HANGAR 9

P-51D 1.50 ARF

Specifications

Wingspan	80 in (2032mm)	Weight	13–14 lb (5.89kg–6.34kg)
Wing Area	1100 sq in (70.97 sq dm)	Engine	1.20–2.00 4-stroke
Length	68 in (1727mm)	Radio	6-channel w/10 servos

Table of Contents

Contents of Kit

Replacement Parts

A.	HAN4051	Wing Set
B.	HAN4052	Fuselage
C.	HAN4053	Stabilizer Set w/Elevator
D.	HAN4054	Rudder
E.	HAN4055	Cowling
F.	HAN4057	Canopy
G.	HAN4061	Retract Set

Items Not Shown

HAN4059	Decal Set
HAN4062	Gear Door Set
HAN4063	Scale Propeller
HAN4064	Stabilizer Tube
HAN4058	Tailwheel Assembly
HAN4056	Pushrod Set
HAN4060	Cockpit Detail Set
HAN4065	Scale Spinner

Radio and Power Systems Requirements

- 6-channel radio system (minimum)
- 8 standard servos (JRPS537 recommended or equivalent)
- Low-Profile Retract Servos (One each JRPS791 and JRPS791R)
  (**Note**: You will either need to order one of each of the servos listed–normal rotation (JRPS791) and reverse direction (JRPS791R), use a reversing Y-Harness (EXRA325 recommended) or use two separate channels on your radio, mixed together, and reverse the direction of one servo in your transmitter.

Recommended JR® or JR SPORT™ Systems

- XP9303
- XP7202
- XP6102
- XS600

Recommended Power Systems

- 1.50–2.18 2-cycle engines
- 1.20–2.20 4-cycle engines
      Recommended: Saito™ 1.80–2.20
- 26–35cc gas engines
      Recommended: Evolution® 26GT2, 35GT2

JR XP9303

JR XP7202

JR XP6102

UltraCote® Covering Colors

Black   HANU874
White   HANU870
Olive Drab   HANU904

Silver   HANU881
Cub Yellow   HANU884

Required Tools and Adhesives

Tools
- Drill
- Phillips screwdriver (small, medium)
- Side cutters
- Hobby knife with #11 blade
- Straight edge
- Side cutters
- Hex wrench

- Drill bits: 1/16", 1/8", 3/32", 5/64", 5/32"
- Pliers
- Moto-tool w/cut-off wheel
- 90-degree triangle
- Canopy scissors
- Adjustable wrench

Other Required Items
- Mixing sticks for epoxy
- Rubbing alcohol
- Sandpaper (medium)
- Wax paper
- Measuring device (e.g. ruler, tape measure)
- String
- Petroleum jelly

- Epoxy brushes
- Sanding bar
- Paper towels
- Felt-tipped pen or pencil
- T-pins
- Radio packing foam

Adhesives
- Thin CA (cyanoacrylate) glue
- CA remover/debonder
- 30-minute epoxy
- Canopy glue (RC-56)

- Thick CA (cyanoacrylate) glue
- 6-minute epoxy
- Pacer Z-42 Threadlock
- Masking tape (3M blue recommended)

Date of Purchase 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.

Before Starting Assembly

Before beginning the assembly of the P-51 D 150, 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.

Using the Manual

HAN101 – Sealing Iron

HAN141 – Sealing Iron Sock

HAN100 – Heat Gun

HAN150 – Covering Glove

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: Aileron and Flap Installation

Required Parts

- Right and left wing panels w/ailerons
- Wing assembly
- Nylon flap hinges (6)
- CA hinges (6)

Required Tools and Adhesives

- Thin CA
- CA remover/debonder
- Paper towel
- T-pins
- Drill
- Drill bit: 1/16"
- 30-minute epoxy
- Paper towels
- Rubbing alcohol
- Petroleum jelly

☐ ☐ Step 1

Use a 1/16" drill bit to drill into the wing and aileron at the center of each hinge. This allows the CA to wick farther into the surfaces for better hinge installation.

☐ ☐ Step 2

Locate three CA hinges and place a T-pin in the center of the hinge as shown. Slide each of the three hinges into the aileron so the T-pin is resting against the leading edge of the aileron. The slot in the hinge aligns with the hole drilled in Step 1.
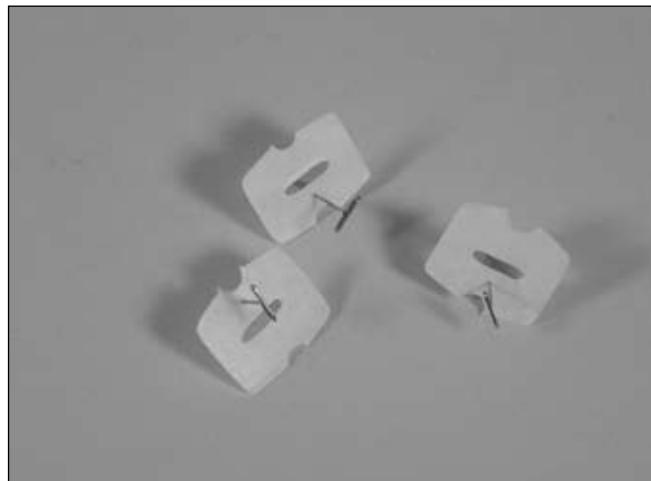
☐ ☐ Step 3

Slide the aileron onto the wing until there is only a slight gap between the aileron and wing panel. Remove the T-pins and snug the aileron against the wing panel. Slide the aileron towards the wing tip until there is only a 1/32" gap between the end of the aileron and wing tip.

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.

☐ ☐ Step 4

Deflect the aileron and apply thin CA to the hinge. Apply enough CA to completely saturate the hinge. Use care not to deflect the aileron so it pulls away from the wing. When the hinge is glued in place, there should be no more than a 1/64" hinge gap maintained throughout the length of the aileron. Turn the wing panel over, deflect the aileron in the opposite direction, and apply thin CA to the other side of the hinges.

☐ ☐ Step 5

Use CA remover/debonder and a paper towel to remove any excess CA accumulated on the wing or aileron surface. Allow time for the CA to completely cure before moving to the next step.

☐ ☐ Step 6

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 7

Work the aileron up and down several times to work in the hinges and check for proper movement.
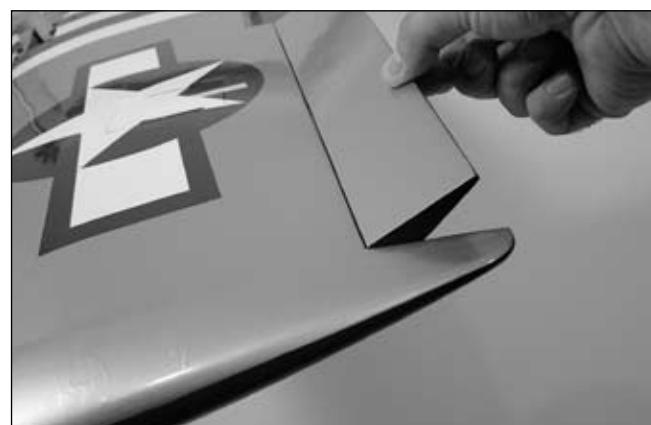
Section 1: Aileron and Flap Installation

☐ ☐ **Step 8**

Locate three of the nylon flap hinges. Apply a small amount of petroleum jelly to the hinge joint to prevent the epoxy from preventing movement of the hinge.
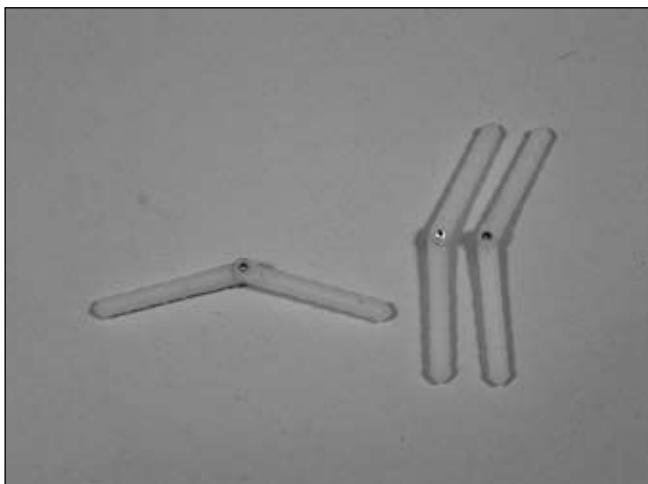
☐ ☐ **Step 9**

Locate the holes in the wing and flap for the flap hinges. Remove the covering if necessary from each hole. There will be a total of three holes each in the wing and flap.
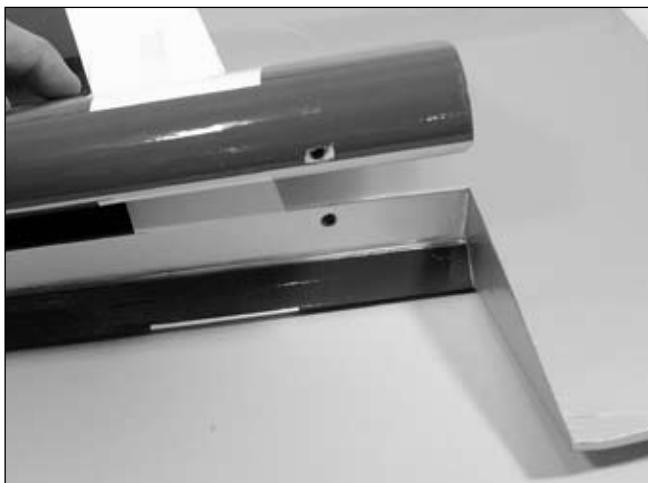

Hint: Bevel the the edges of the holes in the flap for a perfect fit.

☐ ☐ **Step 10**

Install the hinges in the flap and slide the flap into position. Check to make sure the flap aligns with both the aileron and wing trailing edge. If it does not, move the hinges in or out until the flap is in alignment.

☐ ☐ **Step 11**

Use 30-minute epoxy to install the hinges. Apply epoxy to both the holes in the flap and wing using a toothpick. Apply a light coat of epoxy to the hinge. Slide the flap into position, and move it up and down to make sure the hinges are aligned. Use tape around the division between the flap and wing, as well as the flap and aileron, to hold the flap until the epoxy fully cures.
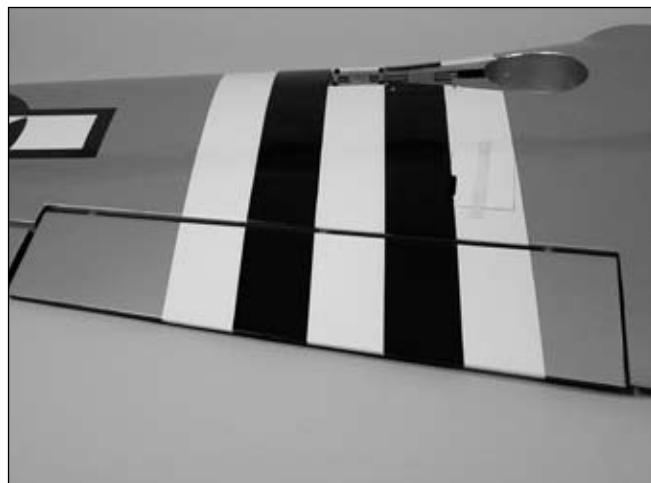
Note: Pacer hinge glue can be used instead of epoxy for gluing the flap hinges.

☐ **Step 12**

Repeat Steps 1 through 11 for the remaining aileron and flap.

