



U.S. Distributor: Ace Hobby Distributors, Inc., 116 W. 19th ST, Higginsville, MO 64037 (800) 322-7121

Assembly Instructions

ULTRACOTE
COVERED



TTR4108

Specifications

Wing Span:	60.25 in	(1530 mm)
Wing Area:	510 in ²	(33 dm ²)
Weight:	22 oz. less/eng	(.65 kg)
Engine:	.10	
Radio:	2/3 Channel w/mixer and mini servos	

WARRANTY

Thunder Tiger Model Company guarantees this model kit to be free from defects in both material and workmanship at date of manufacture. This warranty does not cover any components damaged by use or modification and in no case shall Thunder Tiger's liability exceed the original purchase price of the kit. Thunder Tiger also reserves the right to change or modify this warranty without notice.

Since Thunder Tiger Model Co. has no control over possible shipping damages, construction techniques or materials used for construction by the modeler, no liability can be assumed nor accepted for damage resulting from the use by the user of the final user-assembled product. By the act of using this user-assembled product, the user accepts all resulting liability. If the buyer is not prepared to accept this liability, he should return this kit in new and unused condition to the place of purchase for a full refund.

INTRODUCTION

Your V-Bat goes together very quickly and offers you a unique and exciting airplane once you get it airborne. A few notes before you begin.

1. You will need an electronic mixer for elevons. Either you need a transmitter capable of such mixing or you will need an on-board mixer that plugs in between the receiver and servos. If you go the on-board route, we recommend the Ace R/C SimpleMix (P/N AQ0616). It is a small, lightweight, and inexpensive device that is designed primarily for this application. If you are using an on-board mixer, you will also need two six inch servo extension cables
2. The instructions will show the installation of an on-board mixer. If you are using a mix capable transmitter, disregard the on-board mixer and plug the servos directly into the receiver.
3. The V-Bat is configured to accommodate Hitec S-101 Mini Servos. If you are using different servos, you may need to do some fitting.
4. The supplied optional engine pod is set-up for a Thunder Tiger GP-10 engine. If you use a different engine, some re-work may be required.
5. Once installed, the flight pack battery is not removable. This means you must use rechargeable batteries. The compartment is set-up for a AA sized flat pack or smaller.

Now that we have the preliminaries out the way, let's hit the workbench.

The first thing you should do before beginning assembly is to check the contents of your kit against the parts list on pages 4 and 5. If any parts are missing, contact your dealer immediately for replacement. Customers in the United States and Canada may contact **Ace Hobby Distributors directly at 116 W. 19th Street, Higginsville, MO 64037** 660-584-6704 for replacement parts. *Under no circumstances can a kit be returned if assembly has already been started.*

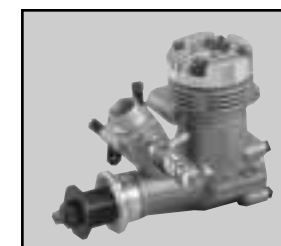


Adhesives - You will need some epoxy to assembly your V-Bat. We recommend that you purchase both 5-minute and 30-minute epoxy to cut down on assembly time, but you can get by with only 30-minute epoxy if time is not important.

Tools - Model assembly can be much easier if the proper tools are used. Therefore, we have included in our checklist to the right, a complete



listing of all the tools we used to assemble our prototype models. As you will notice, many household tools can be utilized during construction.



Engine - The Thunder Tiger GP-10 is the ideal engines for this airplane. It is quiet-running engines and easy to start, requires no special break-in period, is very easy to maintain and will last for years.

Flight Equipment - There are several "support" items that you will need to purchase in order to get your engine running and your plane in the air. These are listed at the bottom of the page.



Radio - A 2-3-channel radio with two mini servos is required. Either a mixing capable transmitter or an on-board mixer is required. Also, an AA flat ni-cd receiver pack is needed.

