



AT-6 TEXAN



Wingspan: 69 in [1755mm]
Wing Area: 730 sq in [47.1 dm²]
Weight: 8.5-9.5 lb [3855-4310g]
Wing Loading: 27-30 oz/sq ft [82-91 g/dm²]
Length: 51 in [1295mm]
Radio: 6 channel w/8 servos
Engine: .60 cu in [10cc] two-stroke,
.70-.91 cu in [11.5-15cc] four-stroke

WARRANTY.....

Top Flite Models 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 Top Flite's liability exceed the original cost of the purchased kit.** Further, Top Flite reserves the right to change or modify this warranty without notice.

In that Top Flite 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:

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 INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

Top Flite Models Champaign, IL

Telephone (217) 398-8970, Ext. 5

airsupport@top-flite.com

TABLE OF CONTENTS

INTRODUCTION	2
SAFETY PRECAUTIONS	2
DECISIONS YOU MUST MAKE	3
Radio Equipment	3
Engine Recommendations	3
ADDITIONAL ITEMS REQUIRED	3
Adhesives and Building Supplies.....	3
Optional Supplies and Tools	4
IMPORTANT BUILDING NOTES	4
KIT CONTENTS	4
ORDERING REPLACEMENT PARTS	5
PREPARATIONS	6
ASSEMBLE THE WING	6
Install the Flaps/Ailerons	6
Install the Aileron/Flap Servos and Pushrods.....	8
Install the Wing Joiners & Join the Wing Halves..	10
Install the Retract Landing Gear and Wheels	13
BUILD THE FUSELAGE	15
Install the Stabilizers, Elevators and Rudder	15
Install the Engine Fuel Tank & Throttle Servo.....	18
Install the Radio System	20
Final Set-up of the Retract Servo	21
Install the Cowl & Dummy Engine	22
Install the Cockpit & Remaining Scale Details....	24
Apply the Decals.....	26
GET THE MODEL READY TO FLY	27
Check the Control Directions	27
Set the Control Throws	27
Balance the Model (C.G.)	28
Balance the Model Laterally	29
PREFLIGHT	29
Identify Your Model	29
Charge the Batteries.....	29
Balance Propellers	29
Ground Check.....	29
Range Check.....	29
ENGINE SAFETY PRECAUTIONS.....	30
AMA SAFETY CODE.....	30
CHECK LIST	30
FLYING.....	31
Fuel Mixture Adjustment	31
Takeoff	31
Flight.....	Back Cover
Landing.....	Back Cover

INTRODUCTION

The real lineage of the AT-6 Texan began in 1937 with a USAAF competition to develop a basic trainer. The requirements were for a type capable of basic instruction as well as simulating the controls and feel of an actual combat aircraft. Top Flite has returned this vintage airplane to the modeling community in the form of a "World Class" ARF that we are sure will bring you hours of great fun.

For the latest technical updates or manual corrections to the AT-6 Texan visit the Top Flite web site at www.top-flite.com. Open the "Airplanes" link, and then select the AT-6 Texan 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.

ACADEMY OF MODEL AERONAUTICS

If you are not already a member of the AMA, please join! The AMA is the governing body of model aviation and membership provides liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites.



Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057
www.modelaircraft.org

IMPORTANT!!! Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

SCALE COMPETITION

Though the Top Flite AT-6 is an ARF and may not have the same level of detail as an "all-out" scratch-built competition model, it is a scale model nonetheless

and is therefore eligible to compete in the *Fun Scale* class in AMA competition (we receive many favorable reports of Top Flite ARFs in scale competition!). In Fun Scale, the "builder of the model" rule does not apply. To receive the five points for scale documentation, the only proof required that a full size aircraft of this type in this paint/markings scheme did exist is a single sheet such as a kit box cover from a plastic model, a photo, or a profile painting, etc. If the photo is in black and white other written documentation of color must be provided. Contact the AMA for a rule book with full details.

If you would like photos of full-size AT-6s for scale documentation, or if you would like to study the photos to add more scale details, photo packs are available from:

Bob's Aircraft Documentation

3114 Yukon Ave
Costa Mesa, CA 92626
Telephone: (714) 979-8058
Fax: (714) 979-7279
www.bobsairdoc.com

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

1. Your AT-6 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 AT-6, 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 an experienced pilot or 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.

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, or if an engine larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

9. **WARNING:** The cowl and air scoops 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.

We, as the kit manufacturer, provide you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and flyability 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.

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the AT-6 that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

RADIO EQUIPMENT

- 6-channel with seven servos of at least 50 oz-in. and one retract servo of at least 60 oz-in.
- One 6" [150mm] servo extension (HCAM2701 for Futaba)
- Seven 12" [300mm] servo extension (HCAM2711 for Futaba)
- Two Y-harnesses (HCAM2751 for Futaba)
- 1000 mAh battery (minimum)

ENGINE RECOMMENDATIONS

The recommended engine for the AT-6 is an O.S.[®] .60 two-stroke or .91 four-stroke.

ADDITIONAL ITEMS REQUIRED

ADHESIVES AND BUILDING SUPPLIES

This is the list of Adhesives and Building Supplies that are required to finish the AT-6.

- 1/2 oz. [15g] Thin Pro™ CA (GPMR6001)
- 1 oz. [30g] Medium Pro CA+ (GPMR6008)
- Pro 30-minute epoxy (GPMR6047)
- Pro 6-minute epoxy (GPMR6045)
- R/C foam rubber (1/4" [6mm] - HCAQ1000)
- 3' [900mm] standard silicone fuel tubing (GPMQ4131)
- Drill bits: 1/16" [1.6mm], 5/64" [2mm], 3/32" [2.4mm], 7/64" [2.8mm], 1/8" [3.2mm], 9/64" [3.6mm].
- 8-32 tap and drill set (GPMR8103)
- Small T-pins (100, HCAR5100)
- #1 Hobby knife (HCAR0105)
- #11 blades (5-pack, HCAR0211)
- Stick-on segmented lead weights (GPMQ4485)
- 21st Century[®] sealing iron (COVR2700)
- 4 oz. [113g] aerosol CA activator (GPMR634)
- CA applicator tips (HCAR3780)
- Epoxy brushes (6, GPMR8060)
- Mixing sticks (50, GPMR8055)
- Mixing cups (GPMR8056)
- Microballoons (TOPR1090)
- Threadlocker thread locking cement (GPMR6060)
- Denatured alcohol (for epoxy clean up)

OPTIONAL SUPPLIES AND TOOLS

Here is a list of optional tools mentioned in the manual that will help you build the AT-6.

- Masking tape (TOPR8018)
- Panel Line Pen (TOPQ2510)
- Rotary tool such as Dremel®
- Rotary tool reinforced cut-off wheel (GPMP8020)
- Servo horn drill (HCAR0698)
- Hobby Heat™ micro torch (HCAR0750)
- AccuThrow™ Deflection Gauge (GPMP2405)
- Precision Magnetic Prop Balancer (TOPQ5700)
- CG Machine™ (GPMP2400)
- Dead Center™ Engine Mount Hole Locator (GPMP8130)

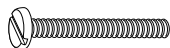
IMPORTANT BUILDING NOTES

- 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]



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



Socket Head Cap Screws (SHCS) are designated by a number, threads per inch, and a length. For example, 4-40 x 3/4" [19mm]



- 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.

- Whenever just **epoxy** is specified you may use **either** 30-minute (or 45-minute) epoxy or 6-minute epoxy. When 30-minute epoxy is specified it is **highly** recommended that you use only 30-minute (or 45-minute) epoxy, because you will need the working time and/or the additional strength.

- **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 AT-6 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.

Aluminum (TOPQ0205)
Black (TOPQ0208)
Cub Yellow (TOPQ0220)
Missile Red (TOPQ0201)

KIT INSPECTION

Before starting to build, 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 **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.

Top Flite Product Support:

3002 N Apollo Drive Suite 1

Champaign, IL 61822

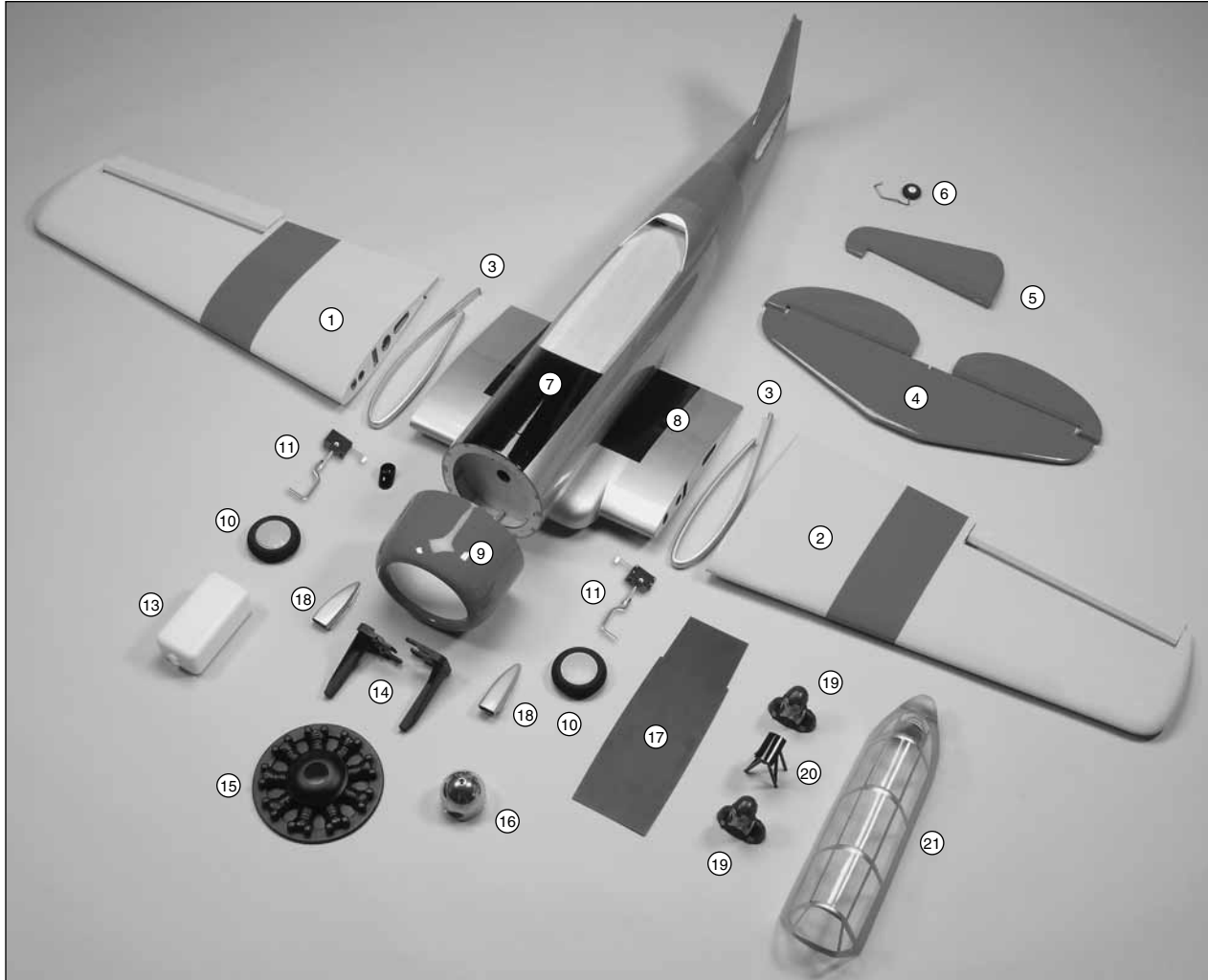
Telephone: (217) 398-8970

Fax: (217) 398-7721

E-mail: airsupport@top-flite.com

KIT CONTENTS

1. Right wing with aileron and flap
2. Left wing with aileron and flap
3. Joiner covers (2)
4. Horizontal stabilizer with elevators
5. Rudder
6. Tail wheel assembly
7. Fuselage
8. Wing center section with flaps
9. Cowl
10. Main wheels (2)
11. Main retract assembly (2)
12. Fiberglass exhaust stack
13. Fuel tank
14. Engine mount halves (R&L)
15. Fiberglass dummy engine
16. Spinner
17. Cockpit floor
18. Fiberglass air scoops (2)
19. Pilots (2)
20. Turnover post
21. Canopy



ORDERING REPLACEMENT PARTS

To order replacement parts for the Top Flite AT-6 ARF, use the order numbers in the **Replacement Parts List** that follows. Replacement parts are available only as listed. Not all parts are available separately (an aileron cannot be purchased separately, but is only available with the wing kit). Replacement parts are not available from Product Support, but can be purchased from hobby shops or mail order/Internet order firms. Hardware items (screws, nuts, bolts) are also available from these outlets. If you need assistance locating a dealer to purchase parts, visit www.top-flite.com and click on "Where to Buy." If this kit is missing parts, contact **Product Support**.

REPLACEMENT PARTS LIST

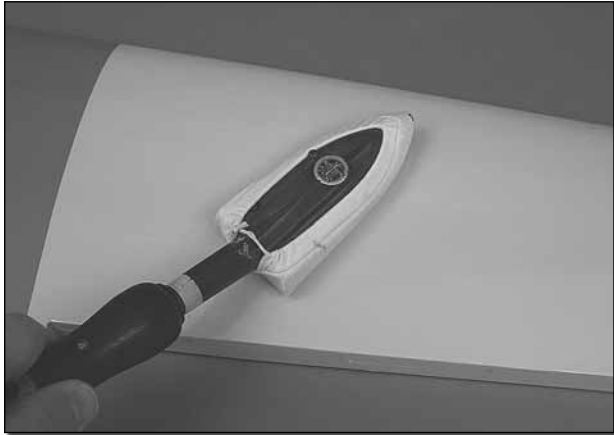
Order Number	Description	How to purchase
Missing Pieces.....	Contact Product Support	Contact Product Support
Instruction Manual	Contact Product Support	Contact Product Support
Full-Size Plans.....	Not Available	Not Available

Contact your hobby supplier to purchase these items:

- TOPA1740 Wing
- TOPA1741 Fuselage
- TOPA1742 Tail Surface Set
- TOPA1743 Canopy
- TOPA1744 Cowl
- TOPA1745 Dummy Radial Engine
- GPMQ9117..... Pilot
- TOPA1746 Decals
- TOPA1747 Spinner
- TOPA1748 Wire Landing Gear Set
- TOPA1749 Cockpit Kit
- TOPA1750 Wheels
- TOPQ7950 Retracts w/o Wires
- TOPA1751 Fiberglass Scoop/Exhaust Set (3 pc.)

PREPARATION

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 4.

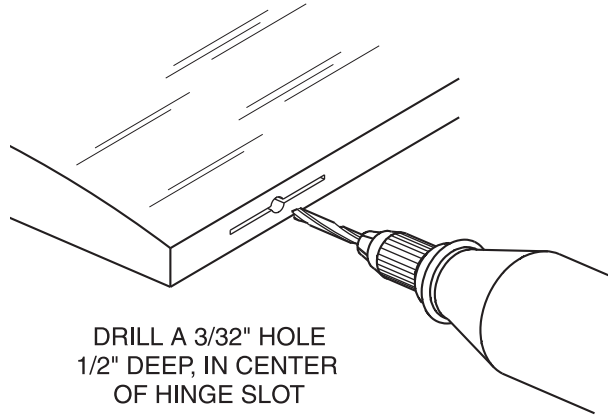


2. Remove the tape and separate the ailerons and flaps from the wing and the elevators from the stab. Use a covering iron with a covering sock on high heat to tighten the covering if necessary. Apply pressure over sheeted areas to **thoroughly** bond the covering to the wood.

