

# TROY BUILT MODELS

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## A6M3 Assembly Manual

For assistance call TBM at (941) 342-8685

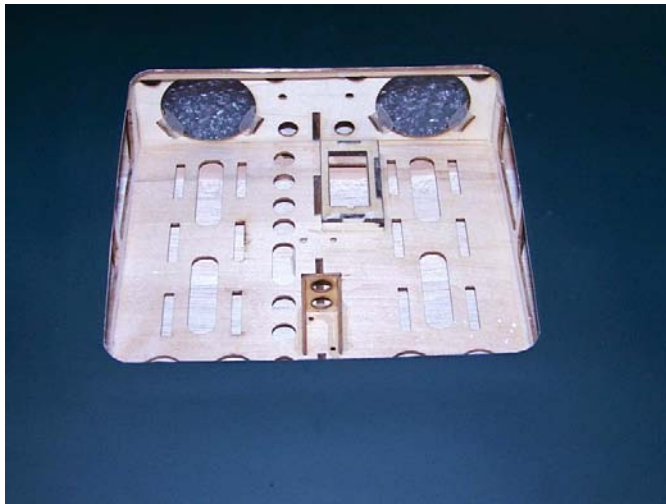
This model is not a toy. Please use in a responsible and safe manner.

### Features:

- 1) The width of the center wing section is 42" so it will fit in many vehicles
- 2) Cowl mounted
- 3) Center section of wing is used to hold valve and air tanks. The air system stays together except for the tailwheel retract air lines.



Note the cushioned mounts for the air cylinders and the mounts for the air valve and servo.

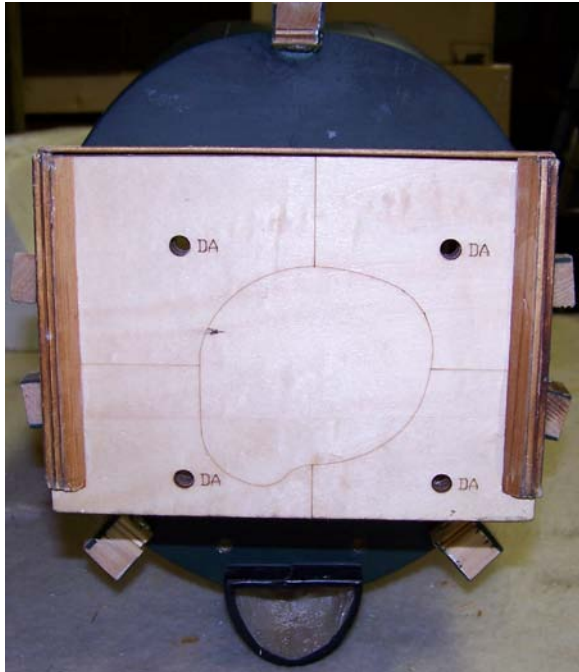


- 4) Three piece wing for easy field assembly and transportation. Note how the machine gun has a long rod which is guided through a brass tube inside the fuselage, and passes through the 2 anti-rotation pins and the wing spar. This holds the outer wing panels in place without an unsightly screw or having to flip the plane upside down.



5) Wing tips held on by machine guns to disguise attachment

6) Firewall drilled for DA-85 with cut out marked for carburetor.



## Parts Included with Kit:

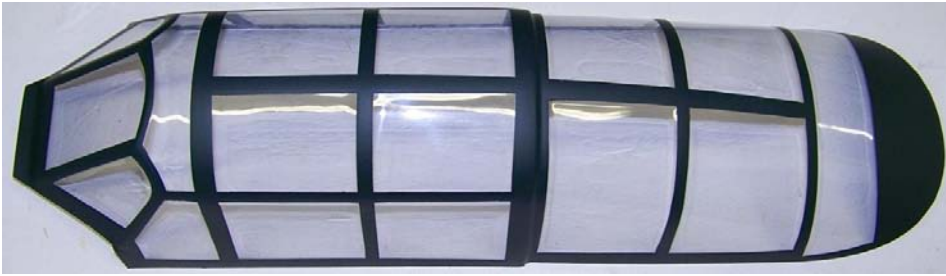
1) Fuselage



2) Cowl



3) Scale Canopy



4) 3- piece wing



5) Wingbag



6) Rudder



7) Stabs



8) Retractable Landing Gear, Air tanks, adjustable air valve, air line and fittings



