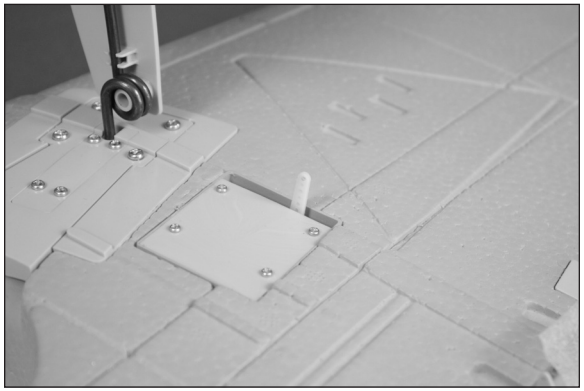
Required Parts

Fuselage assembly
Flap linkage (2)
Transmitter
Wing panel (right and left)

Required Tools and Adhesives

Ruler

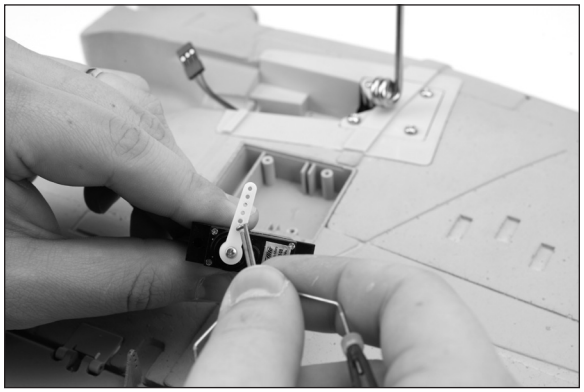
❍❍ 1. Connect the lead from the flap servo to the Y-harness plugged into the AUX channel of the receiver. Use the radio to center the flap servo.



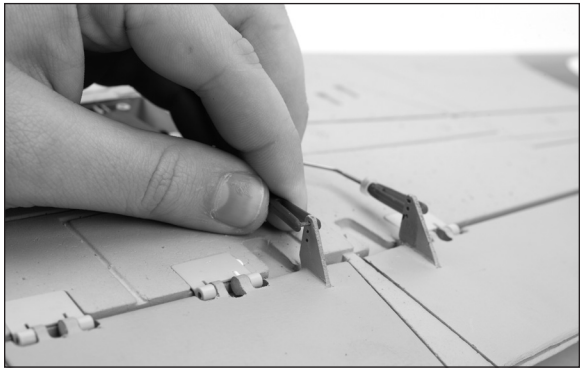
E-tips

The use of a 36-inch servo extension during setup will facilitate linkage installation by allowing the wing to be separate from the fuselage and be mobile.

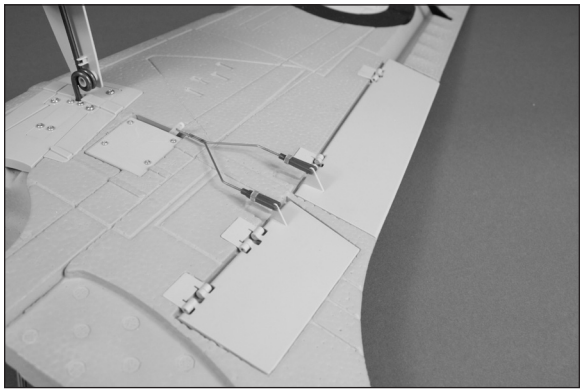
❍❍ 2. Insert the bend in the flap linkage in the innermost hole in on the flap servo arm. Remove the tape from the flaps at this time as well.



❍❍ 3. Enter the radio programming and set the flap throw to 100% for both UP and DOWN positions, and verify that in the UP position, the servo arm moves towards the trailing edge of the wing.



❍❍ 4. Move the switch on the radio to the UP flap position. Thread the clevises onto the pushrods so and connect them to the outermost hole in the control horn. Ensure that they are the proper length and that they are not so long that they bind the flap into the bottom of the wing, nor are too short that they prevent the flap from seating against the underside of the wing.



❍ 5. Repeat steps 1 through 4 to install and adjust the remaining flap linkage. Start by adjusting the linkage in the UP position. The Mid and down position should match those from the first wing panel. Make sure to slide the silicone tubing over the forks of the clevises to prevent them from opening in flight. You will note the inner flap travels slightly further down than the outer flap. This is normal.