Section 2: Aileron and Flap Servo Installation

Required Parts

- 4-40 nuts (8)
- Control horn (4)
- Wing panel (left and right)
- Aileron servo hatch (2)
- 4-40 x 1$\frac{1}{2}$" threaded rod (2)
- 4-40 x 2" threaded rod (2)
- #2 x 1/2" servo hatch screws (28)
- Large Servo Arm (JRPA212) (2 pkgs)
- 6" Servo Lead Extension (JRPA094) (2)
- 24" Servo Lead Extension (JRPA102) (2)
- Servos w/mounting hardware (4)
- 3/8" x 3/4" x 3/4" servo mounting blocks (8)
- Flap servo hatch (2)
- Metal clevis (8)

Required Tools and Adhesives

- Phillips screwdriver
- String
- Drill
- 6-minute epoxy
- Felt-tipped pen
- Ruler
- Drill bit: 1/16", 7/64"
- Thin CA

Note: Using two standard rotation servos and a standard Y-harness for the flaps will result in them moving in opposite directions instead of the same direction. As such, the flap servo installation will either require the use of a one reversed rotation servo and one standard rotation servo or a reversing Y-harness. It is highly recommended to use a computer radio or a JR® MatchBox™ to link the two flap servos to operate properly.

☐ ☐ ☐ ☐ Step 1

Install the recommended servo hardware (grommets and eyelets) supplied with the servo. Install a long half servo arm (JRPA212) onto the servo. Connect a 24" Servo Lead Extension (JRPA212) to the servo lead. Secure the connectors by tying them in a knot, using dental floss, or by using a commercially available connector clamp to prevent the servo leads from becoming disconnected.
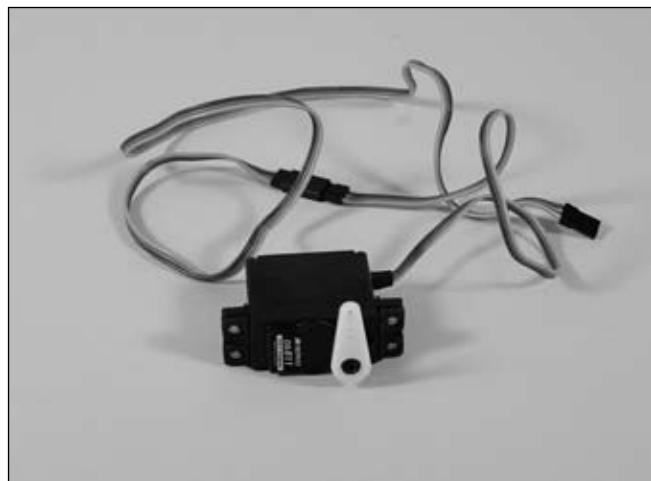
Note: Always secure the servo connector and servo extension together to prevent the wires from becoming unplugged inside the wing.

☐ ☐ ☐ ☐ Step 2

Position the servo onto the hatch so the servo arm is centered in the notch. Also ensure the servo arm does not extend past the edge of the servo hatch. Once satisfied, mark the location for the servo mounting blocks.

## Section 2: Aileron and Flap Servo Installation

☐ ☐ ☐ ☐ **Step 3**

Locate the servo mounting blocks. Use 6-minute epoxy to glue them in place on the marks made on the hatch. Allow the epoxy to fully cure before proceeding to the next step.
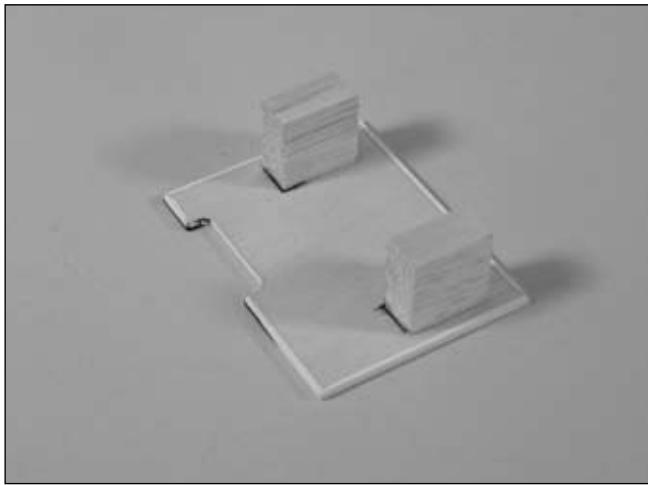

☐ ☐ ☐ ☐ **Step 4**

Place the servo between the mounting blocks and use a felt-tipped pen to mark the location of the four servo mounting screws. Note that the servo must not touch the hatch in order to isolate engine vibration.
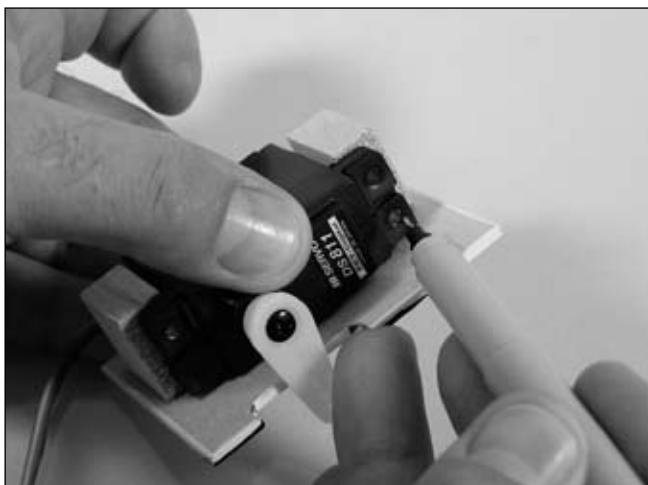
Note: Before mounting the servo, it is suggested to electronically center the servo using the transmitter, then install the servo arm to avoid having to remove the servo and center the arm later. It may be necessary to slightly trim one of the servo mounting blocks to clear the servo lead.

☐ ☐ ☐ ☐ **Step 5**

Remove the servo and use a 1/16" drill bit to pre-drill the holes for the servo mounting screws marked in the previous step. Use the screws supplied with the servo to mount it to the servo mounting blocks. Remove the portion of the arm not extending out of the hatch if you have not done so.
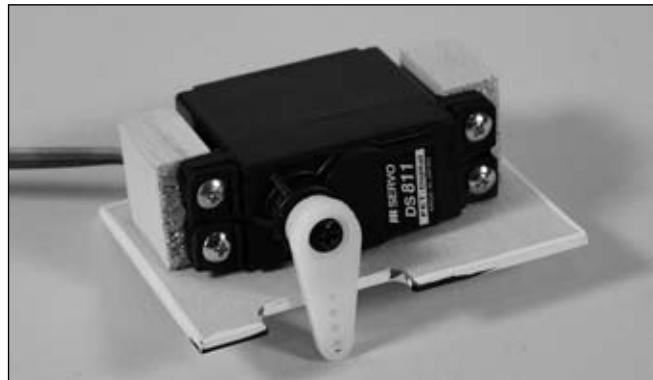

☐ ☐ ☐ ☐ **Step 6**

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 opening at the root of the wing as shown. Stand the wing on the tip and allow the weight to drop through the wing until it appears in the opening for the servo.
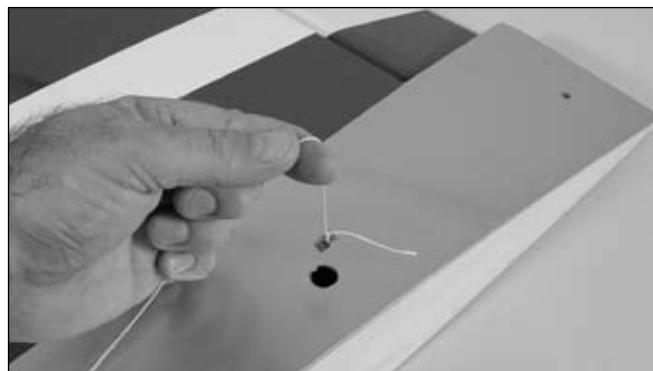
☐ ☐ ☐ ☐ **Step 7**

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.
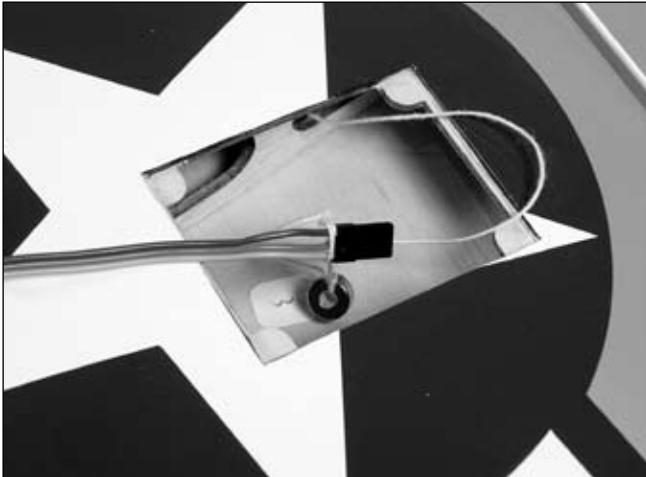
☐ ☐ ☐ ☐ **Step 8**

Place the hatch in position on the wing. Measure in 1/8" on all four sides of the hatch, as the intersection of these lines will be on the hard points located underneath the hatch. Drill four 1/16" holes at the intersections of the lines and into the hard points. Remove the hatch and enlarge the holes using a 7/64" drill bit.
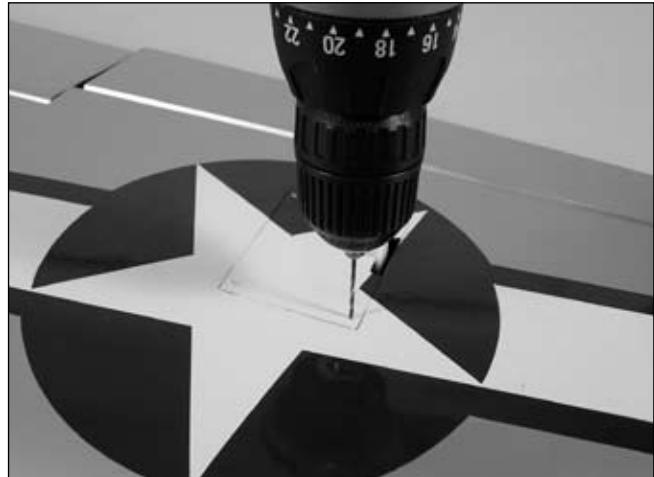
☐ ☐ ☐ ☐ **Step 9**

Secure the hatch using four #2 x 1/2" screws.
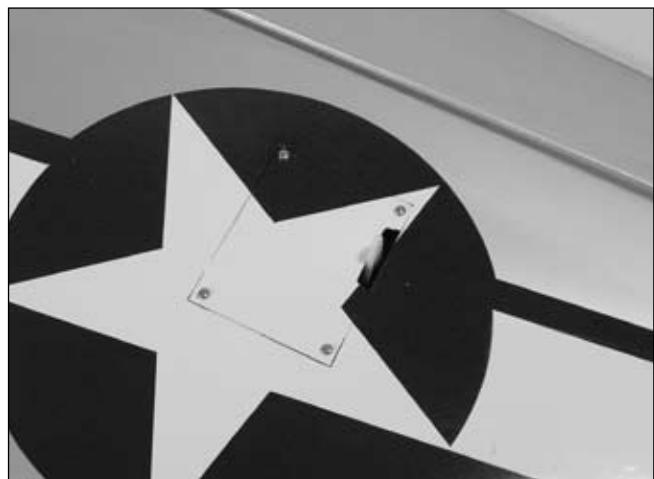
Section 2: Aileron and Flap Servo Installation

□ □ □ □ **Step 10**

Assemble the aileron linkage using two clevises, two 4-40 nuts and a 4-40 x 2" threaded rod.

