



T-34 Mentor 40 ARF

ASSEMBLY MANUAL



Specifications

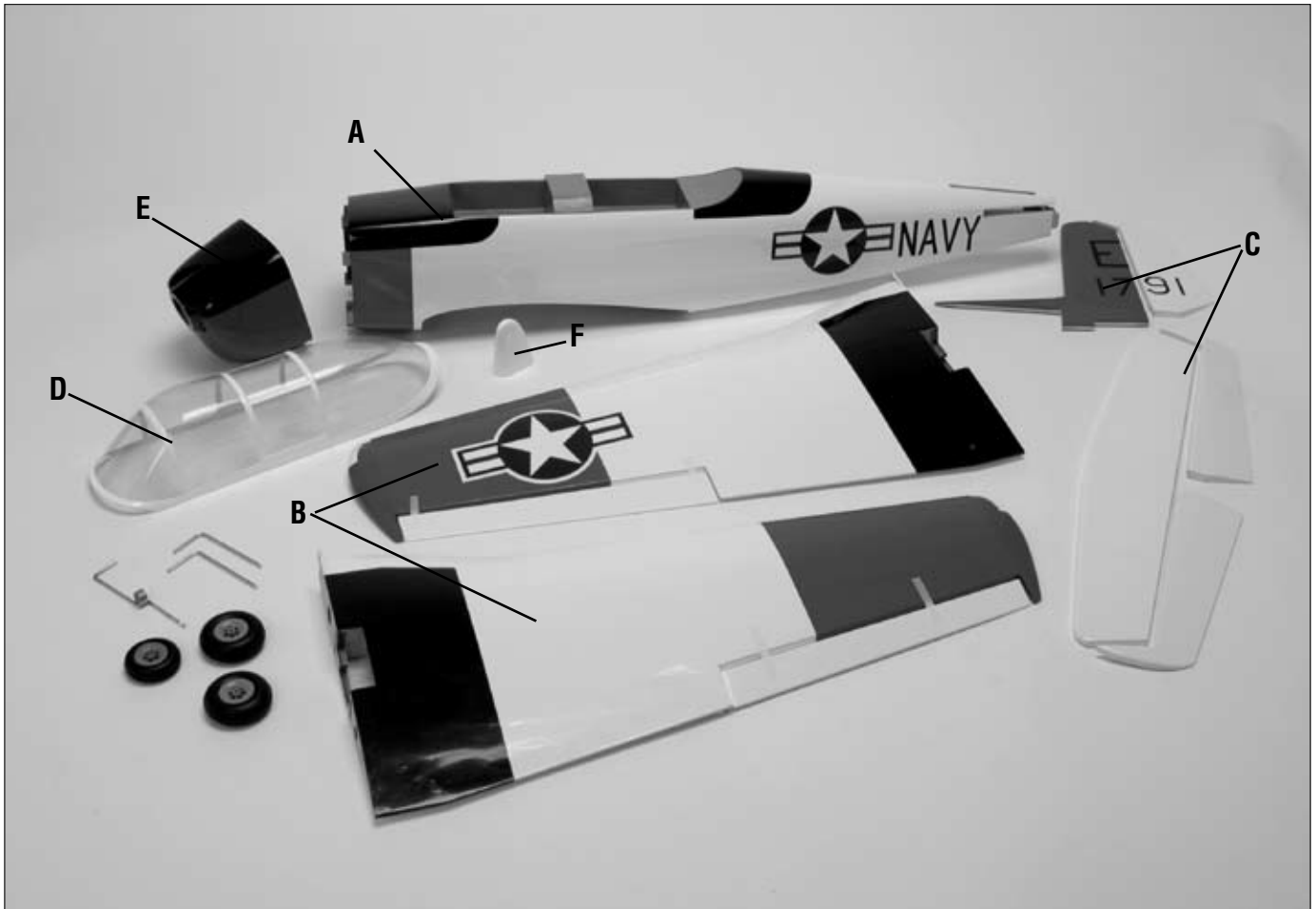
Wingspan..... 57.75 in (1454mm)
Wing Area 555 sq in (35.8 sq dm)
Length..... 45 in (1146mm)

Weight..... 6-7 lb (2.7 kg-3.2 kg)
Radio..... 4-Channel w/5-7 servos
Engines..... .40-.52 2-stroke, .56-.72 4-stroke

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Contents of Kit



Replacement Parts

Large Parts

A. Fuselage	HAN4326
B. Wing Set w/Joiner and Ailerons	HAN4327
C. Tail Set	HAN4328
D. Canopy	HAN4330
E. Painted Cowl	HAN4331
F. Tail Cone	HAN4329

Items Not Shown

Fixed Landing Gear Set	HAN2432
Decal Set	HAN2433

UltraCote® Covering Colors

- White HANU870
- Black HANU874
- True Red HANU866

Radio and Power Systems Requirements

Radio Equipment

- 4-channel radio system (minimum)
(5 if using retracts)
- 5 standard servos (JRPS821, JSPST47BB recommended or equivalent)
(2 retract servos required if using retracts)



JR XP9303

Recommended JR® or JR SPORT™ Systems

- XP9303
- XP7202
- XP6102
- XP662
- SX600
- S400



Evolution .46NT
EVOE0460



JR XP6102



JR XP7202



Saito .82 AAC
SAIE082A



Power 46 Brushless
Outrunner Motor, 670KV
EFLM4046A

Recommended Power Systems

- .40–.52 2-stroke
- .56–.82 4-stroke
- Power 46 Brushless Outrunner
- EP Motor Mount (HAN4245) for electric motor installation

Field Equipment Required

- Propeller
- Long Reach Glow Plug Wrench (HAN2510)
- 2-Cycle Sport Plug (HAN3001)
- 4-Cycle Super Plug (HAN3011)
- Fuel
- Metered Glow Driver w/Ni-Cd & Charger (HAN7101)
- 2-Cycle Super Plug (HAN3006)
- Manual Fuel Pump (HAN118)

Optional Field Equipment

- 12V 7Ah Sealed Battery (HAN102)
- PowerPro™ 12V Starter (HAN161)

Required Tools and Adhesives

Tools

- Canopy Scissors
- Square
- Foam: 1/2" (6mm)
- Masking tape
- Phillips screwdriver (small)
- Ruler
- Drill Bit: 1/16" (1.5mm), 3/32" (2.5mm), 1/8" (3mm), 7/32" (5.5mm), 1/4" (6mm)
- Drill
- Flat blade screwdriver
- Hobby knife
- Phillips screwdriver (large)
- Pliers
- Sandpaper

Adhesives

- 6-minute epoxy
- Thin CA (cyanoacrylate) glue
- CA remover/debonder
- Canopy glue (RC-56)
- 30-minute epoxy
- Thick CA (cyanoacrylate) glue
- Pacer Z-42 Threadlock
- Masking tape (3M blue recommended)

Other Required Items

- Epoxy brushes
- File
- Mixing sticks for epoxy
- Petroleum jelly
- Sanding bar
- String
- Wax paper
- Felt-tipped pen or pencil
- Measuring device (e.g. ruler, tape measure)
- Paper towels
- Rubbing alcohol
- Sandpaper (medium)
- T-pins

Other Items Needed (not included in the kit)

- Propeller (consult engine instructions)
- 9" Servo Lead Extension (JRPA097) (2)
- JRPS791 Hi-Torque Low profile Retract Servo, JSP RT-88 low profile retract servo, or equivalent is recommended
- JRPS821, JSPST47BB or equivalent recommended
- Mechanical Retracts, Tricycle (HAN157)

Limited Warranty Period

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

Limited Warranty & Limits of Liability

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

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than an authorized Horizon Hobby, Inc. service center. This warranty is limited to the original purchaser and is not transferable. In no case shall Horizon Hobby's liability exceed the original cost of the purchased product and will not cover consequential, incidental or collateral damage. Horizon Hobby, Inc. reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon Hobby, Inc. Further, Horizon Hobby reserves the right to change or modify this warranty without notice.

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

As Horizon Hobby, Inc. has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the purchaser or user are not prepared to accept the liability associated with the use of this product, you are advised to return this product immediately in new and unused condition to the place of purchase.

Safety Precautions

This is a sophisticated hobby product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. The product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

Questions, Assistance, and Repairs

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

Questions or Assistance

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

Inspection or Repairs

If your product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon Hobby, Inc. is not responsible for merchandise until it arrives and is accepted at our facility. Include your complete name, address, phone number where you can be reached during business days, RMA number, and a brief summary of the problem. Be sure your name, address, and RMA number are clearly written on the shipping carton.

Warranty Inspection and Repairs

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

Non-Warranty Repairs

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

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

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

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

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822

Safety, Precautions, and Warnings

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

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

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

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

Before Starting Assembly

Before beginning the assembly of the Sopwith Camel, 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: Joining the Wing Halves

Required Parts

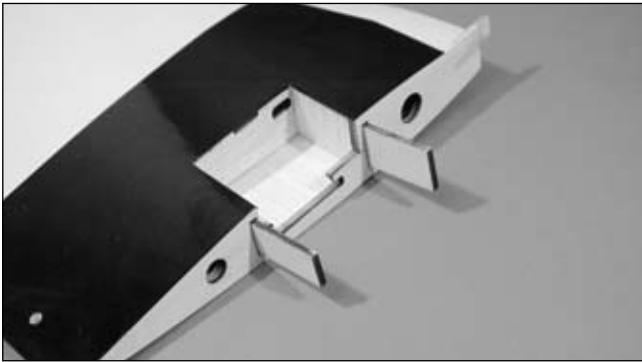
- Left and right wing panels
- Wing joiner (large & small)
- Wing dowels (2)

Required Tools and Adhesives

- Ruler
- Masking tape
- 30-minute epoxy
- Epoxy brush
- Mixing stick
- Rubbing alcohol
- Paper towels

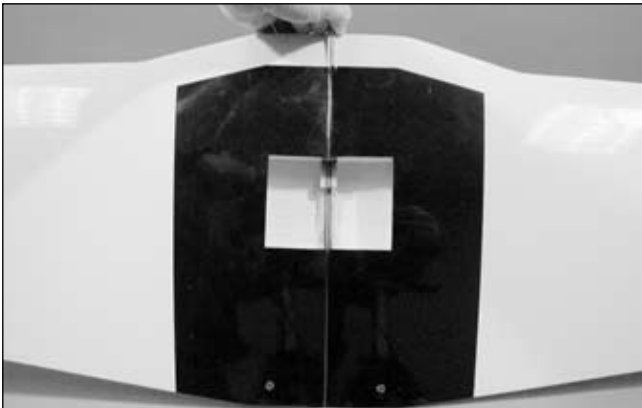
□ Step 1

Test the fit of the wing joiners into the right and left wing panels. The joiners should slide into the panels with little resistance. The larger joiner is located in the slot towards the leading edge of the wing. Lightly sand the joiners if they are a tight fit.



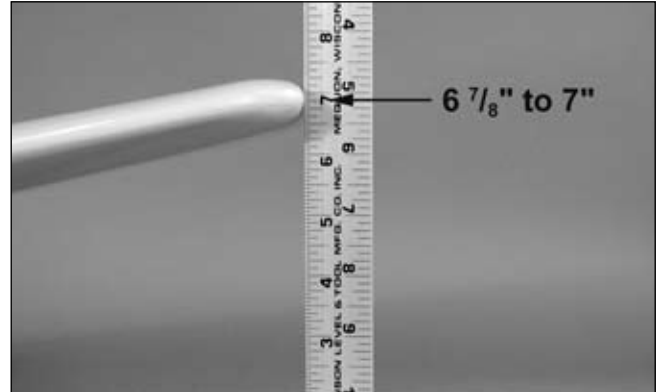
□ Step 2

Without using any glue, test fit the wing panels together using the wing joiners. The panels must fit together without any gaps top or bottom. If any gaps do exist, use a sanding bar to lightly sand the root ribs of both panels until the panels fit together perfectly.



□ Step 3

With the wing panels together, check for correct dihedral. Place the wing on a large flat surface with one panel resting flat on the surface. The center of the opposite wing tip should be $6\frac{7}{8}$ " to 7" (175mm–178mm) from the work surface. Once satisfied with the fit, separate the wing panels and remove the wing joiner.



Note: Read through the remaining steps of this section before mixing any epoxy.

Hint: It is extremely important to use plenty of epoxy when joining the wing panels. It will also be helpful to use wax paper under the wing joint to avoid gluing the wing to your work surface.

□ Step 4

Mix approximately 1 ounce of 30-minute epoxy. Using an epoxy brush, apply a generous amount of epoxy to the wing joiner cavities of one wing panel.



Section 1: Joining the Wing Halves

□ Step 5

Completely coat one half of the each wing joiner with epoxy. Be sure to apply epoxy to the top and bottom of the joiner also. Insert the epoxy-coated side of the joiner into the wing joiner cavity up to the mark on the joiner. If you have used enough epoxy, it will ooze out of the cavity as the joiner is installed. Remove any excess epoxy using a paper towel and rubbing alcohol.



□ Step 6

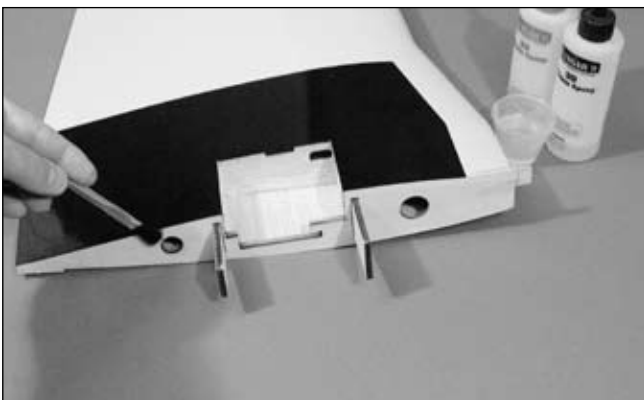
Apply a generous amount of epoxy to the joiner cavity of the opposite wing panel.

□ Step 7

Apply epoxy to the exposed portion of the wing joiner.

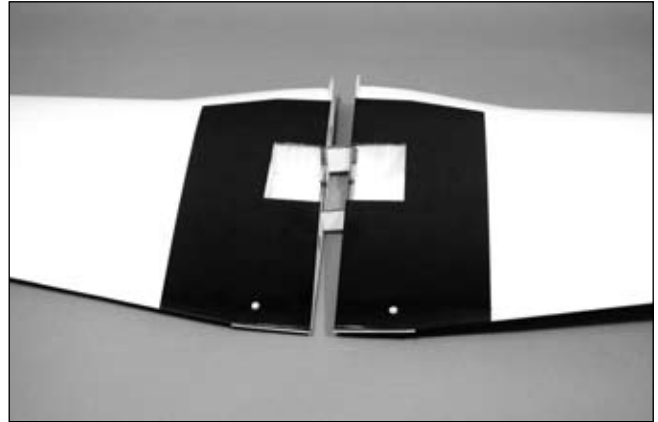
□ Step 8

Apply epoxy to root wing rib of both panels.



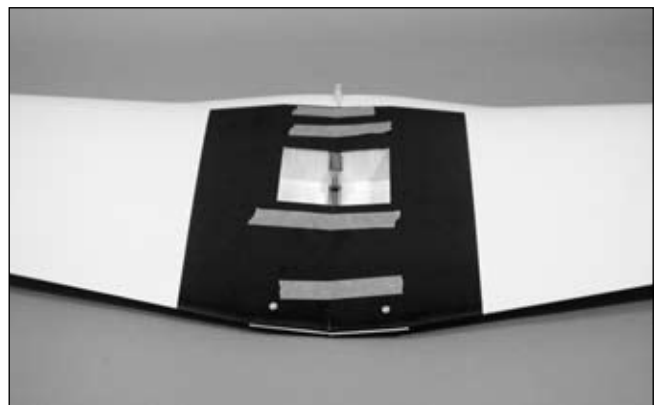
□ Step 9

Carefully slide the wing panels together. Apply enough pressure to firmly seat the two wing panels together, causing any excess epoxy to ooze out from between the panels. Use rubbing alcohol and a paper towel to remove the excess epoxy. Check to make sure there are no visible gaps between the panels.



□ Step 10

Use masking tape to securely hold the wing panels together. Place the wing assembly back onto the work surface (covered with wax paper) and check the dihedral angle. Allow the epoxy to fully cure before continuing to the next section.



Section 2: Installing the Horizontal Stabilizer

Required Parts

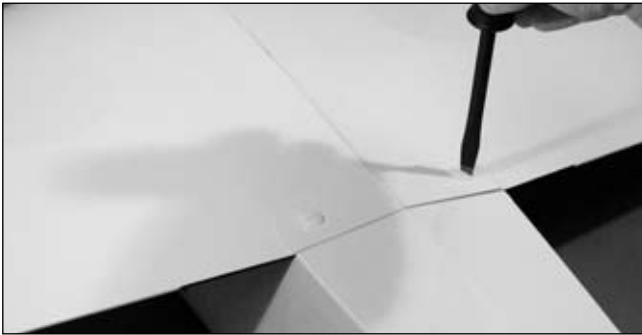
- Assembled wing
- Fuselage
- Stabilizer
- 1/4-20 x 2" nylon bolts (2)

Required Tools and Adhesives

- Screwdriver (slotted)
- Hobby knife
- Felt-tipped pen
- Drill
- Drill bit: 1/4" (6mm)
- Square

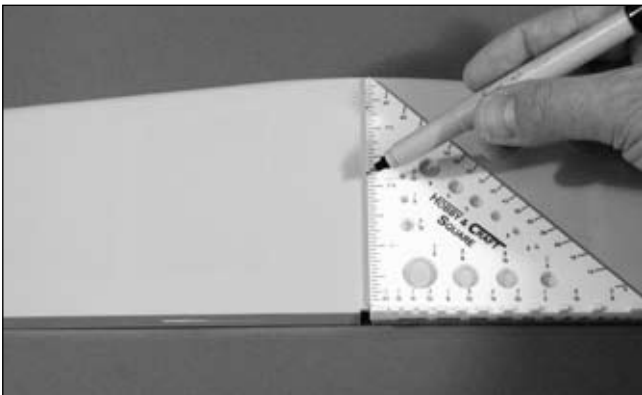
□ Step 1

Place the wing onto the fuselage and check the fit. Make any adjustments necessary to the wing bolt holes and attach the wing using the two 1/4-20 x 2" nylon bolts.



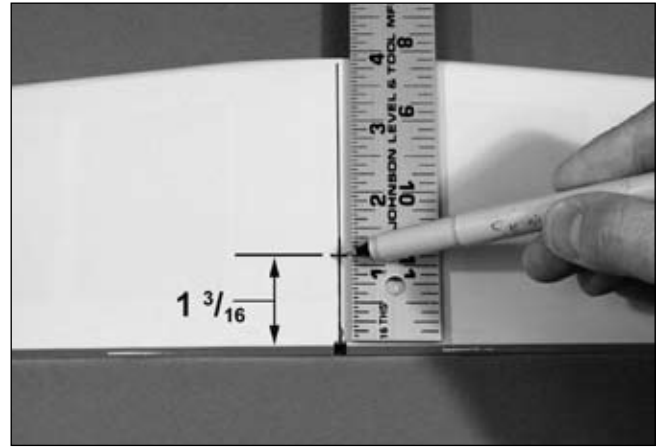
□ Step 2

Measure and mark a centerline on the stabilizer.



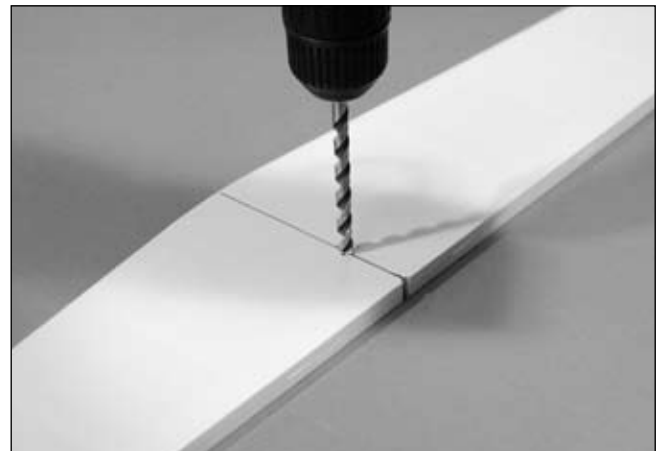
□ Step 3

Measure from the trailing edge of the stabilizer $1\frac{3}{16}$ " (30mm). Use a felt-tipped pen to mark this location.



