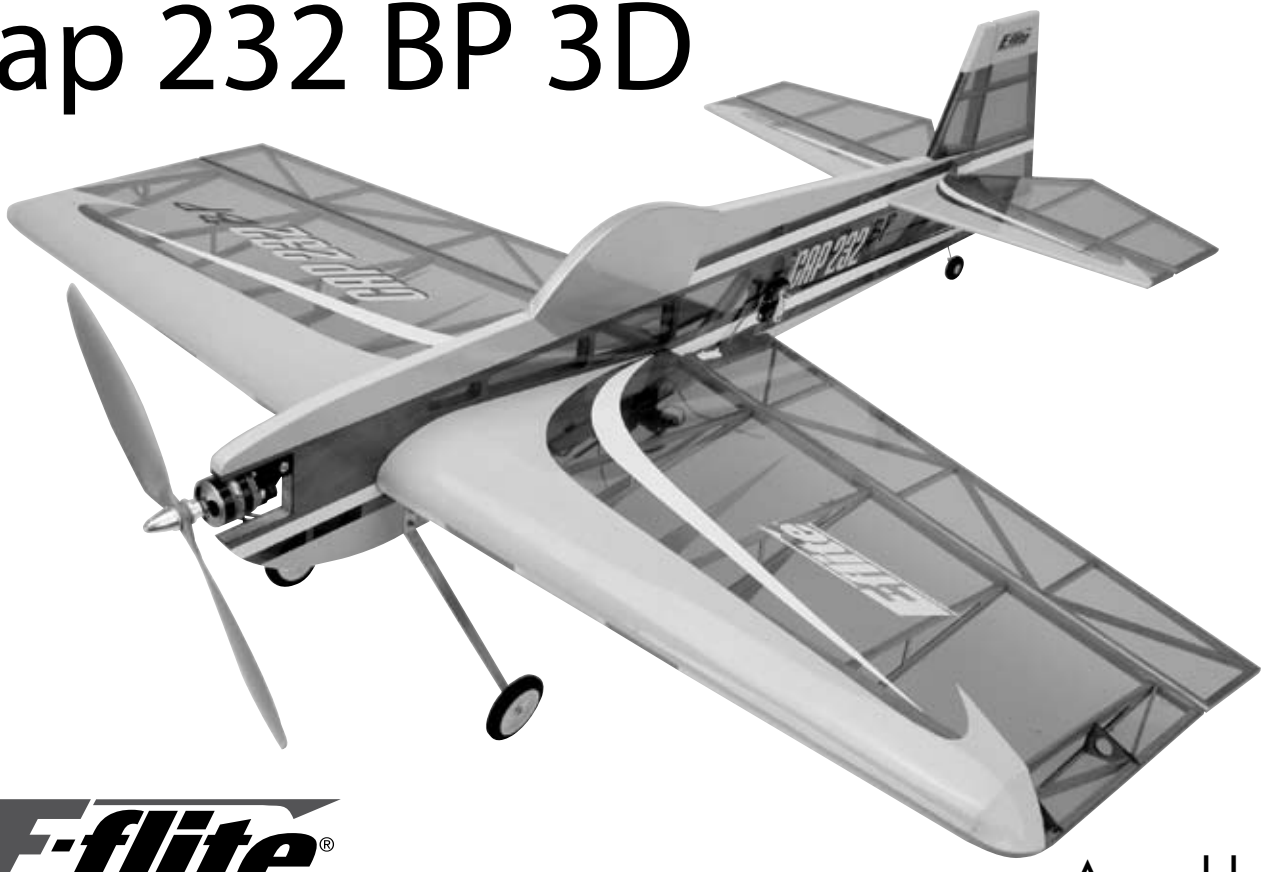
Cap 232 BP 3D



E-flite®
ADVANCING ELECTRIC FLIGHT

Assembly Manual

Table of Contents

Introduction

The Cap 232 BP 3D combines the sturdy construction of a balsa/light-ply airframe with the uninhibited 3D capability of a lightweight profile park flyer. It's all made possible by its intelligently engineered, open structure design that keeps weight to a bare minimum while providing all the structural integrity of a real wood airframe. This feather-light construction, combined with a high-output brushless motor, will provide spine-tingling 3D and freestyle performance that will let you really push the limits. And it comes from the factory 90% built and covered in genuine UltraCote® and UltraCote Light so you can be up and flying in no time

Specifications

Wingspan:	35.5 in (900mm)
Length:	35.5 in (900mm)
Wing Area:	425 sq in (27.5 sq dm)
Weight w/o Battery:	13–14 oz (370–400 g)
Weight w/ Battery:	15.5–17 oz (440–480 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.