9) Retractable Tailwheel



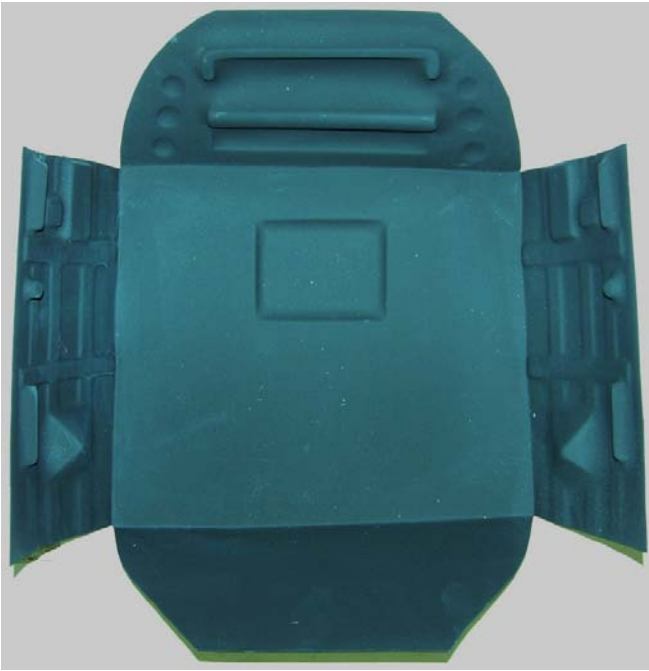
10) Scale Gear Doors



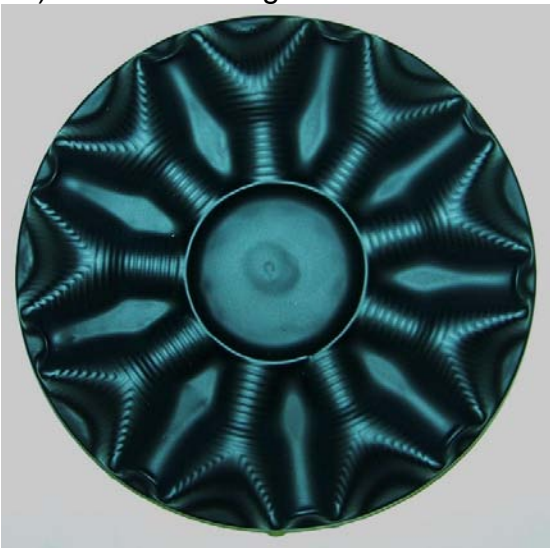
11) Scale Machine guns and cannons plus spares



12) Scale cockpit and seat



13) Scale radial engine



14) Scale auxiliary drop tank



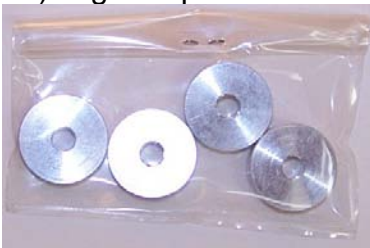
15) Scale Antenna



16) Scale instrument panel



17) Engine Spacers



18) Fuel Tank



19) Elevator Hardware pack



20) Rudder Hardware Pack



21) Wing Mounting Parts



22) Cowl mounting Parts & Scale Exhausts (typically used on the green/army versions only for full scale). These are not included with the White/Navy version.



23) Tailwheel assembly mounts and servo brackets. (No photo)

24) Canopy Hardware Pack



25) CF stab tube



Parts required to complete the kit:

