

Carbon Cub 15cc

HANGAR 9®

Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manuale di Istruzioni



HAN-3448



HAN-3447

Scan the QR code and select the Parts and Support quick links from the product page for the most up-to-date manual information.
Scannen Sie den QR-Code und wählen Sie auf der Produktseite die Quicklinks Teile und Unterstützung, um die aktuellsten Informationen zu den Handbüchern zu erhalten.

Scannez le code QR et sélectionnez les liens rapides « Parts and Support » (Pièces et assistance) sur la page du produit pour obtenir les informations les plus récentes du manuel.

Scansionare il codice QR e nella pagina del prodotto selezionare li collegamenti rapidi a ricambi e assistenza per consultare le informazioni più aggiornate del manuale.

HORIZON
H O B B Y

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com or www.towerhobbies.com and click on the support or resources tab for this product.

MEANING OF SPECIAL LANGUAGE

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.



WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Age Recommendation: Not For Children Under 14 Years. This Is Not A Toy.

SAFETY WARNINGS AND PRECAUTIONS

Read and follow all instructions and safety precautions before use. Improper use can result in fire, serious injury and damage to property.

Components

Use only with compatible components. Should any compatibility questions exist, please refer to the product instructions, component instructions or contact the appropriate Horizon Hobby office.

Flight

Fly only in open areas to ensure safety. It is recommended flying be done at radio control flying fields. Consult local ordinances before choosing a flying location.

Propeller

Always keep loose items that can become entangled in the propeller away from the prop. This includes loose clothing or other objects such as pencils and screwdrivers. Keep your hands away from the propeller as injury can occur.

Batteries

Always follow the manufacturer's instructions when using and disposing of any batteries. Mishandling of Li-Po batteries can result in fire causing serious injury and damage.

Small Parts

This kit includes small parts and should not be left unattended near children as choking and serious injury could result.

SAFE OPERATING RECOMMENDATIONS

- Inspect your model before every flight to ensure it is airworthy.
- Be aware of any other radio frequency user who may present an interference problem.
- Always be courteous and respectful of other users in your selected flight area.
- Choose an area clear of obstacles and large enough to safely accomodate your flying activity.
- Make sure this area is clear of friends and spectators prior to launching your aircraft.
- Be aware of other activities in the vicinity of your flight path that could cause potential conflict.
- Carefully plan your flight path prior to launch.
- Abide by any and all established AMA National Model Aircraft Safety Code.

BEFORE STARTING ASSEMBLY

- Remove parts from bag.
- Inspect fuselage, wing panels, rudder and stabilizer for damage.
- If you find damaged or missing parts, contact your place of purchase.
- Charge transmitter and receiver batteries.
- Center trims and sticks on your transmitter.
- For a computer radio, create a model memory for this particular model.
- Bind your transmitter and receiver, using your radio system's instructions.

NOTICE: Rebind the radio system once all control throws are set. This will keep the servos from moving to their endpoints until the transmitter and receiver connect. It will also guarantee the servo reversal settings are saved in the radio system.

IMPORTANT FEDERAL AVIATION ADMINISTRATION (FAA) INFORMATION



Use the QR code to learn more about the Recreational UAS Safety Test (TRUST), as was introduced by the 2018 FAA Reauthorization Bill. This free test is required by the FAA for all recreational flyers in the United States. The completed certificate must be presented upon request by any FAA or law enforcement official.



If your model aircraft weighs more than .55lbs or 250 grams, you are required by the FAA to register as a recreational flyer and apply your registration number to the outside of your aircraft. Use the QR code to learn more about registering with the FAA.



According to FAA regulation, all unmanned aircraft over .55lbs (250 grams), flying in United States airspace are required to either fly within an FAA-Recognized Identification Area (FRIA) or continually transmit an FAA-registered remote identification from a Remote ID broadcast module, such as the Spektrum™ Sky™ Remote ID module (SPMA9500). Use the QR code to learn more about the FAA Remote ID regulations.

TABLE OF CONTENTS

Notice.....	2
Meaning of Special Language.....	2
Safety Warnings and Precautions.....	2
Safe Operating Recommendations.....	2
Before Starting Assembly.....	2
Important Federal Aviation Administration (FAA) Information.....	2
Replacement Parts.....	3
Required for Completion (EP EP PNP).....	4
Required for Completion, Electric Motor Installation (ARF).....	4
Optional Items.....	4
Tools Required.....	4
Required Adhesives (ARF Version).....	4
Removing Wrinkles.....	5
Building Precautions.....	5
Transportation and Storage.....	5
Replacement Covering.....	5
Checking Blind Nuts.....	5
Using this Manual.....	5
Hinging the Ailerons and Flaps (ARF).....	5
Aileron and Flap Control Horn Installation (ARF).....	6
Aileron Servo Installation (ARF).....	7
Rudder and Fin Preparation (ARF).....	10
Elevator Hinging (ARF).....	10
Fin and Stabilizer Installation (ARF).....	11
Tail Wire Bracing Installation (ARF).....	13
Rudder and Elevator Servo Installation (ARF).....	14
Landing Gear Installation (ARF).....	15
Motor and Battery Installation (ARF).....	16
Cowling and Spinner Installation (ARF).....	17
Receiver Installation (ARF).....	18
Window Installation (ARF).....	18
Landing Light Installation (ARF).....	18
Wing Strut Installation (ARF).....	19
Wing Installation (ARF).....	20
Decal Installation (ARF).....	20
Fin and Stabilizer Installation (EP PNP).....	21
Tail Wire Bracing Installation (EP PNP).....	21
Landing Gear Installation (EP PNP).....	22
Motor Battery Installation (EP PNP).....	22
Spinner Installation (EP PNP).....	23
Receiver Installation (EP PNP).....	23
Wing Installation (EP PNP).....	23
Center of Gravity.....	24
Decal Installation (EP PNP).....	24
Control Throws.....	25
Preflight Checklist.....	25
Daily Flight Checks.....	25
Limited Warranty.....	25
Warranty and Service Contact Information.....	26
WEEE NOTICE.....	26
Academy of Model Aeronautics National Model Aircraft Safety Code.....	27
Building and Flying Notes.....	27

REPLACEMENT PARTS

Item #	Description
HAN-4488	Fuselage: Carbon Cub 15cc
HAN-4489	Left Wing Panel: Carbon Cub 15cc
HAN-4490	Right Wing Panel: Carbon Cub 15cc
HAN-4491	Windshield Hatch: Carbon Cub 15cc
HAN-4492	Stabilizer and Elevators: Carbon Cub 15cc
HAN-4493	Rudder: Carbon Cub 15cc
HAN-4494	Cowling: Carbon Cub 15cc
HAN-4495	Window Set with Windshield: Carbon Cub 15cc
HAN-4496	Landing Gear: Carbon Cub 15cc
HAN-4497	Wheels Set: Carbon Cub 15cc
HAN-4498	Tailwheel Assembly: Carbon Cub 15cc
HAN-4499	Wheel Pants Set: Carbon Cub 15cc
HAN-4500	Spinner: Carbon Cub 15cc
HAN-4501	Wing Struts Set: Carbon Cub 15cc
HAN-4502	Pushrod Set: Carbon Cub 15cc
HAN-4503	Hardware Set: Carbon Cub 15cc
HAN-4505	Wing Tube: Carbon Cub 15cc
HAN-4506	EP Mount Set: Carbon Cub 15cc

REQUIRED FOR COMPLETION (EP EP PNP)

# Required	Item #	Description
1	SPM-1033	AR8360T+ Receiver
1	SPMX56S30	6S 5000mAh 30C G2 Smart LiPo Battery

REQUIRED FOR COMPLETION, ELECTRIC MOTOR INSTALLATION (ARF)

# Required	Item #	Description
1	SPMXAM4770	Avian 5065-450Kv Brushless Outrunner Motor
1	SPMXAE1100	Avian 100A Smart ESC
1	SPM-1033	AR8360T+ Receiver
6	SPMSA6380	A6380 Standard Digital HV High Torque High Speed Metal Gear Aircraft Servo
2	SPMA3003	Servo Extension Lead: 12" Heavy-Duty
1	SPMX56S30	6S 5000mAh 30C G2 Smart LiPo Battery

OPTIONAL ITEMS

# Required	Item #	Description
1	EXRA055J	Charge Receptacle: JR/HRC/AIRZ
1	HAN99003	2 ³ / ₄ " -inch Aluminum Spinner P51
1	HAN15069	Wing Transport Bag: Valiant 20cc, J-3 Cub 10cc
1	SPMR7120	Spektrum NX7e+ 14-Channel DSMX Transmitter Only, Black Edition
1	SPMR7110	Spektrum NX7e+ 14-Channel DSMX Transmitter Only
1	SPMX56S50	Spektrum Accessories 22.2V 5000mAh 6S 50C Smart G2 LiPo Battery: IC5
1	SPMX46S50	Spektrum Accessories 22.2V 4000mAh 6S 50C Smart G2 LiPo Battery: IC5
1	SPMXC2010	Spektrum Accessories S2200 G2 AC 2x200W Smart Battery Charger
1	SPMXC2000	Spektrum Accessories S2100 G2 2x100W AC Smart Charger
1	SPMXCA500	Spektrum Accessories Smart Lipo Bag, 18 x 7 x 7 cm
1	HAN6030	Hangar 9 1/5-Scale Float Set
1	GEA556S60E5GT	Gens ace 22.2V 5500mAh 6S 60C G-Tech LiPo Battery: EC5
1	GEA566S80E5GT	Gens ace 22.2V 5600mAh 6S 80C G-Tech LiPo Battery: EC5
1	GEA300WPLUS-UB	Gens ace iMars D300 Plus G-Tech Charger with Bluetooth, Black
1	APC16080E	APC-Landing Products Electric Propeller, 16 x 8E
1	EXL55560	Excel Hobby Blade Corp Pliers,5" Needle Nose

TOOLS REQUIRED

Description	
Box or open end wrench: 10mm, 7/16-inch, 1/2-inch	Light machine oil
Clamps	Low tack tape
Covering iron	Medium grit sandpaper
Drill	Mixing cups
Drill bit set, metric and english	Mixing sticks
Epoxy brushes	Pencil
Felt-tipped pen	Phillips screwdriver #0, #1, #2
Flat blade screwdriver	Pin vise
Flat file	Pliers
Flux paste	Razor saw
Heat gun	Ruler
Hemostats	Sanding drum for rotary tool
Hex wrench set, metric and english	Scissors
Hobby knife with #11 blade	Side cutter
Hobby scissors	Silver solder
Hobby square	Stepped reamer
Hook and loop tape	Toothpicks

REQUIRED ADHESIVES (ARF VERSION)

# Required	Item #	Description
1	GPMR6043	Great Planes Pro Epoxy 30-Minute Formula 4 oz
1	GPMR6045	Great Planes Pro Epoxy 6-Minute Formula 9 oz
1	DUB346	Dubro Products Mix-It-Stix (25)
1	DLMAC27	Deluxe Materials Grime 2 Shine
1	TLR76009	Team Losi Racing TLR Lok Threadlock Blue
1	EXL55560	Excel Hobby Blade Corp Pliers,5" Needle Nose
1	PAAPT56	ZAP Glue Formula 560 Canopy Glue
1	GPMR6002	Great Planes Pro CA Glue Thin 1 oz
1	GPMR6008	Great Planes Pro CA+ Glue Medium 1 oz

REMOVING WRINKLES

The covering of your model may develop wrinkles during shipping. Use a sealing iron (HAN1017) with a sealing iron sock (HAN1018) to remove them. Start with a lower heat setting and use caution while working around areas where the colors overlap to prevent separating the colors. It is also advised to use caution around the canopy as it is plastic and will distort with excessive heat. Avoid using too much heat, especially near seams, which could also separate the film. Placing a cool damp cloth on adjacent colors will also help prevent the separation of the colors while removing wrinkles. A heat gun can also be used, but with caution as it produces extreme heat and it is easy to damage the covering.