ASSEMBLE THE WING

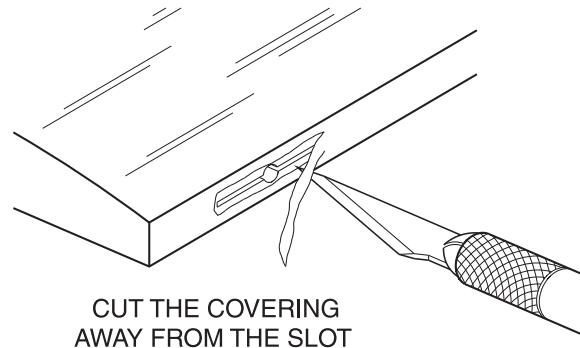
INSTALL THE FLAPS/AILERONS

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



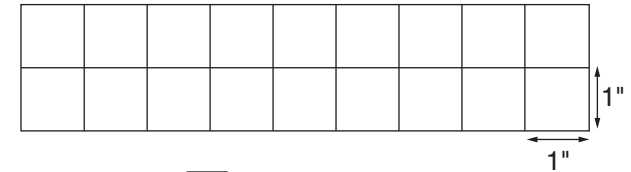
DRILL A 3/32" HOLE
1/2" DEEP, IN CENTER
OF HINGE SLOT

1. Drill a 3/32" hole, 1/2" 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.



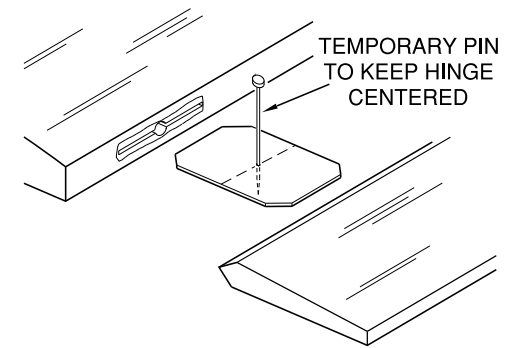
CUT THE COVERING
AWAY FROM THE SLOT

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



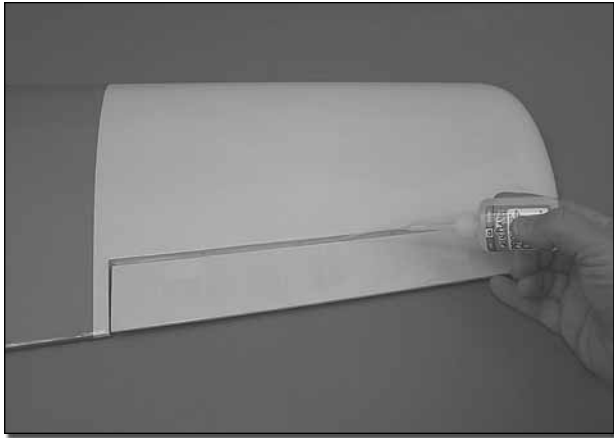
CLIP CORNERS

3. Cut twelve 1" x 1" [25 x 25mm] **hinges** from a **CA hinge strip**. Snip off the corners so they go in easier.

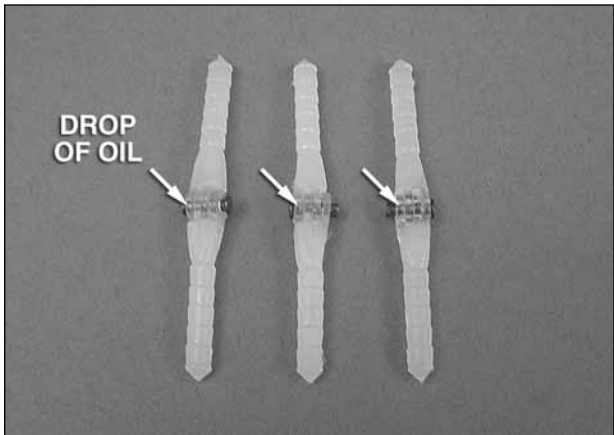


4. Test fit the **aileron** to the **wing** with the hinges. If the hinges don't remain centered, stick a pin through the middle of the hinge to hold it in position.

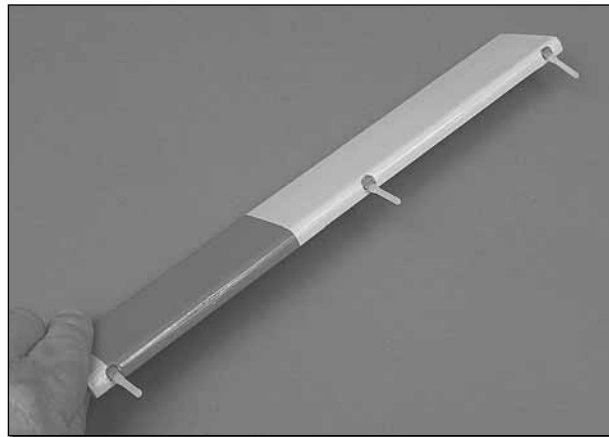
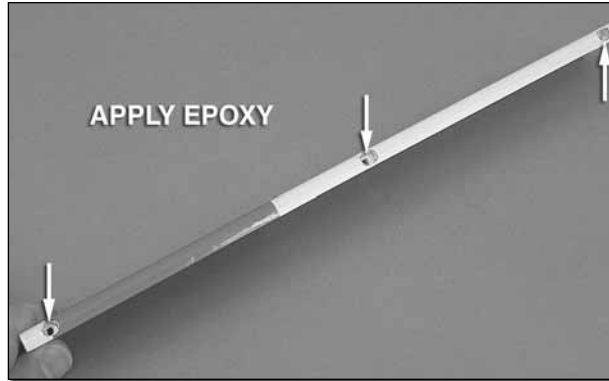
5. Remove any pins you may have inserted into the hinges. Adjust the aileron so there is a small gap between the LE of the aileron and the wing. The gap should be small, just enough to see light through or to slip a piece of paper through.



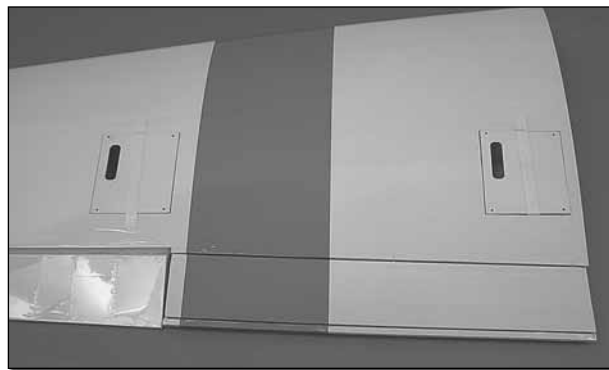
❑❑ 6. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully hardened, test the hinges by pulling on the aileron.



❑❑ 7. Locate three **hinge point** hinges. Apply a drop of oil or apply a small amount of Vaseline into the hinge pin. This will keep glue from getting into the hinge and preventing it from moving freely. **Be careful not to get oil on the hinge point.** If you do, clean it with a cloth and alcohol.



❑❑ 8. Apply 30-minute epoxy to one side of each hinge and using a toothpick work a small amount of epoxy into each of the holes for the hinge in the leading edge of the flap. Insert one hinge into each hole.

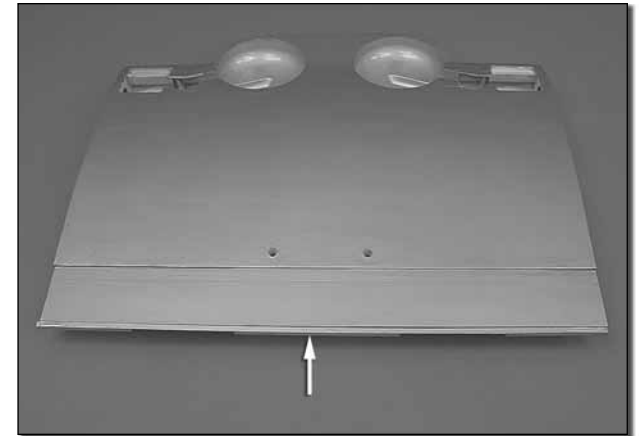


❑❑ 9. Clean excess epoxy from the hinge and flap. Apply epoxy to the other end of the hinge and

the holes in the trailing edge of the wing. Insert the flap into the wing. Align the hinges with the pivot point in the hinge pocket and so the hinge pivots perpendicular to the leading edge of the flap. Be sure the flap is pushed close enough to the trailing edge of the wing so the flap sits completely flush with the bottom of the wing.

❑❑ 10. Set the assembly aside until the glue cures.

❑ 11. Repeat steps 1- 10 for the left wing panel.



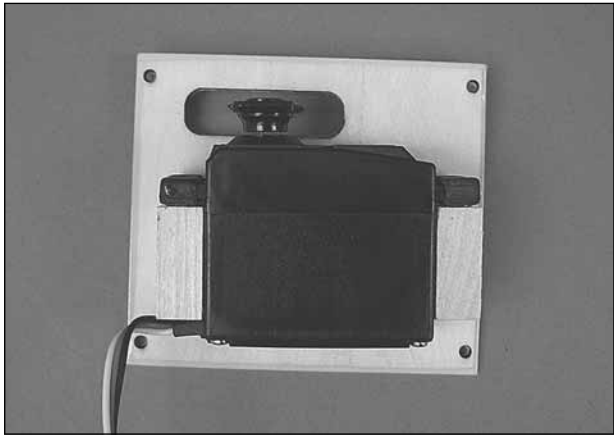
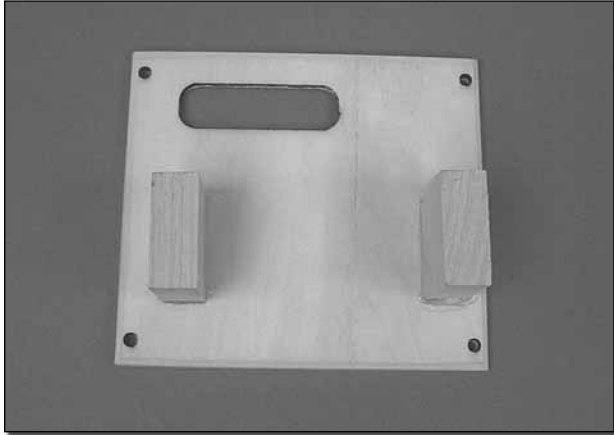
❑ 12. Using the same technique used for the wing flaps, install four hinges into the flap of the wing **center section**.

❑ 13. After the glue has completely cured work the flap hinges until they move smoothly.

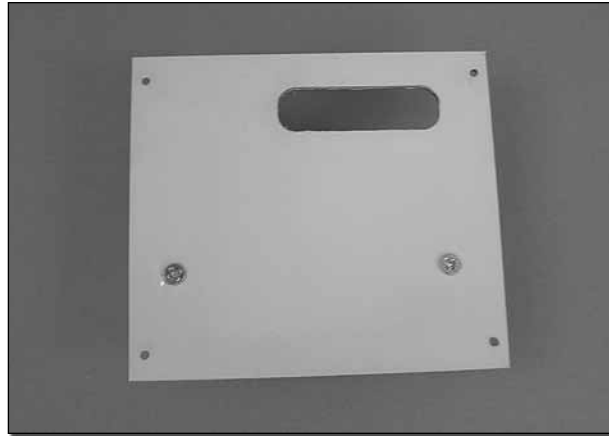
Did you know...The AT-6 advanced trainer was one of the most widely used aircraft in history. Most AAF fighter pilots trained in AT-6s prior to graduation from flying school. Many of the "Spitfire" and "Hurricane" pilots in the Battle of Britain trained in Canada in "Harvards," the British version of the AT-6.

INSTALL THE AILERON/FLAP SERVOS AND PUSHRODS

❑❑ 1. Remove the aileron and flap **covers** from the right wing panel.

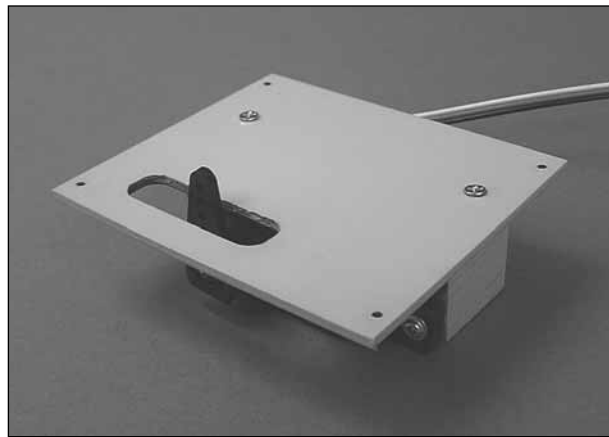


❑❑ 2. Glue two 5/16" x 3/4" x 3/4" [8 x 19 x 19mm] hardwood blocks to the **servo cover**. Position the blocks so the servo fits between the blocks and the servo horn is centered in the opening.



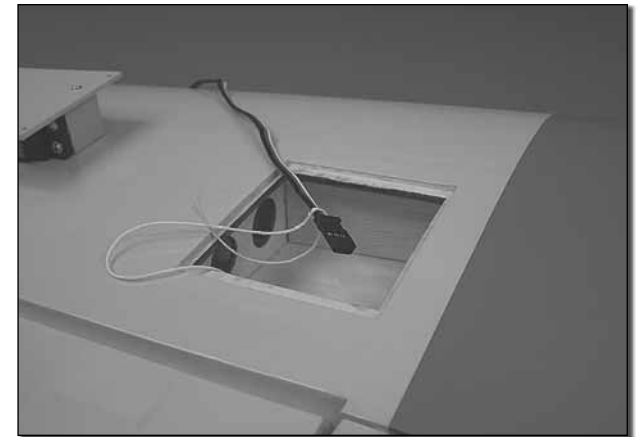
❑❑ 3. Drill a 1/16" [1.6mm] hole through the servo cover into the center of the servo mounting blocks. Install and then remove a #2 x 3/8" [10mm] wood screw into the holes you drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has cured install the screws into the servo cover.

❑❑ 4. Install a 12" servo extension onto the servo lead. Secure the extension to the lead with tape, a piece of shrink tube or some other method to keep them from coming unplugged.

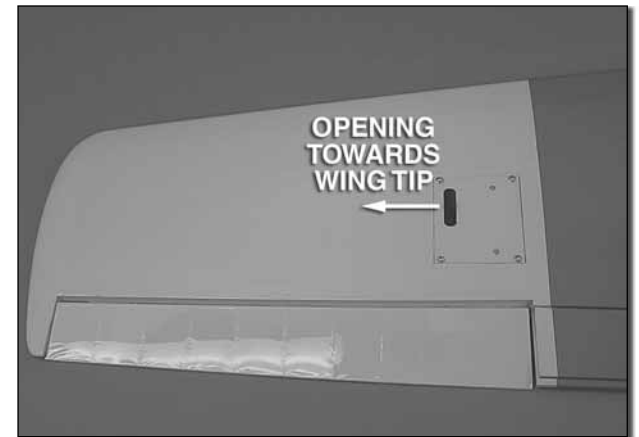


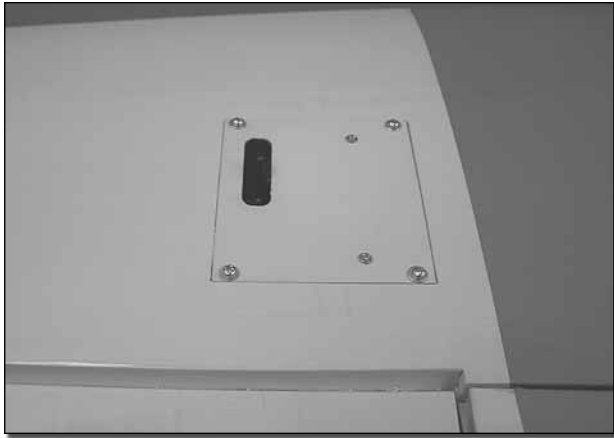
❑❑ 5. Using a 5/64" [2mm] drill bit, enlarge the outer hole on the servo horn. Place the servo onto the servo mounting blocks. Drill through the servo mounting holes with a 1/16" [1.6mm] drill bit. Remove the servo from the servo cover. Install and then

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 onto the servo cover using the hardware included with your servo. Center the servo. Then install a servo arm as shown.

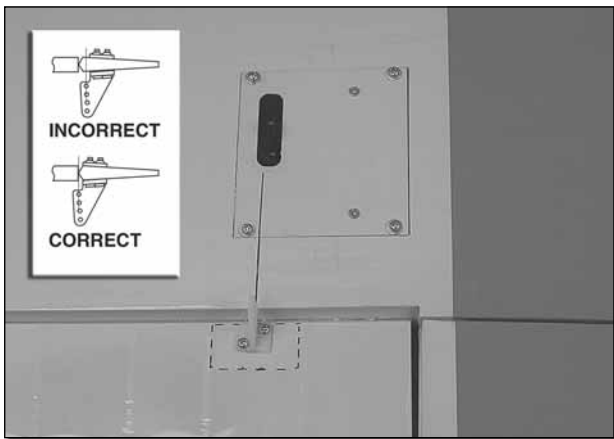


❑❑ 6. Inside the servo bay a string is taped. Tie the string to the servo extension. Pull the string and the servo lead through the wing. **Do not untie the string from the servo lead.**



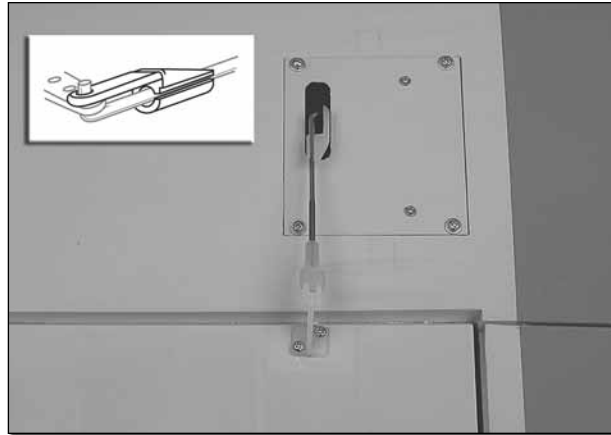


❑ ❑ 7. Place the servo cover onto the wing. **The opening for the servo arm should be pointed towards the wing tip.** Drill a 1/16" [1.6mm] hole through each corner of the cover. Remove the cover. Then install and remove a #2 x 3/8" [10mm] screw into the holes you drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has hardened, mount the servo cover with #2 x 3/8" [10mm] screws and #2 flat washers.



❑ ❑ 8. Place a nylon control horn in line with the outer hole in the servo arm. When positioned properly the control horn will rest on a hardwood 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 #2 x 3/8"

[10mm] screw into each of the holes. Apply a couple drops of thin CA into the holes to harden the threads. Once the glue has hardened attach the horn to the aileron with two #2 x 3/8" [10mm] screws.



