HANGAR 9®

Fly First Class™

Piper Pawnee 40 ARF

ASSEMBLY MANUAL

Specifications

Wingspan	80 in (2032mm)
Wing Area	942 sq in (60.77 sq dm)
Length	55.8 in (1417.3mm)
Weight	8–9 lb (3.6–4 kg)
Engine	.56–.82 Four-Stroke
	.40–.52 Two-Stroke
	Power 46 Electric
Radio	5-Channel w/7 Servos (6 for electric)

Table of Contents

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.

Required Tools and Adhesives

Tools

- Felt-tipped pen or pencil
- Adjustable wrench
- Hobby knife
- Phillips screwdriver (large)
- Ruler
- Soldering iron
- Hex wrench: 3/32-inch
- Drill bit: 1/16-inch (1.5mm), 5/64-inch (2mm), 11/64-inch (4.5mm)
- Flat screwdriver
- Drill
- Masking tape
- Phillips screwdriver (small)
- Sandpaper
- Solder

Adhesives

- Formula 560 Canopy Glue (PAAPT56)
- Thin CA (cyanoacrylate) Glue (PAAPT07)
- Pacer Z-42 Threadlock (PAAPT42)
- CA Remover/Debonder (PAAPT16)

UltraCote Covering Colors

- Turquoise HANU898
- White HANU870
- Midnight Blue HANU885

Before Starting Assembly

Before beginning the assembly of the Piper Pawnee 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

Radio and Power Systems Requirements

- 5-channel radio system (minimum) w/receiver
- 700mAh Ni-Cd 4-cell (JSP91010)
- JR Standard Switch (JSP98010) or JR Chargeswitch (JRPA004)
- DS821 Digital Sport Servo (JRPS821) (7) or equivalent (6 when building electric version)
- Large Servo Arm (JSP98060) (for use on flap servos)

Recommended Servo Extensions

5-channel Radio System

Aileron
- Y-harness (JSP98020)
- 9-inch Servo Extension JRPA097 (2)

Flaps
- Y-harness (JSP98020)

6-channel Radio System

Aileron
- Y-harness (JSP98020)
- 9-inch Servo Extension JRPA097 (2)

Flaps
- 12-inch Servo Extension JRPA098 (2)

7-channel Radio System

Aileron
- 6-inch Servo Extension JSP98110 (2)
- 9-inch Servo Extension JRPA097 (2)

Flaps
- 12-inch Servo Extension JRPA098 (2)

Recommended JR, JR SPORT and Spektrum Systems

- X9303 2.4
- XP9303
- XP7202
- DX7
- XP6102

JR X9303 2.4

JR XP7202

JR XP6102

Spektrum DX7

Spektrum is used with permission of Bachmann Industries, Inc.

Recommended Setup–2-Stroke Glow

- Evolution® .52NX with Muffler (EVOE0520)
- Evolution Propeller 11 x 5 (EVO11050) to 11 x 6 (EVO11060)

Evolution .52NX
EVOE0520

Recommended Setup–4-Stroke Glow

- Saito™ .82 AAC w/Muffler (SAIE082A or SAIE082AGK)
- Evolution Propeller 13 x 8 (EVO13080) or 14 x 6 (EVO14060)

Saito .82 AAC
SAIE082A

Recommended Setup–Electric

- E-flite® Power 46 BL Outrunner Motor (EFLM4046A)
- Castle Creations 60A ESC (CSEPHX60)
- Thunder Power 4S 3850–4500mAh Li-Po Battery Pack
- APC Propeller 13x6.5-inch (APC13065E) to 14x7 (APC14070E)

Power 46 Brushless
Outrunner Motor,670Kv
EFLM4046A

FS One

With FS One® you get more than photorealistic fields, gorgeous skies and realistic-looking aircraft. You get incredibly advanced aerodynamic modeling that simulates every possible aspect of real-world flight.

HANS2000

HANS4010

Field Equipment

- Propeller
- Glow Plug Wrench (HAN2510)
- Glow Plug (EVOGP1)
- Flight Pack Field Box (HAN130)
- Mosfet Power Panel (HAN106)
- Fuel
- Extra Long Glow Plug Igniter w/Charger (HAN7115)
- Manual Fuel Pump (HAN118)
- PowerPro HD 12V Starter (HAN162)
- 12-volt 7Ah Sealed Battery (HAN102)

Warranty Period

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

Limited Warranty

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

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

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

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

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

Safety Precautions

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

Questions, Assistance, and Repairs

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

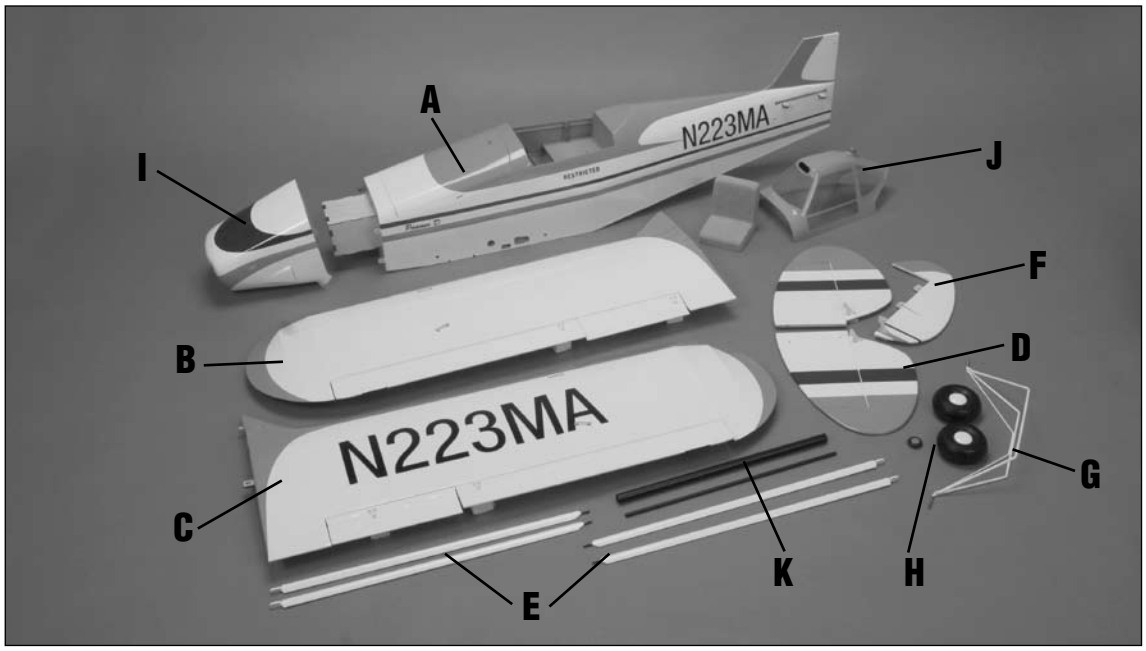
This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions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

Contents of Kit

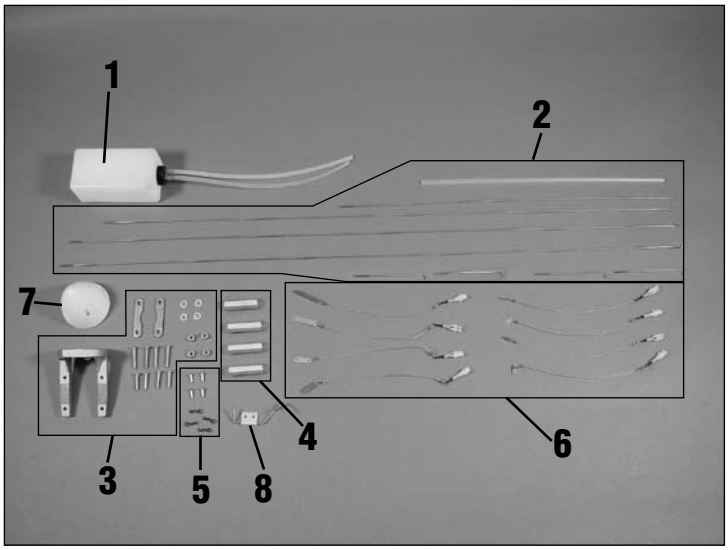
Large Replacement Parts

A. HAN4031 Fuselage w/Hatch
B. HAN4032 Right Wing
C. HAN4033 Left Wing
D. HAN4034 Horizontal Stab and Elevator
E. HAN4035 Wing Struts
F. HAN4036 Rudder
G. HAN4037 Landing Gear
H. HAN4038 Wheels
I. HAN4039 Cowl
J. HAN4040 Canopy with Seat
K. HAN4043 Wing Tube Set



Small Replacement Parts

1. HAN4041 Assembled 11 oz fuel tank
2. HAN4044 Pushrod Set
3. HAN4045 Glow Motor Mount
4. HAN4046 EP Motor Mount Standoffs
5. HAN4047 Pin and Keeper Set
6. HAN4048 Tail Flying Wires
7. HAN4049 $2\,^1/_4$-inch Spinner
8. HAN4007 Tailwheel Assembly



Section 1: Landing Gear and Rudder Installation

Required Parts

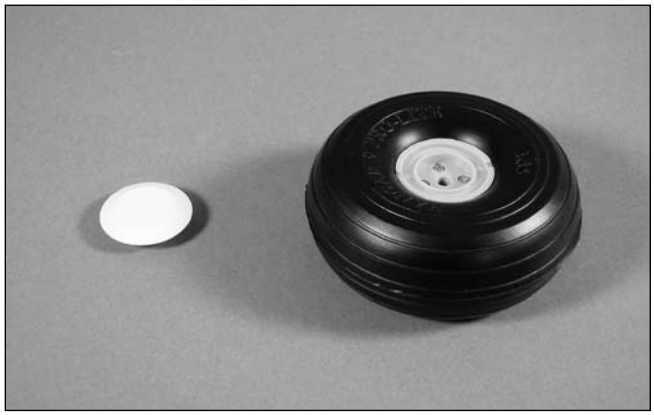
- Wheel assembly (2)
- Landing gear
- Landing gear strap (4)
- Tail gear assembly
- Rudder
- Fuselage
- 5/32-inch wheel collar w/setscrew (2)
- 3mm x 10mm sheet metal screw (8)

Required Tools and Adhesives

- Hex wrench (supplied)
- Petroleum jelly
- Phillips screwdriver: #1, #2
- Thin CA
- 30-minute epoxy
- Sandpaper
- Drill bit: 1/16-inch (1.5mm)
- Pin drill

☐☐ Step 1

Use a small flat screwdriver to remove the cap from the outer wheel hub as shown.

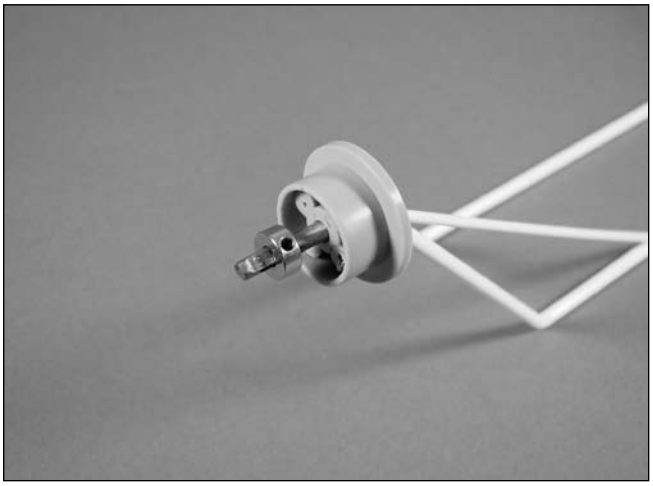


☐☐ Step 2

Use a #1 Phillips screwdriver to remove the four sheet metal screws holding the inner and outer wheel hubs inside the wheel.

☐☐ Step 3

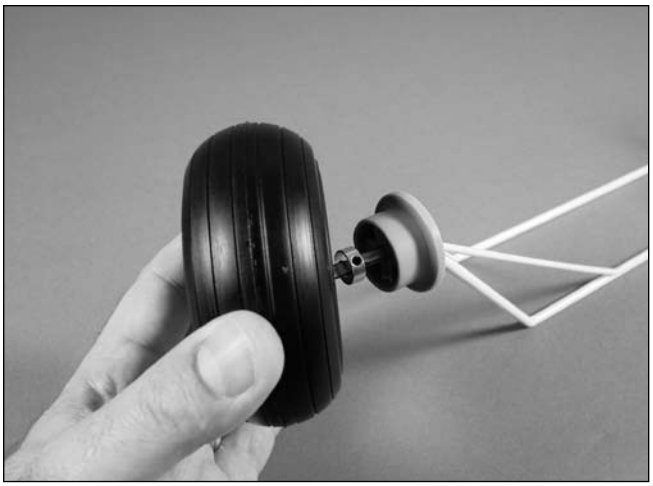
Slide the inner wheel hub onto the landing gear. The wheel collar is then installed by tightening the setscrew onto the flat spot on the axle using the supplied hex wrench.



Note: Make sure to use threadlock on the setscrews to prevent them from vibrating loose.

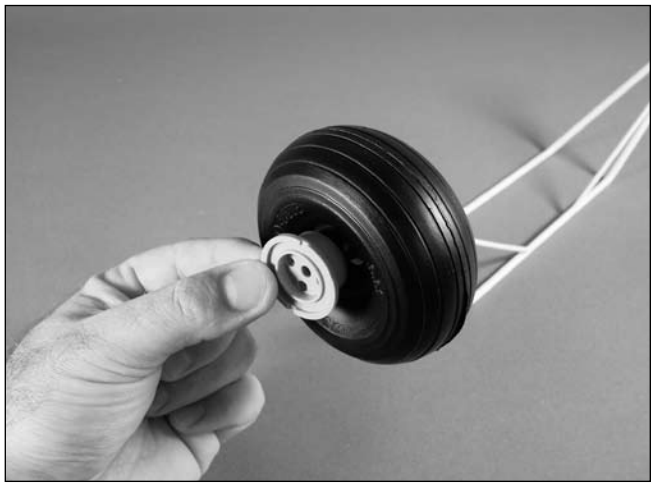
☐☐ Step 4

Slide the wheel back onto the inner wheel hub.



☐☐ Step 5

Slide the outer wheel hub back into the wheel. Slide the supplied hex wrench into the screw hole in the outer wheel hub, then into the screw hole in the inner wheel hub to aid in aligning the screw holes.

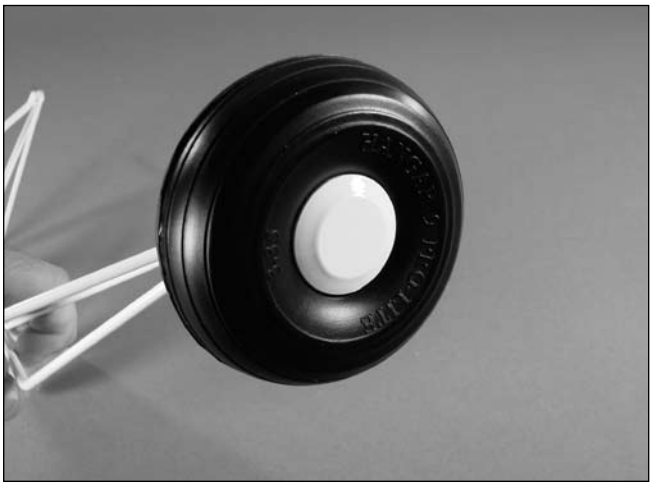


☐☐ Step 6

Reinstall the four sheet metal screws to secure the inner and outer wheel hubs in the wheel.

☐☐ Step 7

Snap the cap back in position on the outer wheel hub.



☐ Step 8

Repeat Steps 1 through 7 to install the remaining wheel onto the landing gear.

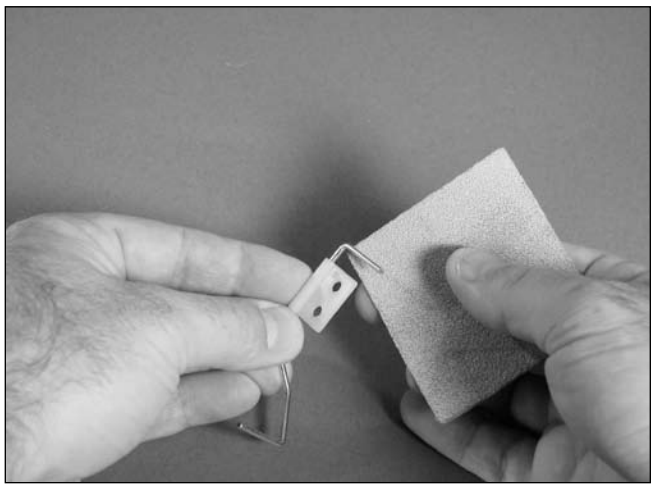
Section 1: Landing Gear and Rudder Installation

☐ Step 9

Attach the landing gear to the fuselage using four landing gear straps and eight 3mm x 10mm sheet metal screws and a #2 Phillips screwdriver.

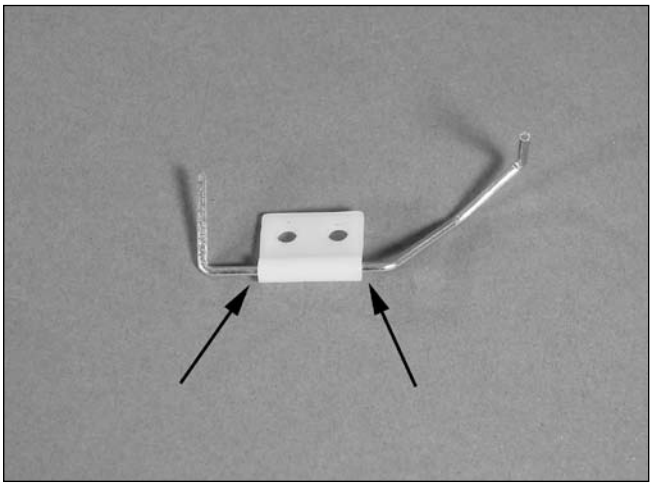
☐ Step 10

Use sandpaper to roughen the wire so the epoxy will have a rough surface to bond to.