BUILDING PRECAUTIONS

Prepare the work surface prior to beginning the build. The surface should be soft and free of any sharp objects. We recommend resting the airframe parts on a soft towel or pit mat to prevent scratching or denting the surface of the aircraft.

TRANSPORTATION AND STORAGE

When transporting and storing your model, you will need a minimum of 72 in (1.8 m) in length, and 29 inches (74cm) in height to accommodate the size of the fuselage. We also recommend the use of wing bags to help protect these surfaces during transport and storage. The control horns and linkages can cause damage to other surfaces even when placed in storage bags. Always transport and store the wings so the linkages do not contact other panels to prevent damage.

REPLACEMENT COVERING

Your model is covered with UltraCote® film in the following colors. If repairs are required, order these coverings to make those repairs.

Silver HANU881 (Oracover 21-091)
True Red HANU866 (Oracover 21-023)
Black HANU874 (Oracover 21-071)

CHECKING BLIND NUTS

When building the aircraft, you will be required to thread machine screws into blind nuts. We recommend pre-threading the screws to make sure the blind nuts are clear of any debris. If the screws do not thread in easily, clear the threads using the appropriate tap and tap handle. Most hardware used in this model is metric.

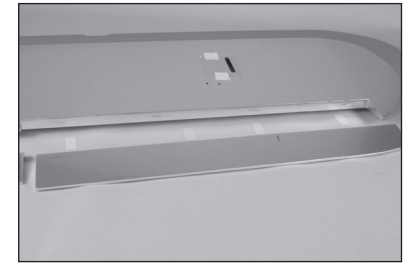
USING THIS MANUAL

This manual covers the assembly of both the ARF and EP PNP versions of this aircraft. Please read through the manual to identify which sections pertain to your particular model.

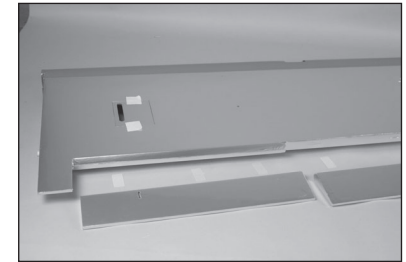
The section on Page 5 starting with Hinging the Ailerons and Flaps covers the ARF assembly. The section on Page 21 starting with Fin and Stabilizer Installation covers the EP PNP assembly. Sections for Center of Gravity and Control Throws pertain to both version of this aircraft.

HINGING THE AILERONS AND FLAPS (ARF)

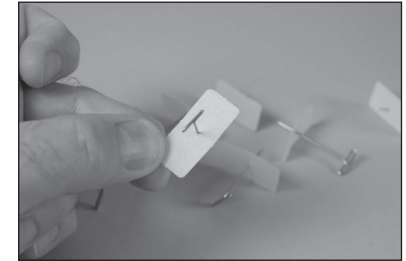
1. Remove the aileron and flap from the wing panel.



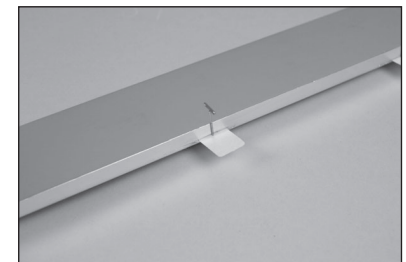
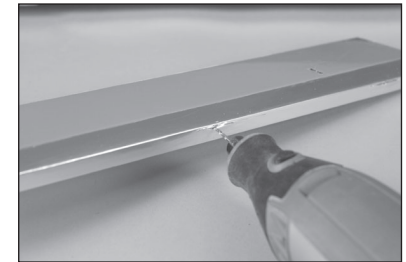
2. Place a T-pin in the center of each hinge.



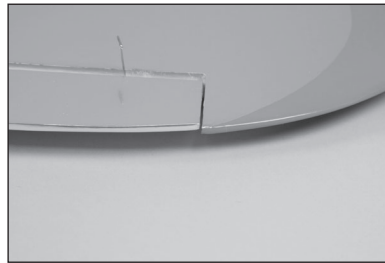
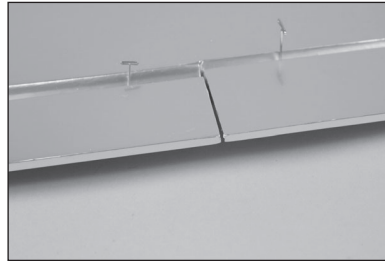
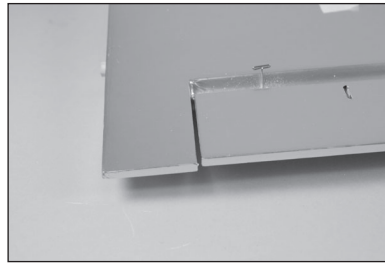
3. Use a pin vise or rotary tool and 1/16-inch (1.5 mm) drill bit to drill a hole in the center of each hinge slot to allow the CA to wick into the hinge. Drill holes in both the wing and control surfaces at this time.



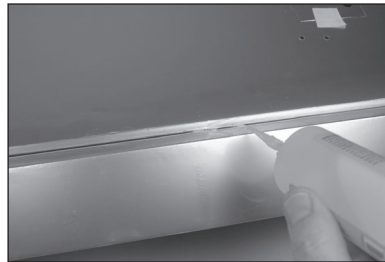
4. Slide the hinges into position with the T-pin resting against the edge of the control surface.



5. Fit the aileron and flaps to the wing panel, making sure the hinges are inserted into the hinge slots. Adjust the position of the flap and aileron so all gaps are equal. Remove the T-pins from the hinges. Maintain a 1/32-inch (1mm) hinge gap between all surfaces to avoid any binding at maximum deflection.



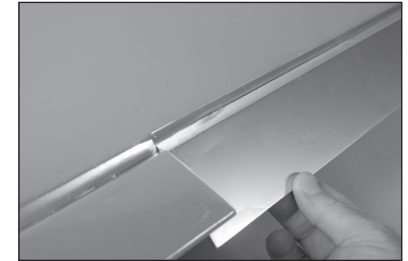
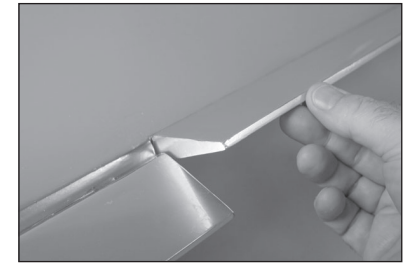
6. Apply thin CA to the top and bottom of each hinge.



7. Once the CA cures, gently pull on the fixed surface and control surface to make sure the hinges are glued securely. If not, apply more CA to secure each of the hinges.

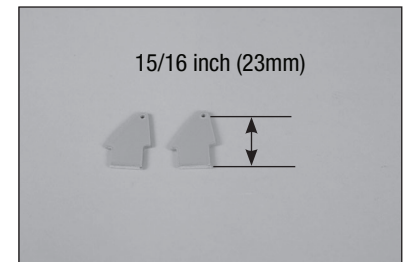
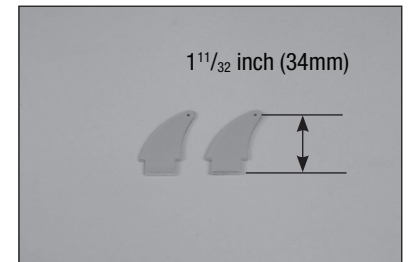


8. Work the flap and aileron through its range of motion to break in the hinges.



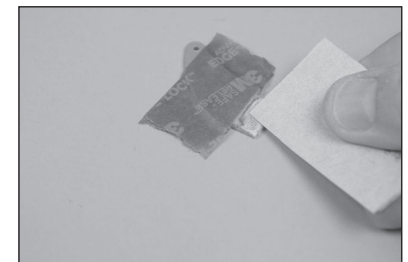
AILERON AND FLAP CONTROL HORN INSTALLATION (ARF)

9. Locate the aileron and flap control horns. The taller control horn 1¹¹/₃₂ inch (34mm) is used for the ailerons, and the shorter horn 15/16 inch (23mm) for the flaps.



10. Use sandpaper to scuff the bottom of the aileron and flap control horns. Use a paper towel and isopropyl alcohol to remove any oils or debris from the control horns.

→ Use low-tack tape to help prevent sanding the painted surface of the control horn during sanding.



- 11.** Check the fit of the control horns to the aileron and flap. They should rest flush against the control surface as shown.



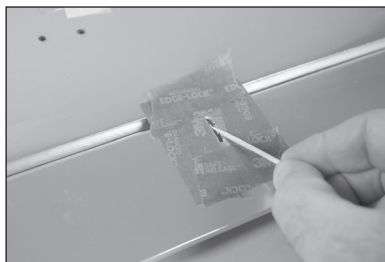
- 12.** Check they are square to the surface as shown.



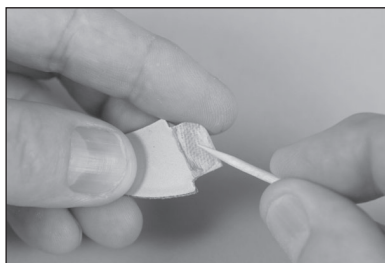
- 13.** Place low-tack tape 1/32 inch (1 mm) from the control horn slot. This will prevent epoxy from getting on the control surface when the control horns are glued in place.



- 14.** Remove the control horns from the control surfaces. Apply epoxy to the slot in the aileron and flap. Make sure the epoxy gets into the slot for a good bond between the surfaces and control horn.



- 15.** Apply epoxy to the area of the control horns that fits into the slots. Use enough epoxy so the control horns will be fully bonded to the fixed surfaces.

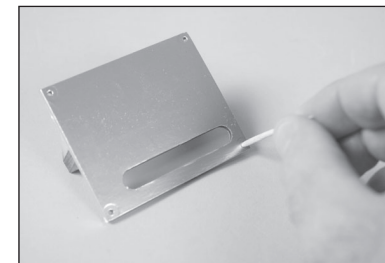


- 16.** Fit of the control horns back into position. Check that they are square to the surface. Before the epoxy fully cures, remove the tape from around the control horn. This will allow the epoxy to flow around the control horn, creating a small fillet between the control horn and surface for a finished look and secure bond.



AILERON SERVO INSTALLATION (ARF)

- 17.** Remove the aileron and flap cover from the wing. Use a toothpick to puncture the covering for the aileron and flap cover screws.



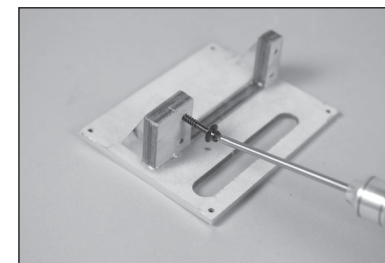
- 18.** Thread a 2mm x 8mm self-tapping screw into each of the holes in the aileron and flap servo cover mounting holes. Remove the screws before continuing.



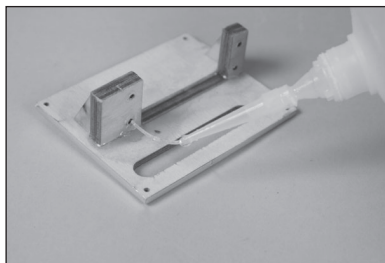
- 19.** Apply a small amount of thin CA to harden the threads made in the previous step. Allow the CA to fully cure before installing the aileron servo cover.



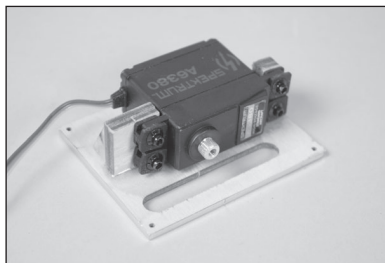
- 20.** Use a 2mm hex wrench to thread a servo mounting screw into each of the holes in the aileron servo mounting holes. Remove the screws before continuing.



