



Fly First Class™

Piper J-3 Cub With Power 46

ASSEMBLY MANUAL



Specifications

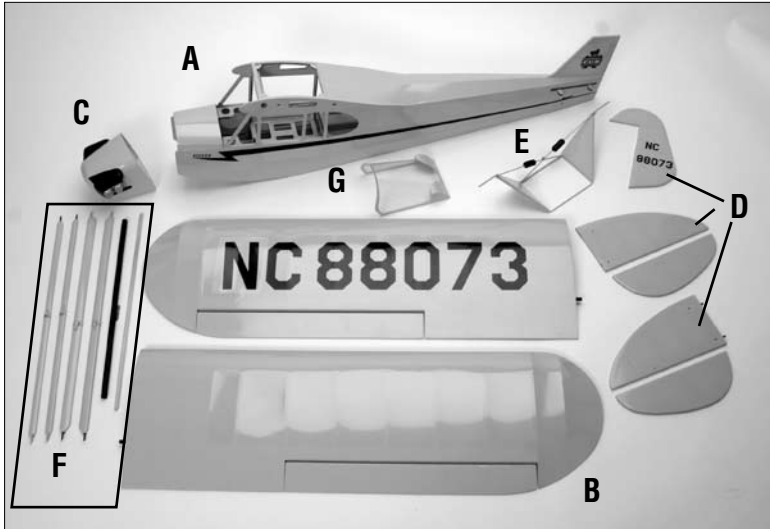
Wingspan: 80 in (2032mm)
Fuselage length: 49.9 in (1268mm)
Wing area: 919 sq in (59.3 sq dm)

Weight: 6.75–7.5 lb (3–3.4 kg)
Motor: E-flite® Power 46 (included)
Radio: 4-channel w/4 servos

Table of Contents

Contents of Kit	3
Additional Required Equipment	3
Covering Colors	3
Additional Required Tools and Adhesives	4
Field Equipment Required	4
Date of Purchase Warranty Period	5
Limited Warranty	5
Damage Limits	5
Safety Precautions	5
Questions, Assistance, and Repairs	6
Inspection or Repairs	6
Warranty Inspection and Repairs	6
Non-Warranty Repairs	6
Safety, Precautions, and Warnings	7
Before Starting Assembly	7
Using the Manual	7
Section 1: Hinge Installation	8
Section 2: Motor and Cowling Installation	11
Section 3: Servo Installation (Aileron)	15
Section 4: Servo Installation (Fuselage)	20
Section 5: Window Installation	24
Section 6: Landing Gear Installation	25
Section 7: Installing the Stabilizer	26
Section 8: Wing Installation	29
Recommended CG	32
Control Throws	32
Preflight	33
2006 Official AMA National Model Aircraft Safety Code	34

Contents of Kit



Large Parts:

A. Fuselage	HAN4351
B. Wing	HAN4001
C. Cowling	HAN4353
D. Tail Set	HAN4003
E. Landing Gear	HAN4005
F. Wing Strut Set	HAN4010
G. Window Set	HAN4008

Items Not Shown:

Battery Door	HAN4352
Tail Wheel Assembly	HAN4007
Decal Set	HAN4009
Pushrod Set	HAN4011
Wheels	HAN4006
Top Fuselage Hatch	HAN4012

Additional Required Equipment

Radio Equipment

- 4-channel radio system (minimum)
- 4 standard servos
(one elevator, one rudder, two aileron)
- Receiver
- Receiver battery
- Switch harness
- 12" Servo Extension (JRPA098) (2)
- "Y" Harness (JRPA135)
- Large Arms/Horns w/Screw (JRPA212)

Battery, Speed Control and Motor Accessories

- Phoenix-60A Speed Control: Brushless (CSEPHX60)
- 4200mAh 4S2P 14.8V Li-Po, 13GA
(THP42004S2PPPL)
- Connectors for speed control and battery
- Propeller
- Charger

Recommended JR® or JR SPORT™ Systems

- XP9303
- XP7202
- XP6102
- XS600

Recommended Spektrum® System

- DX7



JR XP6102



Spektrum DX7



JR XP9303

Additional Required Tools and Adhesives

Tools

- Adjustable wrench
- Crimping tool
- Drill
- Drill bit: 1/16", 5/64", 3/32"
- Felt-tipped pen
- Heat gun
- Hobby knife
- Hobby scissors
- Petroleum jelly
- Phillips screwdriver (small)
- Phillips screwdriver (large)
- Pliers
- Rotary tool w/sanding drum
- Ruler
- Sandpaper
- Soldering iron
- Solder
- String
- Threadlock (PAAPT42)
- T-pins

Adhesives

- 30-minute Epoxy (HAN8002)
- Thin CA (PAAPT08)
- Medium CA (PAAPT02)
- Canopy Glue (PAAPT56)

Other Required Items

- Epoxy brushes
- Felt-tipped pen or pencil
- Measuring device (e.g. ruler, tape measure)
- Mixing sticks for epoxy
- Paper towels
- Petroleum jelly
- Rubbing alcohol
- Sanding bar
- Covering Iron (HAN101)
- Covering Glove (HAN150)
- Sealing Iron Sock (HAN141)

Covering Colors

- | | |
|--------------|---------|
| • Cub Yellow | HANU884 |
| • Black | HANU874 |

Warranty Period

Exclusive Warranty- Horizon Hobby, Inc., (Horizon) warrants 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 to 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

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 advisable 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 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.

Before Starting Assembly

Before beginning the assembly of the Piper Cub 40, remove each part from its bag for inspection. Closely inspect the fuselage, wing panels, rudder, and stabilizer for damage. If you find any damaged or missing parts, contact the place of purchase.

If you find any wrinkles in the covering, use a heat gun or sealing iron to remove them. Use caution while working around areas where the colors overlap to prevent separating the colors.



HAN101 – Sealing Iron

**HAN141 – Sealing Iron
Sock**



HAN100 – Heat Gun

HAN150 – Covering Glove

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 box () are performed once, while steps with two boxes () 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.

Section 1: Hinge Installation

Required Parts

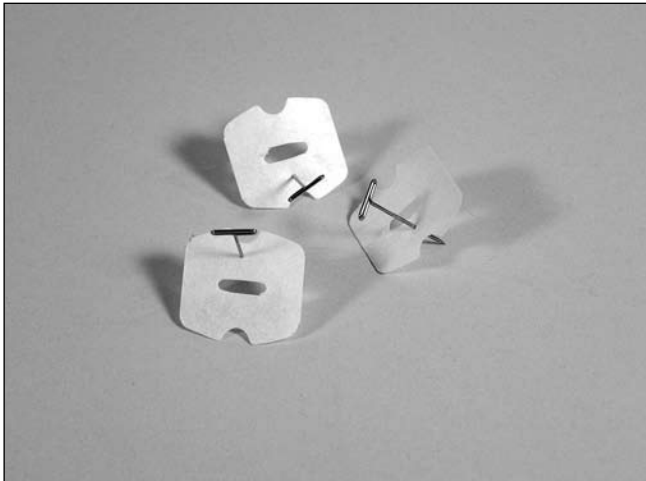
- Stabilizer
- Elevator
- Fuselage
- Rudder
- Wing
- Aileron (R&L)
- Tail gear wire
- Hinge (17)

Required Tools and Adhesives

- Thin CA
- T-pins
- 30-minute epoxy
- Petroleum jelly
- Drill
- Drill bit: 1/16", 3/32"
- Hobby knife

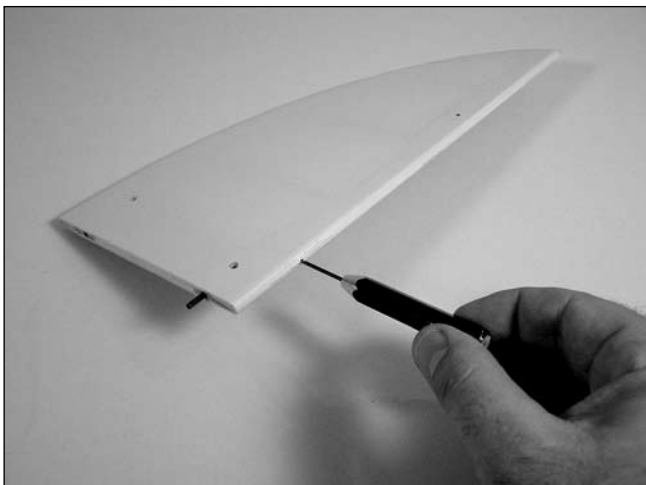
□ □ Step 1

Locate three hinges. Place a T-pin in the center of each hinge.



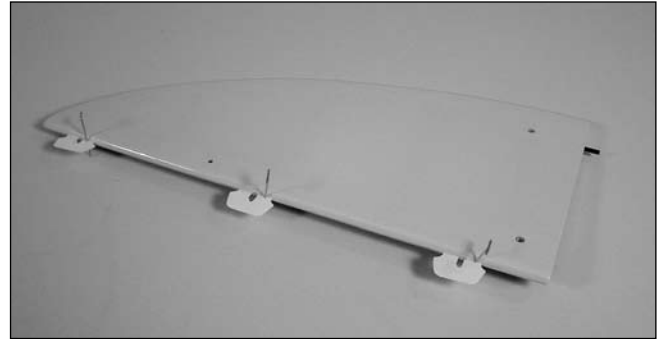
□ □ Step 2

Drill a 1/16" hole in both a stabilizer and elevator half in the center of the hinge locations.



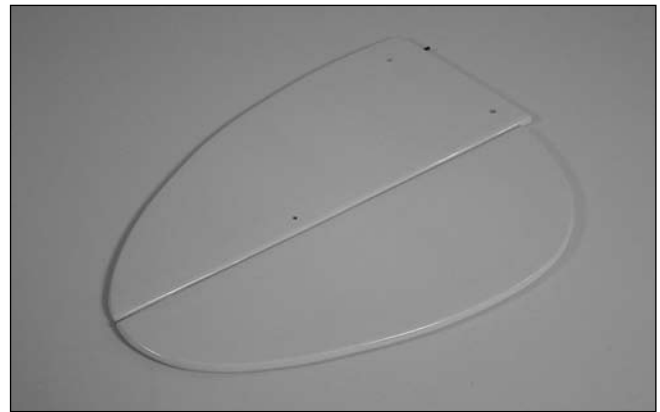
□ □ Step 3

Place the hinges in the stabilizer.