- 1) 1/8" wood dowels (BQ skewers work fine)
- 2) DA-85 engine or equivalent
- 3) Pitts Muffler
- 4) 4" spinner (MPI 4" aluminum spinner is about the correct shape)
- 5) Propeller
- 6) Two 5" tires
- 7) Pilot
- 8) Four 3/16" wheelcollars for main tires
- 9) Two HS 225 or HS 5645 servos for elevators (mid size servo case, regular size servos will not fit)
- 10) 5 standard sizes servos, Hitec HS 645 or HS-7985 or better for ailerons, flaps and rudder
- 11) 2 standard size servos for throttle and choke
- 12) 1 small servo (Hitec HS-85) for the retract valve.
- 13) 1 small servo (Hitec HS-65MG or Power HD HD-2213MG) for steering of the tailwheel. A metal gear servo is required, and the servo must fit into a small area.
- 14) Radio system. If you use a separate channel for each servo/function you need 11 channels: 2-aileron, 2-flaps, 2-elevators, 1-rudder, 1-throttle, 1-choke, 1-tailwheel steering and 1-retracts. You can use up to 4 Y-harnesses to reduce the number of channels to 7. For the flaps you will need a reversing Y.
- 15) 12' of "one wrap" Velcro (TBM part # TBMVelcro)
- 16) Overflow fitting (TBM part# TBMoverflowfitting) for the gas tank overflow
- 17) Hysol to install hinges and reinforce landing gear blocks and firewall.
- 18) Two 36" servo extensions for the elevators
- 19) One 48" servo extension for the tailwheel steering servo
- 20) Two 24" servo extensions for the ailerons which stay in the center wing section
- 21) Two 6" servo extensions for the flaps
- 22) Four 3" extensions for flaps and ailerons which stay in the Rx
- 23) Several servo plug clips which prevent plugs coming apart (TBM part# MPIclip or PPMJP)
- 24) Servo mounting screws
- 25) Engine mounting bolts, nuts and washers
- 26) We prefer two batteries about 2000 mah for the Rx with separate switches and regulators (if necessary) and one 1500 mah battery, switch and regulator for the engine (if necessary).

NOTE: While the kit comes complete with plastic servo arms and 2-56 hardware, if you plan flying very fast and have large throws, then we recommend that you change to 4-40 hardware and metal servo arms. This will require 6 metal servo arms 1" long . Use the shortest arm/hole possible to offer the best mechanical advantage. SWB have 4 holes drilled and tapped for 4-40 screws, so they are the easiest to use. You will also need 4-40 ball links and 4-40 pushrods.

#### **QUICK BUILD INSTRUCTIONS (for those in a hurry)**

- 1) Install receiver. Temporarily install battery and switch so you can set up the servos.
- 2) Install rudder
- 3) Install tailwheel
- 4) Install stabs

- 5) Install ailerons and flaps
- 6) Install wing dowels in front of wing and fit the wing bolts in the rear of the wing to the fuselage.
- 7) Install stab tube
- 8) Install control horns
- 9) Install servos and linkages
- 10) Re-glue landing gear blocks in place
- 11) Install landing gear
- 12) Pin the firewall using 1/8" dowels and re-glue all joints
- 13) Install engine
- 14) Install scale exhaust if you prefer. The Army/green version used this type of exhaust, the Navy/white version did not. Here are some full scale photos.
- 15) Install cockpit and canopy
- 16) Install fuel system
- 17) Install scale fuel tank if desired
- 18) Perform CG and permanently install batteries as necessary.
- 19) Install gas, charge batteries, perform radio check and go fly

### **BUILD INSTRUCTIONS**

- 1) Install receiver. Temporarily install battery and switch so you can set up the servos.
- 2) Install rudder

- a. Drill a hole into the rudder and fuselage as shown.

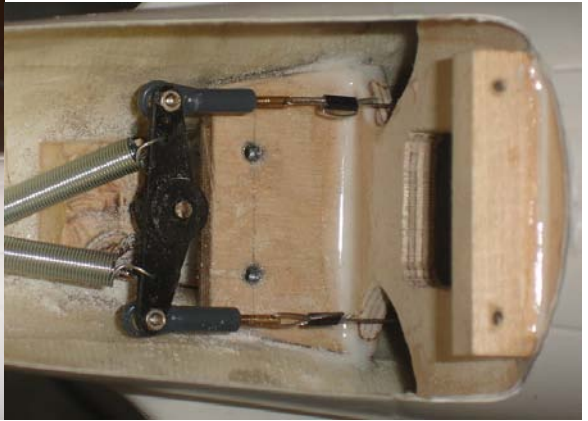
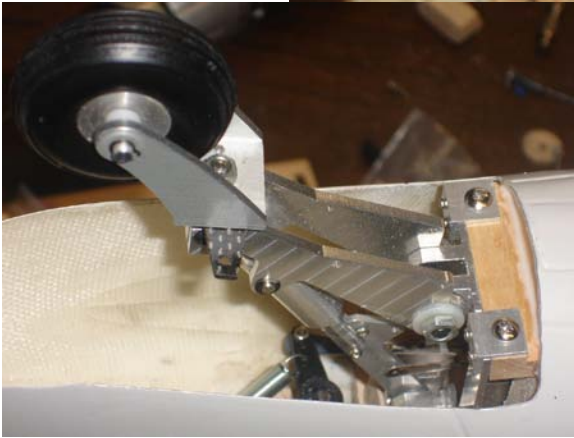