□ □ □ □ **Step 11**

Use a 7/64" drill bit to drill out the mounting holes in the control horn.


□ □ □ □ **Step 12**

Attach the clevis to the control horn and servo arm. Position the control horn on the aileron by aligning the linkage with the servo arm slot and aligning the holes of the control horn with the hinge line of the aileron. Use a felt-tipped pen to mark the locations for the horn screws.
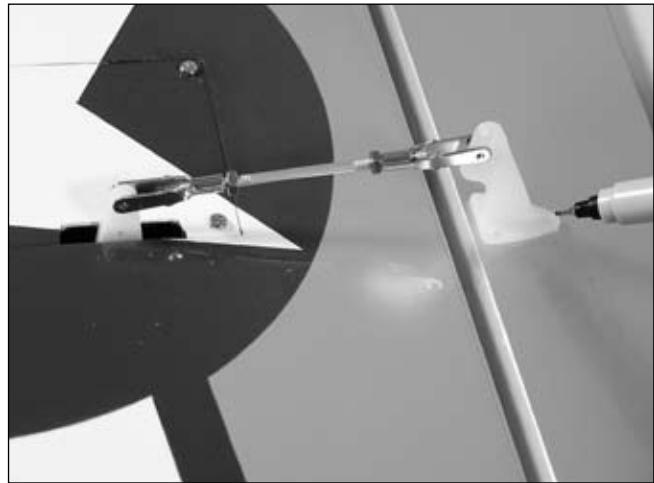
Note: There is a hardwood plate inside the control surface that the control horn will be mounted to.

□ □ □ □ **Step 13**

Drill three 1/16" holes at the locations marked in the previous step. The holes only need to be 7/16" deep; don't drill through the top of the aileron.
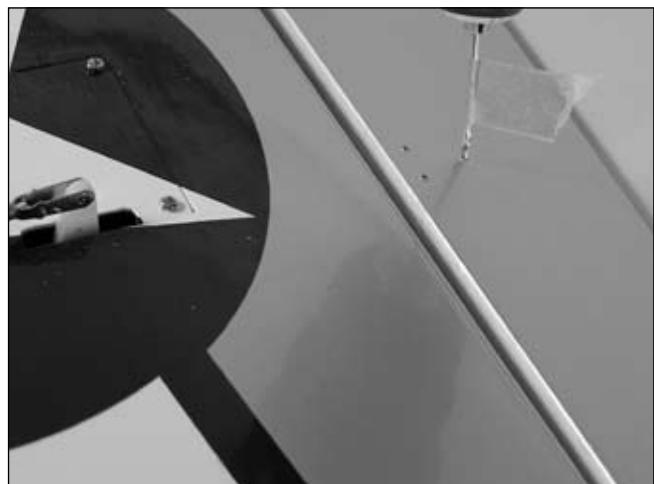
**Hint**: Wrap a piece of tape around your drill bit to drill the holes the correct depth.

☐ ☐ ☐ ☐ **Step 14**

Install one of the #2 x 1/2" screws into a hole drilled, then remove it. Place 2–3 drops of thin CA into the hole to harden the wood. This will eliminate the potential of the screw pulling out of the wood. Repeat this for each of the three holes.

☐ ☐ ☐ ☐ **Step 15**

Attach the control horn using three #2 x 1/2" screws.
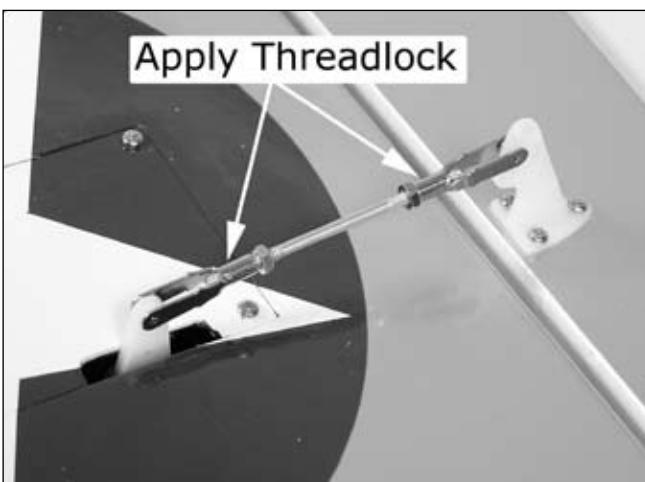
☐ **Step 16**

Repeat Steps 1 through 15 for the remaining aileron servo.

☐ **Step 17**

Repeat Steps 1 though 15 for the flap servo, substituting a 6" servo extension and a 4-40 x 1 $\frac{1}{2}$" threaded rod for the flap linkage.
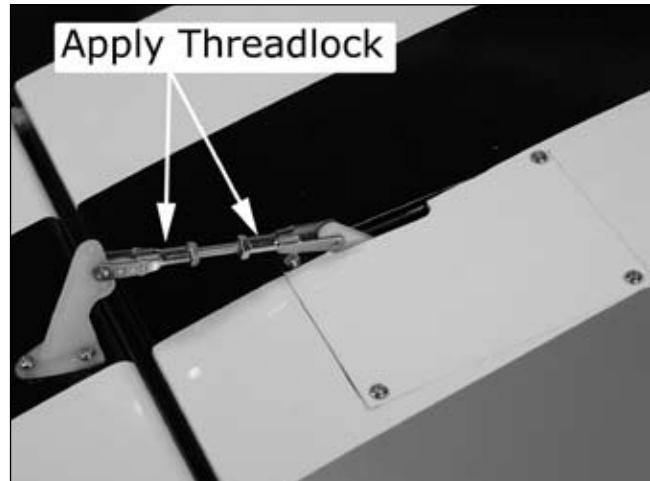
Section 3: Retract Installation

Required Parts

- Wing panel (right and left)
- 6" servo extension
- 4-40 metal clevis (2)
- #2 standoff (2)
- Clevis keeper (2)
- Retract doors (right and left)
- 4-40 x 1/2" threaded rod (2)
- 2-56 x 3/8" socket head screw (2)
- 4-40 x 1/2" socket head screw (12)
- Retract servo with hardware (2) (JRPS791)
- Connector back plate (2)
- 1/2" aluminum servo arm (2)
- 4-40 x 3/8" socket head screw (2)
- 6-32 x 1/2" socket head screw (8)
- #2 x 1/2" sheet metal screw (4)

- Mechanical retract (2)
- 4-40 nut (2)
- Ball end (2)
- 2-56 nut (2)
- #2 washer (2)

Required Tools and Adhesives

- Threadlocking compound
- Drill
- Phillips screwdriver
- 4-40 tap
- Felt-tipped pen
- Drill bit: 1/8"
- 3/32" hex wrench

Note: The P-51D retract system is designed to use low profile hi-torque retract servos, such as the JRPS791. All adjustments to the retracts are made before the final installation.

☐ ☐ Step 1

Position the retract mechanism over the wing to determine on which side to mount the retract servo. Use a 4-40 tap to make the appropriate holes in the mounting plate if necessary.

☐ ☐ Step 2

Attach a 6" servo extension to the retract servo and secure the extansion to the servo lead so it won't unplug accidentally.

☐ ☐ Step 3

Mount the retract servo to the mounting plate using four 4-40 socket head screws. It may be necessary to install the spacer plates depending on the servo selected. Use threadlock on the screws to prevent them from vibrating loose.
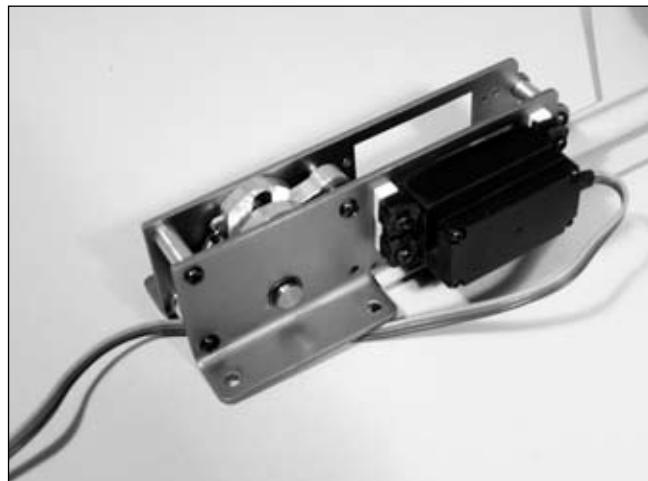
☐ ☐ Step 4

Attach the servo horn to the retract servo. It is positioned so the arm moves from one end of the mechanism to the other.
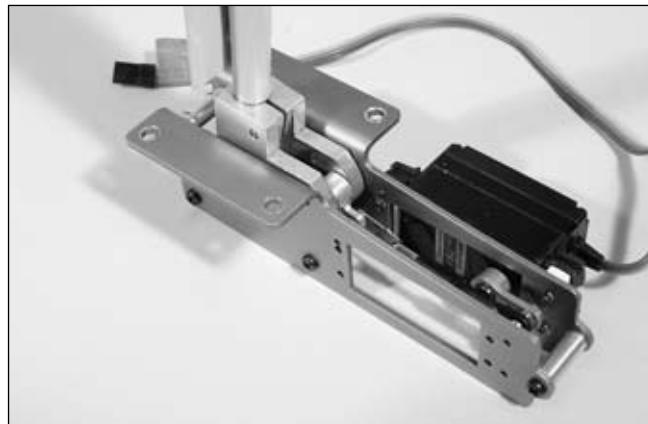
☐ ☐ **Step 5**

Assemble and install the linkage using the 4-40 x 1/2"
threaded rod, ball end and metal clevis. Attach the clevis
to the retract actuator, and use a 2-56 socket head screw,
#2 standoff, #2 washer and 2-56 nut to attach the ball-link
to the servo arm. (Hardware not included, use genuine
Hangar 9® hardware and servo arms for the installation
of your retract servo.)
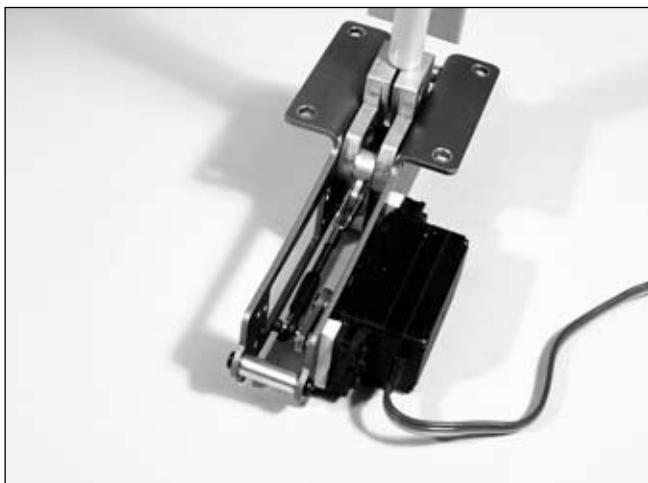
☐ ☐ **Step 6**

