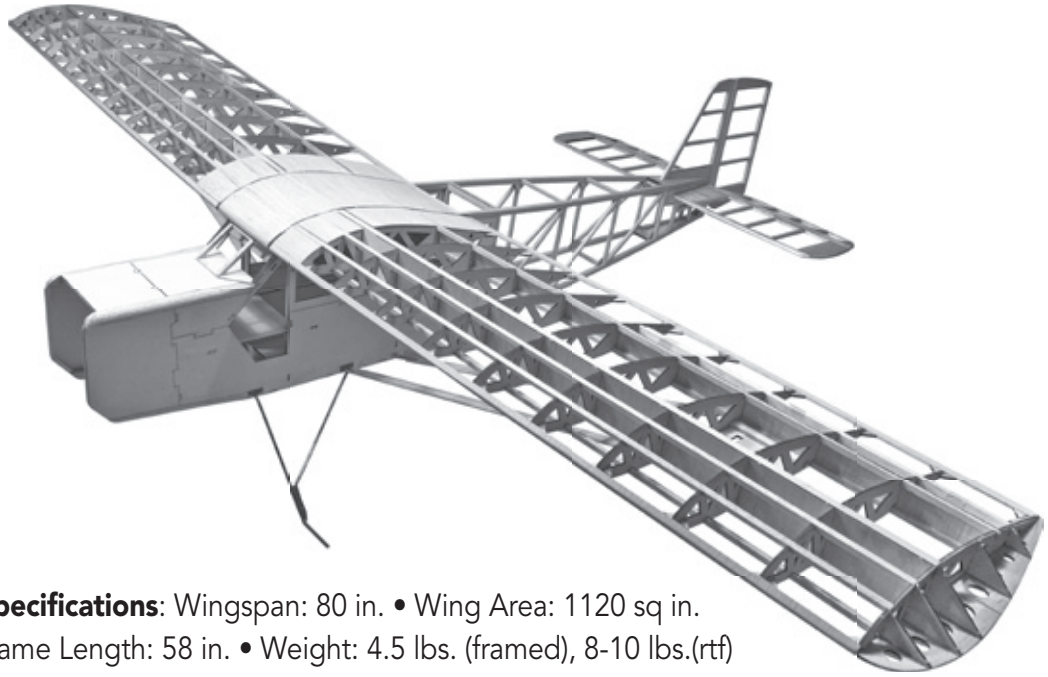
ROBINHOOD80

CONSTRUCTION MANUAL



Specifications: Wingspan: 80 in. • Wing Area: 1120 sq in.
Airframe Length: 58 in. • Weight: 4.5 lbs. (framed), 8-10 lbs.(rtf)

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 used for extremely high stress flying, such as racing, 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.

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

INCLUDED ITEMS

Wood parts included in this kit:

- 2 - LP1 - Laser Cut 1/8" x 6" x 24" sheet
- 2 - LP2 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP3 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP4 - Laser Cut 1/8" x 6" x 24 sheet
- 1 - LP5 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP6 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP7 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP8 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP9 - Laser Cut 1/8" x 6" x 24" sheet
- 1 - LP10 - Laser Cut 1/8" x 6" x 24" sheet

- 2 - BP1 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP2 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP3 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP4 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP5 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP6 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP7 - Laser Cut 1/8" x 4" x 24" sheet
- 2 - BP8 - Laser Cut 3/32" x 4 x 24 sheet
- 2 - BP9 - Laser Cut 3/32" x 4 x 24 sheet

- 2 - 1/16" x 4" x 24" balsa sheet (uncut)

- 3/16" x 3/16" x 36" (8 pieces)
- 1/4" x 1/4" x 36" balsa strips (17 pieces)
- 1/4" x 1/2" x 36" balsa strips (5 pieces)
- 1/4" x 1" x 36" balsa strips (4 pieces)
- 1/2" x 1/2" x 36" balsa strips (1 piece)
- 3/16" x 3/8" x 36" basswood strips (9 pieces)
- 3/8" x 3/8" x 36" basswood strips (11 pieces)
- 1 - 1/4"x 6" wooden dowel.

Hardware parts included in this kit:

- 1 - Pre-bent landing gear (front)
- 1 - Pre-bent landing gear (rear)
- C/A type hinges for control surfaces
- 4 - control horns
- 4 - wheel collars 3/16" I.D.
- 4 - plastic landing gear straps
- 5 - 2-56 x 1/2" machine screws
- 20 - 2-56 x 3/4" self tapping screws
- 12 - 4-40 x 1/2" socket head cap screws
- 8 - 4-40 lock nuts
- 4 - 4-40 t-nuts (blind nuts)
- 16 steel straps

Other items included in this kit:

- 4 - Rolled plans (2 fuselage and 2 wing)
- 1 - Construction Manual
- 2 - OSMW sticker sheet

ITEMS NEEDED

Hardware needed (not included in the kit)

For some of these items there is more than one option which will require a bit of decision making ahead of time. There isn't a right or a wrong choice, so choose the items that work best for you.
Resist the urge to overpower the Robinhood and remember that it is a fun-scale model intended to fly at scale-like speeds, so prudent throttle management should be practiced.

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.

- Powerplant:
  - Glow (.90-.1.50 engine, fuel tank, fuel tubing)
  - Gas (20cc engine, fuel tank, fuel tubing)
  - Electric (equivalent brushless motor, ESC, & batteries)
- Propeller

- Engine/Motor mount and mounting hardware
- Receiver - (4 channel minimum)
- 5 standard sized servos (4 if electric)
- "Y" servo harness and aileron servo wire extensions.
- Pushrods (two 5" for ailerons, two 30" for elevator & rudder, one 12" for throttle if glow/gas powered)
- Clevises for the pushrods (8 if electric, 10 if glow). Heavy duty 4-40 hardware is recommended.
- 2 - 5" diameter wheels
- 1 - tailwheel assembly
- 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
- String (18" length)
- T-Pins
- Waxed paper
- Building board
- 6 and 30 minute epoxy
- Adhesives of your choice. We recommend thin and medium CA (cyanoacrylate) viscosities
- Epoxy brushes and mixing sticks
- Threadlocking compound
- Torch or soldering iron, solder and flux
- Canopy glue

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 ROBINHOOD 80 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:

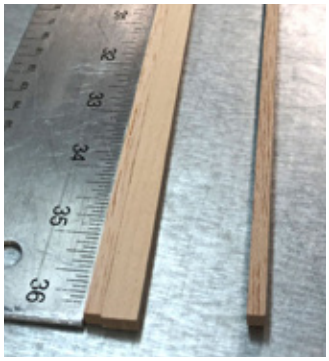
www.oldschoolmodels.com/mpics/rh80/

Let's begin construction by working on the right (starboard) wing of your Robinhood 80.

☐ **Prepare your work area**

You'll need a flat building surface that is a minimum of 40" long. Position the starboard 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 - Struts**



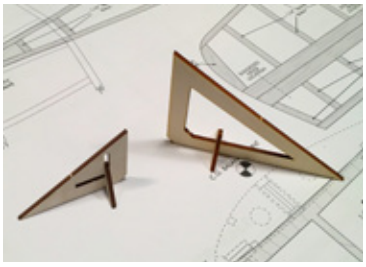
This might seem like a strange first step in this build, but we ask you to do this for a reason. It's to guarantee that you'll have the proper lengths of 3/16 x 3/8" basswood.

So, gather four pieces of 3/16" x 3/8" and eight 3/16" square balsa sticks. Cut a 25-1/4" length from each piece and set the short pieces aside to use in other steps.

Take one 3/16" x 3/8" basswood piece and lay it on your board. Glue one of the 3/16" balsa sticks to each side of the basswood as shown here to make one strut assembly.

To aid in keeping these pieces straight, hold the pieces against a long straight-edge, such as a metal yard stick, while the glue cures. Make 4 struts, then set them aside for much later on in the build.

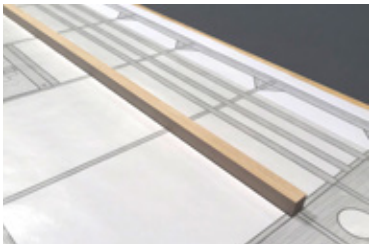
☐ **Step 2 - Alignment triangles**



Pre-cut into LP7 are two triangles, one inside the other. These can be used to vertically align any of the parts in the construction of your Robinhood 80. LP7 also includes two foot pieces that can be used with the triangles to hold both triangles vertical hands-free.

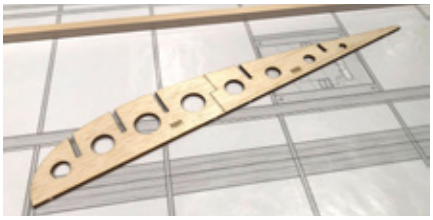
We recommend using the smaller triangle in the wing construction as it's small enough to fit between the ribs.

☐ ☐ **Step 3 - Lower spar**



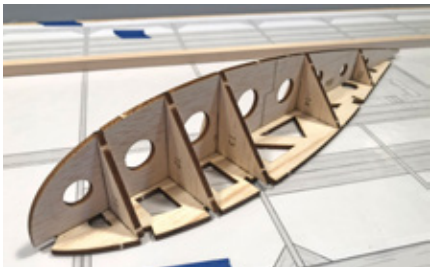
Locate one of the 3/8" square basswood strips. This will be the lower spar. Position over the plan, measure the length and cut, leaving an extra 1/4" or so past the R1 position. Then tack-glue this piece to the waxed paper to hold it in place using a few small drops of medium CA instead of t-pins. Be sure it is aligned properly and is straight over it's entire length. The alignment of this spar is critical as the rest of the wing panel is based off this single piece.

☐ ☐ **Step 4 - Wing Assembly (outer wing tip)**



The wing panels are constructed from the outside (tips), in towards the center (root). Remove parts R8A from BP3 and R8B from BP2. These pieces fit together as shown here. When satisfied with the fit, glue them together.

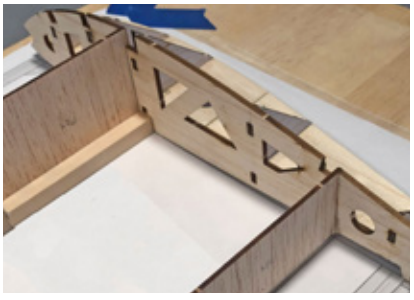
☐ ☐ **Step 5 - Wing Assembly (outer wing tip)**



Locate R8 from BP2 and T1, T2, T3, T4 and T5 from BP5. The T1-T5 braces will slide into the notches on the R8A/B assembly from the last step. Pay attention so these are in the correct order.

Then gently slide this sub-assembly into the notches in the R8A/B assembly from the last step. When satisfied with the fit, glue them together.

☐ ☐ **Step 6 - Wing Assembly (attach R8 assembly)**



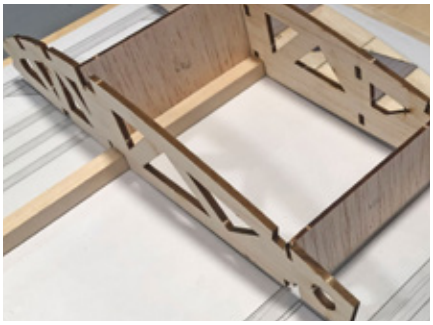
Position the R8 assembly in position. Make sure it is vertical and pin the rear tab to the building board. Do not glue yet.

