P-6E HAWK

INSTRUCTION MANUAL

Wingspan: Top Wing - 76 in [1930mm]
Bottom Wing - 63 in [1600mm]
Wing Area: Top Wing - 852 sq in [55 dm²]
Bottom Wing - 589 sq in [38 dm²]
Weight: 14–16 lb [6348 – 7255 g]
Wing Loading: 22–26 oz/sq ft [67-79 g/dm²]
Length: 59.75 in [1518mm]
Radio: 4-channel with 5 servos
Engine: .91-1.08 cu in [15-17.5cc] two-stroke,
.91-1.20 cu in [19.5-23cc] four-stroke

WARRANTY

Great Planes® Model Manufacturing Co. guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

To make a warranty claim send the defective part or item to Hobby Services at the address below:

Hobby Services
3002 N. Apollo Dr. Suite 1
Champaign IL 61822 USA

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT WARNINGS AND INSTRUCTIONS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

GREAT PLANES® MODEL MANUFACTURING COMPANY
Champaign, Illinois
(217) 398-8970, Ext 5
airsupport@greatplanes.com

GPMZ0180 for GPMA1219 V1.1

TABLE OF CONTENTS

INTRODUCTION

The P-6E Hawk has a long and colorful history in both the U.S. military and abroad. You will thoroughly enjoy the wide range of capabilities of this plane as well as its good looks. We think you will be pleased with its attention to detail and flight characteristics.

For the latest technical updates or manual corrections to the P-6E Hawk ARF, visit the Great Planes web site at **www.greatplanes.com**. Open the "Airplanes" link, then select the P-6E Hawk ARF. If there is new technical information or changes to this model a "tech notice" box will appear in the upper left corner of the page.

IMAA

The P-6E Hawk ARF is an excellent sport-scale model and is eligible to fly in IMAA events. The IMAA (International Miniature Aircraft Association) is an organization that promotes non-competitive flying of giant-scale models. If you plan to attend an IMAA event, obtain a copy of the IMAA Safety Code by contacting the IMAA at the address or telephone number below, or by logging on to their web site at **www.fly-imaa.org/imaa/sanction.html**.

IMAA
205 S. Hilldale Road
Salina, KS 67401
(913) 823-5569

PROTECT YOUR MODEL, YOURSELF & OTHERS...FOLLOW THESE IMPORTANT SAFETY PRECAUTIONS

1. Your P-6E Hawk ARF should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the P-6E Hawk ARF, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the model **according to the instructions.** Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct.

3. You must take time to build **straight, true and strong.**

4. You must use an R/C radio system that is in first-class condition, and a correctly sized engine and components (fuel tank, wheels, etc.) throughout the building process.

5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.

6. You must check the operation of the model before every flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.

7. If you are not already an experienced R/C pilot, you should fly the model only with the help of a competent, experienced R/C pilot.

8. While this kit has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying, such as racing, the modeler is responsible for taking steps to reinforce the high stress points.

9. **WARNING**: The cowl, landing gear covers and wing struts included in this kit are made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into a part to remove fiberglass dust, as the dust will blow back into your eyes. Always wear safety goggles, a particle mask and rubber gloves when grinding, drilling and sanding fiberglass parts. Vacuum the parts and the work area thoroughly after working with fiberglass parts.

Note: We, as the kit manufacturer, provide you with a top quality kit and great instructions, but ultimately the quality of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expressed or implied as to the performance or safety of your completed model.

Remember: Take your time and follow the instructions to end up with a well-built model that is straight and true.

If you have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.

In addition to joining an R/C club, we strongly recommend you join the AMA (Academy of Model Aeronautics). AMA membership is required to fly at AMA sanctioned clubs. There are over 2,500 AMA chartered clubs across the country. Among other benefits, the AMA provides insurance to its members who fly at sanctioned sites and events. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. Contact the AMA at the address or toll-free phone number that follows.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057
Or via the Internet at: *http://www.modelaircraft.org*

ADDITIONAL ITEMS REQUIRED

Hardware and Accessories

This is the list of hardware and accessories required to finish the P-6E Hawk. Order numbers are provided in parentheses.

- ❑ Engine (refer to the engine size requirements on the cover of the manual)
- ❑ 4-Channel radio
- ❑ (1) standard servo (throttle)
- ❑ (4) servos with minimum of 54 oz/in torque (2-ailerons, 1-elevator, 1-rudder)
- ❑ (2) 6" [300mm] servo extensions (for aileron servos, HCAM2701 for Futaba®)
- ❑ (1) Y-harness (for aileron servos, HCAM2751for Futaba)
- ❑ (1) minimum 1,000mAh receiver battery
- ❑ Propeller and spare propellers (refer to your engine manufacturer's recommendations)

Adhesives and Building Supplies

In addition to common household tools and hobby tools, this is the "short list" of the most important items required to build the P-6E Hawk ARF. ***Great Planes Pro™ CA*** *and* ***Epoxy*** *glue are recommended.*

- ❑ R/C foam rubber (1/4" [6mm] – HCAQ1000, or 1/2" [13mm] – HCAQ1050)
- ❑ 1 oz. [30g] Thin Pro CA (GPMR6002)
- ❑ 1 oz. [30g] Medium Pro CA+ (GPMR6008)
- ❑ Pro 30-minute epoxy (GPMR6047)
- ❑ Pro 6-minute epoxy (GPMR6045)
- ❑ Threadlocker™ thread-locking cement (GPMR6060)
- ❑ Drill bits: 1/16" [1.6mm], 5/64" [2mm], 3/32" [2.4mm], 1/8" [3mm], #29 or 9/64" [3.6mm], 3/16" [4.8mm], 7/32" [5.5mm]
- ❑ 8-32 tap
- ❑ 1/2" wrench
- ❑ Hex head wrench set
- ❑ 5 pkgs Stick-on segmented lead weights (GPMQ4485)
- ❑ #1 Hobby knife (HCAR0105)
- ❑ #11 Blades (5-pack, HCAR0211)
- ❑ Small T-pins (100, HCAR5100)
- ❑ R/C-56 canopy glue (JOZR5007)
- ❑ CA applicator tips (HCAR3780)
- ❑ Denatured alcohol (for epoxy cleanup)
- ❑ Curved-tip canopy scissors for trimming plastic parts (HCAR0667)

Optional Supplies and Tools

Here is a list of optional tools mentioned in the manual that will help you build the P-6E Hawk ARF.

- ❏ 2 oz. [57g] spray CA activator (GPMR6035) **or** 4 oz. [113g] aerosol CA activator (GPMR634)
- ❏ Epoxy brushes (6, GPMR8060)
- ❏ Mixing sticks (50, GPMR8055)
- ❏ Mixing cups (GPMR8056)
- ❏ Builder's Triangle Set (HCAR0480)
- ❏ Pliers with wire cutter (HCAR0630)
- ❏ Robart Super Stand II (ROBP1402)
- ❏ Hobbico® Duster™ can of compressed air (HCAR5500)
- ❏ Masking tape (TOPR8018)
- ❏ Microballoons (TOPR1090)
- ❏ Rotary tool such as Dremel®
- ❏ Rotary tool reinforced cut-off wheel (GPMR8200)
- ❏ Servo horn drill (HCAR0698)
- ❏ Dead Center™ Engine Mount Hole Locator (GPMR8130)
- ❏ AccuThrow™ Deflection Gauge (GPMR2405)
- ❏ CG Machine™ (GPMR2400)
- ❏ Precision Magnetic Prop Balancer™ (TOPQ5700)
- ❏ Fuel filler valve for glow fuel (GPMQ4160)

IMPORTANT BUILDING NOTES

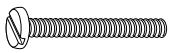
• There are two types of screws used in this kit:

Sheet metal screws are designated by a number and a length. For example #6 x 3/4" [19mm]

This is a number six screw that is 3/4" [19mm] long.

Machine screws are designated by a number, **threads per inch** and a length. For example 4-40 x 3/4" [19mm]

This is a number four screw that is 3/4" [19mm] long with forty threads per inch.



Socket head cap screws are designated by a number, **threads per inch** and a length. For example 4-40 x 3/4" [19mm]

This is a number four screw that is 3/4" [19mm] long with forty threads per inch.

• When you see the term ***test fit*** in the instructions, it means that you should first position the part on the assembly **without using any glue**, then slightly modify or *custom fit* the part as necessary for the best fit.

• Whenever the term ***glue*** is written you should rely upon your experience to decide what type of glue to use. When a specific type of adhesive works best for that step, the instructions will make a recommendation.

• **Photos** and **sketches** are placed **before** the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.

• The P-6E Hawk ARF is factory-covered with Top Flite® MonoKote® film. Should repairs ever be required, MonoKote can be patched with additional MonoKote purchased separately. MonoKote is packaged in six-foot rolls, but some hobby shops also sell it by the foot. If only a small piece of MonoKote is needed for a minor patch, perhaps a fellow modeler would give you some. MonoKote is applied with a model airplane covering iron, but in an emergency a regular iron could be used. A roll of MonoKote includes full instructions for application. Following are the colors used on this model and order numbers for six foot rolls.

Cub Yellow – TOPQ0220
Olive Drab – TOPQ0210
White – TOPQ0204
Black – TOPQ0208
Dark Red – TOPQ0218

• The stabilizer and wing incidences and engine thrust angles have been factory-built into this model. However, some technically minded modelers may wish to check these measurements anyway. To view this information visit the web site at www.greatplanes.com and click on "Technical Data." Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

WORKING WITH FIBERGLASS

If you have never worked with fiberglass there are a few basic things you should be aware of.

1. When you are cutting into fiberglass, be sure you are cutting the correct place. Unlike wood, you are not able to go back and easily fix a mistake.

2. Whenever you are gluing a part to the inside of fiberglass it is important to roughen the inside surface of the fiberglass with 220-grit sandpaper, then wipe the area with alcohol. The molding process leaves a waxy residue that can prevent a good bond between the glue and the parts being glued.

3. If you do not have a high-speed rotary tool such as a Dremel tool, you should consider purchasing one or borrowing one from a fellow modeler. This combined with a fiberglass cut-off wheel is going to be extremely helpful in the assembly process.

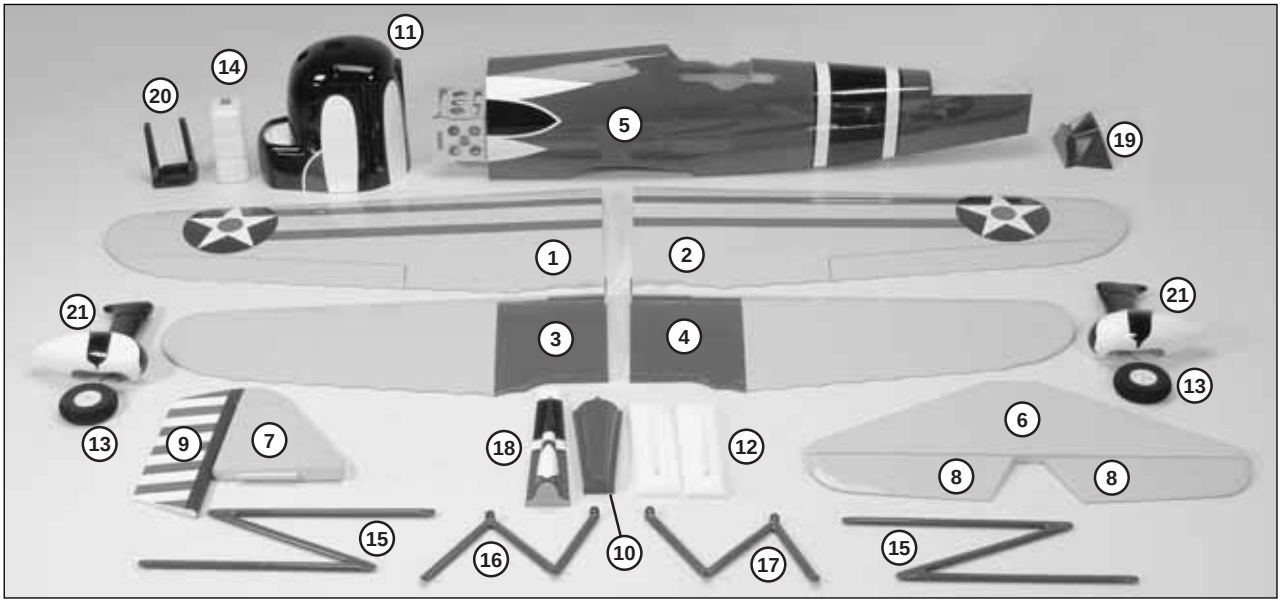
WARNING: The cowl, landing gear covers and wing struts included in this kit are made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into a part to remove fiberglass dust, as the dust will blow back into your eyes. Always wear safety goggles, a particle mask and rubber gloves when grinding, drilling and sanding fiberglass parts. Vacuum the parts and the work area thoroughly after working with fiberglass parts.

KIT INSPECTION

Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact Great Planes **Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list on this page.

Great Planes Product Support:
Telephone: (217) 398-8970, ext. 5
Fax: (217) 398-7721
E-mail: *airsupport@greatplanes.com*

KIT CONTENTS



Kit Contents (Photographed)

1 Left Top Wing
2 Right Top Wing
3 Left Bottom Wing
4 Right Bottom Wing
5 Fuselage
6 Stabilizer
7 Fin
8 Elevators (2)
9 Rudder
10 Fin Cover
11 Cowl
12 Molded Exhaust (2)
13 4" Foam Wheels (2)
14 Fuel Tank
15 "N" Struts (2)
16 Left Center Cabane
17 Right Center Cabane
18 Turtle Deck
19 Wind Screen
20 Engine Mount Halves (L&R)
21 Landing Gear Cover

Kit Contents (Not Photographed)

Forward Top Wing Joiner (3)
Forward Bottom Wing Joiner (3)
Aft Top Wing Joiner (1)
Aft Bottom Wing Joiner (1)
Tail Gear Wire w/Bushing (1)
Aluminum Landing Gear (1)
Guns (2)
Stopper Set (1)
Clunks (2)
Aluminum Tubes (3)
Colored Fuel Tubing (3)
Pickup Tube (2)
Radio Tray (1)
6.4x6.4x44mm Hardwood Stick (4)
"N" Strut Brackets (8)
#64 Rubber Band (3)
Handle Plates (2)
Handle Ends (8)
Handle Spreaders (8)
Handle Centers (4)
Weight Box Bottom (1)
Weight Box Top (1)
Weight Box Front (1)
Weight Box Back (1)
Weight Box Sides (2)
Weight Box Sticks (2)
Cockpit Coaming (1)
Pilot (1)
1" Tail Wheel (1)
#8 x 5/8" Sheet Metal Screw
8-32 Blind Nuts (4)
8-32 x 1-1/4" SHC Screw (4)
#8 Washer (8)
#8 Lock Washer (8)
8-32 x 1" SHC Screw (4)
4-40 x 1/2" SHC Screw (20)
4-40 x 3/4" SHC Screw (4)
#4 Lock Washer (12)
#4 Nylon Lock Nut (8)
#4 Flat Washer (28)
3/16" Axles (2)
3/16" Wheel Collars (4)
6-32 Set Screws (2)
Nylon Axle Nut (2)
#2 x 3/8" Sheet Metal Screw (2)
#2 Flat Washer (2)
#4 x 1/2" SMS (32)
4-40 x 12" Pushrod (2)
Large Control Horn (5)
4-40 Threaded Metal Clevis (5)
.093" Solder Clevis (4)
4-40 Nut (5)
Clevis Retainers (10)
4-40 x 36" Threaded One End Pushrod (3)
2-56 x 17-1/2" Threaded One End Pushrod (1)
Nylon Clevis (1)
Brass Pushrod Connector (1)
Nylon Pushrod Keeper (1)
4-40 x 1/4" SHC screw (1)
24" Gray Outer Prod Tube (1)
6-32 x 1/4" SHC Screw (2)
Hinge Strip (1)
1/4-20 x 2" Nylon Wing Bolts (2)
1/4-20 Blind Nuts (2)
3/32" Wheel Collar (1)
4-40 Set Screw (1)
4-40 Blind Nut (4)
4-40 x 1" SHC Screw (4)

ORDERING REPLACEMENT PARTS

Replacement parts for the P-6E Hawk ARF are available using the order numbers in the Replacement Parts List that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company. Parts may also be ordered directly from Hobby Services, but full retail prices and shipping and handling charges will apply. Illinois and Nevada residents will also be charged sales tax.

To locate a hobby dealer, visit the Great Planes web site at www.greatplanes.com. Choose “Where to Buy” at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer. If a hobby shop is not available, replacement parts may also be ordered from Tower Hobbies at www.towerhobbies.com, or by calling toll free (800) 637-6050, or from Hobby Services by calling (217) 398-0007, or via facsimile at (217) 398-7721. If ordering via fax, include a Visa® or MasterCard® number and expiration date for payment.

Mail parts orders and payments by personal check to:

Hobby Services
3002 N Apollo Drive, Suite 1
Champaign IL 61822

Be certain to specify the order number exactly as listed in the ***Replacement Parts List.*** Payment by credit card or personal check only; no C.O.D.

If additional assistance is required for any reason, contact the appropriate Product Support by telephone at (217) 398-8970 or by e-mail at ***productsupport@greatplanes.com***.

Replacement Parts List

Order Number	Description	How to Purchase
	Missing pieces	Contact Product Support
	Instruction manual	Contact Product Support
	Full-size plans	Not available
	Kit parts listed below	Hobby Supplier

GPMA2845.....Bottom Wing
GPMA2846.....Top Wing
GPMA2847.....Fuselage
GPMA2848.....Tail Set
GPMA2849.....Cowl
GPMA2850.....Landing Gear
GPMA2851.....Wheel Pants
GPMA2852.....Interplane Struts
GPMA2853.....Cabane Struts
GPMA2854.....Wind Screen
GPMA2855.....Decal Set
GPMA2856.....Strut Brackets
GPMA2857.....Pilot

PREPARATIONS

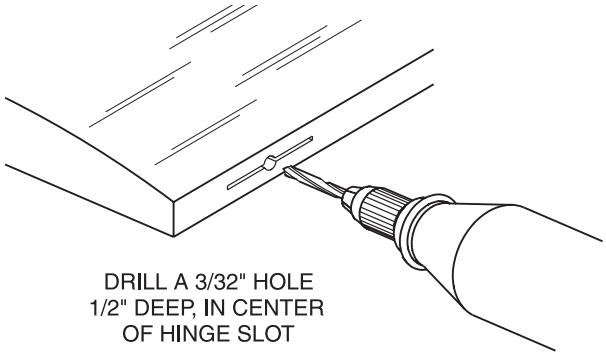
❏ 1. If you have not done so already, remove the major parts of the kit from the box and inspect for damage. If any parts are damaged or missing, contact Product Support at the address or telephone number listed in the “Kit Inspection” section on page 5.

❏ 2. Remove the tape and separate the ailerons from the wing and the elevators from the stab. Use a covering iron with a covering sock on high heat to tighten the covering if necessary. Apply pressure over sheeted areas to thoroughly bond the covering to the wood.

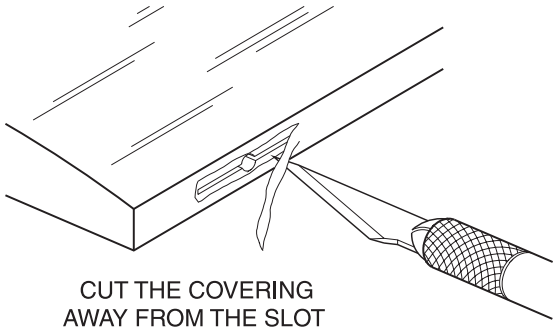
BUILD THE WINGS

Installing the Ailerons

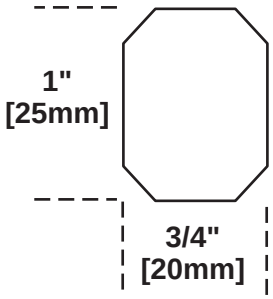
Do the right top wing first, so your work matches the photos the first time through. You can do one wing at a time, or work on them together.



❏ ❏ 1. On the right top wing panel, drill a 3/32" [2.4mm] hole, 1/2" [13mm] deep in the center of each hinge slot to allow the CA to “wick” in. Follow-up with a #11 blade to clean out the slots. **Hint:** If you have one, use a high-speed rotary tool to drill the holes.