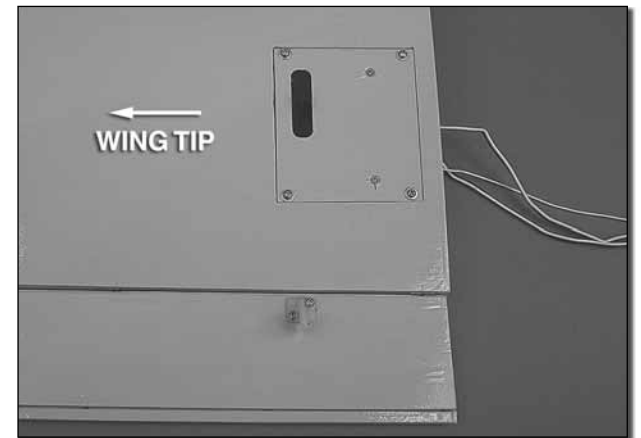
❑ ❑ 9. Screw a nylon clevis onto a .074 x 6" [152mm] threaded wire 20 turns. Slide a nylon clevis retainer onto the clevis. Install the clevis into the second hole from the end of the control horn. Then slide the silicone retainer over the clevis. Center the servo and the aileron. With a fine tip marker, mark the wire where it aligns with the outer hole of the servo arm. Make a 90 degree bend on the mark. Cut the wire so the wire is 3/8" [10mm] in length after the bend. Insert the wire into the servo arm and lock it in place with a nylon Faslink.™

❑ ❑ 10. Glue two 5/16" x 3/4" x 3/4" [8 x 19 x 19mm] hardwood blocks to the flap **servo cover**. Position the blocks so the servo fits between the blocks.

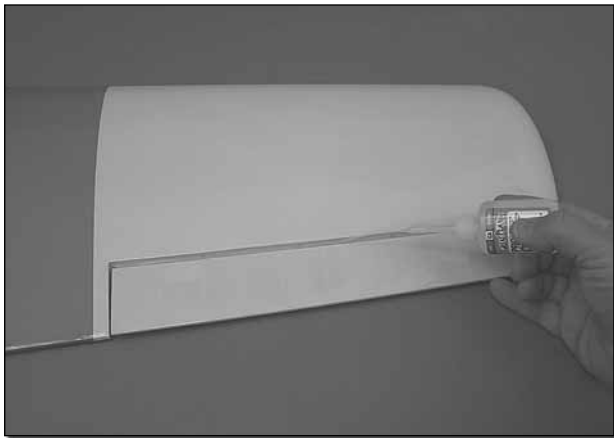
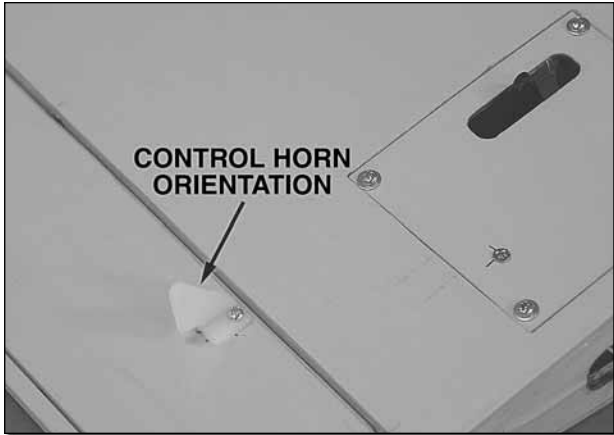
❑ ❑ 11. Drill a 1/16" [1.6mm] hole through the servo cover into the center of the servo mounting blocks. Install and then remove a #2 x 3/8" [10mm] wood screw into the holes you drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has cured install the screws into the servo cover.

❑ ❑ 12. Place the servo onto the servo mounting blocks. Drill through the servo mounting holes with a 1/16" [1.6mm] drill bit. Remove the servo from the servo cover. 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 onto the servo cover using the hardware included with your servo. Center the servo and then install a servo arm as shown.

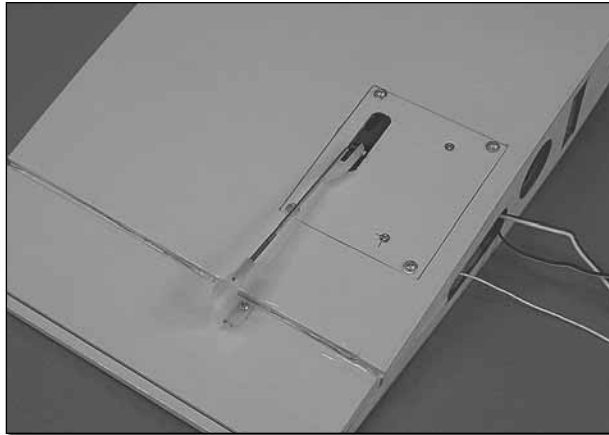
❑ ❑ 13. Tie the flap servo lead to the string with the aileron servo lead. This one string will be used to pull the leads through the wing center section.



❑ ❑ 14. Place the flap servo cover onto the wing. For the right wing **the opening for the servo arm should be pointed towards the wing tip.** (For the left wing the servo will be located toward the root rib.) Drill a 1/16" [1.6mm] hole through each corner of the cover. Remove the cover. Then install and remove a #2 x 3/8" [10mm] screw into the holes you drilled. Apply a drop of thin CA into the holes to harden the threads. Once the glue has hardened, mount the servo cover with #2 x 3/8" [10mm] screws and #2 flat washers.



15. Place a nylon control horn in line with the outer hole in the servo arm. Place the nylon control horn backwards from what would be considered the normal mounting position, in line with the outer hole in the servo arm. (This provides better mechanical advantage for the flap operation). When positioned properly the control horn will rest on a hardwood plate in the flap. Mark the location of the mounting holes onto the flap. Drill a 1/16" [1.6mm] hole on the marks, drilling through the plywood plate *but not* through the top of the flap. Insert and remove a #2 x 3/8" [10mm] screw into each of the holes. Apply a couple drops of thin CA into the holes to harden the threads. Once the glue has hardened attach the horn to the flap with two #2 x 3/8" [10mm] screws.

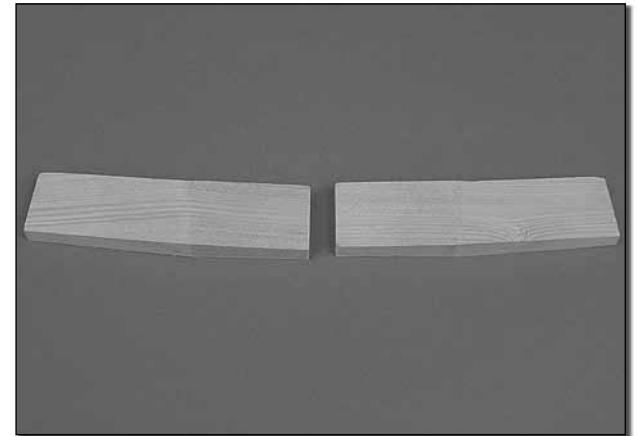


16. Screw a nylon clevis onto a .074 x 6" [152mm] threaded wire 20 turns. Slide a nylon clevis retainer onto the clevis. Install the clevis into the second hole from the end of the control horn. Then slide the silicone retainer over the clevis. Position the flap tight to the bottom of the wing. Position the servo arm so that it is pointed towards the trailing edge of the wing. With a fine tip marker, mark the wire where it aligns with the outer hole of the servo arm. Make a 90 degree bend on the mark. Cut the wire so the wire is 3/8" [10mm] in length after the bend. Insert the wire into the servo arm and lock it in place with a nylon Faslink.

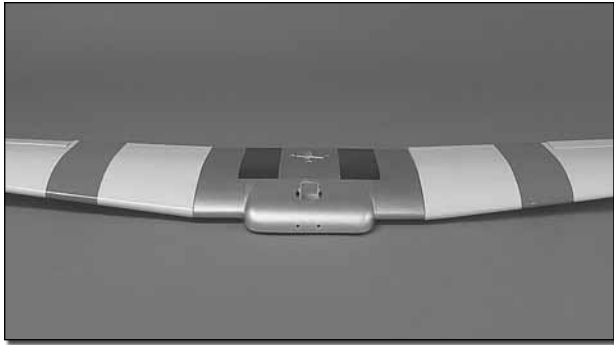
17. Repeat steps 1-15 for the left wing panel. **Important! At step 13 pay close attention to be sure you install the flap servo properly for the left wing.**

INSTALL THE WING JOINERS AND JOIN THE WING HALVES

Important! Be sure to take your time and follow the instructions for installing the wing joiners. Because of the unusual angles of the joiner it can be confusing. Taking your time will insure a proper assembly. It is recommended that you read completely through the instructions and pay attention to the pictures before proceeding with the joiner and joining the wing.



1. Locate two hardwood **wing joiners**. Slide the joiners completely into the joiner pocket of the wing center section. When you have the joiners matched to the correct side of the wing center section, they will fit without force. There will be a slight upward angle of the joiner extending from the center section.



❑ 2. Slide the wing panels in position, making sure that they fit the joiner properly and are flush to the center section.

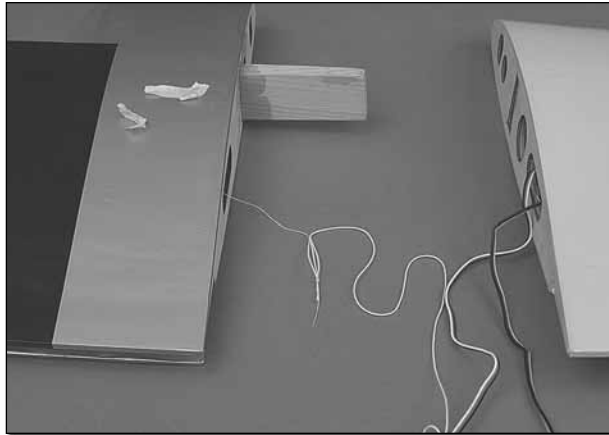
❑❑ 3. Once you have a good fit, remove one wing panel and mark the joiner so you will have the proper orientation when you permanently glue it in place.

❑ 4. Repeat step 3 for the other joiner.

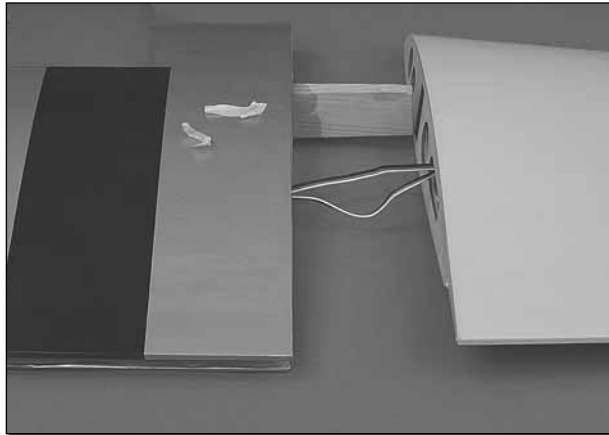


❑ 5. On each outer rib of the center section there is a string taped. Remove the tape and re-apply the tape and string onto the top of the center section.

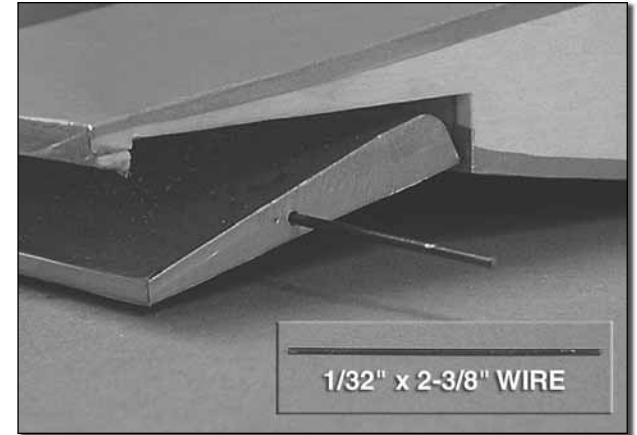
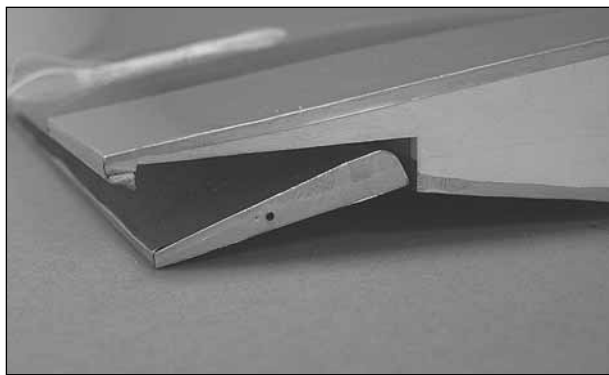
❑❑ 6. Liberally apply 30 minute epoxy to the end of the wing joiner that fits into the wing center section and into the joiner pocket of the wing center section. Slide the joiner into the pocket. Any excess glue that may come out when the joiner is inserted can be spread onto the outer rib of the wing center section.



❑❑ 7. Tie the aileron and flap servo lead string from the wing to the string from the wing center section.

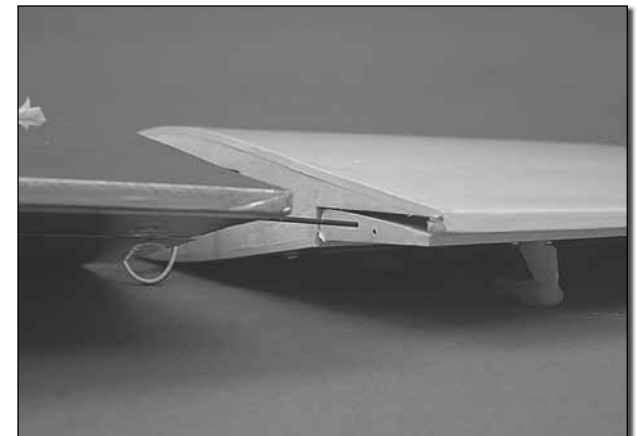


❑❑ 8. Pull the servo leads into the wing center section

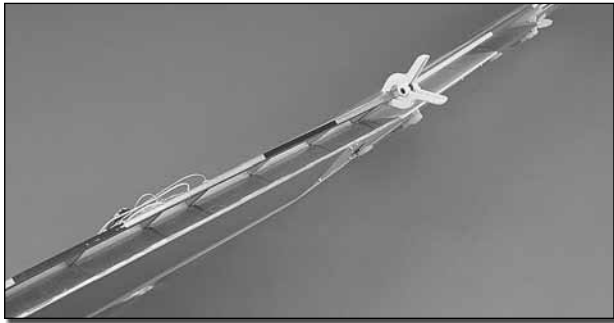
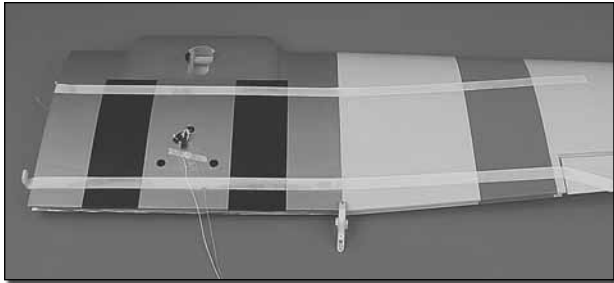


❑❑ 9. Locate one of the 1/32" x 2-3/8" [1 x 61mm] piano wires. On the end of the flap there is a small hole. Insert the wire into the hole. **No glue is used on this wire!**

❑❑ 10. Apply epoxy to the other end of the wing joiner, the joiner pocket in the outer wing panel, the rib of the wing center section and the rib of the outer wing panel.

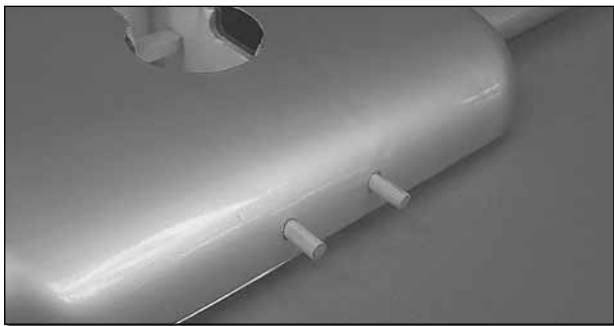


❑❑ 11. Slide the wings together, making sure you pull the servo leads into the center section. The wire needs to be slid into the hole in the outer wing panel flap. Once you are sure the wire is in the hole of both the center and outer wing panel flaps, slide the two panels together.



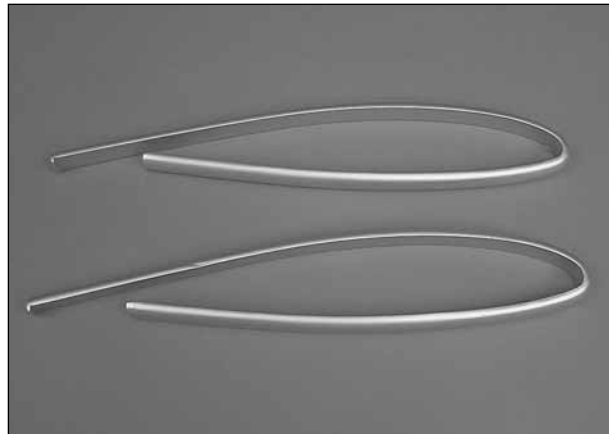
☐☐ 12. Tape the panels together and set the wing aside until the glue has cured. Open up the flap so that they are not accidentally glued shut. *(When you open the outer flap, the flap in the center section should move with the outer flap. If not, pull the wings apart and be sure the piano wire is in the holes of both the outer wing and center section flaps.)* If there are small gaps where the two panels join, don't worry about correcting this. There is a joiner cover that will be glued over the joint in a later step.