Remove one WF4 from BP8 and one WB4 from BP9. These sheer web pieces have a small circle etched into the upper, outside corner showing the side that should be fitted into the R8 assembly.

Fit as shown and make sure that the tabs completely slide into the slots in R8 as this will guarantee that R8 is held in vertically. When satisfied with the fit, glue R8 and WF4 to the bottom spar.

☐ ☐ **Step 7 - Wing Assembly (attach R6)**

Locate one R6 rib from BP2, one WF3 from BP8 and one WB3 from BP9. Position R6 up against the ends of the WB3 pieces from the last step. Once located properly, pin the rib's rear tab to the board, then fit the WF3 and WB3 sheer webs in place. When satisfied with the fit and location, glue these pieces in place.



☐ ☐ **Step 8 - Wing Assembly (attach two R7s)**

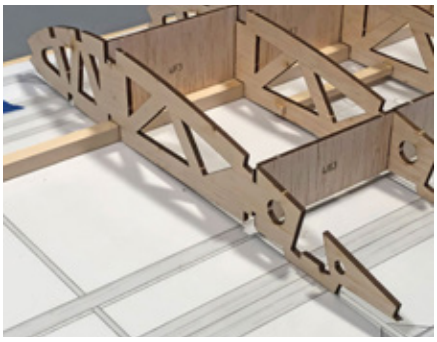
Next you'll need two R7 ribs from BP1, two WF3 webs from BP8 and two WB3 webs from BP9.

Position one R7 up against the ends of the WB3 webs from the previous step. Once located properly, pin the rear tab to the board, then fit WF3 and WB3 in place. When satisfied with the fit and location, glue these in place. Working your way inward, attach the other R7, WF3 and WB3 pieces in place.

☐ ☐ **Step 9 - Wing Assembly (servo hatch rails)**

Locate one of the 3/16" x 3/8" pieces left over from step 1. Measure and cut two 4" lengths. Carefully slide these into the pre-cut holes in R7 to create the servo hatch rails. Glue these in position.

☐ ☐ **Step 10 - Wing Assembly (attach R6)**



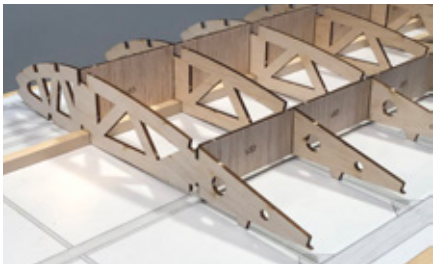
Locate one R6 rib from BP2, one WF3 from BP8 and one WB3 from BP9. Position R6 up against the ends of the WB3 pieces from the last step. Once located properly, pin the rib's rear tab to the board, then fit the WF3 and WB3 sheer webs in place. When satisfied with the fit and location, glue these pieces in place.

☐ ☐ **Step 11 - Wing Assembly (attach R5s)**

Locate three R5 ribs from BP3 and BP4, two WF3 webs from BP8 one WF2 from BP8 and three WB3 webs from BP9.

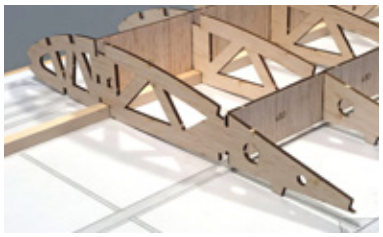
Working inward, locate these one at a time using the same techniques you have used for the previous ribs. Glue one set of R5,

WF3 and WB3 in place before moving on to the second.
For the third R5, the WB2 is used as the front sheer web. It's etched circle should point towards the root of the wing.



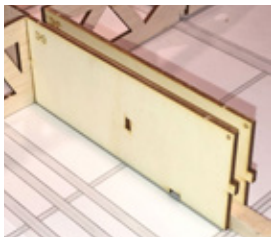
☐ ☐ **Step 12 - Wing Assembly (attach R4)**

Locate one R4 from BP4, and one WB3 web from BP9.
Attach the R4 and WB3 pieces in place as shown.



☐ ☐ **Step 13 - Wing Assembly (attach DH2 & DH3)**

Locate one DH2 from LP4 and one DH3 from LP9.
Notice that these pieces have a small circle etched in the upper corner. This notes the beveled side for the wing panel's dihedral and should be pointed towards the root rib (R2).
Place DH3 in front of the spar and DH2 aft of the spar, with their tabs inserted fully into the slots in R4.
When satisfied with the position, glue these in place.



☐ ☐ **Step 14 - Wing Assembly (attach R3B)**

Locate one R3B rib from BP4. Position it as shown, making sure the tab in the front of the rib is fully inserted into the slot in DH2.
When satisfied with the position, glue in place.

☐ ☐ **Step 15 - Wing Assembly (attach R2)**

Locate one R2 rib from BP5 and one WB1 from BP9.
WB1 has an etched circle as well, showing the side that should glue to R2.
Position in place as shown and note that R2 will have a slight angle when properly aligned - this is normal. When satisfied with the position, glue these pieces in place.

☐ ☐ **Step 16 - Wing Assembly (attach R3A)**

Locate one R3A from BP1. This glues to DH3 as shown here. Makes sure is straight, then glue into position.

☐ ☐ **Step 17 - Wing Assembly (upper spar)**

This next part takes a bit of time, so we recommend against using an instant setting glue. If you are using CA, use a thicker formulation that gives you a bit of working time.
Measure and cut one of the 3/8" square basswood strips to use as the upper spar. Apply glue to the top of the ribs where they will contact the upper spar.

Working from the tip rib (R8), carefully press the upper spar into position. This will be a tight fit and might require "wiggling" the spar from side to side to slip in-between the sheer webs. Be sure to press the spar completely into the slot in each rib, making it flush with the sheer webs.
Now wick thin C/A along the spar to sheer web joints along the entire length of the spar
When fitting the upper spar to make the top of the dihedral box, be careful not to drip excess glue into the box formed between R2 and R1.

☐ ☐ **Step 18 - Wing Assembly (rear upper sub-spar)**

Locate one 1/4" square balsa stick. This is used as the rear sub-spar. Using the same technique you did in the previous step, measure, cut and glue this piece in position. Be sure it is glued to each rib and rear sheer web.

☐ ☐ **Step 19 - Wing Assembly (leading edge & sub-spars)**

Locate two 1/4" square balsa sticks. These are used as the front sub-spars. Using the same technique you did the in the previous steps, measure, cut and glue these pieces in position. Also locate one 3/8" square basswood strip, this will be the leading edge. Measure, cut and glue this in position. Be sure all three of these strips are glued to each rib.

☐ ☐ **Step 20 - Wing Assembly (rear spar)**

Locate one of the 1/4" x 1" balsa sticks. Measure and cut this to fit in the front groove cut into the R6 and R7 ribs. It should be flush with the R8 and R5 ribs as shown.

Make sure this is fully inserted, and when properly in position, glue in place.

☐ ☐ Step 21 - Wing Assembly (aileron leading edge)

Locate remaining 1/4" x 1" balsa strip from the previous step as it now becomes the leading edge of the aileron. No need to trim this as it should be the proper length if you've measured correctly in the previous step. Center this between the R5 and R8 ribs, make sure this is fully inserted, and when properly in position, glue in place.

☐ ☐ Step 22 - Wing Assembly (trailing edge)

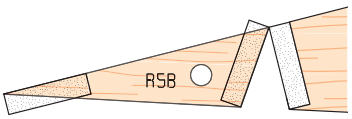
Locate one 1/4" x 1" balsa strip. Measure and cut this to form the trailing edge of the wing. This piece should start at R2, and go in 5 ribs to the last R5. This piece will glue into the pre-cut notches at the end of each of these ribs. If properly positioned it will also be angled to match the curve of the wing's top surface. When satisfied with the position, glue it in place, making sure it is glued to each of the ribs.

☐ ☐ Step 23 - Wing Assembly (R5B)

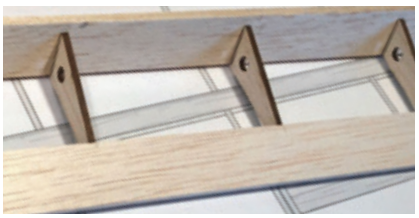
Locate two R5Bs from BP5 and the leftover 1/4" x 1" strip from the previous step.

Most of the pieces of the Robinhood 80 are notched for perfect fits, but the R5Bs are not. These will require you to place them in the correct position.

As you can see in this diagram, the R5Bs will glue to the end of the aileron leading edge (one on each end of the strip). They should to be positioned so the front, angled edge is flush with the front edge of the 1/4" x 1" aileron leading edge. Also make sure that both RB5s are parallel with the other ribs.



☐ ☐ Step 24 - Wing Assembly (aileron trailing edge)



Locate the leftover 1/4" x 1" balsa strip that you cut to make the wing's trailing edge. This piece will be used to create the aileron's trailing edge. It should be cut so it perfectly fits between the two R5B pieces you installed in the last step. It should not be a forced fit that would push the R5B's out of alignment.

Once cut and positioned, glue it in place, making sure it is attached to all of the ribs.

☐ ☐ Step 25 - Wing Assembly (gussets)

Along the leading and trailing edges, there are number of G1 gussets to be glued in place. These gussets can be found on BP1, BP2, BP3 and BP4.

We found it easiest to hold these small parts by "stabbing" them with a hobby knife and using it to position the gussets while the glue cured.

☐ ☐ Step 26 - Wing Assembly (top sheeting)

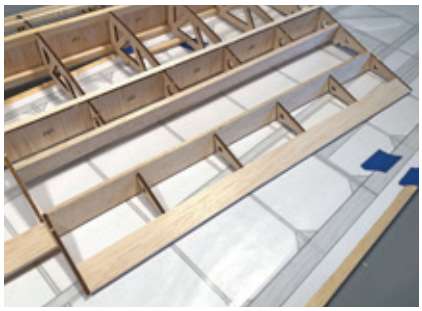
Using one of the 1/16" balsa sheets, measure and cut the sheeting to cover the openings between the R2 and R3 ribs.

The design of the R2 and R3 ribs will allow the sheeting to be flush with the spars, the leading edge and trailing edge.

Working on one section at a time, and note that the center gap (between the main spar and the rear sub-spar) will require a couple 1/16th pieces to be edge joined together to cover the gap.

Once satisfied with the fit, glue each of these sheeting pieces into position.

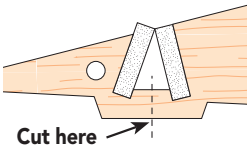
☐ ☐ Step 27 - Wing Assembly (cut aileron away from wing)



This step will involve removing the wing panel from the board, but before you do, double check that all the ribs, webs and spars are securely and properly glued to each other.

Now it's time to lift the wing panel from your building board - removing any pins you have used first!

Flip the wing over and cut the aileron away from the wing. The preferred place to cut is in the middle of each back tab - as shown here.