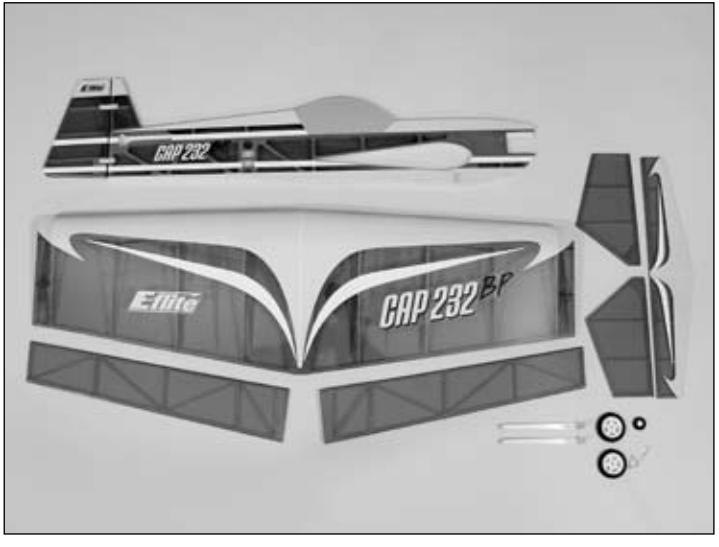
Contents of Kit/Parts Layout

Large Replacement Parts

EFL2401	Wing w/Ailerons
EFL2402	Fuselage with Rudder
EFL2403	Horizontal Tail Assembly
EFL2405	Landing Gear

Small Replacement Parts

EFL2404	Pushrod Set
EFL2406	Hardware Set
EFL2407	Wheel Set
EFLA213	E-flite/JR/Horizon Decals
EFLM1915	Outrunner Stick Mount



Required Radio Equipment

You will need a minimum 6-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 DuaLink™ 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
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 high-power motor system, or the Park 400 Brushless Outrunner 920 Kv (EFLM1305) for sport power and a worry-free outrunner motor. The Cap 232 BP 3D does not include a propeller.

High Power Outrunner Setup

EFLM1400	Park 450 BL Outrunner, 890Kv
EFLA311B	20-Amp Brushless ESC
THP13203SPL	1320mAh 3-Cell 11.1V Li-Po
APC11038SF	11 x 3.8 Electric Prop
EFLAEC303	EC3 Device & Battery Connector, Male/Female
EFLC3005	Celectra 1- to 3-Cell Li-Po Charger

This is a high-power performance setup for strong 3D flights.

Lightweight Outrunner Setup

EFLM1305	Park 400 BL Outrunner, 920Kv
EFLA311B	20-Amp Brushless ESC
THP9103SJPL	910mAh 3-Cell 11.1V Li-Po
APC11038SF	11 x 3.8 Electric Prop
EFLAEC303	EC3 Device & Battery Connector, Male/Female
EFLC3005	Celectra 1- to 3-Cell Li-Po Charger

This is a lightweight sport setup with adequate power for 3D flights.

Optional Accessories

EFLA110	Power Meter

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.

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)

Drill
Drill bit: 1/16" (1.5mm), 5/64" (2mm)
Felt-tipped pen
String
Straight edge
Threadlock
Razor saw
T-pins
Thin CA
Medium CA
Paper towels
Hobby knife (#11 blade)
6-minute epoxy
Pliers
Ruler
Square
Sandpaper

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.

Date of Purchase Warranty Period

Horizon Hobby, Inc., (Horizon) warranties that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon 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. 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 Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. 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 this Product, you are advised to return this 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).

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 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 t o productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a service technician.

Inspection or Repairs

If this 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 is not responsible for merchandise until it arrives and is accepted at our facility***. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided 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 the repair 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 repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon 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. ***Please note: non-warranty repair is only available on electronics and model engines.***

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

All other Products requiring warranty inspection or repair should be shipped to the following address:

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822

Please call 877-504-0233 with any questions or concerns regarding this product or warranty.

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.