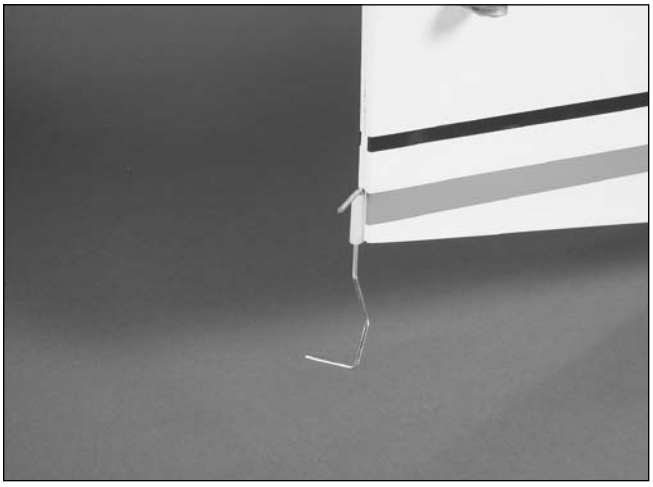
☐ Step 11

Apply a small amount of petroleum jelly to the top and bottom of the tail gear bushing. Work the jelly into the bushing to prevent epoxy from entering the bushing and locking the tail gear wire.



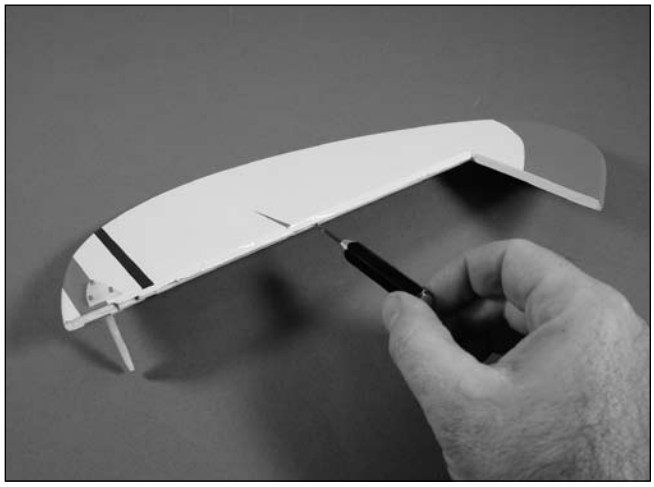
☐ Step 12

Use 30-minute epoxy to glue the tail gear bushing into the fuselage. Make sure the bushing is pressed tight in the fuselage, and has been slid down toward the bottom of the fuselage as far as possible.



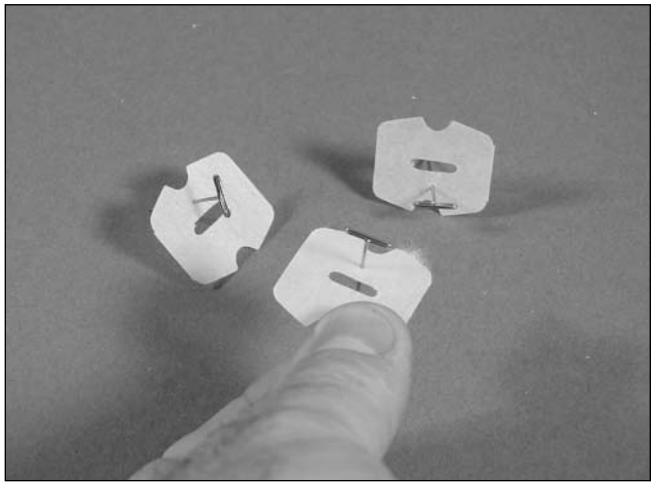
☐ Step 13

Use a pin drill and 1/16-inch (1.5mm) drill bit to drill a hole in the center of each hinge slot in the fin and rudder. This will provide a tunnel for the CA to wick into, providing a better bond between the hinge and surrounding wood.



☐ Step 14

Place a T-pin in the center of each of the three CA hinges. This will help in centering the hinges when they are installed.

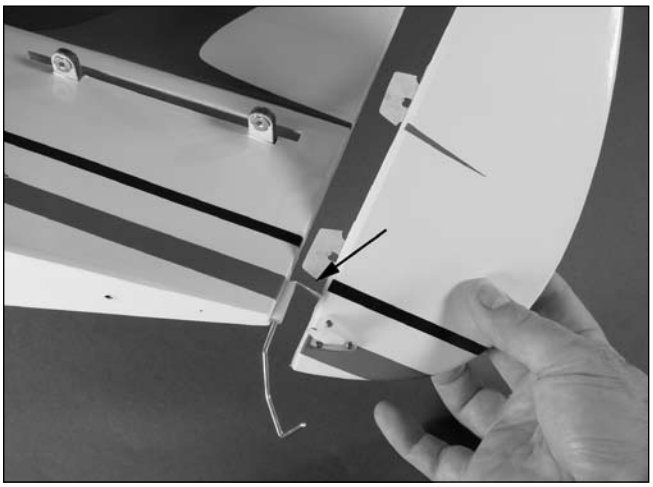


☐ Step 15

Slide each of the hinges into the rudder until the T-pin is resting on the hinge line of the rudder.

☐ Step 16

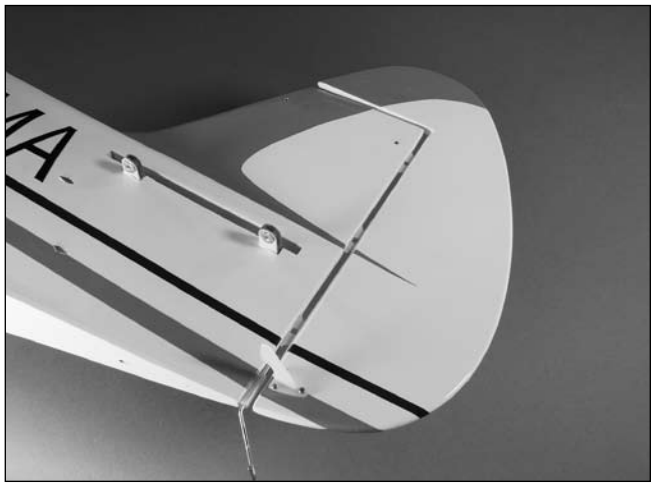
Test fit the rudder onto the tail gear wire, guiding the wire into the pre-drilled hole in the rudder.



Section 1: Landing Gear and Rudder Installation

☐ Step 17

As you slide the rudder onto the tail gear wire, slide the hinges for the rudder into the slots in the fin. The rudder should fit tight against the fin, and should not bind at the balance tab when the rudder is in operation.

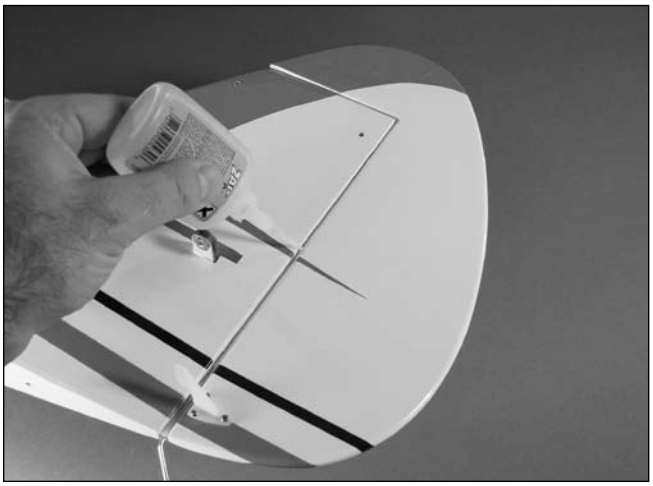


☐ Step 18

Once you have checked the fit of the hinges and tail gear wire, remove the rudder from the fin. Apply a small amount of 30-minute epoxy on the tail gear wire and into the hole in the rudder to secure it in the rudder. Repeat Steps 16 and 17 to place the rudder back into position.

☐ Step 19

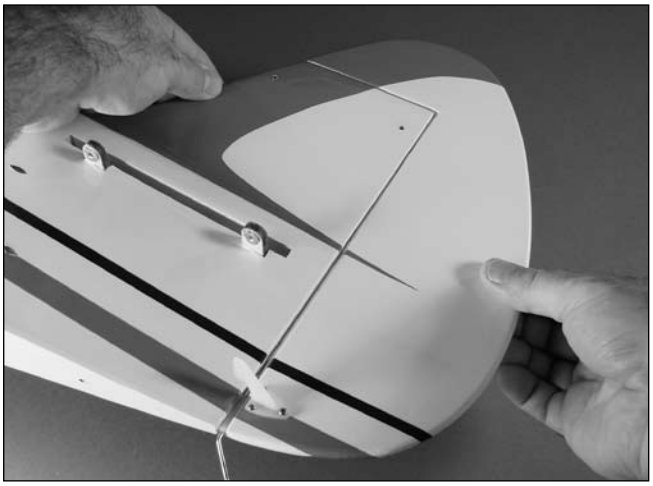
Remove the T-pins from the hinges. Apply thin CA to both sides of the three hinges. Allow the CA to cure (without using accelerator) before proceeding to the following steps.



Note: The CA must be allowed to cure without the use of accelerator. Using accelerator will not allow the CA to fully soak into the hinge, and could produce a poor bond between the hinges and surrounding wood.

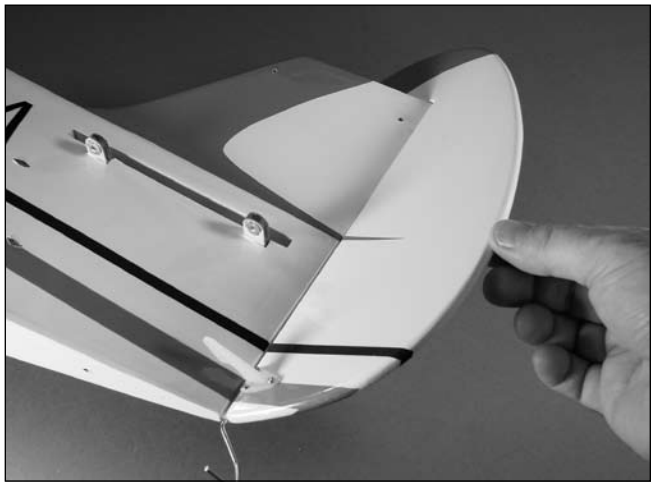
☐ Step 20

Once the CA has fully cured, gently pull on the fin and rudder to make sure all the hinges are glued securely.



☐ **Step 21**

Move the rudder right and left a number of times to condition the hinges.



☐ **Step 22**

Secure the tail wheel using two 1/16-inch wheel collars and two setscrews. Tighten the setscrews using the supplied hex wrench.

Note: Make sure to use threadlock on the setscrews to prevent them from vibrating loose.

Section 2: Aileron and Flap Servo Installation

Required Parts

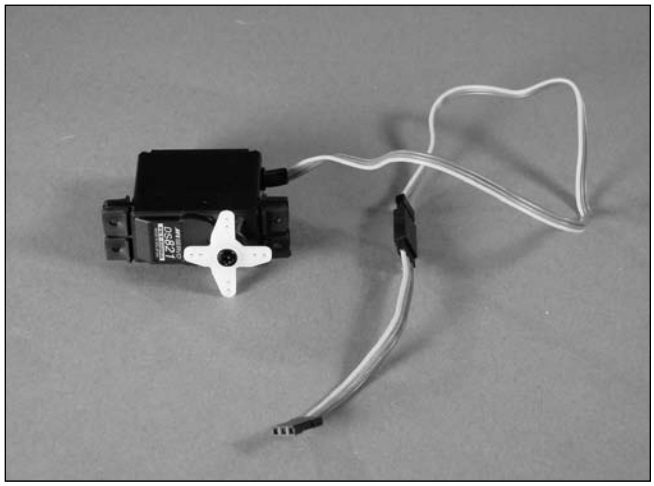
- Snap link (4)
- Nylon clevis (4)
- Clevis retainer (4)
- Flap servo cover (right and left)
- Aileron servo cover (right and left)
- #2 x 3/8-inch sheet metal screw (16)
- $3\,{}^{3}/_{4}$-inch (95mm) threaded pushrod (4)
- Servo mounting blocks, 3/4 x 9/16 x 5/16-inch (19 x 14 x 8mm) (8)

Required Tools and Adhesives

- Sandpaper
- Pencil
- Drill
- Pin drill
- Drill bit: 5/64-inch (2mm)
- 30-minute epoxy
- Long servo arm (4)
- Servo extension, 9-inch (229mm)

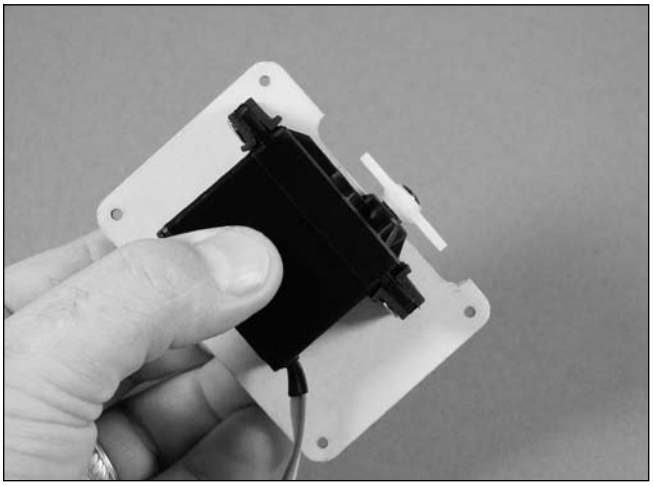
☐☐ Step 1

Secure a 9-inch (229mm) servo extension to the aileron servo. String or a commercially available connector is suggested to prevent disconnection inside the wing.



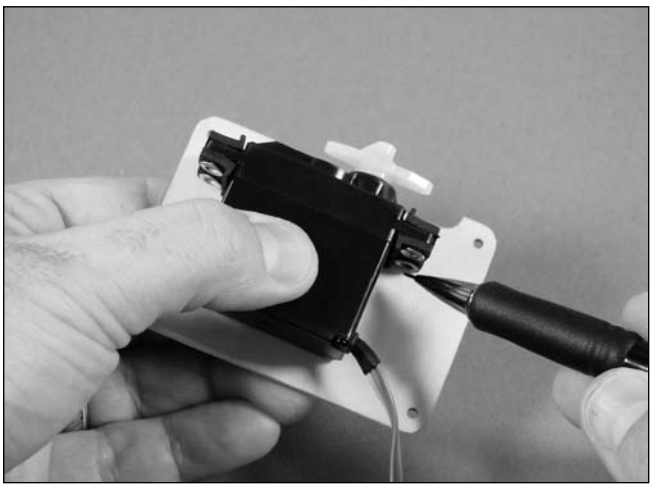
☐☐☐☐ Step 2

Position the servo onto the servo cover. The servo horn will be centered and in line with the outer edge of the cover as shown.



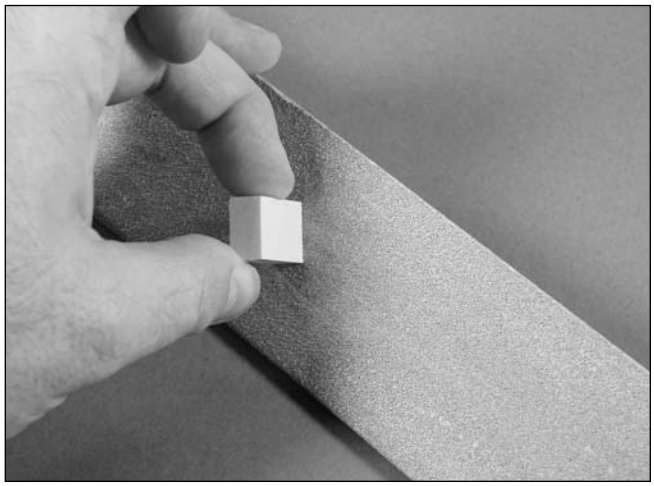
☐☐☐☐ Step 3

Mark the locations for the servo mounting blocks on the servo cover using a pencil or felt-tipped pen.



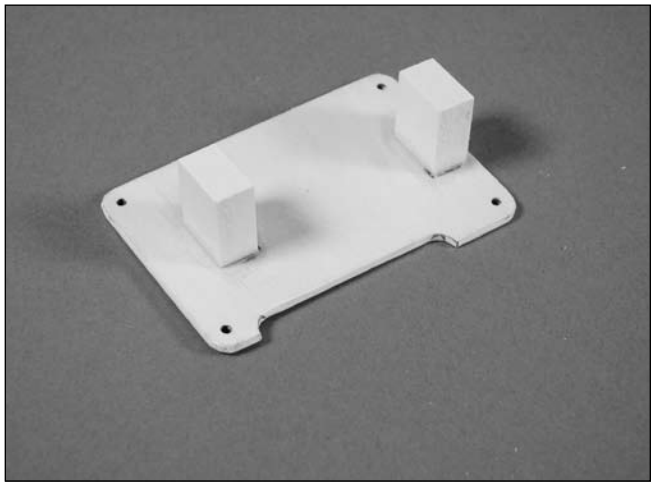
☐☐☐☐ Step 4

Lightly sand the servo mounting blocks on the edge where they will be glued to the servo cover. This will allow the epoxy to hold onto the block, providing a more secure bond between the cover and blocks.