□ □ Step 4

Slide the elevator and stabilizer together. Remove the T-pins. There should be a 1/64" gap between the stabilizer and elevator.



□ □ Step 5

Check that the tips of the stabilizer and elevator are aligned. Wick thin CA into each of the hinges.

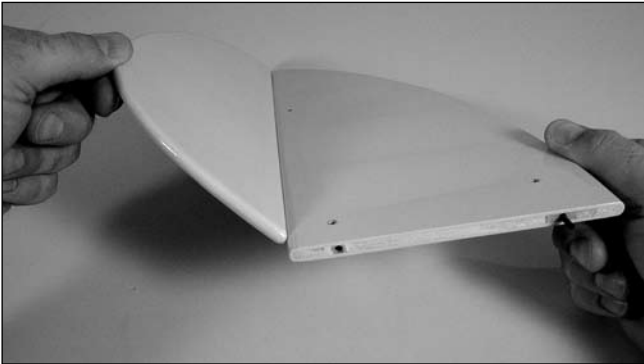


Note: Do not use accelerator in the hinging process. The CA must be allowed to soak into the hinge naturally.

Section 1: Hinge Installation

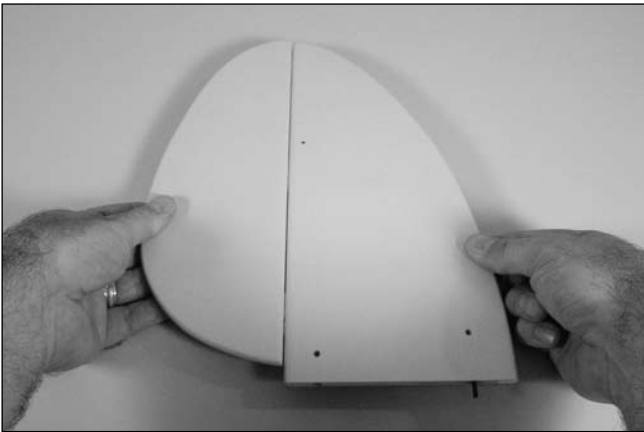
□ □ Step 6

After the CA has cured, flex the surfaces several times to break in the hinges.



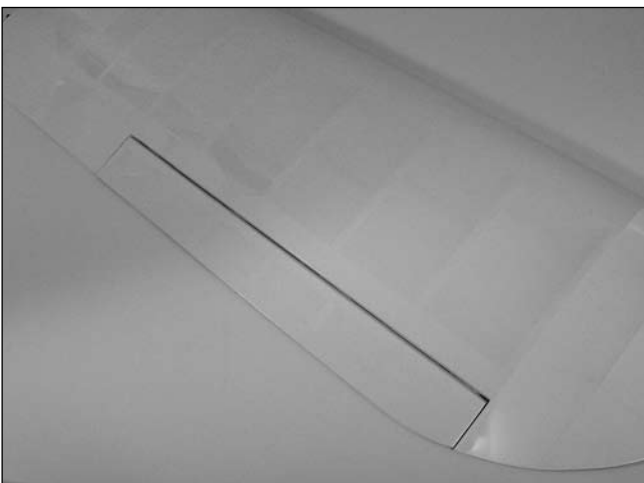
□ □ Step 7

Pull on both surfaces to make sure the hinges are secure.



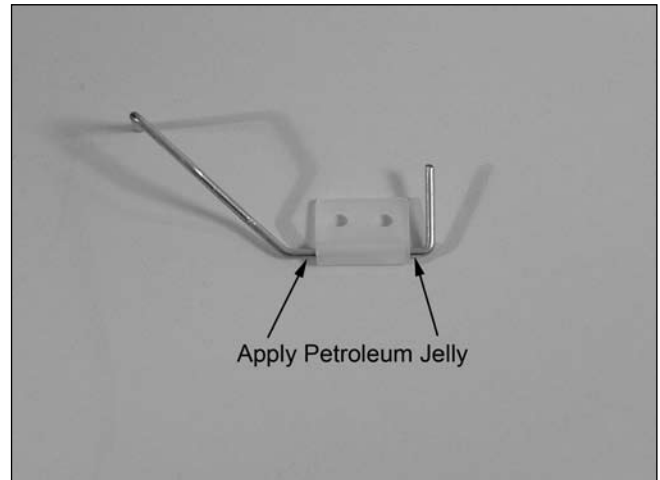
□ Step 8

Repeat Steps 1 through 7 for the aileron hinges. Each aileron will use four hinges. Center the ailerons and make sure they are not binding before gluing the hinges.



□ Step 9

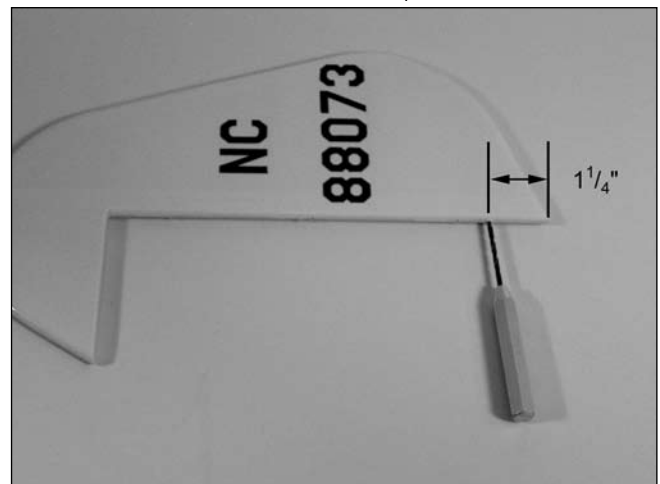
Coat the tail gear wire near the bushing with petroleum jelly. Work the lubricant into the bearing to prevent epoxy from entering the bearing, gluing the bearing to the wire.



Hint: Use a heat gun to warm the petroleum jelly to allow it to flow into the bushing.

□ Step 10

Drill a 3/32" hole in the rudder 1 1/4" from the bottom.



Section 1: Hinge Installation

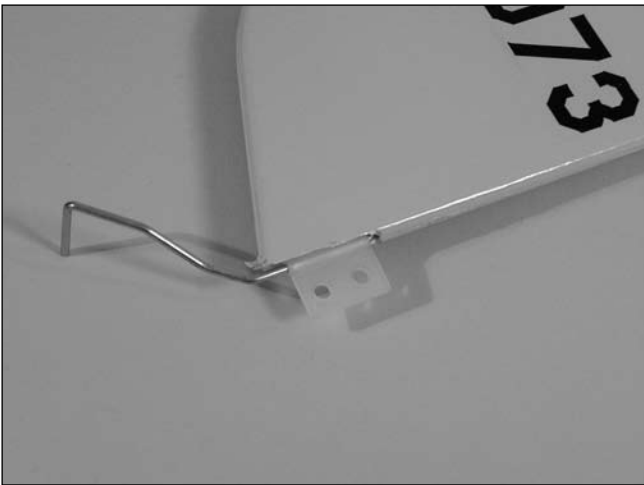
Step 11

Cut a groove from the hole to the bottom of the rudder to allow clearance for the tail gear bearing.



Step 12

Apply a thin layer of lubricant where the bearing will ride in the rudder. Use 30-minute epoxy to glue the wire into the rudder.



Step 13

Cut a slot in the end of the fuselage to accept the tail gear bearing.



Step 14

Install three hinges into the rudder. Test fit the rudder to the fuselage, sliding the hinges and tail wheel bracket into position.

Step 15

Use 30-minute epoxy to glue the tail gear bearing into the fuselage. Use thin CA for the hinges.



Section 2: Motor and Cowling Installation

Required Parts

- Fuselage
- Propeller
- Propeller adapter
- Cowling
- #2 x 3/8" sheet metal screw (4)

Required Tools and Adhesives

- Phillips screwdriver (small)
- Drill
- Soldering iron
- Electronic speed control w/connectors
- Drill bit: 1/16", 5/64"
- Solder

Note: Use a good quality solder and flux when soldering electronic components. Check with an electronic store to purchase the appropriate components for soldering if you don't have these on hand.

Important: Always make sure that what is under your soldering iron is of no great value. Solder that drips can easily damage a surface. It is suggested to have an inexpensive piece of plywood under your soldering area to prevent damage from dripped solder.

□ □ Step 1

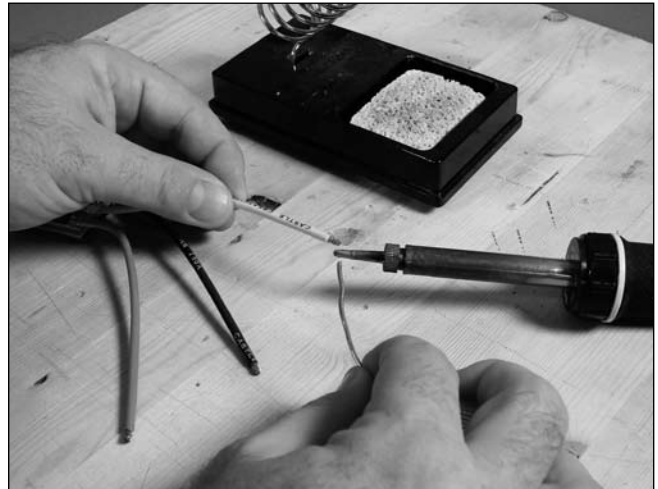
Locate the connectors for your motor. Use pliers to hold the connector. Heat the connector with the soldering iron and feed a small amount of solder into the connector.



Note: A drop of flux will make the solder "stick" better than just using the solder alone.

□ □ Step 2

Tin the ends of the wires on your speed control by using the iron to heat the bare wires. It is always a good idea to apply the iron to one side of the wire and feed the solder from the opposite side to draw the solder into the wire.