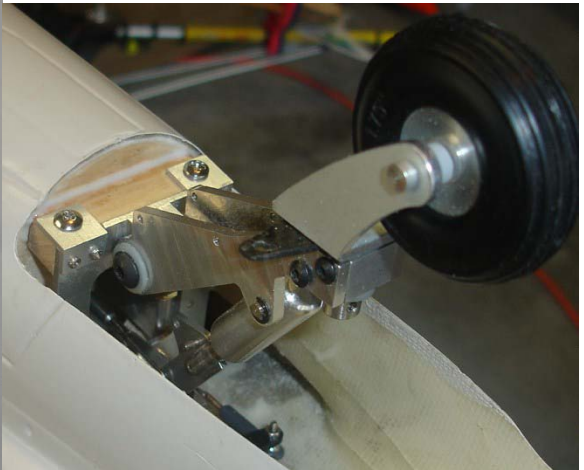
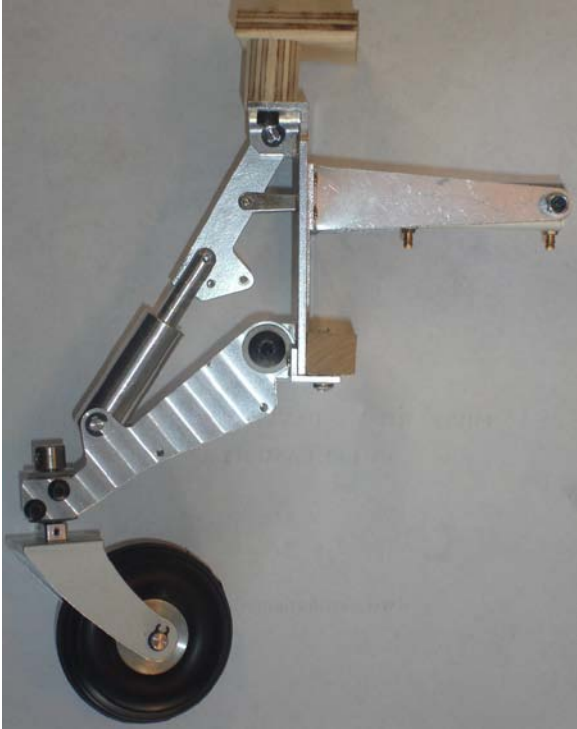
- b. Glue the rudder horn and hinges in place using Hysol.  
c. Install the tiller arm, rudder servo and linkage. Keep the wires straight, do not cross.  
Try to obtain as much rudder throw as possible.



