Mini Pulse XT

MIKE
McCONVILLE
design

E-flite®
ADVANCING ELECTRIC FLIGHT

Assembly Manual

Table of Contents

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

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 Purchase Separately

SPM6000   AR6000 DSM DualLink™ 6-Channel Park Flyer Rx

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)

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

Or

EFLB1035	11.1V 2100mAh 3-Cell Li-Po, 16GA
EFLP1080E	10 x 8 Electric Prop
EFLAEC302	EC3 Battery Connector, Female (2)
EFLC3005	Celectra 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

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 $\frac{1}{4}$" 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 $\frac{1}{4}$" (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 $\frac{1}{4}$" 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.
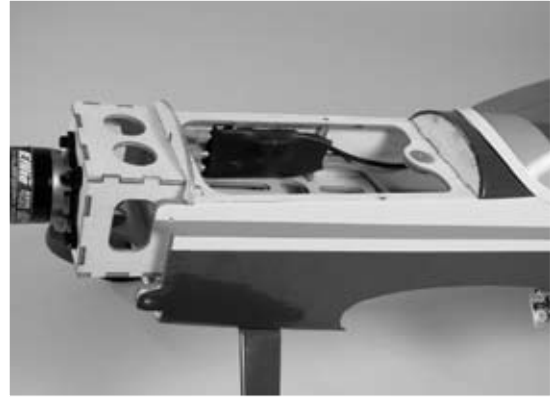
❍ 2. Connect the speed control to the radio system and motor battery. Check that the motor is rotating in the correct direction. It will rotate counterclockwise when viewed from the front of the aircraft. Use the instructions with your speed control to correct a motor that is operating in the wrong direction.

❍ 3. Tape small pieces of cardstock to the fuselage to indicate the locations of the cowl mounting tabs at the front of the fuselage.
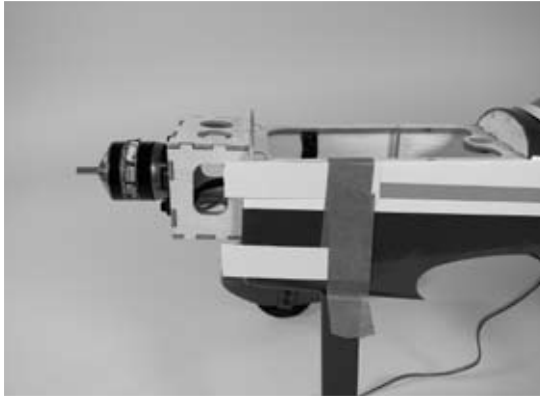
❍ 4. Slide the cowling onto the fuselage. Install the propeller adapter onto the Outrunner shaft. You may need to ream out the hole on your prop hub to fit the prop adapter shaft at this point. Slide the propeller onto the prop adapter shaft. The spinner backplate and spacers may need to be enlarged 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.
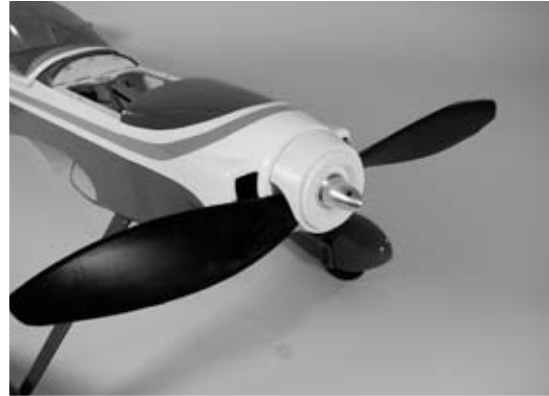
Note: Make sure to check the balance of the propeller after enlarging the hole in the propeller.

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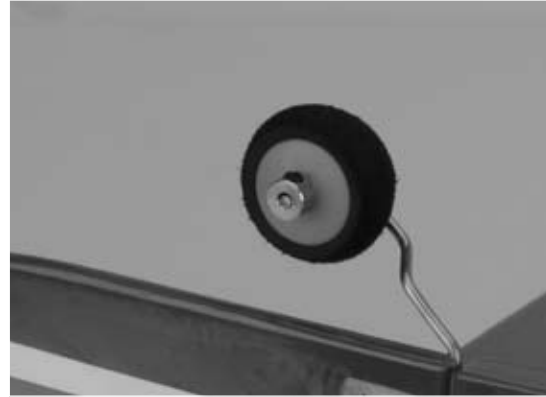
❍ 2. Locate the stabilizer/elevator assembly. Position the stabilizer/elevator assembly so the control horn will face down, away from the fin. The threaded rods from the rudder/fin assembly will slide into the two holes in the stabilizer.

