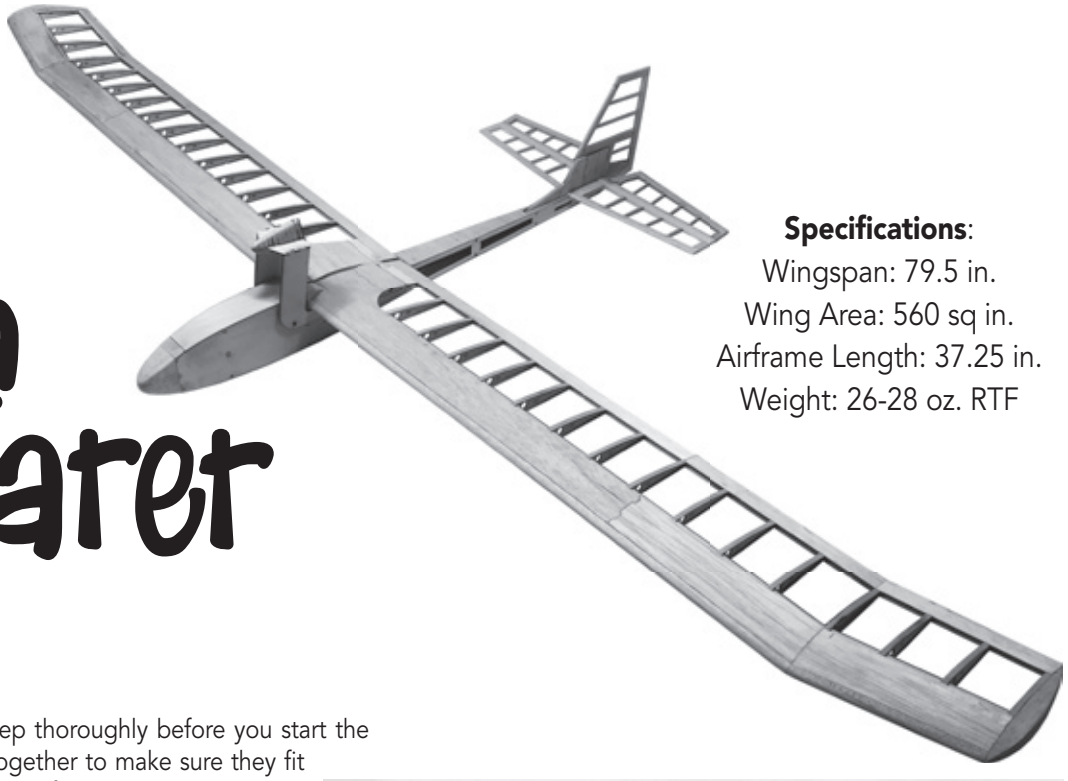
Wayfarer



Specifications:
Wingspan: 79.5 in.
Wing Area: 560 sq in.
Airframe Length: 37.25 in.
Weight: 26-28 oz. RTF

CONSTRUCTION MANUAL

Using the Manual

Be sure to read each step thoroughly before you start the step. Test-fit the parts together to make sure they fit properly. If necessary trim to fit.

Beside each step you will notice a check box (or two). These are so you can keep track of your progress while building your kit. For steps that have two boxes, as in the construction of the left and right wing halves, these steps must be performed two times.

- Your **Old School Model Works** aircraft should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, this model, if not assembled and operated correctly, could possibly cause injury to yourself or spectators, and damage to property.
- You must assemble this model according to the instructions. Do not alter or modify this model, as doing so may result in an unsafe or un-flyable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct.
- You must take time to build straight, true and strong.
- You must use a R/C radio system that is in first-class condition, a correctly sized power system and components (electronics, batteries, wheels, etc.) throughout the building process.
- You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air. (Installation shown in the manual is a suggestion. You may have to adjust the mounting steps to accommodate the size of your radio equipment.)
- You must check the operation of the model before every flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.
- If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.
- While this kit has been flight tested to exceed normal use, if this model will be overly stressed for non-typical flying, such as aerobatics, or if a power system larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.

Remember: Take your time and follow the instructions to end up with a well-built model that is straight and true.

Old School MODEL WORKS

www.oldschoolmodels.com

WARNING

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT WARNINGS AND INSTRUCTIONS CONCERNING THE CONSTRUCTION AND USE OF THIS MODEL.

A Radio-Controlled aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably at AMA (Academy of Model Aeronautics) approved flying sites, following all instructions included with your radio, powerplant, electronics and batteries.

- Inspect your model before every flight to ensure it is airworthy.
- Be aware of any other radio frequency user who may present an interference problem.
- Always be courteous and respectful of other users in your selected flight area.
- Choose an area clear of obstacles and large enough to safely accommodate your flying activity.
- Make sure this area is clear of friends and spectators prior to launching your aircraft.
- Be aware of other activities in the vicinity of your flight path that could cause potential conflict.
- Carefully plan your flight path prior to launch.
- Abide by any and all established AMA National Model Aircraft Safety Codes.

IMPORTANT!!! Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

INCLUDED ITEMS

Wood parts included in this kit:

- 2 - LP1 - Laser Cut 1/8" x 5" x 24" sheet
- 1 - LP2 - Laser Cut 1/8" x 5" x 19.5" sheet
- 1 - LP3 - Laser Cut 1/16" x 3" x 18.5" sheet
- 2 - BP1/ BP2 - Laser Cut 3/32" x 4" x 24" sheet
- 1 - BP3 - Laser Cut 1/4" x 4" x 24" sheet
- 1 - BP4 - Laser Cut 1/4" x 4" x 7.25" sheet
- 2 - BP5 - Laser Cut 1/16" x 4" x 24" sheet
- 2 - BP6 - Laser Cut 1/16" x 4" x 24" sheet
- 1 - BP7 - Laser Cut 1/16" x 4" x 24" sheet
- 1 - BP8 - Laser Cut 1/16" x 4" x 24" sheet
- 1 - BP9 - Laser Cut 1/16" x 4" x 12" sheet
- 1 - BP10 - Laser Cut 1/8" x 2" x 8" sheet
- 1 - 1/16" x 4" x 24" sheet
- 3 - 5/16" x 1/2" x 36" balsa strips
- 3 - 1/4" x 1/2" x 36" balsa strips
- 1 - 1/4" x 1/4" x 36" balsa strips
- 1 - 1/8" x 1/4" x 36" balsa strip
- 5 - 3/16" x 3/8" x 36" basswood strips
- 1 - 1/4"x 6" wooden dowel

Hardware parts included in this kit:

- C/A type hinges for control surfaces
- 2 - control horns
- 5 - 2-56 x 1/2" machine screws
- 2 - 1/4-20 x 1-1/2" wing bolts
- 6 - 4-40 x 3/4" bolts and matching t-nuts
- 1 - 10-32 x 1/2" nylon thumb screw
- 1 - 3/16" x 10" music wire
- 2 - 7/32" x 6" aluminum tubes

Other items included in this kit:

- 2 - Rolled plans (fuselage and wing)
- 1 - Old School Model Works sticker sheet
- 1 - Construction manual

ITEMS NEEDED

Hardware needed (not included in the kit)

Here is a list of additional parts needed to complete and fly this kit, all of which must be purchased separately. Again, we would recommended supporting your local hobby shop.

