Kit No. CBMD-007

Construction Detail
Part 2 of 2

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Revision NC

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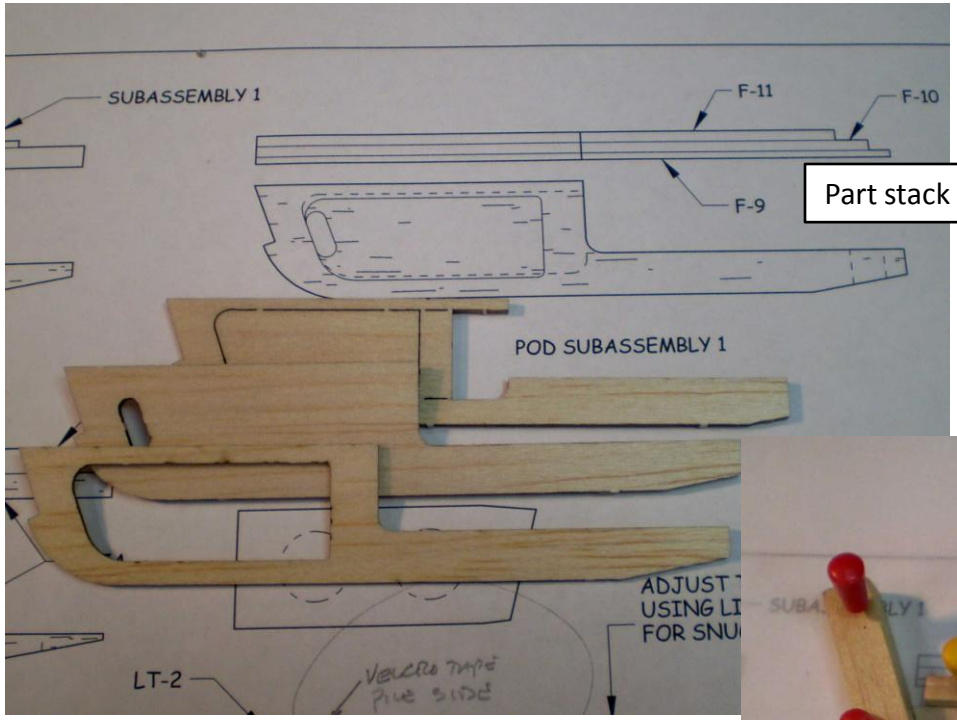
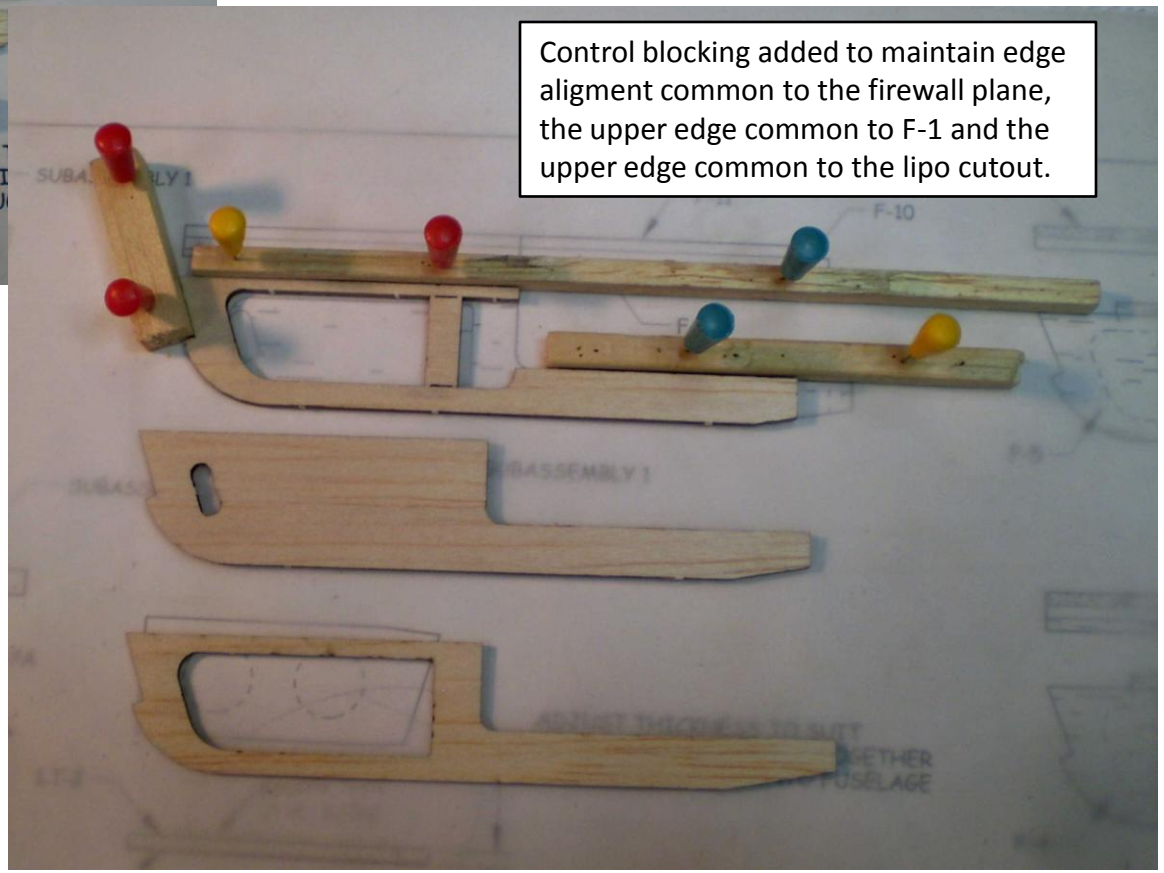


Part stack for fuselage pod subassembly 1



Control blocking added to maintain edge aligment common to the firewall plane, the upper edge common to F-1 and the upper edge common to the lipo cutout.

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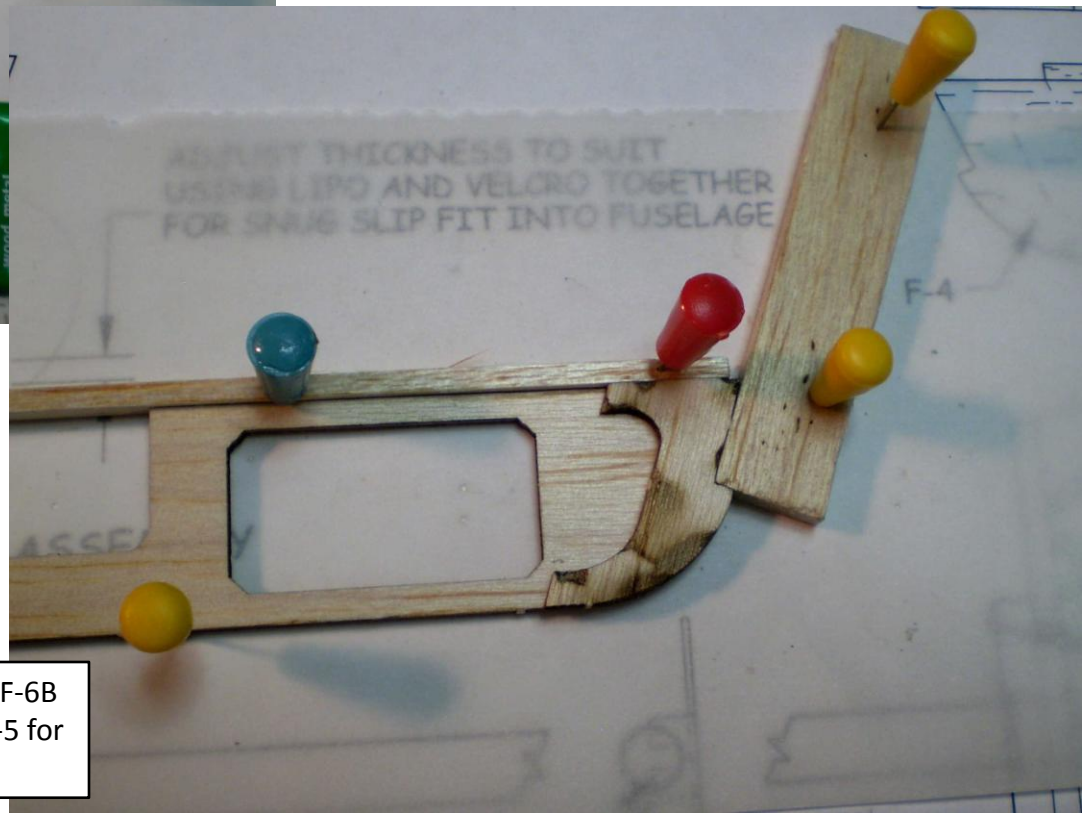
Pod subassembly 1 stack-up under way



Pod subassembly 4 starting-F-6B being positioned on top of F-5 for ease of assembly

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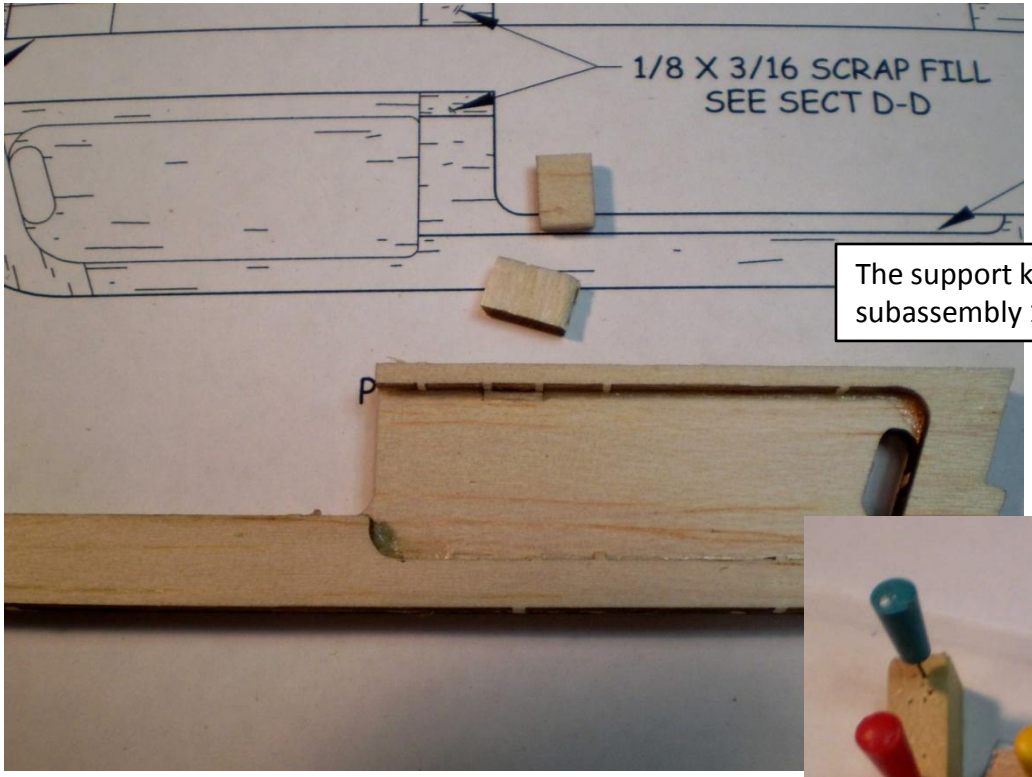
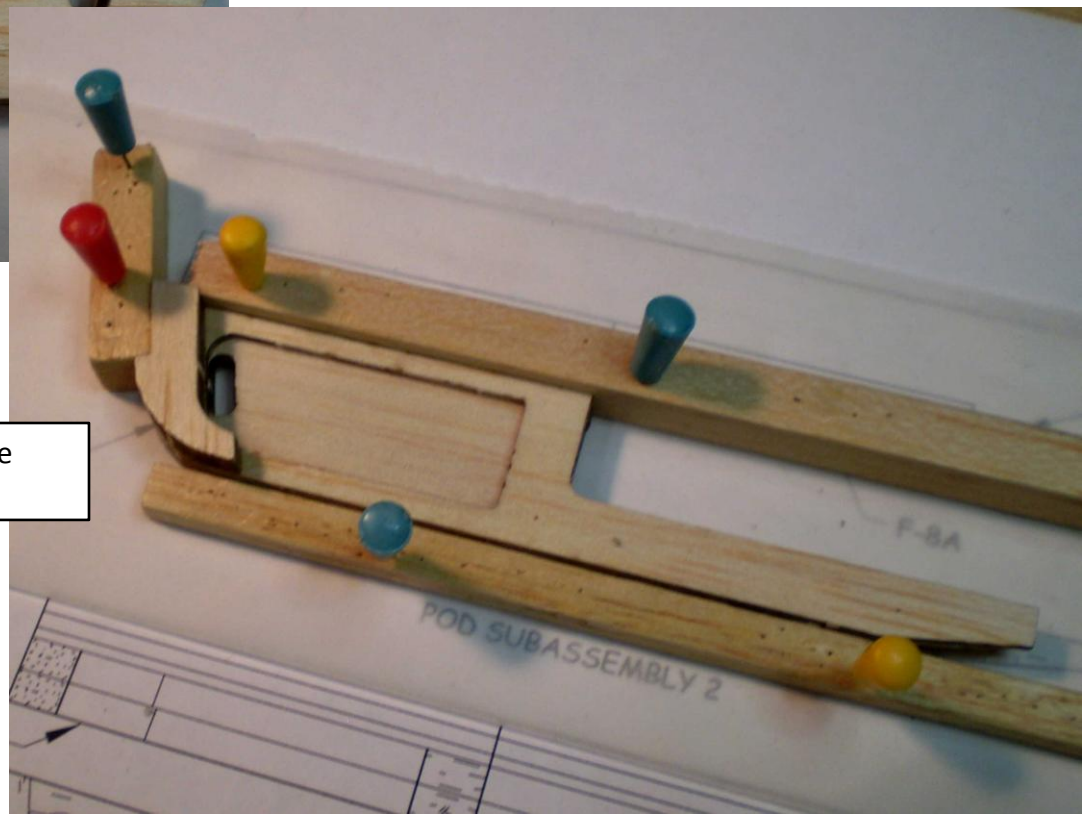


The support knockout removed from F-11 on subassembly 1



Adding F-8A to create pod subassembly 2

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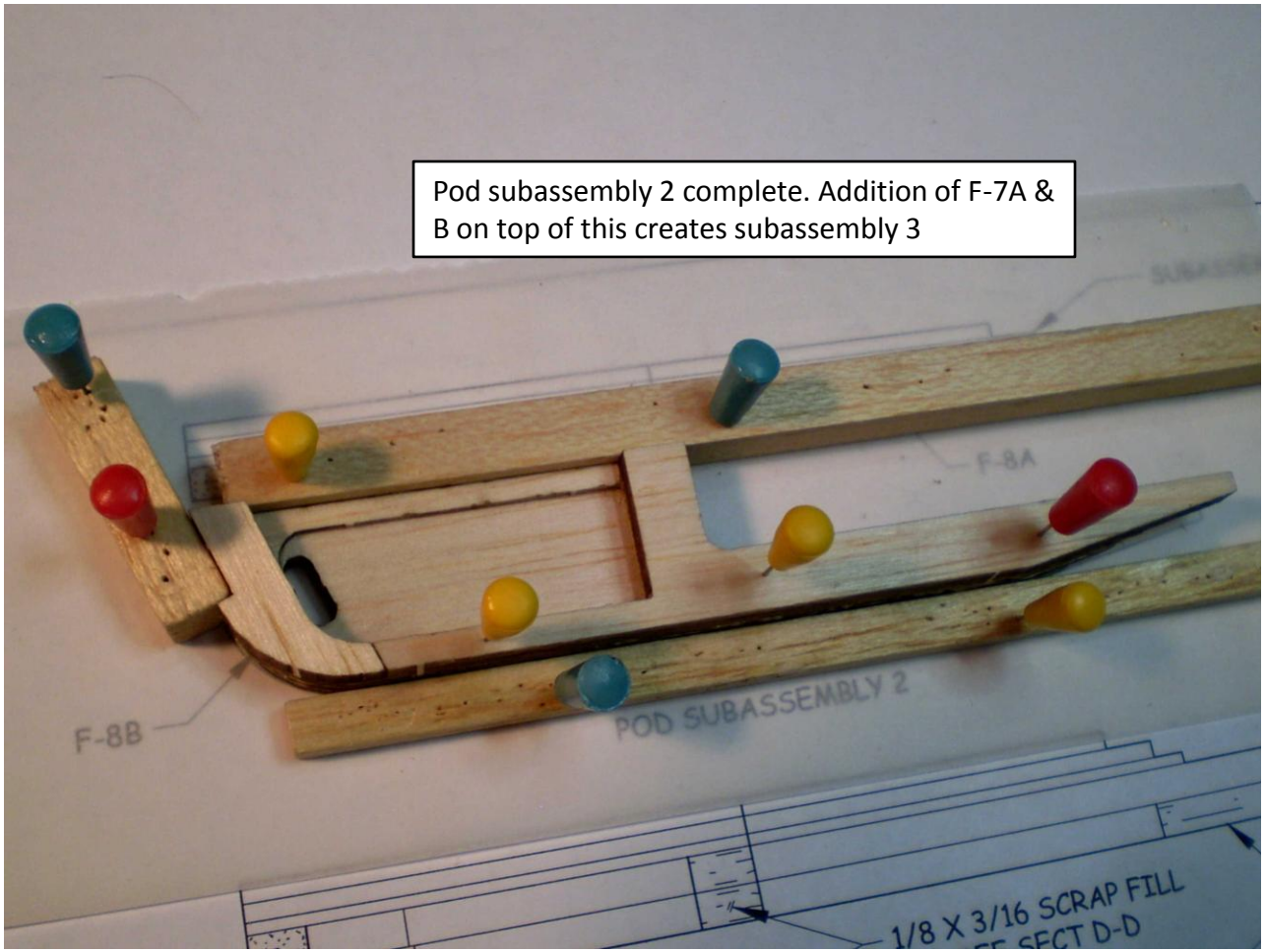

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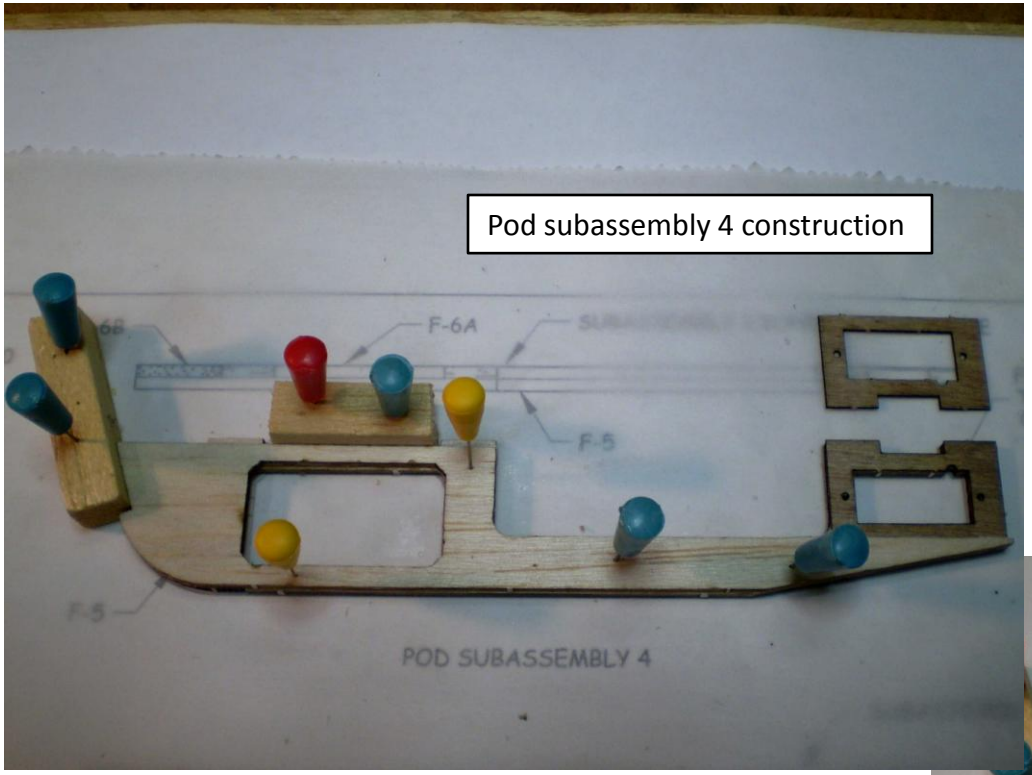
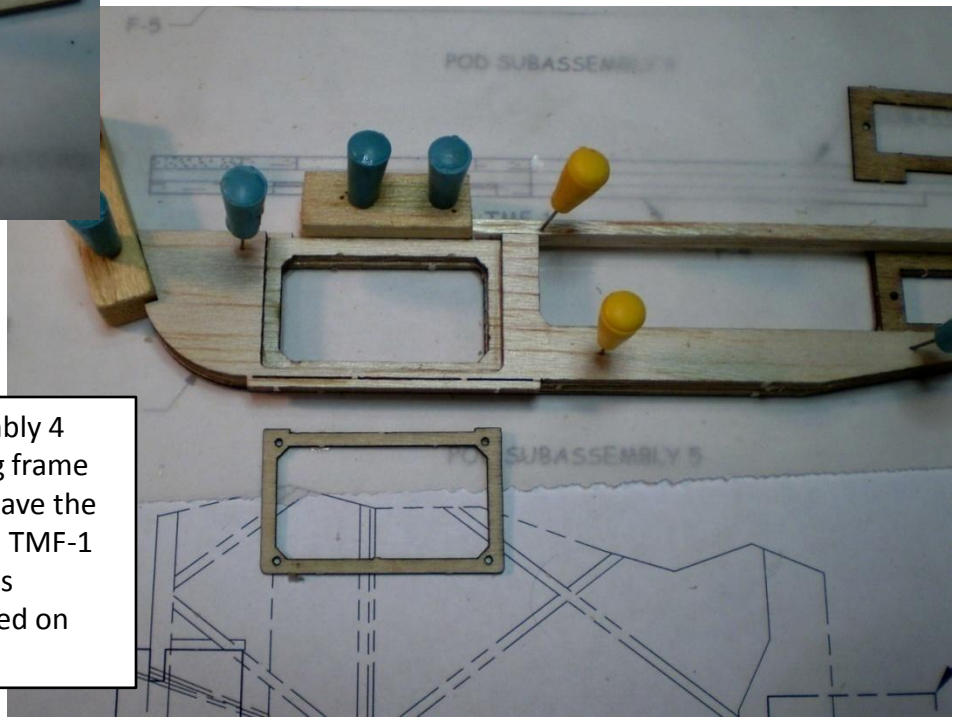


Pod subassembly 4 construction



Subassembly 5 built on top of subassembly 4 with addition of F-4 and timer mounting frame TMF-1. Note: if using the eMax timer leave the knockout in F-4 that is profiled to match TMF-1 in place. This becomes the spacer that is bonded to F-5, and then TMF-1 gets glued on top of the F-4 spacer to complete.

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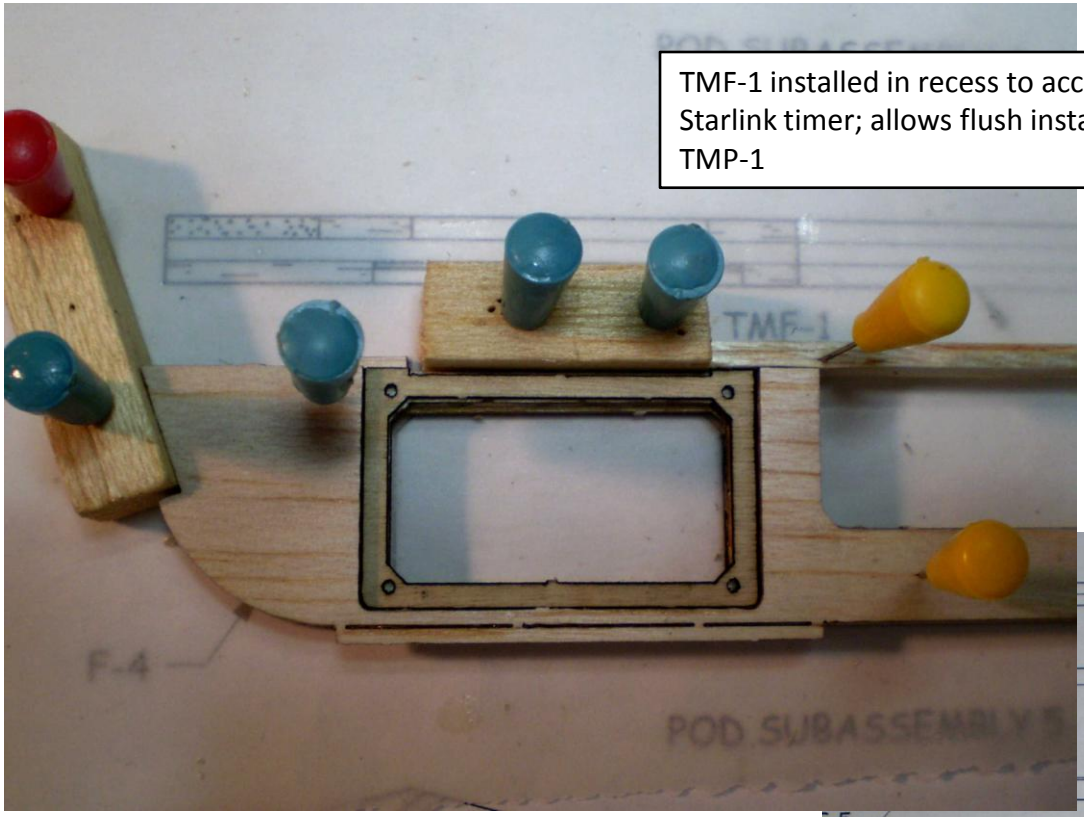
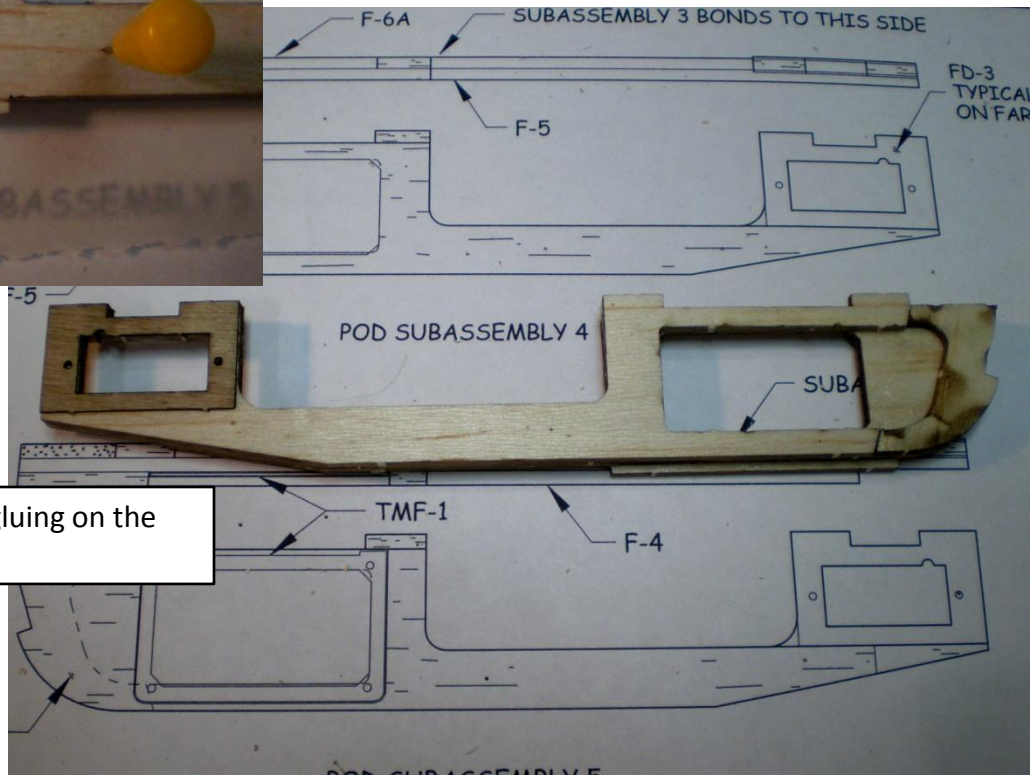


TMF-1 installed in recess to accept the Starlink timer; allows flush installation of TMP-1



