

Mini Pulse XT



E-flite[®]
ADVANCING ELECTRIC FLIGHT

Assembly Manual



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Introduction

Thank you for purchasing the Mini Pulse XT. Designed from the beginning for electric power, the Mini Pulse XT is developed from the Hangar 9® Pulse™ XT with the same flight characteristics as the 40-size version. It is a perfect transitional airplane for beginners who want to learn aerobatics and for sport flyers who want an easy, comfortable sport flyer. All flight control surfaces, hinges, and control horns have been installed at the factory to help speed up the building time.

Specifications

Wingspan:	42.5 in (1080mm)
Length:	37.5 in (875mm)
Wing Area:	330 sq in (21.5 sq dm)
Weight w/o Battery:	21–22 oz (710–820 g)
Weight w/ Battery:	25–27 oz (795–965 g)

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 each step completed. Steps with a single circle () are performed once, while steps with two circles () indicate that 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

Large Replacement Parts:

EFL2376	Wing w/Ailerons
EFL2377	Fuselage
EFL2378	Tail Set
EFL2380	Main Landing Gear
EFL2381	Cowling
EFL2382	Wheel Pants

Small Replacement Parts:

EFL2379	Pushrod Set
EFL2383	Motor X-Mount
EFLA200	Micro Control Horns
FLA203	Micro Control Connectors
EFLA219	Steerable Tailwheel Assembly
EFLA223	Foam Park Wheels, 2"
EFLA213	E-flite/JR/Horizon Decals



Available from: www.modelflight.com.au

Required Radio Equipment

You will need a minimum 4-channel transmitter, crystals, micro receiver, and four sub-micro servos. You can choose to purchase a complete radio system that includes all of these items or, if you are using an existing transmitter, just purchase the other required equipment separately.

Complete Radio System

SPM2460 DX6 DSM 6CH Park Flyer w/4-S75 Servos

Note: .We.recommend.the.crystal-free,. interference-free.Spektrum®.DX6.2.4GHz.DSM®. 6-Channel.System,.which.includes.a.micro. receiver.and.4.sub-micro.servos.

Or

JSP30610

6-Channel UltraLite Rx w/o Crystal, Positive Shift JR/AIR (72MHz)

Or

JSP30615

6-Channel UltraLite Rx w/o Crystal, Negative Shift FUT/HRC (72MHz)

JRPXFR**

FM Receiver Crystal

JSP98110

6" Servo Extension (2)

JSP98030

12" Servo Extension (2)

JSP98020

Y-harness, Standard 6"

EFLRS75

7.5-Gram Sub-Micro Servo (4)

Or Purchase Separately

SPM6000 AR6000 DSM DualLink™ 6-Channel Park Flyer Rx

Important Information About Motor Selection

We recommend the E-flite® Park 450 Brushless Outrunner, 890Kv (EFLM1400) to provide you with excellent sport and aerobatic power and a worry-free outrunner motor. The Mini Pulse XT does not include a propeller, but we recommend our 10X8 Electric Prop (EFLP1080E).

Sport Outrunner Setup

EFLM1400	Park 450 Brushless Outrunner Motor, 890Kv
EFLA1025	25-Amp Pro Brushless ESC
THP21003SPL	2100mAh 3-Cell 11.1V Li-Po, 16GA
<i>Or</i>	
EFLB1035	11.1V 2100mAh 3-Cell Li-Po, 16GA
EFLP1080E	10 x 8 Electric Prop
EFLAEC302	EC3 Battery Connector, Female (2)
EFLC3005	Electra 1- to 3-cell Li-Po Charger

This is a sport flyer setup for smooth and stable flights.

Optional Accessories

EFLA110 Power Meter

Required Tools and Adhesives

Tools & Equipment

EFLA250 Park Flyer Tool Assortment, 5-piece

Or Purchase Separately

EFLA257 Screwdriver, #0 Phillips (or included with EFLA250)

EFLA251 Hex Wrench: 3/32" (or included with EFLA250)

Nut driver: 1/4"

Drill

Drill bit: 1/16" (1.5mm), 5/64" (2mm)

Masking tape

Card stock

Felt-tipped pen

Needle-nose pliers

Canopy glue

Available from: www.modelflight.com.au

Note Regarding Hinges

For your convenience and to speed the assembly process, the hinges have already been installed and glued. We suggest that you take a minute before beginning assembly of your model to check them.