□ □ Step 3

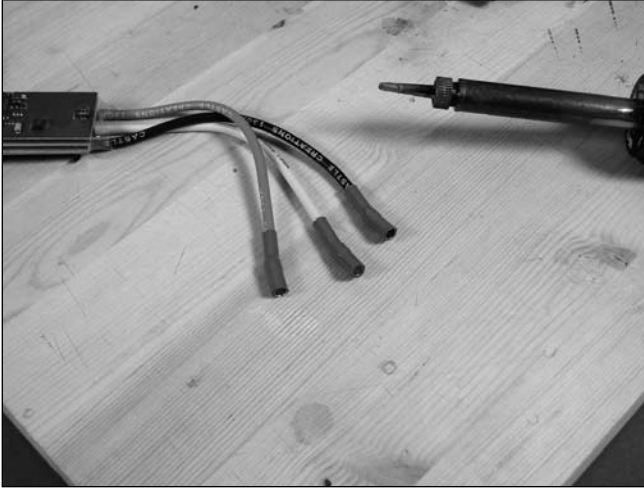
While the wire on the speed control is still warm, heat the connector with the soldering iron. Slide the wire from the speed control into the connector and leave it for a second to make sure the solder has fully heated. Remove the soldering iron and allow the wire/connector to cool before moving anything. After a minute or two, give the connector a light pull to make sure it is secure.



Section 2: Motor and Cowling Installation

□ □ Step 4

Once all the connectors have been installed, use heat shrink tubing to insulate them. If not insulated, they could short and damage the speed controller.



□ Step 5

Repeat Steps 1 through 4 to install a connector onto the battery lead of the speed control that matches the one on your battery.

□ Step 6

Remove the cowling and propeller from the fuselage. Plug the motor leads from the motor to the speed control.



□ Step 7

Use double-sided tape or sticky back hook and loop to secure the speed control inside the fuselage. Make sure it can't move around, and that the wires going to the motor are secure and won't interfere with the operation of the motor.



□ Step 8

Pass the hook and loop straps through the battery floor as shown.



Section 2: Motor and Cowling Installation

□ Step 9

Use the hook and loop straps to secure the battery inside the fuselage.



Note: If you find the battery slides forward or backward, simply apply a piece of hook and loop material on the battery floor and battery to keep the battery in position.

□ Step 10

Plug the speed control into the throttle channel of the receiver. Move the throttle trim and stick to low throttle. Plug the speed control into the battery and check the operation of the motor. The motor should rotate counterclockwise when viewed from the front of the aircraft. If the motor rotates the wrong direction, follow the instructions provided with your speed control to correct the rotation direction.

□ Step 11

Unplug the speed control from the battery and receiver at this time. Install the battery hatch back onto the fuselage.



□ Step 12

Replace the cowling back onto the fuselage and tighten the propeller adapter to secure it to the motor shaft.



Section 3: Servo Installation (Aileron)

Required Parts

- Wing (L&R)
- #2 x 3/8" screw (8)
- 2mm x 20mm screw (6)
- Clevis retainer (2)
- 4 3/4" pushrod wire (2)
- Pushrod wire keeper (2)
- Servo hatch (L&R)
- Control horn (2)
- Clevis (2)

Required Tools and Adhesives

- Phillips screwdriver (small)
- Felt-tipped pen
- Drill
- Pliers
- 12" servo extension (2)
- Long Servo Arm (JRPA212) (2)
- 30-minute epoxy
- String
- Drill bit: 1/16", 3/32"
- "Y" harness
- Hobby knife

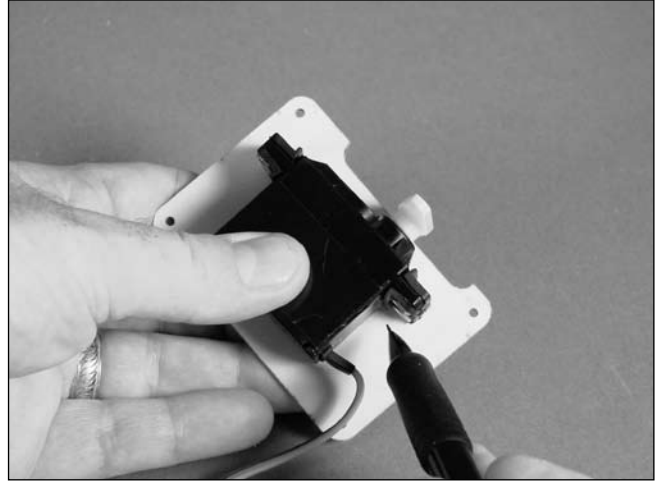
□ Step 1

Remove the covering from the servo opening in the bottom of the wing using a hobby knife. Select the correct servo hatch by checking the alignment for the servo arm on the plate with the one on the wing.



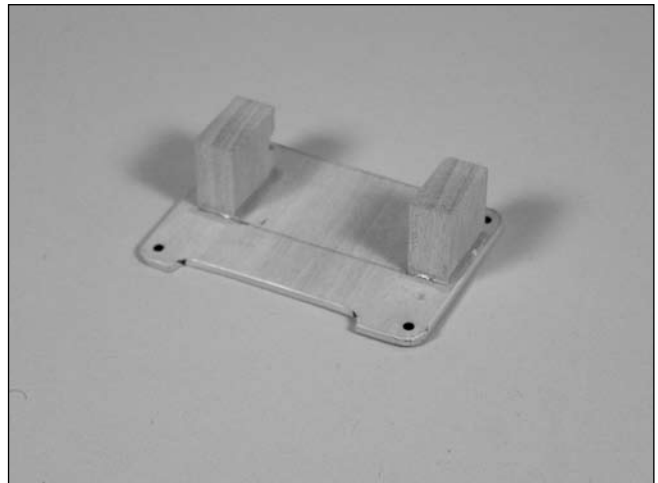
□ Step 2

Install the recommended servo hardware (grommets and eyelets) supplied with the servo. Temporarily install a long half servo arm (JRPA212) onto the servo and position the servo onto the hatch so the servo arm is centered in the notch. Once satisfied, mark the location for the servo mounting blocks using a felt-tipped pen.



□ Step 3

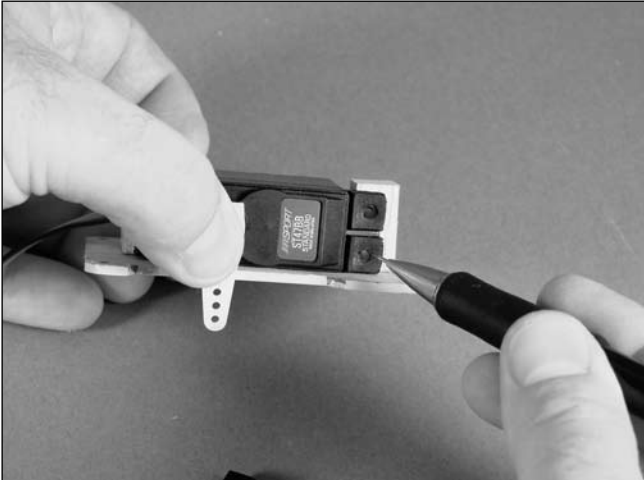
Locate the 3/8" x 3/4" x 3/4" servo mounting blocks. Use 30-minute epoxy to glue the blocks to the hatch. Let the epoxy fully cure before proceeding to the next step.



Section 3: Servo Installation (Aileron)

□ Step 4

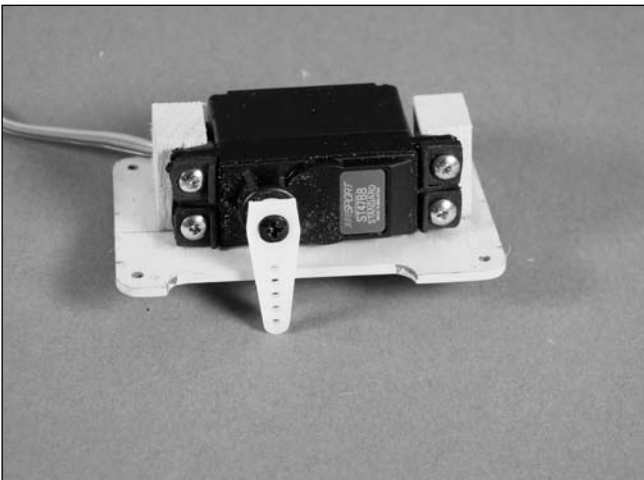
Place the aileron servo between the mounting blocks and use a felt-tipped pen to mark the location of the four servo mounting screws. Note that the servo must not touch the hatch in order to isolate engine vibration.



Note: Before mounting the servo, electronically center the servo using the transmitter, then install the servo arm to avoid having to remove the servo and center the arm later. It may be necessary to slightly trim one of the servo mounting blocks to clear the servo wire.

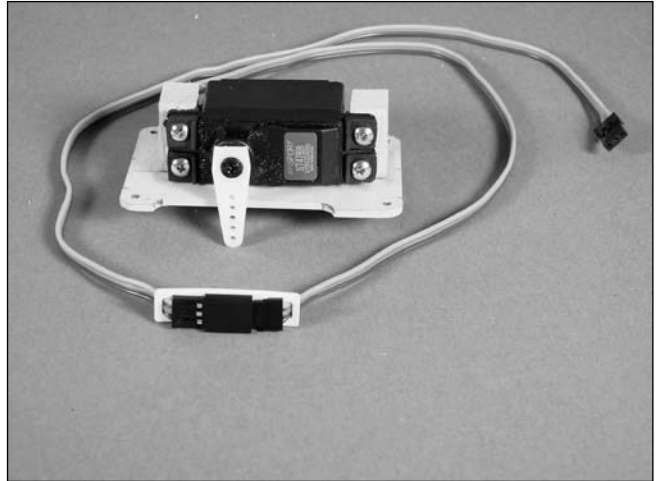
□ Step 5

Remove the servo and use a 1/16" drill bit to pre-drill the holes for the servo mounting screws marked in the previous step. Use the screws supplied with the servo to mount it to the servo mounting blocks.



□ Step 6

Connect a 12" Servo Lead Extension (JRPA098) to the servo lead. Secure the connectors by tying them in a knot using dental floss or by using a commercially available connector clamp to prevent the servo leads from becoming disconnected.