☐ ☐ Step 28 - Wing Assembly (lower front sub-spar)

Locate one 1/4" square balsa stick. This is used as the lower front sub-spar. Using the same technique you did the in past steps, measure, cut and glue this in position.

Be this strip is glued to each rib.

☐ ☐ **Step 29 - Wing Assembly (lower rear sub-spar)**

Locate one 1/4" square balsa stick. This is used as the lower rear sub-spar. Using the same technique you did the in past steps, measure, cut and glue this in position.

Be this strip is glued to each rib and all of the sheer webs.

☐ ☐ **Step 30 - Wing Assembly (WH2)**

Locate one of the WH2s from LP10.

This will fit as shown - into the notch in DH2, as well as the notches in R2 and R3.

Glue this in place, making sure that the pre-cut hole is closer to R3.

☐ ☐ **Step 31 - Wing Assembly (WH1)**

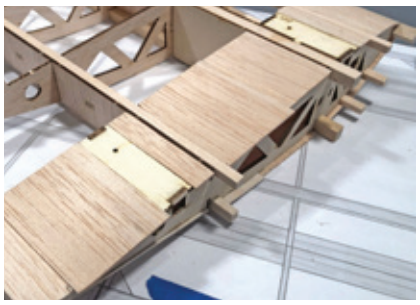
Locate one of the WH1s from LP10.

This will fit as shown - into the notches in R2 and R3.

Glue this in place, making sure that the pre-cut hole is closer to R3.

☐ ☐ **Step 32 - Wing Assembly (bottom sheeting.)**

Just as you did with the top sheeting, it's time to sheet the bottom of the wing to fill in the gaps between R2 and R3. Working on one section at a time and when satisfied with the fit, glue each of these sheeting pieces into position.



☐ ☐ **Step 33 - Wing Assembly (remove tabs)**

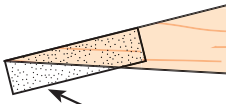
Remove the tabs on each of the ribs. Rather than snapping them off, use a hobby knife (or razor blade) to carefully cut them away to preserve the airfoil shape of each rib. It's better to not cut enough off than cut too much, as the excess will be sanded away in the next step.

☐ ☐ **Step 34 - Wing Assembly (sanding)**

It's time to sand the wing to the proper shape. Start with a coarser grit (80-100) to round the leading edge, shape the trailing edge, and round the edges of the wing tips. Take care not to remove too much, too quickly - you can always take more off, but you can't put it back on!

On the trailing edge, it will require a bit more shaping.

Switch to a finer grit (150-200) to smooth out the entire wing.



Sand excess trailing edge stock.

☐ ☐ **Step 35 - Wing Assembly (R1)**

Locate 1 R1 from LP8 or LP10. R1 is laminated to R2 and the surrounding sheeting, which is now hopefully sanded smooth and flat. Although C/A glue can be used, we recommend epoxy for this step.

You should also have a couple of scrap lengths of 3/8" square basswood stock that could be used as guides to locate R1. If you do use those as shown here, be very careful not to glue these pieces into the wing.

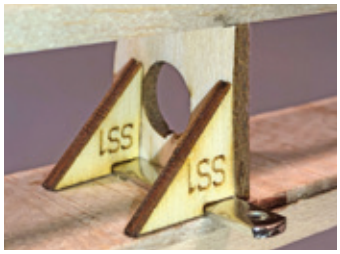
When cured, using rectangular cutout in R1 as a guide, cut through R2. Make sure not to damage the sheer webs on either side of R2.

☐ ☐ **Step 36 - Wing Assembly (rear strut mount)**

Locate two SS1 pieces from LP7 and one of the steel straps.

On the plans you'll see the location for the rear strut mount, attached to the inner R7 rib.

The straps have 3 holes pre-stamped into them and the middle hole is closer to one side than the other. The strap should be positioned so the end with the 2 closer holes is inside the wing, and the other end protruding from the bottom wing's surface by a 1/4" to 3/8". It also should rest flat against the sheer web and be up against the R7 rib.



Use a drop or two of C/A glue to tack it in position.

Now glue the SS1s in position as shown in the photo. Make sure that one of the SS1s is flush with the bottom of the wing's surface. Once these are in position, mix up a little epoxy and flood the area between the two SS1s to lock the strap in position.

☐ ☐ **Step 37 - Wing Assembly (rear strut mount)**

After the epoxy has cured from the previous step, locate two SS1 pieces from LP7 and another of the steel straps.

On the plans you'll see the location for the front strut mount, attached to the inner R7 rib.

Using the same technique as before, tack the strap in place, then glue the SS1s in position as shown in the photo. Make sure that one of the SS1s is flush with the bottom of the wing's surface. Once these are in position, mix up a little epoxy and flood the area between the two SS1s to lock the strap in position.

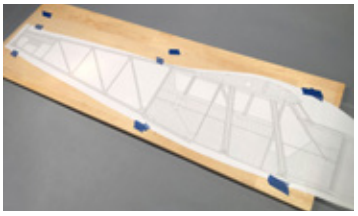
☐ **Step 38 - Wing Assembly (panel complete)**

This completes the assembly of the starboard wing panel. Now remove the starboard wing plan from your board and attach the

left (port) wing plan. Now go back to step 3 and repeat the steps to build the port wing.
Be very careful to make sure you make a mirror image of the wing tip - not another right tip.

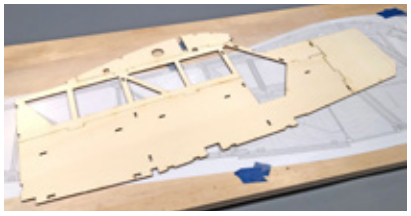
This completes assembly of the Robinhood 80 wing panels. Now it's time to start construction of the fuselage.

☐ **Prepare your work area**



Now tape the fuselage side plan and a fresh piece of waxed paper on your building board. If your building surface isn't as long as the plans (our's wasn't either), allow the nose section to hang off the board. This won't cause any problems.

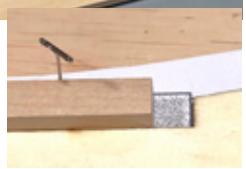
☐ ☐ **Step 39 - Fuselage Assembly (port front section)**



Locate one FS1 and one FS3 from LP1, one FS2 from LP2, one FS4 from LP3 and one FS5 from LP6. These five pieces will "jigsaw" together to form a larger piece of plywood that makes up the forward part of the fuselage's left side.
One note here. There's a better than average chance that one or more of these pieces will have a bow in them. That's fairly typical of the wood that we are supplied with and will not cause a problem if you take your time when assembling these pieces. Also, if you use C/A, the edges of light ply soak up the glue like a sponge - so much so that you'll need to use a bit more than normal to ensure these pieces are properly attached to each other.
Take your time, fitting two pieces together first, then another, etc. We found it best to start with the two largest pieces - FS2 and FS3. Again, take your time and make sure to hold each piece flat while joining them together.
After this assembly is cured, pin it in position to your building board.

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

Locate two 3/8" square basswood strips. These will form the upper and lower longerons. Measure, cut, pin and glue into position.
Note that the top longeron does not completely seat into the gap on top of the fuselage side. There needs to be a 3/8" gap for a cross support that is attached later.



☐ ☐ **Step 41 - Fuselage Assembly (stab supports)**

Locate two P6s and two P8s from BP6 and BP7.
The two P6s are glued together to make a thicker piece.
The same is true with the P8s.
In each case, make sure halves are perfectly aligned when gluing together.

☐ ☐ **Step 42 - Fuselage Assembly (stab supports)**

Glue the P6 assembly in place, then the P8 assembly.

☐ ☐ **Step 43 - Fuselage Assembly (rear bracing)**

Using 1/4" square balsa stock, it's time to make the inner bracing. Cut the longest pieces first, and take care when measuring and cutting so you don't waste material.
Also don't forget to cut the piece that butts-up against the rear of the plywood assembly.

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

Locate one each of G2-G8 from BP6. These are used in strategic positions to strengthen the joints along the rear of the fuselage.
Using the plan as a guide, glue each gusset in position.

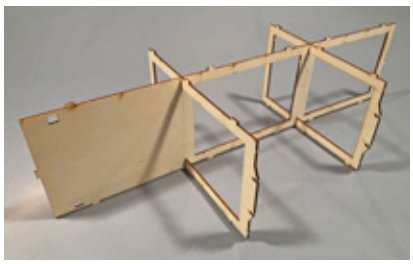
☐ **Step 45 - Fuselage Assembly (fuselage starboard side)**

This concludes the assembly of the port fuselage side. Remove the port side from the board and prepare the board with the right (starboard) side plan.
Go back to step 39 and complete the same steps to build the starboard fuselage side. When finished, leave it pinned to the board, then move on to step 46.

☐ **Step 46 - Fuselage Assembly (F7)**

Locate F7 from LP7. Glue this in position as shown on the plans, making sure it is a right angle to the fuselage side.

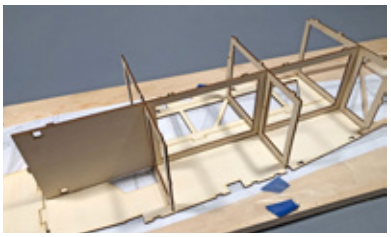
☐ **Step 47 - Fuselage Assembly (TRAY, F5 and F6)**



Locate TRAY from LP5, F5 from LP7 and F6 from LP8.
Slide TRAY into the large opening in F5 and gently position F5 so it fits into the forward slots in TRAY. Glue these two pieces together, making sure F5 is at a right angle to TRAY.

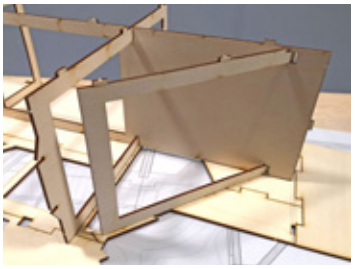
Once the glue has cured, do the same with F6 positioning it in the rear slots of TRAY.

☐ **Step 48 - Fuselage Assembly (TRAY assembly)**



Take the TRAY assembly and test fit it into the fuselage side. Start by notching in the back of the TRAY into the center notch of F7. Then slowly work your way forward to make sure everything fits as it should, and all the tabs fit into all the slots.
After satisfied with how this fits, remove it, apply glue and re-insert it to secure it in position.
It is very important that all of the tabs fit completely into each slot. Any gaps can weaken the structure.

☐ **Step 49 - Fuselage Assembly (F4)**

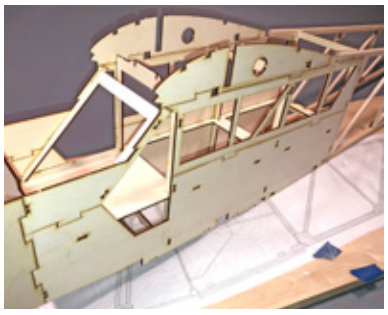


Locate F4 from LP10. It forms the support for the front windshield/hatch.
Glue this in position, again making sure all the tabs are fully inserted into the side panel's notches.

☐ **Step 50 - Fuselage Assembly (F3)**

Locate F3 from LP6. Locate it in position on the front of the TRAY assembly and side notches.
Glue this in position, again making sure all the tabs are fully inserted into the side panel's notches.