Airframe Assembly

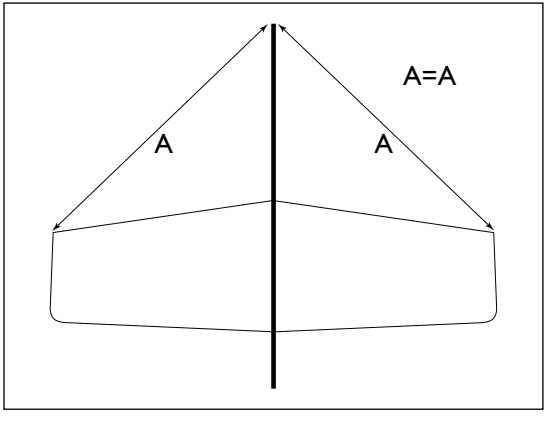
Required Parts

Fuselage
Wing Stabilizer

Required Tools and Adhesives

Felt-tipped pen
Ruler
String
Hobby knife w/#11 blade
Thin CA
Sandpaper

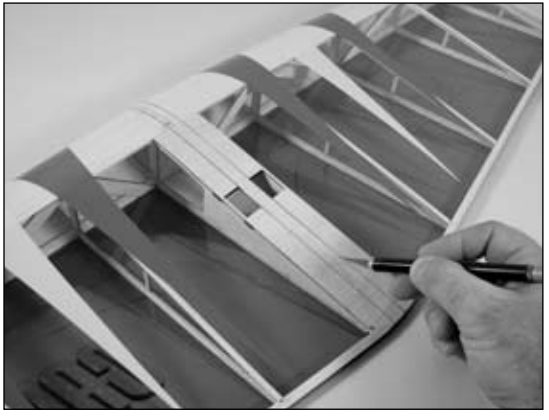
❍ 1. Locate the wing and fuselage. Slide the wing into the fuselage and center it as shown in the drawing. Use either a ruler or a ruler and string to ensure the dimensions are the same as shown.



Hint: Use the opening in the bottom of the wing for the servos to help in alignment.

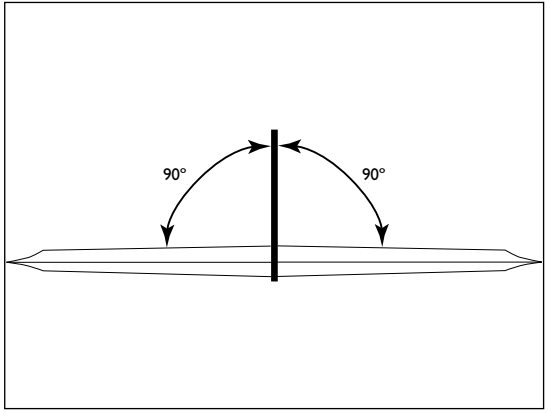
❍ ❍ 2. Use a felt-tipped pen to trace the outline of the fuselage onto the top and bottom of the wing.

❍ ❍ 3. Remove the wing and use a hobby knife with a sharp #11 blade to remove the covering from the wing 1/16" (1.5mm) inside the lines drawn.



Important: Do not cut into the underlying wood. This will weaken the structure and could cause failure in flight. As an option, you can use a soldering iron or hot knife with light pressure to carefully melt the covering and avoid the potential of cutting into the wood.

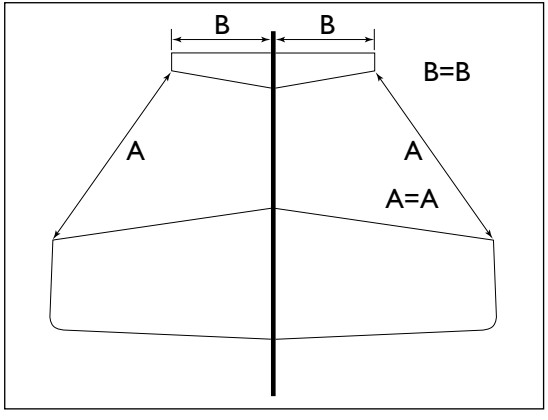
❍ 4. Slide the wing back into position in the fuselage. Check to make sure the wing is perpendicular (90°) to the fuselage as shown. Lightly sand the opening in the fuselage if necessary to make any adjustments.



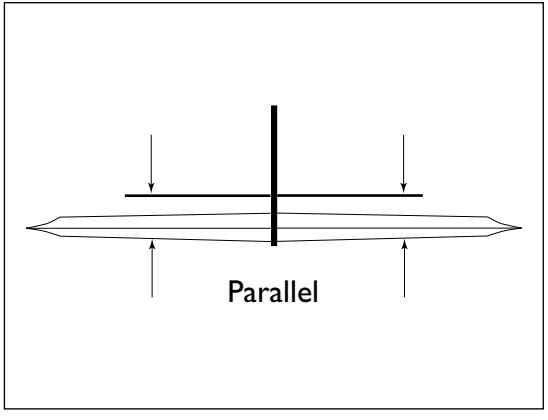
❍ ❍ 5. Wick thin CA into the joint between the wing and fuselage. Make sure to apply CA to left, right, top and bottom to guarantee the wing is glued securely.

Note: Avoid using a CA accelerator to allow the CA to wick well into the wood of the fuselage and wing. This will provide the best bond between the two items.

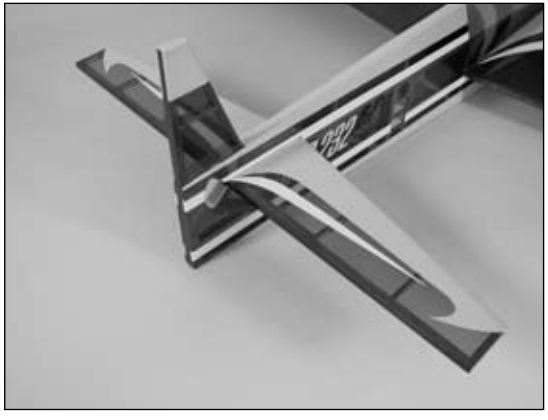
❍ 6. Slide the stabilizer into position in the fuselage. Check that it has been centered using the drawing as a reference.