Check List

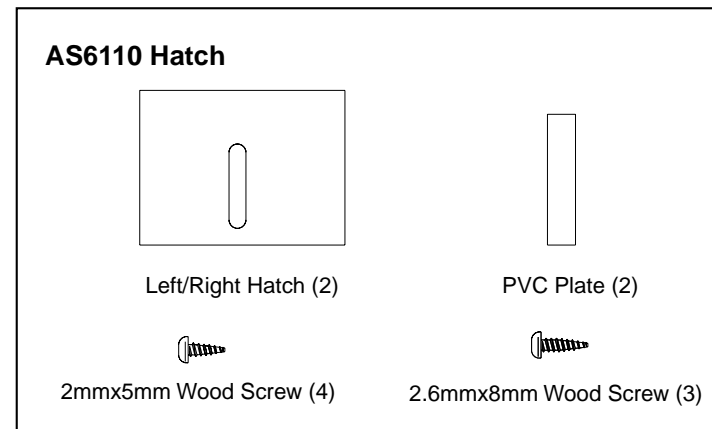
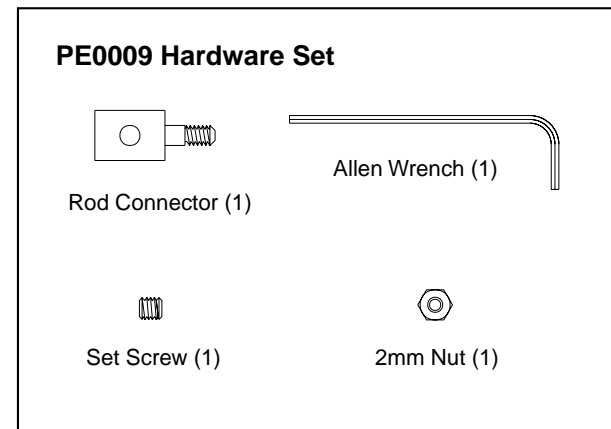
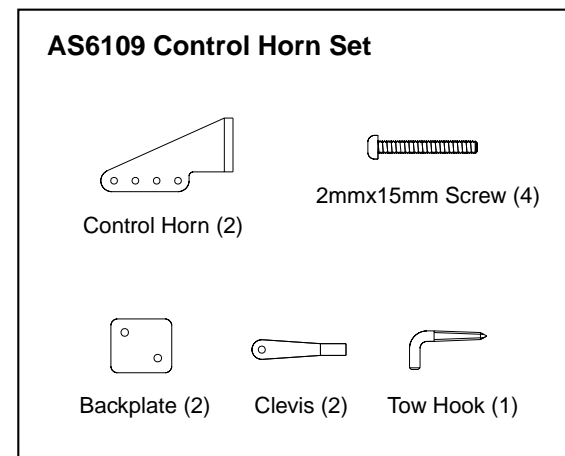
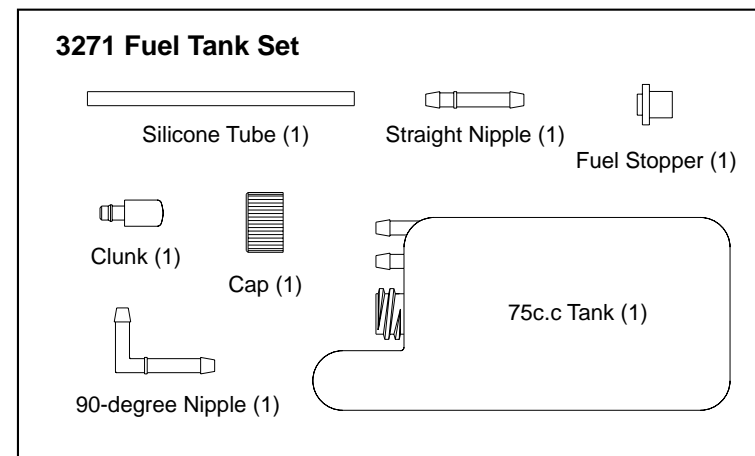
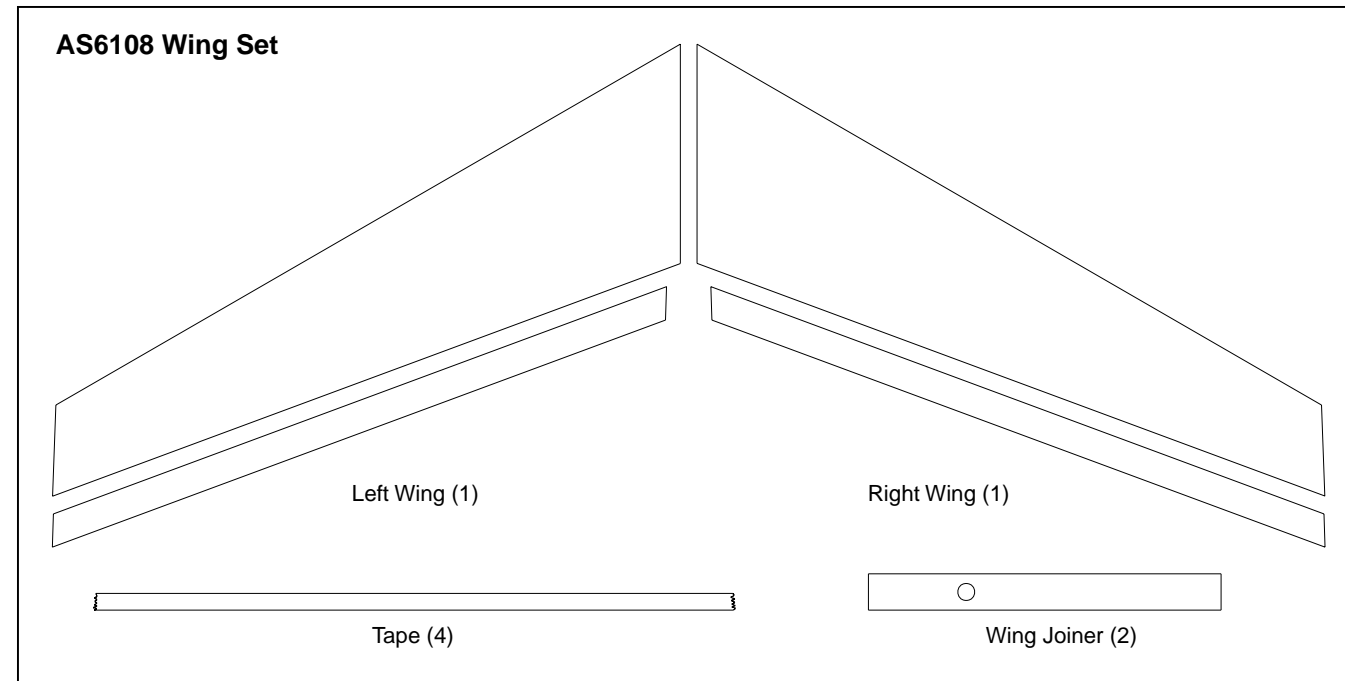
- .10 Size Engine (optional)
- 2 or 3-Channel Radio with 2 Mini Servos
- Mixing capable transmitter or On-Board Mixer
- 5-minute Epoxy (4 ounces)
- 30-minute Epoxy (4 ounces)
- Hobby Knife and Blades
- Epoxy Mixing Sticks and/or Brushes
- Masking Tape
- Rubbing Alcohol
- Paper Towels
- Ruler
- Fine-Point, Felt-Tip Pen
- Misc. Household Tools
- Drill and Bits (1/16", 3/32", 5/32",)