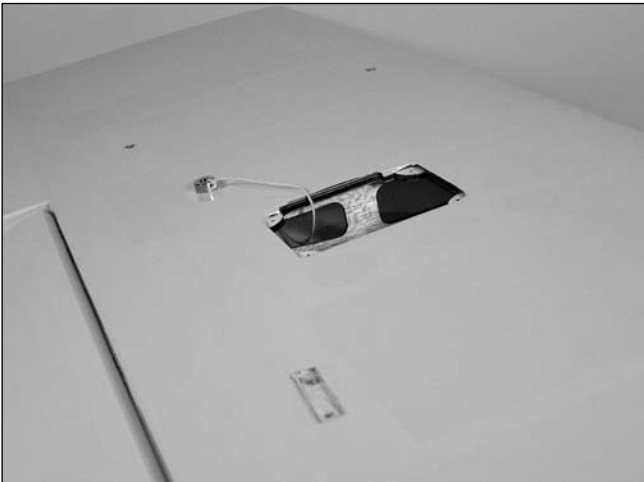
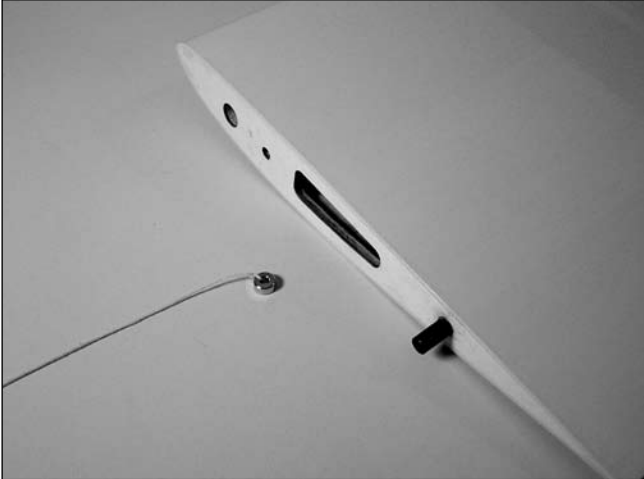


Note: It is always a good idea to secure the servo connector and servo extension together to prevent the wires from becoming unplugged.

Section 3: Servo Installation (Aileron)

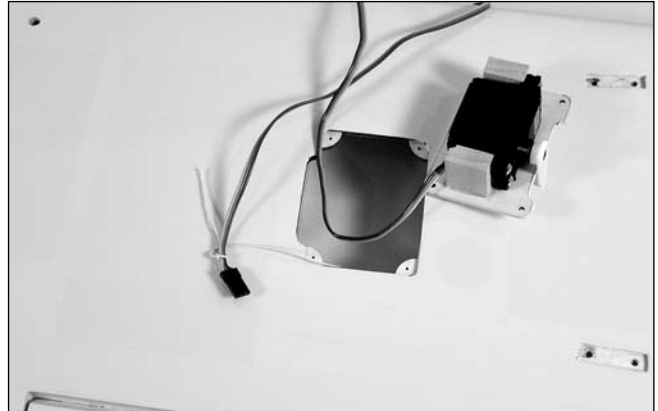
□ Step 7

Tie a wheel collar onto a piece of string. Drop the wheel collar into the wing from the root and retrieve it from the servo opening.



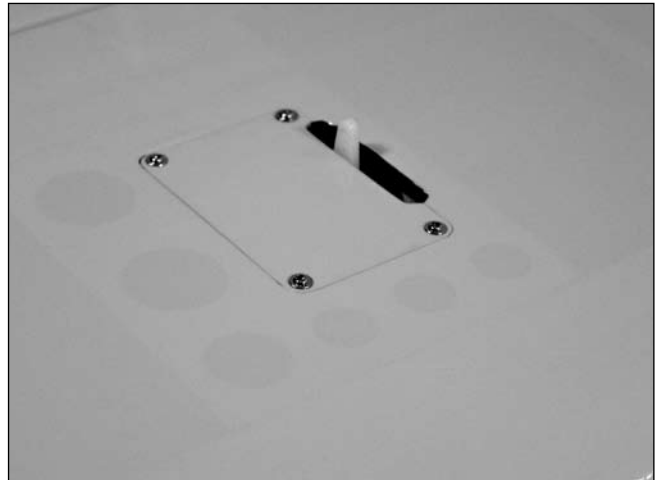
□ Step 8

Tie the string onto the servo extension. Gently pull the extension through the wing using the string. Untie the string when the servo lead has been pulled through. Use tape to secure the servo lead to the wing to prevent it from falling back into the wing panel.



□ Step 9

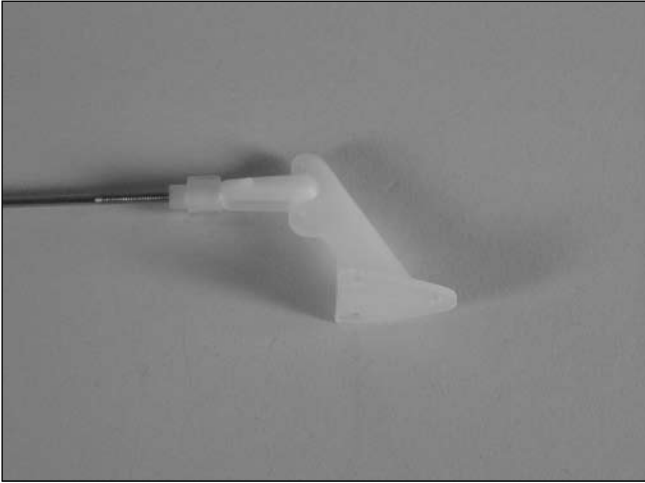
Secure the hatch using four #2 x 3/8" screws.



Section 3: Servo Installation (Aileron)

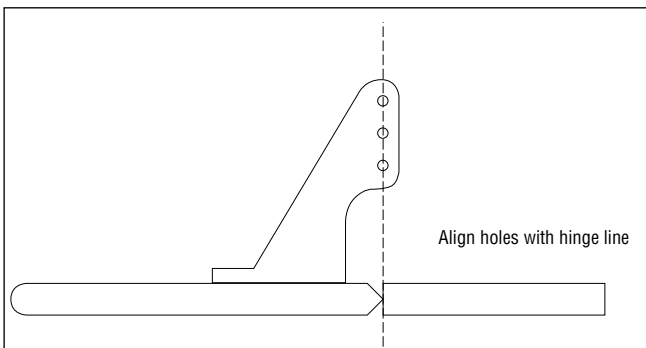
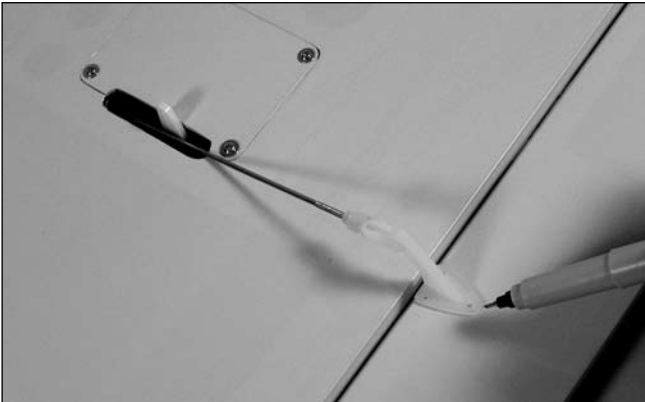
□ Step 10

Place a clevis retainer onto a clevis. Thread the clevis onto a $4\frac{3}{4}$ " pushrod wire. Remove the backplate from a control horn, and then attach the clevis to the control horn.



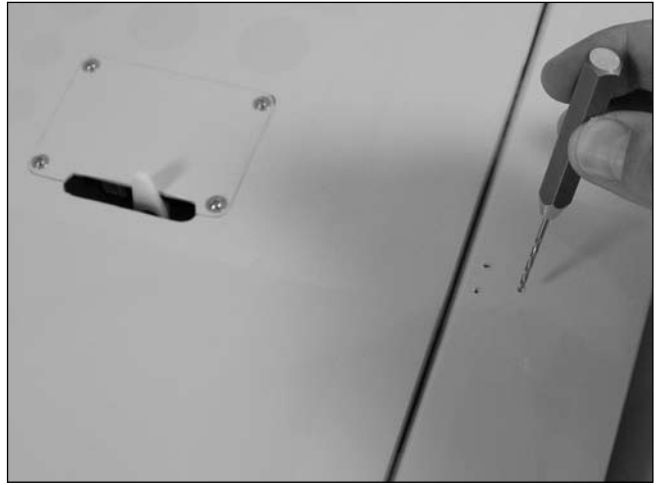
□ Step 11

Position the control horn on the aileron. Use the pushrod wire as a guide to align the horn to the servo arm. Position the horn so the holes align with the hinge line. Use a felt-tipped pen to mark the positions for the three mounting bolts.



□ Step 12

Drill the locations marked in the previous step using a $3/32$ " drill bit.



□ Step 13

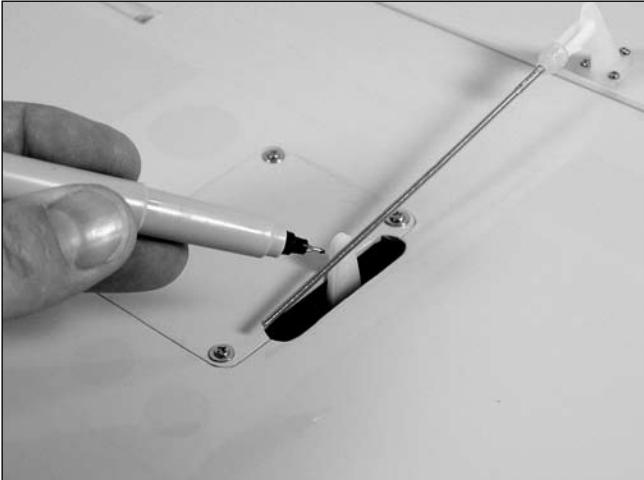
Place a few drops of thin CA into each of the holes to harden the balsa. Attach the control horn using three 2mm x 20mm screws and the control horn backplate.



