

# ***SPAD.COM.BAT***

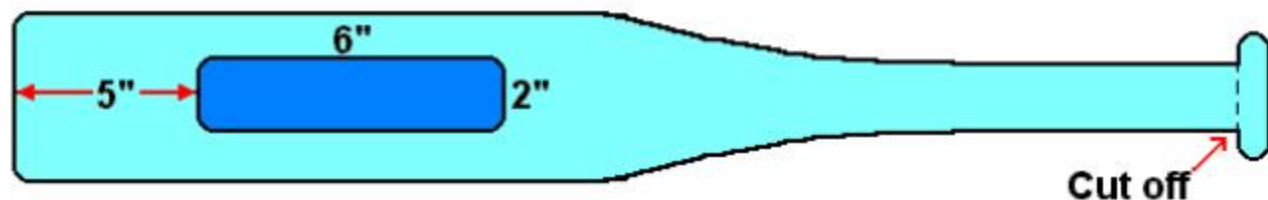
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**.25-.36 Combat plane**  
**Wingspan- 48"**  
**Fuselage length- 29"**  
**Weight- 3 lbs.**  
**Channels- Ailerons, Elevator, Throttle**

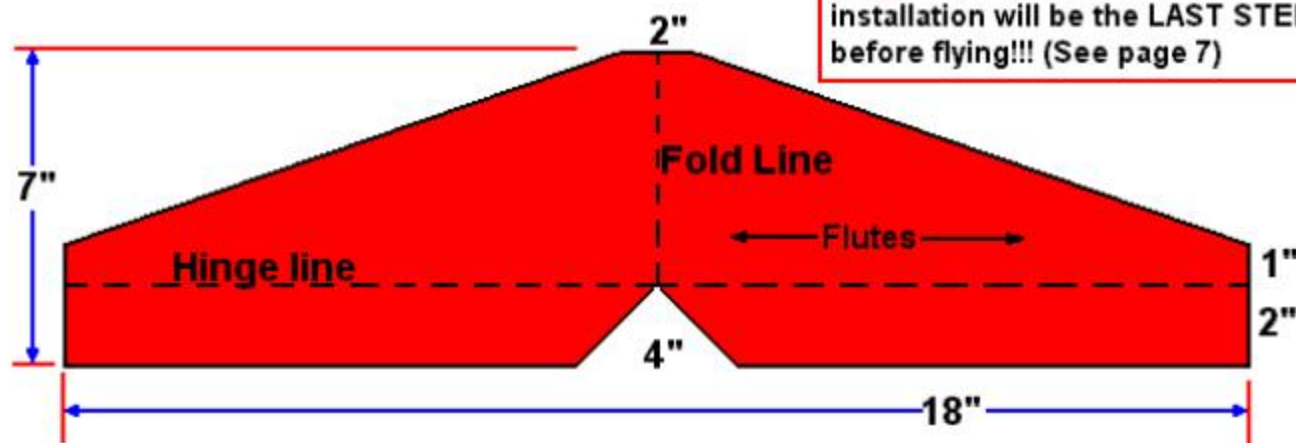
## Materials

- 1) Flat bat fuselage- <http://www.onlinesports.com/pages/1,CM-40280.html>
- 2) 2mm and 4mm Coroplast
- 3) PVC gutter pipe scraps
- 4) Yardsticks
- 5) 1/2" plywood or HDPE (Wal-Mart kitchen cutting board)
- 6) Small self tapping screws
- 7) Double sided foam mounting tape and Zip-Ties
- 8) Engine, Mount, Tank, and mounting hardware
- 9) Radio and pushrods
- 10) Medium CA glue and propane or butane torch
- 11) Standard shop tools

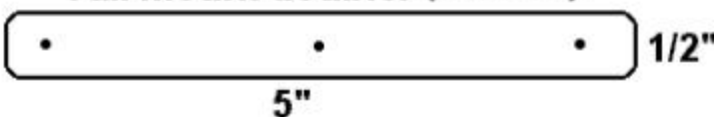
SPAD.COM.BAT Fuselage and Tail

Order a six pack of Flat Bats from [www.onlinesports.com](http://www.onlinesports.com), keep two for yourself, and give four away to friends and tell them to build COM.BATs. Take one and cut the handle nub off as shown, and cut out a radio access hole as shown.

