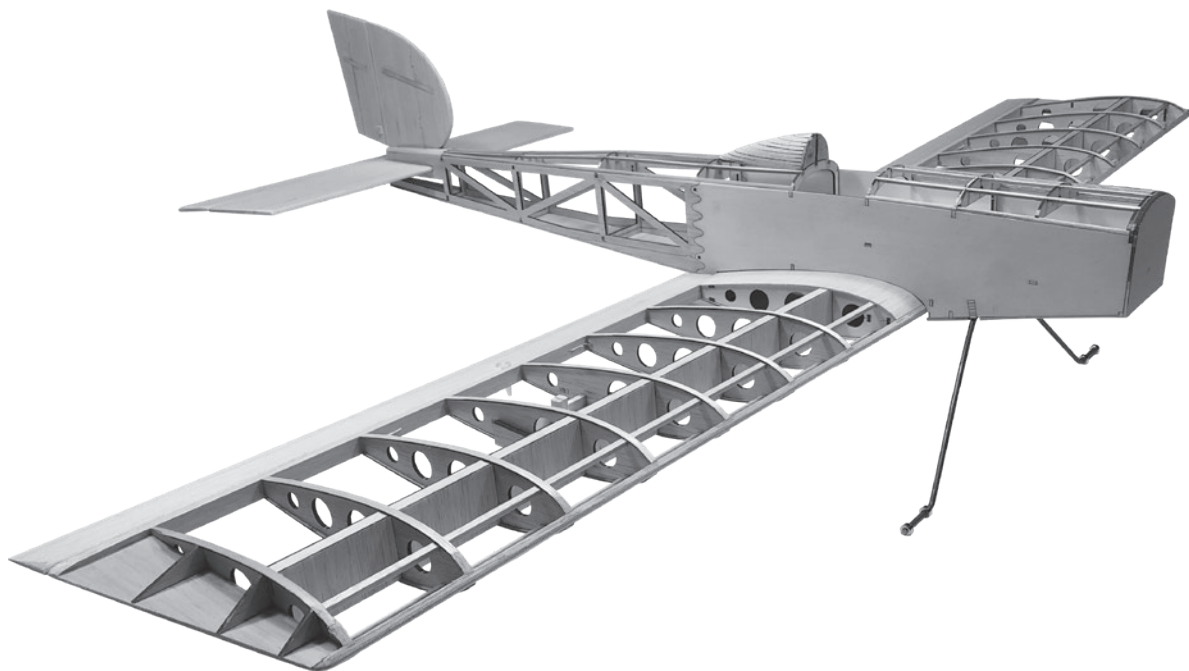


# CONSTRUCTION MANUAL

# Sky Ranger 40



**Specifications:** Wingspan: 60 in. • Wing Area: 527 sq in.  
Airframe Length: 42.75 in. • Weight: 3.5-4.5 lb.

## 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.



SKY RANGER 40 PROTOTYPE

- 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.**



[www.oldschoolmodels.com](http://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](http://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 - BP1 - laser cut 1/8" x 4 x 24 sheet
- 2 - BP2 - laser cut 1/8" x 4 x 24 sheet
- 1 - BP3 - laser cut 1/8" x 4 x 24 sheet
- 2 - BP4 - laser cut 1/16" x 4 x 24 sheet
- 2 - BP5 - laser cut 1/16" x 4 x 24 sheet
- 4 - BP6 - laser cut 1/16" x 4 x 24 sheet
- 2 - BP7 - laser cut 1/8" x 4 x 24 sheet
- 1 - BP8 - laser cut 1/8" x 4 x 24 sheet
- 1 - BP9 - laser cut 1/8" x 4 x 24 sheet
- 1 - BP10 - laser cut 1/8" x 4 x 24 sheet
- 2 - BP11 - laser cut 1/8" x 4 x 24 sheet
- 1 - CAP - laser cut 1/16" x 4 x 24 sheet
- 1 - 1/8" x 3 x 24 sheet
- 5/16" x 1/2" x 36" balsa strips (4 pieces)
- 1/4" x 1/4" x 36" balsa strips (3 pieces)
- 3/16" x 3/16" 36" balsa strips (4 pieces)
- 1/8" x 1/8" x 36" balsa strips (5 pieces)
- 5/16" x 1-1/4" x 36" tapered balsa strips (2 pieces)
- 3/16" x 3/8" x 36" basswood strips (4 pieces)
- 1 - 1/4" x 6" wooden dowel.

### Hardware parts included in this kit:

- 2 - pre-bent landing gear
- C/A type hinges for control surfaces
- 4 - control horns
- 4 - wheel collars 3/16" I.D.
- 2 - wheel collars 3/32" I.D.
- 1 - 5/64 rod (for tailwheel)
- 4 - plastic straps
- 2 - 1/4"-20 wing bolts

- 10 - 2-56 x 1/2" machine screws
- 15 - 2-56 x 3/4" self tapping screws
- 1 - canopy
- 4 - 1/4" x 1/16" Neodymium disc magnets

### Other items included in this kit:

- 2 - Rolled plans (fuselage and wing)
- 1 - Construction Manual

## 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. Our engine size recommendation range is a .40-45 two-stroke or an electric motor with similar power output, an 800-900 watt brushless motor with a 80amp esc and 4-5S LiPo pack.

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:
  - if Electric (800-900 watt motor, 80amp ESC, 4-5S LiPo)
  - if Glow (.40-.45 engine, 6 ounce tank, fuel tubing)
- Propeller
- Engine/Motor mount and mounting hardware
- Receiver - (4 channel minimum)
- Servos with 40-70 in./oz. of torque
  - 1 each for elevator and rudder; 1 for each aileron if using ailerons; 1 for throttle (if using a glow engine)
- "Y" servo harness
- Pushrods (two 5" for ailerons, two 24" for elevator & rudder, one 12" for throttle if glow powered)
- Clevises for the pushrods (8 if electric, 10 if glow).
- 3" diameter wheels
- 1" tailwheel
- Covering
- Optional pilot figure for the open cockpit.

## Additional Required Building Tools and Adhesives

- Drill & assorted drill bits
- Hobby knife and #10 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 immediately.

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 #10 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 SKY RANGER 40 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/sr40](http://www.oldschoolmodels.com/mpics/sr40)**



## Let's begin construction by working on the right (starboard) wing of your Sky Ranger 40.

### ☐ 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 right wing plan and tape that into position, over the plan.

### ☐ Step 1 - Alignment triangles

Pre-cut into LP4 are two triangles, one inside the other. These can be used to vertically align any of the parts in the construction of your Sky Ranger 40. LP4 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 2 - Wing Assembly (position lower spar)

Using a length of 3/16 x 3/8" basswood, attach the lower spar over the plans, using a couple small drops of medium CA instead of t-pins. Be sure it is aligned properly and is straight over its entire length. The alignment of this spar is critical as the rest of the wing panel is based off this single piece.



### ☐ Step 3 - Wing Assembly (outer wing tip)

The wing panels are constructed from the outside (tips), in towards the center (root). Remove parts R5 and R6 from one of the BP4 sheets. Also remove T1, T2, T3 from one of the BP5 sheets. Slide T1, T2, & T3 in place on R6 to make the R6 assembly. Then, position R5 as shown here and gently push the R6 assembly into place. Note that the positioning of R5 is important as you will make a left and a right side. Once satisfied with the fit, glue everything in place.