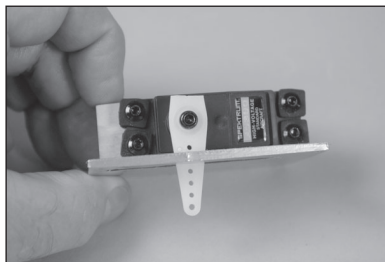
- 21.** Apply a small amount of thin CA to harden the threads made in the previous step.



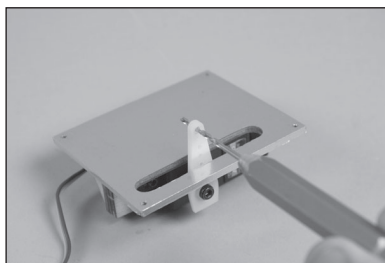
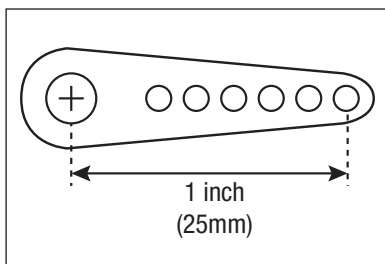
- 22.** Secure the servo to the cover using a 2mm hex wrench and the screws provided with the servo. The servo output will be centered in the slot when installed correctly.



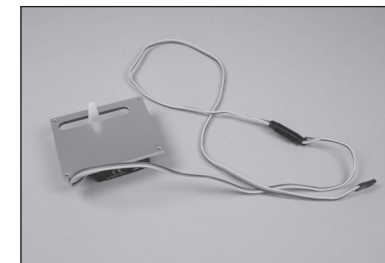
- 23.** Center the servos, then secure the servo arm so it is perpendicular to the servo centerline. Use side cutters to remove any arms that do not protrude to the outside of the cover.



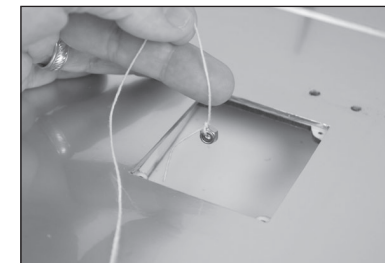
- 24.** Enlarge the hole that is 1-inch (25mm) from the center of the servo arm in the aileron and flap servo arms using a pin vise and 5/64-inch (2mm) drill bit.



- 25.** Secure an 18-inch (460mm) extension to the aileron servo lead using string or dental floss.



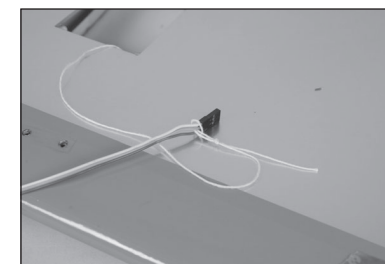
- 26.** Tie a weight (wheel collar or nut) to a piece of string and feed the string from the aileron servo opening to the wing root.



- 27.** Tie the string to the end of the servo lead.



- 28.** Use the string to pull the servo lead through the opening at the wing root.



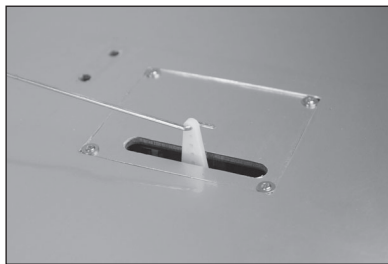
- 29.** Secure the aileron and flap covers in the wing using four 2mm x 8mm self-tapping screws for each servo cover.



- 30.** Assemble the aileron linkage using a 4¹/₂-inch (115mm) pushrod and a metal clevis.



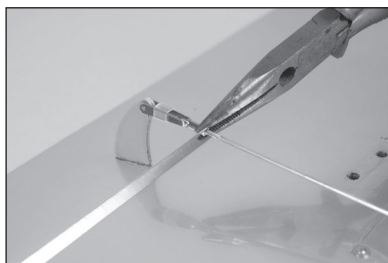
- 31.** Insert the Z-bend in the linkage into the servo arm.



- 32.** Attach the clevis to the aileron control horn.



- 33.** With the aileron servo centered, adjust the linkage so the aileron is centered when the clevis is attached to the control horn. Once the linkage has been set, use needle nose pliers to tighten the nut against the clevis to prevent it from vibrating loose.



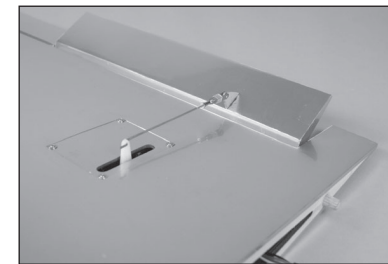
- 34.** Assemble the flap linkage using a 3³/₄-inch (95mm) pushrod and a metal clevis.



- 35.** Repeat the previous steps to install the flap servo and linkage. Set the throw for the flap servo to 0% for both the up and down positions at the transmitter.



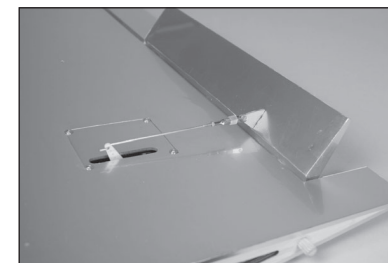
- 36.** Adjust the linkage so the flap at the mid-flap setting of 25/32 inch (20mm) when the clevis is attached to the control horn. Once set, tighten the nut against the clevis to prevent it from vibrating loose.



- 37.** Move the flap switch to the up flap position. Adjust the transmitter travel so the flap is up and aligned with the trailing edge of the wing.



- 38.** Set the switch to the down flap position and adjust the throw in the transmitter to achieve 1⁵/₁₆ inches (50mm) travel, measured at the trailing edge..

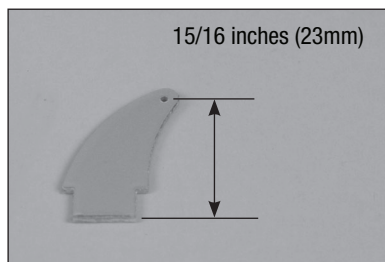


RUDDER AND FIN PREPARATION (ARF)

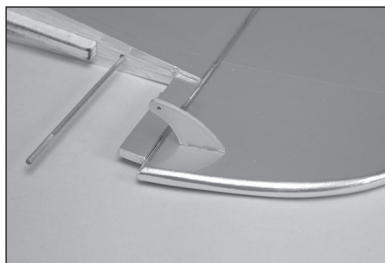
39. Hinge the rudder to the fin using the same process as the aileron and flap hinges. Ensure there is a small gap between the top of the fin and balance tab of the rudder so the rudder can move freely.



40. Prepare the rudder control horn using the same method as the aileron and flap control horns. The rudder control horn measures 15/16 inches (23mm).

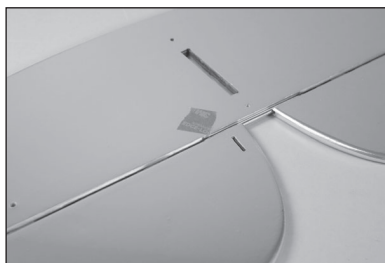


41. Use a small amount of 5-minute epoxy to glue the rudder control horn to the rudder.



ELEVATOR HINGING (ARF)

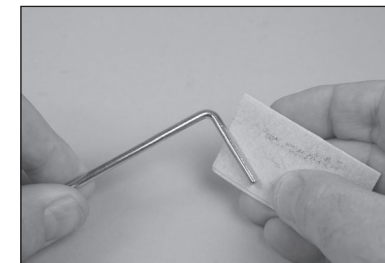
42. Use a small piece of low-tack tape on the bottom of the stabilizer near the slot for the elevator control shown. This will help return the elevators back to their original position in relationship to the stabilizer.



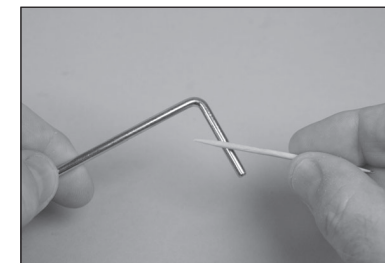
43. Remove the elevators and elevator joiner wire from the stabilizer.



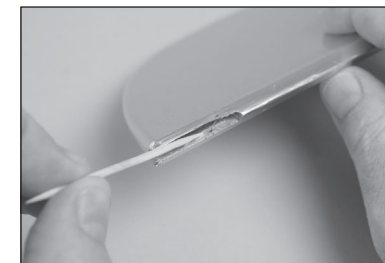
44. Lightly sand the elevator joiner wire where it contacts the elevators. Use a paper towel and isopropyl alcohol to remove any oil or debris from the joiner.



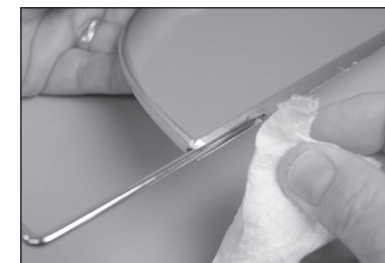
45. Mix a small amount of 15-minute epoxy. Use a toothpick to apply epoxy to the joiner wire.



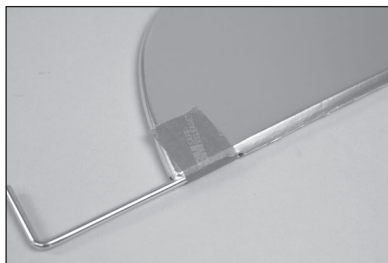
46. Use a toothpick to apply epoxy to the stabilizer where it contacts the joiner wire.



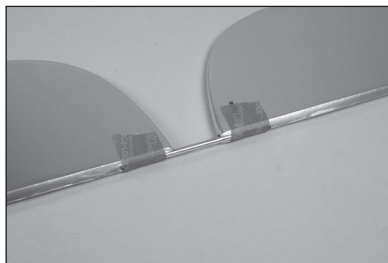
47. Fit the joiner wire into the elevator use a paper towel and isopropyl alcohol to remove any excess epoxy.



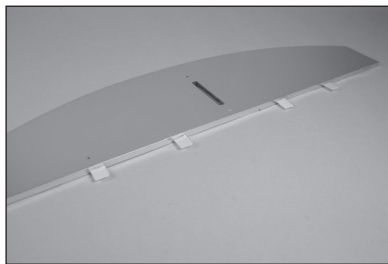
48. Use low-tack tape to hold the joiner wire tightly in the elevator.



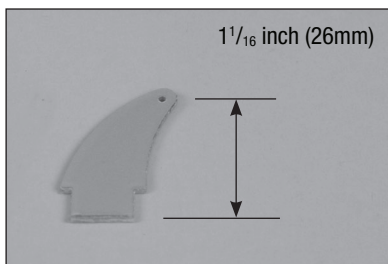
49. Repeat the previous steps to secure the joiner wire in the remaining elevator.



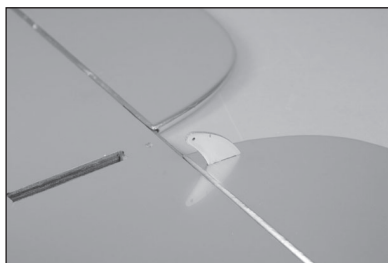
50. Slide the four inner hinges in the stabilizer. The inner hardwood support will keep the hinges from going too far in the stabilizer. The remaining two hinges are then prepared using a T-pin as outlined in the aileron and flap installation. Hinge the stabilizer to the elevators using thin CA. Check and break-in the hinges.



51. Prepare the elevator control horn using the same method as the aileron and flap control horns. The elevator control horn measures $1\frac{1}{16}$ inch (26mm).