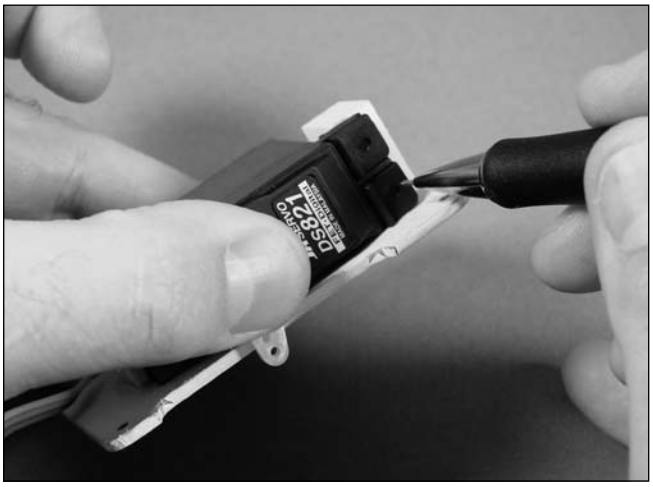
☐☐☐☐ Step 5

Use 30-minute epoxy to attach the two mounting blocks to the servo cover. Use clamps or tape to hold the blocks in position until the epoxy fully cures.



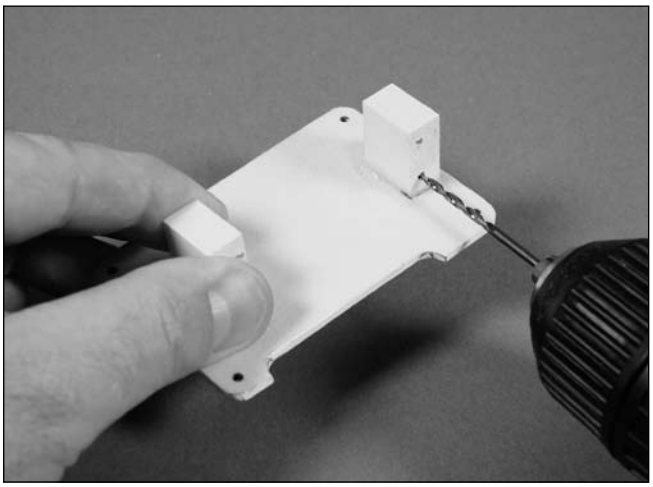
☐☐☐☐ Step 6

Transfer the locations for the servo mounting screws onto the servo mounting blocks using a pencil.



☐☐☐☐ Step 7

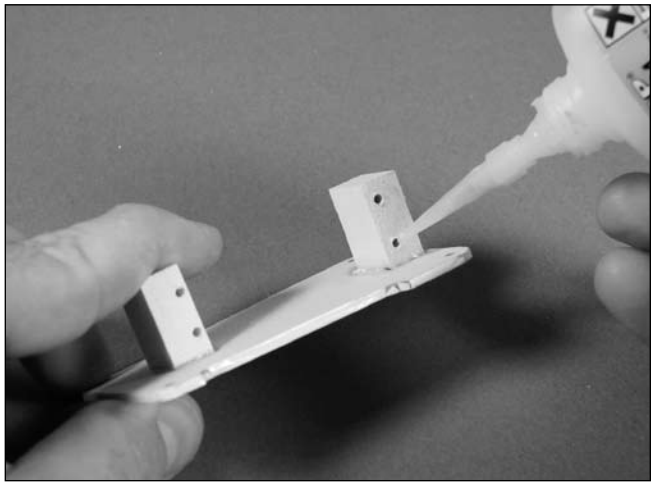
Drill four holes for the servo mounting screws using a drill and 5/64-inch (2mm) drill bit.



Section 2: Aileron and Flap Servo Installation

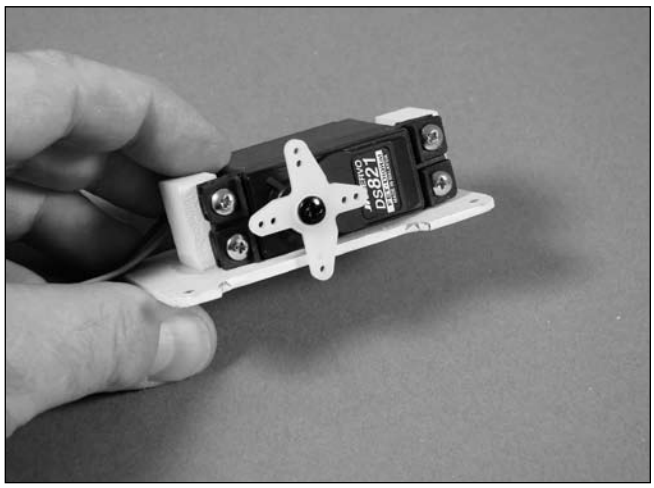
☐☐☐☐ Step 8

Apply 2–3 drops of thin CA into each of the holes to harden the surrounding wood. This will make the screws more secure and prevent them from vibrating loose.



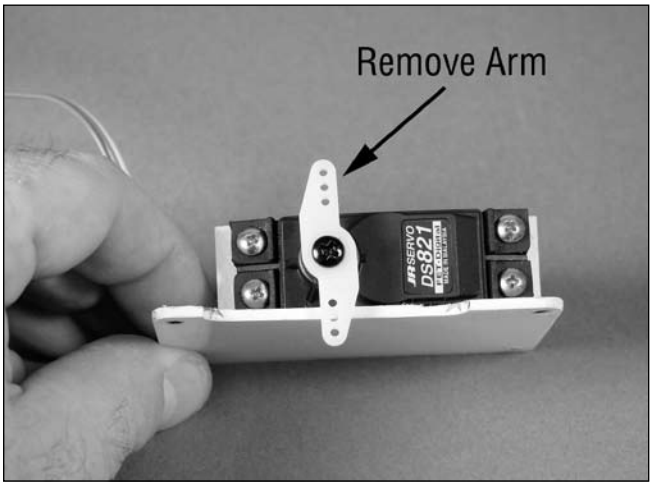
☐☐☐☐ Step 9

Use the screws supplied with the servo and a #1 Phillips screwdriver to secure the servo to the mounting blocks.



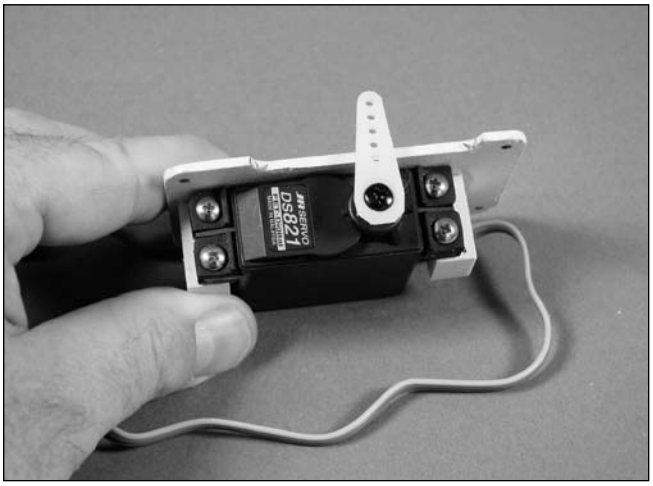
☐☐ Step 10a (aileron servos only)

Remove the supplied servo arm from the aileron servo. After centering the servo, attach a standard double arm using the screw supplied with the servo. Use side cutters to remove the portion of the arm that does not extend beyond the servo cover.



☐☐ Step 10b (flap servos only)

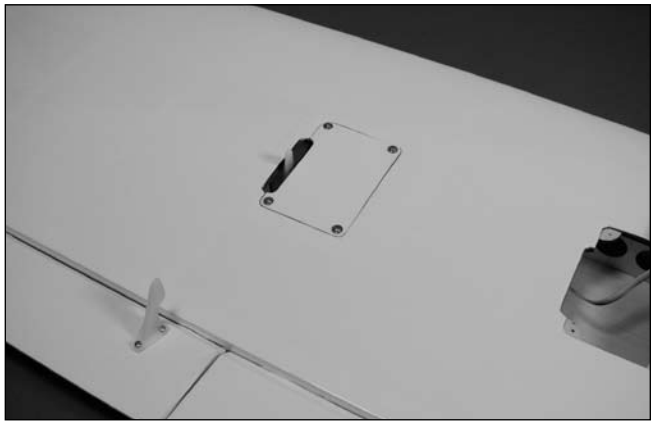
Remove the supplied servo arm from the flap servo. After centering the servo, attach a long servo arm (JSP98060) using the screw supplied with the servo.



Note: When installing the horn on the flap servo, set the throw on the radio to the center position for the flaps.

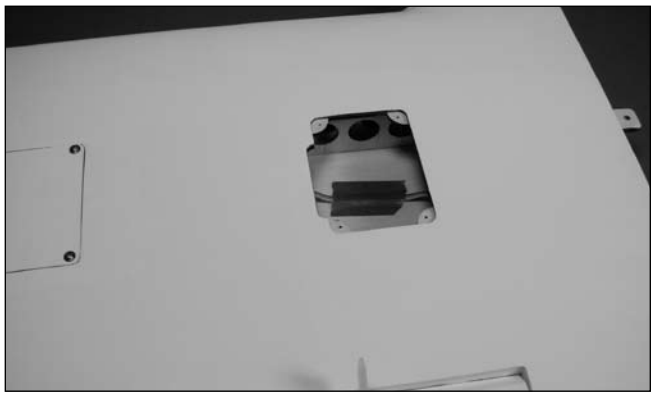
☐☐☐☐ Step 11

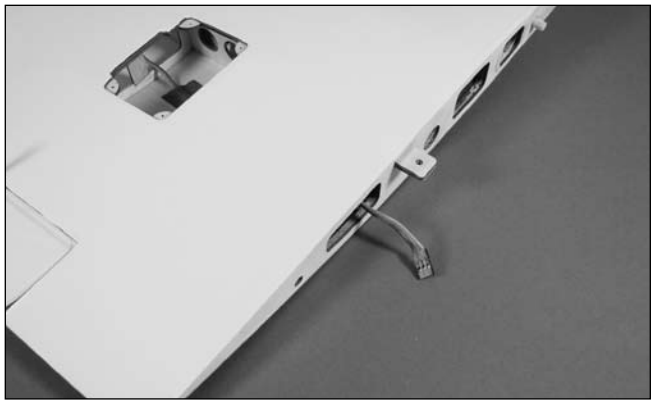
Pass the servo extension through the wing and into the bay for the flap servo. Use four #2 x 3/8-inch sheet metal screws to attach the servo cover to the wing.



☐☐☐☐ Step 12

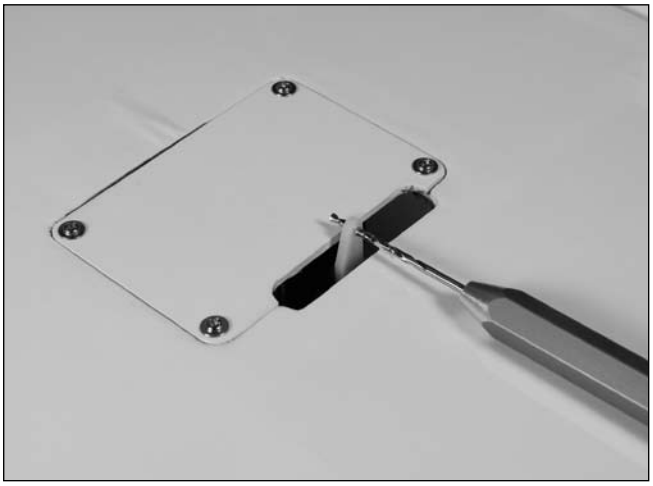
Continue to pass the aileron extension through the wing. Use tape (or glue) to secure the aileron extension to the top sheeting of the wing. This will prevent it from interfering with the operation of the flap servo.





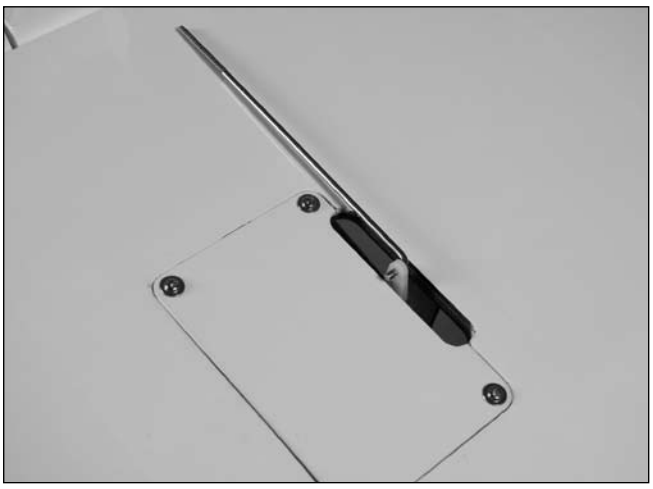
☐☐☐☐ Step 13

Use a pin drill and 5/64-inch (2mm) drill bit to enlarge the outermost hole in the servo arm to accept the pushrod wire.



☐☐☐☐ Step 14

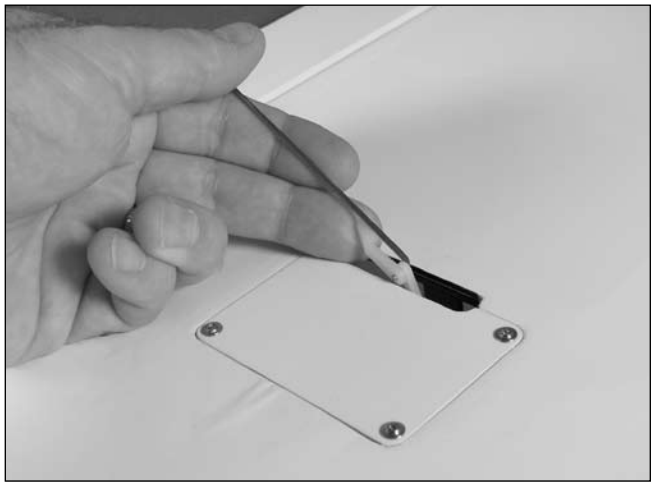
Slide one of the pre-bent $3\frac{3}{4}$-inch (95mm) linkages into the hole drilled in the previous step.



Section 2: Aileron and Flap Servo Installation

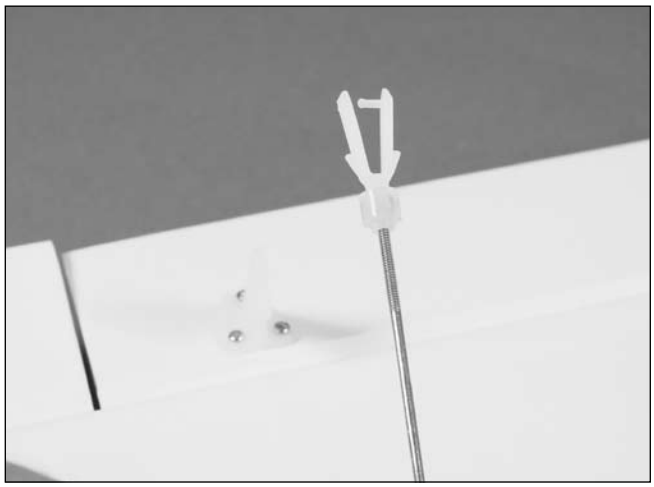
☐☐☐☐ Step 15

Secure the pushrod wire using one of the snap links provided with your Piper Pawnee 40.



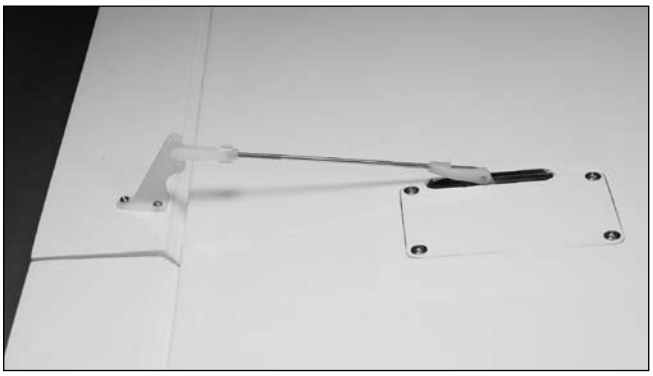
☐☐☐☐ Step 16

Slide a clevis retainer onto one of the nylon clevises. Thread the clevis onto the pushrod wire.



☐☐☐☐ Step 17

Turn on the radio system and plug the aileron servo into the receiver. Attach the clevis to the middle hole of the control horn as shown. It will be necessary to thread the clevis in or out on the pushrod wire to center the control surface while the radio is on and the servo centered.

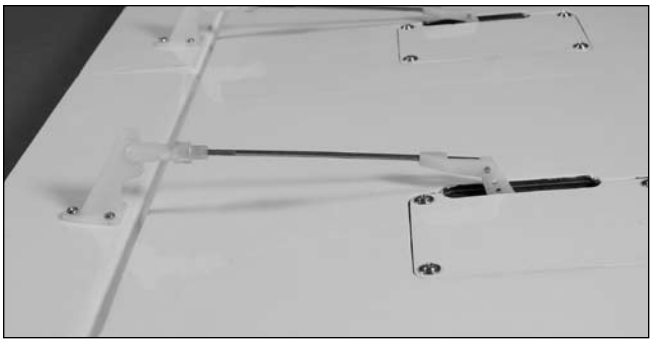


☐☐ Step 18

Repeat Steps 1 through 17 to install the remaining aileron servos.

☐ Step 19

Repeat Steps 2 through 18 to install the flap servos. Please pay attention to the notes at Step 10 regarding the centering of the flap servo and the servo arm installation. The linkage attaches to the outer hole of the servo arm and the middle hole of the control arm.



Note: When installing the flap linkage, make sure to change the radio to the up flap position before connecting and installing the linkage.

Note: On the flap we used the long servo arm (JSP98060) and connected to the middle hole on the control horn.