□ Step 4

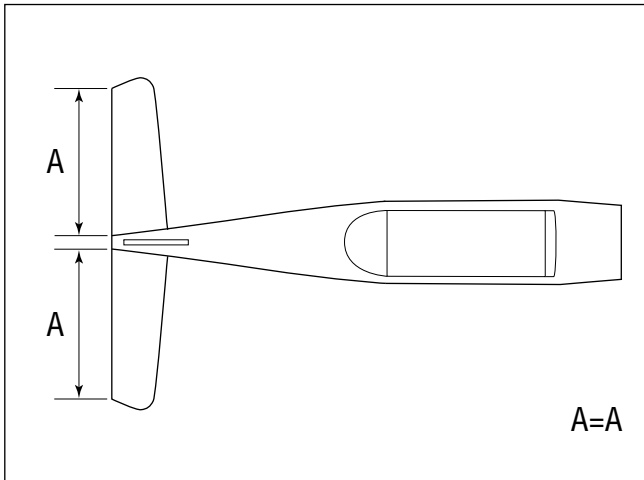
Drill a hole at the location marked in the previous step using a 1/4" (6mm) drill bit. It is highly suggested to use a drill press to make sure the hole is perpendicular to the stabilizer.



Section 2: Installing the Horizontal Stabilizer

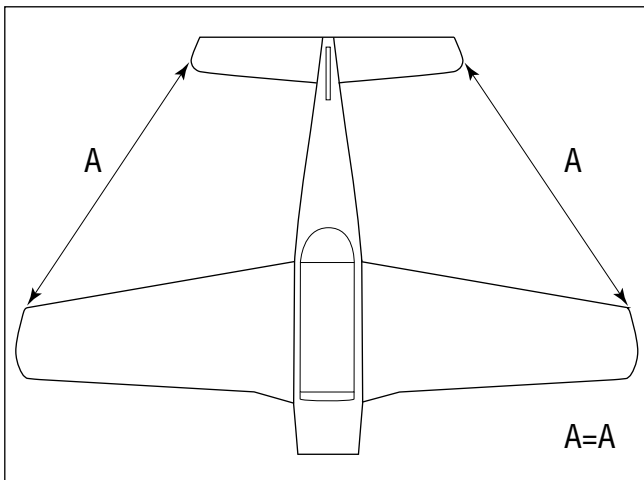
□ Step 5

Slide the stab into the fuselage. Center the stab in the opening by measuring the distance from the fuselage to each tip. The stab is aligned when both measurements are identical.



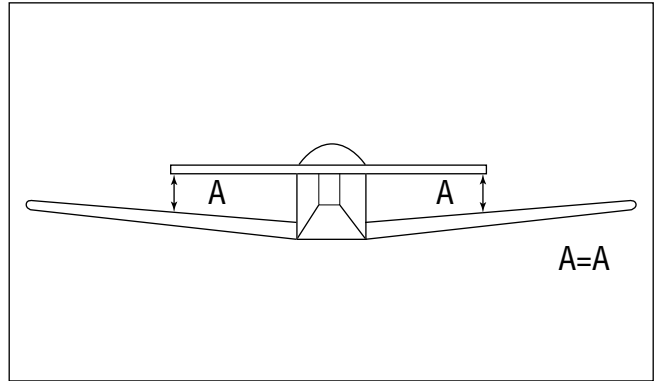
□ Step 6

Check the distance from each stab tip to each wing tip. These measurements must be equal for the stab to be aligned.



□ Step 7

Check to make sure the wing and stabilizer are parallel. If they are not, lightly sand the opening in the fuselage for the stab until the stab is parallel to the wing.



□ Step 8

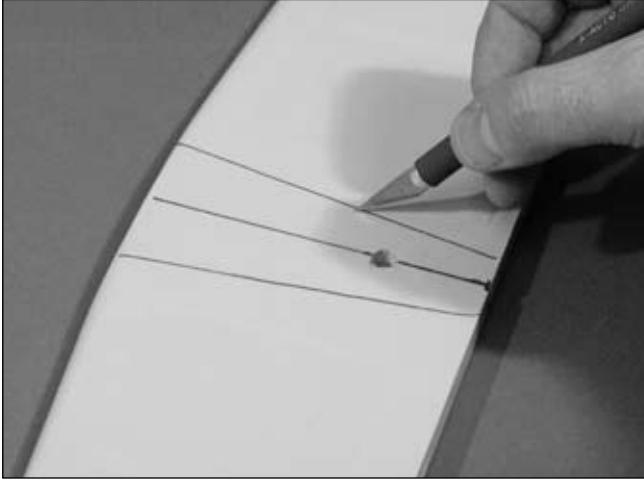
Use a felt-tipped pen to trace the outline of the fuselage on the stab.



Section 2: Installing the Horizontal Stabilizer

□ Step 9

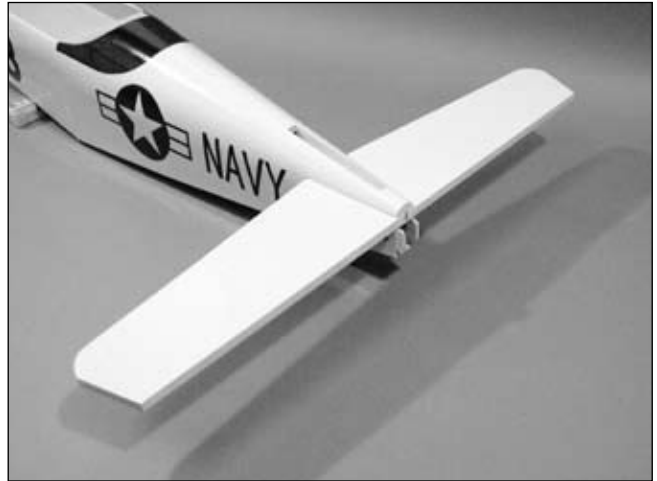
Remove the stab and use a hobby knife with a brand new blade to remove the covering 1/16" (1.5mm) inside the lines just drawn. Use rubbing alcohol and a paper towel to remove the lines once they are no longer needed.



Note: Use care not to cut into the underlying wood and weaken the structure. Doing so could cause the stab to fail in flight, resulting in the loss of your airplane.

□ Step 10

Mix 1/2 ounce (15ml) of 30-minute epoxy. Apply epoxy to the top and bottom of the exposed wood of the stabilizer. Apply epoxy to the corresponding surfaces of the slot in the fuselage for the stabilizer. Slide the stabilizer into the slot in the fuselage. Double-check the alignment to verify it's correct. Remove any excess epoxy using a paper towel and rubbing alcohol.



Section 3: Installing the Vertical Stabilizer

Required Parts

- Fuselage assembly
- Rudder control rod
- Fin

Required Tools and Adhesives

- 30-minute epoxy
- Drill
- Square
- Drill bit: 1/4" (6mm)

□ Step 1

Locate the rudder control rod. Insert the threaded end of the control rod through the hole drilled in the stabilizer. It may be necessary to slightly enlarge the hole in the stabilizer and fuselage slightly to make the installation easier.



□ Step 2

Test fit the fin to the fuselage. Slide the fin as far forward in the slot as possible to provide clearance for the rudder control rod. Trace the outline of the fuselage onto the fin using a felt-tipped pen.



□ Step 3

Remove the fin and use a hobby knife with a brand new blade to remove the covering 1/16" (1.5mm) below the lines just drawn. Use rubbing alcohol and a paper towel to remove the lines once they are no longer needed.

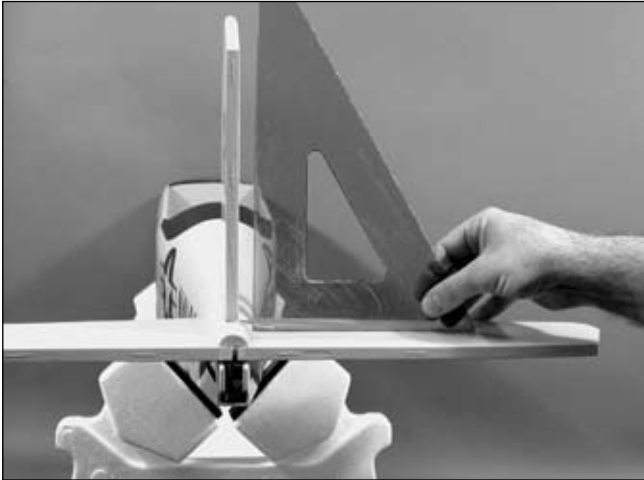


Note: Use care not to cut into the underlying wood and weaken the structure. Doing so could cause the fin to fail in flight, resulting in the loss of your airplane.

Section 3: Installing the Vertical Stabilizer

□ Step 4

Check the alignment of the fin to the stabilizer using a square. The fin must be 90 degrees to the stabilizer when properly aligned. If not, carefully sand the bottom of the fin to provide the clearance to align the fin.



□ Step 5

Trace the outline of the fin extension onto the fuselage using a felt-tipped pen.



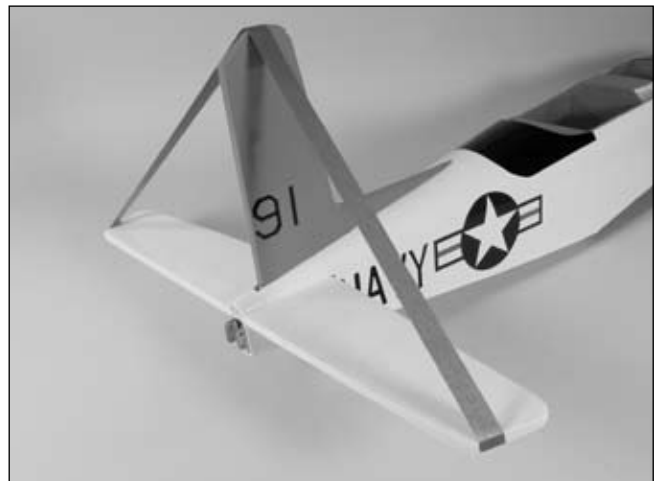
□ Step 6

Remove the covering 1/16" (1.5mm) inside the lines drawn on the fuselage using a sharp hobby knife.



□ Step 7

Mix 1/2 (15ml) ounce of 30-minute epoxy. Apply the epoxy to both the exposed wood on the fin and the slot in the fuselage. Also apply epoxy to the exposed wood on the top of the fuselage where the fin extension will be glued. Use care not to get epoxy on the rudder control rod. Insert the fin and use tape to hold the fin in position until the epoxy fully cures.



Note: Check the alignment of the fin periodically to make sure it isn't moving while the epoxy cures.

Section 4: Installing the Ailerons

Required Parts

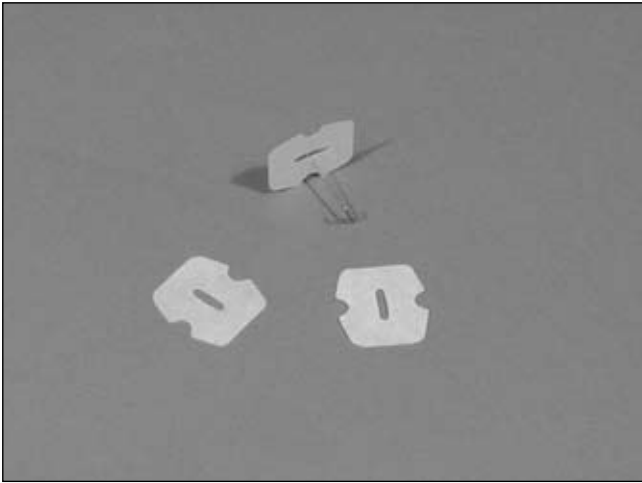
- Wing
- CA hinges (6)
- Aileron (left and right)

Required Tools and Adhesives

- Thin CA
- T-pins

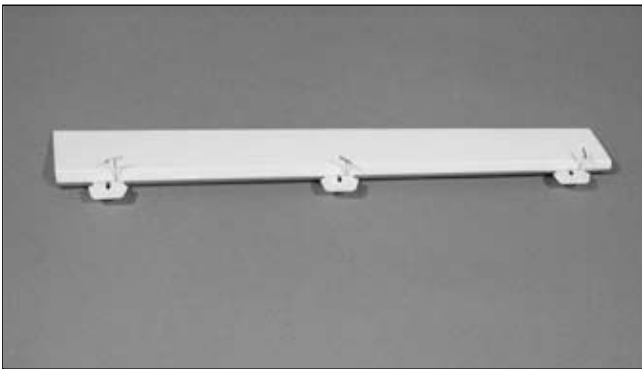
□ □ Step 1

Locate six of the CA hinges. Place a T-pin in the center of three of the hinges.



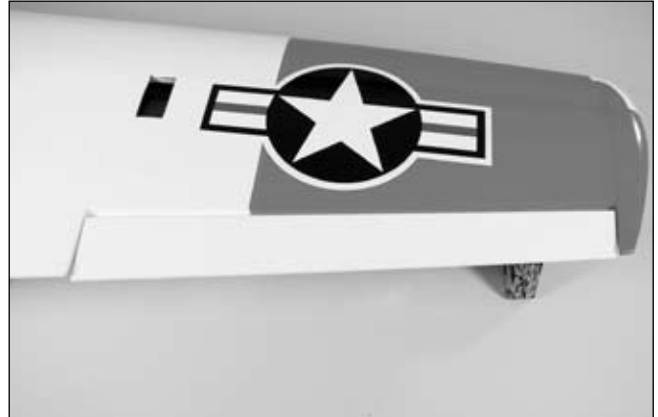
□ □ Step 2

Place the hinges in the precut slots in the aileron. The T-pin will rest against the leading edge of the aileron when installed correctly.



□ □ Step 3

Slide the aileron and wing together. The gap between the leading edge of the aileron and wing should be a maximum of approximately 1/64" (.5mm). Check to make sure the gap at both ends of the aileron are equal and it can move without rubbing on the wing.



Note: Do not use CA accelerator during the hinging process. The CA must be allowed to soak into the hinge to provide the best bond. Using accelerator will not provide enough time for this process.

Section 4: Installing the Ailerons

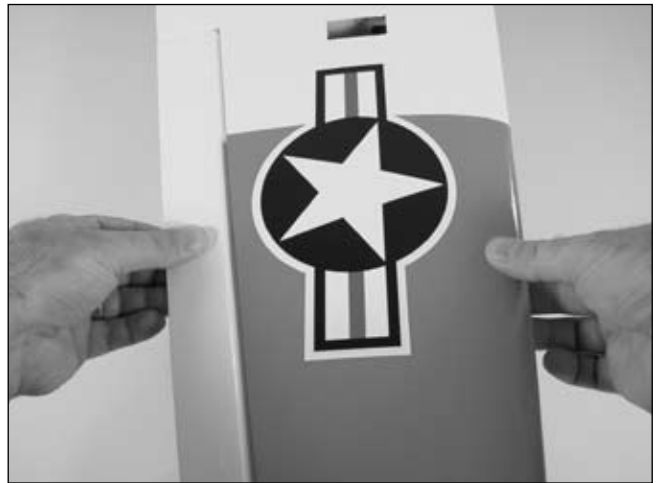
□ □ Step 4

Remove the T-pins and move the aileron to provide the best access to the hinge. Apply thin CA to each hinge. Make sure the hinge is fully saturated with CA. Use a paper towel and CA remover/debonder to clean up any excess CA from the wing and/or aileron.



□ □ Step 5

Firmly grasp the wing and aileron and gently pull on the aileron to ensure the hinges are secure and cannot be pulled apart. Use caution when gripping the wing and aileron to avoid crushing the structure.



□ □ Step 6

Work the aileron up and down several times to work in the hinges and check for proper movement.

□ Step 7

Repeat Steps 1 through 6 for the remaining aileron.

Section 5: Installing the Elevators

Required Parts

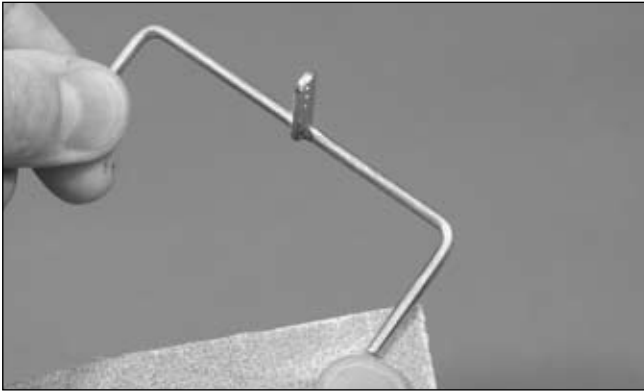
- Fuselage assembly
- Elevator joiner wire
- Elevator (left and right)
- CA hinge (6)

Required Tools and Adhesives

- Thin CA
- 30-minute epoxy
- T-pins
- Sandpaper (medium)

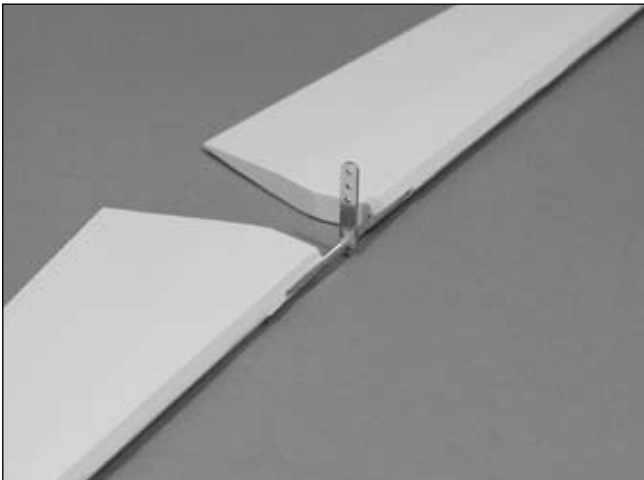
□ Step 1

Locate the elevator joiner wire. Use medium sandpaper to roughen the portion of the wire that will be inserted in the elevators.



□ Step 2

Insert the joiner into each of the elevator halves as shown.



□ Step 3

Locate six of the CA hinges. Place a T-pin in the center of the hinges.

□ Step 4

Place the hinges into the elevator halves.



□ Step 5

Slide the elevator and stab together. The horn on the elevator joiner wire will face towards the bottom of the fuselage.



Section 5: Installing the Elevators

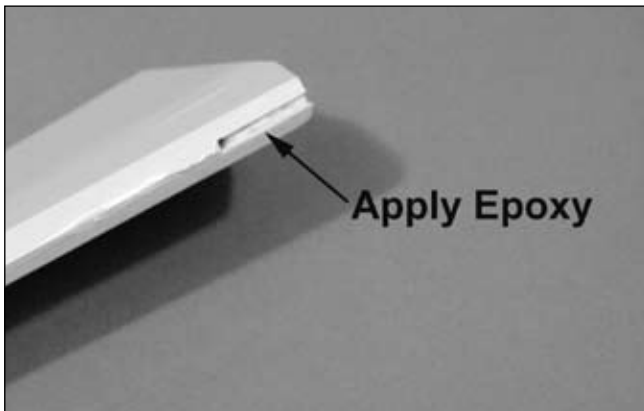
□ Step 6

Check the movement of the elevators and make sure there is plenty of clearance for the elevator control horn. It may be necessary to trim the stabilizer and fuselage as shown to allow for clearance of the horn.



□ Step 7

Remove the elevators from the stabilizer. Mix 1/2 ounce (15ml) of 30-minute epoxy and apply it to the groove and hole in the elevator halves. Insert the elevator joiner wire. Remove any excess epoxy using rubbing alcohol and a paper towel.