Grasp the wing and aileron at each hinge location, then gently pull on the aileron to ensure the hinges are secure and cannot easily be pulled away from either surface. Use caution when gripping the wing and aileron to avoid crushing or damaging the structure. Repeat this process for the elevator and rudder.

If, however, you find that the hinges pull away, simply wick thin CA into the hinge slots and reinstall the hinges/surfaces.

Note on Lithium Polymer Batteries



Lithium Polymer batteries are significantly more volatile than alkaline or Ni-Cd/Ni-MH batteries used in RC applications. All manufacturer's instructions and warnings must be followed closely. Mishandling of Li-Po batteries can result in fire. Always follow the manufacturer's instructions when disposing of Lithium Polymer batteries.

Warning

An RC aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably at AMA (Academy of Model Aeronautics) approved flying sites, following all instructions included with your radio.

Keep loose items that can get entangled in the propeller away from the prop, including loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller.

Limited Warranty Period

Horizon Hobby, Inc. guarantees this product to be free from defects in both material and workmanship at the date of purchase.

Limited Warranty & Limits of Liability

Pursuant to this Limited Warranty, Horizon Hobby, Inc. will, at its option, (i) repair or (ii) replace, any product determined by Horizon Hobby, Inc. to be defective. In the event of a defect, these are your exclusive remedies.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than an authorized Horizon Hobby, Inc. service center. This warranty is limited to the original purchaser and is not transferable. In no case shall Horizon Hobby's liability exceed the original cost of the purchased product and will not cover consequential, incidental or collateral damage. Horizon Hobby, Inc. reserves the right to inspect any and

all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon Hobby, Inc. Further, Horizon Hobby reserves the right to change or modify this warranty without notice.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. HORIZON HOBBY, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

As Horizon Hobby, Inc. 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 this product, you are advised to return this product immediately in new and unused condition to the place of purchase.

Safety Precautions

This is a sophisticated hobby product and not a toy. 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.

The product 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 injury.

Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the product has been started, you must contact Horizon Hobby, Inc. directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance.

Questions or Assistance

For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll-free to speak to a service technician.

Inspection or Repairs

If your product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). 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 Hobby, Inc. is not responsible for merchandise until it arrives and is accepted at our facility. Include your complete name, address, phone number where you can be reached during business days, RMA number, and a brief summary of the problem. Be sure your name, address, and RMA number are clearly written on the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Providing warranty conditions have been met, your product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

Non-Warranty Repairs

Should your repair not be covered by warranty and the expense exceeds 50% of the retail purchase cost, you will be provided with an estimate advising you of your options. You will be billed for any return freight for non-warranty repairs. Please advise us of your preferred method of payment. Horizon Hobby accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly.

Electronics and engines requiring inspection or repair should be shipped to the following address (freight prepaid):

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

All other products requiring inspection or repair should be shipped to the following address (freight prepaid):

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822

Safety, Precautions, and Warnings

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

Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.

This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is necessary to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

- Always operate your model in an open area away from cars, traffic, or people.

- Avoid operating your model in the street where injury or damage can occur.
- Never operate the model out into the street or populated areas for any reason.
- Never operate your model with low transmitter batteries.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
- Keep all chemicals, small parts and anything electrical out of the reach of children.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

Landing Gear Installation

Required Parts

Fuselage

Main landing gear

Wheel pant (L&R)

2" (50mm) wheel (2)

4-40 x 1/2" socket head bolts (2)

#4 black washers (2)

4-40 nut (2)

4-40 locknut (2)

4-40 x 1 1/4" socket head bolts (2)

#4 steel washers (4)

2mm x 6mm wood screws (2)

Required Tools and Adhesives

Hex wrench: 3/32"