- If using power-pod: 2204/2206 sized brushless motor, 5" 2-bladed prop, 25amp ESC, 3s 2200mah LiPo battery, mount and mounting hardware
- Receiver - (3 channel minimum)
- Mini servos with 40-70 in./oz. of torque
  1 each for elevator and rudder
- Pushrods (two 24" elevator & rudder)
- Clevises for the pushrods (4).
- Covering

Additional Required Building Tools and Adhesives

- Drill & assorted drill bits
- Hobby knife and new, sharp blades
- Sandpaper: coarse (80 or 100 grit) & medium (150-200 grit)
- Pencil or pen
- Ruler
- T-Pins
- Waxed paper
- Building board
- Adhesives of your choice. We recommend thin and medium CA (cyanoacrylate) viscosities

Before Starting Assembly

Closely inspect the supplied laser cut parts for damage. If you find any damaged or missing parts, contact us within 60 days from purchase.

When removing the laser cut parts from their sheets, you'll notice the parts are held in place by several small "tabs". These tabs are uncut pieces of wood and can sometimes make it difficult to remove a part. Rather than breaking and/or splintering the wood by forcing out the part, we recommend removing any laser cut parts from their sheets by using a hobby knife with a new, sharp blade. A quick cut of the tab will allow the piece to be removed with no damage. Sand any tab remainders flush with the part so there will be no problem aligning them later.

It's best to not remove parts from their sheets until they are needed. Refer to Appendix A of this manual as a reference to what all the laser cut parts look like and are called.

For each step, we highly recommend that you dry fit the parts in each step first. Lightly sand as needed to ensure a good fit. Once you're satisfied with the fit, then and only then, glue the parts in position.

IT IS VERY IMPORTANT THAT YOU ASSEMBLE THIS WAYFARER KIT IN THE ORDER DESCRIBED. SKIPPING FORWARD IN THE STEPS COULD LEAVE YOU WITHOUT THE PROPER LENGTHS OF WOOD TO FINISH THE KIT. WE'VE INCLUDED ENOUGH WOOD TO EASILY COMPLETE THIS KIT, BUT YOU MUST TAKE CARE TO PROPERLY MEASURE AND NOT WASTE WOOD WHEN CUTTING.

Closely inspect the supplied laser cut parts for damage. If you find any damaged or missing parts, contact us immediately.

Online Supplementary Photos

We realize that the smaller black-and-white photos in this manual might not show some of the steps as clearly as you might want. So we've anticipated this and made these photos available on our website. You can either scan the QR code or type this address into your browser:

www.oldschoolmodels.com/mpics/wyfr

As of this printing, you are required to register with the FAA if you own this product.
For up-to-date information on how to register with the FAA, visit https://registermyuas.faa.gov .
For additional assistance on regulations and guidance of UAS usage, visit http://www.knowbeforeyoufly.org .

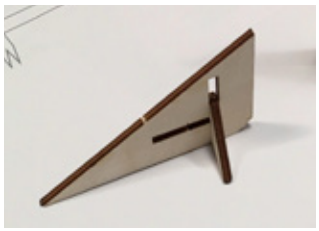
Let's begin construction by working on the right (starboard) wing of your Wayfarer.

☐ **Prepare your work area**

You'll need a flat building surface that is a minimum of 36" long. Position the right wing plan over the surface and tape into position. Tear off a length of waxed paper long enough to cover the left wing plan and tape that into position, over the plan.

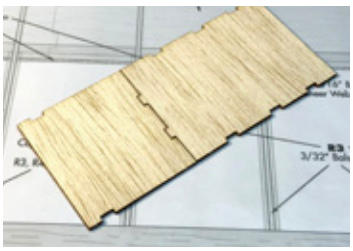
☐ **Step 1 - Alignment triangle**

Pre-cut into LP2 is a triangle. This can be used to vertically align any of the parts in the construction of your Wayfarer. LP2 also includes a foot piece that can be used with the triangle to hold it vertically, hands-free.



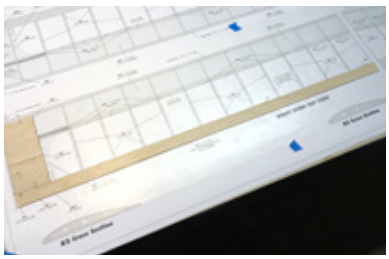
☐ ☐ **Step 2 - Wing Assembly (bottom sheeting)**

Locate one BS1 and one BS2 from sheet BP9. They fit together as shown, with the tabs on BS1 fitting into the notches on BS2. Glue together as shown here.



☐ ☐ **Step 3 - Wing Assembly (bottom sheeting)**

Pin the BS1&2 assembly from the previous step in position over the plans. Locate two lengths of the laser-cut 1" strips that are cut into several of the 1/16" sheets (BP5, BP6, and BP7). These two pieces will need to be joined together to make a long enough strip to form the trailing edge. The joint should be on an angle, not a 90° butt-joint. Measure and trim to length, then pin and glue into position.



☐ ☐ **Step 4 - Wing Assembly (leading edge)**

Locate one 5/16" x 1/2" balsa strip to use as the wing's leading edge. Measure and trim to length, then pin and glue into position.

☐ ☐ **Step 5 - Wing Assembly (lower cap strips and spar)**

Locate a couple lengths of the laser-cut 1/4" cap strips that are cut into several of the 1/16" sheets (BP5, BP6, and BP7). These are used to make the cap strips. These strips run from the trailing edge, to the

step continued on next page...

leading edge of the wing. Measure, cut, pin and glue these into position as shown.
When finished, locate one of the 3/16" x 3/8" basswood strips for the lower spar. Measure, cut, glue in place on top of the sheeting and cap strips as shown on the plans.

☐ ☐ **Step 6 - Wing Assembly (R3 and W3)**

Locate one of the R3 ribs from BP1 or BP2, as well as one W3 sheer webs from BP8.
Note the circle etched into one corner of W3. This circle should face up and towards the wing tip.
Glue W3 to R3 as shown here, at a 90° angle.

Later, when building the left wing, make sure sheer web is on the opposite (left) side of the rib.