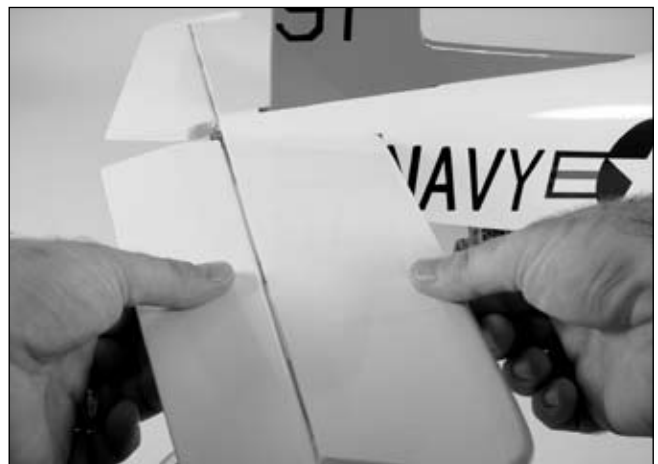
Note: You can combine the previous step with the following step if you like. This will hold the elevator in position while the epoxy cures.

□ Step 8

Check to make sure both elevators move freely. They should not rub against the stabilizer at the tips. Apply thin CA to both sides of the hinge. Make sure to saturate the hinge; don't use accelerator.

□ Step 9

Once the CA and epoxy have fully cured, gently pull on the elevator and stab to make sure the hinges are well glued. Flex the elevators a few times to break in the hinges.



Section 6: Installing the Rudder

Required Parts

- Fuselage assembly
- Rudder
- CA hinge (3)

Required Tools and Adhesives

- Thin CA
- T-pins
- 30-minute epoxy
- Sandpaper (medium)

□ Step 1

Use medium sandpaper to roughen the portion of the rudder control wire that will be inserted in the rudder.

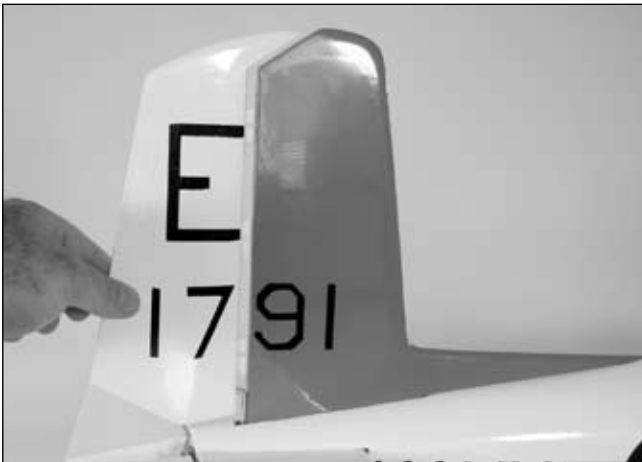


□ Step 2

Locate three CA hinges and place a T-pin in the center of each hinge. Place the hinges into the rudder.

□ Step 3

Test fit the rudder to the fin and rudder control rod. The control rod should face out through the opening in the fuselage below the stabilizer. The gap between the rudder and fin should be a maximum of approximately 1/64" (.5mm).



□ Step 4

Check the movement of the rudder to make sure it clears the fin and that the rudder control rod is not binding on the fuselage.



□ Step 5

Remove the rudder from the fin. Mix 1/2 ounce (15ml) of 30-minute epoxy and apply it to the groove and hole in the rudder. Insert the rudder control rod. Remove any excess epoxy using rubbing alcohol and a paper towel.

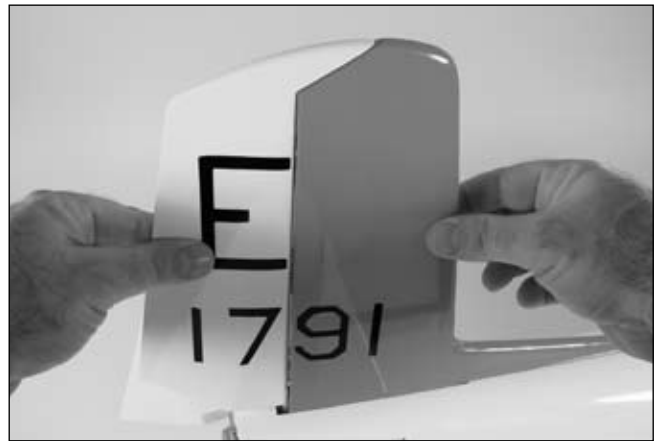
Note: You can combine the previous step with the following step if you like. This will hold the rudder in position while the epoxy cures.

□ Step 6

Check to make sure the rudder moves freely. It should not rub against the tip of the fin. Apply thin CA to both sides of the hinge. Make sure to saturate the hinge and don't use accelerator.

□ Step 7

Once the CA and epoxy have fully cured, gently pull on the fin and rudder to make sure the hinges are well glued. Flex the rudder a few times to break in the hinges.



Section 7: Fixed Gear Installation

Required Parts

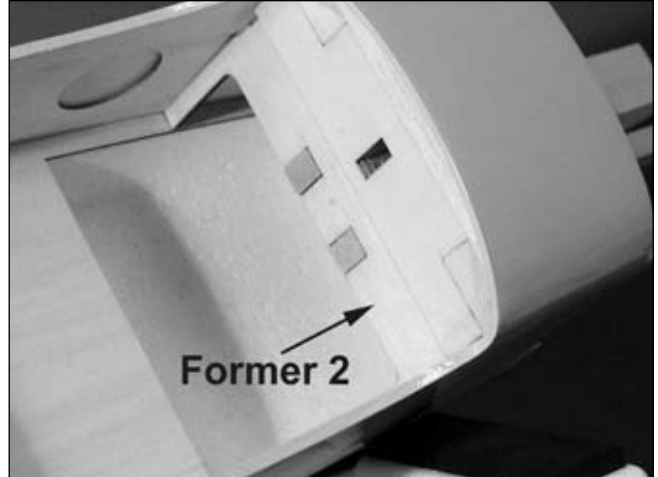
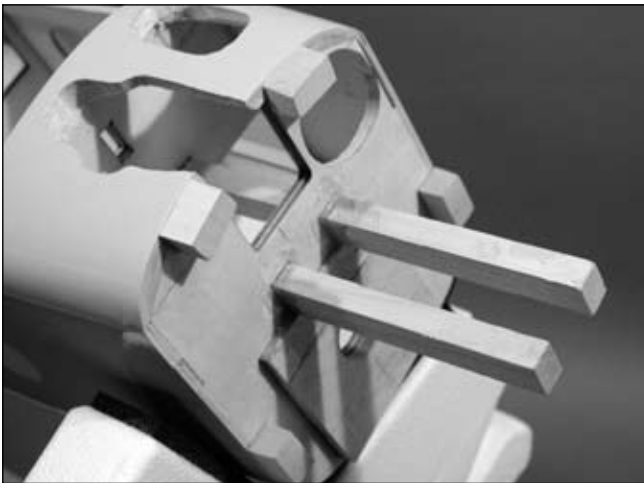
- 2 1/2" (63.5mm) main wheel (2)
- 2" (51mm) nose wheel
- Main gear wire (2)
- Main gear mount (2)
- 4mm wheel collar (6)
- 4mm brass wheel collar
- 3mm setscrew
- 3mm x 6mm machine screws (6)
- Steering arm
- 3mm x 12mm machine screw (2)
- 3mm x 12mm sheet metal screw (12)
- 3/8" x 5/8" x 6 7/8" (9.5mm x 16mm x 175mm) nose gear rail (2)
- Nose gear wire
- Nose gear mount
- M3x8 machine screw

Required Tools and Adhesives

- Phillips screwdriver
- Drill
- Drill bit: 3/32" (2.5mm)
- 30-minute epoxy
- Hobby knife
- Threadlocking compound
- File
- Felt-tipped pen

□ Step 1

Locate the 3/8" x 5/8" x 6 7/8" (9.5mm x 16mm x 175mm) nose gear rails. Slide the rails into the fuselage through the openings in the firewall. The ends of the rails will rest flush with second former. Mix 1 ounce of 30-minute epoxy and glue the rails to the firewall and former 2.



□ Step 2

Fuel-proof the firewall, nose gear rails, fuel tank area, cowl mounting blocks and any other wood that may come in contact with fuel or exhaust. Brush a light coating of 30-minute epoxy thinned with rubbing alcohol onto any exposed wood. Doing so will extend the life of your model by preventing damage to wood caused by contact with fuel.

□ Step 3

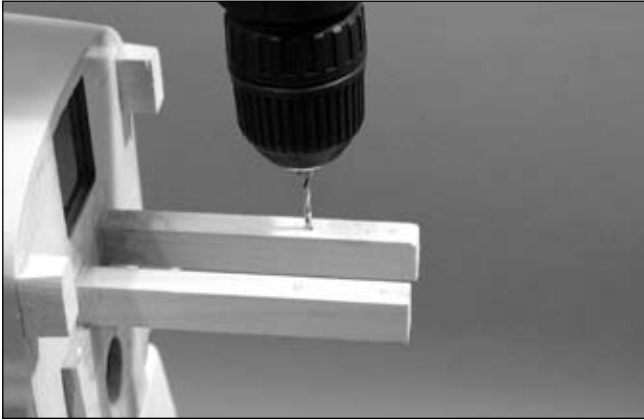
Position the nose gear mount at the front edge of the rails. Mark the location for the four screws using a felt-tipped pen.



Section 7: Fixed Gear Installation

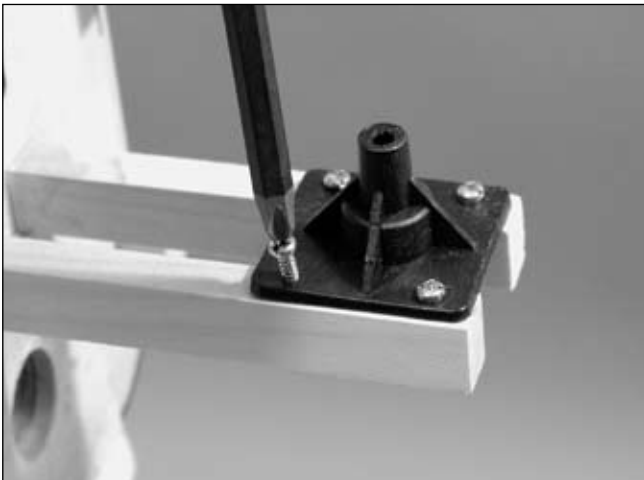
□ Step 4

Drill the locations marked in the previous step using a 3/32" (2.5mm) drill bit.



□ Step 5

Attach the nose gear mount using four 3mm x 12mm sheet metal screws.



□ Step 7

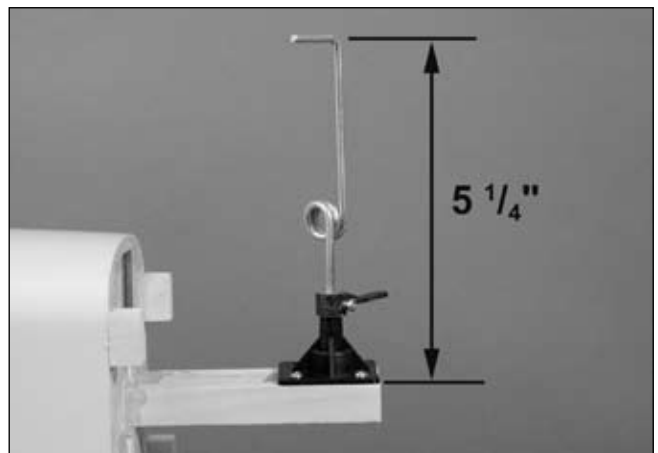
Slide the steering arm onto the nose gear wire, but do not tighten the screw. Slide the nose gear wire into the nose gear mount.



Note: It may be necessary to lightly sand the nose gear wire so it can move freely in the nose gear mount.

□ Step 8

Slide the 4mm brass wheel collar onto the nose gear wire. Temporarily secure the collar to the nose gear wire using a 3mm setscrew. Adjust the position of the wheel collar until the nose gear is positioned 5 1/4" (134mm) from the nose gear mount as shown.



Section 7: Fixed Gear Installation

□ Step 9

Slide the nose gear wire towards the bottom of the fuselage. Slide the steering arm up against the nose gear mount and secure the steering arm using a 3mm x 10mm machine screw.



□ Step 10

Install the nose wheel using two 4mm wheel collars and two 3mm x 6mm machine screws. It is highly suggested to apply threadlocking compound to the screws to prevent them from loosening during flight.



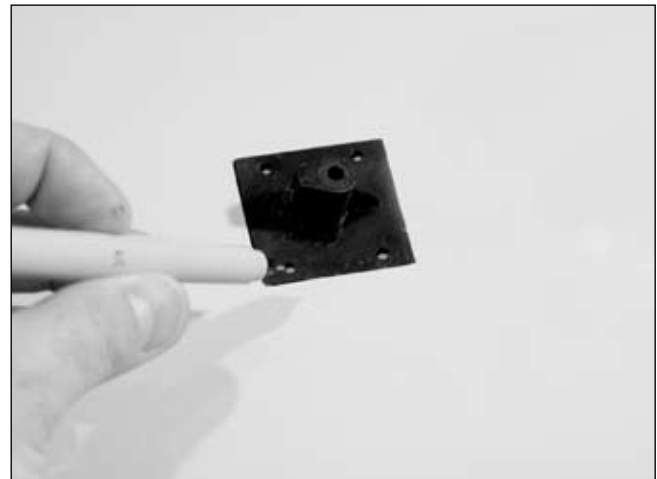
□ □ Step 11

Use a sharp hobby knife to remove the covering from the wing for the main gear. Use a covering iron to seal the edges of the covering to the opening.



□ □ Step 12

Position the main gear mount in the wing. The location for the screw will face towards the wing tip. Mark the locations for the screws using a felt-tipped pen.

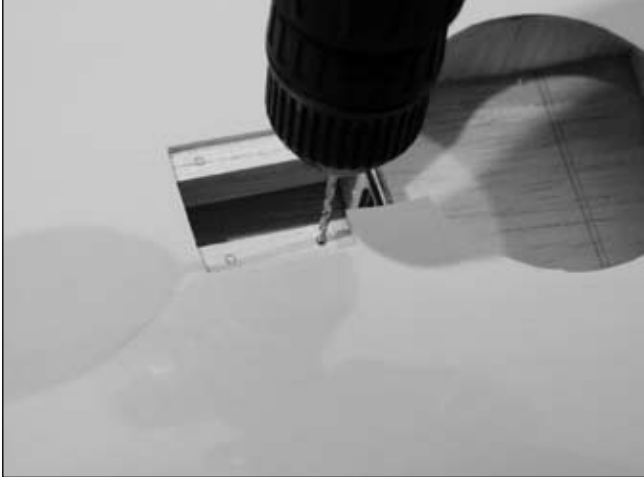


Note: It may be necessary to sand the edges of the mount so it fits into position.

Section 7: Fixed Gear Installation

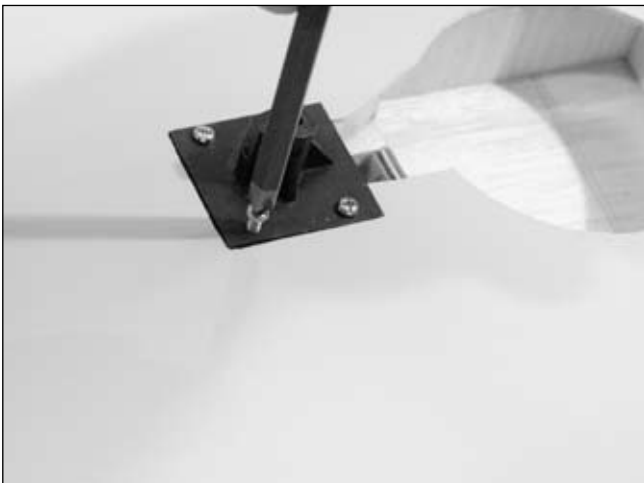
□ □ Step 13

Drill the locations marked in the previous step using a 3/32" (2.5mm) drill bit. Work slowly as to avoid drilling through the top of the wing.



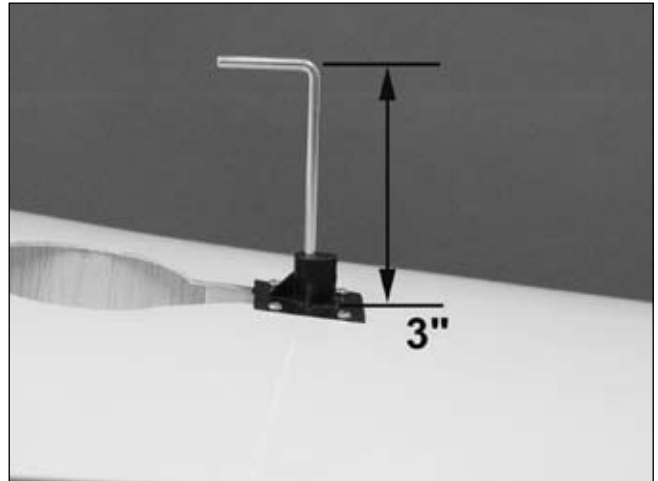
□ □ Step 14

Attach the main gear mount using four 3mm x 12mm sheet metal screws.



□ □ Step 15

Insert the main gear wire into the mount. Adjust the height of the wire to 3" (76mm) as shown.



Note: It may be necessary to lightly sand the main gear wire so it can be inserted into the main gear mount.

□ □ Step 16

Rotate the main gear wire parallel to the centerline of the wing. The goal is to have both main wheels pointing straight forward when installed.

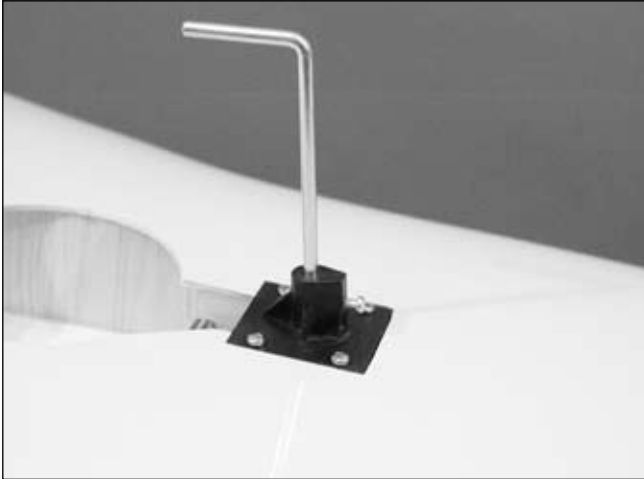


Hint: You can also use the mounting screws as a reference.

Section 7: Fixed Gear Installation

□ □ Step 19

Install the main gear wire and secure its location using an 3mm x 12mm machine screw. Remember to check the height of the gear as described in Step 15.



□ □ Step 20

Install the main wheel using two 4mm wheel collars and two 3mm x 6mm machine screws. It is highly suggested to apply threadlocking compound to the screws to prevent them from loosening during flight.



□ Step 21

Repeat Steps 11 through 20 for the remaining main gear.