Flight Equipment

- Stick on Lead Strip for Balancing the Plane
- Prop (see engine instructions)
- 10%-15% Glow Fuel
- Fuel Pump or Bulb
- Electric Starter or "Chicken Stick"
- Glow Plug Clip and Battery
- Extra Glow Plug(s)

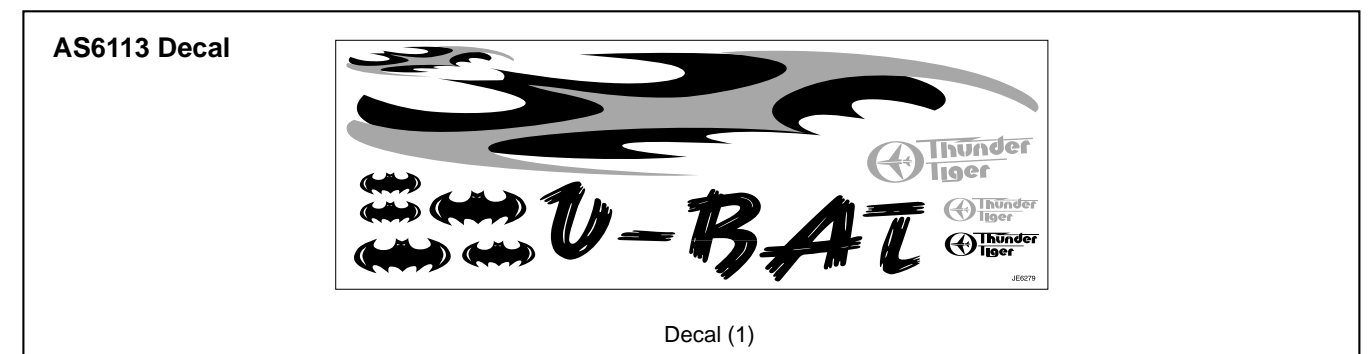
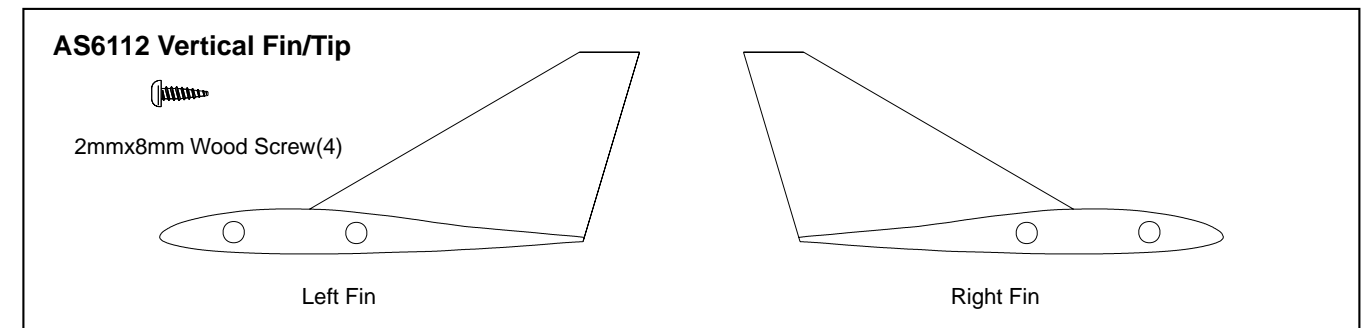
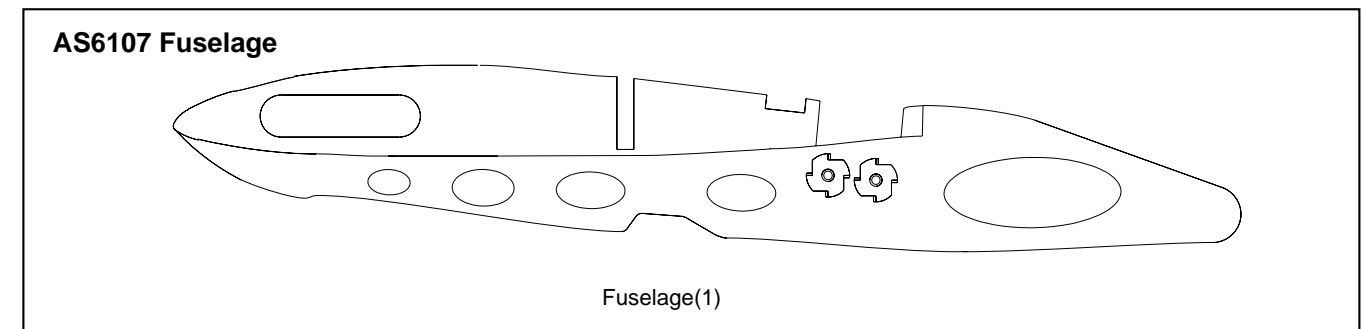
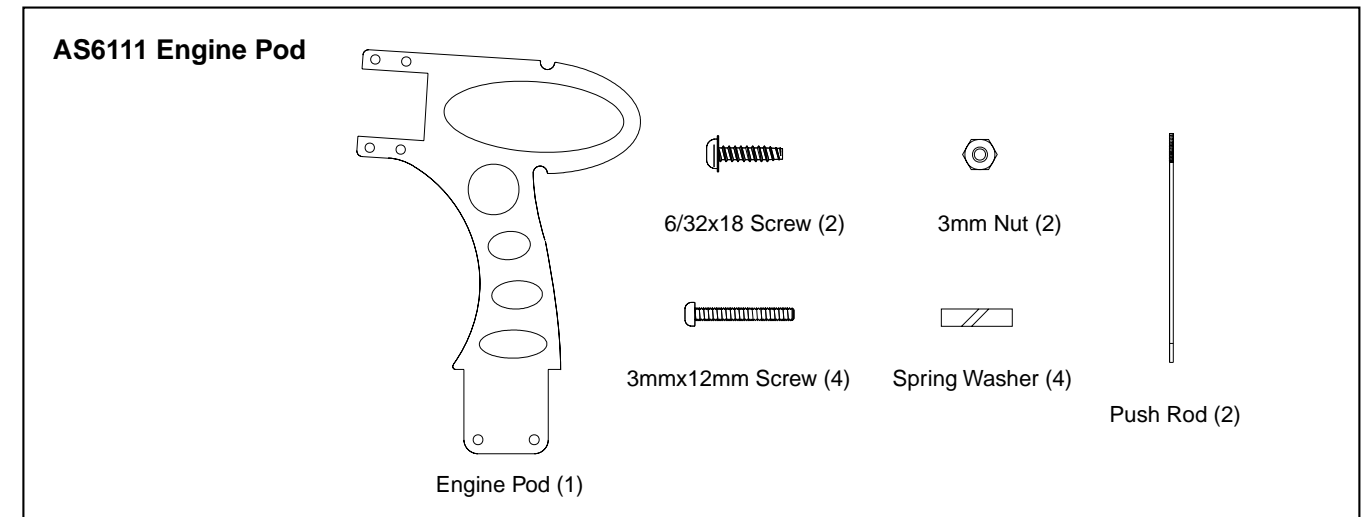
IMPORTANT