☐ ☐ **Step 7 - Wing Assembly (R3 and W3, part 2)**

Now glue the R3 and W3 assembly in place as shown, making sure that R3 is centered on the cap strip, along it's entire length. Also make sure that W3 is glued to the lower spar.

☐ ☐ **Step 8 - Wing Assembly (R3's and W2's)**

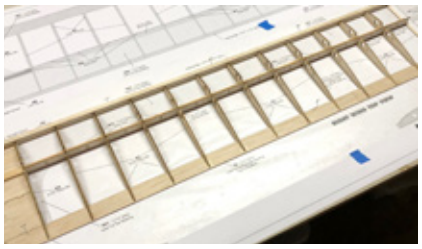
Next, you'll be locating a single R3 rib and a single W2 sheer web, gluing them together at a 90° angle, then gluing that assembly to the cap strips and spar. You'll be working your way from the tip, towards the center of the wing.

Make sure that each R3 is centered on its cap strip and the W2's are glued to the lower spar. Continue doing this until you reach R2's position.

The next two steps involve R1 and R2 ribs. Use care when handling these pieces as they are easily snapped in half It's best if they remain in 1 piece, but if they do break apart, make sure both parts are properly aligned with each other when gluing them in position.

☐ ☐ **Step 9 - Wing Assembly (R2)**

Locate one of the R2 ribs from BP1 and glue a W2 to it at the same 90° angle. Now glue this in position.
You should now have a wing panel that looks as shown here, only missing the outer ribs and one of the sheer webs.

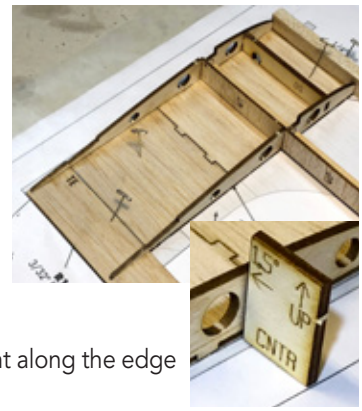


☐ ☐ **Step 10 - Wing Assembly (R1 assembly)**

Locate one of the R1 ribs from BP1, a W1 from BP8 and a DS from LP1. Both W1 and DS have circles etched into them. When properly positioned, these circles should be next to R1 and face up. Glue both pieces in place at a 90° angle.

☐ ☐ **Step 11 - Wing Assembly (R1)**

Next it's time to attach the R1 assembly from the last step to the wing.
Position it at shown and use the 1.5° angle tool (part of LP2) to ensure that W1 is positioned at the correct angle.
This angle is important as it makes up the 3° of total dihedral designed into the center section of the wing.
Also make sure that R1 is straight along the edge of the bottom sheeting.
When satisfied with the fit, glue R1 into position. (Do not glue the 1.5° angle tool to the wing.)



☐ ☐ **Step 12 - Wing Assembly (outer R3)**

The final R3 rib is now glued into place. Use the 3° angle tool (located in LP2) to aid in it's alignment, using the same technique as you used in the previous step.
Also make sure that R3 is straight along the edge of the cap strip.
When satisfied with the fit, glue R3 into position. (Do not glue the 3° angle tool to the wing.)

☐ ☐ **Step 13 - Wing Assembly (wing tube)**

Locate one of the 6" wing tubes. Lightly sand the outer surface to rough it up just slightly. This will aid in allowing the glue to hold it in place.
If you haven't already, pop out the circles in R1 and R2 where the wing tube will slide through. Now slide the wing tube into place until it rests firmly against the first R3.
Mix up a little bit of epoxy and glue the wing tube to the lower spar, wing ribs and sheer webs.

☐ ☐ **Step 14 - Wing Assembly (wing dowel)**

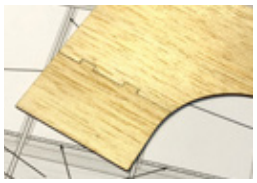
Locate the 6" dowel, mark and cut a 1-3/4" length, bevelling both ends. Now carefully mark and cut the leading edge of the wing so the wing dowel can be inserted.
Slide the dowel into position as shown and glue in place when satisfied with the fit.

☐ ☐ **Step 15 - Wing Assembly (top spar)**

Locate another of the 3/16" x 3/8" basswood strips to use as the upper spar. Measure, cut and glue into position as shown. Make sure the spar is pushed all the way into each of the rib's slots, and is glued to each of the ribs and sheer webs.

☐ ☐ **Step 16 - Wing Assembly (TS1 & TS2)**

Locate one of the TS1's from BP6 and a TS2 from BP5. These are glued together as shown here.



☐ ☐ **Step 17 - Wing Assembly (TS3)**

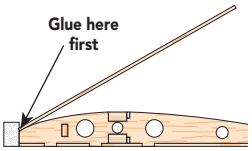
Locate one of the TS3's from BP6. This is glued to the end of the TS1/TS2 assembly from the previous step, as shown here.

☐ ☐ **Step 18 - Wing Assembly (top sheeting)**

Now the top sheeting assembly you've just glued together is attached to the wing.

It's best to do this a little at a time, starting with the leading edge. It's also a good idea to have a long straight-edge (such as a metal yardstick) to aid in holding the sheeting.

Run a bead of glue along the front edge of the wing sheeting. Then place the sheeting in position, making sure it aligns with R1 and it is pressed against the entirety of the leading edge. Pressing that yardstick on top of the wood makes it easier to hold long lengths of wood in place with just two hands.



After the glue has cured, run beads of glue along the tops of each rib, from the leading edge, back to the upper spar. Roll the leading edge sheeting onto this area and press down, again with the yardstick.

Once cured, then glue the last section of the sheeting to R1 and R2.

☐ ☐ **Step 19 - Wing Assembly (trailing edge sheeting)**

Locate two more lengths of the laser-cut 1" strips that are cut into several of the 1/16" sheets (BP5, BP6, and BP7). These two pieces will need to be joined together to make a long enough strip to form the upper trailing edge. Measure and trim to length, then pin and glue into position. Again, the joint should be on an angle, not a 90° butt-joint.

☐ ☐ **Step 20 - Wing Assembly (WH1)**

Locate WH1 from LP1. Also cut a 3/4" piece from the leftover 3/16" x 3/8" basswood used in the spars. Glue this as shown here, centered on WH1 and up against the hole. This will act as a support in the next step.

☐ ☐ **Step 21 - Wing Assembly (WH1)**

Glue WH1 into the gap between the leading and trailing edge sheeting. The hole will be positioned towards R1.

☐ ☐ **Step 22 - Wing Assembly (cap strips)**

Locate a couple lengths of the laser-cut 1/4" cap strips that are cut into several of the 1/16" sheets (BP5, BP6, and BP7). These are used to make the upper cap strips. These strips run from the trailing edge, to the rear of the leading edge sheeting. Measure, cut, pin and glue these into position as shown.