Section 3: Servo Installation (Aileron)

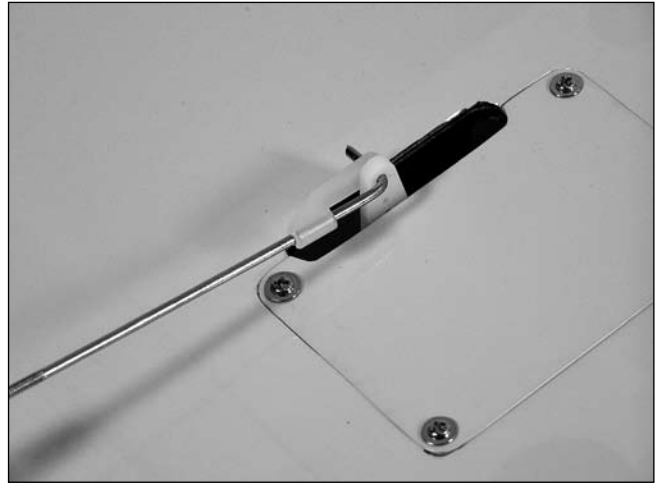
Step 14

Plug in the aileron servo to the radio system. Center the trims on the transmitter to center the aileron servo. Hold the aileron in neutral. Use a felt-tipped pen to mark the pushrod wire where it crosses the servo arm.



Step 15

Bend the pushrod wire at the mark. Use a pushrod wire keeper to secure the pushrod wire to the servo arm.



Step 16

Repeat Steps 1 through 15 for the remaining wing panel.

Section 4: Servo Installation (Fuselage)

Required Parts

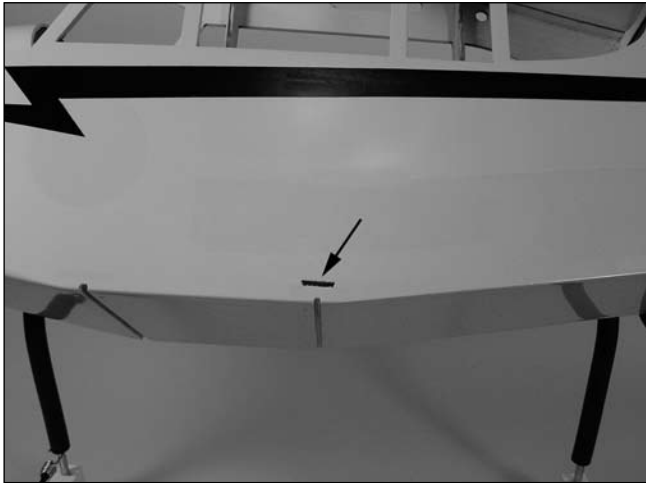
- Fuselage
- Clevis
- Clevis retainer
- Control horn
- Wing strut mount (2)
- #4 x 3/8" screw (4)
- 19 3/4" pushrod dowel
- 6" pushrod wire
- Pushrod wire (32")
- 2 1/8" heat shrink tubing (2)
- 2mm x 12mm screw (3)
- 7 1/4" pushrod wire (2)

Required Tools and Adhesives

- Phillips screwdriver
- Hobby knife
- Drill
- Drill bit: 3/32", 5/64"
- Heat gun
- Medium CA
- Thin CA
- Felt-tipped pen

□ Step 1

Remove the covering for the wing strut mount. The opening is located above the rear landing gear mount.



□ Step 2

Slide the wing strut mount into the opening. Secure the mount using two #4 x 3/8" screws.

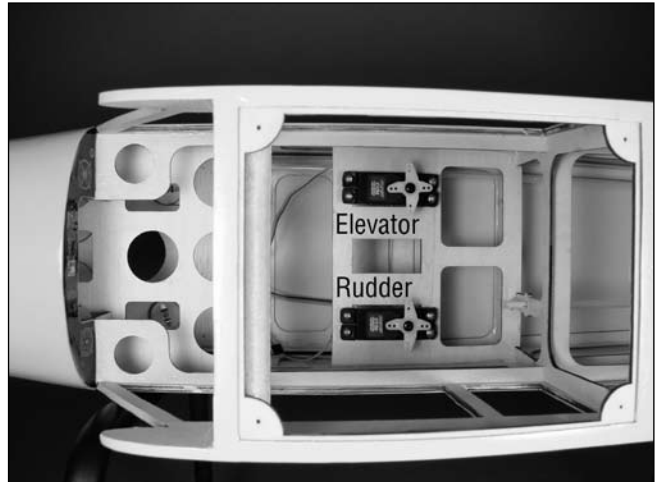


□ Step 3

Install the recommended servo hardware (grommets and eyelets) supplied with the servos into the throttle, rudder, and elevator servos.

□ Step 4

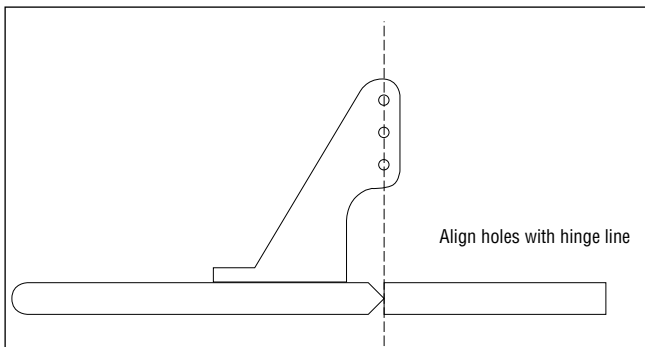
Use the hardware provided with the servos to mount them in the fuselage.



Section 4: Servo Installation (Fuselage)

□ Step 5

Place a clevis retainer onto a clevis. Thread the clevis onto a 32" pushrod wire. Remove the backplate from a control horn, and then attach the clevis to the control horn. Slide the pushrod into the rudder pushrod tube in the fuselage. Position the horn so the holes align with the hinge line. Use a felt-tipped pen to mark the positions for the three mounting bolts.



□ Step 6

Drill the locations marked in the previous step using a 3/32" drill bit. Place a few drops of thin CA into each of the holes to harden the balsa. Attach the control horn using three 2mm x 12mm screws and the control horn backplate.



□ Step 7

Plug in the rudder servo to the radio system. Center the trims on the transmitter to center the rudder servo. Hold the rudder in neutral. Use a felt-tipped pen to mark the pushrod wire where it crosses the servo arm.



Section 4: Servo Installation (Fuselage)

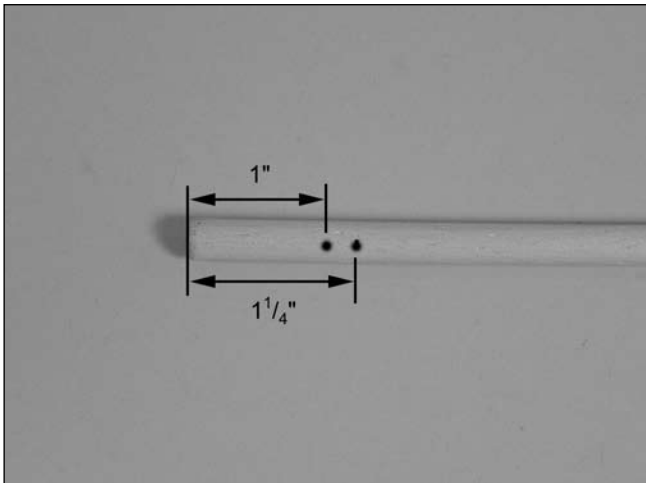
□ Step 8

Remove the pushrod wire from the fuselage and remove the clevis. Bend the pushrod wire at the mark. Slide the pushrod back into the fuselage from the radio compartment, and then put the clevis back onto the wire. Use a pushrod wire keeper to secure the pushrod wire to the servo arm.



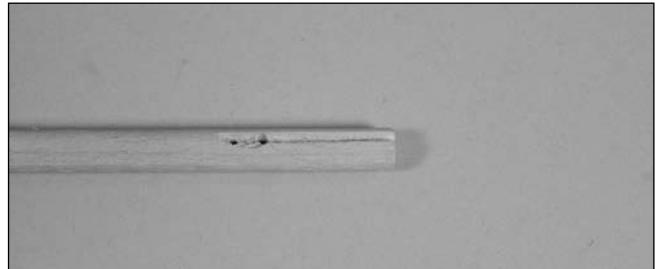
□ Step 9

Locate the $19\frac{3}{4}$ " wood pushrod for the elevator. Drill two $\frac{5}{64}$ " holes through the dowel, 1" and $1\frac{1}{4}$ " from one end. The holes must be parallel to each other.



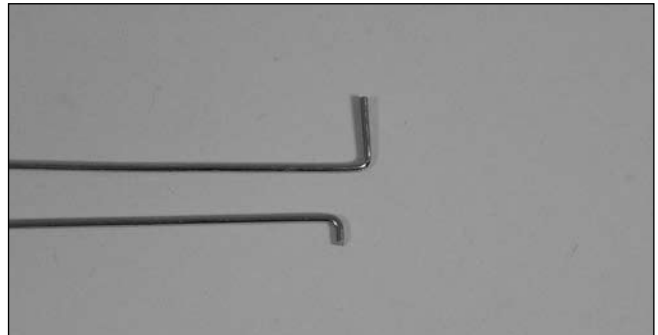
□ Step 10

Cut a groove into the pushrod from the hole to the end of the pushrod. Repeat for the opposite side so you end up with two grooves. The elevator pushrod wires will rest in these grooves.



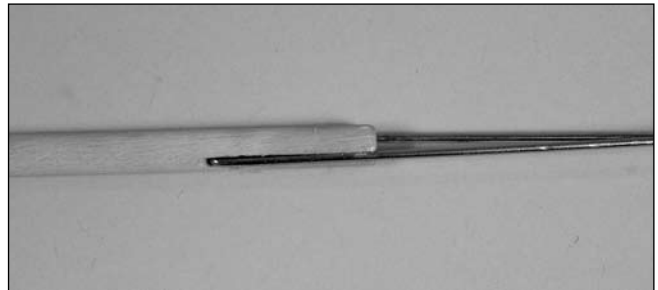
□ Step 11

Locate the two $7\frac{1}{4}$ " pushrods. Make a bend in one pushrod $\frac{1}{4}$ " from the non-threaded end. The remaining pushrod is bent $\frac{1}{2}$ " from the non-threaded end.



□ Step 12

Test fit the two wires. The wire bent at $\frac{1}{2}$ " is placed in the hole closest to the pushrod end. You will have to trim the wire down after the bend so it won't interfere with the other pushrod. Once fit, use medium CA to glue the wires to the dowel.