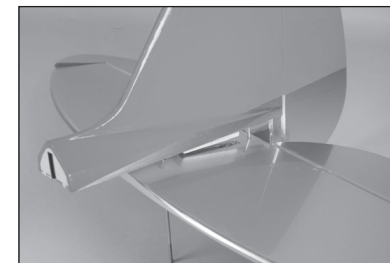


52. Use a small amount of 5-minute epoxy to glue the elevator control horn to the elevator.

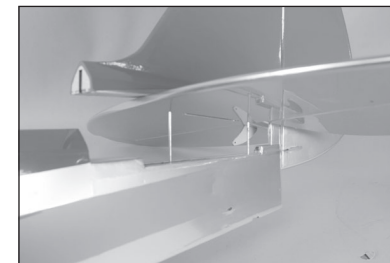


FIN AND STABILIZER INSTALLATION (ARF)

53. Insert the threaded rods from the fin through the stabilizer. Make sure the elevator control horn is on the bottom of the assembly.



54. Insert the threaded rods into the tubes at the rear of the fuselage.



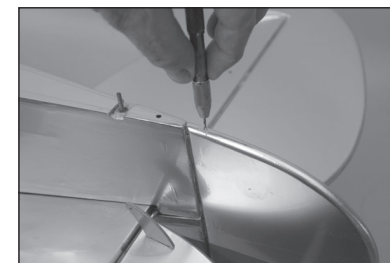
55. Fit the stabilizer and fin so they are tight against the fuselage.



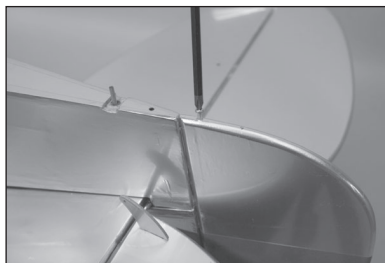
56. Position the steering tiller on the bottom of the rudder. The arms of the tiller will be perpendicular to the rudder centerline. Make sure the tiller is as far forward as possible yet doesn't interfere with the operation of the rudder. Use a felt-tipped pen to mark the locations for the tiller mounting screws on the bottom of the rudder.



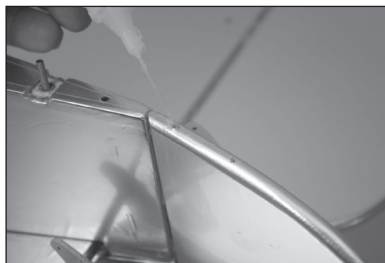
57. Use a pin vise and 5/64-inch (2mm) drill bit to drill the two holes in the bottom of the rudder for the tiller mounting screws.



58. Use a #2 Phillips screwdriver to thread a 3mm x 10mm self-tapping screw into each of the holes.



59. Remove the screws, then apply a few drops of thin CA in each hole to harden the surrounding wood.



60. Secure the tiller arm on the bottom of the rudder using two 3mm x 10mm self-tapping screws. Tighten the screws using a #2 Phillips screwdriver.



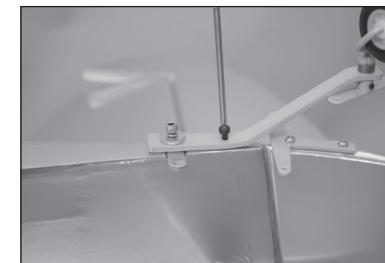
61. Attach the tail wheel to the tail wheel assembly using the wheel collar and setscrew. Apply medium threadlock to the setscrew before tightening it using a 1.5mm hex wrench.



62. Fit the fuselage-mounted bracing wire bracket on the threaded rod from the fin. The tail wheel assembly is then fit on the threaded rod. Place a washer and lock washer on both of the threaded rods.

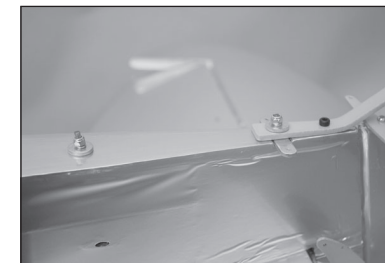


63. Use a 3mm x 15mm socket head cap screw to secure the rear of the tail wheel assembly to the fuselage.



64. Use two 3mm locknuts to secure the fin and stabilizer to the fuselage.

→ Don't tighten the nuts excessively. Use just enough torque to seat the fin fully, and so the washers barely compress the stabilizer film and underlying wood.



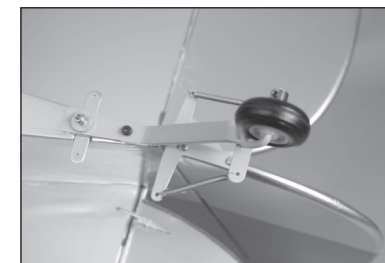
65. Use side cutters to trim the excess wire from the springs. Use needle nose pliers to bend the last coil to form a loop that can be connected to the tail wheel arm and tiller arm.



66. Place the springs on the tiller arm and tail wheel steering arm. It may be necessary to adjust the springs slightly, so the tail wheel aligns with the rudder.

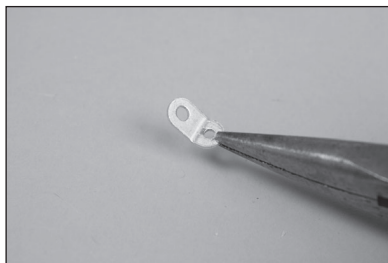


67. Repeat the steps to install the remaining spring.



TAIL WIRE BRACING INSTALLATION (ARF)

- 68.** Use pliers to bend each of the fittings to approximately a 45-degree angle. Bias the bend toward the smaller hole in the fitting.



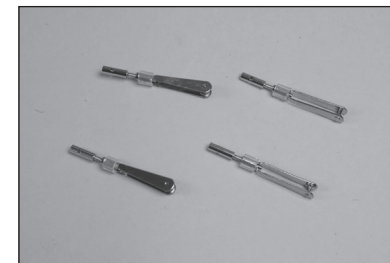
- 69.** Attach the fittings to the left and right sides of the stabilizer using two M3 x 15mm screws and two M3 locknuts. Fittings are placed on the top and bottom of the stabilizer.



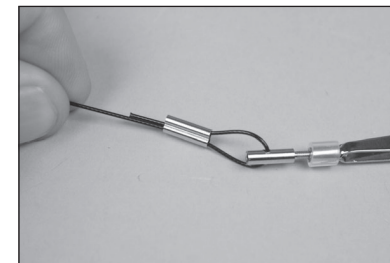
- 70.** Attach the fittings to the fin using a M3 x 15mm screw and M3 locknut. Fittings are placed on both sides of the rudder.



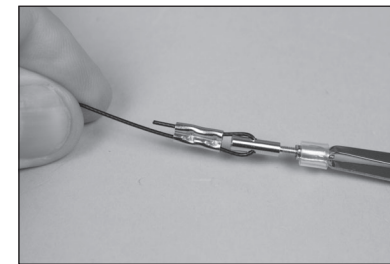
- 71.** Slide a clevis retainer on the clevis. Thread a cable end into the clevis. The threads of the cable end will protrude 1/8-inch (3mm) between the forks of the clevis. Prepare four of these connectors. Use threadlock on all metal-to-metal fasteners to prevent them from vibrating loose.



- 72.** Prepare one cable by sliding the cable through a sleeve, through the cable end, then back through the sleeve.



- 73.** Pull the excess cable tight and use a crimping tool to complete the job. Repeat for all four cable ends.



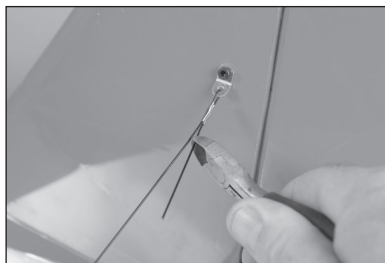
- 74.** Attach the four connectors to the fittings on the top and bottom of the stabilizer.



- 75.** Repeat the previous two steps, only passing the cable through the fittings instead of the cable ends. The cables should have very light tension. Make sure the rudder and stabilizer are square as illustrated in the stabilizer installation section of this manual.



76. Trim the excess wire using side cutters.



77. After tensioning the wires, slide the clevis retainer over the forks of the clevis to secure them to the fittings.

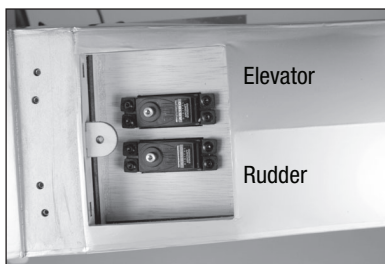


RUDDER AND ELEVATOR SERVO INSTALLATION (ARF)

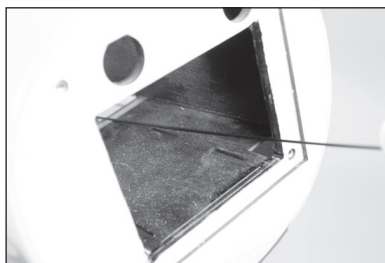
78. Use a 2.5mm hex wrench to remove the M3 x 16mm socket head cap screw from the servo hatch. Remove the hatch and set it aside.



79. Install the rudder and elevator servos in the fuselage with the servo outputs forward. Mark, drill and prepare the servo mounting holes as outlined earlier in this manual.



80. Locate the 28-inch (711mm) elevator pushrod. Insert the pushrod from the front of the fuselage. The pushrod will be inserted into the tube on the left side of the fuselage.



81. Direct the pushrod through the fuselage toward the rear where the pushrod tubes are located.



82. Guide the pushrod into the elevator pushrod tube located slightly behind the servo compartment.



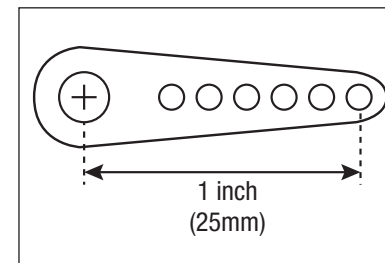
83. Use the radio system to center the elevator servo. Attach the servo arm on the servo so it will be perpendicular to the pushrod. Remove any arms that may interfere with the operation of the servo. Use a pin vise and a 5/64-inch (2mm) drill bit to enlarge the hole in the arm that is 1 inch (25mm) from the center of the arm. Attach the z-bend of the pushrod to the servo arm, then attach the arm to the servo using the hardware provided with the servo.



84. Thread a M2 nut on the pushrod, then a metal clevis on the pushrod. Adjust the clevis so the elevator is centered when the clevis is attached to the elevator control horn. Once adjusted and connected, use pliers to tighten the nut against the clevis to prevent it from vibrating loose. Make sure to use threadlock on the nut so it won't vibrate loose.



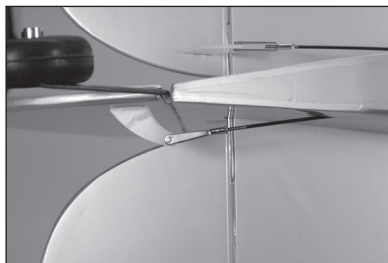
85. Insert the 29-inch (736mm) rudder pushrod into the rudder pushrod tube following the same procedure as the elevator pushrod. Use the radio system to center the rudder servo. Prepare the servo arm by removing any arms that may interfere with the operation of the servo. Use a pin vise and 5/64-inch (2mm) drill bit to enlarge the hole in the arm that is 5/8-inch (16mm) from the center of the arm.



86. Attach the Z-bend of the pushrod to the servo arm, then attach the arm to the servo using the hardware provided with the servo.



87. Thread a 2mm nut on the pushrod, then a metal clevis. With the servo centered, adjust the clevis so the elevator is centered when the clevis is attached to the elevator control horn. Once adjusted and connected, use pliers to tighten the nut against the clevis to prevent it from vibrating loose. Make sure to use threadlock on the nut so it won't vibrate loose.