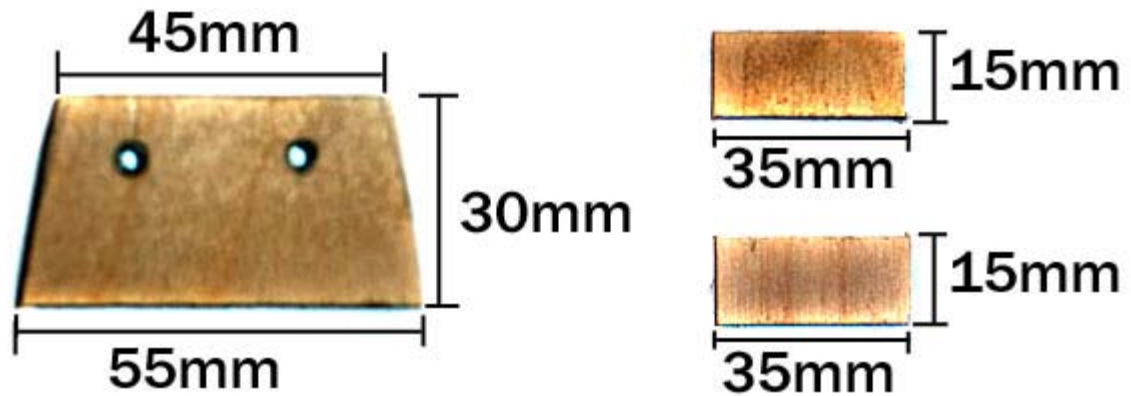
3) Install tailwheel.

- a. Install wood mounts using Hysol. While the main former and other wood is included, you need to make a plywood plate as shown using  $\frac{1}{4}$ " plywood (not included). See photos. Be sure to mount this block so that it does not interfere with the rudder cables.





# Zero Tailwheel Assembly



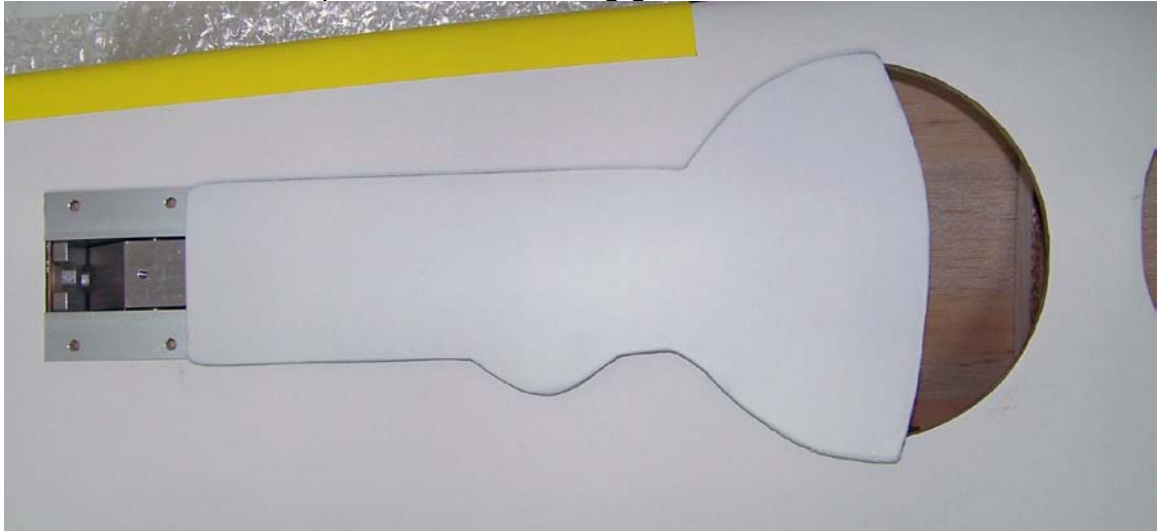
- b. Install servo into retract and connect linkage (Hitec HS-55 or Power HD-2213MG). Many servos 12mm wide will work. The servo can be put in at one of several angles, it is not too important. We recommend that you hot melt glue the servo in place. Use hot melt instead of Hysol so that they can be removed if necessary. We like the HD power servo because it is inexpensive though has high torque and metal gears. Top

photo is the Hitec, bottom photo is the Power HD. Notice they are at different angles.



