Gentle Lady-250

Super Simple Series

LESS THAN 250 GRAMS! NO FAA REGISTRATION REQUIRED!

BETA KIT

WARRANTY

Willy Nillies guarantees this kit to be free from any defects in both material and workmanship at the time of purchase. This warranty does not cover ANY components or parts damaged by use or modification. In no case shall Willy Nillies' liability exceed the original cost of the purchased kit. Willy Nillies reserves the right to modify or change this warranty without notice.

LIABILITY RELEASE

In that Willy Nillies has no control over the final assembly or material used for final assembly, no liability shall be assumed or 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 the kit immediately in new and unused condition.

PRODUCT SUPPORT

This product has been designed to function properly and perform as advertised with the SUGGESTED power system, speed control, and servos, as described in advertisements and in this manual. For the proper electronics to complete this model, replacement parts, and product assembly questions, please contact us online at www.WillyNillies.com

Our aircraft are built from self-jigging interlocking laser cut. balsa and plywood parts. It's like a 3D jigsaw puzzle with instructions. Full size plans are NOT INCLUDED or needed to assemble our kits. If the instructions are read beforehand and followed during the build, our kits can be built up and ready to fly in only 2 to 4 evenings. We think you'll like the super simple construction and flying qualities of our kits and look forward to any feedback you might have.

Sincerely,

Douglas Hart
Willy Nillies
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Marietta, IL 61459
www.WillyNillies.com
Phone: 309.648.0449

PLEASE VISIT OUR WEBSITE and Builders Group FOR CURRENT BUILD INSTRUCTIONS, VIDEOS AND UPDATES

Introducing the Gentle Lady 250 classic sailplane - or electric powered!

The Gentle Lady has always a great choice for a first airplane. Classic and graceful in looks and extremely gentle flight characteristics make this the perfect Sunday relaxed flyer or trainer! Enjoy it off a mini high start or use a 1306 brushless motor!
We have recreated this wonderful little sailplane at a slightly smaller size to come in well under the 250 gram weight rule for the proposed FAA RID rules. This means NO FAA rules or regulations for the Gentle Lady 250! Fly it at your local park or school yard (with permission of course) or your own large yard!
We have also updated the design to have interlocking parts. Building the fuselage and wings are a snap and takes less than 1 hour for experienced builders to frame up and have ready for covering! Beginners should allow a couple of hours and a visit or two to our builders group to get any questions they have answered very quickly.

Gentle Lady - 250 specs:
Wingspan: 48.5"
Wing Chord root 5"
Wing Chord tip 3.75"
Wing Area: 229 sq in
Fuselage length from front of fuselage to tip of rudder: 21.25"
Flying Weight Brushless or Glow: 4.5 to 6 ounces.
Wing loading 2.82 to 3.76 oz/sq.ft.
Wing Cube loading : 2.2 to 3

Features:
Build as 2 or, 3 channels
Easy access battery hatch
Built in servo tray in fuselage
Clark Y flat bottom airfoil
Laser cut self-jigging construction - The entire airframe can be built and ready to cover in less than 2 hours!
Full length shear web re-enforced main spar.

Includes:
All wood pieces to build the entire airframe
.032 K&S music wire pushrods
6 each number 32 rubber bands for attaching wing

Recommended equipment:
2 each (or 3 for throttle) Emax 9251i, 2.5g or equivalent micro servos - (Emax 9051 - 5 gram servos can be uses with minor resizing of servo tray). Rudder and Elevator or Rudder, Elevator and Throttle.
Non powered flight: Minimum 3 amp UBEC and 350 mAh Lipo battery, or equivalent Rx Battery.
For powered flight: 1306 - 3100kv Brushless Motor or Cox Pee Wee .020 glow engine
For Brushless - 350 mah 2s lipo battery, minimum 6 amp ESC, Gemfan 5030 propeller or equivalent
**** Our 1/4a TD .020 LITE completion packages are a perfect match for this airframe***
**** 3 cover packs are required to cover entire airframe***

General Practice for assembly:

Join all of your pieces using thin CA (Cyanoacrylate) glue, unless we tell you otherwise. In general, only a small amount of CA is necessary to glue parts together. Use of a capillary tube is HIGHLY recommended.

Do not over force your pieces together. If they are not fitting together properly, make sure you have the right pieces and they are oriented correctly. If needed, you can lightly sand the part to fit. On balsa "tabs", you can "pinch" the wood with your fingers to get them to fit in slots. (The tabs might be tighter sometimes, due to tolerances in wood thickness)

Control Throws:

1. Control throws are VERY critical to the characteristics of our aircraft designs. The recommended throws have been determined through flight testing during development and It is imperative that you DO NOT EXCEED our recommended control throws on your first flight!!!!

Elevator: .5" up and down, measured at the trailing edge immediately aft of the control horn.

Rudder: .75" right and left, measured at the trailing edge immediately aft of the control horn.

EXPO - if you have a computer radio, we recommend setting rudder and elevator on 25% expo to help soften the effectiveness of the controls near center.

Center of Gravity:

1. Beginner C of G is at 2.0 inches aft of the leading edge measured from the leading edge. Advanced fliers will prefer a C of G at about 2.25" of the leading edge. Adjust your battery and receiver forward or aft to achieve this placement for your first flights. Add weight if necessary.

First Flights:

1. This model is a very fun and slow type aircraft with a wide speed range. That said, don't be afraid of it! If you have followed our Center of Gravity instructions and have set control throws accordingly, you will be rewarded with a very fun relaxing all around aircraft.

Words of Caution:

1. This is a SMALL plane. KEEP IT CLOSE.

2. DO NOT LAUNCH AT FULL THROTTLE! The torque from the electric motor can roll the aircraft quickly!

3 Half throttle and a firm forward throw is all you need to get going.

4. It is highly recommended that you use highly contrasting colors in your finish. Visibility and keeping orientation are very important.