❍ 7. Check that the stabilizer and wing are parallel to each other. Lightly sand the opening in the fuselage to correct any alignment problems.



❍ 8. Follow Steps 2, 3 and 5 to prepare and glue the stabilizer to the fuselage.



Hinging

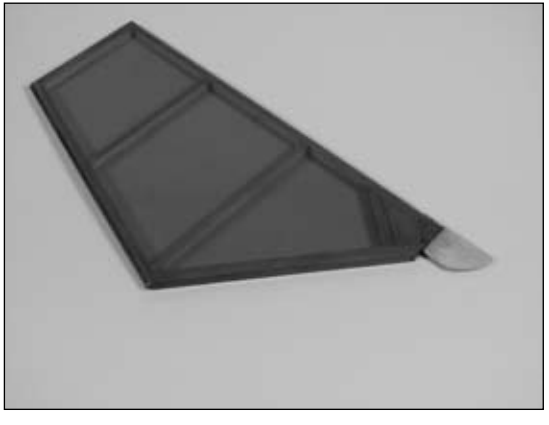
Required Parts

Airframe
CA hinges (17)
Elevator (left and right)
Aileron (left and right)
Rudder
Plywood elevator joiner

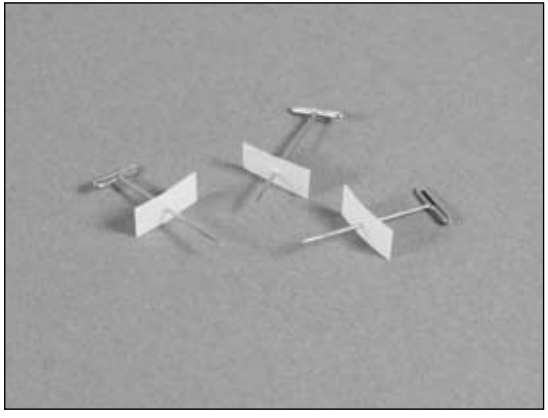
Required Tools and Adhesives

Thin CA
T-pins
Straight edge

❍ 1. Remove the covering from one elevator to expose the slot for the plywood elevator joiner. Slide the joiner into position and check it is aligned with the front edge of the elevator using a straight edge. Wick thin CA into the joint between the joiner and elevator to secure the joiner in position.

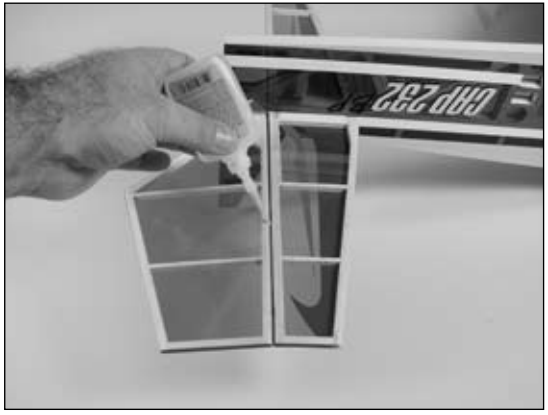


❍ ❍ 2. Place a T-pin in the center of three hinges.



❍ ❍ 3. Slide the hinges into the pre-cut slots of the elevator.

❍ ❍ 4. Slide the hinges and elevator into position on the stabilizer. Align the end of the elevator with the end of the stabilizer. Remove the T-pins to position the elevator as close to the stabilizer as possible, eliminating the gap between the two. Saturate each hinge, top and bottom, with thin CA.



Note: Do not use CA accelerator on the hinges. The CA must be allowed to soak into the hinges and surrounding wood to provide the best bond.

❍ 5. Repeat Steps 2 through 4 to install the remaining elevator. Apply thin CA to the elevator joiner as well as the hinges.

❍ 6. Hinging the rudder follows the same procedure as the elevators, except you don't have to worry about the elevator joiner. Use three CA hinges when attaching the rudder to the fin/fuselage.

❍ ❍ 7. The last step is to hinge the ailerons to the wing. Each aileron uses four hinges to attach it to the wing.

Landing Gear Installation

Required Parts

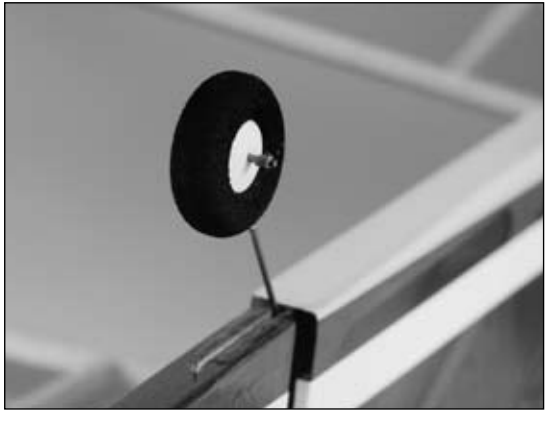
Assembled airframe
Tail gear wire
Tail wheel, 3/4" (20mm)
Tail wheel retainer
Main gear strut (2)
Main wheel, 1 7/8" (48mm) (2)
Wheel spacer (2)
4-40 nut (4)
4-40 x 1/2" machine screw (2)
2mm x 15mm machine screw (2)
2mm nut (2)