❍ 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.
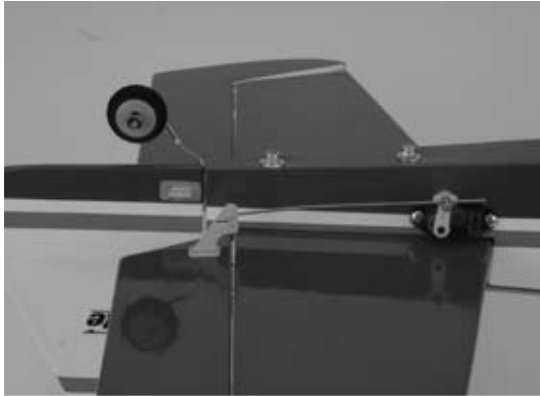
❑ 9. Repeat Step 7 for the rudder linkage.

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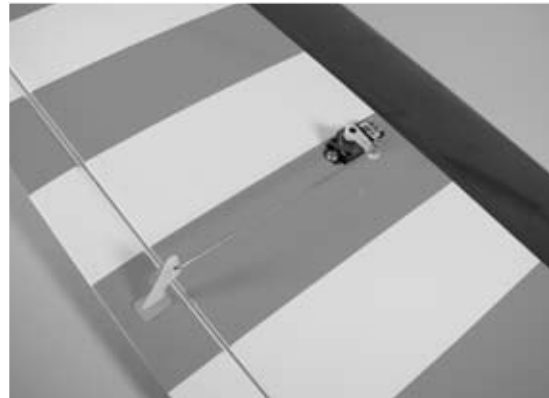
❑ 5. Repeat Steps 1 through 4 for the remaining aileron servo. Then connect a 6" Y-harness to the two 6" servo extensions on the servos.

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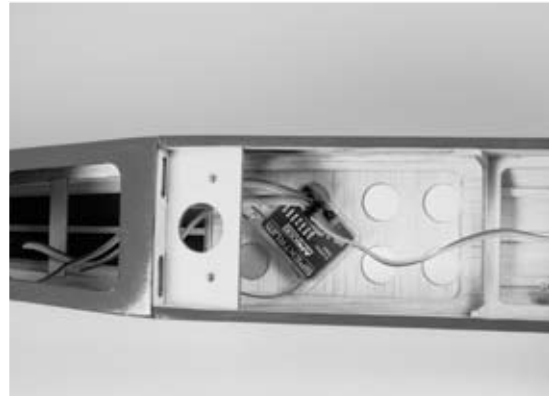
Note: Do not cut or change the length of the antenna wire, as this will reduce the range of your radio system.

❑ 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.
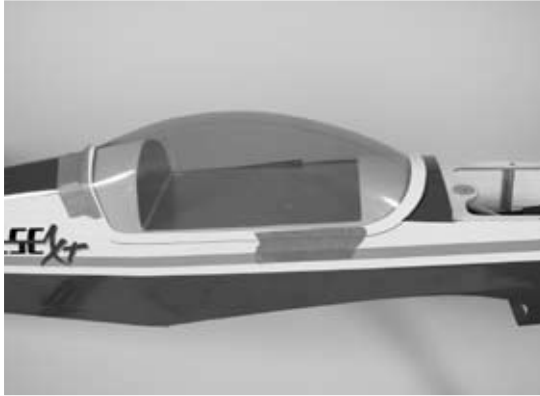
❍ 5. Plug the Y-harness for the aileron servos into the receiver. Attach the wing to the fuselage using two 4-40 x 1" socket head screws and two #4 washers.
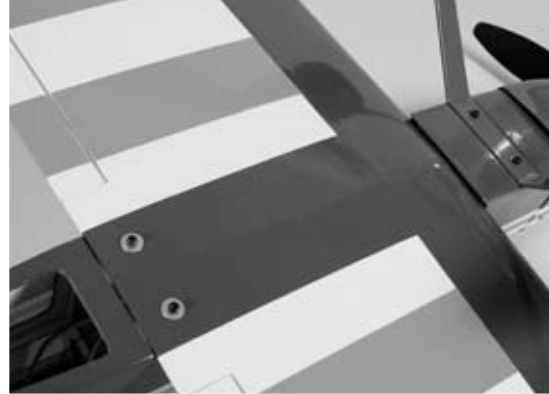
❍ 6. With the aircraft fully assembled, install the battery into the battery compartment. Secure the battery using the hook and loop tape and a hook and loop strap.