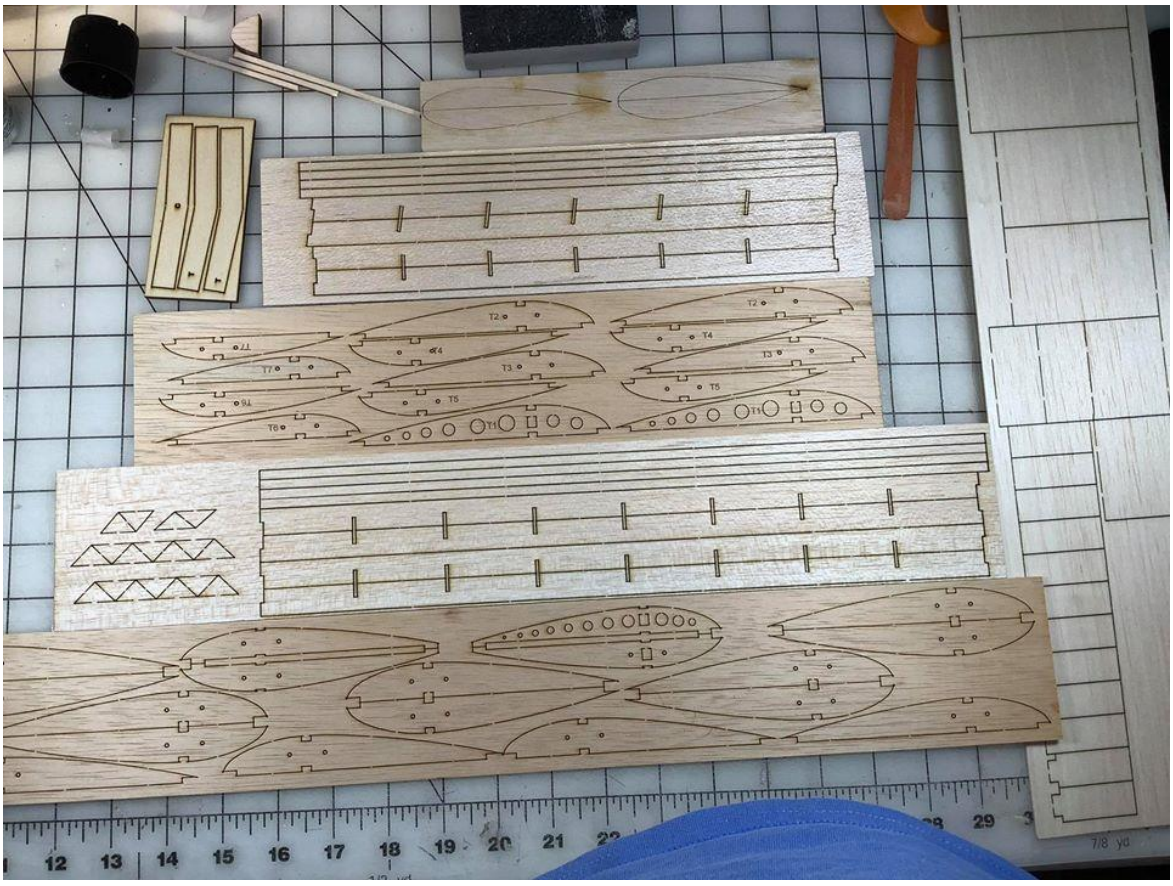
5. That all said, if you manage your throttle at 50 or slightly less, it is a tame and gentle performer and a blast to fly at high power settings also!.

Rev; C, 01/29/2023
Wing Assembly:

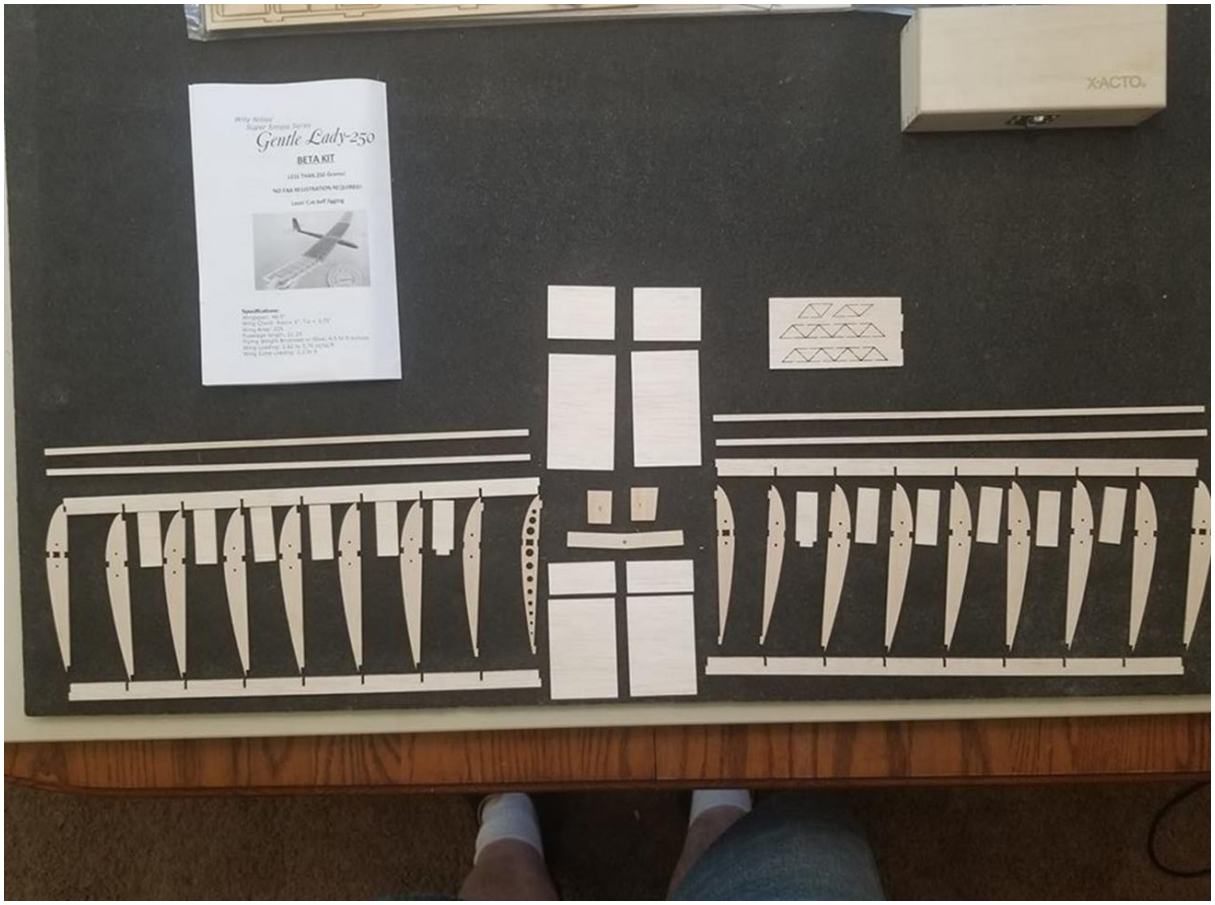
This guide is a list of steps accompanied with photos on how to assemble the Willy Nillies Gentle Lady-250 and follows the information provided by Willy Nillies with input from the Facebook Builders Forum. All our kits share nearly the same construction techniques with only very minor differences. As with any Beta Kit there may be recommended modifications and updates available. **Always** check the documentation that comes in your kit.