Section 4: Servo Installation (Fuselage)

□ Step 13

Slide the 2 1/8" piece of heat shrink over the wires and dowel. Use a heat gun or lighter to shrink the tubing. Once the tubing has been shrunk, apply thin CA to each end of the shrink to complete this part of the pushrod assembly.

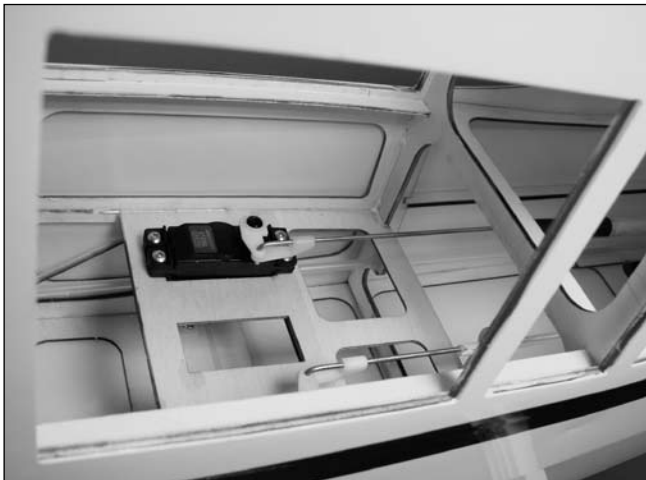


□ Step 14

Repeat Steps 9 through 13 for the opposite end of the dowel, but only drill one hole 1" from the end and prepare one 6" pushrod wire with a bend 1/4" from the non-threaded end.

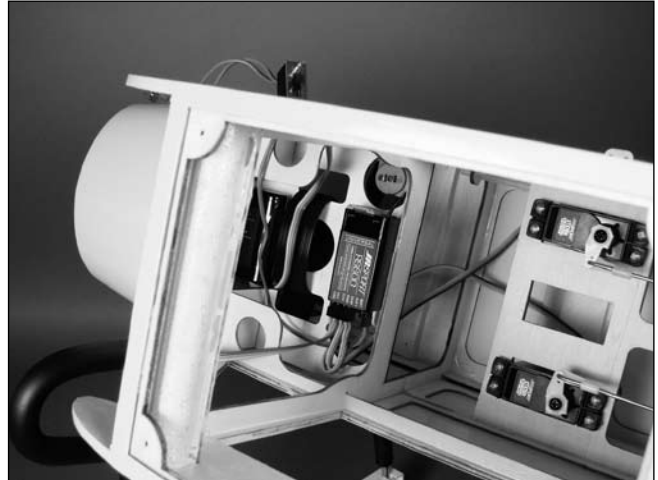
□ Step 15

Slide the elevator pushrod wire in position into the fuselage. It may take some time to get it in, so be patient. Slide a clevis retainer onto two clevises, and then thread them onto the pushrod wires at the aft end of the fuselage. This will prevent the pushrod wire from falling out of the fuselage.



□ Step 16

Plug the necessary servo leads into the receiver. This includes the switch harness and battery leads as well. Use double-sided tape or hook and loop to secure the receiver and battery inside the fuselage.



Note: There is a tube located under the elevator servo for the antenna wire. Route the wire through this tube to the tail of the aircraft.

□ Step 17

Mount the receiver switch to the side of the fuselage.



Section 5: Window Installation

Required Parts

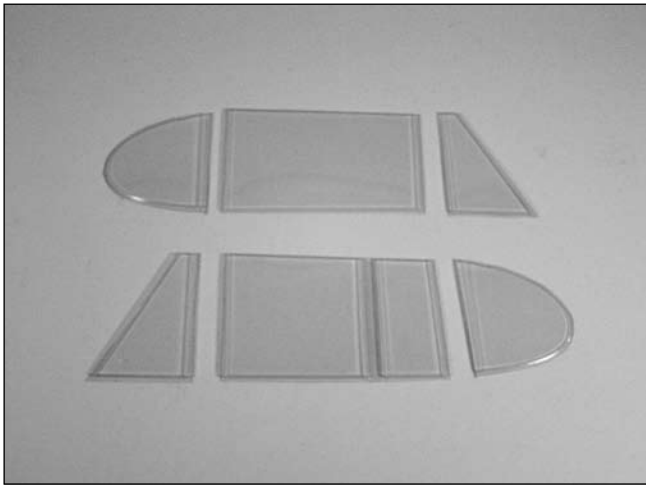
- Side window (L&R)
- Support (2)
- Front windscreen
- Fuselage hatch

Required Tools and Adhesives

- Hobby scissors
- Hobby knife
- Canopy glue

Step 1

Use hobby scissors and a hobby knife to trim the side windows from their sheets. Leave a 1/8" lip to glue the windows to the fuselage.



Step 2

Test fit the windows from the inside of the fuselage. Trim them as necessary so they fit flush to the outside of the fuselage. Use canopy glue (PAAPT56) to secure the windows into the fuselage. Install the window into the fuselage hatch at this time as well.

Note: You can use epoxy as well, but be very careful not to get epoxy on the nice clear windows.

Step 3

Cut and fit the two supports to the fuselage. Use medium CA to glue them into position.



Step 4

Test fit the front windscreen into position. Trim as necessary. Use canopy glue to secure the front windscreen to the fuselage.



Section 6: Landing Gear Installation

Required Parts

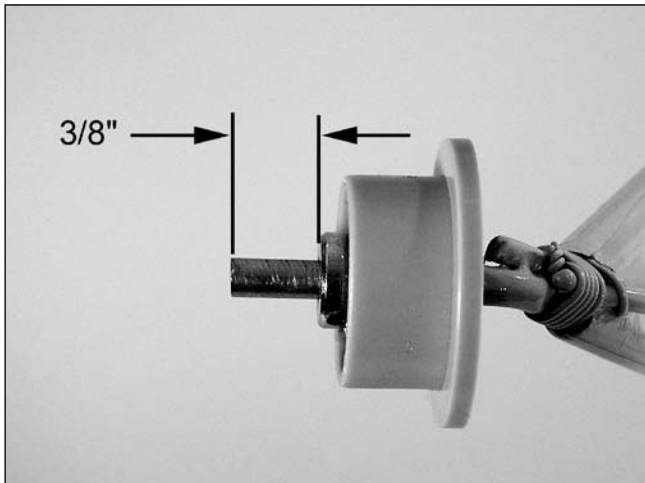
- Landing gear
- 3.35" (85mm) wheel (2)
- Inner wheel hub (2)
- 1" (25mm) wheel
- 2mm x 14mm screw (8)
- Large wheel collar w/setscrew (4)
- 3mm x 10mm screw (8)
- Small wheel collar w/setscrew
- Wheel cap (2)
- Outer wheel hub (2)
- Landing gear strap (4)

Required Tools and Adhesives

- Phillips screwdriver (small)
- Hobby knife
- Threadlock
- Hex wrench
- Sandpaper

□ □ Step 1

Use a hobby knife to scrape away the paint on the landing gear where the wheel will be located. Slide the inner wheel hub onto the axle. Next, slide a large wheel collar 3/8" from the end of the axle and secure it using the setscrew.



□ □ Step 2

Position the 3.35" (85mm) wheel onto the inner hub. Attach the outer wheel hub to the inner wheel hub using four 2mm x 14mm screws. The screws go through the outer wheel hub and into the inner wheel hub.



□ □ Step 3

Snap the wheel cap onto the wheel.



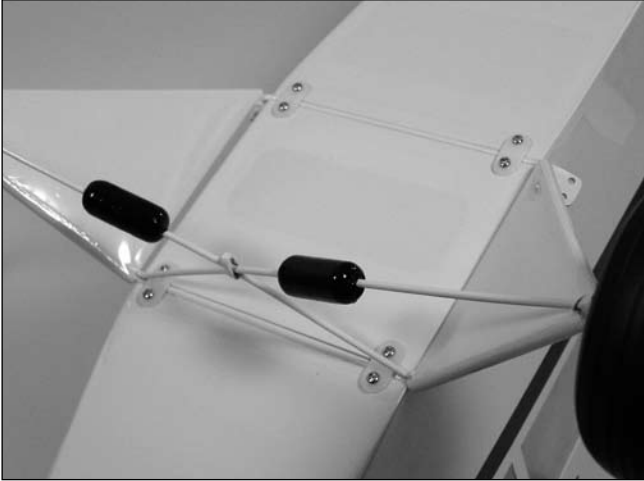
□ Step 4

Repeat Steps 1 through 3 for the remaining wheel.

Section 6: Landing Gear Installation

□ Step 5

Position the landing gear to the bottom of the fuselage. Secure the position of the gear using four landing gear straps and eight 3mm x 10mm screws.



□ Step 6

Secure the tail wheel using the small wheel collar and setscrew.



Section 7: Installing the Stabilizer

Required Parts

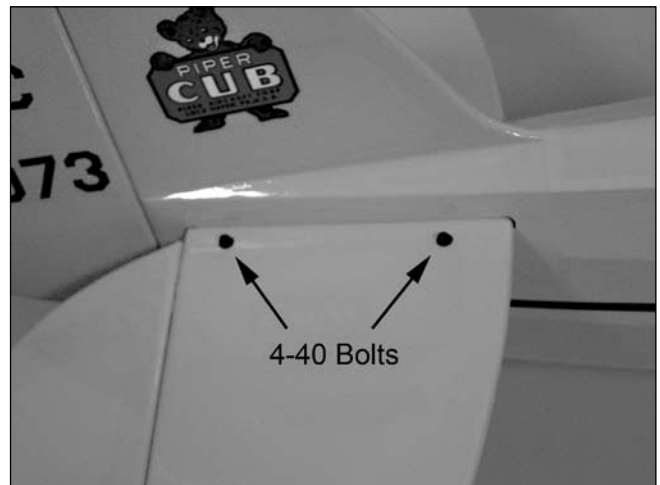
- Stabilizer assembly
- #4 washer (4)
- 2-56 x 1/2" screw (3)
- Clevis (4)
- Cable ends (4)
- Cable
- Control horn (2)
- 2mm x 12mm screw (6)
- Brass fitting (small) (6)
- Brass fitting (large) (2)
- #2 x 1/2" sheet metal screw
- 4-40 x 1/2" socket head screw (4)
- Fuselage
- #2 washer (3)
- 2-56 nut (3)
- Clevis retainer (4)
- Brass crimps (8)
- Pushrod wire keeper

Required Tools and Adhesives

- Threadlock
- Drill
- Adjustable wrench
- Phillips screwdriver (small)
- Pliers
- Drill bit: 3/32"
- Crimping tool
- Threadlock

□ Step 1

Slide the stabilizer halves into the slot in the fuselage. Use four 4-40 x 1/2" screws and four #4 washers to secure the stabilizer. Use threadlock to prevent the screws from vibrating loose during flight.