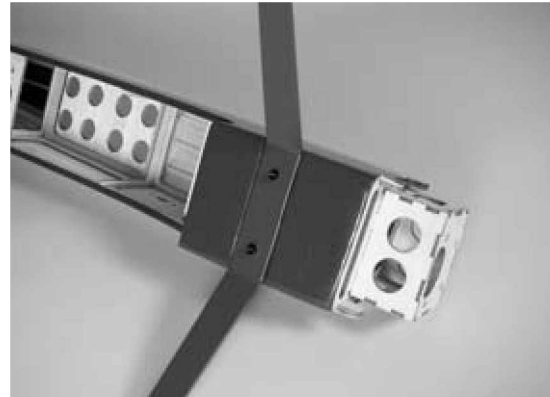
Phillips screwdriver (small)

Nut driver: 1/4"

Needle-nose pliers

Note: You may consider using a larger diameter wheel, such as 2 1/4" (58mm), if your flying site has rough terrain. By using a larger wheel, you will not be able to use the included wheel pants.

1. Place the landing gear onto the bottom of the fuselage. They will angle back slightly when installed in the correct direction. Attach with two 4-40 x 1/2" socket head bolts and two #4 black washers.



2. Slide the 4-40 x 1 1/4" socket head bolt through one of the 2" wheels. Slide a #4 steel washer so it fits against the wheel. Next secure a 4-40 nut against the washer. Make sure the wheel still spins freely. Slide a second #4 steel washer onto the bolt. This washer will fit inside the wheel pant.



3. Fit the assembly in Step 2 into the wheel pant and insert the bolt into the landing gear. With the fuselage level to the work surface, rotate the wheel pant so it is also level to your work surface and secure the pant to the landing gear with a 2mm x 6mm wood screw. Secure the bolt with a 4-40 locknut while using needle-nose pliers to hold the head of the bolt inside the pant.



3. Repeat Steps 2 and 3 for the remaining wheel and wheel pant.

Outrunner Motor Installation

Required Parts

Fuselage

Brushless motor

4-40 x 1 1/4" socket head screw (4)

Aluminum motor spacer, 13/16" (20mm) (4)

Required Tools and Adhesives

Hex wrench: 3/32"

Screwdriver (Phillips #0)

Note: This section covers the installation of the recommended Park 450 Outrunner motor. The holes in the firewall for mounting the custom X-mount will also fit the hole pattern for our E-flite® Firewall Stick Mount (EFLM1916 – available separately) if you prefer to use a gearbox with an inrunner motor.

1. Attach the supplied aluminum motor X-mount to the motor using the screws provided with the motor. The wider section of the mount will be positioned towards the motor wires.



2. Attach the Outrunner motor to the front of the firewall using four 4-40 x 1 1/4" socket head screws and the aluminum motor spacers.



Cowling Installation

Required Parts

- Fuselage w/motor installed
- Cowling
- 2mm x 8mm wood screw (4)
- Propeller
- Spinner
- Prop adapter (for outrunner motor)
- Electronic speed control

Required Tools and Adhesives

- Screwdriver (Phillips #0)
- Cardstock
- Masking tape
- Drill
- Drill bit; 1/16" (1.5mm), 5/64" (2mm)

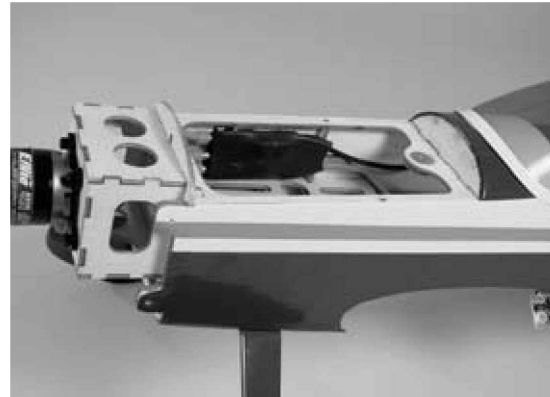
Important Information About Your Brushless ESC

- Make sure your ESC brake is programmed to Off.
- Also, be sure to use an ESC with the proper 9V cutoff when using 3-cell Li-Po packs, or 6V cutoff when using 2-cell Li-Po packs.