☐ 13. Repeat steps 6-13 for the left wing panel.



☐ 14. Locate two 1/4" x 7/8" [6 x 48mm] wood dowels. Push them all the way into the holes in the leading

edge of the wing. Once fully inserted, mark the dowel with a pencil to know how much of the dowel to apply glue to. Apply epoxy into the holes in the leading edge of the wing center section and a film of epoxy onto the dowels. Insert them into the holes. Wipe excess epoxy from the dowels with rubbing alcohol.



☐ 15. Locate the two joiner covers. Trial fit one of these over the wing joint.



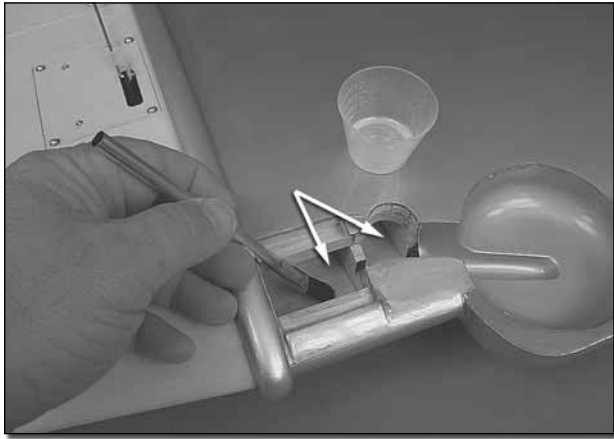
☐ 16. Once properly positioned draw the outline onto the top and bottom of the wing with a fine tip marker.



☐ 17. Between the lines you drew, cut away the covering in three or four locations along the width of the wing. Apply epoxy to the exposed wood areas. Then, position the joiner in place over the wing joint. Clamp or hold the joiner in place until the glue cures.

Did you know... Variously called the Texan (USAAF), Harvard (RAF), Yale, I-Bird, Mosquito, Wirraway (Australia), T-6 and SNJ (USN), the AT-6 appeared in 1940. In all, over 17,000 aircraft were produced, not taking into account the numbers rebuilt from existing airframes, or others that used the AT-6 technology, such as the P-64 or Boomerang.

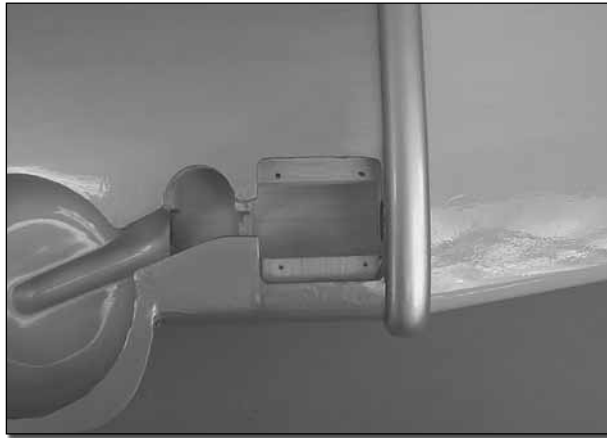
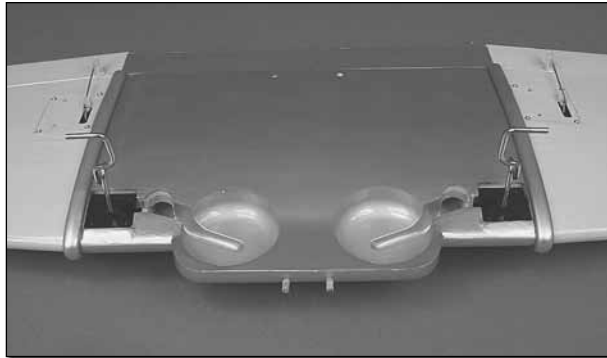
INSTALL THE RETRACTABLE LANDING GEAR AND WHEELS



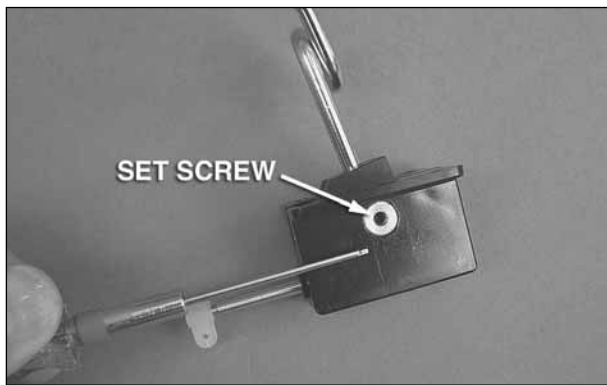
❑ 1. This step is recommended but optional. Mix a small amount of epoxy and thin it 40% with alcohol. Brush the epoxy into the cavity of the wheel area to fuel proof inside the wing. You could also choose to do this with a high-quality black paint to fuel proof it and give it a more finished look.



❑ 2. Install your retract servo between the mounting rail in the wing center section using the hardware that came with the servo.



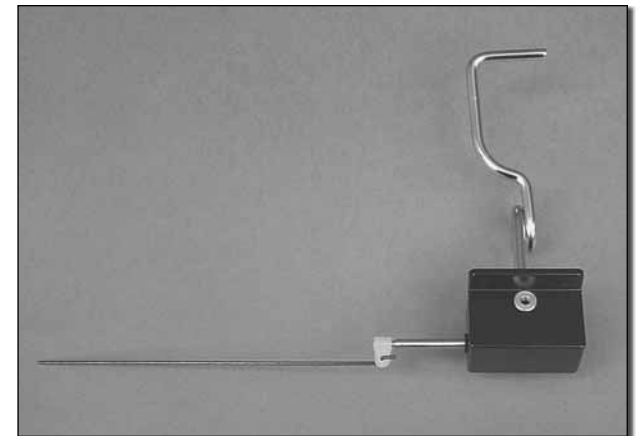
❑ 3. Position the landing gear onto the landing gear rails as shown here. With a pencil or fine tip marker, mark the location of the holes for mounting the retracts.



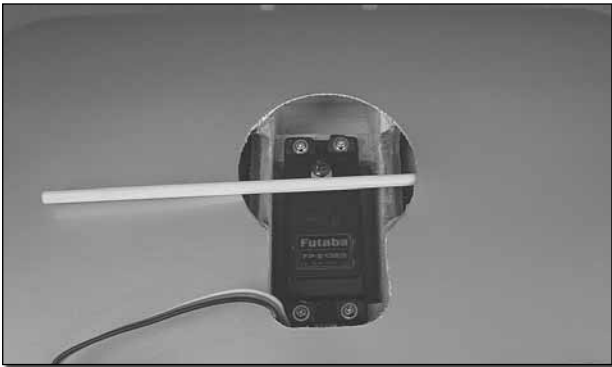
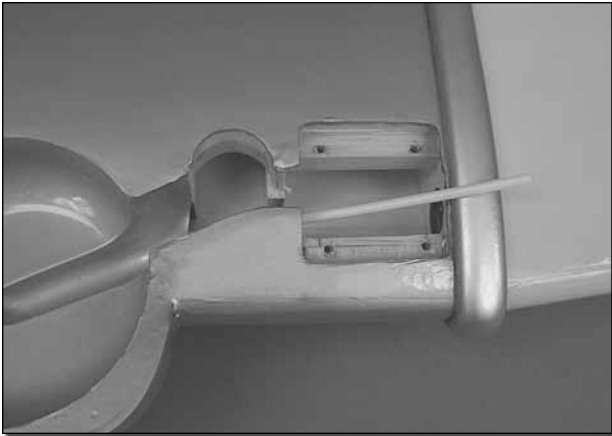
❑ 4. Remove the set screw from each side of the landing gear mount. Apply a couple of drops of

thread locker onto the set screw. Then re-insert it and tighten it against the landing gear wire. Do this for both gear.

❑ 5. On the marks you made for the location of the landing gear drill a 1/8" [3mm] hole through the rails. **Do not drill through the top of the wing!** Insert and remove a #6 x3/4" [19mm] screw into each of the holes. Apply a couple drops of thin CA into the holes to harden the threads. Allow the glue to harden.



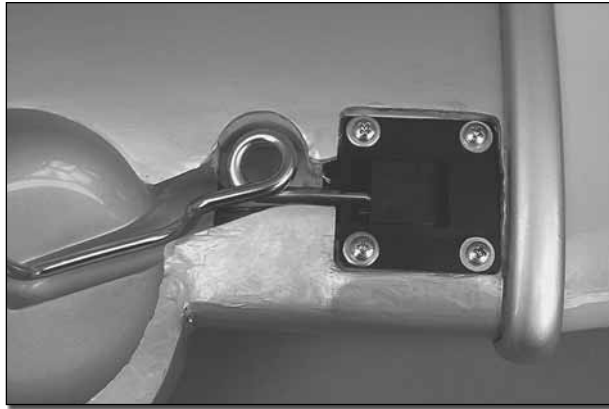
❑ 6. Locate one of the 6" [152mm] wires with the "Z" bend on the end. Insert the end with the "Z" bend into the connector on the end of the retract unit.



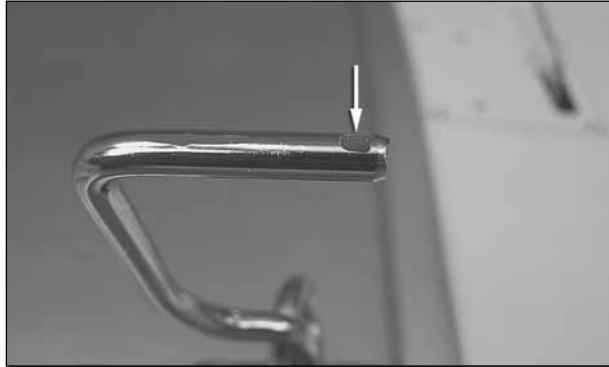
❑❑ 7. Insert the 12" [305mm] flexible plastic tube into the wheel opening, sliding it into the wing until it exits out at the retract servo.



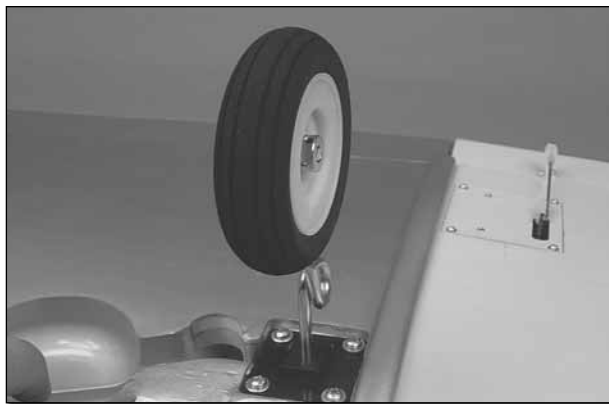
❑❑ 8. Insert the wire from the retract into the tube. Using the tube as a guide, push the wire into the wing until the landing gear can rest on the landing gear rails. Remove the plastic tube.



❑❑ 9. Mount the retract to the rail with four #6 x 3/4" [19mm] screws and four #6 flat washers.

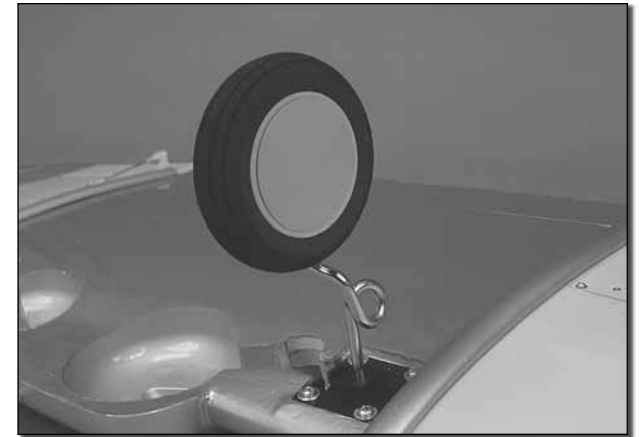


❑❑ 10. File a flat spot onto the end of the axle.



❑❑ 11. Apply a drop of thread locker to two 2mm set screws. Then thread the set screws into two

5mm wheel collars. Slide one wheel collar onto the axle followed by the wheel and another wheel collar. Position the outer wheel collar at the end of the axle and then tighten the set screw against the flat spot you created on the axle. Push the inner wheel collar against the wheel but not tight enough to interfere with the wheel's ability to spin freely on the axle.



❑❑ 12. Snap the wheel cover onto the wheel. Be sure the wheel spins freely. If not, most likely the wheel collar needs to be adjusted so it is not rubbing against the wheel cover.

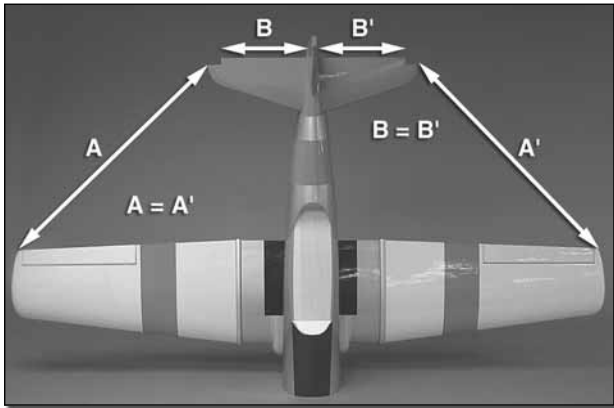
❑ 13. If you have not been doing both retracts, repeat steps 3-13 for the other landing gear

❑ 14. We will cover how to set up and adjust the retract servo and the landing gear when we get to the radio installation instructions.

BUILD THE FUSELAGE

INSTALL THE STABILIZERS, ELEVATORS AND RUDDER

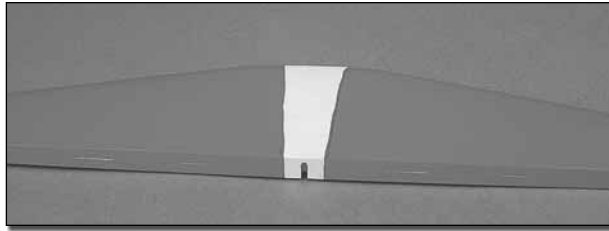
For the installation of the stabilizer you will need to have rubbing alcohol on hand for clean up. If you do not have any, **DO NOT START THIS INSTALLATION UNTIL YOU DO!** It is suggested that you read the next few steps to better understand the process before actually gluing components in place.



❑ 1. Temporarily attach the wing to the fuselage with two 1/4 - 20 nylon wing bolts. Slide the **horizontal stabilizer** in place in the back of the fuselage. Position the stab so that it is equal in length on both sides of the fuselage and that the distance from the wing tip to the stabilizer tip is equal.



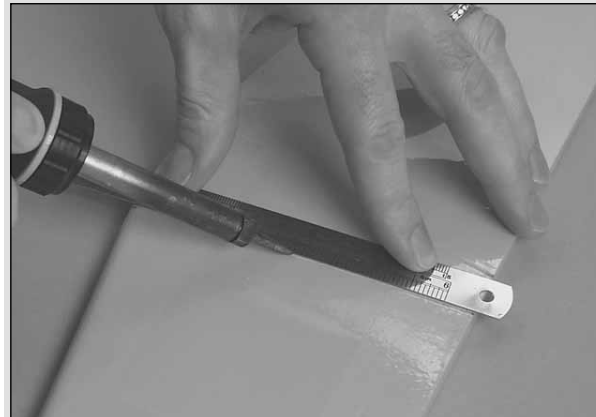
❑ 2. When you are satisfied with the positioning, mark the outline of the fuselage onto the top and the bottom of the stabilizer with a fine point - felt tip pen.



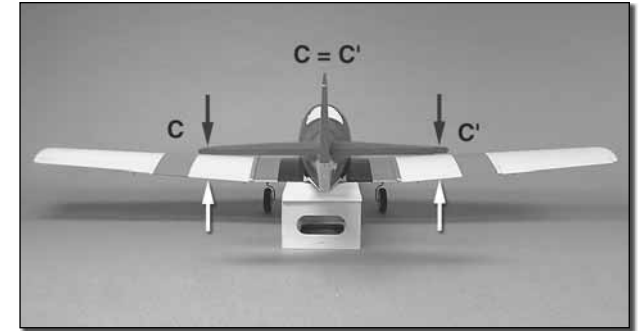
❑ 3. Inside of the line you have marked, cut the covering from the stabilizer following the method in the “Hot Tip” that follows or use a sharp hobby knife making sure you do not cut into the surface of the wood. Cutting the surface of the wood will weaken the structure! Be sure to cut the covering from the top, bottom and the end of the horizontal stabilizer.