Section 8: Retract Installation

Required Parts

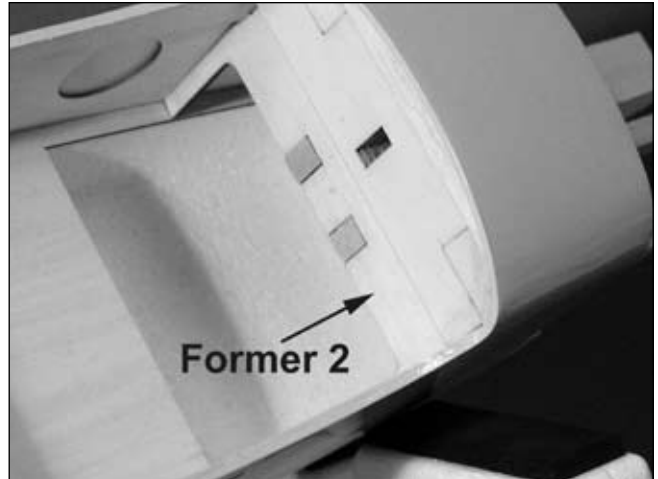
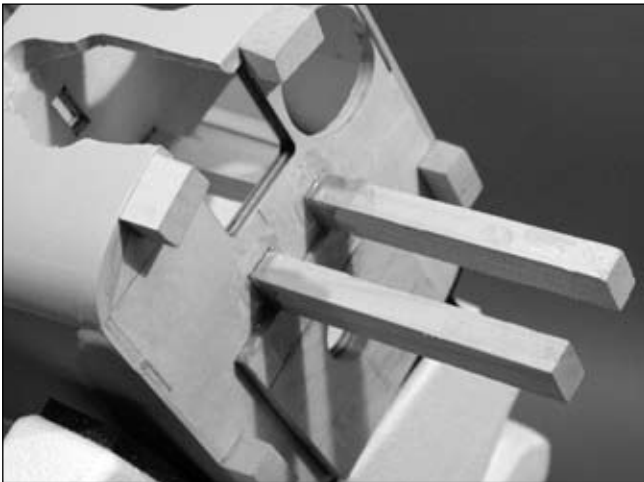
- 2 1/2" (63.5mm) main wheel (2)
- 2" (51mm) nose wheel
- 4mm wheel collar (6)
- 3mm x 6mm machine screws (6)
- 3mm x 12mm sheet metal screw (12)
- 3/8" x 5/8" x 6 7/8" (9.5mm x 16mm x 175mm) nose gear rail (2)

Required Tools and Adhesives

- Drill
- Drill bit: 3/32" (2.5mm) , 1/4" (6mm)
- 30-minute epoxy
- Felt-tipped pen
- Hobby knife
- File
- Phillips screwdriver
- Threadlocking compound
- Rotary tool and cut-off wheel

□ Step 1

Locate the 3/8" x 5/8" x 6 7/8" (9.5mm x 16mm x 175mm) nose gear rails. Slide the rails into the fuselage through the openings in the firewall. The ends of the rails will rest flush with second former. Once satisfied with the fit, mix 1 ounce of 30-minute epoxy and glue the rails to the firewall and former 2.



□ Step 2

Fuel-proof the firewall, nose gear rails, fuel tank area, cowl mounting blocks and any other wood that may come in contact with fuel or exhaust. Brush a light coating of 30-minute epoxy thinned with rubbing alcohol onto any exposed wood. Doing so will extend the life of your model by preventing damage to wood caused by fuel contact.

□ Step 3

Use a sharp hobby knife to remove the covering from the fuselage for the nose gear. Use a covering iron to seal the edge of the covering into the opening. See photo in Step 1 for details.

□ Step 4

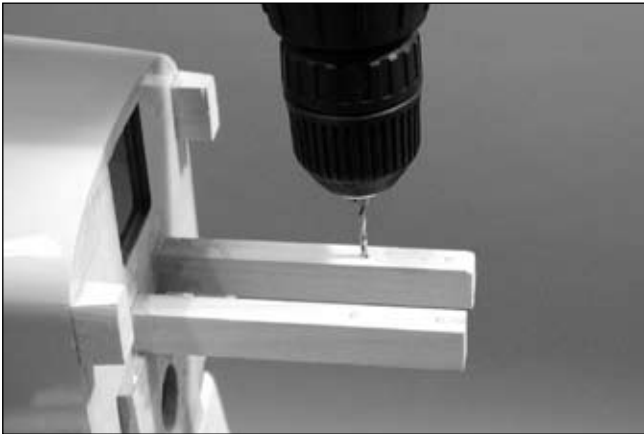
Position the nose gear at the front edge of the rails. Mark the location for the four screws using a felt-tipped pen.



Section 8: Retract Installation

□ Step 5

Drill the locations marked in the previous step using a 3/32" (2.5mm) drill bit.



□ Step 6

Mark the location on the firewall for the retract actuator lever.



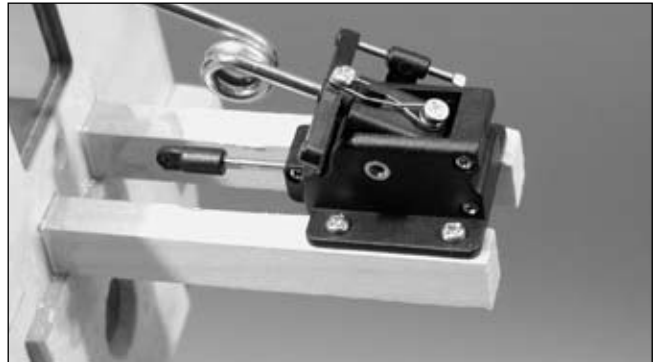
□ Step 7

Drill the location marked in the previous step using a 1/4" (6mm) drill bit.



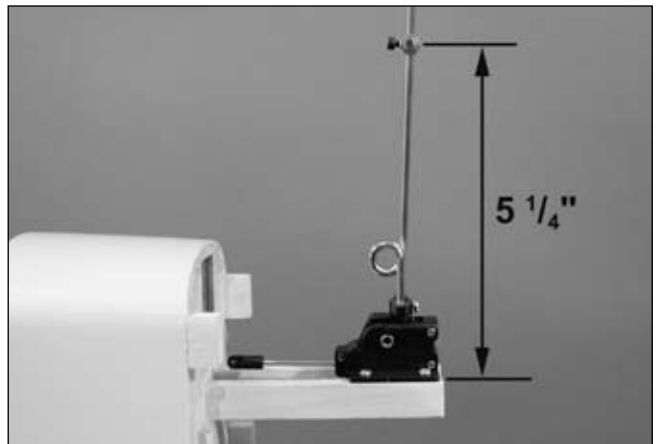
□ Step 8

Attach the nose gear using four 3mm x 12mm sheet metal screws.



□ Step 9

Slide the axle supplied with the retracts onto the nose gear wire. Temporarily secure the axle using the supplied screws. Adjust the position of the axle until the nose gear is positioned 5 1/4" (134mm) from the nose gear mount as shown. Tighten the screw to secure the axle to the nose gear wire. Use a rotary tool and cut-off wheel to remove the excess nose gear wire.



Section 8: Retract Installation

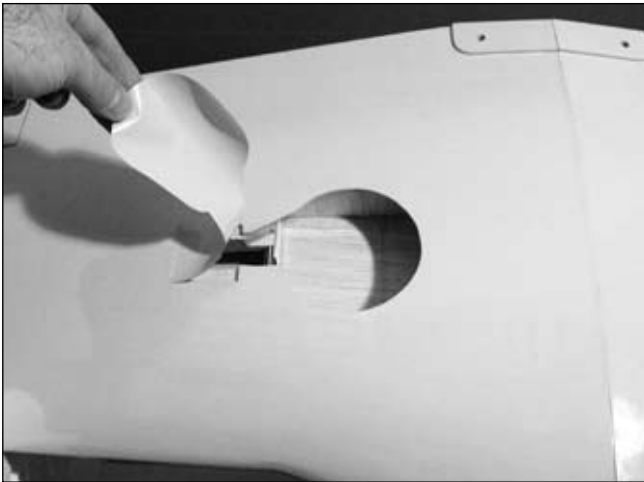
□ Step 10

Install the nose wheel using two 4mm wheel collars and two 3mm x 6mm machine screws. Apply threadlocking compound to the screws to prevent them from loosening during flight.



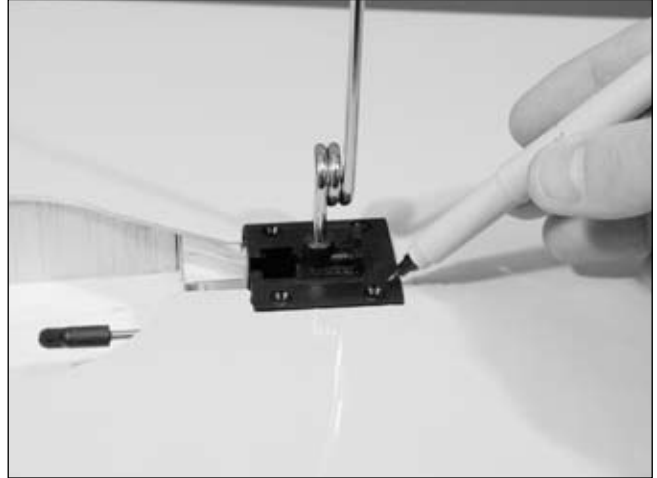
□ Step 11

Use a sharp hobby knife to remove the covering from the wing for the main gear. Use a covering iron to seal the edge of the covering into the opening.



□ □ Step 12

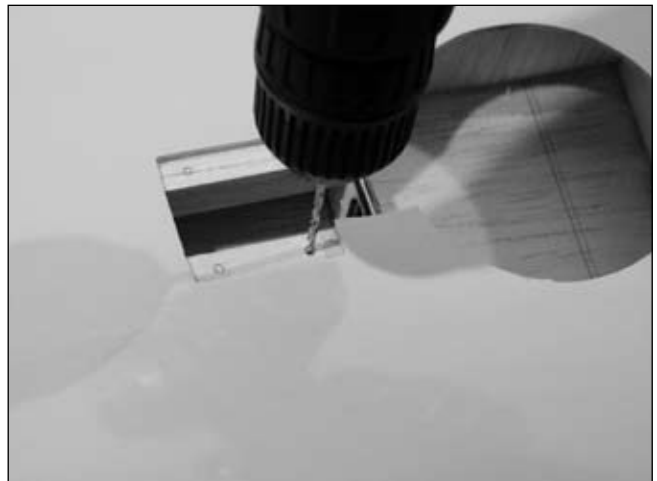
Position the main gear retract in the wing. The coil in the wire will face towards the trailing edge of the wing. Mark the locations for the mounting screws using a felt-tipped pen.



Note: It may be necessary to sand the edges of the mount so it fits into position.

□ □ Step 13

Drill the locations marked in the previous step using a 3/32" (2.5mm) drill bit. Work slowly to avoid drilling through the top of the wing.



Section 8: Retract Installation

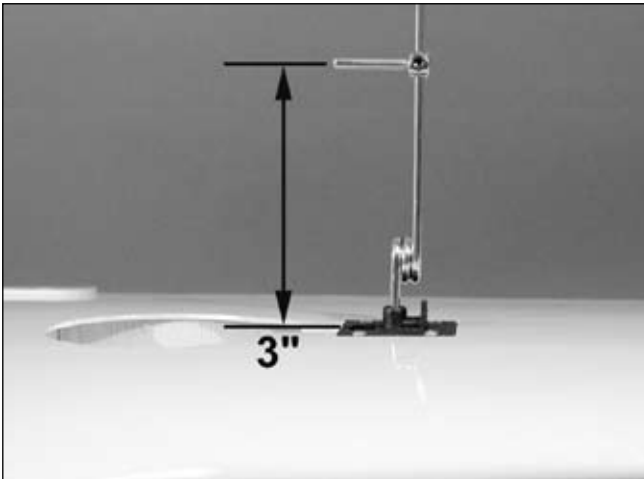
□ □ Step 14

Attach the main gear mount using four 3mm x 12mm sheet metal screws.



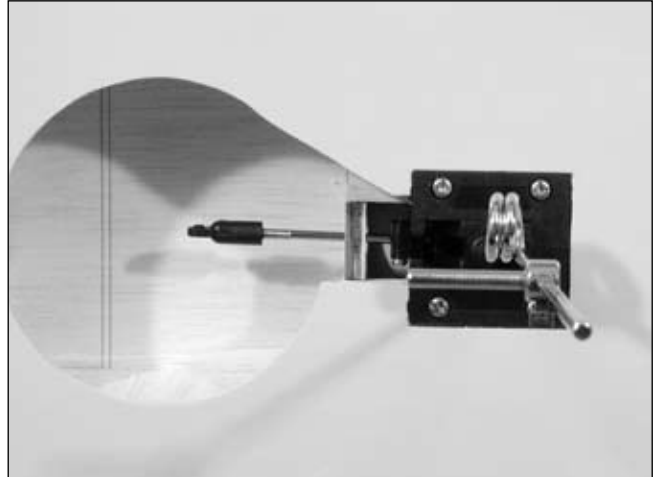
□ □ Step 15

Slide the axle supplied with the retracts onto the main gear wire. Temporarily secure the axle using the screw supplied with the retracts. Adjust the position of the axle so it is 3" (76mm) from the face of the retract mount.



□ □ Step 16

Rotate the axle parallel to the centerline of the wing. The goal is to have both main wheels pointing straight forward when installed.



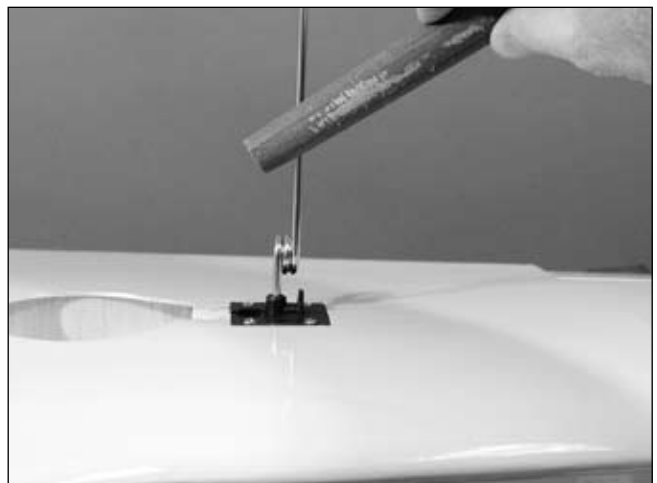
Hint: You can also use the mounting screws as a reference.

□ □ Step 17

Temporarily tighten the axle screw. This will leave a mark on the wire for use in the next step.

□ □ Step 18

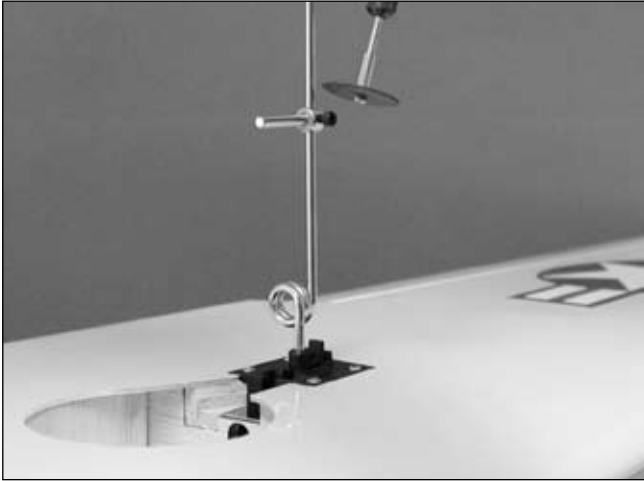
Remove the screw and axle. Make a flat spot on the wire using a file at the location the screw contacted the wire. This will prevent the axle from rotating on those less-than-perfect landings.



Section 8: Retract Installation

□ □ Step 19

Install the axle and secure its location using the screw supplied with the retracts. Remember to check the height of the gear as described in Step 14. Remove the excess wire that extends past the axle using a rotary tool and cut-off wheel.



□ □ Step 20

Install the main wheel using two 4mm wheel collars and two 3mm x 6mm machine screws. Apply threadlocking compound to the screws to prevent them from loosening during flight.



□ Step 21

Repeat Steps 11 through 20 for the remaining main gear.

Section 9: Retract Linkage Installation

Required Parts

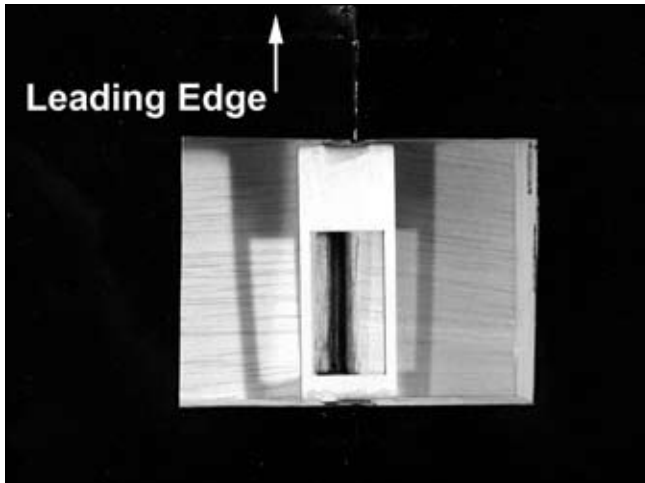
- Large quick connector (3)
- Metal clevis (3)
- Clevis retainer (3)
- 4-40 x 1/4" screw (3)
- 4-40 x 7" threaded rod (2)
- 4-40 x 9 1/4" rod
- Wing retract servo tray
- Fuselage retract servo tray
- Quick connector retainer (3)

Required Tools and Adhesives

- 6-minute epoxy
- 3/32" hex wrench
- Drill
- Thick CA
- Drill bit: 1/16" (1.5mm), 3/32" (2.5mm), 1/4" (6mm)
- Retract Servo (JRPS703)
- Retract Servo (JRPS513)

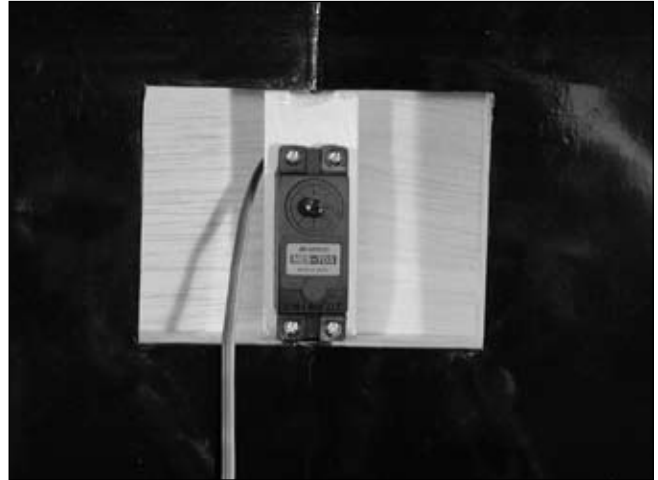
□ Step 1

Locate the wing retract servo tray. Use 6-minute epoxy to glue the servo tray into position. The wide edge of the tray will be positioned towards the leading edge of the wing.



□ Step 2

Install a low-profile retract servo in the wing retract servo tray using the hardware provided with the servo. Prevent splitting the servo tray by drilling 1/16" (1.5mm) holes for the servo mounting screws.



□ □ Step 3

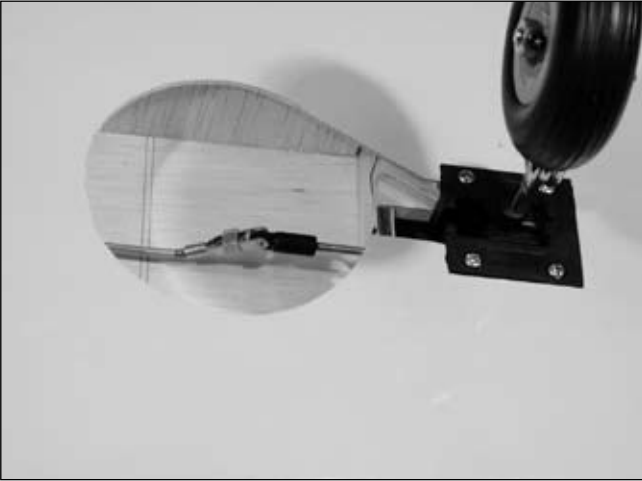
Slide a clevis retainer onto a clevis. Attach the clevis to a 4-40 x 7" threaded pushrod.