☐ **Step 51 - Fuselage Assembly (pushrod exit)**



Now it's time to attach the port side of the fuselage. We advise doing a test fit to make sure everything seats in as it should.
When satisfied with the fit, remove the side, apply glue and re-attach the side.
It could be a good idea to use a few weights to hold the port side securely and firmly in place why the glue cures.

☐ **Step 52 - Fuselage Assembly (top cross brace)**

Cut the top cross brace from some of the leftover 3/8" square basswood stock. Glue it in position as shown.

☐ **Step 53 - Fuselage Assembly (bottom cross brace)**

Cut the bottom cross brace from some of the leftover 3/8" square basswood stock. Glue it in position as shown, underneath F6.

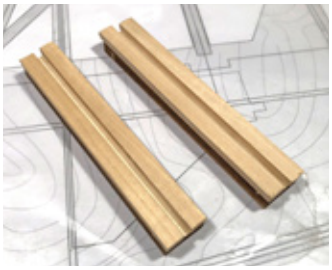
☐ **Step 54 - Fuselage Assembly (radio hatch mounts)**

Locate two scrap lengths of 3/16" x 3/8" basswood. Measure and cut them to form the two radio hatch mounts. These span from one side of the fuselage to the other.
Glue them in place as shown.

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

Locate six LGs from LP1, LP2 and LP6. Three of these are glued together to make a 3/8" high plywood stack, the other three will make a similar stack.
Use epoxy to glue these together and use clamps to hold them securely and perfectly aligned.

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



Measure and cut 4 lengths of 3/16" x 3/8" basswood the same length as the LG assemblies.
These are glued in place as shown to make a 3/16" groove where the landing gear wire will be inserted.
It may help when gluing these pieces in place to hold one of the landing gear wires in place to guarantee the alignment. But don't glue the landing gear wire into place.

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

Glue the LG assemblies into the bottom of the fuselage as shown. Make sure that the landing gear groove is visible when viewing the fuselage from the underside.

☐ **Step 58 - Fuselage Assembly (fuselage corners)**

Locate the 1/2" square balsa stick. Then measure and cut the upper and lower corners of the front part of the fuselage.
Glue these in position.

☐ **Step 59 - Fuselage Assembly (attach P3, P4)**

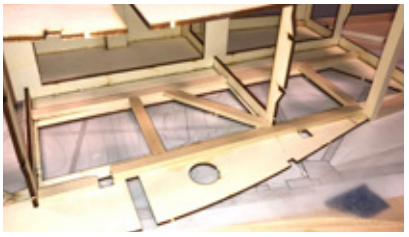
Locate P3 and P4 from LP4. These are glued into the slots of the bottom of the fuselage to form the fuselage's floor.
Test fit them first, then remove and glue in position.

☐ **Step 60 - Fuselage Assembly (P5)**

Locate P5 from LP4. This is glued in to form the aft of the fuselage hatch surround. Test fit it first, then remove and glue in position.

☐ **Step 61 - Fuselage Assembly (attach H2 or H2A)**

Using 3/16" x 3/8" basswood, measure and cut several pieces to make the internal window bracing for the port side of the fuselage. It's hard to see in this small photo, but also refer to the plans and to our online photos (see the top of page 3 for info on how to access those).



Glue all of these braces in position and hold them firmly in place while the glue cures. When cured, do the same for the starboard side of the fuse.

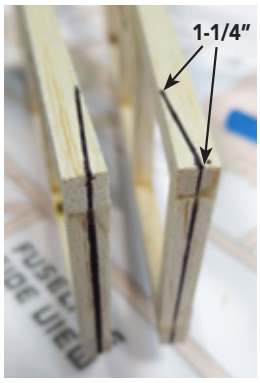
☐ **Step 62 - Fuselage Assembly (F4 cross brace)**

Using 3/16" x 3/8" basswood, measure and cut the cross brace to strengthen the top of F4. Glue in position as shown.

☐ **Step 63 - Fuselage Assembly (F7 cross brace)**

Using 3/16" x 3/8" basswood, measure and cut the cross brace to strengthen the top of F7. Glue in position as shown.

☐ **Step 64 - (creating rear taper)**



Work now moves to the rear of the fuselage to join the fuselage sides so they taper together. To do this, you'll need to sand away equal amounts on the insides of both side frames.
Using a ruler and straight-edge, measure and draw the guides as shown in the photo (1/2 way on the verticals, tapering in about 1-1/4" down the fuselage. These marks will show exactly how much wood should be sanded away on the insides of each fuselage side, so they will taper correctly. Although you can cut this with a saw or hobby knife, sandpaper makes quick work of this, but use caution not to remove too much.

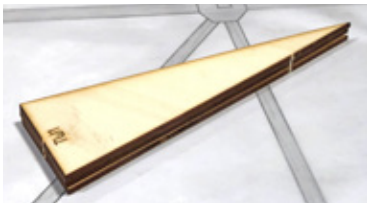
☐ **Step 65 - Fuselage Assembly (joining rear)**

Once the rear of each side has been properly tapered, they can now be glued together.

Make sure both sides are in perfect alignment before the glue sets up.

☐ **Step 66 - Fuselage Assembly (TW1)**

Locate two TW1s from LP3 and one LP3 from LP6. These are glue together to make a 3-layer assembly as shown here. Use epoxy for this step.



☐ **Step 67 - Fuselage Assembly (TW1)**

The TW1 assembly from the last step is glued on the underside of the fuselage, at the rear, to form the tailwheel mounting plate.
Glue this in place as shown and make sure it is flush with the bottom side of the fuselage.

☐ **Step 68 - Fuselage Assembly (P7)**

Locate both P7s from BP7. Glue them together to create a thicker P7 as shown here.

☐ **Step 69 - Fuselage Assembly (P7)**

Glue the P7 assembly into the rear of the fuse, on the top side as shown here.
Be careful not to push in too far as it will distort the slot.

☐ **Step 70 - Fuselage Assembly (top & bottom cross braces)**

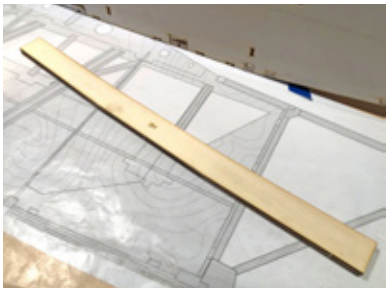
Using 1/4" square balsa, now measure, cut and glue in the upper and lower cross braces for the back of the fuselage.
There are two lower braces and three upper braces (one that butts-up against P7).

☐ **Step 71 - Fuselage Assembly (R0 ribs)**

Locate both R0 ribs from BP7. These are glued in position inside the top of the fuselage, resting on the notches cut into F5 and F6.
Make sure these are vertically aligned and correctly seated into the notches.

☐ **Step 72 - Fuselage Assembly (dihedral brace)**

Locate the three DH1s from LP9. These are stacked on top of each other to form the dihedral brace.
Use epoxy and clamps for this step, making sure that all three pieces are perfectly aligned.



☐ **Step 73 - Fuselage Assembly (dihedral brace)**

Using more of the 3/16" x 3/8" basswood, make a top and bottom cap for the dihedral brace. You'll need to make 3 separate sections for the top and 3 for the bottom because of the dihedral angle. Epoxy these pieces to the brace.

☐ **Step 74 - Fuselage Assembly (dihedral brace & cross braces)**

Now it's time to glue the dihedral brace into the large slots of the R0 ribs and fuse sides. Make sure that the dihedral brace is exactly centered on the fuselage and completely seated in the slot when gluing in place. Use epoxy for this.
Now measure and cut the cross bracing that goes across the center section. There are three 1/4" square balsa pieces and two 3/8" square basswood pieces. Glue these in place as shown.

☐ **Step 75 - Fuselage Assembly (wing attachment points)**

Using 3/8" square basswood, cut four 5-1/2" lengths. Two of these are used on each side of the fuselage to create the wing attachment points. Carefully slide them into the square cutouts in the fuselage side and R0. They should be parallel to the dihedral brace and have a slight rise (2° angle) that matches the dihedral brace. Also, the right and left pieces should touch in the middle. When satisfied with the position and fit, epoxy them in position as shown here.

☐ **Step 76 - Fuselage Assembly (center section sheeting)**

As you did when sheeting the wing halves, now it's time to sheet the top of the fuselage. Using 1/16" sheeting, measure and cut the pieces to fit between the cross bracing as shown here. Glue these pieces in place, making sure they are attached to each of the ribs and the cross braces.

☐ **Step 77 - Fuselage Assembly (center section sheeting)**

One small strip of 1/16th is used to fill in the thin gap underneath the center section's leading edge, as shown here.

☐ **Step 78 - Fuselage Assembly (sanding)**

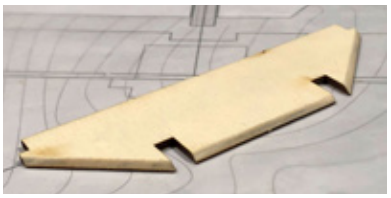
Now it's time for a bit of sanding. Make sure you sand the center sheeting section smooth and sand off any excess that extends past the side of the fuselage.

☐ **Step 79 - Fuselage Assembly (R1)**

Locate two R1s from LP8 and LP10. These are slid in position on each side of the center section as shown. Glue these in position, making sure they are completely flat.

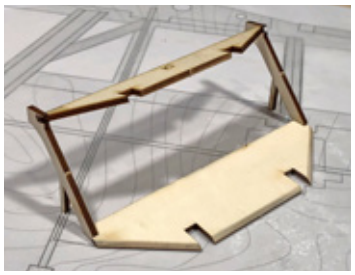
☐ **Step 80 - Fuselage Assembly (front hatch)**

Locate C3 from LP10. Sand a bevel on the three front edges as shown here. Place C3 on your work surface with the bevels visible as shown.



☐ **Step 81 - Fuselage Assembly (front hatch)**

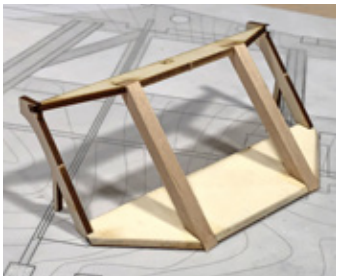
Locate two C2s from LP1 and C4 from LP10. These are used to form the windscreen frame.
Glue one C2 to each side of C3, making sure they are both vertical and resting on their back "feet".
Then glue C4 into the top slots on the C2 pieces, making sure it is centered and firmly seated into the slots.



☐ **Step 82 - Fuselage Assembly (front hatch)**

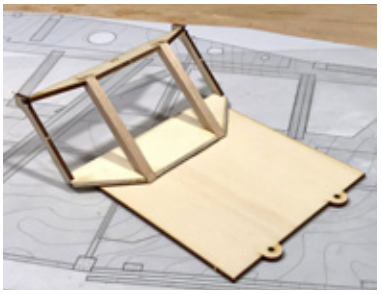
Cut the two frame pieces from 1/4" square balsa. Trim and bevel the ends for a good, flush fit, then glue into position.

When the glue has cured, remove the completed assembly and trim the rear "foot" sections from the C2 pieces.