Please check the contents of your kit box with these part sketches before beginning construction. This will not only familiarize you with the parts and their names, but it will also give you a head start in the unlikely event that you are missing a part. If parts are missing, call (660) 584-6704.



Parts are not necessarily drawn actual size!

Replacement parts can be ordered by Set Number Only.
Individual parts not available.



Parts are not necessarily drawn actual size!

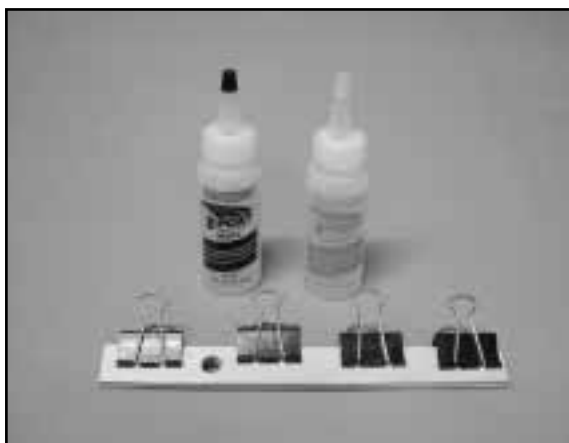
RADIO INSTALLATION

Because of the small size of this plane and the fact that the radio is imbedded in the wing, installation is the most tedious part of the V-Bat.

We suggest that the radio be installed before the wing halves are joined. This makes it easier to get the wires routed.



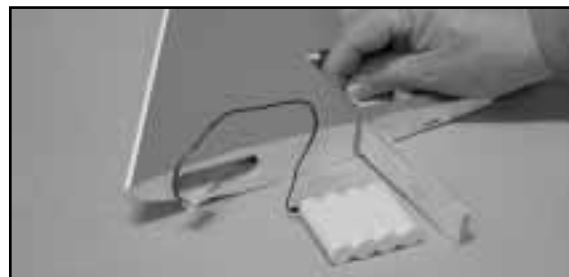
□ Begin by cutting the covering material from the servo hatch area in the bottom of each wing half. Cut the material in an "X" fashion from corner to corner. Then use a heat iron to seal the material to the inner edges of the hatch area. Trim away excess material.