Check that the retract fully locks at both up and down
positions without stalling the servo. Adjust the length of
the linkage and the position of the linkage at the servo
until both up and down locked positions are achieved.
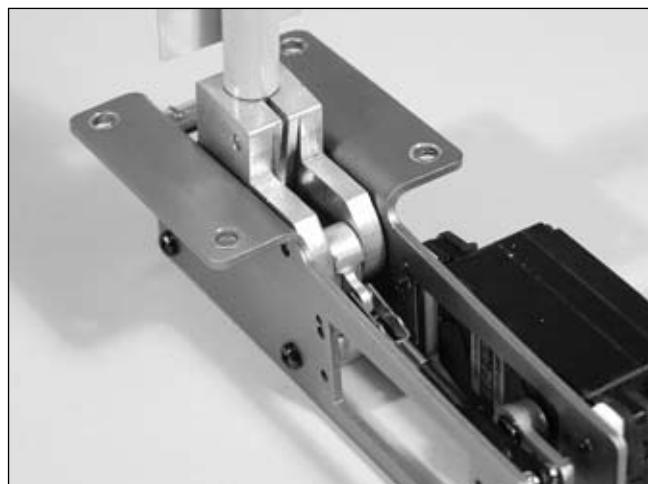
Section 3: Retract Installation

☐ ☐ **Step 7**

Once the retracts are fully adjusted, install them into the wing and secure their position using four 6-32 x 1/2" screws.
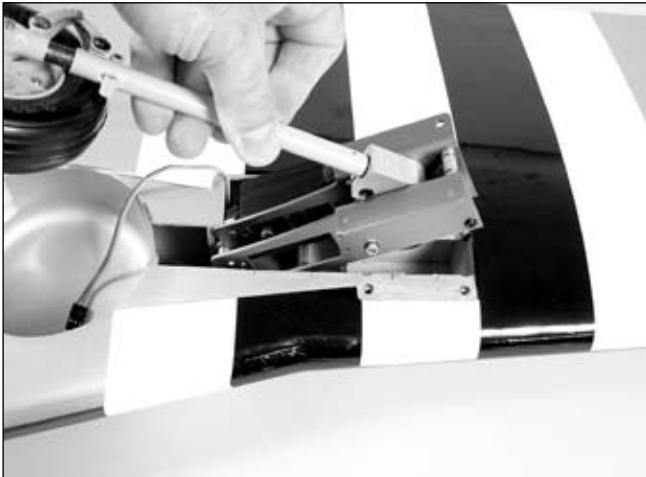
☐ ☐ **Step 8**

Attach the retract servo hatches using two #2 X 1/2" sheet metal screws.

☐ ☐ **Step 9**

Check the fit of the gear door to the retract strut and wing panel. Mark the location for the three mounting holes from the retract strut onto the gear door. Drill three 1/8" holes for mounting the gear door to the retract strut. Attach the gear door to the retract using two 4-40 x 1/2" socket head screws near the wheel, and one 4-40 x 3/8" socket head screw near the retract mechanism.

☐ **Step 10**

Repeat Steps 1 through 9 for the remaining retract.

Section 4: Wing Assembly

Required Parts

- Wing assembly
- Wing dowels (2)
- Plywood wing bolt plate (2)
- 1/4-20 x 2" nylon bolts (2)
- Air scoop
- Plastic guide tubes (2)
- Plywood tube locators (2)
- Wing joiner
- Fuselage

Required Tools and Adhesives

- Ruler
- 30-minute epoxy
- Rubbing alcohol
- Screwdriver (slotted)
- Felt-tipped pen
- Medium grit sandpaper
- Masking tape
- 6-minute epoxy
- Paper towels
- Hobby knife
- Razor saw

☐ ☐ Step 1

Locate a 1/4" x 2" wing dowels. Draw a line 5/8" from one end of the dowel.
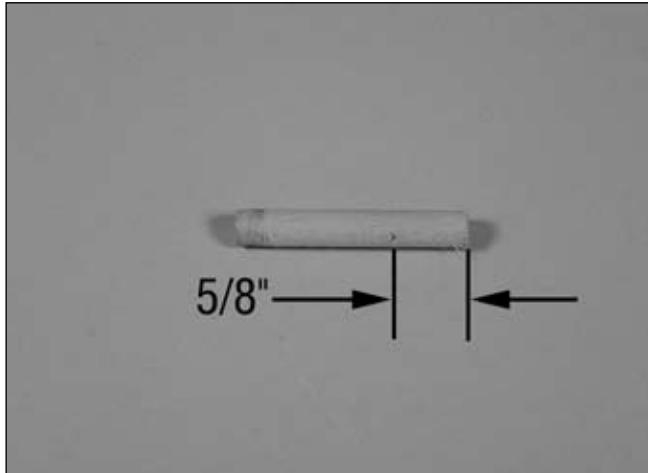
☐ ☐ Step 2

Glue the dowel into the wing using 5-minute epoxy. Apply epoxy to both the holes in the wing and dowels. Slide the dowel in up to the line drawn in the previous step. Clean up any excess epoxy using a paper towel and rubbing alcohol. Allow the epoxy to fully cure before proceeding.
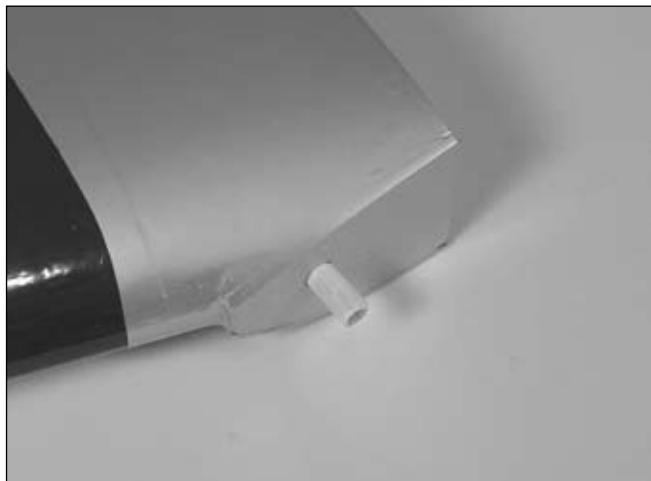
☐ ☐ Step 3

Locate a plywood wing bolt plate. Slide one of the 1/4-20 x 2" nylon bolts through the hole. Slide the bolt into the hole in the wing, aligning the plate so the edge at the root is parallel to the wing root. Trace around the plate using a felt-tipped pen.
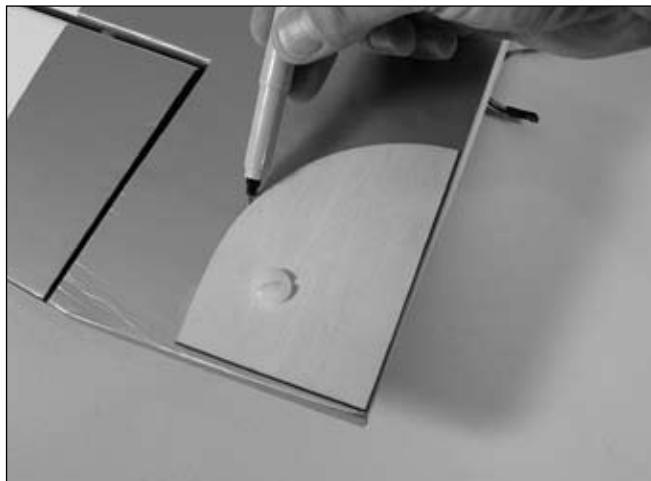
Section 4: Wing Assembly

☐ ☐ **Step 4**

Use a hobby knife with a brand new blade to remove the covering 1/16" inside of the line drawn. Use care not to cut into the underlying balsa, as this will weaken the wing structure.
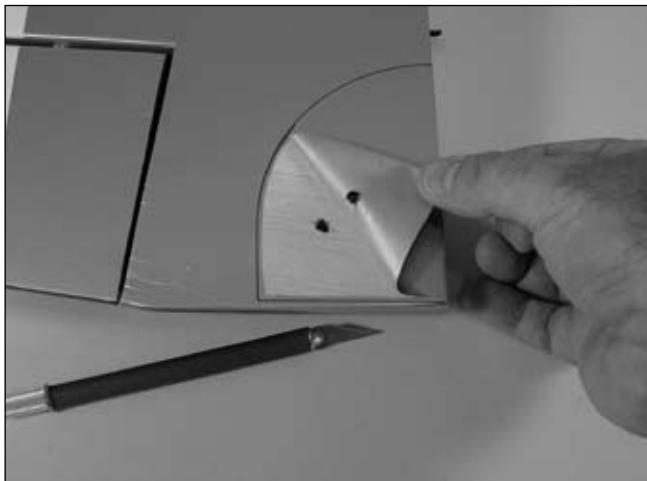
☐ ☐ **Step 5**

Mix 1/2 ounce of 6-minute epoxy and coat both the wing and plywood plate. Place the plate back onto the wing and clamp it in position. Remove any excess epoxy using paper towels and rubbing alcohol.

Caution: Use scrap plywood under the clamps to prevent damage to the balsa wing structure.

☐ ☐ **Step 6**

Slide the wing bolt into position. Use a felt-tipped pen to trace around the heads of the wing bolts.
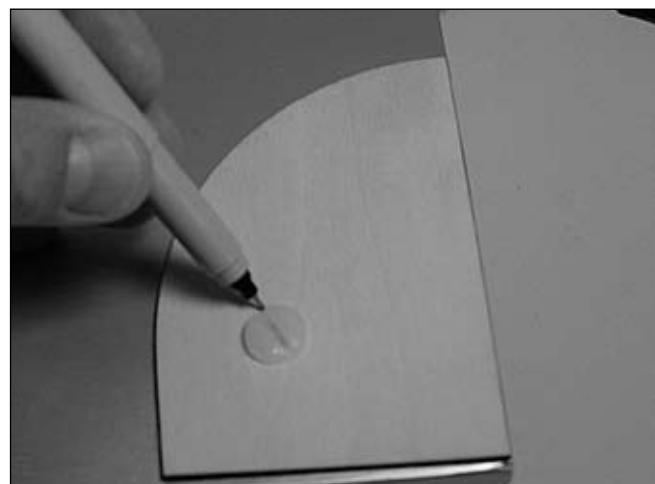
☐ ☐ **Step 7**

Remove the wing bolts from the wing. Locate the plywood tube locators and use medium CA to glue the locators in position. Use the lines drawn around the bolt heads as a guide.
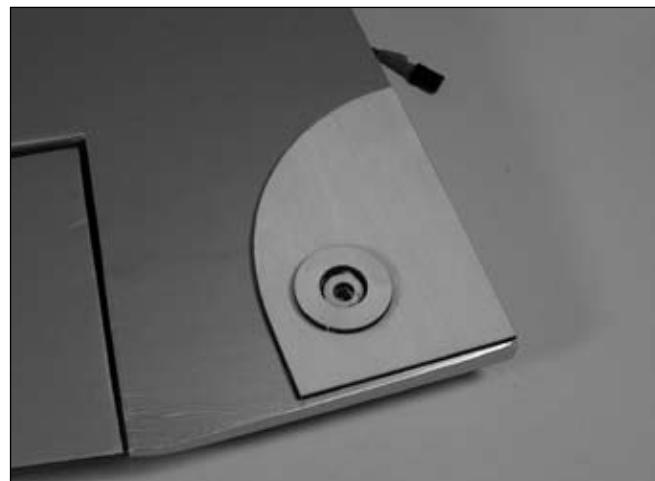
☐ ☐ **Step 8**

Repeat Steps 1 through 7 for the remaining wing panel.

☐ Step 9

Without using any glue, test the fit of the wing panels and wing joiner. 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.

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 10

With one wing panel flat onthe work surface, check that the dihedral angle is correct by measuring the tip that os off the sork surface. The distance between the tip and surface will measure $6\frac{13}{16}$" (173mm). Lightly sand the joiner and sing root if necessary to adjust the angle.