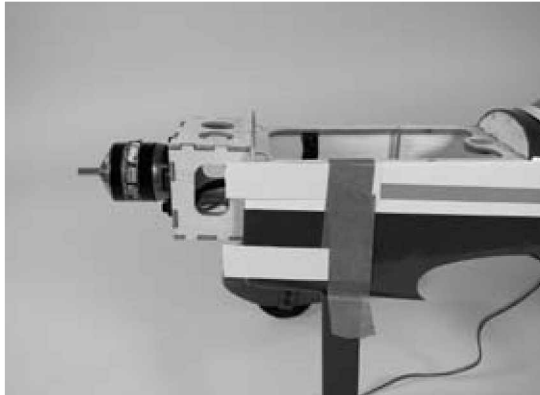
Important Information About Your Propeller

It is also very important to check to be sure the propeller is balanced before installing onto the shaft. An unbalanced propeller may strip the gears or cause poor flight characteristics.

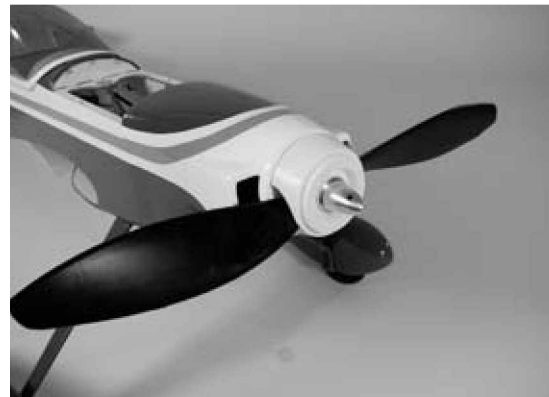
1. Solder any connectors to the speed control to connect to the motor battery and motor if necessary. Connect the ESC to the motor and secure it to the inside of the fuselage using hook and loop material. Actual ESC location may vary.



2. Connect the speed control to the radio system and motor battery. Check that the motor is rotating in the correct direction. It will rotate counterclockwise when viewed from the front of the aircraft. Use the instructions with your speed control to correct a motor that is operating in the wrong direction.
3. Tape small pieces of cardstock to the fuselage to indicate the locations of the cowl mounting tabs at the front of the fuselage.



4. Slide the cowling onto the fuselage. Install the propeller adapter onto the Outrunner shaft. You may need to ream out the hole on your prop hub to fit the prop adapter shaft at this point. Slide the propeller onto the prop adapter shaft. The spinner backplate and spacers may need to be enlarged as well to fit the prop adapter. Slide the spinner backplate and any needed spacers onto the prop adapter shaft. Secure the propeller using the prop adapter spinner and be sure it is secure and tight.



Note: .Make.sure.to.check.the.balance.of.the.propeller.after.enlarging.the.hole.in.the.propeller.

5. Position the cowl so it is around 1/16"—1/8" (1.5mm–3mm) from the spinner backplate. Use the cardstock to drill four 1/16" (1.5mm) holes through the cowl into the cowl mounting tabs in the fuselage.



6. Enlarge the holes in the cowl using a 5/64" (2mm) drill bit. Secure the cowl using four 2mm x 8mm sheet metal screws. Snap the spinner cone onto the spinner backplate once the cowl is secure.



Hint: .Use.thin.CA.to.harden.the.holes.drilled.into.the.cowl.mounting.tabs..This.will.help.to.prevent.the.screws.from.vibrating.loose.in.flight.

Tail Installation

Required Parts

Fuselage

Rudder/Fin

Stabilizer/Elevator

Servo (2)

Servo extension, 12" (305mm) (2)

Control connectors w/backplate (2)

2mm x 4mm screw (2)

4-40 locknut (2)

#4 washer (2)

Linkage wire, 4" (102mm) for elevator

Linkage wire, 5 1/2" (140mm) for rudder

Tailwheel, 3/4"

Wheel collar (tailwheel)