All Willy Nillies planes have been Flight tested and built from random production selections to ensure you are getting a great product. With that in mind, you may feel free to be creative and make your own modifications, however, realize that any changes made by the Builder become the responsibility of the Builder and any change to the flight characteristics are on the Builder to correct.

Let's get started with the Wing.



These sheets contain the parts required to build the wing.
Top Row; Wing Tip Blocks.
Second row; Plywood Sheet containing the Dihedral Braces, 1 Center Section Brace (C) and 2 Outer Wing Panel braces (T). and the Balsa Sheet containing Spars and Leading/Trailing Edges for Outer Wing Panels.
Third Row; Wing Ribs for Outer Wing Panels.
Fourth Row; Sheet containing Leading/Trailing Edges and Spars for Main Wing Panels and Triangle Braces.
Fifth Row; Wing Ribs for Main Wing Panels.
Sheeting on the far right contains the Center Section Sheeting and Shear webs.

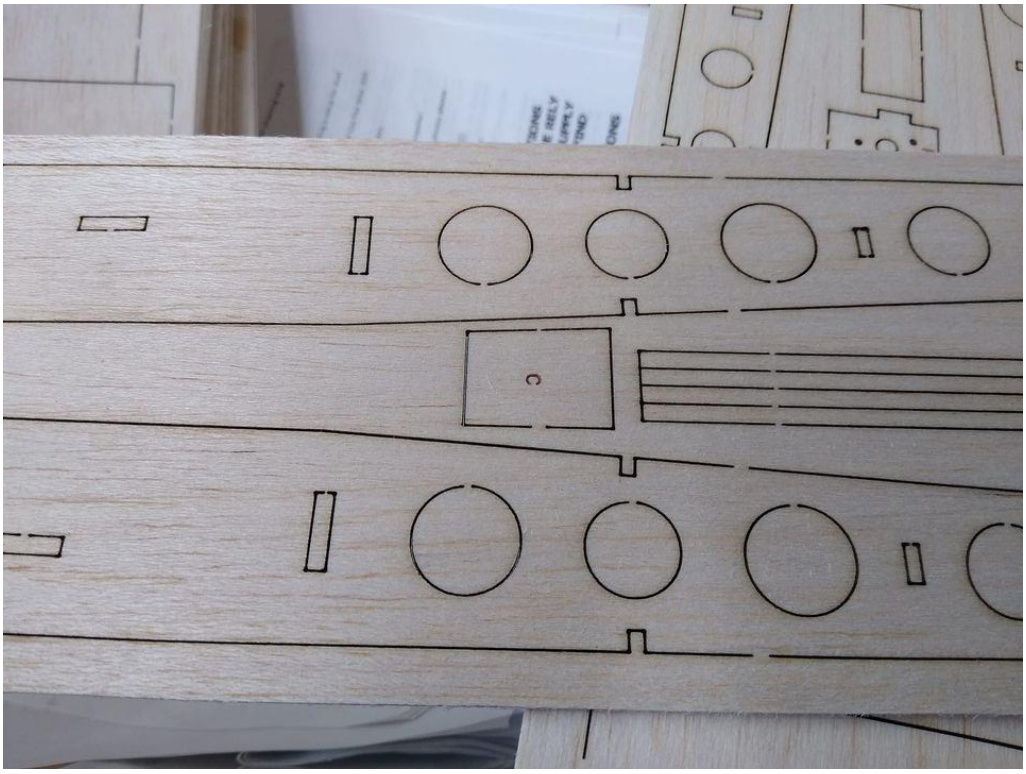


Laying out Main Wing panels. Note that the Center Section Ribs are cut smaller for the sheeting and one Center Rib has holes to use for gluing the two sections together. Also of note is the notches in the Shear Webs used in the second bay of each Wing Panel.