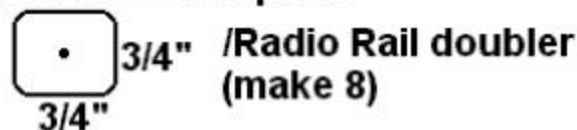
**Note:** Wing hold down dowel installation will be the LAST STEP before flying!!! (See page 7)



Tail mount doubler (make 2)



Control Horn Back plate



Radio Rail doubler (make 8)

Aileron Zip-Tie Doubler (make 1)



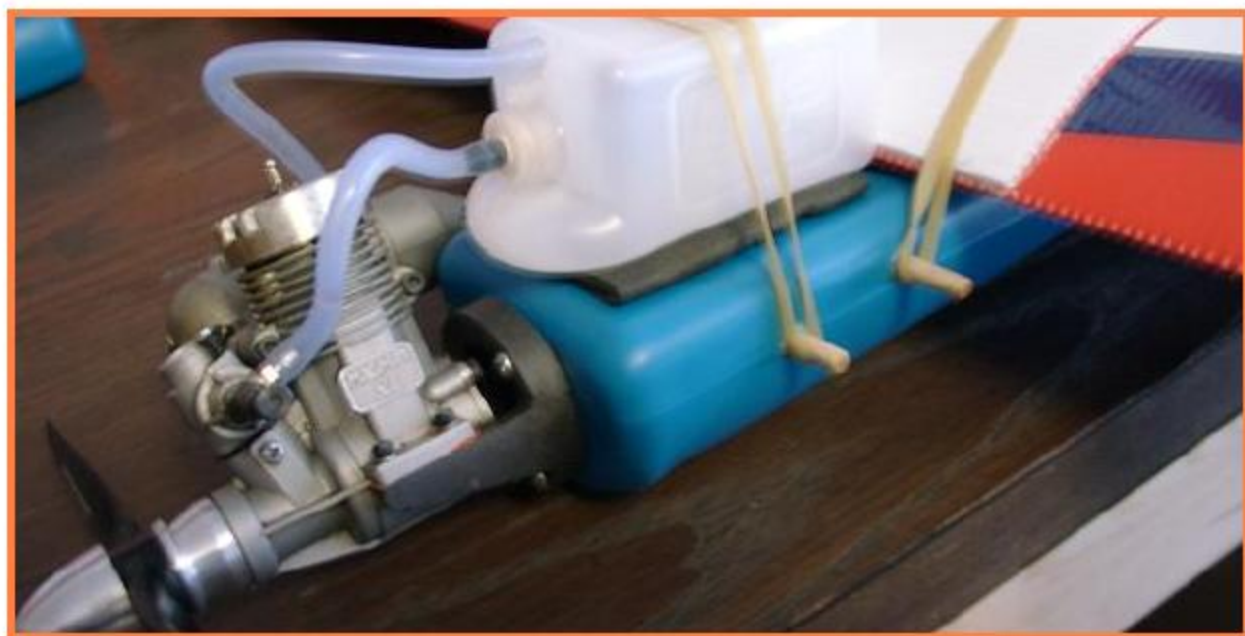
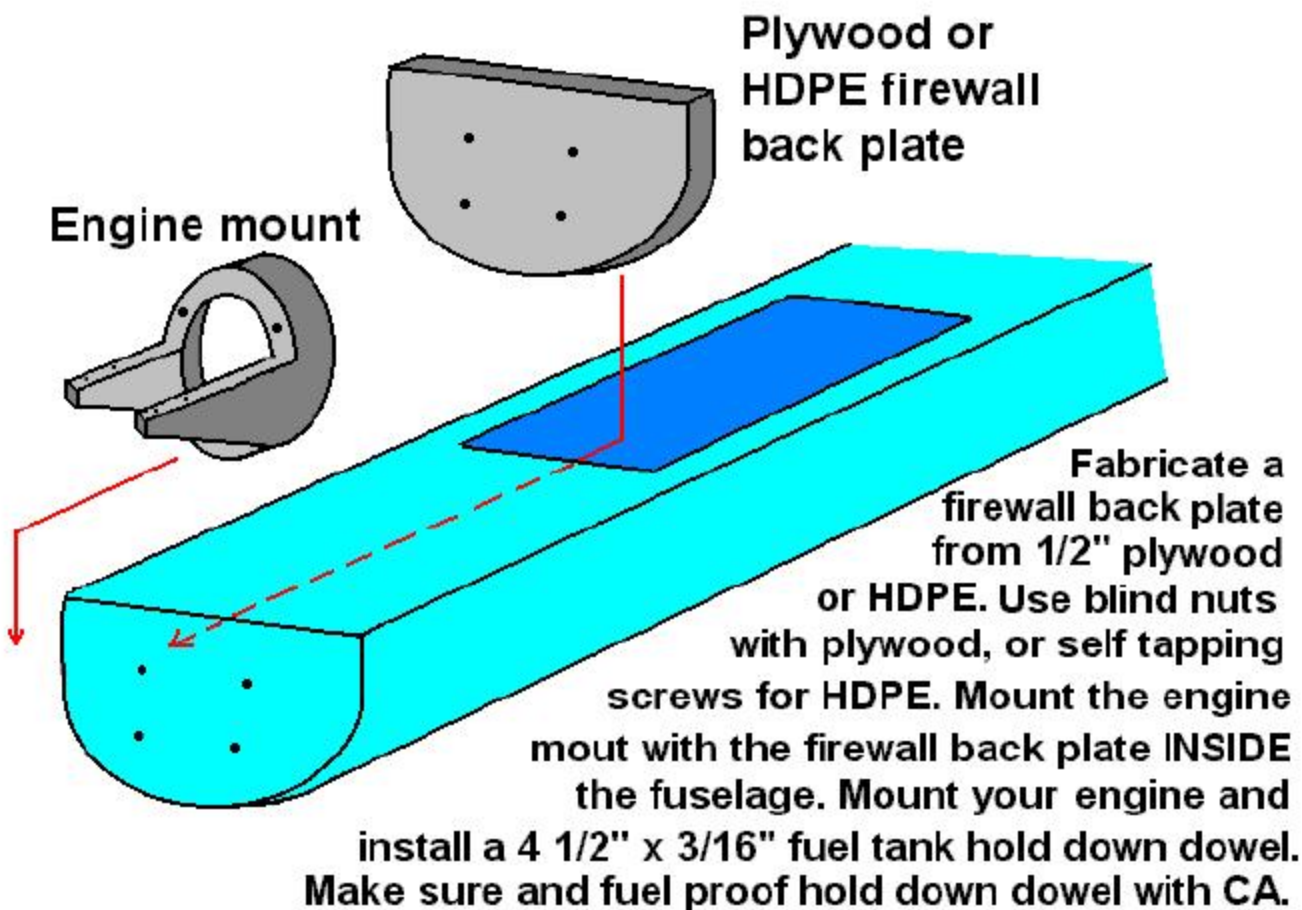
Cut out the tail from 4 mm Coroplast as shown, with the flutes running in the spanwise direction. Hinge the elevators by cutting away the bottom side of the hinge line flute. Use a small blunt tipped object such as a phillips screwdriver to score and crease the tail fold line. Attach the tail to the fuselage using PVC scrap doublers and self tapping screws. While you're at it, cut out the rest of the PVC parts that you will need as shown here.