Section 3: Wing Attachment

Required Parts

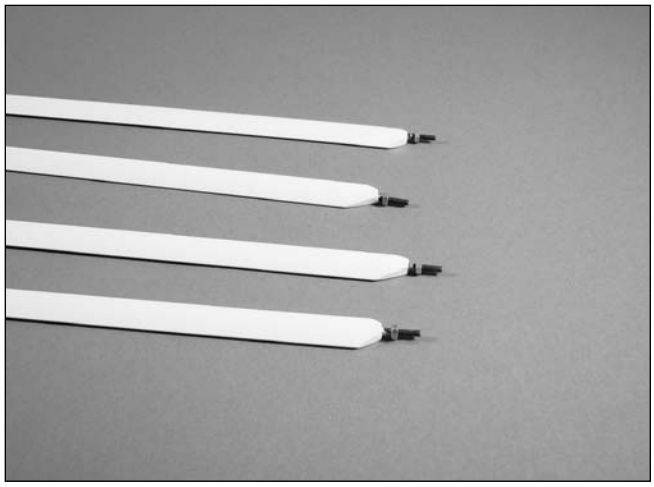
- Wing strut (front) (right and left)
- Wing strut (rear) (right and left)
- 3mm nut (4)
- Strut end (4)
- Wing strut bracket (4)
- #4 washer (4)
- Wing tube (small)
- Wing tube (large)
- 4-40 lock nut (4)
- Retainer pin clip (4)
- 1/4-inch (4mm) fuel tubing (4)
- Strut attachment pin (4)
- 4-40 x 1/2-inch socket head screw (18)

Required Tools and Adhesives

- Threadlock
- Adjustable wrench
- Hex wrench: 3/32-inch

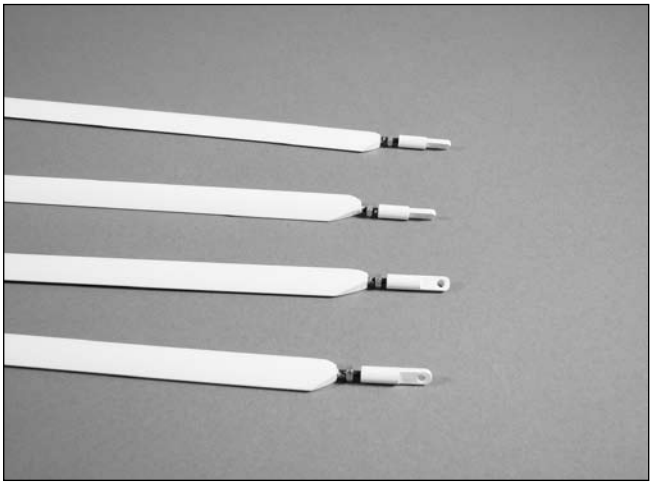
☐ Step 1

Thread a 3mm nut onto each of the struts.



☐ Step 2

Thread a strut end onto each of the struts.



☐ Step 3

Attach the wing strut brackets to the wing using four 4-40 x 1/2-inch socket head screws.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

Section 3: Wing Attachment

☐ Step 4

Attach the fuselage strut brackets using four 4-40 x 1/2-inch socket head screws and four #4 washers. The bracket will angle down and point toward the wing when installed.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

☐ Step 5

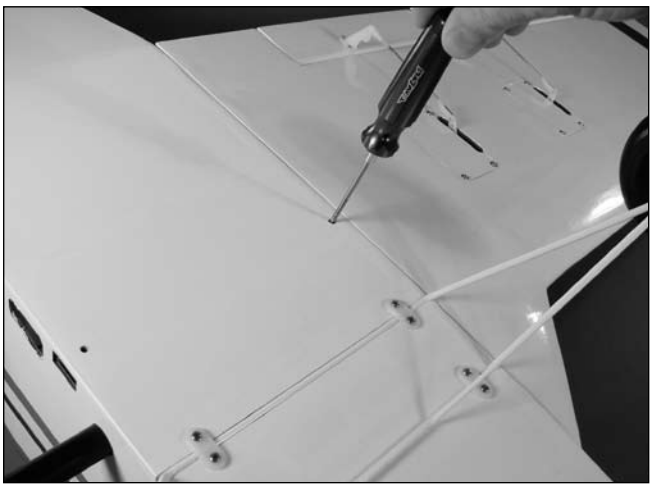
Slide the large and small wing tubes into the wing as shown. The small tube will be at the rear of the wing, and the large tube toward the front of the wing.

☐☐ Step 6

Slide the wing tubes into the fuselage. Guide the servo leads for the aileron and flap servos into the opening in the fuselage while positioning the wing.

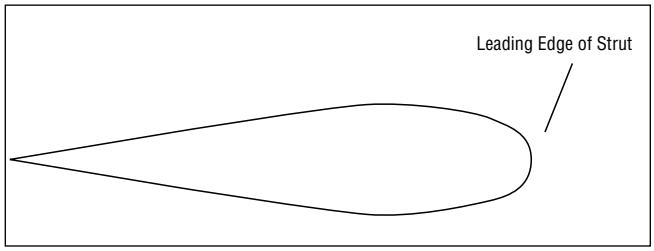
☐☐ Step 7

Secure the wing to the fuselage using a 4-40 x 1/2-inch socket head screw and a 3/32-inch hex wrench.



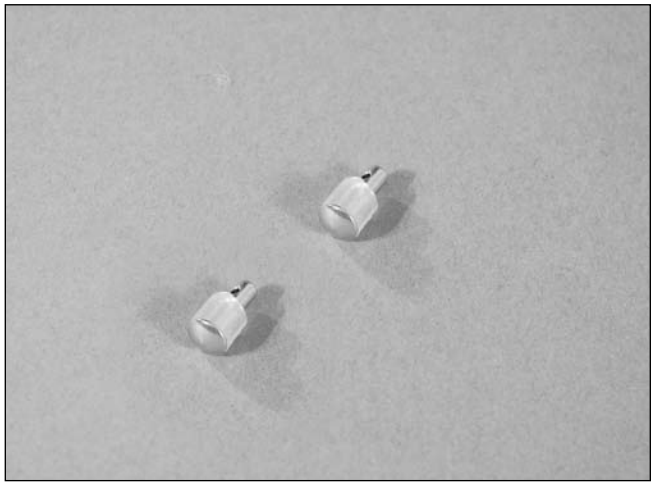
☐☐ Step 8

Attach the wing struts to the wing strut brackets using 4-40 x 1/2-inch socket head screws and 4-40 lock nuts. Note that the longer strut is positioned toward the rear (trailing edge) of the wing. Also note the airfoil shape of the strut during the installation.



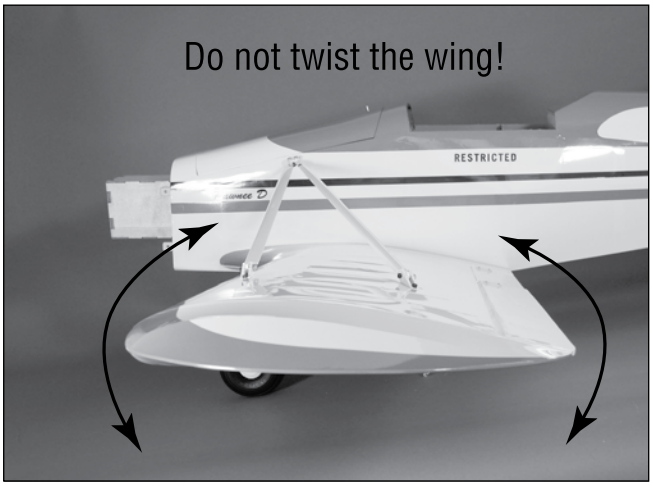
☐☐ Step 9

Slide the 1/4-inch (4mm) piece of fuel tubing onto a strut attachment pin. Prepare two pins for the attachment of the wing struts to the fuselage.



☐☐ Step 10

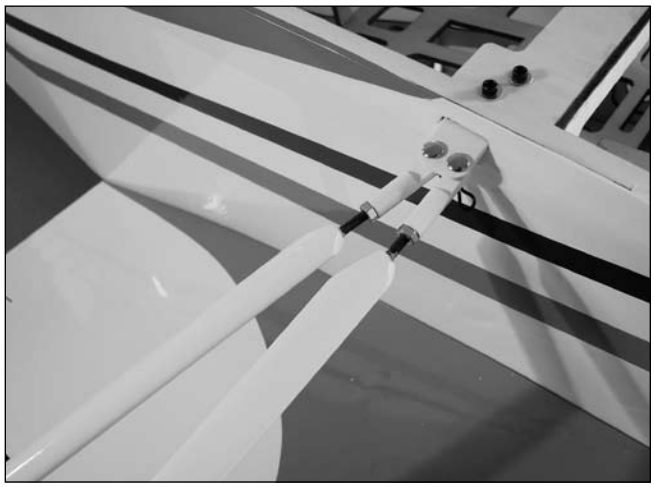
Align the holes at the ends of the struts with the holes in the fuselage bracket. It will be necessary to adjust the length of the strut ends to attach the struts without forcing them into position. Make sure that you will not be inducing any twist in the wings when attaching the struts.



Section 3: Wing Attachment

☐☐ Step 11

Attach the struts to the fuselage strut brackets using two strut attachment pins and two retainer pin clips.



☐☐ Step 12

Once the length of the struts has been set, make sure to use threadlock on the nuts and strut ends to prevent them from vibrating loose. Also tighten the 3mm nut against the strut end to lock everything into position.

☐ Step 13

Repeat Steps 6 through 10 to install the remaining wing panel by sliding it onto the wing tubes and securing it to the fuselage.

Section 4: Stabilizer/Elevator Installation

Required Parts

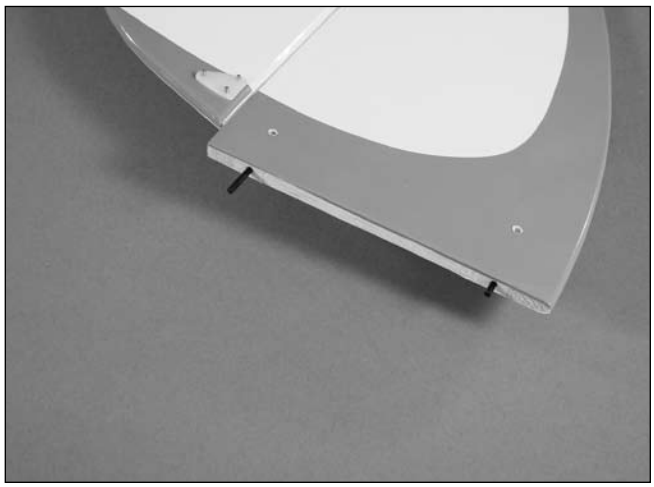
- Stabilizer/elevator (right and left)
- 4-40 x 1/2-inch socket head screws (10)
- #4 washers (4)
- 4-40 lock nut (4)
- Tail rigging (long tab) (2)
- Tail rigging tab (8)
- Tail rigging (medium tab) (2)
- Tail rigging (short tab, short cable) (4)
- $1\,^{3}/_{16}$-inch (30mm) pin
- 13/16-inch (21mm) pin

Required Tools and Adhesives

- Threadlock
- Adjustable wrench
- Hex wrench: 3/32-inch
- Pliers

☐ Step 1

Slide the stabilizer pins into one of the stabilizer halves. The longer $1\,^{3}/_{16}$-inch (30mm) pin is inserted toward the leading edge, while the shorter 13/16-inch (21mm) pin is inserted toward the elevator.

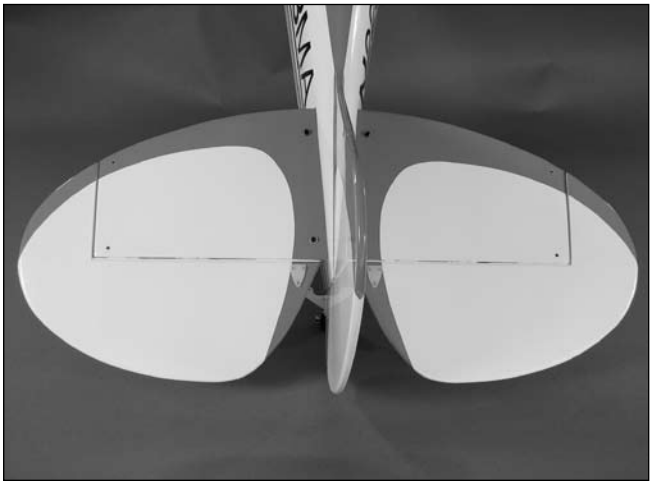


☐ Step 2

Attach one half of the stabilizer using two 4-40 x 1/2-inch socket head screws and two #4 washers. Leave the screws loose until instructed to tighten them.

☐ Step 3

Slide the remaining stabilizer into position and secure it using two 4-40 x 1/2-inch socket head screws and two #4 washers. Tighten all four screws at this time.

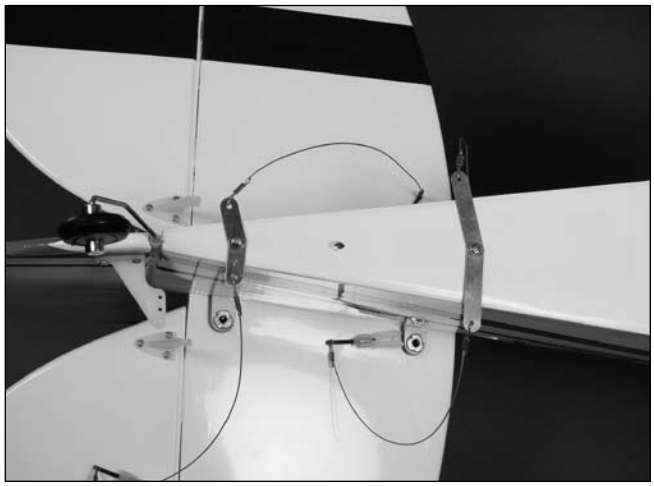


Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

Section 4: Stabilizer/Elevator Installation

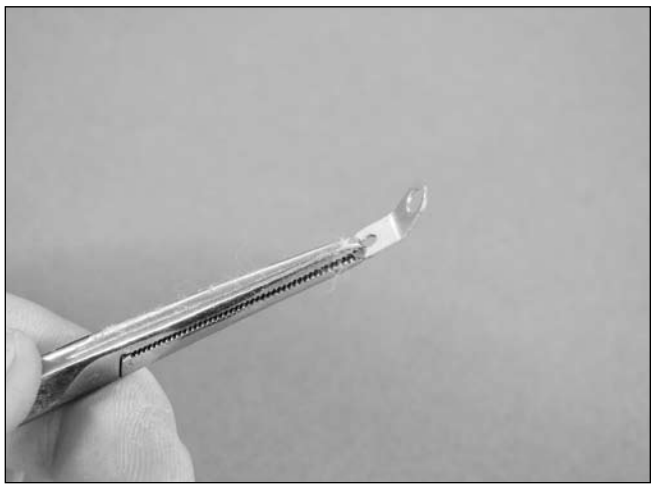
☐ Step 4

Attach the tail rigging with the long and medium tabs to the bottom of the fuselage using two #2 x 1/2-inch sheet metal screws. The longest tabs go to the front, while the medium length tabs go to the rear.



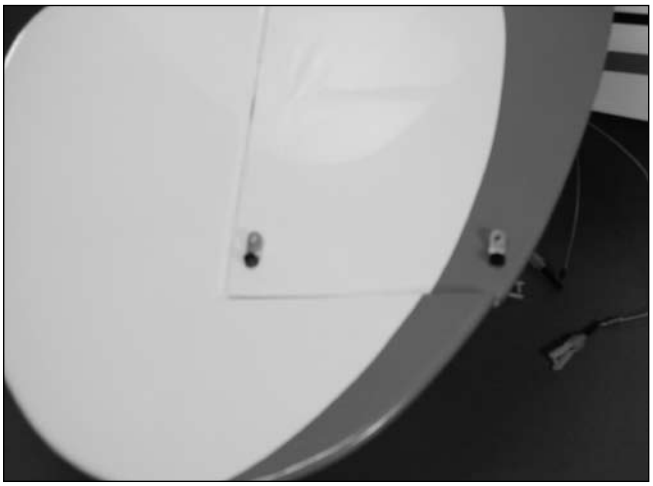
☐ Step 5

Carefully bend the remaining rigging tabs using pliers.



☐ Step 6

Attach the tabs to the top and bottom of the stabilizer using four 4-40 x 1/2-inch socket head screws and four 4-40 lock nuts. Leave the bolts loose enough so the tabs can be rotated.



☐ **Step 7**

Connect the rigging to the tabs on the stabilizer.

☐ **Step 8**

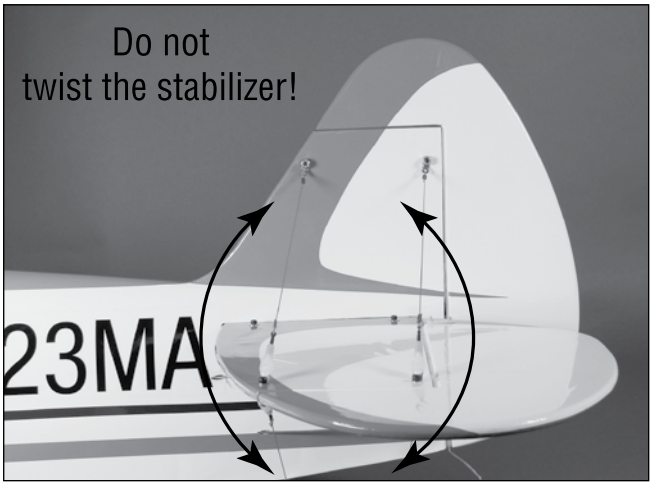
Attach the remaining cables to the fin using two 4-40 x 1/2-inch socket head bolts and two 4-40 lock nuts. Connect the clevises to the tabs on the stabilizer at this time.