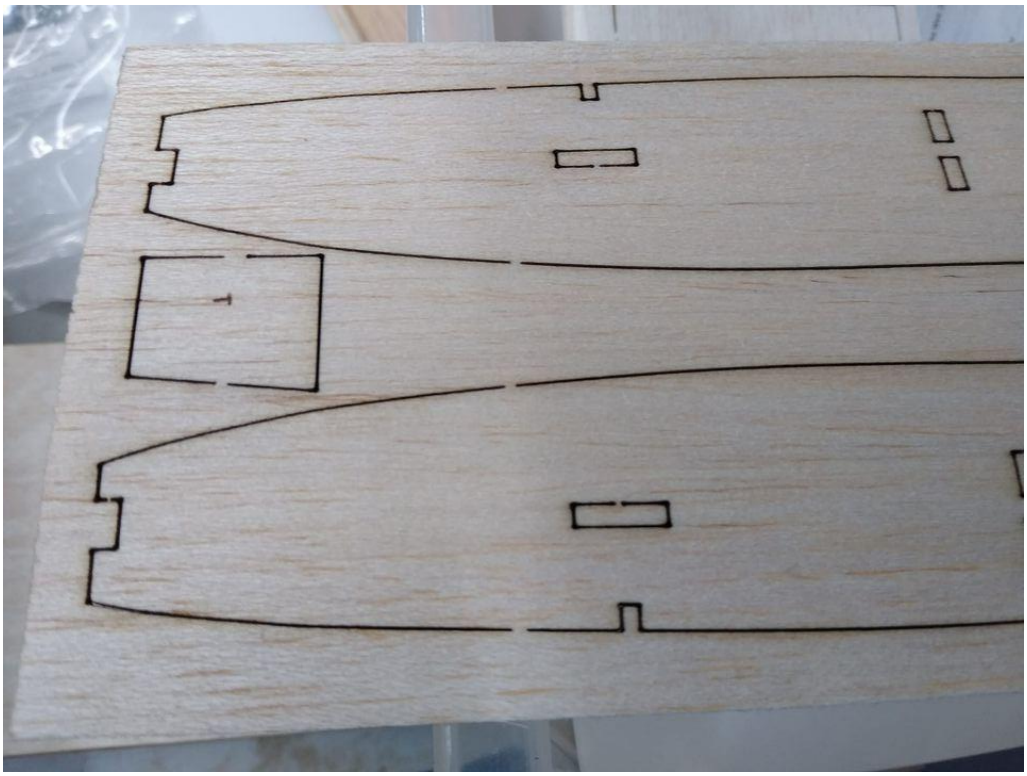
Trial fit all parts BEFORE gluing to ensure proper fits. The Wing Panels are assembled inserting the Ribs in the notches of the Leading and Trailing Edges and squaring up the panels. This is easily achieved by the fit of the notches themselves. Set the Root and Tip Ribs to the proper Dihedral angle using the supplied gauges as shown in the following pictures and glue in place using thin CA.

The Upper and lower spars can be installed and glued allowing the spars to hang over the ends. These ends can be sanded flush once the Wing Panels are assembled.

Test fit you lower center section sheeting. The sheets should butt up to the spars and Leading/Trailing Edges. Some light sanding of the edges may be required. Once you are satisfied with fit, glue the sheeting in place.

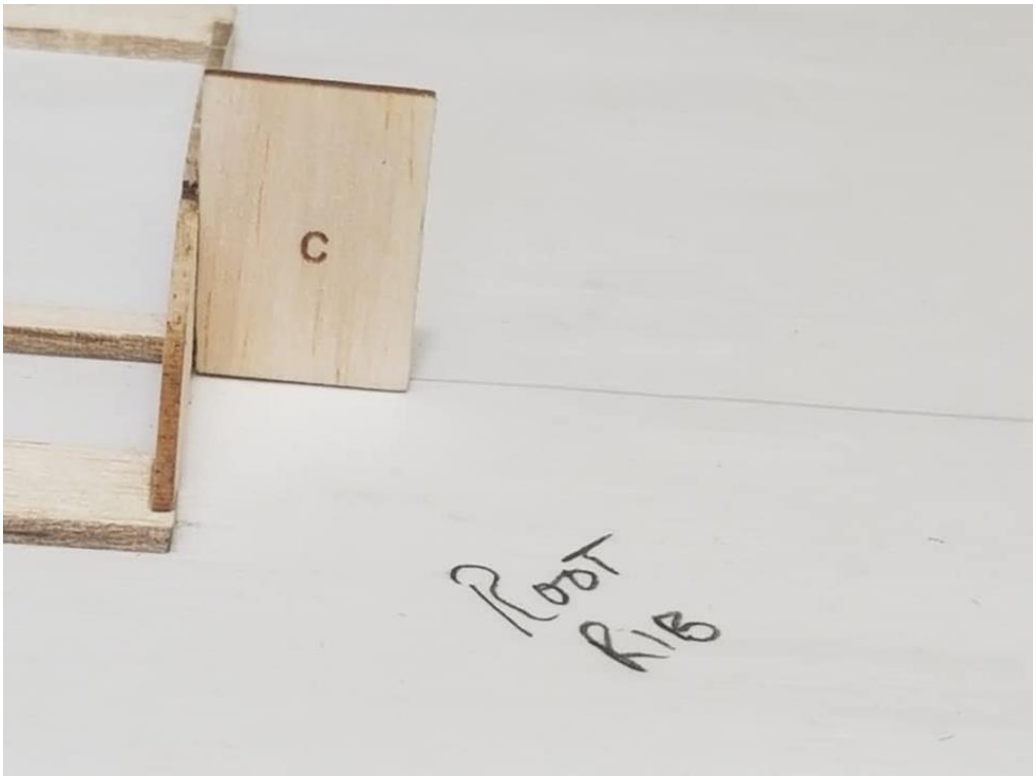


The “C” is used to set the Dihedral angle for the Center Ribs.