Required Tools and Adhesives

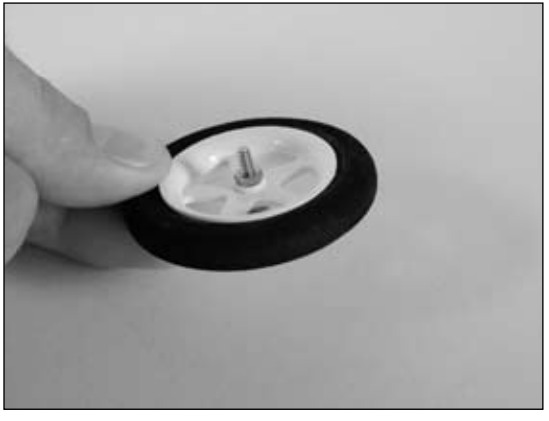
Pliers
Phillips screwdriver (small)
Hex wrench: 3/32"
Thin CA
6-minute epoxy
Threadlock

❍ 1. Locate the tail gear wire. Use 6-minute epoxy to glue the wire into the slot in the bottom of the rudder.

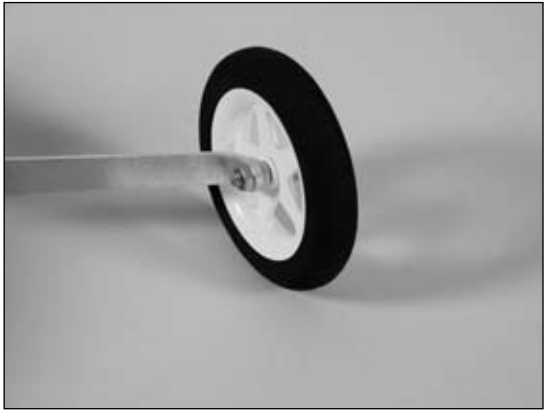
❍ 2. Slide the tail wheel onto the wire once the epoxy has fully cured. Use the tail wheel retainer to keep the wheel in position. A drop of thin CA on the retainer will secure it to the wire. Make sure not to get CA into the tail wheel, preventing it from rotating.



❍ ❍ 3. Slide a wheel spacer onto one of the 4-40 x 1/2" machine screws. Slide the screw into the wheel and thread a 4-40 nut onto the screw.



❍ ❍ 4. Slide the wheel assembly into the 7/64" hole in the landing gear, making sure the wheel will be on the correct side of the gear. Use a 3/32" hex wrench in the screw to prevent it from rotating while installing the 4-40 nut on the inside of the landing gear. Use a drop of thin CA or threadlock on the nut to prevent it from vibrating loose.



❍ 5. Repeat Steps 3 and 4 for the remaining wheel.

❍ 6. Attach the main gear to the fuselage using two 2mm x 15mm machine screws and the two 2mm nuts. Use a drop of thin CA or threadlock on the nuts to prevent them from vibrating loose.

Radio Installation

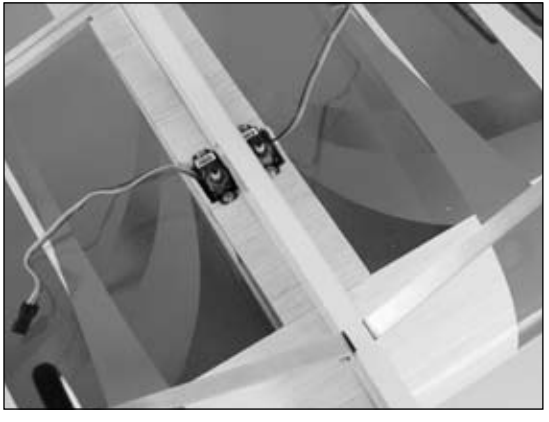
Required Parts

Assembled airframe
Carbon linkage (long), 9 7/8" (250mm)
Carbon linkage (medium) 8 1/2" (215mm)
Carbon linkage (short) (2) 5 1/2" (140mm)
Control horn w/backplate (4)
Nylon clevis (4)
Pushrod control connector w/hardware (4)
Servos w/hardware (4)
3D length servo arms (4)
Radio system w/receiver

Required Tools and Adhesives

Phillips screwdriver (small)
Felt-tipped pen
Drill
Drill bit: 1/16" (1.5mm), 5/64" (2mm)
Hook and loop tape
Hobby knife (#11 blade)