Section 9: Retract Linkage Installation

□ □ Step 4

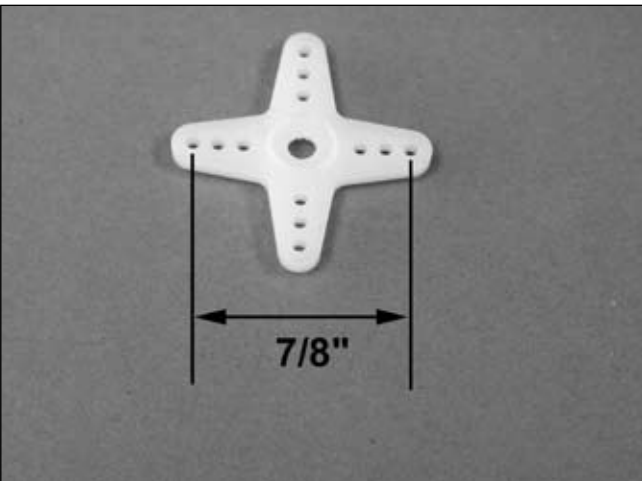
Install the linkage into the wing. Attach the clevis to the retract actuator.



Note: Make a bend in the pushrod so the pushrod will be positioned as close to the top of the wing sheeting as possible to provide clearance for the wheel when retracted.

□ □ Step 5

Select a servo arm from those included with your servo that has a distance of approximately $7/8$ " (22mm) between equally spaced holes as shown.



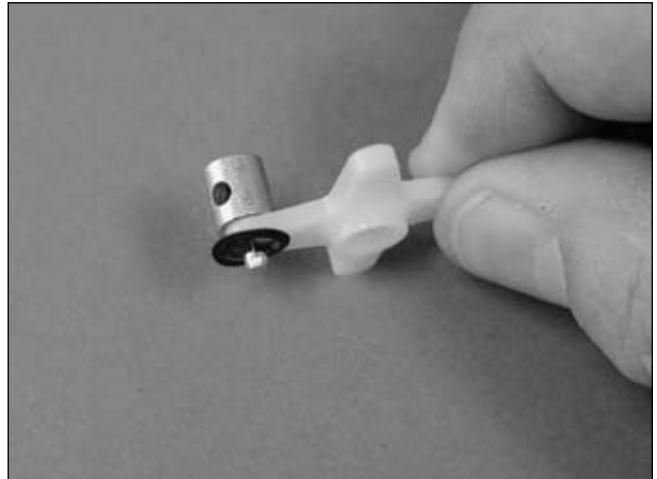
□ □ Step 6

Use a $3/32$ " (2.5mm) drill bit to drill the appropriate holes in the arm.



□ □ Step 7

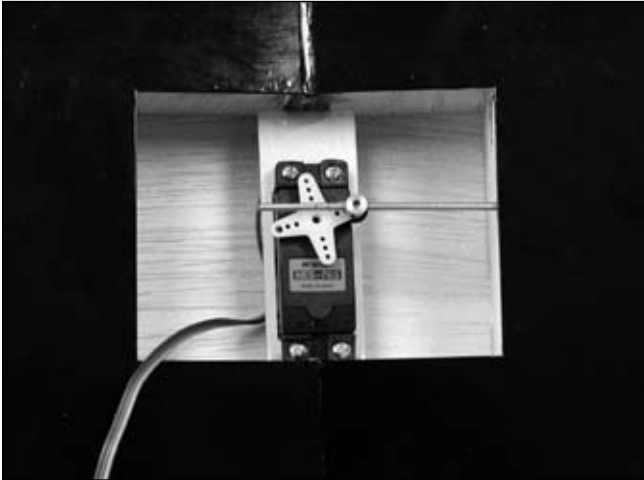
Attach a large quick connector (not included) to the servo arm using a quick connector retainer.



Section 9: Retract Linkage Installation

□ □ Step 8

Connect the retract servo to your radio system and electronically move the servo to the retracted position. Slide the retract control wire through the easy connector as shown and secure the servo arm to the retract servo.



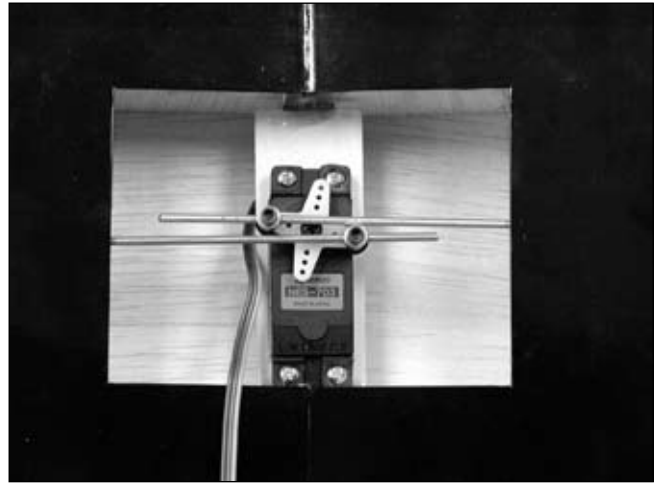
□ □ Step 9

With the retract servo in the retracted position, push the retract linkage to manually retract the landing gear. Install a 4-40 x 1/4" screw into the easy connector and tighten it to secure the retract linkage.



□ Step 10

Repeat Steps 3 through 9 for the remaining main gear retract.

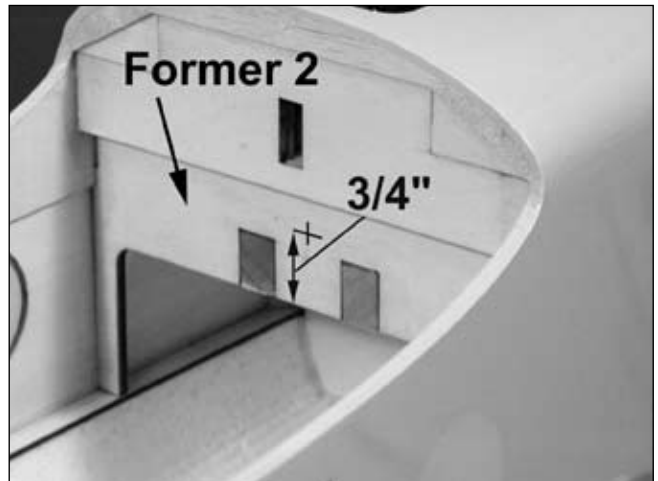


□ Step 11

Slide a clevis retainer onto a clevis. Attach the clevis to a 4-40 x 9 1/4" threaded pushrod.

□ Step 12

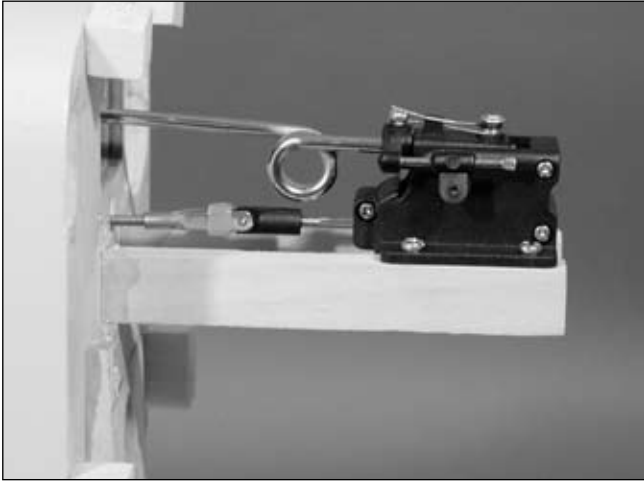
Drill a 1/4" (6mm) hole in former 2 centered between the nose gear rails. The center of the hole will be 3/4" (19mm) below the edge of the former as shown.



Section 9: Retract Linkage Installation

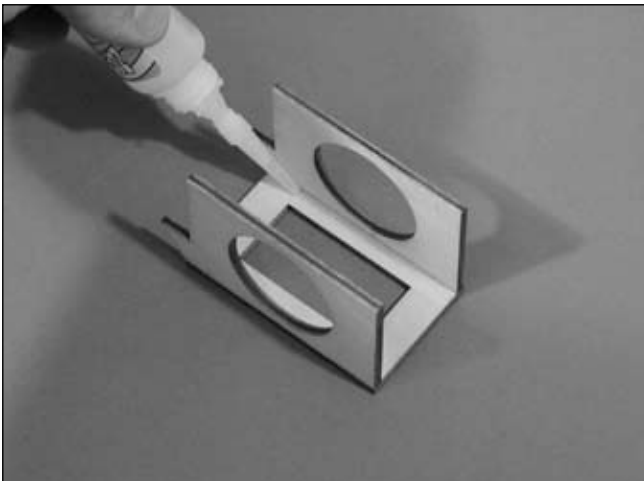
□ Step 13

Slide the pushrod through the holes in the firewall and former 2. Connect the clevis to the retract actuating lever.



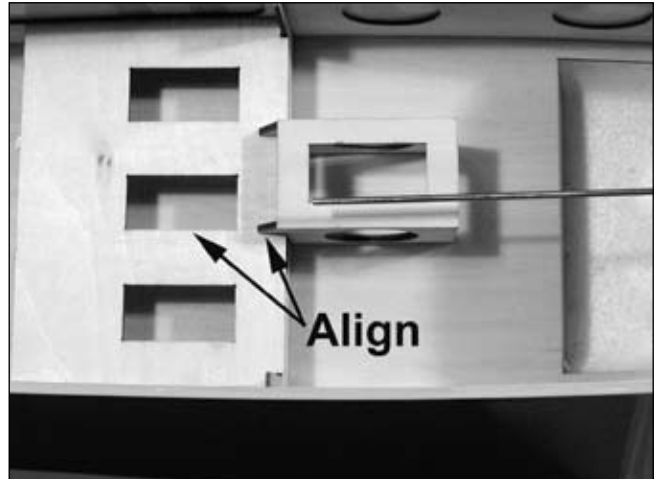
□ Step 14

Apply a bead of thick CA to the corners of the fuselage retract servo tray.



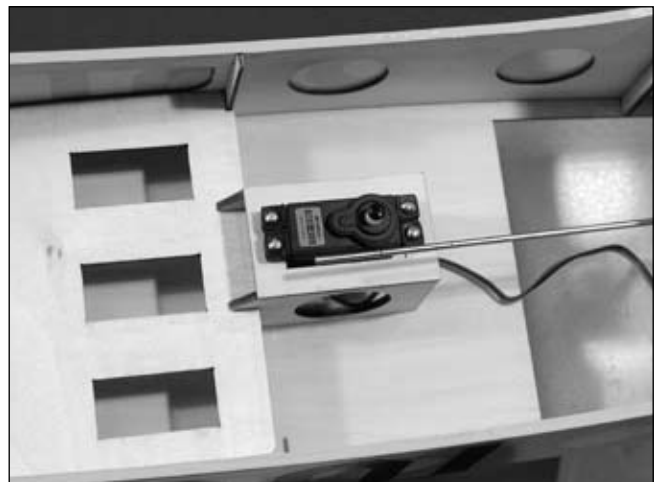
□ Step 15

Position the servo tray so the edge is in alignment with the center opening of the servo tray. Use 6-minute epoxy to glue the tray into position.



□ Step 16

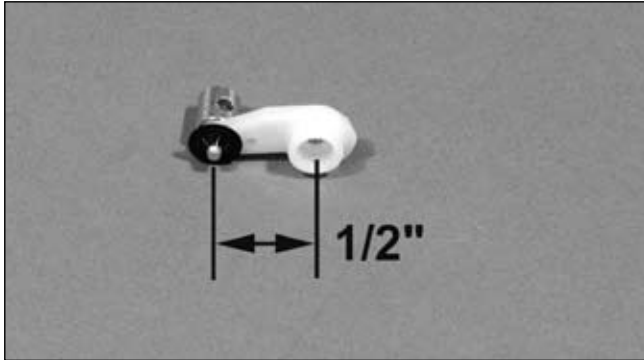
Install a retract servo in the servo tray using the hardware provided with the servo. Prevent splitting the servo tray by drilling 1/16" (1.5mm) holes for the servo mounting screws.



Section 9: Retract Linkage Installation

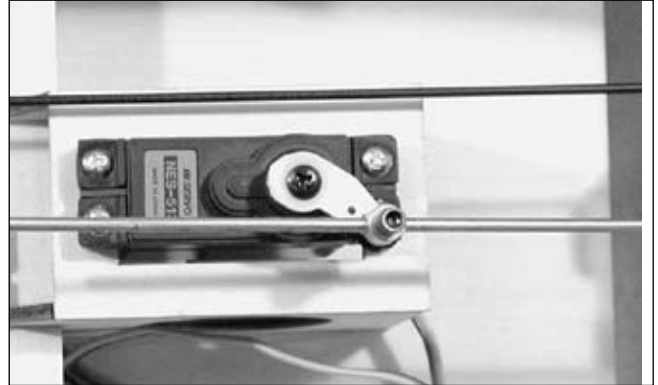
□ Step 17

Select a servo arm from those included with your servo that has a distance of 1/2" (13mm) from the center of the arm. Use a 3/32" (2.5mm) drill bit to drill the appropriate holes in the arm. Attach a large quick connector (not included) to the servo arm using a quick connector retainer.



□ Step 18

Connect the retract servo to your radio system and electronically move the servo to the retracted position. Slide the retract control wire through the easy connector as shown and secure the servo wheel to the retract servo. With the retract servo in the retracted position, push the retract linkage to manually retract the landing gear. Install a 4-40 x 1/4" screw into the easy connector and tighten it to secure the retract linkage.



□ Step 19

Cycle the retract system several times to make sure there is no binding. Also check to verify the gear locks in both the extended and retracted positions. Make any necessary adjustments to be sure the retracts are working and locking correctly.

Section 10: Engine Installation

Required Parts

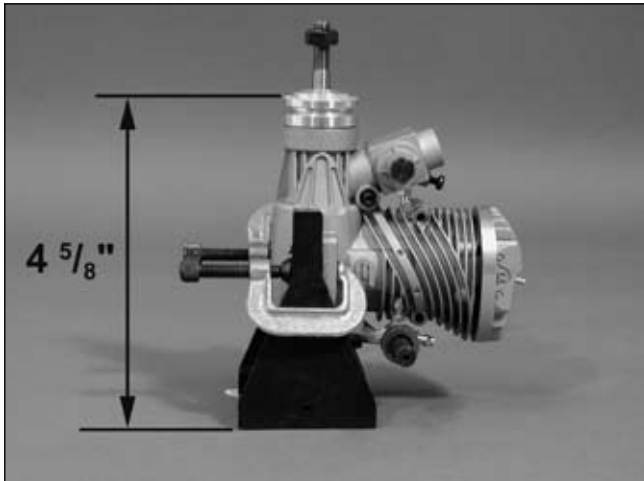
- Engine mount (2)
- 6-32 blind nut (4)
- 6-32 x 1" machine screw (4)
- #6 x 5/8" sheet metal screw (4)

Required Tools and Adhesives

- Drill
- Drill bit: 3/32" (2.5mm) , 7/32" 5.5mm
- Clamps
- Felt-tipped pen

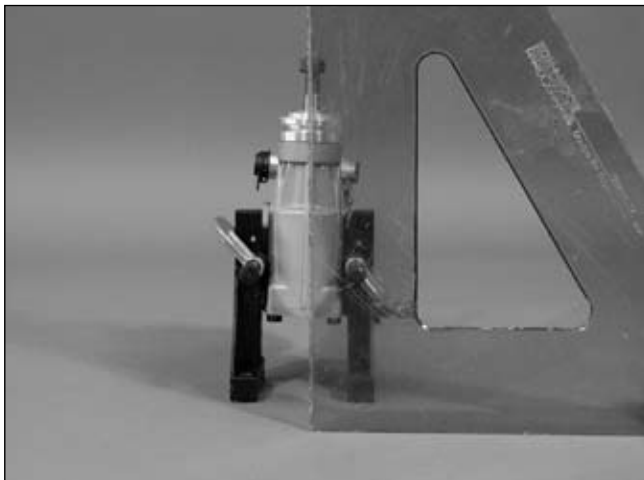
□ Step 1

Position the engine on the engine mounts. Measure the distance from the work surface to the drive washer. Adjust the mounts so the distance is $4\frac{5}{8}$ " (118mm). Use clamps to hold the mounts to the engine.



□ Step 2

Use a square to make sure the engine is perpendicular to the work surface.



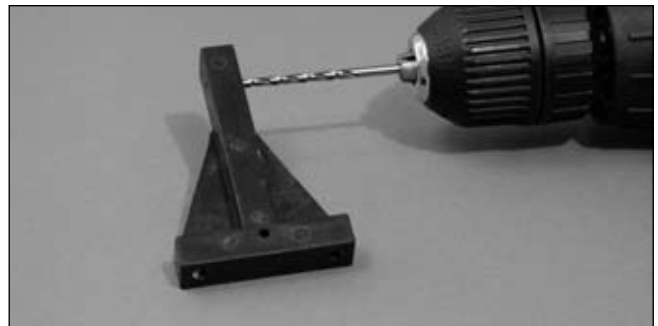
□ Step 3

Use a 3/32" (2.5mm) drill bit to mark the locations for the engine mounting bolts.



□ Step 4

Remove the engine and drill the locations marked in the previous step using a 3/32" (2.5mm) drill bit.

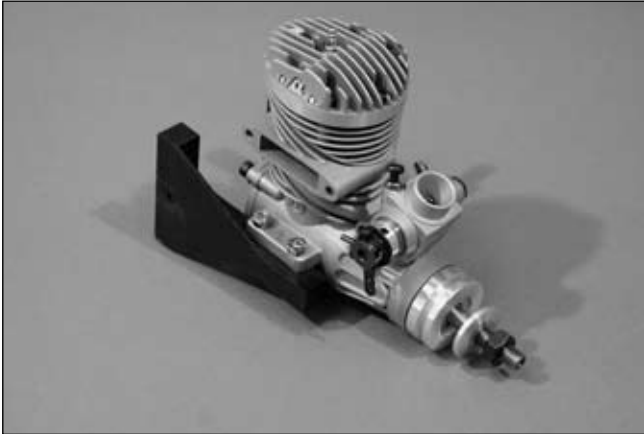


Note: Use a drill press for the best results. This makes holes perfectly perpendicular (square) to the mount.

Section 10: Engine Installation

□ Step 6

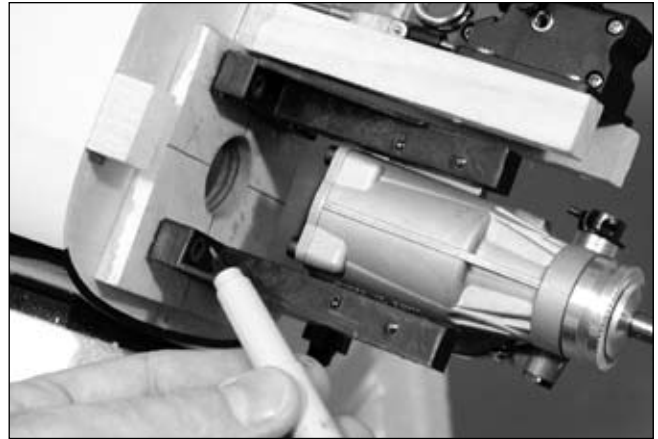
Attach the engine using four #6 x 5/8" socket head sheet metal screws.



Hint: Apply bar soap to the threads of the screws to make them thread more easily into the mount.

□ Step 7

Position the engine on the firewall so the tick marks on the mount align with the vertical centerline. Position the engine horizontally so it is centered on the horizontal centerline. Mark the location of the mounting holes for the engine mount onto the firewall.



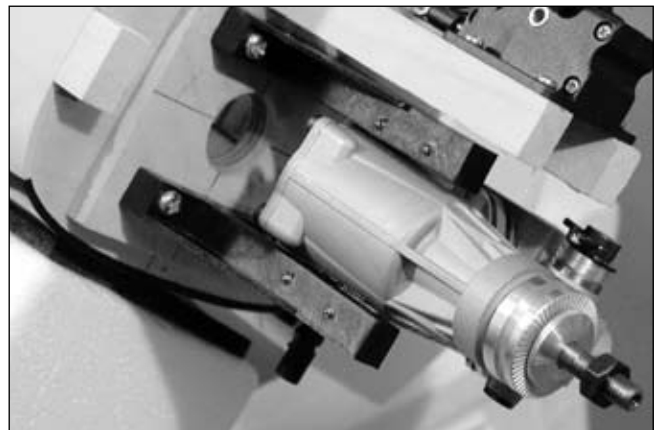
□ Step 8

Drill the locations marked in the previous step using a 7/32" (5.5mm) drill.