☐ **Step 83 - Fuselage Assembly (front hatch)**

Locate C1 from LP3. It is glued to the hatch assembly as shown here.
To get the proper alignment and positioning, the windscreen assembly should be centered and the back edge of C3 should be up against back edge of C1.



☐ **Step 84 - Fuselage Assembly (F2)**

Locate F2 from LP3. Glue it to the front of F3 to thicken up the firewall. Use epoxy for this step and be sure to firmly clamp this piece in position while the glue cures.
Although not shown in this pre-production photo, there is a circle cut into F2 that should be positioned towards the top of the fuselage when mounted (matching the circle cut into F3).

☐ **Step 85 - Fuselage Assembly (F1)**

Locate F1. It is the 1/4" piece of aircraft ply, separate from the rest of the wood pieces. Try as we might, there's just no way our laser could properly cut through this thickness so, this piece is hand-cut and more often than not, it will fit as designed. However there are times where it might require a little sanding to fit properly. After sanding to fit, glue it to the front of F2 to complete the thickened firewall. Use epoxy for this step and be sure to firmly clamp this piece in position while the glue cures.

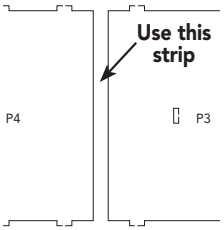
☐ **Step 86 - Fuselage Assembly (radial or in-line)**

Now you have a choice to make. Do you want your Robinhood 80 to have the look of an in-line engine or a flattened off firewall for a radial engine style?
If you want a radial engine look, then it is time to remove the two plywood cheeks from the fuselage sides and the 1/2" square balsa that extends forward past the firewall. This should be cut away and sanded flat with the firewall.

If you'd rather have the in-line look, then locate P1 from LP7.
It is glued so it is flush with the top edges of the fuselage as shown here.
We recommend cutting a couple lengths of leftover 3/16" square balsa strips to strengthen the joints between P1 and the 1/2" square strips.

☐ **Step 87 - Fuselage Assembly (P2/P3 support)**

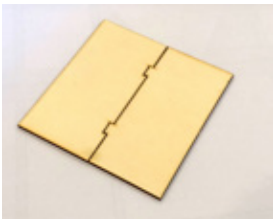
This is another step where it's impossible to laser cut alignment tabs and notches, so you'll need to measure and eyeball this.
You'll need to cut and glue in a thin length of 1/8" ply to make a lip used to locate a part in the next step.
From LP4, cut away a length of plywood that 's about 3/8" wide by 4 to 4-1/4" long.



This will be glued to the front edge of the forward landing gear block, 1/8" in from the bottom surface.
Take a bit of time to make sure this piece is glued in straight as it could cause alignment problems in the next step.

☐ **Step 88 - Fuselage Assembly (P2A/P2B)**

Locate P2B from LP8 and P3A from LP7.
These are glued together as shown to form a single sheet.



☐ **Step 89 - Fuselage Assembly (P2)**

Glue the P2 assembly in place on the underside of the fuselage as shown.

Now it's time to start construction of the tail surfaces.

☐ **Prepare your work area**

Position the horizontal stab /elevator plan side over the surface and tape into position and cover with waxed paper.

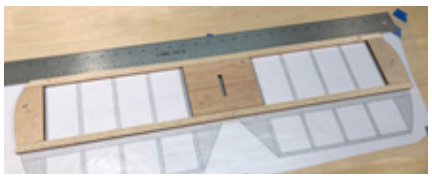
☐ **Step 90 - Stab (S1 and S2)**

Locate the four S1s from BP6 and the four S2s from sheet BP7. Carefully stack two S1s and glue them together to form a single 1/4" thick S1, then do the same for the remaining S1s. Take two of the S2s, stack and glue them to form a single 1/4" thick S2. Do the same with the remaining S2 pieces.

☐ **Step 91 - Stab (outer framing)**

The two S1 assemblies should be pinned in place and glued to each other. The S2 assemblies should be pinned in place next. Measure two lengths of 1/4 x 1/2" balsa to make the leading and trailing edges of the stab. Glue all of these pieces together.

It can make things easier to line up by using a long straight-edge as we've done in this photo.



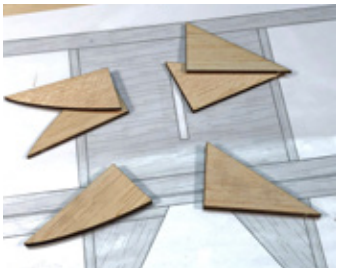
☐ **Step 92 - Stab (inner framing)**

Using 1/4" square balsa, cut and glue in the inner framing of the stab. First one side, then the other.

When the glue has cured, remove the stab from the board.

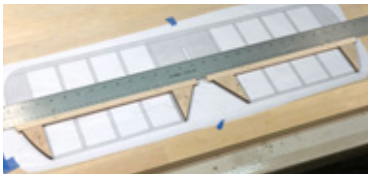
☐ **Step 93 - Elevator (S3 and S4)**

Locate the four S3's and the four S4s from sheet BP7. Carefully stack two S3's and glue them together to form a single 1/4" thick S3, then do the same for the remaining S3s. Take two of the S4s, stack and glue them to form a single 1/4" thick S4. Do the same with the remaining S4 pieces.



☐ **Step 94 - Elevator (leading edge)**

The two S3 and two S4 assemblies should be pinned in place. Measure two lengths of 1/4 x 1/2" balsa to make the leading edges of the stab. Glue all of these pieces in place.



Again, it can make things easier to line up by using a long straight-edge as we've done in this photo.

☐ **Step 95 - Elevator (trailing edge and inner framing)**

Using 1/4" square balsa, cut and glue in the inner framing of the elevator halves, first one side, then the other.

Locate left over G1s from BP1-4 and glue them into the rear outer corner as shown here.

☐ **Step 96 - Elevator (joiner)**

Measure and cut the elevator joiner to length from the included 1/4" dowel. You will also need to cut notches into the leading edges of the elevator halves. When satisfied with the fit, glue the joiner in position.

☐ **Prepare your work area**

Position the horizontal stab /elevator plan side over the surface and tape into position and cover with waxed paper.

☐ **Step 97 - Vertical Fin/Rudder (RD1, RD2, RD3 and RD4)**

Locate the two RD1s, two RD2s, two RD3s and two RD4s from BP6. Carefully stack two RD1s and glue them together to form a single 1/4" thick RD1, then do the same for the remaining RD2s, RD3s and RD4s.

☐ **Step 98 - Vertical Fin/Rudder (outer framing)**

Pin RD1 and RD2 in position. Measure and cut 1/4" x 1/2" strips to create the other framing of the vertical fin. Glue these in place.

Then pin RD3 and RD4 in position. Measure two more lengths to form the rudder frame. Do not glue the elevator to the rudder.

☐ **Step 99 - Vertical Fin/Rudder (internal framing)**

Measure and cut the fin's internal ribs from a 1/4" square strip. Take care to match the angles for a good fit. Pin these in position and glue into place.

☐ **Step 100 - Tail surfaces (sanding)**

Once the glue has set, remove the finished vertical fin and rudder from the plans. Now take the time to sand the horizontal stabilizer, elevator, vertical fin and rudder pieces. The leading edge of each piece should be rounded. Slowly work this rounded edge around the tips of the stab and elevator, as well as the vertical fin and rudder.

☐ **Step 101 - Wing (test fitting)**

This next step is going to require a bit of space as you'll be test fitting the wings to the fuselage for the first time.

Chances are the wings will not slide into position without a bit of sanding. First make sure that the dihedral slot in the wing is clear of debris, glue, etc. Now, little by little, sand the dihedral brace to slowly give you a slop-free fit that will allow the wing half to slide on and off with not too much effort.

You'll probably need to sand more off the top/bottom edges than the sides. Regardless, make sure you take a little off both sides, not just one.

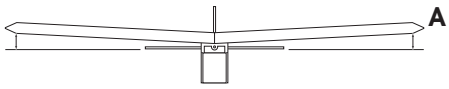
When the wing halves are able to be slid in position, slide them on to the fuselage and then move on to the next step.

☐ **Step 102 - Stab (installation)**

Now it's time to install the stab. First, make sure it will slide into it's rear slot. If it's a bit snug, lightly sand the slot until you have a good, slop-free fit.

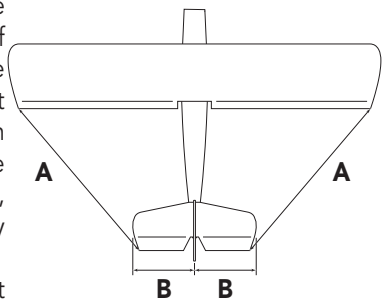
Once the stab is in position, it's time to make sure it's properly aligned.

☐ **Step 103 - Fuselage Assembly (level stab)**



Look at the fuselage straight on, from the nose (or tail) and make sure that the stab is level with the wings. If not, remove the stab and gently sand the stab supports a little at time. Check the stab and re-sand the supports if needed.

☐ **Step 104 - Fuselage Assembly (attach stab)**



Once leveled, ensure that the stab is aligned in the center of the fuselage. This can be done by aligning the center cutout in the stab with the opening in the top of the fuselage. Once these two openings line up, the stab should be perfectly aligned.

To be absolutely sure, insert the vertical fin down through the top fuselage slot, into the stab opening (this might require a bit of sanding on the fin for easy sliding). Once the fin is properly seated, measure the angle between the fin and stab. If at 90°, then it's correct. If not, reposition as needed.

Draw a line on the stab where it meets the fuselage, then remove the stab, fin and wings from the fuselage.

☐ **Step 105 - Fuselage Assembly (attach stab)**

Mix up a little bit of epoxy and glue the stab to the fuselage, making sure to align it up to the marks you made earlier.

☐ **Step 106 - 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. DO NOT GLUE THE HINGES IN AT THIS POINT. Once hinged, you might also want to cover the elevator and stab with the covering material of your choice. It's certainly not mandatory, but it is easier to cover before it is held captive to the fuselage.

☐ **Step 107 - Fuselage Assembly (attach vertical fin)**

Align and glue the vertical fin in place, making sure to also glue on the trailing edge where it meets the back of the fuselage. Be careful not to get any glue on the elevator joiner. Insure the fin is a perfect 90° to the stab.

☐ **Step 108 - Fuselage Assembly (rudder hinging)**

Now make the necessary slots needed to hinge the rudder to the vertical fin. We recommend 3 hinges. DO NOT GLUE THE HINGES IN AT THIS POINT.

☐ **Step 109 - Wing Assembly (drill wing mounts)**

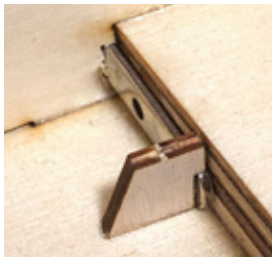
Slip one of the wing halves back on and flip the airframe on it's top. Make sure that the wing is firmly seated against the fuselage and drill two 5/32" holes. One through the pre-cut hole in WH1 and WH2. You only want to drill through the 3/8" wing mount, no further.

Do this for the other wing half as well.