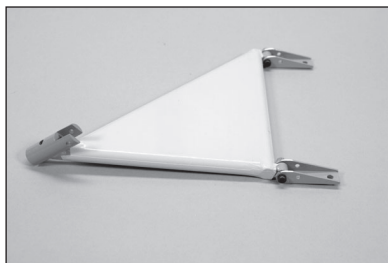


88. Once the servos are connected to their respective control surfaces the hatch can be reinstalled.

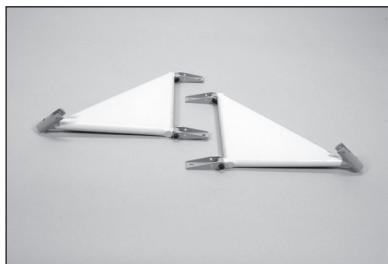


LANDING GEAR INSTALLATION (ARF)

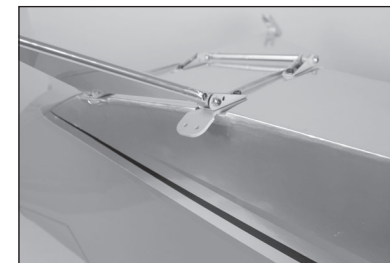
89. Attach the mount for the landing gear using a 3mm x 15mm socket head cap screws and an 3mm locknut. The mount for the main gear must move freely. Adjust as necessary. Attach all four brackets at this time. Use a 2.5mm hex wrench and 5.5mm nut driver to tighten the hardware.



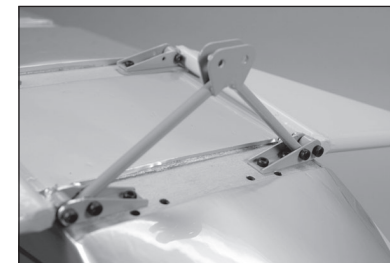
90. Repeat the previous step to assemble both the left and right landing gear.



91. Secure the main gear to the fuselage. The strut bracket fits between the fuselage and rear main gear mount and angle toward the top of the fuselage. Use eight 3mm x 10mm socket head cap screws and eight 3mm lock washers to secure each bracket to the fuselage. Tighten the hardware using a 2.5mm hex wrench. Adjust the bracket as necessary so the landing gear can move freely. Use threadlock on all metal-to-metal fasteners to prevent them vibrating loose.



92. Attach the cross brace to the front main gear mounts using two 3mm x 15mm socket head cap screws and two 3mm lock nuts. Use a 2.5mm hex wrench and 5.5mm nut driver to tighten the hardware.



93. Attach the strut assembly to the main gear and the cross brace. The larger diameter of the strut assembly is located near the wheel. Use the two 3mm x 12mm socket head cap screws at the center, and the 3mm x 15mm socket head cap screws near the wheels. The screws are secured using 3mm locknut and tightened using a 2.5mm hex wrench and 5.5mm nut driver.



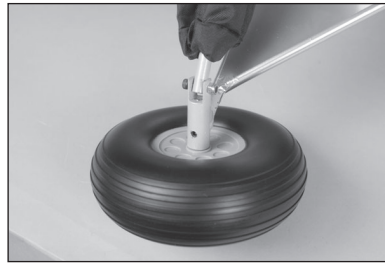
94. Slide the wheel collar on the axle. Tighten the setscrew on the flat area using a 1.5mm hex wrench. Make sure to use threadlock on all metal to metal fasteners.



95. Slide the axle into the wheel from the side with the holes for the hub cap. Enlarge the hole slightly if necessary.



- 96.** Slide the axle into the landing gear. Use a piece of paper to space the wheel slightly away from the landing gear. Use a 3mm x 3mm setscrew and 2mm hex wrench to secure the axle to the landing gear. Make sure to use threadlock on all metal to metal fasteners. Remove the paper once the setscrew has been tightened.



- 97.** Attach the hub cap to the wheel using three 2mm x 8mm self-tapping screws and a #1 Phillips screwdriver.

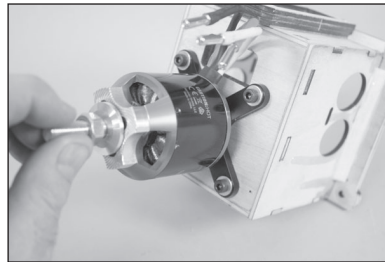


MOTOR AND BATTERY INSTALLATION (ARF)

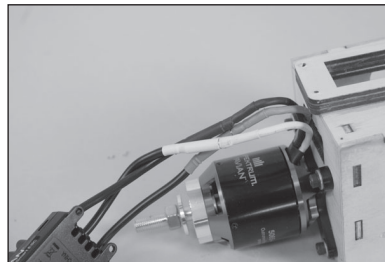
- 98.** Use a #2 Phillips screwdriver to attach the X-mount to the rear of the motor. Use a 2.5mm hex wrench to attach the propeller adapter to the front of the motor. Use threadlock on all metal-to-metal fasteners to prevent them from vibrating loose.



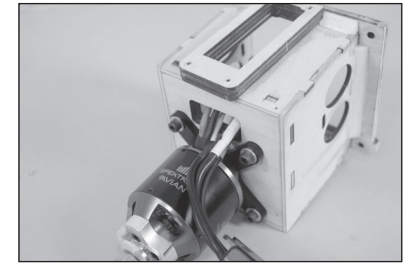
- 99.** Apply a drop of threadlock on each of the four 4mm x 20mm socket head cap screws. Secure the motor to the motor box using the four 4mm x 20mm socket head cap screws and four 4mm washers. Tighten the screws using a 3mm hex wrench.



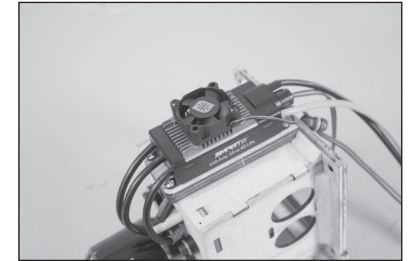
- 100.** Connect the leads from the ESC to the motor.



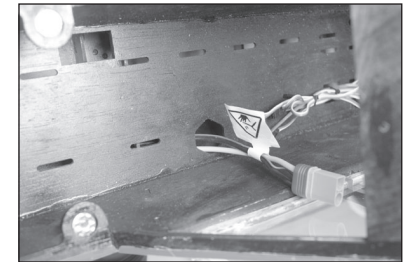
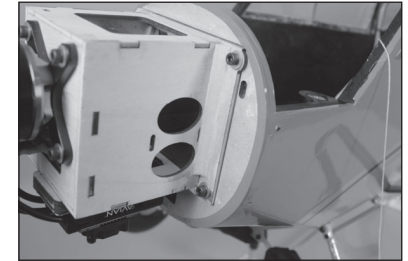
- 101.** Tuck the leads into the motor box to prevent them from interfering with the operation of the motor.



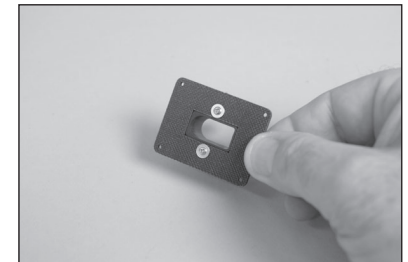
- 102.** Secure the ESC to the bottom of the motor box using four 2mm x 8mm self-tapping screws. Make sure to prepare the holes for the screws using thin CA as outlined earlier in this manual.



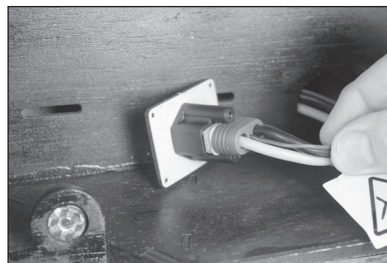
- 103.** Position the motor box against the fuselage. Guide the connections for the ESC into the fuselage. Attach the motor box to the fuselage using four 4mm x 15mm socket head cap screws and washers. Tighten the screws using a 3mm hex wrench. Use threadlock on the screws to prevent them from vibrating loose.



- 104.** Mount the ESC connector mount to the plywood plate using two 2mm x 8mm sheet metal screws. Tighten the screws using a #1 Phillips screwdriver.



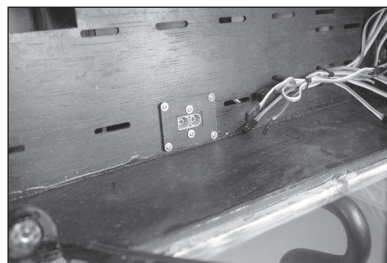
- 105.** Insert the ESC IC5 plug in the mount. The connector will only fit correctly in one direction.



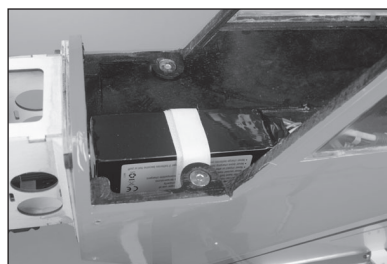
- 106.** The IC5 retainer is secured to the mount using two 2.6mm x 15mm self-tapping screws. The backplate will only fit correctly in one direction. Tighten the screws using a #2 Phillips screwdriver.



- 107.** Secure the ESC connector assembly in the fuselage using two 2mm x 10mm sheet-metal screws. Tighten the screws using a #1 Phillips screwdriver. Make sure to prepare the holes for the screws in the fuselage using thin CA.

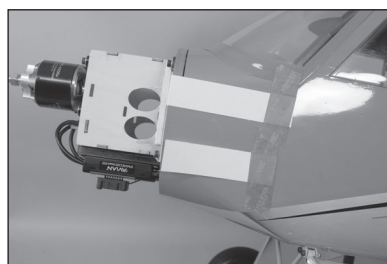


- 108.** Mount the battery in the fuselage using hook and loop straps and hook and loop tape (not included).



COWLING AND SPINNER INSTALLATION (ARF)

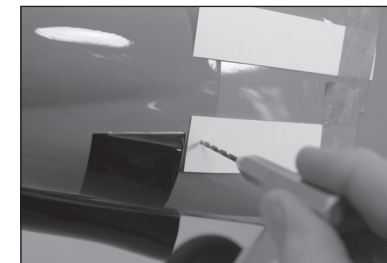
- 109.** Cut four pieces of paper 1/2 inch (12mm) wide. Tape the paper to the sides of the fuselage to show the location of the sub-firewall.



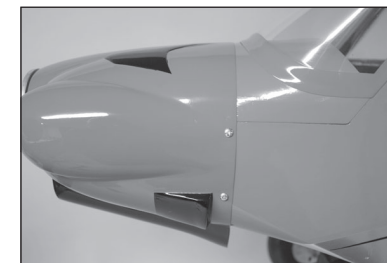
- 110.** Slide the cowling on the fuselage, making sure the paper markers are on the outside of the cowl. With the spinner backplate and propeller attached to the motor shaft, position the cowl so there is a 3/32-inch (2mm) gap between the backplate and cowl. Also make sure the cowl is aligned with the backplate and trim scheme. Use low-tack tape to keep the cowl attached to the fuselage for the following steps.



- 111.** Use a pin vise and 1/16-inch (1.5mm) drill bit to drill four holes in the cowl using the paper templates as a guide. Make sure to drill into the 1/4-inch (6mm) wide sub-firewall.



- 112.** Remove the propeller and cowling from the fuselage. Thread a cowl mounting screw into each of the holes. Remove the screws, then apply a small amount of thin CA to harden the threads made in the mounting blocks. Place the cowl back on the fuselage and secure it using the screws listed. Use a #1 Phillips screwdriver to tighten the screws.