HOW TO CUT COVERING FROM Balsa



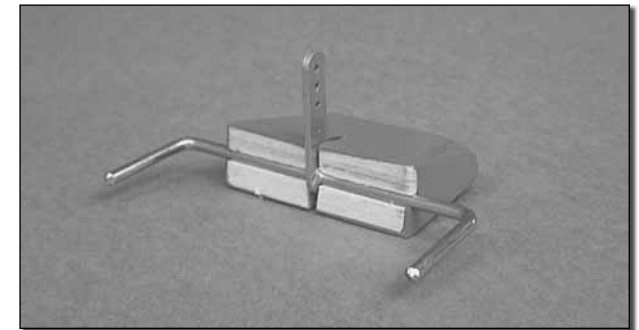
Use a soldering iron to cut the covering from the stab. The tip of the soldering iron doesn't have to be sharp, but a fine tip does work best. Allow the iron to heat fully. Use a straightedge to guide the soldering iron at a rate that will just melt the covering and not burn into the wood. The hotter the soldering iron, the faster it must travel to melt a fine cut. Peel off the covering.



❑ 4. Slide the stab into the opening in the rear of the fuselage. Stand back a few feet and look at the stab in relation to the wing. The stab should be parallel and in line with the wing. If you find that your stab is not aligned, adjust the stab by removing small amounts of the stab saddle with 100 grit sand-paper.



❑ 5. Locate the stab **filler block**. Cut the covering from the block as shown.



❑ 6. Locate the **elevator joiner wire**. Insert it into the slots in the filler block, making sure it can move easily in the slots.

❑ 7. Locate one of the 2-56 x 36" [914mm] pushrod wires. Onto the threaded end of the wire install a silicone clevis keeper, 2-56 nut and a 2-56 metal clevis, 15 to 20 turns. Apply a couple of drops of thread locker onto the threads. Then tighten the nut against the clevis.



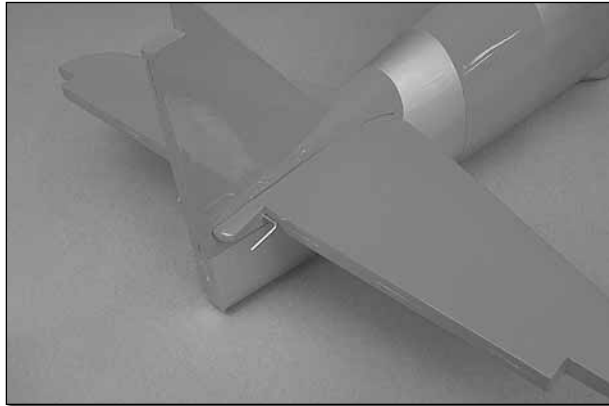
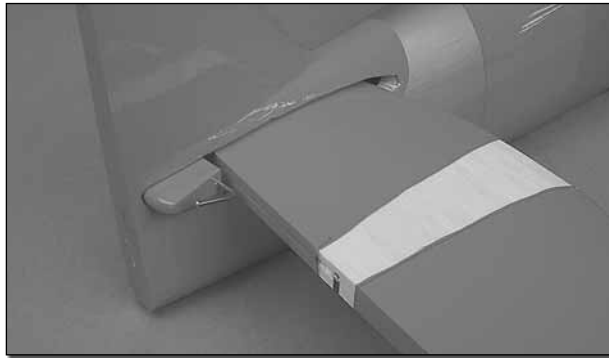
❑ 8 Slide the end of the wire into the plastic tube at the stab opening in the fuselage.



❑ 9. Place the joiner wire into the stab opening and attach the clevis into the last hole in the arm of the joiner wire. Slide the silicone clevis keeper over the clevis.

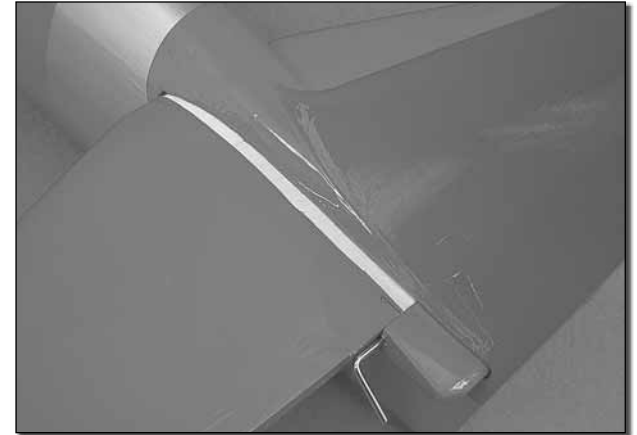
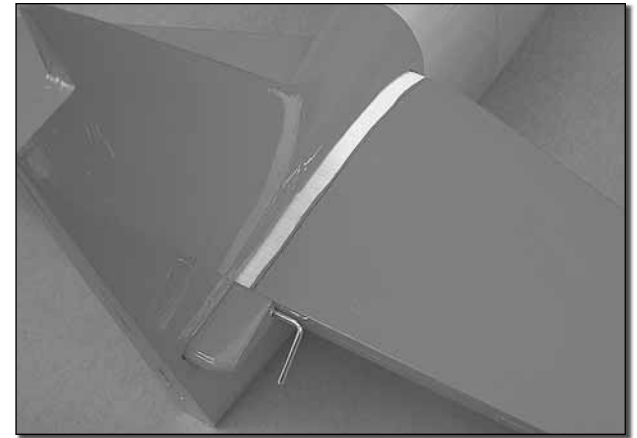


❑ 10. Position the filler block in the back of the stab opening. Locate the joiner wire into the filler block as shown. Apply a couple of drops of oil to the wire as done with the flap hinges.

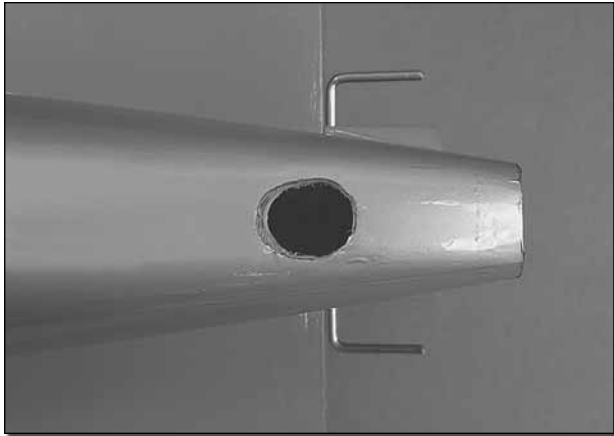


❑ 11. Slide the stab into the stab opening. Apply a small amount of glue to the block, gluing it to the

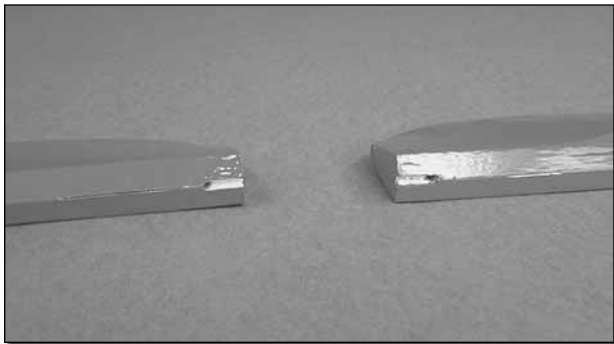
trailing edge of the stab. Be careful not to get glue on the wire.



❑ 12. Move the stab to the right and left, exposing the wood where you cut the covering away. Apply 30-minute epoxy to the wood on both the top and bottom of the stab. Work the glue into the stab opening by moving the stab back and forth. When you are satisfied with the penetration of the glue, clean away the excess epoxy from the stab and fuselage with a cloth dampened with alcohol. Once cleaned, double check the stab position and check to be sure the wing joiner wire moves freely. Set it aside to cure.



❑ 13. On the bottom of the fuselage there is a hole that is large enough to get a forceps or small pliers up to the clevis. Should you ever need to make additional adjustments to the clevis, you can cut the covering away to reveal the hole. The hole can be covered over with the small piece of silver MonoKote included in the kit.

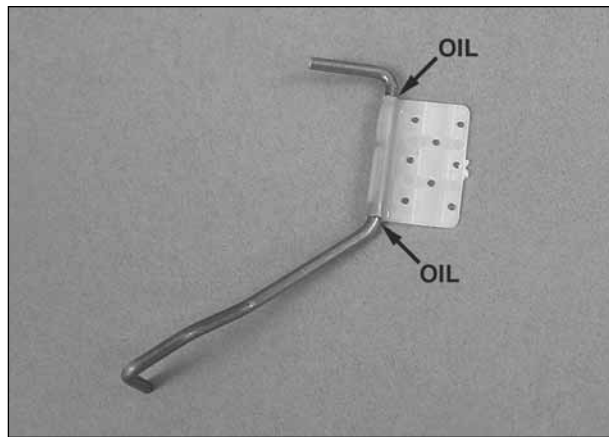


❑ 14. Apply a small amount of epoxy into the slot and hole for the joiner wire in each elevator half.

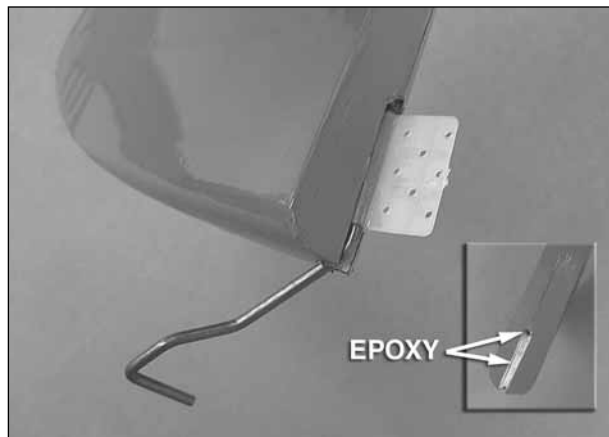
❑ 15. Cut nine 1" x 1" [25 x 25mm] hinges from a CA hinge strip. Insert three hinges into the elevator. If the hinges don't remain centered, stick a pin through the middle of the hinge to hold it in position. Slide the hinges into the elevator.

❑ 16. Remove any pins you may have inserted into the hinges. Adjust the elevator so there is a small gap between the LE of the elevator and the stab. The gap

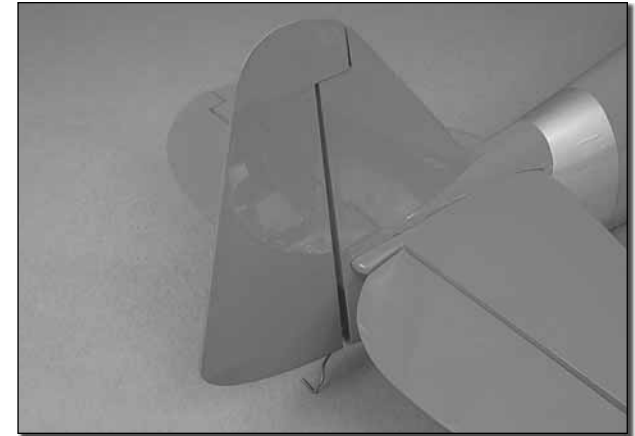
should be small, just enough to see light through or to slip a piece of paper through. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully hardened, test the hinges by pulling on the elevator. Do this for both elevator halves.



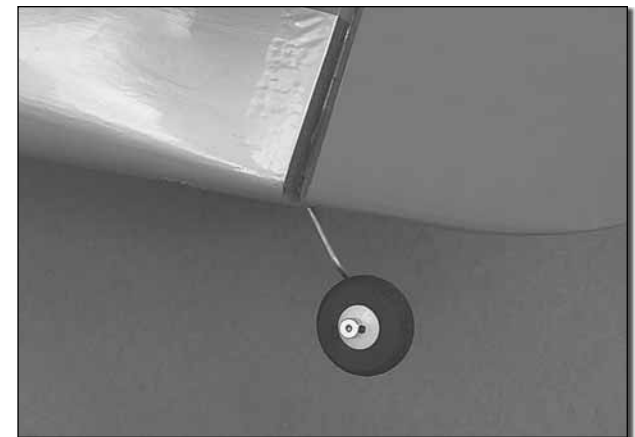
❑ 17. Apply a couple of drops of oil into the nylon bearing. This will prevent glue from getting into the joint and causing the rudder to bind.



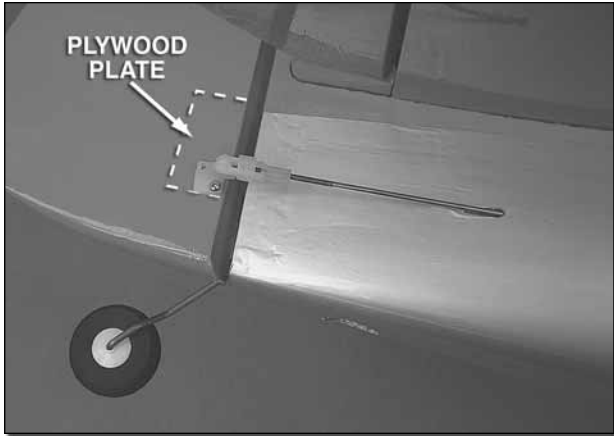
❑ 18. Apply a small amount of epoxy into the hole and the slot in the rudder. Insert the tail wheel assembly into the rudder and allow the glue to cure.



❑ 19. Install three hinges into the rudder the same as done with the elevator. Test fit the rudder to the fin. If necessary, use your modeling knife to adjust the hinge slot for the nylon bearing. When installing the rudder, the nylon bearing from the tail wheel assembly must also fit into the fin. Once satisfied with the fit, remove the rudder. Put some epoxy onto each side of the nylon bearing. Then re-insert the rudder back onto the fin. When you are satisfied with the final fit apply six drops of thin CA to both sides of each hinge.



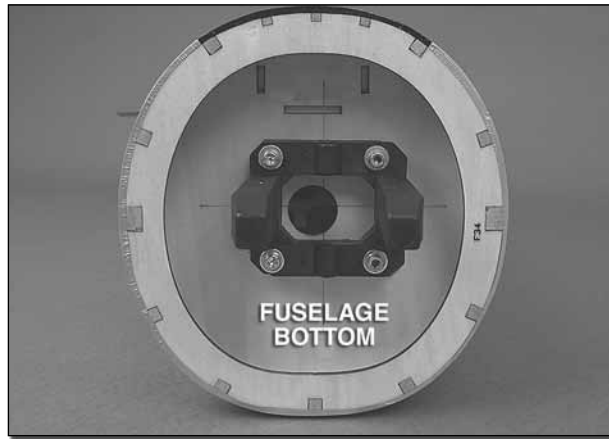
❑ 20. Slide the tail wheel onto the tail wheel wire. Secure it in place with a 1/8" [3mm] wheel collar and 2-56 set screw. Be sure to use threadlock on the set screw.



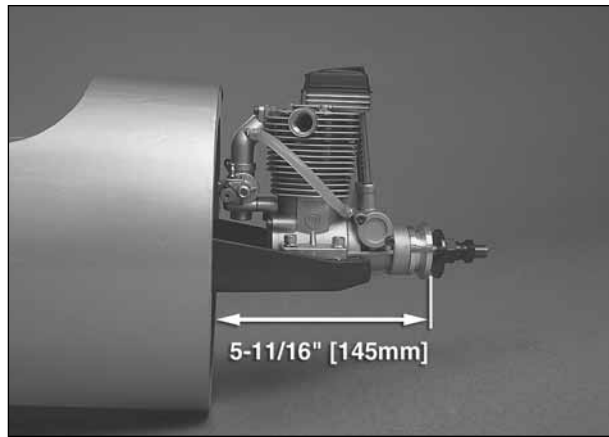
❑ 21. Screw a nylon clevis onto a .074 x 36" [914mm] threaded wire 20 turns. Slide a nylon clevis retainer onto the clevis. Install the clevis into the outer hole of the control horn. Then slide the silicone retainer over the clevis. Mark the location for the control horn onto the rudder. Drill a 1/16" [1.6mm] holes into the plywood plate in the rudder. **Do not drill through the rudder.** Secure the horn to the rudder with #2 x 3/8" [10mm] screws.

Did you know...The AT-6 Texan became the classroom for the majority of the Allied pilots who flew in World War II, and trained several hundred thousand pilots in 34 different countries. Its basic design was as a trainer, with the characteristics of a high speed fighter, and was well suited to the intermediary task of training pilots before letting them loose in an actual fighter aircraft. Although not as fast as a fighter, it was easy to maintain and repair, had more maneuverability and was easier to handle. A pilot's airplane, it could roll, Immelmann, loop, spin, snap, and vertical roll. It was used to train pilots in all aspects of tactical operations, such as dog-fighting, ground strafing, carrier landings, and bombardment. It also included the capacity for fixed and flexible guns, cameras, and just about any other device that the military required.

INSTALL THE ENGINE FUEL TANK AND THROTTLE SERVO

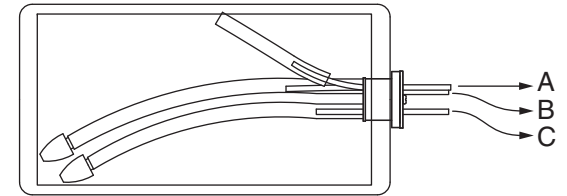


❑ 1. Bolt the engine mount to the firewall with four 8-32 x 1" [25mm] socket head cap screw, #8 lock washer and #8 flat washer. Place your engine on the mount and adjust the mounting rail position to match. Then tighten the bolts.