Note that the cap strip on top of R3 should be positioned so it is flush with outer edge of the rib, not overlapping it.

☐ ☐ **Step 23 - Wing Assembly (outer wing)**

The outer panels are made the same way as the inner wing you just built - just smaller.

Locate a length of the laser-cut 1" strip for the trailing edge and the laser-cut 1/4" cap strips that are cut into several of the 1/16" sheets.

Also cut a portion of the leading edge 5/16" x 1/2" strip. Measure, cut, pin and glue these into position as shown here.

☐ ☐ **Step 24 - Wing Assembly (outer wing)**

Cut a piece of the leftover 3/16" x 3/8" basswood strips to use as the lower spar. Measure, cut and glue into position as shown.

☐ ☐ **Step 25 - Wing Assembly (outer ribs)**

Locate R6 from BP2, also one W6 from BP8. Note that W6 tapers from one end to the other. Fit the shorter end into R6 and glue at a 90° angle, making sure it's on the correct side.

When cured, glue this in position. Now do the same with R5 and R4.

R3 will be glued in place, but be sure to use the 3° angle tool that you used previously.

☐ ☐ **Step 26 - Wing Assembly (outer top spar)**

Cut a piece of the leftover 3/16" x 3/8" basswood strips to use as the upper spar. Measure, cut and glue into position as shown.

☐ ☐ **Step 27 - Wing Assembly (wing tip)**

Locate 2 of the TIP pieces from BP3 and one TIP2 from BP10. Glue one TIP piece to the outer edge, then the TIP2 on top of it, followed by the other TIP - a tip sandwich, if you will.

☐ ☐ **Step 28 - Wing Assembly (upper sheeting)**

Locate TS4 from BP6. Glue this to the leading edge, using the same techniques as you did when applying the leading edge to the inner wing panel.

Now, locate a length of the laser-cut 1" trailing edge strips that are cut into several of the 1/16" sheets (BP5, BP6, and BP7). Measure and trim to length, then pin and glue into position.

☐ ☐ **Step 29 - Wing Assembly (cap strips)**

Locate a length of laser-cut 1/4" cap strips that are cut into several of the 1/16" sheets.

Measure, cut and glue these into position over ribs as shown here.

Note that the cap strips on top of R3 & R6 should be positioned so they is flush with outer edge of the ribs, not overlapping them.

☐ ☐ **Step 30 - Wing Assembly (joining panels)**

Remove the wing panels from the board and sand the edges, where the inner and outer panels will join. Once flat, glue those together as shown here.

☐ ☐ **Step 31 - Wing Assembly (R0)**

Locate R0 from LP1. This is glued to the R1 as shown here.

☐ **Step 32 - Wing Assembly (right wing construction)**

Set the right (starboard) wing half aside and begin work on the left (port) wing half. Tape the left wing plan and fresh wax paper on your board. Then follow steps 1 through 31 to complete the right wing half. Once finished, then move on to step 33 to complete the wing assembly.

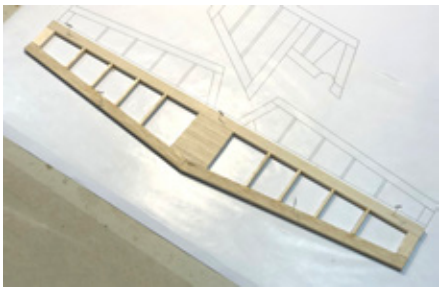
This completes assembly of the Wayfarer wing.
Now it's time to start construction of the tail surfaces.

☐ **Step 33 - Prepare your work area**

Now tape the stab and elevator plan and a fresh piece of waxed paper on your building board.

☐ **Step 34 - Tail assembly (horizontal stab)**

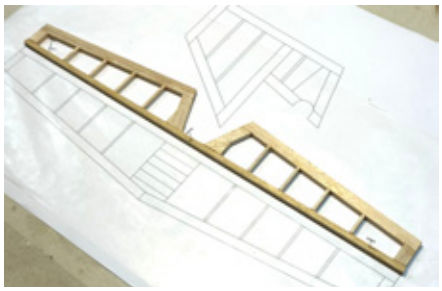
Locate a 1/4" x 1/2" and a 1/8" x 1/4" balsa strip. These pieces are cut to make the horizontal stabilizer frame as shown here. Carefully measure, cut and fit the pieces, gluing them in place as shown.



Once the glue has set, remove the finished stab from the plans and sand the leading edge to a round profile.

☐ **Step 35 - Tail assembly (elevator halves)**

Locate a 1/4" x 1/2", a 1/8" x 1/4" and a 1/4" square balsa strip. These pieces are cut to make the elevator frame as shown here. Carefully measure, cut and fit the pieces, gluing them in place as shown.



☐ **Step 36 - Tail assembly (elevator joiner)**

If you haven't already, trim the 1/4" square leading edge of the elevator to accept the joiner. Locate the leftover 1/4" dowel. Measure and cut to form the elevator joiner. Glue in position. Once the glue has set, remove the finished elevator from the plans.

☐ **Step 37 - Prepare your work area**

Now tape the vertical fin and rudder plan and a fresh piece of waxed paper on your building board.

☐ **Step 38 - Tail assembly (vertical fin)**

Locate VF1, VF2 and VF3 from BP4. Dry fit these pieces together first, making sure you know how they fit together. Then when satisfied, glue the pieces as shown to make the vertical fin. Sand the leading edge of VF1 and VF2 to a round profile.

☐ **Step 39 - Tail assembly (rudder)**

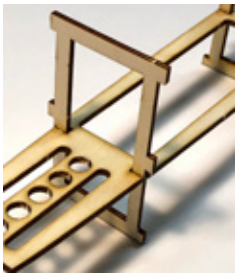
Locate VF4 from BP3, as well as leftover 1/4" x 1/2" and 1/8" x 1/4" balsa strips. These pieces are cut to make the rudder frame as shown here.
Carefully measure, cut and fit the pieces, gluing them in place as shown. Once the glue has set, remove the finished rudder from the plans.

Now it's time to start construction of the fuselage.

☐ **Step 39 - Fuselage Assembly (F3)**

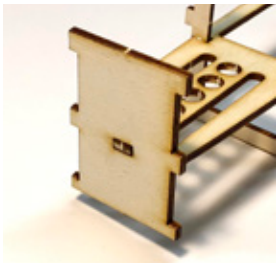
Locate S3 and F3 from LP2. These two pieces make the start of the fuselage crutch.
You will need to slide S3 into F3 on an angle, then rotate into position as shown. It should rest on the two triangular "footers" that are midway on the inside cutout of F3.
Glue in position, making sure it is at a 90° angle to S3.