Finish off subassembly 5 by gluing on the remaining FD-3 doubler

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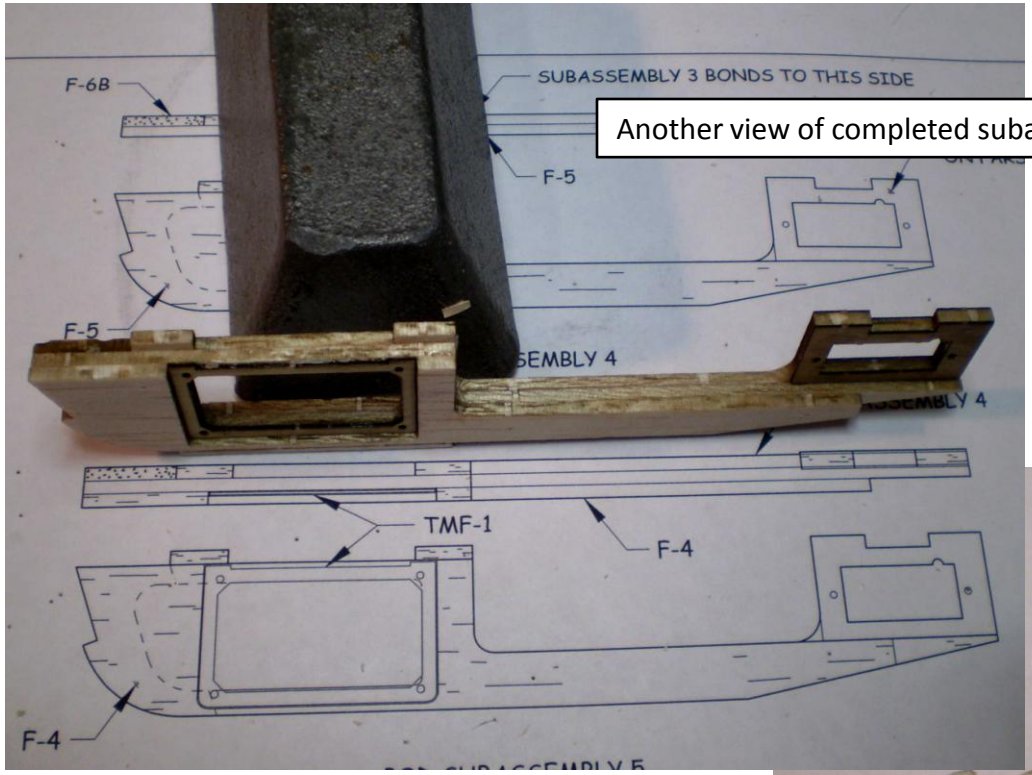
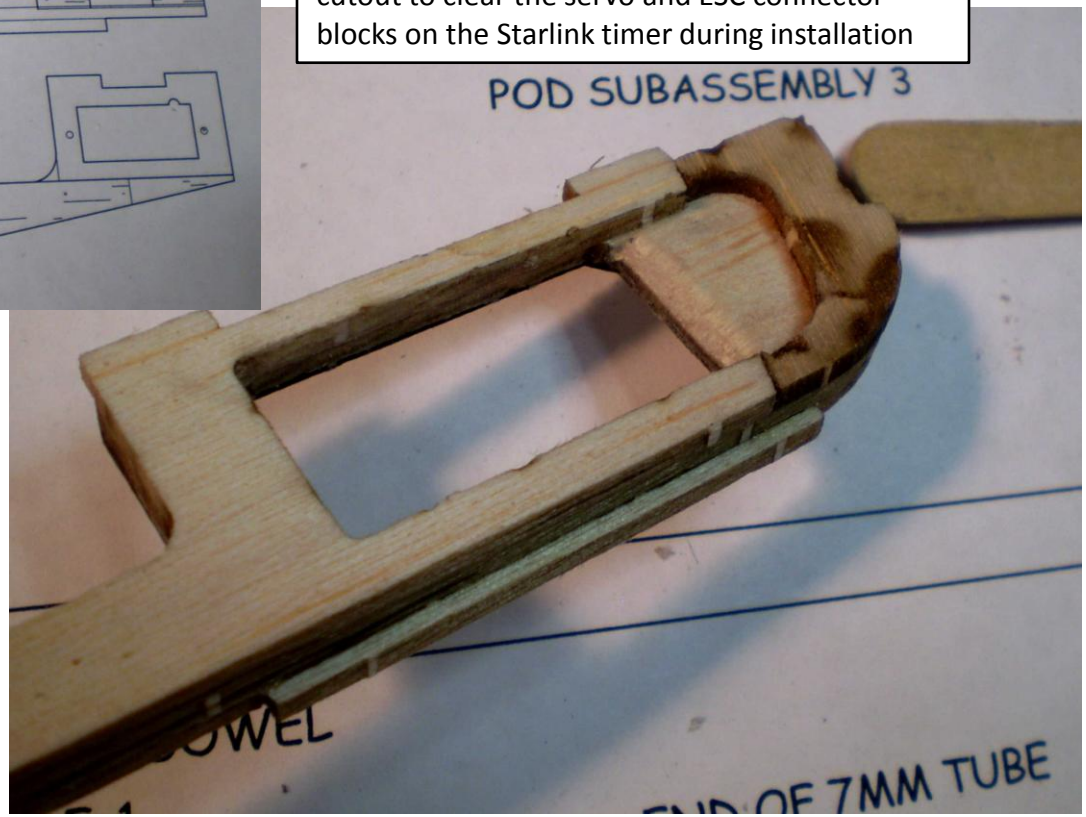


Another view of completed subassembly 5

Sand a chamfer at the front edge of the timer cutout to clear the servo and ESC connector blocks on the Starlink timer during installation



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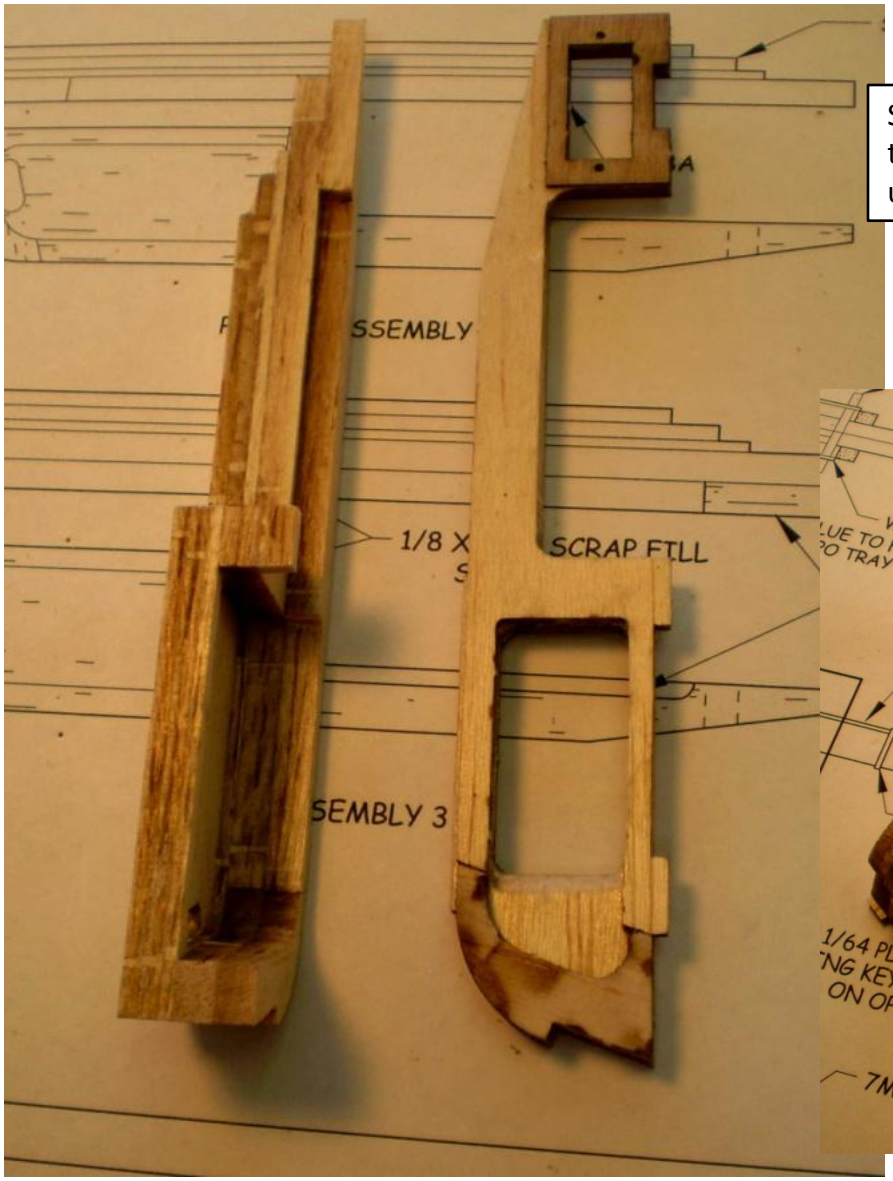
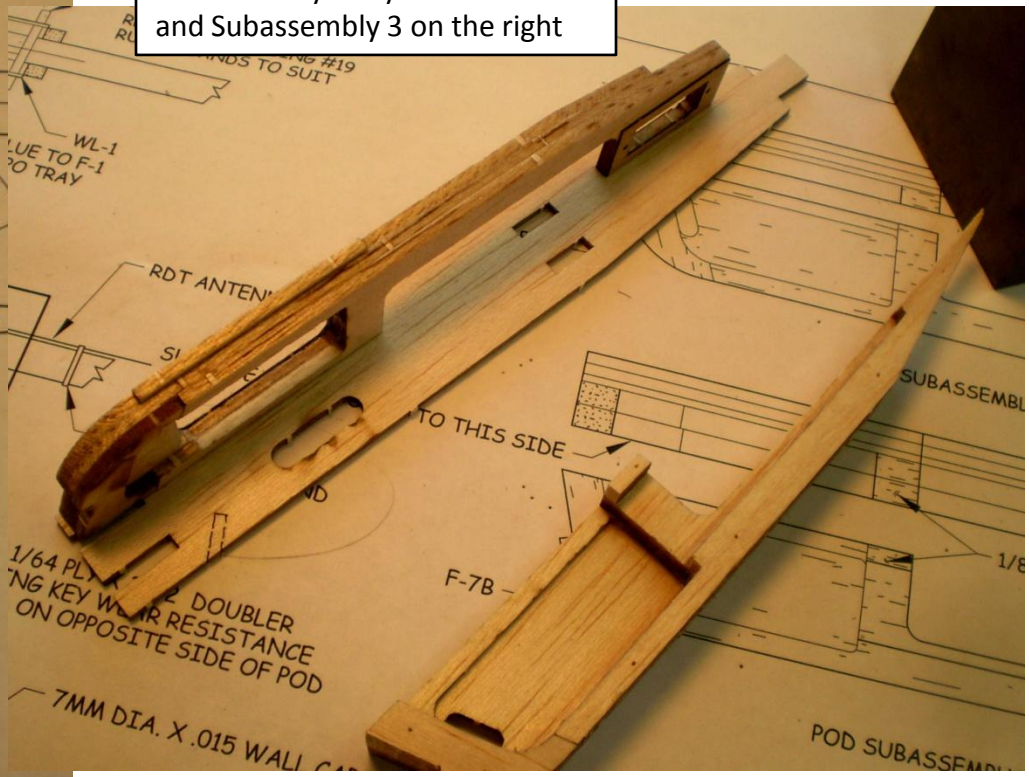


Subassembly 3 on the left and Subassembly 5 on the right. Note the 1/8 x 3/16 wide filler at the upper aft edge of subassembly 3 in both views.

Subassembly 5 dry installed in F-1 and Subassembly 3 on the right



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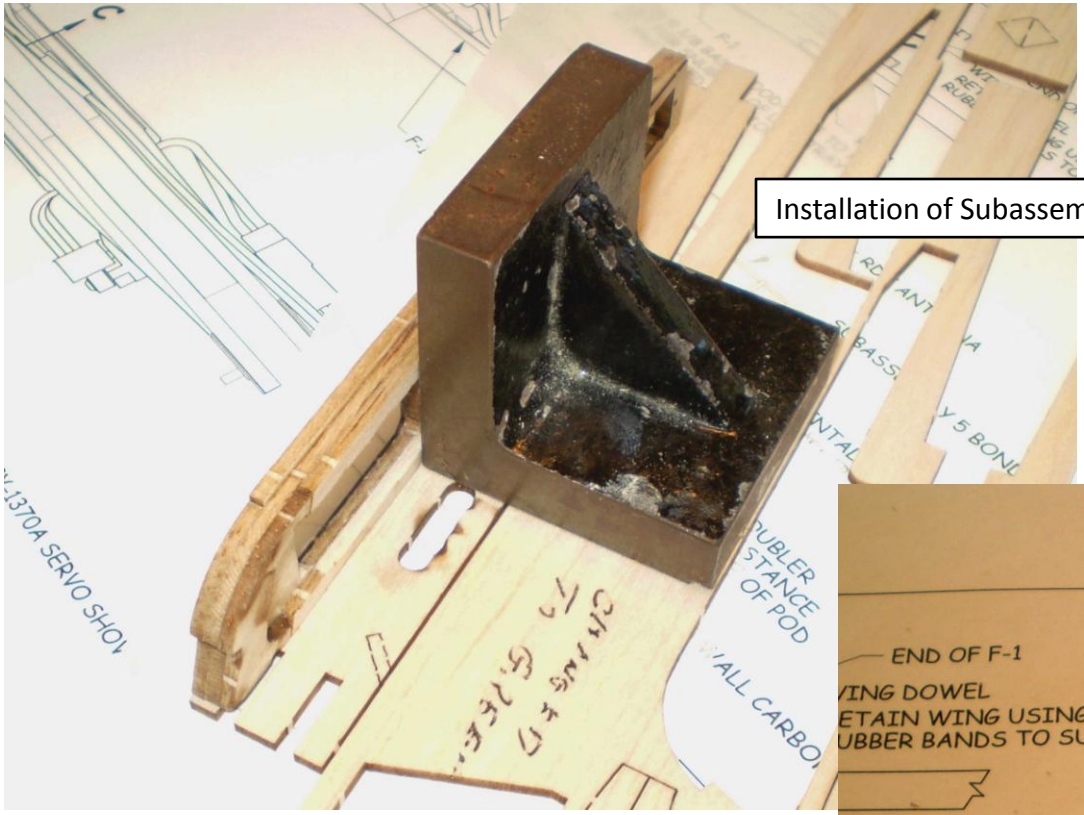
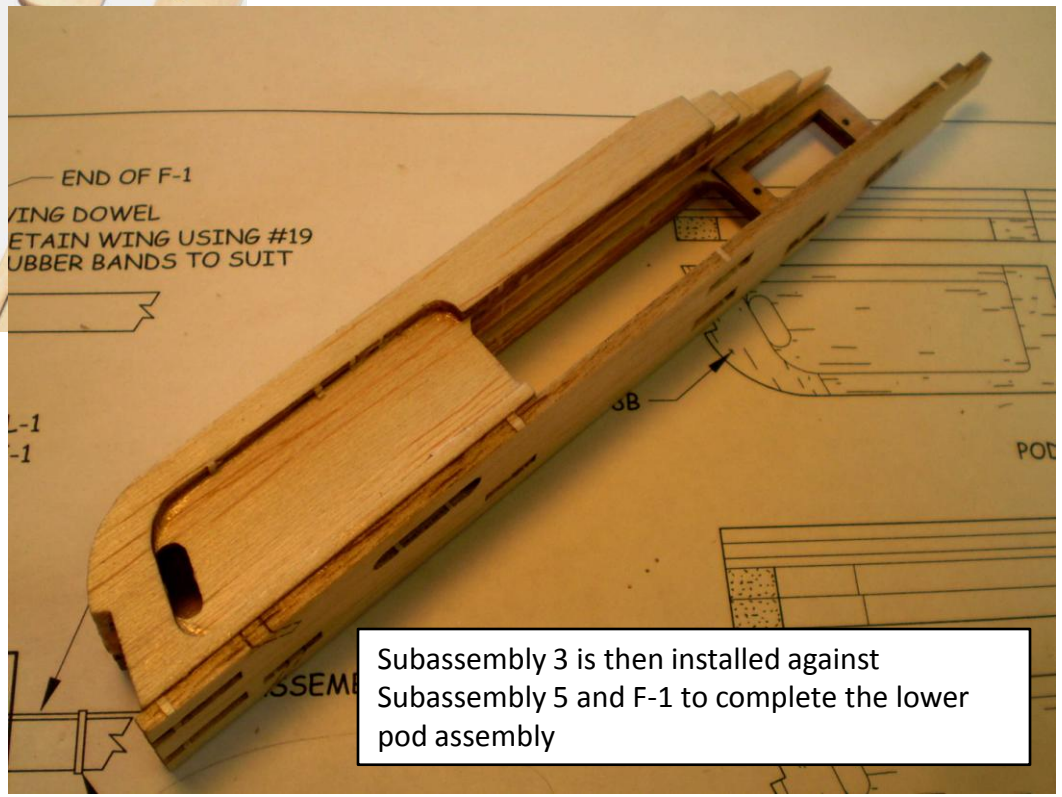


Installation of Subassembly 5 to F-1



Subassembly 3 is then installed against Subassembly 5 and F-1 to complete the lower pod assembly

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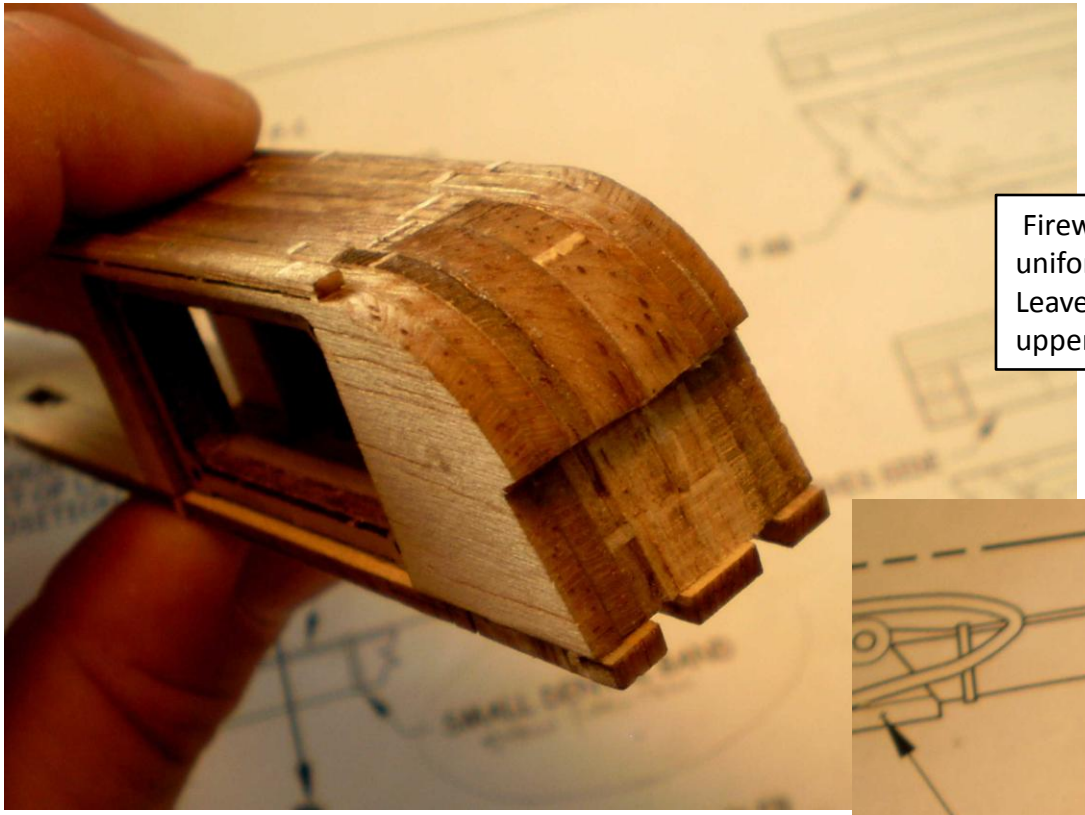
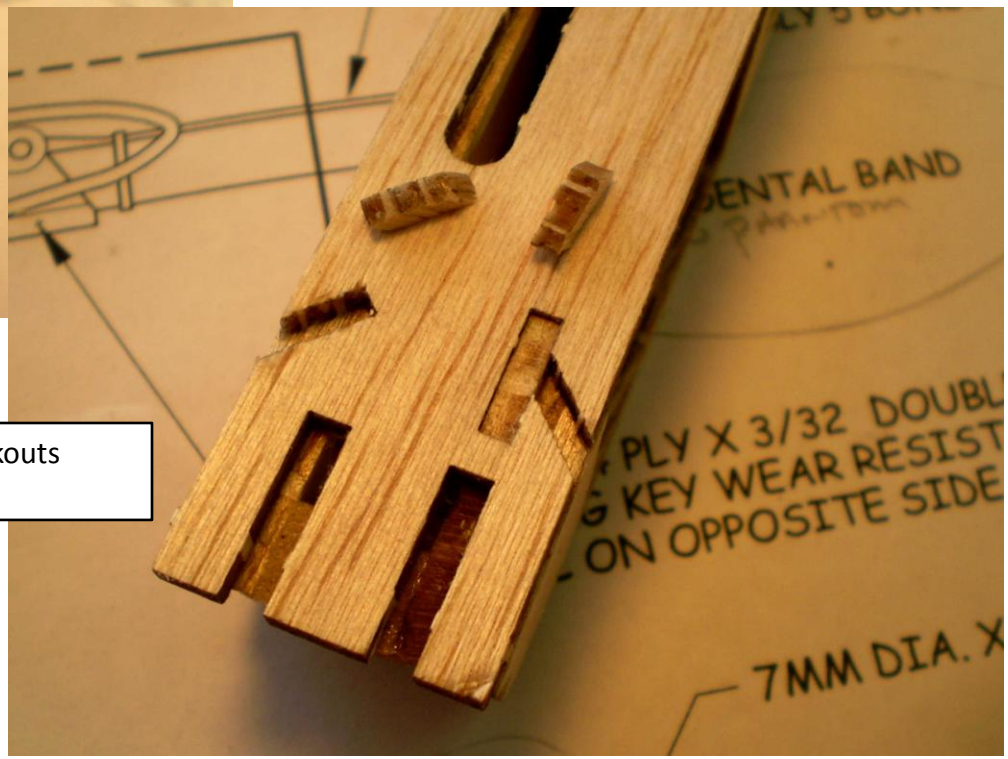


Firewall mounting area should look very uniform and square to the sides of the pod. Leave the front end of F-1 as shown until the upper pod details are installed



Remove the forward wing dowel knockouts before installing the upper pod details

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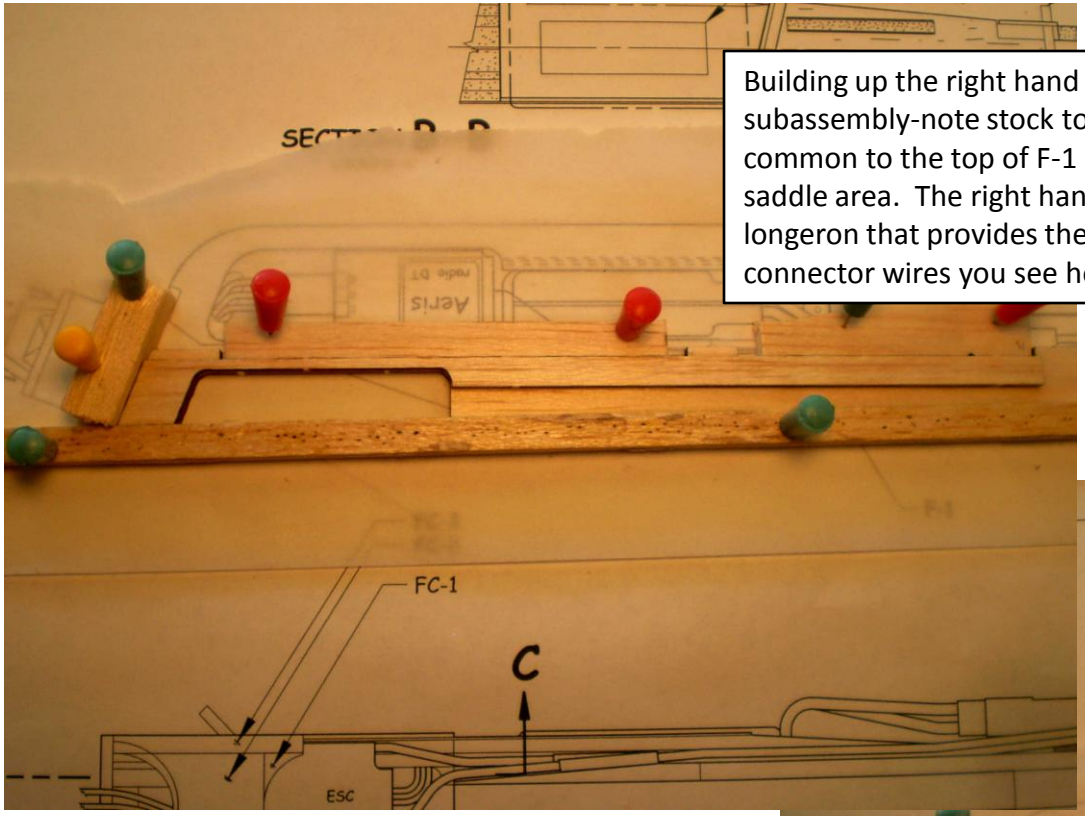
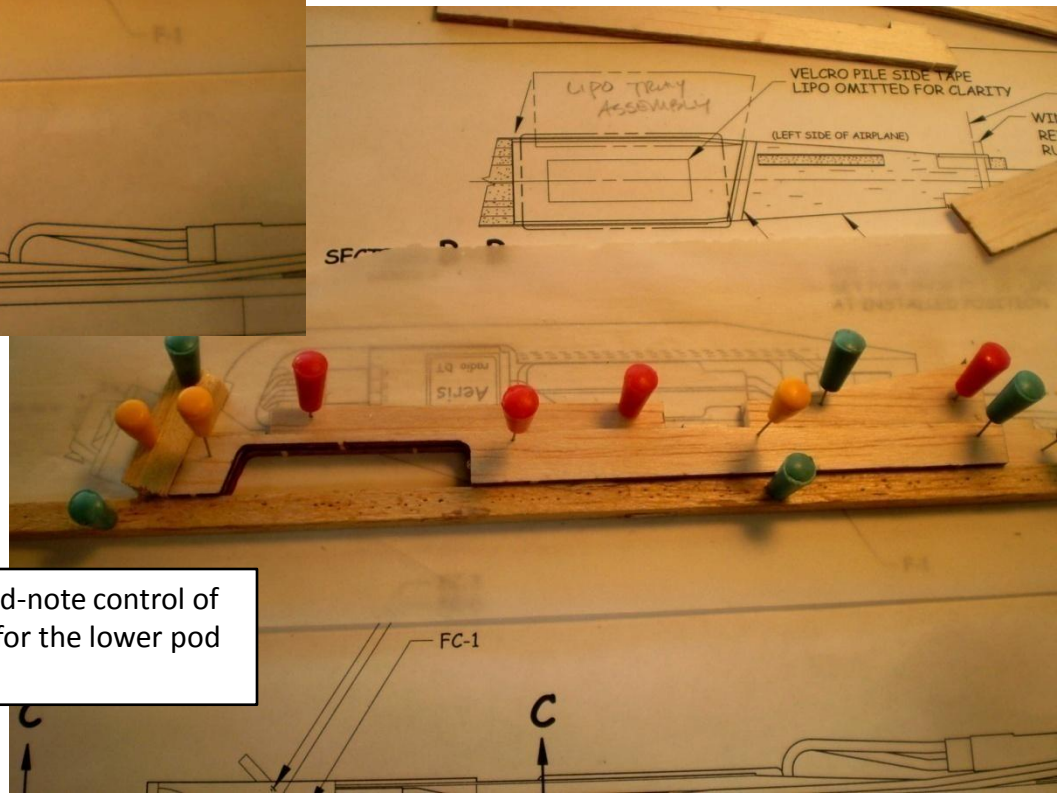


Building up the right hand upper pod longeron subassembly-note stock to control edges common to the top of F-1 and also the wing saddle area. The right hand side has the F-4 longeron that provides the relief for the lipo connector wires you see here



Right hand side F-3 installed-note control of the firewall plane as done for the lower pod subassemblies

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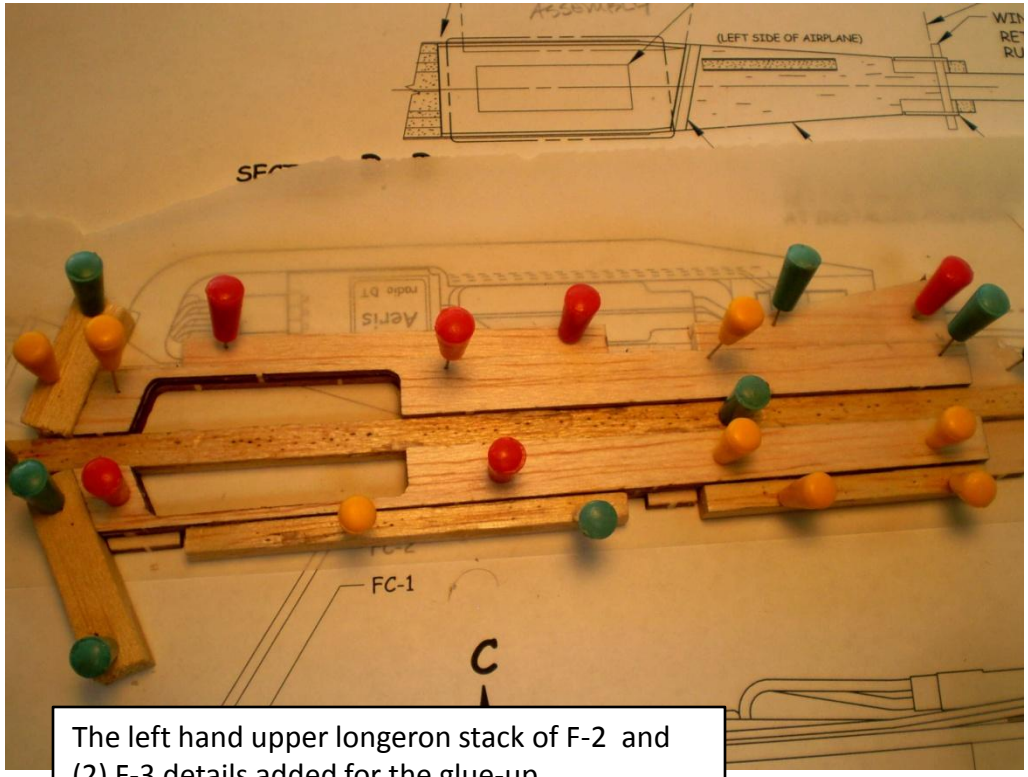
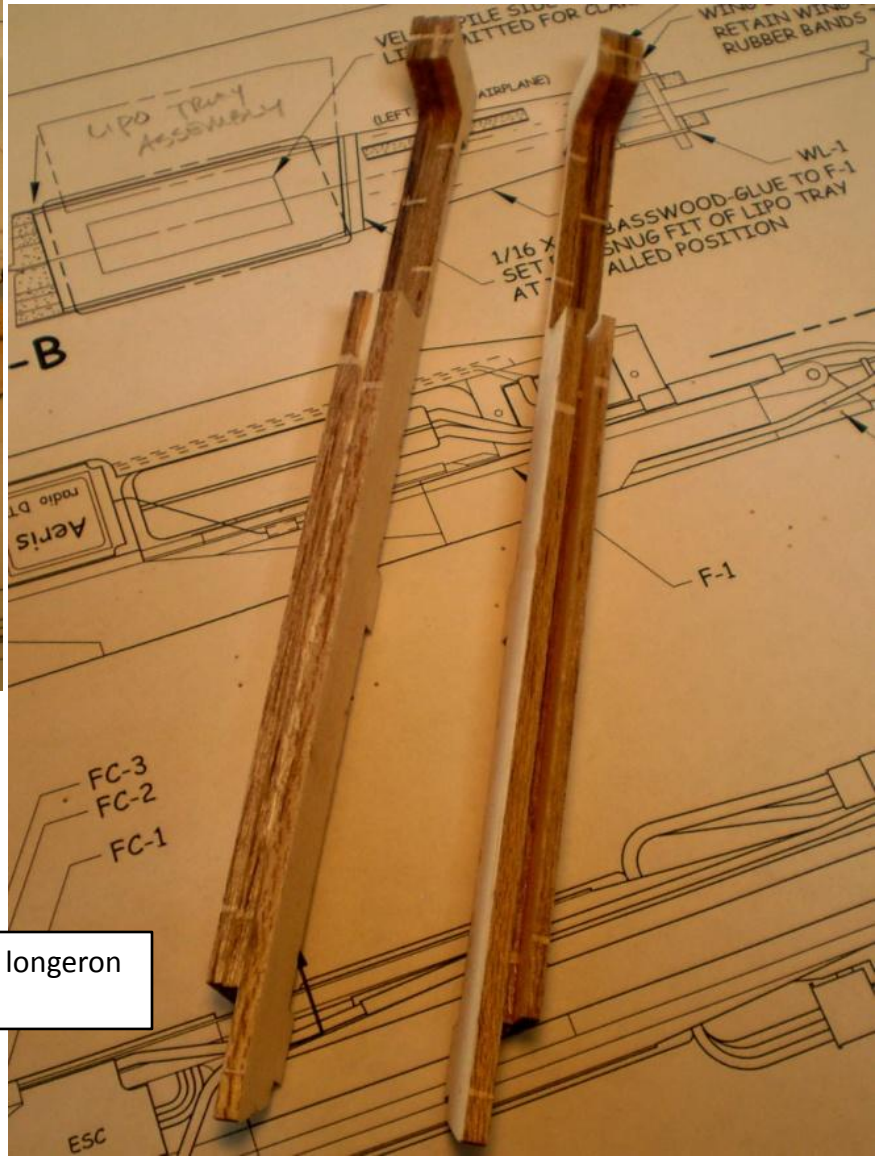