$6\frac{13}{16}$" (173mm)
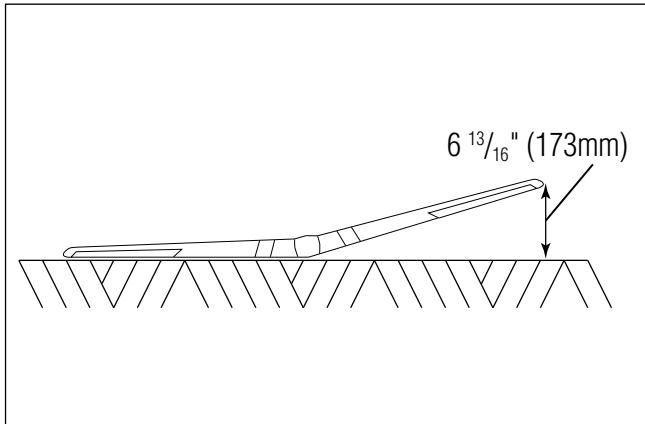
☐ Step 11

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

Section 4: Wing installation

☐ Step 12

Completely coat one half of the 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.

☐ Step 13

Apply a generous amount of epoxy to the joiner cavity of the opposite wing panel. Apply epoxy to the exposed portion of the wing joiner. And finally, apply epoxy to root wing rib of both panels.

☐ Step 14

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. There should be no visible gaps between the panels. Use masking tape to securely hold the wing panels together. Use rubbing alcohol and a paper towel to remove the excess epoxy. Allow the epoxy to fully cure before continuing to the next section.

☐ Step 15

Place a piece of wax paper between the fuselage and wing at the rear of the wing. Check the fit of the wing to the fuselage and make any adjustments necessary to the wing bolt holes to attach the wing using the two 1/4-20 x 2" nylon bolts.

☐ Step 16

Use medium grit sandpaper to lightly sand the inside edge of the air scoop.

☐ Step 17

Position the air scoop onto the wing bolt plates. It should fit snuggly on the plates. Remove the air scoop, and apply a thin bead of 6-minute epoxy around the bottom edge of the air scoop. Place it back into position and allow the epoxy to cure before proceeding.
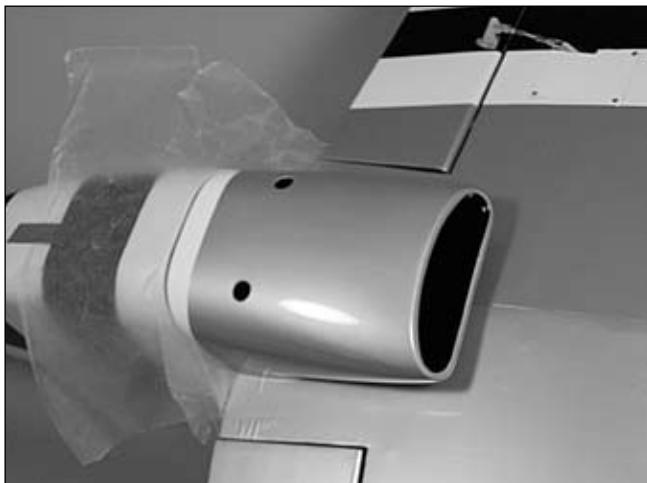
☐ Step 18

Remove the wing from the fuselage. Try to keep the wing bolts in the wing. Once the wing is removed, slide the plastic guide tubes through the scoop and over the heads of the wing bolts.

> **Note**: The ends of the tubes will lock into the plywood tube locators when fully installed.

☐ Step 19

Remove the wing bolts by sliding them out through the tubes. Remove the tubes and roughen them using medium sandpaper.

☐ Step 20

Apply a thin bead of 6-minute epoxy around one end of the tubes. Slide the tube in position through the air scoop and into the plywood tube locators. Use a paper towel to clean up any excess epoxy from the air scoop.

☐ Step 21

Remove the excess tube using a razor saw and hobby knife.
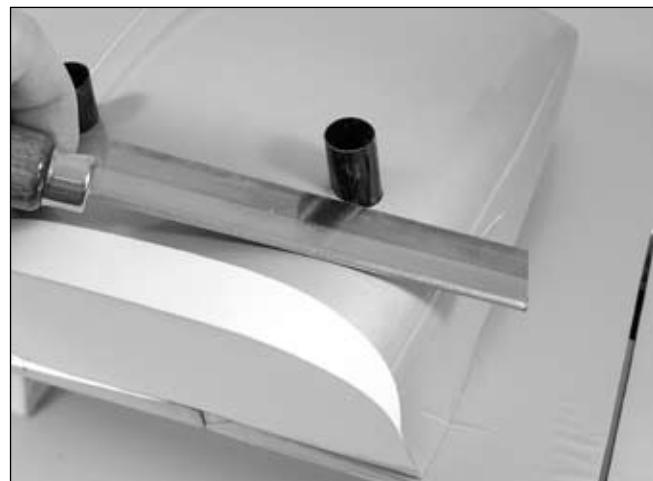
Section 5: Hinging the Elevators

Required Parts
- Stabilizer (left and right)
- Elevator (right and left)
- CA hinges (6)

Required Tools and Adhesives
- T-pins
- Paper towels
- Drill
- Thin CA
- CA remover/debonder
- Drill bit: 1/16"

☐ ☐ Step 1

Locate three CA hinges and place a T-pin in the center of the hinge as shown. Drill 1/16" holes at each hinge location on the elevator and stabilizer. Slide each of the three hinges into the elevator so the T-pin is resting against the leading edge of the elevator.

☐ ☐ Step 2

Slide the elevator onto the stabilizer until there is only a slight gap between the stabilizer and elevator. Remove the T-pins and snug the elevator against the stabilizer. Position the elevator so the tip aligns with the tip of the stabilizer.

> **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.

☐ ☐ Step 3

Deflect the elevator and apply thin CA to the hinge. Apply enough CA to completely saturate both the top and bottom of the hinge. Use care not to deflect the elevator so it pulls away from the stabilizer. When the hinge is glued in place, there should be no more than a 1/64" hinge gap maintained throughout the length of the elevator.

☐ ☐ Step 4

Use CA remover/debonder and a paper towel to remove any excess CA accumulated on the stabilizer or elevator surface. Allow time for the CA to completely cure before moving to the next step.

☐ ☐ **Step 5**

Firmly grasp the elevator and stabilizer and gently pull them apart to ensure the hinges are secure and cannot be pulled apart. Use caution when gripping them to avoid crushing the structure.
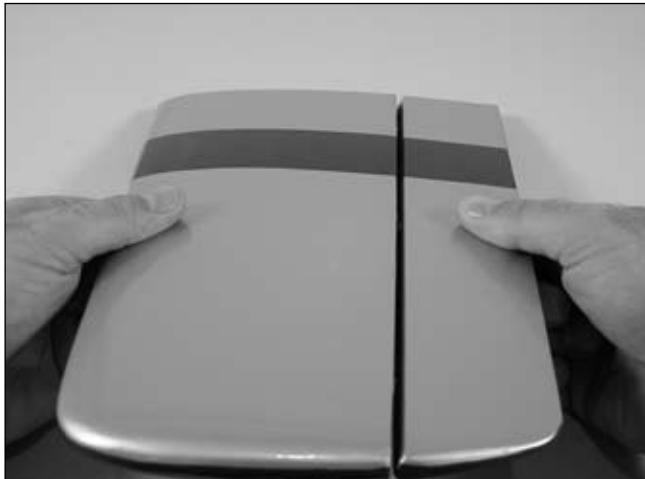
☐ ☐ **Step 6**

Work the elevator up and down several times to work in the hinges and check for proper movement.
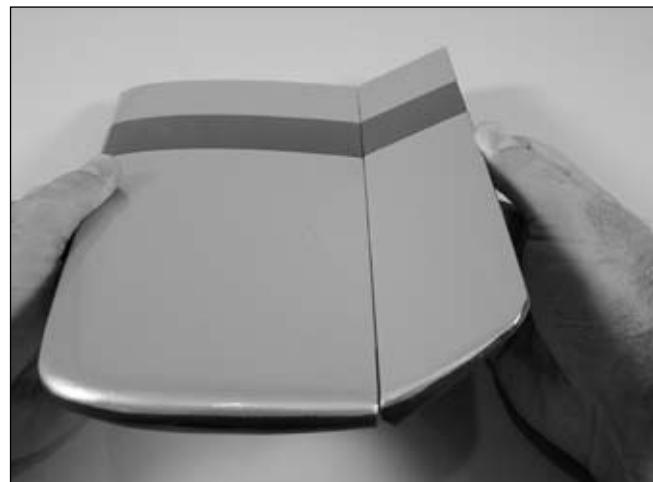
☐ **Step 7**

Repeat Steps 1 through 6 for the remaining elevator half.

Section 6: Rudder Installation

Required Parts
- Fuselage assembly
- Rudder
- CA hinges (3)

Required Tools and Adhesives
- T-pins
- Thin CA
- Paper towels
- CA remover/debonder
- Drill bit: 1/16"
- Drill

> **Note**: Hinging the rudder follows the same procedure as hinging the ailerons, condensed below into just a few steps.

☐ Step 1

Locate three CA hinges and place a T-pin in the center of each hinge. Use a 1/16" drill bit to drill holes into the rudder and fin for each hinge location. Slide the hinges into the rudder.
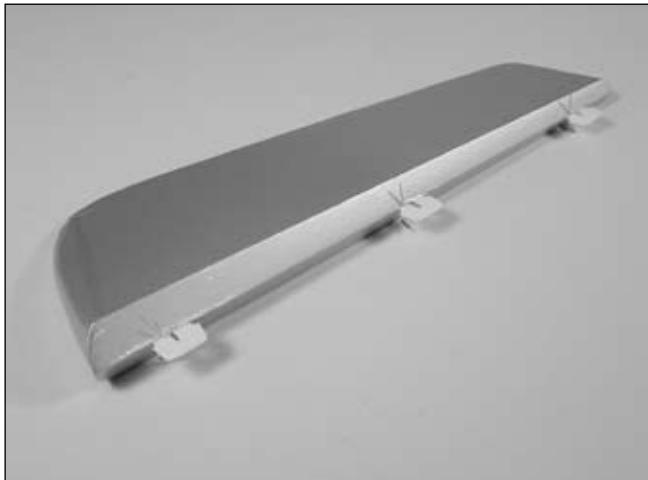
☐ Step 2

Slide the rudder onto the fin. Align the top of the rudder with the top of the fin. Remove the T-pins and use thin CA to glue the hinges into position. Apply CA to both sides of the hinges.
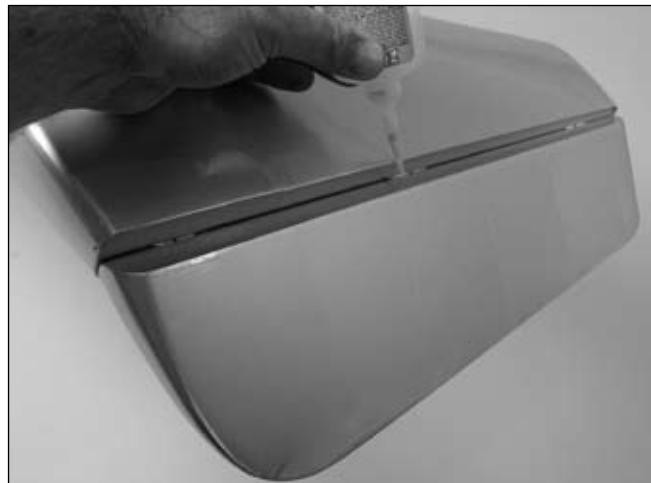
> **Note**: Do not use CA accelerator during the hinging process. The CA must be allowed to soak into the hinge to provide the best bond. Using accelerator will not provide enough time for this process.

☐ Step 3

Clean up any excess CA using CA remover/debonder. Once the CA has fully cured, gently pull on the rudder to ensure the hinges are secure. Flex the rudder a few times to work in the hinges.