### ☐ Step 4 - Wing Assembly (attach first WB2s)

Remove two WB2 sheer web pieces from one of the BP6 sheets. They fit as shown here, one in the front vertical slots, one in the rear slots. Place the front WB2 in its slot, making sure it's pushed completely in the slots and perfectly butted up against R5 and at a 90° angle. Now place a few drops of thin CA in the joint. It will cure in just a matter of seconds, holding it in place. Do the same for the other WB2.





### □ □ Step 5 - Wing Assembly (attach R5)

Using medium CA, run a thin bead of medium CA along the inside, bottom surfaces of the WB2s, where they will contact the bottom spar. Also place a line of glue on the top of the spar where the R5 assembly will attach. Now attach the R5 assembly to the spar, making sure the WB2s rest flush on the building surface - just as shown in the photo. This will insure a proper 90° angle for R5. Also make sure that the bottom edges of both WB2s are properly glued to the bottom spar.



*This same technique of attaching the WB2s to the rib will be used throughout the rest of the wing's construction.*

### □ □ Step 6 - Wing Assembly (attach two R3s)

Now you'll need two R3 ribs from BP2 and four WB2 sheer webs from BP6. Glue two WB2s to each R3, referring to the plans to make sure they are on the correct side.



Using medium CA, run the strips of glue just as before and attach the first R3 up against the ends of the WB2 pieces from the last step. Working your way inward, do the same for the other R3 as shown here.

### □ □ Step 7 - Wing Assembly (attach two R4s)

Now you'll need the R4 ribs from the previous step. Locate four WB2 sheer webs from BP6. Glue two WB2s to each R4, referring to the plans to make sure they are on the correct side.

Using medium CA, run the strips of glue just as before and attach one R4 up against the ends of the WB2 pieces from the last step. Working your way inward, do the same for the other R4 as shown here.



### □ □ Step 8 - Wing Assembly (attach two R3s)

Now you'll need two R3 ribs from BP2 and four WB2 sheer webs from BP6. Glue two WB2s to each R3, referring to the plans to make sure they are on the correct side.

Using medium CA, run the strips of glue just as before and attach one R3 up against the ends of the WB2 pieces from the last step. Working your way inward, do the same for the other R3 as shown here.



### □ □ Step 9 - Wing Assembly (attach R2)

Locate two of the WB1s (from BP6) and one R2 from LP1. Note that the WB1s have a slight angle on one end and there is a small circle engraved. This angled side should face the inner (root) rib, with angle tapering upwards (circle on top). Fit and glue both of these to R2, then glue that assembly to the spar.

### □ □ Step 10 - Wing Assembly (WH1 assembly)

Locate one WH1 and two R1As from LP1. The two R1As fit into the slots on either side of the wing dowel hole. Pay close attention to the orientation of this piece and glue both R1As in place when satisfied.



### □ □ Step 11 - Wing Assembly (attach WH1 & WH2)

Locate one WH2 from LP1 and the WH1 assembly from the previous step. Note that these two pieces also have the same engraved circle and slight angle on one side. This angled side should face the inner (root) rib, with angle tapering upwards (circle on top). Using medium CA, glue these in place to the R2 rib as shown here.



### □ □ Step 12 - Wing Assembly (attach R1)

Locate one R1 rib from LP1 and take care when removing it as it has two slots pre-cut between where the spars would fit. These slots will allow the center portion of R1 to be removed later on, but make sure R1 remains as a single rib for now.

Position R1 up against the ends of the WB1, WH1 & WH2 pieces from the previous step. Once all three pieces are located properly, pin the rear tab to the board. Lightly tack the R1 to the WB1 pieces. Then apply glue around the WH1 and WH2 pieces to make sure they are properly attached to the R1 and R2 ribs.



### □ □ Step 13 - Wing Assembly (attach W4)

Locate one WH4 from LP1 and glue it in position, into the two slots towards the rear of both R1 and R2. It will span between both pieces.

### □ □ Step 14 - Wing Assembly (cut trailing edge)

Measure and cut two of the 5/16" x 1/2" balsa strips used to create the trailing edge. Laminate these strips together to form a single 5/8" x 1/2" piece, making sure it is straight and true while gluing. Once cured, place the trailing edge strip on the step that is cut into each of rib's rear alignment tabs. Glue the trailing edge to the rear edge of every rib, making sure that the 5/8" side is up against the edge of the ribs.



### □ □ Step 15 - Wing Assembly (cut leading edge)

Measure and cut one of the 1/4" square balsa strips to create the leading edge. Press it into position and glue to all the ribs.

Once the glue has cured, make a cutout in the leading edge between the two already installed R1A pieces, so the wing dowel will be able pass through after the wings are sheeted and sanded.



### □ □ Step 16 - Wing Assembly (cut upper sub-spar)

Measure and cut a 3/16" square balsa strip to create the upper sub-spar. Press it into position and glue to all the ribs.

### □ □ Step 17 - Wing Assembly (create dihedral box)

Carefully cut away the center of the R1, R2 ribs, leaving a box as shown in the photo. Carefully sand the inside of the box so the edges are smooth and flush. This forms three sides of the dihedral box and needs to be smooth and free from edges so the dihedral braces will slide in smoothly when joining the wing halves later.

Note that a Japanese saw is the perfect tool for this job.

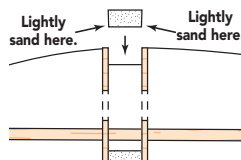


### □ □ Step 18 - Wing Assembly (cut upper spar)

Lightly sand the edges of the bottom face of the spar as shown in the drawing to the right. This will help the spar slide in easier. 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 3/16" x 3/8" 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 (R5), 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. Once the spar is in place, wick thin C/A along the spar to sheer web joints (front and back) along the entire length of the spar. When fitting the upper spar to the top of the dihedral box, be careful not to drip excess glue into the box formed between R2 and R1.



### □ □ Step 19 - Wing Assembly (sanding)

Lightly sand the area between R1 and R2. Pay a bit of attention to sand WH2 so that it will be flush with the curvature of the wing. This will pay dividends when applying the sheeting in the next step.

### □ □ Step 20 - Wing Assembly (sheeting)

Using a bit of the leftover sheeting from the BP6 sheets, measure, cut and glue together the sheeting to cover the area between R1 and R2.

When measuring, make sure that the grain is crosswise (flowing from R1 to R2). Also measure so the sheeting extends about 1/16" past R2.

When edge gluing the sheeting pieces together, first make sure the edges are flat (give a quick, swipe or two with a sanding block). Then tape the two pieces together as shown here with a piece of tape. As you lift the sheeting from the board you'll see that the tape will act as a hinge allowing you to put a small amount of adhesive in the joint. When the adhesive is applied, place the sheeting back down on the waxed paper, so that it's flat (as shown in the photo). When cured, you'll now have a single, longer piece of sheeting. You'll need to join a few pieces together to make it long enough to reach from the leading to the trailing edge.

It's easier to join the shorter lengths of sheeting together on a flat surface, then when the glue has cured, trim and glue the sheeting in place on the wing. Start at the leading edge and gluing a little at a time. Press the sheeting firmly against the ribs and wait for the glue to cure before gluing the next section of sheeting - slowly working your way back to the trailing edge, being careful not to put a bend (warp) in the wing.



### □ □ Step 21 - Wing Assembly (top cap strips)

Cut several 1/16th x 1/4" x 36" balsa strips from the CAP sheet. Carefully measure and cut cap strips to cover each R3, R4 and R5 rib. These strips should be centered on each rib. When it comes to R5, you'll see that there are recesses pre-cut into the T1, T2 and T3 pieces to accept the cap strip sheeting.

Note: it may be necessary to soak these strips in water to soften them up, allowing them curve around the sharper curve of the ribs, from the spar to the leading edge.