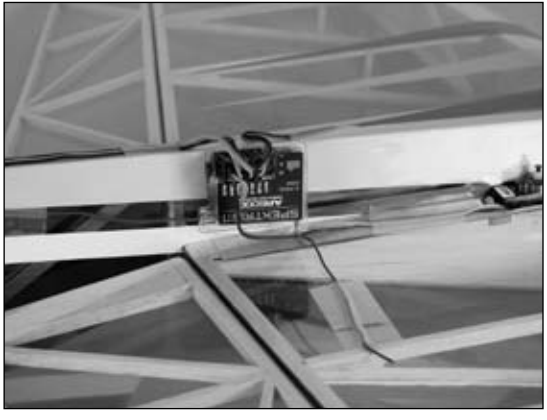
❍ 1. Remove the arms from your four servos. Install two servos into the openings on the bottom of the wing using the hardware provided with the servos. Make sure to position the output of the servo toward the front of the plane, and to have the servo leads accessible from the bottom of the airplane. Pre-drill the holes for the servo mounting screws using a drill and 1/16" (1.5mm) drill bit.



❍ 2. The elevator servo is installed in the upper hole in the fuselage using the hardware provided with your servo. Pre-drill the holes for the servo mounting screws using a drill and 1/16" (1.5mm) drill bit. The output of the servo will be on the left side facing the front of the plane.

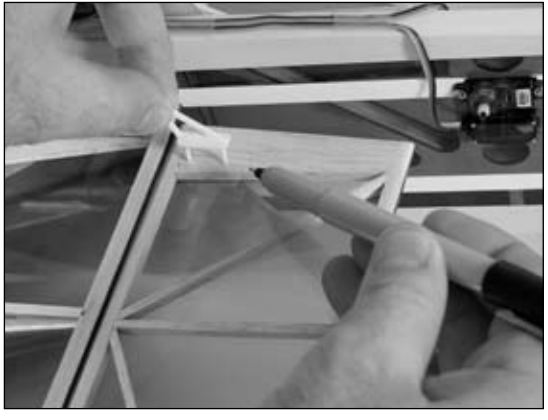
❍ 3. The rudder servo is installed in the lower hole using the hardware provided with your servo. Pre-drill the holes for the servo mounting screws using a drill and 1/16" (1.5mm) drill bit. The output for the rudder servo will be opposite the elevator servo facing the front of the plane.

❍ 4. Secure the receiver to the fuselage under the wing using hook and loop tape. Route the antenna wires according to the manual provided with your radio system. Plug the servos into the appropriate positions in the receiver.



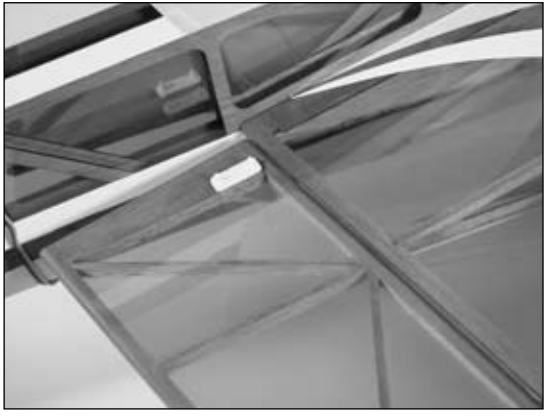
Note: Make sure all the wires are neatly taped to the fuselage to prevent them from getting entangled with the linkages.

❍ ❍ 5. Position a control horn on the aileron. The horn will have the holes for the clevis in line with the aileron hinge line, and fairly close to the outer edge of the balsa. Mark the location for the two horn posts using a felt-tipped pen.



❍ ❍ 6. Drill the locations for the horn posts using a 5/64" (2mm) drill bit.

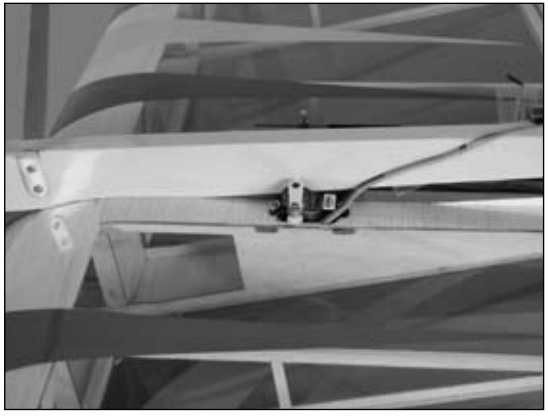
❍ ❍ 7. Slide the control horn into the holes from the bottom of the aileron. Apply a few drops of thin CA to the posts from the top of the aileron. Slide the control horn backplate into position, making sure the horn is solidly secured. Apply a couple drops of thin CA where the posts protrude through the backplate.



❍ ❍ 8. Attach a pushrod control connector to a long 3D servo horn. Remove the remaining arm using a hobby knife or side cutters.