☐ **Step 40 - Fuselage Assembly (F2)**



Locate F2 from LP2. Slide it in position and glue to S3, again at a 90° angle as shown here.

☐ **Step 41 - Fuselage Assembly (F1)**



Locate F1 from LP2. It attaches to the front of S3. Take care in the orientation of F1. When positioned correctly, the arrow etched on F1 points to the top of the fuselage.
Glue to S3 at a 90° angle as shown here.

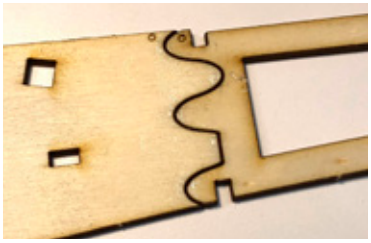
☐ **Step 42 - Fuselage Assembly (F4)**

Locate F4 from LP2. It attaches to the rear of S3. Glue to S3 at a 90° angle as shown here.

☐ **Step 43 - Fuselage Assembly (F8)**

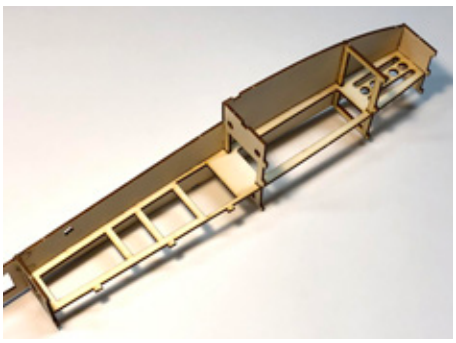
Locate both F8 pieces from the LP1s. They are glued together, one on top of the other to make a thicker F8 as shown here.

☐ **Step 44 - Fuselage Assembly (fuse sides)**



Locate both S1's and both S2's from the LP1s. One S1 is glued to one S2 as shown here to form a fuselage side. Do this twice to make both fuselage sides.

☐ **Step 45 - Fuselage Assembly (port side)**



Now it's time to glue one of the fuselage sides to the S3 crutch assembly. Start with the port side as shown here, making sure that all of the tabs in the formers are properly located into the slots on the fuse side. We found it easiest to start at the front (F1), then slowly glue a bit at a time, working our way to the next section after the glue had cured.
Make sure there is a nice fillet of glue where the side touches the S3 assembly.

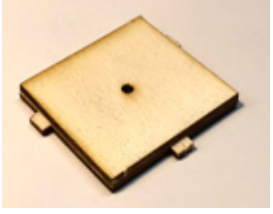
☐ **Step 46 - Fuselage Assembly (F8 assembly)**

Locate the F8 assembly from step 43. This is now positioned and attached to the fuselage side. Note that this piece has a taper to it that matches the curvature of the finished fuselage. The wider side faces the front of the fuselage.
Lay the fuselage on it's side and glue the F8 assembly in place as shown.

☐ **Step 47 - Fuselage Assembly (starboard side)**

Now the starboard fuselage side is glued in place, using the same techniques as you used to attach the port side.
Again, starting at the front (F1), work your way backwards a little bit a time, making sure all of the tabs fit in the notches. Take your time to ensure a good fit.

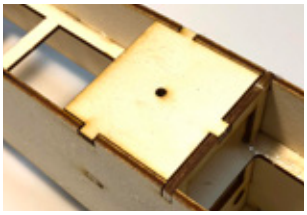
☐ **Step 48 - Fuselage Assembly (F7)**



Locate F7 and F7A from LP2. These two pieces are glued on top of one another to form a thicker F7.

☐ **Step 49 - Fuselage Assembly (F7)**

Glue the F7 assembly into the bottom of the fuselage. Make sure the F7 is fully seated into the slots in the fuse sides and F3. Glue in position as shown here.



☐ **Step 50 - Fuselage Assembly (F9)**

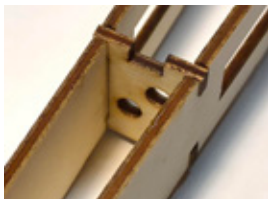
Locate F9 from LP2 and glue it into position. Make sure the F9 is fully seated into the slots in the fuse sides and F3. Glue in position as shown here.

☐ **Step 51 - Fuselage Assembly (F5)**

Locate F5 from LP2 and glue it into position. Make sure the tabs fit properly into the fuselage sides. Glue in position as shown here.

☐ **Step 52 - Fuselage Assembly (F6)**

Locate F6 from LP2 and glue it into position. Make sure the tabs fit properly into the fuselage sides. Glue in position as shown here with the notch towards the top of the fuselage.



☐ **Step 53 - Fuselage Assembly (vertical fin)**

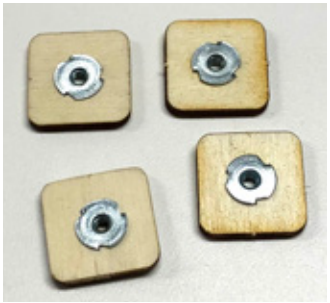
Locate the vertical fin assembly from step 38. This will now be glued into place between the fuselage sides. We recommend dry fitting this first, to understand how it lines up. The rear of the fin should be flush with ends of the fuselage sides. The forward part of the fin will rest in the slot in the top of F6.

When ready, remove the fin, apply glue, then put back in place, making sure that everything is held in place until the glue dries.

It's best to do this on a flat surface to guarantee the fuselage isn't warped and the vertical fin is aligned absolutely vertical.

☐ **Step 54 - Fuselage Assembly (U3)**

Locate all four U3s from LP1 and four of the 4-40 t-nuts. Tap the t-nuts into the hole of each U3, making sure the teeth of each t-nut is firmly pushed into U3 to lock them in place.



☐ **Step 55 - Fuselage Assembly (U3)**

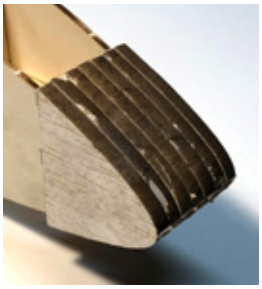
Now the four U3s are glued to the fuselage, two per side. To aid in locating them properly, thread a 4-40 bolt into the U3 through the fuselage. Once located, remove the bolt and glue the U3s in position.

☐ **Step 56 - Fuselage Assembly (U3)**

Now remove the seven N pieces from BP3. These are glued together in a stack to form the fuselage nose block. When gluing them together, making sure they are perfectly aligned.

☐ **Step 57 - Fuselage Assembly (nose)**

Before gluing the nose block in position, lightly sand the flat side (ensuring it is flat), where it will meet up against F1.



When lining up the block to the fuselage, pay attention to the curvature of the block. It should follow the curvature of the fuselage, as shown on the plans. Also it should be centered on F1, with 1/16" overlap on the top and bottom sides to allow it to match up to the sheeting that will be applied in the following steps.