Required Tools and Adhesives

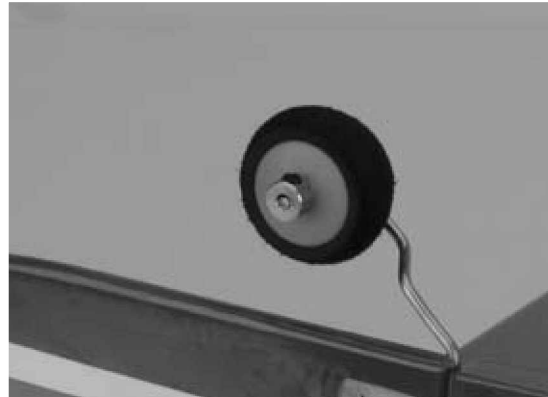
Nut driver: 1/4"

Drill

Drill bit: 1/16" (1.5mm)

Screwdriver, #0 Phillips

1. Attach the tail wheel to the tail gear wire using a 1/16" wheel collar and setscrew.



2. Locate the stabilizer/elevator assembly. Position the stabilizer/elevator assembly so the control horn will face down, away from the fin. The threaded rods from the rudder/fin assembly will slide into the two holes in the stabilizer.



3. Slide the rudder/stabilizer assembly onto the fuselage. Slide the #4 washers onto the threaded rods. Thread the nuts onto the rod, tightening them snugly against the bottom of the fuselage.



Note: .The.tail.section.is.removable.for.easy.transporting.if.needed.

4. Attach a 12" (305mm) servo extension to a servo lead. Use thread or a commercially available connector to secure the extension to the servo lead.



5. Install the elevator servo into the fuselage using the hardware provided with the servo. Drill 1/16" (1.5mm) holes into the fuselage for the screws.



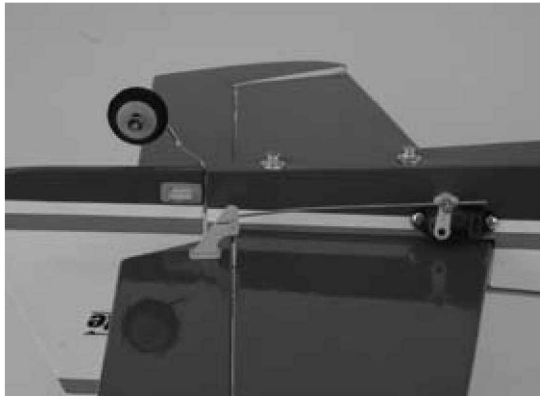
6. Remove the servo arm from the elevator servo. Drill a 1/16" (1.5mm) hole through the center hole in the arm. Slide the control connector through the hole and secure it using the connector backplate.



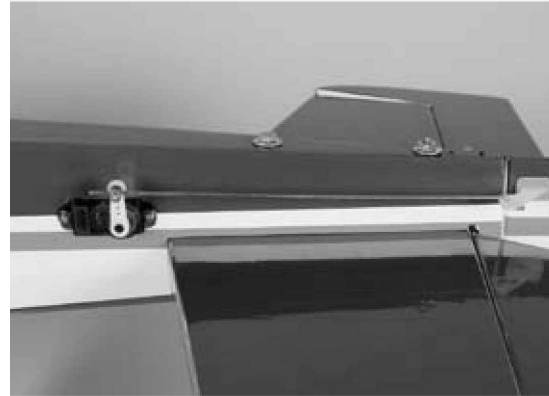
7. Repeat Steps 4 through 6 for the rudder servo.



8. Locate the 4" (102mm) linkage wire. Slide the "Z" bend into the center hole of the elevator control horn. Pass the linkage through the pushrod connector on the servo arm. Turn on the radio and plug the elevator servo into the receiver. Center the elevator trim and stick, and check that the sub-trim (if a programmable radio) has been set to 0. Install the servo horn back onto the elevator servo. Use a 2mm x 4mm screw to secure the linkage.