**Note:** When using self tapping screws to hold plastic airplane parts together, drill the screw head hole large enough for the screw and USE ONLY A SMALL PILOT HOLE for the self tapping side!



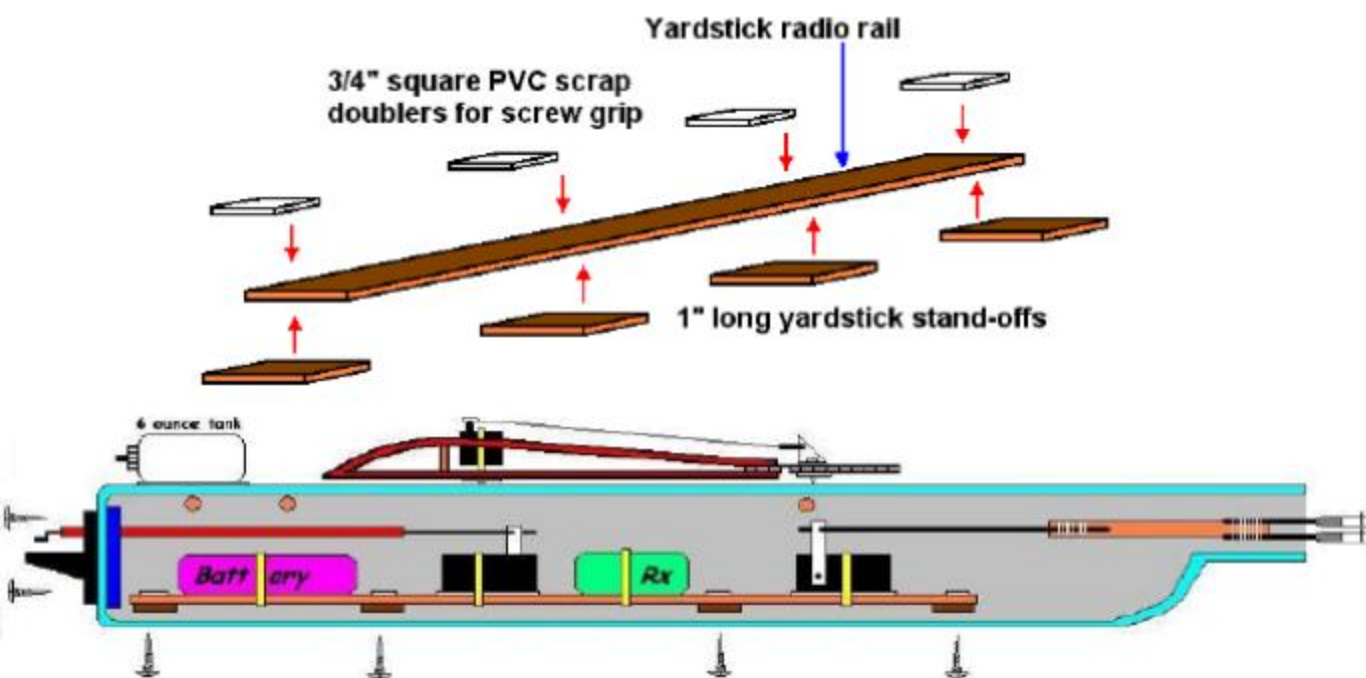


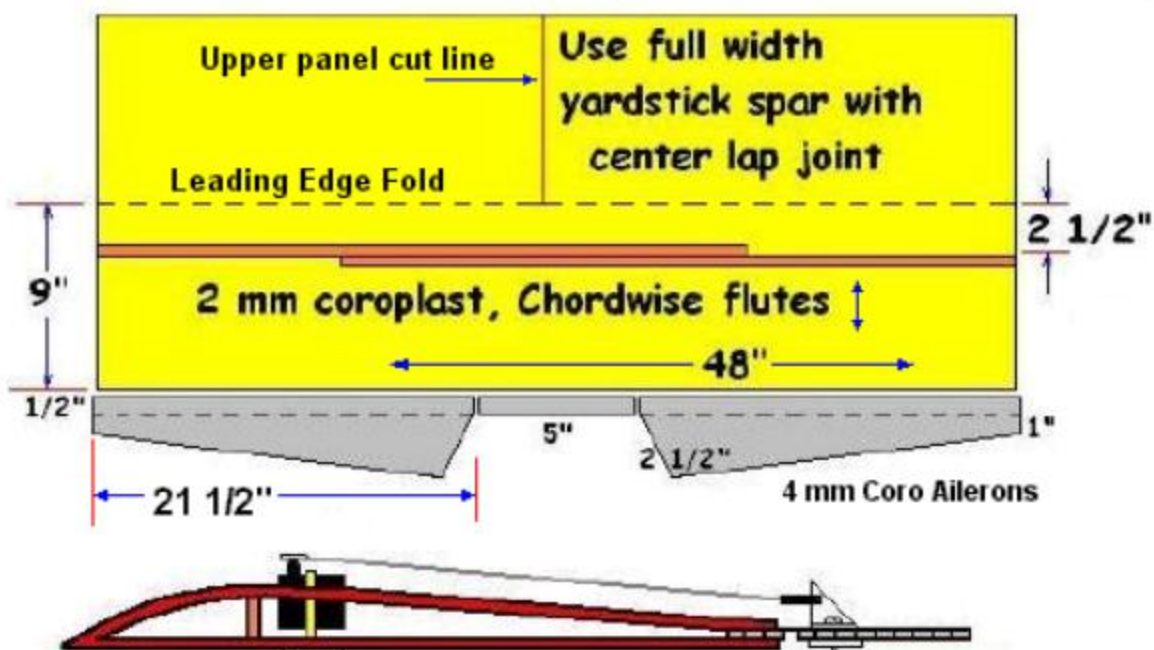
**Fold the tail and mount at a 90 degree angle. Make sure hinge line clears the end of the fuselage. Position and location of the screws is not critical as long as the tail is square and secure. Notice how control horns are positioned for proper clearance. When making horns for the elevators and ailerons, make sure and make right and left ones. Take care that the elevator pushrods do not hit the self tapping screws inside the fuselage.**