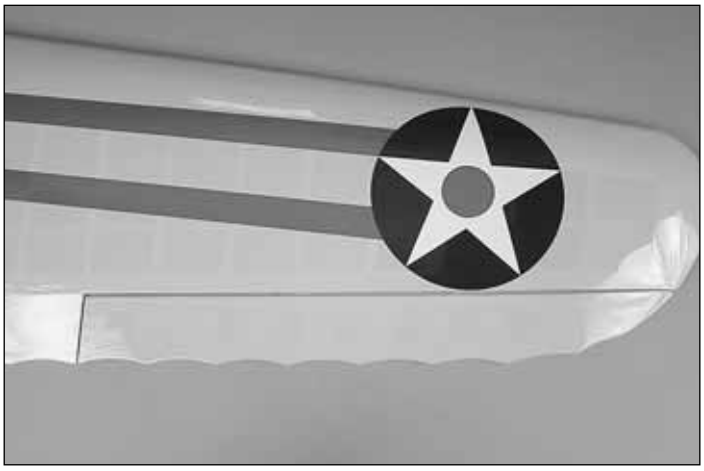


❏ ❏ 2. Use a sharp #11 blade to cut a strip of covering from the hinge slots in the wing and aileron.



❏ ❏ 3. Cut four 3/4" x 1" [19 x 25mm] hinges from the CA hinge strip. Snip off the corners so they go in easier.

❏ ❏ 4. Test fit the ailerons to the wing with the hinges. If the hinges don’t remain centered, stick a pin through the middle of the hinge to hold it in position.



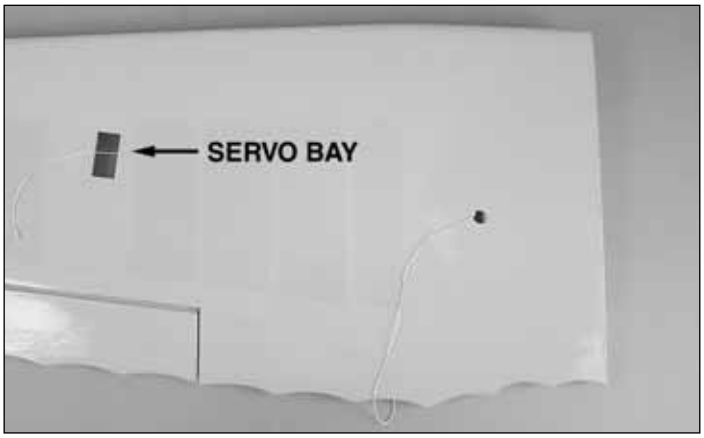
❏ ❏ 5. Remove any pins you may have inserted into the hinges. Adjust the aileron so there is a small gap between the LE of the aileron and the wing. The gap should be small, just enough to see light through or to slip a piece of paper through.

❏ ❏ 6. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully cured, test the hinges by pulling on the aileron.

❏ 7. Repeat steps 1- 6 for the **left top wing panel**.

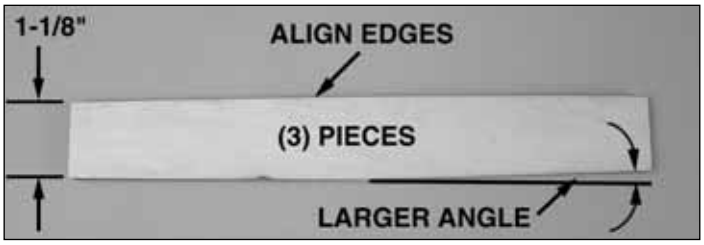
Join the Top Wing Panels

❑ ❑ 1. Cut away the covering from the servo bay in the bottom of the right top wing panel.

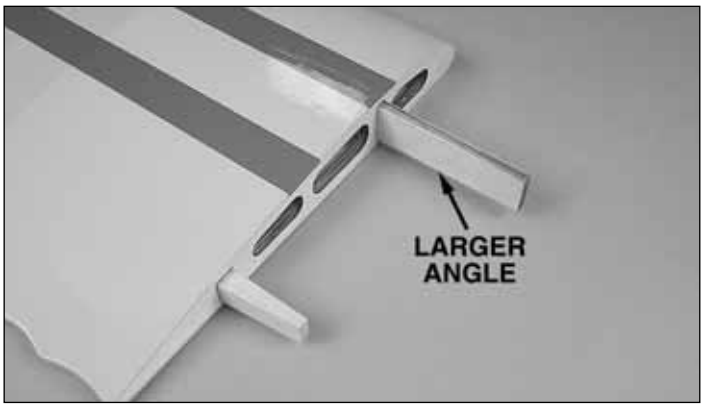


❑ ❑ 2. A string is taped inside the servo bay. Carefully remove the string from the servo bay and tape it to the outside of the wing to prevent it from dropping back into the wing. The other end of the string is under the hole towards the root of the wing. Remove the covering from over the hole and thread the string through the small hole and tape it to the wing.

❑ 3. Repeat steps 1 and 2 for the left top wing panel.

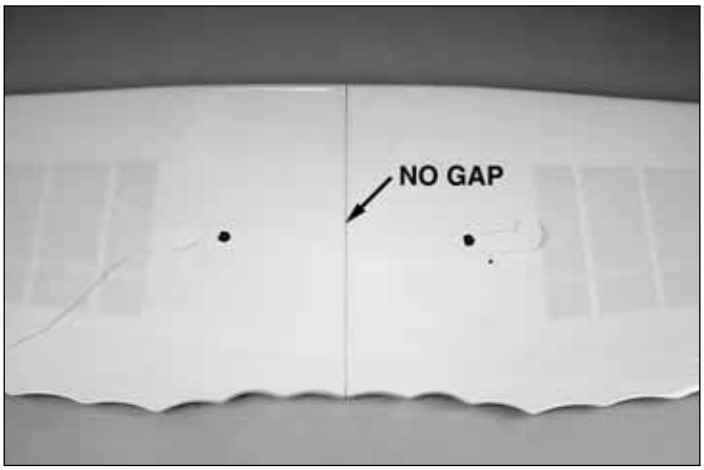


❑ 4. Locate two 1/8" [3mm] and one 1/16" [1.5mm] thick by 1-1/8" [28.6mm] wide plywood wing joiners. Using 6-minute epoxy, glue the three joiners together to form one 5/16" [7.5mm] thick wing joiner. Make sure that all three wing joiners are aligned.



❑ 5. After the glue has cured, test fit the wing joiner into the top wing panels. Note that the wing joiner has a larger angle on one edge. The larger angle goes toward the bottom of the wing. Also insert the larger hardwood trailing edge wing joiner.

❑ 6. To check that the joiners are properly installed, position the top wing upside-down on your flat building surface. The wing should lay flat. If it does not, remove the forward wing joiner, flip it over and reinstall it in the wing panels.

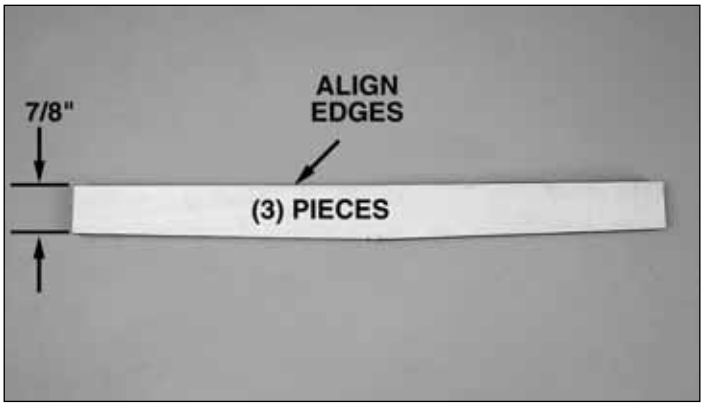


❑ 7. When you are satisfied with the fit of the joiners, glue the forward and aft wing joiners into the top wing panels with 30-minute epoxy. Be sure that the forward wing joiner is installed properly. When gluing the wing panels together be sure to get glue into the joiner pockets in the wing. This can be done by applying the glue into the pockets with a small stick. Apply glue to the pockets, the joiners and the root ribs of the wing panels.

Before the glue cures, set the wing upside-down on your flat building surface. Put small weights on the wing to keep it lying flat while the glue cures.

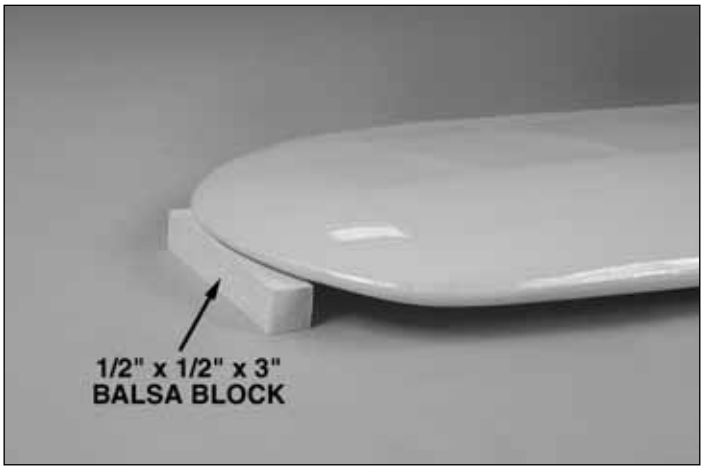
❑ 8. Hold the wing together with masking tape while the glue is curing. Before the epoxy cures, the excess epoxy can be removed with denatured alcohol and a paper towel.

Join the Bottom Wing Panels



❑ 1. Locate three 1/8" [3mm] and one 1/16" [1.5mm] thick by 7/8" [22mm] wide plywood wing joiners. Using 6-minute epoxy, glue the three joiners together to form one 5/16" [7.5mm] thick wing joiner. Make sure that all three wing joiners are aligned.

❑ 2. After the glue has cured, test fit the wing joiner into the bottom wing panels. Note that the wing joiner is angled to provide dihedral in the bottom wing. Also insert the smaller hardwood trailing edge wing joiner.



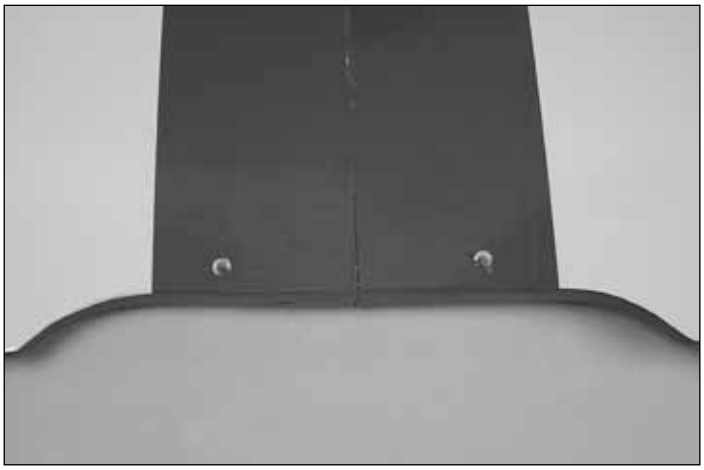
❑ 3. To check that the joiners are properly installed, position the wing upright on your building surface. Place the included 1/2" x 1/2" x 3" [12.7mm x 12.7mm x76.2mm] balsa block under each wing tip. The center of the wing should be resting on your building table.

❑ 4. When you are satisfied with the fit of the joiners, glue the forward and aft wing joiners into the bottom wing panels with 30-minute epoxy. Be sure that the forward wing joiner is installed properly. When gluing the wing panels together be sure to get glue into the joiner pockets in the wing. This can be done by applying the glue into the pockets with a small stick. Apply glue to the pockets, the joiners and the root ribs of the wing panels.

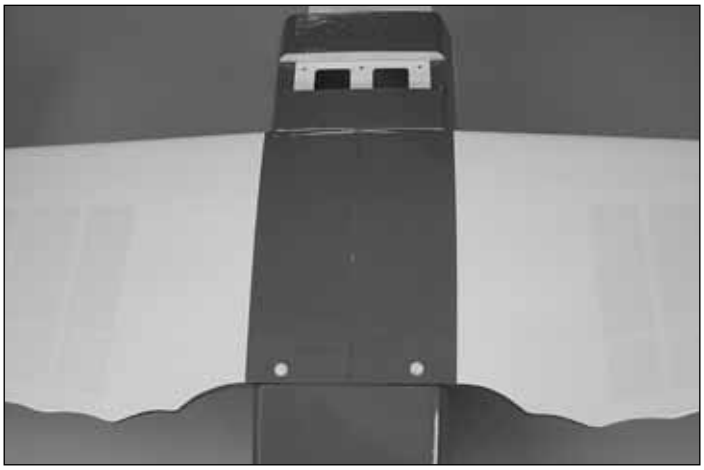
Before the glue cures, set the wing upright on your building surface. Position the two blocks under the wing tips. Put small weights on the wing to keep it lying flat while the glue cures.

❑ 5. Hold the wing together with masking tape while the glue is curing. Before the epoxy cures, the excess epoxy can be removed with denatured alcohol and a paper towel.

Install the Bottom Wing



❑ 1. Cut the covering from over the two wing bolt mounting holes at the aft edge of the bottom wing.



❑ 2. Attach the bottom wing to the fuselage with two 1/4-20 x 2" [50.8mm] nylon bolts.

Did you know? ....
The original P-6 had a designation as XP-6 and was designed for the 1927 National Air Race, placing 2nd with an average speed of 189 mph. The plane that beat it was the Curtiss XP-6A.

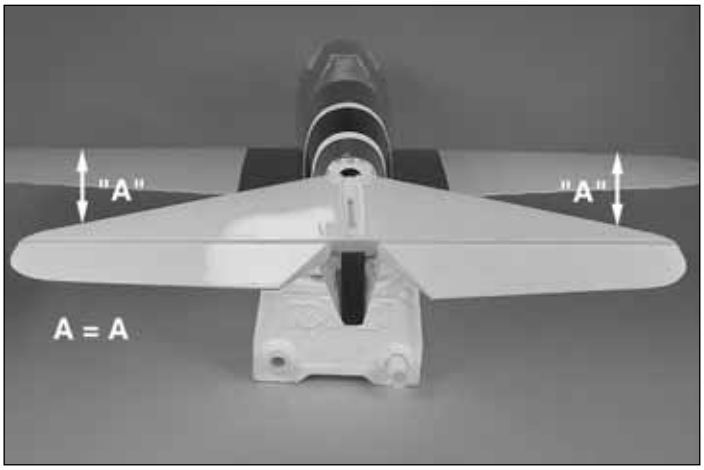
INSTALL THE STABILIZER AND FIN

Install the Stabilizer and Elevator

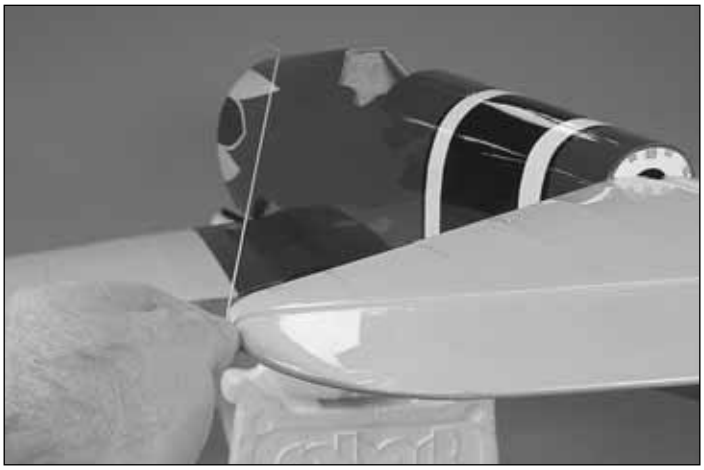
❏ 1. Remove the two elevators from the stabilizer.

❏ 2. Trim the covering from the top and bottom of the center of the stabilizer.

❏ 3. Cut six 3/4" x 1" [19mm x 25.4mm] hinges from the hinge strip. Install both elevators and hinges on the stabilizer, using the same method that was used to install the ailerons on the wing.



❏ 4. Test fit the stabilizer on the fuselage. Note that the cutout in the stabilizer fits over the fuselage. Stand back and look at the stabilizer in relation to the wing. The stabilizer should be parallel with the wing. If not, sand the stabilizer saddle until the stabilizer and wing are aligned.

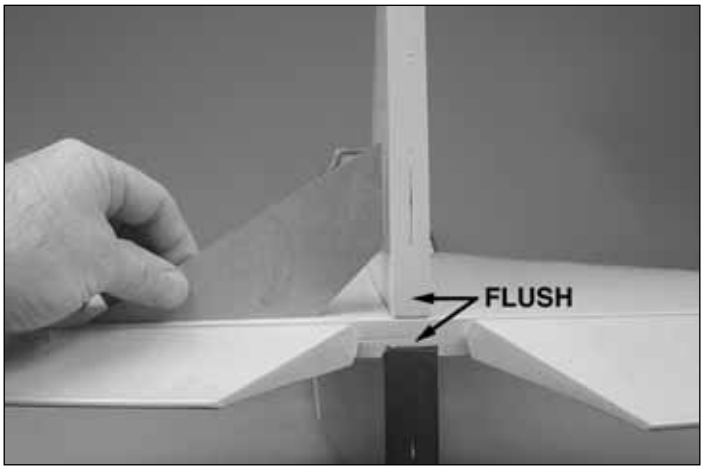


❏ 5. Measure the distance from the tip of the stabilizer to the center of the fuselage at the firewall. Adjust the position of the stabilizer until they are equal.

❏ 6. When satisfied with the fit, use 30-minute epoxy to glue the stabilizer to the fuselage. Double-check the stabilizer alignment while the epoxy is curing.

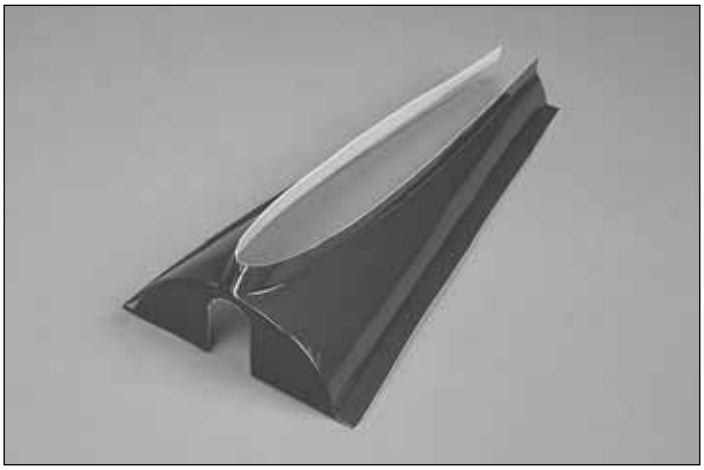
Install the Fin and Rudder

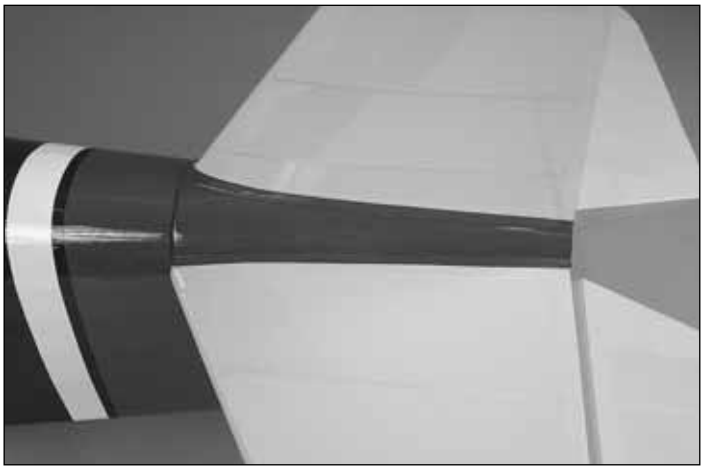
❏ 1. Fit the fin in the cutout in the top of the stabilizer. Make sure the bottom of the fin seats against the top of the stabilizer in the cutout. If needed, trim the corners of the alignment block on the bottom of the fin. Make sure the trailing edge of the fin is flush and aligned with the aft end of the fuselage.



❏ 2. Use a 90-degree triangle to check that the fin is perpendicular to the stabilizer. This should be checked at the trailing edge of the stabilizer and fin.

❏ 3. Use 6-minute epoxy to glue the fin to the stabilizer. Use masking tape to hold the fin in position, double-checking the alignment while the epoxy is curing. Do not glue the front of the fin to the turtledeck. Leave a 1/32" [.8mm] gap between the fin and the turtledeck. The fin cover must fit between the two.