Important Information About Your Propeller

- ➔ Always ensure the propeller is balanced before installing it on the shaft. An unbalanced propeller may cause poor flight characteristics.
- ➔ If it is necessary to enlarge the hole in the propeller, make sure to check the balance of the propeller afterwards.

- 113.** Attach the propeller using the washer and nut from the motor. Use a 1/2-inch box wrench to prevent damaging the nut.

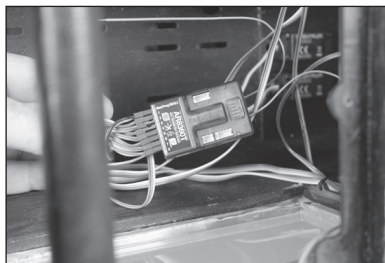


- 114.** Attach the spinner to the motor. Make sure the spinner cutouts do not contact the propeller blades. Adjust the position of the propeller in relationship to the backplate if necessary. Secure the spinner to the backplate using two M3 x 5mm button head machine screw and 2.5mm hex wrench.

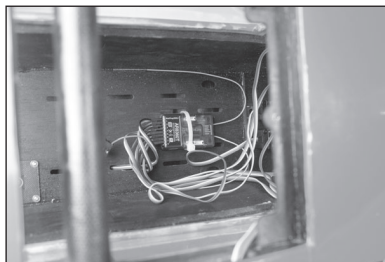


RECEIVER INSTALLATION (ARF)

- 115.** Connect the rudder and elevator servo leads to the receiver. Connect an 18-inch (460mm) lead for the flaps and ailerons to the receiver.

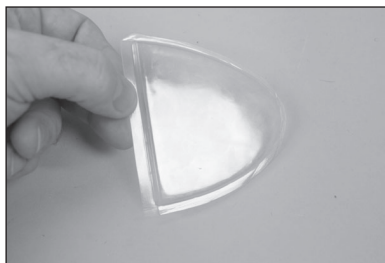


- 116.** Mount the receiver and receiver battery in the fuselage using self-adhesive double sided (not included). Route the servo leads neatly as shown



WINDOW INSTALLATION (ARF)

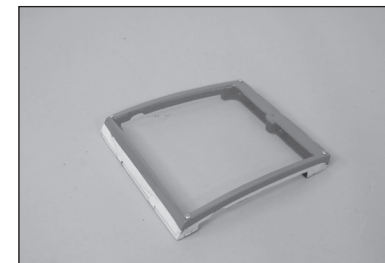
- 117.** Use a hobby knife to trim the windows. Trim so there is 5/32-inch (4mm) of material around the window. The flat area is where the window will contact the door frame, allowing you to glue it into position.



- 118.** Use canopy glue to glue the windows to the inside of the fuselage. Use low-tack tape to hold the windows in position until the glue has fully cured.



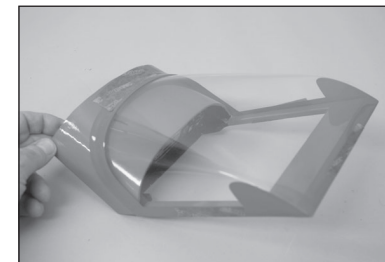
- 119.** The top window is held in position using four 2mm x 10mm self-tapping screws.



- 120.** Apply the instrument panel in the windshield hatch.



- 121.** Use canopy glue to secure the windshield to the windshield hatch. Use low-tack tape to hold the windshield in position until the adhesive fully cures.



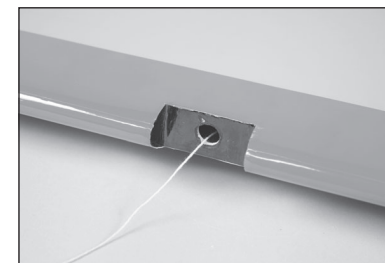
- 122.** Use 15-minute epoxy to glue the seats inside the fuselage. Use scale references to correctly position the seats.

- ➔ If flying your model using an electric power system, use hook and loop tape to secure the front seat so it can be easily removed to change the motor battery.

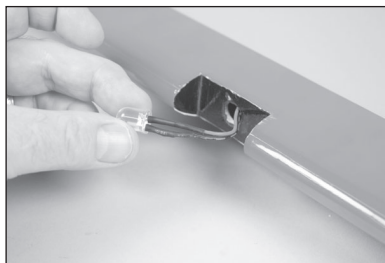


LANDING LIGHT INSTALLATION (ARF)

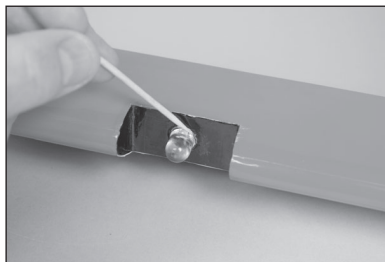
- 123.** Tie a weight on a string. Guide the string through the wing to the wing root.



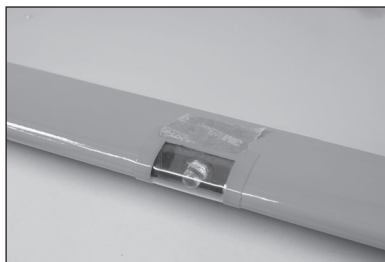
- 124.** Tie the string to the landing light wire and pull the wire to the wing root.



- 125.** Use silicone adhesive to glue the landing light into position. Use care not to push the light into the wing.



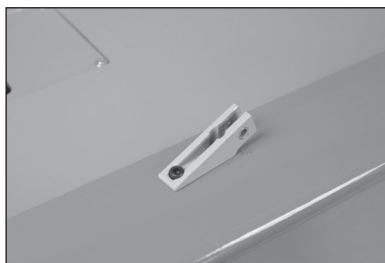
- 126.** Use hobby scissors to carefully trim the ends from the landing light lenses. Leave plenty of material so they can be glued to the wing surface. Trim the lenses as necessary so they fit to the contour of the wing. Use canopy glue to glue the lenses into position. A small amount of low-tack tape is used to hold the lenses in position until the glue fully cures.



WING STRUT INSTALLATION (ARF)

- 127.** Attach the strut fitting near the aileron to the bottom of the wing using four 3mm x 12mm socket head cap screws and four 3mm lock washers. Apply a drop of threadlock on each screw before tightening them using a 2.5mm hex wrench.

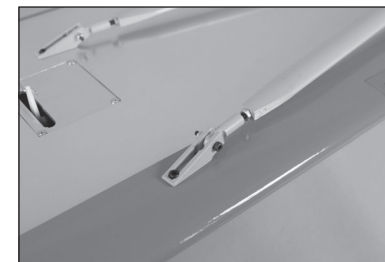
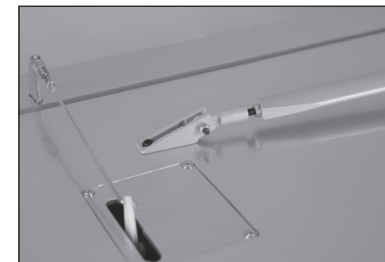
→ Do not tighten the screws so much that the wing sheeting is compressed.



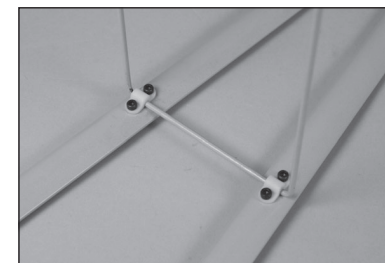
- 128.** Thread the strut ends on the wing struts. There are two front struts (slightly shorter) and two rear struts (longer) for each wing panel.



- 129.** Attach the struts to the brackets using a 3mm x 15mm socket head cap screw and 3mm lock nut.

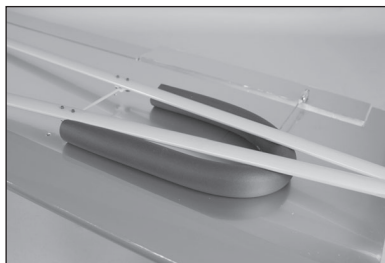


- 130.** Attach the jury strut to the main struts using two nylon straps and four M3 x 10mm socket head cap screws. Tighten the screws using a 2.5mm hex wrench.



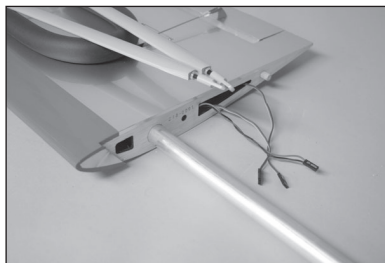
131. Place the foam tubing on the jury struts to prevent damage to the wing during transport or storage.

➔ Repeat this section to install the remaining strut assembly.



WING INSTALLATION (ARF)

132. Slide the wing tube into the wing tube socket.



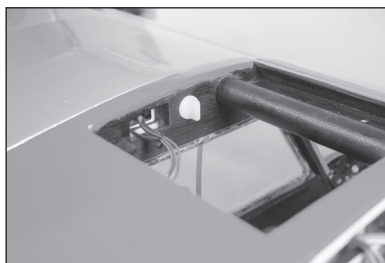
133. Connect the extensions for the flap, aileron and lighting. Slide the wing panel into position, guiding the extensions from the wing into the fuselage.



134. Check that the wing fits tightly against the fuselage.



135. Secure the wing panels to the fuselage using the nylon 1/4-20 x 1 3/4-inch nylon bolt.



136. The jury strut ends will fit into the holes in the underside of the wing.



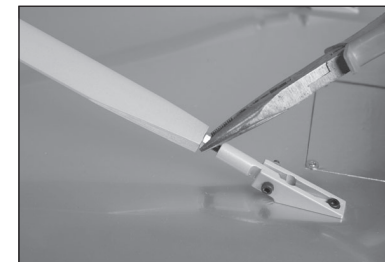
137. Adjust the ends on the struts so the holes in the ends line up with the holes in the strut mounting tab. Slide the pin through the end and tab, then fit a silicone tube on the pin. The pins are secured using the clips as shown in the photo.



138. With the strut attached, use needle nose pliers to tighten the nuts against the strut end fittings to keep them from vibrating loose.

➔ Use threadlock on all metal-to-metal fasteners.

➔ Install the remaining wing panel before continuing.



139. Secure the upper hatch using the 3mm x 25mm socket head cap screw and aluminum washer.

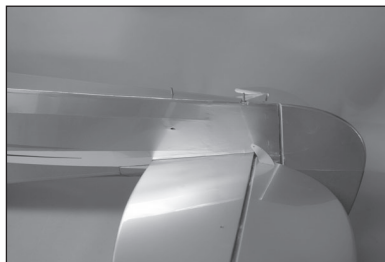
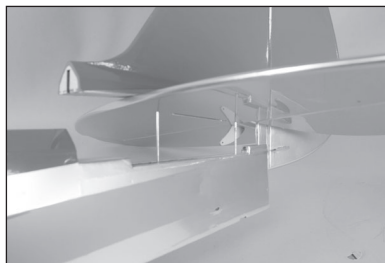


DECAL INSTALLATION (ARF)

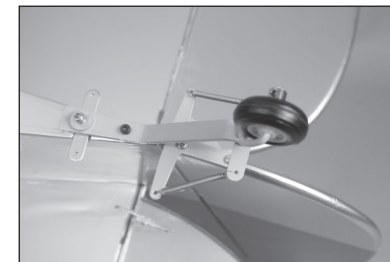
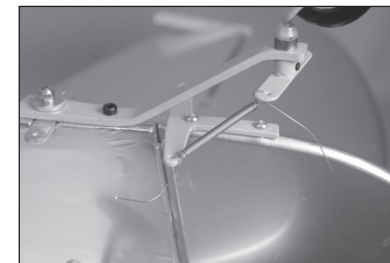
140. Apply the decals to your model using the box art from your model. Use a spray bottle and a drop of dish washing liquid or glass cleaner sprayed in the location of the decal to allow repositioning of the decal. Use a paper towel as a squeegee to remove excess water from under the decal. Allow the model to rest overnight so the remaining water can evaporate.