9. Repeat Step 7 for the rudder linkage.



Wing Preparation

Required Parts

Wing

6-channel receiver

Servo w/hardware (2)

Servo extension, 6" (152mm)

Y-harness, standard 6" (2)

Control connectors w/backplate (2)

2mm x 4mm screw (2)

4 1/4" (118mm) pushrod wire (2)

Required Tools and Adhesives

Drill

Drill bit: 1/16" (1.5mm)

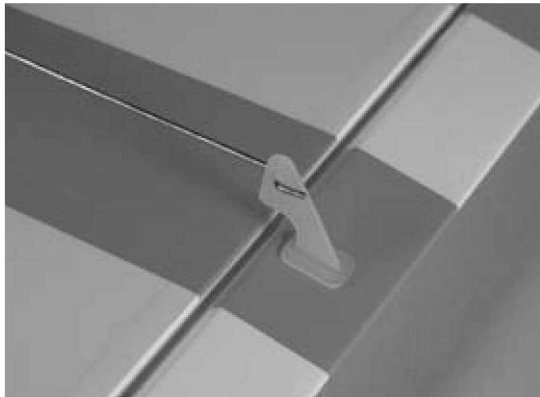
Screwdriver, #0 Phillips

1. Secure a 6" (152mm) servo extension onto the servo lead. Install the aileron servo into the wing, using the pre-installed string to pull the servo lead through the wing. The servo lead will exit the hole in the top center of the wing. Drill a 1/16" (1.5mm) hole through the tabs on the servo into the servo mount. Be careful not to drill through the covering in the top of the wing. Secure the servo using the hardware that was provided with the servo.

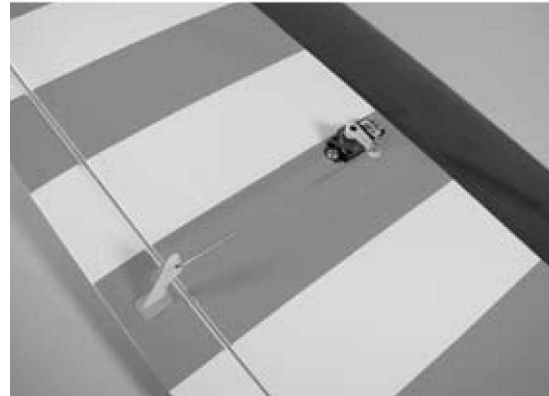


2. Drill a 1/16" (1.5mm) hole in the servo arm for the pushrod connector. Secure the control connector in the servo arm using the connector backplate.

3. Locate the 4 1/4" (118mm) linkage. Place the "Z" bend into the center hole of the aileron control horn. Pass the linkage through the control connector.



4. Plug the aileron servo into the receiver. Power up the transmitter and receiver. Center the aileron stick, trim, and any programmed sub-trim values. Install the arm on the servo so it is parallel to the aileron hinge line. Use a 2mm x 4mm screw to secure the linkage.



5. Repeat Steps 1 through 4 for the remaining aileron servo. Then connect a 6" Y-harness to the two 6" servo extensions on the servos.

Final Assembly

Required Parts

Fuselage

Wing

Canopy

Receiver

Battery

Battery hatch

4-40 x 1" socket head bolt (2)

#4 washer (2)

Hook and loop tape

Hook and loop strap

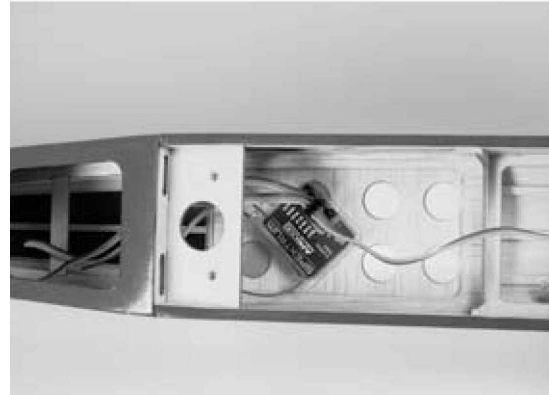
Required Tools and Adhesives

Hex wrench: 3/32"