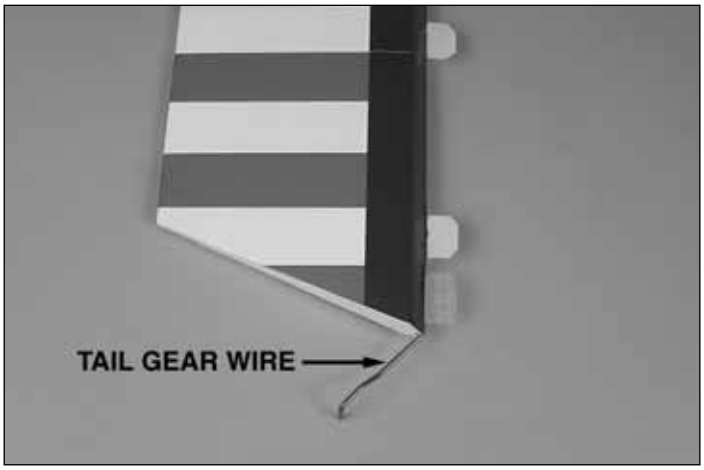


❑ 4. Use a canopy scissors or hobby knife to trim the plastic fin cover along the molded cut lines. Trial fit the cover over the fin. We found that cutting the front center from the cover allowed the fin to fit better. Trim the aft end of the cover so that it is flush with the trailing edge of the fin.

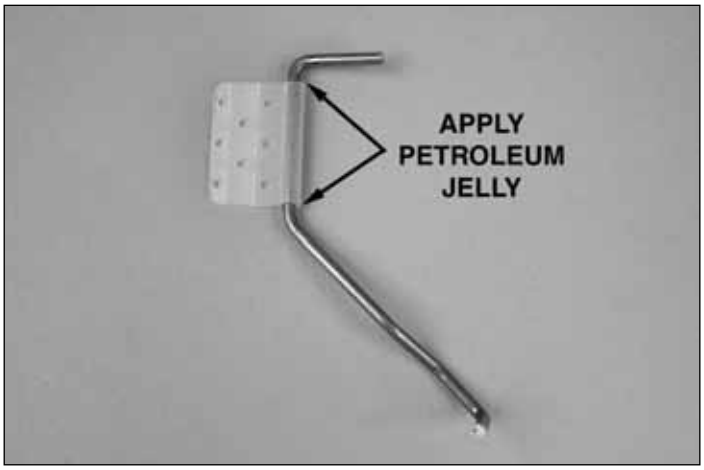
❑ 5. Use sandpaper to roughen the inside of the cover where it contacts the fin and stabilizer. Mark the outline of the cover on the fin and stabilizer using a felt tip pen. Remove the cover and use a pin to poke small holes where the cover will be attached. This will help the glue adhere to the stabilizer and fin.

❑ 6. Glue the cover to the stabilizer, fin and fuselage using CA, epoxy or canopy glue. We prefer to use epoxy or canopy glue to allow time to position the cover and clean off the excess glue. Use masking tape to hold the cover in position until the glue cures.

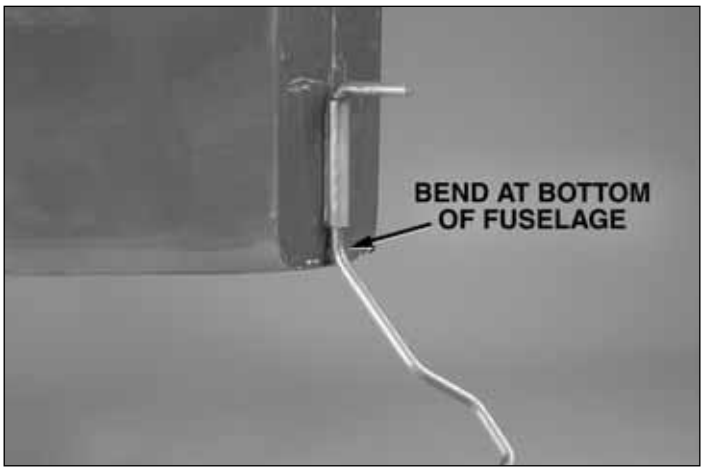
❑ 7. Cut three 3/4" x 1" [19mm x 25.4mm] hinges from the hinge strip. Test fit the rudder to the fin and fuselage.



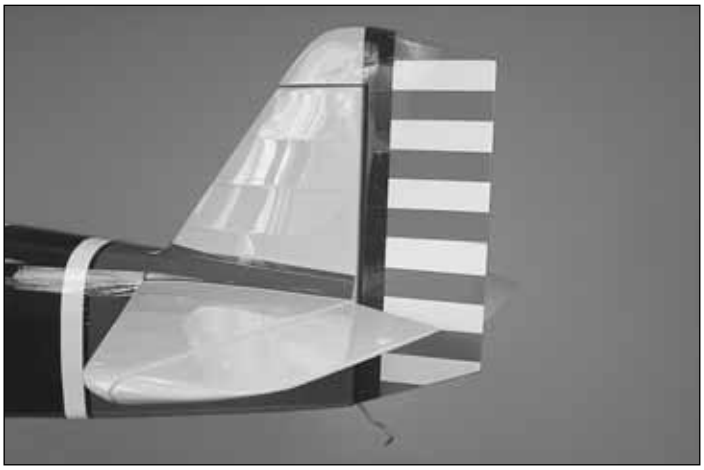
❑ 8. Trim the covering from over the slot at the lower leading edge of the rudder. Test fit the tail gear wire in the slot.



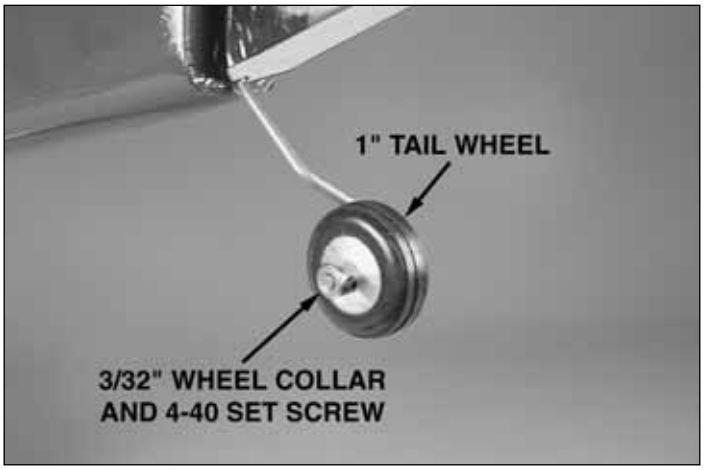
❑ 9. Apply petroleum jelly to the tail gear wire above and below the tail gear bushing. Do not get petroleum jelly on the bushing or the wire that will be glued in the rudder.



❑ 10. Use epoxy to glue the tail gear bushing in the aft end of the fuselage.



❏ 11. Put epoxy in the tail gear wire hole in the leading edge of the rudder. Do not get epoxy in the slot. Before the epoxy cures, use thin CA to glue the CA hinges in the fin and rudder using the same method as before.

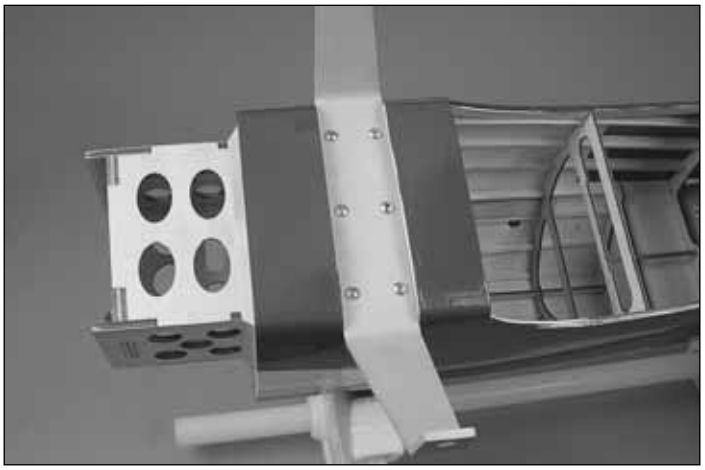


❏ 12. Install the 1" tail wheel on the tail gear wire. Secure the wheel to the wire with a 3/32" [2.4mm] wheel collar and 4-40 set screw. Make sure to use thread lock on the set screw to prevent it from coming loose.

Did you know? ....

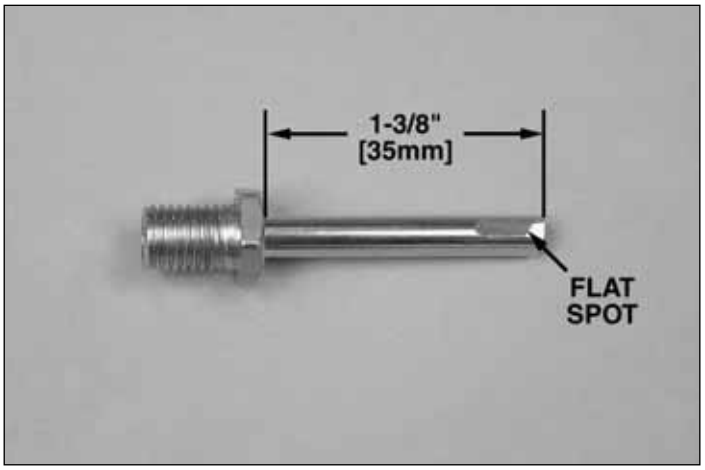
The P-6E Hawk was of mixed construction. The wings had wooden spars and ribs, and the fuselage was a welded steel-tube structure, all covered with fabric. Metal framed ailerons were fitted to the upper wing only. Armament was two 30 caliber Colt-Browning machine guns.

INSTALL THE MAIN LANDING GEAR



❏ 1. Attach the aluminum main landing gear to the fuselage with six #8 x 5/8" [15.9mm] sheet metal screws. The straight side edge of the main gear faces the front.

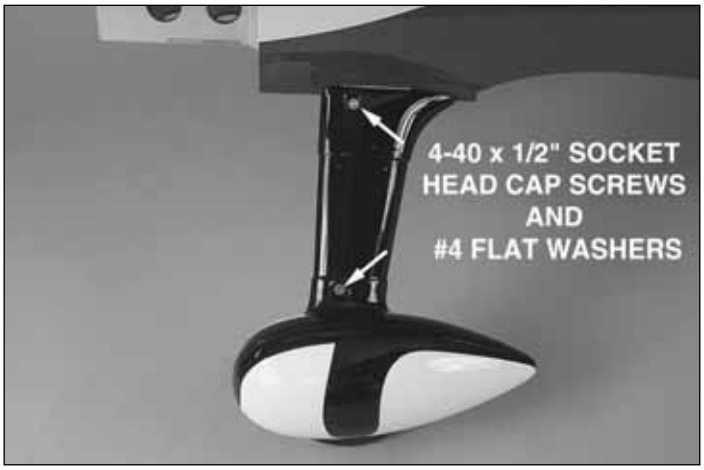
❏ 2. Glue the belly pan back in place with a few dabs of silicone glue. Using silicone will allow you to remove the belly pan easily should you ever have to get access to the landing gear bolts.



❏ 3. Use a hacksaw or cutoff wheel on a rotary tool to cut the two 3/16" (4.8mm) axles to a length of 1-3/8" [35mm] long. Also grind a flat spot at the end of the axle.

❏ ❏ 4. Slide a landing gear cover over one side of the landing gear. Attach the axle to the landing gear with a 5/16" [8mm] nylon nut. Make sure the flat spot is facing out of the landing gear cover.

❏❏ 5. Install a 4" [102mm] foam wheel on the axle followed by a 3/16" [4.8mm] wheel collar. Secure the wheel collar to the axle with a 6-32 set screw. Make sure to use thread lock on the set screw and tighten the set screw against the flat spot on the axle.

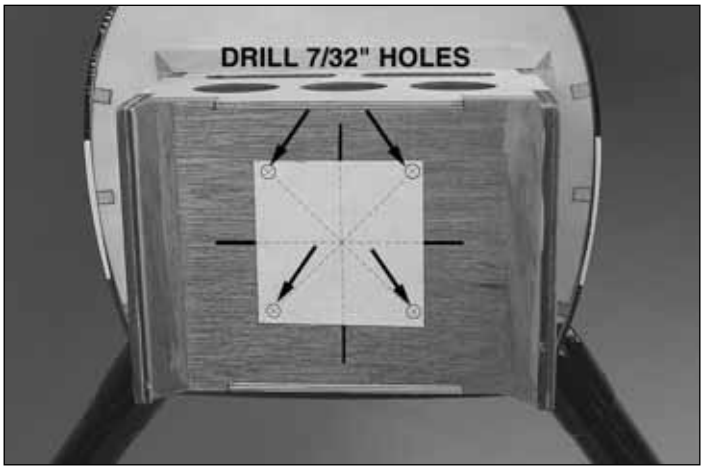


❏❏ 6. Attach the landing gear cover to the landing gear with two 4-40 x 1/2" [12.7mm] socket head cap screws and two #4 flat washers.

❏ 7. Go back to step 4 and install the other landing gear cover and wheel.

INSTALL THE ENGINE

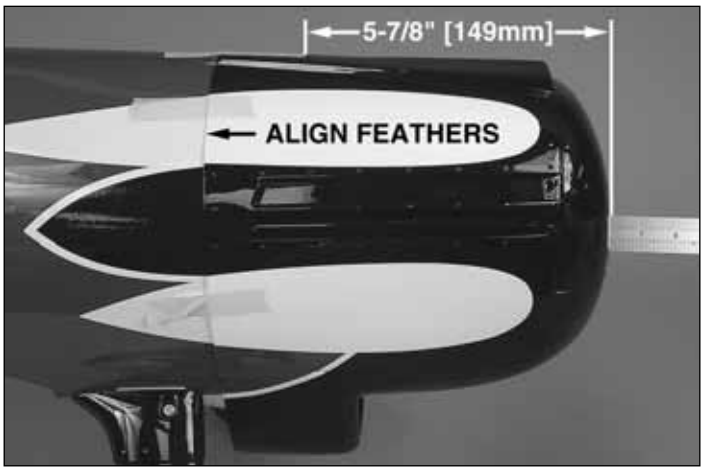
Mount the Engine



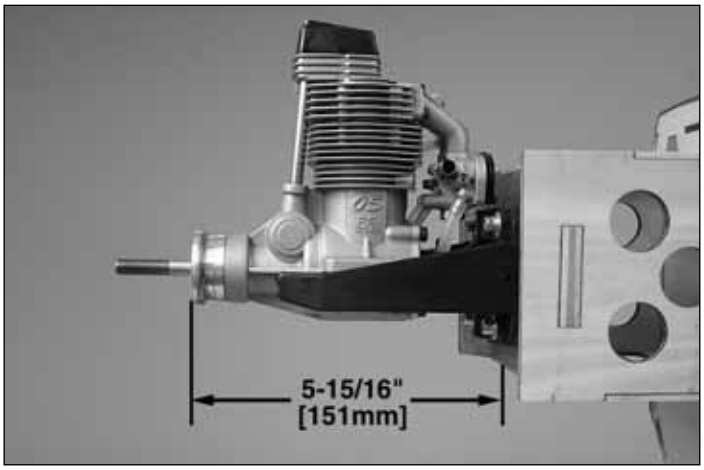
❏ 1. Use the template on page 35 to locate the four mounting holes for the engine mount. Align the marks on the template with the embossed lines on the firewall. Use a 7/32" [5.5mm] drill bit to drill four mounting holes through the firewall.

❏ 2. Press the four 8-32 blind nuts into the back of the firewall. Use an 8-32 x 1" [25.4mm] socket head cap screw and #8 flat washer to fully seat the blind nuts in the firewall. Apply a few drops of thin CA around each blind nut to secure it in the firewall. Make sure not to get CA in the threads.

❏ 3. Cut the tabs from the engine mount. Install the engine mount (inverted) to the firewall with four 8-32 x 1-1/4" [32mm] socket head cap screws, #8 flat washers and #8 lock washers.



❏ 4. Slide the cowl over the front of the fuselage. Align the painted feathers on the cowl with the feathers on the fuselage. Use masking tape to hold the cowl in position. Measure from the front of the cowl to the firewall. The distance should be approximately 5-7/8" [149mm]. Due to slight manufacturing differences, this distance may be slightly different.

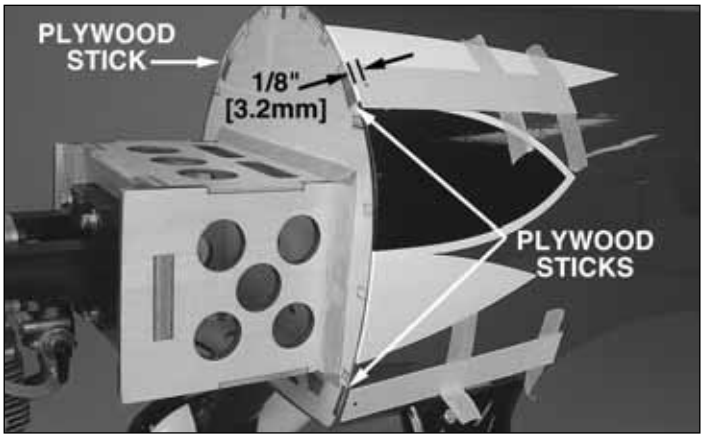


❏ 5. Remove the cowl and position the engine on the mount so the distance from the firewall to the front of the thrust washer measures 5-15/16" [151mm]. If the distance measured in the previous step was different than 5-7/8" [149mm], add 1/16" to 3/32" [1.6mm to 2.4mm] to the measurement. This is the distance the front of the thrust washer should be from the firewall. Mark the location of the engine on the mount. The Great Planes Dead Center™ Hole Locator (GPMR8130) works well for this. Drill through the marks you have made on the engine mount with a #29 or 9/64" [3.6mm] drill bit. Tap each of the holes with an 8-32 tap.

❏ 6. Install the engine onto the mount with four each, 8-32 x 1" [25mm] socket head cap screws, #8 flat washers and #8 lock washers.

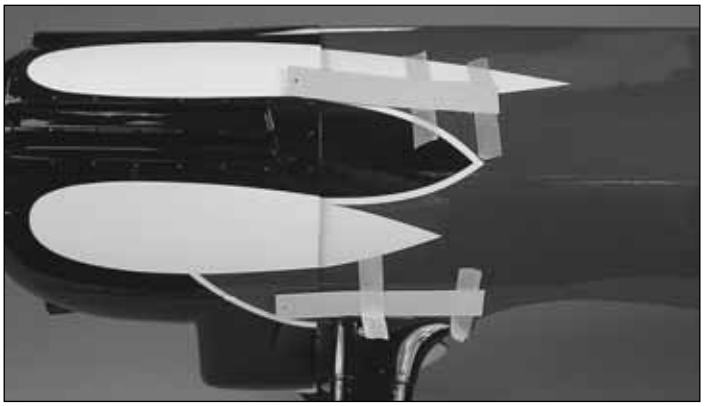
Mount the Cowl

❏ 1. Slide the cowl over the engine as far as possible. Mark the location at which the head of the engine hits the cowl. Remove the cowl and cut a small hole in the cowl at the mark. First cut the hole undersize, checking the fit as you enlarge the hole.



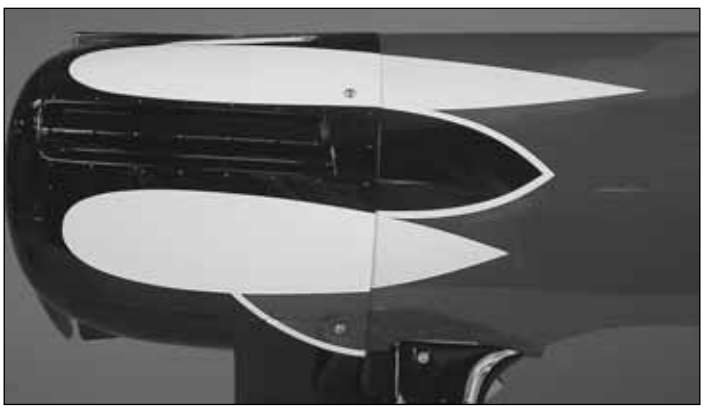
❏ 2. Use four pieces of thin cardboard or plastic to mark the location for the cowl mounting screws on the fuselage. The location should be 1/8" [3.2mm] from the front of the forward former, centered on the four plywood sticks.

❏ 3. Once the hole in the cowl is large enough to clear the engine head, slide the cowl over the fuselage. Install a propeller on the engine.



❏ 4. Align the cowl with the feathers on the side of the fuselage. Also center the thrust washer in the front of the cowl. Make sure the propeller clears the cowl by at least 1/16" [1.6mm]. Use masking tape to hold the cowl in position.

❏ 5. Drill a 3/32" [2.4mm] pilot hole through the cowl and fuselage at each of the four cowl mounting locations. Enlarge the holes to 1/8" [3.2mm] in the cowl only.