### □ □ Step 22 - Wing Assembly (reinforce glue joints)

Remove the wing from the building board and make sure that all of the wood to wood joints are securely glued together. Especially check that all of the Sheer Web pieces are glued to the ribs. If not, run a thin bead of glue where needed.

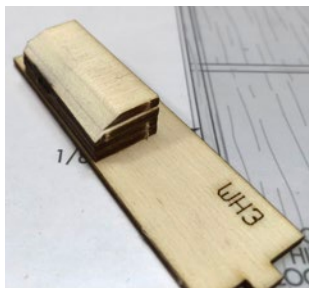
### □ □ Step 23 - Wing Assembly (W3 assembly)

Remove the wing from the building board and flip it over. Locate one WH3 and 4 WH3A pieces from LP1.

The 4 WH3A pieces are glued, one on top of the other. Then this assembly is glued to WH3 - making sure that they are glued to the inside surface of WH3, centered on the pre-cut hole.



A bevel will need to be sanded, similar to what is shown in this photo. Doing this will allow this assembly will rest flush against WH4, already installed in the wing. Sand a little at a time until you have a perfect fit, then glue the W3A assembly in position.



#### □ □ Step 24 - Wing Assembly (install servo hatch mounts)

Remove the wing from the building board and flip it over. The two R4 ribs have pre-cut slots. Measure and cut the left-over 3/16" x 3/8" basswood to make two servo hatch mounts. When satisfied, glue them in position, making sure to press them all the way into the slots. They should not be flush with the outer rib surface. Also cut a length of leftover cap-strip to span the R4 ribs. It will fit in the notch just behind the rear hatch mount. Glue in place.



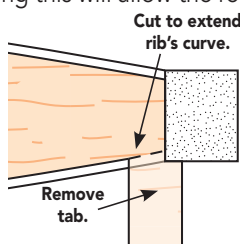
#### □ □ Step 25 - Wing Assembly (cut lower sub-spar)

Measure and cut a 3/16" square balsa strip to create the lower sub-spar. Press it into position and glue to all the ribs.



#### □ □ Step 26 - Wing Assembly (remove tabs)

Remove all of the tabs from the bottom of each rib. Each cut should follow the curvature of the rib. Doing this will allow the rear cap strips to be installed correctly.



#### □ □ Step 27 - Wing Assembly (sheeting)

Locate one of the WHC pieces from BP6. It will be used as the rear portion of the bottom sheeting. You'll see a hole pre-cut into this piece and when properly positioned, it will line up with the hole pre-cut into WH4 (already installed in the wing).

Using the same techniques as you did on the top half, create the length of sheeting by measuring and gluing a couple of additional pieces to the edge of WHC.

When the glue has cured, trim, then glue the sheeting in place on the wing. This time, start at the trailing edge, making sure that the WHC hole lines up with WH4's hole. Glue a little at a time, pressing the sheeting firmly against the ribs and wait for the glue to cure before gluing the next section of sheeting - slowly working your way forward to the leading edge.



#### □ □ Step 28 - Wing Assembly (lower cap strips)

Just as you did for the top of the wing, cap strips will now be attached to the bottom of the wing using several of the 1/16th x 1/4" x 36" balsa strips. Also cut and glue a cap to the horizontal balsa strip glued behind the servo mount in step 24.

#### □ □ Step 29 - Wing Assembly (cut holes for servo wires)

On the plans you'll see a callout suggesting a spot where a hole needs to be cut in the top sheeting. This hole allows the aileron servo wires to pass through the sheeting and exit the wing. Make these roughly 1/2 to 3/4 inch in diameter.



#### □ □ Step 30 - Wing Assembly (sanding)

Remove the wing from the board and now it's time to sand. Make sure to round the leading edge, remove any extra glue that may have dripped, taper the trailing edge, and also sand the root rib to remove any extra length from the spars and sheeting.

#### □ □ Step 31 - Wing Assembly (wing dowel)

Locate the 6" length of 1/4" dowel. Cut a 2-1/2" length and round the end as shown in the photo. Place glue on the lower part of the dowel and insert it into the cutout you made in the leading edge of the wing. Push the dowel through WH1 and WH2, leaving approximately 1/2" of the dowel exposed.



#### □ Step 32 - Wing Assembly (left 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 34 to complete the left wing half. Once finished, then move on to step 36 to complete the wing assembly.

Note that when building the left half that many of the parts will need to be glued to the opposite side (the sheer webs, for instance). Always refer to the plans to make sure you're gluing the parts together in the correct way.

#### □ Step 33 - Wing Assembly (DH1/DH2 install)

Be sure to have some paper towels and rubbing alcohol handy to clean up any drips and/or fingerprints that might occur during this step.

Start with left wing panel.

Locate two balsa DH2's from BP3 and DH1 from LP3. Note that these pieces only fit properly one way.

Similar to the WB1's from earlier, the DH2's have a small circle engraved in them, and this circle should be positioned to the top and center of the wing.

These three pieces form a "sandwich" of sorts with DH1 fitting between the DH2's, then sliding into the dihedral box in one of the wing halves. Test fit the parts into the slot as shown here. The brace should snugly slide into each wing exactly half way. Carefully sand as needed.



After test fitting, it's time to install it permanently with the help of some 30 minute epoxy. Remove the DH2 and DH1 parts, then mix up some 30 minute epoxy. Carefully spread a thin layer of epoxy on the inside of the dihedral box of one wing half, and both sides of one half of DH1.

Put a DH2 on the front and back of DH1 where you applied the epoxy. Be careful to note the circle's position on each DH2. Then slide the DH1/DH2 sandwich into the wing's box, making sure that DH1 is angled upwards, toward the top of the wing. Push it in so exactly half of DH1 is inside the wing half (both DH2's should be flush with R1 when seated properly).

Wipe off any excess epoxy with the paper towels and rubbing alcohol mentioned earlier in this step.

#### ☐ **Step 34 - Wing Assembly (join 2 wing halves)**

Once the epoxy has cured from the previous step, it's time to join the two wing halves. Locate the other DH2's from BP3 and test fit them into the right wing half, as you did before. Note that when you test fit the pieces, together, the wing halves should touch in the middle, with both R1 ribs lining up with no twists. Carefully sand as necessary to make sure everything fits properly and the R1 ribs in each wing half are touching along their entire length.

After test fitting, it's time to join the wing halves permanently with a bit more 30 minute epoxy. Remove the DH2 and DH1 parts and apply the epoxy as you did in the previous step, but also coat the joining face of R1.

Now repeat the process you used in the previous step to attach the DH1/DH2 sandwich in the right wing's box.

Any twist in the alignment of the panels cannot be fixed after the epoxy cures and will lead to a poor flying model.

Using a couple of clamps, hold wing halves firmly together. Wipe off any excess epoxy and remove the clamps only after the epoxy has fully cured.

#### ☐ **Step 35 - Wing Assembly (Optional strings)**

This step is optional, but could make the aileron servo installation a bit easier, once the wings are covered. Cut two 12" lengths of string, one for the left wing, and one for the right. Remember that hole cut in the upper sheeting? Starting with the left wing panel, push the thread through this hole, then through the circular holes in R2, R3, and R4. The string will now extend from the servo bay, out through the bottom of the wing. Tape both ends of the string so they won't easily pull out. Do the same for the right panel.