- 4) Install hinges in ailerons and flaps using Hysol. The slots for the flat hinges are already made for you. Be sure to move the control surfaces up and down before the glue hardens to be sure they do not bind.
- 5) Stabs
  - a. Glue the aluminum anti-rotation pins into the stabs with epoxy
  - b. Install the stabs. There are several options. We do not recommend simply gluing the stabs onto the stab tube for a permanent installation because accessing the servos in the tail will not be possible. We recommend that you glue the stab tube into one of the two stabs, and using a wood screw to hold the other stab onto the fuselage.
  - c. First drill a 1/16" pilot hole into one of the stabs at 4 7/8" in from the root and 3" from the trailing edge as shown in the photo. Drill into the stab and the stab tube.
  - d. Install the screw into the stab and stab tube. Then install the stab into the plane. Then glue on the other stab. Only put glue inside the stab, do not put glue onto the CF tube, this will push all the glue into the hole and will keep glue away from the fuselage. Once the glue hardens, remove the screw and the stabs will come off of the fuselage in perfect position.
  - e. Install the servos through the root rib. Because the stab is thin, a small servo like a Hitec HS-225 or HS-5645 is required. I prefer the SWB 1" servo arms because they have multiple holes ready to use. Use the hole closest in which will offer 3/4" of throw up and down.
  - f. You can use a reversing Y-harness, we carry the part# EXPYrev and 3' extensions or you can use 4' extensions with out the Y-harness.
- 6) Install steel wing dowels in front of wing and fit the wing bolts in the rear of the wing to the fuselage. These items are located in a marked bag. A little fitting may be necessary.
- 7) Install ailerons and flaps.
  - a. Glue hinges in place, make sure there is no binding.
  - b. Install standard sized servos through the edges of the wings.
  - c. Install servo arms. We prefer 1" SWB aluminum arms.
  - d. Install linkage.
  - e. Determine where the horns will go. Cut a slot into the surface and epoxy them in place.
  - f. We prefer about 70 degrees of flaps and 25 degrees of ailerons.
- 8) Install landing gear
  - a. Reinforce the landing gear blocks and add glue where possible to strengthen especially if you fly off of grass.
  - b. The gear mounts are set up to accept TBM, Robart, Century Jet or Sierra Precision gear with minor changes. TBM gear is slightly wider than the others for better stability. Adjust the mount as necessary for your gear to fit.
  - c. Install the gear doors using the included mounting brackets (if you like). It is best to have the cover go up tight to the outside of the wing, rather than try to make the door

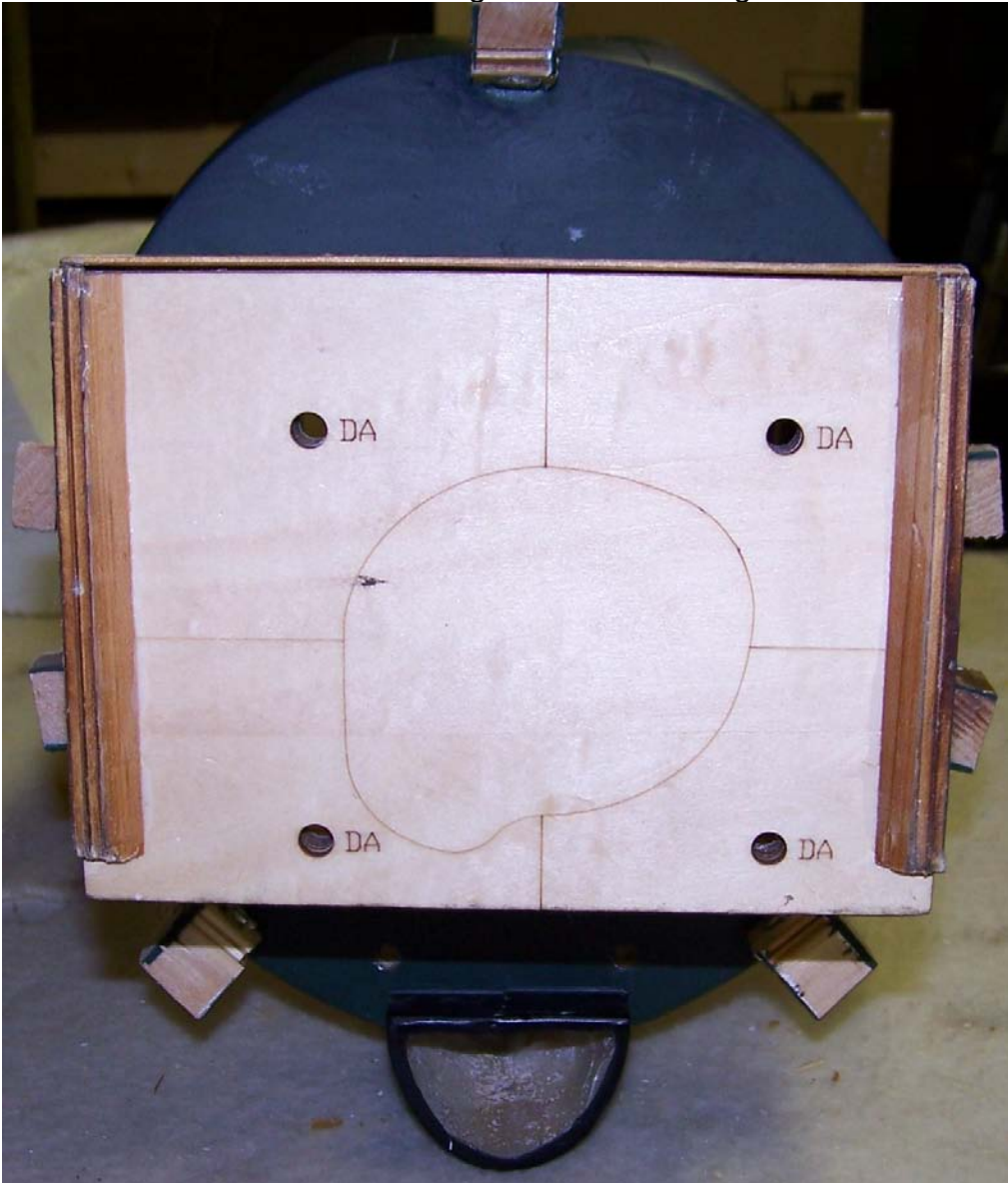
fit inside the hole in the wing, but it is up to you. If you prefer you can paint or cover the portion of the landing gear which shows.