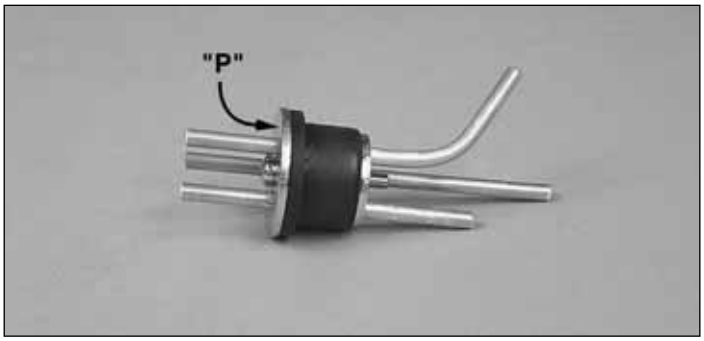
❏ 6. Attach the cowl to the fuselage using four #4 x 1/2" [12.7mm] sheet metal screws and four #4 flat washers.

❑ 7. Now that the cowl is properly mounted to the fuselage you can finish the hole for the engine head. You can also make a template from thin cardboard to locate the hole for the exhaust and needle valve.

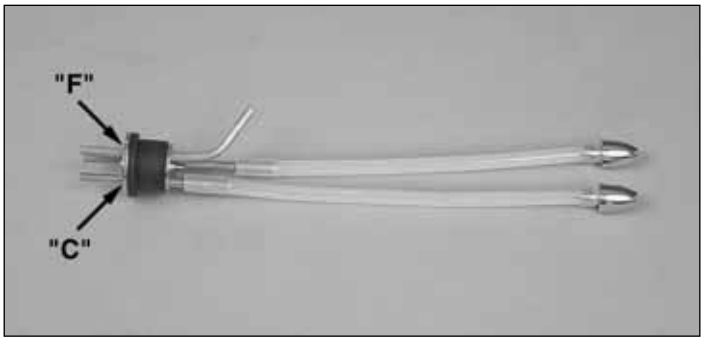
❑ 8. Also, while you have the cowl removed, apply a couple of drops of thin CA to each of the four cowl mounting holes in the fuselage to harden the wood.

Install the Fuel Tank

❑ 1. Remove the components from inside the fuel tank. Install the three aluminum tubes in the fuel tank stopper. You will need to use a hobby knife to open the third hole in the rubber stopper. Slide the small metal plate over the tubes and thread the screw into the plate until it makes contact with the back of the rubber stopper. **Do not** tighten the screw.



❑ 2. Carefully bend one of the long tubes so that it will angle up toward the top of the fuel tank when inserted. Do not kink the tube. Mark a “P” on the outside of the front plate to designate pressure.



❑ 3. Install a piece of fuel tubing on each of the other two tubes. Attach a clunk on the ends of the tubes. Mark a “C” on the outside of the front plate by the short tube, designating carb. Mark an “F” by the remaining tube, designating fill.

❑ 4. Insert the tank stopper in the fuel tank so that the bent tube is towards the top of the fuel tank. Check that the two clunks are able to move freely when the stopper is inserted completely. Then, tighten the screw in the stopper to seal the fuel tank. Write “top” on the side of the fuel tank where the pressure tube sticks up.

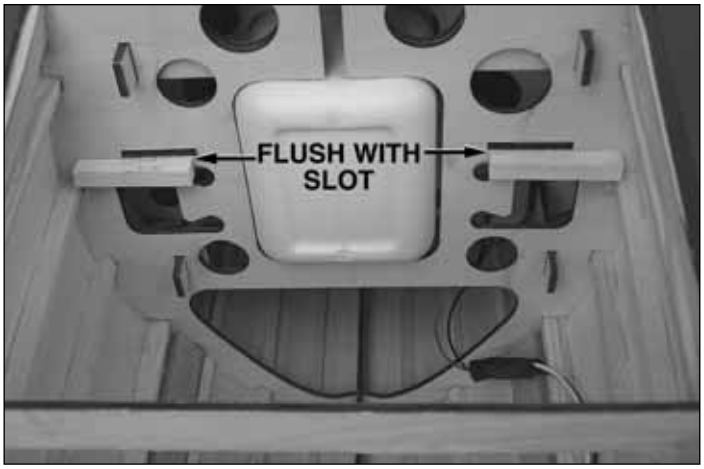
❑ 5. Install the three pieces of fuel line on the three aluminum fuel tubes sticking out the front of the fuel tank. Write on the firewall box which color of tubing goes to the carburetor, fill and pressure. Insert the fuel tank into the fuel tank compartment, routing the fuel line out to the engine. Make sure the top of the tank faces the top of the fuselage. Insert the stopper portion of the tank in the hole in the forward former.

❏ 6. Connect the correct fuel line to the carberator and the fuel line plug to the fill line. The pressure line will be connected to the muffler once the cowl has been installed.

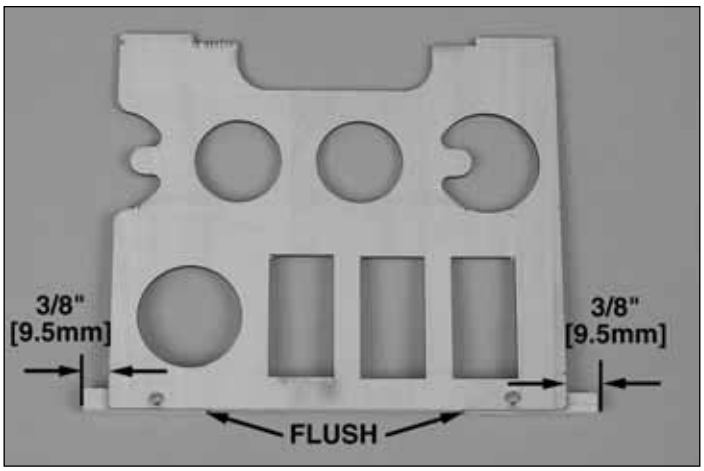
❏ 7. Use a #64 rubber band to secure the aft end of the fuel tank to the former.

Install the Throttle Servo

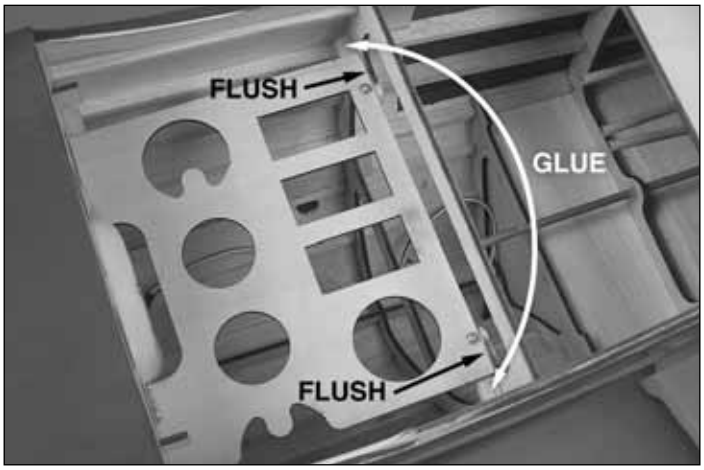
❏ 1. Our test samples required some weight in the nose to balance at the forward CG. We recommend wrapping the receiver battery in foam and positioning it on top of the fuel tank. Use scrap sticks to hold the battery in place.



❏ 2. Glue two of the 1/4" x 1/4" x 1-3/4" [6.4mm x 6.4mm x 44mm] hardwood sticks to the former at the front of the wing saddle. The sticks should be flush with the two radio tray mounting slots.

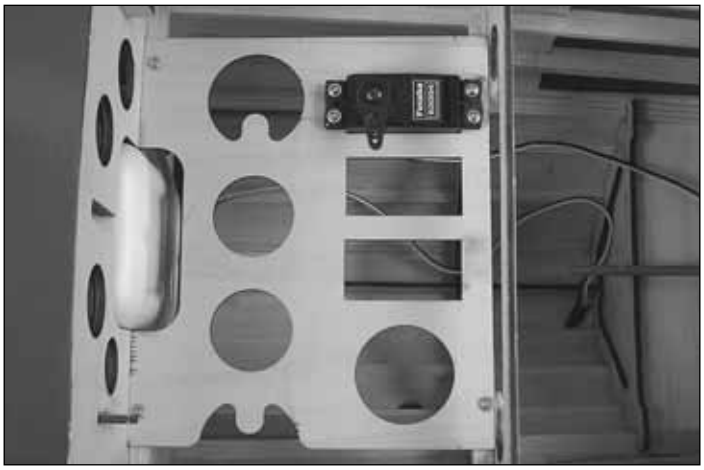


❏ 3. Position the other two 1/4" x 1/4" x 1-3/4" [6.4mm x 6.4mm x 44mm] hardwood sticks flush with the aft edge of the radio tray and protruding 3/8" [9.5mm] out each side. Drill a 1/16" [1.6mm] pilot hole through the radio tray and hardwood stick. Mount the sticks to the radio tray with #2 x 3/8" [9.5mm] sheet metal screws and #2 washers.



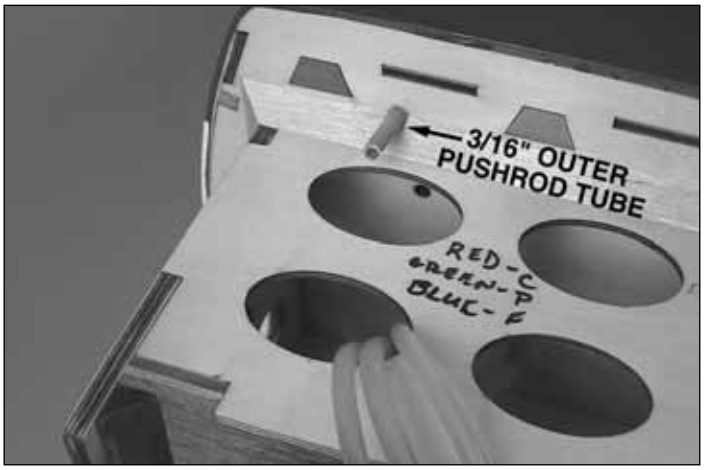
❏ 4. Insert the radio tray in the former at the front of the wing saddle. Carefully apply a drop of medium CA to the hardwood sticks at the aft edge of the radio tray. Do not get CA on the radio tray. Position the radio tray flush with the top of the arms on the aft radio tray former. After the CA has cured, remove the two screws in the radio tray and remove the tray. Use thin CA to permanently glue the two hardwood sticks to the former.

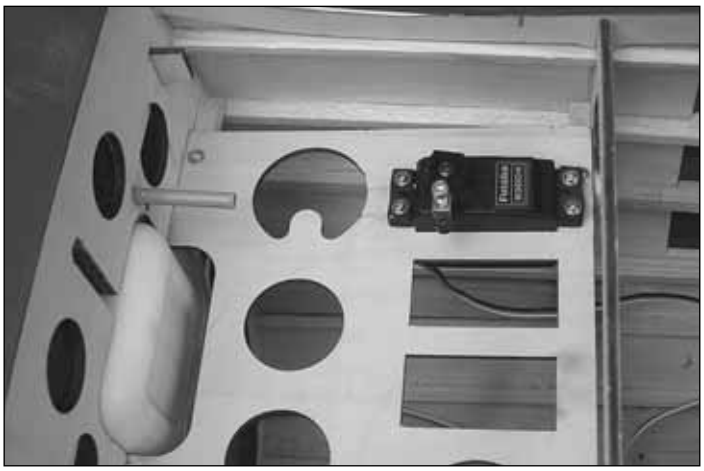
❏ 5. Reinstall the radio tray and drill two 1/16" [1.6mm] pilot holes at the front of the radio tray, through the tray and hardwood sticks. Attach the tray to the sticks with two #2 x 3/8" [9.5mm] sheet metal screws and #2 washers.



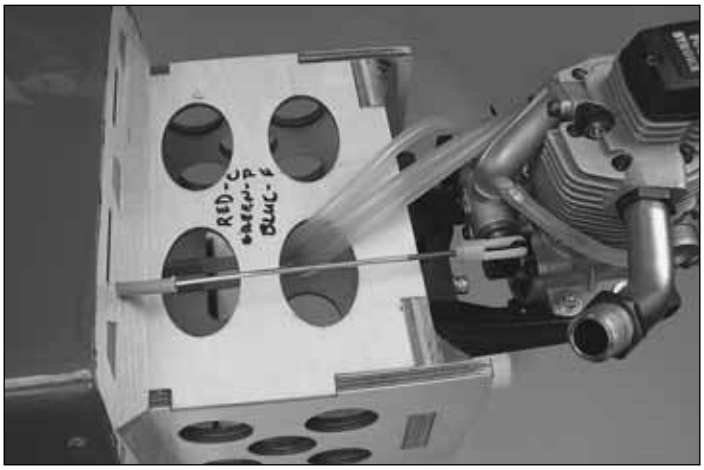
❏ 6. Install the throttle servo into the servo opening. Drill through the servo mounting holes with a 1/16" [1.6mm] drill bit. Remove the servo from the servo opening. Install and then remove a servo mounting screw into each of the holes you have drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has cured, install the servo into the servo opening using the hardware included with your servo. Center the throttle stick on the transmitter and then center the throttle servo trim. Install a servo arm as shown.

❑ 7. Install a brass screw-lock pushrod connector on the throttle servo arm. Secure it with a nylon keeper. Thread a 4-40 x 1/4" [6.4mm] socket head cap screw in the pushrod connector.





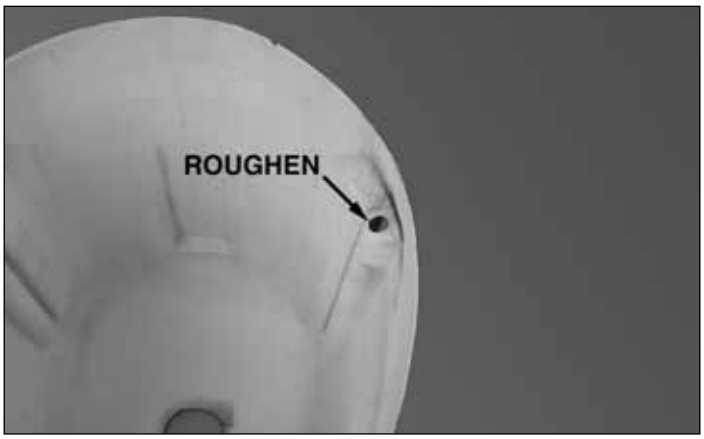
❑ 8. Drill a 3/16" [4.8mm] hole through the forward former, inline with the throttle arm. Insert the 3/16" x 24" [4.8mm x 610mm] gray outer pushrod in the hole and route it through the fuel tank bay. If needed, drill a 3/16" [4.8mm] hole in the former at the front of the wing saddle to allow the outer pushrod to align with the throttle servo. Use sandpaper to roughen the pushrod tube before gluing it to the formers.

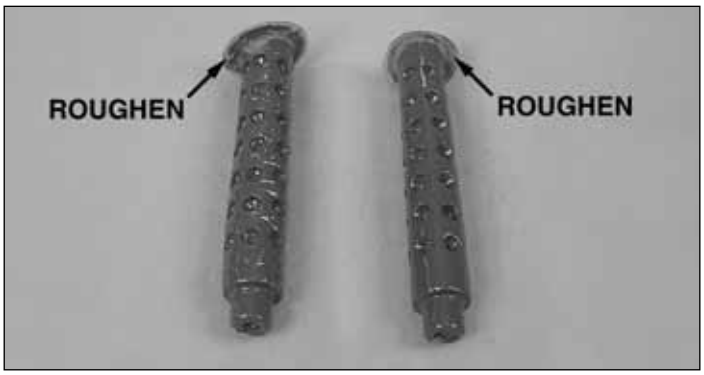


❑ 9. Thread a nylon clevis 14 turns onto the 2-56 x 17" [432mm] metal pushrod. Slide a silicone clevis retainer over the clevis. Insert the pushrod in the outer pushrod tube and through the pushrod connector on the throttle servo. Attach the clevis to the throttle arm on the carburetor.

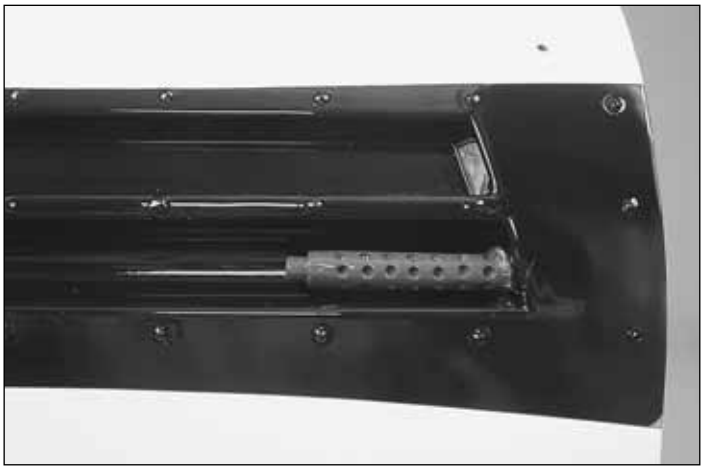
❑ 10. Switch on your transmitter and connect the throttle servo and receiver battery to the receiver. Adjust the throttle pushrod so that the throttle opens and closes correctly. Tighten the 4-40 socket head cap screw, in the pushrod connector, against the throttle pushrod and cut off the excess pushrod.

Finish Assembling the Cowl

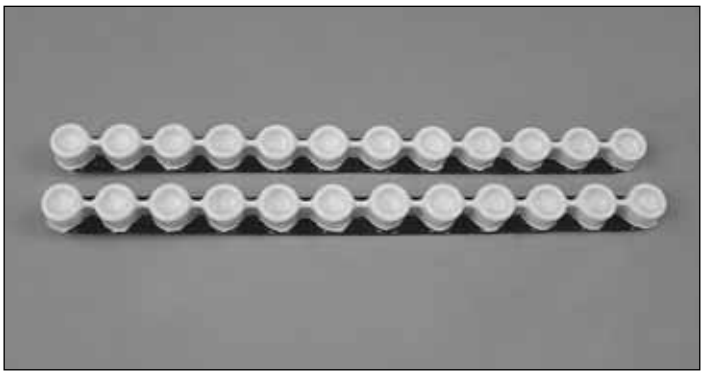




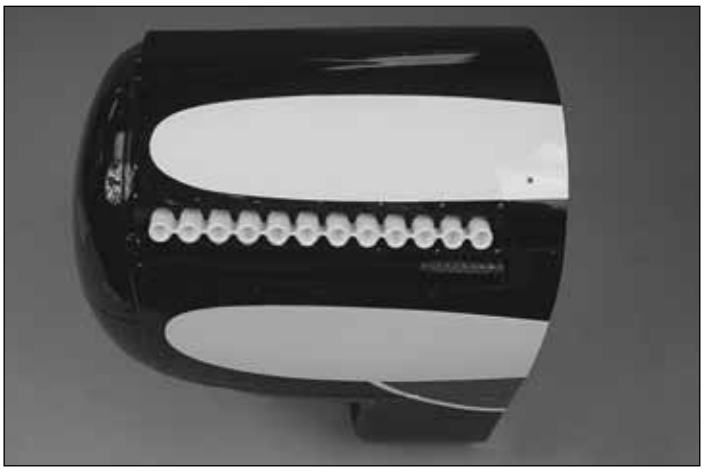
❑ 1. Use sandpaper to roughen the backside of the two holes for the machine guns and the mounting rings on the machine guns. Clean the area with denatured alcohol.



❑ 2. Use epoxy to glue the machine guns in the cowl.



❑ 3. Trim the exhaust stacks as shown. We used black paint to fill in between the stacks. An alternative is to fill the back of the stacks with a mixture of epoxy and micro balloons. Once the epoxy cures, trim the exhaust stacks around the bottom.



❑ 4. Use epoxy to glue the exhaust stacks to the cowl. Note that the stacks face outward, not upward.

❑ 5. This completes the installation of the engine and cowl. You can now reinstall the cowl. Make sure when installing the cowl that the fuel fill line is easy to access and the muffler pressure line comes out the muffler clearance hole.

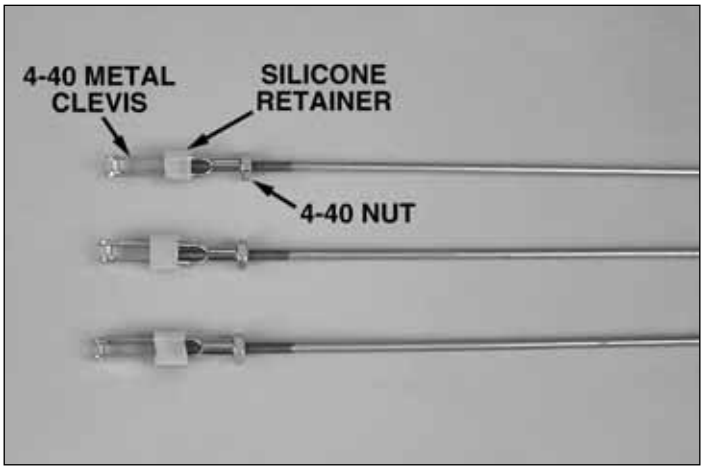
Did you know? ....