☐ **Step 9**

Once all the cables have been attached, go back and tighten the bolts holding the tabs at the stabilizer. Do not crush the wood of the stabilizer by over-tightening the screws.

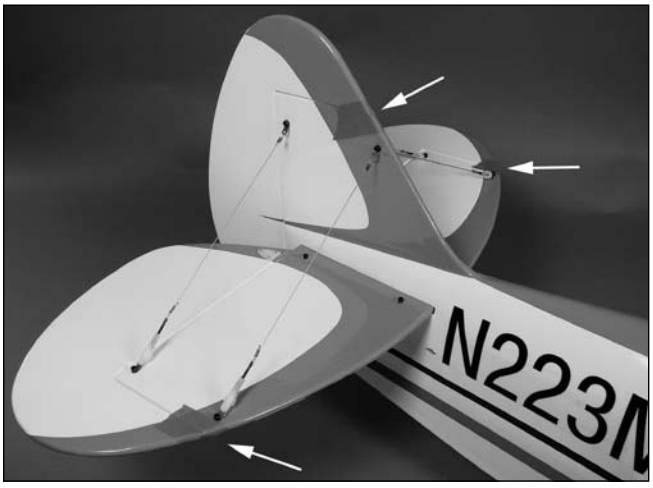
☐ **Step 10**

Adjust the flying wires so there is equal and light tension on each wire. Make sure that the stabilizer and fin have not been twisted during the tensioning of the flying wires.



☐ **Step 11**

To keep the rudder and elevators from moving, and to aid in the installation of the linkages, use low-tack painters tape to tape the rudder to the fin, and the elevators to the stabilizers, at this time.



Section 5: Radio Installation

Required Parts

- Fuselage assembly
- Receiver
- Switch harness
- Y-harness (2)
- Nylon clevis (3)
- Snap link (2)
- 5/32-inch wheel collar (2)
- 32-inch (813mm) pushrod
- $31\frac{1}{4}$-inch (794mm) pushrod
- $32\frac{1}{2}$-inch (825mm) pushrod
- 3mm x 8mm machine screw (2)
- Servo w/hardware (2)
- Receiver battery
- Foam rubber
- Hook and loop strap
- Clevis retainer (3)

Required Tools and Adhesives

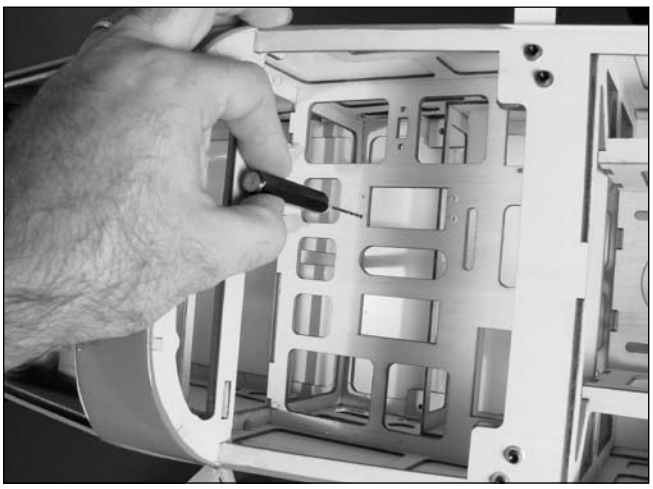
- Pin drill
- Phillips screwdriver: #1, #2
- 30-minute epoxy
- Drill bit: 1/16-inch (1.5mm)
- Thin CA

☐☐ Step 1

Position the rudder servo into the radio tray. Transfer the locations for the servo mounting screws onto the radio tray using a pencil.

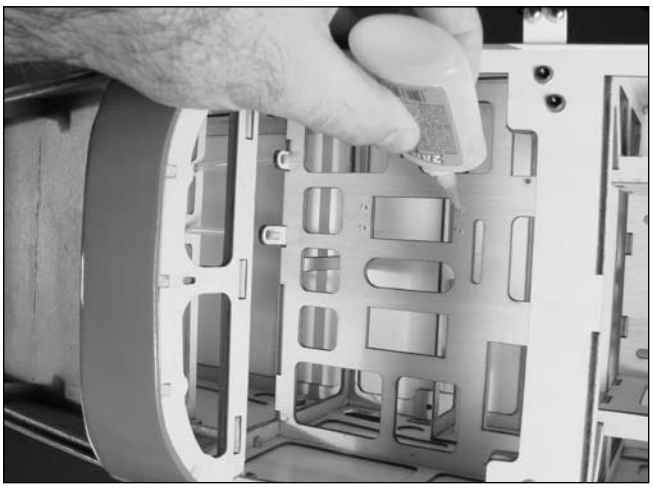
☐☐ Step 2

Drill four holes for the servo mounting screws using a pin drill and 1/16-inch (1.5mm) drill bit.



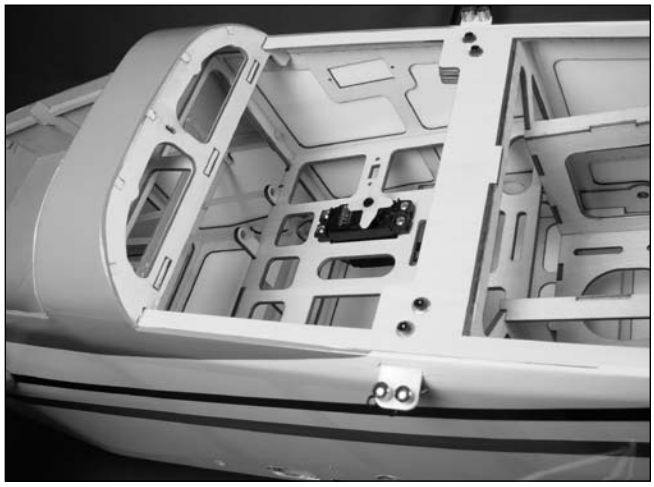
☐☐ Step 3

Apply 2–3 drops of thin CA into each of the holes to harden the surrounding wood. This will make the screws more secure and prevent them from vibrating loose.



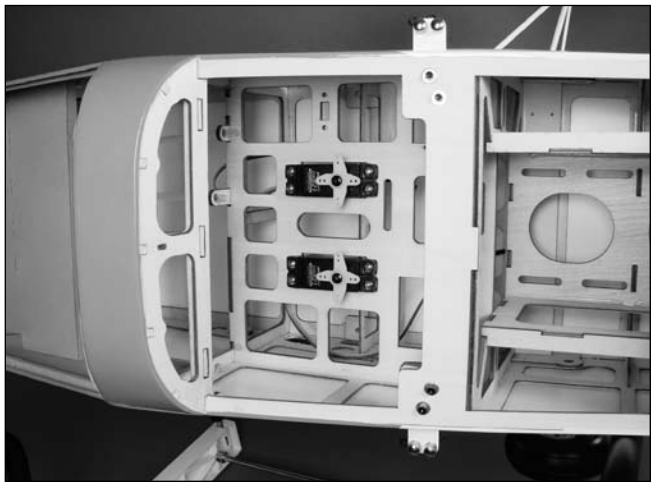
☐☐ Step 4

Use the screws supplied with the servo and a #1 Phillips screwdriver to secure the servo to the radio tray.



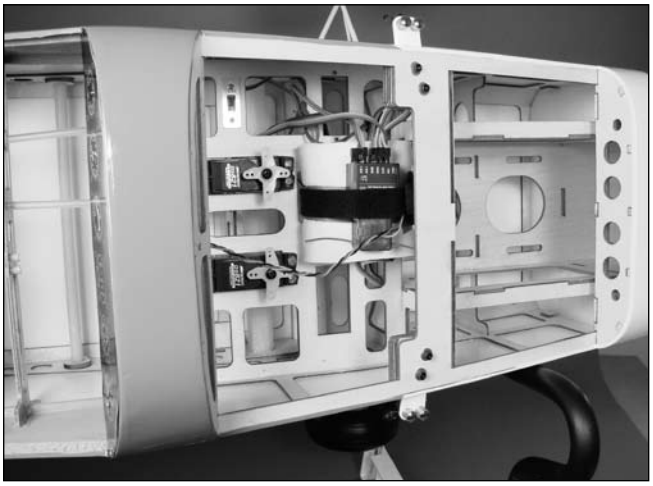
☐ Step 5

Repeat Steps 1 through 4 to install the elevator servo.



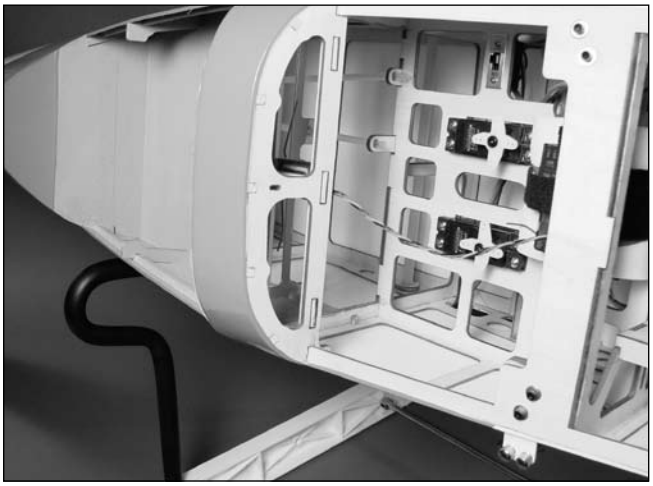
☐ Step 6

Wrap the receiver battery in foam and secure it to the radio tray using the supplied hook and loop strap. The receiver is mounted on the battery and should be positioned to avoid vibrations from being transferred through the airframe into the receiver. Install your switch harness at this time as well.



☐ Step 7

When using a remote receiver, place it as far as possible from the main receiver and at a different level in the fuselage for the best results. The higher the remote receiver can be mounted in the fuselage, the better.



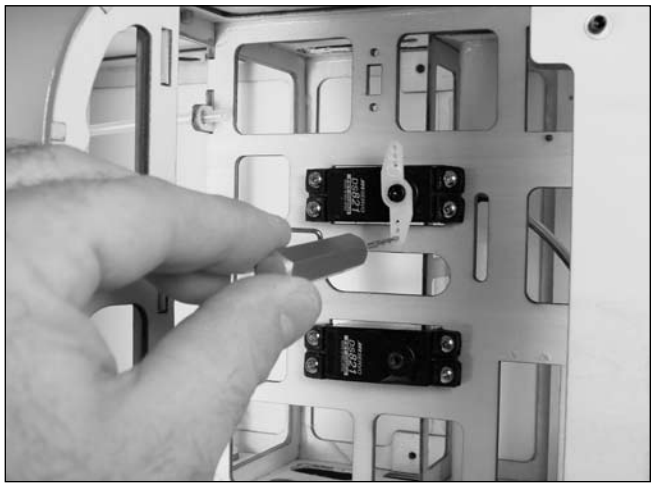
Section 5: Radio Installation

☐☐ Step 8

Slide the 32 $^{1}/_{2}$-inch (825mm) pushrod into the pushrod tube for the rudder. It is easiest to start by inserting the pushrod in the opening in the firewall to prevent bending it around the fuselage structure.

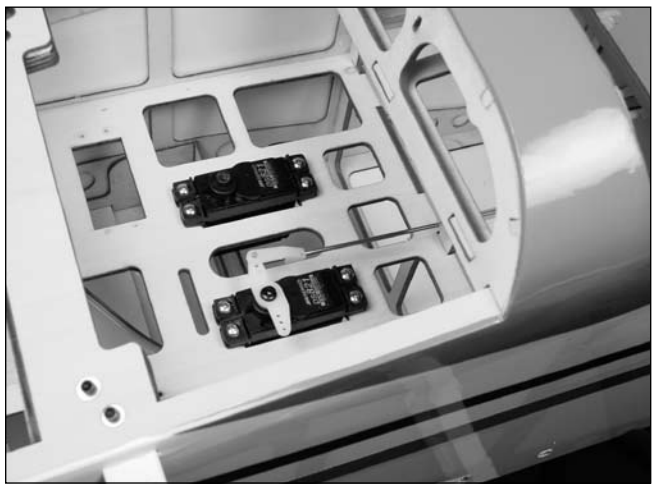
☐☐ Step 9

Replace the standard servo arm on the elevator servo with a standard double arm. Use a 5/64-inch (2mm) drill bit and pin drill to enlarge the outer hole in the rudder servo arm.



☐☐ Step 10

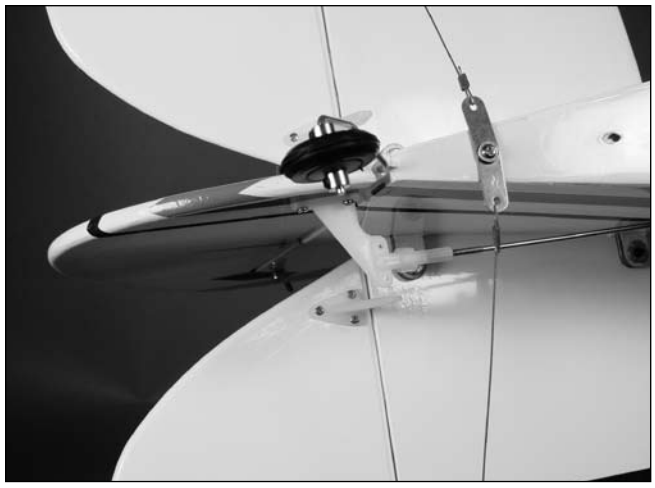
Secure the pushrod wire using one of the snap links provided with your Piper Pawnee 40.



Note: The elevator and rudder pushrods are connected to the outer hole on the standard double arm that comes with the servo and they are connected to the middle hole on the control horns for both rudder and elevator.

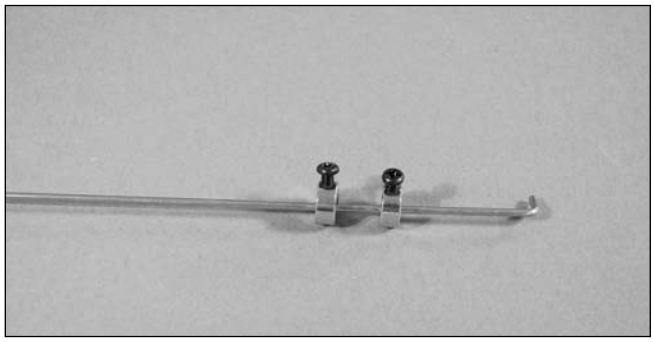
☐☐ Step 11

Turn on the radio system and plug the servo into the receiver. Attach the clevis to the middle hole of the control horn as shown. It will be necessary to thread the clevis in or out on the pushrod wire to center the control surface while the radio is on and the servo centered.



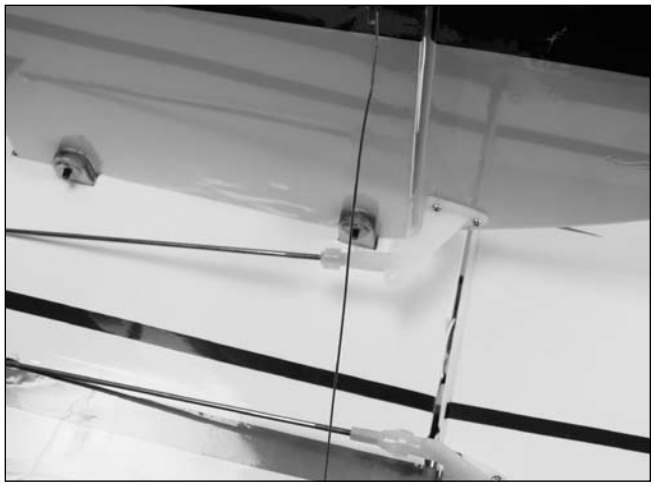
☐ Step 12

Slide the two 5/32-inch wheel collars onto the 32-inch (813mm) elevator pushrod. Secure the collars near the bend using a 3mm x 8mm machine screw and #2 Phillips screwdriver. The wheel collars will be positioned later.



☐ Step 13

Repeat Steps 8 through 11 to install the elevator pushrod, attaching the pushrod to the outer hole on the servo arm and the center hole of the control horn.



☐ Step 14

Thread a clevis on the remaining 31 $^{1}/_{4}$-inch (794mm) pushrod. Slide the pushrod into the pushrod tube from outside the fuselage and attach the clevis to the center hole of the elevator control horn.