FIN AND STABILIZER INSTALLATION (EP PNP)

1. Insert the threaded rods from the fin through the stabilizer. Make sure the elevator control horn is on the bottom of the assembly.
2. Insert the threaded rods into the tubes at the rear of the fuselage.
3. Fit the stabilizer and fin so they are tight against the fuselage.
4. Fit the fuselage-mounted bracing wire bracket on the threaded rod from the fin. The tail wheel assembly is then fit on the threaded rod. Place a washer and lock washer on both of the threaded rods.
5. Use a 3mm x 15mm socket head cap screw to secure the rear of the tail wheel assembly to the fuselage.

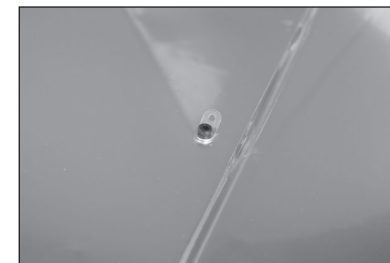


6. Use two M3 locknuts to secure the fin and stabilizer to the fuselage.
→ Don't tighten the nuts excessively. Use just enough torque to seat the fin fully, and so the washers barely compress the stabilizer film and underlying wood.
7. Place the springs on the tiller arm and tail wheel steering arm. It may be necessary to adjust the springs slightly, so the tail wheel aligns with the rudder.
8. Repeat the steps to install the remaining spring.



TAIL WIRE BRACING INSTALLATION (EP PNP)

9. Attach the fittings to the left and right sides of the stabilizer using two M3 x 15mm screws and two M3 locknuts. Fittings are placed on the top and bottom of the horizontal stabilizer.



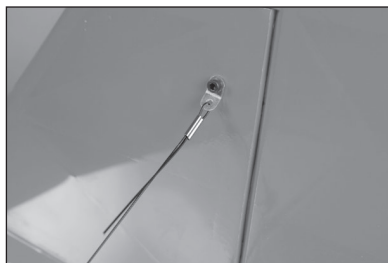
- 10.** Attach the fittings to the fin using a M3 x 15mm screw and M3 locknut. Fittings are placed on both sides of the rudder.



- 11.** Attach the four connectors to the fittings on the top and bottom of the stabilizer.



- 12.** Repeat the previous two steps, only passing the cable through the fittings instead of the cable ends. The cables should have very light tension. Make sure the rudder and stabilizer are square as illustrated in the stabilizer installation section of this manual.

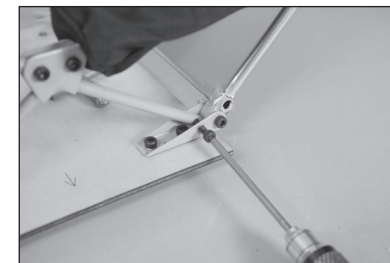


- 13.** Adjust the clevis as necessary to place light tension on the wires. After tensioning the wires, slide the clevis retainer over the forks of the clevis to secure them to the fittings.

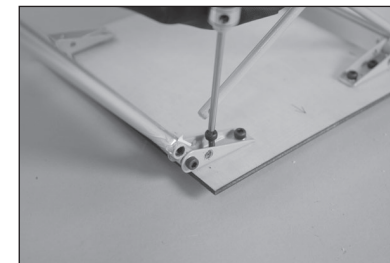


LANDING GEAR INSTALLATION (EP PNP)

- 14.** Remove the two 3mm x 15mm socket head cap screws and two 3mm lock nuts using a 2.5mm hex wrench and 5.5mm nut driver to tighten the hardware.



- 15.** Remove the eight M3 x 10mm socket head caps screws and lock washers that secure the landing gear to the support plate.



- 16.** Secure the main gear to the fuselage. The strut bracket fits between the fuselage and rear main gear mount and angles toward the top of the fuselage. Use eight 3mm x 10mm socket head cap screws and eight 3mm lock washers to secure each bracket to the fuselage. Tighten the hardware using a 2.5mm hex wrench. Adjust the bracket as necessary so the landing gear can move freely. Use threadlock on all metal-to-metal fasteners to prevent them from vibrating loose.

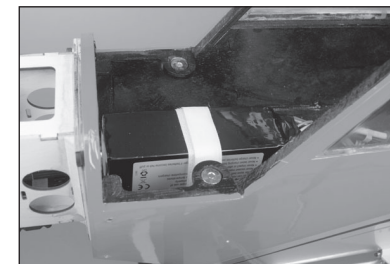


- 17.** Reattach the cross brace to the front main gear mounts using two 3mm x 15mm socket head cap screws and two 3mm lock nuts. Use a 2.5mm hex wrench and 5.5mm nut driver to tighten the hardware.



MOTOR BATTERY INSTALLATION (EP PNP)

- 18.** Mount the battery in the fuselage using hook and loop straps and hook and loop tape (not included).



SPINNER INSTALLATION (EP PNP)

Important Information About Your Propeller

- ➔ Always ensure the propeller is balanced before installing it onto the shaft. An unbalanced propeller may cause poor flight characteristics.
- ➔ If it is necessary to enlarge the hole in the propeller, make sure to check the balance of the propeller afterwards.

19. Attach the propeller using the washer and nut from the motor. Use a 1/2-inch box wrench to prevent damaging the nut.

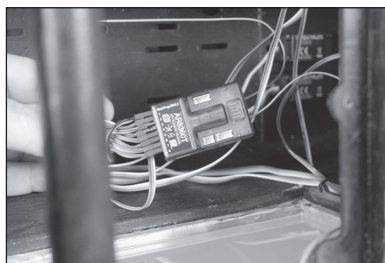


20. Attach the spinner to the motor. Make sure the spinner cutouts do not contact the propeller blades. Adjust the position of the propeller in relationship to the backplate if necessary. Secure the spinner to the backplate using two M3 x 5mm button head machine screw and 2.5mm hex wrench.

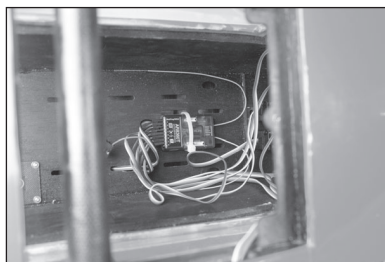


RECEIVER INSTALLATION (EP PNP)

21. Connect the rudder and elevator servo leads to the receiver. Connect an 18-inch (460mm) lead for the flaps and ailerons to the receiver.

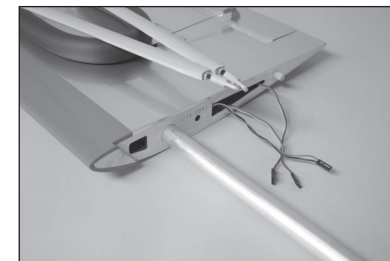


22. Mount the receiver and receiver battery in the fuselage using self-adhesive double sided (not included). Route the servo leads neatly as shown



WING INSTALLATION (EP PNP)

23. Slide the wing tube into the wing tube socket.



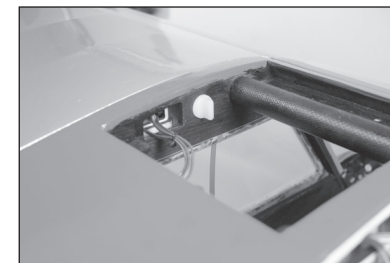
24. Connect the extensions for the flap, aileron and lighting. Slide the wing panel into position, guiding the extensions from the wing into the fuselage.



25. Check that the wing fits tightly against the fuselage.



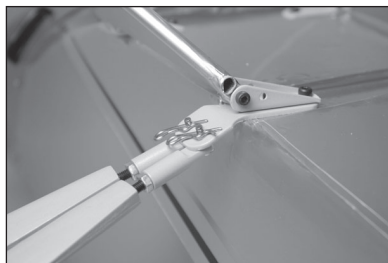
26. Secure the wing panels to the fuselage using the nylon 1/4-20 x 1 3/4-inch nylon bolt.



27. The jury strut ends will fit into the holes in the underside of the wing.



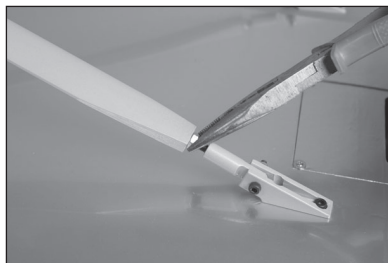
28. Adjust the ends on the struts so the holes in the ends line up with the holes in the strut mounting tab. Slide the pin through the end and tab, then fit a silicone tube on the pin. The pins are secured using the clips as shown in the photo.



29. With the strut attached, use needle nose pliers to tighten the nuts against the strut end fittings to keep them from vibrating loose.

→ Use threadlock on all metal-to-metal fasteners.

→ Install the remaining wing panel before continuing.



30. Secure the upper hatch using the 3mm x 25mm socket head cap screw and aluminum washer.



DECAL INSTALLATION (EP PNP)

31. Apply the decals to your model using the box art from your model. Use a spray bottle and a drop of dish washing liquid or glass cleaner sprayed in the location of the decal to allow repositioning of the decal. Use a paper towel as a squeegee to remove excess water from under the decal. Allow the model to rest overnight so the remaining water can evaporate.

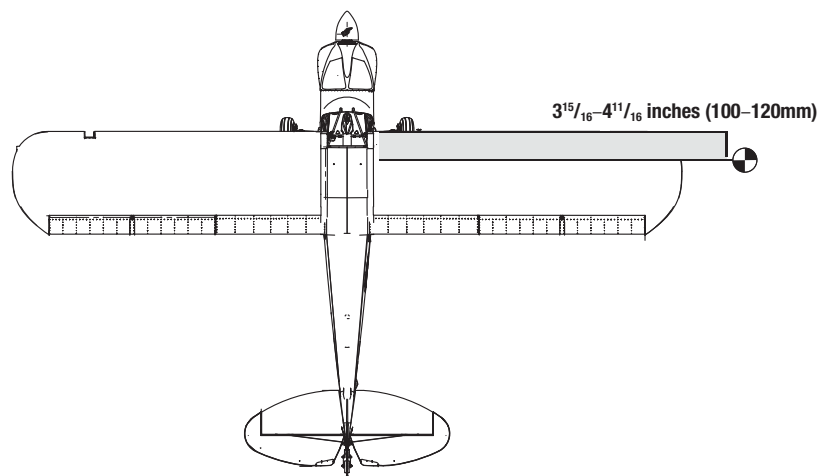
CENTER OF GRAVITY



CAUTION: You must adjust your aircraft's center of gravity and balance your model properly before attempting flights.

An important part of preparing the aircraft for flight is properly balancing the model. The Center of Gravity range supplied here is a guideline based on testing. Deviation from the measurements we provide is possible and may result in a model that suits your flying style better. Start with the recommended Center of Gravity, then feel free to experiment with different balance points. We advise adjusting progressively and cautiously.

1. Attach the wing panels to the fuselage. Make sure to connect the leads from the aileron and flaps to the appropriate leads from the receiver. Make sure the leads are not exposed outside the fuselage before tightening the wing bolts. Your model should be flight-ready before balancing.
 2. The recommended Center of Gravity (CG) location for your model is $4\frac{3}{8}$ inches (110mm) behind the leading edge of the wing against the fuselage for sport flying.
 3. When balancing your model, make sure it is assembled and ready for flight. Support the plane upright at the marks made on the wing with your fingers or a commercially available balancing stand. Use the radio system to move the gear to the up position.
- The overall CG range for this model is $3\frac{15}{16}$ – $4\frac{11}{16}$ inches (100–120mm) as shown below. We recommend starting at the measurement listed above, then adjusting to suit your particular flying style.
- Nose weight may be required when using lighter motors/engines.