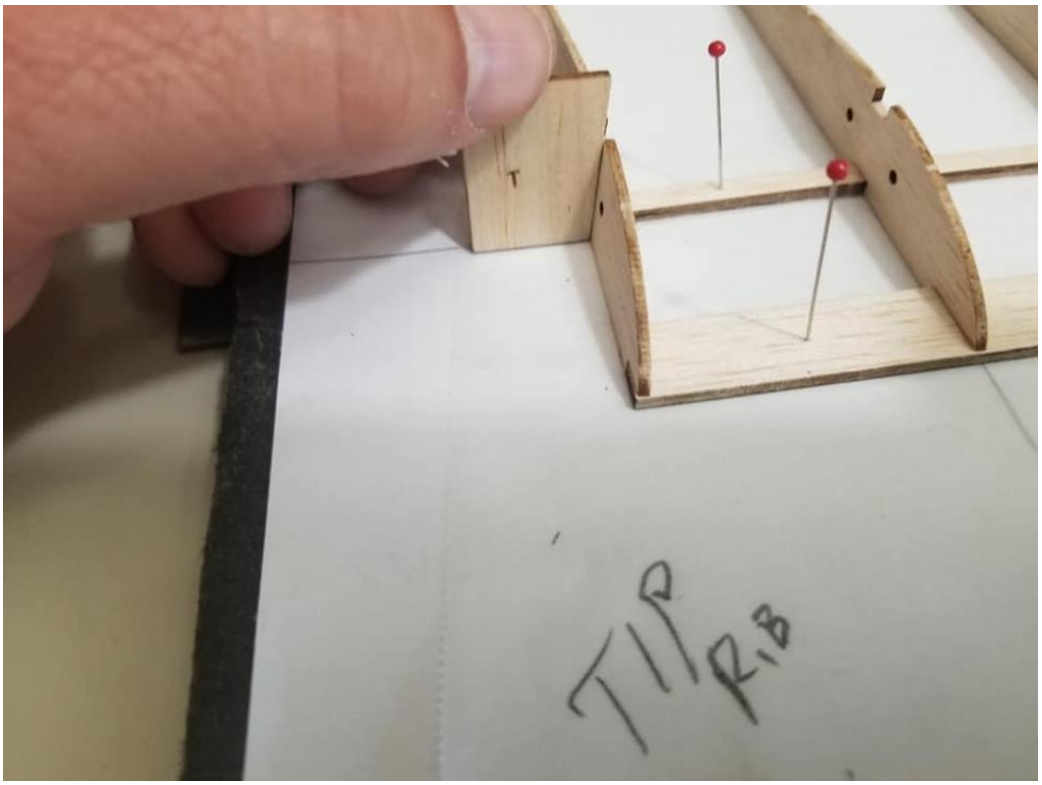


The “T” is used to the Dihedral angle for the Tip Ribs.

The next steps require these Dihedral braces that are located on the sheet with the Fuselage sides in the locations shown above.

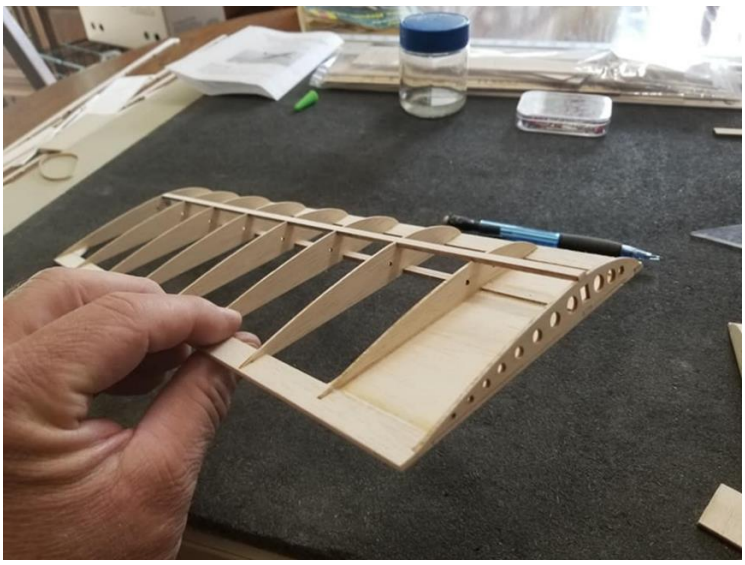


This is the orientation of the Dihedral gage for setting the Main Wing Section Center Ribs. Note: BOTH Root Ribs must be set.



This is the orientation of the Dihedral gage for setting the Outer Wing Panels. The End Rib of each Main Panel MUST be set as well as the Root Rib of each of the Outer Bay Panels.

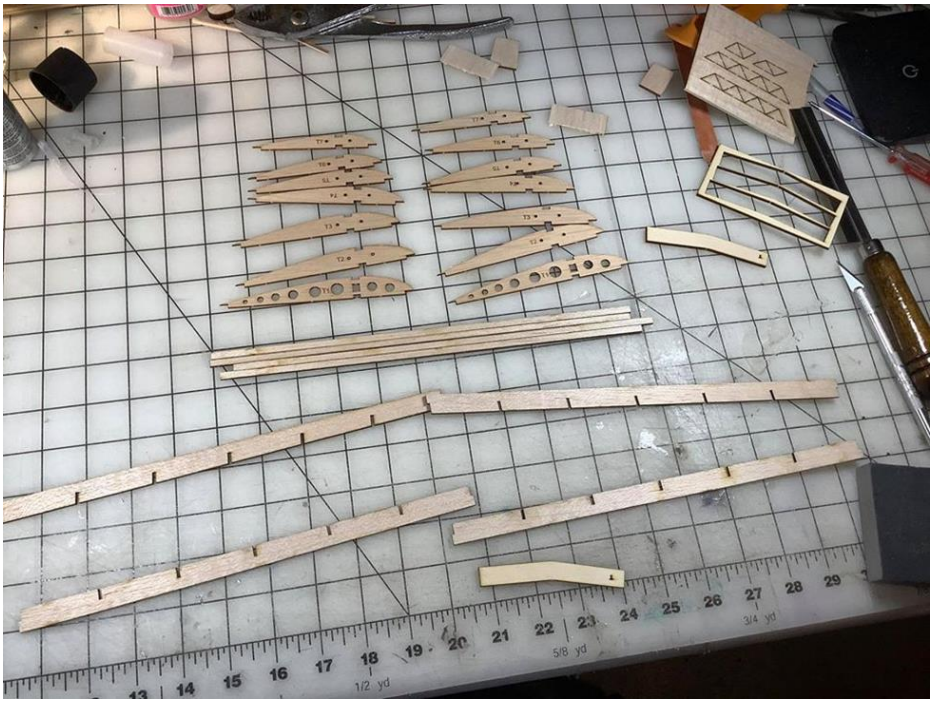
Right side Main Wing Panel with bottom sheeting installed.