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.

Control Throws

◯ 1. Turn on the transmitter and receiver of your Mini Pulse XT. Check the movement of the rudder, elevator and ailerons using the transmitter. Reverse the direction of the servos at the transmitter if necessary.

◯ 2. 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.

Measurements are taken at the widest point on the surface.

	Low Rate	*High Rate*
Ailerons:		
Up/Down	3/8" (9mm)	1/2" (13mm)
Elevator:		
Up/Down	1/4" (6mm)	1/2" (13mm)
Rudder:		
Right/Left	$1\,^1/_4$" (32mm)	$1\,^1/_2$" (38mm)

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

Range Testing the Radio

○ 1. Be sure to range check your radio before each flying session. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the receiver in your airplane. With your airplane on the ground and the engine running, you should be able to walk 30 paces (approximately 100 feet) away from your airplane and still have complete control of all functions. If not, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

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

○ 3. Be sure that your transmitter batteries are fully charged, per the instructions included with your radio.

Center of Gravity

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) location for the Mini Pulse XT is $2\frac{3}{4}$" (70mm) behind the leading edge of the upper wing against the fuselage. After the first flights, the throws can be adjusted for your personal preference.
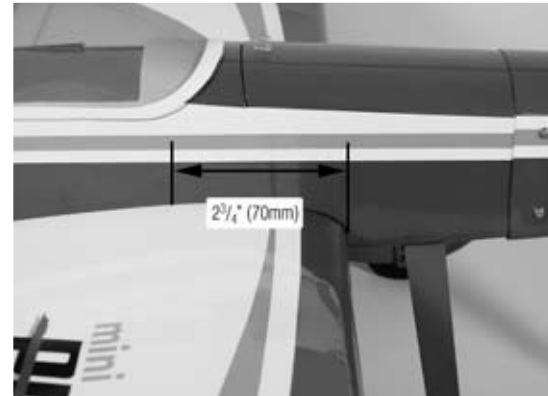
Preflight

Check Your Radio

Before going to the field, be sure that your batteries are fully charged per the instructions included with your radio. Charge both the transmitter and receiver pack 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, start 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.

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

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). Test run the motor and make sure it transitions smoothly from off to full throttle and back. Also ensure the engine is installed according to the manufacturer's instructions, and it will operate consistently.

Check all the control horns, servo horns, and clevises to make sure they are secure and in good condition. Replace any items that would be considered questionable. Failure of any of these components in flight would mean the loss of your aircraft.

Notes

2006 Official AMA National Model Aircraft Safety Code

GENERAL

1) I will not fly my model aircraft in sanctioned events, air shows or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight tested.

2) I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.

3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully or deliberately fly my models in a careless, reckless and/or dangerous manner.

4) The maximum takeoff weight of a model is 55 pounds, except models flown under Experimental Aircraft rules.

5) I will not fly my model unless it is identified with my name and address or AMA number on or in the model. (This does not apply to models while being flown indoors.)

6) I will not operate models with metal-bladed propellers or with gaseous boosts, in which gases other than air enter their internal combustion engine(s); nor will I operate models with extremely hazardous fuels such as those containing tetranitromethane or hydrazine.

RADIO CONTROL

1) I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.

2) I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.

3) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in front of the flight line. Intentional flying behind the flight line is prohibited.

4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. (Only properly licensed Amateurs are authorized to operate equipment on Amateur Band frequencies.)

5) Flying sites separated by three miles or more are considered safe from site-to-site interference, even when both sites use the same frequencies. Any circumstances under three miles separation require a frequency management arrangement, which may be either an allocation of specific frequencies for each site or testing to determine that freedom from interference exists. Allocation plans or interference test reports shall be signed by the parties involved and provided to AMA Headquarters.

Documents of agreement and reports may exist between (1) two or more AMA Chartered Clubs, (2) AMA clubs and individual AMA members not associated with AMA Clubs, or (3) two or more individual AMA members.

6) For Combat, distance between combat engagement line and spectator line will be 500 feet per cubic inch of engine displacement. (Example: .40 engine = 200 feet.); electric motors will be based on equivalent combustion engine size. Additional safety requirements will be per the RC Combat section of the current Competition Regulations.

7) At air shows or model flying demonstrations, a single straight line must be established, one side of which is for flying, with the other side for spectators.

8) With the exception of events flown under AMA Competition rules, after launch, except for pilots or helpers being used, no powered model may be flown closer than 25 feet to any person.

9) Under no circumstances may a pilot or other person touch a powered model in flight.

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