Review the pictures below. Build a radio rail out of yardstick as shown. The length of your rail will be determined by your radio equipment. Use your completed rail as a template on the bottom of the fuselage for drilling screw holes. Battery and Receiver are zip-tied in place. Servos are stuck down with two sided foam mounting tape first and then zip-tied. A small hole is drilled into the side of the fuselage for access to tighten servo arms. Install radio equipment to the rail and then install rail into fuselage. Mount switch to side of fuselage after rail is installed. Antenna exits fuselage behind the receiver and then is routed through a flute in the tail. The pushrod is built conventionally with a single input rod on the servo side, and two output clevice rods at the elevator end. Be careful not to let the elevator servo arm or pushrod hit the rear wing hold down dowel or tail mounting screws. The aileron servo is mounted into the wing for a snug fit, and then secured with a zip-tie through the bottom of the wing with the PVC aileron servo zip-tie doubler.





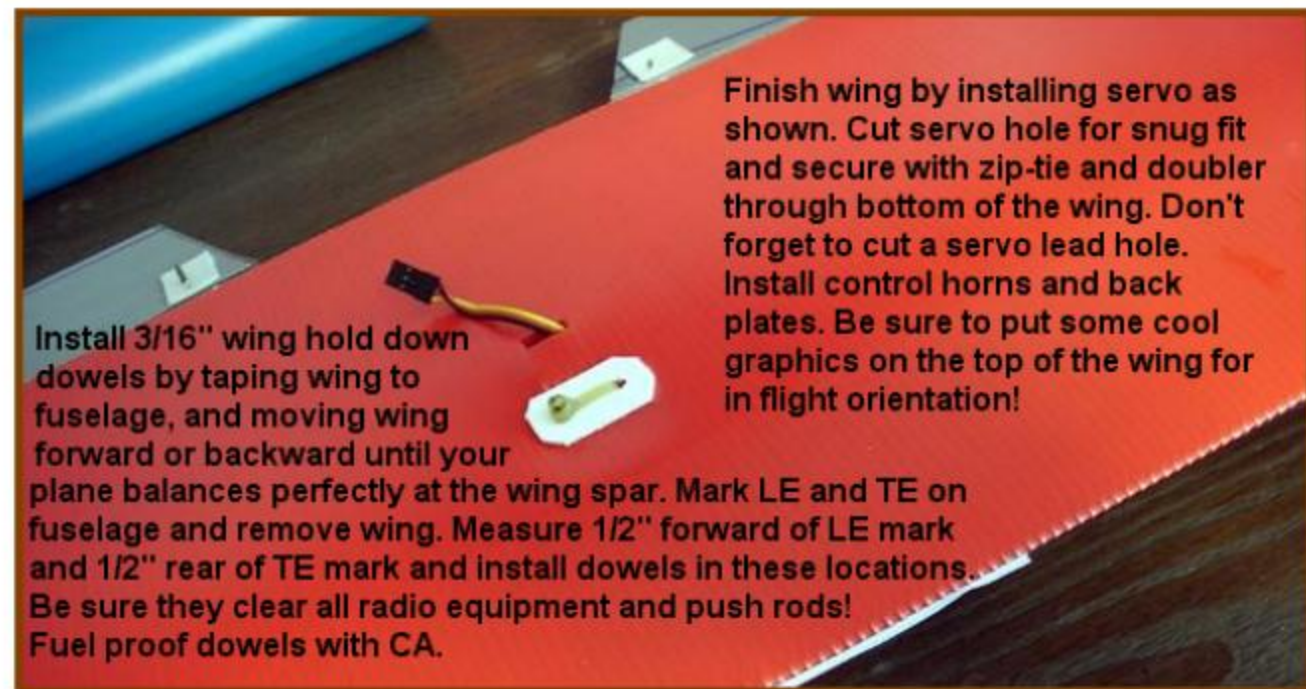