□ Step 9

Mount the engine to the firewall by installing the 6-32 blind nuts into the backside of the firewall and securing the mount with the 6-32 x 1" machine screws.



Section 11: Throttle Pushrod Installation

Required Parts

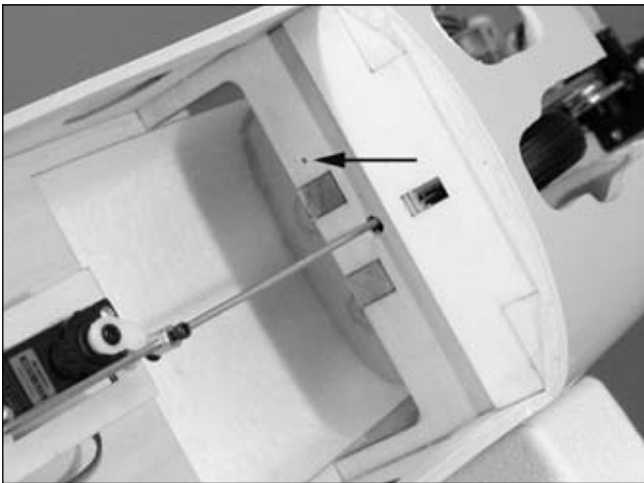
- Clevis retainer
- Clevis
- 2-56 x 14⁵/₈" pushrod

Required Tools and Adhesives

- Drill
- Drill bit: 3/32" (2.5mm)
- Pliers

□ Step 1

Drill a 3/32" (2.5mm) hole in the firewall and former 2 as shown. The position is not critical as long as they align parallel to the nose gear rail.

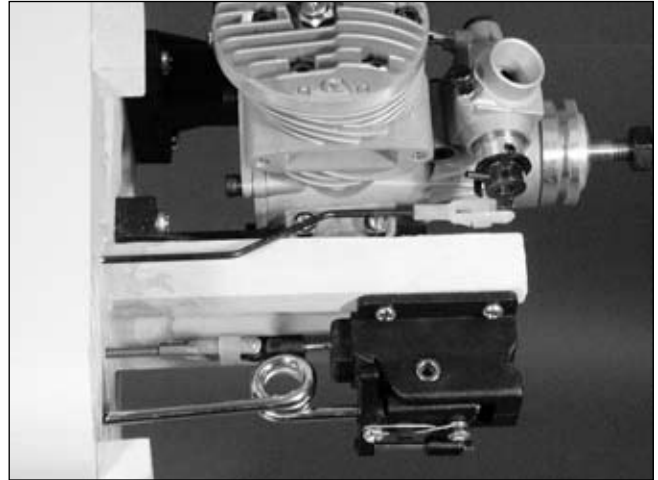


□ Step 2

Slide a clevis retainer onto a clevis. Attach the clevis to the 2-56 x 14⁵/₈" threaded pushrod.

□ Step 3

Slide the pushrod into the fuselage from the front. Make any necessary bends in the pushrod wire to attach it to the throttle arm of the engine. Make sure it will not interfere with the muffler when installed.



Section 12: Fuel Tank Installation

Required Parts

- Fuselage assembly
- Fuel tank assembly
- Fuel tubing (red and green)

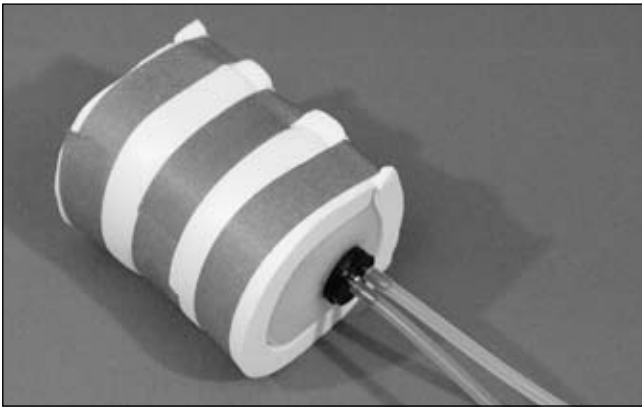
Required Tools and Adhesives

- Foam: 1/2" (13mm)
- Masking tape

When installing the fuel tank, make sure to have a piece of foam at any point that contacts any structure inside the fuselage. Without the foam, vibrations will be transmitted to the fuel tank, which could cause the fuel to foam. In turn, you will not get the optimum performance from your engine.

□ Step 1

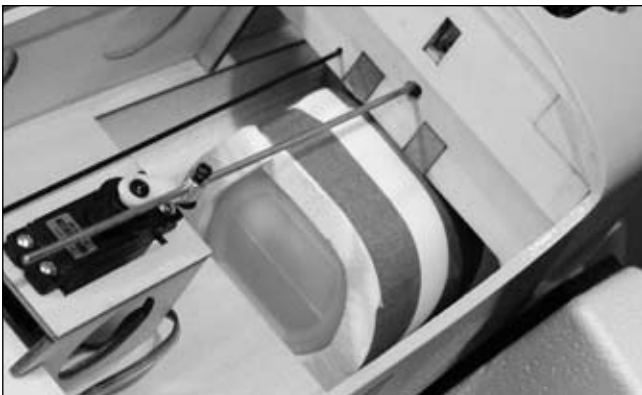
Wrap the fuel tank in 1/2" (13mm) foam as shown.



Note: Connect the red tube to the vent and the green tube to the pickup.

□ Step 2

Install the fuel tank into the fuselage. Make any necessary supports to keep the tank from moving during flight.



Note: Make sure that any support braces installed will not interfere with the installation of the wing or linkages.

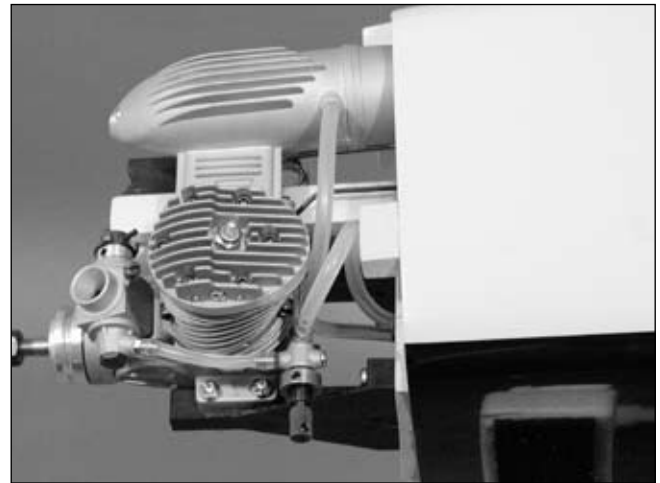
□ Step 3

Remove the covering from the fuse bottom to expose the opening for the exhaust if using a 2-stroke engine. Install the muffler. There should be an even amount of clearance between the muffler and firewall. Sand the opening in the firewall if this is not the case. Install a muffler extension to route the exhaust out of the fuselage.



□ Step 4

Make the proper connections to the engine, using the engine manufacturer's instructions.



Section 13: Electric Motor Installation

Required Parts

- Fuselage
- 8-32 x 1/2" screw (4)
- 8-32 blind nut (4)

Required Tools and Adhesives

- Phillips screwdriver
- Drill
- Male Deans connector (3)
- Drill bit: 9/64" (3.5mm), 7/32" (5.5mm)
- Female Deans connector w/wire
- EP Motor Mount (HAN4245)
- 4200mAh 2S2P 7.4V Li-Po (2)
- Threadlock
- Solder
- Soldering iron

Note: Although the T-34 Mentor was not designed as an electric aircraft, it can be easily converted to electric by using the Hangar 9® Electric Mount and a little ingenuity.

□ Step 1

Position the electric motor mount so the outer edge of the mount is aligned with the outer edge of the plywood spacer on the firewall. Use a felt-tipped pen to mark the locations for the mounting holes on the electric mount.



□ Step 2

Drill the locations marked in the previous step using a 7/32" (5.5mm) drill.



□ Step 3

Attach the motor mount to the firewall using the four 8-32 x 1/2" machine screws, four 8-32 washers and the four 8-32 blind nuts that were included in the kit. Apply threadlock on the screws to prevent them from vibrating loose.



Section 13: Electric Motor Installation

□ Step 4

Depending on your motor selection, you'll need to have the motor output shaft protruding through the non-rotating end of the motor. Follow the instructions included with your motor if necessary to relocate the output shaft.



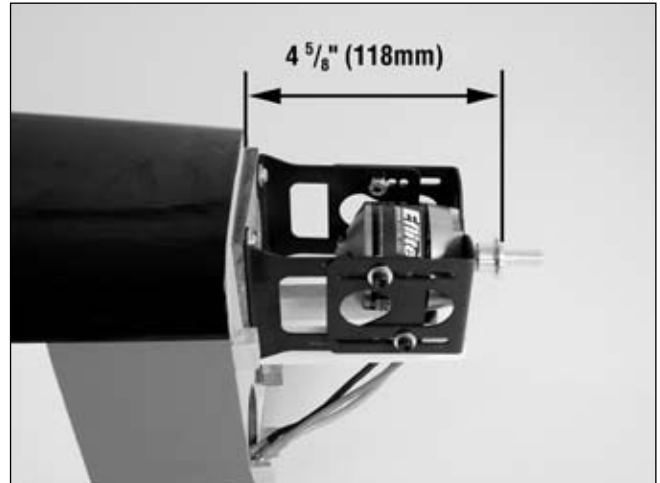
□ Step 5

Mount the motor to the motor mount front using hardware included with the motor.



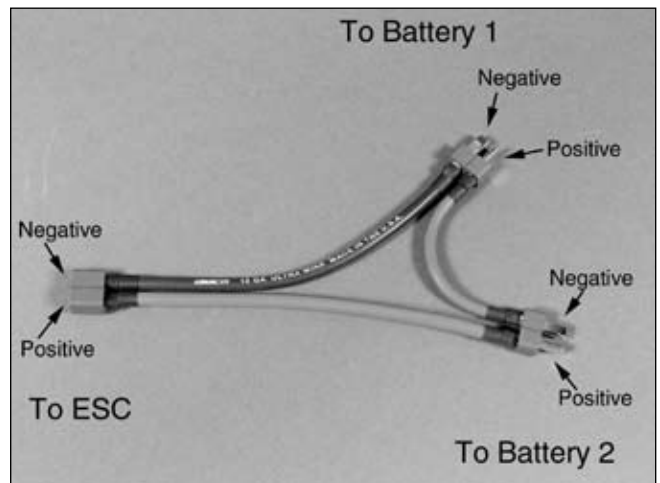
□ Step 6

Attach the motor mount front to the motor mount sides using four 8-32 x 1/2" socket head screws, four #8 washers and four 8-32 lock nuts. With the propeller adapter installed, position the motor mount so the face of the adapter is $4\frac{5}{8}$ " (118mm) from the firewall.



□ Step 7

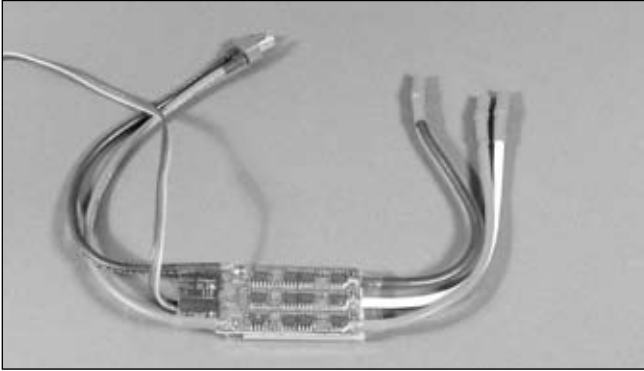
Build a wiring harness for the batteries using a female connector and two male connectors. Follow the wiring in the photo so the motor sees the voltage increase of the two batteries.



Section 13: Electric Motor Installation

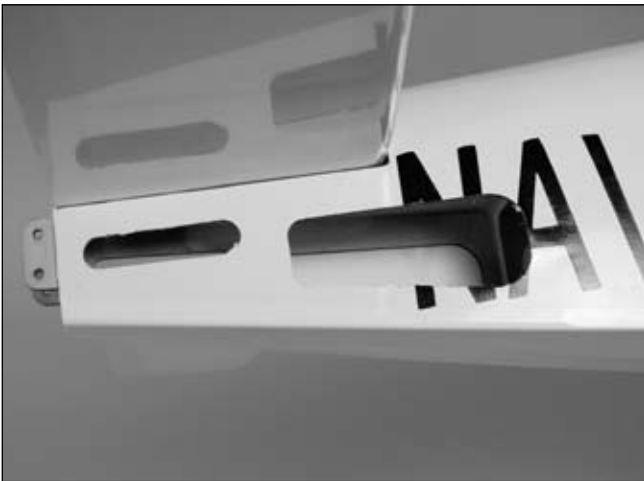
Step 8

Solder the appropriate connectors onto the speed control.



Step 9

Remove the covering from both sides of the fuselage as shown to allow for cooling air across the motor and batteries.



Step 10

Create a battery tray or other method for securing the batteries inside the fuselage. Make sure that if you are installing retracts, the batteries won't interfere with the retract servo and linkage.



Step 11

Attach the speed control inside the fuselage where it will have sufficient air flow. Plug the motor into the speed control. Plug the speed control into the receiver. Mount the speed control inside the fuselage so it will not interfere with the installation and removal of the batteries.

Step 12

Turn on the radio system. Plug the wiring harness assembled in Step 4 into the batteries and speed control. Use the throttle on the transmitter to check that everything is working correctly. Check that the motor is rotating counterclockwise. If not, follow the directions included with the speed control to correct the situation.

Step 13

Once the motor is working and rotating in the correct direction, unplug the wiring harness for safety.

Section 14: Radio Installation

Required Parts

- Fuselage assembly
- Wing assembly
- Servo w/hardware (5)

Required Tools and Adhesives

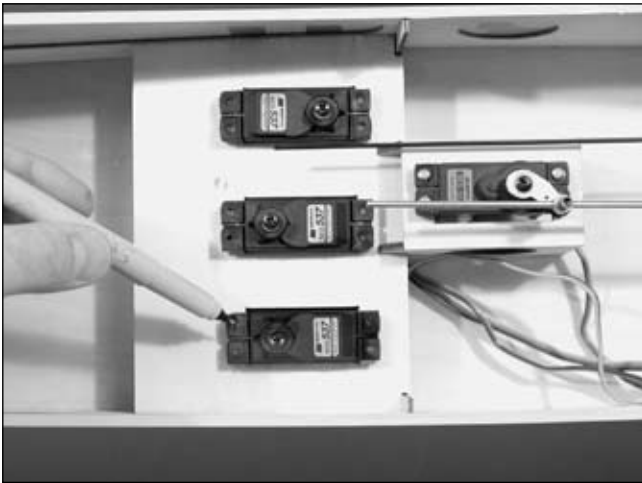
- Drill
- Drill bit: 1/16" (1.5mm), 3/32" (2.5mm)
- Phillips screwdriver (small)
- 9" Servo Extension (JRPA097) (2)

□ Step 1

Install the recommended servo hardware (grommets and eyelets) supplied with your radio system onto five servos (elevator, rudder, throttle and 2 ailerons).

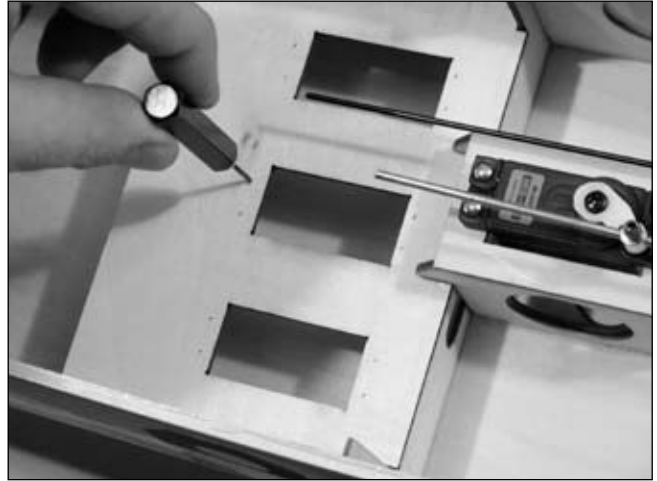
□ Step 2

Temporarily install the rudder, elevator, and throttle servos. Mark the locations for the servos screws using a felt-tipped pen.



□ Step 3

Remove the servo and drill the holes for the servo mounting screws using a 1/16" (1.5mm) drill bit.



Hint: Place a drop of thin CA onto each screw hole to harden the wood around the hole. Allow the CA to fully cure before installing the servos.

□ Step 4

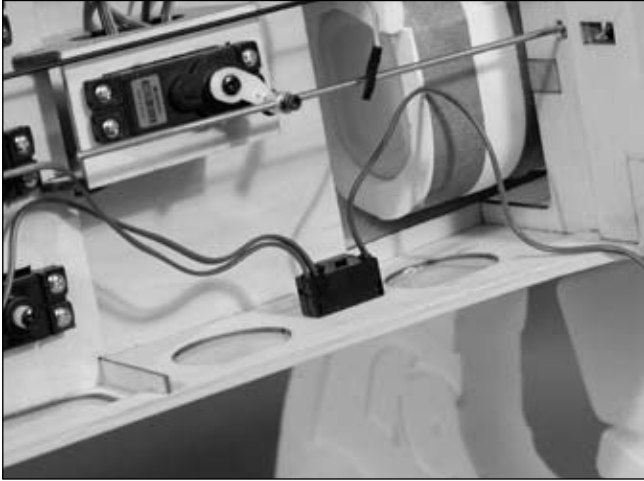
Secure the servos using the screws provided with the servos.



Section 14: Radio Installation

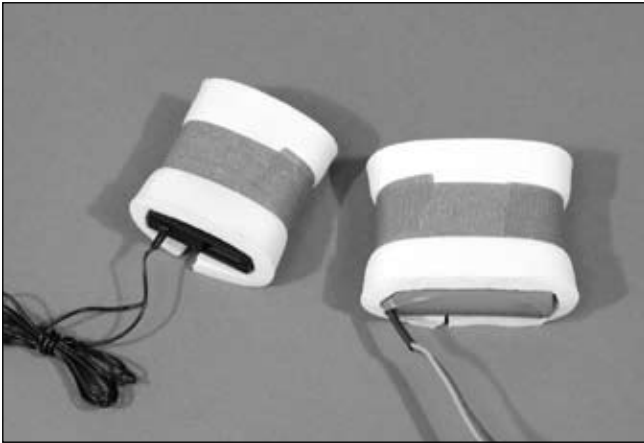
□ Step 5

Mount the radio switch to the side of the fuselage.



□ Step 6

Wrap the receiver and receiver battery in protective foam to prevent damage that may be caused by engine vibration.

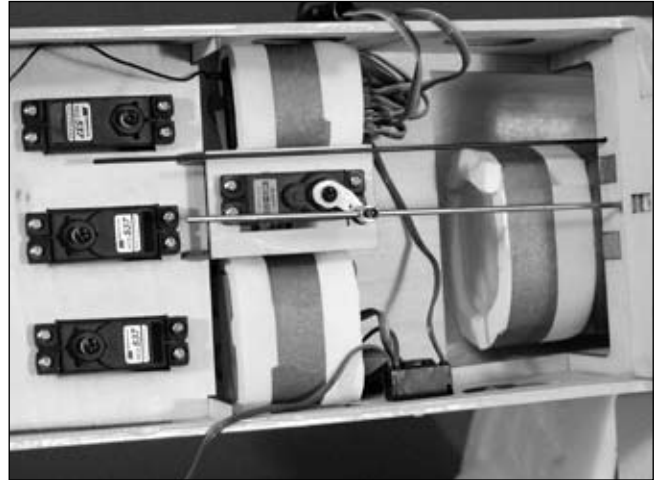


□ Step 7

Connect any necessary extensions and Y-harnesses necessary to connect the retract and aileron servos. Connect the elevator, rudder and throttle servo leads to the receiver.