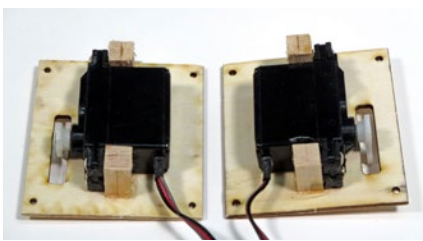
#### ☐ **Step 36 - Cut and hinge the ailerons**

Measure and cut the correct length and shape for each 5/16" x 1-1/4" x 36" strip to make the ailerons.

Round the leading edge of both ailerons. When finished shaping, make the necessary slots/holes needed to hinge the ailerons to each side of the wing. We recommend 4 hinges per aileron.

#### ☐ **Step 37 - 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 your aileron servo on the inside of the aileron hatch so the servo arm output shaft is centered in the opening.

On the inside 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.

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 the hatches in place.

**This completes assembly of the Sky Ranger 40 wing.  
Now it's time to start construction of the tail and fuselage.**

#### ☐ **Prepare your work area**

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

#### ☐ **Step 38 - Horizontal Stab Assembly**

Locate S2 and both S3's from BP10. Glue these two pieces together as shown, and use a straight edge to ensure they are aligned properly.



#### ☐ **Step 39 - Horizontal Stab Assembly**

Locate both S4's from BP8. These are glued to the leading edge of the S2/S3 assembly. Make sure they are properly aligned with the tabs completely seated in the alignment notches.

Weigh this down while the glue cures to give a perfectly flat surface.



#### ☐ **Step 40 - Horizontal Stab Assembly**

Locate both S1's from BP9. These are glued on top of the S2/S3 assembly. Make sure they are properly aligned and weighted down to give a perfectly flat surface.

Then locate S5 and both S6's from BP8. These are glued in position on to complete the stab assembly.



#### ☐ **Step 41 - Vertical Fin Assembly**

Locate both VF1's and VF2's from BP7. Glue one VF1 to one VF2, making sure they are flat when gluing. Then glue the other VF1 and VF2 on top of them, creating a 1/4" thick vertical fin.

Cut a length of leftover 1/4" x 1/4" balsa stick to snugly fill the slot in the vertical fin, then glue in place.





#### Step 42 - Rudder Assembly

Locate both R1's and both F10's from BP7. Glue these two pieces together as shown. Make sure they are perfectly aligned to form thicker assemblies of both pieces.



#### Step 43 - Fuselage Assembly (FS2 and FS3 assemblies)

Fuselage construction begins by assembling the fuse sides. Locate both FS2s and FS3s from BP5s. FS3 fit on the bottom of FS2. Glue this in position, then do the same for the other FS2 and FS3.



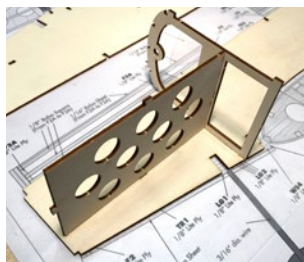
#### Step 44 - Fuselage Assembly (FS1 assemblies)

Locate both FS1s from the LP2s. Glue one FS1 to one of the FS2/FS3 assemblies from the previous step. Then do the same for the other FS1 to create both fuselage sides. Make sure that the top edges of FS1 and FS2 are in line - use a straight-edge if necessary.



#### Step 45 - Fuselage Assembly (F3 and TR1 installation)

Locate F3 from LP4 and TR1 from LP3. Glue both of these in place on the right side of the fuselage as shown here.



#### Step 46 - Fuselage Assembly (TR2 installation)

Locate TF2 from LP3 and glue it in position as shown. Note the orientation of TR2 so the servo holes are towards the rear of the plane.



#### Step 47 - Fuselage Assembly (F5 installation)

Locate F5 from LP4. Glue it in place as shown here.



#### Step 48 - Fuselage Assembly (diagonal supports)

Locate WS1 and WS2 from LP1. Glue them in position as shown, making sure they line up perfectly with the curved opening of the wing saddle.



#### Step 49 - Fuselage Assembly (WS3 installation)

Locate WS3 from LP2. Glue this in place, notching into R5 and WS2, already in place.



#### Step 50 - Fuselage Assembly (WS4 and WS5 installation)

Locate WS4 and WS5 from LP1.

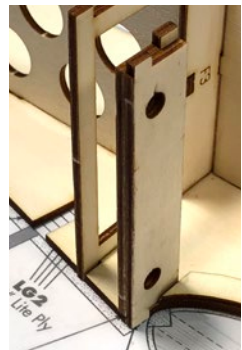
These are laminated together, making sure to line up the holes and the sides perfectly line up.



Note that the tabs do not line up - they're on opposite sides. Once the glue has set, attach this assembly to the fuselage side as shown, making sure of it's orientation and that it is held vertically as the glue cures.

#### Step 51 - Fuselage Assembly (Attach left side)

Next up is the attachment of the left side to the fuselage. Trial fit this next step before applying any glue as there are a lot of tabs that have to properly fit into the fuselage side. If using C/A, use a medium or thick formulation to give you time to fit everything together. When the left side is fitted, hold it in position, or place a couple of weights on it until the glue fully cures. When cured, remove the fuselage from the board and run glue as needed to reinforce all of the wood to wood joints.



#### Step 52 - Fuselage Assembly (WS2 and WS2 installation)

Locate the remaining WS1 and WS2 pieces from LP1. Attach these in place to the inside of the left fuselage side.



#### Step 53 - Fuselage Assembly (WS3 installation)

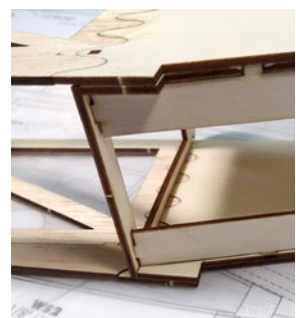
Locate the remaining WS3 from LP2. Glue this to the left fuselage side, similarly as you did on the right side earlier.



#### Step 54 - Fuselage Assembly (F6 installation)

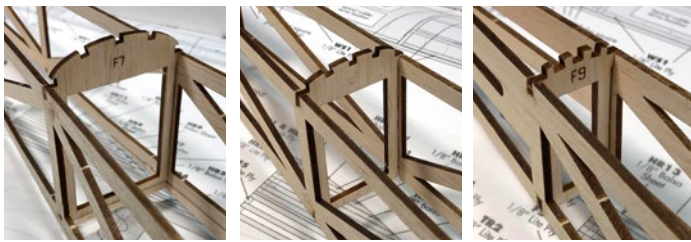
Locate F6 from LP4. Glue this in position, making sure that it's tabs fit into the fuselage sides, and that the rear tabs on both WS3 pieces fit into F6.

This piece also is the first spot where the fuselage starts to taper, so you'll have to slightly squeeze the side together for a correct fit.





☐ **Step 55 - Fuselage Assembly (F7, F8 and F9 installation)**



Locate F7, F8 and F9 from BP1. Glue these in position one at a time, working towards the rear. Make sure to evenly squeeze the fuselage sides together. This will keep the fuselage straight and true.

☐ **Step 56 - Fuselage Assembly (F4 installation.)**

Locate F4 from LP4. Glue this in position.



☐ **Step 57 - Fuselage Assembly (F2 installation)**

Locate F2 from LP4. Test fit this piece in position, noting that it will slope downwards when fitted correctly (to give downthrust). Lightly sand as needed, then glue this in position.

As this piece will hold your motor/engine in position, make sure that it is thoroughly glued in position. You might also think of using epoxy for this step, rather than CA. Either will work, but epoxy will give a stronger bond.



☐ **Step 58 - Fuselage Assembly (F1 installation)**

Locate F1 from LP4 and glue it in position, laminating it to F2 from the previous step. Again, epoxy could be used here for a stronger bond.