Section 7: Stabilizer Installation

Required Parts
- Fuselage
- Stabilizer tube (short)
- Stabilizer tube (long)
- 4-40 x 1/2" socket head screw (2)

Required Tools and Adhesives
- Hex wrench: 3/32"
- Tap handle
- 4-40 tap
- Drill
- Drill bit: #43

☐ Step 1

Insert the stabilizer tubes into one of the stabilizer halves. The short tube is placed towards the leading edge of the stabilizer.
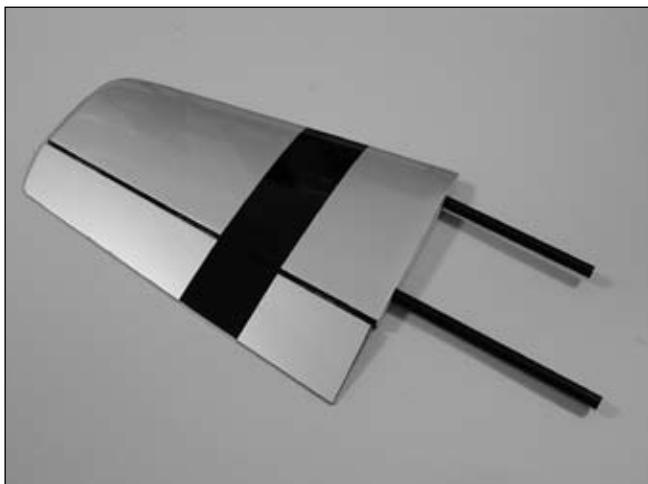
☐ Step 2

Drill through the hole into the stabilizer and tap for a 4-40 bolt. Install a 4-40 x 1/2" bolt to secure the tube in the stabilizer.

> **Warning**: Use caution when drilling through the stabilizer tube. Only drill through one wall of the tube.

☐ Step 3

Slide the assembly into the fuselage. Slide the remaining stab half onto the tubes and drill and tap the location for the 4-40 retaining bolt. Install the bolt to complete the procedure.

> **Hint**: When removing the stabilizer for storage, remove only one bolt, leaving the tube secured in the remaining stabilizer. Trying to install the tube without the aid of an alignment guide can be frustrating.

Section 8: Engine Installation

Required Parts
- Fuselage
- #8 washers (8)
- Brass connector
- 8-32 nylon lock nuts (4)
- 8-32 x $1^1/_4$" screws (8)
- $2^7/_8$" x 3/4" x 3/8" plywood spacer (2)
- Engine mount (2)
- Engine
- Connector backplate

Required Tools and Adhesives
- Phillips screwdriver
- Adjustable wrench
- Hobby knife
- Drill
- 1/2" foam
- Measuring device
- 11/32" socket wrench
- Felt-tipped pen
- Drill bit: 11/64", 5/32"

Note: The P-51D comes with the blind nuts preinstalled in the firewall. They are located for the installation of the Saito™ 1.80-size four-strokes. If you plan on using another engine, such as the Saito 2.20, you may need to remove the blind nuts and drill new holes in the firewall for your particular engine.

☐ Step 1
Position the engine mount on the $2^7/_8$" x 3/4" x 3/8" plywood spacer. Mark the locations for the engine mount onto the plywood. Drill the locations using an 11/64" drill bit.
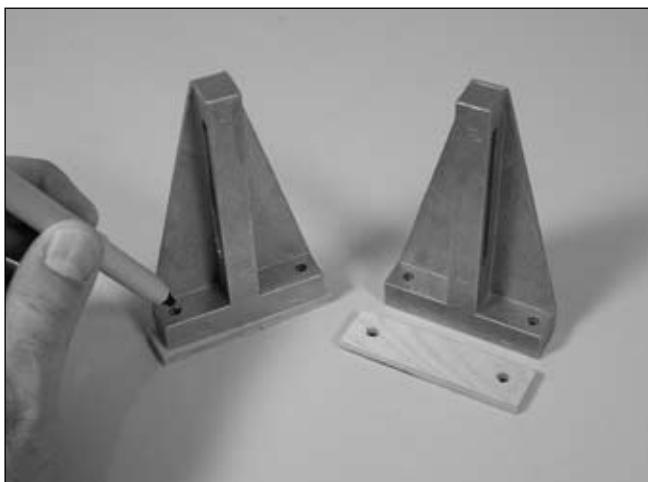
☐ Step 2
Locate the engine mount and the associated hardware. Attach the mount to the firewall using the spacers, four 8-32 x $1^1/_4$" screws and four #8 washers.
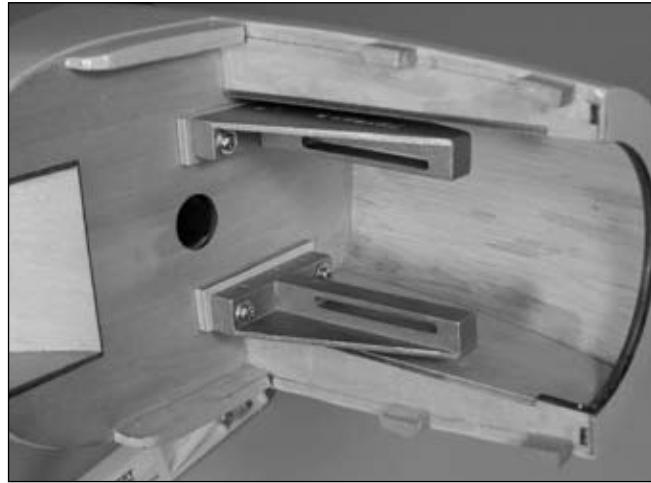
☐ Step 3
Position the engine so the drive washer is 1/2" forward of the nose ring of the fuselage. Tighten the screws holding the engine to the mount. An 11/32" socket wrench will make this task a lot easier.

Note: You may need to adjust the position of the motor after the spinner is installed.

☐ Step 4

Mark a location on the firewall for the throttle pushrod. Use a 5/32" drill bit to drill the location for the throttle tube. Roughen the tube using sandpaper, and then slide it into position. Use medium CA to glue the tube to the firewall.
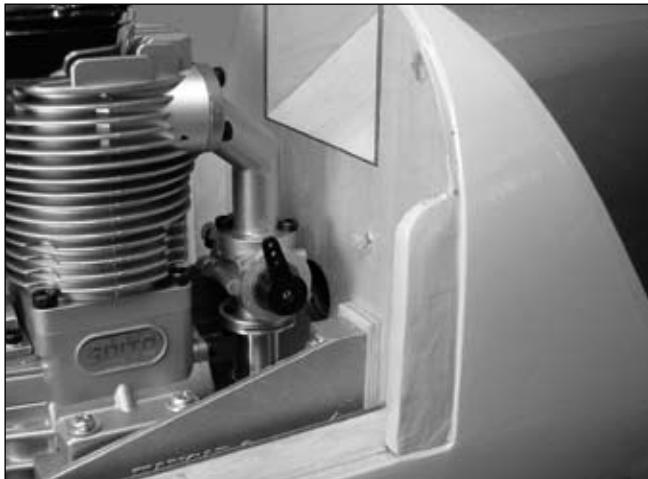
☐ Step 5

Attach a brass connector to the throttle arm using the connector backplate. Slide the pushrod through the connector and into the tube.

Important: Be sure to differentiate between the vent and fuel pickup tube. Once the tank is mounted inside the fuselage, it will be difficult to tell the tubes apart.

☐ Step 6

Position the tank inside the fuselage. Use 1/2" foam to isolate the tank from the fuselage.

☐ Step 7

Route the fuel lines through the firewall. Install the muffler to the engine. Attach the appropriate lines to the carburetor and muffler.
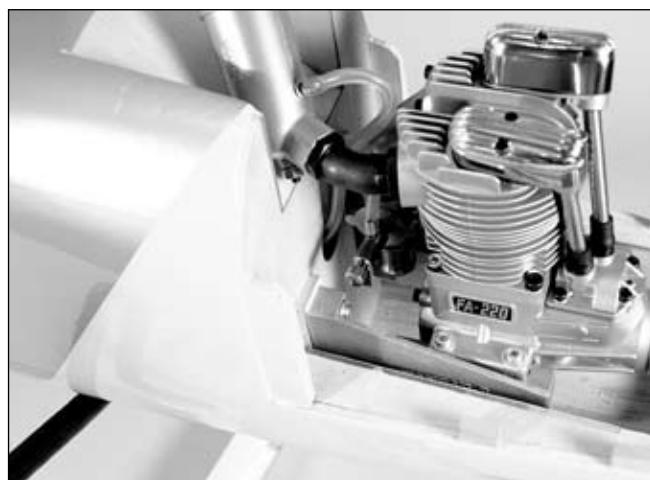
Section 9: Tail Wheel Installation

Required Parts

- Tail gear wire
- 5/32" wheel collar
- Tail wheel (1 $^3/_4$ ")
- Pushrod wire (31")
- Clevis retainer
- 2mm x 6mm sheet metal screw (4)
- Tail gear steering arm
- 3mm setscrew
- 3mm x 8mm screw
- Clevis
- Tail gear cover

Required Tools and Adhesives

- Threadlocking compound
- Hobby knife

☐ Step 1

Slide a clevis retainer onto a clevis. Thread the clevis onto the 31" pushrod wire.

☐ Step 2

Trim the steering arm so only one hole remains.

☐ Step 3

Thread the 3mm x 8mm screw into the steering arm. Attach the clevis to the steering arm as well.

☐ Step 4

Slide the pushrod wire into the pushrod tube inside the fuselage. Be patient, as it can be a little tricky.

☐ Step 5

Position the steering arm in the bracket inside the fuselage. Slide the tail gear wire through the bracket and steering arm. Tighten the screw to secure the tail gear wire.

Note: Check to make sure there is travel both directions when the pushrod is used to operate the tail wheel. Change the position of the steering arm on the wire if necessary to achieve decent travel in both directions.

☐ Step 6

Attach the tail gear cover using four 2mm x 6mm wood screws.

☐ Step 7

Install the tail wheel and secure it using the 5/32" wheel collar and 3mm setscrew.

Section 10: Linkage Installation

Required Parts

- Pushrod wires (41") (3)
- Nylon clevis (3)
- Control horn backplate
- #2 nuts (6)
- 3mm x 6mm screw (2)
- #2 x 1 $^5/_8$" threaded rods (3)
- 2-56 x 1 $^5/_8$" threaded rod (3)
- Fuselage assembly
- Clevis retainer (3)
- Control horns (3)
- #2 x 1/2" screw (12)
- 2-56 nut (6)

Required Tools and Adhesives

- Drill
- Hobby knife
- Threadlocking compound
- Drill bit: 1/16", 7/64"
- Thin CA
- Felt-tipped pen

☐ ☐ Step 1

Slide the pushrod wires into the tubes in the fuselage. Thread the clevis onto the wires a minimum of 10 turns. Repeat this step for both elevator linkages and the rudder linkage.

☐ ☐ Step 2

Use a 7/64" drill bit to drill out the mounting holes in the control horn. Attach the elevator clevis to the control horn. Position the control horn on the elevator so the control rod is straight, and the holes in the control horn aligns with the hinge line of the elevator. Mark the position for the mounting holes using a felt-tipped pen.

☐ ☐ Step 3

Drill three 1/16" holes at the locations marked in the previous step. The holes only need to be 7/16" deep: don't drill through the top of the elevator. Install one of the #2 x 1/2" screws in a hole drilled, and then remove it. Place 2–3 drops of thin CA into the hole to harden the wood. This will eliminate the potential of the screw pulling out of the wood. Repeat this for each of the three holes. Attach the control horn using three #2 x 1/2" screws.