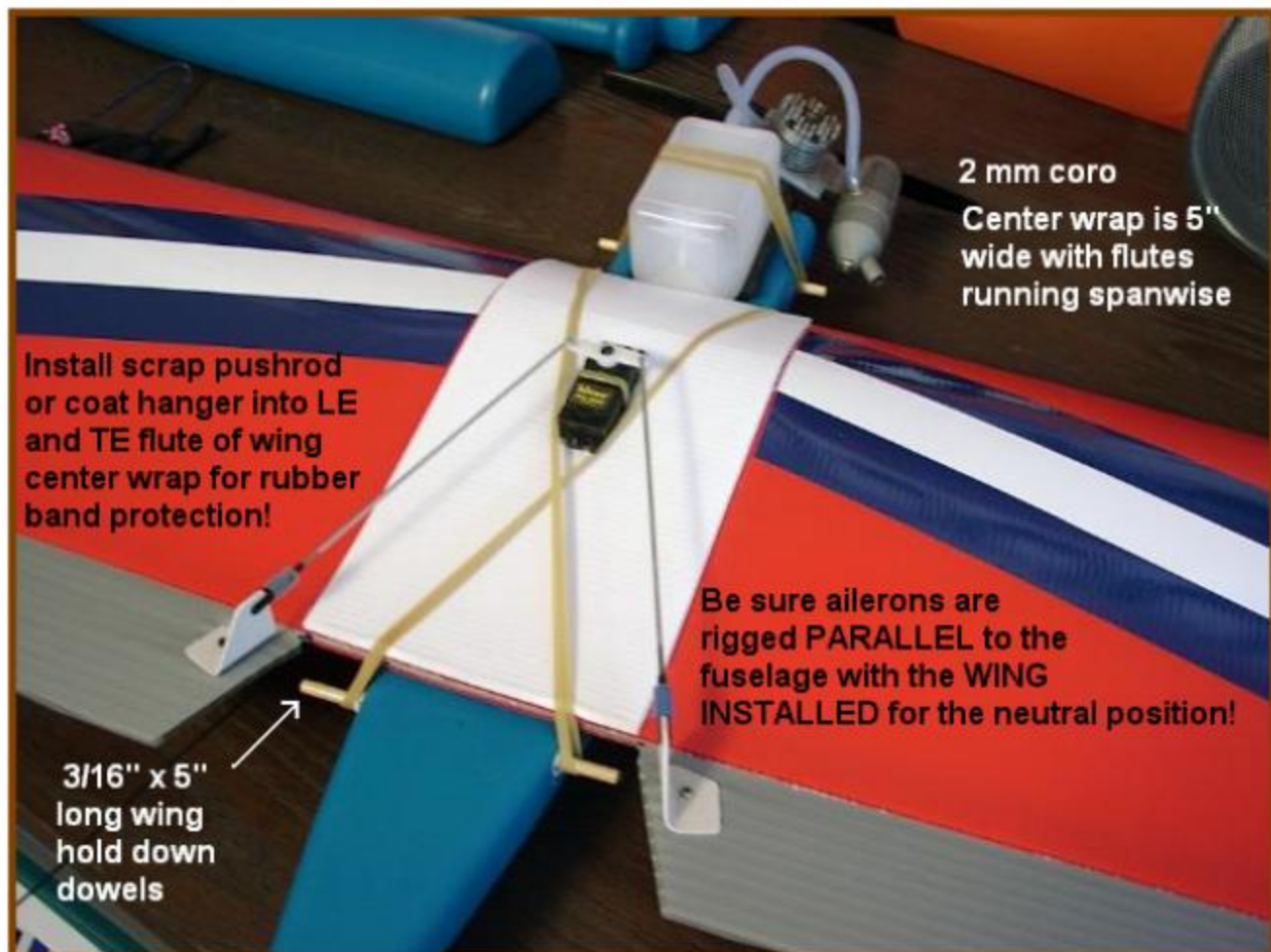
Coroplast areas to be glued must be "FLASHED" first!!! Practice this on scrap Coroplast first! Pass a medium flame from a butane or propane torch directly over the plastic slow enough to burn the manufacturing oils out of the plastic, but fast enough not to burn the plastic! It only takes SECONDS and there is very little evidence you have done anything. You may see a slight vapor wave on the plastic in front of the flame and the plastic may turn a darker color and warp slightly...it will return to normal in several seconds. If the plastic ripples or turns shiney...you are nanoseconds away from melting it!!! When gluing plastic to plastic...USE ONLY ONE DROP OF MEDIUM CA EVERY 1/4" TO 1/2" OR SO!!! USING TOO MUCH GLUE IS THE BIGGEST MISTAKE HERE! A bead of glue is too much and may not set up. Also, it is imperative that the parts DO NOT MOVE AT ALL after initial contact. Very helpful hint: If you live in a dry climate, or have trouble getting the CA to work, a slight mist of water from a spray bottle, on the opposing surface to be glued, can be used to help the CA activate