☐ **Step 59 - Fuselage Assembly (F10 exit)**

Locate the finished F10 assembly you already made. Position it on the top, rear of the fuselage sides, making sure to properly line it up with the sides for a clean, flush fit. It also butts up against F9.



☐ **Step 60 - Fuselage Assembly (Install rear stringers)**

Using the five 1/8" x 1/8" x 36" balsa sticks, measure, cut and glue the rear stringers that run between F5 and F8. Note that these stringers will butt up against the F10 block installed in the previous step.



☐ **Step 61 - Fuselage Assembly (install front stringers)**

**VERY IMPORTANT** - In order to have the proper lengths of 1/8" square needed to form the hatch in the upcoming steps, it is very important to cut only 1 front stringer from each of leftover 1/8" strips. If you cut two, you won't have enough left for the hatch.



Using the leftover 1/8" x 1/8" balsa from the previous step, measure, cut and glue the front stringers that run between F4 and F3.

☐ **Step 62 - Fuselage Assembly (Hatch assembly)**

The hatch is assembled in place on the fuselage. Care must be taken to position smaller pieces of waxed paper to make sure the hatch won't be glued to the fuselage.

Locate H1, H2, and H3 from LP4. Cut two of the leftover 1/8" x 1/8" balsa strips to span between F3 and F2 while resting on the fuselage sides. Position H1 up against the back of F2, resting on both of the 1/8" square strips. Now position H3 against the front of F3, again, resting on the 1/8" strips. When satisfied that everything is properly positioned and lined up, glue these pieces together.

Once cured, slip H2 in position so that it's roughly midway between H1 and H3. Glue H2 in position.

Now cut the remaining three 1/8" square strips to length and glue them in position to finish the hatch's shell. When the glue cures, the hatch should be able to be lifted away from the fuselage.

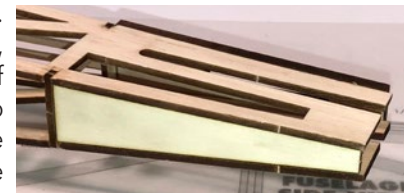


☐ **Step 63 - Fuselage Assembly (Hatch magnets)**

You will need four the 1/4" dia. magnets as these are used to hold the hatch in position. One is pressed and glued into the pre-cut circle on F3, and one into F2, and the other two are installed in the hatch (H1 and H3). Make sure the magnets are oriented properly to attract, not repel each other.

☐ **Step 64 - Fuselage Assembly (TW2 installation.)**

Locate both TW2s from LP3. These are glued together, then glued in place, aft of F9. Make sure to line up the TW2 assembly to be between the sides and inline with the bottom edges.



☐ **Step 65 - Fuselage Assembly (TW1 installation.)**

Locate TW1 from LP3. This piece is glued to the bottom of the fuselage as shown here. It should line up just aft of F9, and be flush with the fuselage sides.



### ☐ Step 66 - Fuselage Assembly (LG1 and LG2 installation)



Locate LG1 from LP3 and the LG2's from LP1 and LP3 (4 total).

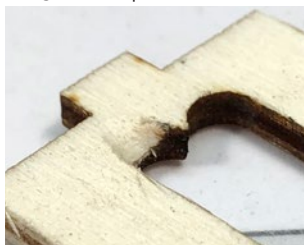
These pieces will be installed in the fuselage one at a time and laminate together to form a sturdy block for the landing gear wire.

Slide one of the LG2 pieces into the pre-cut slots on the fuselage sides. Now, paying close attention to the orientation of LG2 holes, begin sliding the remaining LG2 pieces in place - one at a time and gluing them in position. Make sure to keep any glue out of the holes. As these pieces are laminated together, they will align themselves in the slot.

After the last LG2 is installed, the LG1 is glued in place.

Now run a bit of extra glue around the LG2 pieces where they meet up against the fuselage sides.

The last part of this step involves filing a bit of the cutout in LG1. This is done in two spots, in the slots opposite of the holes to give relief for the landing gear wire.



### ☐ Step 67 - Fuselage Assembly (F11 & Sheeting)

Locate F11 from LP4 and install it on the bottom of the fuselage, just aft of the wing saddle.

Now, first using the leftover 1/8" sheeting from LP3, then using the included 1/8" x 3" sheet, it's time to sheet the bottom of the fuselage.

This is done a piece at a time, starting at the back (up against TW1). Hold the 1/8" sheeting against the fuselage, making sure the grain is cross-ways. Mark, cut and glue a portion of the sheeting in position. Using this same technique, work your way forward until you reach F11.



### ☐ Step 68 - Fuselage Assembly (Forward sheeting)

Using the same sheeting technique, and the same 1/8" sheeting, sheet the bottom of the front of the fuselage.

Sheeting should butt up against the back of F2 and make sure not to sheet over the openings in LG1.



### ☐ Step 69 - Fuselage Assembly (Fuselage sanding)

Now it's time to give the fuselage a good sanding. Sand the bottom sheeting so it's flush with the fuselage sides. Sand F1 and F2 so they are also flush with the fuselage sides, and with the bottom sheeting. Sand away any extra sheeting that extends into the wing saddle. Also take the time to round off F10 so it matches the slope and curvature of the stringers.



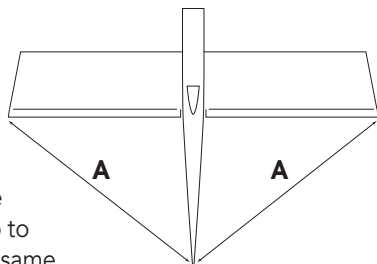
### ☐ Step 70 - Fuselage Assembly (Create WS6 assemblies)

Locate the ten WS6s from both LP2s. You will make two blocks using these WS6s, gluing them in two stacks of five pieces. Put these aside for now.



### ☐ Step 71 - Fuselage Assembly (Wing alignment)

To align the wing properly on the fuselage, place the wing in position, by pushing in the dowels first, then allow the wing to rest in the wing saddle. The wing is perfectly aligned when the distance from the left wing tip to the rear of the fuselage is the same the distance when measured from the right wing tip.



### ☐ Step 72 - Fuselage Assembly (Install WS2 assemblies)

With the wing aligned, drill two 3/16" holes for the wing bolts. Using the pre-cut holes in the WH6/WH7 assemblies as a guide (already installed in the wing), carefully drill down through the WH8/WH9/WH10 assemblies on each side of the fuselage.

Use caution to make sure the wing does not move until both holes are drilled.

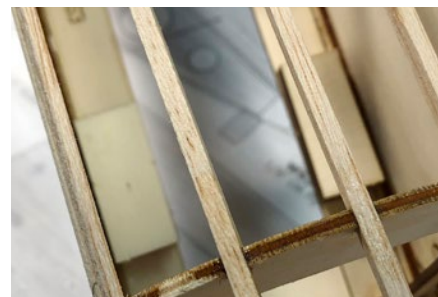
When drilling, take your time and make sure the drill is held so the bit is perpendicular with the wing's sheeting. This will make it so the wing bolt goes in at an angle, but the screw's head will be flat on the wing surface.

Drill through the wing and into the fuselage's WS3.

Remove the drill, remove the wing and clean up WS3 around the new hole you drilled.

Now locate the WS6 blocks from the previous step and glue them in position on top of the WS3s, centering them on the holes you just drilled - as shown here.

Run a 1/4x20 tap through the WS6 pieces so that the wing bolts will thread into the WS6 blocks.