Joining the Wing Panels - BNF/PNP

Required Parts

Rear wing bolt plate
Center wing bolt plate
Forward wing dowel plate
3mm x 10mm countersunk self-tapping screw (2)
Radiator scoop
Intake scoop
Carbon fiber wing tube
Wing panel (right and left)

Required Tools and Adhesives

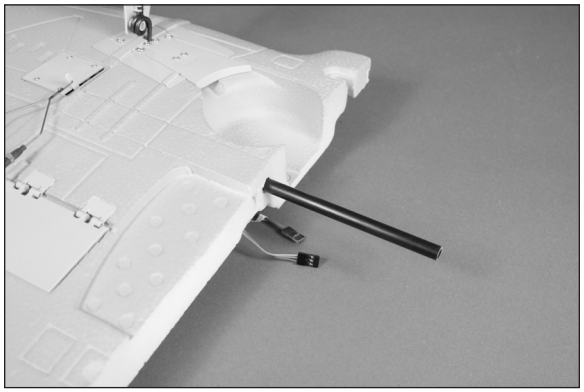
30-minute epoxy — Mixing stick
Mixing cup — Epoxy brush
Phillips screwdriver: #1

⚠ ***CAUTION**: You must join the wings as shown in this manual. Failure in joining the wing panels may result in the loss of your model. Do not fly your model without properly joining the wings.*

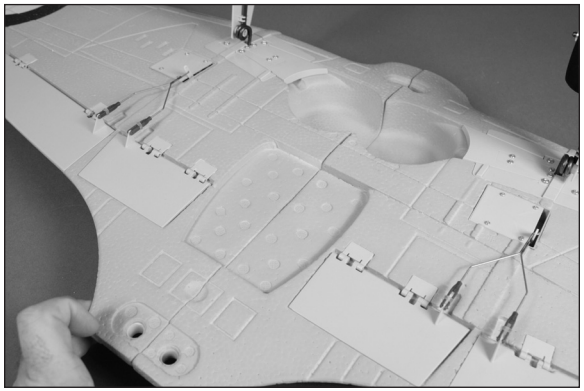
E-tips

Before joining the wing panels, we highly recommend test fitting all parts before mixing epoxy. If the epoxy begins to cure before parts are assembled, it will be difficult to reuse items where epoxy has been applied.

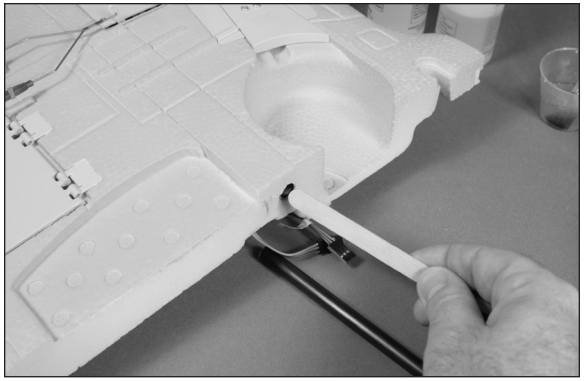
❍ 1. Locate the carbon fiber wing tube. Slide the tube in one wing panel. It should slide in easily, so do not force it farther than it will slide. This will push the wing tube into the foam in the wing, and possibly prevent it from inserting fully into the opposite wing panel.

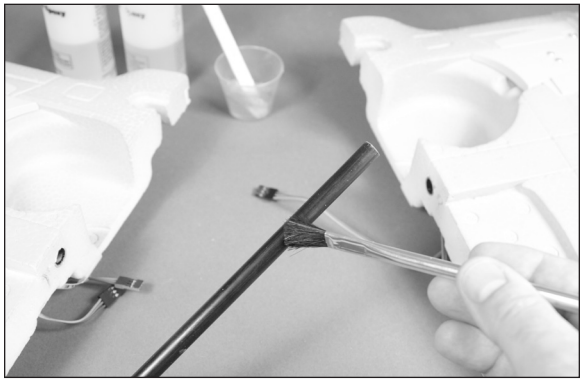


❍ 2. Slide the remaining wing panel into position. The panels will fit tightly together.

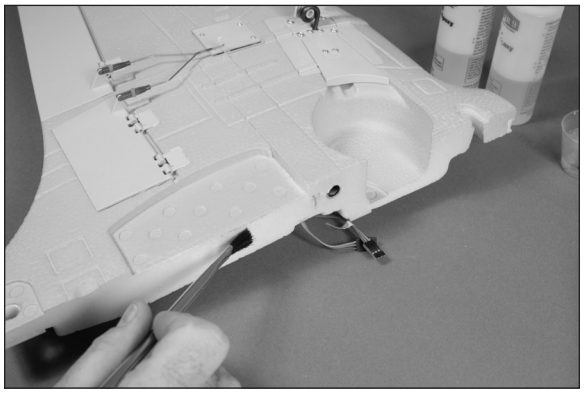


❍ 3. Separate the wing panels and remove the fiberglass wing tube. Mix .50 ounce (15mL) of 30-minute epoxy. Apply epoxy to the fiberglass wing tube and into both of the sockets in the wing panels.