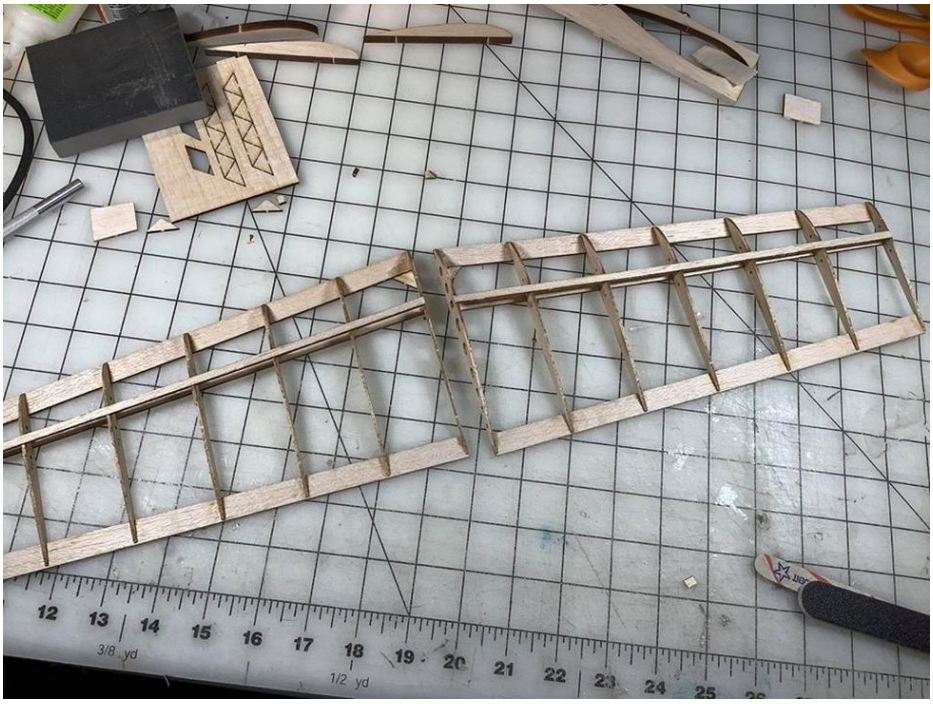
Left side Main Wing Panel with bottom sheeting installed.

There are small rectangle cutouts in the two center Ribs between the spars. You will need to cut these to the spars and test fit the Dihedral brace. The Rectangle hole was left small for added Rib strength during initial assembly. You may need to do some light sanding to the brace depending on the fit and length variance created during assembly. Don't Panic! It's normal. The brace should slide between the two spars and butt up to the second Rib of each panel.

Once you have fitted the spar, you can assemble the two halves together. The Brace will set the Angle of Dihedral and while holding the sections together apply the thin CA through the holes in the rib. The CA will wick in around the holes and bond the two halves together. You can now check the brace alignment and bond it in place.

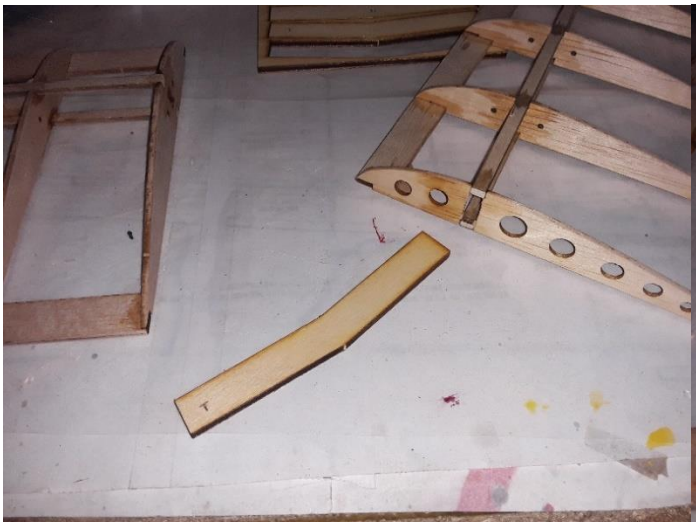


Outer Wing Sections layout. Note the Root Rib of each section has the Laser cut circles for gluing.
The 2 Dihedral braces are marked “T”.



The Outer Wing Panels are assembled the same as the Main Wing Panels. There is a Sweep to the Leading Edge and you can check the squareness at the Root Rib and Trailing Edge. Note the Ribs with Laser cut holes Root Rib) and the Dihedral tilt.