The left hand upper longeron stack of F-2 and (2) F-3 details added for the glue-up



Finished left and right hand longeron subassemblies

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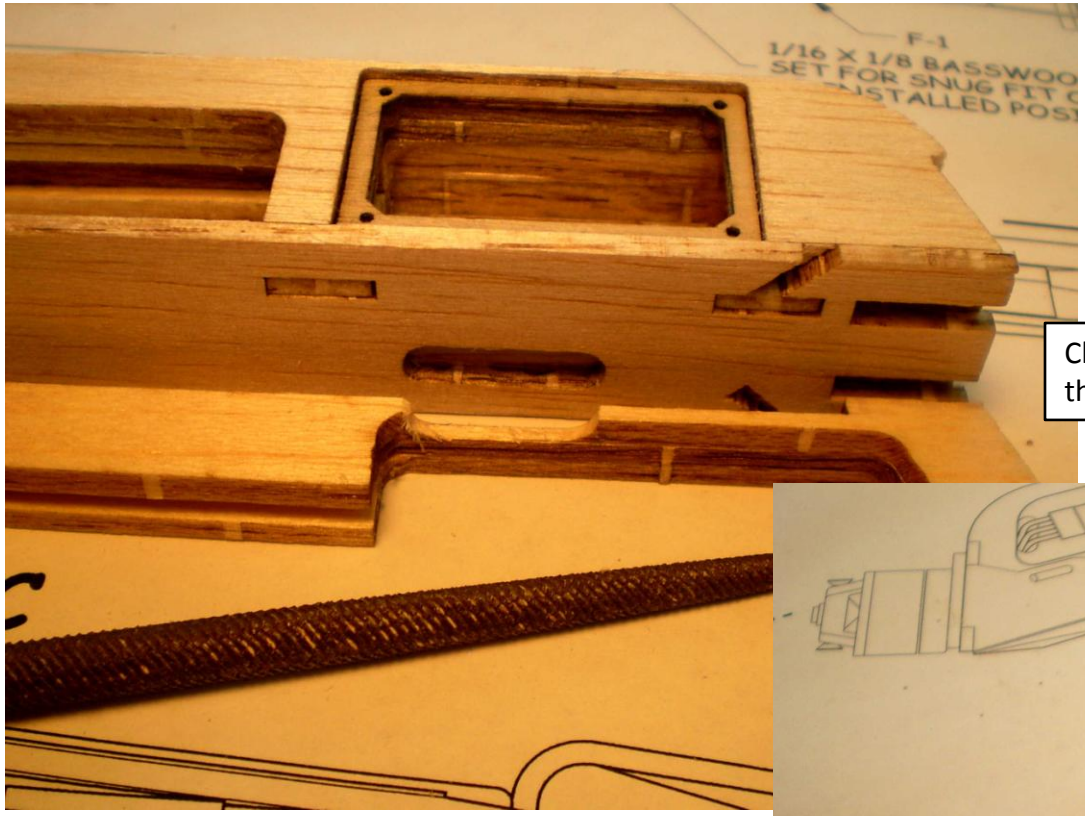
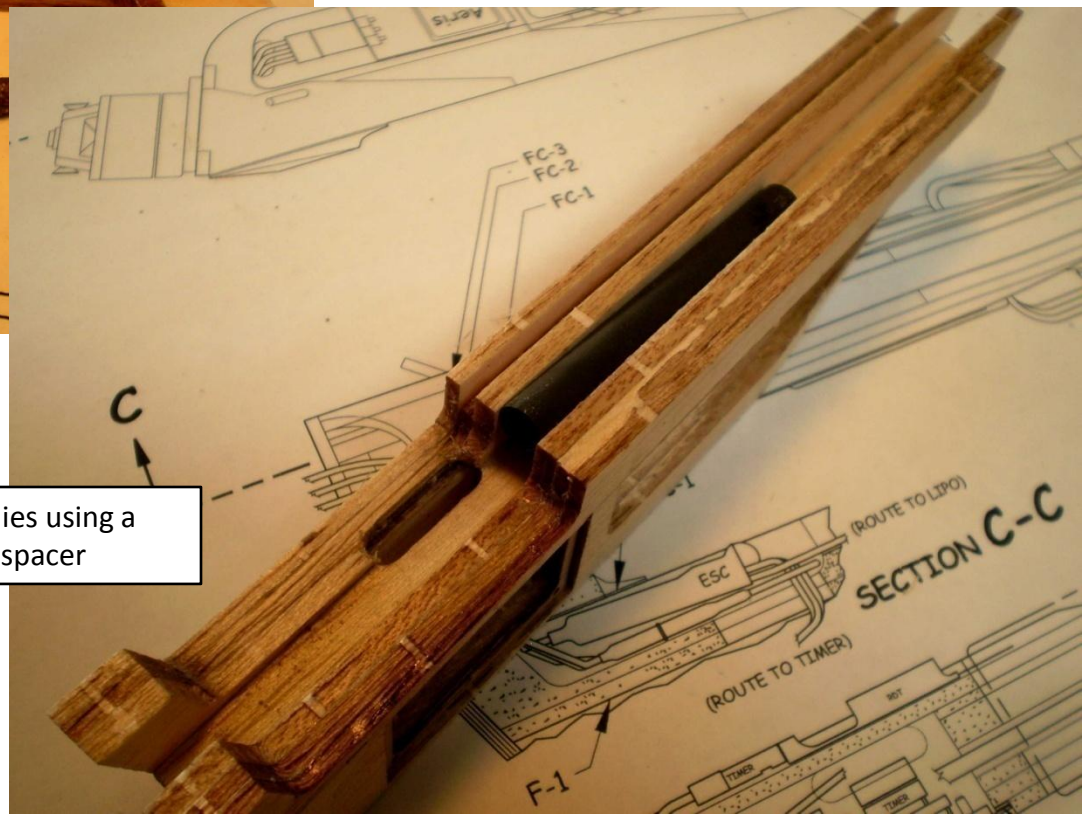


Clear the right hand longeron assembly for the ESC pass through in F-1



Installing the upper longeron subassemblies using a 7mm diameter tube remnant to act as a spacer

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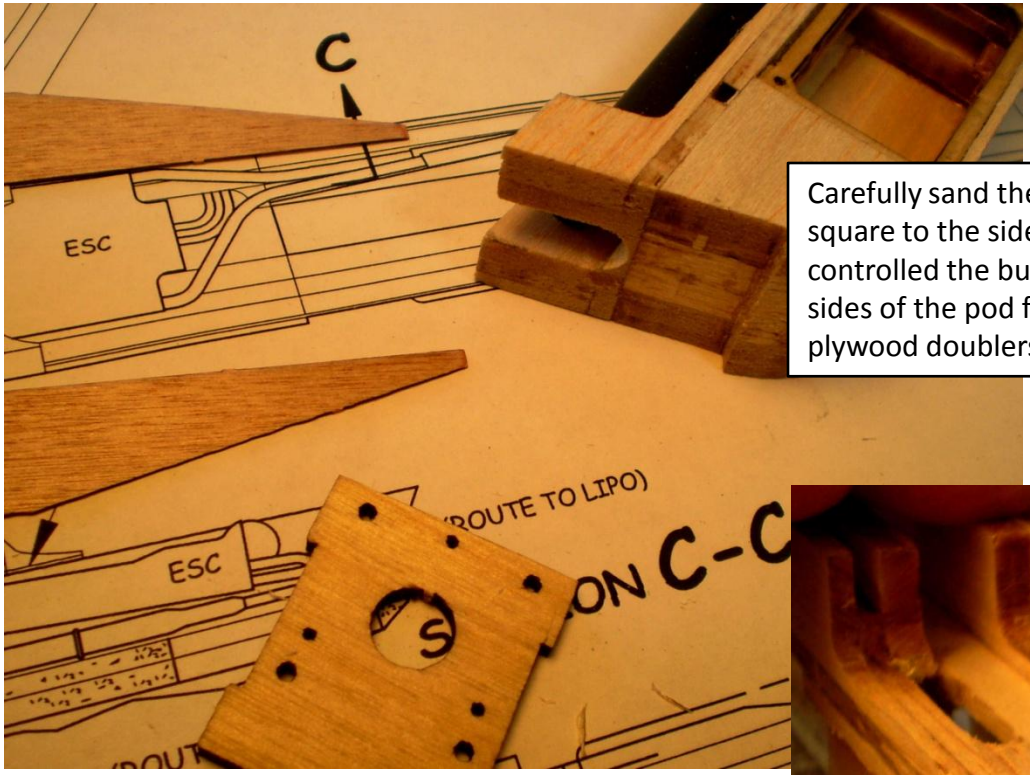

Carefully sand the firewall plane and front of F-1 flush and square to the sides of the pod. It should be very close if you controlled the build-up of the pod subassemblies. Sand the sides of the pod flush to the firewall width before installing the plywood doublers

Add one of the 1/64 ply fuselage doublers FD-1 aligned to the top of the longeron and firewall plane

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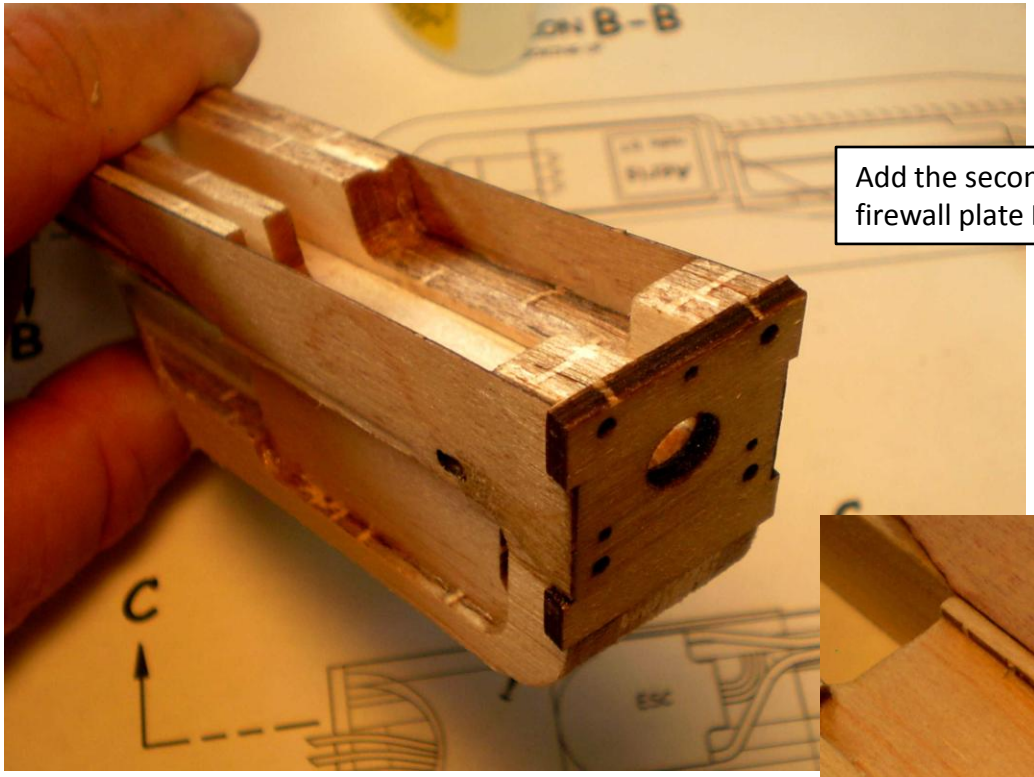

Add the second 1/64 doubler FD-1 and the firewall plate FW-1

Add the remaining 1/32 plywood doublers FD-2

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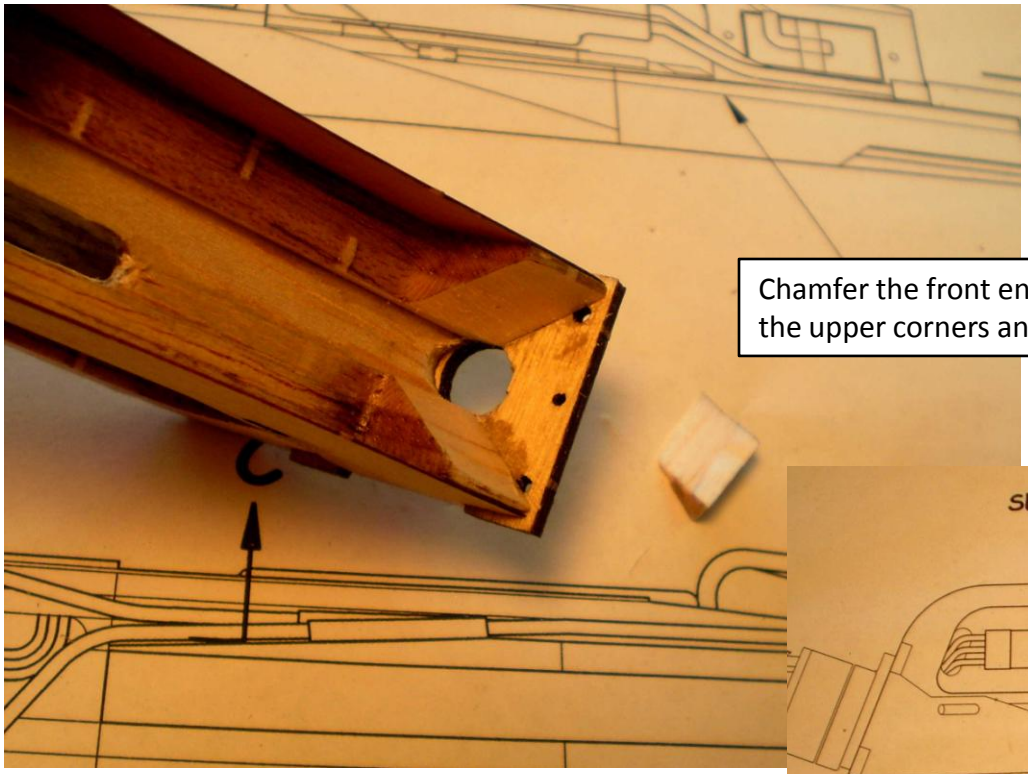
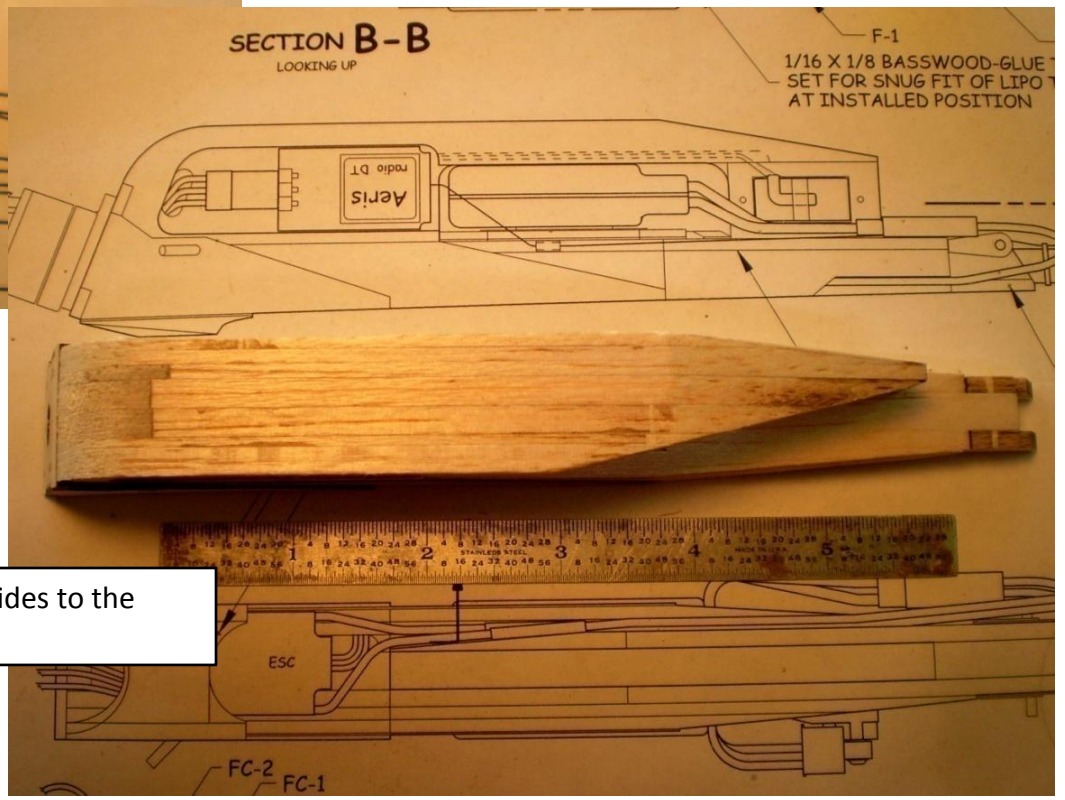


Chamfer the front end of the longerons to remove the upper corners and save some weight



Profile the upper and lower pod sides to the plan form shape on the drawing

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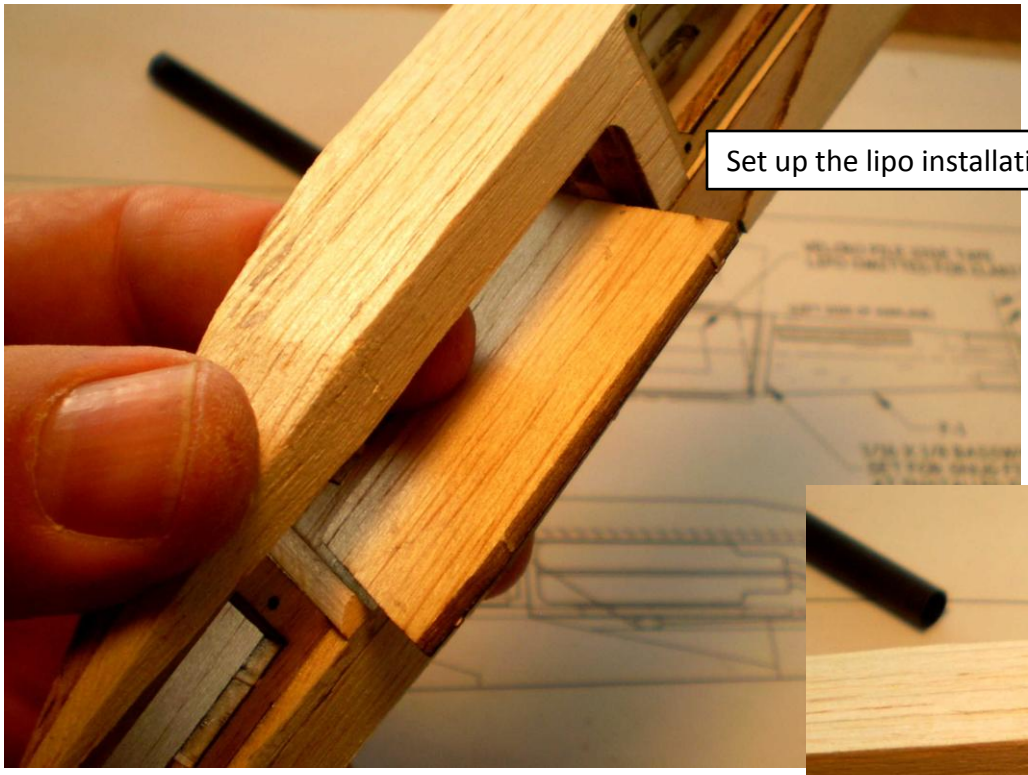
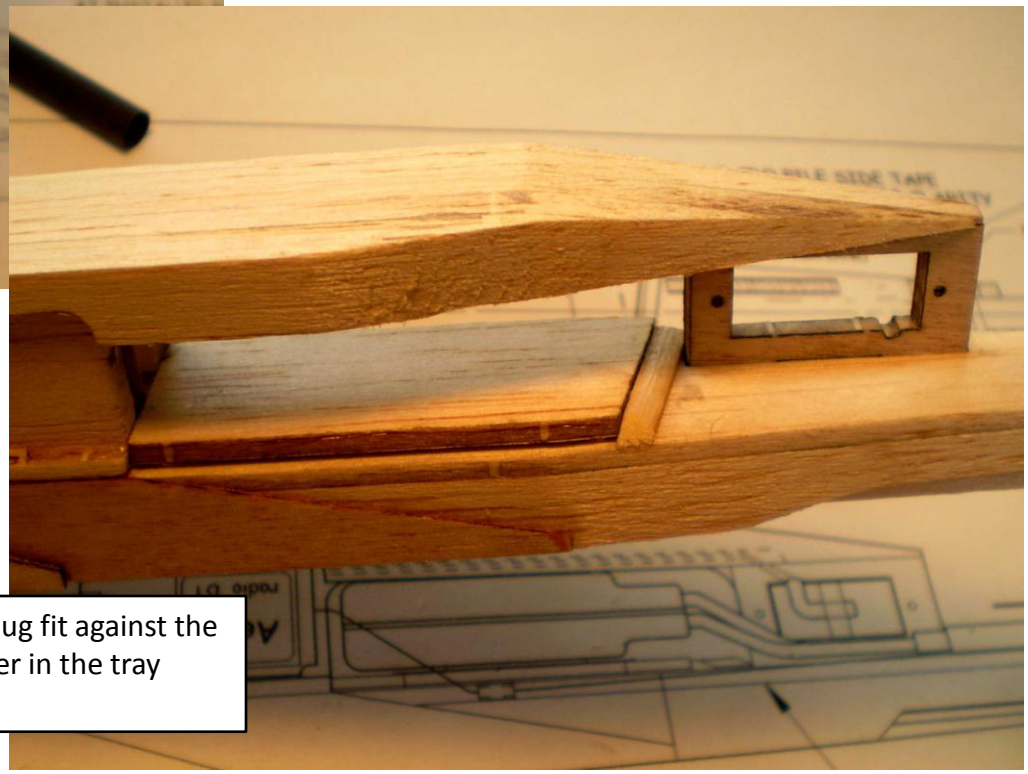


Set up the lipo installation tray basswood stop



Lipo tray assembly installed-should be a snug fit against the basswood insert to allow a grip on the taper in the tray profile

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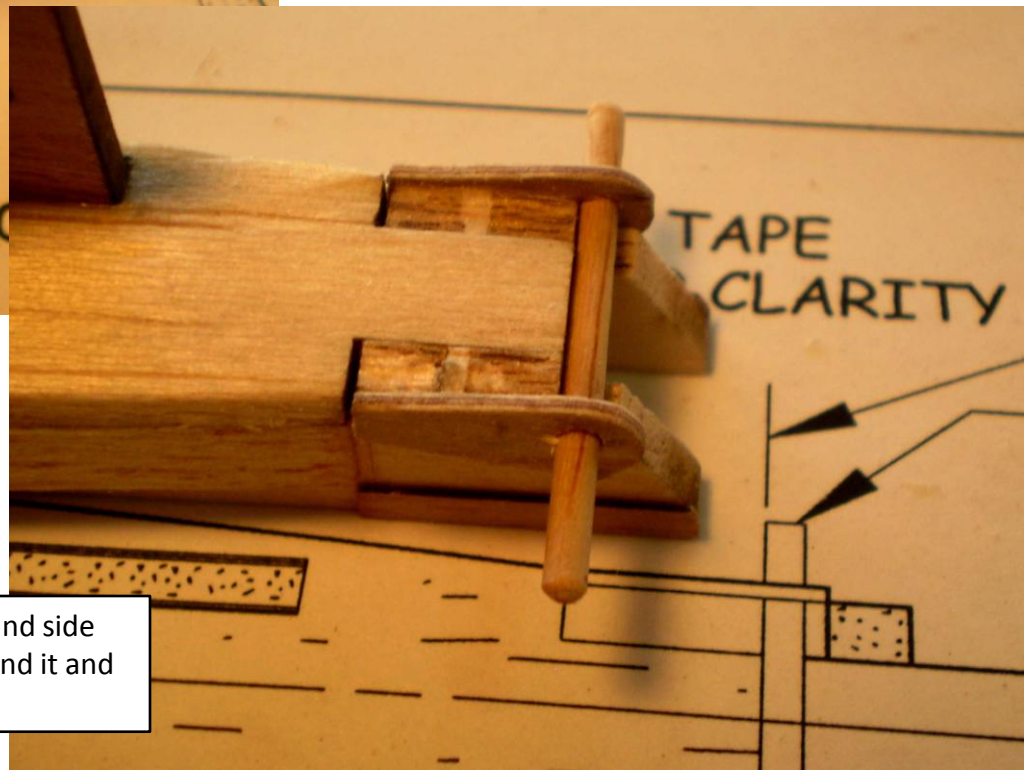
Front wing dowel installation-suggest not gluing these in in case they need to be replaced



Rear wing dowel installation-I leave the right hand side longer to allow the lipo lead wires to wrap around it and be retained by the wing bands

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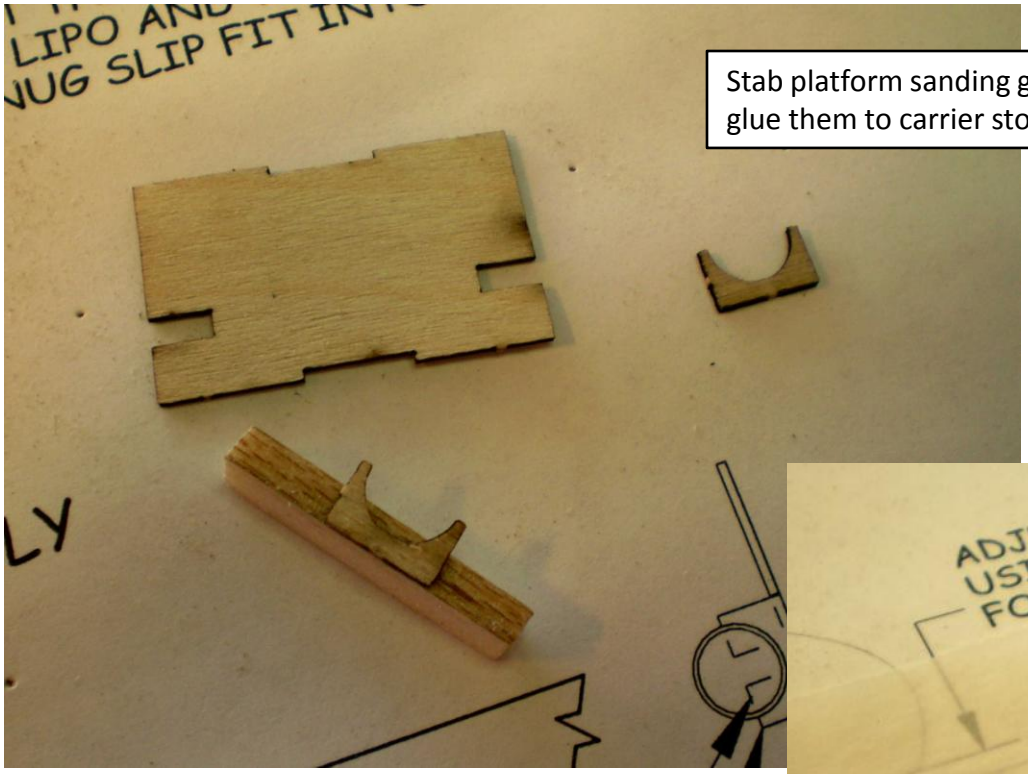
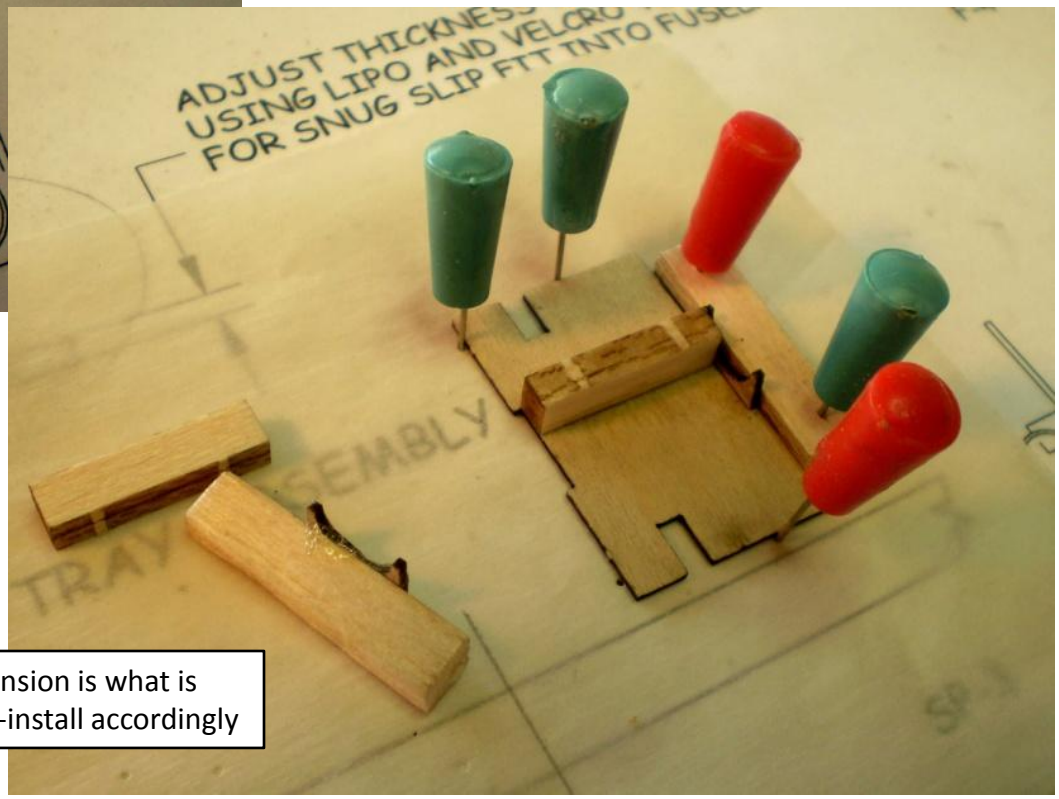


Stab platform sanding gauges SP-2 are easily installed if you temporarily glue them to carrier stock to ease handling and positioning.