□ Step 8

Temporarily mount the receiver and battery into the fuselage. It may be necessary to relocate the battery forward or aft to balance the model as described in the section "Control Throws and Center of Gravity."



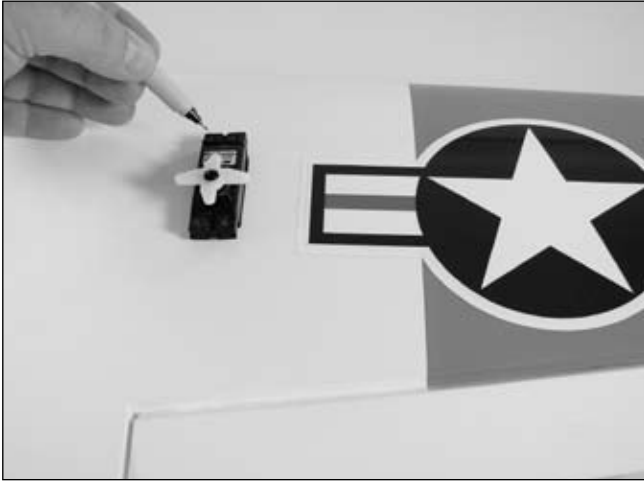
□ Step 9

Route the antenna through the bottom of the fuselage and secure it to a location at the tail with rubber bands.

Section 14: Radio Installation

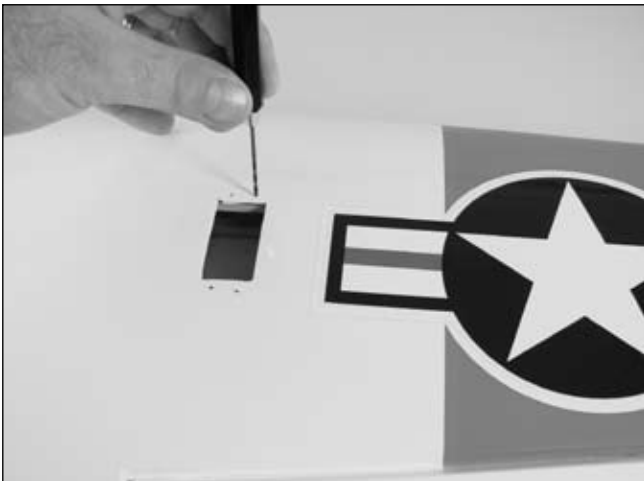
□ □ Step 11

Temporarily install the aileron servo and mark the locations for the servos screws using a felt-tipped pen.



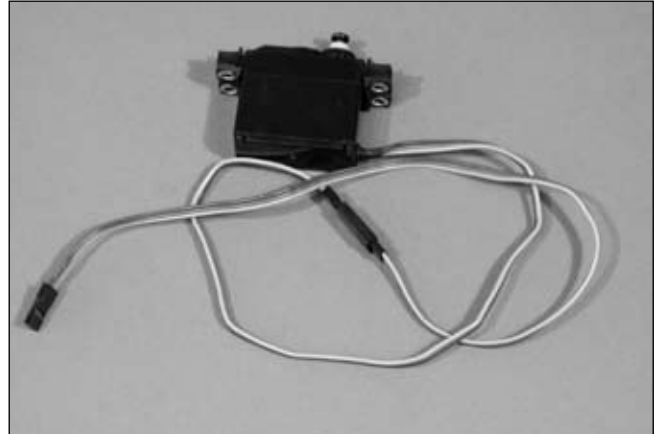
□ □ Step 12

Remove the servos and drill holes for the servo mounting screws using a 1/16" (1.5mm) drill bit.



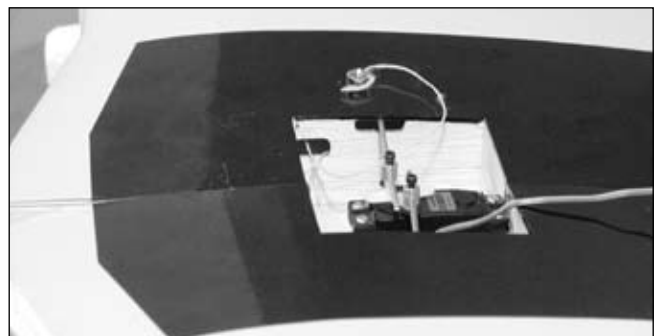
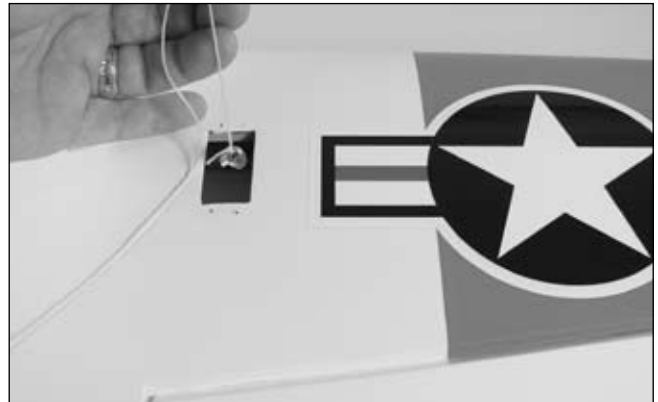
□ □ Step 13

Connect a 9" Servo Extension (JRPA097) to the servo lead. Secure the connectors by tying them in a knot using dental floss (as shown) or by using a commercially available connector clamp to prevent the servo leads from becoming disconnected.



□ □ Step 14

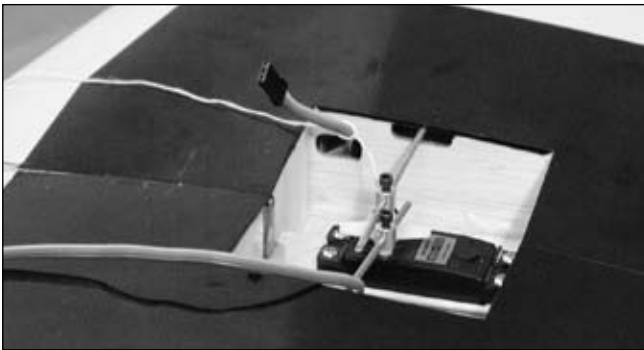
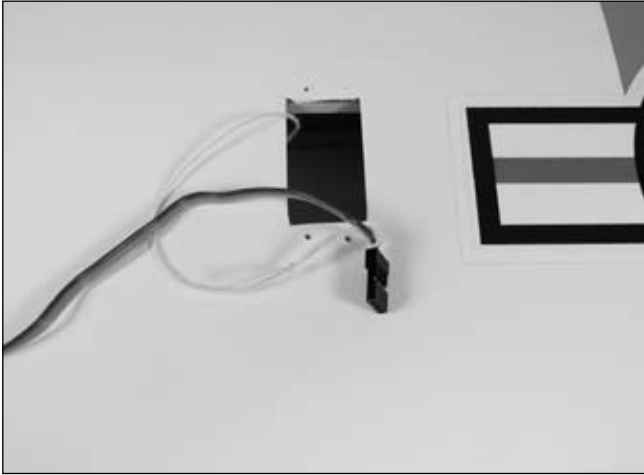
Use a piece of string with a small weight (such as a wheel collar) attached as a device to pull the servo lead through the wing. Lower the weight through the servo opening, allowing it to pass through the ribs and out of the hole in the center of the wing.



Section 14: Radio Installation

□ □ Step 15

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 16

Secure the aileron servo using the screws provided with the servo.



□ □ Step 17

Repeat Steps 10 through 15 for the remaining aileron servo.

Section 15: Linkage Installation

Required Parts

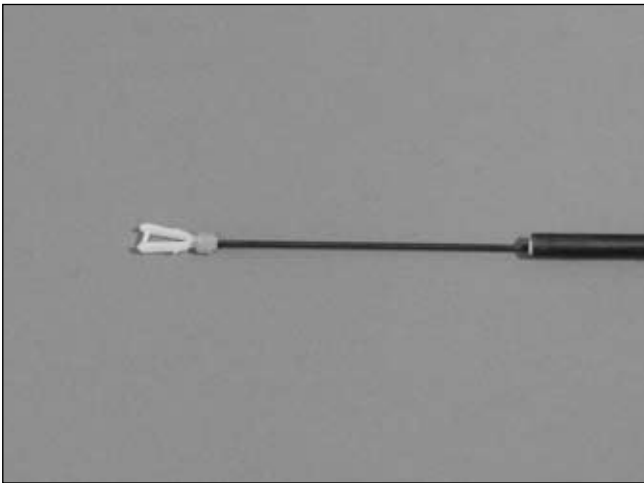
- Fuselage assembly
- Wing assembly
- 18¹/₈" pushrod wire
- 4³/₄" pushrod wire
- Nylon clevis (5)
- Clevis retainer (5)
- Nylon wire keeper (5)
- Rudder control horn
- Nylon control horn (2)
- 2-56 x 3/4" screw (6)
- Quick connector
- Quick connector backplate
- 3mm x 6mm machine screw
- 23¹/₄" assembled pushrod
- 24¹/₂" assembled pushrod

Required Tools and Adhesives

- Drill
- Drill bit: 1/16" (1.5mm), 3/32" (2.5mm)
- Phillips screwdriver (small)

□ Step 1

Slide a clevis retainer onto a nylon clevis. Thread a clevis onto the 24¹/₂" assembled pushrod a minimum of 10 turns.



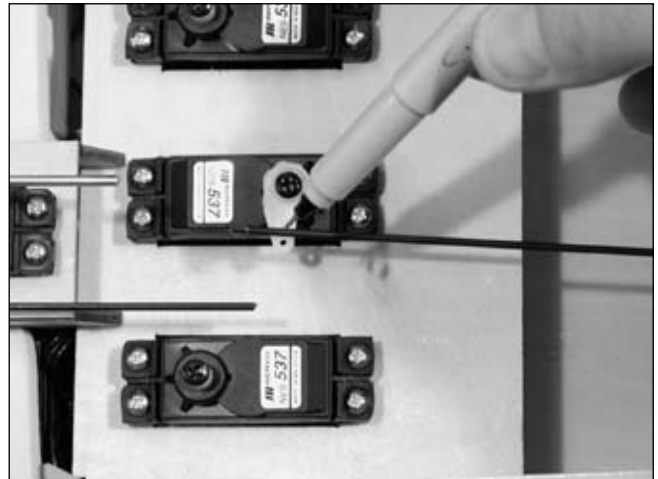
□ Step 2

Slide the pushrod assembly into the fuselage from the rear. Make sure the pushrod goes through the center hole in the fuselage former. Attach the clevis to the center hole in the elevator control wire.



□ Step 3

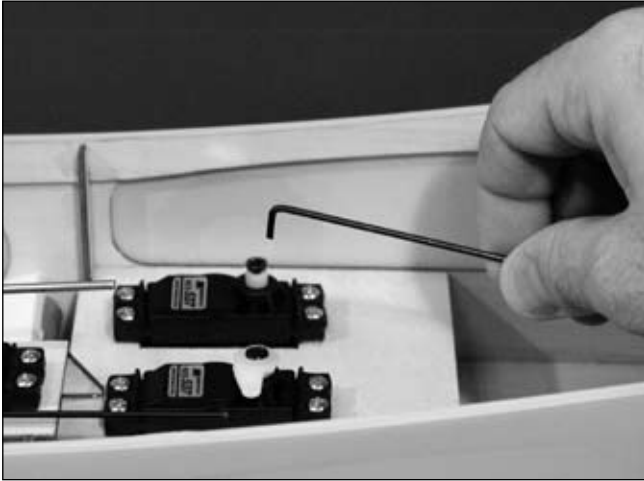
Center the elevator servo electronically using the radio system. Install a servo arm onto the elevator servo. Mark the pushrod where it crosses the holes in the servo arm.



Section 15: Linkage Installation

□ Step 4

Bend the wire 90 degrees at the mark made in the previous step.



□ Step 5

Slide the wire through the outer hole in the elevator servo arm. Secure the wire using a nylon wire keeper.



□ Step 6

Thread the rudder control horn onto the rudder control wire until the outer edge of the horn is flush with the end of the wire.



□ Step 7

Slide a clevis retainer onto a nylon clevis. Thread a clevis onto the $23\frac{1}{4}$ " assembled pushrod a minimum of 10 turns.

□ Step 8

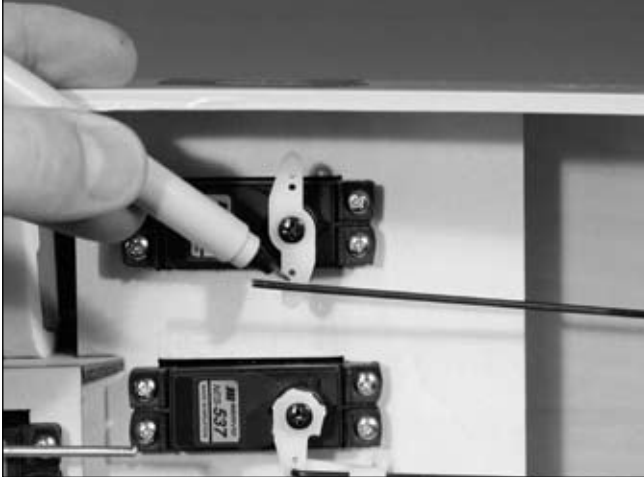
Slide the pushrod assembly into the fuselage from the radio compartment. Make sure the pushrod goes through the outer hole in the fuselage former. Attach the clevis to the rudder control horn. Make adjustments to the pushrod and fuselage to provide free movement of the rudder and pushrod.



Section 15: Linkage Installation

□ Step 9

Center the rudder servo electronically using the radio system. Install a servo arm onto the rudder servo. Mark the pushrod where it crosses the holes in the servo arm.

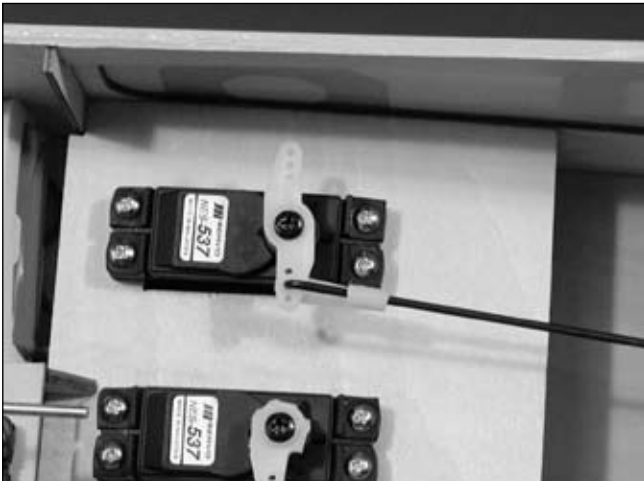


□ Step 10

Bend the wire 90 degrees at the mark made in the previous step.

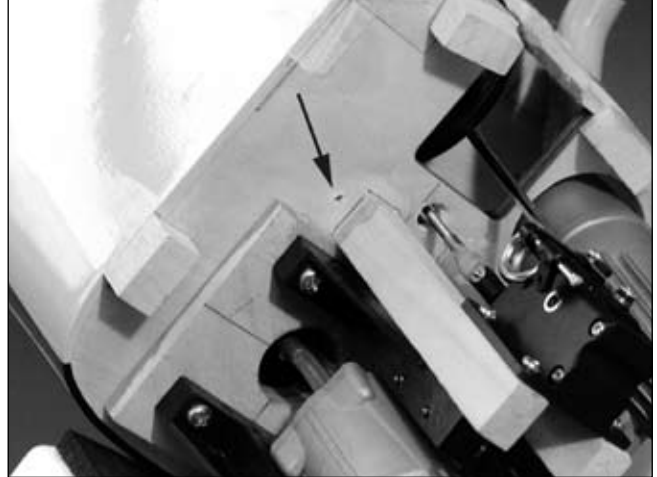
□ Step 11

Slide the wire through the center hole in the rudder servo arm. Secure the wire using a nylon wire keeper.



□ Step 12

Drill a 3/32" (2.5mm) hole in the firewall and former 2 as shown. The position is not critical as long as they align parallel to the nose gear rail.



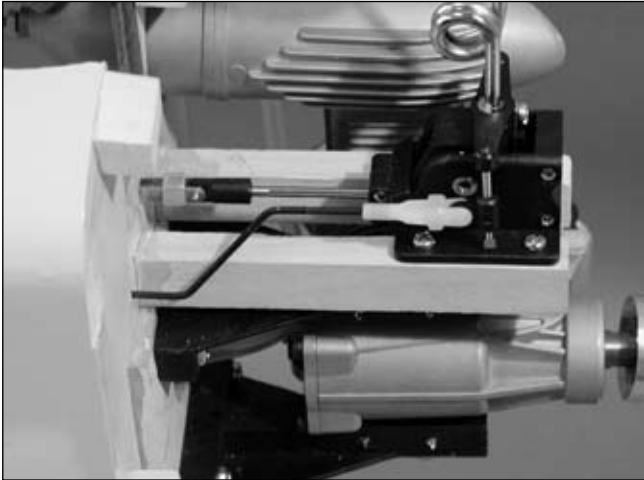
□ Step 13

Slide a clevis retainer onto a clevis. Attach the clevis to the 2-56 x 18 1/8" threaded pushrod.

Section 15: Linkage Installation

□ Step 14

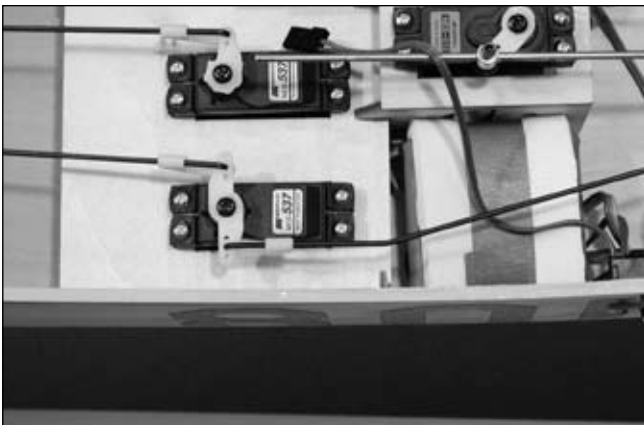
Slide the pushrod into the fuselage from the front. Make any necessary bends in the pushrod wire to attach it to the steering arm. Make sure it will not interfere with the nose gear rail when it is installed.



Note: Steps 12 through 14 show the retract, but the procedure is identical for fixed gear.

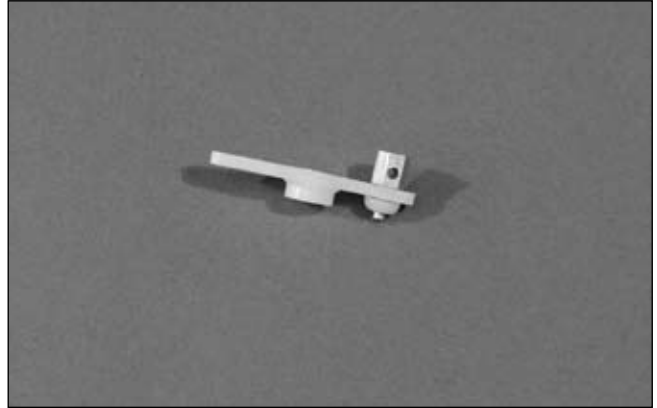
□ Step 15

Mark the pushrod where it crosses the holes in the servo arm. Bend the wire 90 degrees at the mark made in the previous step. Slide the wire through the center hole in the rudder servo arm. Secure the wire using a nylon wire keeper.