### Step 73 - Fuselage Assembly (Enlarge bolt holes in wing)

Enlarge the wing bolts hole from 3/16" to 17/64", allowing the wing bolt to pass through easily. Then mount the wing.

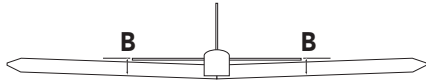
### Step 74 - Fuselage Assembly (Round stab/fin leading edges)

Before installing the vertical fin and stab into the fuselage, take the time to sand them and round off the leading edges of both pieces. It's much easier to do this now than to try it after they're installed.

### Step 75 - Fuselage Assembly (Stab alignment)

Although we've done everything possible to engineer the Sky Ranger 40 so it will build straight and true, take a few minutes to guarantee things are straight before gluing on the tail surfaces.

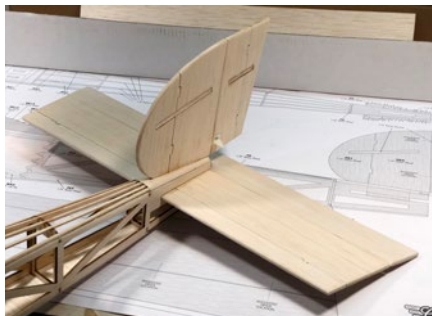
To align the stab, slide it in place. Look at the fuselage straight on, from the nose (or tail) and make sure that the stab is level with the wings. If not, remove the stab and gently sand the stab supports a little at a time. Check the stab and re-sand the supports if needed.



### Step 76 - Fuselage Assembly (Stab/Fin installation)

The vertical fin's tab will slide through F10 on the fuselage and down into the slot pre-cut into the stab. Sand the fin if necessary to get a firm, slop-free fit.

Once properly in position, it's time to glue the stab and fin in position. Take a bit of time to make sure these glue joints are sufficient, but don't use too much glue as it will make the Sky Ranger unnecessarily tail-heavy.



### Step 77 - Bend tailwheel axle

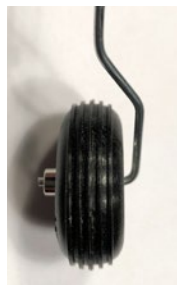
Locate the length of 5/64" wire and the two 3/32" dia. wheel collars from the included hardware.

Using a pair of pliers, carefully bend the wire to form the tailwheel axle, and the bend around the tailwheel itself as shown on the fuselage plans. Adjust as needed for your size of tailwheel (1" recommended, not included).

Attach your tailwheel to the axle using one of the 3/32" collars.

Next, bend the 40° angle into the wire where it passes through the hole in TF1. Slide the other 3/32" dia. wheel collar on the unbent portion of the wire and tighten it where it rests against the 40° bend. This makes a solid support against TF1.

Finally, remove the tailwheel axle from the fuselage and make the final 90° bend where the axle will slide into the rudder. Trim excess wire so approximately 1" of wire will slide into the rudder.



### Step 78 - Hinge the rudder and elevator

Glue both E1's (BP11) together to form the stab, and both R1's (BP7) to form the rudder. Round the leading edge of the rudder and elevator with a bit of sanding. Make the necessary slots needed to hinge the rudder to the stab. We recommend 2 hinges for the rudder and 4 for the elevator, as shown on the plans, but do not glue these yet.

Also take this time to drill the 5/64" hole into the rudder so the tailwheel's axle can slide in, as shown on the plans. Harden the wood around this area with a bit of thin C/A. You'll also need to cut a small groove into the leading edge of the rudder. This will allow the tailwheel wire to rest flush with the leading edge of the rudder.

### Step 79 - Elevator relief

Using 4 of the C/A hinges, dry-fit the elevator to the stab. Mark and trim the area where the leading edge of the elevator rubs against the tailwheel's axle. Test the elevator by moving it up and down and make sure the elevator and tailwheel axle do not interfere with each other. Trim/sand as needed.

### Step 80 - Cut and hinge the ailerons

Measure and cut the correct length and shape for each 5/16" x 1-1/4" x 36" strips to make the ailerons.

When finished shaping, make the necessary slots/holes needed to hinge the ailerons to each side of the wing. We recommend 4 hinges per aileron.

### Step 81 - Fuselage Assembly (Optional headrest)

We've designed a headrest that can easily be completed in just a few steps. It's optional as it only adds to the looks of the plane, but we would urge you to assemble the headrest now and install it after the fuselage is covered.

The headrest is built from several parts - HR1 through HR13, all located on BP1.

Assembly begins by gluing both HR1 pieces to HR3 as shown here. Use this assembly to help line up the stacking of HR4-HR13. HR3 will act as the "spine" to line up all the notches in these pieces, and the HR1s on either side make it easy to line up the flat edges of HR4-HR13.

When you have these properly stacked, glue the HR1 assembly in place. Once the glue cures, you can then run thin CA on the inside of this assembly to securely glue all the stacked pieces together.

After all the glue has cured, the headrest can be sanded into shape, using the HR1 pieces as a guide and sanding just enough away from each layer so it forms one continuous, smooth piece.



### Step 82 - Fuselage Assembly (Optional side supports)

If you've assembled everything as described, you should have one complete length of 1/4" square balsa strip. This strip can be cut and used as internal "doubblers" for the diagonals on each side of

the fuselage.

There's just enough length to do this, so be careful with your measuring and cuts.

Note this is an optional step, but it's worth mentioning that the Sky Ranger prototypes performed just fine without these braces.



**This completes the airframe assembly of the Sky Ranger 40.**

### ☐ Step 83 - Main gear installation

It's time to install the main landing gear. Place each of the pre-bent 3/16" main gear wires into the holes in the LG2s on the bottom of the fuselage.

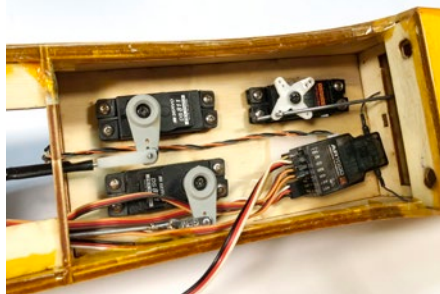
Place the two of the included nylon landing gear straps in position, then mark and drill 1/16" holes where the straps should mount. Then the straps using the supplied 2-56x3/4" self tapping screws.



### ☐ Step 84 - 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 is a photo of the radio gear's installation in the Sky Ranger prototype. Note that the throttle servo was in a different location than in the production kits.



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 to the fuselage side using a bit of self-adhesive hook-and-loop (not included).

The flight pack battery is installed under the TF and the switch can be installed on the side of the fuselage where desired.

### ☐ Step 85 - Power system

Installing your power system of choice is up next. We'll show photos for electric and glow installations. Note that these are suggestions only as your power system might vary from what's shown here.

We mentioned this earlier, but it bears repeating. Our engine size recommendation range is a .40-.45 two-stroke or an electric motor with similar power output (800-900 watts, 80amp ESC, 4-5S).

### **Electric power**

The motor mounts to the center of the firewall and holes will need be drilled to allow the wires to pass through into the fuselage. Also a few cooling holes are needed for internal battery cooling.

The ESC mounts underneath the TR1 battery tray and the motor's power battery mounts to the tray. Both the ESC and battery are held in place with more self-adhesive hook-and-loop.



### **Glow power**

The engine mounts so the crankshaft is positioned at the center of the firewall. It can be mounted upright, or side mounted as shown here on the Sky Ranger prototype. Holes will need be drilled for the throttle pushrod and fuel lines to pass through into the fuselage.



### ☐ Step 86 - Covering

Now it is time to cover the Sky Ranger 40. Remove the powerplant, main gear, 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 cut the covering away in this area, on the underside of the fuselage.