☐ **Step 110 - Wing Assembly (t-nuts)**

Remove the wings then flip the fuselage the right way up. Tap one 4-40 blind nut (from the hardware bag) into each of the 4 holes you drilled. Make sure they are completely seated into the mounts as shown here. A drop or two of CA around the nut's edge will help hold it securely in place.

☐ **Step 111 - Fuselage Assembly (forward strut mounts)**



Locate two SS2 pieces from LP7 and two of the steel straps.

On the plans you'll see the location for the fuselage's forward strut mounts and there is a pre-cut slot for it on each side of the fuselage..

The straps have 3 holes pre-stamped into them and the middle hole is closer

to one side than the other. The strap should be positioned so the end with the 2 closer holes is inside the fuselage, and the other end protruding from the fuse side by a 1/4" to 3/8". It also should rest flat against the 3/8" spruce cross brace.
Use a drop or two of C/A glue to tack both of them in position.
Now glue the SS2s in position as shown in the photo, one for each steel strap.
Once these are in position, mix up a little epoxy and flood the area between the SS2s and the fuse side to lock the strap in position.

☐ **Step 112 - Fuselage Assembly (rear strut mounts)**

Locate two SS3 pieces from LP7 and two of the steel straps.
On the plans you'll see the location for the fuselage's rear strut mounts and there is a pre-cut slot for them on each side of the fuselage.
Insert the straps on each side of the fuselage with other end protruding from the fuse side by a 1/4" to 3/8". It also should rest flat against the 3/8" spruce cross brace.
Use a drop or two of C/A glue to tack both of them in position.
Now glue the SS3s in position as shown in the photo, one for each steel strap.
Once these are in position, mix up a little epoxy and flood the area between the SS3s and the fuse side to lock the strap in position.

☐ **Step 113 - Fuse Assembly (landing gear)**

It's time to assemble the main landing gear. You'll find the front and rear pieces included in the kit.
Place the included nylon landing gear straps in position - 2 for the front, 2 for the rear. These straps are mounted to the grooved LG assemblies on the underside of the fuselage. Position the gear strut wires so they are centered on each LG, then mark and drill 1/16" holes where the straps should mount. Attach them using the supplied 2-56x3/4" self tapping screws.

☐ **Step 114 - Main Gear Assembly (soldering)**

With the gear pieces mounted, rotate the front wire so it is perpendicular to the fuselage. Then rotate the back wire so it meets the front wire as shown here. Both pieces of wire need to be lightly sanded and cleaned where the wires touch, both on the left and right side.
After cleaning, carefully and tightly wrap this joint with wire as shown here using. We used 26 gauge wire, but other thicknesses can be used.
Starting on one side, lightly brush on a bit of flux over the entire wire-wrap, then use a small torch (or a soldering iron) to securely solder the wire wrap in position, securing the front and rear landing gear wires into a solid, one piece unit.
When finished, do the same to the other side of the gear and you should have something like this when finished.

☐ **Step 115 - Airframe Assembly (struts)**

Remember the four wing struts blanks you made back in step 1? Well, now it's time to finish those.
To start, locate one of the blanks, and one of the metal straps.
Mark and cut a slot into one end of the strut blank as shown here.
The slot should be roughly 1-1/4" long and the width of the metal strap's thickness. Now do the same thing for the other three blanks - but only on one end. Leave the other ends untouched for now.
Mix up a little epoxy and glue each strap in place, making sure they are all on a flat surface with waxed paper. You'll need to use enough to make fillets between the strap and the wood. Don't glob in on, but make sure there's a good, strong bond to hold the strap in place.
Once the glue has cured, measure and cut a similar slot into the other end of each strut, BUT TO NOT GLUE IN THE STRAPS yet.

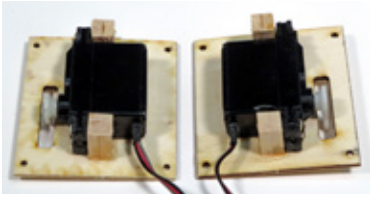
☐ **Step 116 - Airframe Assembly (struts)**

With the fuselage upright, slide one of the wing halves onto the fuselage and secure it in place with the two 4-40 bolts.
Take one of the struts from the previous step and temporarily attach it to one of the wing strut mounts with a 4-40 bolt. Locate one of the unused straps and attach it to the corresponding strut mount on the fuselage. Raise the strut into position so that the strap goes into the slot you cut. Making sure it is held in perfect alignment, tack this strap to the strut with a just a touch of medium CA. Once the glue has cured, move on to the next strut position and do the same thing for the other 3 struts.
After all four are in place you can remove the struts from the airframe, (one at a time) and epoxy these straps in place like you did in the previous step.
Mark them as to their position (left-front, left-rear, right-front or right-rear). The reason you should mark each strut is that regardless of how carefully you measured everything to this point, there will be slight differences in the lengths of each strut. Marking them now will save a lot of time and guesswork later.

☐ **Step 117 - Airframe Assembly (struts - optional)**

We have found that epoxy is more than enough to hold the straps in place on each strut, providing you've use the proper amount to securely hold them in place.
However, if you'd like a bit of extra strength, you can wrap the ends of each with a thin strip (1") of fiberglass cloth then use epoxy to secure it in place. This fiberglass cloth is not included, but should be readily available at your local hobby store.

☐ **Step 118 - Aileron servo hatches**



From leftover 3/16" x 3/8" x 36" basswood strip, cut eight 3/4" pieces. Make a mounting post by laminating two pieces, gluing the 3/8" sides together to make a 3/8 x 3/8" square post. Make 3

similar posts from the remaining pieces, sanding the ends flat. Position the aileron servo on the bottom of the aileron servo covers so the servo arm output shaft is centered in the opening.

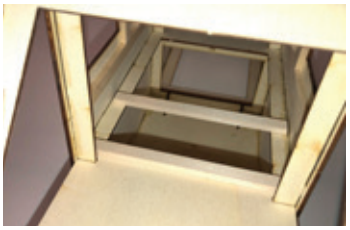
On the bottom of each aileron hatch, glue one post on each side of the servo as shown in the photo.

Note that the left hatch is a mirror image of the right hatch and we've etched an arrow that should point towards the front of the airframe.

Now fit the servo hatches into position on the bottom of the wing. Using the pre-cut holes as a guide, drill four 1/16" mounting holes into the 3/16" x 3/8" basswood mounting strips installed earlier. Harden the wood with a bit of thin CA and you can use the supplied 2-56 x 3/4" self tapping screws to secure them in place.

☐ **Step 119 - Servo rails**

Using leftover 3/16" x 3/8" basswood, measure and cut two strips that will span across the TRAY, directly above the lower hatch. These should be spaced so your rudder and elevator servos can be mounted to them. When satisfied with the fit and position, glue them in place.



If using a glow or gas engine, measure and cut 2 more strips. These will be used for the throttle servo mount. Mount one strip on TRAY, just behind F5, then the other to span between the fuselage sides. It will need to be spaced for the width of your throttle servo. When satisfied with the fit and position, glue them in place.

☐ **Step 120 - Ailerons (control horn mount)**

Each aileron needs a strip of 3/16" x 3/8" basswood glued in place as shown here. Note the location of it on the plans, then measure, cut and glue this in position for each aileron.

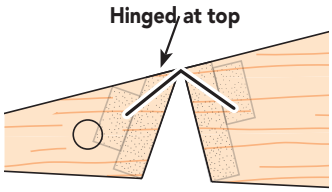
☐ **Step 121 - Ailerons (hinge supports)**

Use leftover 1/4" x 1/2" balsa scraps to cut twelve 1" pieces that will be glued in place for the aileron hinge supports.

Note the hinge locations on the plans, then glue the blocks in place inside the trailing edge of the wing and inside the leading edge of the ailerons. Do this for both wing halves.

☐ **Step 122 - Airframe Assembly (sanding)**

Now take the time to go over the entire airframe and give it a good, final sanding. Make sure everything is flush and smooth, that the wings are airfoil shaped along their entire width and everything is ready for covering.



☐ **Step 123 - Ailerons (hinging)**

Now it's time to hinge the ailerons. Note that the hinges will NOT be glued in place at this time. This is simply to cut the slots and hold the aileron in place temporarily for the next step. Note each of the hinge positions on the plan, then cut the slots for the aileron hinges. These hinges installed along the top edge of the aileron as shown in this diagram.

☐ **Step 124 - Control horns**

With the ailerons still temporarily in place, also temporarily fit the rudder in place as it's time to mount the control horns.

Make sure that when installing the control horns, they are placed in-line with the pushrods cutouts, and that the line of holes where the clevises attach are positioned over the hinge line.

Use a 1/16" bit, to drill the proper holes for the aileron horns as they will be held in with 2-56 x 3/4" self tapping screws, not requiring the plastic backer.

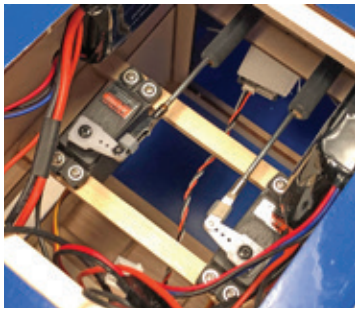
The rudder and elevator horns are held in with 2-56 x 1/2" machine screws and will use the plastic backer plates. Drill these slightly larger with a 3/32" bit.

☐ **Step 125 - Tailwheel mounting**

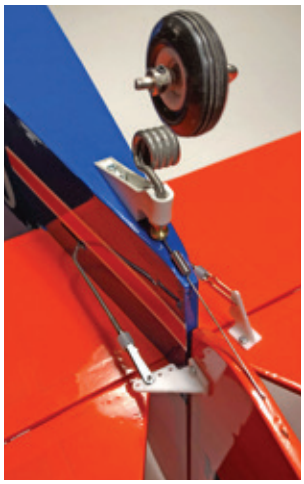
Mount your choice of tailwheel to the bottom of the fuselage. It should mount to the bottom of the plywood TW1 assembly, already installed.

☐ **Step 126 - Radio and Pushrod Installation**

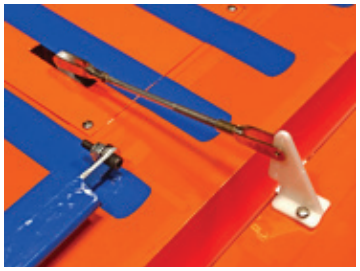
Although you can install the radio after covering your model, we find it easier to get everything in place before covering. This way you have unblocked access inside the fuselage and wings to get the servos, extensions, and pushrods in place.



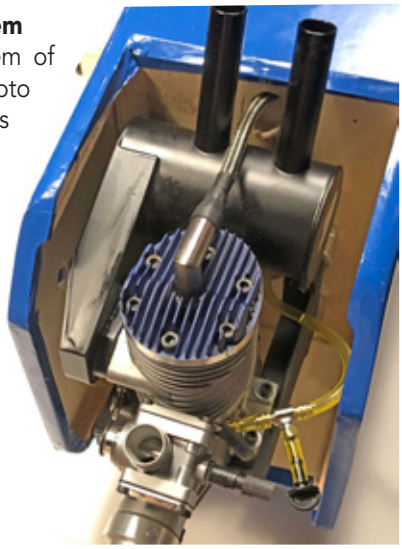
Shown here are several photos with sample installations in the wing and fuselage.