Section 7: Installing the Stabilizer

Step 2

Attach a control horn to one of the elevator clevises. Line the holes in the control horn with the hinge line and mark the location for the mounting crews onto the elevator.



Step 3

Drill the holes using a 3/32" drill bit. Use thin CA to harden the holes. Mount the control horn using the horn backplate and three 2mm x 12mm screws.



Step 4

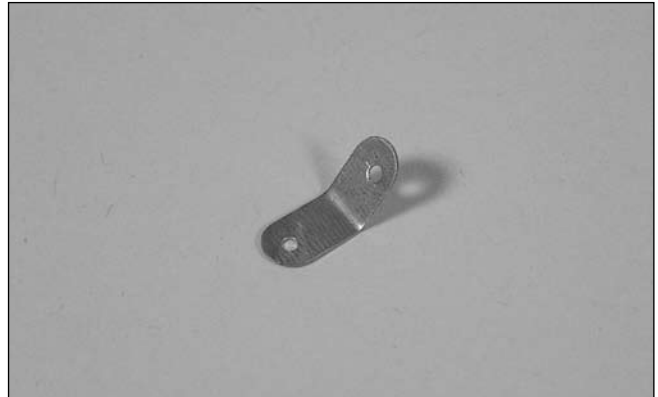
Repeat Steps 2 and 3 for the remaining elevator control horn.

Step 5

Attach the elevator pushrod to the servo arm of the elevator servo using a pushrod wire keeper.

Step 6

Bend each of the fittings (small and large) to about a 45-degree angle.



Step 7

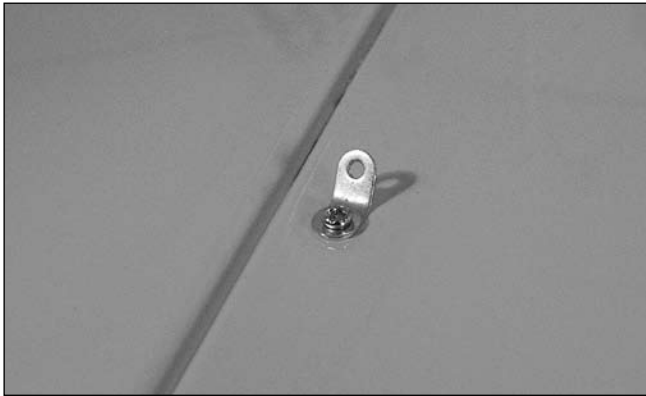
Attach the large brass fittings at the bottom rear of the fuselage using the #2 x 1/2" sheet metal screw.



Section 7: Installing the Stabilizer

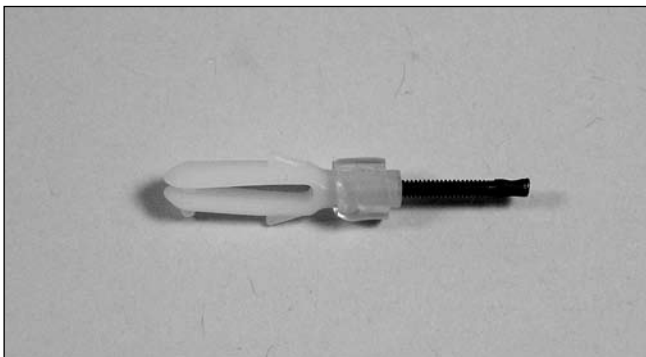
□ Step 8

Attach the small brass fitting to the fin and stabilizer using 2-56 x 1/2" screws, #2 washers and 2-56 nuts. Fittings are placed on both sides of the rudder and the top and bottom of the stabilizer.



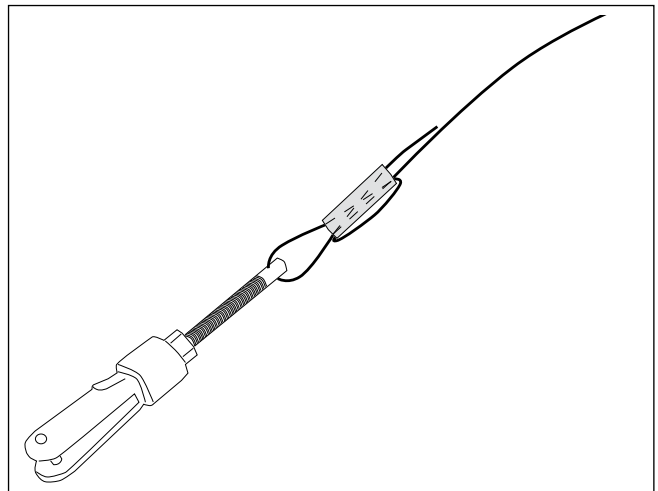
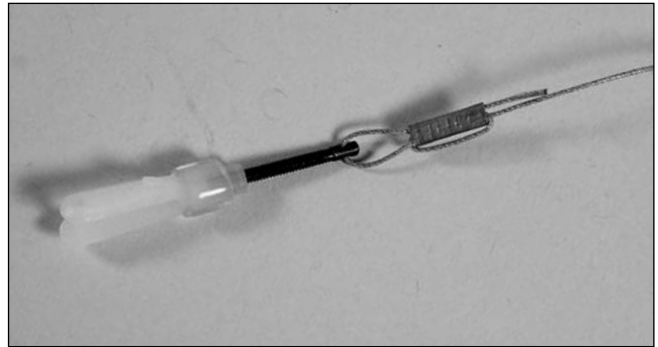
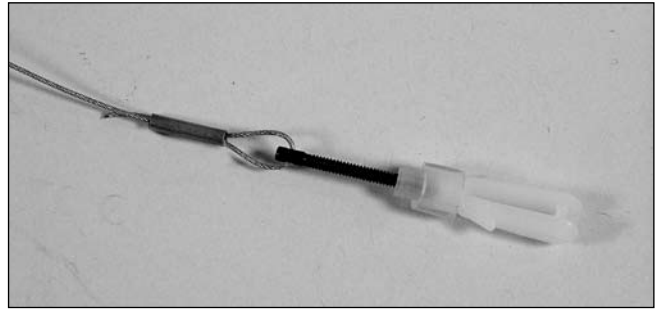
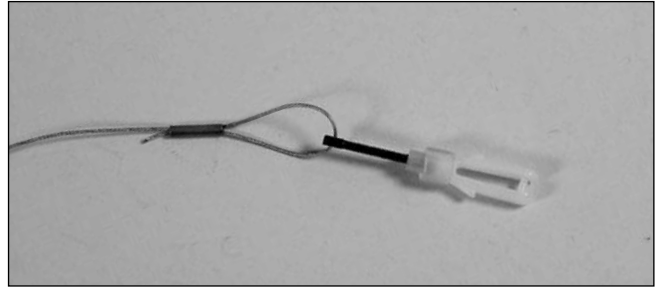
□ Step 9

Slide a clevis retainer onto a clevis. Thread a cable end into the clevis. Prepare four of these connectors.



□ □ Step 10

Cut the cable into four equal pieces. Prepare one cable by sliding the cable through a crimp, through the cable end, then back through the crimp twice. Pull the excess cable tight and use a crimping tool to complete the job. Repeat for all four of the ends.



Section 7: Installing the Stabilizer

Step 11

Attach the four connectors to the brass fittings of the stabilizer.



Step 12

Repeat Step 10, only passing the cable through the brass fittings instead of the cable ends. The cables should have very light tension.



Note: Be careful not to overtighten cables as you may introduce a warp into the tail surfaces.

Section 8: Wing Installation

Required Parts

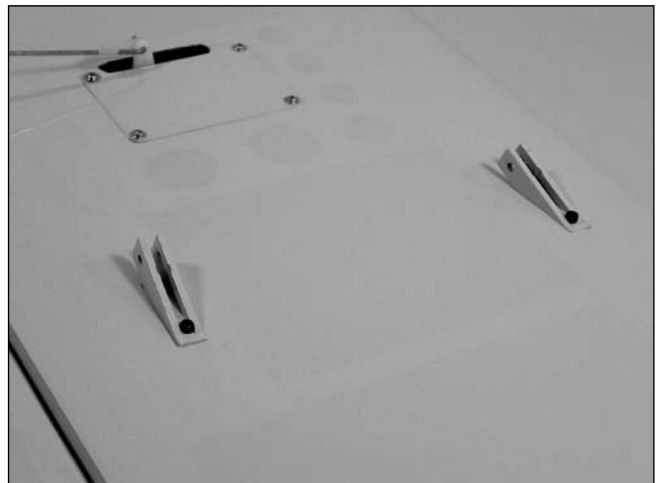
- Wing
- 4-40 lock nut (16)
- Strut support anchor (4)
- Strut end (4)
- Strut (wide) (L&R)
- Strut brace (short) (2)
- #2 x 3/8" screw (4)
- 1/4-20 x 2" nylon bolt (2)
- 4-40 x 1/2" socket head screw (24)
- Fuselage
- 4-40 nut (4)
- Strut bracket (4)
- Strut (narrow) (L&R)
- Strut brace (long) 2
- Strut cross brace (2)
- Fuselage hatch

Required Tools and Adhesives

- Hex wrench
- Threadlock
- Phillips screwdriver (small)
- Adjustable wrench

Step 1

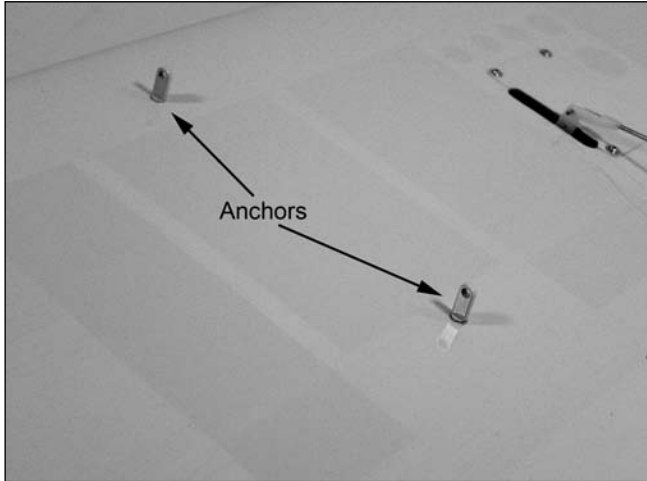
Attach two strut brackets to the bottom of the wing using four 4-40 x 1/2" socket head screws. Use threadlock to prevent the screws from loosening during flight.