Balsa filler SP-3 are installed between-the height dimension is what is being controlled by the laser cutting, not the thickness-install accordingly

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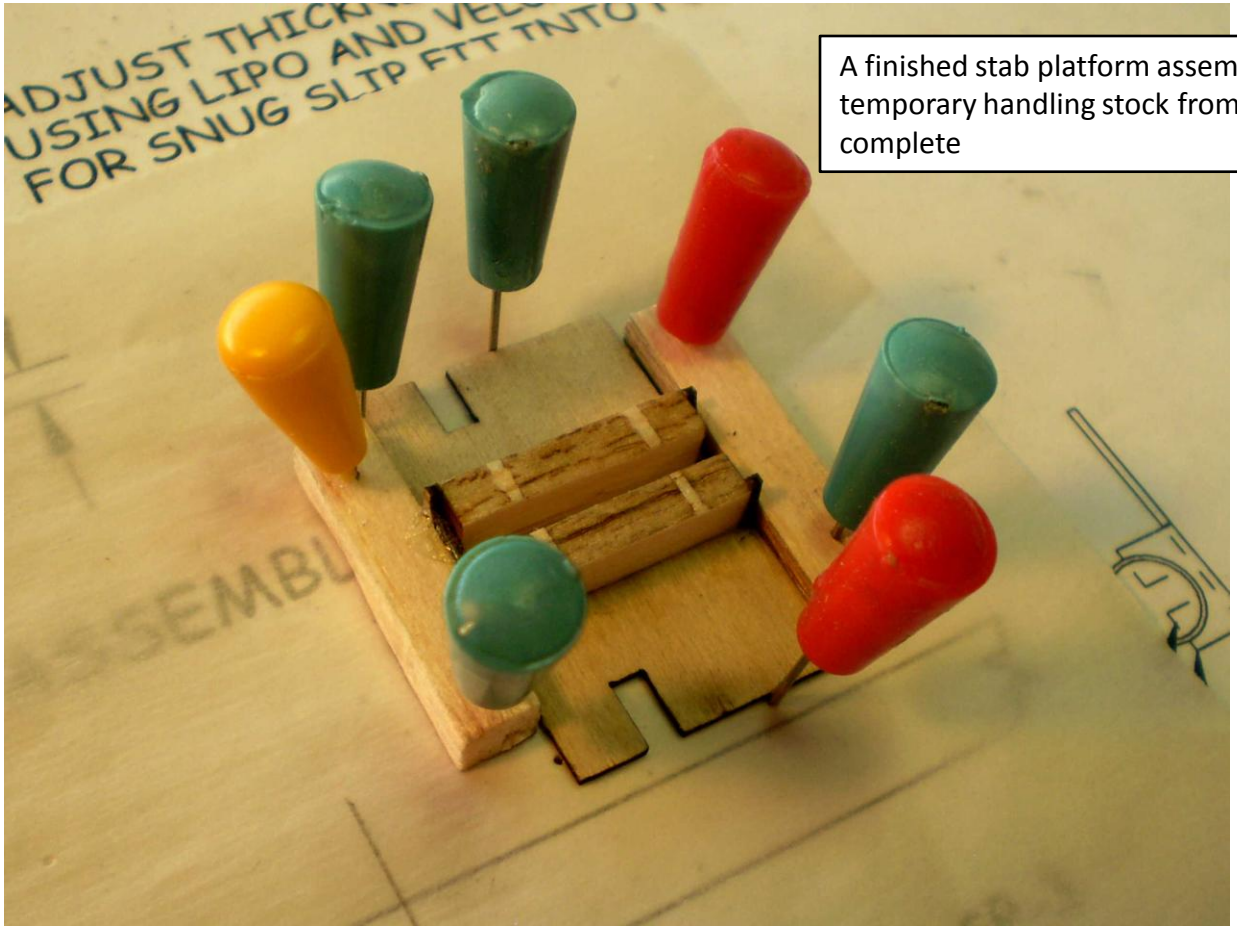

A finished stab platform assembly-break off the temporary handling stock from the ends when complete

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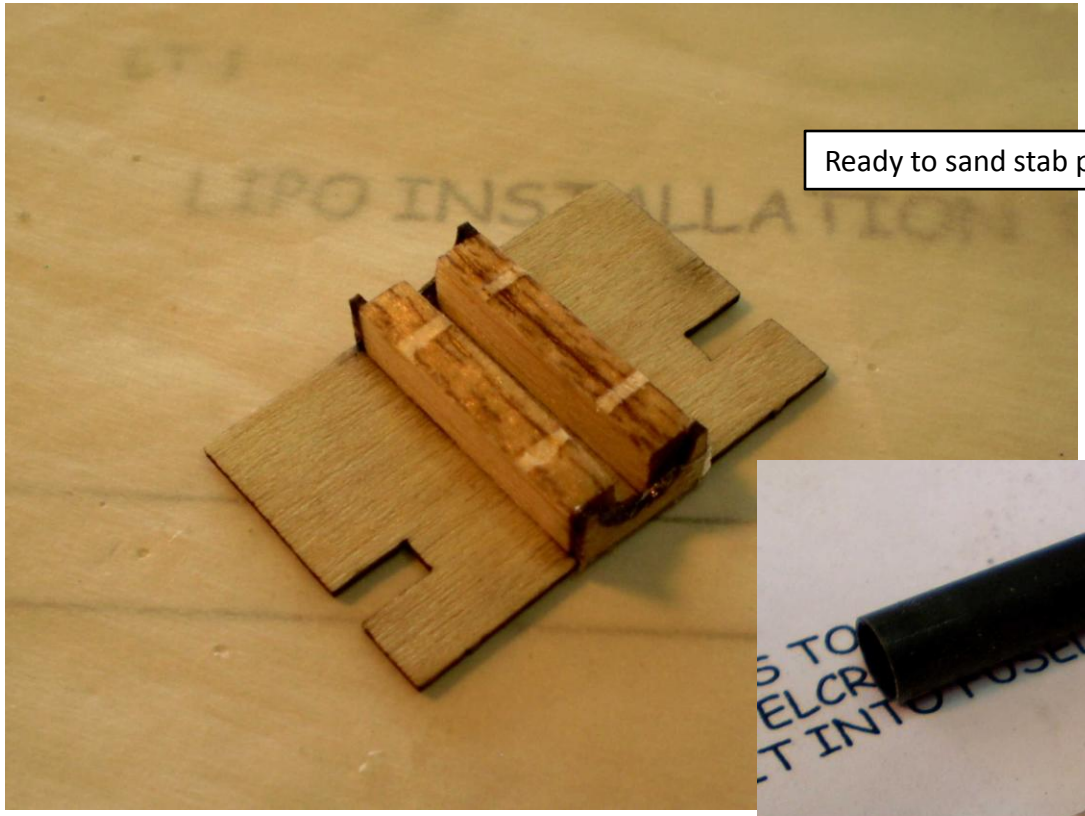
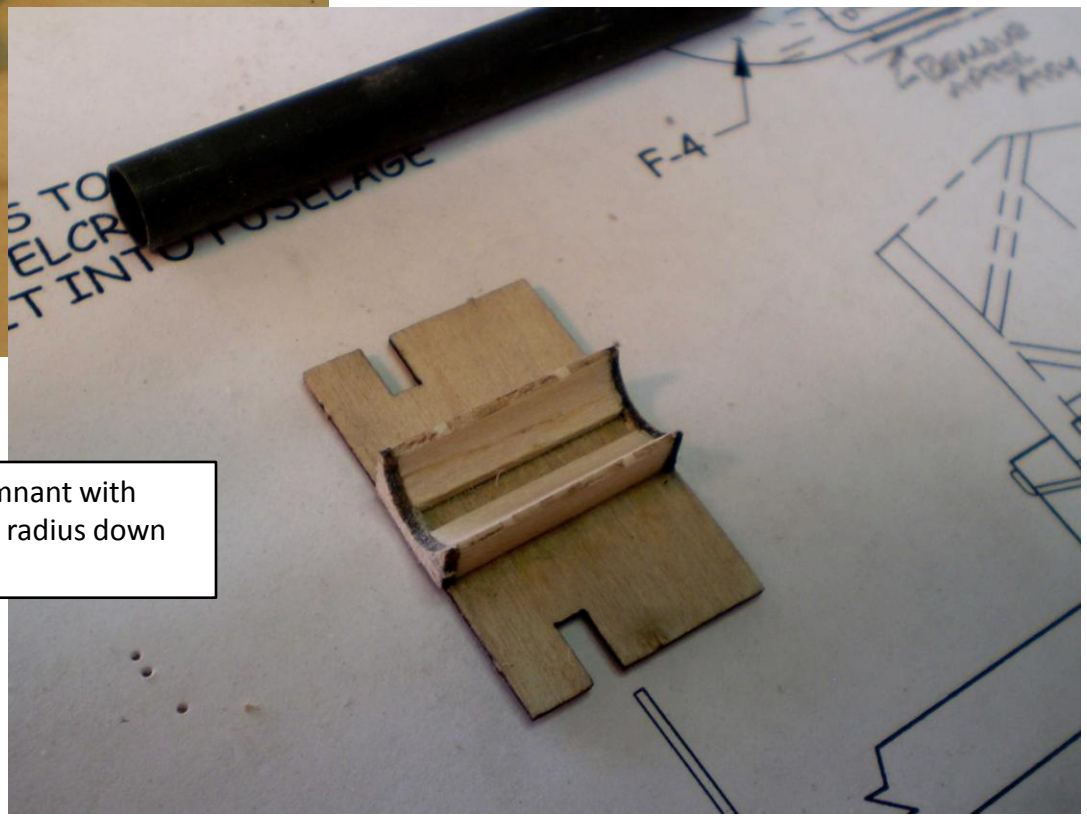


Ready to sand stab platform assembly



Sanded saddle area using 7mm tube remnant with 150, then 220 grit sandpaper to size the radius down to the SP-2 edges as guides

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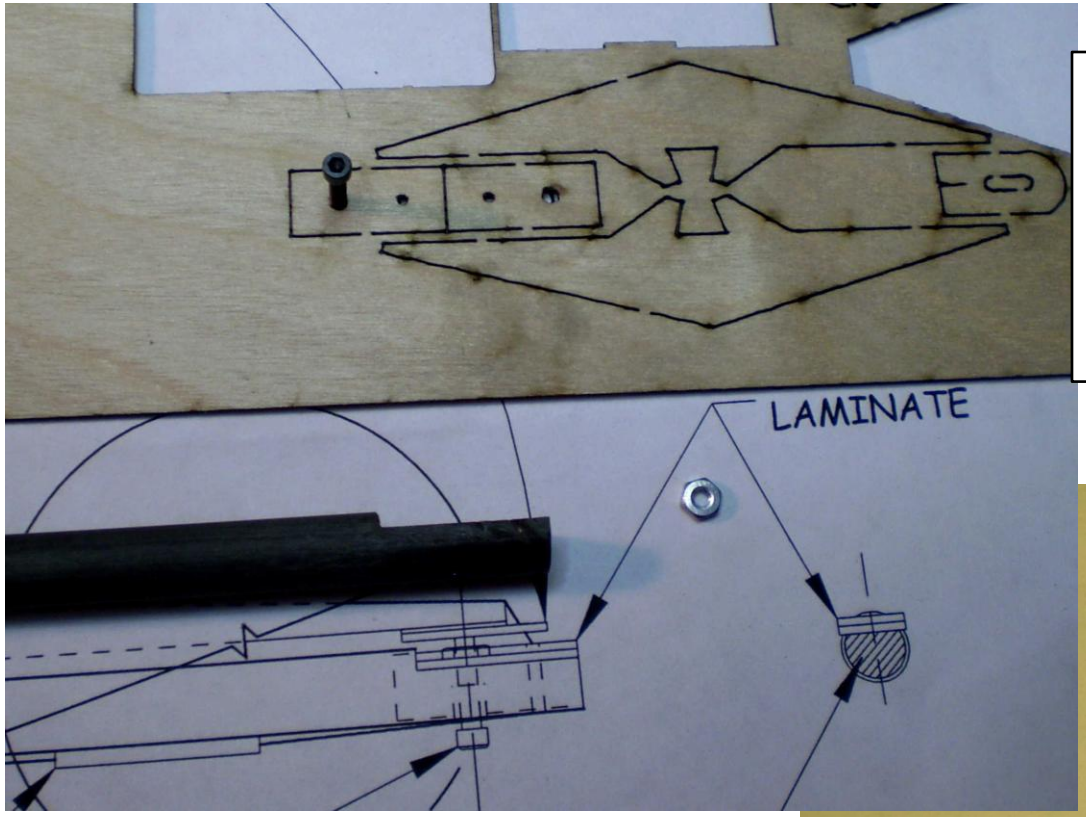
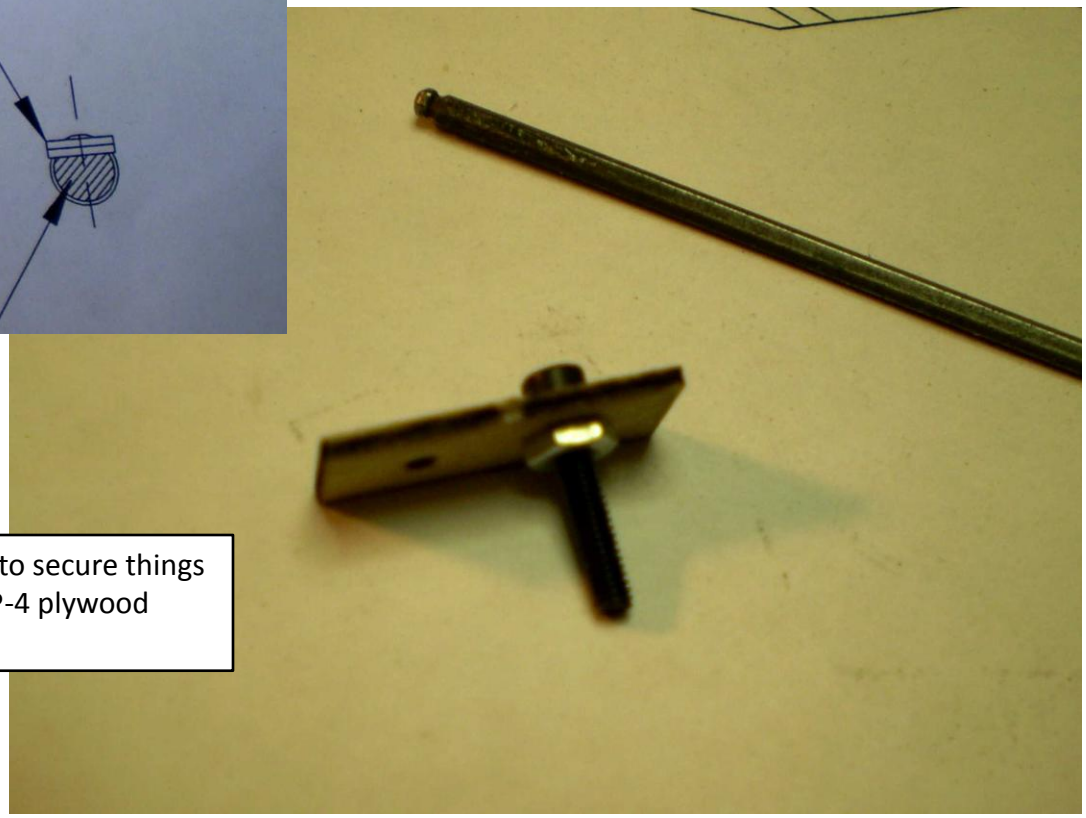


Install the #1-72 incidence adjustment screw into one of the SP-4 plywood details until the head seats against the plywood for a 90 degree seating of the screw. It's important to maintain a perpendicular installation of the screw to avoid adjusting a skew into the stab during flight trimming. Having the fins on the end of the stab makes this feature sensitive for alignment.



Install the #1-72 hex nut to secure things for laminating the two SP-4 plywood parts together

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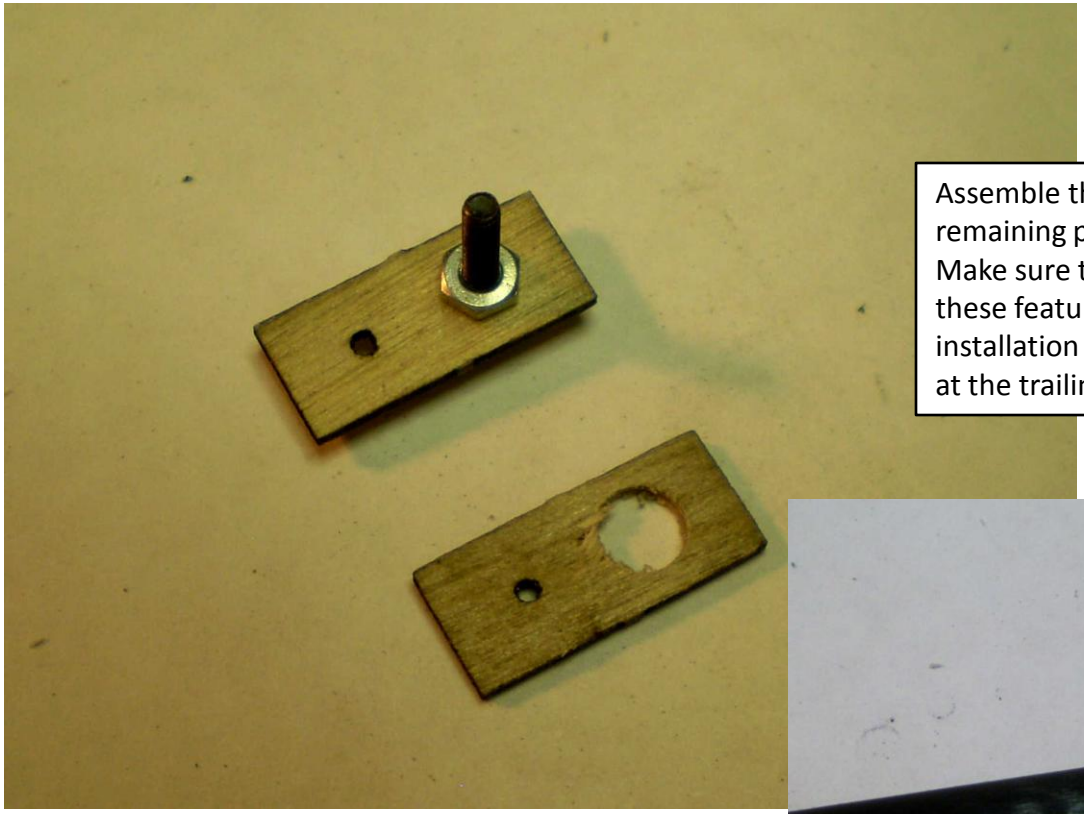

Assemble the SP-4 plates together using the remaining pilot holes and a .047 diameter wire. Make sure the sides are flush to each other as these features are used to center the SP-4 on installation to match the stab slotted key feature at the trailing edge

Use the SP-4 assembly to establish the clearance hole for the screw head in the carbon tube and balsa filler within it. The screw head should be able to seat against the bottom of the SP-4

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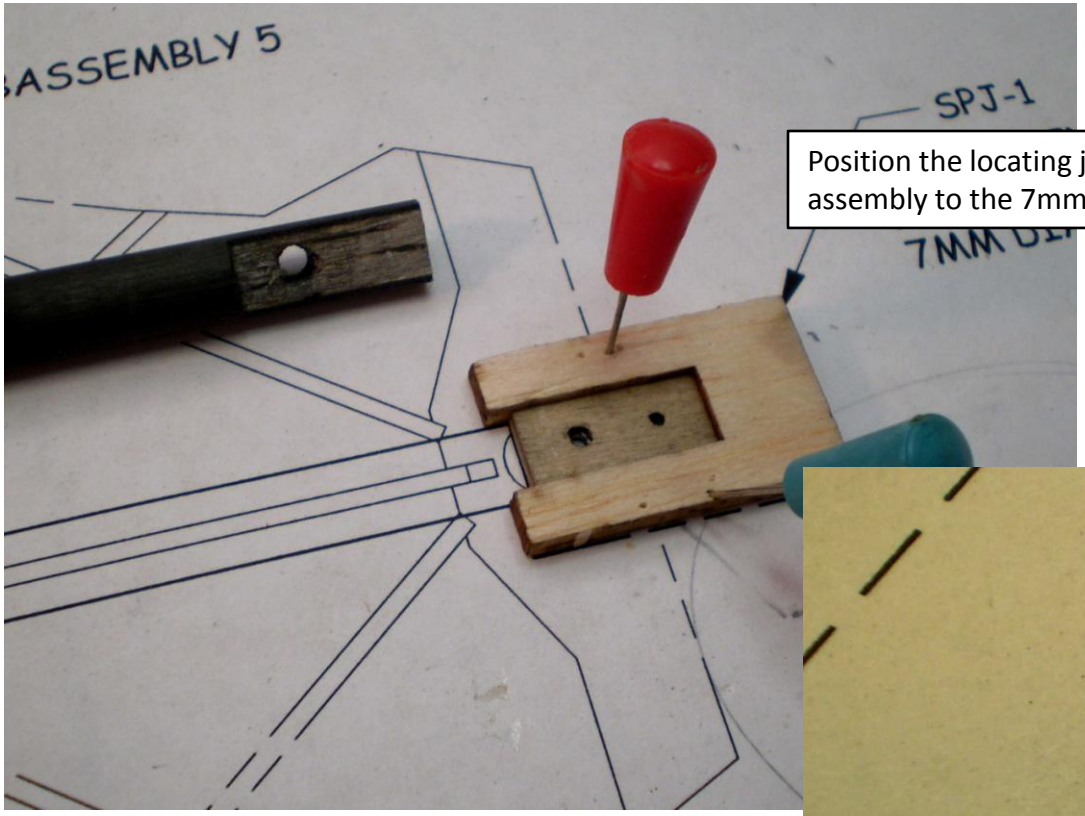
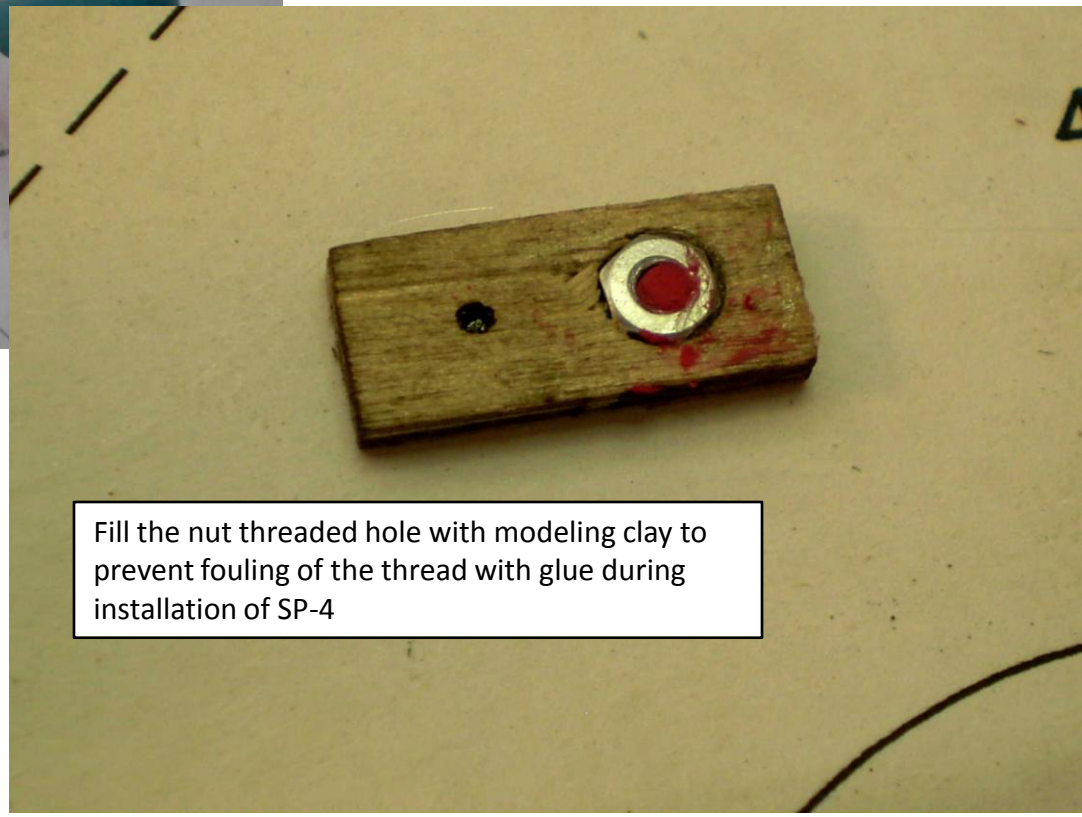


Position the locating jig SPJ-1 tolocate the SP-4 assembly to the 7mm tube end



Fill the nut threaded hole with modeling clay to prevent fouling of the thread with glue during installation of SP-4

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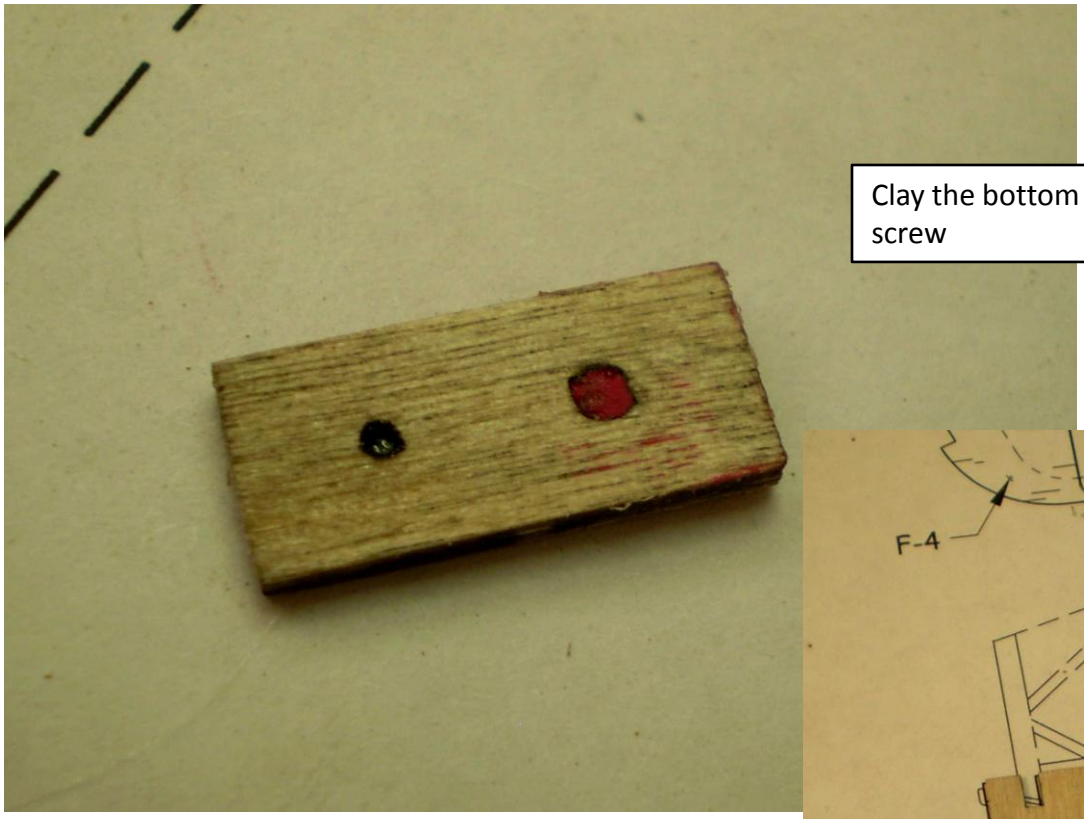
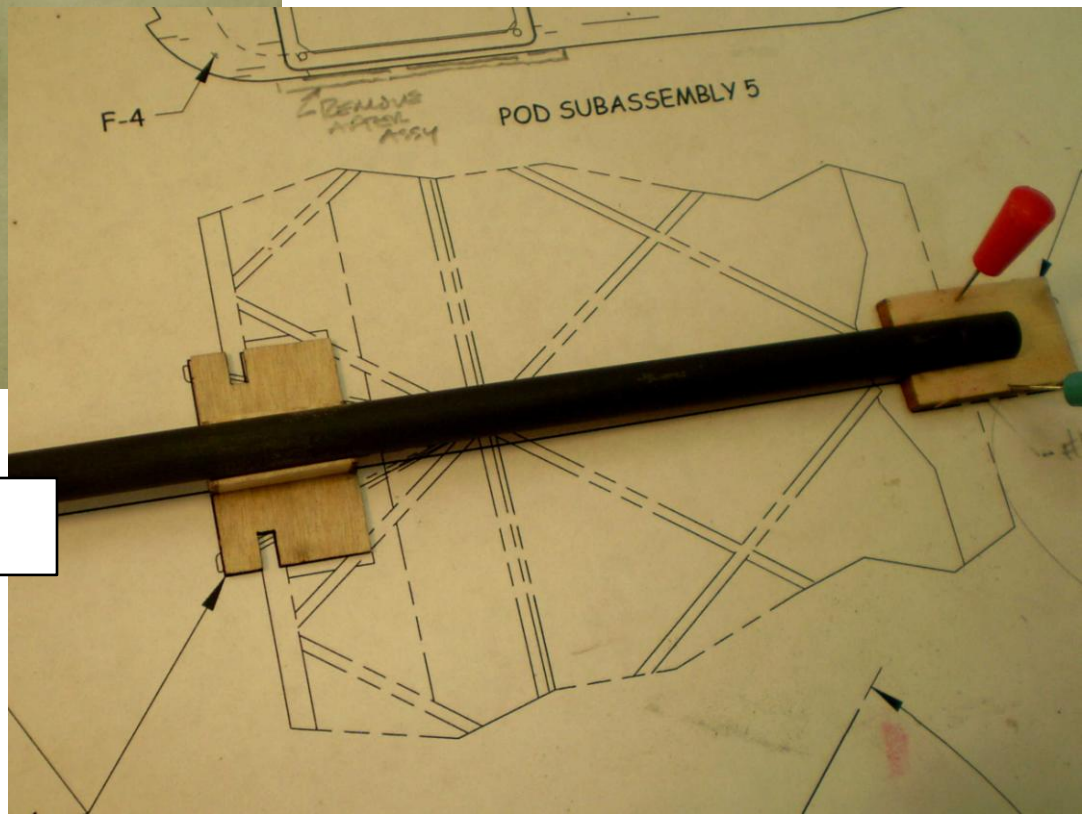