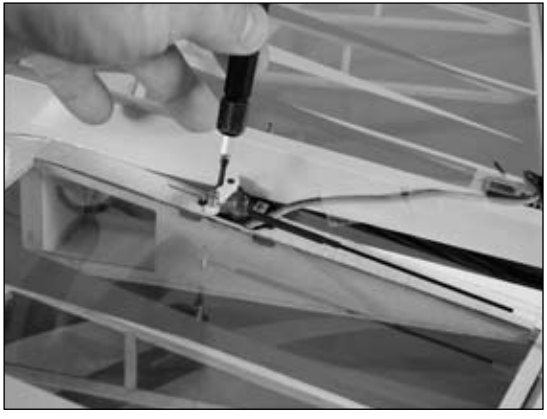
❍ ❍ 9. Turn the radio system on and center all the trims and sticks. Also make sure you are starting with a clean program if using a programmable radio. Check the operation of the servos at this time.

❍ ❍ 10. With the radio system on, attach the servo horn to the aileron servo.



❍ ❍ 11. Attach a nylon clevis to the outer hole of the control horn. Slide the short 5 1/2" (140mm) pushrod through the connector on the servo, then into the nylon clevis. The pushrod should protrude about 1/16" (1.5mm) into the forks of the clevis. Use a couple drops of thin CA to glue the clevis to the pushrod. Be careful not to accidentally glue the clevis to the control horn.

❍ ❍ 12. With the radio system still on, physically center the aileron. Use the screw from the pushrod control connector to secure the pushrod to the connector.



❍ 13. Repeat Steps 5 through 12 for the remaining aileron servo.

❍ 14. The installation of the elevator linkage follows the same procedure as the aileron linkage. The only difference is you will be using the medium 8 1/2" (215mm) length carbon pushrod linkage during assembly.

❍ 15. The last linkage to install is for operating the rudder. The long 9 7/8" (250mm) carbon pushrod is used for the rudder.

Power System Installation

Required Parts

Assembled airframe
Motor offset shim (2)
Stick mount w/hardware
Brushless motor
20-Amp Brushless ESC (EFLA311B)
910–1320mAh 3-Cell 11.1V Li-Po (THP13203SPL or THP9103SJPL)
11 x 3.8 Electric Prop (APC11038SF)
EC3 Device & Battery Connector, Male/Female (EFLAEC303)

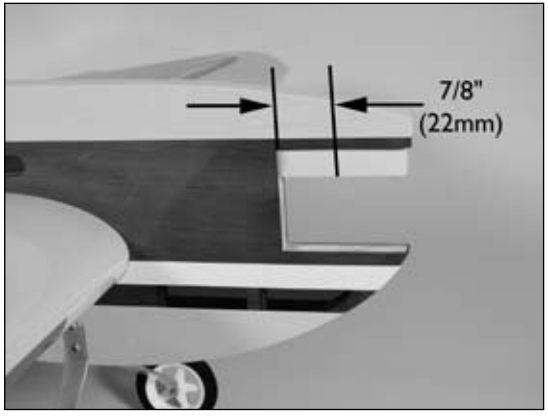
Required Tools and Adhesives

Razor saw
Medium CA
Ruler
Hook and loop tape
Drill
Drill bit: 1/16" (1.5mm)

Note: The following steps show the installation procedures using our E-flite Outrunner BL motor. You can use an Inrunner motor with a gearbox as an alternative setup.

❍ 1. Mount your particular motor to the stick type mount using the hardware provided with the mount.

❍ 2. Cut the motor stick to a length of 7/8" (22mm) as shown when using the Park 450 motor.



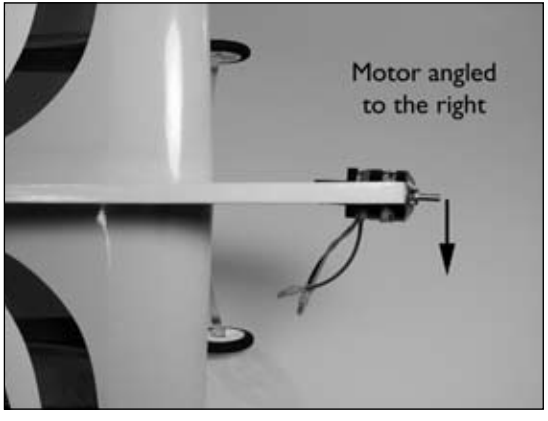
Note: If you are using a park 400, you can use the same measurement as the Park 450, or cut the motor stick to a length of 1 1/8" (28mm) to position the propeller in the same location as the Park 450. Either way, you will have plenty of clearance between the propeller and front of the fuselage.

❍ 3. Use medium CA to glue the two motor offset shims to the sides of the motor stick. This is necessary to provide the correct thrust angle for the motor. Make sure the thin end on the left shim is towards the front, and the shim on the right has the thick end of the shim towards the front.

Note: The left and right of the aircraft are as viewed while sitting in the pilot seat. The photo above shows a view of the right side of the fuselage.