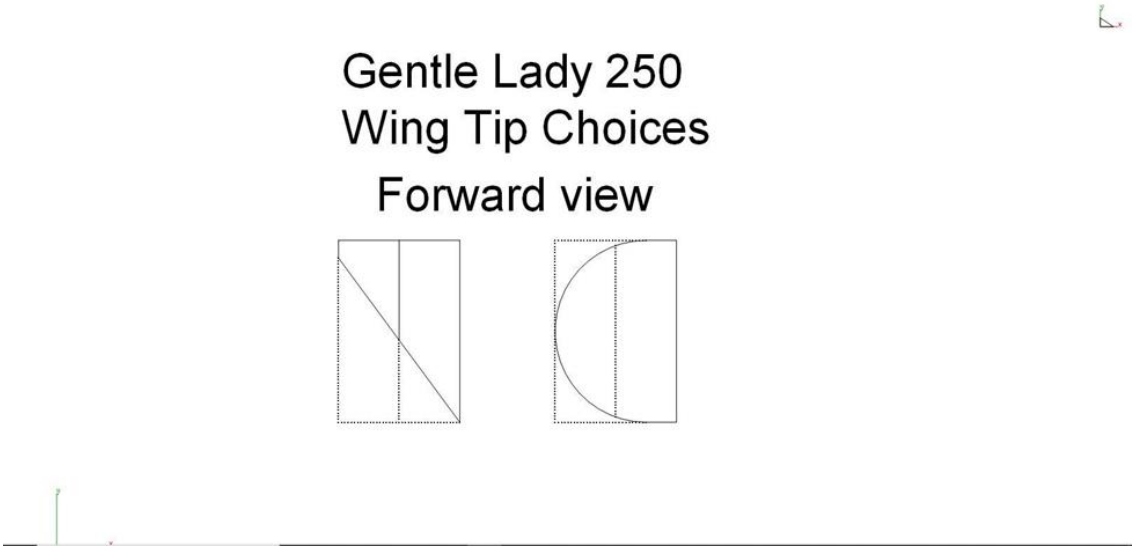
Install the Dihedral braces as you did with the Center section. The end marked with a "T" is tapered to match the tip geometry and will only go in one way. Glue the Outer Panels to the Main Wing just as before and then glue the brace.



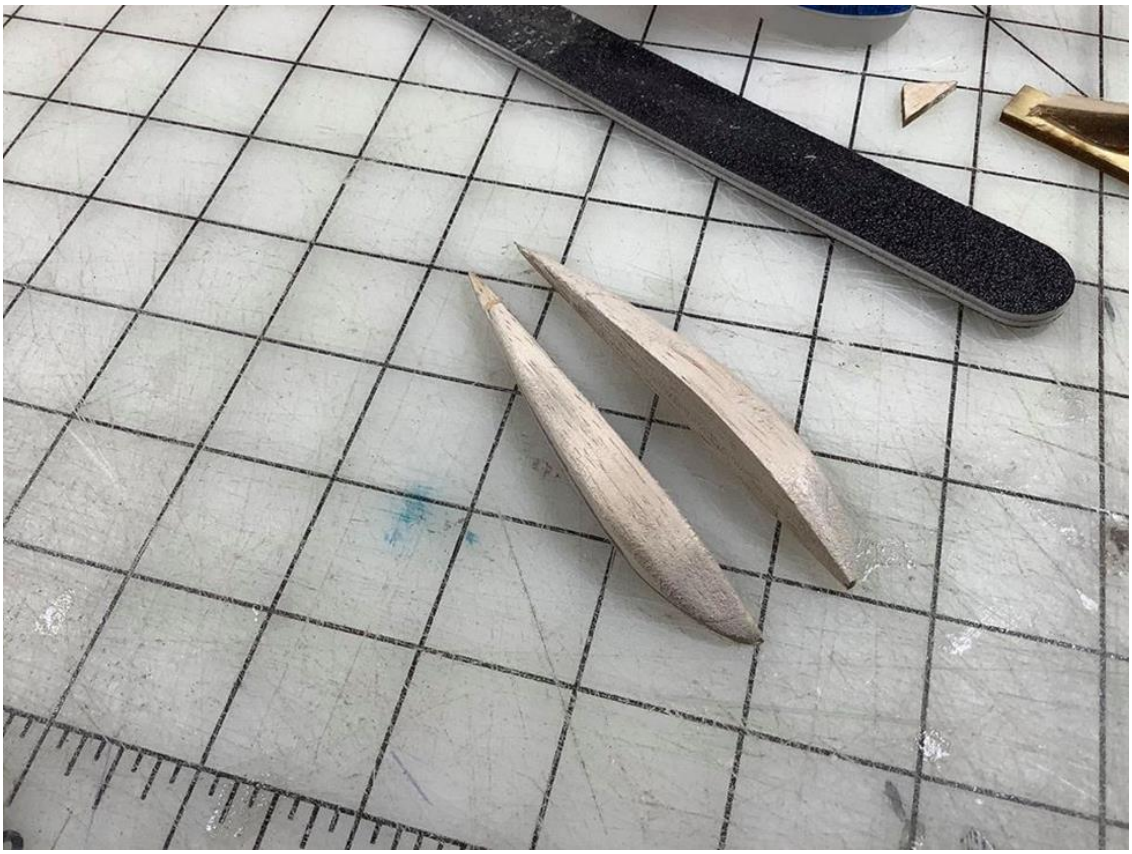
Connecting the wing bays with the Dihedral braces you will need to cut out the section between the Spars as shown in the first picture. The rectangle is pre-cut by the Laser process so it is pretty easy to finish the corners and pop them out.

Clean up any excess adhesive from building the wing section and test fit the brace sliding it in between the spars and the sliding on the mating section. Once you are happy with the fit, glue them up.

The finished joint should look like this.