CONTROL THROWS

- 1. Turn on the transmitter and receiver of your model. Check the movement of the rudder using the transmitter. When the stick is moved to the right, the rudder should also move right. Reverse the direction of the servo at the transmitter if necessary.
- 2. Check the movement of the elevator with the radio system. Moving the elevator stick toward the bottom of the transmitter will make the airplane elevator move up.
- 3. Check the movement of the ailerons with the radio system. Moving the aileron stick to the right will make the right aileron move up and the left aileron move down.

Use a ruler to adjust the throw of the elevator, ailerons, rudder, and flaps. These are guidelines from general flying from our own flight tests. You can experiment with higher or lower rates to match your preferred style of flying.

Surface	Rate	Exponential	Direction	Throw
Aileron	High	30%	Up	7/8 inches (22mm)
		30%	Down	11/16 inches (18mm)
	Low	20%	Up	1/2 inches (13mm)
		20%	Down	7/16 inches (11mm)
Elevator	High	30%	Up	13/16 inches (30mm)
		30%	Down	1 inch (25mm)
	Low	20%	Up	25/32 inches (20mm)
		20%	Down	19/32 inches (15mm)
Rudder	High	30%	Left	25/32 inches (55mm)
		30%	Right	25/32 inches (55mm)
	Low	20%	Left	19/32 inches (33mm)
		20%	Right	19/32 inches (33mm)
Flaps			Partial	7/8 inches (22mm)
			Full	Maximum Travel Without Binding

Travel Adjust should be adjusted according to each individual model and preference. Always install the servo arms 90 degrees to the pushrod at the servo. Use sub-trim as a last resort to center the servos. Always re-bind the radio system once all the control throws are set to keep the servos from moving to their endpoints until the transmitter and receiver connect.

PREFLIGHT CHECKLIST

- Charge the transmitter, receiver and motor batteries. Follow the instructions provided with the charger. Follow all manufacturer’s instructions for your electronic components.
- Check the radio installation and make sure all control surfaces (aileron, elevator, rudder, and flaps) move correctly (i.e., the correct direction and with the recommended throws).
- Check all the hardware (control horns, servo horns, and clevises) to make sure they are secure and in good condition.
- Prior to each flying session (and especially with a new model), perform a range check of your radio system. See your radio manual for the recommended range and instructions for your particular radio system.

DAILY FLIGHT CHECKS

- Check the battery voltage of the transmitter battery. Do not fly below the manufacturer’s recommended voltage. Doing so can cause your aircraft to crash.
- Check all hardware (linkages, screws, nuts, and bolts) prior to each day’s flight. Ensure that binding does not occur and that all parts are properly secured.
- Ensure all surfaces are moving in the proper manner.
- Perform a ground range check before each day’s flying session.
- All servo leads and switch harness plugs should be secured in the receiver.

LIMITED WARRANTY

What this Warranty Covers
Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the “Product”) will be free from defects in materials and workmanship at the date of purchase.

What is Not Covered
This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER’S INTENDED USE.

Purchaser’s Remedy
Horizon’s sole obligation and purchaser’s sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER’S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or 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 visit our website at www.horizonhobby.com, submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at http://www.horizonhobby.com/content/service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.

Warranty Requirements

For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

Non-Warranty Service

Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/service-center_render-service-center.

ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.

10/15

WARRANTY AND SERVICE CONTACT INFORMATION

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	2904 Research Road Champaign, IL 61822
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	
European Union	Horizon Technischer Service	service@horizonhobby.eu	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

WEEE NOTICE



This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE). This label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

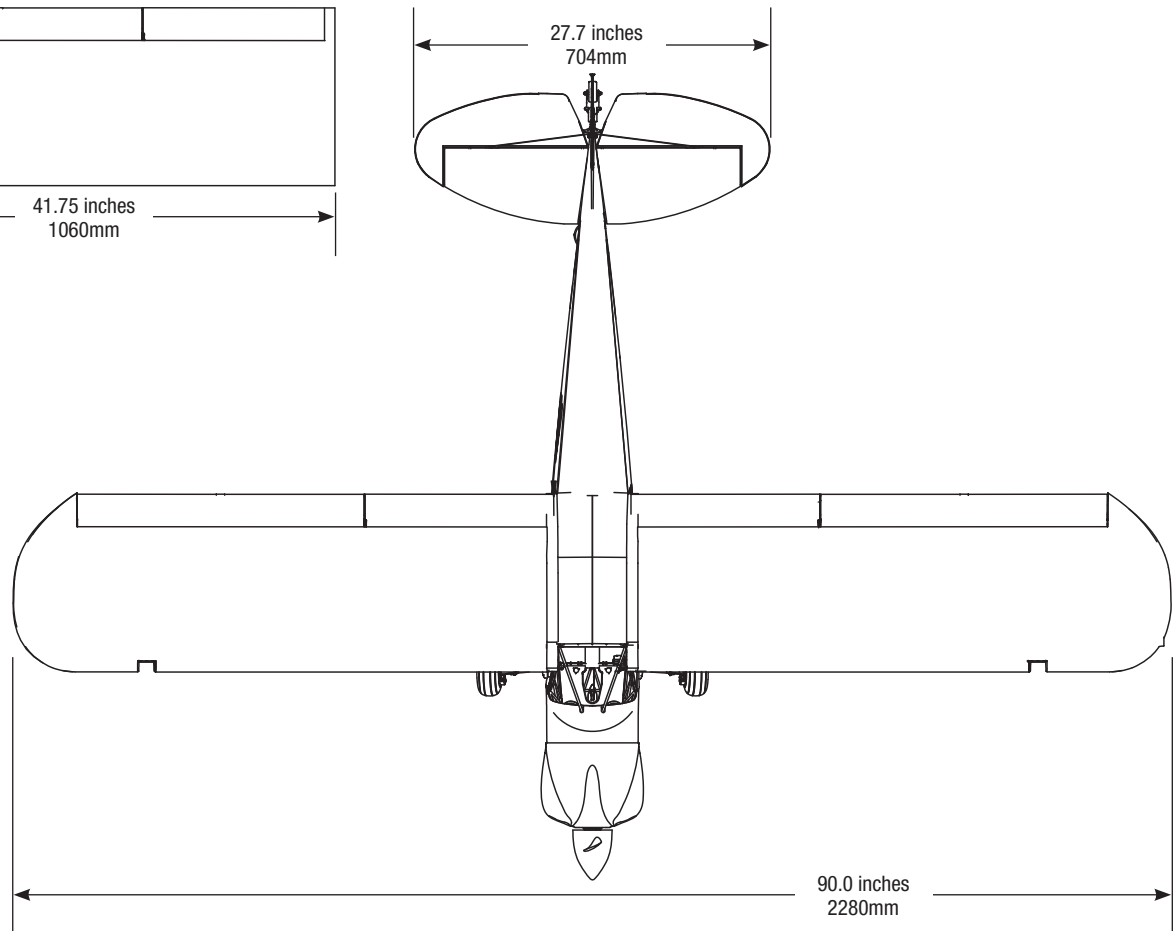
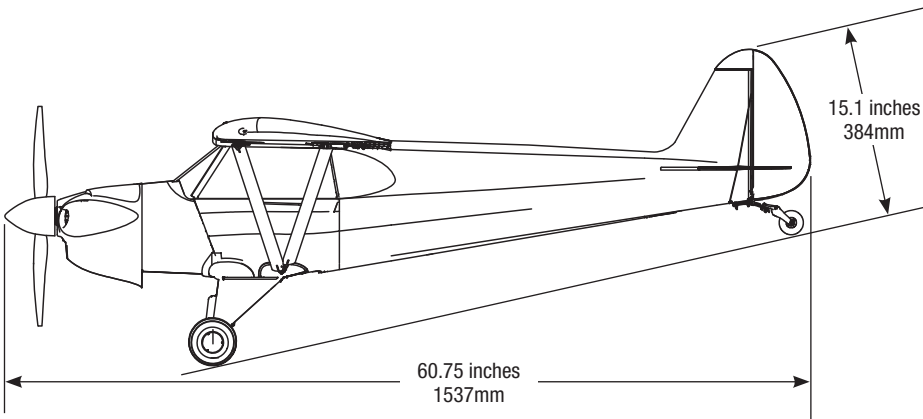
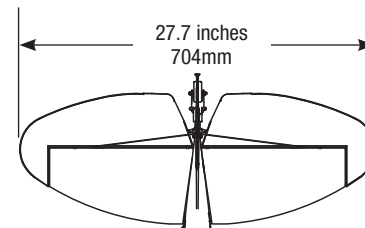
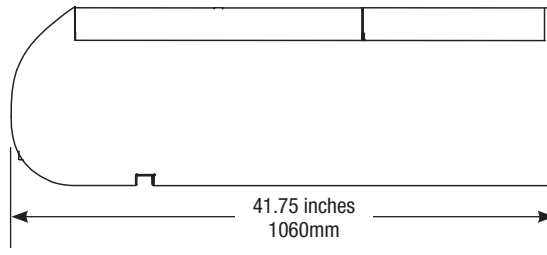
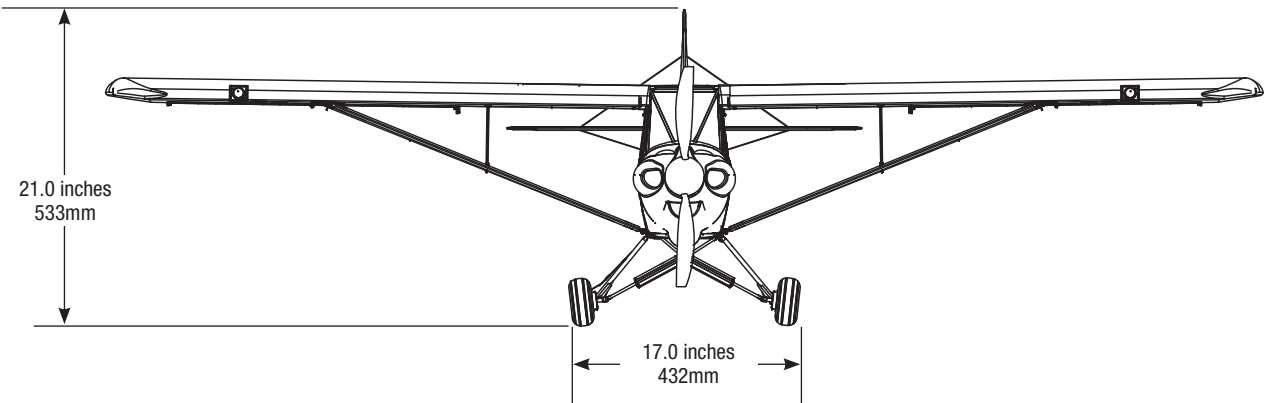
- I will not fly a model aircraft in a careless or reckless manner.
- I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.
- I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.
- I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.
- I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.
- I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.
- I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.
- I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.
- I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.
- I will use an established safety line to separate all model aircraft operations from spectators and bystanders.

For a complete copy of AMA's Safety Handbook please visit:
www.modelaircraft.org/files/100.pdf

BUILDING AND FLYING NOTES

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.

	90.0 inches (2280mm)
	60.75 inches (1537mm)
	11.4 lb (5.2 kg)
	• 4-Stroke glow/gas: 15 cc • 4-Takt Verbrenner/Benzin: 15 cc • Méthanol/Essence à quatre temps: 15 cc • 4 tempi a candele/gas: 15 cc
	• 60B 470Kv Brushless Outrunner • 60B 470Kv bürstenloser Außenläufer • Cage tournante sans balais 60B 470Kv • 60B 470Kv Brushless Outrunner
	• 5+ channel with 6 servos • 5+ Kanäle mit 6 Servos • 5+ canaux avec 6 servos • 5+ canali con 6 servo





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