❑ 2. Position the engine on the mount so the distance from the firewall to the front of the thrust washer measures 5-11/16" [145mm]. 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 with a #29 or 9/64" [3.6mm] drill bit. Tap each hole with an 8-32 tap.

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



A: TO MUFFLER
B: TO CARBURETOR
C: FILL LINE

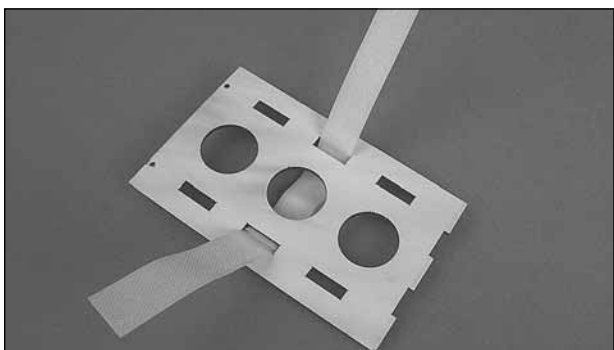


❑ 4. Assemble the **fuel tank** as shown in the sketch. When tightening the center screw, be sure not to overtighten it. You just want it snug enough to pull the rubber stopper tight against the tank.

❑ 5. Install silicone fuel tubing (not supplied) onto the aluminum tubes from the fuel tank. One line with the fuel clunk will feed to the fuel inlet at the needle valve. The second line with the fuel clunk will be the line to fill the tank. The remaining line will attach to the pressure tap on the muffler. The fill line should be plugged after fueling with the aluminum fuel plug provided with the kit.

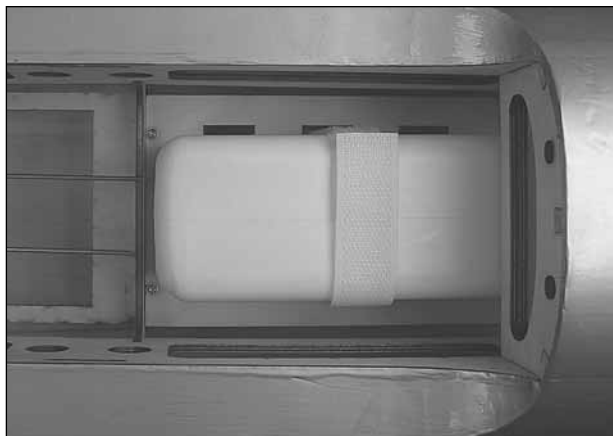


❑ 6. Locate the 6 x 6 x 90mm hardwood stick. Glue it in position on the fuselage former as shown. The stick should be glued on line with the visible tab slot.



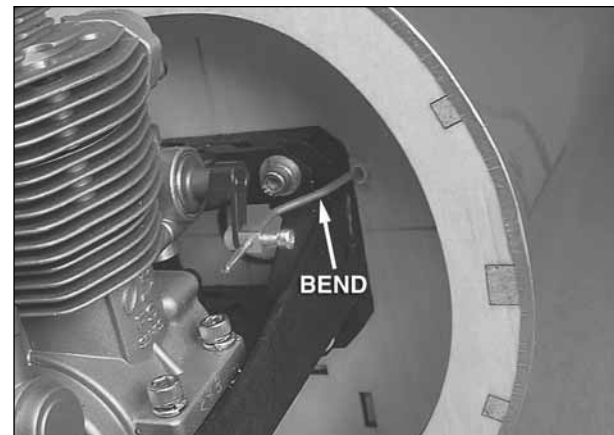
❑ 7. Cut two 6" [152mm] pieces of Velcro. Secure them to each other then insert the Velcro strap through

the center slots of the battery/receiver/fuel tank tray. Put the tray in position in the front of the fuselage. Note that the tray is cut at an angle to match the right thrust that is built into the firewall. On the front of the tray there are three tabs that will lock into slots in the back of the firewall. Slide the tabs into those slots and let the tray rest on the hardwood stick you just installed. In each corner of the tray there is a small hole. Using them as your guide, drill through the hole with a 1/16" [1.6mm] drill bit into the hardwood stick. Install and remove a #2 x 3/8" [10mm] screw into each hole. Apply a drop of thin CA in each hole. After the glue hardens, secure the tray to the hardwood stick with two #2 x 3/8" [10mm] screws and two flat washers.

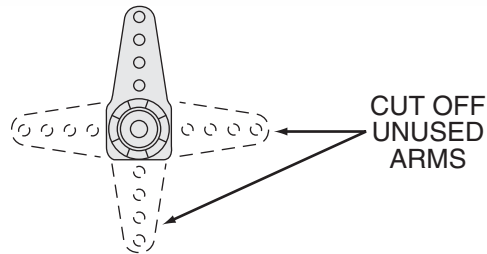


❑ 8. Slide the neck of the fuel tank into the hole in the firewall and rest the tank on the tray. Secure the tank to the tray with the Velcro strap. Note: We will not connect the fuel lines at this time because we will be removing and reinstalling the tank when we install the radio.

❑ 9. Install a brass screw lock connector onto the outer hole of the engine throttle arm. Lock it to the arm with the nylon retainer. Screw a 4-40 x 1/8" [3mm] socket head cap screw into the brass connector.



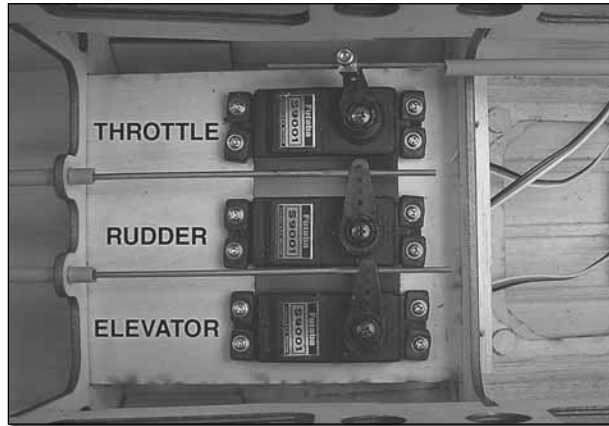
❑ 10. Determine the position where the throttle pushrod will pass through the firewall. When determining this, make sure the fuel tank does not interfere with the pushrod. If you will be drilling very close to the tank we recommend that you remove it to prevent accidentally drilling through the tank. Drill a 3/16" [4.8mm] hole in the firewall. Locate the 12" [305mm] plastic pushrod tube. Roughen one end of the tube. Then slide the tube into the hole you drilled. Glue the tube to the firewall. Cut the plastic tube just behind the fuselage former as shown. Bend the pushrod wire as needed to allow for free movement of the wire and the throttle arm. Secure the wire to the connector with the 4-40 bolt.



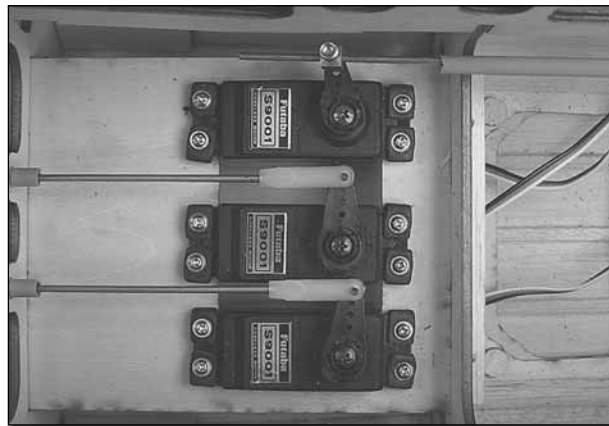
❑ 11. Install the servo into the servo tray as shown. Drill a 1/16" [1.6mm] hole through each of the servo mounting holes. Insert and remove one of the servo screws into each of the holes. Apply a couple drops of thin CA into the holes to harden the threads. Once the glue has hardened, attach the servo to the tray with four #2 x 3/8" [10mm] screws and #2 flat washers. Remove the servo arm and cut off the unused arms. Install a brass screw lock connector into the outer hole of the remaining servo arm. Slide the wire through the connector; re-attach the servo arm to the servo. Secure the pushrod wire to the servo with a 4-40 x 1/8" [3mm] socket head cap screw.

INSTALL THE RADIO SYSTEM

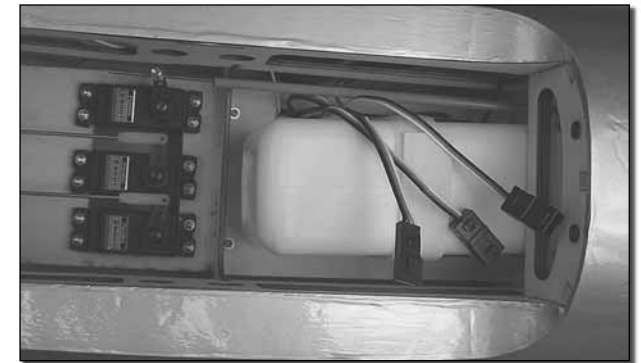
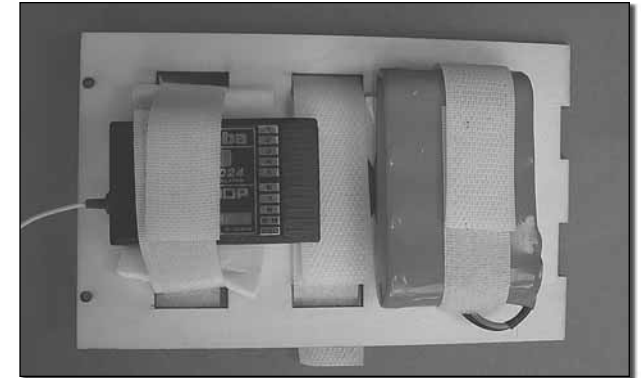
❑ 1. Remove the fuel tank and the tray from the fuselage and set it aside.



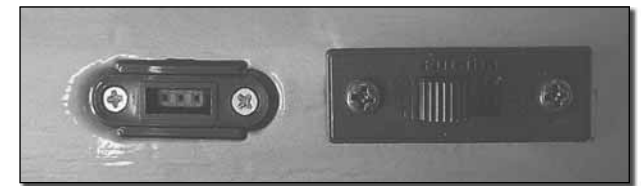
❑ 2. Use the wire pushrods as your guide for positioning the rudder and elevator servos. Install the servos using the same procedure used for the other servos, mounting them onto the servo rails. Install the servo arms onto the servos as shown.



❑ 3. Using a 5/64 [2mm] drill bit, enlarge the outer hole of the servo arms. Center the servos, elevator and rudder. With a fine tip marker, mark the wires where they align with the outer hole of the servo arms. Make 90° bends on the marks. Cut the wires so they are 3/8" [10mm] in length after the bend. Insert the wires into the servo arms and lock in place with nylon Faslinks.

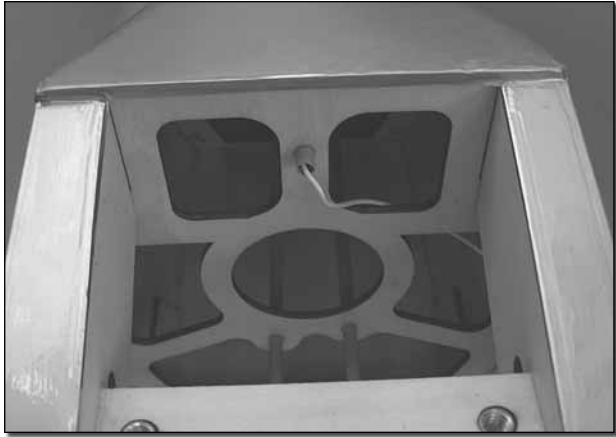


❑ 4. On the underside of the tray that the fuel tank mounts to, install the receiver and battery onto 1/4" [6mm] foam and secure them to the tray with Velcro straps. Plug the servos into the appropriate channels in the receiver. Be sure to plug in a 12" [305mm] servo extension for the retractable landing gear, flaps and aileron servos. Route the lead from the battery through one of the slots for the Velcro so that after the tray is re-installed you will be able to attach a switch to the battery. Install the tray back into the fuselage and re-install the fuel tank

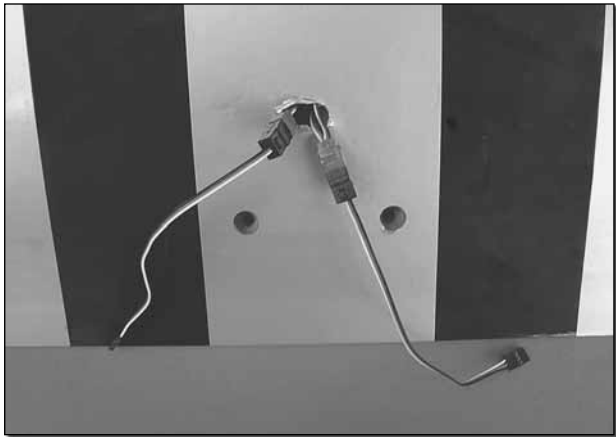


❑ 5. Plug your switch harness into the battery and secure the connector with heat shrink tube, tape or some other method to be sure the battery cannot

become unplugged. Mount the switch on the fuselage opposite the exhaust. There are a number of after market switch mounts. We used the Ernst Charge Receptacle (ERNM3001) for Futaba radios.



❑ 6. Route the antenna through the fuselage to the antenna tube and feed the wire into the tube.

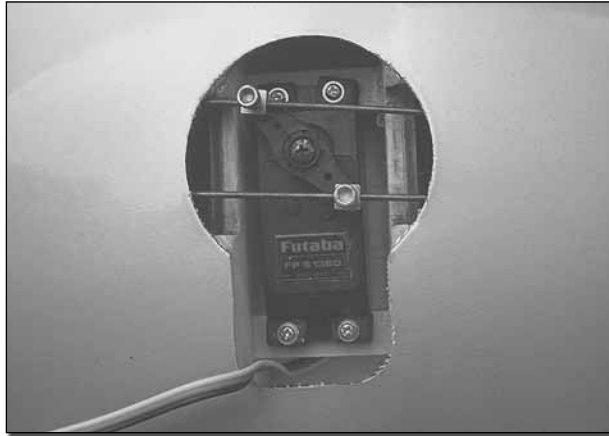


❑ 7. Plug the two flap servos and the two aileron servos into “Y” harnesses. Secure the servos to the “Y” harness with shrink tubing, tape or some other method to keep them from becoming unplugged.

❑ 8. With your radio system turned on, adjust the position of all of the servo arms and linkages until all of the control surfaces are neutral.

FINAL SET-UP OF THE RETRACTABLE LANDING GEAR SERVO

Mechanical retracts work very well when properly set up but they can be a little tedious. The following will help minimize your time required to set them properly.



❑ 1. Depending on the brand of retract servo you use, you may have to experiment with the length of the servo arm. We used the standard six arm servo, cutting off the arms except two that were 180 degree opposite of each other. In the outer hole of each arm install a brass screw lock connector and nylon retainer.

❑ 2. Turn on your radio and plug the retract servo into the receiver. Most likely your radio will have a two position switch. In one direction the switch will raise the landing gear; the other direction will lower it. Pick up the servo arm. Slide one of the wires from the landing gear into one of the brass screw lock connectors and the other wire into the other connector. Install the servo arm onto the servo but **do not** put the screw in place to hold it to the servo and **do not** install the screws into the screw lock connector.

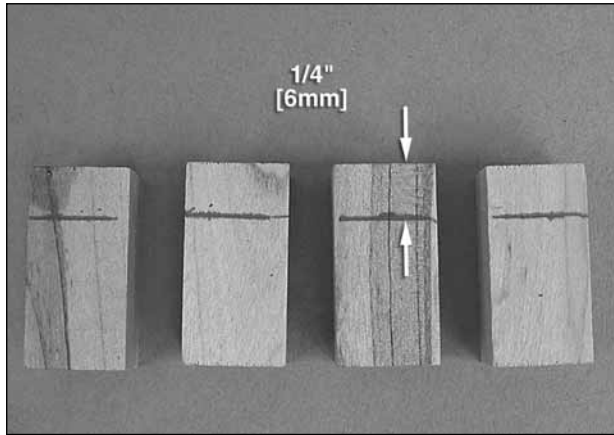
❑ 3. Flip the switch on the radio to see which way the servo arm will rotate. The servo arm will need to travel the same amount in both directions. Adjust the position of the servo arm as needed to achieve this. Install the screw to hold the servo arm in place on the servo.

❑ 4. The retracts move the landing gear up and down by either pulling the wires or pushing them. Pulling the wire will extend the landing gear. Find the switch position that the servo arm will pull the wires. Pull hard on the wire, locking the landing gear into the extended position. Install a 4-40 x 1/8" [3mm] socket head cap screw with threadlock into each of the screw lock connectors, tightening the screw against the wire.