Felt-tipped pen

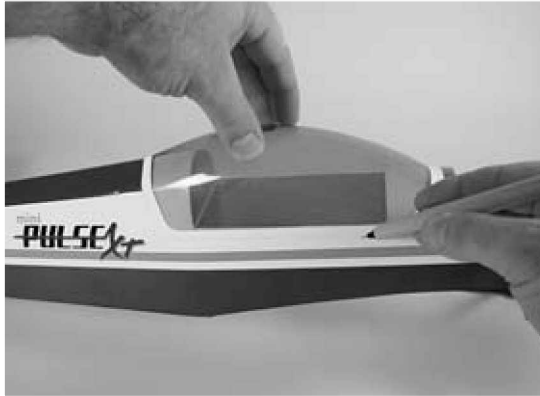
Canopy glue

1. Plug in the elevator and rudder servos and ESC into the receiver. Mount the receiver to the inside of the fuselage using hook and loop material. Route the antenna wire through the bottom of the fuselage to the rear, or as directed by your radio instruction manual.

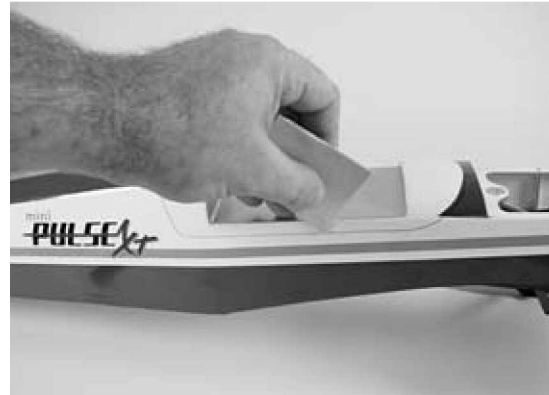


Note: Do not cut or change the length of the antenna wire, as this will reduce the range of your radio system.

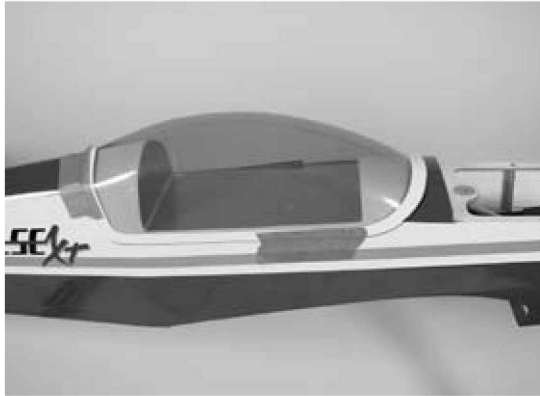
2. Place the canopy into position on the fuselage. Use a felt-tipped pen to trace the outline of the canopy onto the fuselage.



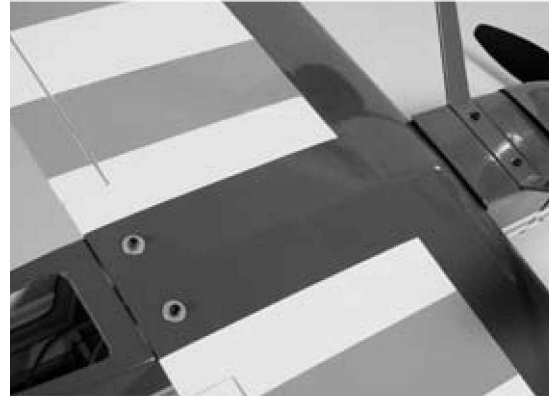
3. Use medium grit sandpaper to roughen the covering 1/8" (3mm) inside the line drawn. Also roughen the outside 1/8" (3mm) of the canopy. Clean the sanded areas using a paper towel and rubbing alcohol.



4. Use Formula 560 canopy glue to glue the canopy to the fuselage. Use masking tape to hold the canopy in position until the glue fully cures.



5. Plug the Y-harness for the aileron servos into the receiver. Attach the wing to the fuselage using two 4-40 x 1" socket head screws and two #4 washers.



6. With the aircraft fully assembled, install the battery into the battery compartment. Secure the battery using the hook and loop tape and a hook and loop strap.



Note: Place a piece of hook and loop tape on the bottom of the battery and on the fuselage where the battery rests. This will keep the battery from shifting forward or backward during extreme maneuvers.

7. Install the battery hatch to the top of the fuselage. The magnet will hold the battery hatch in place.