Section 8: Wing Installation

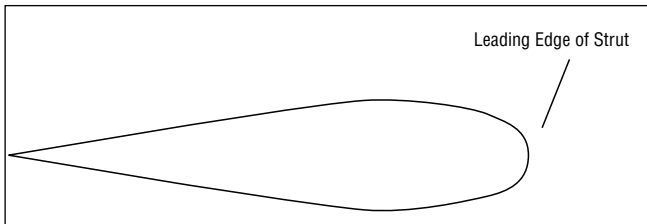
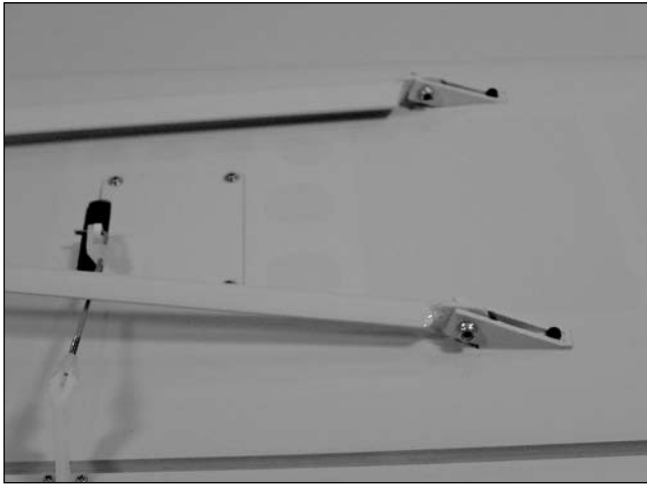
□ □ Step 2

Thread the strut support anchors into the holes in the wing until the threads are no longer exposed. The anchors have external threads.



□ □ Step 3

Attach the strut to the strut brackets using two 4-40 x 1/2" socket head screws and two 4-40 lock nuts. The wide strut goes towards the leading edge, the narrow strut towards the trailing edge.



Note: The airfoil of the struts matches the direction of the wing. The struts also have fittings in the center, which will face towards the wing when installed.

□ □ Step 4

Thread a 4-40 nut onto the threaded end of the strut. Thread a strut end onto the nut. The nut will be used once the strut has been adjusted.



□ □ Step 5

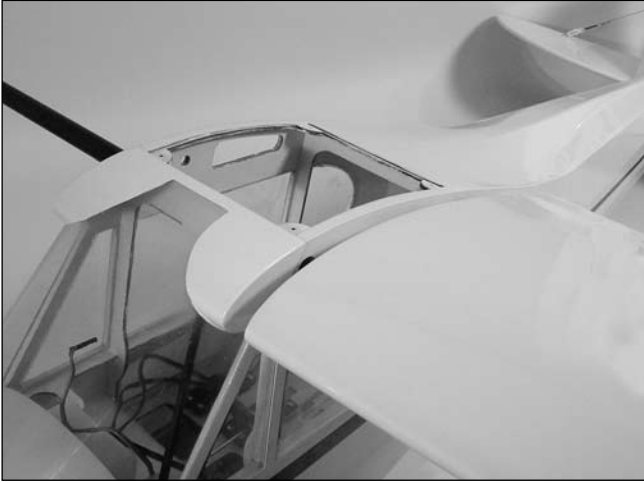
Install the short strut brace to the rear strut support anchor and the long strut brace to the front strut support anchor using 4-40 x 1/2" socket head screws and 4-40 nuts. Attach the strut supports and the strut cross brace using two 4-40 x 1/2" socket head screws and two 4-40 lock nuts.



Section 8: Wing Installation

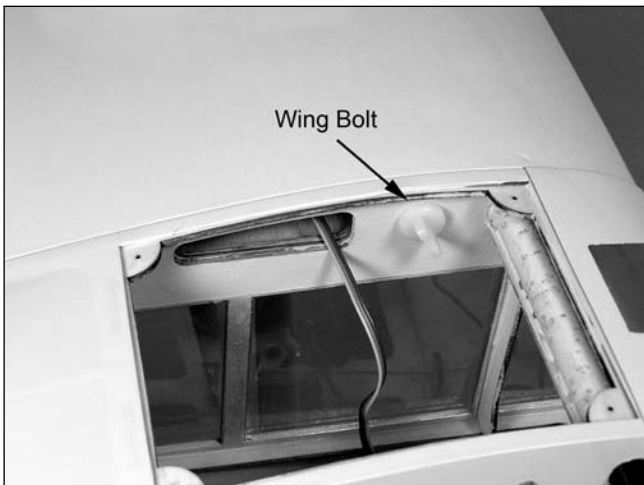
□ □ Step 6

Slide the wing tube into the wing panel. Slide the tube and panel into position on the fuselage.



□ □ Step 7

Secure the wing panel using a 1/4-20 x 2" nylon bolt.



Note: The struts on the J-3 Cub are functional, so be sure all bolts and nuts are tight before flying. Failure to do so could result in wing failure.

□ □ Step 8

Support the fuselage so the wing is not resting on the work surface. Adjust the strut end so it aligns with the wing strut mount. Attach the wing struts using two 4-40 x 1/2" socket head bolts and two 4-40 locking nuts. Once attached, tighten the 4-40 nuts on the strut to prevent the end from rotating when the wing is removed for storage.



□ Step 9

Repeat Steps 1 through 8 to install the remaining wing panel and strut.

□ Step 10

Install the fuselage hatch using four #2 x 3/8" screws.



Note: When removing the wing, simply disconnect the bolts holding the strut to the fuselage. This will make things much easier when installing the wing at the field.

Control Throws

The amount of control throw should be adjusted as closely as possible using mechanical means, rather than making large changes electronically at the radio. By moving the position of the clevis at the control horn toward the outermost hole, you will decrease the amount of control throw of the control surface. Moving it toward the control surface will increase the amount of throw. Moving the pushrod wire at the servo arm will have the opposite effect: Moving it closer to center will decrease throw, and away from center will increase throw. Work with a combination of the two to achieve the closest or exact control throws listed.

Elevator

Low Rate

11/16" (11.5°) Up 9/16" (10°) Down

High Rate

1 1/4" (19.5°) Up 1" (18°) Down

Linear measurement (inches) measured at widest part of elevator (roughly in the center).

Note: Use the Low Rate for most flying. The High Rate is used specifically for performing spin maneuvers.

Aileron

Low Rate

1/2" (9°) Up 3/8" (8°) Down

High Rate

1 1/16" (22°) Up 7/8" (21°) Down

Linear measurement (inches) measured at root.

Rudder

1 1/2" (28°) Left 1 1/2" (28°) Right

Linear measurement (inches) measured at front of counterbalance.

Recommended CG

An important part of preparing the aircraft for flight is properly balancing the model. This is especially important when various engines are mounted.

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) range for the Piper J-3 Cub is $3\frac{1}{4}$ " (82.5mm) behind the leading edge of the wing against the fuselage. It is suggested to start at the forward end of the range until comfortable with the flight characteristics of your aircraft. If necessary, move the battery pack or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby shop and work well for this purpose.

Preflight

Range Test Your Radio

Step 1

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.

Step 2

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 engine. 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 included loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller.

Step 3

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

Step 4

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 the motor to make sure the speed control is operating properly.

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.

2007 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 and 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.

7) I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind) including, but not limited to, rockets, explosive bombs dropped from models, smoke bombs, all explosive gases (such as hydrogen-filled balloons), or ground mounted devices launching a projectile. The only exceptions permitted are rockets flown in accordance with the National Model Rocketry Safety Code or those permanently attached (as per JATO use); also those items authorized for Air Show Team use as defined by AST Advisory Committee (document available from AMA HQ). In any case, models using rocket motors as a primary means of propulsion are limited to a maximum weight of 3.3 pounds and a G series motor. (A model aircraft is defined as an aircraft with or without engine, not able to carry a human being.)

8) I will not consume alcoholic beverages prior to, nor during, participation in any model operations.

9) Children under 6 years old are only allowed on the flight line as a pilot or while receiving flight instruction.

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 the 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.)

2007 Official AMA National Model Aircraft Safety Code

- 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.

Organized RC Racing Event

- 10) An RC racing event, whether or not an AMA Rule Book event, is one in which model aircraft compete in flight over a prescribed course with the objective of finishing the course faster to determine the winner.
 - A. In every organized racing event in which contestants, callers and officials are on the course:
 1. All officials, callers and contestants must properly wear helmets, which are OSHA, DOT, ANSI, SNELL or NOCSAE approved or comparable standard while on the racecourse.
 2. All officials will be off the course except for the starter and their assistant.
 3. "On the course" is defined to mean any area beyond the pilot/staging area where actual flying takes place.
 - B. I will not fly my model aircraft in any organized racing event which does not comply with paragraph A above or which allows models over 20 pounds unless that competition event is AMA sanctioned.
 - C. Distance from the pylon to the nearest spectator (line) will be in accordance with the current Competition Regulations under the RC Pylon Racing section for the specific event pending two or three pylon course layout.
- 11) RC night flying is limited to low-performance models (less than 100 mph). The models must be equipped with a lighting system that clearly defines the aircraft's attitude at all times.



Fly First Class™



© 2007 Horizon Hobby, Inc.
4105 Fieldstone Road
Champaign, Illinois 61822
(877) 504-0233
horizonhobby.com