On July 10, 1931, the first order for 46 of the P-6E Hawks was placed. Of the 656 Hawks built, more than 1/3rd were exported to foreign countries. The lifespan in the U.S. Army Air Corp was short due to the development of the Boeing P-26A monoplane.

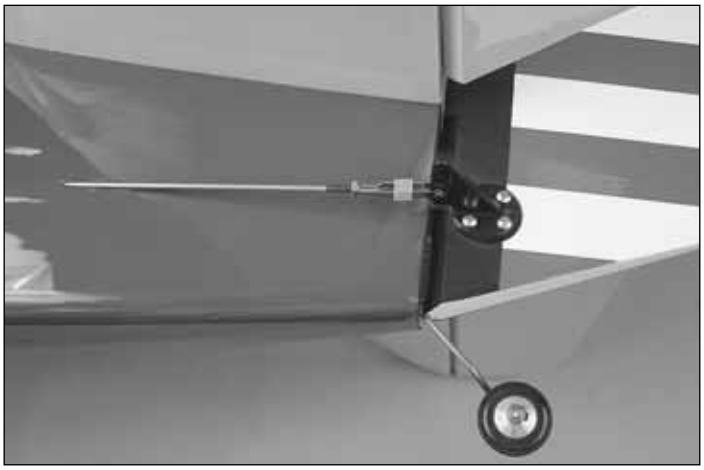
INSTALL THE RADIO SYSTEM

Install the Rudder and Elevator Servos

❑ 1. Cut the covering from the pushrod tube openings at the rear of the fuselage. There are two located on the left side and one located on the right. If you have trouble finding the openings, slide a .096" x 36" [914mm] pushrod wire into the tubes from inside of the fuselage, sliding it into the tube until it pushes the covering away from the fuselage slightly. This is where you should cut the covering away from the tubes.

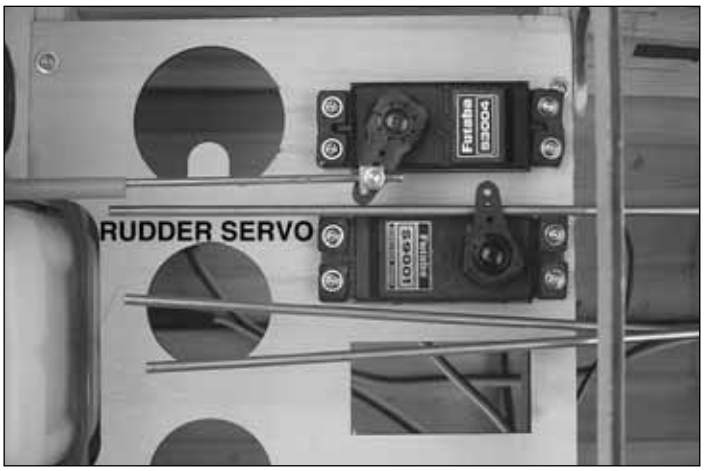


❑ 2. Locate three .096" x 36" [914mm] pushrod wires threaded on one end. Thread a 4-40 nut onto the threaded end of each wire. Thread a 4-40 metal clevis 15 turns onto each wire. Install a silicone clevis retainer onto the clevis.

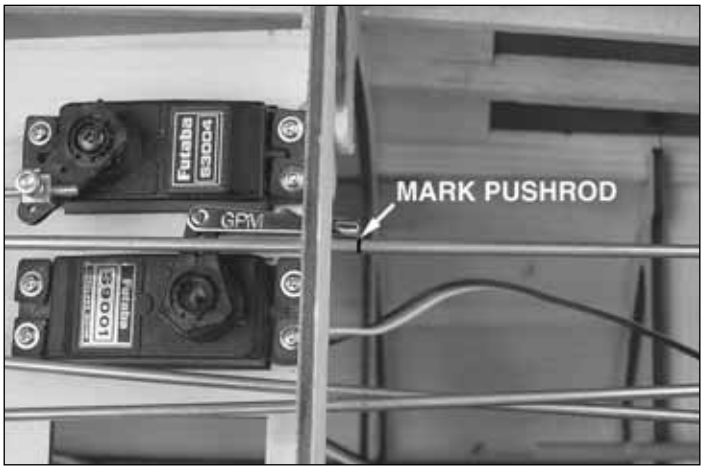


❑ 3. On the left side of the fuselage, slide one wire into the opening closest to the back of the fuselage. Install a large nylon control horn onto the clevis. Position the control horn on the rudder so that the clevis pin is in line with the hinge line. Mark the location for the screw holes. Drill through the marks you made with a 3/32" [2.4mm] drill bit, drilling only into the plywood plate. Do not drill through the rudder! Install and then remove four #4 x 1/2" [12.7mm] sheet metal screws. Apply a couple drops of thin CA into the holes. Once the glue has cured, mount the horn to the rudder with the screws.

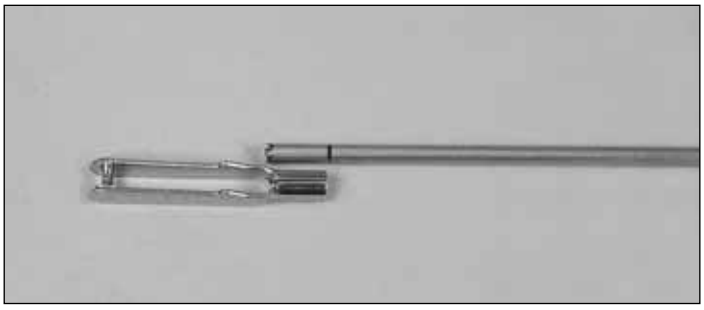
❑ 4. Install the two elevator pushrods using the same procedure used for the rudder. Be sure when installing the control horn on the left elevator that you install it so it does not conflict with the rudder control horn.



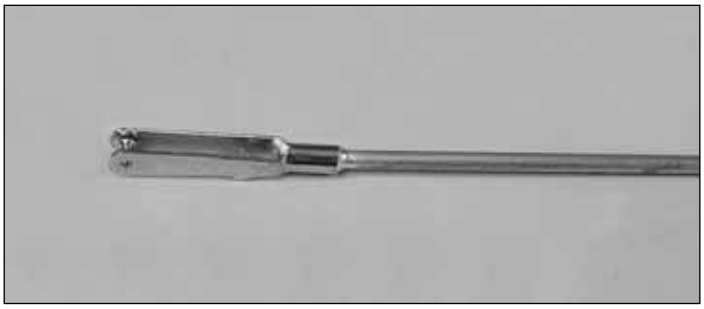
❑ 5. Place your rudder servo into the servo tray as shown. Drill a 1/16" [1.6mm] hole through each of the mounting holes. Remove the servo, then install and remove a servo mounting screw into each hole. Apply a couple drops of thin CA into the holes to harden the threads. When the glue has cured, permanently mount the servo to the servo tray.



❑ 6. Center the rudder and the rudder servo. Then, install the servo arm. Install a metal solder clevis in the last hole in the servo arm. Mark the pushrod wire at the end of the clevis.



❑ 7. Remove the rudder pushrod and solder clevis from the plane. Position the clevis next to the rudder pushrod so that the clevis aligns with the mark. Cut the rudder pushrod as shown.



❑ 8. Use silver solder to solder the solder clevis onto the end of the rudder pushrod.

HOW TO ACHIEVE A GOOD SOLDER JOINT

A. Roughen the area to be soldered with fine sandpaper. Thoroughly clean the area with denatured alcohol.

B. Assemble the items to be soldered.

C. Apply a small drop of solder flux to the joint.

D. Heat the area to be soldered. Apply solder to the heated area. The metal must get hot enough to melt the solder and the solder must flow into the joint. Do not melt the solder by touching it to the soldering iron.

E. Do not move the parts until the solder has cooled.

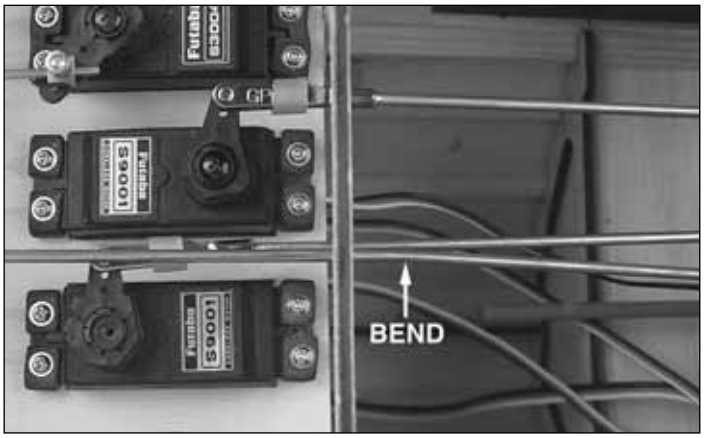
F. Clean off the excess flux with alcohol.

G. Test the joint by pulling on it.

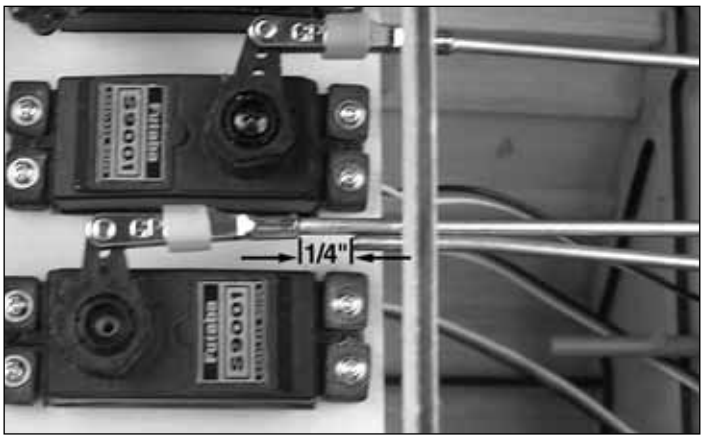
H. Apply a light coat of oil to the joint to prevent rust.

❑ 9. Once the solder clevis has cooled, install a silicone clevis keeper on the clevis. Remove the 4-40 metal clevis and 4-40 nut and insert the rudder pushrod in the rudder outer pushrod tube. Connect the clevis to the rudder servo arm. Reinstall the 4-40 nut and clevis and connect it to the rudder control horn.

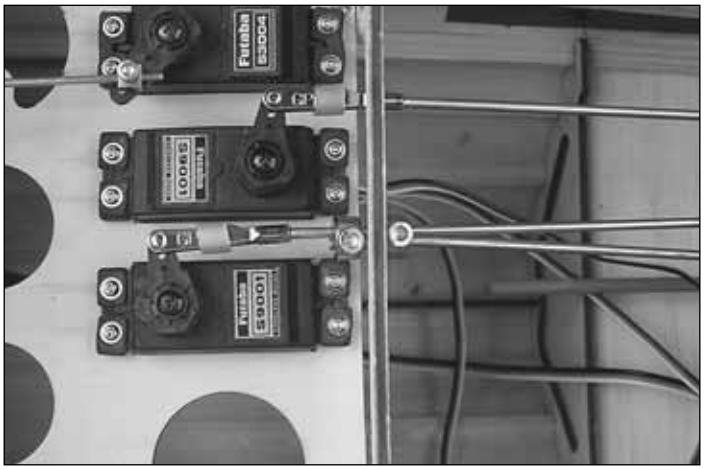
❑ 10. Install the elevator servo and attach a solder clevis to one of the elevator pushrods using the same method as used for the rudder.



❑ 11. Insert the elevator pushrod in the elevator outer pushrod tube. Center the other elevator. Bend the pushrod to the same angle as the first elevator pushrod where the two meet.

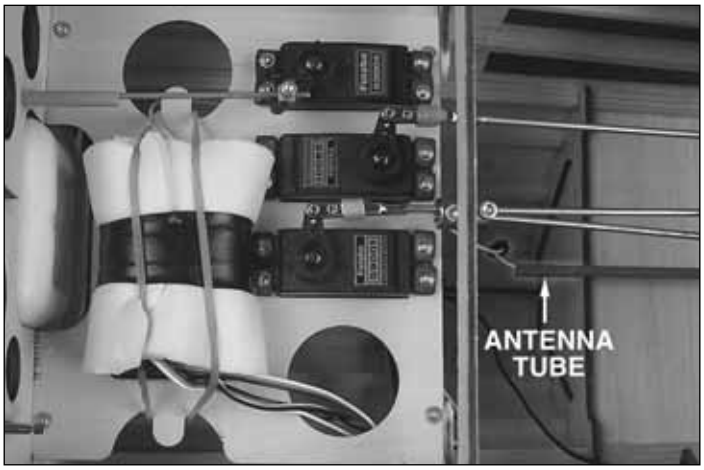


❑ 12. Cut the second elevator pushrod 1/4" [6.4mm] behind the solder clevis.



❑ 13. Remove the first elevator pushrod and install two 3/16" wheel collars on the pushrod. Reinstall the first elevator pushrod in the outer pushrod tube. Slide the two wheel collars over the second pushrod. Secure the wheel collars to the two elevator pushrods with two 6-32 x 1/4" [6.4mm] socket head cap screws. Make sure to use threadlock on the two screws. Make sure the cap head screws do not hit the fuselage former.

❑ 14. Reinstall the clevis on the first elevator pushrod and reattach it to the elevator control horn.



❑ 15. Wrap the receiver in 1/4" [6.4mm] foam. Use #64 rubber bands to hold the receiver to the radio tray. Route the receiver antenna out the antenna tube installed in the top of the fuselage. Plug the servos into the receiver.

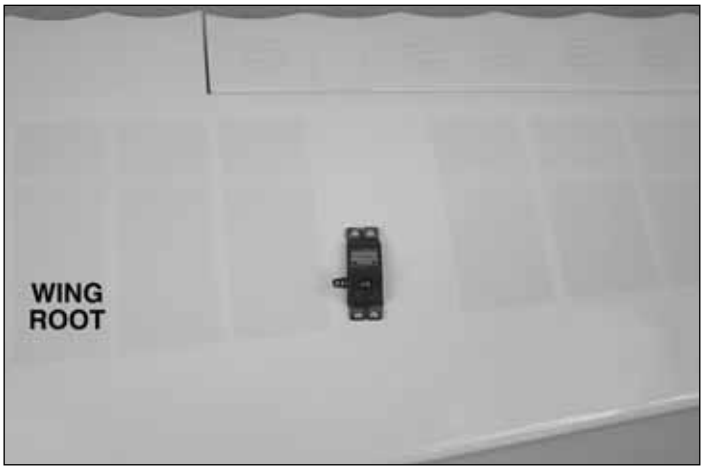
❑ 16. We installed the radio switch and the battery charge jack in the front of the cockpit. Place the pilot in the cockpit as your guide for positioning the switch and charge jack.

❑ 17. Connect the battery to the radio switch and secure the ends of the leads with heat-shrink tubing, tape or some other method for securing the leads.

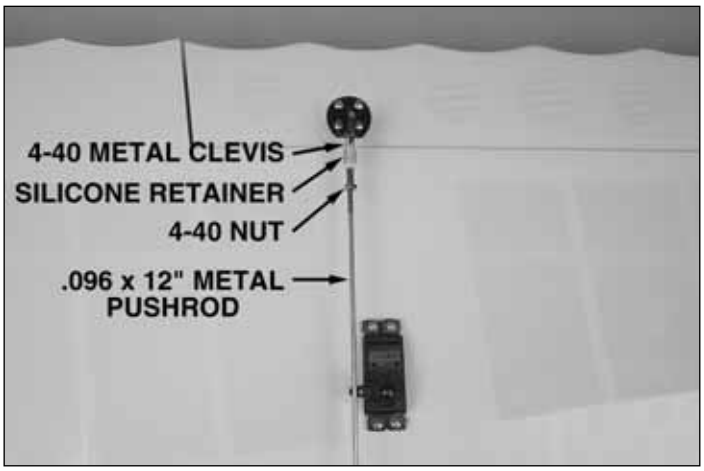
Install the Aileron Servos and Pushrods

❑ ❑ 1. On the right top wing, install a 6" [152.4mm] servo extension onto the servo lead. Secure the extension to the lead with tape, a piece of heat-shrink tube or some other method to keep them from coming unplugged.

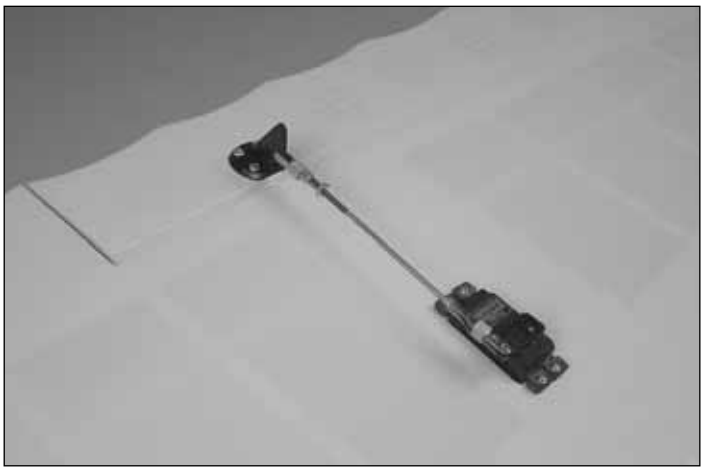
❑ ❑ 2. Tie the string to the servo extension. At the root of the wing the other end of the string is taped. Pull the string and the servo lead through the small hole you cut the covering from. Untie the string and tape the lead to the wing to prevent it from falling back into the wing.



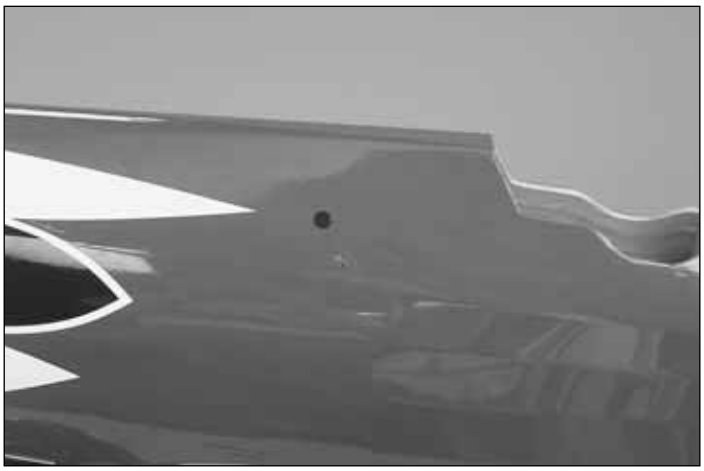
❑ ❑ 3. Install the servo into the servo opening. Drill through the servo mounting holes with a 1/16" [1.6mm] drill bit. Remove the servo from the servo opening. Install and then remove a servo mounting screw into each of the holes you have drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has cured, install the servo into the servo opening using the hardware included with your servo. Center the servo, then install a servo arm as shown. The arm should be pointing towards the wing root.



❑ ❑ 4. Install a 4-40 nut, metal clevis and silicon clevis keeper on a .096 x 12" [305mm] pushrod. Attach the clevis to a large control horn in the second hole from the bottom. Position the control horn on the aileron so that the pushrod is inline with the outer hole in the aileron servo arm. When positioned properly the control horn will rest on a plywood plate in the aileron. Mark the location of the mounting holes onto the aileron. Drill a 1/16" [1.6mm] hole on the marks, drilling through the plywood plate but not through the top of the aileron. Insert and remove a #4 x 1/2" [12.7mm] sheet metal screw into each of the holes. Apply a couple drops of thin CA into the holes to harden the threads. Once the glue has cured attach the horn to the aileron with four #4 x 1/2" [12.7mm] sheet metal screws.



❑ ❑ 5. Attach a metal solder clevis to the outside hole of the aileron servo arm. Center the servo and the aileron. With a fine-tip marker, mark the pushrod at the end of the clevis. Use the same method to solder the aileron clevis to the pushrod that was used to assemble the rudder pushrod.



❑ ❑ 6. Trim the covering from the two aileron servo lead exit holes in the side of the fuselage.

❑ ❑ 7. Connect the Y-harness for the ailerons to the receiver. Route the two connectors out of the holes.