Clay the bottom hole as it has threads cut into it by the screw



Position the platform and tube per the drawing and install after gluing the SP-4 in place

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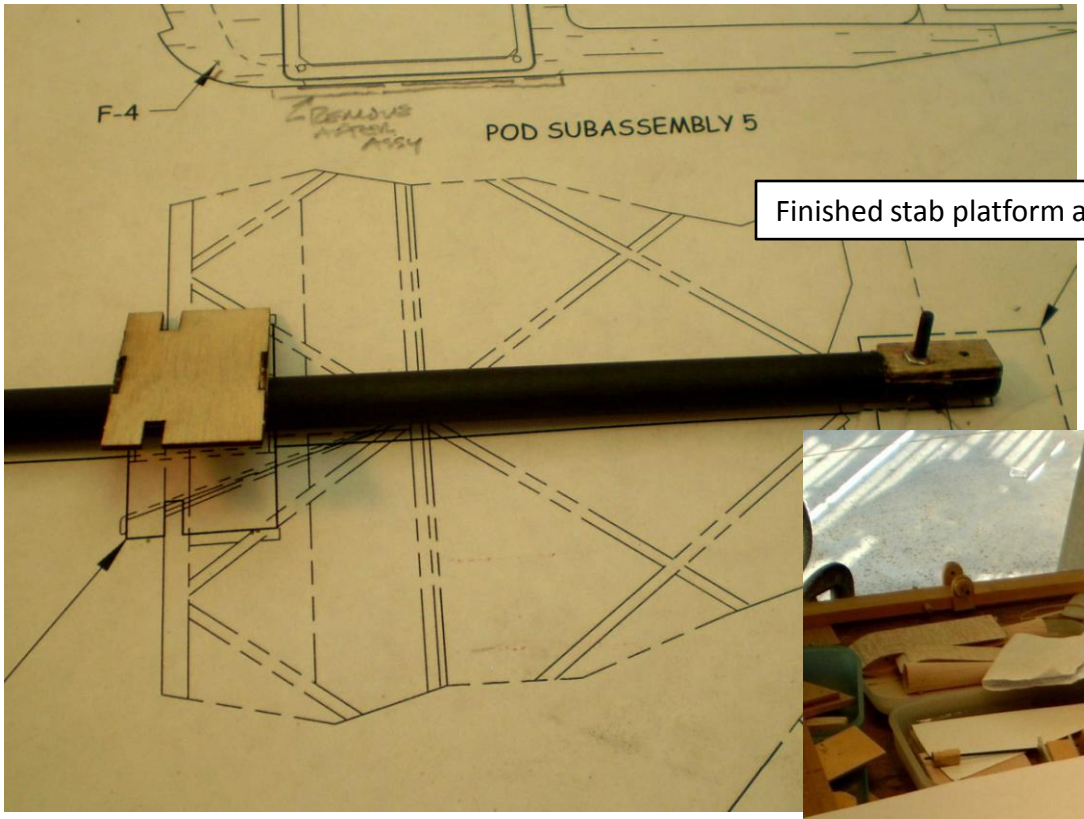
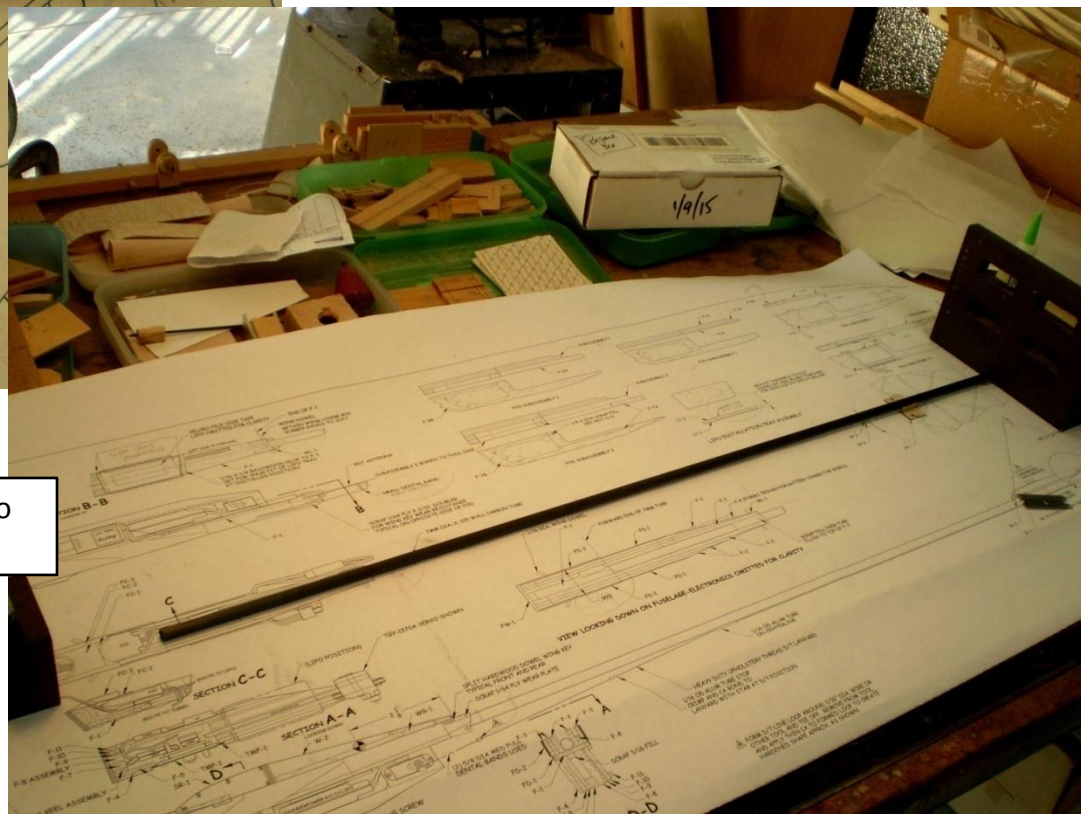


Finished stab platform area



Set up front and rear boundary control for the pod to boom assembly

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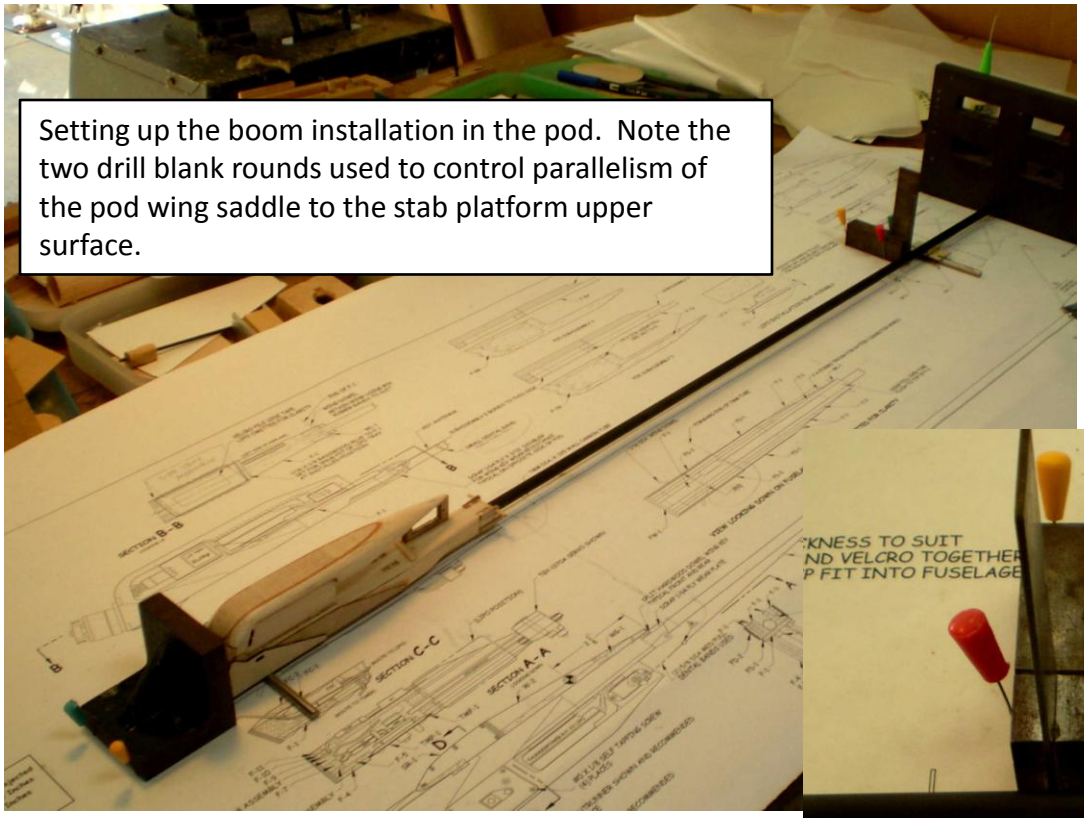
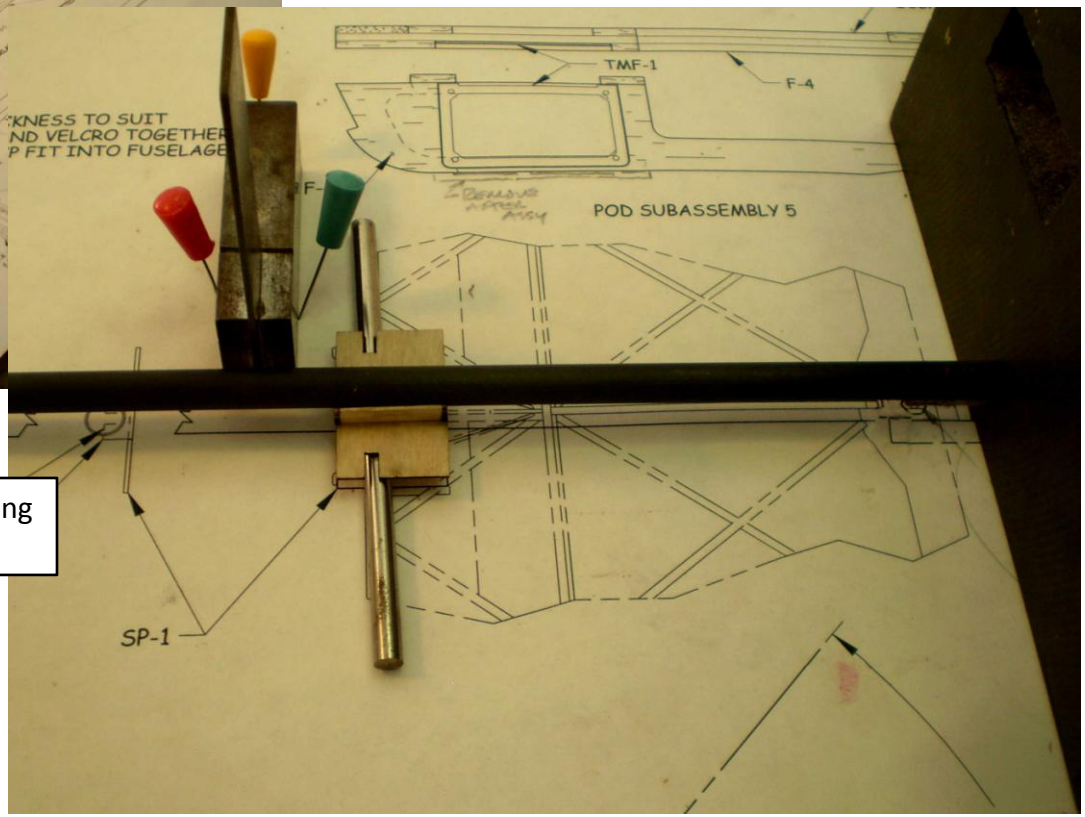


Setting up the boom installation in the pod. Note the two drill blank rounds used to control parallelism of the pod wing saddle to the stab platform upper surface.



Close-up of the stab platform with the round providing the reference to the building board surface

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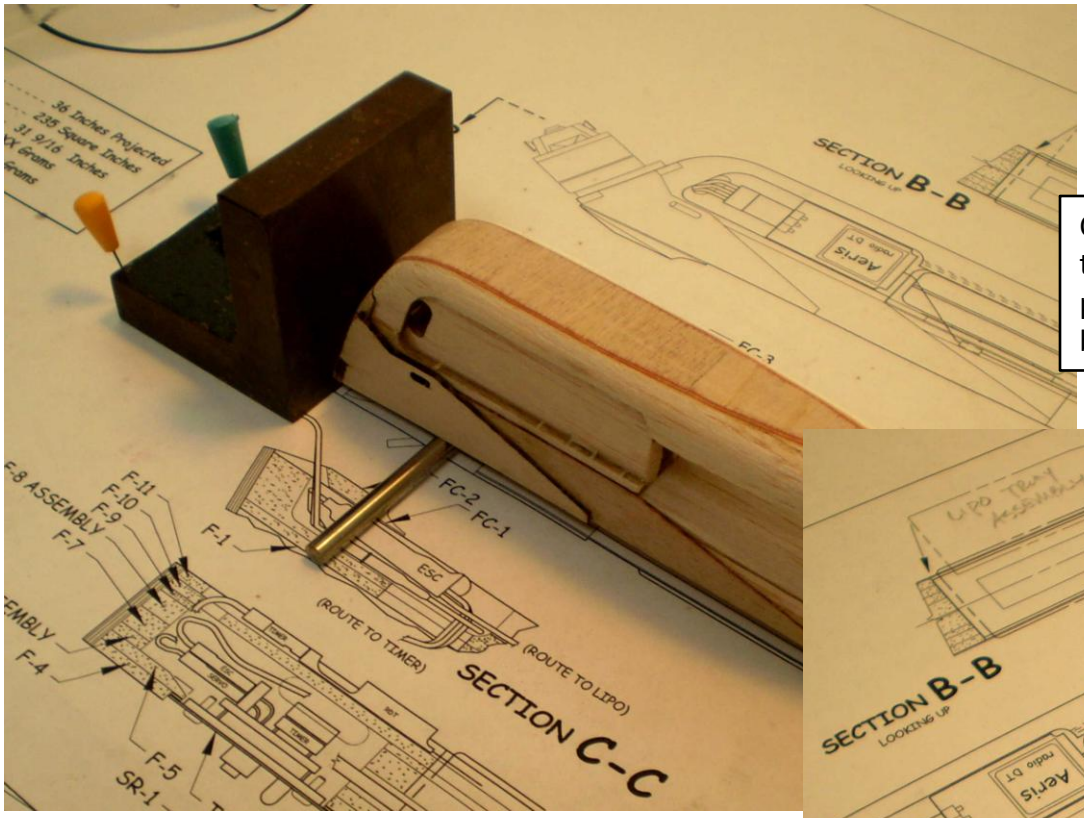
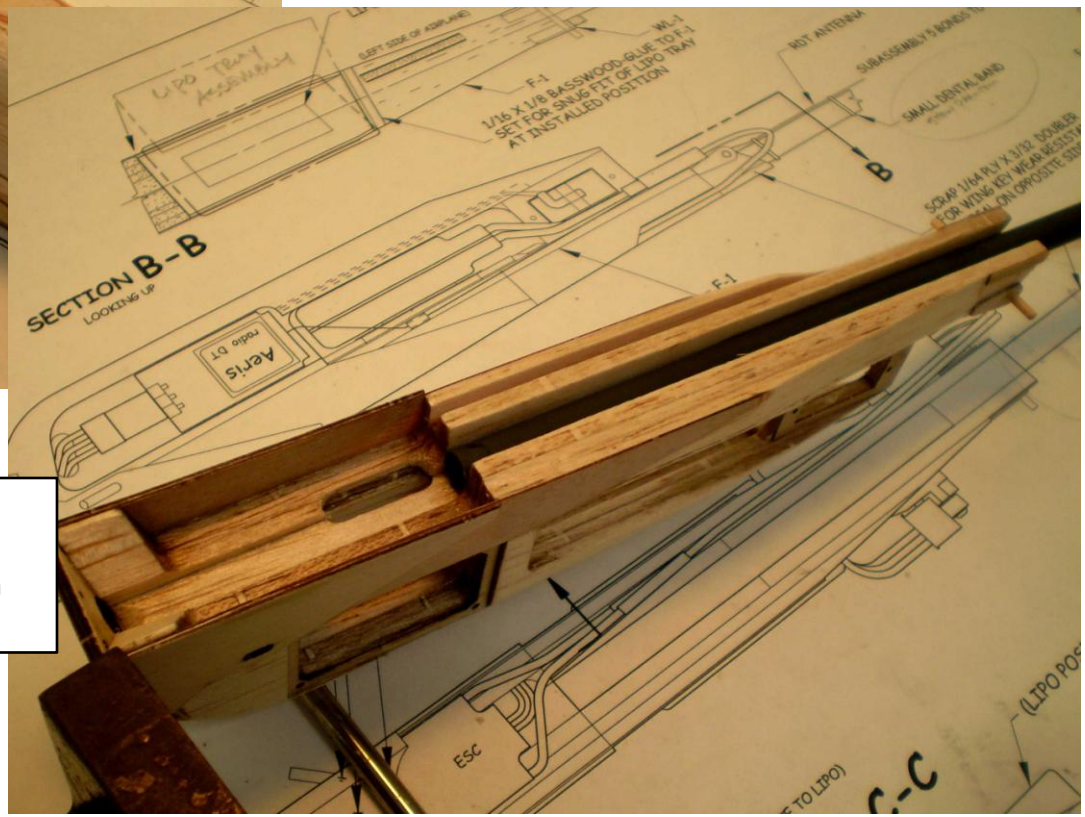


Close-up of the pod end round providing reference to the building board surface as done for the stab platform. Make sure the carbon tube is pressed to the bottom of the slot in the pod before gluing



Tack the tube at the aft end of the pod when alignment is achieved. Then confirm complete tube seating in the pod slot and finish the bond lines with thin CA

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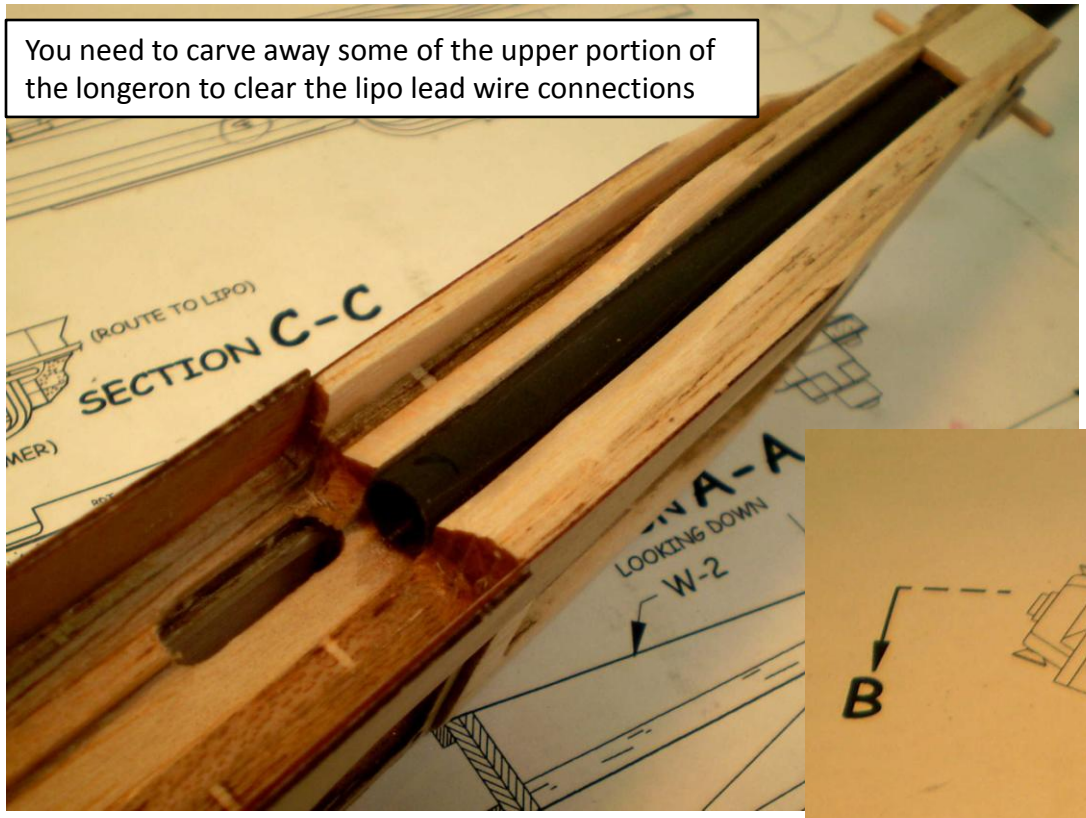
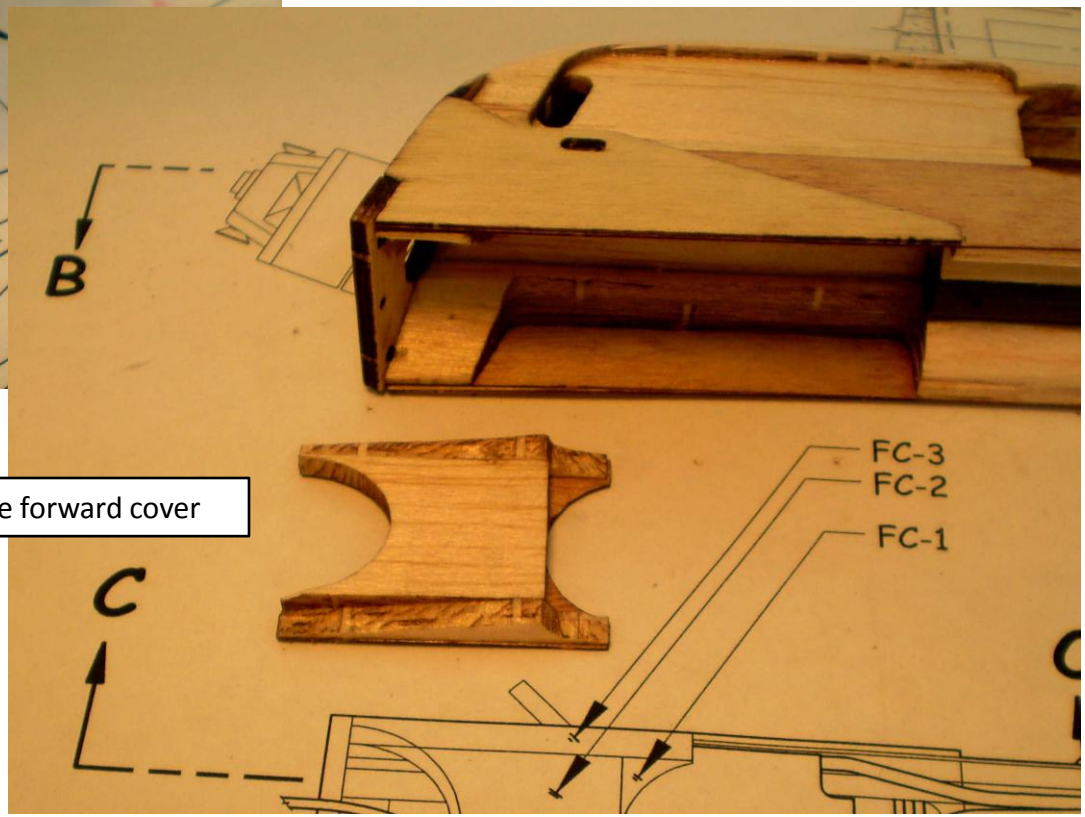
You need to carve away some of the upper portion of the longeron to clear the lipo lead wire connections



Assembly of the forward cover



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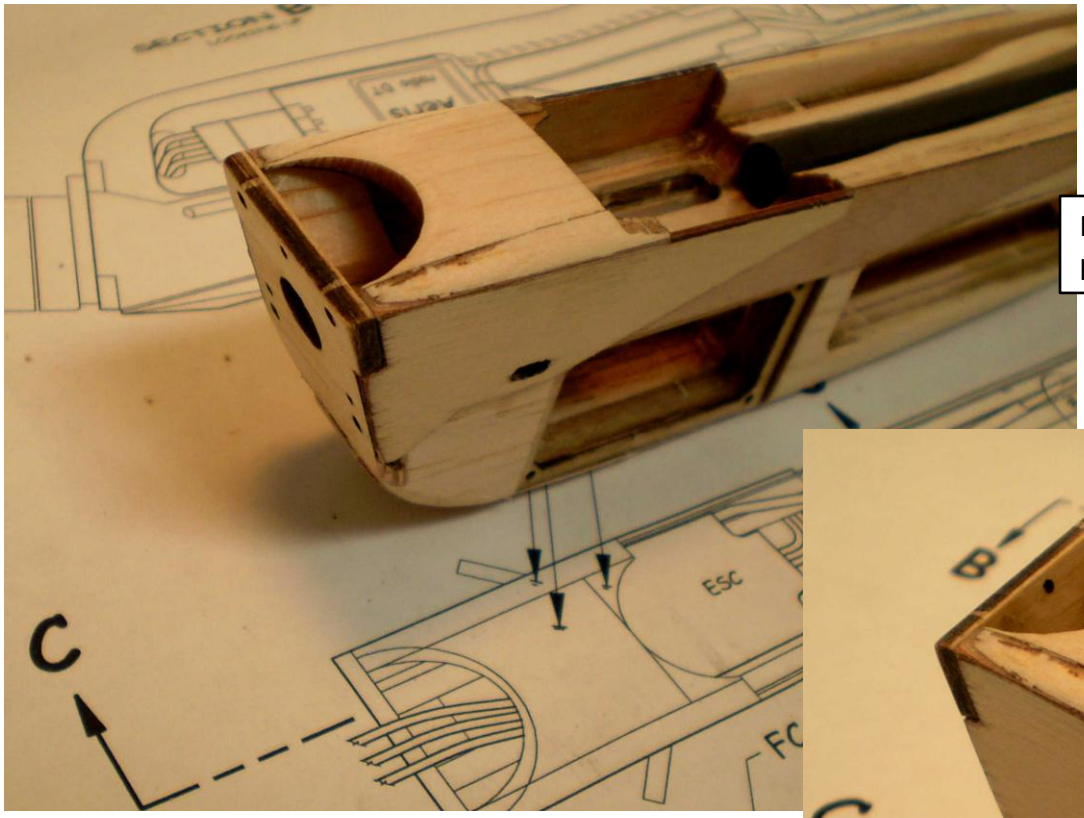
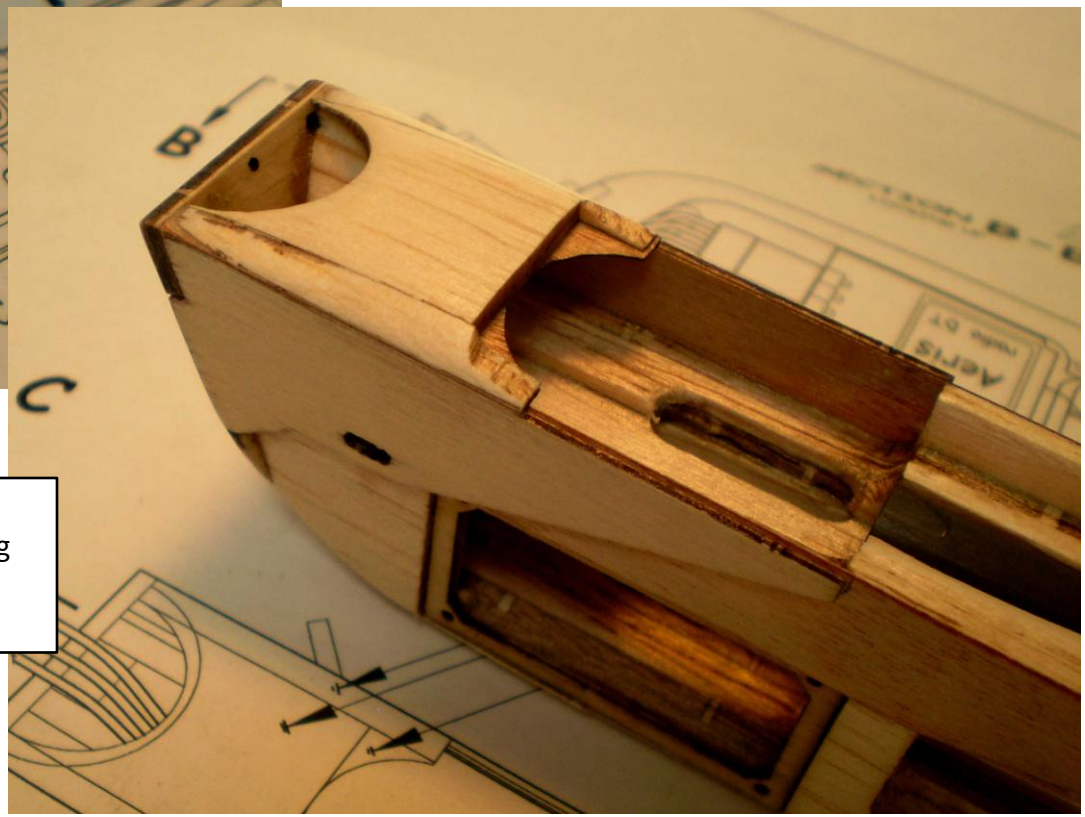


Forward cover installed and sanded to blend. Main purpose is to trap the ESC and wiring beneath it



Saddle area-does not need to contact the wing-just fills the air gap a bit and cleans things up on the wing installation. Does not appear to damage the wing during pop-off in a crash.