☐ **Step 58 - Fuselage Assembly (top sheeting)**

Locate the 1/16" x 4 x 24" sheet as this is used to make the fuselage sheeting.

Starting on the top of the fuselage, where it meets the trailing edge of the wing, measure and cut pieces of the 1/16" sheeting to form the top sheeting. These pieces will extend to the front of the vertical fin.

Make sure that the grain runs across the fuselage (cross grain) for strength.

☐ **Step 59 - Fuselage Assembly (top sheeting)**

Cut two strips of 1/16" sheeting to cover the fuselage on either side of the vertical fin. The grain on these pieces should run 90° to the top sheeting. Make sure it is glued to the fuselage sides and the sides of the vertical fin. These strips should extend back to the cutout for the horizontal stab, as shown on the plans.

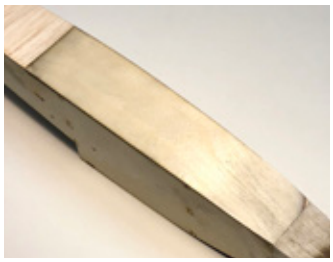
☐ **Step 60 - Fuselage Assembly (pushrod tubes)**

This step is optional, but is easier to do now, before the bottom sheeting is applied.

Depending on the type of pushrods you intend to us with the Wayfarer (not included), we would suggest installing them now.

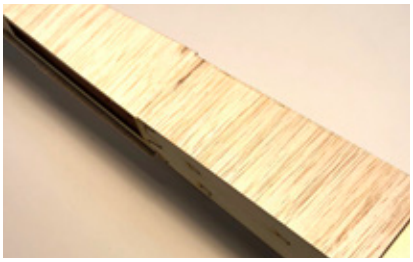
In the prototype shown here, we used Dubro's flexible Lazer pushrods. We chose to install the outer sleeves in place now and you'll see that there are cutouts in F4, F5, F6 and the fuselage sides to accomodate most any type of pushrods.

☐ **Step 61 - Fuselage Assembly (FS4)**



Locate FS4 from LP3. This is the bottom fuselage sheeting. Glue the front edge in first, then work your way backwards, gluing a little bit at a time.

☐ **Step 62 - Fuselage Assembly (bottom sheeting)**

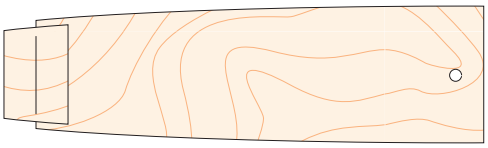


Now using the rest of the 1/16" sheet, measure cut and glue the bottom sheeting to the fuselage. Start at the rear of the FS4 sheeting and work your way towards the back of the fuselage. Remember, cross-grain for strength.

☐ **Step 63 - Fuselage Assembly (FS1)**

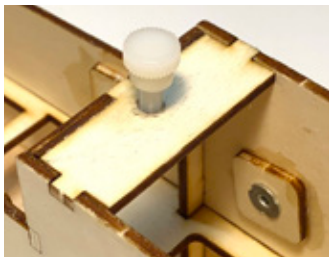
Locate FS1 from LP3. This is glued in place on top of the fuselage, on top of F1, as shown.

☐ **Step 64 - Fuselage Assembly (top hatch)**



Locate FS2 and FS3 from LP3. FS3 is the top hatch and FS2 is glued to FS3 as shown in this diagram. Note that there is a line etched into FS2 to aid in aligning the two pieces when gluing.

☐ **Step 65 - Fuselage Assembly (thumb screw)**

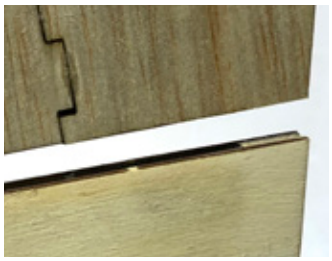


When the hatch is completed, place in position on top of the fuselage. Make sure it is lined up with the fuselage side and the front hold-down (FS2) of the top hatch is slid all the way under FS1. You may need to sand FS2 slighly to aid in it sliding in.

When satisfied with the fit, transfer the hole in the hatch to FS9, by tracing around it with a pencil. Drill and tap FS9 for a 10x32 thread. A 5/32" drill will work to create the hole and if you don't have a 10x32 tap, you can use a like 10x32 bolt (made of metal) to cut the threads.

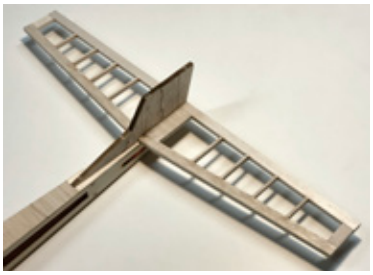
When finished, you should have a hole where the included 10x32 thumb screw can be used to hold the front hatch in place.

☐ **Step 66 - Fuselage Assembly (vertical fin support)**



Now carefully cut the vertical fin's support at the back of the fuselage as shown here. This will allow the stab to be installed in the next step.

☐ **Step 67 - Fuselage Assembly (stab install)**



Slide the horizontal stab into the fuselage. Before gluing in position, make sure that it is perpendicular (90°) to the vertical fin. Use the included triangle to aid in alignment.

When gluing in position, make sure it is centered. Take measurements from the each tip of the stab to the side of the fuselage. Adjust as necessary to make these measurements are the same. Also measure from each tip to the center of the fuselage's nose. These two measurements should also be equal.

Once satisfied with the alignment, glue the stab to the fuselage.

☐ **Step 68 - Wing Assembly (sanding)**

Work now shifts back to the wing panels. Take some time to sand the entire wing. Take the time to round the leading edges to an airfoil shape, as well as shape the tips so they are both aerodynamic and match each other.

☐ **Step 69 - Wing Assembly (dihedral rod)**

Included in the Wayfarer is a 10" length of 3/16" steel rod. This will be used to create the rod to support the wing panels.

Make a mark on the center of the rod. Now you will make a sharp bend at this center point. It's easiest to do this by chucking the rod in a vice, with the center point right at the top of the vice's jaws. A good hit or two close to the bend point with the hammer should be enough to form the 3° needed. Use the diagram on the plans as your guide to make the perfect bend.

Wing Joiner - 3/16" music wire
Make a sharp 3° bend at the center.

☐ **Step 70 - Wing Assembly (anti-rotation dowel)**

Cut a 1/2" length of the leftover 1/4" dowel. Insert this half-way into the rear hole of R0 in one of the wing panels. It doesn't matter which one, then glue in position.