□ Next, use epoxy to laminate the two dihedral braces together, keeping the holes lined up. Clamp together as the glue sets. Wipe off excess glue with a paper towel wetted with rubbing alcohol.



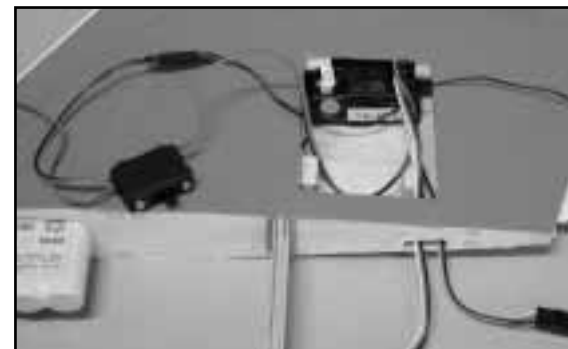
- Trial fit the dihedral brace in the wing. Trim if needed.
- Epoxy the dihedral brace in the left wing half, making sure the hole in the brace lines up with the hole in the wing's interior. Wipe away any excess epoxy on the root of the wing.



- Route the battery pack cable next. It goes from the battery compartment through the dihedral brace and into the servo compartment in the left wing half. Some trimming of material may be necessary for clearance. You will need a piece of 1/16" or smaller music wire to "fish" the wire through the holes. Poke the wire through from the servo compartment to the battery compartment, tape the battery connector to the wire, and pull the music wire back into the servo compartment. Hold your tongue right and it will work!



- Prepare your servos as shown, using your longest servo arm and the "EZ" connectors furnished.



- Install your receiver in the left wing. There is a tube in the interior of the wing which you may use for an antenna tube. In the prototype, since our antenna was too long, we simple taped the antenna to the trailing edge of the wing and let the excess trail out the tip.

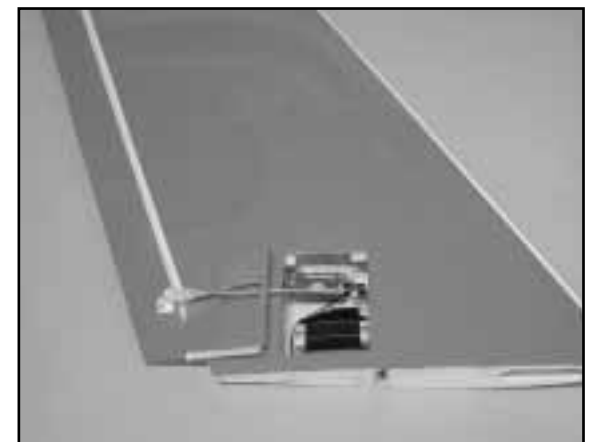


- Install the servo next. Notice there is a rectangular hole in the root of the wing for the cables to pass through. You may need to open this hole up to get the connectors to clear.

- The servo is held in place with the furnished plastic strap and two wood screws. You will have to drill holes accordingly.



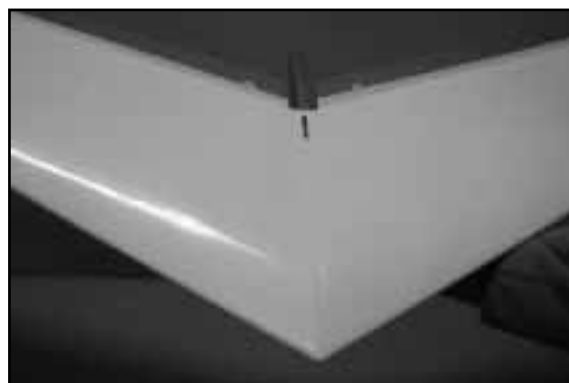
- Linkage to the elevon is with a threaded rod, nylon clevis, and control horn.
- We chose to mount the switch in the rear area of the opening. To gain clearance, we have to remove the bottom switch cover.
- Once you are all done, the hatch is held in place with a few pieces of clear tape or the screws furnished. We had to do some trimming on the prototype to clear the servo linkage and the cables going into the receiver.



- Now, in the same fashion, install the servo, its linkage, and the on-board mixer (if used) in the right wing.