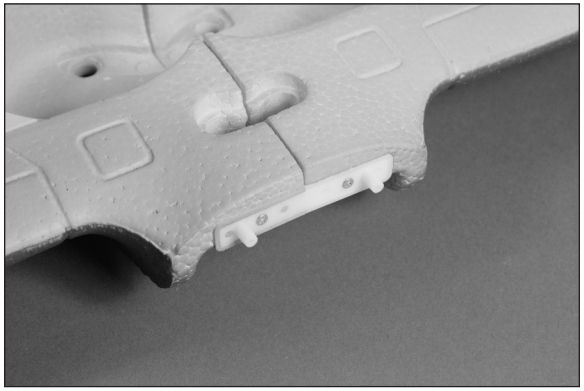




❍ 4. Use an epoxy brush to apply a thin coat of epoxy to the wing where the two halves fit together.



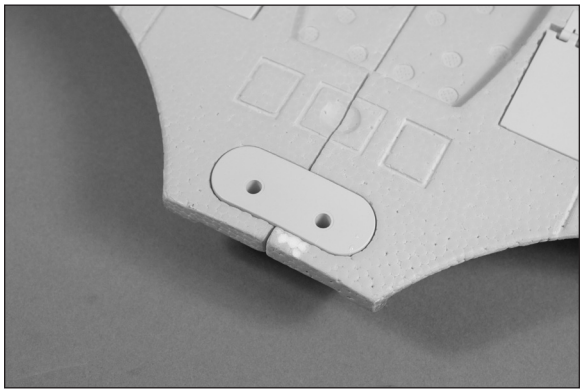
❍ 5. Slide the wing panels and tube together as shown in steps 1 and 2. Use a #1 Phillips screwdriver and two 3mm x 10mm countersunk self-tapping screws to attach the forward wing dowel plate. This will hold the front of the wing together while the epoxy cures.

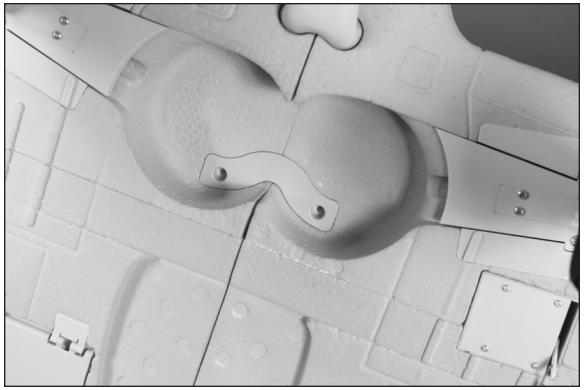


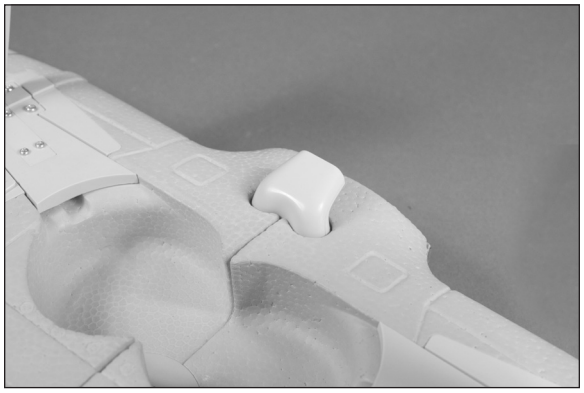
E-tips

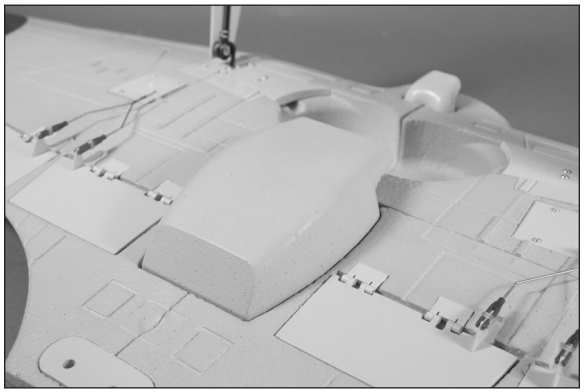
Use a small piece of tape to secure the servo leads so they don't accidentally get glued to the wing.

❍ 6. Before the epoxy cures, use a small amount of epoxy to secure the rear wing bolt plate, center wing bolt plate, radiator scoop and the intake scoop to the wing.