☐ Step 4

Repeat Steps 1 through 3 for the remaining elevator half.

☐ Step 5

Use a 7/64" drill bit to drill out the mounting holes in the control horn. Attach the rudder clevis to the control horn. Position the control horn on the rudder so the control rod is straight, and the holes in the control horn aligns with the hinge line of the rudder. Mark the position for the mounting holes using a felt-tipped pen.

☐ Step 6

Drill three 7/64" holes through the rudder at the locations marked in the previous step. Test fit the 2-56 x $1\frac{5}{8}$" threaded rods through the contol horn and control horn backplate. The holes may need some adjustment to get things to align properly. Place 2–3 drops of thin CA into the hole to harden the wood. This will eliminate the potential of the threaded rods from crushing the underlying wood. Attach the control horn using three 2-56 x $1\frac{5}{8}$" threaded rods and six 2-56 nuts. Use threadlock on the nuts to prevent them from vibrating loose.

Section 11: Radio Installation

Required Parts

- Fuselage assembly
- Receiver
- Switch harness
- 3mm x 6mm screw (2)
- Servos (4) (not included)
- Connector backplate (2)

- 1/4" foam
- Receiver battery
- Brass connector (2)

Required Tools and Adhesives

- Thin CA
- Hobby knife

☐ Step 1

Install the recommended servo hardware (grommets and eyelets) supplied with your radio system onto four servos (elevator (2), rudder and throttle). Install the servos as shown. Secure the servos using the screws provided with the servos.
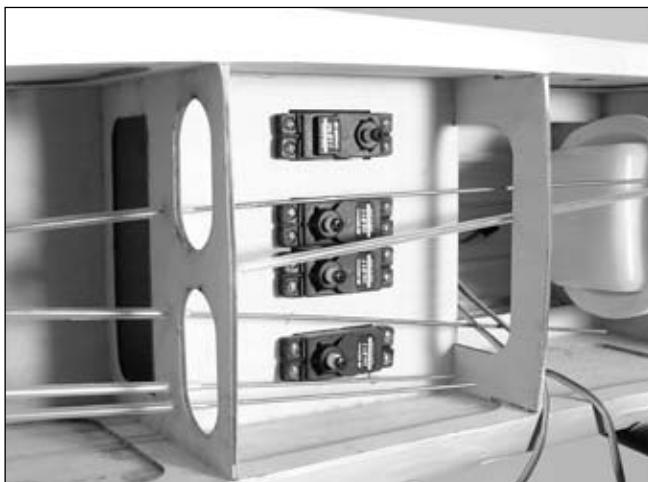
☐ Step 2

Mount the radio switch in the side of the fuselage. Glue small scraps of plywood to the balsa sheeting inside the fuselage to give the screws something to bite into.

Note: Using two standard rotation servos and a standard Y-harness for the elevators will result in them moving in opposite directions instead of the same direction. As such, the elevator servo installation will either require the use of one reversed rotation servo and one standard rotation servo or a reversing Y-harness. It is highly recommended to use a computer radio or a JR® MatchBox™ to link the two elevator servos to operate properly.

☐ Step 3

Wrap the receiver and receiver battery in 1/4" foam. Plug the servos and servo extensions into the receiver. Mount the receiver and battery in the fuselage so they won't move in flight.

☐ **Step 4**

Route the antenna to the rear of the fuselage. Do not cut the antenna wire, as this will greatly reduce the range of your radio system.

☐ ☐ **Step 5**

Center the elevator servo electronically using the radio system. Install a servo arm onto one of the elevator servos. Physically place the elevator control surface in neutral. Mark the pushrod where it crosses the holes in the servo arm.
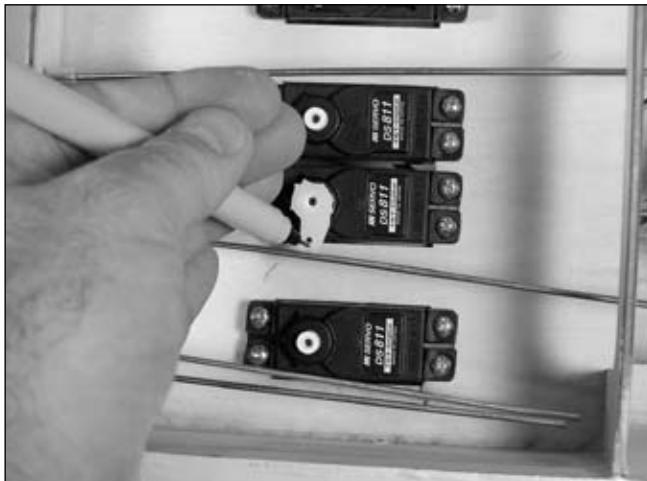
☐ ☐ **Step 6**

Bend the wire 90 degrees at the mark made in the previous step. Cut the wire 1/2" above the bend.

☐ ☐ **Step 7**

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

> **Note**: The servo arm will need to be drilled out using a 7/64" drill bit to accept the control rod.
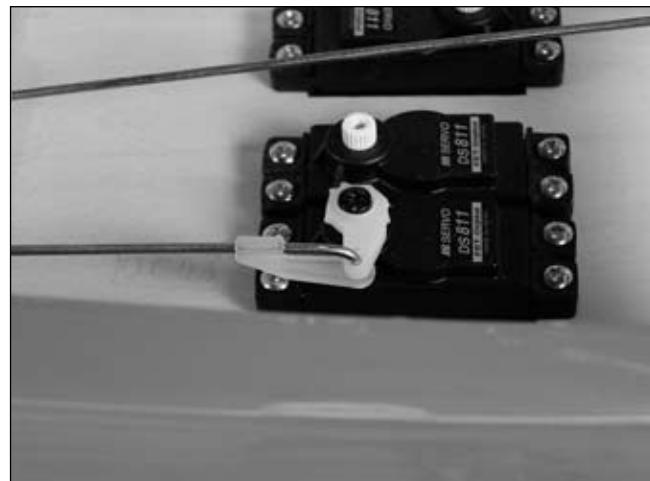
☐ **Step 8**

Repeat Steps 5 through 7 for the remaining elevator servo.

☐ **Step 9**

Attach a brass connector to the rudder servo arm using a connector backplate. The connector is placed in the hole in the servo arm closest to the center of the arm.

Section 11: Radio Installation

☐ Step 10

Repeat Steps 5 through 7 for connecting the rudder pushrod. The pushrod from the tail wheel passes through the connector. Center the tail wheel, then secure the tail wheel pushrod in the connector using a 3mm x 6mm screw.
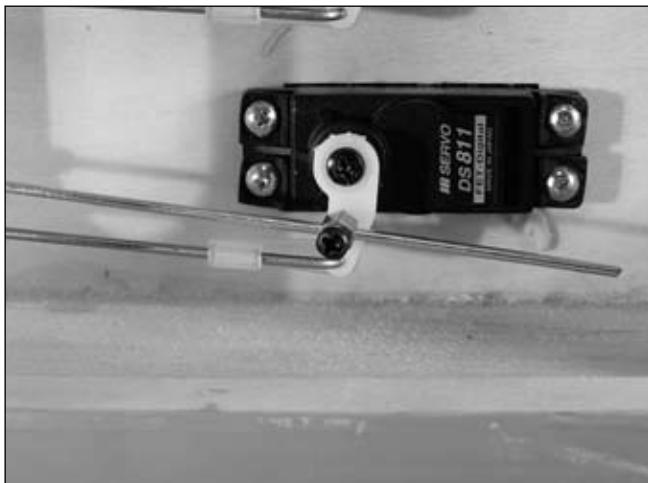
☐ Step 11

Install a brass connector to the throttle servo arm. Center the throttle stick and trim with both the receiver and transmitter on. Install the throttle servo arm in the neutral position as shown, passing the throttle pushrod wire through the connector.
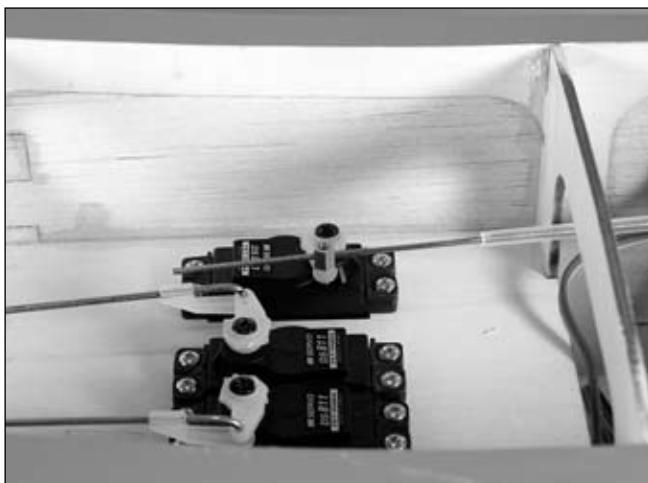
☐ Step 12

Move the throttle stick and trim to low. Check to make sure the carburetor will move to the low position when operating the servo. Install two 3mm x 6mm screws 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. If there is, make the necessary adjustment to eliminate any binding. Install the throttle servo arm screw when complete.

Section 12: Final Assembly

Required Parts

- Fuselage assembly
- Cowl
- Decal sheet
- Painted canopy
- 4-40 x 1/2" socket head screws (10)
- #4 washers (6)
- Bomb assembly (2)
- scale propeller blade (4)
- Spinner
- Spinner backplate
- 1/4-20 x 1" nylon bolt (4)
- #4 x 1/2" sheet metal screw (6)

Required Tools and Adhesives

- Felt-tipped pen
- Hobby knife
- Canopy scissors
- Shoe Goo
- 6-minute epoxy
- Canopy glue (RC560)
- Paper towel
- Spray bottle
- 2–3 drops dish soap
- 3/32" ball wrench
- Drill
- Drill bit: 5/64"
- Phillips screwdriver
- Moto-tool w/cut-off wheel and sanding drum

☐ Step 1

Make the appropriate cutouts in the cowl for the muffler exhaust, needle valve and engine cooling. Mount the cowl using eight 2-56 x 1/2" socket head screws.

☐ Step 2

At this time you will need to decide if you will cut the spinner for use with the scale proepeller or for actual flying. A template has been provided for use in cutting out the spinner for either the flying propeller or the static versions of propellers.