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.



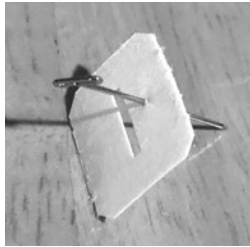


Note that Callie Graphics is not affiliated with Old School Model Works, nor does Old School Model Works generate any income from this partnership.

### ☐ Step 87 - Attach the Control Surfaces

Now is the time to attach all the control surfaces to the airframe, by gluing the hinges in position with thin C/A. We've noted suggested hinge locations for each of the control surfaces on the plans.

When using the CA hinges, first push a pin through on side, at the center of the hinge as shown here. This will keep the hinge centered as it's pushed into the surfaces. When you've got all the hinges for a surface in place, then remove the pins and glue the hinges.



Note that the tailwheel assembly should be in place, then the rudder is attached. Only after those are installed, the elevator is then attached.

### ☐ Step 88 - Attach wheels

Use the included 3/16" i.d. 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 89 - Windscreen

The last step in finishing the assembly of the Sky Ranger 40 is attaching the included windscreen. Carefully trim it along this suggested trim-line, and give it a quick wash in warm, soapy water. For a better look, you can paint the molded in frame lines to match your Sky Ranger's color scheme.

Make sure that covering is clean where the canopy will be attached, then use a bit of canopy glue to attach the windscreen to the fuselage. Hold it in place with a bit of low-tack masking tape until cured. Shown to the right is a properly trimmed windscreen for your reference.



### ☐ Step 90 - Optional Pilot

To give the Sky Ranger 40 an even better look, think about adding a pilot to the cockpit. You can pickup a pilot at your local hobby shop and for a few bucks you can add a nice look to that open cockpit. Shown here is a pilot we picked up - one of Horizon's 1/7th scale pre-painted pilots. Using a bit of the leftover wood, you can easily make a shelf where you can mount the pilot. Make sure his head is at the right height to rest level with the headrest (if installed).



**This completes the assembly of the Sky Ranger 40 fuselage. Now you'll need to adjust the control throws and check for balance.**

### ☐ Step 91 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 Sky Ranger 40 is measured back 2.8" 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 1/2" up/down**

**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.)*

These control throw are suggested and work well. We ask that you start with these settings, then adjust them as needed as you become familiar with the flying characteristics of the Sky Ranger 40.

### 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. 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> .



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

Please check out our website: [www.oldschoolmodels.com](http://www.oldschoolmodels.com)

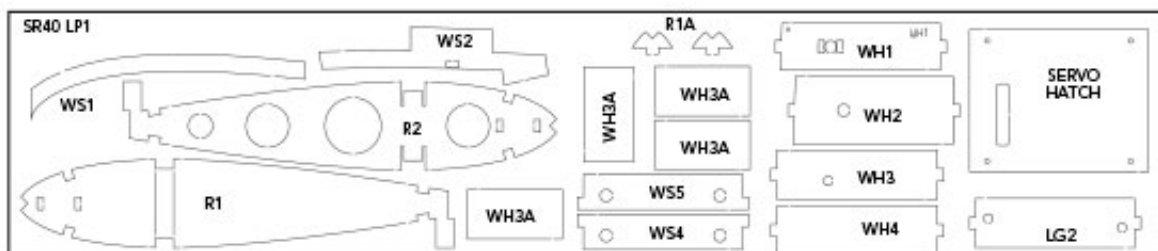
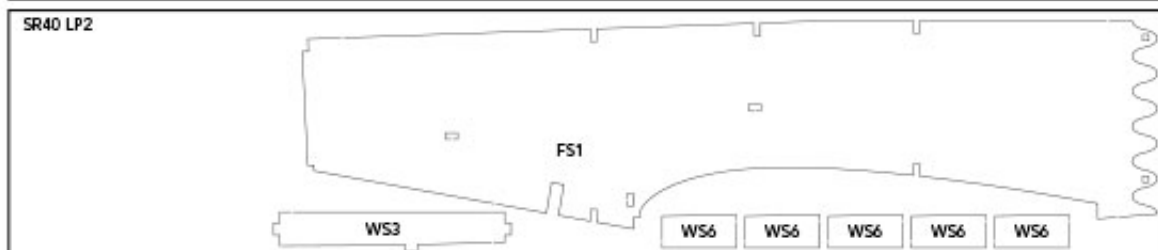
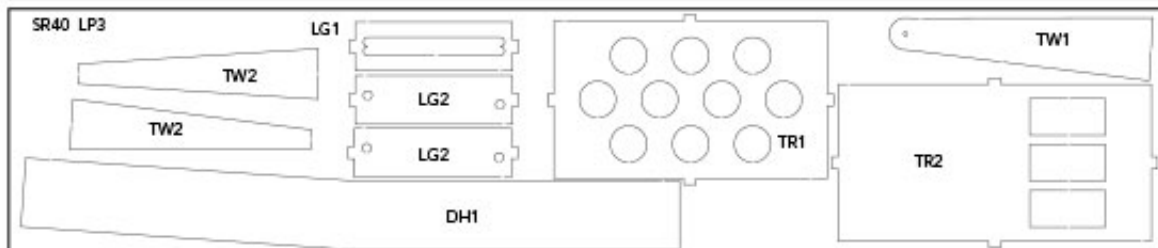
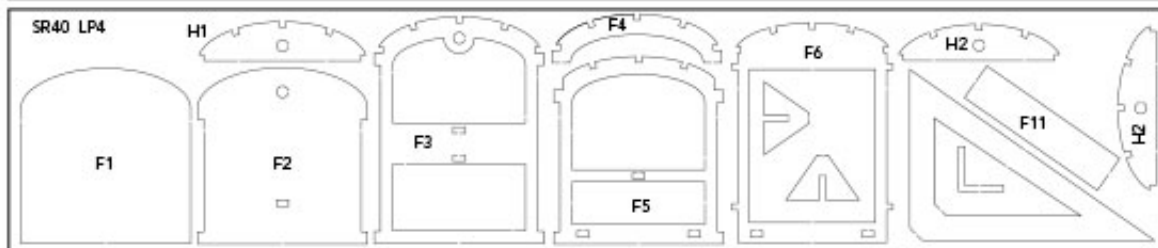
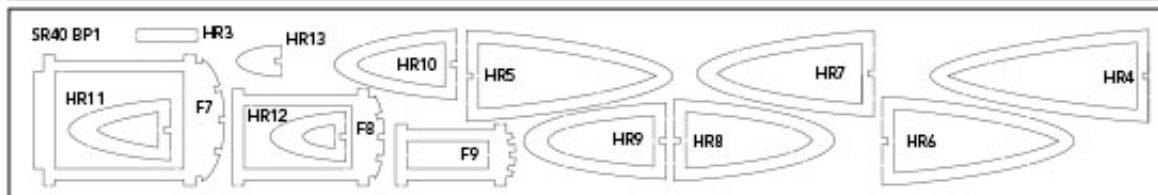
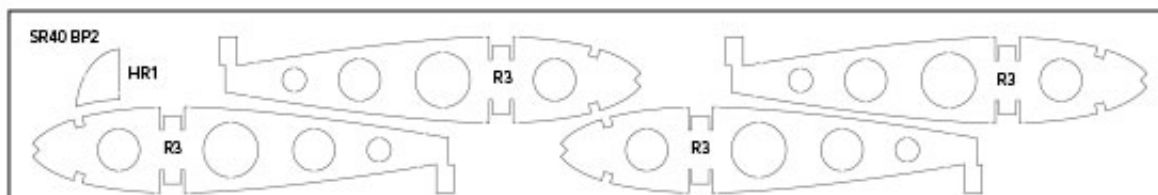
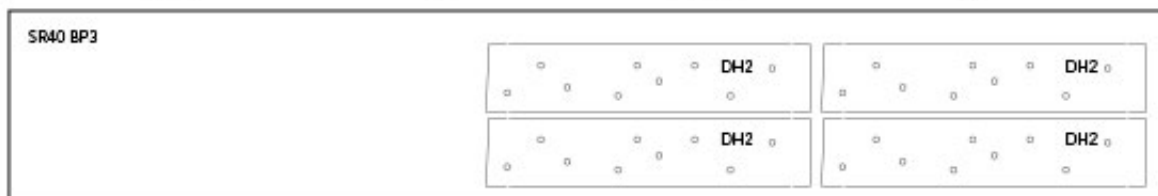
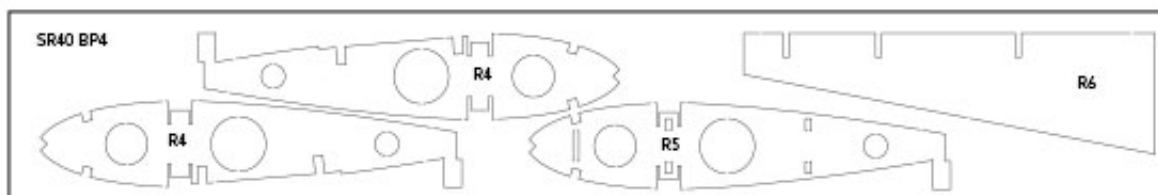
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Instagram: [www.instagram.com/oldschoolmodelworks/](http://www.instagram.com/oldschoolmodelworks/)