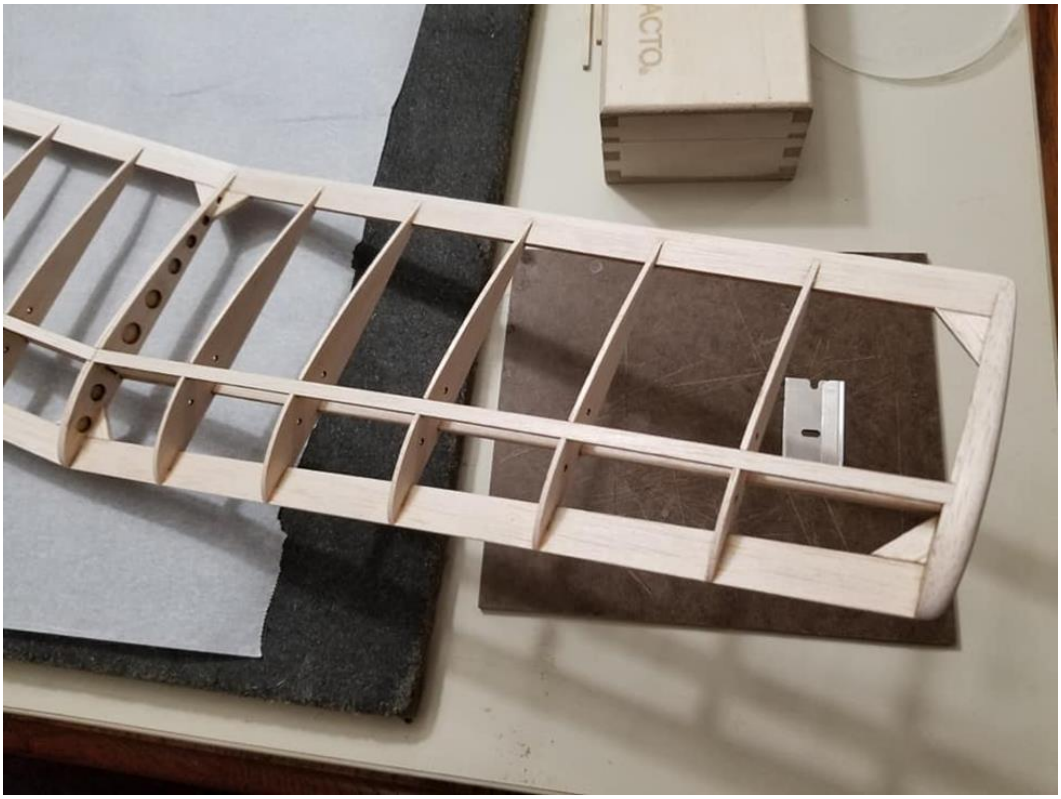


The diagram above shows the Triangle shaped Tip like the original Gentle Lady or simple Rounded Tip to be the Builders choice. Two of the tip blanks are bonded together for each tip and then rough shaped before gluing to the Tip Rib and finish sanded as seen in the pic below.

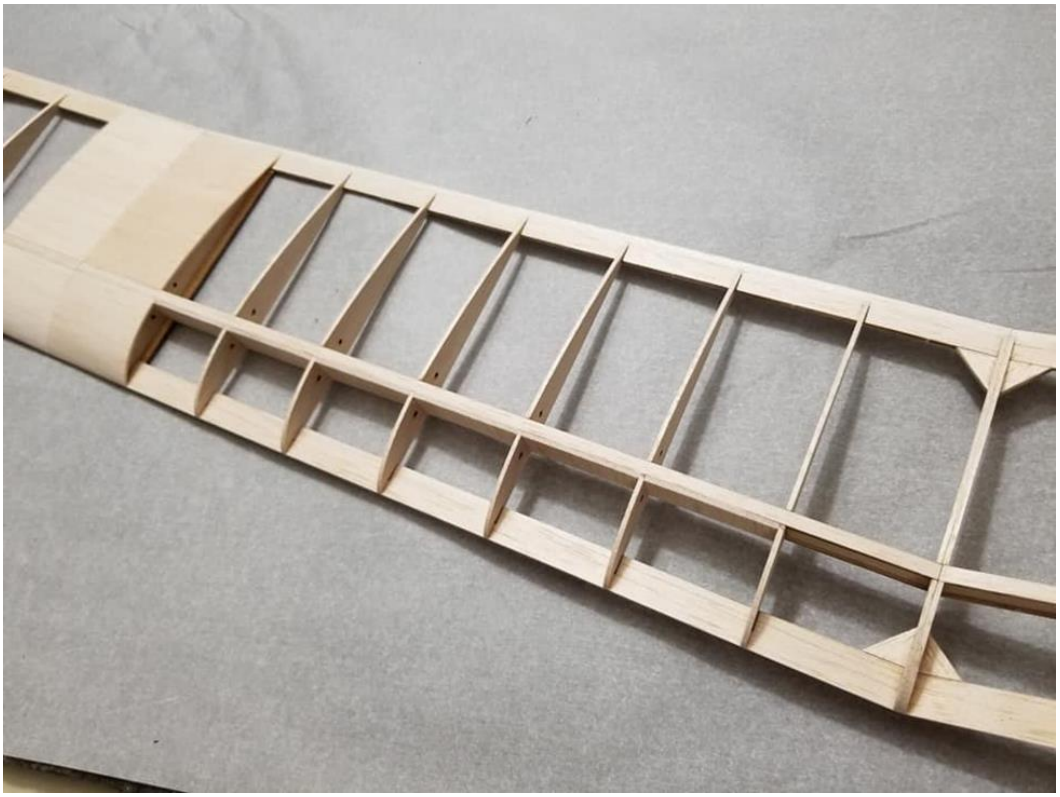


If you haven't already install the Shear webs and Gussets, You should complete those items before finish sanding the wing tips to add some strength.

Finish sand the Wing Tips and sand the completed wing to removed nubs and glue edges creating a smooth surface for your choice of covering.



Note the shaped Wingtip blocks and Triangle Gusset placement.



Note the Shear Webs go between Ribs on the forward side of the spars. The center wing gets them except for the most inner bay and most outer bay (dihedral braces go there). There are extra triangle gussets. Two go on center section at outboard leading and trailing edges. Four go on outer wing panels in all four corners.

Completed and sanded Wing ready for covering. Note the placement of the Triangle Gussets.

Congratulations! You now have a wing!!