⚠ ***CAUTION**: The installation of the foam radiator scoop and bolt plates on the wing are integral parts of joining the wing properly. Make sure these items are glued securely to the wing to prevent wing failure.*

Receiver Installation - PNP

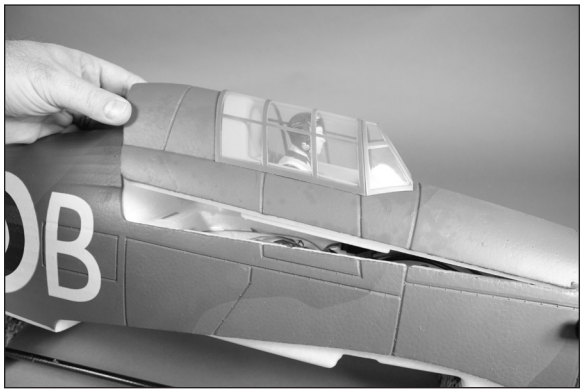
Required Parts

Fuselage assembly	Hook and loop tape
Two-sided tape	Y-harness (2)
Receiver	Clear tape
Two-sided tape	

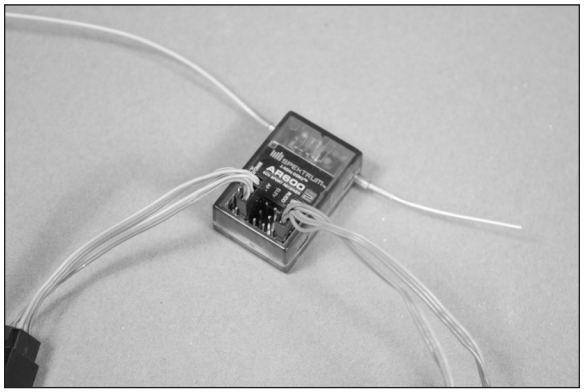
Optional Parts

Y-harness (included with optional retracts)

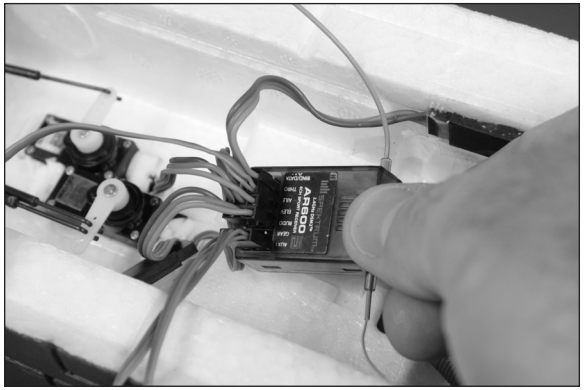
❍ 1. Remove the canopy hatch from the fuselage by lifting the hatch at the rear. The canopy hatch attaches to the fuselage using a magnet at the rear and pins at the front.



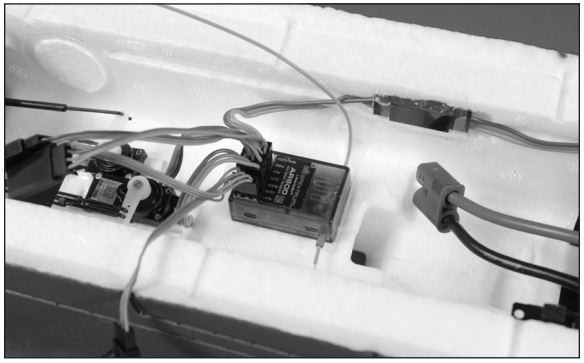
❍ 2. Locate the two included Y-harnesses. One will plug into the AIL port of the receiver, the other into the AUX port. These will be for the flaps and ailerons of your model. We recommend using a piece of low-tack tape to identify the flap harness from the outside of the fuselage when installing the wing.



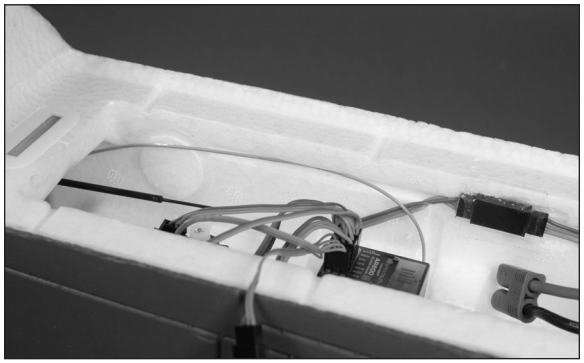
❍ 3. Plug the leads from the elevator and rudder servos into their respective ports of the receiver. Also plug the extension from the speed control into the THRO port of the receiver.



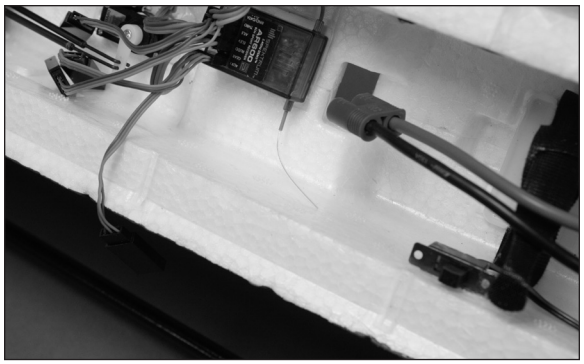
❍ 4. Use two-sided tape to secure the receiver in the fuselage as shown.



❍ 5. Place the longer antenna into the groove in the inside of the fuselage. Use clear tape to keep the antenna in the groove so it doesn't interfere with the operation of the servos.