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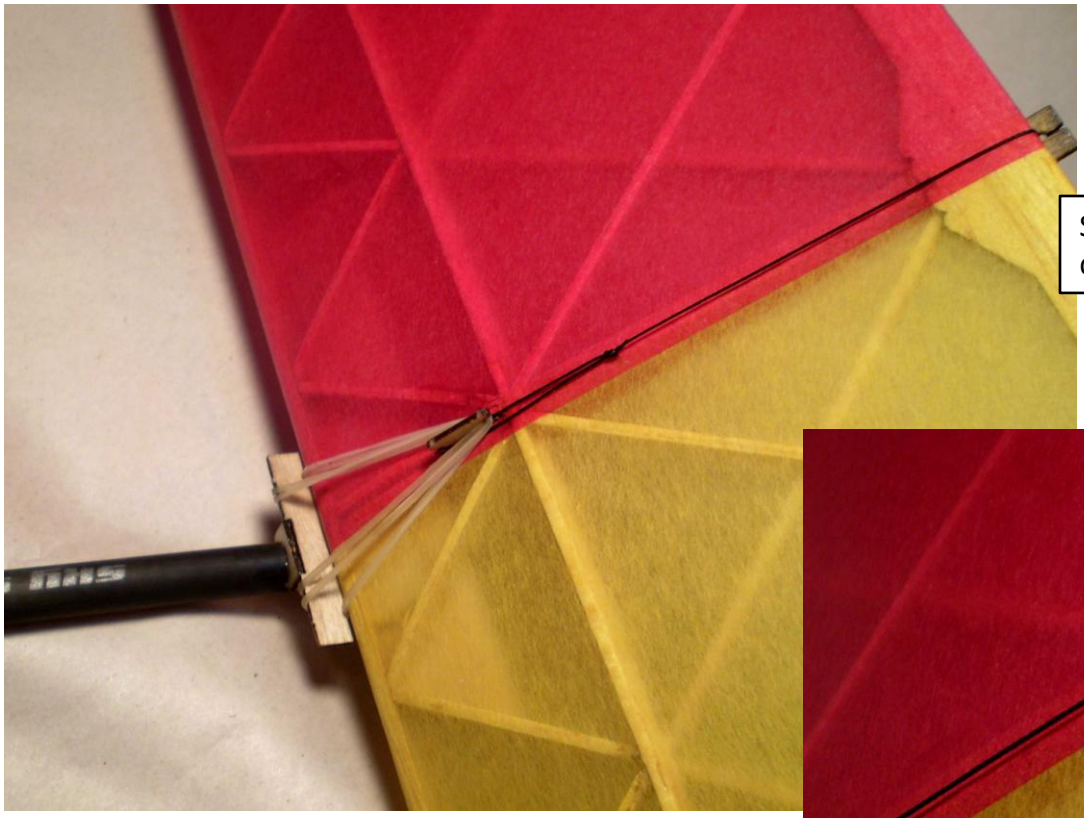
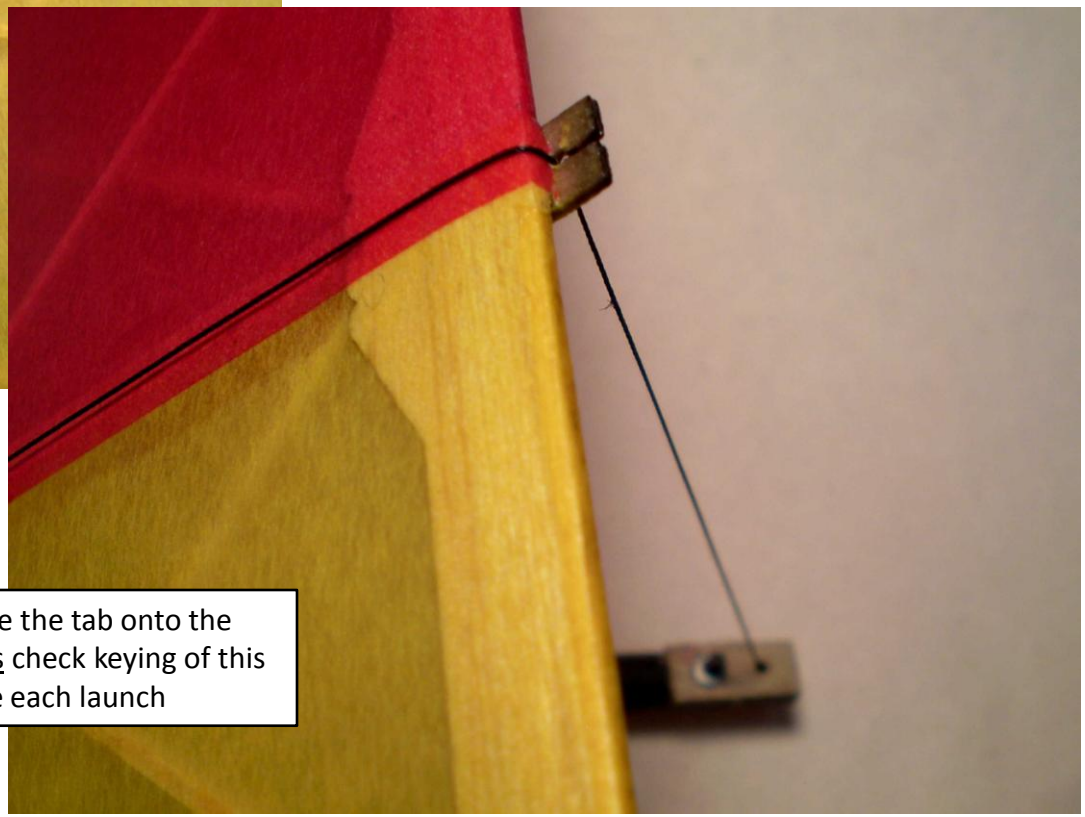


Stab D/T system--I use (2) 5/8 diameter medium pull dental bands on the stab platform.



Slot and eye feature helps relocate the tab onto the incidence screw in the slot-<u>always</u> check keying of this area and the platform keys before each launch

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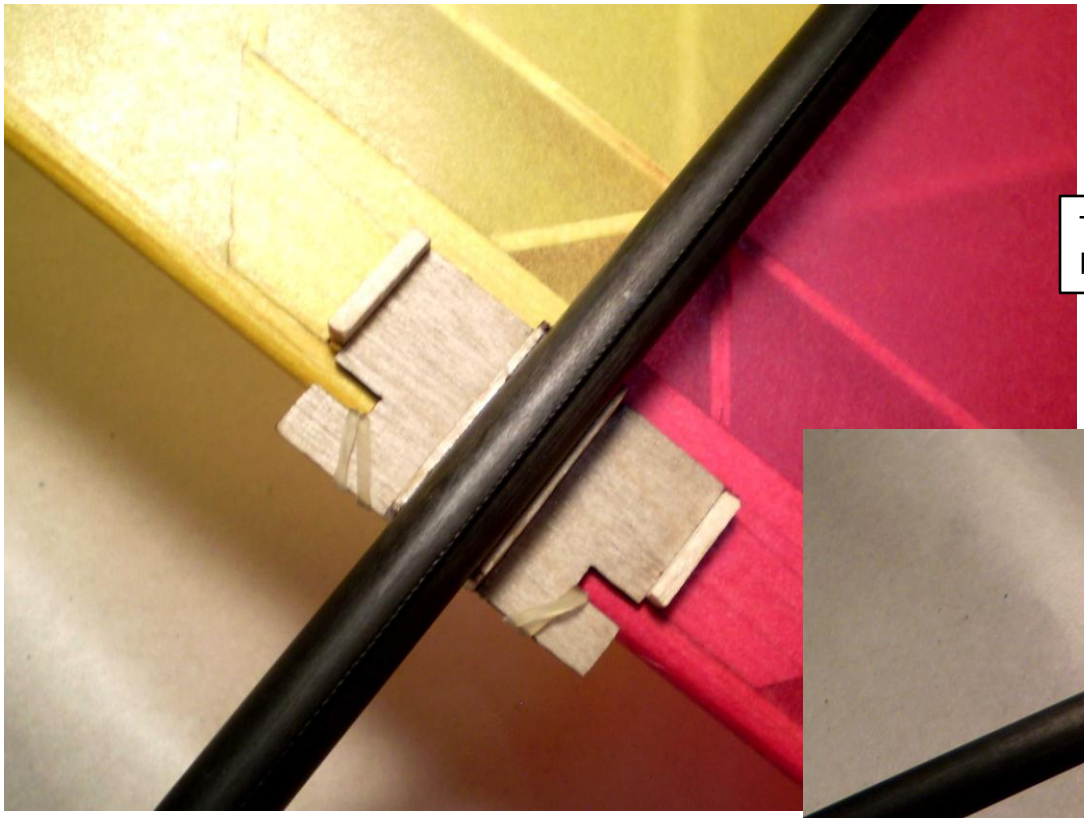
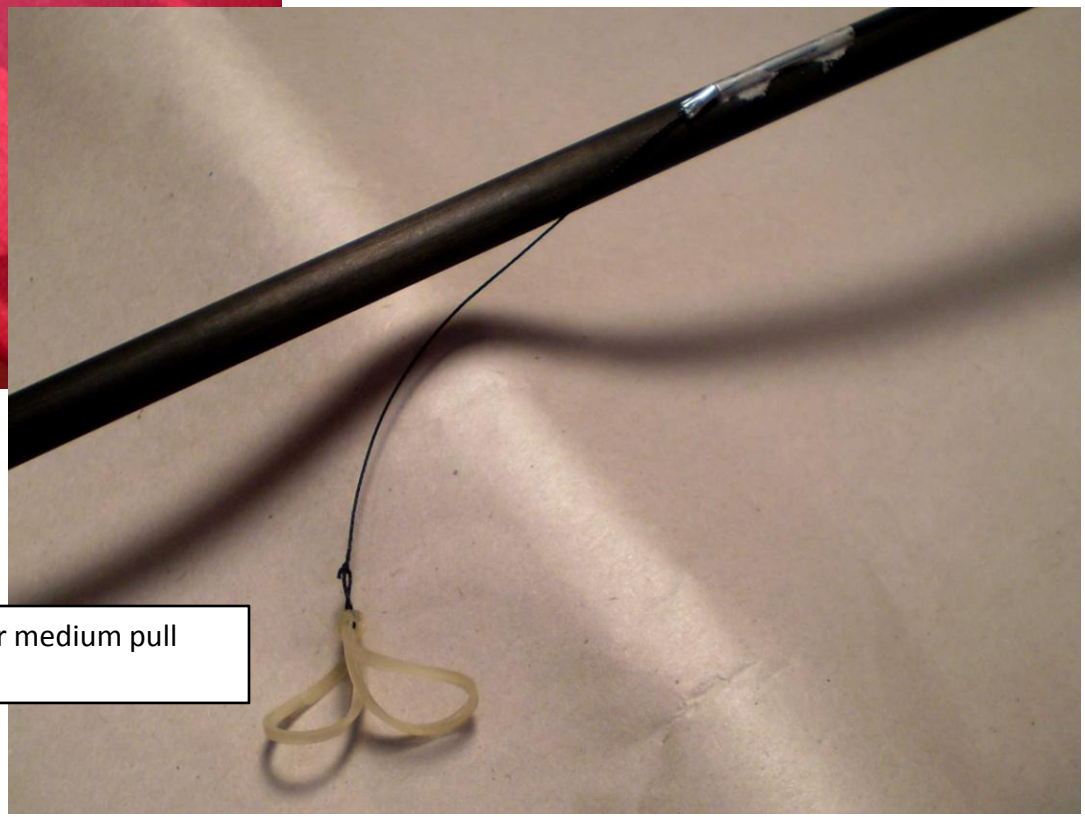


The slots in the stab platform accept 1/16 thick basswood keys shown here.



Servo arm attach are (2) 5/8 diameter medium pull dental bands

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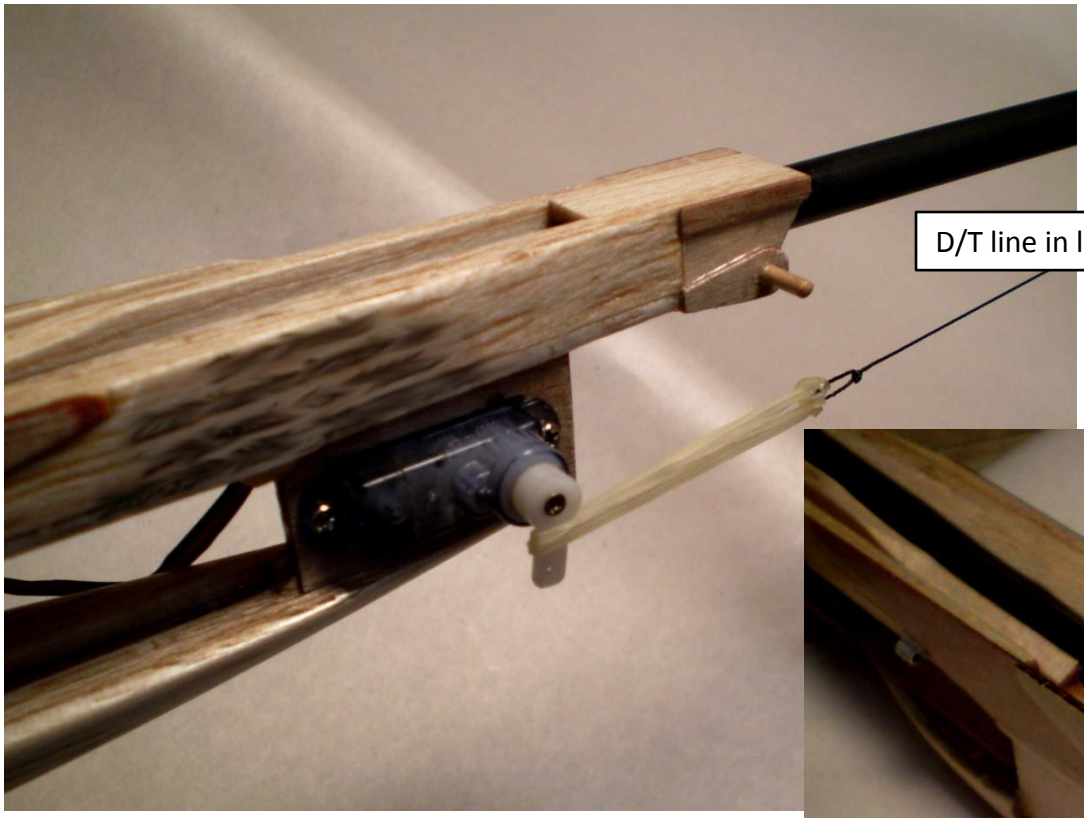
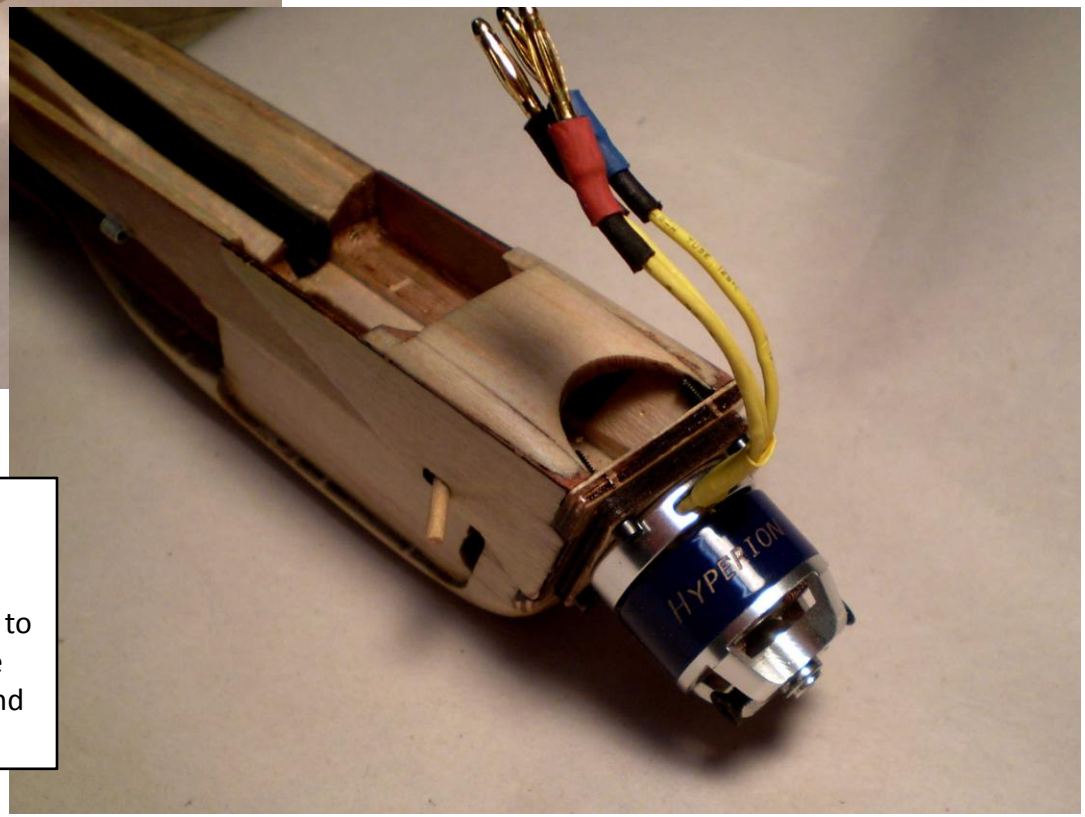


D/T line in launch position



Hyperion motor installation using MM-1 plywood mount. MM-2 is supplied for use with the Red Max C20 motor. Note: the Hacker A10-7L will also fit on the MM-1 plywood mount bolt pattern. If you want to use the AX1806N motor with radial mount the three pilot holes in the FW-1 firewall match this pattern and allows direct mounting of this motor.

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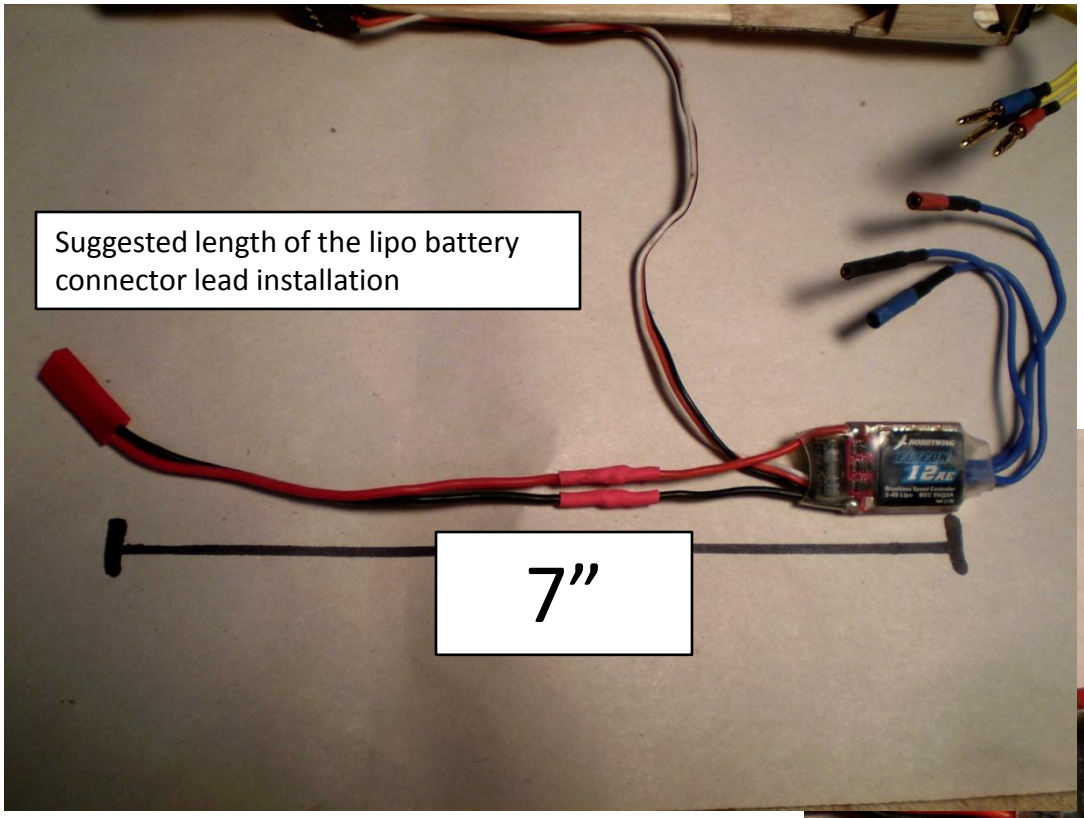

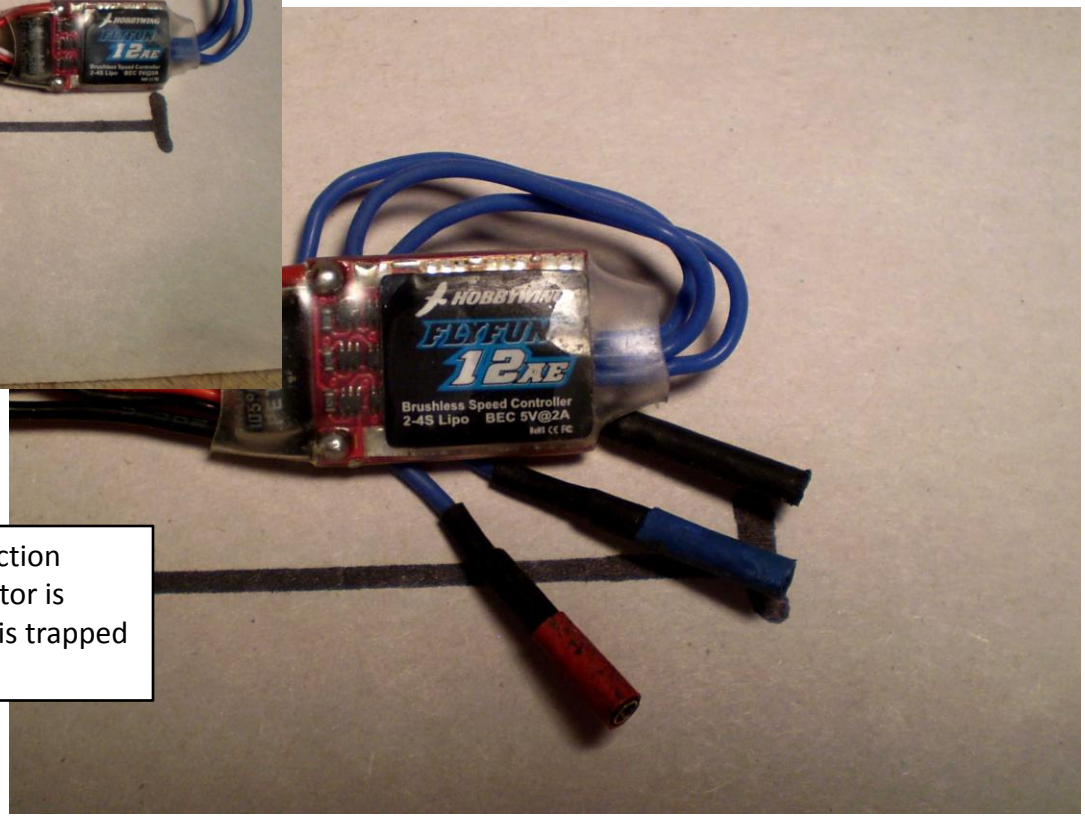

This is the basic position of the motor connection leads as installed in the ESC bay after the motor is connected. The ESC sits on top of them and is trapped under the forward cover.

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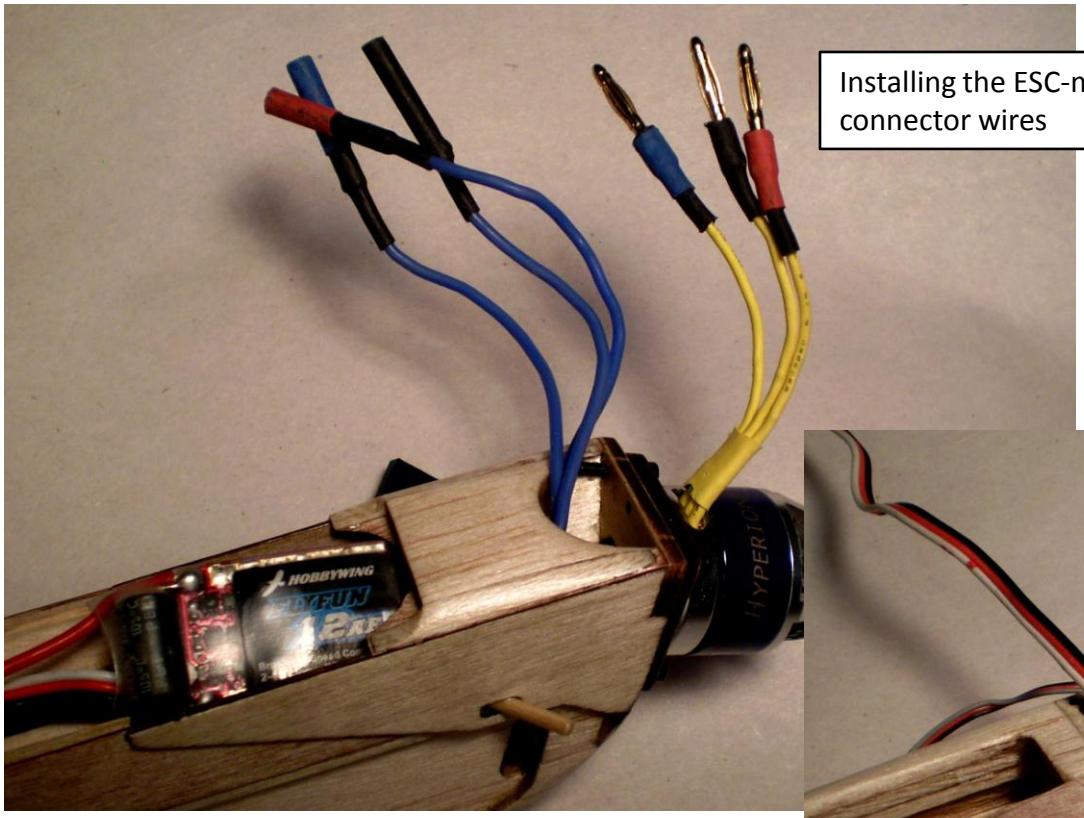
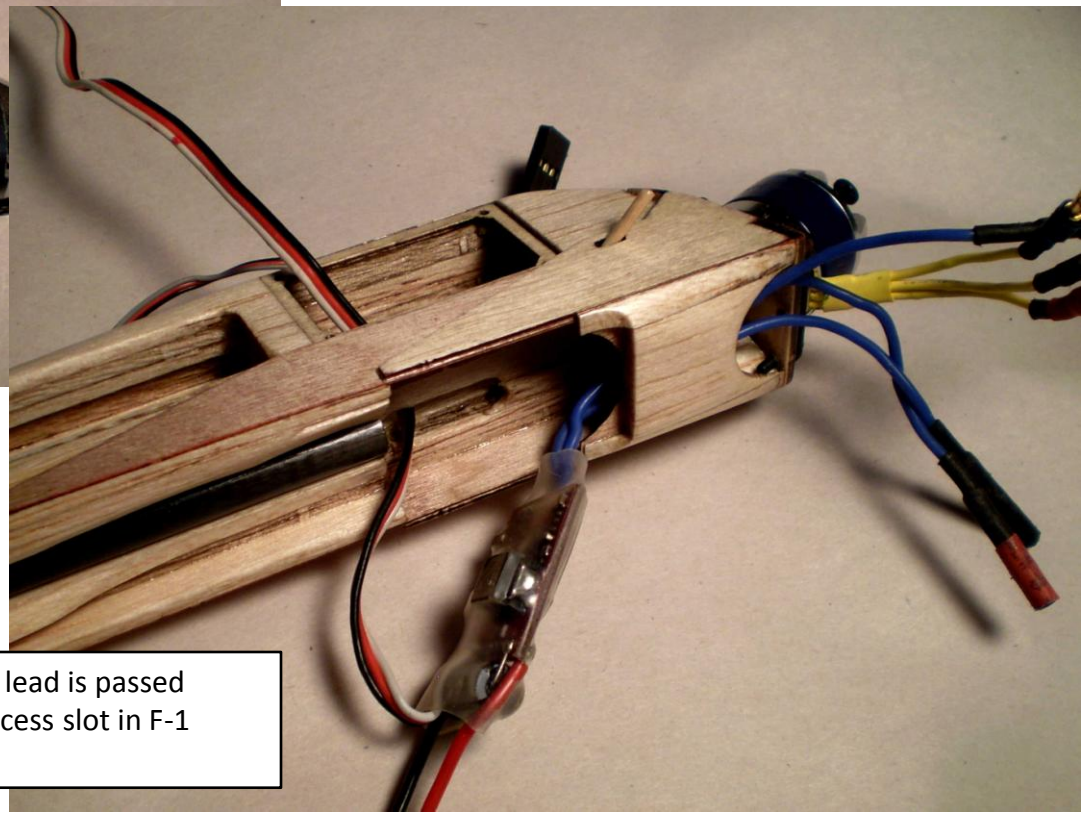