☐ Step 15

The pushrod will pass through the two wheel collars that were installed in Step 12. The collars are then tightened to hold the two pushrods together. Apply 30-minute epoxy to the pushrods between the two collars as well at this time.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

Section 6: 2-Stroke Engine Installation

Required Parts

- Engine mount
- Clevis
- Engine mount plate (2)
- 8-32 lock nut (4)
- Clevis retainer
- Fuel tank
- $11\,^{3}/_{4}$-inch (300mm) throttle pushrod tube
- 8-32 x 3/4-inch machine screw (4)
- 8-32 x 1-inch machine screw (4)
- $17\,^{3}/_{4}$-inch (450mm) throttle pushrod

Required Tools and Adhesives

- Threadlock
- Foam rubber
- Pencil
- Drill
- Drill bit: 11/64-inch (4.5mm)
- Ruler
- Fuel dot
- Side cutter
- Sandpaper

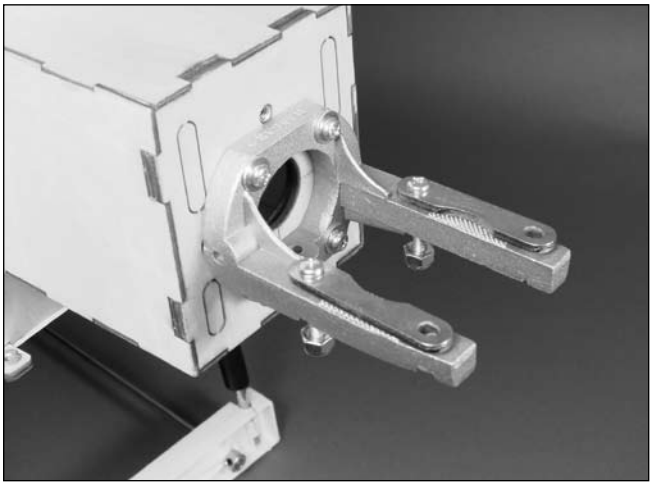
☐ Step 1

Attach the mount to the firewall using four 8-32 x 3/4-inch machine screws and four #8 washers.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

☐ Step 2

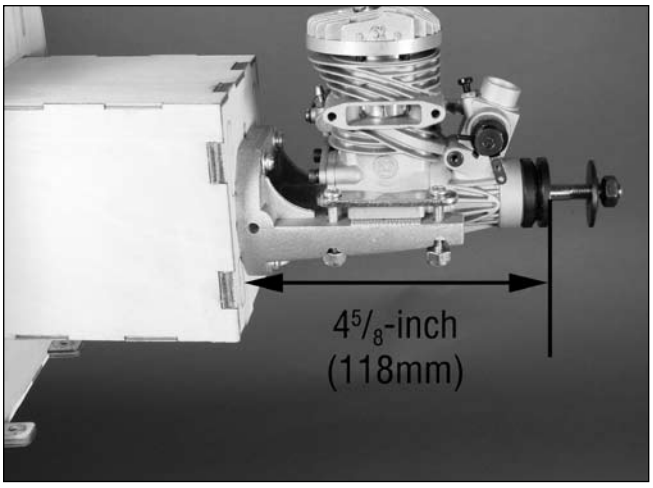
Temporarily install the rear 8-32 x 1-inch machine screws and 8-32 lock nuts to attach the mounting plates to the mount. Finger-tighten the screws at this time.



Note: The motor mount plates have a textured side that faces the mount when installed.

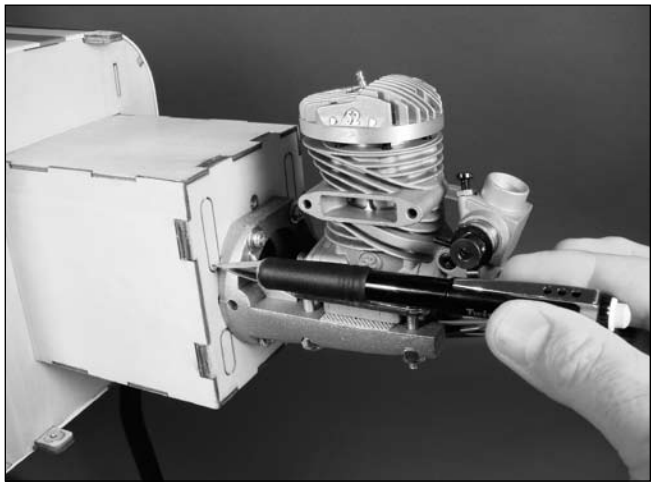
☐ Step 3

Slide the engine between the mount and mounting plates. Install the remaining 8-32 x 1-inch machine screws and 8-32 lock nuts at the front of the mounting plates. Position the engine so the drive washer is $4\,^{5}/_{8}$-inch (118mm) forward of the firewall. Tighten all four 8-32 x 1-inch machine screws evenly to secure the position of the engine.



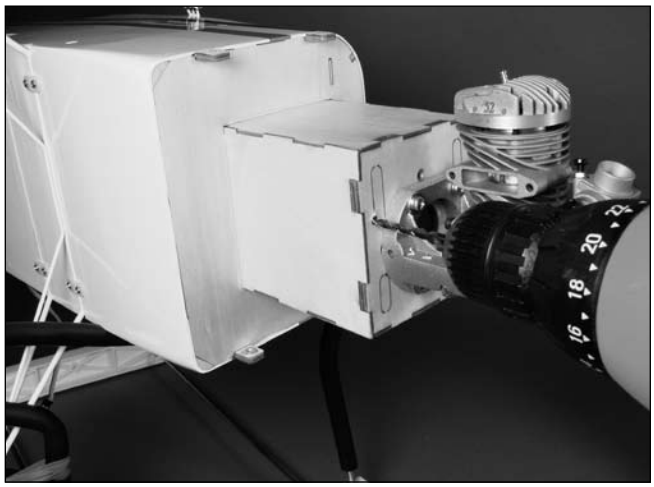
☐ Step 4

Use a pencil to mark the location of the throttle pushrod tube on the firewall.



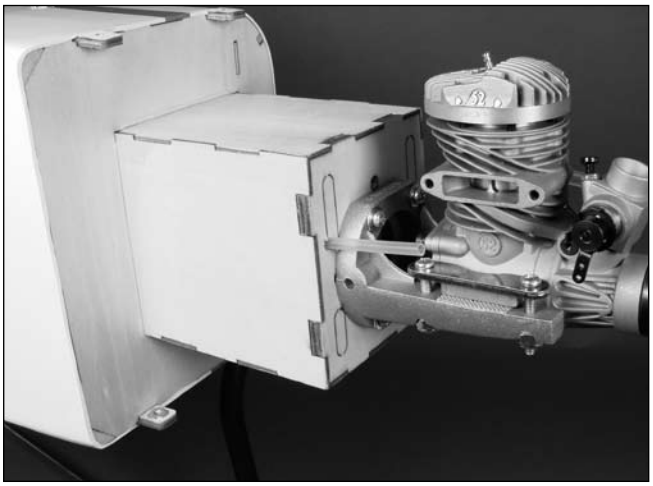
☐ Step 5

Use a drill and 11/64-inch (4.5mm) drill bit to drill the hole for the throttle pushrod tube.



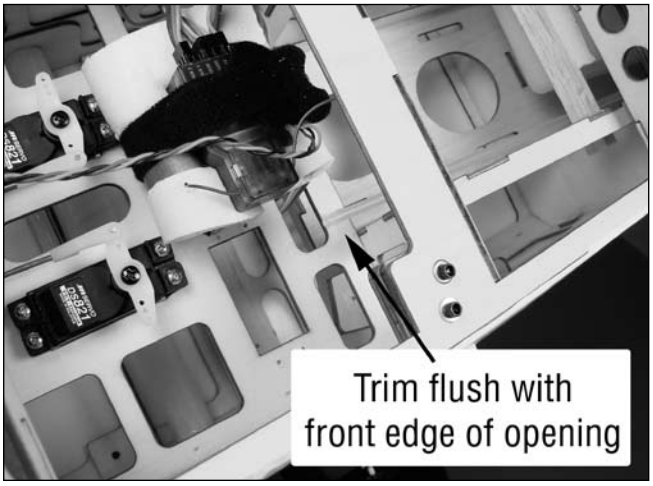
☐ Step 6

Roughen the outside of the 11 $^{3}/_{4}$-inch (300mm) throttle pushrod tube using sandpaper. Slide the tube into the hole, leaving around 1-inch (25mm) of the tube forward of the firewall.



☐ Step 7

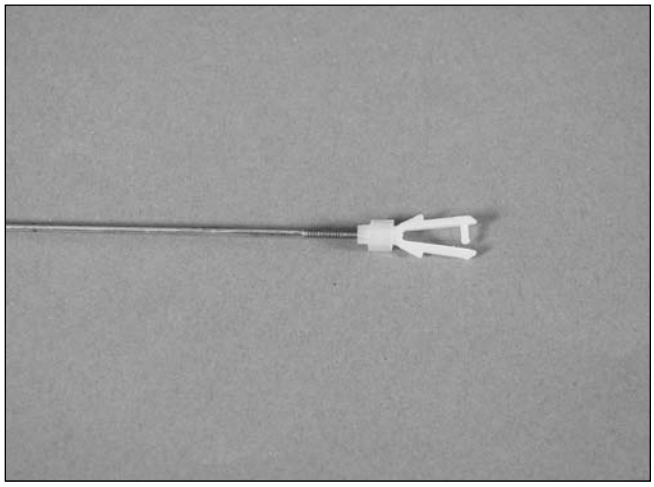
Use side cutters to trim the pushrod tube at the rear of the fuel tank tray as shown.



Section 6: 2-Stroke Engine Installation

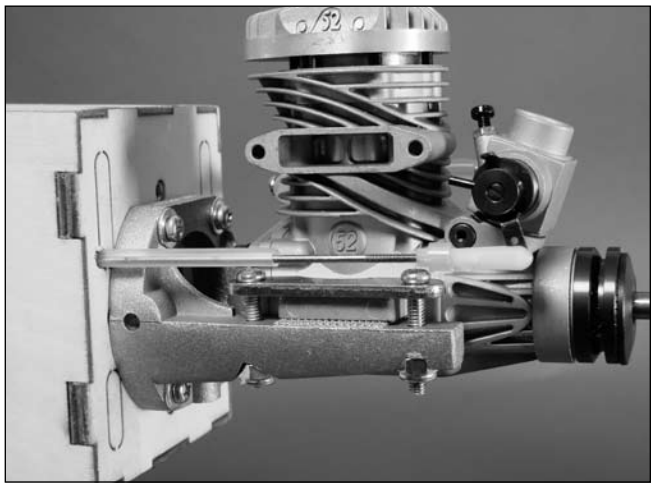
☐ Step 8

Slide a clevis retainer onto a clevis, then thread the clevis onto the 17 3/4-inch (450mm) throttle pushrod.



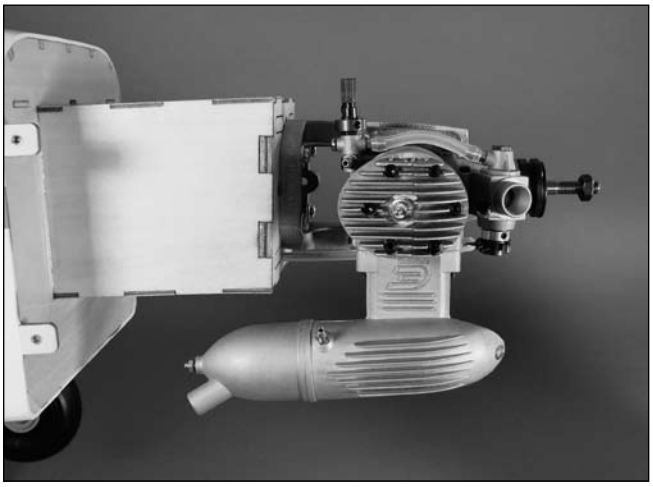
☐ Step 9

Slide the pushrod into the tube and connect the clevis to the carburetor arm.



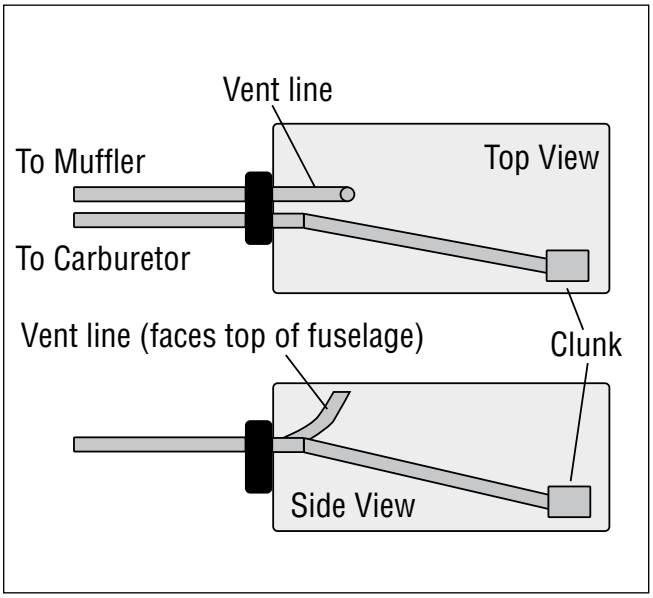
☐ Step 10

Attach the muffler to your engine following the instructions provided with your particular engine.



☐ Step 11

Look carefully at the fuel tank to determine which tubes are for the carburetor and vent. Also check the direction of the vent line inside the fuel tank. The vent will face the top of the fuselage when the fuel tank is installed. Use the drawings below as a reference for the fuel lines.

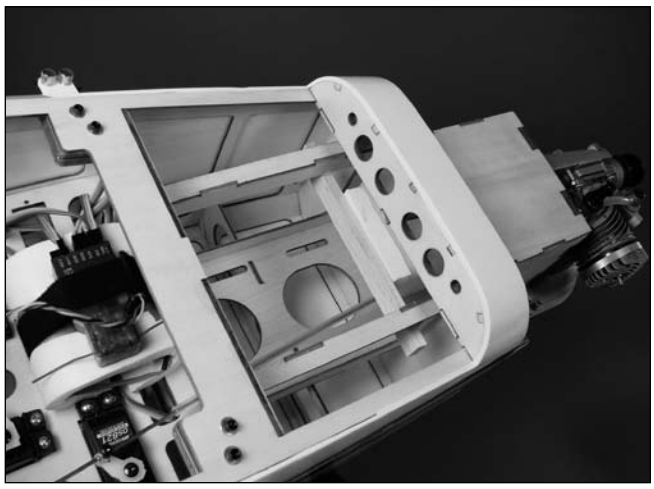


☐ Step 12

Slide the tank into the fuselage, making sure the vent line faces toward the top of the fuselage.

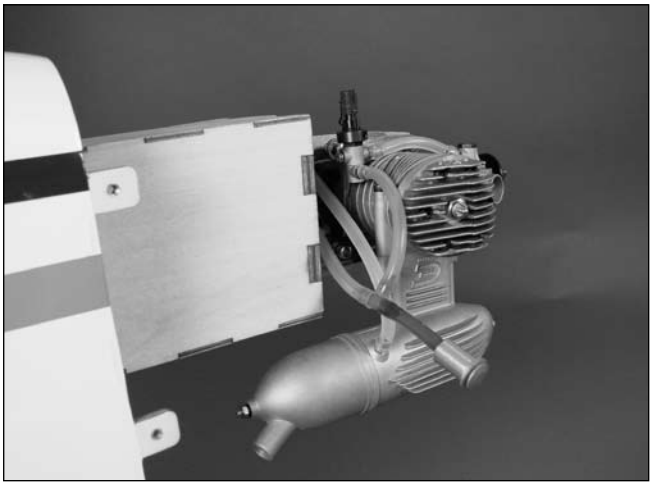
☐ Step 13

Install a brace and foam padding around the fuel tank to keep it in position inside the fuselage and protect it from vibration.



☐ Step 14

Connect the lines from the fuel tank to the engine and muffler. We used a fuel dot to allow fueling the tank from outside the cowling.



Section 7: 4-Stroke Installation

Required Parts

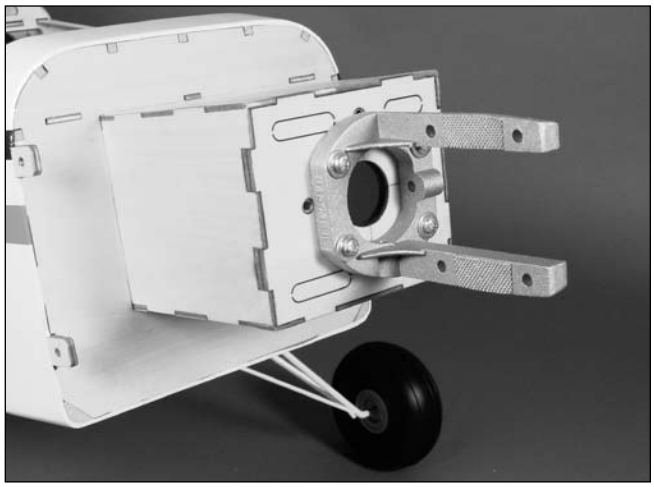
- Engine mount
- Engine mount plate (2)
- 11 3/4-inch (300mm) throttle pushrod tube
- 8-32 x 3/4-inch machine screw (4)
- 8-32 x 1-inch machine screw (4)
- 17 3/4-inch (450mm) throttle pushrod
- 8-32 lock nut (4)
- Fuel tank

Required Tools and Adhesives

- Threadlock
- Foam rubber
- Pencil
- Drill
- Drill bit: 11/64-inch (4.5mm)
- Ruler
- Fuel dot
- Side cutter
- Sandpaper

☐ Step 1

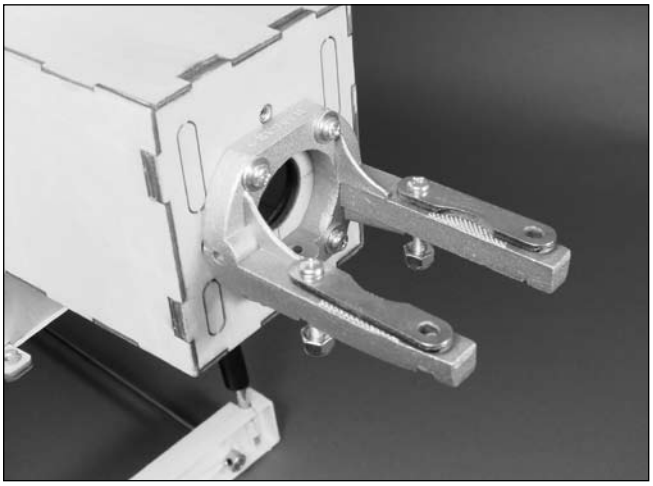
Attach the mount to the firewall using four 8-32 x 3/4-inch machine screws and four #8 washers.



Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

☐ Step 2

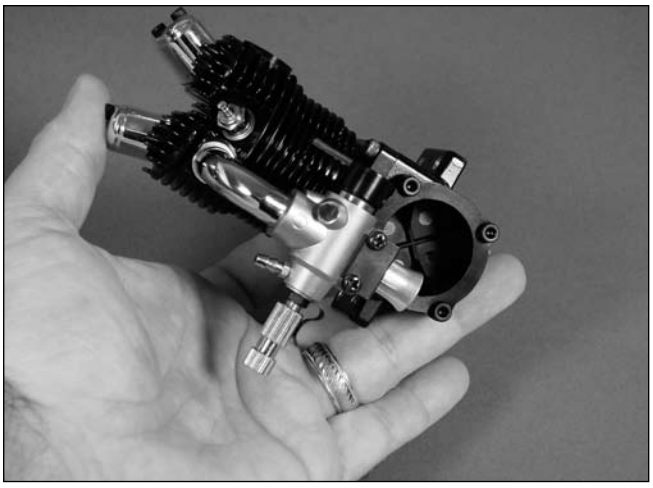
Temporarily install the rear 8-32 x 1-inch machine screws and 8-32 lock nuts to attach the mounting plates to the mount. Finger-tighten the screws at this time.



Note: The motor mount plates have a textured side that faces the mount when installed.

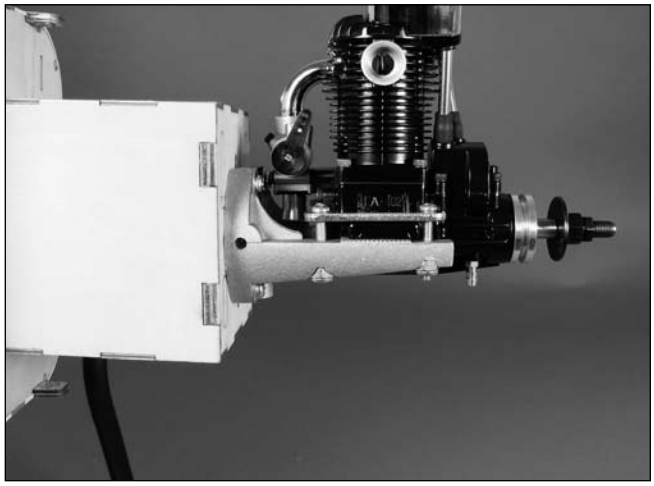
☐ Step 3

It may be necessary to rotate the carburetor on your engine in order to attach the throttle linkage. If the carburetor arm and linkage will interfere with the engine mount, rotate the carburetor as shown.



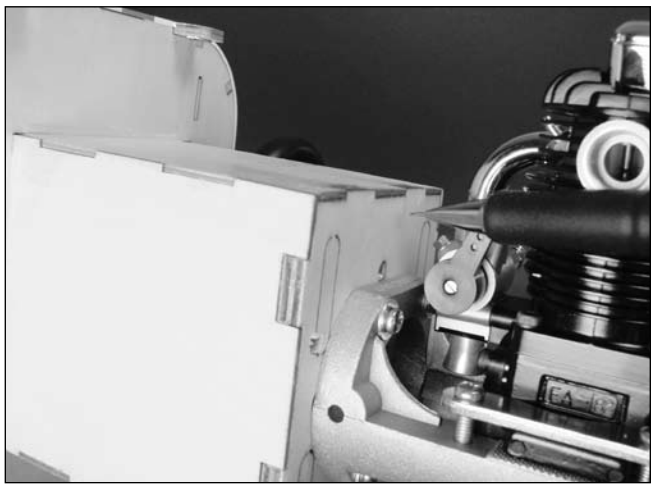
☐ **Step 4**

Slide the engine between the mount and mounting plates. Install the remaining 8-32 x 1-inch machine screws and 8-32 lock nuts at the front of the mounting plates.



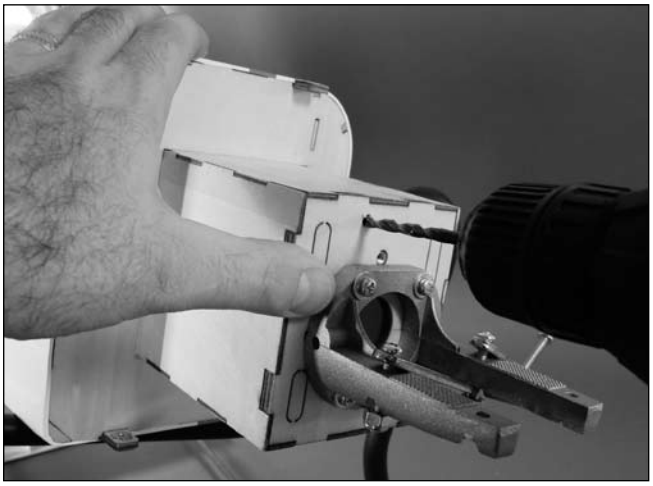
☐ **Step 5**

Use a pencil to mark the location of the throttle pushrod tube on the firewall.



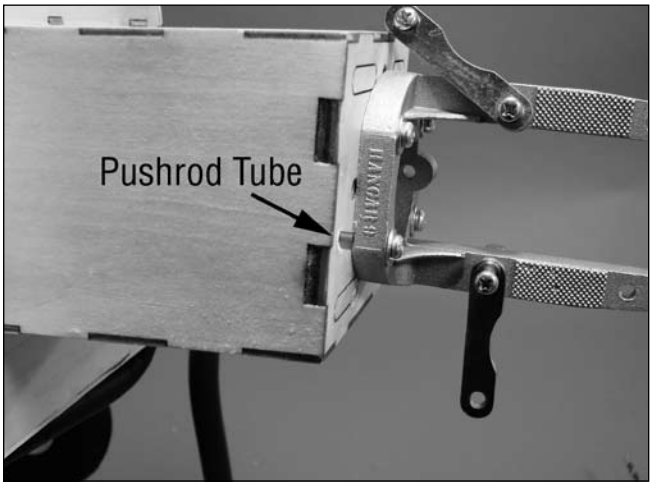
☐ **Step 6**

Remove the engine from the engine mount. Use a drill and 11/64-inch (4.5mm) drill bit to drill the hole for the throttle pushrod tube.



☐ **Step 7**

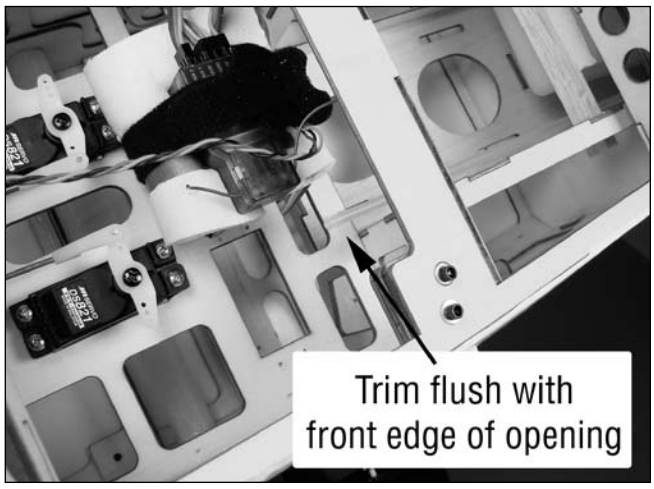
Roughen the outside of the 11 $^{3}/_{4}$-inch (300mm) throttle pushrod tube using sandpaper. Slide the tube into the hole, leaving around 1/4-inch (4mm) of the tube forward of the firewall.



Section 7: 4-Stroke Installation

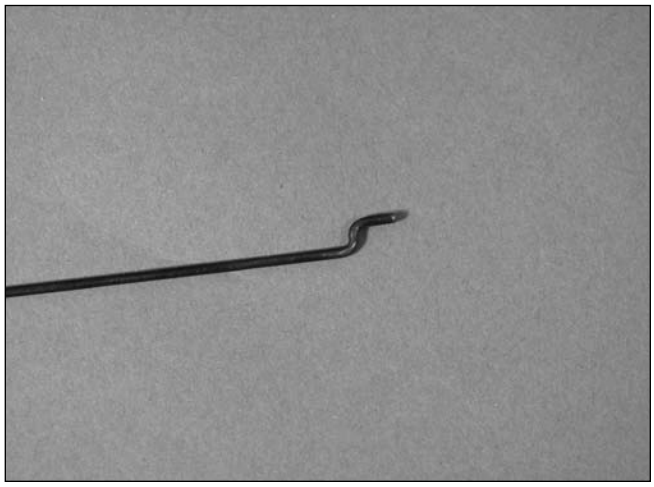
☐ Step 8

Use side cutters to trim the pushrod tube as shown.



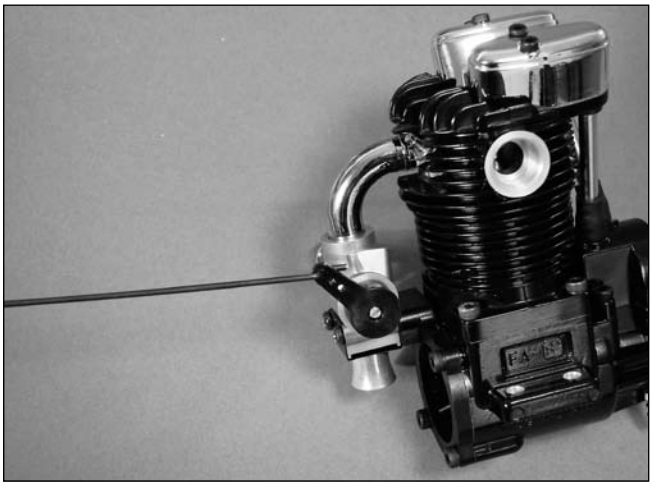
☐ Step 9

Make a Z-bend in the $17\,^{3}/_{4}$-inch (450mm) throttle pushrod. Make the bend on the end without the threads.



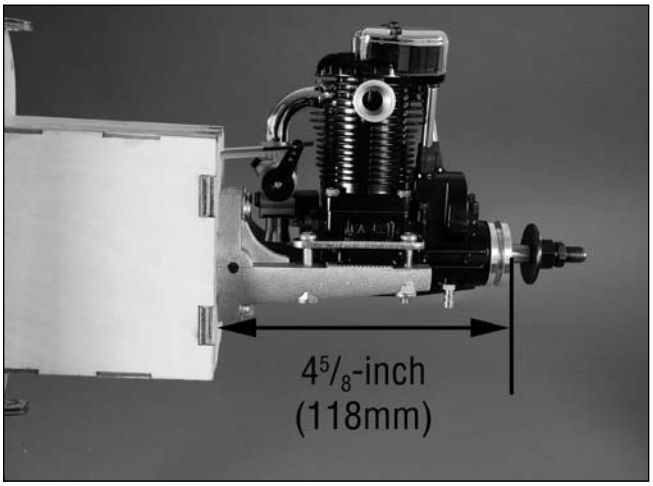
☐ Step 10

Attach the Z-bend to the carburetor by inserting the Z-bend in the outer hole of the carburetor arm as shown.



☐ Step 11

Slide the engine back into position on the mounts. (See Step 4 for details.) Position the engine so the drive washer is $4\,^{5}/_{8}$-inch (118mm) forward of the firewall. Tighten all four 8-32 x 1-inch machine screws evenly to secure the position of the engine.

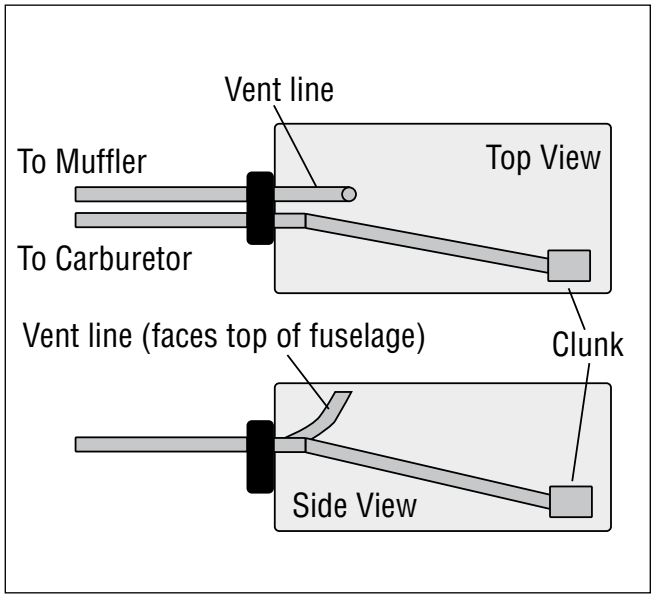


☐ Step 12

Attach the muffler to your engine following the instructions provided with your particular engine.

☐ Step 13

Look carefully at the fuel tank to determine which tubes are for the carburetor and vent. Also check the direction of the vent line inside the fuel tank. The vent will face the top of the fuselage when the fuel tank is installed. Use the drawings below as a reference for the fuel lines.

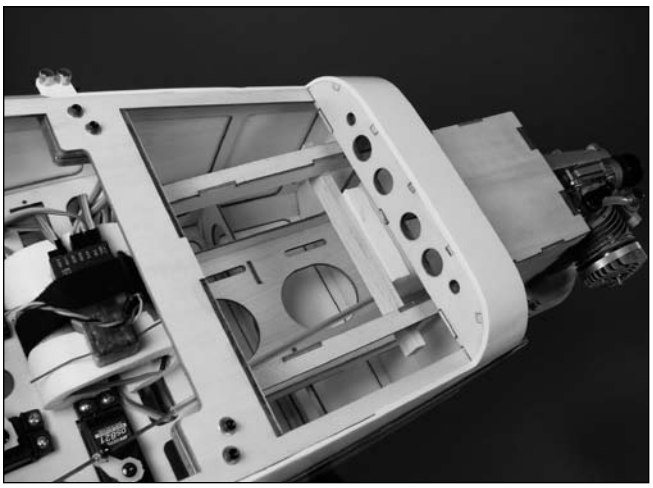


☐ Step 14

Slide the tank into the fuselage, making sure the vent line faces toward the top of the fuselage.

☐ Step 15

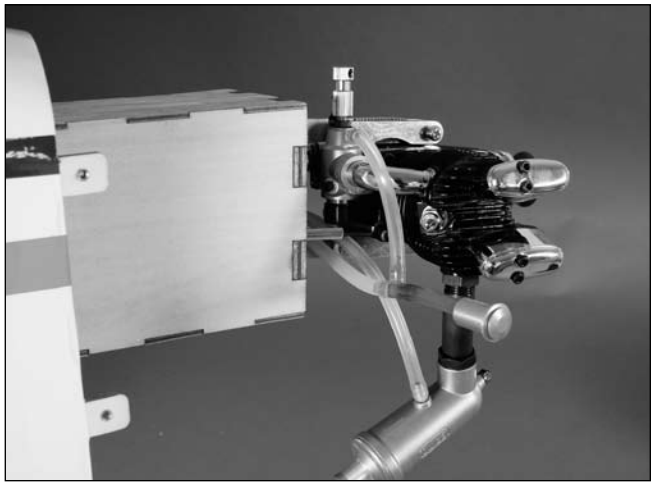
Install a brace and foam padding around the fuel tank to keep it in position inside the fuselage and protect it from vibration.



Section 7: 4-Stroke Installation

☐ Step 16

Connect the lines from the fuel tank to the engine and muffler. We used a fuel dot to allow fueling the tank from outside the cowling.



Section 8: Throttle Servo Installation

Required Parts

- Fuselage assembly
- Servo
- Snap link
- Plywood pushrod standoff

Required Tools and Adhesives

- Pencil
- Thin CA
- Drill bit: 5/64-inch (2mm)
- Pliers
- Side cutters
- Pin drill
- Phillips screwdriver
- Medium CA

☐ Step 1

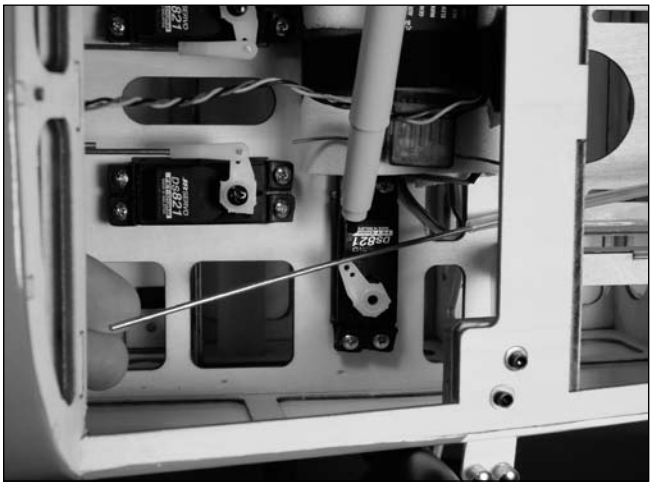
Slide the plywood pushrod standoff onto the pushrod tube. The exact location will be determined later in this section of the manual.

☐ Step 2

Follow Steps 1 through 4 under Section 5: Radio Installation to install the throttle servo into the fuselage.

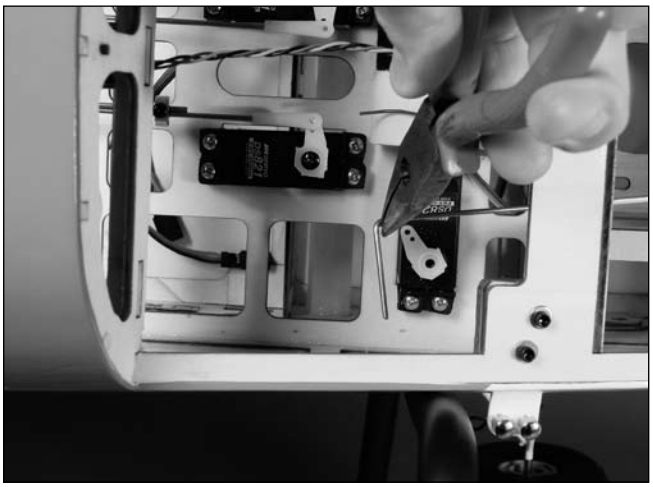
☐ Step 3

Use a felt-tipped pen to mark the pushrod where it crosses the outer hole on the servo horn.



☐ Step 4

Use a pair of pliers to make a 90-degree bend in the pushrod at the mark made in the previous step.