❍ 6. The shorter antenna is routed to the front of the fuselage. There is no need to tape it in position.



Wing Installation - BNF/PNP

Required Parts

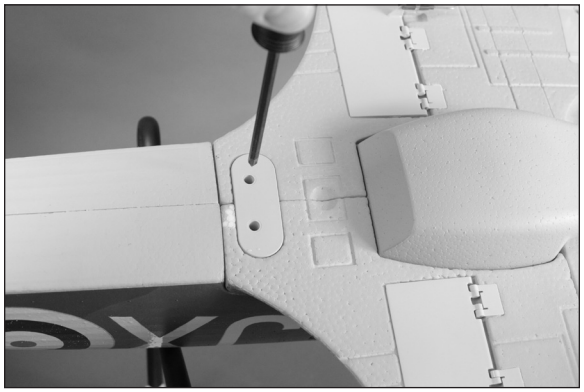
Fuselage assembly
Wing assembly
3mm x 15mm machine screw (4)

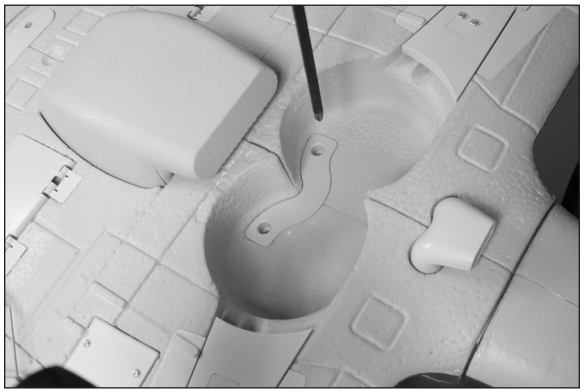
Required Tools and Adhesives

Phillips screwdriver: #1

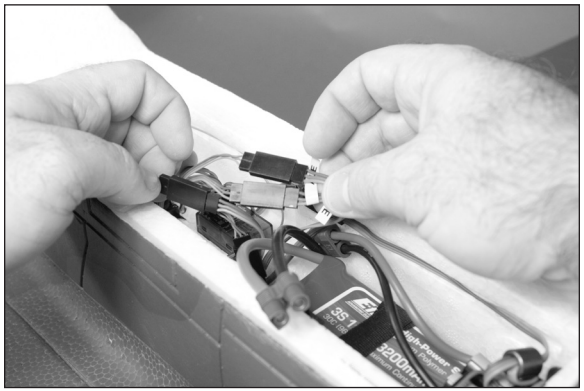
❍ 1. Position the wing so the pins in the forward wing dowel plate fit into the plate in the front of the fuselage. Guide the leads from the aileron and flap servos (and optional retracts) through the hole in the bottom of the fuselage.

❍ 2. Use a #1 Phillips screwdriver to tighten the four 3mm x 15mm machine screws that secure the wing. Two screws are used in the rear wing bolt plate and two in the center wing bolt plate.





❍ 3. Connect the aileron and flap (and optional retract) leads to the appropriate Y-harness at the receiver.



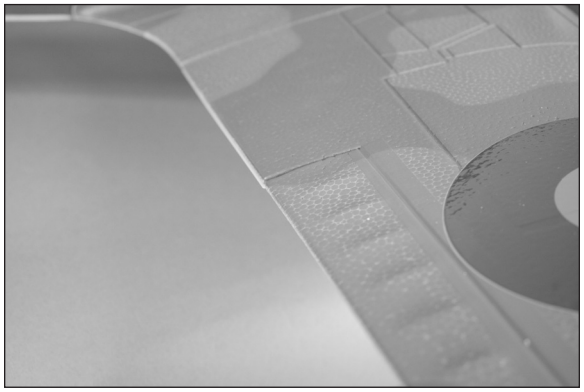
Center the Control Surfaces - BNF/PNP

Required Parts

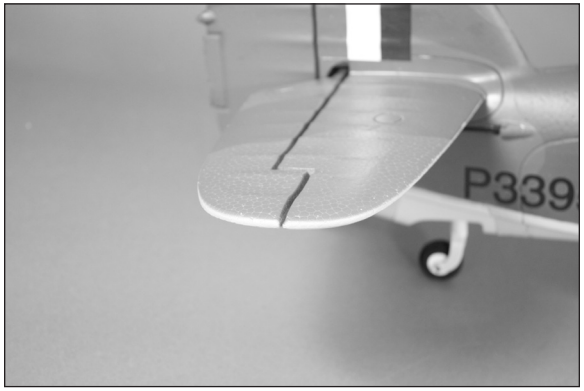
Canopy hatch	Assembled airframe
Transmitter	Antenna mast

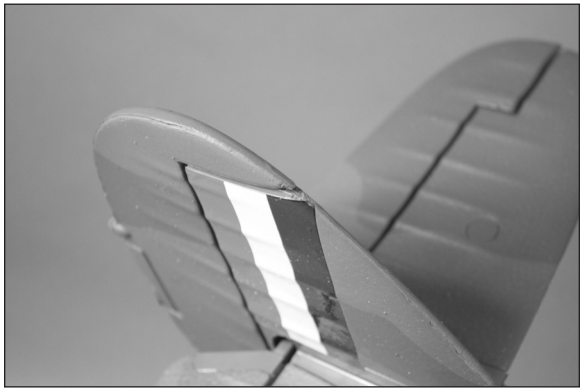
❍ 1. Turn on the transmitter and connect the motor battery to the speed control. Verify the operation of the servos.