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



☐ **Step 127 - Power system**



Installing your power system of choice is up next. The photo shown here is for a 20cc gas installation. Note that this is only a suggestion as your power system will likely vary from what's shown here.

Gas/Glow power

The engine mounts so the crankshaft is positioned on the thrust line, as shown on the plans. Holes will also need be drilled for the throttle pushrod, fuel lines (and ignition pickup wire if gas) to pass through into the fuselage.

Electric power

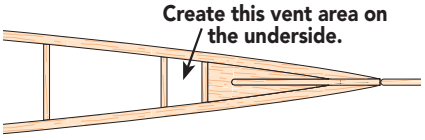
If choosing electric power, the motor should mount with it's shaft on the thrust line as shown on the plans.
A few cooling holes will need to be cut into the firewall as they are needed for internal battery cooling. Exit holes further back of the fuselage also need to be cut.
Power batteries are mounted to the TRAY and the ESC can be mounted below the tray.
Both the ESC and battery should be held in place with more self-adhesive hook-and-loop.

We mentioned this earlier, but it bears repeating. Our engine size recommendation range is a 20cc gas, .90-1.50 glow or an electric motor with similar power output. Remember that the Robinhood 80 is a fun-scale model that is intended to fly at scale-like speeds, so prudent throttle management should be practiced. While this kit has been flight tested to exceed normal use, if this model will be used for extremely high stress flying, such as racing, 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.

☐ **Step 128 - Covering**

Now it is time to cover the Robinhood 80. Remove the powerplant, main gear, the tailwheel, pushrods, and any other components that would get in the way of applying the covering.

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.



Note that if you're powering with an electric motor, you'll need to make a hole for the cooling air to escape the rear of the fuselage. We choose to add a length of 1/4" square balsa scrap about an 1" in front of the TW1 (underside of fuse). This creates a smaller area where the covering can be cut away for a vent.

When the covering is complete, re-attach all the components you removed earlier in this step.

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 129 - Attach the Control Surfaces**

Now is the time to attach all the control surfaces to the airframe, by gluing the hinges in position.

☐ **Step 130 - Attach wheels.** Use the included wheel collars to hold each wheel (not included) on the axles (one on each side of the wheel). For a maintenance free installation, file a small flat on the axle where the set screw of the wheel collar touches. Also use a touch of thread-locking compound to keep the screw from loosening over time.

☐ **Step 131 - Attach hatches.** Place the top hatch in position and using the pre-cut holes as a guide, drill the two screw holes into the firewall using a sing a 1/16" bit.
Using the same bit, attach the bottom hatch to using the same technique.
Both hatches are held in place with 2-56 x 3/4" self tapping screws.

☐ **Step 132 - Windows.** Finishing the assembly of the RH80 are the windows. On the fuselage plans we have included a template for the side windows and the front windscreen. Cut the windows from the included plastic sheet, making sure to cut it slightly oversize then trim as necessary. Attach each window to the fuselage with canopy glue, or you can use number of small screws (not included) evenly spaced around the window perimeters, if you'd like to make the windows removable.

This completes the assembly of the Robinhood 80. Now you'll need to adjust the control throws and check for balance.

☐ **Step 132 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 RH80 is measured back 4-1/4" 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.

C.G. BALANCE POINT

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.

Aileron 5/8" up/down

Elevator 1/2" up/down

Rudder 1" 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.

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 .

Old School MODEL WORKS

For more information on all of our other products, as well as the latest news from Old School Model Works:

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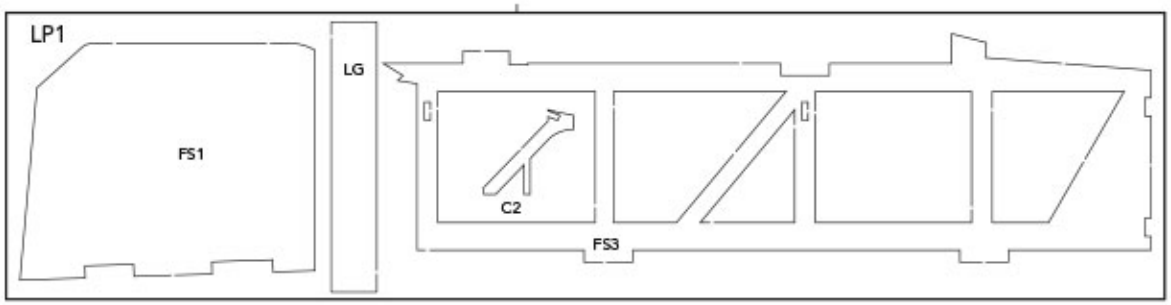
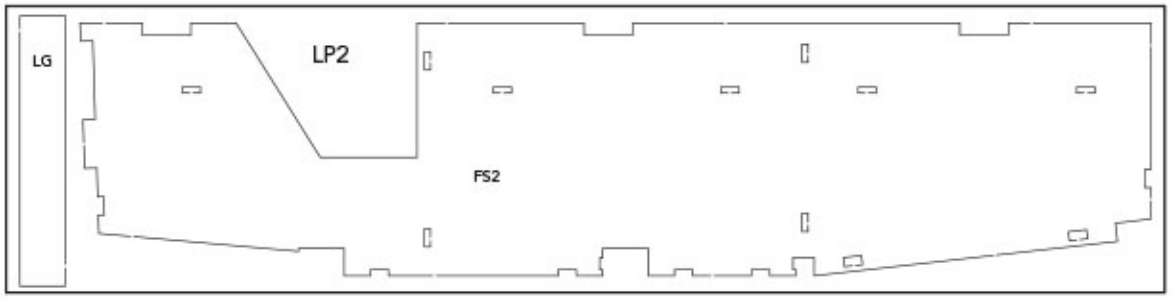
See photos of our kits and customer builds on Flickr:
https://www.flickr.com/photos/oldschoolmodelworks/

LP1
1/8" Lite Ply



LP2
1/8" Lite Ply



LP3
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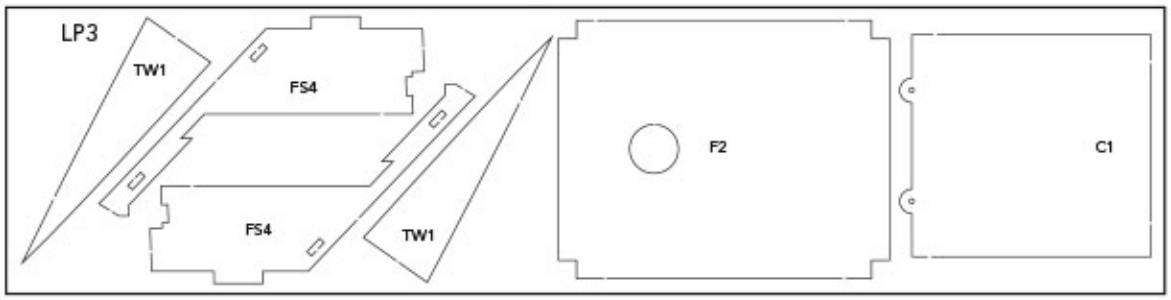

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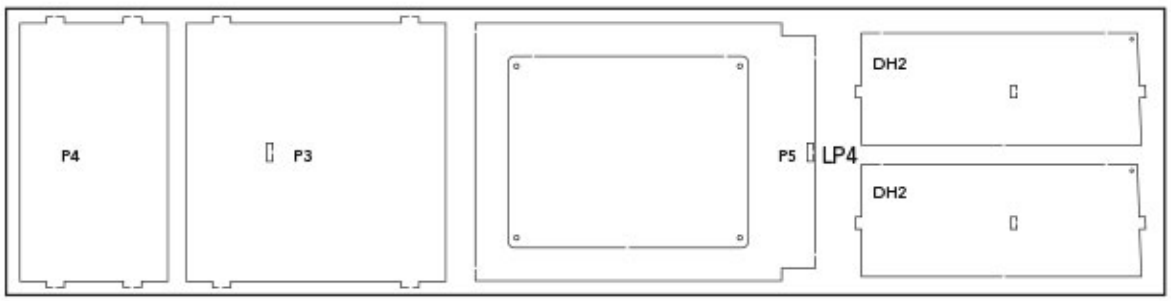

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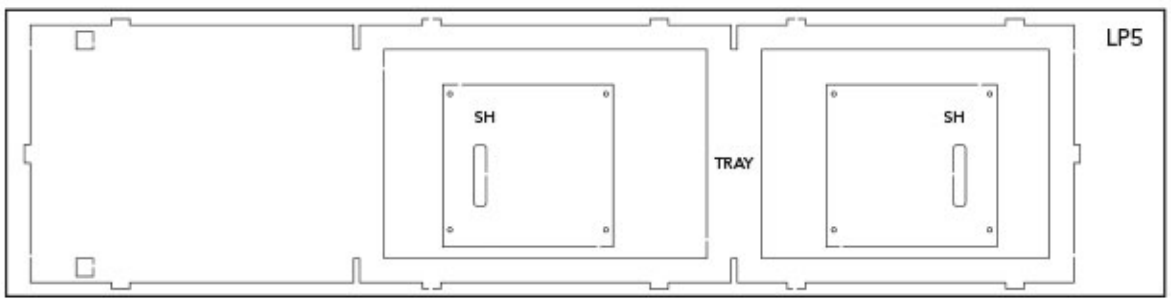
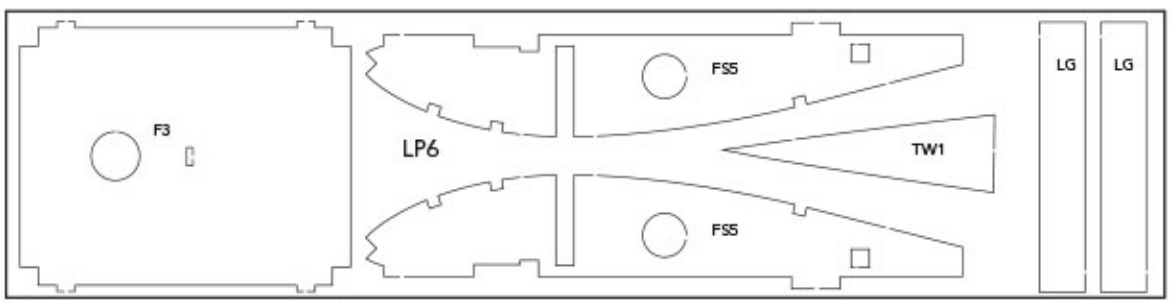
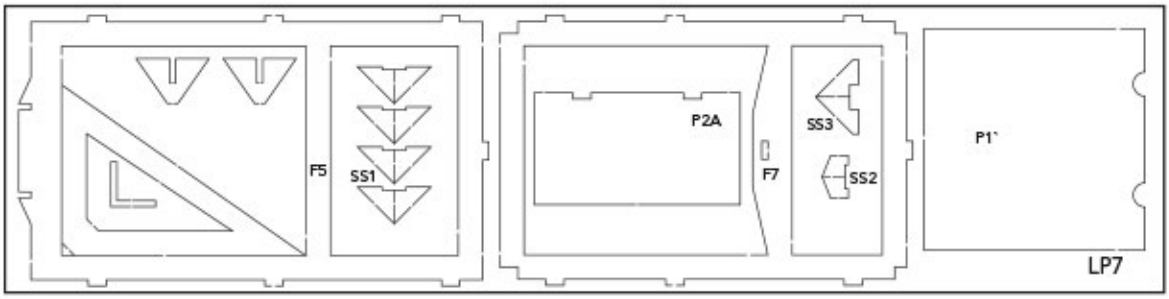
1/8" Lite Ply