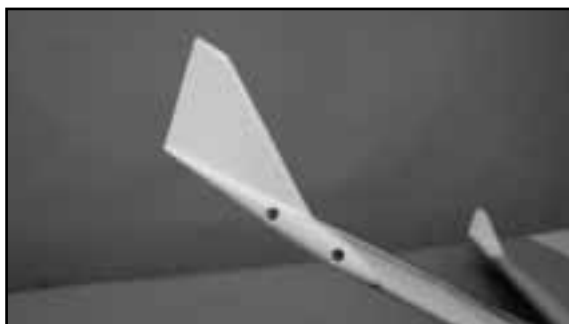


It is time to join the wings. Epoxy the fuselage to the left wing. Make sure you keep the area where the engine pod inserts clear of glue, otherwise the engine pod won't slip into place.



After the glue has set, test fit the right wing panel. Make sure the cables thread properly into the right wing. When satisfied, apply epoxy to the dihedral brace and the fuselage and join the right wing panel in place. Of course, you have to thread the cables through the root rib. Once again, make sure the slot for the power pod remains clear of glue.

Some white covering material is provided to iron over the joint on the top of the wing.



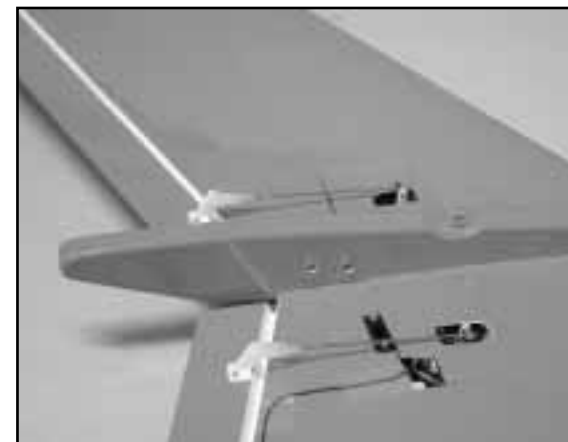
The two wing tiplets are attached with two screws. You will have to drill holes for the screws in both the tiplets and the wing tips.



If you use the optional engine pod, mount the engine on the right side of the pod with the furnished hardware. Plumb the tank and mount it with a rubber band on the left side of the pod.

If you have a three or more channel radio and an engine with a throttle, you can mount a servo to the pod on the right side opposite the tank. Snake the cable down the pod and around the rear of the wing into the receiver area.

The pod is slid into the slot provided and secured with two bolts/blind nuts.



A tow hook is provided to install in the recessed area in the bottom of the fuselage. Drill a pilot hole before screwing it in.

Apply the peel and stick decals by trimming close to the design and putting them where desired. Refer to the box art for suggested location. For the larger designs, spray the area with window cleaner first, then squeegee out the excess with the edge of a credit card.

Full Right Aileron Deflection:

Full Left Aileron Deflection:

Full Up Elevator Deflection:

Full Down Elevator Deflection:

CENTER OF GRAVITY/ BALANCE POINT

Before flight, check for the proper balance. The V-Bat should balance on the rearmost edge of the servo hatch cutout; or, 8-3/4" back from the leading edge point. Add lead ballast as needed.

You should set-up your mixer so the ratio of elevator control is about 40% less than aileron control. Otherwise, the V-Bat will be too pitch sensitive. Following are the approximate throws you should start with. They are measured at the rear edge of the elevons.