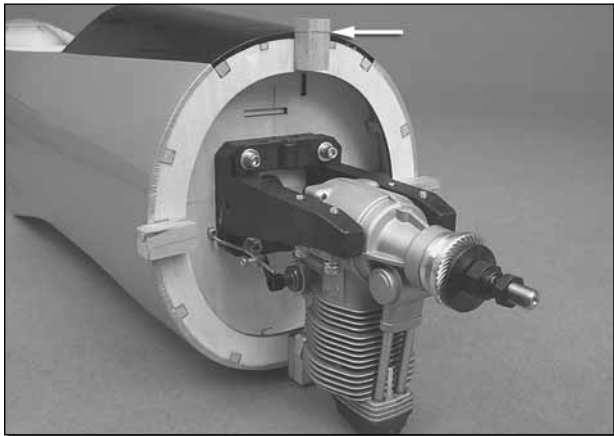
❑ 5. Flip the switch on the radio to make the landing gear retract into the wheel. If everything is set properly the wheels will retract into the wing and lock into place. Flipping the switch back the other direction will extend the gear and lock them into the extended position. If your wheels do not extend or retract fully you will need to adjust the amount of throw you are getting from the servo. If you need more throw you can consider using a longer servo arm. If you are getting too much throw you can use a smaller servo arm. If you are using a radio that has adjustable travel volume you may be able to adjust the amount of throw by adjusting it through the radio. Make whatever adjustments are needed to get the landing gear to lock in both the up and down positions. Be sure that the servo does not bind or it will draw current from the battery that could shorten your flight times. Have a little patience and take the time to make sure the gear work properly before your first flight.

Did you know...The North American Texan trainer is one of the most important aircraft of all time and is universally recognized. First built as the NA-16 in 1935, the Texan was in continual production for nearly 10 years and in active use for more than five decades. Primarily used as a trainer, the Texan remains a favorite among Warbird collectors around the world.

INSTALL THE COWL & DUMMY ENGINE

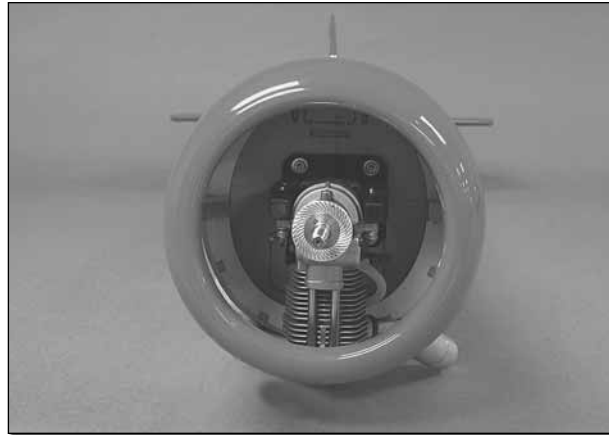


❑ 1. Locate four 1/2" x 1/2" x 1" [13 x 13 x 25mm] hardwood cowl mounting blocks. On each block mark a line 1/4" [6mm] from the end of the block.

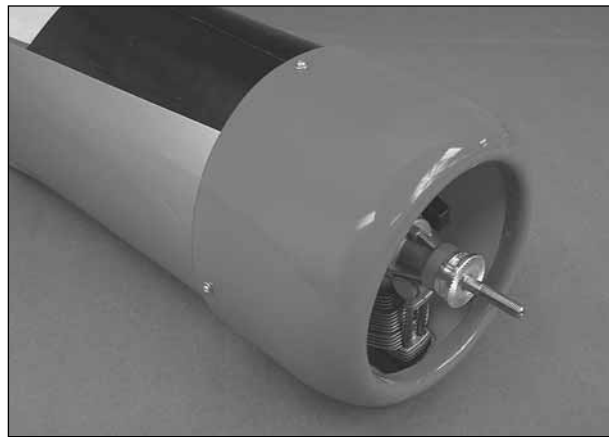


❑ 2. Epoxy each block to the front of the fuselage. Use the line you made as a guide for positioning the block. The line should be flush with the fuselage. One block should be mounted at each of the twelve, three, six and nine o'clock positions on the front of the fuselage.

❑ 3. Position the cowl onto the front of the fuselage. As you place the cowl you may find that you will need to make cut outs in the cowl to accommodate the cylinder head, muffler, needle valve, etc. Cut openings in the cowl as needed.



❑ 4. Once the cowl fits over the engine, position it on the cowl mounting block so that the engine is centered inside. To allow for proper clearance you may find it helpful to place a propeller onto the engine. Once you are satisfied with the placement of the cowl, mark the location of the cowl mounting blocks on the cowl with a fine tip felt marker. **Hint:** The cowl mounting blocks are very close to the back edge of the cowl. You should be able to easily see the location of each of the blocks from behind the cowl, allowing you to properly mark each position onto the cowl.



❑ 5. Start with the top cowl mounting block. Double check the position of the cowl. Then, on the mark you made on the cowl, drill through the cowl and into the mounting block with a 3/32 [2.4mm] drill. Install a #4 x 5/8" [16mm] screw and a #4 flat washer into the hole

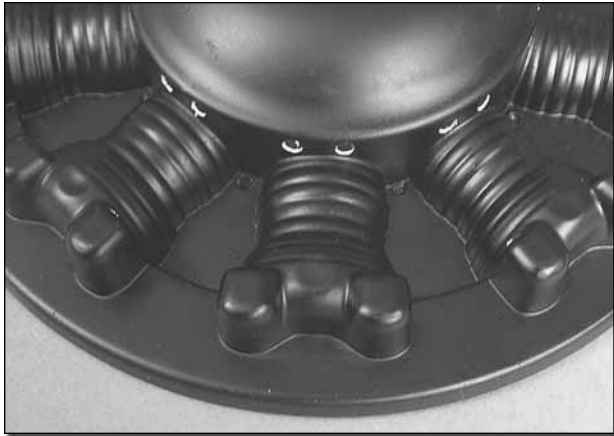
you drilled. Repeat this for each of the four mounting blocks. As you drill each hole double check to be sure your cowl remains centered on the engine. Remove the screws and cowl. Apply a couple drops of thin CA into the holes to harden the threads.



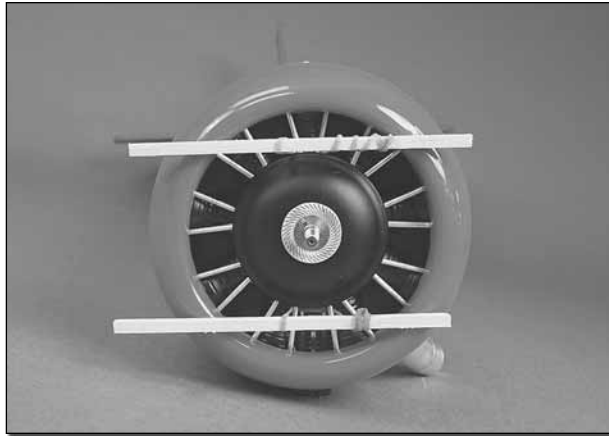
❑ 6. Cut away the portion of the dummy engine that will be in front of the engine cylinder. This is needed for proper cooling of the engine. When determining the exact location to cut, note that cylinders should be oriented as shown in the picture. We were able to cool the O.S. .91 by only cutting away a small portion of the cylinders as shown in the picture.



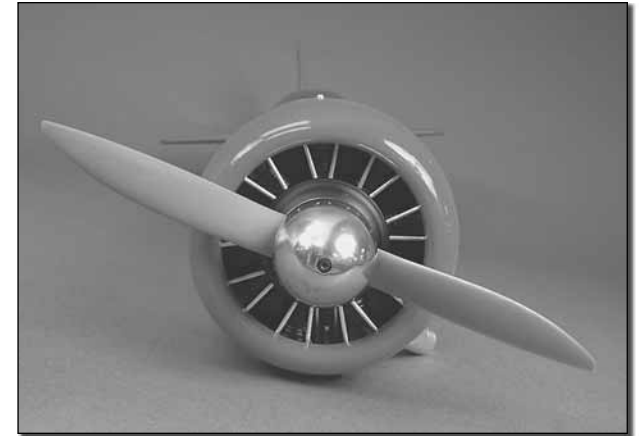
❑ 7. Drill a 1/8" [3mm] hole into each of the cylinder heads as shown.



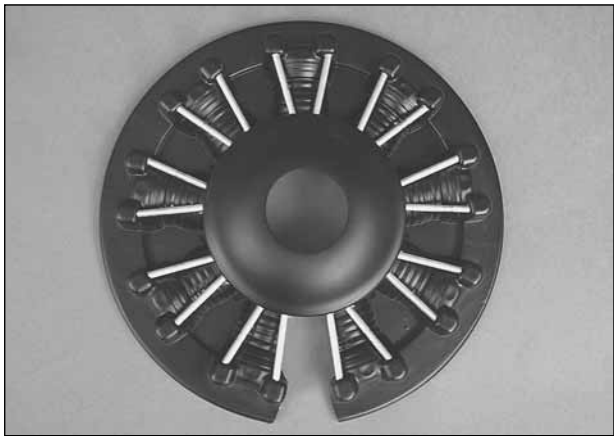
❑ 8. Drill a 1/8" [3mm] hole into each of the crankcases as shown.



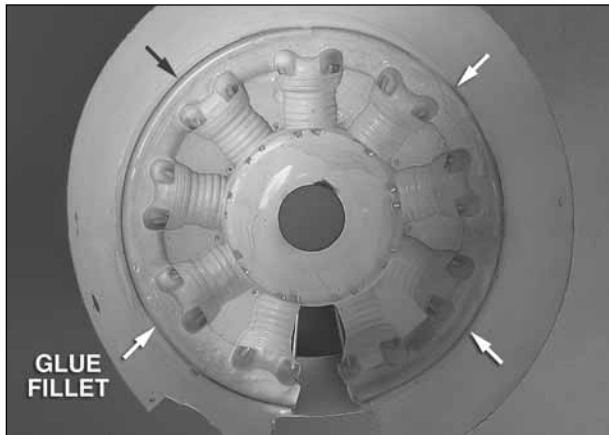
❑ 10. Slide the dummy engine over the engine shaft, and then slide the cowl in place. Rotate the dummy engine so it is properly positioned over the engine. Attach the cowl to the fuselage with the #4 screws. Use two sticks and two rubber bands (not included) to hold the dummy engine in place. Loop the rubber bands around the aluminum tubes. Then slide the stick through the rubber bands. This will temporarily secure the dummy engine in place.



❑ 12. Re-install the cowl. Install your propeller and spinner. Be sure to use thread locking compound on the screw that holds the spinner to the back plate.

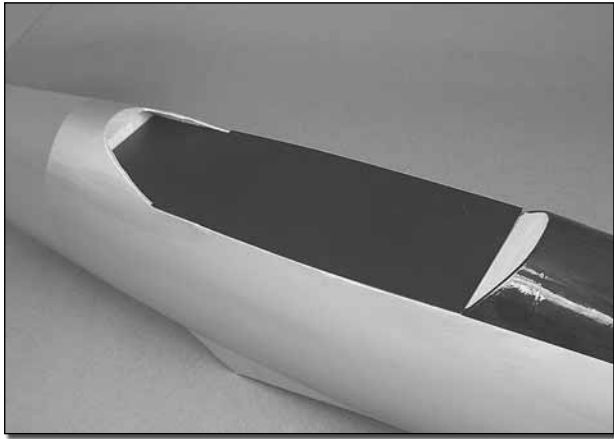


❑ 9. Install one of the 1/8" aluminum tubes into each of the sets of holes. Apply a drop of glue on the backside of the dummy engine where the tube contacts the plastic to keep them in place.

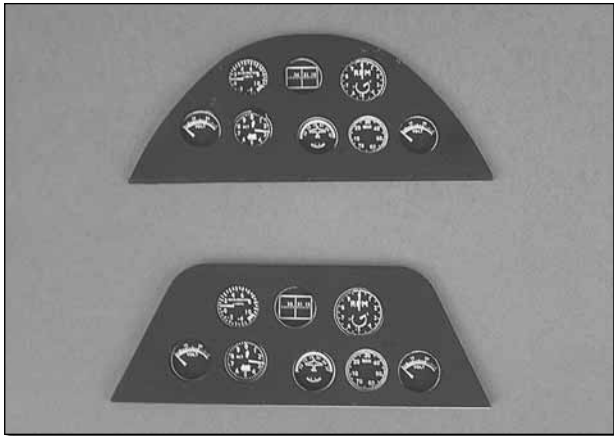


❑ 11. Carefully remove the cowl. From inside the cowl, tack glue the dummy engine in place. When you are satisfied with the fit and position, mix a small amount of 6-minute epoxy and make a fillet of glue inside the cowl to hold the dummy engine in place. Allow the glue to cure.

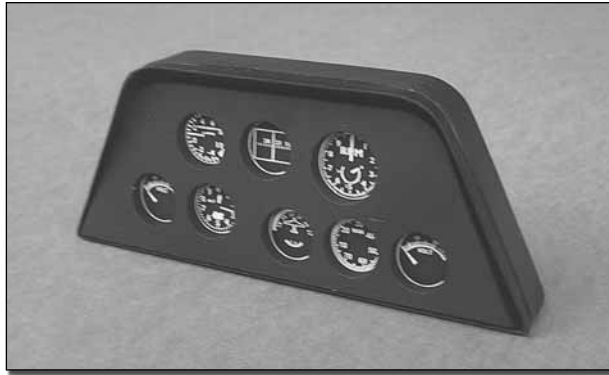
INSTALL THE COCKPIT AND REMAINING SCALE DETAILS



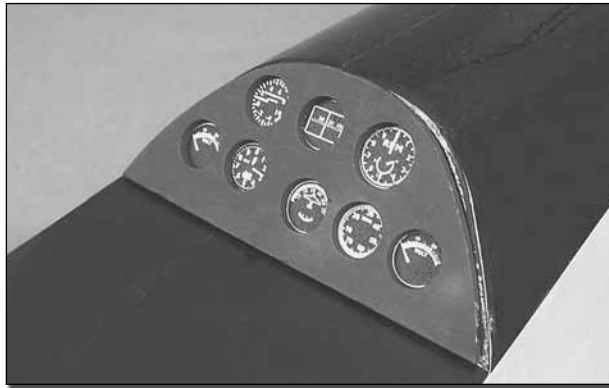
❑ 1. Glue the black plastic cockpit floor to the fuselage.



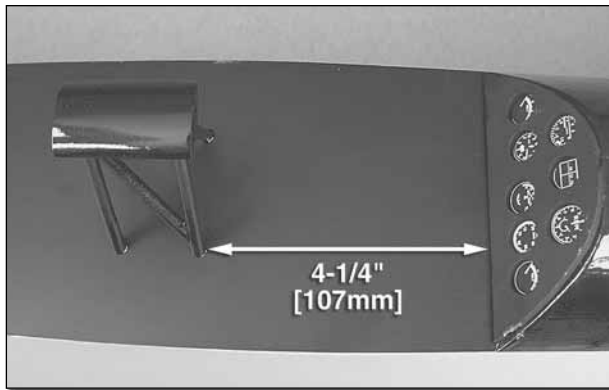
❑ 2. Locate the two instrument panels. Cut out the instrument panel from the decal sheet. Place the decal in place on the back of the instrument panel. The instruments are not placed symmetrically so there is a front and back side of the instrument panel. Once you have determined which is the back side of the instrument panel, glue the decal of the instruments to the back side of the panel.



❑ 3. Locate the plastic instrument panel housing and glue the instrument panel into it.

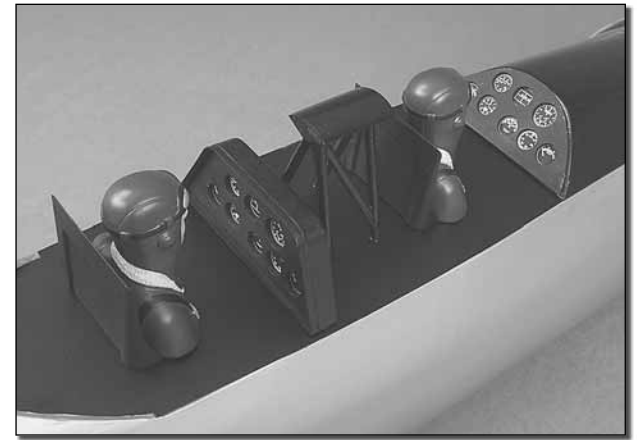
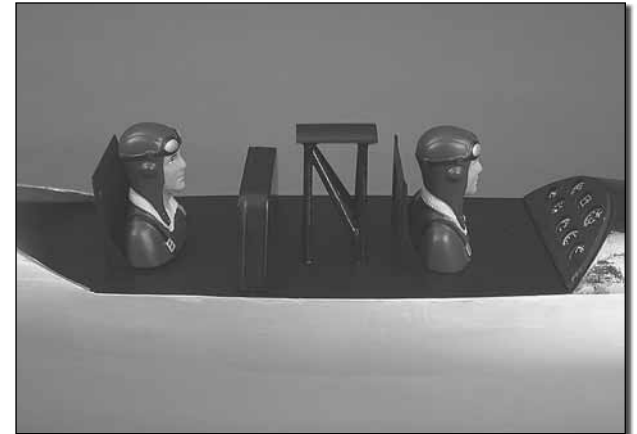


❑ 4. Glue the front instrument panel in place in the front of the cockpit.