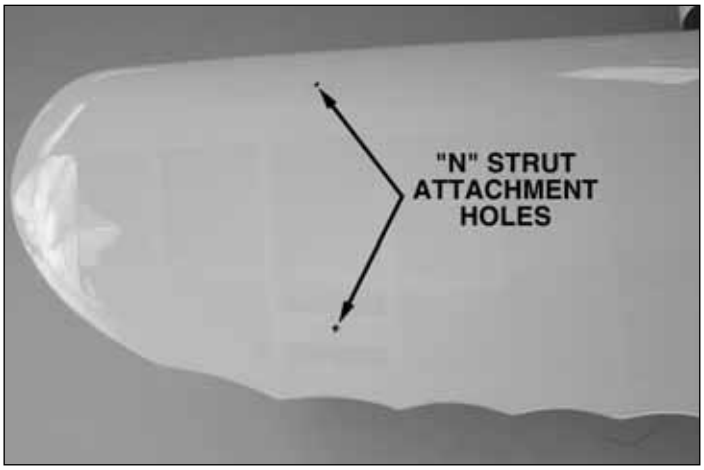
❑ 6. Repeat steps 1-5 for the left wing panel.

INSTALL THE TOP WING

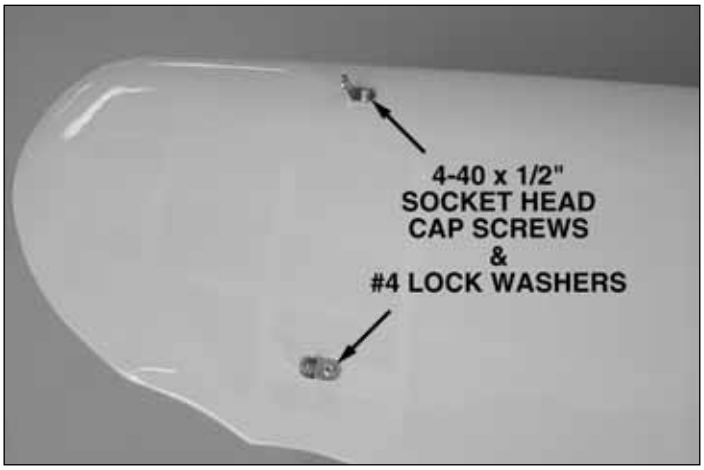
❏ 1. Attach the lower wing to the fuselage with the 1/4-20 nylon wing bolts.

❏ ❏ 2. Locate eight metal cabane mounting brackets. Set four brackets for the top wing to the side. We will be installing the brackets on the bottom wing first.

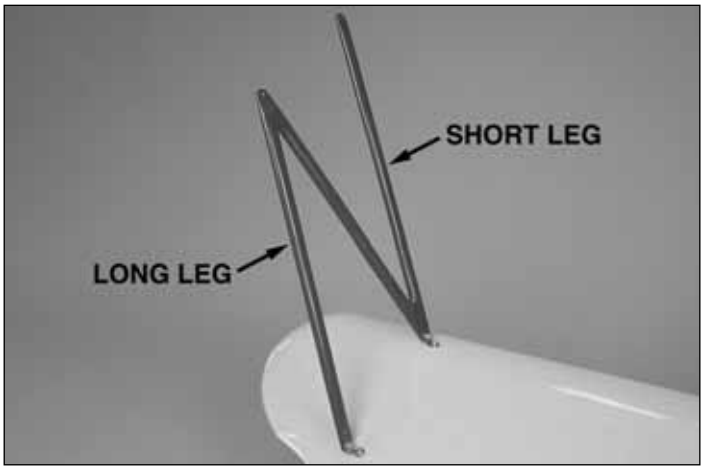
Do the left wing first so your work matches the photos the first time through.



❏ ❏ 3. Look closely on the top of the bottom wing and you will find small holes under the covering locating the blind nuts for the “N” strut mounting bolts. Cut the covering from each of the holes. **Note:** 4-40 Blind nuts have been installed in the wing for all of the “N” struts and cabane mounting bolts. All of the blind nuts are glued into the wing and have a small wood plate backing them up. It is possible that a blind nut could have a bit of glue in the threads. In most cases the installation of the bolt should free the glue. If not, run a 4-40 tap through the threads to clear the glue.



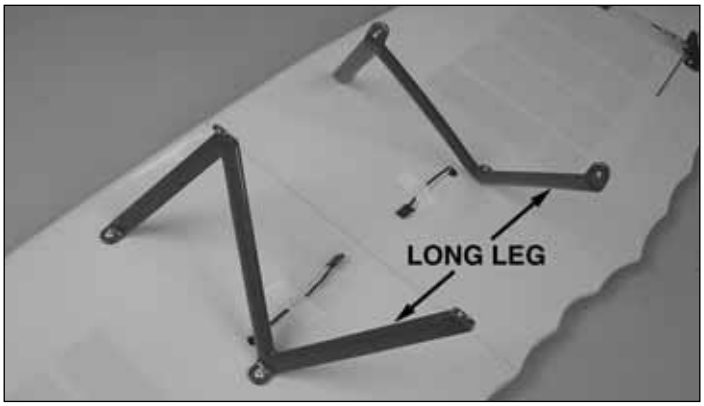
❏ ❏ 4. Mount the bottom wing cabane brackets in each of the holes in the right wing panel with a 4-40 x 1/2" [13mm] socket head cap screw and a #4 lock washer. Do not fully tighten the bracket to the wing yet.



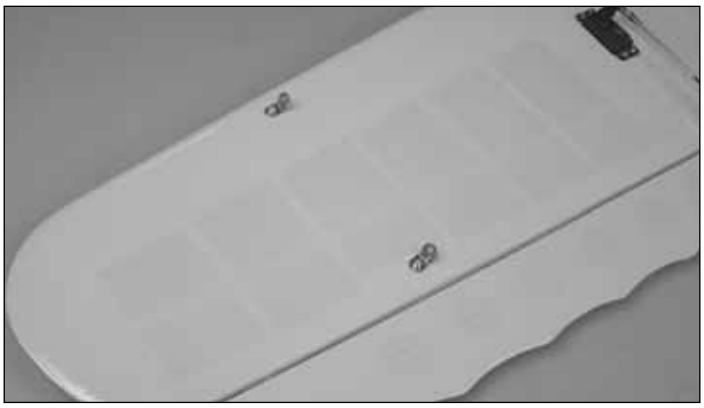
❏ ❏ 5. Note that the “N” strut has one leg that is slightly longer than the other. The shorter leg goes toward the leading edge of the wing. Attach the “N” strut to the brackets as shown with 4-40 x 1/2" [13mm] socket head cap screws, #4 washers and a 4-40 nylon lock nuts.

❏ 6. Go back and repeat steps 3-5 for the right wing panel.

❏ 7. Locate the holes and cut the covering from the blind nuts in the bottom of the top wing. Four are located in the center of the wing and two are located at each end of the wing.

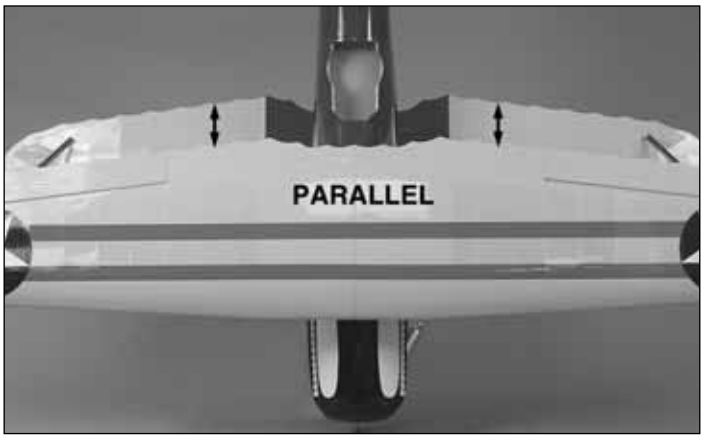


❏ 8. Install the center cabanes with 4-40 x 3/4" [19mm] socket head cap screws, #4 flat washers and #4 lock washers. Be sure you mount the cabanes as shown.



❏ 9. Install the four remaining brackets in the blind nuts at the wing tips of the top wing using 4-40 x 1/2" [13mm] socket head cap screws and #4 lock washers.

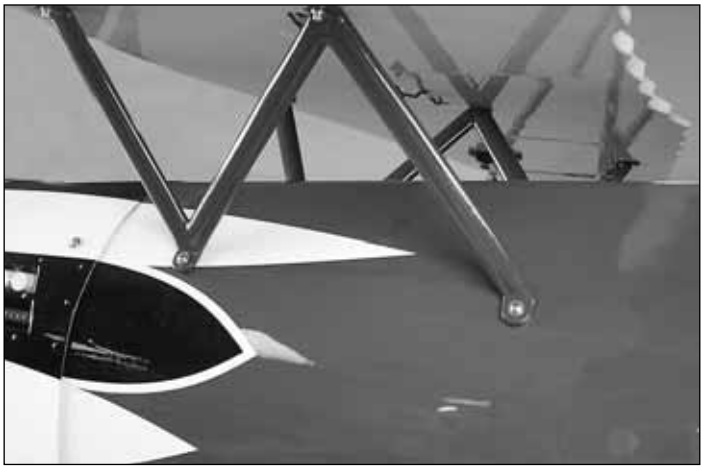
❏ 10. Place the top wing onto the “N” struts. Attach the top wing to the “N” struts with 4-40 x 1/2" [13mm] socket head cap screws, #4 washers and 4-40 nylon lock nuts the same way you installed the strut to the lower brackets.



❏ 11. Set the plane on its nose. Look at the relation of the top wing to the bottom wing. Be sure the top wing is parallel with bottom wing. Adjust the top wing as needed. Then carefully set the fuselage back on the landing gear.

❏ 12. Without disturbing the top wing, verify that the cabane mounting holes are positioned over the hardwood rails. If they are not, check to see if you have mounted the center cabanes and “N” struts properly. Also look at the top and bottom wings from the side. They should look almost parallel. If it appears that the leading edge of the top wing is much higher, the “N” struts are possibly backwards.

❏ 13. Drill a 5/64" [2mm] hole through each of the four mounting holes in the center cabanes. When you drill these holes you must be drilling into the hardwood blocks located in the fuselage, just under the covering.



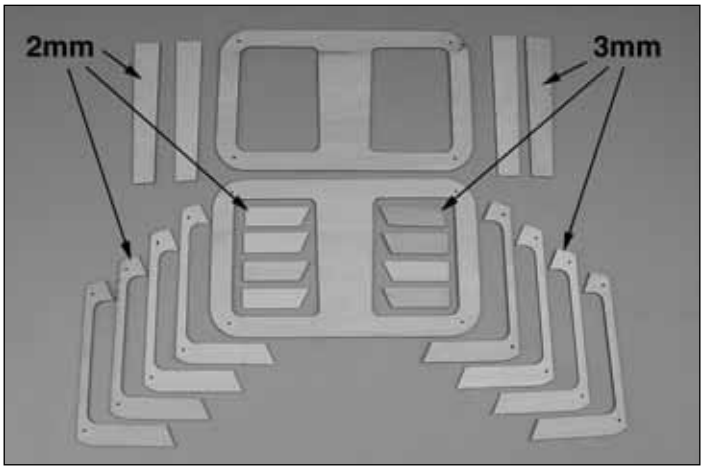
❏ 14. Install and then remove a #4 x 1/2" [13mm] sheet metal screw and #4 flat washer into each of the four holes. Apply a couple drops of thin CA into each of the holes to harden the threads. After the glue has cured, permanently install the screws into the fuselage.

❏ 15. Once you have the center cabanes installed, tighten the socket head cap screws holding the “N” strut brackets.

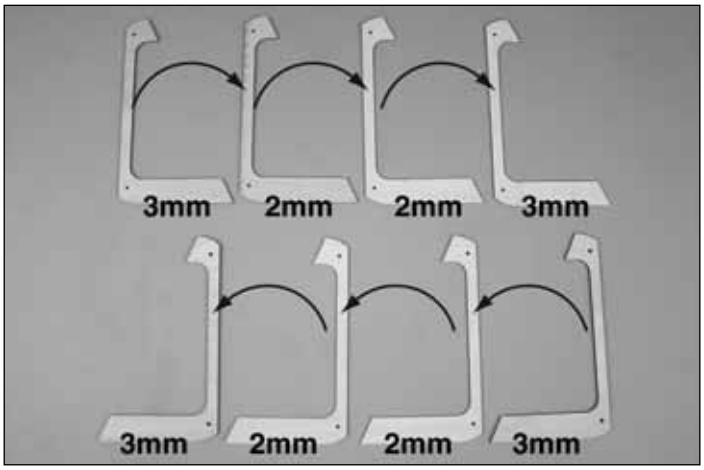
FINISH THE FUSELAGE

Build the Carrying Handle

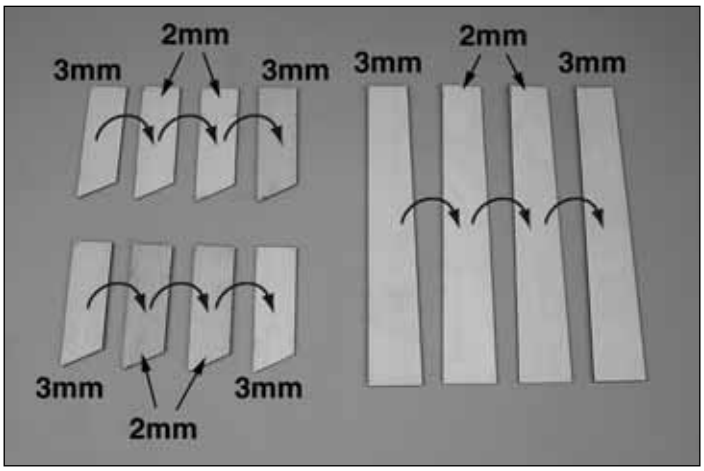
This kit comes with a convenient carrying handle for the fuselage and the struts.



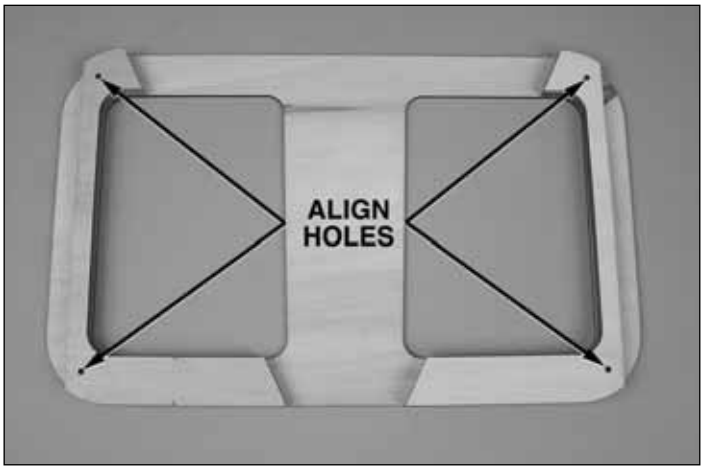
❏ 1. Locate all of the plywood parts of the carrying handle.



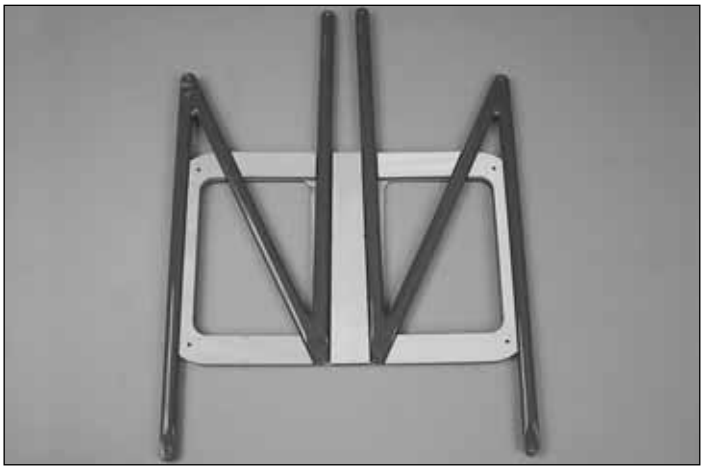
❏ 2. Glue the four parts of each set together as shown to make a pair 3/8" [10mm] thick.



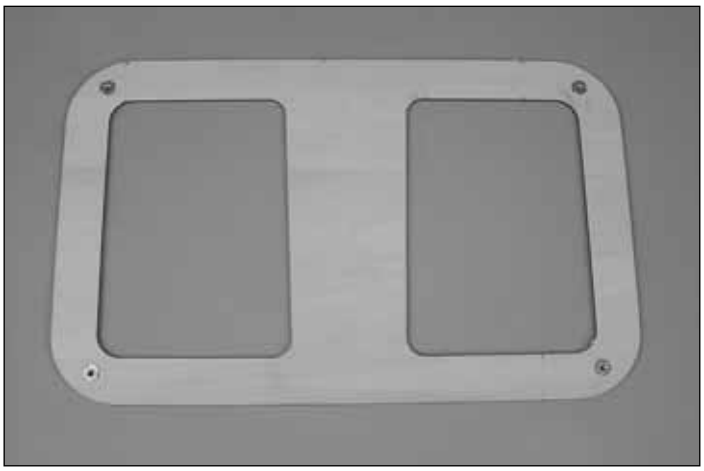
❏ 3. Do the same with the remaining parts as shown.



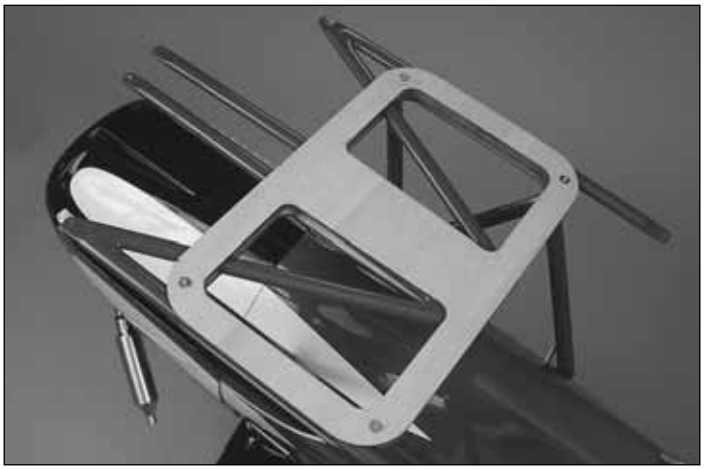
❑ 4. Glue the two parts shown onto one of the plywood carrying handle parts. Make sure the four holes are aligned.



❑ 5. Place the “N” struts onto the handle, leaving space between the struts in the center of the handle as shown. The remaining parts you glued together should be positioned between the “N” struts. Once you are sure the struts and the remaining pieces fit properly, glue the plywood parts to the handle.



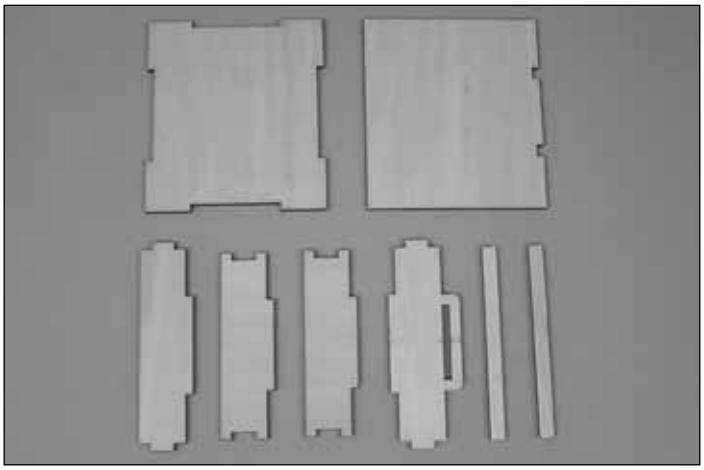
❑ 6. On the remaining handle part, install a 4-40 blind nut into each of the corner holes.

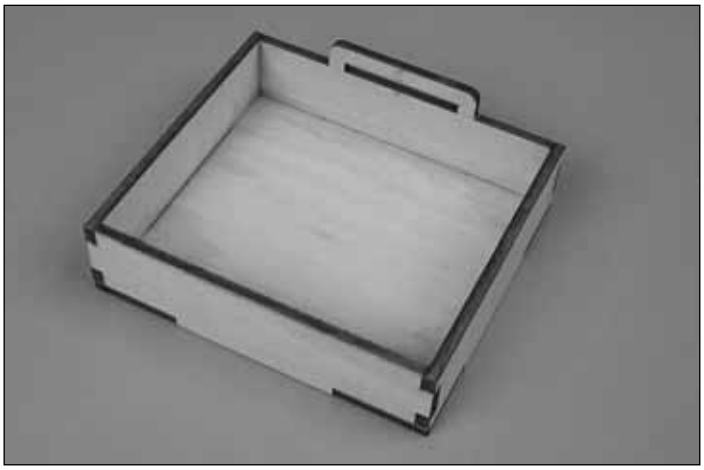


❑ 7. Place the two “N” struts into the handle. Put the handle top onto the part of the handle holding the struts and place the completed handle on top of the cabanes. Secure the handle to the cabanes with four 4-40 x 1" [25.4mm] socket head cap screws and #4 flat washers. This is how the completed handle looks when you are storing the parts or taking the plane to the field.