Section 8: Throttle Servo Installation

☐ Step 5

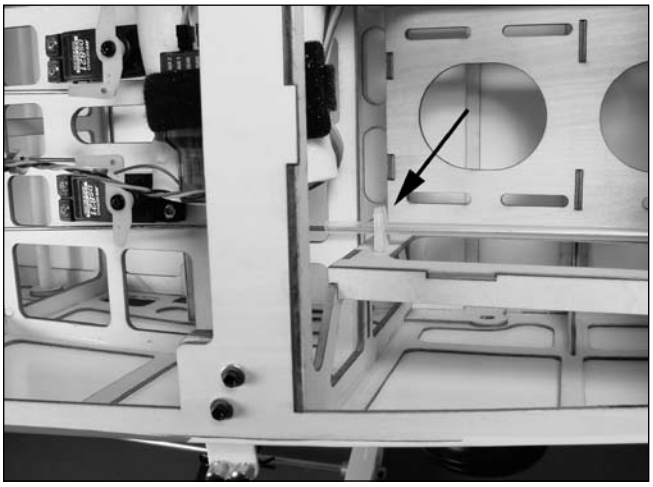
Use a pin drill and a 5/64-inch (2mm) drill bit to enlarge the outer hole in the servo arm. Slide the pushrod wire through the hole in the servo horn. Slide the snap link onto the pushrod wire, then rotate it until it snaps onto the wire.

☐ Step 6

Use side cutters to remove the excess wire. Leave at least 1/16-inch (1.5mm) exposed beyond the connector to prevent the wire from coming out of the connector.

☐ Step 7

Slide the plywood pushrod standoff so it can be glued to the side of the fuselage using medium CA as shown.



Section 9: Electric Motor Installation

Required Parts

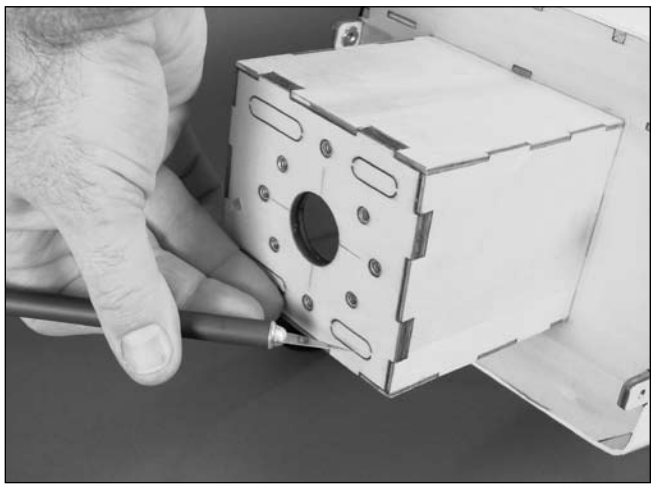
- Fuselage assembly
- Electronic speed control
- Hook and loop tape
- Motor w/hardware
- Hook and loop strap
- Motor battery
- 2-inch (50mm) aluminum standoff (4)
- 8-32 x 2 1/2-inch (64mm) machine screw (4)

Required Tools and Adhesives

- Hobby knife
- Drill bit: 5/32-inch (4mm)
- Covering iron
- Drill

☐ Step 1

Use a hobby knife to remove the plywood from the firewall to provide cooling air to pass through the fuselage. The plywood has been partially cut so all that is required is to score the plywood along the lines.

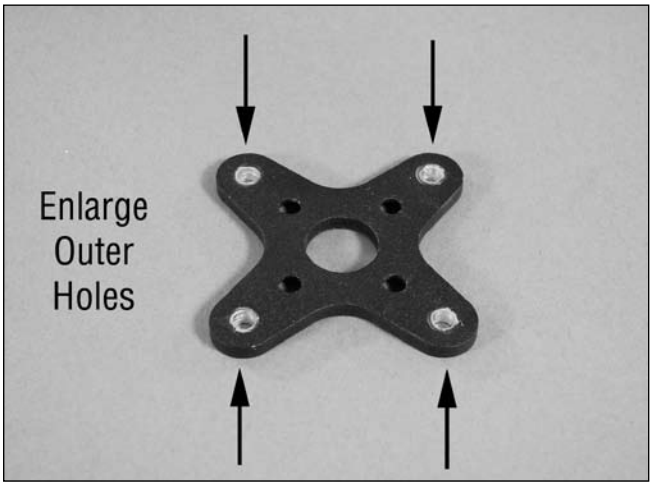


☐ Step 2

Use a hobby knife and a covering iron to open the cooling air exit in the bottom of the fuselage. Cutting the covering 1/8-inch (3mm) inside the opening and ironing the covering into the fuselage will leave a clean look to the bottom of the fuselage as shown.

☐ Step 3

Use a drill and 5/32-inch (4mm) drill bit to enlarge the outer holes in the X-mount as shown.



Section 9: Electric Motor Installation

☐ Step 4

Attach the X-mount to the motor using the screws provided with the motor.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

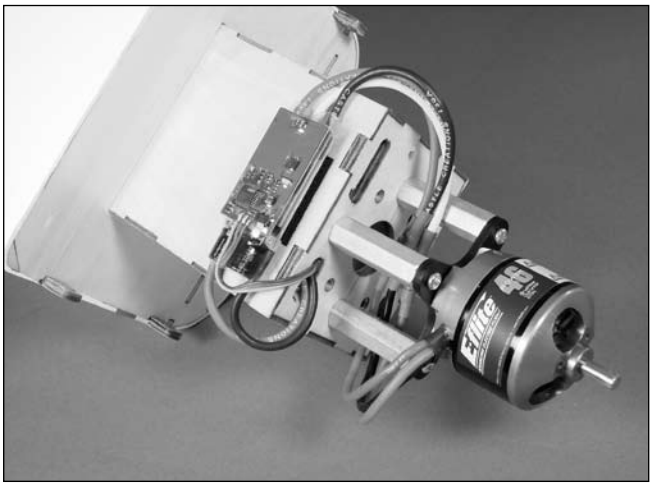
☐ Step 5

Attach the motor to the firewall using four $1\,^{5}/_{8}$-inch (50mm) aluminum standoffs and four 8-32 x $2\,^{1}/_{2}$-inch (64mm) machine screws.

Note: Make sure to use threadlock on the screws to prevent them from vibrating loose.

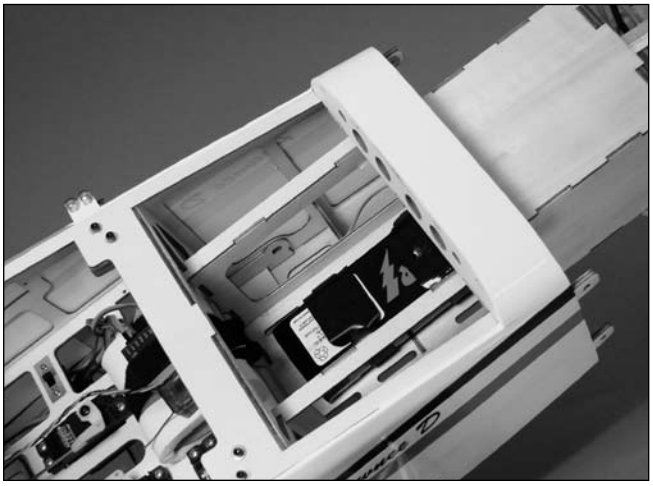
☐ Step 6

Secure the speed controller to the bottom of the fuselage using hook and loop tape as shown. Secure the wires between the motor and speed control so they do not interfere with the operation of the motor.



☐ Step 7

Secure the motor battery inside the fuselage using the two hook and loop straps. If the battery moves fore or aft, use hook and loop (not provided) mounted directly to the battery and the tank floor to keep the battery secure inside the fuselage.



Section 10: Cowling and Canopy Installation

Required Parts

- Fuselage assembly
- 1/4-inch (4mm) tubing (4)
- Spinner w/hardware
- Pilot seat
- 4-40 x 1/2-inch socket head screws
- Cowling
- #4 washer (4)
- Canopy

Required Tools and Adhesives

- Hex wrench: 3/32-inch
- Phillips screwdriver: #1
- Hobby scissors
- Rotary tool w/sanding drum
- Canopy glue
- Medium CA
- Low-tack tape

☐ Step 1

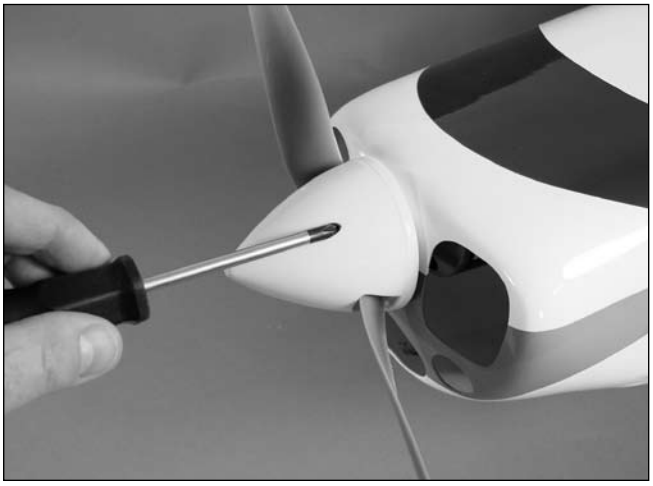
Slide a #4 washer onto each of the four 4-40 x 1/2-inch cowl mounting screws. A piece of 1/4-inch tubing is then slid onto each of the screws.

☐ Step 2

Secure the cowling to the fuselage using the screws prepared in the previous step.

☐ Step 3

Use the instructions provided with your engine to install the spinner. The spinner cone is attached to the spinner backplate using two 3mm x 12mm sheet metal screws and a #1 Phillips screwdriver.



Section 10: Cowling and Canopy Installation

☐ Step 4

Use the following images as a guide for cutting the cowling for a 4-stroke engine. Make sure to make cutouts for the rocker box covers, exhaust and needle valve. You will need to drill a 3/8-inch (9.5mm) hole in the cowl for mounting the fuel dot as well.

☐ Step 5

Use the following images as a guide for cutting the cowling for a 2-stroke engine. Make sure to make cutouts for glow plug access, muffler and needle valve. You will need to drill a 3/8-inch (9.5mm) hole in the cowl for mounting the fuel dot as well.

Note: We used a Dubro Exhaust Deflector (DUB697) to allow the exhaust to exit the rear opening in the cowl.

☐ **Step 6**

Use medium CA to glue the pilot seat in the cockpit. Note that the seat does fit slightly forward of the rear of the cockpit as shown.

☐ **Step 7**

Use canopy glue to secure the canopy to the fuselage. Use low-tack tape to hold the canopy in position until the glue fully cures. If you are planning on installing a pilot figure then install now before attaching the canopy.

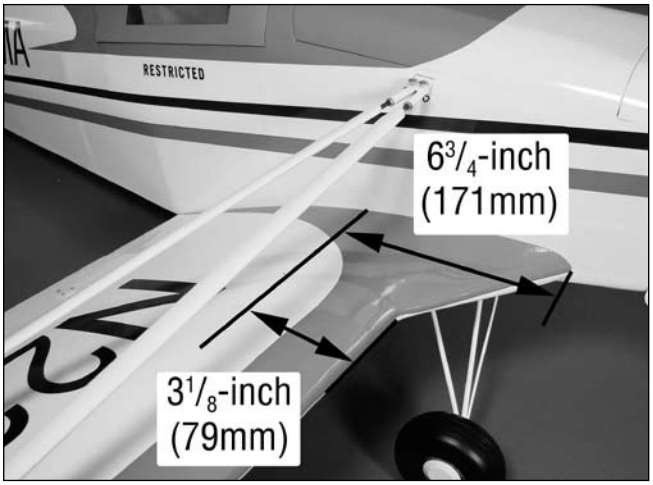
Section 11: Recommended Center of Gravity (CG)

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) location for the Piper Pawnee 40 is $3\,1/8$ inches (79mm) 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. The range for the Center of Gravity is $2\,7/8$– $3\,3/8$ inches (73mm–85mm).

Note: The Center of Gravity can also be measured as $6\,3/4$ inches (171mm) behind the cuff of the wing against the fuselage, with a range of $6\,1/2$– 7 inches (165mm–178mm).



Section 12: 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 Low Rate
- 1/2-inch up/down
- 13mm up/down
- 16 degrees up/down

Aileron High Rate
- 7/8-inch up/down
- 22mm up/down
- 23 degrees up/down

Elevator Low Rate
- 7/8-inch up/down
- 22mm up/down
- 15 degrees up/down

Elevator High Rate
- $1\,^{1}/_{4}$-inch up/down
- 32mm up/down
- 17 degrees up/down

Rudder Low Rate
- 7/8-inch right/left
- 22mm right/left
- 15 degrees right/left

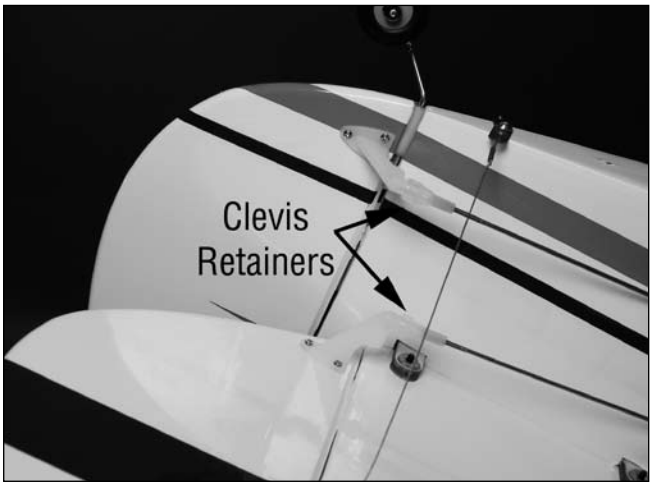
Rudder High Rate
- $1\,^{1}/_{2}$-inch right/left
- 38mm right/left
- 22 degrees right/left

Flap (Mid Position)
- 7/8-inch down
- 22mm down
- 25 degrees down

Flap (Full Flap)
- $1\,^{5}/_{8}$-inch down
- 42mm down
- 50 degrees down

Note: All control throws are measured at the widest point of the control surface.

Once the control throws have been set, slide the clevis retainers over the clevis to prevent them from opening during flight.



Section 13: 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.

Section 14: 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.

Section 15: Range Testing 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.

2008 Official AMA National Model Aircraft Safety Code

GENERAL

1. A model aircraft shall be defined as a non-human-carrying device capable of sustained flight in the atmosphere. It shall not exceed limitations established in this code and is intended to be used exclusively for recreational or competition activity.
2. The maximum takeoff weight of a model aircraft, including fuel, is 55 pounds, except for those flown under the AMA Experimental Aircraft Rules.
3. I will abide by this Safety Code and all rules established for the flying site I use. I will not willfully fly my model aircraft in a reckless and/or dangerous manner.
4. I will not fly my model aircraft in sanctioned events, air shows, or model demonstrations until it has been proven airworthy.
5. I will not fly my model aircraft higher than approximately 400 feet above ground level, when within three (3) miles of an airport without notifying the airport operator. I will yield the right-of-way and avoid flying in the proximity of full-scale aircraft, utilizing a spotter when appropriate.
6. I will not fly my model aircraft unless it is identified with my name and address, or AMA number, inside or affixed to the outside of the model aircraft. This does not apply to model aircraft flown indoors.
7. I will not operate model aircraft with metal-blade propellers or with gaseous boosts (other than air), nor will I operate model aircraft with fuels containing tetranitromethane or hydrazine.
8. I will not operate model aircraft carrying pyrotechnic devices which explode burn, or propel a projectile of any kind. Exceptions include Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight. Rocket motors up to a G-series size may be used, provided they remain firmly attached to the model aircraft during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code; however, they may not be launched from model aircraft. Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Air Show Advisory Committee Document.
9. I will not operate my model aircraft while under the influence of alcohol or within eight (8) hours of having consumed alcohol.
10. I will not operate my model aircraft while using any drug which could adversely affect my ability to safely control my model aircraft.
11. Children under six (6) years old are only allowed on a flightline or in a flight area as a pilot or while under flight instruction.
12. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

2008 Official AMA National Model Aircraft Safety Code

Radio Control

1. All model flying shall be conducted in a manner to avoid over flight of unprotected people.
2. I will have completed a successful radio equipment ground-range check before the first flight of a new or repaired model aircraft.
3. I will not fly my model aircraft in the presence of spectators until I become a proficient flier, unless I am assisted by an experienced pilot.
4. At all flying sites a line must be established, in front of which all flying takes place. Only personnel associated with flying the model aircraft are allowed at or in front of the line. In the case of airshows demonstrations straight line must be established. An area away from the line must be maintained for spectators. Intentional flying behind the line is prohibited.
5. I will operate my model aircraft using only radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
6. I will not knowingly operate my model aircraft within three (3) miles of any preexisting flying site without a frequency-management agreement. A frequency-management agreement may be an allocation of frequencies for each site, a day-use agreement between sites, or testing which determines that no interference exists. A frequency-management agreement may exist between two or more AMA chartered clubs, AMA clubs and individual AMA members, or individual AMA members. Frequency-management agreements, including an interference test report if the agreement indicates no interference exists, will be signed by all parties and copies provided to AMA Headquarters.
7. With the exception of events flown under official AMA rules, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and located at the flight line.
8. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.
9. Radio-controlled night flying is limited to low-performance model aircraft (less than 100 mph). The model aircraft must be equipped with a lighting system which clearly defines the aircraft's attitude and direction at all times.
10. The operator of a radio-controlled model aircraft shall control it during the entire flight, maintaining visual contact without enhancement other than by corrective lenses that are prescribed for the pilot. No model aircraft shall be equipped with devices which allow it to be flown to a selected location which is beyond the visual range of the pilot.

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