❍ 2. Center the trims and sticks for the aileron, elevator and rudder. Also make sure the sub-trims for these surfaces are set to 0%. Verify the alignment of the servo arm is 90 degrees to the servo case. If not, use sub-trim to adjust this alignment.

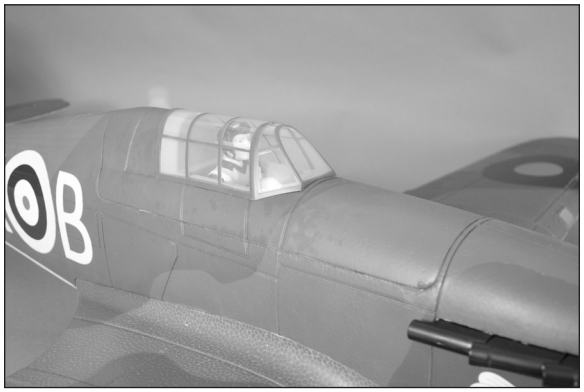


❍ 3. Center the control surface and adjust the clevis so that it will attach.





❍ 4. Place the canopy hatch on the fuselage.



❍ 5. Fit the antenna mast to the fuselage.

E-tips

Remove the antenna mast during transport or when working on your model so it does not get lost or damaged.

Center of Gravity

Required Parts

Assembled airframe

Required Tools and Adhesives

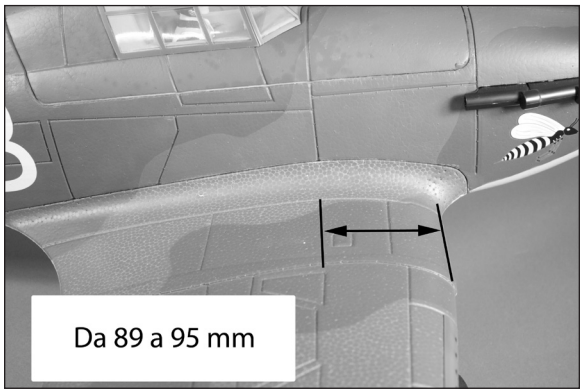
Balancing stand Felt-tipped pen

***CAUTION**: Do not inadvertently skip this step or property damage and injury could occur.*

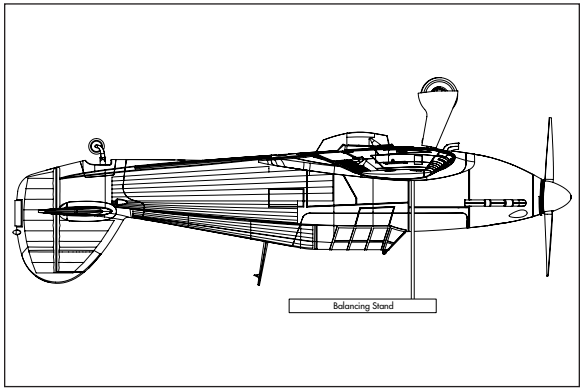
When balancing your model, adjust the motor battery as necessary so the model is level or slightly nose down. This is the correct balance point for your model. You should find the CG to be very close with the battery installed as shown in this manual. Mark the location of the battery on the battery tray using a felt-tipped pen so it can be returned to this position if it is removed from your model.

After the first flights, the CG position can be adjusted for your personal preference.

❍ 1. The recommended Center of Gravity (CG) location for your model is 3.50 to 3.75 inches (89 to 95mm) back from the leading edge of the wing as shown with the battery pack installed. Mark the location of the CG on the top of the wing with a felt-tipped pen.



❍ 2. When balancing your model, support the plane inverted at the marks made on the top of the wing with your fingers or a commercially available balancing stand. This is the correct balance point for your model. Make sure your model is assembled and ready for flight before balancing.



E-tips

If you have installed retracts, balance your model with the gear down.

Control Throws

❍ 1. Turn on the transmitter and receiver of your model. Check the movement of the rudder using the transmitter. When the stick is moved right, the rudder should also move right. Reverse the direction of the servo at the transmitter if necessary.

❍ 2. Check the movement of the elevator with the radio system. Moving the elevator stick toward the bottom of the transmitter makes the airplane elevator move up.