Right elevon moves 1/2" up

Left elevon moves 1/2" down

Right elevon moves 1/2" down

Left elevon moves 1/2" up

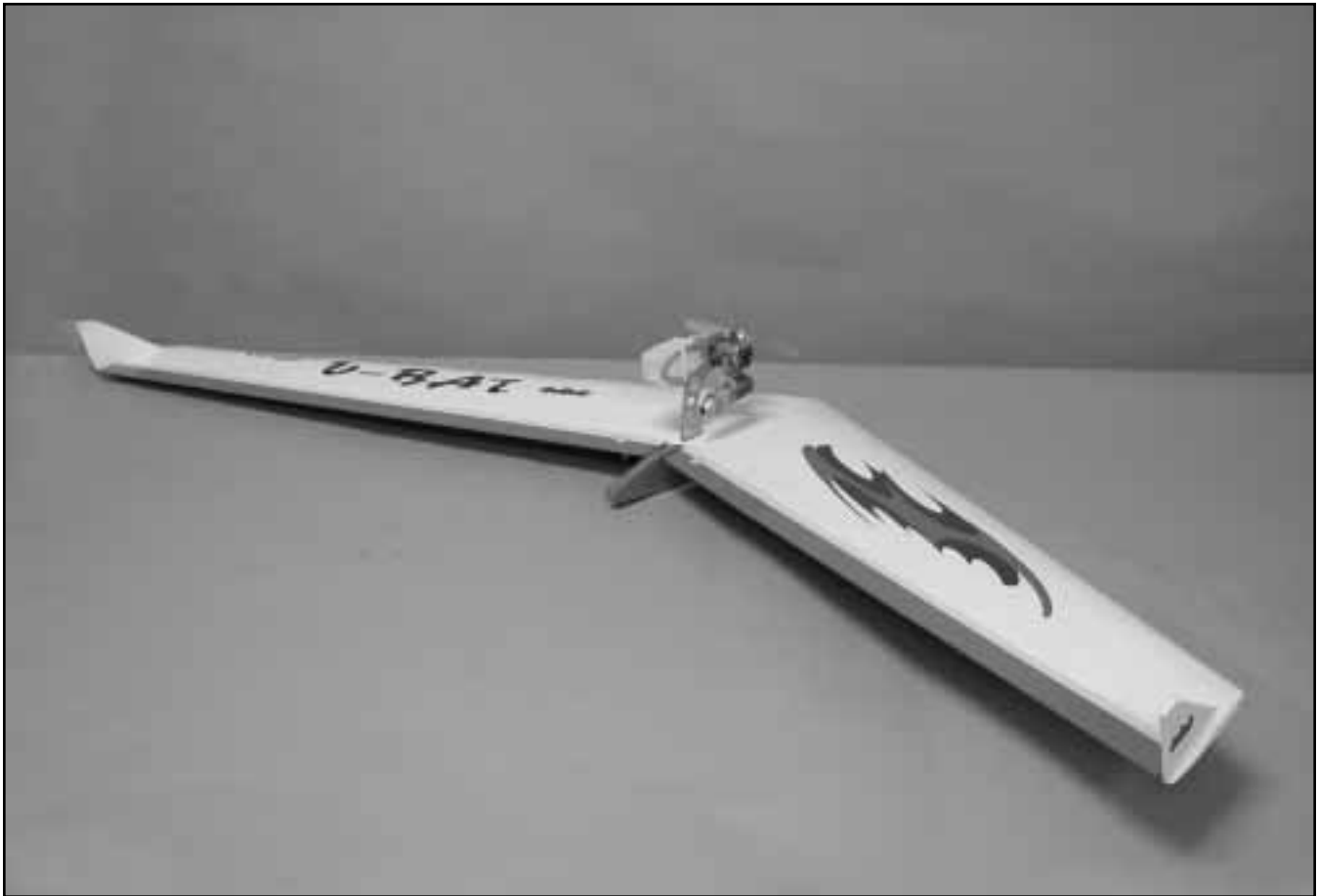
Both elevons move 5/16" up

Both elevons move 5/16" down

You will find that the V-Bat is very fast, stable, and maneuverable. The glide ratio without the engine pod is incredible due to its light weight and efficient airfoil. On a high start or winch it will climb like a rocket and settle down quickly to assume a thermal search pattern. On the slope, it will keep up with the best of them. Actually, the V-Bat is a highly competitive slope racer!

If you are flying with the power pod and without a throttle, make your first flights with only 1/4th tank of fuel. Give yourself a chance to get used to the plane before committing to a full tank. A GP10 runs for quite awhile on 2-1/2 ounces!

Thank you for choosing Thunder Tiger. We welcome your comments.





SimpleMix

This lightweight and inexpensive gizmo plugs in between the receiver and servos to electronically mix two functions together for elevon, v-tail, CAR, etc. applications. Perfect companion to the Thunder Tiger V-Bat.

Plug compatible with JR, Futaba J, Hitec, and Z.

ACEAQ0616 Simple Mixer