❍ 4. Slide the motor mount onto the motor stick. Use a drill and 1/16" (1.5mm) drill bit to drill a pilot hole for the screw into the motor stick. Use the 1.5mm x 10mm screw to secure the mount to the motor stick.

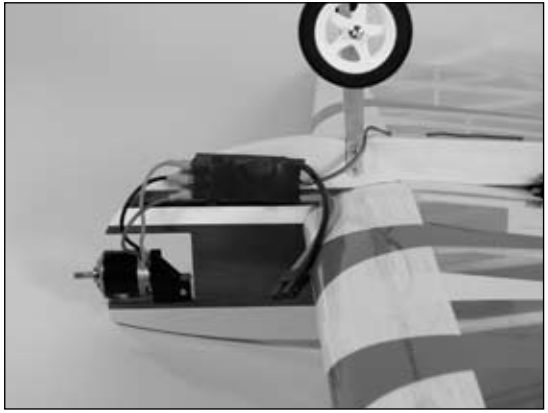
Note: Check that your motor has right thrust. The motor will be angled towards the right when viewed from the top of the aircraft as shown.



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.

❍ 5. Solder any necessary connectors onto the speed control for the motor and battery. Plug the motor into the speed control. Attach the speed control to the fuselage using hook and loop tape. Plug the speed control into the throttle port of your receiver.



❍ 6. Attach the battery to the side of the fuselage using hook and loop tape. The exact position of the battery can be changed forward or back, depending on what is necessary to achieve the correct center of gravity. Turn on the radio system and plug the battery into the speed control. Use the throttle to check that the motor rotates counterclockwise when viewed from the front. If not, follow the directions included with your speed control to change the direction of the motor rotation.

Note: Never check the motor rotation on the bench with the propeller installed. The plane could move and cause serious injury. Always check the motor without the propeller to avoid injury.

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.

Note: If it is necessary to enlarge the hole in the propeller, make sure to check the balance of the propeller afterwards.

❍ 7. Attach the propeller using the adapter included with the motor.

Control Throws

❍ 1. Turn on the transmitter and receiver of your Cap 232 BP. 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 down will make the airplane elevator move up.

❍ 3. 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.

Ailerons

Low Rate: 1 1/4" (32mm) with 20% Expo (Up/Down)

High Rate: 1 3/4" (45mm) with 43% Expo (Up/Down)

Elevator

Low Rate: 2" (50mm) with 20% Expo (Up/Down)

High Rate: 3" (75mm) with 49% Expo (Up/Down)

Rudder

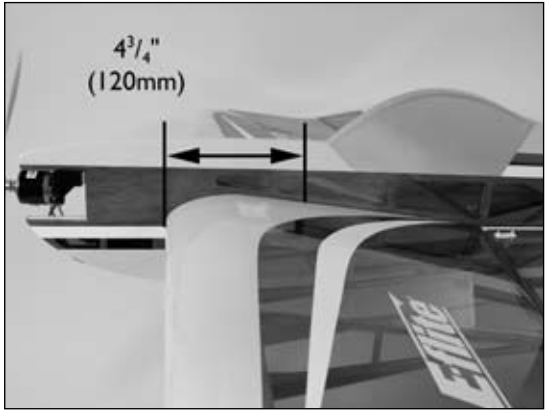
3" (75mm) (Left/Right)

Center of Gravity

An important part of preparing the aircraft for flight is properly balancing the model.

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) location for the Cap 232 BP is 4 3/4" (120mm) behind the leading edge of the wing against the fuselage.



Range Test Your Radio

❍ 1. Before each flying session, be sure to range check your radio. 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.

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.

Flying Your Cap 232 BP

Flying the Cap 232 BP is about as fun as it can get at the park. A very light wing loading and extreme control throws make for some exciting 3D flying. Verify that your CG is at the correct location as per the manual and that you have your rates set up to your liking. Verify all control throws are in the correct direction and the motor spins in the correct direction as well.

Point the model into the wind and add some throttle trim until the motor begins to turn. This will be your flight idle. Now, apply power slowly. You will find the model will become airborne very quickly and at a low speed. This model excels at flying slow and easy as well as slow and extreme. Trim the model for level flight at half throttle. Only use full throttle for maneuvering. Do not fly this model fast or at full throttle in level flight. Doing this will result in the flight controls fluttering and a potential catastrophic failure of the airframe.

You will find you can adjust the CG to your liking by moving the battery pack fore or aft on the fuselage. Also keep the battery on the fuselage mounted high (at least at wing centerline or above) to help in hovering maneuvers and harriers.

To land the Cap 232 BP just reduce the throttle to idle and feed in up elevator until the model settles into a slightly nose high attitude. Gently fly the model down to the landing spot with a final flair at touchdown. You will find the model will have a very short roll out. We hope you enjoy the Cap 232 BP as much as we do.

Happy landings.

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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