☐ **Step 71 - Wing Assembly (test fit)**

Now, slide the dihedral rod half-way in to the forward hole of one of the wing panels. Making sure that the 3° angle of the rod is pointing up, slide the other wing panel on to the rod. Test the fit of the anti-rotation pin. It may need to be rounded a bit and sanded slightly to give a good fit that easily slides in and out of the other wing panel.

☐ **Step 72 - Wing Assembly (wing bolt holes)**

With the wing panels slid together, fit the wing onto the fuselage. Both of the wing dowels should slide into the matching holes of F3. With the wing firmly slid into place, it's time drill the wing bolt holes.

Make sure the wing is perfectly centered on the fuselage, then using a 13/64" bit, carefully drill through the pre-cut holes in the WH1 pieces of the wing. Slowly, drill through the bottom of the wing, down through F8 already installed in the fuselage.

Remove the wing and tap the holes in F8 for a the 1/4x20 wing bolts.

Enlarge the holes in the wing panels so the 1/4x20 bolts can be easily slid through the holes.

☐ **Step 73 - Wing Assembly (optional wing fairings)**

Located on BP3 are several wing fairing pieces. These can be stacked up and glued to the wing panels to create a wing fairing. This fairing will visually blend the fuselage into the wing, and is optional.

If you choose to install it, mount the wing to the fuselage. Starting at the center of the wing, glue 4 of these fairing pieces to the wing - not to the fuselage or to the other wing. When they are in position, and the glue has cured, remove the wing from the fuselage. It might help to use a small piece of waxed paper to separate the wing halves and the fuselage from being accidentally glued together.

☐ **Step 74 - Fuselage Assembly (sanding)**

This completes the assembly of the fuselage and now is the time to sand it. Attach the hatch and start sanding so the sides of the fuselage are smooth and the edges are slightly rounded. When it comes to the nose, use the fuselage as a guide when sanding the block to shape, first matching it to the fuselage side, but then tapering it off to a more rounded shape as you move to the tip of the nose.

☐ **Step 75 - Covering**

Now it is time to cover the Wayfarer. Remove the wings from the fuselage and double check that all surfaces are smooth and ready to cover. Sand as necessary, then cover the entire airframe with the covering/finish of your choice.

Logos, numbers, etc.

If you want to use graphics similar to the ones we used, Old School Model Works has teamed up with Callie Graphics as a supplier for pre-cut vinyl. They are a very well known provider of custom graphics for R/C models.

We have supplied them with the artwork needed to cut the correct size logos. You can order straight from them, choosing the colors that work for you.

Contact Callie Graphics at this link: https://callie-graphics.com or scan the QR code on the previous page.

Note that Callie Graphics is not affiliated with Old School Model Works, nor does Old School Model Works generate any income from this partnership.

☐ **Step 76 - Fuselage Assembly (elevator hinging)**

The elevator will be a captive piece once the vertical fin is installed in the next step, now is the time to make the necessary slots/holes needed to hinge the elevator to the stab. We recommend 4 hinges, 2 per side and they are glued in with a few drops of thin C/A.

☐ **Step 77 - Hinge the rudder**

Make the necessary slots/holes needed to hinge the rudder to the stab. We recommend 2 hinges as shown on the plans and they are also glued in with thin C/A. Also you'll need to cut the notch into the rudder as shown on the plans, so the elevator can pass through without interference.

Now it's time to start decide on how you'd like to use the Wayfarer. If using it for slope soaring you can skip foward to the radio installation.

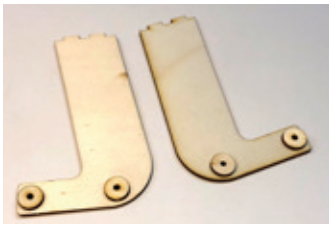
If launching it with a high-start, you'll need to install your own high-start hardware (not included). Cut into F7 is a hole that can be utilized to mount the hardware.

If using a motor assist to launch, the following steps will show how to build the removable power pod.

☐ **Step 78 - Power Pod Assembly (U1)**

Locate both U1 pieces and all four of the U4's from LP2.

The U4's are glued to the U1 pieces, making sure the holes line up. Also make sure to make a left and a right struts, as shown here.



☐ **Step 79 - Power Pod Assembly (U2)**

Locate both U2 pieces from LP2.
The U2's are glued to the power pod struts and should be perpendicular (90°) to the struts. Notice that the point of each U2 should be located on the curved side of the U1 struts.

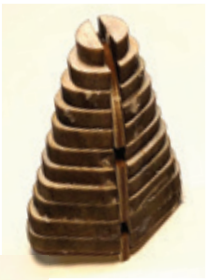
☐ **Step 80 - Power Pod Assembly (M1)**

Locate M1 and two 4-40 t-nuts. Tap the t-nuts into the holes of M1, making sure the teeth of each t-nut is firmly pushed into M1 to lock them in place.

☐ **Step 81 - Power Pod Assembly (U5)**

Locate U5 from LP2 and both UF11s from BP3. Glue U5 to M1, making sure it is perfectly perpendicular (90°).
Glue one UF11 to M1 on each side of U5.

☐ **Step 82 - Power Pod Assembly (UF10-UF1)**

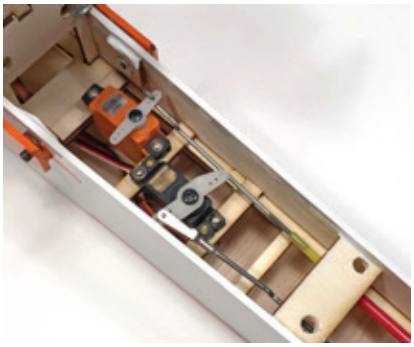


Now you will locate UF10 through UF1. There are pairs of each and they are glued to the power pod just as you glued the UF11's in place.
When finished you should have a completed power pod that looks like this.
After the glue has cured, sand the power pod to an aerodynamic shape. Use the shape of the plywood U5 piece as a guide. After sanding, it should look similar to this.

☐ **Step 83 - Power Pod Assembly (UF10-UF1)**

It's time to mount the shaped power pod to the struts as shown. You may want to cover these pieces first, as it could be easier, but that choice is up to you.
When finished, you can test fit the power pod to the fuselage using 4 of the included 4-40 bolts. These bolts will thread into the U3's already mounted in the fuselage.

☐ **Step 84 - Radio and Pushrod Installation**



Here is a photo showing a sample installation of the radio in the fuselage. Included on LP2 are parts D1, D2 and D3. These are doublers that should be glued to give a thicker wood for the servo screws to thread into.

Make sure that when installing the control horns, they are placed in-line with the pushrods, and that the line of holes where the clevises attach are positioned over the hinge line.
For the average pilot, we recommend that clevises are attached to the outermost hole on each control horn.

Finish the installation of your radio gear by adding the receiver, flight pack battery and the switch. We mounted the receiver in the front of the battery compartment a bit of self-adhesive hook-and-loop (not included).