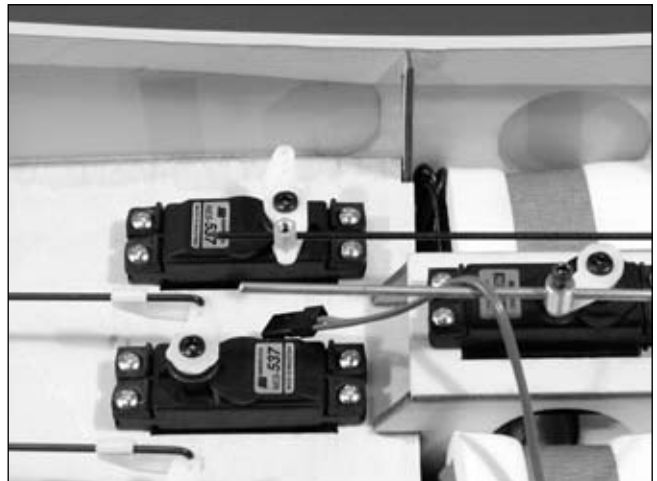
□ Step 16

Use a 3/32" (2.5mm) drill bit to drill out the holes in a servo arm. Attach an easy connector to the arm using a connector back plate.



□ Step 17

Center the throttle stick and trim with both the receiver and transmitter on. Slide the easy connector onto the throttle pushrod. Install the throttle servo arm in the neutral position as shown.



Section 15: Linkage Installation

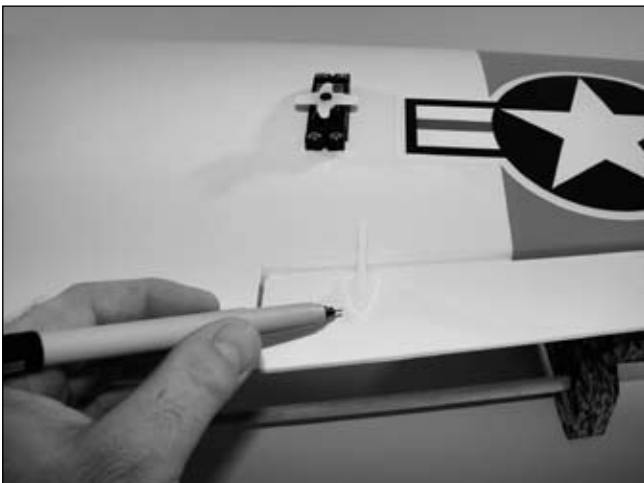
□ Step 18

Move the throttle stick and trim to low. Check to make sure the carburetor will move to the closed position when operating the servo. Install an 3mm x 8mm screw to secure the easy connector to the throttle pushrod. Check the movement of the throttle to verify there is no binding at either low or high throttle, and that the carburetor can move through the full range of movement. If there is any binding, make the necessary adjustment to eliminate any binding. Install the throttle servo arm screw when complete.



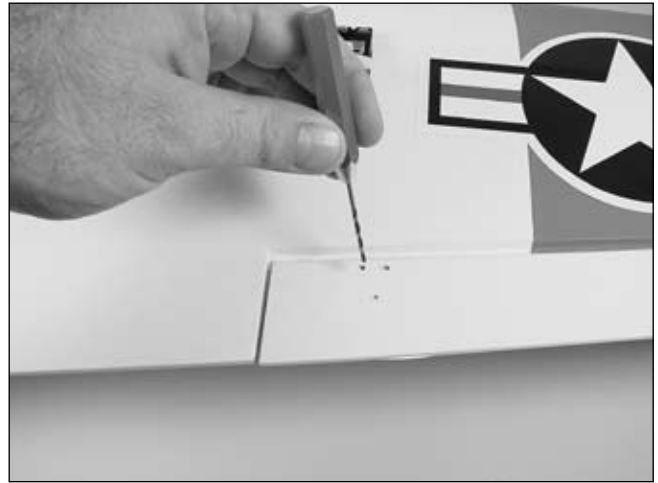
□ □ Step 19

Position the control horn on the aileron so the horn aligns with the hinge line of the aileron. Mark the position for the mounting holes using a felt-tipped pen.



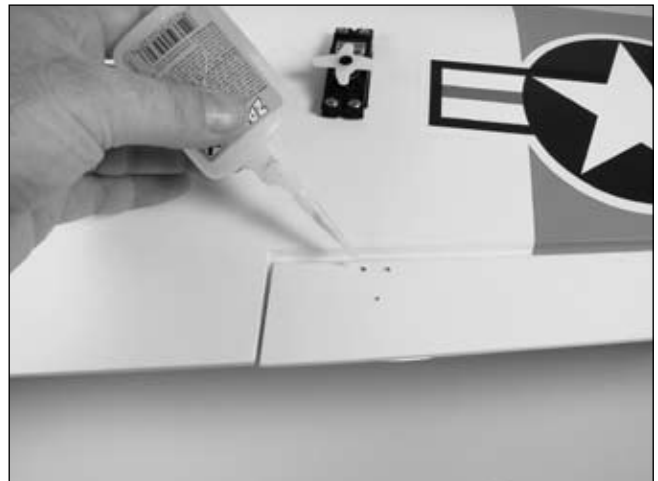
□ □ Step 20

Drill three 3/32" (2mm) holes through the ailerons at the locations marked in the previous step.



□ □ Step 21

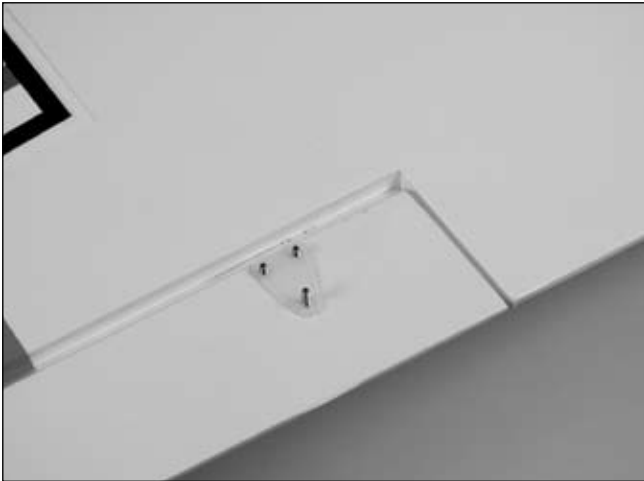
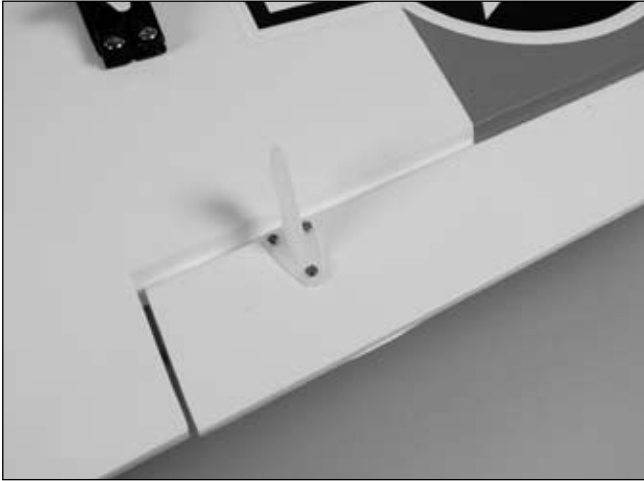
Place 2–3 drops of thin CA into the hole to harden the wood. This will eliminate the potential of the screw crushing of the wood. Repeat this for each of the three holes.



Section 15: Linkage Installation

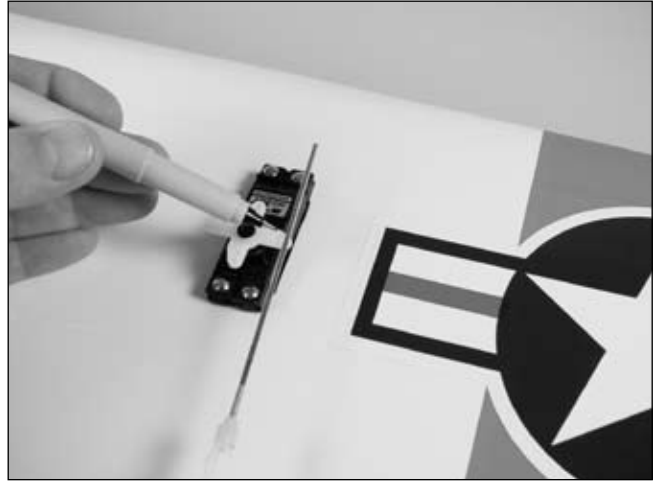
□ □ Step 22

Attach the control horn using three 2-56 x 3/4" screws and the control horn backplate.



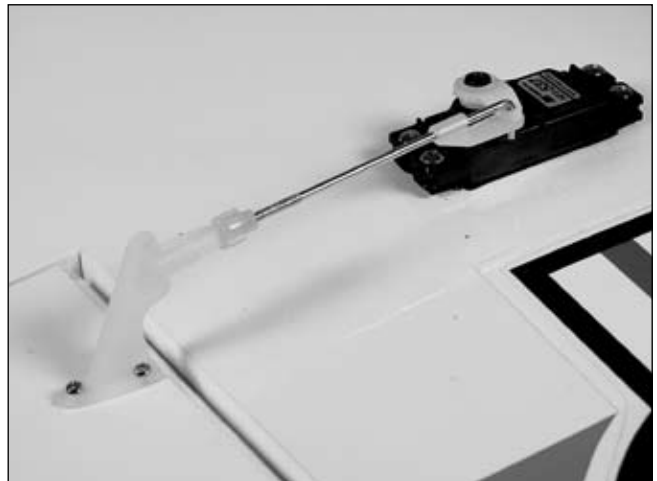
□ □ Step 23

Center the aileron servo electronically using the radio system. Install a servo arm onto the aileron servo. Attach the pushrod with clevis to the control horn. Physically place the aileron control surface in neutral. Mark the pushrod where it crosses the holes in the servo arm.



□ □ Step 24

Bend the wire 90 degrees at the mark made in the previous step. Cut the wire 1/2" (13mm) above the bend. Drill 1 3/32" (2mm) hole in the servo arm then slide the wire through the hole in the aileron servo arm. Secure the wire using a nylon wire keeper.



Note: Remove the excess arms from the servo horn using side cutters.

□ Step 25

Repeat Steps 19 through 24 for the other aileron servo.

Section 16: Cowling Installation

Required Parts

- Fuselage assembly
- Cowling
- #2 x 1/2" sheet metal screw (4)

Required Tools and Adhesives

- Drill
- Drill bit: 3/32" (2.5mm), 1/8" (3mm)
- Hobby scissors
- Phillips screwdriver (small)
- Rotary tool with sanding drum

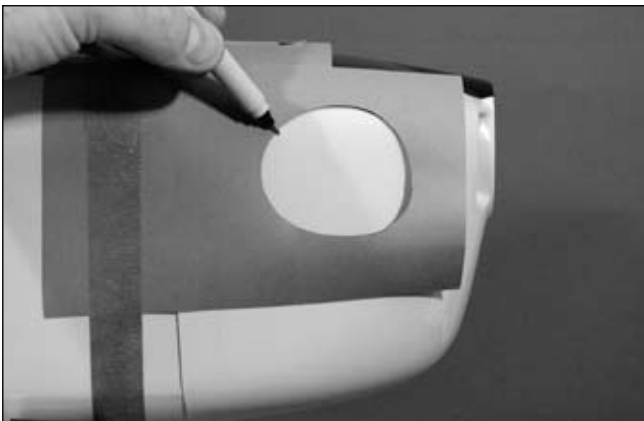
□ Step 1

Use a piece of cardstock to indicate the location of the engine head, muffler, needle valve and firewall.



□ Step 2

Remove the engine. Position the cowling onto the fuselage so it is 4 1/2" (115mm) from the firewall. Transfer the location for the engine and needle valve onto the cowling.



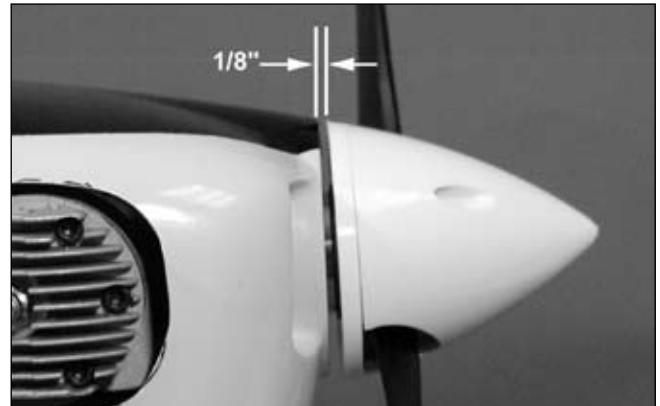
□ Step 3

Remove the cowl and remove the necessary material to fit the cowl over the engine. Install the engine back onto the firewall and test fit the cowl over the engine.

Hint: Start by removing only a little material at a time. You can always make the holes bigger, but you can't make them smaller. Work until the cowl fits nicely over the engine.

□ Step 4

Slide the cowling onto the fuselage. Temporarily install the propeller and spinner back plate. Position the cowl so there is 1/8" (3mm) gap between the back plate and the cowl.



□ Step 5

Use the cardstock from Step 1 to locate the positions for the cowling screws. The goal is to drill into the cowling mounting blocks for the four screws that hold the cowling. Drill the locations using a 3/32" (2.5mm) drill bit.



Section 16: Cowling Installation

Step 6

Enlarge the holes drilled in the cowling using a 1/8" (3mm) drill bit.

Step 7

Make any cutouts in the cowling to clear items such as the muffler, fueling valve, needle valve, nose gear, etc.

Step 8

Attach the cowl using four #2 x 1/2" sheet metal screws.



Hint: Apply a couple drops of CA into the screw holes after threading the screws in a couple times. This will harden the wood and keep the screws from loosening during flight.

Section 17: Canopy and Decal Installation

Required Parts

- Fuselage assembly
- Canopy
- Tail cone
- #2 x 1/2" sheet metal screw (2)

Required Tools and Adhesives

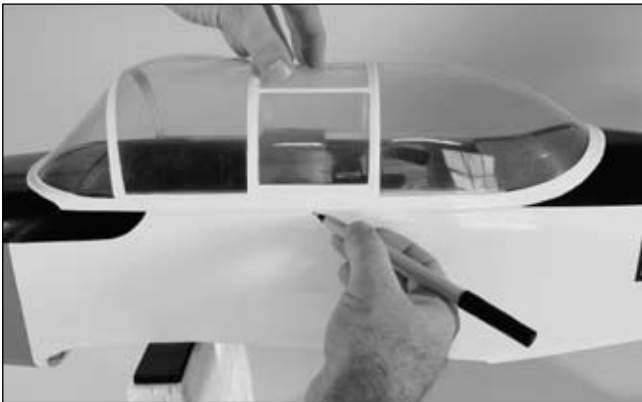
- Canopy glue (RC-56)
- Sandpaper (medium grit)
- Drill
- Drill bit: 3/32" (2.5mm)

□ Step 1

Install a pilot of your choosing. Use epoxy or Zap-A-Dap-A-Goo to secure the pilot.

□ Step 2

Position the canopy onto the fuselage. Trace around the canopy and onto the fuselage using a felt-tipped pen.



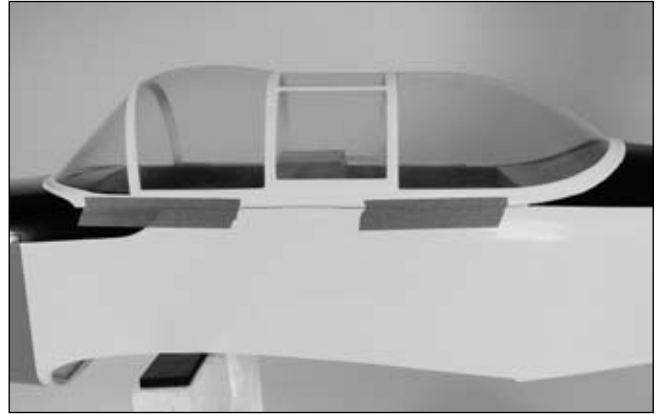
□ Step 3

Lightly sand the inside edge of the canopy and slightly inside the line drawn on the hatch using medium sandpaper.



□ Step 4

Apply a bead of RCZ56 Canopy Glue (ZINJ5007) around the inside edge of the canopy. Position the canopy onto the hatch. Use tape to hold the canopy secure until the glue fully cures.



□ Step 5

Apply the decals. Use the photos on the box to aid in their location.

□ Step 6

Position the tail cone. Drill two 3/32" (2.5mm) holes through the tail cone and into the mounting flanges. Secure the tail cone using two #2 x 1/2" sheet metal screws.

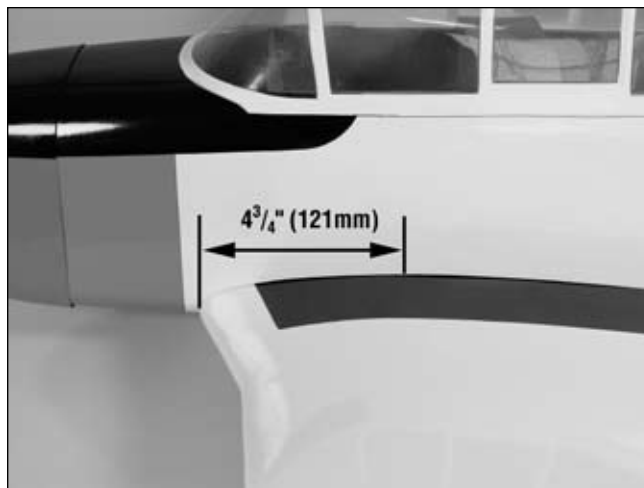


Recommended CG Location

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 (C.G.) location for the T-34 is $4\frac{3}{4}$ " (121mm) behind the leading edge of the wing against the fuselage. 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 store and work well for this purpose.

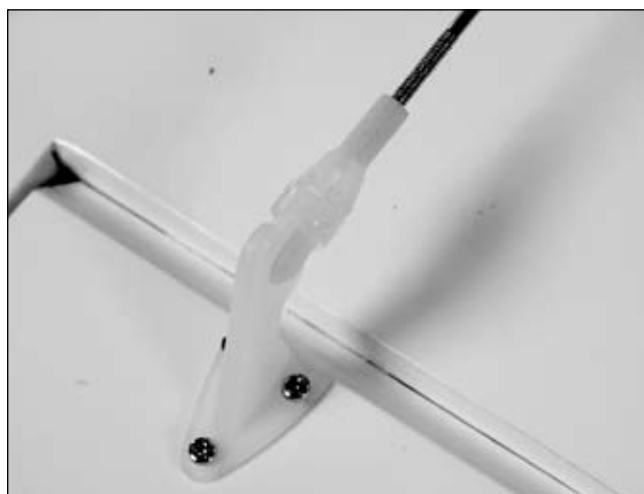


Recommended Control Throws

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.

Aileron	7/16" up	3/8" down
Elevator	5/8" up	5/8" down
Rudder	1" right	1" left

Note: Control throws are measured at the widest part of the elevator, rudder, and aileron unless noted otherwise. Once the control throws have been set, use the supplied tubing on each clevis to prevent them from opening during flight.



Adjusting the Engine

Step 1

Completely read the instructions included with your engine and follow the recommended break-in procedure.

Step 2

At the field, adjust the engine to a slightly rich setting at full throttle and adjust the idle and low-speed needle so that a consistent idle is achieved.

Step 3

Before you fly, be sure that your engine idles reliably, transitions and runs at all throttle settings. Only when this is achieved should any plane be considered ready for flight.

Pre-Flight

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.

Check the radio installation and make sure all the control surfaces are moving correctly (i.e. the correct direction and with the recommended throws). Test run the engine and make sure it transitions smoothly from idle to full throttle and back. Also ensure the engine is tuned according to the manufacturer's instructions, and it will run consistently and constantly at full throttle when adjusted.

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.

Range Test Your Radio

Range check your radio system before each flying session. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the radio in your airplane. With your airplane on the ground, you should be able to walk 30 paces away from your airplane and still have complete control of all functions. If not, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

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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.)

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- 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 position in the air at all times.



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