☐ Step 3

Locate the template in the back of the manual to prepare the spinner cone for your particular propeller. Both the slots for the flying propeller and holes for the scale propeller have been included on the template. Tape the template onto the bottom of the spinner and mark the locations for your choice of propeller. **Make sure to verify the template is in the correct orientation before cutting the openings for the flying propeller.** Use a rotary tool to make the necessary openings in the spinner cone.
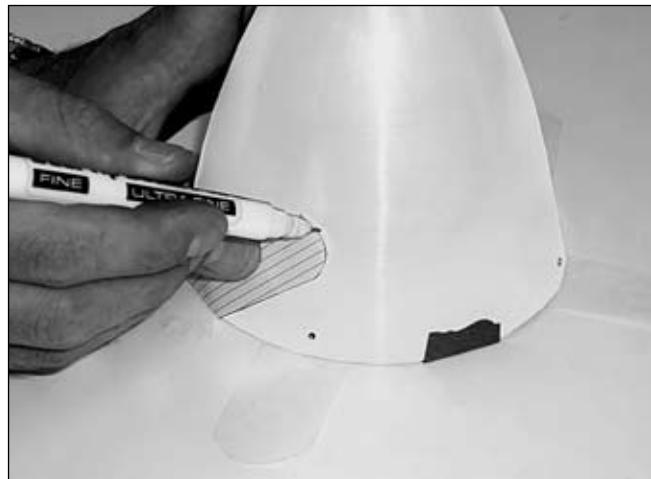
Hint: Place masking tape on the spinner under the template to prevent the paint from being chipped wile cutting the openings

☐ Step 4

Locate the items for the scale propeller. Test fit the block onto the crankshaft of your particular engine. You may need to enlarge the hole in the center block to fit onto the crankshaft of your particular engine.
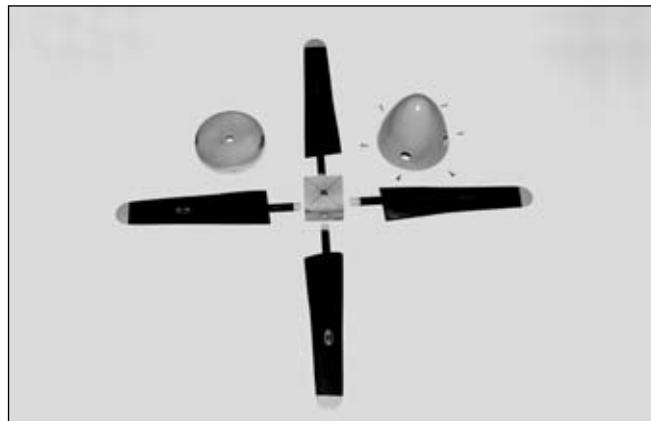
Section 12: Final Assembly

☐ Step 5

Install the propeller and spinner by installing the backplate then the center block (for the scale propeller). Secure the block using the engine hardware. Place the spinner into position and slide the blades through the spinner cone and into the block. Secure the spinner to the backplate using six #4 x 1/2" sheet metal screws.

Note: The scale propeller is shown in the photo. Do not attempt to fly the aircraft with this propeller as it is for display only.

Note: Check to make sure the spinner does not rub against the front of the fuselage. If so, loosen the engine mounting bolts, slide the engine forward until the spinner can turn freely, then re-tighten the engine mounting bolts.

☐ Step 6

Cut out the instrument panel decal and apply.

☐ Step 7

Install the cockpit accessories (including a pilot if you so choose) using medium CA or Shoo Goo.

☐ Step 8

Glue the canopy to the fuselage using RC560 canopy glue. Tape the canopy in place with masking tape and allow the glue to cure overnight.

☐ **Step 9**

Locate the decal sheet and cut out the decals for the P-51D using a sharp hobby knife and scissors. Use the photos on the box to aid in locating the decals. Use a spray bottle with 2–3 drops of dish soap added to the water and spray both the fuselage and sticky side of the decal. This will allow you to reposition the decal if necessary. Once satisfied with the position, use a paper towel to squeegee out the water. Allow the decal to dry overnight.

Note: There may be some clouding under the decal, but this will go away as the decal dries.

☐ ☐ **Step 10**

Locate the positions for the pylon mounting screws on the bottom of the wing. This is done by gently pressing on the covering with your index finger. Remove the covering using a sharp hobby knife.

☐ ☐ **Step 11**

Slide the two 1/4"-20 nylon bolts through the bomb and though the bomb pylon.
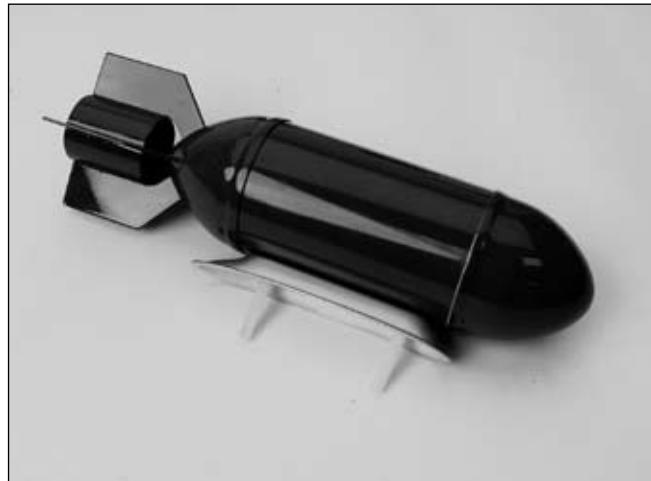
☐ ☐ **Step 12**

Use a flat blade screwdriver to attach the bomb and pylon to the wing using the 1/4-20 nylon bolts.
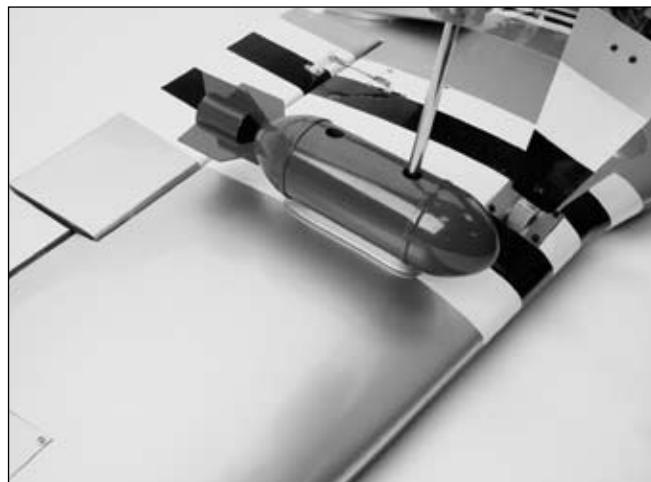
☐ **Step 13**

Repeat Steps 10 though 12 for the remaining bomb and pylon.

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.

Control Throws

The following control throws offer a good place to start with your first flights. We recommend only one rate setting for the P-51D. As you become more familiar with the handling of your model, you may wish to add a second rate setting.

Once the control throws for the ailerons and flaps have been set, tighten the 4-40 nuts against the clevises to prevent them from loosening during flight. It is also highly suggested to use threadlocking compound.

Recommended Control Throws

	Low rate	High rate
Aileron	1/2" (14°) up	3/4" (18°) up
	1/2" (14°) down	3/4" (18°) down
Elevator	5/8" (12°) up	3/4" (15°) up
	5/8" (12°) down	3/4" (15°) down
Rudder	$1\,^7/_8$" (20°) left	$2\,^1/_2$" (30°) left
	$1\,^7/_8$" (20°) right	$2\,^1/_2$" (30°) right
Flaps	$1\,^1/_8$" (15°) down	$2\,^1/_2$" (38°) down

Recommended CG

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

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (C.G.) location for the P-51D 1.50 is $6\,^3/_8$" behind the leading edge of the wing measured at the fuselage sides. If necessary, move the battery pack or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby shop and work well for this purpose.

Preflight

Range Test Your Radio

☐ Step 1

Before going to the field, be sure that your batteries are fully charged, per the instructions included with your radio. Charge both the transmitter and receiver pack for your airplane. Use the recommended charger supplied with your particular radio system, following the instructions provided with the radio. In most cases the radio should be charged the night before going out flying.

☐ Step 2

Before each flying session, be sure to range check your radio. See your radio manual for the recommended range and instructions for your radio system. Each radio manufacturer specifies different procedures for their radio systems. Next, start the engine. With the model securely anchored, check the range again. The range test should not be significantly affected. If it is, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

Note: Keep loose items that can get entangled in the propeller away from the prop. These include loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller.

☐ Step 3

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

☐ Step 4

Check the radio installation and make sure all the control surfaces are moving correctly (i.e. the correct direction and with the recommended throws). Test 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 Testing the Radio

Before each flying session, range-check your radio. 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.

2006 Official AMA
National Model Aircraft Safety Code

GENERAL

1) I will not fly my model aircraft in sanctioned events, air shows or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight tested.

2) I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.

3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully 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.)

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.

Building Notes

Page left blank intentionally

Spinner Template

Remove ONLY the shaded portion of the template

Flying Propeller Template ⟶

Scale
Propeller
Template

Scale
Propeller
Template

Flying Propeller Template
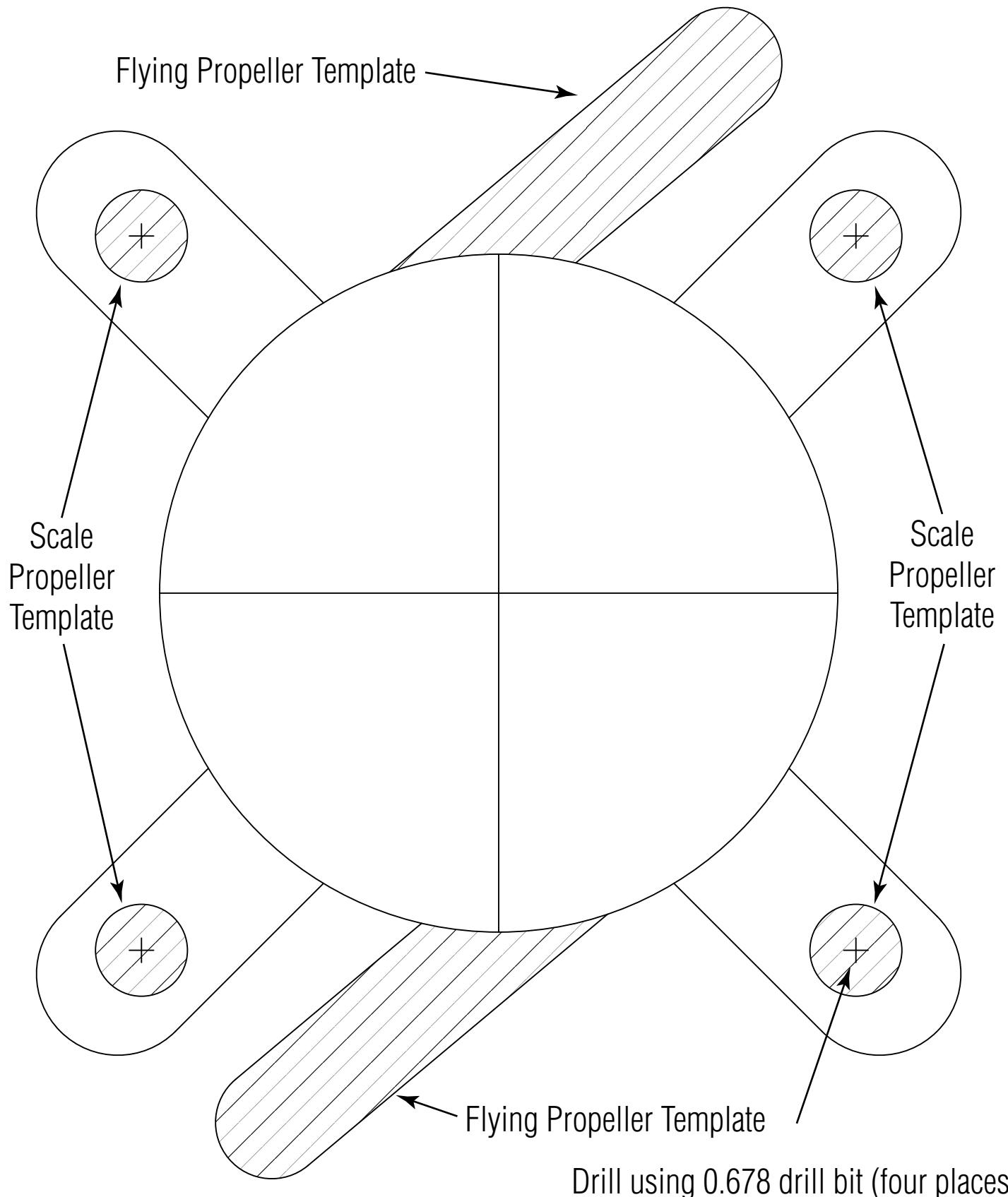
Drill using 0.678 drill bit (four places)

Flying Notes

HANGAR 9

HORIZON
HOBBY

8260.1