Installing the ESC-motor connector wires



The ESC connector lead is passed through the ESC access slot in F-1

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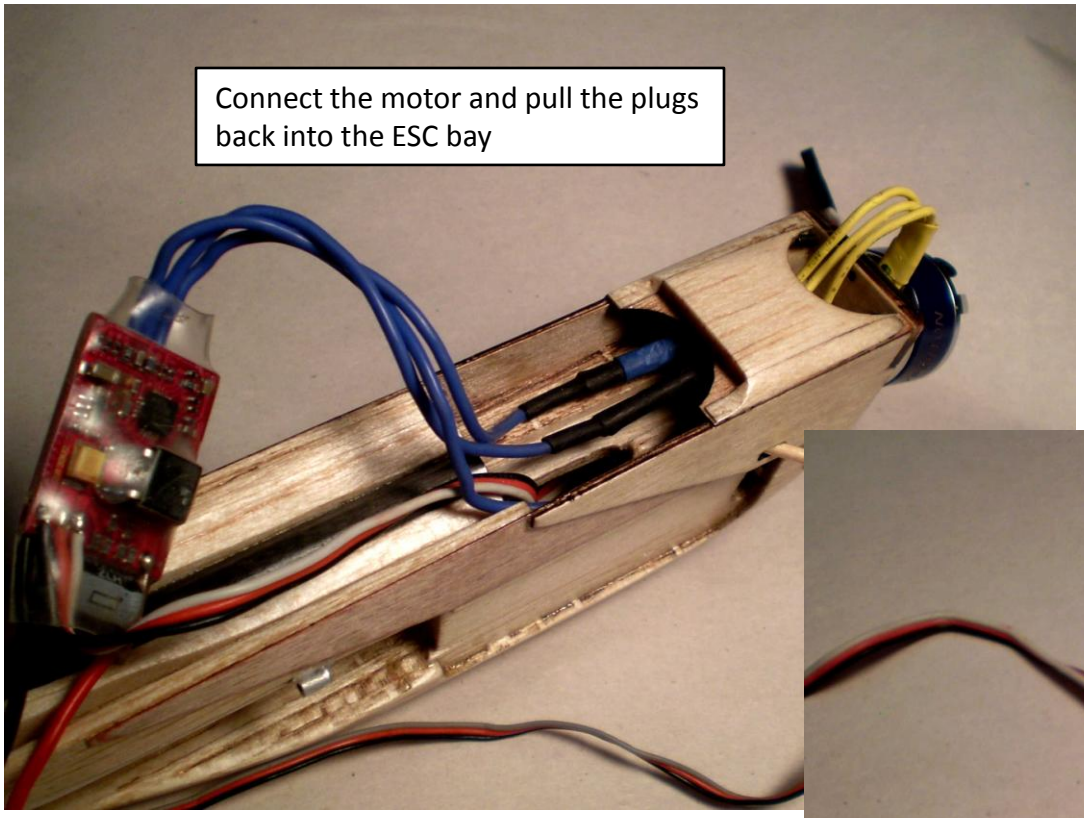
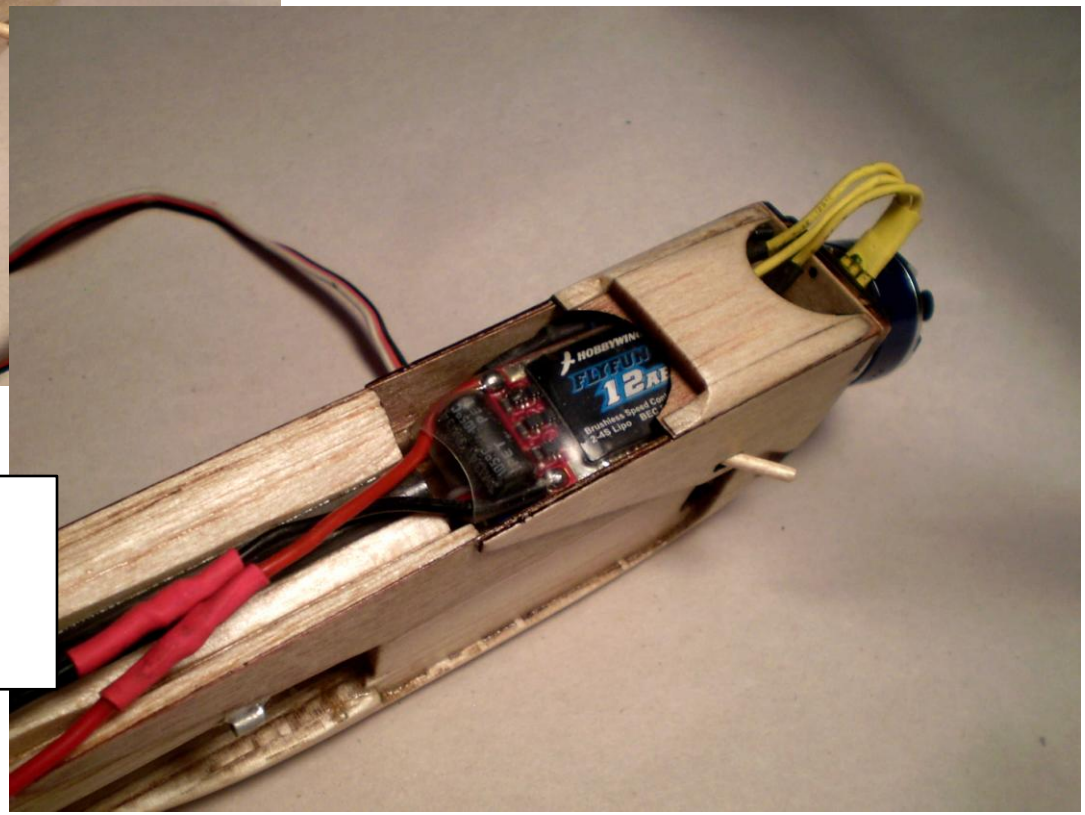


Connect the motor and pull the plugs back into the ESC bay



Collect the connector wire into the spiral shown earlier for stowage under the ESC and slide the ESC forward under the edge of the cover. The entire package should be sitting flush or below the wing saddle edges of the pod.

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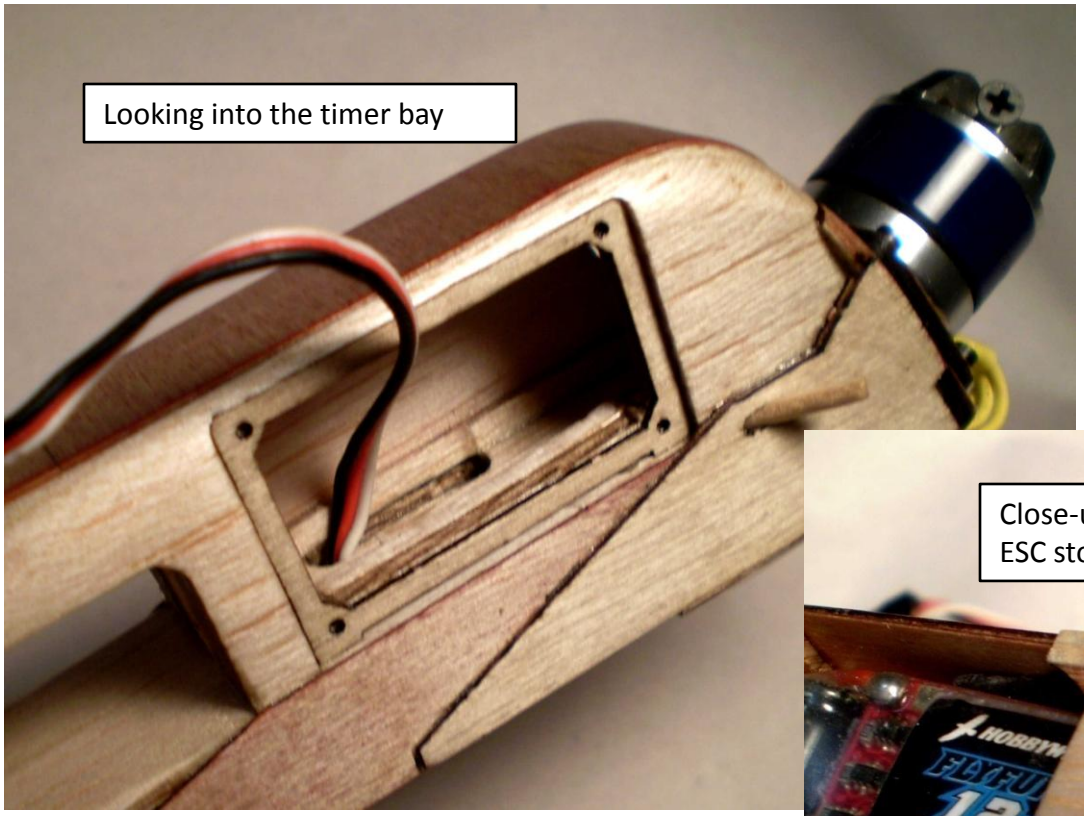
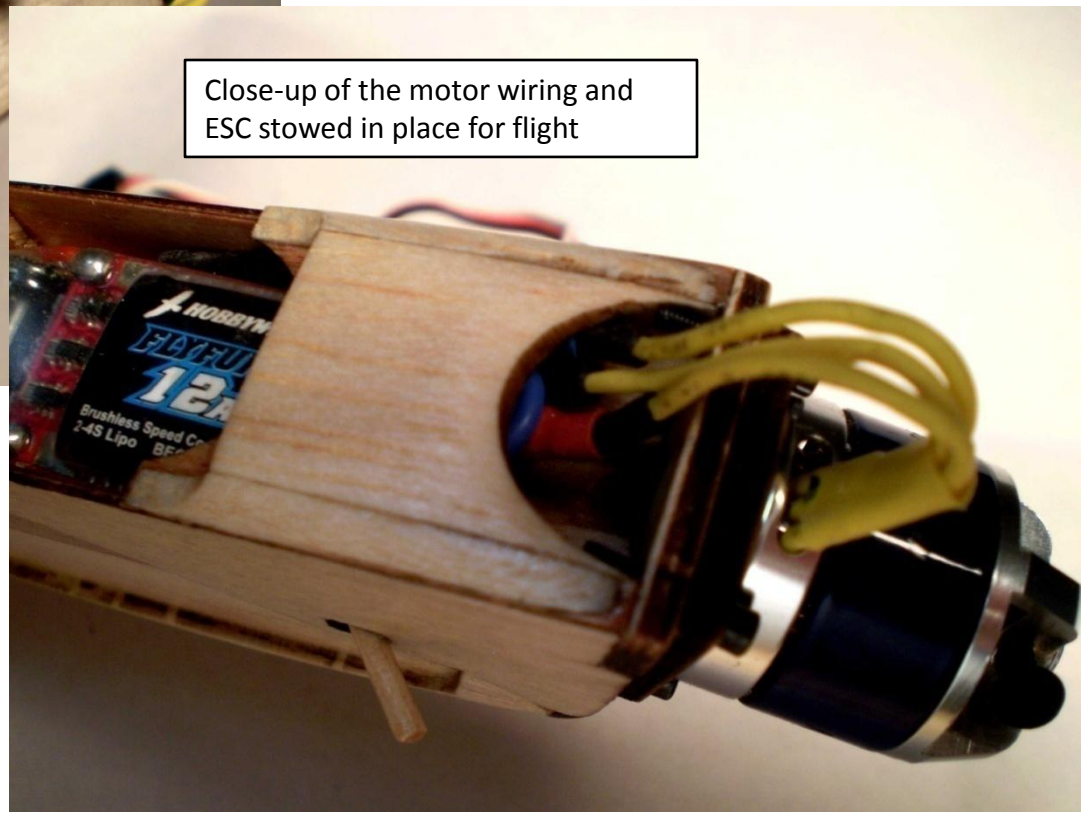


Looking into the timer bay



Close-up of the motor wiring and ESC stowed in place for flight

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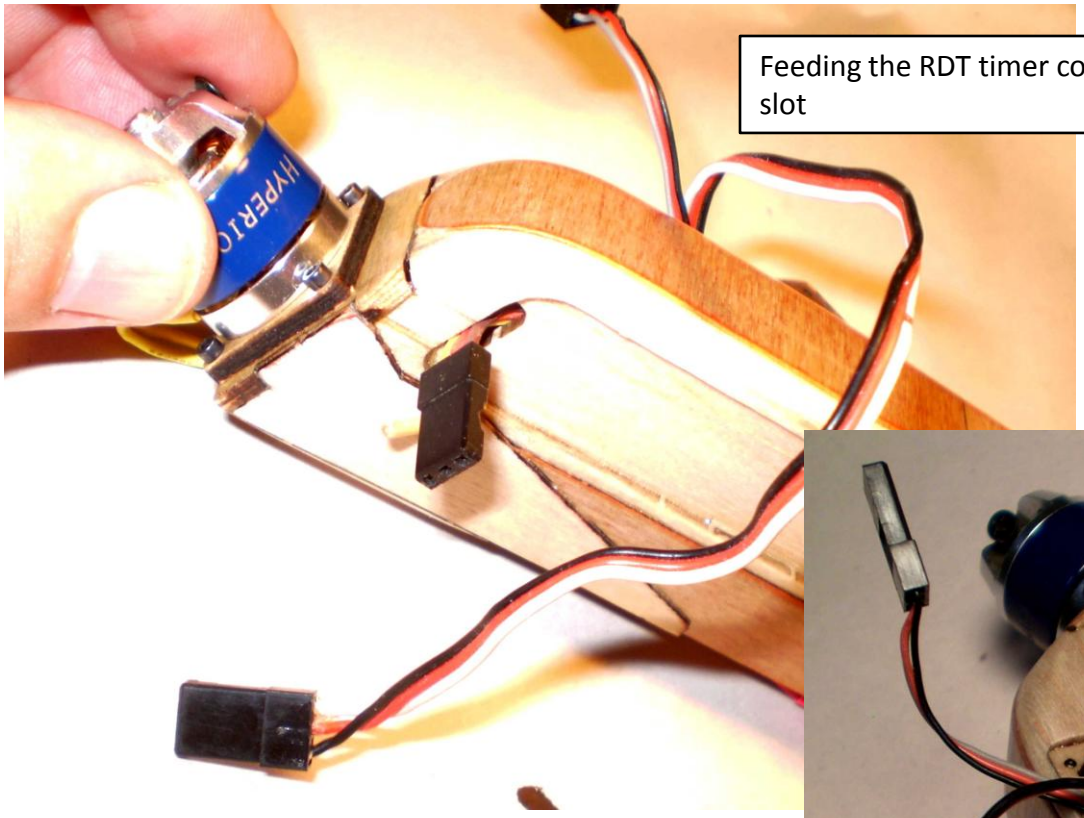
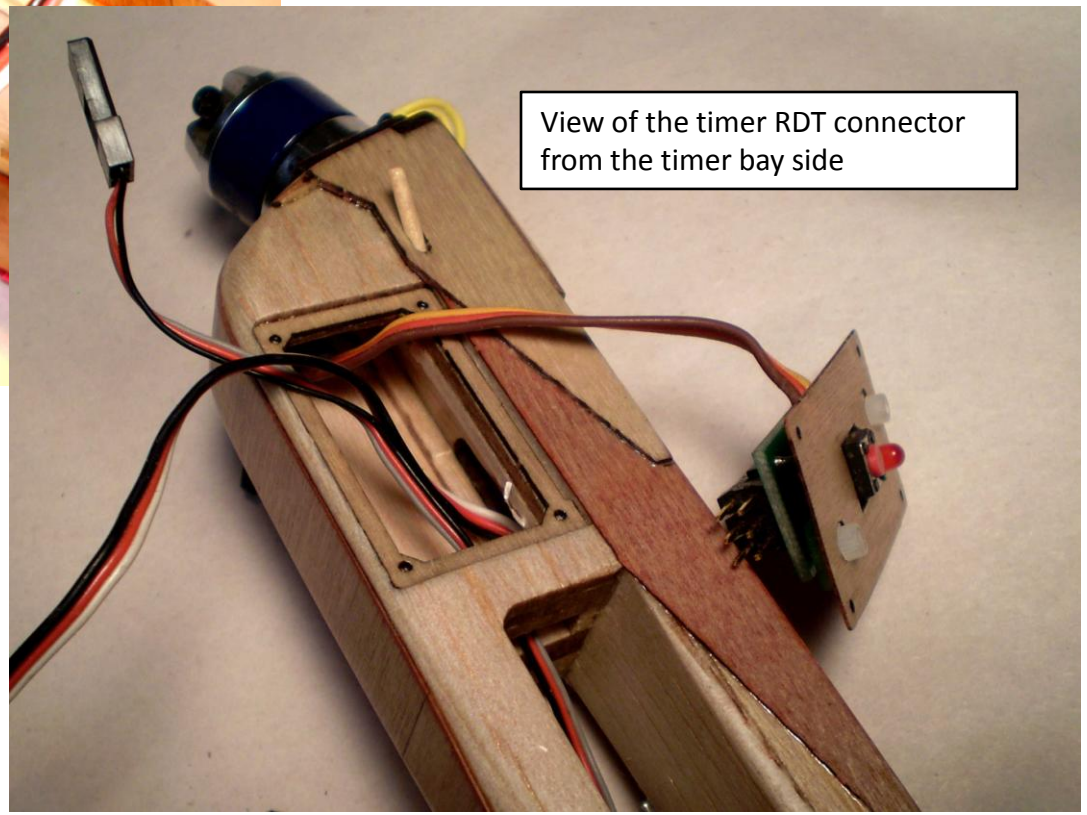


Feeding the RDT timer connector through the access slot



View of the timer RDT connector from the timer bay side

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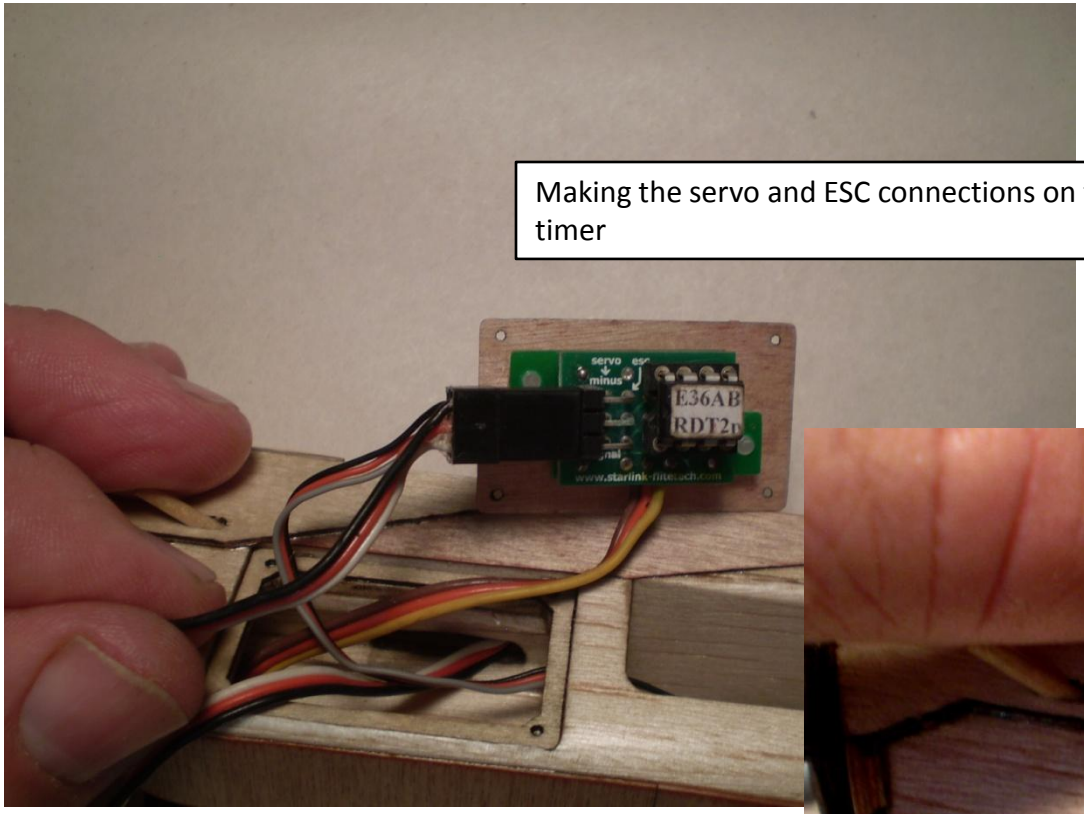
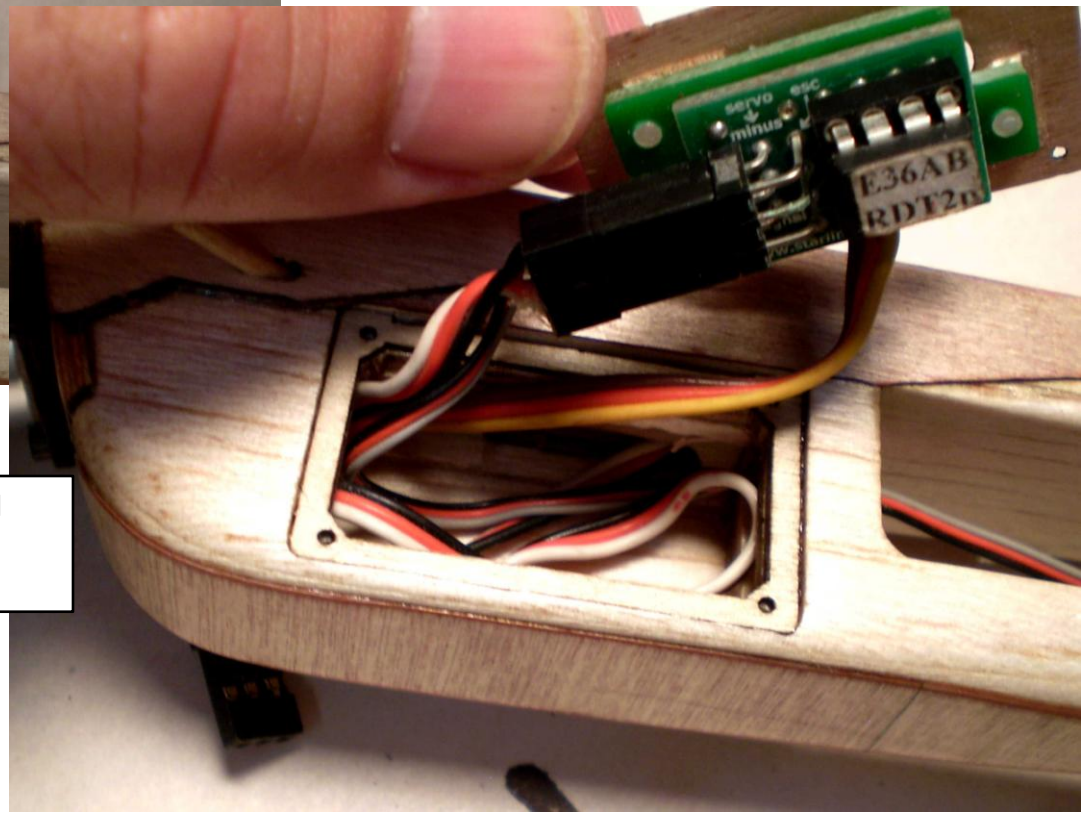


Making the servo and ESC connections on the Starlink timer



Stuffing the wiring into the timer bay and seating the timer mounting plate to the frame

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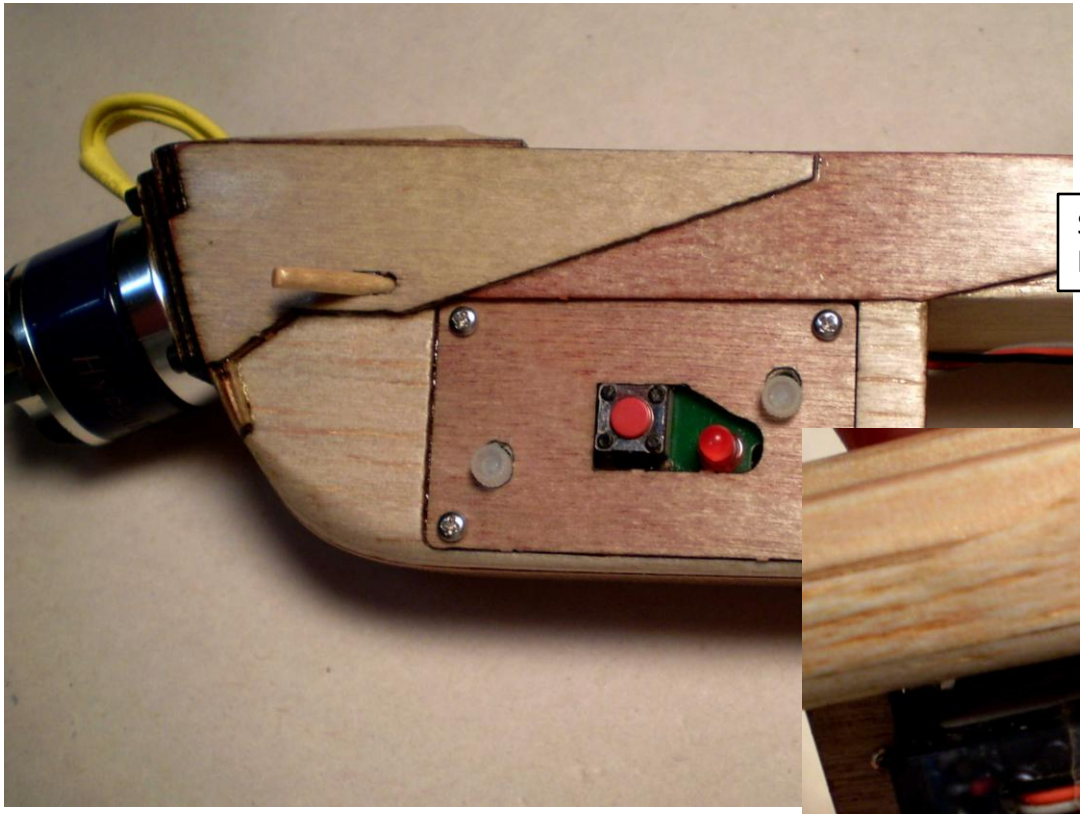
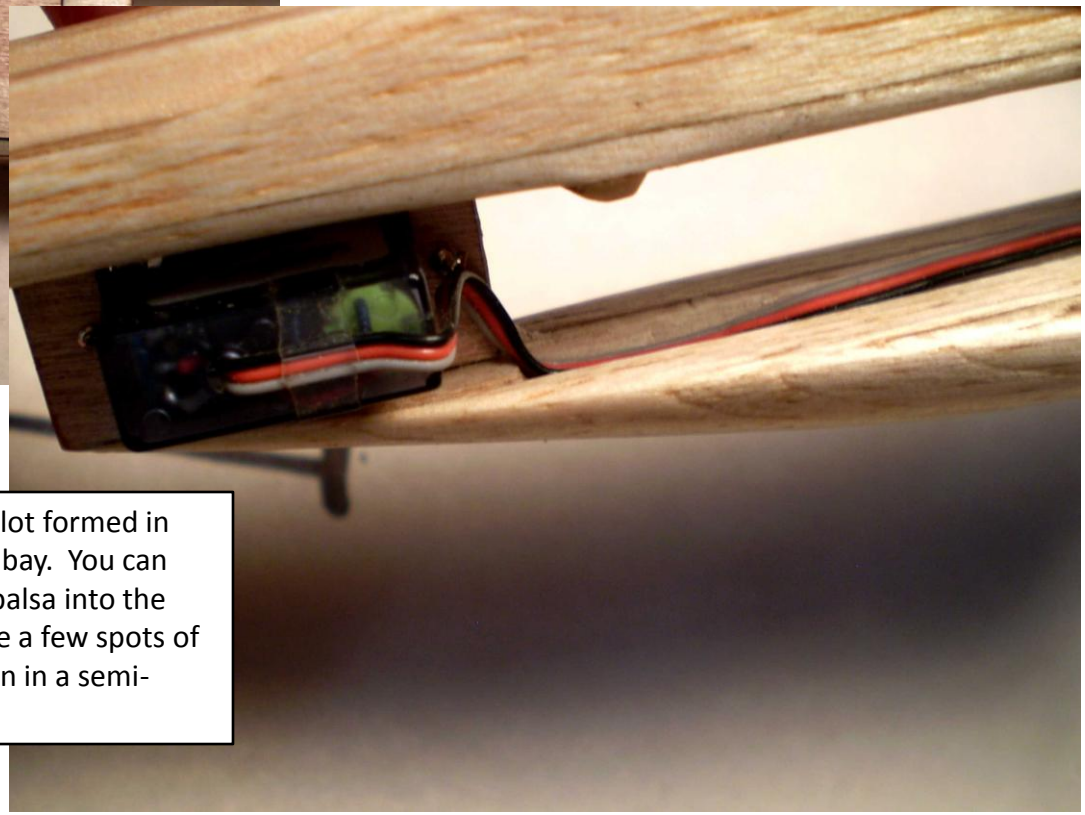


Starlink timer flush installation. The Emax timer would be offset by 1/32 thickness of TMF-1



The servo connector wire follows the slot formed in the pod buildup leading into the timer bay. You can push a piece of 1/16 x 3/16 wide soft balsa into the slot over the wire to trap it in place-use a few spots of DUCO or similar cellulose glue to retain in a semi-permanent way