The flight pack battery is installed in the large opening of the battery compartment. It was designed to hold the typical 3s 2200mAh LiPo battery - the same battery that can be used to power the motor of the power pod.

☐ **Step 85 - Power system**

If you choose to use the power pod, installing your power system of choice is next. Bolt your motor to M2 (from LP2). Then bolt the motor to the power pod, using two 4-40 bolts and positioning M3 inbetween as a spacer.

Shown here is an idea of how we mounted the motor in the prototype Wayfarer. The speed control was attached to one of the pod struts using a tie-wrap. The wires would feed down into the battery compartment and that will require cutting a notch into the battery hatch.

We did not find the need to cut an air inlet for the battery. If the motor is used only for short periods of time to climb to altitude it will remain cool. If you feel differently, we would suggest cutting the hole into the front portion of the hatch.

This completes the assembly of the Wayfarer. Now you'll need to adjust the control throws and check for balance.

☐ **Step 86 Recommended C.G. setting:**

An important part of preparing the aircraft for flight is properly balancing the model. This is especially important because of the various motor/battery combinations that can be used.

CAUTION! DO NOT SKIP THIS STEP!

The recommended Center of Gravity (CG) location for the Wayfarer is measured back 2.9" from the leading edge of the wing, and you'll see this marked on the fuselage plan with this symbol.

If necessary, move the battery, receiver, and/or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby store and work well for this purpose.

Recommended Control Throws:

The amount of control throw should be adjusted as closely as possible using mechanical means, rather than making large changes electronically at the radio.

By moving the position of the clevis at the control horn toward the outermost hole, you will decrease the amount of control throw of the control surface. Moving it toward the control surface will increase the amount of throw. Moving the pushrod wire at the servo arm will have the opposite effect: Moving it closer to center will decrease throw, and away from center will increase throw. Work with a combination of the two to achieve the closest or exact control throws listed.

Elevator 1/2" up/down

Rudder 3/4" left/right

(Expert tip: Once the control throws have been set, cut a few pieces of medium silicone fuel tubing (or heat shrink tubing) to go around each of the clevises. This will keep them from opening during flight.)

Preflight:

Charge both the transmitter and receiver pack for your airplane. Use the recommended charger supplied with your particular radio system, following the instructions provided with the radio. In most cases, the radio should be charged the night before going out flying.

Check the radio installation and make sure all the control surfaces are moving correctly (i.e. the correct direction and with the recommended throws). Test run the engine and make sure it transitions smoothly from idle to full throttle and back. Also ensure the engine is tuned according to the manufacturer's instructions, and it will run consistently and constantly at full throttle when adjusted.

Check all the control horns, servo horns and clevises to make sure they are secure and in good condition. Replace any items that would be considered questionable. Failure of any of these components in flight would mean the loss of your aircraft.

Range check your radio before flying

Before each flying session, range check your radio. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the radio in your airplane, but do not attach the arming switch.

With your airplane on the ground, you should be able to walk 30 paces away from your airplane and still have complete control of all functions.

If not, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

Warranty Information

Old School Model Works guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any parts damage by use or modification. In no case shall **Old School Model Works'** liability exceed the original cost of the purchased kit. If you find any damaged or missing parts, contact us within 60 days from purchase to receive replacement(s).

Further, **Old School Model Works** reserves the right to change or modify this warranty without notice.

In that **Old School Model Works** has no control over the final assembly or material used for the final assembly, no liability shall be assumed nor accepted for any damage of the final user-assembled product. By the act of using the product, the user accepts all resulting liability.

Limit of Liability

In the use of this product, our only obligation shall be to replace such quantity of the product proven to be defective. The user shall determine the suitability of the product for his or her intended use and shall assume all risk and liability in connection therewith.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and un-opened condition.

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LP1
1/8" Lite Ply

LP2
1/8" Lite Ply

LP3
1/16" Ply

BP1
3/32" Balsa

BP2
3/32" Balsa

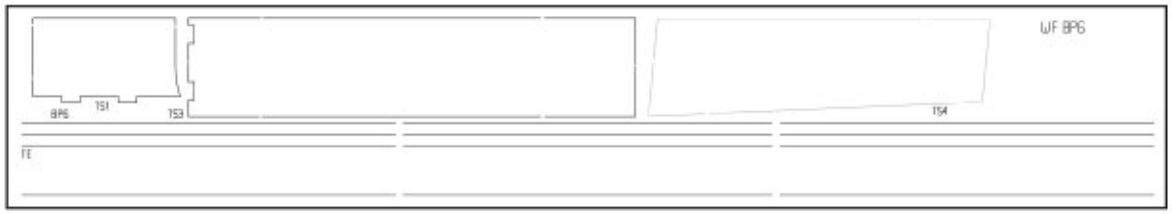
BP3
1/4" Balsa

BP4
1/4" Balsa

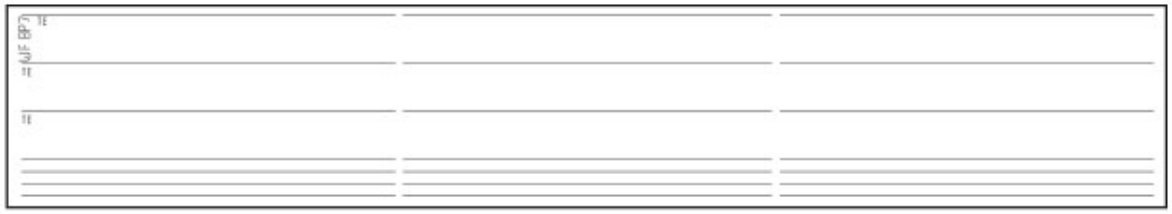
BP9
1/16" Balsa

BP5
1/16" Balsa

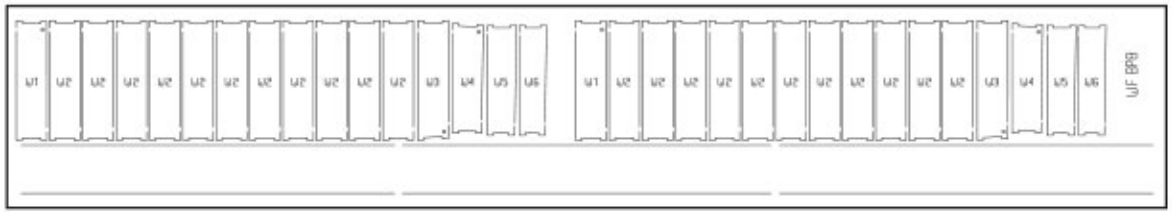
BP6
1/16" Balsa



BP7
1/16" Balsa



BP8
1/16" Balsa



BP10
1/8" Balsa