9) Install engine

- a. The firewall is pre drilled for a DA-85. Bolt in place with  $\frac{1}{4}$ " bolts, blind nuts, and nylon lock nuts. Space the engine out so that the back of the prop is 1" from the cowl.
- b. Re-glue all joints and add dowels to pin the firewall into place. Use  $\frac{1}{8}$ " dowels. Drill holes every 1" around the perimeter and insert  $\frac{3}{4}$ " pieces of  $\frac{1}{8}$ " dowels to secure the firewall to the torque box.

c. There is some down thrust and right thrust in the engine mount.

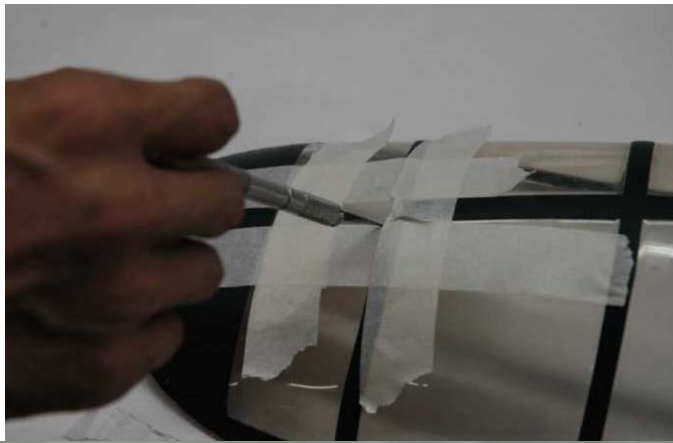


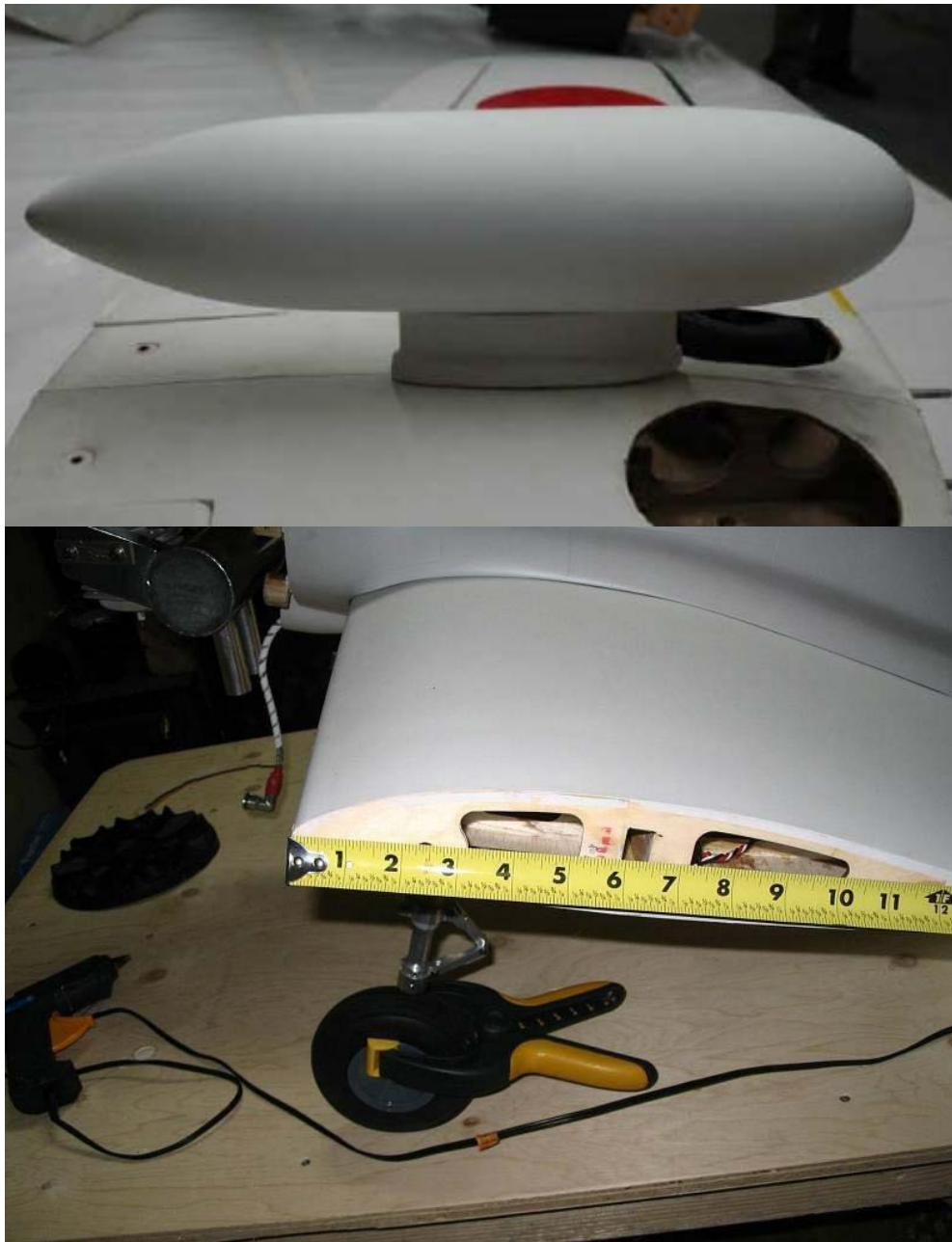
10) Install scale exhaust if you prefer. The Army/green version used this type of exhaust; the Navy/white version did not. Glue the wooden blocks in place and screw the copper exhaust ports in place.





- 11) Install cockpit and canopy
  - a. Cut the scale cockpit into 5 pieces and install.
  - b. Install scale instrument panel
  - c. Install pilot seat
  - d. Install pilot if desired (not included)
  - e. Use the small screws and E-6000 adhesive to install the canopy. You can cut the cockpit into 3 sections, and add rails so that the center part of the canopy slides back.
- 12) Install fuel system
  - a. Use Velcro to hold the tank in place.
  - b. Run overflow/vent out the bottom of the fuselage
- 13) Install scale fuel tank if desired by inserting screws (included) into the tank.
- 14) Install scale antenna. Cut a hole in the canopy as shown. Note that there is no wire from the antenna to the rudder on a Zero. The large mast is the only antenna.





- 15) Perform CG and permanently install batteries as necessary.
  - a. CG is 4.5" back from the leading edge at the wing tip. This is slightly aft of the wing spar. Start with the CG on the wing spar, and then move to your liking.
- 16) Install gas, charge batteries, range check and go fly.