❑ 5. Temporarily place the turn-over post in the center of the cockpit. Measure from the base of the

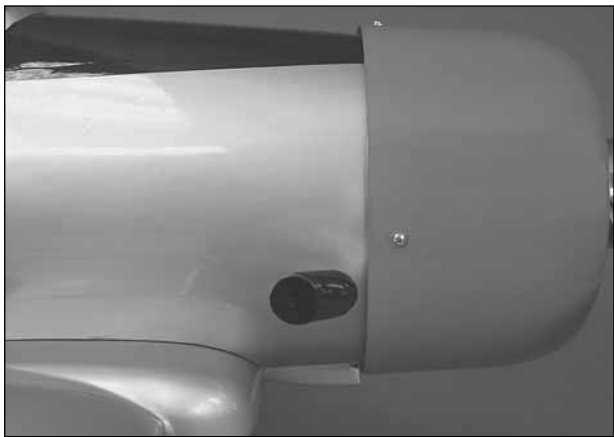
instrument panel back 4-1/4" [107mm]. This is where the front legs of the post should be glued. Glue the turn-over post in place at that position



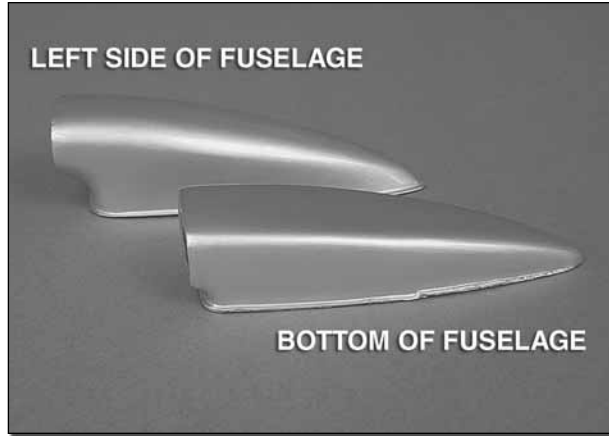
❑ 6. Glue the rear instrument panel, seat backs and pilots in place as shown.



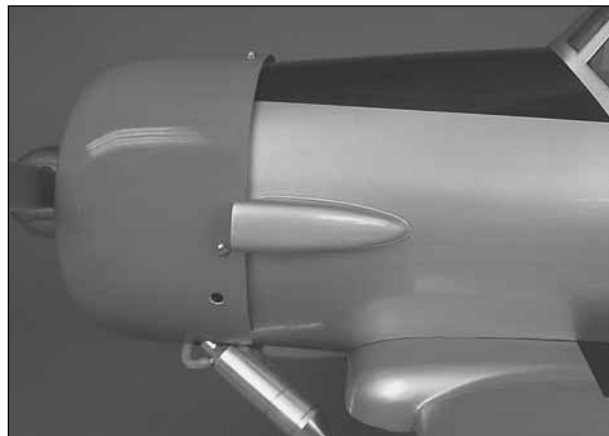
❑ 7. Place the canopy over the cockpit. You can either glue it permanently to the fuselage or mount it with screws. If you choose to glue it in place, Super Z RC56 works well. If you screw it in place, drill a 1/16" [1.6mm] hole at the front and rear sides of the canopy on both sides of the fuselage. Screw the canopy in place with four #2 x 3/8" [10mm] screws. After installing the screws, remove them and apply a couple of drops of thin CA into the holes to harden them. After the glue has cured, re-install the canopy.



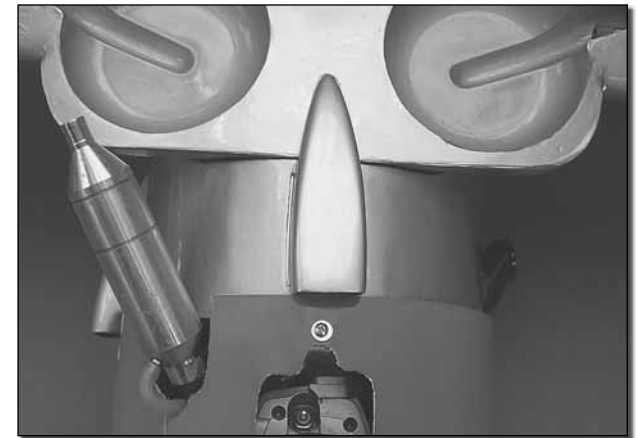
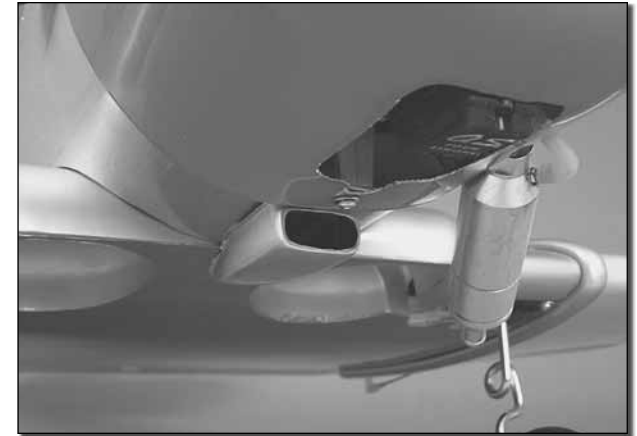
❑ 8. Locate the black exhaust stack. Mark the location for it onto the fuselage. Cut a small amount of the covering away to create a solid place for gluing. Use 80-grit sandpaper and roughen the flat side of the stack that glues to the fuselage. Glue it to the fuselage.



❑ 9. There are two air scoops. One is taller than the other. The taller of the two will be mounted to the left side of the fuselage and the other will mount on the bottom of the fuselage.

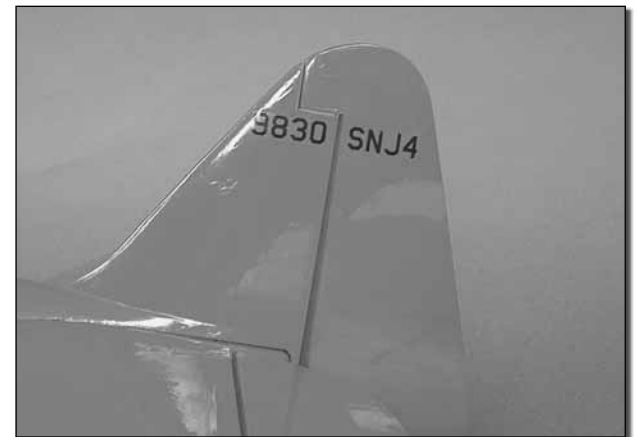
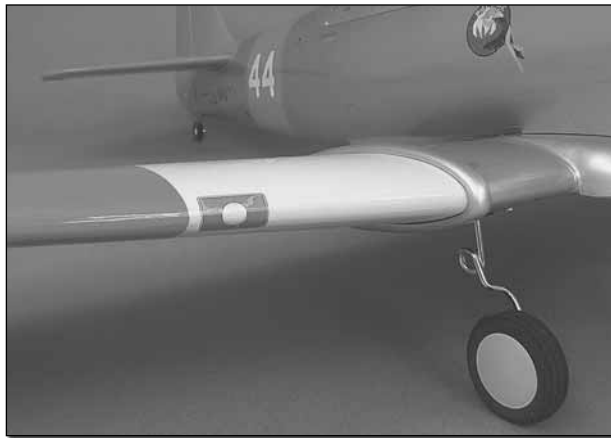
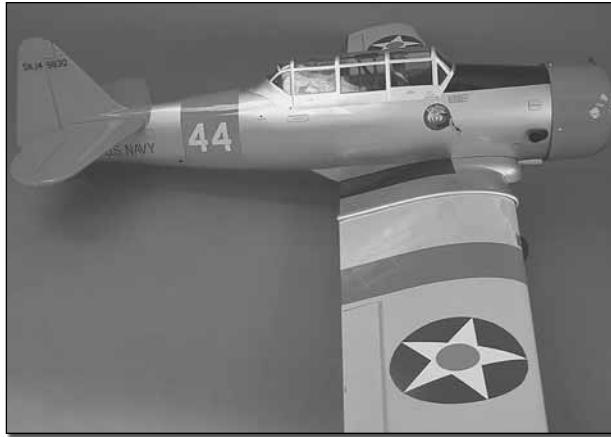


❑ 10. Using the same procedure used for the exhaust stack, glue the scoop to the left side of the fuselage.

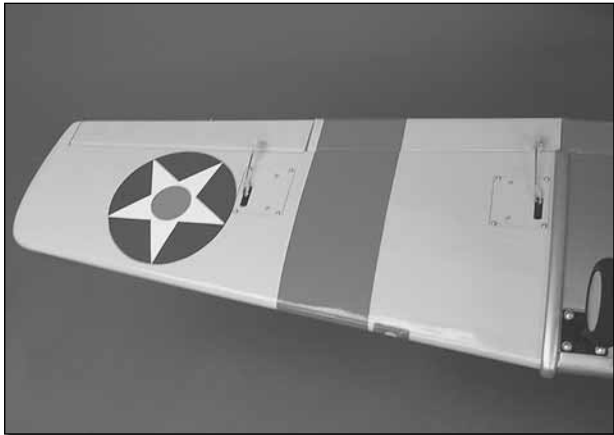
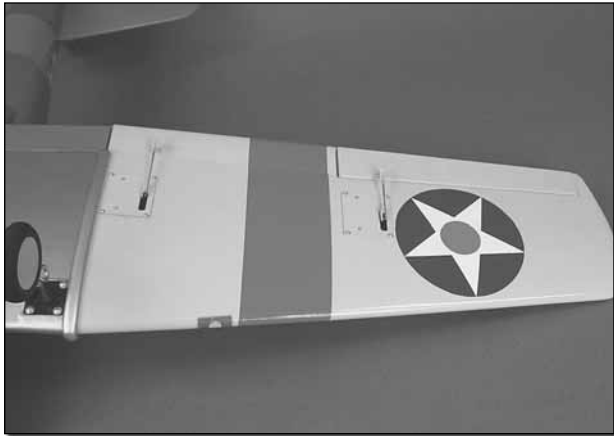


❑ 11. This scoop is only glued to the fuselage. The portion that extends over the wing does **not** get glued to the wing. Doing so will prevent you from removing the wing from the fuselage. Using the same procedure as the other scoop, glue the scoop to the bottom of the fuselage.

APPLY THE DECALS



Cut the decals from the decal sheet. Use the these pictures and the pictures on the box for determining where to place the decals.

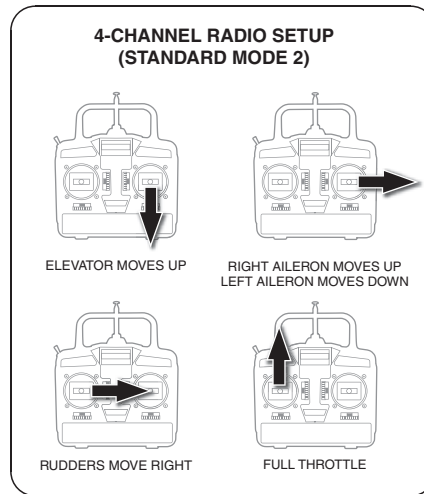


Did you know...Few aircraft make the jump from mere machine to legend, and the AT-6 Texan can stand proudly beside the likes of the Sopwith Camel, B-17 Flying Fortress, B-24 Liberator, Spitfire, or the P-51 Mustang.

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 **high rate** setting. **NOTE:** The throws are measured at the **widest part** of the elevators, rudder and ailerons.

IMPORTANT: The AT-6 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 AT-6 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."

These are the recommended control surface throws:

LOW RATE

- ELEVATOR:** 1/2" [13mm], 8° up
1/2" [13mm], 8° down
- RUDDER:** 1-1/4" [32mm], 15° left
1-1/4" [32mm], 15° right
- AILERONS:** 3/4" [19mm], 19° up
3/4" [19mm], 19° down
- FLAPS:** 1" [25mm], 26° up
1" [25mm], 26° down

HIGH RATE

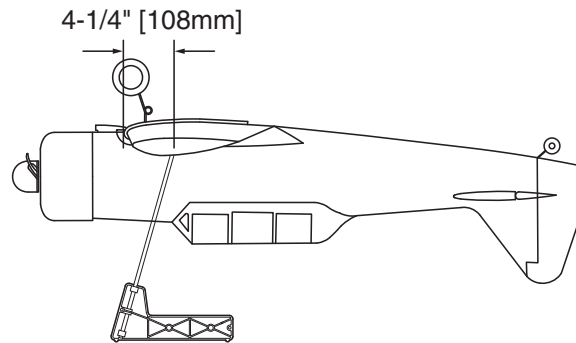
- ELEVATOR:** 5/8" [16mm], 11° up
5/8" [16mm], 11° down
- RUDDER:** 1-3/4" [44mm], 22° left
1-3/4" [44mm], 22° right
- AILERONS:** 1" [25mm], 26° up
1" [25mm], 26° down
- FLAPS:** 1-3/8" [35mm], 38° up
1-3/8" [35mm], 38° down

Note: When flaps are deployed you can expect the airplane to balloon slightly. To minimize this we mixed 1/32" [0.8mm] down elevator trim when the flaps were deployed. If you have a flap to elevator mix you may wish to consider this mix as well.

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 paint, and the radio system.



1. Use a felt-tip pen or 1/8" [3mm]-wide tape to accurately mark the C.G. on the top of the wing on both sides of the fuselage. The model should be

balanced up-side down. **The C.G. is located 4-1/4" [108mm] back from the leading edge of the bottom wing**, measured where the center section of the wing and the outer wing panel join.

This is where your model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 1/4" [6mm] forward or 1/4" [6mm] 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.

2. With the wing attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, place the model upside-down on a Great Planes CG Machine, or lift it upside-down 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 to balance. If possible, relocate the battery pack and receiver to minimize or eliminate any additional ballast required. If additional weight is required, nose weight may be easily added by using Great Planes (GPMQ4485) "stick-on" lead. A good place to add stick-on nose weight is to the firewall (don't attach weight to the cowling—it is not intended to support weight). Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside.

Note: Do not rely upon the adhesive on the back of the lead weight to permanently hold it in place. Over time, fuel and exhaust residue may soften the adhesive and cause the weight to fall off. Use #2 sheet metal screws, RTV silicone or epoxy to permanently hold the weight in place.

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

BALANCE THE MODEL Laterally

❑ 1. With the wing 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.

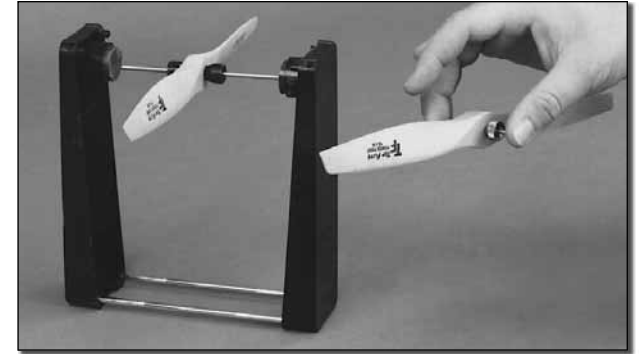
CHARGE THE BATTERIES

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.

BALANCE 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 and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.
- 3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.
- 5) I will not fly my model unless it is identified with my name and address or AMA number, on or in the model. Note: This does not apply to models while being flown indoors.
- 7) 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) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in the front of the flight line. Intentional flying behind the flight line is prohibited.

- 4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.
- 5) **I will not knowingly operate my model within three miles of any pre-existing flying site except in accordance with the frequency sharing agreement listed** [in the complete AMA Safety Code].
- 9) Under no circumstances may a pilot or other person touch a powered model in flight; **nor should any part of the model other than the landing gear, intentionally touch the ground, except while landing.**

CHECK LIST

During the last few moments of preparation your mind may be elsewhere anticipating the excitement of the first flight. Because of this, you may be more likely to overlook certain checks and procedures that should be performed before the model is flown. To help avoid this, a check list is provided to make sure these important areas are not overlooked. Many are covered in the instruction manual, so where appropriate, refer to the manual for complete instructions. Be sure to check the items off as they are completed.

- 1. Fuelproof all areas exposed to fuel or exhaust residue.
- 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 has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.
- 5. Balance your model *laterally* as explained in the instructions.
- 6. Use threadlocking 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 axles so the wheels will turn freely.
- 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 are 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.

FLYING

The AT-6 is a great-flying model that flies smoothly and predictably. The AT-6 does not, however, possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

FUEL MIXTURE ADJUSTMENTS

A fully cowled engine may run at a higher temperature than an uncowed 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 takeoff, 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 tail wheel on the ground. If necessary, adjust the tail wheel 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 takeoff into the wind. As a general rule the flaps are not required for a good take-off. Unless you have a very thick grass field that limits the ground speed of the model we would not recommend flaps for the takeoff. If you do use flaps, no more than 1" [25mm] of flap should be needed. 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 tail wheel 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 takeoff, most models fly more smoothly at reduced speeds.

Take it easy with the AT-6 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. Prior to landing you may want to experiment with the use of the flaps and flying at slow speeds. 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. Deploy the flaps. A small amount of ballooning will occur but the plane should begin to settle as you lose speed. We found that mixing in 2 degrees of down elevator minimized this tendency. You may wish to experiment with a flap to elevator mix. When deploying the flaps do not allow the plane to pitch up and stall. Make elevator corrections as needed to maintain a steady descent. (*Note: Flaps are not required for landing but they will substantially reduce the landing speed. We recommend the use of flaps for the AT-6.*) 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 decrease the engine and touch down level on the main wheels. The tail will settle on the runway as you begin to lose speed. Once the model is on the runway and has lost flying speed, hold up elevator to place

the tail on the ground, regaining tail wheel control. From our experience, this plane lands best if you do a two point landing on the main wheels rather than trying to flare to a three point landing. Raise the flaps before taxiing back.

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!