❍ 3. Check the movement of the ailerons with the radio system. Moving the aileron stick right makes the right aileron move up and the left aileron move down.

❍ 4. Use a ruler to adjust the throw of the elevator, ailerons and rudder. Adjust the position of the pushrod at the control horn to achieve the following measurements when moving the sticks to their endpoints.

Aileron

High Rate			
Up:	3/4-inch	19mm	30% Expo
Down:	3/4-inch	19mm	30% Expo
Low Rate			
Up:	1/2-inch	13mm	20% Expo
Down:	1/2-inch	13mm	20% Expo

Elevator

High Rate			
Up:	7/8-inch	23mm	25% Expo
Down:	7/8-inch	23mm	25% Expo
Low Rate			
Up:	1/2-inch	13mm	20% Expo
Down:	1/2-inch	13mm	20% Expo

Rudder

High Rate			
Right:	1 1/8-inch	29mm	25% Expo
Left:	1 1/8-inch	29mm	25% Expo
Low Rate			
Right:	7/8-inch	23mm	15% Expo
Left:	7/8-inch	23mm	15% Expo

Flap

Mid	13/16-inch	20mm
Full	1 5/8-inch	41mm

E-tips

Measurements are taken at the inner or widest point on the control surface.

These are general guidelines measured from our own flight tests. You can experiment with higher rates to match your preferred style of flying.

E-tips

Travel Adjust and Sub-Trims are not listed and should be adjusted according to each individual model and preference.

E-tips

We highly recommend re-binding the radio system once all the control throws are set. This will keep the servos from moving to their endpoints until the transmitter and receiver connect.

Preflight

Check Your Radio

Before going to the field, be sure your batteries are fully charged per the instructions included with your radio. Charge the transmitter and motor battery for your airplane. Use the recommended charger supplied with your particular radio system, following the instructions provided with the radio. In most cases, the radio should be charged the night before going out flying.

Before each flying session, be sure to range check your radio. See your radio manual for the recommended range and instructions for your radio system. Each radio manufacturer specifies different procedures for their radio systems. Next, run the motor. With the model securely anchored, check the range again. The range test should not be significantly affected. If it is, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

Double-check that all controls (aileron, elevator, rudder and throttle) move in the correct direction.

Check the radio installation and make sure all the control surfaces are moving correctly (i.e., the correct direction and with the recommended throws).

Check all the control horns, servo horns, and clevises to make sure they are secure and in good condition.

Range Test Your Radio

Before each flying session, and especially with a new model, it is important to perform a range check. It is helpful to have another person available to assist during the range check. If you are using a Spektrum transmitter, please refer to your transmitter's manual for detailed instructions on the range check process.

- 1. With the model resting on the ground, stand 30 paces (approximately 90 feet) away from the model.
- 2. Face the model with the transmitter in your normal flying position. Be sure the throttle is in the full down position and plug the flight battery into the speed control.
- 3. As you move the controls, watch to be sure the airplane's motor and controls operate smoothly. You should have total control of the model at 30 paces (90 feet).
- 4. If control issues exist, call the appropriate Horizon Product Support office (see page 43) or go to ***horizonhobby.com*** to find a local Spektrum distributor in your country for service if using a Spektrum radio system.

Daily Flight Checks

- 1. Check the battery voltage of the transmitter battery. Do not fly below the manufacturer's recommended voltage. To do so can crash your aircraft.

E-tips

When you check these batteries, ensure you have the polarities correct on your expanded scale voltmeter.

- 2. Check all hardware (linkages, screws, nuts, and bolts) prior to each day's flight. Be sure that binding does not occur and that all parts are properly secured.
- 3. Ensure all surfaces are moving in the proper manner.
- 4. Perform a ground range check before each day's flying session.
- 5. Prior to starting your aircraft, turn off your transmitter, then turn it back on. Do this each time you start your aircraft. If any critical switches are on without your knowledge, the transmitter alarm will sound a warning at this time.
- 6. Check that all trim levers are in the proper location.
- 7. All servo pigtails and switch harness plugs should be secured in the receiver. Make sure the switch harness moves freely in both directions.

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

Limited Warranty

WHAT THIS WARRANTY COVERS

Horizon Hobby, Inc. ("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, or (v) Products not purchased from an authorized Horizon dealer.

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 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 direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a Product Support representative. You may also find information on our website at www.horizonhobby.com.

INSPECTION OR SERVICES

If this Product needs to be inspected or serviced, 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 under the Support tab. 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 cashiers 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/Service/Request/.