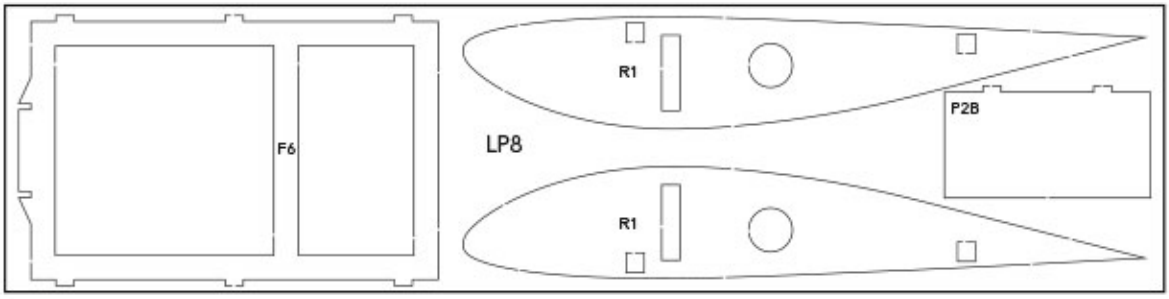
LP6
1/8" Lite Ply



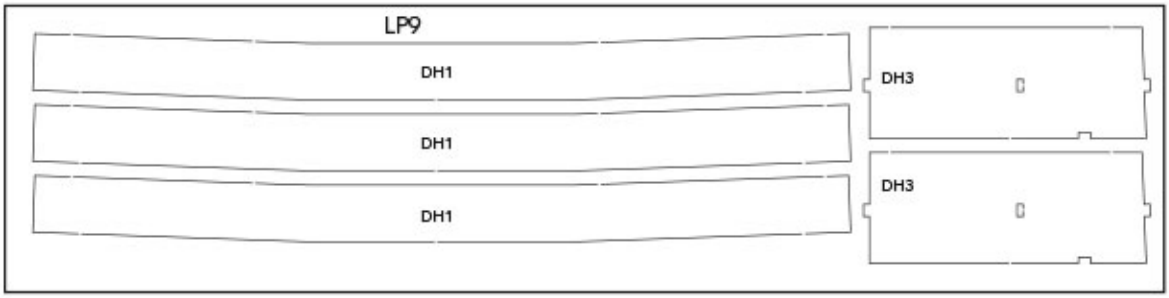
LP7
1/8" Lite Ply



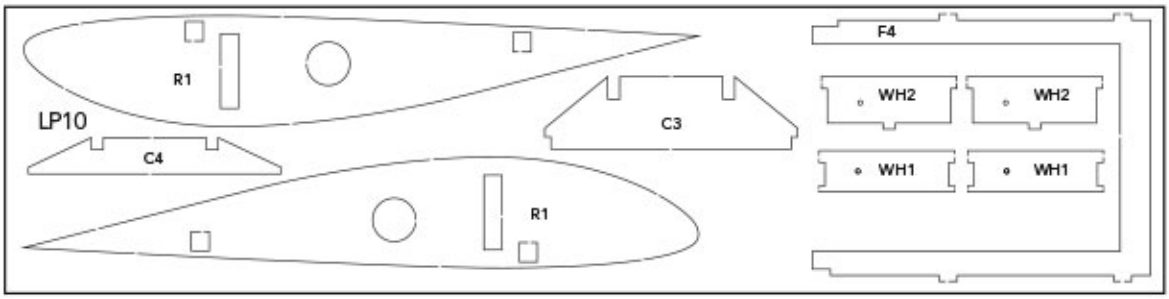
LP8
1/8" Lite Ply



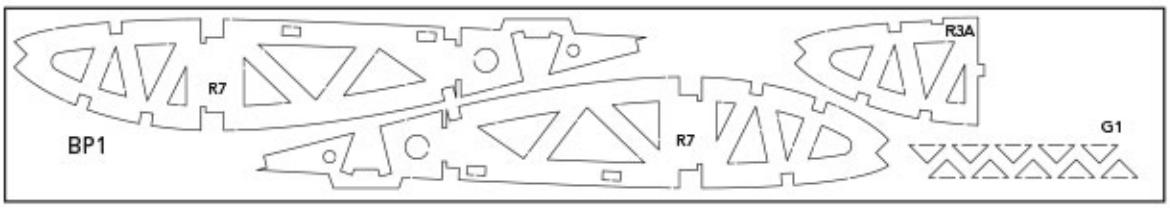
LP9
1/8" Lite Ply



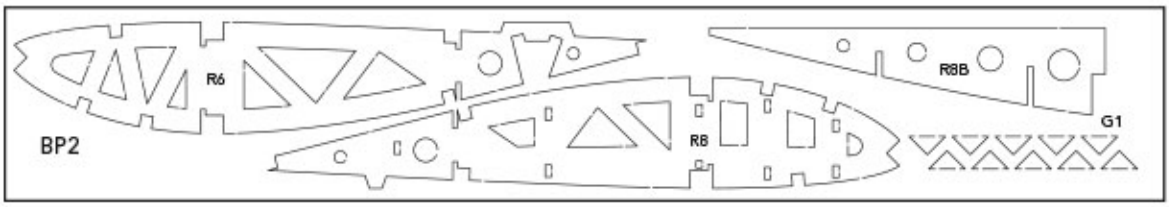
LP10
1/8" Lite Ply



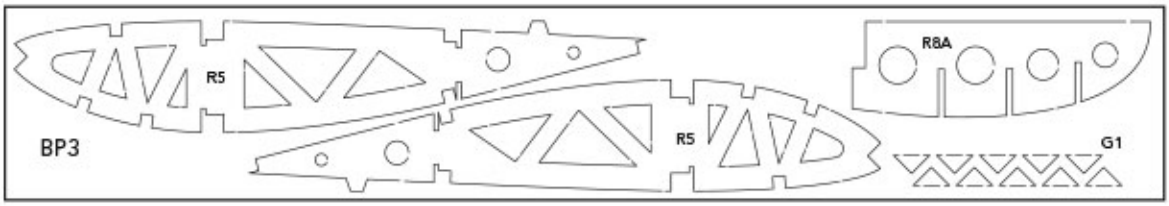
BP1
1/8" Balsa



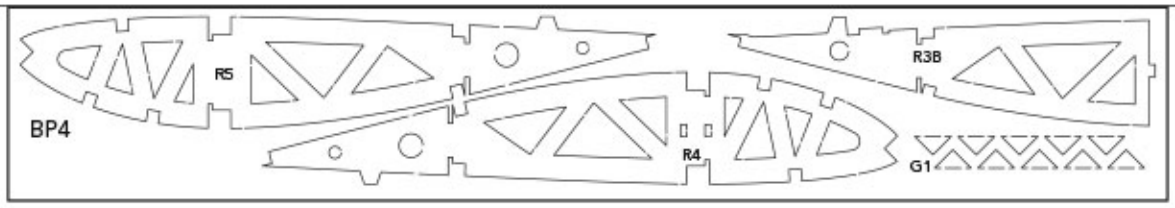
BP2
1/8" Balsa



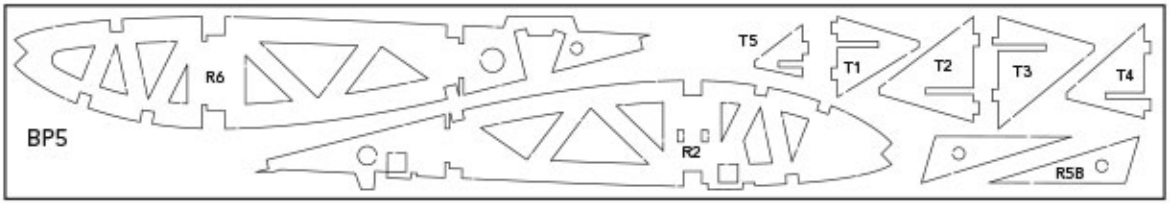
BP3
1/8" Balsa



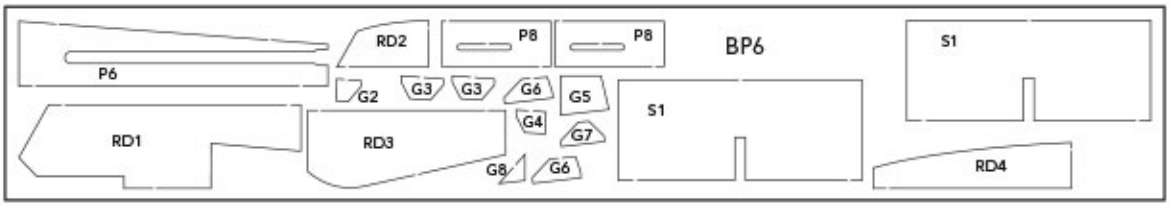
BP4 1/8" Balsa



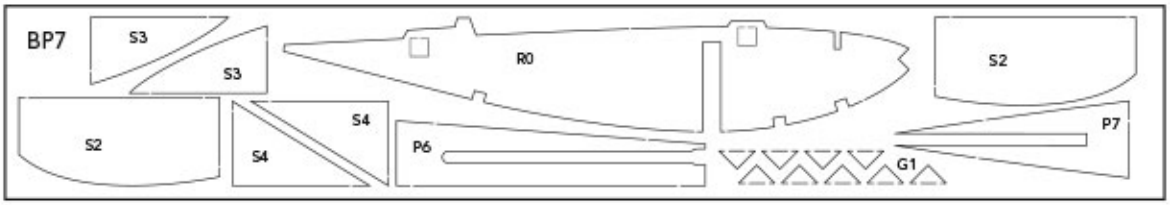
BP5 1/8" Balsa



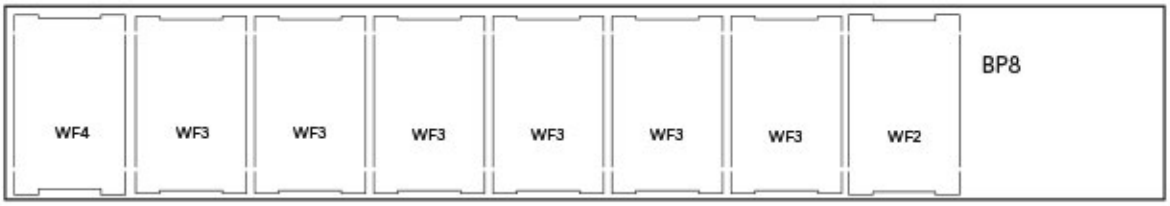
BP6 1/8" Balsa



BP7 1/8" Balsa



BP8 3/32" Balsa



BP9 3/23" Balsa