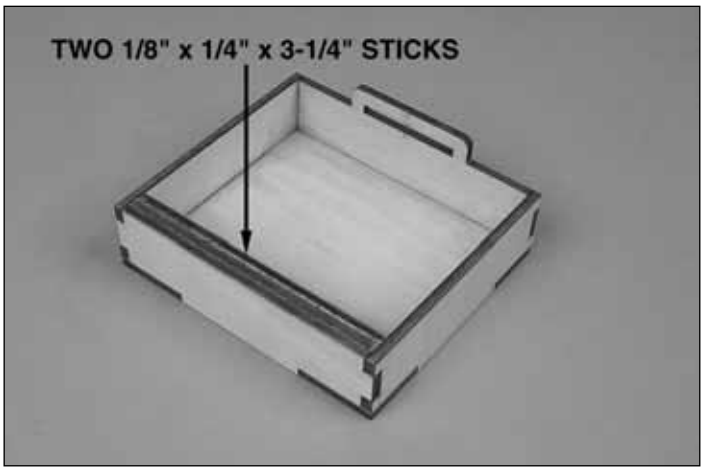
Assemble the Nose Weight Box

Our prototype model required the addition of nose weight with engines at the bottom end of the recommended range. We have included a box for you to easily add the weight that most likely will be needed.

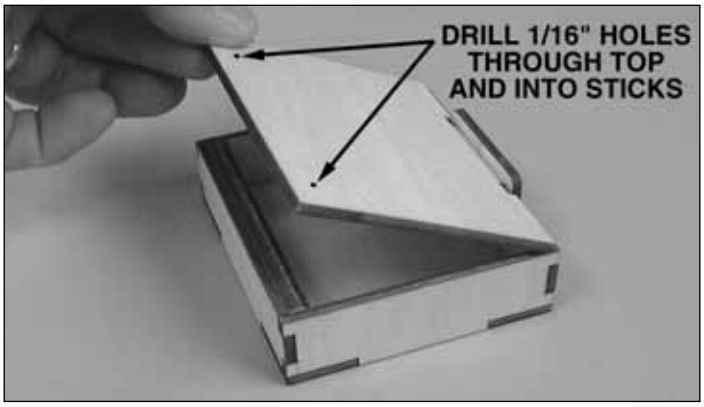




❏ 1. Locate the plywood parts that make up the nose weight box. Glue the box together as shown. The box will be exposed to engine vibration so be sure you have good glue joints.



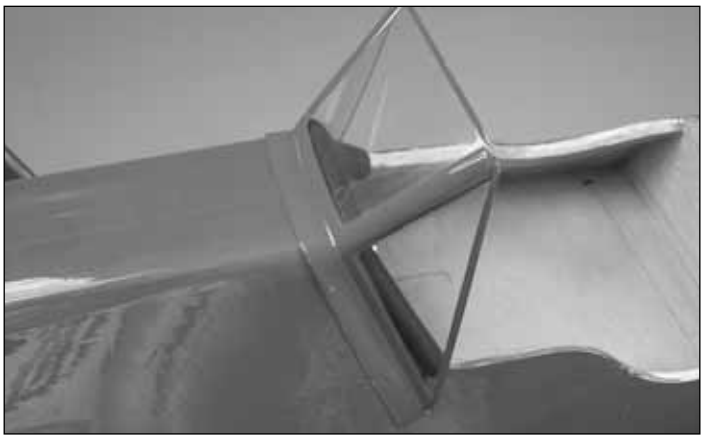
❏ 2. Glue the two 1/8" x 1/4" x 3-1/4" [3 x 6.4 x 83mm] plywood sticks together. Then glue them to the front of the box.



❏ 3. Fit the box cover to the box. Drill a 1/16" [1.6mm] hole at the locations shown. Install and then remove a #2 x 3/8" [9.5mm] sheet metal screw into each hole. Remove the cover, and then apply a couple of drops of thin CA into the holes in the box to harden the threads.

Finishing Touches

❏ 1. Locate the black cockpit coaming. Look closely and you will see that there is a slit in it. Slide the coaming onto the side of the cockpit as shown. Cut the coaming at a 45° angle at the top. Cut a second piece for the other side. Now cut a piece to go along the top. Glue the pieces in place with R/C 56 canopy glue. This glue sticks well to MonoKote, eliminating the need to cut any covering in order to expose wood for a good bond.



❏ 2. Cut the windscreen on the cut lines. Glue it in place with R/C 56 canopy glue.

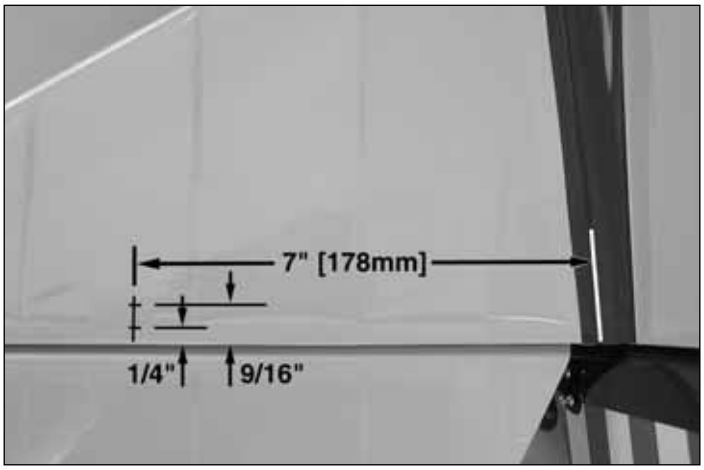
❑ 3. Cut the turtle deck on the cut lines and glue it in place with R/C 56 canopy glue.

❑ 4. Your kit includes a pilot. Glue the pilot in the cockpit using 6-minute epoxy.

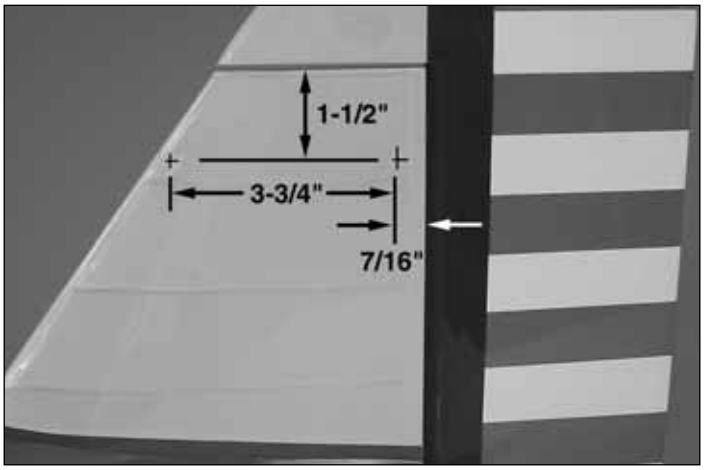
Optional Flying Wire Installation

The photos on the box show optional flying wires installed on the plane. The materials we used for this are not included in the kit but are readily available at any fabric store for less than $10.00. The wires are made from an elastic cord typically used for sewing an elastic cuff in a sleeve. The material is commonly called, "Beading Cord Elastic."

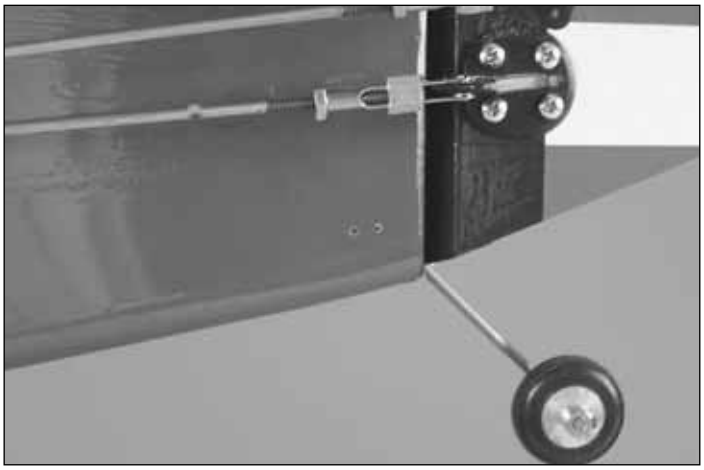
You will need approximately seven yards, two small packages. The method described here will provide a reasonably scale appearance without the hassles typically associated with flying wires. Because they are made from elastic there is no need to tension them each time you put the plane together. These wires will add approximately two minutes to the overall assembly time of the plane at the flying field.



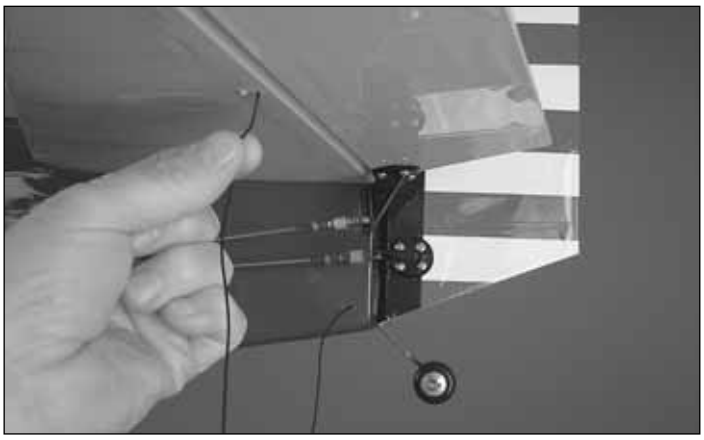
❑ 1. Measure from the fillet at the trailing edge of the stab out toward the tip of the stab 7" [178mm] and make a mark with a felt-tip pen. Measure in from the trailing edge of the stab 1/4" [6.4mm] and 9/16" [14.3mm] and make crossing marks. Do this on both sides of the stab.



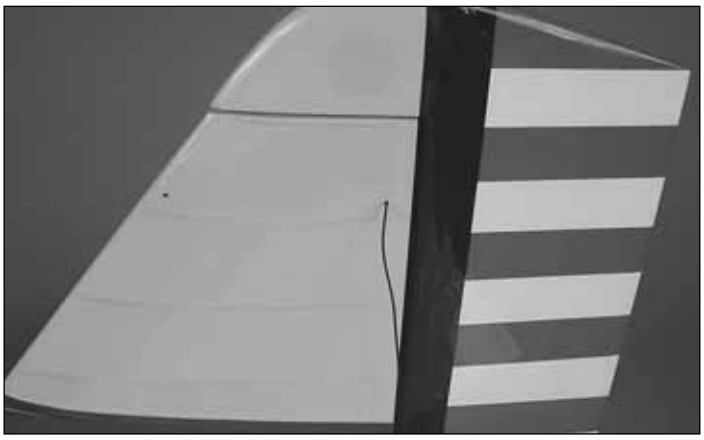
❑ 2. At the rear corner of the fin, measure down 1-1/2" [38mm] and in 7/16" [11mm]. From the intersection of those lines make a mark on the front of the fin 3-3/4" [95mm].



❏ 3. Drill two 5/64" [2mm] holes through the block at the aft bottom of the fuselage and the marks on the fin and stabilizer.



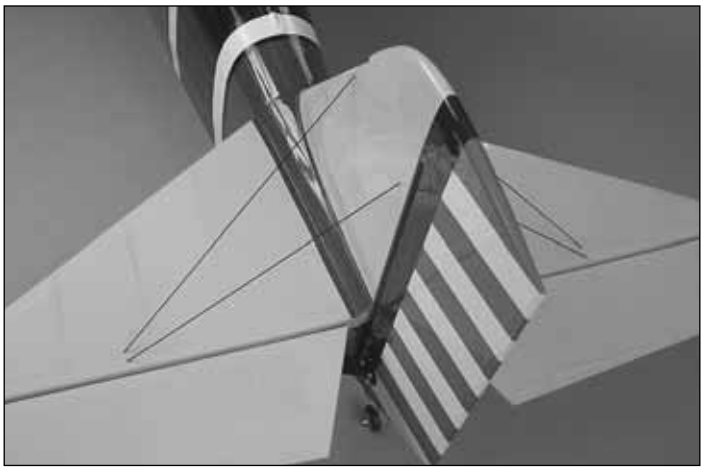
❏ 4. Cut a piece of the elastic cord 38" [965mm] long. This length should be relaxed, not stretched. In order to feed the elastic cord through the holes you have drilled, apply a few drops of thin CA to one end of the elastic cord, covering approximately 1" [25mm] of the cord. On the opposite end of the cord put a small drop of CA, just enough to make the end of the cord hard. On this end of the cord, apply a small drop of CA to the end and insert it into the aft hole in the bottom of the fuselage. Hold the cord in place until the glue cures. Thread the opposite end of the cord through the aft hole in the trailing edge of the stab as shown.



❏ 5. Thread the cord through the hole in the trailing edge of the fin.

❏ 6. Continue threading the cord through the aft hole in the trailing edge of the stab on the opposite side of the fuselage and back down to the aft bottom of the fuselage.

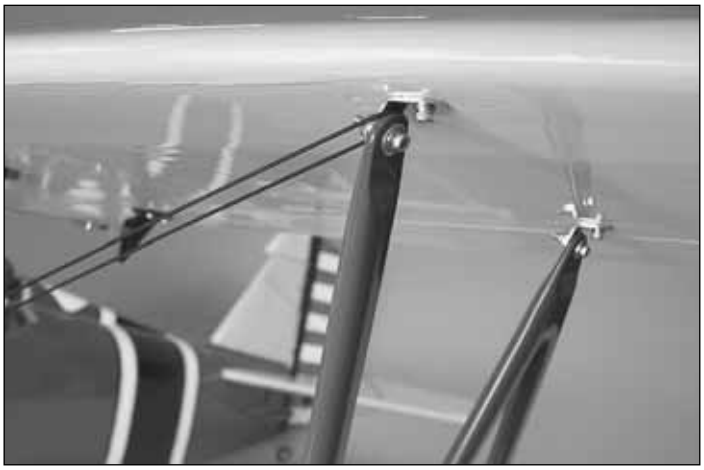
❏ 7. At this point you will have to start stretching the elastic to complete the positioning of the elastic cord. You may need to trim a little off of the end of the cord to remove any slack before gluing it in the aft hole of the fuselage.

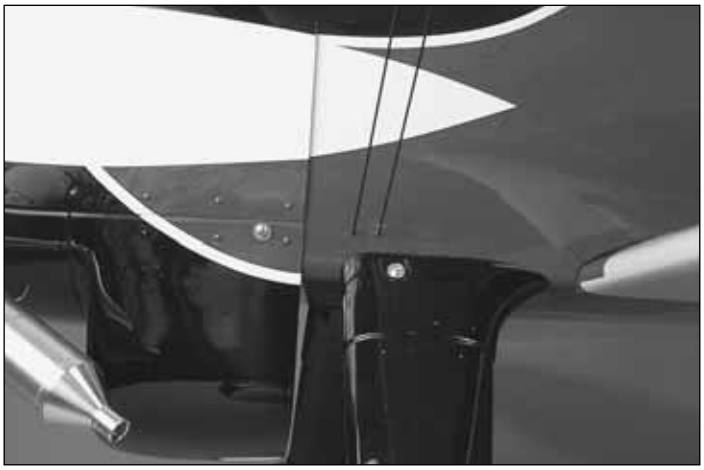


❏ 8. Cut a second cord 38" [965mm] long. Attach it to the forward hole in the bottom of the fuselage. Route it through the forward hole in the trailing edge of the stab, through the leading edge of the fin, through the forward hole in the trailing edge of the stab, gluing it in the forward hole in the bottom of the fuselage.

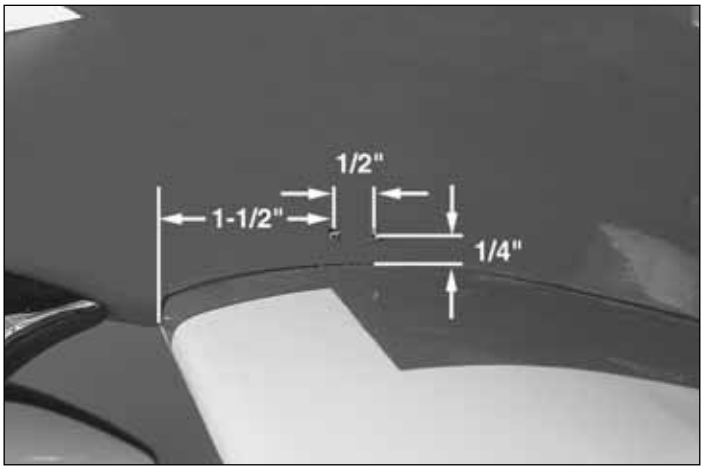
❏ ❏ 9. Make two marks 1/2" [13mm] apart above the front of the landing gear. Drill 5/64" [2mm] holes partially into the fuselage on each of the two marks.

❏ ❏ 10. Put a small drop of CA on the cord, then insert it into forward hole.





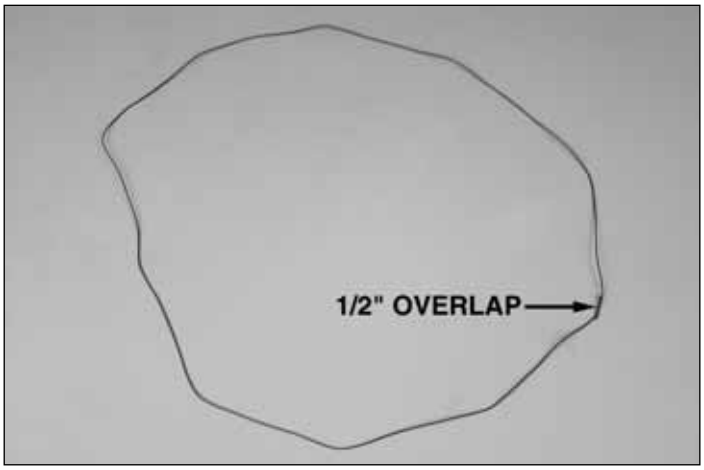
❑ ❑ 11. Bring the elastic cord around the top of the forward strut and pull it back toward the fuselage. Glue the cord into the hole next to the hole you started with.



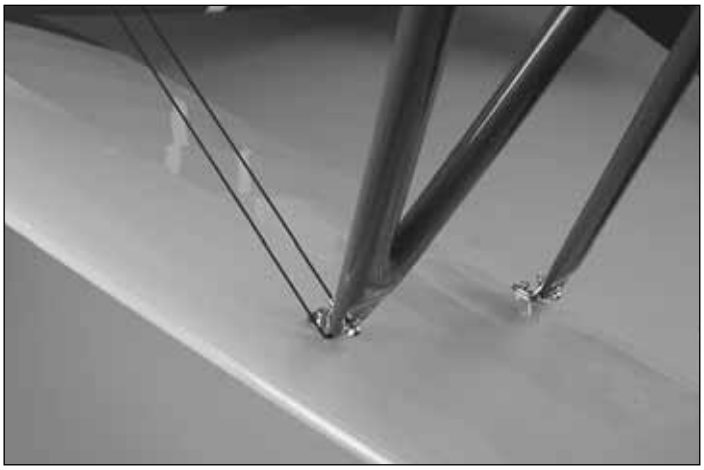
❑ ❑ 12. On the side of the fuselage, 1-1/2" [38mm] from the leading edge of the bottom wing, make two marks 1/2" [13mm] apart, 1/4" [6.4mm] above the wing. Drill 5/64" [2mm] holes partially into the fuselage on each of the two marks.

❑ ❑ 13. Put a small drop of CA on the cord, then insert it into forward hole.

❑ ❑ 14. Bring the elastic cord around the top of the aft strut and pull it back toward the fuselage. Glue the cord into the hole next to the hole you started with.