Layout the wing as shown starting with a 48" x 19" piece of 2 mm Coroplast with the flutes running in the chordwise direction. Build spar from two full yardsticks using a lap joint as shown. Glue spar in place. Cut upper panels apart on red line shown. Score LE and pre-fold each top panel, and trim trailing edges to be flush. Go for a flat bottomed to slightly semi-symmetrical airfoil. Cut out ailerons and center piece from 4 mm Coroplast with the flutes running spanwise. Hinge ailerons by cutting away bottom of hinge line flute. Glue ailerons and center piece in place, be sure hinge clears trailing edge. Fold and glue wing top panels to top of spar and trailing edge. Finish wing by gluing a 5" wide 2 mm center wrap to upper panel center. Be sure to insert scrap pushrod or coat hanger scrap into LE and TE flute of center wrap for rubber band crush protection.



For a super strong wing, Add 4 mm coroplast reinforcement to wing leading edge area as shown







[SPAD.COM.BAT Design and flying](#)



**DO NOT FLY YOUR SPAD.COM.BAT IF YOU ARE NOT AN EXPERIENCED PILOT! IF YOU HAVE ANY QUESTIONS, SEEK THE HELP OF A CLUB AND EXPERIENCED INSTRUCTOR PILOT!!! FOLLOW ALL AMA SAFETY GUIDLINES AND HAVE FUN!!!**

**Set all control surfaces for 1" travel each way (2" total) and hang on! The bat handle makes a great hand hold for launching either overhand or underhand. Do not try this yourself until your plane is properly trimmed out. Be sure there is a layer of foam under the fuel tank to prevent foaming, and use six per side #64 rubber bands (12 total) securing the wing in place. There is a link to the Spad Forum at [www.spadtothebone.com](http://www.spadtothebone.com), so please visit, and let us know how your plane flies!!!**

**For combat streamer attachment, simply loop your leader string around the fuselage bat handle in front of the tail and tie!**

**A word about aircraft design: The Flat Bat is nothing more than a great fuselage for a Spad airplane. All aspects of the SPAD.COM.BAT are taken from other designs. Please don't ever be afraid to experiment! If you want faster top speed or quicker roll rate, shorten the wingspan. For a tougher wing, see the Spad Originals web site and build a Dogfighter wing for your plane. Kraut mounted his elevator servo and pushrod externally and it works great. Tattoo has fitted a Flat Bat with a Friday Night Special wing and tail and produced a great flying airplane! The sky is the limit, and there is plenty of room for preferences and individuality...but above all, be safe and have fun!!!**