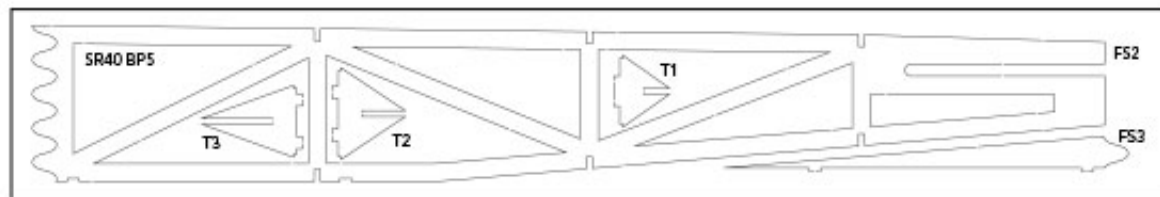
Twitter: [www.twitter.com/oldschoolmodels](http://www.twitter.com/oldschoolmodels)

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

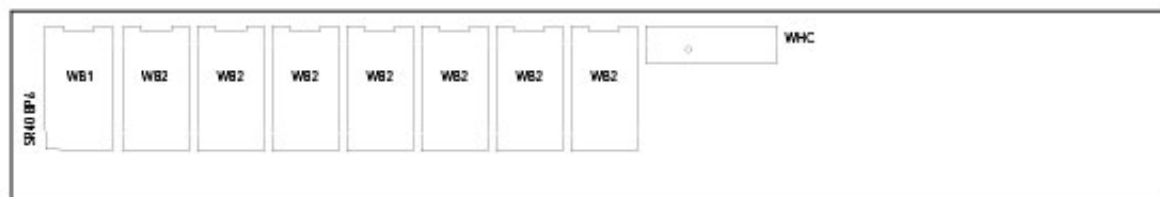


**LP1****1/8" Lite Ply****LP2****1/8" Lite Ply****LP3****1/8" Lite Ply****LP4****1/8" Lite Ply****BP1****1/8" Balsa****BP2****1/8" Balsa****BP3****1/8" Balsa****BP4****1/16" Balsa**

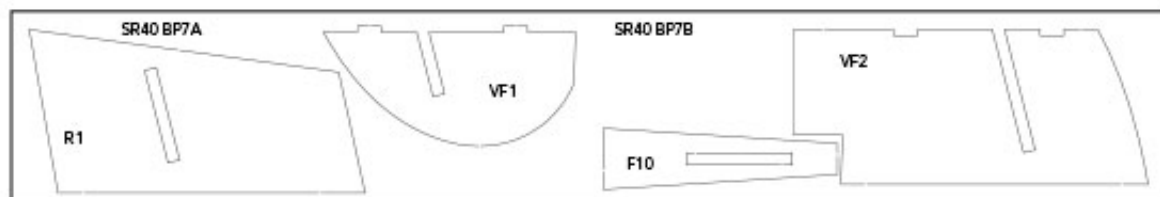
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1/8" Balsa



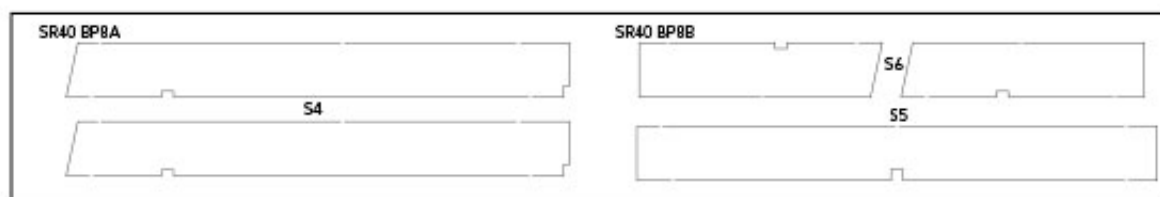
**BP6**  
1/16" Balsa



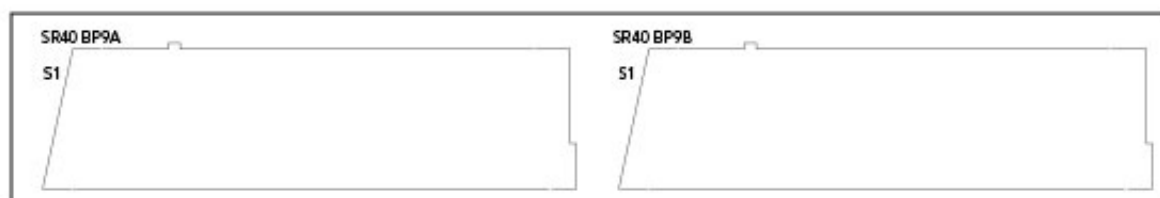
**BP7**  
1/8" Balsa



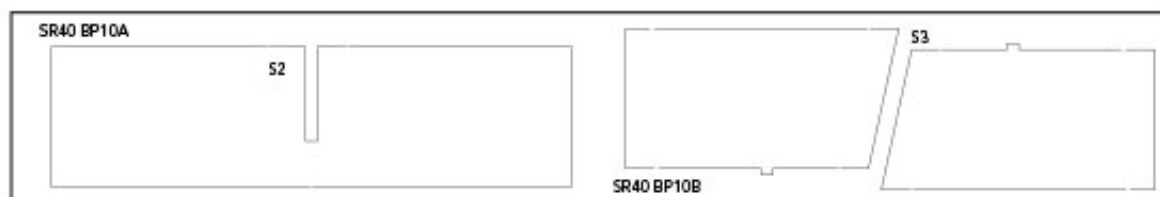
**BP8**  
1/8" Balsa



**BP9**  
1/8" Balsa



**BP10**  
1/8" Balsa



**BP11**  
1/8" Balsa



**CAP**  
1/16" Balsa