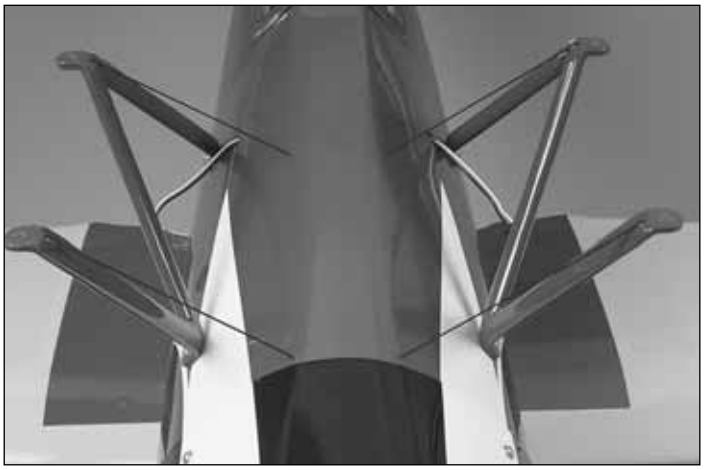
❑ ❑ 15. Cut an elastic cord 40" [1016mm] long. Use CA to glue the ends together, forming a loop. When gluing the ends together, overlap the cord approximately 1/2" [12.7mm].



❑ ❑ 16. Remove the screw from the aft top cabane, install the cord around the cabane and then re-install the screw. Do this on the forward bottom “N” strut as well

❑ 17. This completes the wires for the left side. Repeat steps 9-16 for the opposite side.

❑ 18. Make marks identifying the top center of the fuselage. Mark four holes as shown. The marks should be inline with the top of the cabane mounting holes, 1" [25.4mm] on each side of the centerline. Drill partially into the fuselage with a 5/64" [2mm] drill on each of the four marks.



❑ 19. Cut four pieces of elastic cord 4-1/2" [114mm] long. Glue a cord into each of the four holes. Stretch the cord to the top of the cabane and glue the cord to the cabane with a small drop of CA.

Apply the Decals

❑ 1. Use scissors or a sharp hobby knife to cut the decals from the sheet.

❑ 2. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water–about one teaspoon of soap per gallon of water. Submerse the decal in the soap and water and peel off the paper backing. **Note:** Even though the decals have a “sticky-back” and are not the water transfer type, submersing them in soap & water allows accurate positioning and reduces air bubbles underneath.

❑ 3. Position decals on the model as shown on the box cover. Holding the decal down, use a paper towel to wipe most of the water away.

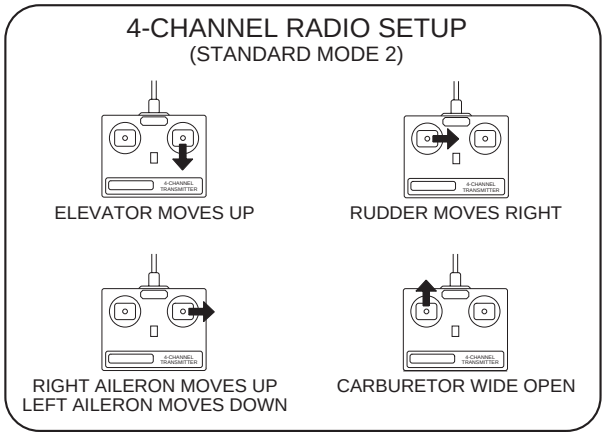
❑ 4. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.

GET THE MODEL READY TO FLY

Check the Control Directions

❑ 1. Turn on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.

❑ 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the clevises on the pushrods to center the control surfaces.



❑ 3. Make certain that the control surfaces and the carburetor respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

Set the Control Throws

Use a Great Planes AccuThrow™ (or a ruler) to accurately measure and set the control throw of each control surface as indicated in the chart that follows. If your radio does not have dual rates, we recommend setting the throws at the low rate setting.

Note: The throws are measured at the **widest part** of the elevators, rudder and ailerons.

These are the recommended control surface throws:

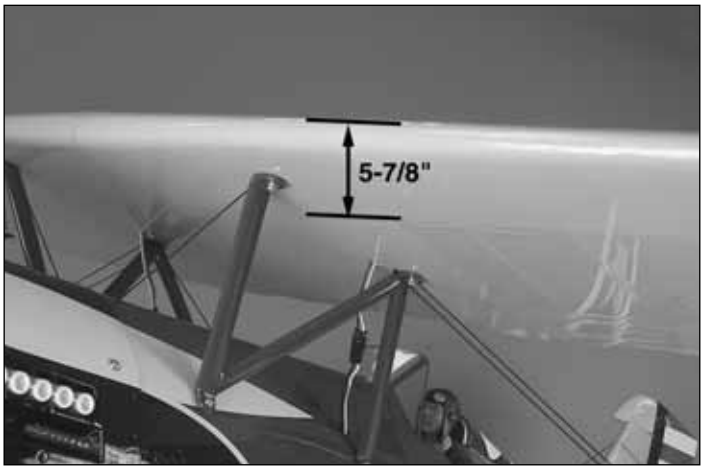
	High Rate	Low Rate
ELEVATOR:	1" [25mm] up	3/4" [19mm] up
	1" [25mm] down	3/4" [19mm] down
AILERONS:	1-1/4" [32mm] up	3/4" [19mm] up
	1-1/4" [32mm] down	3/4" [19mm] down
RUDDER:	1-3/4" [44mm] right	1-1/4" [32mm] right
	1-3/4" [44mm] left	1-1/4" [32mm] left

IMPORTANT: The P-6E Hawk ARF has been **extensively** flown and tested to arrive at the throws at which it flies best. Flying your model at these throws will provide you with the greatest chance for successful first flights. If, after you have become accustomed to the way the P-6E Hawk ARF flies, you would like to change the throws to suit your taste, that is fine. However, too much control throw could make the model difficult to control, so remember, “more is not always better.”

Balance the Model (C.G.)

More than any other factor, the C.G. (balance point) can have the **greatest** effect on how a model flies, and may determine whether or not your first flight will be successful. If you value this model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE.** A model that is not properly balanced will be unstable and possibly unflyable.

At this stage the model should be in ready-to-fly condition with all of the systems in place including the engine, landing gear, covering, and the radio system. The P-6E Hawk ARF is a short-coupled airplane, making it nearly impossible to balance without the addition of some nose weight. Earlier you assembled a box to hold lead. Remove the spinner and cowl. Attach the weight box to the top of the firewall box using epoxy and #4 x 1/2" sheet metal screws. Remove the cover from the box and install lead. Great Planes (GPMQ4485) “stick-on” lead works well. All of our prototypes had an O.S.® 1.20 four-stroke engine and required approximately 16 oz. of lead. This should be a good starting point for balancing your plane too. After putting the lead in the box be sure to re-install the cowl, spinner and propeller. After you install nose weight, pack the inside of the box tight with foam rubber to prevent any lead from coming loose and rattling around inside the box.



❏ 1. Use a felt-tip pen or 1/8" [3mm] wide tape to accurately mark the C.G. on the bottom of the top wing (on both sides of the fuselage.) **The C.G. is located 5-7/8" [149mm] back from the leading edge of the top wing.**

❏ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, lift it at the balance point you marked.

❏ 3. If the tail drops, the model is "tail heavy" and the battery pack and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the battery pack and/or receiver must be shifted aft or weight must be added to the tail (or removed from the weight box) to balance.

❏ 4. **IMPORTANT**: If you found it necessary to add any weight, recheck the C.G. after the weight has been installed.

This is where your model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 3/8" [9.5mm] forward or 3/8" [9.5mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but the model may then require more speed for takeoff and make it more difficult to slow for landing. Moving the C.G. aft makes the model more maneuverable, but could also cause it to become too difficult to control. In any case, start at the recommended balance point and do not at any time balance the model outside the specified range.

Balance the Model Laterally

❏ 1. With the wings level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuse under the TE of the fin. Do this several times.

❏ 2. If one wing always drops when you lift the model, it means that side is heavy. Balance the airplane by adding weight to the other wing tip. An airplane that has been laterally balanced will track better in loops and other maneuvers.

PREFLIGHT

Identify Your Model

No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is required at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on the decal sheet and place it on or inside your model.

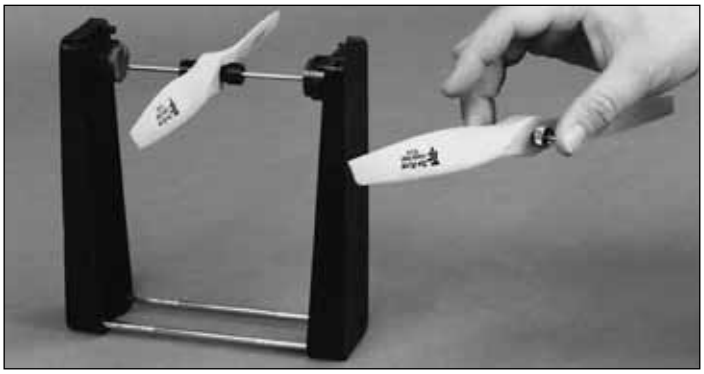
Charge the Batteries

Follow the battery charging instructions that came with your radio control system to charge the batteries. You should always charge your transmitter and receiver batteries the night before you go flying, and at other times as recommended by the radio manufacturer.

CAUTION: Unless the instructions that came with your radio system state differently, the **initial** charge on **new** transmitter and receiver batteries should be done for 15 hours **using the slow-charger that came with the radio system**. This will "condition" the batteries so that the next charge may be done using the fast-charger of your choice. If the initial charge is done with a fast-charger the batteries may not reach their full capacity and you may be flying with batteries that are only partially charged.

Note: Checking the condition of your receiver battery pack is **highly recommended.** All battery packs, whether it's a trusty pack you've just taken out of another model, or a new battery pack you just purchased, should be cycled, noting the discharge capacity. Often, a weak battery pack can be identified (and a valuable model saved!) by comparing its actual capacity to its rated capacity. Refer to the instructions and recommendations that come with your cycler. If you don't own a battery cycler, perhaps you can have a friend cycle your pack and note the capacity for you.

Balance the Propellers



Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. Not only will engine mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver and battery. Vibration can also cause your fuel to foam, which will, in turn, cause your engine to run hot or quit.

We use a Top Flite Precision Magnetic Prop Balancer™ (TOPQ5700) in the workshop and keep a Great Planes Fingertip Prop Balancer (GPMQ5000) in our flight box.

Ground Check

If the engine is new, follow the engine manufacturer's instructions to break-in the engine. After break-in, confirm that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power-indefinitely. After you run the engine on the model, inspect the model closely to make sure all screws remained tight, the hinges are secure, the prop is secure and all pushrods and connectors are secure.

Range Check

Ground check the operational range of your radio before the first flight of the day. With the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have an assistant stand by your model and, while you work the controls, tell you what the control surfaces are doing. Repeat this test **with the engine running** at various speeds with an assistant holding the model, using hand signals to show you what is happening. If the control surfaces do not respond correctly, **do not fly**! Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

ENGINE SAFETY PRECAUTIONS

Failure to follow these safety precautions may result in severe injury to yourself and others.

- Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that engine exhaust gives off a great deal of deadly carbon monoxide. Therefore, **do not run the engine in a closed room or garage.**
- Get help from an experienced pilot when learning to operate engines.
- Use safety glasses when starting or running engines.
- Do not run the engine in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.
- Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.
- Keep these items away from the prop: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets into the prop.
- Use a "chicken stick" or electric starter to start the engine. Do not use your fingers to flip the propeller. Make certain the glow plug clip or connector is secure so that it will not pop off or otherwise get into the running propeller.
- Make all engine adjustments from behind the rotating propeller.
- The engine gets hot! Do not touch it during or right after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine, causing a fire.
- To stop a glow engine, cut off the fuel supply by closing off the fuel line or following the engine manufacturer's recommendations. Do not use hands, fingers or any other body part to try to stop the engine. To stop a gasoline powered engine an on/off switch should be connected to the engine coil. Do not throw anything into the propeller of a running engine.

AMA SAFETY CODE (EXCERPTS)

Read and abide by the following excerpts from the Academy of Model Aeronautics Safety Code. For the complete Safety Code refer to Model Aviation magazine, the AMA web site or the Code that came with your AMA license.

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 aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right of way to, and avoid flying in the proximity of full-scale aircraft. Where necessary an observer shall be used 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.

7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

9. I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

Radio Control

1. I will have completed a successful radio equipment ground 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. I will perform my initial turn after takeoff away from the pit or spectator areas, and I will not thereafter fly over pit or spectator areas, unless beyond my control.

4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

IMAA SAFETY CODE (EXCERPTS)

Since the P-6E Hawk ARF qualifies as a “giant-scale” model and is therefore eligible to fly in IMAA events, we’ve included excerpts from the IMAA Safety Code.

Definition: For the purpose of the following IMAA Safety Code, the term “Giant-Scale” shall refer to radio controlled model aircraft, either scale or non-scale, which have a wingspan of 80 inches or more for monoplanes and 60 inches or more for multi-winged model aircraft and have a ramp weight (fueled and ready to fly) of 55 lb. or less.

Section 1.0: Safety Standard

1.1 Adherence to Code: This safety code is to be strictly followed.

1.2 The most current AMA Safety Code in effect is to be observed. However, the competition sections of the code may be disregarded.

Section 3.0: Safety Check

3.4 Flight Testing: All Giant-Scale R/C aircraft are to have been flight-tested and flight trimmed with a minimum of six flights before the model is allowed to fly at an IMAA Sanctioned event.

3.5 Proof of Flight: The completing and signing of the Declaration section of the Safety Inspection form by the pilot (or owner) shall document as fact that each aircraft has been successfully flight-tested and proven airworthy prior to an IMAA event.

Section 5.0: Emergency Engine Shut Off (kill switch)

5.1 All magneto spark ignition engines must have a coil grounding switch on the aircraft to stop the engine. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch is to be operated manually and without the use of the radio system.

5.2 Engines with battery power ignition systems must have a switch to turn off the power from the battery pack to disable the engine from firing. This will also prevent accidental starting of the engine. This switch shall be readily available to both pilot and helper. This switch shall be operated manually and without the use of the Radio System.

5.3 There must also be a means to stop the engine from the transmitter. The most common method is to close the carburetor throat completely using throttle trim; however, other methods are acceptable. This requirement applies to all glow/gas ignition engines regardless of size.

Section 6.0: RADIO REQUIREMENTS

6.1 All transmitters must be FCC type certified.

6.2 FCC Technician or higher-class license required for 6 meter band operation only.

CHECK LIST

- ❏ 1. Fuelproof all areas exposed to fuel or exhaust residue such as the cowl mounting blocks, wing saddle area, etc.
- ❏ 2. Check the C.G. according to the measurements provided in the manual.
- ❏ 3. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.
- ❏ 4. Extend your receiver antenna and make sure it is in the antenna tube.
- ❏ 5. Balance your model laterally.
- ❏ 6. Use thread-locking compound to secure critical fasteners such as the set screws that hold the wheel axles to the struts, screws that hold the carburetor arm (if applicable), screw-lock pushrod connectors, etc.
- ❏ 7. Add a drop of oil to the wheel axles.
- ❏ 8. Make sure all hinges are **securely** glued in place.
- ❏ 9. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cowl mounting screws, etc.).
- ❏ 10. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- ❏ 11. Make sure there are silicone retainers on all the clevises and that all servo arms are secured to the servos with the screws included with your radio.
- ❏ 12. Secure connections between servo wires and Y-connectors or servo extensions, and the connection between your battery pack and the on/off switch with vinyl tape, heat-shrink tubing or special clips suitable for that purpose.
- ❏ 13. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
- ❏ 14. Secure the pressure tap (if used) to the muffler with high temp RTV silicone, thread-locking compound or J.B. Weld.
- ❏ 15. Make sure the fuel lines are connected and not kinked.
- ❏ 16. Balance your propeller (and spare propellers).
- ❏ 17. Tighten the propeller nut and spinner.
- ❏ 18. Place your name, address, AMA number and telephone number on or inside your model.
- ❏ 19. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.
- ❏ 20. If you wish to photograph your model, do so before your first flight.
- ❏ 21. Range check your radio when you get to the flying field.
- ❏ 22. Make sure all wing attachment bolts and screws are securely tightened.

FLYING

Fuel Mixture Adjustments

A fully cowled engine may run at a higher temperature than an un-cowled engine. For this reason, the fuel mixture should be richened so the engine runs at about 200 RPM below peak speed. By running the engine slightly rich, you will help prevent dead-stick landings caused by overheating.

CAUTION (THIS APPLIES TO ALL R/C AIRPLANES): If, while flying, you notice an alarming or unusual sound such as a low-pitched “buzz,” this may indicate control surface flutter. Flutter occurs when a control surface (such as an aileron or elevator) or a flying surface (such as a wing or stab) rapidly vibrates up and down (thus causing the noise). In extreme cases, if not detected immediately, flutter can actually cause the control surface to detach or the flying surface to fail, thus causing loss of control followed by an impending crash. The best thing to do when flutter is detected is to slow the model immediately by reducing power, then land as soon as safely possible. Identify which surface fluttered (so the problem may be resolved) by checking all the servo grommets for deterioration or signs of vibration. Make certain all pushrod linkages are secure and free of play. If it fluttered once, under similar circumstances it will probably flutter again unless the problem is fixed. Some things which can cause flutter are; Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of wire pushrods caused by large bends; Excessive free play in servo gears; Insecure servo mounting; and one of the most prevalent causes of flutter; Flying an over-powered model at excessive speeds.

Takeoff

Before you get ready to take off, see how the model handles on the ground by doing a few practice runs at **low speeds** on the runway. Hold “up” elevator to keep the tailwheel on the ground. If necessary, adjust the tailwheel so the model will roll straight down the runway. If you need to calm your nerves before the maiden flight, shut the engine down and bring the model back into the pits. Top off the fuel, then check all fasteners and control linkages for peace of mind.

Remember to take off into the wind. When you’re ready, point the model straight down the runway, hold a bit of up elevator to keep the tail on the ground to maintain tailwheel steering, and then gradually advance the throttle. As the model gains speed, decrease up elevator, allowing the tail to

come off the ground. One of the most important things to remember with a tail dragger is to always be ready to apply right rudder to counteract engine torque. Gain as much speed as your runway and flying site will practically allow before gently applying up elevator, lifting the model into the air. At this moment it is likely that you will need to apply more right rudder to counteract engine torque. Be smooth on the elevator stick, allowing the model to establish a **gentle** climb to a safe altitude before turning into the traffic pattern.

Flight

For reassurance and to keep an eye on other traffic, it is a good idea to have an assistant on the flight line with you. Tell him to remind you to throttle back once the plane gets to a comfortable altitude. While full throttle is usually desirable for take off, most models fly more smoothly at reduced speeds.

Take it easy with the P-6E Hawk ARF for the first few flights, gradually getting acquainted with it as you gain confidence. Adjust the trims to maintain straight and level flight. After flying around for a while, and while still at a safe altitude with plenty of fuel, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your fuel level, but use this first flight to become familiar with your model before landing.

Landing

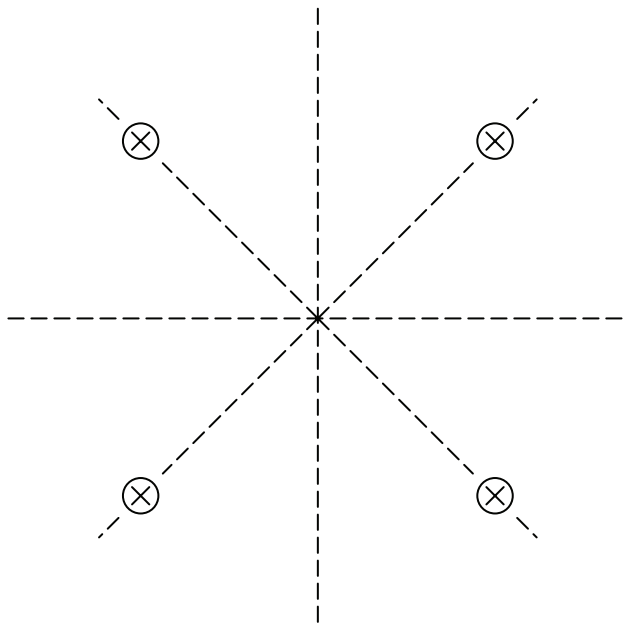
To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tailwheel control.

One final note about flying your model. Have a goal or flight plan in mind for **every** flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve your skills (though it is never a bad idea!), but more importantly so you do not surprise yourself by impulsively attempting a maneuver and suddenly finding that you've run out of time, altitude or airspeed. Every maneuver should be deliberate, not impulsive. For example, if you're going to do a loop, check your altitude, mind the wind direction (anticipating rudder corrections that will be required to maintain heading), remember to throttle back at the top, and make certain you are on the desired rates (high/low rates). A flight plan greatly reduces the chances of crashing your model just because of poor planning and impulsive moves. **Remember to think**.

Have a ball!
But always stay in control and fly in a safe manner.

GOOD LUCK AND GREAT FLYING!

60-120 ENGINE MOUNT TEMPLATE



BUILDING NOTES

Kit Purchased Date: _____

Where Purchased:_____

Date Construction Started: _____

Date Construction Finished: _____

Finished Weight: _____

Date of First Flight: _____

FLIGHT LOG