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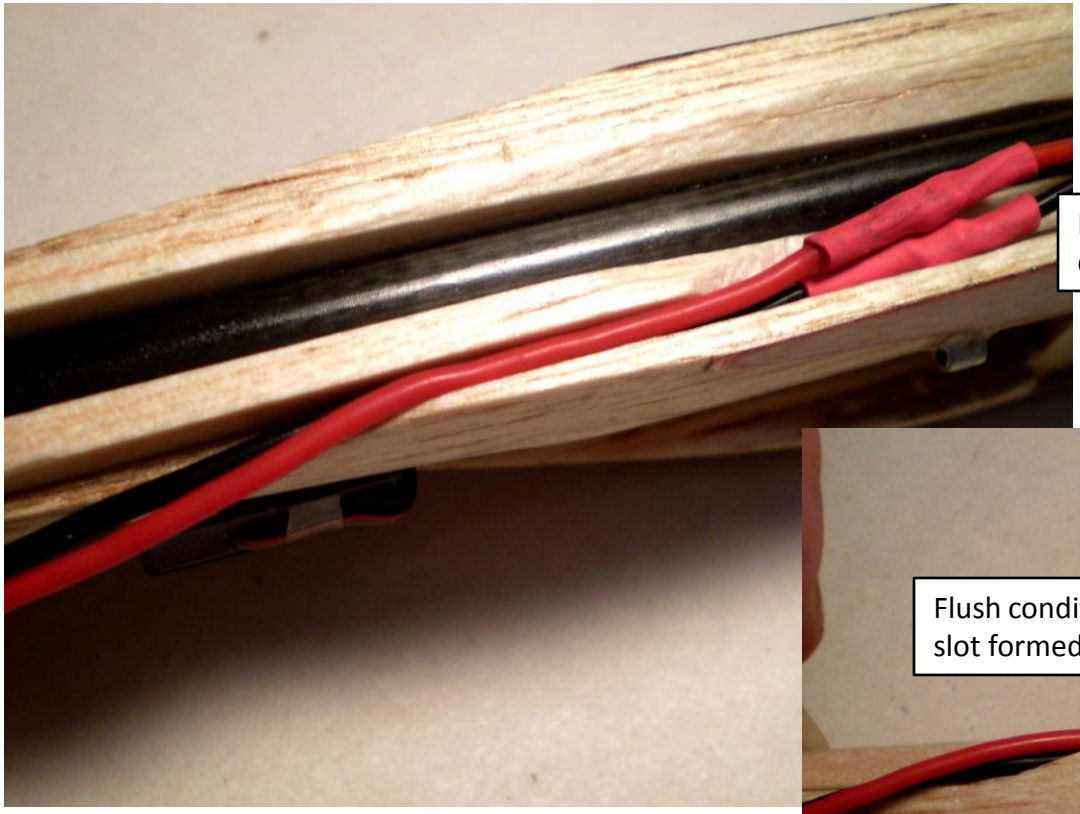
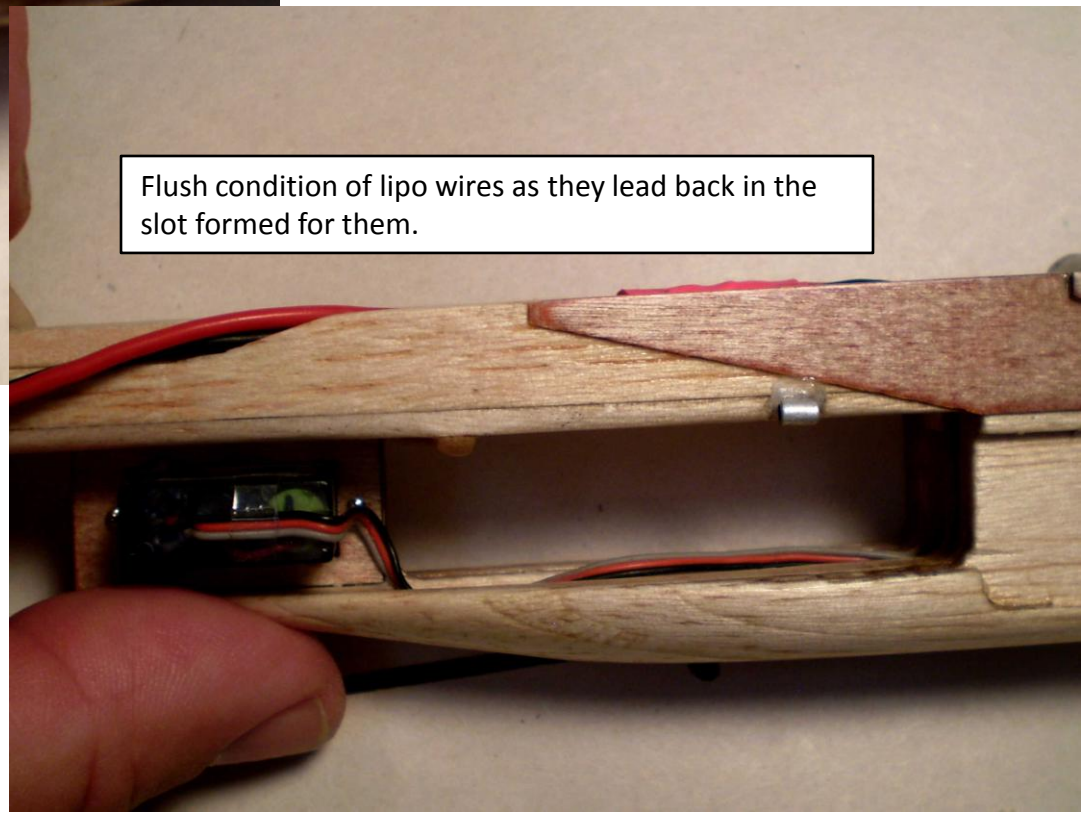


Fit the lipo lead wire connector wires to allow flush condition within the pod



Flush condition of lipo wires as they lead back in the slot formed for them.

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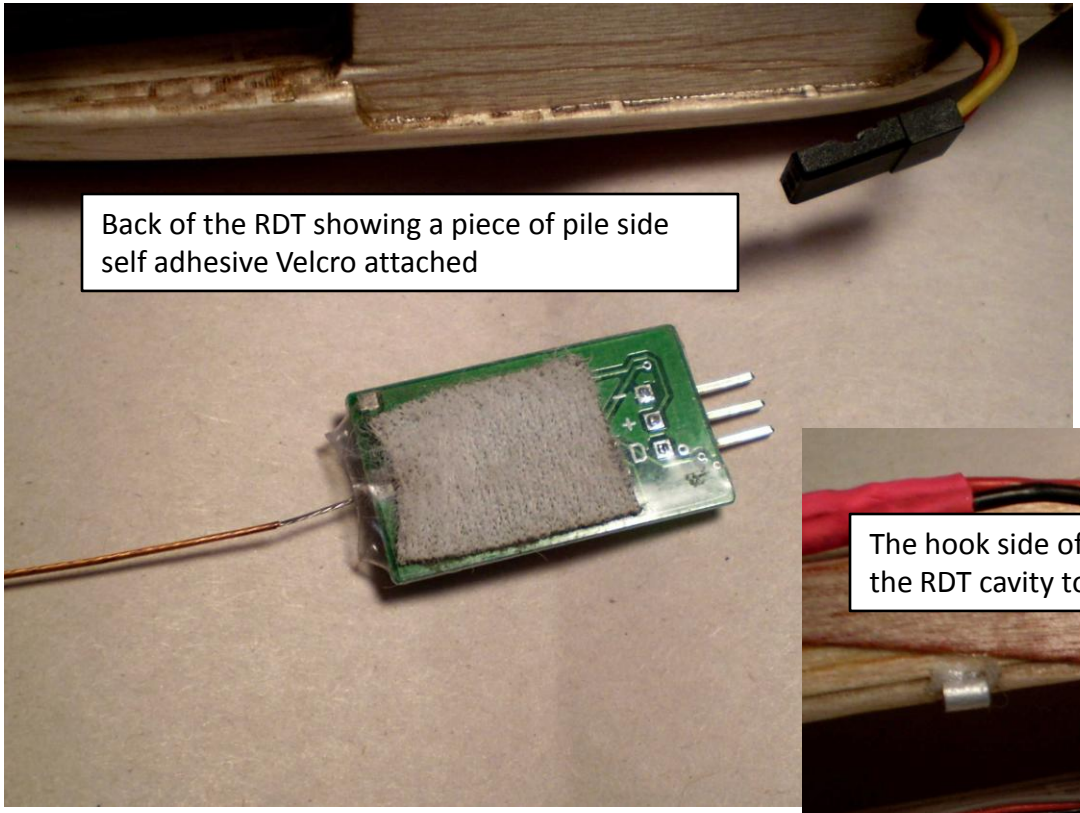
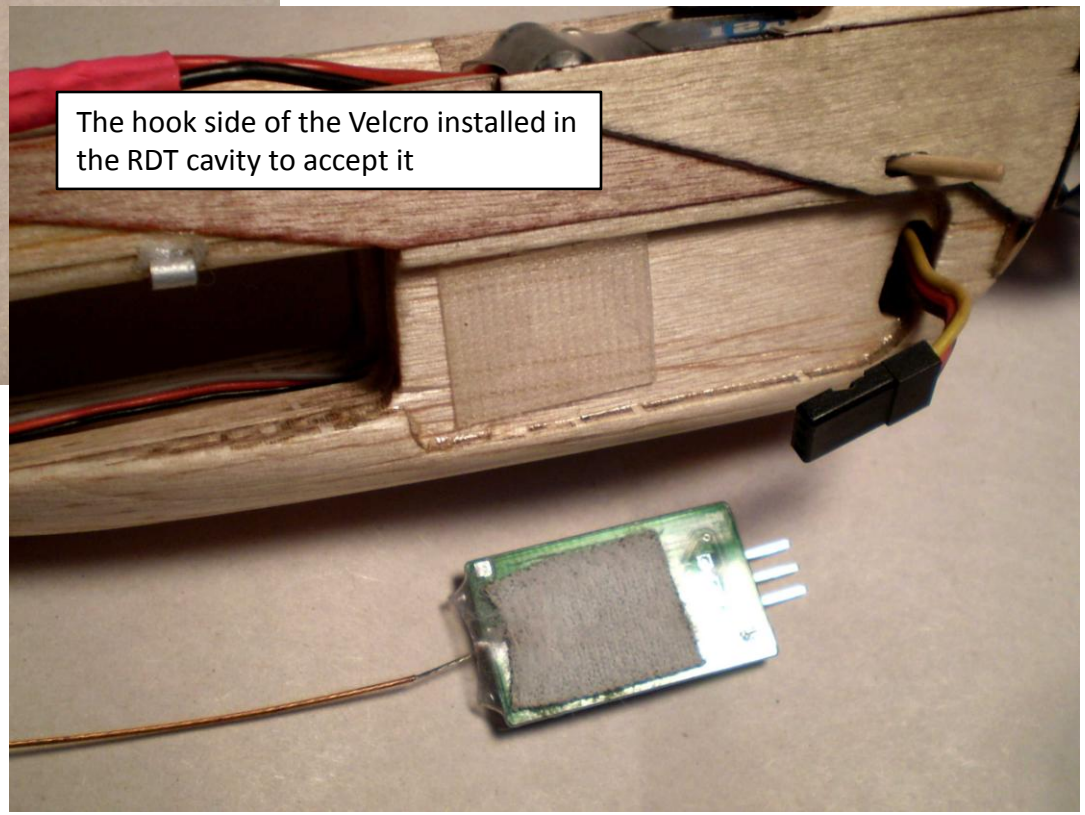


Back of the RDT showing a piece of pile side self adhesive Velcro attached



The hook side of the Velcro installed in the RDT cavity to accept it

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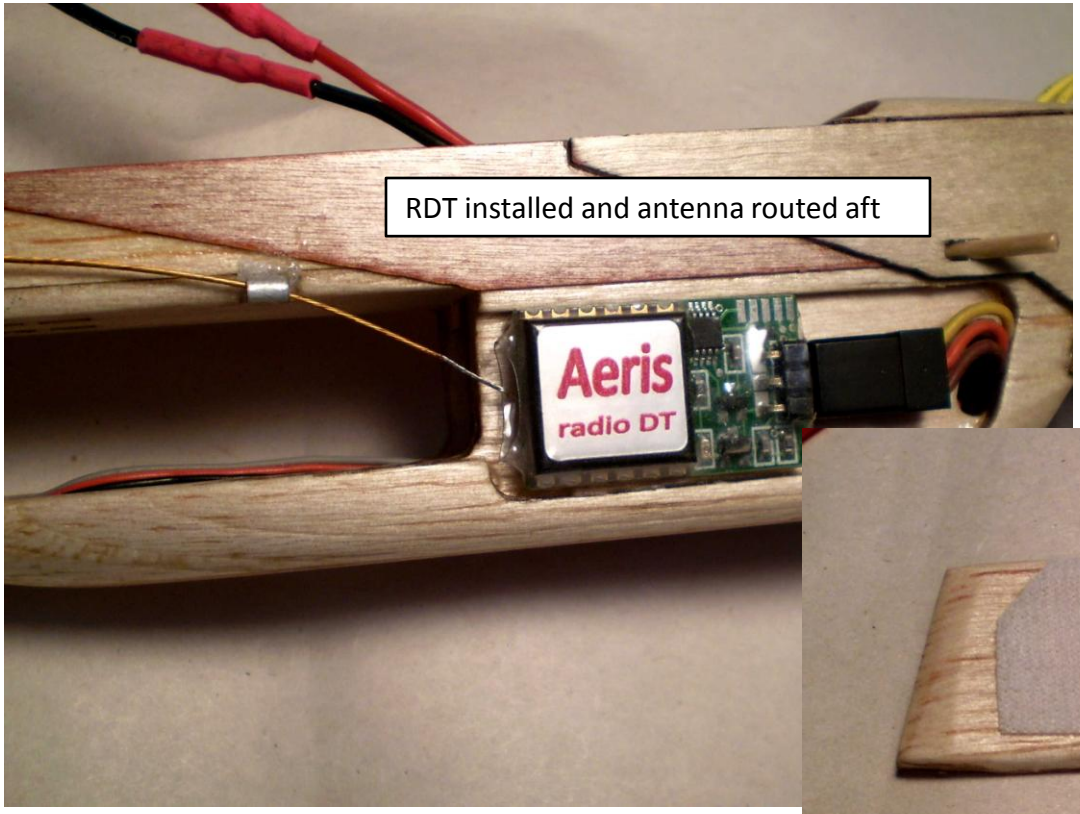
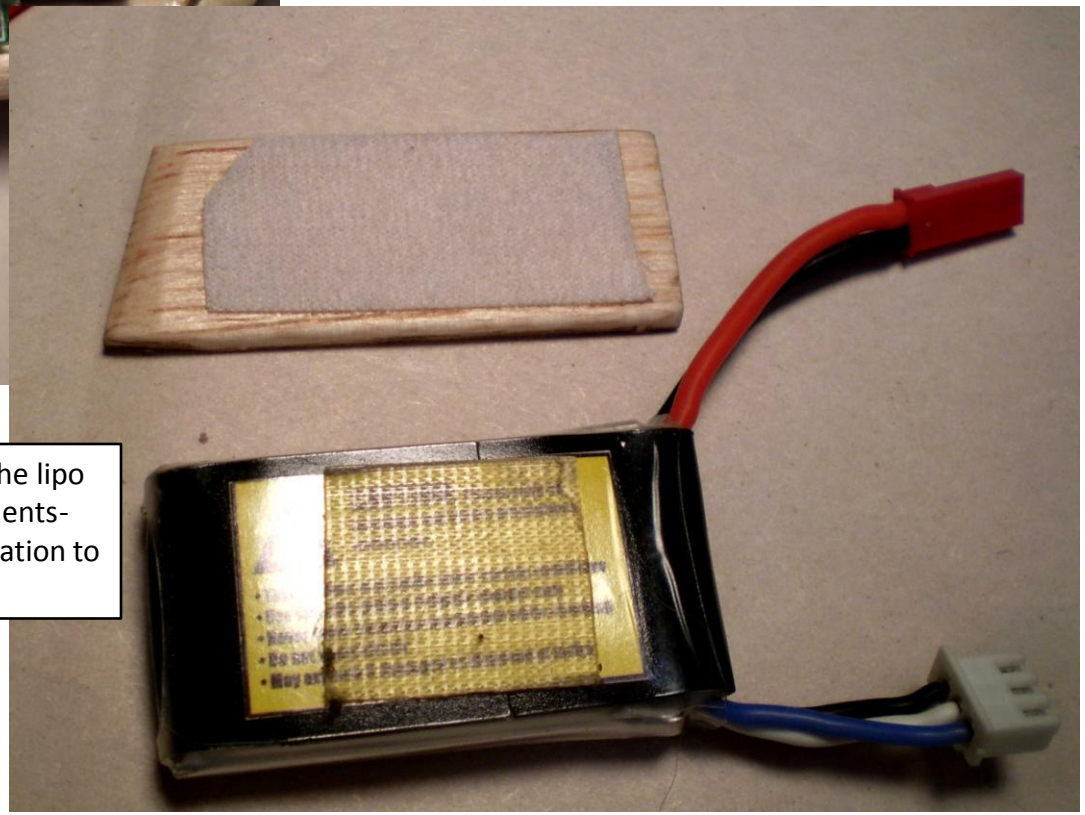


RDT installed and antenna routed aft



Thin self adhesive Velcro is used to hold the battery to the lipo tray and allow position forward or aft for C of G adjustments- tray installs in a repeatable way based on the lipo installation to it.

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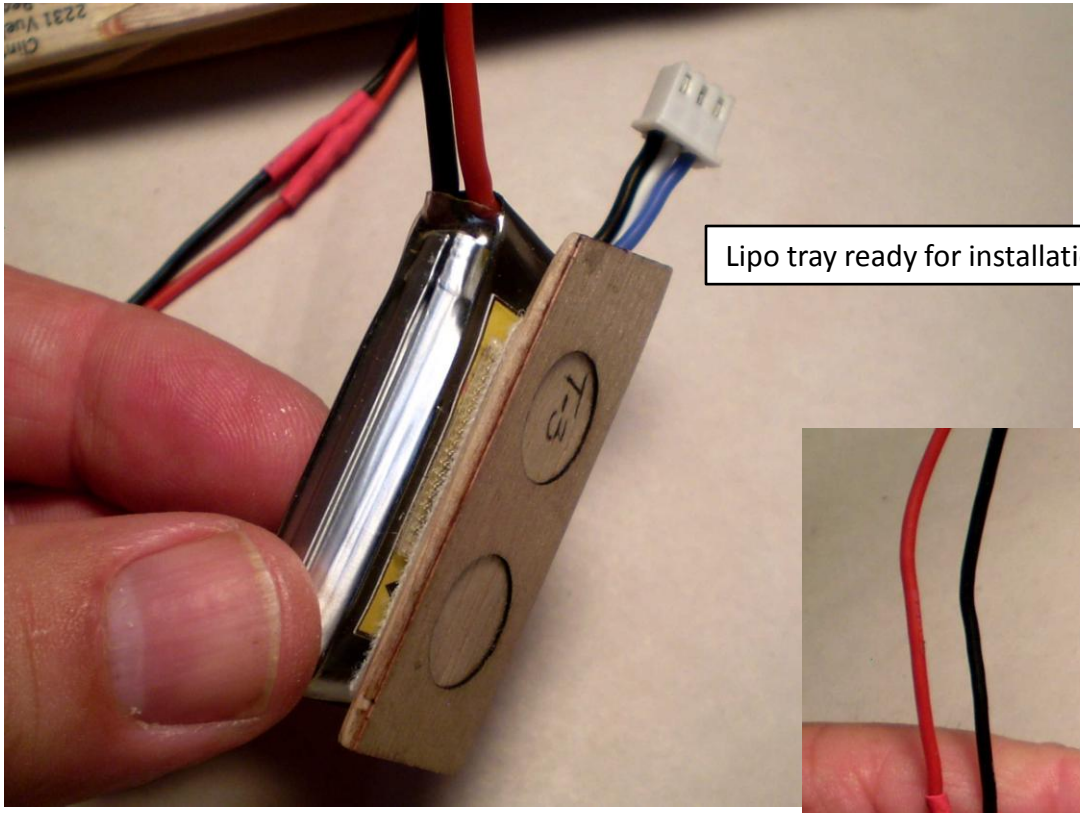
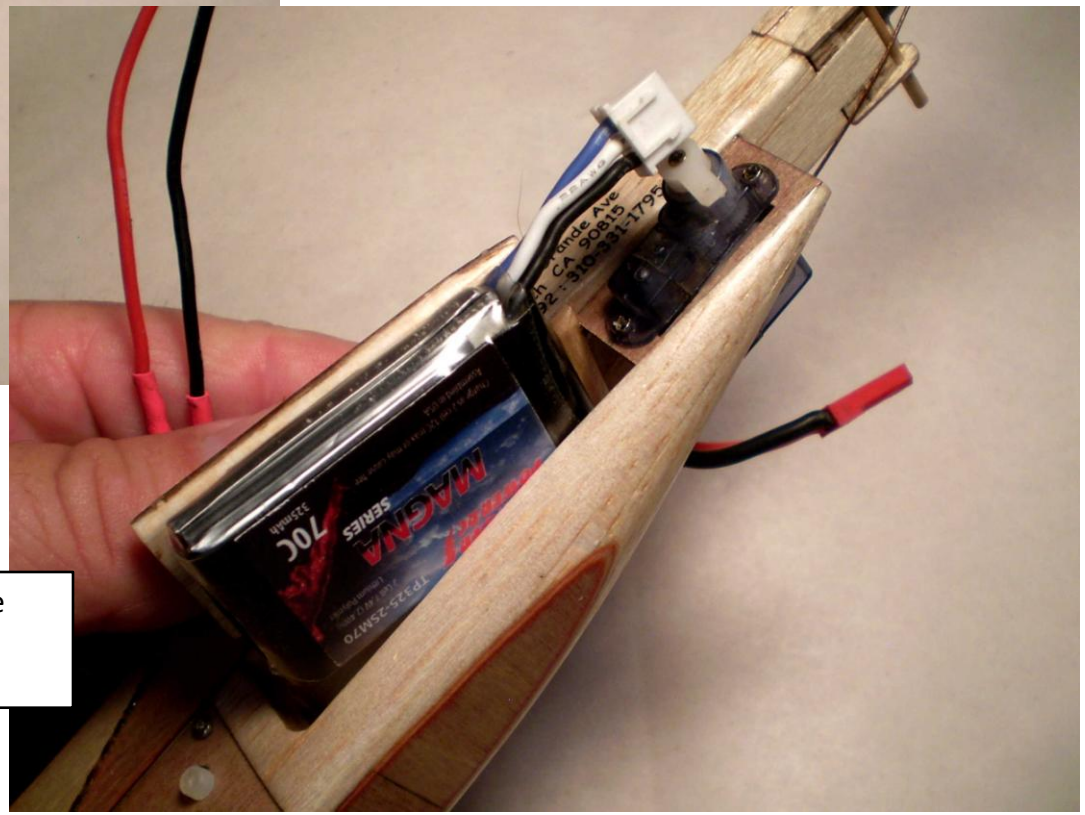


Lipo tray ready for installation



Passing the lipo in from the left side of the fuselage until it seats against the angled basswood stop and centered under F-1

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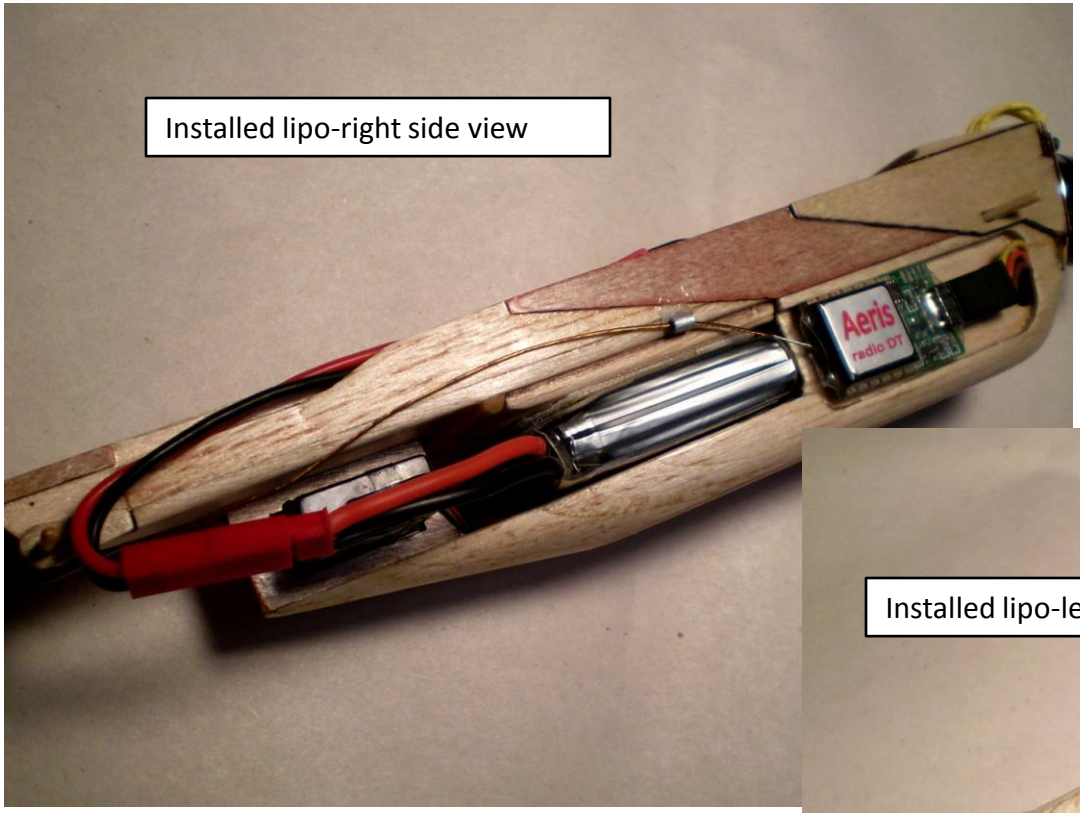

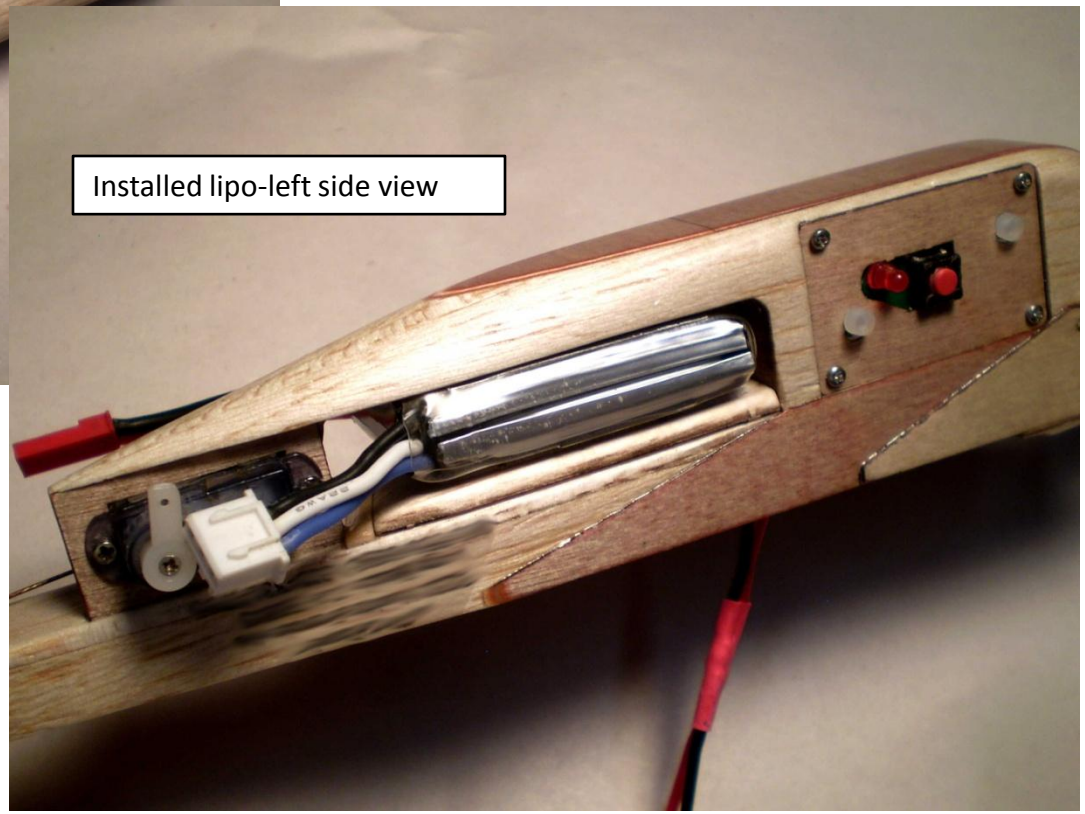

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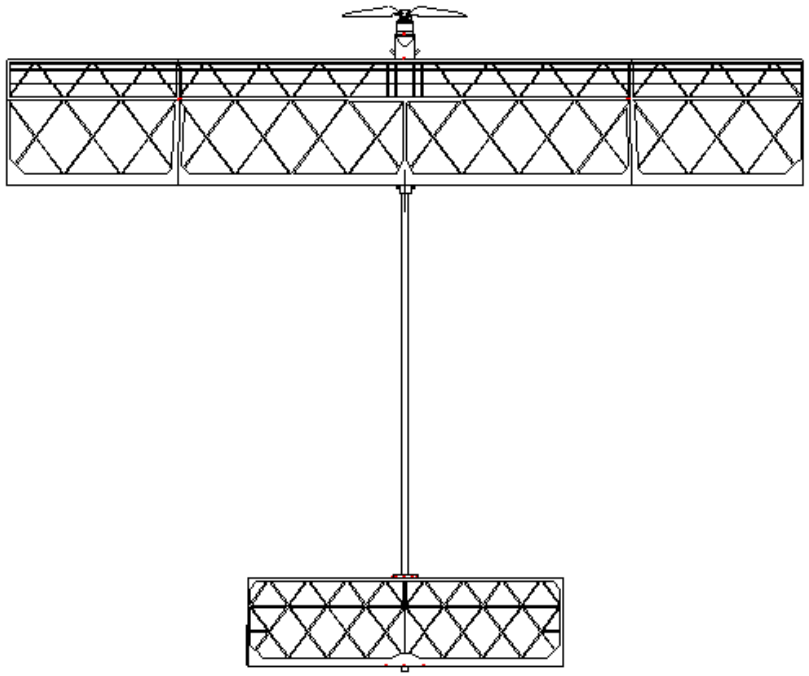

Apache II Build Weight Data

•Wing frame with tip plates	26.4 gm
•Stabilizer frame with fins	6.6 gm
•Unfinished fuselage assembly	22.8 gm
•Unfinished (bones) all-up weight	**56.9** gm
•Wing frame (Esaki covered and ready to use)	34.8 gm
•Stabilizer (Esaki covered and ready to use)	9.3 gm
•Ready to fly gross weight	**152.4** gm

(This is test build T-3 with RDT installed)

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