UNITED STATES

(Electronics and engines)
Horizon Service Center
4105 Fieldstone Rd
Champaign, Illinois
61822 USA
productsupport@horizonhobby.com
877-504-0233
Online Repair Request visit:
www.horizonhobby.com/repairs

(All other products)
Horizon Product Support
4105 Fieldstone Rd
Champaign, Illinois
61822 USA
productsupport@horizonhobby.com
877-504-0233

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91230 Montgeron
+33 (0) 1 60 47 44 70

Compliance Information for the European Union

CE DECLARATION OF CONFORMITY

(in accordance with ISO/IEC 17050-1)

No. HH2011031501

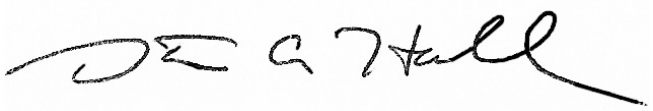
Product(s):	EFL Hawker Hurricane 25e PNP
Item Number(s):	EFL2975
Equipment class:	1

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC:

EN 301 489-1 V1.7.1: 2006
EN 301 489-17 V1.3.2: 2008

Signed for and on behalf of:
Horizon Hobby, Inc.
Champaign, IL USA
Mar 15, 2011

Steven A. Hall



Vice President
International Operations and Risk Management
Horizon Hobby, Inc.

CE DECLARATION OF CONFORMITY

(in accordance with ISO/IEC 17050-1)

No. HH2011052601

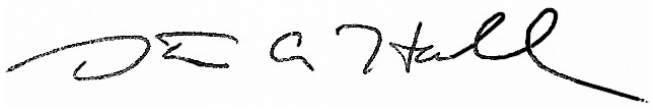
Product(s):	EFL Hawker Hurricane 25e BNF
Item Number(s):	EFL2980
Equipment class:	1

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC and EMC Directive 2004/108/EC

EN 301 489-1 V1.7.1: 2006
EN 301 489-17 V1.3.2: 2008
EN55022: 2006,
EN55024: 1998+A1: 2001+A2: 2003

Signed for and on behalf of:
Horizon Hobby, Inc.
Champaign, IL USA
May 26, 2011

Steven A. Hall



Vice President
International Operations and Risk Management
Horizon Hobby, Inc.

INSTRUCTIONS FOR DISPOSAL OF WEEE BY USERS IN THE EUROPEAN UNION

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

Academy of Model Aeronautics National Model Aircraft Safety Code

Effective January 1, 2011

A. GENERAL

A model aircraft is a non-human-carrying aircraft capable of sustained flight in the atmosphere. It may not exceed limitations of this code and is intended exclusively for sport, recreation and/or competition. All model flights must be conducted in accordance with this safety code and any additional rules specific to the flying site.

1. Model aircraft will not be flown:
   (a) In a careless or reckless manner.
   (b) At a location where model aircraft activities are prohibited.
2. Model aircraft pilots will:
   (a) Yield the right of way to all man carrying aircraft.
   b) See and avoid all aircraft and a spotter must be used when appropriate. (AMA Document #540-D-See and Avoid Guidance.)
   (c) Not fly higher than approximately 400 feet above ground level within three (3) miles of an airport, without notifying the airport operator.
   (d) Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
   (e) Not exceed a takeoff weight, including fuel, of 55 pounds unless in compliance with the AMA Large Model Aircraft program. (AMA Document 520-A)
   (f) Ensure the aircraft is identified with the name and address or AMA number of the owner on the inside or affixed to the outside of the model aircraft. (This does not apply to model aircraft flown indoors).
   (g) Not operate aircraft with metal-blade propellers or with gaseous boosts except for helicopters operated under the provisions of AMA Document #555.
   (h) Not operate model aircraft while under the influence of alcohol or while using any drug which could adversely affect the pilot's ability to safely control the model.
   (i) Not operate model aircraft carrying pyrotechnic devices which explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.

Exceptions:

- Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight.
- Rocket motors (using solid propellant) up to a G-series size may be used provided they remain attached to the model during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code but may not be launched from model aircraft.
- Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Team AMA Program Document (AMA Document #718).
  (j) Not operate a turbine-powered aircraft, unless in compliance with the AMA turbine regulations. (AMA Document #510-A).

3. Model aircraft will not be flown in AMA sanctioned events, air shows or model demonstrations unless:
   (a) The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
   (b) An inexperienced pilot is assisted by an experienced pilot.
4. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

B. RADIO CONTROL (RC)

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

C. FREE FLIGHT

1. Must be at least 100 feet downwind of spectators and automobile parking when the model aircraft is launched.
2. Launch area must be clear of all individuals except mechanics, officials, and other fliers.
3. An effective device will be used to extinguish any fuse on the model aircraft after the fuse has completed its function.

D. CONTROL LINE

1. The complete control system (including the safety thong where applicable) must have an inspection and pull test prior to flying.
2. The pull test will be in accordance with the current Competition Regulations for the applicable model aircraft category.
3. Model aircraft not fitting a specific category shall use those pull-test requirements as indicated for Control Line Precision Aerobatics.
4. The flying area must be clear of all utility wires or poles and a model aircraft will not be flown closer than 50 feet to any above-ground electric utility lines.
5. The flying area must be clear of all nonessential participants and spectators before the engine is started.

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